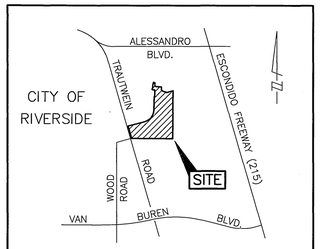
TRACT NO. 28491
STORM DRAIN IMPROVEMENT PLANS



VICINITY MAP

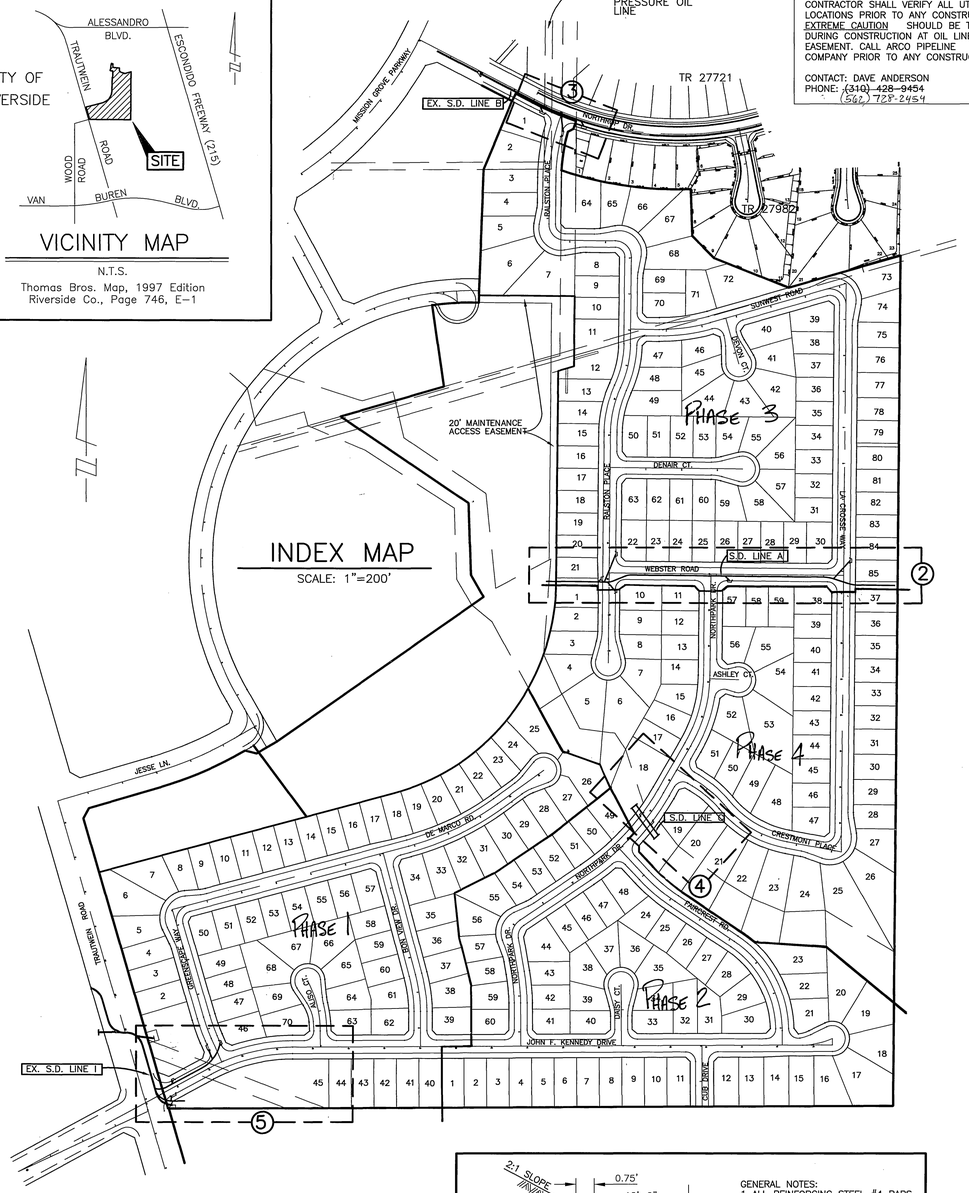
N.T.S.
Thomas Bros. Map, 1997 Edition
Riverside Co., Page 746, E-1

CAUTION!!
EXIST. 16" HIGH PRESSURE OIL LINE

NOTE TO CONTRACTOR:

CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION. EXTREME CAUTION SHOULD BE TAKEN DURING CONSTRUCTION AT OIL LINE EASEMENT. CALL ARCO PIPELINE COMPANY PRIOR TO ANY CONSTRUCTION.

CONTACT: DAVE ANDERSON
PHONE: ~~(310) 428-9454~~
(562) 728-2454



CONSTRUCTION NOTES / QUANTITIES

1	CONSTRUCT 6'X12' CONC. SINGLE BOX CULVERT PER CALTRANS STD. D-80 PER DETAIL ON SHT. 6	100 LF
2	CONSTRUCT 57" RCP (D-1200)	465 LF
3	CONSTRUCT 54" RCP (D-1200)	500 LF
4	CONSTRUCT 36" RCP (D-1250)	95 LF
5	CONSTRUCT 18" RCP (D-2000)	373 LF
6	CONSTRUCT JUNCTION STRUCTURE NO. 4 PER CITY OF RIVERSIDE STD. DWG NO. 423.	2 EA
7	CONSTRUCT MANHOLE "AX" PER CITY OF RIVERSIDE STD. DWG NO. 430	1 EA
8	CONSTRUCT HEADWALL & WINGWALL PER CALTRANS STD. DWG. D-90 (FLARE ANGLE, LENGTH & DESIGN H PER PLAN) CALTRANS DETAIL SHT. 6	2 EA
9	CONSTRUCT BOX CULVERT HEADWALL & WINGWALL PER CALTRANS STD. DWG. NO. D-85 (TYPE E) (FLARE ANGLE, LENGTH & DESIGN H PER PLAN) CATRANS DETAIL SHT. 6	2 EA
10	CONSTRUCT 1/4 TON RIP-RAP, 3.5' THICK W/18" THICK NO. 1 BACKING AND ROCK PROTECTION FABRIC (WOVEN) PER CALTRANS SPECIFICATIONS AND TYPICAL SECTION C ON SHEET 4 OF 5.	250 C.Y.
11	CONSTRUCT CATCH BASIN PER CITY OF RIVERSIDE STD. DWG. NO 405, W & V AS NOTED PER PLAN.	13 EA
12	CONSTRUCT CONCRETE COLLAR PER CITY OF RIVERSIDE STD. DWG. NO. 424.	3 EA
13	CONSTRUCT STANDARD PIPE BEDDINGS AS NOTED ON PLAN PER CITY OF RIVERSIDE STD. DWG. NO. 452.	—
14	CONSTRUCT J.S. NO. 3 PER RCFC STD. JS228	2 EA.
15	CONSTRUCT WROUGHT IRON GATE PER GRADING PLAN	N/A
16	CONSTRUCT CONCRETE PAD PER DETAIL ON THIS SHEET.	3.7 C.Y.
17	REMOVE EXIST. HEADWALL AND/OR EXIST. PORTION OF RCP	85 L.F.
18	CONSTRUCT JUNCTION STRUCTURE C PER CITY STD. 422	3 EA.
19	CONSTRUCT 24" RCP (D-1350)	232 L.F.
20	CONSTRUCT JUNCTION STRUCTURE B PER STD. DWG. NO 421	2 EA.
21	INSTALL 6' CHAIN LINK FENCE PER STANDARD 280 & DETAIL BELOW	90 L.F
22	CONSTRUCT DRIVEWAY APPROACH PER STANDARD 302 A=10' B=17'	1 EA
23	CONSTRUCT MANHOLE JM PER STANDARD 432	1 EA
24	CONSTRUCT 2 TON RIP-RAP, 5.5' THICK W/18" THICK NO. 1 BACKING AND ROCK PROTECTION FABRIC (WOVEN) PER CALTRANS SPECIFICATIONS AND TYPICAL SECTION C ON SHEET 4 OF 5.	525 C.Y.
25	PLACE TRAFFIC RATED TURF BLOCK PER PLAN	4025 S.F.
26	INSTALL SLOPED PROTECTION BARRIER PER AMERICAN PUBLIC WORKS ASSN. STD. PLAN NO. 360-0 (℄ TO BOTTOM OF RACK TO BE 6")	2 EA

STORM DRAIN NOTES

1. Quantities shown are for information only and the City of Riverside is not responsible for their accuracy.
2. Construction shall be in accordance with City of Riverside Dept. of Public Works Standard Drawings, its supplemental notes and the Standard Specifications for Public Works Construction, Current Edition.
3. It shall be the responsibility of the contractor to clear the right of way in accordance with the provisions of law as it affects each utility including irrigation lines and appurtenances and at no cost to the City
4. Notice to contractor. The existence and location of any underground utility pipes or structures shown on these plans were obtained by a search of the available records. To the best of our knowledge there are no existing utilities exept as shown on these plans. The contractor is required to take precautionary measures to protect the utility lines shown and any other lines not of record or not shown on these plans.
5. The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the work hereon. In the event of discrepancies arising during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for approval by the City.
6. The contractor shall call in a locations request to UNDERGROUND SERVICE ALERT (USA), Phone No. 1-800-227-2600, two working days before digging No construction permit will be issued by the Public Works Department involving excavation for underground facilities unless the applicant has been provided an Inquiry Identification Number by U.S.A.
7. The developer shall be responsible for preserving or re-establishing and referencing survey monuments destroyed, disturbed or buried as a result of construction shown hereon.
8. All embankment fill shall be compacted to minimum of 90% maximum dry density and shall be of an approved quality.
9. Before the Rip-Rap is accepted, as placed, at the outlet of any drainage structure, it shall be tested under flows as close as possible to designed conditions with water obtained from fire hydrants in the immediate areas.
10. All flagged elevations shall be staked in the field by the private engineer.
11. Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify and hold the owner and the engineer harmless from any and all liability, real or alleged, in connection with performance of work on this project, excepting for liability arising from the sole negligence of the owner or the engineer.
12. The concrete cover on the inside of all concrete pipe must be increased to provide a min. of 1.5" over the reinforcing when the design velocities exceed 20 fps. The concrete design strength in these reaches shall be:
fc = 5000 psi. for velocities exceeding 20 fps. and
fc = 6000 psi. for velocities exceeding 30 fps.

CAST-IN-PLACE REQUIREMENTS

1 FOR QUALITY CONTROL DURING PLACEMENT, EMPLOY AN EXPERIENCED R.C.E OR TECHNICIAN HAVING SUITABLE C.I.P.P. EXPERIENCE.

2 CONTROL CONCRETE BY MEANS OF 6"x12" TTEXT CYLINDERS MINIMUM OR I SET OF FOUR (4) CYLINDERS/100 C.Y. AND NOT LESS THAN TWO (2) SETS CYLINDERS PER EACH DAY'S POUR.

3 SUPPLYING BATCH PLANT SHALL BE INSPECTED AT THE START OF CONSTRUCTION AND NOT LESS THAN ONCE EACH WEEK THEREAFTER TO OBSERVE PLANT OPERATIONS BATCH WEIGHTS AND OTHER CONCRETE CONTROL MEASURES.

4 CONCRETE MIXES SHALL NOT HAVE LESS THAN SIX (6) SACKS OF PORTLAND CEMENT/C.U. YD.

5 CONCRETE MIX DESIGNS SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL PRIOR TO START OF CONSTRUCTION.

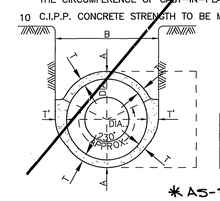
6 IF AND WHEN FLOW VELOCITY EXCEEDS 10 F.P.S. A 140' SEGMENT OF THE INVERT SHALL BE THICKENED 2 INCHES IN WALL THICKNESS AS "SACRIFICIAL CONCRETE" TO RESIST ABRASION. COMPRESSIVE STRENGTH OF CONCRETE FOR DESIGN VELOCITIES ≥ 20 F.P.S. SHALL BE Fc=4000 PSI FOR DESIGN VELOCITIES ≥ 30 F.P.S. Fc=5000 P.S.I. SHALL BE PROVIDED.

7 MAXIMUM PERMISSIBLE CONCRETE SLUMP SHALL BE 2 1/2", 1 1/2" MIN. TO 2 1/2" MAX.

8 CONTRACTOR SHALL ALLOW INSPECTOR INTO PIPE WHILE UNDER CONSTRUCTION AND "ROD" FOR WALL THICKNESS AT A MIN. OF 25 C.Y. OF THE POUR.

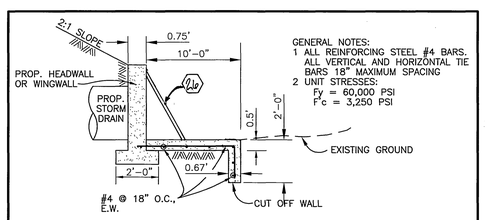
9 AT THE END OF ALL POURS AND AT THE END OF EACH WORKING DAY THE CONTRACTOR SHALL INSTALL #4 DOWELS 24" LONG 12" INTO LAST POUR AT 12" CENTERS AROUND THE CIRCUMFERENCE OF CAST-IN-PLACE PIPE.

10 C.I.P.P. CONCRETE STRENGTH TO BE MINIMUM-3250 P.S.I.



DIA.	A	MIN. B	T	MIN. T
72"	86"	87"	7"	7"
84"	100"	101"	8"	7"

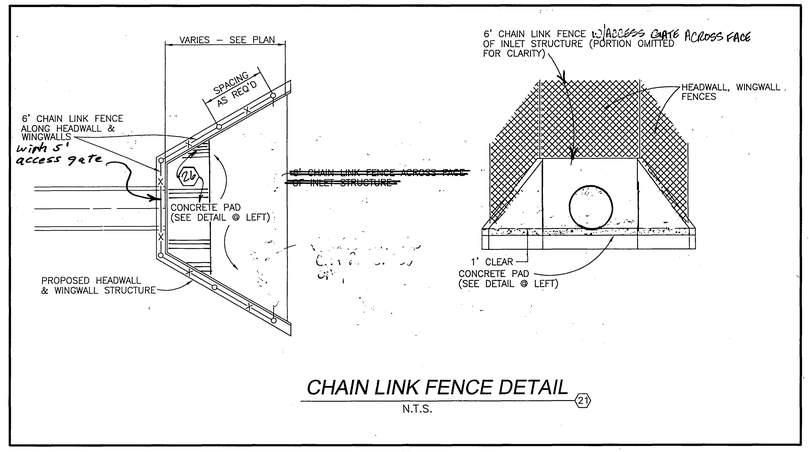
*AS-BUILT PER PLANS 12-31-03 LFH



GENERAL NOTES:
1 ALL REINFORCING STEEL #4 BARS. ALL VERTICAL AND HORIZONTAL TIE BARS 18" MAXIMUM SPACING
2 UNIT STRESSES:
Fy = 60,000 PSI
F'c = 3,250 PSI

CONCRETE PAD DETAIL (16)

N.T.S.



CHAIN LINK FENCE DETAIL (21)

N.T.S.

ARCO PIPE LINE CO.
APPROVED BY: DATE: 9/22/98

REVIEWED BY W.M.W.D. SHEETS 1 THROUGH 5 FOR NON-INTERFERENCE COMPLIANCE ONLY
CIVIL ENGINEER RCE #46212 11/20/98

Underground Service Alert
Call: TOLL FREE 1 - 800 227 - 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

REGISTERED PROFESSIONAL ENGINEER JOHN W. CANTY No. 17550 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE: 6-30-01 DATE: 1/5/99

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING - PLANNING - SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 - 5234 FAX (909) 683 - 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-98

SCALE: AS SHOWN
DATE: DEC. 1997
BENCH MARK: CITY OF RIVERSIDE "E8-A2" P.K. NAIL AND TAG ON TOP OF 35 X 50' X 20' HIGH GRANITE BOULDER, 100' W'LY OF TRAUTWEIN ROAD AND 0.3 MILE N'LY OF WOOD ROAD. FB 735/74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

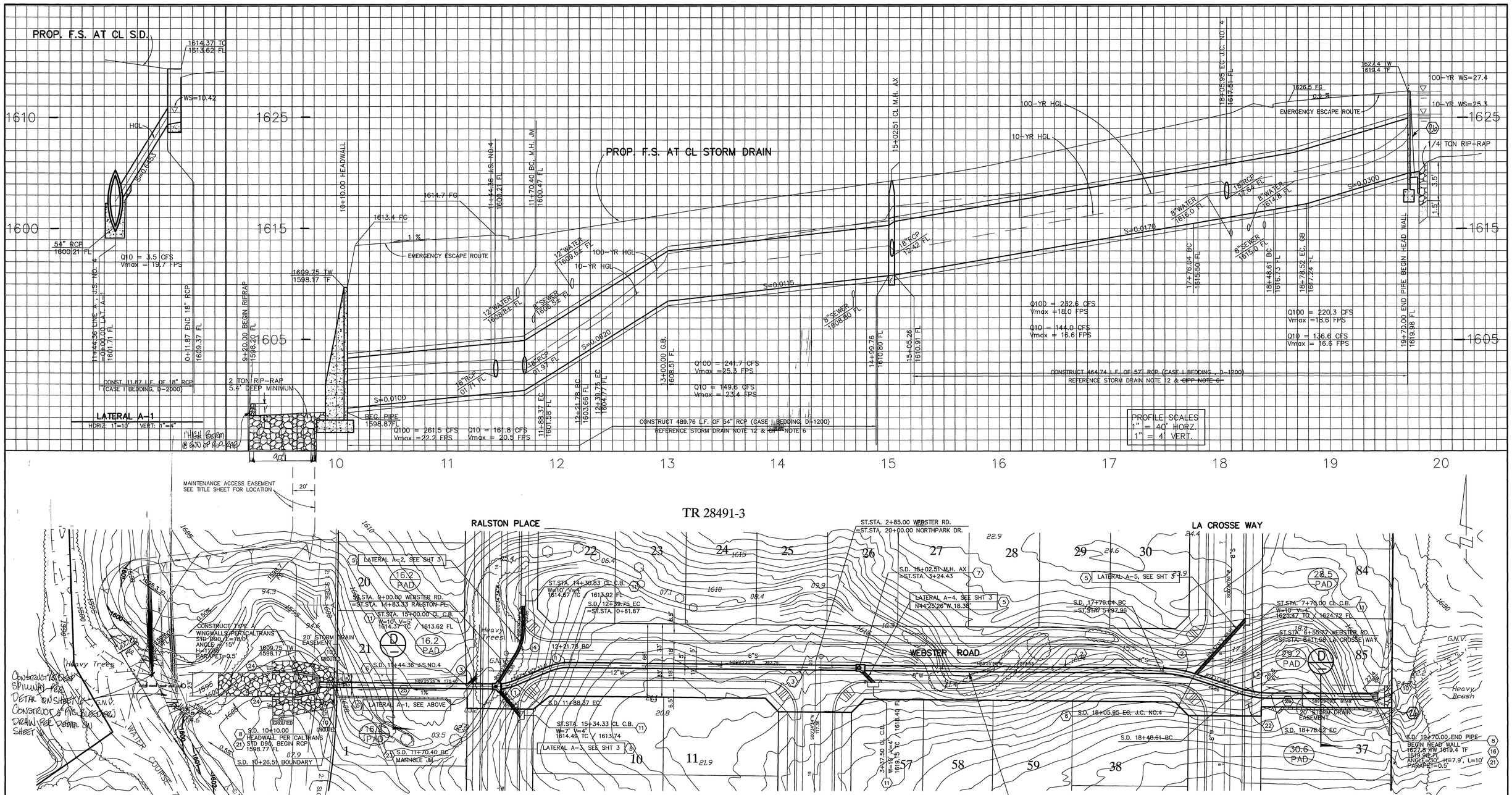
APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
TRAFFIC DIVISION		
R.W. ENG MGR.	TB	2/24/99
STREET SERVICES	RC	1/29/99

APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 2-25-99

TRACT NO. 28491
STORM DRAIN PLANS
TITLE SHEET
FOR: REGIONAL PROPERTIES

PROJECT NO. D-660
SHEET 1 OF 6
FILE NO.: 1004-002

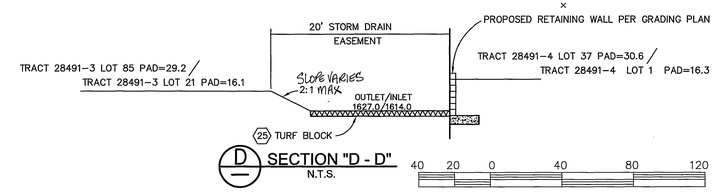
INDEXED 3-25-99 LFH



DATA

	DELTA/BEARING	RADIUS	LEN./DIST.	TANGENT
1	22°52'49"	45.00'	17.97'	9.11'
2	17°08'18"	100.00'	29.91'	15.07'
3	N45°30'42"E	–	11.87'	–
4	31°47'25"	45.00'	24.97'	12.81'

STORM DRAIN LINE – A



* AS-BUILT PER PLANS 12-31-03 GH

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PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE: 6-30-01 DATE: 7/21/98

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING – PLANNING – SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 – 5234 FAX (909) 683 – 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-99

SCALE: 1"=40'
DATE: AUGUST 1998
BENCH MARK: CITY OF RIVERSIDE "E8-A2"
P.K. NAIL AND TAG ON TOP OF 35' X 50' X 20' GRANITE BOULDER, 100' W'LY OF TRAUTWIEN ROAD AND 0.3 MILE N'LY OF WOOD ROAD. FB 735\74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C./D.D.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
P.W. ENG. MGR.	TMB	2/25/99
STREET SERVICES	RE	1/14/99

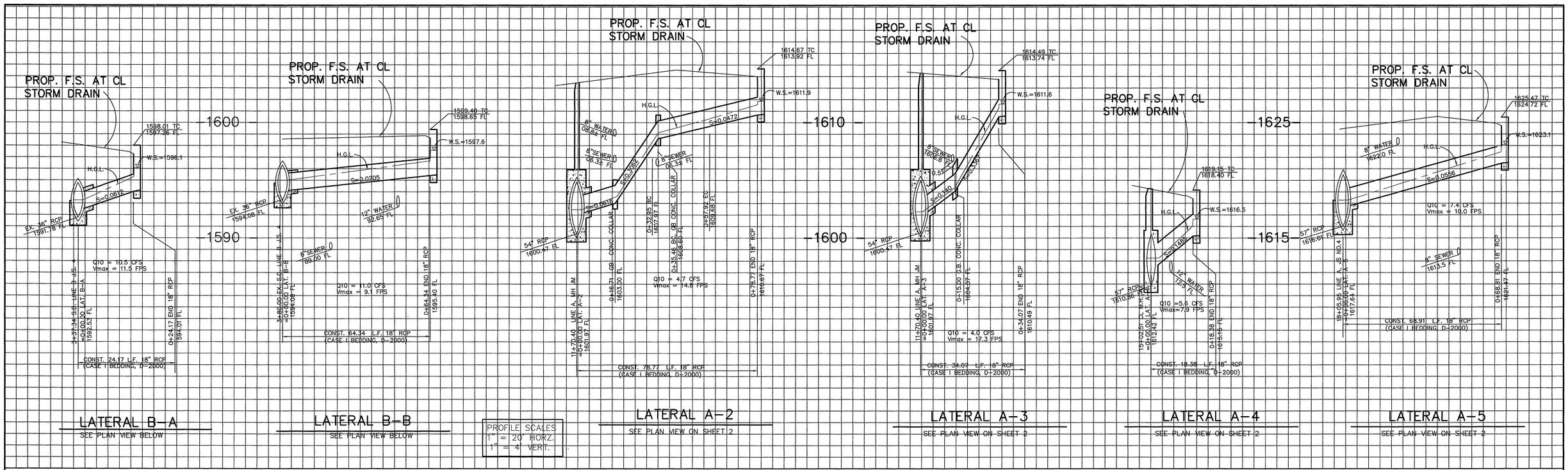
APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 2-25-99

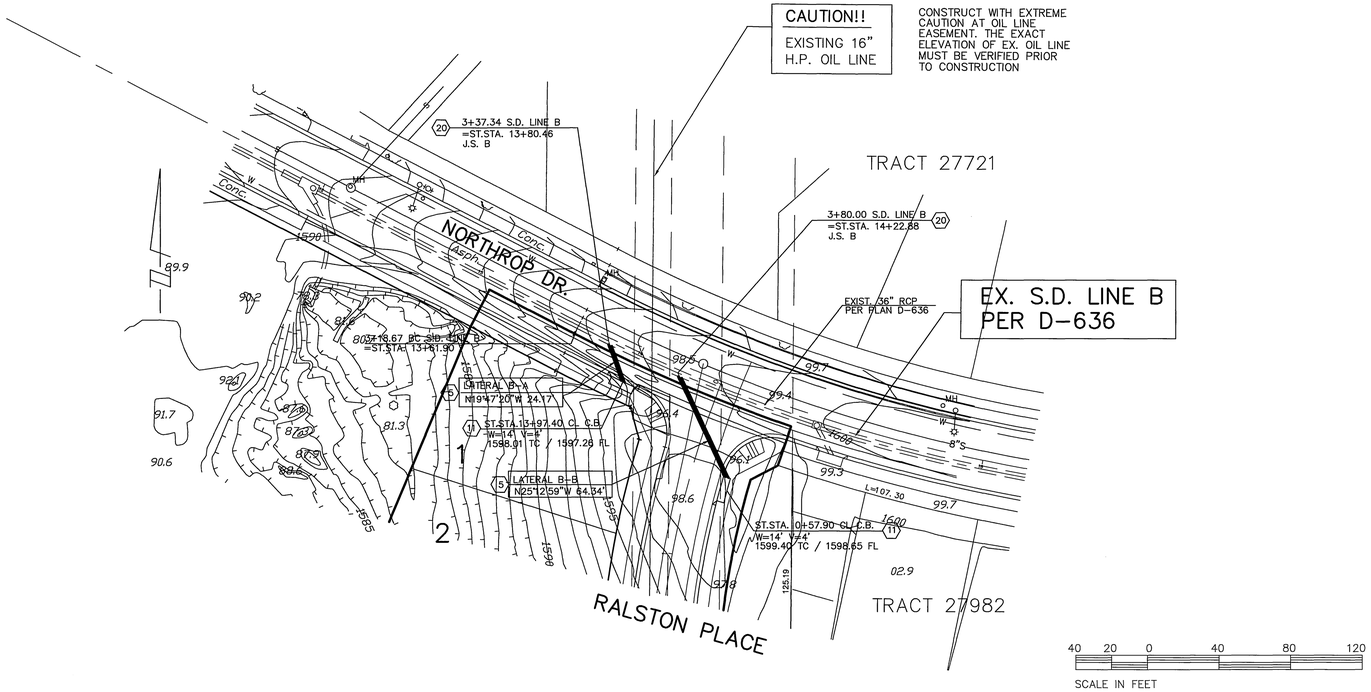
TRACT No. 28491
STORM DRAIN PLANS
LINE A
LATERAL A-1

FOR: REGIONAL PROPERTIES

PROJECT NO. D-660
SHEET 2 OF 6
FILE NO.: 1004-002

INDEXED 3-25-99 GH





*AS-BUILT PER PLANS 12-31-01 HH

Underground Service Alert
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227 – 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

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REGISTERED PROFESSIONAL ENGINEER JOHN W. CANTY No. 17550 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE: 6-30-01 DATE: 3/2/98

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING – PLANNING – SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 – 5234 FAX (909) 683 – 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-98

SCALE: 1"=40'
DATE: AUGUST 1998
BENCH MARK: CITY OF RIVERSIDE "E8-A2" P.K. NAIL AND TAG ON TOP OF 35' X 50' X 20' GRANITE BOULDER, 100' W'LY OF TRAUTWIEN ROAD AND 0.3 MILE N'LY OF WOOD ROAD. FB 735\74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C./D.D.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
P.W. ENG. MGR	JG	12/14/98
STREET SERVICES	JC	11-13-98

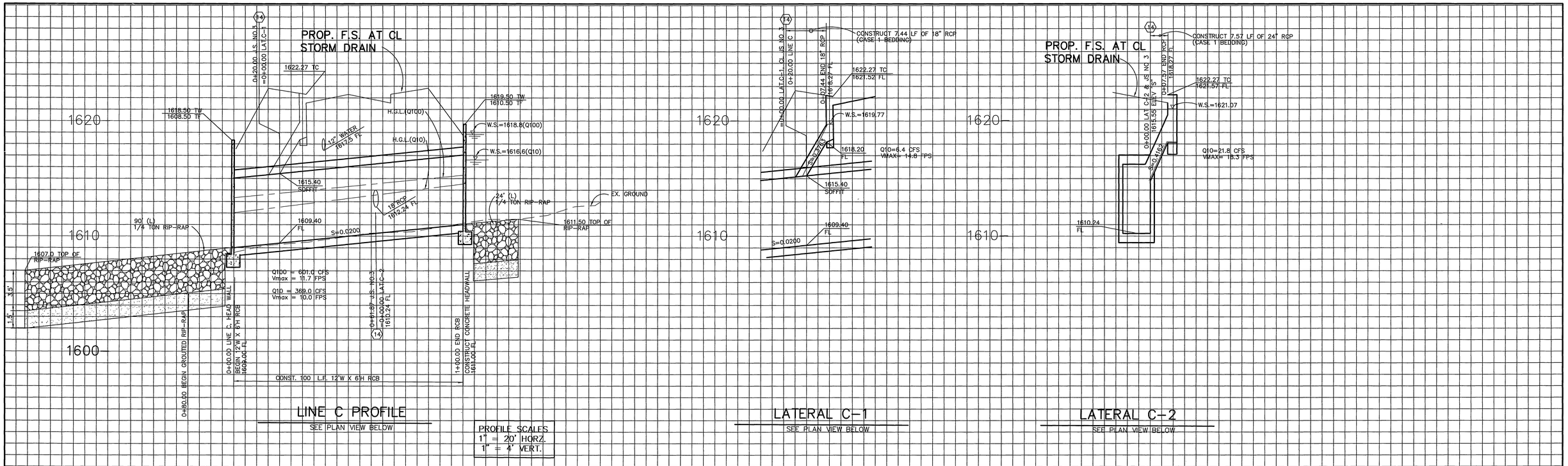
APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 2-26-99

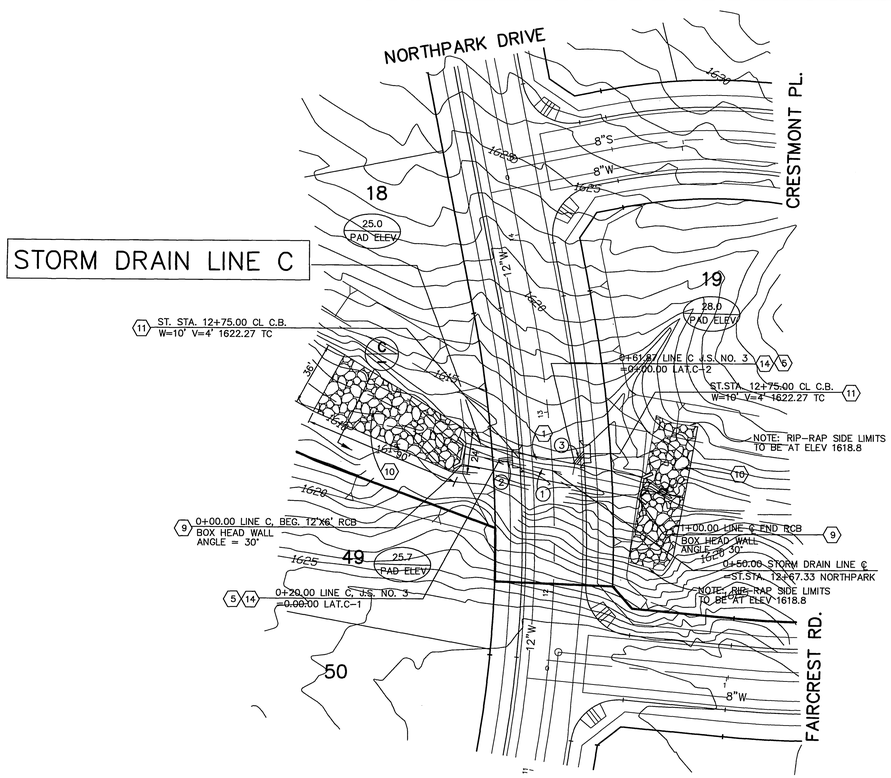
TRACT No. 28491
STORM DRAIN PLANS
LATERALS B-A & B-B
LATERALS A-2 ~ A-5

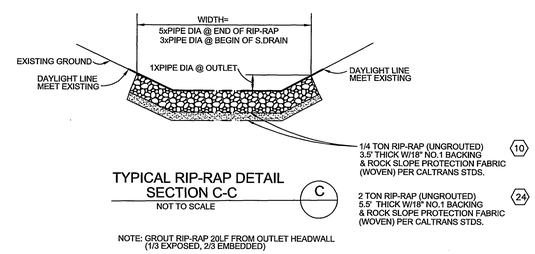
FOR: REGIONAL PROPERTIES

PROJECT NO. D-660
SHEET 3 OF 6
FILE NO.: 1004-002

INDEXED 3-25-99 HH







TYPICAL RIP-RAP DETAIL
SECTION C-C
NOT TO SCALE

DATA

	BEARING	DIST.	DESCRIPTION	SIZE
1	N38°05'22"W	100.00'	LINE C	12'X6' RCB
2	N56°28'11"W	7.44'	LATERAL C-1	18" RCP
3	N82°30'06"E	7.57'	LATERAL C-2	18" RCP

40 20 0 40 80 120
SCALE IN FEET

*AS-BUILT PER PLANS 12-31-03 HH

Underground Service Alert
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227 – 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

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REGISTERED PROFESSIONAL ENGINEER JOHN W. CANTY No. 17550 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE: 6-30-01 DATE: 9/21/98

CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING – PLANNING – SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 – 5234 FAX (909) 683 – 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-99

SCALE: 1"=40'
DATE: AUGUST 1998
BENCH MARK: CITY OF RIVERSIDE "E8-A2" P.K. NAIL AND TAG ON TOP OF 35' X 50' X 20' GRANITE BOULDER, 100' W'LY OF TRAUTWEIN ROAD AND 0.3 MILE N'LY OF WOOD ROAD. FB 735\74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

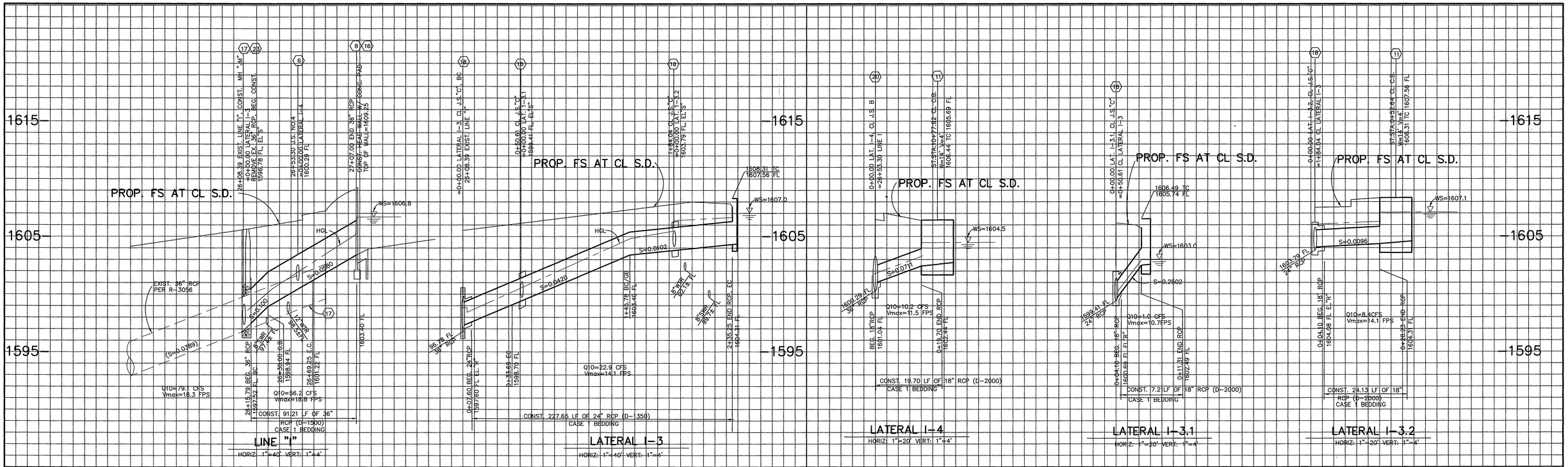
APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
P.W. ENG. MGR		
STREET SERVICES		

APPROVED BY R. McDonald
DIRECTOR OF PUBLIC WORKS
DATE 2-26-99

TRACT No. 28491
STORM DRAIN PLANS
LINE C
LATERALS C-1 & C-2

FOR: REGIONAL PROPERTIES

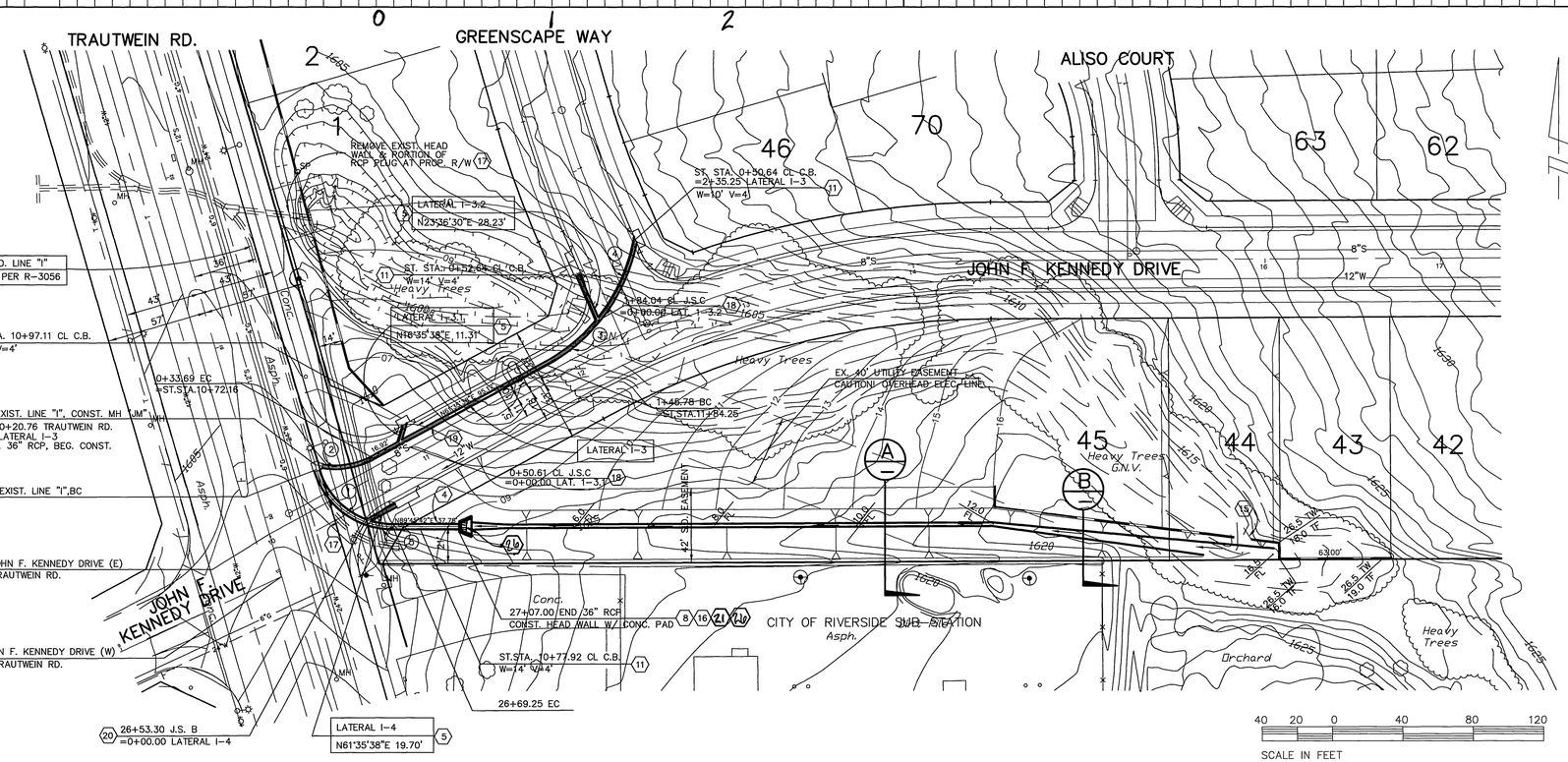
PROJECT NO. D-660
SHEET 4 OF 6
FILE NO.: 1004-002

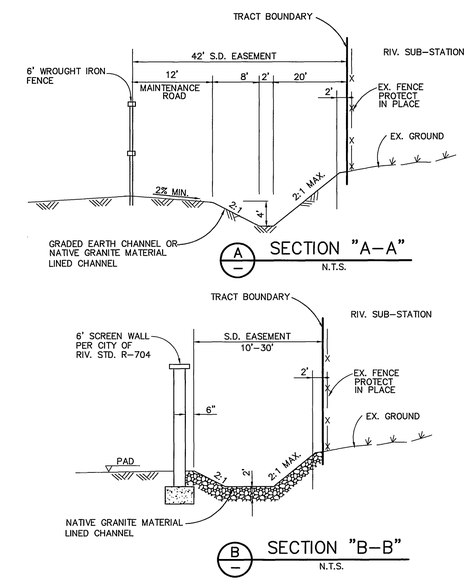


J.S."C"	
26+08.39 LINE-I	
A	60'
B	18"
D	36"
C'	4.0'
E'	3.5'
L	4.5'
EL."S"	(1596.78')
EL."R"	1597.45

J.S."C"	
0+50.61 LAT.I-3	
A	45'
B	18"
D	18"
C'	4.1'
E'	4.1'
L	5.1'
EL."S"	1599.41
EL."R"	1600.69

J.S."C"	
1+84.04 LAT.I-3	
A	45'
B	18"
D	18"
C'	4.1'
E'	4.1'
L	5.1'
EL."S"	1603.79
EL."R"	1604.08





DATA

	DELTA/BEARING	RADIUS	LEN./DIST.	TANGENT
1	53°35'47"	45.00'	42.09'	22.73'
2	42°53'52"	45.00'	33.69'	17.68'
3	21°55'25"	100.00'	38.26'	19.37'
4	29°20'33"	100.00'	51.21'	26.18'
5	20°18'47"	45.00'	15.95'	8.06'

*AS-BUILT PER PLANS 12-31-03 LH

Underground Service Alert
Call: TOLL FREE
1 - 800
227 - 2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

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REGISTERED PROFESSIONAL ENGINEER JOHN W. CANTY No. 17550 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF:
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE: 6-30-01 DATE: 3/21/98

CEG CANTY ENGINEERING GROUP, INC.
CIVIL ENGINEERING - PLANNING - SURVEYING
3120 CHICAGO AVENUE, SUITE 180, P.O. BOX 52050, RIVERSIDE, CA 92517
TEL (909) 683 - 5234 FAX (909) 683 - 5301
CITY OF RIV. BUSINESS TAX ACCT. NO. 69372 EXP. DATE 04-07-99

SCALE: 1"=40'
DATE: AUGUST 1998

BENCH MARK: CITY OF RIVERSIDE "E8-A2" P.K. NAIL AND TAG ON TOP OF 35' X 50' X 20' GRANITE BOULDER, 100' W'LY OF TRAUTWEIN ROAD AND 0.3 MILE N'LY OF WOOD ROAD. FB 735\74 ELEV: 1588.453

MARK	REVISIONS	APPR.	DATE

DESIGNED BY L.M. DRAWN BY C.C. CHECKED BY J.W.C.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
P.W. ENG. MGR	TB	2/24/99
STREET SERVICES	BE	1/4/99

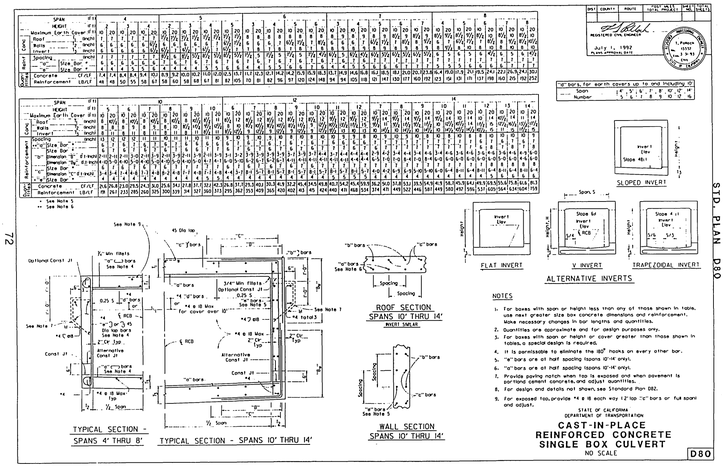
APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 2-26-99

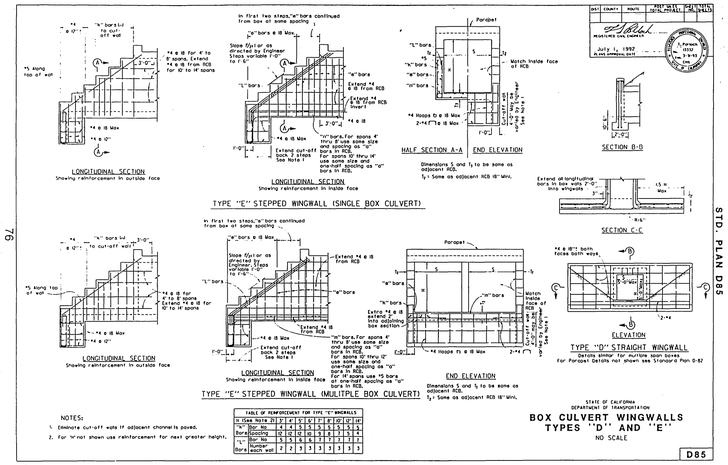
TRACT No. 28491
STORM DRAIN PLANS
LINE I, LAT. I-3 & I-4
LATERALS I-3.1, I-3.2

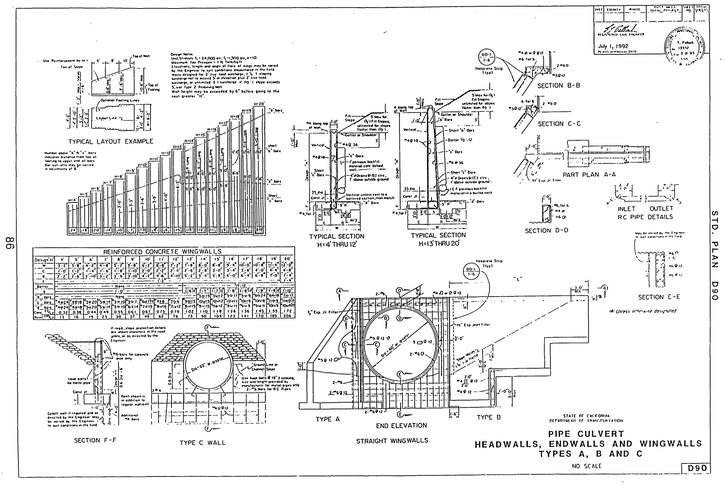
FOR: REGIONAL PROPERTIES

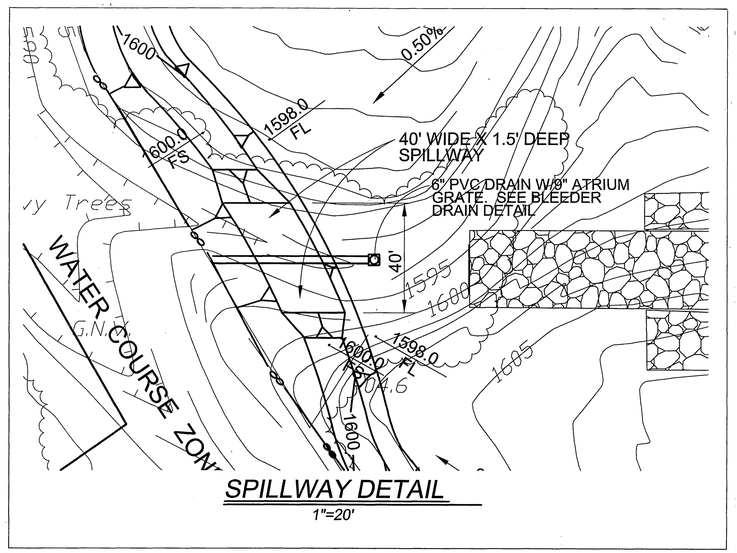
PROJECT NO. D-660
SHEET 5 OF 6
FILE NO.: 1004-002

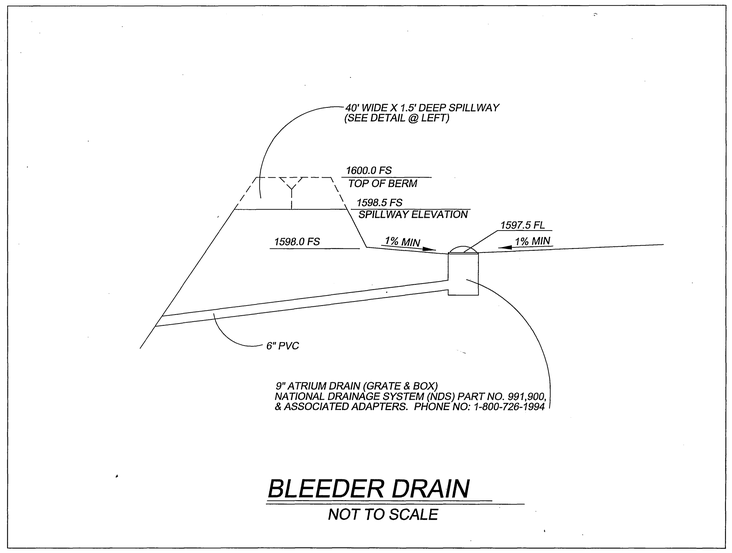
INDEXED 3-25-99 LH

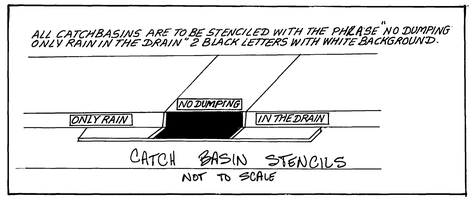












*AS-BUILT PER PLANS 12-31-03 GH

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DESIGNED BY D.D. DRAWN BY D.D. CHECKED BY J.W.C.

CITY OF RIVERSIDE, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY	BY	DATE
PRINCIPAL ENGR.		
PLANNING DEPT.		
TRAFFIC DIVISION		
P.W. ENG. MGR.		
STREET SERVICES		

APPROVED BY R. McGrath
DIRECTOR OF PUBLIC WORKS
DATE 2-26-99

TRACT NO. 28491
STORM DRAIN PLANS
DETAIL SHEET

FOR: REGIONAL PROPERTIES

PROJECT NO. D-660
SHEET 6 OF 6
FILE NO.: 1004-002

INDEXED 3-25-99 GH