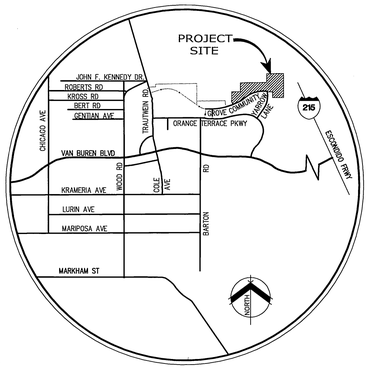
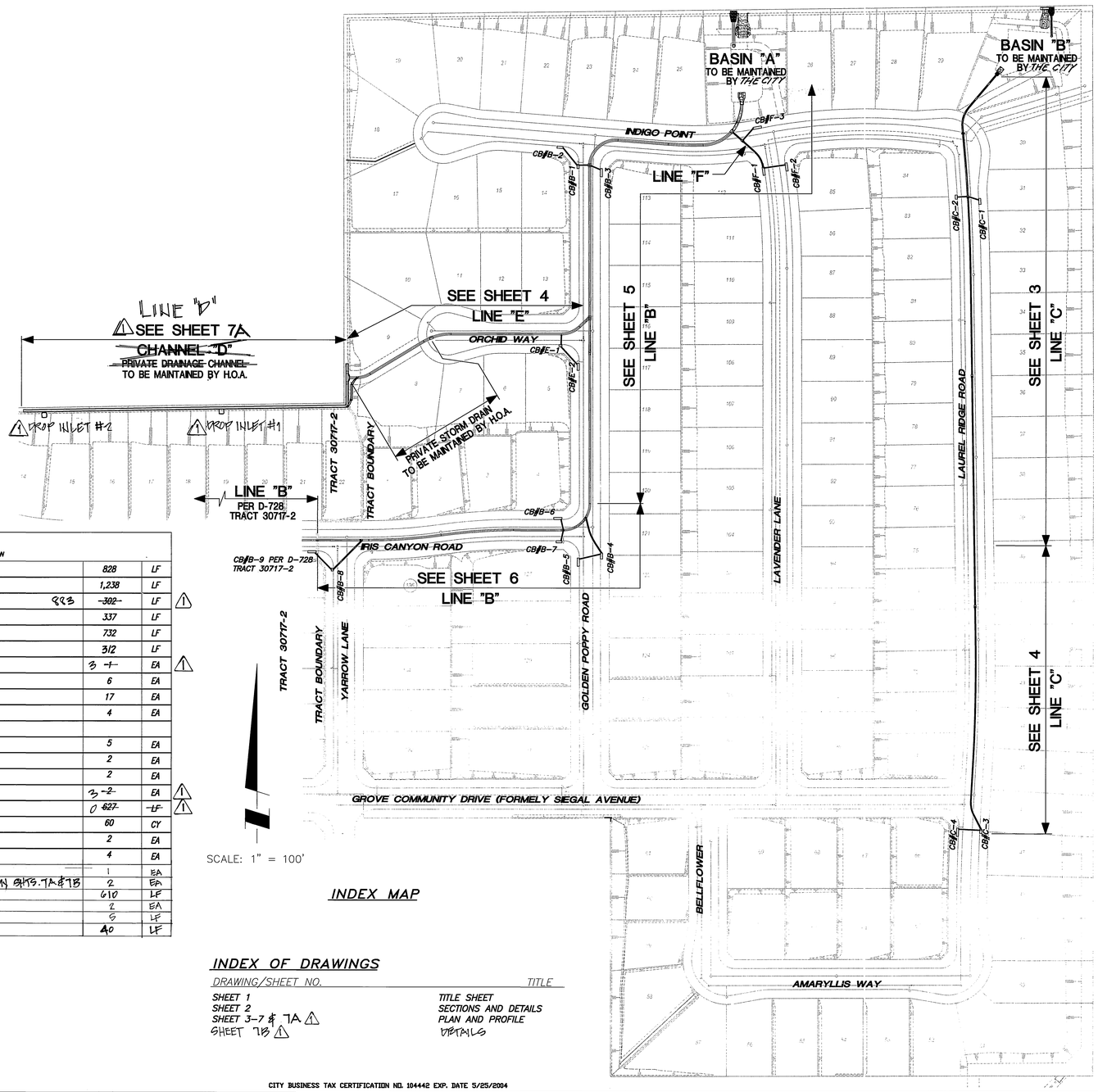
STORM DRAIN IMPROVEMENT PLANS

TRACT NO. 30717-1, IN THE CITY OF RIVERSIDE



VICINITY MAP
NOT TO SCALE



SCALE: 1" = 100'

INDEX MAP

CONSTRUCTION NOTES & QUANTITY ESTIMATE

QUANTITY ESTIMATE IS FOR BONDING PREPOSSESS ONLY. CONTRACTOR SHALL VERIFY ALL QUANTITIES PRIOR TO CONSTRUCTION

1	CONSTRUCT 18" RCP (D-LOAD PER PLAN)	828	LF
2	CONSTRUCT 24" RCP (D-LOAD PER PLAN)	1,238	LF
3	CONSTRUCT 30" C.I.P.P. STORM DRAIN 823	~~302~~	LF ⚠
4	CONSTRUCT 36" C.I.P.P. STORM DRAIN	337	LF
5	CONSTRUCT 42" C.I.P.P. STORM DRAIN	732	LF
6	CONSTRUCT 48" C.I.P.P. STORM DRAIN	312	LF
7	CONSTRUCT JUNCTION STRUCTURE NO.4 (CASE 1) PER CITY STD. 423	~~3~~ 4	EA ⚠
8	CONSTRUCT MANHOLE EZ PER CITY STD. 431	6	EA
9	CONSTRUCT CATCH BASIN PER CITY STD. 405	17	EA
10	CONSTRUCT MANHOLE AX PER CITY STD. 430	4	EA
13	CONSTRUCT HEADWALL PER DETAIL ON SHEET 2	5	EA
14	CONSTRUCT C.S.P. INLET PER CITY STD. 412 (1-48" & 1-30")	2	EA
15	CONSTRUCT BASIN PER DETAILS ON SHEET 2	2	EA
16	CONSTRUCT CONCRETE COLLAR PER CITY STD. 424	~~3~~ 2	EA ⚠
17	~~CONSTRUCT CHANNEL PER DETAIL ON SHEET 7~~	~~0 627~~	~~LF~~ ⚠
18	CONSTRUCT GROUTED RIPRAP PER DETAILS ON SHEET 2	60	CY
19	CONSTRUCT TIMBER BULKHEAD PER CITY STD. 456	2	EA
20	CONSTRUCT SLOPED PROTECTION BARRIER PER A.P.W.A. STD. 360-0	4	EA
⚠ 21	CONSTRUCT JUNCTION STRUCTURE "B" PER CITY STD. 4-2.1	1	EA
⚠ 22	CONST. CONC. DROP INLET PER RCFC&WCD STD. CB110 AND DETAILS ON SHTS. 7A & 7B	2	EA
⚠ 23	CONSTRUCT DRAINAGE DITCH PER DETAIL ON SHEET 7A	610	LF
⚠ 24	CONSTRUCT 18"x 18" CATCH BASIN (BROOKS PRODUCT #1818)	2	EA
⚠ 25	CONSTRUCT 12" P/C STRESS STORM DRAIN	9	LF
⚠ 26	CONSTRUCT CONCRETE APRON PER DETAIL ON SHEET 7A	40	LF

INDEX OF DRAWINGS

DRAWING/SHEET NO.	TITLE
SHEET 1	TITLE SHEET
SHEET 2	SECTIONS AND DETAILS
SHEET 3-7 & 7A ⚠	PLAN AND PROFILE
SHEET 7B ⚠	DETAILS

GENERAL NOTES

1. 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.
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RIVERSIDE DEPT. OF PUBLIC WORKS STANDARD DRAWINGS, IT'S SUPPLEMENTAL NOTES, AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CURRENT EDITION.
3. 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.
4. QUANTITIES SHOWN ARE FOR INFORMATION ONLY AND THE CITY OF RIVERSIDE IS NOT RESPONSIBLE FOR THEIR ACCURACY.
5. 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.
6. ALL FLAGGED ELEVATIONS SHALL BE STAKED IN THE FIELD BY THE PRIVATE ENGINEER.
7. ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED. STATIONING FOR LATERALS AND CONNECTOR PIPES REFER TO THE CENTERLINE-CENTERLINE INTERSECTION.
8. HOURS OF OPERATION ARE 7 A.M. TO 6 P.M. MONDAY THROUGH FRIDAY. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
9. NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHTS-OF-WAY OR EASEMENTS OF THE CITY OF RIVERSIDE WITHOUT A VALID CONSTRUCTION PERMIT OR A STREET OPENING PERMIT OR AN ENCROACHMENT PERMIT ISSUED BY THE CITY'S PUBLIC WORKS DEPARTMENT.
10. ANY TRAFFIC CONTROL STRIPING OBLITERATED AND OR BADLY WORN DURING CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR WITHIN FIVE DAYS AFTER NOTIFICATION FROM THE CITY INSPECTORS.
11. THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (U.S.A.), 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.
12. ALL CROSS SECTIONS ARE TAKEN LOOKING UPSTREAM.
13. CONTRACTOR TO VERIFY EXISTING STORM DRAIN ELEVATIONS PRIOR TO CONSTRUCTION.
14. PIPE BEDDING SHALL BE PER CITY OF RIVERSIDE STD. DWG. No. 452, CASE 1 UNLESS OTHERWISE NOTED.
15. THE STORM DRAIN CONTRACTOR SHALL ADJUST STORM DRAIN MANHOLES TO FINAL GRADE AFTER PAVING IS COMPLETED.
16. PIPE SECTIONS TO BE BEVELED AT ONE OR BOTH ENDS AS NEEDED TO MEET SYSTEM DESIGN PARAMETERS. SECTIONS BEVELED IN THIS MANNER NORMALY FIT TOGETHER ON A 90-, 45-, OR 22.5 FOOT RADIUS CURVE.

HOLD HARMLESS INDEMNIFICATION CLAUSE

THE CONTRACTOR AGREES THAT HE SHALL 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 APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY OF RIVERSIDE, THE OWNER, AND THE PRIVATE ENGINEERS HARMLESS FOR 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.

EXISTING UNDERGROUND STRUCTURES

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPE STRUCTURES OR CONDUITS SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK. CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS.

NOTICE TO CONTRACTOR

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

C.I.P.P. NOTES

1. *CAST-IN-PLACE CONCRETE PIPE CONSTRUCTION SHALL BE IN ACCORDANCE WITH 306-4 OF THE STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.*
2. *FULL-TIME INSPECTION SHALL BE PROVIDED AT NO COST TO THE CITY BY A CITY APPROVED INSPECTOR. TWO WEEKS PRIOR TO CONSTRUCTION THE RESUME OF THE PROPOSED INSPECTOR SHALL BE SUBMITTED TO THE CITY FOR APPROVAL.*
3. *TRENCHING SHALL BE COMPLETED WITH A CURVED BUCKET TO CREATE A SEMI-CIRCULAR TRENCH.*
4. *MATERIAL TESTING IN ACCORDANCE WITH SECTION 306-4.7 OF THE STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION SHALL BE AT NO COST TO THE CITY.*
5. *REINFORCED CONCRETE PIPE SHALL BE USED 10-FEET ON EACH SIDE OF ALL CUT-FILL TRANSITION.*
6. *UPON COMPLETION OF CONSTRUCTION, A REPORT COVERING CONSTRUCTION OF THE PIPE SHALL BE PREPARED AND SUBMITTED TO THE CITY. THE REPORT SHALL INCLUDE A STANDARD VHS VIDEO INSPECTION OF THE PIPE, DAILY LOGS COVERING THE METHOD OF PIPE CONSTRUCTION, A SUMMARY OF THE MATERIAL TESTS, PROBLEMS ENCOUNTERED AND DOCUMENTATION OF ALL REPAIRS. APPROVAL OF THE REPORT AND RELEASE OF THE IMPROVEMENT BOND IS CONTINGENT UPON RECEIPT AND APPROVAL OF THE REPORT BY THE CITY.*

REVIEWED BY:
APPROVED BY: WESTERN MUNICIPAL WATER DISTRICT
FOR NON-INTERFERENCE COMPLIANCE
SHEET 1 THROUGH 7
CIVIL ENGINEER RCE 46212
DATE: 10-7-03

CITY BUSINESS TAX CERTIFICATION NO. 104442 EXP. DATE 5/25/2004

CALL BEFORE YOU DIG — 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.

BENCHMARK

EB-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTMEN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER — TREVOR S. DODSON — No. 42029 — Exp. 3-31-2004 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING — PLANNERS ENGINEERS SURVEYORS
MORSE / DOKICH / SCHULTZ — 17320 Redhill Ave. Suite 350, Irvine, CA 92614 — Voice: 949-251-8821 FAX: 949-251-0516
PLANS PREPARED UNDER THE SUPERVISION OF: TREVOR S. DODSON R.C.E. NO.42029 DATE 10/15/03

MARK	REVISIONS	APPR.	DATE
1	REVISED CONSTRUCTION NOTE & QUANTITIES	RWZ	5-20-04

DESIGNED BY: FE DRAWN BY: WS CHECKED BY: TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

	DATE	BY
APPROVED BY		
PRINCIPAL ENGINEER	10/20/05	DH
PARK DEPARTMENT		
TRAFFIC DIVISION	-	-
STREET SERVICES	10-20-05	

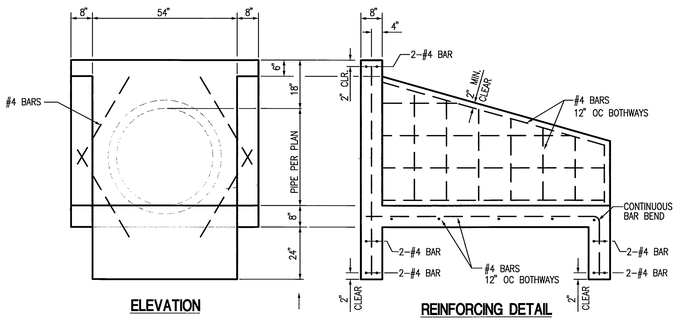
CITY ENGINEER
DATE 11/12/03

STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
TITLE SHEET
HORIZ. SCALE: AS SHOWN VERT. SCALE:

PW03-0011
ACCOUNT NO.....
D-726
SHEET 1 OF 7

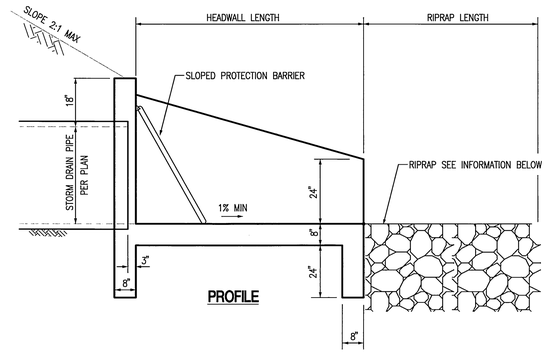
H:\52604\IMPLANS\SD-1901.dwg 10/01/03

INDEXED 11-20-03 LH



ELEVATION

REINFORCING DETAIL



PROFILE

NOTES:

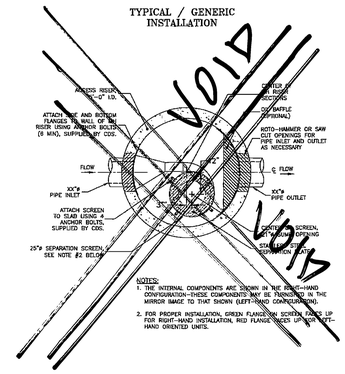
1. CONCRETE SHALL BE CLASS A
2. REINFORCING STEEL SHALL BE NO. 4 BARS. 2" MINIMUM CLEARANCE
3. MINIMUM LAP = 16"
4. ALL EXPOSED CORNERS TO BE ROUNDED 3/4" RADIUS

	HEADWALL LENGTH	DIAMETER OUTLET PIPE	OUTLET VELOCITY	RIPRAP ROCK CLASS	RIPRAP THICKNESS	RIPRAP AGGREGATE SIZE	RIPRAP DIMENSION LENGTH x WIDTH
BASIN "A"	4'	48"	11.7 fps	1/4 ton	32"	3/4"	16'x12'
BASIN "B"	5'	30"	13.1fps	1/2 ton	41"	1"	10'x10'

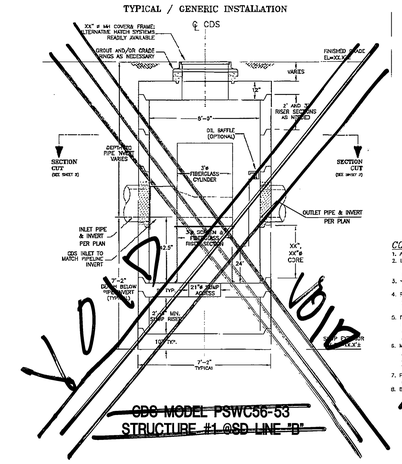
HEADWALL & RIPRAP (AT BASINS) DETAILS

N.T.S.

TYPICAL / GENERIC INSTALLATION



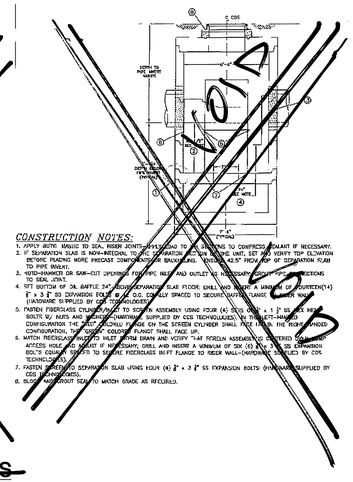
TYPICAL / GENERIC INSTALLATION



STORM WATER STRUCTURE DETAILS

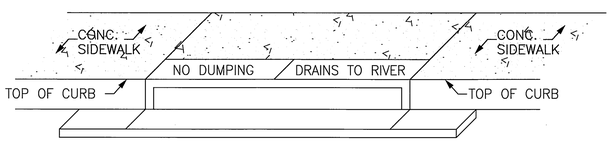
STRUCTURE TO BE MAINTAINED BY HOME OWNER ASSOCIATION

N.T.S.



CONSTRUCTION NOTES:

1. APPLY BUTYL MASTIC TO SEAL INSERT CONNECTIONS TO CDS STRUCTURE TO COMPRESS SEALANT IF NECESSARY.
2. IF SEPARATION SLAB IS NON-ORIGINAL TO CDS SEPARATION SCREEN ASSEMBLY UNIT, SET AND VERIFY TOP ELEVATION BEFORE PLACING MORE PRECAST COMPONENTS OR BACKFILLING. ENSURE 42.5" FROM TOP OF SEPARATION SLAB TO PIPE INVERT.
3. HOLD-HAMMER OR SAW-CUT OPENINGS FOR PIPE INLET AND OUTLET AS NECESSARY. ENSURE CONNECTIONS TO SEAL STRUT.
4. SET BOTTOM OF OIL BAFFLE 24" BELOW SEPARATION SLAB FLOOR; SHELL AND INSERT A MINIMUM OF FOURTEEN(14) 1" x 3 1/2" SS EXPANSION BOLTS 8" O.C. EVENLY SPACED TO SECURE WATERTIGHT FLANGE WITH SUPPLIED HARDWARE (HARDWARE SUPPLIED BY CDS TECHNOLOGIES).
5. FASTEN FIBERGLASS CYLINDER WALL TO SCREEN ASSEMBLY USING FOUR (4) 3/8" x 1 1/2" SS SHOULDER BOLTS W/ NUTS AND WASHERS (HARDWARE SUPPLIED BY CDS TECHNOLOGIES). IN THE LEFT-HANDED CONFIGURATION THE SHORT SHOULDERS FACING ON THE SCREEN CYLINDER SHALL FACE DOWN. FOR THE RIGHT-HANDED CONFIGURATION, THE SHORT SHOULDERS FACE UP.
6. MATCH FIBERGLASS CYLINDER INLET WITH STORM DRAIN AND VERIFY 7-1/4" SCREEN ASSEMBLY IS CENTERED. ENSURE ACCESS HOLE AND INLET IS NOT OBSTRUCTED. SHELL AND INSERT A MINIMUM OF SIX (6) 3/8" x 3 1/2" SS EXPANSION BOLTS EQUALLY SPACED TO SECURE FIBERGLASS INLET FLANGE TO INSIDE WALL (HARDWARE SUPPLIED BY CDS TECHNOLOGIES).
7. FASTEN CONTINUOUS SEPARATION SLAB USING FOUR (4) 3/8" x 3 1/2" SS EXPANSION BOLTS (HARDWARE SUPPLIED BY CDS TECHNOLOGIES).
8. BLOCK OUT CONCRETE SEAL TO MATCH GRADE AS REQUIRED.



(A) STENCILS TO HAVE 2" LETTERS AS FOLLOWS: NO DUMPING DRAINS TO RIVER

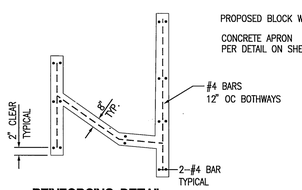
(B) PLACE BOTH STENCILS CENTERED WITHIN THE CATCHBASIN OPENING AND WITHIN THE TOP OF CURB.

(C) SPRAY BOTH STENCILS WITH WHITE PAINT.

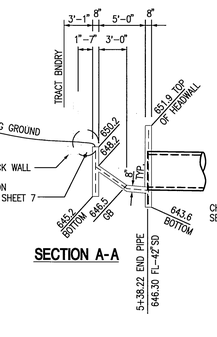
(D) REMOVE STENCILS WHEN PAINT IS DRY.

CATCH BASIN STENCILING DETAIL

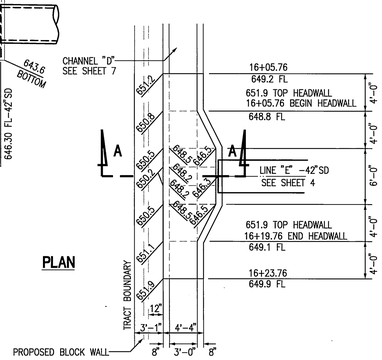
N.T.S



REINFORCING DETAIL



SECTION A-A



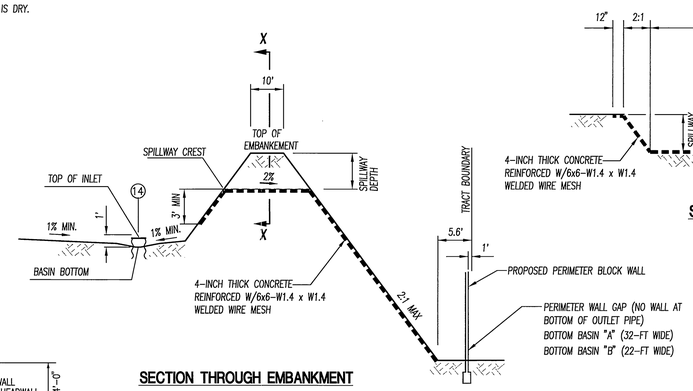
PLAN

NOTES:

1. CONCRETE SHALL BE CLASS A
2. REINFORCING STEEL SHALL BE NO. 4 BARS. 2" MINIMUM CLEARANCE
3. MINIMUM LAP = 16"
4. ALL EXPOSED CORNERS TO BE ROUNDED 3/4" RADIUS

HEADWALL/CHANNEL DETAIL
@END OF S.D. LINE "E"

N.T.S.



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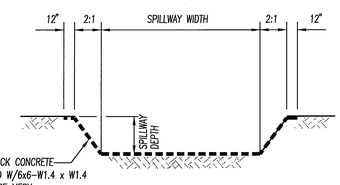
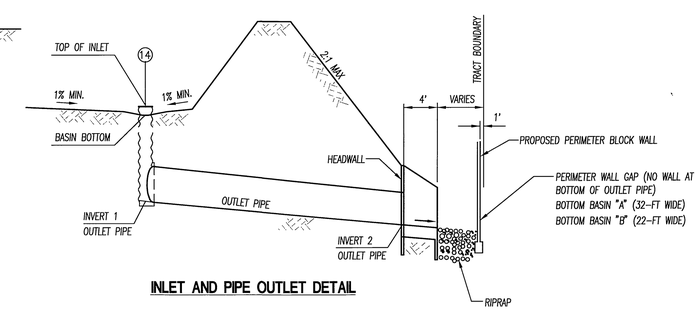


SECTION X-X



INLET AND PIPE OUTLET DETAIL

	SPILLWAY WIDTH	SPILLWAY DEPTH	CREST ELEVATION	TOP OF BERM ELEVATION	BASIN BOTTOM ELEVATION	TOP OF INLET ELEVATION	INLET (RISER) DIAMETER	INVERT 1 OUTLET PIPE	INVERT 2 OUTLET PIPE	DIAMETER OUTLET PIPE	OUTLET PIPE LENGTH	OUTLET PIPE SLOPE	HEADWALL WIDTH	HEADWALL LENGTH	OUTLET VELOCITY	RIPRAP ROCK CLASS	RIPRAP THICKNESS	RIPRAP AGGREGATE SIZE	RIPRAP DIMENSION LENGTH x WIDTH
BASIN "A"	15'	2.5'	1631.5	1634.0	1627.4	1628.4	48"	1622.8	1622.2	42" C.I.P.P.	39'	0.0150	6.5'	4'	12.5 fps	1/2 ton	41"	1"	14' x 11'
BASIN "B"	9'	1.5'	1622.5	1624.0	1619.0	1620.0	30"	1616.0	1615.0	30" C.I.P.P.	34'	0.0294	4'	4'	8.8 fps	1/4 ton	32"	3/4"	10' x 8'

EMERGENCY SPILLWAY, PIPE OUTLET
& RIPRAP (BELOW BASINS) DETAILS AND DATA

PW03-0011

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

PRIVATE ENGINEERING NOTE

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BENCHMARK:

E9-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER THE W'LY WALL OF A CATCH BASIN ALONG THE S'LY, CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:

MDS CONSULTING — PLANNERS ENGINEERS SURVEYORS
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614
Voice: 949-251-0891 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 — DATE 10-7-03

MARK	REVISIONS:	APPR.	DATE

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	10/24/03	
PARK DEPARTMENT	–	–
TRAFFIC DIVISION	–	–
STREET SERVICES	10-28-03	

CITY ENGINEER

DATE 11/12/03

STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
DETAILS

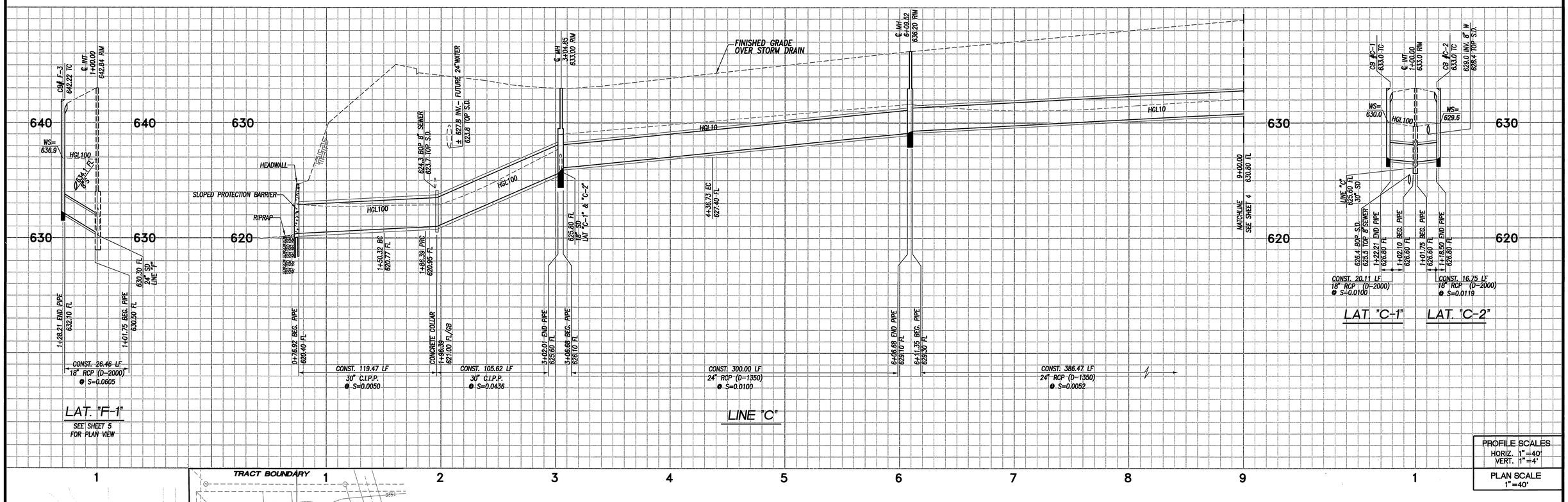
HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

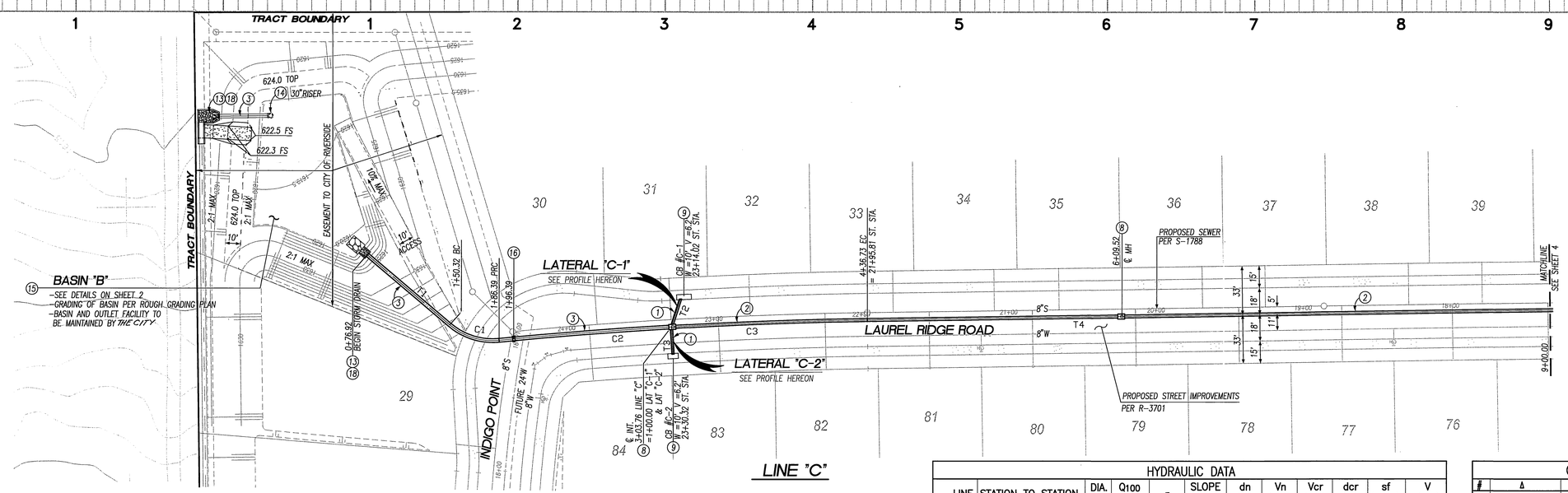
ACCOUNT NO.....

D-726

SHEET 2 OF 7

INDEXED 11-20-03 LH





CONSTRUCTION NOTES

1. CONSTRUCT 18" RCP STORM DRAIN (D-LOAD PER PLAN)
2. CONSTRUCT 24" RCP STORM DRAIN (D-LOAD PER PLAN)
3. CONSTRUCT 30" C.I.P.P. STORM DRAIN
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18. CONSTRUCT GROUTED RIPRAP PER DETAILS ON SHEET 2
20. CONSTRUCT SLOPED PROTECTION BARRIER PER A.P.W.D. STD. 360-0

HYDRAULIC DATA

LINE	STATION TO STATION	DIA. (in)	Q100 (cfs)	n	SLOPE (ft/ft)	dn (ft)	Vn (fps)	Vcr (fps)	dcr (ft)	sf (ft/ft)	V (fps)
"C"	0+76.92 – 1+96.39	30	37.9	0.015	0.0050	PRESSURE FLOW				0.011	7.7
"C"	1+96.39 – 3+02.01	30	37.9	0.015	0.0436	1.3	15.2	8.7	2.1	–	–
"C"	3+06.68 – 6+06.68	24	*11.2	0.013	0.0100	1.0	7.2	5.7	1.2	–	–
"C"	6+11.35 – 9+97.82	24	*11.2	0.013	0.0052	1.2	5.6	5.7	1.2	–	–
LAT. "C-1"	1+00.00 – 1+22.21	18	11.7	0.013	0.0100	1.1	PRESSURE FLOW			0.012	6.6
LAT. "C-2"	1+00.00 – 1+18.50	18	10.3	0.013	0.0119	PRESSURE FLOW				0.010	5.8
LAT. "F-1"	1+01.75 – 1+28.21	18	5.9	0.013	0.0605	PRESSURE FLOW				0.003	3.3

*Q10

CURVE TABLE

#	Δ	R	L	T
C1	45°55'21"	45.00'	36.07'	19.07'
C2	2°14'30"	3000.00'	117.37'	58.69'
C3	2°32'22"	3000.00'	132.97'	66.50'

COURSE DATA

LINE	BEARING	DISTANCE
T1	N 40°18'29" E	73.40'
T2	N 59°39'05" W	22.21'
T3	N 86°38'17" E	18.50'
T4	N 0°50'00" W	620.00'

PW03-0011

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.

BENCHMARK

E8-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING
PLANNERS ENGINEERS SURVEYORS
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614
Voice: 949-251-8921 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 — 10-2-03 DATE

MARK	REVISIONS	APPR.	DATE

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

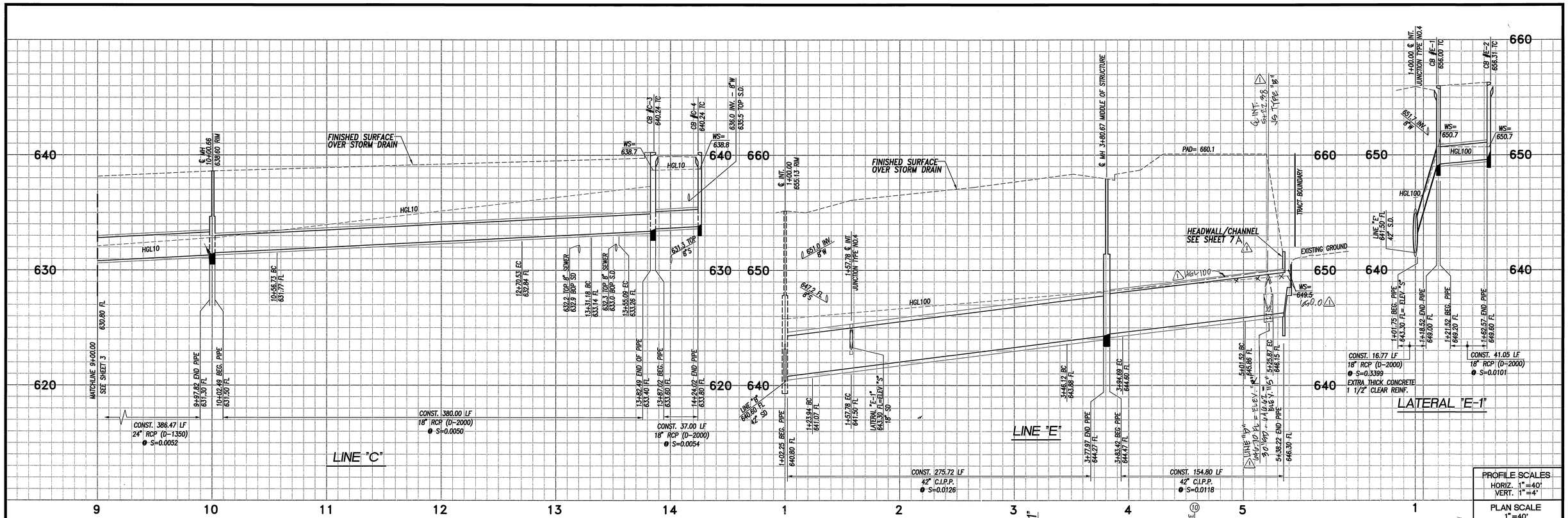
APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	10/24/03	PH
PARK DEPARTMENT	-	-
TRAFFIC DIVISION	-	-
STREET SERVICES	10-5-03	DRR

CITY ENGINEER
DATE 11/12/03

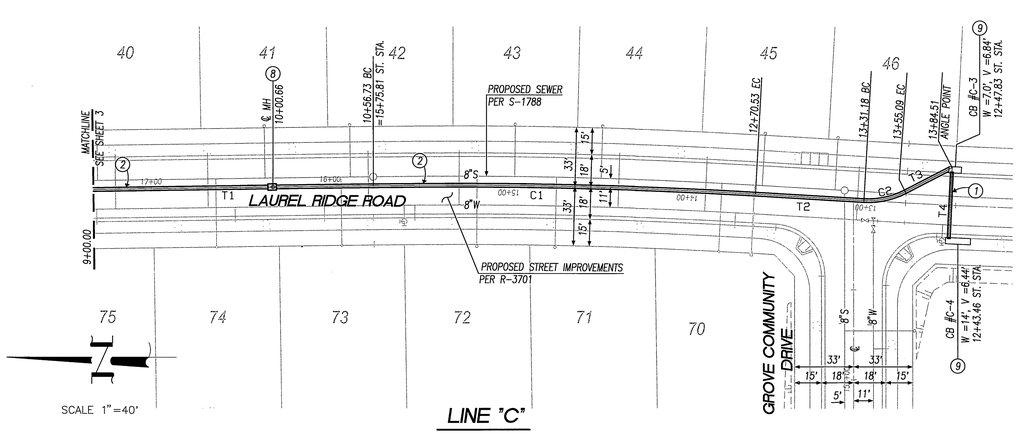
STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
LINE "C"
PLAN & PROFILE
HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

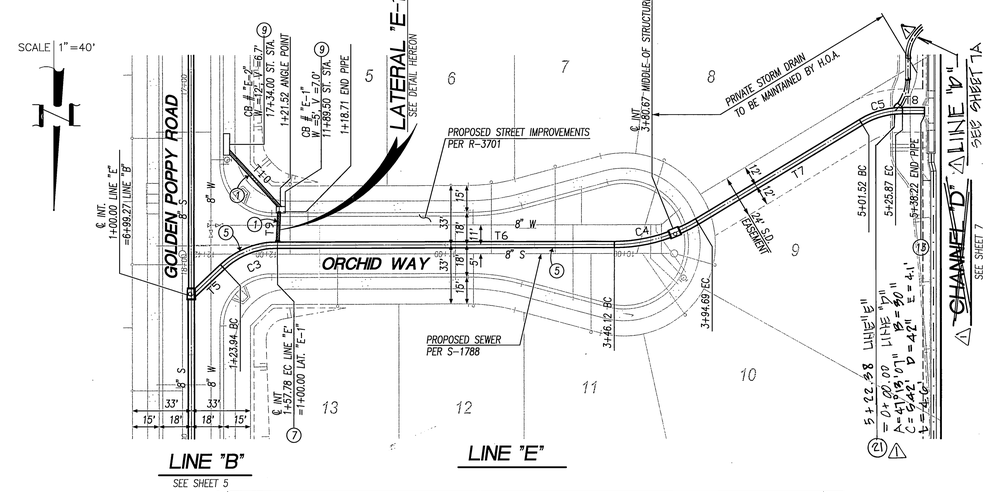
ACCOUNT NO.....
D-726
SHEET 3 OF 7

INDEXED 11-20-03 GH



PROFILE SCALES
HORIZ. 1"=40'
VERT. 1"=4'
PLAN SCALE 1"=40'





COURSE DATA			
LINE	BEARING		DISTANCE
T1	N	0°50'00" W	124.32'
T2	N	3°15'00" E	60.65'
T3	N	27°11'37" W	29.42'
T4	N	87°13'38" W	39.51'
T5	N	46°50'11" E	23.94'
T6	N	89°55'22" E	188.34'
T7	N	59°00'00" E	106.83'
T8	N	90°00'00" E	12.35'
T9	N	7°54'35" E	21.52'
T10	N	42°36'33" W	41.05'

CONSTRUCTION NOTES

1. CONSTRUCT 18" RCP STORM DRAIN (D-LOAD PER PLAN)
2. CONSTRUCT 24" RCP STORM DRAIN (D-LOAD PER PLAN)
5. CONSTRUCT 42" C.I.P.P. STORM DRAIN
7. CONSTRUCT JUNCTION STRUCTURE No. 4 (CASE 1) PER CITY STD. 423
8. CONSTRUCT MANHOLE EZ PER CITY STD. 431
9. CONSTRUCT CATCH BASIN PER CITY STD. 405
13. CONSTRUCT HEADWALL PER DETAIL ON SHEET 2

⚠ 24. CONSTRUCT JUNCTION STRUCTURE "B" PER CITY STD. 421

⚠ "E" 5+88.42 – 5+22.19 42 59.0 0.015 0.0118 PRESSURE FLOW 0.004 0.61
⚠ "E" 5+22.19 – 5+38.22 42 11.7 0.015 0.0118 PRESSURE FLOW 0.002 1.2

HYDRAULIC DATA

LINE	STATION TO STATION	DIA. (in)	Q100 (cfs)	n	SLOPE (ft/ft)	dn (ft)	Vn (fps)	Vcr (fps)	dcr (ft)	sf (ft/ft)	V (fps)
"C"	6+11.35 – 9+97.82	24	* 11.2	0.013	0.0052	1.1	6.4	5.7	1.2	–	–
"C"	10+02.49 – 13+82.49	24	* 11.2	0.013	0.0050	PRESSURE FLOW				0.011	6.4
"C"	13+87.02 – 14+24.02	18	* 4.2	0.013	0.0054	PRESSURE FLOW				0.002	7.2
⚠ ~~"E"~~	~~1+02.25 – 1+57.78~~	~~42~~	~~62.0~~	~~0.015~~	~~0.0126~~	~~–~~	~~PRESSURE FLOW~~			~~0.005~~	~~6.4~~
⚠ ~~"E"~~	~~1+57.78 – 5+38.22~~	~~42~~	~~59.0~~	~~0.015~~	~~0.0126~~	~~–~~	~~PRESSURE FLOW~~			~~0.005~~	~~6.1~~
LAT "E-1"	1+01.75 – 1+18.52	18	5.0	0.013	0.3399	0.3	20.9	4.8	0.9	–	–
LAT "E-1"	1+21.52 – 1+62.57	18	1.0	0.013	0.0101	0.3	3.8	2.9	0.4		

* Q10

CURVE TABLE

#	Δ	R	L	T
C1	4°05'00"	3000.00'	213.80'	106.95'
C2	30°26'37"	45.00'	23.91'	12.24'
C3	43°05'11"	45.00'	33.84'	17.77'
C4	30°55'22"	90.00'	48.57'	24.89'
C5	31°00'00"	45.00'	24.35'	12.48'

PW03-0011

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1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

PRIVATE ENGINEERING NOTE

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BENCHMARK

EB-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING
PLANNERS ENGINEERS SURVEYORS
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614 Voice: 949-251-8821 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 DATE 10-2-07

MARK	REVISIONS	APPR.	DATE
1	REPLACED CHANNEL WITH PIPE FE A-27-04	RVZ	5-20-04

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	10/24/03	
PARK DEPARTMENT	-	-
TRAFFIC DIVISION	-	-
STREET SERVICES	10-27-03	

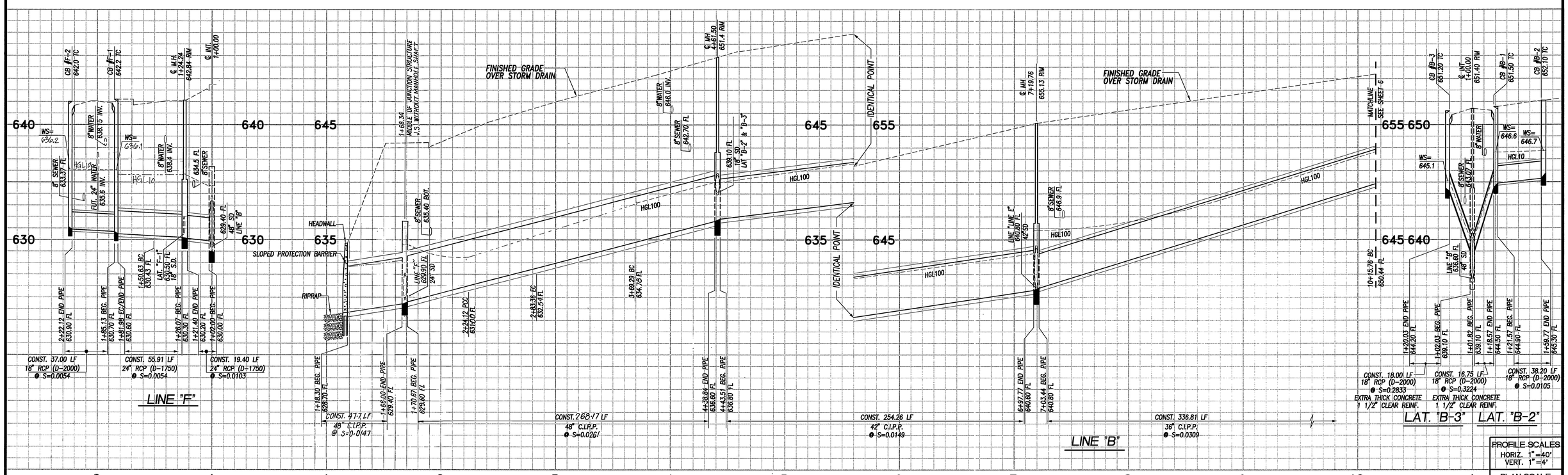
CITY ENGINEER
DATE 11/12/03

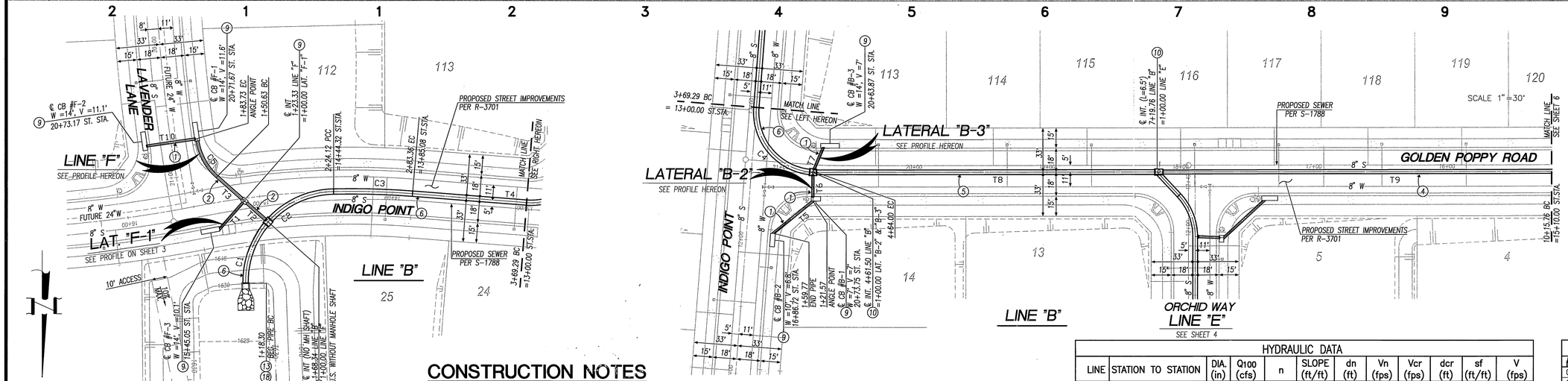
STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
LINE "C" & LINE "E"
PLAN & PROFILE

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

ACCOUNT NO.....
D-726
SHEET 4 OF 7

INDEXED 11-20-03





CONSTRUCTION NOTES

1. CONSTRUCT 18" RCP STORM DRAIN (D-LOAD PER PLAN)
2. CONSTRUCT 24" RCP STORM DRAIN (D-LOAD PER PLAN)
4. CONSTRUCT 36" C.I.P.P. STORM DRAIN
5. CONSTRUCT 42" C.I.P.P. STORM DRAIN
6. CONSTRUCT 48" C.I.P.P. STORM DRAIN
8. CONSTRUCT MANHOLE EZ PER CITY STD. 431
9. CONSTRUCT CATCH BASIN PER CITY STD. 405
10. CONSTRUCT MANHOLE AX PER CITY STD. 430
13. CONSTRUCT HEADWALL PER DETAIL ON SHEET 2
14. CONSTRUCT C.S.P. INLET PER CITY STD. 412 (SIZE PER PLAN)
15. CONSTRUCT BASIN PER DETAILS ON SHEET 2
18. CONSTRUCT GROUTED RIPRAP PER DETAILS ON SHEET 2

COURSE DATA

LINE	BEARING	DISTANCE
T1	N 48°35'31" W	28.21'
T2	N 41°24'29" E	23.73'
T3	N 41°24'29" E	27.30'
T4	N 4°25'00" E	85.93'
T5	N 39°04'03" W	38.20'
T6	N 89°55'22" E	21.57'
T7	N 67°01'24" W	20.03'
T8	N 0°04'38" W	255.76'
T9	N 0°04'38" W	316.49'
T10	N 8°22'16" W	38.39'

HYDRAULIC DATA

LINE	STATION TO STATION	DIA. (in)	Q100 (cfs)	n	SLOPE (ft/ft)	dn (ft)	Vn (fps)	Vcr (fps)	dcr (ft)	sf (ft/ft)	V (fps)
"B"	1+18.30 – 1+66.00	48	147.2	0.015	0.0147	PRESSURE FLOW				0.014	11.7
"B"	1+70.67 - 4+38.84	48	125.2	0.015	0.0261	2.2	18.0	11.1	3.4	–	–
"B"	4+43.51 – 6+97.77	42	112.7	0.015	0.0149	PRESSURE FLOW				0.016	11.4
"B"	7+03.44 – 10+40.25	36	* 73.3	0.015	0.0309	2.2	18.0	11.1	3.4	–	–
"F"	1+02.00 – 1+21.40	24	* 14.9	0.013	0.0103	PRESSURE FLOW				0.010	7.4
"F"	1+26.07 – 1+81.98	24	* 6.7	0.013	0.0054	PRESSURE FLOW				0.006	5.7
"F"	1+85.13 – 2+22.12	18	* 3.5	0.013	0.0054	PRESSURE FLOW				0.006	5.7
LAT. "B-2"	1+01.82 – 1+18.57	18	* 8.0	0.013	0.3224	0.5	27.2	7.8	1.4	–	–
LAT. "B-2"	1+21.57 – 1+59.77	18	* 4.4	0.013	0.0105	PRESSURE FLOW				0.003	3.0
LAT. "B-3"	1+02.03 – 1+20.03	18	* 5.3	0.013	0.2833	0.3	20.6	4.9	0.9	–	–

* Q10

CURVE DATA

#	Δ	R	L	T
C1	42°28'33"	67.50'	50.04'	26.23'
C2	47°21'06"	67.50'	55.78'	29.60'
C3	5°39'25"	600.00'	59.24'	29.64'
C4	91°18'18"	45.00'	71.71'	46.04'
C5	41°37'45"	45.00'	32.70'	17.11'

PW03-0011

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

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BENCHMARK

E8-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING
PLANNERS ENGINEERS SURVEYORS
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614 Voice: 949-251-8821 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 DATE 10-2-03

MARK	REVISIONS	APPR.	DATE

DESIGNED BY FE DRAWN BY VS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	10/01/03	DH
PARK DEPARTMENT	–	–
TRAFFIC DIVISION	–	–
STREET SERVICES	10-2-03	DCG

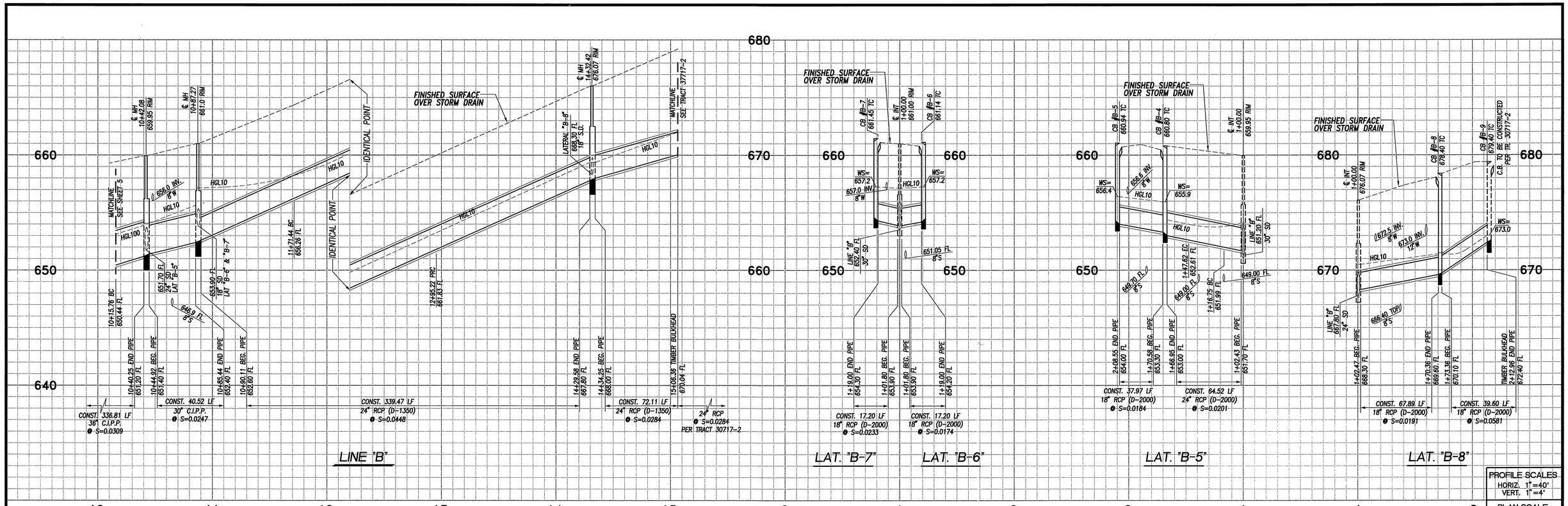
CITY ENGINEER
DATE 11/17/03

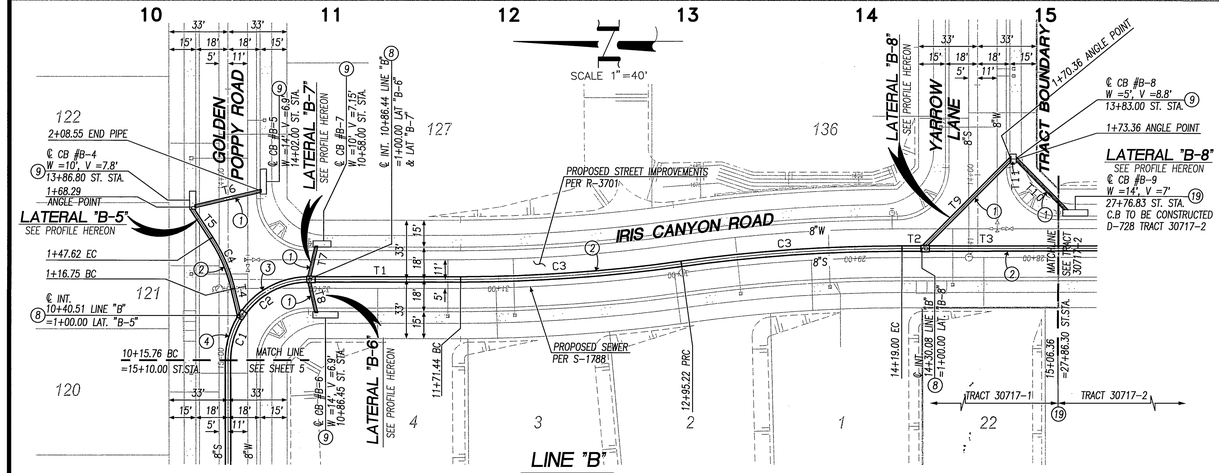
STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
LINE "B" 1+18.30-9+00.00
LINE "F"
PLAN & PROFILE

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

ACCOUNT NO.....
D-726
SHEET 5 OF 7

INDEXED 11-20-03 GH





CONSTRUCTION NOTES

1. CONSTRUCT 18" RCP STORM DRAIN (D-LOAD PER PLAN)
2. CONSTRUCT 24" RCP STORM DRAIN (D-LOAD PER PLAN)
3. CONSTRUCT 30" C.I.P.P. STORM DRAIN
4. CONSTRUCT 36" C.I.P.P. STORM DRAIN
8. CONSTRUCT MANHOLE EZ PER CITY STD. 431
9. CONSTRUCT CATCH BASIN PER CITY STD. 405
19. CONSTRUCT TIMBER BULKHEAD PER CITY STD. 456

HYDROLOGY DATA

LINE	STATION TO STATION	DIA. (in)	Q10 (cfs)	n	SLOPE (ft/ft)	dn (ft)	Vn (fps)	Vcr (fps)	dcr (ft)	sf (ft/ft)	V (fps)
"B"	7+03.44 – 10+40.25	36	* 73.3	0.015	0.0309	1.8	16.4	10.8	2.7	–	–
"B"	10+44.92 – 10+85.44	30	30.8	0.015	0.0247		PRESSURE FLOW			0.028	12.1
"B"	10+90.11 – 14+29.58	24	34.3	0.013	0.0448	1.4	17.2	10.4	2.3	–	–
"B"	14+34.25 – 15+06.36	24	30.8	0.013	0.0284	1.6	15.0	10.4	2.3	–	–
LAT. "B-5"	1+02.43 – 1+66.95	24	9.5	0.013	0.0201		PRESSURE FLOW			0.006	4.6
LAT. "B-5"	1+70.58 – 2+08.55	18	7.4	0.013	0.0184		PRESSURE FLOW			0.012	6.5
LAT. "B-6"	1+01.80 – 1+19.00	18	4.1	0.013	0.0174		PRESSURE FLOW			0.004	3.6
LAT. "B-7"	1+01.80 – 1+19.00	18	2.2	0.013	0.0233		PRESSURE FLOW			0.004	3.5
LAT. "B-8"	1+02.47 – 1+70.36	18	4.2	0.013	0.0191		PRESSURE FLOW			0.004	2.4
LAT. "B-8"	1+73.36 – 2+12.96	18	2.6	0.013	0.0581	0.6	7.1	4.5	0.8	–	–

* Q100

COURSE DATA

LINE	BEARING	DISTANCE
T1	N 89°55'22" E	85.00'
T2	N 89°55'22" E	11.08'
T3	N 89°55'22" E	76.28'
T4	N 13°34'06" W	16.75'
T5	N 33°13'09" W	19.33'
T6	N 76°56'36" E	37.97'
T7	N 13°05'09" E	19.00'
T8	N 13°14'25" W	19.00'
T9	N 44°55'22" E	70.36'
T10	N 44°33'56" W	39.60'
T11	N 89°55'22" E	3.00'

CURVE DATA

#	Δ	R	L	T
C1	31°30'32"	45.00'	24.75'	12.70'
C2	58°29'28"	45.00'	45.94'	25.20'
C3	7°52'49"	900.00'	123.78'	61.99'
C4	19°39'03"	90.00'	30.87'	15.59'

PW03-0011

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

PRIVATE ENGINEERING NOTE

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BENCHMARK

EB-F3 ELEV. 1665.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
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MORSE DOKICH SCHULTZ
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PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 DATE 10-2-03

MARK	REVISIONS	APPR.	DATE

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

	DATE	BY
APPROVED BY		
PRINCIPAL ENGINEER	10/9/03	DH
PARK DEPARTMENT	–	–
TRAFFIC DIVISION	–	–
STREET SERVICES	10-9-03	DOB

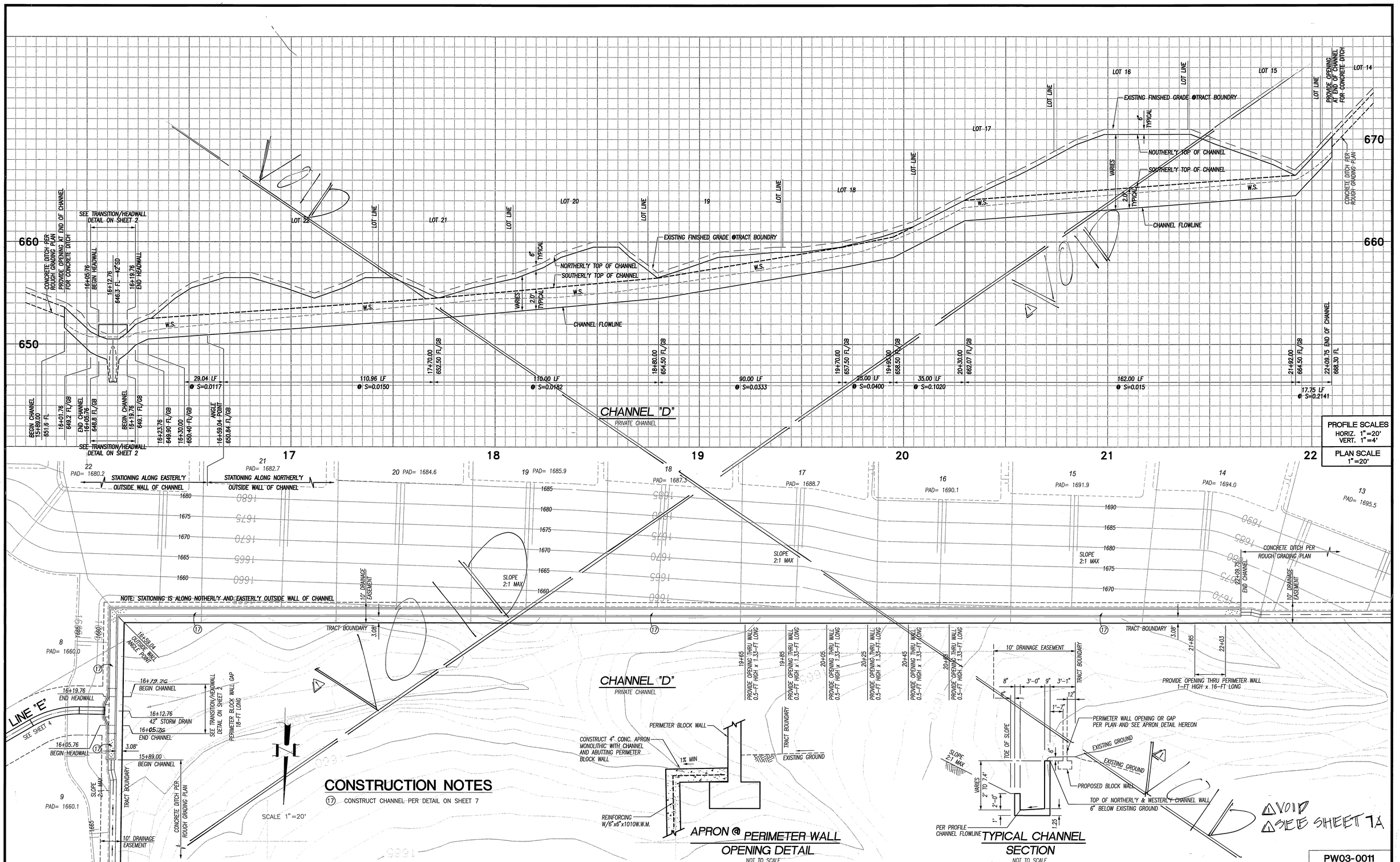
CITY ENGINEER
DATE 11/10/03

STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
LINE "B" 9+00.00-15+06.36
PLAN & PROFILE

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

ACCOUNT NO.....
D-726
SHEET 6 OF 7

INDEXED 11-20-03 4H



PW03-0011

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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.

BENCHMARK

EB-F3 ELEV. 1685.180 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER TREVOR S. DODSON No. 42029 Exp. 3-31-2004 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING
PLANNERS ENGINEERS SURVEYORS
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614
Voice: 949-251-8821 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
TREVOR S. DODSON R.C.E. NO.42029 DATE 10-2-03

MARK	REVISIONS	APPR.	DATE
	REPLACE CHANNEL WITH PIPE SEE SH. 7A	KVZ	6-26-04

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	10/24/03	DK
PARK DEPARTMENT	-	-
TRAFFIC DIVISION	-	-
STREET SERVICES	6-28-04	

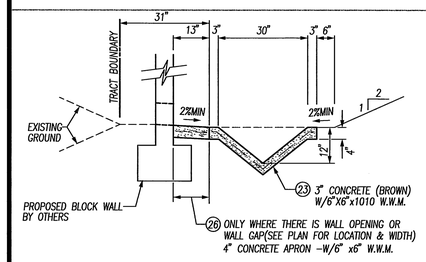
CITY ENGINEER
DATE 11/12/03

~~CHANNEL IMPROVEMENT PLANS~~
~~TRACT 30717-1~~
~~CHANNEL "D"~~
~~(PRIVATE CHANNEL)~~
PLAN & PROFILE

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

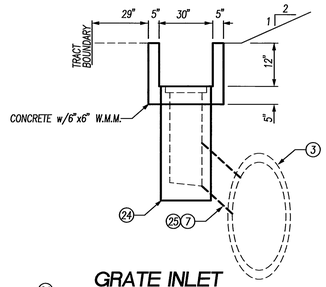
ACCOUNT NO.....
VOID
D-726
SHEET 7 OF 7

INDEXED 11-20-03 4H



23 26 CONCRETE DRAINAGE DITCH AND APRON DETAIL

NOT TO SCALE

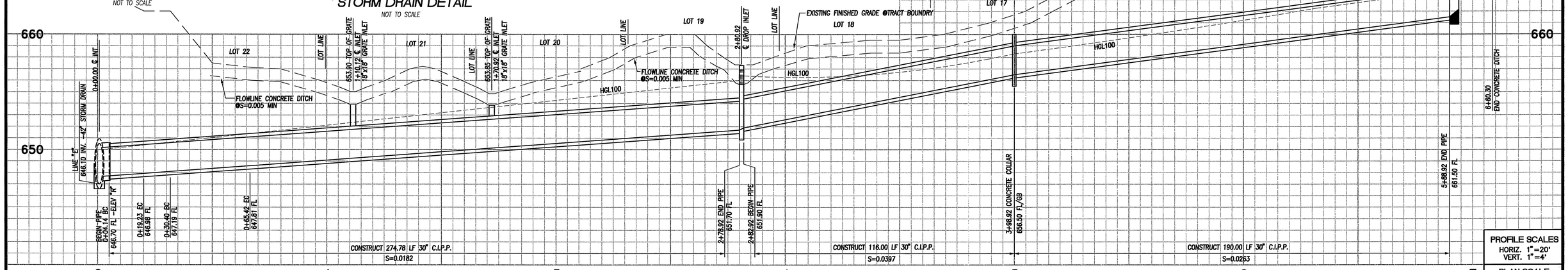


24 GRATE INLET STORM DRAIN DETAIL

NOT TO SCALE

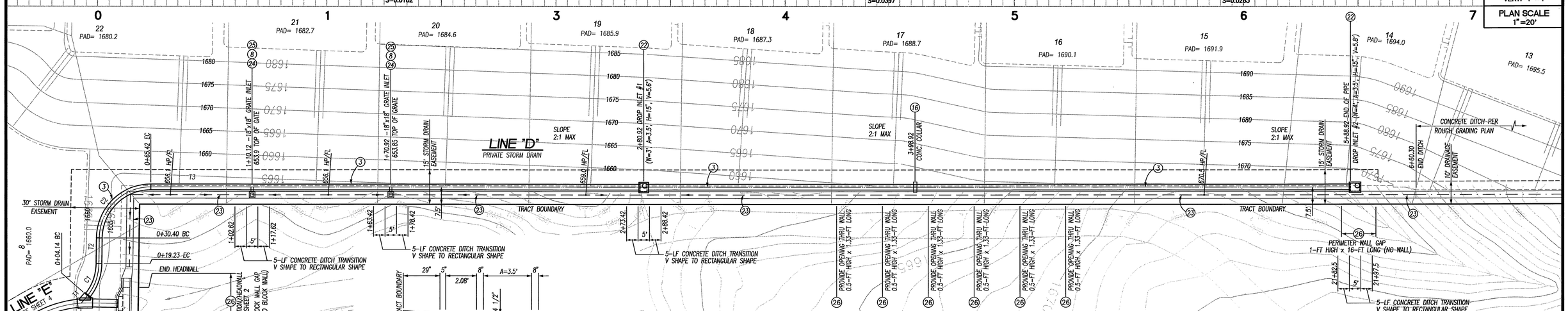
CURVE TABLE				
#	Δ	R	L	T
C1	38°24'56"	22.50'	15.09'	7.84'
C2	89°11'06"	22.50'	35.02'	22.18'

COURSE DATA		
LINE	BEARING	DISTANCE
T1	N 38°20'11" E	4.14'
T2	N 00°04'45" W	11.17'
T3	N 89°06'21" E	523.50'



PROFILE SCALES
HORIZ. 1"=20'
VERT. 1"=4'

PLAN SCALE
1"=20'



CONCRETE DROP INLET

SEE ADDITIONAL NOTES ON R.C.F.C. & W.C.D. STD. DWG. CB 110 SHOWN ON SHEET 7B
NOT TO SCALE

CONSTRUCTION NOTES

3. CONSTRUCT 30" C.I.P.P. STORM DRAIN
7. CONSTRUCT JUNCTION STRUCTURE NO. 4 (CASE 1) PER STD. NO. 423
16. CONSTRUCT CONCRETE COLLAR PER CITY STD. NO. 424
22. CONSTRUCT CONCRETE DROP INLET PER R.C.F.C. & W.C.D. STD. NO. CB 110 AND DETAILS ON SHEET 7A AND SHEET 7B
23. CONSTRUCT DRAINAGE DITCH PER DETAIL ON SHEET 7A
24. CONSTRUCT 18"x18" CATCH BASIN (BROOKS PRODUCT #1818) WITH CONCRETE APRON
25. CONSTRUCT 12" PVC SDR35 STORM DRAIN PIPE
26. CONSTRUCT CONCRETE APRON PER DETAIL ON SHEET 7A

HYDRAULIC DATA												
LINE	STATION TO STATION	DIA. (in)	Q100 (cfs)	n	SLOPE (ft/ft)	dn (ft)	Vn (fps)	Vcr (fps)	dcr (ft)	sf (ft/ft)	V (fps)
"D"	0+04.14 – 2+78.92	30	49.4	0.015	0.0182	PRESSURE FLOW				0.019	10.1
"D"	2+82.92 – 3+98.92	30	49.0	0.015	0.0397	1.5	15.6	10.4	2.3	–	–
"D"	3+98.92 – 5+88.92	30	49.0	0.015	0.0263	1.8	13.2	10.4	2.3	–	–

PW03-0011

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

PRIVATE ENGINEERING NOTE

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BENCHMARK

E3-F3 ELEV. 1685.160 DATE: 1997
P.K. NAIL AND CITY ENGINEER TAG ON THE SIDEWALK OVER W'LY WALL OF A CATCH BASIN ALONG THE S'LY. CURB OF ORANGE TERRACE PKWY., 100 FEET E'LY OF TRAUTWEIN ROAD. THE MARK IS 2 FEET S'LY OF THE FACE OF CURB.

ADJUSTED AND ENTERED: JUNE 1997

REGISTERED PROFESSIONAL ENGINEER EDWARD J. LENTH No. 052496 Exp. 12-31-06 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
MDS CONSULTING
MORSE DOKICH SCHULTZ
17320 Redhill Ave. Suite 350 Irvine, CA 92614
Voice: 949-251-8821 FAX: 949-251-0516
PLANNERS ENGINEERS SURVEYORS

PLANS PREPARED UNDER THE SUPERVISION OF:
EDWARD J. LENTH R.C.E. NO. 52496 — DATE 6/29/04

MARK	REVISIONS	APPR.	DATE

DESIGNED BY FE DRAWN BY WS CHECKED BY TD RVZ

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	RVZ	5-23-04
PARK DEPARTMENT	-	-
TRAFFIC DIVISION	-	-
STREET SERVICES		

CITY ENGINEER
DATE 5/24/04

STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1
LINE "D" (PRIVATE)
PLAN & PROFILE

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

ACCOUNT NO.....
D-726
SHEET 7A OF 7

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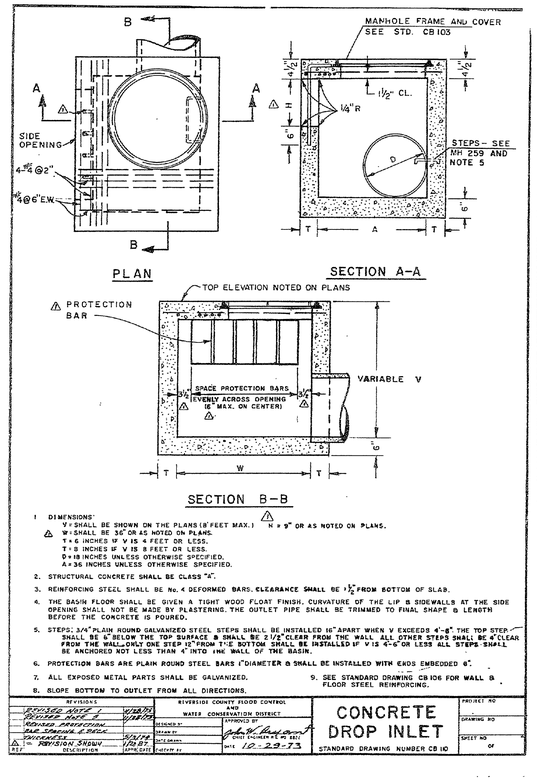

1. DIMENSIONS:
   V = SHALL BE SHOWN ON THE PLANS (8 FEET MAX.) H = 9" OR AS NOTED ON PLANS.
   W = SHALL BE 36" OR AS NOTED ON PLANS.
   T = 6 INCHES IF V IS 4 FEET OR LESS.
   T = 8 INCHES IF V IS 8 FEET OR LESS.
   D = 18 INCHES UNLESS OTHERWISE SPECIFIED.
   A = 36 INCHES UNLESS OTHERWISE SPECIFIED.
2. STRUCTURAL CONCRETE SHALL BE CLASS "A".
3. REINFORCING STEEL SHALL BE No. 4 DEFORMED BARS. CLEARANCE SHALL BE 1½" FROM BOTTOM OF SLAB.
4. THE BASIN FLOOR SHALL BE GIVEN A TIGHT WOOD FLOAT FINISH. CURVATURE OF THE LIP & SIDEWALLS AT THE SIDE OPENING SHALL NOT BE MADE BY PLASTERING. THE OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE & LENGTH BEFORE THE CONCRETE IS POURED.
5. STEPS: 3/4" PLAIN ROUND GALVANIZED STEEL STEPS SHALL BE INSTALLED 16" APART WHEN V EXCEEDS 4'-8". THE TOP STEP SHALL BE 6" BELOW THE TOP SURFACE & SHALL BE 2 1/2" CLEAR FROM THE WALL. ALL OTHER STEPS SHALL BE 4" CLEAR FROM THE WALL. ONLY ONE STEP 12" FROM THE BOTTOM SHALL BE INSTALLED IF V IS 4'-6" OR LESS. ALL STEPS SHALL BE ANCHORED NOT LESS THAN 4" INTO THE WALL OF THE BASIN.
6. PROTECTION BARS ARE PLAIN ROUND STEEL BARS 1" DIAMETER & SHALL BE INSTALLED WITH ENDS EMBEDDED 6".
7. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED.
8. SLOPE BOTTOM TO OUTLET FROM ALL DIRECTIONS.
9. SEE STANDARD DRAWING CB106 FOR WALL & FLOOR STEEL REINFORCING.

REV	DESCRIPTION	APPR. DATE
	REVISED NOTE 1	4/18/72
	REVISED NOTE 5	1/18/82
	ADDED PROTECTION BAR DETAIL & NOTE	
	VARIOUS	5/2/72
1	REVISION SHOWN	1/18/82

REVISIONS

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY
DRAWN BY
DATE DRAWN
CHECKED BY
APPROVED BY: John L. Benoit, DISTRICT ENGINEER R.E. NO. 5211
DATE 12-29-73

CONCRETE DROP INLET

STANDARD DRAWING NUMBER CB 110

PROJECT NO
DRAWING NO
SHEET NO OF

NOTES FOR CATCH BASIN NO. 4

1. Dimensions: Unless otherwise specified.

   V = 3.5 feet.
   T = 6 inches, if V is 4 feet or less.
   T = 8 inches, if V is between 4 feet and 8 feet.
   T = 10 inches, if V is 8 feet or over.
   W = 2 feet, 11-3/8 inches for one grating. Add 3 feet, 5-3/8 inches for each additional grating.
   Hike-up shall be parallel to plane of gutter - slope 3/4 inch to 1 foot.
   Slope of floor parallel with curb shall be 1 in 12.

   S = 1½ inches.
   R = 3/4 inch.

2. Concrete shall be Class "A" Portland Cement Concrete (6.0 Sack).
3. The reinforcing steel shall be Number 4 deformed bars. Clearance shall be 1-1/2 inches from top of slab. See standard drawing CB106 and note 3.
4. The surface of all exposed concrete shall conform to slope, grade, color, finish, and scoring in the existing of proposed curb and walk adjacent to the basin. The basin floor shall be given a tight wood float finish. Curvature of the lip and sidewalls at the gutter opening shall not be made by plastering. The outlet pipe shall be trimmed to final shape and length before the concrete is poured.
5. Steps: 3/4 inch plain round galvanized steel steps are required as follows:

   If V is 4.5 feet or less, no steps are required.
   If V is more than 4.5 feet, and not more than 5.0 feet, install one step 12 inches above floor of basin.
   If V is more than 5.0 feet, install steps 16 inches apart, with the top step 6 inches below the top of grating.
   All steps shall be 4 inches clear from the wall, and anchored not less than 4 inches in wall of basin.

REV	DESCRIPTION	APPR. DATE
		5/22/72

REVISIONS

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY
DRAWN BY
DATE DRAWN
CHECKED BY
APPROVED BY: John L. Benoit, DISTRICT ENGINEER R.E. 5211
DATE 6-1-72

CATCH BASIN NO. 4

STANDARD DRAWING NUMBER CB101 SHEET 2 OF 2

PROJECT NO
DRAWING NO
SHEET NO 01

(22) 1 CONCRETE DROP INLET
R.C.F.C. & W.C.D. STD. CB-110

NOT TO SCALE

PW03-0011

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E8-F3 ELEV. 1665.160 DATE: 1997
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ADJUSTED AND ENTERED: JUNE 1997

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MORSE DOKICH SCHULTZ
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Voice: 949-251-8821 FAX: 949-251-0516

PLANS PREPARED UNDER THE SUPERVISION OF:
EDWARD J. LENTH R.C.E. NO. 52496 DATE 8/29/04

MARK	REVISIONS:	APPR.	DATE

DESIGNED BY FE DRAWN BY WS CHECKED BY TD

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT

APPROVED BY	DATE	BY
PRINCIPAL ENGINEER	5/25/04	RIZ
PARK DEPARTMENT	–	–
TRAFFIC DIVISION	–	–
STREET SERVICES		

CITY ENGINEER
DATE 5/24/04

STORM DRAIN IMPROVEMENT PLANS
TRACT 30717-1

DETAILS

HORIZ. SCALE: AS SHOWN VERT. SCALE: AS SHOWN

ACCOUNT NO.....
D-726
1 SHEET 7B OF 7

H:\52604\MPA\SD-19978.DWG 8/27/04