CONSTRUCTION SPECIFICATIONS

FOR

CONTRACT FCD 1999C070
OSBORN ROAD STORM DRAIN, PHASE II
PCN 027.04.30

(Engineer's Seal)

Prepared By
Frank Medina, P.E.
Parsons, Brinckerhoff, Quade, & Douglas, Inc.
1501 West Fountainhead Parkway, Suite 400
Tempe, Arizona 85282-1853

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A Raleigh **Date:** 5/30/00
Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by: _____ **Date:** 5/31/00
Michael S. Ellegood, P.E.
Chief Engineer and General Manager

SUPPLEMENTARY TO MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION EDITION OF 1998 AND REVISIONS AND SUPPLEMENTS THROUGH 2000.

ATTENTION

ALL PROSPECTIVE BIDDERS

A.R.S. § 34-201 requires that construction bid proposals be accompanied by a certified check, cashiers check, or surety bond for **ten percent (10%)** of the total amount of the bid.

All bonds must be executed solely by a surety company or companies holding a Certificate of Authority to transact surety business in Arizona, issued by the Director of the (State) Department of Insurance.

Bonds (bid, payment, and performance) executed by an individual surety or sureties are not in compliance with the Arizona Revised Statutes. Bids received containing bid bonds not in compliance with the Arizona Revised Statutes will be considered as being non-responsive. The use of Flood Control District of Maricopa County (District) supplied bond forms is required.

Please submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONTRACT FCD 1999C070

Osborn Road Storm Drain, Phase II

PCN 027.04.30

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(Area to left reserved for Engineer's Seal)

OSBORN ROAD STORM DRAIN, PHASE II

CONTRACT FCD 1999C070
PRE-BID AGENDA

June 13, 2000

INTRODUCTIONS:

R. W. Shobe, Project Manager
Barbara Hummell, Chief of Contract Administration
Fred Fuller, Chief of Construction Management
Ed Raleigh, Chief of Engineering

CONTRACT ISSUES:
Barbara Hummell

GENERAL JOB DESCRIPTION:

Location: The project is located between 60th St. and the Indian Bend Wash and Osborn Road and Thomas Road within the City of Scottsdale.

Principle Items: 2,084' of 10' X 6' Concrete Box Culvert, 166' 10' X 5' Concrete Box Culvert, 30' 10' X 4' Concrete Box Culvert, 138' 10' X 4' Pre-cast Concrete Box Culvert, 434' 96" Storm Drain Pipe, 3,773' 90" Storm Drain Pipe, 1,350' 78" Storm Drain Pipe, 13,520 SY Pavement Replacement, and 55,372 CY Basin Excavation.

Political Jurisdiction: City of Scottsdale

Permits: NPDES, SWPPP, Hauling & Grading

Traffic: Control Plan approved by Scottsdale

Addendum: Yes

Bid Opening: June 28, 2000 2:00 PM at the District

Contraction duration: 270 calendar days

Additional information: Geotechnical Report is available at the District. There are work restrictions at Earl Drive and Scottsdale Road (Sta. 212=18 to Sta. 123+00) and the outlet at Indian Bend Wash (Sta. 162+63 to Sta. 164+83) all work must be performed between July and September 2000.

OTHER ISSUES AND QUESTIONS:

Procedures:

First: State Your Name
Second: State your Company's Name
Last: State your question

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: **Wednesday, June 28, 2000**

PROJECT LOCATION: The project is located in the City of Scottsdale.

PROPOSED WORK: The general alignment of the project is between Thomas Road and 61st Place to Paiute Park and then west on Osborn Road and Earll Drive to Indian Bend Wash. The storm drain is approximately 2.5 miles long beginning at a detention basin located at the Marriott Brighton Gardens Assisted Living Facility at Thomas Road and 61st Place. The second detention basin is located just east of 64th Street and south of Osborn Road within Paiute Park. The project includes varying sizes of pipes/box, catchbasins, connector pipes, inlet/outlet structures, detention basin excavation, junction/transition structures, and landscaping of both of the basins.

BIDS:

SEALED BIDS for the proposed work will be received by the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 until 2:00 P.M. (local time) on **Wednesday, June 28, 2000** and then publicly opened and read at 2801 West Durango Street, Phoenix, Arizona 85009. All bids are to be marked in accordance with Section 102.9 of the MAG Uniform Standard Specifications and addressed to the Chief Engineer and General Manager, Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009. No bids will be received after the time specified for bid opening. All bids must be submitted on proposal forms furnished by the Flood Control District of Maricopa County and included in the Construction Specifications. The Board of Directors reserves the right to reject any and all bids and to waive minor informalities in any bid received if advantageous to the Flood Control District of Maricopa County.

ELIGIBILITY OF CONTRACTOR:

The bidder shall be required to certify that it has the appropriate "A" Contractor's license in the State of Arizona to perform the above referenced type of work. Certification shall be on the form provided herein.

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

PRE-BID CONFERENCE:

A Pre-Bid conference will be held on **Tuesday, June 13, 2000** at **2:00 P.M.** (local time) in a Flood Control District of Maricopa County Conference Room, 2801 West Durango Street, Phoenix, Arizona. All potential contractors and subcontractors are encouraged to attend this pre-bid conference and be prepared at that time to submit in writing and discuss any comments concerning this solicitation.

Questions or items for clarification may be addressed to the Contracts Branch Manager, in writing, at least five (5) working days prior to bid opening date. Questions received after this deadline may not be accepted. Responses to all questions submitted will be sent to all planholders by addenda. Verbal interpretations, unless specifically addressed by an addendum, shall not be binding nor have any legal effect.

CONTRACT TIME:

All work on this contract is to be completed within two hundred seventy (270) calendar days from the date of Notice to Proceed.

MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE (M/WBE) PARTICIPATION:

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

The Maricopa County Minority and Women-Owned Business Enterprise Program, effective January 1, 1992, is incorporated herein by reference.

Two Affidavits are included herein. The first form, the "M/WBE Assurances Affidavit," must be completed and submitted with the bid – **Failure to do so may be cause for rejection of the bid.** If M/WBE goals have been established, the first and second low bidders must complete and return the second form, "Actual M/WBE Participation Affidavit," to the Flood Control District of Maricopa County by 4:00 P.M. on the seventh (7^{th}) calendar day after bid opening.

For this contract, a goal of ten percent (10%) M/WBE is established for Minority/Women-Owned Business Enterprises. Bidders unable to meet the established goal must submit "Good Faith" documentation. Failure to implement good faith efforts in accordance with the City of Phoenix, Maricopa County Consolidated Certification Program for M/WBE to the satisfaction of the District may result in rejection of the bid. Complete instructions and additional forms are available from the Flood Control District of Maricopa County, Contracts Branch, telephone number 602-506-8378, 602-506-4433, or 602-506-4876.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Plans and Construction Specifications may be obtained from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 upon payment of **$75.00** by cash, check or postal money order payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. This payment will not be refunded. Mail orders for project documents must include an additional $8.00 for first class U.S. postage and handling. The total $83.00 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery.

Each bid must be accompanied by a Bid Bond executed on the District-supplied bond form, cashier's or certified check or postal money order equal to 10 percent (10%) of the bid, made payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY as a guarantee that if the work is awarded to the bidder, the bidder will within ten (10) days of receipt of the Proposal Acceptance, enter into proper contract and bond condition for the faithful performance of the work otherwise, said amount may be forfeited to the said BOARD OF DIRECTORS.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
2,084	LF	10' X 6' Concrete Box Culvert
166	LF	10' X 5' Concrete Box Culvert
30	LF	10' X 4' Concrete Box Culvert
138	LF	10' X 4' Precast Concrete Box Culvert
434	LF	96" Storm Drain Pipe
3,773	LF	90" Storm Drain Pipe
1,350	LF	78" Storm Drain Pipe
13,520	SY	Pavement Replacement
55,372	CY	Basin Excavation

BID

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

Gentlemen:

The following Bid is made for Contract FCD 1999C070, Osborn Road Storm Drain, Phase II, in the County of Maricopa, State of Arizona.

The following Bid is made on behalf of

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

The Undersigned certifies that the approved Plans, Supplementary General Conditions, Special Provisions, Forms of Contract, Bonds, and Sureties authorized by the Board of Directors and constituting essential parts of the bid, have been carefully examined and also that the work site has been personally inspected.

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

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

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

The Undersigned further proposes to execute the Contract Agreement and furnish satisfactory Bonds and Sureties within ten (10) days of receipt of Notice of Bid acceptance, **TIME BEING OF THE ESSENCE**. The Undersigned further proposes to begin work as specified in the contract attached hereto, and to complete the work within two hundred seventy (270) calendar days from the effective date specified in the Notice to Proceed, and maintain at all times a Payment and Performance Bond, approved

by the Board of Directors, each in an amount equal to one hundred percent (100%) of the contract amount. This Bond shall serve not only to guarantee the completion of the work on the part of the Undersigned, but also to guarantee the excellence of both workmanship and material and the payment of all obligations incurred, said Bonds and Sureties to be in full force and effect until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions fulfilled.

A bid bond in the amount and character named in the Invitation to Bid, and amounting to not less than ten percent (10%) of the total bid, is enclosed. The bid bond is submitted as a guaranty of good faith that the Bidder will enter into a written contract to do the work, as provided, if successful in securing the award thereof. It is therefore agreed that if the Undersigned withdraws its bid at any time except as herein provided, or if the bid is accepted and the Undersigned fails to execute the contract and furnish satisfactory Bonds and Sureties as herein provided, the Flood Control District of Maricopa County shall be entitled and is hereby given the right to retain the said Bid Bond as liquidated damages.

The Undersigned acknowledges receipt of the following addenda, has attached these to the bid package, and has included their provisions in the bid:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

The Undersigned has enclosed the required bid security to the Bid.

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
105-1	PARTNERING	LS	1	$20,000.00	$20,000.00
107-1	NPDES/SWPPP PLANS AND PERMITS	LS	1		
107-2	PUBLIC INFORMATION & NOTIFICATION ALLOWANCE	LS	1	$20,000.00	$20,000.00
107-3	PROJECT SIGN ALLOWANCE	LS	1	$10,000.00	$10,000.00
200-1	EXCAVATE BASINS	CY	55,372		
201-1	REMOVAL OF TREES > 12" DIAMETER	EACH	30		
201-2	REMOVE GRATE INLET	EACH	2		
201-3	REMOVE WET PLAY AREA	LS	1		
202-1	MOBILIZATION	LS	1		
231-1	REMOVE & REPLACE EXISTING SPORT LIGHT POLES	EACH	4		
231-2	REMOVE & REPLACE LIGHT POLE	EACH	4		
231-3	REMOVE & RESET EXISTING ELECTRICAL TRANSFORMER	EACH	1		
336-1	PAVEMENT REPLACEMENT, "T"-TOP (COS DET 2200)	SY	13,520		
340-1	REMOVE AND REPLACE CURB AND GUTTER M.A.G. DET 220, TYPE A	LF	1,421		
340-2	REMOVE AND REPLACE CURB AND GUTTER M.A.G. DET 220, TYPE C	LF	27		
340-3	REMOVE AND REPLACE SIDEWALK M.A.G. DET 230	SF	11,586		
340-4	REMOVE AND REPLACE SIDEWALK RAMP M.A.G. DET 231 TYPE A, 8" THICK	SF	104		
340-5	REMOVE AND REPLACE SIDEWALK RAMP M.A.G. DET 232 TYPE B, 8" THICK	SF	858		
340-6	REMOVE AND REPLACE DRIVEWAY COS. DET 2250, 8" THICK	SF	1,311		
340-7	REMOVE 30" CONCRETE PIPE OR SMALLER	LF	3,406		
340-8	REMOVE & RELOCTE GOLF CART PATH	SF	3,087		
340-9	REMOVE MANHOLE	EACH	1		
340-10	REMOVE AND RELOCATE 6' WOODEN FENCE	LF	27		
340-11	REMOVE CATCHBASIN	EACH	3		
351-1	REMOVE MAINTENANCE YARD	LS	1		
401-1	TRAFFIC CONTROL	LS	1		
401-2	OFF-DUTY POLICE OFFICER	HR.	400		

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
401-3	REPLACE TRAFFIC SIGNAL LOOP DETECTOR	EACH	6		
430-1	TREE, 24" BOX	EACH	84		
430-2	TREE, 36" BOX	EACH	3		
430-3	SHRUB 5 GALLON	EACH	399		
430-4	SHRUB 1 GALLON	EACH	138		
430-5	SEEDED LAWN AREA	SF	213,500		
430-6	PLANT ESTABLISHMENT	LS	1		
430-7	DECOMPOSED GRANITE	SF	67,475		
431-1	SALVAGE EXISTING TREES	EACH	28		
440-1	IRRIGATION SYSTEM - PAIUTE PARK BASIN	LS	1		
440-2	IRRIGATION SYSTEM - MARRIOTT BASIN	LS	1		
505-1	JUNCTION STRUCTURE - STA. 19+29	EACH	1		
505-2	JUNCTION STRUCTURE - STA. 69+20.19	EACH	1		
505-3	JUNCTION STRUCTURE - STA. 101+96.77	EACH	1		
505-4	JUNCTION STRUCTURE - STA. 115+34.20	EACH	1		
505-5	TRANSITION STRUCTURE - STA.115+10	EACH	1		
505-6	TRANSITION STRUCTURE - STA.121+42	EACH	1		
505-7	TRANSITION STRUCTURE - STA.122+80	EACH	1		
505-8	TRANSITION STRUCTURE - STA.135+25	EACH	1		
505-9	TRANSITION STRUCTURE - STA.135+35	EACH	1		
505-10	TRANSITION STRUCTURE - STA.140+04	EACH	1		
505-11	TRANSITION STRUCTURE - STA.141+70	EACH	1		
505-12	CONCRETE CATCH BASIN TYPE H - MAG STD DET 538	EACH	4		
505-13	CONCRETE CATCH BASIN M-1 L=6', DET P-1569	EACH	1		
505-14	CONCRETE CATCH BASIN M-1 L=10', DET P-1569	EACH	6		
505-15	CONCRETE CATCH BASIN M-1 L=17', DET P-1569	EACH	43		
505-16	CONCRETE CATCH BASIN M-2 L=17', DET P-1569	EACH	2		
505-17	CONCRETE CATCH BASIN TYPE M-2 L=8', DET P-1569 MOD	EACH	1		
505-18	CONCRETE CATCH BASIN TYPE N-2 (DOUBLE), DET P-1570	EACH	7		
505-19	CONCRETE CATCH BASIN TYPE F - MAG STD DET 535	EACH	1		
505-20	HEADWALL DROP INLET 30" PIPE - MAG STD DET 501-5	EACH	1		

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
505-21	HEADWALL, DROP INLET SEE DWG PDB-4	EACH	1		
505-22	HEADWALL, 10' X 4' BOX CULVERT (ADOT B-4.30)	EACH	1		
505-23	HEADWALL, 10' X 6' BOX CULVERT (ADOT B-4.30)	EACH	1		
505-24	CONCRETE LINED CHANNEL	SY	335		
505-25	OUTLET WING WALLS & APRON - ADOT DET B-4.10 & B-6.10 (MOD)	LS	1		
505-26	CONCRETE RETAINING WALL - ADOT DET B-18.10, B-18.20, B-19.10, B-19.30 & B-19.40)	LF	655		
505-27	HEADWALL, IRRIGATION - MAG DET 501-4	EACH	1		
510-1	REMOVE & REPLACE EXISTING MASONRY WALLS - STA. 18+95	LF	20		
510-2	REMOVE & REPLACE EXISTING MASONRY WALLS - STA. 35+53	LF	15		
510-3	REMOVE & REPLACE EXISTING MASONRY WALLS - STA. 161+84	LF	16		
510-4	REMOVE & REPLACE CUT OFF WALL	LF	16		
515-1	ACCESS BARRIER GATE (ADOT C-13.75, 48")	EACH	2		
515-2	ACCESS BARRIER GATE (ADOT C-13.75, 30")	EACH	1		
515-3	ACCESS BARRIER GATE (ADOT C-3.75, 66")	EACH	2		
515-4	GRATE (SPECIAL DETAIL, DWG MDB-6)	EACH	4		
515-5	GRATE (SPECIAL DETAIL, NEENAH R-3801-8, DWG PDB-4)	EACH	8		
515-6	SOCCER GOALS, DWG LD-5	EACH	3		
516-1	VIEW FENCE MARRIOTT BASIN	LF	967		
520-1	STEEL PIPE HANDRAIL,COS DETAIL 2508	LF	675		
540-1	WATERPLAY AREA PAIUTE PARK	LS	1		
610-1	REPLACE 3" OR 4" WATER LINE - MAG STD DET 403-3	EACH	2		
610-2	REPLACE 6" WATER LINE - MAG STD DET 403-3	EACH	19		
610-3	REPLACE 8" WATER LINE - MAG STD DET 403-3	EACH	15		
610-4	REPLACE WATER VAULT - MAG STD DET 321	EACH	1		
610-5	REALIGN 6" WATER LINE - COS DET2370	EACH	4		
610-6	REALIGN 8" WATER LINE - COS DET2370	EACH	12		
610-7	REALIGN 12" WATER LINE - COS DET2370	EACH	1		

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
610-8	RELOCATE 4" WATER LINE - PER PLAN DETAILS	LF	46		
610-9	RELOCATE 6" WATER LINE - PER PLAN DETAILS	LF	220		
610-10	RELOCATE 8" WATER LINE - PER PLAN DETAILS	LF	270		
610-11	RELOCATE 12" WATER LINE - PER PLAN DETAILS	LF	196		
610-12	REMOVE & RELOCATE FIRE HYDRANT - MAG STD DET 360	EACH	2		
615-1	REPLACE 6" SEWER LINE - MAG STD DET 403-3	EACH	1		
615-2	REPLACE 8" SEWER LINE - MAG STD DET 403-3	EACH	16		
615-3	REPLACE 10" SEWER LINE - MAG STD DET 403-3	EACH	1		
615-4	REPLACE 12" SEWER LINE - MAG STD DET 403-3	EACH	3		
615-5	REPLACE 21" SEWER LINE - MAG STD DET 403-3	EACH	2		
615-6	REPLACE EXIST. 4" SEWER SERVICE - MAG STD DET 403-3	EACH	16		
615-7	ENCASE 8" SEWER LINE - MAG STD DET 404-2	EACH	5		
615-8	ENCASE 12" SEWER LINE - MAG STD DET 404-2	EACH	1		
615-9	SEWER CLEAN OUT - MAG STD DET 441	EACH	1		
618-1	CONNECT EXISTING 12" STORM DRAIN PIPE	EACH	2		
618-2	CONNECT EXISTING 15" STORM DRAIN PIPE	EACH	3		
618-3	18" STORM DRAIN PIPE	LF	2,254		
618-4	24" STORM DRAIN PIPE	LF	416		
618-5	30" STORM DRAIN PIPE	LF	147		
618-6	36" STORM DRAIN PIPE	LF	1,244		
618-7	42" STORM DRAIN PIPE	LF	707		
618-8	48" STORM DRAIN PIPE	LF	1,354		
618-9	54" STORM DRAIN PIPE	LF	900		
618-10	60" STORM DRAIN PIPE	LF	1,237		
618-11	66" STORM DRAIN PIPE	LF	45		
618-12	78" STORM DRAIN PIPE	LF	1,350		
618-13	90" STORM DRAIN PIPE	LF	3,773		
618-14	96" STORM DRAIN PIPE	LF	434		
618-15	10' X 4' CONCRETE BOX CULVERT - ADOT DET B-02.10	LF	30		
618-16	10' X 4' PRECAST CONCRETE BOX CULVERT	LF	138		
618-17	10' X 5' CONCRETE BOX CULVERT - ADOT DET B-02.10	LF	166		

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
618-18	10' X 6' CONCRETE BOX CULVERT - ADOT DET B-02.10	LF	2,084		
618-19	54" X 45° PREFABRICATED BEND	EACH	2		
618-20	78" X 45° PREFABRICATED BEND	EACH	2		
618-21	PIPE PLUG - MAG STD DET 427, 12" - 36"	EACH	15		
618-22	PIPE PLUG - MAG STD DET 427, 39" - 48"	EACH	2		
618-23	24" DIAMETER NEOPRENE CHECK VALVE	EACH	3		
618-24	60" DIAMETER NEOPRENE CHECK VALVE	EACH	1		
618-25	REPLACE 90" STORM DRAIN PIPE	LF	18		
618-26	REPLACE 21" IRRIGATION PIPE	LF	30		
625-1	STORM DRAIN MANHOLE, 48" PIPE AND SMALLER - MAG STD DET 520 & 522	EACH	15		
625-2	STORM DRAIN MANHOLE, 51" PIPE AND LARGER - MAG STD DET 521 & 522	EACH	19		
625-3	STORM DRAIN MANHOLE, CONCRETE BOX CULVERT - MAG STD DET 522	EACH	3		
625-4	SEWER MANHOLE - MAG DET 420	EACH	1		
630-1	6" WATER LINE VALVE	EACH	1		
630-2	8" WATER LINE VALVE	EACH	2		
630-3	12"WATER LINE VALVE	EACH	1		
630-4	REPLACE WATER METER - MAG STD DET 345-1	EACH	4		
631-1	REPLACE EXIST. WATER SERVICE, COS DET 2330 (CONTINGENT ITEM)	EACH	46		
796-1	TURF SOD	SF	17,325		
797-1	GEOMAT	SF	4,650		
TOTAL BID AMOUNT WRITTEN IN NUMBERS					
TOTAL BID AMOUNT WRITTEN IN WORDS					

IF BY AN INDIVIDUAL:

By: _____

(Printed Name) (Title) (Address)

(Signature) (Date) (Telephone Number)

IF BY A FIRM, PARTNERSHIP OR L.L.C. (LIMITED LIABILITY CORPORATION):

(Firm Name) (Firm Address)

(Signature - Title) (Date) (Telephone Number)

**Name and Address of each Member, or each Manager of L.L.C. per Operating Agreement

**The name and post office address of each Member of the Firm or Partnership must be shown, or of each Manager of an L.L.C., also address of the registered office of the L.L.C.

IF BY A CORPORATION:

(Corporate Name) (Corporation Address)

(Printed Name) (Title) (Telephone Number)

By: _____

(Signature) (Date)

*Incorporated under the Laws of the State of _____ and Names and Addresses of Officers:

(President) (Address)

(Secretary) (Address)

(Treasurer) (Address)

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

SUBCONTRACTOR LISTING

As required in Section 102.6 of the Supplementary General Conditions, the following is a listing of Subcontractors and material suppliers (including any minority and women-owned business participation) that are to be used in the event the undersigned should enter into contract with the Owner. Although this list will not be considered as final commitment on the part of the successful proposer, any Subcontractor changes from those listed must have Owner's written approval prior to commencement of Subcontractor work on site.

_____

_____

_____

_____

_____

(Signature)

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, (hereinafter called the Principal), and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety), are held and firmly bound unto the Flood Control District of Maricopa County as Obligee, in the sum of **ten percent (10%)** of the total amount of the bid of Principal, submitted by him to the Flood Control District of Maricopa County, for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents, and in conformance with the Arizona Revised Statutes.

WHEREAS, the said Principal is herewith submitting its proposal for **Contract FCD 1999C070, Osborn Road Storm Drain, Phase II.**

NOW, THEREFORE, if the Flood Control District of Maricopa County shall accept the proposal of the Principal and the Principal shall enter into a contract with the Flood Control District of Maricopa County in accordance with the terms of the proposal and give the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of the contract and for the prompt payment of labor and material furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give such Bond and Certificate of Insurance, if the Principal pays to the Flood Control District of Maricopa County the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Flood Control District of Maricopa County may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect, provided, however, that this bond is executed pursuant to the provision of Section 34-201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

Signed and sealed this _____ day of _____, AD, 200__.

Agency of Record, State of Arizona	Principal
Agency Address and Phone Number:	Signature
_____	By: _____
_____	(Printed Name)
_____	_____
_____	(Title)
_____	
	_____
	Surety Name
Bond Number: _____	_____
	(Signature)
ATTACH SURETY POWER OF ATTORNEY	By: _____
	(Printed Name)
	_____
	(Title)

NO COLLUSION AFFIDAVIT

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

STATE OF _____)
)§
County of _____)

_____ being first duly sworn, deposes and says:

That he/she is _____ of _____ bidding on Contract FCD 1999C070 for Osborn Road Storm Drain, Phase II, in the County of Maricopa, State of Arizona.

That, in connection with the above-referenced project, neither he/she, nor anyone associated with the aforesaid business, has, directly or indirectly, participated in any collusion, entered into any contract, combination, conspiracy or other act in restraint of trade or commerce in violation of the provisions of A.R.S. Section 34-251, Article 4, as amended.

_____
(Signature of Affiant)

Subscribed and sworn to before me this _____ day of _____, 200___.

_____
(Notary Public)

_____
My Commission Expires

CERTIFICATION OF LICENSE

Pursuant to A.R.S. Section 32-1169, I hereby state that I hold a current contractor's license, duly issued by the office of the Registrar of Contractors for the State of Arizona, said license has not been revoked, that the license number is _____ that my privilege license number (as required by A.R.S. Section 42-5005) is _____; and that, if any exemption to the above licensing requirements is claimed;

1. The basis for the claimed exemption is _____ and;

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

_____

_____

_____

IT IS UNDERSTOOD THAT THE FILING OF AN APPLICATION CONTAINING FALSE OR INCORRECT INFORMATION CONCERNING AN APPLICANT'S CONTRACTOR'S LICENSE OR PRIVILEGE LICENSE WITH THE INTENT TO VOID SUCH LICENSING REQUIREMENTS IS UNSWORN FALSIFICATION PUNISHABLE ACCORDING TO A.R.S. SECTION 13.2704.

_____
Signature of Licensee

Date: _____

Company: _____

M/WBE ASSURANCES AFFIDAVIT

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

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS AFFIDAVIT WITH THE BID PROPOSAL MAY BE CAUSE FOR REJECTION OF THE BID.

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

_____ (the entity submitting the bid)

(CHECK ONE)

_____Will meet the **established** goal for participation by Minority/Women-Owned Business Enterprises.

_____Will provide the necessary documentation to the Flood Control District of Maricopa County to establish that a good faith effort was made.

A sample Actual Participation affidavit is included in these Bid documents. The first and second low bidders are required to specify their M/WBE participation by submitting a notarized affidavit no later than 4:00 P.M. the seventh (7^{th}) calendar day following the bid opening, or by providing documentation of their good faith efforts. If participation is "None," the documentation shall provide bidder's good faith efforts to obtain the participation. The Flood Control District of Maricopa County will review this documentation to determine whether in fact a comprehensive "good faith" effort has been implemented. Affidavit forms and Good Faith documentation forms are available from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009, Telephone area code 602-506-1501.

_____
Name of Firm

_____
(Signature)

By: _____
(Printed Name)

_____
(Title)

STATE OF _____)
)§
County of _____)

Subscribed and sworn to before me this ____ day of _____, 200___.

_____
Notary Public

My Commission Expires: _____

ACTUAL M/WBE PARTICIPATION AFFIDAVIT

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

(NOTE: COMPLETED AFFIDAVIT MUST BE SUBMITTED WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE BID OPENING.)

_____ Contract FCD 1999C070 Total Amount of Contract _____
Name of Contractor

_____ Contract M/WBE Goal: 10%
Contact Person

_____
Street No.

_____
City State Zip

Minority/Women-Owned Firm	Principal	Address	Type of Work	Dollar Amount & Contract Percentage

TOTALS (Dollars/Percentage) _____

The undersigned has entered into a formal agreement with the M/WBE subconsultants/subcontractors/suppliers listed above in the execution of this contract with the Flood Control District of Maricopa County.

_____
Signature Date

_____
Title

STATE OF _____)
)§
County of _____)

Subscribed and sworn to before me this _____day of _____ by _____
Notary Public

My Commission Expires: _____

M/WBE PARTICIPATION REPORT

MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES PROGRAM

(To be attached with each request for pay)

Date:_____

Prime Contractor: _____

Contractor Contact Person: _____

Contractor Address: _____

Contractor Telephone Number: _____

Contractor Fax Number: _____

Contract Description: _____

Contract Number: _____

Invoice For Pay Period of (indicate dates): _____

M/WBE Subcontractor/Subconsultant Name: _____

Contact Person: _____

Address: _____

Telephone Number: _____

Type of Firm: _____

Type of Work performed for this contract by this M/WBE firm: _____

Total M/WBE Subcontract Amount for this Subcontractor: _____

Amount Paid to this M/WBE Subcontractor on this invoice payment: _____

Total paid to this Subcontractor since the contract start date: _____

Total M/WBE Contract Goal this project = _____**%**

Total M/WBE Participation on this contract to date = _____**%**

Send to: **Flood Control District of Maricopa County**
Contracts Branch
2801 West Durango Street
Phoenix, Arizona 85009

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into **this_____ day of** _____ by and between the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, hereinafter called the Owner, acting by and through its BOARD OF DIRECTORS, and _____, hereinafter called the Contractor.

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

ARTICLE I – SCOPE OF WORK: The Contractor shall construct, and complete in a workmanlike and substantial manner and to the satisfaction of the Chief Engineer and General Manager, a project for the Flood Control District of Maricopa County, designated as **Contract FCD 1999C070, Osborn Road Storm Drain, Phase II** and furnish at its own cost and expense all necessary machinery, equipment, tools, apparatus, materials, and labor to complete the work in the most substantial and workmanlike manner according to the Plans and Construction Specifications on file with the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona, and such modifications of the same and other directions that may be made by the Flood Control District of Maricopa County as provided herein.

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

ARTICLE III – TIME OF COMPLETION: The Contractor further covenants and agrees at its own proper cost and expense, to do all work as aforesaid for the construction of said improvements and to completely construct the same and install the material therein, as called for by this agreement free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within two hundred seventy (270) calendar days following notice to proceed.

ARTICLE IV – PAYMENTS: For and in consideration of the faithful performance of the work herein embraced as set forth in the contract documents, which are a part hereof and in accordance with the directions of the Owner, through its Engineer and to its satisfaction, the Owner agrees to pay the said Contractor the amount earned, computed from actual quantities of work performed and accepted or materials furnished at the unit bid price on the Proposal made a part hereof, and to make such payment in accordance with the requirements of A.R.S. Section 34-221, as amended. The Contractor agrees to discharge its obligations and make payments to its subcontractors and suppliers in accordance with A.R.S. Section 34-221. With each request for payment, the Contractor shall complete and provide the form "M/WBE Participation Report" which is included with this contract document.

ARTICLE V – TERMINATION: The Owner hereby gives notice that pursuant to A.R.S. Section 38-511(A) this contract may be canceled without penalty or further obligation within three (3) years after execution if any person significantly involved in initiation, negotiation, securing, drafting or creating a contract on behalf of the Owner is, at any time while the contract or any extension of the contract is in effect, an employee or agent of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. Cancellation under this section shall be effective when written notice from the Chief Engineer and General Manager of the Owner is received by all of the parties to the contract. In addition, the Owner may recoup any fee for commission paid or due to any person significantly involved in initiation, negotiation, securing, drafting or creating the contract on behalf of the Owner from any other party to the contract arising as a result of the contract.

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

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

ARTICLE VIII – M/WBE PROGRAM: The Owner will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Owner without being discriminated against on the grounds of race, religion, sex, age, disability, or national origin. The City of Phoenix and Maricopa County Minority, Women-Owned and Disadvantaged Business Enterprise Program is incorporated by reference.

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

IN WITNESS WHEREOF: Five (5) identical counterparts of this contract, each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties hereinabove named, on the date and year first above written.

_____
Party of the First Part

By: _____
Printed Name

_____
Signature

Title: _____

Date: _____

_____
Tax Identification Number

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

RECOMMENDED BY:

_____
Chief Engineer and General Manager Date
Flood Control District of Maricopa County

By: _____
Chairman, Board of Directors Date

ATTEST:

_____
Clerk of the Board Date

LEGAL REVIEW

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

_____
District General Counsel Date

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated **the_____ day of _____** for the **Contract FCD 1999C070, Osborn Road Storm Drain, Phase II,** which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's Subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of the Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as a part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands **this _____ day of _____, 200___.**

_____	_____
Agency of Record, State of Arizona	Principal
	_____
	Signature
	By: _____
Agency Address and Phone Number:	Printed Name
_____	Title: _____
_____	_____
_____	Surety Seal
_____	_____
	Signature
Bond Number: _____	By: _____
	Printed Name

ATTACH SURETY POWER OF ATTORNEY

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated **the_____ day of _____** the **Contract FCD 1999C070, Osborn Road Storm Drain, Phase II**, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived; the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of the Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as a part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands **this _____ day of _____, 200__.**

_____	_____
Agency of Record, State of Arizona	Principal
	_____
	Signature
Agency Address and Phone Number:	By: _____
_____	Printed Name
_____	Title: _____
_____	_____
_____	Surety Seal
Bond Number: _____	_____
	Signature
	By: _____
ATTACH SURETY POWER OF ATTORNEY	Printed Name

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Flood Control District of Maricopa County (District), Maricopa County, the City of Phoenix, the City of Scottsdale, and their agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses, including but not limited to attorney fees, court costs, expert witness fees, and the cost of appellate proceedings, relating to, arising out of, or alleged to have resulted from the acts, errors, omissions or mistakes relating to the performance of this contract. Contractor's duty to defend, indemnify and hold harmless the District, Maricopa County, the City of Phoenix, the City of Scottsdale, their agents, representatives, officers, directors, officials, and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property, including loss of use resulting therefrom, caused by any acts, errors, omissions or mistakes in the performance of this contract including any person for whose acts, errors, omissions or mistakes, the Contractor may be legally liable.

The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

Abrogation of Arizona Revised Statutes Section 34-226:

In the event that A.R.S. § 34-226 shall be repealed or held unconstitutional or otherwise invalid by a court of competent jurisdiction, then to the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District and Maricopa County, their agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or resulting from Contractor's work or services. Contractor's duty to defend, indemnify and hold harmless, the District and Maricopa County, their agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, injury to, impairment or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission of the Contractor, anyone Contractor directly or indirectly employs or anyone for whose acts Contractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including the District, Maricopa County, the City of Phoenix, and the City of Scottsdale.

The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this paragraph.

The scope of this indemnification does not extend to the sole negligence of the District and Maricopa County.

INSURANCE REQUIREMENTS

Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best Company, Inc. Rating of at least B++ or a Financial Performance Rating (FPR) of at least 6, or approved unlicensed companies in the State of Arizona with policies and forms satisfactory to the District.

All insurance required herein shall be maintained in full force and effect until all work or service required to be performed under the terms of the contract is satisfactorily completed and formally accepted. Failure to do so may, at the sole discretion of the District, constitute a material breach of this contract.

The Contractor's insurance shall be primary insurance as respects the District, and any insurance or self-insurance maintained by the District shall not contribute to it.

Any failure to comply with the claim reporting provisions of the insurance policies or any breach of an insurance policy warranty shall not affect coverage afforded under the insurance policies to protect the District.

The insurance policies may provide coverage which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the District under such policies. The Contractor shall be solely responsible for the deductible and/or self-insured retention and the District, at its option, may require the Contractor to secure payment of such deductibles or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

The District reserves the right to request and to receive, within ten (10) working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The District shall not be obligated, however, to review such policies and/or endorsements or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the District's right to insist on strict fulfillment of Contractor's obligations under this contract.

The insurance policies required by this contract, except Workers' Compensation, shall name the District and Maricopa County, their agents, representatives, officers, directors, officials, and employees as Additional Insureds.

The policies required hereunder, except Workers' Compensation, shall contain a waiver of transfer of rights of recovery (subrogation) against the District and Maricopa County, their agents, representatives, officers, directors, officials and employees for any claims arising out of Contractor's work or service.

REQUIRED COVERAGE

Commercial General Liability.
Contractor shall maintain Commercial General Liability insurance with a limit of not less than $1,000,000 for each occurrence with a $2,000,000 Products/Completed Operations Aggregate and a $2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this contract which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00 01 10 93 or any replacements thereof. The coverage shall include X,C,U.

The policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, or any provision which would serve to limit third party action over claims.

The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s Additional Insured, CG 20 10 11 85, and shall include coverage for Contractor's operations and products and completed operations.

If the Contractor subcontracts any part of the work, services or operations awarded to the Contractor, he shall purchase and maintain, at all times during prosecution of the work, services or operations under this contract, an Owner's and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the Contractor's work, service or operations under this contract. Coverage shall be on an occurrence basis with a limit not less than

$1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability insurance.

Automobile Liability:
Contractor shall maintain Automobile Liability insurance with an individual single limit for bodily injury and property damage of no less than $1,000,000, each occurrence, with respect to Contractor's vehicles (whether owned, hired, non-owned), assigned to or used in the performance of this contract. Coverage will be at least as broad as coverage code 1, "any auto" (Insurance Services Office, Inc. Policy Form CA 00 01 12 93, or any replacements thereof). Such insurance shall include coverage for loading and off-loading and off-loading hazards. If hazardous substances, materials, or wastes are to be transported, MCS 90 endorsement shall be included and $5,000,000 per accident limits for bodily injury and property damage shall apply.

Workers' Compensation:
The Contractor shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor's employees engaged in the performance of the work or services, as well as Employer's Liability insurance of not less than $1,000,000 for each accident, $1,000,000 disease for each employee, and $1,000,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the Subcontractor to provide Workers' Compensation and Employers' Liability insurance to at least the same extent as required of the Contractor.

Builders' Risk (Property) Insurance:
The Contractor shall purchase and maintain, on a replacement cost basis, Builders' Risk insurance in the amount of the initial contract amount, as well as subsequent modifications thereto for the entire work at the site. Such Builders' Risk insurance shall be maintained until final payment has been made or until no person or entity other than the District has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interest of the District, the Contractor, and all subcontractors and sub-subcontractors in the work during the life of the contract and course of construction, and shall continue until the work is completed and accepted by the District. For new construction projects, the Contractor agrees to assume full responsibility for loss or damage to the work being performed and to the structures under construction. For renovation construction projects, the Contractor agrees to assume responsibility for loss or damage to the work being performed at least up to the full contract amount, unless otherwise required by the contract documents or amendments thereto.

Builders' Risk insurance shall be on an all-risk policy form and shall also cover false work and temporary buildings and shall insure against risk of direct physical loss or damage from external causes including debris removal, demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for architect's service and expenses required as a result of such insured loss and other "soft costs" as required by the contract.

Builders' Risk insurance must provide coverage from the time any covered property comes under Contractor's control and/or responsibility, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, and while on the construction or installation site awaiting installation. The policy will provide coverage while the covered premises or any part thereof are occupied. Builders' Risk insurance shall be primary and not contributory.

Required coverage may be modified by an amendment to the contract documents.

If the contract required testing of equipment or other similar operations, at the option of the District, the Contractor will be responsible for providing property insurance for these exposures under a Boiler Machinery insurance policy.

Certificates of Insurance:
Prior to commencing work or services under this contract, Contractor shall furnish the District with Certificates of Insurance (Attachment 1), or formal endorsements as required by the contract, issued by Contractor's insurer(s), as evidence that policies providing the required coverages, conditions and limits required by this contract are in full force and effect. Such certificates shall identify this contract number and title.

In the event any insurance policy(ies) required by this contract is(are) written on a "claims made" basis, coverage shall extend for two (2) years past completion and acceptance of the Contractor's work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the contract, a renewal certificate must be sent to the District fifteen (15) days prior to the expiration date.

Cancellation and Expiration Notice:
Insurance required herein shall not expire, be cancelled, or materially changed without thirty (30) days prior written notice to the District.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CERTIFICATE OF INSURANCE

CONTRACT FCD 1999C070 — PROJECT TITLE: Osborn Road Storm Drain, Phase II

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

This certificate of insurance certifies that policies of insurance listed below have been issued to the insured named above and are in full force at this time.

*CO. LTR.	TYPE OF INSURANCE	POLICY NUMBER	EFFECTIVE DATE (MM/DD/YY)	EXPIRATION DATE (MM/DD/YY)	LIMITS	
	COMMERCIAL GENERAL: ☒: LIABILITY FORM ☒: PREMISES OPERATIONS ☒: CONTRACTURAL ☒: BODILY INJURY ☒: BROAD FORM PROPERTY DAMAGE ☒: PERSONAL INJURY ☒: PRODUCTS AND COMPLETED OPERATIONS HAZARD ☒: EXPLOSION AND COLLAPSE ☒: UNDERGROUND HAZARD ☒: INDEPENDENT CONTRACTORS AND **OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY** ☒: BODILY INJURY ☒: PROPERTY DAMAGE ☒: DEATH				**GENERAL LIABILITY:** **EACH OCCURRENCE** PRODUCTS/COMPLETED OPERATIONS AGGREGATE GENERAL AGGREGATE EACH OCCURRENCE	 $1,000,000 $2,000,000 $2,000,000 $1,000,000
	COMPREHENSIVE AUTO: ☒: LIABILITY AND NON-OWNED				EACH OCCURRENCE	$1,000,000
	☐: **EXCESS LIABILITY**				NECESSARY IF UNDERLYING NOT ABOVE MINIMUM	
	☒: **WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY**				STATUTORY LIMITS PLUS EMPLOYER'S LIABILITY: EACH ACCIDENT DISEASE: EACH EMPLOYEE DISEASE: POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
	☒: **BUILDERS' RISK ALL-RISK FORM**				REPLACEMENT COSTS	
	☒: **OTHER:**	Except for Professional Liability Insurance and Workers' Compensation Insurance, the Flood Control District of Maricopa County and Maricopa County, their agents, representatives, officers, Directors, Officials, and employees are named as Additional Insured's.				

Except for Professional Liability Insurance and Workers' Compensation Insurance, the Flood Control District of Maricopa County and Maricopa County are added as Additional Insured's on those types of policies described herein which are required to be furnished by this contract entered into between the insured and the Flood Control District of Maricopa County. To the extent provided in this contract, insured shall hold harmless the Flood Control District of Maricopa County and Maricopa County from liability arising out of any services provided or duty performed by insured as required by statute, law, purchase order or otherwise required, with the exception of liability for loss or damage resulting from the sole negligence of Flood Control District of Maricopa County, its agents, employees, or indemnities. It is agreed that any insurance available to the named insured shall be primary of other sources that may be available. It is further agreed that no policy shall expire, be cancelled, or materially changed to affect the coverage available to the District without thirty (30) days written notice to the District. **THIS CERTIFICATE IS NOT VALID UNLESS COUNTERSIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE COMPANY.**

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY **2801 WEST DURANGO STREET** **PHOENIX, ARIZONA 85009**	**DATE ISSUED:** _____ _____ **AUTHORIZED REPRESENTATIVE**

SUPPLEMENTARY GENERAL CONDITIONS

CONTRACT FCD 1999C070

OSBORN ROAD STORM DRAIN, PHASE II

PCN NO. 027.04.30

THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

April 28, 2000

Prepared for:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
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Phoenix, Arizona 85009

Phone: 602-506-1501

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CONTRACT FCD 1999C070

OSBORN ROAD STORM DRAIN, PHASE II

PCN 027.04.30

THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS

Except as otherwise amended in these Supplementary General Conditions and the Construction Special Provisions, construction of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, dated 1998, including revisions through 1999, together with the City of Scottsdale, Supplements to MAG Details.

PRECEDENCE OF CONTRACT DOCUMENTS

This Contract and its designated documents, whether taken separately or together, are to be interpreted according to full intent, meaning, and spirit, and shall be deemed to mutually explain each other and to be descriptive of any materials to be furnished and the work to be performed under this Contract. In cases of any difference or discrepancy between the Contract documents, the order of precedence shall be (a) Addendum to the Invitation for Bids, (b) the Contract form, (c) Supplementary General Conditions, (d) Construction Special Provisions, (e) Project Plans, (f) MAG Uniform Standard Specifications and Uniform Standard Details, and (g) City of Scottsdale Supplements to MAG.

Subsection 101.2 - Definitions and Terms:

(1) Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the Flood Control District of Maricopa County.

(2) Change the definition of the phrase "Budget Project" to being a project financed by funds set aside in the annual budget or otherwise approved by the Flood Control District of Maricopa County Board of Directors.

(3) Add to the definition of the phrase "Contract Documents," the phrase "Supplementary General Conditions."

(4) Change the definition of the term "Engineer" to being the person appointed by the Flood Control District of Maricopa County Board of Directors to the office of Chief Engineer and General Manager of the Flood Control District of Maricopa County acting directly or through its authorized representative, the Chief of the Flood Control District of Maricopa County Planning and Project Management Division.

(5) Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that it is the successful bidder and the Flood Control District of Maricopa County has accepted its proposal.

(6) Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through it's legally constituted officials, officers, or employees.

(7) Add the definition for Maricopa County Minority Business Office (MBO), the office responsible for administering the Maricopa County Minority and Women-Owned Business Enterprise Program.

(8) Add the definition for the Maricopa County Minority and Women-Owned Business Enterprise Program as being the Program adopted by the Board of Supervisors effective January 1, 1992.

Subsection 102.4 - Examination of the Plans, Special Provisions, and Site Work:
Add the following:
The soil borings logs and geotechnical report, including ground water conditions, are available for review at the Owner's office, and Contractors are encouraged to do so. The soil boring logs are included in Appendix B of the Construction Special Provisions. Existing moisture conditions shall be no basis for claim for additional monies or time extensions. The Contractor shall manipulate the existing soil as required to achieve stable soil conditions and the required densities, as well as safe and stable side slopes during construction activities.

Subsection 102.5 - Preparation of Bid:
Add the following:
Bids, including the Bidding Schedule, must be legibly written in ink or typed, with all prices given in numerals. In case of a conflict between the unit bid price and the extension, the unit bid price shall govern.

It shall be the responsibility of prospective bidders to determine, prior to submission of a bid, if any addenda have been issued by the Flood Control District of Maricopa County. This may be accomplished by calling 602-506-1501. Any addendum issued, if not already bound into the Special Provisions, **shall be attached and included as part of the Specifications** and any quantities on the Bidding Schedule requiring change shall be adjusted to the new figure by pen and ink. **Bids that do not have appropriate addenda attached, show appropriate changes to the Bidding Schedule, and acknowledge receipt of addenda in the Proposal may be invalid.**

The bidder's Arizona State Contractor's License number and the classification under which it proposes to perform the work shall be shown on the proposal. An **"A" General Engineering** License is required for this contract. The two lowest bidders may be required to provide certification of prior satisfactory completion for similar construction and to furnish a copy of their license and the renewal certificate.

Subsection 102.6 - Subcontractors' List:
Add the following:
A list of subcontractors and suppliers (including any M/WBE participation) intended to be used on the project shall be submitted with the bid, on the form provided in the Proposal. Although this list will not be considered as final commitment on the part of the successful proposer, any subcontractor changes from those listed must have Owners written approval prior to work performed on site by a subcontractor.

Subsection 102.7 - Irregular Proposals:
Add the following:
(A) If the Maricopa County Minority and Women-Owned Business Enterprises Assurances Affidavit is

not completed and submitted.

(B) If any addenda are not acknowledged and attached.

(C) If the Owner's bond forms are not utilized.

(D) If the entire specifications document is not returned.

(E) If the statement from bidder's insurance carrier as required by Subsection 103.6 is not included.

Subsection 103.6 - Contractor's Insurance:
Add the following:
A statement from bidder's insurance carrier shall be included in the proposal certifying that it will furnish the specified kind and amounts of insurance to the bidder if it is awarded the contract. As required by law, the statement will be from an insurance carrier or carriers authorized to do business in the State of Arizona, or countersigned by an agent of the carrier authorized to do business in the State of Arizona. Concurrently with the execution of the contract, Contractor shall furnish a Certificate of Insurance using the included Certificate that names the additional insureds as set out in the Certificate. The Certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form.

Subsection 103.6.1(D) - Contractor's Insurance:
Add the following:
Include additional insureds as indicated on the included Certificate of Insurance.

Subsection 103.6.2 - Indemnification of the Contracting Agency against Liability:
Add the following:
Additionally, Contractor shall execute the Indemnification found in the Contract Documents.

SECTION 104 – SCOPE OF WORK
Add the following:
This project is located within the City of Scottsdale. The project begins at the Marriott Brighton Gardens detention basin, which is to be enlarged as part of this project, located on the south side of Thomas Road, west of 61st Place; the storm drain line from the basin follows east along Thomas Road to 61st Place, north on 61st Place to Catalina Drive, and east on Catalina Drive to an existing storm drain line located under the SRP Cross-Cut canal. A second detention basin located with Paiute Park is to be excavated as part of this project; from this basin, the storm drain line continues north within the alley which parallels 66th Place up to Osborn Road, east within Osborn Road to 71St Street, south on 71st Street to Earll Drive and east along Earll Drive where it daylights in to Indian Bend Wash. In addition to the two basins, the project consists of varying diameter pipes and various box culverts which are to be installed along this alignment as noted on the plans. The project also includes constructing catch basins, junction structures, manholes, future stub outs and inlet structures. Several utilities will be relocated as shown on the plans and in accordance with MAG Standard Specifications and City of Scottsdale Supplements.

Subsection 104.1 - Work to be Done:
Add the following sentence to 104.1.1:

All water for construction purposes, drinking water, lighting, temporary electric power, heat, and telephone service shall be arranged and provided for as per requirements of the work by Contractor at his expense.

SRP canal access and maintenance roads shall remain open at all times.

The Contractor shall be responsible to coordinate and schedule work to minimize disruption or conflicts with other projects in the project area. The Contractor shall complete all work between Sta. 18+90 and Sta. 19+90 no more than 90 days after beginning construction within the area. The Contractor shall notify Mr. Jack Shay (Phone No. 480-994-3467), Golden Keys Subdivision Homeowners Group, at least 48 hours prior to beginning construction on Catalina Drive.

The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City Public Works Department. The Contractor shall coordinate with special events organizer to coordinate traffic during the event.

The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor shall provide for the safety and welfare of the public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing shall be securely anchored to approved steel posts located six (6) feet on center, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor shall submit to the Engineer for approval detailed plans showing types of materials and methods of fabrication for the protective fencing.

Night work (between 9:00 P.M. and 5:00 A.M.) will **not** be allowed in residential areas on this project.

Contractor shall protect in place all and any major trees, cactuses, and other vegetation as depicted on the project plans along the storm drain alignment and within the Marriott Brighton Gardens and Paiute Park basin areas. Before starting construction within the Marriott Brighton Gardens Basin, Contractor shall contact Marriott Brighton Gardens Representative Ed Salas at 480-941-2222. Prior to starting construction within Paiute Park, Contractor shall notify City of Scottsdale Community Maintenance and Recreation Department at 480-312-2771 (Terry Erickson, Senior Recreation Coordinator). Contractor shall minimize the disturbance to the existing vegetation as much as possible. Contractor shall minimize the construction time for Paiute Park basin, restoring the basin area for use as a soccer field within 120 days of start of construction within the park.

Construction within Scottsdale Road intersection (Sta. 121+18 to Sta. 123+00) shall be scheduled within July through September 2000. See Section 401 for detailed traffic restrictions at Scottsdale Road.

Construction within Indian Bend Wash (Sta. 162+63 to Sta. 164+83) shall be scheduled within July through September 2000. Prior to starting construction within the wash area, Contractor shall coordinate all construction activities with Timothy Martinez, Director of Maintenance for Continental Golf Course (480-404-0488). Contractor shall minimize the disturbance to the existing vegetation as much as possible within the Indian Bend Wash and Continental Golf Course area. All irrigation system components and vegetation which is disturbed or destroyed by the contractor outside the limits of those shown on the plans shall be replaced in kind by the contractor at no additional cost to the project.

Subsection 104.2.3 - Changes:
The Owner may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this contract in any one or more of the following:

(A) Drawings, designs, or specifications;

(B) Method or manner of performance of the work;

(C) Owner-furnished facilities, equipment, materials, services, or site;

(D) Directing acceleration in the performance of the work.

Any other written or oral order from the Owner that causes a change shall be treated as a change order under this section provided that the Contractor gives the Owner written notification within two work days after receipt of such direction stating:

(A) The date, nature, and circumstances of the conduct regarded as a change;

(B) The particular elements of the contract performance for which the Contractor is seeking an equitable adjustment under this section, including any price or schedule adjustments;

(C) The Contractor's estimate of the time by which the Owner must respond to the Contractor's notice to minimize cost, delay, or disruption of performance.

The Contractor shall diligently continue performance of this contract to the maximum extent possible in accordance with its provisions. Except as provided in this section, no order, statement, or conduct of the Owner shall be treated as a change or entitle the Contractor to an equitable adjustment. If any change under this section causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, the Owner shall make an equitable adjustment and modify the contract in writing.

The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide notice or to diligently continue performance. No proposal for the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

Subsection 104.2.4 - Cost Estimates or Price Proposals:
The Contractor and any lower-tier subcontractors shall submit itemized cost estimates or price proposals for any owner-directed change order or Contractor-initiated claim.

Cost estimates or pricing proposals shall be itemized to include direct labor by man-hours, individual craft, hourly wage rate and verifiable labor burden. Other direct costs shall include rental, operator rates for rented or owned equipment, materials, trucking expenses, and other costs clearly identified and directly allocable to contract performance. Material costs shall be itemized by item description, quantity(s) for each item, unit price per item, including applicable sales tax markup, and extended total price per item. The Contractor shall provide copies of material supplier quote sheets, invoices or purchase orders, as appropriate.

Lump sum cost estimates or price proposals shall be rejected and returned to the Contractor for itemization as described above. Failure of the Contractor to submit properly itemized cost estimates or price proposals shall not constitute an excusable delay and result in a change order being unilaterally priced as the Owner's fair estimated price.

Subsection 104.2.6 - Value Engineering:

(A) ***General.*** The Contractor is encouraged to voluntarily develop, prepare, and submit value engineering change proposals (VECPs). The Contractor shall share in any instant contract savings realized from accepted VECPs, in accordance with paragraph (f) below. The Owner reserves the right to make alterations to the contract, in accordance with procedures elsewhere within this contract. Such alterations will not be eligible for inclusion in any VECP.

(B) ***Definitions.***

Contractor's development and implementation costs means those costs the Contractor incurs on a VECP in developing, testing, preparing, and submitting the VECP as well as those costs incurred by the Contractor to make the changes required by the Owner's acceptance of the VECP.

Owner costs means those owner costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistical support. The term does not include the normal administrative costs of processing the VECP.

Instant contract savings means the estimated reduction in Contract cost of performance resulting from acceptance of the VECP, minus the allowable Contractor's development and implementation costs, minus subcontractor's development and implementation costs (see paragraph (g) below).

Value engineering change proposal (VECP) means a proposal that (1) requires a change to the contract; (2) results in reducing the contract price or estimated cost without impairing essential functions or characteristics; and (3) does not involve a change in deliverable end item quantities, schedule, or a change to the contract type.

(C) ***VECP Preparation.*** As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change affects contractually required schedule and cost reporting, it shall be revised to incorporate proposed VECP modifications. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effects of the change on the end item's performance. All design changes must be submitted on 24"x 36" standard drawing sheets along with supporting calculations. Each drawing sheet and at least the content sheet of the calculations shall be sealed by an Engineer registered in the State of Arizona.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revision.

(3) A separate, detailed cost estimate for the affected portions of the existing contract requirements and the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (g) below.

(4) A description and estimate of costs the Owner may incur implementing the VECP, such as test and evaluation and operating and support costs. This is an estimate based only on the Contractor's understanding of additional efforts to be expended by the Owner, should the VECP be accepted. The final cost will be determined by the Owner.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency, i.e., costs of operation or maintenance.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved and previous Owner actions, if known.

(D) ***Submission***. The Contractor shall submit VECPs to the Owner's Engineer.

(E) ***Owner Action***.

(1) The Owner shall notify the Contractor of the status of the VECP within 15 calendar days after receipt from the Contractor. If additional time is required, the Owner shall notify the Contractor within the 15-day period and provide the reason for the delay and the expected date of the decision. The Owner will process VECPs expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Owner shall notify the Contractor in writing, explaining the reasons for rejection.

(3) The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Owner.

(4) Any VECP may be accepted, in whole or in part, by the Owner's award of a change order to this contract, citing this Subsection. The Owner may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a change order incorporates a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Owner's decision to accept or reject all or any part of any VECP shall be final and not subject to disputes or otherwise subject to litigation.

(F) *Cost Sharing*.

(1) **Rates**. The Owner's share of savings is determined by subtracting the Owner's costs from instant contract savings and multiplying the result by 50 percent. The Contractor's share shall be the remaining 50 percent.

(2) **Payment**. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a change order to this contract to accept the VECP, reduce the contract price or estimated cost by the amount of instant contract savings, and provide the Contractor's share of savings by adding the amount calculated to the contract price.

(G) ***Subcontracts***. The Contractor may include an appropriate value engineering clause in any subcontract. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Owner under this contract, but shall exclude any value engineering incentive payments; provided that these payments shall not reduce the Owner's share of the savings resulting from the VECP.

Subsection 105.1 - Authority of Engineer:

Add the following:

105.1.1 - Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Subsections 105.2.1, 105.3.1 and 106.4, but such time shall not exceed 20 calendar days. Engineer will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutes proposed or submitted by Contractor pursuant to subparagraphs 105.3.1 and 106.4(B) and in making changes in the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) occasioned thereby. Whether or not Engineer accepts a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute item.

Subsection 105.2.1 – Plans and Shop Drawings:

Add the following:

A) Shop drawings means drawings, submitted to the Engineer by the Contractor pursuant to the contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract.

B) Product Data is information on manufactured items, either stock or modified, and includes descriptive literature, operating data, performance curves, certified dimensional drawings, wiring or schematic control diagrams, piping, instrumentation, parts lists, and operating, maintenance and lubrication manuals.

Subsection 105.3 - Conformity with Plans and Specifications:

Add the following:

105.3.1 - Substitute Construction Methods or Procedures: If a specific means, method, technique,

sequence or procedure of construction is shown or indicated and expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by Engineer will be similar to that provided in subparagraph 106.4(B).

Subsection 105.5 - Cooperation of Contractor:
Add the following:
105.5.1 - Partnering
The Owner intends to encourage the foundation of a partnering relationship with the Contractor and its subcontractors. This partnering relationship will be structured to draw on the strength of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

This partnering relationship will be bilateral in makeup. Any cost associated with effectuating partnering will be covered by the bid item. The initial partnering workshop shall be scheduled after award of the contract, and prior to the Notice to Proceed, and shall be facilitated by a third party competent in the fundamentals of partnering, and mutually acceptable to Contractor and Owner. The Contractor shall be responsible for scheduling, coordinating, and hiring the third party facilitator, and planning all of the partnering meetings in consultation with the Engineer. The Owner will be responsible to notify and coordinate attendance at the partnering meetings by other agencies. To achieve the desired partnering relationships, the Contractor will need to encourage attendance by its major subcontractors on the project. Follow-up workshops will be held periodically throughout the duration of the contract as agreed to by the Contractor and Owner.

An integral aspect of partnering is the resolution of disputes in a timely, professional, and non-adversarial manner. Alternative dispute resolution (ADR) methodologies will be encouraged in place of the more formal dispute resolution procedures. ADR will assist in promoting and maintaining an amicable working relationship to preserve the partnering relationship. ADR in this context is intended to be a voluntary, non-binding procedure available for use by the parties to this contract to resolve any dispute that may arise during performance.

Payment for Partnering will be made on the basis of invoices of actual costs, and will be for a total amount not to exceed the amount shown in the bid schedule for the item.

ITEM 105-1 - PARTNERING

Subsection 105.5.2 – Pre-Construction Meeting:
After award of the contract and prior to the commencement of the work or mobilization, a pre-construction meeting shall be scheduled at a location and time to be agreed upon between the Owner and the Contractor. The Contractor shall make all necessary arrangements to have essential personnel of his company and of his principal subcontractors present at the meeting. Each representative shall have authority to make commitments and act for his firm. The purpose of the pre-construction meeting is to discuss any specific concerns or potential problems that the Contractor is aware of, to provide general information appropriate to the contract, to identify responsible individuals for various functions within each organization, and to develop tentative dates for the start of construction. The Contractor shall submit to the Engineer during the pre-construction meeting the following documents:

1) Mix design composition
2) Manufacturer's certification for all materials
3) Material data safety sheets
4) Preliminary work schedule
5) Preliminary traffic control plan
6) Shop drawings
7) Emergency telephone numbers
8) Signing authority letter
9) Name and telephone number of the certified safety professional

The pre-construction meeting will cover topics such as critical elements of the work schedule, payment application and processing of invoices. Additionally, a scheduled start date for the work will be determined.

The Contractor shall be responsible to take minutes of the pre-construction meeting and distribute copies to all meeting participants. The meeting minutes shall be distributed within 48 hours of the meeting. At the subsequent construction progress meeting, the minutes will be attested or revised, as appropriate. The cost for attendance at the pre-construction meeting, and preparation and distribution of meeting minutes shall be incidental to the project and no extra payment will be made.

Subsection 105.5.3 –Construction Progress Meetings:
Construction progress meetings shall be scheduled weekly, or as considered necessary by the Owner. The Contractor shall make all arrangements to have essential personnel of his company and of his principal subcontractors present at all progress meetings; representatives shall have authority to make commitments and act for their firms. The Contractor shall assume full responsibility to act for and commit any subcontractor employed by the Contractor, whether or not such subcontractor is represented at the meeting.

During the construction progress meeting, the Owner's representative will act as chairman and will advise the Contractor of any administrative matters connected with the contract. The Contractor shall submit for review his two-week rolling schedule. The Contractor's representative at these meetings shall be prepared to discuss and resolve construction problems and concerns, material delivery and vendor data submittals status, construction progress as measured against the Contractor's approved construction schedule and the Contractor's short range construction activities as provided on his two-week rolling schedule. The Contractor shall not be relieved of his responsibility to fulfill all of the terms of the contract as a result of any inferences drawn or suggestions made available at these meetings.

The Contractor shall be responsible to take minutes of the construction progress meetings and distribute copies to all meeting participants. The meeting minutes shall be distributed within 48 hours of the meeting. At the subsequent construction progress meeting, the minutes will be attested or revised, as appropriate. The cost for attendance at meetings, and preparation and distribution of meeting minutes shall be incidental to the project and no extra payment will be made.

Subsection 105.5.4 - Cooperation with City of Scottsdale Community Recreation Department
Construction of the Paiute Park detention basin will disrupt the use of the Paiute Park Water Spray area and soccer field. The contractor will be required to expedite the relocation of the water spray facility, excavate the basin, construct the basin north retaining wall, install the irrigation system and complete the landscape restoration of the park. The contractor will be required to provide a security fence around the basin during establishment of the basin grass. This fence must remain in place until such time as the

Engineer and the City of Scottsdale Senior Recreation staff member concur that the grass is established and ready for use by park patrons.

Subsection 105.5.5 - Cooperation with Continental Golf Course Operators

Construction of the outfall into Indian Bend Wash will disrupt the use of the 17th Hole of the Continental Golf Course. The contractor will be required to expedite construction of the outfall improvements to minimize the time in which the golf facility is impacted. The contractor will be required to coordinate construction activities with representatives from the golf course to minimize the impact on the golfing facility. The contractor will be required to install sod and renovate the existing sprinkler system to irrigate the sod for all areas disrupted by construction.

Subsection 105.6 - Cooperation with Utilities:

Add the following:

An attempt has been made to determine the location of all underground utilities, drainage pipes, and structures; however, it shall be the Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. The location of the underground and overhead utilities as shown on the plans is based on the best available information. The Contractor shall not assume that this represents an exact location of the line. No guarantee is made to the accuracy of the location shown on the plans. The Contractor shall determine for himself the exact location of all utilities. Should Contractor's operations result in damage to any utility the location of which has been brought to its attention, he shall assume full responsibility for such damage. There also exists the strong likelihood that other abandoned older and undocumented underground utility and irrigation lines exist within the project area. Contractor shall contact Arizona Blue Stake (telephone number 602-263-1100) a minimum of two (2) working days before beginning any underground work. In addition, Blue Stake notification(s) shall be maintained on a current basis.

The following telephone numbers should put the Contractor in contact with the proper personnel:

Name of Utility Company	Contact Person	Phone #
Arizona Public Service	John Rael	602-371-6945
Cox Communications	Scott Gusso	623-322-7210
Salt River Project – Water	Robert Maurer	602-236-2962
Salt River Project – 69Kv (Electric)	William G. Phillips	602-236-8092
Salt River Project – 12Kv (Electric)	Jim Frescholtz	602-236-0840
Southwest Gas	Vivian Hunsaker	602-484-5277
U.S. West Communications (US West)	John Aker	602-630-0496
City of Phoenix – Water	Gerald Arakaki	602-261-8229
City of Scottsdale – Water	Larry Tritz	480-312-5631

Arizona Public Service - Electrical Service:
The portion of the project located east of the Cross-Cut Canal is within the APS Service area. OSHA and ASWC require a minimum ten-(10) feet clearance from the overhead lines.

For power pole bracing, contact the APS at least seven (7) days in advance. All fees for pole bracing are to be paid by the Contractor.

Salt River Project - Electrical Service:
The portion of the project located west of the Cross-Cut Canal is within the SRP Electrical Service area. OSHA and ASWC require a minimum ten- (10) foot clearance from the overhead lines.

For power pole bracing, contact the SRP Power at least seven (7) days in advance. All fees for pole bracing are to be paid by the Contractor.

Salt River Project - Irrigation:
This project includes work on SRP irrigation pipe. The Consultant shall coordinate with SRP staff for shutting off the irrigation line. The Contractor shall notify the SRP Water District at 602-236-2962 (Robert Maurer) to coordinate the shut down of the irrigation line. Once the relocation is complete, the Contractor shall coordinate with SRP Water District to have their inspector approve the relocation.

Southwest Gas Corporation (SWG)
SWG pipes which cross trenches more than 3' wide must be supported in a manner where the supporting material does not damage the pipe or its protective wrapping. Please call SWG at 602-484-5256 to review and approve all proposed pipe support designs.

The project includes 4" high-pressure gas line along Scottsdale Road running north south, which needs to be protected in place during the construction. All other known conflicts have been relocated by the SWG before the start of construction.

U. S. West Communications (USW)
The project crosses major USW duct banks along Scottsdale Road running north-south, which needs to be protected in place during construction. The USW representative can be reached at above listed number. The copies of the plans showing the duct banks can be obtained from the USW representatives prior to construction.

Please see Special Provisions Section 601.0 regarding trenching and backfilling.

Subsection 105.8 - Construction Stakes, Lines, and Grades:
Add the following:

A. The Engineer will furnish a Benchmark which the Contractor will use to set line and grade for all construction. All other surveying required for the project shall be the Contractor's responsibility. The Engineer will not set any construction stakes.

B. Before any construction work is started, the Contractor shall perform all base surveys and cross sections of existing conditions that may be required as a basis for quantity determination.

C. The Contractor shall submit original construction surveyor's notes duly signed by a Registered Land Surveyor to the Engineer at the end of the project. Copies of the survey notes shall be submitted to the Engineer at the first weekly meeting after being generated.

D. Prepare as-built drawings by updating original District mylar drawings. Any changes required are to be made in red ink having waterproof, opaque, and reproducible characteristics. Deleted items shall be crossed out or lined out, no erasures will be allowed. The as-built mylar drawings shall be sealed by an Engineer registered in the State of Arizona and shall be provided by the Contractor to the Owner prior to project close out.

Subsection 106.1 - Source of Materials and Quality:

Add the following:

Select Material, Aggregate Base, Mineral Aggregate, concrete, steel products and pipe shall be obtained from commercial sources. Contractor shall pay all royalties or any other charges or expenses, incurred in connection with the securing and hauling of the material. Contractor will be required to furnish Engineer with a list of its proposed commercial sources prior to use, and shall present certificates stating that the material produced from any commercial sources is in accordance with the Uniform Standard Specifications and these Supplementary General Conditions.

Subsection 106.4 - Trade Names and Substitutions:

Replace with the following:

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quantity required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be accepted by Engineer under the following circumstances:

(A) "Or-Equal": If in the Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

(B) Substitute Items: If in Engineer's sole discretion an item does not qualify as an "or-equal" item under subparagraph 106.4 (A), it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by Engineer will include the following and may be supplemented in the Special Provisions and as Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also

contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

C. Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or substitute item will be at Contractor's expense.

If the final placement of a product will remain the property of the municipality and/or owned by the municipality or utility, that entity is responsible for issuing written approval for any equivalent or "or-equal" products. The Contractor or Supplier will submit to that entity the request and documentation for written approval of a product substitution. The Contractor will provide the entity's written approval to the Engineer at the Pre-Construction Meeting.

Subsection 106.5 - Contractors Marshaling Yards:

Add the following:

The Contractor shall obtain approval of the Engineer when using vacant property to park and service equipment and store materials for use. The Contractor will obtain prior written approval of the property owner for such use and submit a copy of the approval to the Engineer prior to use of the property.

The Contractor shall grade all construction yards, easements and limits of construction which are disturbed by construction or construction related activities to the lines and grades shown on the plans; or as a minimum, where no line or grade is shown, to a condition similar to or better than the pre-existing condition.

Subsection 107.2 - Permits:

Replace with the following:

Contractor shall obtain all permits and licenses, including but not limited to those required by **City of Scottsdale in accordance with COS Supplements 107.2.2 through 107.11 and Salt River Project (SRP)**; pay all charges, fees, taxes, and provide all notices necessary and incidental to the due and lawful prosecution of the work. Permits for earth moving may be obtained from Air Pollution Control, Maricopa County Department of Environmental Management, 2406 South 24th Street, Suite E-214, Phoenix, Arizona 85034, telephone number 506-6700. The cost for the earth moving dust control permit is $80 plus $8 per acre. The above permit costs are subject to change. It is the responsibility of the Contractor to verify these costs.

Subsection 107.2.1 - NPDES Permit Requirements:

Add the following:

A. This project is subject to the National Pollutant Discharge Elimination System (NPDES) Storm water requirements for construction sites under the Environmental Protection Agency (EPA) General Permit for Arizona. Under provisions of that permit, the Contractor shall be designated as permittee, and shall take all necessary measures to assure compliance with the NPDES General Permit for Arizona as well as all other applicable Federal, State and local laws, ordinances, statutes, rules and regulations pertaining to Storm water discharge. As the permittee, the Contractor is responsible for preparing, in a manner acceptable to the EPA, all documents required by this regulation, including but not necessarily limited to:

1. Storm water Pollution Prevention Plan (SWPPP) for the project, including certification of compliance form. Contractor shall be required to develop, implement, update and revise the SWPPP, as necessary, in order to assure compliance with the EPA permit requirements. The SWPPP shall be retained on the project site at all times during construction.

2. Notice of Intent (NOI) to assure compliance with the NPDES General Permit for Arizona, including certification of signatures.

3. Notice of Termination (NOT) of coverage under NPDES General Permit for Arizona.

B. Preliminary copies of the NOI and the SWPPP shall be submitted to Owner during the pre-construction meeting and shall be subject to review by Owner prior to implementation.

C. Contractor shall submit the completed and duly signed NOI forms no later than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

EPA Storm water Notice of Intent
P.O. Box 1215
Newington, VA 22122

A copy of the completed NOI form shall be submitted to the following:

Storm water Coordinator
Arizona Department of Environmental Quality
P.O. Box 600
Phoenix, AZ 85001-0600

City of Scottsdale
7447 E. Indian School Road
Scottsdale, AZ 85254

Failure by the Contractor (or Subcontractors of any tier) to submit NOI's within the mandated time frame shall result in delay of the construction start date, and no claim for extension of time will be granted for such delay. A copy of the completed NOI shall be posted at the construction site.

D. Inspections of all Storm water pollution control devices on the project shall be performed by Contractor on a monthly basis and following each rainfall of 0.50 inches or more in a 24-hour period at the project site as required under provisions of the NPDES General Permit for Arizona. Contractor shall prepare reports on such inspections and retain the reports for a period of three years following the completion of the project. Inspection reports shall be submitted monthly to Owner along with progress payment requests. Additionally, Contractor shall maintain all Storm water pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project.

E. Contractor warrants that its employees and Subcontractors of any tier and their employees shall at all times comply with all applicable laws, ordinances, statutes, rules and regulations set forth by all federal, state and local governments and the Environmental Protection Agency in connection with NPDES Permitting requirements and laws and regulations pertaining to air, groundwater and surface water quality.

Fines and penalties imposed by the EPA against Owner or the Contractor for Contractor's failure to comply with any of the requirements of NPDES General Permit of Arizona shall be borne by the Contractor.

F. Upon project completion, acceptance and demobilization, Contractor shall submit its completed, duly executed NOT form to the EPA, with a copy to the Arizona Department of Environmental Quality (and the appropriate municipality), at the address listed in Section (B) above, thereby terminating all NPDES permit coverage for the project. Contractor shall then surrender to Owner copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance of the NPDES General Permit. Contractor shall retain the originals of such documents for a period of three (3) years following the completion of the project.

G. The Lump Sum price for the SWPPP shall include all material, labor, and all other costs relating to the preparation, installation and maintenance of the SWPPP during project construction, including assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events, runoff or releases on the project. The Lump Sum price for the SWPPP shall be inclusive of all costs, and no additional claims shall be made by Contractor under any other specification provision of these documents, including Changed Conditions. Payment for this bid item shall be one-half (1/2) upon approval of the SWPPP plan and the other half (1/2) upon completion and acceptance of the project, as per Section 109.1.

H. Copies of all required forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control." The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009.

Payment for NPDES/SWPPP permit requirements shall be made on the basis of lump sum for all work described in Subsection 107.2 .1 for:

ITEM 107-1 NPDES/SWPPP PLANS & PERMITS

Subsection 107.4 - Archeological Reports:
Add the following:
Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the Contractor, or any person working on his behalf, shall be immediately reported to the Engineer. The Contractor shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Engineer. An evaluation of the discovery will be made by authorized personnel and the Engineer to determine appropriate actions to prevent the loss of significant cultural or scientific resources.

Subsection 107.5:
Add the following:
The entire construction site shall be considered a "Hard Hat Area" and all personnel in the area will be required to wear a hard hat.

Subsection 107.5.2 - Compliance with the Arizona Communication Standard:
Add the following:
Owner will provide Contractor with Material Safety Data Sheets (MSDS) for any products known to exist on the site that are deemed health hazards. Contractor will provide a copy of Owner-provided MSDS to all Subcontractors.

Contractor will provide Owner and all Subcontractors with MSDS for any products that will be brought onto the site or created on the site by either Contractor or by any Subcontractors.

Contractor will provide Owner with a statement certifying that all personnel (Contractor and Subcontractor) employed by Contractor or by a Subcontractor on the job site have received the required Hazard Communication Standard training.

Subsection 107.5.4.1 Contractor's Status During any Hazard Remediation:
If remediation of any discovered Regulated Substance, contamination or asbestos is necessary, the Owner will address the problem, and if this interferes with the project's critical path, then the CPM and project schedule will be reviewed and revised as mutually acceptable by the Engineer and Contractor to minimize the impact to the **total project schedule**. An extension in contract time for any delay to Contractor then resulting will be granted by Owner in accordance with Subsection 108.7.

If any Regulated Substance, asbestos, or other type of contamination is encountered that results in a changed condition, then a change order may be issued in accordance with the contract.

If the delay impacts the CPM in such a manner that Contractor is prevented from continuing work on any portion of the project, and Owner issues a suspension of work order, then Contractor shall be entitled to compensation in the form of a **one-time payment** of Demobilization and Remobilization costs, which shall be no more than 6 percent of the original bid item for mobilization.

Subsection 107.6.3 Public Information and Notification:
Add the following:
The Contractor shall employ a specialty public information service as a subcontractor to provide the community relations program for the project as described herein. The name and address of the public information subcontractor shall be submitted with the bid as specified in Subsection 102.6 of the Supplementary General Conditions. Contractor shall work closely with his subcontractor in developing and carrying out the community relations program, but shall not expect to actually perform the work of providing the public information services. Contractor shall submit a history of the subcontractor's qualifications and experience in public information services at the pre-construction conference for acceptance by the Engineer. The community relations program shall be designed to run the full length of calendar days in the contract for this project. The program will include but not be limited to:

Printing and distributing a pre-construction information letter, public notices and/or newsletters to all residents, business, schools, farm operations, etc. within an area bounded by **60th Street to the west, Thomas Road to the south, Indian Bend Wash to the east and Indian School Road to the north.**

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

Any items not listed here and listed in Section 401, Subsection 104.4 or any other Section or Subsection of this Special Provision that requires the Contractor to inform the public will be the responsibility of the General Contractor to inform the public.

The Contractor will be required to furnish a private line telephone to be used solely for receiving incoming calls from local citizens with questions or complaints concerning construction operations or procedures. The Contractor shall publish this telephone number and maintain a 24-hour answering service. The answering service shall be operated by Contractor personnel during all hours that work is being performed on the job site. The Contractor shall maintain a log of incoming calls, responses, and action taken which shall be submitted to the Engineer weekly and/or upon request.

Prior to the start of work, the Contractor shall notify, by letter, all affected businesses and residents of construction plans and schedules within the geographic area identified above. In addition, all schools and emergency services which serve the geographic area will also be notified even though they may be located outside the geographic area described above. The letter shall contain, as a minimum, the following information:

1. Name of Contractor
2. 24-hour telephone complaint number
3. Brief description of the project
4. Name of Contractor project Superintendent
5. Name of Engineer
6. Name of area supervisor
7. Construction schedule including anticipated work hours
8. Traffic regulations including lane restrictions

The Contractor shall submit a Public Information and Notification Plan to the Engineer at the pre-construction meeting. No payments shall be made for this item until the Engineer approves the plan.

The plan and work which is eligible for reimbursement shall include: meetings with impacted businesses, schools, emergency services, residents, etc.; scheduling; preparation and distribution of newsletter at least BI-weekly; and maintaining a 24-hour telephone hot line for complaints.

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

Any item not listed here and listed in Section 401, Subsection 104.4 or any other Section or Subsection of this Special Provision that requires the Contractor to inform the public will be the responsibility of the Contractor. It will be up to the Contractor to delegate that authority to the Public Information subconsultant. The cost of such item will not be paid from this allowance. However, this cost will be incidental to the bid item cost for constructing such item.

Payment will be based on invoices, and will be for a total amount not to exceed the amount shown in the bid schedule for the item, "PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE", for work performed in notifying and coordinating with the local population impacted by this project. To cover the cost for administration and supervision, the General Contractor may add an amount equal to not more than 5 percent of the accumulated total invoiced billing for actual public information services provided by a Subcontractor. This cost for administration and supervision will be considered included in the "PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE".

ITEM 107-2 - PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE

Subsection 107.6.4 - Project Signs:
Contractor shall provide and install **twelve (12)** project information signs before beginning construction. The signs will inform the public of the forthcoming project, construction dates, and suggested alternate travel routes. Project signs shall include the names of all agencies participating in the project. Signs shall be constructed in accordance with the Project Sign Information drawing to be provided to the Contractor at the pre-construction meeting. The signs shall be installed at the location(s) approved by the Engineer. The Contractor shall maintain the signs as necessary, and update the information as requested by the Engineer. Payment shall be made according to the allowance in the Bidding Schedule in installments of 50% upon installation, and the remaining 50% upon final payment for the work.

ITEM 107-3 PROJECT SIGNS ALLOWANCE

Subsection 107.8 - Use of Explosives:
Add the following:
Because of the proximity to residential and commercial areas as well as major utilities, the use of explosives will **NOT** be permitted for any construction activities on the project.

Subsection 107.9 - Protection and Restoration of Property:
Add the following:
The Contractor shall protect-in-place all existing structures and other features as identified on the plans. This includes but is not limited to landscaping on the private front yards and back yards, mail boxes, traffic signs, curbs and sidewalks, driveways, existing utilities shown as protect in place, fences, gates, irrigation box structures, and other items shown as protect in place on the construction plans.

The Contractor shall limit all construction activities to the areas shown in the plans and shall not disturb any areas other than as required for construction as shown on the plans.

The Contractor will grade all Temporary Construction and Permanent Easement areas, and project areas which are disturbed during construction to the lines and grades shown on the plans, or as a minimum, where no lines and grades are shown, to a condition similar to or better than the pre-existing condition.

Subsection 107.10 - Contractor's Responsibility for Work:
Add the following:

A. The Contractor shall protect-in-place, as depicted on the plans the landscaping within the Marriott Brighton Gardens detention basin. Any sprinkler heads or irrigation lines damaged during the construction shall be replaced "in-kind" by the contractor at no additional cost to the project.

B. The Contractor shall protect-in-place vegetation within Indian Bend Wash (Continental Golf Course) to the extent possible. Any sprinkler heads or irrigation lines damaged during the construction of the outfall in to the wash shall be replaced "in-kind" by the contractor at no additional cost to the project.

C. The Contractor shall replace any additional fence removed beyond the limits shown on the plans with "in-kind" fence.

D. Storm water runoff generally flows to the north in the area between Marriott Brighton Gardens Basin and Paiute Park and to the south in the areas to the east of Paiute Park. Contractor is advised that the work will be subject to flows of water of varying amounts. Owner assumes no responsibility for notifying Contractor of any anticipated flows, nor for any damages incurred by Contractor to his equipment or to any of the Contractor's work as a result of any flows of water. Contractor shall take all necessary precautions to protect his work, equipment and personnel from flooding.

E. The Contractor shall take all necessary action to protect the public from the construction work area.

F. The Contractor shall take all necessary action to ensure that all construction materials are stored in such a manner that storm runoff from the storage area does not divert the flows or block the historical runoff patterns.

G. All medical offices and buildings shall be contacted by the contractor at the beginning of the job. Subsequent shutdowns shall be scheduled with the affected medical offices at least one week in advance or as determined by the initial contract.

Subsection 108.1 - Notice to Proceed:
Delete Paragraph (A) and replace with the following:
(A) Contractor shall commence work within seven (7) calendar days after the Notice to Proceed and complete all work within **two hundred seventy (270)** calendar days **following the effective date specified in the Notice to Proceed.**

Subsection 108.2 - Subletting of Contract:
Add the following:
For this project, Contractor shall perform, with its own organization, work amounting to 50 percent or more of the total contract cost.

Subsection 108.4 - Contractor's Construction Schedule:
Delete in its entirety and replace with the following:
Contractor shall submit a proposed work schedule to Engineer at the pre-construction meeting for review before starting work using the Primavera or other similar software program that is acceptable to the Engineer. Weekly updates shall be submitted to Engineer at the weekly coordination meeting.

Contractor shall be solely responsible for the planning, scheduling and execution of the work to assure timely completion of the project.

Subsection 108.4.1 - Contractor's Billing Schedule:
The Contractor shall furnish the Engineer an Estimated Billing Schedule, which shall include the estimated amount of each billing for the total project at the pre-construction conference, and thereafter at monthly intervals as agreed to between the Contractor and Engineer.

Subsection 108.5 - Limitation of Operations:
Add the following:
The normal workweek shall be 40 hours, Monday through Friday, and the work hours will be determined at the pre-construction meeting. This does not imply that this contract can be completed on time utilizing normal working hours. The Contractor shall furnish sufficient forces and shall work such hours including night shifts and overtime operations as necessary to ensure the completion of the work within the time required. To work other than normal working hours, for other than emergency situations, the Contractor shall give the Engineer at least 24 hours advance notification and receive written approval before working. Should the Contractor elect to perform any work after regular working hours, on weekends, or legal holidays, any charges incurred by the Owner for inspection of the work, surveys or tests of materials will be deducted from monies due or to become due to the Contractor.

Subsection 108.9 - Failure to Complete on Time:
Add the following:
The actual cost per calendar day incurred by the District for Administrative and Inspection Services on this project will be added to the daily charges as indicated by TABLE 108, LIQUIDATED DAMAGES, and will be deducted from monies due or to become due to the Contractor for each and every calendar day that work shall remain incomplete after the time specified for the completion of the work in the proposal, or as adjusted by the Engineer. Nothing contained in this provision shall prohibit the Owner from deducting from monies due or to become due to the Contractor for any other costs incurred by the Owner directly attributable to the delay in completing this contract.

Subsection 109.2 – Scope of Payment:

Add the following:

In addition to the contained provisions, the work under this section shall consist of preparatory work and operations, including but not limited to, the movement of personnel, equipment, supplies and incidentals to the project site; the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work operations that must be performed and costs incurred prior to beginning work on the various items on the project site.

The "complete-in-place" rate shall include but not necessarily be limited to all labor, material and equipment costs for preparation, installation, construction, modification, alteration or adjustment of the items, which shall include all costs for salaries and wages, all payroll additives to cover employee benefits, allowances for vacation and sick leave, company portion of employee insurance, social and retirement benefits, all payroll taxes, contributions and benefits imposed by any applicable law or regulation and any other direct or indirect payroll-related costs. The rate shall also include but not necessarily be limited to all costs for indirect charges or overhead, mileage, travel time, subsistence, materials, freight charges for material to Contractor's facility or project site, equipment rental, consumables, tools, insurance to the levels specified in Section 103.6, CONTRACTOR'S INSURANCE, all applicable taxes, as well as Contractor's fee and profit. This rate shall further include all site clean-up costs and hauling of construction debris to disposal sites designated by the Engineer.

Payment will be made for only those items listed in the proposal and will not be made in accordance with the measurement and payment provisions of the MAG Standard Specifications where this differs from the items listed in the proposal. All materials and work necessary for completion of this project are included in proposal items. Any work or materials not specifically referred to in these items are considered incidental to the item and are included in the unit price. **Payment shall not be made for unused materials.**

It is the responsibility of the bidders to contact all municipalities in the area to determine if they will charge Contractor sales taxes or any other fees for work on this project. Any such taxes or fees shall be paid by Contractor.

Subsection 109.7 - Payment for Bond Issue and Budget Projects:

(A) To third paragraph, add:

Payment or release of retained funds shall be made to the Contractor within thirty (30) days following final payment to the Contractor [reference (B) following], and Contractor furnishing to Engineer satisfactory receipts for all labor and material billed and waivers of liens from any and all persons and Subcontractors holding claims against the work. Additionally, Contractor shall furnish a completed Certificate of Performance to Engineer evidencing it has satisfactorily discharged all its duties in connection with the work to be performed under this Contract. The form of Certificate of Performance shall be provided to Contractor by the Engineer.

(B) Delete second and third paragraphs and replace with the following:

The final payment will be made to Contractor by Owner within thirty (30) days following receipt of Engineer's final estimate and receipt by Owner of Consent of Contractor's Surety to said final payment. If payment will be longer than thirty (30) days as aforesaid, Owner will provide Contractor specific written findings for reasons justifying the delay in payment.

(C) The Contractor's monthly pay estimates will be initially processed by the Engineer during the last week of the month covered.

Subsection 110 – Notification of Changed Conditions and Dispute Resolution:

Delete in its entirety and replace with the following:

The Contractor and Owner will follow the established rules of the Maricopa County Procurement Code.

CONSTRUCTION
SPECIAL PROVISIONS

CONTRACT FCD 1999C070
OSBORN ROAD STORM DRAIN, PHASE II
PCN 027.04.30

THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

April 28, 2000

Prepared for:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
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CONTRACT FCD 1999C070

OSBORN ROAD STORM DRAIN, PHASE II

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CONSTRUCTION SPECIAL PROVISIONS

SECTION 200 - BASIN EXCAVATION

Subsection 200.1 - Description

Basin excavation shall consist of all work necessary to excavate the detention basins located at the Marriott Brighton Gardens Assisted Living Facility (6001 E. Thomas Road) and Paiute Park (east of 64th Street south of Osborn Road) to the lines and grades shown on the plans.

This work shall include the salvage and re-placement of existing riprap rock protection at the Marriott Brighton Gardens basin as shown on the plans.

Instances not specifically addressed by this section shall be addressed according to MAG Standard Specification Section 215.

Subsection 200.5 - Slopes

Excavation slopes shall be finished in conformance with the lines and grades shown on the plans. Debris and loose material shall be removed. When completed, the average plane of the slopes shall conform to the slopes indicated on the plans and no point on the completed slopes shall vary from the designated plane by more than 6 inches measured at right angles to the slope. Tops of excavation slopes and ends of excavations shall be rounded as shown on the plans. This work will be considered as a part of the finishing of slopes and no additional compensation will be allowed thereafter.

The Contractor will be responsible to protect all open excavations.

Subsection 200.6 - Surplus Material

Unless otherwise shown on the plans, specified in the special provisions, or approved by the Engineer, no surplus excavated material shall be disposed of within the right-of-way. Excess material will be the property of the contractor and shall be disposed of in accordance with MAG Specifications Section 205.6.

Subsection 200.7 - Measurement

Measurement for the basin excavation shall be made on a cubic yard basis. The Engineer will compute the quantities of material excavated by a method, which in his opinion is best suited to obtain an accurate determination.

Subsection 200.8 - Payment

Payment for basin excavation as described above will be paid for at the contract unit price per cubic yard. Payment shall include full compensation for furnishing labor, materials, tools, equipment and incidentals, and for doing all the work associated with basin excavation including excavating, sloping, rounding tops

and ends of basins, loading, depositing, conditioning and disposal of excess material as well as the salvage and re-placement of existing riprap protection.

ITEM 200-1 – EXCAVATE BASIN

SECTION 201 - CLEARING AND GRUBBING

Clearing and grubbing shall conform to Section 201 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 201.1 – Description

Add the following:

The work shall consist of removing objectionable material from the right-of-way, easements and such other areas as may be specified in the special provisions. Clearing and grubbing shall be performed in advance of grading operations. The contractor shall protect in place all perimeter masonry walls, footers, and chain link fences during clearing and grubbing operations unless identified in the plans to be removed. Removal of trees, tires and other debris is also included in this section.

The following activities are also included as part of clearing and grubbing:

1) Removal of trees greater than 12 inches in diameter within the Marriott Brighton Gardens and Paiute Park Basins.
2) Removal of grate inlets within the wall at Marriott Brighton Gardens Basin.
3) Removal of the existing Wet Play Area within Paiute Park.

Subsection 201.5 - Payment

Unless otherwise provided for in the plans, no payment will be made for clearing and grubbing as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which said removal is incidental or appurtenant. The payment for the removal of existing pavement, existing storm drain pipes, manholes, pipe plugs and headwalls shall be included in the unit price bid for the installation of the storm drain pipe.

Measurement and payment for the removal of the grate inlets shall be made on the basis of price bid per each. Such payment shall be full compensation for removal and disposal of each grate including all material, labor and equipment necessary to complete the work. The cost of removal, demolition of foundations, new pole foundations, electrical service and connections and all other work appurtenances necessary to install the sport light poles and light poles, not specifically discussed in this section, shall be considered incidental to the cost of the bid item.

Measurement and payment for removal of the Wet Play Area shall be made on the basis of the lump sum price bid and shall be full compensation for removal, demolition of foundations, cutting and capping of utilities, and disposal of all material. The lump sum price shall be full compensation for all material, equipment and labor necessary to complete the removal of the Wet Play area. The cost of removal of all other work appurtenances necessary to remove the wet play area not specifically discussed in this section, shall be considered incidental to the cost of the bid item.

Subsection 201.6 – Measurement, Removal and Disposal of Trees

Measurement, removal and disposal of trees shall conform to Section 201.6 of the MAG Uniform Standard Specifications.

Subsection 201.7 – Payment, Removal and Disposal of Trees

Payment for removal and disposal of trees shall conform to Section 201.7 of the MAG Uniform Standard Specifications.

ITEM 201-1 – REMOVE TREES > 12" IN DIAMETER

ITEM 201-2 – REMOVE GRATE INLETS

ITEM 201-3 – REMOVE WET PLAY AREA

SECTION 202 - MOBILIZATION

Subsection 202.1 - Description

The work under this section shall consist of preparatory work and operations, including but not limited to: the movement of personnel, equipment supplies and incidentals to the project site; the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations that must be performed and costs incurred prior to beginning work on various items on the project site.

Field Office

This work shall consist of providing and maintaining a furnished Field Office for the exclusive use of, and occupancy of, the Engineer and the Engineer's staff.

The Contractor may furnish equivalent facilities in an existing building provided such facilities and building are located to provide convenient service.

The field office shall be an approved and weatherproof building or mobile trailer providing a minimum of 500 square feet of clear floor space, not including the toilet area. The structure shall have a minimum ceiling height of 7 feet and shall be provided with weatherproof doors equipped with locking devices. Windows shall also be provided with adequate locking devices. The Contractor shall also provide the following:

(A) **Lighting** - Electric light, non-glare type luminaries to provide minimum illumination level at desk height level.

(B) **Heating & Cooling** - Adequate electrically powered equipment to maintain an ambient air temperature of 72 degrees Fahrenheit plus or minus 8 degrees.

(C) **Telephone** - a telephone with an outside line for the exclusive use of the Engineer and an additional telephone line for computer and/or fax usage. The Contractor will pay for the cost for these phone lines and local calling charges. Long distance charges made on these lines will be paid for by the District. An appropriate substitution by the Contractor must be made if installation is delayed more than 10 days.

(D) **Toilet** - a commode and wash sink in a separately enclosed room within the building or mobile trailer, properly ventilated and complying with applicable sanitary codes. The Contractor shall provide water service.

(E) **Maintenance** - The Contractor shall maintain all facilities and furnished equipment in good working condition.

(F) **Fire Extinguisher** - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Incorporated approval for Class A, Class B, and Class C fires with a minimum rations of 2A: 20B: 10C.

(G) **Electricity** - The Contractor shall provide electric power and pay for all electric services.

(H) **Furnishings** - Two office desks with drawers, two office chairs (padded, swivel type), one drafting table (adjustable height 3 feet by 6 feet, one conference table, eight folding chairs, and one draftsman's stool.

(I) **Fax, Printer, Copier** - The Contractor shall provide a 3 in 1 fax, printer and copier for the exclusive use of the Engineer.

(J) **First Aid Kit.**

(K) **Potable water supply or service.**

The office shall be fully equipped and made available for the Engineer's use and occupancy prior to the start of any contract work and not later than 10 days after the date of notice to proceed. The Engineer will notify the Contractor, in writing, of the acceptability of the Field Office provided. The Contractor shall maintain the field office in operating condition until seven (7) days after acceptance of the contract work.

The Contractor shall maintain all facilities in good operating condition and appearance for the designated period. After which, all portable buildings, trailers, fencing, surfacing, and utilities shall be removed from the site, the areas cleaned and seeded, if required, and left in a neat and acceptable condition.

Subsection 202.1 - Payment

Payment shall be made on the basis of the lump sum price bid and shall be full compensation for supplying and furnishing all materials, facilities, and services and performing all work involved as specified herein. The lump sum price bid shall not exceed three (3) percent of the total project bid amount exclusive of mobilization. No additional payment will be made for occupancy and services during periods of contract extension of time due to engineering changes.

ITEM 202-1 – MOBILIZATION

SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL

Structure excavation and backfill shall conform to Section 206 of the MAG Uniform Standards Specifications, except as modified herein.

Subsection 206.2 - Foundation Material Treatment

Add the following:

The Geotechnical Report for the project is available from the District and may be used by the Contractor to develop plans for temporary construction slopes.

Subsection 206.4 - Structural Backfill

Add the following:

Compaction of structural backfill soils against embedded footings or walls shall be accomplished to a minimum 95 percent of the maximum ASTM D698 dry density.

Backfill behind subsurface walls designed to support utilities, pavement, channels, or other facilities should compacted to density criteria provided in Section 211. Backfill should consist of granular soils,

free of vegetation, debris, organic matter, clumps of clay greater than 6 inches, stones greater than 3 inches and excess moisture.

Backfill and compaction shall be accomplished using mechanical methods. Water jetting is not an acceptable means of compaction for this project and shall not be permitted.

Subsection 206.5 - Payment

No payment will be made for structural excavation or structural backfill as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which said excavation is incidental or appurtenant.

SECTION 225 - WATERING

Water for compacting and dust control shall conform to Section 225 of the MAG Uniform Standard Specifications except as modified herein:

Subsection 225.1 - Description

Add the following:

The work performed under this section shall include applying all water required for the control of dust as considered necessary in the execution of the work including excavation, fill, backfill, trenching, hauling material and other related activities. The project site is located within a densely developed residential and commercial area. Therefore, pre-soaking prior to excavation and continuous dust control efforts during construction will be required for this project. The Contractor shall maintain adequate pre-soak conditions during excavation, and adequate dust control during loading and transport operations to minimize dust.

Subsection 225.1 – Water Supply

Add the following:

The Contractor shall obtain a fire hydrant meter from the City of Scottsdale Water Resources Department. All construction water shall be obtained through the hydrant meter. The Contractor shall pay all fees related to the hydrant meter and all water bills for construction water used on the project.

The Contractor shall furnish all connections, wrenches, valves, and small tools that may be necessary to meet the requirements pertaining to the hydrant use.

Subsection 225.5 - Payment

Add the following:

No payment will be made for watering as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which such watering is incidental or appurtenant.

SECTION 230 - MISCELLANEOUS RESTORATION

This section describes the work that is necessary to restore areas impacted by construction to its pre-construction condition including the removal and restoration of all miscellaneous items and other unforeseen miscellaneous work not otherwise shown on the plans that may be necessary to complete the project construction. In general, this item will cover, but not be limited to, miscellaneous grubbing,

removal and restoration of irrigation components, and restoration of constructed areas to pre-construction conditions.

Subsection 230.1 - Description

The Contractor shall be responsible to restore damaged areas as a result of construction to their original condition. The Contractor shall restore all areas within the limits shown on the plans and any other areas or incidental items damaged in the opinion of the Engineer. Restoration shall include the replacement of existing grass areas with turf sod (except north of Earl Drive between Miller Road and Indian Bend Wash and within Indian Bend Wash where turf replacement is a pay item); restoring and replacing all irrigation equipment including pipes, valves, sprinkler heads, and other irrigation appurtenances; and restoring all other incidental items and areas which are damaged during construction.

Subsection 230.4 - Payment

No payment will be made for MISCELLANEOUS RESTORATION as such, the cost thereof shall be included in the bid price for the construction and installation of the items for which said miscellaneous restoration is incidental or appurtenant.

SECTION 231 - MISCELLANEOUS REMOVALS AND REPLACMENTS

This section describes the work that is necessary to remove and replace existing sport light poles, electrical transformers and other light poles located within Paiute Park and along the storm drain alignment. Such items and materials shall be carefully removed and stored in such a manner as to permit reuse.

The Contractor shall install these items in accordance with the electrical specifications included in Appendix A of these specifications.

Subsection 231.1 - Description

The Contractor shall remove and relocate the sport light poles and the electrical transformer located in Paiute Park to the location shown on the plans in accordance with the details shown in the plans.

The Contractor shall remove and relocate the light poles located along Earll Drive at approximate Stations 141+78, 143+92, 146+00 and 147+80 to the location shown on the plans.

Subsection 230.4 - Payment

Measurement and payment for the removal and relocation of the sport light poles, the electrical transformer and the light poles shall be made on the basis of price bid per each. Such payment shall be full compensation for removal and re-installation of the item complete and in place including all material, labor and equipment. The cost of removal, demolition of foundations, new pole foundations, electrical service and connections and all other work appurtenances necessary to install the sport light poles and light poles, not specifically discussed in this section, shall be considered incidental to the cost of the bid item.

ITEM 231-1 – REMOVE AND REPLACE EXISTING SPORT LIGHT POLES

ITEM 231-2 – REMOVE AND REPLACE LIGHT POLE

ITEM 231-3 – REMOVE AND RESET ELECTRICAL TRANSFORMER

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

Asphalt concrete pavement replacement shall conform to Section 336 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 336.2.2 - Pavement to be Removed (Slurry Seal Coat)

Add the following:

The street shall be seal coated after installation of permanent pavement replacement in accordance with Section 336.2.2 and 336.2.4. The seal shall be a slurry seal coat with a type II aggregate mix (MAG Section 715). Manhole and valve box frame and covers shall be adjusted to grade of the slurry coat. The cost of the slurry seal coat, and the pavement markings and striping shall be included in the cost of the permanent pavement replacement.

Subsection 336.2.4 - Permanent Pavement Replacement

All asphaltic concrete pavement shall be placed using appropriate lay down equipment, which has been specifically designed for that purpose. The temperature of the asphaltic concrete shall be a minimum of 200 degrees Fahrenheit while being rolled.

Pavement replacement shall conform to Section 710 and shall consist of a minimum of two (2), 2 ½ -inch layers of 19.0 mm AC pavement over 8 inches of aggregate base course. A cationic emulsion shall be used between the layers at a rate of 0.07 gal per square yard.

Pavement replacement will be a T-Top section per the City of Scottsdale standard detail 2200.

Subsection 336.5 - Payment

Add the following:

Payment for asphalt concrete pavement replacement shall be made on the basis of price bid per square yard. No payment will be made for the slurry seal coat and pavement striping and marking as such; the cost thereof shall be included in the bid price for Pavement Replacement.

ITEM 336-1 - PAVEMENT REPLACEMENT C.O.S. DET. 2200, T-TOP

SECTION 340 – CONCRETE CURB, GUTTER, SIDEWALK, GOLF CART PATH, DRIVEWAY AND ALLEY ENTRANCE

Concrete curb, gutter, sidewalk, golf cart path, driveway and alley entrances shall conform to Section 340 of the MAG Uniform Standard Specifications, except as modified by the City of Scottsdale Supplements and herein.

Subsection 340.1 – Description

Add the following:

Valley gutters and aprons shall be constructed per the methods described in this section and in accordance with COS Standard Detail 2240. The golf cart path shall be constructed per the methods described in this section in accordance with the details included in the plans.

The work under this section shall also include all removal, in accordance with MAG Section 340, necessary to complete the installation of various types of concrete curb, gutter, sidewalk, driveways, alley

intersections and valley gutters (and aprons). The work under this section shall also include the removal of the golf cart path to the limits shown on the plans.

All driveways, alley entrances and sidewalk ramps shall be a minimum of eight (8) inches thick.

Subsection 340.3 – Construction Methods:

Is modified as follows:

Delete the last sentence of paragraph 10 and insert the following:

Joints shall be constructed at all radius points, driveways, centerline of driveways, alley entrances, and at adjoining structures with a maximum interval of fifty (50) feet between joints.

Subsection 340.5 – Measurement

Curb and gutter replacement will be measured by the linear foot to the limits shown on the plans. Sidewalk, driveway, and sidewalk ramp replacement will be measured by the square foot to the limits shown on the plans. Pipe removal will be measured by the linear foot to the limits shown on the plans. Removal of existing catch basins and manholes shall be by each as shown on the plans.

Golf cart path replacement will be measured by the square foot of new path to be constructed. No payment will be made for the removal of the existing path.

No payment will be made for removal and re-installation of valley gutters and aprons; the cost thereof shall be included in the bid price for the construction and installation of the items for which said removal is incidental or appurtenant.

Subsection 340.6 – Payment

Payment for the items described in this section shall be made at the contract unit price per bid item. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. The cost of removal, disposal and all other work and appurtenances necessary to install these items, not specifically discussed in this section, shall be considered incidental to the cost of the bid item.

ITEM 340-1 – REMOVE & REPLACE CURB & GUTTER MAG DET. 220, TYPE A

ITEM 340-2 – REMOVE & REPLACE CURB & GUTTER MAG DET. 220, TYPE C

ITEM 340-3 – REMOVE & REPLACE SIDEWALK MAG DET 230

ITEM 340-4 – REMOVE & REPLACE SIDEWALK RAMP, MAG DET 231, TYPE A, MOD. 8" THICK

ITEM 340-5 – REMOVE & REPLACE SIDEWALK RAMP, MAG DET. 232, TYPE B, MOD. 8" THICK

ITEM 340-6 – REMOVE & REPLACE DRIVEWAY, COS DET 2250, 8" THICK

ITEM 340-7 – REMOVE CONCRETE PIPE, 30" OR SMALLER

ITEM 340-8 – REMOVE & RELOCATE GOLF CART PATH

ITEM 340-9 – REMOVE MANHOLE

ITEM 340-10 – REMOVE & RELOCATE 6' WOODEN FENCE

ITEM 340-11 – REMOVE CATCHBASIN

SECTION 342 – DECORATIVE PAVEMENT CONCRETE PAVING STONE OR BRICK

Removal and replacement of the brick crosswalks at the Scottsdale Road/Earll Drive intersection shall conform to Section 342 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 342.4 – Measurement and Payment

No payment will be made for removal and re-installation of the brick crosswalks; the cost thereof shall be included in the bid price for the construction and installation of the items for which said removal is incidental or appurtenant.

SECTION 345 – ADJUSTING FRAMES, COVERS, VALVE BOXES AND WATER METER BOXES

Adjustment of frames, covers, valve boxes and water meter boxes shall conform to Section 345 of the MAG Uniform Standard Specifications, except as modified herein. Adjustments shall be to within ¼" of the final slurry seal grade.

Subsection 345.5 - Payment

No payment will be made for adjusting manholes, frames, covers, valve boxes and water meter boxes as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which said adjustment is incidental or appurtenant.

SECTION 350 – REMOVAL OF EXISTING IMPROVEMENTS

Removal of existing improvements shall conform to Section 350 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 350.3 – Miscellaneous Removal and Other Work

Add the following:

(I) Remove existing pavement

(J) Remove existing curb and gutter

(K) Remove existing sidewalk

(L) Remove existing storm drain pipes

(M) Remove existing manholes

(N) Remove existing headwalls

(O) Remove existing catchbasin

(P) Remove existing soccer goals

(Q) Remove existing pipe plug

Subsection 350.4 - Payment

Unless otherwise provided for in the plans, no payment will be made for the removal and disposal of existing improvements as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which said removal is incidental or appurtenant. The payment for the removal of existing pavement, existing storm drain pipes, manholes, pipe plugs and headwalls will be included in the unit price bid for the installation of the storm drain pipe.

SECTION 351 – REMOVE MAINTENANCE YARD

This section describes the work that is necessary to remove the City of Scottsdale maintenance yard located on the western end of Paiute Park.

Subsection 351.1 – Description

The work covered by this section shall include removal of the maintenance yard building, two storage buildings, steel canopy structures, masonry wall, concrete curbing, asphaltic concrete pavement within the yard, and cutting and capping of utility connections to the maintenance facility. The buildings shall be removed completely, including all foundations and underground plumbing. The water and sewer lines shall be cut and plugged at the mainline. The telephone service drop shall be removed up to the service connection. All material must be removed from the project site immediately after demolition.

The District has conducted an environmental inspection of the facility and has removed hazardous material prior to authorizing demolition of the site to begin. The Contractor shall secure in writing authorization from the District prior to proceeding with the demolition.

Subsection 351.2 – Construction Methods:

During demolition of the buildings, the contractor shall use watering systems to minimize dust and debris from becoming airborne. The demolition activities must conducted within the current Maricopa County Air Quality Standards. The material removed from the maintenance yard site must be disposed of at commercial dump sites currently operating within the Phoenix Metro area. Appropriate manifests of the disposed material must be provided to the Engineer at the completion of each day's activities.

Subsection 351.3 – Measurement

Removal of all building structures, canopy structures, masonry wall, curb and gutter, asphaltic pavement, and capping of all utilities shall be included in the lump sum removal. All appurtenances included within the maintenance yard, not specifically identified here shall be included in the lump sum measurement.

Subsection 351.4 – Payment

Payment for the items described in this section shall be made at the contract lump sum price bid for this item. Such payment shall be full compensation for removal, dismantling, hauling cutting and capping of utilities and disposal of all material contained within the yard. The lump sum price shall include the cost of all materials, labor, disposal fees, hauling and equipment necessary to remove the facility. Appurtenances included within the yard not specifically discussed in this section, shall be considered incidental to the lump sum cost.

ITEM 351-1 – REMOVE MAINTENANCE YARD

SECTION 401 – TRAFFIC CONTROL

The work described by this section shall conform to MAG Section 401, City of Scottsdale Section 401, City of Phoenix Traffic Barricade Manual, City of Scottsdale's Traffic Barricade Manual and the Manual of Uniform Traffic Control Devices, except as modified herein.

Subsection 401.1 – Description

The Contractor shall be responsible to provide all barricades, signs, lights, off-duty police officers, fences, security instruments, flagmen, and all other traffic control devices and personnel necessary to properly mark and control the construction area for the safe and efficient movement of traffic around, and through, the work site. The Contractor will be responsible to maintain all traffic control devices during construction and will be responsible for the removal of all traffic control devices upon completion of the work as accepted by the Engineer. The application of traffic control measures and traffic regulation in these specifications are intended to supplement and are not intended to delete any provisions of the City of Phoenix's or City of Scottsdale's Traffic Barricade Manuals, the Uniform Manual on Traffic Control Devices or any agency's Supplements to these Standard Specifications. All traffic control shall conform to these specifications and any requests from the Engineer.

The Contractor shall submit to the Engineer at the Pre-Construction meeting, for the Engineer's approval, a temporary traffic control plan and the use of temporary traffic control devices as described in subsection 401.5 of these specifications. Subsequent to approval, the traffic plan and all traffic control devices shall be installed prior to the start of any work. The Engineer's approval of the Contractor's traffic control method shall not relieve the Contractor of his responsibility to protect the work, the Contractor's personnel, nor the general public.

The Contractor shall provide and maintain all necessary signs and barricades to protect the work area for five (5) days beyond the concrete cure time or acceptance of the work by the Engineer, whichever period is greater.

Subsection 401.2 – Traffic Control Devices

Add the following:

All existing signs in conflict with the construction signs shall be removed, covered with plywood or relocated. Existing traffic signals shall be covered, relocated or disconnected any time that they are non-functional or in conflict with construction signs. Sign mounting height shall be 7 feet where the measurement shall be from the bottom of the sign to the top of curb.

Temporary traffic control devices shall meet the following requirements:

(A) All regulatory and warning signs shall have flags and lights displayed.

(B) All Type II Barricades, Type III Barricades and vertical panels shall be equipped with steady burning lights.

(C) All orange construction signs shall use high reflectivity sheeting and all other signs shall use standard reflective sheeting.

(D) All signs to be used on the job during periods of darkness shall be reflectorized.

Pavement marking for temporary lane striping shall meet the following requirements:

(A) Temporary lane striping shall be 4 inches wide by 10 feet in length.

(B) Temporary lane striping shall be either temporary pavement marking tape or paint placed at 30-foot intervals, except as otherwise shown.

(C) Temporary lane striping shall be removed by sandblasting or other approved means when the construction phase is complete if they are not covered by Asphaltic concrete.

Subsection 401.3 – Flagmen or Pilot Cars

Flagmen or pilot cars shall consist of providing sufficient flagmen, uniformed off-duty law enforcement officers or pilot cars to expedite the safe passage of traffic.

City of Scottsdale uniformed off-duty law enforcement officers shall be provided by the Contractor when construction activities occur within 300 feet of a signalized intersection. If Scottsdale officers are not available, law enforcement officers from other local agencies may be used in lieu thereof.

The officers shall be knowledgeable of City traffic control systems and their manual use. A key for the traffic control cabinet along with any special instructions shall be obtained from Field Services, 9191 E. San Salvador, Scottsdale. **Contact Norm Akin, Maintenance Manager, at 480-312-5620.**

Subsection 401.4 – Traffic Control Measures

Add the following:

Whenever construction operations create a condition hazardous to the public in the opinion of the Contractor or the Engineer, the Contractor shall furnish such flagmen and guards as necessary to provide adequate warning to the public of any dangerous conditions.

Safety devices, flagmen and guards, while on duty, shall conform to the applicable City, County and State requirements. The Contractor will be responsible to immediately inform the Engineer of hazardous conditions.

Should the Contractor appear to be neglectful or negligent in furnishing adequate warning and protection measures, the Engineer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the District. Should the Engineer determine inadequacy of warning and protective measures, such action of the Engineer shall not relieve the Contractor from any responsibility for public safety or abrogate his obligation to furnish any pay for those devices. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining any protective facility.

Subsection 401.5 – General Traffic Regulations

Add the following:

Contractor shall comply with MAG Section 401.5 as supplemented by COS Section 401 and appended as follows:

Delete COS reference to lane closures between the hours of 7 to 9 A.M. and 4 to 6 P.M. One lane of traffic in each direction must be provided at all times in the City of Scottsdale unless advance approval in writing is obtained from the City of Scottsdale Traffic Engineering Director.

The Contractor will develop routes for haul trucks on public streets, which will be submitted in writing through the City of Scottsdale Development Services for review and approval. The submittal shall include, but not be limited to, the proposed travel direction, turn movements, hours of use, street sweeping, watering and clean up. Presently established truck routes must be used.

Approach speed limits and speed limits within the construction area shall be determined by the City of Scottsdale Traffic Engineering Department.

In addition to the traffic control required for the Contractor's daily operations, the following is also included as part of this item:

A) **Traffic Control General Requirements**

- The Contractor shall compile as-built information for all existing pavement marking, signing, street lighting, traffic signal poles and heads, traffic signal conduits, traffic signal conductors, traffic signal loop detectors, and others. The Contractor shall submit a copy of these to the Engineer for review. The Engineer may request additional clarity or documentation on these items. The complete as-built package shall be approved by the Engineer two weeks prior to the start of any work.
- After construction and acceptance by the Engineer, the Contractor shall replace all signing, pavement marking, traffic signal poles and heads, traffic signal conduits, conductors, loop detectors, and other devices to the satisfaction of the Engineer.
- The Contractor shall provide necessary conductors, wiring, signal heads, and other temporary devices necessary for the continued operation of traffic signals during construction.
- Construction shall be staged and scheduled to minimize disruption to the neighborhoods, schools and businesses.
- The Contractor shall provide and maintain two variable message signs for project traffic control purposes for the duration of the project.

(B) **Canal Access Road Requirements** – SRP canal access and maintenance roads shall remain open at all times.

(C) **Other Project Coordination** - The Contractor shall be responsible to coordinate and schedule work to minimize disruption or conflicts with other projects in the project area.

(D) **Sanitation Pick-up** - The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City of Scottsdale Municipal Services Department.

(E) **Special Events** – The Contractor shall coordinate special events scheduled to take place during construction into the construction schedule.

(F) **Special Sign Requirements** - The Contractor shall provide, erect and maintain advance notification, information, and directional access signs (for businesses, churches, hospitals, etc.) that may be required by the Engineer. The cost shall be included in the bid item for Traffic Control.

(G) **Bus Stops** – The Contractor shall maintain all existing bus stop locations on this project in a safe manner, or provide alternate bus stop locations as required by the Engineer.

(H) **Flagging of Traffic** - No flagging of traffic will be permitted during the peak traffic hours of 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 7:00 p.m. weekdays. If construction requires, intermittent flagging will be allowed from 8:30 a.m. to 4:00 p.m. to facilitate access for heavy construction equipment.

(I) **Traffic Control Plan** - The Contractor shall submit a traffic control plan for approval by the City of Scottsdale Traffic Engineering Department and the Engineer. The traffic control plan shall include the placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of

temporary signage. This plan shall be professionally drawn on a 24" x 36" reproducible medium, and shall be submitted to the Engineer at the Pre-Construction meeting.

(J) **Safety Fencing Requirements for Trenches and Excavations –**

- The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours.
- The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.
- Fencing shall be securely anchored to approved steel posts located six (6) feet on center, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.
- The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor shall submit to the Engineer for approval detailed plans showing types of materials and methods of fabrication for the protective fencing.

(K) **Sequence of Construction**

- The sequence of construction shall conform to the requirements of the Special Traffic Control Requirements.
- The project shall follow a phasing plan approved by the Engineer. All lanes shall be maintained on a paved surface at all times during construction. This may be accomplished by using existing, new or temporary asphalt pavement. Trenches shall be completely backfilled and either paved with temporary asphalt pavement, or covered with metal plating as necessary to comply with this requirement and the "Special Traffic Regulations."
- Night work will **not** be allowed in residential areas of the project. In non-residential areas, the Contractor must request in writing proposed night work two weeks prior to commencing the nighttime construction.
- The right to direct the sequence of construction is a function vested solely with the Engineer. Prior to commencement of the work, the Contractor shall prepare and submit to the Engineer a written phasing plan and work schedule for the project. This plan and work schedule shall be submitted to the Engineer at the Pre-Construction Conference for review.
- When approved, the phasing plan and work schedule shall not be changed without the written consent of the Engineer. Orderly procedure of all work to be performed under this contract shall be the full responsibility of the Contractor. The work schedule shall include the hours per day and the days per week that the Contractor plans to work on the project site.

(L) **Local Access Requirements** - The Contractor shall maintain local access to all side streets, access roads, driveways, alleys and parking lots at all times and shall notify residents, as

described in section (P) below, 72 hours in advance of any restrictions which will affect their access as described in. The Contractor shall restore the access as soon as possible. If the primary access cannot be restored in a timely manner, the Contractor shall provide an alternative which shall be predetermined with the residents prior to imposing any restrictions. Any local street restrictions imposed shall be such that local area traffic circulation is maintained.

(M) **Business Access Requirements** - Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties having more than one point of access shall not have more than one access restricted for more than fourteen (14) calendar days at any given time. Access to adjacent driveways shall be provided during all non-working hours. Any business restrictions shall be coordinated with the affected business in writing, as described in Section (P) below, at least seven (7) days prior to imposing restrictions.

(N) **School Access Requirements** – The Contractor shall provide clean and safe school zones, crosswalks, and walkways for students attending nearby schools during all hours of school use. This may require backfilling trenches, temporary pavement, shoring, plating, or pedestrian bridges with handrails across open trenches. In addition to school zones and crosswalks, the Contractor shall maintain accessibility to all school bus routes during all hours of school use. The Contractor shall notify the school principal(s) and the school Transportation Director, as described in section (P) below, at least seven (7) days prior to any restrictions, and shall restore access as soon as possible.

(O) **Pedestrian Access Requirements** - The Contractor shall ensure that all sidewalks on this project remain open and safely usable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. In high pedestrian use areas, the Engineer may request temporary hard-surface walkways, such as plywood sheets to be installed at no additional cost to the District.

(P) **Residential and Business Area Requirements**

- The Contractor shall communicate in writing by use of door hangers, and in person as necessary, with all residences, businesses, schools and other entities impacted by the proposed construction. Written communication shall be completed prior to construction, and during construction as refinements are made. The Contractor shall provide information on the planned traffic restrictions including timing, start dates and finish dates by the areas restricted. This information shall be refined and made more specific, such as maps identifying temporary parking areas by date, excavation limits by date, truck routes, and other impacts to the neighborhood.
- 61st Place, Osborn Road, 71st Street and Earll Drive may be allowed to be closed to "Local Traffic Only" where reasonable and necessary as mutually agreed upon by the Contractor and the Engineer. Written approval from the City of Scottsdale Traffic Engineering Director is required prior to each road closure.
- Driveways to individual residences shall not be blocked for more than three days.
- Parking areas for residences whose driveways are blocked shall be identified by the Contractor and communicated to the neighborhood by use of door hangers.
- The Contractor shall provide assistance to residents whose driveways are blocked by construction. This assistance will include carrying groceries, moving heavy objects from

vehicle to home and home to vehicle, clearing paths, and other worked deemed necessary by the Engineer to compensate for the temporary inconvenience of construction within the neighborhood.

- **Catalina Drive**

  The Contractor shall provide extensive coordination when construction activities are taking place within Catalina Drive and the Golden Keys subdivision. The Contractor shall conduct a meeting with residents along Catalina Drive 2 weeks prior to commencing any activities within the Golden Keys Subdivision. The meeting shall be coordinated through Mr. Jack Shay, (Phone No. 480-994-3467). Extensive coordination with each affected resident along Catalina Drive as described in Section (L) above is required with each resident who uses Catalina Drive to access their property.

(Q) **Work Site Requirements**

- The Contractor's work area shall be completely fenced and secured at the end of each work shift and it shall not extend more than 200 feet at the end of any work shift.
- The Contractor's work area shall be secured such that neighborhood residents and others are not exposed to construction hazards.

(R) **68th Street and Miller Road Requirements**

- 68th Street and/or Miller Road may be closed for a weekend if approved in writing two weeks in advance by the Engineer.
- A minimum of two lanes, one lane in each direction, shall be provided for traffic on 68th Street and/or Miller Road other than the one allowed weekend closure.
- Weekends are defined as FRIDAY 10 P.M. to MONDAY 4 A.M.
- A running event will be held on Miller Road on September 9, 2000. The Miller Road must be fully paved and completely open to traffic. The roadway must be free of construction equipment, barricades, open trenches and any other hazards that could compromise the safety of the runners.

(S) **Scottsdale Road Requirements(Sta. 121+40 to Sta. 123+00)**

- Scottsdale Road may not be completely closed to traffic at any time.
- Scottsdale Road may be restricted to one northbound lane and one southbound lane under the following conditions:

  1. The work is done during the summer months of June, July or August.
  2. The maximum length of time the road can be restricted to one lane in each direction is one 9-day period that shall consist of two (2) weekends with one (1) 5-day week in between.
  3. Weekends are defined as FRIDAY 10 P.M. to MONDAY 4 A.M.

- If Scottsdale Road traffic is restricted other than on the above-described 9-day period, a minimum of two lanes northbound and two lanes southbound shall be provided. Left turns onto Earll Drive shall be prohibited.
- If removal and replacement of the median islands, curbs and gutters, sidewalks, landscaping, special pavement marking and signing, traffic signal modifications, and other work will require extensive coordination with the City of Scottsdale and the

detailed drawings proposed and provided by the Contractor shall be approved a minimum of two weeks prior to any scheduled construction.

(T) Signalized Intersection Requirements

- When left turns are prohibited at signalized intersections with left-turn arrow indications, the Contractor shall notify the Engineer and the City of Scottsdale Field Services Maintenance Manager **Norm Akin at 480-312-5634** at least 72 hours in advance to make arrangements for arrow indications to be turned off during the prohibited times.
- The Contractor shall provide the Engineer and the Traffic Signal Shop a written schedule indicating days, times and specific locations where left turns will be prohibited.

(U) Temporary Pavement

- Temporary pavement shall be asphalt concrete, Type 19.0 mm, minimum 2 inches thick. The temporary pavement shall be placed as required to maintain traffic on pavement at all times, or as directed by the Engineer.

(V) Traffic Loop Detectors

- Traffic signal loop detectors, which are damaged from pipe trenching operations, shall be completely replaced from the Loop Leadins in accordance with Figure 3.2-4 from the City of Scottsdale Design Standards and Policies Manual.
- Three (3) days prior to cutting any existing signal loop detectors, the Contractor shall contact the City of Scottsdale Traffic Maintenance Division at 480-312-5635.
- All loops are to be wire-in-duct type wire (Detect-a-Duct or approved equivalent, #14 stranded, inside ¼ inch PVC tubing).
- Loop Sealant shall be Griggs Epoxy, 3-M Loop Sealant, or approved equivalent.

Subsection 401.6 – Measurement

Measurement of all traffic control devices as described herein, as required by Subsection 104.1 and as required for the project will be measured on a lump sum basis, except as modified by the following:

- There will be no direct measurement or payment for furnishing, installing, maintaining, or removing temporary asphalt pavement, subgrade preparation including earthwork, and installing temporary drainage facilities, the cost being considered incidental to the cost of the project.
- Uniformed off-duty law enforcement officers or pilot cars, with driver, will be measured by the hour for each individual, including vehicle and equipment, required to perform traffic control. When an officer is used less than 3 hours, a minimum of 3 hours will be charged. Anything over 3 hours will be measured by the hour.
- Traffic signal loop detectors are measured by each loop complete from the loop lead-ins.

Subsection 401.7 – Payment

Payment for all traffic control devices and work, excluding the use of uniformed off-duty law enforcement officers as described above, will be paid for at the lump sum contract bid price. Payment shall include full compensation for furnishing labor, materials, tools, equipment and incidentals, and for doing all the work involved to provide traffic control for the project.

Payment for uniformed off-duty law enforcement officers will be made on the basis of the price bid per hour and shall include full compensation for the work performed by the officers.

Payment for traffic loop detectors shall be made at the unit price bid per each, complete in place.

ITEM 401-1 – TRAFFIC CONTROL

ITEM 401-2 – OFF-DUTY POLICE OFFICER

ITEM 401-3 – REPLACE TRAFFIC SIGNAL LOOP DETECTOR

SECTION 430 - LANDSCAPING AND PLANTING

The following supplements Section 430 of the MAG Uniform Standard Specifications.

Subsection 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 Owner.

Subsection 430.2 - General

Furnish all labor, materials, equipment and incidental needs to install the landscape to the lines and details shown in the plans. This section includes provisions for supplying and/or installing trees, decomposed granite, soil amendments, landscape maintenance, and warranty and guarantee of the landscaping.

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

(A) ANA: Arizona Nursery Association Grower's Committee "Recommended Tree Specifications", latest edition.

(B) AAN-ASNS: American Association of Nurserymen, Inc. "American Standard for Nursery Stock" - 1986 Edition.

Landscape work shall be completed by 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. 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.

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.

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

Finish grade for these areas shall not vary more than 6 inches from the specified grade and cross-section and shall be a smooth uniform surface, free of any abrupt grade changes or depressions. Unless otherwise specified, finish grade below adjacent paving shall be two (2) inches for granite areas.

All landscape and planting areas shall be treated with a pre-emergence control, such as Surflan or equal, applied in accordance with the manufacturer's recommendations.

Subsection 430.2.1 - Source Quality Control

Ship landscape materials with Certificates of Inspection required by governing authorities. Comply with regulations applicable to landscape materials.

Do not make substitutions: If specified material is not obtainable, submit proof of non-availability from five sources to Engineer, 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 borne 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:

(A) Transporting of Cacti and Landscape Plant Materials (from the Arizona Department of Agriculture).

(B) Soil Amendments and Conditioners

(C) Decomposed Granite

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

Subsection 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 by the Engineer. 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.

Soils Test: As soon as possible after all or portions of the site becomes available for landscaping, the contractor shall contract with a licensed soils lab to take a minimum of two (2) soil samples (0-1' depth) of the existing in-situ soil at approved locations for use in fertility analyses.

The soil analysis shall include all characteristics necessary to make fertility recommendations for landscape applications. Perform and include in the report a soil analysis showing parts per million (ppm) of Ca, Mg, Na, K, Fe, Zn, Mn, Cu, nitrate, nitrogen and phosphorus at the test locations. Also include levels of salinity, pH, sodium, and free lime and include recommendations for soil amendments to correct any nutrient deficiencies, eliminate conditions detrimental to plant growth and improve the soil fertility. Additionally, the Contractor shall provide at least two (2) bioassay samples which shall be taken from the landscape areas and tested.

Provide the test results and recommendations to the Engineer for review. If, in the opinion of the Engineer, the testing warrants a change in the soil amendments, the Engineer will request a proposal for incorporating the additional amendments into the project. Changes to soil amendments from those shown in these contract documents will be covered by an adjustment in contract price for the affected items as approved by the Engineer.

Planting Schedule: Submit planting schedule, indicating dates for each type of landscape work during landscape installation. Correlate with specified maintenance periods to provide maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delay.

Maintenance Schedule: Submit proposed maintenance schedule for Engineer's approval.

Maintenance Instructions: Submit typewritten instructions recommending procedures to be established by the Owner for maintenance of landscape work for one full year. Submit prior to completion of the landscape installation.

Subsection 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.

Subsection 430.2.4- Job Conditions

Site Examination: The prospective Contractors are encouraged to examine the plans and visit the job site prior to bidding on this project, and to satisfy their concerns as to the magnitude of the work involved, to become aware of the existing conditions and to understand any restrictions to the completion of the proposed work. Failure to visit the site and become acquainted with the existing conditions shall in no way relieve the Contractor from any obligation with respect to the proposal submitted.

All planting areas shall be left free of construction debris and/or toxic material and graded 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. The Contractor will receive the site within six (6) inches of grade necessary to complete the work herein. Commencement of work indicates acceptance of job site conditions. Cooperate and coordinate with other contractors and trades working in and adjacent to landscape areas.

Plants scheduled to remain, which are damaged or destroyed, shall be replaced with like-kind and size materials at the discretion of the Engineer. The Contractor shall be responsible for completely clearing and grubbing the damaged plants and replanting the like-kind materials as directed. The size of the placement plant shall be approved prior to installation.

Plants lost to frost during the plant establishment guarantee period shall be replaced at no additional cost to the project. There is no limit to the number of replacements due to frost damage. The Contractor shall be responsible for complete removal of undesirable species such as Bermuda, Johnson, and nut grasses resulting from the landscape installation, as appropriate.

Subsection 430.2.5 - Utilities

Determine location of underground utilities by using Blue Stake or similar approved method and perform work in a manner that will avoid possible damage. Hand excavate as required. Maintain stakes by others until removal is mutually agreed upon by parties concerned. Repair or replacement of damaged utilities shall be made as directed by the Engineer. The cost of repairs or replacement of utilities damaged by the actions of the Contractor shall be borne by the Contractor.

Subsection 430.2.6 - Obstructions

If rock, underground construction or other obstructions are encountered in excavation for planting, notify Engineer. New locations may be selected by Engineer or instructions may be issued to direct removal of obstruction to a depth of not less than 6" below required planting depth. Proceed with work only after approval of Engineer.

Subsection 430.2.7 - 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. Protect products/materials from weather or other conditions that would damage or impair the effectiveness of the product material.

Plant Material: Provide trees of quantity, size, genus and species shown and scheduled for landscape work and complying with recommendations and requirements of the above references. Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae, and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.

Label each type of plant with a securely attached waterproof tag bearing legible designation of botanical and common name.

Measure plant material with branches or trunks in their normal position for conformance with requirements of the above references. Do not prune to obtain required sizes. Measure main body of tree for height and spread dimensions. Do not measure from branch or root tip-to-tip.

Engineer may inspect plant material either at place of growth or at site before planting, for compliance with requirements for genus, species, size, and quality. 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 meets the size specified. Travel to non-local nurseries, out of the metropolitan Phoenix area, when requested by the Contractor, will be paid for by the Contractor. Engineer retains right to further inspect plant material for size and condition of root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected plant material immediately from project site and replace with acceptable plants.

Plants shall be sound, healthy, well branched and densely foliated when in leaf. They shall have healthy, well-developed root systems and shall be free from evidence of physical damage or adverse conditions that would prevent thriving growth.

Plants shall not be pruned before delivery. Trees that have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected. Trees with abrasions of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over 3/4" which have not completely callused will be rejected. Do not bend or bind-tie plant material in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Provide adequate protection for root systems from drying winds and sun.

Deliver trees after preparations for planting have been completed, and plant immediately. If planting is delayed more than 6 hours after delivery, protect trees from weather and mechanical damage. Keep roots moist. Water as often as necessary.

Subsection 430.3 - Lawn Areas

430.3.1 LAWN AREAS

A. Broadcast the following materials uniformly and thoroughly incorporate to a depth of 6 inches by means of a rototiller.

   Amount per 1,000 Square Feet

   Three (3) cubic yards nitrogen stabilized organic amendment derived from redwood sawdust, fir sawdust or finely ground bark

Ten (10) pounds 16-20-0 Ammonium Phosphate.

430.3.2 – Lawn Planting

MATERIALS

A. Seed

1. Seed Classification: State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for mixture percentage, purity, germination, weed seed content, and inert material. Labels shall be in conformance with all applicable USDA rules and regulations and all applicable state seed laws.

2. Seed Mixture: Seed shall be provided in bulk quantities to attain the required pure live seed (P.L.S.) rates in a mixture proportioned by weight as follows:

   5LBS/1000 SF of PLS (Pure Live Seed) *Cynodon dactylon Var NuMex Sahara*

3. Weed Seed: Weed seed shall not exceed one percent (1%) by weight of the total mixture. Wet, moldy, or otherwise damaged seed will be rejected. Perform field mixes on site in the presence of the Engineer.

4. Topsoil Fill Material: Topsoil fill material shall be a natural, friable soil representative of productive soils in the vicinity. It shall be free of any admixture of subsoil, foreign matter, objects larger than 1" in any dimension, toxic substances, and any material or substances that may be harmful to plant growth. The pH range shall be 5.5 to 8.3. Topsoil that does not meet the pH range shall be amended by the addition of pH adjusters, at a rate recommended based on soil tests.

5. Soil Amendments: Soil amendments shall consist of fertilizer and soil conditioners meeting the following requirements:

   a. Fertilizer: Commercial grade, free flowing, uniform in composition

      Granular Fertilizer: Ferrous Sulphate (hydrated) shall be commercial grade.

   b. Soil Conditioner: For a single use or in combination to meet requirements for topsoil.

Gypsum: Commercially packaged, free flowing, minimum 95 calcium sulfate by volume, free of any toxic material, and one hundred percent (100%) of the ground material shall pass through a 10-mesh screen and at least fifty percent (50%) shall pass through a 100-mesh screen.

Organic Soil Conditioner: Decomposed wood derivatives: Ground bark, sawdust, or other wood waste material free of stones, sticks, soil, and toxic substances harmful to plants, stabilized with nitrogen and having the following properties:

Particle Size: Minimum percent by weight passing:

	Percent
No. 4 mesh Screen	95
No. 8 mesh Screen	80

Nitrogen Content: Minimum percent based on dry weight:

	Percent
Redwood Sawdust	0.5
Fir or Cedar Sawdust	0.7
Fir or Pine Bark	1.0

6. Mulch: Mulch shall be free from weeds, mold, and other deleterious materials.

7. Water: Water shall be of a quality suitable for irrigation and shall not contain elements toxic to plant life.
8. Chemical Treatment Material: Chemical treatment material shall be EPA registered and approved herbicide, insecticide, and fungicide.
9. Agricultural Sulfur: Agricultural sulfur shall be first quality commercial grade, commercially packaged, free flowing, of a flour or sulfur finely-ground form.

430.3.3 Fine Grading

A. Topsoil shall conform to Section 4.30.3.2.

B. Fine grade by hand raking or dragging with an approved drift, **removing all debris and rocks 1" diameter and greater**. True surface to finished grade, even and firm at all points. Generally, finished grade shall be 1½ inches to 2 inches below tops of adjacent curbs, walks and slabs.

C. The Landscape Contractor shall be responsible for scheduling the work to ensure that the planting of the lawn will be done between April 15th and September 1st according to the details included on the plans and in accordance with the following specifications:

Summer lawn - April 15 - September 1: Broadcast "Nu Mex Sahara" Bermuda Seed (Cynodon dactylon var "Nu Mex Sahara") at the rate of 5 pounds per 1000 square feet. Apply a top dressing of mulch (steer manure) at the rate of one cubic yard per 1,000 sq. ft. and 6-20-20 fertilizer at 725 lbs./acre. Keep lawn areas moist until germination.

PREPARATION OF SEEDED AREAS

A. Tillage

1. Tillage shall be accomplished by plowing, disking, harrowing, rototillage machinery, or other approved operations until the condition of the soil is acceptable. Undulations or irregularities in the surface shall be leveled before the next specified operations.
2. Slopes up to a 2:1 (horizontal - vertical ratio) shall be tilled to a depth of at least four inches (4").

B. Finish Grading

1. Seeded (and planted) areas shall be filled or have surplus soil removed for repair of erosion or other grade deficiencies to attain a smooth finished soil surface. Drainage patterns shall be maintained. Imported topsoil used for repair of erosion or grade deficiencies shall conform to "imported topsoil" requirements. Finished grade shall be one inch (1") below the adjoining paved surface areas and blended with existing unpaved areas.
2. **Seeded areas shall have all trash and debris larger than one inch (1"), and all stones larger than one inch (1") in any dimension removed from the soil surface.**
3. Finished graded areas shall be protected from damage by vehicular or pedestrian traffic and erosion.
4. The Engineer shall verify that finished grades are as indicated on contract drawings and that finish grading has been completed.

SEEDING

A. General: Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rain, traffic, or other cause, shall be reworked to restore the ground condition previously specified. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

B. Equipment Calibration: The equipment to be used and the methods of seeding shall be subject to the inspection and approval of the Engineer prior to commencement of operations. Immediately prior to the commencement of operations, the Contractor shall conduct seeding equipment calibration tests in the presence of the Engineer.

C. Application of Soil Amendments, Conditioners, and Fertilizer: Fertilizer shall be applied as part of the tillage operation to the depth of tillage, at the following rates: 12 pounds of 16-20-0 and 2_ pounds of 21-0-0 per 1,000 square feet, Gypsum at the rate of 150 pounds per acre, ferrous sulfate (hydrated) at the rate of 125 pounds per acre, and decomposed wood derivative at the rate of 150 cubic yards per acre. Following fertilization, the treated areas are to be watered in thoroughly such that soils are wet to a minimum depth of twelve inches (12") at least once prior to seeding/planting operations.

Subsection 430.4.1 - Decomposed Granite Areas

Decomposed granite shall be in accordance with Section 795. The Contractor shall confirm that a sufficient quantity if available so that the entire area will be of the same composition and appearance, and shall furnish a sample to the Engineer for approval as to color.

The Contractor shall stake out all areas to receive granite mulch. These areas shall be treated with a pre-emergent control, such as Surflan, prior to placement of the cover material. 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 firm and all deleterious material and rocks larger than 1" in diameter shall be removed and disposed of. The mulch shall be placed over the entire planting area as shown on the drawings including underneath all plant materials located within mulch areas. Mulch shall not be placed until after plant materials in the area have been planted and a pre-emergent herbicide applied.

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 Engineer. After compaction, a second application of pre-emergent herbicide shall be applied to all mulched areas in accordance with the manufacturer's printed instructions. The Engineer shall witness both applications of pre-emergent herbicide.

Care shall be taken in the placement of the mulch not to disturb or damage any plant material. The decomposed granite shall be a minimum of 2" thick at the completion of the procedure.

Where granite terminates at existing native soil or other landscape materials without the benefit of an adjacent curb or edging, progressively decrease (feather) the depth of the final 3' of the granite to meet the elevation of the existing natural grade. The feathered edge shall be neat in appearance as approved by the Engineer.

Subsection 430.5.7- 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 relocate 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, whichever 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.

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 and adjacent paving shall be adjusted for surface materials. Granite areas shall be 3 inches below adjacent pavement.

Subsection 430.5.8 - Execution of Planting

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

Planting Seasons and Conditions: Planting shall not be done when the soil is muddy or conditions are otherwise unsuitable for planting. The Engineer will be the sole judge of the acceptability of the site soil for planting.

Lay out individual tree locations and secure Engineer's acceptance before start of planting work. Make minor adjustments as may be requested.

Protect existing vegetation from damage during planting operations.

Excavation: Plant pits shall be dug to produce vertical sides and flat, uncompacted 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 as indicated on the project plans. Loosen hard subsoil in bottom of excavation.

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

Backfill Mix: For backfill of trees, use 1 part soil conditioner to 4 parts of native soil excavated from the plant pits. To be acceptable the backfill shall have all stones greater than 2-inch diameter removed and shall be without balls, clumps or layers of individual materials. Prior to the backfilling of holes, the Contractor shall provide a sample of the backfill for the Engineer to review. This sample shall be used as reference material for the backfill as the project proceeds.

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

Setting and Backfilling for Trees: Set plant material on undisturbed native soil, plumb and in center of pit with top of ball at an elevation necessary to accomplish finished landscape grade. Remove bottoms of wooden boxes before setting. After removing plant from container, scarify sides of root ball to eliminate root bound condition. Do not plant stock if root ball is cracked or broken before or during planting operation. When set, place additional backfill mix around plant and place fertilizer tablets. 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 rate specified on the project plans.

Remove all nursery-type plant labels from plants.

Watering: All watering shall be done in a manner which will provide uniform coverage but which will not cause erosion or damage to the finished surface.

Pruning: Prune, thin out and shape trees in accordance with ASNS. Prune trees to retain required height and spread. Do not cut tree leaders, and remove only injured or dead branches from trees, if any. Plants should conform to the requirements of ANA after pruning.

Stake All Trees Per Plans: Set stakes vertically and space to avoid penetrating balls or root masses. Place tree ties for maximum support with top tie above scaffold branches and second tie midway to the ground level. Avoid "rigid" restraint of tree and allow for some trunk movement. Stakes to be set into native soil.

Subsection 430.7.1 - 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. The Contractor assumes all responsibility for the portion or portions of the site under construction and shall provide and maintain safety devices and protective equipment as required by State and local laws, codes and ordinances. Maintain protection during installation and maintenance periods as required. Treat, repair or replace Contractor-damaged work as directed by the Engineer at no cost to the Owner. Remove all debris, trash and excess materials generated by the landscape installation and properly dispose of same.

Subsection 430.8 - 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 completion of the 60-Day Plant Establishment and Maintenance Period. The Contractor shall provide adequate personnel to accomplish maintenance. Maintenance shall include keeping the landscape areas free of trash and debris on a weekly basis, control of weeds, fertilization as needed, and plant replacements made. Traffic control, if required during the maintenance period, shall be included in the cost of contract items.

Plants shall be kept in a healthy, growing condition by watering, pruning, spraying for insects or disease, and any other necessary operation of maintenance until accepted by the Engineer. Contractor will bear full responsibility for complete removal of weeds and grasses such as Bermuda, Johnson and nut grasses from the project site resulting from the landscape installation. 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.

Make replacements of dead or unhealthy plants for any reason during the 60-Day Plant Establishment and Maintenance Period, except for replacements resulting from the exclusions identified in PROJECT WARRANTY below. Plants damaged by frost shall be replaced during the maintenance period as directed by the Engineer; there shall be no limit to the replacements due to frost. Engineer shall approve replacement plants prior to planting.

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. Provide a schedule of maintenance activities to the Engineer prior to starting work. Provide

the Engineer weekly reports summarizing maintenance activities completed by the Contractor, including person hours expended to complete the tasks.

The Plant Establishment and Maintenance Period shall not be considered within the allotted contract time.

Each day that the Engineer determines that work under the Plant Establishment and Maintenance Period is required and the Contractor is so advised, and the Contractor fails to accomplish the required work, the subject days will not be used to reduce the total number of calendar days specified.

The Contractor shall request a pre-maintenance inspection by the Engineer whenever completion of the planting and related work has been accomplished. Contractor shall notify Engineer within five days of inspection to arrange schedule. The Engineer, Contractor and such others as the Engineer shall direct, shall be present at the inspection. After this initial inspection, and subject to the approval of work, the Engineer will issue a written field notification to the Contractor setting the effective date for beginning of the 60-Day Plant Establishment and Maintenance Period. Work requiring corrective action in the judgment of the Engineer shall be performed within five days after the pre-maintenance inspection. Corrective work and materials replacement shall be in accordance with the drawings and specifications and shall be made by the Contractor at no cost to the Owner. When inspected work does not comply with requirements, replace rejected work and continue specified maintenance until re-inspected by Engineer and found to be acceptable. Remove rejected plants and materials promptly from project site.

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; or if other corrective work is necessary; the 60 Day Plant Establishment and Maintenance Period shall be extended and the Contractor shall continue to maintain the entire site until accepted at no increased cost to the Owner.

At the end of the 60-Day Plant Establishment and Maintenance Period a final inspection will be performed. At the time of final maintenance inspection, the Contractor shall have all planting areas under this Contract free of weeds and neatly cultivated. All plants shall be alive and healthy, without signs of stress. If, after inspection, the Engineer is of the opinion that all work has been performed as per the drawings and specifications, all planting areas are weed free, and plant materials are in satisfactory growing condition, the Contractor will be given written Notice of Acceptance of the landscape installation.

Work requiring corrective action or replacement in the judgment of the Engineer shall be performed within 10 days after the final inspection. Corrective work and materials replacement shall be in accordance with the drawings and specifications, and shall be made by the Contractor at no cost to the Project. Maintain corrected work until reinspected by Engineer.

If the optimal planting period has passed without successful compliance with the landscape acceptance criteria, the Contractor shall be responsible for replanting, weeding, maintaining the landscaping and taking remedial actions as required to complete the deficient work during the following growing season, or until accepted by the Engineer. The Engineer shall be the sole judge of the remedial actions to be taken by the Contractor.

There shall be no separate measurement and payment for the 60-Day 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. 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.

4.30.8.1 Lawn Care

SEEDED AREAS ESTABLISHMENT PERIOD

A. Commencement: The seeding establishment period for installing areas in a healthy, growing condition shall commence on the last day of seeding operation and shall end ninety (90) days after the last day of seeding operations. Written calendar time period shall be furnished to the Engineer.

B. Proper Stand of Seeded Areas: An acceptable healthy Seeded Area condition is defined as follows: "Turf Grass" Seed Mix shall have a solid soil surface growth ground covering with bare spots no larger than two inches (2") square and with barren areas not exceeding four percent (4%) of the total seeded area. Within this growth covering there shall be at least seventy percent (70%) coverage of growing healthy turf.

C. Maintenance During Establishment Period.

1. General: Maintenance of the seeded areas shall include eradicating weeds, eradicating insects and diseases, protecting embankments and ditches from erosion, maintaining erosion control materials, protecting areas from traffic, and watering.

2. Watering: Watering shall be at intervals to obtain a moist soil condition to a minimum depth of four inches (4"). Frequency of watering and quantity of water shall be adjusted in accordance with the growth of the seeded areas. Run-off, puddling and wilting shall be prevented.

3. Pesticide: Treatment for disease or pest shall be in accordance with all Federal, State and Flood Control District rules and regulations. As feasible, Contractor should seek cultural and biological control solutions that do not depend on chemical applications for the eradication of insects, mites, snails, nematodes, and small animals (squirrels and gophers). Preferred method shall be approved by the Engineer.

4. Repair and/or Replacement: Contractor shall re-establish, as specified herein, eroded, damaged or barren areas. Contractor shall replace seeded material lost through negligence by the Contractor at no additional cost to the District. All replacement plantings shall conform to the requirements of these specifications for new seeding. Replacement seeding shall occur during the growing months of April through September or as directed by the Engineer.

5. Maintenance Report: A written record shall be furnished to the Engineer of the maintenance work performed.

6. Keep all turf areas watered, neatly mowed, trimmed and edged weekly. Broadcast ammonium sulfate at the rate of 5 lbs./1000 sq. ft. 30 days after lawn planting and every 30 days through the maintenance period.

Subsection 430.8.1 - Project Warranty

Warranty all plant material through the 60 Day Plant Establishment and Maintenance Period against defects including death and unsatisfactory growth, except for defects resulting from neglect by the Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Landscape Contractor's control.

Remove and replace plant material found to be dead or in unhealthy condition at any time during warranty period or as directed by the Owner/Engineer. Replace plant material that is in doubtful condition at end of warranty period unless, in opinion of Engineer, it is advisable to delay replacement. If replacement is delayed, another inspection will be conducted at an agreed-upon date to determine acceptance or rejection. Only one replacement (per tree) will be required during the warranty period, except for loss or replacements due to failure to comply with specified requirements.

Replacements made during the warranty period shall be made within 10 days of written notice from the Engineer according to the plans and specifications herein. The Engineer shall approve replacement material prior to planting.

430.10.1 Measurement and Payment

Payment for the items described in this section shall be made at the contract unit price per bid item. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, equipment and planting of trees. The cost of all other work and appurtenances necessary to install these items, not specifically covered by bid items in this section, shall be considered incidental to the cost of the bid item.

Payment for trees will be made at the unit bid price per each tree as shown on the plans. Payment for plant establishment will be made on a lump sum basis. Payment for decomposed granite will be made at the unit bid price per square foot to the limits shown on the plans.

ITEM 430-1 – TREE, 24" BOX

ITEM 430-2 – TREE, 36" BOX

ITEM 430-3 – SHRUB 5 GALLON

ITEM 430-4 – SHRUB 1 GALLON

ITEM 430-5 – SEEDED LAWN AREA

ITEM 430-6 – PLANT ESTABLISHMENT

ITEM 430-7 – DECOMPOSED GRANITE

SECTION 431– SALVAGE EXISTING TREES MARRIOTT BASIN

Subsection 431-1.1 - Description:

The work consists of furnishing all labor, materials, equipment and incidentals to remove and salvage the specified trees by the methods indicated from the area of the Marriott Basin Area and to store these plants on site at a designated and protected site-nursery. The contractor shall supply a water source to the site-nursery and maintain all plants in the nursery until replanted on the site.

Subsection 431-1.2 - Materials:

The contractor performing the salvage work shall meet the following requirements and shall submit the necessary written documentation to the Engineer at the preconstruction conference as herein specified:

Box Lumber: Boxing lumber shall conform to the following specifications:

Horizontal Members	Vertical Members:
1" material up to 60" box	1" material up to 48" box
2" material over 60" box	2" material over 48" box

1" material shall be 1 x 12 #5 pine.

2" material shall be 2 x 6 or 2 x 12 economy grade.

Banding Steel: Banding steel shall be 3/4" x .025 steel.

Hardware materials shall include but not limited to bracing and guying materials; shade screens.

Subsection 431-1.3 - Construction Requirements:

General:

At the preconstruction conference, the Engineer will provide the contractor with accurate ground survey, which will indicate the materials to be salvaged in accordance with City of Scottsdale requirements.

The contractor performing the work shall have a minimum of 8 years experience in relocating and salvaging native and non-native plants similar to those shown on the survey plans and special provisions.

The contractor shall meet the following requirements and shall submit the necessary written documentation to the Engineer at the preconstruction conference as herein specified:

- Must be an Arizona licensed landscape contractor, in good standing.
- Submit a list of a minimum of two satisfactorily completed native plant salvage projects that included salvage of the tree species identified on the survey and these special provisions.
- The list shall include the dates of the project work, type of equipment used, description of the project and work performed, the name and phone number of a contact person representing the agency, company or owner for which the work was completed.
- Crews must have the capabilities to perform the work. Submit a list of the contractors key personnel, minimum one, who will supervise and perform the actual salvage operations. The person listed must be on site and in responsible charge during all operations.
- The contractor must demonstrate the ability to mobilize for the scale and timely completion of the work. The contractor shall submit a list of available equipment, location of equipment and personnel or replacement personnel with equal qualifications which will remain on the job throughout the duration of the project and that replacement personnel will be subject to approval by the Engineer.
- Must have reviewed the plans, specifications and special provisions and visited the site prior to bidding.

All County, State and Federal permits, which may be applicable, shall be obtained and paid for by the contractor.

The specified existing indigenous materials shall be salvaged and maintained as a part of this contract per the City of Scottsdale Native Plant Ordinance. The existing plants shall be salvaged in a manner consistent with professional practice.

The contractor shall obtain a native plant salvage permit from the City of Scottsdale Development Services Department. The following information shall be provided by the contractor prior to issuance of the permit:

1. Location of where the plants are to be delivered.
2. Methodology for side-boxing of Native Specimens consistent with professional practice.
3. A visual inspection/audit of existing plants itemized to be salvaged on the survey plans.

The contractor shall preserve and protect all existing vegetation (such as trees, shrubs, cacti and grass), within the project limits which does not unreasonably interfere with the salvage operation as may be determined by the Engineer. The contractor shall be responsible for replacement in kind and to the satisfaction of the Engineer for all unauthorized cutting, removing or altering or existing vegetation, including damage due to careless operation of equipment, stockpiling of materials or tracking of terrain by equipment.

Holes, cavities, trenches and depressions resulting from the plant removals, except in areas to be excavated, shall be backfilled with suitable material which shall be compacted to a density of not less than 85 per cent of the maximum density, as directed and approved by the Engineer.

Salvage Plan:

The contractor shall submit a Salvage Plan for the review and approval of the Engineer prior to the beginning of any groundbreaking work by the contractor. The Salvage Plan shall contain but not be limited to the following items and shall conform to the details shown on the project plans and these Special Provisions.

Methods for coordinating the salvage with anticipated phasing and sequencing of construction

Existing locations of each item to be salvaged

Identification numbers of each salvage item

List of mechanical and hand equipment to be used to accomplish all salvage work

Shop drawing(s) of all guying, staking, transport bracing and cradle details

Description (in detail) of the materials, procedures and all other methods to accomplish all salvage work

The Salvage Plan shall be contained in a three ring binder(s) and shall be typed on 8 ½" x 11" sheets. All color photographs shall be 3" x 5" size, mat finish with a minimum of one photograph per plant. Each photograph shall show the entire specimen and shall be contained in heavy-duty plastic transparent photograph holders. The photos shall identify the location and tie to both the inventory and the project plans.

Calibrated measurements of salvaged stock shall occur at the time of removal from the project site and at the time of delivery to the site nursery.

Calibrated measurement of the salvaged material shall include the diameter at the breast height (dbh). Calibrated measurements for local and/or collected stock less than 6'-0" in height shall include the diameter at midpoint. Calibrated measurements shall be completed by methods and tools approved by the Engineer. The method shall demonstrate that the original points of measurement will be easily located with pinpoint accuracy when future measurements are made throughout the duration of the contract. The

minimum acceptable measurable distance of displacement between original points of measurement and all future measurements shall be ½". The recorded calibrated measurements, photographs and visual inspections will be used as tools and methods by the Engineer to determine if the health and/or vigor of the salvaged material is in reasonably close conformity to the appearance it displayed prior to its initial removal.

The plant inventory listed on the plans is the design inventory used to establish the quantities as shown on the bidding schedule. The contractor shall re-inventory the plants on the project site with the Engineer by means of a site walk through and prepare an adjusted plant inventory. The purpose of the re-inventory and walk through will be to review specific clearing limits where adjustments can be made to prevent removal of unrequired plants, addition of plants that may have been omitted during the design inventory, reevaluation of the health of plants and to make any other adjustments as required. The contractor will be required to salvage or protect in place, all plant material identified in the final adjusted inventory. The adjusted inventory shall become part of the Salvage Plan. No separate payment will be made for the walk through and preparation of the adjusted inventory.

The Engineer has complete authority to accept or decline the proposed salvaging of the plants identified on the salvage plan and those species identified in the re-inventory process.

The contractor shall mark the north exposed surface of all material to be salvaged by an acceptable method to the Engineer. The mark or its installation process shall not damage or deface the salvaged material. The mark must be capable of withstanding poor weather and expected working conditions without the possibility of erasure or detachment throughout the duration of the contract.

The contractor shall be responsible for ensuring that all collected materials to be salvaged are identified with original identification numbers assigned in the plant inventory prior to removal of the salvaged plants. The contractor shall also be responsible for tagging all materials. This will also include preparing new tags with new identification numbers for salvaged material added to the adjusted inventory as directed by the Engineer. All new and replacement tags shall be double-faced aluminum tags. The tags or their installation process shall not damage or deface the collected materials. Tags shall remain in place throughout the removal and delivery to the Scottsdale nursery. No separate payment will be made by the District for the tagging or retagging of collected material.

Salvaged materials that die or are damaged by the contractor's operations shall be removed from the site and replaced in kind by the contractor at no additional cost to the District.

Method of Removal:

Trees shall be pruned and removed by side boxing.

Pruning shall be done to remove a certain amount of foliage which is proportionate to the amount of root system eliminated during the boxing operation, and to remove a portion of the low-breaking trunks to provide an aesthetic framework of branches that preserves the size and character of the plant and enhance the vertical form of multi trunk specimens. The Contractor shall identify the major limits to be retained and remove approximately 60% to 80% of the remaining medium and smaller sized branches.

After pruning, the Contractor shall determine the size of box to be used based on the following guidelines:

Trunk Diameter	Box Size
(0 - 6")	(24" - 42")
(6" - 12")	(48" - 60")
(12"- 18")	(66" - 84")
(18") and up	(90") and up

The box size shall be written on flagging tape to alert boxing crew.

The top of the root ball to be exposed shall be measured and the outline marked to facilitate digging. A trench shall be dug around the plant using the outline established in the previous step as the inside dimensions. Roots shall be carefully cut flush with the side of the root ball as they are encountered. As trench progresses, the root ball shall be gradually cut inward to accommodate the taper of the box. When trench reaches the depth of the box, box sides shall be placed in the trench and checked to fit around root ball. The root ball shall be trimmed as necessary. Box sides shall be attached around the root ball with nails. Box sides shall be secured with banding. Dirt shall be packed tightly into any space between box sides and root ball. The tree box shall be watered thoroughly and dirt repacked as needed for a minimum of 2 weeks before bottoming.

To minimize movement of the plant and its root system during transportation supporting topwood shall be placed. Wood (2 x 4 or 2 x 6) shall be measured and cut to fit the width of box. Carpet tree wrap to prevent scarring shall be provided. Cross members and additional supporting wood shall be placed as necessary based on size and orientation of tree. A minimum of two boards in each direction shall be nailed across the top of root ball.

The bottoming operation shall cut the remaining roots and minimize the loss of soil from the bottom of the root ball. A stake shall be placed a safe distance from the trench in the direction plant is to be tipped. A "come along" shall be attached on one end of chain. The other end of chain shall be wrapped around box and secured. The chain shall be cinched until taut. The bottom of the root ball shall be gradually undercut. Taproots shall be cut cleanly as encountered. The tautness of chain shall be tested frequently. The box shall be tipped over in direction of stake, when feasible. When the box begins to tip, a safety brace shall be placed against the bottom of box to prevent box from falling in case of stake or chain failure. As box is tipped back, bottom strips shall be nailed to the box sides. When the tree is fully tipped and bottom completely covered, boards shall be nailed across the others. Depending on soil conditions, pre-assembled bottoms may be feasible. Banding shall be placed underneath cross members. The box shall be lowered down to its original orientation. The banding shall be brought up along sides and over top of box. The banding shall be tightened and secured with crimper.

Transporting Plant Materials:

All salvaged plant material will be delivered by the Contractor to the site-nursery.

Trees shall be transported to the Scottsdale nursery immediately after they been spaded or boxed out.

Boxed plants shall be moved to the site-nursery without damaging the boxes or plants. The Contractor shall determine the equipment needed based on accessibility, estimated weight of plant and distance to destination. If backhoe or front loader is used, chain shall be placed around the box and secured to the bucket of the machine. The bucket shall be tilted back and lifted out of the hole. If a crane is used, two cables shall be placed cross-wise around box and attached to a hook and lifted out of the hole.

All vehicles, equipment and machinery required to perform the salvage work shall not trespass outside the project limits unless approved in advance by the Engineer. The use of specialized equipment such as cranes, hydraulic lifts/cradles and loaders may be required to gain access to locations and removal of salvaged materials. No separate payment for use of specialized equipment will be made by the District.

Any native plant transportation across public roadways, on or off property, must be coordinated with the Arizona Commission of Agriculture and Horticulture, located on the 4th floor of 1688 West Adams. A non-fee permit is to be obtained through the Commission for such a process. To obtain said non-fee permit, the following are required: property's tax parcel numbers if applicable, kind of plant, and plant location and location to be moved to.

Saguaros 8 feet in height and taller shall require bracing and protection during removal and transportation of the plant capable of reasonably eliminating harmful twisting and bending of the saguaro's trunk and/or arms during each removal and transport by the Contractor. The Salvage Plan as approved by the Engineer shall represent the materials and methods required to appropriately brace, protect, remove and transport all salvaged stock. The methods and/or materials shall not damage and/or mar the surface or internal structure of any local and/or salvaged stock.

Subsection 431-1.4 - Method of Measurement:

Removal and salvage of existing vegetation will be measured by the unit for each plant removed, salvaged and delivered to the site-nursery.

Subsection 431-1.5 - Basis of Payment:

The accepted quantities of plants measured as provided on the plans, will be paid for at the contract unit price each which shall be full compensation for the item complete including excavation, backfilling, water, pruning, boxing, spading, transporting of materials and maintaining salvaged material in the site-nursery as describe herein.

No measurement or direct payment will be made for permit fees, removal of small cacti not designated on the plans, or for maintenance of plant materials until delivery site nursery, the cost being considered as included in the cost of removal and salvage of existing vegetation.

ITEM 431-1 – SALVAGE EXISTING TREES

SECTION 440 - SPINKLER IRRIGATION SYSTEM INSTALLATION

The following supplements Section 440 of the MAG Uniform Standard Specifications.

Subsection 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 the work and plan the 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 drip irrigation system including the following:

(1) Trenching, stockpiling excavation material, and refilling trenches.

(2) Abandonment, removal and reconfiguration of portions of the existing irrigation system.

(3) Complete system (downstream of the existing mainline) including but not limited to piping, valves, fittings, emitters and final adjustments to insure complete coverage.

(4) Securing the necessary permits, paying fees for such permits, and purchasing the necessary water meters from the City of Scottsdale.

(5) Reconnecting existing wiring.

(6) Replacement of unsatisfactory materials.

(7) Reprogramming the affected existing controller(s).

(8) Clean up, inspection and approval.

(9) Coordination with the Engineer prior to construction and during system shut downs.

(10) Re-establishing the remaining/reconfigured system as shown on the plans and described herein.

(11) Tests: The system shall efficiently and uniformly irrigate all areas and perform, as required, by the plans and specifications.

(12) Preparation of "as-built" redlines.

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

Subsection 440.1.1 - Allowances for Work by the City of Scottsdale Water Resources Department

Subsection 440.1.2 - Allowances will not be included in the irrigation costs

Subsection 440.2 - Reference

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

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

(2) Underwriters Laboratories (UL) - UL Wires and Cables.

Subsection 440.3 -Quality Assurances

Installer shall have had considerable experience and demonstrate ability in the installation of irrigation system(s) of specified type(s) in a neat, orderly and responsible manner in accordance with recognized standards of workmanship.

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.

Until the end of the 60 Day Plant Establishment and maintenance Period, guarantee/warranty irrigation materials, equipment, and workmanship against defects. 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. Make repairs within three days following notification by the Engineer.

Pre-Construction Conference: Contractor shall schedule and conduct a conference to review in detail quality control and construction requirements for equipment, materials and systems used to perform the work. Conference shall be scheduled not less than 10 days prior to commencement of work. All parties required to be in attendance shall be notified no later than seven days prior to date of conference. Contractor shall notify qualified representatives of each party concerned with that portion of work to attend conference, including but not limited to Owner, Engineer and installer. Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.

As part of the pre-construction conference, the Contractor shall meet with the Engineer and other persons as appropriate to identify the process and schedule for completing the work. The Engineer will distribute "as-built" plans of the affected irrigation systems for use by the Contractor. A field review of the areas of work and equipment will be conducted as part of the conference. The Contractor shall identify in the field review the proposed approach to completing the work and indicate evidence of coordination with other work on the project. The Contractor will accept comments from the others on the proposed activities. Within three days of the meeting, the Contractor shall provide a written schedule of the proposed work for the Engineer to review. Once a strategy and schedule are agreed upon, amend the schedule only as approved by the Engineer.

Subsection 440.4 - Submittals

Subsection 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 10 days prior to beginning work on the irrigation system, the Contractor shall submit six copies of manufacturers literature including model number and description of 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:

(A) Pipe

(B) Fittings and Solvents

(C) Valve Boxes

(D) Pressure Regulator / Wye Strainer

(E) Automatic Valves

(F) Emitters

(G) Turf Sprinkler Heads

(H) Controller and Controller Cabinet

(I) Backflow Preventer and Cage

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

Subsection 440.4.2 - Record Drawings

At onset of irrigation installation secure reproducible copies of original irrigation design from Engineer. Make blueline or blackline prints as required. 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 by a qualified draftsperson. A print of record plan(s) shall be available at project site. Indicate zoning changes on weekly as-built drawings. Indicate non-pressure piping changes on as-builts. Upon completion of project, submit for review, prior to final acceptance, final set of as-built blueprints. 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 waterlines

(B) Routing of tree lateral lines (dimension at a minimum of 100 feet along routing)

(C) Drip irrigation control valves

(D) Drip line flush caps

(E) 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, evidence that the Owner has received this material must be shown to the Engineer.

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

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 certify payment requests or make final payment if as-built plans are not current or complete.

Subsection 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 the area of coverage 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 hermetically 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.

Subsection 440.4.4 - Operation and Maintenance Manuals

Submit three 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 and complete operating and maintenance instructions on all major equipment. Contractor to provide a demonstration to maintenance personnel, with Engineer present, of how to adjust and maintain all drip irrigation control valves and recommended controller programs, as established by the Contractor. Contractor also to review recommended watering rates for new plant materials.

Subsection 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 at the completion of the job:

(A) 1. Two sets of special tools required for removing, disassembling and adjusting each type of valve, head and emitter supplied to the project.

Extra stock to be furnished:

(A) 1. 10 drip emitters of each type used and 10 turf spray heads of each type of head utilized.

Subsection 440.5 - Delivery, Storage and Handling

Deliver, unload, store and handle materials, packaging, bundling and products in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, intrusion, ignition and vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer name, volume, quantity, contents, instructions and conformance to Federal, State and local law. Remove and replace cracked, broken or contaminated items or elements prematurely exposed to moisture, inclement weather, temperature extremes, fire or jobsite damage.

Exercise care in handling, loading and storing of PVC pipe. All PVC pipe shall be transported in a vehicle which allows length of pipe to lie flat so as not to subject it to undue bending or concentrated external loads. All sections of pipe that have been dented or damaged shall be discarded, and, if installed, shall be replaced with new piping.

Subsection 440.6 - 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 by the Contractor, each at the proper time. The Contractor shall also arrange for and pay all costs in connection with any inspections and examinations required by these authorities.

Subsection 440.7 - Job Site Conditions

Potable water will be supplied to install the irrigation system work described herein at the Contractor's expense through the water source. The Contractor shall open water accounts with the City of Scottsdale for the water supplies needed for each irrigation system. Upon completion of the landscape establishment period, the accounts shall be transferred into the City of Scottsdale's name. Location of controller(s) will be provided by Engineer after award of contract.

Subsection 440.7.1 - Protection of Property

Preserve and protect all plants, monuments, structures and paved areas from damage due to work of the Section. In the event damage does occur, all damage to inanimate items shall be completely repaired or replaced to satisfaction of Engineer, and all injury to living plants shall be repaired by Engineer unless other arrangements have been agreed to by the Engineer. All costs of such repair shall be charged to and paid by Contractor.

Protect buildings, walks, walls and other property from damage. Flare and barricade open ditches. Damage caused to asphalt, concrete or other building materials surfaces shall be repaired or replaced at no cost to Owner. Restore disturbed areas to original condition.

Subsection 440.7.2 - Protection and Repair of Underground Lines

Request proper utility company to stake exact location (including depth) of all underground electric, gas or telephone lines. Take whatever precautions are necessary to protect these underground lines from damage, and, in the event damage does occur, all damage shall be repaired by Contractor. All costs of such repairs shall be paid by Contractor unless other arrangements have been made.

Request Owner, in writing, to locate all private utilities (i.e., electrical service to outside lighting) before proceeding with excavation. If, after such request and necessary staking, private utilities which were not staked are encountered and damaged by Installer, they shall be repaired by Owner at no cost to Installer. If Contractor damages staked or located utilities, they shall be repaired by Contractor unless other arrangements have been made.

Subsection 440.8 - Construction Methods

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

Demolition and grading operations, with the exception of final grading, shall be completed and approved by Engineer before staking or installation of any irrigation system begins.

Subsection 440.8.1 - Restoration and Repairs of Existing System to Remain

Modifications shall be completed in such a manner that no more than two irrigation cycles are missed for each control zone on the project during any two week period, with a maximum of three total missed cycles for any single zone; the Engineer may adjust the frequency and timing of the system interruptions to beneficially accommodate project construction. Several mobilizations may be required to complete the modifications, based on construction sequencing of the project features. If directed, the Contractor shall make temporary or "bypass" connections of water or electrical controls to facilitate the maintenance and sustained health of plants within or outside of the immediate work areas, but scheduled to remain.

Installed pipe will be tested per the requirements herein.

If in the opinion of the Engineer, the progress of the work is such that the viability of the plants to remain is jeopardized or other situations occur that may create safety or hazardous conditions, the Engineer reserves the right to suspend the modifications until satisfied that the work can be completed and the hazard eliminated. Hand watering may be necessary to maintain the plant material in a healthy, thriving condition as directed by the Engineer. Do not resume work until directed by the Engineer.

Once the work of an area is substantially complete, request a review by the Engineer and other representatives as deemed necessary. At the review, the Contractor will be requested to demonstrate each component's operation. Automatic controllers which have been affected by construction shall have their programs reset to pre-project settings. The affected controllers shall have been operating in the pre-project settings for three days before the review. Remote control valves will be manually operated form the controller unit and shall be separately operated through the automatic program until approved by the Engineer. At the time of the review, the Contractor shall have completed redlines of "as-builts" of the irrigation system modifications on a blueline of the design plans for review by the Engineer. Make corrections/additions to the as-builts as directed.

Subsection 440.8.2 - Backflow Preventer

Install new Backflow Preventer as specified and shown on the plans.

Subsection 440.8.3 - Staking

Mark with powdered lime, routing of all lateral lines and stake locations of various components and emitters. Unless otherwise specified, the irrigation system layout shall be considered schematic. 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. The turf heads shall be adjusted to accommodate head to head coverage the contractor shall insure that head to head coverage is obtainable with designed system and adjust to maintain this coverage.

Subsection 440.8.4 - Trench Excavation

Trenches and other excavations shall be sized to accommodate the irrigation system components. 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) Waterlines continuously pressurized - 18 inches

(B) Lateral tree lines - 12 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 be 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.

Subsection 440.8.5 - Sleeving

Existing sleeves under pavement may be utilized. If existing equipment is not functional or available, schedule 40 PVC sleeves shall be installed at each crossing contact Engineer for further direction.

Subsection 440.8.6 - Piping

Provide pipe, schedule and size as shown on the drawings and per Section 757. Existing 2" PVC main line shall remain and be re-used.

PVC Pipe: Snake pipe in trench as much as possible to allow for expansion and contraction. Do not install pipe when air temperature is below 40 degrees F. 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, or at end of each day, 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.

Identify all pipe with the following indelible markings: manufacturer's name, nominal pipe size, schedule of class, pressure rating psi, NSF (National Sanitation Foundation) seal of approval, and date of extrusion.

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 shall 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 avoided.

Emitter distribution tubing shall be installed per plans.

Subsection 440.8.7 - Wiring / Power Supply and Source

Contractor shall provide all necessary and required wiring and power supply to the site for a complete and functional irrigation system as designed.

Subsection 440.8.8 - Valve Boxes and Valve Assemblies

Valves and Related Accessories shall be installed as shown on the plans, or as specified and shall meet the requirements of MAG Section 757. 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.

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 ½ 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 1½ inches. Depth of branding shall not be more than 1/8 inch into the valve box lid. All labeling shall be neat and legible.

Subsection 440.8.9 – Emitters and Turf Spray Heads

Emitters and turf spray heads shall be installed as detailed.

Subsection 440.8.10 - Flushing End Caps

Install flushing end caps per plan at all dead ends of emitter laterals.

Subsection 440.8.11 - Controller System

Install new irrigation controller as shown on the plans.

Subsection 440.8.12 - Bedding, Backfilling and Compaction

Do not begin backfilling operations until required system tests have been completed. Pipe shall be bedded in at least 4 inches of finely graded sand to provide a firm, uniform bearing. After laying, the pipe shall be surrounded with additional finely grained sand to at least 4 inches over the top of the pipe. Water jetting of trenches will not be permitted within 15 feet of any concrete flatwork or asphalt paving.

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 one inch in diameter. Material not suitable for backfill shall be hauled away. Contractor shall be responsible for providing suitable backfill if excavated material is unacceptable or not sufficient to meet backfill, compaction and final grade requirements. Do not leave trenches open for a period of more than 48 hours. Open excavations shall be protected in accordance with

OSHA regulations. 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. Trenches shall be finish graded prior to walk through of system by Engineer.

Subsection 440.8.13 - General

New materials used in the work to restore and connect to existing system components to remain shall match as closely as possible the performance characteristics of the existing adjacent materials. In case of a conflict between the material requirements, the requirements for new materials specified herein shall prevail.

Subsection 440.8.14 - 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.

Subsection 440.9 - Flushing and Testing

After completion and prior to the installation of any turf heads, drip emitters or terminal fittings, the entire pipeline system shall be thoroughly flushed to remove all foreign material. Maintain flushing for five minutes through furthermost valves. 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. Arrange for presence of Engineer 48 hours in advance of testing. Supply force pump and all other test equipment.

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 2 hours at 125 PSI over the designated static pressure or 120 PSI, whichever is greater. 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. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.

Operational Tests: The Contractor shall adjust or replace any type of irrigation heads or equipment to ensure proper distribution of water through the course of the 60-Day Plant Establishment and Maintenance Period.

Subsection 440.10 - Pre-maintenance and Final Maintenance Inspections

Arrange for a Pre-Maintenance walk-through with the Engineer, when the entire system is operational. Arrange for Engineer's presence 48 hours in advance of walk-through. Operate each zone in its entirety, additionally, open all valve boxes and expose items covered, if directed. During walk-through, expose all drip emitters under operations for observation by Engineer to demonstrate that they are performing and installed as designed, prior to placing of all mulch material. Schedule separate walk-through if necessary. Generate a list of items to be corrected and make adjustments, "fine tuning" the entire system by regulating valves and setting pressure regulators at proper and similar pressure to provide optimum and efficient coverage. Areas which do not conform to designated operation requirements due to unauthorized changes or poor installation practices shall be immediately corrected at no additional cost to the Owner.

The maintenance period will not begin unless authorized by the Engineer. All accessories, charts, record drawings and equipment, as required, will be provided to the Owner.

Arrange for a Final Maintenance Inspection at the end of the 60-Day Plant Establishment and Maintenance Period. Arrange for Engineer's presence 48 hours in advance of walk-through. Show evidence to Engineer that Owner has received all accessories, charts, record drawings, and equipment as required before Final walk-through is scheduled. Operate each zone in its entirety for Engineer at time of walk-through to insure correction of all incomplete items. Items deemed not acceptable by the Engineer shall be reworked to complete satisfaction. If after request to Engineer for walk-through for Final Maintenance Inspection of irrigation system, Engineer finds items during walk-through which have not been properly adjusted, reworked or replaced as indicated on list of incomplete items from previous walk-through, Contractor shall be charged for all subsequent walk-through. Funds will be withheld from final payment and/or retainage to Contractor, in amount equal to additional time and expenses required by Engineer to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

Subsection 440.11 - Warranty/Guarantee

Manufacturer shall warrant materials against defects for a period of one year from date of Substantial Completion. Installer(s) shall guaranty workmanship through the 60-Day Plant Establishment and Maintenance Period. Settling of backfilled trenches which may occur during guaranty period shall be repaired at no expense to Owner, including complete restoration of damaged property. Expenses due to vandalism before substantial completion shall be borne by Contractor. Owner will not maintain planting areas until after 60-Day Plant Establishment and Maintenance Period.

Subsection 440.12 - Measurement and Payment

Payment for the items described in this section shall be made at the contract unit price per lump sum per basin irrigation system. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. The cost of all other work and appurtenances necessary to install these items, not specifically covered by bid items in this section, shall be considered incidental to the cost of the bid item.

ITEM 440-1 - IRRIGATION SYSTEM - PAIUTE PARK BASIN

ITEM 440-2 – IRRIGATION SYSTEM – MARRIOT BASIN

SECTION 505 - CONCRETE STRUCTURES

Concrete structures shall conform to Section 505 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 505.1 - Description

Add the following:

The Contractor shall submit mix designs and certifications in conformance with Section 725 of the MAG Standard Specifications for the written approval of the Engineer. All concrete structures shall have a minimum compressive strength of Class "A" concrete unless otherwise specified.

Junction Structures

Four (4) junction structures shall be constructed along the proposed storm drain alignment in accordance with the plans at the following locations:

Sta. 19+29
Sta. 69+20.19
Sta. 101+96.77
Sta. 115+34.20

The junction structures include the construction of the manhole unit located on top of each structure; including manhole riser, manhole frame, cover, adjusting rings and manhole steps.

Transition Structures

Seven (7) transition structures shall be constructed along the proposed storm drain alignment in accordance with the plans at the following locations:

Sta. 115+10
Sta. 121+42
Sta. 122+80
Sta. 135+25
Sta. 135+35
Sta. 140+04
Sta. 141+70

Headwalls – Drop Inlet (MAG Det. 501-5 Modified)

One (1) modified headwall drop inlet structure shall be constructed along the proposed storm drain alignment in accordance with the plans at the following location:

Sta. 60+18

Catch Basins

The Contractor shall construct catch basins to the specified standards and at the stations shown on the plans. Catch basins shall have a minimum horizontal clearance of six (6) inches between all other facilities and the nearest surface to the catch basin. If the clearance cannot be maintained, the contractor shall install expanded polystyrene foam material of a minimum of 2-inch thickness between the facility and the catch basin.

All removal and replacement of curbs, gutters and sidewalks shall be completed as necessary to construct the catch basins in accordance with Section 350. The Contractor has the option to sawcut the existing curbs, gutters and sidewalks for the removal, or the preferred alternative to remove the curbs, gutters and sidewalks to the closest existing joint, within four (4) feet. All removal and replacement of existing facilities, including but not limited to, curbs, gutter, sidewalk and sidewalk ramps will be incidental to the construction of the catch basins. Gutter transition shall be provided in accordance with Details P-1569 & P-1570 from existing curb and gutter to each catch basins and shall be consider incidental to the construction of the catch basin.

Concrete Headwall Drop Inlet (Det. MAG 501-5, Modified)

The Contractor shall construct the concrete headwall drop inlet structure in accordance with the MAG Standard Detail 501-5 and as modified by the details shown on the plans. Contractor shall submit shop drawings and obtain approval from the Engineer, in advance of constructing the inlet headwalls.

Concrete Headwall (ADOT Det B-4.30)

The Contractor shall construct the concrete headwalls in accordance with Arizona Department of Transportation Standard Detail B-4.30, as shown on plans. Contractor shall submit shop drawings and obtain approval from the Engineer, in advance of constructing the outlet headwalls.

Concrete Retaining Wall (ADOT Det. B-18.10, B-18.20, B-19.10, B-19.30 and B-19.40)

The Contractor shall construct a concrete retaining wall to the line and grade shown in the plans in accordance with the Arizona Department of Transportation Standard Details B-18.10, B-18.20, B-19.10, B-19.30 and B-19.40. Contractor shall submit shop drawings and obtain approval from the Engineer, in advance of constructing the retaining wall.

Concrete Lined Channel

The Contractor shall construct the concrete lined channel to the line and grade and per the details shown on the plans.

Subsection 505.10 - Payment

Payment for the items described in this section shall be made at the contract unit price per bid item. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. The cost of all other work and appurtenances necessary to install these items, not specifically discussed in this section, shall be considered incidental to the cost of the bid item.

Junction Structures - Payment for the junction structures shall be made at the contract bid price per each structure. The cost of the entire junction structure including the cost of the foundation, excavation, structure backfill, reinforcing steel, concrete, manhole unit and all other appurtenances shall be included in the cost of each junction structure.

Transition Structures - Payment for the transition structures shall be made at the contract bid price per each structure.

Inlet Structures and Catch Basins - Payment for inlet structures and catch basins shall be made at the contract bid price for each item. Modified type 'N' catch basins shall include the cost of the concrete apron.

Concrete Headwalls - Payment for concrete headwalls shall be made at the contract bid price per each structure.

Concrete Retaining Walls-Payment for concrete retaining walls shall be made at the contract bid price on a linear foot of wall basis. The cost of the foundation, structural excavation, structural backfill, reinforcing steel, concrete, architectural patterns, painting and all other work and appurtenances shall be included in the linear foot cost.

Concrete Lined Channel- Payment for concrete lined channel shall be made at the contract bid price on a square foot basis of exposed channel per the limits and details shown on the plans. The square yard cost shall include the cost of the cutoff walls.

ITEM 505-1 – JUNCTION STRUCTURE STATION 19+29

ITEM 505-2 – JUNCTION STRUCTURE STATION 69+20.19

ITEM 505-3 – JUNCTION STRUCTURE STATION 101+96.77

ITEM 505-4 – JUNCTION STRUCTURE STATION 115+34.20

ITEM 505-5 – TRANSITION STRUCTURE STATION 115+10

ITEM 505-6 – TRANSITION STRUCTURE STATION 121+42

ITEM 505-7 – TRANSITION STRUCTURE STATION 122+80

ITEM 505-8 – TRANSITION STRUCTURE STATION 135+25

ITEM 505-9 – TRANSITION STRUCTURE STATION 135+35

ITEM 505-10 – TRANSITION STRUCTURE STATION 140+04

ITEM 505-11 – TRANSITION STRUCTURE STATION 141+70

ITEM 505-12 – CONCRETE CATCH BASIN TYPE H, MAG DET 538

ITEM 505-13 – CONCRETE CATCH BASIN M-1, L=6', DET. P-1569

ITEM 505-14 – CONCRETE CATCH BASIN M-1, L=10', DET. P-1569

ITEM 505-15 – CONCRETE CATCH BASIN M-1, L=17', DET. P-1569

ITEM 505-16 – CONCRETE CATCH BASIN M-2, L=17', DET. P-1569

ITEM 505-17 – CONCRETE CATCH BASIN M-2, L=8', DET. P-1569, MOD

ITEM 505-18 – CONCRETE CATCH BASIN TYPE N-2, (DOUBLE), DET. P-1570

ITEM 505-19 – CONCRETE CATCH BASIN TYPE F, MAG DET 535

ITEM 505-20 – HEADWALL DROP INLET 30" PIPE, MAG DET 501-5

ITEM 505-21 – HEADWALL DROP INLET, SPECIAL DET DWG PDB-4

ITEM 505-22 – HEADWALL, 10'X 4' BOX CULVERT, ADOT DET. B-4.30

ITEM 505-23 – HEADWALL, 10'X 6' BOX CULVERT, ADOT DET. B-4.30

ITEM 505-24 – CONCRETE LINED CHANNEL

ITEM 505-25 – OUTLET WINGWALLS & APRON (ADOT DET. B-4.10 & B-6.10, MOD PER DWG. C-2.28)

ITEM 505-26 – CONCRETE RETAINING WALL (ADOT DET. B-18.10, B-18.20, B-19.10, B-19.30 AND B-19.40)

ITEM 505-27 – HEADWALL, IRRIGATION – MAG DET 501-4

SECTION 510 - CONCRETE BLOCK MASONRY

Concrete block masonry shall conform to Section 510 of the MAG Uniform Standard Specifications, except as modified here.

Remove and Replace Existing Masonry Walls

At 3 locations called out on the plans, existing masonry walls will have to be removed to construct the storm drain facility and reconstructed after the storm drain facility is in place. When reconstructing each masonry wall, the Contractor shall match the existing footing, masonry block unit, height, stucco finish

and paint color of the existing wall. As determined by the Engineer, the limits for painting the wall may be extended past the limits of the wall that was reconstructed to provide a uniform color on the wall.

Subsection 510.6 - Payment

Payment to remove and replace existing masonry walls shall be made at the contract bid price as a lump sum for each wall location. The lump sum bid price shall include all work necessary to remove and replace the wall in-kind.

ITEM 510-1 – REMOVE & REPLACE EXISTING MASONRY WALL - STA. 18+95

ITEM 510-2 – REMOVE & REPLACE EXISTING MASONRY WALL - STA. 35+53

ITEM 510-3 – REMOVE & REPLACE EXISTING MASONRY WALL - STA. 161+84

ITEM 510-4 – REMOVE & REPLACE EXISTING CUT-OFF WALL – STA. 161+85

SECTION 515 - STEEL STRUCTURES

Steel structures shall conform to Section 515 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 515.1 – Description

The access barrier gates are to be installed at the location shown in the plans within the Marriott and Paiute Park basins in accordance with ADOT Det. C-13.75.

The special detail grates are to be installed within the existing masonry wall on the south side of the Marriott basin at the location and in accordance with the details shown in the plans.

The soccer goals shall be installed at the location shown in the plans and in accordance with the details shown on Drawing LD-5.

Subsection 515.6 - Measurement:

Measurement for each steel structure shall be made on an each basis.

Subsection 515.7 - Payment

Payment for the steel structures will be based on the contract bid price for each structure. Payment shall include full compensation for furnishing labor, materials, tools, and equipment necessary for installation of the structure and incidentals for doing all the work associated with the installation of the steel structures.

ITEM 515-1 – ACCESS BARRIER GATE, ADOT C-13.75 (48"GATES)

ITEM 515-2 – ACCESS BARRIER GATE, ADOT C-13.75 (30"GATES)

ITEM 515-3 –ACCESS BARRIER GATE (ADOT C-13.75, 66")

ITEM 515-4 – GRATE, SPECIAL DETAIL NEENAH R-3801-8, (DWG PDB-4)

ITEM 515-5 –GRATE, SPECIAL DETAIL (DWG MDB-6)

ITEM 515-6 – SOCCER GOALS (DWG LD-5)

SECTION 516 – VIEW FENCE MARRIOTT BASIN

Subsection 516-1.1 - Description

The view fence at Marriott basin consists of a perimeter steel picket fencing located on top of a small CMU block wall. The view fencing shall include the CMU wall, all post and attachment hardware, all footings, reinforcing and a set of double swing gates for maintenance access as shown and detailed on the plans. All steel shall comply with MAG Section 515 Steel Structures and all CMU work shall comply with Section 776 Masonry Mortar and Grout.

Subsection 516-1.2 - Payment

Payment for the view fence as described above, will be paid for at the lineal foot contract bid price. Payment shall include full compensation for furnishing labor, materials, tools, equipment, restoration of existing irrigation system and site and incidentals for doing all the work associated with the view fence at Marriott Basin.

ITEM 516-1 – VIEW FENCE - MARRIOT BASIN

SECTION 520 - STEEL AND ALUMINUM HANDRAILS

Steel pipe handrails shall conform to Section 520 of MAG Uniform Standard Specifications.

ITEM 520-1 - STEEL PIPE HANDRAIL, C.O.S. DET. 2508

SECTION 540 – WATERPLAY AREA PAIUTE PARK

The Waterplay area construction shall conform to Section 505 of the MAG Uniform Standard Specifications for concrete portions of the facility and Section 515 for steel structure portions of the facility and as supplemented with the following:

Subsection 540-1.1 - Description

Waterplay ground development shall include excavation of the site area designated for the waterplay area, supplying all of the specified structures and surfacing as shown and specified on the plans, all footings associated with each piece of equipment, the plumbing and piping from the designated water source, two each waterplay fixture, the drain line and grate from the waterplay area to the storm drain line, and all the equipment and controllers required to activate and control the areas water use. All equipment, structures, and controllers shall be installed according to manufacturer's specifications.

Subsection 540-1.5 – Measurement & Payment

Payment for the waterplay area as described above, will be paid for at the lump sum contract bid price. Payment shall include full compensation for furnishing labor, materials, tools, equipment and incidentals, and for doing all the work associated with the waterplay area.

ITEM 540-1 – WATERPLAY AREA – PAIUTE PARK

SECTION 601 - TRENCH EXCAVATION, BACKFILLING AND COMPACTION

Trench excavation, backfilling and compaction shall be in accordance with City of Scottsdale Detail 2201 and MAG Uniform Standard Specification 601, except as modified herein.

Subsection 601.2.2 Trench Widths

Add the following:

The outside width of box culverts will be synonymous with the outside diameter of pipe culverts as used in Section 601.

Subsection 601.2.4 - Fine Grading

Add the following:

The trench bottom width shall be uniform and free from any surface irregularities. Moderately cemented earth, which is expected to be encountered throughout the full length of the project may cause surface irregularities and prevent a smooth surface at the bottom of the trench. If the trench invert is irregular, in the opinion of the Engineer, the Contractor shall over excavate and prepare the trench according to section 601.2.5 at no expense to the District.

The Contractor may opt to 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 12 inches between the outside wall of the pipe and the trench wall to the pipe springline.

Subsection 601.3 - Protection of Existing Utilities

Add the following:

The Contractor shall be responsible for bracing all power poles located within 10 feet of the top of the trench.

Subsection 601.4 - Foundation, Bedding, Backfilling and Compaction

Add the following:

The foundation, bedding, backfill and compaction for trenches shall be accomplished per the details provided on the plans. The following is added to each of the subsections of 601.4:

Subsection 601.4.2 - Bedding

Add the following:

Bedding shall be defined from the bottom of the trench to the area 1 foot above the top of the storm drain.

Bedding shall be placed with a maximum lift thickness of eight (8) inches.

The Contractor is discouraged from using water consolidation techniques to attain the necessary compaction for bedding material. However, the Contractor may determine that compaction of the bedding material, particularly under the haunches of the storm drain, is best attained using water consolidation. In such case, the Contractor may use water consolidation of the bedding by jetting (not flooding) in 2 lifts, 1 to 2 inches above the springline of the pipe and then 1 foot above the pipe. However, the Engineer may prohibit the use of water consolidation if it is evident that the trench walls are unstable due to sloughing. The District shall not be responsible for additional costs that the Contractor may incur because of the use of water consolidation.

The bedding material for this project will be as shown on the plans or according to City of Scottsdale & MAG Specifications if not specifically called out on the plans or specified herein.

Bell holes shall be excavated with a minimum clearance of two inches to prevent point loading of the laid pipe and to provide full length, continuous support of the pipe barrel. Cable holes should also be excavated to prevent movement of the pipe when removing the pipe sling.

No pea gravel will be allowed to be used as bedding material.

Subsection 601.4.3 - Backfill

Backfill shall be defined as the area 1-foot above the top of the storm drain. Backfill material shall be placed with a maximum lift thickness of twelve (12) inches. The Contractor shall excavate holes in the compacted bedding and backfill material at the location and to the depths designated by the Engineer for testing purposes. 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 required by OSHA.

Subsection 601.4.4 - Compaction Densities

Replace Table 601-2 with the following:

MINIMUM DENSITY REQUIRED

Compaction Type	From Surface to 2' Below Surface	From 2' Below Surface to 1' Above Top of Pipe	From 1' Above Top of Pipe to Bottom of Trench
I	100% granular 95% for non-granular	95%	95%
II	85%	85%	95%

All soil densities shall be determined by ASTM D-698, soil compaction using standard effort.

Subsection 601.6 - Measurement and Payment

No separate measurement or payment shall be made for excavation; falsework; backfilling; bedding; or the compaction around the storm drain, irrigation and connector pipes, relocated utilities, or utilities protected in place. The cost thereof shall be included in the price bid for construction or installation of the storm drain, connector pipe or any such work where the provisions of this section are incidental or appurtenant.

No separate payment will be made for excavation, removal and disposal according to Section 350 of these specifications. Payment for pavement replacement will be made in accordance with Section 336 of these specifications.

SECTION 603 – INSTALLATION FOR HIGH DENSITY POLYETHYLENE PIPE

The use of High Density Polyethylene Pipe (HDPE) for storm drain laterals shall conform to AASHTO M-294 Type S and Section 603 of the MAG Standard Specifications. Locations where HDPE pipe can be used are shown in the Alternate Pipe Materials summary sheets included in the project plans.

SECTION 610 - WATERLINE CONSTRUCTION AND RELOCATION

Except as modified herein, waterline construction shall conform to Section 610 of the MAG Uniform Standard Specifications and the City of Phoenix or City of Scottsdale (whichever applies) supplements to the MAG Specifications.

Subsection 610.1 - General

Add the following:

The Cities of Phoenix and Scottsdale require a minimum of 72 hours written notice prior to shut downs on waterlines. City fire departments must be notified at least 24 hours in advance of any shut downs for waterlines servicing fire hydrants.

The Contractor is responsible for maintaining access to water valves within the construction area. Failure to do so may result in delays to a scheduled water shut down. Only personnel from the City of Phoenix or City of Scottsdale are permitted to operate water valves.

The Contractor shall provide all materials and labor necessary to complete all waterline work. The Cities of Phoenix and Scottsdale will not provide materials, labor, or equipment for work related to this project.

The Contractor shall be responsible for all waterline testing, disinfection and flushing including the cost of the water needed for flushing.

Water System Shut Down

Except where noted otherwise, the Contractor is responsible for protecting all waterlines in place and for maintaining all waterlines in service for the duration of the project. The waterline may be shut down and the pressure relieved in segments for short periods during construction. The waterline may not be shut down before 7:30 a.m. and must be back in service by 3:00 p.m. If a fire emergency develops that will require the waterline to be placed back in service, the Contractor shall be responsible for backfilling or shoring the trench as necessary to allow re-pressurizing the waterline.

If the Contractor elects to temporarily shut down a water main for a period of time which exceeds eight hours, the Contractor shall provide a temporary bypass waterline at no additional cost which is approved by the City of Phoenix or the City of Scottsdale, depending upon the location.

When a shut down is necessary that will take a water user out of service, those residents and businesses must be notified by door hanger a minimum of 48 hours prior to the shut down. The hanger should state the hours that the water will be turned off.

Replace Water Line

In the event of ACP or plastic waterlines which are less than 21" in diameter cross over the mainline storm drain construction or laterals, the Contractor shall replace the waterline with DIP in accordance with Section 610 of the MAG Standard Specifications; as modified herein.

The Contractor shall arrange to have the line shut down in order to perform this work. The Contractor shall notify the City of Scottsdale at least 72 hours prior to the need to shut down any waterlines.

The Contractor shall bear the cost of flushing the lines.

Except for 2 inch and smaller waterlines, materials for waterline replacement shall be ductile iron, in accordance with Subsection 610.3 of the MAG Standard Specifications.

The replaced waterlines shall be visually inspected for leaks under line pressure prior to back filling.

Replace Water Vault

At the location called for on the plans, a new water vault shall be installed according to MAG Detail 321. The installation shall include, but not be limited to excavation, backfill, compaction, materials, labor and all other incidentals required for installation of the water vault. As required for the installation of the water vault, the Contractor shall arrange to have the effected water lines shut down in order to perform this work. The Contractor shall notify the City of Scottsdale at least 72 hours prior to the need to shut down any waterlines.

Realign Water Line

In the event of conflicts between storm drain construction and an existing waterline, as called out on the plans and as directed by the Engineer, the Contractor shall vertically and/or horizontally realign the waterline in accordance with C.O.S. Standard Detail 2370 and MAG Standard Detail 303-1 & 2.

The waterline realignment shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, valves, offsets, couplings, sleeves, blocking, joint restraints and hardware. The realigned waterline shall be tested per Subsection 610.14 of the MAG Standard Specifications and Subsection 610.14 of the COS Supplemental Standard Specification prior to backfilling.

The Contractor shall coordinate with the City of Phoenix or the City of Scottsdale to obtain permission to have the line shut down in order to perform this work. The Contractor shall notify the Cities at least 72 hours in advance of the need for a shutdown.

Materials for waterline realignment shall be ductile iron, in accordance with Section 750 of the MAG Standard Specifications. All ductile iron pipe shall be wrapped with polyethylene protection per AWWA C105. Reastrained joints are required on all pipes in accordance with City of Scottsdale Standards.

Relocate Water Line

At locations called for in the plans, existing waterlines shall be relocated per the alignment shown in the plans. The waterline relocations shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, valves, offsets, couplings, sleeves, blocking, joint restraints and hardware. The realigned waterline shall be tested per Subsection 610.14 of the MAG Standard Specifications and Subsection 610.14 of the COS Supplemental Standard Specification prior to backfilling.

The Contractor shall coordinate with the City of Phoenix or the City of Scottsdale to obtain permission to have the line shut down in order to perform this work. The Contractor shall notify the Cities at least 72 hours in advance of the need for a shutdown.

Materials for waterline realignment shall be ductile iron, in accordance with Section 750 of the MAG Standard Specifications. All ductile iron pipe shall be wrapped with polyethylene protection per AWWA C105. Reastrained joints are required on all pipes in accordance with City of Scottsdale Standards.

Subsection 610.18 - Measurement and Payment

Payment for Replace Waterlines and Realign Waterlines shall be made at the contract unit price bid per each location and size of pipe. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. Payment will include all trenching, bedding backfill, polyethylene wrap, and other items incidental to the relocation, realignment or support of the waterlines.

Payment for Replace Water Vault shall be made at the contract unit price bid for each. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost

of materials, labor and equipment. Payment will include all excavation, bedding, backfill, removal of existing water vault and other items incidental to the replacement of the water vault.

Payment for Waterline Relocations of the existing waterlines shall be made at the unit price bid per linear foot in conformance with MAG Standard Specification 610.18. No separate payment will be made to remove the existing waterline pipe. The cost of that work shall be included in the unit price bid for the realigned pipe. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. Payment will include all trenching, bedding backfill, and other items incidental to the relocation, realignment or support of the waterlines.

Payment for the fire hydrant remove and relocation shall be made at the contract unit bid price per each installation. Such payment shall be full compensation for furnishing and installing the item complete and in place including the cost of all materials, labor, and equipment. Payment will include all trenching, bedding backfill, and other items incidental to the removal and relocation of the fire hydrants.

ITEM 610-1 – REPLACE 3 OR 4 -INCH WATER LINE - MAG DETAIL 403-3

ITEM 610-2 – REPLACE 6-INCH WATER LINE - MAG DETAIL 403-3

ITEM 610-3 – REPLACE 8-INCH WATER LINE - MAG DETAIL 403-3

ITEM 610-4 – REPLACE WATER VAULT- MAG DET. 321

ITEM 610-5 – REALIGN 6-INCH WATERLINE – COS DET. 2370

ITEM 610-6 – REALIGN 8-INCH WATERLINE – COS DET. 2370

ITEM 610-7 – REALIGN 12-INCH WATERLINE – COS DET. 2370

ITEM 610-8 – RELOCATE 4-INCH WATERLINE

ITEM 610-9 – RELOCATE 6-INCH WATERLINE

ITEM 610-10 – RELOCATE 8-INCH WATERLINE

ITEM 610-11 – RELOCATE 12-INCH WATERLINE

ITEM 610-12 – REMOVE & RELOCATE FIRE HYDRANT – MAG DET 360

SECTION 615 – SEWER LINE CONSTRUCTION

Sewer line construction shall conform to Section 615 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 615.1 - Description

Add the following:

This section shall include the replacement of existing VCP sewers with Ductile Iron Pipe.

Lining for Ductile Iron Sewer Pipe

All ductile iron sewer pipe shall have a protective lining with a nominal thickness of 40mils and a minimum thickness of 35 mils of Protecto-401 (ceramic epoxy), or approved equal throughout the barrel area of the pipe. However, the lining in the bell area shall transition to a minimum thickness of 10 mils at the edge of the gasket socket. The 10 mil lining shall extend into the gasket socket area to a point where the gasket would overlap the lining when it is compressed due to pipe assembly during

construction. The 10 mil lining shall also continue from inside the barrel area, around the spigot end of the pipe and along the outside of the pipe to a point where the center of the gasket of the next pipe section would contact the edge of the lining on the spigot end of the previous pipe section. The thickness of the lining shall be determined by using a dry film thickness magnetic gauge at four quadrants.

Sewer Line Encasement

Sewer line encasement, where required, shall be done in accordance with MAG Standard Detail 404.

Temporary Sewer Rerouting

Sewer replacements will require temporary rerouting (pumping) of sewage flows. The Contractor shall provide primary pumps and backup pumps; both capable of pumping the entire flow. A plan of the temporary rerouting of sewage flows shall be submitted and approved prior to any sewer line replacement. The plan shall be submitted to Chuck Hill (Telephone: 480-312-5881) at the City of Scottsdale.

Sewage Flow Rates

- Miller Road Sewer (21" VCP)

  The Contractor shall contact the City of Scottsdale Water Resources Department to obtain the peak flows in the 21" Miller Road relief sewer. The Contractor must coordinate with the Water Resources Department to identify where, if possible, sewer flow can be diverted.

- Scottsdale Road Sewer (18" VCP)

  The Contractor shall contact the City of Scottsdale Water Resources Department to obtain the peak flow in the Scottsdale Road Sewer.

Subsection 615.13 – Measurement and Payment

Payment for sewer line replacement shall be made at the contract unit price per each location and pipe size. Payment for sewer line encasement, sewer clean outs and sewer manholes shall be made at the contract unit price per each location. Such payment shall be full compensation for all labor, equipment and materials furnished to complete this work, including, but not limited to temporary rerouting of sewage flows, trenching and backfill. The cost of all other work and items not specifically covered by other pay items in this section will be incidental to the cost of this bid items.

ITEM 615-1 – REPLACE 6-INCH SEWER LINE - MAG DET 403-3

ITEM 615-2 – REPLACE 8-INCH SEWER LINE - MAG DET 403-3

ITEM 615-3 – REPLACE 10-INCH SEWER LINE - MAG DET 403-3

ITEM 615-4 – REPLACE 12-INCH SEWER LINE - MAG DET 403-3

ITEM 615-5 – REPLACE 21-INCH SEWER LINE - MAG DET 403-3

ITEM 615-6 – REPLACE EXIST. 4" SEWER SERVICES – MAG DET 403-3

ITEM 615-7 – ENCASE 8" SEWER LINE – MAG DET 404-2

ITEM 615-8 – ENCASE 12" SEWER LINE – MAG DET 404-2

ITEM 615-9 – SEWER CLEANOUT – MAG DET 441

SECTION 618 - STORM DRAIN CONSTRUCTION

Storm drain construction shall conform to Section 618 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 618.1 - Description

Add the following:

This section additionally describes the work necessary to install Concrete Box Culverts (CBC) as shown on the plans for the conveyance of storm drainage in streets, easements and alley right-of-ways. Concrete Box Culverts shall be installed in accordance with ADOT Standard Detail B-02.10. Pre-cast CBCs shall be installed in accordance with ASTM C789 and ASTM C850, Pre-cast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers and AASHTO M259 and M273, Pre-cast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers except per modifications described herein.

The allowable storm drain pipe material for each run of pipe is shown in the Alternate Pipe Materials summary sheets included in the project plans. There is no value engineering allowed for these bid items per the Supplementary General Conditions Section 104.2.6. At the pre-construction meeting, the Contractor shall inform the District of his selected pipe option. If the Contractor chooses the CIPP option, lateral pipe connections shall be constructed in accordance with C.O.P detail P-1576.

The Contractor will have to abide by the same restrictions/guidelines as described in Section 401 of this Special Provision and Sections 104.1 and 107.10 of Supplementary General Conditions with either RGRCP, RCP, CLCMP or CIPP option. If the Contractor selects the CIPP option, the Contractor will be solely responsible for the additional utility relocations caused by the increased equivalent size of the CIPP product. The Contractor must also demonstrate to the satisfaction of the Engineer that the CIPP option meets all the hydraulic design parameters of the original design. Noncompliance with the hydraulic parameters of the project is cause for rejection of the CIPP option. Costs incurred by the Contractor in preparing the alternate design will not be compensated by the District.

Special Requirements (See Section 401 for more details):

Scottsdale Road Intersection

Scottsdale Road may be restricted to one northbound lane and one southbound lane under the following conditions:

- The work is done during the summer months of June, July or August.
- The maximum length of time the road can be restricted to one lane in each direction is one 9-day period which shall consist of two (2) weekends with one (1) 5-day week in between.
- Weekends are defined as FRIDAY 10 P.M. to MONDAY 4 A.M. (Work can be performed continuously during the weekend period)

Backflow Prevention Devices

The contractor will be required to install backflow prevention devices at locations shown in the plans. The hydraulic characteristics of the backflow devices are critical to the performance of the drainage system and must be installed at the locations and per the details shown in the plans and according to the manufacturer's specifications.

Subsection 618.2 - Materials

Add the following:

(D) **Concrete Box Culverts** – All box culverts shall be constructed in accordance with ADOT Standard Drawing B-02.10, Single Barrel Box Culvert. All box culvert joints shall be water tight and installed with either a mastic joint or a suitable gasket. The seal shall be of preformed butyl rubber material and shall meet the requirements of AASHTO M-198.

(E) **Backflow prevention devices** – 36" diameter neoprene Tideflex® Check Valves TF-1, (or approved equal) are to be installed at the locations shown in the plans. The hydraulic performance of the backflow devices is critical to the operation of the storm drain system. The Engineer must approve the operational characteristics of each backflow device prior to the Contractor purchasing and installing said backflow device. Backflow devices must be constructed of neoprene; metal or aluminum hinged, back flow devices will not be allowed.

Subsection 618.3 - Construction Methods:

Add the following:

SRP Irrigation Crossings at Osborn and Scottsdale Roads

The reconstruction of the 21" Salt River Project (SRP) irrigation pipe in Osborn Road at 66th Street and Scottsdale Road at Earll Drive shall be done in accordance with the SRP license and specifications.

An SRP license must be secured by the Contractor prior to commencing reconstruction of the irrigation line. The Contractor shall contact Bob Maurer at SRP 602-236-2962 six weeks prior to construction to secure the SRP license.

Excavation - Concrete Box Culverts (CBC)

Excavation for CBC shall conform to MAG Section 601 with the following modifications:

Trench Width: Maximum trench widths shall conform to Table 601-1 or section MAG 601, where O.D. refers to the outside width of the span of the RCB.

Trench Grade - For all CBC, the Contractor shall excavate for and provide an initial granular bedding of at least six (6) inches thick to serve as a leveling course for the RCB as described by Section 601 of these specifications.

Align and grade - Concrete Box Culverts (CBC)

Strict adherence is required for the prescribed alignment and grade as shown on the plans. Variation from the prescribed alignment and grade shall not exceed 0.10 foot and the rate of departure from, or return to established grade or alignment, shall be no more than 1 inch in 10 feet of pipe line. Vertical alignment deviations from the plans that require realignment, in the opinion of the Engineer, will be completed at the Contractor's expense.

Submittals

Prior to the manufacturing of the pipe for any curvilinear sections, prefabricated bends, or special sections, the Contractor shall submit material and layout drawings to the Engineer. Submittals shall show layout, stationing, laying length, D-load or gauge thickness, detailed fabrication drawings, and any other pertinent data for the main line.

Additionally, a list of main line culverts and connector pipes shall be submitted to the Engineer which contains the following information:

(A) Inside diameter

(B) D-Load rating

(C) Station for mainline or station where connector pipe joins mainline

(D) Number of sections of pipe and laying length of sections

Osborn Outfall

D Loads

Mainline Pipes

From Sta	To Sta	Pipe Size	D-Load
10+85	13+68	36"	585
13+86	18+56	42"	565
18+56	19+29	48"	550
19+29	22+25	36"	1100
22+25	35+06	48"	1195
35+06	35+51	66"	1085
60+18	71+80	54"	1495
71+80	81+60	60"	1455
81+60	95+10	78"	1370
95+10	114+94	90"	1335
115+34	133+00	90"	1010
133+00	135+09	90"	715
135+51	141+35	96"	710
141+80	162+64	10'x6' CBC	0' to 10'*
115+10	115+41	10'x4' CBC	10' to 15'*
121+60	122+80	10'x4' CBC	10' to 15'*
135+25	135+35	10'x4' CBC	0' to 10'*
141+51	141+70	10'x5' CBC	0' to 10'*

***Fill height to be used for design**

D-Load Requirements

Connector Pipes

Station	Pipe Size	D-Load
11+95	18"	1315
16+50	18"	955
17+90	18"	955
27+47	18"	1675
34+71	18"	1675
68+83	18"	1675
69+20	18"	1675
69+20	36"	1400
71+70	18"	1675
72+17	18"	1675
72+44	36"	1400
72+52	18"	1300
81+42	18"	1675
82+05	18"	1675
82+16	42"	1665
82+72	18"	1300
86+30	18"	1675
88+30	18"	1675
92+50	18"	1300
93+01	36"	1710
92+35	18"	955
92+84	18"	1300
93+15	18"	1300
95+38	18"	680
95+74	36"	1675
95+80	18"	680
99+00	18"	1300
101+56	12"	1300
101+85	18"	1300

Station	Pipe Size	D-Load
104+56	18"	1300
105+03	18"	1300
106+20	18"	1300
106+36	18"	1300
108+08	18"	1300
114+59	18"	955
114+71	18"	955
114+90	18"	1300
115+34	18"	1300
116+13	18"	2020
116+50	18"	1300
116+01	18"	680
118+65	18"	1300
118+81	18"	1300
121+15	18"	1300
121+18	18"	1300
129+25	18"	955
131+95	18"	955
132+80	18"	955
135+49	18"	680
134+56	18"	955
134+84	18"	680
135+03	30"	880
136+03	18"	955
139+49	24"	1675
141+53	18"	680
141+53	18"	680
142+02	36"	680
142+30	18"	1300

D-Load Requirements

Connector Pipes (continued)

Station	Pipe Size	D-Load
144+00	18"	1300
146+32	18"	1300
147+77	24"	1230
144+60	18"	1300
146+32	18"	1300
147+77	24"	1230

Station	Pipe Size	D-Load
148+52	42"	565
148+11	18"	680
148+11	18"	680
148+57, 69' LT	18"	680
148+57, 127' LT	18"	680

Backflow Devices- The Contractor shall submit all performance specification, installation requirements and maintenance recommendations for the backflow device for approval of the Engineer. The Engineer will review said material, and upon meeting the design and maintenance requirements of the system, approve the devices for purchase. The Contractor shall not purchase the backflow devices without written approval of the Engineer.

Subsection 618.5 – Measurement

Replace Paragraph (A) with the following:

(A) Main Line Pipe: Shall be the number of linear feet of pipe or concrete box culvert as measured along the axis.

Measurement shall extend through manholes (MAG STD DET 520 or 521) when no change in pipe size occurs. When a change in pipe size occurs within a manhole, measurement for each size will be taken to the centerline of the manhole. Measurement shall extend to the inside face of junction structures or transition structures into which the pipe or box culvert is embedded.

Add the following:

Measurement for the storm drain culverts and irrigation pipes shall be by the linear foot for the completed item in place, within the limits shown on the plans. Reducers, pre-fabricated and field tees, and concrete collars shall be considered incidental and appurtenant to the installation of the storm drain pipe.

Measurements for pipe plugs and pre-fabricated bends shall be by each for the completed item in place within the limits, as shown on the plans.

Measurement for backflow prevention devices will be by each.

No separate measurement or payment shall be made for pipes and utility lines that will need to be supported in place for the installation of the storm drain.

No separate measurement or payment shall be made for falsework.

Subsection 618.6 – Payment

Payment for storm drain pipes, culverts and connector pipes and irrigation pipes installation shall be made at the unit price bid per linear feet, and shall be full compensation for furnishing and installing the pipes and lateral connections complete in place (i.e. wyes, tees, and crosses), as specified, including

excavation, removal of obstruction, related falsework, cost of labor, backfilling, compaction, sheeting and bracing, testing, manhole and valve adjustments, utility line supports, and all incidental work not specifically covered in other pay items.

Payment for pipe plugs and pre-fabricated bends shall be by each and shall be full compensation for furnishing and installing the bend or plug.

Payment for backflow prevention devices will be by each and shall be full compensation for furnishing, installing and all incidental work required for installation of the devices, as specified, including excavation, removal of obstruction, related falsework, cost of labor, testing, adjustments, utility line supports, and all incidental work not specifically covered in other pay items.

ITEM 618-1 – CONNECT EXISTING 12" STORM DRAIN PIPE

ITEM 618-2 – CONNECT EXISTING 15" STORM DRAIN PIPE

ITEM 618-3 – 18" STORM DRAIN PIPE

ITEM 618-4 – 24" STORM DRAIN PIPE

ITEM 618-5 – 30" STORM DRAIN PIPE

ITEM 618-6 – 36" STORM DRAIN PIPE

ITEM 618-7 – 42" STORM DRAIN PIPE

ITEM 618-8 – 48" STORM DRAIN PIPE

ITEM 618-9 – 54" STORM DRAIN PIPE

ITEM 618-10 –60" STORM DRAIN PIPE

ITEM 618-11– 66" STORM DRAIN PIPE

ITEM 618-12 –78" STORM DRAIN PIPE

ITEM 618-13 –90" STORM DRAIN PIPE

ITEM 618-14 –96" STORM DRAIN PIPE

ITEM 618-15 –10' X 4' CONCRETE BOX CULVERT – ADOT DET. B-02.10

ITEM 618-16 –10' X 4' PRECAST CONCRETE BOX CULVERT

ITEM 618-17 – 10' X 5' CONCRETE BOX CULVERT – ADOT DET. B-02.10

ITEM 618-18 –10' X 6' CONCRETE BOX CULVERT – ADOT DET. B-02.10

ITEM 618-19 –54" X 54"- 45° PREFABRICATED BEND

ITEM 618-20 –78" X 78"- 45° PREFABRICATED BEND

ITEM 618-21 –PIPE PLUG MAG DET. 427, 12" – 36"

ITEM 618-22 –PIPE PLUG MAG DET. 427, 39" – 48"

ITEM 618-23 – 24" DIAMETER NEOPRENE CHECK VALVE

ITEM 618-24 – 60" DIAMETER NEOPRENE CHECK VALVE

ITEM 618-25 – REPLACE 90" STORM DRAIN PIPE

ITEM 618-26 – REPLACE 21" IRRIGATION PIPE

SECTION 620 – CAST-IN-PLACE CONCRETE PIPE

Add the following:

Subsection 620.1 General:

This specification covers cast-in-place non-reinforced concrete pipe intended for use as storm sewers. The abbreviated title is CIPP. The CIPP is a designated allowable storm drain pipe material at the locations shown in the Alternate Pipe Materials summary sheets shown in the plans. At the locations shown in the summary sheet where CIPP is allowed, the Contractor has an option to select RGRCP, RCP, CLCMP or CIPP. There is no value engineering allowed for these bid items as per Supplementary General Conditions Section 104.2.6. At the Pre-construction meeting, the Contractor shall inform the District of his selected option.

When designated as an allowable storm drain pipe material in the project specifications, this designation is no warranty, expressed or implied, that conditions will be suitable for the use of CIPP. Any costs incurred and/or time require to provide suitable conditions or to substitute an alternate pipe acceptable to the Engineer, in whole or part, shall be the responsibility of the Contractor.

The Contractor will have to abide by the same restrictions/guidelines as described in Section 401 of this Special Provision and Sections 104.1 and 107.10 of Supplementary General Conditions with either RGRCP, RCP, CLCMP or CIPP option. If the Contractor selects the CIPP option, the Contractor will be solely responsible for the additional utility relocations caused by the increased equivalent size of the CIPP product. The Contractor must also demonstrate to the satisfaction of the Engineer that the CIPP option meets all the hydraulic design parameters of the original design. Noncompliance with the hydraulic parameters of the project is cause for rejection of the CIPP option. Costs incurred by the Contractor in preparing the alternate design will not be compensated by the District.

Special Requirements (See Section 401 for more details):

Subsection 620.2 Materials:

620.2.4 Concrete shall be Class AA in accordance with Section 725. Test cylinders shall be prepared and tested as per Section 725. The pipe represented by unsatisfactory strength tests on cylinders shall be further tested either by coring or by load testing at the Engineer's option as specified in Section 620.4. Any pipe failing these tests shall be replaced or repaired at the option of the Engineer, at the Contractor's expense.

Subsection 620.3 Construction Methods:

620.3.1 Excavation

All unstable strata or lenses of loose sand, silt, or other non-cohesive soils, below the contact line of the concrete pipe and trench form, shall be stabilized by approved methods or over-excavated and refilled in accordance following method:

Over-excavation and refill – When this method is adopted for stabilization, the trench shall be over-excavated to such depths and widths as required, refilled with selected cohesive soils, and compacted by acceptable methods to a density that will provide stability for the trench form. When expansive clays are

encountered they will be thoroughly moistened by ponding, to completely expand the soil, and the moisture maintained until the concrete is placed. The Contractor may substitute storm drain pipe for CIPP in these unsuitable areas. There will be no additional payments for this substitution.

In areas where the soils are too hard for efficient trenching or where additional moisture adds to the trench stability, trench excavation may be simplified by prior wetting.

Care should be taken to insure that at the time of concrete placement there is adequate moisture in the trench form so that water is not drawn from the freshly placed concrete. If the trench is too dry, all soil in contact with the concrete should be moistened. However, the trench form must be free of water and mud at the time of concrete placement.

620.3.2 Placement

The concrete shall be vibrated, rammed, tamped, or worked with suitable compacting equipment until thoroughly consolidated. Under no circumstances will the Contractor be allowed to continue the pipe installation if the vibrators of the cast-in-place machine are inoperable. Portable vibrators or "stingers", shall only be used to supplement internal vibrators on the machine and not as a sole source to consolidate and distribute the concrete mix.

The interior finish surface of the pipe shall be equivalent to or better than a wood float finish. All extraneous concrete shall be removed from the interior surface. The Contractor shall make provisions for removing sloughed material, debris, foreign objects, or any material from the trench before and during the concrete placement such that buildup of material does not occur ahead of the machine. In addition, small transverse trenches shall be dug across trench bottom, at distance not to exceed 25 linear feet, to receive soil built up and pushed ahead of the slipform.

It is essential that concrete placement be done in a smooth and steady manner with as few starts and stops as is possible. The Contractor shall schedule materials and operate the pipe machine at speeds and in a manner that will achieve this.

The Contractor shall provide an anchoring system for pull of the machine in a manner, which will provide the least probability of causing deviations in grade and/or alignment. Adjustments to or modifications in anchoring system, when required in the opinion of the Engineer shall be made at no additional cost to the project.

Lateral Pipe Connections:

Lateral pipe connections shall be constructed in accordance with City of Phoenix Standard Detail P-1576.

Construction Joints:

When pipe placement stops in excess of ninety (90) minutes, a construction joint shall be formed. The ends of the pipe that are to be butt contact shall be left in rough condition with a slope between 20 and 45 degrees. Number 4 reinforcing bars shall be embedded 12 inches in the previous pour and 12 inches into the next pour and shall be placed 12 inches on center for pipe 42 inches in diameter or less and shall be placed 18 inches on center for pipe diameters in excess of 42 inches.

Pipe Dimensions and Tolerances:

For pipe exceeding 24 inches inside diameter the minimum wall thickness shall be 1/12 of the inside diameter, plus 1 inch. The pipe diameter shall be increased by 6" from the recommended equivalent storm drain pipe as shown on Subsection 620.1.

Subsection 620.3.3 Curing and Backfilling:

Final backfilling and compaction shall not be started until concrete has developed a compressive strength of at least 3000 psi. The pipe shall be checked for grade, alignment and thickness prior to backfilling.

A humid atmosphere within the pipe, as evidenced by condensation on the interior of the surface, shall be maintained for at least seven (7) days following placement, except for a maximum period of 24 hours allowed for removing forms and making repairs.

Subsection 620.3.4 Repairs:

Immediately after removal of the forms, the inside of pipeline will be inspected for required repairs and conformance with all dimensional requirements including alignment and grade. The Engineer shall be the sole judge as to the repairability of deficiencies. The Engineer shall require removal and replacement of those sections of pipeline which he/she judges to be non-repairable or which are not within required dimensional tolerance, including alignment and grade.

When concrete placement is done by methods requiring the use of metal inner forms, the Contractor shall schedule his work force, by extended, staggered or multiple shifts, as required, to provide for removal of forms within 4 to 6 hours of placement of concrete and start of repairing, patching and finishing of pipeline to conform with specifications requirements.

When concrete placement is done by methods using pneumatically inflated inner liner, the Contractor shall schedule his work force, by extended, staggered or multiple shifts, as required, to provide for removal of the pneumatic inner liner within 12 hours of placement of concrete and start of repairing, patching and finishing of pipeline to conform with specifications requirements.

All rock pockets, non-longitudinal cracks or indentations shall be cleaned out, moistened and filled with 1:2 cement grout or approved epoxy material except where, in the opinion of the Engineer, the width and/or length of the crack may indicate a structural deficiency, repairs shall be made as required for longitudinal cracks.

At the discretion of the Engineer, longitudinal cracks exceeding 0.01 inches in width and 12 inches in length may be cause for rejection and removal and replacement of that portion of the pipe. Subject to the approval of the Engineer, cracks may be repaired using a pressure applied epoxy compound capable of providing structural correction to the area in addition to sealing the void. A longitudinal crack shall be defined as one which has the general direction of a 30 degree angle or less with the alignment of the pipe.

Irrespective of concrete placement method, all repairs, patches and finishing shall be completed within 24 hours of concrete placement. For cracks that appear later than the 24 hour period, the Contractor shall present the proposed method for repairing the crack to the Engineer for approval. It will be the Engineers sole discretion to determine if the method is satisfactory or if the item shall be removed and placed again.

The Contractor, prior to start of concrete placement on project shall submit a written schedule of his proposed work activities and work time schedules for the Engineer's review and approval. No time schedule requiring overtime by the Engineer's staff is authorized without specific written approval of the Engineer.

Subsection 620.4 Methods of Tests:

Random tests shall be made of the wall thickness at the top, bottom and sides, approximately every 100 feet, on a daily basis by probes through fresh concrete or small holes drilled though the concrete. Holes shall be properly and permanently closed and sealed, flush with the inside surface of the pipe, after measurements are made, in accordance with the requirements of the fifth paragraph of MAG Subsection 620.3.4.

Test cylinders shall be taken for each 50 cubic yards of concrete used, but not less than one sample for each day's work, nor less than one sample for each section of pipe placed in a continuous operation.

Subsection 620.6 Payment:

Payment will be made at the contract unit price bid per linear foot to the nearest foot for each size of pipe as specified in bid item 618-7, 618-9, 618-13, and 618-14. The payment shall include full compensation for furnishing and installing the cast-in-place concrete pipe and lateral connections complete in place (i.e. wyes, tees, and crosses), as specified, including excavation, removal of obstruction, related falsework, cost of labor and equipment, backfilling, compacting, sheeting and bracing, testing, repairing, manhole and valve adjustments, utility line supports, and all other related items.

SECTION 621 – CORRUGATED METAL PIPE AND ARCHES

The use of CLCMP pipe for storm drain shall conform to Section 621 of the MAG Standard Specifications. Locations where CLCMP pipe can be used are shown in the Alternate Pipe Materials summary sheets included in the project plans.

Subsection 621.1 - Description Concrete lined corrugated metal pipe (CLCMP) conforming to the following is an accepted alternate material for use on this project for storm drainage.

Subsection 621.2 - Materials

Add the following:

Aluminized Type II CMP: Corrugated metal pipe, coupling bands and fittings for concrete-lined pipe shall conform to the requirements of AASHTO M-36 for the specified sectional dimensions and metallic coatings. Aluminized coating shall conform to AASHTO M-274.

Pipe shall be full circle and shall be fabricated with helical corrugations. Minimum pipe wall thickness and corrugation size shall be as shown on the plans.

Subsection 621.3.1 - Joints

Add the following:

Concrete Lining: Shall be in conformance with ASTM A-849 except as modified herein.

Composition: Concrete for the lining shall be composed of cement, fine aggregate and water that are well mixed and of such consistency as to produce a dense, homogeneous, non-segregating lining.

Cement: Portland cement shall be in accordance with MAG Section 725.

Aggregate: Aggregates shall conform to AASHTO M6, except that the requirements for gradation and uniformity of gradation shall not apply.

Mixture: The aggregates shall be sized, graded, proportioned and thoroughly mixed with such proportions of cement and water as will produce a homogeneous concrete mixture of such quality that the pipe will conform to the design requirements of this specification. In no case, however, shall the proportions of Portland cement plus pozzolanic admixture be less than 470 pounds per cubic yard of concrete.

Lining: The lining shall have a minimum thickness of 3/8 inch above the crest of the corrugations and shall be applied by a machine traveling through a stationary pipe. The rate of travel of the machine and the rate of concrete placement shall be mechanically regulated so as to produce a homogeneous non-segregated lining throughout. The lining shall be applied in a two course application, and shall be

mechanically troweled by the lining machine as the unit moves through the pipe. The trowel attachment shall be such that the pressure applied to the lining will be uniform and shall produce a lining that has a uniform thickness and a consistent troweled finish. The vertical diameter anywhere inside the pipe must be 95% of the nominal diameter less acceptable tolerances as stated in AASHTO M36. Pipe not meeting these tolerances will be rejected.

Subsection 621.1 - Installation

Add the following:

Each pipe and end shall be fabricated with a minimum of two annular rerolled corrugations for purposes of joining pipes together with band couplers.

Pipe shall be joined with rerolled bands made from the same material as the pipe. The bands shall be a minimum of 16 gage (0.064"). Bands shall be two piece for pipe greater than forty eight (48) inches in diameter.

Coupling bands shall be a minimum of ten and one half (10-1/2) inches wide, formed with two (2) corrugations that are spaced to provide nesting in the second corrugation of each pipe end and shall be drawn together by a minimum of two (2) one half (1/2) inch diameter galvanized bolts through the use of a par and strap suitably welded to the band.

Watertight joints with "O"-ring gaskets shall be per ASTM C-361 Section 5.9 and shall be placed in the first corrugation of each pipe end and shall be compressed by tightening the coupling band, in accordance with the manufacturers installation instructions.

Subsection 621.4 - Test Specimens

Add the following:

The Engineer, solely at his discretion, may require hydrostatic testing of the storm drainage facilities. The testing shall be performed after backfilling has been completed but prior to the placement of the pavement replacement. The testing shall be done on pipe segments between manhole sections or lengths not to exceed 1200 feet. A minimum of one pipe segment will be tested.

The test shall consist of sealing all the storm drain open ends and filling the manholes with water to a level 4' above the crown of the pipe at the high end. A period of at least two hours will be allowed for the absorption time before conducting the test. Once the test commences, the water level at the manhole shall be maintained at 4' above the crown of the pipe for a period of at least two hours and any water loss shall be measured and recorded by a method approved by the Engineer.

The allowable water loss for the storm drain facility shall not exceed 1.0 gallon per hour per inch of internal diameter per 100 feet of pipe tested.

The Contractor shall furnish all the labor, equipment and materials necessary to conduct the test. The cost of any repairs or corrections necessary to conform to the testing requirements herein shall be borne by the Contractor alone, as well as the cost of re-testing the storm drainage facilities as many times as necessary to conform to the requirements herein.

Subsection 621 - 6 Payment

Payment for this item shall be considered as already included for the storm drain construction, as described under Subsection 618.6 - Payment.

SECTION 625 - MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS

Manhole construction shall conform to Section 625 of the MAG Standard Specifications, except as modified herein.

Subsection 625.1 - Description

Manhole construction shall include special manholes at Station 142+85, 147+95, 153+00 and 158+00 which are to be constructed over a prefabricated vertical stub in the 10' x 6' CBC. These manholes are to be water tight pressure manholes. Contractor shall provide shop drawings of the CBC w/ 48" vertical stub.

Subsection 625.5 - Payment

Add the following:

Payment for the special manholes (bid Item 625-3) shall include the cost of the vertical stub in the CBC and the pressure manhole details.

ITEM 625-1 – STORM DRAIN MANHOLE 48" PIPE AND SMALLER MAG DET. 520 & MAG DET 522

ITEM 625-2 – STORM DRAIN MANHOLE 51" PIPE AND LARGER MAG DET. 521 & MAG DET 522

ITEM 625-3 – STORM DRAIN MANHOLE - CONCRETE BOX CULVERT, MAG DET 522 AND DET 523.

ITEM 625-4 – SEWER MANHOLE, M.A.G. DET. 420 & 424

SECTION 630 - TAPPING SLEEVES, VALVES AND VALVE BOXES ON WATERLINES

Except as modified herein, tapping sleeves, valves and valve boxes on waterlines shall conform to Section 630 of the MAG Uniform Standard Specifications and the City of Phoenix or City of Scottsdale (whichever applies) Supplements to the MAG Uniform Standard Specifications.

Subsection 630.1 - Description

Add the following:

The work under this section shall include Line Stop Valves (waterline stops) where shown on the plans, or as directed by the Engineer. Waterline stop installations are intended to provide temporary isolation of sections of existing waterlines (usually asbestos cement pipe, or ACP) that must be removed or realigned to accommodate new storm drain construction. The Waterline Stops are to be used to minimize or prevent disruption of water service in the vicinity of the removal or realignment work. Actual Line Stop fittings, equipment and installation, including pipeline tapping, line stop plug installation and removal shall be performed by Koppl Company, Inc., or an approved equal with at least ten years of demonstrated expertise in Line Stop installation. Upon removal of the Line Stop line plug, and installation of the blind flange on the Line Stop tapping sleeve, a sensing wire or other suitable location system/device shall be installed so that the buried Line Stop tapping sleeve can be relocated at a future date if needed.

Subsection 630.2 - General

Add the following:

Tapping sleeves, valves and valve boxes shall conform to this section as well as the City of Scottsdale Supplemental Specifications, or the City of Phoenix Supplemental Specifications, whichever applies.

Subsection 630.9 - Payment

Add the following:

Payment for each Waterline Stop on the bid schedule shall include all labor, materials and equipment needed to implement the line stop, and remove and restore the area when the line stoppage is no longer required. This shall include, but is not necessarily limited to: excavation, shoring, existing waterline exposure and pipe support, fittings, pipe tapping, testing, line stop insertion and removal, barricading and/or temporary surface plating, backfilling and compaction, pavement replacement and surface restoration and cleanup; all as required to provide a safe and effective Waterline Stop installation.

Payment for the flanged butterfly valve (Item 630-5) shall include all labor, materials and equipment to install the valve and the fire hydrant bypass assembly complete in place. This shall include all valves, valve boxes, waterlines and the fire hydrant.

ITEM 630-1 – 6" WATER LINE VALVE

ITEM 630-2 – 8" WATER LINE VALVE

ITEM 630-3 – 12" WATER LINE VALVE

ITEM 630-4 – REPLACE WATER METER, MAG DET 345-1

SECTION 631 - WATER TAPS AND METER SERVICE CONNECTIONS

This section is provided as a contingency item for existing, non-copper water services that are required to be replaced with new copper pipe or where the water services are in conflict with the construction of the storm drain. Water taps and meter service connections shall conform to Section 625 of the MAG Uniform Standard Specification and City of Scottsdale Supplements to the MAG Specifications, except as noted herein.

Subsection 631.1 - Description

The Contractor will be required to replace existing water services along the length of the project that are not currently copper pipe. The Contractor shall coordinate the disruption of service with customers and the City as described in Section 610 of these specifications. When required to be replaced, the service line shall be replaced for its entire length from the water main to the water meter. The water service replacement shall include, but is not limited to, locating the present tap, trenching, bedding, backfilling per City of Scottsdale Detail No. 2201, pavement replacement per City of Scottsdale Detail No. 2200, disconnecting the existing service pipe from the corporation stop, furnishing and installing a new copper service pipe, new appurtenant fittings, new curb stop and new meter coupling. If the existing tapping saddle and corporation stop are constructed of bronze and are in good condition, they shall remain; otherwise, the Contractor shall provide a new saddle and corp stop. The Contractor shall not use any other salvaged service connection components.

Subsection 631.2 - Materials

Replace Subsection 631.2 with the following:

All tubing and fittings shall be copper pipe and shall conform to MAG Standard Specifications 754.

All fittings, pipe and tubing for copper pipe shall be as noted on standard details.

Subsection 631.9 - Measurement

Measurements for water service replacement will be made per incidence of service replacement.

Subsection 631.10 - Payment

Payment for water service taps and meter service connections shall be made at the unit price bid per each service replacement. Payment shall be full compensation for furnishing, installing and testing water taps, copper tubing, fittings, corporation stops, curb stops, and other appurtenances complete and in place including excavation, removal of obstruction, related falsework, cost of labor and equipment, backfilling, compaction, and all incidental work not specifically covered in other pay items.

No penalty shall be incurred for the reduction in the number of items described above as determined by the Engineer.

ITEM 631-1 – REPLACE EXIST. WATER SERVICE, C.O.S. DET. 2330 (CONTINGENT ITEM)

SECTION 795 - LANDSCAPE MATERIAL

The following replaces Section 795 of the MAG Uniform Standard Specifications.

Subsection 795.1 - General

Material used for landscaping purposes shall be in conformance with this Section.

The common and scientific names of plants shall conform to the approved names in American Joint Committee on Horticultural Nomenclature's "Standardized Plant Names." For identification and inspection, durable, legible labels, bearing the plant's name in water-resistant ink, shall be attached to all nursery stock delivered to the project site.

Subsection 795.2 - Soil Fertilizing Material

Fertilizing material shall comply with the applicable requirements of the State Agricultural Code. All fertilizing material shall be packaged, first grade, commercial quality products identified as to source, type of material, weight and manufacturer's guaranteed analysis. It shall not contain toxic ingredients or fillers in quantities harmful to human life, animals or plants. It shall be delivered in unopened containers and shall have the chemical analysis as specified in the plans or specifications. Material which has become caked or otherwise damaged shall not be used. Plant tablets shall be Agriform 21 gram, 20-10-5 fertilizer tablets or approved equivalent.

Subsection 795.3 - Organic Soil Conditioner

In general, soil conditioner 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%. The carbon to nitrogen ratio shall be 30:1. Its gradation shall be such that at least 85% passes the 1/4-inch screen. In addition, it shall be treated with a non-toxic agent so as to be hygroscopic.

Subsection 795.4 - Herbicides and Pesticides

Contact herbicides and pesticides used must comply with all applicable Federal and State laws and be registered with the U.S. Environmental Protection Agency. Contact herbicides shall be quick acting and permit planting within 7-10 days of their use.

Pre-emergent herbicides shall be either 40.4 percent oryzlin and 59.6 percent inert ingredients, or 75% dimethyl tetrachloroterephthalate and 25% inert ingredients or approved equal and shall be applied in accordance with the manufacturer's instructions.

Subsection 795.5 - Plants

Subsection 795.5.1 - General

All landscape stock shall be grown in nurseries approved by the State Department of Agriculture. They shall have a growth habit normal to the species. Stock shall be sound, healthy, and vigorous; free from disease, insect pests, sun scald, windburn, excessive bark abrasions and other objectionable disfigurements. They shall have normal, well-developed branch systems and vigorous, fibrous root systems which are neither root nor pot-bound and are free of kinkled or girdling roots.

All stock shall have been grown in pots, cans, tubs, or boxes for a minimum of three months and a maximum of one year. They shall have sufficient roots to hold earth together after removal from the containers. This earth shall be free from noxious weeds including Bermuda grass. Plants shall have been grown under climatic conditions similar to those in the locality of the project.

Stock shall be inspected and approved by the Engineer at the Contractor's storage site prior to delivery to the project, or at a location agreed upon by the Engineer.

Subsection 795.5.2 - Trees

Trees shall be of the specified height, spread and caliper and shall stand erect without support. The height shall be measured from the root crown to the last division of the terminal leader with the branches in a normal position and the caliper shall be measured 12 inches above the crown roots.

Subsection 795.6 - Miscellaneous Material

Tree Stakes: Unless otherwise specified, tree stakes shall be 2 x 2 inch redwood posts, free of knots and reasonably straight, and of sufficient length to properly support the tree.

Strapping: Strapping shall be 2" webbed nylon strap.

Decomposed Granite: Decomposed granite shall be as per Subsection 702.4 with the following exceptions:

(A) All material used for a specific project or location shall be from a single source and shall present a uniform appearance.

(B) The Contractor shall ensure that sufficient quantity is available from a single source to complete the project. The Engineer shall approve one sample prior to ordering.

(C) Granite shall be 3/4" minus, "Desert Tan" color, or approved equal. Submit two separate color samples and size gradations from different quarries for review by the Engineer. The Engineer will choose one rock sample for use on the project based on the aesthetic appearance and overall acceptability of the rock for its intended use. No additional monies will be paid to the Contractor for selecting one of the provided samples or alternative selections proposed and accepted by the Engineer.

Subsection 795.7 - Measurement and Payment

No payment will be made for landscape material as such; the cost thereof shall be included in the bid price for the construction and installation of the items for which said landscape material is incidental or appurtenant.

SECTION 796 - TURF SOD

Subsection 796.1 - Description

Turf sod shall be strongly rooted sod, not less than 2 years old, free of weeds and undesirable native weeds and grasses and machine cut to a pad thickness of ¾ inches, excluding top growth and thatch. The Contractor shall provide only sod capable of vigorous growth and development when planted. Turf sod shall be of uniform pad sizes with maximum deviation of five (5) percent in either length or width. Broken pads incapable of supporting their own weight when suspended vertically with a firm grasp on the upper 10 percent of the pad will be rejected.

Turf sod shall be composed principally of Common Bermuda Grass (Cynodon dactylon).

Subsection 796.2 - Construction Methods

Subsection 796.2.1 - Soil Preparation

(A) Limit preparation to areas which will be sodded in the immediate future.

(B) Fine grade lawn areas to the lines and grade shown on the plans. The area shall be graded to a smooth even surface with loose, uniformly fine texture. Lightly roll, rake, remove ridges and fill depressions to meet finish grades. Allow for maximum level of natural compaction. Remove trash, debris, stones larger than 1-inch diameter and other objects which may interfere with planting or maintenance operations.

(C) Lightly moisten prepared lawn areas before applying sod if the soil is very dry or to achieve desired compaction. Allow surface to dry and loosen top 1-inch before planting. Do not create a muddy soil condition.

(D) It is the intent of these specifications that no rainfall shall have occurred between the time of final surface preparation and the sodding operation. Restore prepared areas to specified condition if eroded or otherwise disturbed after fine grading and prior to sodding.

Subsection 796.2.2 - Sodding Lawns

(A) Lay sod within 24 hours of soil preparation. Place sod immediately upon arrival to site. Do not lay dormant sod.

(B) Lay sod to form solid mass with tightly fitted joints. Butt ends and sides of sod strips, do not overlap. Stagger strips to offset joints in adjacent courses. Tamp or roll lightly to ensure contact with subgrade or as directed by the Engineer. Place sod on mounds and slopes with strips parallel to contours.

(C) Anchor sod on slopes with wood pegs as required to prevent slippage. Pegs to be 1-inch square by 6-inch long wood pins.

(D) Protection: Erect barricades and warning signs as required to protect the newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

Subsection 796.3 - Turf Inspection

Initial turf inspection shall be performed by the Engineer upon substantial completion of the turf sod installation. Upon successful completion of the installation of turf sod, the Engineer shall issue an effective beginning date for the maintenance period.

A final turf inspection will be conducted by the Engineer at the end of the maintenance period. The final turf inspection may be conducted earlier at the discretion of the Engineer. The final turf inspection will evaluate the planted areas for compliance with the acceptance criteria provided in Subsection 230.6. The Engineer may extend the maintenance period at his discretion while the Contractor takes necessary corrective action for the final turf inspection.

Subsection 796.4 - Maintenance

The Contractor shall be responsible for the care and maintenance of the newly planted lawn immediately after each area is planted and continue through the maintenance period or until the lawn is accepted. The turf sod shall be cared for in such a manner that there is minimal loss of grass coverage. The Contractor shall maintain the lawns by watering, weeding, mowing, trimming and other operations such as rolling, regrading, rock picking, repair of all erosion, fertilizing and replanting as required to establish a smooth, acceptable lawn, fee of eroded or bare areas. The lawn height shall be maintained by mowing at regular intervals which should be timed to maintain a grass height of 1-1/2". Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. A top dressing fertilizer shall be applied to lawn areas during the growing season at a rate of (1) pound of actual nitrogen per 1,000 square feet of lawn area. This top dress fertilizer application shall be applied once prior to the third mowing.

The maintenance period for the newly planted lawn area shall begin at the time of the initial sod placement and continue for 3 months. The maintenance period may be shortened upon acceptance of the lawn by the Engineer. The maintenance period may be extended as needed until the newly planted lawn areas meet the acceptance criteria described herein and evaluated by the final turf inspection.

Subsection 796.5 - Warranty

The Contractor shall warranty lawns through the maintenance period or until the lawn is accepted. The Engineer will conduct a final turf inspection at the end of the maintenance period as described in Subsection 230.4. Lawns will be acceptable provided the following:

(A) The grass is vigorous, health and well-rooted

(B) The lawn is free of weeds

(C) The lawn is free of bare areas greater than 2-inch diameter

(D) The lawn has no surface irregularities.

Subsection 796.6 - Measurement

Measurement for turf sod shall be made by the square-foot for the completed item, in place to the limits shown on the plans. Measurement will only be made to the limits shown on the plans, although grass replacement with turf sod may be required for areas damaged beyond the limits shown.

Subsection 796.7 - Payment

Payment for turf sod shall be made at the unit price bid per square foot. Payment shall be full compensation for furnishing and installing the turf sod. The cost of removal and disposal of existing turf, soil preparation and earthwork, maintenance and all other work and appurtenances not specifically addressed herein shall be incidental to the cost of turf sod.

ITEM 796-1 – TURF SOD

SECTION 797 - GEOMAT

Subsection 797.1 - Description

Geomat shall describe the geosynthetic material that is used to provide a mat for channel erosion stabilization, capable of allowing the root structure of grass/sod to fully integrate with the geosynthetic mat to provide erosion resistance, and which meets the material requirements described herein.

Subsection 797.2 - Material Properties

The Contractor shall submit to the Engineer, at least three weeks prior to installation, product certification to meet the material property requirements described herein. Suitable geomat products which meet the project requirements include:

Multimat 100 - Tenax Corporation 800-356-8495

Pyramat - Synthetic Industries 800-621-0444

The Contractor may select an alternative, equivalent product upon approval of the Engineer. Other geomat products will be considered equivalent and substitutable for the above products which meet the following criteria:

(A) Permissible flow velocity - the geomat must be certified to withstand flow velocities up to 12 feet per second.

(B) Shear strength - the geomat must be certified to withstand a minimum shear stress of 5 pounds per square foot.

(C) Tensile strength - the geomat shall have a minimal tensile strength of 500 pounds per foot (machine directions) and 1,300 pounds per foot (cross-machine direction) per ASTM D-4595.

(D) UV Resistance - the geomat shall be certified to have a minimum strength retention of 80-percent at 500 hours of UV exposure per ASTM D-4355.

The Contractor shall submit the names and addresses of the geomat manufacturer, fabricator and installer and a material specification list particularly describing the installation recommendations of the geomat including anchoring, stapling, and bury depths to secure the geomat.

Subsection 797.3 - Geomat Installation

(A) The underlying surface shall be free of large rocks, soil clods and other debris that may puncture or damage the geomat.

(B) The underlying surface shall be smooth such that the geomat will lay flat against the surface without any voids beneath the mat.

(C) An anchor trench, a minimum of 2-feet deep, shall be installed at the top of each slope to secure the geomat. The beginning of the roll shall be anchored to the full depth of the outlet headwall as shown on the plans. The geomat shall be anchored to a minimum depth of 2-feet at the end of protection as shown on the plans.

(D) A minimum 3-inch overlap shall be required for all adjacent rolls. Adjacent rolls will be secured and fastened to each other in accordance with the manufacturer's recommendation. Rolls shall be additionally anchored, secured and joined per the manufacturer's recommendations.

(E) The geomat shall be stored and protected from ultraviolet exposure wherever possible. Once exposed to UV light, the geomat shall be installed in-place and covered within 15 days.

(F) The Contractor shall ensure the geomat is installed to the manufacturer's recommendations and ensure the geomat is not damaged in any way prior to the installation of turf sod.

(G) The specified turf sod shall be installed per the geomat manufacturer's recommendations and as described above in Subsection 230.3.2. A 2-inch soil layer will be placed over the geomat stabilization and prepared as described in Subsection 230.3.1.

Subsection 797.4 - Measurement

Measurement for the geomat shall be made by the square-foot for the completed item, in place to the limits shown on the plans.

Subsection 797.5 - Payment

Payment for geomat shall be made at the unit price bid per square foot. Payment shall be full compensation for labor, material and equipment to furnish and install the geomat. Soil preparation, earthwork, anchoring, backfill, and all other work and appurtenances necessary to install this item not specifically addressed herein shall be incidental to the cost of the geomat.

ITEM 797-1 - GEOMAT

CONSTRUCTION SPECIAL PROVISIONS

APPENDIX A
PAIUTE PARK BASIN ELECTRICAL SPEICIFICATIONS

OSBORN ROAD STORM DRAIN
THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

April 28, 2000

FCD PROJECT NO. 1999C070

PCN NO. 027-04-30

Prepared for:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
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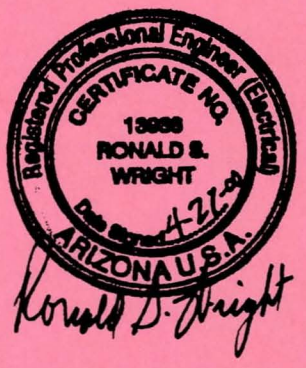

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ELECTRICAL SPECIFICATIONS 16000
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ELECTRICAL SPECIFICATIONS 16000

SECTION A - GENERAL PROVISIONS

A.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. The general conditions are applicable to this section and shall form a part of the contract.

A.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:

A.2.1 Relocation of existing 277/480Volt 3Phase 4Wire Service Entrance Section and coordination with APS for relocation of transformer; for area, ramada and soccer field lighting, including all circuit breakers, photocells, time clocks, switches, control relays and lighting contactors completed in a workmanlike manner.

A.2.2 Complete branch circuit wiring system for lighting & power;

A.2.3 Relocation of poles & new pole-mounted light fixtures, and new pole bases.

A.2.4 All other electrical equipment and services needed to complete a usable and operable facility in accordance with all pertinent codes and regulations.

A.3. PERMITS

Secure and pay for all necessary permits and licenses, services and all inspection fees as required by the City of Scottsdale.

A.4. QUALITY ASSURANCE

A.4.1 For the actual fabrication, installations, 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. Contractor shall submit at least three references displaying qualifications, experience and examples of work done with Qualite lighting systems within the last five years.

A.4.2 In acceptance or rejection of installed electrical system, no allowance will be made for lack of skill on the part of installers.

A.5. CODES AND ORDINANCES

A.5.1 Install all work in accordance with the National Electrical Code and its latest revisions, with any City of Scottsdale, and with all pertinent requirements and standard specifications.

A.6. CERTIFICATES

A.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.

A.7. EXAMINATION OF PREMISES

A.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.

A.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.

A.8. CONCRETE, EXCAVATION, FILL AND BACKFILL

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

A.8.2 Concrete shall be Class 'A', 3000 p.s.i. and shall be mixed, placed and cured in conformance with M.A.G. Specifications.

A.8.3 Backfill conduit trenches in a manner to prevent disturbance to the pipes or conduits. Fill under and around pipes thoroughly to a point approximately 6" above the top of the pipe and compact in conformance with M.A.G. Specifications Section 601.4.

A.8.4 Compaction of backfill shall be in horizontal lifts not exceeding 6" in thickness. Compact to 90 percent of maximum density at optimum moisture content in accordance with local codes and standards.

A.9. ELECTRICAL DRAWINGS

A.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.

A.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. The system must be fully functional upon completion prior to acceptance.

A.10. STANDARD OF MATERIAL AND WORKMANSHIP

A.10.1 All materials, with the exception of the poles and fixtures 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 workmanship manner in accordance with the best accepted standards and shall present a neat mechanical appearance when completed.

A.10.2 Ratings of all electrical equipment shall be in accordance with National Electrical Manufacturers Association.(NEMA).

A.11. PAINTING

A.11.1 Where any new equipment is installed, all exposed electrical equipment, conduit, flush panel fronts, transformers, switches, switchboards, panels, panel mounting boards, and similar items shall be painted as specified under the Painting Section of the MAG Specifications Section 530.

A.12. CLEANING UP PREMISES

A.12.1 At all times keep the premises free from accumulation of waste materials or rubbish caused by employees. Metal floor pans shall be provided for pipe threading machines and benches and shall be used at all times to prevent concrete areas 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.

A.14. FINAL INSPECTION AND TESTS

A.14.1 Furnish all meters, cable, connection and apparatus necessary for making tests.

A.14.2 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 City Inspector.

A.15. UTILITIES

A.15.1 LOCATION OF UNDERGROUND UTILITIES: The Contractor shall notify the interested "Utilities" (Call Blue Stake at 1-800-STAKE-IT) two (2) working days prior to the start of construction, and shall ascertain the locations of the various underground utilities either shown on the plans and /or as may be brought to his attention. Excavations made by the Contractor prior to any trenching operations shall determine the exact locations of these underground utilities.

A.15.2 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 this own expense. Damaged water lines shall be replaced in kind.

A.16. GUARANTEE

A.16.1 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 period shall be replaced without cost to the Owner.

A.17. SHOP DRAWINGS

A.17.1 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 including all work to be performed on poles, new foundation structural calculations, and all other equipment to be fabricated.

SECTION B - BASIC MATERIALS AND METHODS

B.1. WIRE AND CABLE

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

B.1.2 All interior branch wiring shall be Type "XHHW" 600 volt, unless otherwise noted and a minimum of #12 except for control wiring which shall be stranded and a minimum of #14. All conductors underground shall be "XHHW."

B.1.3 Wire #8 and larger shall be stranded. Wire #2 and larger or as noted, shall be type "XHHW."

B.1.4 Manufacturers shall be Simplex, General Cable, Okonite, Rome Cable, Anaconda, General Electric and Kaiser.

B.1.5 INSTALLATIONS: Install all wire and cable in conduit.

B.1.6 Make all above ground connections and splices for #10 wire and smaller with Buchanan "B-Cap", 3-M "Scotchlok", or Ideal "Wing Nut" pre-insulated wire connector (sizes as recommended by manufacturer). Make connection 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. Make all underground connections and splices for #10 wire and smaller with crimp type connectors and insulate with scotch cast insulation kits or City of Scottsdale approved equal.

B.1.7 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.

B.1.8 Exercise due care when pulling wire and cable through raceways, to prevent conductors from kinking and injuring insulation.

B.1.9 UL approved pulling compounds may be applied to the conductors to insure ease of pulling. Under no circumstances shall any medium containing water, acid or petroleum base be used.

B.1.10 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.

B.1.11 Control wiring and all other stranded wiring to screw connections shall be provided with T & B "STA-KON" terminals.

B.1.12 Solid conductors shall loop tightly and completely around terminal screws on all wiring devices.

B.2. CONDUIT RACEWAYS

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

B.2.2 Rigid steel conduit shall be heavy walled, hot dipped, and 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.

B.2.3 No conduit placed in a concrete slab shall be greater than 3/4" trade size diameter and no conduit smaller than 1/2" shall be installed underground. No conduit shall be imbedded in a slab that is less than 3-1/2" thick except for local offsets. Unless otherwise noted or specified, tops of underground conduit and ducts shall not be less than 18" below grade. Assemble joints together using approved couplings to make watertight joints.

B.2.4 Schedule 40 PVC electrical conduit, UL listed 2" and smaller may be used for direct burial of underground branch circuits (with bond wire). Furnish and install expansion joints approximately 75 feet on centers for full length of underground runs. All bends shall be manufactured, not field made.

B.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."

B.2.6 Where exposed, install conduit parallel to walls and partitions; do not cross window openings.

B.2.7 All conduit bends 45 degrees and larger, and 2 inches and above shall be manufactured bends or field make with hydraulic bender.

B.2.8 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 20 mils.

B.3. CONDUIT FITTINGS

B.3.1 Provide double lockouts 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 shall be O.Z. type "B" or type "BL" where grounding is required.

B.4. GUTTERS, PULLBOXES AND JUNCTION BOXES

B.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 bake enamel.

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

B.5. ELECTRICAL SERVICE

B.5.1 The electrical service is existing and shall be rerouted as shown on the plans by Arizona Public Service.

B.5.2 Provide all necessary material and labor required by the serving utility for delivery of power to the service entrance equipment.

B.6. SERVICE ENTRANCE EQUIPMENT

B.6.1 Service entrance is existing.

SECTION C - SERVICE AND DISTRIBUTION

C.1. GROUNDING

C.1.1 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 securely 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.

C.1.2 All panels containing ground or bonding wires shall be equipped with a ground bus for terminating all such wires.

C.2. GENERAL

C.2.1 Soccer field is designed using existing Qualite Professional series 1500-watt metal halide fixtures mounted at heights as indicated on the drawings to give the following minimum lighting levels:

	Average	AVG/MIN RATIO
Soccer Fields	27.0FC	2.00

C.2.2 Point to point measurements shall be done in the field at night before final acceptance of the job. Measurements shall be taken per I.E.S. Standards on each field with only the lights for that field turned on and all measurements shall meet the minimum average levels and uniformity as called for by these specifications. Measurements shall be made according to the original Qualite submittal documents. An independent testing laboratory accepted by the City of Scottsdale must make all testing. Electrical contractor shall be responsible for

hiring and obtaining acceptance of this laboratory. The electrical contractor shall obtain a written report of the testing results to be submitted to the City of Scottsdale for their acceptance. Report shall include separate infield and outfield averages as well as a point by point layout of measurements for each. Report shall also include average to minimum ratios to compare with specified requirements. Testing shall be done on all four of the softball fields for this park.

C.2.3 A QUALITY representative must approve lights as relocated per standards. This representative must also approve light testing results as compliant with specifications.

C.3. Re-INSTALLATION OF LIGHTING FIXTURES

C.3.1 Re-Installation of all lighting fixtures shall be done by qualified and experienced mechanics.

C.3.2 Protect the lighting fixtures from damage during their unloading or removal, storage or installation. Any broken fixtures, glassware, etc., must be replaced with new parts, without any additional expense to the Owner, undue delay or inconvenience.

C.3.3 Upon completion of the installation of the lighting fixtures and lighting equipment, they must be in first-class operating order and in perfect condition. I.e. check for proper operation and appearance, alignment of fixtures and proper placement of lenses, louvers, lamps and other light-controlling or modifying appurtenances. Where special lighting effects, flood or spotlighting is involved, perform final adjustment under the direct supervision of the City of Scottsdale.

C.3.4 Cleaning - Immediately prior to final inspection, damp clean all glassware, fixture trims, reflectors; clean lamps or install new lamps as directed.

4. POLES

GENERAL:The poles shall be retrofitted to new heights by original pole manufacturer, Cem-Tec. Poles shall be capable of with standing a 100-MPH wind with mounting accessories as indicated on the plans. Hole shall be augured. Pole height shall be as indicated on the plans. Structural calculation for poles shall be submitted for approval and sealed by a Structural Engineer registered in Arizona. PVC conduit elbows shall be installed in the base as needed for conductor entry.

APPENDIX B
PROJECT BORING LOGS

OSBORN ROAD STORM DRAIN
THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

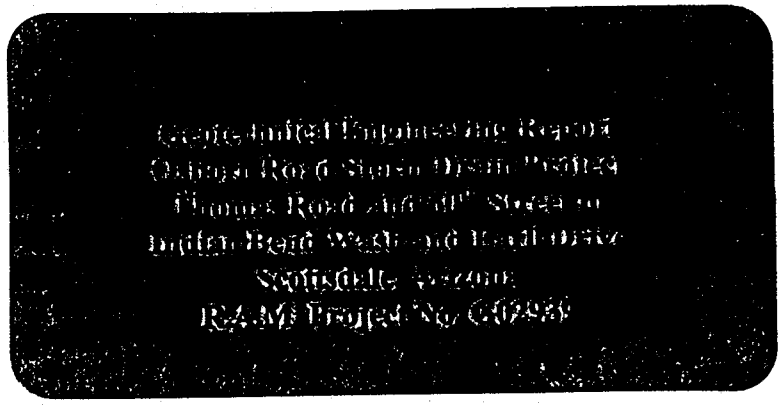
April 28, 2000

FCD PROJECT NO. 1999C070
PCN NO. 027-04-30

Prepared for:

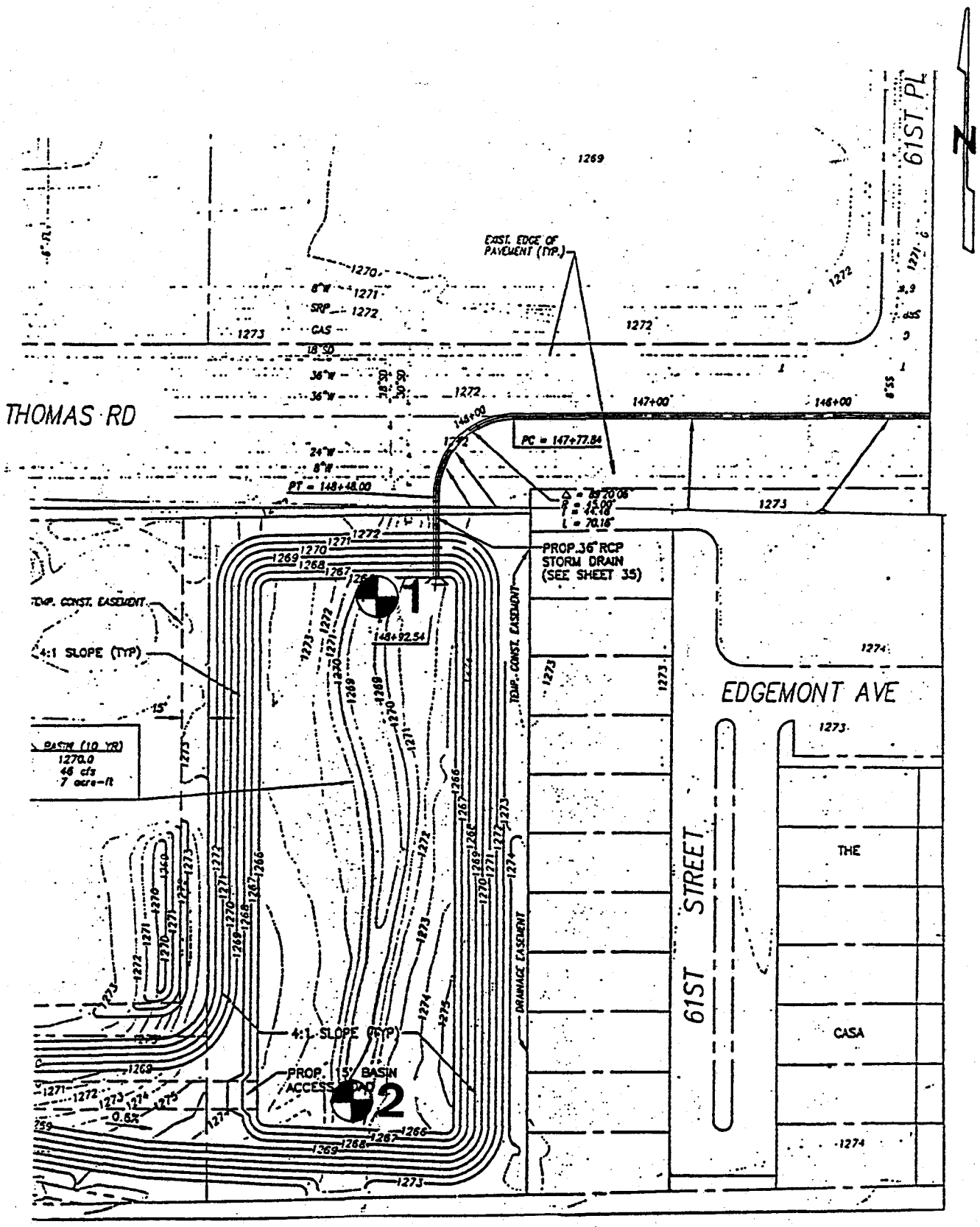
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 West Durango Street
Phoenix, Arizona 85009
Phone: (602) 506-1501

R·A·M



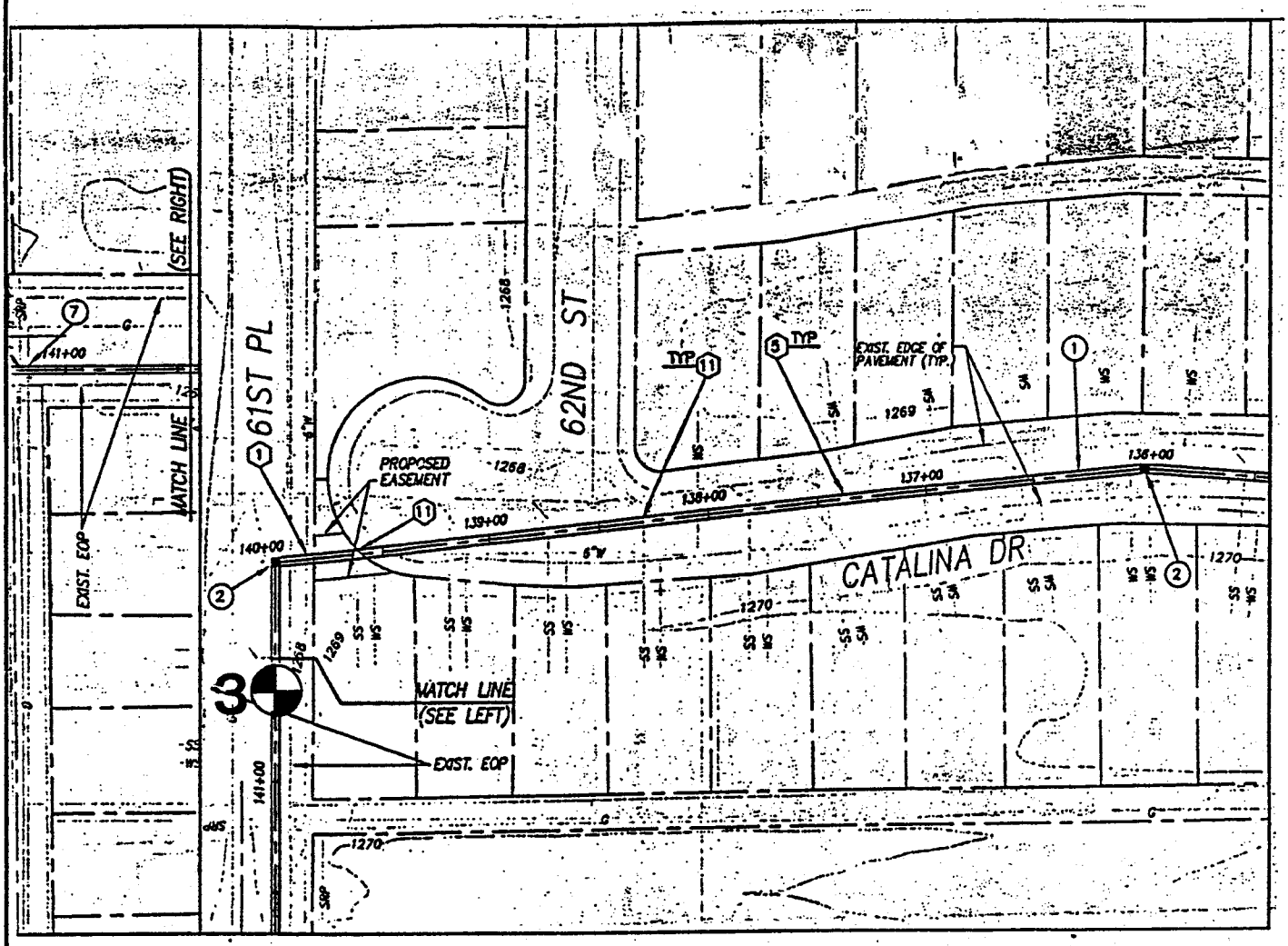
RICKER • ATKINSON • McBEE & ASSOCIATES, INC.

Geotechnical Engineering • Construction Materials Testing



Test Boring Location

SITE PLAN



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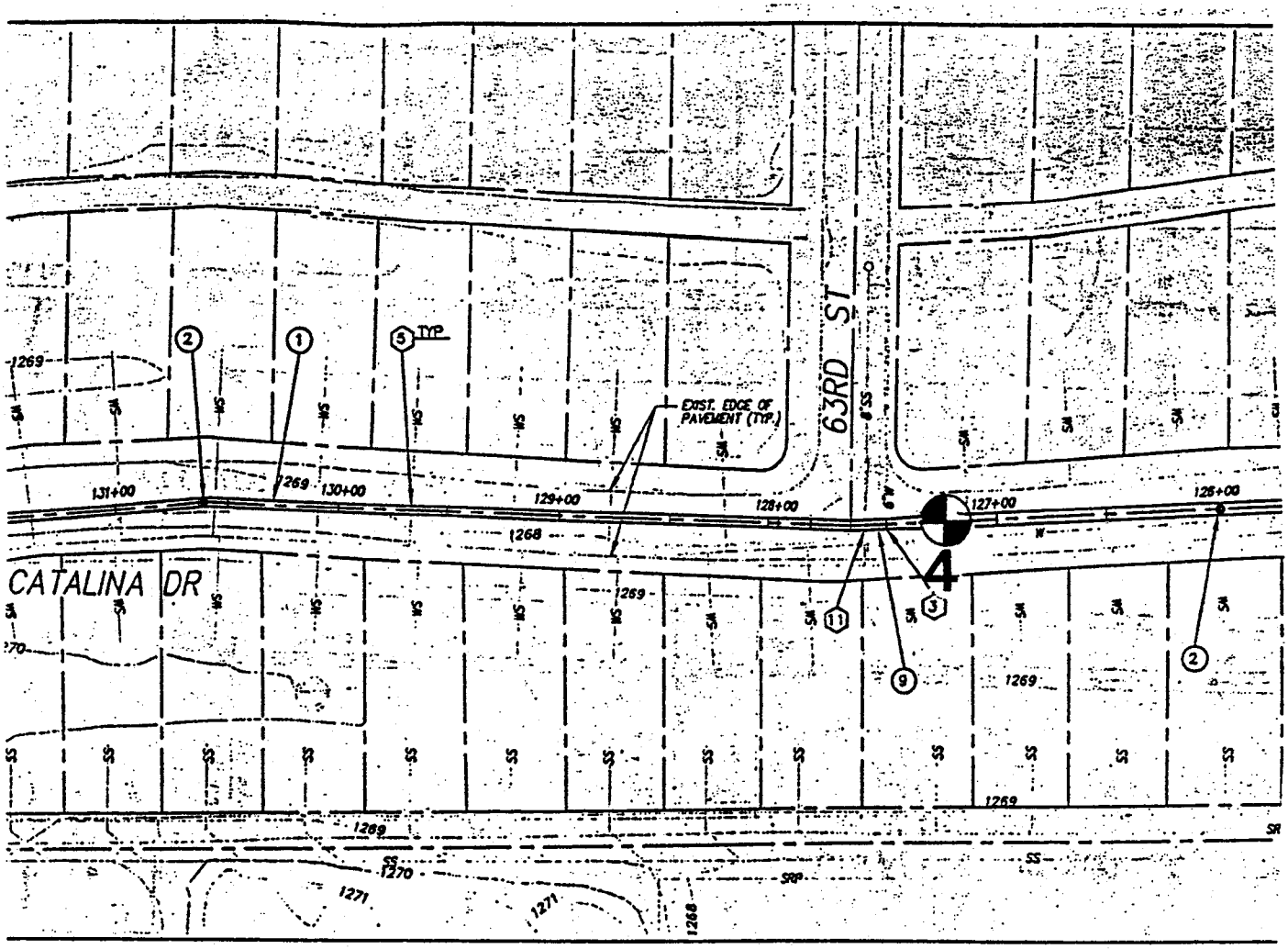

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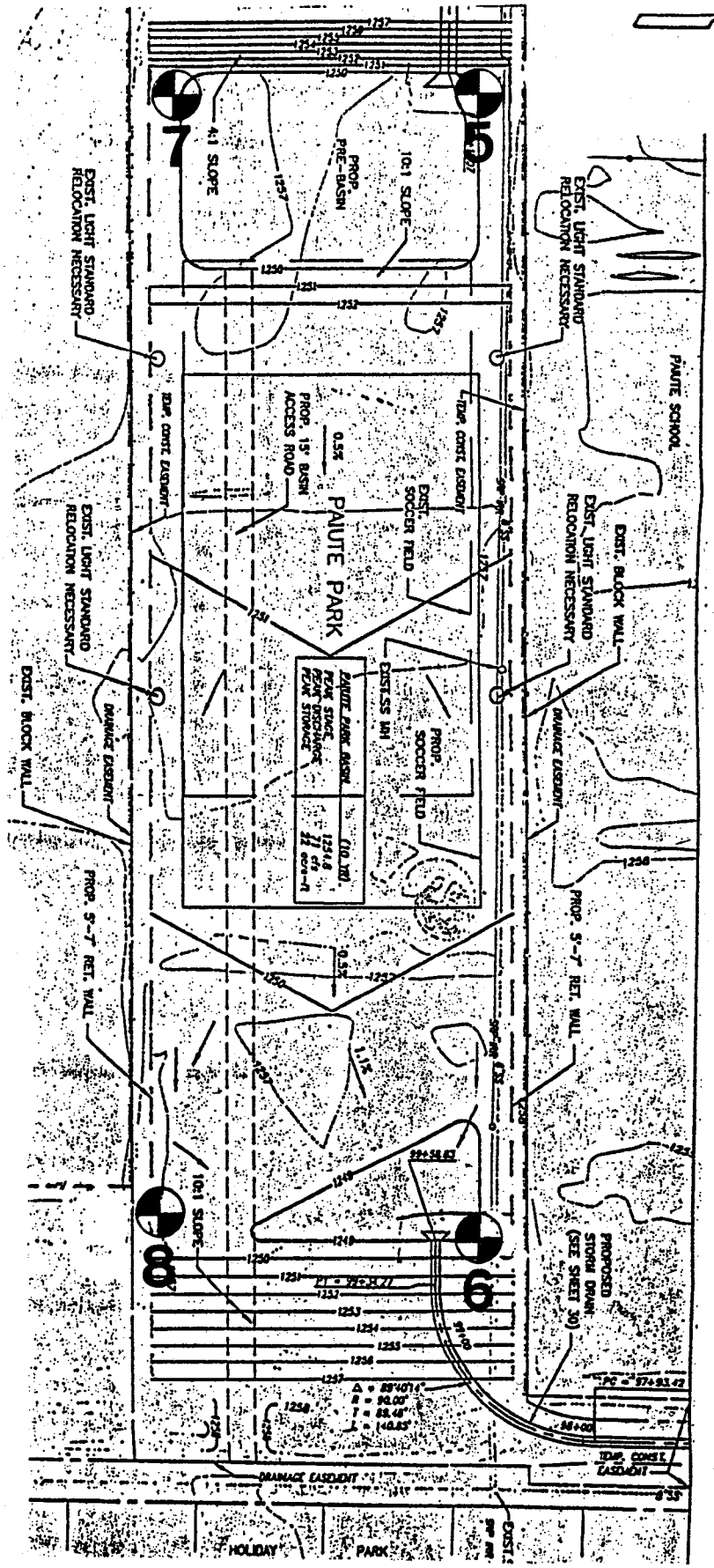
SITE PLAN

R.A.M. PROJECT NO. G02939

A1-C



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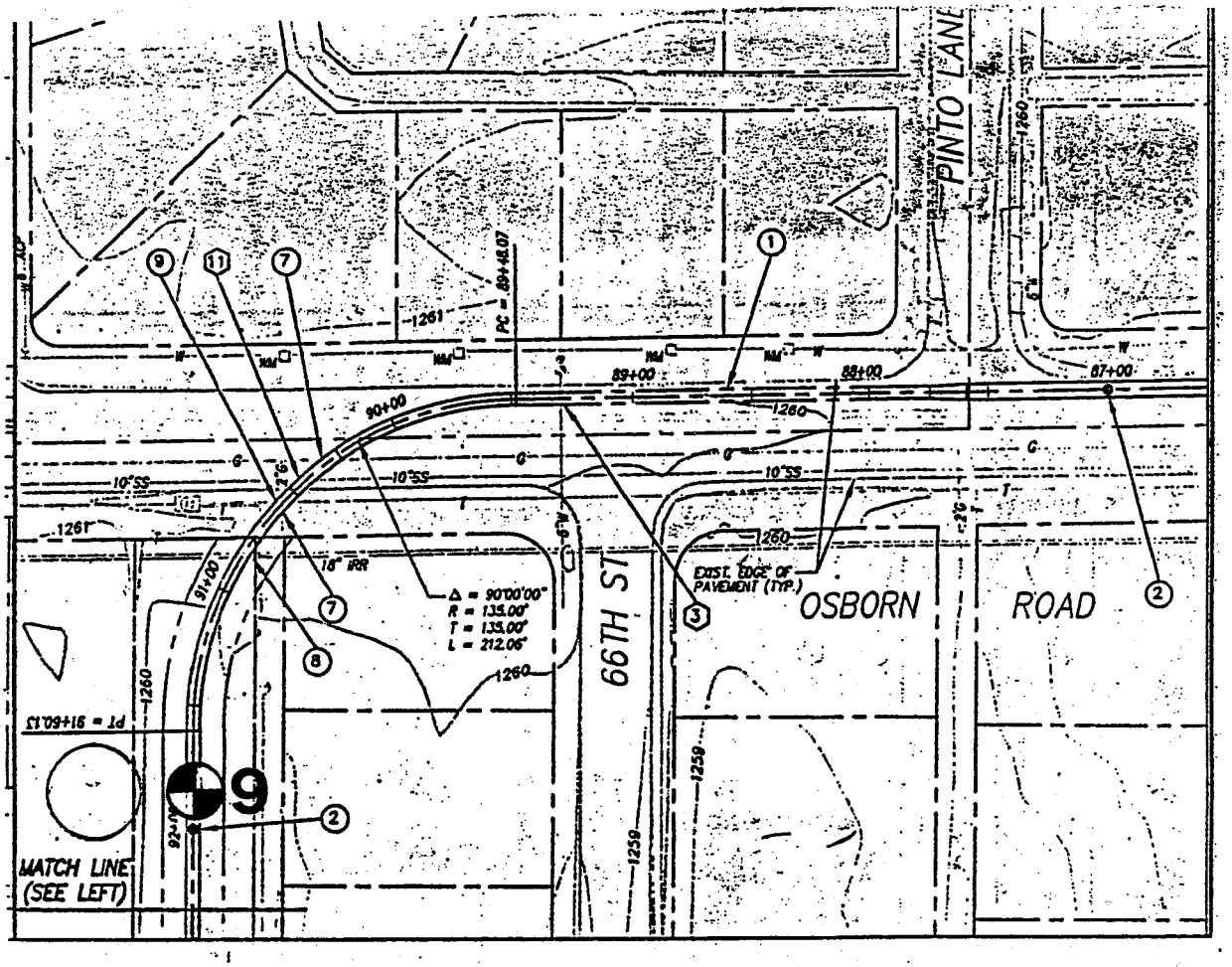
SITE PLAN

R.A.M. PROJECT NO. G02939

A1-D



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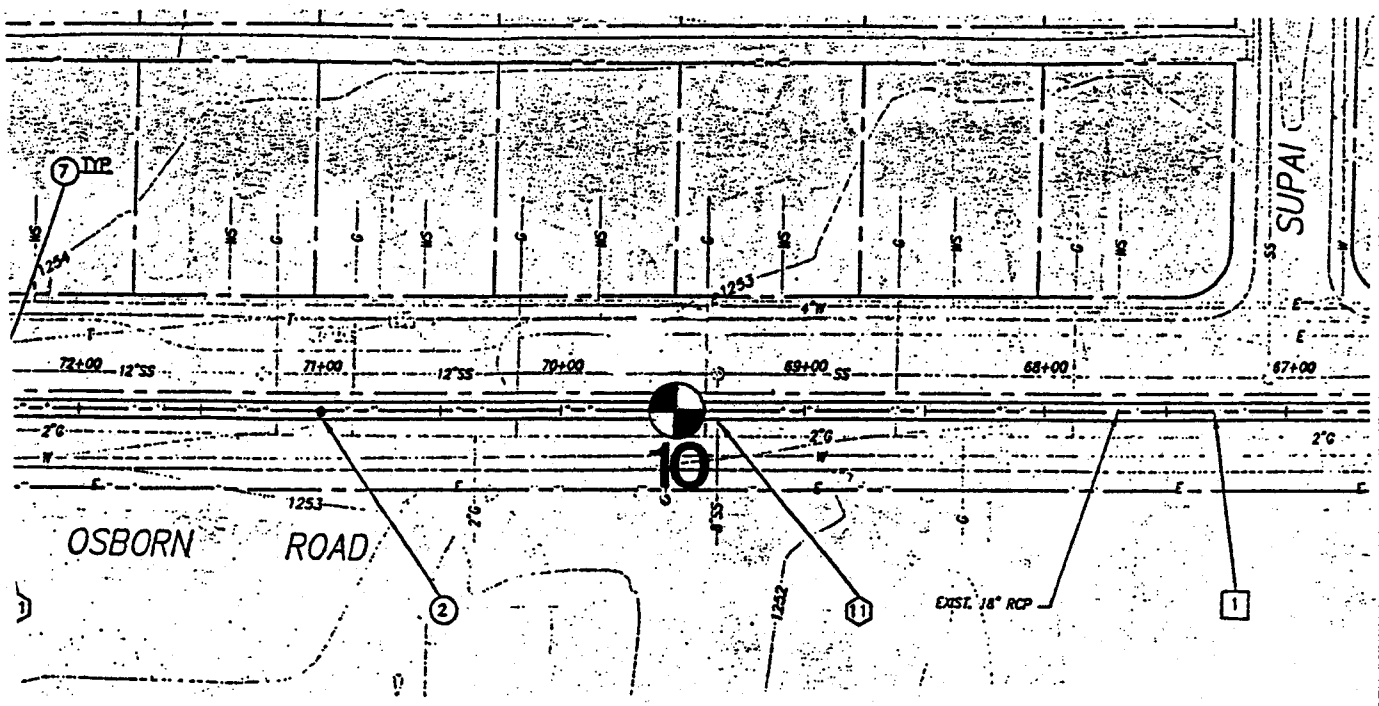

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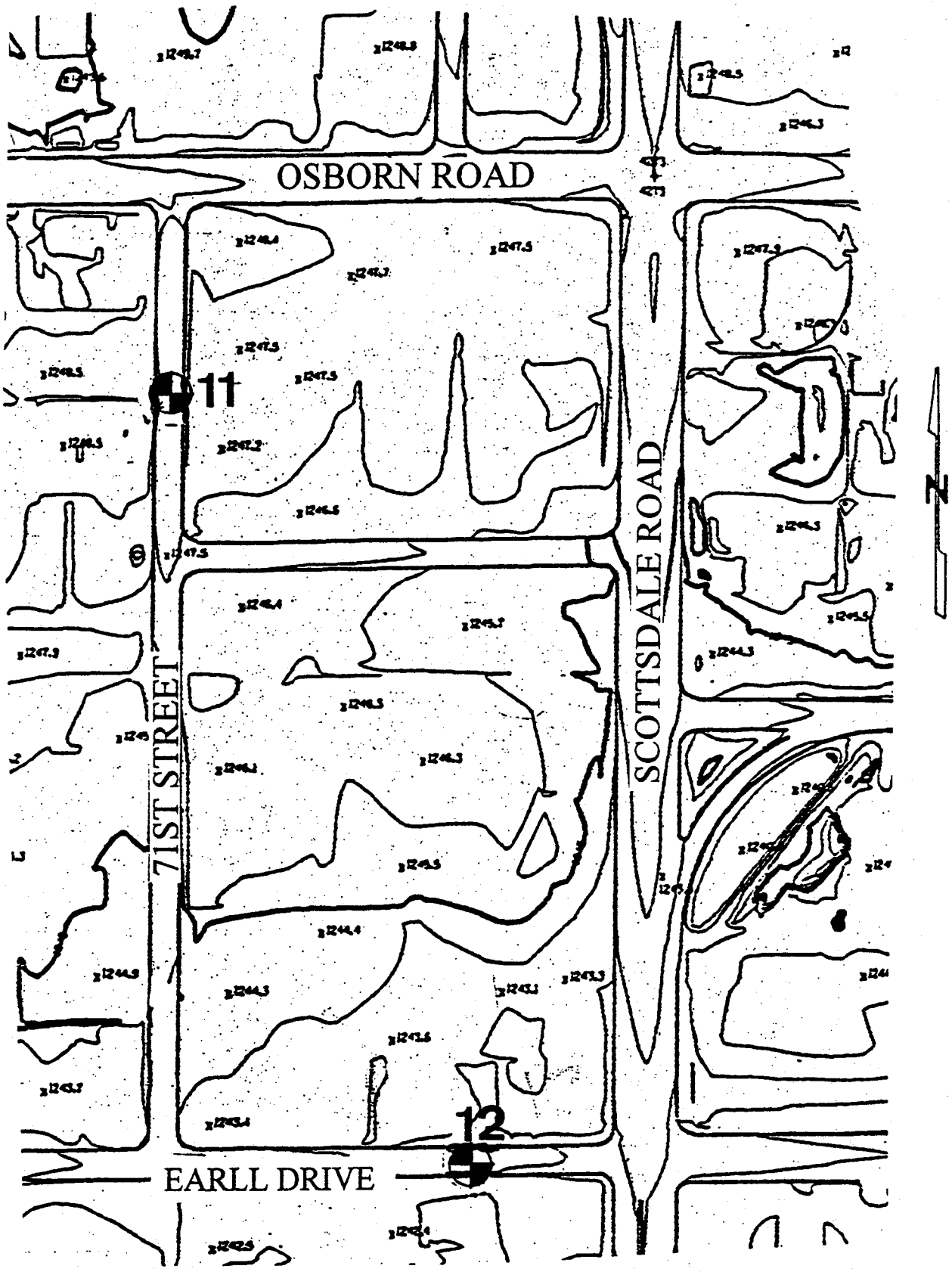

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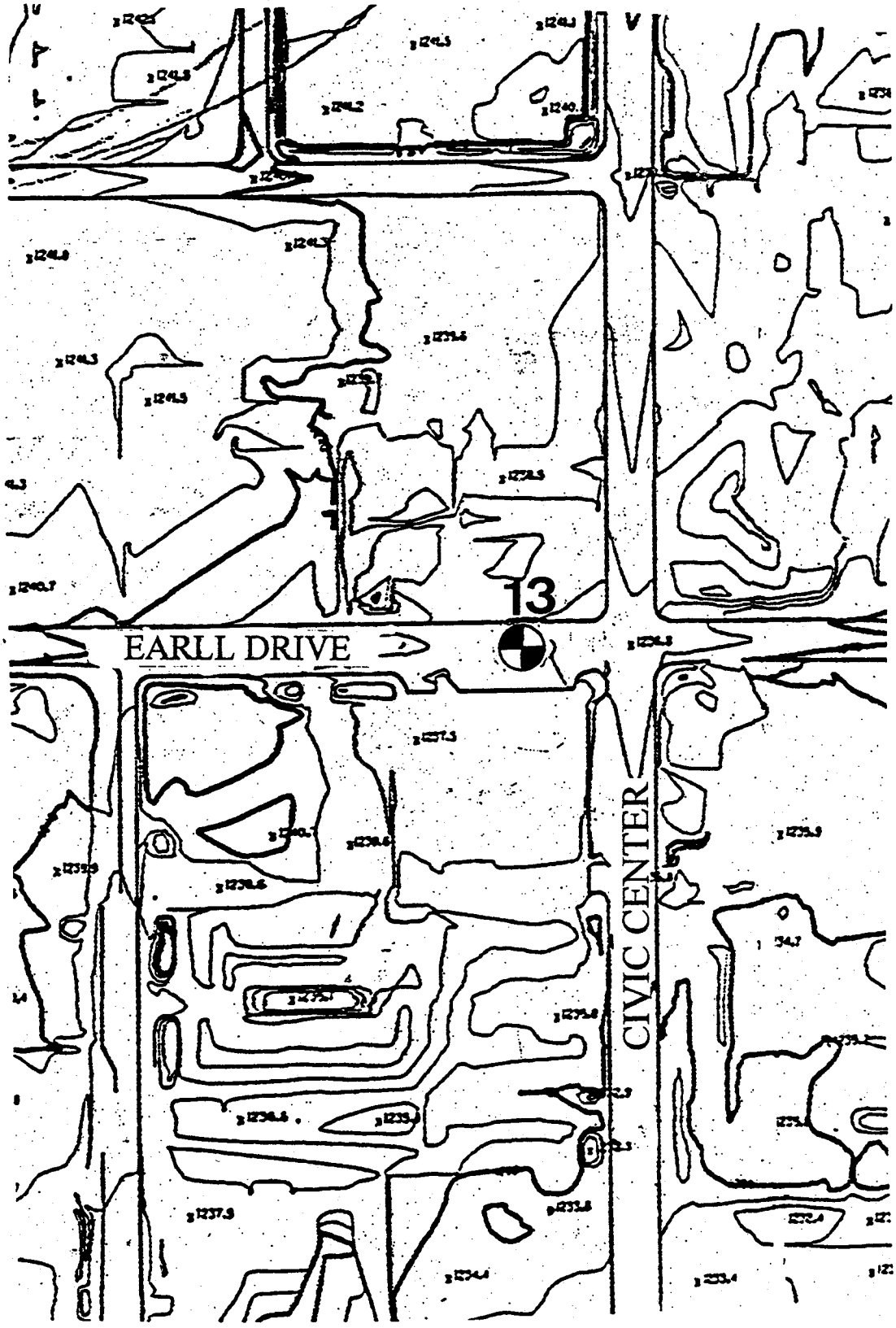

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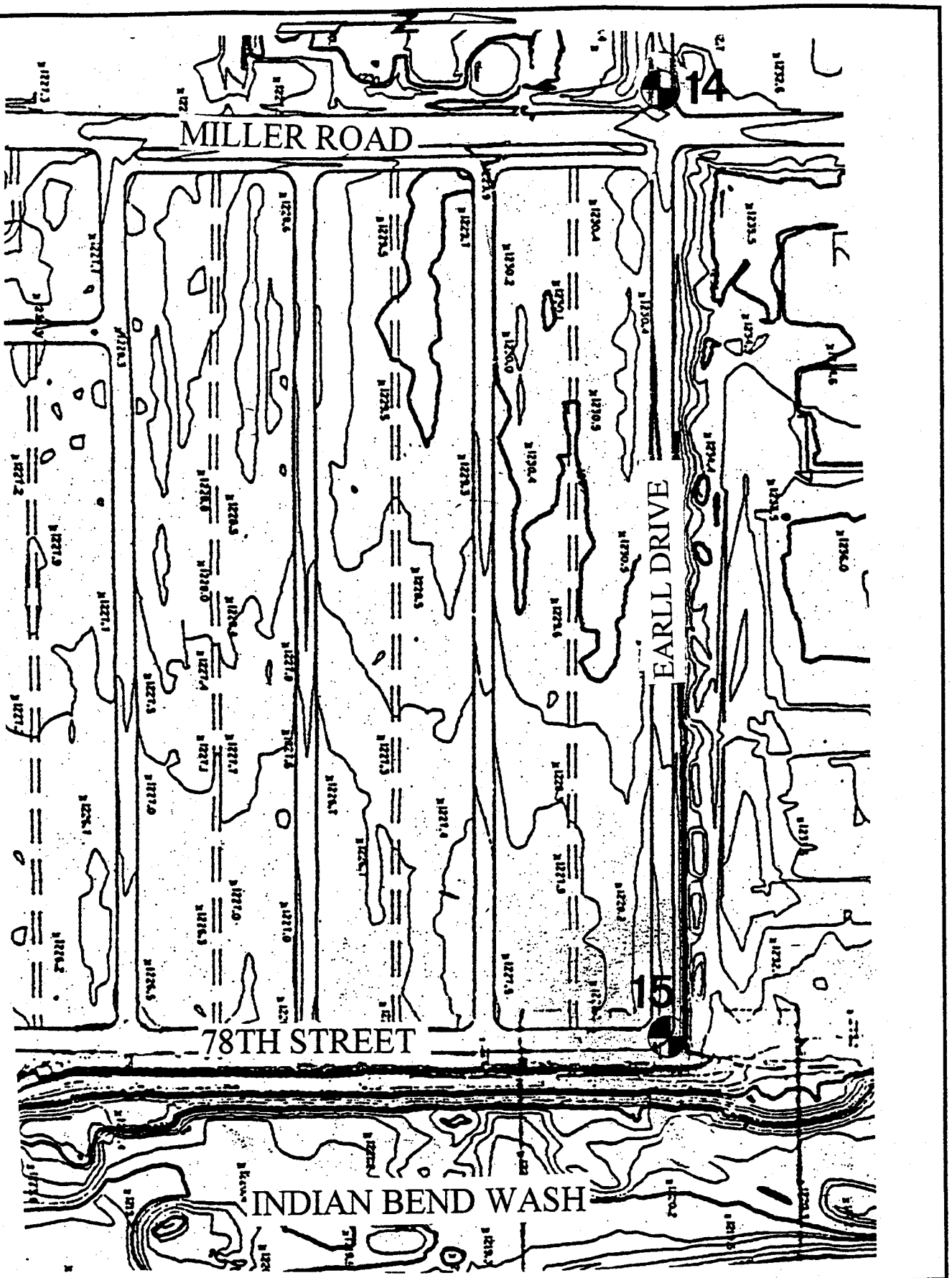


Test Boring Location

SITE PLAN

R.A.M. PROJECT NO. G02939

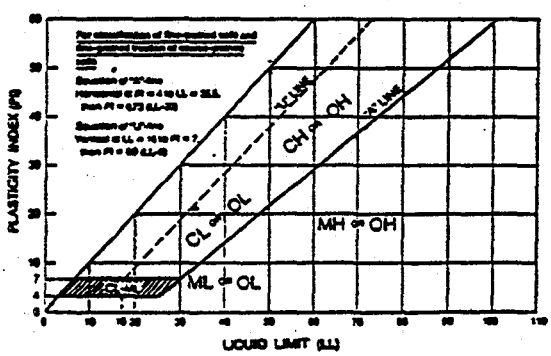
A1-I

LEGEND

CLASSIFICATION OF SOILS

ASTM Designation: D2487-83
(Based on Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				Soil Classification: Group Symbol	Soil Classification: Name
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW	Well graded gravel
			Cu<4 and/or 1>Cc>3	GP	Poorly graded gravel
		Gravels with Fines More than 12% fines	Fines classify as ML or MH	GM	Silty gravel
			Fines classify as CL or CH	GC	Clayey gravel
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	$Cu \geq 6$ and $1 \leq Cc \leq 3$	SW	Well-graded sand
			Cu<6 and/or 1>Cc>3	SP	Poorly graded sand
		Sands with Fines More than 12% fines	Fines classify as ML or MH	SM	Silty sand
			Fines classify as CL or CH	SC	Clayey sand
FINE-GRAINED SOILS 50% or more passes the No. 200 Sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI>7 and plots on or above "A" line	CL	Lean clay
			PI<4 or plots below "A" line	ML	Silt
		Organic	Liquid Limit - oven dried / Liquid limit - not dried <0.75	OL	Organic clay / Organic silt
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay
			PI plots below "A" line	MH	Elastic silt
		Organic	Liquid limit - oven dried / Liquid limit - not dried <0.75	OH	Organic clay / Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat



TEST BORING LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot: C	Blows/Foot: N/R	Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description

C = Continuous Penetration Resistance (2 inch diameter rod)
N = Standard Penetration Resistance (ASTM D1586)
R = Penetration Resistance (3 inch diameter ring line sampler)

U.S. STANDARD SERIES SIEVE				GRAIN SIZES	CLEAR SQUARE SIEVE OPENINGS			
200		40	10	4	3/4"		3"	12"
SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	SAND				GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE		FINE	COARSE		

MOISTURE CONDITION (INCREASING MOISTURE →)

DRY — SLIGHTLY DAMP — DAMP (Plastic Limit) — MOIST — VERY MOIST — WELL (SATURATED) (Liquid Limit)

CONSISTENCY CORRELATION		RELATIVE DENSITY CORRELATION	
CLAYS & SILTS	BLOWS/FOOT*	SANDS & GRAVELS	BLOWS/FOOT*
VERY SOFT	0-2	VERY LOOSE	0-4
SOFT	2-4	LOOSE	4-10
FIRM	4-8	MEDIUM DENSE	10-30
STIFF	8-16	DENSE	30-50
VERY STIFF	16-32	VERY DENSE	OVER 50
HARD	OVER 32		

***Number of blows of 140 lb. hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).**

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 1

Elevation: Not Determined Datum: --- Date: 6-17-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		21	R	106	9	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5							
10		50/4"	R	107	8		Moderate cementation below 9 feet.
15							
20		50/5"	R	103	11		
							Stopped drilling at 20.4 feet No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 2

Elevation: Not Determined Datum: --- Date: 6-17-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		32	R	96	13	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5		42	R	114	8		Moderate cementation below 6 feet.
10							
15		50/2"	R	NR			
20							Stopped drilling at 20 feet. NR = No Recovery No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 3

Elevation: Not Determined Datum: --- Date: 6-15-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							3" Asphalt Concrete on 5" Base Material
		15	R	104	10	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5							
10		50/8"	R	111	8		Moderate cementation below 9 feet.
15							
20		50/1"	R	NR			
							Stopped drilling at 20 feet. NR = No Recovery No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project — TEST BORING: 4

Elevation: Not Determined — Datum: --- — Date: 6-15-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							3" Asphalt Concrete on 5" Base Material
		18	R	105	10	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5		35	R	105	15		
10							
15		34	R	102	14		
20							
							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 5

Elevation: Not Determined Datum: --- Date: 6-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		12	R	114	10	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5							
10		24	R	105	16		
15							
20							Moderately cemented below 18 feet.
		50/6"	R	107	13		
							Stopped drilling at 20.5 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 6

Elevation: Not Determined Datum: --- Date: 6-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		13	R	102	16	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5		25	R	115	13		
10							
15		50/7"	R	92	18		Moderately cemented below 14 feet.
20							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 7

Elevation: Not Determined Datum: --- Date: 6-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		13	R	112	14	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5							
10		34	R	94	19		
15							Moderately cemented below 15 feet.
20		50/3"	R	NR			
							Stopped drilling at 20 feet. NR = No Recovery No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 8

Elevation: Not Determined Datum: --- Date: 6-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		15	R	114	10	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5		31	R	115	8		
10							
15							
20		44	R	101	10		
							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 9

Elevation: Not Determined Datum: --- Date: 6-17-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		30	R	109	5	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5		50/10"	R	109	7		Moderately cemented below 5 feet.
10						CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
15		28	R	97	13		
20							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 10

Elevation: Not Determined Datum: --- Date: 6-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							5" Asphalt Concrete on 10" Base Material
		11	R	113	10	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5		18	R	107	10		
10							
15		50/8"	R	105	16		Moderate cementation below 13 feet.
20							
							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project — TEST BORING: 11

Elevation: Not Determined — Datum: --- — Date: 7-26-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							2.5" Asphalt Concrete on 6" Base Material
		19	R	117	10	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5							
10		50/10"	R	103	17		Moderate cementation below 9 feet.
15							
20		50/6"	R	92	18		
							Stopped drilling at 20.5 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 12

Elevation: Not Determined Datum: --- Date: 7-26-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							4.5" Asphalt Concrete on 5" Base Material
		19	R	117	12	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5							
		13	R	112	8		
10							
15		50	R	107	15		Moderate cementation below 15 feet.
20							
							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 13

Elevation: Not Determined Datum: --- Date: 7-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							2.5" Asphalt Concrete on 7.5" Base Material
		18	R	112	15	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5							
10		50	R	98	23		
15							
20		34	R	101	22		
							Stopped drilling at 21 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 14

Elevation: Not Determined Datum: --- Date: 7-16-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							4" Asphalt Concrete on 6" Base Material
		15	R	110	15	SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
5		17	R	92	11		
10							
15		50/5"	R	104	10		Moderately cemented below 14 feet.
20							
							Stopped drilling at 20 feet. No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Osborn Road Storm Drain Project TEST BORING: 15

Elevation: Not Determined Datum: --- Date: 7-26-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
							3" Asphalt Concrete on 6.5" Base Material
		20	R	119	14	CL	Sandy Clay, trace to some Gravel; brown, slightly damp to damp, stiff to very stiff, medium plasticity.
5							
						SC	Clayey Sand, trace to some Gravel; brown, slightly damp to damp, medium dense to dense, medium plasticity fines.
10		50/2"	R	NR			Moderately cemented below 10 feet.
15							
20		50/6"	R	85	32		
							Stopped drilling at 20.5 feet. NR = No Recovery No Groundwater Observed.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

APPENDIX C

City of Scottsdale Traffic Signal Loop Detector Figure

OSBORN ROAD STORM DRAIN

THOMAS ROAD AND 61ST PLACE TO INDIAN BEND WASH

April 28, 2000

FCD PROJECT NO. 1999C070

PCN NO. 027-04-30

Prepared for:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

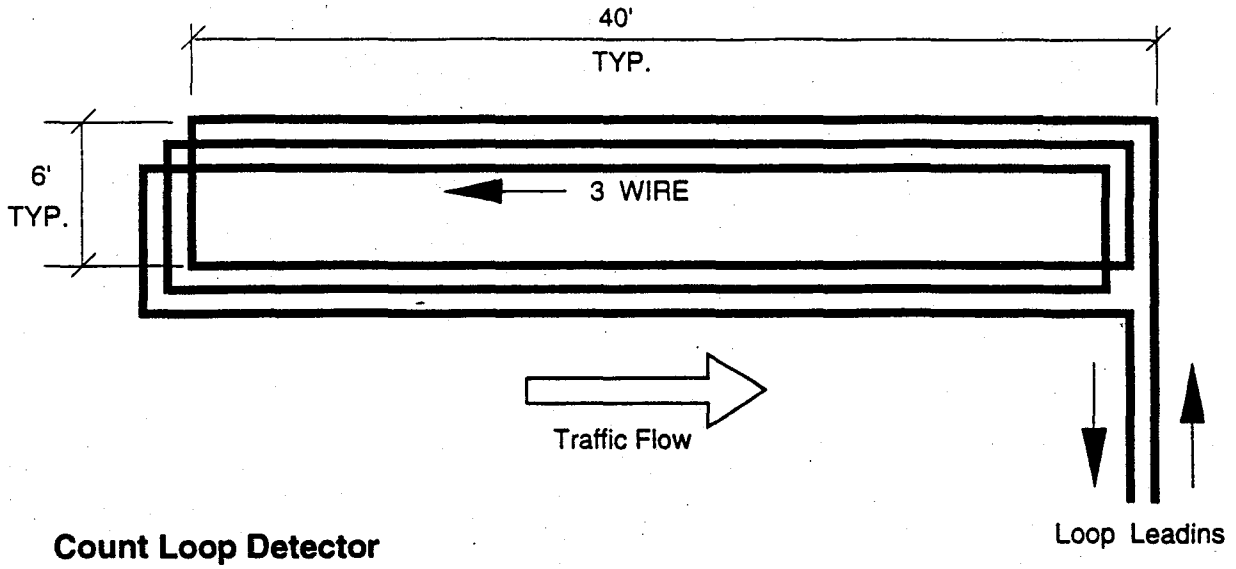
2801 West Durango Street

Phoenix, Arizona 85009

Phone: (602) 506-1501

Note:
Typical Intersection Loop Configuration
Unless Otherwise Specified By STED
(Not To Be Used For Vehicle Counting)

SEE A.D.O.T. T.S. 7-1 FOR INSTALLATION DETAILS
(SAWCUT ALL CORNERS 1' X 1')



Count Loop Detector

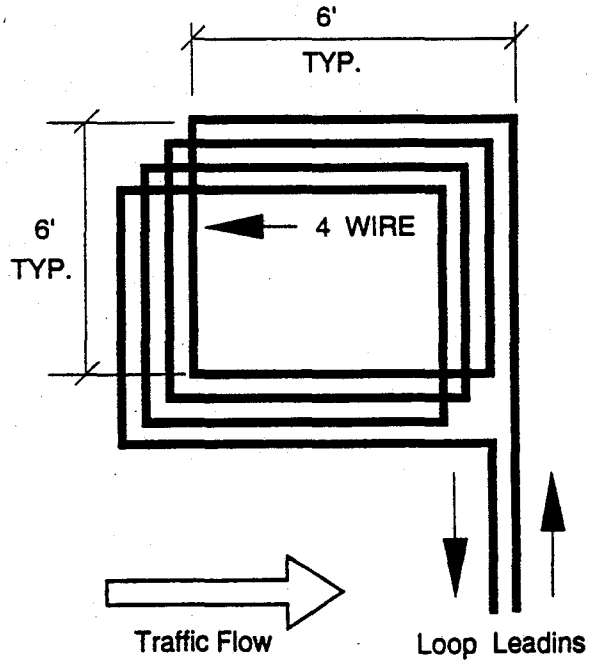


FIGURE 3.2-4
Loop Detail