

PPM COPY

31

CONSTRUCTION DOCUMENTS

FOR

CONTRACT FCD 2004C074
SONOQUI WASH CHANNELIZATION

PCN 480.04.31

(Engineer's Seal)



Prepared By

Stanley Consultants, Inc.
1616 E. Camelback Rd., Suite 400
Phoenix, Arizona 85016

Recommended for Construction by:

Raju Shah

Date: 10/11/06

Raju Shah, P.E.
Project Manager

Recommended by:

Edward A. Raleigh

Date: 10/18/06

Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by:

Timothy S. Phillips

Date: 10/25/06

Timothy S. Phillips, 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 2005.

AGENDA ITEM C-69-06-040-5-00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

**Contract FCD 2004C074
Sonoqui Wash Channelization
Queen Creek Wash to Chandler Heights Road**

Project No. 480.04.31

ADDENDUM NO. 1

March 28, 2007

Contract FCD 2004C074

Title: Sonoqui Wash Channelization, Queen Creek Wash to Chandler Heights Road

Owner: Flood Control District of Maricopa County

To Contract Documents

This Addendum No. 1 modifies or clarifies Contract FCD 2004C074. All other provisions of the contract remain unchanged unless specifically modified herein. The Addendum No. 1 forms a part of the Contract Documents and modifies the contract documents as follows:

I. Revisions to Invitation for Bid

Page 4 of 26:

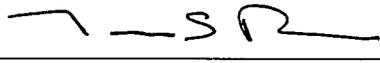
Revise the bid opening date to **April 12, 2007 at 2:00 PM (MST)**. The location of the bid opening shall remain the same.

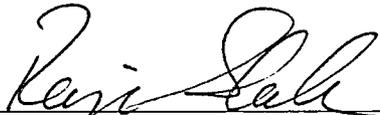
The last day for questions is Thursday, April 5, 2007 – 5:00 P.M. (MST) Questions should be addressed to Chuck Woosley Contracts/Permits Branch Manager at (Phone) 602-372-0617, e-mail cww@mail.maricopa.gov or (Facsimile) 602-506-2903.

With this Addendum Number 1 is included for information a copy of the attendance roster and meeting notes from the Pre-Bid Meeting, held on March 22, 2007.

Note: The due date of all bids under this Invitation For Bids is re-scheduled for Thursday, April 12th, 2007 at 2:00 P.M. Bidders are reminded that each addenda must be acknowledged on page 8 of 26 of the Invitation for Bids and a copy of addenda attached to the bid package.

Flood Control District of Maricopa County

By: 
Timothy S. Phillips, P.E.
Chief Engineer and General Manager

By: 
Raju C. Shah, P.E.
Flood Control District of Maricopa County

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 Arizona 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 2004C074

PCN 480.04.31

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Engineer's Seal



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: THURSDAY, APRIL 5, 2007

PROJECT LOCATION: The project is located within the Town of Gilbert, Town of Queen Creek and part of unincorporated Maricopa County.

PROPOSED WORK: The Project starts just east of Higley Road along Ocotillo Road Alignment up to Power Road and continues southeast diagonally up to 800' south of Chandler Heights Road. The project includes construction of drainage channel up to 60' in bottom width, 4:1 to 8:1 side slopes, and 6' to 12' in depth. The project also includes grading of "Stage Stop" Basin located at the northeast corner of Sossaman Road and Chandler Heights Road. There are five (5) grade control structures constructed with dumped riprap, grouted riprap and concrete cut-off walls. There are five (5) road crossing that will be constructed with the project including Recker, Power, Via De Jardine, Sossaman and Chandler Heights Road. The project will be designed to convey 100-year storm event. The project involves construction of riprap banks, concrete and grouted rock grade control structures, concrete box culverts, low flow pipe crossings, pavement construction, inlet and outlet headwalls, 4" aggregate base maintenance road, waterline relocations, concrete weir structures and earth removal.

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 PM (MST) on Thursday, April 5, 2007** 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 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 Thursday, March 22, 2007 at 10:00 A.M. (MST) at the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009. Attendees should be prepared at that time to submit in writing and discuss any comments concerning this solicitation. Potential subcontractors are encouraged to attend.

QUESTIONS AND CLARIFICATIONS:

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 four hundred sixty-five (465) calendar days from the date of Notice to Proceed.

SMALL BUSINESS ENTERPRISE PROGRAM:

It is Maricopa County's policy to endeavor to ensure in every way possible that small business participation firms shall have the opportunity to provide professional services, materials, and contractual services to the County in a nondiscriminatory manner.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Paper Plans and Construction Documents for the cost of \$310.00 or **CD of Plans and paper Construction Documents (Optional) for the cost of \$24.50* may be obtained from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 upon payment by cash, check, or postal money order payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. Mail orders for project documents must include an additional \$18.50 for first class U.S. postage and handling. The first class U.S. postage and handling will not be refunded. Bid documents are refundable if returned to the District in good condition within **ten (10) calendar days** after the bid opening. **NOTE: Regardless of circumstances, we cannot guarantee mail delivery.**

***WARNING:** The CD option is for bidding purposes only. The construction of this project will be built in accordance with the paper Plans and Specifications.

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 ten 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
642,496	CY	Channel Excavation
46,466	CY	Basin Excavation
22,366	CY	3" Plain Dumped Riprap
270	CY	Concrete for 4-10' X 5' Box Culvert
335	CY	Stage Stop Basin Concrete Weir
130	AC	Native Seeding

BID

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

Gentlemen:

The following Bid is made for Contract **FCD 2004C074, Sonoqui Wash Channelization**, in the County of Maricopa, State of Arizona.

The following Bid is made on behalf of

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 four hundred sixty-five (465) 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 _____

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

BID SCHEDULE

PROJECT NAME: Sonoqui Wash Channelization Project		PROJECT CONTROL NO. 480.04.31 CONTRACT NO. 2004C074			
		UNIT	QTY	UNIT COST	EXTENDED AMOUNT
105-01	PARTNERING ALLOWANCE	LS	1	\$25,000	\$25,000
105-02	UNFORESEEN UTILITY SERVICE LINE RELOCATION ALLOWANCE	LS	1	\$20,000	\$20,000
107-01	AZPDES / SWPPP PERMITS	LS	1		
107-02	PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE	LS	1	\$35,000	\$35,000
107-03	PROJECT SIGNS ALLOWANCE	LS	1	\$10,000	\$10,000
107-04	WATER MANAGEMENT	LS	1		
201-01	CLEARING AND GRUBBING	AC	130		
202-01	MOBILIZATION	LS	1		
215-01	CHANNEL GRADING	CY	642496		
215-02	LANDSCAPED EARTH BERM GRADING	CY	40328		
215-03	BASIN GRADING	CY	46466		
215-04	MISCELLANEOUS GRADING	CY	18715		
216-01	STAGE STOP BASIN GEOTEXTILE BARRIER	LF	1115		
220-01	PLAIN DUMPED RIPRAP, D50=3"	CY	22366		
220-02	PLAIN DUMPED RIPRAP, D50=6"	CY	902		
220-03	PLAIN DUMPED RIPRAP, D50=12"	CY	2852		
220-04	GROUTED RIPRAP, D50=6"	CY	318		
220-05	GROUTED RIPRAP, D50=12"	CY	1382		
310-01	12" ABC UNTREATED BASE	SY	3301		
310-02	10" ABC UNTREATED BASE	SY	6315		
310-03	9" ABC UNTREATED BASE	SY	2640		
310-04	4" ABC UNTREATED BASE	SY	11255		
321-01	4" AC PAVEMENT	SY	3436		
321-02	3" AC PAVEMENT	SY	6599		
321-03	2" AC PAVEMENT	SY	13708		
336-01	RECONSTRUCT PRIVATE GRAVEL DRIVEWAYS	EA	5		

350-01	NON-INERT MATERIAL REMOVAL	CY	2783		
350-02	INERT MATERIAL REMOVAL	TON	1000		
350-03	TIRE REMOVAL	TON	40		
350-04	SPECIAL SOIL REMOVAL ALLOWANCE	LS	1		
350-05	UTILITY, PIPE REMOVAL	LF	4674		
350-06	ASPHALT PAVEMENT REMOVAL	SY	12775		
350-07	CURB AND GUTTER REMOVAL	LF	285		
350-08	EXISTING IMPROVEMENT REMOVAL	LS	1		
350-09	STAGE STOP SIGN RELOCATION	LS	1		
350-10	REMOVE AND SALVAGE TRAFFIC SIGNS	LS	1		
401-01	TRAFFIC CONTROL	LS	1		
401-02	OFF-DUTY UNIFORMED OFFICER	MH	500		
405-01	SURVEY MONUMENT, M.A.G. DET 120, TYPE "C"	EA	1		
430-01	NATIVE SEEDING	AC	130		
460-01	REMOVE THERMOPLASTIC STRIPE	LF	600		
462-01	100 mm (4") WHITE THERMOPLASTIC TRAFFIC STRIPE	LF	10,125		
462-02	100 mm (4") YELLOW THERMOPLASTIC TRAFFIC STRIPE	LF	9,069		
463-01	REFLECTORIZED RAISED PAVMT MARKER (TYPE D, YELLOW 2-WAY)	EA	358		
463-02	REFLECTORIZED RAISED PAVMT MARKER (TYPE G, CLEAR 1-WAY)	EA	123		
463-03	REFLECTORIZED RAISED PAVMT MARKER (TYPE H, YELLOW 1-WAY)	EA	35		
464-01	PERFORATED SIGN POST	LF	190		
464-02	PERFORATED SIGN POST FOUNDATION, MCDOT DET 2058	EA	17		
465-01	FLAT SHEET ALUMINUM SIGN PANEL, ENGINEERING GRADE	SF	160		
465-02	BARRICADE (TYPE III) (MCDOT DETAIL 2057A)	EA	6		
505-01	STAGE STOP BASIN CONCRETE WEIR	CY	335		
505-02	DROP STRUCTURE CUTOFF WALLS	CY	211		
505-03	DROP INLET AND HEADWALL	EA	6		
505-04	WINGWALL PER ADOT STD DWG B-08.10, TYPE B WING, "L"=24'	CY	61		
505-05	4-10'x5' BOX CULVERT, ADOT STD DET B-02.40	CY	270		
505-06	M.A.G. HEADWALL, 501-1, 501-2 "U" TYPE	EA	3		
505-07	STANDPIPE	CY	14		
505-08	CONCRETE CUT-OFF WALL, M.A.G. STD DET 552	EA	2		
505-09	STAGE STOP BASIN OUTLET PIPE HEADWALL	EA	2		
505-10	LOCAL INFLOW STRUCTURE CUTOFF WALL	EA	6		

515-01	BOLLARD	EA	30		
520-01	HANDRAIL	LF	297		
610-01	6" WATERLINE RELOCATION	LF	1,215		
610-02	8" WATERLINE RELOCATION	LF	956		
610-03	12" WATERLINE RELOCATION	LF	472		
610-04	16" WATERLINE RELOCATION	LF	405		
615-01	4" DUCTILE IRON FORCE MAIN	LF	191		
615-02	18" PVC SEWERLINE	LF	110		
615-03	18" DUCTILE IRON SEWER LINE POLYETHYLENE ENCASED PIPE	LF	487		
615-04	5' DIAMATER SEWER MANHOLE, MAG STD. DFL. 420	EA	2		
615-05	5' STUB MODIFIED	EA	1		
618-01	12" PVC PIPE	LF	814		
618-02	15" PVC PIPE	LF	249		
618-03	18" PVC PIPE	LF	380		
618-04	24" HDPE PIPE	LF	805		
618-05	24" RGRCP	LF	434		
TOTAL BID AMOUNT IN WRITTEN NUMBERS:					
TOTAL BID AMOUNT IN WRITTEN WORDS:					
SUBMITTING FIRM (Please Print):					

IF BY AN INDIVIDUAL:

By: _____
(Printed Name) (Title) (Address)

(Signature) (Date) (Telephone Number) (Fax Number)

(e-mail address)

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

(Firm Name) (Firm Address)

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

(e-mail address)

**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) (Fax Number)
By: _____
(Signature) (Date) (e-mail address)

*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 enterprises 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 (hereinafter called the Obligee), in the sum of **ten percent (10%)** of the total amount of the bid of Principal, submitted by him to the Obligee, 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 themselves, their 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 2004C074, Sonoqui Wash Channelization.**

NOW, THEREFORE, if the Obligee accepts the proposal of the Principal and the Principal enters into a contract with the Obligee 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 the Bonds and Certificates of Insurance, if the Principal pays the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee 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 provisions 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 _____, A.D., 200 ____.

Agent of Record, State of Arizona	Principal
Agent Address and Phone Number:	By:
_____	(Printed Name)
_____	(Signature)
_____	(Title)
_____	Surety Name
Bond Number: _____	By:
_____	(Printed Name)
_____	By:
_____	(Signature)
ATTACH SURETY POWER OF ATTORNEY	(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 2004C074 for Sonoqui Wash Channelization, 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 Arizona Revised Statutes, Title 34, Chapter 2, 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: _____

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 Owner, a project for the Flood Control District of Maricopa County, designated as **Contract FCD 2004C074, Sonoqui Wash Channelization**, 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 85009, 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 Documents, i.e., Invitation to Bid, Plans, Standard Specifications and Details, Supplementary General Conditions, Special Provisions, Addenda, if any, Proposal, Affidavits, Performance Bond, Payment Bond, Indemnification, Insurance Requirements, 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 four hundred twenty (420) calendar days following notice to proceed. An additional forty-five (45) calendar days is provided in the contract *solely* for the SEEDING ESTABLISHMENT period. This results in a total contract duration of **four hundred sixty-five (465) calendar days**.

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.

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 – ANTI-DISCRIMINATION PROVISION: The Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, gender, age, disability, or national origin 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.

FIRM NAME

Party of the First Part

Signature

Printed Name of Signatory

Title of Signatory

Date of Signing

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 Obligee, dated the _____ day of _____, 200__ for the **Contract FCD 2004C074, Sonoqui Wash Channelization**, 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, of the 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 it was 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__.

Agent of Record, State of Arizona

Agent Address and Phone Number:

Bond Number: _____

ATTACH SURETY POWER OF ATTORNEY

Principal

Signature

By: _____
Printed Name

Title:

Surety Seal

Signature

By: _____
Printed Name

**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, (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 Obligee, dated the _____ day of _____, 200__ the **Contract FCD 2004C074, Sonoqui Wash Channelization**, 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, of the 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 extent as if it was copied at length in this agreement.

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

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

Agent of Record, State of Arizona

Agent Address and Phone Number:

Bond Number: _____

ATTACH SURETY POWER OF ATTORNEY

Principal

Signature

By: _____
Printed Name

Title: _____

Surety Seal

Signature

By: _____
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, Maricopa County, Town of Gilbert, Town of Queen Creek, Maricopa County Department of Transportation (MCDOT), 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 negligent acts, errors, omissions or mistakes relating to the performance of this Contract. The Contractor's duty to defend, indemnify, and hold harmless the Flood Control District of Maricopa County, Maricopa County, Town of Gilbert, Town of Queen Creek, Maricopa County Department of Transportation (MCDOT) ,and 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 negligent acts, errors, omissions, or mistakes in the performance of this Contract including any person for whose negligent 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.

INSURANCE REQUIREMENTS

The Contractor, at the Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance from a company or companies duly licensed by the State of Arizona and possessing a current A.M. Best, Inc. rating of B++6. In lieu of State of Arizona licensing, the stipulated insurance may be purchased from a company or companies, which are authorized to do business in the State of Arizona, provided that said insurance companies meet the approval of the Flood Control District of Maricopa County. The form of any insurance policies and forms must be acceptable to the Flood Control District of Maricopa County.

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 with the submittal of the Certificate of Performance. Failure to do so may, at the sole discretion of the Flood Control District of Maricopa County, constitute a material breach of this Contract.

The Contractor's insurance shall be primary insurance as respects the Flood Control District of Maricopa County and Maricopa County, and any insurance or self-insurance maintained by the Flood Control District of Maricopa County or Maricopa County 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 the Flood Control District of Maricopa County's right to coverage afforded under the insurance policies.

The insurance policies may provide coverage that 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 Flood Control District of Maricopa County under such policies. The Contractor shall be solely responsible for the deductible and/or self-insured retention and the Flood Control District of Maricopa County, 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 Flood Control District of Maricopa County 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 Flood Control District of Maricopa County shall not be obligated, however, to review such policies and/or endorsements or to advise the Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve the Contractor from, or be deemed a waiver of the Flood Control District of Maricopa County's right to insist on strict fulfillment of the Contractor's obligations under this Contract.

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

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

REQUIRED COVERAGES

Commercial General Liability.

Commercial General Liability insurance and, when necessary, Commercial Umbrella insurance with a limit of not less than \$1,000,000 for each occurrence, \$2,000,000 Products/Completed Operations Aggregate, and \$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, and shall not contain any provision that would serve to limit third party action over claims. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.

Automobile Liability.

Commercial/Business Automobile Liability insurance and, if necessary, Commercial Umbrella insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence with respect to any of the Contractor's owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor's work or services under this Contract.

Workers' Compensation.

Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of the Contractor's employees engaged in the performance of the work or services under this Contract; and 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.

The Contractor waives all rights against the Flood Control District of Maricopa County, Maricopa County, and their agents, officers, directors, and employees for recovery of damages to the extent these damages are covered by the Workers' Compensation and Employer's Liability or commercial umbrella liability insurance obtained by the Contractor pursuant to this contract.

Builder's Risk (Property) Insurance.

The Contractor shall purchase and maintain, on a replacement cost basis, Builders' Risk insurance and, when necessary, Commercial Umbrella 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 the submittal of the Certificate of Performance and final payment has been made or until no person or entity other than the Flood Control District of Maricopa County has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include the interests of the Flood Control District of Maricopa County, 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 Flood Control District of Maricopa County. 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 a special 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 the Contractor's control and/or responsibility, and continue without interruption during construction, renovation, installation, landscape/plant maintenance period, 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.

If the Contract requires testing of equipment or other similar operations, at the option of the Flood Control District of Maricopa County, 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, the Contractor shall furnish the Flood Control District of Maricopa County with Certificates of Insurance in a form acceptable to the Flood Control District of Maricopa County, or formal endorsements as required by the Contract in the form provided by the Flood Control District of Maricopa County, issued by the Contractor's insurer(s), as evidence that policies providing the required coverage's, conditions, and limits required by this Contract are in full force and effect. Such certificates shall identify this contract number and contract 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 Flood Control District of Maricopa County fifteen (15) days prior to the expiration date.

Cancellation and Expiration Notice

Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to the Flood Control District of Maricopa County.

**Flood Control District of Maricopa County
CERTIFICATE OF INSURANCE**

CONTRACT FCD 2004C074

PROJECT TITLE: Sonoqui Wash Channelization

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

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	
	GENERAL LIABILITY: <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> : Claims Made <input type="checkbox"/> : Occur <input checked="" type="checkbox"/> : PREMISES OPERATIONS <input checked="" type="checkbox"/> : BLANKET CONTRACTURAL <input checked="" type="checkbox"/> : BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> : PERSONAL INJURY <input checked="" type="checkbox"/> : PRODUCTS AND COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> : XCU HAZARDS <input checked="" type="checkbox"/> : INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> : OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY				GENERAL AGGREGATE PRODUCTS/COMPLETED OPERATIONS AGGREGATE EACH OCCURRENCE	\$2,000,000 \$2,000,000 \$1,000,000
	AUTOMOBILE LIABILITY: <input checked="" type="checkbox"/> : ANY AUTO <input checked="" type="checkbox"/> : ALL OWNED AND NON-OWNED AUTOS				Combined Single Limit Bodily Injury Property Damage Per person/Per accident	\$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000
	<input type="checkbox"/> : EXCESS LIABILITY <input type="checkbox"/> : Umbrella Form <input type="checkbox"/> : Other than Umbrella Form				Each occurrence Aggregate	\$ \$
	<input checked="" type="checkbox"/> : WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY LIMITS AND EMPLOYER'S LIABILITY: EACH ACCIDENT DISEASE: EACH EMPLOYEE DISEASE: POLICY LIMIT	\$1,000,000 \$1,000,000 \$1,000,000
	<input checked="" type="checkbox"/> : BUILDERS' RISK ALL-RISK FORM				REPLACEMENT COSTS	
	<input checked="" type="checkbox"/> : OTHER:	Except for Workers' Compensation and Professional Liability Insurance, the Flood Control District of Maricopa County, Maricopa County, Town of Gilbert, Town of Queen Creek, Maricopa County Department of Transportation (MCDOT), their agents, representatives, officers, Directors, Officials, and employees are named as Additional Insured's.				

Except for Workers' Compensation and Professional Liability Insurance, the Flood Control District of Maricopa County (District), Maricopa County, Town of Gilbert, Town of Queen Creek, Maricopa County Department of Transportation (MCDOT), AND their agents, representatives, officers, Directors, Officials, and employees are named 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 District. To the extent provided in this, insured shall hold harmless the District 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 the District, 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
--	---

**CERTIFICATE OF PERFORMANCE
OF CONSTRUCTION CONTRACT AND PAYMENT OF ALL CLAIMS**

_____ hereby certifies to the Flood Control District of Maricopa
(Name of Signer)

County (District) that all lawful claims for labor, rental of equipment, material used, and any other claims by _____ (Firm) or its subcontractors and suppliers in connection with performance on **FCD 2004C074** for **Sonoqui Wash Channelization** have been duly discharged as required by Arizona Revised Statutes, Section 34-221 and Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction (MAG), Section 109.7.

(Firm) understands that with receipt of payment for previously invoiced amounts plus any retained funds and/or release of escrow funds, that this is a settlement of all claims of every nature and kind against the District arising out of the performance of the District's Contract **FCD 2004C074** relating to the material, equipment, and work covered in and required by this contract.

The undersigned hereby certifies that to his/her knowledge no contractual disputes exist in regard to this contract, and that he/she has no knowledge of any pending or potential claim in regard to this contract.

Upon submission of this Certificate of Performance and an invoice for any applicable retained funds, the District will process final payment and release applicable escrow funds in accordance with the Contract and MAG requirements.

State of Arizona)
)§
County of Maricopa)

Signed this _____ day of _____, 200__.

Signature

Title

SUBSCRIBED AND SWORN TO before me this _____ day of _____, 200__.

Notary Public

My Commission Expires: _____



SUPPLEMENTARY GENERAL CONDITIONS

FCD CONTRACT NO. 2004C074

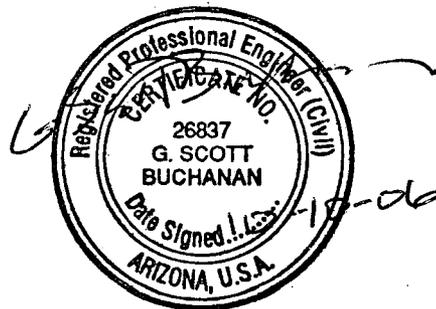
SONOQUI WASH CHANNELIZATION

QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD

PCN 480.04.31

Prepared by:

Stanley Consultants Inc.
1661 East Camelback Road – Suite 400
Phoenix, Arizona 85016
602-333-2200



SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS

Except as otherwise amended in these Supplementary General Conditions (SGCs) and the Construction Special Provisions (SPs), this project shall be constructed in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, dated 1998 including all revisions through 2005, and the Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction 2000 edition.

PRECEDENCE OF CONSTRUCTION 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 Construction Documents, the order of precedence shall be a) Addendum to the Invitation for Bids, b) the Contract Agreement, c) Supplementary General Conditions, d) Special Provisions, e) Project Plans, f) MAG Uniform Standard Specifications and Uniform Standard Details g) ADOT Standard Specifications for Road and Bridge Construction.

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 Board of Directors of the Flood Control District of Maricopa County.
- 3) Add to the definition of the phrase "Construction Documents," the phrase "Supplementary General Conditions."
- 4) Change the definition of the term "Engineer" to being the person appointed by the Board of Directors of the Flood Control District of Maricopa County 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 Division Manager of Planning and Project Management Division of the Flood Control District of Maricopa County.
- 5) Change the definition for the phrase "Notice of Award" to: a letter from the Flood Control District of Maricopa County advising Contractor that they are the successful bidder and the Flood Control District of Maricopa County has accepted their proposal.
- 6) Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through its legally constituted officials, officers, or employees.
- 7) Whenever the word "District" is used in these Specifications, it shall mean the Flood Control District of Maricopa County.
- 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 Plans, Special Provisions, and Site of Work:

Add the following:

The soil boring logs are included in the geotechnical reports, which are provided in Appendix A of the Special Provisions. Contractors are highly encouraged to review the reports prior to submitting their bids.

Existing moisture conditions shall be no basis for claim for additional money 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.

The Phase 1 and Limited Phase 2 Environmental Site Assessment report for the Stage Stop Basin parcel (Slechta Property), dated October 20, 2004, prepared by Speyer and Associates, is available at the District for the Contractor to review. The Stage Stop Basin is located at northeast corner of Chandler Heights Road and Sossaman Road.

Subsection 102.5 - Preparation of Proposal:

Add the following:

Proposals, 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 will govern.

It shall be the responsibility of prospective bidders to determine, prior to submission of a bid, if the Flood Control District of Maricopa County has issued any project addenda. This may be accomplished by calling 602-506-1501. Any addendum issued, if not already bound into the Special Provisions, **must 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 which do not have appropriate addenda attached and show appropriate changes to the Bidding Schedule, and receipt of addenda acknowledged in the Proposal shall 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.

Allowances as shown on the Bid Schedule shall cover the cost to the Contractor, and if applicable, delivered to the site, unloaded and handled on the site, labor, and installation costs. The Contractor's taxes, bonds, insurance, overhead, profit, and other expenses contemplated for the original Allowance amount shall be included in the Base Bid, and not in the Allowance. Whenever the costs are more than or less than the Allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize proportionate changes, if any, in handling costs on the site, labor, installation costs, taxes, bonds, insurance, overhead, profit, and other expenses. Contractor's monthly Application for Payment shall include supporting documentation of Allowance funds.

Subsection 102.6 - Subcontractors' List:

Add the following:

A list of subcontractors to be employed on the project shall be submitted with the bid, on the form provided in the Proposal. Following Notice of Award, no change of the subcontractors named therein will be made unless first approved in writing by the Owner.

Subsection 102.7 - Irregular Proposals:

Add the following:

- F) If the Maricopa County Minority and Women-Owned Business Enterprises Assurances Affidavit is not completed and submitted.
- G) If any addenda are not acknowledged and attached.
- H) If the Owner's bond forms are not utilized.

- I) If the entire book of Construction Documents (less the plans) is not returned.
- J) If the statement from the 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 the 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, and that it will execute the form of Certificate of Insurance included in the Construction Documents. 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, which 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) – Additional Insured:

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, the Contractor shall execute the Indemnification found in the Construction Documents.

Subsection 104.1 - Work to be Done:

Add the following 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.

All construction activities will occur in an area that is subject to flooding. Flows can occur at any time. The Contractor will remove all equipment from the construction area whenever flows could occur that would inundate the equipment or equipment storage areas. Protection from flooding of Contractor's equipment and construction items to be furnished by the Contractor is the Contractor's responsibility.

Principal construction features for the project include the following:

- Excavation of the Sonoqui Wash channel from just south of Chandler Heights Road to the Higley Road Bridge;
- Excavation of the Stage Stop detention basin at the northeast corner of Sossaman and Chandler Heights Roads.
- Finished grading, mounding and berming throughout the project adjacent to the channel;
- Continuous dumped riprap channel bank lining for the entire project;
- Concrete lateral weir structure for the Stage Stop Basin
- Five concrete and grouted riprap drop structures with dumped riprap aprons;
- Operation and maintenance (O&M) access road adjacent to and within the channel, including ramps;
- Roadway reconstruction of channel crossings at Recker Rd., Power Rd., Sossaman Farm Rd., Via Del Jardin, Sossaman Rd. and Chandler Heights Rd.;
- 4-barrel, 10' x 5' concrete box culvert at Recker Road;
- 3-24" HDPE culvert at Power Road;

- 3-24" RGRCP culvert at Sossaman Road;
- 3-24" HDPE culvert at Chandler Heights Road; and
- Various utility line and irrigation line relocations and replacements throughout the project.

Disposing of excavation material will be critical to minimizing the cost of construction. Given the future and active planned development activities in the area, there are likely property owners who may want some of the excavated material from the project. Parties who have expressed a possible interest in obtaining some of the excavated material are:

Organization	Name	Phone
Shamrock Estates Subdivision	Luis Romero (Project Engineer)	480-945-1400
Marbella Vineyards Subdivision	Jill Lewis (Project Engineer)	602-522-4731
Trilogy Subdivision	Wayne Dames (Project Engineer)	602-460-0885
Bridges at Gilbert Subdivision	Warren Russell (Project Engineer)	602-606-5760 (AZ) 817-429-4373 (TX)
Maricopa County Solid Waste Department	Brad White	602-525-6491
Vacquero Estates Subdivision	Michael Delmarter (Project Engineer)	602-944-5500
Sossaman Estates Development	Steve Sossaman (Owner)	480-987-9670

Maricopa County Solid Waste Department may be interested in receiving up to 200,000 CY of dirt for their landfill located at Hawes Road and Riggs Road intersection. The dirt needs to be delivered to the site but, does not need to be spread or compacted by the Contractor.

All utilities near the site are to be protected in-place. All existing water and sewer lines in the project area will be maintained in operating condition during construction, except for brief periods of time if needed for relocations and as approved of by the utility owner.

The design of the Sonoqui Wash channel is illustrated on the geometric layout, typical channel sections, channel plan and profile and grading plan sheets for this project. The top-of-channel bank and channel flow line are located by means of station and elevation coordinates along the channel construction line (centerline) shown in the plan and profile sheets. The plan and profile sheets for the channel show the layout measured from the channel centerline. In addition, channel cross-section geometry along the alignment is determined from typical channel section.

The channel and grading plan sheets show the design grade for the channel and the finished landscaped earth berm grading using contours, spot elevations, cut and fill limits and northing, easting and elevation coordinates shown on the grading plan sheets.

The Contractor must protect the existing block wall along the north side of the project rights-of-way from Sta. 75+00 to Sta. 113+00.

Between Sta. 75+00 to Sta. 113+00, the channel has been excavated to rough grade. However, the north slope of the channel will require some placement of fill material and re-grading including final adjustment of the top of bank line, and the south side slope will require additional excavation and final grading, both of these activities being necessary to achieve the final line and grade for the channel. The channel bank

lining will also be required within this portion of the channel along with any necessary grade control as shown on the plans. The bid quantities for excavation have not been adjusted for this advance excavation performed by the developer. Appropriate quantity adjustments will be made during construction.

The Contractor will be required to coordinate all the construction between Sta. 113+0 to Sta. 165+00, with Mr. Steven Sossaman at 480-987-9670. The property owner intends to continue farming his property along both sides of the channel while the channel is being constructed. The Contractor will be responsible to avoid any damage to the farm activities and associated crops. The Contractor will ensure that his crews and/or any construction equipment/vehicles stay within the rights-of-way and allocated temporary construction easements all the times. Any damage caused by the Contractor's equipment/vehicle to existing crops will be paid for by the Contractor and at no cost to the Owner.

Any stockpiles of excavated spoil material shall not block any part of the existing or future channel conveyance areas.

There are several tail water ditches located along each side of Sonoqui Wash between Sta. 102+00 and Sta. 165+00. In accordance with the plans the Contractor will reconstruct these ditches, and the location of the reconstructed ditches may need to be field adjusted per property owners request. The Contractor will coordinate with the property owner, Mr. Steven Sossaman to properly locate and construct these tail water connections.

The Project may be subject to local flooding due to tail water discharges into Sonoqui Wash. The Contractor may coordinate with the property owner in an attempt to regulate the discharge from tail water pipes. No additional payment will be made to the Contractor due to any flooding damages from storm water or irrigation tail water.

Queen Creek Irrigation District has a 40' easement along the west side of Power Road where an existing delivery pipe runs north to south. The Contractor will be responsible for constructing a concrete standpipe structure on each side of the channel and constructing an inverted siphon under the channel as shown on the plans. A representative from Queen Creek Irrigation District will be involved during the construction process. The construction of the standpipes and siphon will have to be completed to the satisfaction of the Queen Creek Irrigation District, and the Contractor will obtain their final approval and acceptance of these structures.

The Contractor will be responsible for removing all of the existing roadway traffic signs and re-installing traffic signs once the roadway reconstruction is completed. Power Road and Via Del Jardin are within the Town of Queen Creek jurisdictions and the Town's inspector will be inspecting the roadway construction, any detours and traffic signage. Sossaman Road and Chandler Heights Roads are within Maricopa County jurisdiction and the County's inspector will be inspecting the roadway construction, any detours and traffic signage. Recker Road is within the Town of Gilbert jurisdiction and the Town's inspector will be inspecting the roadway construction, any detours and traffic signage.

The construction between Sta. 167+00 to Sta. 198+00 will be within an existing subdivision with horse properties. Along both sides of the wash, fences, horse corrals, pipe rail fences and other types of fences demarcate the private and public properties. The Contractor shall stay within the rights-of-way defined in the project plans. Any damage to the existing improvements within the private property caused by the Contractor will be repaired and/or replaced in-kind by the Contractor at no cost to the project. Adjacent property owners may be interested in receiving soil excavated from the project. It is up to the Contractor to discuss this with the individual property owners and to make arrangements accordingly. In any case, no soil will be permitted to be stockpiled anywhere within the wash. It will be extremely important to keep the wash conveyance area open all the times to not cause any damming or berming of the flow.

The existing wash within the Ranchos Jardines subdivision area is heavily utilized for equestrian use. The Contractor will fence or otherwise preclude public access to this area while construction is underway within this reach of the project.

Dust control and noise will be of great concern to the adjacent neighborhoods. The Contractor shall take extreme care while excavating and transporting material and shall minimize dust. The Contractor will take all necessary steps to avoid excessive noise, and will abide by all local jurisdiction requirements for allowable working hours. Night work will not be allowed within the Ranchos Jardines subdivision and other residential areas.

The Contractor shall not disturb any part of the existing historical site called "Historical Stage Stop Site" adjacent to Stage Stop Basin site. The site is surrounded by a chain link fence, and it shall be protected-in-place.

At the time of preparation of these specifications it was anticipated that the Maricopa County Department of Transportation (MCDOT) would begin construction of a bridge on Chandler Heights Road at Sonoqui Wash between January and August of 2007. Such work would include construction of the Sonoqui Wash Channel improvements under the bridge and 150' upstream and downstream.

The Sonoqui Wash Channelization plans and specifications include the construction of dip crossing improvements to Chandler Heights Road. The Contractor will not be permitted to begin construction of improvements at Chandler Heights Road until such time as a final determination has been made to MCDOT's timing of construction of the bridge. If the bridge improvements begin prior to the scheduled completion of the Sonoqui Wash Channelization project, then the dip crossing improvements will not be constructed and a reduction and adjustment in bid quantities will be made to the following bid items, with no penalty to the Owner: Item 220-02, 336-01, 350-06, 310-02, 321-02 and 618-04. For the approximate quantity of each of these bid items, see design plan sheets C24, C58, and C62

If the dip crossing is not constructed as part of the project, then the channel improvements will be made up to the north and south right-of-way limits for Chandler Heights Road, approximately between Sta. 219+80 upstream and Sta. 218+44 downstream of the bridge. The bridge Contractor will complete the channel improvements between these limits through the bridge.

The Stage Stop Basin grading plans (Sheet C45, C46, C47, C48 and C49) are currently being revised by Town of Queen Creek. The overall (basin configuration) storage volume will not be modified so, the excavation and embankment volumes will not be significantly changed. The above listed revised sheets will be issued to the selected Contractor at the Pre-Construction Meeting. Quantity adjustments to the appropriate bid items that may be necessary will be made during construction.

The 6" waterline relocation at Chandler Heights Road will be accomplished by either the bridge Contractor as part of the bridge construction, or by this project Contractor as part of construction of the dip crossing, whichever is the first to occur. If the bridge improvements begin prior to the scheduled completion of the Sonoqui Wash Channelization project, then the 6" waterline will not be constructed per the Sonoqui Wash plans and a reduction and adjustment in bid quantities will be made to the bid item 610-01, with no penalty to the Owner.

The Contractor will be expected to coordinate with the Town of Gilbert and the Town of Queen Creek regarding any and all permit requirements, special events, road closures, water and sewer line shutdowns, and other construction related items.

The operation and maintenance (O&M) access road and ramps are located using a series of station and elevation coordinates based on the channel construction control line, as well as northing, easting and

elevation coordinates. No road curve data is given, but the intent is to construct the road using continuous curves between coordinate points.

Electronic MicroStation (.dgn) CADD files of the project will be provided to the selected Contractor for his use in layout of the channel top-of-bank, toe of slope and flow line. The files can also be used in developing additional layout information for the Stage Stop detention basin, mounds and berms and the O&M roads. The Contractor will layout the channel to achieve the proper alignment as indicated on the plans by creating smooth curvilinear transitions from point to point as required on the plans. The electronic files provide the Contractor with additional curve and point data to facilitate such a layout of the earth features of this project. MicroStation and InRoads or SelectCAD computer software and experience are required to use these electronic CADD files. The information provided on the plans will control over the electronic files should there be any discrepancy between the two.

Burrowing Owls:

Burrowing owls have been observed inhabiting and nesting in the Project area. Burrowing owls are protected under the federal Migratory Bird Act, therefore it is illegal to harm, harass, pursue, take, capture, or kill any migratory bird, nest, or egg. The District will make its best effort to relocate the owls out of the Project area prior to commencement of the Contract, but some may remain and/or return to their burrows and nesting areas. The District has contracted with Bob Fox, a wildlife rehabilitation specialist, to relocate the owls. The Contractor shall keep Bob Fox and the Engineer apprised of the Project schedule and notify them two (2) weeks prior to commencing excavation, backfilling or stockpiling of material in a new Project area, so that Bob Fox can survey for owls and relocate any that remain, to avoid injuring and disturbing the owls because of the construction activities. If the Contractor discovers a burrowing owl habitat or owl(s) during construction, he shall stop construction immediately without disturbing the habitat or owl(s), and notify the Engineer and Bob Fox. **Bob Fox can be reached at (480) 595-5047.**

Inspection and Testing:

The Contractor will be responsible for all quality control for the project and will provide the Engineer with copies of the results of all tests performed by the Contractor Quality Control. The Owner and Engineer will provide quality assurance for the project.

Quality control refers to those actions taken by the Contractor, and those parties charged with the procurement and installation of manufactured materials, and the placement and compaction of the soil materials, which provide a means to determine and sometimes quantify the characteristics of the product. The results of a quality control program are compared to the Special Provisions of other contractual or regulatory requirements. During each aspect of the handling of these materials, quality control is provided by the manufacturer, fabricator, or installer of the materials, or the supplier and earthworks contractor for the soils, to ensure that the materials and workmanship conform to the plans and Special Provisions. The Contractor and his suppliers and manufacturers retain quality control responsibility.

Quality assurance is a planned and systematic pattern of all means and actions intended to provide adequate confidence that the materials and procedures conform to the plans and Special Provisions, and any applicable regulatory requirements. The Owner, or their designated representative provides quality assurance.

Subsection 104.2.3 Changes:

Add the following:

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 (2) working 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:

Add the following:

Cost Estimate 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 and operator rates for rented or owned equipment, material trucking expenses and other costs clearly identified and directly allocable to contract performance. Material costs shall be itemized by item description, quantity 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 will result in a change order being unilaterally priced at the Owner's fair estimated price.

Add the Following Section:

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 subcontractors' 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. An Engineer registered in the State of Arizona shall seal each drawing sheet and at least the content sheet of the calculations.
- 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 Owner will determine the final cost.
- 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 fifteen (15) calendar days after receipt from the Contractor. If additional time is required, the Owner shall notify the Contractor within the fifteen (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 fifty percent (50%). The Contractor's share shall be the remaining fifty percent (50%).
- 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 the Engineer:

Add the following:

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

Subsection 105.2 – 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 Construction Documents, the Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to the Engineer. The Contractor shall submit sufficient information to allow the Engineer, in the Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Construction 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 the Partnering Allowance 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 105-01 – PARTNERING ALLOWANCE

Add the following:

105.5.2 – Pre-Construction Meeting

After award of the contract, a pre-construction meeting shall be scheduled at a location and time (prior to mobilization and start of construction) to be agreed upon between the Owner and the Contractor. The Contractor shall make all necessary arrangements to have key 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) Material data safety sheets | 9) Signing authority letter |
| 2) Manufacturers certificates for all materials | 10) Name and telephone number of the certified safety professional |
| 3) Shop drawings | 11) Any other documents specified in the SGC's and SP's |
| 4) Preliminary survey layout, staking and excavation plans | 12) Preliminary copies of the NOI and SWPP per subsection 107.2.1 |
| 5) Preliminary work schedule/ sequence of construction | 13) Estimated billing schedule/monthly |
| 6) Preliminary water management plan | 14) Contractor bid item cost breakdown as noted in the Special Provisions |
| 7) Preliminary traffic control plan | |
| 8) Emergency telephone numbers | |

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 forty-eight (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.

Add the following:

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 key 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 accepted construction schedule and the Contractor's short range construction activities as provided on his two-(2) 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 forty-eight (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 105.6 - 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. No underground or overhead utilities are identified as being in conflict with the project. 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 Contractor shall ensure that utility interruptions are kept to a minimum. The Contractor shall notify the Engineer and affected landowners of utility interruptions at least two (2) days in advance of any interruptions, and Contractor shall ensure all utilities are connected and operable by the end of the workday that the interruption occurs.

It may be necessary for some of the water lines to be relocated to avoid conflict with the construction. All existing water lines in the Project limits will be maintained in operating condition during construction, except for brief periods of time if needed for relocations. The Contractor shall obtain all permits needed for water line relocations.

An allowance bid item has been provided for any unforeseen utility service line relocations. Payment for any unforeseen utility service line relocations will be made on an actual cost basis as approved by the Engineer, for a total amount not to exceed the amount shown in the bid schedule for the item including any permit costs and will be authorized for use only by the Engineer with advance written approval.

ITEM 105-02 UNFORESEEN UTILITY SERVICE LINE RELOCATION ALLOWANCE

The Contractor should contact the following utility operation personnel:

Salt River Project	
Greg Wilson, Distribution	602-236-8643
Jim Wood, Distribuiton	602-236-0418
Brent Bornmann, Transmission	602-236-8073
Steven Lopez, Civil Engineer	602-236-3786
Daryl Smith, Project Leader	602-236-8007
Cathy Semmelmann, Electric and Irrigation	602-236-2752
Town of Gilbert	
Mark Weiner, Utility Coordinator	480-503-6848
Town of Queen Creek	
Tom Condit, Engineer	480-503-6842
Jan Martin, Sewer	480-987-9887
Queen Creek Water Company	
Paul Gardner, Utility Coordinator	480-987-3240
Mike Johnson, Water and Irrigation	480-987-3240
Queen Creek Irrigation District	
Dean Griffith	480-987-3002
Chandler Heights Irrigation District	
Pat Fulks	480-988-2869
San Tan Irrigation District	
Roger Agnes	480-988-3385
Rancho Jardines Irrigation District	
Mike Jankovsky	480-987-0707
Roosevelt Water Conservation District	480-988-9589
Southwest Gas	
Gene Florez	602-484-5302
QWEST	
Al Soto, Fiber Optic and Cable TV	602-630-3706

At all times during construction, the Contractor shall comply with all laws, ordinances, rules, regulations, and safety requirements, including, but not limited to, the National Electric Safety Code and the Occupational Safety and Health Standards for General Industry when working in the vicinity of utilities.

Note: The cost for the repair of any damages to utilities, and any loss of revenues due to the loss of service of a utility that is in any way caused by the Contractor's actions shall be the sole responsibility of the Contractor at no cost to the project.

Higley Road Crossing at Sonoqui Wash:

The Town of Gilbert is constructing a bridge at this location. The Town will be in-charge of relocating all of the utilities within this area. The Town is also installing a 30" waterline, a 16" waterline and an 18" reclaimed waterline along the east side of Higley Road. The Bridges at Gilbert development is also installing an 18" sewer line along the east side of Higley Road. These utilities will be buried at least 5' below the ultimate channel invert.

Town of Gilbert 16" Waterline:

There is an existing 16" waterline at Recker Road crossing Sonoqui Wash near approximately Sta. 75+10, which will require a vertical realignment. Town of Gilbert shall be contacted for shut downs, inspections and other coordination.

Southwest Gas:

There is a 4" natural gas line along Power Road west of the monument line that will require relocation. Southwest Gas will relocate the line prior to construction. The line will be lowered at least 5' below the channel invert. The Contractor shall use caution when working around the gas line.

SRP 12kv Distribution Lines:

There are several locations within the project vicinity where SRP 12kv lines either parallel or cross the alignment of the Sonoqui Wash. SRP will relocate their power poles and/or down guys that are in conflict with the project prior to construction. All remaining lines and poles will be protected-in-place. The Contractor shall be very cautious working around power poles and overhead lines. Any damage to the power poles, anchors and other items will be repaired and paid by the Contractor at no cost to the Owner.

At the time of the preparation of these SGC's SRP was proposing to construct a new 12kv line along Via Del Jardin either overhead or possibly underground. The line will be designed to avoid conflict with the Sonoqui Wash construction.

SRP 69kv Line:

SRP recently constructed a 69 kv power line that crosses the channel alignment at Recker Road and turns east and runs parallel to the channel up to Sta. 113+00 where it crosses the channel and continues to the east. The pole locations are not depicted on the plans but the centerline of the poles should be just outside the 200' channel rights-of-way. The pole foundations have been designed to accommodate the channel and mound grading near the poles. Poles are steel and are constructed around 400' to 450' on center.

Cox Communications:

There is an existing Cox Communication cable line along Power Road and along Sossaman Road, running north-south. The cable will be vertically re-aligned to go under the proposed channel and / or culvert pipes prior to start of construction.

Qwest:

There are multiple phone lines along Power Road and Sossaman Road, running north-south and at Chandler Heights Road, running east-west. In order to facilitate the crossing of the Sonoqui Wash, these lines will be relocated vertically below the channel and / or culvert pipes by Qwest prior to start of construction within this area.

Queen Creek Water Company:

There are 6", 8" and 12" waterlines that will require relocation to facilitate the new channel crossing. The waterlines will be relocated with this contract as noted on plans and in Special Provision Section 610.

The 6" waterline relocation at Chandler Heights Road will be accomplished by either the bridge Contractor as part of the bridge construction, or by this project Contractor as part of construction of the dip crossing, whichever is the first to occur. If the bridge improvements begin prior to the scheduled completion of the Sonoqui Wash Channelization project, then the 6" waterline will not be constructed per the Sonoqui Wash plans and a reduction and adjustment in bid quantities will be made to the bid item 610-01, with no penalty to the Owner.

Queen Creek Irrigation District:

Queen Creek Irrigation District (QCID) has a 40' easement along the west side of Power Road and has a 15" PVC irrigation delivery pipe crossing the channel. In order to construct the channel, the Contractor will relocate this line according to the plans and special provisions. The Contractor will coordinate with Mr. Dean Griffith at QCID to schedule the relocation between delivery schedules and/or best suitable time. This is an active line that delivers irrigation water to the south of Sonoqui Wash. The QCID has the right to discharge excess water into Sonoqui Wash. The Contractor should be aware that Sonoqui Wash is subject to flows by unscheduled excess irrigation water releases.

Sossaman Farm Private Irrigation:

Sossaman Farm has a private irrigation system crossing the Sonoqui Wash channel between Power Road and Via Del Jardin. In order to construct the channel, the Contractor will relocate this line according to the plans and special provisions. The Contractor will coordinate with Steve Sossaman to schedule the relocation between delivery schedules and/or best suitable time. This is an active line that delivers irrigation water to the south of Sonoqui Wash. Steve Sossaman has the right to discharge excess water into Sonoqui Wash. The Contractor should be aware that Sonoqui Wash is subject to flows by irrigation tail water.

Ranchos Jardines Irrigation District:

Ranchos Jardines Irrigation District (RJID) has a 12" PVC irrigation delivery pipe crossing along the west side of Sossaman Road. In order to construct the channel, the Contractor will relocate this line according to the plans and special provisions. The Contractor will coordinate with Mike Jankovsky at RJID to schedule the relocation between delivery schedules and/or best suitable time. This is an active line that delivers irrigation water to the south of Sonoqui Wash.

Private Tailwater Inflow Pipes and Ditches:

There are several private tailwater pipes and ditches within the project area. The channel historically accepts the tailwater from existing farms. New inlets are designed to capture and convey the flows into

the channel. The majority of these tail water inlets are located within Sossaman Farm property. The Contractor shall coordinate with Mr. Steve Sossaman regarding the timing of the reconstruction of the tailwater drains. The farm owner will be responsible for re-grading existing tailwater ditches to drain to the reconstructed inlets.

4' Sewer Force Main:

There is an existing 4" Town of Queen Creek sewer force main conveying raw sewage from south to north along the east side of Power Road. The Contractor will be required to construct the vertical and horizontal realignment of this line per the plans and Special Provisions in order to facilitate the channel construction. The line is owned and operated by Town of Queen Creek and serves the commercial / retail development at the southwest corner of Chandler Heights and Power Roads. Mr. Dick Schaner at the Town of Queen Creek will need to be contacted at least 7 days in advance of construction. The force main cannot be shut down for any extended period of time and construction may need to be restricted to off-business hours. The Contractor should notify the businesses and property owners served by the force main at least 48 hours in advance of any shut down.

Add the following:

Subsection 105.6.3 – Construction Water:

Construction water may be available from the following:

Town of Gilbert	
Mark Whiner, Utility Coordinator	480-503-6848
Queen Creek Water Company	
Paul Gardner, Utility Coordinator	480-987-3240
Mike Johnson, Water and Irrigation	480-987-3240
Roosevelt Water Conservation District	480-988-9589
Queen Creek Irrigation District	
Dean Griffith	480-987-3002
Ranchos Jardines Irrigation District	
Mike Jankovsky	480-987-0707

The cost for construction water from any source is considered incidental to the project. Any cost for installing meters, monthly service charges and water consumption rates will be the sole responsibility of the Contractor. No payment of any kind will be made for construction water. (See Special Provision Section 225 for more details)

The Contractor should be aware that the Town of Gilbert has experienced water pressure problems in the past and that this may be an issue. The Town of Gilbert may not allow the Contractor to tap into Town hydrants located within the project vicinity.

Subsection 105.7 – Cooperation Between Contractors:

Add the following:

The Contractor shall coordinate and cooperate with other contractors and subcontractors working in the Project area. There are capital improvement projects and private development projects that are going to be constructed in the immediate vicinity of the Project, during the same time period as the Project construction.

A separate contract will be bid for the Chandler Heights Road Bridge over Sonoqui Wash by the Maricopa County Department of Transportation. There will be some common rights-of-way and access issues that the Contractors will have to coordinate to minimize impacts to the project.

A separate contract will be bid for the Water Recharge Basin located at the northeast corner of Higley and Ocotillo Roads by the Town of Gilbert.

A separate contract was awarded to the Haydon Building Corp, for the Higley Road improvements project by the Town of Gilbert, which includes construction of the Higley Road Bridge over Sonoqui Wash and other improvements west of Higley Road. There may be some common rights-of-way and access issues that the Contractors will have to coordinate to minimize impacts to the project. The contact person is Mr. Marty DeMarse at (602) 296-1496.

A separate contract was awarded to Haydon Building Corp for the design and construction of Ocotillo Road from Higley Road to Recker Road. AZTEC Engineering is currently designing the roadway and it is anticipated to be under construction by March 2007. The contact person is Mr. Marty DeMarse at (602) 296-1496.

There may be several private developments such as Marbella Vineyards Phase II, Bridges at Gilbert, Trilogy at Power Ranch, Vacquero Estates, and Sossaman commercial / retail development (located at the southwest corner of Power and Ocotillo Roads) construction taking place at the same time as this Project. The Contractor should be aware of these other projects and is expected to coordinate accordingly with these and any other projects in the immediate vicinity to minimize impacts to this Project.

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 in the State of Arizona to the Engineer at the end of the project. Copies of the survey notes shall be submitted to the Engineer during construction as and when requested.
- D) Record Drawings shall be prepared by the Engineer of Record utilizing red-line working drawings maintained on the project site by the Contractor. The paper red-line working drawings shall be maintained by the Contractor in a current condition at all times, and updated at least weekly until completion of the work and shall be available for review by the Engineer and the Engineer of Record at all times. The final red-line working drawings shall be provided by the Contractor to the Engineer prior to project close out and prior to the final contract payment. Final contract payment may be delayed if it is found that the red-line working drawings are incomplete or inaccurate, and until appropriate corrections are made by the Contractor to the red-line working drawings.
- E) Prior to project close out and final payment, the Contractor will be required to provide to the Owner a sufficient "as-built" survey of the channel and Stage Stop Basin to confirm that the channel is adequately constructed and basin has adequate storage volume. Once the Owner reviews and determines the channel and basin are constructed adequately, the final payment will be released.

- F) The Contractor will be required to survey the existing channel from Sta. 75+00 (Recker Road) to Sta. 113+00 (where the Trilogy channel pre-excavation ends) and the Stage Stop Basin Parcel (located at the northeast corner of Sossaman Road and Chandler Heights Road), prior to construction to verify existing line and grade since there has been grading that has taken place at these locations subsequent to the Sonoqui Wash plans. The final earthwork quantities will be verified with this existing condition survey performed by the Contractor and final grades as shown on the plans.

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 Construction 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 such as, "equivalent", "or-equal" or "or eq" or no substitution is permitted. Other items of material or equipment from other suppliers or manufacturers 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 the 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 the Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in the 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 the 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. The Contractor shall submit sufficient information as provided below to allow the 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 the Engineer will include the following and may be supplemented in the Special Provisions. The Engineer may decide what is appropriate under the circumstances. The Engineer will not accept any requests from anyone other than the Contractor for review of proposed substitute items of material or equipment. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall first make written application to the 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 the 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 Construction Documents (or in the provisions of any other direct contract with the 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 the Engineer in evaluating the proposed substitute. The Engineer may require the Contractor to furnish additional data about the proposed substitute.

- C) Contractor's Expense: All data to be provided by the Contractor in support of any proposed "or-equal" or substitute item will be at the Contractor's expense.
- D) If the final placement of a product will remain the property of the municipality or utility 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 – Contractor's Marshaling Yards:

Add the following:

The Contractor shall obtain approval of the Engineer when using private 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 will monitor on a daily basis all activities within the Contractor Work Area (CWA), whether on District or private property, that may result in the leakage of oils, fuels, etc., which may contaminate soils, and promptly report any suspected leaks to the Engineer. The Contractor will be solely responsible at his cost to correct and clean up any such leakage or other related problems.

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.

The Contractor understands that use of District property, or private property, for a CWA is solely at his own risk. No compensation will be made to the Contractor for any damage to or loss of equipment and/or other valuables with the CWA.

The triangular shaped property located at the northwest corner of Higley Road and Ocotillo Road is owned by the District and can be used by the Contractor as a marshaling yard, if available, at no cost subject to the necessary approvals of the District's Land Division and subject to all of the terms and conditions as noted above.

Subsection 106.5.1 – Contractor Access:

Add the following:

The Contractor shall have rights to access those lands shown in the plans as being within the project boundary. Access generally will be at the section line roads along the project. The Contractor shall not use private property to access the project area without first obtaining written permission of the property owner, and providing evidence of such permission to the Engineer. Special care shall be taken within Sossaman Farms so as not to disturb the farming operation.

Subsection 107.2 - Permits:

Replace with the following:

The Contractor shall obtain all permits and licenses, including those required by the Towns of Gilbert and Queen Creek, State of Arizona, Maricopa County, U.S. Government, or any other local or federal agency,

and shall pay all charges, fees, taxes and provide all notices necessary and incidental to due and lawful prosecution of the work.

The Owner has applied for and obtained the necessary 404 Permit. Refer to Subsection 107.2.1 for required AZPDES permits. In particular the Contractor will obtain all necessary AZPDES and SWPPP permits as required and in accordance with subsection 107.2.1.

Subsection 107.2.1 - AZPDES Permit Requirements:

Add the following:

- A) This project is subject to the Arizona Pollutant Discharge Elimination System (AZPDES) storm water requirements for construction sites under the Arizona Department of Environmental Quality's (ADEQ's) 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 AZPDES 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 ADEQ, 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 ADEQ 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 AZPDES General Permit for Arizona, including certification of signatures.
 - 3) Notice of Termination (NOT) of coverage under AZPDES General Permit for Arizona.
- B) The Contractor shall submit the completed and duly signed NOI forms to ADEQ no later than seven (7) business days after the contract award. Proof of the submittal date must be provided to the Owner. If the work is within ¼ mile of an Impaired or Unique Water, the SWPPP needs to be submitted with the NOI to ADEQ. If the location is farther away than that, no SWPPP needs to be submitted to ADEQ but it still must be available on site. At the time of the preparation of these Supplementary General Conditions, the Sonoqui Wash and the East Maricopa Floodway were not considered by ADEQ to be an Impaired or Unique Water.
- C) When the discharge is to an Impaired or Unique Water or is in or near endangered species habitat as identified by ADEQ's smart NOI permitting system, applicants are not authorized under this permit for a minimum of thirty-two (32) business days following the receipt of the NOI and SWPPP. ADEQ may notify operators within this timeframe that there is cause for SWPPP amendment, or denial of coverage as specified in Parts 1.D.5 and 1.D.6. of the general permit. If notification is not received in the thirty-two (32) business day time-frame, the Contractor may assume coverage under this permit according to ADEQ requirements. Contractor must notify Owner of the status of the NOI prior to commencing work. The applicant shall submit the NOI (application) to:

Arizona Department of Environmental Quality
Water Permits Section/Stormwater NOI (5415B-3)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to (602) 771-4674

If the facility has the potential to discharge to a municipal separate storm sewer system (MS4), the applicant must also provide a copy of the completed NOI to the owner/operator of the MS4 system at the time it is submitted to the Department. The completed NOI will be provided to the Towns of Gilbert and Queen Creek.

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 and a copy of the general permit and SWPPP should be on-site at all times.

- D) Inspections of all storm water pollution control devices on the project shall be performed by Contractor every seven (7) days or at least once every fourteen (14) calendar days, and also within twenty-four (24) hours of the end of a storm event of 0.50 inches or greater as required under provisions of the AZPDES General Permit for Arizona. A reduced inspection frequency may be used provided the conditions in Part IV.H.2. of the general permit have been met. Contractor shall prepare reports on such inspections and retain the reports for a period of three (3) years after permit coverage expires or is terminated. 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) The 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 Arizona Department of Environmental Quality in connection with AZPDES Permitting requirements and laws and regulations pertaining to air, groundwater, and surface water quality.

Fines and penalties imposed by the ADEQ against Owner or the Contractor for Contractor's failure to comply with any of the requirements of AZPDES 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 Arizona Department of Environmental Quality at the address listed in Section (C) above, thereby terminating all AZPDES 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 AZPDES 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 the Contractor shall make no additional claims under any other specification provision of these documents, including Changed Conditions. Payment of fifty percent (50%) for this bid item shall be made at the beginning of the project, and the remaining payment made upon final completion and acceptance of the project, as per MAG 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. For appropriate guidance and forms as provided by ADEQ the Contractor should refer to the ADEQ website at: <http://www.adeq.state.az.us/environ/water/permits/stormwater.html#const>.

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

ITEM 107-01 – AZPDES / SWPPP 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. The Contractor shall prevent his employees from trespassing on, removing, or otherwise disturbing such resources.

There is a historical site called "Historical Stage Stop Site" adjacent to the project. This site is located at the northeast corner of Chandler Heights Road and Sossaman Road. The site is fenced and the Contractor shall not disturb this site and will keep all equipment and personnel out of this site.

Subsection 107.5 – Safety, Health & Sanitation Provisions:

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 107.5.3 - Compliance with the Arizona Communication Standard:

The Owner will provide the Contractor with Material Safety Data Sheets (MSDS) for any products known to exist on the site that are deemed to be health hazards. The Contractor will provide a copy of Owner-provided MSDS to all Subcontractors.

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

The Contractor will provide the 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 – Stage Stop Basin Excavation:

For excavation at the Stage Stop Basin, refer to Section 350 of the Special Provisions.

Subsection 107.6.3 - Public Information and Notification:

Add the following:

Informing the public on a regular basis of construction activities and associated disruptions and inconveniences will be extremely important on this project. 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 public information service shall have staff available for this project that are fluent in Spanish. Contractor shall work closely with his subcontractor in developing and carrying out the community relations program. 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:

- 1) Distributing a pre-construction information letter to all residents, businesses, etc. within one-half mile of the project site, in all directions. All printed materials must be in English and Spanish.
- 2) Printing and distribution of public notices and/or newsletters (at least monthly) as required or as directed by the Engineer. All printed materials must be in both English and Spanish.
- 3) All public involvement and information activities will be in accordance with the Owners "Public Involvement and Public Information Guidelines, Latest Edition", a copy of which can be obtained from the Flood Control District Public Involvement Office at 602-506-2983.

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, water and sewer service disruption, detour locations, haul route and material delivery routes, hours of construction and disruption of bus, trash, school bus and other delivery/pick-up routes.

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 phone number and maintain a twenty-four (24) hour answering service. The answering service must be fluent in both English and Spanish and 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 that 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 monthly; and maintaining a twenty-four-(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.

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 five percent (5%) 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 107-02 - PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE

Subsection 107.6.4 - Project Signs:

Add the following:

Contractor shall provide and install eight (8) project information signs, at locations to be determined by the Engineer, at the start of construction to inform the public of the forthcoming project, construction dates, and suggested alternate travel routes. At least four (4) of these signs shall be located at the downstream end and at the upstream end of the project. The other signs shall be placed on the major north-south mile streets in both directions of traffic. In any case, the Engineer at any time may ask the Contractor to remove and relocate the signs as he/she deems appropriate. Project signs shall include the names of all agencies participating in the project. The signs shall be in English and Spanish and include the 24-hour hotline complaint telephone number. 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 fifty percent (50%) upon installation, and the remaining fifty (50%) upon final payment for the work.

ITEM 107-03 - PROJECT SIGNS ALLOWANCE

Subsection 107.8 – Use of Explosives:

Delete in its entirety and replace with the following:

The use of explosives will NOT be permitted for any construction activities on the project.

Subsection 107.9 - Protection and Restoration of Property and Landscape:

Add the following:

The Contractor shall protect-in-place all existing structures and other features as identified on the plans, including but not limited to adjacent residential structures, irrigation control structures, adjacent structures, fences and walls, and existing vegetation located outside of the right-of-way limits.

The Contractor shall limit all construction activities to the right-of-way limits shown on the plans, including dedicated street rights-of-way, and shall not disturb any areas other than as required for construction as shown on the plans. The Contractor shall avoid the Stage Stop Historical Site and not disturb or damage the fence around it.

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 existing condition.

The Contractor shall not use any part of the properties outside of the rights-of-way for access, turn-around for larger equipment or any other activities. Specifically, any damage to the crops and/or irrigation

delivery or tailwater ditch within the Sossaman Farms will have to be repaired by the Contractor at no cost to the District.

The Contractor shall protect all of the existing roadway signs along Higley Road, Recker Road, Power Road, Via Del Jardin Road, Sossaman Road and Chandler Heights Road.

Subsection 107.10 - Contractor's Responsibility for Work:

Add the following:

- A) Contractor shall be aware that a potential exists for flows to occur in the Sonoqui Wash. The contractor shall manage flows in the wash to avoid damage to his equipment and work. The Contractor shall not use the presence of flows in the Sonoqui Wash or on the project site in general as a basis for any claim for additional cost or delay.
- B) Sonoqui Wash collects a large portion of storm water runoff from the adjacent areas. The Contractor shall take all necessary precautions to protect his work from damage that may be caused by such runoff and ponding.

The Contractor shall be aware that Sonoqui Wash also collects irrigation tailwater from several areas. The Contractor will have to manage the tailwater and make sure it keeps flowing downstream. Also, the Contractor needs to protect his equipment and work areas from flooding due to the tailwater.

- C) The Contractor shall take all necessary action to protect the public from the construction work area. The Contractor will also notify the Engineer of any unauthorized personnel in the project area, including the presence of the general public.
- D) The Contractor will notify the Engineer immediately of any significant differences between ground topography shown on the construction drawings and existing ground topography which may cause there to be additional cut or fill requiring the approval of the Engineer.
- E) Management of surface flows, subsurface flows and groundwater, as well as irrigation tail water within the project limits, and including within the Sonoqui Wash may be necessary in order to construct the project. The Contractor will develop a plan for such water management and submit it to the Engineer for review. Payment for water management including all equipment, labor, materials, and restoration of any disturbed areas shall be made on the basis of the lump sum price bid for water management.

ITEM 107-04 – WATER MANAGEMENT

- F) It is the Contractor's responsibility to coordinate with other contractors working adjacent to the project site. There are several other public and private projects being constructed in the same vicinity. The Contractor may be sharing work areas, access points, and temporary construction easements.
- G) It is the Contractor's responsibility to coordinate construction activities with Mr. Steve Sossaman for construction activities that occur within his property. His telephone number is 480-987-9670. Prior to any construction activities within his property, contact Mr. Sossaman to coordinate construction traffic access and other issues.

Subsection 108.1 - Notice to Proceed:

Delete Paragraph (A) and replace with the following:

(A) The Contractor shall commence work within thirty (30) calendar days after the Notice to Proceed or receipt of the AZPDES General Permit, whichever is the first to occur, and complete all work within **four hundred twenty (420) calendar days** beginning with the date specified in the Notice to Proceed. An **additional forty five (45) calendar days** are added to the contract *solely* for the Seeding Establishment Period for a grand total of **four hundred sixty-five (465) calendar days**.

Subsection 108.2 - Subletting of Contract:

Add the following:

For this project, the Contractor shall perform, with its own organization, work amounting to fifty percent (50%) or more of the total contract cost.

Subsection 108.4 - Contractor's Construction Schedule:

Delete in its entirety and replace with the following:

The Contractor shall submit a proposed work schedule to Engineer for review before starting work using Primavera or other similar software program that is acceptable to the Engineer. Weekly updates shall be submitted to Owner's Inspector at the weekly coordination meeting.

The 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 forty (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 twenty-four (24) hours advance written notification and receive written approval before working. The notification shall include: the working hours, the type of work to be performed, and the name of and a phone number for the person in charge. 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.

No night work will be allowed within residential areas.

In some areas, the Contractor may not be able to start work before 7:00 a.m. and have to stop work before 6:00 p.m.

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 MAG TABLE 108-1, LIQUIDATED

DAMAGES, and will be deducted from money 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 money 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, contribution 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 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 fees for work on this project. The Contractor shall pay any such taxes or fees.

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, the Contractor shall furnish a complete and accurate set of the final red-lined working drawings to be used by the Engineer for the preparation of the final Record Drawings, and a completed Certificate of Performance to the 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 the Contractor by attachment to the Construction document.

B) Add the following:

The final payment will be made to the Contractor by the Owner within thirty (30) days following receipt of the final red-lined working drawings as described above, Certificate of Performance, the 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, the Owner will provide Contractor specific written findings for reasons justifying the delay in payment.

C) The Owner's Construction Branch shall process the Contractor's monthly pay estimates during the last week of the month.

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.



SPECIAL PROVISIONS

FCD CONTRACT NO. 2004C074

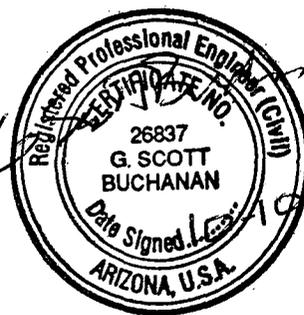
SONOQUI WASH CHANNELIZATION

QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD

PCN 480.04.31

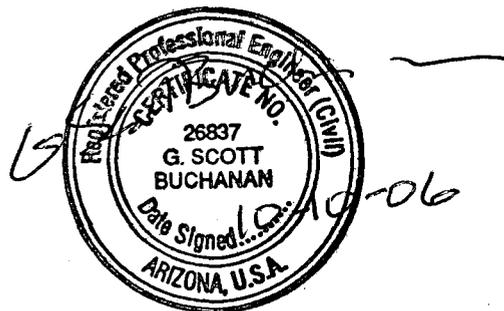
Prepared by:

Stanley Consultants Inc.
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Phoenix, Arizona 85016
602-333-2200



SPECIAL PROVISIONS

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SPECIAL PROVISIONS

FCD CONTRACT NO. 2004C074
SONOQUI WASH CHANNELIZATION
QUEEN CREEK WASH TO CHANDLER HEIGHTS ROAD
PCN 480.04.31

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

Unless otherwise directed by the Engineer, the work consists of the removal and disposal of all vegetation including shrubs, trees of all sizes, and other plants within the limits of construction for the Sonoqui Wash Channel and Stage Stop Basin.

Prior to starting clearing and grubbing the Contractor must verify the location of existing utilities that may be damaged during this work.

The larger trees are identified in the plans to be removed. However, all of the vegetation including smaller trees and shrubs will be included in clearing and grubbing. The Contractor is expected to clear the entire channel and basin rights-of-way.

All protected native plant material will be removed only by following all applicable federal, state and local laws, rules, and regulations. This is of particular importance as applies to cacti, such as Saguaro and barrel cacti. The laws governing removal, salvage, or destruction of native plant material are found in Arizona Revised Statutes: Title 3, Chapter 7, "Arizona Native Plants". The laws, a list of protected plants, and the "Application for Arizona Protected Native Plants and Wood Removal" can be downloaded from the Arizona Department of Agriculture website at <http://www.azda.gov/ESD/nativeplants.htm>.

Additionally, during breeding bird season (roughly February through June in Maricopa County) it is important to avoid disturbing active bird nests (those with eggs or hatchlings present) to comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712; Chapter 128; as amended). All birds in the state of Arizona are covered by the Act except pigeons, house sparrows, European starlings, doves, and quail. An Owner designated biologist or ecologist will flag any trees or shrubs with active nests, and removal of these plants should be postponed until the nests are vacated (generally less than a month from egg laying to fledging of young birds).

Subsection 201.5 – Payment, Clearing and Grubbing

Delete section and add the following:

Payment for clearing and grubbing will be made on the basis of the price bid per acre, including all labor, equipment and materials required for clearing and grubbing and the hauling, removal and disposal of all grubbed material and including larger trees as well as small trees and shrubs and all vegetation.

ITEM 201-1 – CLEARING AND GRUBBING

Add this section to the MAG Uniform Standard Specifications.

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, utilities and other facilities necessary for work on the project, permits and licenses, 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.

Engineer's Field Office:

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

The office shall be a building or mobile trailer erected at a location convenient to the project. The Contractor's and the Engineer's offices shall not be in the same building or mobile trailer although the offices shall be located next to each other or within reasonable walking distance.

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 600 square feet of clear floor space, not including the toilet area. The structure shall have a minimum ceiling height of seven (7) feet and shall be provided with weatherproof doors equipped with adequate 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 a minimum illumination level at desk height level.
- B. Heating & Cooling - Adequate electrically powered equipment to maintain an ambient air temperature of 72 degrees F plus or minus 8 degrees.
- C. Telephone, answering machine, plain paper FAX machine, and copying machine - Two (2) telephones with two (2) outside lines for the exclusive use of the Engineer. The Contractor will pay for the cost of the line and local calling charges. The Flood Control District of Maricopa County (District) will pay for project related long distance charges.
- 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. Contractor shall provide toilet paper, paper towels, soap, and water and sewer service.
- E. Maintenance - The Contractor shall maintain all facilities and furnished equipment in good working condition and the office shall be cleaned weekly.
- F. Fire Extinguisher - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Inc. approval for Class A, Class B, and Class C fires with a minimum rating of 2A: 20B: 10C.
- G. Electricity - Contractor shall provide electric power and pay for all electric services.

- H. Furnishings - Three office desks with drawers, five office chairs (padded, swivel type), one drafting table (adjustable height 3 feet by 6 feet) with Mayline straight edge attached, two eight foot (8') conference tables, twelve folding chairs, two four drawer legal size file cabinets, one white board approximately 36" by 52" or larger with markers and erasers, and one draftsman's stool. All furnishing shall be in good working order.
- I. First Aid Kit.
- J. Potable water supply or service – Contractor shall provide a potable water supply and pay for all water service.
- K. Parking spaces with dust proof surface for ten vehicles.
- L. Copier – Copier for 8.5"x11" and 11"x17" paper with minimum ten (10) copy capacity.
- M. Weekly trash pick up and Cleaning Service to keep the offices neat and clean.
- N. Broadband internet access is to be provided in the trailer to 2 (two) locations. Installation and all costs associated with the service will be the responsibility of the Contractor.

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 ten (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 or 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 202.2 – 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 and permits and licenses. No additional payment will be made for occupancy and services during periods of contract extension of time due to engineering changes or shutdowns. This bid item will be divided into payments as directed by the Engineer.

ITEM 202-01 – MOBILIZATION

SECTION 211 – FILL CONSTRUCTION

Fill construction shall conform to Section 211 of the MAG Uniform Standard Specifications except where modified herein.

Subsection 211.1 – Description

Add the following:

Where "channel" is used in the Specification, the meaning shall be expanded here to include the Sonoqui Wash channel between left and right top-of-bank limits, the area extending outward from the left and right top-of-bank limits to the cut and fill limits as shown on the plans, and the Stage Stop Basin.

The work in this section consists of placing and compacting of material for the construction of the Sonoqui Wash channel and Stage Stop Basin embankments and landscaped earth berms that are created by fill, instead of by excavation, and are as shown on the plans and described in Section 215 of these Special Provisions.

The Contractor shall verify that any pre-construction excavation of the Sonoqui Wash channel and Stage Stop Basin, which may have been completed by others, is within the limits of excavation and tolerances discussed below. The Contractor shall inform the Engineer of any exceedance of the excavation limits or tolerances. Any pre-construction excavation would result in a reduced total excavation quantity from that shown in the bid schedule, at no penalty to the Owner.

Electronic MicroStation (.dgn) CADD files of the channel and basin will be provided to the selected Contractor for use in the layout of the top and toe of slope of the channel and basin embankments. The Contractor will achieve the layout of the basin as indicated on the plans by creating smooth curvilinear transitions from point to point as required on the plans. The electronic files provide the Contractor with additional curve and point data to facilitate such layout of the channel and basin. MicroStation and InRoads or SelectCAD computer software and experience are required to use these electronic CADD files. The information provided on the plans will control over the electronic files should there be any discrepancy between the two.

Fill placement near Trilog (Sta 75+00 to Sta 113+00):

At this location, the developer has pre-excavated the channel. The north slope is approximately at 2:1 and south slope is at approximately 3:1. The north slope will require a substantial amount of fill to reconstruct it to the proposed grade as shown on the plans. The Contractor will be required to fill the 2:1 slope and grade it as shown on the plans. Prior to filling the slope, the Contractor will ensure that the existing slopes have been prepared to receive placement of fill material to be compacted in accordance with this Section 211, and the slope must be cleared and grubbed.

Fill for embankments

The material used for constructing embankments shall be taken from material being excavated elsewhere on site. Material with a plastic index of twenty (20) or less will be used.

Landscaped earth berms

The work shall also include the staking and layout of each earth berm location shown on the plans for approval of the Engineer prior to fill construction.

The material used for landscaped earth berms shall be taken from material being excavated elsewhere on site. The landscape berms shall be well rounded from the top and at the edges of the contours. The Engineer may direct the Contractor to modify the berms as necessary to fit surrounding grades. The Contractor may be asked to provide more berms in order to dispose of additional dirt within the project site.

Subsection 211.2 – Placing

Add the following:

Fill for embankments

The embankment fill material shall be placed in the locations and for the embankment dimensions shown on the plans. Notify the Engineer prior to placing fill for embankments so that a determination can be made if over-excavation of existing materials is needed.

Fill placement near Trilog: The Contractor shall clear and grub the existing slope. Any scour holes or slope erosion shall be repaired and well compacted prior to fill placement.

Landscaped earth berms

For earth berms, the fill material shall be placed at the locations shown on the plans for each berm. The berm shall be shaped so that high points for the berm are at the elevation and location shown on the plans for the berm, and the finished contours of the berm shall approximate the shape and horizontal and vertical limits shown on the plans. A portion of the fill material for earth berms located near the top of an embankment shall be taken by rounding the embankment top and dragging the material to the berm location, so that the berm and embankment shapes flow one into the other. The Contractor shall layout the toe of slope limits and high points of each berm location consistent with the plans for the grading of these earth berms.

Construction techniques and equipment used to achieve finished grades will be such that sufficient rounding, warping and variations in slopes are achieved, creating a park-like graded appearance with minimal shape 'edges' and abrupt changes in contour. Prior to the finished grading work on the berms, the Engineer and the Landscape Architect will approve the rough berm grading. This approval process may result in the Landscape Architect requesting further modifications to the berm construction before finished grading is accomplished.

Subsection 211.3 – Compacting

Compaction of soil materials in various instances shall meet the minimum criteria shown in the table below. In all cases the relative compaction shall meet the minimum compaction criterion shown in the table, in accordance with ASTM D 698-00 at moisture content within two percent (2%) of the optimum moisture content for that soil. The fill material shall be placed in horizontal layers not exceeding the lift criterion and compaction criteria shown in the following table. For all other materials and situations, refer to Section 211 of the MAG Specifications.

Item	Lifts, inches	Compaction, %
Landscaped earth berms	12	90
Fill for embankments	8	95

Subsection 211.5 – Measurement

Replace the first paragraph with the following:

Measurement of fill material used for construction of the Sonoqui Wash channel and Stage Stop Basin shall be in accordance with Section 215.7.

There will be no separate measurement for staking the berms or refinement to the rough grading prior to finish grading in order to meet the aesthetic objectives of the Landscape Architect, the cost of which is considered included in the price of the associated earthwork.

No separate measurement will be required for the amount of fill placement. The quantity of fill placement will be incidental to the excavation quantity specified in Section 215.

Subsection 211.6 – Payment

Replace the first paragraph with the following:

No separate payment will be made for fill placement.

Payment for placement of fill material used for construction of the Sonoqui Wash channel and Stage Stop Basin shall be in accordance with Section 215.8.

SECTION 215 – EARTHWORK FOR OPEN CHANNELS

Earthwork shall conform to Section 215 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 215.1 – Description

Add the following:

Where “channel” is used in the Specification, the meaning shall be expanded here to include the Sonoqui Wash channel between left and right top-of-bank limits, the area extending outward from the left and right top-of-bank limits to the cut and fill limits as shown on the plans, and the Stage Stop Basin.

The work in this section consists of the following items and shall be completed to the neat lines and grades as shown on the plans:

1. Channel grading – defined as material excavation and/or fill placement required for construction and grading of the Sonoqui Wash channel, between left and right top-of-bank limits as shown on the plans;
2. Landscaped earth berm grading – defined as material excavation and/or fill placement required for construction and grading of area extending outward from the left and right top-of-bank limits to the cut and fill limits as shown on the plans; and
3. Basin grading – defined as material excavation and/or fill placement required for construction and grading of the Stage Stop Basin, with the Basin area bounded by Chandler Heights Road, Sossaman Road and the Sonoqui Wash channel right top-of-bank limit as shown on the plans.
4. Miscellaneous grading – defined as material excavation and/or fill placement required for construction and grading of the Sonoqui Wash channel south of Chandler Heights Road as shown on the plans.

The work in this section also includes the removal and disposal of excavated material associated with the items discussed above and the formation of the Maintenance Access Road.

The Contractor is encouraged to review the geotechnical reports and boring logs for the project. Geotechnical reports and soil boring logs and locations are provided in Appendix A. It is likely that inert material, construction debris, tires, and possibly household wastes and special wastes may be encountered during excavation of these project features. See Section 350 for removal of these materials.

Electronic MicroStation (.dgn) CADD files of the channel and basin will be provided to the selected Contractor for use in layout of the top and toe of slope of the channel and basin embankments. The Contractor will achieve the layout of the channel and basin as indicated on the plans by creating smooth curvilinear transitions from point to point as required on the plans. The electronic files provide the Contractor with additional curve and point data to facilitate such layout of the channel and basin. MicroStation and InRoads or SelectCAD computer software and experience are required to use these electronic CADD files. The information provided on the plans will control over the electronic files should there be any discrepancy between the two.

Subsection 215.3 – Excavation

Add the following:

The channel and basin shall be excavated to the neat lines and grades shown in the plans.

Subsection 215.3.1 – Stage Stop Basin

Stage Stop Basin will be excavated to the neat lines and grades as shown in the plans. Within the Stage Stop Basin, special waste was observed within a small portion of the basin identified as Areas 1 and 2. Areas 1 and 2 are shown on Exhibit A provided in Appendix B. The Town of Queen Creek retained

Speyer & Associates to complete the environmental assessment of this entire parcel. The report is available at the Flood Control District for review.

Areas 1 and 2 are adjacent to the southern bank of Sonoqui Wash, approximately located in the southeast corner of the Stage Stop Basin parcel (see Exhibit A provided in Appendix B). Environmental surveys in these areas have indicated the presence of prior disposal activities, including but not limited to, appliance and automobile parts, glass, metal and landscape debris. Earlier environmental survey work included "Phase I & Limited Phase 2 Environmental Site Assessment Slechta Property Queen Creek Arizona", completed by Speyer & Associates in October, 2004. The environmental assessment work completed by Speyer & Associates indicated evidence of landfill material within Areas 1 and 2. Analytical results from discrete soil samples collected in specific portions of Areas 1 and 2 indicated levels of lead and arsenic equal to or in exceedance of ADEQ's soil remediation levels (SRL's). However, Speyer & Associates indicated that historic wastes that may be excavated during construction activities would not be characterized as hazardous waste. Consequently, the contractor should maintain the appropriate dust suppression during excavation to minimize dust exposure to on-site personnel and the public.

Areas 1 and 2 will require special handling by the contractor and will be properly secured by the Contractor using barricades and/or taping. Areas 1 and 2 will initially be excavated in shallow depths (2 foot lifts) to carefully delineate the extent of debris or discoloration within the soil matrix. Excavated soils will be placed on visqueen in separate approximately 100 yard stockpiles prior to disposal, to isolate potential wastes and reduce potential landfill disposal costs. A FCD on-call environmental consultant will collect samples from each of the stockpiles to determine disposition of the waste. Based on earlier survey results, inert and non-inert waste are present in the soils and will require disposal in the municipal landfill.

In the event that suspect soils (i.e., staining, discoloration, presence of debris) are encountered during excavation in areas outside of Areas 1 and 2, the area in question will be delineated, secured and characterized as done in Areas 1 and 2. (See Section 350 for further details)

The Stage Stop Basin grading plans (Sheet C45, C46, C47, C48 and C49) are currently being revised by Town of Queen Creek. The overall (basin configuration) storage volume will not be modified so, the excavation and embankment volumes will not be significantly changed. The above listed revised sheets will be issued to the selected Contractor at the Pre-Construction Meeting. Quantity adjustments to the appropriate bid items that may be necessary will be made during construction.

Subsection 215.4 – Fill and Backfill

Add the following:

Channel and basin fill and backfill (including fill material for embankments and landscaped earth berms) shall be placed to the neat lines shown in the plans and in accordance with Section 211. The surface of locations requiring fill shall be scarified 6-inches deep, vegetative material and fragments larger than 3 inches in size removed, and the soil compacted in accordance with Subsection 211.3. Refer to Section 211 for the placement of fill material for embankments and landscaped earth berms.

Maricopa County Solid Waste Department may be interested in receiving some of the excess dirt up to approximately 200,000 CY. The dirt needs to be delivered to the landfill at Hawes Road and Riggs Road. Spreading and/or compaction of the dirt will not be required. Please contact Mr. Brad White at (602) 525-6491. Additional interested parties receiving dirt are listed in SGC Section 104.1.

Subsection 215.5 – Grading

Replace with the following:

Grading shall consist of all work required under Sections 215.1, 215.3 and 215.4.

Grading of the channel, basin, embankments, landscaped earth berms and multi-use path shall conform to the following tolerances:

- A. A vertical tolerance of none above and three inches (3") below the specified grade will be allowed on:
 - 1. Channel or basin side slopes in both cut and fill
 - 2. Embankments and multi-use path side slopes in cut
- B. A vertical tolerance of none below and three inches (3") above the specified grade will be allowed on:
 - 1. Top surface of multi-use path in both cut and fill
 - 2. Embankments and multi-use path side slopes in fill
 - 3. Top surface of embankments in both cut and fill
- C. A vertical tolerance of ± 0.1 -foot from the specified grade will be allowed on:
 - 1. The basin bottom
 - 2. The channel bottom
- D. A vertical tolerance of ± 0.25 -foot from the specified grade will be allowed on:
 - 1. Landscaped areas

Regardless of the construction tolerances specified, grading shall be performed so that finished surfaces are in uniform planes with no abrupt breaks in the surface, and that the basin and channel bottom will be free of potential standing water and "birdbaths".

The quantity of graded material shall consist of material excavated (Section 215.3) AND material placed as fill (Section 215.4) for construction of the Sonoqui Wash channel and Stage Stop Basin.

Subsection 215.7 – Measurement

Replace with the following:

Measurement for payment of graded material associated with channel grading (Item 1 under Section 215.1) shall be made according to the quantity of material in cubic yards excavated from natural ground and to the neat lines as shown on the plans. Fill material placed within the Sonoqui Wash channel, between left and right top-of-bank limits, will be considered incidental. Incidental fill material includes channel embankment fill material placed near Trilogy (Sta 75+00 to Sta 113+00), as described in Section 211.1.

Measurement for payment of graded material associated with landscaped earth berm grading (Item 2 under Section 215.1) shall be made according to the quantity of material in cubic yards used for fill in the area extending outward from the left and right top-of-bank limits to the cut and fill limits as shown on the plans. Excavated material outside the top-of-bank limits will be considered incidental.

Measurement for payment of graded material associated with basin grading (Item 3 under Section 215.1) shall be made according to the quantity of material in cubic yards excavated from natural ground and to the neat lines as shown on the plans. Fill material placed for construction of the Stage Stop Basin, which includes the area east of Sossaman Road, north of Chandler Heights Road and south of the Sonoqui Wash channel right top-of-bank limit, will be considered incidental.

Measurement for payment of graded material associated with miscellaneous grading (Item 4 under Section 215.1) shall be made according to the quantity of material in cubic yards excavated from natural ground and to the neat lines as shown on the plans. Fill material placed for construction of the Sonoqui Wash channel, south of Chandler Heights Road, will be considered incidental.

Graded material quantities shall be computed using the average end area method as follows:

- A. Contractor shall obtain cross sections after clearing and grubbing and prior to any grading, excavation or fill placement.
- B. Cross sections shall be taken perpendicular to the construction control line, and at a minimum spacing sufficient to accurately represent the volume of material removed and with a sufficient number of points to describe the existing ground surface. Cross section locations and geometry are to be approved by Engineer prior to excavation.
- C. Cross sections shall be taken at a minimum of 50-foot stations for channel and basin, and at angle points and the beginning and ending of curves.
- D. After channel and basin construction the Contractor shall obtain new cross sections at the same locations as the existing ground cross sections were taken.
- E. The Contractor shall plot the cross sections where taken as described above showing both the original and final grades, and shall provide volumetric calculations.
- F. The Contractor shall submit the cross sections in electronic format, in either .dgn or .dxf format, and in hard copy form sealed by a Registered Land Surveyor.

The Engineer will verify the quantities of graded material as described in Sections 215.1, 215.3 215.4 and 215.5 by a method, which in his/her opinion is best suited to obtain an accurate determination.

Subgrade excavation required for the Maintenance Access Road and for riprap placement will be considered incidental to the channel and basin grading and shall be in accordance with Sections 301 and 310.

Native soil material placement over the top of the dumped riprap, grouted riprap and concrete structures will be incidental to the construction of such a structure. No payment will be made for placing native soil material as shown on the plans. Contractor shall place no more than 12" of native soil over the top of the structures. If the Engineer determines the soil layer to be more than 12", he/she may direct Contractor to remove excess soil.

Removal and disposal of material will be considered incidental to the channel and basin grading. Excess dirt will be the property of the Contractor and the Contractor will have to properly dispose of it at no cost to the owner. There are several interested parties as listed in Section 104.1 of Special General Conditions, who are interested in receiving dirt.

The Engineer quantity estimates for channel, landscaped earth berm, basin and miscellaneous grading are based on topography dated March of 2003. However, the Contractor shall be aware that the existing topography for the project area is constantly changing due to development taking place adjacent to the Sonoqui Wash Channel. In particular, grading quantities associated with the reach of proposed channel from Recker Road to approximately Station 110+00 reflect the March of 2003 topography.

Subsection 215.8 – Payment

Add the following:

For the excavation and disposal of soils from the Stage Stop Basin, the cost of stockpiling, and any associated labor, materials, equipment, etc., shall be incidental to the work associated with construction of the Stage Stop Basin.

Special handling of inert and non-inert material, tires, misc. household debris and disposal of special soil (determined by the Engineer's On-call Environmental Consultant) to a landfill will be paid for by Section 350.

Payment for graded material associated with the Sonoqui Wash channel grading (Item 1 under Section 215.1) shall be made on the basis of the price bid per cubic yard of excavated material from natural ground and to the neat lines shown on the plans, and between the left and right top-of-bank limits as shown on the plans. Payment price shall include all labor; equipment; materials, watering, pre-wetting, staking, and dust control measures necessary for the item; channel excavation and fill; formation of the Maintenance Access Road; embankment construction; and the removal and disposal of excess material.

ITEM 215-01 CHANNEL GRADING

Payment for graded material associated with the landscaped earth berm grading (Item 2 under Section 215.1) shall be made on the basis of the price bid per cubic yard of fill material that extends outward from the left and right top-of-bank limits to the cut and fill limits as shown on the plans. Payment price shall include all labor; equipment; materials, watering, pre-wetting, staking, and dust control measures necessary for the item; any excavation and fill outside the top-of-bank limits; formation of the Maintenance Access Road; embankment and earth berm construction; and the removal and disposal of excess material.

ITEM 215-02 LANDSCAPED EARTH BERM GRADING

Payment for graded material associated with the basin grading (Item 3 under Section 215.1) shall be made on the basis of the price bid per cubic yard of excavated material from natural ground to the neat lines as shown on the plans. Payment price shall include all labor; equipment; materials, watering, pre-wetting, staking, and dust control measures necessary for the item; any excavation and fill within the area east of Sossaman Road, north of Chandler Heights Road and south of the Sonoqui Wash channel right top-of-bank limit; formation of the Maintenance Access Road; embankment and earth berm construction; and the removal and disposal of excess material.

ITEM 215-03 BASIN GRADING

Payment for graded material associated with miscellaneous grading (Item 4 under Section 215.1) shall be made on the basis of the price bid per cubic yard of excavated material from natural ground to the neat lines as shown on the plans. Payment price shall include all labor; equipment; materials, watering, pre-wetting, staking, and dust control measures necessary for the item; any excavation and fill south of Chandler Heights Road; embankment and earth berm construction; and the removal and disposal of excess material.

ITEM 215-04 MISCELLANEOUS GRADING

Add this section to the MAG Uniform Standard Specifications.

SECTION 216 – GEOTEXTILE MATERIAL

Subsection 216.1 – Description

This work shall consist of furnishing all materials (including backfill material) and equipment required for installation of geotextile barrier and geotextile fabric (filter fabric) at locations shown on the plans and in accordance with the details shown on the plans and as provided in these Special Provisions.

Subsection 216.2 – Materials

Filter fabric material shall conform to Section 796 of these Special Provisions. The design assumes that the material will be shipped in 15-foot wide rolls.

Subsection 216.3 – Installation

The identification, packaging, handling, and storage of the geotextile fabric shall be in accordance with ASTM D 4873. Filter fabric rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged to provide product identification sufficient to determine the product type, manufacturer, quantity, lot number, roll number, date of manufacture, shipping date, and the project number and name to which it is

assigned. Rolls will be stored on the site or at another identified storage location in a manner that protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof, light-colored, opaque cover. At no time shall the fabric be exposed to sunlight for a period exceeding 14 days.

Geotextile barrier and filter fabric shall be installed in such a manner as to prevent rips, punctures or any damage to the material. Geotextile fabric shall be installed such that water will not be able to pass through seams or splices. Filter fabric shall be placed in the manner and at the locations shown on the project plans. The surface to receive the fabric shall be free of obstructions, depressions, and debris. The filter fabric shall be loosely laid and not placed in a stretched condition.

Geotextile fabric shall not be installed when weather conditions, in the opinion of the Engineer, are not suitable to allow placement or installation. This will normally be at times of wet conditions, heavy rainfall or extreme heat or cold.

Mechanical or manual laydown equipment shall be capable of handling full rolls of material, and laying the material smoothly, without wrinkles or folds. The equipment shall be in accordance with the material manufacturer's recommendations or as approved by the Engineer.

The surface upon which the material will be placed shall be compacted and finished according to the requirements of these Specifications.

Subsection 216.3.1 – Geotextile Barrier

The geotextile barrier shall be installed in a trench created for that purpose. The barrier consists of filter fabric placed in a trench, which is then backfilled. The trench shall be as narrow as the materials being excavated safely allows without collapse or sloughing. The intent is to install the filter fabric from the ground surface without a worker entering the trench. The wider section of trench at the top is to be excavated fully before the deeper, narrower portion of the trench is excavated.

Once the trench is excavated to the desired depth, the filter fabric is to be placed immediately into it. The filter fabric is to be draped into the trench, with the required amount left at the top to fold over and staple. Staples shall be placed immediately.

The trench is to be backfilled as closely after placement of the filter fabric as feasible to reduce the potential for trench wall material drying. The trench is to be backfilled using the excavated material, except that lumps larger than three inches (3") shall be broken up before being placed into the trench. Backfill does not need to be compacted, but should be placed by dumping from a loader bucket at a height of more than five feet (5') above grade and in lifts of no more than one foot (1'). Care shall be exercised so as not to damage the filter fabric material.

Backfilling the top part of the trench shall be done with selected low permeability material. Select a material having a plastic index between 15 and 30. This material shall be placed in compacted one-foot (1') lifts. Compaction shall be in accordance with that required for embankments in Subsection 211.3.

At splices in the run of filter fabric, overlap ten feet (10') and staple as shown in the details at each end of the overlap.

Subsection 216.3.2 – Geotextile Filter Fabric

The protected soil surface should be as smooth as possible. Remove large stones, roots and other materials that might project and puncture or tear the fabric during construction and installation. Then place the fabric loosely and overlap it as required. Sewing the seams is preferable. Pin or weight down the fabric so that riprap can be placed without the fabric bubbling, shifting or slipping.

Geotextile filter fabric shall be unrolled on the finished surface and laid smooth without wrinkles. The placement of fabric by dragging across the finished surface will not be allowed. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints, the upstream strip shall overlap the downstream strip.

Subsection 216.4 – Measurement

Measurement of geotextile barrier shall be by the linear foot of material called for at the various locations on the plans. The low permeable soil cap required as part of the geotextile barrier installation will not be paid separately.

Geotextile filter fabric associated with riprap placement will be considered incidental to the riprap construction per Section 220.

Subsection 216.5 – Payment

Payment for geotextile barrier shall be made on the basis of the price bid per linear foot at the locations shown on the plans, and shall include all labor, materials (including geotextile fabric), tools and equipment and excavation and backfill, and soil cap required to install the geotextile barrier.

ITEM 216-01 – STAGE STOP BASIN GEOTEXTILE BARRIER

SECTION 220 – RIPRAP CONSTRUCTION

Riprap construction shall conform to Section 220 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 220.1 – Description

Add the following:

The construction of riprap shall consist of furnishing and placing of stone, with or without grout, and all incidental materials as shown on the plans or specified in the Special Provisions. The depth and type of riprap shall be as shown on the plans or specified in the Special Provisions.

This work shall consist of the placement of grouted and/or dumped riprap as part of the drop structures, roadway culverts and roadway dips, Stage Stop Basin weir and outlet structures, continuous channel bank lining, along the maintenance access road from Sta. 161+50+/- to Sta 182+50+/-, local inflow structures, roadway drainage channel scour protection and other structures as shown on the plans.

Gradation of the rock for construction of riprap shall be as shown on the project plans or as specified in the Special Provisions.

Mechanical equipment, a sorting site, and labor needed to assist in checking gradation shall be provided by the contractor at no additional cost.

Subsection 220.2 – Materials

Add the following:

Riprap shall meet the requirements of Section 703 of the Special Provisions. Geotextile filter fabric shall meet the requirements of Section 796 and shall be considered incidental to riprap construction. Neither waste concrete nor sacked concrete riprap may be used as riprap.

Subsection 220.3 – Preparation of Ground Surfaces

Add the following:

Existing subgrade shall be excavated to allow for the installation of geotextile filter fabric and riprap. The riprap areas shall be excavated to the depth shown on the plans or called for in the Special Provisions in order to place geotextile material and riprap.

Subsection 220.4 – Plain Riprap

Add the following:

Plain dumped riprap shall be placed to its specified thickness, as shown on the plans or specified in the Special Provisions, in one operation and in a manner which will produce a reasonably well graded mass with a minimum amount of voids and with the larger rock evenly distributed throughout the mass. The stone shall conform to Section 703 of the MAG Standard Specifications as modified in these Special Provisions. Geotextile filter fabric underlay shall be provided for all areas using plain dumped riprap as shown on the plans or specified in the Special Provisions.

No method of placing the rock that will cause segregation will be allowed. Hand placing or rearranging of individual rock may be necessary to obtain the specified results.

To maintain the integrity of geotextile filter fabric below the rock, the Contractor shall ensure that no damage to the geotextile material occurs during placement of the riprap. Always begin placing riprap at the base of the slope and move upward, and from the center of the geotextile strip to its side edges. Do not allow stones to roll. The maximum drop height for stones shall be 2 feet (2'). Avoid machine grading or any method of shifting riprap after it is placed unless the fabric is covered sufficiently to avoid damage.

The plain riprap along the channel sideslope includes 12" native material on top of the riprap to be placed after placement of riprap. The toe protection using plain riprap shall be placed as shown on the plans. The placement of the 12" of native material over the riprap will be accomplished in such a manner so as to ensure that the riprap layer and thickness is not disturbed. The strips shall be placed to provide a minimum 24-inch overlap for each joint. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints, the upstream strip shall overlap the downstream strip.

The plain dumped riprap gradation limits shall be as follows:

d₅₀ = 3-inch

Stone Average Diameter Range	Percent of Stone Smaller
4.5"	100
4" – 5"	85
3" – 4"	50
1" - 2"	15

d₅₀ = 6-inch

Size Range	Percent of Stone Smaller
9" – 10"	100
7" – 8"	85
6" – 7"	50
1" – 2"	15

d₅₀ = 12-inch

Stone Average Diameter Range	Percent of Stone Smaller
18" – 20"	100
14" – 17"	85
12" – 14"	50
1" – 2"	15

*Always * Add grout strength.
3,000 PSI
4,000 PSI*

Subsection 220.5 – Grouted Riprap

Add the following:

Grouted riprap shall be placed as part of the drop structure construction as shown on the plans.

Grouted rock is a structural lining comprised of a blanket of rock that is interlocked and bound together by means of concrete grout injected into the void spaces to form a monolithic structure. Penetration of the grout shall be to the full depth shown on the project plans or specified in the Special Provisions.

Subsection 220.5.1 – Materials

Add the following:

Rock for grouting shall conform to Subsection 703.1 of the MAG Standard Specifications and as modified in these Special Provisions.

Grout shall meet the requirements of Section 703.3 and as modified in these Special Provisions.

Subsection 220.5.2 – Placement

Grouted riprap shall be placed to its specified lines and grades as shown on the plans or specified in the Special Provisions. Graded riprap shall not be used for grouting, as the smaller rock in a graded mix occupies the void spaces to be filled with grout. The median rock size (D_{50}) shall not exceed 0.67 times the blanket thickness and the largest rock used should not exceed the blanket thickness.

The limits for grading of grouted rock shall be as follows:

Grouted Riprap Blanket Thickness = 12 Inches, D_{50} = 6 Inches, D_{max} = 12 Inches

Equivalent Diameter (in.)	Percent Larger Than Given Rock Size
12	0
6	95 – 100

Grouted Riprap Blanket Thickness = 24 Inches, D_{50} = 12 Inches, D_{max} = 24 Inches

Equivalent Diameter (in.)	Percent Larger Than Given Rock Size
24	0
15	0 – 5
12	50-100
6	95-100

The area under which the grouted riprap will be placed shall be scarified 12 inches deep, and compacted in 6-inch lifts using mechanical methods to 95 percent or more relative compaction in accordance with ASTM D 698-00 at moisture content within two percent of the optimum moisture content for that soil.

The elevations shown on the plans are for the top of the finished riprap placement. Excavate below that grade to allow for the riprap depth.

Clean rocks by brushing and washing in place prior to grouting. The rock shall be wet immediately prior to commencing the grouting operation.

All grout shall be delivered by means of a low pressure (less than 10 psi) grout pump using a 2-inch diameter nozzle.

Full depth penetration, as shown on the plans, of the grout into the stone voids shall be achieved by injecting grout starting with the nozzle near the bottom and raising it as grout fills, while vibrating grout into place using a pencil vibrator. The Contractor shall determine in each case that the grout has fully penetrated the voids between rocks. The intent is to avoid leaving spots where water can enter the subgrade through the riprap layer.

Keep exposed surfaces continuously moist for at least seven days, beginning immediately after finishing, by means of either a water spray or fog system capable of being applied continuously or by liquid membrane-forming compound.

Grouted riprap placement within the drop structure includes 12" of native soil to be placed after placement of riprap.

Special procedures shall be required for grout placement when the air temperature is less than 40° F or greater than 90° F. Contractor shall obtain prior approval from the Engineer of the procedures to be used for protecting the grout.

Subsection 220.7 – Measurement

Measurement for plain dumped and grouted riprap will be by the cubic yard complete in place. Placement of geotextile filter fabric material shall be considered incidental to riprap construction.

Subsection 220.8 – Payment

Payment for plain dumped and grouted riprap construction where shown on the plans shall be made on the basis of the price bid per cubic yard to the neat lines shown on the plans, and shall include all labor, materials (including grout), geotextile filter fabric material, tools and equipment and over-excavation required to furnish and install the riprap, as well as placement of native material on top of plain and grouted riprap.

ITEM 220-01 - PLAIN DUMPED RIPRAP, D50=3"

ITEM 220-02 – PLAIN DUMPED RIPRAP, D50=6"

ITEM 220-03 - PLAIN DUMPED RIPRAP, D50=12"

ITEM 220-04 - GROUTED RIPRAP, D50=6"

ITEM 220-05 - GROUTED RIPRAP, D50=12"

SECTION 225 – WATERING

Watering shall conform to Section 225 of the MAG Uniform Standard Specifications except where modified herein.

Subsection 225.2 – Water Supply

Add the following:

The Contractor is responsible for providing a water supply sufficient for the needs of the project (including construction operations and domestic use) and the hauling and applying of all required water. The Contractor is responsible for obtaining any applicable permit(s) associated with supplying water for the project, including permits for temporary installation of meters and water use.

Arrangements for water to be purchased from the Town of Gilbert, Queen Creek Water Company, the Queen Creek Irrigation District, Roosevelt Water Conservation District, Ranchos Jardines Irrigation District or other irrigation district, water utility or private party shall be made by the Contractor at his own expense and payment made directly to the water utility as agreed upon by the Contractor.

The Contractor shall obtain the necessary permits under the County Air Pollution Statutes. It shall be the responsibility of the Contractor to keep the construction site moistened to prevent dust pollution to the air and adjacent properties.

The project is located in rural residential areas. The soil is very fine and easily wind blown. It will be extremely important for the contractor to water the site frequently including haul routes, excavation activities, loading and un-loading activities to minimize the dust in the air.

According to Ordinance #1437, approved by the Town of Gilbert Council in October 2002, No construction water from fire hydrants shall be used on parcels or lots of ten (10) acres or more in size. Water has been difficult to obtain for construction from the Town of Gilbert. The Contractor is encouraged to thoroughly investigate water resources for use during construction.

Subsection 225.5 – Payment

Add the following:

The cost of water supply, hauling and application (including the watering for dust control, water used for construction operations and domestic water use) shall be incidental to the construction item for which it is needed. No separate payment will be made for watering and related activities.

SECTION 301 – SUBGRADE PREPARATION

Subgrade preparation shall conform to Section 301 of the MAG Uniform Standard Specifications except where modified herein.

Subsection 301.1 – Description

Add the following:

This section shall include preparation of the surface below the untreated base for the roadway improvements at Recker Road, Power Road, Sossaman Farm Road, Via Del Jardin, Sossman Road, and Chandler Heights Road and construction of the Sonoqui Wash maintenance access road as shown on the plans.

Subgrade preparation will include over-excavation for roadway improvements and multi-use path construction to the depths shown in the plans, and for the placement of specified structural sections. The cost for the subgrade over-excavation will be considered incidental to the cost of construction of the roadway improvements and multi-use path construction.

Subsection 301.5 – Payment

No payment will be made for subgrade preparation as such; the cost thereof shall be included in the bid price for the construction of roadway improvements and multi-use path to which subgrade preparation is incidental.

SECTION 310 – UNTREATED BASE

Untreated base shall conform to Section 310 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 310.1 – Description

Add the following:

The work under this section consists of furnishing labor, materials, and equipment to provide an aggregate base course to serve as the structural base for the roadway improvements at Chandler Heights Road, Via Del Jardin, Power Road and Sossman Road and construction of the maintenance access road. The structural section for roadway improvements will include 10-inches of ABC as a structural base course for Chandler Heights and Power Roads, 12-inches of ABC as a structural base course for Sossaman

Road and 9-inches of ABC as a structural base course for Via Del Jardin. The structural section of the maintenance access road will include 4-inches of ABC as a structural base course.

In addition, the work under this section consists of furnishing labor, materials and equipment to provide 4-inches of aggregate base course that will serve as the structural section for the roadway improvements at Recker and Sossaman Farm Roads.

Subsection 310.2 – Material

The aggregate base course for the identified locations shall conform to:

Percent Passing Sieve							
3 inch	1 1/2 inch	1 inch	No. 4	No. 8	No. 30	No. 200	PI, Max
--	100	90-100		35-55		0-8	3

Notes:

The percentage, by weight, passing each sieve will be determined in accordance with the requirements of Arizona Test Method 201.

The PI (Plasticity Index) will be determined in accordance with the requirements of AASHTO T90.

For Class 1 through Class 4 aggregate, the amount of fractured particles shall be at least thirty percent (30%), when tested in accordance with the requirements of Arizona Test Method 212.

Resistance to abrasion for Class 1 through Class 4 aggregate will be determined in accordance with the requirements of AASHTO T 96 and shall meet the following requirements:

- Maximum loss of nine percent (9%) at 100 revolutions
- Maximum loss of forty percent (40%) at 500 revolutions

Subsection 310.4 – Payment

Delete section and add the following:

Payment for untreated base (ABC) for the roadway improvements shall be made on the basis of the price bid per square yard complete and in place as shown on the plans and including over-excavation for the placement of the material and all other equipment, materials, labor and incidentals.

- ITEM 310-01 - 12" ABC UNTREATED BASE**
- ITEM 310-02 - 10" ABC UNTREATED BASE**
- ITEM 310-03 - 9" ABC UNTREATED BASE**
- ITEM 310-04 - 4" ABC UNTREATED BASE**

SECTION 321 – ASPHALT CONCRETE PAVEMENT

Asphalt concrete pavement shall conform to Section 321 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 321.1 – Description

Add the following:

The work under this section consists of furnishing labor, materials, and equipment for the placement of asphalt concrete as a surface course for the roadway improvements at Power, Sossaman and Chandler Heights Roads, Via del Jardin and the Sonoqui Wash maintenance access road as shown on the plans.

Subsection 321.8 – Measurement

Add the following:

Asphalt concrete pavement will be measured by the square yard, for the Engineer approved mixture, which shall include the required quantities of mineral aggregates, filler material, asphalt cement, and sand. Measurement shall include any tonnage used to construct intersections, roadways, streets, or other miscellaneous surfaces indicated on the plans to the neat lines or as directed by the Engineer.

Subsection 321.9 – Payment

Add the following:

The asphalt concrete measured as provided above, will be paid for at the contract price bid per square yard, which price shall be full compensation for the item complete, as herein described and specified.

No payment will be made for any overrun in quantity of asphalt concrete in excess of 10 percent based on actual field measurement of area covered, design thickness, and a unit weight of 145 pounds per cubic foot. The calculations and payment for overrun will be by individual bid item.

To compensate or adjust for a thickness deficiency in an underlying asphalt concrete course, the Engineer may authorize a quantity increase in excess of 10 percent for a subsequent asphalt concrete course. In such cases, the quantity in excess of 10 percent will be paid for at the lowest unit bid price.

Except as otherwise specified in the special provisions, no separate payment will be made for work necessary to construct miscellaneous items or surfaces of asphalt concrete.

ITEM 321-01 - 4" AC PAVEMENT

ITEM 321-02 - 3" AC PAVEMENT

ITEM 321-03 - 2" AC PAVEMENT

SECTION 336 – PAVEMENT MATCHING AND SURFACING REPLACEMENT

Pavement matching and surfacing replacement shall conform to Section 336 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 336.1 – Description

Add the following:

The work under this section consists of furnishing labor, materials, and equipment to reconstruct in kind (size and width) with aggregate base (AB), the private gravel driveways in locations specified in the plans. Reconstruction shall take place from the limit of disturbance to the new edge of pavement.

Subsection 336.4 – Measurement

Add the following:

Measurement for payment of gravel driveway reconstruction shall be per driveway.

Subsection 336.5 – Payment

Add the following:

Payment for reconstruction of AB gravel driveways specified in the plans shall be made on the basis of price bid per each and shall include full compensation for complete and in place reconstruction, including over-excavation for the placement of the material and all other equipment, materials, labor and incidentals.

ITEM 336-01 – RECONSTRUCT PRIVATE GRAVEL DRIVEWAYS

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 350.1 – Description

Add the following:

The work required for this project includes, but is not limited to, removal and disposal of the following for construction of the Sonoqui Wash channel and Stage Stop Basin:

- Non-inert material such as glass, car parts, discarded car maintenance supplies, landscape debris, household waste, old appliances, old broken furniture, mattresses, sofas, and other household debris, etc...;
- Inert debris including but not limited to: concrete debris, asphaltic pavement, brick and reinforcing steel;
- Special soil material with concentration exceeding the acceptable ADEQ soil remediation levels (SRL's);
- Existing improvements including but not limited to: CMP, concrete headwalls, aprons, irrigation sump pump at Sossaman Farm, etc.; and
- Existing utilities, storm drains and irrigation lines.

Work required for this project also includes removal and salvaging of roadway traffic signs and the Stage Stop Detention Basin sign as shown on the plans. The Contractor is responsible for coordinating with the appropriate jurisdictions for the work associated with sign salvaging and stockpiling.

Locations of all inert and non-inert material, debris and existing improvements to be removed may not be identified on the plans or listed in the Special Provisions. The Contractor is responsible for identifying all items to be removed under Section 350 and for providing the Engineer with a quantity and cost estimate for removal of such items not already accounted for in the bid items provided below. Items that shall be removed include, but may not be limited to, the following:

- Inert material at various channel locations and at the Stage Stop Basin;
- Debris at various channel locations and at the Stage Stop Basin;
- 18" and 24" diameter concrete irrigation pipes at Sossaman Farm;
- 15" diameter irrigation pipe at Power Road;
- 16" diameter waterline at Recker Road;
- 12" diameter waterline at Power Road;
- 8" diameter waterline at Sossaman Road;
- 6" diameter waterline at Via del Jardin;
- 6" diameter waterline at Chandler Heights Road;
- Existing pavement at Power Road, Sossaman Road, Via Del Jardin and Chandler Heights Road;
- Curb and Gutter at Sossaman Road;
- 18" diameter storm drain and headwall at Sossaman Road; and
- 24" diameter CMP headwall at Sossaman Road.

Holes, cavities and trenches resulting from the removal of structures shall be backfilled when necessary in accordance with Sections 206 and 211.

All tires removed during excavation and other construction activities shall be handled, stored, transported, and disposed of in accordance with applicable Federal, State and Local regulations. Applicable State regulations include: Arizona Revised Statutes (ARS) §§44-1301 et seq: §44-1301; §44-1302; §44-1303; §44-1304.01; §44-1305; §44-1306; §44-1307.

A Landfill Use Permit will be required for all landfill disposals. Charges will be levied for each load delivered to the landfill in accordance with the current fee schedule.

Weigh tickets from all landfill disposals must be furnished to the Engineer. The tonnage indicated on the weigh tickets will be the basis of payment when applicable to the fee schedule. In the event of off-highway equipment being used to haul waste material to the landfill, the Contractor shall convert haul volume using 1.5 ton of removed material to one cubic yard of excavation.

The disposal of all waste material shall be the responsibility of the Contractor. The Engineer shall approve the disposal site(s).

The project construction limits shall be cleared of all trash and construction debris. Such material as collected shall be disposed of at an approved landfill site and shall be subject to landfill fees so assessed, which will be included in the unit price bid for the removal bid item. A Landfill Use Permit will be required for all landfill disposals.

The Stage Stop sign located along the east side of Sossaman Road and south of the Sonoqui Wash shall be relocated intact to a nearby location. The Contractor shall coordinate with the Engineer as to the relocation placement.

The Stage Stop Detention Basin will be excavated to the neat lines as shown in the plans. Within the Stage Stop Basin, special waste was observed within a small portion of the basin identified as Areas 1 and 2. Areas 1 and 2 are shown on Exhibit A provided in Appendix B. The Town of Queen Creek retained Speyer & Associates to complete the environmental assessment of this entire parcel. The report is available at the Flood Control District for review.

Areas 1 and 2 are adjacent to the southern bank of Sonoqui Wash, approximately located in the southeast corner of the Stage Stop Basin parcel (see Exhibit A provided in Appendix B). Environmental surveys in these areas have indicated the presence of prior disposal activities, including but not limited to, appliance and automobile parts, glass, metal and landscape debris. Earlier environmental survey work included "Phase I & Limited Phase 2 Environmental Site Assessment Slechta Property Queen Creek Arizona", completed by Speyer & Associates in October 2004. The environmental assessment work completed by Speyer & Associates indicated evidence of landfill material within Areas 1 and 2. Analytical results from discrete soil samples collected in specific portions of Areas 1 and 2 indicated levels of lead and arsenic equal to or in exceedance of ADEQ's soil remediation levels (SRL's). However, Speyer & Associates indicated that historic wastes that may be excavated during construction activities would not be characterized as hazardous waste. Consequently, the contractor should maintain the appropriate dust suppression during excavation to minimize dust exposure to on-site personnel and the public.

Soils from Areas 1 and 2 will require special handling by the contractor and will need to be properly secured by the Contractor using barricades and/or taping. Areas 1 and 2 will initially be excavated in shallow depths (2 foot lifts) to carefully delineate the extent of debris or discoloration within the soil matrix. Excavated soils will be placed on visqueen in separate approximately 100 yard stockpiles prior to disposal, to isolate potential wastes and reduce potential landfill disposal costs. A FCD on-call environmental consultant will collect samples from each of the stockpiles to determine proper disposition of the waste soils. Based on earlier survey results, inert and non-inert waste are present in the soils and will require disposal in the municipal solid waste landfill.

In the event that suspect soils (i.e., staining, discoloration, presence of debris) are encountered during excavation in areas outside of Areas 1 and 2, the area in question will be delineated, secured and characterized as similarly in Areas 1 and 2.

Any material with concentrations exceeding acceptable SRLs will be segregated and properly disposed at the appropriate authorized landfill. An allowance will be utilized to pay the special handling costs for the disposal of such material. If the soil is found to be within acceptable SRLs and can be disposed of at the nearest landfill or used as a backfill, the cost for its disposal will be the price bid per cubic yard of excavated material per bid item 215-03 – Basin Grading.

Subsection 350.3 – Miscellaneous Removal and Other Work

Add the following:

Remove and salvage traffic signs and place it within Contractor's work area. The Contractor shall make arrangements with the appropriate jurisdictions for traffic sign salvage.

Subsection 350.4 – Payment

Delete section and add the following:

Payment for the removal and disposal of non-inert material shall be made on the basis of the price bid per cubic yard, and shall include all labor, materials, landfill fees and charges and equipment necessary to remove and dispose of the non-inert material. Non-inert material may include but not be limited to glass, car parts, discarded car maintenance supplies, landscape debris, old appliances, household waste, and other debris.

ITEM 350-01 – NON-INERT MATERIAL REMOVAL

Payment for the removal and disposal of inert material shall be made on the basis of the price bid per ton, and shall include all labor, materials, landfill fees and charges and equipment necessary to remove and dispose of the debris. Inert material removal includes concrete debris, asphaltic pavement, brick and reinforcing steel and other similar debris.

ITEM 350-02 – INERT MATERIAL REMOVAL

Payment for the removal and disposal of tires shall be made on the basis of the price bid per ton, and shall include all labor, materials, landfill disposal fees, and equipment necessary to remove and dispose of the tires.

ITEM 350-03 – TIRE REMOVAL

Payment for the removal and disposal of the special soil material from the Stage Stop Basin site classified as exceeding acceptable SRL's shall be made on an actual cost basis utilizing the allowance provided, and only as approved by the Engineer, and shall include all labor, materials and equipment necessary to remove and dispose of the material. The District's On-call Environmental Engineer will identify the quantity of special soil that needs to be properly disposed utilizing this allowance. Upon authorization by the Engineer, the Contractor will be responsible for properly disposing the special soil.

ITEM 350-4 – SPECIAL SOIL REMOVAL ALLOWANCE

Payment for the removal and disposal of utility, storm drain and irrigation lines and small diameter culverts shall be made on the basis of the price bid per linear foot and shall include all labor (including sawcutting of pavements), materials, materials removal, landfill fees and charges and equipment necessary to remove and dispose of the items.

ITEM 350-05 – UTILITY, PIPE REMOVAL

Payment for the removal and disposal of asphalt pavement shall be made on the basis of the price bid per square yard and shall include all labor, materials, landfill fees and charges and equipment necessary to remove and dispose of the items.

ITEM 350-06 – ASPHALT PAVEMENT REMOVAL

Payment for the removal and disposal of curb and gutter shall be made on the basis of the price bid per linear foot and shall include all labor, materials, landfill fees and charges and equipment necessary to remove and dispose of the items.

ITEM 350-07 – CURB AND GUTTER REMOVAL

Payment for the removal of miscellaneous existing improvements shall be made on the basis of the lump sum price bid and shall include all labor, materials, landfill fees and charges and equipment necessary to remove and dispose of the items. Removal of existing improvements not shown on the plans or specified in the Special Provisions shall be considered incidental to construction of the Sonoqui Wash and Stage Stop Basin.

ITEM 350-08 - EXISTING IMPROVEMENT REMOVAL

Payment for the relocation of the Stage Stop sign shall be made on the basis of the lump sum price bid and shall include all labor, materials and equipment required for the relocation.

ITEM 350-09 - STAGE STOP SIGN RELOCATION

Payment to remove and salvage traffic signs shall be made on the basis of the lump sum price bid and shall include all labor, materials and equipment required for the removal and salvaging.

ITEM 350-10 – REMOVE AND SALVAGE TRAFFIC SIGNS

SECTION 401 – TRAFFIC CONTROL

Traffic control shall conform to Section 401 of the MAG Uniform Standard Specifications, and Section 401 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard Specifications, except as modified herein.

Subsection 401.3 – Flagmen or Pilot Cars

Replace the section with the following:

Flagmen shall consist of providing sufficient flagmen or uniformed off-duty law enforcement officers to expedite the safe passage of traffic at locations where earth-hauling construction traffic enters or exits the project site.

Subsection 401.5 – General Traffic Regulations

Add the following:

Any road closure and/or restriction shall be coordinated with the appropriate jurisdiction as listed below:

Maricopa County Department of Transportation (MCDOT)	602-506-8600
Town of Queen Creek	480-987-9887
Town of Gilbert	480-503-6842

Major arterial streets such as Higley Road, Power Road, Sossaman Road and Chandler Heights Road will not be allowed to be permanently closed to the traffic during construction.

The Contractor will develop routes for haul trucks on public streets, which will be submitted in writing through the Towns of Gilbert and Queen Creek 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.

The Towns of Gilbert and Queen Creek and MCDOT Traffic Engineering Department shall determine approach speed limits and speed limits within the construction areas.

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** - Construction shall be staged and scheduled to minimize disruption to the neighborhoods, schools and businesses. The Contractor shall provide and maintain at least two (2) variable message signs for project traffic control purposes for the duration of the project.
- (B) **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.
- (C) **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 Towns of Gilbert and Queen Creek Municipal Services Department.
- (D) **Special Events** - The Contractor shall coordinate special events scheduled to take place during construction into the construction schedule.
- (E) **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.
- (F) **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.
- (G) **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.
- (H) **Traffic Control Plan** - The Contractor shall submit a traffic control plan for approval by the appropriate jurisdiction including Maricopa County Department of Transportation, Traffic Engineering Department, Town of Gilbert and Town of Queen Creek 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.
- (I) **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 in writing seventy-two (72) hours in advance of any restrictions which will affect their access as described in Section 401 of the Special Provisions. 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 that 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.

(J) **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.
- 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 work deemed necessary by the Engineer to compensate for the temporary inconvenience of construction within the neighborhood.
- In the event the trash cannot be collected from various residents due to construction activities, the Contractor will make arrangements to empty the trash containers for these residents.

The Contractor shall provide and maintain all necessary traffic controls to protect and guide traffic for all work in and around the construction area. This is especially important for Contractor operations that involve hauling material into and away from the project site. No changes in traffic speeds for local streets are anticipated to be required for construction of this project. All traffic controls must be installed prior to the start of any work in accordance with a Traffic Control Plan reviewed by the Engineer and approved by the local jurisdiction over the roadways affected.

The Contractor shall maintain all existing stop, yield, and street name signs erect, clean, and in full view of the intended traffic at all times. All traffic control signs and devices must be ballasted with sand bags sufficient to maintain the sign or device to warn and protect the public. Signs shall be mounted on wind-resistant spring-type bases when conditions warrant or when requested by the Engineer.

Any warning signs or devices that must remain in place overnight shall be protected with lighting to warn the public.

The Engineer reserves the right to require of the Contractor any devices or services deemed necessary to protect the traveling public and users of the local streets around the project area.

Subsection 401.6 – Measurement

Replace the subsection with the following:

No measurement will be made for traffic control devices, plans, permits, flagmen or pilot cars. Measurement will be made on an hourly basis for the use of uniformed off-duty law enforcement officers.

Subsection 401.7 – Payment

Payment for Traffic Control shall be by the lump sum bid for this item. The lump sum bid shall be for furnishing, installing, adjusting, and maintaining all traffic control signs and devices and including the use of flagmen and pilot cars if necessary. The lump sum bid shall also cover all labor, materials, and incidental expense in preparing or maintaining traffic control operations as well as preparation of and modifications to the Traffic Control Plan.

ITEM 401-01 – TRAFFIC CONTROL

Payment for an off-duty uniformed officers will be made on an as-used basis as determined by the Engineer. The Contractor shall submit documentation as required by the Engineer to support payment for this item. Payment for off-duty uniformed officers shall be made on the basis of the price bid per hour.

ITEM 401-02 - OFF-DUTY UNIFORMED OFFICER

SECTION 405 – SURVEY MONUMENTS

Survey monuments shall conform to Section 405 of the MAG Uniform Standard Specifications, except as modified herein.

Subsection 405.1 – Description

This work shall consist of furnishing and installing a survey monument(s) at the locations shown on the plans or directed by the Engineer and as specified. Monuments shall conform to the standard details or details shown on the plan.

Subsection 405.5 – Payment

Add the following:

Payment for monuments will be made on the basis of the price bid per each and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the monuments, complete in place, including asphalt seal and necessary excavation and backfill, as shown on the plans or as directed by the Engineer.

ITEM 405-01 – SURVEY MONUMENT, M.A.G. DET 120, TYPE “C”

SECTION 430 – LANDSCAPING AND PLANTING

Native seeding shall conform to Section 430 of the MAG Uniform Standard Specifications except as modified herein or as superseded by these Special Provisions.

Subsection 430.1 - Description:

Delete this subsection in its entirety and replace with the following:

This section shall govern the preparation and planting of native seeding areas as required in the Plans and Specifications. All materials and products shall conform to the requirements of MAG Specifications Section 795 or as modified herein.

Existing utilities, work installed as part of the project, and improvements not designated for removal shall be protected in place. The Contractor shall repair any damage to these items at no additional cost to the Owner.

Unless otherwise provided, all native seeding shall be constructed after fine grading has been completed to within one tenth of a foot (0.10') from the subgrade elevation necessary to meet the finish grading requirements.

Seeding shall extend to the limits of disturbance (typically delineated by project cut and fill limits), which may extend beyond the project right-of-way. Hardened areas such as roadways, O&M access road and concrete structures are not to be seeded.

The work under this section shall consist of furnishing all labor, materials and equipment to install native seeding. Work shall also include any fine grading, material testing, soil preparation, obtaining and paying for all required permits and fees, all necessary traffic control and maintenance, establishment and warranty of all landscape work.

Subsection 430.2 - General:

Add the following to this subsection:

Bidders are encouraged to visit the job site prior to bidding on this project, and to satisfy their concerns as to the magnitude of the work involved.

Furnish all labor, materials, equipment and incidentals necessary to install the native seeding to the lines and cross sections and in accordance with the details shown in the plans.

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

Water costs are the Contractor's responsibility until Final Acceptance or the end of Seeding Establishment Period which ever is longer.

All planting areas shall be left free of construction debris and/or toxic material and sub-graded to a level to permit native seed installation. Trenches, foundation backfill or other filled excavations shall be compacted prior to the site being turned over to the Contractor. No soil preparation or planting shall begin before the site has been cleared and cleaned of debris. Commencement of work indicates acceptance of job site conditions.

The Contractor shall cooperate and coordinate with other Contractors and trades working in and adjacent to the native seed areas.

Determine location of underground utilities through Blue Stakes or other approved methods and perform work in a manner, which will avoid possible damages. The Contractor, at no additional cost to the Owner, will repair any damages to staked utilities. Hand excavate, as required when working in close proximity to any underground utilities. Maintain stakes by others until removal is mutually agreed upon by concerned parties. The Contractor must meet all requirements of the MAG Uniform Standard Specifications and Blue Stake.

Ship materials with Certificate of Inspection required by governing authorities.

If specified native seeding material is not obtainable, submit proof of non-availability from five (5) sources contacted, together with proposal for use of equivalent material, similar in appearance, ultimate height, shape, habit of growth and general soil requirements. The Contractor may not make substitutions unless approved by the Engineer. Any additional costs for substitutions will be borne by the Contractor.

Before delivery, Certificates of Compliance as required by governmental authorities shall be submitted for the native seeding materials, certifying that they meet the requirements specified. Certified copies of the reports for the following materials shall be submitted:

1. Transporting of landscape materials as applicable (from Arizona Department of Agriculture).
2. Certified analysis of soil amendments, fertilizers, mulch and conditioners.
3. Native seed mixes, including seed vendor's certified statement for each seed mixture required, stating botanical and common name, net weight, percentages by weight, and percentages of purity, germination, and weed seed for each seed species.

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

The Engineer reserves the right to take and analyze samples of materials for conformity to specifications at any time. Rejected materials shall be immediately removed from the site at the Contractor's expense. The Contractor shall pay the cost for all testing in addition to all removal and replacement of materials not meeting specifications.

Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site. Protect products/materials from weather or other conditions that would damage or impair the effectiveness of the product/material.

All herbicide 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.

All non-paved areas, as directed by the Engineer, shall be treated with a short-duration (7 day), non-selective, post-emergent herbicide 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. For any undesirable vegetation that cannot be eradicated by approved chemical methods, the Contractor is required to mechanically remove such vegetation at no additional cost to the Owner. DO NOT APPLY PRE-EMERGENT TO AREAS TO RECEIVE NATIVE SEEDING. All applications shall be completed by a State of Arizona licensed applicator. All spray materials shall include a temporary coloring agent to provide visual verification of coverage. All applications shall be monitored and completed in the presence of the Owner's representative. Native seeding work shall not begin until the herbicide is no longer viable.

Finish grade for native seeding areas shall not vary more than two tenths of a foot (0.20') from the specified grade and cross section and shall be a smooth, uniform surface, free of abrupt grade changes or depressions.

Surface Drainage of Planted Areas: Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Engineer in writing for correction or relief of said responsibility.

All native seed areas within the project shall be uniformly graded so that finished surfaces conform to the typical sections, proposed grades and surrounding surfaces. Finished surfaces shall be reasonably smoothed, compacted, and free from irregular surface drainage. Ditches and swales shall be finished to permit proper surface drainage.

During seeding work, keep pavements clean and work areas in orderly conditions. Sweep, scrub or hose affected areas as directed by the owner's representative to maintain a clean and neat work area.

Protect seeding work and materials from damage due to landscape installation, operations by other Contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged work as directed by the owner's representative. Remove all debris, trash and excess materials and dispose of off-site in an approved manner.

Subsection 430.3 – Lawn Areas:

Delete this Section in its entirety and replace with the following:

Subsection 430.3 – Native Seeding Areas

Subsection 430.3.1 – Description:

This Section includes provisions for the following items: native seeding of the channel bottom and side slopes and the upland areas as shown on the plans. Seeding consists of furnishing and applying seed, and applying and affixing mulch and tackifier.

Water: Shall be provided by the Contractor. No separate measurement or payment will be made for water.

Subsection 430.3.2 – Quality Assurance:

Seeding work is to be performed by a single firm specializing in native seeding installation and maintenance.

Subsection 430.3.3 – Submittals:

Planting Schedule: At least 45 days prior to initiating seeding work, submit proposed seeding schedule, indicating dates for seeding installation. Correlate with specified maintenance periods to provide maintenance from installation through substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.

Subsection 430.3.4 – Products:

Native Seed Mixes:

Native Seed Mix A shall consist of tree, shrub, and perennial seed at the rates shown below.

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED (pounds)/ACRE
Trees		
Cercidium floridum	Blue Paloverde	2.0
Cercidium microphyllum	Foothills Paloverde	1.0
Olneya tesota	Ironwood	2.0
Prosopis velutina	Velvet Mesquite	0.5
Shrubs		
Ambrosia deltoidea	Triangle Bursage	2.0
Calliandra eriophylla	Fairy Duster	0.5
Larrea tridentata	Creosote	0.5
Senna covesii	Senna	0.25
Atriplex canescens	Fourwing Saltbush	0.5
Encelia farinosa	Brittle Bush	0.125
Annuals and Perennials		
Aristida purpurea	Purple Three-Awn	0.125
Bouteloua aristidoides	Needle Grama	0.125
Baileya multiradiata	Desert Marigold	0.125
Eschscholtzia mexicana	Mexican Gold Poppy	0.5
Glandularia gooddingii	Desert verbena	0.125

Penstemon parryi	Parry Penstemon	0.5
Penstemon pseudospectabilis	Showy Penstemon	0.5
Lesquerella gordonii	Bladder Pod	0.25
Lupinus sparsiflorus	Desert Lupine	0.5
Sphaeralcea ambigua	Globe Mallow	0.125

Native Seed Mix B shall consist of tree and perennial seed at the rates shown below.

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED (pounds)/ACRE
Trees		
Cercidium floridum	Blue Paloverde	0.25
Prosopis glandulosa	Texas Honey Mesquite	0.25
Shrubs		
Ambrosia deltoidea	Triangle Bursage	1.0
Senna covesii	Senna	0.25
Trixis californica	Trixis	0.25
Psilostrophe cooperi	Paperflower	0.25
Annuals and Perennials		
Baileya multiradiata	Desert Marigold	0.25
Eschscholtzia mexicana	Mexican Gold Poppy	0.5
Kallstroemia grandiflora	Arizona Poppy	0.5
Penstemon eatoni	Firecracker Penstemon	0.5
Penstemon parryi	Parry Penstemon	0.5
Penstemon pseudospectabilis	Showy Penstemon	0.5
Lupinus sparsiflorus	Desert Lupine	1.0
Phacelia crenulata	Desert Phacelia	0.5
Glandularia gooddingii	Desert Verbena	0.25

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NON NATIVE

Native Seed Mix C shall consist of shrub and perennial seed at the rates shown below.

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED (pounds) /ACRE
Shrubs		
Ambrosia deltoidea	Triangle Bursage	0.5
Senna covesii	Senna	0.125
Psilostrophe cooperi	Paperflower	0.125
Annuals and Perennials		
Aristida purpurea	Purple Three-Awn	1.0
Bouteloua aristidoides	Needle Grama	0.75
Tricachne californica	Arizona cottontop	0.25
Hilaria rigida	Big Galleta	0.75
Hilaria belangeri	Curly Mesquite	1.0
Panicum obtusum	Vine mesquite	1.0
Sporobolus airoides	Alkalai Sacaton	0.125
Sporobolus cryptandus	Sand Dropseed	0.125
Baileya multiradiata	Desert Marigold	0.125

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? to pick up
need to pick up

Eschscholtzia mexicana	Mexican Gold Poppy	0.125
Glandularia gooddingii	Desert verbena	0.125
Penstemon parryi	Parry Penstemon	0.125
Sphaeralcea ambigua	Globe Mallow	0.125

The seed mixes shall be mixed by the supplier and shall be provided in unopened containers bearing the dealer's certificate of seed mix composition, percentage of purity, germination rate and weed content. ← *

Approximate locations for the application of Seed Mix A, B and C are shown on the Seed Mix Exhibits provided in Appendix C.

Hydromulch:

Shall be green colored, fibrous, 100% wood cellulose mulch containing no growth or germination inhibiting factors, and shall be produced by Silva, Conwed or approved equal exclusively for the hydromulching process. The mulch shall be virgin wood and be manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form homogenous slurry. It shall contain a minimum identifying agent of 2% of volume by weight. Each package of the cellulose fiber shall be marked by the manufacturer to show the air-dry weight content.

When hydraulically sprayed on the ground, the material will form a blotter-like cover impregnated uniformly with seed. The cover will allow the absorption of moisture and allow rainfall to percolate to the underlying area.

Tackifier:

Shall be a naturally occurring organic compound and be non-toxic. It shall be a product typically used for binding soil and mulch in erosion control and seeding operations. It shall consist of mucilage by dry weight as active ingredient obtained from plantago or guar. The tackifier shall be labeled indicating the type and mucilage purity.

Seed:

Shall be the specified seed mixes identified herein added at pure live seed (PLS) rates, to the hydroseed slurry. All seed used shall be clearly tagged or labeled showing the type of seed, purity, germination, test date, and weed content. Tetrazolium staining shall be acceptable for germination and hard seed. Cut or fill testing will not be allowed. Certificates of analysis shall be provided in addition to seed tags. Seed shall contain no more than 0.025% common weed seed. For purposes of this specification, weed seeds shall be designated as all other seed including other crops not specified for seeding purposes. Other crop seed specifically considered (but not limited to) as weed shall be Bermuda grass (*Cynadon dactylon*), African lovegrasses (*Eragrostis spp.*), and bufflegress (*Pennisetum ciliare*).

Subsection 430.3.5 – Execution:

Seed Bed Preparation:

Limit preparation to areas that will be planted in immediate future. The Contractor shall stake out all areas to be seeded and obtain Engineer’s approval prior to beginning work.

All seeded areas shall be tilled to an average 6" depth (4" is acceptable on 3:1 or greater slopes) by disc harrow, chiseling tool or with other approved equipment. Tillage shall be done along the contours of the slope, and the ground shall be ripped in two perpendicular directions. No work shall be done when the moisture content of the soil is unfavorable or the ground is otherwise in a condition not conducive to tillage. All competitive vegetation shall be uprooted during the tillage operation. Slopes of 3:1 or greater shall be left with a roughened surface to aid in water absorption. Foreign material that would interfere in the seeding operation shall be disposed of off-site at no additional cost to the Owner. Prior to seeding, the

soil surface shall be loose but not wet. The intent is that no measurable rainfall shall have occurred on these areas between the ground preparation and the seeding operations. If the ground surface becomes encrusted prior to placing native seeds, the contractor will be required to loosen the surface until acceptable. The Contractor shall seed immediately following seedbed preparation. The Contractor may be required to mobilize frequently to accomplish this goal. Scheduling of seeding mobilization will be coordinated with the Engineer at the construction meetings, or more frequently as requested by the parties.

The Contractor shall demonstrate prior to starting the seed installation his proposed method for the seedbed preparation, recognizing the site conditions and these Special Provision requirements, and make modifications during the course of the work as directed by the Engineer. The Engineer shall approve the seedbed preparation and establish the acceptable preparation methods for the project.

Seeding:

Seeding of the native seed areas shall be completed in three steps: (1) preparation of the seedbed; (2) seeding with the specified seeds; and (3) mulching and tacking.

Obtain approval of the seedbed preparation areas prior to seed application. Apply slurry in a sweeping motion to form a unified mat of specified materials. Use the hydromulch material as a guide in applying the slurry. Do not cause rivulets, erosion or changes to the finished grade. Wash, clean or remove overspray as directed by the Engineer.

The slurry for the hydroseed process shall be as follows:

SLURRY MIX	RATE
Commercial Fertilizer: (16-20-0 analysis) or approved equal	300 lbs./acre
Hydromulch: 100% wood fiber or equivalent	2,000 lbs./acre
Tackifier	80 lbs./acre
Seed mix:	As specified

The seed shall not be combined with the slurry mix for more than 30 minutes prior to use.

The Engineer shall regularly observe the weighing of seed, mixing of slurry mixes, and application of seed. The Contractor shall coordinate with the Engineer in advance so these operations can be observed on a regular basis.

Seeding shall be done immediately following the final preparation of each seeded area, which may involve preparation, mobilization and seeding of distinct portions of the site separately as agreed to by the Engineer.

After the tillage is complete and accepted by the Engineer, seed shall be planted by slurry mix as approved by the Engineer. Hoses may be used where heavy equipment cannot access. The Contractor shall submit a batch (tank) mix for the Engineer's approval prior to mixing any seed/mulch slurry. Batch mixing and coverage will be monitored throughout seeding operations.

The slurry shall be anchored by tackifier incorporated into the slurry at the rates specified above.

Any material sprayed on non-designated areas shall be immediately removed at the Contractor's expense. Non-designated areas may include structures, walls, fences, pavement, roads, trails/paths, signs, plants, site furnishings, and equipment.

To reduce the potential for windblown pollution of surrounding land areas, straw, rye or other similar mulch is not permitted to be used in the seeding operation.

Cleanup and Protection:

During native seeding work, keep work areas clean and in an orderly condition. Broom, scrub or hose affected areas as directed by Engineer to maintain a clean and neat work area.

Promptly remove soil and debris created by seeding work from paved areas. Clean wheels of vehicles prior to leaving site to avoid tracking soil onto surfacing of roads, walks or other paved areas.

Protect native seeding work and materials from damage by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged work during the installation and establishment periods as directed by the Engineer, at no cost to the Owner. Remove all debris, trash and excess materials generated by the seeding installation.

Acceptance of Seeding Installation:

Acceptance of the seeding substantial completion and final acceptance shall be as identified in Subsection 430.8 Plant Guarantee and Maintenance of these Special Provisions.

Subsection 430.8 - Plant Guarantee and Maintenance:

Add the following paragraphs:

Plant Establishment Period, is hereinafter referred to as "Seeding Establishment Period".

The contractor shall be responsible for maintaining, stabilizing and warrant the seeded areas and restoring damaged or eroded areas from the initiation of seeding activities through the forty five (45) days Seeding Establishment Period or until accepted by the Engineer.

Establishment activities shall occur in all areas of the site capable of sustaining growth. Areas that are incapable of being modified to sustain growth as specified herein shall not be subject to these establishment requirements; the Engineer and the contractor shall determine the excluded areas during the seeding operations.

Unless otherwise authorized, the Contractor shall maintain all seeded areas on a continuous basis as they are completed during the course of work until accepted or until the final Seeding Establishment Inspection, as applicable. The Contractor shall provide adequate personnel to accomplish the intended maintenance. Maintenance shall include keeping the seeded areas free of debris on a weekly basis, chemical control of weeds as needed, and pruning of plant material when appropriate.

Chemical mixing and method of application for weed control shall be done in the presence of the Engineer. Chemical application for weed control shall not apply to areas that are native seeded.

Subsection 430.9 - Seeding Establishment Period:

Add the following to this subsection:

The Seeding Establishment Period for the native seeding shall be 45 days and shall be considered within the allotted contract period. If the native seeding areas are improperly maintained; if appreciable reseeded is required (for whatever reason); or if other corrective work is necessary; the Seeding

Establishment Period shall be extended and the Contractor shall continue to maintain the entire site until accepted at no increased cost to the Owner.

Pre-establishment Inspection: An inspection will be performed upon substantial completion of all native seeding work under this contract. Contractor shall notify the Owner within 5 days of inspection to arrange schedule. The Owner, contractor and such others as the Owner shall direct, shall be present at the inspection. Subsequent to the inspection, the Owner shall issue the effective beginning date for the Seeding Establishment Period. At his sole discretion, the Owner may issue beginning dates for portions of the native seeding.

Native Seeding Installation Acceptance Inspection: All seeded areas shall be inspected for acceptance after the seeding work has been completed. At the time of the installation acceptance inspection, 100% of the seed and stabilizing mulch shall be in place, and there shall be no evidence of rilling, erosion or damage within the seeded areas. Areas not conforming to this work item shall have the deficiencies corrected before initiating the 45 day Seeding Establishment Period.

Final Native Seeding Acceptance Inspection: During the 45 day Seeding Establishment Period, the contractor shall monitor the site and conduct establishment activities as necessary to meet the project requirements. The contractor shall restore straw mulch or other mulching materials that have eroded or have otherwise been displaced. Reseeding shall be undertaken if the seedbed has been deteriorated or if, in the opinion of the Engineer, the seeded areas are no longer viable for establishing the planted seeds. Erosion shall be repaired, reseeded and re-mulched with material as specified herein. At the completion of the 45 day Seeding Establishment Period, a second inspection will be conducted and any areas that have less than 90 percent of applied seed and mulch in place, shall be reseeded, re-mulched, and re-tacked at no additional cost to the Owner. The 45-day period(s) shall be within the allotted contract time.

From initiation of the seeding operation through final acceptance, the contractor shall monitor the site for weeds and treat as needed. Excessive quantities of weeds shall be removed and/or treated during the establishment period to reduce competition and allow seeded species to become established. The Engineer shall approve the chemicals treatments for weed control prior to use on the project. If the Engineer determines that weed competition is detrimental to the establishment of the seeded areas, the contractor will be directed to remove or treat the weeds, re-till if needed, reseed and re-mulch the affected areas. In no case shall weeds be allowed to grow at excessively competitive densities and in all cases removal or treatment of weeds shall be done prior to weed seed formation.

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

Subsection 430.10 - Measurement and Payment

Add the following to this subsection:

There will be no separate measurement and payment for the Seeding Establishment Period. This cost shall be included in related landscape bid items. Ten (10) percent of the native seed bid item amounts will be withheld until the completion and acceptance of the Seeding Establishment Period, at which time payment of these remaining monies will be paid to the Contractor.

Payment for the Native Seed shall be made on the basis of the price bid per acre and shall be considered full compensation for all labor, materials, equipment, soil preparation, seed mix, site prep, hydroseed mix, tackifiers, water as necessary and all other items necessary and incidental to the application of the native

seed as shown on the plans, as described in these Special Provisions and including the Seeding Establishment Period.

ITEM 430-01 – NATIVE SEEDING

Add the following section to the MAG Uniform Standard Specifications:

SECTION 460 – REMOVAL OF PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS

Removal of pavement markings shall conform to Section 460 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard and Specifications except as modified below:

Subsection 460.1 – Description

Add the following:

The work under this section includes removal of pavement markings and raised pavement markers within Power Road, Sossaman Road and Chandler Heights Road as shown in the plans.

Subsection 460.2 – Method of Measurement:

Add the following:

Measurement for removing painted stripe, removing thermoplastic stripe and Type 1 – Preformed plastic marking tape will be by the linear foot along the centerline of the pavement stripe to be removed.

Subsection 460.4 – Basis of Payment:

Add the following:

Payment for removing thermo plastic and painted striping will be at the unit contract price per linear foot for the length of painted line applied.

ITEM 460-01 – REMOVE PAINTED AND THERMOPLASTIC STRIPE

Add the following section to the MAG Uniform Standard Specifications:

SECTION 462 – THERMOPLASTIC PAVEMENT MARKINGS

Thermoplastic pavement markings shall conform to Section 462 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard Specifications except as modified below.

Subsection 462.1 – Description

Add the following:

The work under this section includes construction of thermoplastic pavement markings (white and yellow) within Power Road, Via Del Jardin, Sossaman Road and Chandler Heights Road as shown in the plans.

Subsection 462.4 – Method of Measurement:

Add the following:

Measurement for white and yellow thermoplastic traffic stripe will be by the linear foot along the centerline of the stripe and will be based on a 100-mm (4”) wide stripe.

Subsection 462.5 – Basis of Payment:

Add the following:

Payment for white and yellow thermoplastic traffic stripe will be at the unit contract price bid per linear foot for the length of painted thermoplastic line applied.

ITEM 462-01 – 100 mm (4”) WHITE THERMOPLASTIC TRAFFIC STRIPE

ITEM 462-02 – 100 mm (4”) YELLOW THERMOPLASTIC TRAFFIC STRIPE

Add the following section to MAG Uniform Standard Specifications:

SECTION 463 – RAISED PAVEMENT MARKINGS

Raised pavement markings shall conform to Section 463 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard Specifications except as modified below.

Subsection 463.1 – Description

Add the following:

The work under this section includes construction of raised pavement markings within Power Road, Via Del Jardin, Sossaman Road and Chandler Heights Road as shown in the plans.

Subsection 463.5 – Basis of Payment:

Add the following:

Payment for reflectorized raised pavement markers of all types will be at the unit contract price bid per each type and shall include all material, labor installation and other incidental work.

ITEM 463-01 – REFLECTORIZED RAISED PAVMT MARKER (TYPE D, YELLOW 2-WAY)

ITEM 463-02 – REFLECTORIZED RAISED PAVMT MARKER (TYPE G, CLEAR 1-WAY)

ITEM 463-03 – REFLECTORIZED RAISED PAVMT MARKER (TYPE H, YELLOW 1-WAY)

Add the following section to MAG Uniform Standard Specifications:

SECTION 464 – ROADSIDE SIGN SUPPORTS

Roadside sign supports shall conform to Section 464 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard Specifications except as modified below.

Subsection 464.1 – Description

Add the following:

The work under this section includes construction of sign supports with square perforated tube posts and foundations for the posts within Power Road, Sossaman Road, Via-Del Jardin, Recker Road and Chandler Heights Road as shown in the plans.

Subsection 464.5 – Payment:

Add the following:

The payment for perforated sign posts shall be per contract unit price bid per linear foot and shall include full compensation for furnishing all labor, excavation, materials, tools, equipment and incidentals. The payment for sign post foundations shall be per contract unit price bid per each and shall include full compensation for furnishing all labor, excavation, materials, tools, equipment and incidentals.

ITEM 464-01 - PERFORATED SIGN POST

ITEM 464-02 - PERFORATED SIGN POST FOUNDATION, MCDOT DET 2058

Add the following section to MAG Uniform Standard Specifications:

SECTION 465 – SIGN PANELS

Sign panels shall conform to Section 465 of the Maricopa County Department of Transportation Supplement to the MAG Uniform Standard Specifications except as modified below.

Subsection 465.1 – Description

Add the following:

The work under this section includes construction of sign panels and installation of barricades as shown on the plans within Power Road, Sossaman Road, Via Del Jardin, Recker Road and Chandler Heights Road as shown in the plans.

Subsection 465.4 – Method of Measurement:

Add the following:

Flat sheet aluminum sign panels will be measured by square feet for each type or types of sign panels furnished and installed.

Barricade (Type II, MCDOT Detail 2057A) will be measured as a unit for each barricade furnished and installed.

Subsection 465.5 – Basis of Payment:

Add the following:

Payment for each flat sheet aluminum sign panel will be at the unit contract price bid per square foot for the panels furnished and installed.

ITEM 465-01 – FLAT SHEET ALUMINUM SIGN PANEL, ENGINEERING GRADE

Payment for each barricade (Type III, MCDOT Detail 2057A) will be made at the contract unit price bid for each barricade complete in place, furnished and installed.

ITEM 465-02 – BARRICADE (TYPE III) (MCDOT DTL 2057A)

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 work under this section shall consist of furnishing all labor, materials and equipment for the construction of all cast-in-place and other concrete structures, including:

- Stage Stop Basin Weir;
- Sonoqui Wash drop structure cutoff walls;
- Reinforced Concrete Box Culvert, including inlet and outlet headwalls, wingwalls and cut-off walls at Recker Road;
- Stage Stop Basin outlet, including inlet and outlet headwalls, wingwalls, cut-off walls, aprons trash rack and riprap.
- Stand pipe including all of the hardware as shown in detail sheet D14 including 12” sluice gate, ladder, shaft and shaft supports, grates and other accessories;
- CMP and irrigation tailwater pipe headwalls and drop inlet structures; and
- Local inflow structure cutoff walls.

Concrete shall conform to the requirements of Section 725 of the MAG Standard Specifications, and mix designs shall additionally meet the requirements of Chapter 5, Section 5.3 of ACI STANDARD 318-02. The Contractor shall submit mix designs and certifications of conformance with the above requirements for the written approval of the Engineer.

Class “A” Concrete, $f'c=3,000$ psi (28-day compressive strength), shall be used for all concrete structures.

The use of Class “F” fly ash will be permitted in all concrete mixes, subject to approval of mix design by Engineer.

Transit Concrete mixers used on the project must carry current certification from ADOT or Arizona Rock Products Association.

The reinforcing steel shall conform to Section 727, Grade 60, of the MAG Standard Specifications.

Shop Drawing shall be submitted for the following:

- Product Data: Admixtures and patching materials.
- Placement Drawings:
 - a. Concrete, identifying location of each type of construction joint.
 - b. Reinforcing steel.

Do not backfill against concrete walls until concrete has obtained 28-day compressive strength. Place backfill simultaneously on both sides of wall, where required, to prevent differential pressures.

Riprap to be installed at locations shown on the plans shall conform to and be paid for under Section 220 and be installed as shown on the plans.

Trash racks and grates shall be installed according to the plans and conform to the specifications.

Concrete weir structures are to have a heavy broom finish.

Object markers are to be installed at irrigation drain headwalls and drop inlets and shall be installed according to the plans, details and specification. Object markers are a non pay item and shall be considered incidental to irrigation drain headwall and drop inlet construction and cost.

Subsection 505.6 – Placing Concrete

Subsection 505.6.1 – Joints

Add the following:

Construction joints shall be located at the end of a day's pour or when concrete placement stops for more than 45 minutes. Reinforcing steel shall be continuous through construction joints for a minimum of 2 feet beyond the end of pour unless noted otherwise on the plans. The end of the pour shall be a roughened and cleaned surface.

Elastomeric (mastic) sealant used on the construction joint shall be Sikaflex 1-A or an approved equivalent.

Subsection 505.8 – Curing

Add the following:

All concrete to receive any coloration shall be water cured utilizing the wet burlap method, unless otherwise permitted by the Engineer, and shall be kept continuously wet for ten (10) days.

No vehicular loads will be permitted on concrete structures before the period of twenty-one (21) days from the date of the last pour of concrete unless approval is obtained in writing from the Engineer. In no case shall traffic be allowed on the structures until the specified concrete strength has been attained. The Contractor shall take special precautions to keep the area properly barricaded, lighted, and marked to prevent automotive traffic from crossing these structures prior to the Engineer's approval. Contractor shall take all necessary precautions to protect concrete work from vandals at all times. Contractor shall maintain a work force presence within visual access of all poured and curing concrete until such time as the concrete has set up and hardened beyond the point of marking or scratching the surface.

Subsection 505.9 – Finishing Concrete

Add the following:

The finish of the concrete for the Stage Stop Basin weir surface shall be a rough rake finish

Subsection 505.9.6 – Concrete Aesthetics

All exposed concrete, except for the irrigation tailwater drop inlets and headwalls as shown on the plans, shall be stained with the following decorative coating custom color or approved equal:

#5234D, Warmth, diluted by 25%
Frazee Paint Company, Phoenix, AZ.

The staining product specified above shall be applied after concrete has cured and according to proper prep per manufacturer's written recommendations.

The color shall conform to the color requirements with respect to hue and chroma. A 5-foot by 5-foot test panel shall be made and the color shall be approved by the Landscape Architect prior to use. The cost of the concrete stain and concrete test panels shall be considered incidental to the cost of the structure. Any unused concrete stain purchased by the Contractor shall be provided to the District after staining is completed.

Subsection 505.10 – Payment

Add the following:

Payment for the Stage Stop Basin Weir and Sonoqui Wash drop structure cutoff walls shall be made on the basis of the price bid per cubic yard of concrete for the quantities shown in the plans complete in place, and shall include full compensation for all labor, material, finishing, staining, test panels, excavation and backfill, equipment and appurtenances necessary for construction complete in place. Payment for the associated riprap is covered in Section 220.

ITEM 505-01 – STAGE STOP BASIN CONCRETE WEIR

ITEM 505-02 – DROP STRUCTURE CUTOFF WALLS

Payment for the concrete drop inlets (6" thick concrete apron with 1'-6" turndowns) and headwalls (MAG Std. Detail 501, Straight type with L2 = 3') as shown in the plans and Detail Sheet D13 shall be paid for on the basis of the price bid per each item, and shall include full compensation for all labor, material including reinforcing steel, finishing, form work, staining, grading, steel grates, excavation and backfill, equipment and appurtenances including type 4 object markers necessary for construction complete in place.

ITEM 505-03 – DROP INLET AND HEADWALL

Payment for the ADOT Standard Detail B-02.40, 4-10'x5' RCBC at Recker Road, including ADOT Standard Detail B-08.10, Type B, inlet and outlet wingwalls, shall be made on the basis of the price bid per cubic yard of concrete for the quantities shown in the plans complete in place, and shall include full compensation for all labor, material including reinforcing steel, finishing, staining, form work, excavation and backfill, equipment and appurtenances necessary for construction complete in place. Payment for the associated dumped riprap is covered in Section 220.

ITEM 505-04 – WINGWALL PER ADOT STD DWG B-08.10, TYPE B WING, "L"=24'

ITEM 505-05 – 4-10'X5' BOX CULVERT, ADOT STD DET B-02.40

Payment for the Concrete M.A.G. Std Detail 501-1, 501-2 "U" Type headwalls and wingwalls, shall be paid for on the basis of the price bid per each item, and shall include full compensation for all labor, material, including reinforcing steel and D₅₀ = 6" riprap erosion protection collar, finishing, form work, staining, excavation and backfill, equipment and appurtenances necessary for construction complete in place.

ITEM 505-06 – M.A.G. HEADWALL, 501-1, 501-2 "U" Type

Payment for the Concrete stand pipes shall be made on the basis of the price bid per cubic yard of concrete for the quantities shown in the plans complete in place, and shall include full compensation for all labor, material, including reinforcing steel, finishing, form work, excavation and backfill, ladder, 12" sluice gate, wall mount brackets, frame, shaft, shaft supports, grates and other accessories, equipment and appurtenances necessary for construction complete in place as shown in Detail D14.

ITEM 505-07 – STANDPIPE

Payment for the Concrete M.A.G. Std Detail 552, Concrete Cut-off walls, shall be paid for on the basis of the price bid per each item, and shall include full compensation for all labor, material, including reinforcing steel, finishing, form work, excavation and backfill, equipment and appurtenances necessary for construction complete in place to the elevation as shown on the plans.

ITEM 505-08 – CONCRETE CUT-OFF WALL, M.A.G. STD DET 552

Payment for the Stage Stop Basin outlet pipe headwalls shall be paid for on the basis of the price bid per each item, and shall include full compensation for all labor, material including reinforcing steel, finishing, form work, staining, trash rack, D₅₀ = 6" riprap erosion protection collar, excavation and backfill, equipment and appurtenances necessary for construction complete in place.

ITEM 505-09 – STAGE STOP BASIN OUTLET PIPE HEADWALL

Payment for the Local Inflow structure cutoff walls shall be paid for on the basis of the price bid per each item, and shall include full compensation for all labor, material including reinforcing steel, finishing, form work, excavation and backfill, equipment and appurtenances necessary for construction complete in place.

ITEM 505-10 – LOCAL INFLOW STRUCTURE CUTOFF WALL

SECTION 515 – STEEL STRUCTURES

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

Subsection 515.1 – Description

Add the following:

The work shall consist of providing the fabricated steel, removable bollards, pipe end sections, and grated inlet racks as shown on the plans.

All grated inlet racks and barriers will be hot-dip galvanized, including those that are field fabricated, in accordance with MAG 771.

Subsection 515.2 – Steel Buildings and Miscellaneous Steel Structures

Add the following:

The bollards shall be Maxiforce 1, O'Keefe padlock removable style bollards, type "R" (Round Colonial Style) or approved equal. Bollards shall be painted safety yellow. Bollards shall have their bases anchored in concrete to a depth of at least 12 inches below the bottom of the base. Information may be

obtained by contacting George Reale at the contact information below, or by viewing the website www.maxiforcebollard.com.

George Reale
G. Reale Enterprise, Inc.
3444 Marshall Road
Drexel Hill, PA 19026
610-623-2611(phone)
610-623-6384 (fax)

Subsection 515.6 – Measurement

Add the following:

Measurement for grated inlet rack shall consider all components for complete rack assembly and installation as shown on the drawings and shall be considered incidental to installation of pipe.

Measurement for pipe end sections shall consider all components for the complete assembly and installation as shown on the drawings and shall be considered incidental to installation of pipe.

Measurement for removable bollards shall consider all components for complete bollard assembly and installation as shown on the drawings and described in these Special Provisions.

Subsection 515.7 – Payment

Add the following:

No payment will be made for the end sections or trash racks. The cost of material, installation, hot dip galvanizing and other incidentals will be included in the cost per linear foot of pipe where the end sections will be installed.

Payment for construction and installation of the removable bollards will be made at the contract unit price bid per each, and shall constitute full compensation for furnishing all material, labor, tools and equipment and accomplishing all work associated with constructing and installing the removable bollards as described in these Special Provisions and shown on the construction drawings.

ITEM 515-01 BOLLARD

SECTION 520 – STEEL AND ALUMINUM HANDRAILS

Steel handrails and fencing shall conform to Section 520 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 520.1 – Description

Add the following:

Steel handrails shall be installed along the top of structures as shown on the drawings. Handrails shall be given one shop coat of No. 1 paint as per MAG Section 790 and two field coats of the color of paint specified below or approved equal:

Handrail Paint: Frazee product, color “San Diego Buff”

Subsection 520.5 – Payment

Replace with the following:

Payment for steel handrails shall be made on the basis of the price bid per linear foot, the price including full compensation for furnishing labor, materials, tools, painting and equipment to construct the railing complete in place as shown on the plans, and including painting and aesthetic and decorative treatments.

ITEM 520-01 – HANDRAIL

SECTION 610 – WATER LINE CONSTRUCTION

Water lines shall conform to Section 610 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 610.1 – Description

Add the following:

This work includes the relocation of water lines as shown on the plans. The provisions of MAG Uniform Specifications Section 601, 610, 611, 620, 630 and 631 shall apply.

Shutdown of existing mains shall be coordinated with the Engineer, Queen Creek Water Company, Town of Gilbert and Town of Queen Creek.

Surface restoration shall be included in the unit price for water line realignment.

All of the waterline relocations fall under jurisdiction of Queen Creek Water Company except for the 16" Waterline Relocation along Recker Road, which falls under Town of Gilbert jurisdiction.

Subsection 610.2 - General

Add the following:

The Contractor is required to provide written notice to the Engineer, Queen Creek Water Company, Town of Queen Creek and Town of Gilbert a minimum of seventy-two (72) hours prior to shut downs on waterlines. Town fire departments must be notified at least twenty-four (24) hours in advance of any shut downs for waterlines serving as hydrants.

The Contractor is responsible for maintaining access to water valves within the construction area. Failure to do so may result in delays to scheduled water shut downs. Only personnel from the Queen Creek Water Company, Towns of Queen Creek and Gilbert are permitted to operate water valves.

The Contractor shall provide all materials and labor necessary to complete all waterline work. The Queen Creek Water Company and the Towns of Queen Creek and Gilbert 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 waterlines may be shut down and the pressure relieved in segments for short periods during construction. The waterlines may not be shut down before 8:30 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 (8) hours, the Contractor shall provide a temporary bypass waterline at no additional cost which is approved by the Queen Creek Water Company, Town of Queen Creek or Town of Gilbert, 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 forty-eight (48) hours prior to the shut down. The hanger should state the hours that the water will be turned off.

Waterline Replacement

Connection to the existing waterline and the new DIP shall be made using a megalug joint restraint and thrust block per MAG Sta. Detail 380. Details of the megalug joint restraint and thrust block must be approved by the Engineer prior to construction and installation.

The Contractor shall arrange to have the line shut down in order to perform this work. The Contractor shall notify the Towns at least seventy-two (72) hours prior to the need to shut down any waterlines. The Contractor shall bear the cost of flushing the lines.

Materials for waterline replacement shall be either ductile iron wrapped in blue polywrap or HDPE or PVC as specified in the plans and in accordance with Subsection 610.3 of the MAG Standard Specifications. The replaced waterlines shall be visually inspected and tested for leaks under line pressure prior to back filling.

Waterline Relocation/Realignment

In the event of an unforeseen conflict between channel construction and an existing waterline not detailed on the plans or as directed by the Engineer, the Contractor shall vertically and/or horizontally realign the waterline in accordance with MAG Standard Detail No. 370.

The waterline realignment shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, offsets, couplings, sleeves, blocking, joint restraints and hardware. The realigned waterline shall be tested per Subsection 610.14 of the MAG Standard Specifications prior to backfilling.

The Contractor shall coordinate with the Queen Creek Water Company, Towns of Queen Creek and/or Gilbert to obtain permission to have the line shut down in order to perform this work. The Contractor shall notify the Towns at least seventy-two (72) hours in advance of the need for a shutdown.

Subsection 610.18 - Measurement and Payment

Replace this subsection with the following:

Payment for waterline relocation, realignment, replacements and supports shall be made at the contract unit price bid per linear foot 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, restrained joints, tees, wyes, elbows, testing and coordination with residents and businesses, pavement removal and replacement, curb & gutter removal and replacement, thrust blocks per MAG Standard Detail No. 380, air release valve(s), and other items incidental to the relocation, realignment or support of the waterlines.

ITEM 610-01 - 6" WATERLINE RELOCATION

ITEM 610-02 - 8" WATERLINE RELOCATION

ITEM 610-03 - 12" WATERLINE RELOCATION

ITEM 610-04 - 16" WATERLINE RELOCATION

SECTION 615 – SEWER LINE CONSTRUCTION

Sewer line construction shall conform to Section 615 of the MAG Uniform Standard Specification except as modified herein.

Subsection 615.1 – Description

Modify the section as follows:

Work shall include the realignment of a 4” sewer force main located along the east side of Power Road flowing south to north, and shall conform to the applicable standard specifications and details, except as otherwise required on the plans or as modified in these special provisions.

Work under this section also includes construction of part of the sewer line along Sossaman Road as shown on the separate plan sheets prepared by Sunrise Engineering for the project called “Sewer Extension across Sonoqui Wash”, dated August 04, 2006 for Town of Queen Creek and included with this plan set.

Ductile iron pipe shall conform to Section 750. All joints shall be restrained joints.

Subsection 615.3 – Laying Pipe

Add the following:

Sewer Line Realignment

Sewer line realignment shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, couplings, joint restraints and hardware. The realigned sewer shall be tested per Subsection 615.10 of the MAG Standard Specifications prior to backfilling.

Materials for sewer line realignment shall be ductile iron pipe and fittings with Protecto 401 ceramic epoxy lining in accordance with Section 750 of the MAG Standard Specifications.

Connection to the existing sewer force main and the new ductile iron pipe shall be made using megalug joint restraint and thrust block per MAG Standard Detail No. 380.

The Contractor will be required to construct the vertical and horizontal realignment of this line per plans in order to facilitate the channel construction. The line is owned and operated by Town of Queen Creek and serves the commercial / retail development at the southwest corner of Chandler Heights and Power Roads. Mr. Dick Schaner at the Town of Queen Creek will need to be contacted at least 7 days in advance of construction. The force main cannot be shut down for any extended time and construction may need to be restricted to off-business hours. The Contractor should notify the businesses and property owners served by the force main at least 48 hours in advance of any shut down.

If the Contractor elects to temporarily shut down the sewer force main beyond the limits identified above, the Contractor shall provide a temporary bypass sewer force main at no additional cost, which must be approved by the Town of Queen Creek.

Subsection 615.13 – Measurement and Payment

Replace this subsection with the following:

Payment for sewer force main realignment shall be made at the contract unit price bid per linear foot 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, restrained joints, tees, wyes, elbows, tapping sleeves, stop valves, thrust blocks, air / vacuum release valves, testing, coordination with business owners and the Town and other items incidental to the realignment of the sewer line.

ITEM 615-01 – 4” DUCTILE IRON FORCE MAIN

Payment for 18” PVC sewer main and 18” Ductile Iron Pipe shall be made at the contract unit price bid per linear foot 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, restrained joints, tees, wyes, elbows, tapping sleeves, stop valves, thrust blocks, air / vacuum release valves, testing, coordination with business owners and the Town and other items incidental to the realignment of the sewer line.

ITEM 615-02 – 18” PVC SEWER PIPE

ITEM 615-03 – 18” DUCTILE IRON SEWER LINE POLYETHYLENE ENCASED

Payment for 5’ Diameter sewer manhole per MAG STD Dtl 420 and 5’ pipe stub out shall be made at the contract unit price bid per each 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. Payment will include all trenching, bedding, backfill, restrained joints, tees, wyes, elbows, tapping sleeves, stop valves, thrust blocks, air / vacuum release valves, testing, coordination with business owners and the Town and other items incidental to the realignment of the sewer line.

ITEM 615-04 – 5’ DIA. MANHOLE, MAG STD. DETIAL 420

ITEM 615-05 – 5’ STUB MODIFIED

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

Modify the section as follows:

This section covers concrete pipe, polyvinyl chloride (PVC) pipe and high density polyethylene (HDPE) pipe line construction, re-alignment and/or relocation that is used for the conveyance of irrigation water and storm drainage in streets, easements, or crossing or discharging into the Sonoqui Wash channel, under low hydrostatic head and as shown in the plans.

This section also covers polyvinyl chloride (PVC) irrigation pipe vertical realignment at Power Road. The Contractor shall contact Mr. Dean Griffith at 480-987-3002 at least seven (7) days prior to relocation and coordinate the water delivery schedule. The inspector from the Queen Creek Irrigation District may have to be present at the site during relocation. The relocation has to be done to the satisfaction of the Queen Creek Irrigation District. Since this is the end of the Queen Creek Irrigation District delivery system, the Contractor is subject to flooding due to unscheduled water releases and the Contractor will have to use caution during construction of this pipe system. The Engineer/Owner will not be responsible for any damages to the equipment or completed improvements.

This section also covers polyvinyl chloride (PVC) irrigation pipe relocation within the Sossaman Farm property. The Contractor shall contact Steve Sossaman at 480-987-9670 at least seven (7) days prior to relocation and coordinate the water delivery schedule.

This section also covers polyvinyl chloride (PVC) irrigation pipe relocation along the west side of Sossaman Road for the Ranchos Jardines Irrigation District. The Contractor shall contact Mike Jankovsky at 480-987-0707 at least seven (7) days prior to relocation and coordinate the water delivery schedule.

Relocation of irrigation pipelines shall conform to the specifications and permits of the respective irrigation district.

Subsection 618.5 – Measurement

Modify the section as follows:

Concrete, PVC and HDPE pipe lines used for conveyance of irrigation water and storm drainage shall be measured at a unit of linear foot of pipe, as shown on the plans.

Subsection 618.6 – Payment

Modify the section as follows:

Concrete, PVC and HDPE pipe lines used for conveyance of irrigation water and storm drainage will be paid at the unit price bid per linear foot, to the nearest foot, for each size and type of pipe and shall be compensation in full for furnishing and installing the type of pipe as specified and as shown on the plans, including excavation, bedding, backfilling, compacting, testing, joint materials, $D_{50} = 6''$ riprap erosion protection collar, joining, collars, end sections, encasement, tees, wyes, elbows, flared end sections (pre-galvanized), field closures and removal of obstructions, and coordination with the pipe owner.

ITEM 618-01 – 12" PVC PIPE

ITEM 618-02 – 15" PVC PIPE

ITEM 618-03 – 18" PVC PIPE

ITEM 618-04 – 24" HDPE PIPE

ITEM 618-05 – 24" RGRCP

SECTION 703 – RIPRAP

Riprap shall conform to Section 703 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 703.1 – Stone

Add the following:

Neither waste concrete nor sacked concrete riprap may be used as riprap.

Subsection 703.3 – Concrete

Add the following:

Air entrainment shall be $7.5\% \pm 1\%$.

Fibermesh, or equivalent, shall be added to the grout mix at the rate of 1.5 pounds per cubic yard of grout.

Subsection 703.4 – Sacks

Delete this subsection.

SECTION 750 – IRON WATER PIPE AND FITTINGS

Iron water pipe and fittings shall conform to Section 750 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 750.2 – Ductile Iron Water Pipe

Replace the last sentence with the following:

Pipe shall be seal coated with Protecto 401 ceramic epoxy or approved equal.

Subsection 750.4 – Fittings

Replace the last sentence with the following:

Fittings shall be coated with Protecto 401 ceramic epoxy or approved equal.

Add the following section:

SECTION 796 – GEOTEXTILES

Subsection 796.1 – Geotextile Barrier - Description

The geotextile barrier shall consist of a non-woven Contech C-80NW, Mirafi, Inc 180N, or equivalent. Specifically, the following material properties shall be utilized in selecting a geotextile barrier:

PROPERTY	REQUIREMENT	TEST METHOD
Grab tensile strength, lbs	200 or more	ASTM D 4632
Grab elongation at break, %	50 or more %	ASTM D 4632
Puncture strength, psi	100 or more	ASTM D 4833
Mullen burst strength, psi	350 or more	ASTM D 3486
Trapezoidal tear strength, lbs	75 or more	ASTM D 4533

Subsection 796.2 – Geotextile Filter Fabric - Description

Geotextile filter fabric for use behind and under the dumped riprap or other material shall be a non-woven fabric consisting only of long-chain polymeric filaments such as polypropylene or polyester formed into a stable network such that the filaments retain their relative position with each other. The fabric shall be inert to commonly encountered chemicals, resistant to rot and mildew, and shall have no tears or defects which adversely affect or alter its physical properties. The physical requirements for the geotextile fabric shall meet the following minimum average roll values:

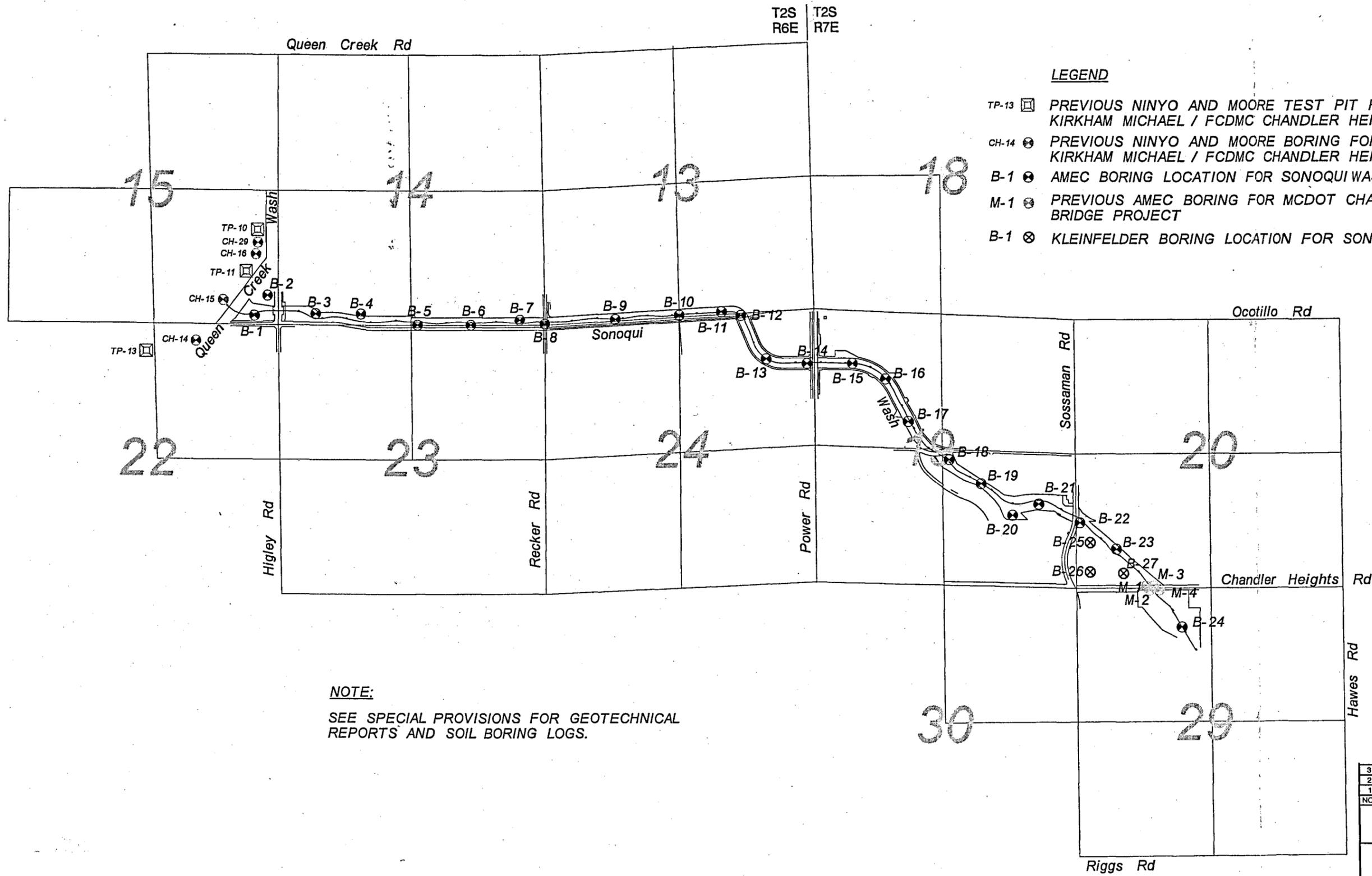
PROPERTY	REQUIREMENT	TEST METHOD
Grab tensile strength, lbs	200	ASTM D 4632
Grab elongation at break, %	15 min., 115 max	ASTM D 4632
Puncture strength, lbs	80	ASTM D 4833
Burst strength, psi	320	ASTM D 3786
Trapezoidal tear strength, lbs	50	ASTM D 4533
Permittivity, sec ⁻¹	0.5 minimum	ARIZ 730
Apparent opening, US Std. sieve size	30-140	ASTM D 4751
UV stability, %	70	ASTM D 4355

Minimum average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.

Special Provisions
FCD Construction Contract 2004C074
Sonoqui Wash Channelization
Queen Creek Wash to Chandler Heights Road

APPENDIX A

Geotechnical Reports with Soil Boring Logs and Locations



T2S
R6E T2S
R7E

LEGEND

- TP-13 PREVIOUS NINYO AND MOORE TEST PIT FOR KIRKHAM MICHAEL / FCDMC CHANDLER HEIGHTS BASIN DESIGN
- CH-14 PREVIOUS NINYO AND MOORE BORING FOR KIRKHAM MICHAEL / FCDMC CHANDLER HEIGHTS BASIN DESIGN
- B-1 AMEC BORING LOCATION FOR SONOQUI WASH CHANNELIZATION PROJECT
- M-1 PREVIOUS AMEC BORING FOR MCDOT CHANDLER HEIGHTS ROAD BRIDGE PROJECT
- B-1 KLEINFELDER BORING LOCATION FOR SONOQUI WASH CHANNELIZATION PROJECT

NOTE:
SEE SPECIAL PROVISIONS FOR GEOTECHNICAL REPORTS AND SOIL BORING LOGS.

3			
2			
1			
NO.	REVISION	BY	DATE
<p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</p>			
<p>SONOQUI WASH CHANNELIZATION PROJECT CONTROL NO. 480-04-31 CONSTRUCTION CONTRACT NO. 2004C074</p>			
		BY	DATE
		DESIGNED	FLR 10/05
		DRAWN	LRJ 10/05
		CHECKED	GSB 10/05
		<p>Stanley Consultants Inc. 3929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com 800.812.4500</p>	
DRAWING NO.	SHEET OF		
SB1	SOIL BORING LOCATIONS		142 142



**Final Geotechnical Investigation Report
Sonoqui Wash Channelization
PCN #480-04-31
Gilbert and Queen Creek, Arizona**

Submitted to:

**Stanley Consultants, Inc.
Phoenix, Arizona**



Submitted by:

**AMEC Earth & Environmental, Inc.
Tempe, Arizona**

25 October, 2004

AMEC Job No. 3-117-001097



25 October, 2004

AMEC Job No. 3-117-001097

Scott Buchanan, P.E.
Stanley Consultants, Inc.
2929 East Camelback Road
Suite 130
Phoenix, Arizona 85016-4425

Dear Mr. Buchanan:

**Re: Final Geotechnical Investigation Report
Sonoqui Wash Channelization
PCN #480-04-31
Gilbert and Queen Creek, Arizona**

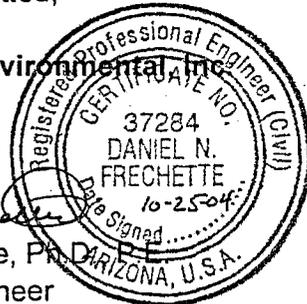
Submitted herewith is the Final Geotechnical Investigation Report prepared by AMEC Earth & Environmental, Inc. for the above referenced project. Included are the results of test drilling and laboratory analysis, and recommended criteria for excavation, embankment design, pavement design and temporary slopes.

Should you have any questions concerning the recommendations presented in this report, please do not hesitate in contacting us.

Respectfully submitted,

AMEC Earth & Environmental Inc.

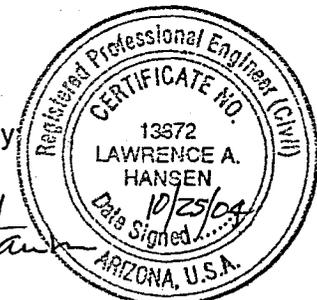
Daniel N. Fréchette
Daniel N. Fréchette, Ph.D.
Geotechnical Engineer



Reviewed by

LA Hansen

Lawrence A. Hansen, Ph.D., P.E.
Senior Vice President



G:\Engineering Department\2003 Projects\3-117-001097 Sonoqui Wash Channelization\Reports\Final Sonoqui Wash Geotechnical Rpt.doc

c: Addressee (4)

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Final Geotechnical Investigation Report
Sonoqui Wash Channelization
PCN #480-04-31
Gilbert and Queen Creek, Arizona
AMEC Job No. 3-117-001097
25 October, 2004



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- Appendix A – Field Investigation
- Appendix B – Laboratory Test Results
- Appendix C – Slope Stability Results
- Appendix D – Boring Logs and Test Data From Previous Investigations



Daniel N. Frechette

1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed by AMEC Earth & Environmental, Inc. (AMEC) of Sonoqui Wash in Gilbert and Queen Creek, Arizona. The purpose of this investigation was to examine the geotechnical profile beneath the site and to evaluate the engineering properties of the subsurface materials. This information was used to provide criteria for embankment design, pavement design and temporary slopes, and to prepare recommendations related to site grading, excavation and other aspects of the project where soil properties or behavior should be considered.

2.0 PROJECT DESCRIPTION

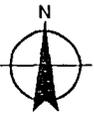
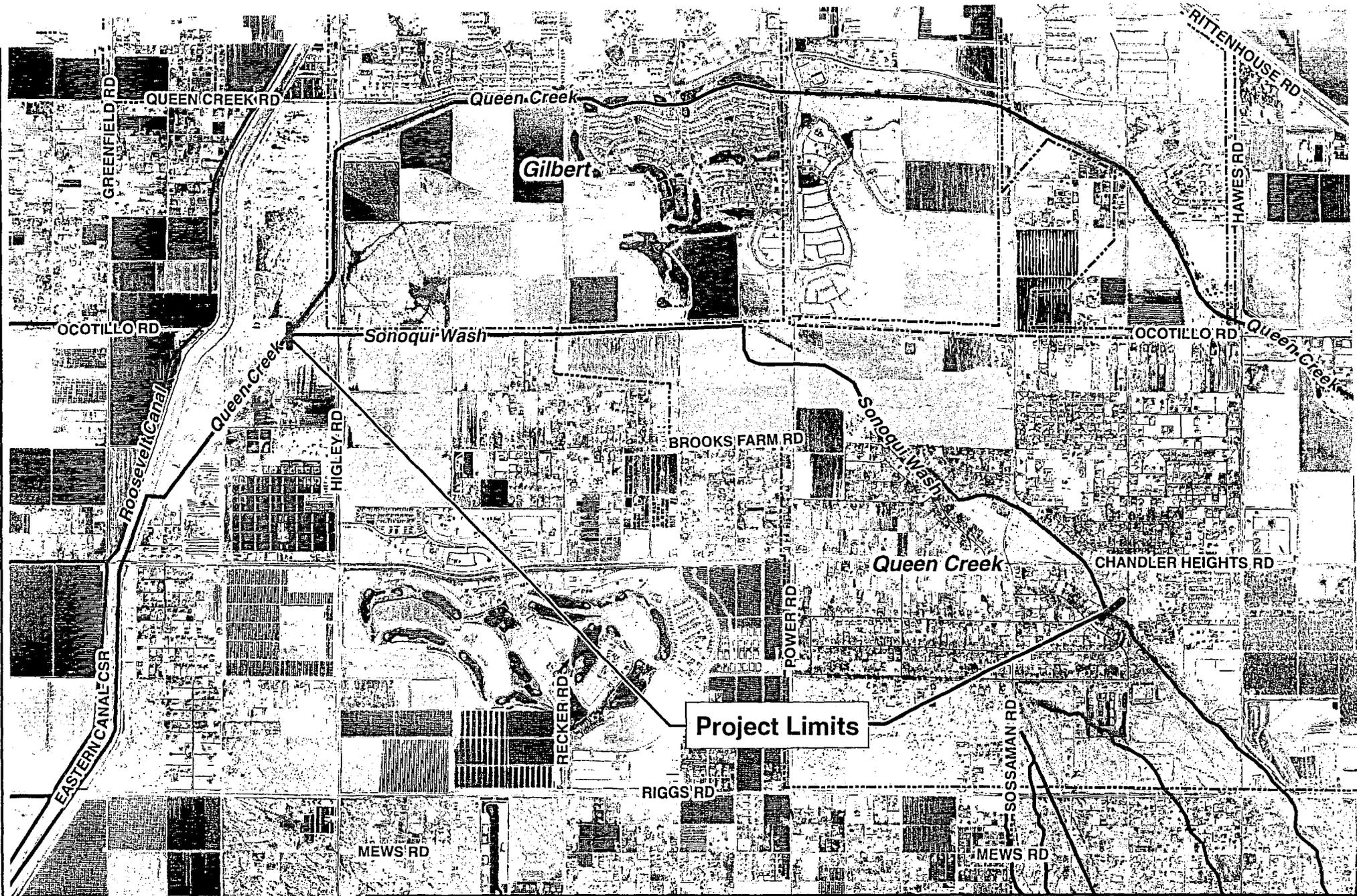
Details of the project were provided to us by Scott Buchanan, P.E. of Stanley Consultants, Inc. It is understood that a multi-use conveyance channel capable of containing a 100-year storm event within the existing natural alignment of the Sonoqui Wash east of Higley Road for a length of approximately 3.5 miles. In addition, dip crossings across the channel are planned at several roadways. The 3.5-mile wash parallels the Ocotillo Road alignment from Power Road to the confluence with Queen Creek Wash (located west of Higley Road). From Chandler Heights Road to Power Road the channel flows in a northwesterly direction. The project will start at the confluence of Queen Creek Wash and Sonoqui Wash at the Ocotillo Road alignment and will end near Chandler Heights Road. The project is located in Township 2 South and Range 6 East, Sections 14, 15, 22 through 24, and Township 2 South and Range 7 East, Sections 19, 20 and 29. A vicinity map showing the location of the project is shown in Figure 1.

3.0 INVESTIGATION

3.1 Subsurface Exploration

The subsurface investigation consisted of twenty-four borings to depths ranging from 15 to 35 feet below existing site grades. Locations of the borings are shown on the site plan (Figure 2) presented in Appendix A of this report. The borings were completed utilizing a subcontracted CME-75 truck-mounted drill rig with rubber tires owned and operated by Geomechanics Southwest, Inc. (GSI) advancing 6 5/8-inch outside diameter (O.D.) hollow-stem auger. Standard penetration (split-spoon) testing and sampling were performed at selected intervals in the borings. Also, bulk samples of auger cuttings were obtained for laboratory testing.

Encountered soils were visually inspected and classified in the field and logged in accordance with ASTM D2487 (Unified Soil Classification System). Borehole logging and field supervision were performed by Shanda Wagner of AMEC. Logs of the test borings are presented in Appendix A of this report, along with a description of drilling and sampling procedures. All



0 0.25 0.5 0.75 1 Miles

JOB NO.:	3-117-001097
DESIGN:	DF
DRAWN:	EMP
DATE:	10/21/04
SCALE:	1:36,000

VICINITY MAP

SONOQUI WASH CHANNELIZATION
GILBERT AND QUEEN CREEK, ARIZONA

FIGURE
1



boring locations were staked in the field by AMEC using GPS and existing surface features. The majority of the field investigation was performed in March 2004, with some follow-up work in June 2004.

3.2 Laboratory Testing

The moisture content and dry density of selected samples recovered were determined and the results are shown on the test boring logs. Grain-size analysis, Atterberg limits (plasticity index) and moisture-density relationship (standard Proctor) tests were performed on selected samples. In addition, pH, resistivity, and soluble sulfate tests were performed on selected samples. The results of these tests are presented in Appendix B.

3.3 Previous Investigations

Information from two previous investigations was reviewed and portions of them are included in the current report.

The first investigation was for a proposed bridge at Chandler Heights Road over Sonoqui Wash. The investigation was performed by AMEC at the beginning of this year for the Maricopa County Department of Transportation (MCDOT). The investigation consisted of four borings advanced to a depth of 80 feet below existing ground surface at the proposed bridge location. Grain-size analysis and Atterberg limit tests were performed on a surface sample (SM-1). The results of these tests were used to characterize the subgrade material for use in pavement design for Chandler Heights Road dip crossing at Sonoqui Wash in case the construction of the bridge lags behind the construction of the current project. The boring logs for the four borings are provided in Appendix D.

The other investigation focused on the collection and testing of soil samples for sediment transport analysis. The investigation was performed by Hoque and Associates along sections of the Sonoqui Wash as part of the Queen Creek/ Sonoqui Wash Hydraulic Master Plan (HMP) and the information was provided to AMEC by Stanley Consultants. The results of the laboratory tests and a site plan showing the sample locations are presented in Appendix D.

4.0 SITE CONDITIONS AND GEOTECHNICAL PROFILE

4.1 Site Conditions

Sonoqui Wash is located within the towns of Gilbert and Queen Creek, and in unincorporated Maricopa County. The 3.5-mile wash parallels the Ocotillo Road alignment from Power Road to the confluence with Queen Creek Wash (located west of Higley Road). From Chandler Heights Road to Power Road the channel flows in a northwesterly direction. The project will start at the

confluence of Queen Creek Wash and Sonoqui Wash at the Ocotillo Road alignment and will end near Chandler Heights Road.

Primarily agricultural fields bound the site between Higley Road to east of Power Road at Via del Jardin. Several private developments bound the eastern portion of the site from Via del Jardin to Chandler Heights Road. Vegetation along the existing wash alignment consists of occasional creosote bushes, native grasses and small shrubs.

4.2 Geotechnical Profile

The subsurface soils encountered at the site can be generalized into a two-strata system as follows:

- **Stratum A:** A surface layer of silt and sandy silt with lesser deposits of sandy clay extend from the surface to depths of 2 to 18 feet below existing site grades. The soils generally are nonplastic to low in plasticity, and are uncemented. In general, these soils are firm or medium dense near the surface stratum and become very firm to hard or dense to very dense with depth. Exceptions were noted in Borings B-7, B-13 and B-24. A silty sand deposit, with trace amounts of clay, was encountered from the surface to depths ranging from 5 to 8.5 feet in Borings B-24 and B-7, respectively. Silty sand was encountered from the surface to the full boring depth in Test Boring B-13.
- **Stratum B:** Sand and silty sand mixtures with trace amounts of gravel underlie Stratum A and extend the full depths of the borings. In general, these soils are uncemented, and are medium dense to dense. Exceptions were noted in Borings B-8, B-15, B-16, B-23 and B-24. In Boring B-8 a firm to very firm, low plasticity, sandy clay was encountered below about 8.5 feet to the full depth of investigation. In Test Borings B-16, B-23 and B-24 sandy silt zones were encountered at depths of 14 to 36 feet below existing grades. A sand and gravel mixture, with variable amounts of silt, was encountered in Borings B-6, B-19 and B-21 at depths of ranging from 11 to 26 feet below existing site grades. These soils were typically medium dense and uncemented.

4.3 Groundwater and Soil Moisture Conditions

No free groundwater was encountered to the depth of the investigation in any of the borings performed for this project or the previously mentioned projects. The moisture condition of the soils can be described as slightly moist to moist in zones.



5.0 DISCUSSION AND RECOMMENDATIONS

The channelization of Sonoqui Wash in the project area follows the existing wash alignment for the majority of the project. In these areas the wash is to be widened and deepened and have side slopes varying from 3H:1V to 6H:1V (horizontal to vertical). Sonoqui Wash near Power Road is to be re-aligned to the south requiring the construction of new channel and the backfilling of the existing channel. At the time of the geotechnical investigation and the writing of this report the type and location of structures (i.e., walls, drop structures, etc.) was unknown, and are not discussed herein.

Presented in the following sections are results of analyses of global slope stability of the proposed wash geometry, and pavement designs for the dip crossings. Recommendations are provided regarding site grading, earthwork factors, excavability, temporary and permanent slopes, and pipe corrosion potential. A discussion of subsidence and related hazards is also presented.

5.1 Stability Analysis

5.1.1 Methodology and Typical Cross Section

Static analysis of the proposed embankment cross section of interest was performed using the computer program PCSTABL (Bandini and Salgado, 1999)¹. This program is based on a two-dimensional limiting equilibrium method. The factor of safety is calculated using a conventional method of slices approach with the modified Bishop method of analysis. The particular procedure employed generates circular-shaped slip surfaces between specified coordinate limits. The computed factor of safety (FOS) is conservative relative to solutions obtained by more accurate methods that more completely satisfy equilibrium.

The critical channel cross section after construction is anticipated to be 3H:1V on the upstream slope for an approximate length of 700 feet. The maximum height is approximately 12 feet with a minimum of 1-foot freeboard. The typical cross section assumed for the analysis is shown in Appendix C. The particular design conditions considered are listed in the following table:

Case	Design Condition	Slope
I	End of construction	Upstream
II	Sudden drawdown from maximum pool	Upstream

¹ References are listed at the end of this report.



5.1.2 Soil Parameters

The geotechnical parameters required for slope stability analysis include the unit weights and shear strengths of the materials present in the cross section. The anticipated location of the 3H:1V sloped section was in the Rancho Jardines area near boring B-19, which was used to determine the geotechnical parameters for the analyses. The geotechnical parameters for the critical channel cross section are presented in Table 1. Due to the granular nature of the soils drained soil parameters with saturated unit weights were used for Case II – sudden drawdown.

**TABLE 1
 GEOTECHNICAL PARAMETERS ASSUMED FOR STABILITY ANALYSIS**

Depth (feet)	Description	ϕ (degrees)	c (psf)	γ (pcf)	γ_{sat} (pcf)
0-15	Silty Sand	34	100	100	110
15-25	Sand and Gravel	36	0	110	115

5.1.3 Stability Analysis Results

Calculated FOS values are listed in Table 2 and analysis results are included in Appendix C. The calculated FOS values are larger than the minimum required values for both cases analyzed.

**TABLE 2
 RESULTS OF STATIC STABILITY ANALYSES**

Case	Condition	Slope	Calculated FOS	Minimum Required FOS
I	End of Construction	Upstream	3.3	1.4
II	Sudden Drawdown	Upstream	3.2	1.0

5.2 Site Grading

All vegetation and debris should be removed from areas designated for fill.

The soils should be compacted to at least 95 percent of maximum dry density in accordance with ASTM D698.

Where soils are too coarse to test by conventional methods, a minimum roller requirement should be used. The ground surface should be subjected to at least eight passes of a heavy vibratory roller having a static weight of at least 25,000 pounds. The weight of the vibratory portion (including the drum, shaft and internal machinery) should be at least 12,000 pounds.

The frequency of vibration during operation should be between 1,100 and 1,500 cycles per minute and the dynamic force at the operating frequency should not be less than 40,000 pounds. The maximum roller speed during operation should be no greater than 1.5 miles per hour. The compaction equipment used should be subject to approval by the geotechnical engineer.

5.2.1 Structural Fill

All structural fill utilized on the project should be free of vegetation, debris and other deleterious material, and should contain no particles larger than four inches in diameter. All structural fill should be compacted to within the range of two percent below to two percent above the optimum moisture content and to a density of at least 95 percent of maximum dry density as determined by ASTM D698.

In general, structural fill should have no more than 75 percent by weight passing the no. 200 sieve and should have a plasticity index of no more than 10 when tested by ASTM D4318. It appears that the most on-site soils encountered during the investigation will meet the above criteria.

5.3 Earthwork Factors

It is anticipated that the existing channel is to be widened in some areas and filled in other areas as part of this project. The in-place density of soils within the proposed channel alignment were evaluated through sampling and testing. Twenty-one relatively undisturbed ring samples (depth of approximately 25 feet or shallower), including 16 in the upper 10 feet, were tested for density and moisture content. Sample locations and results of the tests are presented in Appendix B.

The mean in-place dry density of soils within the proposed channel alignment was found to be 94.9 pounds per cubic foot (pcf) and 97.6 pcf in the upper 5 and 10 feet, respectively. The mean standard Proctor maximum dry density was determined to be 105.3 pcf, based on laboratory tests. Utilizing a 95 percent of maximum dry density value of 100 pcf to represent the compacted fills, an estimated earthwork factor of 5 percent shrink is determined. If the compacted embankment fill dry density is assumed to be at 100 percent of maximum dry density (105.3 pcf), a shrink factor of 10 percent is determined.

An estimated earthwork factor of 10 percent shrink is recommended for use in design estimates for this project. This recommended factor is based on the above estimates and our understanding of prior construction experience in the Phoenix metropolitan area. Actual construction excavation, fill handling and placement, and compaction procedures, in particular the staging and phasing of the required excavations and the moisture content and degree of compaction of the fill, will determine the fill characteristics and final, in-place embankment fill densities, and therefore the earthwork factors.



5.4 Excavation

The soils encountered at the site are predominantly moderately firm in the upper five feet increasing to firm to very firm with depth, with occasional hard zones. Based on the predominantly firm to very firm nature of the soils, it appears that typical construction equipment will be able to excavate to the full depth required.

5.5 Slopes

5.5.1 Temporary Slopes

It is recommended that temporary cut slopes be no steeper than 1.5H:1V within the native granular soils. These recommended slopes are based on the uncemented materials encountered in the borings and OSHA requirements (OSHA, 1990). Steeper temporary excavations, including those to employ trench shoring, should be made only if based on stability analyses by a registered geotechnical engineer. The analysis should take into account the slope angles, trench geometries, and any surcharge loadings due to equipment and spoil piles.

5.5.2 Permanent Slopes

It is recommended that permanent cut or embankment slopes be no steeper than 3H:1V. These recommendations are based primarily on the aesthetics of the project and to minimize rilling and slope erosion. However, it is still anticipated that some rilling will occur on unprotected slopes.

5.6 Pavements

Pavement design analysis was performed for the proposed crossings of Sonoqui Wash at Higley Road, Power Road, Via del Jardin, Sossaman Road and Chandler Heights Road. For the purpose of the current project it is assumed that dip crossings are planned at these locations. The existing structural section at each location is unknown. An attempt was made to determine the existing structural section through as-built plans but the as-builts could not be located.

The structural section at the dip crossings was determined using the Town of Gilbert Pavement Design Charts (Design Charts). The input parameters required for use of the Design Charts are the plasticity index and the percent passing the No. 200 sieve of the subgrade, and the classification of the road. Samples adjacent to the proposed dip crossing locations were obtained during the field investigation and were tested to obtain the required information. The subgrade information and roadway classification at each dip crossing are presented in the following table:



Location	Boring Location	Subgrade Information		Roadway Classification
		Plasticity Index	Percent Passing No. 200 Sieve	
Higley Road	B-2	8	77	Major Arterial
Power Road	B-14	6	64	Major Arterial
Via del Jardin	B-18	NP	35	Major Collector
Sossaman Road	B-22	NP	34	Major Arterial
Chandler Heights Road	SM-1*	NP	34	Major Arterial

*Boring done as part of previous investigation for proposed Chandler Heights Bridge.
 NP = nonplastic.

Using the information in the above table and the Design Charts the following conventional asphaltic concrete over granular base pavement structures were determined.

Location	Asphaltic Concrete (inches)	Granular Base Course (Inches)
Higley Road	4	12
Power Road	4	12
Via del Jardin	2	9
Sossaman Road	4	12
Chandler Heights Road	4	12

5.6.1 Materials Quality and Construction Requirements

The materials quality and construction requirements should conform to the following sections of the current "Uniform Standard Specifications for Public Works Construction" sponsored and prepared by the Maricopa Association of Governments:

<u>Item</u>	<u>Section(s)</u>
Untreated Base	310 & 702.2
Bituminous Prime Coat	315
Asphaltic Concrete	321 & 710

The type of seal coat should be determined based on construction performance.

5.6.2 Asphaltic Concrete

A type C19 mineral aggregate or approved alternate should be utilized. The job mix formula should be established using the Marshall method of mix design (ASTM D1559), with design parameters determined by MAG Section 710. The following criteria should be used in the mix design:

Oil Type – PG70-10
Number of blows, each end of specimen – 75
Stability, pounds – 1,800 minimum
Percent air voids – 3 to 5
Percent voids in mineral aggregate – 14 minimum
Index of retained strength, % - 60 minimum

The stripping potential of the job mix formulation should be determined in accordance with MAG Section 710. The type and quantity of anti-strip additive, if required, should be assessed to meet local agency specification requirements.

5.7 Pipe Corrosion Potential

The corrosion potential of five selected soil samples recovered in the vicinity of the dip crossings was estimated. The locations were characterized for the use of prospective corrugated metal pipe (CMP) utilizing laboratory pH and electrical resistivity testing, performed in accordance with Arizona Test Method 236. The locations were also characterized for the prospective use of concrete pipes utilizing sulfate testing, performed in accordance with Arizona Test method 733. Results of the corrosion potential testing are presented in Appendix B.

The laboratory pH values ranged from 8.1 to 8.3 and the resistivity values ranged from 2,925 to 6,241 ohm-centimeters (ohm-cm). Figure 203.01-5 of the Preliminary Engineering and Design Manual (ADOT, 1989), as shown in Figure 3, indicates that there are no restrictions on the type of pipe that can be used.

Total soluble sulfate values ranged from 14 to 29 parts per million (ppm). In the case of the sulfate tests, the test result is the water-leachable or "available" sulfate content. These results were compared to Table 4.3.1 (Requirements for Concrete Exposed to Sulfate-Containing Solutions), specifically the "Sulfate (SO₄) in water, ppm" column in the table in Section 4.3 of the American Concrete Institute (ACI) Manual of Concrete Practice (ACI 318/318R, 2001). All test results were found to be "negligible" in terms of sulfate exposure, indicating that Type I or Type II Portland cement would be adequate for concrete pipes in contact with these materials.

5.8 Preliminary Soil Cement Design

Soil cement is planned to be used at drop structure locations and various other locations to protect the channel from erosion. Drop structures are anticipated upstream of Higley Road, Recker Road, Power Road, Via del Jardin, and Sossaman Road. Other locations that may require soil cement are at weir outfall locations near the Queen Creek Wash and the planned retention basin at the northeast corner of Chandler Heights Road and Sossaman Road. It is

ALLOWABLE TYPES OF CULVERT PIPE FOR ph RANGE 5.0 TO 9.0⁽¹⁾

Resistivity (ohm-cm)	Allowable Pipe
2000 or Greater	A ⁽²⁾ - B - C - D
500-1999	C - D
Less than 500	D

TYPES OF CULVERT PIPE

- A) Galvanized Coated Steel
AASHTO M-36
- B) Aluminum Coated Steel
AASHTO M-36
- C) Aluminum Alloy
AASHTO M-196
- D) Bituminous Coated
AASHTO M-190

Notes: (1) If ph is outside the range of 5.0 to 9.0,
a special study of the situation should be made.

(2) Not allowed when ph is less than 6.0.

JOB NO. 3-117-001097 DESIGN: DNF DRAWN: GWH DATE: 10/2004 SCALE: N.T.S.	ALLOWABLE TYPES OF CULVERT FOR ph RANGE 5.0 TO 9.0 ⁽¹⁾ FROM ADOT (1989)	 FIGURE 3
SONOQUI WASH CHANNELIZATION GILBERT AND QUEEN CREEK, ARIZONA		

also anticipated that soil cement may be required at the downstream side of the Higley Road crossing and through the curved sections of the channel along the planned Sossaman Commercial center.

Based on the typical soils encountered during the project and AMEC's previous experience with similar type projects it is anticipated that the design compressive strength of the soil cement required near drop structure and weir outfall locations is approximately 2,000 to 3,000 pounds per square inch (psi). The amount of soil cement required to achieve this strength is approximately 9 to 14 percent. The cement requirements may be less for erosion protection along the channel if less strength is required.

6.0 SUBSIDENCE AND RELATED HAZARDS

Ground subsidence due to groundwater withdrawal in alluvial basins in the Southwest is a process of compression and subsequent consolidation of the alluvial sediments. Prior to the 20th century, groundwater levels in the basin deposits were at or near the ground surface, or at relatively shallow depths. Consumption of the groundwater resources has changed these groundwater systems, and is continuing to cause water-table declines in many of the basins. In addition, damming of rivers in mountainous portions of the surrounding watersheds has reduced available recharge. As is the case in the site area, agricultural, industrial and municipal groundwater pumping has significantly depleted the groundwater reserves in several Arizona basins.

6.1 Local Conditions

Only a small amount of relatively current information is available regarding the southern portion of the Chandler-Mesa subbasin of the East Salt River Valley. Much of the information is dated and regional in nature. According to ADWR (Tatlow, 2002), the only current information available in the area is contained in the National Geodetic Survey (NGS) data sheets (NGS, 2004).

Several NGS monitoring points of interest are located in the vicinity of the Santa Fe railroad, approximately 3 miles east of the eastern extent of the project. The elevation of monument P364 was measured at 1457.50 feet in November, 1993. The US Geological Survey (USGS) 7.5-Minute Quadrangle Map, constructed from survey data in 1956, depicts an elevation for the same point at 1461 feet. Although the datums for these measurements are different, the information does indicate that about 3.5 feet of subsidence has occurred in the approximate time span of 38 years. This translates to a yearly subsidence rate of about 0.09 ft/yr.

Another useful NGS monitoring point is designated as G68. The contrast in the quadrangle elevation and an adjusted NGS elevation obtained also in November of 1993 indicates about 3.1 feet of subsidence at this point over the same time span stated above.

In general agreement with the elevation data of the NGS network and older quadrangle mapping, Schumann (1974) estimated about 1 to 3 feet of subsidence in the area, with 3 to 5 feet near Queen Creek over the period from 1948 through 1967.

Laney et. al. (1978) and Laney and Hahn (1986) indicate that the amount of groundwater decline since 1923 varies significantly from the east end to the west end of the project, with the east end having a decline 150+ feet greater than the west end. Due to the difference in groundwater decline, it is very likely that the east end of the project has undergone more subsidence than the west end. Current water level data from wells in the historical database may not represent general water levels in the region. Operating wells have local cones of depression that may be reflected in the reported water level readings. Such detail cannot be ascertained from the historic record, and current groundwater conditions are not known.

Due to what is known about past water levels, it is likely that differential groundwater decline will occur in the future. Differential groundwater decline could result in differential subsidence within the project length. If future differential subsidence does occur, gradients within the channel will change and may result in a flattening of the channel grade over time. To address the flattening channel grade, additional grading of the channel bottom or elimination of one of the drop structures may be necessary in the future.

In addition to causing the channel gradient to change, differential subsidence also increases the risk of earth fissures.

6.2 Earth Fissures

Earth fissuring poses an erosional hazard, with normal surface drainage captured by fissures, resulting in the formation of fissure gullies. Earth fissures in areas of large groundwater decline in alluvial aquifers are likely associated with a process termed generalized differential compaction. Due to this process, fissures commonly develop along the perimeter of subsiding basins, often in apparent association with buried or protruding bedrock highs, suspected mountain-front faults, or distinct facies changes in the alluvial section.

Based on regional mapping (Laney et al, 1978; Schumann, 1974; Schumann and Genualdi, 1986; and Harris, 1994), no known earth fissures occur within the project area. However, earth fissures have been identified south of the project area. The closest earth fissure is located about 1 mile south-southwest of the southeastern extent of the project. Schumann and Genualdi (1986) map the southeastern portions of the study area as an earth fissure zone. The absence of earth fissures within the project area cannot be confirmed without a detailed study.

6.3 Synthetic Aperture Radar Interferometry

The future application of repeat-pass synthetic aperture radar (SAR) interferometry to characterize the distribution and rate of ground subsidence in the study area will be of profound significance in managing the risks associated with ground subsidence and earth fissuring. Interferometry has the capacity to detect and quantify minute changes in terrain elevation by comparing phase variances of satellite-based side-looking radar data between orbits of a similar trajectory.

Interferometry suffers from both atmospheric and terrain influences that affect the quality of the interferogram. The constraint of de-correlation due to rapid changes in the ground surface is a potential limitation in the usefulness of interferometry. This can be caused by plowing and crop changes in agricultural areas, or urban development. The currently available interferograms suffer from considerable de-correlation in the area of interest and are not useful. Future advances in the instrumentation and data processing as well as long-term stabilization of the terrain through urbanization will likely resolve these constraints as the technology evolves. SAR interferometry will likely provide the means for monitoring subsidence in the area interest in the future.

7.0 REFERENCES

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APPENDIX A
FIELD INVESTIGATION



TEST DRILLING EQUIPMENT & PROCEDURES

Description of Subsurface Exploration Methods

Auger Boring Drilling through overburden soils is performed with 6 5/8-inch O.D., 3 1/4-inch I.D. hollow stem auger or 4 1/2-inch solid stem continuous flight auger. Carbide insert teeth are normally used on bits so they can penetrate soft rock or very strongly cemented soils. A CME-75 truck-mounted drill rig is used to advance the auger. The drill rigs are powered with six-cylinder Cummins diesel engines capable of delivering about 11.4 kN-m torque to the drill spindle. The spindle is advanced with twin hydraulic rams capable of exerting 90 kN (20,000 pounds) downward force.

Generally, refusal to penetration of the auger is adopted as top of the SGC or "river-run" material or harder bedrock, which require other techniques for penetration. Grab samples or auger cuttings may be taken as necessary. Standard penetration tests or 2.42-inch diameter ring samples are taken in conjunction with the auger borings as needed, with the sampling interval and type being indicated on the boring logs.

Hammer Drill Drilling with the Hammer drill is accomplished with a Drill Systems AP-1000 drill rig advancing a double-walled drive casing with a link-belt 180 diesel pile driving hammer, having a rated energy of 8,100 foot-pounds per blow. Where noted on the boring log, the hammer is equipped with a supercharger which can boost the energy to approximately 12,000 foot-pounds per blow. The supercharger is used only in portions of the boring where blow counts are relatively high. Cuttings are removed with compressed air by a reverse circulation process, and are collected in a cyclone from which grab samples are obtained. The drive casing is either 9-inch O.D. by 6-inch I.D. or 6 5/8-inch O.D. by 4-inch I.D. and employs an expendable bit of slightly larger diameter than the O.D. of the casing. Hammer blows required to advance the drive casing are recorded in 1-foot increments, as noted on the boring logs. Standard penetration tests or 2.42-inch diameter ring samples taken are noted on the boring logs.

Core Boring Rock core samples are retrieved using a CME-75 drill rig, SAITECH GH 3 rig or Burley 2500, 4500 or 4000. The GH 3 is a portable hydraulic core drill. The GH 3 is powered by a Kohler two-cylinder 25-horsepower engine. The hydraulics motor which feeds a two-speed transmission and powers the BW spindle. This unit has a 3-foot stroke and is hand-fed with a 2,000 pound push-pull capability. The GH 3 has the capability of drilling with either B- or N-size core steel using standard or wireline systems. N-size core is the preferred size and it has a nominal O.D. of about 2 inches. The Burley 2500 and 4500 series are portable hydraulic core drills. The 4500 series is capable of a track-mounted or skid-type chassis. The Burley 2500 and 4500 series are powered by 44 and 75 HP power units, respectively, provide up to 2,000 foot-pounds (ft.-lbs.) of torque and in excess of 1,000 revolutions per minute (RPM) of spindle speed. Both rigs are capable of retrieving either N- or H-sized core using wireline systems. The N-size core has a nominal O.D. of about 2 inches and the H-size of about 2.4 inches. The Burley 4000 is a track-mounted core drill.

The CME-75 utilizes a wireline core drilling system that takes N-size cores. Using the NQ wireline system, core is recovered quickly by retrieving the core-laden inner tube through the drill string.



TEST DRILLING EQUIPMENT & PROCEDURES (Cont.)

Sampling Procedures Dynamically driven tube samples are usually obtained at selected intervals in the borings by the ASTM D1586 test procedure. In many cases, 2-inch O.D., 1 3/8-inch I.D. samples are used to obtain the standard penetration resistance. "Undisturbed" samples of firmer soils are often obtained with 3-inch O.D. samples lined with 2.42-inch I.D. brass rings. The driving energy is generally recorded as the number of blows of a 140-pound, 30-inch free fall drop hammer required to advance the samples in 6-inch increments. However, in stratified soils, driving resistance is sometimes recorded in 2- or 3-inch increments so that soil changes and the presence of scattered gravel or cemented layers can be readily detected and the realistic penetration values obtained for consideration in design. These values are expressed in blows per 6 inches on the boring logs. "Undisturbed" sampling of softer soils is sometimes performed with thin walled Shelby tubes (ASTM D1587), pitcher samplers, Denison samplers or continuous CME samplers. Where samples of rock are required, they are obtained by NQ diamond core drilling (ASTM D2113). Tube samples are labeled and placed in watertight containers to maintain field moisture contents for testing. When necessary for testing, larger bulk samples are taken from auger cuttings. Also, representative samples are obtained from the cuttings from the hammer and Schramm drill rig.

Boring Records Drilling operations are directed by our field engineer or geologist who examines soil recovery and prepares the boring logs. Soils are visually classified in accordance with the Unified Soil Classification System (ASTM D2487), with appropriate group symbols being shown on the boring logs.

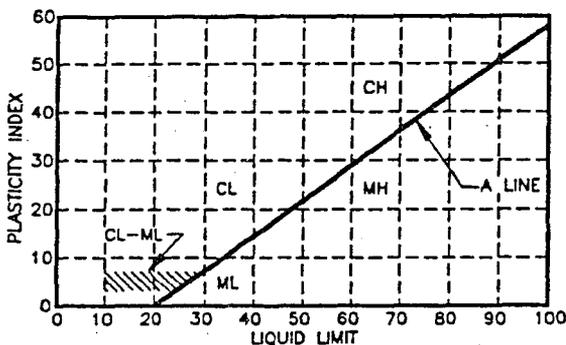
UNIFIED CLASSIFICATION SYSTEM FOR SOILS

Soils are visually classified by the Unified Soil Classification System on the boring logs presented in this report. Grain-size analysis and Atterberg Limits Tests are often performed on selected samples to aid in classification. The classification system is briefly outlined on this chart. For a more detailed description of the system, see "The Unified Soil Classification System" ASTM Designation: D2487.

MAJOR DIVISION		GRAPH SYMBOL	GROUP SYMBOL	TYPICAL DESCRIPTION	
COARSE-GRAINED SOILS (Less than 50% passes No. 200 sieve)	GRAVELS (20% or less of coarse fraction passes No. 4 sieve)	CLEAN GRAVELS (Less than 5% passes No. 200 sieve)		GW	Well graded gravels, gravel-sand mixtures or sand-gravel-cobble mixtures.
		GRAVELS WITH FINES (More than 12% passes No. 200 sieve)		GP	poorly graded gravels, gravel-sand mixtures, or sand-gravel-cobble mixtures.
		Limits plot below "A" line & hatched zone on plasticity chart		GM	Silty gravels, gravel-sand-silt mixtures.
		Limits plot above "A" line & hatched zone on plasticity chart		GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction passes No. 4 sieve)	CLEAN SANDS (Less than 5% passes No. 200 sieve)		BW	Well graded sands, gravelly sands.
		SANDS WITH FINES (More than 12% passes No. 200 sieve)		SP	Poorly graded sands, gravelly sands.
		Limits plot below "A" line & hatched zone on plasticity chart		SM	Silty sands, sand-silt mixtures.
		Limits plot above "A" line & hatched zone on plasticity chart		SC	Clayey sands, sand-clay mixtures.
FINE-GRAINED SOILS (50% or more passes No. 200 sieve)	SILTS LIMITS PLOT BELOW "A" LINE & HATCHED ZONE ON PLASTICITY CHART	SILTS OF LOW PLASTICITY (Liquid Limit Less Than 50)		ML	Inorganic silts, clayey silts with slight plasticity.
		SILTS OF HIGH PLASTICITY (Liquid Limit More Than 50)		MH	Inorganic silts of high plasticity, silty soils, elastic silts.
	CLAYS LIMITS PLOT ABOVE "A" LINE & HATCHED ZONE ON PLASTICITY CHART	CLAYS OF LOW PLASTICITY (Liquid Limit Less Than 50)		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		CLAYS OF HIGH PLASTICITY (Liquid Limit More Than 50)		CH	Inorganic clays of high plasticity, fat clays, silty and sandy clays of high plasticity.

NOTE: Coarse-grained soils with between 5% & 12% passing the No. 200 sieve and fine-grained soils with limits plotting in the hatched zone on the plasticity chart to have dual symbol.

PLASTICITY CHART



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
Boulders	Above 300mm (12in.)
Cobbles	300mm to 75mm (12in. to 3in.)
Gravel	75mm (3in.) to No. 4 sieve
Coarse gravel	75mm to 19mm (3in. to 3/4in.)
Fine gravel	19mm (3/4in.) to No. 4 sieve
Sand	No. 4 to No. 200
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Fines (silt or clay)	Below No. 200 sieve



TERMINOLOGY USED TO DESCRIBE THE RELATIVE DENSITY,
CONSISTENCY OR FIRMNESS OF SOILS

The terminology used on the boring logs to describe the relative density, consistency or firmness of soils relative to the standard penetration resistance is presented below. The standard penetration resistance (N) in blows per foot is obtained by the ASTM D1586 procedure using 2" O.D., 1 3/8" I.D. samplers.

1. Relative Density. Terms for description of relative density of cohesionless, uncemented sands and sand-gravel mixtures.

<u>N</u>	<u>Relative Density</u>
0-4	Very loose
5-10	Loose
11-30	Medium dense
31-50	Dense
50+	Very dense

2. Relative Consistency. Terms for description of clays which are saturated or near saturation.

<u>N</u>	<u>Relative Consistency</u>	<u>Remarks</u>
0-2	Very soft	Easily penetrated several inches with fist.
3-4	Soft	Easily penetrated several inches with thumb.
5-8	Medium stiff	Can be penetrated several inches with thumb with moderate effort.
9-15	Stiff	Readily indented with thumb, but penetrated only with great effort.
16-30	Very stiff	Readily indented with thumbnail.
30+	Hard	Indented only with difficulty by thumbnail.

3. Relative Firmness. Terms for description of partially saturated and/or cemented soils which commonly occur in the Southwest including clays, cemented granular materials, silts and silty and clayey granular soils.

<u>N</u>	<u>Relative Firmness</u>
0-4	Very soft
5-8	Soft
9-15	Moderately firm
16-30	Firm
31-50	Very firm
50+	Hard



JOB NO. 3-117-001097 DATE 6/17/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1317'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION			
0		[Hatched pattern]	S	6-7-7				CL	slightly moist moderately firm to very firm	SANDY CLAY , predominantly fine grained sand, low plasticity, light brown			
			S	3-5-7									
5			U	14	85	7							
			S	5-5-7									
10													
			S	13-15-22									
15												note: weakly lime cemented at 15'	
20			[Dotted pattern]	S	9-11-15						SP	slightly moist medium dense	SAND , occasional to rare silt, predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown to brown
25										Stopped Auger at 19'6" Stopped Sampler at 21'			

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- SAMPLE TYPE**
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - C - 3" O.D. CME tube sample
 - NR - No Recovery

LOG OF TEST BORING NO. B-1



LOCATION See Site Plan

JOB NO. 3-117-001097 DATE 6/17/04

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1318'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION			
0			S 6-7-8	A				CL	slightly moist soft to very firm	SANDY CLAY , predominantly fine grained sand, low plasticity, light brown			
			S 4-6-9										
			S 4-3-5										
5													
10				S 10-18-18								slightly moist firm to hard	SAND WITH SILT , predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown
15			U 29		103	2			Stopped Auger at 19'6" Stopped Sampler at 21'	note: increase in sand content at 10' note: weakly lime cemented at 11'			
20			S 21-39-36								note: fine grained gravel below 20', occasional clay at 20', reddish-brown		
25													

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-2



Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	2-2-3			ML	slightly moist to moist soft	SANDY SILT , predominantly fine grained sand, low plasticity, light brown note: color is brown, nonplastic to low plasticity below 3'
5			X	S	3-3-4		6			
10				U	11	101	7			
								SM	slightly moist to moist moderately firm	SILTY SAND , predominantly fine grained, low plasticity, light brown note: sand is grading coarser below 15'
15			X	S	5-5-7					
20									Stopped Auger at 15' Stopped Sampler at 16'6"	
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-4



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1325'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S A	5-6-7			CL	slightly moist moderately firm	SILTY CLAY , trace to some predominantly fine grained sand, medium plasticity, brown to light brown
5				U	12	104	4			
								CL	slightly moist to moist moderately firm	SANDY CLAY , predominantly fine grained sand, low plasticity, brown
10				S	6-6-7			ML	slightly moist to moist moderately firm	SANDY SILT , predominantly fine grained sand, low plasticity, brown
15				S	16-21-20			SP	slightly moist to moist dense	SAND , trace of silt, predominantly fine grained, subangular to subrounded, nonplastic, brown to whitish-brown at depth note: gravel at depth
20										Stopped Auger at 15' Stopped Sampler at 16'6"
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-5



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1328'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S 5-6-7				ML	slightly moist moderately firm	SILT, trace of fine grained sand, low plasticity, brown
5			X	S 5-6-7				ML	slightly moist moderately firm	SANDY SILT, predominantly fine grained sand, low plasticity, brown
10				U 14	96	5				
15			X	S 33-24-12				GP-GM	slightly moist dense to medium dense	GRAVEL WITH SAND TO SILTY GRAVEL WITH SAND, predominantly well graded sand, well graded, subrounded to subangular, nonplastic, light brown to whitish-brown
20			X	S 18-14-11						note: grading into a silty sand to sandy silt below 21'
25									Stopped Auger at 20' Stopped Sampler at 21'6"	

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
∇	none	
∇		
∇		
∇		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-6



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1332'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	3-3-4			SC-SM	slightly moist soft	SILTY SAND TO CLAYEY SAND , predominantly fine grained, subrounded to subangular, low plasticity, brown to light brown
5				U	12	94	4			
10			X	S	3-3-4			ML	slightly moist soft to moderately firm	SANDY SILT , predominantly fine grained sand, low plasticity, light brown
15			X	S	3-5-6					note: trace of coarse grained sand & fine grained gravel at 15'
20			X	S	12-19-18			SP	slightly moist dense	SAND & GRAVEL , trace of silt, predominantly fine to medium grained sand, predominantly fine grained gravel, subangular to subrounded, nonplastic, light brown to whitish-brown
25										Stopped Auger at 20' Stopped Sampler at 21'6"

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-7



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1335'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S A	6-9-7		5	ML	slightly moist firm	SILT , trace to some predominantly fine grained sand, nonplastic, light brown to brown
5				S	4-4-5		3	ML	slightly moist moderately firm	SANDY SILT , predominantly fine to medium grained sand, low plasticity, light brown to brown note: increase in sand at 7'
10				U	13	95	17	CL	slightly moist to moist firm to very firm	SANDY CLAY , predominantly fine grained sand, low plasticity, brown note: occasional predominantly fine grained sand layers from 8'6" to 10'6" note: trace of fine grained gravel at 14'
15				S	8-13-25		8			
20										Stopped Auger at 15' Stopped Sampler at 16'6"
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-8



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1336'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION	
0			X	S	4-3-2			ML	slightly moist to moist	SANDY SILT, nonplastic to low plasticity, brown	
											SP
										slightly moist to moist	SAND, predominantly fine to medium grained, subangular to subrounded, uncemented, nonplastic, brown
5				U	11	97	4		firm		
10				X	S	6-7-10				slightly moist to moist	SAND, predominantly fine to medium grained, subangular to subrounded, uncemented, nonplastic, brown note: trace of coarse grained sand & fine grained gravel below 10'; subangular to subrounded note: possible cobbles at 11' note: grading to a predominantly medium grained sand below 15' with coarse grained sand & fine grained gravel note: trace of silt at 15'
15				X	S	13-20-20					
20										Stopped Auger at 15' Stopped Sampler at 16'6"	
25											

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 C - 3" O.D. CME tube sample
 NR - No Recovery

LOG OF TEST BORING NO. B-9



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1345'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
									0	
5			X	S	1-1-1			ML	slightly moist to moist very soft	SANDY SILT , predominantly fine grained, subangular to subrounded sand, low plasticity to nonplastic, brown
10				U	5	105	18			
15			X	S	3-5-9			SM/ML	moist moderately firm	SILTY SAND TO SANDY SILT , trace of subangular to subrounded, fine grained gravel, predominantly fine grained sand, low plasticity, brown
20										Stopped Auger at 15' Stopped Sampler at 16'6"
25										

GROUNDWATER

SAMPLE TYPE

LOG OF TEST BORING NO. B-10

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1347'
 DATUM Stanley Consultants, Inc. Survey Data

Depth In Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	4-3-2		8	ML	slightly moist to very moist soft to very soft	SANDY SILT , predominantly fine grained sand, low plasticity, brown note: disturbed soil upper portion to 1'
5			X	S	0-0-1		30			
10				U	8	99	18			
								SM	slightly moist to moist firm	SILTY SAND , predominantly fine grained, subangular to subrounded, low plasticity, light brown
15			X	S	12-13-15		23			
20										Stopped Auger at 14'6" Stopped Sampler at 16'
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-12



JOB NO. 3-117-001097 DATE 6/17/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1349'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION	
0		[Hatched pattern]	X	S	4-3-3			CL-ML	slightly moist soft	SANDY CLAY TO SANDY SILT , predominantly fine grained sand, low plasticity, brown	
			X	S	3-3-5						
			X	S	1-1-2				CL	slightly moist to moist very soft	CLAY WITH SAND , predominantly fine grained sand, medium plasticity, brown to reddish-brown
5		[Dotted pattern]	X	S	1-1-2						
			X	U	10	101	20		SM	moist soft to moderately firm with hard zones	SILTY SAND , predominantly fine grained, subangular to subrounded, nonplastic, brown to reddish-brown
			X	S	27-50/4"						note: weakly lime cemented at 15'
10		[Dotted pattern]	X	S	6-7-8						note: increase in plasticity at 20'
			X	S	16-21-19				SP-SM	slightly moist to moist, very firm	SAND WITH SILT
			X	S	16-21-19						
25		[Dotted pattern]	X	S	16-21-19						

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
∇	none	
∇		
∇		
∇		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-13



JOB NO. 3-117-001097 DATE 6/17/04

LOCATION See Site Plan

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification
25			X					SP-SM
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1349'
 DATUM Stanley Consultants, Inc. Survey Data

REMARKS	VISUAL CLASSIFICATION
	SAND WITH SILT , trace to some fine grained gravel, predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown
	Stopped Auger at 24'6" Stopped Sampler at 26'

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 C - 3" O.D. CME tube sample
 NR - No Recovery

LOG OF TEST BORING NO. B-13



JOB NO. 3-117-001097 DATE 6/17/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1351'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0		[Hatched pattern]		S	4-4-5			CL-ML	slightly moist to moist soft	SANDY CLAY TO SANDY SILT , predominantly fine grained sand, low plasticity, light brown to brown
				A						
				S	3-2-4					
5		[Hatched pattern]		U	5	88	23	CL	moist very soft to moderately firm	CLAY WITH SAND , predominantly fine grained sand, medium plasticity, reddish-brown to brown
				S	4-6-5					
10		[Dotted pattern]						SM	moist hard	SILTY SAND , predominantly fine grained, subangular to subrounded, nonplastic, reddish-brown to brown note: weakly lime cemented, color is light brown at 15'
				S	11-50/5"					
15		[Dotted pattern]						SP-SM	slightly moist moderately firm	SAND WITH SILT , trace of fine grained, subrounded to subangular gravel, predominantly fine to medium grained, subangular to subrounded, nonplastic, brown to reddish-brown
				S	4-6-8					
20		[Dotted pattern]							Stopped Auger at 19'6" Stopped Sampler at 21'	
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- SAMPLE TYPE**
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - C - 3" O.D. CME tube sample
 - NR - No Recovery

LOG OF TEST BORING NO. B-14



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1353'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	3-1-2			SM	slightly moist very soft to soft	SILTY SAND , predominantly fine grained, nonplastic to low plasticity, brown
5			X	S	4-5-4		6			
								SW	slightly moist	SAND , well graded, subangular to subrounded, nonplastic, light brown to brown
								SM	loose	
10			X	S	2-5-12				slightly moist to moist firm to very firm	SILTY SAND , trace of fine grained, subrounded to subangular gravel, predominantly medium to fine grained, subrounded to subangular, nonplastic, brown note: whitish-light brown below 13'
15			X	S	16-16-15					note: brown below 17'
20				U	24					
25			X	S	4-4-5					

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-15



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1353'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
25			X					SM		SILTY SAND, continued
30										Stopped Auger at 24'6" Stopped Sampler at 26'
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

GROUNDWATER			SAMPLE TYPE	
DEPTH(ft)	HOUR	DATE	A - Drill cuttings	S - 2" O.D. 1.38" I.D. tube sample
∇	none		U - 3" O.D. 2.42" I.D. tube sample	C - 3" O.D. CME tube sample
∇			NR - No Recovery	
∇				
∇				

LOG OF TEST BORING NO. B-15



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification
0			S	4-5-5				ML
5			S A	6-24- 31			7	CL
10			S	13-22- 17				
15			U		21	101	9	SM
20			S	10-10- 7				ML
25			S	8-10- 15				SP

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1356'
 DATUM Stanley Consultants, Inc. Survey Data

REMARKS	VISUAL CLASSIFICATION
slightly moist moderately firm	SANDY SILT , predominantly fine grained sand, low to medium plasticity, light brown
slightly moist hard to very firm	SANDY CLAY , predominantly fine grained sand, low plasticity, light brown to whitish-brown note: weakly lime cemented nodules at 5'6" note: increase in sand at 6'
slightly moist moderately firm	SILTY SAND , predominantly fine grained, subrounded to subangular, nonplastic, brown
slightly moist firm	SANDY SILT , predominantly fine grained sand, low plasticity, light brown
slightly moist medium dense	SAND , trace of silt, trace of fine grained gravel, predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown

GROUNDWATER

DEPTH(ft)	HOUR	DATE
▽	none	
▼		
▽		
▽		

SAMPLE TYPE

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-16



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1356'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
25			X					SP		SAND, continued
30										Stopped Auger at 24'6" Stopped Sampler at 26'
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										

GROUNDWATER			SAMPLE TYPE	
DEPTH(ft)	HOUR	DATE		
✓	none		A - Drill cuttings	
✓			S - 2" O.D. 1.38" I.D. tube sample	
✓			U - 3" O.D. 2.42" I.D. tube sample	
✓			C - 3" O.D. CME tube sample	
✓			NR - No Recovery	

LOG OF TEST BORING NO. B-16



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1357'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S 5-5-5				ML	slightly moist to moist	SANDY SILT , predominantly fine grained sand, low plasticity, brown note: increase in silt content below 5'6"
5			X	S 4-4-4			5		moderately firm to soft	
10			X	S 2-2-4						
15								SM	slightly moist to moist	SILTY SAND , predominantly fine grained, subrounded to subangular, low plasticity, brown to light brown note: increase in silt below 22'
15				U 100/10"	104		3		firm to hard	
20			X	S 8-11-15						
25			X	S 10-11-15						

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-17



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1357'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
25			X					SM		SILTY SAND, continued.
30										Stopped Auger at 24'6" Stopped Sampler at 26'
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-17



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1353'

DATUM Stanley Consultants, Inc. Survey Data

Depth In Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			S A		2-3-4			SM	slightly moist soft	SILTY SAND , predominantly fine grained, subangular to subrounded, nonplastic, light brown to brown
								ML	slightly moist hard	SANDY SILT , predominantly fine grained sand, nonplastic to low plasticity, light brown to whitish brown
5			U		71	104	5			
10			S		19-30-21		9			
15			S		10-15-24					note: increase in sand content below 14'
								SP	slightly moist medium dense	SAND , trace of silt, predominantly fine to medium grained, subangular to subrounded, nonplastic, whitish-brown
20			S		10-10-10			SM/ML	slightly moist firm	SILTY SAND TO SANDY SILT , predominantly fine grained sand, low plasticity, brown to light brown
25										Stopped Auger at 20' Stopped Sampler at 21'6"

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-18



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1357'

DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	6-6-6			ML	slightly moist moderately firm	SANDY SILT , predominantly fine grained sand, low plasticity, brown to light brown
								SM	slightly moist firm	SILTY SAND , predominantly fine grained, low plasticity, light brown
5				S	6-12-10		6			
10				U	58	104	7			
15				S	12-9-7			SW	slightly moist medium dense	SAND , trace of silt, well graded, predominantly fine grained, subangular to subrounded, nonplastic, light brown note: gravel at 17'
20				S	14-19-11			GP-GM	slightly moist medium dense	GRAVEL WITH SAND TO SILTY GRAVEL WITH SAND , well graded sand, predominantly fine grained gravel, nonplastic, light brown to whitish-brown
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-19

PROJECT Sonoqui Wash Channelization



JOB NO. 3-117-001097 DATE 3/18/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. -1357'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
									25	
30									Stopped Auger at 25' Stopped Sampler at 26'6"	
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▼		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-19



Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	2-2-2			ML	slightly moist very soft	SANDY SILT , predominantly fine grained sand, low plasticity, brown note: decrease in sand content & light brown at 2'6" note: increase in sand content at 5.5'
5			X	S	4-5-4					
								SM/ML	slightly moist moderately firm	SILTY SAND TO SANDY SILT , predominantly fine grained, nonplastic, light brown
10				U	13	94	13			
15			X	S	5-7-6					note: silty lense grade back to silty sand below 15'
								SP	slightly moist dense	SAND , trace of silt, some fine grained gravel, predominantly medium to coarse grained, subangular to subrounded, nonplastic, light whitish-brown to gray
20			X	S	10-16-31					
25										Stopped Auger at 19'6" Stopped Sampler at 21'

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-20



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. ~1361'

DATUM Stanley Consultants, Inc. Survey Data

Depth In Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			S A	1-1-3				SM	slightly moist very soft	SILTY SAND , predominantly fine grained, nonplastic, light brown to brown
								ML	slightly moist moderately firm	SANDY SILT , predominantly fine grained sand, low plasticity, light brown
5			S	5-5-9			7			
10			U	13						
								GP	slightly moist to moist medium dense	GRAVEL WITH SAND , trace of silt, trace of predominantly medium to fine grained sand, predominantly fine grained, subangular to subrounded, nonplastic, dark brown to whitish brown note: coarse grained gravel at 16'
15			S	15-16-13			2			
								SM	slightly moist hard	SILTY SAND , predominantly fine grained, nonplastic, whitish-to grayish-brown
20			S	14-17-41						
25										Stopped Auger at 19'6" Stopped Sampler at 21'

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-21



JOB NO. 3-117-001097 DATE 6/17/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1364'
 DATUM Stanley Consultants, Inc. Survey Data

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	4-6-9			SM	slightly moist to moist	SILTY SAND , predominantly fine grained, subangular to subrounded, nonplastic, light brown note: increase in sand content from 3' to 4'
				A					moderately firm to firm	
				S	13-15-13					
5				S	5-6-6					
								ML	slightly moist to moist	SANDY SILT , predominantly fine grained sand, weakly lime cemented, nonplastic, light brown
10				U	16	84	6		moderately firm	
15				S	4-5-5			SP-SM	slightly moist	SAND WITH SILT , predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown Stopped Auger at 14'6" Stopped Sampler at 16'
									moderately firm	
20										
25										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-22



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification
0		[Diagonal Hatching]	X	S	6-7-5			CL
5		[Diagonal Hatching]	X	S	3-2-3			
10		[Dotted Pattern]	X	S	4-5-6		5	SM/ML
15		[Vertical Lines]	X	S	9-43-50/ 4 1/2"			ML
20		[Vertical Lines]		U	27	102	6	
25		[Dotted Pattern]	X	S	18-18-19			SP

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. ~1365'
 DATUM Stanley Consultants, Inc. Survey Data

REMARKS	VISUAL CLASSIFICATION
slightly moist moderately firm to soft	SANDY CLAY , predominantly fine grained sand, low plasticity, brown note: increase in sand below 5'
slightly moist moderately firm	SILTY SAND TO SANDY SILT , predominantly fine grained, nonplastic, light brown note: alternating layers of silty sand & sandy silt throughout
slightly moist firm to hard	SANDY SILT , predominantly fine grained sand, low to medium plasticity, light brown
slightly moist dense	SAND , trace of silt, some fine grained gravel, predominantly medium to fine grained, subangular to subrounded, nonplastic, whitish-brown

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
∇	none	
∇		
∇		
∇		

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-23



JOB NO. 3-117-001097 DATE 3/19/04

LOCATION See Site Plan

RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. -1365'
 DATUM Stanley Consultants, Inc. Survey Data

Depth In Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
25		[Dotted pattern]	X					SP		SAND, continued
30		[Diagonal hatching]	X	S 13-14-13				SC	moist firm	CLAYEY SAND, predominantly fine grained, subrounded to subangular, medium to high plasticity, brown
35		[Diagonal hatching]	X	S 17-22-28				CL	moist very firm	SANDY CLAY, predominantly fine to medium grained sand, low plasticity, light brown to brown note: increase in sand (fine to medium grained) at depth
40										Stopped Auger at 34'6" Stopped Sampler at 36'
45										
50										

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

LOG OF TEST BORING NO. B-23



Depth in Feet	Drill Rate Min/ft.	Graphical Log	Sample	Sample Type	Blow Count Per 6-Inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	1-2-2			SM	slightly moist very soft to moderately firm	SANDY SILT , predominantly fine grained sand, low to medium plasticity, light brown
5			X	S	4-6-8					
10			X	S	10-5-			CL	slightly moist moderately firm	SANDY CLAY , predominantly fine grained sand, low plasticity, light brown note: increase in sand content at 11'
15			X	S A	6-5-8		2	SM	slightly moist moderately firm to firm	SILTY SAND , predominantly fine grained, subangular to subrounded, nonplastic, light brown
20			X	U	26 NR					note: increasing grain size at depth
25			X	U	45	117	.1	SP	slightly moist medium dense to dense	SAND , some fine grained gravel, trace of silt, predominantly fine to medium grained, subangular to subrounded, nonplastic, light brown

GROUNDWATER

SAMPLE TYPE

DEPTH(ft)	HOUR	DATE
	none	

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- C - 3" O.D. CME tube sample
- NR - No Recovery

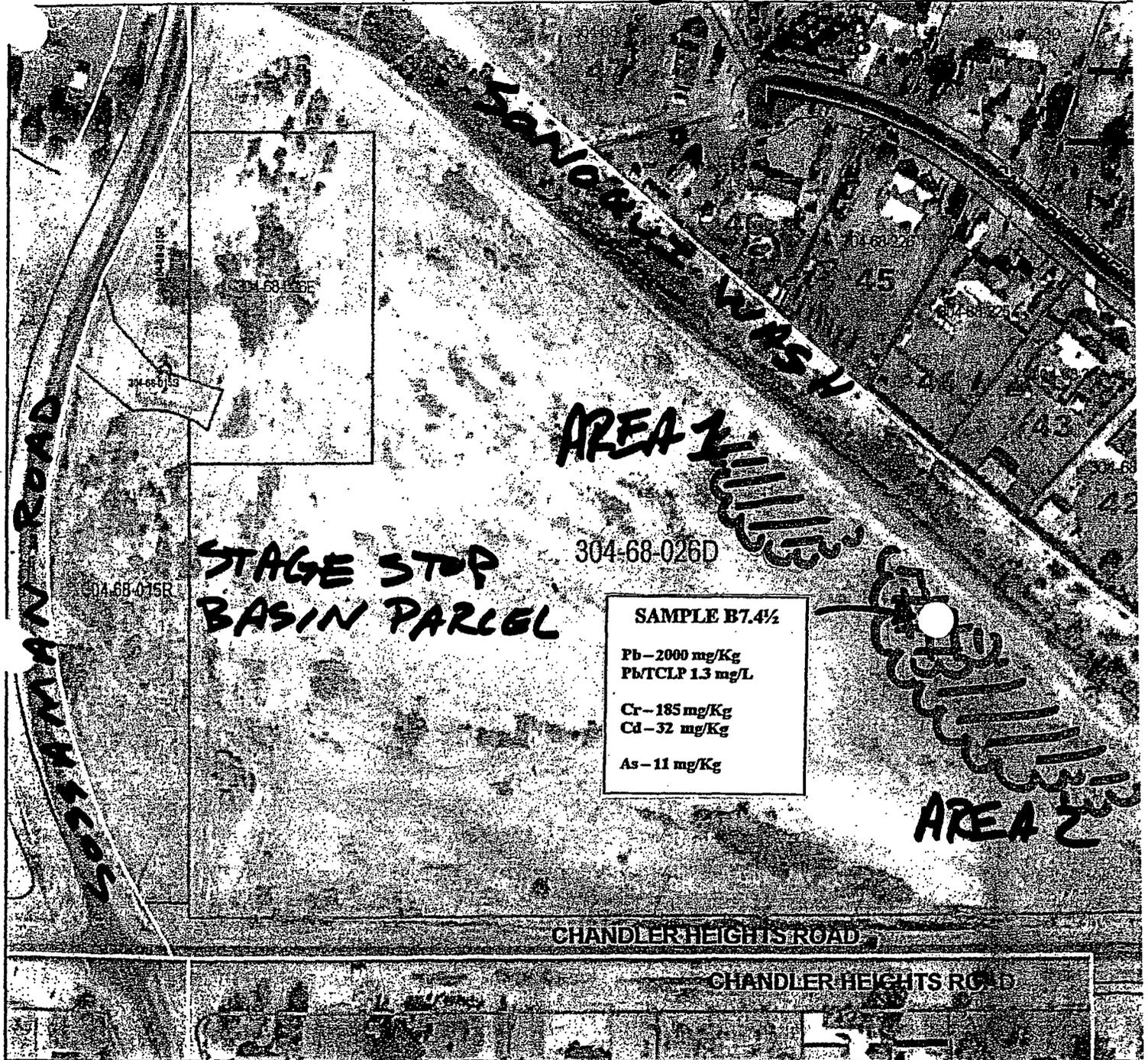
LOG OF TEST BORING NO. B-24

Special Provisions
FCD Construction Contract 2004C074
Sonoqui Wash Channelization
Queen Creek Wash to Chandler Heights Road

APPENDIX B

Stage Stop Detention Basin Special Waste Areas Exhibit

EXHIBIT A



SCALE 1 : 2,348



STAGE STOP BASIN SPECIAL WASTE AREAS 1 & 2

<http://www.maricopa.gov/Assessor/GIS/Maps/assessor.mwf>

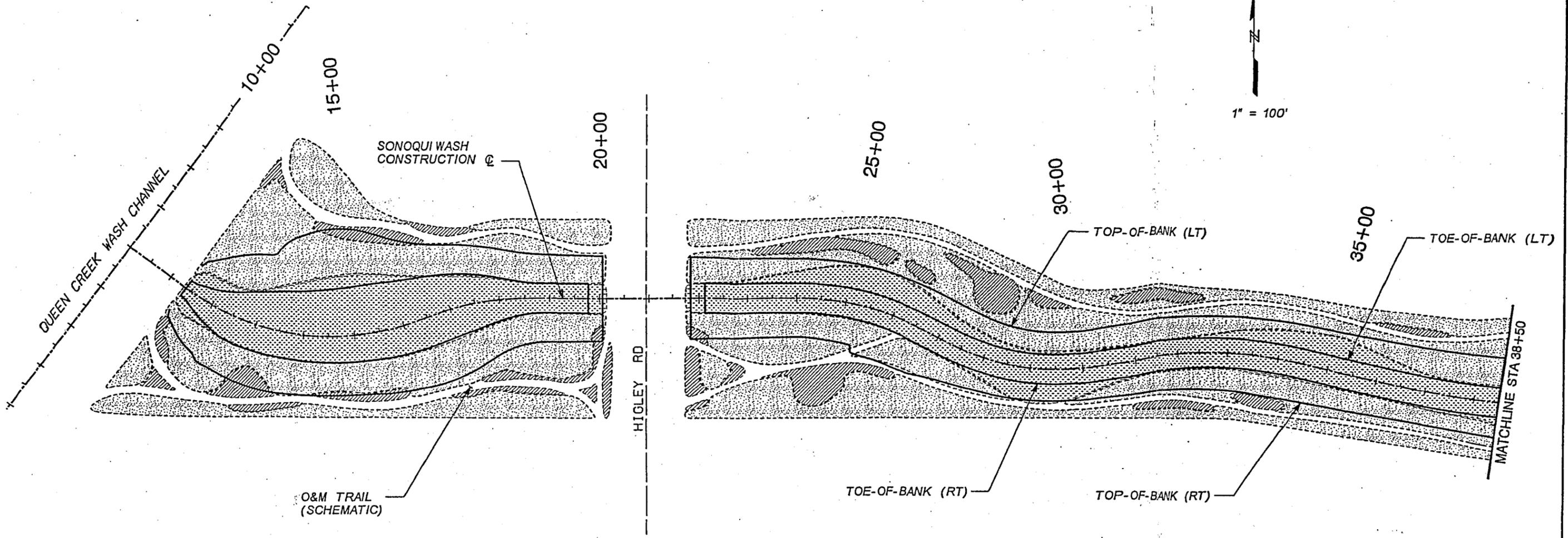
Wednesday, September 15, 2004 4:23 P

Note: Exhibit A is a modification of Attachment H-4 found in the Phase 1 and Limited Phase 2 Environmental Site Assessment, Selcha Property, Queen Crk, AZ (Oct. 2000)

Special Provisions
FCD Construction Contract 2004C074
Sonoqui Wash Channelization
Queen Creek Wash to Chandler Heights Road

APPENDIX C

Seed Mix Exhibits



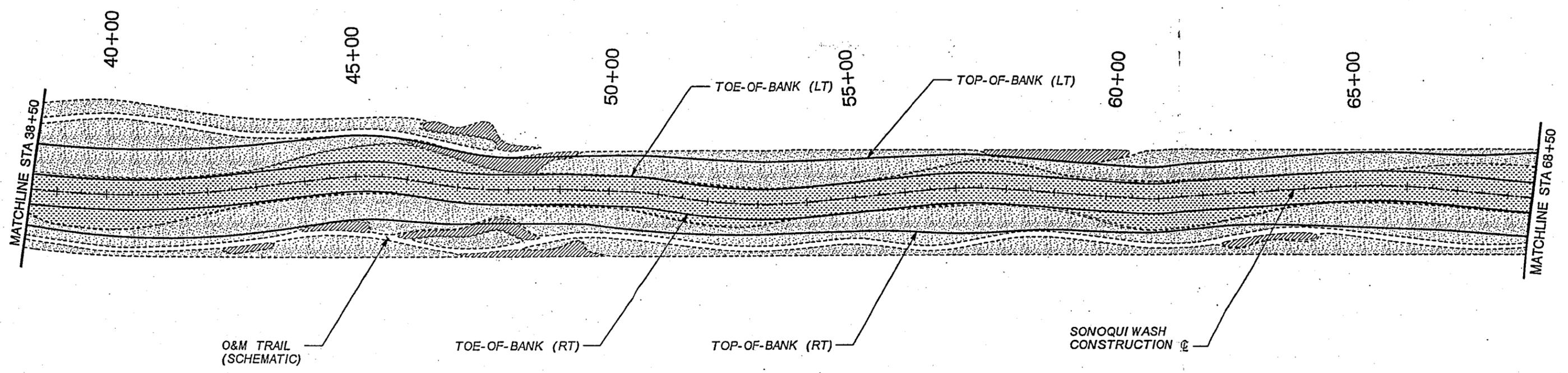
NOTES:

1. SEED MIX LOCATIONS ARE APPROXIMATE.
2. O&M TRAIL LOCATION IS SHOWN AS A SCHEMATIC ONLY. TRAIL LOCATION WILL VARY BETWEEN OVERBANK AND CHANNEL BOTTOM. SEE SONOQUI WASH CHANNELIZATION CONSTRUCTION DRAWINGS FOR PROPOSED TRAIL LOCATION.
3. SEED MIX SHALL NOT BE APPLIED TO HARDENED SURFACES (O&M TRAIL, CONCRETE STRUCTURES, ETC...) OR GRAVEL ROADS.
4. SEED MIX AND APPLICATION SHALL CONFORM TO SECTION 430 OF THE SONOQUI WASH CHANNELIZATION SPECIAL PROVISIONS.

LANDSCAPE SEED MIX LEGEND	
	NATIVE TREE SHRUB AND WILDFLOWER / PERENNIAL SEED MIX
	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

SONOQUI WASH CHANNELIZATION	
SEED MIX LOCATION EXHIBIT	
 Stanley Consultants <small>INC.</small>	2921 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com
AUGUST 2005	DATE

1" = 100'



NOTES:

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LANDSCAPE SEED MIX LEGEND

	NATIVE TREE, SHRUB AND WILDFLOWER / PERENNIAL SEED MIX
	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

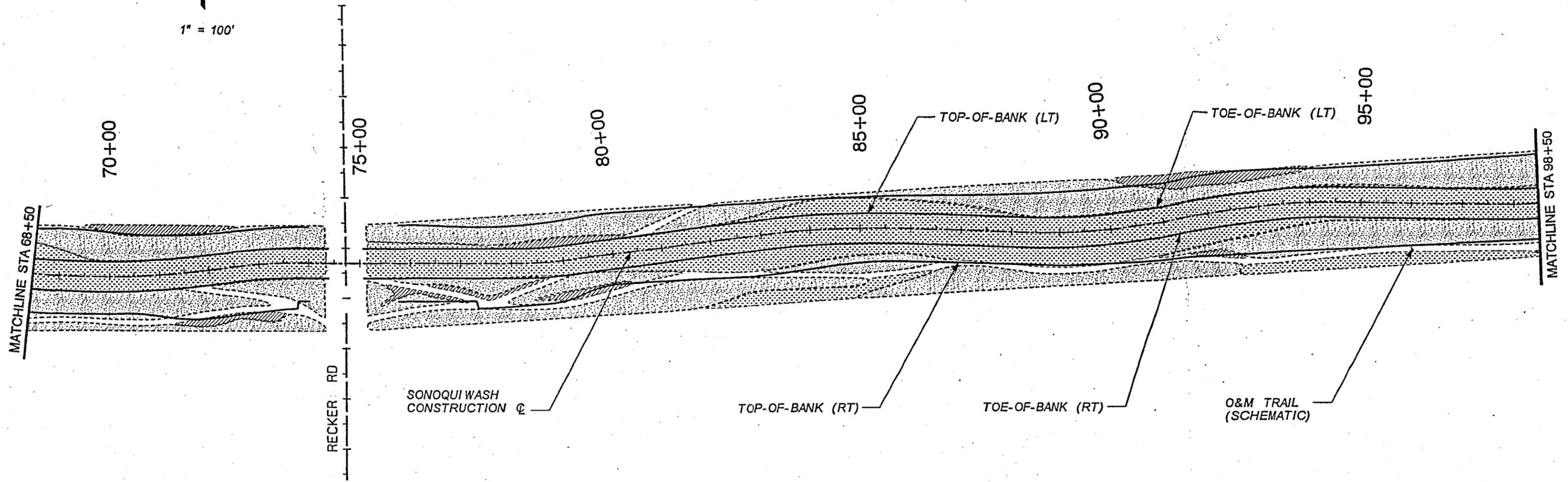
2 OF 7

SONOQUI WASH CHANNELIZATION

SEED MIX LOCATION EXHIBIT

 Stanley Consultants Inc. 2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com	AUGUST 2005 DATE
--	----------------------------

1" = 100'

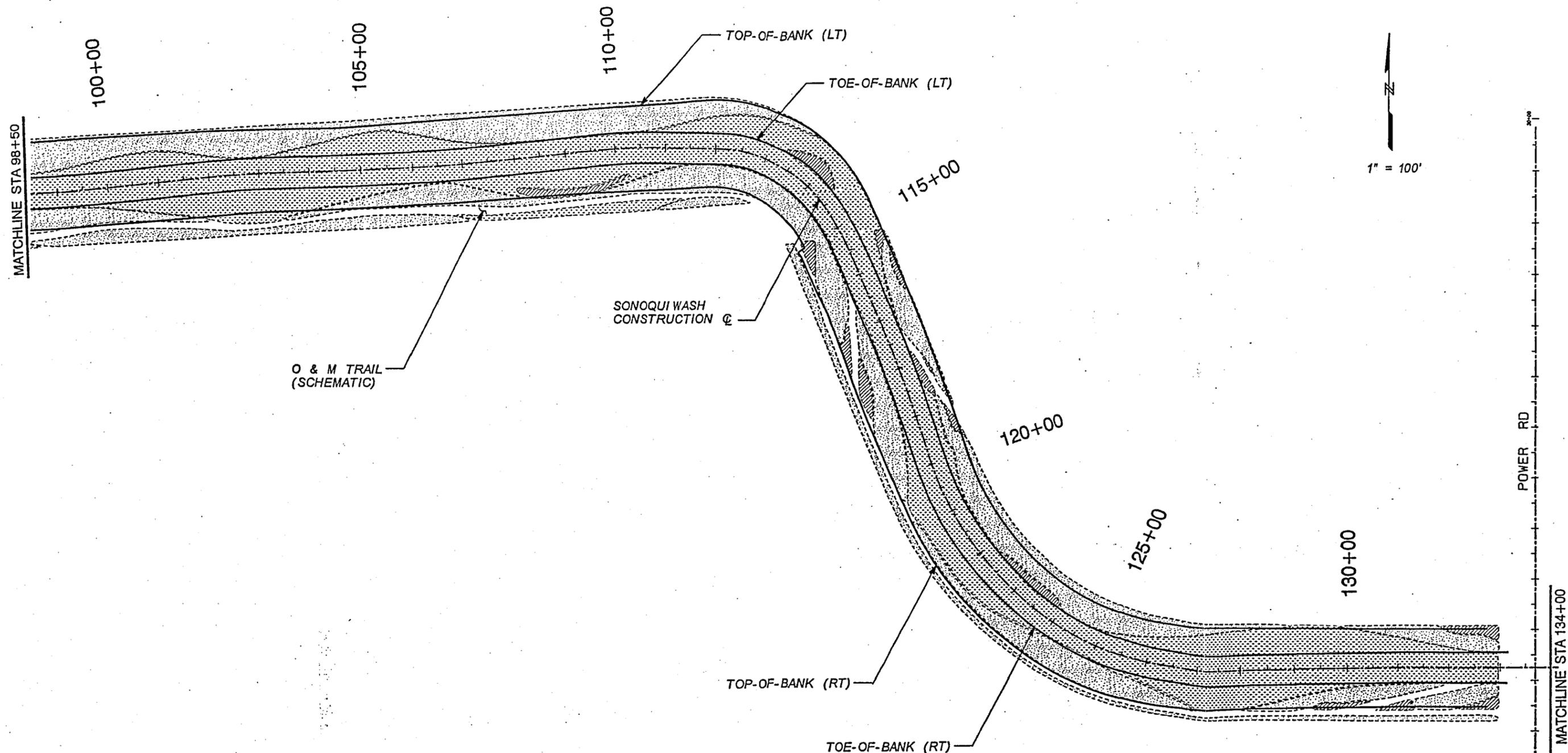


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LANDSCAPE SEED MIX LEGEND	
	NATIVE TREE, SHRUB AND WILDFLOWER / PERENNIAL SEED MIX
	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

SONOQUI WASH CHANNELIZATION	
SEED MIX LOCATION EXHIBIT	
 Stanley Consultants inc.	2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com
AUGUST 2005	DATE

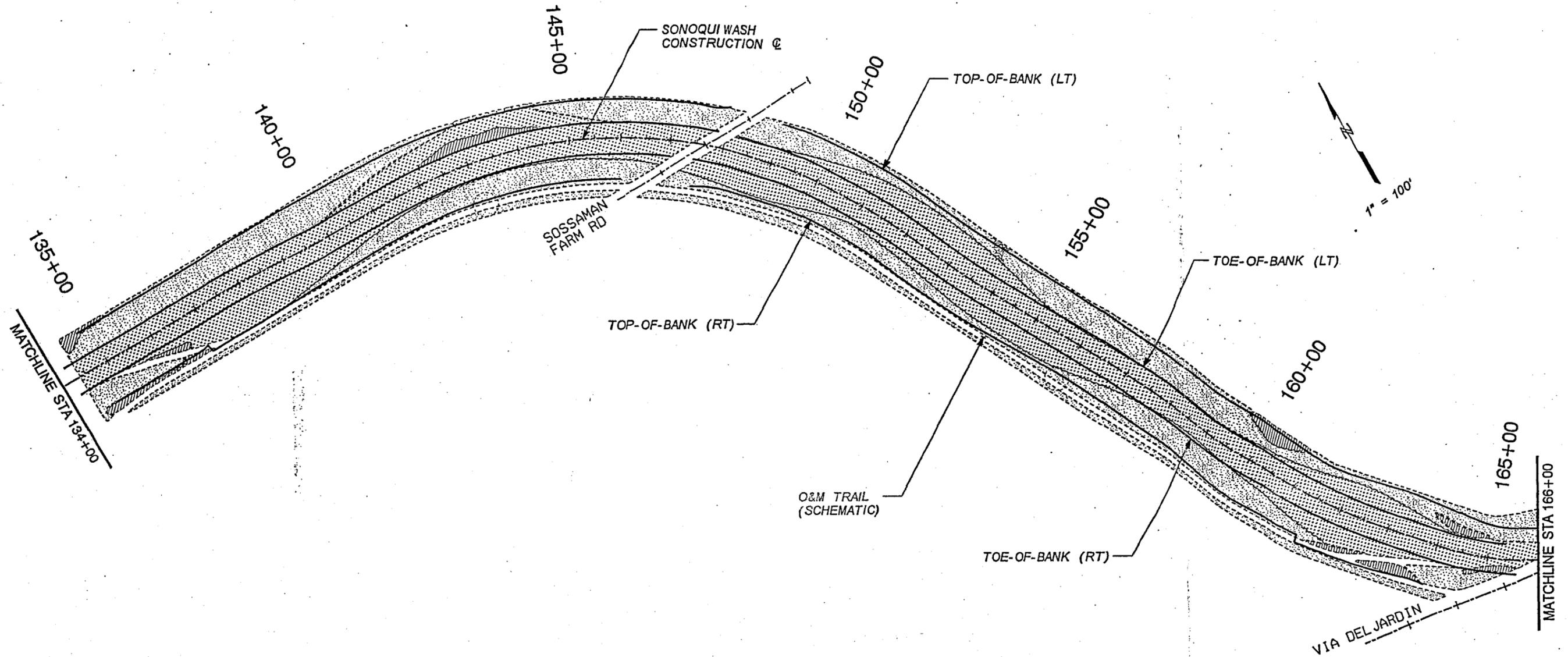


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	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

SONOQUI WASH CHANNELIZATION	
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 Stanley Consultants INC.	2929 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com
AUGUST 2005	DATE

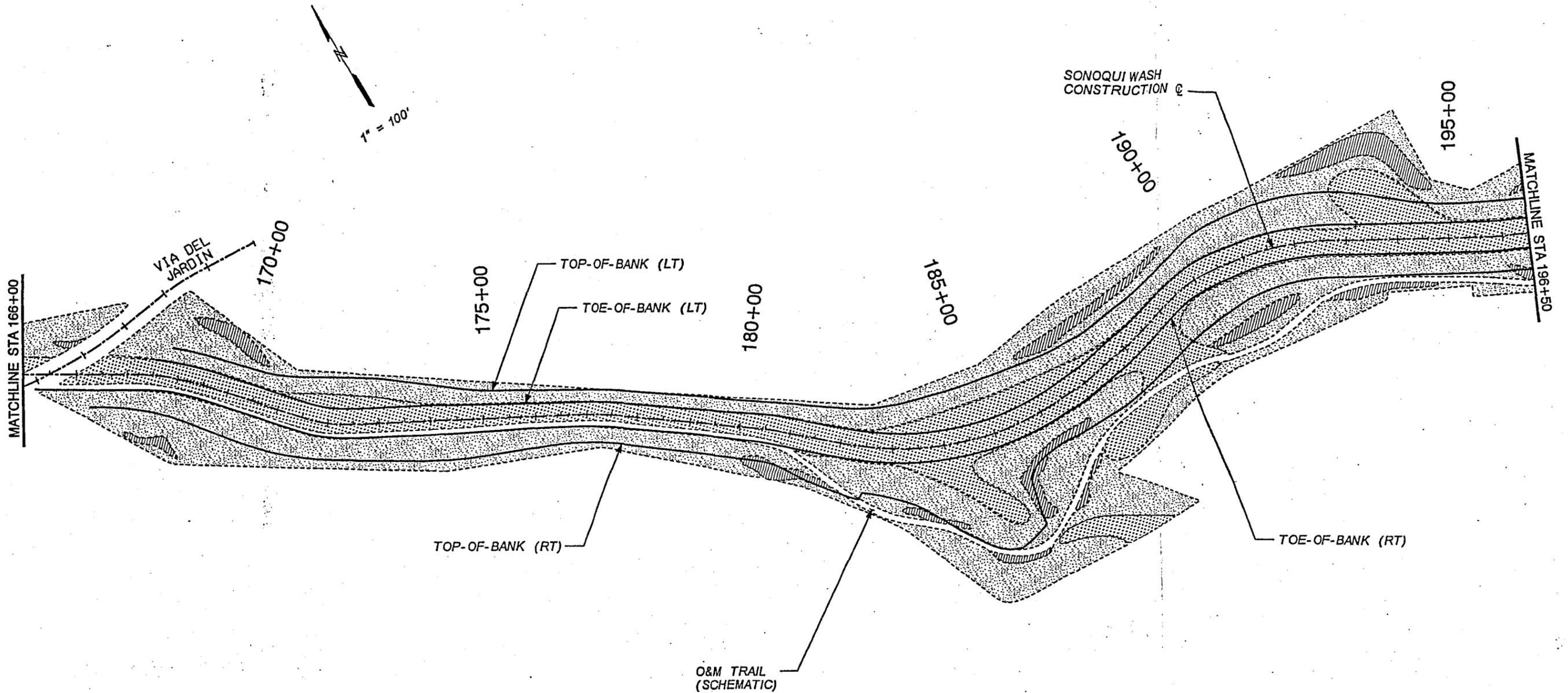


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LANDSCAPE SEED MIX LEGEND	
	NATIVE TREE SHRUB AND WILDFLOWER / PERENNIAL SEED MIX
	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

SONOQUI WASH CHANNELIZATION	
SEED MIX LOCATION EXHIBIT	
 Stanley Consultants INC.	2020 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com
AUGUST 2005	DATE

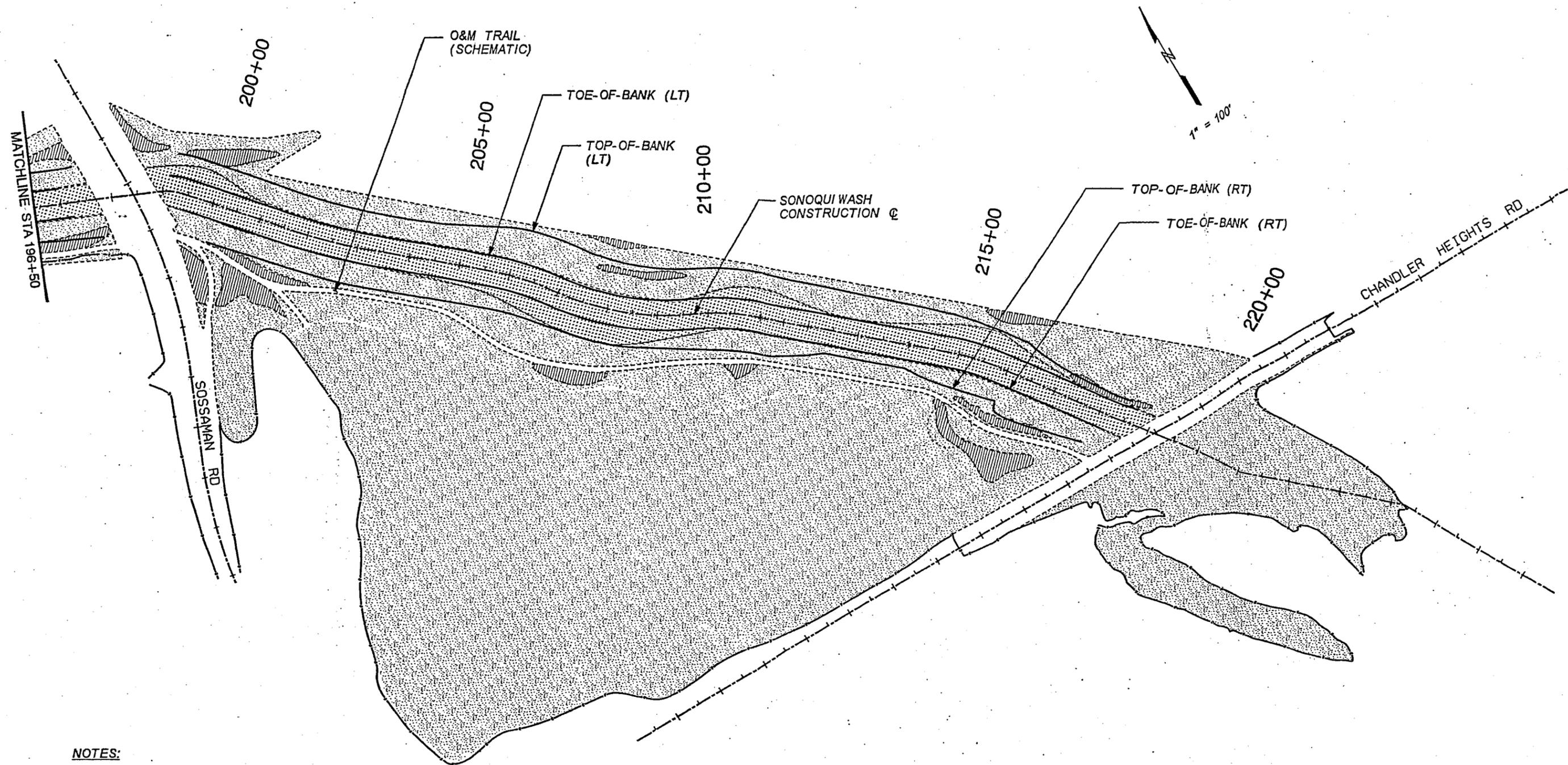


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	NATIVE WILDFLOWER / PERENNIAL SEED MIX
	NATIVE GRASS SEED MIX

SONOQUI WASH CHANNELIZATION	
SEED MIX LOCATION EXHIBIT	
 Stanley Consultants INC.	2229 East Camelback Road, Suite 130, Phoenix, Arizona 85016-4425 www.stanleygroup.com
AUGUST 2005	DATE