RIVERSIDE CALIFORNIA

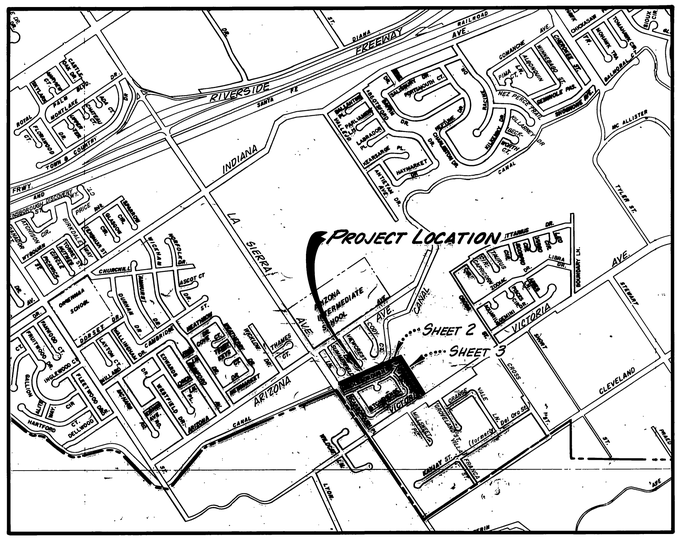
CITY OF RIVERSIDE

INCORPORATED 1883

PUBLIC WORKS DEPARTMENT

STORM DRAIN CHANNEL C-4

BETWEEN LA SIERRA AVENUE & VICTORIA AVENUE



VICINITY MAP

SCALE: 1" = 1000'

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RIVERSIDE STANDARD DRAWINGS AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1988 EDITION WITH 1989 & 1990 SUPPLEMENTS.

   NUMBERS ABOVE 100 IN A HEXAGON ON THE PLAN REFER TO THE RESPECTIVE STANDARD DRAWING AND SHALL BE CONSTRUCTED ACCORDINGLY, UNLESS MODIFICATIONS ARE NOTED ON THE PLAN. ANY NUMBER SHOWN BELOW THE STANDARD DRAWING NUMBER INDICATES THE SPECIFIC ALTERNATE TO BE CONSTRUCTED.
2. CUT AND FILL SLOPES ARE 1.5:1.
3. ALL ELEVATIONS SHOWN ON THE PLAN SHALL BE STAKED IN THE FIELD.
4. TRANSVERSE WEAKENED PLANE JOINTS REQUIRED @ 25' INTERVALS OR AS DIRECTED BY THE ENGINEER.

CONSTRUCTION NOTES

1. CONSTRUCT AIR-PLACED CONCRETE CHANNEL AS SHOWN ON PLAN AND TYPICAL SECTION.
2. CONSTRUCT SINGLE 10' X 3.25' R.C.B. CULVERT W/ 0.80' COVER PER STATE STANDARD D80 AND D83 AND TYPICAL SECTION.
3. CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C AND W.C.D. STANDARD DRAWING TS 301. REINFORCING STEEL BAR SIZES, SPACING, PATTERN AND COVER SHALL BE THAT OF THE SINGLE 10' X 5' BOX CULVERT OF THE STATE STANDARD D80.
4. CONSTRUCT R.C.B. WINGWALL PER STATE STANDARD D84, TYPE "B", H=6'; L=4.5'.
5. CONSTRUCT CATCH BASIN OPENING PER DETAIL AND NOTES SHOWN ON SHEET 3. "W" = 4'. CATCH BASIN TO BE POURED MONOLITHIC WITH R.C.B.
6. CONSTRUCT ASPHALT CONCRETE APRON (2.5" A.C. OVER TOP SLAB OF R.C.B.) AS SHOWN ON PLAN.
7. COMPACTED DIRT FILL MATERIAL GRADED @ 2%.
8. CONSTRUCT TRANSITION STRUCTURE PER DETAILS AND NOTES SHOWN ON SHEET 3.
9. CONSTRUCT CATCH BASIN OPENING PER DETAIL AND NOTES SHOWN ON SHT. 3. INSTALL 2 - 23 3/4" X 40" GRATES AND FRAMES PER ALHAMBRA FOUNDRY A-1555. GRATE FRAMES TO BE POURED MONOLITHIC WITH R.C.B. CONSTRUCT DRIVEWAY APPROACH AS SHOWN ON PLAN.
10. CONSTRUCT CHAIN LINK FENCE PER STD. 380, H = 6'. INSTALL CHAIN LINK GATE AT LOCATION INDICATED ON THE PLAN, LENGTH "L" = 10'. OMIT EXTENSION ARMS AND BARBED WIRE.
11. CONSTRUCT JUNCTION STRUCTURE NO.4, CASE 1.
12. REMOVE EXISTING CROSS GUTTER, CONCRETE BLOCKWALL AND METAL BEAM GUARD RAIL. SEE SPEC. PROV. FOR DISPOSITION OF BARRICADE.
13. CONSTRUCT P.C.C. MAINTENANCE RAMP, SEE DETAIL "A" ON SHEET 3.

ENGINEER IN RESPONSIBLE CHARGE

HANS J. KAMRATH
R.C.E. 14712 EXPIRES 3/31/93
DATE 8/28/1990

REGISTERED PROFESSIONAL ENGINEER
HANS J. KAMRATH
NO: 14712
CIVIL
STATE OF CALIFORNIA

MARK	REVISIONS	APPR.	DATE

DESIGNED BY [signature] DRAWN BY [signature] CHECKED BY [signature]

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	9/12/90	[signature]
STREET SERVICES	9-4-90	R.C.
TRAFFIC DIVISION		
INSPECTION	9-16-90	[signature]
SURVEY		

APPROVED BY [signature]
PUBLIC WORKS DIRECTOR
DATE Sept. 12, 1990

STORM DRAIN CHANNEL C-4

TITLE SHEET

HORIZ. SCALE: 1" = AS SHOWN

ACCOUNT NO. 09-573-418

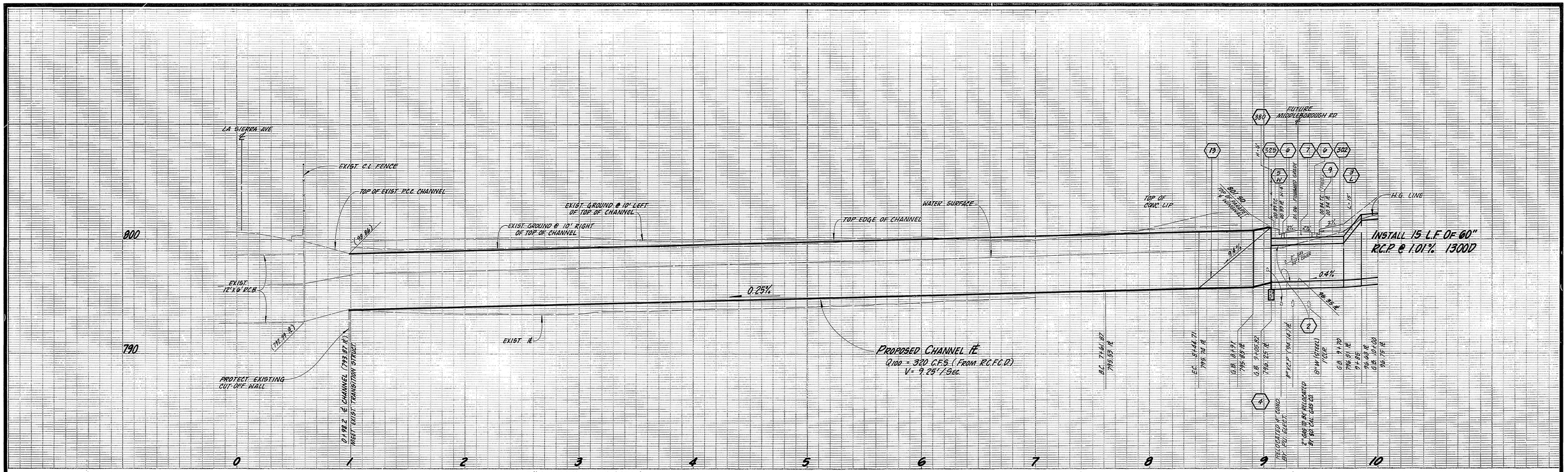
D-522

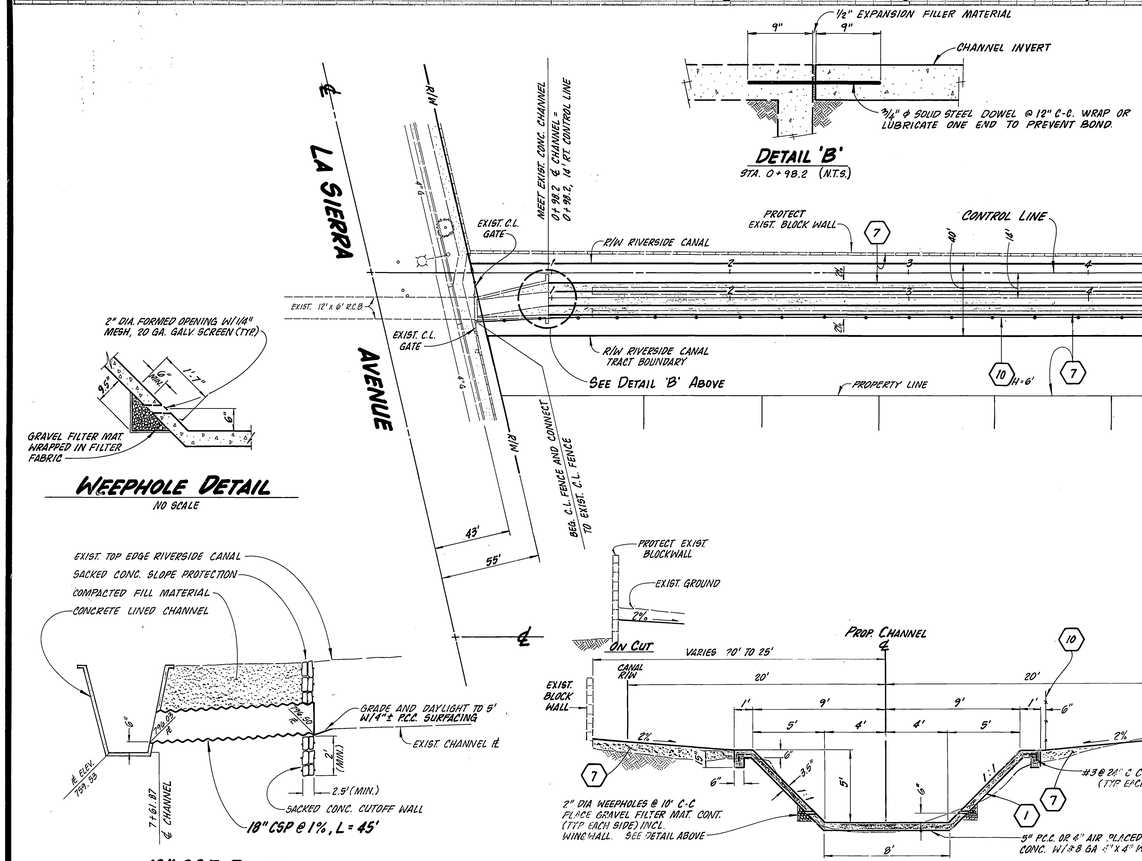
SHEET 1 OF 3

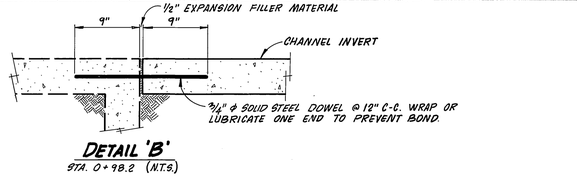
INDEXED 1-10-91 LH

88531

OZALID-NO.2



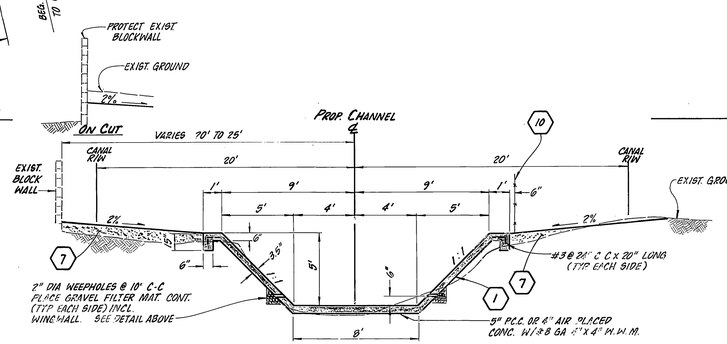




DETAIL 'B'
STA. 0+98.2 (N.T.S.)

WEEPHOLE DETAIL
NO SCALE

18" CSP DETAIL
@ STA. 7+61.87
NO SCALE



TYPICAL SECTION
STA. 1+00 to 8+91
NO SCALE

℄ STORM DRAIN CURVE DATA

Δ = 92° 44' 17"
R = 90'
T = 44.62'
L = 82.84'

Note: There is an existing subterranean drain in the 17' S.D. easement that has not been located. This drain needs to be connected to the proposed S.D. and the remaining pipe down stream removed where it interferes with construction.

ENGINEER IN RESPONSIBLE CHARGE
HANS J. KAMRATH
R.C.E. 14712 EXPIRES 3/31/93
DATE 8/28/1990

REGISTERED PROFESSIONAL ENGINEER
HANS J. KAMRATH
NO: 14712
CIVIL
STATE OF CALIFORNIA

MARK	REVISIONS	APPR.	DATE

DESIGNED BY ____ DRAWN BY PHET CHECKED BY ____

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

	APPROVED BY	DATE	BY
	PRINCIPAL ENGINEER	7/16/90	JC
	STREET SERVICES	7-17-90	RCC
	TRAFFIC DIVISION		
	INSPECTION	7-18-90	RSK
	SURVEY	9/14/90	GPH

APPROVED BY ____ PUBLIC WORKS DIRECTOR
DATE Sept. 12, 1990

STORM DRAIN CHANNEL C-4

BETWEEN LA SIERRA AVENUE & VICTORIA AVENUE

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCOUNT NO. 09-573-418

D-522

SHEET 2 OF 3

R1650

OZALID- NO.1

INDEXED 1-10-91 GPH

INSTALL 10" FLAP GATE WATERMAN MODEL "F 10" FLAT BACK OR APPROVED EQUAL (SEE SPEC. PROV. FOR DETAIL)

CONTROL LINE & STORM DRAIN ℄

EASMT. LINE

7'

10'

COMPACTED FILL MAT.

FIN. GRADE

PROTECT EXIST. LOW CONC. BLOCK WALL & C.L. FENCE

GRADE TO DRAIN 1% ±

EXIST. SHALE (803.00 ± E.)

ORIGINAL GROUND

PROVIDE & WELD 1/2" ø BAR @ C.S.P. INLET

PROP. 60" R.C.P.

INSTALL 2 L.F. OF 10" C.S.P. GA. 16 @ 40°±

PIPE BEDDING AND COMP. FILL MAT.

PROFILE - 10" C.S.P. @ STA. 11+10
INCLUDES MODIFIED CLEANOUT BOX.

810

800

SEE SHEET 2

H.G. LINE

FINISHED GRADE AT TOP OF PIPE

EXIST. GROUND

10" C.S.P. (SEE PROFILE ABOVE)

INSTALL 442 L.F. OF 60" R.C.P @ 1.01% 1300 D

DESIGN Q_{100} = 300 CFS
V = 15 ft. / Sec.

SEE TRANSITION STRUCTURE DETAIL (THIS SHEET)

VICTORIA AVENUE ℄

WATER SURFACE

EXIST. 9'x3.25' BOX

0.5%

TOP INSIDE BOX

3-#4 BARS, 2" C-C

2' GRATE

CATCH BASIN OPENING DETAIL WITH GRATE & FRAME & D/W APPROACH
N.T.S.
STA 9+49.32

D/W APP. TO BE POURED MONOLITHIC WITH R.C.B.

6" C.F.

1" CURB FACE

TOP OF GRATE & FRAME PER ALHAMBRA FOUNDRY A-1985

CATCH BASIN OPENING DETAIL
N.T.S.
STA. 9+13.32

STEEL FORM PER STD. 402

1" CURB DEP BELOW NORMAL

6" D.F.

D/W TO BE PAVED MONOLITHIC WITH R.C.B.

9" R

3" R

3-#4 BARS, 2' C-C

TOP INSIDE BOX

2' GUTTER

TRANSITION STRUCTURE NOTES

1. CONSTRUCTION OF TRANSITION STRUCTURE INCLUDING REINFORCING STEEL BAR SIZES, SPACING, PATTERN & COVER OVER THE STEEL SHALL BE THAT OF THE SINGLE 10'L x 5'H BOX CULVERT OF STATE STD. D80. THE BAR LENGTHS SHALL VARY UNIFORMLY THROUGHOUT THE TRANSITION.
2. THE CONC. THICKNESS SHALL BE THAT OF THE BOX SECTION UNLESS THE WALL THICKNESS OF THE PIPE PLUS 4 INCHES IS GREATER, IN WHICH CASE THE CONC. THICKNESS SHALL VARY UNIFORMLY FROM THAT OF THE BOX SECTION TO THAT OF THE PIPE WALL PLUS 4 INCHES.
3. THE INTERIOR SURFACE SHALL BE SMOOTH AND VARY UNIFORMLY BETWEEN THE TWO ADJOINING SECTIONS.
4. CONC. SHALL BE CLASS A.

USE DETAIL M

PROP. 60" R.C.P.

14+143.56

5.5'

14+141.23 E.C.

14+146.31

9" (TYP.)

PLAN
N.T.S.

USE DETAIL N

EXTEND LONGITUDINAL REINF. INTO WALLS OF STRUCTURE

9" (TYP.)

EXIST. 9'x3.25' R.C.B.

14+146.31

PROP. 60" R.C.P.

21.21 ℄

14+141.23

14+146.31

SECTION
N.T.S.

REMOVE CONC. PARALLEL TO PARAPET AND SPLICE TO EXIST. LONGITUDINAL REBARS IN ALL MEMBERS

FACE OF EXIST. WALL

19"

EXIST. 9'x3.25' R.C.B.

14+66.31 (105.74 E.)

BEG. R.C.B. HEADWALL REMOVAL INCL. PARAPET & WINGWALLS.

TRANSITION STRUCTURE
(REINFORCEMENT NOT ALL SHOWN)
STA. 14+46.31 TO 14+66.31

S.D. EASEMENT

1'

12' RAMP

24'

TOP OF WINGWALL & PARAPET ELEV. 801.50

RCB ℄

6"

15"

CONC. CHANNEL LINING (TYP. EACH SIDE)

WINGWALL (TYP. EACH SIDE)

10'

INV. ELEV.

2½"

2½"

4.5'

(TYP.) 8"

TYP. SECTION - R.C.B./WINGWALL
USE STATE STD. D80 (FLAT INVERT) FOR RCB & STATE STD. D84 TYPE "B" DESIGN H=6' FOR WINGWALL (REINFORCEMENT NOT SHOWN)
N.T.S.
STA. 9+05.82

NOTE: REMOVE SMALL TREES OR TRIM TREE BRANCHES WITHIN THE DRAINAGE EASEMENT THAT ARE IN CONFLICT WITH CONSTRUCTION.

℄ STORM DRAIN CURVE DATA

(A) Δ = 20° 40' 55"
R = 90'
T = 16.42'
L = 32.49'

(B) Δ = 26° 44' 32"
R = 90'
T = 21.39'
L = 42.01'

EXIST. EARTH SWALE

BEGIN ORANGE GROVE TREES

8" DRAIN LINE (ALV. DRAINAGE DIST.) 7.30' DEEP

ORANGE GROVE

EXIST. DITCH

MATCH LINE STA. 10+00 · SEE SHEET 2

STORM DRAIN EASEMENT

10+77.80 CONTROL LINE A.P.

11+10 S.P. = 11+28.11 CONTROL LINE

EX. 10+85.18 S.P. = 10+99.23 CONTROL LINE

GRADE TO DRAIN 15'±

10+85.18 CONTROL LINE

10+77.80 CONTROL LINE

INSTALL 2 L.F.± OF 10" C.S.P. @ 45° (SEE 10" C.S.P. PROFILE ABOVE LEFT)

CONTROL LINE ℄ & ℄ STORM DRAIN

8" DIA. PVC. SUB. DRAIN LOCATION IS APPROX. DEPTH 8'±. (SEE NOTE ON SHT. 2).

13+26.25 S.P. = 13+90.36 CONTROL LINE

13+26.25 S.P. = 13+27.25 CONTROL LINE

14+00.74 P.C. = 14+41.23 E.C.

14+59.38 P.T. = 14+59.38 L.T. CONTROL LINE

14+46.31 S.P. = 14+59 CONTROL LINE

30' S.D. EASMT. TRANS FROM 7' LT. TO 18' LT. OF CONTROL LINE

14+43.56 S.P. = 14+56.25 11.6' LT. CONTROL LINE

(A) (E30 M) (B)

LINEF. BEG. TRANSITION STRUCTURE

14+66.31 S.P. = 14+79 CONTROL LINE

REMOVE EXIST. R.C.B. WING WALLS, PARAPET, & HDWL.

EXIST. R.C.B. (SEE TRANS. STRUCT. DETAIL - ABOVE/LEFT.)

30' 30' 90'

R/W

VICTORIA AVENUE

FUTURE ℄

15'± 39.38' ℄ STORM DRAIN = INT. VICTORIA AVENUE

EXIST. 9'x3.25' BOX PER D-507

54" C.I.P. STORM DRAIN PER PLAN D-507 DESIGN Q = 280 CFS

STORM DRAIN EASEMENT

20'

RR # 39382 W/ ST. LT. 9' WIDE A.C. BIKEWAY A.C. BERM

8" DIA. PVC. SUBTERRANEAN DRAIN - AP. BOX. DEPTH 8'.

EXIST. 18" P.C.P.

EXIST. C.B. PER PLAN R-1979

60'

PROPOSED 60" R.C.P.

℄ TREE

25'±

RIGHT-OF-ENTRY

7'

10'

R.C.P ℄

STORM DRAIN EASEMENT

EXIST. C.L. FENCE

EXIST. BLOCK WALL

6" MIN.

PROTECT EXIST. ORANGE TREES IN PLACE

FINISHED GRADE

1.5:1

EXIST. GROUND

COMPACTED DIRT FILL MATERIAL

TYPICAL SECTION
N.T.S.
STA 12+00

NOTE:
CONTRACTOR SHALL PROTECT ALL EXISTING ORANGE TREES IN THE PROJECT AREA DURING CONSTRUCTION. LIMITS FOR BACKFILLING EXISTING EARTH DITCH SHALL BE THE TOP EASTERLY EDGE OF THE DITCH AS SHOWN IN THE TYPICAL SECTION ABOVE.

BEGIN TRANSITION 0:1/2

CONTROL LINE ℄ OF CHANNEL

P-1.14' 1:1 SLOPE

9+44.71 ℄ CHANNEL E.C. BEG. MAINT. RAMP

STORM DRAIN EASEMENT

4'

6"

9+44.71

1' CONC. LIP

8+91 ℄ CHANNEL BEG. CHANNEL WALL TRANS.

9+09.82 ℄ CHANNEL BEG. R.C.B.

END MAINT. RAMP

C.I. GATE L=10'

9+13.32 ℄ C.B. (SEE C.B. OPENING DETAIL THIS SHEET)

W=4'

9+31.32 ℄ CHANNEL

INVER. ESMT.

9+49.32 ℄ C.B.

00.34 R

SEE DETAIL B LEFT

1' BARRIER STRIP

9+70 ℄ CHANNEL BEG. 60" P.C.P. END TRANSITION STRUCTURE

9+85 ℄ CHANNEL BEG. 60" P.C.P. END TRANSITION STRUCTURE

INSTALL 60" R.C.P.

2-2.33'H x 4.0' GRATES

STORM DRAIN EASEMENT

PROTECT EXIST. C.L. FENCE

SLOPE VARIES 1:1 TO 1:1.5 (TYP. EA. SIDE)

REMOVE & I.F. OF C.L. FENCE & PROVIDE TERMINAL POST

1:4 P.B. BANQUET

MEET EXIST. C.L.G. INSTALL 9 L.F. OF C.L.G. 6" C.F.

C.I. GATE L=10'

SALVAGE W.81.1 TYPE "N" MARKER

MIDDLEBOROUGH

MEET EXIST. C.L.G. INSTALL 9 L.F. OF C.L.G. 6" C.F.

STA. 9+98 INSTALLATION

END C.L. FENCE & BLOCK WALL REMOVAL

DRIVEWAY APPROACH DETAIL
1" = 20'

DETAIL "A"
1" = 20'

VARIES 0' to 5'

12'

VARIES 0' to 5'

4'

15"

SLOPE 1:1

SLOPE 1:1

℄ OF STORM CHANNEL

SECTION A-A
NO SCALE

ENGINEER IN RESPONSIBLE CHARGE
HANS J. KAMRATH
R.C.E. 14712 EXPIRES 3/31/93
DATE 8/28/1990

REGISTERED PROFESSIONAL ENGINEER
HANS J. KAMRATH
NO: 14712
CIVIL
STATE OF CALIFORNIA

MARK	REVISIONS	APPR.	DATE

DESIGNED BY ____ DRAWN BY ____ CHECKED BY ____

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

	APPROVED BY	DATE	BY
	PRINCIPAL ENGINEER	8/24/90	
	STREET SERVICES	9-4-90	
	TRAFFIC DIVISION		
	INSPECTION	9-10-90	
	SURVEY	9/14/90	

APPROVED BY ____
PUBLIC WORKS DIRECTOR
DATE Sept 12, 1990

STORM DRAIN CHANNEL C-4

BETWEEN LA SIERRA AVENUE & VICTORIA AVENUE

HORIZ. SCALE: 1" = 40' VERT. SCALE: 1" = 4'

ACCOUNT NO. 07-573-418

D-522

SHEET 3 OF 3

INDEXED 1-10-91 GH

81630

OZALID- NO.1