

accordance with standard engineering practice for the design of small dams. Among other considerations, slope stability should be analyzed, performance under maximum probable storm runoff should be reviewed and buried utilities should be routed around the embankment rather than in or through the embankment.

Detention facilities should be sized and designed for a storm recurrence interval of 100 years as a minimum. Outlet structures should be designed to automatically regulate discharge rates such that downstream facilities will not be overloaded. Outlet structures should be designed so that proper functioning does not require operational attention and to minimize the possibility of failure due to debris blockages or plugging due to sediment deposition.

An emergency spillway should be provided in detention facilities in the event of a storm occurrence of greater intensity than the design storm or failure of the outlet structure to operate properly. Special attention must be given to the design of emergency spillways to preclude the possibility of overtopping the embankment which might lead to failure of the embankment.

In designing detention facilities, attention to details can significantly reduce maintenance costs. Detention facilities should be designed with a trickle channel to convey low flows to the outlet. The bottom of the impoundment area should be sloped toward the outlet structure to facilitate complete draining of the facility following each storm event. Designs should provide for collection of sediment and debris at specific locations with ample access to facilitate removal and disposal.

While the incorporation of detention facilities in the master plan for a drainage system will decrease the level of maintenance required for downstream facilities, periodic maintenance of the detention facilities themselves is important in order to maintain design capacity and structural integrity. Periodic maintenance procedures should include the following, as a minimum:

1. Inspection of the entire facility including embankment slopes, spillway and outlet structure.
2. Removal of debris, obstructions and sediment from the outlet structure which may hinder its operation.
3. Inspection of slopes for signs of erosion. Erosion problems which may develop should be remedied as soon as they are discovered.
4. Removal of accumulated sediment and debris from the impoundment area to maintain design capacity and so the sediment and debris which collects does not become an eyesore or a public nuisance.
5. In the event that water passes over the emergency spillway, an inspection of the facility should be undertaken immediately. Any erosion problems which are evident should be remedied as soon as possible to maintain the spillway crest elevation at design level.

IX. COST ESTIMATES AND FEE DETERMINATION

Detailed preliminary cost estimates have been prepared for the proposed drainage facilities and remedial work recommended in this report. The unit prices used in the preparation of these estimates have been based on current construction costs. Appropriate escalation factors must be applied to these costs for construction done in future years. Basin improvements are tabulated in Table 10 of Appendix B. This table lists proposed facilities together with their associated costs and percentage of financial responsibility between Unit Drainage Fee (UDF) and City Capital Improvement Projects (City).

Drainage system improvements have been based on City of Colorado Springs design criteria and would be eligible for basin fee reimbursements. Contingency allowances have been included within the basin fee to account for unknown conditions and their associated costs. The construction contingency also covers the possibility of increased construction costs for the defined structures as well as providing for structures which may not have been included in this study. A contingency allowance of fifteen percent has been used because of the variability and flexibility built into the reimbursable "private" detention facilities proposed. Additionally, an allowance of ten percent has been provided for final design, engineering and inspection of the proposed drainage facilities.

Presently developed and undeveloped areas within the Mesa Basin have been determined from 400 scale topographic mapping and platting records obtained from the City of Colorado Springs and El Paso County. Platted properties are

indicated on Exhibit No. 3 "Land Use and Development". There is one major land owner within the basin boundaries, that being the Hill Development Corporation. Their holdings account for approximately 600 acres of the total undeveloped developable land in the basin. Other parcels within the basin include Sonderman Park (approximately 95 acres) and scattered areas (approximately 205 acres) bordering the presently developed eastern portion of the basin.

Of the total basin acreage of approximately 2,200 acres, only about 785 acres remain undeveloped and will be subject to drainage fees. The 1976 study conducted by Parker and Associates indicated that 1,756 acres were undeveloped at that time and therefore subject to drainage fees. It appears that the previous study greatly overestimated the amount of undeveloped land in the basin, thus resulting in a drainage fee structure which was inadequate to finance required improvements to the storm drainage system.

The proposed drainage fee for the Mesa Basin has been determined using the City's standard procedure of evenly proportioning developers' share of drainage structure construction costs over the entire net area subject to drainage fees. A summary of the proposed fee determination is included in the table following this section.

Based on the preliminary alignment of proposed streets in the basin, it appears that there will be no need for bridges. Therefore no bridge fee is proposed for the Mesa Basin.

DRAINAGE FEE CALCULATION

I. Total Estimated Improvement Costs (From Table 10, Appendix B)

ITEM	UNIT DRAINAGE FEE SHARE (DEVELOPER COST)	CITY CAPITAL IMPROVEMENT SHARES	PROJECT TOTALS
1. Cooper St. Storm Sewer	-0-	\$153,200	153,200✓
2. Del Norte Street Storm Sewer	-0-	99,850	99,850✓
3. Chestnut Street Storm Sewer	-0-	256,800	256,800✓
4. Mesa Valley Road Storm Sewer	72,000✓	146,850✓	218,850
5. Taylor Street Storm Sewer	12,375✓	38,500✓	50,875
6. Improvements So. of Fillmore	41,780✓	367,470✓	409,250
7. Chestnut & I-25, No. of Fillmore	325,260✓	474,880✓	800,140
8. Centennial Storm Sewer (Fillmore to Fontanero)	155,900✓	-0-	155,900
9A. Centennial Storm Sewer (West of Centennial Blvd, No. of Fillmore)	79,350✓	-0-	79,350
9B. Centennial Storm Sewer (East of Centennial Blvd)	35,800✓	-0-	35,800
10. Minor Stem Treatments	171,000✓	22,500✓	193,500
11. Detention Facilities	740,450✓	-0-	740,450
12. Channel Protection - Main Stem	693,400✓	-0-	693,400
13. Miscellaneous Structures	9,270✓	80,005✓	89,275
TOTAL CONSTRUCTION COST	\$2,336,585✓	\$1,640,055✓	\$3,976,640
Contingency at 15%	350,488	246,008	596,496✓
	\$2,687,073✓	\$1,886,063✓	4,573,136✓
Engineering at 10%	268,708	188,606	457,314
Master Plan Study Fee	35,000	-0-	35,000
Total Estimated Project Costs	2,990,781✓	2,074,689	5,065,450✓
Basin Fee Deficit as of 1-1-86	80,013	-0-	80,013
TOTAL COSTS TO BE ALLOCATED:	\$3,070,794	\$2,074,669	\$5,145,463✓

II. Total Basin Area Subject to Drainage Fees = 785 acres

III. Drainage Fee = Unit Drainage Fee Share/Area Subject to Drainage Fee

Proposed Drainage Fee = \$3,070,794/785 Acres = \$3,911.84/acre

Round-off to \$3,912/Acre

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APPENDIX A
HYDROLOGY

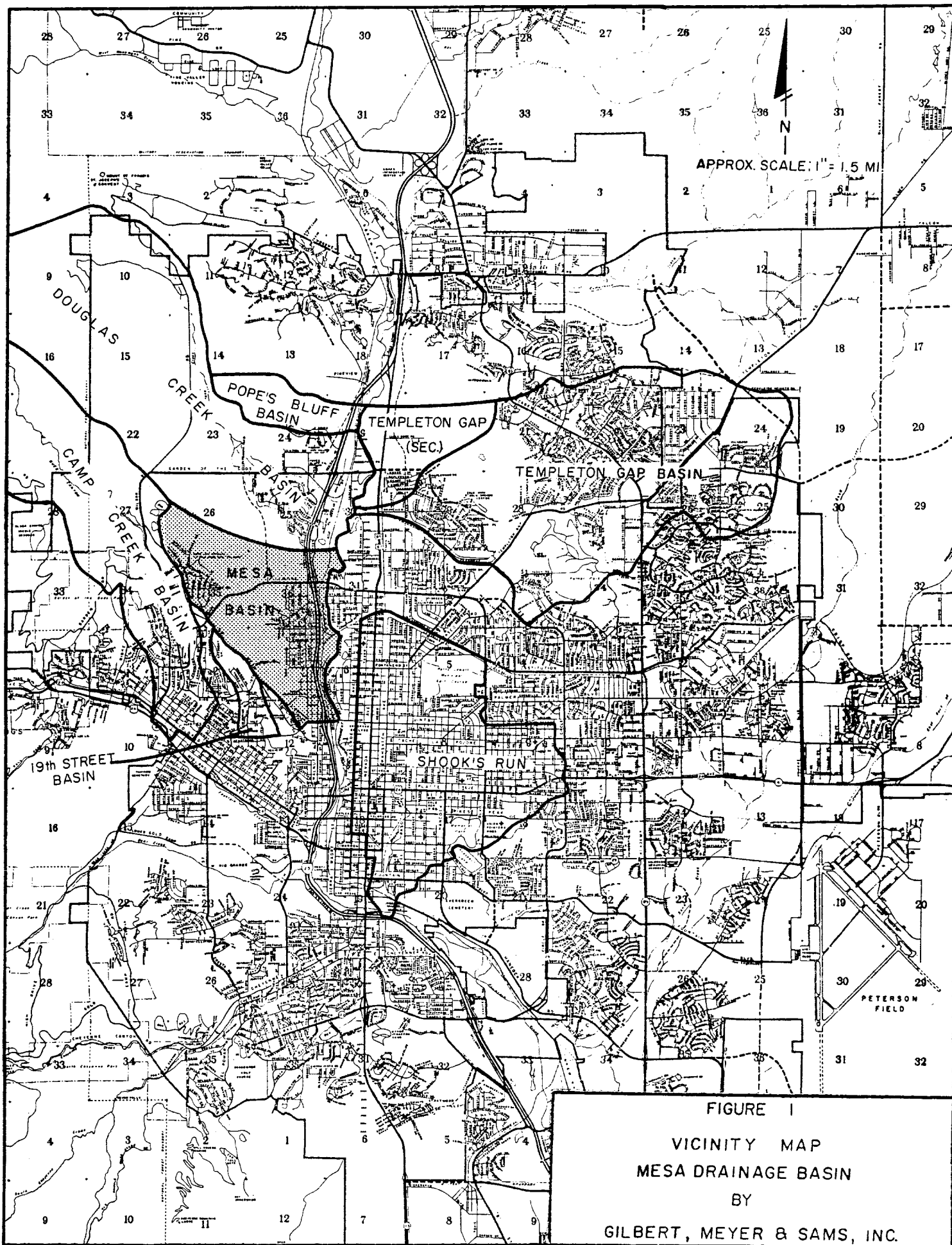


FIGURE I
VICINITY MAP
MESA DRAINAGE BASIN
BY
GILBERT, MEYER & SAMS, INC.

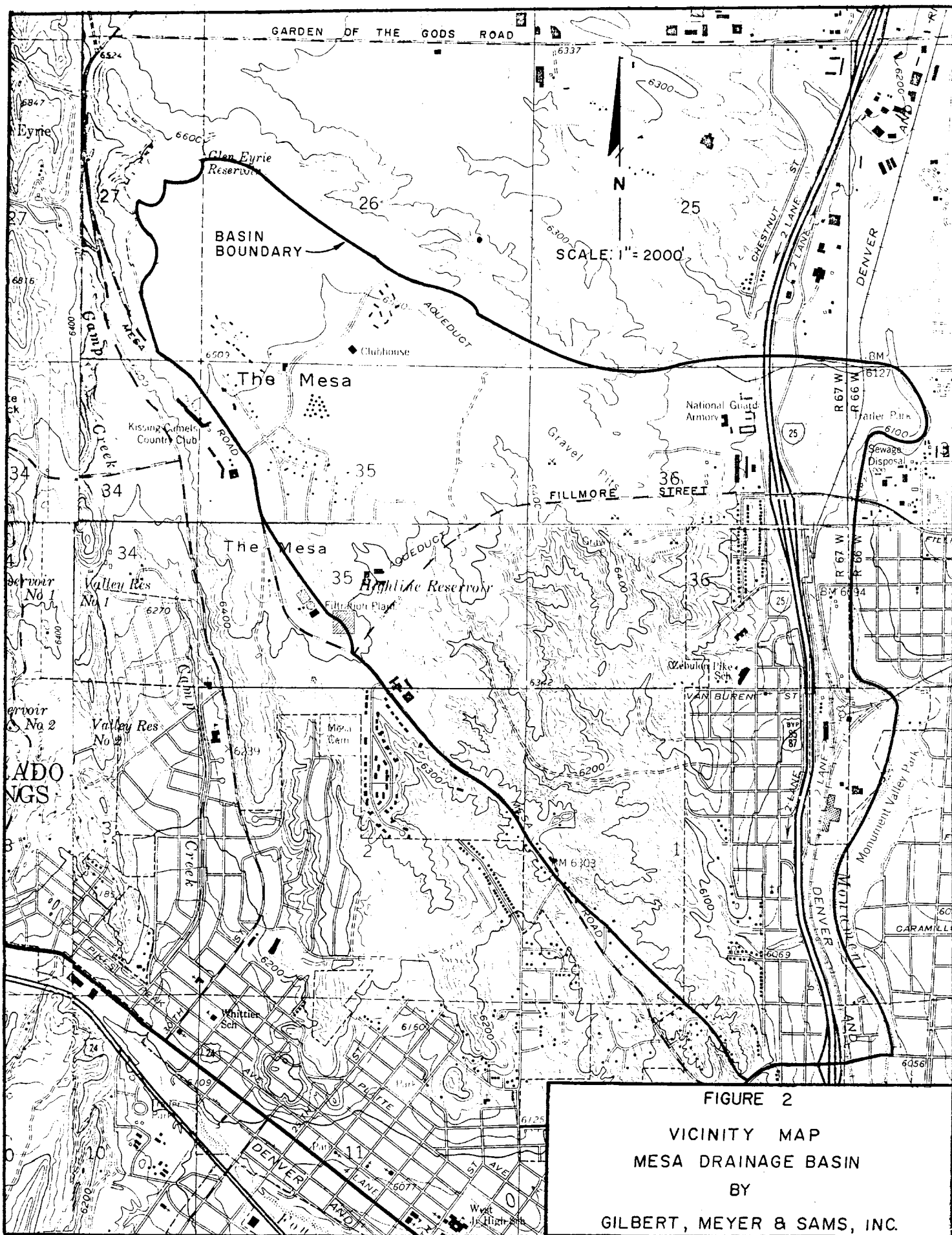


FIGURE 2
VICINITY MAP
MESA DRAINAGE BASIN
BY
GILBERT, MEYER & SAMS, INC.

SUB-BASIN SCHEMATIC

LEGEND



SUB-BASIN AND DESIGNATION NUMBER



DIRECTION OF FLOW



EXISTING STRUCTURE AND INVENTORY
CODE NUMBER



EXISTING DETENTION FACILITY



DESIGN POINT

FIGURE 3

SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN
BY

GILBERT, MEYER & SAMS, INC.

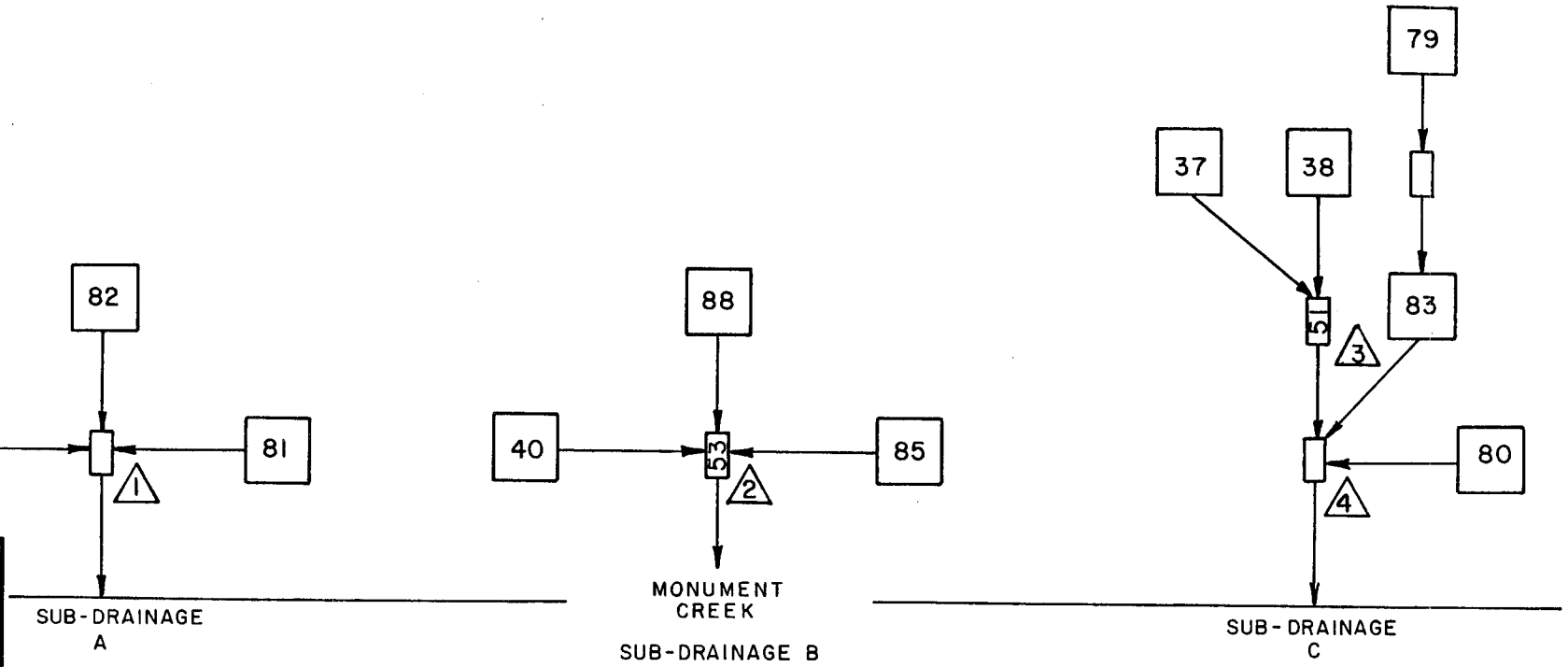


FIGURE 3

SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN

GILBERT, MEYER & SAMS, INC.

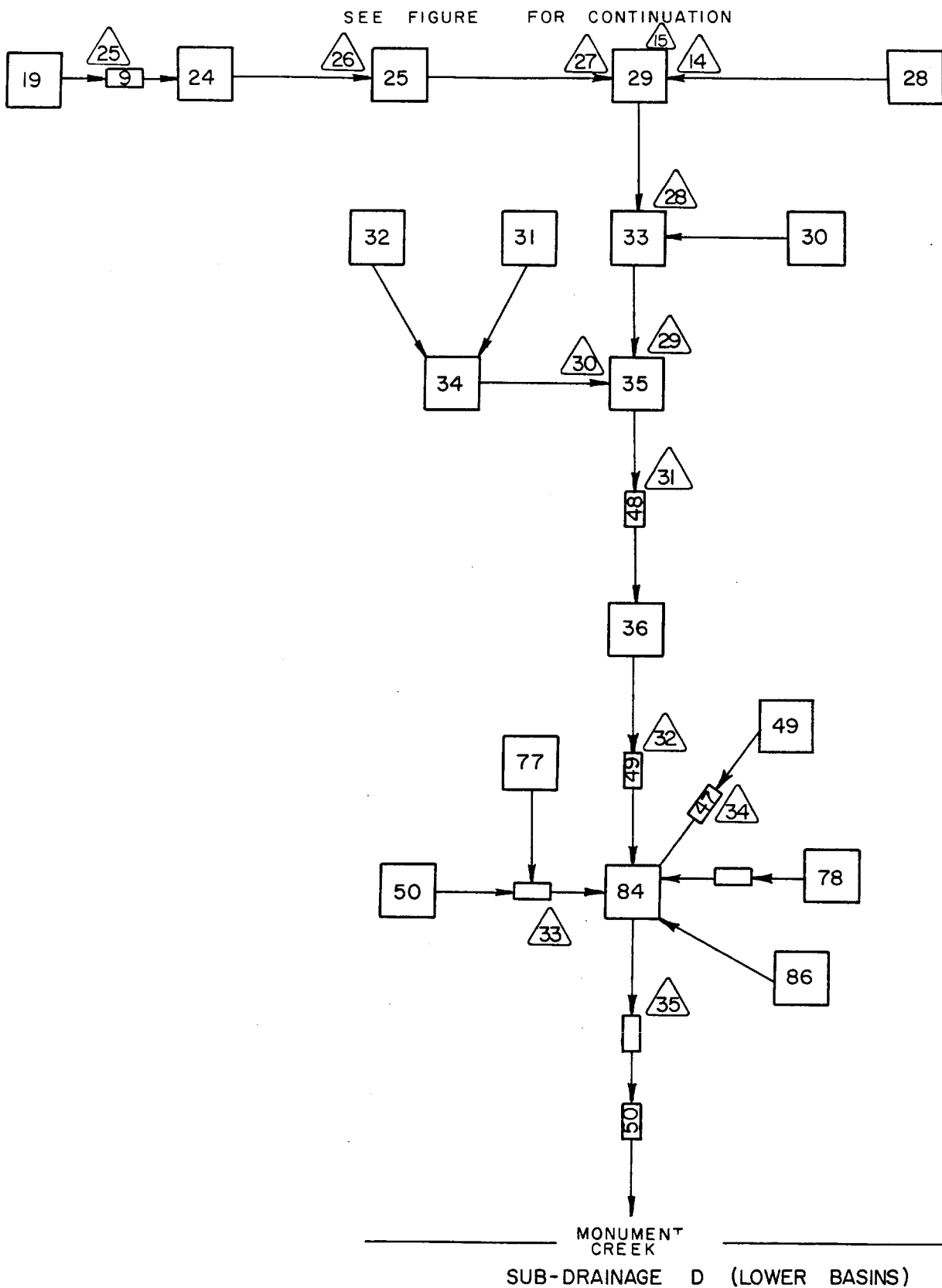


FIGURE 3
SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN
BY
GILBERT, MEYER & SAMS, INC.

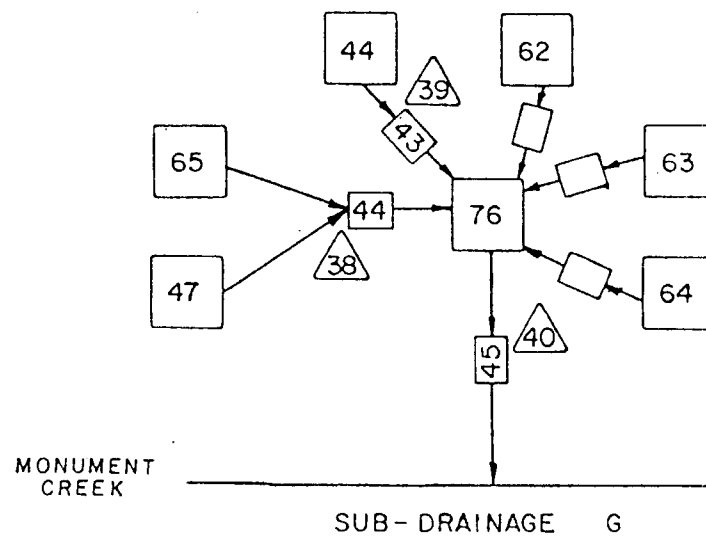
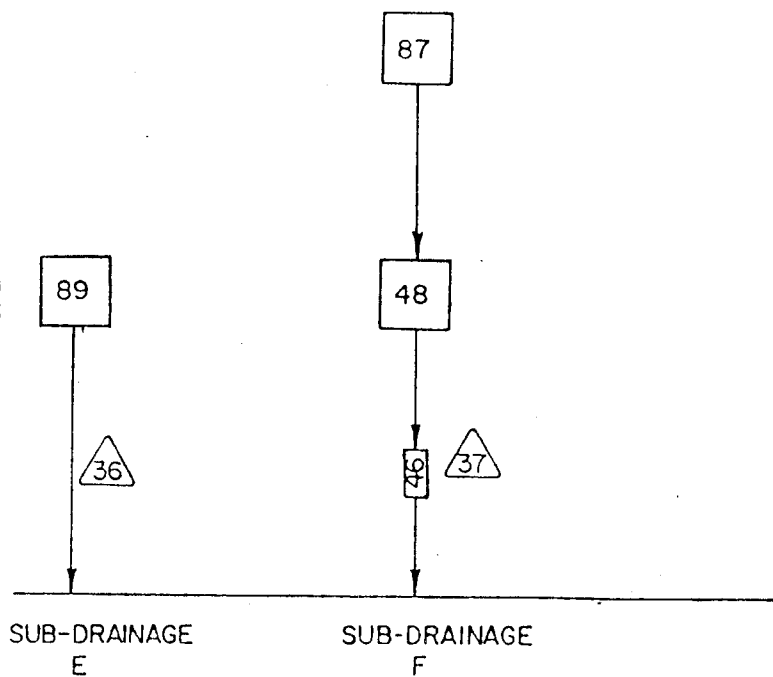


FIGURE 3

SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN

BY

GILBERT, MEYER & SAMS, INC.

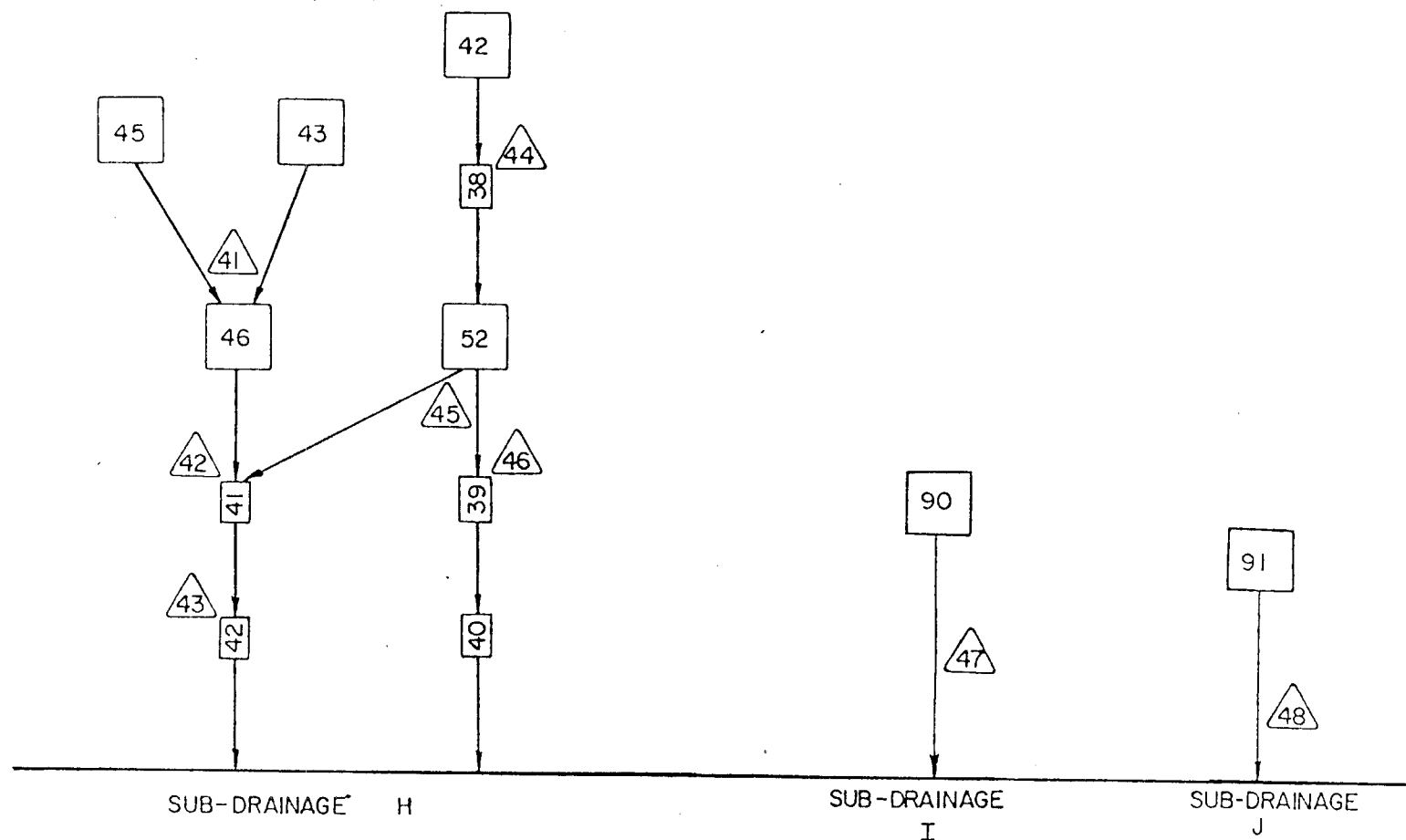


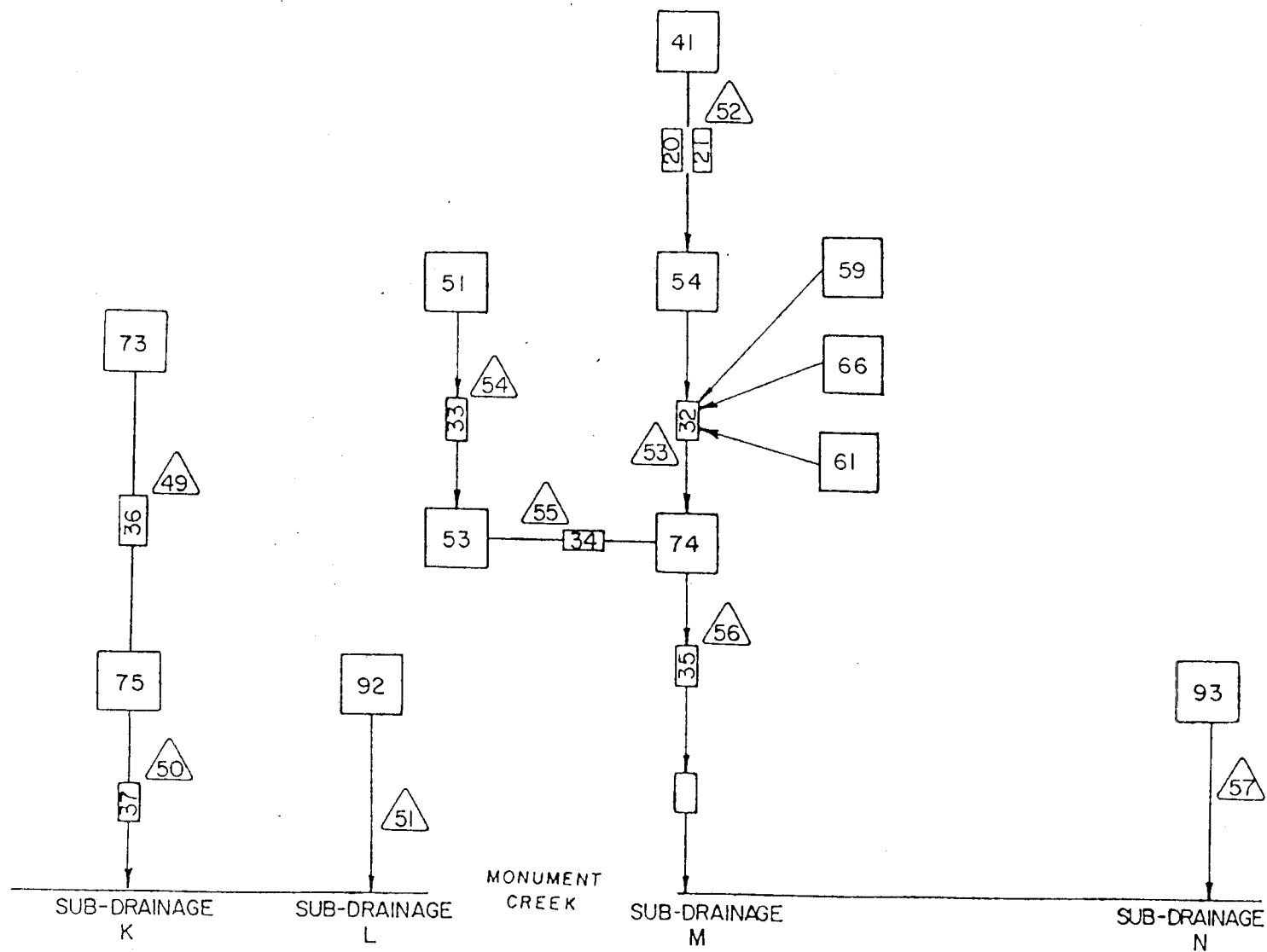
FIGURE 3

SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN

BY

GILBERT, MEYER & SAMS, INC.

FIGURE 3
 SUB-BASIN SCHEMATIC
 MESA DRAINAGE BASIN
 BY
 GILBERT, MEYER & SAMS, INC.



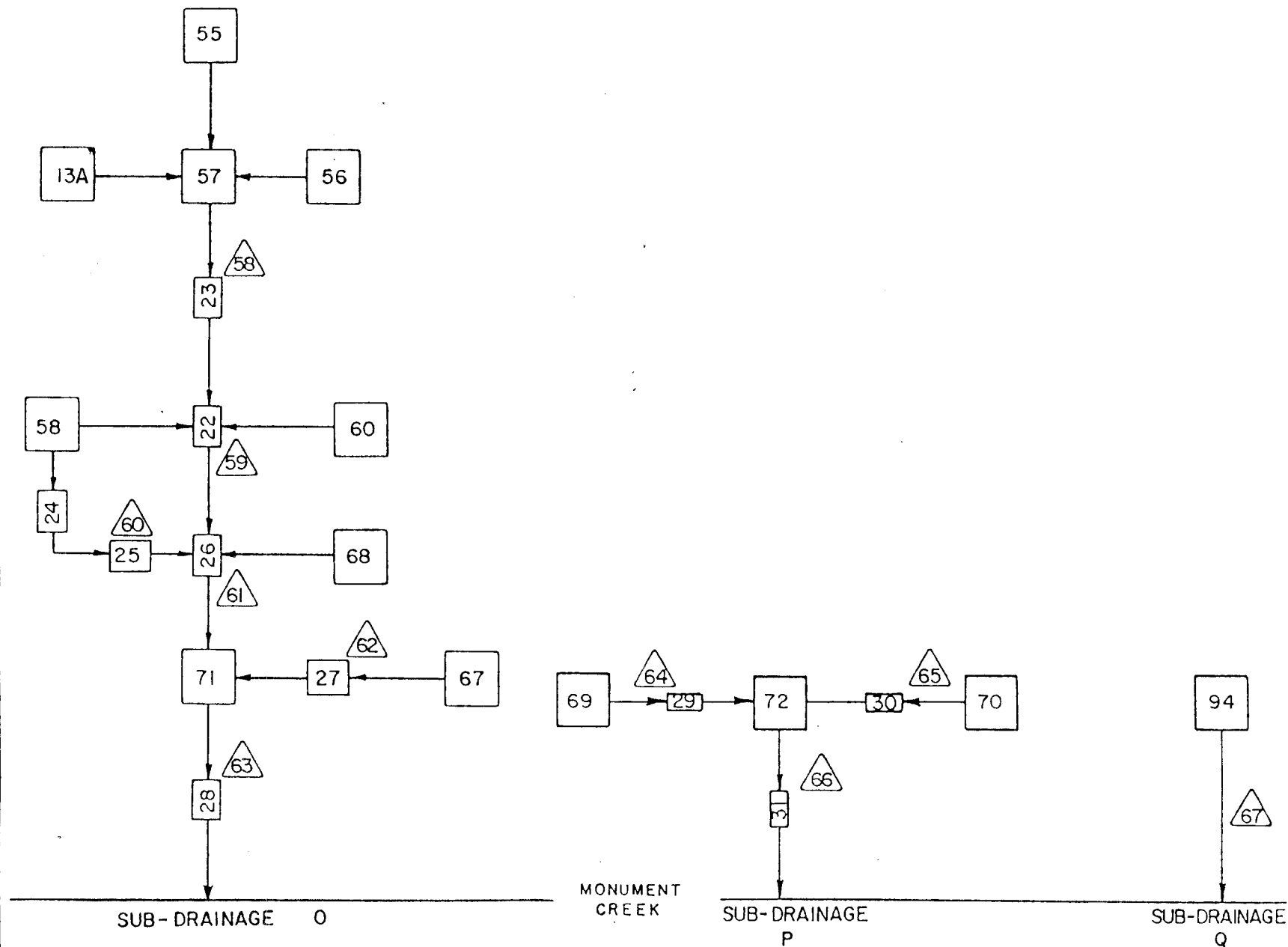


FIGURE 3

SUB-BASIN SCHEMATIC
MESA DRAINAGE BASIN

BY

GILBERT, MEYER & SAMS, INC.

TABLE 1
MESA DRAINAGE STUDY
HYDROLOGIC SOIL CLASSIFICATION

<u>SOIL CONSERVATION SERVICE MAPPING UNIT</u>	<u>FORMATION</u>	<u>SOIL CONSERVATION SERVICE HYDROLOGIC SOIL GROUP</u>
3	Ascalon sandy loam, 3 to 9% slopes	B
18	Chaseville-Midway complex	A, C and D
33	Healdt clay loam, 0 to 3% slopes	C
56	Nelson-Tassel fine sandy loams, 3 to 18% slopes	C
75	Razor-Midway complex	C and D
97	Truckton sandy loam, 3 to 9% slopes	B
101	Ustic Torrifluvents, loamy	B

TABLE 2

MESA DRAINAGE STUDY

RUNOFF CURVE NUMBERS
(AMC II and $I_a = 0.2S$)

Land Use Description	Hydrologic Soil Group			
	A	B	C	D
Single Family Residential				
Low Density (1 unit or less per acre)	51	68	79	84
Medium Density (2 to 3 units per acre)	56	71	81	86
High Density (3 units or more per acre)	61	75	83	87
Multi-Family Residential				
Townhouse & Mobile Home Park (over 8 units per acre)	77	85	90	92
Apartment (85% impervious area assumed)	89	92	94	95
Commercial and Business Areas (85% impervious area assumed)	89	92	94	95
Open Spaces				
With Good Ground Cover (lawns, golf courses, etc.)	39	61	74	80
With Fair Ground Cover (tended natural grasses)	49	69	79	84
With Natural Ground Cover (yucca, scrub oak and natural grass)	68	79	86	89
Miscellaneous Areas				
Impervious Areas (paved parking lots, roofs, etc.)	98	98	98	98
Paved Streets With Curb and Gutter	98	98	98	98
Paved Streets With Open Ditches	83	89	92	93
Gravel Streets with Open Ditches	76	85	89	91

TABLE 3
MESA DRAINAGE STUDY
SUB-BASIN DATA SUMMARY

SUB-BASIN NUMBER	DRAINAGE AREA (sq mi)	ELEVATION DIFFERENCE (ft)	WATERCOURSE LENGTH (ft)	T _c (hr)	WEIGHTED CURVE NUMBER (CN)
1	0.0435	99	2625	0.197	73
2	0.1085	99	2900	0.221	75
3	0.0803	96	3340	0.264	69
4	0.0390	103	2660	0.197	73
5	0.0701	99	2320	0.171	67
6	0.0576	67	900	0.067	66
7	0.1251	70	2180	0.182	69
8	0.1122	76	2800	0.235	63
9	0.0203	18	580	0.067	86
10	0.0146	35	1240	0.124	85
11	0.0487	78	2380	0.193	68
12	0.0989	81	2400	0.192	64
13A	0.0667	240	3500	0.196	92
13B	0.0946	140	4000	0.281	87
14	0.0588	102	1820	0.128	80
15	0.0407	45	1600	0.151	81
16	0.0018	18	200	0.019	74
17	0.0217	30	600	0.057	81
18	0.0439	54	800	0.063	73
19	0.0068	21	2800	0.386	98
20	0.0042	14	1450	0.211	98
21	0.0224	53	1350	0.116	92
22	0.0556	143	2300	0.147	88
23	0.0358	76	1500	0.114	89
24	0.0463	94	1600	0.114	88
25	0.2121	171	4580	0.304	83
26	0.1144	258	3060	0.163	87
27	0.0357	186	940	0.047	89
28	0.0755	251	2900	0.155	86
29	0.1166	342	3460	0.168	84
30	0.0635	240	2960	0.161	86
31	0.0701	236	3200	0.178	85
32	0.0462	203	1300	0.066	86
33	0.0049	43	410	0.032	86
34	0.0192	180	300	0.013	86
35	0.0317	200	425	0.018	86
36	0.0109	28	600	0.058	80
37	0.0449	190	2100	0.119	81
38	0.0577	181	1650	0.092	84
39	0.0063	98	1600	0.112	87
40	0.0036	10	700	0.104	93
41	0.0824	251	2930	0.157	93
42	0.0632	270	3200	0.169	88
43	0.0103	61	700	0.052	92

Table 3, Continued

44	0.1176	177	3200	0.198	83
45	0.0801	270	3280	0.173	86
46	0.0357	46	1300	0.118	84
47	0.0092	27	1400	0.157	78
48	0.0387	119	1200	0.074	78
49	0.0478	88	1500	0.108	81
50	0.0029	11	480	0.065	75
51	0.0492	141	1680	0.103	85
52	0.0211	48	1500	0.137	83
53	0.0044	25	200	0.017	82
54	0.0036	26	450	0.043	82
55	0.0431	240	2700	0.145	93
56	0.0303	238	1800	0.091	93
57	0.0660	197	800	0.038	93
58	0.0133	66	200	0.012	83
59	0.0060	47	500	0.039	83
60	0.0059	45	1900	0.184	91
61	0.0034	30	1000	0.103	91
62	0.0068	26	2400	0.298	90
63	0.0017	5	800	0.158	86
64	0.0012	10	550	0.078	86
65	0.0021	5	1000	0.204	86
66	0.0074	42	1600	0.155	83
67	0.0024	10	500	0.070	85
68	0.0025	25	700	0.073	85
69	0.0308	50	1500	0.135	89
70	0.0147	54	900	0.072	88
71	0.0209	80	1000	0.070	84
72	0.0291	48	750	0.061	86
73	0.0089	53	1700	0.152	78
74	0.0076	53	1000	0.082	92
75	0.0026	13	600	0.078	92
76	0.0298	48	3800	0.400	94
77	0.0006	8	300	0.042	86
78	0.0027	20	1100	0.134	86
79	0.0030	17	1300	0.173	86
80	0.0013	6	550	0.095	86
81	0.0022	11	600	0.084	85
82	0.0024	25	800	0.085	78
83	0.0066	39	2000	0.206	78
84	0.0040	31	1200	0.125	78
85	0.0023	38	1500	0.149	85
86	0.0023	24	1500	0.178	85
87	0.0144	41	2100	0.214	85
88	0.0339	41	1800	0.179	85
89	0.0181	32	500	0.045	96
90	0.0587	51	2600	0.252	98
91	0.0187	10	450	0.062	92
92	0.0230	37	550	0.047	92
93	0.0206	65	920	0.069	92
94	0.0416	52	1100	0.093	92

TABLE 4
MESA DRAINAGE STUDY
HYDROLOGY CALCULATIONS - DESIGN STORM: 24 HOUR, 100 YEAR

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
A	1	0.0109	0.3030	98	0.112	85	3.000	975	31.9	
B	2	0.0398	0.3409	41	0.179	86	3.095	855	105.3	
C	3	0.0987	0.5114	170	0.166	83	2.815	875	243.1	1
C	4	0.1135	0.6439	175	0.214	83	2.815	805	257.2	
D	5	0.2096	0.7197	122	0.279	72	1.895	730	290.0	
D	6	0.3347	1.1970	150	0.464	71	1.819	585	356.2	
D	7	0.0203	0.1098	18	0.067	86	3.095	1000	62.8	
D	8	0.0146	0.2348	35	0.124	85	3.000	950	41.6	
D	9	0.5230	1.5152	232	0.515	76	2.210	560	647.3	9
D	10	0.0042	0.2746	14	0.211	98	4.364	810	14.8	
D	11	0.0598	0.4242	118	0.154	88	3.290	895	224.1	2
D	12	0.1179	0.5909	148	0.206	89	3.390	820	375.7	2
D	13	0.2323	0.9242	219	0.297	88	3.290	715	594.5	2
D	14	0.3078	0.9091	272	0.269	88	3.290	740	797.4	2
D	15	0.8548	2.3636	350	0.735	82	2.724	465	1169.7	3
D	16	0.0803	0.6326	96	0.264	69	1.672	745	100.0	
D	17	0.0701	0.4394	99	0.171	67	1.530	870	93.3	
D	18	0.1823	0.9697	178	0.341	65	1.393	675	171.4	
D	19	0.3113	1.1023	161	0.410	66	1.461	620	282.0	
D	20	0.0407	0.3030	45	0.151	81	2.635	900	135.5	4
D	21	0.0765	0.5871	120	0.222	85	3.000	795	221.5	4
D	22	0.0390	0.5038	103	0.197	73	1.971	830	63.8	
D	23	0.1397	1.0189	181	0.358	67	1.530	665	142.1	
D	24	0.2053	1.2083	202	0.418	70	1.745	615	220.3	
D	25	0.0068	0.5303	21	0.386	98	4.364	640	19.0	
D	26	0.2584	1.5038	258	0.490	74	2.049	570	301.8	
D	27	0.5470	2.3636	350	0.735	79	2.461	465	665.0	4,9
D	28	0.9714	2.9924	493	0.846	82	2.724	425	1211.6	3
D	29	1.0398	3.0701	498	0.868	82	2.724	420	1276.6	3
D	30	0.1355	0.6591	245	0.193	85	3.000	835	339.4	
D	31	1.2070	3.1667	515	0.888	83	2.815	412	1486.9	3
D	32	1.2179	3.2803	523	0.919	83	2.815	409	1489.2	3
D	33	0.0035	0.0909	11	0.065	77	2.292	1000	8.0	
D	34	0.0478	0.2841	88	0.108	81	2.635	990	124.7	
D	35	1.2782	3.3182	532	0.925	83	2.815	405	1544.2	3
E	36	0.0181	0.0947	32	0.045	96	4.135	1000	74.8	
F	37	0.0531	0.3125	75	0.129	80	2.547	935	126.5	
G	38	0.0113	0.2652	27	0.158	79	2.461	890	24.8	
G	39	0.1176	0.6061	177	0.198	83	2.815	830	274.8	
G	40	0.1684	0.7576	188	0.251	85	3.000	760	384.0	
H	41	0.0904	0.7576	276	0.216	87	3.192	805	232.3	
H	42	0.1261	0.8902	309	0.250	86	3.095	760	487.6	5
H	43	0.1261	0.8902	309	0.250	86	3.095	760	487.6	5
H	44	0.0632	0.6061	270	0.169	88	3.290	870	180.9	

TABLE 4, Cont'd

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION T _c (HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF Q _p (cfs)	NOTES
H	45	0.0843	0.7008	307	0.190	87	3.192	840	226.0	
H	46								35.0	6
I	47	0.0587	0.4924	51	0.252	98	4.364	760	194.7	
J	48	0.0187	0.0852	10	0.062	92	3.699	1000	69.2	
K	49	0.0089	0.2803	53	0.129	78	2.375	945	20.0	
K	50	0.0115	0.2992	76	0.122	81	2.635	955	28.9	
L	51	0.0230	0.1042	37	0.047	92	3.699	1000	85.1	
M	52	0.0843	0.6061	273	0.168	93	3.805	875	280.7	
M	53	0.1047	0.7917	327	0.213	91	3.595	810	304.9	
M	54	0.0492	0.3182	141	0.103	85	3.000	995	146.9	
M	55	0.0536	0.3807	166	0.119	85	3.000	960	154.4	
M	56	0.1659	0.8182	337	0.219	89	3.390	800	449.9	
N	57	0.0206	0.1742	65	0.069	92	3.699	1000	76.2	
O	58	0.2061	0.8333	283	0.239	93	3.805	770	603.8	9
O	59	0.3129	1.4583	364	0.414	91	3.595	620	697.4	7
O	60	0.0084	0.1136	48	0.047	83	2.815	1000	23.6	8
O	61	0.3238	1.5909	407	0.439	91	3.595	605	704.37	
O	62	0.0024	0.0947	10	0.070	85	3.000	1000	7.2	
O	63	0.3471	1.5985	407	0.441	90	3.492	600	727.2	
P	64	0.0308	0.2841	50	0.135	89	3.390	930	97.1	
P	65	0.0147	0.1705	54	0.072	88	3.290	1000	48.4	
P	66	0.0746	0.4205	88	0.170	88	3.290	870	213.5	
Q	67	0.0416	0.2083	52	0.093	92	3.699	1000	153.9	

NOTES:

1. Tributary area excludes portion of Sub-Basin 38 which is tributary to Structure No. 52.
2. Includes 48 cfs discharge from detention facility upstream of Structure No. 19.
3. Includes 48 cfs discharge from detention facility upstream of Structure No. 19 and 39 cfs discharge from Golf Course pond detention facility.
4. Includes 39 cfs discharge from Golf Course pond detention facility.
5. Peak runoff at Design Point 42 = Peak runoff tributary to Design Point 42 plus Peak runoff at Design Point 45 less maximum estimated capacity of Structure No. 39 (35 cfs).
6. Peak runoff at Design Point 46 set equal to maximum estimated capacity of Structure No. 39 (35 cfs).
7. Tributary area includes portion of Sub-Basin 58 which is tributary to Structure No. 22.
8. Tributary area excludes portion of Sub-Basin 58 which is tributary to Structure No. 22.
9. Does not reflect effect of proposed detention upstream.

TABLE 5
MESA DRAINAGE STUDY
HYDROLOGY CALCULATIONS - DESIGN STORM: 6 HOUR, 100 YEAR

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
A	1	0.0109	0.3030	98	0.112	85	2.191	1225	29.3	
B	2	0.0398	0.3409	41	0.179	86	2.276	1105	100.1	
C	3	0.0987	0.5114	170	0.166	83	2.028	1135	227.2	1
C	4	0.1135	0.6439	175	0.214	83	2.028	1040	239.4	
D	5	0.2096	0.7197	122	0.279	72	1.254	945	248.4	
D	6	0.3347	1.1970	150	0.464	71	1.193	755	301.5	
D	7	0.0203	0.1098	18	0.067	86	2.276	1250	57.8	
D	8	0.0146	0.2348	35	0.124	85	1.191	1205	38.5	
D	9	0.5230	1.5152	232	0.515	76	1.512	720	569.4	9
D	10	0.0042	0.2746	14	0.211	98	3.466	1045	15.2	
D	11	0.0598	0.4242	118	0.154	88	2.452	1150	216.6	2
D	12	0.1179	0.5909	148	0.206	89	2.543	1060	365.8	2
D	13	0.2323	0.9242	219	0.297	88	2.452	925	574.9	2
D	14	0.3078	0.9091	272	0.269	88	2.452	960	772.5	2
D	15	0.8548	2.3636	350	0.735	82	1.949	593	1074.9	3
D	16	0.0803	0.6326	96	0.264	69	1.076	965	83.4	
D	17	0.0701	0.4394	99	0.171	67	0.965	1120	75.8	
D	18	0.1823	0.9697	178	0.341	65	0.859	875	137.0	
D	19	0.3113	1.1023	161	0.410	66	0.911	805	228.3	
D	20	0.0407	0.3030	45	0.151	81	1.872	1160	127.4	4
D	21	0.0765	0.5871	120	0.222	85	2.191	1030	211.6	4
D	22	0.0390	0.5038	103	0.197	73	1.316	1070	54.9	
D	23	0.1397	1.0189	181	0.358	67	0.965	860	115.9	
D	24	0.2053	1.2083	202	0.418	70	1.134	800	186.2	
D	25	0.0068	0.5303	21	0.386	98	3.466	830	19.6	
D	26	0.2584	1.5038	258	0.490	74	1.380	740	263.9	
D	27	0.5470	2.3636	350	0.735	79	1.723	595	599.8	4,9
D	28	0.9714	2.9924	493	0.846	82	1.949	545	1118.8	3
D	29	1.0398	3.0701	498	0.868	82	1.949	540	1181.3	3
D	30	0.1355	0.6591	245	0.193	85	2.191	1080	320.6	
D	31	1.2070	3.1667	515	0.888	83	2.028	525	1372.1	3
D	32	1.2179	3.2803	523	0.919	83	2.028	521	1373.8	3
D	33	0.0035	0.0909	11	0.065	77	1.581	1250	6.9	
D	34	0.0478	0.2841	88	0.108	81	1.872	1240	111.0	
D	35	1.2782	3.3182	532	0.925	83	2.028	515	1422.0	3
E	36	0.0181	0.0947	32	0.045	96	3.243	1250	73.4	
F	37	0.0531	0.3125	75	0.129	80	1.769	1200	112.7	
G	38	0.0113	0.2652	27	0.158	79	1.723	1150	22.4	
G	39	0.1176	0.6061	177	0.198	83	2.028	1070	255.2	
G	40	0.1684	0.7576	188	0.251	85	2.191	985	363.4	
H	41	0.0904	0.7576	276	0.216	87	2.363	1040	222.2	
H	42	0.1261	0.8902	309	0.250	86	2.276	987	464.4	5
H	43	0.1261	0.8902	309	0.250	86	2.276	987	464.4	5
H	44	0.0632	0.6061	270	0.169	88	2.452	1125	174.3	

TABLE 5, Cont'd

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION T _c (HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q _p (cfs)	NOTES
H	45	0.0843	0.7008	307	0.190	87	2.363	1085	216.1	
H	46								35.0	6
I	47	0.0587	0.4924	51	0.252	98	3.466	985	200.4	
J	48	0.0187	0.0852	10	0.062	92	2.828	1250	66.1	
K	49	0.0089	0.2803	53	0.129	78	1.651	1205	17.7	
K	50	0.0115	0.2992	76	0.122	81	1.872	1215	26.2	
L	51	0.0230	0.1042	37	0.047	92	2.828	1250	81.3	
M	52	0.0843	0.6061	273	0.168	93	2.928	1125	277.7	
M	53	0.1047	0.7917	327	0.213	91	2.731	1045	298.8	
M	54	0.0492	0.3182	141	0.103	85	2.191	1245	134.2	
M	55	0.0536	0.3807	166	0.119	85	2.191	1220	143.3	
M	56	0.1659	0.8182	337	0.219	89	2.543	1035	436.6	
N	57	0.0206	0.1742	65	0.069	92	2.828	1250	72.8	
O	58	0.2061	0.8333	283	0.239	93	2.929	1000	603.6	9
O	59	0.3129	1.4583	364	0.414	91	2.731	805	687.9	7
O	60	0.0084	0.1136	48	0.047	83	2.028	1250	21.3	8
O	61	0.3238	1.5909	407	0.439	91	2.731	780	689.8	
O	62	0.0024	0.0947	10	0.070	85	2.191	1250	6.6	
O	63	0.3471	1.5985	407	0.441	90	2.636	776	710.0	
P	64	0.0308	0.2841	50	0.135	89	2.543	1190	93.2	
P	65	0.0147	0.1705	54	0.072	88	2.452	1250	45.1	
P	66	0.0746	0.4205	88	0.170	88	2.452	1120	204.9	
Q	67	0.0416	0.2083	52	0.093	92	2.828	1250	147.1	

NOTES:

1. Tributary area excludes portion of Sub-Basin 38 which is tributary to Structure No. 52.
2. Includes 48 cfs discharge from detention facility upstream of Structure No. 19.
3. Includes 48 cfs discharge from detention facility upstream of Structure No. 19 and 39 cfs discharge from Golf Course pond detention facility.
4. Includes 39 cfs discharge from Golf Course pond detention facility.
5. Peak runoff at Design Point 42 = Peak runoff tributary to Design Point 42 plus Peak runoff at Design Point 45 less maximum estimated capacity of Structure No. 39 (35 cfs).
6. Peak runoff at Design Point 46 set equal to maximum estimated capacity of Structure No. 39 (35 cfs).
7. Tributary area includes portion of Sub-Basin 58 which is tributary to Structure No. 22.
8. Tributary area excludes portion of Sub-Basin 58 which is tributary to Structure No. 22.
9. Does not reflect effect of proposed detention upstream.

TABLE 6
MESA DRAINAGE STUDY
HYDROLOGY CALCULATIONS - DESIGN STORM: 24 HOUR, 5 YEAR

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
A	1	0.0109	0.3030	98	0.112	85	1.218	975	12.9	
B	2	0.0398	0.3409	41	0.179	86	1.284	855	43.7	
C	3	0.0987	0.5114	170	0.166	83	1.094	875	94.5	1
C	4	0.1135	0.6439	175	0.214	83	1.094	805	100.0	
D	5	0.2096	0.7197	122	0.279	72	0.555	730	84.9	
D	6	0.3347	1.1970	150	0.464	71	0.516	585	101.0	
D	7	0.0203	0.1098	18	0.067	86	1.284	1000	26.1	
D	8	0.0146	0.2348	35	0.124	85	1.218	950	16.9	
D	9	0.5230	1.5152	232	0.515	76	0.725	560	212.3	9
D	10	0.0042	0.2746	14	0.211	98	2.321	810	7.9	
D	11	0.0598	0.4242	118	0.154	88	1.424	895	124.2	2
D	12	0.1179	0.5909	148	0.206	89	1.498	820	192.8	2
D	13	0.2323	0.9242	219	0.297	88	1.424	715	284.5	2
D	14	0.3078	0.9091	272	0.269	88	1.424	740	372.3	2
D	15	0.8548	2.3636	350	0.735	82	1.035	465	498.4	3
D	16	0.0803	0.6326	96	0.264	69	0.444	745	26.6	
D	17	0.0701	0.4394	99	0.171	67	0.377	870	23.0	
D	18	0.1823	0.9697	178	0.341	65	0.316	675	38.9	
D	19	0.3113	1.1023	161	0.410	66	0.346	620	66.8	
D	20	0.0407	0.3030	45	0.151	81	0.978	900	74.8	4
D	21	0.0765	0.5871	120	0.222	85	1.218	795	113.1	4
D	22	0.0390	0.5038	103	0.197	73	0.595	830	19.3	
D	23	0.1397	1.0189	181	0.358	67	0.377	665	35.0	
D	24	0.2053	1.2083	202	0.418	70	0.479	615	60.5	
D	25	0.0068	0.5303	21	0.386	98	2.321	640	10.1	
D	26	0.2584	1.5038	258	0.490	74	0.636	570	93.7	
D	27	0.5470	2.3636	350	0.735	79	0.871	465	260.5	4,9
D	28	0.9714	2.9924	493	0.846	82	1.035	425	514.3	3
D	29	1.0398	3.0701	498	0.868	82	1.035	420	539.0	3
D	30	0.1355	0.6591	245	0.193	85	1.218	835	137.8	
D	31	1.2070	3.1667	515	0.888	83	1.094	412	631.0	3
D	32	1.2179	3.2803	523	0.919	83	1.094	409	631.9	3
D	33	0.0035	0.0909	11	0.065	77	0.772	1000	2.7	
D	34	0.0478	0.2841	88	0.108	81	0.978	990	46.3	
D	35	1.2782	3.3182	532	0.925	83	1.094	405	653.3	3
E	36	0.0181	0.0947	32	0.045	96	2.110	1000	38.2	
F	37	0.0531	0.3125	75	0.129	80	0.923	935	45.8	
G	38	0.0113	0.2652	27	0.158	79	0.871	890	8.8	
G	39	0.1176	0.6061	177	0.198	83	1.094	830	106.8	
G	40	0.1684	0.7576	188	0.251	85	1.218	760	155.9	
H	41	0.0904	0.7576	276	0.216	87	1.353	805	98.5	
H	42	0.1261	0.8902	309	0.250	86	1.284	760	183.8	5
H	43	0.1261	0.8902	309	0.250	86	1.284	760	183.8	5
H	44	0.0632	0.6061	270	0.169	88	1.424	870	78.3	

TABLE 6, Cont'd

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
H	45	0.0843	0.7008	307	0.190	87	1.353	840	95.8	
H	46								35.0	6
J	47	0.0587	0.4924	51	0.252	98	2.321	760	103.5	
J	48	0.0187	0.0852	10	0.062	92	1.739	1000	32.5	
K	49	0.0089	0.2803	53	0.129	78	0.820	945	6.9	
K	50	0.0115	0.2992	76	0.122	81	0.978	955	10.7	
L	51	0.0230	0.1042	37	0.047	92	1.739	1000	40.0	
M	52	0.0843	0.6061	273	0.168	93	1.826	875	134.7	
M	53	0.1047	0.7917	327	0.213	91	1.656	810	140.4	
M	54	0.0492	0.3182	141	0.103	85	1.218	995	59.6	
M	55	0.0536	0.3807	166	0.119	85	1.218	960	62.7	
M	56	0.1659	0.8182	337	0.219	89	1.498	800	198.8	
N	57	0.0206	0.1742	65	0.069	92	1.739	1000	35.8	
O	58	0.2061	0.8333	283	0.239	93	1.827	770	289.9	9
O	59	0.3129	1.4583	364	0.414	91	1.656	620	321.3	7
O	60	0.0084	0.1136	48	0.047	83	1.094	1000	9.2	8
O	61	0.3238	1.5909	407	0.439	91	1.656	605	324.4	
O	62	0.0024	0.0947	10	0.070	85	1.218	1000	2.9	
O	63	0.3471	1.5985	407	0.441	90	1.576	600	328.2	
P	64	0.0308	0.2841	50	0.135	89	1.498	930	42.9	
P	65	0.0147	0.1705	54	0.072	88	1.424	1000	20.9	
P	66	0.0746	0.4205	88	0.170	88	1.424	870	92.5	
Q	67	0.0416	0.2083	52	0.093	92	1.739	1000	72.3	

NOTES:

1. Tributary area excludes portion of Sub-Basin 38 which is tributary to Structure No. 52.
2. Includes 48 cfs discharge from detention facility upstream of Structure No. 19.
3. Includes 48 cfs discharge from detention facility upstream of Structure No. 19 and 39 cfs discharge from Golf Course pond detention facility.
4. Includes 39 cfs discharge from Golf Course pond detention facility.
5. Peak runoff at Design Point 42 = Peak runoff tributary to Design Point 42 plus Peak runoff at Design Point 45 less maximum estimated capacity of Structure No. 39 (35 cfs).
6. Peak runoff at Design Point 46 set equal to maximum estimated capacity of Structure No. 39 (35 cfs).
7. Tributary area includes portion of Sub-Basin 58 which is tributary to Structure No. 22.
8. Tributary area excludes portion of Sub-Basin 58 which is tributary to Structure No. 22.
9. Does not reflect effect of proposed detention upstream.

TABLE 7
MESA DRAINAGE STUDY
HYDROLOGY CALCULATIONS - FUTURE DEVELOPMENT: 6 HOUR, 5 YEAR

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
A	1	0.0109	0.3030	98	0.112	85	0.764	1225	10.2	
B	2	0.0398	0.3409	41	0.179	86	0.811	1105	35.7	
C	3	0.0987	0.5114	170	0.166	83	0.661	1135	74.1	1
C	4	0.1135	0.6439	175	0.214	83	0.661	1040	78.1	
D	5	0.2096	0.7197	122	0.279	72	0.271	945	53.7	
D	6	0.3347	1.1970	150	0.464	71	0.246	755	62.2	
D	7	0.0203	0.1098	18	0.067	86	0.811	1250	20.6	
D	8	0.0146	0.2348	35	0.124	85	0.759	1205	13.4	
D	9	0.5230	1.5152	232	0.515	76	0.388	720	146.2	9
D	10	0.0042	0.2746	14	0.211	98	1.725	1045	7.6	
D	11	0.0598	0.4242	118	0.154	88	0.925	1150	111.6	2
D	12	0.1179	0.5909	148	0.206	89	0.987	1060	171.3	2
D	13	0.2323	0.9242	219	0.297	88	0.925	925	246.8	2
D	14	0.3078	0.9091	272	0.269	88	0.925	960	321.3	2
D	15	0.8548	2.3636	350	0.735	82	0.616	593	399.2	3
D	16	0.0803	0.6326	96	0.264	69	0.199	965	15.4	
D	17	0.0701	0.4394	99	0.171	67	0.158	1120	12.4	
D	18	0.1823	0.9697	178	0.341	65	0.122	875	19.5	
D	19	0.3113	1.1023	161	0.410	66	0.139	805	34.8	
D	20	0.0407	0.3030	45	0.151	81	0.573	1160	66.1	4
D	21	0.0765	0.5871	120	0.222	85	0.759	1030	98.8	4
D	22	0.0390	0.5038	103	0.197	73	0.298	1070	12.4	
D	23	0.1397	1.0189	181	0.358	67	0.158	860	19.0	
D	24	0.2053	1.2083	202	0.418	70	0.222	800	36.5	
D	25	0.0068	0.5303	21	0.386	98	1.725	830	9.7	
D	26	0.2584	1.5038	258	0.490	74	0.327	740	62.5	
D	27	0.5470	2.3636	350	0.735	79	0.494	595	199.8	4,9
D	28	0.9714	2.9924	493	0.846	82	0.616	545	413.1	3
D	29	1.0398	3.0701	498	0.868	82	0.616	540	432.9	3
D	30	0.1355	0.6591	245	0.193	85	0.759	1080	111.1	
D	31	1.2070	3.1667	515	0.888	83	0.661	525	505.9	3
D	32	1.2179	3.2803	523	0.919	83	0.661	521	506.4	3
D	33	0.0035	0.0909	11	0.065	77	0.422	1250	1.8	
D	34	0.0478	0.2841	88	0.108	81	0.573	1240	34.0	
D	35	1.2782	3.3182	532	0.925	83	0.661	515	522.1	3
E	36	0.0181	0.0947	32	0.045	96	1.526	1250	34.5	
F	37	0.0531	0.3125	75	0.129	80	0.526	1200	33.5	
G	38	0.0113	0.2652	27	0.158	79	0.494	1150	6.3	
G	39	0.1176	0.6061	177	0.198	83	0.661	1070	83.2	
G	40	0.1684	0.7576	188	0.251	85	0.759	985	125.9	
H	41	0.0904	0.7576	276	0.216	87	0.867	1040	81.5	
H	42	0.1261	0.8902	309	0.250	86	0.811	987	145.2	5
H	43	0.1261	0.8902	309	0.250	86	0.811	987	145.2	5
H	44	0.0632	0.6061	270	0.169	88	0.925	1125	65.8	

TABLE 7, Cont'd

SUB-DRAINAGE	DESIGN POINT	TRIBUTARY AREA (SQ MI)	WATERCOURSE LENGTH (MI)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION Tc(HR)	WEIGHTED CURVE NUMBER (CN)	DIRECT RUNOFF Q(IN)	CSM (cfs/SQ MI/IN)	PEAK RUNOFF q_p (cfs)	NOTES
H	45	0.0843	0.7008	307	0.190	87	0.867	1085	79.3	
H	46								35.0	6
I	47	0.0587	0.4924	51	0.252	98	1.725	985	99.7	
J	48	0.0187	0.0852	10	0.062	92	1.192	1250	27.9	
K	49	0.0089	0.2803	53	0.129	78	0.457	1205	4.9	
K	50	0.0115	0.2992	76	0.122	81	0.573	1215	8.0	
L	51	0.0230	0.1042	37	0.047	92	1.192	1250	34.3	
M	52	0.0843	0.6061	273	0.168	93	1.269	1125	120.3	
M	53	0.1047	0.7917	327	0.213	91	1.120	1045	122.5	
M	54	0.0492	0.3182	141	0.103	85	0.759	1245	46.5	
M	55	0.0536	0.3807	166	0.119	85	0.759	1220	49.6	
M	56	0.1659	0.8182	337	0.219	89	0.987	1035	169.5	
N	57	0.0206	0.1742	65	0.069	92	1.192	1250	30.7	
O	58	0.2061	0.8333	283	0.239	93	1.269	1000	261.5	9
O	59	0.3129	1.4583	364	0.414	91	1.120	805	282.1	7
O	60	0.0084	0.1136	48	0.047	83	0.661	1250	6.9	8
O	61	0.3238	1.5909	407	0.439	91	1.120	780	282.9	
O	62	0.0024	0.0947	10	0.070	85	0.759	1250	2.3	
O	63	0.3471	1.5985	407	0.441	90	1.052	776	283.4	
P	64	0.0308	0.2841	50	0.135	89	0.987	1190	36.2	
P	65	0.0147	0.1705	54	0.072	88	0.925	1250	17.0	
P	66	0.0746	0.4205	88	0.170	88	0.925	1120	77.4	
Q	67	0.0416	0.2083	52	0.093	92	1.192	1250	62.0	

NOTES:

1. Tributary area excludes portion of Sub-Basin 38 which is tributary to Structure No. 52.
2. Includes 48 cfs discharge from detention facility upstream of Structure No. 19.
3. Includes 48 cfs discharge from detention facility upstream of Structure No. 19 and 39 cfs discharge from Golf Course pond detention facility.
4. Includes 39 cfs discharge from Golf Course pond detention facility.
5. Peak runoff at Design Point 42 = Peak runoff tributary to Design Point 42 plus Peak runoff at Design Point 45 less maximum estimated capacity of Structure No. 39 (35 cfs).
6. Peak runoff at Design Point 46 set equal to maximum estimated capacity of Structure No. 39 (35 cfs).
7. Tributary area includes portion of Sub-Basin 58 which is tributary to Structure No. 22.
8. Tributary area excludes portion of Sub-Basin 58 which is tributary to Structure No. 22.
9. Does not reflect effect of proposed detention upstream.

TABLE 8
MESA DRAINAGE STUDY
EXISTING DRAINAGE STRUCTURE EVALUATION

Structure Number	Design Pt. Number	Estimated Maximum Capacity (cfs)	Control Condition (1)	Peak Inflow Rate (cfs) For(2)				Comments
				24 Hr. 100 Yr.	6 Hr. 100 Yr.	24 Hr. 5 Yr.	6 Hr. 5 Yr.	
1	5	48	0	290.0	248.4	84.9	53.7	Additional crossing or detention facility required.
2	17	17.5	I	93.3	75.8	23.0	12.4	Additional crossing or detention facility required.
3	16	28	0	100.0	83.4	26.6	15.4	Structure adequate.
4	22	10.5	E	63.8	54.9	19.3	12.4	New crossing required.
5	-	18	I	(133)	(110)	(33)	(18)	New culvert required.
6	23	125	I-0	142.1	115.9	35.0	19.0	Structure adequate.
7	-	No Data		---	---	---	---	Appears to be drain from Water Treatment Plant.
8	24	200	I	220.3	186.2	60.5	36.5	Structure adequate.
9	25	7.5	E	19.0	19.6	10.1	9.7	Modify median inlet.
10	-	11	I	(18)	(19)	(10)	(9)	Structure adequate.
11	-	8.5	E	(14)	(14)	(7)	(7)	Structure adequate.
12	20	75	I	135.5	127.4	74.8	66.1	Structure adequate with Golf Course Reservoir operated as detention facility.
13	18	45	I	171.4	137.0	38.9	19.5	Structure adequate.
14	7	10	0	62.8	57.8	26.1	20.6	Additional crossing required.
15	8	9.5	0	41.6	38.5	16.9	13.4	Additional crossing required.
16	6	24	0	356.2	301.5	101.0	62.2	New crossing required.
17	-	19	I	(12)	(11)	(4)	(3)	Structure adequate.
18	10	14.5	0	14.8	15.2	7.9	7.6	Structure adequate.
19	9	48	0	647.3	569.4	212.3	146.2	Structure adequate with development of upstream detention facility.
20	52	45	I					Structure inadequate. Excess flow will bypass to Structure #32.
21	52	10	E	280.7	277.7	134.7	120.3	New crossing of I-25 required.
22	59	79	E	697.4	687.9	321.3	282.1	New crossing of Chestnut required.
23	58	5.5	E	603.8	603.6	289.9	261.5	New crossing required
23	58(D)	5.5	E	554.2	544.1	249.9	216.4	Structure adequate.
24	60	26	I	23.6	21.3	9.2	6.9	Structure adequate.
25	60	43	I	23.6	21.3	9.2	6.9	Structure adequate.
26	61	105	I	704.3	689.8	324.4	282.9	New outfall required.
27	62	37	I	7.2	6.6	2.9	2.3	Structure adequate.
28	63	175	I	727.2	710.0	328.2	283.4	New outfall to Monument Creek required.
29	64	17.5	E	97.1	93.2	42.9	36.2	New inlets required.
30	65	17.5	E	48.4	45.1	20.9	17.0	New inlets required.

Notes:

- (1) Control Condition
I = Inlet
O = Outlet
E = Entrance Controls (Grated Inlet, D-10R Inlet, Etc.)
- (2) Values in brackets are approximate
- (D) Peak Inflow rates reflect effect of detention proposed upstream from design point.

TABLE 8, Cont'd.
MESA DRAINAGE STUDY
EXISTING DRAINAGE STRUCTURE EVALUATION

Structure Number	Design Pt. Number	Estimated Maximum Capacity (cfs)	Control Condition (1)	24 Hr. 100 Yr.	Peak Inflow Rate (cfs) For (2) 6 Hr. 100 Yr.	24 Hr. 5 Yr.	6 Hr. 5 Yr.	Comments
31	66	280	I	213.5	204.9	92.5	77.4	Structure adequate.
32	53	160	I	304.9	298.8	140.4	122.5	Modify ditch so excess flow will bypass to Structure #34.
33	54	75	E	146.9	134.2	59.6	46.5	Structure adequate.
34	55	220	I	154.4	143.3	62.7	49.6	Modify ditch so excess flow will bypass to Structure #41.
35	56	330	I	449.9	436.6	198.8	169.5	Modify ditch so excess flow will bypass to Structure #37.
36	49	12	I	20.0	17.7	6.9	4.9	Structure adequate.
37	50	185	O	28.9	26.2	10.7	8.0	Structure adequate.
38	44	58	O	180.9	174.3	78.3	65.8	To be replaced by proposed storm sewer.
39	46	35	I	35.0	35.0	35.0	35.0	Provide inlet to maximize capacity and modify ditch downstream so excess flow will bypass to Structure #41.
40	-	150	I	(35)	(35)	(35)	(35)	Structure adequate.
41	42	170	I	487.6	464.4	183.8	145.2	New crossing of I-25 required.
42	43	160	I-O	487.6	464.4	183.8	145.2	New outfall to Monument Creek required
43	39	135	I	274.8	255.2	106.8	83.2	Structure adequate.
44	38	32	I	24.8	22.4	8.8	6.3	Structure adequate.
45	40	65	O	384.0	363.4	155.9	125.9	Proposed storm sewer will reduce peak inflow rate to 180 cfs for 100 year & 75 cfs for 5 year storm.
46	37	44	I	126.5	112.7	45.8	33.5	Proposed storm sewer will reduce peak inflow rates to 60 cfs for 100 year & 25 cfs for 5 year.
47	34	29	O	124.7	111.0	46.3	34.0	Proposed storm sewer will reduce peak inflow rate.
48	31	1,450	I	1,486.9	1,372.1	631.0	505.9	Structure adequate with upstream detention.
49	32	2,030	I	1,489.2	1,373.8	631.9	506.4	Structure adequate.
50	35	300	I	1,544.2	1,422.0	653.3	522.1	Replacement of existing structure required. Design for trail use also.
51	3	54	I	243.1	227.2	94.5	74.1	Proposed storm sewer will reduce peak inflow rates to 65 cfs for 100 year & 24 cfs for 5 year storm.
52	-	18	I	(40)	(36)	(16)	(12)	Structure adequate.
53	2	75	I	105.3	100.1	43.7	35.7	Structure adequate.
54	-	15	I	(20)	(18)	(8)	(7)	Structure adequate.
55	-	21.5	E	(57)	(50)	(21)	(15)	Structure adequate.

Notes:

(1) Control Condition

I = Inlet

O = Outlet

E = Entrance Controls (Grated Inlet, D-10R Inlet, Etc.)

(2) Values in brackets are approximate.

APPENDIX B
COST ESTIMATES

TABLE 9
MESA DRAINAGE STUDY
UNIT COST SUMMARY

Description	Unit	Unit Price
Reinforced Concrete Pipe		
15"	LF	\$ 20.00
18"	LF	25.00
21"	LF	30.00
24"	LF	35.00
30"	LF	45.00
36"	LF	50.00
42"	LF	65.00
48"	LF	80.00
54"	LF	90.00
60"	LF	100.00
72"	LF	120.00
84"	LF	130.00
Tunneled or Bored & Jacked Crossings	LF	300.00
Radius Inlets	EA	2,800.00
D-10-R Inlets (Average)	EA	1,800.00
Manholes (Average)	EA	1,600.00
Type C Median Inlet	EA	600.00
30" Reinforced Concrete Pipe End Sections	EA	300.00
Concrete Pipe Headwalls		
24" Single	EA	550.00
36" Single	EA	1,000.00
42" Single	EA	1,250.00
48" Single	EA	1,600.00
60" Double	EA	2,000.00
84" Single	EA	1,700.00
Reinforced Concrete Box Culverts		
Double 5'x6'	LF	350.00
Double 5'x8'	LF	550.00
Double 8'x10'	LF	750.00
Single 5'x9'	LF	320.00
Concrete Wingwalls	LS	4,500.00
Guard Rail	LF	16.00
Asphalt Replacement	SY	15.00
Riprap Channels (Average)	LF	125.00
Concrete Channel Paving	SF	5.00
Concrete Channel Control Sections	EA	1,600.00
Reinforced, Cast-in-place concrete	CY	350.00
Utility Relocation	LS	Varies
Right-of-Way Purchase	SF	1.00 to 4.00

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES

Item	Description	Quantity	Unit Price	Extension	%	Fee Share \$	%	City Share \$
1. COOPER STREET STORM SEWER								
	24" Ø RCP	250 LF	35.00	8,750				
	30" Ø RCP	260 LF	45.00	11,700				
	42" Ø RCP	1,200 LF	65.00	78,000				
	Radius Inlets	6 EA	2,800.00	16,800				
	D-10-R Inlets (Various Lengths)	4 EA	1,800.00	7,200				
	Manholes	5 EA	1,600.00	8,000				
	Headwall Outlet	1 EA	1,250.00	1,250				
	Asphalt Replacement	1,100 SY	15.00	16,500				
	Utility Relocation & Misc. Contingency	1 LS	5,000.00	5,000				
	Subtotal			153,200	0	0	100	153,200
2. DEL NORTE STREET STORM SEWER								
	21" Ø RCP	500 LF	30.00	15,000				
	24" Ø RCP	210 LF	35.00	7,350				
	36" Ø RCP	650 LF	50.00	32,500				
	Radius Inlets	5 EA	2,800.00	14,000				
	D-10-R Inlets (Various Lengths)	2 EA	1,800.00	3,600				
	Manholes	4 EA	1,600.00	6,400				
	Headwall Outlet	1 LS	1,000.00	1,000				
	Asphalt Replacement	1,000 SY	15.00	15,000				
	Utility Relocation & Misc. Contingency	1 LS	5,000.00	5,000				
	Subtotal			99,850	0	0	100	99,850
3. CHESTNUT STREET STORM SEWER								
	21" Ø RCP	510 LF	30.00	15,300				
	24" Ø RCP	420 LF	35.00	14,700				
	36" Ø RCP	2,230 LF	50.00	111,500				
	Radius Inlets	8 EA	2,800.00	22,400				
	D-10-R Inlets (Various Lengths)	13 EA	1,800.00	23,400				
	Manholes	10 EA	1,600.00	16,000				
	Headwall Outlet	1 LS	1,000.00	1,000				
	Asphalt Replacement	2,500 SY	15.00	37,500				
	Utility Relocation & Misc. Contingency	1 LS	15,000.00	15,000				
	Subtotal			256,800	0	0	100	256,800

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES

Item	Description	Quantity	Unit Price	Extension	%	Fee Share		City Share	
						\$		\$	
4. MESA VALLEY ROAD STORM SEWER									
36" Ø RCP		1950 LF	50.00	97,500	59	52,500		46	45,000
48" Ø RCP		150 LF	80.00	12,000	0	0		100	12,000
60" Ø RCP		450 LF	100.00	45,000	0	0		100	45,000
D-10-R Inlets (Various Lengths)		17 EA	2,100.00	35,700	29	10,500		71	25,200
Manholes		8 EA	1,600.00	12,800	63	8,000		37	4,800
Headwall Inlet or Outlet		1 EA	1,000.00	1,000	100	1,000		0	0
Headwall Inlet or Outlet		2 EA	1,800.00	3,600	0	0		100	3,600
Asphalt Replacement		550 SY	15.00	8,250	0	0		100	8,250
Utility Relocation and Miscellaneous									
Contingency		1 LS	3,000.00	<u>3,000</u>	0	<u>0</u>		100	<u>3,000</u>
Subtotal				218,850		72,000			146,850
5. TAYLOR STREET STORM SEWER									
24" Ø RCP		420 LF	35.00	14,700	0	0		100	14,700
30" Ø RCP		275 LF	45.00	12,375	100	12,375		0	0
Asphalt Replacement		350 SY	15.00	5,250	0	0		100	5,250
Headwall Outlet		1 EA	550.00	550	0	0		100	550
Radius Inlets		4 EA	2,800.00	11,200	0	0		100	11,200
D-10-R Inlets (Various Lengths)		2 EA	1,800.00	3,600	0	0		100	3,600
Manholes		2 EA	1,600.00	<u>3,200</u>	0	<u>0</u>		100	<u>3,200</u>
Subtotal				50,875		12,375			38,500
6. IMPROVEMENTS S. OF FILLMORE (NEAR STR. #41)									
84" Ø RCP (Under I-25)		270 LF	430.00	116,100	10	11,610		90	104,490
84" Ø RCP (Under RR)		50 LF	430.00	21,500	10	2,150		90	19,350
84" Ø RCP (Open Cut)		535 LF	130.00	69,550	10	6,955		90	62,595
60" Ø RCP		60 LF	100.00	6,000	10	600		90	5,400
Headwall Inlet or Outlet		2 EA	1,700.00	3,400	10	340		90	3,060
Concrete Channel Paving		42,000 SF	4.25	178,500	10	17,850		90	160,650
Asphalt Replacement		60 SY	15.00	900	10	90		90	810
Headwall (Str. #39)		1 EA	950.00	950	100	950		0	0
Utility Relocation & Misc. Contingency		1 LS	12,350.00	<u>12,350</u>	10	<u>1,235</u>		90	<u>11,115</u>
Subtotal				409,250		41,780			367,470

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES
(continued)

Item	Description	Quantity	Unit Price	Extension	Fee Share		City Share	
					%	\$	%	\$
7. CHESTNUT & I-25 AREA IMPROVEMENTS (N. OF FILLMORE)								
72" Ø RCP (Under I-25)		170 LF	420.00	71,400	20	14,280	80	57,120
72" Ø RCP (Under Railroad)		50 LF	420.00	21,000	20	4,200	80	16,800
72" Ø RCP (Open Cut)		1,300 LF	120.00	156,000	20	31,200	80	124,800
48" Ø RCP		450 LF	80.00	36,000	100	36,000	0	0
Manholes		4 EA	1,600.00	6,400	20	1,280	80	5,120
Headwall Inlet or Outlet/Transitions		4 EA	2,000.00	8,000	40	3,200	60	4,800
5'x9' Box Culvert(Under Old Chestnut)		80 LF	320.00	25,600	20	5,120	80	20,480
2-cell 5'x6'Box Culvert(Under New Chestnut)		80 LF	350.00	28,000	100	28,000	0	0
Wingwalls		2 LS	4,500.00	9,000	100	9,000	0	0
Concrete Channel Paving - 600 LF								
Old to New Chestnut		12,000 SF	5.00	60,000	20	12,000	80	48,000
Concrete Channel Paving - 640 LF								
New Chestnut to Detention L*		12,800 SF	5.00	64,000	100	64,000	0	0
New Chestnut Street Storm Sewer								
36" Ø RCP with Flared End Section		1,000 LF	50.00	50,000	100	50,000	0	0
30" Ø RCP		120 LF	45.00	5,400	100	5,400	0	0
24" Ø RCP		60 LF	35.00	2,100	100	2,100	0	0
10" Ø RCP (@ Fillmore)		20 LF	25.00	500	100	500	0	0
D-10-R Inlets (Various Lengths)		3 EA	1,800.00	5,400	100	5,400	0	0
Guard Rail		690 LF	16.00	11,040	50	5,520	50	5,520
Asphalt Replacement		2,500 SY	15.00	37,500	20	7,500	80	30,000
Utility Relocation & Misc. Contingency		1 LS	30,000.00	30,000	20	6,000	80	24,000
Right-of-way (Channel - Old to New Chestnut)		18,000 SF	2.00	36,000	20	7,200	80	28,800
Right-of-way (72" Ø RCP)		34,200 SF	4.00	136,800	20	27,360	80	109,440
Subtotal				800,140		325,260		474,880
8. CENTENNIAL STORM SEWER (FILLMORE TO FONTANERO)								
18" Ø RCP		240 LF	25.00	6,000				
24" Ø RCP		2,240 LF	35.00	78,400				
30" Ø RCP		460 LF	45.00	20,700				
36" Ø RCP		465 LF	50.00	23,250				
D-10-R Inlet (Various Lengths)		10 EA	1,800.00	18,000				
Manholes		5 EA	1,600.00	8,000				
Headwall Outlets		1 EA	1,000.00	1,000				
Headwall Outlets		1 EA	550.00	550				
Subtotal				155,900	100	155,900	0	0

*Detention Area L will be a temporary private facility constructed by the developer, not included in basin fee and nonreimbursable.

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES
(continued)

Item	Description	Quantity	Unit Price	Extension	%	Fee Share \$	City Share %	\$
9A. CENTENNIAL STORM SEWER (West of Centennial Blvd. Only)*								
	21" Ø RCP	120 LF	30.00	3,600				
	24" Ø RCP	550 LF	35.00	19,250				
	30" Ø RCP	700 LF	45.00	31,500				
	36" Ø RCP	200 LF	50.00	10,000				
	Headwall Outlet	1 EA	1,000.00	1,000				
	D-10-R Inlets (Various Lengths)	6 EA	1,800.00	10,800				
	Manholes	2 EA	1,600.00	3,200				
	Subtotal			79,350	100	79,350	0	0
9B. CENTENNIAL STORM SEWER (East of Centennial Blvd Only) (Upstream of Detention L**)								
	24" Ø RCP	40 LF	35.00	1,400				
	30" Ø RCP	200 LF	45.00	9,000				
	D-10-R Inlets	2 EA	1,800.00	3,600				
	Headwall Outlet	1 EA	1,000.00	1,000				
	Minor Channel-Concrete	520 LF	40.00	20,800				
	Subtotal			35,800	100	35,800	0	0
10. MINOR STEM TREATMENTS								
	Riprap	1,000 LF	125.00	125,000	100	125,000	0	0
	Pipe Outfalls, 36" Ø RCP (Str 40)	450 LF	50.00	22,500	0	0	100	22,500
	48" Ø RCP (Str 37-40)	200 LF	80.00	16,000	100	16,000	0	0
	72" Ø RCP (Str 35)	250 LF	120.00	30,000	100	30,000	0	0
	Subtotal			193,500		171,000		22,500

*Storm sewer in Centennial Blvd north of Fillmore St. will be constructed as part of the roadway improvements and is not included in basin fee.

**Detention Area L will be a temporary private facility constructed by the developer, not included in basin fee and nonreimbursable.

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES
(continued)

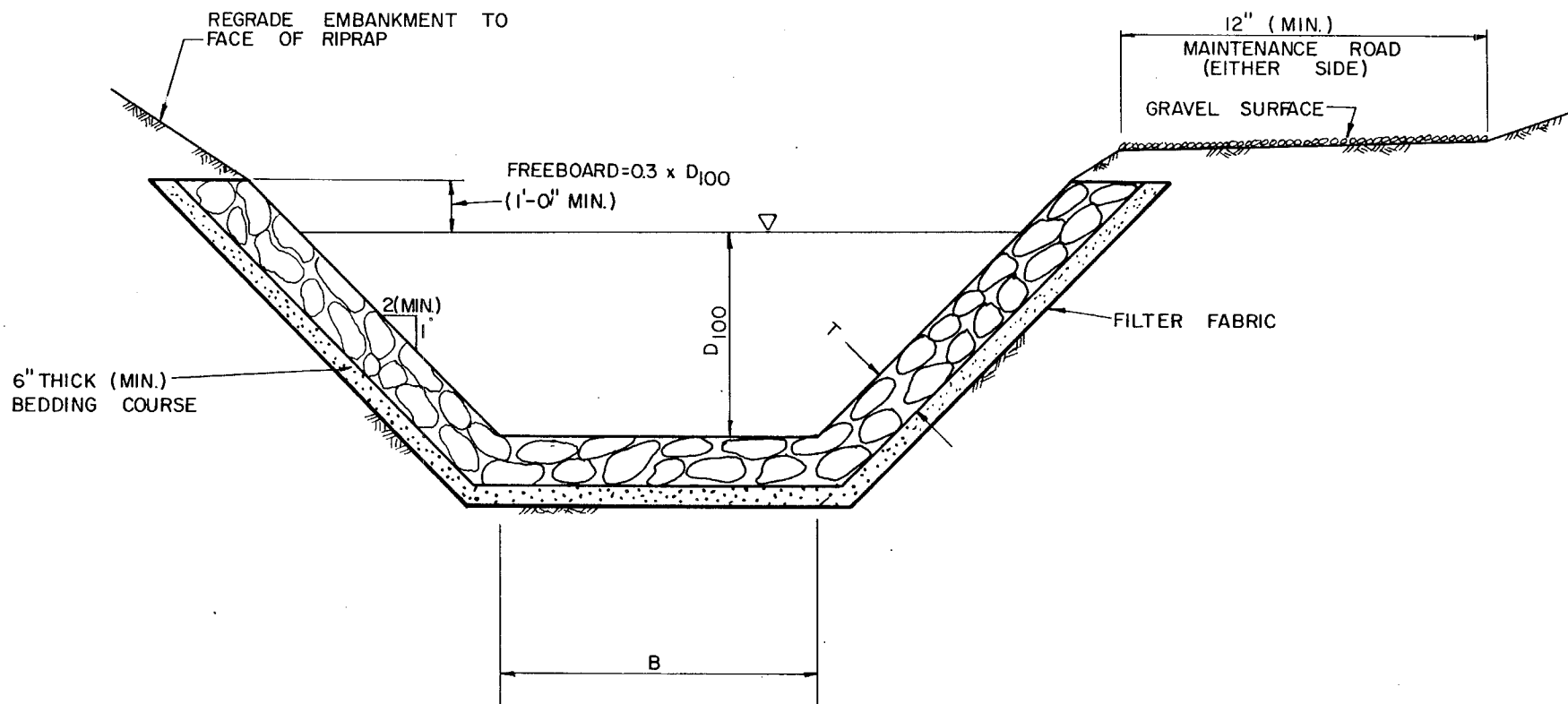
Item	Description	Quantity	Unit Price	Extension	%	Fee Share \$	%	City Share \$
11. DETENTION FACILITIES								
Golf Course								
	Outlet Structure	1 LS	7,000.00	7,000				
	15" Ø RCP (Bore & Jack)	150 LF	320.00	48,000				
	15" Ø RCP (Open Cut)	300 LF	20.00	6,000				
	Subtotal			61,000	100	61,000	0	0
	Detention Area A - Sitework, Outlet & Overflow	1 LS	50,650.00	50,650	100	50,650		
Detention Area B								
	Sitework	1 LS	15,200.00	15,200				
	Inlet Piping - 48" Ø RCP	200 LF	80.00	16,000				
	- 30" Ø RCP	400 LF	45.00	18,000				
	Outlet Piping - 30" Ø RCP	1,350 LF	50.00	67,500				
	Subtotal			116,700	100	116,700	0	0
Detention Area C								
	Sitework	1 LS	5,000.00	5,000				
	Outlet Structure & Piping	1 LS	15,000.00	15,000				
	Guardrail	450 LF	16.00	7,200				
	Subtotal			27,200	100	27,200	0	0
Detention Area D through J								
	Sitework & Outlet Structure	7 EA	23,000.00	161,000	100	161,000	0	0
Detention Area K								
	Sitework	1 LS	34,400.00	34,400				
	Embankment Spillway	1 LS	59,000.00	59,000				
	Outlet Structure	1 LS	20,000.00	20,000				
	Outlet Scour Control	1 LS	24,500.00	24,500				
	Inlet Piping (From Fillmore St.)							
	42" Ø RCP	1,200 LF	65.00	78,000				
	54" Ø RCP	1,200 LF	90.00	108,000				
	Subtotal			323,900	100	323,900	0	0
				<u>740,450</u>		<u>740,450</u>		

TABLE 10
MESA DRAINAGE STUDY
PRELIMINARY COST ESTIMATES
(continued)

Item	Description	Quantity	Unit Price	Extension	%	Fee Share \$	City Share \$
12. CHANNEL PROTECTION (MAIN STEM)							
	Riprap Channel-Full Section (Park to I-25)	1,400 LF	125.00	175,000			
	Riprap Treatment - Partial Section (Park to Detention K)	6,900 LF	60.00	414,000			
	Concrete Control Sections	9 EA	1,600.00	14,400			
	Right-of-way - Park to I-25	90,000 SF	1.00	90,000			
	Subtotal			693,400	100	693,400	0
13. MISCELLANEOUS STRUCTURES							
	30" Ø RCP (Str. #5)	45 LF	45.00	2,025	0	0	2,025
	30" Ø RC End Sections (Str. #5)	2 EA	300.00	600	0	0	600
	Type C Median Inlet (Str. #9)	1 EA	600.00	600	0	0	600
	16' D-10-R Inlet (Str. #29)	2 EA	2,900.00	5,800	0	0	5,800
	8' D-10-R Inlet (Str. #30)	2 EA	1,500.00	3,000	0	0	3,000
	Double 8'x10' RC Box Culverts (Str. #50)	80 LF	750.00	60,000	12	7,200	52,800
	Wingwalls (Str. #50)	1 LS	4,500.00	4,500	12	540	3,960
	Asphalt Replacement (Str. #50)	650 SY	15.00	9,750	12	1,170	8,580
	Utility Relocation & Misc. Contingency (Str. #50)	1 LS	3,000.00	3,000	12	360	2,640
	Subtotal			89,275		9,270	80,005

Embankment & raising cost?

Inlet structure for structure #29



TYPICAL CHANNEL SECTION
NO SCALE

NOTES-

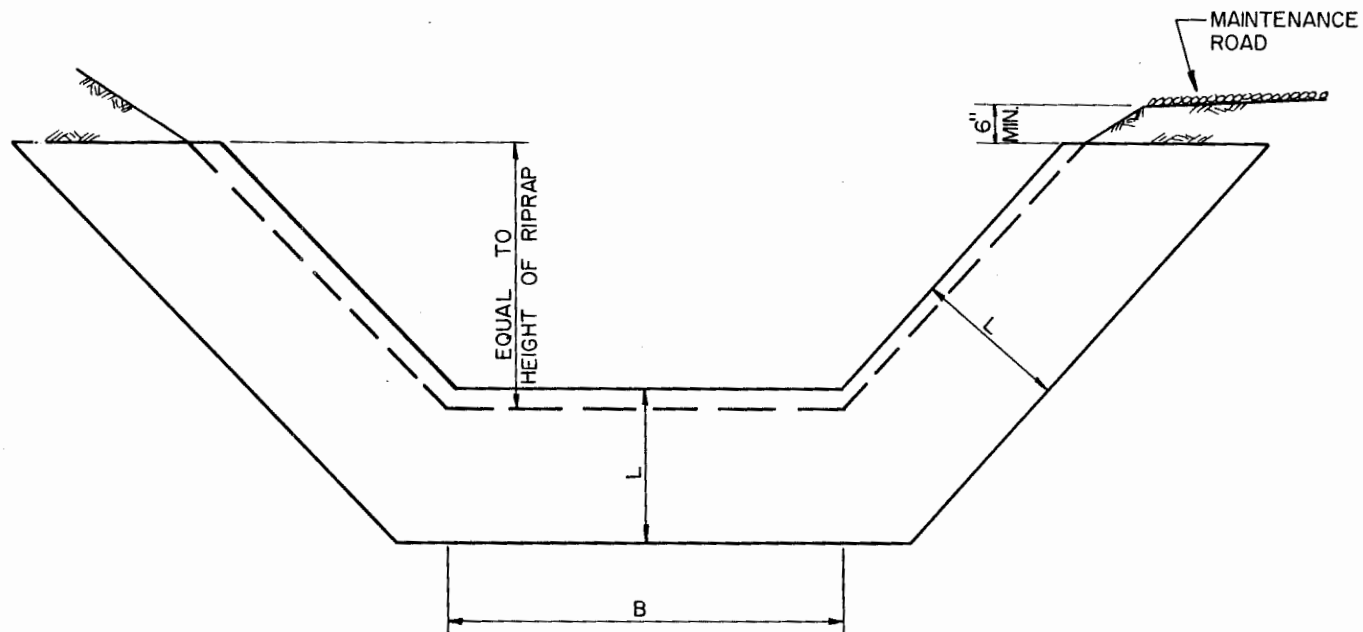
1. RIPRAP TO BE APPROPRIATELY SIZED FOR CHANNEL VELOCITY (12" DIAMETER MIN.)
2. $T = 1.5 \times$ RIPRAP DIAMETER (2'-0" MIN.)
3. CHANNEL WIDTH (B) TO BE APPROXIMATELY EQUAL TO EXISTING CHANNEL WIDTH (8' MIN) WHERE MAINTENANCE ROAD CANNOT BE LOCATED AT SIDE OF CHANNEL WITHOUT EXCESSIVE SIDE HILL CUTS, B TO BE 12'-0" MIN.

FIGURE 4

TYPICAL CHANNEL SECTION

BY

GILBERT, MEYER & SAMS, INC.



TYPICAL CONCRETE CONTROL SECTION

NO SCALE

NOTES-

1. L TO BE 6'-0" MIN. IF FLOW IS SUPERCRITICAL & 4'-0" IF FLOW IS SUBCRITICAL.
2. CONTROL SECTION TO BE 12" (MIN.) IN THICKNESS REINFORCED w/#5 BARS @ 12" CENTERS, EACH FACE.
3. CONTROL SECTION TO BE LOCATED AT 1000' INTERVALS (MAX.) OR AS REQUIRED NEAR TRIBUTARY INLETS.

FIGURE 5

TYPICAL CONCRETE CONTROL SECTION

BY

GILBERT, MEYER & SAMS, INC.

APPENDIX C
STRUCTURE INVENTORY

STRUCTURE NO. 1

MESA DRAINAGE BASIN
STRUCTURE INVENTORYDATE: 12-08-83PAGE 1 OF PAGESStructure Type and Materials: C.M.P., 460' ± IN LENGTH, 1.4%Map No.: 2-BDate of Review: 12-08-83Location: UNDERNEATH KISSING CAMELS DR. EAST OF CLUBHOUSECondition: GOOD

CULVERTS:

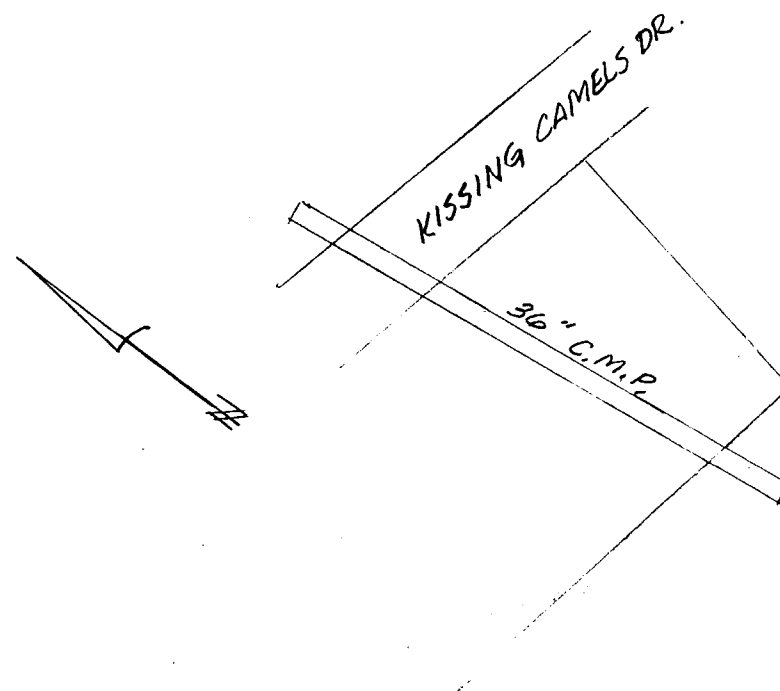
- (A) Approach Channel Conditions: NATURAL GRASS SWALE
- (B) Discharge Channel Condition: SAME
- (C) Maximum Available Headwater: 6.0'
- (D) Conduit Size: 36"
- (E) Inlet and Outlet: PROJECTING FROM FILL

STORM SEWER:

- (A) Conduit Size:
- (B) Inlet Condition:
- Continuous Grade:
- Sump:
- (C) Inlet Opening Size:
- Type: Grated:
- Curb Opening:
- Other:
- (D) Manholes:
- Size:
- Materials:

CHANNEL IMPROVEMENTS:

- Materials:
- Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 2 OF 2 PAGES

Map No.: 1-B

Date of Review: 12-08-83

Condition:

(E) Inlet and Outlet: *FLARED ENDS*

Condition:

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 3 OF PAGES

Map No.: 1-B

Location: EAST OF CHILSON DR. UNDERNEATH KISSING CAMELS DR.

Condition:

(A) Approach Channel Conditions: *GOOD CLEAN 45° BEND UPSTREAM*

(B) Discharge Channel Condition: GOOD CLEAN 'SHEET FLOW

(C) Maximum Available Headwater: $3.0 \pm$

(D) Conduit Size: 40" x 24" CMP

(E) Inlet and Outlet: WINGWALLS

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump :

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

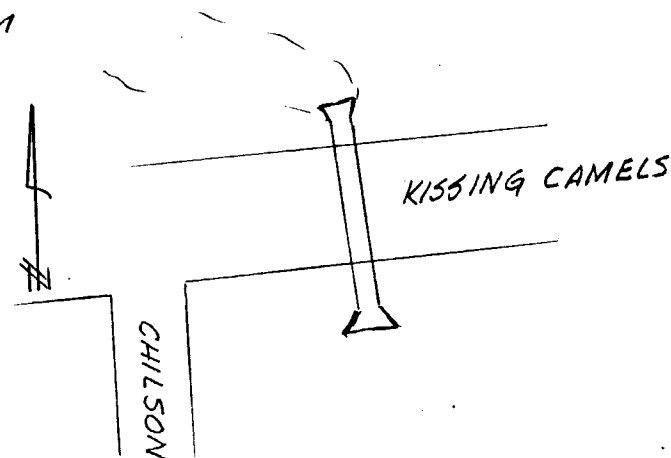
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 4 OF PAGES

Map No.: 1B

Date of Review: 12-08-83

Condition:

(A) Approach Channel Conditions: OPEN FIELD & ALONG ROADS

(B) Discharge Channel Condition: SMALL DITCHLINE

(C) Maximum Available Headwater: 4.0

(D) Conduit Size: 18" x 24"

(E) Inlet and Outlet: GRATED 3'x2' INLET

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

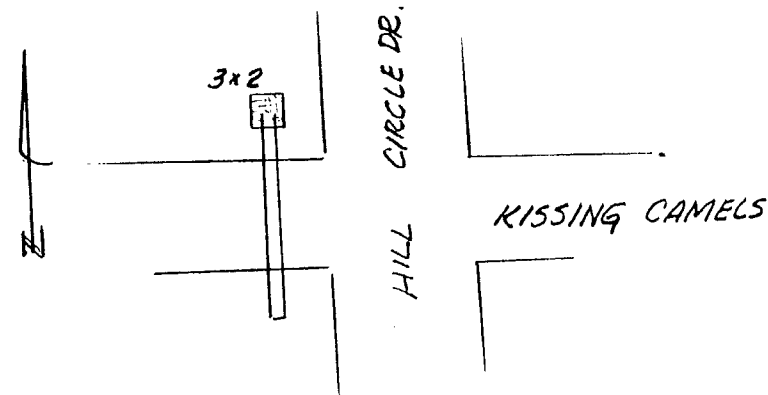
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 5 OF 5 PAGES

Map No.: 1C

Date of Review: 2-16-84

Condition:

(A) Approach Channel Conditions:	<u>NATURAL DITCHLINE</u>
(B) Discharge Channel Condition:	<u>SAME</u>
(C) Maximum Available Headwater:	<u>4.3 FEET</u>
(D) Conduit Size:	<u>20"</u>
(E) Inlet and Outlet:	<u>PROJECTING FROM FILL</u>

(A) Conduit Size: _____

(B) Inlet Condition: _____

Continuous Grade:

Sump:

(C) Inlet Opening Size: _____

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

Size:

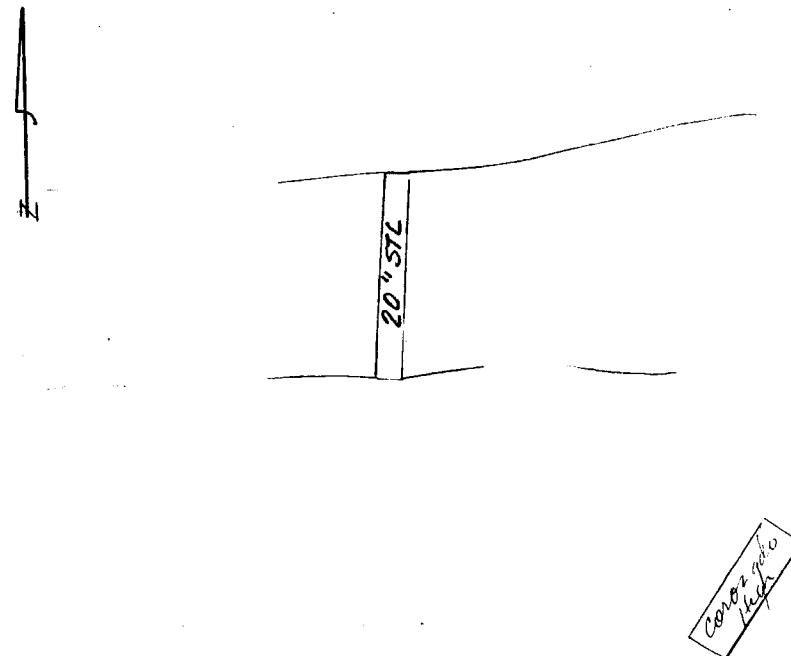
Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW



STRUCTURE NO. 6

MESA DRAINAGE BASIN
STRUCTURE INVENTORYDATE: 12-08-83PAGE 6 OF PAGESStructure Type and Materials: CORRUGATED METAL PIPE, 600'± IN LENGTH, 2.5%Map No.: LCDate of Review: Location: AT SOUTHWESTERLY CORNER OF CORONADO HIGH SCHOOLCondition: GOOD CONDITION, OUTLET HAS REBAR WELDED ACROSS AND PROBABLY NEEDS
REGULAR MAINTENANCE

CULVERTS:

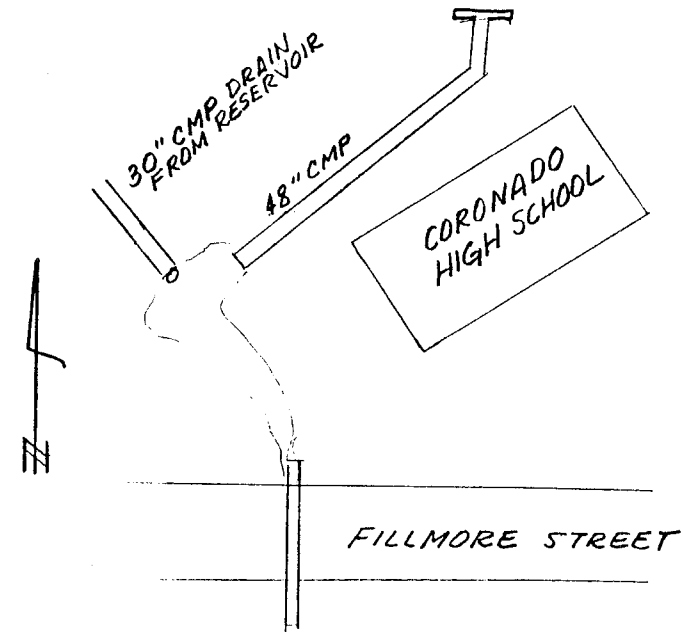
- (A) Approach Channel Conditions: CLEAN, CONTINUOUS GRADE
- (B) Discharge Channel Condition: NORMAL DRAINAGEWAY
- (C) Maximum Available Headwater: 6.5'
- (D) Conduit Size: 48"
- (E) Inlet and Outlet: HEADWALL

STORM SEWER:

- (A) Conduit Size:
- (B) Inlet Condition:
- Continuous Grade:
- Sump:
- (C) Inlet Opening Size:
- Type: Grate:
- Curb Opening:
- Other:
- (D) Manholes:
- Size:
- Materials:

CHANNEL IMPROVEMENTS:

- Materials:
- Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 7

DATE: 12-08-83MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 7 OF PAGESStructure Type and Materials: CORRUGATED METAL PIPEMap No.: 1-0Date of Review: Location: SOUTHWESTERLY CORNER OF COLORADO HIGH SCHOOLCondition: GOOD : FLAPPER GATE ON DISCHARGE - THIS IS APPARENTLY A DRAIN FROM THE RESERVOIR

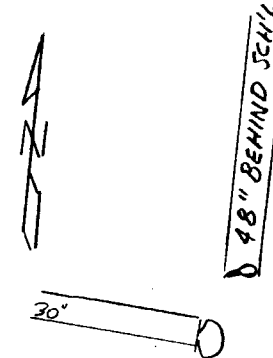
CULVERTS:

- (A) Approach Channel Conditions: COULD NOT LOCATE INLET
- (B) Discharge Channel Condition: MAJOR DRAINAGEWAYS
- (C) Maximum Available Headwater:
- (D) Conduit Size: 30"
- (E) Inlet and Outlet: PROJECTING FROM FILL (OUTLET)

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 8

MESA DRAINAGE BASIN
STRUCTURE INVENTORYDATE: 12-08-83PAGE 8 OF PAGESStructure Type and Materials: CORRUGATED METAL PIPE, 48", 150'± IN LENGTH 4.0%Map No.: 1-CDate of Review: 12-08-83Location: UNDERNEATH FILLMORE ST., SOUTH OF CORONADO HIGH SCHOOLCondition: BOTTOM OF PIPE IS STARTING TO SHOW SOME HOLES

CULVERTS:

(A) Approach Channel Conditions: NATURAL DRAINAGEWAY
(B) Discharge Channel Condition: NATURAL DRAINAGEWAY
(C) Maximum Available Headwater: 18'
(D) Conduit Size: 48"
(E) Inlet and Outlet: PROJECTING FROM FILL

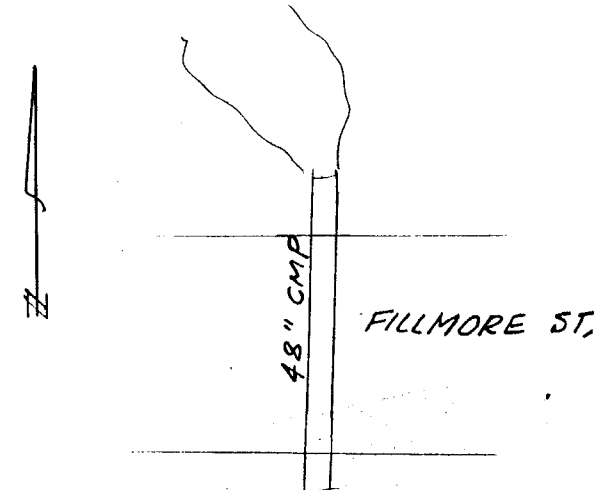
STORM SEWER:

(A) Conduit Size: _____
(B) Inlet Condition: _____
 Continuous Grade: _____
 Sump: _____
(C) Inlet Opening Size: _____
 Type: Grated: _____
 Curb Opening: _____
 Other: _____

(D) Manholes: _____
 Size: _____
 Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____
Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 9 OF 9 PAGES

Map No.: 1C

Date of Review: 12-08-83

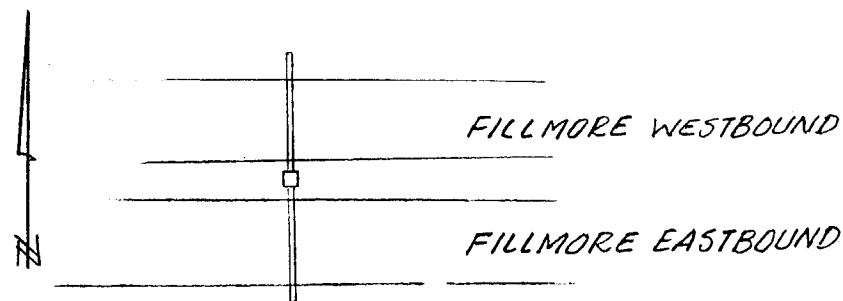
Condition:

Condition:

4.9'

21" x 12" ELLIPTICAL

X (2.3' HEAD)

 $2' \times 2'$ 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 10

DATE: 12-08-83

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 10 OF PAGES

Structure Type and Materials: CORRUGATE METAL PIPE, 18", 240' ± IN LENGTH, 7.0%

Map No.: 1-C

Date of Review: 12-08-83

Location: SOUTH OF CORONADO HIGH SCHOOL AND PARALLEL TO FILLMORE

Condition: GOOD, EACH END HAS BARS WELDED ACROSS AND REQUIRES MAINTENANCE

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

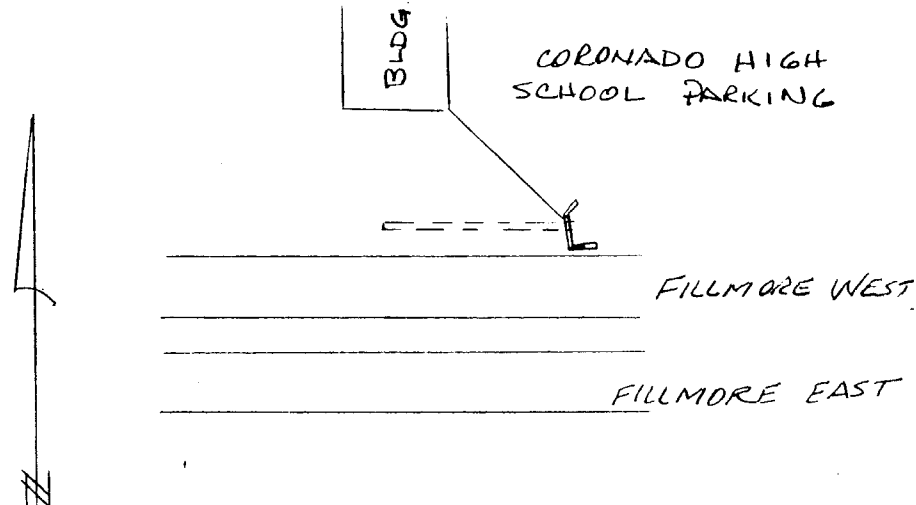
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition



STRUCTURE NO. 11

DATE: 12-08-83MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 11 OF PAGESStructure Type and Materials: D-10-R CATCH BASIN WITH 18" CLAY OUTLET, 110' IN LENGTHMap No.: 1-C2.0 %Date of Review: 12-08-83Location: EAST EDGE OF PARKING AREA, CORONADO HIGH SCHOOLCondition: GOOD

CULVERTS:

(A) Approach Channel Conditions: _____

(B) Discharge Channel Condition: _____

(C) Maximum Available Headwater: _____

(D) Conduit Size: _____

(E) Inlet and Outlet: _____

STORM SEWER:

(A) Conduit Size: 18"

(B) Inlet Condition: _____

Continuous Grade: _____

Sump: _____

YES (1 1/2 %)

(C) Inlet Opening Size: _____

Type: Grated: _____

Curb Opening: 8" x 4'

Other: _____

(D) Manholes: _____

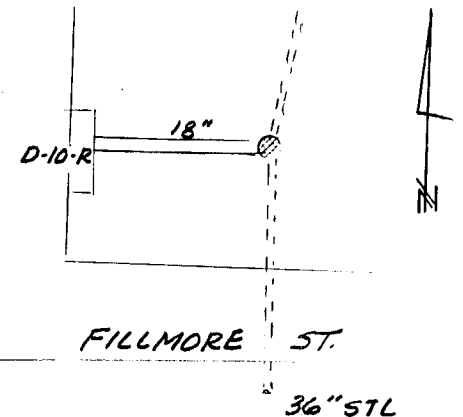
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____

CORONADO HIGH
PARKING LOT

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 12

DATE: 12-08-83MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 12 OF PAGESStructure Type and Materials: 36" STEEL PIPE, 150'± IN LENGTH, 4.0%Map No.: 1-CDate of Review: 12-08-83Location: UNDERNEATH FILLMORE STREETCondition:

CULVERTS:

(A) Approach Channel Conditions: (B) Discharge Channel Condition: (C) Maximum Available Headwater: 7'±(D) Conduit Size: (E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size: 36" STL

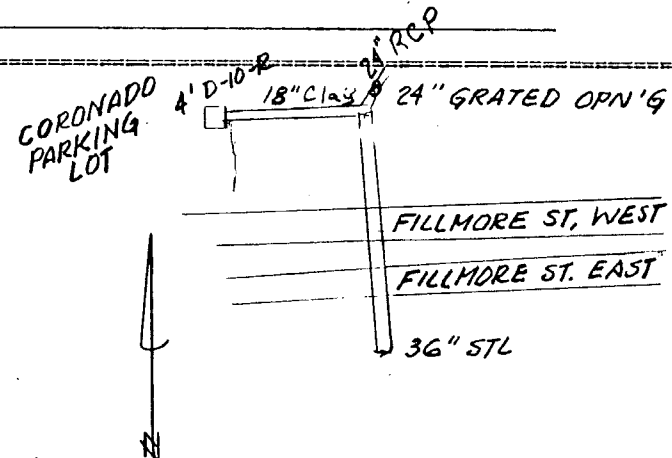
(B) Inlet Condition:

Continuous Grade: Sump: X(C) Inlet Opening Size: Type: Grated: XCurb Opening: Other:

(D) Manholes:

Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE /3 OF PAGES

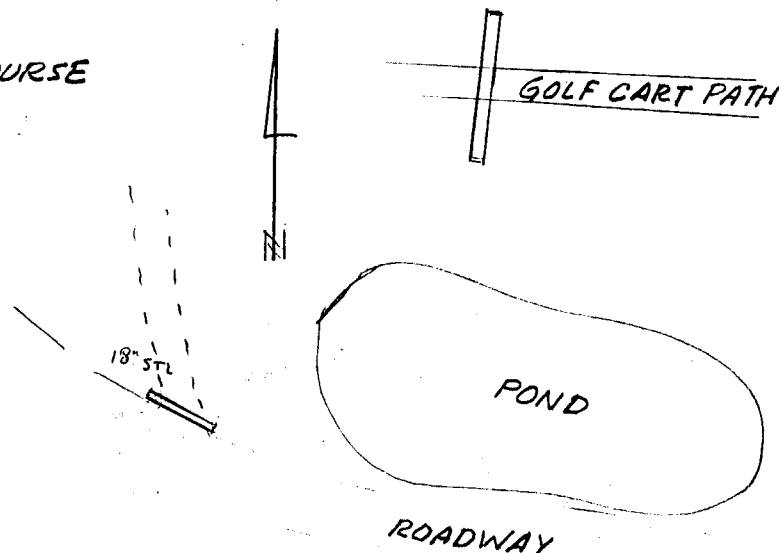
Map No.: 1-C

Date of Review: 12-08-83

Condition:

(E) Inlet and Outlet: *PROJECTING FROM FILL*

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 14

DATE: _____

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 14 OF ____ PAGES

Structure Type and Materials: CORRUGATED METAL PIPE, 18", 80'± IN LENGTH, 2.0%

Map No.: _____

Date of Review: _____

Location: _____

Condition: _____

CULVERTS:

(A) Approach Channel Conditions: NORMAL DRAINAGE(B) Discharge Channel Condition: SWALE(C) Maximum Available Headwater: 3.0(D) Conduit Size: 18"(E) Inlet and Outlet: FLARED INLET

STORM SEWER:

(A) Conduit Size: _____

(B) Inlet Condition: _____

Continuous Grade: _____

Sump: _____

(C) Inlet Opening Size: _____

Type: Grated: _____

Curb Opening: _____

Other: _____

(D) Manholes: _____

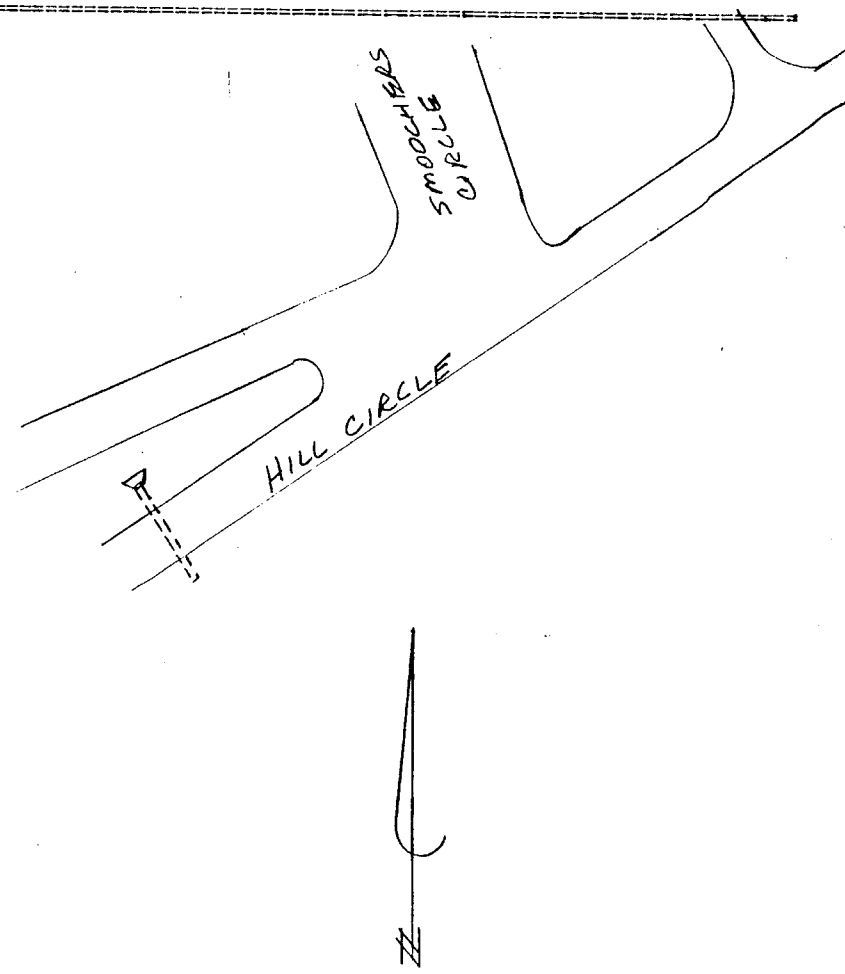
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 15

DATE: _____

MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 15 OF _____ PAGESStructure Type and Materials: CORRUGATED METAL PIPE, 18", 80'± IN LENGTH, 2%

Map No.: _____

Date of Review: _____

Location: _____

Condition: _____

CULVERTS:

(A) Approach Channel Conditions: PAVED DRAINAGE SWALE(B) Discharge Channel Condition: NATURAL DRAINAGE SWALE(C) Maximum Available Headwater: 2.5'(D) Conduit Size: 18"(E) Inlet and Outlet: FLARED INLET

STORM SEWER:

(A) Conduit Size: _____

(B) Inlet Condition: _____

Continuous Grade: _____

Sump: _____

(C) Inlet Opening Size: _____

Type: Grated: _____

Curb Opening: _____

Other: _____

(D) Manholes: _____

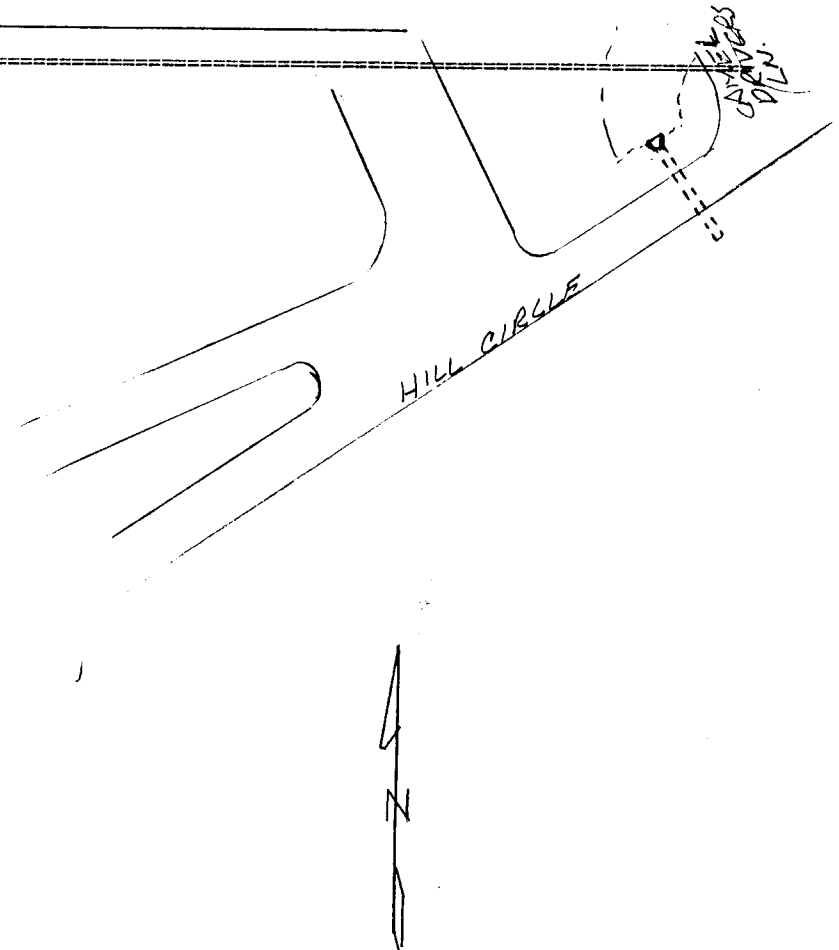
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 16

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

DATE: _____

PAGE 16 OF ____ PAGES

Structure Type and Materials: CORRUGATED METAL PIPE, 24", 75'± IN LENGTH, 3.0%

Map No.: _____

Location: INTERSECTION OF HILL AND CAMELS RIDGE, KISSING CAMELS

Date of Review: _____

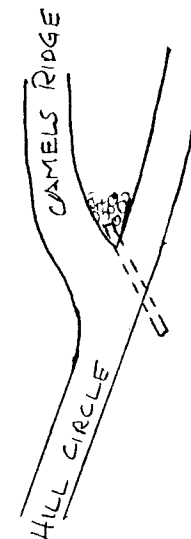
Condition: PIPE IS IN GOOD CONDITION

CULVERTS:

- (A) Approach Channel Conditions: PAVED DITCHLINE
- (B) Discharge Channel Condition: NORMAL DRAINAGE
- (C) Maximum Available Headwater: 4.0
- (D) Conduit Size: 24"
- (E) Inlet and Outlet: FLARED INLET

STORM SEWER:

- (A) Conduit Size: _____
- (B) Inlet Condition: _____
- Continuous Grade: _____
- Sump: _____
- (C) Inlet Opening Size: _____
- Type: Grated: _____
- Curb Opening: _____
- Other: _____
- (D) Manholes: _____
- Size: _____
- Materials: _____
- CHANNEL IMPROVEMENTS:
- Materials: _____
- Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 12-08-83PAGE 17 OF PAGESStructure Type and Materials: CMP. CULVERT, 20", 50' IN LENGTH, 2.0%Map No.: 2CDate of Review: 12-08-83Location: UNDERNEATH DIRT ROAD NORTH OF FILLMORE & EAST OF THE "OFFICE PARK"Condition: GOOD

CULVERTS:

- (A) Approach Channel Conditions: NATURAL DRAINAGEWAY
- (B) Discharge Channel Condition: PONDING, THEN 'OVERFLOW TO EAST
- (C) Maximum Available Headwater: 5'
- (D) Conduit Size: 20"
- (E) Inlet and Outlet: PROJECTING FROM FILL

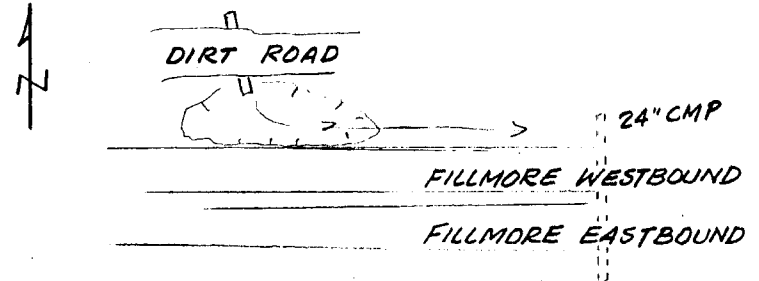
STORM SEWER:

- (A) Conduit Size:
- (B) Inlet Condition:
- Continuous Grade:
- Sump:
- (C) Inlet Opening Size:
- Type: Grated:
- Curb Opening:
- Other:

(D) Manholes:

Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 18 OF PAGES

Map No.: 2-C

Location: MEDIAN DRAIN THROUGH GRATED INLET ON FILLMORE STREET

Condition: DISCHARGE PIPE IS ERODED BADLY UNDERNATH FILLMORE, NEEDS
IMMEDIATE ATTENTION

(A) Approach Channel Conditions: FILLMORE MEDIAN
(B) Discharge Channel Condition: PROJECTING FROM ELL, NATURAL CHANNEL

(D) Conduit Size: 18"

STORM SEWER:

(B) Inlet Condition:

Sump :

Type: Grated:

Curb Opening:

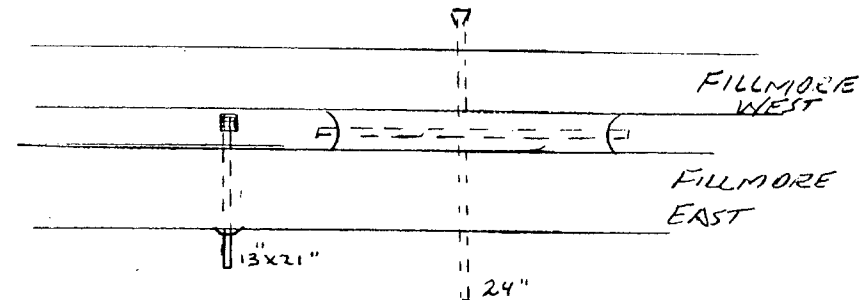
Other:

Size:

Materials:

Materials:

Conclusion:



PROV SKETCH TH F AND ATIO. 2W

DATE: 12-08-83MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 19 OF PAGESStructure Type and Materials: C.M.P., 145' ± IN LENGTH, 6.0%Map No.: 1BDate of Review: 12-08-83Location: UNDERNEATH FILLMORE ST.Condition: DOWNSTREAM END MOSTLY PLUGGED

CULVERTS:

- (A) Approach Channel Conditions: NATURAL DRAINAGE
- (B) Discharge Channel Condition: NATURAL DRAINAGE
- (C) Maximum Available Headwater: 22' ±
- (D) Conduit Size: 24"
- (E) Inlet and Outlet: PROJECTING FROM FILL

STORM SEWER:

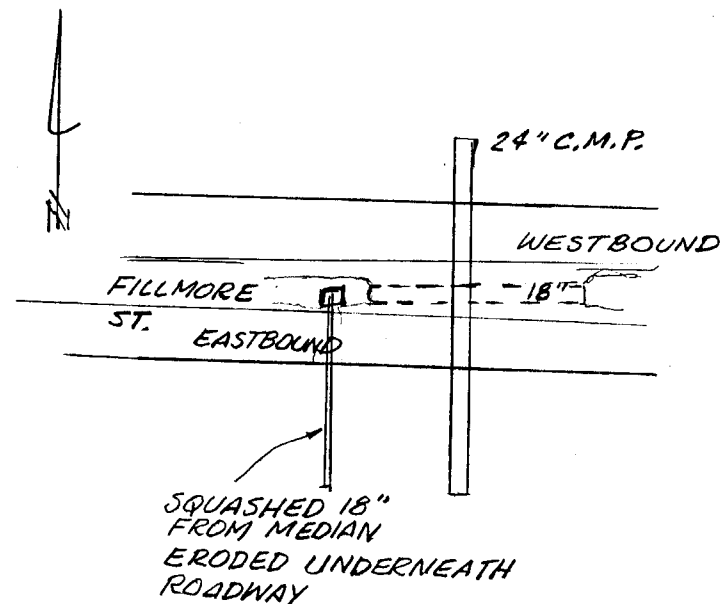
- (A) Conduit Size:
- (B) Inlet Condition:
- Continuous Grade:
- Sump:
- (C) Inlet Opening Size:
- Type: Grated:
- Curb Opening:
- Other:

(D) Manholes:

- Size:
- Materials:

CHANNEL IMPROVEMENTS:

- Materials:
- Condition:



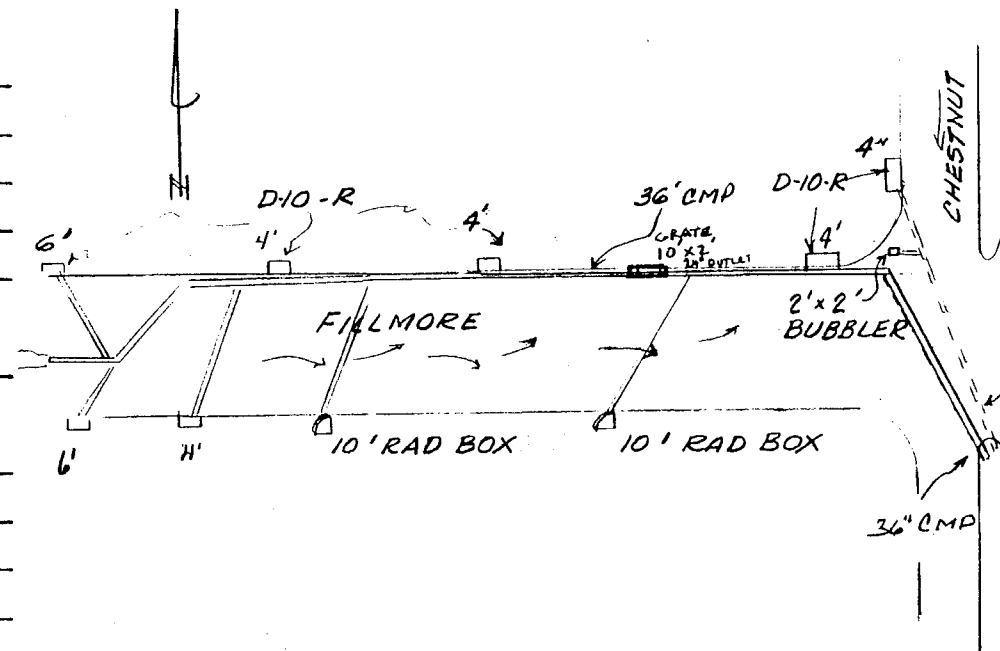
PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 20 OF PAGES

Map No.: 2C

Condition:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 21

DATE: _____

MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 21 OF _____ PAGESStructure Type and Materials: C.M.P., 24", 150'± IN LENGTH, 1.5%

Map No.: _____

Date of Review: _____

Location: UNDERNEATH THE INTERSECTION OF FILLMORE & CHESTNUT

Condition: _____

CULVERTS:

(A) Approach Channel Conditions: _____

(B) Discharge Channel Condition: _____

(C) Maximum Available Headwater: _____

(D) Conduit Size: _____

(E) Inlet and Outlet: _____

STORM SEWER:

(A) Conduit Size: 24"

(B) Inlet Condition:

Continuous Grade: X, 4' x 4' D 10 R

Sump: _____

(C) Inlet Opening Size: 4' x 8"

Type: Grated: _____

Curb Opening: X

Other: _____

(D) Manholes:

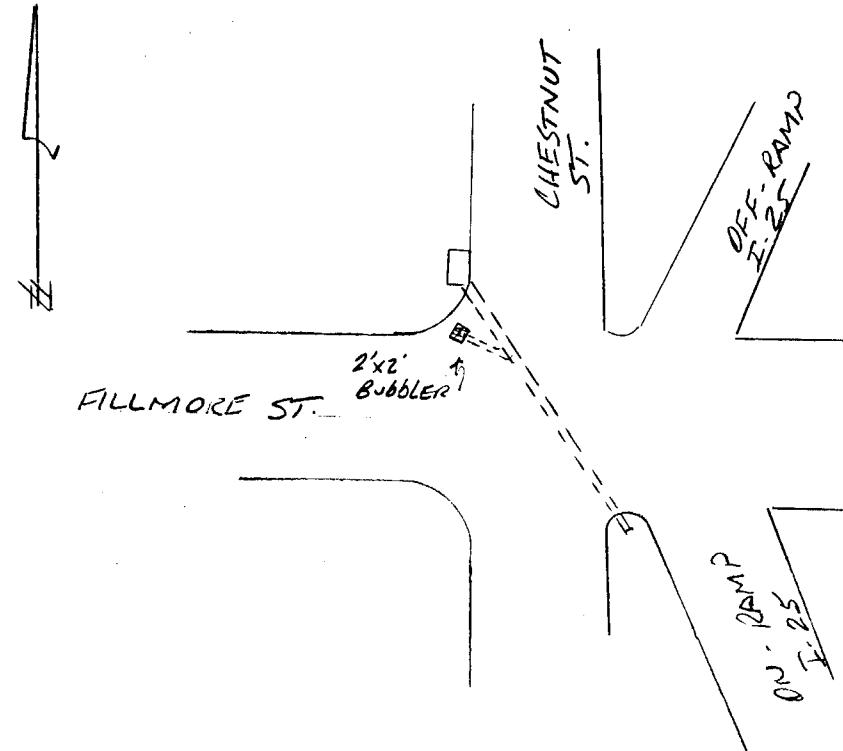
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____



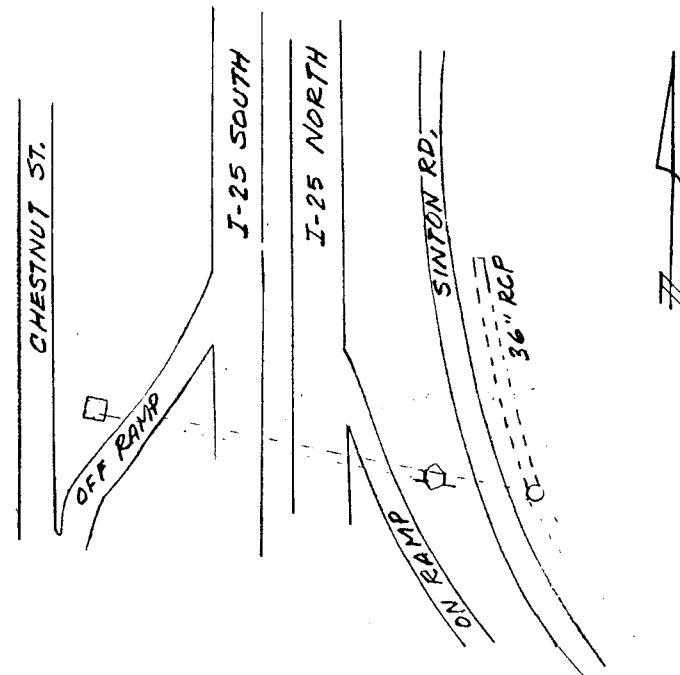
PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 22 OF _____ PAGES

Map No.: 2C

Date of Review: 12-03-83

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW



DATE: 1-05-84PAGE 23 OF PAGESStructure Type and Materials: REINFORCED CONCRETE PIPE, 36", 80'± IN LENGTH, 2.0%Map No.: 20Date of Review: 1-05-84Location: UNDERNEATH CHESTNUT ST. NORTH OF FILLMORECondition: D-10-R IN VERY BAD CONDITION, SHOULD BE REPLACED IMMEDIATELY

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Conditions:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

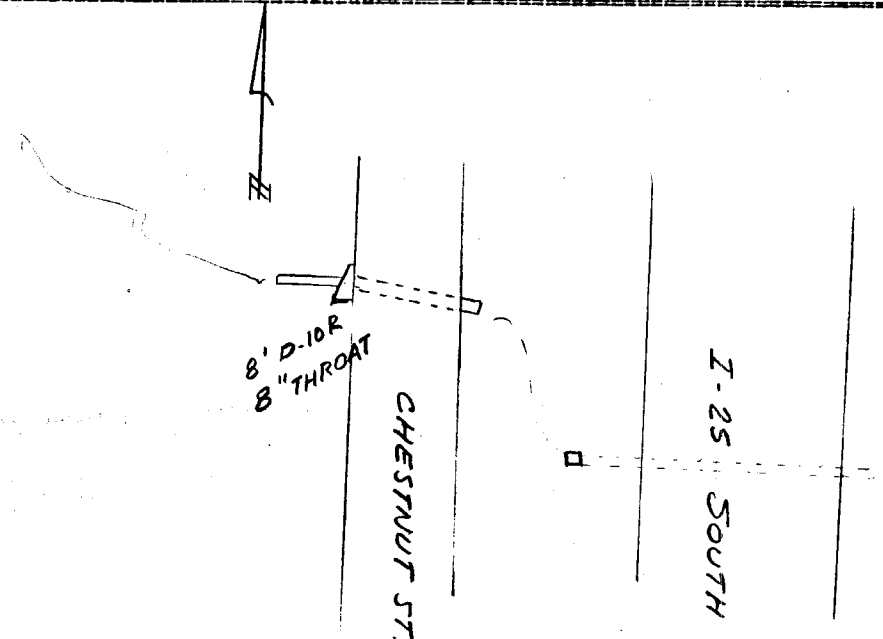
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 11-29-83PAGE 24 OF PAGESStructure Type and Materials: REINFORCED CONCRETE PIPE UNDERNEATH THE INTERSTATEMap No.: 2CNORTH OF FILLMORE & WEST OF THE HOLIDAY HOMES MOBILE PARK, 246'±, 1%Date of Review: 11-29-83

Location: _____

Condition: _____

CULVERTS:

- (A) Approach Channel Conditions: GRASSY HIGHWAY SWALE
- (B) Discharge Channel Condition: GRASS LINED DITCH TO 36" R.C.P.
- (C) Maximum Available Headwater: 2.5'
- (D) Conduit Size: 36"
- (E) Inlet and Outlet: FLARED SECTION INLET

STORM SEWER:

(A) Conduit Size: _____

(B) Inlet Condition: _____

Continuous Grade: _____

Sump: _____

(C) Inlet Opening Size: _____

Type: Grated: _____

Curb Opening: _____

Other: _____

(D) Manholes: _____

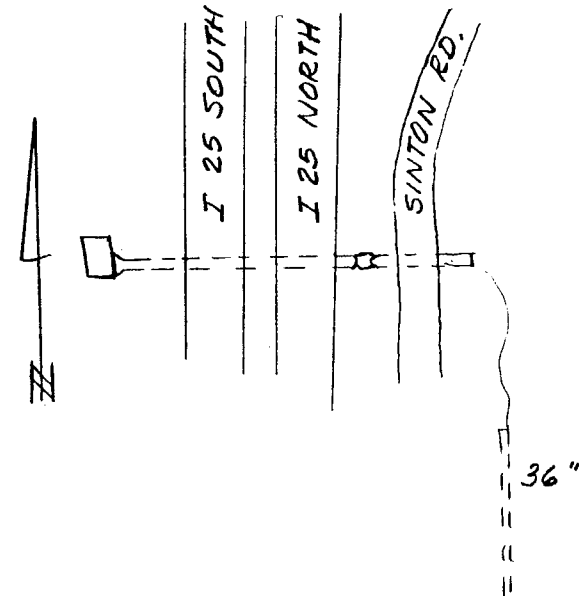
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

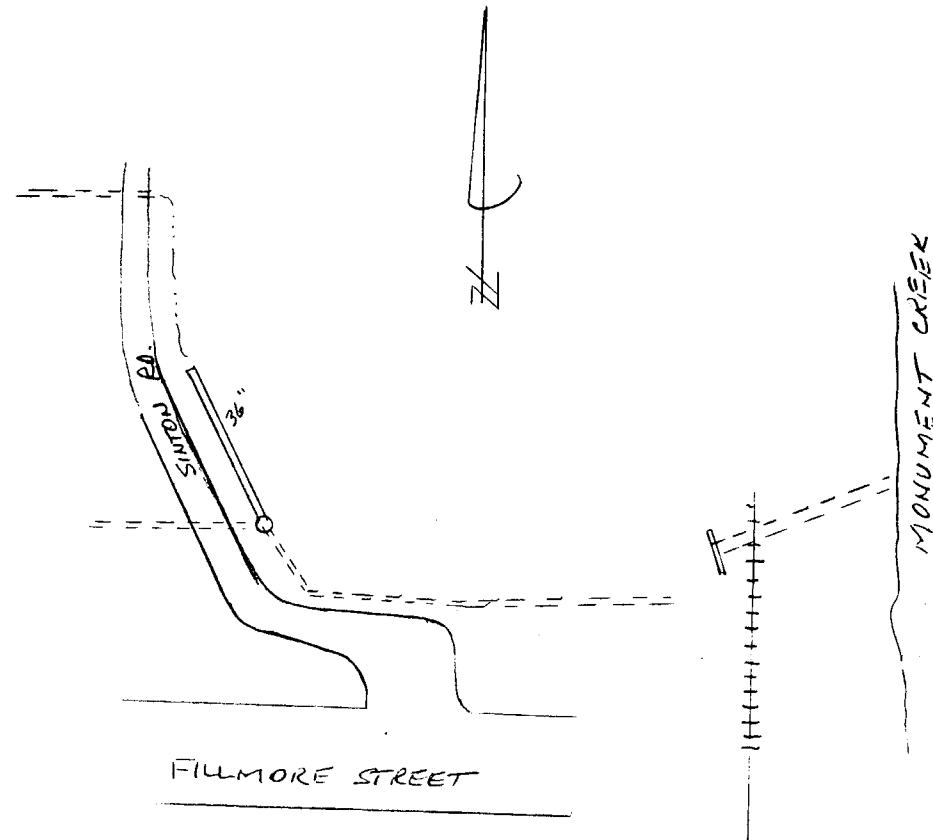
PAGE 25 OF _____ PAGES

Map No.: 2-C

Location: ON EAST SIDE OF SIMTON RD, IN FRONT OF HOLIDAY INN NORTH

Condition:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE INVENTORY

DATE: 12-08-83

PAGE 26 OF PAGES

Structure Type and Materials: REINFORCED CONCRETE PIPE, 48", 790' [±] IN LENGTH, 5.0%

Map No.: 2-C

Date of Review: 12.08.83

Location: AT FILLMORE AND SINTON INTERSECTION, DRAIN TO MONUMENT CREEK

Condition:

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump :

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

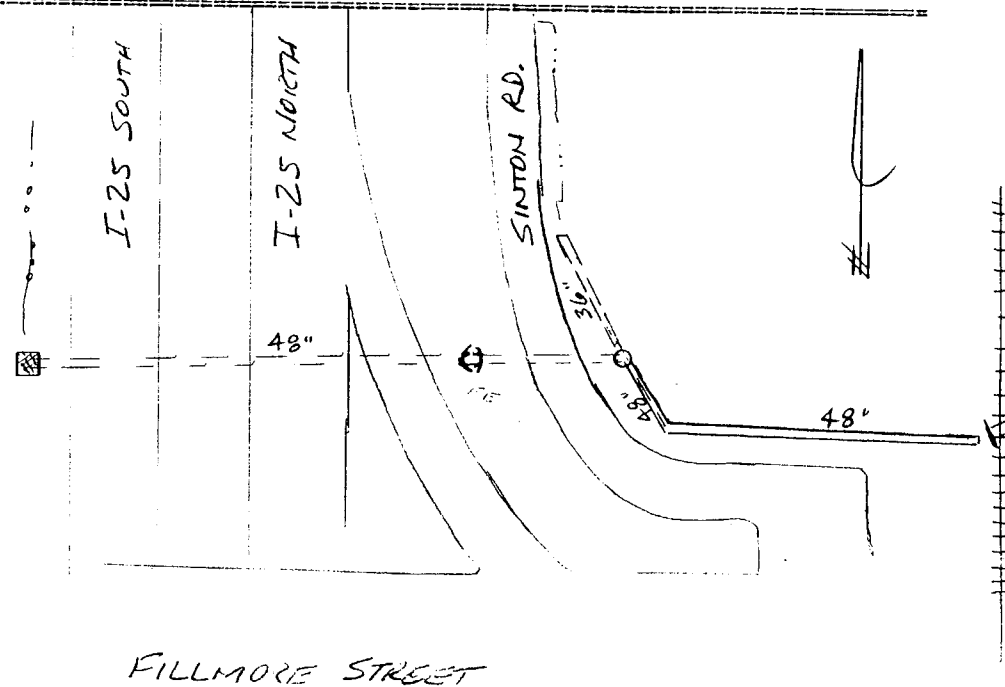
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Conclusions:



DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 27 OF PAGESStructure Type and Materials: 24" REINFORCED CONCRETE PIPE, 110'± IN LENGTH, 2.5%Map No.: 20Date of Review: 1-05-84Location: UNDER JINTON RD. JUST NORTH OF FILLMORE ST.Condition: GOOD

CULVERTS:

(A) Approach Channel Conditions: DRAINAGE SWALE

(B) Discharge Channel Condition: STEEP HILLSIDE

(C) Maximum Available Headwater: 5.0

(D) Conduit Size: 24"

(E) Inlet and Outlet: PROJECTING FROM FILL

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

 Continuous Grade:

 Sump:

(C) Inlet Opening Size:

 Type: Grated:

 Curb Opening:

 Other:

(D) Manholes:

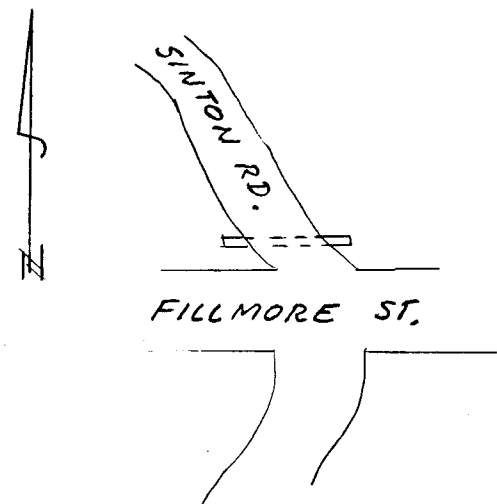
 Size:

 Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 28 OF PAGES

Map No.: 2-D

Location: UNDERNEATH RAILROAD TO MONUMENT CREEK JUST NORTH OF FILLMORE ST.

Condition:

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

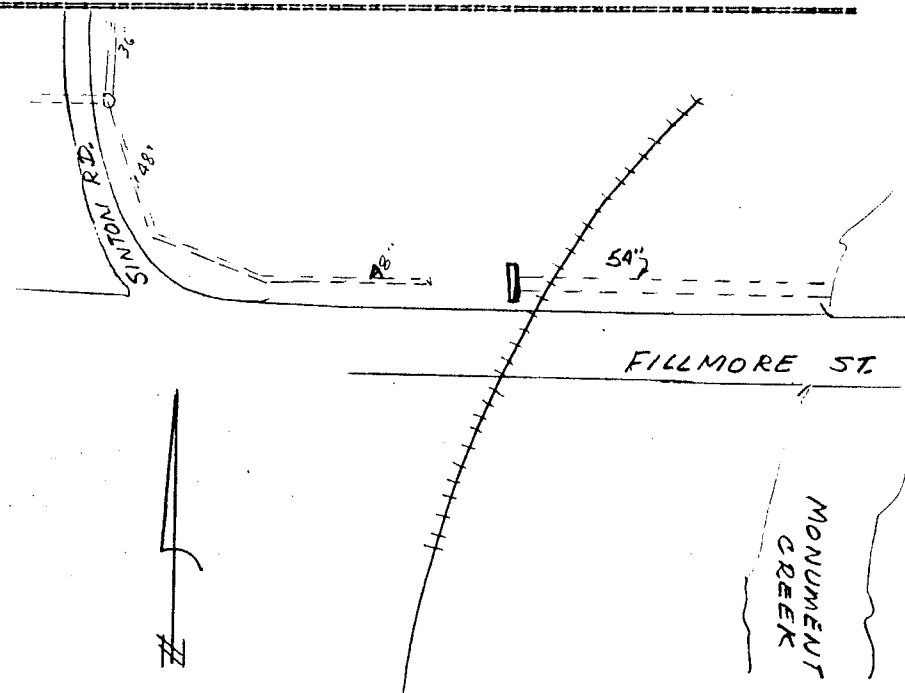
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 1-05-84PAGE 29 OF PAGESStructure Type and Materials: REINFORCED CONCRETE PIPE, 36", 95'± IN LENGTH, 1.0%Map No.: 3-CDate of Review: 1-05-84Location: NORTH & EAST LOOP IN HOLIDAY HOMES TRAILER PARKCondition: GOOD

CULVERTS:

(A) Approach Channel Conditions: STREET DRAINAGE
(B) Discharge Channel Condition: 36" R.C.P.
(C) Maximum Available Headwater: 4.2'
(D) Conduit Size: _____
(E) Inlet and Outlet: _____

STORM SEWER:

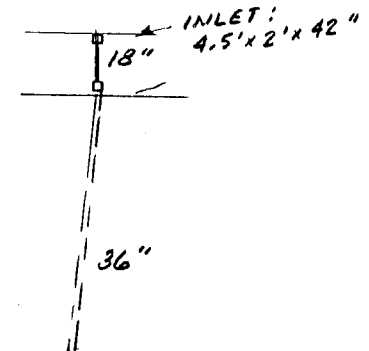
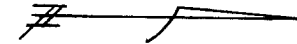
(A) Conduit Size: 36"
(B) Inlet Condition:
 Continuous Grade: _____
 Sump: X
(C) Inlet Opening Size:
 Type: Grated: X
 Curb Opening: _____
 Other: 4.5' x 2' x 42"

(D) Manholes:

 Size: _____
 Materials: _____

CHANNEL IMPROVEMENTS:

 Materials: _____
 Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 30 OF PAGES

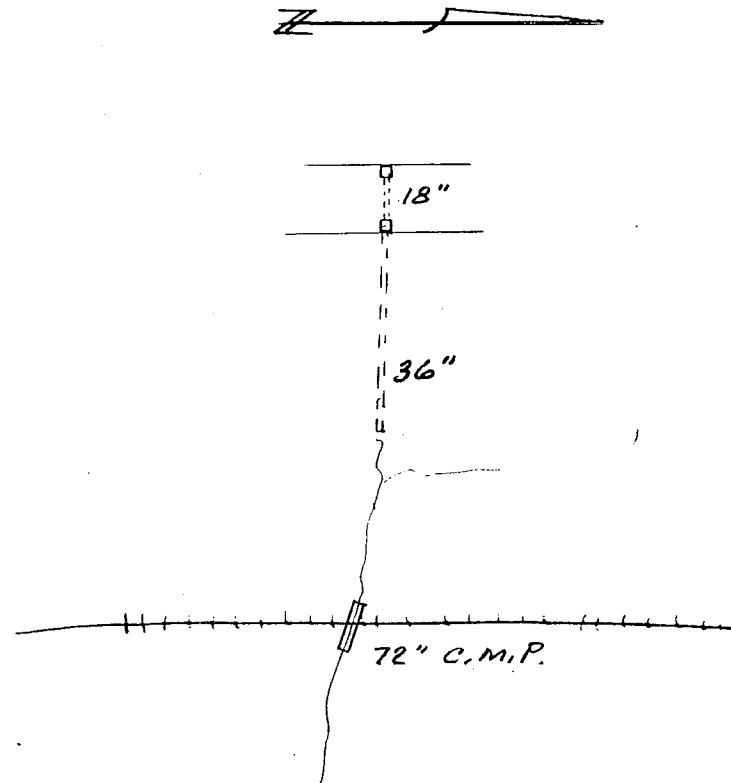
Map No.: 3-C

Location: SOUTH & EAST LOOP IN HOLIDAY HOMES MOBIL PARK

Condition:

(E) Inlet and Outlet:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 1-05-84PAGE 31 OF PAGESStructure Type and Materials: CORRUGATED METAL PIPE, 72", 45'±, 3.0%Map No.: 3-CDate of Review: 1-05-84Location: EAST OF HOLIDAY HOMES MOBIL PARK UNDERNEATH RAILROADCondition: GOOD

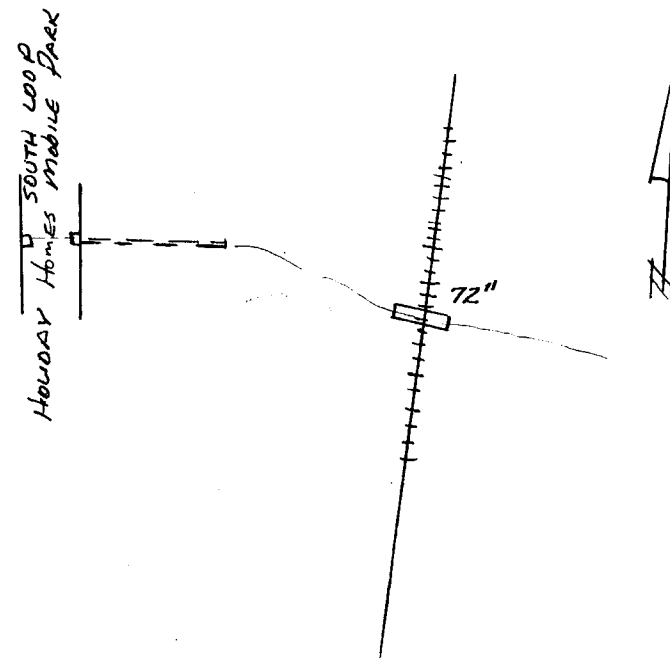
CULVERTS:

(A) Approach Channel Conditions: DITCHLINE(B) Discharge Channel Condition: DITCHLINE(C) Maximum Available Headwater: 9.0(D) Conduit Size: 72"(E) Inlet and Outlet: SPIGOT (Projecting)

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

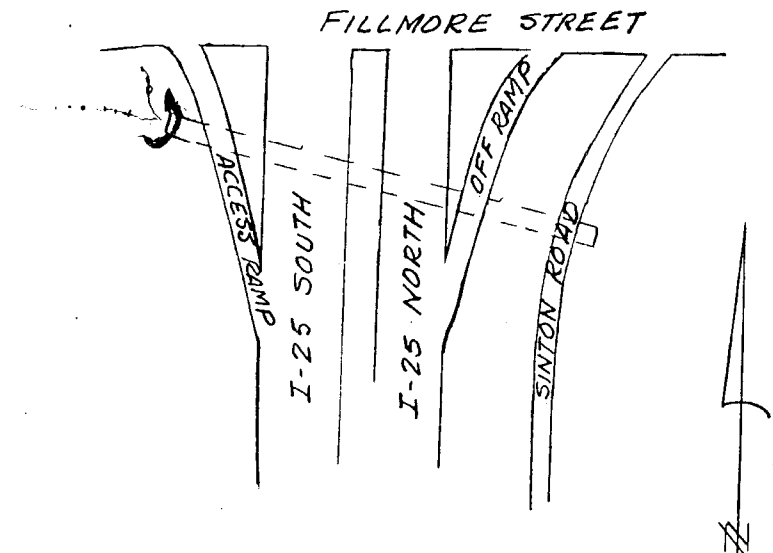
DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 32 OF PAGESStructure Type and Materials: 48" RCP, 530'± IN LENGTH, 4.0%Map No.: 2 DLocation: UNDERNEATH I-25, SOUTH OF FILLMOREDate of Review: 1-05-84Condition: GOOD

CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCHLINE
(B) Discharge Channel Condition: NORMAL DITCHLINE
(C) Maximum Available Headwater: 8'
(D) Conduit Size: 48"
(E) Inlet and Outlet: INLET, ASPHALT HEADWALL

STORM SEWER:

(A) Conduit Size: _____
(B) Inlet Condition: _____
 Continuous Grade: _____
 Sump: _____
(C) Inlet Opening Size: _____
 Type: Grated: _____
 Curb Opening: _____
 Other: _____
(D) Manholes: _____
 Size: _____
 Materials: _____
CHANNEL IMPROVEMENTS:
 Materials: _____
 Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 33

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 33 OF PAGESStructure Type and Materials: 36" C.M.P., 80' ± IN LENGTH, 5.0%Map No.: 2-DLocation: CHESTNUT & TAYLOR STREETSDate of Review: 1-05-84Condition:

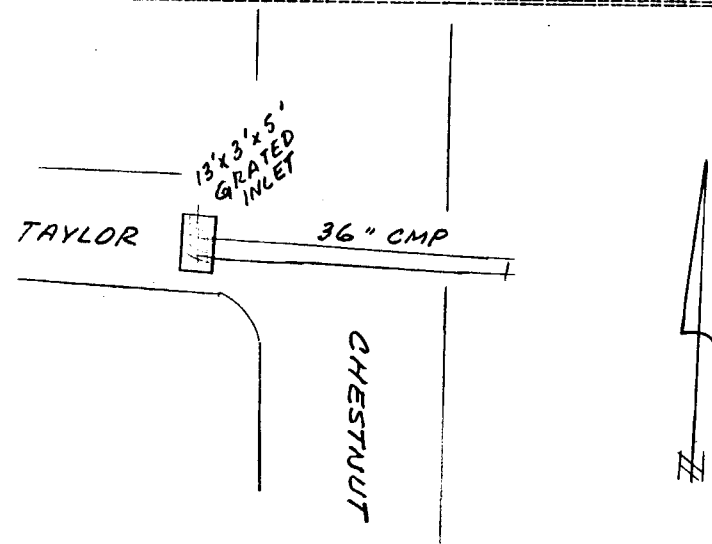
CULVERTS:

(A) Approach Channel Conditions: STREET FLOW(B) Discharge Channel Condition: NORMAL DITCHLINE(C) Maximum Available Headwater: 2.5'(D) Conduit Size: 36"(E) Inlet and Outlet: 13'x3'x5' DROP INLET

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: X(C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 34 OF PAGESStructure Type and Materials: 60" R.C.P. UNDERNEATH I-25, 380'±, 5.0%Map No.: 2-DLocation: UNDERNEATH I-25, SOUTH OF FILLMOREDate of Review: 1-05-84Condition:

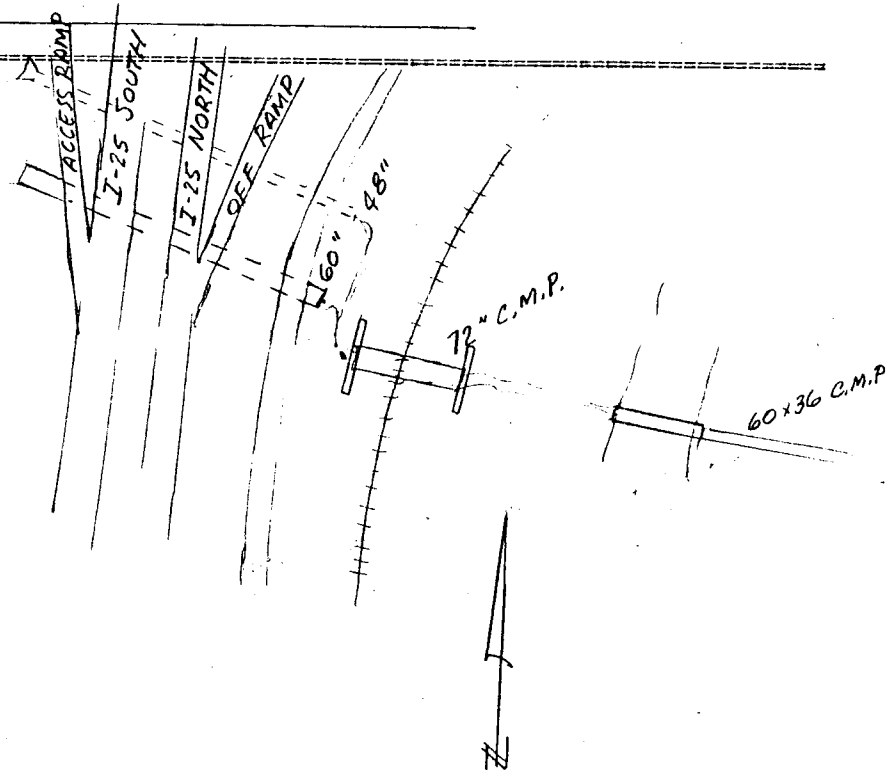
CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCHLINE, SOME BRUSH(B) Discharge Channel Condition: (C) Maximum Available Headwater: 7.5'(D) Conduit Size: 60"(E) Inlet and Outlet: PROJECTING FROM FILL

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 35

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 35 OF PAGESStructure Type and Materials: CAST IRON PIPE, 72", 50'± IN LENGTH, 5.0%Map No.: 2-DDate of Review: 1-05-84Location: UNDERNEATH RAILROAD TRACKS SOUTH OF FILLMORE ST.Condition:

CULVERTS:

(A) Approach Channel Conditions:

DITCHLINE

(B) Discharge Channel Condition:

DITCHLINE

(C) Maximum Available Headwater:

9.5' ±

(D) Conduit Size:

72"

(E) Inlet and Outlet:

HEADWALL

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

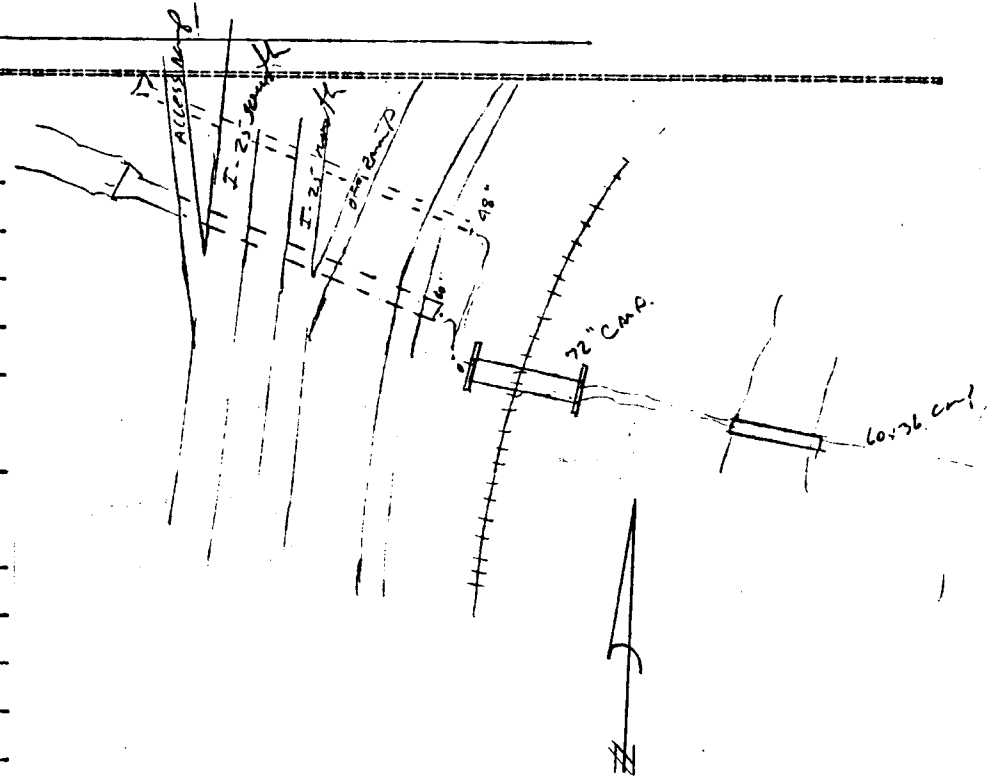
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 36 OF PAGES

Map No.: 2D

Date of Review: 1-05-84

Location: UNDERNEATH JINTON RD. WEST OF POLK ST.

Condition: *EXCELLENT*

CULVERTS:

(A) Approach Channel Conditions: DISCHARGE OVER LARGE AREA.

(B) Discharge Channel Condition: *DITCHLINE*

(C) Maximum Available Headwater: 2.5'

(D) Conduit Size: 18"

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

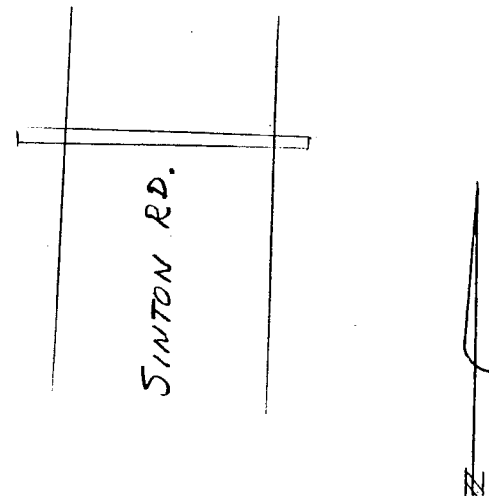
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 37 OF PAGESStructure Type and Materials: 48" C.M.P. UNDER RAILROAD, 75'± IN LENGTH, 1.0%Map No.: 2 DLocation: UNDER RAILROAD TRACKS WEST OF POLK ST.Date of Review: 1-05-84Condition: GOOD

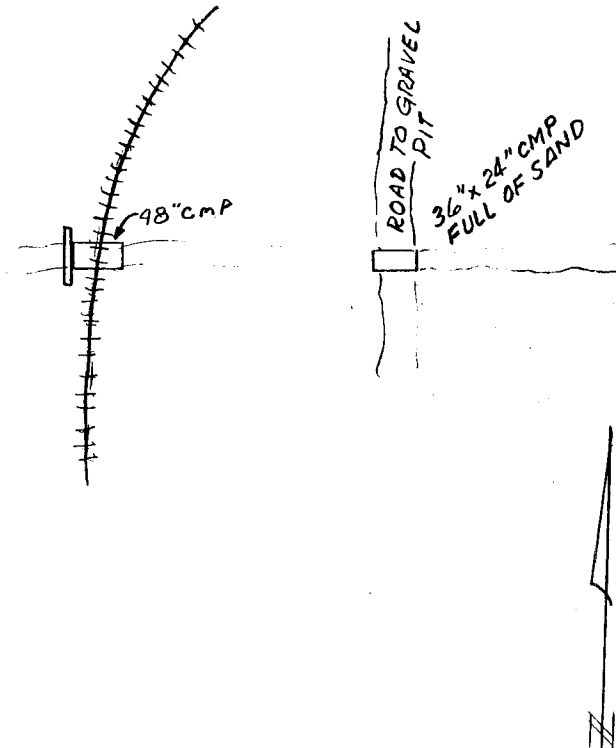
CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCH(B) Discharge Channel Condition: NORMAL DITCH(C) Maximum Available Headwater: 13'(D) Conduit Size: 48"(E) Inlet and Outlet: HEADWALL (RAILROAD TIES)

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 38 OF PAGESStructure Type and Materials: TWIN 36"x18" CMPS, 210'± IN LENGTH, 2.0%Map No.: 2DLocation: UNDERNEATH CHESTNUT ST. NORTH OF GREEN RIDGE DRIVEDate of Review: 1-05-84Condition: GOOD

CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCH(B) Discharge Channel Condition: NORMAL DITCH(C) Maximum Available Headwater: 4'(D) Conduit Size: 36"x18" (2EA)(E) Inlet and Outlet: HEADWALL

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

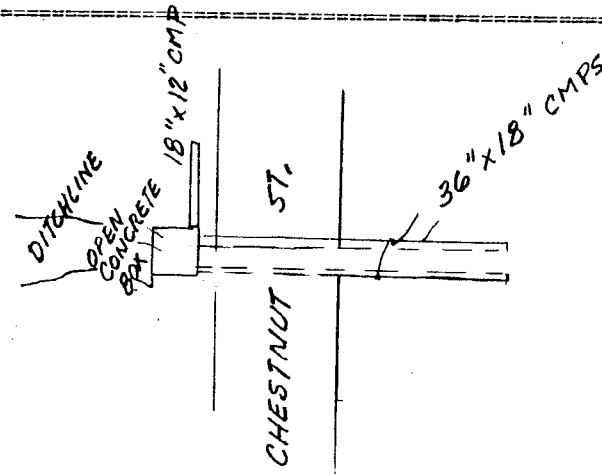
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

PAGE 39 OF PAGES

Map No.: 20

Date of Review: 12-08-83

Location: UNDERNEATH I-25 NORTH OF GREEN RIDGE DR.

Condition:

CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCHLINE

(B) Discharge Channel Condition: *DITCHLINE*

(C) Maximum Available Headwater: 5.5'

(D) Conduit Size: 24"

(E) Inlet and Outlet: PROJECTING FROM FILL

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump :

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

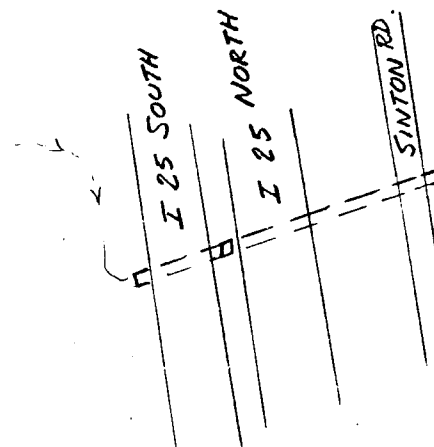
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 40

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 40 OF PAGESStructure Type and Materials: HAND-MADE STONE CULVERT UNDERNEATH RAILROAD, 35'±
IN LENGTH, 1.0 %Map No.: 2DDate of Review: 1-05-84Location: WEST OF POLK ST.Condition: GOOD

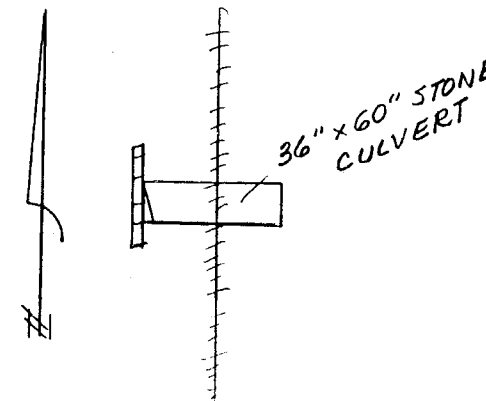
CULVERTS:

(A) Approach Channel Conditions: OPEN DITCH(B) Discharge Channel Condition: OPEN DITCH(C) Maximum Available Headwater: 6.5'(D) Conduit Size: 5'x3' WxH(E) Inlet and Outlet: HEADWALL

STORM SEWER:

(A) Conduit Size: (B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

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Map No.: 2-D

Date of Review: 1-05-84

Condition:

(A) Approach Channel Conditions: DITCHLINE

(B) Discharge Channel Condition: GOOD, OPEN DITCHLINE

(C) Maximum Available Headwater: 6.5' ±

(D) Conduit Size: 60"

(E) Inlet and Outlet: FLARED ENDS

(A) Conduit Size: _____

(B) Inlet Condition: _____

Sump: _____

Type: Grated:

Curb Opening:

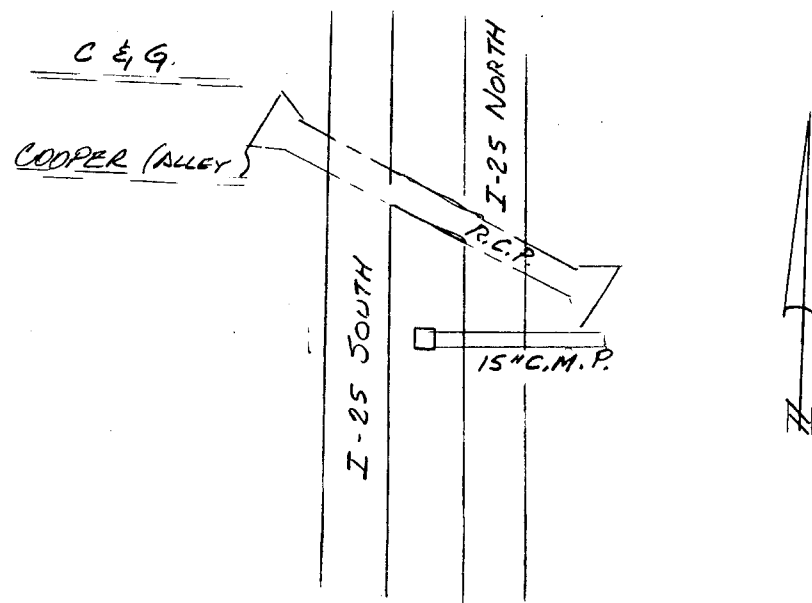
Other:

Size:

Materials:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 42 OF 42 PAGES

Map No.:

Location: UNDERNEATH RAILROAD TRACKS & POLK ST, NORTH OF C & E. SAND CO.

Condition:

(A) Approach Channel Conditions: NORMAL DITCH LINE

(B) Discharge Channel Condition: *MONUMENT CREEK*

(C) Maximum Available Headwater: 11'

(D) Conduit Size: 72"

(E) Inlet and Outlet: HEADWALL

(A) Conduit Size: 48"

(B) Inlet Condition:

Continuous Grade: X

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other: 72" CMP

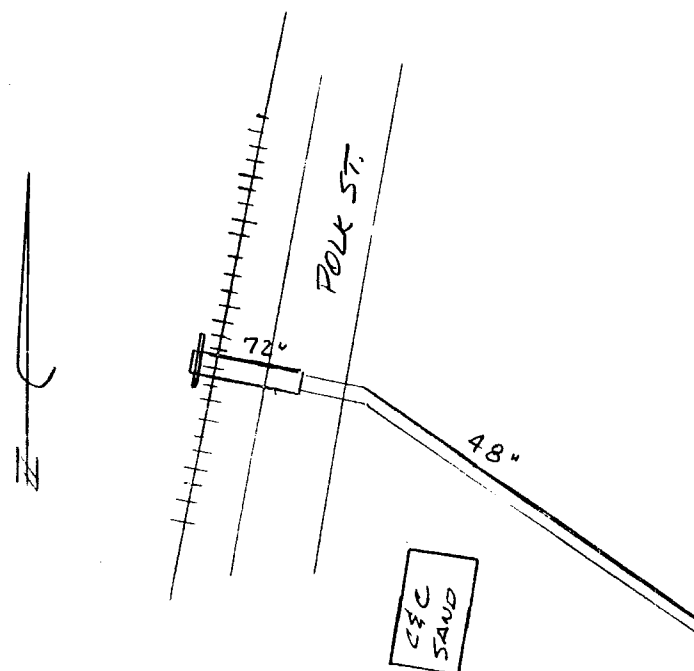
(D) Manholes:

Size:

Materials:

Materials:

Co on:



DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 44 OF PAGESStructure Type and Materials: R.C.P., 24" AND 36", 270'± IN LENGTH, 3.07%Map No.: 2 DLocation: UNDERNEATH I 25 AT WASHINGTON STREETDate of Review: 1-05-84Condition: GOOD

CULVERTS:

- (A) Approach Channel Conditions: NORMAL DITCHLINE ALONG I-25
(B) Discharge Channel Condition: OPEN DITCH
(C) Maximum Available Headwater: 5.5'
(D) Conduit Size: 36"
(E) Inlet and Outlet: FLARED ENDS

STORM SEWER:

- (A) Conduit Size: _____
(B) Inlet Condition: _____
 Continuous Grade: _____
 Sump: _____
(C) Inlet Opening Size: _____
 Type: Grated: _____
 Curb Opening: _____
 Other: _____

(D) Manholes:

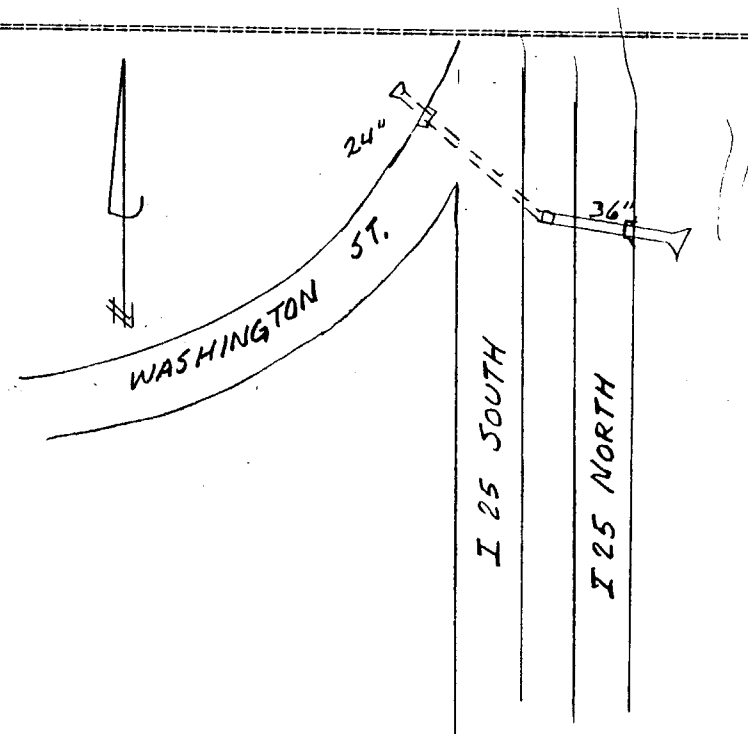
Size: _____

Materials: _____

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 45

DATE: 1-05-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 45 OF PAGESStructure Type and Materials: DROP INLET BOX FACING UPSTREAM 550'±, 36" C.M.P., 3.0 %Map No.: 2 DDate of Review: 1-05-84Location: FONTANERO & RAILROAD, RUNNING EAST TO MONUMENT CREEKCondition: GOOD

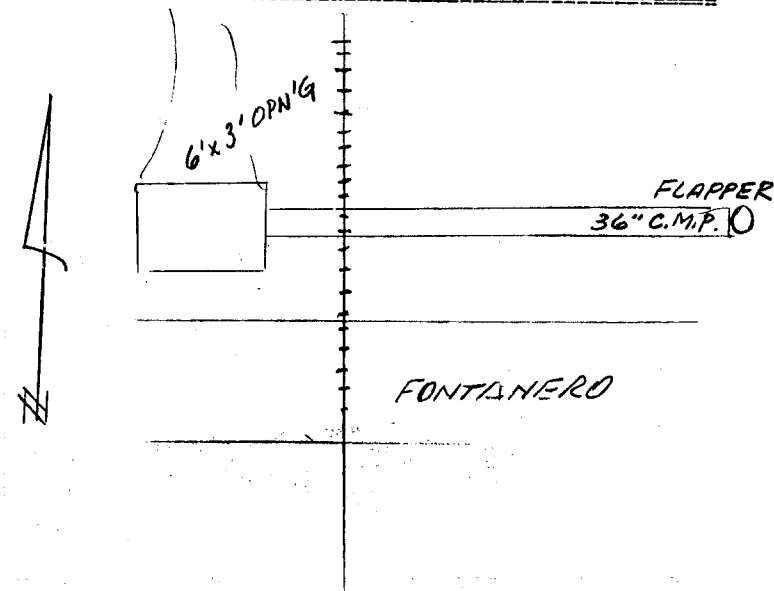
CULVERTS:

(A) Approach Channel Conditions: NORMAL DITCHLINE(B) Discharge Channel Condition: MONUMENT CREEK(C) Maximum Available Headwater: 7 1/2' ±(D) Conduit Size: (E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size: 36" C.M.P.(B) Inlet Condition: Continuous Grade: Sump: (C) Inlet Opening Size: Type: Grated: Curb Opening: Other: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

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Map No.: 20

Date of Review: 1-05-84

Location:

Condition: Good

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

60"

(E) Inlet and Outlet:

OUTLET HAS FLAPPER. INLET-BOX CULVERT

STORM SEWER:

(A) Conduit Size:

74"

(B) Inlet Condition:

Continuous Grade:

Sump :

(C) Inlet Opening Size:

2.5' deep

Type: Grated:

246'

Curb Opening:

6' x 8"

Other:

(D) Manholes:

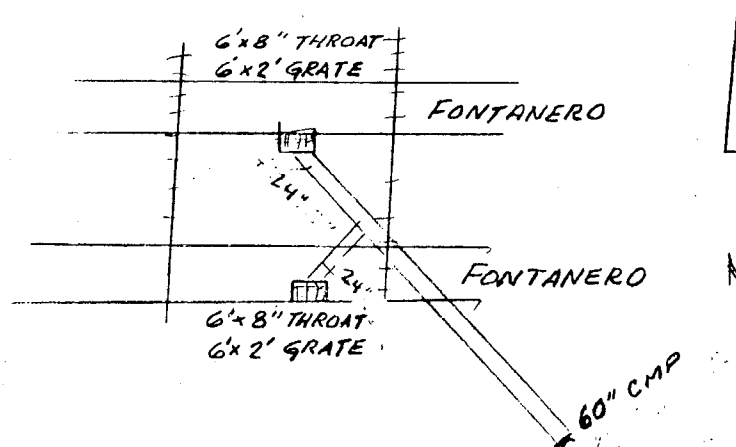
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

MESA DRAINAGE BASIN STRUCTURE INVENTORY

PAGE 47 OF PAGES

Map No.: 2E

Date of Review: 2-09-84

Location: _____

Condition: CONDUIT APPEARS TO BE IN SATISFACTORY CONDITION, BUT IS 1/2 BLOCKED AT ENTRANCE

(A) Approach Channel Conditions: *STREET RUNOFF*

(B) Discharge Channel Condition: DRAINAGE SWALE WEST OF RAILROAD TRACKS

(C) Maximum Available Headwater: 5'±

(D) Conduit Size: 24 "

(E) Inlet and Outlet: *FLARED ENDS*

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade: _____

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

Size:

Materials:

Materials:

Condition:

A hand-drawn map of the Del Norte area. The map shows a network of roads. A road labeled "DEL NORTE" runs horizontally across the middle. Above it, a road labeled "ROAD TRACKS" runs horizontally. To the right of these roads, two vertical lines represent "I-25 SOUTH" and "I-25 NORTH". A north arrow is located in the upper right corner, pointing towards the top of the page.

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 48

DATE: 11-29-83

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 48 OF PAGES

Structure Type and Materials: CONCRETE BOX CULVERT, 80'±, .50%

Map No.: 1E

Date of Review: 11-29-83

Location: UNDER CHESTNUT BETWEEN CARAMILLO & BUENA VENTURA

Condition: FAIR CONDITION, CONCRETE HAS SPALLED SOME

CULVERTS:

(A) Approach Channel Conditions: TREE & BUSH LINED SLOPES

(B) Discharge Channel Condition: TREE & BUSH LINED SLOPES

(C) Maximum Available Headwater: 15'

(D) Conduit Size: 10'x10' (WxH)

(E) Inlet and Outlet: FLARED END WALLS 35-50°

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

Size:

Materials:

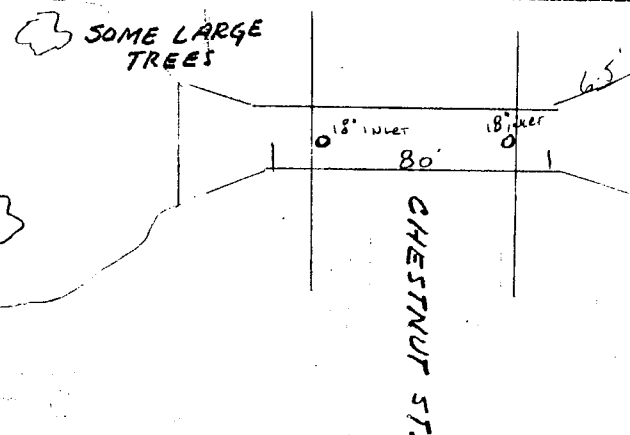
CHANNEL IMPROVEMENTS:

Materials:

Condition:

NATURAL CUT SLOPES HAVE HAD CONCRETE

RUBBLE APPLIED SOME AREAS & ASPHALT



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEWS

STRUCTURE NO. 49

DATE: 11-29-83

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 49 OF PAGES

Structure Type and Materials: BOX CULVERT, R.C. 45° WING WALLS, ERECTED 1959

Map No.: 2 E

14'x10'x141', 0.50%

Date of Review: 11-29-83

Location: UNDER I 25 BETWEEN CARAMILLO & BUENA VENTURA

Condition: GOOD

CULVERTS:

- (A) Approach Channel Conditions: BRUSH COVERED SLOPES, 15" TREES 5' ABOVE FL
- (B) Discharge Channel Condition: 100' R.R. TRESTLE
- (C) Maximum Available Headwater: 15'
- (D) Conduit Size: 14'x10'x140.6'
- (E) Inlet and Outlet: (W x H x L)

STORM SEWER:

- (A) Conduit Size:
- (B) Inlet Condition:

Continuous Grade:

Sump:

- (C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

- (D) Manholes:

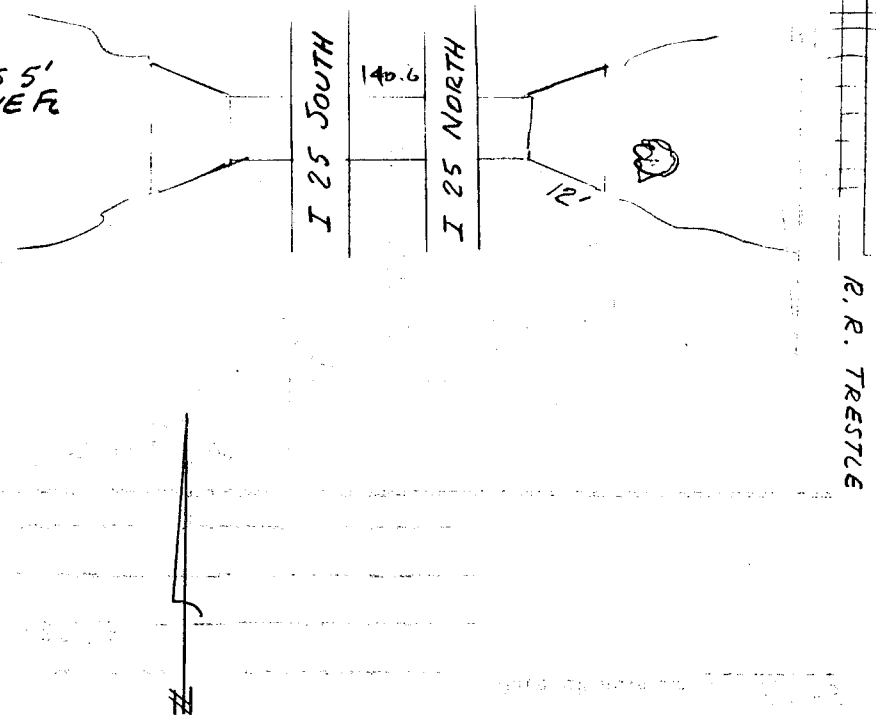
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials: NATURAL VEGETATION, 20' BOT.

Condition: ± 85' ACCROSS TOP



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 50

DATE: 12-07-83

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 50 OF PAGES

Structure Type and Materials: 72" C.M.P. , 81'± IN LENGTH, 2.0%

Map No.: 2-E

Location: UNDERNEATH FRONTAGE ROAD

Date of Review: 12-07-83

Condition: FAIR CONDITION BUT SQUASHED SOMEWHAT TOWARD LOWER END

CULVERTS:

(A) Approach Channel Conditions: BRUSHY
(B) Discharge Channel Condition: RUBBLE & 45° E RIGHT
(C) Maximum Available Headwater: 9.6'±
(D) Conduit Size: 72"
(E) Inlet and Outlet: PE

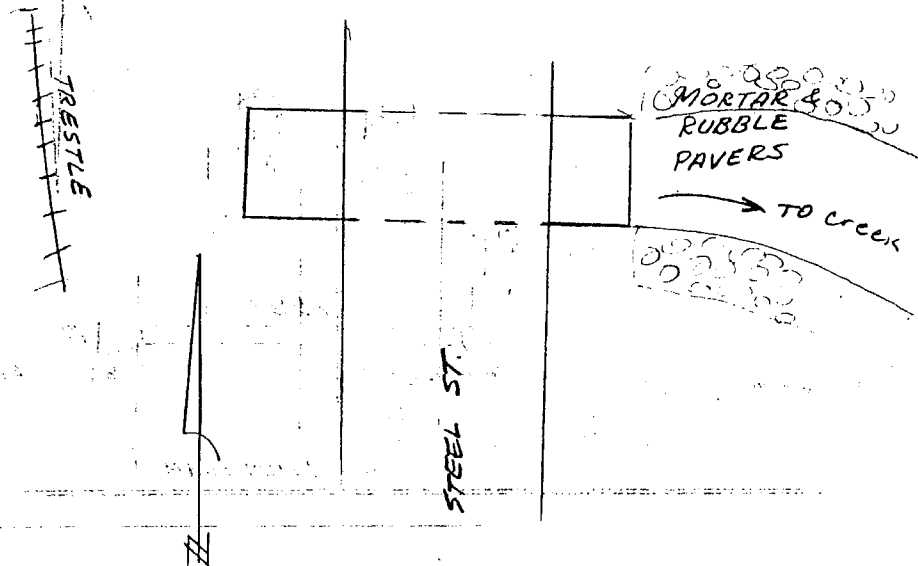
STORM SEWER:

(A) Conduit Size:
(B) Inlet Condition:
 Continuous Grade:
 Sump:
(C) Inlet Opening Size:
 Type: Grated:
 Curb Opening:
 Other:

(D) Manholes:
 Size:
 Materials:

CHANNEL IMPROVEMENTS:

Materials:
Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEWS

STRUCTURE NO. 51

DATE: 11-29-83MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 51 OF PAGESStructure Type and Materials: 36" R.C.P. / FLARED END SECT.Map No.: 1 & 2 EDate of Review: 11-29-83Location: INTERSECTION OF COLUMBIA & WEST ROW I-25Condition:

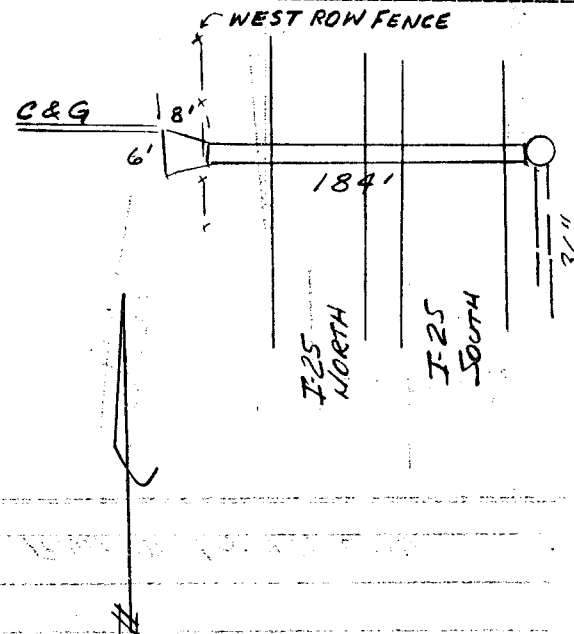
CULVERTS:

(A) Approach Channel Conditions: C & G NORTH SIDE COLUMBIA(B) Discharge Channel Condition: (C) Maximum Available Headwater: 4'(D) Conduit Size: 36"(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size: 36"(B) Inlet Condition: Continuous Grade: Sump: X(C) Inlet Opening Size: Type: Grated: Curb Opening: Other: FLARED INLET(D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

DATE: _____

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 52 OF _____ PAGES

Structure Type and Materials: REINFORCED CONCRETE PIPE, 24", 250'± IN LENGTH, 3%

Map No.: _____

Location: UNDERNEATH I-25, NORTH OF VINTAH

Date of Review: _____

Condition: _____

CULVERTS:

(A) Approach Channel Conditions: _____

(B) Discharge Channel Condition: _____

(C) Maximum Available Headwater: 2 1/2'

(D) Conduit Size: _____

(E) Inlet and Outlet: _____

STORM SEWER:

(A) Conduit Size: 24"

(B) Inlet Condition: _____

Continuous Grade: _____

Sump: X

(C) Inlet Opening Size: _____

Type: Grated: _____

Curb Opening: _____

Other: FLARED END

(D) Manholes: _____

Size: 4' I.D.

Materials: PRE CAST

CHANNEL IMPROVEMENTS:

Materials: _____

Condition: _____

SAN
MIGUEL

I-25 SOUTH

I-25 NORTH

OFF RAMP
TO VINTAH

24"

18"

5'x3'x
3' DEEP
SUMP,
3.5 POND

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 53

DATE: 3-19-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 53 OF PAGESStructure Type and Materials: REINFORCED CONCRETE PIPES, 124' & 106' IN LENGTH, 3.0%Map No.: Date of Review: 3-19-84Location: UNDERNEATH RAILROAD CROSSING AT UINTAH & I-25Condition:

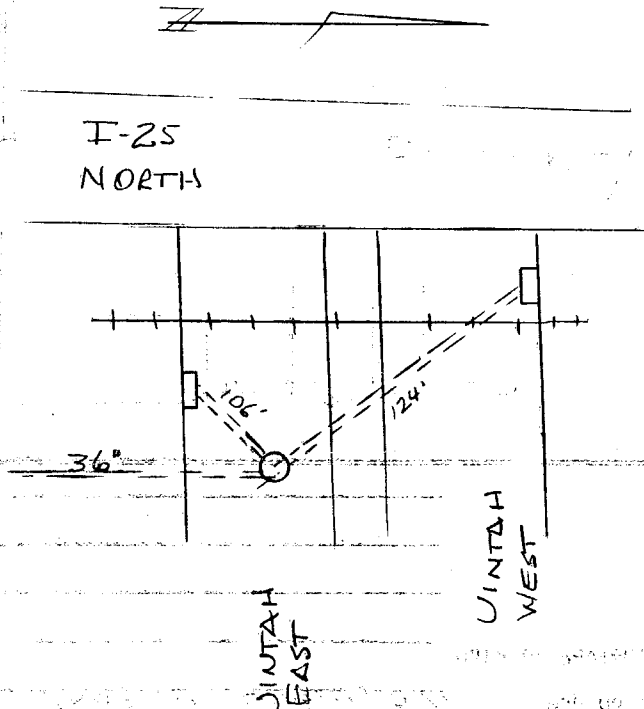
CULVERTS:

(A) Approach Channel Conditions: (B) Discharge Channel Condition: (C) Maximum Available Headwater: (D) Conduit Size: (E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size: 24"(B) Inlet Condition: Continuous Grade: Sump: X(C) Inlet Opening Size: Type: Grated: Curb Opening: X, 3' X 4' X 4' DEEP, EACH SIDEOther: (D) Manholes: Size: Materials:

CHANNEL IMPROVEMENTS:

Materials: Condition: 

PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 54

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

DATE: 12-08-83

PAGE 54 OF 54 PAGES

Structure Type and Materials: R.C.P. 320 I.F. @ 10%

Map No.: 1-D

Date of Review: 12-08-83

Location: ENTRANCE TO CUL-DE-SAC, BROADVIEW PLACE

Condition: GOOD

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

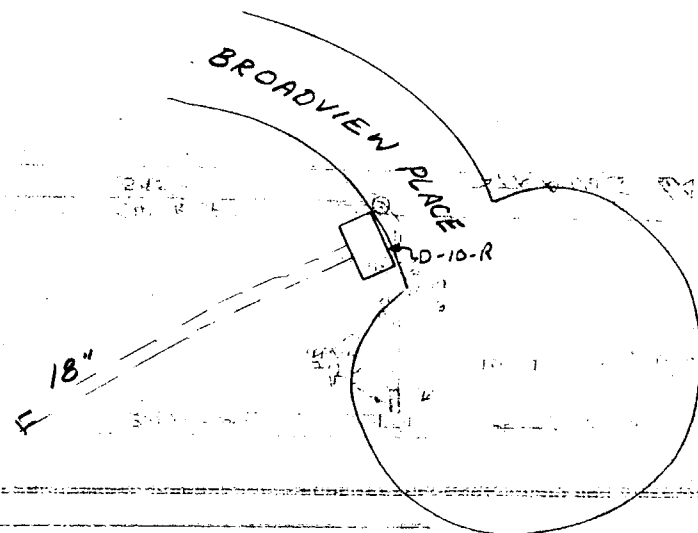
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 55

DATE: 4-02-84MESA DRAINAGE BASIN
STRUCTURE INVENTORYPAGE 55 OF PAGESStructure Type and Materials: 10' , D-10-R CATCH BASIN, 11' DEEPMap No.: Date of Review: 4-02-84Location: IN PAVED ALLEY NORTH OF STRAUSS LANE, IN MESA SPRINGS
SUBDIVISIONCondition: GOOD

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

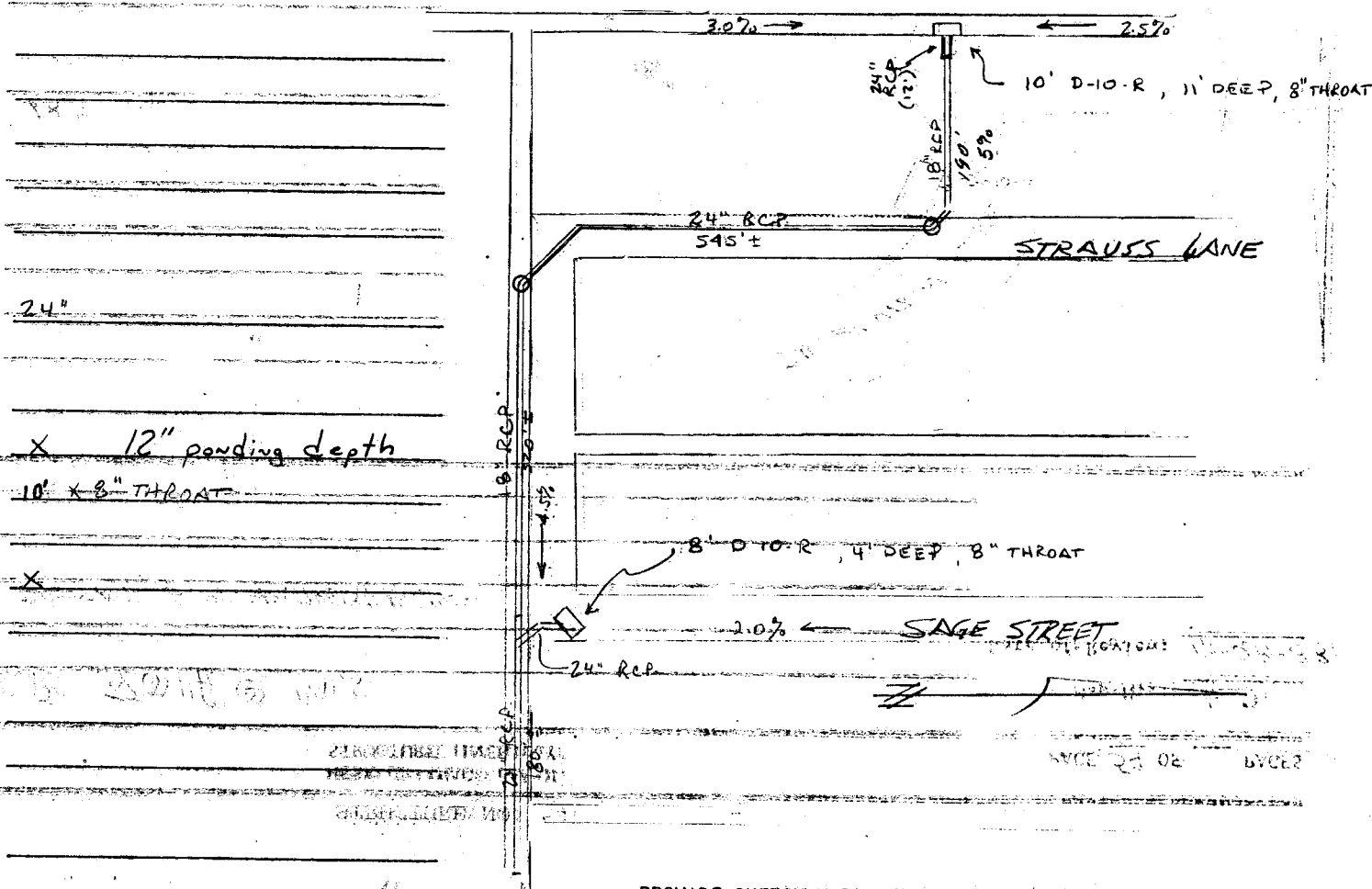
Size:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:



PROVIDE SKETCH WITH PLAN AND ELEVATION VIEW

STRUCTURE NO. 55A

DATE: 4-02-84

MESA DRAINAGE BASIN
STRUCTURE INVENTORY

PAGE 55A OF PAGES

Structure Type and Materials: 8' D-10-R CATCH BASIN

Map No.:

Location: SOUTH END OF SAGE STREET, MESA SPRINGS SUBDIVISION

Date of Review: 4-02-84

Condition: Good

CULVERTS:

(A) Approach Channel Conditions:

(B) Discharge Channel Condition:

(C) Maximum Available Headwater:

(D) Conduit Size:

(E) Inlet and Outlet:

STORM SEWER:

(A) Conduit Size:

(B) Inlet Condition:

Continuous Grade:

Sump:

(C) Inlet Opening Size:

Type: Grated:

Curb Opening:

Other:

(D) Manholes:

Sizes:

Materials:

CHANNEL IMPROVEMENTS:

Materials:

Condition:

