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CONSTRUCTION SPECIFICATIONS

FOR

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

CONTRACT FCD 98-19
Skunk Creek Channel Improvements Project
PCN 3620130 and 3620230



(Engineer's Seal)

Prepared by
Bart S. Bergendahl, P.E.
Simons, Li & Associates, Inc.
4600 S. Mill Avenue, Suite 200
Tempe, AZ 85282

for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A. Raleigh Date: 10/1/98
Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by: [Signature] Date: 10-1-98
Michael S. Ellsgood, P.E.
Chief Engineer and General Manager

SUPPLEMENTARY TO MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION EDITION OF 1998 AND ANY REVISIONS AND SUPPLEMENTS THERETO.

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ATTENTION

ALL PROSPECTIVE BIDDERS

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

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

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

Please submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONTRACT FCD 98-19
Skunk Creek Channel Improvements Project
PCN360130 and 360230

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(Area to left reserved
for Engineer's Seal)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: October 29, 1998 @ 2:00 p.m.

PROJECT LOCATION: The project is located at Skunk Creek between 51st Avenue and 74th Avenue

PROPOSED WORK: The proposed work includes the excavation of a channel and placement of 9", 12" and 18" gabions. Larger gabions are used for construction of 13 grade control structures. The armoring of the channel is to contain and convey the 100 year storm through this reach of Skunk Creek and the removal of the floodplain.

BIDS:

SEALED BIDS for the proposed work will be received by the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 until **2:00 p.m. (Phoenix time) on October 29, 1998**, and then publicly opened and read at 2801 West Durango Street, Phoenix, Arizona 85009. All bids are to be marked in accordance with Section 102.9 of the MAG Uniform Standard Specifications and addressed to the Chief Engineer and General Manager, Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009. No bids will be received after the time specified for bid opening. All bids must be submitted on proposal forms furnished by the Flood Control District and included in the Proposal Pamphlet. The Board of Directors reserves the right to reject any and all bids and to waive any informality in any bid received.

ELIGIBILITY OF CONTRACTOR:

The bidder shall be required to certify that it has the appropriate "A" Contractor's license in the State of Arizona to perform the before-mentioned 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-mentioned type of work.

PRE-BID CONFERENCE:

A **MANDATORY Pre-Bid conference will be held on October 14, 1998 at 2:00 p.m.** in the Flood Control District New River Conference Room, 2801 West Durango Street, Phoenix, Arizona. All potential contractors and subcontractors are required to attend this pre-bid conference in order to submit a bid for the project. Contractors should be prepared at that time to submit in writing and discuss any comments concerning this solicitation.

Questions or items for clarification may be addressed to the Contracts Manager, in writing, at least five (5) 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 addendum, shall not be binding nor have any legal effect.

CONTRACT TIME:

All work on this Contract is to be completed within **two hundred seventy (270) calendar days** after date of Notice to Proceed

MBE/WBE PARTICIPATION:

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

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

Two Affidavits are included herein. The first form, the "M/WBE Assurances Affidavit", must be completed and submitted with the bid - **Failure to do so may be cause for rejection of the bid.** If M/WBE goals have been established, the first and second low bidders must complete and return the second form, "Actual M/WBE Participation Affidavit", to the Minority Business Office, with a copy to the Flood Control District, by 4:00 p.m. on the seventh calendar day after bid opening,

For this contract, a goal of ten percent (10%) MBE/WBE is established for Minority/Women-Owned Business Enterprises. Complete instructions and additional forms are available from the Maricopa County Minority Business Office, located at 2901 West Durango Street, Phoenix, Arizona, telephone number 506-8656. Failure to implement "good faith" efforts in accordance with the Maricopa County Minority Business Enterprise Program to the satisfaction of Maricopa County may result in rejection of the bid.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

These construction documents consist of two sets of construction plans, numbered Contract 98-06 and Contract 98-19. The specifications consist of one set of Supplementary General Conditions and one set of Special Provisions, both identified as Contract 98-19, and are applicable to both sets of construction plans.

Plans and Construction Specifications may be obtained from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 upon payment of \$51.00 by check, payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. This payment will not be refunded. Mail orders for project documents must include an additional \$7.50 for first class U.S. postage and handling. The total \$58.50 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery.

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

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
38,800	CY	Special Excavation
700,500	CY	Earthwork for Open Channels
36,900	CY	9" Gabions
10,200	CY	12" Gabions
17,900	CY	18" Gabions

BID

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

Gentlemen:

The following Bid is made for Skunk Creek Channel Improvements Project, FCD 98-19, 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 Board of Directors is personally or financially interested, directly or indirectly, in the bid, or in any purchase or sale of any materials or supplies for the work in which it relates, or in any portion of the profits thereof.

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

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

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

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

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

BID SCHEDULE

Contract FCD 98-19 Skunk Creek Channel Improvements

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
105	Partnering	L.S.	1	5,000.00	5,000.00
107-1	NPDES/SWPPP Permits	L.S.	1		
107-2	Public Information and Notification Allowance	L.S.	1	15,000.00	15,000.00
107-3	Project Signs Allowance	L.S.	1	5,000.00	5,000.00
202	Mobilization	L.S.	1		
209	Special Excavation	C.Y.	38,800		
215	Earthwork for Open Channels	C.Y.	700,500		
219-1	9" Gabions w/Filter Fabric	C.Y.	36,900		
219-2	12" Gabions w/Filter Fabric	C.Y.	10,200		
219-3	18" Gabions w/Filter Fabric	C.Y.	17,900		
219-4	9: PVC-Coated Gabions w/Filter Fabric	C.Y.	3,350		
220	Riprap Construction (Culvert Outlet Protection w/Filter Fabric, d50=14")	C.Y.	410		
345	Adjust Manhole	EA.	3		
350	Removal of Existing Improvements	L.S.	1		
401	Traffic Control	L.S.	1		
430	Landscaping and Planting	AC.	101		
505-1	Concrete (Class AA)	C.Y.	40		
505-2	Drop Inlet (MAG Detail 501-5)	EA.	4		
525	Pneumatically Placed Mortar (3" Shotcrete Cover)	S.Y.	30,700		
618-1	24" RCP (Class III)	L.F.	40		

BID SCHEDULE

Contract FCD 98-19 Skunk Creek Channel Improvements

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
618-2	24" RCP End Section	EA.	1		
621-1	18" CMP (16 Gauge)	L.F.	132		
621-2	18" CMP End Section	EA.	6		
621-3	24" CMP (16 Gauge)	L.F.	614		
621-4	24" CMP End Section	EA.	14		
621-5	30" CMP (16 Gauge)	L.F.	32		
621-6	30" CMP End Section	EA.	1		
621-7	42" CMP (16 Gauge)	L.F.	136		
621-8	42" CMP End Section	EA.	3		
621-9	60" CMP (16 Gauge)	L.F.	315		
621-10	60" CMP End Section	EA.	3		
622-1	Back Flow Check Valve (24" dia., RV Series 37G)	EA.	1		
727	Reinforcing Steel (Grade 60)	LBS.	5,100		
770-1	Trash Rack	EA.	4		
770-2	Access Barrier (ADOT Std. 13.75, 60")	EA.	3		
TOTAL BID AMOUNT WRITTEN IN NUMBERS:					
TOTAL BID AMOUNT WRITTEN IN WORDS:					

IF BY AN INDIVIDUAL:

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

(Signature) (Date) (Telephone Number)

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

(Firm Name) (Firm Address) _____
By: _____ (Telephone Number) _____
(Signature - Title) (Date)

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

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

IF BY A CORPORATION

(Corporate Name) (Corporation Address) _____

(Printed Name - Title) (Telephone Number) _____
By: _____ (Date) _____
(Signature)

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

(President) (Address) _____

(Secretary) (Address) _____

(Treasurer) (Address) _____

*The name of the State under which the Laws of the Corporation was Chartered and 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 M/WBE participation) that are to be used in the event the undersigned should enter into contract with the Owner. Although this list will not be considered as final commitment on the part of the successful proposer, any Subcontractor changes from those listed must have Owner's written approval prior to commencement of Subcontractor work on site.

(Signature)

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the said Principal is herewith submitting its proposal for Contract FCD 98-19, Skunk Creek Channel Improvements Project.

NOW, THEREFORE, if the Flood Control District of Maricopa County shall accept the proposal of the Principal and the Principal shall enter into a contract with the Flood Control District of Maricopa County in accordance with the terms of the proposal and give the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of the contract and for the prompt payment of labor and material furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give such Bond and Certificate of Insurance, if the Principal pays to the Flood Control District of Maricopa County the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Flood Control District of Maricopa County may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect, provided, however, that this bond is executed pursuant to the 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., 199 ____.

Agency of Record, State of Arizona

Principal

Agency Address and Phone Number:

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

Surety Name
By: _____
Title: _____

Bond Number: _____

ATTACH SURETY POWER OF ATTORNEY

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

STATE OF _____ }
County of _____ }SS

_____ being first duly sworn, deposes and says:

That he/she is _____ of _____ bidding on Contract
FCD 98-19 for Skunk Creek Channel Improvements Project, in the County of Maricopa, State of
Arizona.

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

(Signature of Affiant)

Subscribed and sworn to before me this ___ day of _____, 1998

(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 42-1305) is: _____; and that, if any exemption to the above licensing requirements is claimed;

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

(2) The 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: _____

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM
MBE/WBE ASSURANCES AFFIDAVIT**

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

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

_____ (the entity submitting the bid)

(CHECK ONE)

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

___ Will provide the necessary documentation to Minority Business Office to establish that a good faith effort was made.

The first and second low bidders will specify their MBE/WBE participation on the Actual Participation affidavit or provide documentation of their good faith efforts not later than 4:00 p.m., the seventh calendar day following the bid opening. If participation is "None", the documentation shall provide bidder's good faith efforts to obtain the participation. This documentation will be reviewed by the MBO to determine whether in fact a comprehensive "good faith" effort has been implemented. The required affidavit shall be obtained by the apparent first and second low bidders from the Minority Business Office, 2901 West Durango Street, Phoenix, Arizona 85009, Telephone 506-8656, following the bid opening and verbal notification from the Procurement Officer of the Procurement Agency; a SAMPLE affidavit form for reference purposes follows.

Name of Firm

By: _____
Signature

Title

STATE OF _____)
County of _____) ss

Subscribed and sworn to before me this ___ day of _____, 1998

Notary Public

My Commission Expires: _____

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN OWNED BUSINESS ENTERPRISE PROGRAM
ACTUAL MBE/WBE PARTICIPATION AFFIDAVIT
 (NOTE: COMPLETED AFFIDAVIT MUST BE SUBMITTED WITHIN SEVEN CALENDAR DAYS
 FOLLOWING THE BID OPENING).

Name of Contractor _____

Project/Contract Number FCD 98-19
 Contract M/WBE Goal: 10 %

Total Amount of Contract _____

Contact Person _____

Street No. _____

City _____ State _____ Zip _____

<u>Minority/Women Owned Firm</u>	<u>Principal</u>	<u>Address</u>	<u>Type of Work</u>	<u>Contract Percentage</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

SAMPLE

TOTALS (Dollars/Percentage) _____

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

Signature _____

Title _____

STATE OF _____ }

}ss

County of _____ }

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

My commission Expires: _____

**MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES PROGRAM**

**D/M/WBE PARTICIPATION REPORT
(To be attached with Each Request for Pay)**

Date: _____

General Contractor/Prime Consultant: _____
Contact Person: _____
Address: _____
Telephone Number: _____
Fax Number: _____

Project Description: _____
Contract Number: _____
For Pay Period of (indicate dates): _____

D/M/WBE Subcontractor/Subconsultant Name: _____
Contact Person: _____
Address: _____
Telephone Number: _____

Type of Firm: _____
Type of Work performed for this project: _____

Total D/M/WBE Subcontract Amount: \$ _____

**Amount Paid to this D/M/WBE
Subcontractor this invoice:** \$ _____

Total paid to this Subcontractor to date: \$ _____

Total D/M/WBE Contract Goal this project = ____ %

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

**cc: Maricopa County Infrastructure
Contracts and D/W/MBE Office
2901 West Durango Street
Phoenix, Arizona 85009**

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this ____ day of _____, 1998 by and between the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, hereinafter called the Owner, acting by and through its BOARD OF DIRECTORS, and _____, hereinafter called the Contractor.

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

ARTICLE I - SCOPE OF WORK: THE Contractor shall construct, and complete in a workmanlike and substantial manner and to the satisfaction of the Chief Engineer and General Manager, a project for the Flood Control District of Maricopa County, designated as Contract FCD 98-19, Skunk Creek Channel Improvements Project, and furnish at its own cost and expense all necessary machinery, equipment, tools, apparatus, materials, and labor to complete the work in the most substantial and workmanlike manner according to the Plans and Construction Specifications on file with the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona, and such modifications of the same and other directions that may be made by the Flood Control District of Maricopa County as provided herein.

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

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

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

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 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 regulation. The Contractor's signature on this contract certifies compliance with the provisions of the I-9 requirements of the Immigration Reform Control Act of 1986 for all personnel that the Contractor and any subcontractors employ to complete this project. It is understood that the Owner shall conduct itself in accordance with the provisions of the Maricopa County Procurement Code.

ARTICLE VIII - MBE/WBE PROGRAM: The Owner will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Owner without being discriminated against on the grounds of race, religion, sex, age, disability, or national origin. The Maricopa County Minority Business Program implemented January 1, 1992, is incorporated by reference.

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

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

Party of the First Part

By _____
(Printed Name) (Signature)

Title: _____

Date: _____

Tax Identification Number

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

RECOMMENDED BY:

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

By: _____
Chairman, Board of Directors Date

ATTEST:

Clerk of the Board Date

LEGAL REVIEW

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

By: _____
District, General Counsel Date

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated the _____ day of _____, 1998 for **Contract FCD 98-19, Skunk Creek Channel Improvements Project**, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

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

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

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

Witness our hands this _____ day of _____, 1998

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

By: _____
Printed Name and Signature

Title: _____

Surety Seal

By: _____
Title: _____

ATTACH SURETY POWER OF ATTORNEY

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated the ____ day of _____, 1998, for **Contract FCD 98-19, Skunk Creek Channel Improvements Project**, 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 Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, and Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

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

Witness our hands this _____ day of _____, 1998.

Agency of Record, State of Arizona

Agency Address and Phone Number:

BOND NUMBER: _____

ATTACH SURETY POWER OF ATTORNEY

Principal

By: _____
(Printed Name) (Signature)

Title: _____

Surety Seal

By: _____

Title: _____

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, Maricopa County, _____, their agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or resulting from the Contractor's work or services. The Contractor's duty to defend, hold harmless and indemnify the District, its 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 in whole or in part by any act or omission by the Contractor, anyone the Contractor directly or indirectly employs, or anyone for whose acts the Contractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including the District.

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

For all other hazards, liabilities, and exposures: To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of or resulting from the Contractor's work or services. Contractor's duty to defend, hold harmless, and indemnify the District, its agents, representatives, officers, directors, officials, and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, injury to, impairment or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission of the Contractor, anyone the Contractor directly or indirectly employs, or anyone for whose acts the Contractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including the District.

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

INSURANCE REQUIREMENTS

Without limiting any of its obligations or liabilities, the Contractor, at the Contractor's own expense, shall purchase and maintain the hereafter stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. rating of B++6, or approved unlicensed to do business in the State of Arizona with policies and forms satisfactory to the County.

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

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

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

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

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

The District reserves the right to request and to receive, within 10 working days, certified copies of any or all of the above policies and/or endorsements. The District shall not be obligated, however, to review same 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 District's right to insist on, strict fulfillment of the Contractor's obligations under this Contract.

The insurance coverage, except Workers' Compensation and Professional Liability, required by this Contract shall name the District, its agents, representatives, officers, directors, officials, and employees as Additional Insureds.

General Liability. The Contractor shall maintain Commercial General Liability insurance with a limit of not less than \$5,000,000 for each occurrence with a \$5,000,000 Products and Completed Operations Limit and \$5,000,000 General Aggregate Limit, and include coverage for bodily injury, broad form property damage, personal injury, products/completed operations and blanket contractual covering, but not limited to, the liability assumed under the indemnification provisions of this Contract, which coverage will be at least as broad as the Insurance Service Office, Inc. Policy Form CG 00011093 or any replacements thereof. The coverage shall not exclude X, C, U.

Such policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, nor any provision which would serve to limit third party action over claims.

The Commercial General liability additional insured endorsement will be at least as broad as the Insurance Service Office, Inc. Additional Insured, Form B, CG 20101093, or replacements thereof.

Any failure to comply with the reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the District.

If required by this contract, the Contractor subletting any part of the work awarded to the Contractor shall purchase and maintain, at all times during prosecution of the work under this Contract, an Owner's and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the work or Contractor's operations under this contract. Coverage shall be on an occurrence basis with a limit not less than \$1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability insurance.

Automobile Liability. The Contractor shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than \$2,000,000 each occurrence with respect to the Contractor's any owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor's work or services. Coverage will be at least as broad as coverage code 1, "any auto" (Insurance Services Office, Inc. Policy Form CA 00011293, or any replacements thereof). Such insurance shall include coverage for loading and off-loading hazards. If hazardous substances, materials, or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.

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

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

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

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

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

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

Required coverages may be modified by an amendment to the Contract documents.

Certificates of Insurance

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

Subcontractor: The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. If a policy does expire during the life of the Contract, a renewal Certificate of the required coverage must be sent to the District at least fifteen (15) days prior to the expiration date.

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

Insurance evidenced by this Certificate shall not expire, be canceled, or materially changed without fifteen (15) days prior written notice to the District. If a policy does expire during the life of the contract, a renewal Certificate must be sent to the District fifteen (15) days prior to the expiration date.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 CERTIFICATE OF INSURANCE

CONTRACT FCD 98-19

PROJECT TITLE: Skunk Creek Channel Improvements

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

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time

CO. LTR	TYPE OF INSURANCE	POLICY NUMBER	EFFECTIVE DATE (MM/DD/YY)	EXPIRATION DATE (MM/DD/YY)	LIMITS	
	COMMERCIAL GENERAL <input checked="" type="checkbox"/> LIABILITY FORM <input checked="" type="checkbox"/> PREMISES OPERATIONS <input checked="" type="checkbox"/> CONTRACTUAL <input checked="" type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> EXPLOSION & COLLAPSE <input checked="" type="checkbox"/> PRODUCTS/COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> UNDERGROUND HAZARD <input checked="" type="checkbox"/> INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> PERSONAL INJURY				GENERAL AGGREGATE PRODUCTS/COMPLETED OPERATIONS BODILY INJURY AND PROPERTY DAMAGE PERSONAL INJURY EACH OCCURRENCE	\$5,000,000 \$5,000,000 \$5,000,000 \$5,000,000 \$5,000,000
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED				EACH OCCURRENCE	\$2,000,000
	<input type="checkbox"/> EXCESS LIABILITY				NECESSARY IF UNDERLYING NOT ABOVE MINIMUM	
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY each accident	\$1,000,000
	<input type="checkbox"/> ENGINEERS PROFESSIONAL LIABILITY				EACH CLAIM AND ANNUAL AGGREGATE	
	<input checked="" type="checkbox"/> OTHER	In addition to the Flood Control District, add Maricopa County, the City of Peoria and the City of Glendale as additional insured.				

Except for Professional Liability Insurance and Workers' Compensation Insurance, the Flood Control District of Maricopa County is added as an additional insured on those types of policies described herein which are required to be furnished by this contract entered into between the insured and the Flood Control District. To the extent provided in this contract, insured shall hold harmless the Flood Control District of Maricopa County from liability arising out of any services provided or duty performed by insured as required by statute, law, purchase order or otherwise required, with the exception of liability for loss or damage resulting from the sole negligence of Flood Control District 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 canceled, 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
---	---

It is further agreed that:

The Contractor hereby agrees to indemnify and save harmless the **Flood Control District of Maricopa County, Maricopa County, the City of Peoria and the City of Glendale** or any of their departments, agencies, officers or employees, from and against all loss, expense, damage or claim of any nature whatsoever which is caused by any activity, condition or event arising out of the performance or nonperformance of any of the provisions of this Agreement, with the exception of liability for loss resulting from the sole negligence of the Flood Control District, its agents, employees, or indemnities.

The **Flood Control District of Maricopa County, Maricopa County, the City of Peoria and the City of Glendale** shall, in all instances, be indemnified against all liability, losses and damages of any nature for or on account of any injuries to or death of persons or damages to or destruction of property arising out of or in any way connected with the performance or nonperformance of this Agreement, except such injury or damage as shall have been occasioned by the sole negligence of the **Flood Control District of Maricopa County, Maricopa County, the City of Peoria and the City of Glendale**.

The above cost of damages incurred by the **Flood Control District of Maricopa County, Maricopa County, the City of Peoria and the City of Glendale**, or any of their departments, agencies, officers or employees, or others aforesaid shall include in the event of an action, court costs, expenses for litigation and reasonable attorneys fees.

Firm: _____

Principal: _____

By: _____

Title: _____

Date: _____

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SUPPLEMENTARY GENERAL CONDITIONS

CONTRACT FCD 98-19

SKUNK CREEK CHANNEL IMPROVEMENTS

74TH AVENUE TO 51ST AVENUE

PCN 3620130 & 3620230

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CONTRACT FCD 98-19
SKUNK CREEK CHANNEL IMPROVEMENTS
74TH AVENUE TO 51ST AVENUE
PCN 3620130 & 3620230**

SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS

Except as otherwise amended in these Supplementary General Conditions and the Construction Special Provisions, construction of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, dated 1998, together with the Maricopa County Department of Transportation (MCDOT) Supplements to the Uniform Standard Details, dated 1993.

PRECEDENCE OF CONTRACT DOCUMENTS

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

Subsection 101.2 - Definitions and Terms:

- (1) Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the Flood Control District of Maricopa County.
- (2) Change the definition of the phrase "Budget Project" to being a project financed by funds set aside in the annual budget or otherwise approved by the Flood Control District of Maricopa County Board of Directors.
- (3) Add to the definition of the phrase "Contract Documents," the phrase "Supplementary General Conditions."
- (4) Change the definition of the term "Engineer" to being the person appointed by the Flood Control District of Maricopa County Board of Directors to the office of Chief Engineer and General Manager of the Flood Control District of Maricopa County acting directly or through its authorized representative, the Chief of the Flood Control District of Maricopa County Planning and Project Management Division.
- (5) Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that it is the successful bidder and the Flood Control District of Maricopa County has accepted its proposal.
- (6) Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through it's legally constituted officials, officers, or employees.

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

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

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

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

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

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

Subsection 102.7 - Irregular Proposals: Add the following:

- (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 specifications document is not returned.
- (J) If the statement from bidder's insurance carrier as required by Subsection 103.6 is not included.

Subsection 103.6 - Contractor's Insurance: Add the following: A statement from bidder's insurance carrier shall be included in the proposal certifying that it will furnish the specified kind and amounts of insurance to the bidder if it is awarded the contract. As required by law, the statement will be from an insurance carrier or carriers authorized to do business in the State of

Arizona, or countersigned by an agent of the carrier authorized to do business in the State of Arizona. Concurrently with the execution of the contract, Contractor shall furnish a Certificate of Insurance using the included Certificate, that names the additional insureds as set out in the Certificate. The Certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form.

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

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

Subsection 104.1 - Work to be Done: Add the following sentence to 104.1.1:
All water for construction purposes, drinking water, lighting, temporary electric power, heat, and telephone service shall be arranged and provided for as per requirements of the work by Contractor at his expense.

Subsection 104.1.2 Maintenance of Traffic: Add the following:
Principal construction features for the project are the excavation of a channel and the installation of gabions and gabion mattresses.

No interruption of traffic will be permitted on Bell Road, Union Hills Drive, 51st Avenue, 59th Avenue, and 67th Avenue.

The Contractor shall also maintain access to all local businesses and residences.

subsec. 104.2.3
subsec. 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 work days after receipt of such direction stating:

- (A) The date, nature, and circumstances of the conduct regarded as a change;
- (B) The particular elements of the contract performance for which the Contractor is seeking an equitable adjustment under this section, including any price or schedule adjustments;
- (C) The Contractor's estimate of the time by which the Owner must respond to the Contractor's notice to minimize cost, delay, or disruption of performance.

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

performance of any part of the work under this contract, the Owner shall make an equitable adjustment and modify the contract in writing.

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

Subsection 104.2.4 - Cost Estimates or Price Proposals:

ADD the following

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(s) for each item, unit price per item, including applicable sales tax markup, and extended total price per item. The Contractor shall provide copies of material supplier quote sheets, invoices or purchase orders, as appropriate.

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

Subsection 104.2.6 - Value Engineering:

ADD The following

(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. Each drawing sheet and at least the content sheet of the calculations shall be sealed by an Engineer registered in the State of Arizona.
 - (2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revision.
 - (3) A separate, detailed cost estimate for the affected portions of the existing contract requirements and the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (g) below.
 - (4) A description and estimate of costs the Owner may incur implementing the VECP, such as test and evaluation and operating and support costs. This is an estimate based only on the Contractor's understanding of additional efforts to be expended by the Owner, should the VECP be accepted. The final cost will be determined by the Owner.
 - (5) A prediction of any effects the proposed change would have on collateral costs to the agency, i.e., costs of operation or maintenance.
 - (6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.
 - (7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved and previous Owner actions, if known.
- (D) **Submission.** The Contractor shall submit VECPs to the Owner's Engineer.
- (E) **Owner Action.**
- (1) The Owner shall notify the Contractor of the status of the VECP within 15 calendar days after receipt from the Contractor. If additional time is required, the Owner shall notify the Contractor within the 15-day period and provide the reason for the delay and the expected date of the decision. The Owner will process VECPs expeditiously; however, it shall not be liable for any delay in acting upon a VECP.
 - (2) If the VECP is not accepted, the Owner shall notify the Contractor in writing, explaining the reasons for rejection.
 - (3) The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Owner.
 - (4) Any VECP may be accepted, in whole or in part, by the Owner's award of a change order to this contract, citing this subsection. The Owner may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a change order incorporates a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Owner's decision to accept or reject all or any part of any VECP shall be final and not subject to disputes or otherwise subject to litigation.

(F) **Cost Sharing.**

- (1) **Rates.** The Owner's share of savings is determined by subtracting the Owner's costs from instant contract savings and multiplying the result by 50 percent. The Contractor's share shall be the remaining 50 percent.
- (2) **Payment.** Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a change order to this contract to accept the VECP, reduce the contract price or estimated cost by the amount of instant contract savings, and provide the Contractor's share of savings by adding the amount calculated to the contract price.

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

Subsection 105.1 - Authority of Engineer: Add the following:

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

Subsection 105.2~~A~~ - 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:

Subsection 105.3.1 - Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated and expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by Engineer will be similar to that provided in subparagraph 106.4(B).

Subsection 105.5 - Cooperation of Contractor: Add the following:

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

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

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

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

ITEM 105-1 - PARTNERING

Subsection 105.5.2 – Pre-Construction Meeting: After award of the contract and prior to the commencement of the work or mobilization, a pre-construction meeting shall be scheduled at a location and time to be agreed upon between the Owner and the Contractor. The Contractor shall make all necessary arrangements to have 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) Mix design composition
- 2) Manufacturer's certification for all materials
- 3) Material data safety sheets
- 4) Preliminary work schedule
- 5) Preliminary traffic control plan
- 6) Shop drawings
- 7) Emergency telephone numbers
- 8) Signing authority letter
- 9) Name and telephone number of the certified safety professional

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

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

Subsection 105.5.3 -Construction Progress Meetings:

Construction progress meetings shall be scheduled weekly, or as considered necessary by the Owner. The Contractor shall make all arrangements to have 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 approved construction schedule and the Contractor's short range construction activities as provided on his two-week rolling schedule. The Contractor shall not be relieved of his responsibility to fulfill all of the terms of the contract as a result of any inferences drawn or suggestions made available at these meetings.

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

Subsection 105.6 - Cooperation with Utilities: Add the following:

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

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

Flood Control District	506-1501
Southwest Gas, Bob Sprague	484-5343
U.S. West Communications (US West), Holy	937-0902
Arizona Public Service, Steve Goodman	371-6969
Blue Stake	263-1100

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 Engineer shall perform all base surveys and cross sections of existing conditions that may be required as a basis for quantity determination.
- C. The Contractor shall submit original construction surveyor's notes duly signed by a Registered Land Surveyor to the Engineer at the end of the project. Copies of the survey notes shall be submitted to the Engineer at the first weekly meeting after being generated.
- D. As-built plans sealed by an Engineer registered in the State of Arizona shall be provided by the Contractor to the Owner prior to project close out.

Subsection 106.1 - Source of Materials and Quality: Add the following:

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

The Contractor shall perform all work in strict accordance with the contract documents and shall be responsible for ensuring all work is in full compliance with the quality and design requirements contained in the contract documents. The contractor shall be fully responsible for providing any necessary testing or inspection at his own expense to verify the contract requirements are met. The Engineer, or his designated representative(s), shall have the right to perform inspections, surveillances and audits of the activities of the Contract, lower-tier subcontractor and vendors involved in the performance of the Contract to assure that the required levels of quality are achieved.

Subsection 106.4 - Trade Names and Substitutions: Replace with the following:

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

- (A) "Or-Equal": If in the Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.
- (B) Substitute Items: If in Engineer's sole discretion an item does not qualify as an "or-equal" item under subparagraph 106.4 (A), it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by Engineer will include the following and may be supplemented in the Special Provisions and as Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or

equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

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

Subsection 106.5 - Contractors Marshaling Yards: Add the following:

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

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

Subsection 107.2 - Permits: Replace with the following:

Contractor shall obtain all permits and licenses, including but not limited to those required by law; pay all charges, fees, taxes, and provide all notices necessary and incidental to the due and lawful prosecution of the work. Permits for earth moving may be obtained from Air Pollution Control, Maricopa County Department of Environmental Management, 2406 South 24th Street, Suite E-214, Phoenix, Arizona 85034, telephone number 506-6700. The cost for the earth moving dust control permit is \$80 plus \$8 per acre. There are approximately (160) acres in this project. The above permit costs are subject to change. It is the responsibility of the Contractor to verify these costs.

Subsection 107.2.1 - NPDES Permit Requirements: Add the following:

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

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

2. Notice of Intent (NOI) to assure compliance with the NPDES General Permit for Arizona, including certification of signatures.
 3. Notice of Termination (NOT) of coverage under NPDES General Permit for Arizona.
- B. Preliminary copies of the NOI and the SWPPP shall be submitted to Owner during the preconstruction meeting and shall be subject to review by Owner prior to implementation.
- C. Contractor shall submit the completed and duly signed NOI forms no later than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

EPA Storm water Notice of Intent	A copy to:	Storm Water Coordinator
P.O. Box 1215		Arizona Department of Environmental Quality
Newington, VA 22122		P.O. Box 600
		Phoenix, Arizona 85001-0600

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

- D. Inspections of all Storm water pollution control devices on the project shall be performed by Contractor on a monthly basis and following each rainfall of 0.50 inches or more in a 24-hour period at the project site as required under provisions of the NPDES General Permit for Arizona. Contractor shall prepare reports on such inspections and retain the reports for a period of three years following the completion of the project. Inspection reports shall be submitted monthly to Owner along with progress payment requests. Additionally, Contractor shall maintain all Storm water pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project.
- E. Contractor warrants that its employees and Subcontractors of any tier and their employees shall at all times comply with all applicable laws, ordinances, statutes, rules and regulations set forth by all federal, state and local governments and the Environmental Protection Agency in connection with NPDES Permitting requirements and laws and regulations pertaining to air, groundwater and surface water quality.

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

- F. Upon project completion, acceptance and demobilization, Contractor shall submit its completed, duly executed NOT form to the EPA, with a copy to the Arizona Department of Environmental Quality (and the appropriate municipality), at the address listed in Section (B) above, thereby terminating all NPDES permit coverage for the project. Contractor shall then surrender to Owner copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance of the NPDES General Permit. Contractor shall retain the originals of such documents for a period of three (3) years following the completion of the project.
- G. The Lump Sum price for the SWPPP shall include all material, labor, and all other costs relating to the preparation, installation and maintenance of the SWPPP during project construction, including assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events, runoff or releases on the project. The Lump Sum price for the SWPPP shall be inclusive of all costs, and no additional claims shall be made by Contractor under any other specification provision of these documents,

including Changed Conditions. Payment for this bid item shall be upon final completion and acceptance of the project, as per Section 109.1.

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

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

ITEM 107-1 NPDES/SWPPP PERMITS

Subsection 107.4 - Archeological Reports: Add the following:

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

Subsection 107.5: Add the following:

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

Subsection 107.5.3 - Compliance with the Arizona Communication Standard: Owner will provide Contractor with Material Safety Data Sheets (MSDS) for any products known to exist on the site that are deemed health hazards. Contractor will provide a copy of Owner-provided MSDS to all Subcontractors.

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

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

Subsection 107.5.4 Contractor's Status During any Hazard Remediation: If remediation of any discovered Regulated Substance, contamination or asbestos is necessary, the Owner will address the problem, and if this interferes with the project's critical path, then the CPM and project schedule will be reviewed and revised as mutually acceptable by the Engineer and Contractor to minimize the impact to the **total project schedule**. An extension in contract time for any delay to Contractor then resulting will be granted by Owner in accordance with Subsection 108.7.

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

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

Subsection 107.6.3 Public Information and Notification: Add the following:

The Contractor shall employ a specialty public information service as a subcontractor to provide the community relations program for the project as described herein. The name and address of the public

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

1. Distributing a pre-construction information letter to all residents, business, schools, farm operations, etc. within an area ½ mile north and south of Skunk Creek from 74th Avenue to 51st Avenue.
2. Printing and distribution of public notices and/or newsletters.

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

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 24-hour answering service. The answering service shall be operated by Contractor personnel during all hours that work is being performed on the job site. The Contractor shall maintain a log of incoming calls, responses, and action taken which shall be submitted to the Engineer weekly and/or upon request.

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

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

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

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

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

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

ITEM 107-2 - PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE

Subsection 107.6.4 - Project Signs:

Contractor shall provide and install nine (9) project information signs before beginning construction. The signs will inform the public of the forthcoming project, construction dates, and suggested alternate travel routes. Project signs shall include the names of all agencies participating in the project. Signs shall be constructed in accordance with the Project Sign Information drawing to be provided to the Contractor at the pre-construction meeting. The signs shall be installed at the location(s) approved by the Engineer. The Contractor shall maintain the signs as necessary, and update the information as requested by the Engineer. Payment shall be made according to the allowance in the Bidding Schedule in installments of 50% upon installation, and the remaining 50% upon final payment for the work.

ITEM 107-3 PROJECT SIGNS ALLOWANCE

Subsection 107.8 - Use of Explosives: Add the following:

Because of the proximity residences and businesses, the use of explosives will NOT be permitted for any construction activities on the project.

Subsection 107.9 - Protection and Restoration of Property: Add the following:

The Contractor shall protect-in-place all existing structures and other features as identified on the plans.

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

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

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

- A. The Contractor shall protect-in-place at all times all existing utilities.
- B. Storm water runoff in the area generally flows into and through Skunk Creek. The Contractor shall take all necessary precautions to protect his work and prevent damage that may be caused by such runoff and ponding.
- C. The Contractor shall take all necessary action to protect the public from the construction work area
- D. The Contractor shall take all necessary action to ensure that all construction materials are stored in such a manner that storm runoff from the storage area does not reach adjacent properties.

Subsection 108.1 - Notice to Proceed: Delete Paragraph (A) and replace with the following:

- (A) Contractor shall commence work within seven (7) calendar days after the date of the Notice to Proceed and complete all work within two hundred and seventy (270) calendar days beginning the day following the effective date specified in the Notice to Proceed.

Subsection 108.2 - Subletting of Contract: Add the following:

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

Subsection 108.4 - Contractor's Construction Schedule: Delete in its entirety and replace with the following:

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

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

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

Subsection 108.5 - Limitation of Operations: Add the following:

Should Contractor elect to perform any work after regular working hours, on weekends, or legal holidays, with or without written approval of Engineer, any charges incurred by Owner for inspection of the work, surveys or tests of materials will be deducted from monies due or to become due to Contractor.

Subsection 108.9 - Failure to Complete on Time: Add the following:

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

Subsection 109.2 – Scope of Payment: Add the following:

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

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

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

Payment shall not be made for unused materials.

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

Subsection 109.7 - Payment for Bond Issue and Budget Projects:

(A) To third paragraph, add:

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

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

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

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

**CONSTRUCTION SPECIAL PROVISIONS FOR
SKUNK CREEK CHANNEL IMPROVEMENTS**

74TH AVENUE TO 51ST AVENUE

**CONTRACT NO. FCD 98-19
PCN 3620130 & 3620230**



Prepared for:
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 West Durango
Phoenix, AZ 85009
(602) 506 -1501

Prepared by:
Simons, Li & Associates, Inc.
4600 South Mill Ave.
Suite 200
Tempe, AZ 85282
(602) 491-1393

**CONSTRUCTION SPECIAL PROVISIONS FOR
SKUNK CREEK CHANNEL IMPROVEMENTS**

74TH AVENUE TO 51ST AVENUE

CONTRACT NO. FCD 98-19

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SECTION 201 - CLEARING AND GRUBBING

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

201.1 - Description: Add the following to this subsection:

Unless otherwise indicated on the plans or directed by the Engineer, organic soils, grasses, brush, trees, vegetation, and other objectionable material shall be stripped and removed from the limits of construction prior to any fill or excavation. The cleared and grubbed materials shall be removed from the project site by the Contractor and disposed of in a legal manner. The disposal site shall be approved by the Engineer prior to being used by the contractor.

201.2 - Preservation of Property: Add the following to this subsection:

Trees and other vegetation, which are not to be removed or disturbed during construction, will be delineated by the Flood Control District prior to the beginning of any construction. It shall be the contractor's responsibility to maintain the delineation, as directed by the Engineer, throughout the duration of the contract. Any damage to such trees or vegetation shall be mitigated, as directed by the Engineer, at the contractor's expense.

201.5 - Payment, Clearing and Grubbing: Add the following to this subsection:

Clearing and Grubbing, including the removal of trees, is considered incidental work and will not be a separate pay item. The cost of this work is to be included in the cost of Item 215, Earthwork for Open Channels.

201.6 - Measurement, Removal and Disposal of Trees: Delete this subsection.

201.7 - Payment, Removal and Disposal of Trees: Delete this subsection.

SECTION 202 - MOBILIZATION

Add this Section to the MAG Uniform Standard Specifications.

202.1 - Description:

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

202.2
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 shall obtain approval from the property owner upon site selection of the field office.

The Contractor may furnish equivalent facilities in an existing building provided such facilities and building are located to provide convenient access to the job site and is approved by the Engineer.

The field office shall be an approved and weatherproof building or mobile trailer providing a minimum of 300 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, paper FAX, copying machines - two (2) telephones with two (2) outside line for the exclusive use of the Engineer. The Contractor will pay for the cost of the line and local calling charges. Long distance charges made on this line will be paid for by the District.
- 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 water and sewer services.
- e. Maintenance - The Contractor shall maintain all facilities and furnished equipment in good working condition.
- f. Fire Extinguisher - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Inc. approval for Class A, Class B, and Class C fires with a minimum rating of 2A:2B:10C.
- g. Electricity - Contractor shall provide electric power and pay for all electric services.
- h. Furnishings - Two office desks with drawers, two office chairs (padded, swivel type) one drafting table (adjustable height 3 feet by 6 feet), one 8' conference table, eight folding chairs, one draftsman's stool, and a four drawer legal file cabinet.
- i. First Aid Kit.
- j. Potable water supply or service

The office shall be fully equipped and made available for the Engineer's use and occupancy prior to the start of any contract work and not later than 10 days after the 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.

Spdc
All facilities shall be maintained in good operating condition and appearance by the Contractor 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.

202.3 - Basis of Payment:

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

ITEM 202 - MOBILIZATION

SECTION 209 - SPECIAL EXCAVATION

Add this Section to the MAG Uniform Standard Specifications.

Section 209.1 - Description:

The work under this section shall consist of the excavation and disposal of debris and rubble in the areas designated on the plans as special excavation and shown on the typical sections included herein or as directed by the Engineer. The debris and rubble may include but not be limited to wood, landscape rubble, yard trimmings, tree trunks, construction debris, bricks, metal, concrete rubble, soil, and rock. This material is to be removed as necessary to ensure a stable foundation for the gabion bank protection to be provided. The final depth of required excavation shall be determined by the Engineer based upon field observation.

The contractor is solely responsible for all costs and permits associated with the disposal of special excavation materials. The disposal site shall be approved by the Engineer prior to being used by the contractor.

The special excavation material may be used as backfill in the area designated on the typical sections included herein, if so ordered by the Engineer. Special excavation material used as backfill shall be placed and compacted in accordance with Section 211, Fill Construction, of the MAG standard specifications.

Upon completion of the project, the contractor shall excavate, remove and dispose of the top one (1) foot of soil in the staging area at the southwest corner of 54th Avenue and Skunk Creek, as indicated on the plans, to the satisfaction of the Engineer.

209.1.1 - Hazardous Waste:

Based on the available information from the analysis of test pits, it is not anticipated that hazardous wastes will be encountered. However, should the Contractor encounter materials, which are, believe to be potentially hazardous, the Contractor shall immediately communicate this to the Engineer. The Contractor shall stop working in the area as directed by the Engineer. The area of suspected hazardous waste shall be barricaded by the Contractor. The Engineer will be responsible for having the suspected hazardous appropriately evaluated. Should the presence of hazardous waste be verified, normal excavation and removal activities will be suspended in the area and the action necessary to remediate the hazardous waste will be taken. At that time, a change to the contract to account for the disruption of normal activities will be negotiated with the contractor.

If the remediation of any discovered hazardous waste interferes with the project schedule, the schedule will be revised as mutually acceptable by the Owner and Contractor to minimize the impact to the total project

schedule. An extension of time resulting from any delay to the Contractor may be granted by the Owner, if necessary, in accordance with Subsection 108.7.

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

209.2 - Measurement:

The Contractor shall cross-section the existing ground after clearing and grubbing and prior to any excavation. Cross-sections shall be taken perpendicular to the construction control line with sufficient survey points to describe the existing ground surface. Cross-sections shall be taken at a minimum of 100 foot stations, angle points in the alignment, at the begin and end of curves, or as requested by the Engineer.

The Contractor shall cross-section the finished excavation at the same locations as the existing ground cross-sections were taken.

The Contractor shall plot the existing ground and excavation limits at a scale of 1" = 5' both horizontal and vertical on standard 24" x 36" cross-section sheets.

The Contractor shall compute the quantity of special excavation by the average end area method.

The Contractor shall provide copies of cross-section survey notes, plotted cross-sections, and average end area volume calculations to the Engineer.

Section 209.3 - Payment:

Quantities of special excavation, as computed from cross-section areas described above, shall be paid for by the cubic yard at the contract unit price for Item 209 of the Bid Schedule. The price for Item 209 shall cover all costs associated with the excavation, removal, backfill, and disposal of special excavation materials within the limits identified on the plans.

ITEM 209 - SPECIAL EXCAVATION

SECTION 211 - FILL CONSTRUCTION

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

211.1 - Description: Add the following to this subsection:

The work under this section shall consist of placing and compacting suitable material as required to support gabion or gabion mattress bank protection and to provide a minimum of one-foot soil cover over the in-place gabion or gabion mattress bank protection, as shown in the plans and specified herein. The work will include furnishing the fill materials, watering, grading, shaping, and compaction. Embankment shall be constructed to a smooth and uniform surface and in close conformity to the lines, grades, dimensions, and cross-sections shown on the Plans or established by the Engineer. All material shall be free of organics and debris, and shall be graded such that voids cannot be observed. Nesting of large gravel or rubble shall not occur. Existing channel excavation materials are suitable for this purpose.

211.1.1 - Soil Cover:

This item of work shall consist of the construction of the one-foot soil cover over the finished gabion bank protection, as shown on the project plans. The work will include furnishing the fill materials, placing, watering, grading, shaping, and compacting. The soil cover shall be constructed to a smooth and uniform surface and in close conformity to the lines, grades, dimensions, and cross-sections shown on the Plans or established by the Engineer. Existing channel excavation materials four-inches or less in diameter are suitable for this purpose.

The placement and compaction of the soil cover shall be done exclusive of the provisions of Section 211. Up to three (3) test sections of 100 square yards of soil cover each shall be used to establish the optimum placement and compaction procedures for the remainder of the soil cover. The final placement and compaction procedures to be used shall be submitted in writing to the Engineer and shall be approved by the Engineer prior to placing the remaining soil cover.

211.5 - Measurement: Replace this subsection with the following:

Measurement of fill construction will not be required. The quantity of fill used to build embankments and grade channel banks will be that in-place, and constructed in accordance with this section, within the limits and dimensions shown on the plans.

211.6 - Payment: Replace this subsection with the following:

No payment will be made for fill construction. The cost of such construction will be incidental to the cost of excavation described in Section 215 and bid under Item 215.

SECTION 215 - EARTHWORK FOR OPEN CHANNELS

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

215.1 - Description: Replace this subsection with the following:

Earthwork for open channels shall consist of clearing and grubbing, stripping, excavation, fill, backfill, compaction, grading, removal, hauling, and disposal of excess excavated material and debris.

Open channels for the purpose of this section shall mean open lined or unlined trapezoidal channels.

A disposal site has been provided for the disposal of clean excavated material. For information concerning this site call Mr. Dick Hanson of Layne Construction LLC at 602-852-3403.

215.7 - Measurement: Replace this subsection with the following:

The project mapping used to develop the plans shall serve as the record survey and shall be the basis for computing all earthwork quantities, unless an alternate survey is provide by the Contractor and approved by the Engineer for such use.

Measurement of earthwork for open channels will not be required unless evidence indicates that the required quantity of excavation varies from the bid schedule quantity by more than five (5) percent. The contractor shall advise the Engineer in writing and submit evidence in the form of a construction survey. The Engineer

shall determine the quantity adjustment. The quantity upon which payment will be made will be the bid schedule quantity plus or minus the adjustment that exceeds five (5) percent of the bid schedule quantity.

Neither variation of shrink or swell of material from those shown on the plans, nor variations of shrink or swell from contractor-obtained sources will be reason for establishing a quantity adjustment.

Section 215.8 - Payment: Replace this subsection with the following:

Earthwork for open channels will be paid for by the cubic yard at the contract price of Item 215 of the Bid Schedule. The pay quantity of earthwork for open channels will be computed as the number of cubic yards of channel excavation measured between the lines and limits shown on the contract plans. Such price shall include clearing and grubbing, stripping, excavation, fill, backfill, compaction, grading, hauling, removal, and disposal of excess excavated material and debris.

ITEM 215 - EARTHWORK FOR OPEN CHANNELS

SECTION 219 - GABIONS

Add this Section to the MAG Uniform Standard Specifications.

219.1 - Description:

The work under this section shall consist of furnishing all materials, including filter fabric, and constructing gabion bank protection, gabion bank protection aprons, and gabion grade control structures in accordance with the details shown on the plans and the requirements of these specifications.

This specification covers the use of galvanized steel wire mesh baskets filled with stone used as channel bank protection, outfall structures, weirs and drop structures, and grade control structures.

219.2 - Materials:

219.2.1 - Rock

(A) General

Rock shall be sound and durable, free from clay or shale seams, cracks or other structural defects. The Bulk Specific Gravity (SSD) shall be determined in accordance with the requirements of AASHTO T-85 and shall be a minimum of 2.4. Control of the gradation will be by visual inspection.

No rock source is designated. It shall be the contractor's responsibility to negotiate for the material, obtain the right-of-entry, and pay all royalties and damages.

The source from which the stone will be obtained shall be selected within 45 days of the time when it will be required in the work. The acceptability of the rock will be determined by the Engineer. If testing is required, suitable samples of rock shall be taken at least 25 days in advance of the time when its use is expected to begin. The approval of some rock fragments from a particular quarry site shall not be construed as constituting the approval of all rock fragments taken from that quarry.

(B) Gabions

Rock for gabions and gabion slope mattresses shall be well-graded, according to the gabion manufacturer's specifications, except that rock shall not be less than four (4) inches for gabions (counterforts), three (3) inches for slope mattresses, or greater than two-thirds the depth of the gabion or gabion mattress in median diameter.

219.2.2 - Metal Items

(A) Wire Fabric

Wire for gabion fabric shall conform to the following requirements in accordance with QQW-461-G, Class 3, and Finish 5 - Soft:

Wire for Fabric (diameter)	2.2 mm (0.0866") \pm 2.5%
Wire for Selvedges and Corners (dia.) - not less than	2.7 mm (0.1063") \pm 2.5%
Selvedge Rod Wire (dia.) - not less than	3.0 mm (0.1181") \pm 2.5%
Wire for Binding and Connecting (dia.)	2.2 mm (0.0866") \pm 2.5%
Tensile Strength (psi)	60.0 - 75.0*
Elongation (percent) - not less than	12%*
Weight of Zinc Coating for All Wire	0.70 oz./sq. ft.

*Tensile strength and elongation shall be measured before fabrication of the mesh.

(B) Miscellaneous Fittings and Hardware

Miscellaneous fittings and hardware shall be of the type and size provided by the manufacturer of the major item to which they apply and shall be galvanized in accordance with the requirements of AASHTO M 232.

(C) Tie Wires

Tie wires shall be of good commercial quality and the gauge shall be as specified by the gabion manufacturer, except that the minimum weight of the zinc coating shall be 0.30 of an ounce per square foot. At the option of the contractor, approved locking wire fasteners may be used on gabions, slope mattresses, or wire fabric in lieu of tie wires.

219.2.3 - Bedding Material

Bedding Material shall consist of granular material having a maximum dimension of four inches and shall be free of clay or organic material.

219.2.4 - Filter Fabric

Geotextile filter fabric to be used under gabion bank protection, as called out on the project plans, shall be a woven monofilament fabric or nonwoven 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 to 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 identification, packaging, handling, and storage of the geotextile fabric shall be in accordance with ASTM D4873. 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, 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, which 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 filter fabric shall be supplied in accordance with and conform to the following material requirements:

PROPERTY	REQUIREMENT	TEST METHOD
Grab Tensile Strength (lbs.)	200	ASTM D 4632
Grab Elongation at Break (%)	15 min & 115max	ASTM D 4632
Puncture Strength (psi)	75	ASTM D 4833
Burst Strength (lbs.)	320	ASTM D 3786
Trapezoidal Tear (lbs.)	50	ASTM D 4533
Permittivity, second	0.50 minimum	ARIZ 730
Apparent Opening Size, μm	106 - 600	ASTM D 4751
Ultraviolet 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. If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.

219.2.5 - PVC Coating

Where designated on the plans or called for by the Engineer, all wire used in the fabrication of gabions or gabion mattresses, and in the wiring operations during construction shall, after zinc coating, have extruded onto it a coating of polyvinyl chloride (PVC). The coating shall be as specified by the gabion manufacturer, but shall nowhere be less than 0.015 inches thick. It shall be capable of resisting deleterious effects of natural exposure to weather, acidic soils, storm water, groundwater, and salt water, and shall not show any material differences in its initial characteristics.

219.3 - Construction Requirements:

219.3.1 - General

Areas on which bank protection is to be constructed shall be cleared, grubbed, and excavated or backfilled in accordance with the requirements of the appropriate sections of these special provisions and MAG specifications to produce a ground surface in reasonable conformance with the lines and grades shown on the project plans or established by the Engineer.

Placement of gabions or gabion mattresses through water will not be permitted unless otherwise approved by the Engineer.

219.3.2 - Filter Fabric

Filter fabric shall be placed on all areas to receive gabions or gabion mattress, as shown on the project plans, prior to placement of the gabion or gabion mattresses. The surface to receive the filter fabric shall be free of obstructions, depressions, and debris. The fabric shall be loosely laid and not placed in a stretched condition.

The strips of filter fabric shall be placed to provide a minimum 24-inch overlap along each joint. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints the upstream strip shall overlap the downstream strip. The fabric shall be protected at all times during construction from extensive exposure to sunlight.

Placement of the gabions or gabion mattresses shall be done in such a manner as not to damage the fabric. If in the opinion of the Engineer, the fabric is damaged or displaced during placement of the gabion or gabion mattress to the extent that it cannot function as intended the contractor shall remove the rock and replace the filter fabric.

The filter fabric shall be attached to the bottom and side of the gabions or gabion mattresses that make up the outside perimeter of a finished bank protection unit. Typically, this attachment will be made horizontally along the top-of-bank and end-of-pron, and vertically along the upstream and downstream limits of each continuous unit of bank protection.

219.3.3 - Gabion Mattress

The gabion mattress bed shall be excavated to the width, line and grade as shown on the plans. The mattress shall be founded on this bed and laid to the lines and dimensions required. Excavation for toe or cut-off walls shall be made to the neat lines of the wall.

Mattresses shall consist of a uniform hexagonal wire mesh woven in a double twist pattern with openings of approximately 2.50 inches by 3.25 inches, fabricated in such a manner as to be non-raveling, and designed to provide the required flexibility and strength.

Mattresses shall be fabricated in such a manner that the sides, ends, lid and diaphragms can be assembled at the construction site into rectangular units of the specified sizes. Mattresses are to be of single unit construction, the base, ends and sides either to be woven into a single unit or one edge of these members connected to the base section of the unit in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh.

All perimeter edges of the mattresses are to be securely selvaged or bound so that the joints formed by tying the selvages have at least the same strength as the body of the mesh.

Mattresses shall be placed to conform with the details shown on the project plans. Rock shall be placed in close contact within the unit so that maximum fill is obtained. The units may be filled by machine with sufficient handwork to accomplish the requirements of this specifications.

Slope mattresses shall be filled with at least two layers of stone.

Before the mattress units are filled the longitudinal and lateral edge surfaces of adjoining units shall be tightly connected by means of wire ties placed every four inches or by a spiral tie having a complete loop every four inches. The lid edges of each unit shall be connected in a similar manner to adjacent units.

219.3.4 - Gabions

The gabion (counterfort) bed shall be excavated to the width, line and grade as shown on the plans. The gabions shall be founded on this bed and laid to the lines and dimensions required. Excavation for toe or cut-off walls shall be made to the neat lines of the wall.

Gabions shall consist of a uniform hexagonal wire mesh woven in a double twist pattern with openings of approximately 3.25 inches by 4.50 inches, fabricated in such a manner as to be non-raveling, and designed to provide the required flexibility and strength.

Gabions shall be fabricated in such a manner that the sides, ends, lid and diaphragms can be assembled at the construction site into rectangular units of the specified sizes. Gabions are to be of single unit construction, the base, ends and sides either to be woven into a single unit or one edge of these members connected to the base section of the unit in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh.

Where the length of the gabion exceeds its horizontal width, the gabion is to be equally divided by diaphragms, of the same mesh and gauge as the body of the gabions, into cells whose length does not exceed the horizontal width. The gabion shall be furnished with the necessary diaphragms secured in proper position on the base section in such a manner that no additional tying at this juncture will be necessary. All perimeter edges of gabions are to be securely selvaged or bound so that the joints formed by tying the selvages have at least the same strength as the body of the mesh.

Gabions shall be placed to conform with the project plan details. Rock shall be placed in close contact in the unit so that maximum fill is obtained. The units may be filled by machine with sufficient handwork to accomplish requirements of this specification.

The exposed face or faces shall be hand-placed using selected rocks to prevent bulging of the gabion cell and to improve appearance.

Each cell of the 36-inch thick gabions shall be filled in three (3) lifts 12 inches. Two connecting tie wires shall be placed between each lift in each cell. All connecting tie wires shall be looped around two mesh openings and the ends of the wires shall be securely twisted to prevent loosening. Care shall be taken to protect the vertical panels and diaphragms from being bent during filling operations.

The last lift of stone in each cell shall be level with the top of the gabion in order to properly close the lid and provide an even surface for the next course.

All gabion units shall be tied together each to its neighbor along all contacting edges in order to form a continuous connecting structure.

Empty gabions stacked on filled gabions shall be laced to the filled gabion at the front, side and back.

219.3.5 - Pipe Penetrations

Gabion bank protection shall be adjusted, as required, to accommodate and conform to the shape of storm drain pipe outlets which must penetrate the bank protection, while providing complete bank protection, as designed, around the full circumference of the pipe. The cost of this work shall be incidental to the cost of the gabion construction and shall be included in the bid prices for Items 219-1, 219-2, 219-3 and 219-4.

219.3.6 - Removal of Existing Gabions or Gabion Mattresses

The removal of existing gabions or gabion mattresses, as required, shall be incidental to the cost of gabion construction and shall be included in the bid prices for Items 219-1, 219-2, 219-3 and 219-4. Existing gabion baskets or mattresses that are removed become the property of the contractor and cannot be reused. The existing stone fill may be salvaged and reused, with the approval of the Engineer, if it meets the required gradation specification.

219.3.7 - Connections to Existing Gabions or Gabion Mattresses

All connections to existing gabions or gabion mattresses shall be standard, full-depth, butt connections, in accordance with the manufacturer's specifications, and shall be made along manufactured joints. Existing gabions shall not be cut along lines other than manufactured joints, unless approved in advance by the Engineer. Repair of existing gabions or gabion mattresses shall be incidental to the cost of gabion construction and shall be included in the bid prices for Items 219-1, 219-2, 219-3 and 219-4.

219.4 - Measurement:

Gabions and/or gabion mattresses will be measured by the cubic yard by computing the volume of the rock-filled wire baskets used. The small quantity of counterfort gabions (36") is included in the Bid Item 219-3 - 18" gabions with filter fabric.

219.5 - Payment:

The accepted quantities of gabions and gabion mattresses, measured as provided above, will be paid for at the contract unit price per cubic yard for Items 219-1 through 219-4. This price shall be full compensation for the work, complete in place, including furnishing and installing the gabions, gabion mattresses, rock, filter fabric, wire ties, and miscellaneous metal items, as required.

ITEM 219-1 - 9" GABIONS W/FILTER FABRIC

ITEM 219-2 - 12" GABIONS W/FILTER FABRIC

ITEM 219-3 - 18" GABIONS W/FILTER FABRIC

ITEM 219-4 - 9" PVC COATED GABIONS W/FILTER FABRIC

SECTION 220 - RIPRAP CONSTRUCTION

Replace Section 220 of the MAG Uniform Standard Specifications with the following:

220.1 - Description:

The work shall consist of furnishing all plant, labor, equipment, and materials and performing all work necessary, including excavation and backfill, to place a protective covering of erosion-resistant material at culvert outlets, as shown on the plans, or as directed by the Engineer.

220.2 - Materials:

Rock used for riprap shall be sound and durable, free from clay or shale seams cracks or other structural defects and shall have a specific gravity of at least 2.50.

Control of gradation will be by visual inspection. The Contractor shall provide two samples of rock of at least five (5) cubic yards each, meeting the gradation specified herein. One sample shall be provided at the quarry and one sample at the construction site. The sample at the construction site may be a part of the furnished riprap covering. These samples shall be used as a frequent reference for judging the gradation of the riprap supplied. Any difference of opinion between the Engineer and the Contractor shall be resolved by dumping and checking the gradation of two random truckloads of rock. Mechanical equipment, a sorting site, and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost to the District.

No source of rock is designated. It shall be the Contractor's responsibility to negotiate for the material, obtain the right-of-entry, and pay all applicable royalties and damages.

The source from which the rock will be obtained shall be selected within 45 days of the time when the rock will be required in the work. The acceptability of the rock will be determined by the Engineer on the basis of test results furnished by the Contractor. Suitable samples of rock shall be taken in the presence of the Engineer at least 45 days in advance of the time when the use of the rock is expected to begin. The approval of some rock fragments from a particular quarry site shall not be construed as constituting the approval of all rock fragments taken from the quarry. The Contractor shall provide the Engineer with test reports from an independent testing laboratory to establish that the sampled rock has a minimum specific gravity (Bulk SSD) of 2.50 per ASTM C127. Rock shall contain no swelling type clay.

220.3 - Preparation of Ground Surfaces:

Areas on which riprap is to be placed shall be cleared, grubbed, excavated, or backfilled in accordance with the MAG Standard Specifications and these Special Provisions. The areas shall be graded and dressed to produce a ground surface in reasonable conformance with the lines and grades shown on the plans or established by the Engineer. All soft or spongy material shall be removed to the depth directed by the Engineer and replaced with approved material. Filled area shall be compacted as specified in Section 211 - Fill Construction for "Embankment".

Placement of riprap and/or filter fabric through water will not be permitted unless otherwise approved, in writing, by the Engineer.

220.4 - Plain Riprap:

Material to be used for riprap shall conform to the gradation below:

RIPRAP GRADATION	
Diameter	Percent Passing
21-24"	100
17-20"	85
14-16"	50
6-8"	15

220.4.1 - Filter Fabric

A base upon which loose riprap is to be placed is to be constructed of a filter fabric. The filter fabric material shall conform to the following specifications:

Min. permeability: 1.6×10^{-3} ft./sec.
Max. AOS: 0.6mm
Type: Mirafti 140n, TYPAR 3401, TRIVERA Spunbound 1112 or Approved Equal

Overlap: 18-inch minimum at Fabric Edge
Filter fabric overlaps shall be pinned using steel securing pins, 3/16-inch diameter, 18 inches long, pointed at one end and fitted with a 1.5-inch diameter metal washer at the other end. Pins shall be placed along the overlap at approximately three feet on center.

220.4.2 - Placement

Rock for riprap shall be placed in the prepared basin in a manner, which will produce a reasonably well graded mass of rock with a minimum practicable percentage of voids and will not tear or displace the filter fabric. The entire mass of rock shall be placed so as to be in conformance with the lines, grades, and thicknesses shown on the plans. Riprap shall be placed to its full course thickness at one operation and in such manner as to avoid displacing the underlying material. Placing the riprap in layers, or by dumping into chutes, or by similar methods likely to cause segregation, will not be permitted. Riprap thickness shall be as shown on plan.

The larger rocks shall be well distributed and the entire mass of rock shall conform to the gradation specified in Subsection 220.4. All material going into riprap protection shall be so placed and distributed that there will be no large accumulations of either the larger or smaller sizes of rock.

It is the intent of these specifications to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual rocks by mechanical equipment may be required to the extent necessary to secure the results specified.

The Contractor shall maintain the riprap protection until accepted, and any material displaced by any cause shall be replaced to the lines and grades shown on the plan at no additional cost to the District.

220.6 - Measurement:

The quantities of riprap construction shall be measured by the cubic yards of riprap, in place, within the limits of dimensions shown on the plans. Quantities of riprap in excess of design requirements may be disposed of within the project limits by placement in the embankment or excavation backfill. No measurement shall be made for quantities in excess of design requirements. No measurement shall be made for filter fabric.

220.7 - Payment:

Payment for loose riprap will be made for the number of cubic yards of riprap in place, as measured above, on the basis of unit prices stipulated in the Bid Schedule for Item 220 and shall include preparation of ground surfaces and trenching. No separate payment shall be made for filter fabric. Cost of filter fabric is incidental to the cost of loose riprap. No payment shall be made for quantities of riprap in excess of design requirements.

220 - RIPRAP CONSTRUCTION

SECTION 225 - WATERING

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

225.1 - Description: Replace this subsection with the following:

The work under this section shall consist of furnishing and applying all water required for the control of dust, for the safety and convenience of the traveling public, and for the reduction of the dust nuisance to adjacent property.

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

225.3 - Construction Equipment: Add the following to this subsection:

The use of pressure pumps and spray bars on all sprinkling equipment used for the application of water will be required. The use of gravity flow spray bars and splash plates will not be permitted.

225.5 - Payment: Add the following to this subsection:

There is no pay item for watering.

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.

350.1 - Description: Add the following to this subsection:

This work shall consist of removal of existing fence, block masonry or brick walls, concrete pads, grouted riprap, ditch linings, bank protection, gabions and gabion mattresses, and miscellaneous pipe, culverts, end-sections, and headwalls from within the limits of the construction, as necessary, to accomplish the work. Specific items include, but are not limited to, the existing grouted riprap within the channel at the mouth of the 55th Avenue Drain, the existing concrete foundation slab located in the staging area at the southwest quadrant of 54th Avenue and Skunk Creek, and the concrete headwall and flapgate located at Station 202+20, south bank. Holes, cavities and trenches resulting from the removal of structures shall be backfilled in accordance with Section 211 and 215.

350.2 - Construction Method: Add the following to this subsection:

All materials unless designated on the plans or by the Engineer for salvaged, reuse, or relocation shall become the property of the Contractor and shall be immediately removed from the job site and properly disposed of.

350.4 - Payment: Add the following to this subsection:

Payment for removal of all existing improvements shall be the Contract lump sum price for Item 350 of the Bid Schedule. This lump sum price shall be full compensation for the item complete, as described herein or on the plans.

ITEM 350 - REMOVAL OF EXISTING IMPROVEMENTS

SECTION 401 - TRAFFIC CONTROL

Traffic Control shall conform to Section 401 of the MAG Uniform Standard Specifications except as modified herein.

401.1 - Description: Add the following to this subsection:

Traffic control will be necessary during construction to close existing roadway dip crossings at 54th Avenue, 57th Avenue, and 69th Avenue during construction as indicated on the project plans.

401.2 - Traffic Control Devices: Add the following to this subsection:

The number and kind of barricades, signs, delineators, barriers, and all other traffic control devices and the approval of the Contractor's method of application of all traffic control measures, shall not relieve the Contractor of the responsibility of protecting the work, the workers, and the traveling public.

401.4 - Traffic Control Measures: Add the following to this subsection:

At the time of the pre-construction conference, the Contractor shall submit a detailed traffic control plan for review and approval. The plan shall show all measures, including types and sizes of signs, barricades, with their placement and spacing. Locations of all signs, as well as the scheduled duration of closure for each dip crossing, shall be coordinated with the City of Glendale and the Maricopa County Department of Transportation, Traffic Engineering Division before approval by the Engineer (contact Mr. Greg Holverson, Senior Inspector - 506-8744). The 54th Avenue and 57th Avenue dip crossings shall not be closed during the same time period.

The Contractor shall provide and maintain all necessary signs, barricades, and panels during any construction activity, which prevents or interrupts traffic from using any roadway.

401.7 - Payment: Replace this subsection with the following:

The traffic control will be paid for at the lump sum price for the type specified on the design plans and under Item 401 in the Bid Schedule.

This shall be considered full compensation for performing all work and for furnishing all labor, equipment, and materials required to erect, install, maintain, and remove traffic control devices.

ITEM 401 - TRAFFIC CONTROL

SECTION 430 - LANDSCAPING AND PLANTING

Landscaping and Planting shall conform to Section 430 of the MAG Uniform Standard Specifications except as modified herein.

430.1 - Description: Delete Paragraph 3.

430.2 - General: Replace this subsection with the following:

Unless otherwise specified, fill constructed in accordance with Section 211 and in-place soils will be prepared and conditioned, as directed by the Engineer, for utilization as topsoil. The Engineer shall inspect and approve these areas prior to seeding.

430.3 - Lawn Areas: Replace this subsection with the following:

The areas to be seeded shall be the channel invert, the soil-covered channel foreslopes, and the top and backslope of any levee, berm or excavated surface constructed as shown on the project plans.

Seeding Window: All seeding shall be done from October 1 through December 31. Only if delays are due to events outside the control of the Contractor, seeding shall be conducted from February 15 through March 31.

The seed, fertilizer and mulch shall be mixed in the required amount of water to provide a homogeneous slurry and then uniformly applied under pressure at the following rates per acre:

- Seed - as specified in Section 795 of these special provisions
- Wood Fiber Mulch - 500 pounds/acre
- Fertilizer - 160804 Commercial Fertilizer - 200 pounds/acre

The seed shall not remain in the hydroseeder for longer than one (1) hour.

Straw Mulch: Straw shall be applied over the seed, fertilizer and mulch. The rate of application shall be 1.75 tons per acre. The straw shall be applied by commercial mulch blowing equipment, and shall be of good quality with no signs of rot.

Wood Fiber Mulch: Following the hydroseeding operation, Psyllium mucilloid organic tackifier, and wood fiber mulch shall be mixed in the required amount of water to produce a homogeneous slurry and the hydromulch is placed under pressure at the following rates per acre (dry weight):

Wood Fiber Mulch - 1500 lbs.

Psyllium tackifier - 130 lbs.

430.4 - Decomposed Granite Area: Delete this subsection

430.5 - Tree, Shrub, and Ground Cover Planting: Delete this subsection.

430.6 - Header Installation: Delete this subsection.

430.8 - Plant Guarantee and Maintenance: Delete this subsection.

430.9 - Plant Establishment Period: Delete this subsection.

430.10 - Measurement and Payment: Replace this subsection with the following:

Seeding, fertilizing, and mulching will be paid for at the contract unit price bid per acre for Item 430 and the actual number of acres seeded. The price shall be full compensation for accepted work, including furnishing all labor, water, materials, tools, equipment, and incidentals, required to place the materials, as shown on the plans or as directed by the Engineer.

ITEM 430 - LANDSCAPING AND PLANTING

SECTION 525 - PNEUMATICALLY PLACED MORTAR

Pneumatically Place Mortar (Shotcrete) shall conform to Section 525 of the MAG Uniform Standard Specifications except as modified herein.

525.1 - Description: Replace this subsection with the following:

The work under this section shall consist of furnishing all materials, including reinforcing steel, and pneumatically placing, by means of suitable equipment and competent operators, premixed concrete. The fine and coarse aggregate for the wet process shall use gradation no. 2. Where specified by the Plans, the minimum depth of pneumatically placed mortar (shotcrete) covering the gabion wire baskets or mattresses shall be three (3) inches distributed as follows: a minimum depth of two (2) inches of shotcrete shall be over the top gabion wire, and a minimum depth of one (1) inch of shotcrete shall be under the top gabion wire, unless directed otherwise by the Engineer.

525.2 - Dry Mix Process: Do not use this subsection.

525.4 - Reinforcing Steel: Modify this subsection with the following:

Reinforcement shall be attached to the top of the gabion mattresses as indicated on the plans.

525.12 - Payment: Replace this subsection with the following:

Payment for pneumatically placed mortar (shotcrete) will be made at the unit price per square yard completed, in-place, and accepted. The payment shall be full compensation for furnishing all labor, tools,

equipment, and materials, including reinforcing steel, required to accomplish all work in conformity with the plans and specifications.

525.13 - Measurement: Add this subsection.

Measurement of pneumatically placed mortar (shotcrete) shall be by the square yard of surface area according to the limits shown and called for on the plans.

ITEM 525 - PNEUMATICALLY PLACED MORTAR

SECTION 618 - STORM DRAIN CONSTRUCTION

Storm Drain Construction shall conform to Section 618 of the MAG Uniform Standard Specifications except as modified herein.

618.1 - Description: Add the following to this subsection:

The work under this section shall consist of furnishing reinforced concrete pipe and all other materials required for installing the pipe, including excavating, furnishing, placing and compacting backfill material, all in accordance with the details and schedules shown on the plans and the requirements of these specifications. Special sections, fittings, elbows, branch connections, tapered inlets, end sections, connectors, couplings, and other such items shall be of the same material and coating as the pipe to which they are attached, unless otherwise stated in these specifications.

618.5 - Measurement: Add the following to this subsection:

Flared end sections shall be measured by the number of units installed.

618.6 - Payment: Add the following to this subsection:

Payment for reinforced concrete pipe (RCP) shall be made at the unit price per linear foot, installed and accepted, as bid under Item 618-1 of the Bid Schedule. Payment for flared reinforced concrete end sections shall be made at the unit price for each, installed and accepted, as bid under Item 618-2 of the Bid Schedule.

ITEM 618-1 - 24" RCP (CLASS III)

ITEM 618-2 - 24" RCP END SECTION

SECTION 621 - CORRUGATED METAL PIPE AND ARCHES

Corrugated Metal Pipe and Arches shall conform to Section 621 of the MAG Uniform Standard Specifications except as modified herein.

621.1 - Description: Add the following to this subsection:

The work under this section shall consist of furnishing corrugated metal pipe and all other materials required for installing the pipe, including excavating, furnishing, placing and compacting backfill material, all in accordance with the details and schedules shown on the plans and the requirements of these specifications.

Special sections, fittings, elbows, branch connections, tapered inlets, end sections, connectors, couplings, and other such items shall be of the same material and coating as the pipe to which they are attached, unless otherwise stated in these specifications.

621.5 - Measurement: Add the following to this subsection:

Flared end sections shall be measured by the number of units installed.

621.6 - Payment: Add the following to this subsection:

Payment for corrugated metal pipe (CMP) shall be made at the unit price per linear foot, installed and accepted, as bid under Item 621-odd #s of the Bid Schedule. Payment for flared end sections shall be made at the unit price for each, installed and accepted, as bid under Item 621- even #s of the Bid Schedule.

ITEM 621-1 – PIPE CLUVERT (18" CMP, 16 GAUGE)

ITEM 621-2 – PIPE CULVERT END SECTION (18" CMP)

ITEM 621-3 - PIPE CULVERT (24" CMP, 16 GAUGE)

ITEM 621-4 - PIPE CULVERT END SECTION (24" CMP)

ITEM 621-5 – PIPE CULVERT (30" CMP, 16 GAUGE)

ITEM 621-6 - PIPE CULVERT END SECTION (30" CMP)

ITEM 621-7 – PIPE CULVERT (42" CMP, 16 GAUGE)

ITEM 621-8- PIPE CULVERT END SECTION (42" CMP)

ITEM 621-9 – PIPE CULVERT (60" CMP, 16 GAUGE)

ITEM 621-10 - PIPE CULVERT END SECTION (60" CMP)

SECTION 622 - BACKFLOW CHECK VALVE

Add this Section to the MAG Uniform Standard Specifications.

622.1 - Description:

The work under this section shall consist of furnishing and installing a backflow check valve on corrugated metal pipe that drain low lying areas on the back side of levees. The size and location shall be as shown and detailed on the plans and described in these specifications.

The valves are to be all rubber of the flow-operated check type and be designed to slip inside the pipe. The valve is to be fastened to the inside of the pipe with vendor-supplied expanding clamps. The port area shall contour down to a duckbill, which shall allow passage of flow in one direction while preventing reverse flow. The flexible duckbill sleeve shall be one-piece rubber construction with nylon reinforcement. The manufacture must have a minimum of 5 years experience manufacturing elastomeric check valves. The manufacturer must have flow test data available from an accredited hydraulics laboratory to confirm pressure

drop data. The company name, plant location, valve size, and serial number shall be bonded to the check valve.

All check valves shall be Series 37G, as manufactured by the Red Valve Company, Inc. of Carnegie, PA 15106, or approved equal. (Reference the following catalogue drawing.)

622.2 - Installation:

The check valve size is to match that of the pipe and is to be installed at the first pipe joint below the inlet. The duckbill shall be vertical and pointing in the downstream direction.

622.2 - Measurement:

Check valves shall be measured by the number of units installed.

622.3 - Payment:

Payment for check valves shall be made at the unit price for each, installed and accepted, as bid under Item 622-1 of the Bid Schedule.

ITEM 622 - BACKFLOW CHECK VALVE (24," RV Series 37G)

SECTION 770 - TRASH RACK AND ACCESS BARRIER

See plans for details.

Payment per bid items 770-1 and 770-2.

SECTION 795 - LANDSCAPE MATERIAL

Landscaping Material shall conform to Section 795 of the MAG Uniform Standard Specifications except as modified herein.

795.1 - General: Add the following to this subsection:

Areas to be seeded shall be prepared and seeded in conformance with Section 430 of these special provisions.

Payment for landscape materials will be made in accordance with Section 430.

795.2 - Topsoil: Delete this subsection

795.3 - Soil Fertilizing Materials: Add the following to this subsection:

Fertilizer: Where fertilizer is furnished from bulk storage, the Contractor shall furnish a supplier certification of analysis and weight. Fertilizer shall be a hard prill type fertilizer, which is uniform in composition, pelleted, dry, and free flowing. Guaranteed usable analysis of fertilizer shall be as follows:

Ammoniacal nitrogen (N)	16.0%
Available phosphoric acid (P203)	8.0%
Water soluble potach (K20)	4.0%

Sulphur	16.0%
Iron (Fe) (chemical)	1.5%
Manganese (MN) (chelated)	0.1%
Zinc (Zn) (chelated)	0.1%

When slow release nitrogen forms are used in the fertilizer mixture, they shall be derived from sulfur-coated urea, urea formaldehyde, plastic or polymer coated prills or isobutylenediurea.

795.4 - Organic Soil Conditioners: Replace this subsection with the following:

Straw Mulch: Straw mulch materials shall consist of wheat, barley, oat, or rye straw. The mulch material shall be air dry, reasonably light in color, and shall not be musty, caked or otherwise of low quality. The use of mulch that contains noxious weeds will not be permitted. The Contractor shall provide a method satisfactory to the Engineer for determining weight of mulch furnished.

Wood Fiber Mulch: The mulch material shall consist of virgin wood fibers manufactured expressly from whole wood chips. The chips shall be processed in such a manner as to contain no growth or germination inhibiting factors. Fiber shall not be produced from recycled material such as sawdust, paper, cardboard or residue from pulp and paper plants. The wood cellulose fibers of the mulch must maintain uniform suspension in water under agitation. The wood fiber mulch shall blend with grass seed, fertilizer and other additives to form a homogeneous slurry. The wood fiber mulch shall conform to the following specifications:

Percent Moisture Content	10.0%
Percent Organic Matter	99.0%
Percent Ash Content	0.8%
pH	4.8 to 5.5
Water Holding Capacity (minimum)	1 gram of water/100 grams fiber

Psyllium Mucilloid Organic Tackifier: The material shall be a totally organic substance supplied in dry, powdered form, at least 70 percent of which is 92 percent pure mucilloid, derived from *Plantago ovata-insularis* husk. The material shall be water-soluble, non-toxic, hydrophilic and shall not inhibit germination.

795.5 - Chemical Soil Conditioner: Delete this subsection.

795.6 - Seeds: Add the following to this subsection:

Seed shall be labeled in accordance with Arizona State laws and the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitations for bids. Bag tag figures will be evidence of purity and germination. No seed will be accepted with a date of test of more than nine (9) months prior to the date of delivery to the site.

Seed shall be certified to be the latest season' crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures and pure live seed. Seed shall be labeled in conformance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and applicable state seed laws. Seed that has become wet, moldy, or otherwise damaged will not be acceptable.

The seed mixture shall be proportioned by weight as follows:

Common Name	Scientific Name	PLS/Acre
Creosote Bush	<i>Larrea Duvaricata</i>	6.0
Desert Lupine	<i>Lupinus sparsiflorus</i>	2.0
Desert Cassia	<i>Cassia covesii</i>	3.0
Globe Mallow	<i>Sphaeralcea ambigua</i>	1.5
Indian Wheat	<i>Plantago insularis</i>	1.0
Purple Three-Awn	<i>Aristida purpurea</i>	1.0
Triangle-leaf Bursage	<i>Ambrosia deltoidea</i>	3.0
Total		17.5

795.6.1 - Ordering Seed

If specified seed is not available, the Contractor shall submit recommended substitutes in writing ten (10) days prior to bid opening to the District Ecologist for prior approval.

The Contractor shall submit a list of seed suppliers that he has contacted and the source from which he is ordering seed.

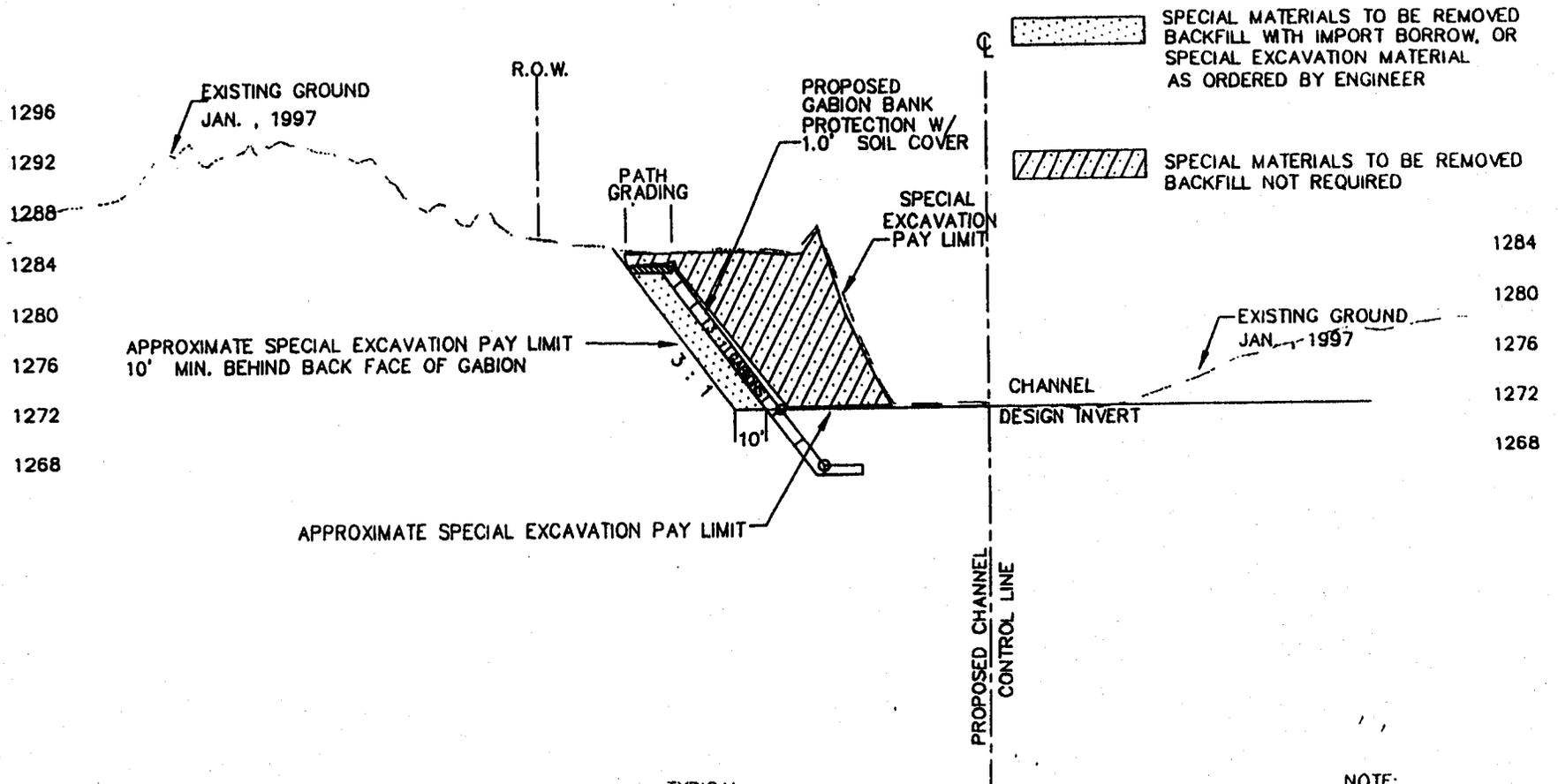
The District Ecologist shall respond in writing prior to bid opening to accept or reject the recommended seed substitute.

795.7 - Plants, Trees, and Shrubs: Delete this subsection.

795.8 - Miscellaneous Materials: Delete this subsection.

SKUNK CREEK CHANNEL IMPROVEMENTS TYPICAL SPECIAL EXCAVATION LIMITS

NORTH BANK STA. 236+50 TO STA. 245+60

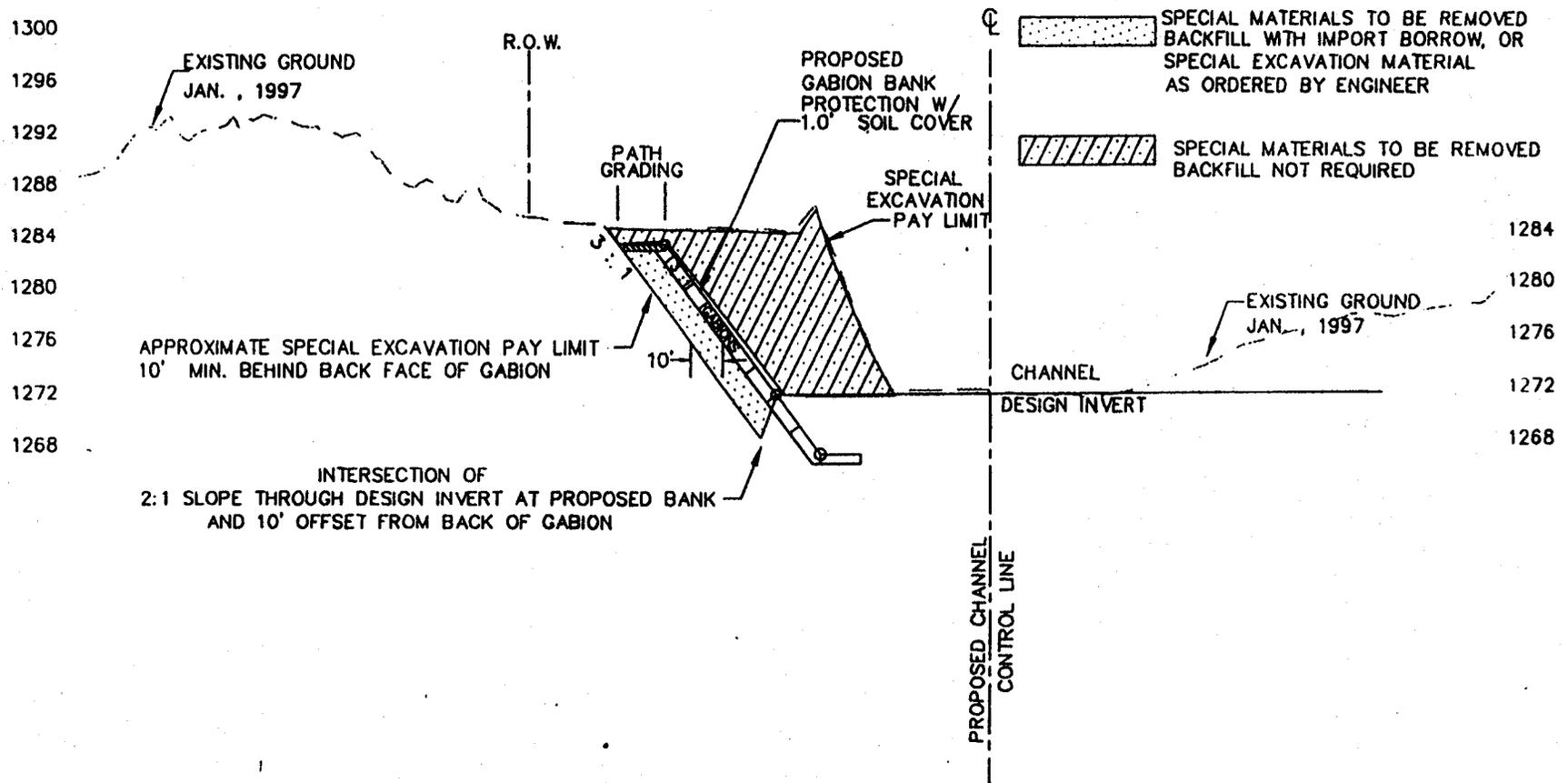


TYPICAL
CROSS SECTION LOOKING UP-STREAM
N.T.S.

NOTE:
FINAL LIMITS OF SPECIAL EXCAVATION
SHALL BE DETERMINED IN THE FIELD
BY THE ENGINEER.

SKUNK CREEK CHANNEL IMPROVEMENTS TYPICAL SPECIAL EXCAVATION LIMITS

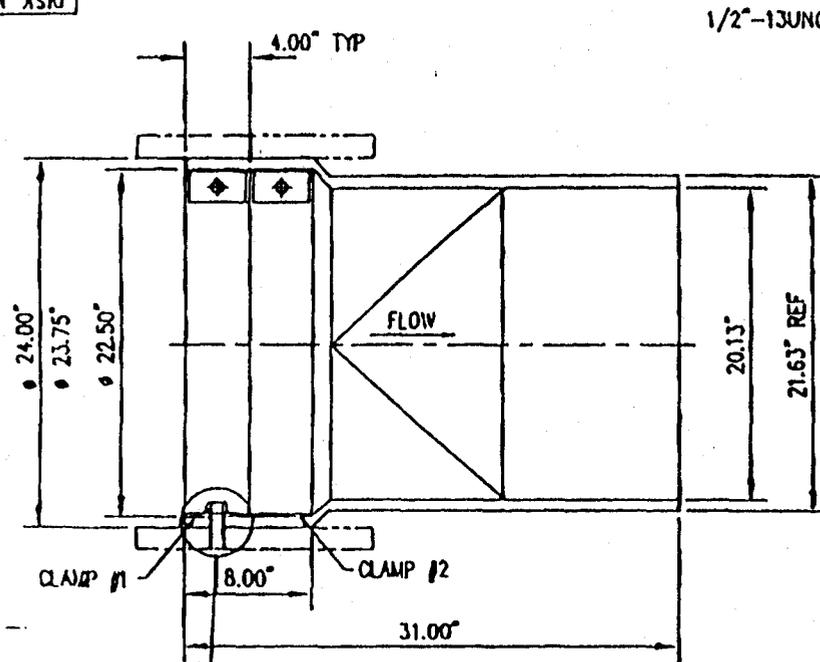
NORTH BANK STA. 228+55 TO STA. 234+80



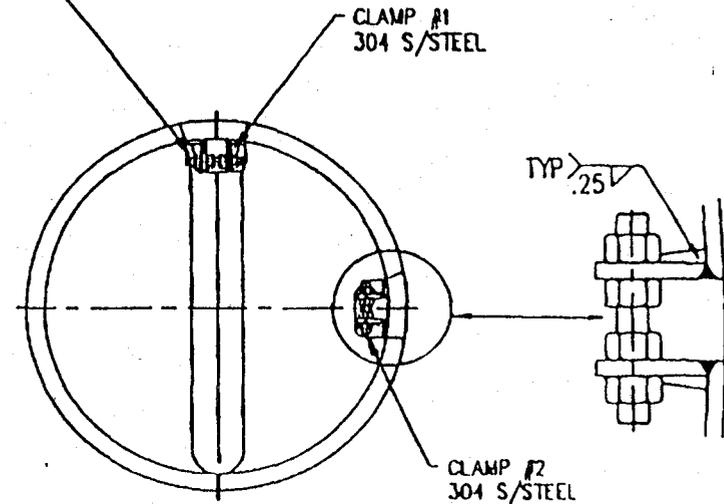
TYPICAL
CROSS SECTION LOOKING UP-STREAM
N.T.S.

NOTE:
FINAL LIMITS OF SPECIAL EXCAVATION
SHALL BE DETERMINED IN THE FIELD
BY THE ENGINEER.

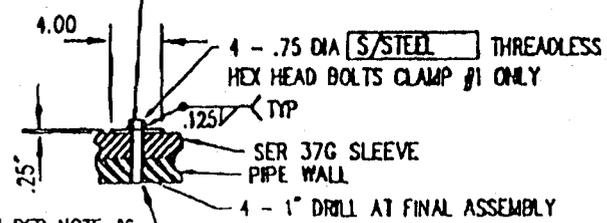
DSK No: 2373



1/2"-13UNC ALL THREAD



Preliminary Drawing
Not For Approval Purposes



PIN PER NOTE #6
RECOMMENDED PINNING CONFIGURATION
(SUPPLIED BY CUSTOMER)(SEE I.O.I.A)

NOTES:

1. MAXIMUM BACK PRESSURE - **MUST BE SUPPLIED**
LINE PRESSURE - **MUST BE SUPPLIED**
2. VALVE IS TO BE INSTALLED WITH THE OUTLET VERTICAL
3. PIPE INSIDE DIAMETER **24.00"**
4. MATERIAL: **NEOPRENE/NEOPRENE COVER**
5. TO INCLUDE (2) RED VALVE STANDARD INTERNAL VALVE CLAMPS.
6. IT IS RECOMMENDED TO BOLT OR PIN TIDEFLEX TO PIPE AS SHOWN, 4 PLACES 90° APART

OUTLET: 017 DESCRIPTION: QUARRIER STREET REGULATOR

SALES ORDER NO.

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF RED VALVE COMPANY, INC. IT IS LOANED BY RED VALVE COMPANY, INC. SUBJECT TO THE CONDITIONS THAT IT AND THE INFORMATION EMBODIED THEREIN SHALL BE USED ONLY FOR RECORD AND REFERENCE PURPOSES. IT SHALL NOT BE USED OR CAUSED TO BE USED BY ANY PARTY UNLAWFUL TO THE INTERESTS OF RED VALVE CO. IT SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR PART, OR DISCLOSED TO ANYONE WITHOUT THE EXPRESS WRITTEN PERMISSION OF RED VALVE COMPANY, INC. AND SHALL BE RETURNED UPON REQUEST.

RV PRODUCT: 24" SER 37G	
RV PART NO: 37-240-APPROVAL	
DR. BY: W.K. DATE: 11/20/97	CHKD. BY: <i>[Signature]</i> DATE: 12/1/97
CAD SCALE: FULL	FILE NAME: RS17792
PLOT SCALE: .125	DWG NO: RVS-17792



RED VALVE COMPANY, INC.
CARNEGIE, PA. 15106-0548

CUSTOMER:
ORDER NO:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
Skunk Creek Channel Improvements Project
CONTRACT FCD 98-19
PCN 3620130 and 3620230

ADDENDUM NO. 1
OCTOBER 21, 1998

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

To the Supplementary General Conditions

SGC Page 4-6 of 17

Subsection 104.2.3, 104.2.4, and 104.2.6 re-number accordingly 104.2.3 becomes 104.2.6, 104.2.4 becomes 104.2.7, and 104.2.6 becomes 104.2.8

SGC Page 7 of 17

Subsection 105.2.1 should be 105.2

SGC Page 13 of 17

Add the following to Subsection 107.2:

Subsection 107.2.2- Protection of Environmental Resources:

The Contractor shall ensure that the following environmental specifications are performed during the construction of the flood control structure. Environmental concerns shall be included as a part of the weekly progress meeting

A) Endangered Species

A review of information from the Arizona Game and Fish Heritage Data Management System has been assessed and current records of special status species indicate that the proposed activity would not affect federally listed endangered or threatened species, or their critical habitat. However, should construction activities encounter plants or animals that are designated as endangered or threatened, construction will be in accordance with the Endangered Species Act of 1973 (Public law 93-205)

B) Handling of Protected Species

The Contractor shall notify the District Engineer seven days in advance of the commencement of all clearing operations so that arrangements can be made for a designated Ecologist to survey the area immediately prior to clearing, for the presence of any federally-listed endangered or threatened species, or their critical habitat.

The Contractor shall alert his personnel to the possible presence of listed protected species in the project area and of the procedure to be followed should they be encountered during the work. Illustrations of the species shall be provided to all personnel involved in the clearing operation. The Contractor shall contact the Engineer if any of these special status species are encountered.

C) Archaeological Resource

Findings from an archaeological survey conducted on the site indicated that there were no significant historical sites in the area of the channel improvement. However, in the event that historic or archaeological artifacts (i.e., pottery shards, bones) are discovered while accomplishing activities authorized by this permit, the Contractor shall immediately cease work in the area of the discovery. The District will notify the Army Corp of Engineers (ACOE) to ensure compliance with the requirements of the National Historic Preservation Act of 1966 (Public Law 104-182). The Contractor and the Engineer are restricted from entering any archaeological site on or adjacent to the project area. If artifacts are identified they will be marked and the area secured with fencing and taped off as a restricted area.

In the event that human remains (i.e., bones) are uncovered during construction, work is to cease immediately at that location and the human remains and any associated grave goods be avoided and protected in place. The Contractor shall immediately contact the Engineer to arrange for proper treatment, evaluation, and disposition of these remains. The area will be marked and secured with fencing and taped off as a restricted area until such time that the remains can be identified and removed.

D) Vegetation Protection:

Immediately prior to clearing, an ecologist shall survey the area for protected status species in accordance with the Arizona Game and Fish Guidelines and the Arizona Department of Agriculture Native Plant Law.

The Contractor shall report any changes in the project boundaries to the Engineer. Project boundaries will be marked with ribbon to restrict equipment from impacting off-site areas. All vegetation removal will comply with the Arizona Native Plant Law (1991). The vegetation to be left in place or salvaged will be flagged by the Engineer prior to the removal activities.

In accordance with the Arizona Department of Agriculture, the Flood Control District is only exempt from the Arizona Native Plant Law with respect to construction projects on existing canals, laterals, and ditches in accordance with the ARS Title 3-915. Consequently, the District has notified the Department of Agriculture concerning the removal of plants during the construction of the channel. The Department of Agriculture will make the appropriate arrangements for tree salvage in the areas of impact prior to construction.

In accordance to Executive Order 91-06, on riparian resources, selected portions of specific reaches in which the elevation of the design invert shall remain unchanged with the current channel invert, shall be reserved for "vegetation management". Vegetative management will allow for specific quantities of preferred vegetation (i.e., blue palo verde) to remain in place within the channel invert. These specific reaches of the channel have been identified in the 404 permit conditions and shall be identified by flagging (i.e., ribbon) prior to the beginning of channel construction.

E) Noxious Weed Proliferation:

Heavy equipment that is brought in to the project from outside state lines shall be steam cleaned for removal of noxious weeds prior to entrance within the project, subject to approval by the Engineer.

F) Conduct of Operations for Environmental Protection:

In recognition of the State of Arizona Executive Orders pertaining to the protection of riparian areas and resources (Executive Order No. 89-16 and 91-06), the Contractor shall exercise

precaution at all times to preserve all vegetation outside the clearing limits throughout the project. Where warranted by the proximity of sensitive areas (i.e., those occurring on lands managed by the USDA) fencing shall be installed and maintained throughout the project in order to keep equipment and personnel from straying outside the construction limits. Based on a review by the Arizona Game and Fish, there have been no sensitive areas identified at the site.

G) Good Housekeeping Practices

The SWPPP shall specify the Contractor's good housekeeping practices and requirements, including vehicle wash-down areas, onsite and offsite tracking control, protection of equipment storage and maintenance areas, and sweeping off highways and roadways related to hauling activities. Recommendations for good housekeeping practices for the SWPPP include but are not limited to the following list:

- 1) The Contractor shall take sufficient precautions, considering all conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumen, and calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels. The SWPPP shall meet and include the implementation of spill prevention and material management controls and practice to prevent the release of pollutants into stormwater. The SWPPP shall also provide storage procedures for chemicals and construction materials, disposal procedures, cleanup procedures, the contractor's plans for handling such pollutants, and other pollution prevention measures as required. No hazardous chemicals or waste shall be stored in the channel at any time.
- 2) Machinery service and refueling areas shall be located away from streambeds or washes. Where the Contractor's working area encroaches on a running or intermittent stream, barriers shall be constructed and maintained between the working areas and the streambed adequate to prevent the discharge of any contaminants. In the event of a leak, the Engineer shall be notified and all necessary precautions shall be conducted to contain the spill and remove the contaminated soil promptly. The soil shall be placed on plastic and disposed of accordingly. Excavated areas shall be backfilled with material from an approved borrow area free of hazardous waste.
- 3) Mechanical equipment shall not be operated in running streams. All equipment shall be removed from the channel at the close of day to anticipate unforeseen precipitation events, which may damage equipment and ultimately degrade waters of the U.S..

H) Protection and Restoration of Property and Landscape:

Disposal of debris from construction operations shall be limited to only those areas inside the site boundaries. All construction material is to be stockpiled or disposed of off-site and shall not encroach on running or intermittent streams, or other waters of the U.S.

Oily or greasy substances originating from the Contractor's operations shall not be placed where they will later enter a stream or watercourse.

Immediately prior to clearing, the Engineer will survey the area for protected status species by conducting a site survey of the proposed location of the impacted area.

Following the clearing and grubbing activity, the work area shall be restored after construction to an environmentally acceptable condition. All construction materials shall be removed and properly disposed of outside of the 100-year floodplain. All disturbed project areas within waters

of the U.S. shall be re-seeded by the Contractor with an approved local native seed mix, and watercourse morphology shall be re-established to match pre-construction configurations where appropriate.

I) Trees, Shrubs and Plants

The work under this section shall include the removing of vegetation within the proposed channel boundaries and re-seeding with native vegetation along the right of way. All vegetation removal shall comply with the Arizona Native Plant Law (1991). In accordance to the Arizona Department of Agriculture, the Flood Control District is exempt from the Arizona Native Plant Law with respect to construction projects on existing canals, laterals, and ditches in accordance with the ARS Title 3-915. However, in accordance to executive order no. 89-16, related to streams and riparian resources, efforts shall be made to minimize or avoid any impact to plants outside of the proposed channel boundaries and limit impact to the right of way on each side of the channel.

J) Dust Suppression

Water for dust suppression, if used shall not contain contaminants that could violate ADEQ water quality standards for surface waters or aquifers.

K) Heavy Equipment Access

Mechanized equipment shall not be operated in stream channels or live streams except as may be necessary to construct crossings or barriers and fill for channel modifications.

Equipment access shall be limited to those areas where there shall be the least environmental impact. This would include limiting access and exit points into the channel to avoid any excess impact to the channel configuration and the existing right of way.

Fill material used in the construction of the channel shall be obtained from a source free of hazardous materials or from acceptable borrow areas (areas above the 100 % design baseline elevation) within the channel below the high water mark.

Excavated material (i.e., stock piles) shall be removed from the channel to avoid sedimentation in the channel due to unforeseen precipitation and flooding events.

SGC Page 14 of 17

Subsection 107.6.3 change paragraph 7 to read as follows: ... preparation and distribution of the newsletters (which shall be at the Engineer's discretion); and maintaining ...

To the Construction Special Conditions

SP Page 4-24

In paragraph 2 under the Subsection 202.1 – Description change office size to 500 square feet.

SP Page 9

In Subsection 219.2.1 – Rock replace paragraph (B) Gabions with the following:

(B) Gabions

Rock for gabions and gabion slope mattresses shall be well-graded, according to the gabion manufacturer's specifications, except that rock shall not be less than four (4) inches for gabions, three (3) inches for slope mattresses, or greater than two-thirds the depth of the gabion or gabion mattress in median diameter.

SP Page 9

In Subsection 219.2.2 - Metal Items replace paragraphs A, B, &C with the following:
Wire mesh, tie wire, fasteners, and related hardware for gabions and mattresses shall conform to the requirements of sections 2 and 3 of the attached USDA – NRCS specification.

SP Page 10-24

Delete Subsection 219.2.3 – Bedding Material

SP Page 11-24

Subsection 219.2.5 PVC coating, increase required PVC coating thickness to 0.02 inches.
Replace Subsection 219.3.3- Gabion Mattress with the following: Gabion mattresses shall be placed, assembled and filled in accordance with the requirements of sections 5 and 6 of the attached USDA-NRCS specification.

SP Page 12-24

Replace subsection 219.3.4- Gabions with the following: Gabions shall be placed, assembled and filled in accordance with the requirements of sections 5 and 6 of the attached USDA-NRCS specification.

SP Page 24-24

Subsection 795.6.1- Ordering Seed; Change to read as follows: ... recommended substitutes shall be submitted to the Engineer for review and approval.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

By: _____
Michael S. Ellegood P.E.
Chief Engineer and General Manager

By: _____
Edward A. Raleigh, P.E.
Engineering Division Manager

UNITED STATES DEPARTMENT OF AGRICULTURE
NATIONAL RESOURCES CONSERVATION SERVICE
USDA-NRCS

CONSTRUCTION SPECIFICATION

64. WIRE MESH GABIONS AND MATTRESSES
TWISTED (WOVEN) OR WELDED MESH

~~1. SCOPE~~

~~The work shall consist of furnishing, assembling and installing rock filled wire mesh gabion baskets and mattresses.~~

2. TYPES

Gabions shall consist of rectangular wire mesh formed containers filled with rock. Gabions will conform to one of the following types:

Woven Mesh - Non-raveling double twisted hexagonal wire mesh, consisting of two wires twisted together in two 180 degree turns.

Welded Mesh - Welded wire mesh with a uniform square or rectangular pattern and a resistance weld at each intersection. The welded wire connections shall conform with the requirements of ASTM A 185, including wire smaller than W1.2 (0.124 in.); except that the welded connections shall have a minimum average shear strength of 70% and a minimum shear strength of 60% of the minimum ultimate tensile strength of the wire.

Gabions shall be furnished as baskets or mattresses, as specified in Section 8. Baskets and mattresses shall be fabricated within a dimension tolerance of plus or minus 5 percent.

Baskets - Baskets have a height of 12 inches or greater.

Mattresses - Mattresses have a thickness of 12 inches and less.

3. MATERIALS

Gabions shall be fabricated, assembled and installed in accordance with the nominal wire sizes and dimensions found in Tables 1 and 2, using the following materials, unless otherwise specified in Section 8.

Wire for fabrication and assembly shall be hot dipped galvanized. The wire shall have a minimum tensile strength of 60,000 psi. Galvanized steel wire shall conform to ASTM A 641, class 3, soft temper.

TABLE 1 (Minimum Requirements)*

GABION BASKETS - Height 12, 18 or 36 Inches; Length as Specified

Type of Wire	Mesh Size Inches	Wire Diameter Inches	PVC Coating Inches	Total Diameter Inches	Galvanized Coating oz/SF
Woven Mesh	3 1/4 x 4 1/2	0.118	None	0.118	0.80
	3 1/4 x 4 1/2	0.105	0.02	0.145	0.80
Selvage		0.153	None	0.153	0.80
		0.132	0.02	0.172	0.80
Lacing & Internal Connecting Wire		0.086	0.02	0.126	0.70
Welded Mesh	3 x 3	0.118	None	0.118	0.80
	3 x 3	0.105	0.02	0.145	0.80
Spiral Binder		0.105	0.02	0.145	0.80

TABLE 2 (Minimum Requirements)*

GABION MATTRESSES - Height 6, 9, or 12 Inches; Length as Specified

Type of Wire	Mesh Size Inches	Wire Diameter Inches	PVC Coating Inches	Total Diameter Inches	Galvanized Coating oz/SF
Woven Mesh	2 1/2 x 3 1/4	0.086	0.02	0.126	0.70
Selvage		0.105	0.02	0.145	0.80
Lacing & Internal Connecting Wire		0.086	0.02	0.126	0.70
Welded Mesh	1 1/2 x 3	0.080	0.02	0.120	0.70
Spiral Binder		0.105	0.02	0.145	0.80

*NOTE: The wire sizes and PVC coating thickness shown are nominal sizes.
The wire sizes include the galvanizing coating thickness.

When Epoxy or Polyvinyl Chloride (PVC) coated wire is specified in Section 8, the galvanized wire shall be coated by fusion bonded epoxy; or fusion bonded, extruded, or extruded and bonded PVC material. The wire coating shall be colored black, gray, green or silvery; and the initial properties of the PVC coating shall meet the following requirements:

- (a) Specific Gravity: In the range of 1.30 to 1.40, ASTM D 792.
- (b) Abrasion Resistance: The percentage of weight loss shall be less than 12%, when tested according to ASTM D 1242, Method B at 200 cycles, CSI-A Abrader Tape, 80 Grit.
- (c) Brittleness Temperature: Not higher than 15 F, ASTM D 746.
- (d) Tensile Strength: Extruded Coating - Not less than 2,980 psi., ASTM D 412. Fusion Bonded Coating - Not less than 2,275 psi., ASTM D 638.
- (e) Modulus of Elasticity: Extruded Coating - Not less than 2,700 psi. at 100 percent strain, ASTM D 412. Fusion Bonded Coating - Not less than 1980 psi. at 100 percent strain, ASTM D 638.
- (f) Ultraviolet Light Exposure: A test period of not less than 3000 hours, using apparatus type E at 63 C, ASTM G 23.
- (g) Salt Spray Test: A test period of not less than 3000 hours, ASTM B 117.

After the exposure to ultraviolet light and the salt spray test as specified above, the PVC coating shall not show cracks, blisters, splits, nor noticeable change of coloring (surface chalk). In addition, the specific gravity, resistance to abrasion, tensile strength, and modulus of elasticity shall not change more than 6 percent, 10 percent, 25 percent and 25 percent respectively, from their initial values.

The wire sizes shown in Table 1 and 2 are the size of the wire after galvanizing and before coating with PVC.

Spiral binders are the standard fastener for welded mesh gabion baskets and mattresses, and shall be formed from wire meeting the same quality and coating thickness requirements as specified for the gabion baskets and mattresses.

Alternate fasteners for use with wire mesh gabions, such as ring fasteners, shall be formed from wire meeting the same quality and coating thickness requirements as specified for the gabions.

Standard fasteners and alternate fasteners must provide a minimum strength of 1,400 lb. per lineal foot for gabion baskets and 900 lb. per lineal foot for gabion mattresses. When used to interconnect gabion baskets or mattresses with PVC coating, ring fasteners shall be made of stainless steel and spiral fasteners will be PVC coated. All fasteners shall meet all of the closing requirements of the gabion manufacturer in addition to any requirements specified in Section 8.

Rock shall conform to the quality requirements in Material Specification 523, unless otherwise specified in Section 8. At least 85 percent of the rock particles, by weight, shall be within the predominant rock size range.

Gabion Basket or Mattress Height	Predominant Rock Size Inches	Minimum Rock Dimension Inches	Max. Rock Dimension Inches
12, 18 & 36 Inch Basket	4 to 8	4	8
6, 9 & 12 Inch Mattress	3 to 6	3	6

At least 30 days prior to delivery to the site, the Contractor shall inform the COTR in writing of the source from which the rock will be obtained, and include the test data and other information by which the material was determined by the Contractor to meet the specification. The Contractor shall provide the COTR free access to the source for the purpose of obtaining samples for testing and source approval.

Bedding or filter material, when specified, shall meet the gradation shown on the plans or as specified in Section 8, and the requirements of Material Specification 521. Geotextile, when specified, shall conform to the requirements specified in Section 8, and those of Material Specification 592.

~~4. FOUNDATION PREPARATION~~

~~The foundation on which the gabions are to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. Surface irregularities, loose material, vegetation, and all foreign matter shall be removed from foundations. When fill is required, it shall consist of materials conforming to the specified~~

~~requirements. Gabions and bedding or specified geotextiles shall not be placed until the foundation preparation is completed, and the subgrade surfaces have been inspected and approved by the COTR.~~

~~Compaction of bedding or filter material will be required as specified in Section 8. The surface of the finished material shall be to grade and free of mounds, dips or windrows. Geotextile shall be installed in accordance with the requirements of Construction Specification 95.~~

5. ASSEMBLY AND PLACEMENT

Unless otherwise specified in Section 8, the assembly and placement of gabions shall be in accordance with the following procedures:

Assembly - Rotate the gabion panels into position and join the vertical edges with fasteners for gabion assembly. Where lacing wire is used, wrap the wire with alternating single and double half-hitches at intervals between 4 to 5 inches. Where spiral fasteners are used for welded wire mesh, crimp the ends to secure the spirals in place. Where ring type alternate fasteners are used for basket assembly, install the fasteners at a maximum spacing of 6 inches. Use the same fastening procedures to install interior diaphragms where they are required.

Interior diaphragms will be required where any inside dimension exceeds three feet. Diaphragms will be installed to assure that no open intervals are present that exceed three feet.

Placement - Place the empty gabions on the foundation and interconnect the adjacent gabions along the top, bottom, and vertical edges using lacing wire. Wrap the wire with alternating single and double half-hitches at intervals between 4 to 6 inches. Unless otherwise specified in Section 8, lacing wire will be the only fastener allowed for interconnecting woven mesh gabions. Spiral fasteners are commonly used for the assembly and interconnection of welded mesh gabions. Spirals are screwed down at the connecting edges then each end of the spiral is crimped to secure it in place. Lacing may be used as needed to supplement the interconnection of welded mesh gabions, and the closing of lids.

Interconnect each layer of gabions to the underlying layer of gabions along the front, back, and sides. Stagger the vertical joints between the gabions of adjacent rows and layers by at least one half of a cell length.

6. FILLING OPERATION

After adjacent empty woven wire gabion units are set to line and grade and common sides properly connected, they shall be placed in straight line tension and stretched to remove any kinks from the mesh and to gain a uniform alignment. Welded mesh gabions do not require stretching. Staking of the gabions may be done to maintain the established proper alignment prior to the placement of rock. No stakes shall be placed through geotextile material. Connecting lacing wire and other fasteners (as allowed), shall be attached during the filling operation to preserve the strength and shape of the structure.

Internal connecting cross-tie wires shall be placed in each unrestrained gabion cell greater than 18 inches in height, including gabion cells left temporarily unrestrained. Two internal connecting wires shall be placed concurrently with rock placement, at each 12 inch interval of depth. In woven mesh gabions these cross-ties will be placed evenly spaced along the front face and connecting to the back face. All cross-tie wires shall be looped around two mesh openings and each wire end shall be secured by a minimum of five 180 degree twists around its self after looping.

In welded mesh gabions these cross-ties or stiffeners will be placed across the corners of the gabions (at 12 inches from the corners) providing a diagonal bracing. Lacing wire or preformed hooked wire stiffeners may be used.

The gabions shall be carefully filled with rock, either by machine or hand methods, ensuring alignment, avoiding bulges, and providing a compact mass that minimizes voids. Machine placement will require supplementing with hand work to ensure the desired results. The cells in any row shall be filled in stages so that the depth of rock placed in any one cell does not exceed the depth of rock in any adjoining cell by more than 12 inches. Along the exposed faces, the outer layer of stone shall be carefully placed and arranged by hand to ensure a neat, compact placement with a uniform appearance.

The last layer of rock shall be uniformly leveled to the top edges of the gabions. Lids shall be stretched tight over the rock filling using only approved lid closing tools as necessary. The use of crowbars or other single point leverage bars for lid closing is prohibited as they may damage the baskets. The lid shall be stretched until it meets the perimeter edges of the front and end panels. The gabion lid shall then be secured to the sides, ends, and diaphragms with spiral binders, approved alternate

fasteners, or lacing wire wrapped with alternating single and double half-hitches in the mesh openings.

Any damage to the wire or coatings during assembly, placement and filling shall be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged gabion baskets.

7. MEASUREMENT AND PAYMENT

Method 1 For items of work for which specific unit prices are established in the contract; the volume of rock will be measured within the neat lines of the gabion structure and computed to the nearest cubic yard. Payment for gabions will be made at the contract unit price, and includes the wire mesh and rock. Such payment will be considered full compensation for all labor, materials, equipment and all other items necessary and incidental to completion of the work.

Method 2 For items of work for which specific unit prices are established in the contract, the volume of the gabions will be measured within the neat lines of the gabion structure and computed to the nearest cubic yard. Payment for the gabions will be made at the contract unit price, and includes the wire mesh, rock and specified bedding material or geotextile. Such payment will be considered full compensation for all labor, materials, equipment and all other items necessary and incidental to the completion of the work.

Method 3 For items of work for which specific unit prices are established in the contract, the surface area will be measured within the neat lines of the gabion mattress structure and computed to the nearest square yard. Payment for the gabion mattress will be made at the contract unit price, and includes the wire mesh and rock. Such payment will be considered full compensation for all labor, materials, equipment and all other items necessary and incidental to the completion of the work.

Method 4 For items of work for which specific unit prices are established in the contract, the surface area will be measured within the neat lines of the gabion mattress structure and computed to the nearest square yard. Payment for the gabion mattress will be made at the contract unit price, and include the wire mesh, rock and specified bedding material or geotextile. Such payment will be considered full compensation for all labor, materials, equipment and all other items necessary and incidental to the completion of the work.