LA SIERRA STORM CHANNEL

STAGE "E"

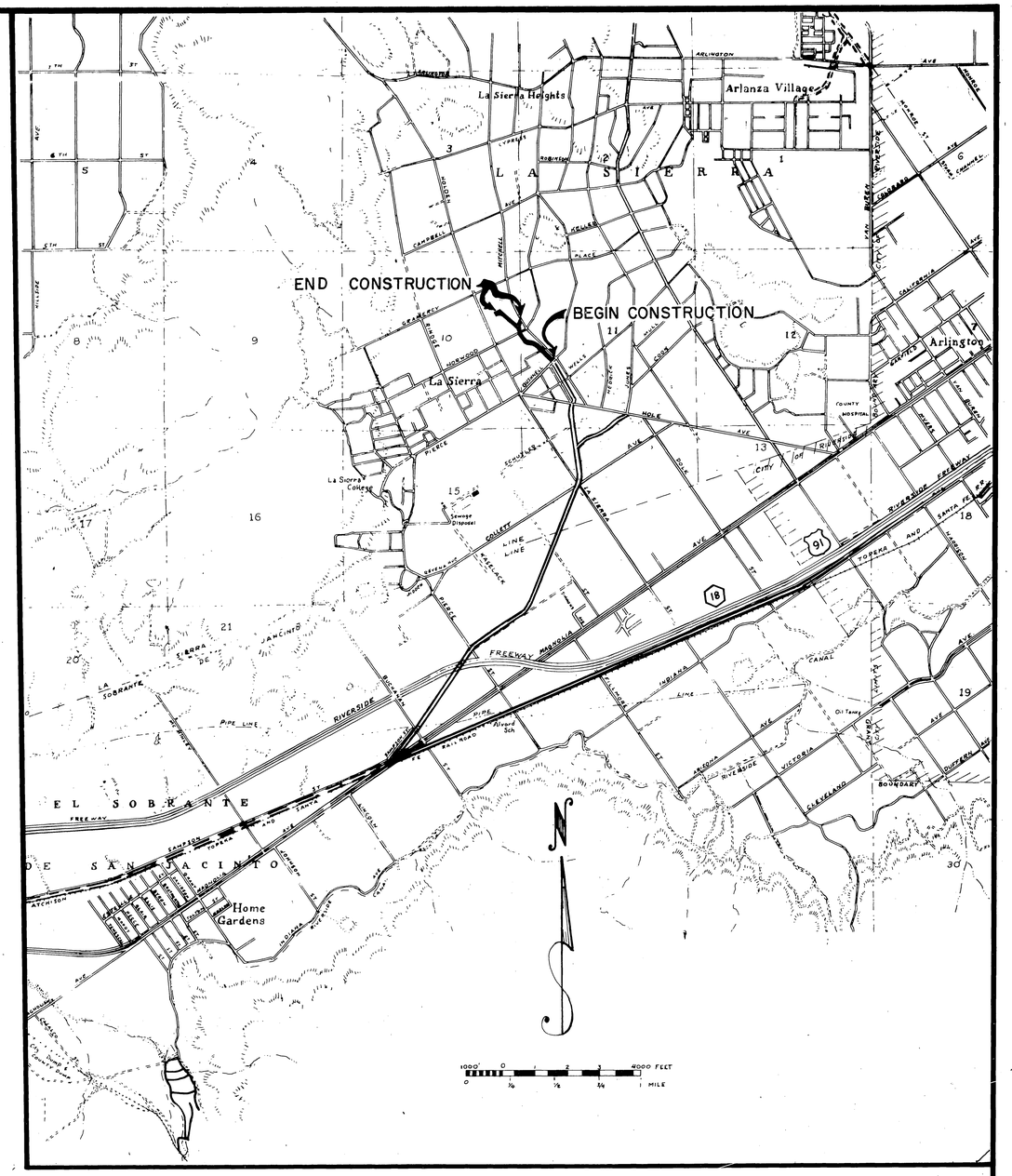
CONSTRUCTION DRAWINGS

BY

RIVERSIDE COUNTY FLOOD CONTROL

AND

WATER CONSERVATION DISTRICT



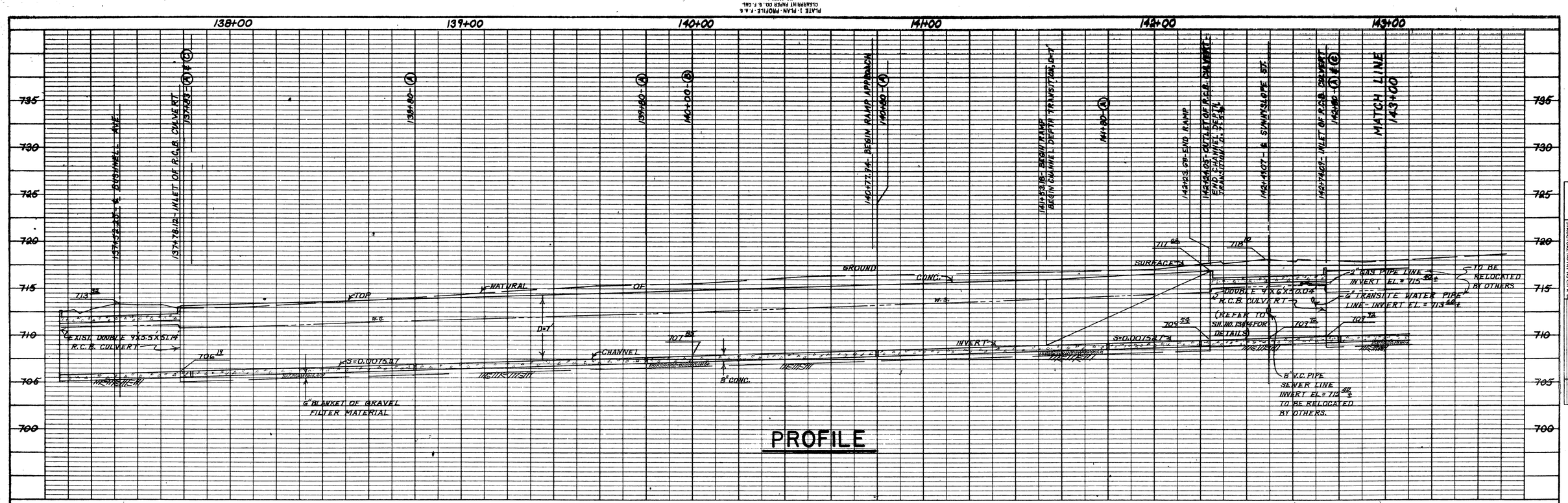
GENERAL NOTES

1. Reinforced concrete shall be Class A (6 sack) and shall have a minimum of 3,000 p. s. i. 28 day compressive strength.
2. Reinforcing steel shall be deformed, intermediate grade, billet-steel bars conforming to the specifications of A. S. T. M. Designation A-15, latest revised, with deformations conforming to A. S. T. M. Designation A-305.
3. All reinforcing bar bends and hooks shall conform to the American Concrete Institute "MANUAL of STANDARD PRACTICE."
4. Lap all reinforcing steel a minimum of 30 bar diameters at splices. The location of all splices shall be subject to approval of the Engineer.
5. All reinforcing steel shall have a minimum cover of 1½" unless otherwise noted.
6. All exposed edges of concrete structures, shall be chamfered ¾" or rounded as directed.
7. Unreinforced concrete channel lining shall be Class B (5 sack), unless otherwise specified.
8. All concrete thickness dimensions are the minimum allowable.
9. Provide ½" expansion joint material to separate the channel concrete lining from the R.C.B. Culverts.
10. Transverse grooves 1" deep at 10' spacing shall be provided in all unreinforced concrete channel lining and levee lining. Grooves shall be formed using 3/16" x 1" masonite strips.
11. All transverse construction joints in unreinforced concrete channel lining required at the end of a day's placing operation shall be located between the transverse grooves and No. 4 x 30" dowels at 24" spacing embedded 15" shall be provided.
12. Transverse construction joints at 30' spacing, or as directed by the Engineer, shall be provided in the reinforced concrete channel lining.
13. The subdrainage filter material shall be Class I, Type B, as specified in paragraph 68-1.025 of the STANDARD SPECIFICATIONS.
14. The surface finish required for unreinforced concrete channel lining shall be a tight wood float finish. See Special Provisions.
15. The channel and levee embankments and the channel structural backfill shall be compacted to not less than 85% maximum density and the structure backfill for the R.C.B. culverts shall be compacted to not less than 90% maximum density as determined by tests conforming to the requirements of Test Method No. Calif. 216-F.
16. For Right of Way Refer to Record of Survey Book 40 page 95 and Book 47 pages 66, 67, and 68.
17. Provide 3-2½" (or adequate to receive fencing) Std. pipe sockets 14" deep in each R.C.B. Culvert parapet (centered) for ℄ Posts (9'-6" centers).

AS BUILT
PROJECT NO. 1-0-060

REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	
	LA SIERRA STORM CHANNEL STAGE "E"	
	APPROVED: John M. Barnard, CHIEF ENGINEER R.E. NO. 8822	DRAWN: Ken Biladeau
		TRACED:
		CHECKED:
	DATE: 1-4-66	DATE DRAWN: December, 1964
		SHEET No. 1 of 23
		DWG. No. 1-201

D-173 E



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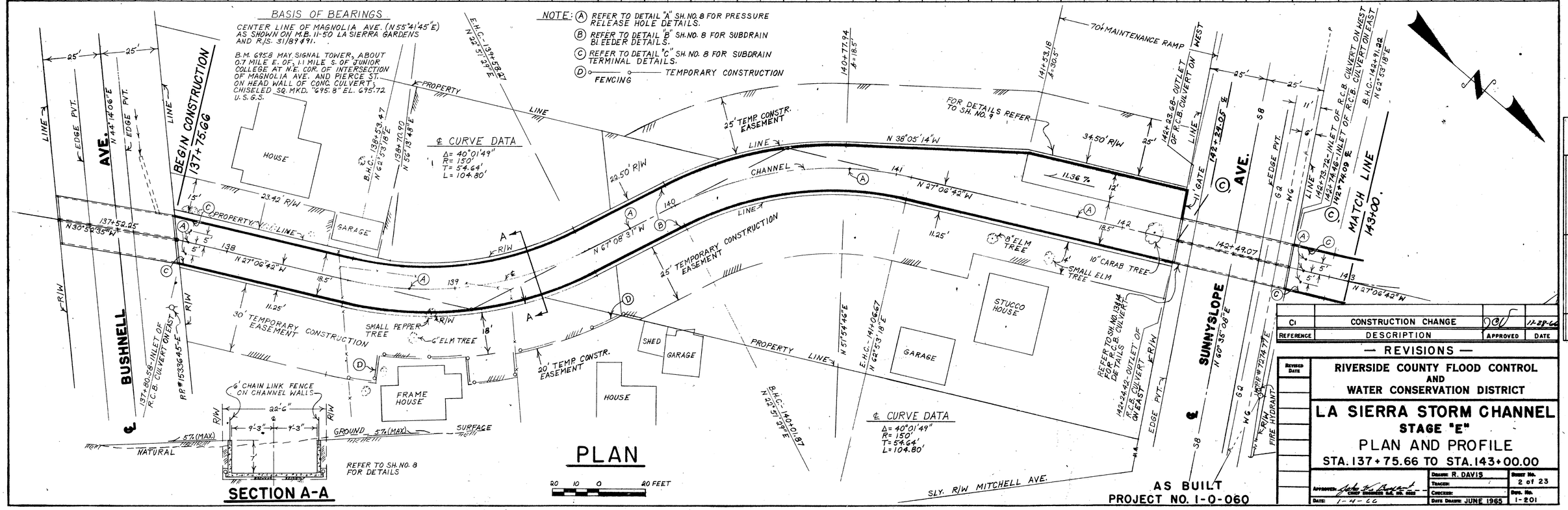


SECTION A-A

PLAN

REFERENCE	DESCRIPTION	APPROVED	DATE
C1	CONSTRUCTION CHANGE	CCV	11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

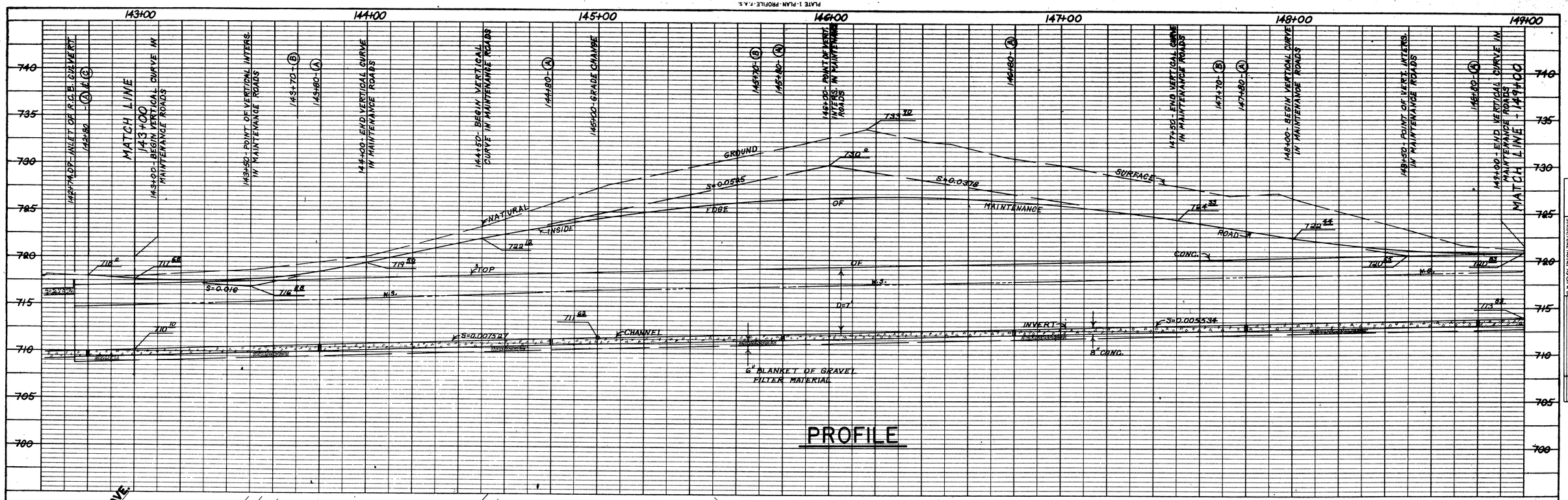
LA SIERRA STORM CHANNEL
STAGE "E"
PLAN AND PROFILE
STA. 137+75.66 TO STA. 143+00.00

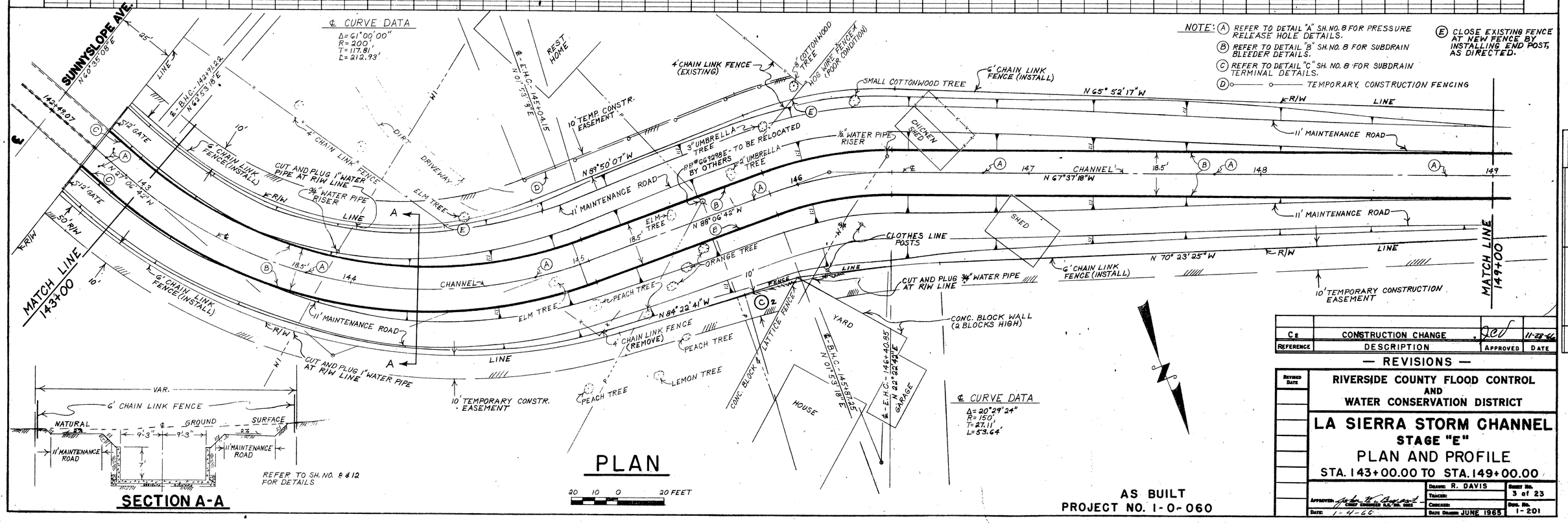
APPROVED: CHIEF ENGINEER-G.M. DIR. OBES
DATE: 1-4-66
DRAWN: R. DAVIS
TRACED:
CHECKED:
DATE DRAWN: JUNE 1965
SHEET No. 2 of 23
DWG. No. 1-201

PROFILE: SURVEYED, PLOTTED, ALIGNMENT CHECKED, G.A.S. NOTED, STRUCTURE NOTATIONS CK'D, NOTE BOOK NO.

PLAN: SURVEYED, PLOTTED, ALIGNMENT CHECKED, G.A.S. NOTED, STRUCTURE NOTATIONS CK'D, NOTE BOOK NO.

D-173 E





AS BUILT
PROJECT NO. 1-0-060

REFERENCE	DESCRIPTION	APPROVED	DATE
C2	CONSTRUCTION CHANGE	GCD	11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL
STAGE "E"
PLAN AND PROFILE
STA. 143+00.00 TO STA. 149+00.00

APPROVED: CHIEF ENGINEER R.E. DIV. 0063
DATE: 1-4-66

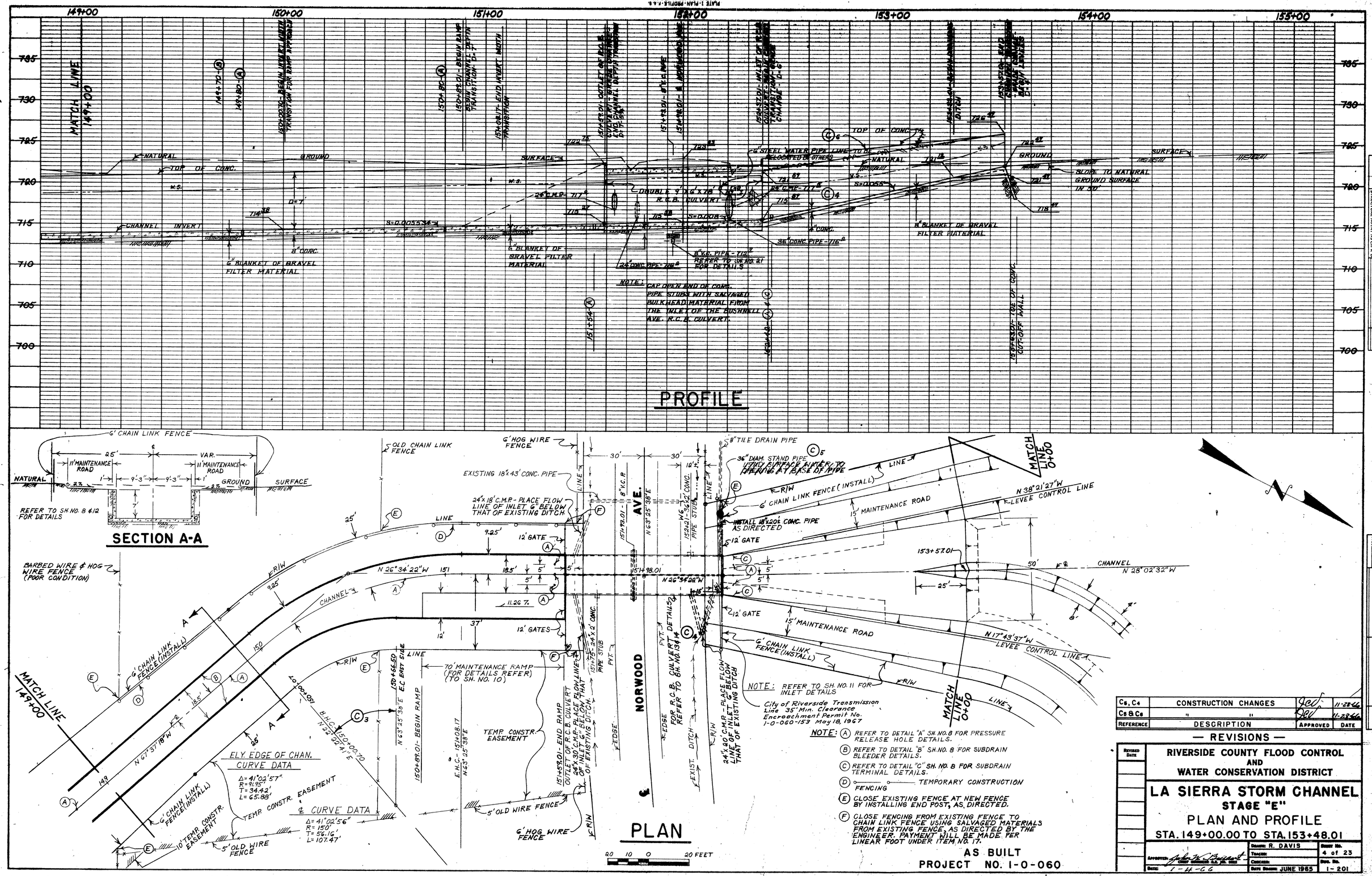
DRAWN: R. DAVIS
TRACED:
CHECKED:
DATE DRAWN: JUNE 1965

SHEET NO. 3 of 23
DWG. NO. 1-201

PROFILE
SURVEYED
NOTE BOOK
PLOTTED
GRADES CHECKED
STRUCTURE NOTATIONS CHECKED
NO.
BY
DATE

PLAN
SURVEYED
NOTE BOOK
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NO.
BY
DATE

D-173 E



AS BUILT
PROJECT NO. 1-0-060

REFERENCE	DESCRIPTION	APPROVED	DATE
C6, C4	CONSTRUCTION CHANGES		11-28-66
C8 & C6	" "		11-28-66

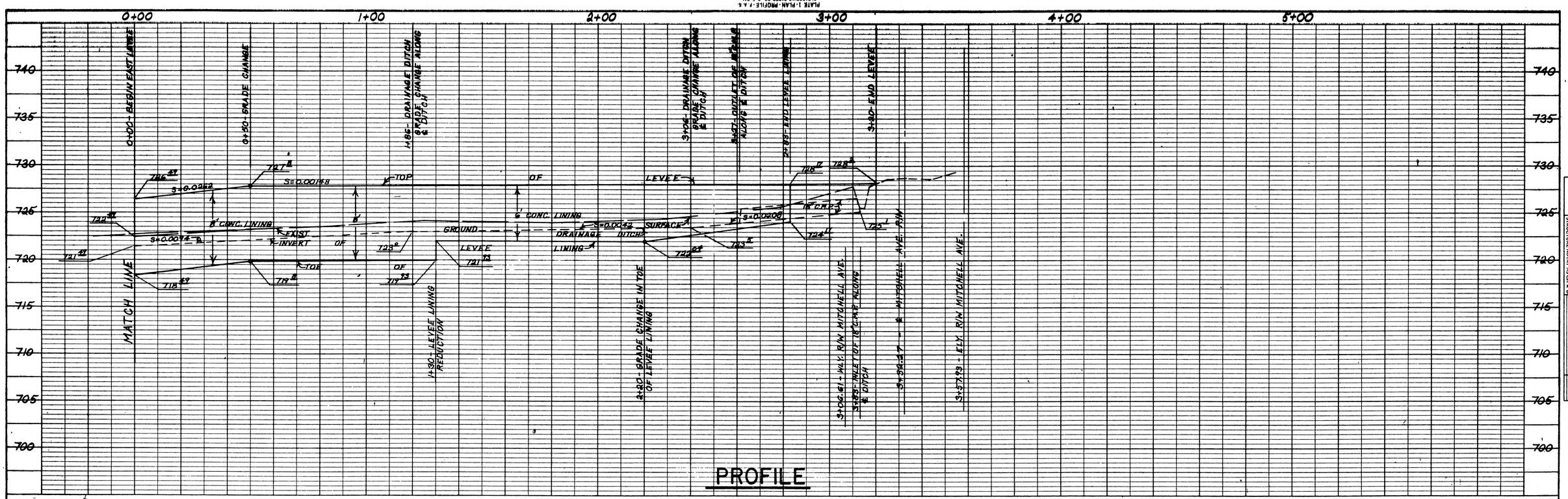
— REVISIONS —

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

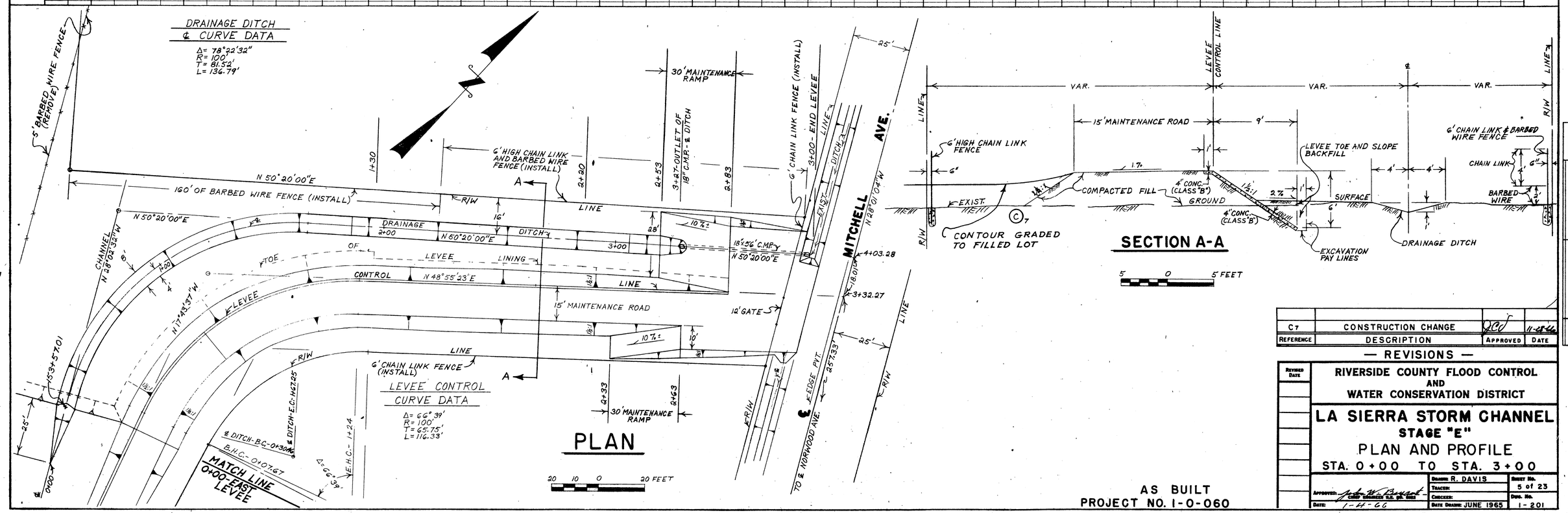
LA SIERRA STORM CHANNEL
STAGE "E"
PLAN AND PROFILE
STA. 149+00.00 TO STA. 153+48.01

APPROVED:	DRAWN: R. DAVIS	SHEET No. 4 of 23
DATE: 1-4-66	TRACED:	DWG. No. 1-201
	CHECKED:	
	DATE DRAWN: JUNE 1965	

D-173 E



PROFILE



REFERENCE	DESCRIPTION	APPROVED	DATE
C7	CONSTRUCTION CHANGE		11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL

STAGE "E"

PLAN AND PROFILE

STA. 0+00 TO STA. 3+00

APPROVED: John W. Bryant, CHIEF ENGINEER R.E. EN. 6882

DATE: 1-14-66

DRAWN: R. DAVIS

TRACED:

CHECKED:

DATE DRAWN: JUNE 1965

SHEET No. 5 of 23

DWG. No. 1-201

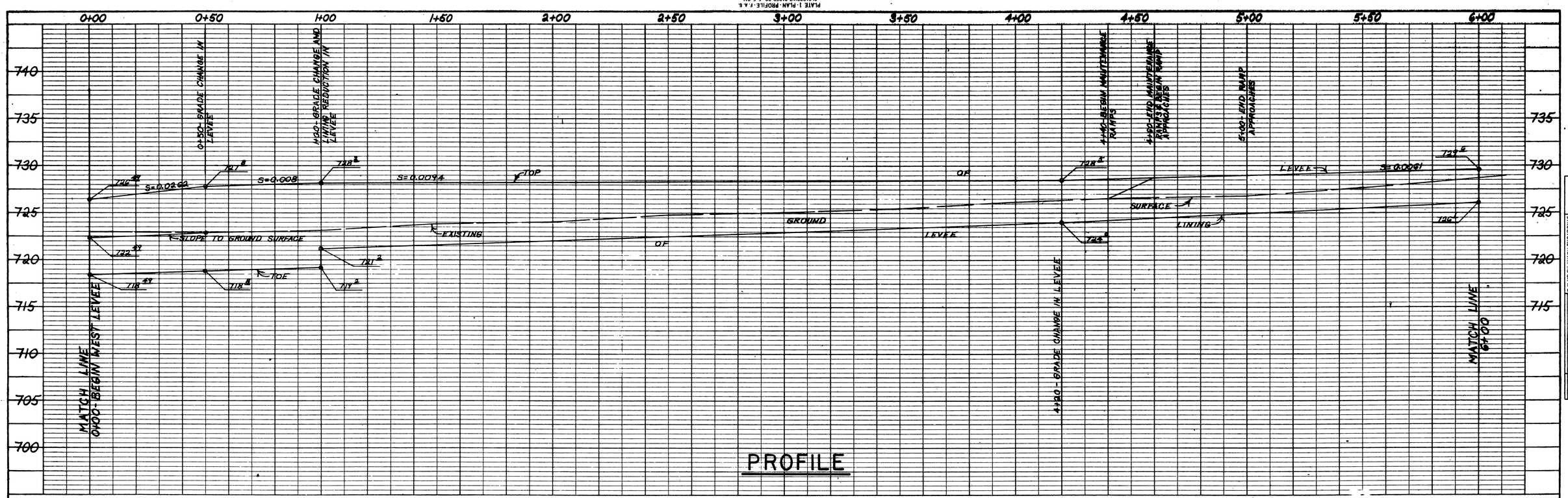
AS BUILT
PROJECT NO. 1-0-060

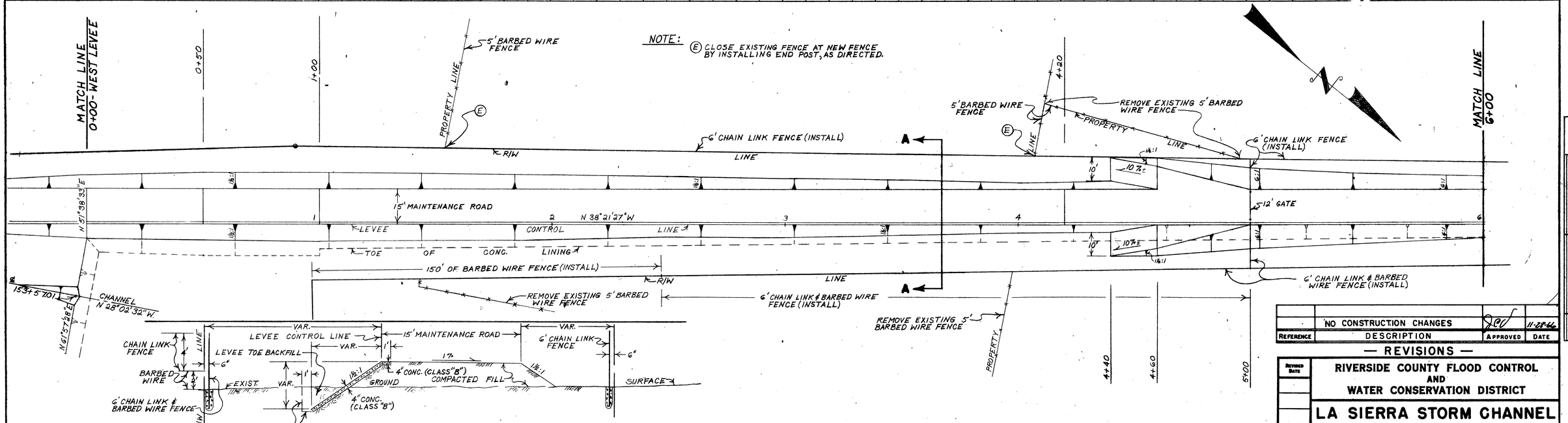
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M.'S NOTED
STRUCTURE LOCATIONS CHK'D
NOTE BOOK
NO.

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.

BY
DATE

D-173 E





REFERENCE	DESCRIPTION	APPROVED	DATE
	NO CONSTRUCTION CHANGES		11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL

STAGE "E"

PLAN AND PROFILE

STA. 0+00 TO STA. 6+00

APPROVED: [signature] CHIEF ENGINEER R.E. NO. 6665

DATE: 1-4-66

DRAWN: R. DAVIS

TRACED:

CHECKED:

DATE DRAWN: JUNE 1965

SHEET No. 6 of 23

DWG. No. 1-201

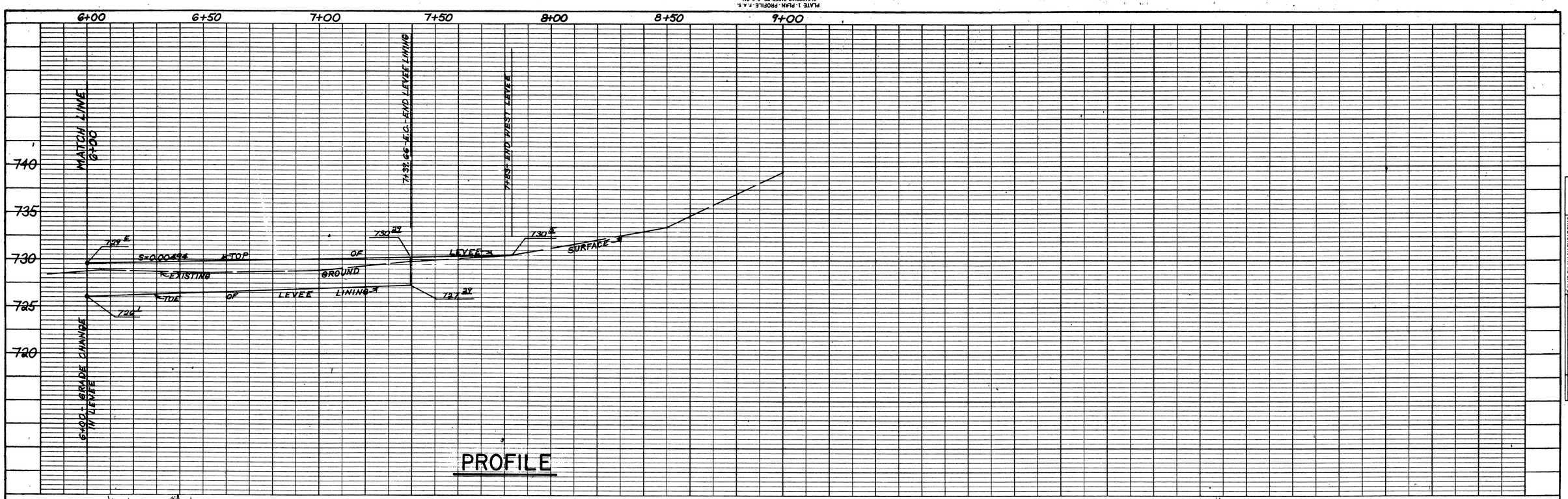
AS BUILT
PROJECT NO. 1-0-060

D-173 E

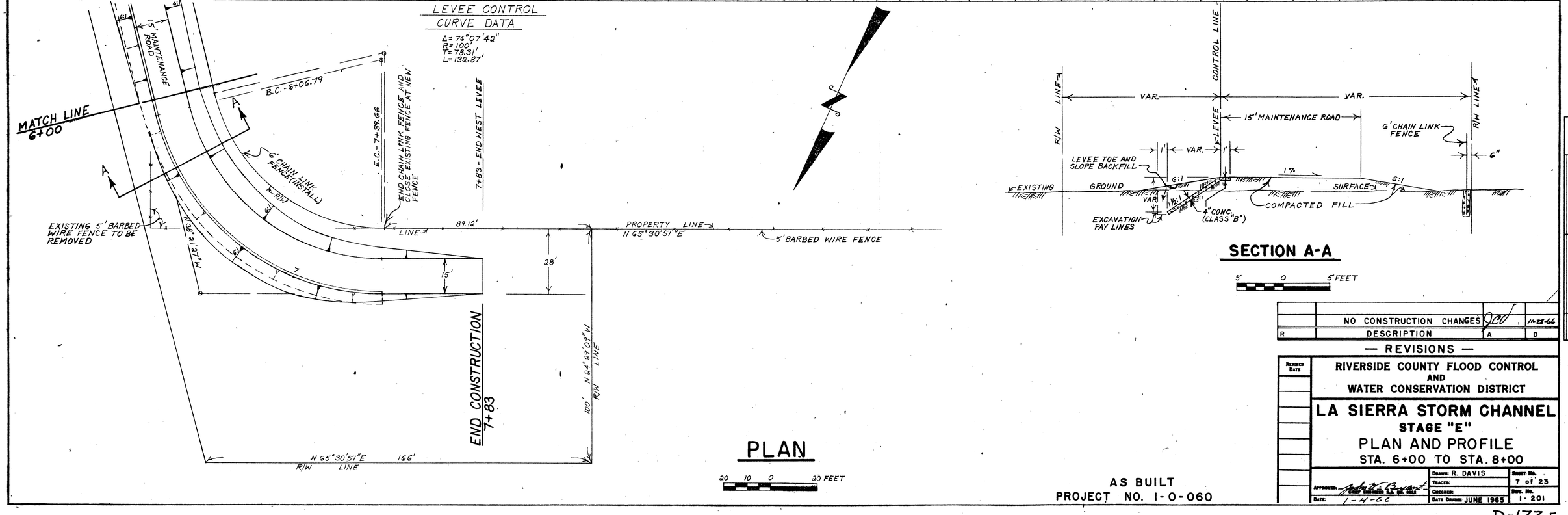
PROFILE
NOTE BOOK NO.
SURVEYED
PLOTTED
QUANTITIES CHECKED
B.M. & NOTED
STRUCTURE NOTATIONS CH'KD.

PLAN
NOTE BOOK NO.
SURVEYED
PLOTTED
QUANTITIES CHECKED
R/W OR WAY CHECKED

PLATE 1: PLAN-PROFILE: F.A.B.
CLEARPRINT PAPER CO., S.F. CAL.
NO. 1000H-1



PROFILE



AS BUILT
PROJECT NO. I-0-060

R	DESCRIPTION	A	D
	NO CONSTRUCTION CHANGES	GCV	11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

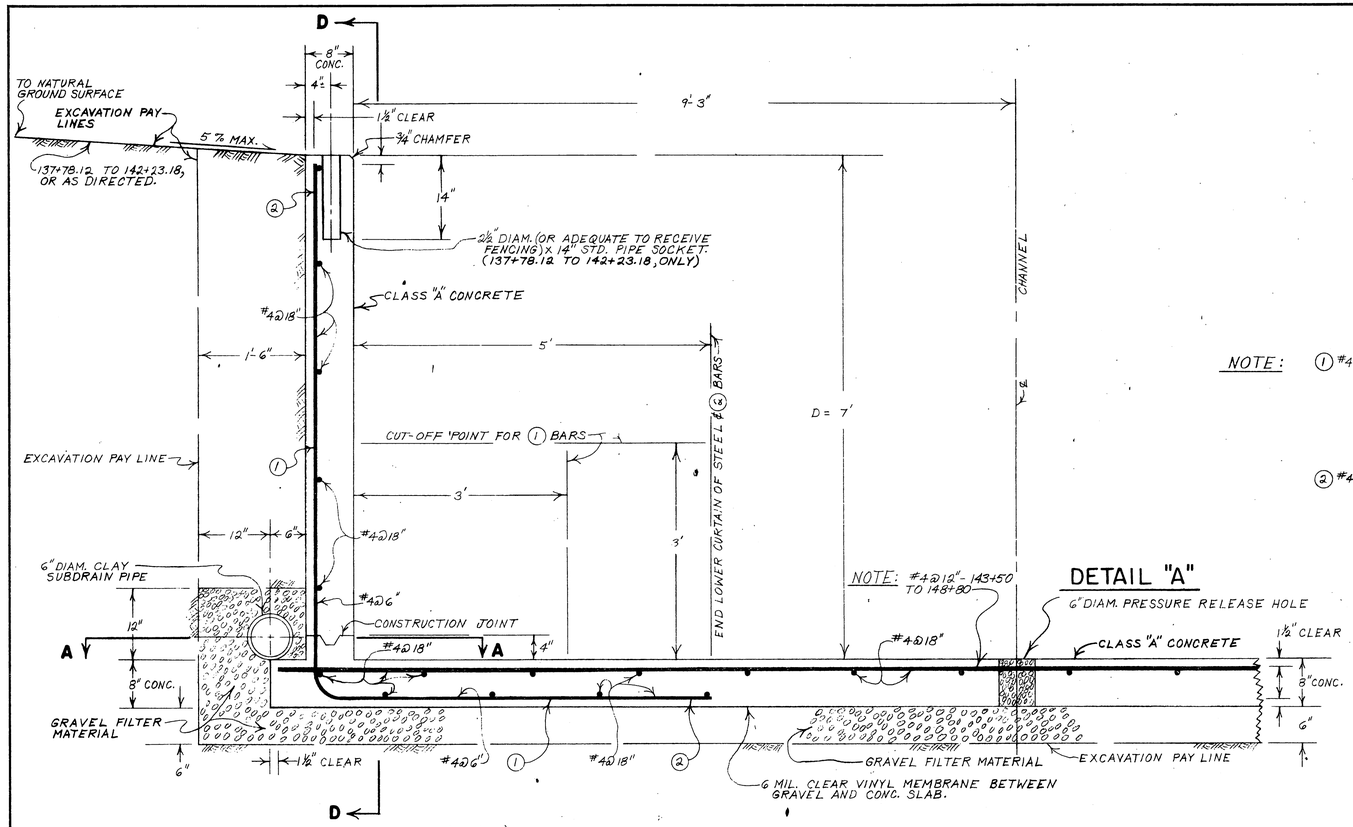
LA SIERRA STORM CHANNEL
STAGE "E"
PLAN AND PROFILE
STA. 6+00 TO STA. 8+00

APPROVED: John M. Crawford, CHIEF ENGINEER R.E. DIV. 0013	DRAWN: R. DAVIS	SHEET NO. 7 of 23
	TRACER:	
	CHECKED:	DWG. NO. 1-201
DATE: 1-11-66	DATE DRAWN: JUNE 1965	

PROFILE
SURVEYED
PLOTTED
CALCULATED
CHECKED
B.M. NOTED
STRUCTURE NOTATIONS CHK'D
NOTE BOOK
NO.
BY
DATE

PLAN
SURVEYED
PLOTTED
CALCULATED
CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

D-173E



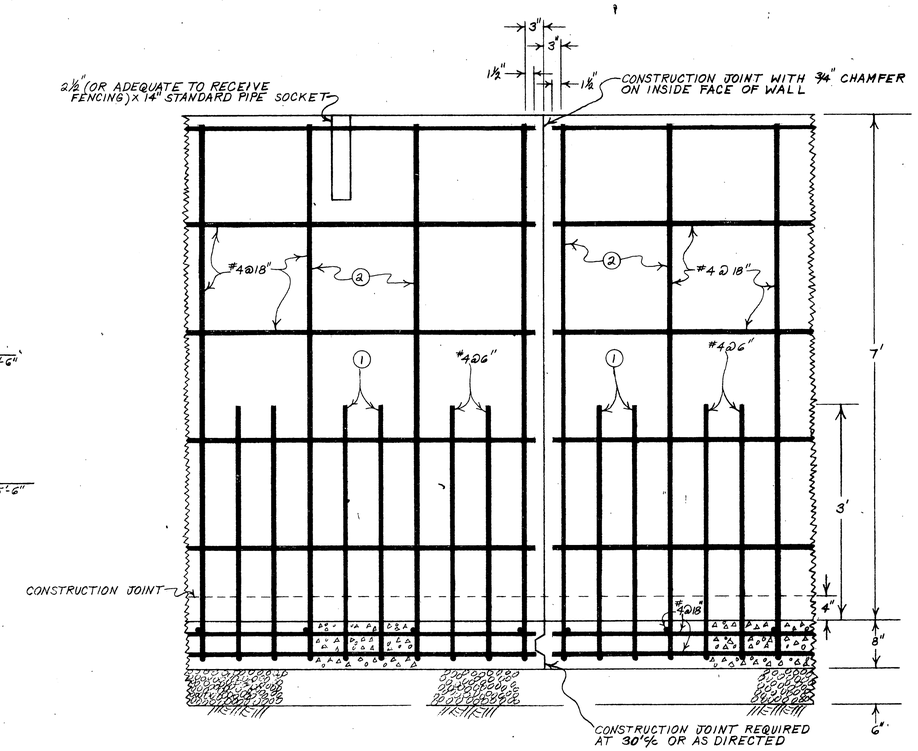
TYPICAL CHANNEL SECTION

SYMMETRICAL ABOUT ℄

137+80.58 TO 140+77.94 & 142+74.09 TO 150+00.70
EAST OF ℄ - 140+77.94 TO 141+53.18
WEST OF ℄ - 150+00.70 TO 150+89.01

NOTE: ① #4 BAR: 3'-6" 3'-6"

② #4 BAR: 7'-5" 5'-6"

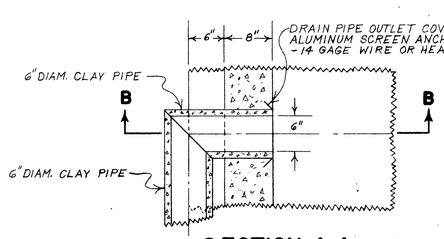


SECTION D-D

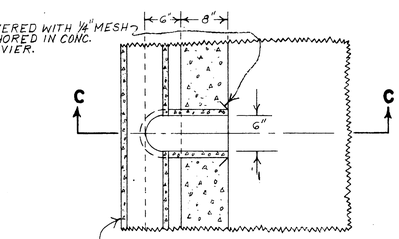
SCALE

UNLESS OTHERWISE SHOWN

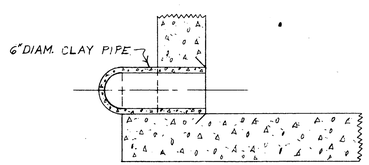
1 0 1 2 3 4 FEET



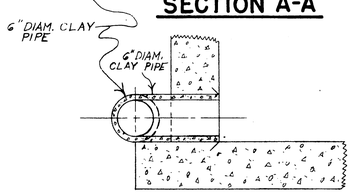
SECTION A-A



SECTION A-A



SECTION B-B



SECTION C-C

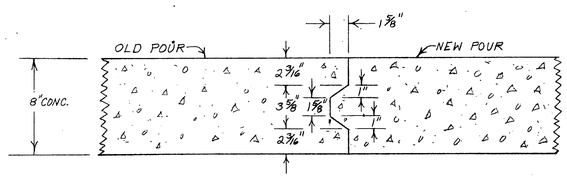
TYPICAL SUBDRAIN TERMINAL DETAILS

DETAIL "C"

TYPICAL SUBDRAIN BLEEDER DETAILS

DETAIL "B"

BOTH WALLS OF CHANNEL 200% ⅊



CONSTRUCTION JOINT

TYPICAL FOR CHANNEL INVERT AND WALLS

SCALE

1 0 1 2 FEET

AS BUILT

PROJECT NO. 1-0-060

REFERENCE	DESCRIPTION	APPROVED	DATE
	NO CONSTRUCTION CHANGES	JCW	11-30-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL
STAGE "E"

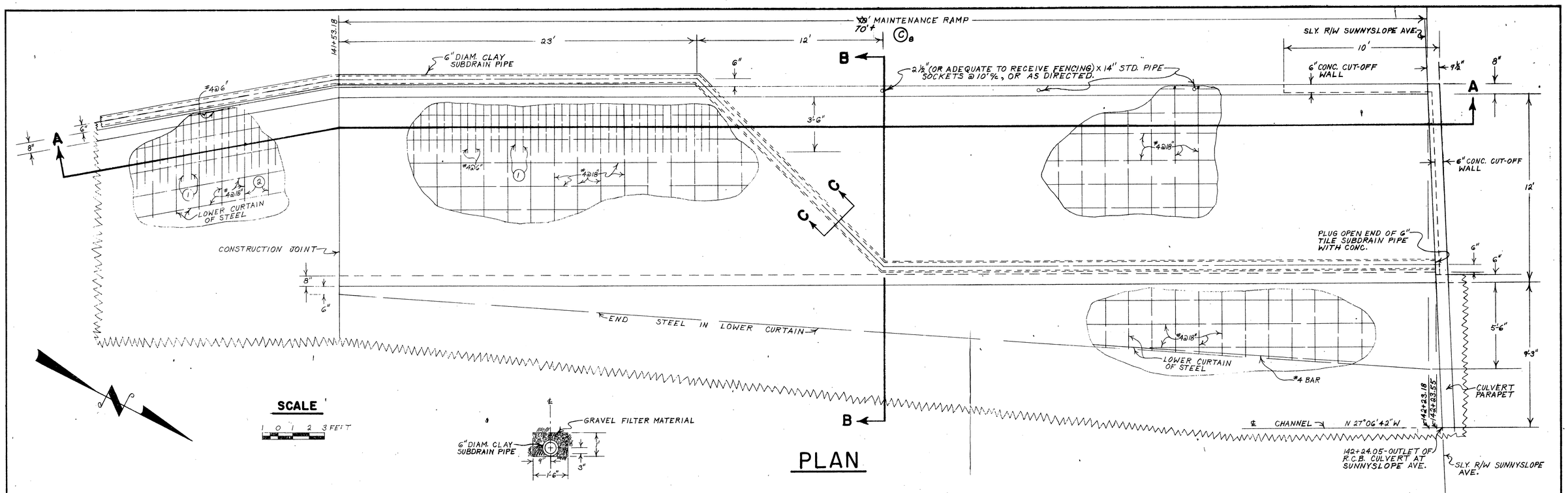
CHANNEL DETAILS

APPROVED: John D. Bousel, CHIEF ENGINEER R.E. NO. 9882
DATE: 1-4-66

DRAWN: R. DAVIS
TRACED:
CHECKED:
DATE DRAWN: JUNE 1965

SHEET NO. 8 of 23
DWG. NO. 1-201

D-173E



AS BUILT
PROJECT NO. 1-0-060

REFERENCE	DESCRIPTION	APPROVED	DATE
C8	CONSTRUCTION CHANGE		11-28-66

— REVISIONS —

REVISED DATE

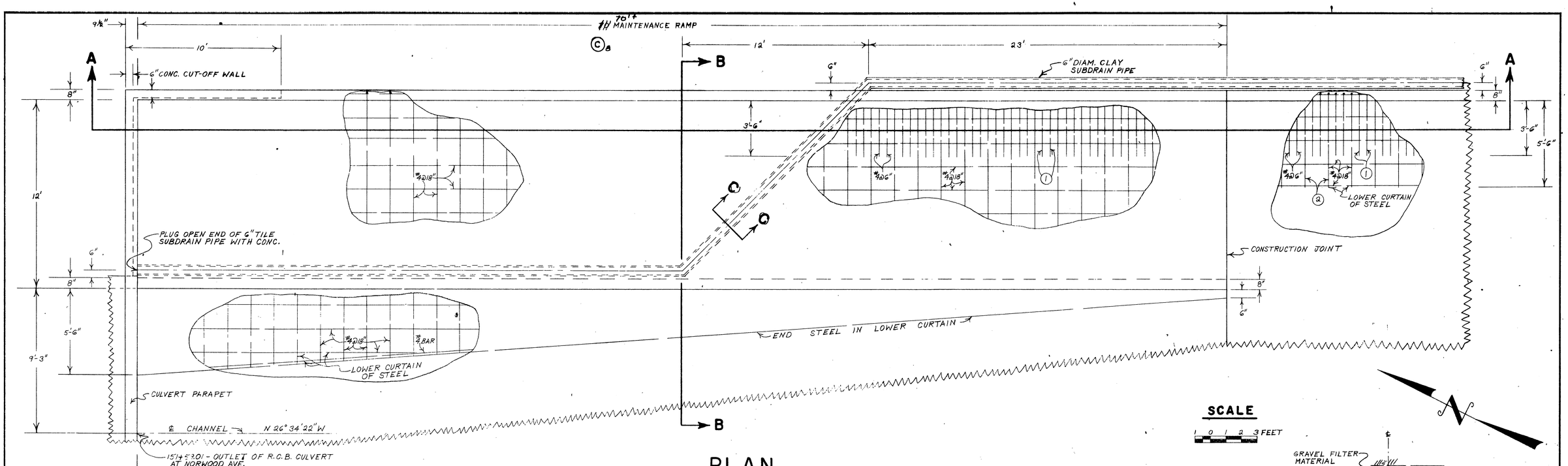
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL
STAGE "E"

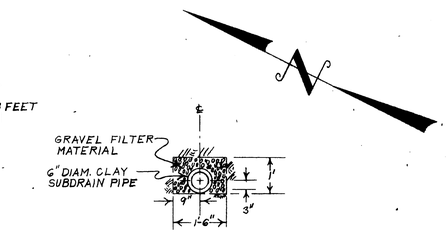
SUNNYSLOPE AVE. RAMP DETAILS

APPROVED: CHIEF ENGINEER R.E. 6th 0622	DRAWN: R. DAVIS	SHEET NO. 9 of 23
DATE: 1-4-66	TRACED:	
	CHECKED:	DWG. NO. 1-201
	DATE DRAWN: JUNE 1965	

D-173E



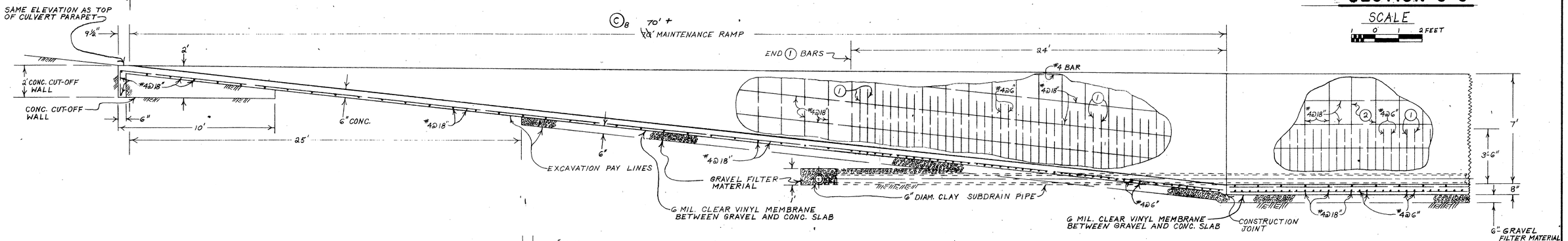
PLAN



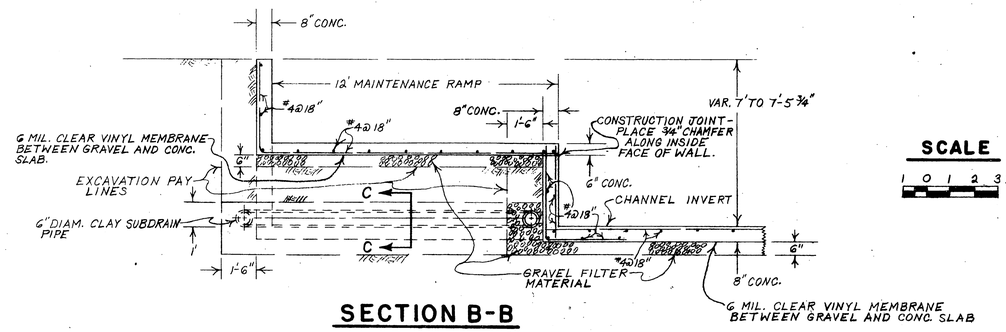
SECTION C-C

SCALE

1 0 1 2 FEET



SECTION A-A



SECTION B-B

SCALE

1 0 1 2 3 FEET

NOTE:

(1) #4 BAR: 4' × 4'

(2) #4 BAR: 7'-5" × 6'

AS BUILT
PROJECT NO. 1-0-060

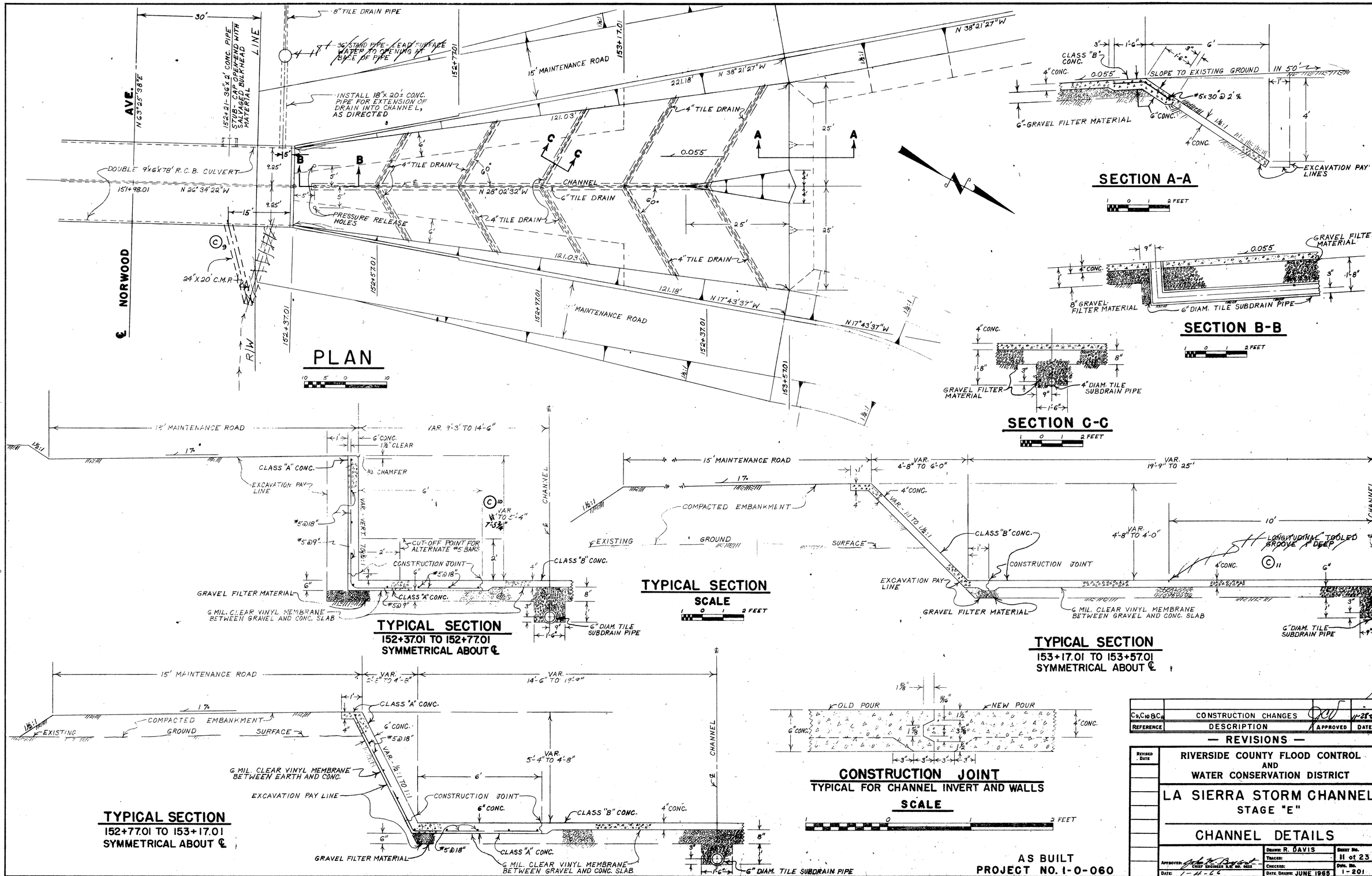
Reference	Description	Approved	Date
C8	CONSTRUCTION CHANGE		11-28-66

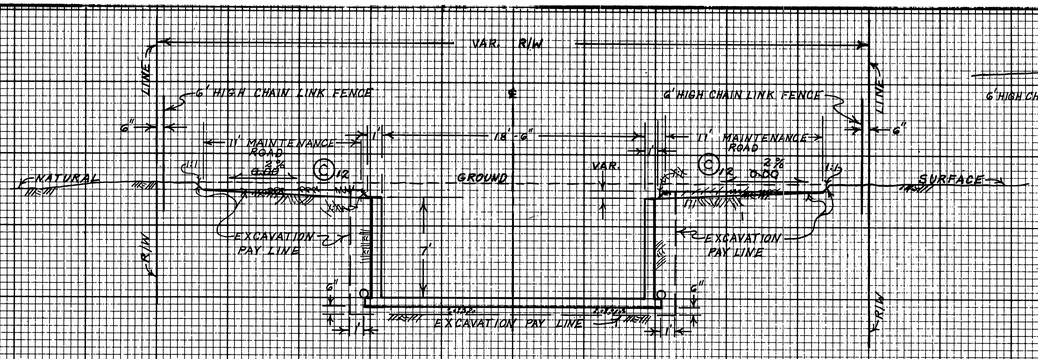
— REVISIONS —

Revised Date	
	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
	LA SIERRA STORM CHANNEL STAGE "E"
	NORWOOD AVE. RAMP DETAILS

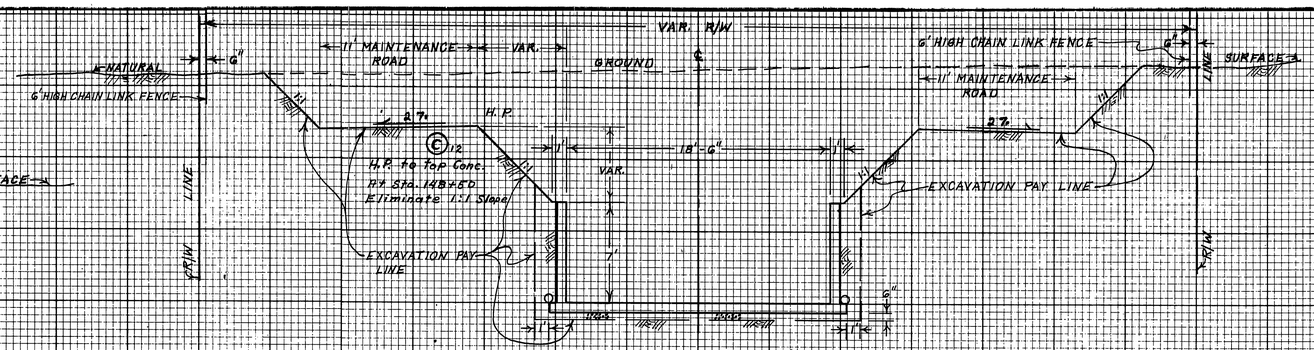
Approved: John W. Bright, Chief Engineer R.E. No. 9822
Date: 1-11-66
Drawn: R. DAVIS
Traced:
Checked:
Date Drawn: JUNE 1965
Sheet No. 10 of 23
Dwg. No. 1-201

D-173E

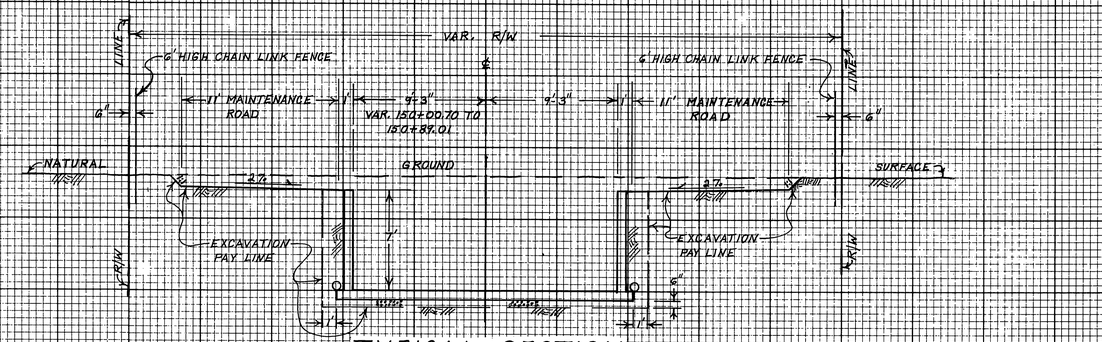

PLAN
NORWOOD AVE.
N 63°25'38"E
30'
8" TILE DRAIN PIPE
36" STAND PIPE - LEAD SURFACE WATER TO OPENING AT BASE OF PIPE
152+21-36'± & 1' CONC. PIPE STUB CAP OPEN END WITH SALVAGED BULKHEAD MATERIAL
INSTALL 18"x 20'± CONC. PIPE FOR EXTENSION OF DRAIN INTO CHANNEL, AS DIRECTED
15' MAINTENANCE ROAD
152+77.01
153+17.01
N 38°21'27"W
221.18'
121.03'
4" TILE DRAIN
DOUBLE 9'x6'x78' R.C.B. CULVERT
151+98.01
N 26°34'22"W
N 28°02'32"W
CHANNEL
6" TILE DRAIN
PRESSURE RELEASE HOLES
24"X20' C.M.P.
0.055
25'
152+57.01
152+97.01
152+37.01
N 17°43'37"W
121.18'
MAINTENANCE ROAD
153+57.01
R/W
SECTION A-A
CLASS "B" CONC.
4" CONC.
SLOPE TO EXISTING GROUND
IN 50'±
#5x30" @ 2'%
6" CONC.
6" GRAVEL FILTER MATERIAL
EXCAVATION PAY LINES
SECTION B-B
GRAVEL FILTER MATERIAL
8" GRAVEL FILTER MATERIAL
6" DIAM. TILE SUBDRAIN PIPE
SECTION C-C
4" DIAM. TILE SUBDRAIN PIPE
TYPICAL SECTION
152+37.01 TO 152+77.01
SYMMETRICAL ABOUT ℄
CLASS "A" CONC.
EXCAVATION PAY LINE
VAR. 7'-3" TO 14'-6"
6" CONC.
1½" CLEAR
¾" CHAMFER
VAR. 1½:1 TO 1:1
#5@18"
#5@9"
CUT-OFF POINT FOR ALTERNATE #5 BARS
CONSTRUCTION JOINT
CLASS "B" CONC.
GRAVEL FILTER MATERIAL
6 MIL. CLEAR VINYL MEMBRANE BETWEEN GRAVEL AND CONC. SLAB
6" DIAM. TILE SUBDRAIN PIPE
TYPICAL SECTION
SCALE
COMPACTED EMBANKMENT
EXISTING GROUND SURFACE
VAR. 4'-8" TO 6'-0"
VAR. 19'-9" TO 25'
VAR. 4'-8" TO 4'-0"
LONGITUDINAL TOOLED GROOVE 1" DEEP
TYPICAL SECTION
153+17.01 TO 153+57.01
SYMMETRICAL ABOUT ℄
VAR. 14'-6" TO 19'-9"
VAR. 5'-4" TO 4'-8"
TYPICAL SECTION
152+77.01 TO 153+17.01
SYMMETRICAL ABOUT ℄
OLD POUR
NEW POUR
CONSTRUCTION JOINT
TYPICAL FOR CHANNEL INVERT AND WALLS
SCALE
AS BUILT
PROJECT NO. 1-0-060
C9, C10 & C11
CONSTRUCTION CHANGES
REFERENCE
DESCRIPTION
APPROVED
DATE
— REVISIONS —
REVISED DATE
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
LA SIERRA STORM CHANNEL
STAGE "E"
CHANNEL DETAILS
DRAWN: R. DAVIS
TRACED:
CHECKED:
DATE DRAWN: JUNE 1965
SHEET NO. 11 of 23
DWG. NO. 1-201
APPROVED: CHIEF ENGINEER R.E. NO. 9824
DATE: 1-11-66
D-173E



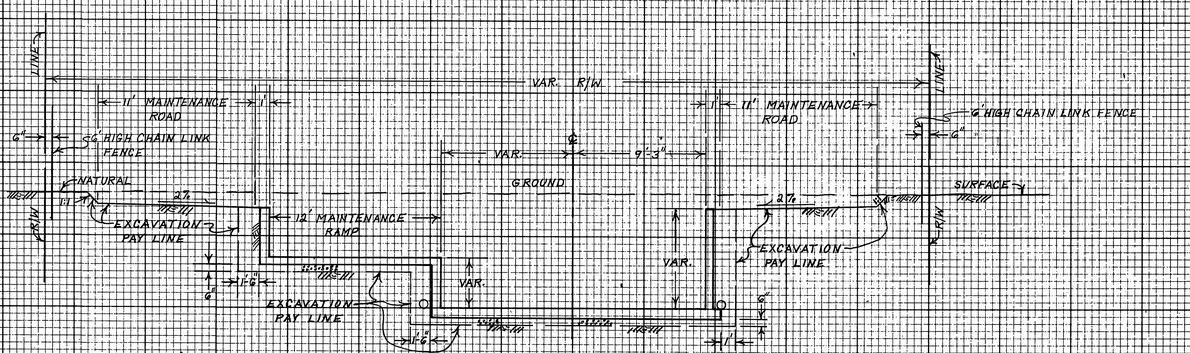
TYPICAL SECTION
142+74.09 TO 143+50



TYPICAL SECTION
144+00 TO 148+50



TYPICAL SECTION
149+00 TO 150+89.01



TYPICAL SECTION
150+89.01 TO 151+59.01

REFERENCE	DESCRIPTION	APPROVED	DATE
C12	CONSTRUCTION CHANGE	CCI	11-28-66

— REVISIONS —

REVISED DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LA SIERRA STORM CHANNEL
STAGE "E"

CHANNEL SECTIONS

APPROVED: John H. Bryant, CHIEF ENGINEER, C.E. NO. 10515	DRAWN: R. DAVIS	12 of 23 SHEET NO.
DATE: 1-4-66	TRACED:	
	CHECKED:	
	DATE DRAWN: OCT. 1965	DWG. NO. 1-201

NOTE: REFER TO SH. NO. 8 FOR ADDITIONAL DETAILS.

SCALE
5 0 5 FEET.

PROJECT NO. 1-0-060
AS BUILT

D-173E

MISSING SHEET

DESIGN NOTES

SPECIFICATIONS:

DESIGN: A.A.S.H.O. DATED 1957 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

SECTIONS DESIGNED FOR CULVERT IN A TRENCH ON HARD FOUNDATION, OR CULVERT UNTRENCHED ON YIELDING FOUNDATION. FOR CULVERTS ON PILES OR ROCK FOUNDATIONS SPECIAL DESIGN WILL BE REQUIRED.

LOADING:

LIVE LOAD = H20-S16-44 OR ALTERNATIVE WITH 30% IMPACT FOR ALL COVER DEPTHS. NEGLECT LIVE LOAD WHEN ON SINGLE SPANS, COVER IS MORE THAN 8' AND EXCEEDS SPAN, AND ON MULTIPLE SPANS WHEN COVER EXCEEDS DISTANCE BETWEEN EXTERIOR WALLS.

CULVERTS AT GRADE TREATED AS A BRIDGE, WITH THE WHEEL LOAD ON THE INVERT SLAB DISTRIBUTED OVER 7.5' TRANSVERSLY AND THE BREADTH OF THE CULVERT LONGITUDINALLY.

WHEEL LOADS DISTRIBUTED UNIFORMLY OVER A SQUARE, THE SIDES OF WHICH ARE 1.75 TIMES THE DEPTH OF FILL, BUT NOT LESS TRANSVERSLY THAN THE DIMENSION FOR GRADE TOP ON THE TOP SLAB, AND NOT LESS THAN 7.5' ON THE INVERT SLAB. WHEN SUCH AREAS FROM SEVERAL CONCENTRATIONS OVERLAP, THE TOTAL LOAD SHALL BE CONSIDERED AS UNIFORMLY DISTRIBUTED OVER THE AREA DEFINED BY THE OUTSIDE LIMITS OF THE INDIVIDUAL AREAS, BUT THE TOTAL WIDTH SHALL NOT EXCEED THE TOTAL WIDTH OF THE SUPPORTING SLAB.

DEAD LOAD: EARTH LOAD OF 120 LBS. PER CU. FT. AND AN EQUIVALENT FLUID PRESSURE OF 36 LBS. PER SQ. FT. (BOTH REDUCED 30% FOR BALANCED DESIGN).
DISTRIBUTION OF WHEEL AT GRADE; $E = .175S + 3.2$

UNIT STRESSES: $F_s = 20{,}000$ P.S.I., $N = 10$
$F_c = 1{,}200$ P.S.I.

REINFORCEMENT EMBEDMENT IS 1 1/2 DIA. CLEAR, MIN. 1", EXCEPT AS NOTED.

DISTRIBUTION "d" BARS EXPRESSED AS A % OF MAIN REINFORCEMENT:

CLASSIFICATION "A" TOP SLAB = $\frac{100}{\sqrt{SPAN}}$, MAX. 50%

CLASSIFICATION "A" BOTTOM SLAB = MIN. #4 @ 18

CLASSIFICATION "B", OR ABOVE, TOP AND BOTTOM SLABS MIN. #4 @ 18

CONSTRUCTION NOTES

SPECIFICATIONS: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, CURRENT EDITION AND SPECIAL PROVISIONS ACCOMPANYING PLANS.

EXPANSION JOINTS: NONE IN INVERT SLAB. UNDER COVER LESS THAN SPAN LENGTH, PLACE 1/2" EXPANSION JOINT FILLER IN TOP SLAB AND SIDE WALLS IN DIVIDING STRIP OR OUTSIDE SHOULDER. UNDER COVER MORE THAN SPAN LENGTH, PLACE EXPANSION JOINTS IN TOP SLAB AND SIDE WALLS ONLY AT 30' ± CENTERS, AND ADDITIONAL JOINTS AS DIRECTED BY THE ENGINEER AT LOCATIONS OF CHANGE OF FOUNDATION CHARACTER.

CONSTRUCTION LOADS: CONSTRUCTION LOADS HEAVIER THAN LEGAL LOADS NOT PERMITTED UNTIL CONCRETE HAS REACHED A STRENGTH OF 3,000 P.S.I. AND STRUCTURE STRUTTED AND CUSHIONED AS DIRECTED BY THE ENGINEER.

LOCATION NOTES

HYDRAULICS: IF SLOPE OF NATURAL CHANNEL EXCEEDS "NEUTRAL SLOPE" OF CULVERT ENTRANCE, CAPACITY FOR 10 YEAR FLOOD (Q10) WILL USUALLY DETEMINE SIZE. OTHERWISE COMPUTE TOTAL HEAD = $\left(\frac{Q100}{8A}\right)^2 \left(\frac{1.05 + KL}{100}\right)$, WHERE "k" IS HEAD FACTOR "A" IS AREA, "L" IS LENGTH OF CULVERT AND Q100 THE 100 YEAR FLOOD, AND COMPARE WITH ALLOWABLE HEAD. TABULATED ELEMENTS ARE FOR FULL NOMINAL SECTION.

DESIGNATION: SHOW ON PLANS AS SPAN X HEIGHT STRENGTH CLASSIFICATION X LENGTH: THUS 4 x 4 -A x 60', FOLLOWED BY ALTERNATIVES.

ALTERNATIVES: INVERT WILL BE SLOPED UNLESS "TRAPEZOIDAL INVERT", "FLAT INVERT" OR "V INVERT" IS INCLUDED IN DESIGNATION. ENDS OF CULVERT WILL BE ROUNDED UNLESS "SQUARE ENDS" ARE DESIGNATED. PARAPET ON CULVERTS WITH OVER 2' COVER WILL BE 0'-9" UNLESS "___FT. PARAPET" IS DESIGNATED. SUCH DESIGNATIONS MAY BE DIFFERENT FOR INLET AND OUTLET ENDS.

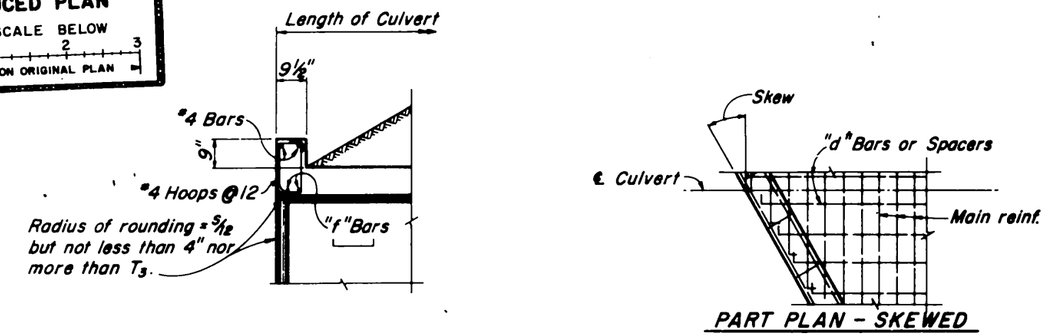
QUANTITIES: QUANTITIES ARE FOR ESTIMATING ONLY. THEY ARE FOR THE SLOPED INVERT SLAB AND DO NOT INCLUDE SPLICES IN LONGITUDINAL BARS NOR CONCRETE AND REINFORCEMENT FOR SPECIAL COVERAGE, NOR TEMPERATURE REINFORCEMENT FOR GRADE TOP CULVERT.

SPECIAL COVERAGE: WHERE CULVERTS ARE EXPOSED TO ACTION OF SALT WATER THICKNESS OF CONCRETE SHALL BE INCREASED TO PROVIDE 4" COVERAGE BETWEEN STEEL AND EXPOSED SURFACES. WHERE SCOUR IS ANTICIPATED, THICKNESS OF BOTTOM SLAB SHALL BE INCREASED TO PROVIDE 2" MINIMUM COVERAGE BETWEEN STEEL AND EXPOSED SURFACE.

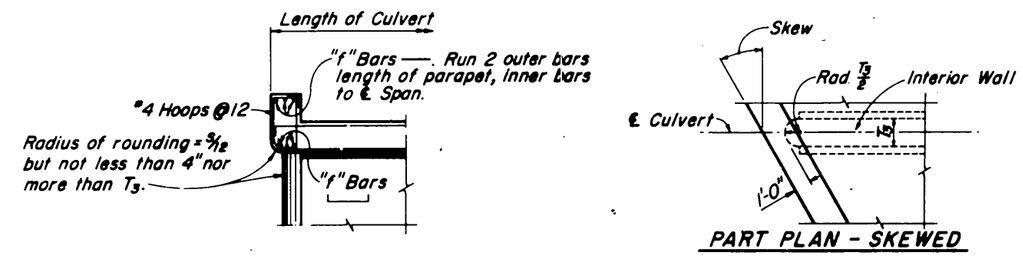
USE OF STANDARD PLAN

"STRENGTH CLASSIFICATION", SYMBOLIZED BY THE LETTERS "A", "B", "C" ETC., AT THE TOP OF THE DATA TABLE IS MERELY A CONVENIENT DISIGNATION FOR A PARTICULAR STRUCTURAL SECTION FOR A CULVERT OF ANY GIVEN OPENING. IT IS DICTATED BY THE COVER OR DEPTH OF FILL OVER THE TOP SLAB.

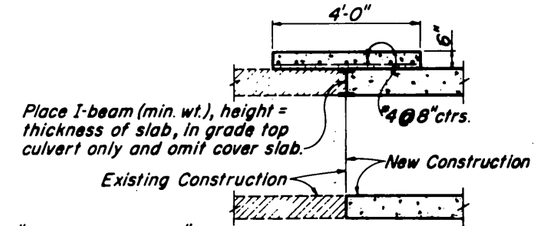
REDUCED PLAN
USE SCALE BELOW
0 2 3
3 INCHES ON ORIGINAL PLAN



PARAPET DETAILS FOR SINGLE SPAN CULVERTS

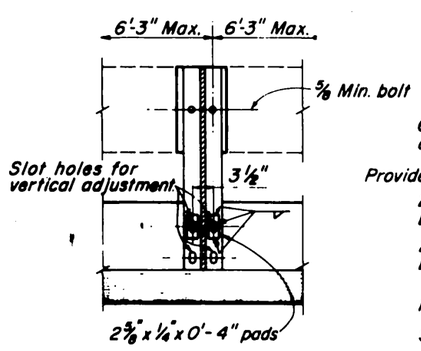


PARAPET DETAILS FOR MULTIPLE SPAN CULVERTS

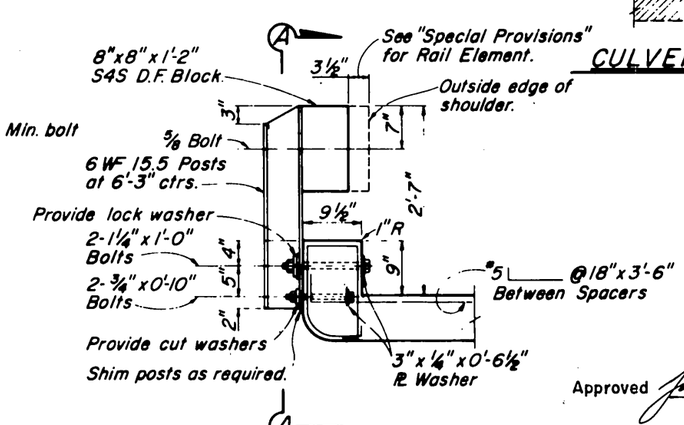


CULVERT EXTENSION

SKEWED PARAPETS								
Skew Angle	Span	3	4	5	6	8	10	12
0°-15°	"f" Bars Bar No.	4	4	5	6	6	7	8
	No. of bars	2	2	2	2	3	3	3
16°-30°	"f" Bars Bar No.	4	4	5	6	7	8	8
	No. of bars	2	3	3	3	3	3	3
31°-45°	"f" Bars Bar No.	4	4	6	6	7	8	8
	No. of bars	3	3	3	3	3	3	3
0°-45°	#4 Hoops	12" ctrs.						



SECTION A-A
Scale: 1" = 1'-0"



RAILING DETAILS
Scale: 1" = 1'-0"

Approved John W. Bryant
CHIEF ENGINEER R.E. 8822

Date 7-24-66

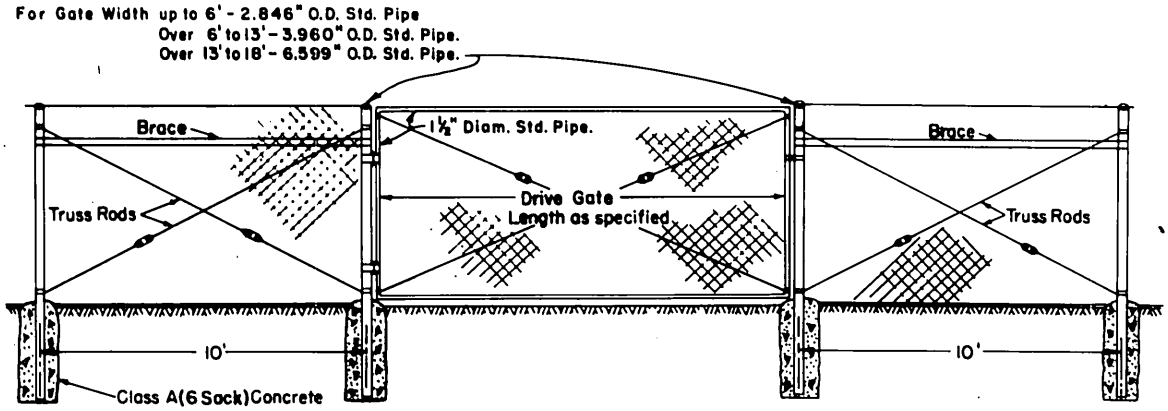
PROJECT NO. 1-0-060

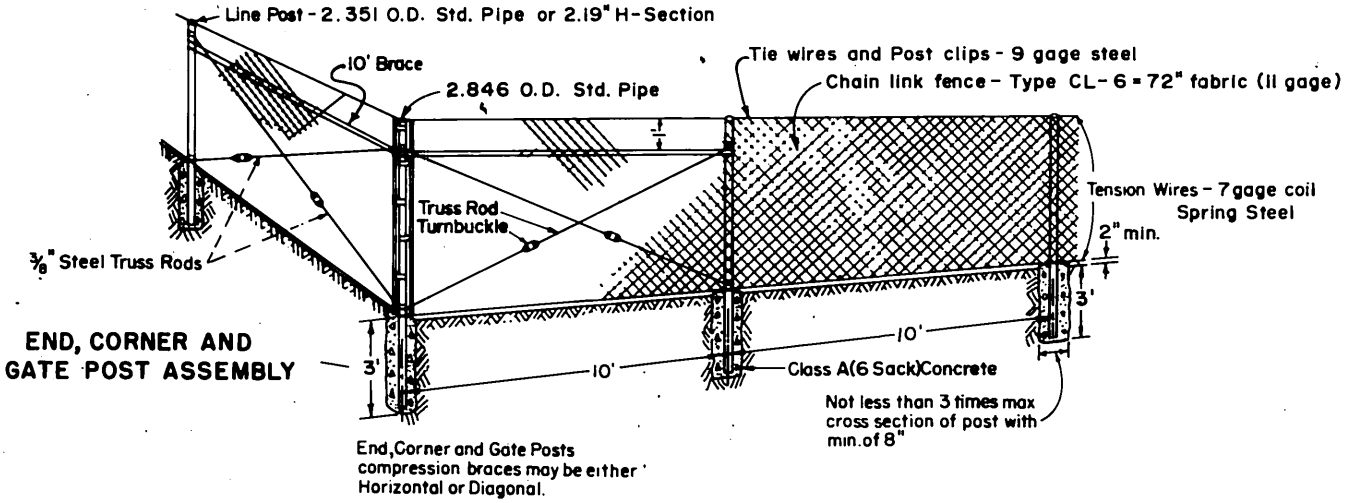
STANDARD BOX CULVERT

MISCELLANEOUS DETAILS

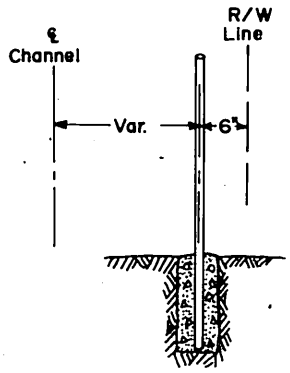
SCALE	BRIDGE	FILE	Sh. 14 of 23

Dwg. No. 1-201

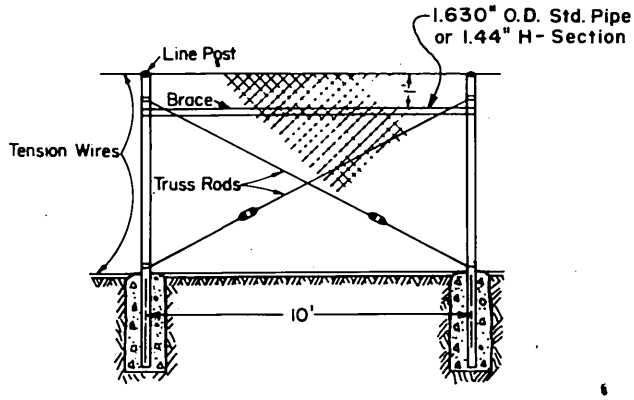




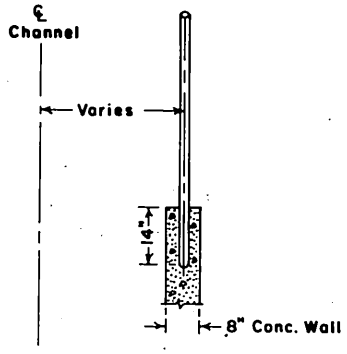
END, CORNER AND GATE POST ASSEMBLY



TYPICAL FOR FENCE ALONG R/W LINE



Line post at 1,000' maximum intervals braced and trussed in both directions.

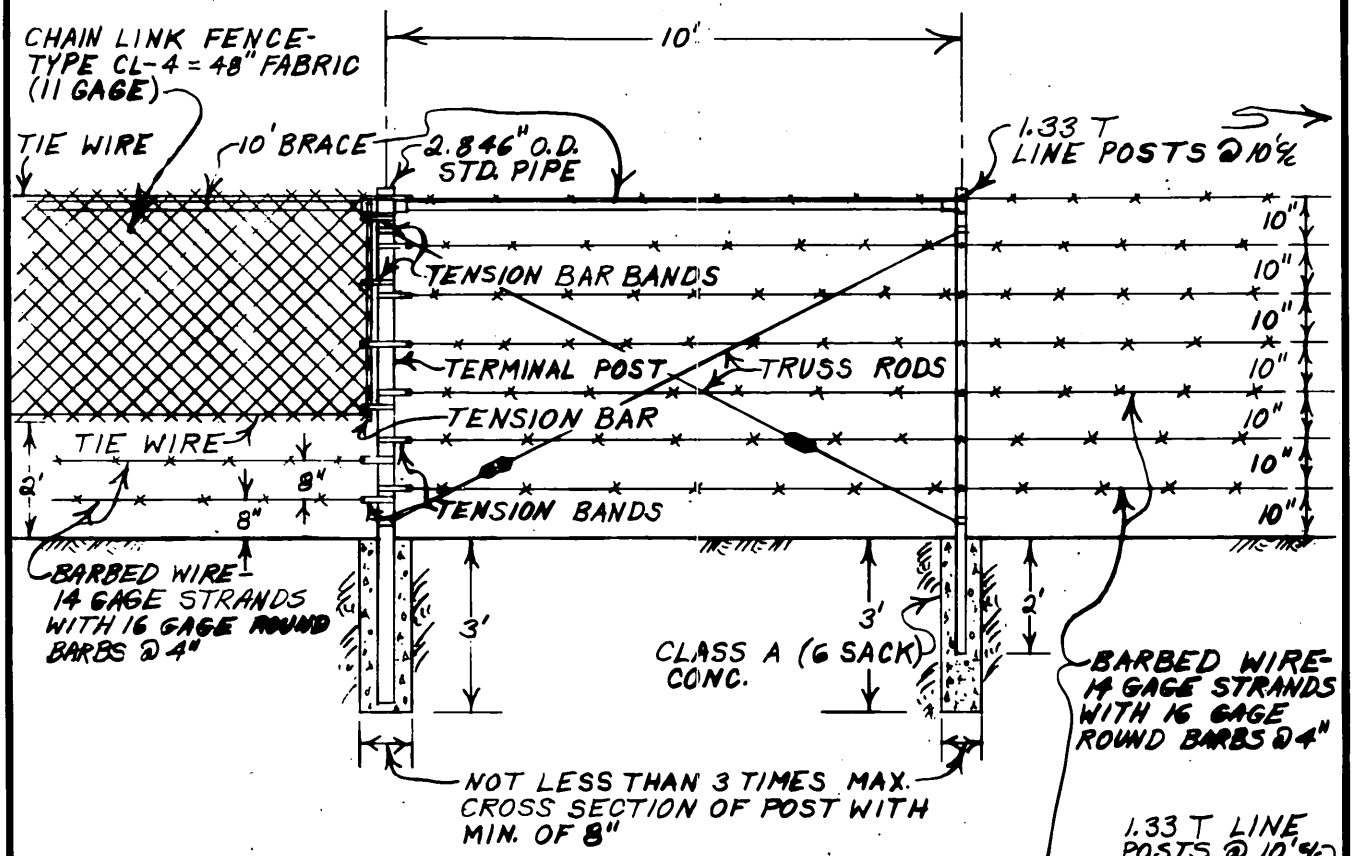


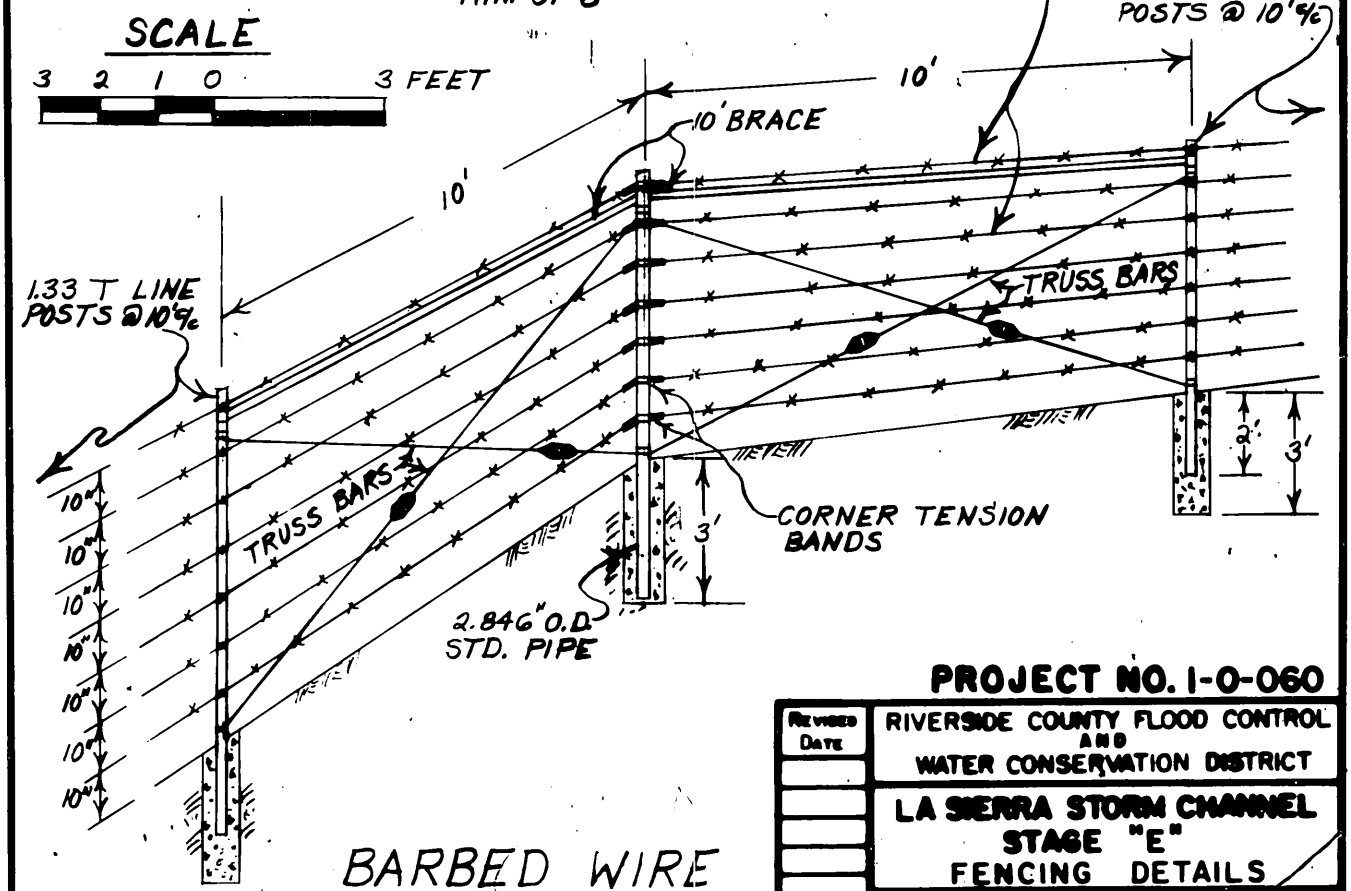
TYPICAL FOR FENCE IN CHANNEL WALL

PROJECT NO. 1-0-060

Revised Date	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
	LA SIERRA STORM CHANNEL STAGE "E"
	CHAIN LINK FENCE
Approved: Robert F. Bullard, Chief Engineer R.C.F.C. & W.C.D.	Drawn: R. DAVIS; Tracer: ; Checker: ; Date Drawn: OCT. 1965
Date: 1-4-66	Sheet No. 15 of 23; Dwg. No. 1-201

CHAIN LINK AND BARBED WIRE FENCE JUNCTION ASSEMBLY





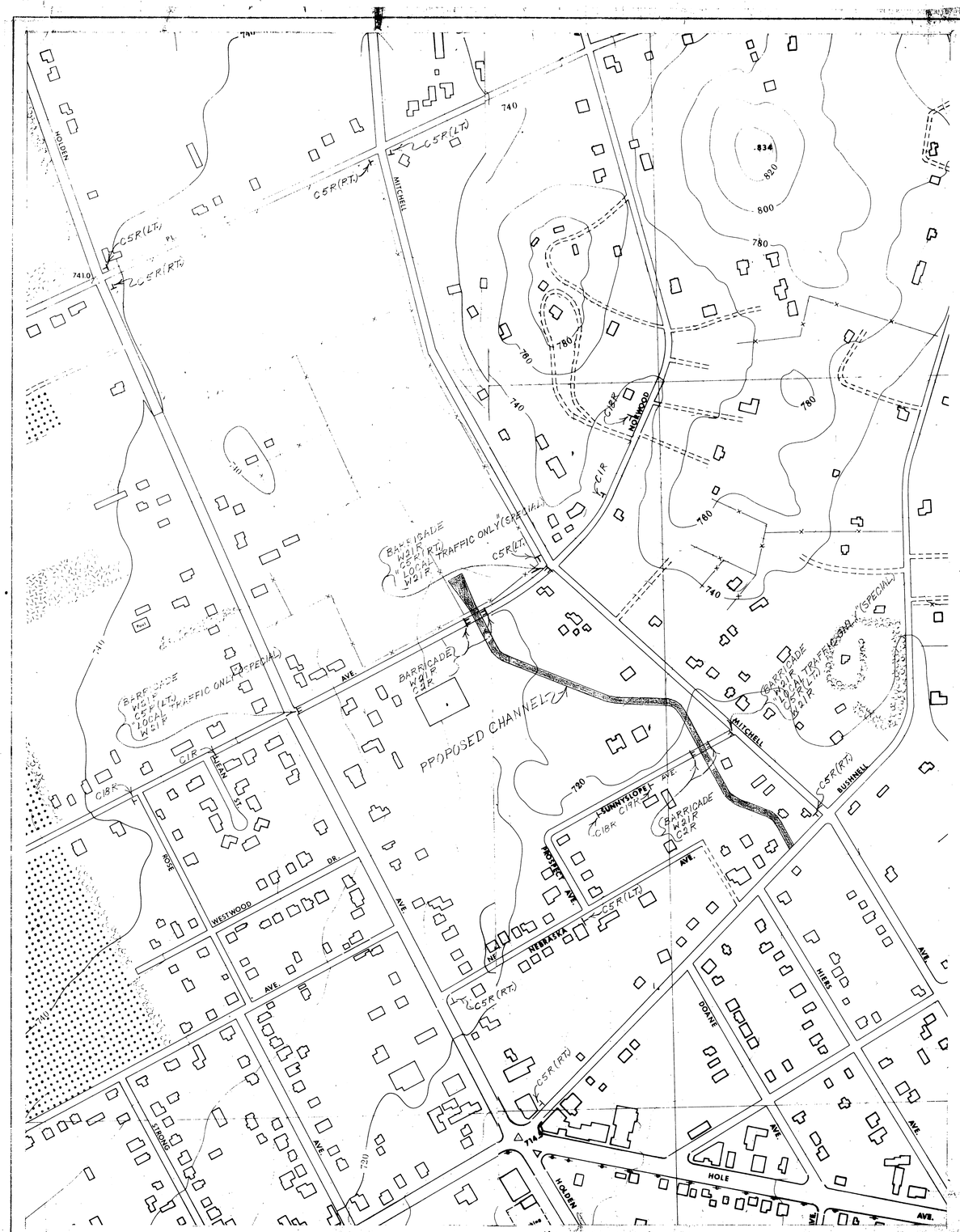
BARBED WIRE CORNER ASSEMBLY

PROJECT NO. 1-0-060

REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
	LA SIERRA STORM CHANNEL STAGE "E" FENCING DETAILS
	DR. [illegible] DATE [illegible]
	TRAC. SH. 16 & 23
	CHECKED PWA. 1-[illegible]

APPROVED [illegible] CHIEF ENG. R.E. NO. 6822 DATE 7-11-66

D-173E



GENERAL NOTES

1. THIS DRAWING SHOWS THE TRAFFIC CONTROL PLAN.
2. ACCESS TO PRIVATE PROPERTY SHALL BE MAINTAINED AT ALL TIMES.
3. SUNNYSLOPE AVE. AND NORWOOD AVE. MAY BE CLOSED SIMULTANEOUSLY.
4. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST FORTY EIGHT (48) HOURS PRIOR TO CLOSING ANY STREET.

	TEL. NO.
A. RESIDENT ENGINEER	
B. RIVERSIDE FIRE DEPARTMENT	787-7323
C. RIVERSIDE POLICE DEPARTMENT	787-7011
D. RIVERSIDE TRAFFIC DIVISION	787-7366
E. PROPERTY OWNERS ON THE BLOCKS TO BE CLOSED.	

5. BARRICADES AND SIGNS SHALL CONFORM TO THE STANDARDS SHOWN IN THE SPECIAL PROVISIONS.
6. "LOCAL TRAFFIC ONLY" - SPECIAL SIGN
7. THE LIMITS OF THE DESIGNATED DISPOSAL AREAS WILL BE FLAGGED DURING CONSTRUCTION.

D-173E
PROJECT NO. 1-0-060

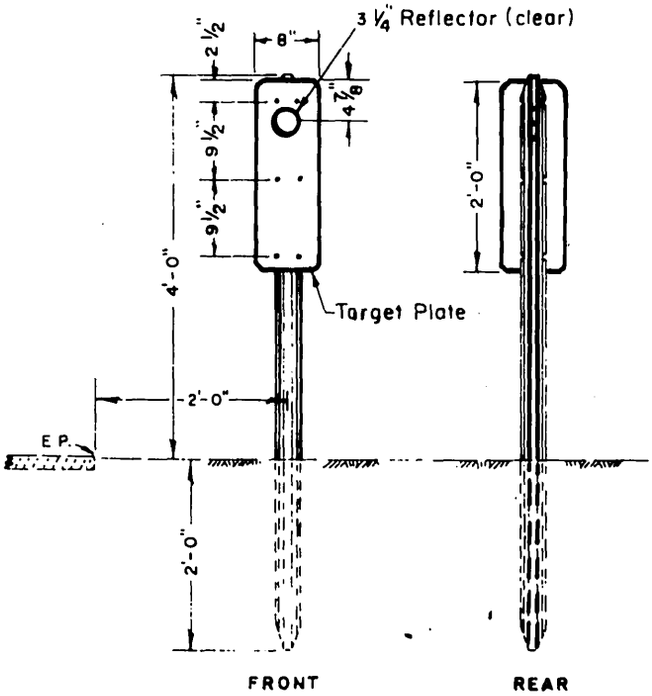
REVISIONS	APPROVED	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

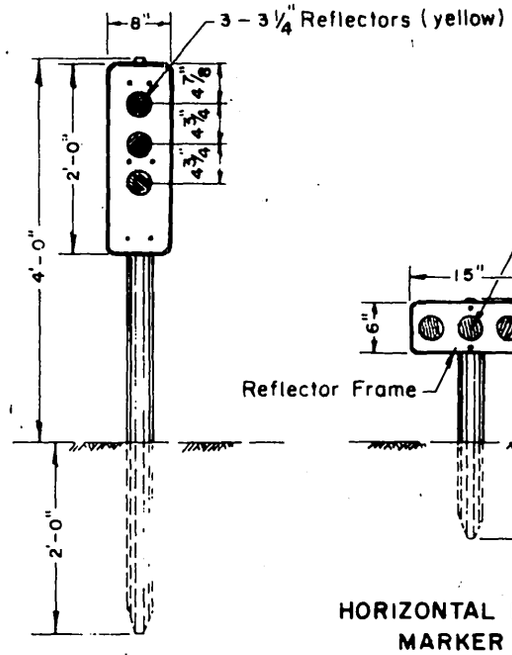
LA SIERRA STORM CHANNEL
STAGE "E"

BASIC DETOUR PLAN

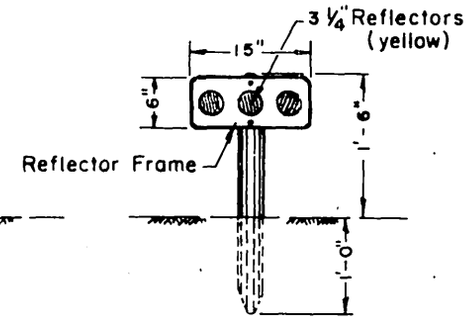
APPROVED: John W. Bryant, CHIEF ENGINEER-GENERAL MANAGER	DRAWN: R. DAVIS	SHEET NO. 17 of 23
	TRACED:	
	CHECKED:	DWG. NO. 1-201
DATE: 1-4-66	DATE DRAWN: OCT. 1965	



GUIDE MARKER

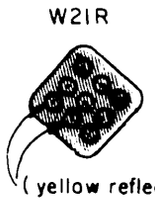


CLEARANCE MARKER



HORIZONTAL REFLECTOR MARKER W61R

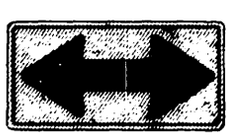
W21R



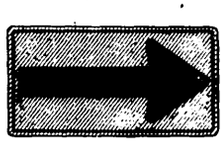
(yellow reflectors)

W35R

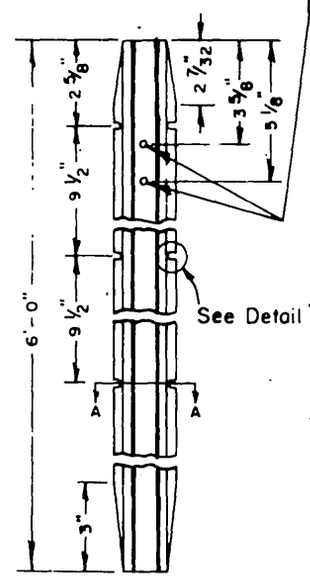
W56R

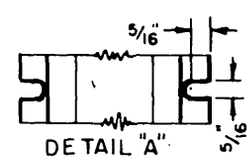


W57R

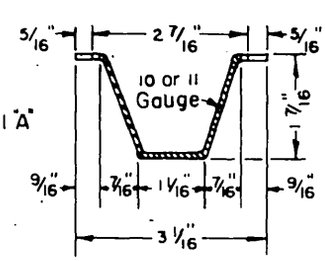


7/32" dia holes for mounting 3 1/4" reflector bracket to post.





DETAIL "A"



SECTION A-A

METAL MARKER POST

COLOR LEGEND

- White
- Yellow
- Black

ADAPTED FROM STATE OF CALIFORNIA, DEPT. OF PUBLIC WORKS, DIV. OF HIGHWAYS, STD. DWG. NO. A74-6 & UNIFORM SIGN CHART

REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
	SIGNS & MARKERS		
	APPROVED J.W. Bugas CHIEF ENG. R.E. NO. 8822 DATE: 1-4-66	DR.	DATE 11/1/65
		TRAC.	SHT 18 of 23
		CHECKED	DWG. 1-201

PROJECT NO. 1-0-060

City of Riv. Std. No. 665

C1R

DETOUR AHEAD

C2R

ROAD CLOSED

C5R(LT)

DETOUR

C7R

END DETOUR

C14R

END ROAD WORK

C9R

FLAGMAN AHEAD

C13R

END CONSTRUCTION

C16R

ONE LANE ROAD AHEAD

C17

ROAD WORK SPEED LIMIT 25

END 25 MILE-ZONE

C18R

ROAD CONSTRUCTION AHEAD

C19R

ROAD CLOSED AHEAD

C20R

LEFT LANE CLOSED AHEAD

C21R

SINGLE LANE AHEAD

C22R

MEN WORKING

C23R

ROAD WORK AHEAD

C5R(V)

DETOUR

R7R

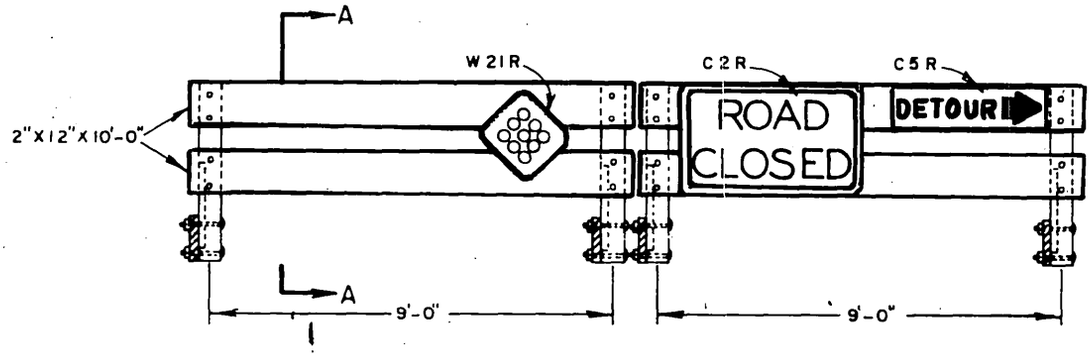
KEEP RIGHT

Note: Refer to State of California, Dept. of Public Works, Div. of Highways, Uniform Sign Chart Dated January 1962, for the Color and Dimensions of the above signs.

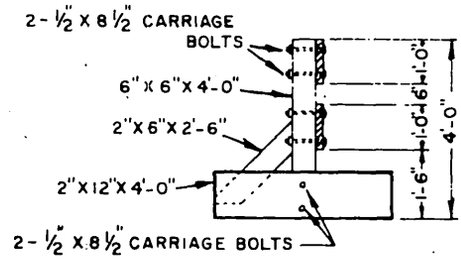
REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
	CONSTRUCTION SIGNS		
	APPROVED J. W. Bagwell CHIEF ENG. R.E. NO. 6822 DATE: 1-4-66	DR.	DATE 11/1/65
		TRAC.	SH. 19 of 23
		CHECKED	DWG. 1-201

PROJECT NO. 1-0-060

City of Riv. No. 658



STANDARD BARRICADE WITH TYPICAL DETOUR SIGNS



SECTION A-A

NOTE:

1.- ALL LUMBER TO BE SELECT STRUCTURAL D.F. S4S.

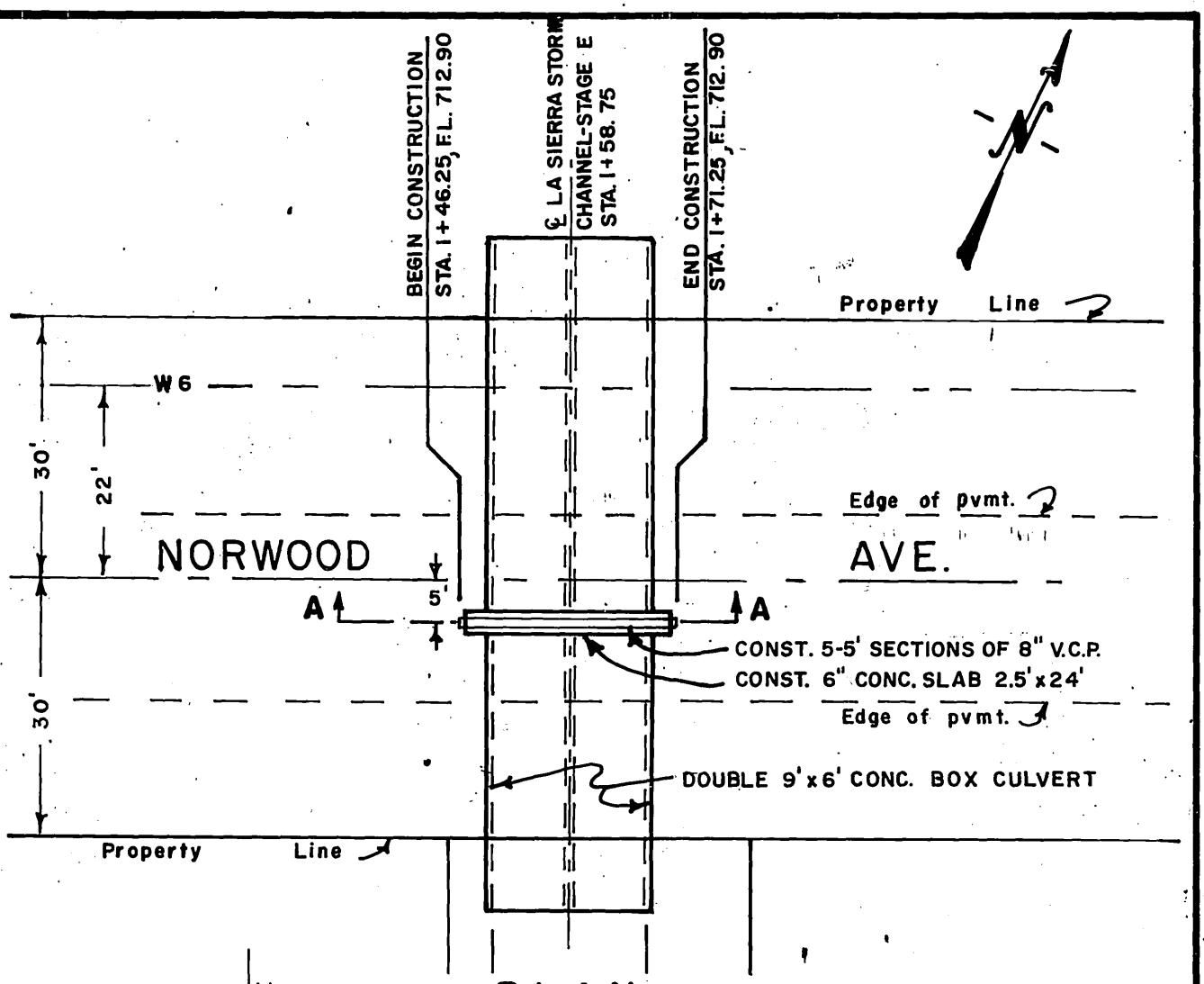
2.- Barricades to be given two coats of signal yellow paint after assembly.

3.- Signs, reflectors, and barricades to be furnished and installed by the contractor as directed by the engineer.

City of Riv. Std. No. 657

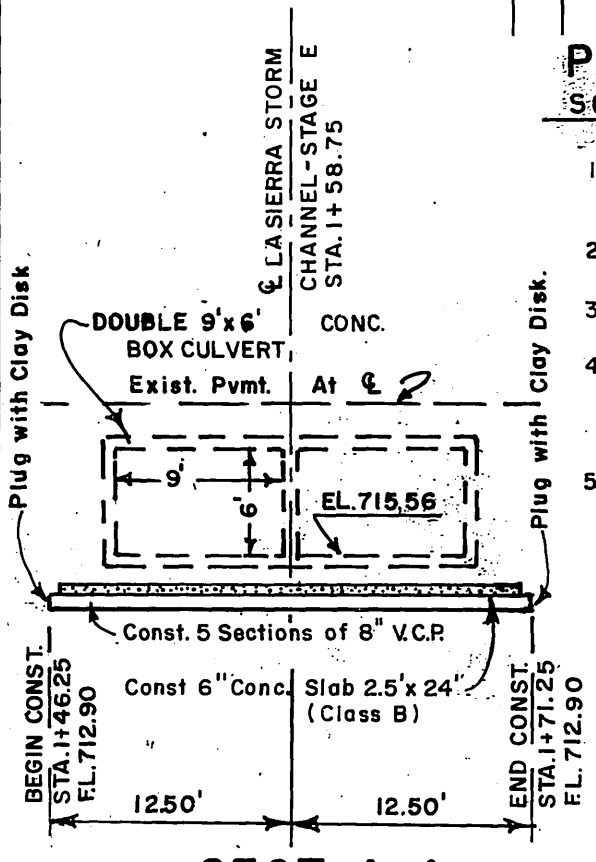
PROJECT NO. 1-0-060

REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
	CONSTRUCTION BARRICADES		
	APPROVED J. W. Bryant CHIEF ENG. R.E. NO. 8822 DATE: 1-4-66	DR.	DATE 11/1/65
		TRAC.	SH. 20 of 23
		CHECKED	DWG. 1-201



PLAN

SCALE 1" = 20'



SECT. A-A

SCALE 1" = 10"

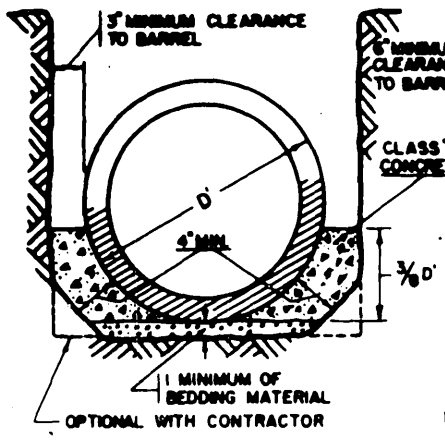
GENERAL NOTES

1. Construction shall be in accordance with the pipe Bedding Details shown on SH. NO. 22
2. Pipe shall be bedded per Case II, of the pipe Bedding Details shown on SH. NO. 22, Unless otherwise Specified on Plan.
3. Joints in vitrified clay pipe sewers shall conform to A.S.T.M. Standard C-425-60T, or the latest revision thereof.
4. The Contractor shall take out a permit from the Dept. of Public Works, City of Riverside, 3870 Mulberry St., for inspection by the City. There will be no fee charged for the City Permit.
5. The County Flood Control will set construction stakes. The Contractor shall obtain cut sheets from the County Flood Control District office.

PROJECT NO. 1-0-060

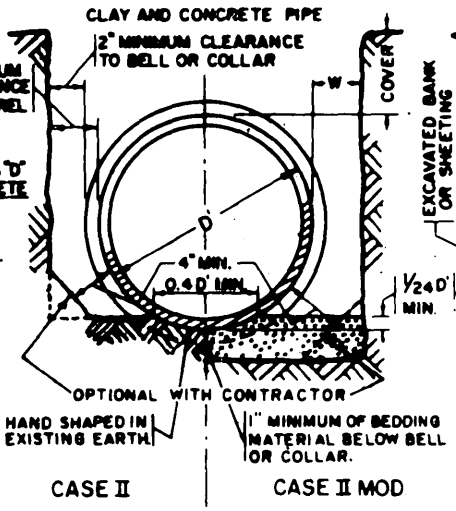
Revised Date	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	
	LA SIERRA STORM CHANNEL STAGE "E" DRY SEWER INSTALLATION	
	APPROVED J. G. Bryant CHIEF ENG. R.E. NO. 8822 DATE 1-4-66	DR. K.R.B DATE 12/7/65
		TRAC. SH. 21 of 23
		CHECKED DWG. 1-201

CASE I



CASE II

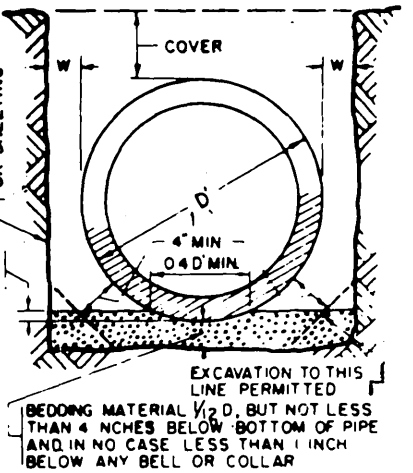
CLAY AND CONCRETE PIPE



CASE II | CASE II MOD

CASE III

REINFORCED CONCRETE PIPE

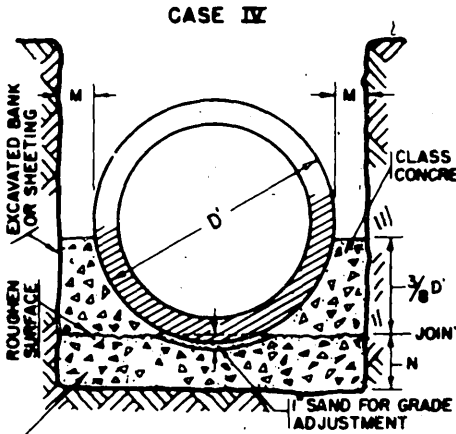


1. **CASE I BEDDING** (LOAD FACTOR 2.1) SHALL BE USED WHERE SPECIFIED ON THE PLANS OR WHERE REQUIRED AS AN ALTERNATIVE TO CASE II OR CASE III BEDDING AS PROVIDED HEREON. CASE IV BEDDING SHALL BE USED INSTEAD OF CASE I AGAINST SHEETING OR UNSTABLE TRENCH SIDES IF SO REQUIRED BY THE ENGINEER.

2. **CASE II BEDDING** (LOAD FACTOR 1.4)
   (a) "W" AT THE SPRINGING LINE SHALL NOT BE LESS THAN 6 INCHES FOR ANY DEPTH OF TRENCH.
   (b) WHERE THE COVER IS LESS THAN 8 FEET, "W" MEASURED AT THE TOP OF THE PIPE MAY BE ANY DIMENSION GREATER THAN 6 INCHES.
   (c) WHERE THE COVER IS GREATER THAN 8 FEET, "W" MEASURED AT THE TOP OF THE PIPE SHALL NOT BE GREATER THAN 8 INCHES UNLESS THE CONTRACTOR AT HIS OWN EXPENSE PROVIDES CASE I BEDDING. THE STATED 8 INCHES INCLUDES THE THICKNESS OF ANY SHEETING.
   (d) USE CASE II BEDDING FOR CLAY OR CONCRETE PIPE UNLESS OTHERWISE SPECIFIED.

3. **CASE III BEDDING** (LOAD FACTOR 1.4)
   (a) "W" AT THE SPRINGING LINE SHALL NOT BE LESS THAN 3 INCHES FOR ANY DEPTH OF TRENCH
   (b) WHERE THE COVER IS LESS THAN 8 FEET, "W" MEASURED A THE TOP OF THE PIPE MAY BE ANY DIMENSION GR ATER THAN 3 INCHES
   (c) WHERE THE COVER IS GREATER THAN 8 FEET, "W" MEASURED AT THE TOP OF THE PIPE SHALL NOT BE GREATER THAN 10 INCHES UNLESS THE CONTRACTOR AT HIS OWN EXPENSE PROVIDES CASE I BEDDING THE STATED 10 INCHES INCLUDES THE THICKNESS OF ANY SHEETING

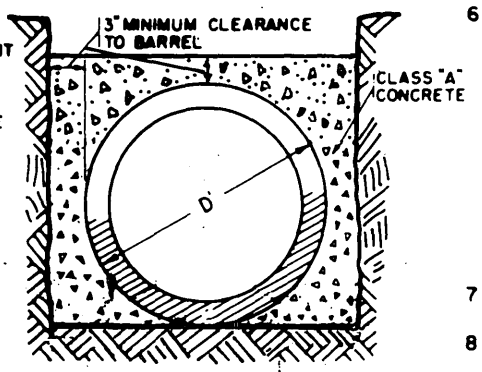
CASE IV



CLASS "A" CONCRETE MIXED AS FOR CLASS "C" RESURFACING AND WITH INCH SLUMP OR LESS IT SHALL BE 12 HOURS OLD BEFORE PIPE IS LAID. "M AND N" SHALL BE AS SPECIFIED ON THE PLANS OR BY THE ENGINEER

4. **CASE IV BEDDING** (LOAD FACTOR 3.0) WHERE REQUIRED BY THE ENGINEER AS AN ALTERNATIVE TO CASE I OR CASE V TO MEET CONDITIONS ARISING DURING CONSTRUCTION, THE EXCESS CONCRETE AND EXCAVATION WILL BE PAID FOR AT THE UNIT PRICES IN THE CONTRACT.

CASE V



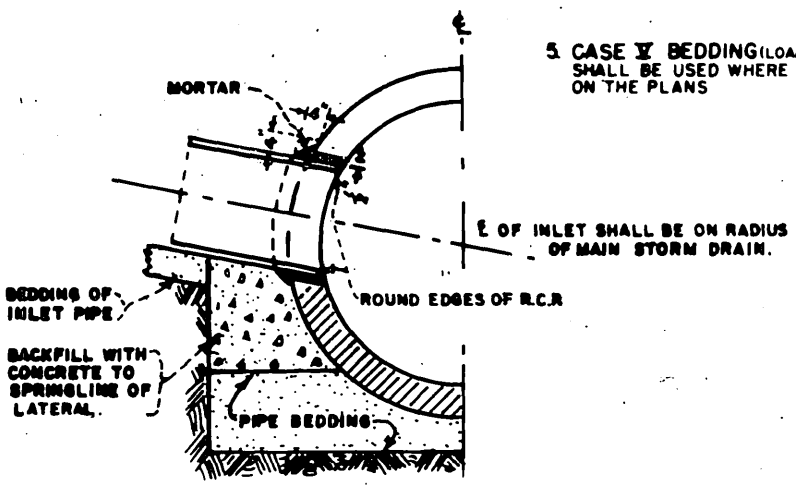
5. **CASE V BEDDING** (LOAD FACTOR 2.7) SHALL BE USED WHERE SPECIFIED ON THE PLANS

GENERAL NOTES

6. BEDDING MATERIAL (USED IN ALL CASES EXCEPT CASE IV) SHALL BE SAND, GRAVEL, GRANULAR DECOMPOSED GRANITE, NO 3 ROCK, OR NO 4 ROCK
   FOR PIPE SMALLER THAN 27 INCHES IN DIAMETER, THE PARTICLES OF BEDDING MATERIAL SHALL NOT BE LARGER THAN FOR NO 4 ROCK, AND FOR PIPE LARGER THAN 24 INCHES IN DIAMETER, THE PARTICLES SHALL NOT BE LARGER THAN FOR NO 3 ROCK
   THE COST OF BEDDING MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR PIPE IN PLACE.
7. CLASS "A" CONCRETE - 6 Sack
8. CLASS "D" CONCRETE - 4.5 Sack
9. TABLE OF ROCK SIZES

PASSING SCREEN	NO 3 MIN	MEAN	MAX	NO 4 MIN	MEAN	MAX
	PERCENT			PERCENT		
1 1/2 INCH	100					
1 INCH	90	95	100			
3/4 INCH	60	70	80	100		
3/8 INCH	0	7.5	15	90	95	100
NO 4	0	2.5	5	0	7.5	15
NO 8				0	2.5	5

3-EDGE BEARING TEST LOAD FACTOR 1.0



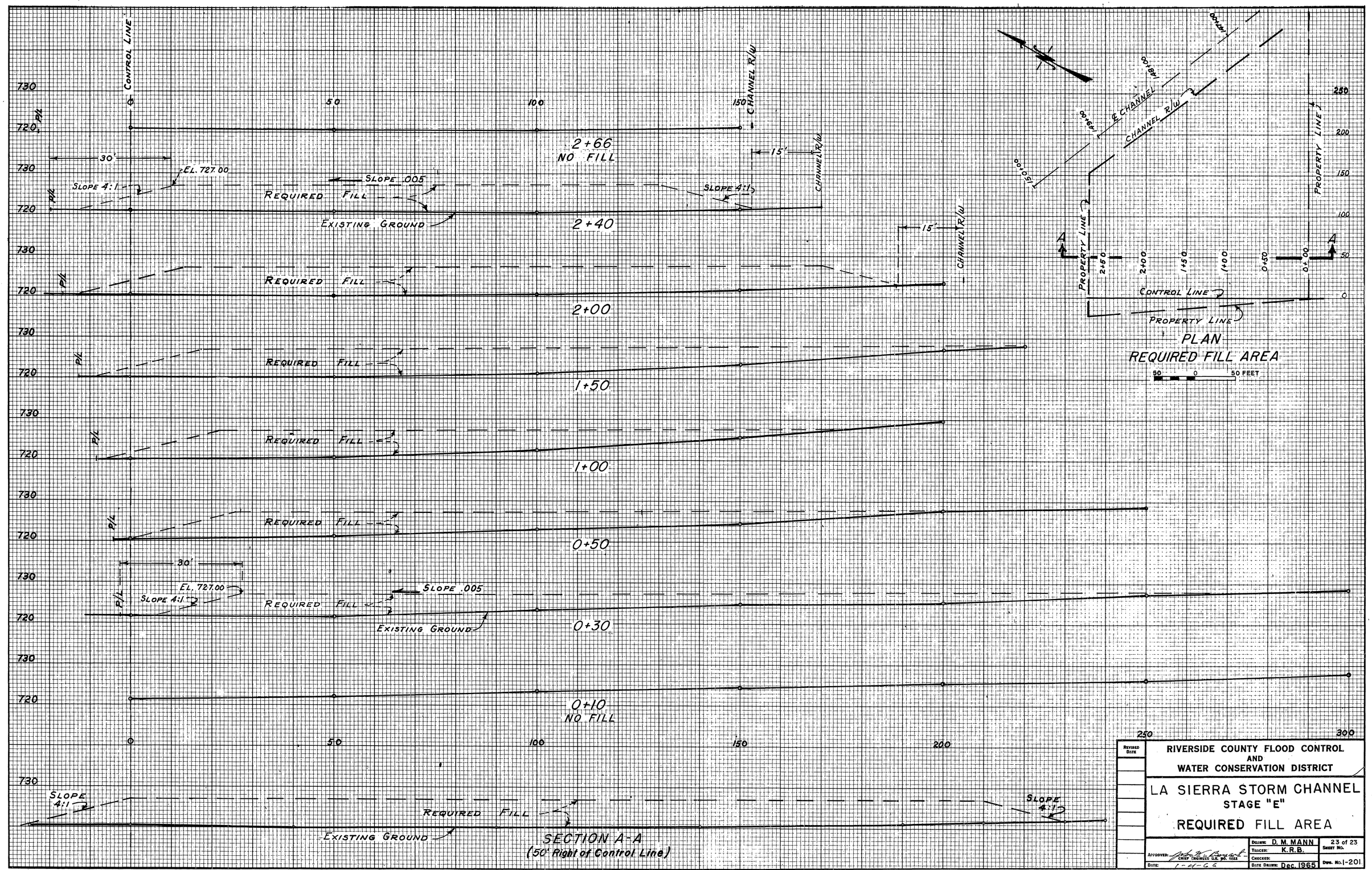
TYPICAL LATERAL CONNECTION

CITY OF RIV. NO. 452, CITY OF L.A. B-3221

PROJECT NO. 1-0-060

REVISED DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
	LA SIERRA STORM CHANNEL STAGE "E"
	PIPE BEDDING DETAILS
	APPROVED J. W. Bryant CHIEF ENG. R.E. NO. 8822 DATE 1-4-66

DR	DATE 12/27/65
TRAC	SH. 22 of 23
CHECKED	DWG. 1-201


CONTROL LINE
CHANNEL R/W
2+66
NO FILL
30'
15'
EL. 727.00
SLOPE 4:1
SLOPE .005
REQUIRED FILL
EXISTING GROUND
2+40
2+00
1+50
1+00
0+50
0+30
0+10
NO FILL
P/L
SLOPE 4:1
SECTION A-A
(50' Right of Control Line)
PLAN
REQUIRED FILL AREA
50 0 50 FEET
PROPERTY LINE
CHANNEL R/W
CONTROL LINE
PROPERTY LINE
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
LA SIERRA STORM CHANNEL
STAGE "E"
REQUIRED FILL AREA
DRAWN: D. M. MANN
TRACED: K.R.B.
CHECKED:
DATE DRAWN: Dec. 1965
23 of 23
SHEET NO.
DWG. NO. 1-201
APPROVED:
CHIEF ENGINEER, U.S. DEPT. FORES
DATE: 1-4-66
PROJECT No. 1-0-060
D-173E