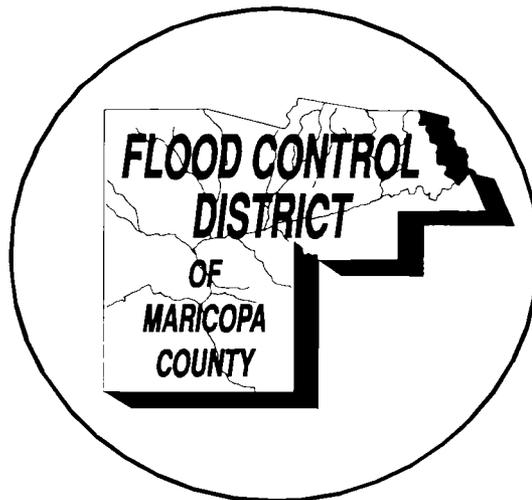


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**ELLIOT OUTFALL CHANNEL**

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**DESIGN REPORT**



**July, 2004**

**Prepared For:  
Flood Control District of Maricopa County  
Chief Engineer & General Manager**

**Prepared by:  
Engineering Division  
Flood Control District of Maricopa County**

**FCD Project No. 442-04-31**



**Elliot Outfall Channel  
Design Report  
July, 2004**

**ELLIOT OUTFALL CHANNEL  
FCD PROJECT NO. 442-04-31  
DESIGN REPORT**

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**ELLIOT OUTFALL CHANNEL  
FCD PROJECT NO. 442-04-31  
DESIGN REPORT**

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**APPENDIX**

I	HECRAS Output
II	Construction Cost Estimate
III	Construction Special Provisions
IV	Supplementary General Conditions
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## 1.0 PROJECT DESCRIPTION

### 1.1 Purpose

The purpose of this project is to develop final construction drawings, special provisions, and an engineer's estimate for the construction of the Elliot Outfall Channel from Ellsworth Road to the Santan Freeway. The Elliot Outfall Channel will provide an outlet for the Elliot Road Detention Basins and will convey flows to channels being constructed as part of Santan Freeway. As part of the Elliot Basins and Channel Project, a temporary earthen channel was constructed for the majority of this reach, to distribute flows back into the natural washes. This Project will replace that temporary channel. ADOT will construct the Santan Freeway Channel as part of the freeway. The Project is approximately 2800 feet in length.

The Project includes the construction of Elliot Outfall Channel and filling the temporary "north leg" channel constructed by Salt River Sand & Rock. Maintenance roads are to be included along the channel, but there are no multi-use trails requirements along this Project. The anticipation is that the channel be earthen, and hydroseeded to prevent local erosion and rilling. No other landscaping will be provided along the channel. The channel will connect to the riprap section constructed just west of Ellsworth Road, and extend to a confluence structure at the Santan Freeway Channel. The confluence structure will be designed and constructed as a part of this Project.

The improvements will be consistent with the recommendations from the East Mesa Area Drainage Master Plan.

The Project is a partnership between the Flood Control District, the City of Mesa, and MCDOT, per IGA FCD 1999A0271. Mesa will take over operation and maintenance of this facility.

## **1.2 Location**

The project is located in the City of Mesa. The Elliot Outfall Channel is located South of Elliot Road. The channel begins just west of Ellsworth Road and extends southwesterly approximately 2,800 feet to where it intersects the Santan Freeway Channel.

The area immediately north and south of the Elliot Outfall Channel is undeveloped property. This project is bounded on the east by the Santan Freeway and on the west by Ellsworth Road.

Figure 1 shows a Project Location Map.

## **1.3 Rights-of-Way**

The majority of the rights-of-way and easements required for the project have been acquired. An existing easement, 200-foot wide from the State Land Department, extends from the Ellsworth Road right-of-way to 100 feet of the Santan Freeway right-of-way. The only additional rights-of-way necessary for the construction of the channel is a triangle at the intersection of the Elliot Outfall Channel and the Santan Freeway. This area is less than one half acre.

The right-of-way required for this project is shown in Figure 2.

## **1.4 Utilities**

No utility conflicts are anticipated on this project.

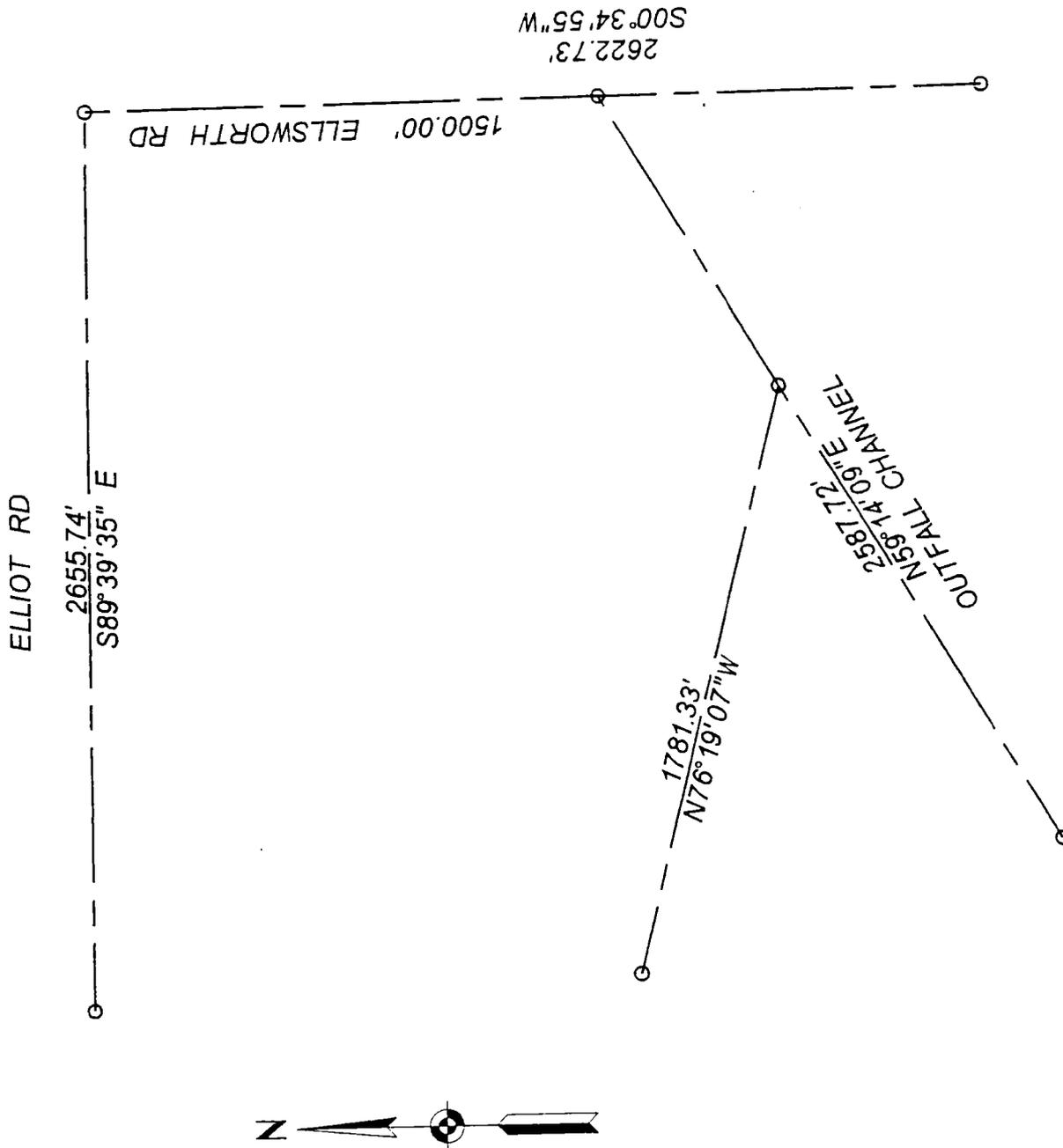
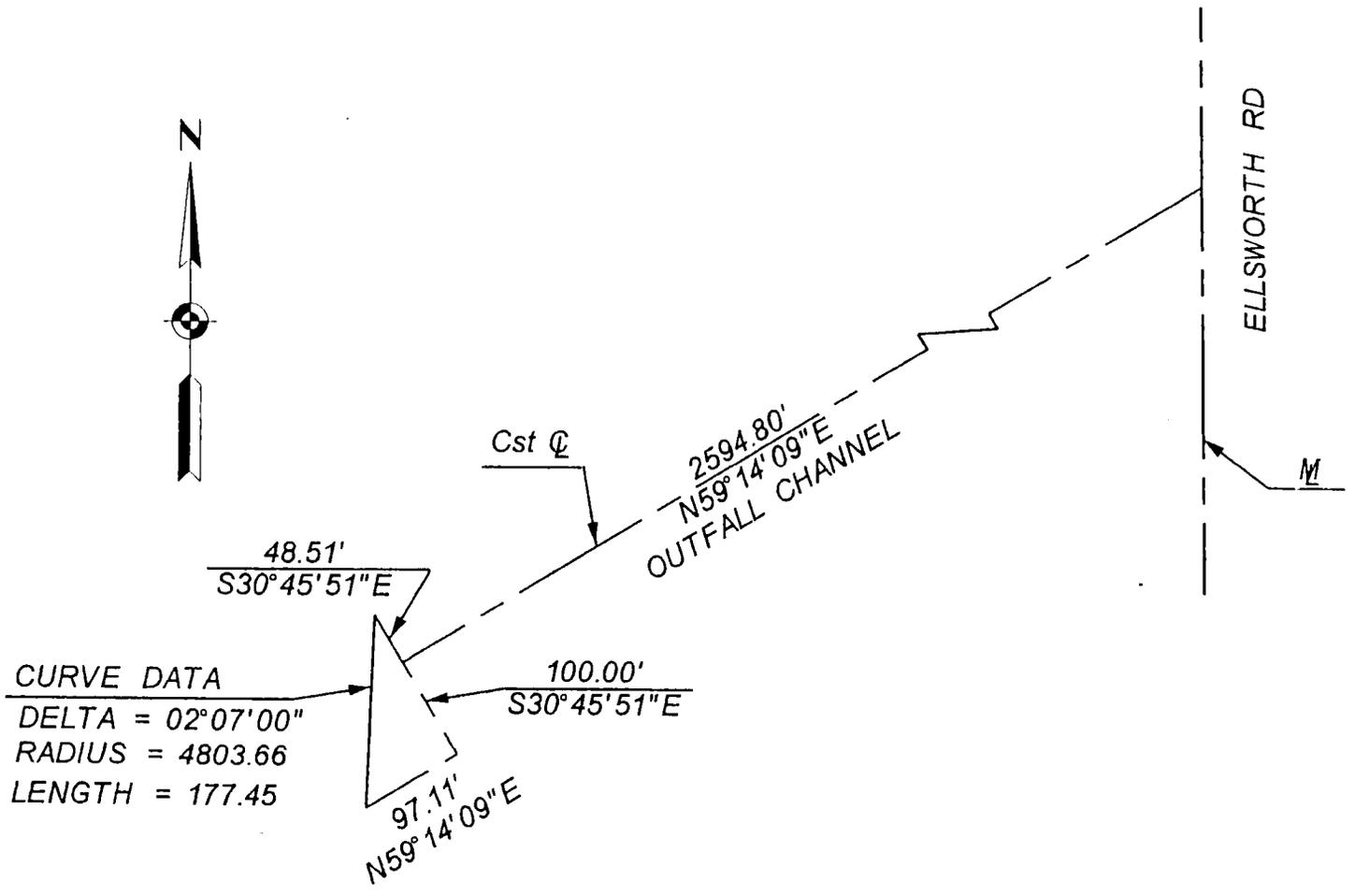


Figure 1

Figure 2



## **2.0 SELECTED CHANNEL ALTERNATIVE**

The selected cross section for this project is an 10-foot deep trapezoidal section with a 20-foot bottom and 6:1 side slopes. The bottom and sides will be planted with native grass. This conforms with the channel on the west side of Ellsworth Road. This section is shown in Figure 3.

## **3.0 HYDROLOGIC ANALYSIS**

The Project will be designed to convey the 100-year flow identified in the East Mesa Area Drainage Master Plan, which is 1100 cfs. No significant inflow locations exist along the Project length. Therefore, no additional field investigation of the HEC-1 is required to refine inflow values.

## **4.0 HYDRAULIC ANALYSIS**

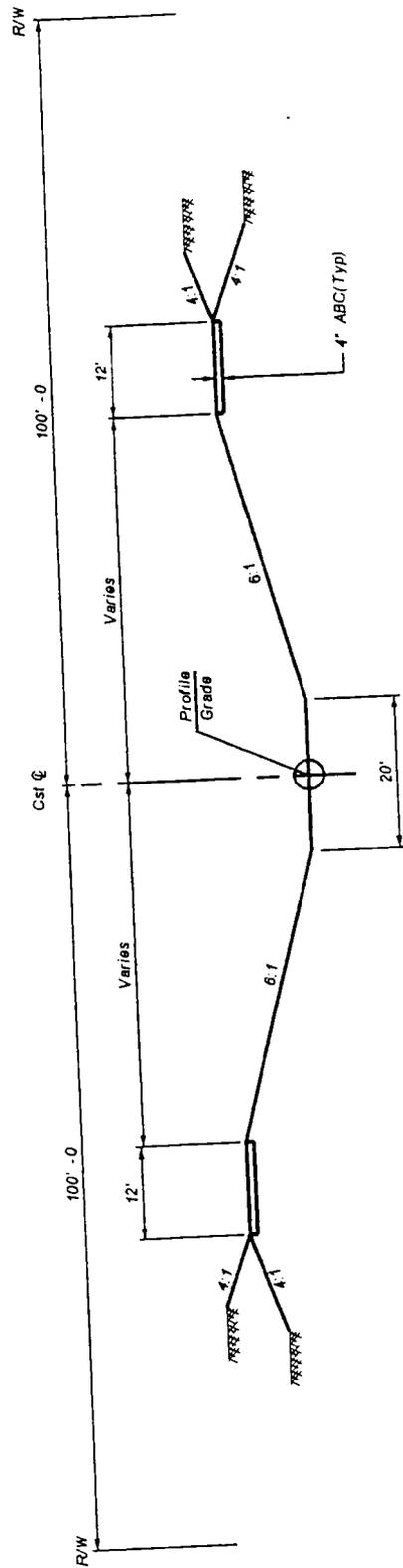
The proposed channel improvements have been analysed using HECRAS and the output is shown in Appendix I.

## **5.0 CONSTRUCTION COST ESTIMATE**

The estimated constructed cost for this project is \$502,247.96. A complete construction cost estimate is shown in Appendix II.

## **6.0 CONSTRUCTION SPECIAL PROVISIONS**

The Construction Special Provisions are shown in Appendix III.



TYPICAL SECTION

Figure 3

## **7.0 SUPPLEMENTARY GENERAL CONDITIONS**

The Supplementary General Conditions Provisions are included in Appendix IV.

## **8.0 CONSTRUCTION PLANS**

The Construction Plans are included in Appendix V.

**APPENDIX I**

**HECRAS OUTPUT**

HEC-RAS Plan Plan 01 River Stream Reach Reach Profile PF 1														
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Cnt W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl	LOB Elev (ft)	ROB Elev (ft)
Reach	2700	PF 1	1100.00	1389.00	1392.57	1392.28	1393.43	0.016456	7.45	147.72	62.78	0.86	1397.00	1397.00
Reach	2612.280	PF 1	1100.00	1386.91	1392.53		1392.74	0.002373	3.65	301.59	87.38	0.35	1394.91	1394.91
Reach	2512.280	PF 1	1100.00	1386.81	1392.25		1392.48	0.002733	3.84	286.21	85.25	0.37	1394.81	1394.81
Reach	2412.280	PF 1	1100.00	1386.71	1391.91		1392.18	0.003334	4.14	265.88	82.33	0.41	1394.71	1394.71
Reach	2312.280	PF 1	1100.00	1386.61	1391.45		1391.78	0.004566	4.65	236.77	78.00	0.47	1394.61	1394.61
Reach	2212.280	PF 1	1100.00	1386.51	1390.06	1389.79	1390.94	0.016779	7.50	146.68	62.59	0.86	1394.51	1394.51
Reach	2112.280	PF 1	1100.00	1384.41	1390.03		1390.24	0.002371	3.65	301.69	87.41	0.35	1392.41	1392.41
Reach	2012.280	PF 1	1100.00	1384.31	1389.75		1389.98	0.002734	3.84	286.14	85.24	0.37	1392.31	1392.31
Reach	1912.280	PF 1	1100.00	1384.21	1389.41		1389.67	0.003337	4.14	265.83	82.33	0.41	1392.21	1392.21
Reach	1812.280	PF 1	1100.00	1384.11	1388.94		1389.28	0.004572	4.65	236.60	77.94	0.47	1392.11	1392.11
Reach	1712.280	PF 1	1100.00	1384.01	1387.56	1387.29	1388.44	0.016738	7.49	146.82	62.63	0.66	1392.01	1392.01
Reach	1612.280	PF 1	1100.00	1381.91	1387.53		1387.74	0.002372	3.65	301.63	87.39	0.35	1389.91	1389.91
Reach	1512.280	PF 1	1100.00	1381.81	1387.25		1387.48	0.002740	3.85	285.93	85.21	0.37	1389.81	1389.81
Reach	1412.280	PF 1	1100.00	1381.71	1386.91		1387.17	0.003335	4.14	265.87	82.32	0.41	1389.71	1389.71
Reach	1312.280	PF 1	1100.00	1381.61	1386.44		1386.78	0.004582	4.65	236.42	77.92	0.47	1389.61	1389.61
Reach	1212.280	PF 1	1100.00	1381.51	1385.09	1384.79	1385.94	0.016344	7.43	148.10	62.87	0.85	1389.51	1389.51
Reach	1112.280	PF 1	1100.00	1379.41	1385.05		1385.25	0.002330	3.62	303.58	87.65	0.34	1387.41	1387.41
Reach	1012.280	PF 1	1100.00	1379.31	1384.78		1385.00	0.002680	3.82	288.31	85.56	0.37	1387.31	1387.31
Reach	912.2800	PF 1	1100.00	1379.21	1384.45		1384.71	0.003231	4.09	269.01	82.79	0.40	1387.21	1387.21
Reach	812.2800	PF 1	1100.00	1379.11	1384.00		1384.33	0.004333	4.56	241.36	78.68	0.46	1387.11	1387.11
Reach	712.2800	PF 1	1100.00	1379.01	1382.29	1382.29	1383.40	0.023321	8.46	130.05	59.33	1.01	1387.01	1387.01
Reach	612.2800	PF 1	1100.00	1376.77	1381.67		1381.99	0.004322	4.55	241.59	78.72	0.46	1384.77	1384.77
Reach	512.2800	PF 1	1100.00	1376.67	1379.95	1379.95	1381.06	0.023432	8.47	129.61	59.26	1.01	1384.67	1384.67
Reach	412.2800	PF 1	1100.00	1376.57	273.40	57.68	273.43	0.001002		809.99	5.93	0.00	1384.69	1376.57

**APPENDIX II**

**CONSTRUCTION COST ESTIMATE**

# ENGINEER'S ESTIMATE

ELLIOT OUTFALL CHANNEL

PROJECT 442-04-31

ITEM NO.	DESCRIPTION	UNIT	PROJECT QUANTITY	UNIT COST NUMBERS	EXTENDED AMOUNT
105 - 1	Partnering Allowance	LS	1	\$ 15,000.00	\$ 15,000.00
107 - 1	AZPDES / SWPPP Permits	LS	1	\$ 10,000.00	\$ 10,000.00
107 - 2	Public Information and Notification Allowance	LS	1	\$ 2,500.00	\$ 2,500.00
107 - 3	Project Signs Allowance	LS	1	\$ 2,000.00	\$ 2,000.00
201 - 1	Clearing and Grubbing	LS	1	\$ 2,000.00	\$ 2,000.00
211 - 1	Channel Fill	CY	10,500	\$ 1.50	\$ 15,750.00
215 - 2	Channel Excavation	CY	39,200	\$ 4.00	\$ 156,800.00
310 - 1	ABC Maintenance Road (4")	SY	6,607	\$ 3.25	\$ 21,472.75
350 - 1	Miscellaneous Removals	LS	1	\$ 5,000.00	\$ 5,000.00
401 - 1	Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
420 - 1	6' Chain Link Fence	LF	280	\$ 12.00	\$ 3,360.00
420 - 2	24' Chain Link Fence Gate	EA	2	\$ 1,000.00	\$ 2,000.00
420 - 3	6' Break Away Fence	LS	1	\$ 5,000.00	\$ 5,000.00
430 - 3	Native Seed Mix	SY	52,984	\$ 0.30	\$ 15,895.20
505 - 5	Concrete Grade Control Structure	EA	10	\$ 9,600.00	\$ 96,000.00
505 - 6	Concrete Sediment Trap	EA	1	\$ 9,000.00	\$ 9,000.00
505 - 7	Concrete Channel Lining	SY	2,095	\$ 34.00	\$ 71,230.00

Prepared By: Jeffrey Riddle 9/21/2004

Total = \$ 438,007.95

**APPENDIX III**

**CONSTRUCTION SPECIAL PROVISIONS**

# SPECIAL PROVISIONS

## ELLIOT OUTFALL CHANNEL

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## **SECTION 201 - CLEARING AND GRUBBING**

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

### **Subsection 201.1 - Description**

Add the following to this subsection:

The work consists of the removal and disposal of all vegetation including shrubs, trees of all sizes, and other plants and objectionable material within the channel right-of-way unless directed otherwise by the engineer. Clearing and grubbing of the spoil site areas is not required. Prior to starting this work, the Contractor must verify the location of existing utilities that might be damaged by this work.

### **Subsection 201.5 - Payment, Clearing and Grubbing**

Replace this subsection with the following:

No measurement or payment will be made for any clearing and/or grubbing outside of the permanent Project Rights-of-Way. The cost thereof shall be considered incidental to the item that said clearing and grubbing is incidental or appurtenant.

No measurement for the clearing and grubbing of the Project Corridor will be made. Payment for said clearing and grubbing shall be made on the basis of the lump sum price bid and shall be full compensation for said operation including but not limited to the hauling and proper disposal of all material cleared and grubbed.

### **ITEM 201-1 - CLEARING AND GRUBBING**

## **SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL**

Structure excavation and backfill shall conform to Section 206 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

### **Subsection 206.2 - Foundation Material Treatment**

Add the following to this subsection:

Foundation bearing surfaces shall be free of debris and water softened materials prior to placing concrete and reinforcing steel. Any loose or disturbed zones should be removed and replaced with compacted fill or lean concrete.

### **Subsection 206.4 - Structure Backfill**

Add the following to this subsection:

Compaction of structure backfill soils shall be accomplished to a minimum 95 percent of the maximum ASTM D698 density.

Backfill behind subsurface walls designed to support utilities, pavement, channels, or other facilities should be compacted to density criteria from Section 211. Backfill shall consist of free draining granular soils that exhibit low expansive potentials. The material shall be free of vegetation, debris, organic contaminants, and fragments larger than 4 inches in size.

Compaction operations shall be accomplished by mechanical methods. Water settling or jetting shall not be permitted.

On-site soils may be used in structural fills or backfill except for high plasticity on-site soils (P.I. > 12) that may not be used in structure fills or backfill. Imported soil used for fills under pavements, or channels, backfill around structures should be granular soils conforming to the following requirements:

Sieve Size	Percent Passing
3"	100
3/4"	60-80
#8	35-80
#200	0-12

(Arizona Test Method 201)

Note: Maximum size may be reduced at the Engineer's direction to satisfy trenching and landscape requirements, etc.

**Subsection 206.5 - Payment**

Replace this subsection with the following:

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

**SECTION 211 - FILL CONSTRUCTION**

Fill construction shall conform to Section 211 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

**Subsection 211.1 - Description**

Add the following to this subsection:

Work under this item shall consist of filling in the existing north branch of the Elliot Outfall Channel to the limits as shown on the plans. The material excavated from the channel construction is suitable material for this operation. All other fill activities on the project shall be considered incidental to construction of the associated bid item.

**Subsection 211.3 - Compacting**

Add the following to this subsection:

Compaction of exposed site soil, backfill, fill, and base course materials shall be accomplished to the following density criteria:

<u>Material</u>	<u>Minimum Percent Compaction (ASTM D698)</u>
Subgrade Soil:	
Below structural elements	95
Below Pavement	95
All other locations	85
Backfill:	
Restoration of channel bank	95
Against structures	95
Earthen Channel Fill	85
All other locations	85

On site undisturbed soils or compacted soils subsequently disturbed or removed by construction operations shall be replaced with materials compacted as specified above. Saturated soil shall be removed and replaced with materials compacted as specified above.

**Subsection 211.5 - Measurement**

Replace this Subsection with the following:

No field measurement for fill will be made for fill material. The measurement for fill material shown in the plans was calculated from the cross sections in the plans. The Contractor is responsible for verifying the validity of the cross sections prior to placing any fill.

**Subsection 211.6 - Payment**

Replace this Subsection with the following:

Payment for fill will be paid at the unit price bid per cubic yard. Payment shall include hauling, placing, compacting, drying or removing saturated material and all other miscellaneous items necessary to accomplish the work in conformance with the plans.

**ITEM 211-1 -CHANNEL FILL**

**SECTION 215 - EARTHWORK FOR OPEN CHANNELS**

Earthwork for open channels shall conform to Section 215 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

**Subsection 215.1 - Description**

Replace this subsection with the following:

The work in this section consists of excavation, fill, grading, and disposal of excavated and removed material for the construction of the Elliot Outfall Channel.

All material excavated and not used, as fill elsewhere on the project will be the property of the Contractor.

**Subsection 215.3 - Excavation**

Add the following to this subsection:

The Contractor is encouraged to make a field visit and review the soil boring logs and geotechnical report included in Appendix A of these Special Provisions.

Contractor shall provide dust control as required to meet all local and federal requirements.

**Subsection 215.7 - Measurement**

Replace this subsection with the following:

Measurement for excavation material on site for the channel will be made according to the quantity of material excavated from existing ground to the finished grades shown on the plans. No measurement will be made for fill construction, imported material, or disposal of excess material or any over-excavation. The Engineer will verify the quantities of excavation by a method that in his opinion is best suited to obtain an accurate determination.

**Subsection 215.8 - Payment**

Replace this subsection with the following:

Payment for excavation of material for the channel will be made on the basis of the price bid per cubic yard of excavation. Payment shall include excavation, backfill, except as identified and paid for in Section 211, compaction, grading, hauling, removal, dust control, disposal of excess material, and all other miscellaneous items necessary to accomplish the work in conformance with the plans.

**ITEM 215-1 - CHANNEL EXCAVATION**

**SECTION 220 - RIPRAP CONSTRUCTION**

Riprap Construction shall conform to Section 220 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

**Subsection 220.1 - Description**

Add the following to this subsection:

The construction of plain riprap shall consist of furnishing and placing stone as shown on the plans and specified in the special provisions.

**Subsection 220.7 - Measurement**

Add the following to this subsection:

No measurement for riprap shall be made as such; the cost thereof shall be included in the bid price for the construction of the items that riprap is incidental or appurtenant.

**Subsection 220.8 - Payment**

Add the following to this subsection:

No payment for riprap shall be made as such; the cost thereof shall be included in the bid price for the construction of the items that riprap is incidental or appurtenant.

**SECTION 301 - SUBGRADE PREPARATION**

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

**Subsection 301.8 - Payment**

Replace this subsection with the following:

No payment for subgrade preparation shall be made as such; the cost thereof shall be included in the bid price for the construction of the items that subgrade preparation is incidental or appurtenant.

**SECTION 310 - UNTREATED BASE**

Replace Section 310 of the Standard Specifications with the following:

**Subsection 310.1- Description**

Replace this subsection with the following:

Aggregate base course, also referred to as ABC, shall be placed for the maintenance roads, where shown on the construction plans.

**Subsection 310.2 - Placement**

Replace this subsection with the following:

The ABC may be placed and compacted in a single layer. After distributing, the base material shall first be watered and then immediately bladed to a uniform layer that will net, after rolling, the required thickness. If the materials deposited are not uniformly blended together, the blading operation shall be continued to such extent as may be necessary to eliminate segregation. The quantity of water applied shall be that amount which will assure proper compaction resulting in a relative density of not less than 100 percent as determined under Section 301 of the Standard Specifications. Care shall be exercised in connection with watering operations to avoid wetting the subgrade or any lower base course to detrimental extent.

Upon completion, the base surface shall be true, even and uniform, conforming to the grade and cross-section shown on the design plans.

ABC may vary not more than 1/2 inch above or below required grade and cross-section.

#### **Subsection 310.3 - Measurement**

Replace this subsection with the following:

Aggregate base course shall be measured by the square yard, based upon the dimensions shown on the design plans. No allowance is made for spalling or waste beyond those limits.

#### **Subsection 310.4 - Payment**

Replace this subsection with the following:

Payment will be made for aggregate base course used for surface treatment at the unit cost bid per square yard.

Such payment shall be compensation in full for items including but not limited to materials, transportation, subgrade preparation, miscellaneous earthwork, labor, equipment, placement, watering, and roller compaction.

**ITEM 310-1 – ABC MAINTENANCE ROAD (4”)**

### **SECTION 350 - REMOVAL OF EXISTING IMPROVEMENTS**

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

#### **Subsection 350.1 - Description**

Add the following to this subsection:

The work includes the removal and disposal of any obstacle to construction, including piles of trash and debris encountered within the right-of-way, unless it is specifically called out on the plans to be removed and salvaged or protected in place. Holes, cavities and trenches resulting from the removal of structures shall be backfilled if necessary in accordance with Sections 206 and 211. The disposal of all waste material removed under this item shall be the responsibility of the Contractor. The disposal site shall be approved by the Engineer prior to disposal.

The Contractor is responsible for obtaining a refuse hauling permit from Maricopa County Environmental Services Department (602) 506-0719.

#### **Subsection 350.4 – Payment**

Replace this subsection with the following:

Payment for miscellaneous removals shall be made on the basis of the lump sum price bid. This price shall be full compensation for all construction equipment, labor, materials, pavement removal, disposal, disposal fees, refuse hauling permit, and all incidentals necessary to accomplish the work in conformance to the plans.

**ITEM 350-1 - MISCELLANEOUS REMOVALS**

## **SECTION 401 - TRAFFIC CONTROL**

Traffic control shall conform to Section 401 of the MAG Uniform Standard Specifications and COP Supplement to MAG except as modified herein.

### **Subsection 401.1 – Description**

Add the following to this subsection:

All traffic control shall conform to the Construction Specifications for this project, Part IV of the “Manual On Uniform Traffic Control Devices For Streets And Highways” (U.S. Department of Transportation, Federal Highway Division) and all revisions thereto, and the request of the Engineer.

It shall be the Contractor’s responsibility to provide, erect and maintain, and remove after completion of the work all necessary signs, barricades, barriers, berms, lights, high level warning devices, delineators, and any other required devices, uniformed officers, and flagmen necessary to properly mark and control the construction area for safe and efficient movement of traffic.

Temporary traffic control devices shall be installed as required prior to the start of work. The approval of Contractor’s traffic control method shall not relieve Contractor of his responsibility to protect the work, Contractor’s personnel, or the general public.

### **Subsection 401.5 – General Traffic Regulations**

Add the following to this subsection:

It shall be the responsibility of the Contractor to comply with the City of Mesa Traffic Barricade Manual.

The Contractor shall furnish all signs, cones, and other traffic control devices and all equipment necessary for the control of traffic. The Contractor shall be responsible for maintaining the necessary traffic control devices until the project is complete.

The Contractor shall submit a certification statement signed by the Contractor and the barricade subcontractor stating that they certify and warrant that the barricades will be erected and maintained in compliance with the barricade manual.

The Contractor shall employ a “designated” person who will be responsible for ensuring that all barricades, signs, barricade lights, signals, and other traffic control devices are established and maintained in strict compliance with the City of Mesa Traffic Barricade Manual and the contract requirements. The designated person shall:

1. Inspect all barricading and traffic control devices on a regular, recurring basis and submit a daily (including weekends and holidays) report, in writing, to the inspector of such inspections the next workday;
2. Ensure that existing traffic signals do not conflict with barricades and signs or give misleading signals to pedestrians and motorists. He/she shall immediately bring conflicting conditions to the attention of the inspector. The inspector will coordinate with the City's or County's Traffic Signals Group for any required changes to traffic signal sequencing, timing, or outages;
3. Ensure that flagmen, when employed, are trained in accordance with the O.S.H.A. regulations (29 CFR 1926.201 Signaling); and,

4. Immediately respond to all call-outs by the inspector, the Stand-by inspector, or Base Operations; cooperate with Police or Fire Department Investigators; and, on his/her own responsibility, re-establish barricades and traffic control devices, as necessary.

The "designated" person required by this section may be the same as the "competent" person required for trench safety (O.S.H.A. Regulations- 29 CFR 1926.650(i)) provided such person is qualified in accordance with O.S.H.A. Regulation (29 CFR 1926.21(1)) for these duties.

The Contractor shall certify, by letter, that the designated person has read and will comply with the requirements of the City of Mesa Traffic Barricade Manual requirements. The Safety Certification letter shall be provided to the City at the preconstruction conference. The Safety Certification should include the name of the "designated" person, the name of the "competent" person (if different from the designated person), telephone numbers where they can be reached 24-hours per day, and any restrictions or limitations on their duties and authorities.

Channelization, including "KEEP RIGHT" signs, shall be provided whenever traffic is moved across the street centerline, the existing center line is removed or opposing traffic is maintained in other than the normal traffic lanes.

All temporary traffic control devices shall be ballasted with sandbags or other approved ballast.

Access to all adjacent properties shall be maintained. When access cannot be maintained, Contractor shall notify the adjacent residents at least 48 hours in advance of the access closure. In no case shall the access be closed for more than four (4) hours. Access for fire stations, hospitals, police stations, and schools shall be maintained at all times. The Contractor shall notify the City of Mesa police, fire departments, and transit authority of any road closures at least two (2) days in advance of the closure.

Contractor shall maintain or relocate all existing signal indications, warning signs, STOP, YIELD, and street name signs erect, clean and in full view of the intended traffic at all times. Portable signs should be used to supplement blocked or removed signs. In the event the Contractor removes any permanent signing, which will not be reinstalled immediately, the Contractor shall store permanent signs in a secure location at the project site and request removal by City or County forces. Contractor will reset all permanent signing removed or relocated during construction at Contractor's expense. The Contractor is responsible for all costs incurred in replacing lost or damaged traffic control devices.

Rope, flagging, fencing, and woven plastic tape may be used between barricades and channeling devices to provide additional safety.

Contractor shall install deceleration sand berms in the blocked traffic path or at other hazardous sites in order to prevent vehicles from entering the construction and/or hazard areas. The deceleration sand berms shall be constructed of washed sand and shall be approximately five (5) feet high.

Advance Project Notification Signing shall be installed in Ellsworth Road at least 14 days prior to the start of construction. The location for Advance Notification Signing shall be determined at the time of the Pre-Construction meeting. Signing shall be updated as restrictions change.

Construction shall not commence or proceed without a Traffic Control Plan approved by the City of Mesa. At the pre-construction conference, the Contractor shall submit for review his plan for the sequence of construction, any planned lane closures, signing for construction, and the traffic flow. A Traffic Control Plan (TCP) covering the signing and staging shall be submitted and approved prior to the start of each stage of

construction. The Traffic Control Plans shall address all construction staging and special provision requirements, including any flagging to be used on the project.

At the time of the Pre-Construction conference, the Contractor shall designate an employee, other than the Project Superintendent, who is well qualified and experienced in construction traffic control and safety, to be available on the project site during all periods of construction to set up, maintain and coordinate safe barricading whenever construction restricts traffic. This individual shall be authorized to receive and fulfill instructions from the Engineer and shall supervise and direct the work. Instructions and information given by the Engineer to this individual shall be considered as having been given to the Contractor.

**Subsection 401.7 - Payment**

Replace this subsection with the following:

Payment for traffic control including all mobilization, signage, materials, flagging operation, jersey barriers, and maintenance shall be made on the basis of the lump sum price bid. This price shall be full compensation for all construction equipment, labor, permits, materials, and all incidentals necessary to accomplish the work in conformance to the plans.

**ITEM 401-1 – TRAFFIC CONTROL**

**SECTION 420 – CHAIN LINK FENCE**

Chain link fence shall conform to Section 420 of the MAG Uniform Standard Specifications except as modified herein.

**Subsection 420.1 – Description**

Add the following to this subsection:

The work under this section shall consist of constructing chain link fence and gates as shown on the plans. Fence shall be of the type and size shown on the plans and shall be constructed in accordance with the requirements of these specifications.

**Subsection 420.5 – Payment**

Replace this subsection with the following:

Payment for chain link fence shall be made at the basis of the price bid per lineal foot. Payment for chain link fence gate shall be made at the basis of the price bid per each. Price shall include all labor, materials, and equipment to install fence and gates including all incidental fence installation costs.

**ITEM 420-1 – 6' CHAIN LINK FENCE**

**ITEM 420-2 – 24' CHAIN LINK FENCE GATE**

Payment for break away fence shall be made at the basis of the lump sum price bid. Price shall include all labor, materials, and equipment to install fence, concrete pad, and all incidental fence installation costs.

**ITEM 420-3 – 6' BREAK AWAY FENCE**

**SECTION 430 - LANDSCAPING AND PLANTING**

Landscaping and planting shall conform to Section 430 of the MAG Uniform Standard Specifications and the City of Mesa Supplemental Specifications.

**Subsection 430.1 - Description:**

Add the following to this subsection:

The work under this section shall consist of furnishing all labor, materials and equipment to install native seed mix in the areas as shown on the plans.

**Subsection 430.2 - General:**

Add the following to this subsection:

Do not treat any area with a pre-emergence control that is to receive native seed mix.

**Subsection 430.3.4 - Seed Mix**

Add the following to this subsection:

Native seed mix shall be applied to the bottom and side slopes of the channel.

**Subsection 430.3.5 - Seedbed Preparation**

Add the following to this subsection:

Prior to placing any seed, the Contractor is to verify that rough and final grading is complete and has been accepted by Engineer.

Soil shall be scarified to a depth of 6". Finish surface for both equipment and hand tilled areas shall be left in a roughened condition as approved by the Engineer. This is the surface that would normally result from the tillage operations. Rocks larger than 3-inches in any dimension, trash, weeds, and other debris that will interfere with seeding or maintenance shall be removed or disposed of as directed by the Engineer.

Native seed mix areas shall be contour cultivated or chained to create horizontal furrows perpendicular to the direction of water flow.

Seed bed preparation shall be discontinued when soil moisture conditions are not suitable for the preparation of a satisfactory seed bed as determined by the Engineer.

**Subsection 430.3.6 - Application of seed mix**

Add the following to this subsection:

The native seed mix shall be installed per MAG and City of Mesa Supplements. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.

The tackifier shall be psyllium mucilloid-mesh with the following certificate of analysis: Moisture less than 9%, Ash less than 3%, Swell Volume 40 ml/gram - USP method, and Purity not less than 75%. The tackifier rate shall be 80 lbs per acre.

The hydromulch is to be green color, fibrous, wood cellulose mulch containing no growth or germination inhibiting factors, and shall be produced exclusively for the hydromulching process. It shall contain a minimum identifying agent of 2% of volume by weight. Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content.

The native seed mix and the application rates are listed below. Seeding rates are specified in pure live seed quantities (pls). The Contractor will provide to the Engineer certification of the quality of the pure live seed used in the native seed mixture. Any change to the seed mixture by substitution of any alternative species will require the approval of the Engineer.

Apply at the following rate of pounds of pure live seed per acre (pls/ac):

Aristida purpurea	3.0 pls/ac
Purple Three-awn	
Baileya multiradiata	2.5 pls/ac
Desert Marigold	
Sporobolis cryptandrus	1.5 pls.ac
Sand Dropseed	

Boutelous aristidordes	1.5 pls/ac
Needle Grama	
Ambrosia deltoidea	2.5 pls/ac
White Bursage	
Encelia farinosa	.25 pls/ac
Brittlebush	
Sphaeralcea ambigua	1.5 pls/ac
Desert Mallow	
Bouteloua gracilis	2.0 pls/ac
Desert Mallow	
Bouteloua rothrockii	1.0 pls/ac
Rothrock Grama	
Digitatira californica	3.0 pls/ac
Arizona cottontop	
Distichisis spicata	2.0 pls/ac
Desert Saltgrass	
Hilaria belangeri	2.0 pls/ac
Curly Mesquite	
Hilaria rigida	2.0 pls/ac
Big Galleta	
Pseudoroegneria spicata ssp. Inermis	3.0 pls/ac
Beardless bluebunch	
Sporobolus cryptandus	1.0 pls/ac
Sand Dropseed	

In addition, the following seed shall be included in the seed mix for the portion of the north branch of the Elliot Outfall Channel that is filled in:

Plantago insularis	3.5 pls/ac
Indian Wheat	
Atriplex lentiformis	1.0 pls/ac
Quailbush	
Atriplex polycarpa	.75 pls/ac
Desert Saltbush	
Larrea divaricata	5.0 pls/ac
Creosote	

Reseeding: If, in the opinion of the Engineer, unplanted skips and areas are noted after hydroseeding, the Contractor shall be required to seed the unplanted areas with the originally specified mix at no cost to the Owner.

**Subsection 430.3.7 - Acceptance:**

Add the following to this subsection:

At the end of the 120-day guarantee and maintenance period, the Engineer will make an inspection to determine acceptability of the native seed mix.

**Subsection 430.10 - Measurement and Payment**

Add the following to this subsection:

Payment for native seed mix shall be made on the basis of the unit price bid per square yard. This price shall be full compensation for all labor, materials, equipment, and all other items necessary and incidental to the application of the native seed mix, and the 120-day establishment and maintenance period.

#### **ITEM 430-1 - NATIVE SEED MIX**

### **SECTION 505 - CONCRETE STRUCTURES**

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

#### **Subsection 505.1 - Description**

Add the following to this subsection:

The work under this section shall consist of furnishing all labor, materials and equipment for the construction of all cast-in-place concrete structures including the concrete grade control structures, sediment trap, and channel lining as located and indicated on the plans.

Concrete shall conform to the requirements of Section 725 of the MAG Uniform Standard Specifications, and mix designs shall additionally meet the requirements of Chapter 5, Section 5.3 of ACI STANDARD 318-89. The Contractor shall submit mix designs and certifications of conformance with the above requirements for the written approval of the Engineer.

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

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

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

Shop Drawings shall be submitted for the following:

- Product Data: Admixtures, stains, and patching materials.
- Placement Drawings:
  - a. Concrete, identifying location of each type of construction joint.
  - b. Reinforcing steel.
- Plastic Type Water Stops: Details of splices to be used and method of securing water stop in the forms and supporting water stop so as to maintain proper orientation and location during concrete placement.

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

#### **Subsection 505.6 - Placing Concrete**

Add the following to this subsection:

Place concrete in accordance with ACI 301-89. Prior to placing concrete, remove loose soil and water from excavation and subgrade and debris and foreign material from forms. Obtain Engineer's approval of subgrade before placing reinforcing steel. Check reinforcing steel for proper placement and correct discrepancies. Before depositing new concrete on old concrete, clean surface using sandblast or bushhammer or other mechanical means to obtain a 1/4-inch rough profile. Maximum vertical drop to final placement shall be 6 feet, when not guided with chutes or other devices to prevent segregation caused by impact with reinforcing. Do not use aluminum pipe or aluminum conveying devices.

Steps performed in preparation for placing concrete shall meet requirements and recommendations of ACI 304R-89 and ACI 301-89, except as modified herein. Ends of chutes, piping, hopper gates, and other points of concrete discharge throughout the conveying, hoisting, pumping, and placing system shall be designed and arranged for concrete to pass without becoming segregated. Do not use chutes longer than 50 feet. The minimum slopes of chutes shall be angled to allow concrete to readily flow without segregation. Conveyor belts shall be approved by Engineer, wiped clean with a device that does not allow mortar to adhere to belt, and conveyor belts and chutes covered. Provide standby pump, conveyor system, crane and concrete bucket, or other system onsite during placing, for adequate redundancy to ensure completion of concrete placement without cold joints in case of a primary placing equipment breakdown. Minimum pump hose (conduit) diameter shall be 4 inches. Replace pumping equipment and hoses (conduits) that are not functioning properly.

Consolidate concrete with internal vibrators with minimum frequency of 8,000 cycles per minute and amplitude required to consolidate concrete in section being placed. Provide at least one standby vibrator in operable condition at placement site prior to placing concrete. Consolidation equipment and methods shall conform to the requirements of ACI 309R-87. Provide sufficient windows in forms or limit form height to allow for concrete placement through windows and for visual observation of concrete. Vibration consolidation shall not exceed a distance of 5 feet from point of placement. Vibrate concrete in vicinity of joints to obtain impervious concrete there.

When vibrating concrete, apply approved vibrator at points spaced not farther apart than vibrator's effective radius. Apply close enough to forms to vibrate surface effectively but not damage form surfaces. Vibrate until concrete becomes uniformly plastic. Vibrator must penetrate fresh placed concrete and into previous layer of fresh concrete below.

#### **Subsection 505.6.1 - Joints**

Add the following to this subsection:

Construction joints shall be constructed as straight joints and made either vertical or horizontal. Concrete placement shall commence after the joint preparation is complete.

For construction joints, prior to placement of abutting concrete, clean contact surface by removing laitance and spillage from reinforcing steel and dowels. Then roughen surface to a minimum of 1/4-inch amplitude by either sandblasting after the concrete has fully cured, water blasting after the concrete has partially cured, or if the concrete is green, cutting the fresh concrete with high pressure water and hand tools. Perform cleaning so as not to damage water stop, if one is present.

#### **Subsection 505.8 - Curing**

Add the following to this subsection:

Use one of the following methods as approved by Engineer.

1. Continuously sprinkle with water 100 percent of the exposed surface for 10 days starting immediately after concrete placement;
2. Cover with burlap or cotton mats and keep continuously wet for 10 days;
3. Cover with 1" layer of wet sand, earth, or sawdust, and keep continuously wet for 10 days;
4. Apply a liquid forming compound method (requires pre-approval of compound by the Engineer).

#### **Subsection 505.9 - Finishing Concrete**

Add the following to this subsection:

The finish of the concrete channel lining shall be a Class II Finish as outlined in Subsection 505.9.3.

**Subsection 505.10 - Payment**

Add the following to this subsection:

Payment for concrete grade control structures shall be made on the basis of the unit price bid for each. This price shall be full compensation for all labor, materials, reinforcing steel, riprap, equipment, excavation and backfill, and all other items necessary and incidental to construct the structures complete in place according to the plans and these Special Provisions.

**ITEM 505-1 – CONCRETE GRADE CONTROL STRUCTURE**

Payment for concrete sediment trap structure shall be made on the basis of the unit price bid for each. This price shall be full compensation for all labor, materials, reinforcing steel, equipment, excavation and backfill, and all other items necessary and incidental to construct the structures complete in place according to the plans and these Special Provisions.

**ITEM 505-2 – CONCRETE SEDIMENT TRAP**

Payment for concrete channel lining shall be made on the basis of the unit price bid per square yard. This price shall be full compensation for all labor, materials, reinforcing steel, weep holes, equipment, excavation and backfill, and all other items necessary and incidental to construct the structures complete in place according to the plans and these Special Provisions.

**ITEM 505-3 CONCRETE CHANNEL LINING**

**SECTION 703 – RIPRAP**

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

**Subsection 703.1 - Stone**

Add the following to this subsection:

In addition to the requirements of section 703.1, stone for riprap shall have a minimum apparent specific gravity of 2.4 per ASTM C-127.

Waste concrete shall not be used for riprap.

**Subsection 703.2 – Size of Stone**

Replace this subsection with the following:

The following requirements as listed in Table 703-1 that shall apply for plain riprap and the D<sub>50</sub> shall be 18 inches.

**Table 703-1**

<b>Rock Riprap Gradation Limits</b>	
<b>Stone Size (ft)</b>	<b>% Of Gradation Smaller Than</b>
1.5 D <sub>50</sub> to 1.7 D <sub>50</sub>	100
1.2 D <sub>50</sub> to 1.4 D <sub>50</sub>	85
1.0 D <sub>50</sub> to 1.15 D <sub>50</sub>	50
0.4 D <sub>50</sub> to 0.6 D <sub>50</sub>	15

**SECTION 725 - PORTLAND CEMENT CONCRETE**

Portland cement concrete shall conform to Section 725 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

**Subsection 725.2 - Portland Cement**

Add the following to this subsection:

Cement shall be Portland Cement, conforming to the requirements of ASTM C-150, Type V, or Type II with 15% or 20% flyash (Class F), or type 1P (ASTM C595) unless noted otherwise on the plans or in the specifications.

**Subsection 725.6 - Admixtures**

Add the following to this subsection:

When an air-entraining agent is authorized, the amount used will be limited to the extent that the amount of air by volume shall not be less than 4 percent or more than 6 percent. Air-entraining agents complying with AASHTO M-154 or ASTM C-260 will be permitted as long as strength requirements are met. Any admixture shall be measured accurately by mechanical means into each batch by equipment and in a method approved by the Engineer.

**APPENDIX IV**

**SUPPLEMENTARY GENERAL CONDITIONS**

## SUPPLEMENTARY GENERAL CONDITIONS

### SPECIFICATIONS:

Except as otherwise amended by these Supplementary General Conditions (SGC's) and the Construction Special Provisions (SP's), this project shall be constructed in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, dated 1998, and including revisions through 2004, and the City of Mesa Engineering and Design Standards (1999). All references herein to MAG refer to the Uniform Standard Specifications for Public Works Construction by the Maricopa Association of Governments 1998 edition, including all revisions through 2004.

Note that there are two Construction SP documents. One is for the Elliot Outfall portion of the project, one is for the Crismon Road Channel portion of the project. These SGC's apply to both portions of the project.

### PRECEDENCE OF CONSTRUCTION DOCUMENTS:

This Contract and its designated documents, whether taken separately or together, are to be interpreted according to full intent, meaning, and spirit, and shall be deemed to mutually explain each other and to be descriptive of any materials to be furnished and the work to be performed under this Contract. In cases of any difference or discrepancy between the Construction Documents, the order of precedence shall be (a) Addendum to the Invitation for Bid, (b) the Contract Agreement, (c) Supplementary General Conditions, (d) Special Provisions, (e) Project Plans, and (f) MAG Uniform Standard Specifications and Uniform Standard Details. In specific cases where the City of Mesa Standard is specified in the plans, they shall supersede the Maricopa Association of Governments Uniform Standard Specifications.

### SECTION 101 - ABBREVIATIONS AND DEFINITIONS

Abbreviations and definitions shall conform to Section 101 of the MAG Uniform Standard Specifications except as modified herein.

#### **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 "Construction 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 Division Manager of Planning and Project Management of the Flood Control District of Maricopa County.

5. Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that 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.

#### **SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS**

Bidding requirements and conditions shall conform to Section 102 of the MAG Uniform Standard Specifications except as modified herein.

##### **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, is included in Appendix A of the Construction Documents. 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 Proposal**

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 will govern.

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

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

##### **Subsection 102.6 - Subcontractor's 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 Owner's 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 Owner's bond forms are not used.
- (I) If the entire book of Construction Documents (less the plans) is not returned.
- (J) If the statement from bidder's insurance carrier as required by Subsection 103.6 is not included.

**SECTION 103 - AWARD AND EXECUTION OF CONTRACT**

Award and execution of contract shall conform to Section 103 of the MAG Uniform Standard Specifications except as modified herein.

**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. If countersigned by an agent, the letter shall include the name of the insurer. 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 insured 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 of the Construction Documents.

**SECTION 104 - SCOPE OF WORK**

Scope of work shall conform to Section 104 of the MAG Uniform Standard Specifications except as modified herein.

Crismon Channel Portion: This portion of the project is located on the west side of the Crismon Road alignment from 1/8 mile north of Elliot Road to 1/2 mile north of Elliot Road, to the SRP transmission line corridor. This portion of the project will consist of extending the earthen trapezoidal channel south from the Mesquite Canyon development for approximately 1900 lf, constructing a concrete channel

transition and splitter structure and connecting the splitter structure outfall box and pipe to the existing drainage facilities constructed in an earlier phase of this project. Construction of these facilities shall include grading, drainage structures, landscaping and irrigation as shown on the plans.

Elliot Outfall Channel Portion: This portion of the project is located on the west side of Ellsworth Road, approximately 1/4 mile south of Elliot Road, extending to the Santan Freeway East Drainage Channel. This portion of the project will consist of extending the earthen trapezoidal channel southwest from the culvert crossing of Ellsworth Road for approximately 2600 lf, constructing concrete grade control structures and filling a temporary channel for approximately 1200 lf. Construction of these facilities shall include grading and grade control structures as shown on the plans.

The geotechnical report prepared for this project by Speedie and Associates is included in Appendix A of the Construction Documents.

The Owner and Contractor shall have Milestone meetings at times agreed upon during the pre-construction meeting. These meetings shall be held prior to work commencing at intersections and all major work elements. The Engineer's approval shall be obtained before commencing work.

#### **Subsection 104.1 - Work to be Done**

Add the following:

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.

Inspection and Testing:

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

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

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

#### **Subsection 104.2 - Alteration of Work**

Add the following subsection:

##### **Subsection 104.2.3 - Change**

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 workdays 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 - Alteration of Work**

Add the following subsection:

**Subsection 104.2.4 - Cost Estimates or Price Proposals**

The Contractor and any lower-tier Subcontractors shall submit itemized cost estimates or price proposals for any Owner-directed change order or Contractor-initiated claim.

Cost estimates or pricing proposals shall be itemized to include direct labor by man-hours, individual craft, hourly wage rate and verifiable labor burden. Other direct costs shall include rental 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 - Alteration of Work**

Add the following subsection:

## Subsection 104.2.6 - Value Engineering

### (A) General

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

### (B) Definitions

- (1) **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.
- (2) **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.
- (3) **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).
- (4) **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.

- (1) All submissions (plans, specifications, etc.) that involve an engineering change to the original construction plans and specifications shall be sealed by an Engineer registered in the State of Arizona.

**(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.

**SECTION 105 - CONTROL OF WORK**

Control of work shall conform to Section 105 of the MAG Uniform Standard Specifications except as modified herein.

**Subsection 105.1 - Authority of Engineer**

Add the following subsection:

**Subsection 105.1.1 - Engineers Evaluation:**

Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subsections 105.2, 105.3.1 and 106.4 (B) (contained herein). 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. District may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any or equal or substitute. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutes proposed or submitted by Contractor pursuant to subparagraphs 105.3.1 and 106.4(B) (contained herein) and in making changes in the Construction Documents (or in the provisions of any other direct contract with District for work on the project) occasioned thereby. Whether or not Engineer accepts a substitute item so proposed or submitted by Contractor, Contractor shall reimburse District for the charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute item.

All submissions (plans, specifications, etc.) prepared and/or submitted by the Contractor that involve an engineering change to the original construction plans and specifications shall be sealed by an Engineer registered in the State of Arizona.

**Subsection 105.2 - Plans and Shop Drawings:**

Add the following:

- A) **Shop drawings** means drawings, submitted to the Engineer by the Contractor pursuant to the contract, showing in detail (i) the proposed fabrication and assemble 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 Construction 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 Construction Documents. The procedure for review by Engineer will be similar to that provided in subparagraph 106.4(B).

### **Subsection 105.5 - Cooperation of Contractor**

Add the following subsection:

#### **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 strengths 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. In order to achieve the desired partnering relationships, the Contractor will need to encourage attendance by its major Subcontractors on the project. The contractor shall be responsible for the scheduling, coordinating and hiring of a third party partnering facilitator, and planning all of the partnering meetings in consultation with the engineer. Follow-up workshops will be held periodically throughout the duration of the contract as agreed to by the Contractor and Owner. The Owner will be responsible to notify and coordinate attendance at the partnering meetings by other agencies.

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, nonbinding 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, and will be for a total amount not to exceed the amount shown in the bid schedule:

**ITEM 105-1 – PARTNERING ALLOWANCE**

**Subsection 105.5 - Cooperation of Contractor**

Add the following subsection:

**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) Manufacturer's certification for all materials
- 2) Material data safety sheets
- 3) Preliminary work schedule
- 4) Preliminary traffic control plan
- 5) Shop drawings
- 6) Emergency telephone numbers
- 7) Signing authority letter
- 8) Name and telephone number of the certified safety professional
- 9) Any other documents specified in the SP's or SGC's

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 - Cooperation of Contractor**

Add the following subsection:

**Subsection 105.5.3 -Construction Progress Meetings**

The Owner shall schedule construction progress meetings weekly, or as considered necessary. 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 utilities and drainage pipes, culverts, and structures; however, it shall be 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 the 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. Contractor shall contact Arizona Blue Stake (telephone number 602-263-1100, 800-782-5348) a minimum of two (2) working days before beginning any underground work. In addition, Blue Stake notification(s) shall be maintained on a current basis. The Contractor is to protect in place any utilities that are not designated as "to be relocated by others."

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

- Flood Control District of Maricopa County,  
Construction Branch Manager .....602-506-4728
- Qwest Communications  
Al Soto .....602-630-3706
- Salt River Project (Electrical)  
Greg Wilson .....602-236-8643
- City of Mesa Engineering  
Kelly Jensen .....480-644-4254
- Southwest Gas  
Gene Florez .....602-484-5302
- City of Mesa Utility Operations  
Jim Neibergall .....480-644-2518
- Location Staking (A.P.S., Qwest, S.R.P.)  
Blue Stake .....602-263-1100 or 800-782-5348

**Electrical Service**

This project lies within the SRP electrical service area. No grading within 25' of power poles will be allowed without prior approval by SRP.

**Subsection 105.8 - Construction Stakes, Lines, and Grades**

Add the following:

- A. All surveying required for the project shall be the Contractor's responsibility. Engineer will not set any construction stakes.
- B. 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.
- C. 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.

#### **SECTION 106 - CONTROL OF MATERIALS**

Control of materials shall conform to Section 106 of the MAG Uniform Standard Specifications except as modified herein.

##### **Subsection 106.1 - Source of Materials and Quality**

Add the following:

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

##### **Subsection 106.4 - Trade Names and Substitutions**

Replace with the following:

Whenever an item of material or equipment is specified or described in the Construction Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quantity required. Unless the specification or description contains or is followed by words 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 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. Engineer will not accept requests for review of proposed substitute items of material or equipment 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 Construction Documents (or in the provisions of any other direct contract with District 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.
- (D) If the final placement of a product will remain the property of the municipality or utility and/or owned by the municipality or utility, that entity is responsible for issuing written approval for any equivalent or "or-equal" products. The Contractor or Supplier will submit to that entity the request and documentation for written approval of a product substitution. The Contractor will provide the entity" written approval to the Engineer at the Pre-Construction Meeting.

**Subsection 106.5 - Storage of Materials**

Add the following subsection:

**Subsection 106.5.1 - Contractors Marshaling Yards**

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 that are disturbed by construction or construction related activities to a condition similar to or better than the pre-existing condition.

**SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

Legal relations and responsibility to public shall conform to Section 107 of the MAG Uniform Standard Specifications except as modified herein.

**Subsection 107.1 - Laws to be Observed**

Add the following Paragraph (G):

- (G) Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations (29 CFR Part 5). Contractor shall also comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including CFR Parts 35 and 36.

**Subsection 107.2 - Permits:**

Replace with the following:

Contractor shall obtain all permits and licenses, including those required by the City of Mesa, State of Arizona, Maricopa County, U.S. Government, or any other local or federal agency, and shall pay all charges, fees, taxes and provide all notices necessary and incidental to the due and lawful prosecution of the work. The Owner has applied for and obtained the necessary 404 Permit. A copy of the permit and associated stipulations is provided in Appendix "B". The Contractor will review and abide by the permit and stipulations.

In particular the Contractor will obtain all necessary AZPDES and SWPPP permits as required and in accordance with subsection 107.2.1.

**Subsection 107.2.1 - AZPDES Permit Requirements:**

Add the following:

- A. This project is subject to the Arizona Pollutant Discharge Elimination System (AZPDES) storm water requirements for construction sites under the Arizona Department of Environmental Quality's (ADEQ's) General Permit for Arizona. Under provisions of that permit, the Contractor shall be designated as permittee, and shall take all necessary measures to assure compliance with the AZPDES General Permit for Arizona as well as all other applicable Federal, State and local laws, ordinances, statutes, rules and regulations pertaining to Storm water discharge. As the permittee, the Contractor is responsible for preparing, in a manner acceptable to the ADEQ, all documents required by this regulation, including but not necessarily limited to:
  - 1. Storm Water Pollution Prevention Plan (SWPPP) for the project, including certification of compliance form. Contractor shall be required to develop, implement, update and revise the SWPPP, as necessary, in order to assure compliance with the ADEQ permit requirements. The SWPPP shall be retained on the project site at all times during construction.
  - 2. Notice of Intent (NOI) to assure compliance with the AZPDES General Permit for Arizona, including certification of signatures.
  - 3. Notice of Termination (NOT) of coverage under AZPDES General Permit for Arizona.
- B. The Contractor shall submit the completed and duly signed NOI forms to ADEQ no later than seven (7) business days after the contract award. Proof of the submittal date must be provided to the Owner. If the work is within ¼ mile of an Impaired or Unique Water, the SWPPP needs to be submitted with the NOI to ADEQ. If the location is farther away than that, no SWPPP needs to be submitted to ADEQ but it still must be available on site.
- C. When the discharge is to an Impaired or Unique Water or is in or near endangered species habitat as identified by ADEQ's smart NOI permitting system, applicants are not authorized under this permit for a minimum of 32 business days following the receipt of the NOI and SWPPP. ADEQ may notify operators within this timeframe that there is cause for SWPPP amendment, or denial of coverage as specified in Parts 1.D.5 and 1.D.6. of the general permit. If notification is not received in the thirty-two (32) business day time-frame, the Contractor may assume coverage under this permit according to ADEQ requirements. Contractor must notify Owner of the status of the NOI prior to commencing work. The applicant shall submit the NOI (application) to:

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

If the facility has the potential to discharge to a municipal separate storm sewer system (MS4), the applicant must also forward a copy of the completed NOI to the owner/operator of the MS4 system at the time it is submitted to the Department.

City of Mesa  
Building Safety Department  
50 North Center Street  
Mesa, AZ 85211  
(480) 644-3145

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

- D. Inspections of all Storm water pollution control devices on the project shall be performed by Contractor every 7 days or at least once every 14 calendar days, and also within 24 hours of the end of a storm event of 0.50 inches or greater as required under provisions of the AZPDES General Permit for Arizona. A reduced inspection frequency may be used provided the conditions in Part IV.H.2. of the general permit have been met. Contractor shall prepare reports on such inspections and retain the reports for a period of three years after permit coverage expires or is terminated. Inspection reports shall be submitted monthly to Owner along with progress payment requests. Additionally, Contractor shall maintain all Storm water pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project.
- E. Contractor warrants that its employees and Subcontractors of any tier and their employees shall at all times comply with all applicable laws, ordinances, statutes, rules and regulations set forth by all federal, state and local governments and the Arizona Department of Environmental Quality in connection with AZPDES Permitting requirements and laws and regulations pertaining to air, groundwater and surface water quality.

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

- F. Upon project completion, acceptance and demobilization, Contractor shall submit its completed, duly executed NOT form to the Arizona Department of Environmental Quality at the address listed in Section (C) above, thereby terminating all AZPDES permit coverage for the project. Contractor shall then surrender to Owner copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance of the AZPDES General Permits. 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 of fifty percent (50%) for this bid item shall be made at the beginning of the project, and the remaining payment made upon final completion and acceptance of the project, as per MAG Section 109.1.

H. Copies of all required forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control." The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009. For appropriate guidance and forms as provided by ADEQ the Contractor should refer to the ADEQ website at: <http://www.adeq.state.az.us/environ/water/permits/stormwater.html#const>.

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

**ITEM 107-1 - AZPDES/SWPPP PERMITS**

**Subsection 107.2 - Permits**

Add the following subsection:

**Subsection 107.2.2 - Hauling and Grading Permit**

A haul plan must be reviewed and approved by the City of Mesa (the contact person with the City of Mesa is Mr. Kelly Jensen at (480)644-4354). When the quantity of fill or excavation to be hauled exceeds 10,000 cubic yards, or when the duration of the haul is for more than 20 working days (i.e., Monday through Friday, inclusive), it shall be unlawful to haul, or cause to be hauled, fill or excavation, by truck, except upon the issuance of a haul route and construction permit by the City of Mesa for such conditions as may reasonably be necessary to prevent creation of a nuisance or hazard to the public. Such conditions may include, but not be limited to:

1. Designation of specific routes to be used.
2. Designation of specific locations and times of day access will be made to and from public right-of-way.
3. Provision for safety precautions, such as the use of barricades, warning or traffic signs, flagmen, or police officers for traffic control.
4. Payment of a cash bond in the amount of five hundred dollars (\$500) in order to secure the cost of the removal of any spillage of fill or excavation and the cleaning of the right-of-way by the City, such bond to be returned to the applicant if no spillage occurs or if any spillage is removed and the right-of-way cleaned by the applicant to the satisfaction of the City Engineer.
5. Any violation of the terms or conditions of the permit shall be sufficient grounds for the City Engineer to revoke the permit.

#### **Subsection 107.4 - Archeological Reports**

Add the following:

Any cultural and/or paleontological resource (historic 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 - Safety Health and Sanitation Provisions**

Add the following:

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

#### **Subsection 107.5 - Safety Health and Sanitation Provisions**

Add the following subsection:

##### **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 District-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 - Safety Health and Sanitation Provisions**

Add the following subsection:

##### **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 the 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 – Public Convenience and Safety**

Add the following subsection:

#### **Subsection 107.6.3 - Public Information and Notification**

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 be expected 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 for this project 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 the following:

1. Distributing a pre-construction information letter to all residences, businesses, schools, etc. within an area one block radius of the storm drain construction zone.
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 routes 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.

At a date agreed upon between the Engineer and Contractor, and 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
9. City of Mesa Street Transportation 24-hour phone number.

The plan and work which is eligible for reimbursement shall include the following: meetings with impacted businesses, schools, emergency services and residents, scheduling, preparation and distribution of newsletter (at the discretion of the engineer), 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 five percent (5%) of the accumulated total invoiced billing for actual public information services provided by a Subcontractor. This cost for administration and supervision will be considered included in the "PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE".

#### **ITEM 107-2 - PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE**

##### **Subsection 107.6 - Public Convenience and Safety**

Add the following subsection:

###### **Subsection 107.6.4 - Project Signs**

Contractor shall provide and install project information signs, one at each project area before beginning construction to inform the public of the forthcoming project, construction dates, and suggested alternate routes. Project signs shall include the names of all agencies participating in the project. Signs shall not be constructed or installed prior to approval by the Engineer of their designs, sizes and proposed locations. 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. A sample of project sign information is attached herein.

#### **ITEM 107-3 - PROJECT SIGNS ALLOWANCE**

##### **Subsection 107.8 - Use of Explosives:**

Add the following:

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

##### **Subsection 107.9 - Protection and Restoration of Property:**

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.

##### **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. Contractor is advised that the work will be subject to flows of water of varying amounts. An existing drainage system collects stormwater and discharges it from the storm drains under Ellsworth Road, 1500' south of Elliot Road. These storm drains direct water into the Elliot Outfall Channel portion of the project. In addition, sheet flow occurs across the desert in the vicinity of the project. The District assumes no responsibility for notifying Contractor of any anticipated flows, or for any damages incurred by the Contractor to its equipment or to any of the Contractor's work as a result of any flows of water.

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

### **SECTION 108 – COMMENCEMENT, PROSECUTION AND PROGRESS**

Commencement, prosecution and progress shall conform to Section 108 of the MAG Uniform Standard Specifications except as modified herein.

#### **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 150 calendar days beginning with the date specified in the Notice to Proceed. This includes the time necessary to fabricate the pipe. No time extension will be granted for pipe fabrication and delivery.

#### **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 for review before starting work, using the Primavera or other program that is acceptable to the Engineer. Weekly updates shall be submitted to District's Construction Coordinator 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**

Add the following subsection:

Contractor shall furnish the Engineer an Estimated Billing Schedule for the total project at the preconstruction conference, and thereafter at monthly intervals as agreed to between Contractor and Engineer.

#### **Subsection 108.5 - Limitation of Operations**

Add the following:

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

#### **Subsection 108.9 - Failure to Complete on Time**

Add the following:

The actual cost per calendar day incurred by District for Consultant Administrative and Inspection Services on this project will be added to the daily charges as indicated by MAG, TABLE 108,

LIQUIDATED DAMAGES, and will be deducted from monies due or to become due to 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 Engineer. Nothing contained in this provision shall prohibit District from deducting from monies due or to become due to Contractor for any other costs incurred by District directly attributable to the delay in completing this contract.

### **SECTION 109 – MEASUREMENTS AND PAYMENTS**

Measurements and payments shall conform to Section 109 of the MAG Uniform Standard Specifications except as modified herein.

#### **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 necessary 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 MAG 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 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. Contractor shall pay any such taxes or fees.

#### **Subsection 109.7 - Payment for Bond Issue and Budget Projects**

Add the following.

- (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 completed and sealed As-Built Plans and 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 Engineer shall provide the form of Certificate of Performance to Contractor.

(B) Delete second and third paragraphs and replace with: The final payment will be made to Contractor by District within thirty (30) days following receipt of the As-Built Plans, Certificate of Performance, Engineer's final estimate, and receipt by District of Consent of Contractor's Surety to said final payment. If payment will be longer than thirty (30) days as aforesaid, District will provide Contractor specific written findings for reasons justifying the delay in payment.

(C) The Contractor's monthly pay estimate will be processed by the Owner's Construction Branch during the last week of the month.

**Subsection 110 – Notification of Changed Conditions and Dispute Resolution:**

Delete in its entirety and replace with the following:

The Contractor and Owner shall follow the established rules in the Maricopa Procurement Code.

**SECTION 111 – MOBILIZATION**

**Add this section to the MAG Uniform Standard Specifications.**

Mobilization shall conform to Section 202 of the MAG Uniform Standard Specifications except as modified herein.

**Subsection 111.1 - Description**

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

**Field Office**

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

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

The field office shall be an approved and weatherproof building or mobile trailer providing a minimum of 500 square feet of clear floor space, not including the toilet area. The structure shall have a minimum ceiling height of 7 feet and shall be provided with weatherproof doors equipped with 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 minimum illumination level at desk height level.
- b. Heating & Cooling - Adequate electrically powered equipment to maintain an ambient air temperature of 72 degrees Fahrenheit plus or minus 8 degrees.

- c. Telephone - One telephone and two outside lines for the exclusive use of the Engineer. The Contractor will pay for the cost of the line and local calling charges. The District will pay for long distance charges made on these lines. The Contractor will install an answering machine for the exclusive use of the Engineer or provide an answering service for the duration that the field office is in operation.
- 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 service.
- e. Maintenance - The contractor shall maintain all facilities and furnished equipment in good working condition. Field office and toilet area shall be cleaned weekly.
- f. Fire Extinguisher - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Inc. approval for Class A, Class B, and Class C fires with a minimum rating of 2A: 20B: 10C.
- g. Electricity - Contractor shall provide electric power and pay for all electric services.
- h. Furnishings - Two office desks with drawers, four office chairs (padded, swivel type), one drafting table (adjustable height) 3 feet by 6 feet, one conference table, eight folding chairs, and one draftsman's stool.
- i. Fax, Printer, Copier - Contractor shall provide a 3 in 1 fax, printer and copier for the exclusive use of the Engineer.
- j. First Aid Kit. Contractor shall provide a First Aid Kit.
- k. Potable water Supply or Service. Contractor shall provide a potable water supply and pay for all water service.

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

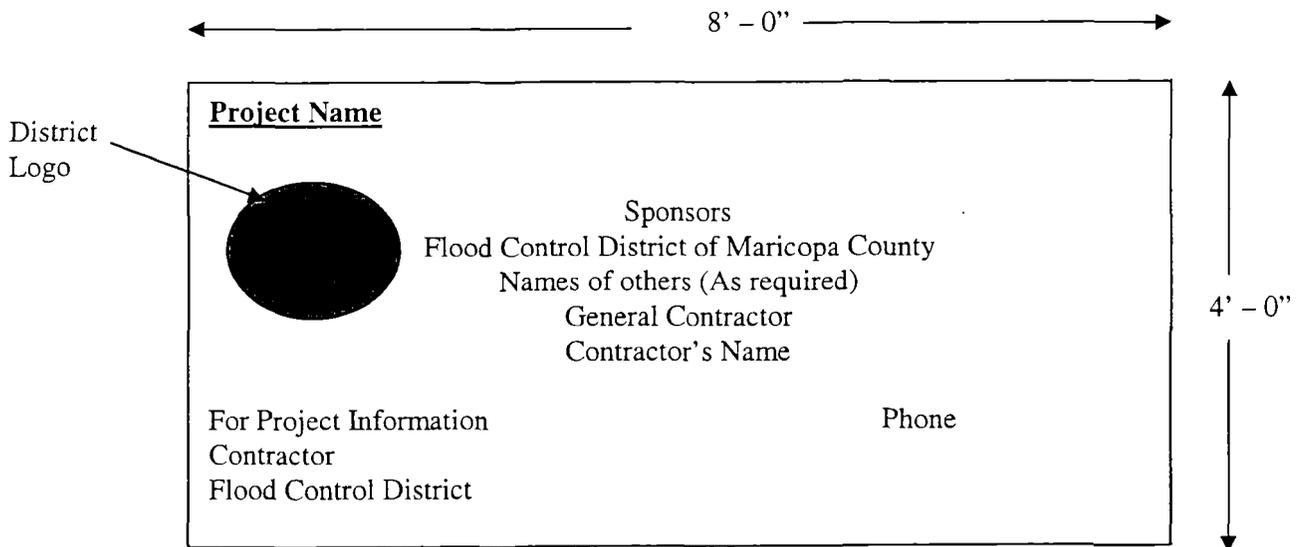
All facilities shall be maintained in good operating condition and appearance by the Contractor for the designated period. After which, all portable buildings or trailers, fencing, surfacing, and utilities shall be removed from the site, the areas cleaned and seeded, if required, and left in a neat and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

**Subsection 111.1 - Payment**

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

**ITEM 111-1 - MOBILIZATION**

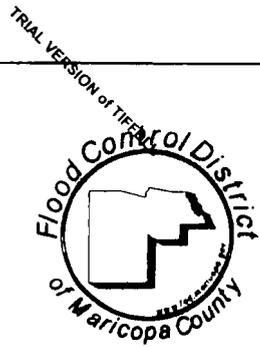
Project Sign Information



1. Background of Sign to be White
2. Text to be Forest Green
3. Logo Supplied by the Flood Control District
4. For other information contact Construction Branch Manager at 602-506-4728

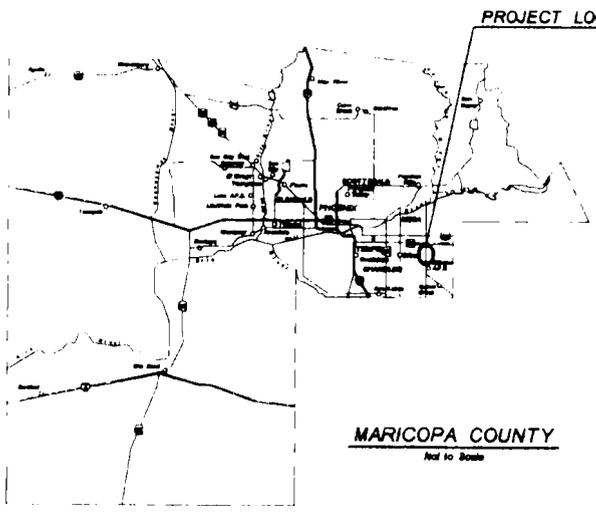
**APPENDIX V**

**CONSTRUCTION PLANS**

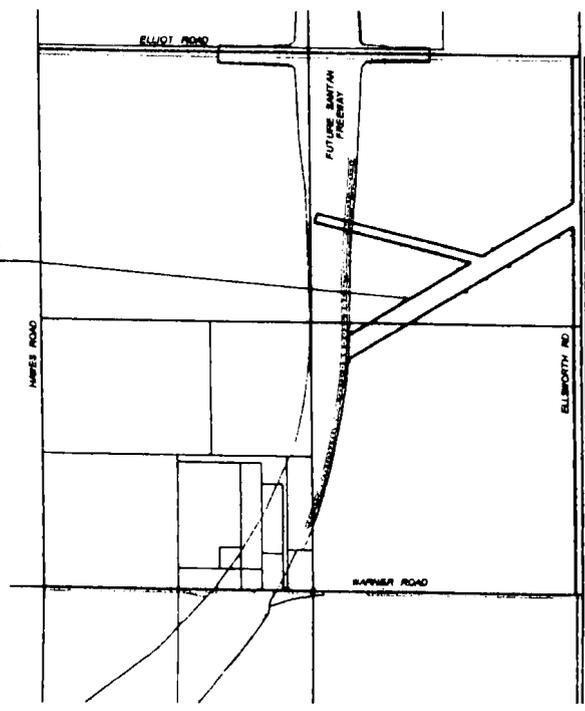


# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF MESA  
 AND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION  
 PLANS FOR THE CONSTRUCTION OF  
 ELLIOT OUTFALL CHANNEL  
 FCD PROJECT CONTROL NO. 4420431  
 FCD CONTRACT NO. 2004C038



PROJECT LOCATION



**VICINITY MAP**  
Not to Scale



*[Signature]*  
 CITY OF MESA DATE 11/19/04  
*[Signature]*  
 MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION DATE 11/19/04

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
 ISSUED FOR PUBLIC BIDDING BY

CHIEF ENGINEER AND GENERAL MANAGER  
 THE FLOOD CONTROL DISTRICT

ANDY KUNASEK - CHAIRMAN

DISTRICT 1	FULTON BROOK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX



TRIAL VERSION of TIFFDLL

GENERAL NOTES

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1988 AND REVISIONS THROUGH 2003
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKE AT THE BLUE STAKE CENTER CENTER (PHONE: 1800-STAKEIT)
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION
6. THE FLOOD CONTROL DISTRICT OR CITY OF MESA IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURAL BACKFILL
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH MAG SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (1988 EDITION) INCLUDING REVISION 3 DATED SEPTEMBER 3, 1993
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEEP CLEAN OF ALL DIRT AND DEBRIS
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION
14. ALL COMPACTION AND BACKFILL WITHIN COUNTY RIGHT-OF-WAY SHALL CONFORM TO THE SPECIAL PROVISIONS FOR CONSTRUCTION OF STREET IMPROVEMENTS AND INSTALLATION OF UNDERGROUND UTILITIES. BACKFILL UNDER ANY EXISTING OR PROPOSED PAVEMENT, CURB, GUTTER OR WITHIN TWO FEET (2') OR LESS FROM THE EDGE OF PAVEMENT SHALL CONSIST OF AGGREGATE BASE COURSE (ABC) MATERIAL

STRUCTURAL NOTES

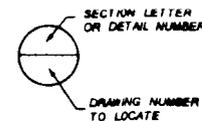
1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARDS DETAILS, SPECIFICATIONS, DATED 1988, INCLUDING ALL REVISIONS THRU 2003
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A816 GRADE 60
4. STRESSES -  $f_s = 24,000$  PSI - GRADE 60 REINFORCING STEEL
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO THE CENTER OF BARS UNLESS OTHERWISE NOTED
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISION 1988
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWING
10. CHAMFER ALL EXPOSED CORNERS 3/4" UNLESS OTHERWISE NOTED
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3,000 PSI MAX, UNLESS OTHERWISE NOTED

INDEX OF SHEETS

DRAWING NO	TITLE	SHEET NO.
Q1	COVER SHEET & VICINITY MAP	1
Q2	GENERAL NOTES & INDEX OF SHEETS	2
Q3	LEGEND SHEET	3
Q4	GEOMETRIC LAYOUT	4
Q5	TYPICAL SECTIONS	5
Q51	QUANTITY SUMMARY	6
D1-D4	DETAIL SHEETS	7-10
C01-C05	CIVIL/CONSTRUCTION SHEETS	11-15
X501-X506	CROSS SECTION SHEETS	16-20

ABBREVIATIONS

CST	CONSTRUCTION
DN	DOUBLE
DESC	DESCRIPTION
EQ	EQUAL
FOC	FIBER OPTIC CABLE
G	GUTTER ELEVATION
OP	OVERHEAD ELECTRIC
P	PAVEMENT ELEVATION
PG	PAGE
P/L	PROPERTY LINE
PRV	PRIVATE
SPG	SPACING
STR	STRUCTURE
UGT	UNDERGROUND TELE CABLE
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB ELEVATION
TW	TOP OF WALL ELEVATION
TG	TOP OF GRATE ELEVATION



PROJECT BENCHMARKS

FD BC IN HH  
 @ Elliot Rd & E Newarth Rd  
 EL 1403.00

DESIGN DISCHARGES  
 Design Q = 1,100 CFS

NO.	REVISION	BY	DATE
1			
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION ELLIOT OUTFALL CHANNEL FCD PROJECT NO. 4420431			
		BY	DATE
		DESIGNED: JVA	07/04
		DRAWN: PJC	07/04
		CHECKED: BLS	07/04
DRAWING NO	GENERAL NOTES	SHEET OF	
02	INDEX OF SHEETS	2 20	

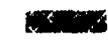
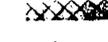
TRIAL VERSION of TFDOL

# LEGEND SHEET

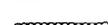
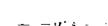
## SYMBOLS

-  Brass Cap in Hand Hole
-  Benchmark
-  Brass Cap
-  Bush
-  Cactus
-  Catch Basin
-  Chiseled Square
-  Miscellaneous Control Point
-  Check Shot
-  Electric Manhole
-  Electric Meter
-  Elevation Reference Mark
-  Fire Hydrant
-  GDAC
-  Gas Meter
-  Gas Valve
-  Iron Pipe
-  Irrigation Manhole
-  Light Pole
-  Palm Tree
-  Power Pole
-  Rebar
-  Rebar With Cap
-  Section Corner
-  Storm Drain Manhole
-  Proposed Slope Indicator
-  Existing Slope Indicator
-  Sanitary Sewer Manhole
-  Telephone Manhole
-  Telephone Pole
-  Tree
-  Transmission Tower
-  Well
-  Water Manhole
-  Water Meter
-  Water Valve

## SYMBOLS

-  Flow Direction
-  Proposed Concrete Sidewalk or O&M Road
-  Soil Cement
-  Proposed Asphalt Pavement
-  Asphalt Pavement Removal
-  Grade Break
-  Sawcut & Match
-  Connector Pipe Profile No.
-  Protect In Place

## LINESTYLES

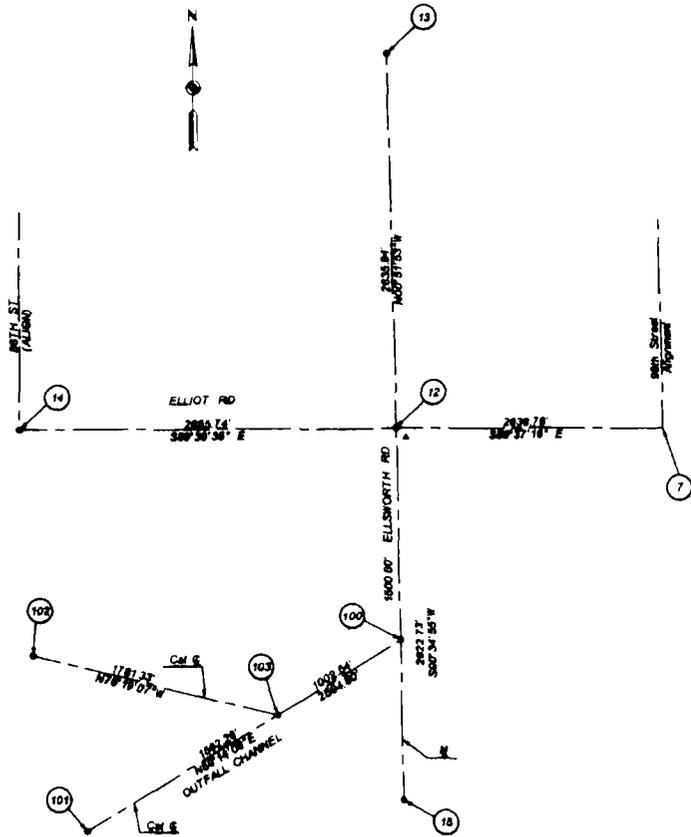
-  Centerline
-  Cut Line
-  Fiber Optic Line
-  Fill Line
-  Forest/Indian Reservation Line
-  High Pressure Gas Line
-  Irrigation Line
-  Proposed Chain Link Fence Line
-  Proposed Fence Line
-  Proposed Gas Line
-  Proposed Overhead Power Line
-  Proposed Overhead Telephone Line
-  Proposed Retaining Wall
-  Proposed ROW
-  Proposed Sanitary Sewer Line
-  Proposed Underground Power Line
-  Proposed Underground Telephone Line
-  Proposed Underground Cable Television Line
-  Proposed Water Line
-  Proposed Wood Fence Line
-  Proposed Storm Drain (width varies 72" pipe shown)
-  Section Line
-  Temporary Construction Easement
-  Tree Line
-  Wash Flow Line
-  Existing Water Surface Elevation (Profile Views Only)
-  Proposed Water Surface Elevation (Profile Views Only)
-  Existing Block Wall
-  Existing Chain Link Fence Line
-  Existing Fence Line
-  Existing Gas Line And Size
-  Existing Left Guardrail
-  Existing Right Guardrail
-  Existing Irrigation Line
-  Existing Overhead Power Line
-  Existing Overhead Telephone Line

## LINESTYLES

-  Existing Retaining Wall
-  Existing Edge Of Paved Road
-  Existing ROW
-  Existing Sanitary Sewer Line
-  Existing Storm Drain Pipe And Size
-  Existing Underground Power Line
-  Existing Underground Telephone Line
-  Existing Underground Cable Television Line
-  Existing Water Line And Size
-  Existing Wood Fence Line

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY SUBSURFACE DIVISION									
<b>ELLIOT OUTFALL CHANNEL          FCD PROJECT NO. 420431</b>									
		BY: _____ DATE: _____		BY: _____ DATE: _____		BY: _____ DATE: _____		BY: _____ DATE: _____	
DRAWING NO. 63		LEGEND SHEET SYMBOLS AND LINESYLES				SHEET OF 3 20			

TRIAL VERSION of TIFD/L



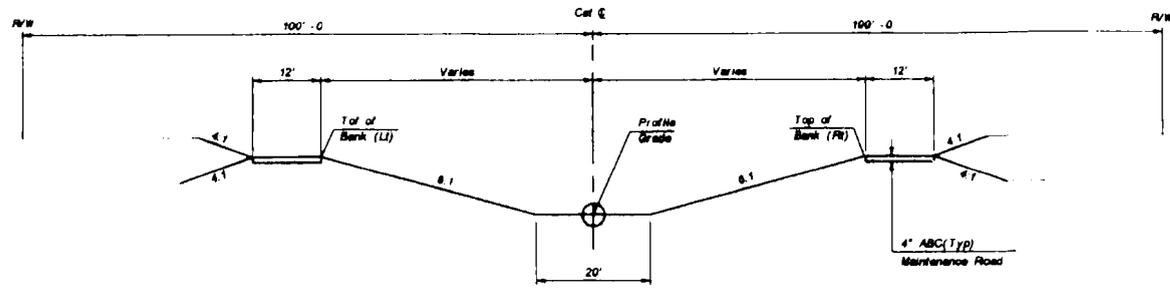
▲ Project Benchmark

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
7	866,026.14	788,428.07	1414.30	Railroad Spike Centerline Elliot Rd & 80th St Alignment
▲ 12	866,042.58	785,788.34	1403.00	BC in HH Centerline Elliot Road & Ellsworth Rd
13	867,676.33	785,748.58	--	BC in HH Centerline Ellsworth Rd & Patena Ave Alignment
14	868,058.38	782,130.65	--	BC in HH Centerline Elliot Road & 80th St Alignment
15	852,420.00	785,708.70	--	BC in HH Centerline Ellsworth Rd & Mesquite St Alignment
100	853,542.87	786,771.10	--	Control Point
101	862,216.42	783,541.48	--	Control Point
102	863,198.73	782,751.40	--	Control Point
103	862,776.41	784,482.19	--	Control Point

NOTES  
Elevations are on City of Mesa Datum

NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> ENGINEERING DIVISION			
<b>ELLIOT OUTFALL CHANNEL</b> FCD PROJECT NO. 4430431			
	DESIGNED BY CHECKED BY APPROVED BY	DATE 09/04 09/04 09/04	
DRAWING NO. 04	GEOMETRIC LAYOUT	SHEET OF 4	00

TRIAL VERSION of TIFDILL

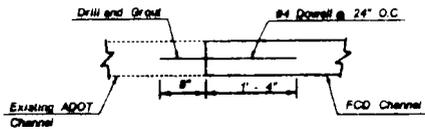
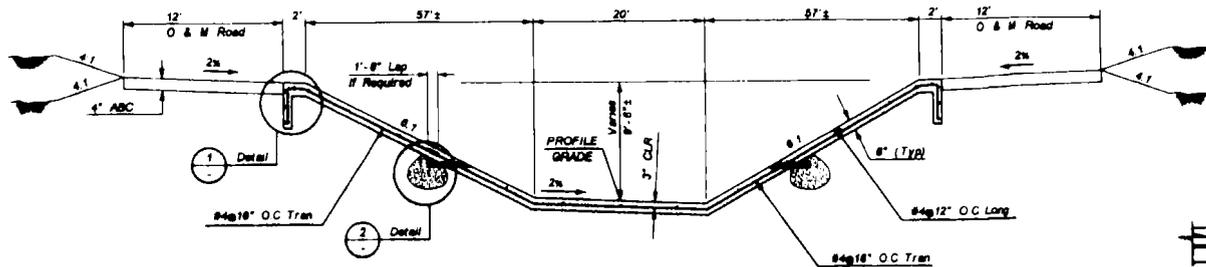


TYPICAL SECTION  
NTS

REVISION		BY	DATE
 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY <small>DESIGN/PLANNING DIVISION</small>			
ELLIOT OUTFALL CHANNEL FCD PROJECT NO. 4420431			
	DESIGNED BY	DATE	
	CHECKED BY	DATE	
	APPROVED BY	DATE	
DESIGNED NO.	TYPICAL SECTION		SHEET OF
06			5 20

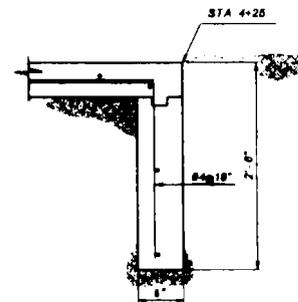


TRIAL VERSION of TIFDILL

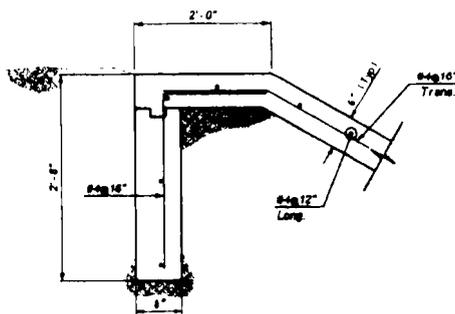


JOINT DETAIL

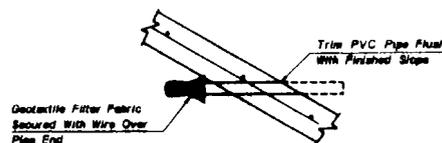
TYPICAL SECTION  
NTS



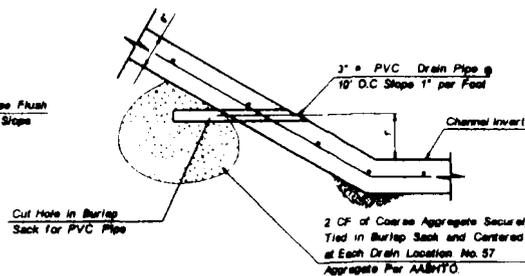
CUTOFF WALL DETAIL  
NTS



CUTOFF WALL DETAIL  
NTS



WEEP-HOLE  
PIPE DETAIL

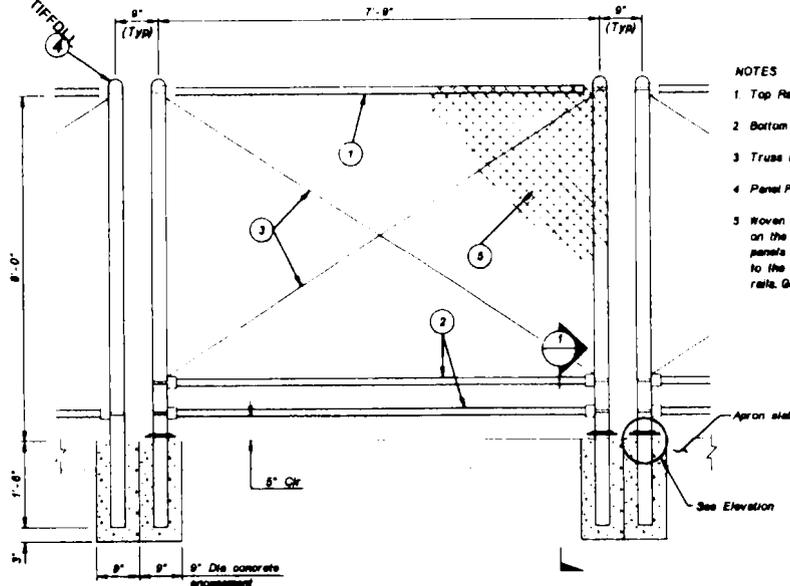


NOTE  
Any construction joints shall be a minimum of 2' above the channel invert.

NO.	REVISION	BY	DATE
1			
 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY SHORESPRING DIVISION			
ELLIOT OUTFALL CHANNEL FCD PROJECT NO 4420431			
	DESIGNED BY	DATE	
	CHECKED BY	DATE	
	APPROVED BY	DATE	
DRAWING NO. D01	CONCRETE CHANNEL LINING		SHEET OF 7 30

DETAIL D1

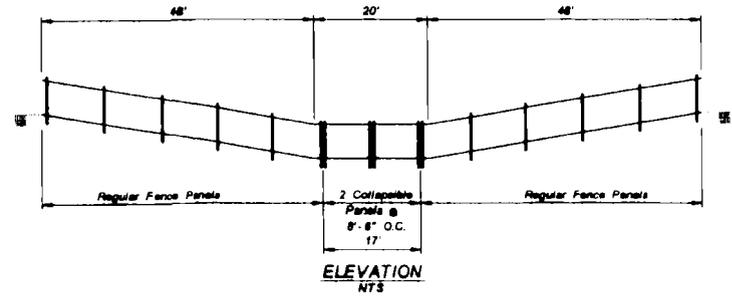
TRIAL VERSION of TIFFOIL



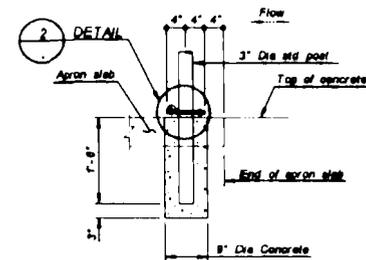
NOTES

- 1 Top Rail - 1 1/2" x Std
- 2 Bottom Rail - 1 1/2" x Std
- 3 Truss Rods - 1/2" x
- 4 Panel Posts - 3" x Std
- 5 Woven Wire Fabric - To be placed on the upstream side of the fence panels. The fabric shall be tied to the truss rods, panel posts and rails. Galvanize all elements

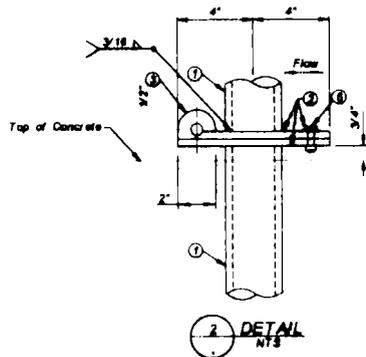
**COLLAPSIBLE FENCE PANEL**  
(2 REQUIRED - Centered Across Spillway)  
NTS



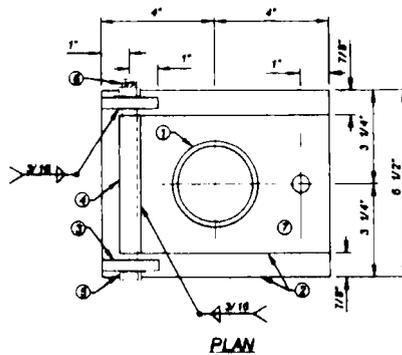
**ELEVATION**  
NTS



**ELEVATION**



**HINGE PLATE DETAIL**  
NTS



**PLAN**

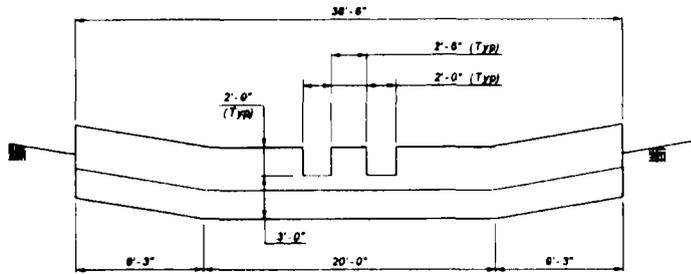
NOTES:

- 1 3" x Std Pipe
- 2 1/2" x 3/8" w/ 3/16" x 1" Long Machine Bolt w/ Max Nut and Medium Split Lock Washer. Zinc-Plated Finish on Bolt, Washer and Nut
- 3 3/8" x 3/8" w/ 8/16" x Hole
- 4 1/2" x Std Pipe x 4 5/8" Long
- 5 1/2" x Bolt w/ Nut and Washers
- 6 Jam threads after nut is in place
- 7 All Plates, Bolts, & Nuts shall be galvanized

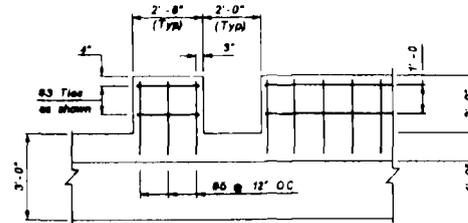
**DETAIL D2**

NO.	REVISION	BY	DATE
1			
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> ENGINEERING DIVISION			
<b>ELLIOT OUTFALL CHANNEL</b> <b>FCD PROJECT NO 4420431</b>			
DESIGNED BY	BY	DATE	
DRAWN BY	DATE		
CHECKED BY	DATE		
APPROVED BY	DATE		
DRAWING NO.	COLLAPSIBLE FENCE DETAILS		SHEET OF 8 30
DATE			

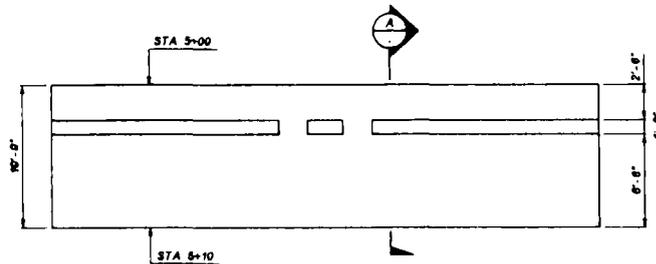
TRIAL VERSION of TIFDCL



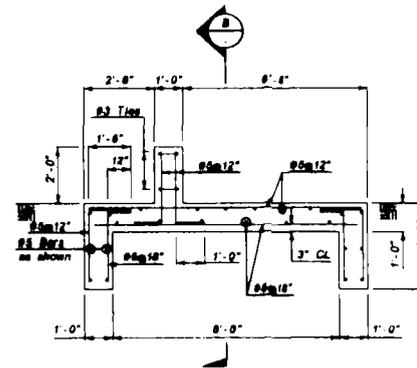
ELEVATION - SEDIMENT TRAP  
NTS



TYPICAL REINFORCING  
Scale: 1/2" = 1'-0"



PLAN  
NTS

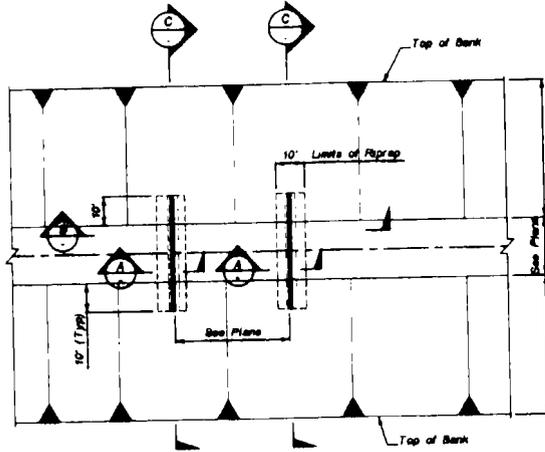


SECTION  
Scale: 1/2" = 1'-0"

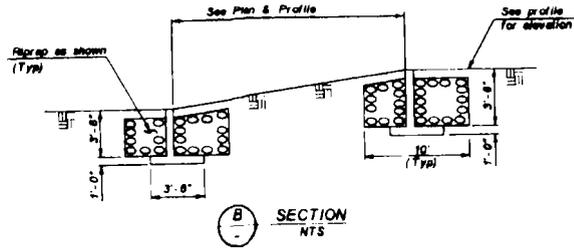
DETAIL D3

REVISION			
NO.	DATE	BY	CHK.
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION			
ELLIOT OUTFALL CHANNEL FCD PROJECT NO. 4430431			
DESIGNED	BY	DATE	
DRAWN	BY	DATE	
CHECKED	BY	DATE	
DRAWING NO.	SEDIMENT TRAP DETAIL		SHEET OF
000			8 20

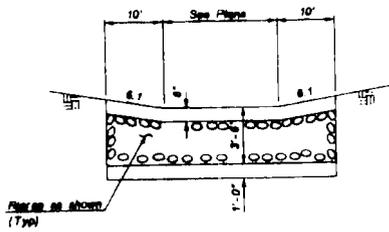
TRIAL VERSION of TIFDILL



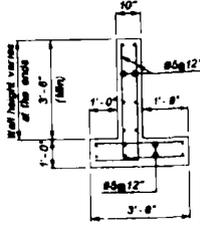
PLAN  
NTS



B SECTION  
NTS



C SECTION  
NTS



A DETAIL  
NTS

NOTES

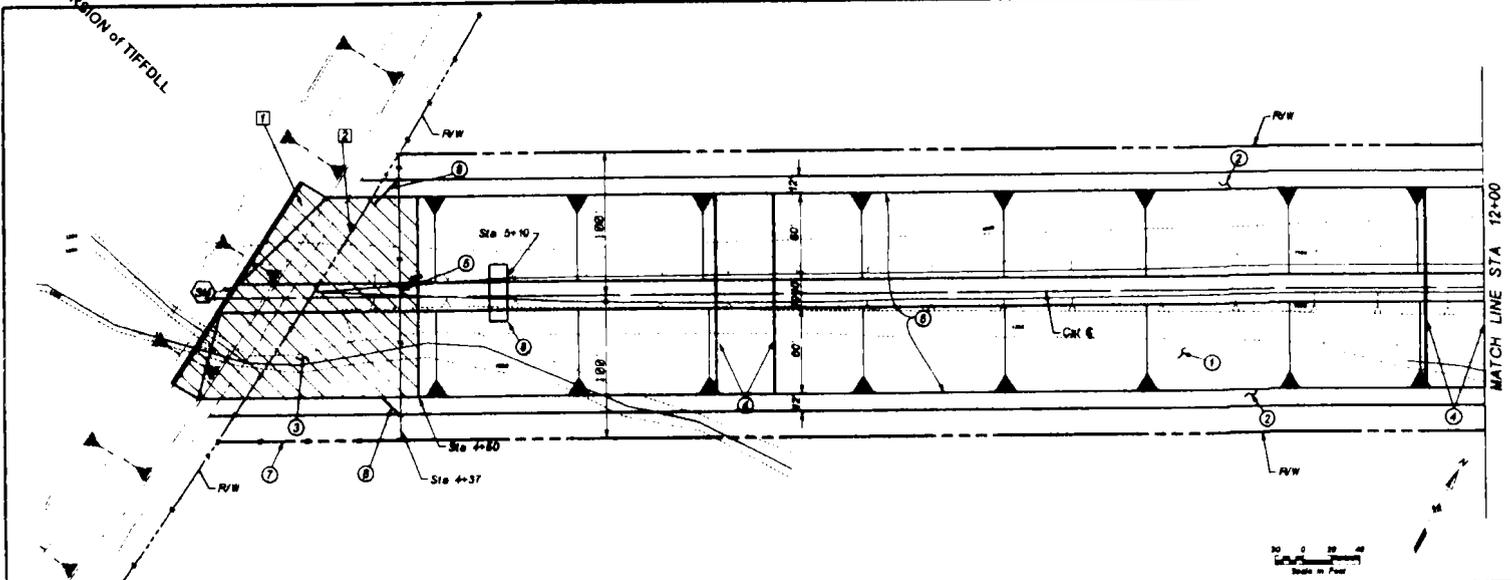
D<sub>50</sub> = 18 INCHES

CHANNEL GRADE CONTROL STRUCTURE

DETAIL D4

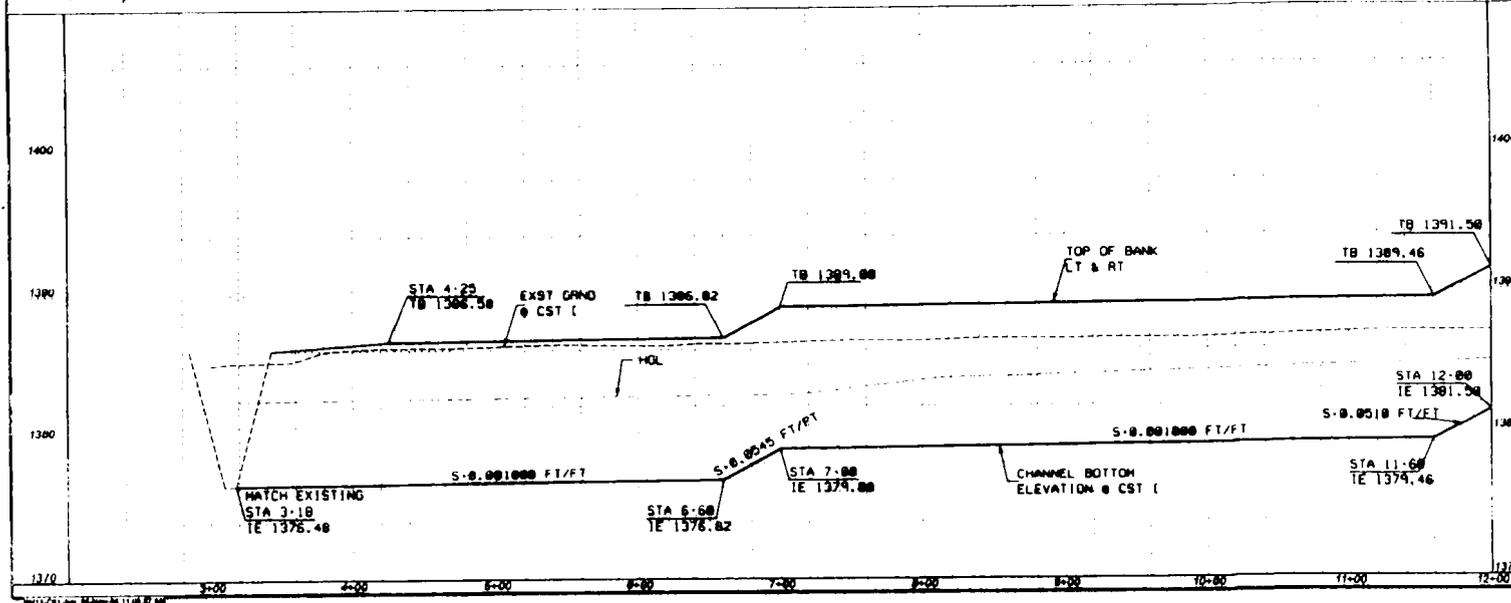
REVISION		DATE
FLOOD CONTROL DISTRICT OF SAN JOAQUIN COUNTY		
SUSTAINANCE DIVISION		
ELLIOT OUTFALL CHANNEL		
FCD PROJECT NO. 4420431		
DESIGNED BY	DATE	
CHECKED BY	DATE	
APPROVED BY	DATE	
DESIGNED BY	DATE	
DRWING NO. D04	GRADE CONTROL STRUCTURE	SHEET OF 10 20

TRIAL VERSION of TIFDILL



- REMOVE
- ① SAWCUT AND REMOVE CONCRETE CHANNEL LINING 464 SY
  - ② REMOVE EXISTING CHAIN LINK FENCE 200 LF

- CONSTRUCT
- ① CONSTRUCT EARTHEN CHANNEL 10,013 CY
  - ② CONSTRUCT 4' ABC MAINTENANCE ROAD 2,260 SY
  - ③ CONSTRUCT CONCRETE CHANNEL LINING 2,088 SY
  - ④ CONSTRUCT GRADE CONTROL STRUCTURE 4 EA
  - ⑤ CONSTRUCT BREAK AWAY FENCE 1 LS
  - ⑥ NATIVE SEED MIX 9,988 SY
  - ⑦ INSTALL 6' CHAIN LINK FENCE 9,988 SY
  - ⑧ INSTALL 24' CHAIN LINK FENCE GATE 200 LF
  - ⑨ CONSTRUCT SEDIMENT TRAP 2 EA
  - ⑩ CONSTRUCT SEDIMENT TRAP 1 EA



NO.	REVISION	BY	DATE
1			
2			
3			

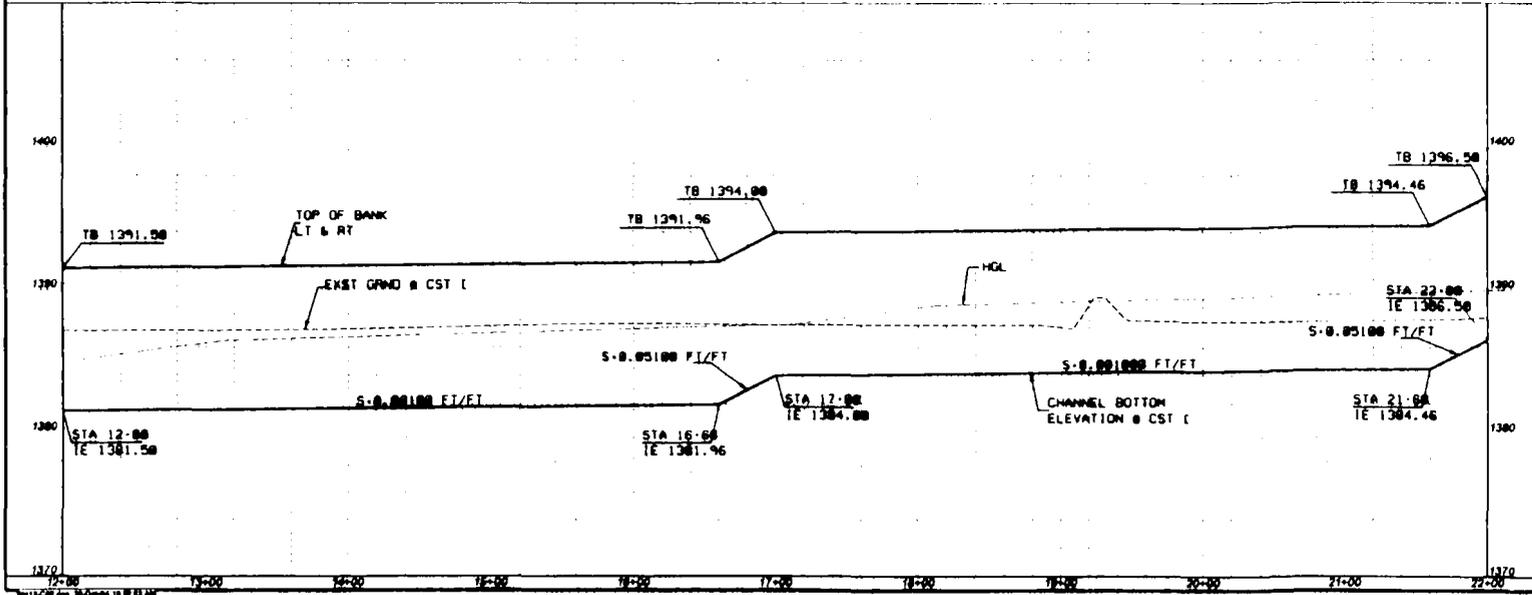
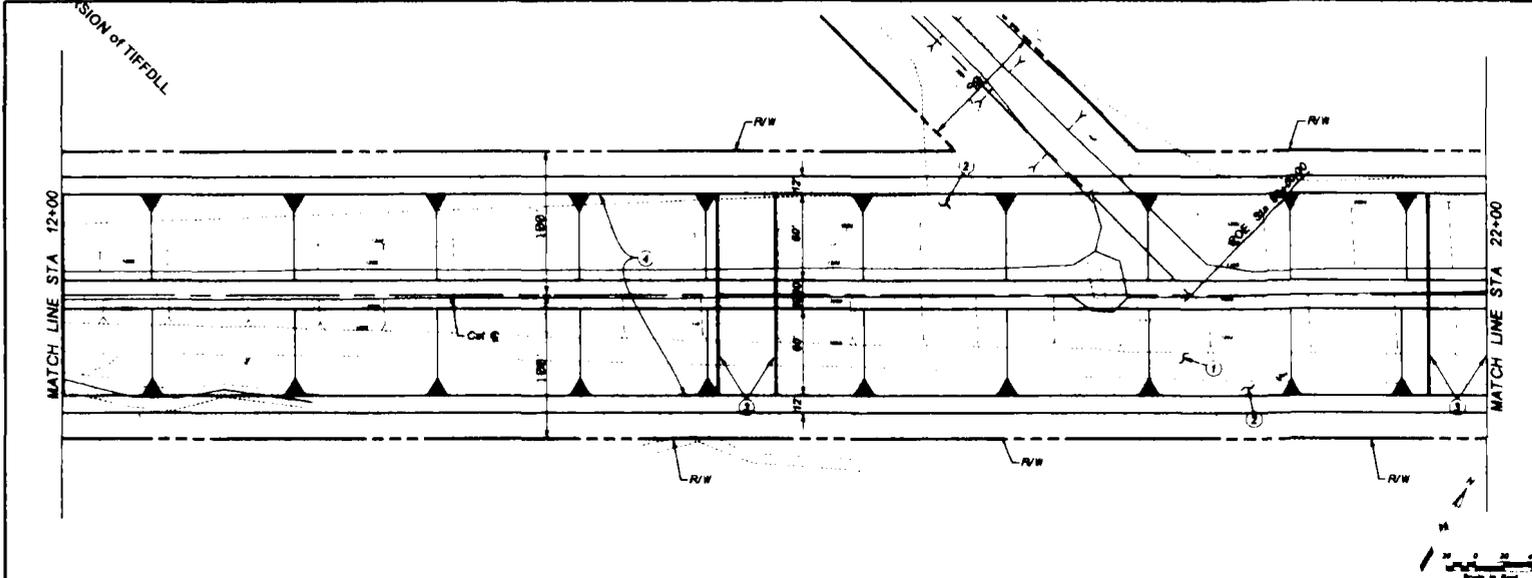
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**  
 ENGINEERING DIVISION

**ELLIOT OUTFALL CHANNEL**  
 FCD PROJECT NO 4420431

DESIGNED	JHR	DATE	06/04
DRAWN	FC	DATE	06/04
CHECKED	BAL	DATE	06/04

DRAWING NO: C1      PLAN AND PROFILE      SHEET OF: 11 20  
 STA 4+00 TO STA 12+00

TRIAL VERSION of TIFDILL



REMOVE

CONSTRUCT

- ① CONSTRUCT EARTHEN CHANNEL 20,268 CY
- ② CONSTRUCT 4' ABC MAINTENANCE ROAD 2,267 SY
- ③ CONSTRUCT GRADE CONTROL STRUCTURE 4 EA
- ④ NATIVE SEED MIX 16,556 SY

NO.	REVISION	BY	DATE

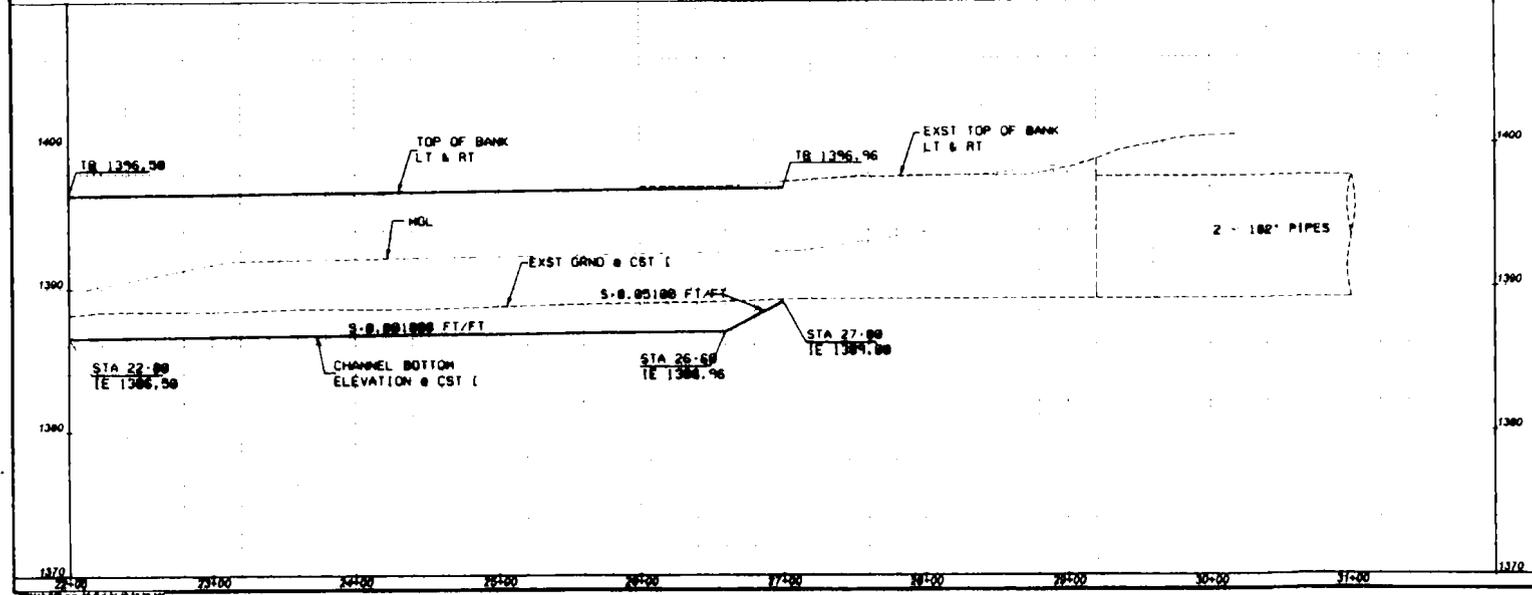
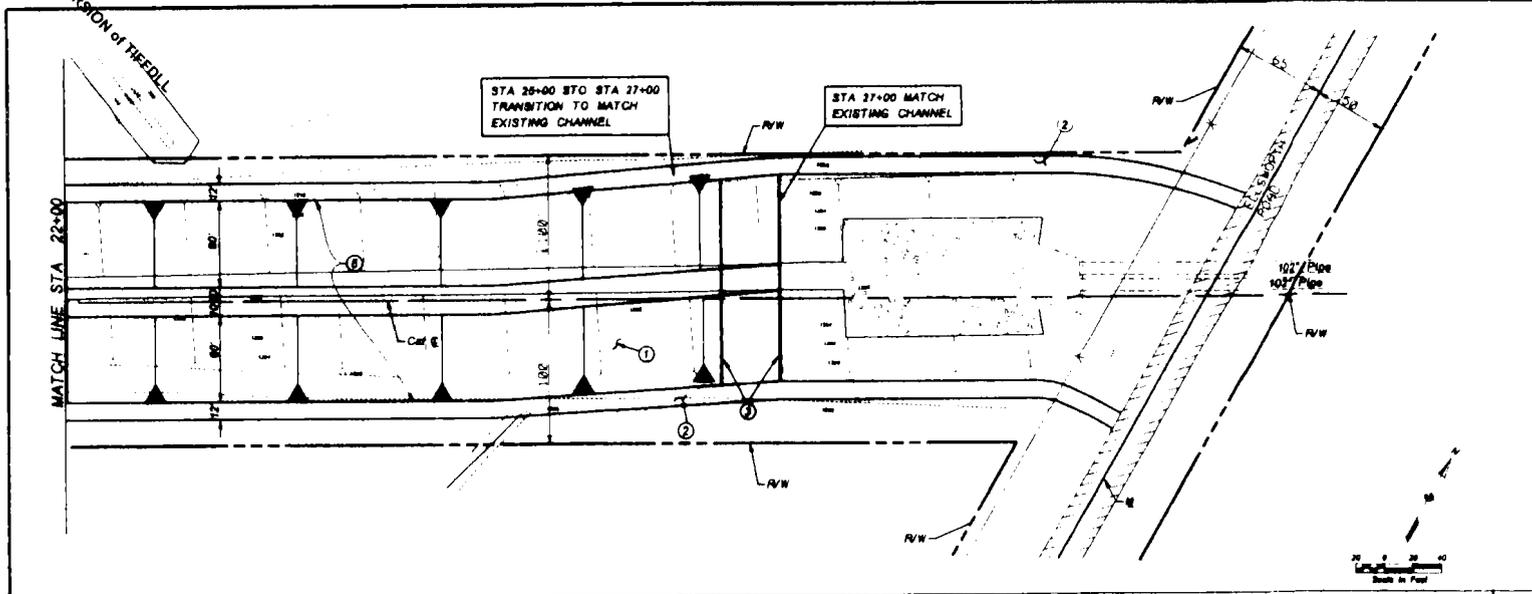
FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
ENGINEERING DIVISION

ELLIOT OUTFALL CHANNEL  
FCD PROJECT NO 4420431

DESIGNED	BY	DATE
JWR	JWR	08/04
DRAWN	FC	08/04
CHECKED	MHL	08/04

DRAWING NO. C2 PLAN AND PROFILE SHEET OF STA 12+00 TO STA 22+00 12 20

TRIAL VERSION of FREDLL



REMOVE
○ CONSTRUCT ○

- ① CONSTRUCT EARTHEN CHANNEL 8,819 CY
- ② CONSTRUCT 4" ABC MAINTENANCE ROAD 2,080 SY
- ③ CONSTRUCT GRADE CONTROL STRUCTURE 2 EA
- ④ NATIVE SEED MIX 0,444 SY

NO.	REVISION	BY	DATE

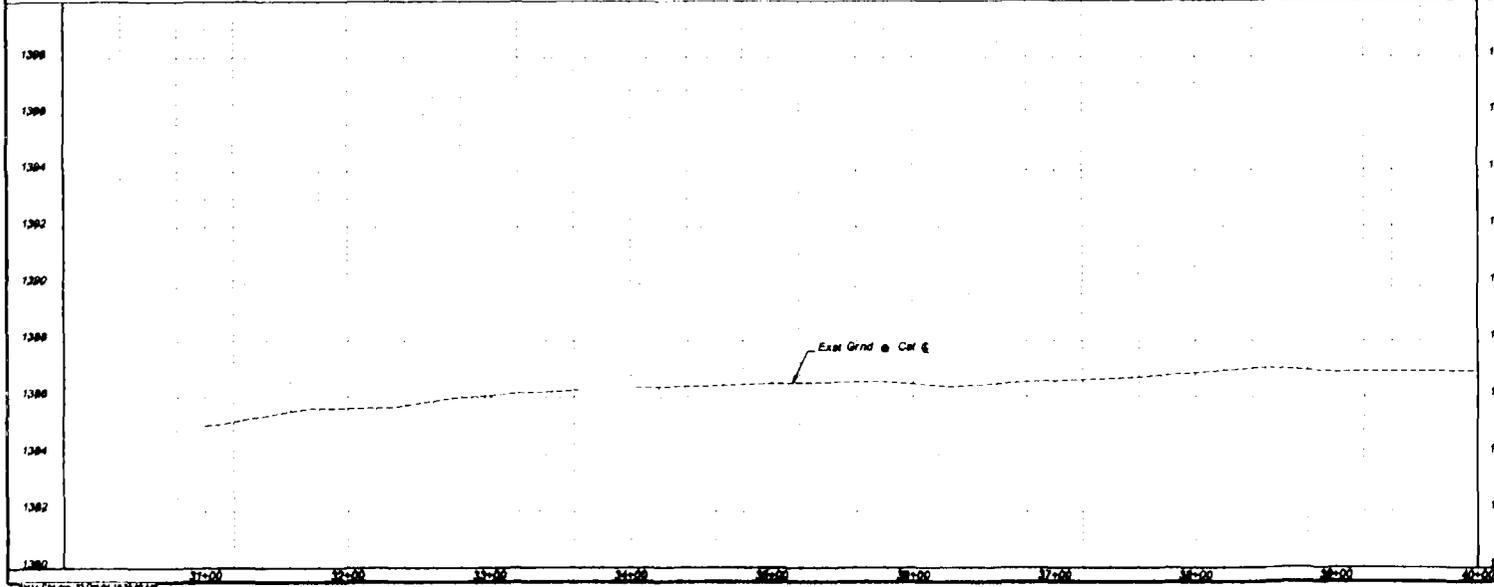
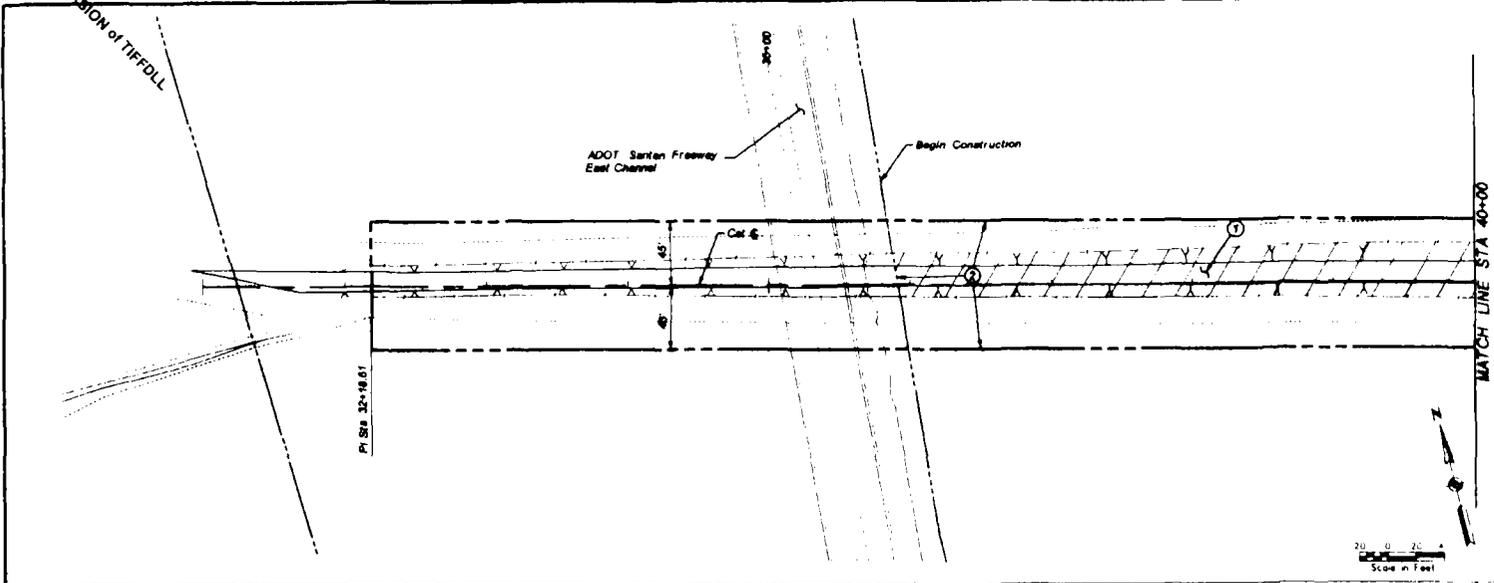
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION

ELLIOT OUTFALL CHANNEL FCD PROJECT NO. 4430431

DESIGNED	JWR	BY	DB/04
DRAWN	PC	BY	DB/04
CHECKED	SM	BY	DB/04

DRAWING NO. C2	PLAN AND PROFILE STA 22+00 TO STA 30+00	SHEET OF 13 20
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TRIAL VERSION of TIFFDLL

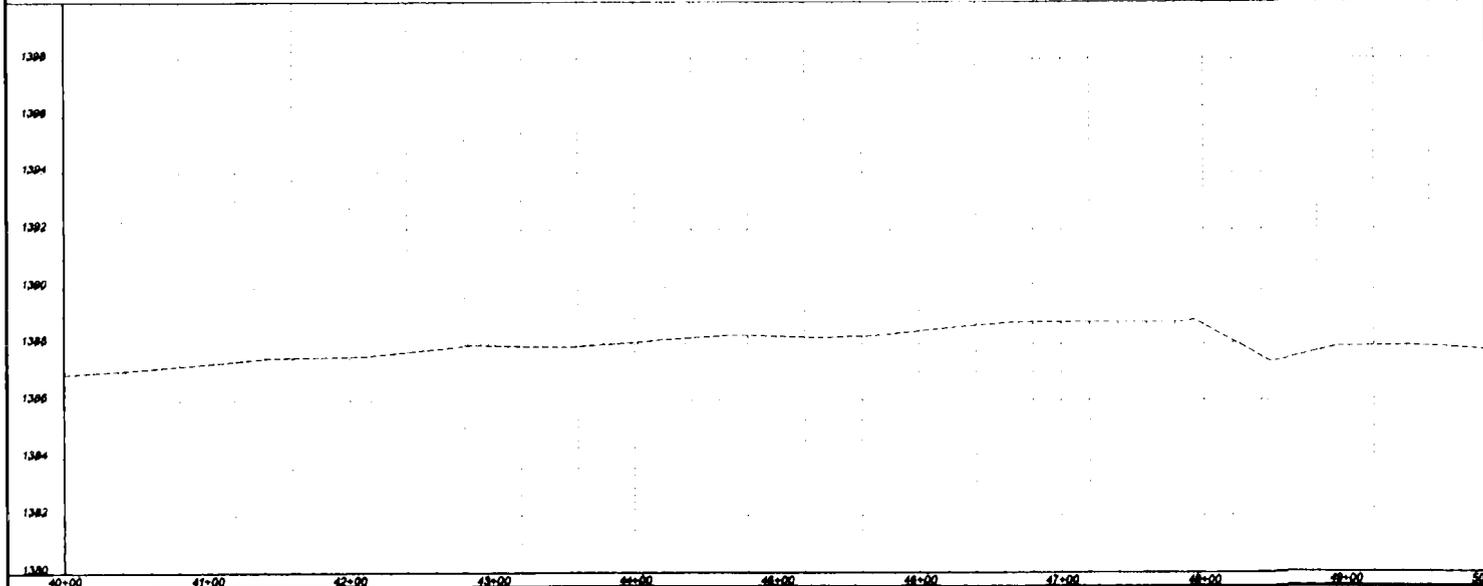
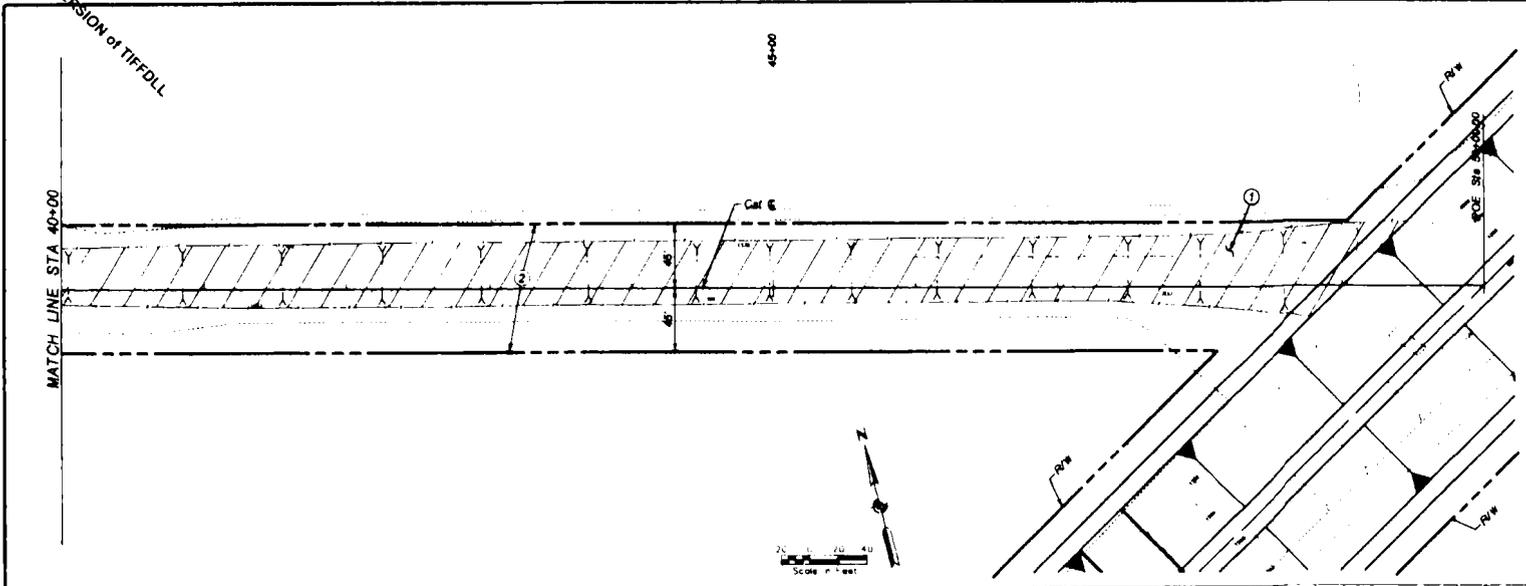


<input type="checkbox"/>	REMOVE	<input type="checkbox"/>
<input checked="" type="checkbox"/>	CONSTRUCT	<input type="checkbox"/>

- ① BACKFILL & COMPACT EARTHEN CHANNEL 2,348 CY
- ② NATIVE SEED MIX 4,086 SY

<p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</p>										
<p>ELLIOT OUTFALL CHANNEL FCD PROJECT NO. 4420431</p>										
<table border="1"> <tr> <th>BY</th> <th>DATE</th> </tr> <tr> <td>DESIGNED JFR</td> <td>05/04</td> </tr> <tr> <td>DRAWN PC</td> <td>05/04</td> </tr> <tr> <td>CHECKED BSL</td> <td>05/04</td> </tr> </table>	BY	DATE	DESIGNED JFR	05/04	DRAWN PC	05/04	CHECKED BSL	05/04		
BY	DATE									
DESIGNED JFR	05/04									
DRAWN PC	05/04									
CHECKED BSL	05/04									
<p>DRAWING NO. 024</p>	<p>PLAN AND PROFILE 31+00 TO 40+00</p>	<p>SHEET OF 14 20</p>								

TRIAL VERSION of TIFFDLL



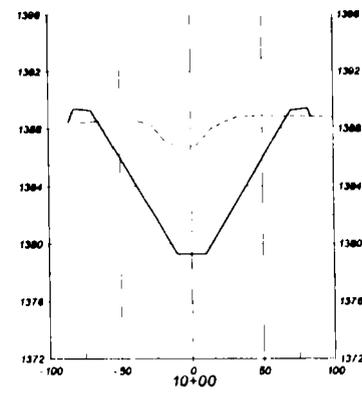
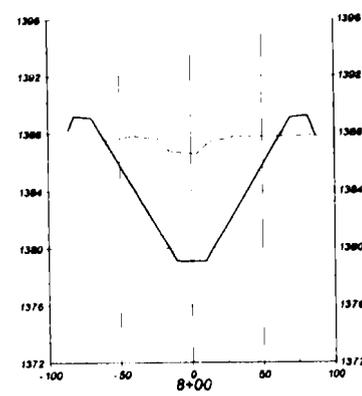
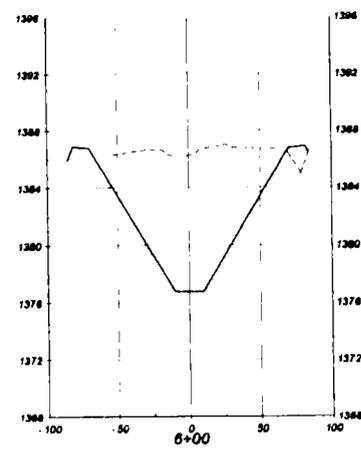
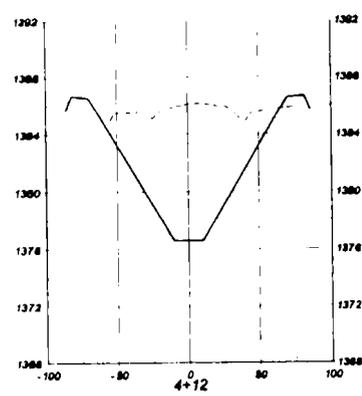
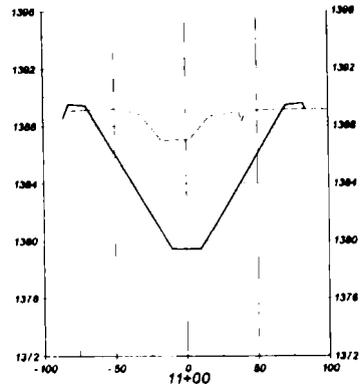
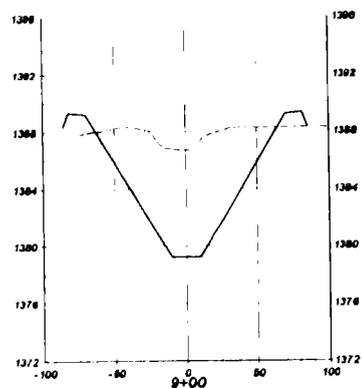
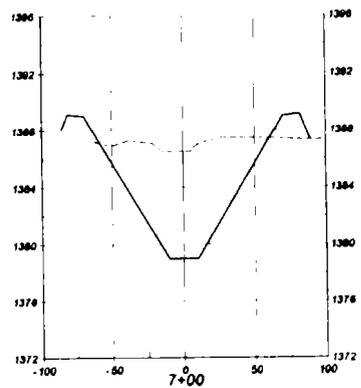
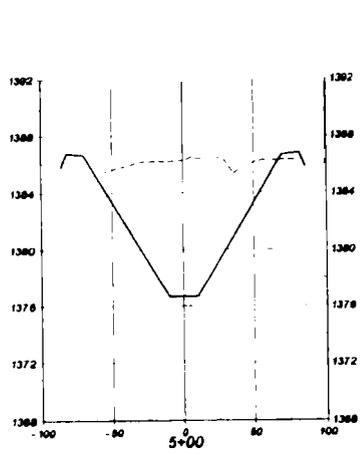
REMOVE
CONSTRUCT

- ① BACKFILL & COMPACT EARTHEN CHANNEL 7,800 CY
- ② NATIVE BEED MIX 16,800 SY

NO.	REVISION	BY	DATE
1			
2			
 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION			
ELLIOT OUTFALL CHANNEL FCD PROJECT NO 4420431			
DESIGNED	JRR	BY	DATE
DRAWN	PC		08/04
CHECKED	HAL		08/04
DRAWING NO	CO8	PLAN AND PROFILE	SHEET OF
		STA 40+00 TO 50+00	15 20

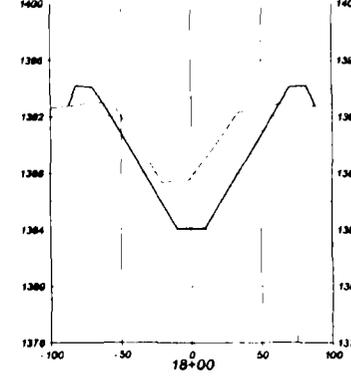
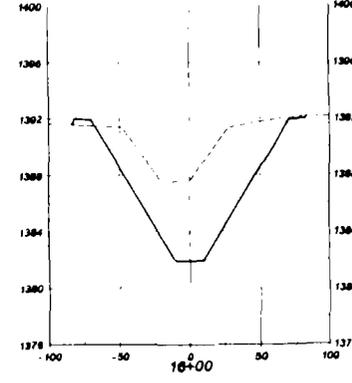
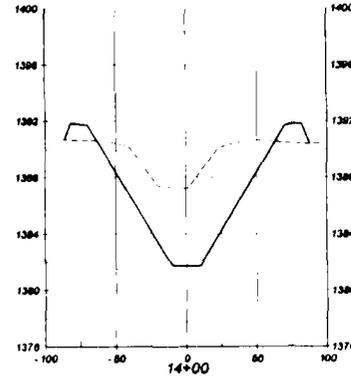
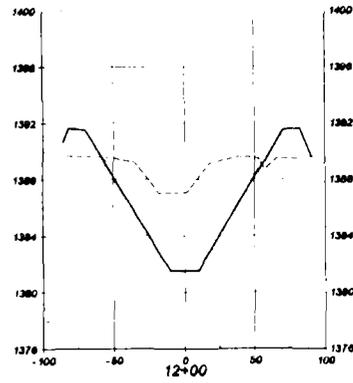
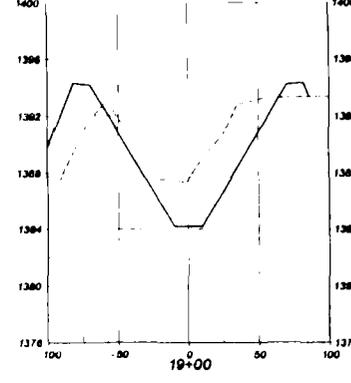
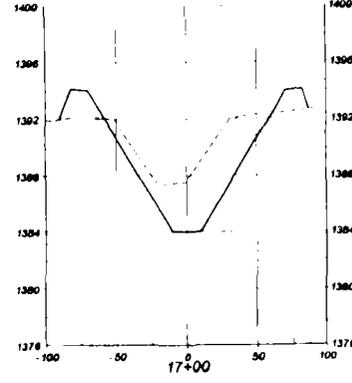
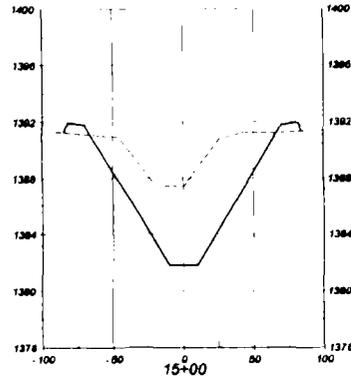
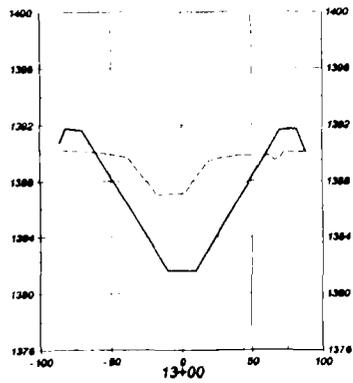
TRIAL VERSION of TIFDILL

BLVD/UTPALL CHANNEL		DRAWING NO.
		1501
DATE 07/04	CROSS SECTIONS SHEET	SHEET OF
		16 28



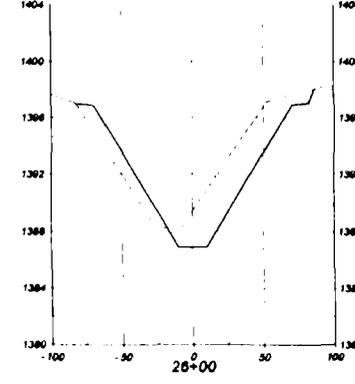
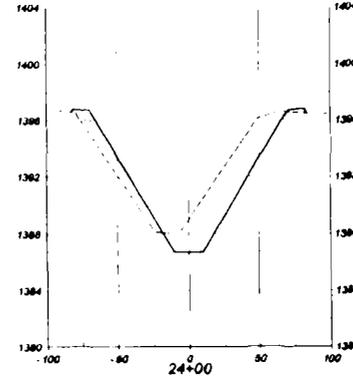
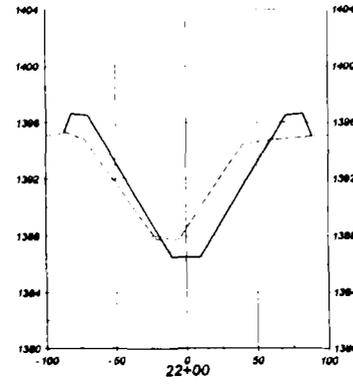
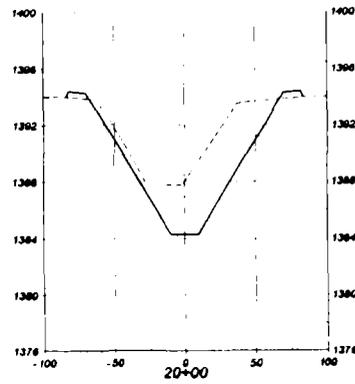
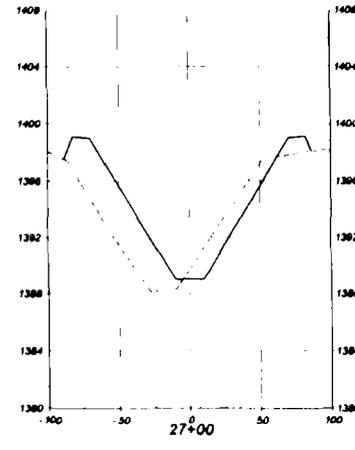
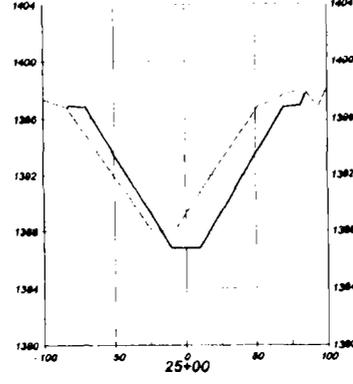
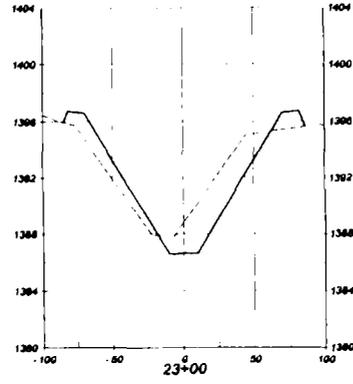
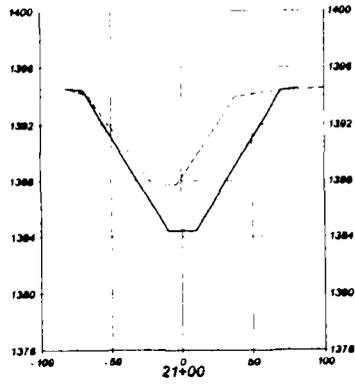
TRIAL VERSION OF TIFDILL

ELLIOT OUTFALL CHANNEL		DRAWING NO K802
DATE 07/04	CROSS SECTIONS SHEET	SHEET OF 17 20



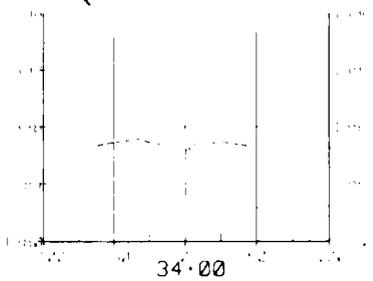
TRIAL VERSION of TIFDALL

ELLIOT OUTFALL CHANNEL		DRAWING NO.
		X983
DATE 07/04	CROSS SECTIONS	SHEET OF
	SHEET	18 28

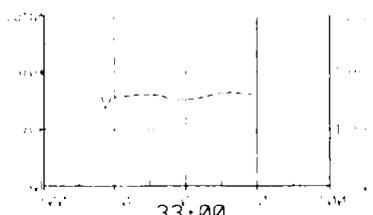


TRIAL VERSION of TIFDOLL

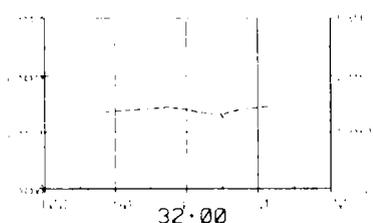
ELLIOT OUTFALL CHANNEL		DRAWING NO.
		X-884
DATE	07/04	SHEET OF
		18 30



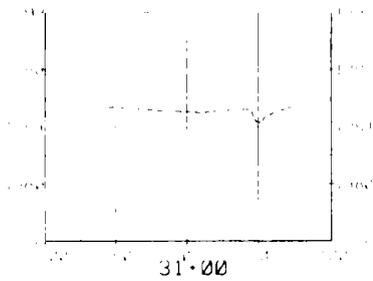
34+00



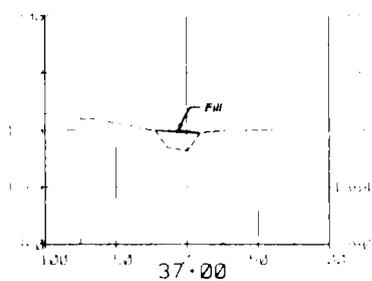
33+00



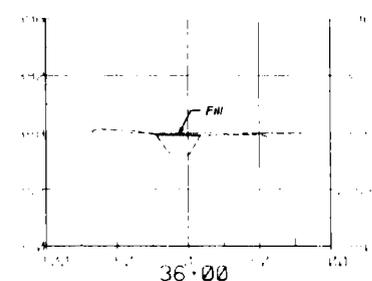
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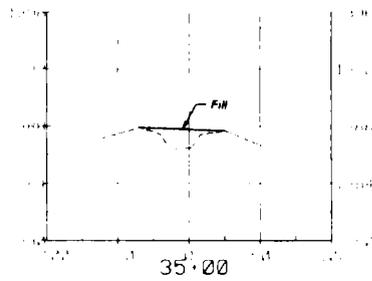
31+00



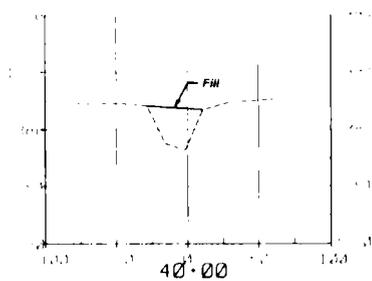
37+00



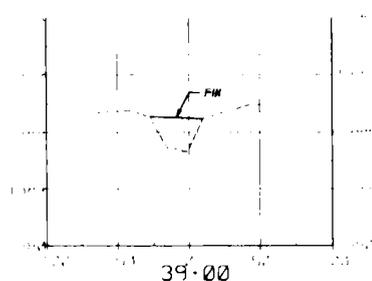
36+00



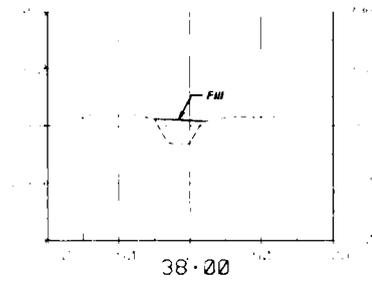
35+00



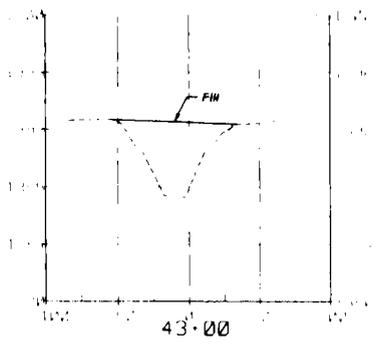
40+00



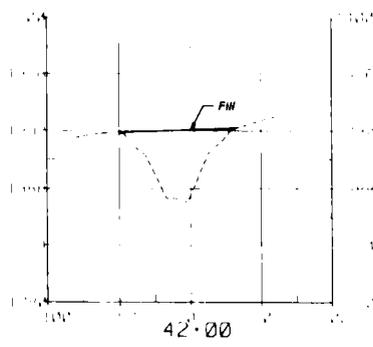
39+00



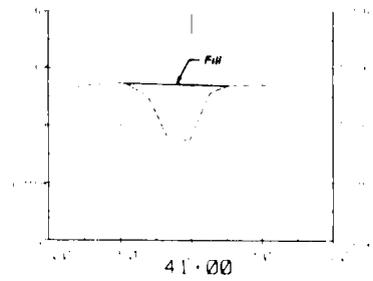
38+00



43+00



42+00



41+00

TRIAL VERSION OF TRFALL

ELLIOT OUTFALL CHANNEL		DRAWING NO. X308
DATE 07/04	CROSS SECTIONS SHEET	SHEET OF 38 20

