

TO BE USED AS A FORMAT FOR
BASIN #2

**ENGINEERING & ARCHITECTURAL SERVICES
CITY OF PHOENIX, ARIZONA**



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

PROJECT SPECIFICATIONS AND CONTRACT DOCUMENT

ST-896811

W.O. #69212

DETENTION BASIN #1:
26TH STREET & BEARDSLEY ROAD
2730 EAST BEARDSLEY ROAD

MAYOR
PAUL JOHNSON

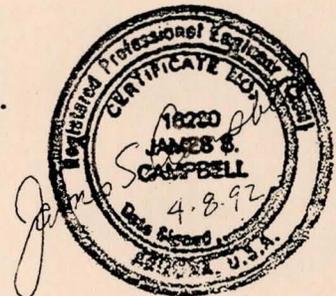
CITY COUNCIL

DISTRICT NO. 1 - THELDA WILLIAMS
DISTRICT NO. 2 - FRANCES BARWOOD
DISTRICT NO. 3 - SKIP RIMSZA
DISTRICT NO. 4 - CRAIG TRIBKEN

DISTRICT NO. 5 - JOHN NELSON
DISTRICT NO. 6 - KATHY DUBS
DISTRICT NO. 7 - MARY ROSE WILCOX
DISTRICT NO. 8 - CALVIN C. GOODE

CITY MANAGER
CITY ENGINEER

FRANK FAIRBANKS
KENNY W. HARRIS, P.E.



A026.504

PREQUALIFICATION REQ' D

CITY OF PHOENIX
ENGINEERING & ARCHITECTURAL SERVICES DEPARTMENT

MAY 7, 1992

INDEX NO. ST-896811

DETENTION BASIN #1
26TH STREET & BEARDSLEY ROAD
2730 EAST BEARDSLEY ROAD

ADDENDUM NO. 2

The following revisions to the plans and/or specifications shall become part of the above referenced project.

SPECIFICATIONS

1. Page S.C. - 3 of the project specifications, Section .10, delete the first paragraph of Subsection D. in its entirety.

2. Page S.P. - 10 of the project specifications, Section .18, Subsection A., delete the phrase "...min. wall thickness 0.125 in.,..." and insert the following:

"...minimum wall thickness 16 gauge,..."

3. Page S.P. - 11 of the project specifications, Section .19, CHAIN LINK SCREENING, delete the section in its entirety and substitute the following:

"Fencing shall be constructed as shown on the drawings and in accordance with the special provisions, MAG 772 and MSD 160.

"Fabric shall be beige, No. 9 gauge core, 2-inch mesh, Class I PVC coated and extruded onto a galvanized steel wire. Contractor to submit name of local supplier and color sample to Owner Representative for approval.

"All pipe shall be as designated on the drawings.

"Welding shall be accomplished in accordance with the Arizona Department of Transportation welding specifications."

4. Page S.P. - 42 of the project specifications, Section 430.10, first paragraph, delete the phrase "Organic mulch 500 lbs/1,000 sf" and substitute the following:

"Organic mulch 2 inches deep (approximately 6.2 cy/1,000 sf)"

5. The attached pages P - 2, P - 4, and P - 5, *revised 5-7-92, supersedes pages P - 2, P - 4, and P - 5 contained in the Specification book and must be completed and affixed in place in the Specification book and submitted with the bid.

PLANS

6. Sheet C-18, upper right corner, Wrought Iron Fence Detail, delete all reference to galvanized.
7. Sheet C-18, upper right corner, Wrought Iron Fence Detail, delete the phrase "...Pickets w/ Capped Tops @ 4" O.C." and substitute the following:
"...Pickets w/ Capped Tops @ 5" O.C."
8. Sheet C-18, right hand side, Wrought Iron Slide Gate Detail, delete the cut section and all reference to aluminum. This section is located to the right of the Wrought Iron Slide Gate Detail.
9. Sheet C-18, right hand side, Wrought Iron Slide Gate Detail, add the following note:
"Wrought Iron Gate to be full cantilever, and 16 Gauge Steel."
10. Sheet E-8, add the following note:
"Existing Conduit (Three at 2-inch diameter) at station 31+25 has been installed from APS pole to two feet north of the north right-of-way line of Beardsley Road."


CHRISTOPHER CORNELL, P.E.
Engineering Supervisor



BID SCHEDULE

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | UNIT PRICE | AMOUNT |
|--------------------|--|-------------------------------|---------------|--------|
| | BASE BID | | | |
| | SITE PREPARATION | | | |
| 1. | Earthwork, Complete (Includes all clearing and grubbing of site, excavation, placement and compaction, detention basin, sediment basin, subgrade preparation for parking lot and sidewalk) | 1 Job | | |
| | WATER AND WASTEWATER SYSTEM | | | |
| 2. | Allowance for water meter (4 inch) MAG Std. Det. 145-1 | 1 Ea. | 5,800 | 5,800 |
| 3. | Install Water Meter Vault per COP Detail W-500 | 1 Ea. | | |
| 4. | Install Drinking Fountain and Leach Line per Detail Sheet C-18 | 1 Ea. | | |
| 5. | Install 3/4-inch potable water line | 195 L.F. | | |
| 6. | Adjust manhole to grade. | 3 Ea. | | |
| 7. | Install 30" Watertight manhole ring & cover | 2 Ea. | | |
| | SEDIMENT BASIN & SPILLWAY | | | |
| 8. | Construct Grasscrete or approved equal | 14,800 S.F. | | |
| 9. | Install erosion mat | 1,750 S.F. | | |
| 10. | Concrete Protection-6" conc. w/6 x 6 - W1.4 x W1.4 | 2,745 S.F. | | |
| 11. | Place Rip Rap | 102 C.Y. | | |
| 12.* | Install 6' Chain Link Fence w/Gate per MAG Std. Det. 160 | 680 L.F. | | |
| 13. | Install Wrought Iron Fence w/Gate per Detail Sheet C-18 | 75 L.F. | | |
| 14. | Construct 8" cutoff wall & spillway crest per Detail Sheet C-16 | 640 S.F. | | |
| 15. | 3" Gunitite w/6 x 6 - W1.4 x W1.4 | 225 S.Y. | | |
| | STORM DRAIN INFRASTRUCTURE | | | |
| 16. | 72" Pipe | 32 L.F. | | |
| 17. | 60" Pipe | 1014 L.F. | | |
| 18. | 36" Pipe | 1000 L.F. | | |
| 19. | 15" Pipe | 1582 L.F. | | |

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | UNIT PRICE | AMOUNT |
|---|---|-------------------------------|---------------|--------|
| 42. | Lawn Establishment (includes establishment of seed bed, seeding, germination, maintenance, and water costs) | 534,120 S.F. | | |
| 43. | Decomposed Granite, 1/2" Minus | 2,780 Tons | | |
| 44. | Bollard per Detail Sheet L-8 | 8 Ea. | | |
| 45. | Locking Bollard per Detail Sheet L-8 | 6 Ea. | | |
| 46. | Park signs | 2 Ea. | | |
| 47. | Irrigation System, Complete (includes all trenching, bedding, backfill, bubbler heads, electric valves, irrigation controllers, sprinkler heads, quick-couplers, gate valves, PVC pipe, sleeves, backflow prevention device, and other work for a complete operating system) | 1 Job | | |
| ELECTRICAL | | | | |
| 48.* | Electrical Systems: To include all trenching, backfilling and compaction, conduits with pull wires, service entrance section, transformer pad, wiring and grounding, area and parking lot lighting (17 poles and fixtures), special systems for power company and all other work for a complete operating system. | 1 Job | | |
| 49. | Allowance for work by the power company. | 1 Job | 2,000 | 2,000 |
| 50. | Allowance for extra work. | 1 Job | 40,000 | 40,000 |
| TOTAL AMOUNT OF BASE BID, ITEMS 1 THRU 50, INCLUSIVE \$ _____ | | | | |
| _____ & _____/100 | | | | |
| Dollars _____ Written Words _____ | | | | |

ADDITIVE ALTERNATES

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | UNIT PRICE | AMOUNT |
|---|-----------------------------|-------------------------------|---------------|--------|
| ADDITIVE ALTERNATE NO. 1 | | | | |
| LANDSCAPE | | | | |
| 1. | Box Salvage trees allowance | 1 Job | 18,400 | 18,400 |
| 2. | 24" box trees | 80 Ea. | | |
| 3. | 15 gallon trees | 84 Ea. | | |
| 4. | 5 gallon shrubs | 333 Ea. | | |
| 5. | 1 gallon shrubs | 273 Ea. | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 1 | | | \$ | _____ |
| | | | | |
| ADDITIVE ALTERNATE NO. 2 | | | | |
| ELECTRICAL | | | | |
| 1. | Light poles and fixtures | 10 Ea. | | |
| 2.* | #5 Pull Box (credit) | 10 Ea. | () | () |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 2 | | | \$ | _____ |
| *(Pay Item #1 minus Pay Item #2) | | | | |
| | | | | |
| ADDITIVE ALTERNATE NO. 3 | | | | |
| IRRIGATION | | | | |
| 1. | Radio Controller | 1 Job | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 3 | | | \$ | _____ |
| | | | | |
| ADDITIVE ALTERNATE NO. 4 | | | | |
| IRRIGATION | | | | |
| 1. | Central Hardware Package | 1 Job | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 4 | | | \$ | _____ |

**CITY OF PHOENIX
ENGINEERING & ARCHITECTURAL SERVICES DEPARTMENT**

DETENTION BASIN #1
26TH STREET & BEARDSLEY ROAD
2730 EAST BEARDSLEY ROAD
INDEX NO. ST-896811

ADDENDUM NO. 1

APRIL 30, 1992

The following revisions to the plans and/or specifications shall become part of the above referenced project.

PLANS

1. Delete Sheet C-0 of the plans (dated March 4, 1992) and replace with the enclosed Sheet C-0 (dated April 24, 1992). This enclosed sheet reflects the existing conditions based on a survey performed the week of April 20th by Wood/Patel Associates. This survey represents the as-built contours of the Basin due to the construction associated with the channel project built by the Flood Control District of Maricopa County.



Christopher Cornell
CHRISTOPHER CORNELL, P.E.
Engineering Supervisor

Attachment

PRE-BID CONFERENCE AND QUESTIONS ON PLANS AND SPECIFICATIONS

No Pre-Bid Conference will be held.

Neither the Engineer nor the City of Phoenix shall be held responsible for any oral instructions. Any changes to the plans and specifications will be in the form of an addendum which will be furnished to all plan holders.

Should you desire additional information prior to submitting your bid, please call the following for questions on:

Plans, Technical/Special Provisions, Proposal or Specifications:

Project Engineer: Art Glover, 262-4962.

General Conditions, Bid Bonds, Insurance, Payment and Performance Bonds and Contracts: 262-4951.

Equal Employment Opportunities and Affirmative Action Programs:

Human Relations Division, 262-6790.

Site Examination: This site shall be examined by each prospective bidder and each prospective sub-contractor before bidding on this project. Contact Mr. John Berghian of the Flood Control District of Maricopa County (506-1501) to obtain authorization to enter the site.

INDEX NO. ST-896811

TABLE OF CONTENTS

SECTION I - Informative

| | <u>Page</u> |
|-------------------------------------|-------------------|
| (1) Call for Bids | C.B. - 1 |
| (2) Information for Bidders | I.B. - 1 to 4 |
| (3) Affirmative Action Requirements | A.A.R. - 1 thru 8 |
| (4) Supplementary Conditions | S.C. - 1 to 11 |
| (5) Special Provisions | S.P. - 1 to 46 |
| (6) Electrical Specifications | E.S. - 1 to 14 |

SECTION II - Proposal

Surety Bond

Noncollusion Affidavit

P - 1 to 7

S.B. - 1

A.B.C. - 1



S E A L

CALL FOR BIDS
BIDS WILL BE OPENED
TUESDAY, MAY 12, 1992 AT 3:00 P.M.

INDEX NO. ST-896811

Sealed bids will be received at the office of the City Engineer, Plaza Municipal Building, 125 East Washington Street, Phoenix, Arizona 85004, until the hour indicated for Detention Basin No. 1 - 26th Street and Beardsley. The work includes 59,400 C.Y. of excavation; 8,200 C.Y. of embankment; 15,000 S.F. grasscrete; 1,000 L.F. of 60-inch storm drain pipe; 1,000 L.F. of 36-inch storm drain pipe; 1,560 L.F. of 15-inch storm drain pipe, headwalls with trashracks; landscaping including trees, turf, decomposed granite and irrigation; 53,200 S.F. of concrete sidewalk and 27 area security lights.

Prospective bidders may examine and/or purchase plans, special provisions, and proposal pamphlets at the City Engineer's office. These documents may be purchased for \$45.00 per set.

Planholders who submit bids under the name given at the time of purchasing plans and specifications, as the prime Contractor, to the City of Phoenix will receive a refund of the required deposit upon receipt within seven (7) calendar days after the date of bid opening of those bidding documents by the City of Phoenix in good order. Refunds will be given for only one set of plans and specifications for each bidder. No refund will be given to planholders not submitting a bid proposal as the firm identified at time of purchasing the plans and specifications. Refunds will be mailed by the City of Phoenix within sixty (60) days of the bid opening.

Pursuant to City of Phoenix Ordinance G-2772, on prequalification of Contractors, all bidders must be prequalified to bid on this project.

This project is subject to the City of Phoenix's Code, Chapter 18, Article IV, as amended pertaining to non-discrimination in employment by Contractors and subcontractors. The Affirmative Action Requirements are included as a part of the specification on pages A.A.R. - 1 through A.A.R. - 8.

Pursuant to ARS 34-253, the lowest and/or best responsible bidder shall provide a noncollusion affidavit.

No proposal will be read unless accompanied by a proposal guarantee of cash, certified check, cashier's check or on the surety bond provided, for an amount not less than 5 percent of the amount bid.

The Council of the City of Phoenix reserves the right to award the contract to the lowest and/or best responsible bidder or all bids will be rejected, as soon as practicable after the date of opening bids.

FRANK FAIRBANKS
City Manager

By Mano Saldamando
For KENNY W. HARRIS, P.E.
City Engineer

Published: Arizona Business Gazette
April 17, 1992
April 24, 1992
(2)

INFORMATION FOR BIDDERS

.01 REFUNDS FOR PLANS AND SPECIFICATIONS

Planholders who submit bids, under the name given at the time of purchasing plans and specifications, as the prime Contractor to the City of Phoenix will receive a refund of the required deposit upon receipt within seven (7) calendar days after the date of bid opening of those bidding documents by the City of Phoenix in good order. Refunds will be given for only one set of plans and specifications for each bidder. No refund will be given to planholders not submitting a bid proposal as the firm identified at time of purchasing the plans and specifications. Refunds will be mailed by the City of Phoenix within sixty (60) days of the bid opening.

.02 PREQUALIFICATION OF CONTRACTORS

This project IS subject to the City of Phoenix Ordinance G-2772, Prequalification of Contractors. All bidders must be prequalified in one of the following categories to bid on this project.

CATEGORIES: C-1 or C-10

NOTE: Any bidders who are not prequalified, as stated above, will have their proposal rejected as a non-qualified proposal.

.03 SUBMITTING BIDS

No proposal will be read unless accompanied by a proposal guarantee of cash, certified check, cashier's check or on the surety bond provided, for an amount not less than five (5) percent of the amount bid.

The entire specification, containing the completed proposal with the five (5) percent proposal guarantee shall be submitted in a sealed envelope. The outside, lower righthand corner of which shall be marked as follows:

Bid of (Firm's Name, Address and Phone Number)

For: Detention Basin #1 at 26th Street and Beardsley Road.

City of Phoenix Index Number: ST-896811.

Sealed bids shall be delivered to the Specifications Section counter of the Engineering & Architectural Services Department prior to the time and date specified for bid opening.

This project is subject to the City of Phoenix's Code, Chapter 18, Article IV, as amended pertaining to non-discrimination in employment by Contractors. The Affirmative Action Requirements are included as a part of the specification on pages A.A.R. - 1 through A.A.R. - 8.

.04 PERMITS

The City shall obtain and pay for the building permit. The plans review fee and occupational development fee have also been paid by the City. The permit shall be prominently displayed at the construction site by the Contractor. Log number: 7423.

.05 CONTRACT AWARD

Contract award will be made either on the low total base bid or on the low combination of the total base bid and the additive alternate(s), whichever is in the best interest of the City.

Add Alternate No. 1 - Provide material and labor to install plant material including salvaged trees, 24-inch box trees, 15-gallon trees, 5-gallon shrubs and 1-gallon shrubs as indicated on the plans and specifications.

Add Alternate No. 2 - Furnish and install 30-foot concrete poles, 150-watt high pressure sodium and light fixtures, as indicated on the plans and specifications. Ten (10) #5 pull boxes are to be credited, as they are no longer required if Add Alternate #2 is selected.

Add Alternate No. 3 - Delete the controller specified in the base bid and supply and install radio controller (F2785-MIR5000-F-MW-26 with trunked radio), expansion board (V314-52 stations) and a dome style antenna (RPA4908) as indicated in the specifications. This add alternate is the net cost to upgrade from a radio ready controller to a radio controller.

Add Alternate No. 4 - Furnish and supply (including training) a central hardware package. This includes the field interface unit (F2644) with basic MIR5000-C software, trunked radio control station (F2341) and 6 Db gain directional antenna (TDF7210-YA61). A central computer station is not included in this add alternate.

.06 CANCELLATION OF CONTRACT

All parties hereto acknowledge that this agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

.07 SURVEY

The Contractor shall set the construction stakes establishing lines, grades and elevations to include necessary utilities and appurtenances and shall be responsible for their conformance with plans and specifications. Construction staking shall be done in accordance with the applicable provisions of the Engineering & Architectural Services Department's "Standard Requirements for Staking, As-Builts, and Quantity Calculations", dated January 1, 1980. The Engineer will establish or designate a control line and bench mark of known location and elevation for use as a reference.

The Contractor shall furnish the Engineer a certified set of calculations and measurements to fully support the derivation of all pay quantities. This information will be prepared by a registrant of the Arizona State Board of Technical Registration.

The Contractor shall furnish the Engineer a set of "Record Drawings" on mylar tracings. Record Drawings shall be certified by a registrant of the Arizona State Board of Technical Registration.

.08 RECORD DRAWINGS

The Contractor shall maintain a record set of plans at the job site. These shall be kept legible and current and shall show all changes or work added in a contrasting, reproducible color. When the project is substantially complete, the Contractor shall submit these plans to the Engineer for approval. When landscaping is included, the Contractor shall submit, prior to final inspection, corrected landscape drawings showing the location of all utility services, controller, pipe, valves and wiring. The Engineer shall be the sole judge as to the acceptability of the record plans and receipt of an acceptable set is a pre-requisite for final payment. The Engineer may require a progress set of record plans to be submitted with the pay request. The purpose of this is to verify satisfactory as-builts are maintained during the project.

.09 NONCOLLUSION AFFIDAVIT

The lowest and/or best responsible bidder shall provide the attached noncollusion affidavit (page A.B.C. - 1), within 24 hours after bid opening.

.10 EQUAL ECONOMIC OPPORTUNITY CLAUSE

Pursuant to City of Phoenix Code, Chapter 18, Article IV as amended, on Equal Employment Opportunity, all prime Contractors and sub-contractors are required to take affirmative action toward equal employment opportunity. All prime Contractors must have Affirmative Action reports on file with the Equal Opportunity Department prior to bid.

.11 PRE-CONSTRUCTION CONFERENCE

After completion of the contract documents, to include bonds, insurance and signatures and prior to the commencement of any work on the project, the Project Manager, (telephone 262-4962), will schedule a Pre-Construction Conference. This will be held at 125 East Washington Street, Phoenix, Arizona.

The purpose of this conference is to establish a working relationship between the Contractor, utility firms and various City agencies. The agenda will include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment application and processing, coordination with the involved utility firms, emergency telephone numbers for all representative involved in the course of construction and establishment of the notice to proceed date.

Minimum attendance by the Contractor shall be a responsible company/corporate official, who is authorized to execute and sign documents on behalf of the firm, the job superintendent and the Contractor's safety officer.

.12 IMMIGRATION REFORM AND CONTROL ACT

Compliance with the Immigration Reform and Control Act of 1986 (IRCA) Required. Contractor understands and acknowledges the applicability of the IRCA to him. Contractor agrees to comply with the IRCA in performing under this agreement and to permit City inspection of his personnel records to verify such compliance.

.13 CONTRACTOR'S LICENSE AND PRIVILEGE LICENSE

Each bidder shall include, on the proposal sheet, his Contractor's License Classification and Number (ARS Title 32, Chapter 10). In addition, the bidder must include his City of Phoenix Privilege License Number (ARS 42-1305).

Failure to provide this information will be just cause for declaring the bid non-responsive.

.14 CONTRACTOR'S TAX LIABILITY

The successful bidder shall be liable for payment of all State of Arizona and Maricopa County Transaction Taxes (ARS 41-1305) and City of Phoenix Privilege Taxes (Phoenix City Code 14-415) on the successful bidders' construction contracting receipts. Failure to remit the proper taxes to the City may result in the withholding of payment until all delinquent privilege taxes, interest and penalty have been paid.

I M P O R T A N T N O T I C E

INTERIM AFFIRMATIVE ACTION REQUIREMENTS

Each business entity, entering a business relationship with the City of Phoenix, as a result of responding to either a Request for Proposal or a bid, must comply with the City of Phoenix Ordinances G-1901 or G-1372 as appropriate. Failure to comply with the affirmative action requirements outlined in the above ordinances will be cause for a bid to be irregular and may be grounds for rejection. **IT SHOULD BE EXPRESSLY UNDERSTOOD THAT THE BURDEN FOR COMPLIANCE RESTS FULLY WITH EACH PROPOSER OR BIDDER.** The City cannot be responsible for insuring compliance. The affirmative action forms required are:

1. An affirmative action plan (attached).
2. A combination equal employment questionnaire/employer information report (attached).

If your firm employs less than 15 people, and is not a construction contracting firm, the only requirement is that you fill out the Certification of Less Than 15 form (attached).

If you employ 15 or more, or are a construction contracting firm, you are required to fill out the affirmative action plan and the combination equal employment questionnaire/employer information report.

However, either the Certification of Less Than 15 or the affirmative action plan and the combination form must be submitted to the Equal Opportunity Department, 550 West Washington Street, Phoenix, AZ 85003-2107 prior to bid time. Forms will be date and time stamped.

Any questions regarding this policy may be directed to the Equal Opportunity Department at (602) 262-6790.

COMBINATION EEO QUESTIONNAIRE/EMPLOYER INFORMATION REPORT

Instructions:

Completed forms should be returned to the City of Phoenix Equal Employment Department, 550 West Washington Street, Phoenix, Arizona 85003-2107. If you have any questions or require assistance, telephone the Equal Opportunity Department at Area Code (602) 262-6790.

PART A

EQUAL EMPLOYMENT QUESTIONNAIRE

COMPANY NAME: _____

CORPORATE STREET ADDRESS: _____

CORPORATE MAILING ADDRESS: _____

LOCAL STREET ADDRESS (IF DIFFERENT THAN ABOVE): _____

LOCAL MAILING ADDRESS (IF DIFFERENT THAN ABOVE): _____

CORPORATE PHONE #: _____

LOCAL PHONE #: _____

TYPE OF BUSINESS: _____

NAME, TITLE AND TELEPHONE NUMBER OF COMPANY'S EQUAL EMPLOYMENT OPPORTUNITY OFFICER/PERSON RESPONSIBLE FOR PERSONNEL:

CORPORATE: _____

LOCAL: _____

SO THAT YOUR RECORD MAY BE PROPERLY CROSS REFERENCED IN OUR FILE, IN THE SPACE PROVIDED BELOW, PLEASE INDICATE OTHER COMPANY NAMES USED:

**PART B
EMPLOYER INFORMATION REPORT**

FOR OFFICE USE ONLY

| SIC CODE | | COMPANY I.D. | | | | | -15 | Compl. | YR. |
|----------|--|--------------|--|--|--|--|-----|--------|-----|
| | | | | | | | | | |

Instructions:

If your firm is located *outside* the Phoenix metropolitan area and you have *no* employees in the Phoenix metropolitan area, please complete this report for TOTAL number of employees. Your latest Federal EEO-1 may be substituted for only this form.

If you have employees in the *Phoenix metropolitan area* (includes Phoenix, Tempe, Mesa, Chandler, Scottsdale, Paradise Valley, Glendale, Peoria, Tolleson, Litchfield, Avondale, Buckeye and Goodyear), complete this form to reflect *only* these employees.

| JOB CATEGORIES | NUMBER OF EMPLOYEES | | | | | | | | | | |
|---|--------------------------------------|--------------------------------|--------------------------------|----------|---------------------------|-----------------------------------|--------------------------------|--------------------------------|----------|---------------------------|-----------------------------------|
| | OVERALL TOTALS (SUM OF COL B THRU K) | MALE | | | | | FEMALE | | | | |
| | | WHITE (NOT OF HISPANIC ORIGIN) | BLACK (NOT OF HISPANIC ORIGIN) | HISPANIC | ASIAN OR PACIFIC ISLANDER | AMERICAN INDIAN OR ALASKAN NATIVE | WHITE (NOT OF HISPANIC ORIGIN) | BLACK (NOT OF HISPANIC ORIGIN) | HISPANIC | ASIAN OR PACIFIC ISLANDER | AMERICAN INDIAN OR ALASKAN NATIVE |
| A | B | C | D | E | F | G | H | I | J | K | |
| Officials and Managers | | | | | | | | | | | |
| Professionals | | | | | | | | | | | |
| Technicians | | | | | | | | | | | |
| Sales Workers | | | | | | | | | | | |
| Office and Clerical | | | | | | | | | | | |
| Craft Workers (Skilled) | | | | | | | | | | | |
| Operatives (Semi-Skilled) | | | | | | | | | | | |
| Laborers (Unskilled) | | | | | | | | | | | |
| Service Workers | | | | | | | | | | | |
| TOTALS | | | | | | | | | | | |
| Total Employees reported in previous EEO-1 report | | | | | | | | | | | |
| NAME OF AUTHORIZED OFFICIAL | | | | TITLE | | SIGNATURE | | | DATE | | |

GUIDELINE FOR AFFIRMATIVE ACTION PROGRAM

(Use Your Company Letterhead)

Instructions: If your firm has its own Affirmative Action Plan, please submit a copy of it; if **not**, please utilize this plan as a sample for generating your own document. Your firm will be reviewed by city staff to determine if you are complying with your plan. A copy of your plan must be filed with the:

CITY OF PHOENIX
EQUAL OPPORTUNITY DEPARTMENT
550 W. WASHINGTON STREET
PHOENIX, AZ 85003-2107

If you have any questions or require assistance, telephone the Equal Opportunity Dept. at:
(602) 262-6790

AFFIRMATIVE ACTION PROGRAM

In order to comply with the requirements of the City of Phoenix Ordinances G-1372 and G-1901 with their amendments and to insure equal employment opportunity, the following measures will be taken:

1. Equal and fair treatment will be provided to all employees regardless of race, color, religion, ancestry, national origin or sex.
2. A complete up-to-date record of employees classified by ethnic distribution, sex, and job classification will be maintained and annual reports will be submitted to the Equal Opportunity Department.
3. All employees will be advised at time of employment that we are an Equal Opportunity Employer and that hiring, promotion or demotion is based only on the individual's qualifications and ability to perform the work.
4. The company will cooperate with and support apprenticeship training programs based on strict non-discrimination.
5. The company has appointed _____ to serve as the Equal Employment Officer who is authorized to supply reports and represent this company in all matters regarding this affirmative action program.
6. The name, address and telephone number of the Equal Employment Officer will be posted in a conspicuous place or places. This Officer will be responsible for:
 - a. Seeking to utilize minorities and females to the same degree as all others, based on the following factors.
 - (1) Percentage of minority workforce as compared with the total workforce in the area.
 - (2) Local availability of minorities having the skills we employ.
 - (3) Availability of promotable minority employees in our company.
 - (4) Existence of training institutions capable of training minorities in the area.
 - (5) The internal skills training for which our company is capable of offering minorities for required job categories.
 - b. Supervision of periodic audits of employment practices including: (1) applicant flow (2) promotion (3) training.
 - c. Contacts with all minority recruitment sources who will be notified when this company has vacancies. Notification to all eligible employees regarding promotions or vacancies to insure equal opportunity.
 - d. Instruction of all supervisory personnel regarding their responsibility for equal opportunity and non-discrimination requirements.
 - e. Periodic reviews with all supervisory personnel to insure that the program is being implemented at all levels.
 - f. Making specific efforts to encourage present minority employees to recruit their friends and relatives.

FIRM NAME _____

SIGNATURE AND TITLE _____

EQUAL EMPLOYMENT OFFICER _____

DATE _____

CERTIFICATE OF LESS THAN 15

Instructions: If your firm employs less than fifteen (15) employees, complete this form only and return to:

CITY OF PHOENIX
EQUAL OPPORTUNITY DEPARTMENT
550 WEST WASHINGTON STREET
PHOENIX, ARIZONA 85003-2107

If you have any questions or require assistance, telephone the Equal Opportunity Department at:

(602) 262-6790

PLEASE PRINT OR TYPE:

NAME OF COMPANY: _____

STREET ADDRESS: _____

MAILING ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NUMBER: _____

TYPE OF BUSINESS: _____

In accordance with Section 18-24 of the City of Phoenix Suppliers and Vendors Affirmative Action Ordinance G-1372, I hereby certify that the above-named company currently employs _____ (insert number of employees).

Authorized Signature of Company Officer

Title

Date

AFFIRMATIVE ACTION REQUIREMENTS

Policy

The City of Phoenix maintains a policy of non-discrimination in employment by Contractors, sub-contractors or suppliers and they adhere to a policy of equal opportunity and demonstrate an affirmative effort to recruit, hire and promote its employees regardless of race, color, religion, gender or national origin.

Bid Conditions

A prime Contractor submitting a bid for a City construction contract shall have on file with the Equal Opportunity Department at or before the time of submission of bid the following Affirmative Action reports:

1. EEO Questionnaire
2. Employer Employment Questionnaire
3. An Affirmative Action Plan

IMPORTANT: Failure to have the above-mentioned reports on file at or before the submission of the bid will cause the bid to be considered irregular and may be grounds for rejection.

All construction sub-contractors performing work on a City construction contract **must** have the above-described reports on file with the Equal Opportunity Department five (5) days subsequent to the award of the contract to the prime Contractor.

Suppliers who employ fifteen (15) or more employees shall have all the above-described reports on file with the Equal Opportunity Department prior to establishing a business relationship with the City or prime Contractor. In bid situations with the City, prior to bid time.

Suppliers who employ fourteen (14) or fewer employees shall submit the certificate of less than 15 to the Equal Opportunity Department prior to establishing a business relationship with the City or prime Contractor. In bid situations with the City, prior to bid time.

The City Council may, in its discretion, waive a construction Contractor's failure to comply with these reporting requirements and accept their proposal.

Contract Requirements

The City shall include the following clause in all contracts and shall require that the clause also appear in all contracts entered into between prime Contractors and sub-contractors involving work performed for the City of Phoenix.

"Any Contractor, sub-contractor in specific reference to performance under this contract and in reference to its entire workforce in the metropolitan Phoenix area, shall not discriminate against any employee or applicant for employment, any sub-contractor or employee of a sub-contractor, or any member of the public, because of race, color, religion, gender or national origin. The Contractor or sub-contractor will take affirmative action to ensure the applicants are employed and that employees are dealt with during employment without regard to their race, color, religion, gender or national origin. Such action shall include, but not be limited to the following: employment, promotion, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship."

Objections to Awards

Any person who objects to the award of a contract to any bidder by the City of Phoenix upon the grounds that the aforementioned reporting requirements have not be satisfied, shall lodge that protest, in writing, with the City Clerk not later than 5:00 p.m. of the third business day following the day on which the bids/proposals were opened by the City of Phoenix. The City shall reject all protests not filed within this timeframe.

Penalties

Failure by a Contractor, sub-contractor or supplier to comply with the provisions of its affirmative action plan as submitted and incorporated into its contract, shall submit it to all sanctions allowed by law, including but not limited to, cancellation, termination, suspension of the contract, or exclusion from bid privileges or from entering into future business relationships with the City of Phoenix for a period up to two years.

Reference: City Code, Chapter 18, Articles IV; City Ordinances G1901 and G1372.

Reports and inquiries should be directed to: City of Phoenix, Equal Opportunity Department, Affirmative Action Division, 550 West Washington Street, Phoenix, AZ 85003-2107, telephone number 262-6790.

Index No.

AFFIRMATIVE ACTION REQUIREMENTS

I, _____, as an authorized representative of _____, acknowledge that the reporting requirements of Chapter 18, Article IV, Section 13.1 of the City Code have been or will be met prior to bid submission.

I understand the firm's compliance status may be verified by contacting:

Equal Opportunity Department
Affirmative Action Division
550 West Washington Street
Phoenix, AZ 85003

(602) 262-6790

It is expressly understood that failure to comply with the reporting requirements will be cause for a bid to be considered irregular and may be grounds for rejection.

Name

Title

Name of Business

Subscribed and sworn to before me
this ____ day of _____, 19 ____.

My commission expires:

Notary Public

SUPPLEMENTARY CONDITIONS

.01 STANDARD SPECIFICATIONS AND DETAILS

Except as otherwise required in these specifications, construction of this project shall be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision, and the City of Phoenix Supplements, latest revision to the MAG Uniform Standard Specifications and Details.

.02 PRECEDENCE OF CONTRACT DOCUMENTS

The City of Phoenix Supplements will govern over the MAG Standard Specifications and Details. In case of a discrepancy or conflict, plans will govern over both the City of Phoenix Supplements and MAG Standard Specifications and Details; Supplementary Conditions, Technical Provisions, Special Provisions, will govern over the City of Phoenix Supplements, the MAG Standard Specifications and Details and Plans.

.03 PARTIAL PAYMENTS

The contracting agency will make a partial payment to the Contractor on the basis of an estimate prepared by the Engineer for work completed and accepted through the preceding month. The notice to proceed date, which is designated for the specific project involved, will be used as the closing date of each partial pay period. Payment will be made no later than fourteen (14) days after the work is certified and approved.

.04 INDEMNIFICATION OF CITY AGAINST LIABILITY

The Contractor agrees to indemnify and save harmless the City of Phoenix, its officers, agents and employees, and any jurisdiction or agency issuing permits for any work included in the project, their officers, agents and employees, hereinafter referred to as indemnitee, from all suits, including attorney's fees and cost of litigation, actions, loss, damage, expense, cost or claims of any character or any nature arising out of the work done in fulfillment of the terms of this contract or on account of any act, claim or amount arising or recovered under Workmen's Compensation Law or arising out of the failure of the Contractor to conform to any statutes, ordinances, regulation, law or court decree. It is the intent of the parties to this contract that the indemnitee shall, in all instances except for loss or damage resulting from the sole negligence of the indemnitee, be indemnified against all liability, loss or damage of any nature whatever for or on account of any injuries to or death of person or damages to or destruction of property belonging to any person arising, out of or in any way connected with the performance of this contract, regardless of whether or not the liability, loss or damage is caused by, or alleged to be caused in part by the negligence, gross negligence or fault of the indemnitee. It is agreed that the Contractor will be responsible for primary loss investigation, defense and judgement costs where this contract of indemnity applies.

.05 CONTRACTOR'S INSURANCE REQUIREMENTS

Concurrently with the execution of the contract, the Contractor shall furnish the City of Phoenix a Certificate of Insurance on a standard insurance industry ACORD form. The minimum limits of liability shall be \$1,000,000.00 for General Liability and Automobile Liability and statutory amounts for Workmen's Compensation (Employer's Liability with a minimum limit of \$100,000.00 each accident). The ACORD form shall be issued by an insurance company authorized to transact business in the State of Arizona, or one that is named on the List of Authorized Insurers maintained by the Arizona Department of Insurance.

The Contractor shall maintain during the life of the contract such public liability and property damage insurance, both general and automobile liability, as shall protect him and any sub-contractor performing work under the contract from all claims for bodily injury, including accidental death, as well as for property damage arising from operations under the contract--whether such operations be by himself or by any sub-contractor or by anyone directly or indirectly employed by either of them. These policies shall not expire until all the work has been completed and the project has been accepted by the City of Phoenix. If a policy does expire during the life of the contract, the Contractor shall provide a renewal certificate of the required insurance coverage to the City of Phoenix not less than five (5) days prior to the expiration date.

The City of Phoenix, a municipal corporation, its officers, agents and employees shall be named as additional insureds on all Public Liability and Property Damage Insurance and Builder's Risk/Course of Construction Insurance (new buildings and additions to old buildings only) and this shall also be indicated on Certificates of Insurance issued to the City. The Contractor's coverage shall be primary for any and all losses arising out of the performance of this contract.

.06 PERFORMANCE AND LABOR AND MATERIAL BOND

Prior to the execution of the contract, the successful bidder must provide a performance bond and a labor and material bond each in an amount equal to the full amount of the contract.

Each such bond shall be executed by a surety company or companies duly authorized to do business in the State of Arizona. The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this state, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official. Personal or individual bonds are not acceptable.

.07 MODIFICATION TO MAG UNIFORM STANDARD DETAIL 240 - VALLEY GUTTER

Reference Note 1 which reads, "All concrete to be Class 'B' unless otherwise approved. (Section 725)"

Change this note to read:

"All concrete to be Class "A" unless otherwise approved.
(Section 725)"

.08 PRESSURE MANHOLE COVERS

MAG Detail 523, change the note (upper right corner) that reads, "For a 30-inch manhole opening...noted on the sheets", to read:

"For a 30-inch manhole opening, use the standard watertight 30-inch manhole frame and cover in accordance with Notes 1 through 12 listed below on this sheet."

.09 ALUMINUM MANHOLE COVERS

The Water and Wastewater Department has the following stated policy, "MAG Standard Detail 425 - 24-inch aluminum manhole frame and cover is not approved by the City of Phoenix".

.10 DISPOSAL OF SURPLUS MATERIAL

All surplus and/or waste material may be disposed of at the Contractor's discretion subject to the following conditions:

A. If the City landfills are used, the Contractor shall pay the normal dumping fee.

B. If private property within the City limits is used, the Contractor shall obtain written permission from the property owner and deliver a copy of this agreement to the Engineer prior to any hauling or dumping. All disposal and grading shall be in strict conformance with the City of Phoenix Grading and Drainage Ordinance. The Contractor shall obtain and pay for the necessary permit(s).

C. If the surplus material is disposed of outside the City limits, the Contractor shall comply with all applicable laws/ordinances of the agency concerned and be responsible for all cost incurred.

D. ADOT has indicated that material may be stockpiled in the Outer Loop right-of-way. Contractor shall obtain and pay for all necessary permits, requirements and coordination required by ADOT and any other agency. All other pertinent rules, regulations and restrictions still apply.

No measurement or direct payment will be made for the hauling and disposal of surplus and/or waste material, the cost shall be incidental to the cost of the project.

.11 MODIFICATION TO MAG UNIFORM STANDARD DETAIL 522 - MANHOLE SHAFT

Reference Note 5 which calls for installation of manhole steps as required by the agency. The Engineering & Architectural Services Department has adopted the policy that manhole steps are NOT to be installed in any storm sewer manhole. If steps are provided, they shall be removed and the hole filled with Class "B" concrete.

.12 CONTRACTOR'S MARSHALING YARDS

Contractors shall obtain approval of the City Engineer when using vacant property to park and service equipment and store material for use on City construction contracts.

- A. The Contractor shall notify adjacent property owners/residents of this proposed use.
- B. Any use of vacant property adjacent to or near the project for parking or servicing equipment and/or storing of material will require the Contractor to obtain written approval from the property owner. This approval shall contain any requirements which are a condition of this approval.
- C. A copy of the property owner's approval shall be submitted along with the Contractor's request to the City Engineer for approval for the use of the marshaling yard in connection with the project. An appropriate distance from adjacent property will be set by the City Engineer on a case by case basis based on the size and type of equipment to be used on the project.
- D. The yard shall be fenced and adequately dust-proofed in a manner such as to preclude tracking of mud onto paved City streets.
- E. Work in yard shall be scheduled so as to comply with the City Noise Ordinance.
- F. Equipment, materials, etc., shall be located so as to minimize impact on adjacent properties. A sound barrier may be required if deemed necessary by the City Engineer.
- G. The Contractor shall clean up property promptly upon completion of use.
- H. Contractor's request for approval shall specify in detail how he or she proposes to comply with D through G above.

.13 HAUL PERMIT

On any project when the quantity of fill or excavation to be hauled exceeds 10,000 C.Y. or when the duration of the haul is for more than twenty (20) working days, the Contractor shall:

- A. Obtain a written (no fee) haul permit from the Development Services Department.
- B. Obtain approval of the proposed haul route, number of trucks, etc., by the Street Transportation Department.

NOTE: Obtaining the haul permit and the approval by Street Transportation does not release the Contractor from strict compliance with MAG Subsection 108.5 Limitation of Operations.

.14 DEFINITIONS - MAJOR ITEMS

Section 101, page 10A of MAG Specifications - The definition of major item is changed to read:

MAJOR ITEM: A major item is any bid item of work having an original dollar value equal to or greater than the amount shown below.

| <u>CONTRACT AMOUNT</u> | <u>MAJOR ITEM IS DEFINED AS ANY ITEM EQUAL TO OR GREATER THAN THE FOLLOWING</u> |
|----------------------------|---|
| Up to \$1 million | \$15,000 or 3%, whichever is greater |
| \$1 million to \$3 million | 3% of the original contract amount to a maximum of \$75,000.00 |
| \$3 million to \$5 million | 2.5% of the original contract amount to a maximum of \$90,000.00 |
| Over \$5 million | 1.5% of the original contract amount to a maximum of \$125,000.00 |

CONTINGENCY ITEMS

Contingency items which fall under the definition of a major item are subject to negotiation if decreased by more than 20%.

Contingency items shall not increase more than 20% without being subject to renegotiation, regardless of the percentage of that item relative to the total contract amount.

.15 MAG SUBSECTION 105.15(B) FINAL ACCEPTANCE

Delete this subsection and substitute the following:

A. Substantial Completion

The work may be judged substantially complete when all construction has been completed with the possible exception of final inspection punch list work. The purpose of granting or acknowledging substantial completion is to stop contract time. This is particularly important to the Contractor if contract time is exhausted or nearly so and/or punch list work is anticipated to extend beyond the allotted time. Granting of substantial completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply.

In the event that the Engineer grants substantial completion, the Contractor shall have thirty (30) days thereafter to complete punch list work, unless additional time is granted--in writing--by the Engineer. In no case shall a Contractor be granted more than thirty (30) days to complete punch list work, unless there are extenuating circumstances such as delay in shipment of a

specialized piece of equipment, labor strike, or other circumstances beyond the Contractor's control which would necessitate a further time extension.

B. Penalty for Failure to Complete Punch List Work Within Specified Time

In the event the Contractor fails to complete the punch list work within thirty (30) days following the contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the work completed by others.

In the event of default, as described herein, the Engineer shall withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining work. In addition, the Engineer shall withhold the retention deducted from contract progress payments until all punch list work has been satisfactorily completed, whereupon twice the amount of the actual cost of completing the work shall be deducted from the Contractor's final payment and the remaining funds, if any, including the contract retention, shall be released in accordance with the conditions set forth in contract retention.

C. Contract Retention

This project shall not be considered complete until all work has been completed, including punch list work. Under no circumstances shall a Contractor receive any portion of the legally retained progress payments until the City has granted a final acceptance and/or acknowledged substantial completion. The following conditions shall apply to each case:

1. Substantial Completion: The Engineer may reduce outstanding contract retention to not less than one (1) percent of the total contract amount, upon granting substantial completion, if the value of the punch list work is estimated to be less than one (1) percent of the total contract.
2. Project Acceptance: Project acceptance implies that all punch list work is done and the improvements have been accepted by the City. Under these conditions, the retention will be fully released to the Contractor subject only to the signing of the standard claims affidavit and hold harmless clause required for all contracts.
3. Final Release of Contract Retention and/or Release of More Than Ninety (90) Percent of the Contract Funds: Prior to final payment and release of monies retained and/or in the case of substantial completion where the Contractor has requested a reduction in contract retention, the Contractor will be required to sign a claims affidavit agreeing to hold the City harmless from any and all claims arising out of the contract.

.16 SHOP DRAWINGS

The Contractor shall submit for review a proposed schedule of shop drawings and product data submittals in compliance with MAG Section 105.2, including City of Phoenix Supplement and latest revisions except as modified herein.

All data shall submit at one time, bound and indexed in an orderly manner six (6) sets of shop drawings and product data submittals. The index sheet shall contain the following information:

- (1) Project Description
- (2) Index Number
- (3) Date of Submittal
- (4) Contractor's Name, Address, Phone Number
- (5) Table of Contents: Listed and Numbered Sequentially
- (6) Contractor's Certification, by signature, that he has reviewed and approved the submittal and that it conforms to the contract documents.

Sufficient space, 3 1/2" x 3 1/2", shall be reserved in the lower righthand corner of the index sheet for the Engineer's review stamp.

Shop drawing and product data submittal shall include the following but not limited to:

- (1) Concrete mix designs unless they are a previously-approved supplier's design.
- (2) Product data including catalog cuts, installation instructions and details, color samples, material specifications.

At the time of each submittal, the Contractor shall define in writing, separate from the certification, any deviations including substitutions, from the contract documents. In addition to specifically listing and correlating substituted products, the Contractor shall provide a statement that the proposed substitutions are in full compliance with the contract documents and that any changes necessitated or costs incurred by such proposed substitution shall be the responsibility of the Contractor.

If the product submittal is acceptable, one (1) copy stamped "Furnish as Submitted" or "Furnish as Noted" will be returned to the Contractor. No additional submittal shall be required.

If the submittal is not acceptable, one (1) copy stamped "Revise and Resubmit" or "Rejected" will be returned to the Contractor. The Contractor shall then make the necessary corrections and resubmit six (6) corrected submittals.

.17 PROJECT CLOSEOUT

Receipt and approval of all the following items is a pre-requisite for final payment.

Maintenance Manuals, Operating Instructions

A. Upon completion of the installation of all work, furnish four (4) complete bound copies of operating and maintenance instructions and parts lists for all materials, equipment and systems, including electrical and control items, being supplied.

B. Operating instructions shall include complete operating sequence, control diagrams, description of method of operating machinery, machine serial numbers, factory order numbers, parts, tests, instruction books, supplier's phone numbers and addresses and individual equipment guarantees. Parts lists shall be complete in every respect, showing all parts and part numbers for ready reference.

C. Assemble maintenance manuals and operating instructions in hardback loose-leaf binders. Suitably label and index all material contained herein for ready reference.

D. Upon substantial completion of the project work, submit one copy of the maintenance manual and operating instructions to the Engineer for approval. Upon receipt of Notice of Approval, deliver the additional three (3) copies to the Engineer.

Guarantees: Provide all written guarantees and certificates required by these specifications, in accordance with the General Conditions.

Guarantees from the Contractor shall be supported by individual guarantees from each manufacturer or supplier covering work. Submit all required guarantees to the Engineer.

Owner's Manual: Prior to final four (4), submit one (1) hardback, loose-leaf binders containing the following required submittals and any others required in other sections, suitably typed, indexed and labeled for ready reference.

1. Sub-contractors, major suppliers' list with companies names, addresses and telephone numbers
2. Guarantees/warranties, certifications
3. Maintenance/operation instructions (other than Electrical Specifications)
4. List of extra materials supplied to Owner/Engineer
5. Special certifications, inspections documented, if any
6. Other items

.18 EMERGENCIES

Emergencies may arise during the progress of work which may require special effort or require extra shifts of personnel to continue the work beyond the normal working hours. Be prepared in case of such emergency to do all necessary work promptly.

.19 APPLICABLE CODES

All references to Codes, Specifications and Standards referred to in the drawings and in the Specification Section shall mean, and are intended to be, the latest edition, amendment and/or revision of such references standard in effect as of the date of these contract documents.

.20 REGULATIONS AND PERMITS

Whenever reference is made within these documents to certain Standards, Codes and Specifications, the reference shall be construed to mean the governing standards including all amendments and changes or additions, adopted and published at the date of approval of the drawings, specifications and contracts.

Whenever the term "Building Code" or "Code" is used in the specifications, said terms mean the current edition or the Uniform Building Code, in force and/or to codes of governmental agencies as may have jurisdiction presently enforced.

It shall be understood that Contractors, manufacturers and producers of materials referred to in these specifications have specifications available for references or are fully familiar with their requirements as pertains to each product or material.

Contractor will be responsible for securing all permits necessary for the execution of the work, coordination of work and inspections necessary by the governing authorities and utility companies.

.21 PRODUCT DELIVERY, STORAGE AND HANDLING

Materials shall be delivered to the building site in original packages. Materials and all work shall be performed within those limits unless specifically described otherwise in the drawings or approved by the Engineer. Workmen shall park their vehicles in areas designated by the Owner.

Contractor may erect an approved fence compound for storage of materials and certain equipment. Owner shall have no responsibility or liability for damage, theft, mischief or other loss-insured by the Contractor. Location to be approved by the Owner.

.22 FIELD OFFICE

1. The Contractor shall provide a temporary field office building for use by himself, subcontractors, the Owner and Owner's agent.
2. The field office shall consist of a temporary building or trailer providing a minimum of enclosed space and shall be provided with adequate lighting, ventilation and means of ingress and egress suitable to the intended use.
3. The office shall be equipped with heating and cooling equipment capable of maintaining an ambient air temperature of 70 degrees F, +/- 5 degrees.

4. Provide for the Owner's exclusive use the following equipment and furnishings:

- Two (2) phones
- Drafting table and stool
- Two (2) 4-drawer file cabinets
- Desk and swivel chair
- Conference table with chairs for ten (10) persons

5. The Engineer will designate the location of the office. The office shall remain on the project site for up to thirty (30) calendar days following completion and acceptance of the work by the department (or the construction phase of the work where landscape establishment is involved). The office shall be fully equipped with all utilities in service and shall be acceptable to the Engineer prior to commencement of any construction activity.

6. The Contractor shall be responsible for maintaining the office and all facilities and equipment therein in good working condition. Utility costs shall be the responsibility of the Contractor. The cost of long distance telephone calls made by the Engineer will be paid for by the Engineer.

7. Upon completion of the project and following removal of the office and any appurtenant structures, utilities, surfacing, etc., the affected areas shall be either restored to their former condition or improved as may be specified on the project plans.

.23 MANUFACTURER'S RECOMMENDATIONS

With exceptions as specified and/or indicated on the drawings, apply, install, connect, erect, use and clean manufactured articles, materials and equipment per manufacturer's current recommendations. Keep copies of such recommendations at job site and make available to the Engineer.

.24 ALLOWANCE FOR WORK BY THE POWER COMPANY

The City has included in the bid proposal an allowance for work performed by the power company necessary to provide underground electrical service to the site. This item does not include trenching and backfilling, conduit with pull wires and construction of a transformer pad which shall be included in the base bid for "ELECTRICAL SYSTEMS".

.25 ALLOWANCE FOR WATER TAP AND METER

The City of Phoenix Water & Wastewater Department shall install the water meter shown on the plans after payment of the prevailing fee by the Contractor. It is the Contractor's responsibility to coordinate this activity with the Water & Wastewater Department and should be done as soon as possible, for there often is a long delivery time for the meters. Payment for this work shall be by the bid item "ALLOWANCE FOR WATER METER". The Contractor shall contact the City of Phoenix Water & Wastewater Department and make application to have the work performed at least four (4) weeks in advance of the time that the installation is required. Payment will be made at the time of application. The Contractor

may contact the City of Phoenix Water & Wastewater Department at (602) 262-6551 to ascertain the current price for a water service tap. The Contractor will be reimbursed the exact fee charged by Water & Wastewater Department (no mark-ups).

5/8-inch through 2-inch water meter vaults shall be provided by the City of Phoenix Water & Wastewater Department and shall be included as part of the allowance. The 4-inch water meter vault shall be provided by the Contractor.

.26 WATER SERVICE

The Contractor shall be the customer for water used for irrigation and he shall be responsible to pay all bills for water used until final acceptance of the project or until the end of the Plant and Landscape Maintenance Period, whichever is longer. No separate payment for water used will be permitted and all costs for water used for irrigation should be included with respective lawn and plant bid items. All refer to Section 440.1.1.

.27 ALLOWANCE FOR EXTRA WORK (CONTINGENCY)

Contract allowance items are provided for the purpose of encumbering funds to cover the costs of possible extra work. The amount of allowance items have been determined by the Engineer and are not subject to individual bid pricing. All bidders shall incorporate the amounts pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

Allowance items provide funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract per plan. Unforeseen extra work, if any, shall be as approved by the Engineer; for example, extension of unit bid prices, negotiated price or time and material, in accordance with MAG Specification Section 109.4 and 109.5.

It is understood that allowance items are an estimate only. It shall not be utilized without approval of the Engineer. It is further understood that authorized extra work, if any, may be less than the allowance item sum.

SPECIAL PROVISIONS

.01 TRAFFIC REGULATIONS

A. The following shall be considered major streets:

Beardsley Road

B. All traffic and/or traffic control devices on this project shall be provided, maintained and/or controlled as specified in the City of Phoenix Traffic Barricade Manual, latest revision.

C. Permission to restrict City streets, sidewalks and alleys (street closure permits) shall be requested as specified in Section III of the Traffic Barricade Manual.

D. Unless otherwise provided for in the following "Special Traffic Regulations", all traffic on this project shall be regulated as specified in Section IV of the Traffic Barricade Manual.

.02 SPECIAL TRAFFIC REGULATIONS

Beardsley Road - Maintain two lanes, one each way, at all times.

.03 CLEAR AND GRUB SITE

Clearing and grubbing of the park site shall conform to Section 201 of the MAG Specifications and shall include the removal and disposal of all bushes, shrubs and trees not indicated to be saved, stumps, pipes, wood and any trash or other site debris. No direct payment for clearing and grubbing will be made. The Contractor is urged to visit the site and familiarize himself with nature and extent of work involved in this item.

.04 CONTRACTOR'S OPERATION

The Contractor shall provide sufficient number of warning signs and barricades to protect the public from hazards due to construction activities. All work areas shall be kept clean and safe and be maintained on a daily basis.

.05 UTILITIES

General

The Contractor shall coordinate and pay the utility company for the service connection. Payment to the utility company will be made under the bid item ALLOWANCE FOR WORK BY THE POWER COMPANY. Payment will be based upon the actual work invoiced by the power company. Contractor overhead, profit, bond, insurance, sales tax, and mark up are not included or allowed in this allowance.

Location of Underground Utilities

The Contractor shall notify the interested "Utilities" prior to the start of construction, and shall ascertain the location of the various underground utilities either shown on the plans and/or as may be brought to his attention. Call Blue Stake at 263-1100. The exact locations of these underground utilities shall be determined by excavations made at the Contractor's expense prior to any trenching operations.

Damage to Existing Utilities

The Contractor shall assume full responsibility for all damage to all utilities due to his operations, and shall repair the damaged utilities as required herein, at his own expense.

.06 CONTRACTOR'S COORDINATION

The Contractor shall note that the Beardsley Road Paving P-901793, and Upper East Fork Cave Creek Channel (FCD 90-54) are scheduled to occur at the same time as this project. Sequence of work shall be scheduled so as to minimize any disruption or conflicts between these projects. All of the existing improvements along Beardsley Road are being constructed by Tanner Construction and should be completed by June, 1992. Also, the excavation of the detention basin by Ames Construction (FCD 90-54) which has created the existing contours shown on sheet C-O, has been completed.

.07 EARTHWORK

A. Planters and Lawn Area Compaction

Areas of new fill in planters and lawn areas shall be compacted between 75 to 85 percent of the material's maximum dry density. The Contractor shall take precautions to not over-compact the fill because a tight formation retards growth.

B. Earthwork for Open Areas

Earthwork for open areas, including rough grading and fine grading, shall conform to Sections 205, 210, 211, 225, 424, and 425. Earthwork shall consist of all local excavation, borrow and fill construction operations necessary to bring the grade to the contours and elevations shown on the plans or as directed by the Engineer. Where the proposed improvements are at a level somewhat above the adjacent ground, the area shall be graded back on a minimum 5:1 slope, preferably 10:1 slope, or as directed by the Engineer, providing a smooth and gradual transition. All areas of new fill in landscaped areas shall be compacted between 75 to 85 percent of the material's maximum dry density. The Contractor shall take precautions to not over-compact the fill, because a tight formation retards the absorption of sprinkler water.

C. General

Surplus or unsuitable material shall be removed from the site and disposed of in accordance with these specifications unless an alternate method is stipulated.

Payment for all local earthwork, excluding imported materials, shall include all costs (including water) and operations associated with excavating, sloping, rounding tops, and ends of excavations, loading, depositing, spreading and compacting the material complete in place and disposal of surplus material. The Contractor shall include all costs for this work in the lump sum bid item for "EARTHWORK."

ESTIMATED QUANTITIES ARE:

Excavation - 58,700 cubic yards
Fill - 8,200 cubic yards

Quantities are estimated in place. No shrinkage or swelling has been assumed. It shall be the responsibility of the Contractor to verify estimated quantities prior to the bid. Contractor shall visit the site, and obtain all information necessary to determine existing site and subsoil conditions that will affect the work. No representation or warranty is made by the Architect/Engineer or Owner.

When the proposal does not include a pay item for earthwork or imported borrow and topsoil, the cost thereof shall be considered as being included in the price bid for the construction of installation of such items to which such earthwork is incidental or appurtenant.

The existing contours shown on sheet C-O are based on a Rough Grading Plan prepared by Wood, Patel & Associates.

D. Soils Investigation

Subsurface soils investigation has been conducted at the project site as a service to the Owner. The results of that investigation have been used in the basin's design. Copies of this soils investigation can be obtained by contacting Larry Hansen, Sergeant, Hauskins & Beckwith, at (602) 272-6848.

Contractor should visit the site, examine the soils report and obtain all information necessary to determine existing site and subsoil conditions that will affect the work. No representation or warranty is made by the Architect/Engineer or Owner as to the adequacy of the report.

E. Testing

City of Phoenix will provide supervision, field control and testing of the earthwork. All costs for the initial testing of earthwork will be paid for by the Owner. Costs for retesting due to failure of work to comply with these specifications shall be paid for by the Contractor.

.08 SUBGRADE PREPARATION

Subgrade preparation for new pavement and 10 foot wide sidewalk shall conform to Section 301 and include all costs and operations necessary to bring subgrade to a uniform compactive state not less than 95% of the maximum dry density. The costs shall be part of "Earthwork" bid item. The subgrade for the 8 foot sidewalk shall be compacted to not less than 85% of the maximum dry density.

.09 ASPHALT CONCRETE (PARKING LOTS)

Asphalt concrete shall be Mix Designation C-3/4, using paving asphalt AC-20, as directed by the Engineer and shall conform to Sections 321, 710 and 711. For bidding purposes, the asphalt content shall be assumed to be 5.5%. The actual percentage will be set by the City of Phoenix Lab prior to construction. This asphalt concrete shall be 2 inches thick as shown on the plans, laid in one course and shall be placed upon 6-inch minimum compacted aggregate base course. This bid item also includes the street sign bases per the plans.

.10 BASE MATERIALS

Aggregate Base Course (ABC) shall be manufactured and placed in conformance with Sections 702.2 and 310 of MAG and Table 702 of the Supplement to MAG Specifications, latest revision.

.11 WATER SYSTEM

Water piping system shall conform to Sections 601, 610, 630, and 756.

The City of Phoenix Water and Wastewater Department shall install the 4" water service and meter after payment of the prevailing fee by the Contractor. The Contractor shall install the concrete vault per C.O.P. detail W-500. The Contractor shall not set the vault cover on the vault until the meter and related hardware have been installed.

The 4" water service pipe before the meter shall be class 50 ductile iron pipe. The pipe after the meter shall be class 200 gasket pocket SDR 21 PVC pipe, complying with ASTM D-1784 and ASTM F-477.

Payment for the 4" pipe is incidental work.

The 3/4" pipe and fittings shall be PVC Schedule 80 pipe.

.12 SANITARY SEWER AND STORM SEWER COLLECTION SYSTEM

Sewer collection system shall conform to Sections 601, 605, 615, 618, 625, 735, and 743.

.13 PARKING LOT STRIPING

The work under this item consists of furnishing and applying white paint in the parking lot stalls and yellow paint for the handicapped stalls. The work shall be performed at the locations shown and in accordance with the details shown on the plans. Painting shall conform to the applicable portions of Standard Specification No. 530 PAINTING.

Paint shall conform to the requirements of Federal Specification TT-P-85 for Traffic Line Paints, or the Specifications of the Highways Division, Arizona Department of Transportation, except glass spheres shall not be incorporated into the paint.

Paint meeting the requirements of this specification may be obtained from any one of the following:

- (a) Jourgensen Paint Co.
Box 728
Glenrock, Wyoming 82637
- (b) Pervo Paint Co. of Arizona
3400 East Thomas Road
Phoenix, Arizona 85018
- (c) Safety Engineering & Supply
120 West Osborn Road
Phoenix, Arizona 85013

The equipment used to apply the paint shall be specifically designed and manufactured for that purpose and before the application of the paint is begun, the Engineer shall be satisfied that the equipment and procedures proposed for use will be able to apply the paint properly to the width and thickness required. Paint shall be applied to a 15 mil wet thickness in 4-inch width striping, and shall include two separate coats. The Contractor shall supply the testing equipment necessary to verify the paint thickness. This bid item also includes the handicap signs per the plans.

Payment shall include all costs, materials, equipment, labor, and operations necessary in the lump sum bid item for "PARKING LOT STRIPING."

.14 CONCRETE SIDEWALK & HEADER

Concrete sidewalk shall be constructed in conformance with City of Phoenix Standard Detail P-1230, modified to the width(s) shown on the plans. Flexible or curved forms shall be used for curves of 100 feet radius or less. Sidewalk and header locations shall be approved by the Engineer prior to pouring concrete. Sidewalks shall also have a concrete turndown edge constructed along the edge of the Children's Play Area and at the outlet of the Sediment Basin, as detailed on the plans.

The appearance of all finished concrete flatwork, including sidewalks, shall be closely evaluated to determine if the work is acceptable. Because aesthetic considerations are

critical, it is the responsibility of the Contractor to plan and conduct concrete pours such that the cured surfaces are uniformly finished, to the degree of finish expected, and that there are no uncontrolled or unplanned cracks. The only acceptable resolution to a surface that is unacceptable, due to non-uniform finish, formation or cracks or other significant deficiencies, is to completely remove and replace the work. Patching or crack filling is not acceptable.

Because the acceptability of the work is largely dependent on how the surface looks, it is the responsibility of the Contractor to confirm that, in complying with the contract specifications and plans, he will be capable of producing a quality concrete product, that will fulfill this aesthetic, as well as structural expectations of the City. It shall, therefore, be the responsibility of the Contractor to advise the City, prior to construction, if compliance with any of the concrete specifications or concrete plan details will inhibit or prevent the attainment of the desired finished product. It shall also be the responsibility of the Contractor to propose any alternate design detailing, construction techniques/procedures or variations from strict compliance with the contract documents, that will enable the Contractor to assure and guarantee that the construction will fully satisfy the City.

If a method of concrete installation or materials is proposed which would increase or decrease the cost of the work, the Contractor must submit alternate design details, construction techniques or procedures, for approval, prior to the bid. No change order for additional compensation will be accepted from the Contractor to provide a uniformly finished, crack-free surface.

The subgrade under the 8 foot sidewalk shall be compacted not less than 85% of the maximum dry density. Under the 10 foot sidewalk, the subgrade shall be compacted to not less than 95%. The costs for subgrade preparation shall be a part of the "Earthwork" bid item.

Location for washdown of concrete trucks and equipment to be approved by Owner Representative. Location is not permitted to be in turf or planting areas.

The thickness of concrete sidewalk is 4" for the 8 foot wide sidewalk, and 6" for the 10 foot wide sidewalk. Payment for CONCRETE SIDEWALK (4" thick) and CONCRETE SIDEWALK (6" thick) shall be by the square foot and shall include all labor, material, equipment and turndown edges.

.15 MISCELLANEOUS PAINTING

Shall conform to Section 530 and 790.

The extent of painting work is shown on drawings and as specified herein. The work includes exterior site items throughout the project. Submit to Engineer paint chips for approval prior to painting.

A 5 gallon can of each paint color used on the project labeled clearly indicating type of material, color, manufacturer, and project name must be supplied to the Owner before final

payment is made.

Color Type P1: Benjaman Moore #1075
Light Tan (or equal as approved by the Owner)

CMU Trash enclosure wall, electrical cabinets, irrigation controller unit, wrought iron fence, and all equipment enclosures.

Color Type P2: Dunn Edwards #Q14-68X
Blue (or equal as approved by the Owner)

Steel bollards, back plate and reveal on drinking fountain, and signage post.

(Future: Benches, trash receptacles, picnic tables, future play equipment to be combination of DE #Q14-68X (blue) and Benjaman Moore #1315 (red).

.16 GRASSCRETE

Scope

All work in this section shall be as designated GRASSCRETE (or approved equal) on the plans. Grasscrete is a cast-in-place, monolithic, continuously reinforced grass/concrete porous pavement system. The work shall include all labor, materials, equipment and transportation required to install GRASSCRETE.

Contractor

The Subcontractor for this work shall be licensed by Bomanite Corporation, P.O. Box 599, Madera, CA 93639-0599, (209) 673-2411, to utilize the process described in U.S. Patent No. 3,802,790.

Subgrade

The subgrade under the grasscrete shall be compacted to not less than 85% of the maximum dry density. The costs for subgrade preparation shall be a part of "Earthwork" bid item.

Concrete Mix

The concrete shall have a minimum compressive strength of 3,000 psi in 28 days. Portland Cement shall conform to ASTM C150, Type I, II, or V. Aggregates shall conform to ASTM C 33 and be minus 3/8". Mixing water shall be fresh, clean and potable. Water reducing admixtures and/or super-plasticizers are permitted and shall conform to ASTM C 494.

Slab Design

The GRASSCRETE slab shall have a minimum thickness of 5 inches.

Reinforcement

The GRASSCRETE shall be continuously reinforced with 6 x 6 W1.4 x W1.4 welded wire fabric chaired between 2 and 3 inches above the subgrade.

Construction Process

- a) Subgrade shall be leveled to a uniform plane 5-1/2 inches below the final grade of the finished slab.
- b) Welded wire fabric shall be chaired.
- c) GRASSCRETE formers shall be placed on the subgrade.
- d) Concrete shall be placed and leveled to the tops of the GRASSCRETE formers. The concrete surface shall have a heavy rough broom finish.
- e) GRASSCRETE formers shall be withdrawn after the concrete has hardened sufficiently.
- f) Slab shall be cured with suitable curing membrane.

Joints

Expansion joints shall be provided wherever a GRASSCRETE slab abuts other concrete.

Traffic

No traffic of any kind shall be permitted on the GRASSCRETE slab until fourteen days after placing of concrete, and only after soil is placed in holes.

.17 EROSION MAT

The Erosion Mat shall be Tensar Erosion Mat NS 3000 (or approved equal), a three dimensional multilayered structure of polyethylene netting designed specifically for erosion control and turf reinforcement. The mat is stabilized to resist ultraviolet degradation and is inert to chemicals normally encountered in a natural soil environment. The mat also conforms to the following physical properties.

| PROPERTY | METHOD | VALUE ¹ |
|---|-------------------------------------|--------------------|
| Porosity (%) | Calculated | 95 min |
| Tensile Strength (lb/ft.) | ASTM D 1682 ² (2" strip) | 130 min |
| Elongation (%) | ASTM D 1682 ² (2" strip) | 70 max |
| Thickness (inches) | ASTM D 1777 ³ | 0.5 min |
| Resiliency (%) | Retained thickness ⁴ | 90 min |
| Mass per Unit Area (oz/yd ²) | ASTM D 3776 ⁵ | 12.0 min |
| Strand Diameter (inches) | Optical measurement ⁶ | 0.023 |
| Temperature range for 80% strength retention (°F) | *** | -100 to 150 |
| pH range for 80% strength retention | *** | 3 to 12 |

Footnotes:

¹ Minimum or maximum certifiable properties unless otherwise noted.

² ASTM D 1682-64 ... for Breaking Load ... Two inch Cut Strip Test.

³ ASTM D 1777-64 for measuring Thickness

⁴ Resiliency defined as percent of original thickness retained after 3 cycles of loading at 100 psi for 60 sec. followed by 60 sec. of no load ASTM D 1777 used to measure thickness

⁵ ASTM D 3776-79 for Mass per Unit Area

⁶ Nominal diameter of top netting strands

*** Nominal Guidelines based on manufacturer's and resin supplier's testing.

.18 WROUGHT IRON FENCE

A. Materials

1. Pickets: 1 in. square seamless, hot-rolled or coil steel, min. wall thickness 0.125 in., min. tensile strength 45,000 psi, 0.6 lbs./LF. Cap top ends.
2. Horizontal rails: 1.5 in. square seamless, hot-rolled or coil steel, min. wall thickness 0.125 in., min. tensile strength 45,000 psi.
3. Metal posts: 3.0 in. square seamless hot-rolled or coil steel, min. wall thickness 0.160 in., min. tensile strength 45,000 psi, 4.7 lbs./LF. Cap top.
4. Gate posts: 4.0 in. square, per .18 A.3 above.
5. Finish: Primer and 2 coats alkyd enamel, after welding.
6. Fittings: Pickets and posts shall be capped with inset flush steel caps of similar gauge steel.

B. Fabrication (General)

1. Submittals: Submit complete shop details and erection diagrams. Such shop details and erection diagrams shall give all pertinent information of construction methods proposed, together with all required dimensions for the proper fitting for the connection with other work and materials.
2. Fabrication: Work shall conform with the Standard Specification, Rules and Practices of the AISC as described in the "Steel Construction Manual". Form and fabricate the work to meet installation conditions. Include accessories to adequately secure the work in place. Verify dimensions, conditions and existing limitations before starting work.
3. Workmanship: Fabricate and erect all work using only skilled workmen. Make all connections between members, unless otherwise indicated, by the use of welds or bolts. Conceal connections in finished work where possible. Exposed screw fastenings, where required, shall be Phillips oval head screws to match material in which they are used. Accurately butt or miter exposed joints with hairline joints. Grind all welds in finished surfaces smooth. Welding shall be done by the shielded arch method. No identifying marks shall remain exposed.
4. Welding: Surface welds to be smooth to the touch. All work must conform to the current standards of the American Institute of Steel Construction and the American Welding Society.
5. Fasteners: Bracket to metal post or rail: Self-tapping galvanized metal screw., shear strength 500 lbs. minimum. Bracket to masonry or concrete:

#14 galvanized lag screw set in 1-1/2" long plastic "Bantam" plug screw anchor in pre-drilled hole, or other method if approved by the Engineer.

6. Construction: Furnish and install all metal fencing at locations indicated. Include all plates, angles, brackets, sleeves, etc., required. Surfaces shall be smooth, with all projections and corners ground smooth. Welds shall be flush type, neatly and substantially done, with fillets dressed to uniform radius, with all excess metal removed and welds ground smooth.

Install all posts and vertical members plumb within 1/8" of vertical. Install longitudinal members parallel with each other and with ground surfaces or slope of pavement to within 1/8" per 10 running feet. Center lines of all members with each run shall lie in the same vertical plane. Set all posts in concrete footing, as shown on plans.

7. In the shop, each post, picket rail and section shall be cleared of oil, greases, etc., using Del Chemical "Del's Grime Fighter" or approved alternate, primed (dry film thickness of 3 mils), and painted by a dip tank or spray.

C. FIELD PAINTING

After the fence has been erected and is mechanically complete, wire brush field welds, dry-wipe off all loose residue, spot prime with specified primer all bare spots, chips and scratches, then apply two finish coats Color Type P1 per Spec. .15.

.19 CHAIN LINK SCREENING

Screening shall be constructed as shown on the drawings and in accordance with the special provisions and MAG 772.

Fabric shall be 9 gauge, 1" mesh. Fabric shall be hot dipped galvanized after fabrication. Fabric shall conform to the requirements of ASTM A-392 or ASTM A-491.

Fabric shall be beige, No. 9 gauge finish, 1 inch x 1 inch, Class I PVC coated and extruded onto a galvanized steel wire. Contractor to submit name of local supplier and color sample to Owner Representative for approval.

All pipe shall be as designated on the drawings, weighing 5.79 pounds per linear foot.

Welding shall be accomplished in accordance with the Arizona Department of Transportation welding specifications.

.20 CORRUGATED STEEL PIPE OPTION - MAINLINE STORM SEWER

The inside diameter shall be the same size as that specified for reinforced concrete pipe. Gauge thickness shall be that specified on the Alternate Pipe Chart.

Type F Pipe - coated and concrete lined corrugated steel pipe per Section 760 of the 1987

City of Phoenix Supplement to MAG Uniform Standard Specifications shall be the only allowable corrugated steel pipe product on this project.

The joints shall conform to the City of Phoenix Supplement to MAG Section 621 with the following modifications. Pipe sections shall be jointed together with annular corrugated type bands locking in at least one annular corrugation and shall be designed to form a leak-resistant joint under pressure. The annular corrugated type band shall be rubber gasketed. The connecting band shall be manufactured of the same material and in the same manner as the mainline pipe. The annular space between abutting pipe sections shall not exceed one (1) inch and shall not be filled with bituminous mastic after joining. Mastic will also not be allowed on the outside of the joint. For the concrete lined pipe, all internal joints shall be mortared to a smooth trowel finish around the entire pipe. A shop drawing detail of the joint shall be submitted for review and approval to the Project Engineer before pipe installation begins. Approval of the joint detail shall be subject to a hydrostatic leakage test conducted at the manufacturing plant. Any deviation or change from an originally approved joint design will require a leakage test at the manufacturing plant.

Payment will be made at the contract unit price bid per linear foot, to the nearest foot, for each size and type of pipe and shall be compensation in full for furnishing and installing the corrugated steel pipe as specified, including removal of obstructions, excavation, initial bedding, backfilling, compacting, leakage tests (as required - see Section .23), provisions for compaction test as required and all incidental cost not specifically covered in other items in the proposal.

.21 MAIN LINE STORM SEWER PIPE BEDDING

A. Reinforced Concrete Pipe

The Contractor shall utilize a cement enriched slurry A.B.C. bedding for the precast concrete pipe. The slurry A.B.C. will consist of 1.0 sack of Type II Portland Cement per cubic yard of A.B.C. The slurry shall be placed at a minimum from the outside bottom of the pipe to the springline of the pipe. The slurry must have a minimum of an 8-inch slump. The slurry shall meet a minimum of 25 psi compressive strength at 28 days.

The Contractor, at his option, may excavate a trench having a cross-section with a rounded bottom rather than a flat bottom. If this option is chosen, the trench cross-section must maintain the minimum 6-inches required between the outside wall of the pipe and the trench wall.

The minimum trench width at the springline for each side of the pipe, as shown in Table 601-1 in Section 601 of the Phoenix Supplement to MAG Specifications, may be reduced to 6-inches for all pipe sizes.

If the Contractor installs raised bell concrete pipe, the initial granular bedding thickness shall be per City of Phoenix Supplement to MAG. If the Contractor installs flush bell concrete pipe, the granular bedding may be reduced to 4-inches thick. The initial granular bedding shall be selected material Type "B" or aggregate base as per Table 702.

Bedding above the springline of the pipe to 1 foot above top of pipe shall be per MAG or A.B.C. slurry. If the MAG bedding option is chosen, from springline of pipe to 1-foot above top of pipe the trench width and bedding material shall conform to Section 601 of the MAG Specifications. Backfill shall be native material within 1 foot of finish grade. Slurry shall not be within 1 foot of finish grade.

B. Corrugated Steel Pipe

The Contractor shall utilize a cement enriched slurry A.B.C. bedding for the coated and concrete lined corrugated steel pipe. The slurry A.B.C. will consist of 1.0 sack of Type II Portland Cement per cubic yard of A.B.C. The slurry shall be placed at a minimum from the bottom of the pipe to 1 foot above top of the pipe. Slurry shall not be within 1 foot of finish grade. The slurry must have a minimum of an 8-inch slump. The slurry shall meet a minimum of 25 psi compressive strength at 28 days. Pipe gauge thickness based on durability consideration will be waived.

The Contractor, at his option, may excavate a trench having a cross-section with a rounded bottom rather than a flat bottom. If this option is chosen, the trench cross-section must maintain the minimum 6-inches required between the outside wall of the pipe and the trench wall. The initial granular bedding shall be a minimum of 4-inches thick. The initial granular bedding shall be per Section 601.

No leakage test will be required when slurry bedding is used except at the discretion of the Engineer.

C. Compaction

Compaction of the select material Type "B" or aggregate base as per Table 701, bedding material shall be in accordance with MAG 601 and the following:

Jetting shall be performed without damage to the pipe and surrounding material in situ, and in such a manner that water will not be impounded. Jetting methods shall be supplemented by the use of internal vibrators or other vibratory compaction equipment. Bedding material compaction by jetting shall use the least amount of water that will properly consolidate the material and move the material under the pipe to eliminate voids. Extreme care shall be taken in placing, shaping and compacting the material under the haunches of the pipe to prevent moving the pipe or raising it from the bedding.

The Contractor shall provide sufficient equipment to ensure uninterrupted and continuous vibration of the bedding. Re-vibration of the bedding may be required at any time as directed by the Engineer.

The Contractor shall excavate holes in the compacted bedding and backfill material to the depths and at the locations designated by the Engineer. These holes shall be of such size as to allow the required density testing to be performed in a safe manner as determined by the Engineer. This shall include shoring or any other trench wall support measures as required by OSHA.

D. Measurement and Payment

The cost of all removals (including existing pavement), initial bedding, backfill, compaction, leakage tests and provisions for compaction test as required shall be included in the cost of the pipe.

.22 CAST-IN-PLACE CONCRETE PIPE

Cast-in-place, non-reinforced concrete pipe shall be an allowable storm sewer pipe material on this project. It shall be installed in accordance with MAG Standard Specification 620, all City of Phoenix Supplements to MAG Specifications and the following special provisions.

1. The inside diameter shall be the same as that specified for reinforced concrete pipe.
2. Revised the second sentence of the first paragraph of Subsection 620.3.3 to read as follows:

"Final backfill and compaction shall not be started until concrete has developed a compressive strength of at least 3000 psi.

3. Delete the last sentence of the first paragraph of Subsection 620.3.3, "The contractor described below:"
4. Delete subsections 620.3.3 (A), (B), and (C) of the MAG Specifications, and modify (D) by deleting the last sentence and substituting the following:

"The trench shall be completely backfilled as soon as the pipe attains 3000 psi compressive strength, except that the pipe shall be checked for compliance with grade and alignment and thickness requirements prior to placement of backfill."

.23 PRELIMINARY SHOP DRAWINGS AND SCHEDULE

- A. The apparent low bidder on this project shall submit, in a separate sealed envelope, five (5) working days after the City's request for shop drawings, six (6) copies of each shop drawing of the mainline pipe to be installed on this project. This request will usually be made within seven (7) days of the bid opening. The Contractor shall mark the envelope submitted, on the outside lower righthand corner as follows:

Pipe supplier's name
Contractor's name
Detention Basin No. 1: City of Phoenix
Index No.: ST-896811
Shop drawing submittal #1

- B. In the event a supplier fails to submit the required information within five (5) working days after the City's request, the Engineer shall; have the authority to disapprove or reject the use of that supplier by the successful Contractor.

- C. This submittal shall be made to the Project Engineer. The Engineer will review and return the shop drawings submittal five (5) working days after Council award of the contract.
- D. This submittal shall be in accordance with MAG 105 and the latest revision to the City of Phoenix Supplements.

The line layout and the remainder of the submittals required under STORM SEWER CONSTRUCTION MATERIAL AND LAYOUT SUBMITTALS shall be submitted no later than the time of the Pre-Construction Conference. The Pre-Construction Conference will be scheduled 2 to 3 weeks following the Council award date.

.24 STORM SEWER CONSTRUCTION MATERIAL AND LAYOUT SUBMITTALS

Prior to the manufacturing of the pipe, the Contractor shall submit material and layout drawings to the Engineer in accordance with the procedures contained in the City of Phoenix Supplement, latest edition.

Submittals shall show layout, stationing, laying length of all pipe, D-load or gauge thickness, detailed drawings of any pipe used to construct a curve, and other pertinent data. Fabrication drawings shall be submitted for concrete pipe. Catch basin connector pipe need not be included in the pipe layout, however, pipe stubs shall be included. In lieu of including catch basin connector pipe in the pipeline layout, a list of catch basin connector pipe shall accompany the layout. The connector pipe list shall contain the following information.

- A. Inside diameter and type of material to be used. (R.C.P., C.S.P.)
 - (1) If R.C.P. is used for connector pipe, the D-load rating shall be shown.
 - (2) If C.S.P. is used for connector pipe, the gauge shall be shown.
- B. Station at which pipe joins mainline.
- C. Number of sections of pipe and laying length of sections.

.25 COMMUNITY RELATIONS

The Contractor shall provide to the City, the name and credentials of his public information subcontractor and their community relations program for the project a minimum of 10 working days prior to the public pre-construction meeting. This program shall be designed to run the full length of calendar days in the contract for this project.

The community relations program shall include, but not be limited to:

- A. Distributing a pre-construction information letter to all residents within an area to be determined by the Engineer and/or the Citizens Advocate, which shall contain, at a minimum, the following information:

1. Name of Contractor
2. 24-hour Telephone Complaint Number
3. Brief Description of Project
4. Names of Project Manger and Superintendent (Contractor)
5. Name of Project Engineer (City of Phoenix)
6. Construction Schedule Including Anticipated Work Hours
7. Traffic Regulations Including Lane Restrictions
8. Time and Place for the Pre-Construction Meeting
9. Design & Construction Management's 24-hour Telephone Number (495-2000)
10. City of Phoenix Parks, Recreation & Library Dept. Northeast District General Information Telephone Number (262-6696).

This notification shall be delivered, a minimum, 5 working days prior to the meeting.

- B. Holding a preconstruction meeting with affected neighbors, businesses, schools, churches, etc.
- C. Printing and distribution of public notices and/or newsletter.

The Contractor shall use these or other means to inform the local citizens of necessary operations which will create high noise levels, street closures, limited access, detour locations, haul routes, material delivery routes, hours of construction, and disruption of bus routes and other delivery/pickup routes.

Disruption to utilities in service shall be minimized, and safety shall be maintained at all times. Proper advance notification of service disruption will be required.

The Contractor shall submit a Public Information and Notification Plan in such a manner that the public pre-construction meeting shall be held prior to start of construction. Work to be included for the Public Information and Notification Plan includes: pre-construction meeting(s), and construction meetings with impacted businesses, residents, schools, churches, etc. as needed; scheduling; newsletter, when necessary (at least bi-weekly); and temporary signs. The Contractor shall coordinate with the City to determine the population to be notified of meetings.

The Contractor shall submit a final report/evaluation of the Public Information and Notification process performed for this project. The report shall be submitted to the City before the Contractor receives his final payment.

There shall not be a separate bid item for performing the community relations as required in this section. This work shall be included with the other bid items in the bid schedule.

.26 MEASUREMENT AND PAYMENT

Measurement and payment for all pay items in the Bid Proposal shall be as indicated in the applicable Standard Specification, City of Phoenix Supplement, Special Provision and the Proposal Sheet.

A. Prefabricated Tees and Wyes

The cost of the basic pipe and material required to construct and install prefabricated tees and wyes is included in the unit price bid for main and connector pipes. Bid item for Prefabricated Tees and Wyes is for the cost of manufacturing only.

B. Catch Basins

Add to Subsection 505.10 the following:

Storm sewer catch basins shall be paid for at the unit price bid for each type of catch basin, as represented by the respective bid item, regardless of dimensional or other differences occurring within a particular type. The unit price to be paid under these items shall be compensation in full for furnishing and placing catch basin structures as shown on the plans and as specified, including, when applicable, all removal and replacement of existing curb, gutter and sidewalk, concrete, reinforcing steel, forming, vibrating, finishing, curing, access opening frame and cover, embedded angles, grating, anchor bolts, structural excavation, backfill, compaction, pavement replacement, and any necessary modifications of catch basin structures during construction.

Catch Basin Access Frame and Cover Detail.

City of Phoenix Detail P-1577 Catch Basin Access Frame and Cover, will be used in lieu of City of Phoenix Detail P-1561.

C. Manholes

Storm sewer manholes shall be paid for at the unit price bid for each type, as represented by the respective bid item, regardless of dimensional or other differences occurring with a particular type. The unit price to be paid under these items shall be compensation in full for furnishing and placing manhole structures as shown on the plans and as specified, including concrete, reinforcing steel, forming, vibrating, finishing, curing, cast iron manhole frame and cover, frame adjustment to grade, structural excavation, backfill, compaction, and any pavement replacement in excess of the applicable pay widths assigned to the adjacent pipes.

.27 WORK HOURS

The following paragraphs shall be added to Section 108.5 of the MAG Specifications:

Regular working hours shall be defined as one 8-1/2 hour shift per day, Monday through Friday exclusive of City holidays.

Work in excess of regular work hours shall be defined as overtime. For overtime which becomes necessary, the Contractor shall make a written request to the Engineer at least ten (10) calendar days before the desired overtime. The request shall include: duration, date, time, reason for overtime and a statement of ramifications if overtime is not approved.

The Contractor shall not schedule any overtime work which requires inspections, survey, or materials testing unless he has received written permission from the Engineer two (2) working days before the proposed overtime work. The Engineer reserves the right to deny the requested overtime. If an overtime request is denied, the Engineer may extend the contract time at no additional cost to the City, including extended overhead costs.

.31 SPRINKLER IRRIGATION SYSTEM

Shall conform to MAG and the City supplement SECTION 757 SPRINKLER IRRIGATION SYSTEM with the following revisions or additions:

757.1 GENERAL: Add the following paragraph:

The Manufacturer of component equipment shown on the drawings or specified in the Special Provisions form the basis of the irrigation design as well as the physical and operational standards for which the components were selected. Component equipment from other manufacturers may be submitted for approval by the Contractor. No equipment however is to be ordered without approval of the Engineer.

757.2.2 Plastic Pipe: change this subsection to read:

757.2.2 Plastic Pipe: (A) RIGID PLASTIC PIPE shall be extruded from 100% virgin normal impact unplasticized polyvinyl chloride (PVC) Type 1, Grade I or II resin 2000 psi (PVC 1120 or PVC 1220), design stress ASTM D1784, Department of Commerce PS-21-70, PS-22-70. Standard Dimension Ratio (SDR) 21 or less, pressure rated for not less than 200 psi. Pipe shall conform to ASTM D-2241 and D-2672.

Testing of pipe: Provide written certificates by supplier that polyvinyl chloride pipe has successfully passed the following tests:

Acetone Test: Immerse a sample of pipe in 99% pure anhydrous acetone for 15 minutes; at the end of this time there should be no evidence of flaking or delamination on the inner or outer walls of pipe. Evidence of softening or swelling shall not constitute failure.

Flattening: Cut a specimen two inch longer from each end of the pipe sample. Flatten each test specimen from parallel plates of a press until the distance between the plates, in inches is equal to sixty (60) percent of the pipe O.D., and there shall be no evidence of cracking, splitting or breaking.

The pipe shall be homogeneous throughout, free from visible cracks, holes, or foreign materials. The pipe shall be free from blisters, dents, wrinkles or ripples, die and heat marks.

Piping up to and including 2-1/2" size shall be SDR solvent welded.

Pressure mainline piping 3" size and larger shall be gasket pocket type as manufactured by the Swanson Co. or equal, and shall conform to ASTM F-477.

Continuously and permanently mark pipe with manufacturer's name or trademark, kind and size (IPS) of pipe, material, manufacturer's lot number, schedule or type and NSF seal of approval.

(B) FLEXIBLE PLASTIC PIPE: shall be all virgin PVC compound, containing carbon black, an algaecide and meet or exceed schedule 80 wall thickness dimensions. It shall be equal in quality and performance to Agricultural Products, Inc. IPS Flexible Vinyl (PVC) Pipe.

757.2.3 Pipe Fittings and Couplings: change paragraph (B) to read:

(B) Plastic Pipe Fittings and Couplings: for pipe fittings up to and including 2-1/2" size, fittings and couplings shall be either threaded type or slip fitting tapered socket solvent weld type. Schedule 80 pipe will only be used for threaded joints. Tapered socket solvent weld fittings may be either schedule 80 or schedule 40, but in either case, will be equal to or greater than the schedule and Pressure Rating of the plastic pipe being joined. Tapered fittings shall be sized so that a dry, unsoftened taper can not be inserted more than halfway into the socket. Plastic saddles and flange fittings are not permitted.

PVC fittings shall be marked with manufacturers name or trademark, type PVC, size and NSF seal of approval. Extruded couplings to be produced from NSF rated raw materials and meet ASTM standards.

For pipe 3" size and greater fittings shall be ductile iron, grade 80-55-06 in accordance with ASTM A-536. Fittings shall have mechanical joints with gaskets meeting ASTM F-477. Fittings shall have radii of curvature conforming to AWWA C110 and shall be cement lined in accordance with AWWA C110.

757.2 PIPE AND FITTINGS: add the following subsection:

757.2.5 PVC Primer: The primer shall be specifically formulated for the pipe and type of connection as recommended by the pipe manufacturer.

757.3.4 Electric Remote Control Valves: Change this section to read:

The Electric remote control valve listed on the plans or specifications and described by the manufacturer's most recent literature (catalogue cut sheet), constitute the quality and performance standards for the specified valve.

757.3.7 Valve Boxes: Change this subsection to read:

All valve boxes shall have stainless steel bolts and washers with lock down covers. Valve boxes and covers shall be molded, non-corrosive plastic, ASTM D638, D-356 except when located in paved surfaces. These shall be concrete boxes with lock down steel cover rated for traffic conditions to which it will be exposed.

757.4 BACKFLOW PREVENTER ASSEMBLY: Change this section to read:

The backflow preventer assembly shall consist of Pressure type, or Reduced Pressure type backflow preventer unit and associated components conforming to the governing code requirements and as shown on the plans or specifications. The backflow preventer unit shall be equal in quality and performance to the unit listed in the Contract Documents.

757.5 SPRINKLER EQUIPMENT: Delete the last two paragraphs and substitute the following:

Sprayheads, impact sprinkler heads, rotor pop-up sprinkler heads, Bubblers, Emitters shown on the plans or specifications and as described in the

Manufacturer's latest literature (Catalogue cut sheets) constitute the performance and quality standards for this equipment.

757.6.3 Electro-Mechanical Controller Unit: Delete this subsection.

757.6.4 Controller Unit and Assembly: Delete this subsection and substitute the following:

The Controller unit and assembly listed on the plans or specifications and as described in the Manufacturer's latest literature (Catalogue cut sheets) constitute the quality, performance and operational standards for the specified Controller.

Add the following subsections:

757.6.5 Flow Sensor: The flow sensor listed on the plans or specifications and as described in the Manufacturer's latest literature (catalogue cut sheets) constitute the quality, performance and operational standards for the specified flow sensor.

757.6.6 Soil Moisture Sensor: The soil sensor listed on the plans or specifications and as described in the Manufacturer's latest literature (catalogue cut sheets) constitute the quality, performance and operational standards for the specified soil sensor.

.32 SPRINKLER IRRIGATION SYSTEM INSTALLATION

Delete MAG and City Supplement to MAG Section 440 **SPRINKLER IRRIGATION SYSTEM INSTALLATION** in its entirety and substitute the following:

**SECTION 440
SPRINKLER IRRIGATION SYSTEM INSTALLATION**

440.1 GENERAL:

The Contractor shall furnish all labor, materials, tools, equipment, and services necessary for the execution and completion of the irrigation system work as indicated on the drawings and as described in these specifications and the General Conditions.

Due to the scale of the drawings, it is not possible to indicate all offsets, fittings and sleeves which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such offsets, fittings and sleeves as may be required to meet such conditions. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

The work of this Section generally includes provisions of an underground sprinkler system including the following:

Trenching, stockpiling excavation material, and refilling trenches.

Complete system including but not limited to piping, backflow preventer assemblies, flow sensors, soil moisture sensors, valves, fittings, spray heads, bubblers, emitters, controllers and wiring, and final adjustments to insure complete coverage.

Replacement of unsatisfactory materials.

Clean-up, inspection, and approval.

Tests. The system shall efficiently and uniformly irrigate all areas and perform as required by these plans and specifications.

No irrigation work is to be preformed until all areas are finished to proper grade and until soil preparation is completed, and has been approved by the Engineer.

440.1.1 Allowances for work by the Water and Wastewater Department:

An allowance is included as a bid item for work to be preformed by the Water and Wastewater Department in providing a water tap and meter. The Contractor will contact the Water and Wastewater Department and make application to have the work preformed at least four weeks before installation is required. He shall submit the paid invoice to the Engineering Department and shall be reimbursed the exact amount paid. The Contractor shall pay for all water used until the project is accepted, or until completion of the Landscape Maintenance Period, whichever ever is later,

and the water meter accounts are transferred. The Contractor will submit water meter account numbers to the Engineer and request transfer of the meter to the City, or the Contractor will remain responsible for water use and payment thereof, until transfer.

440.1.2 Allowance for work by the Power Company: An allowance is included as a bid item for work to be performed by the utility company. The Contractor will be responsible for all other electrical installations. In addition, the Contractor will obtain an account with the utility company and will pay for all electrical power used until the project is accepted, or until completion of the Landscape Maintenance Period, whichever is later, and the utility accounts are transferred. The Contractor will submit electrical meter account numbers to the Engineer and request transfer of the meter to the City, or the Contractor will remain responsible for electrical use and payment thereof, until transfer.

440.2 REFERENCES:

Conform to the requirements of reference information listed below except where more stringent requirements are shown or specified in the Contract Documents.

American Society of Testing Materials (ASTM) - Specifications and Test Methods specifically referenced in this Section.

Underwriters Laboratories (UL) - UL Wires and Cables.

Manual of Cross-Connection Control - University of Southern California

440.3 QUALITY ASSURANCES:

Work involving plumbing for installation of copper piping, backflow preventer(s), and related work shall be executed by licensed and bonded plumber(s). Secure a permit at least 48 hours prior to start of installation.

Tolerances: Specified depths of mains and laterals and pitch of pipes are minimums. Settlement of trenches is cause for removal of finish grade treatment, refilling, recompaction, and repair of finish grade treatment.

Coordinate work with other trades.

The Contractor shall replace any pavement damage resulting from the installation of the irrigation system and repair damage to grading, soil preparation, seeding, sodding, or planting at no additional cost to the owner.

440.4 SUBMITTALS:

440.4.1 Shop drawings and product information: Prepare and make submittals in accordance with conditions of the Contract, and as follows: A minimum of ten days prior to beginning work on the irrigation system the Contractor shall submit six (6) copies of manufacturers literature including name and numbers covering materials listed below and any other

items requested by the Engineer. Do not order materials until products are approved by the Engineer.

Items to be submitted:

| | |
|-----------------------|----------------------------|
| Pipe | Automatic Controls |
| Fittings and Solvents | Wire and Connectors |
| Gate Valves | Air Relief Valves |
| Valve Boxes | Pressure Regulating Valves |
| Sprinklers | Quick coupling Valves |
| Automatic Valves | Soil Moisture Sensor |
| Flow Sensor | |

All items shall be those specified and approved by the Engineer. Substitutions will not be allowed without approval.

440.4.2 Record Drawings: The Contractor shall maintain an accurate set of as-built plans on site. At the end of each day work accomplished shall be updated on the as-built plans. The Contractor shall dimension from two permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following:

- a. Connection to existing water lines
- b. Connection to existing electrical power
- c. Gate valves
- d. Routing of Sprinkler pressure lines (dimension at a minimum of 100 feet along routing)
- e. Sprinkler control valves
- f. Routing of control wiring
- g. Quick-coupling valves
- h. Other related equipment as directed by the Engineer

The above mentioned equipment and stock shall be turned over to the owner at the conclusion of the project. Before final inspection can occur, evidence that the Owner has received material must be shown to the Engineer.

The Contractor shall also indicate any non-pressure pipe routing changes on the as-built drawing.

Before the final inspection, the Contractor shall deliver to the Engineer one copy of the as-built plans to review. Delivery of this set of plans does not relieve the Contractor of the responsibility of furnishing required information that may be requested by the Engineer. The Contractor shall make corrections noted and submit final as-built plans to the Engineer for approval and acceptance. The Engineer will not not certify payment requests or make final payment if as-built plans are not current or complete.

440.4.3 CONTROLLER CHARTS: As-Built drawings shall be approved by the Engineer before controller charts are prepared. The chart shall show the area controlled by the automatic controller and shall be the maximum size which will fit inside the controller door and still be legible. Identify area of coverage and maximum GPM flow of each remote control valve, using a distinctively different color, drawing over the entire area of coverage.

Following review of the charts by the Engineer, they shall be thermetically sealed between two layers of 20 mm thick plastic sheets. These charts shall be completed and approved prior to final inspection of the irrigation system.

440.4.4 Operation and Maintenance Manuals: Submit 4 operation and maintenance manuals to the Engineer for review prior to final acceptance. The manuals should include the complete technical description of materials and products used, guarantee statement, complete operating and maintenance instructions on all major equipment. Contractor to provide a demonstration to maintenance personnel, with owners representative present, of how to adjust and maintain all sprinkler head types, controller functions, and recommended controller programs as established by the Contractor. Contractor also to review recommended watering rates for new plant materials.

440.4.5 Equipment to be furnished: All materials to be new and bear the appropriate National Association seal of approval for example, NSF. UL. etc. Similar units shall be procured from the same manufacturer and internal parts shall be common and interchangeable. Parts listing and source replacement will be furnished to the Engineer.

Equipment to be furnished:

- a. Two sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied to the project.
- b. Two five foot valve keys for operation of gate valves.
- c. Four quick-coupler keys and matching hose swivels for each type of quick-coupling valve installed.
- d. Three valve box keys or wrenches.

Extra Stock to be furnished:

- a. 5 sprinkler heads of each type.
- b. 5 nozzles for each type used.
- c. 10 bubblers of each type used.

440.5 PERMITS:

All permits for installation or construction of the work included under this section, which are required by legally constituted authorities having jurisdiction, shall be obtained and paid for by the Contractor, each at the proper time, except the building safety permit, which will be paid by the City. He shall also arrange for and pay all costs in connection with any inspections and examinations required by these authorities.

440.6 Execution:

Examine areas and conditions under which work of this section is to be preformed. Do not proceed with work until unsatisfactory conditions have been corrected.

440.6.1 Staking: Mark with powdered lime, routing of pressure supply line and stake locations of various components, sprinkler heads and bubblers. Unless otherwise specified, the automatic sprinkler system layout shall be

considered schematic. Sprinkler head spacing shall not exceed the maximum shown on the drawings or recommendations by the Manufacturer. Preliminary adjustments to conform to actual site conditions shall be accomplished during staking. Should changes be required the contractor shall obtain approval of the Engineer prior to actual work being performed. Utility connections, both water and electrical shall be as shown on the plans or as designated by the utility concerned.

440.6.2 Trench Excavation: Trenches and other excavations shall be sized to accommodate the irrigation system components, conduit, and other required facilities. Additional space shall be provided to assure proper installation and access for inspection. Unless otherwise specified, the minimum depth of cover over pipelines and conduits shall be as follows:

- a. Electrical conduit - 18 inches
- b. Waterlines continuously pressurized - 24 inches
- c. Lateral sprinkler lines - 12" for bubblers, 18" for rotors
- d. Plastic lines under pavement - 24 inches

The bottom of the trenches shall be true to grade and free of protruding stones, roots or other matter which would prevent proper bedding of pipe or other facilities. Where ledge rock, hard pan, or boulders are encountered, the trench bottom shall undercut and filled with sand or fine grained material approved by the Engineer.

Clearances:

- a. Piping 3" and larger, minimum trench width of 12 inches.
- b. Piping smaller than 3", minimum trench width of 7 inches.
- c. Provide not less than 6 inches of clearance between each line, and not less than 12 inches of clearance between lines of other trades, to permit service or replacement without disturbing the other line.

Grading and Stockpiling of trenched materials shall comply with Section 601.2.8.

440.6.3 Sleeving: Piping located under asphalt, concrete, or other pavements shall be sleeved, size and schedule as noted on the plan. If not noted sleeves shall be schedule 40 sized to easily accommodate piping. Use separate sleeve for wiring.

Boring will be permitted only where pipe must pass under obstructions which can not be removed or when approved by the Engineer. When any cutting or removal of asphalt and or concrete work is necessary, it shall be saw cut in accordance with Section 601. Permission to cut asphalt or concrete shall be obtained from the Engineer. When piping on the drawings is shown in paved areas, but running parallel and adjacent to planted areas, the intent of the drawings is to install the piping in the planted area.

440.6.4 Piping: Provide pipe, schedule and size as shown on the drawings and per SECTION 757.

PVC Pipe: Snake pipe in trench as much as possible to allow for expansion and contraction. Provide a firm, uniform bearing for the entire length of each pipe line to prevent uneven settlement. Installation of pipe shall be installed in accordance with ASAE Standard: ASAE 376. Pipe shall be clean

prior to installation and shall be maintained in that condition during installation. When pipe laying is not in progress, the open ends of the pipe shall be closed by approved means.

Sand bedding or fine grained material shall be provided where ledge rock, hard pan, or boulders are encountered. Compact bedding material to provide a minimum depth of bed between pipe and rock of 4 inches.

Solvent welded joints shall be made in accordance with ASTM D-2855, and the type of solvent and primer recommended by the pipe manufacturer shall be used. Primer and solvent shall be applied to the pipe ends in such a manner that no material is deposited on the interior surface or forced into the interior of the pipe during insertion. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly. The pipeline will not be exposed to water for at least 12 hours after the last solvent welded joint has been made.

Schedule 80 pipe shall be used for threaded joints. Field threading shall be accomplished in the same manner as specified for steel pipe, except that a plug will be installed in the bore of the pipe prior to threading to prevent distortion. Solvent will not be used on threaded pipe. Threaded joints shall be hand tightened with final tightening as necessary to prevent leaks with a strap wrench.

The pipe shall be protected from damage during assembly. All vises shall have padded jaws and only strap wrenches will be used. Any plastic pipe which has been nicked, scarred, or otherwise damaged shall be removed and replaced. Care shall be exercised so that stress on a previously made joint is avoidable.

When PVC to metal pipe connectors are required, these connections shall be accomplished first. A plastic adapter with external pipe threads should be used, screwing it into the metal internal pipe threads. Use a non-hardening pipe dope such as Permatex #2, or equal, on all plastic to metal threaded joints. The joint shall be hand-tightened, utilize a light wrench as necessary to prevent leaks.

When wrapped pipe is specified, joints and connectors shall not be wrapped until completion of the pressure test.

440.6.5 Wiring: All Service Wiring shall be installed in rigid conduit from the service point to the controller at the minimum depth specified. A separate disconnect switch or combination meter socket, as required shall be installed between the source of power and the controller. The minimum service wire shall be No. 12 AWG copper 600 volt type, TWH or larger as required by the contract documents or controller manufacturer. Wire splices shall be located only in specified pull boxes and shall be made with a packaged kit approved for underground use. Pull boxes shall be plastic with locking covers set to proper elevation on a 6 inch layer of crushed rock or washed gravel.

Low Voltage Control Wiring issuing from the controller shall be direct burial, type UF, No.12 AWG copper for common wire and No. 14 AWG for control wire, unless otherwise required and installed in main or lateral waterline trenches wherever practical. The wiring shall be bundled and

secured to the lower quadrant of the irrigation pipeline at 10 foot intervals with plastic electrical tape. Sufficient slack (minimum of 24") shall be left in the wiring to provide for expansion and contraction. When control wiring can not be installed in the pipe trench it shall be installed a minimum of 18 inches below finish grade. Attach wire markers to the ends of the control wires and label valve stations at controller locations.

All pilot or "hot" wires are to be of a different color and all common wires are to be of another color. If multiple controllers are being utilized, and wire paths of different controllers cross, both common and control wires, from each controller, shall be of different colors.

Splices in control wire shall be made in accordance with the requirements for Service Wire. Sufficient slack (minimum of 24") shall be left at each splice and point of connection in pull boxes so that in case of repair the valve bonnet or splice may be brought to the surface without disconnecting the wire. No splices shall be permitted under pavements.

All wiring shall be tested for continuity, open circuits, and unintentional grounds prior to connecting the equipment. All controllers shall be grounded independent of any other controller, as recommended by the controller manufacturer and all valves shall be connected to the ground wire of their controller. Each valve shall be connected by a separate hot wire to its controller.

Two spare #12 AGW wire shall be installed from the controller pedestal of terminal along entirety of pressure lines to last electric control valve on each and every leg of mainline. Color of spare wire to be green in all controllers. Loop spare wire inside all valve boxes.

440.6.6 Valves, Valve Boxes, and Special Equipment:

Backflow Preventer Assembly: The Backflow Prevention assembly shall be installed per the details shown on the drawings and associated governing code requirements. Provide pipe supports and the accessories to properly secure the assembly. The irrigation system shall not be operated until the backflow assembly is tested and certified to meet the requirements of the Water and Wastewater Department - Water Quality Section.

After the backflow assemblies have been properly installed and approved by Development Services Department - Building Safety Branch, the Contractor shall pay for testing and be responsible for having the assemblies tested by a certified backflow prevention assembly tester, approved by the City. The tester shall prepare test reports, showing the condition of the assemblies and confirming that the assemblies are properly functioning. It is the contractors responsibility to submit forms to the Engineer and to Water Quality Division, Backflow Prevention Unit. Final acceptance will not be given until the reports are approved by the Engineer.

Valves, Pressure Regulators, and Related Accessories shall be installed as shown on the plans, or as specified. They shall be installed in a normal upright position unless otherwise recommended by the manufacturer, and shall be readily accessible for operation, maintenance and replacement. The equipment shall be set at a sufficient depth to provide clearance between

the valve box cover and the valve handle, cap, or key for operation of the system.

Gate Valves and Isolation Valves shall be installed below ground and shall be housed in a concrete or plastic pipe, with bolt down locking cover, that will permit access for servicing. The pipe shall be centered on the valve stem. Isolation valves shall not be located within range of the sprinklers they control with out approval of the Engineer.

Drain Valves shall be installed at all low points in pressure supply line as detailed. Provide drainage sump for each drain valve based on the table below:

**CUBIC FEET OF GRAVEL PER DRAIN VALVE
DISTANCE OF PIPING TO BE DRAINED**

| PIPE SIZE | 0-250 LF | 251-500 LF | 501-750 LF | 751-1000 LF |
|-----------|----------|------------|------------|-------------|
| 1" | .75 | 1.50 | 2.25 | 3.00 |
| 1-1/4" | .75 | 1.50 | 2.25 | 3.00 |
| 1-1/2" | 1.50 | 3.00 | 4.50 | 6.00 |
| 2" | 2.50 | 5.00 | 7.50 | 10.00 |
| 2-1/2" | 4.00 | 8.00 | 12.00 | 16.00 |
| 3" | 6.00 | 12.00 | 18.00 | 24.00 |
| 4" | 11.00 | 22.00 | 33.00 | 44.00 |
| 6" | 25.00 | 50.00 | 50.00 | 50.00 |

Quick Couplers and Hose Bibcocks shall be installed as shown on the plans, or as specified. Their location shall be a minimum of 3 feet from curbs, pavements and walks, unless approved otherwise by the Engineer. Quick-couplers shall be installed on a swing joint riser assembly and set at a sufficient depth below ground to provide clearance for the valve box cover in the closed position. Hose bibcocks shall be set 12 inches above finish grade and installed on a galvanized riser or as detailed.

Valve Boxes: Install one valve box for each type of valve installed as shown on the plans, or specified unless directed otherwise by the Engineer. Install gravel sump after compaction of all trenches. Place final portion of gravel inside valve box after valve box is backfilled and compacted. Set valve boxes to the finish grade specified, or as follows:

- a. In non-irrigated areas set box 1/2 inch above finish grade.
- b. In areas irrigated by flood bubblers set boxes adjacent to curbs, sidewalks, or pavements at or just above water level.
- c. In irrigated turf areas set box 1/2 inch above finish grade.

The valve boxes shall be branded with the controller letter and station number of the contained valve. The letter and number size shall be no smaller than 1 inch and no greater in size than 1-1/2 inches. Depth of branding shall not be more than 1/8 inch into the valve box lid. All labeling shall be neat and legible.

440.6.7 Sprinkler Heads: Install sprinkler heads where indicated on the drawings, staked and approved. Set to finish grade as detailed; spacing of

the heads shall not exceed maximum recommended by the manufacturer without approval of the Engineer. They shall be installed with at least 4 inches clearance from vertical elements projecting above grade such as walls, planter boxes, curbs, and fences. All sprinkler heads shall be perpendicular to finish grade unless otherwise designated on the plans or details.

440.6.8 Bubblers: Install bubblers where indicated on the drawings, staked and approved. Bubbler heads shall be installed as detailed to the elevations shown on the plans.

440.6.9 Riser Assemblies: Bubbler outlet assemblies shall consist of 1/2" S.D.R. 13.5 PVC lateral extension with a horizontal connection to the lateral line, schedule 80 fittings, and 1/2" flex hose with schedule 80 male adaptors.

Sprinkler heads, and Quick Couplers shall have double swing joint assemblies, as shown on the plans. The assembly shall consist of: horizontal nipple threaded into a single outlet ell or tee installed schedule 80 fittings, minimum 12" long threaded nipple. The Contractor may submit a pre-manufactured swing joint assembly, such as that manufactured by Lasco Inc. or equal for approval by the Engineer as a substitute.

440.6.10 Controller System: The Controller and accessories shall be installed at the locations designated and per the details shown on the contract documents. All distribution wire shall be as specified in section 440.6.5. Provide slack and tape controller wire in neat bundles. The foundation for the controller shall be class A concrete of the size shown on the plan or as recommended by the manufacturer. Stub out all conduit for control wiring 2 feet beyond concrete slab or walls and provide bushings for all conduit. All RGS conduit in contact with earth shall be taped with scotchwrap #50 minimum thickness 40 mils or equal.

440.6.11 Bedding, Backfilling and Compaction: Pipe shall be bedded in at least 4 inches of finely graded native soil or sand to provide a firm, uniform bearing. After laying, the pipe shall be surrounded with additional finely grained native soil or sand to at least 4 inches over the top of the pipe.

Bedding sand shall be required when site conditions dictate and clean backfill meeting the specifications is not available. It shall also be required under asphalt and concrete pavements such as roadways, parking surfaces, and plazas.

Thrust blocking shall be formed against a solid trench wall that has been hand excavated. The size and type of the thrust blocking shall be as per the drawings. Control wire shall not be concealed within the thrust blocking.

Trench backfill, sufficient to anchor the pipes, may be deposited before pipeline pressure testing, except that joints shall remain exposed until satisfactory completion of testing.

Trenches and excavations shall be backfilled with clean material from excavations. Remove organic material as well as rocks larger than 1 inch in diameter. Place acceptable backfill material in lifts the height of which shall not exceed that which can be effectively compacted depending on the type of equipment and methods used. Trenches and excavations shall be backfilled so that the specified thickness of topsoil is restored to the upper part of the trench. Compaction shall be in accordance with Section 301. Water

settling of the trenches will not be permitted unless approved by the Engineer.

440.6.12 Cleaning: Maintain continuous cleaning operations throughout the duration of the work. Dispose of, off-site at no additional cost to the owner, all trash or debris generated by installation of the irrigation system.

440.7 FLUSHING AND TESTING:

After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove all foreign material. After flushing, the following tests shall be conducted in the sequence listed below. All equipment, materials, and labor necessary to perform the tests shall be furnished by the Contractor and all tests shall be conducted in the presence of the Engineer.

Pipeline Pressure Test: A water test shall be performed on all pressure mains. Pressure mains shall be tested with all control valves installed and in the closed position. The constant test pressure and duration of the test shall be for 6 hours at 125 psi. Any leaks which occur during the test period will be repaired immediately following the test. The pressure mains will then be retested until accepted by the Engineer.

Sprinkler Coverage Test: The coverage test shall be performed after sprinkler heads have been installed and shall demonstrate that each section or zone in the irrigation system is balanced to provide uniform and adequate coverage of the areas serviced. The Contractor shall correct any deficiencies in the system.

Operational Tests: The Contractor shall adjust or replace any type of irrigation heads or equipment to ensure proper distribution of water throughout the course of the Plant Establishment Guarantee and Maintenance Period.

440.8 PRELIMINARY, SUBSTANTIAL AND FINAL WALK-THROUGH INSPECTIONS:

Arrange for a preliminary walk-through with the Engineer, at that time the entire system shall be operational. Operate each zone in its entirety, additionally, open all valve boxes and expose items covered if directed. Generate a list of items to be corrected and make adjustments, "fine tuning" the entire system by regulating valves, adjusting patterns and break-up devices, and setting pressure regulators at proper and similar pressure to provide optimum and efficient coverage. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways, and buildings as much as possible. Adjustments may include, at no additional cost to the City, changes in nozzle sizes, and degree of arcs.

Arrange for a Substantial Completion walk-through when all items generated from the preliminary walk-through have been corrected. Items deemed not acceptable by the Engineer shall be reworked to complete satisfaction. The maintenance period will not begin unless authorized by the Engineer. All accessories, charts, record drawings and equipment as required will be provided before scheduling the Final walk-through.

Following the Landscape Maintenance Period a Final walk-through inspection will be scheduled to review the system and make adjustments to the watering schedules.

440.9 MEASUREMENT AND PAYMENTS:

Measurement and payment shall be in accordance with Section 109. The lump sum or unit prices established in the proposal sheets shall be full compensation for furnishing all labor, materials, tools and equipment, and performing all work necessary for completion of the irrigation system described or specified in the contract documents.

When unit bid items are included in the proposal sheets, the unit prices quoted shall include the following items of work and material.

(A) Water Service Tap and Meter: The work under this item will be performed by the City of Phoenix Water and Wastewater Department and consists of furnishing and installing a curb stop, concrete meter box with cover, tap to main and pipeline to the curb stop at the locations and in accordance with the details shown on the plans. The curb stop and water meter box will be paid for under this item. Payment will be made at the current price for this service as charged by the City of Phoenix. With some projects an allowance may be shown in the bid proposal for this item, reference Section 440.1.1.

(B) Backflow Prevention Unit: The unit price for this item shall include the backflow prevention unit, risers and concrete thrust blocks complete and in place.

(C) Electrical Remote Control Valve and Assembly:

The unit price for this item shall include the valve, the valve box with stainless steel hex bolt secured cover, pea gravel and specified pipe to the meter or backflow prevention unit.

(D) Sprinkler Controller: The unit price for this item shall include:

Cost of sprinkler controller (automatic)

All wiring for a complete underground control system, including trenching, wire, conduit, boring or jacking.

Steel security cabinet with concrete base, grounding system, metal hasp and padlocks, and all wiring within the cabinet unless controller is placed on a building or within a walled enclosure.

The junction box and any work and materials required from the stubout provided by the power company in order to complete the installation of the controller.

(E) Irrigation Pipe: The contract price for this item shall include the pipe and fittings, trenching, backfilling and any necessary boring or jacking to install the pipe. Sleeves shall be schedule 40.

- (F) Pull Box: The contract price for this item shall include the 10" diameter pull box (plastic irrigation valve box with stainless steel hex bolt secured cover).
- (G) Sprinkler Head: The contract price for this item shall include the head and all fittings, nipples, and risers from lateral to the head.

.33 LANDSCAPE MATERIALS:

Modify the Section 795 of the City Supplement to MAG as follows:

795.3 SOIL FERTILIZING MATERIAL: Delete this subsection and substitute the following:

795.3 Soil Amendments and Conditioners: Fertilizing material shall comply with the applicable requirements of the State Agricultural Code. Fertilizing material shall be packaged, first grade, commercial quality products identified as to source, type of material, weight and manufacturers analysis. It shall not contain toxic ingredients or fillers in quantities harmful to human life, animals, or plants. Material which has become caked or otherwise damaged shall not be used.

Plant Material: Fertilizing material for plants shall be similar to the product Milorganite (processed sewage sledge pellets), or approved equal, with the following additive ingredients (% by weight): 3% Nitrogen, 10% Sulfur, 4% Iron, 1% Zinc, .080% Manganese, and .13% Viterra. All fertilizing material shall be in 5 lbs packages with additive ingredient derived from:

- (1) Nitrogen from Urea Formaldehyde and M.A.P.
- (2) Sulfur from Potassium Sulfate
- (3) Iron from Sequestrene 138 Iron
- (4) Zinc from Sequestrene Zinc
- (5) Manganese from Sequestrene Manganese
- (6) Viterra from a synthetic, superabsorbent co-polymer.

Fertilizing material for turf: shall be a commercially approved brand designated for turf grass. Unless otherwise specified lawn fertilizer shall be a general purpose homogeneous blend no less than 12% analysis in a 1:1:1 ratio. Provide nitrogen in a form that will be available to lawn during initial period of growth; at least 50% of Nitrogen to be organic form.

Slow Release Fertilizer Tablets: Shall be Agriform 21 gram tablets or equal with 20-10-5 analysis.

Organic Mulch: Shall consist of a ground or processed wood product derived from redwood, ground or shredded fir, redwood or ponderosa bark. It shall have a nitrogen content of 1%, a PH not exceeding 7.5% and organic matter not less than 85%. Mulch gradation shall be treated with a non-toxic agent so as to be hydroscopic.

Sand: Shall be brown washed mortar sand passing at least a #7 screen, free of weeds, organic material, stones, deleterious materials, non-toxic to plant and human life and usable for backfill mixtures.

795.7 PLANTS, TREES, AND SHRUBS: Delete this section and substitute the following:

795.7 Plants: Plants shall be nursery grown or plantation grown stock conforming to ANSI 260-1 and shall be of the varieties specified in the plant list bearing botanical name listed. Plants shall meet the standards

established by the Arizona Nursery Association Grower's Committee recommended specifications.

Planting stock shall be well branched and well formed, sound, vigorous, healthy and free from disease, sun-scald, windburn, abrasion and harmful insects or insect eggs and shall have healthy, normal and unbroken root system which is neither root or pot-bound and are free of kinked or gurdling roots. Plants shall have been grown under climate conditions similar to those at the project site. Plant materials provided from areas outside of similar climatic conditions shall only be allowed if approved in writing by the Engineer. Contractor shall be responsible for taking precautions to acclimate materials prior to installation.

795.8.4 Decomposed Granite: Change this Section to read as follows:

Decomposed Granite shall conform to the requirements of MAG Specifications Section 702.4. A 5 pound sample shall be submitted to the Engineer's office for approval prior to use on the project. The decomposed granite shall not contain lumps or balls of clay, caliche, organic matter or calcareous coating and shall be consistent in color with approved sample. The Contractor shall verify that sufficient material is available from a single source to complete the project. The color shall be pink coral with a gradation as follows:

| General Landscape | |
|-------------------|---------|
| 1/2" Minus | |
| Sieve Size | % Pass |
| 3/4" | 100% |
| 1/2" | 85-100% |
| No.4 | 60-80% |
| No.40 | 10-30% |
| No.200 | 0-10% |

.34 LANDSCAPING AND PLANTING

Delete MAG and the City Supplement to MAG Section 430 **LANDSCAPING AND PLANTING** in its entirety and substitute the following:

430.1 DESCRIPTION:

This section shall govern the preparation and planting of landscape areas required in the Plans or Specifications. Materials shall be in accordance with Section 795.

Existing utilities and improvements not designated for removal shall be protected in place. Any damages will be repaired by the Contractor at no additional cost to the Contracting Agency.

Unless otherwise provided, walls, curbs, planter boxes, irrigation systems, and other improvements shall be constructed after rough grading has been completed and prior to finish grading.

430.2 GENERAL:

Furnish all labor, materials, equipment and incidental needs to install the landscape to the lines and details shown in the plans.

Applicable publications listed below form a part of this specification to the extent referenced:

Arizona Nursery Association Growers Committee Recommended Tree Specification (latest edition)

Subcontract landscaping and irrigation work to a single firm specializing in landscape and irrigation installation and maintenance.

Perform work in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by Federal, State and local authorities in furnishing, transporting and installing materials as shown or for completing the work identified herein.

430.2.1 Source Quality Control: Ship materials with Certificate Of Inspection required by governing authorities.

Do not make substitutions: If specified material is not obtainable, submit proof of non-availability, together with proposal for use of equivalent material, similar in appearance, ultimate height, shape, habit of growth and general soil requirements. Substitution of a larger size of the same species may be made by the contractor with approval by the Engineer. However, any additional cost for these substitutions will be bore by the contractor.

Before delivery, Certificates Of Compliance shall be submitted, certifying that materials meet the requirements specified. Certified copies of the reports for the following materials shall be submitted:

1. Transporting of Cacti and Landscape Plant Materials (from the Arizona Department of Agriculture).
2. Soil Amendments and Conditioners

Certification shall indicate; suppliers name, address, telephone number, date of purchase, name and technical description of item purchased, and quantity of each item purchased.

430.2.2 Samples and Tests: The Engineer reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request. Rejected materials shall be immediately removed from the site at the contractor's expense. Cost of testing materials not meeting specifications shall be paid by the contractor.

430.2.3 Herbicide / Pesticide Applicators: All herbicide / pesticide applicators shall be properly licensed for application of non-restricted use chemicals with an A-20 license or an A-21 license with Pesticide Endorsement from the State Registrar of Contractors and Structural Pest Control Commission. All Landscape Contractors are required to furnish a copy of their application from the Registrar of Contractors which shall list the names of those employees approved as applicators by the Registrar of Contractors. Application of non-restricted use pesticides shall not take place until the Engineer receives a copy of the application.

430.3 PLANT ESTABLISHMENT GUARANTEE AND MAINTENANCE:

Unless otherwise authorized, the contractor shall maintain all landscape areas on a continuous basis as they are completed during the course of work and until final Plant Establishment Guarantee and Maintenance Acceptance. The Contractor shall provide adequate personnel to accomplish maintenance. Maintenance shall include keeping the landscape areas free of debris on a weekly basis, chemical control of weeds and fertilization as needed, cultivating the planting areas, and mowing of turf where lawns are part of the project.

Plants shall be kept in a healthy, growing condition by watering, pruning, spraying, weeding and any other necessary operation of maintenance. Plant saucers and beds shall be kept free of weeds, grass and other undesirable vegetation. Plants shall be inspected at least once per week and appropriate maintenance performed. Pruning and restaking is to include removal of any growth conflicting with vehicular or pedestrian movement.

Turf from seed shall be considered established when no bare ground exists within a reasonable area (approximately 2 feet in diameter) as determined by the Engineer. Disturbed areas or any areas greater than 2 feet in diameter which fail to show a good stand of grass shall be reworked and replanted until an acceptable stand is established.

The contractor shall maintain the irrigation system and make any necessary repairs regardless of cause to assure a complete and operational system as originally designed and constructed. Repairs shall be made within 48 hours of detection.

Chemical mixing and method of application for weed control shall be done in the presence of the Engineer. Chemical application for weed control shall

not apply to areas that are hydroseeded when hydroseeding is part of the project.

The Contractor shall request an inspection by the Engineer whenever completion of the planting and related work has been accomplished. After this initial inspection, and subject to his approval of work, the Engineer will issue a written field notification to the Contractor setting the effective date for beginning of the Plant Establishment Guarantee and Maintenance Period. This Period shall last for 60 days on container grown trees / shrubs and 120 days for salvaged field grown trees. If the landscape areas are improperly maintained; if appreciable plant replacement is required (for whatever reason); if corrective work is required for the operation of the irrigation system; if turf areas or hydroseeded areas need reseeded or are not established; or if other corrective work is necessary; the Plant Establishment Guarantee and Maintenance Period shall be extended and the Contractor shall continue to maintain the entire site until accepted at no increased cost.

At the end of the Plant Establishment, Guarantee and Maintenance Period a final inspection will be performed. If, after inspection, the Engineer is of the opinion that all planting areas are weed free, plant materials and turf are in satisfactory growing condition, he will give the contractor written Notice of Acceptance of the landscape installation. Any plants which need to be replaced, regardless of the cause, shall be replaced prior to final acceptance.

There shall be no separate measurement and payment for the Plant Establishment and Maintenance Period. This cost shall be included in landscape bid items for: plant materials, irrigation, and inert materials, such as decomposed granite, river run and boulders. Ten percent of each landscape bid item amount in addition to retention will be held for distribution during the maintenance period. Equal monthly payments will be authorized, based on inspection and subject to extensions, where the contractor fails to comply with previously stated requirements. Payment may or may not be supplemental to final project payment.

430.4 JOB CONDITIONS:

Site Examination: The prospective contractors are encouraged to visit the job site prior to bidding on this project, and to satisfy their concerns as to the magnitude of the work involved.

Water costs are the contractors responsibility, until Final Acceptance or end of Plant Establishment, Guarantee, and Maintenance Period which ever is longer and the water meters are transferred to the City.

Responsibility for establishing subgrade is not involved in this work, All planting areas shall be left free of construction debris and/or toxic material and subgraded to a level to permit landscape and irrigation construction. Trenches, foundation backfill or other filled excavations shall be compacted prior to the site being turned over to the landscape contractor. No soil preparation or planting shall begin before the site has been cleared and cleaned of debris. Commencement of work indicates acceptance of job site conditions.

Cooperate and coordinate with other contractors and trades working in and adjacent to landscape areas.

430.4.1 Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damages. Any damages will be repaired by the contractor at no additional costs to the Contracting Agency. Hand excavate, as required. Maintain stakes by others until removal is mutually agreed upon by parties concerned.

430.4.2 Obstructions: If rock or other obstructions are encountered in excavation for planting, notify the owners representative. Proceed with work only as directed.

430.5 DELIVERY, STORAGE AND HANDLING:

Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored on site.

Trees and Shrubs: Do not prune prior to delivery unless otherwise approved by owners representative. Do not bend or bind trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. Provide adequate protection for root systems. Protect root balls from drying wind and sun.

Deliver trees/shrubs just prior to planting. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage. Keep roots moist. Water as often as necessary.

Plant Inspection Prior to Delivery to the Project Site: Prior to delivery of any species to the project site, the Contractor shall make the necessary arrangements with the Engineer for an inspection of the plant material. Travel to non-local Nurseries, out of the metropolitan Phoenix area, when requested by the contractor, will be paid for by the contractor. Any plants found to be unsuitable in growth or condition, or plants which are not true to the specification shall be removed and replaced with acceptable plants.

The Contractor shall notify the Engineer at least 48 hours in advance for inspection of the plant material at the offsite location. Prior to notification of the Engineer, the Contractor shall physically verify that the plant material meet the size specified.

430.6 MATERIALS AND PRODUCTS:

Shall conform to the requirements described in Section .33 Landscape Materials.

430.7 SEQUENCING AND SCHEDULING:

Proceed with and complete landscape work as rapidly as portions of the site become available, working with reasonable limitations for each kind of work required.

Plant or install lawns during normal planting seasons and as directed by the Engineer.

For Bermuda, seed from April to the end of September, provided nighttime temperatures are averaging above 60 F.

Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting lawns, unless otherwise acceptable. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from tree or shrub planting operations.

430.8 PREPARING THE SITE FOR LANDSCAPING:

All non-paved areas, as directed by the Engineer, shall be treated with a chemical control, such as Round-up or Equal, to control and kill weeds. After weed kill has been established to the satisfaction of the Engineer, these areas shall be cleared and grubbed.

Prior to landscape grading, areas designated shall be cleared and grubbed in accordance with Section 201, Clearing and Grubbing.

Remove or relocated trees, shrubs, grass, improvements or obstructions interfering with the installation of new construction. Removal includes digging out stumps and roots to a depth of 12 inches below existing or proposed grade which ever is lower.

Fill depressions caused by clearing and grubbing operations with satisfactory soil material. Place fill in 6" loose depths and compact to adjacent ground densities.

Soil Preparation: After clearing and grubbing has been completed, the existing surfaces shall be scarified and cultivated to a minimum depth of 8 inches, then brought to finish grade, incorporating soil conditioning operation, if specified. During this operation, debris, including all items over 1 inch in any dimension, shall be removed and disposed of offsite.

Finish grade for landscape areas shall not vary more than 1 inch from specified grade and cross section and shall be a smooth, uniform surface, free of abrupt grade changes or depressions. Finished soil grade, adjacent paving, curbs or headers shall be adjusted for surface materials. Unless otherwise specified, seeded lawn areas shall be 1-1/2 inches below adjacent pavements. Granite and sodded areas shall be 3 inches below adjacent pavement.

430.9 EXECUTION OF PLANTING:

Clearing and grading areas shall be free of construction debris and/or toxic materials and graded to permit landscape construction.

Landscape or planting areas shall not be cultivated when they are so wet as to cause excessive compaction or so dry as to cause excessive dust or the formation of large clods.

Layout individual trees and shrubs for owners representative to approve. Make adjustments as might be requested.

Protect existing vegetation from damage during planting operations.

Excavation: Plant pits shall be dug to produce vertical sides and flat, non compacted bottoms. If pits are dug with an auger and sides of pits are glazed, scarify the glazed surface. The size of the pits shall be twice plant root ball or container size.

Drainage: Test drainage of plant pits by filling with water twice in succession. Plant pit retaining water for more than 24 hours shall be brought to the attention of the owners representative. Submit in writing a proposal for correction, for approval by Engineer, before proceeding.

Backfill Mix: Plant fertilizing material shall be delivered in unopened 5 pound bags as specified in the landscaping material section and individually mixed into the backfill as described below for each planting pit.

| <u>Plant Size</u> | <u>Amount of Fertilizer</u> |
|-------------------|---------------------------------|
| 1 gallon | 0.5 pounds (one tenth of a bag) |
| 5 gallon | 1.6 pounds (one third bag) |
| 15 gallon | 5 pounds (one bag) |
| 24" box | 10 pounds (two bags) |
| 36" box | 15 pounds (three bags) |
| salvaged | per Engineer requirements |

Submit certification of contents, quantity and source to the Engineer per Section 430.2.1 for approval.

Setting and Backfilling for Plants: Set plant material on layer of compacted backfill mixture, plumb and in center of pit or trench with top of ball at an elevation necessary to accomplish finished grade. Remove pallets or containers before backfilling. Do not handle container plants by foliage, branches or trunks. After removing plant from container, scarify side of root ball to eliminate root bound condition. Do not plant stock if root ball is cracked or broken. When set, place additional backfill mix around plant, brace and place fertilizer tablets, if specified on the drawings. Work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill. Fertilizer tablets when specified shall be added approximately 6" below grade at the following rate:

| | |
|--|----------------------------------|
| For one-gallon container..... | 1 tablet |
| For five-gallon container..... | 2 tablets |
| For fifteen-gallon container..... | 4 tablets |
| For twenty-four inch box..... | 6 tablets |
| For thirty-six inch box or larger..... | 3 tablets per 1/2" trunk dia. |

Provide plant saucers as detailed, or directed by the Engineer.

Stake All Trees Per Plans: Set stakes vertically and spaced to avoid penetrating balls or root masses. Place tree ties for maximum support with

top tie above scaffold branches and second ties midway to the ground level. Avoid "rigid" restraint of tree and allow for some trunk movement. Stakes to be set into native soil.

430.10 PREPARATION FOR LAWN:

Excavate subgrade to accommodate depth of soil amendments. Till to a depth of not less than 4 inches soil and amendments. Remove high areas and fill depressions. Apply soil amendments as follows:

Organic mulch 500 lbs/1,000 sf
Sulfur 10 lbs/1,000 sf
Iron Chelate 2 oz./1,000 sf

Till soil and amendments to homogenous fine mixture, free of lumps clots, stones greater than 1", roots and other extraneous matter.

Fine grade lawn areas to a smooth, even surface with a loose uniformly fine texture. Roll, rake and drag lawn areas, remove ridges.

Moisten prepared lawn areas if soil is dry.

430.10.3 Hydroseeding: A hydromulch seed mix shall be applied to the areas specified on the contract documents. The seed mix shall be certified by the supplier per section 430.2.1. Certify quantity of seed for each type of seed in the mix and PLS (Pure Live Seed) rate per type. The following materials shall be combined to form a seed mulch mixture for application.

- (A) 300 pounds of fertilizer (5-3-1), Gro Power 50% humic acid or equal.
- (B) 2000 pounds of wood fiber mulch per acre, Silva or equal.
- (C) 100 pounds per acre Gro Safe or equal activated Charcoal.
- (D) The seed shall be common bermuda (*Cynodon dactylon*) and shall be hulled seed having minimum percentages for purity and germination of 94% and 88% respectively, and a weed content not exceeding 0.35%.
- (E) Sufficient water to form a homogenous mixture capable of being applied by commercial hydromulching equipment.

Cultivate and apply soil amendments per Section 430.10.

Site preparation shall not disturb or destroy existing irrigation pipe, plants or other improvements. The Contractor shall be responsible to replace or repair any damage that occurs to the satisfaction of the Engineer.

The homogeneous mixture shall be applied to the seeding area by means of hydraulic-type equipment which shall provide continuous mixing and agitation action to the mix of water, fertilizer, seed, and wood fiber. The mixture shall be applied through a pressure spray distribution system providing a continuous non-fluctuating discharge and delivery of the mixture in the prescribed quantities on the specified areas.

The Contractor shall provide, on request of the Engineer, past performance data that indicates his equipment and procedure are suitable or shall

demonstrate his performance. The Engineer has final approval as to equipment and procedure and his decision is final.

If Bermuda lawn has not been established during the normal planting season, April thru September, then the Contractor shall be responsible for erosion and weed control within the lawn areas until the next growing season when the lawn areas can be established. The method of weed control to be approved by the Engineer. Turf hydroseeding and establishment may be supplemental to the final project payment, in which case retention in the amount equal to the line items bid for the work will be held until establishment of turf.

430.11 DECOMPOSED GRANITE AREAS:

The areas on which the granite mulch is to be placed shall be graded according to the drawings, prior to the placement of any granite. The ground shall be reasonably smooth and rocks larger than 1" in diameter, within the top 1" of soil, removed and disposed of off-site.

The Contractor shall stake out all areas to receive granite mulch or river run. These areas shall be treated with a pre-emergent control, such as Surflan, prior to and after placement of the cover material.

Decomposed Granite shall be evenly distributed on the designated areas to a depth as indicated on the plans and details. If a depth is not indicated the minimum depth shall be two inches.

After placing and grading the granite mulch, the Contractor shall water settle the granite with a light spray to remove fine materials from the surface. Immediately after watering, the Contractor shall roll the granite mulch with an appropriate device to an extent satisfactory to the owners representative.

430.12 CLEANUP AND PROTECTION:

During Landscape Work, keep pavements clean and work areas in an orderly condition. Sweep, scrub or hose affected areas as directed by the Engineer to maintain a clean and neat work area.

Protect Landscape Work and Materials from damage due to landscape installation, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat repair or replace contractor damaged work as directed by the owners representative. Remove all debris, trash and excess materials generated by the landscape installation.

430.13 MEASUREMENT AND PAYMENT:

The lump sum or unit prices established on the proposal sheet shall be full compensation for furnishing all labor, material, tools and equipment and for performing all work necessary to complete the landscaping operation to include planting of trees, shrubs, ground cover, and inert materials.

ELECTRICAL SPECIFICATIONS

SECTION 16010

GENERAL PROVISIONS

1. GENERAL. This section describes in general, requirements of the electrical and related items and work necessary for the complete job indicated by the contract documents,
2. GENERAL LIST OF WORK: The work of this section and related work described in other sections is indicated on the Drawings and includes, but is not necessarily limited to:
 - 2.1 Electric service, complete, to point of connection with the utility company's facilities;
 - 2.2 Main distribution panel with metering equipment and feeder switches or circuit breakers;
 - 2.3 Complete feeder system, in conduit, to power panels and branch circuit panels;
 - 2.4 Branch circuit panels for power and lighting;
 - 2.5 Complete branch circuit wiring system for lighting, motors, receptacles, function boxes and similar uses;
 - 2.6 Lighting fixtures, wall switches, receptacles and similar items;
 - 2.7 Trenching and backfilling for underground electrical installation;
 - 2.8 All other electrical equipment and services needed to complete a usable and operable facility in accordance with all pertinent codes and regulations;
3. PERMITS
 - 3.1 Secure and pay for all necessary permits and licenses, services, meter, current transformer, and underground service charges, and all inspection fees as required by the job or by power company.
4. QUALITY OF ASSURANCE
 - 4.1 Qualifications of Installers:

4.1.1 For the actual fabrications, installation, and testing of the work of this Section, use only thoroughly trained and experienced personnel who are completely familiar with the requirements of this work and with the installation recommendations of the manufacturers of the specified items.

5.1 CODES AND ORDINANCES

5.1 Install all work in accordance with the National Electrical Code and its latest revisions, with the City of Phoenix Electrical Code, latest edition, and with all pertinent requirements and standard specifications of the local power company.

6. CERTIFICATES

6.1 All work included shall comply with all State and Local rules and regulations. Furnish to the Owner all certificates of inspection and approval as required.

7. EXAMINATION OF PREMISES

7.1 Prior to submitting proposal, the bidder shall examine all general construction drawings and visit construction site to become familiar with existing conditions under which he will have to operate and which will in any way affect the work under this contract. No subsequent allowance will be made in this connection in behalf of the Contractor for any error or negligence on his part.

7.2 Prior to ordering any materials or doing any work, verify dimensions at the site; correctness of dimensions will be this Contractor's responsibility. No extra charges or compensation will be allowed for differences between actual dimensions and dimensions indicated on drawings. Immediately report differences to Engineer and do not proceed with work until Engineer renders his decision.

8. CONCRETE, EXCAVATION, FILL AND BACKFILL

8.1 Furnish all concrete, excavation, fill and backfill, and steel required for this work unless specifically noted otherwise.

8.2 Concrete shall be Class "A" and shall be mixed, placed and cured in conformance with MAG Specifications.

9. ELECTRICAL DRAWINGS

9.1 The drawings are generally diagrammatic and indicate the manner, method and nature of the installation. The Specifications denote the style and quality of material and workmanship. Where a conflict exists between the Drawings and Specifications, promptly notify the Engineer. The Engineer will make the proper interpretation and his decision will be final.

9.2 Any items not mentioned in these specifications or not indicated on the plans but which are necessary for **successful and efficient operation of the work** shall be held to be implied and shall be furnished and installed as part of the contract.

10. HANGERS

10.1 Furnish and install all unistrut, hangers, supports, etc., required for work under this Division. Support conduit from building structure, not from ceiling supports.

11. FINAL LOCATION OF SURFACE FEATURES

11.1 Shall be accomplished in the field, subject to the approval of the Engineer. Fixtures, panels, etc., and their proximity and relationship to all visible features of equipment furnished by other trades, shall be made known to the Engineer. In case of conflict between trades, or between a trade and the Engineer, the decision of the Engineer shall be final and his instructions in these matters shall be followed by all concerned.

12. STANDARD OF MATERIAL AND WORKMANSHIP

12.1 All materials shall be new and shall conform to UL standards in every case where such a standard has been established and shall bear the UL label. All work shall be performed in a workmanlike manner in accordance with the best accepted standards and shall present a neat mechanical appearance when completed.

12.2 Ratings of all electrical equipment shall be in accordance with National Electrical Manufacturer's Association (NEMA).

12.3 All materials supplied by the Contractor under the provisions of these specifications and plans shall be new materials of the kind and character called for by the specifications. Defective equipment or material damaged in the course of installation or tests shall be replaced or repaired in a manner satisfactory to the over. All materials and equipment to be furnished under these specifications shall be the standard product of a manufacturer regularly engaged in the production of such material and shall be the manufacturer's current standard design.

13. PAINTING

13.1 All exposed electrical equipment, conduit, flush panel fronts, transformers, switches, switchboards, panels, and similar items shall be painted per Special Provision Section, 17, Color type P1 Miscellaneous Painting.

14. TEMPORARY POWER

14.1 Provide temporary power as called for in these specifications. This service shall be maintained throughout the entire job as the work progresses.

15. CLEANING UP PREMISES

15.1 At all times keep the premises free from accumulation of waste materials and rubbish. Metal floor pans shall be provided for pipe threading machines and benches and shall be used at all times to prevent concrete floors from becoming oil soaked. Upon completion of the job remove all debris, clean all switchplates, fixtures, panel trims and in general leave the premises in a clean and tidy condition.

16. FINAL INSPECTION AND TESTS

16.1 Furnish all meters, cable, connections and apparatus necessary for making tests.

16.2 Test system for shorts and grounds. Faulty wiring shall be removed and replaced. Any device, apparatus or fixture installed showing substandard performance shall be removed and replaced as directed by the Engineer.

17. GUARANTEE

17.1 Fully guarantee all work under this Section for a period of one year from the date of final acceptance by the Owner, against imperfect workmanship or failure or malfunction of materials and/or equipment due to faulty or imperfect workmanship. Give this guarantee in writing to the Owner at the time of issuing final certificate. Work found to be defective within this period shall be replaced without cost to the Owner.

18. SHOP DRAWINGS

18.1 All data shall be submitted at one time, bound and indexed in an orderly manner. Prior to starting work, submit to the Engineer for approval, six (6) sets of shop drawings of switchboard, panelboards, lighting fixtures and all other equipment to be fabricated.

18.2 Procure shop drawings, wiring diagrams, etc., from other trades involved, where such drawings may facilitate and expedite the work. Air conditioning and mechanical equipment shall be wired complete as per the manufacturer's wiring diagrams furnished by the air conditioning and the mechanical contractor.

SECTION 16100

BASIC MATERIALS AND METHODS

1. WIRE AND CABLE

1.1 GENERAL: Soft-drawn, annealed copper having conductivity of not less than 98% of that of pure copper, uniform in cross-section, free from flaws, scale and other imperfections.

1.1.1 All interior branch wiring shall be Type "XHHW" or "THWN" 600 volt, and a minimum of #12 except for control wiring which shall be stranded and a minimum of #14.

1.1.2 Wire #8 and larger shall be stranded. Wire #2 and larger or as noted, shall be Type "XHHW".

1.1.3 Manufacturers shall be Simplex, General Cable, Okonite, Rome Cable, Anaconda, General Electric and Kaiser.

1.2 INSTALLATION: Install all wire and cable in conduit.

1.2.1 Wire single phase equipment and lighting so there is a minimum of unbalance between current carrying conductors. Conductors shall be continuous and of such lengths that no splice occurs except within outlet, junction or pull box, panelboard, switch, motor starter, conduit fittings, or other similar devices or equipment. Splices shall join conductors securely together both mechanically and electrically.

1.2.2 Make connections and splices for #10 wire and smaller with Buchanan "B-Cap", 3-M "Scotchlok", or Ideal "Wing Nut" pre-insulated wire connectors (sizes as recommended by manufacturer). Make connections and splices for #8 conductors and larger with solderless pressure or compression type connectors by O.Z., Burndy, Buchanan, T & B, or Illsco. Tape all splices with plastic so insulation is at least equivalent to insulation of conductor. Thoroughly clean ends before splicing. Where plastic tape is used and there is any danger of insulation damage from pressure of joint against non-current carrying metal parts, use friction tape for additional protection. Vinyl plastic tape shall be Scotch #33 or Plymouth.

1.2.3 All wires in panelboards, gutters, switchboards, wireways and pull boxes shall be neatly arranged with terminations located directly opposite terminals and routed in a neat and workmanlike manner through spaces where the wire passes.

1.2.4 Exercise due care when pulling wire and cable through raceways, to prevent conductors from kinking and injuring insulation.

1.2.5 UL approved pulling compounds may be applied to the conductors to ensure ease of pulling. Under no circumstances shall any medium containing water, acid, or petroleum base be used.

1.2.6 Leave no less than 6" of wire at each outlet for connection to lighting fixture, switch receptacle, and other pieces of equipment. Where wires feed through an outlet or junction box, neatly tuck a 6" long loop in bottom of box.

1.2.7 All branch circuit conductors shall be color coded as follows:

For all 120V to ground circuits;
Phase A - black, Phase B - red, Phase C - blue,
Neutral - white.

1.2.8 Control wiring and all other stranded wiring to screw connections shall be provided with T & B "STA-KON" terminals.

1.2.9 Solid conductors shall loop tightly and completely around terminal screws on all wiring devices.

2. CONDUIT RACEWAYS

2.1 Conduit systems shall be rigid galvanized steel, non-metallic fiber or Polyvinylchloride (PVC) plastic as specified herein, or as indicated on plans. All systems shall be continuous.

2.2 Rigid steel conduit shall be heavy walled, hot dipped, galvanized or sherardized. Use rigid steel conduit in concrete slabs on grade, in exposed locations such as tunnels and equipment rooms, where exposed to weather, and where buried in earth. Make all joints with standard couplings or unions; use of running threads is prohibited. Ream conduit ends after cutting. Use double lock nuts at terminations. Use insulated bushings throughout.

2.3 No conduit placed in a concrete slab shall be greater than 3/4" trade size diameter and no conduit smaller than 3/4" shall be installed underground. No conduit shall be imbedded in a slab that is less than 3-1/2" thick except for local offsets. Make bends of 45 degrees and larger with rigid galvanized steel conduit and coat with two coats of Koppers Bitumastic or half lap with Scotch Wrap #50. Unless otherwise noted or specified, tops of underground conduit and ducts shall not be less than 24" below grade. Use intermediate plastic or concrete spacers for 3" separation for duct banks or groups of duct; space 5'-0" on center. Assemble joints together using approved couplings to make watertight joints. Separation between electrical and telephone and between electrical and sound, shall be 12" minimum.

2.4 PVC electrical conduit, UL listed, 2" and smaller may be used for direct burial of underground branch circuits (with bond wire), sound, telephone and signal conduits. Furnish and install expansion joints approximately 75 feet on centers for full length of underground runs. All bends shall be manufactured, not field made.

2.5 GENERAL: Stubs and risers above grade to panels and cabinets shall be rigid steel conduit and shall be grounded as described under "Grounding."

2.5.1 Where exposed, install conduit parallel to walls and partitions; do not cross window openings.

2.5.2 All conduit bends 45 degrees and larger, and 2 inches and above shall be manufactured bends or field made with hydraulic bender.

2.5.3 Where suspended ceiling occurs, run conduit concealed above furred ceiling and in walls. Install underfloor conduit in sandfill below concrete slab. Conduit run in structural slabs shall have not less than 1 inch concrete coverage.

2.5.4 Coat metallic conduit below grade or encased in concrete with two coats of Koppers Bitumastic, or half lap with Scotch Wrap #50, minimum thickness to be 40 mils.

3. CONDUIT FITTINGS

3.1 Threadless rigid shall be compression type, machine steel insulated throat, Appleton, Raco, T & B or Tomic insulated "Tap-On." Indenter and set screw type fittings will not be permitted.

3.2 Provide double locknuts and bushings at all rigid conduit terminations except at threaded hubs. Bushings shall be O.Z. type "A" molded bakelite except for 2" conduit and larger shall be O.Z. type "B" or type "BL" where grounding is required.

4. GUTTERS, PULL BOXES AND JUNCTION BOXES

4.1 Boxes shall be fabricated from code gauge steel without knockouts and a minimum 14 gauge front cover. Finish shall be galvanized steel or phosphate undercoating, with 2 finish coats hammer gray or baked enamel.

4.2 Junction boxes shown outside flush or surface mounted shall be watertight all welded construction with neoprene gasketed screwed covers NEMA Type 3R.

5. NAMEPLATES

5.1 Provide contrast plastic embossing tape, adhesive backed nameplates for all starters and switches. Size of letters shall be 3/16" high minimum. Provide lamicoide nameplates for all distribution switches, breakers, lighting and power panels.

6. FUSES

6.1 Shall be high capacity, current limiting, low peak or dual element as indicated. Dual element fuses shall be used for all motor loads. Furnish to the Owner, at each switchboard, 2 sets of spare fuses for each size used below 100 amps and 1 set for each size 100 amps and above.

6.2 Approved manufacturers are: Bussmann, Economy, Fuse, and Chase-Shawmut.

7. OUTLETS

7.1 Provide fixture studs and plaster rings as required to bring all outlets to within 1/8" or less of finished surface. Handy boxes and sectional switch boxes will not be permitted. For masonry walls, use Steel City solid flush wall boxes.

7.2 Shall be galvanized or zinc-coated, stamped steel; Appleton, Raco or Steel City. All boxes shall be 4" or 4-11/16" square or octagonal 1-1/2" to 2-1/8" deep as required by Article 370 of the N.E.C. except as noted otherwise.

7.3 Outlet boxes for conduit shown exposed, or as directed by Engineer, shall be cast boxes with plates designated for the box.

7.4 Boxes for outdoor weatherproof receptacles shall be Type FD unilets with screw hubs.

8. SWITCHES AND RECEPTACLES

8.1 Receptacles and caps shall be furnished in accordance with the following table: Receptacles and caps as manufactured by Sierra, Bryant, and Hubbell will be acceptable. Catalog numbers shown are Sierra.

| <u>Description</u> | <u>Receptacle</u> |
|--------------------|-------------------|
|--------------------|-------------------|

| | |
|--------------------------|-----------------------|
| 15A, 125V, 3W, Single | 1200 BK |
| 15A, 125V, 3W, Duplex | 1404 BK |
| 15A, 125V, 3W, Duplex WP | 1404 BK W/WPD 8 Plate |

8.2 Furnish caps for all special outlets. Caps shall be delivered to Owner prior to final inspection. These caps shall be of the same manufacturer as the receptacles furnished.

8.2.1 Where surface mounted weatherproof mounting is required, they shall be mounted in a FS conduit.

8.3 Elevation of each outlet shall be at floor plus 14 inches unless otherwise noted.

8.4 All switches shall be furnished in accordance with the following tables. Switches shall be of the same manufacturer as the receptacles furnished. Switches shall be at finished floor line plus 54 inches.

| | |
|-------------------|----------------|
| 20 amp. 1 pole | Sierra 5721 BK |
| 20 amp. 3 way | Sierra 5723 BK |
| 20 amp. Pilot | Sierra 5729 A |
| 15 amp. Momentary | Sierra 5110 BK |

8.5 Cover plates for receptacles, switches, and outlets shall be as manufactured by Sierra or Slater.

9. SAFETY SWITCHES

9.1 Safety switches, unless otherwise indicated on the drawings, shall be heavy duty type, 600 volt, of the number of poles required. Safety switches for air conditioning use shall be of the fusible type where recommended by equipment manufacturer. The switch size shall be as required by code and as indicated on the Drawings. Where outside the building, the switches shall be raintight type NEMA 3R.

9.2 Switches shall be as manufactured by General Electric, Square D, or Westinghouse.

SECTION 16400

SERVICE AND DISTRIBUTION

1. ELECTRICAL SERVICE

1.1 The electrical service shall be as shown on the drawings.

1.2 Provide all necessary material and labor required by the serving utility for delivering power to the service entrance equipment.

2. SERVICE ENTRANCE AND DISTRIBUTION SECTION

Furnish and install Service Entrance and Distribution Switchboards as herein specified and shown on the associated electrical plans.

The switchboards shall meet the latest requirements of U. L. Standard #891, NEMA PB2, and the National Electrical Code and be furnished with U. L. Service Entrance label.

The switchboards shall be totally enclosed, dead front, free standing, front and rear aligned with front accessibility only required.

The switchboards shall be NEMA-3R and the framework shall be of U. L. Gauge Steel. Enclosures shall be painted on all interior and exterior surfaces. Paint shall be ANSI #49 medium light gray. All painted parts shall be pretreated and provided with corrosion-resistant, U. L. listed acrylic baked finish.

The short circuit current rating of the switchboards shall be 30,000 RMS symmetrical amperes minimum.

All busses shall be silver plated copper. The through bus shall have an ampacity of 400 amperes and extend the full length of the switchboards.

The through and neutral busses shall be 10% rated. The ground bus shall be sized per U. L. #891.

Current density in any bus shall not exceed 1,000 amperes per square inch in cross sectional area and 200 amperes per square inch areas in any bolted joint.

The utility metering compartment shall be located in the service entrance section of the switchboard and shall meet all the requirements of the serving utility and P.U.E.S.R. Standards.

The fusible switches shall be quick-make, quick-break and shall be group-mounted. The units shall have padlocking provisions in the "OFF" position. Operating handle position shall give positive switch position indication (red for "ON", black for "OFF").

The switchboard shall be Power-Style QED-1, as manufactured by Square D.

Other acceptable manufacturers:

G .E ., Westinghouse , or Engineer-approved equal .

3. LIGHTING PANELS

3.1 Lighting panels shall be circuit breaker type. Cabinets shall have doors fastened to trim with concealed hinges and be provided with flush type combination latch and lock three keys for each. All panels shall be keyed alike. Cabinets and trims shall be factory painted with two finish coats and be flush or surface mounted as indicated. Coordinate color with other selected colors. Each circuit shall be numbered and completely identified by means of a typewritten card placed in directory holder on inside of door. All directory holders shall be six inches wide. Before installing, tighten all bolted connections that may have become loose in shipping.

3.2 Cabinets shall be without knockouts. All knockouts shall be cut on the job.

3.3 Circuit breakers shall be bolted connection type, 10,000 AIC minimum rating. All breakers for 2 and 3 pole circuits shall be common trip.

3.4 Stub up one 3/4" conduit into the furred space above flush-mounted cabinets for each two spare circuits or spaces; to a minimum of five conduits.

3.5 All panels containing ground or bonding wires shall be equipped with a ground bus for terminating all such wires.

4. GROUNDING

4.1 The neutral conductors and all other exposed non-current carrying metal parts as required by Code shall be grounded. Grounding bushings shall be used as required and shall be O.Z. insulated Type "BL", or approved equal. No grounding shall be made to gas piping. Where equipment or devices are served by non-metallic ducts, enclosures shall be grounded by means of a code size bare or green insulated equipment ground wire installed in the duct with the current carrying conductors and be bonded secured in each cabinet terminating the ground wire. Copper jumpers shall bridge flexible conduit and be installed with ground wire. All service grounds shall be in accordance with the "UFER" ground.

SECTION 16500

LIGHTING

1. LIGHTING FIXTURES

1.1 Fixtures shall be complete with lamps of proper wattage, in accordance with lighting fixture schedule. Provide all fittings, hangers, supports, plaster frames, and other necessary appurtenances. Fixtures shown in fixture schedule with same letter designation shall be of one manufacturer and be identical in design and appearance. Light fixtures shall be equipped with Lexan Shield as specified on plans.

2. LAMPS

2.1 Approved manufacturers are: General Electric, Sylvania, Westinghouse.

3. LIGHTING FIXTURE INSTALLATION

3.1 Fixtures shall be wired complete with color-coded wires to indicate polarity. White fixture wire shall be connected to shell terminals of sockets and connected to neutral wire of lighting system.

3.2 Install and connect lighting fixtures on all outlets in building. Non-designated outlets shall be equipped with fixtures similar to like areas.

3.3 All fixtures shall be tested before and after installation and shall show free of grounds, shorts, etc.

3.4 All fixtures and fixture supports shall be cleaned, painted where necessary and left in first-class operating condition upon completion of the work. This Contractor shall make good all breakage of lamps, glass and fixture bowls or other damage or arrange for replacement with the Engineer. All debris, fixture crates, etc., shall be removed promptly.

SECTION 16600

1. EXECUTION

1.1 Computer Data:

Computer footcandle arrays shall be furnished to the Engineer. Arrays must be furnished by the fixture manufacturer.

Arrays shall verify that illumination requirements state later in this section have been achieved by computer calculation.

Test points shall be on a grid as specified by the Illuminating Engineering Society.

The arrays shall be an original or a machine copy of the original computer printout. A machine copy of input data used in preparation of computer array must also be submitted, as well as a copy of complete computer program instructions and program listing on preparation of computer input data.

The following shall be included in the printout:

- Name of job
- Activity
- Fixture identification - including photometric curve numbers
- Lamp identification
- Lamp lumens corrected to output based on average angle of tilt of lamp installed and aimed.

- Light Loss Factor (Maintenance Factor)
- Vertical and horizontal spacing in feet and scale in feet per inch.
- Footcandle reading on grid (initial)
- Maximum and minimum readings
- Computed average
- Uniformity ratios - maximum/minimum, Avg/Minimum
- Total quantity of fixtures
- Aiming diagrams shall also be furnished by manufacturer conforming to aiming points used for computer calculations. Contractor shall use these aiming diagrams for his final aiming of fixtures.

1.2 Illumination Tests:

Test shall be first performed at completion of project and again 45 days after final acceptance of the project. All power costs generated after final acceptance of the project shall be borne by the City. The manufacturer's representative, Contractor, Engineer, and Owner shall all be present at both tests. Test shall be conducted at night. The Contractor shall confirm that lighting conforms to required illumination levels and aiming is satisfactory before calling for a test. If more than two tests are required, the cost of City personnel time to make additional night tests shall be deducted from the contract amount payable to the Contractor.

The meter used for measuring footcandle values shall be color and cosine corrected. There shall be evidence that the meter is properly calibrated. The Contractor shall supply the meter.

All readings shall be made at 36 inches above grade of playing surfaces at specified test points.

Meter readings are to be made with all lamps at rated ballast voltage. Fixture lens and reflectors are to be in clean condition typical to that at time of unpacking. Lamps are to be tightened in fixture socket per lamp manufacturers recommendations.

Lamps shall be energized for approximately one hour previous to illumination tests.

1.3 Illumination Levels:

Contractor shall be responsible for limiting trespassing light at neighboring residential properties to a maximum of one footcandle in accordance with the ordinance of the City of Phoenix. The Contractor

shall be responsible for all labor, material and costs associated with any work necessary to meet this requirement.

1.4 Wiring:

All wiring for sports lighting shall be type XHHW without exception. Wire and conduit size shall be as shown on drawings.

The tubular steel crossarms, as shown on drawings, located on the top of the ballfield poles shall be used as a wireway and shall be sealed and watertight. (All poles and structures shall be properly grounded.) Steel poles may also be used as a wireway when properly sealed and watertight.

All wiring shall be identified by circuit numbers.

1.5 Identification

Provide engraved Micarta identification nameplates with 1/4" high letters for disconnect switch and lighting contactor enclosure (screwed-on cover of each enclosure) properly marked to indicate pole number, panelboard and circuit number.

BOND ISSUE OR BUDGET PROJECT
CITY OF PHOENIX, ARIZONA
ENGINEERING AND ARCHITECTURAL SERVICES DEPARTMENT

PROPOSAL to the City Engineer of the City of Phoenix.

In compliance with the Advertisement for Bids, by the City Engineer, the undersigned Bidder:

Having examined the contract documents, site of work and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute the contract documents and furnish the required bonds and certificates of insurance for the completion of said work, at the locations and for the prices set forth on the inside pages of this form.

Understands that construction of this project shall be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision and the City of Phoenix Supplements, latest revision to the MAG Uniform Standard Specifications and Details, except as otherwise required by the project plans and specifications.

Understands that his proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check or surety bond for an amount not less than five (5) percent of the amount bid.

Agrees that upon receipt of Notice of Award, from the City of Phoenix, he will execute the contract documents.

Work shall be completed within 300 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary materials and/or equipment and approvals.

The Bidder hereby acknowledges receipt of and agrees his proposal is based on the following Addenda:

BID SCHEDULE

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | UNIT PRICE | AMOUNT |
|--------------------|--|-------------------------------|---------------|--------|
| | BASE BID | | | |
| | SITE PREPARATION | | | |
| 1. | Earthwork, Complete (Includes all clearing and grubbing of site, excavation, placement and compaction, detention basin, sediment basin, subgrade preparation for parking lot and sidewalk) | 1 Job | | |
| | WATER AND WASTEWATER SYSTEM | | | |
| 2. | Allowance for water meter (4 inch) MAG Std. Det. 145-1 | 1 Ea. | 5,800 | 5,800 |
| 3. | Install Water Meter Vault per COP Detail W-500 | 1 Ea. | | |
| 4. | Install Drinking Fountain and Leach Line per Detail Sheet C-18 | 1 Ea. | | |
| 5. | Install 3/4-inch potable water line | 195 L.F. | | |
| 6. | Adjust manhole to grade. | 3 Ea. | | |
| 7. | Install 30" Watertight manhole ring & cover | 2 Ea. | | |
| | SEDIMENT BASIN & SPILLWAY | | | |
| 8. | Construct Grasscrete or approved equal | 14,800 S.F. | | |
| 9. | Install erosion mat | 1,750 S.F. | | |
| 10. | Concrete Protection-6" conc. w/6 x 6 - W1.4 x W1.4 | 2,745 S.F. | | |
| 11. | Place Rip Rap | 102 C.Y. | | |
| 12. | Install 6' Chain Link Fence w/Gate per MAG Std. Det. 160 | 915 L.F. | | |
| 13. | Install Wrought Iron Fence w/Gate per Detail Sheet C-18 | 75 L.F. | | |
| 14. | Construct 8" cutoff wall & spillway crest per Detail Sheet C-16 | 640 S.F. | | |
| 15. | 3" Gunitite w/6 x 6 - W1.4 x W1.4 | 225 S.Y. | | |
| | STORM DRAIN INFRASTRUCTURE | | | |
| 16. | 72" Pipe | 32 L.F. | | |
| 17. | 60" Pipe | 1014 L.F. | | |
| 18. | 36" Pipe | 1000 L.F. | | |
| 19. | 15" Pipe | 1582 L.F. | | |

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | | UNIT PRICE | AMOUNT |
|--------------------|---|-------------------------------|------|---------------|--------|
| 20. | 60" x 15" Cast in Place Tee COP Std. Det. R-1576 | 1 | Ea. | | |
| 21. | 36" x 15" Cast in Place Tee COP Std. Det. R-1576 | 1 | Ea. | | |
| 22. | Storm Drain Manhole per COP STD Det 1560 | 4 | Ea. | | |
| 23. | Storm Drain Manhole per COP STD Det 1520 | 2 | Ea. | | |
| 24. | Junction Box per Detail Sheet C-18 | 1 | Ea. | | |
| 25. | Catch Basin Type N per COP Std Det P-1570 | 5 | Ea. | | |
| 26. | Cleanout per MAG Std. Det. 441 Modified | 2 | Ea. | | |
| 27. | 72" Outlet Headwall w/Trashrack Per Detail Sheet C-17 | 1 | Ea. | | |
| 28. | 60" Inlet Headwall w/Trashrack Per Detail Sheet C-17 | 1 | Ea. | | |
| 29. | 36" Inlet Headwall w/Trashrack Per Detail Sheet C-17 | 1 | Ea. | | |
| 30. | Remove Existing Pipe & Headwalls | 1 | Job | | |
| | CONCRETE | | | | |
| 31. | Concrete Header (8" x 8") | 1534 | L.F. | | |
| 32. | Concrete sidewalk (6" thick) per COP Std. Det. 1230 (Modified width as shown on plans, including all turn downs) | 19,350 | S.F. | | |
| 33. | Concrete sidewalk (4" thick) per COP Std Det P-1230 (modified width as shown on plans, including all turn downs.) | 33,230 | S.F. | | |
| | PARKING LOT | | | | |
| 34. | Concrete Vertical Curb and Gutter per MAG Std Det 220, Type "A" | 776 | L.F. | | |
| 35. | Aggregate Base Course | 342 | Tons | | |
| 36. | 2" Asphalt Concrete C-3/4 (5.5% Asphalt Content) | 132 | Tons | | |
| 37. | Parking Lot Striping | 1 | Job | | |
| 38. | Trash Receptacle per Detail Sheet C-18 | 1 | Ea. | | |
| | LANDSCAPE AND IRRIGATION | | | | |
| 39. | Replant Box Salvaged Trees Allowance | 1 | Job | 26,400 | 26,400 |
| 40. | 24" Box Trees | 68 | Ea. | | |
| 41. | 15 Gallon Trees | 80 | Ea. | | |

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | UNIT PRICE | AMOUNT |
|--|---|-------------------------------|---------------|--------|
| 42. | Lawn Establishment (includes establishment of seed bed, seeding, germination, maintenance, and water costs) | 534,120 S.F. | | |
| 43. | Decomposed Granite, 1/2" Minus | 2,780 Tons | | |
| 44. | Bollard per Detail Sheet L-8 | 8 Ea. | | |
| 45. | Locking Bollard per Detail Sheet L-8 | 6 Ea. | | |
| 46. | Park signs | 2 Ea. | | |
| 47. | Irrigation System, Complete (includes all trenching, bedding, backfill, bubbler heads, electric valves, irrigation controllers, sprinkler heads, quick-couplers, gate valves, PVC pipe, sleeves, backflow prevention device, and other work for a complete operating system) | 1 Job | | |
| ELECTRICAL | | | | |
| 48. | Electrical Systems: To include all trenching, backfilling and compaction, conduits with pull wires, service entrance section, transformer pad, wiring and grounding, area and parking lot lighting (17 poles and fixtures), special systems for telephone company and power company and all other work for a complete operating system. | 1 Job | | |
| 49. | Allowance for work by the power company. | 1 Job | 2,000 | 2,000 |
| 50. | Allowance for extra work. | 1 Job | 40,000 | 40,000 |
| TOTAL AMOUNT OF BASE BID, ITEMS 1 THRU 50, INCLUSIVE \$ _____ | | | | |
| _____ & _____/100 | | | | |
| Dollars Written Words | | | | |

ADDITIVE ALTERNATES

| PAY ITEM NO. | DESCRIPTION | APPROX. QUANTITY & UNIT | | UNIT PRICE | AMOUNT |
|---|-----------------------------|-------------------------------|-----|---------------|--------|
| ADDITIVE ALTERNATE NO. 1 | | | | | |
| LANDSCAPE | | | | | |
| 1. | Box Salvage trees allowance | 1 | Job | 18,400 | 18,400 |
| 2. | 24" box trees | 80 | Ea. | | |
| 3. | 15 gallon trees | 84 | Ea. | | |
| 4. | 5 gallon shrubs | 333 | Ea. | | |
| 5. | 1 gallon shrubs | 273 | Ea. | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 1 | | | | \$ _____ | |
| ADDITIVE ALTERNATE NO. 2 | | | | | |
| ELECTRICAL | | | | | |
| 1. | Light poles and fixtures | 10 | Ea. | | |
| 2. | #5 Pull Box | 10 | Ea. | () | () |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 2 | | | | \$ _____ | |
| ADDITIVE ALTERNATE NO. 3 | | | | | |
| IRRIGATION | | | | | |
| 1. | Radio Controller | 1 | Job | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 3 | | | | \$ _____ | |
| ADDITIVE ALTERNATE NO. 4 | | | | | |
| IRRIGATION | | | | | |
| 1. | Central Hardware Package | 1 | Job | | |
| TOTAL AMOUNT BID FOR ADDITIVE ALTERNATE NO. 4 | | | | \$ _____ | |

THIS PROPOSAL IS SUBMITTED BY _____

a corporation organized under the laws of the State of _____

a partnership consisting of _____

or individual trading as _____

of the City of _____.

Arizona License - Classification _____ No. _____

City of Phoenix Privilege License No. _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____

ZIP CODE _____

* BY _____

Officer and Title

Date

Phone Number

ATTEST:

Officer and Title

Witness: If Bidder is an
Individual

* By signing this proposal, I certify that I have read and understand the prequalification requirements in the Information for Bidders (page I.B.-1) and the firm, for whom I am signing, has a current approved category as listed.

* See page I.B.- 3 for section on Contractor's License.

S U R E T Y B O N D

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
City of Phoenix as Obligee, in the sum of five (5) percent of the total
amount of the bid of Principal, submitted by him to the City of Phoenix 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, administrators, successors and assigns, jointly and severally,
firmly by these presents and in conformance with A.R.S. #34-201.

WHEREAS, the said Principal is herewith submitting his proposal for _____

NOW, THEREFORE, if the City of Phoenix shall accept the proposal of the
Principal and the Principal shall enter into a contract with the City of
Phoenix 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 Bonds and Certificates of Insurance, if the Principal
shall pay to the City of Phoenix 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., 19_____

Principal

Title

WITNESS:

Surety

Title

WITNESS:

AFFIDAVIT BY CONTRACTOR
CERTIFYING THAT THERE WAS
NO COLLUSION IN BIDDING
FOR CONTRACT

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

(Name of Individual)

BEING DULY SWORN, DEPOSES AND SAYS:

That he is _____
(Title)

of _____
(Name of Business)

That Pursuant to Section 34-253 of the Arizona Revised Statutes, he certifies as follows:

That neither he nor anyone associated with the said _____

(Name of Business)

has directly, or indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this project.

(Name)

(Title)

(Name of Business)

Subscribed and sworn to before me this _____ day of _____ 19 ____.

My Commission Expires:

(Notary Public)

AN IMPORTANT FIRST STEP

**FOR ALL CONSTRUCTION CONTRACTORS,
AND THEIR SUB-CONTRACTORS**

Prior to bidding on construction contracts in excess of \$10,000, all prime Contractors and their sub-contractors must submit three reports to the Equal Opportunity Department, 550 West Washington Street, Phoenix, Arizona 85003, telephone (602) 262-6790.

The reports are:

- An Affirmative Action Plan
- An Employers Information Report
- An Equal Employment Questionnaire

These forms are included in the specification book, pages AAR - 1 to AAR - 7. In addition, you may pick up the report forms at the above office or call and the reports forms will be mailed.

These reports are required by City Code Chapter 18-31.1, enacted by the City Council in the interest of equal employment opportunity City wide. To demonstrate that it provides equal opportunities to minorities and women, a firm should have an Affirmative Action Program. Such a program establishes positive procedures that will assist the firm achieve employment parity.

Your firm's Affirmative Action Program should be designed to achieve equal employment opportunity within your employee ranks which includes: Blacks, Hispanics, Asians, Native Americans and Women.

DON'T RISK THE LOSS OF A CONTRACT: FOR EVERYONE'S CONVENIENCE, SUBMIT YOUR REPORTS NOW TO THE EQUAL OPPORTUNITY DEPARTMENT.

If you have any questions, call (602) 262-6790.