

RWCD FLOODWAY REACH 6

A121.517

BCS-AS-50
Rev. 3-70
File Code AS-14-13

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

CONTRACT MODIFICATION NO. _____

21

RWCD Floodway - Reach 2

50-8A02-2-00275

(Name of Watershed or other Project)

(Contract No.)

To M. M. Sundt Construction Co.

4101 E. Irvington Rd. P.O. Box 27507

(Name of Contractor)

(Address)

You are hereby requested to comply with the following

Tucson, AZ 85726

Item No.	Applicable General Provision	CHANGE	Increase in Contract Cost	Decrease in Contract Cost
3		<p>Add the following to include RWCD Floodway-Reach 2 Extension and RWCD Floodway-Reach 2 Extension Dip Crossing</p> <p>Drawings - Sheets 1 through 6</p> <p>Bid Schedule No. 1, RWCD Floodway-Reach 2 Extension (Yellow sheet)</p> <p>Bid Schedule No. 2, RWCD Floodway-Reach 2 Extension Dip Crossing (Pink Sheet)</p> <p>Section 6.a. to Construction Specification 2. (Yellow Sheet)</p> <p>Construction Specification 3. (White & Yellow Sheet)</p> <p>Section 7. a. to Construction Specification 10. (Yellow Sheet)</p> <p>Section 7.a. to Construction Sepcification 11. (Yellow and Pink Sheet)</p> <p>Sections 12.a., 12.b. & 12.c. to Construction Specifications 21. (Yellow Sheet)</p>	208,038.20	45,915.65

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

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Item No.	Applicable General Provision	CHANGE	Increase in Contract Cost	Decrease in Contract Cost
		Sections 12.a. and 12.b. to Construction Specification 21. (Pink Sheet)		
		Sections 10.a., 10.b. & 10.c. to Construction Specification 23. (Yellow Sheet)		
		Sections 10.a. & 10.b. to Construction Specification 23. (Pink Sheets)		
		Section 9. a. to Construction Specification 24. (Yellow Sheet)		
		Section 26. a. to Construction Specification 31. (Yellow Sheet)		
		Sections 26. a. & 26. b. to Construction Specification 31. (Pink Sheets)		
		Section 9. a. to Construction Specification 34. (Yellow and Pink Sheets)		
		Construction Specification 42. (White and Yellow sheets)		
		Section 9. a. to Construction Specification 61. (Yellow and Pink Sheets)		

TOTAL

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		Section 13. A. to Construction Specification 62. (Yellow Sheet)		
		Section 7.a. to Construction Specification 81. (Yellow and Pink Sheets)		
		Section 9. a. to Construction Specification 82. (Yellow and Pink Sheets)		
		Section 8.a. to Construction Specification 400. (Pink Sheet)		
		Section 9. a. to Construction on Specification 401. (Yellow Sheet)		
		All work to be performed in accordance with the Contract and attached Specifications and Drawings.		
TOTAL			\$ 253,953.85	

Net (Increase) (~~Decrease~~) in Contract Cost

\$ 253,953.85

The Completion Date of the contract is (not changed) (extended) (reduced) by 45

calendar days

Revised Completion Date April 17 19 84

List of Attachments: (If none, so state) Bid Schedules, Drawing Sheets 1 through 6 and Specifications

Original Contract Price \$ 4,866,377.00

Revised Contract Price \$ 5,368,075.24

THIS MODIFICATION IS HEREBY MADE A PART OF THE CONTRACT.

F.E. Walsh
(CONTRACTING OFFICER OR AUTHORIZED REPRESENTATIVE)
4-28-83
(DATE)

ACCEPTED: *Gene Flays*
(CONTRACTOR)
4-29-83
(DATE)

BID SCHEDULE NO. 1
 WILLIAMS-CHANDLER, WPP, ARIZONA
 RWCD FLOODWAY - REACH 2 EXTENSION

Item	Work or Material	Spec. No.	Quantity	Unit	Unit Price	Amount
28	Clearing and Grubbing	2	7	Acres	\$650.00	\$ 4,550.00
29	Water	10	XXXX	L.S.	\$XXXXXX	\$ 13,812.50
30	Channel Excavation, Common	21	28,000	C.Y.	\$ 1.90	\$ 53,200.00
31	Basin Excavation, Common	21	14,510	C.Y.	\$ 2.15	\$ 31,196.50
32	Structure Excavation, Common	21	2,332	C.Y.	\$ 3.00	\$ 6,996.00
33	Structure Backfill	23	31	C.Y.	\$ 5.00	\$ 155.00
34	Earth Fill	23	5,547	C.Y.	\$ 0.60	\$ 3,328.20
35	Drain Fill	24	9	C.Y.	\$ 20.00	\$ 180.00
36	24-Inch Diameter Reinforced Concrete Pipe, Class III	42	64	L.F.	\$ 72.00	\$ 4,608.00
37	Loose Rock Riprap	61	1,664	C.Y.	\$ 18.00	\$ 29,952.00
38	Grouted Rock Riprap	62	1,314	C.Y.	\$ 40.00	\$ 52,560.00
39	Surveys	8	XXXX	L.S.	\$XXXXXX	\$ 7,500.00
SUBTOTAL						\$208,038.20

BID SCHEDULE NO. 2
 WILLIAMS-CHANDLER, WPP, ARIZONA
 RWCD FLOODWAY - REACH 2 EXTENSION
 DIP CROSSING

Item	Work or Material	Spec. No.	Quantity	Unit	Unit Price	Amount
17	Dip Crossing Excavation, Common	21	951	C.Y.	\$ 2.15	\$ 2,044.65
18	Structure Excavation, Common	21	427	C.Y.	\$ 3.00	\$ 1,281.00
19	Structure Backfill, Common	23	72	C.Y.	\$ 5.00	\$ 360.00
20	Concrete, Class 4000X, Common	31	98	C.Y.	\$100.00	\$ 9,800.00
21	Cement	31	147	Bbls.	\$ 20.00	\$ 2,940.00
22	Steel Reinforcement	34	10,100	Lbs.	\$ 0.50	\$ 5,050.00
23	Loose Rock Riprap	61	760	C.Y.	\$ 18.00	\$ 13,680.00
24	Asphalt Concrete Pavement	400	1,076	S.Y.	\$ 10.00	\$ 10,760.00
SUBTOTAL SCHEDULE NO. 1						\$208,038.20
SUBTOTAL SCHEDULE NO. 2						\$ 45,915.65
TOTAL						\$253,953.85

6. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²⁸~~25~~ Clearing and Grubbing

- (1) This item shall consist of clearing and grubbing of all areas shown on the drawings and staked in the field.
- (2) If waste materials are disposed of by burying, ^{they shall} ~~they shall be buried a minimum of 18 inches below the existing ground surface in the waste disposal areas shown on the drawings. When disposal is complete, the waste disposal areas shall be smoothed and graded to blend into the surrounding terrain.~~ ^{meet requirements specified in Contract Modification No. 2}
- (3) If materials removed from the cleared and grubbed area are to be burned, burning must be carried out in accordance with Pinal County Health Department regulations.
- (4) Measurement and payment will be by Method 1, and will include ^{compensation for Subsidiary Item, Structure Removal.}

CONSTRUCTION SPECIFICATION

3. STRUCTURE REMOVAL

1. SCOPE

The work shall consist of the removal, salvage and disposal of structures (including fences) from the designated areas.

2. MARKING

(Method 1) Each structure unit to be removed will be marked by means of stakes, flags, painted markers or other suitable methods.

(Method 2) The limits of the areas from which structures must be removed will be marked by means of stakes, flags or other suitable methods. Structures to be preserved in place or salvaged will be designated by special markings.

3. REMOVAL

(Method 1) All structures designated in the contract for removal shall be removed to the specified extent and depth.

(Method 2) Within the areas so marked all visible structures and attachments and all buried structures located and identified by survey stakes shall be removed to the specified extent and depth.

4. SALVAGE

Structures that are designated to be salvaged shall be carefully removed and neatly placed in the specified storage areas. Salvaged structures that are capable of being disassembled shall be dismantled into individual members or sections. Such structures shall be neatly matchmarked with paint prior to disassembly. All pins, nuts, bolts, washers, plates and other loose parts shall be marked or tagged to indicate their proper locations in the structure and shall be fastened to the appropriate structural member or packed in suitable containers. Materials from fences designated to be salvaged shall be placed outside the work area on the property from which they were removed. Wire shall be rolled into uniform rolls of convenient size. Posts and rails shall be neatly piled.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Structure Removal

- (1) This item shall consist of the removal and disposal of the 30 inch concrete pipe, including headwalls at station 978+50+ and the masonry retaining wall at station 980+20+, 340 feet right of centerline.
- (2) In Section 2, Marking, Method 2 shall apply.
- (3) In Section 3, Removal, Method 2 shall apply.
- (4) No separate payment will be made for this item. Compensation for this work will be included in the payment for Bid Item 28, Clearing and Grubbing.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²⁹26, Water

(1) This item shall consist of furnishing and applying all water necessary for performance of the work described.

~~(2) Water may be obtained from the Roosevelt Water Conservation District Higley, Arizona (Grant Ward Telephone 963-3414).~~

~~(3) Measurement and payment shall be in accordance with Section 6.~~

(2) The work will not be measured, payment will be lump sum and progress payments will be based on percentage of work completed.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Removal of Water

- (1) This item shall consist of the removal of surface and ground water from the construction area shown on the drawings.
- (2) No advance plan of dewatering will be required.
- (3) No separate payment will be made for the removal of water. Compensation for this work will be included in the payment for Bid Items ~~27, 28, 29, 30, and 31.~~
30, 31, 32, 33, and 34

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Removal of Water

- (1) This item shall consist of the removal of surface and ground water from the construction area shown on the drawings.
- (2) No advance plan of dewatering will be required.
- (3) No separate payment will be made for the removal of water. Compensation for this work will be included in the payment for Bid Items ~~11, 12, 13, 14, and 17.~~
17, 18, 19, 20, 23

12. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ³⁰27, Earth Channel Excavation, Common

- (1) This item shall consist of all excavation required to construct:
 - (a) The floodway, including entrance channel, between Stations 976+00+ and ~~982+50+~~⁹⁸²⁺⁰⁰⁺, as shown on the drawings.
 - (b) Stripping of the top 6 inches below original ground surface on surfaces where earth fill is to be placed in construction of the floodway.
- (2) In Section 5, Use of Excavated Material, Method 1 shall apply. Suitable materials resulting from this excavation and not ³⁴required for Bid Item ~~30~~³¹, Structure Backfill, and Bid Item ~~31~~³¹, Earth Fill, will be spoiled in the areas shown on the drawings. *in addition requirement of Contract Modification for the top 3ft apply.*
- (3) In Section 6, Disposal of Waste Material, Method 1 shall apply.
- (4) Measurement and payment will be by Method 2, and will include compensation for Subsidiary Item, Removal of Water, and Subsidiary Item, Spoil Disposal.

b. Bid Item ³¹28, Basin Excavation, Common

- (1) This item shall consist of all excavation required for construction of the Sediment Basin and basin inlet channel as shown on the drawings, including stripping of the top 6 inches below original ground surface on surfaces where earth fill is to be placed in construction of the basin or basin inlet channels.
- (2) In Section 5, Use of Excavated Material, Method 1 shall apply.
- (3) In Section 6, Disposal of Waste Materials, Method 1 shall apply.
- (4) Measurement and payment will be by Method 2.

c. ³² Bid Item ~~29~~, Structure Excavation, Common

- (1) This item shall consist of all excavation required for the installation of the sediment basin outlet structure and pipe, the side inlet at RWCD STA 980+75, the basin inlet structure and side inlet structure for channel #3, as shown on the drawings.
- (2) In Section 5, Use of Excavated Materials, Method 1 shall apply.
- (3) In Section 6, Disposal of Waste Materials, Method 1 shall apply.
- (4) Measurement and payment will be by Method 1, and will include compensation for Subsidiary Item, Removal of Water.

12. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ~~11~~¹⁷, Dip Crossing Excavation, Common

- (1) This item shall consist of all excavation between Station 976+75+ and Station 981+00+, centerline Floodway, in excess of specified channel excavation required to construct the Dip Crossing, except structure excavation for the concrete cutoff walls, as shown on the drawings and staked in the field.
- (2) In Section 5, Use of Excavated Materials, Method 1 shall apply.
- (3) In Section 6, Disposal of Waste Materials, Method 1 shall apply.
- (4) Measurement and payment will be by Method 2 and will include compensation for Subsidiary Item, Removal of Water.

b. Bid Item ~~12~~¹⁸, Structure Excavation, Common

- (1) This item shall consist of all excavation required to construct concrete cutoff walls for the Dip Crossing as shown on the drawings and staked in the field.
- (2) In Section 5, Use of Excavated Materials, Method 1 shall apply.
- (3) In Section 6, Disposal of Waste Materials, Method 1 shall apply.
- (4) Measurement and payment will be by Method 4 and will include compensation for Subsidiary Item, Removal of Water.

10. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ³³30, Structure Backfill

- (1) This item shall consist of placing and compacting backfill around the sediment basin outlet pipe.
- (2) Backfill material shall consist of suitable CL's, ML's, SC's and SM's (Unified Soil Classification System) obtained from the required excavation as approved by the Engineer. The material shall contain a minimum of 15 percent passing the #200 sieve when determined on a dryweight basis, in accordance with ASTM D 1140.
- (3) In Section 6, Compaction, Class A shall apply. The fill matrix shall be compacted to at least 95 percent of the maximum density obtained in Method A, ASTM D 698 (Standard Proctor Test) or the Rapid Compaction Test (Test No. S-6) S.C.S. National Engineering Handbook, Section 19.
- (4) The maximum size of rock fragments incorporated in the fill shall be three (3) inches.
- (5) The maximum thickness of a layer before compaction shall be six (6) inches.
- (6) The moisture content of the material incorporated in the fill shall be maintained within the range of three (3) percentage points below to one (1) percentage point above the optimum moisture content.
- (7) Measurement and payment will be by Methods 4 and 7, and will include compensation for Subsidiary Item, Removal of Water. Deduction in volume will be made for embedded conduit and appurtenances.

b. Bid Item ³⁴31, Earth Fill

- (1) This item shall consist of placing and compacting all earth fill required to construct the floodway between Stations 976+00+ and ~~982+50+~~⁹⁸²⁺⁰⁰⁺, the sediment basin dikes, and fill adjacent to the basin inlet channel.
- (2) Fill material shall consist of suitable CL's, ML's, SC's, and SM's (Unified Soil Classification System) obtained from the required excavation, as approved by the Engineer.

- (3) In Section 6, Compaction, Class A shall apply. The fill matrix shall be compacted to at least 95 percent of the maximum density obtained in compaction tests of the fill materials performed by Method A, ASTM D 698 (Standard Proctor Test) or Rapid Compaction. Test (Test No. S-6) S.C.S. National Engineering Handbook, Section 19.
- (4) The maximum size of rock fragments incorporated in the fill shall be six (6) inches.
- (5) The maximum thickness of a layer before compaction shall be nine (9) inches.
- (6) The moisture content of the material incorporated in the fill shall be maintained within the range of three (3) percentage points below to one (1) percentage point above the optimum moisture content.
- (7) Measurement and payment will be by Methods 1 and 7, and will include compensation for Subsidiary Item, Removal of Water.

c. Subsidiary Item, Spoil Disposal

- (1) This item shall consist of placing or stockpiling all spoil in the spoil disposal areas, as shown on the drawings.
- (2) Spoil material shall consist of all material resulting from the required excavations not needed to construct the floodway or basin dikes.
- (3) Section 6, Compaction, does not apply to this item.
- (4) Spoil material shall be placed in layers not to exceed two (2) feet in depth.
- (5) The finished surface shall not vary more than one half (0.5) foot, plus or minus, from the average grade.
- (6) Spoil shall be placed in the area between the dip crossing and the basin to the minimum elevation shown on the drawings, and in the area between the RWCD Flooding and the RWCD Canal as shown on the drawings. Excess spoil may be placed in these areas as directed by the engineer or shall, at the direction of the engineer, be placed in the spoil disposal areas shown on the RWCD Flooding Reach 2 drawings.

- (7) Fill slopes resulting from the deposition of spoil in the disposal areas shown on the Reach 2 drawings shall not be steeper than 2:1 on the east and west sides and 4:1 on the north and south ends.
- (8) No special moisture content of spoil material will be required.
- (9) No separate payment will be made for spoil disposal. Compensation for this work will be included in the payment for Bid Item ~~27~~³⁰, Channel Excavation, Common and Bid Item ~~28~~³¹, Basin Excavation, Common.

10. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ~~13~~¹⁹, Structure Backfill

- (1) This item shall consist of placing and compacting backfill around the concrete cutoff walls for the Dip Crossing, as shown on the drawings.
- (2) Backfill material shall consist of suitable CL's, ML's, SC's and SM's (Unified Soil Classification System) obtained from the required excavation as approved by the Engineer. The material shall contain a minimum of 15 percent passing the #200 sieve when determined on a dry weight basis, in accordance with ASTM D 1140.
- (3) In Section 6, Compaction, Class A shall apply. The fill matrix shall be compacted to at least 95 percent of the maximum density obtained in compaction tests of the fill materials performed by Method A, ASTM D 698 (Standard Proctor Test), or Rapid Compaction Test (Test No. S-6) S.C.S. National Engineering Handbook, Section 19.
- (4) The maximum size of rock fragments incorporated in the fill shall be three (3) inches.
- (5) The maximum thickness of a layer before compaction shall be six (6) inches.
- (6) The moisture content of the material incorporated in the fill shall be maintained within the range of three (3) percentage points below to one (1) percentage point above the optimum moisture content.
- (7) Measurement and payment will be by Methods 4 and 7 and will include compensation for Subsidiary Item, Removal of Water.

b. Subsidiary Item, Spoil Disposal

- (1) This shall consist of placing and smoothing all spoil placed in the spoil disposal areas.
- (2) Spoil material shall consist of all material resulting from the required excavations not needed to construct the floodway and Dip Crossing.
- (3) Section 6, Compaction, does not apply to this item.
- (4) The maximum thickness of each layer before smoothing the surface shall not exceed two (2) feet.
- (5) The finished surface shall not vary more than one-half (0.5) foot, plus or minus, from the average grade.
- (6) Fill slopes resulting from the deposition of spoil in the disposal areas shown on the Reach 2 drawings shall not be steeper than 2:1 on the east and west sides and 4:1 on the north and south ends.
- (7) Spoil shall be placed in the area between the dip crossing and the basin to the minimum elevations shown on the drawings and in the area between the RWCD canal and RWCD Floodway as shown on the drawings. Excess spoil may be placed in these areas as directed by the engineer or shall, at the direction of the engineer, be placed in the spoil disposal areas shown on the RWCD Floodway Reach 2 drawings.
- (8) No special moisture content of spoil material will be required.
- (9) No separate payment will be made for spoil disposal. Compensation for this work will be included in the payment for Bid Item ~~11~~, Dip Crossing Excavation, Common.

17

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ³⁵~~32~~, Drain Fill

- (1) This item shall consist of furnishing and placing the drain fill materials in the locations shown on the drawings.
- (2) In Section 2, Materials, Method 1 shall apply.
- (3) The gradation of the drain fill shall meet the following requirements:

<u>Sieve Size</u>	<u>Percent Passing (Dry Weight Basis)</u>
2"	100
1"	90 - 100
1/2"	80 - 98
3/8"	70 - 95
#4	40 50 - 78
#10	12 - 44
#20	0 - 14
#30	0 - 9
#200	0 - 3

- (4) Drain fill shall be placed in horizontal layers not to exceed 18 inches deep.
- (5) In Section 6, Compaction, Class III shall apply.
- (6) The moisture content shall be maintained in a range, as determined by the engineer, that will minimize segregation.
- (7) The material passing the #200 sieve shall be non-plastic.
- (8) Measurement and payment will be in accordance with Section 8.

26. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Concrete, Class 3000

- (1) This item shall consist of furnishing, forming and placing all items required to construct the basin outlet structure.
- (2) In Section 3, Classes of Concrete, and Section 5, Design of the Concrete Mix, Method 1 shall apply. Concrete shall be Class 3000.
- (3) Coarse aggregate shall be size No. 67, in accordance with ASTM C 33.
- (4) Cement shall be Type II or IIA.
- (5) In Section 15, Construction Joints, Method 1 shall apply.
- (6) In Section 18, Removal of Forms, Method 1 shall apply.
- (7) Curing compound shall be Type 2 conforming to Material Specification 534 and ASTM C 309.
- (8) No separate payment will be made for Class 3000 concrete. Compensation for this work will be included in the payment for Bid Item ~~33~~, 24-inch Diameter Reinforced Concrete Pipe, Class III. 36

26. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²⁰ 3, Concrete, Class 4000X

- (1) This item shall consist of furnishing, forming and placing all concrete required to construct the Dip Crossing.
- (2) In Section 3, Classes of Concrete, and Section 5, Design of the Concrete Mix, Method 2 shall apply. Concrete shall be Class 4000X.
- (3) Coarse aggregate shall be size No. 67, in accordance with ASTM C 33.
- (4) In Section 15, Construction Joints, Method 1 shall apply.
- (5) In Section 18, Removal of Forms, Method 1 shall apply.
- (6) All exposed surfaces shall be finished in the following manner:

Upon patching and pointing all holes as directed in Section 19, the surface shall be promptly covered with polyethylene film, wet burlap or wet cotton mats. If polyethylene film is used, the film shall be held securely to the surface by means of weights, adhesive or other suitable means. Only white polyethylene film for covering will be acceptable. When the mortar used in patching and pointing has set sufficiently, the surface shall be uncovered and thoroughly rubbed with either a float or a carborundum stone until the surface is covered with a lather. Cork, wood or rubber floats shall be used only on the surfaces sufficiently green to work up such lather; otherwise a thin grout composed of one (1) part cement and one (1) part of fine sand may be used to facilitate producing a satisfactory lather; however, this grout shall not be used in quantities sufficient to cause a plaster coating to be left on the finished surface. A portion of the required cement for the grout shall be white, as required to match the color of the surrounding concrete. Rubbing shall continue until irregularities are removed and there is no excess material. At the time a light dust appears, the surface shall be brushed or sacked. Brushing or sacking shall be carried in one direction so as to produce a uniform texture.

- (7) Curing compound shall be Type 2 conforming to Material Specification, ASTM C 309.

(8) Measurement and payment will be by Method 2 and will include compensation for Subsidiary Item, Cleaning and Painting Metal Work.

b. Bid Item ~~6~~²¹, Cement

- (1) This item shall consist of furnishing and handling all cement required to construct the concrete items in Bid Item ~~14~~²⁰.
- (2) Cement shall be Type II or IIA.
- (3) Measurement and payment will be by Method 2.

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Steel Reinforcement

- (1) This item shall consist of furnishing and installing all steel reinforcement required in the construction of the basin outlet structure.
- (2) No separate payment will be made for steel reinforcement. Compensation for this work will be included in payment for Bid Item ~~33~~, 24-inch Diameter Reinforced Concrete Pipe, Class III.

36

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²²16, Steel Reinforcement

- (1) This item shall consist of furnishing and installing all steel reinforcement required in the construction of reinforced concrete for the dip crossing.
- (2) Measurement and payment will be by Method 1.

CONSTRUCTION SPECIFICATION

42. CONCRETE PIPE CONDUITS AND DRAINS

1. SCOPE

The work shall consist of furnishing and installing concrete pipe or concrete drain tile and the necessary fittings as shown on the drawings.

2. MATERIALS

Reinforced concrete pressure pipe shall conform to the requirements of Material Specification 541 for the type and strength specified.

Concrete culvert pipe shall conform to the requirements of Material Specification 542 for the kind of pipe specified.

Concrete irrigation pipe, drainage pipe and drain tile shall conform to the requirements of Material Specification 543 for the kind of pipe or tile specified.

Pipe fittings shall conform to the requirements of the applicable pipe specifications.

Sealing compound for filling rubber gasket joints shall conform to the requirements of Material Specification 536.

Hot-pour joint sealer shall conform to the requirements of Federal Specification SS-S-169.

Cold-applied sealing compound shall conform to the requirements of Federal Specification SS-S-168.

Preformed sealing compound shall conform to the requirements of Interim Federal Specification SS-S-00210.

Joint packing shall conform to the requirements of Federal Specification HH-P-119 for mastic sealed joints and Federal Specification HH-P-117 for cement mortar sealed joints.

Preformed expansion joint filler shall conform to the requirements of Material Specification 535.

LAYING AND BEDDING

Pipe and tile shall be laid to the line and grade shown on the drawings. Pipe shall be laid with the bell or groove at the upstream end of each section.

- a. Concrete Cradles or Bedding. Pipe to be cradled or bedded on concrete shall be set to the specified line and grade and temporarily supported on precast concrete blocks or wedges until the cradle or bedding concrete is placed. Concrete blocks or wedges used to temporarily support the pipe during placement of bedding or cradle shall be of a class of concrete equal to or better than that used in the bedding or cradle.
- b. Earth, Sand, or Gravel Bedding. The pipe shall be firmly and uniformly bedded throughout its entire length to the depth and in the manner specified on the drawings. The pipe shall be loaded sufficiently during backfilling around the sides to prevent its being lifted from the bedding.

Perforated pipe shall be laid with the perforations down and oriented symmetrically about a vertical centerline. Perforations shall be clear of any obstructions when the pipe is laid.

Elliptical pipe and pipe with elliptical or quadrant reinforcement shall be laid so that the vertical axis, as indicated by markings on the pipe, is in a vertical position.

4. JOINTS

Pipe joints shall conform to the details shown on the drawings and to the requirements of Section 5 and 6 of this specification applicable to the type of joint specified. Except where unsealed joints are indicated, pipe joints shall be sound and watertight at the pressure specified.

5. JOINING BELL AND SPIGOT PIPE

- a. Rubber Gasket Joint, Pressure Pipe. Just before the joint is connected the connecting surfaces of the spigot and the bell or coupling band, sleeve or collar shall be thoroughly cleaned and dried, and the rubber gasket and the inside surface of the bell or coupling band, sleeve or collar shall be lubricated with a light film of soft vegetable soap compound (flax soap). The rubber gasket shall be stretched uniformly as it is placed in the spigot groove to insure a uniform volume of rubber around the circumference of the pipe.

(Method 1) The joint shall be connected by means of a pulling or jacking force so applied to the pipe that the spigot enters squarely into the bell.

(Method 2) The joint shall be connected in accordance with the manufacturer's recommendations.

(Use with Either Method) When the spigot has been seated to within 1/2 inch of its final position, the position of the gasket in the joint shall be checked around the entire circumference of the pipe by means of metal feeler gage. In any case where the gasket is found to be displaced, the joint shall be disengaged and properly reconnected. After the position of the gasket has been checked, the spigot shall be completely pulled into the bell and the section of the pipe shall be adjusted to line and grade.

- b. Rubber Gasket Joints, Sewer and Culvert Pipe or Irrigation Pipe. The pipe shall be joined in accordance with the gasket manufacturer's recommendations except as otherwise specified.
- c. Mastic Sealed Joints. At the time of assembly the inside surfaces of the bell and the outside surfaces of the spigot shall be clean, dry and primed as recommended by the manufacturer of the sealing compound. A closely twisted gasket of joint packing of the diameter required to support the spigot at the proper grade and to make the joint concentric shall be made in one piece of sufficient length to pass around the pipe and lap at the top. The gasket shall be laid in the bell throughout the lower third of the circumference. The end of the spigot shall be laid on the gasket and the spigot shall be fully inserted into the bell so that the pipe sections are closely fitted and aligned. The gasket then shall be lapped at the top of the pipe and thoroughly packed into the annular space between the bell and the spigot.

- (1) Hot-Pour Joint Sealer. The sealing compound shall be heated to within the temperature range recommended by the manufacturer and shall not be overheated or subjected to prolonged heating. After the joint is assembled, with the pipe in its final location, a suitable joint runner shall be placed around the joint with an opening left at the top. Molten sealing compound shall be poured into the joint as rapidly as possible without entrapping air until the annular space between bell and spigot is completely filled. After the compound has set, the runner may be removed. Alternate joints may be poured before the pipe is lowered into the trench. In this case, the joint shall be poured with the pipe in a vertical position without the use of the runner. The compound shall have thoroughly set before the pipe is placed in the trench, and the pipe shall be handled so as to cause no deformation of the joint during placement.
 - (2) Cold-Applied Sealing Compound. The annular space between bell and spigot shall be completely filled with the sealing compound. The compound shall be mixed on the job in accordance with the manufacturer's recommendations and in relatively small quantities so that setting will not be appreciable before application.
 - (3) Preformed Sealing Compound. Joint packing will not be required, except as recommended by the manufacturer of the sealing compound. Preformed strips or bands of the sealing compound shall be applied to the bell and spigot prior to assembly of the joint in accordance with the manufacturer's recommendations. Any compound extruded from the interior side of the joint during assembly shall be trimmed even with the interior surface of the pipe.
- d. Cement Mortar Sealed Joints. Cement mortar for joints shall consist of one part by weight of portland cement and two parts by weight of fine sand with enough water added to produce a workable consistency. At the time of assembly the inside surface of the bell and the outside surface of the spigot shall be clean and moist.

(1) With Packing. A closely twisted gasket of joint packing of the diameter required to support the spigot at the proper grade and to make the joint concentric shall be made in one piece of sufficient length to pass around the pipe and lap at the top. The gasket shall be saturated with neat cement grout, laid in the bell throughout the lower third of the circumference and covered with mortar. The end of the spigot shall be fully inserted into the bell so that the pipe sections are closely fitted and aligned. A small amount of mortar shall be placed in the annular space throughout the upper two-thirds of the circumference. The gasket then shall be lapped at the top of the pipe and thoroughly packed into the annular space between the bell and the spigot. The remainder of the annular space then shall be filled completely with mortar and beveled off at an angle of approximately forty-five (45) degrees with the outside of the bell. If the mortar is not sufficiently stiff to prevent appreciable slump before setting, the outside of the joint thus made shall be wrapped with cheesecloth. After the mortar has set slightly, the joint shall be wiped inside the pipe. In pipe too small for a man to work inside, wiping may be done by dragging an approved swab through the pipe as the work progresses.

(2) Without Packing. The lower portion of the bell shall be filled with stiff mortar of sufficient thickness to make the inner surface of the abutting sections flush. The spigot end of the pipe to be joined shall be fully inserted into the bell so that the sections are closely fitted and aligned. The remaining annular space between the bell and spigot shall then be filled with mortar and the mortar neatly beveled off at an angle of approximately forty-five (45) degrees with the outside of the bell. After the mortar has set slightly, the joint shall be wiped inside the pipe. In pipe too small for a man to work inside, wiping may be done by dragging an approved swab through the pipe as the work progresses.

e. Unsealed Joints. When unsealed joints are specified, they shall conform to the details shown on the drawings.

6. JOINING TONGUE AND GROOVE PIPE

- a. Cement Mortar Sealed Joint. Mortar shall be as specified for bell and spigot joints. The tongue end of the section being placed shall be covered with mortar and firmly pressed into the groove of the laid section in such a manner that the tongue fits snugly and truly in the groove and that mortar is squeezed out both on the interior and exterior of the joint. Care shall be taken that no mortar falls from the groove end during the abutting operation. Immediately after the pipe sections have been abutted, exposed external surface mortar shall be pressed into the joint and any excess mortar removed, after which the interior surface of the joint shall be carefully pointed and brushed smooth, and all surplus mortar removed.
- b. Mastic Sealed Joints. Strips or bands of preformed sealing compound shall be applied to the tongue and groove prior to assembly of the joint in accordance with the manufacturer's recommendations. Any compound extruded from the interior side of the joint during assembly shall be trimmed even with the interior surface of the pipe.
- c. Rubber Gasket Joints. The pipe shall be joined in accordance with the gasket manufacturer's recommendations except as otherwise specified.
- d. Unsealed Joints. When unsealed joints are specified, they shall conform to the details shown on the drawings.

7. BANDING

When external mortar bands are specified, they shall conform to the details shown on the drawings.

8. CURING MORTAR JOINTS AND BANDS

The external surfaces of mortar joints shall be covered with moist earth, sand, canvas, burlap or other approved materials and shall be kept moist for 10 days or until the pipe is backfilled.

Water shall not be turned into the conduit within 24 hours after the joints are finished. Hydrostatic pressure shall not be applied to the conduit prior to 14 days after the joints are finished.

9. PRESSURE TESTING

(Method 1) Pressure testing of the completed conduit will not be required.

(Method 2) Prior to the placement of concrete or earth fill around the conduit, the conduit shall be tested for leaks in the following manner: The ends of the conduit shall be plugged and a standpipe with a minimum diameter of two (2) inches shall be attached to the upstream plug. The conduit shall be braced at each end to prevent slippage. The conduit and the standpipe shall be filled with water. The water level in the standpipe shall be maintained, by continuous pumping, a minimum of 10 feet above the invert of the upstream end of the conduit for a period of not less than two hours. Any leaks shall be repaired and the conduit shall be retested as described above. The procedure shall be repeated until the conduit is watertight.

The pipe joints shall show no leakage. Damp spots developing on the surface of the pipe will not be considered as leaks.

(Method 3) Prior to the placement of concrete or earth fill around the conduit, the conduit shall be tested at the specified test pressure for a period of at least 2 hours. Any leaks shall be repaired and the conduit shall be retested. The procedure shall be repeated until the conduit is watertight.

The pipe joints shall show no leakage. Damp spots developing on the surface of the pipe will not be considered as leaks.

10. MEASUREMENT AND PAYMENT

(Method 1) For items of work for which specific unit prices are established in the contract, the quantity of each kind, size, and class of pipe or tile will be determined to the nearest foot by measurement of the laid length along the invert centerline of the conduit. Payment for each kind, size, and class of pipe or tile will be made at the contract unit price for that kind, size, and class. Such payment will constitute full compensation for furnishing, transporting and installing the pipe or tile complete in place.

(Method 2) For items of work for which specific unit prices are established in the contract, the quantity of each kind, size, and class of pipe or tile will be determined as the sum of the nominal laying lengths of the sections used. Payment for each kind, size, and class of pipe or tile will be made at the contract unit price for that kind, size, and class. Such payment will constitute full compensation for furnishing, transporting and installing the pipe or tile complete in place.

(Use with Either Method). Compensation for any item of work described in the contract but not listed in the bid schedule will be included in the payment for the item of work to which it is made subsidiary. Such items and the items to which they are made subsidiary are identified in Section 11 of this specification.

11. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and construction details are:

- a. Bid Item ³⁶33, 24-inch Diameter Reinforced Concrete Pipe, Class III
- (1) This item shall consist of furnishing and installing all pipe for the basin outlet at RWCD Floodway STA 981+80⁺, as shown on the drawings.
 - (2) Pipe shall conform to the requirements of Material Specification 542 and ASTM C 76. The pipe shall be Class III.
 - (3) Pipe shall be furnished with bell and spigot joints equipped with endless "o" ring type gaskets of circular cross-section.
 - (4) Cement shall be Type II.
 - (5) In Section 5, Joining Bell and Spigot Pipe, Method 1 shall apply.
 - (6) In Section 9, Pressure Testing, Method 1 shall apply.
 - (7) Measurement and payment will be by Method 1 and will include payment for subsidiary items concrete, Class 3000; Metalwork, and cleaning and painting metalwork.

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ³¹34, Loose Rock Riprap

(1) This item shall consist of furnishing and placing all loose rock riprap, including bedding, in the floodway, and inlets as follows:

(a) Floodway

Station 976+00 to Station 977+25
Station 979+45+ to Station 982+04+

(b) Side inlet at RWCD Floodway Station 980+75, including bedding material placed over the side inlet weir as shown on the drawings.

(c) The side inlet for Channel #3.

(d) The basin inlet structure.

(e) The basin inlet channel.

(2) The rock shall be graded as follows:

<u>Particle Size (inch)</u>	<u>Percent Passing (by Dry Wt.)</u>
15	100
12	75 - 100
9	60 - 85
6	25 - 40
4	10 - 25
3	0 - 10

(3) Rock shall be either hand or equipment placed.

(4) Bedding beneath riprap shall be graded as follows:

<u>U. S. Sieve Size</u>	<u>Percent Passing (by Dry Wt.)</u>
1"	100
3/4"	85 - 100
#4	50 60 - 80
#16	21 40 - 60 56
#40	11 22 - 44 38
#200	0 - 8 4

Size No. 67 blended with fine aggregates in accordance with ASTM C 33 meets these requirements.

(5) Measurement and payment will be by Method 1.

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²³~~27~~, Loose Rock Riprap

- (1) This item shall consist of furnishing and placing of loose rock riprap, including bedding, adjacent to the Dip Crossing At Hunt Highway, as shown on the drawings and staked in the field.
- (2) The rock shall be graded as follows:

<u>Particle Size (inches)</u>	<u>Percent Passing (by Dry Weight)</u>
15	100
12	75 - 100
9	60 - 85
6	25 - 40
4	10 - 25
<3	0 - 10

- (3) Rock shall be either hand or equipment placed.
- (4) Bedding beneath riprap shall be graded as follows:

<u>US Sieve Size</u>	<u>Percent Passing (by Dry Weight)</u>
1"	100
3/4"	85 - 100
#4	50 60 - 80
#16	21 40 - 60 56
#40	11 22 - 44 38
#200	0 - 8 6

Size No. 67 blended with fine aggregates in accordance with ASTM C 33 meets these requirements.

- (5) Measurement and payment will be by Method 1 and shall include compensation for Subsidiary Item, Removal of Water.

13. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

A. Bid Item ³⁴35, Grouted Rock Riprap

(1) This item shall consist of the furnishing and placing of grouted rock riprap and bedding at the side inlet at RWCD Floodway Station 980+75, the side inlet for Ch. #3, and the basin inlet structure, as shown on the drawings and staked in the field.

(2) The rock shall be graded as follows:

<u>Particle Size (inch)</u>	<u>Percent Passing (by Dry Weight)</u>
15	100
12	75 - 100
9	60 - 85
6	25 - 40
4	10 - 25
3	0 - 10

(3) Rock shall be either hand or equipment placed.

(4) Bedding beneath riprap shall be graded as follows:

<u>U. S. Sieve Size</u>	<u>Percent Passing (by Dry Weight)</u>
1"	100
3/4"	85 - 100
#4	50 60 - 100 80
#16	21 40 - 60 56
#40	11 22 - 44 38
#200	0 - 2 6

Size No. 67 blended with fine aggregates in accordance with ASTM C 33 meets these requirements.

(5) In Section 6, Design of the Grout Mix, the Contractor shall be responsible for proportioning the mix. The grout shall consist of Portland cement, fine and coarse aggregate, water and an air-entraining agent. The cement content shall be 5 1/2 bags per cubic yard of concrete. The maximum nominal size of coarse aggregate shall be 3/4 inch. The slump shall be within the range of 6 to 10 inches. The air content (by volume) of the grout mixture at the time of placement shall be five (5) to seven (7) percent. At least five (5) days prior to placement of grout, the Contractor shall furnish the Engineer with a statement of the mix proportions for approval.

(6) Cement shall be Type II of IIA.

(7) Measurement and payment will be by Method 1.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Metal Work

- (1) This item shall consist of fabricating and installing the basin outlet trash rack and drain grates as shown on drawings.
- (2) The trash rack and drain grates shall be fabricated of structural steel conforming to the requirements of ASTM A 36.
- (3) The trash rack and drain grates shall be painted in the manner specified in Construction Specification 82.
- (4) Equal quality manufactured drain grates may be substituted with approval of engineer.
- (5) No separate payment will be made for this item. Compensation will be included in Bid Item ~~33~~, 24-inch Diameter Reinforced Concrete Pipe, Class III. 36

7. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Metal Work

- (1) This item shall consist of the fabrication and installation of depth gauges as shown on the drawings and directed by the Engineer.
- (2) Painting shall be in accordance with Construction Specification 82.
- (3) No separate payment will be made for metal work. Compensation for this work will be included in the payment for Bid Item ~~14~~, Reinforced Concrete Class 4000X. 20

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Items, Cleaning and Painting Metal Work

- (1) This item shall consist of cleaning and painting the basin outlet trash rack and drain grates as shown on the drawings.
- (2) In Section 3, Surface Preparation, Method 2 shall apply.
- (3) In Section 4, Painting Systems, Paint System C shall apply for the trash rack and drain grate in Bid Item ~~33~~³⁶, except that Type 4 paint shall be used in place of Type 2 or 3 paint for the priming coat.
- (4) No separate payment will be made for this item. Compensation will be included in Bid Item ~~33~~³⁶, 24-inch Diameter Reinforced Concrete Pipe, Class III. ₃₆

9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Subsidiary Item, Cleaning and Painting Metal Work

- (1) This item shall consist of cleaning and painting the depth guages.
- (2) In Section 3, Surface Preparation, Method 2 shall apply.
- (3) In Section 4, Paint Systems E (except that Type 4 paint shall be used in place of Type 2 paint for the priming coat) shall apply. The two top coats of enamel paint on the depth guages shall alternate white background with green numbers, and green background with white numbers.
- (4) No separate payment will be made for cleaning and painting. Compensation for this work will be included in the payment for Bid Item ~~14~~, Concrete, Class 4000X.

20

8. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ²⁴18, Asphalt Concrete Pavement

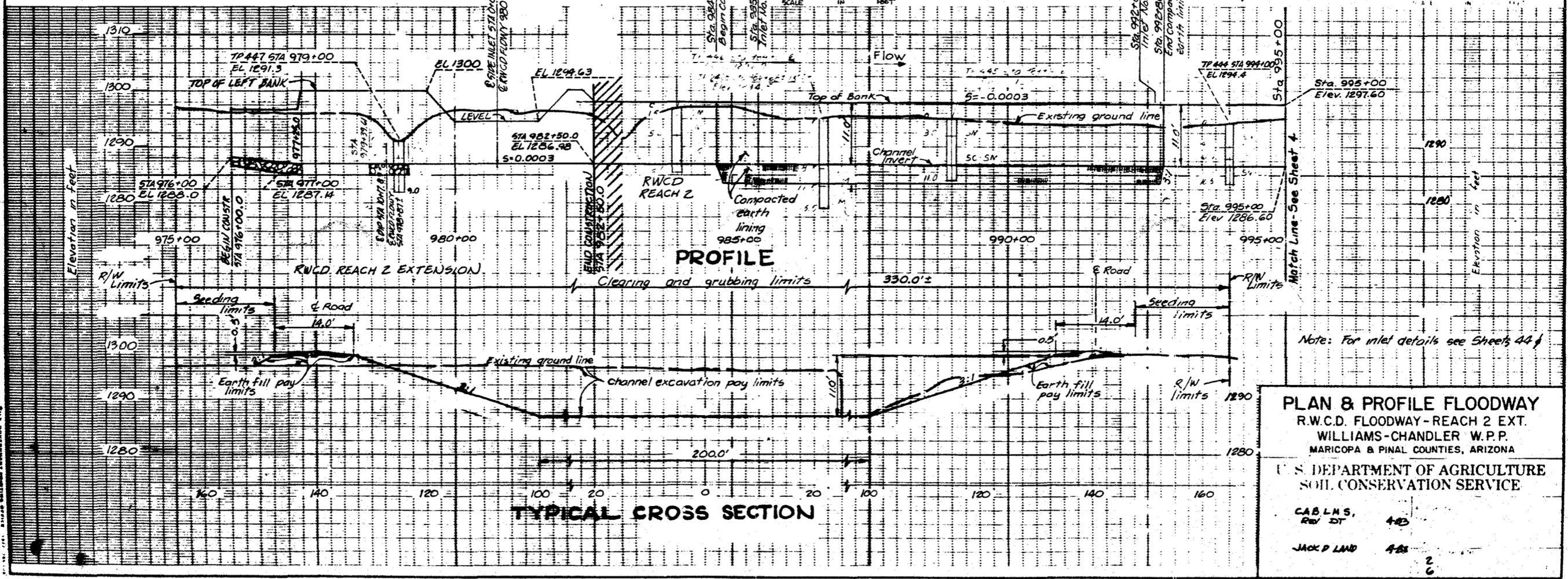
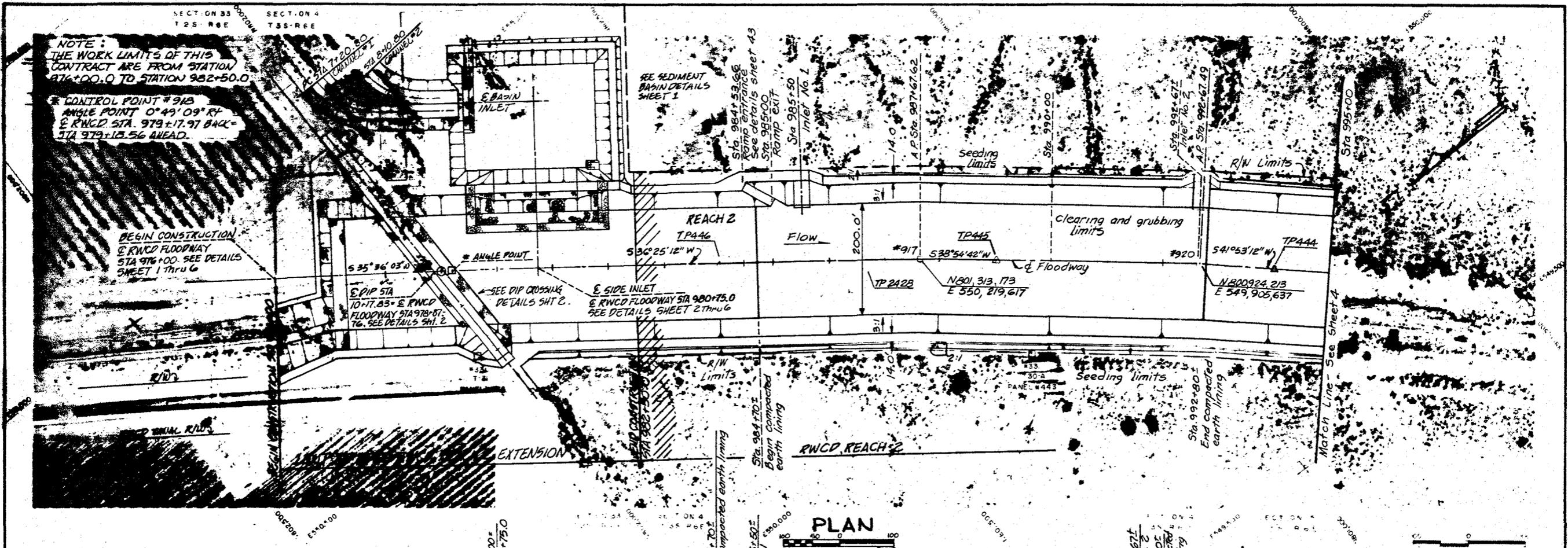
- (1) This item shall consist of furnishing and installing the asphalt concrete pavement, including the untreated base and preservative seal for the following work:
 - (a) The dip crossing between Station 976+75₊ and Station 981+00₊ centerline floodway.
- (2) Payment will be made in accordance with Section 7.

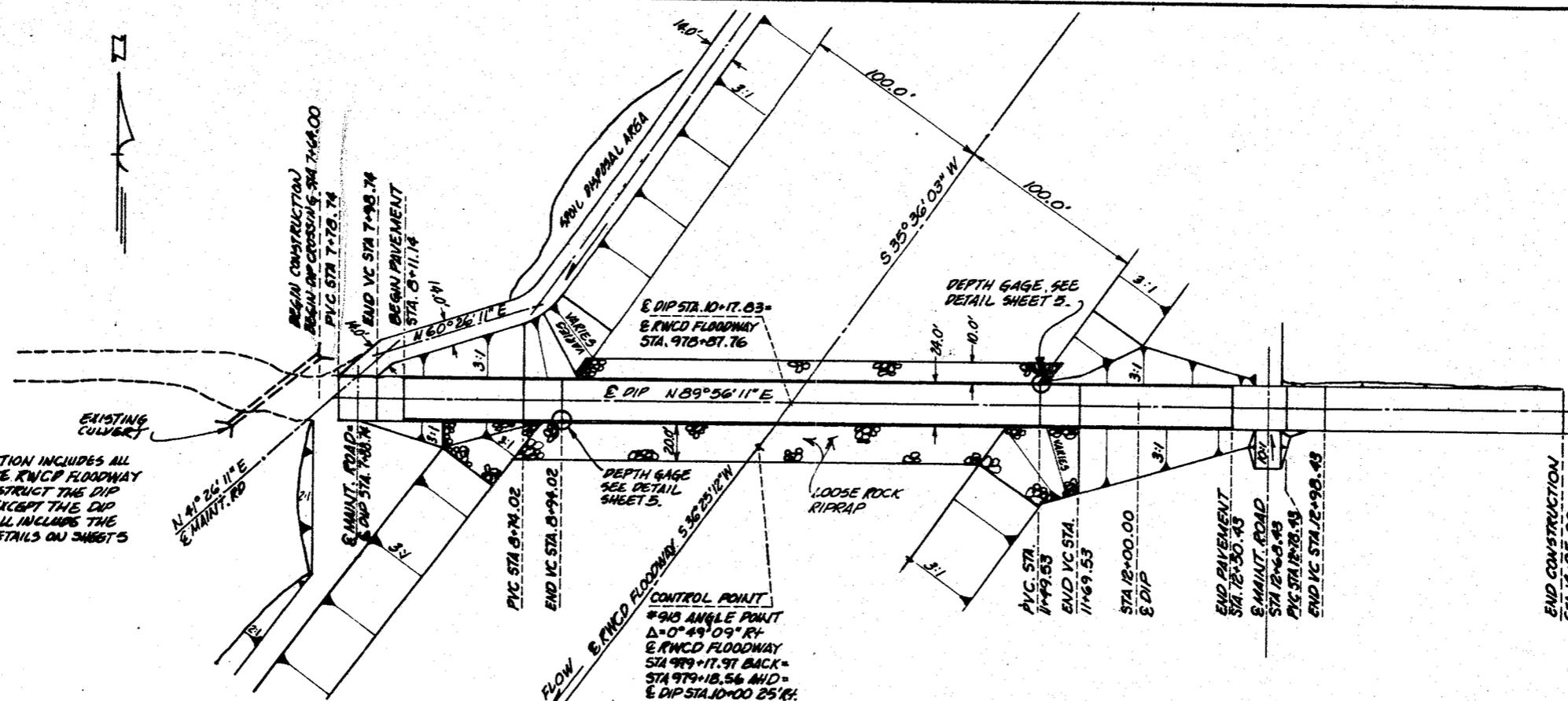
9. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details are:

a. Bid Item ³⁹36, Surveys

- (1) This item shall consist of furnishing personnel, equipment, materials and performing surveys required for:
 - (a) Construction layout
 - (b) Computation of quantities
 - (c) "As-Built" construction drawings.
- (2) The Contractor shall provide the Government Representative a statement of qualifications, including specific experience of each of the survey personnel assigned to the job.
- (3) The Contractor shall provide the Government Representative schedule of surveys to be performed each month.
- (4) In Section 5, Construction Surveys and Measurements, all entries in the bound field notebooks shall follow the format shown on pages 2-40 and 2-42 of the Soil Conservation Service National Engineering Handbook, Section 19.
- (5) In Section 6, Staking, the location and marking of stakes shall follow the format shown on pages 2-13, 2-15, 2-17 and 2-20 of the Soil Conservation Service National Engineering Handbook, Section 19.
- (6) Payment will be in accordance with Section 8.

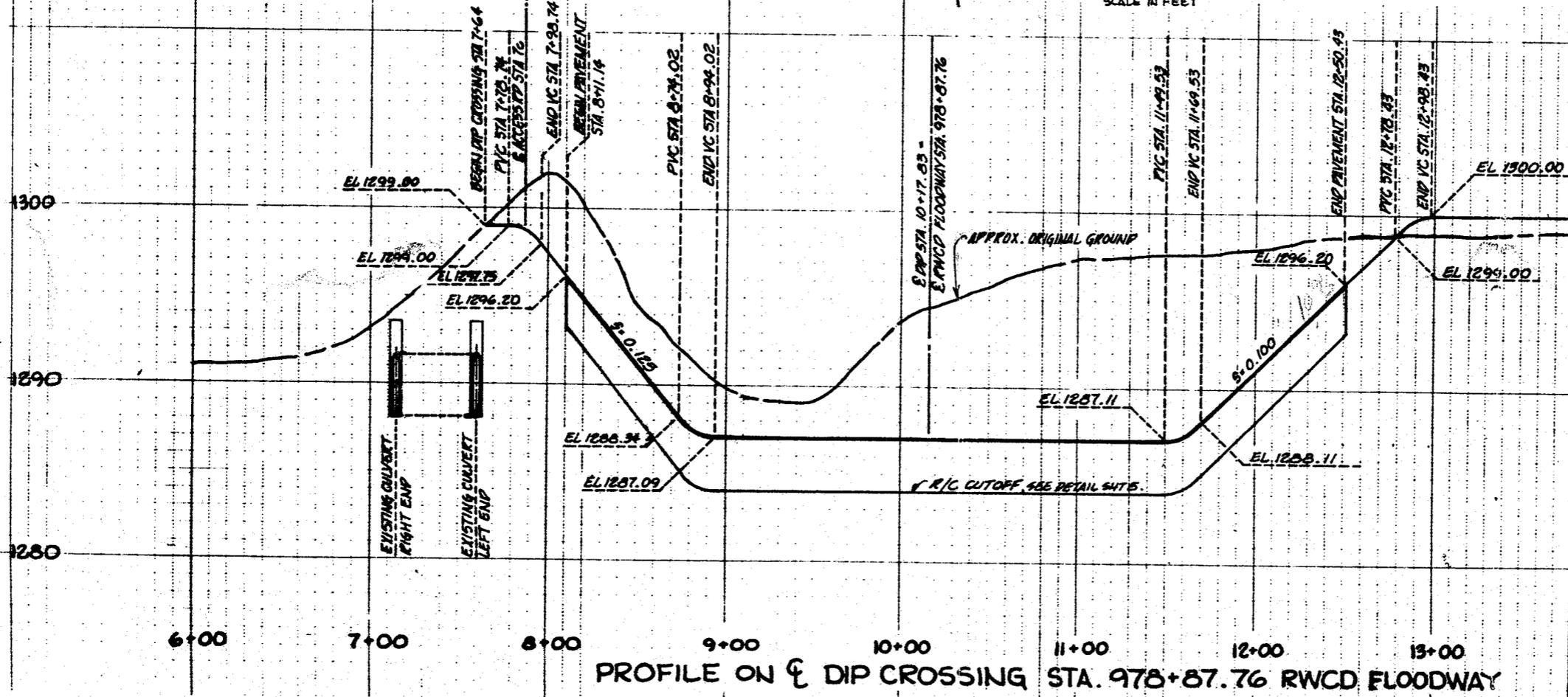




VERTICAL CURVE DATA	
PVC STA 7+78.74	ELEV 1299.00
7+83.74	1298.92
7+88.74	1298.69
7+93.74	1298.30
END VC STA 7+98.74	1297.75
PVC STA 8+74.02	ELEV 1285.34
8+79.02	1287.74
8+84.02	1287.40
8+89.02	1287.17
END VC STA 8+94.02	ELEV 1287.09
PVC STA 11+49.53	ELEV 1287.11
11+54.53	1287.17
11+59.53	1287.36
11+64.53	1287.67
END VC STA 11+69.53	ELEV 1288.11
PVC STA 12+75.43	ELEV 1299.00
12+83.43	1299.44
12+91.43	1299.75
12+99.43	1299.88
END VC STA 13+05.43	ELEV 1300.00

NOTE:
DIP CROSSING EXCAVATION INCLUDES ALL EXCAVATION BEYOND THE RWCD FLOODWAY PRISM NECESSARY TO CONSTRUCT THE DIP CROSSING AS SHOWN, EXCEPT THE DIP CROSSING STR. EXCAVATION WILL INCLUDE THE AREAS SHOWN IN THE DETAILS ON SHEETS 5 OF THESE DRAWINGS.

PLAN OF DIP CROSSING

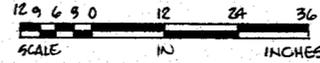
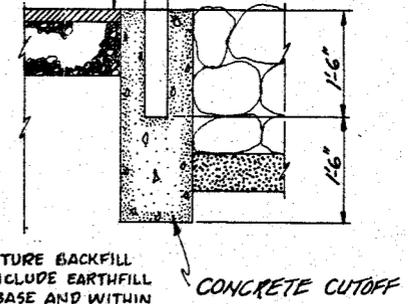
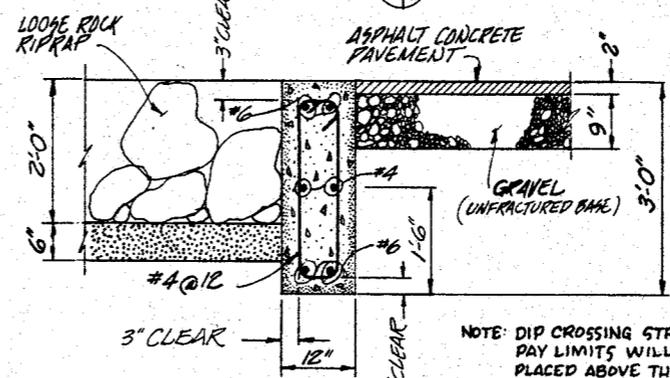
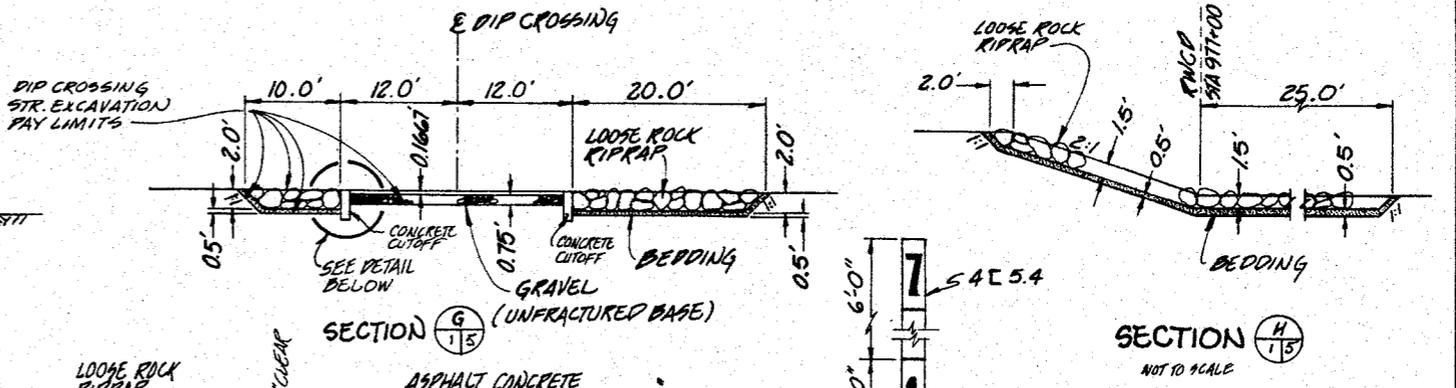
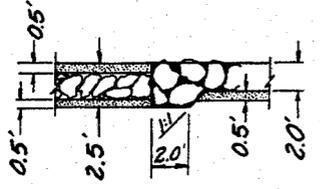
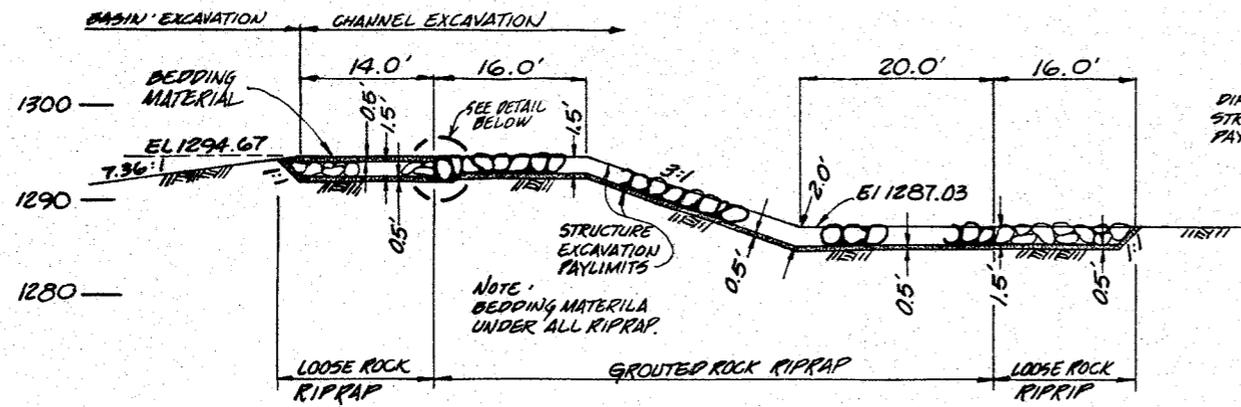


PROFILE ON C DIP CROSSING STA. 978+87.76 RWCD FLOODWAY

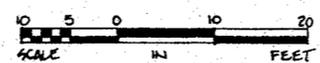
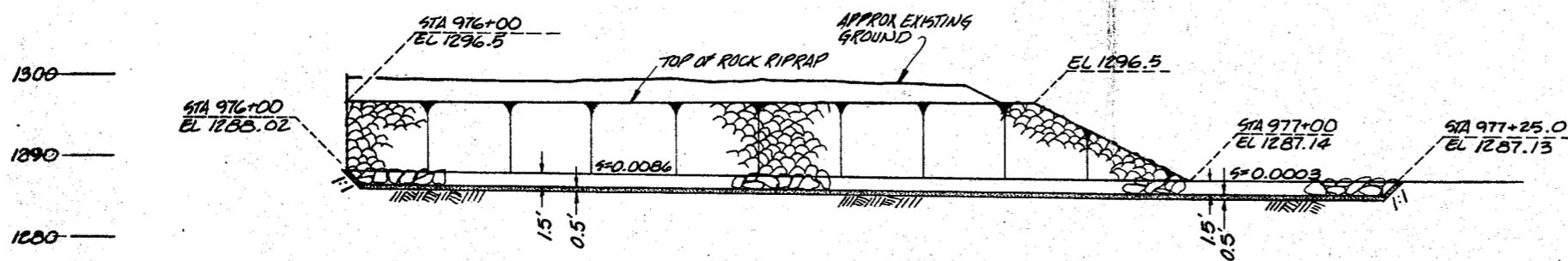
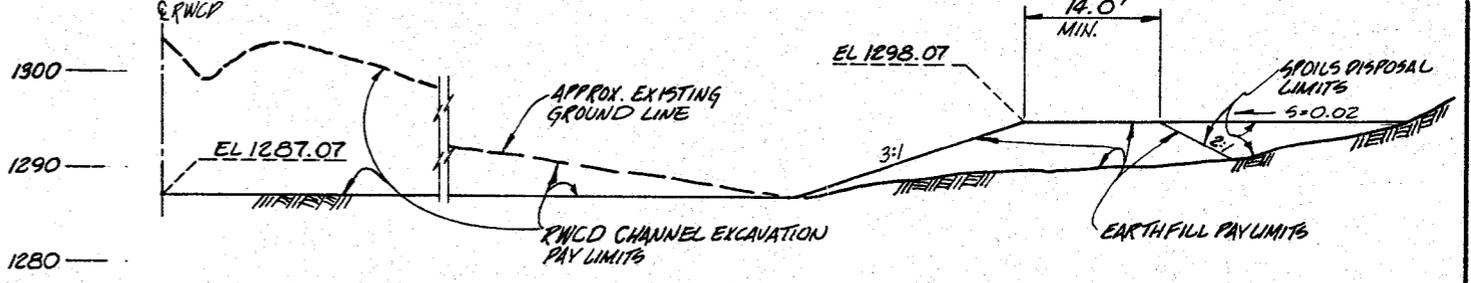
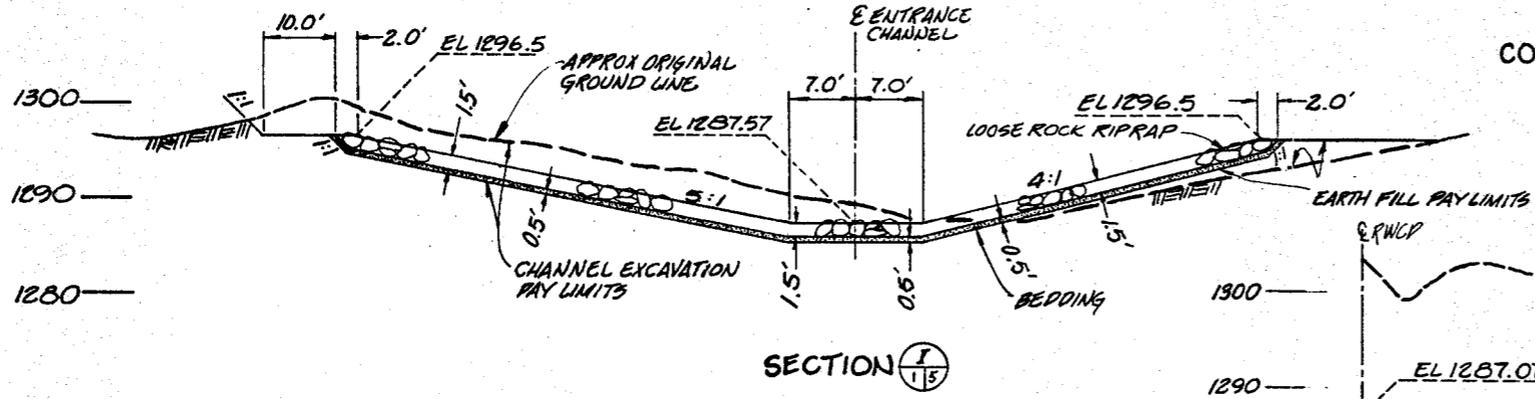
**PLAN & PROFILE
DIP CROSSING AT HUNT HIGHWAY**
R.W.C.D. FLOODWAY - REACH 2 EXT.
WILLIAMS-CHANDLER W.P.P.
MARICOPA & PINAL COUNTIES, ARIZONA

**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

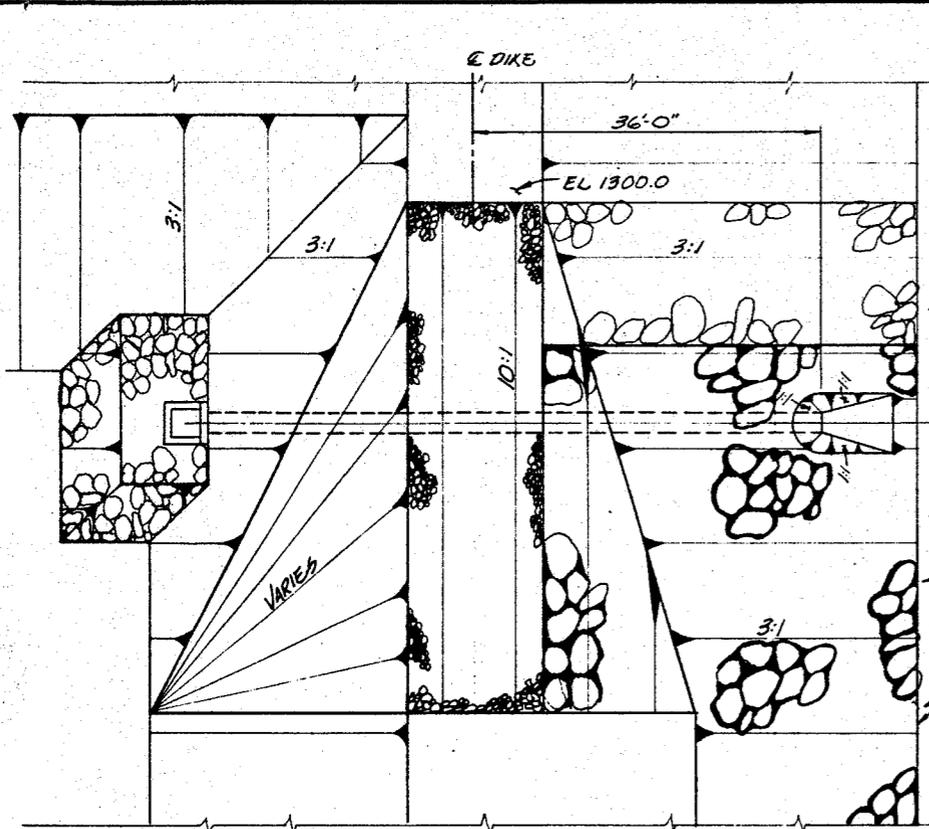
Designed <i>DAVID THACKERY</i> 4-83	Date	Approved by
Drawn <i>JACK D. LAMP</i> 4-83	Type	
Traced	Scale	
Checked <i>L.M.S.</i> 4-83	Sheet	Drawing No.



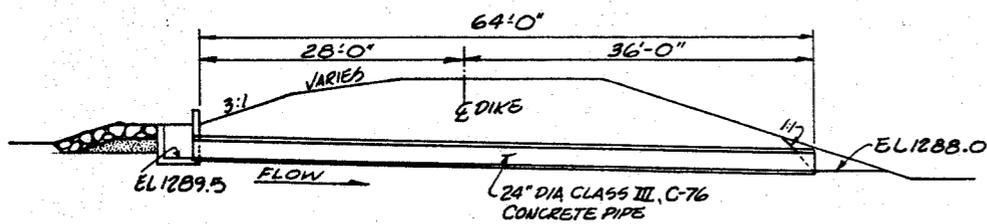
NOTE: DIP CROSSING STRUCTURE BACKFILL PAY LIMITS WILL INCLUDE EARTH FILL PLACED ABOVE THE BASE AND WITHIN 2 FEET OF CUTOFF WALL.



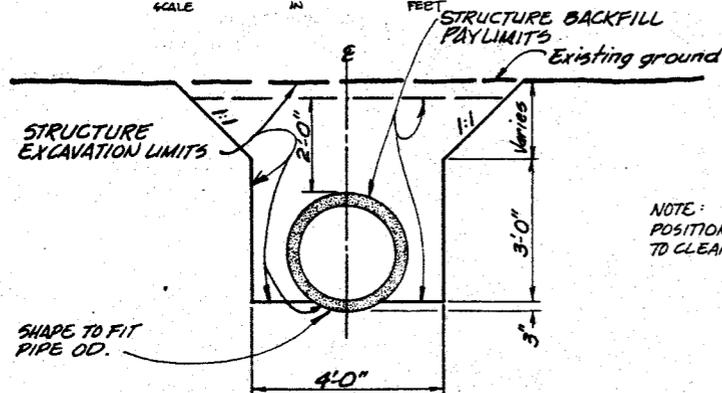
SECTIONS & DETAILS			
R.W.C.D. FLOODWAY - REACH 2 EXT.			
WILLIAMS-CHANDLER W.P.P.			
MARICOPA & PINAL COUNTIES, ARIZONA			
U. S. DEPARTMENT OF AGRICULTURE			
SOIL CONSERVATION SERVICE			
Designed: DAVID THACKERAY	Date: 4-83	Approved by: _____	Title: _____
Drawn: JACK P. LAND	Date: 4-83	Checked: _____	Title: _____
Traced: _____	Sheet No: 5	Drawing No: _____	
Checked: L.M.S.	Date: 4-83	of: 6	



PLAN SEDIMENT BASIN OUTLET PIPE



PROFILE ON & OUTLET PIPE

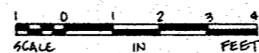


TYPICAL SECTION

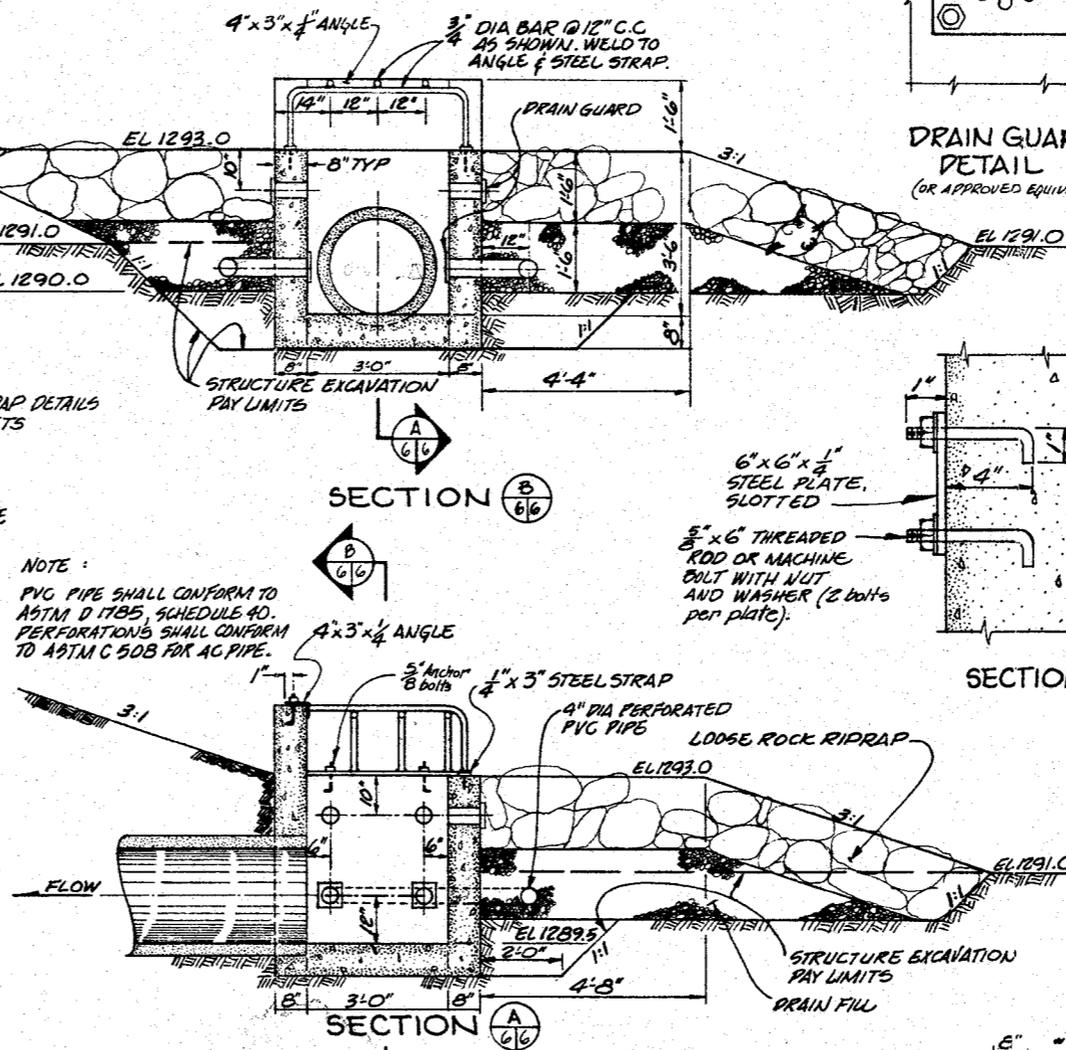
FOR RIPRAP DETAILS SEE SHEETS

NOTE: POSITION REINFORCEMENT TO CLEAR DRAIN OPENING.

UPSTREAM ELEVATION



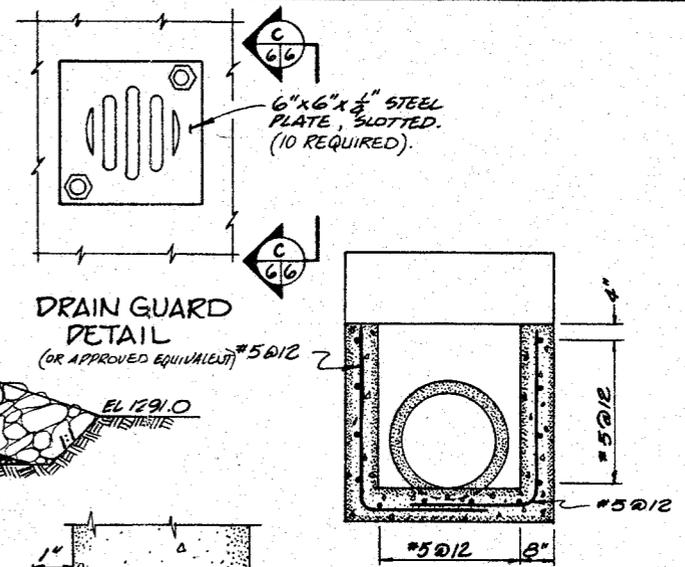
NOTE: PVC PIPE SHALL CONFORM TO ASTM D 1785, SCHEDULE 40. PERFORATIONS SHALL CONFORM TO ASTM C 508 FOR AG PIPE.



SECTION A-A

SECTION B-B

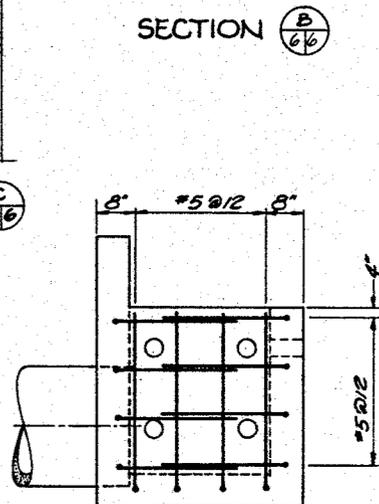
SECTION C-C



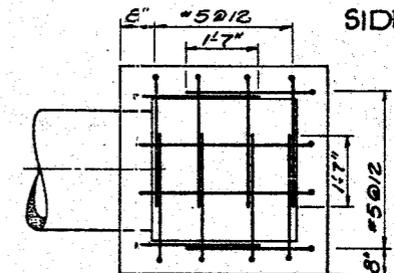
DRAIN GUARD DETAIL (OR APPROVED EQUIVALENT)

6" x 6" x 1/2" STEEL PLATE, SLOTTED
5/8" x 6" THREADED ROD OR MACHINE BOLT WITH NUT AND WASHER (2 BOLTS PER PLATE)

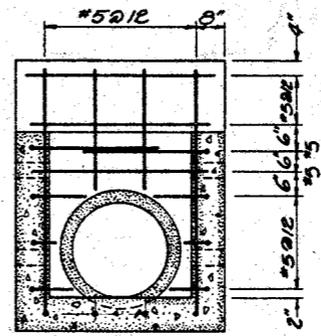
SECTION C-C



SIDE ELEVATION



PLAN



SECTION B-B

BASIN OUTLET STRUCTURE			
R.W.C.D. FLOODWAY - REACH 2 EXT. WILLIAMS-CHANDLER W.P.P. MARICOPA & PINAL COUNTIES, ARIZONA			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed: MELVIN M. SABLE	Date: 4-83	Approved by: _____	Title: _____
Drawn: JACK P. LANG	Date: 4-83	Checked: _____	Drawing No. _____
Traced: _____	Sheet: 6	Checked: D.W. THOMPSON	Date: 4-83