HYDROLOGY G2 1/D6 1 PLAN

G21/D6

1 PLAN

January 3, 1977

Mr. Jacob A. Vigil
Suite 1206
First National Bank Bldg. East
Albuquerque, New Mexico 87106

SUBJECT: EUBANK BLVD. WIDENING

Dear Mr. Vigil:

The drainage report submitted by your letter of December 23, 1976 has been approved.

Sincerely,

V. M. Kizmick
City Engineer

VMK/fs

cc: E. F. Hensch
Duayne Sheppard
Bob Kielich

7/10

CITY OF ALBUQUERQUE, NEW MEXICO
CITY ENGINEER'S OFFICE

Proj. File
Kim handling

MEMORANDUM - September 9, 1976

TO: Mr. V. M. Kimmick, City Engineer
FROM: K. H. Laws, Assist. City Engineer-Hydrology
SUBJECT: EUBANK BOULEVARD WIDENING M-4067(1)

I have reviewed the drainage report for the subject project. The text does not agree with the Map A drawing in proposed pipe sizes. I feel it would be helpful to show on Map A the flow in the pipes and note the quantities shown are street flow. Names of streets on Plate 2 would make it more readily usable.

The recommendation to remodel the Candelaria and Morris intersection is not very realistic. The intersection needs work but I doubt Candelaria could be regraded to construct an adequate water block and still maintain satisfactory sight distance, riding comfort and access to adjacent property.

The consultant and I have discussed some adjustments in his figures, when made I would recommend acceptance of his report.

KHL/fs

A C.I.P. project should be set up to comply with the recommendation of a storm drain in Morris.

cc. Sheppard
✓ Orr

RECEIVED
SEP 01 1976
CITY ENGINEERS

CITY OF ALBUQUERQUE, NEW MEXICO
PUBLIC WORKS DEPARTMENT

MEMORANDUM -- August 31, 1976

TO: Mr. V. M. Kimmick, City Engineer (5 copies)

FROM: H. R. Orr, Jr., Assistant Director of Public Works

SUBJECT: DESIGN OF STORM SEWER FOR EUBANK BOULEVARD WIDENING BETWEEN CANDELARIA AND MONTGOMERY BOULEVARDS

The subject storm drainage study is transmitted to you for review, comment and handling.

HRO:rs
Attachments

THIS MICROIMAGE IS THE BEST POSSIBLE
REPRODUCTION DUE TO THE POOR QUALITY
OF THE ORIGINAL DOCUMENT

DESIGN OF STORM SEWER

FOR

BUBANK BOULEVARD WIDENING
BETWEEN CANDELARIA AND
MONTGOMERY BOULEVARDS
M-4063(1)

ALBUQUERQUE, NEW MEXICO

PREPARED BY

JACOB A. VIGIL, CONSULTING ENGINEER

SUBMITTED AUGUST 1976

REVISED DECEMBER 1976

Jacob A. Vigil
Consulting Engineers

SUITE 1206
FIRST NATIONAL BANK
BUILDING - EAST
ALBUQUERQUE,
NEW MEXICO, 87108
(505) 255-5186

December 23, 1976

Mr. Vern M. Kimmick
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Dear Sir:

Transmitted herewith are two (2) copies of the revised report, "Design of Storm Sewer for Eubank Boulevard between Candelaria and Montgomery Boulevards, M-4067(1)" as requested by your office. All comments by Mr. Laws have been incorporated.

If you desire any additional information, please contact me.

Sincerely yours,

Jacob A. Vigil

Jacob A. Vigil, P.E.

JAV/bvm

Enclosures

TABLE OF CONTENTS

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2. Map "A" . . . . . Plate 1
3. Map "B" - Detail of Subareas . . . . . Plate 2

STORM DRAINAGE STUDY FOR EUBANK WIDENING

BETWEEN CANDELARIA AND MONTGOMERY BOULEVARDS

1. PURPOSE: The purpose of this report is to present a comprehensive study of drainage affecting the widening of Eubank Boulevard as requested by the City of Albuquerque and the New Mexico State Highway Department. The report includes design calculations for the storm sewer along Eubank Boulevard.

2. LOCATION: The project is located in the Northeast Heights of the City of Albuquerque. The area studied consisted of approximately 932 acres and is bounded on the North by Montgomery Boulevard, on the South by Candelaria Boulevard, on the West by Eubank Boulevard and on the East by Juan Tabo Boulevard (See enclosed map for exact boundaries).

3. HYDROLOGIC DATA: The average elevation of area studied is approximately 5,600 feet above mean sea level and is approximately 100% developed consisting of residential and commercial developments.

Main flood season for the area occurs during the May to October period receiving over seventy percent of the average annual precipitation during this period. Seventy-five percent of the 24-hour precipitation occurs within one hour. Rainfall is usually a result of thunderstorm activity producing high runoff for relatively short periods of time.

All rainfall data used in the study was acquired from the U.S. Weather Bureau in Albuquerque, New Mexico.

4. DESIGN CRITERIA: The Rational Formula, Q=CIA, was used

for determining peak flows. The runoff coefficient "C" for all drainage computations was 0.45. The time of concentration, "T_c" was determined using Manning's Equation, $V=\frac{1.486}{n} R^{2/3} S^{1/2}$, and the appropriate street section. The combination inlet capacity was determined using the New Mexico design charts for side inlets and the Los Angeles Department of Public Works charts for grate capacity.

The "Compurcorp 155" Desk Computor was programed to determine peak flows and to simulate the interceptive capacities of the single or double combination inlet. The output of the program for determination of peak flows, was the velocity of flow in the street, the time of concentration and peak discharge. The output of the program for the combination inlet were the various value shown on the computation sheets, however, the program prints the flow intercepted by the side inlet, the grate capacity, the total intercepted flow using 50% efficiency, and the carry over in cfs.

5. DESIGN DRAINAGE PLAN: Map "A" shows the existing storm drain system, the design storm system for Widening of Eubank Boulevard, the the future interceptor lines. The flows shown on the map represent the peak discharges when all the interceptor lines have been constructed. The design calculations for the storm sewer lines along Eubank Boulevard are shown in the Appendix.

The storm sewer system along Eubank Boulevard has been designed to provide at least one lane open during the 10 year storm. The 10 year storm can be contained in all of the streets of the area studied provided the future interceptor lines are constructed.

The future storm work required for the area studied is as follows:

a. It is proposed that 60 inch storm sewer (Line C-1) be constructed along Morris Street south of Commanche Street and discharge into Embudito Arroyo south of Candelaria Boulevard. The existing storm sewer along Commanche Street should be terminated just west of Morris and the system intercepting flows north of Commanche and east of Morris Streets tied into the newly constructed 60 inch line (Line C-1).

b. The runoff going west on Commanche Street should be intercepted by the Embudito Arroyo which will require construction of rundowns on both sides of the street. A rundown should also be constructed on the north side of Candelaria at the Embudito Arroyo.

c. A 30 inch storm sewer line (Line C-2) should be constructed along Candelaria Road East of Morris.

d. The intersection of Candelaria and Morris should be reconstructed to channelize flows south along Morris and the interceptor (Line C-1) should intercept all of the runoff from Area C-1 for the 10 year frequency.

It is recommended that the <u>future</u> storm work required

for the area be constructed as soon as possible and phased in the City of Albuquerque priorities.

EUBANK BLVD - PROJECT M-4067(1)

JACOB A. VIGIL
AUGUST 2, 1976
SHT. 1 OF 34

1. CHECK CAPACITY OF SEWER LINE @ COMANCHE WEST OF EUBANK:

EXISTING SEWER: DIAMETER = 42"
SLOPE = .024 '/'
Q = 160 CFS (PIPE FLOW AS OPEN CHANNEL)
$\frac{HW}{D}$ = 3.05 ; HW = 10.68 FT. (DEPTH OF WATER @ MH #7 IF TURBULENCE EXISTS)

FLOW FROM COMMANCHE AFTER AREA B-4 INTERCEPTED:
(10 YEAR) $Q_{COMANCHE}$ = 46 CFS
(100 YEAR) $Q_{COMANCHE}$ = 61 CFS

FLOW FROM EUBANK:
(10 YEAR) Q = 44 CFS
(100 YEAR) Q = 56 CFS

TOTAL COMBINED Q:
Q_{10} = 46 + 44
= 90 CFS

Q_{100} = 61 + 56
= 117 CFS < 160 CFS O.K.

2. CHECK CAPACITY OF SEWER LINE @ CANDELARIA WEST OF EUBANK

EXISTING SEWER: DIAMETER = 36"
SLOPE = .020 '/'
Q = 100 CFS (PIPE FLOW AS OPEN CHANNEL)
$\frac{HW}{D}$ = 2.70 ; HW = 8.10 FT (DEPTH OF WATER @ MH # 1 IF TURBULENCE EXISTS)

FLOW FROM CANDELARIA AFTER INTERCEPTING AREA C-1:
(10 YEAR) Q = 29 CFS
(100 YEAR) Q = 42 CFS

2. CONT'D:

FLOW FROM EUBANK BLVD:

(10 YEAR) Q = 46 CFS
(100 YEAR) Q = 65 CFS

TOTAL COMBINED FLOW:

Q_{10} = 29 + 46
= 75 CFS < 100 CFS O.K

Q_{100} = 42 + 65
= 107 CFS > 100 CFS O.K (POSSIBILITY OF PRESSURE FLOW)

3. DESIGN OF STORM SEWER:

EUBANK - 10 YEAR FREQUENCY

FROM	TO	INTERCEPT Q CFS	INTERCEPT Q CFS SUBTOTAL	DIAMETER INCHES	SLOPE %	d/D	REMARKS
MH 15	MH 14	10.68	10.68	18	2.05	0.60	
14	13	8.90	19.58	24	2.93	0.47	
13	12	7.60	27.18	24	2.86	0.60	
12	11	3.07	30.25	30	1.37	0.56	
11	10	5.73	35.98	30	1.36	0.63	
10	9	0.69	36.67	30	1.50	0.64	
9	8	3.84	40.51		4.30	0.48	
8	7	3.46	43.97	30	1.90	0.65	
MH 6	MH 5	9.66	9.66	18	1.40	0.65	
5	4	12.84	22.50	24	1.59	0.65	
4	3	10.50	33.65	30	1.22	0.66	
3	2	10.12	46.37	36	1.06	0.58	
2	1	2.73	50.16	36	0.50	0.80	

EUBANK BLVD - PROJECT M-4067(1)

JACOB A. VIGIL
AUGUST 2, 1976
SHT 3 OF 34

3. CONT'D.

EUBANK - 100YEAR FREQUENCY

FROM	TO	INTERCEPT Q, CFS	INTERCEPT Q CFS SUBTOTAL	DIAMETER INCHES	SLOPE %	d/D	REMARKS
MH 15	MH 14	14.01	14.01	18	2.05	0.72	
14	13	11.66	25.67	24	2.93	0.57	
13	12	9.82	35.49	24	2.86	0.90	
12	11	4.25	39.74	30	1.37	0.66	
11	10	7.24	46.98	30	1.36	0.80	
10	9	0.70	47.68	30	1.50	0.80	
9	8	4.99	52.67	30	4.30	0.55	
8	7	4.92	57.59	30	1.90	0.83	
MH 6	MH 5	11.86	11.86	18	1.40	0.75	
5	4	15.54	27.40	24	1.59	0.75	
4	3	16.46	43.86	30	1.22	0.77	
3	2	16.12	59.98	36	1.06	0.70	
2	1	4.56	64.54	36	0.50	—	PRESSURE FLOW CHECK HYDRAULIC LINE.

100 YEAR FREQUENCY

FROM	TO	INTERCEPT Q CFS	INTERCEPT Q CFS SUBTOTAL	DIAMETER INCHES	SLOPE %	PRESSURE CONDITION				INLET CONTROL		d/D	REMARKS
						T.W.	H	LS₀	HW	HW/D	HW		
MH 6	MH 5	11.86	11.86	18	1.40	6.55	1.50	0.56	7.49			0.75	BELOW STREET
5	4	15.54	27.40	24	1.59	5.55	4.50	3.50	6.55			0.75	" "
4	3	16.46	43.86	30	1.22	4.39	3.60	2.44	5.55			0.77	" "
3	2	16.12	59.98	36	1.06	4.79	4.45	4.85	4.39			0.70	" "
2	1	4.56	64.54	36	0.50	3.0	2.0	0.21	4.79			—	

EUBANK BLVD - PROJECT M-4067(1)

JACOB A. VAIL
AUGUST 2, 1976
SHT. 4 OF 24

RUNOFF COMPUTATIONS

CANDELARIA 10 YEAR FREQUENCY

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7								in / hr	c f s	
No. 1	Ac 2	C=	C= [illegible]	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
[illegible]	[illegible]		[illegible]				11.[illegible]	1750		[illegible]			[illegible]	2.41	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]				11.[illegible]	1750		[illegible]			[illegible]	2.41	[illegible]	[illegible]
[illegible]	[illegible]		1.47				[illegible]	[illegible]		[illegible]	4.56		[illegible]	[illegible]	1.43	[illegible]
[illegible]	1.47		1.47				[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	1.43	[illegible]

INLET COMPUTATIONS

CARLSBAD TRAIL ESTATES

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
1	[illegible]	[illegible]	[illegible]	0	[illegible]	50	[illegible]	.025	0.46	[illegible]	0.30	0.45	61.45	250	0.122	0.652	0.174	5.42	7.34	6.50	[illegible]
2	[illegible]	[illegible]	0	21.54	21.54	50	2500	.017	0.45	23.45	0.30	0.46	46.62	7.50	0.154	0.667	0.160	5.17	6.23	5.95	15.42
3	[illegible]	[illegible]	0	[illegible]	27.76	[illegible]	[illegible]	.017	0.47	24.94	0.30	0.47	[illegible]	3.50	.061	0.601	[illegible]	2.91	[illegible]	4.73	22.42
4	[illegible]	21	4.47	15.53	20.00	50	2500	.017	0.47	21.14	0.30	0.43	46.80	7.50	0.16	0.636	0.224	5.02	6.71	5.52	18.75
5	[illegible]	21	4.47	23.73	28.20	50	2500	.017	0.50	24.82	0.30	0.47	[illegible]	7.50	0.15	[illegible]	[illegible]	[illegible]	7.45	[illegible]	21.61
																				[illegible]	

RUNOFF COMPUTATIONS

[illegible]

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7								in / hr	cfs	
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
9a	3.70		3.70				1.96	640		.030			20.17	2.30	4.52	Q = 4.52
9b	3.60		3.60				1.91	640		.030			20.17	2.30	3.93	Q = 3.93
8a	5.90		5.90				2.66	640		.017	2.93		20.17	2.30	6.10	Q = 10.13
8b	1.23		1.23				0.55	640		.017	2.92		20.17	2.30	1.26	Q_T = 5.11
5/6+7	16.47		16.90				6.71	300 / 1,000	2624 / 2624 (50')	.073	3.97		20.17	2.30	15.40	Q_T = 25.53
5/6+7	14.47		14.90				6.71	300 / 1,000	2624 / 2624 (50')	.073	3.97		20.17	2.30	15.40	Q_T = 20.57
4/5+10	16.23		16.23				7.30	300		.028	5.36		21.17	2.23	16.32	Q_T = 41.85
4/5+10	16.23		16.23				7.30	300		.028	5.10		21.17	2.23	16.30	Q_T = 36.89
11a	2.90		2.90				1.31	400		.020	5.38		22.34	2.16	2.82	Q_T = 44.67
11b	2.90		2.90				1.31	400		.020	5.38		22.34	2.16	2.82	Q_T = 39.71
12a	2.20		2.20				0.99	300		.020	5.66		22.26	2.11	2.09	Q_T = 46.76
12b	2.20		2.20				0.99	300		.020	5.66		22.26	2.11	2.09	Q_T = 41.80
Note: [illegible] T_c = (D[illegible] 15%) 20.17 Min																

INLET COMPUTATIONS

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
1	[illegible]	7a	[illegible]	0	4.[illegible]	50	2500	.030	.22	10.96	.30	0.21	18.14	7.5	0.40	1.31	[illegible]	[illegible]	2.17	[illegible]	1.75
2	[illegible]	7b	3.93	0	3.93	50	2500	.030	.21	11.66	.30	0.21	18.65	7.5	0.40	1.40	0.51	[illegible]	2.18	[illegible]	1.86
3	[illegible]	5a	6.10	1.93	8.03	50	[illegible]	.017	.30	15.15	.30	0.30	20.76	7.5	[illegible]	[illegible]	0.61	[illegible]	3.40	3.[illegible]	4.77
4	[illegible]	5b+7	15.40	4.77	20.17	50	[illegible]	.023	.41	20.66	.30	0.41	49.33	7.5	0.15	0.73	0.73	4.70	[illegible]	5.55	14.62
5	[illegible]	5c+7	15.80	1.86	18.66	50	2500	.023	0.40	20.05	.30	0.40	46.77	7.5	0.16	0.75	0.66	6.51	5.47	5.12	15.42
6	[illegible]	5d+10	19.14	13.8[illegible]	33.[illegible]	50	2500	.020	0.52	25.61	.30	0.51	66.51	7.5	0.11	0.58	[illegible]	6.26	8.36	7.30	7.061
7	[illegible]	5e+10	19.12	13.42	32.54	50	2500	.020	0.51	25.40	0.30	0.50	64.77	7.5	0.12	0.57	0.18	6.11	8.14	7.12	25.42
Nw1	[illegible]	12	2.09	26.61	28.70	50	2500	.020	0.47	24.75											
Nw2	[illegible]	12	2.09	25.12	27.21	50	2500	.020	0.45	23.85											

RUNOFF COMPUTATIONS

PROJECT No. M-4067(1) 10YEAR FREQUENCY - FUBRIN BLVD.

ACRES – DRAINED							TOTAL	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7	CA				fps			in / hr	c f s	
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
E-B (Y50+00 Lt + B)+16	42.45		42.45				19.10 1/2	3400	E=30 S=60 / 70	0.021	4.40	29.87	29.87	1.81	17.33	Q_T = 17.33
E-B (Y50+00 Rt + B)+16	42.45		42.45				19.10 1/2	3400		0.021	4.40	29.87	29.87	1.81	17.33	Q_T = 17.33
17 Rt	2.81		2.81				1.26 1/2	–		—	4.40	—	29.87	1.81	1.14	Q_T = 18.47
17 Lt	2.81		2.81				1.26 1/2	–		–	4.40	–	29.87	1.81	1.14	Q_T = 18.47
15a Rt	1.70		1.70				0.77 1/2	350		0.030	5.17	1.13	31.00	1.77	0.96	Q_T = 18.81
15a Lt.	1.70		1.70				0.77 3/4	350		.030	5.17	1.13	31.00	1.77	1.02	Q_T = 19.49
15b Rt	1.21		1.21				0.54 0.8	350		.030	5.17	–	31.00	1.77	0.80	Q_T = 19.01
15b Lt.	1.21		1.21				0.54 0.8	350		.030	5.17	–	31.00	1.77	0.96	Q_T = 20.25
16a Rt	2.95		2.95				1.33 1.0	350		.007	3.06	1.91	32.91	1.70	2.26	19.01 + 20.25 Q_T = 41.52
16b	INTERRUPTED BY MEDIAN DEPRESSION															
13a	1.58		1.58				0.71 1.0	400		.017	4.25	1.57	34.45	1.66	1.18	Q_T = 42.70
13b Rt	0.95		0.95				0.43 1/2	150		.017	4.25	0.59	35.07	1.63	0.35	Q_T = 43.05
13b Lt	0.95		0.95				0.43 1/2	150		.017	4.25	0.59	35.07	1.63	0.35	Q_T = 0.35
CONTINUE ROAD																
23 Rt	56.02		56.02				24.31 1/2	2600	E=25 S=50 / 76	.021		25.88	25.88	1.98	24.07	Q_T = 24.07
23 Lt.	56.02		56.02				24.31 1/2	2600	76	.021		25.88	25.88	1.98	24.07	Q_T = 24.07
24 Rt	31.24		31.24				14.06 1/3	–	–	–	–	–	25.88	1.98	9.19	Q_T = 33.26
24 Lt.	31.24		31.24				14.06 1/3	–	–	–	–	–	25.88	1.98	18.65	Q_T = 42.72
22c Rt	1.72		1.72				0.77 1/2	400		.020	5.34	1.25	27.13	1.92	0.74	Q_T = 34.00
22c Lt	1.72		1.72				0.77 1/2	400		.020	5.34	1.25	27.13	1.92	0.74	Q_T = 42.46
22a Rt	6.70		6.70				3.02 1/3			.020	–	–	27.13	1.92	1.93	Q_T = 35.93
22a Lt	6.70		6.70				3.02 2/3			.020	–	–	27.13	1.92	3.88	Q_T = 47.34
22b Rt	1.72		1.72				0.77 1/4	500		.006	3.35	2.48	29.61	1.82	0.35	Q_T = 36.28
22b Lt.	1.72		1.72				0.77 3/4	500		.006	3.35	2.48	29.61	1.82	1.05	Q_T = 48.39

RUNOFF COMPUTATIONS

PROJECT No. M-4064(1) 10 YEAR EVENT – TIME OF CONCENTRATION FROM AREA B-4 – EL PASO

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I in / hr	Q cfs	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7										
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
AREAS: 2/3 OF (1+2+3) + 16			42.45				19.10 L/2			.021			25.74	1.63	15.57	Q_T = 15.57
2/3 OF (1+2+3)+16			42.45				19.10 L/2			.021			25.74	1.63	15.57	Q_T = 15.57
B-3-17 RT.			2.81				1.26 L/2						"	1.63	1.02	Q_T = 16.60
B-3-17 LT			2.81				1.26 L/2						"	1.63	1.02	Q_T = 16.60
B-3-15 a RT			1.70				.77 L/2			0.050			"	1.63	0.81	Q_T = 16.91
B-3-15 a LT			1.70				.77 L/2			.030			"	1.63	0.94	Q_T = 17.54
B-3-15 b RT			1.21				.54 L/2			.030			"	1.63	0.18	Q_T = 17.09
B-3-15 b LT			1.21				.54 L/2			.030			"	1.63	0.70	Q_T = 18.24
B-3-14 a RT			2.95				1.33 L/2			.007			"	1.63	2.17	17.89 + 18.24 Q_T = 37.50
B-3-14 b	INTERCEPTED BY ALLEY DECK INLET															
B-3-13 a			1.58				0.71 L/2			.017			"	1.63	1.16	Q_T = 38.66
B-3-13 b RT.			0.95				0.43 L/2			.017			"	1.63	0.35	Q_T = 39.01
B-3-13 b LT.			0.95				0.43 L/2			.017			"	1.63	0.35	Q_T = 0.35

INLET COMPUTATIONS

PROJECT No. M-4067(1) 10 YEAR FREQUENCY – ELBANK BLVD.

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
19	[illegible]	[illegible]	19.33	0	19.33	50	2500	.011	0.45	22.44	0.30	0.44	33.07	7.5 L/G	0.19	0.67	0.27	5.08	5.60	5.34	11.99
18	[illegible]	[illegible]	19.33	0	19.33	50	2500	.011	0.45	22.44	0.30	0.44	33.07	7.5 L/G	0.19	0.67	0.27	5.08	5.60	5.34	11.99
16	ELBANK 45+50 RT	17	9.27	11.91	14.28	50	2500	.021	0.37	18.48	0.30	0.37	37.08	7.5 L/G	0.20	0.81	0.48	4.05	4.85	4.45	9.83
15	ELBANK 43+46 LT	17	9.29	11.99	14.28	50	2500	.021	0.37	18.48	0.30	0.37	37.08	7.5 L/G	0.20	0.81	0.48	4.05	4.85	4.45	9.83
14	42+00 RT	15a	0.34	7.83	12.66	50	2500	.031	0.33	16.32	0.30	0.32	38.61	7.5 L/G	0.19	0.92	0.28	3.50	4.39	3.95	8.51
13	41+96 LT.	15a	1.02	9.83	10.85	50	2500	.031	0.31	15.50	0.30	0.31	35.41	7.5 L/G	0.21	0.97	0.30	3.27	4.03	3.66	7.20
12.	40+46 LT.	15b	0.76	7.20	7.96	50	2500	.031	0.25	13.80	0.30	0.27	29.18	7.5 L/G	0.26	1.09	0.35	2.81	3.32	3.07	4.89
11	36+97 RT.	14a	0.20+2.26 2.46	R.S.14+LT 3.40	15.86	50	2500	.004	0.52	26.24	0.30	0.52	30.58	7.5 L/G	0.25	0.57	0.38	5.97	5.49	5.73	10.13
10	MIDLAN 35+00	14b	0.69											3.5 S/G						0.69	
9	33+25 RT	13a	1.18	10.13	11.31	50	2500	.024	0.33	16.52	0.30	0.33	34.64	7.5 L/G	0.21	0.91	0.31	3.52	4.17	3.84	7.47
8	31+72 RT.	13b	0.35	7.47	7.82	50	2500	.024	0.29	14.38	0.30	0.28	27.50	7.5 L/G	0.27	1.04	0.36	2.94	3.31	3.12	4.70
7	31+67 LT.	13b	0.35	0	0.35	50	2500	.024	0.09	4.49	0.30	0.09	3.95	3.5 S/G	0.89	3.34	0.92	0.32	0.35	0.34	.01
	COMMANCHE	ROAD &	TURNING	INTERSECTION																	
6	14+75 RT	24	9.19	0	9.19	50	2500	.008	0.38	18.78	0.30	0.37	24.76	7.5 L/G	0.30	0.80	0.43	3.97	3.81	3.89	5.30
5	14+75 LT	24	18.65	0	18.65	50	2500	.008	0.49	24.48	0.30	0.48	38.53	7.5 L/G	0.19	0.61	0.30	5.61	5.93	5.77	12.88
22	[illegible] 2+42 LT	23	24.07	0	24.07	50	2500	.011	0.51	25.37	0.30	0.50	48.01	7.5 L/G	0.16	0.51	0.24	5.96	6.87	6.42	17.65
21	[illegible] 0+72 LT.	23	24.07	0	24.07	50	2500	.011	0.51	25.37	0.30	0.50	48.01	7.5 L/G	0.16	0.59	0.24	5.96	6.89	6.42	17.65
6	12+15 RT	22a	0.92	22.95	23.69	50	2500	.017	0.47	23.25	0.30	0.42	43.99	7.5 S/G	0.17	0.71	0.26	5.41	6.71	6.06	17.63
3	12+11 LT.	22a	0.92	30.53	31.27	50	2500	.017	0.52	25.80	0.30	0.42	63.99	7.5 S/G	0.17	0.71	0.26	6.19	7.99	7.09	24.18
2	10+15 RT.	22b	1.93	17.63	19.56	50	2500	.012	0.46	23.10	0.30	0.41	36.39	7.5 S/G	0.21	0.92	0.31	5.29	6.03	5.66	13.90
1	10+15 LT.	22a	3.58	24.18	28.06	50	2500	.012	0.53	26.45	0.30	0.43	39.47	7.5 S/G	0.19	0.68	0.29	6.31	7.55	6.93	21.13
EXISTING	5+22.32 LT	22b	0.35	21.13	21.48	50	2500	.011	0.49	24.32	0.30	0.39	31.28	3.5 S/G	0.11	0.76	0.17	2.50	4.78	3.79	17.69
	CANDELA	R &	ELBANK	TRIPLE	SECTION																
																					21.50

JACOB A. VIGIL - CONSULTING ENGINEERS

RUNOFF COMPUTATIONS

[illegible] B-6

ACRES – DRAINED							TOTAL	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7	CA							in / hr	c f s	
No. 1	Ac 2	C =	C = .65	C =	C =	C =	8	9	10	11	12	COMP	USED	14	15	16
				[illegible]									[illegible]			Q_1 = 8.57
													[illegible]			Q_2 = 8.57
a-1 67	[illegible]			[illegible]				[illegible]	[illegible]	.012	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Q_1 = 41.36
a-1 67				47.70				[illegible]	[illegible]	.012	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Q_2 = 41.36
																Y = .61
					[illegible]	[illegible]	[illegible]	[illegible]								
							NORTH	Q_{100} = 41.36 ; Q_{10} = 41.36 ; Y = 0.61								
							SOUTH	Q_{100} = 20.68 ; Q_{10} = 20.68 ; Y = 0.45								
							WEST	Q_{100} = 20.68 ; Q_{10} = 20.68 ; Y = 0.45								

RUNOFF COMPUTATIONS

PROJECT No. M-4047(1) 10YR FREQUENCY – ADMINISTRATIVE "WITH DRAINAGE AREA FROM MORRIS" SHT. 13 OF 34

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I in / hr	Q cfs	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7										
No. 1	Ac 2	C=	C = .45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
			AREA	OVER:	28.82 +	4.00 =	32.82 RT	28.82 +	5.11 =	33.93 LT	1/2 TO	CHANNEL	PIP. 1/2	TO MORRIS		
													27.20			LT Q_T = 16.41
													27.20			Q_T = 16.96
22+00 B-3-7 RT			3.90				1.76	640		.030	6.95	2.16	29.36	1.83	3.35	Q_T = 19.76
22+00 B-3-7 LT.			3.80				1.71	640		.030	4.99	2.14	29.36	1.83	3.14	Q_T = 20.10
26+50 B-3-8 RT.			5.90				2.66	640		.019	4.37	2.46	31.80	1.75	4.66	Q_T = 20.40
26+50 B-3-8 LT.			1.23				0.55	640		.019	4.39	2.43	31.77	1.75	0.97	Q_T = 21.07
30+00 B-3-9 RT.			14.90				6.71	300		.023	4.94	1.01	32.81	1.71	11.50	Q_T = 35.90
30+00 B-3-9 LT.			14.90				6.71	300		.023	4.94	1.01	32.78	1.72	11.50	Q_T = 32.57
33+00 B-3-10 RT.			16.53				7.30	300		.028	5.86	0.85	33.66	1.69	12.33	Q_T = 48.23
33+00 B-3-10 LT.			16.53				7.30	300		.028	5.72	0.87	33.65	1.69	12.33	Q_T = 44.90
36+00 B-3-11 RT.			16.44				7.40	400		.020	5.56	1.20	34.86	1.65	12.20	Q_T = 60.43
40+00 B-3-11 LT.			16.44				7.40	400		.020	5.47	1.22	34.87	1.65	12.20	Q_T = 57.10
36+00 B-3-12 RT.			2.20				0.99	300		.020	5.63	0.89	35.75	1.63	1.61	Q_T = 62.04
40+00 B-3-12 LT.			2.20				0.99	300		.020	5.53	0.90	35.77	1.63	1.61	Q_T = 58.71

INLET COMPUTATIONS

[illegible]

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
		E-3-7 LT	3.35	16.41	19.76	50	2500	.030	.39	19.53	.30	0.39	51.19	7.5 L/2	.147	.769	.223	4.41	5.87	5.14	14.62
		E-3-7 LT	3.14	16.96	20.10	50	2500	.030	0.39	19.65	.30	0.39	51.74	7.5 L/2	.145	.763	.221	4.45	5.92	5.19	14.91
		E-3-8 LT	4.66	16.62	19.26	50	2500	.019	0.42	21.07	.30	0.42	46.24	7.5 L/2	.162	.712	.248	4.78	5.87	5.33	13.94
		E-3-8 LT	0.97	14.71	15.88	50	2500	.019	0.39	19.60										—	19.60
		E-3-9 RT	11.50	13.94	25.44	50	2500	.083	0.45	22.56	.30	0.45	57.03	7.5 L/2	.132	.665	.207	5.27	6.94	6.10	19.34
		E-3-9 LT	11.50	19.60	31.10	50	2500	.083	0.49	24.33	.30	0.48	64.66	7.5 L/2	.116	.611	.184	5.81	7.87	6.84	24.26
		E-3-10 RT	12.33	19.34	31.67	50	2500	.028	0.47	23.61										—	31.67
		E-3-10 LT	12.33	24.26	36.59	50	2500	.028	0.50	24.92										—	36.59
		E-3-11 RT	12.20	31.67	43.87	50	2500	.020	0.58	28.86	0.30	0.57	80.15	7.5 L/2	.094	.520	.158	7.21	10.07	8.66	35.23
		E-3-11 LT	12.20	36.59	48.79	50	2500	.020	0.60	29.99	0.30	0.59	85.43	7.5 L/2	.088	.500	.150	7.55	10.74	9.16	39.63
		E-3-12 RT	1.61	35.23	36.84	50	2500	.020	0.54	27.11											36.84
		E-3-12 LT	1.61	39.63	41.24	50	2500	.020	0.56	28.23											41.24

RUNOFF COMPUTATIONS

PROJECT No. M-4000(1) 10YR-FREQUENCY - MORRIS, (B-4 AREA)

ACRES - DRAINED							TOTAL	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7	CA							in / hr	c f s	
No. 1	Ac 2	C=	C=.45	C=	C=	C=	8	9	10	11	12	COMP	USED	14	15	16
B-4-9 RT			0.90				0.41	450	12	.028	5.93	1.20	24.50	2.04	0.84	Q_T = 20.72
B-4-9 LT.			0.90				0.41	450	12	.028	5.93	1.20	24.50	2.04	0.84	Q_T = 20.72
B-4-8+10 RT			2.21				3.69	550	7	.020	5.59	1.05	25.55	1.99	7.36	Q_T = 28.10
B-4-8+10 LT			8.21				3.69	550	7	.020	5.59	1.05	25.55	1.99	7.36	Q_T = 28.10
B-4-11,7 RT			2.10				0.95	500	7	.014	5.06	1.65	27.20	1.92	1.81	Q_T = 29.91
B-4-11,7 LT			2.10				0.95	500	7	.014	5.06	1.65	27.20	1.92	1.81	Q_T = 29.91
B-4-1 RT.			13.50				6.08			.015	–	–	27.20	1.92	11.66	
B-4-1 LT.			13.50				6.08			.015	–	–	27.20	1.92	11.66	
B-4-2 RT			1.49				0.67			.033	–	–	27.20	1.92	1.28	
B-4-2 LT			1.49				0.67			.033	–	–	27.20	1.92	1.28	
B-4-3 RT.			1.10				0.50			.033			27.20	1.92	0.95	
B-4-3 LT.			1.10				0.50			.033			27.20	1.92	0.95	
B-4-4,5 RT.			8.28				3.73			.025			27.20	1.92	7.16	
B-4-4,5 LT.			8.28				3.73			.025			27.20	1.92	7.16	
B-4-6 RT			1.12				0.50			.024			27.20	1.92	0.96	
B-4-6 LT			1.12				0.50			.024			27.20	1.92	0.96	

← COMANCHE → ← MORRIS →

INLET COMPUTATIONS

PROJECT No M-4067(1) 10 YEAR FREQUENCY – MORRIS (PROJ. #1)

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
MORRIS	17+00 RT	B-4-9	0.84	19.90	20.74	50	2500	.028	0.40	20.14	0.30	0.40	52.08	3.5 D/C	.067	0.74	.110	2.27	4.52	3.40	17.34
MORRIS	17+00 LT.	B-4-9	0.84	19.90	20.74	50	2500	.028	0.40	20.14	0.30	0.40	52.08	3.5 D/C	.067	0.74	.110	2.27	4.52	3.40	17.34
SIDE HILL	0+00 RT	B-4-8	6.65	3.67	10.35	50	2500	.033	0.30	15.05	0.30	0.30	34.78	7.5 D/C	.216	1.00	.305	3.16	3.90	3.53	6.82
SIDE HILL	0+00 LT.	B-4-8	6.68	3.67	10.35	50	2500	.033	0.30	15.05	0.30	0.30	34.78	7.5 D/C	.216	1.00	.305	3.16	3.90	3.53	6.82
INTER-SECTION	0+00 LT	B-4-8	0	6.82	6.82	50	2500	.030	0.26	13.10	0.30	0.26	26.33	7.5 D/C	.285	1.14	.385	2.63	3.02	2.82	4.00
INTER-SECTION	0+00 RT	B-4-8	0	6.82	6.82	50	2500	.030	0.26	13.10	0.30	0.26	26.33	7.5 D/C	.285	1.14	.385	2.63	3.02	2.82	4.00
MORRIS	21+00 RT	B-4-10	.65	21.34	21.99	50	2500	.014	0.47	23.45	0.30	0.46	47.44	7.5 D/C	.158	0.64	.247	5.43	6.45	5.94	16.05
"	21+00 LT	B-4-10	.65	21.34	21.99	50	2500	.014	0.47	23.45	0.30	0.46	47.44	7.5 D/C	.158	0.61	.247	5.43	6.45	5.94	16.05
"	26+00 RT	B-4-11,7	1.81	16.05	17.86	50	2500	.014	0.43	21.69	0.30	0.43	41.65	7.5 D/C	.180	0.69	.275	4.90	5.66	5.28	12.58
"	26+00 LT	B-4-11,7	1.81	16.05	17.86	50	2500	.014	0.43	21.69	0.30	0.43	41.65	7.5 D/C	.180	0.69	.275	4.90	5.66	5.28	12.58
	1+50 RT	B-4-1	11.66	0	11.66	50	2500	.033	0.31	15.74	0.30	0.31	37.47	7.5 D/C	.200	0.95	.287	3.34	4.21	3.78	7.88
	1+50 LT	B-4-1	11.66	0	11.66	50	2500	.033	0.31	15.74	0.30	0.31	37.47	7.5 D/C	.200	0.95	.287	3.34	4.21	3.78	7.88
	1+50 JUNCTION SECTION	B-4-1 RT	0	7.88	7.88	50	2500	.033	0.27	13.59	0.30	0.27	29.33	7.5 D/C	.256	1.10	.351	2.76	3.29	3.03	4.55
	1+50 "	B-4-1 LT	0	7.88	7.88	50	2500	.033	0.27	13.59	—									—	7.88
	6+00	B-4-2 RT	1.28	4.85	6.13	50	2500	.033	0.25	12.37	.30	0.24	25.07	7.5 D/C	0.300	1.21	0.400	2.44	2.81	2.63	3.50
	6+00	B-4-2 LT	1.28	7.88	9.16	50	2500	.033	0.28	14.38	.30	0.28	32.23	7.5 D/C	0.233	1.04	0.325	2.97	3.62	3.27	5.87
	10+50	B-4-3 RT	0.95	3.50	4.45	50	2500	.033	0.22	10.97	.30	0.22	20.52	7.5 D/C	0.365	1.37	0.470	2.09	2.30	2.20	2.25
	10+50	B-4-3 LT	0.95	5.87	6.82	50	2500	.033	0.26	12.87	.30	0.25	26.80	7.5 D/C	0.280	1.17	0.378	2.57	3.01	2.79	4.03
	12+50	B-4-4,5 RT	7.16	2.25	9.41	50	2500	.025	0.31	15.30	0.30	0.30	31.11	7.5 D/C	0.241	0.95	0.337	3.188	3.71	3.45	5.96
	12+50	B-4-4,5 LT	7.16	4.03	11.19	50	2500	.025	0.33	16.33	0.30	0.323	34.67	7.5 D/C	0.216	0.92	0.310	3.47	4.14	3.80	7.39
	15+50	B-4-6 RT	0.96	5.96	6.92	50	2500	.024	0.27	13.74	0.30	0.27	25.48	7.5 D/C	0.294	1.09	0.400	2.77	3.07	2.92	4.00
	15+50	B-4-6 LT	0.96	7.39	8.36	50	2500	.024	0.29	14.74	0.30	0.29	25.65	7.5 D/C	0.262	1.018	0.363	3.03	3.45	3.24	5.11

RUNOFF COMPUTATIONS

PROJECT NO M-4009(1) [illegible] – MORRIS (B-2[illegible])

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7								in / hr	cfs	
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
A-1, A-2 & A-3 RT													18.41		18.0	Q_T = 18.0
A-1, A-2 & A-3 LT.													18.41		18.0	Q_T = 18.0
B-2-11 RT.	0.65		0.65				0.29	450	4.0	.009	3.22	2.33	16.94	2.55	0.75	Q_T = 18.75
B-2-11 LT.	0.65		0.65				0.29	450	4.0	.009	3.22	2.33	16.94	2.55	0.75	Q_T = 18.75
B-2-7+9 RT.	4.87		4.87				2.19	450	4.0	.009	3.26	2.30	17.24	2.36	5.18	Q_T = 23.93
B-2-7+9 LT.	4.87		4.87				2.19	450	4.0	.009	3.26	2.30	17.24	2.36	5.18	Q_T = 23.93
B-2-12+10 RT.	4.31		4.31				1.94	675	6.5	.010	3.60	3.12	22.36	2.16	4.19	Q_T = 26.12
B-2-12+10 LT.	4.31		4.31				1.94	675	6.5	.010	3.60	3.12	22.36	2.16	4.19	Q_T = 26.12
B-2-13 RT.	0.27		0.27				0.12	250	4.0	.016	4.47	0.93	23.29	2.11	0.26	Q_T = 23.55
B-2-13 LT.	0.27		0.27				0.12	250	4.0	.016	4.47	0.93	23.29	2.11	0.26	Q_T = 23.55
B-2-1 RT.	17.09		17.09				7.69	1950	55	.028	4.45	14.61	14.61	2.80	21.53	Q_T = 21.53
B-2-1 LT.	17.09		17.09				7.69	1950	55	.028	4.45	14.61	14.61	2.80	21.53	Q_T = 21.53
B-2-2 RT.	1.23		1.23				0.55	500	15	.030	5.29	1.57	16.18	2.62	1.45	Q_T = 22.98
B-2-2 LT.	1.23		1.23				0.55	500	15	.030	5.29	1.57	16.18	2.62	1.45	Q_T = 22.98
B-2-3 RT.	2.69		2.69				1.21	250	6	.021	4.71	0.99	17.17	2.53	3.06	Q_T = 26.06
B-2-3 LT.	2.69		2.69				1.21	250	6	.021	4.71	0.99	17.17	2.53	3.06	Q_T = 26.06
B-2-4 RT.	2.60		2.60				1.17	300	8	.027	5.34	0.94	15.11	2.45	2.87	Q_T = 25.91
B-2-4 LT.	2.60		2.60				1.17	300	8	.027	5.34	0.94	18.11	2.45	2.87	Q_T = 28.91
B-2-5 RT.	1.28		1.28				0.58	450	12	.027	5.47	1.37	19.68	2.36	1.35	Q_T = 30.26
B-2-5 LT.	1.28		1.28				0.58	450	12	.027	5.47	1.37	19.68	2.36	1.35	Q_T = 30.26
CEILITO	CREEK OVER	RIGHT														
CEILITO	CREEK OVER	LEFT.														

INLET COMPUTATIONS

Project No. [illegible] 10YR FREQUENCY - [illegible] (AREA B-2)

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	3+50 RT	B-2-11	0.75	18.0	18.75	50	2500	.009	0.48	24.0	0.30	0.476	39.53	7.5 P/C	.19	.625	.293	5.49	5.93	5.71	13.04
	3+50 LT	B-2-11	0.75	18.0	18.75	50	2500	.009	0.48	24.0	0.30	0.476	39.53	7.5 P/C	.19	.625	.293	5.49	5.93	5.71	13.04
	10+00 RT	B-2-11, B-2-12	9.37	13.04	22.41	50	2500	.010	0.50	25.15	.30	0.497	45.07	7.5 P/C	.166	0.60	.262	5.87	6.60	6.23	16.18
	10+00 LT	B-2-11, B-2-12	9.37	13.04	22.41	50	2500	.010	0.50	25.15	.30	0.497	45.07	7.5 P/C	.166	0.60	.262	5.87	6.60	6.23	16.18
	11+50 RT	B-2-13	0.26	16.18	16.44	50	2500	.016	0.41	20.51	.30	0.405	40.55	3.5 S/C	.086	0.73	.138	2.27	3.99	3.13	13.31
	11+50 LT.	B-2-13	0.26	16.18	16.44	50	2500	.016	0.41	20.51											16.44
	0+00 RT	B-2-1	21.53	0	21.53	50	2500	.040	0.38	19.11	.30	0.378	57.00	7.5 P/C	.132	.785	.201	4.34	6.13	5.24	16.30
	0+00 LT	B-2-1	21.53	0	21.53	50	2500	.040	0.38	19.11	.30	0.378	57.00	7.5 P/C	.132	.785	.201	4.34	6.13	5.24	16.30
																					16.30
	0+75 RT	B-2-1	0.0	16.30	16.30	50	2500	.030	.036	18.17	.30										
	0+75 LT	B-2-1	0.0	16.30	16.30	50	2500	.030	0.36	18.17	.30	.359	45.38	3.5 S/C	.077	.826	.122	1.99	3.85	2.94	13.36
																					16.30
	1+75 RT	B-2-1	0.0	16.30	16.30	50	2500	.030	.36	18.17											
	1+75 LT	B-2-1	0.0	13.36	13.36	50	2500	.030	.34	16.86	.30	.333	40.08	3.5 S/C	.087	.900	.135	1.81	3.42	2.62	10.74
																					17.75
	4+00 RT	B-2-2	1.45	16.30	17.75	50	2500	.030	.38	18.76											
	4+00 LT	B-2-2	1.45	10.74	12.19	50	2500	.030	.33	16.29	.30	.322	37.8	7.5 S/C	.198	.921	.286	3.48	4.34	3.91	8.28
	7+00 RT	B-2-3	3.06	17.75	20.81	50	2500	.021	0.43	21.29	0.30	0.421	49.46	3.5 S/C	.071	.705	.116	2.41	4.58	3.49	17.31
	7+00 LT	B-2-3	3.06	8.28	11.34	50	2500	.021	0.36	16.95	0.30	0.355	33.84	3.5 S/C	0.103	.855	.158	1.79	3.13	2.46	8.88
	10+50 RT	B-2-4	2.87	17.31	20.18	50	2500	.027	0.40	20.07	.30	.397	50.85	3.5 S/C	0.068	.747	.112	2.26	4.45	3.35	16.83
	10+50 LT	B-2-4	2.87	8.88	11.75	50	2500	.027	0.33	16.39	.30	0.32	36.26	7.5 S/C	.207	.915	.298	3.50	4.26	3.88	7.87
	10+50 RT'	B-2-4	0	12.35	12.35	50	2500	.027	0.33	16.70	.30	0.33	37.41	7.5 S/C	.200	.898	.290	3.58	4.39	3.99	8.36
	10+50 LT.'	B-2-4	0	12.35	12.35	50	2500	.027	0.33	16.70	.30	0.33	37.41	7.5 S/C	.200	.898	.290	3.58	4.39	3.99	8.36
	11+50 LT²	B-2-4	0	8.36	8.36	50	2500	.027	0.29	14.93	.30	.285	29.31	3.5 S/C	.126	1.040	.185	1.55	2.56	2.05	6.31
	SPLIT FLOWS TO CENITO + JULEIN																				
				14.6 CFS	7.3 TO CENITO + JULEIN																

JACOB A. VIGIL - CONSULTING ENGINEERS

RUNOFF COMPUTATIONS

PROJECT NO. M-4044(1) 10 MI FERRIDAY–NEWELLTON

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7										
No. 1	Ac 2	C=	C=0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	in / hr 14	cfs 15	16
A-1 & A-2 Rt													21.0		24.0	FROM T.T. ELEVATION
													21.0		24.0	"
A-1 & A-2 LT																
A-3 Rt.			36.95				16.63 1/2	2700	88	.0326	5.61	8.02	29.02	1.85	30.8	1/2 TO ALREADY Q_T = 54.80
							16.63 1/2	2700	88	.0326	5.61	8.02	29.02	1.85	30.8	1/2 TO ALREADY Q_T = 54.80
A-3 LT.			36.95													
A-4 RT			41.35				18.61 1/2	2700	60	.0222	5.30	8.49	37.51	1.58	29.45	1/2 TO ELEVATION Q_T = 84.25
A-4 LT.			41.35				18.61 1/2	2700	60	.0222	5.30	8.49	37.51	1.58	29.45	1/2 TO ELEVATION Q_T = 84.25
																1/2 TO ALREADY
A-3+ A-2-6.8			36.95					3200	119.	.037		18.41	18.41	2.45	40.68	Q_T = 40.68
A-3+ A-2-6.8			36.95					3200	119	.037		18.41	18.41	2.45	40.68	1/2 TO ALREADY Q_T = 40.68

INLET COMPUTATIONS

PROJECT NO. M-4000(1) JAMES FREDERICK - MONTGOMERY

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	0+00	A-1, A-2, A-3, A-4	54.80	0	54.80	50	2500	.033	0.56	28.12	.30	0.56	98.58	7.5 R/L	.076	0.53	.130	7.11	11.09	9.10	45.70
	0+00	" L	54.80	0	54.80	50	2500	.033	0.56	28.12	.30	0.56	98.58	7.5 L/R	.076	0.53	.130	7.11	11.09	9.10	45.70
	0+75	" R	–	45.70	45.70	50	2500	.033	0.52	26.27	.30	0.52	88.00	7.5 L/R	.085	0.57	.142	6.51	9.89	8.20	37.50
	0+75	" L	–	45.70	45.70	50	2500	.033	0.52	26.27	.30	0.52	88.00	7.5 L/R	.085	0.57	.142	6.51	9.89	8.20	37.50
	27+00	A-4 R	29.45	25.13	54.58	50	2500	.022	0.61	30.29	.30	0.60	91.13	7.5 R/L	.082	.495	.141	7.71	11.21	9.46	25.12
	27+00	A-4 L	29.45	25.13	54.58	50	2500	.022	0.61	30.29	.30	0.60	91.13	7.5 L/R	.082	.495	.141	7.71	11.21	9.46	25.12
	MONTGOMERY	MONT.		30.23	30.23	50	2500	.025	0.47	23.70											30.23
	FUBALL	MONT.		30.23	30.23	50	2500	.025	0.47	23.70											30.23
		FUBALL	0	14.89	14.89	50	2500	.011	0.42	21.20	.30	.419	35.53	7.5 R/L	.211	0.708	.316	4.71	5.09	4.90	9.99
		FUBALL	0	9.99	9.99	50	2500	.011	0.36	18.25	.30	0.361	27.69	7.5 R/L	.271	0.822	.388	3.88	3.96	3.92	6.06

RUNOFF COMPUTATIONS

PROJECT NO. M-4041(1) IOWA FREEWAY – FRONT – TIME OF CONCENTRATION FROM 0-1 & 0-2

ACRES – DRAINED							TOTAL	LENGTH	A	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7	CA							in / hr	cfs	
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
0-2-23 RT	27.01		27.01				12.15						31.08	2.76	33.77	
0-2-23 LT	27.01		27.01				12.15						31.08		33.77	
0-2-24 LT.	15.62		15.62				7.03								19.54	
0-2-24 LT	15.62		15.62				7.03								19.54	
0-2-22C RT	0.86		0.86				.39								1.08	
0-2-22C LT	0.86		0.86				.39								1.08	
0-2-22a RT	3.35		3.35				1.51								4.20	
0-2-22a LT	3.35		3.35				1.51								4.20	
0-2-22b RT	0.86		0.86				0.39								1.08	
0-2-22b LT	0.86		0.86				0.39								1.08	

INLET COMPUTATIONS

PROJECT NO. M-4064(1) [illegible] INTERCHANGE - FRONTAGE - TIME OF CONCENTRATION FROM A-14 A-12

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	18+75 RT	A-2-24	19.56	0	19.56	50	2500	.008	.50	24.91	.30	.49	39.67	7.5 P/L	.189	.60	.294	5.74	6.11	5.93	13.61
	18+75 LT	A-2-24	19.56	0	19.56			.008	.50	24.91	.30	.49	39.67	7.5 P/L	.189	.60	.294	5.74	6.11	5.93	13.61
	0+77 RT	C-2-22	33.77	0	33.77			.011	.58	28.81	.30	.57	59.28	7.5 P/L	.127	.52	.208	7.03	8.51	7.77	26.00
	0+77 LT	C-2-22	33.77	0	33.77			.011	.58	28.81	.30	.57	59.28	7.5 P/L	.127	.52	.208	7.03	8.51	7.77	26.00
	17+15 RT	C-2-22	1.08	39.61	40.69			.017	0.57	28.48	.30	.56	72.27	7.5 P/L	.104	.53	.173	7.04	9.42	8.23	32.46
	17+15 LT	C-2-22	1.08	39.61	40.69			.017	0.57	28.48	.30	.56	72.27	7.5 P/L	.104	.53	.173	7.04	9.42	8.23	32.46
	10+15 RT	A-2-22	4.20	32.46	36.66			.012	0.58	29.23	.30	.58	63.03	7.5 P/L	.118	.51	.196	7.19	8.93	8.06	28.60
	10+15 LT	A-2-22	4.20	32.46	36.66			.012	0.58	29.23	.30	.58	63.03	7.5 P/L	.118	.51	.196	7.19	8.93	8.06	28.60
	5+29 RT	A-2-26	1.08	28.60	29.68			.011	0.55	27.45											29.68
	5+29 LT	A-2-26	1.08	28.60	29.68			.011	0.55	27.45	.30	.54	54.69	3.5 S/C	.064	0.55	.110	3.27	5.85	4.56	25.12

RUNOFF COMPUTATIONS

PROJECT No. M-6001(1) 100 YEAR FREQUENCY (CARDELLINA & MARINE) AREA C-1 WITH ONLY ONE TYPE B-6 & WITHOUT

ACRES – DRAINED							TOTAL CA	LENGTH	A	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7								in / hr	cfs	
No. 1	Ac 2	C=	C=0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
					ONLY	ONE TYPE B-6							20.54	2.56		RIGHT Q_T = 24.30
					"	" " "							20.54	2.56		LEFT Q_T = 24.30
							21.47	2660	31	.012	3.87	11.41	31.95	2.73	58.69	Q_T = 82.99
C-1 RT			47.70				21.47	2660	31	.012	3.87	11.41	31.95	2.73	58.69	Q_T = 82.99
C-1 LT.			47.70													
			EXCESS	INFLOW	FREQUENCY	TO CONFLUENCE			82.99+	82.99−	41.36−	11.36	= 88.5	1/2 TO	CONFLUENCE	MIN
													31.95	2.73		RT. Q_T = 20.82
													31.95	2.73		LT. Q_T = 20.82
C-2-20 RT.			25.74				11.58	1750	44	.025	4.90	5.95	37.90	2.47	28.58	Q_T = 49.41
C-2-20 LT.			25.74				11.58	1750	44	.025	4.90	5.95	37.90	2.47	28.58	Q_T = 49.41
C-2-21 RT			4.47				2.01	850	14	.016	5.15	2.75	40.65	2.37	4.76	Q_T = 54.17
C-2-21 LT			4.47				2.01	850	14	.016	5.15	2.75	40.65	2.37	4.76	Q_T = 54.17
			CHECK	PEAK	USING	AREAS C-1 & C-2 ONLY										
C-1 RT.			47.70				21.47	4000	82.00	.025			22.39			Q_T = 81.52
C-1 LT.			47.70				21.47	4000	82.00	.025			22.39			Q_T = 81.52
			EXCESS	10 YEAR	FREQUENCY	TO CONFLUENCE	81.52+	81.52−	41.36−6	1.36=			88.32			
													22.39			Q_T = 20.08
													22.39			Q_T = 20.08
C-2-20 RT			25.74				11.58	1750	44	.025	4.86	6.00	28.39	2.93	34.00	Q_T = 54.08
C-2-20 LT			25.74				11.58	1750	44	.025	4.86	6.00	28.39	2.93	34.00	Q_T = 54.08
C-2-21 RT.			4.47				2.01	850	14	.016	5.27	2.69	31.08	2.78	5.59	Q_T = 59.67
C-2-21 LT			4.47				2.01	850	14	.016	5.27	2.69	31.08	2.78	5.59	Q_T = 59.67
	PEAK	USING	AREAS	C-1 +	C-2 +	C-1 +	C-2 + B-6	THEREFORE	USE	C-1 +	C-2					

INLET COMPUTATIONS

PROJECT No. M-4007(1) [illegible] AREAS C-1 & C-2 ONLY

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	C+00 RT	C-1+ C-2-20	34.00	20.00	54.00	50	2500	.025	0.59	29.47	0.30										54.00
	C+00 LT	"	34.00	20.00	54.00	50	2500	.025	0.59	29.47	0.30	0.58	92.81	7.5 D/C	.081	0.51	.138	7.46	11.10	9.29	44.79
	3+00 RT	"	0.0	54.00	54.00	50	2500	.016	0.64	32.05	0.30	0.63	85.36	3.5 S/C	.041	0.47	.075	4.06	8.40	6.23	47.85
	3+00 LT	"	0.0	44.79	44.79	50	2500	.016	0.60	29.86	0.30	0.59	75.87	7.5 D/C	.099	0.50	.167	7.47	10.02	8.75	36.04
	8+50 RT.	C-2-21	5.59	47.85	53.44	50	2500	.016	0.64	31.90	0.30	0.63	84.73	7.5 S/C	.089	0.47	.152	8.14	11.19	9.67	43.77
	8+50 LT.	C-2-21	5.59	36.04	41.36	50	2500	.016	0.58	29.15	0.30	0.57	72.48	7.5 D/C	0.103	.52	.173	7.21	9.57	8.39	33.24

RUNOFF COMPUTATIONS

PROJECT No. 11-4067(1) 100 YEAR FREQUENCY — CONTINUING "WITH CARRY OVER FROM MARKS"

DRAINAGE AREA No. 1	DRAINAGE AREA Ac 2	ACRES – DRAINED PAVED 3 C=	RESID. 4 C=.45	COMM. 5 C=	GRAVEL 6 C=	SODDED 7 C=	TOTAL CA 8	LENGTH 9	Δ 10	SLOPE 11	VELOCITY 12	TIME OF CONCENTRATION MIN 13 COMP.	USED	I in / hr 14	Q cfs 15	REMARKS 16
				CARRY OVER FROM MARKS : 36.66 + 12.72 = 48.61 ACRES							1/2 TO MARKS 1/2 TO CONTINUE					
							1.73	640		.030	5.46	50.56 + 1.95	22.49	3.37	5.85	Q_T = 80.15
B-3-7 Lt			3.85				1.73	640		.030	5.46	1.95	22.49	3.37	5.85	Q_T = 80.15
B-3-7 Lt			3.85				1.60	640		.019	4.85	2.20	24.69	3.19	5.11	Q_T = 35.26
B-3-8 Rt			3.56				1.60	640		.019	4.85	2.20	24.69	3.19	5.11	Q_T = 35.26
B-3-8 Lt			3.56				6.71	300		.023	5.42	0.92	25.61	3.12	20.93	Q_T = 56.19
B-3-9 +5 Rt			14.90				6.71	300		.023	5.42	0.92	25.61	3.12	20.93	Q_T = 56.19
B-3-9 +5 Lt			14.90				7.30	300		.028	6.55	0.76	26.37	3.07	22.41	Q_T = 78.60
B-3-10 +5 Rt			16.23				7.30	300		.028	6.55	0.76	26.37	3.07	22.41	Q_T = 78.60
B-3-10 +5 Lt			16.23				7.40	400		.020	6.29	1.06	27.43	3.00	22.17	Q_T = 100.77
B-3-11 +6 Rt.			16.44				7.40	400		.020	6.29	1.06	27.43	3.00	22.17	Q_T = 100.77
B-3-11 +6 Lt.			16.44				0.99	300		.020	6.69	.75	28.18	2.95	2.92	Q_T = 103.69
B-3-12 Rt.			2.20				0.99	300		.020	6.69	.75	28.18	2.95	2.92	Q_T = 103.69
B-3-12 Lt.			2.20													

INLET COMPUTATIONS

PROJECT No M-4067(1) 100YEAR FREQUENCY "WITH CROWN OFF FROM MARKS" — CONSTRUCTIBLE

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
		E-3-7 RT	5.85	24.30	30.15	50	2500	.030	0.46	22.88	.30	.45	66.66	7.5 P/C	.112	.66	.18	5.42	7.65	6.54	23.61
		E-3-7 LT	5.85	24.30	30.15	50	2500	.030	0.46	22.88	.30	.45	66.66	7.5 P/C	.112	.66	.18	5.42	7.65	6.54	23.61
		E-3-8 RT	5.11	23.61	28.72			.019	0.49	24.48	.30	.48	59.36	7.5 P/C	.126	.61	.20	5.81	7.54	6.68	22.04
		E-3-8 LT	5.11	23.61	28.72			.019	0.49	24.48											28.72
		E-3-9 RT	20.93	22.04	42.97			.023	0.55	27.47	0.30	.54	79.14	7.5 P/C	.095	.55	.16	6.80	9.64	8.22	34.75
		E-3-9 LT	20.93	28.72	49.65			.023	0.58	28.99	0.30	0.57	86.61	7.5 P/C	.087	.52	.15	7.30	10.55	8.93	40.72
		E-3-10 RT	22.41	34.75	57.16			.028	0.59	29.46											57.16
		E-3-10 LT	22.41	40.72	63.13			.028	0.61	30.58											63.13
		E-3-11 RT	22.17	57.16	79.33			.020	0.71	35.48	.30	0.70	113.09	7.5 P/C	.066	0.42	.119	9.43	14.22	11.82	67.50
		E-3-11 LT	22.17	63.13	85.30			.020	0.72	36.46	.30	0.72	118.34	7.5 P/C	.063	0.41	.115	9.77	14.88	12.32	72.97
		E-3-12 RT	2.92	67.50	70.42			.020	0.68	33.93											70.42
		E-3-12 LT	2.92	72.97	75.89			.020	0.70	34.89											75.89

TIME OF CONCENTRATION FROM B-4 FOR FLOWING TO COMMANCHE.
FROM C-2 " " TO CHARLENE

RUNOFF COMPUTATIONS

SHT. 27 OF 34

PROJECT NO. M-4000(1) 100YR FREQUENCY – TIME OF CONCENTRATION FROM B-4 – FLOWING

ACRES – DRAINED							TOTAL	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7	CA							in / hr	cfs	
No. 1	Ac 2	C=	C = .45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
HKEHS 3/4 + F (1+2+3)+16			21.23				9.55			.021			28.18	2.95	28.17	Q_T = 28.17
3/8 OF (1+2+3)+16			21.23				9.55			.021					28.17	Q_T = 28.17
B-3-11 RT			1.40				0.63								1.86	Q_T = 30.03
B-3-11 LT.			1.40				0.63								1.86	Q_T = 30.03
B-3-15 a RT.			0.85				0.38			.030					1.12	Q_T = 31.15
B-3-15 a LT.			0.85				0.38			.030					1.12	Q_T = 31.15
B-3-15 b RT			0.60				0.27			.030					0.80	Q_T = 31.95
B-3-15 b LT.			0.60				0.27			.030					0.80	Q_T = 31.95
B-3-14 a LT			1.47				0.66			.007					1.95	Q_T = 65.85
B-3-14 b	INTERCEPTED BY MISSING DRAINAGE.															
B-3-13 a			0.79				0.36			.017					1.06	Q_T = 66.91
B-3-13 b RT.			0.48				0.22			.017					0.65	Q_T = 67.56
B-3-13 b LT.			0.48				0.22			.017			28.18	2.95	0.65	Q_T = 0.65
		COMMANCHE & FOREPAK														
C-2-23 RT	54.02		54.02				24.31 1/2	3600		.021		23.67	23.67	3.40	41.33	Q_T = 41.33
C-2-23 LT.	54.02		54.02				24.31 1/2	3600		.021		23.67	23.67	3.40	41.33	Q_T = 41.33
C-2-24 RT.	31.24		31.24				14.06 1/2	-		-			23.67	3.40	23.90	Q_T = 65.23
C-2-24 LT	31.24		31.24				14.06 1/2	-		-			23.67	3.40	23.90	Q_T = 65.23
C-2-22c RT	1.72		1.72				0.77 1/2	400		.020	6.00	1.11	24.78	3.18	1.23	Q_T = 66.46
C-2-22c LT	1.72		1.72				0.77 1/2	400		.020	6.00	1.11	24.78	3.18	1.23	Q_T = 66.46
C-2-22g RT	6.70		6.70				3.02 1/3	-		.020			24.78	3.18	3.20	Q_T = 69.66
C-2-22g LT.	6.70		6.70				3.02 3/4	-		.020			24.78	3.18	6.40	Q_T = 72.86
C-2-22b RT	1.72		1.72				0.77 1/2	500		.006	3.88	2.15	26.92	3.03	0.59	Q_T = 70.24
C-2-22b LT.	1.72		1.72				0.77 3/4	500		.006	3.88	2.15	26.92	3.03	1.77	Q_T = 74.63

INLET COMPUTATIONS

PROJECT No. M-4067(1) 10 YEAR FREQUENCY—TIME OF CONCENTRATION TABLE B-4 — FUBLIK

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/a 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
17	KITT AVE 4+40 RT	[illegible]	28.17	0	28.17	50	2500	.011	0.54	26.92	.30	0.53	52.93	7.5 D/C	.142	0.56	.228	6.43	7.60	7.01	21.16
18	KITT AVE 4+40 LT.	"	28.17	0	28.17	|	|	.011	0.54	26.92	.30	0.53	52.93	7.5 D/C	.142	0.56	.228	6.43	7.60	7.01	21.16
16	FUBLIK 45+50 RT.	E-3-17	1.86	21.16	23.02	|	|	.021	0.44	22.11	.30	0.44	52.67	7.5 D/C	.142	0.68	.222	5.11	6.54	5.83	17.19
15	FUBLIK 45+50 LT.	E-3-17	1.86	21.16	23.02	|	|	.021	0.44	22.11	.30	0.44	52.67	7.5 D/C	.142	0.68	.222	5.11	6.54	5.83	17.19
14	FUBLIK 47+00 RT	E-3-15a	1.12	17.19	18.31	|	|	.031	0.38	18.86	0.30	0.37	49.11	7.5 D/C	.153	0.80	.231	4.22	5.59	4.91	13.40
13	FUBLIK 47+00 LT.	E-3-15a	1.12	17.19	18.31	|	|	.031	0.38	18.86	0.30	0.37	49.11	7.5 D/C	.153	0.80	.231	4.22	5.59	4.91	13.40
12	46+48 LT	E-3-15b	0.80	13.40	14.20	|	|	.031	0.34	17.15	0.30	0.34	41.89	7.5 D/C	.179	0.87	.263	3.73	4.77	4.25	9.95
11	34+00 RT	E-3-14a	0.80	13.40 + 9.95	24.15	|	|	.004	0.61	30.72	0.30	0.61	39.77	7.5 D/C	.189	0.49	.304	7.33	7.15	7.24	16.91
10	MEDIAN 35+00	E-3-14b				|	|													
9	33+75 RT	E-3-13a	1.06	16.91	17.97	|	|	.024	0.39	19.65	0.30	0.39	46.26	7.5 D/C	.162	0.76	.245	4.41	5.58	4.99	12.98
8	31+72 RT	E-3-15c	0.65	12.98	13.63	|	|	.024	0.35	17.71	0.30	0.35	38.92	7.5 D/C	.193	0.85	.285	3.85	4.69	4.27	9.36
7	31+69 LT.	E-3-13c	0.65	0	0.65	Y	Y	.024	0.11	5.66	0.30	0.11	5.81	7.5 D/C						0.65	0
	COMMERCE ROAD & FUBLIK																				
6	14+75 RT	24 1/2	23.90	0	23.90	50	2500	.008	0.54	26.86	0.30	0.53	44.99	7.5 D/C	0.166	0.56	.265	6.33	6.93	6.63	17.27
5	14+75 LT	24 1/2	23.90	0	23.90	50	2500	.008	0.54	26.86	0.30	0.53	44.99	7.5 D/C	0.166	0.56	.265	6.33	6.93	6.63	17.27
22	MEDIAN 34+77 RT	23 1/2	41.33	0	41.33	|	|	.011	0.62	31.09	.30	0.61	67.26	7.5 D/C	0.111	0.48	.188	7.75	9.66	8.71	32.62
21	" LT.	23 1/2	41.33	0	41.33	|	|	.011	0.62	31.09	.30	0.61	67.26	7.5 D/C	0.111	0.48	.188	7.75	9.66	8.71	32.62
4	17+15 RT	22c 1/2	1.23	49.87	51.12	|	|	.017	0.62	31.02	.30	0.61	83.35	7.5 D/C	0.090	0.48	.154	7.87	10.86	9.37	41.75
3	17+11 LT.	22c 1/2	1.23	49.87	51.12	|	|	.017	0.62	31.02	.30	0.61	83.35	7.5 D/C	0.090	0.48	.154	7.87	10.86	9.37	41.75
2	16+15 RT	22a 1/2	3.20	41.75	44.95	|	|	.012	0.63	31.56	.30	0.62	72.05	7.5 D/C	0.104	0.48	.177	7.93	10.15	9.04	35.91
1	16+15 LT	22a 1/2	6.40	41.75	48.15	|	|	.012	0.65	32.38	.30	0.64	75.21	7.5 D/C	0.100	0.46	.170	8.21	10.59	9.40	38.75
EXISTING	5+29 LT.	22b 1/2	1.77	38.75	40.52	|	|	.011	0.62	30.85	.30	0.61	66.43	3.5 S/C	0.052	0.48	.094	3.81	7.11	5.46	35.06
						Y	Y														

RUNOFF COMPUTATIONS

PROJECT No. M-4069(1) 100 YEAR FREQUENCY - MORRIS (B-4 AREA)

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I	Q	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7								in / hr	cfs	
No. 1	Ac 2	C=	C=.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
B-4-9 RT			0.90				0.41	430	12	.028	6.17	1.16	17.55	3.56	1.57	Q_T = 45.55
B-4-9 LT.			0.90				0.41	430	12	.028	6.17	1.16	17.55	3.56	1.57	Q_T = 45.55
B-4-8+10 RT.			8.21				3.69	350	7	.020	5.48	1.06	18.91	3.75	13.84	Q_T = 57.39
B-4-8+10 LT.			8.21				3.69	350	7	.020	5.48	1.06	18.91	3.75	13.84	Q_T = 57.39
B-4-11+7 RT			2.10				0.95	500	7	.014	5.13	1.63	20.54	3.56	3.37	Q_T = 62.76
B-4-11+7 LT			2.10				0.95	500	7	.014	5.13	1.63	20.54	3.56	3.37	Q_T = 62.76
B-4-1 RT.			13.50				6.08			.015			20.54	3.56	21.64	Q_T = 21.64
B-4-1 LT.			13.50				6.08			.015			20.54	3.56	21.64	Q_T = 21.64
B-4-2 RT.			1.49				0.67			.033			20.54	3.56	2.39	Q_T = 24.03
B-4-2 LT.			1.49				0.67			.033			20.54	3.56	2.39	Q_T = 24.03
B-4-3 RT.			1.10				0.50			.033			20.54	3.56	1.78	Q_T = 26.81
B-4-3 LT.			1.10				0.50			.033			20.54	3.56	1.78	Q_T = 26.81
B-4-4+5 RT			8.28				3.73			.025			20.54	3.56	13.28	Q_T = 39.09
B-4-4+5 LT			8.28				3.73			.025			20.54	3.56	13.28	Q_T = 39.09
B-4-6 RT.			1.12				0.50			.024			20.54	3.56	1.78	Q_T = 40.87
B-4-6 LT.			1.12				0.50			.024			20.54	3.56	1.78	Q_T = 40.87

INLET COMPUTATIONS

PROJECT No. M-[illegible] Heyden [illegible] – Metric [illegible] – (Area B-4)

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
Metric	[illegible]	B-4-9	1.57	40.85	42.45	50	2500	.028	0.53	26.35	.30	.52	81.49	3.5 S/G	.043	.57	.076	3.22	7.08	5.15	37.30
Metric	[illegible]	B-4-9	1.57	40.85	42.45	50	2500	.028	0.53	26.35	.30	.52	81.47	3.5 S/G	.043	.57	.076	3.22	7.08	5.15	37.30
[illegible]	[illegible]	B-4-8	13.84	8.91	22.75	50	2500	.033	0.40	20.22	.30	0.40	56.91	7.5 D/G	.132	.74	.204	4.63	6.39	5.51	17.24
[illegible]	[illegible]	B-4-8	13.84	8.91	22.75	50	2500	.033	0.40	20.22	.30	0.40	56.91	7.5 D/G	.132	.74	.204	4.63	6.39	5.51	17.24
[illegible]	[illegible]	B-4-8	0	17.24	17.24	50	2500	.030	0.37	18.55	.30	0.37	47.00	7.5 D/G	.160	.81	.239	4.13	5.39	4.76	12.48
[illegible]	[illegible]	B-4-8	0	17.24	17.24	50	2500	.030	0.37	18.55	.30	0.37	47.00	7.5 D/G	.160	.81	.239	4.13	5.39	4.76	12.48
Metric	[illegible]	B-4-10	0	49.78	49.78	50	2500	.014	0.64	31.86	.30	.63	79.65	7.5 D/G	.097	.47	.166	8.28	10.76	9.51	40.26
Metric	[illegible]	B-4-10	0	49.78	49.78	50	2500	.014	0.64	31.86	.30	.63	79.65	7.5 D/G	.097	.47	.166	8.28	10.76	9.51	40.26
Metric	[illegible]	B-4-11+7	3.37	40.26	43.63	50	2500	.014	0.61	30.32	.30	0.60	72.79	7.5 D/G	.103	.49	0.176	7.58	9.90	8.74	34.89
Metric	[illegible]	B-4-11+7	3.37	40.26	43.63	50	2500	.014	0.61	30.32	.30	0.60	72.79	7.5 D/G	.103	.49	.176	7.58	9.90	8.74	34.89
	1+50 RT.	B-4-1	21.64	0	21.64	50	2500	.033	0.40	19.85	.30	0.39	55.16	7.5 D/G	.136	.76	.209	4.52	6.20	5.36	16.28
	1+50 LT.	B-4-1	21.64	0	21.64	50	2500	.033	0.40	19.85	.30	0.39	55.16	7.5 D/G	.136	.76	.209	4.52	6.20	5.36	16.28
	1+50 [illegible]	B-4-1 RT.	0	16.28	16.28	50	2500	.033	0.36	17.84	.30	0.35	46.17	7.5 D/G	.162	.84	.242	3.94	5.18	4.56	11.72
	1+50 [illegible]	B-4-1 LT.	0	16.28	16.28	50	2500	.033	0.36	17.84	—										16.28
	6+00	B-4-2 RT.	2.39	14.00	16.39	50	2500	.033	0.36	17.88	0.30	0.35	46.36	7.5 D/G	.162	.839	.240	3.95	5.21	4.58	11.81
	6+00	B-4-2 LT.	2.39	14.00	16.39	50	2500	.033	0.36	17.88	0.30	0.35	46.36	7.5 D/G	.162	.839	.240	3.95	5.21	4.58	11.81
	10+50	B-4-3 LT.	1.78	11.81	13.59	50	2500	.033	0.33	16.67	0.30	0.33	41.24	7.5 D/G	.182	.900	.265	3.60	4.63	4.12	9.47
	10+50	B-4-3 LT.	1.78	11.81	13.59	50	2500	.033	0.33	16.67	0.30	0.33	41.24	7.5 D/G	.182	.900	.265	3.60	4.63	4.12	9.47
	12+50	B-4-4+2 RT.	13.28	9.47	22.75	50	2500	.025	0.43	21.30	0.30	0.42	54.02	7.5 D/G	.139	.704	.216	4.90	6.45	5.68	17.07
	12+50	B-4-4+2 LT.	13.28	9.47	22.75	50	2500	.025	0.43	21.30	0.30	0.42	54.02	7.5 D/G	.139	.704	.216	4.90	6.45	5.68	17.07
	15+50	B-4-6 RT.	1.78	17.07	18.85	50	2500	.024	0.40	20.00	0.30	0.40	47.66	7.5 D/G	.157	.750	.239	4.50	5.75	5.13	13.72
	15+50	B-4-6 LT.	1.78	17.07	18.85	50	2500	.024	0.40	20.00	0.30	0.40	47.66	7.5 D/G	.157	.750	.239	4.50	5.75	5.13	13.72

RUNOFF COMPUTATIONS

PROJECT NO. IM-40(4) 100 YEAR THROUGH - MERVIC (B-2 AREA)

ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I in / hr	Q cfs	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7										
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
4-1, N-2 RT.															33.0	Q_T = 33.0
4-1, N-2 LT.															33.0	Q_T = 33.0
B-2-11 RT.			0.65				0.29	450	4.0	.007			16.69	4.06	1.17	Q_T = 34.17
B-2-11 LT			0.65				0.29	450	4.0	.007			16.69	4.06	1.17	Q_T = 34.17
B-2-7,9 RT			4.87				2.19	450	4.0	.007			16.69	4.06	8.85	Q_T = 43.02
B-2-7,9 LT			4.87				2.19	450	4.0	.007			16.69	4.06	8.85	Q_T = 43.02
B-2-12,10 RT			4.31				1.94	675	6.5	.010			16.69	4.06	7.86	Q_T = 50.86
B-2-12,10 LT			4.31				1.94	675	6.5	.010			16.69	4.06	7.86	Q_T = 50.86
B-2-13 RT.			0.27				0.12	250	4.0	.016			16.69	4.06	0.48	Q_T = 51.34
B-2-13 LT.			0.27				0.12	250	4.0	.016			16.69	4.06	0.48	Q_T = 51.34
B-2-1 RT			17.09				7.69	1950	55	.028		12.43	12.43	4.81	37.05	37.05
B-2-1 LT			17.09				7.69	1950	55	.028		12.43	12.43	4.81	37.05	37.05
B-2-2 RT			1.23				0.55	500	15	.030		1.37	13.80	4.52	2.50	39.55
B-2-2 LT.			1.23				0.55	500	15	.030		1.37	13.80	4.52	2.50	39.55
B-2-3 RT			2.69				1.21	280	6	.021		0.87	14.67	4.36	5.28	44.83
B-2-3 LT.			2.69				1.21	280	6	.021		0.87	14.67	4.36	5.28	44.83
B-2-4 RT			2.60				1.17	300	8	.027		0.82	15.49	4.22	4.94	49.77
B-2-4 LT.			2.60				1.17	300	8	.027		0.82	15.49	4.22	4.94	49.77
B-2-5 RT			1.28				0.58	450	12	.027		1.20	16.69	4.06	2.33	52.10
B-2-5 LT.			1.28				0.58	450	12	.027		1.20	16.69	4.06	2.33	52.10
CRILITO	GREEN RIVER	RIGHT														
CRILITO	GREEN RIVER	LEFT														

INLET COMPUTATIONS

PROJECT NO. M-4000 (1) 10-YEAR FREQUENCY - MORRIS (APPX B-2)

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	3+50 RT	B-2-11 RT	1.17	33.0	34.17	50	2500	.009	0.60	30.05	.30	.59	57.51	7.5 P/L	.130	.50	.215	7.36	8.63	8.00	26.17
	3+50 LT	B-2-11 LT	1.17	33.0	34.17	50	2500	.009	0.60	30.05	.30	.59	57.51	7.5 P/L	.130	.50	.215	7.36	8.63	8.00	26.17
	10+00 RT	B-2-11 RT & 7+00 RT	16.69	26.17	42.86	50	2500	.010	0.64	32.05	.30	.63	67.57	7.5 P/L	.111	0.47	.188	8.05	9.91	8.75	33.55
	10+00 LT	B-2-11 LT & 7+00 RT	16.69	26.17	42.86	50	2500	.010	0.64	32.05	.30	.63	67.57	7.5 P/L	.111	0.47	.188	8.05	9.91	8.75	33.55
	11+50 RT	B-2-13	0.68	33.88	34.36	50	2500	.016	0.54	27.03	.30	0.53	66.28	3.5 S/L	.054	.55	.095	3.26	6.33	4.79	29.57
	11+50 LT	B-2-13	0.68	33.88	34.36	50	2500	.016	0.54	27.03											34.36
	0+00 RT	B-2-1	37.05	0	37.05	50	2500	.020	0.46	23.42	.30	0.46	80.02	7.5 P/L	.094	0.64	0.153	5.65	8.62	7.13	29.92
	0+00 LT	B-2-1	37.05	0	37.05	50	2500	.020	0.46	23.42	.30	0.46	80.02	7.5 P/L	.094	0.64	0.153	5.65	8.62	7.13	29.92
	0+75 RT	B-2-1	0	29.92	29.92	50	2500	.030	0.45	22.81											29.92
	0+75 LT	B-2-1	0	29.92	29.92	50	2500	.030	0.45	22.81	.30	0.45	66.34	3.5 S/L	.053	.657	.090	2.68	5.67	4.18	25.74
	1+75 RT	B-2-1	0	29.92	29.92	50	2500	.030	0.45	22.81											29.92
	1+75 LT	B-2-1	0	25.74	25.74	50	2500	.030	0.43	21.56	.30	0.43	60.38	3.5 S/L	.058	0.70	.100	2.49	5.16	3.85	21.91
	4+00 RT	B-2-2	2.50	29.92	32.42	50	2500	.030	0.47	23.51											32.42
	4+00 LT	B-2-2	2.50	21.91	24.41	50	2500	.030	0.42	21.14	.30	0.42	58.41	7.5 P/L	.128	.71	.200	4.89	6.70	5.80	18.61
	7+00 RT	B-2-3	5.28	32.42	37.70	50	2500	.021	0.53	26.60	0.30	0.53	71.69	3.5 S/L	.049	0.56	.086	3.22	6.64	4.93	32.77
	7+00 LT	B-2-3	5.28	18.61	23.89	50	2500	.021	0.45	22.42	.30	0.44	53.91	3.5 S/L	.065	.67	.108	2.58	4.99	3.79	20.10
	10+50 RT	B-2-6	4.94	32.77	37.71	50	2500	.027	0.51	25.36	.30	0.50	75.16	3.5 S/L	.047	.59	.081	3.06	6.58	4.83	32.89
	10+50 LT	B-2-6	4.94	20.10	25.04	50	2500	.027	0.44	21.77	.30	0.43	58.19	7.5 P/L	.129	.69	.202	5.06	6.54	5.95	19.09
	10+50 RT'	B-2-6	0	25.99	25.99	50	2500	.027	0.44	22.07	.30	.44	59.56	7.5 P/L	.126	.68	.198	5.15	7.00	6.07	19.92
	10+50 LT'	B-2-6	0	25.99	25.99	50	2500	.027	0.44	22.07	.30	.44	59.56	3.5 S/L	.059	.68	.098	2.55	5.21	3.88	22.11
	10+50 LT²	B-2-6	0	22.11	22.11	50	2500	.027	0.42	20.77	.30	.41	53.84	7.5 P/L	.139	.72	.215	4.76	6.32	5.54	16.57
			SPLIT	FLOWS	TO CEILING & JULENE			35.66													
							17.83 to	CEILING &	JULENE												

RUNOFF COMPUTATIONS

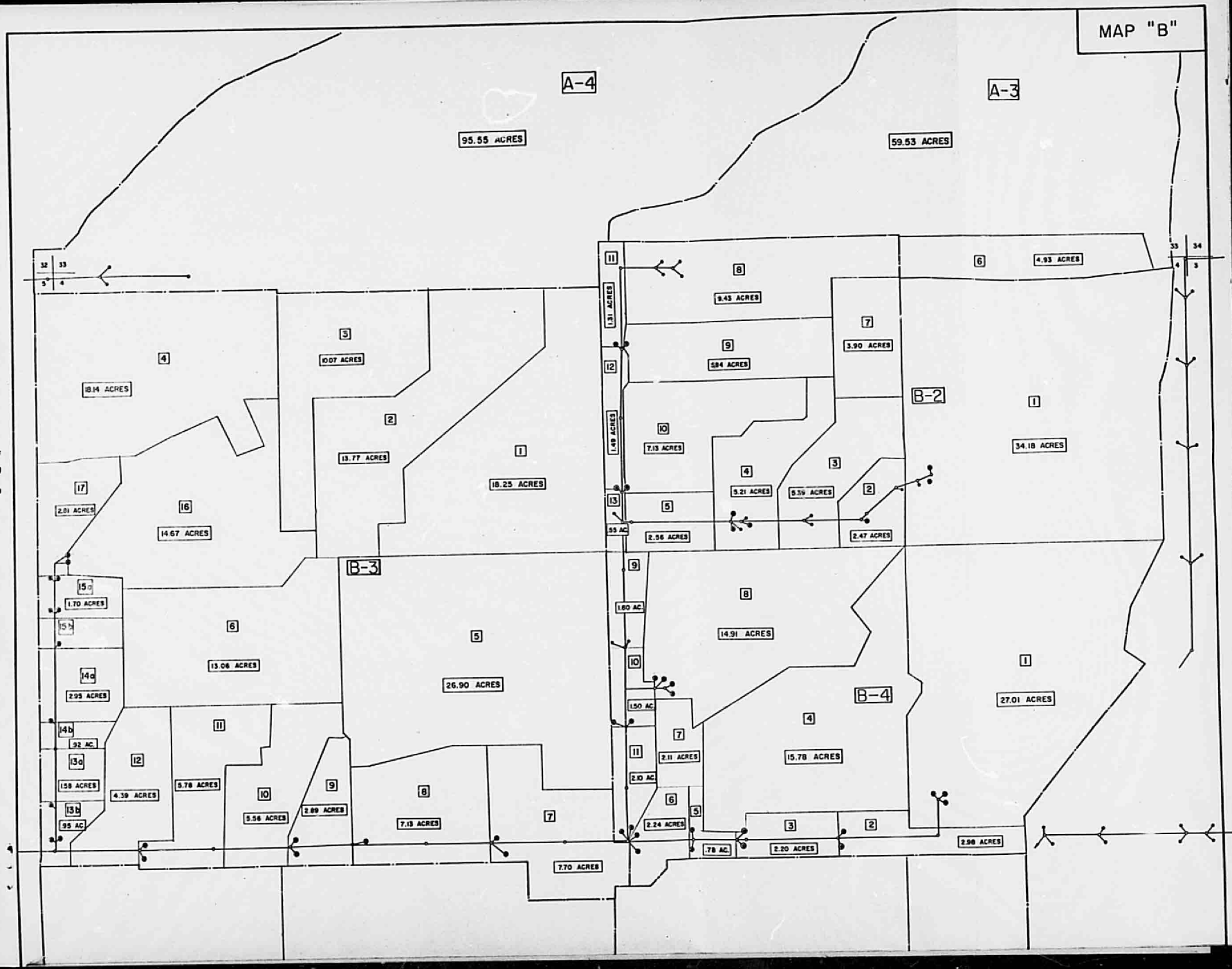
PROJECT No. U-4064(1) [illegible]

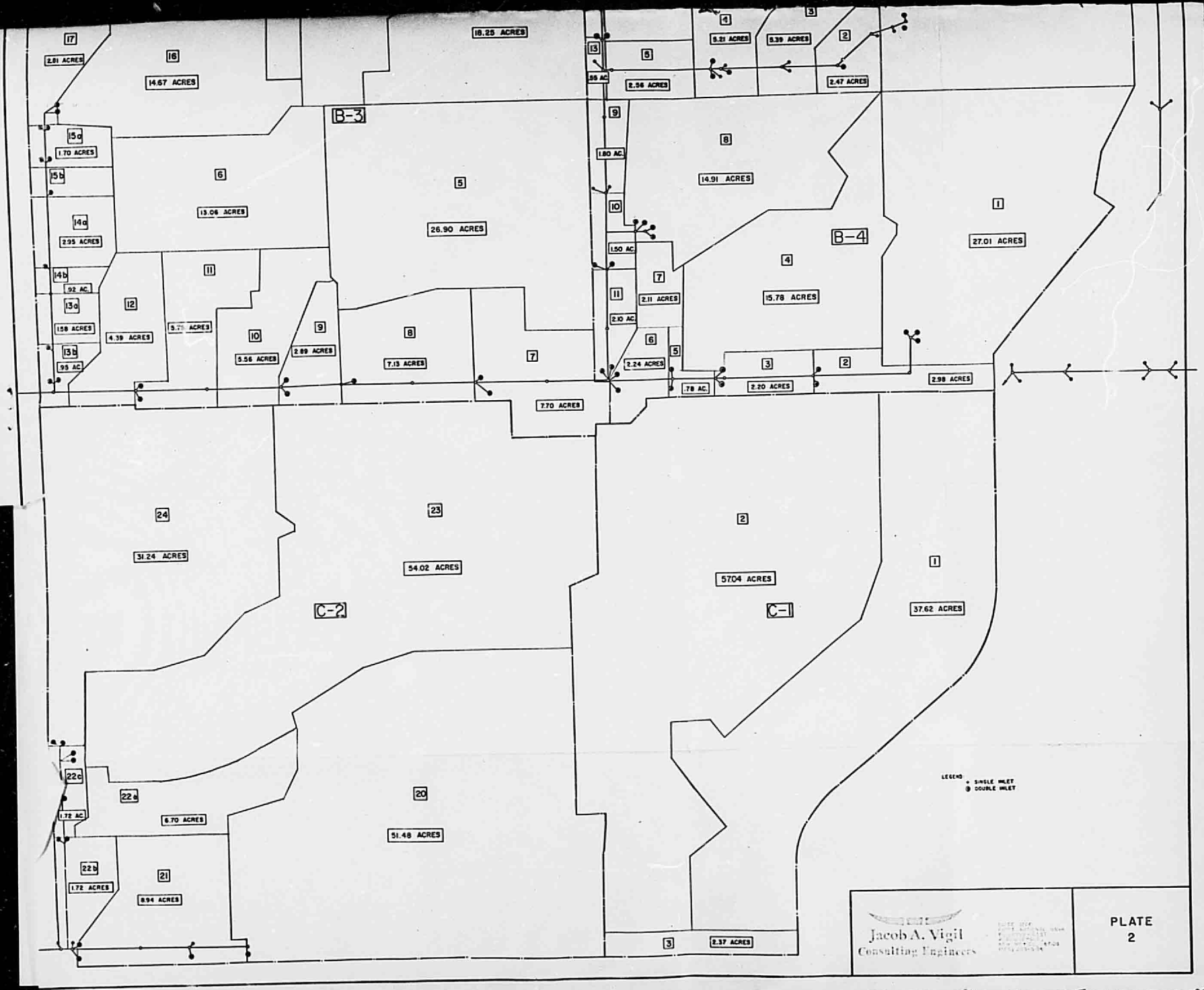
ACRES – DRAINED							TOTAL CA	LENGTH	Δ	SLOPE	VELOCITY	TIME OF CONCENTRATION MIN 13		I in / hr	Q cfs	REMARKS
DRAINAGE AREA		PAVED 3	RESID. 4	COMM. 5	GRAVEL 6	SODDED 7										
No. 1	Ac 2	C=	C = 0.45	C=	C=	C=	8	9	10	11	12	COMP.	USED	14	15	16
A-1, A-2 RT													21.0		52.0	FROM: T.T. BURNETT
A-1, A-2 LT													21.0		52.0	"
A-3 RT.			36.95				16.63	[illegible]	RF	.033	6.84	6.58	27.58	3.23	53.74	Q_T = [illegible] 105.74 [illegible]
A-3 LT.			36.95				16.63	[illegible]	RF	.033	6.84	6.58	27.58	3.23	53.74	Q_T = [illegible] 105.74 [illegible]
A-4 RT.			41.35				18.61	[illegible]	GC	.022	6.34	7.10	34.68	2.82	52.42	[illegible] Q_T = 122.90
A-4 LT.			41.35				18.61	[illegible]	GC	.022	6.34	7.10	34.68	2.82	52.42	[illegible] Q_T = 122.90

INLET COMPUTATIONS

PROJECT No. N-4-64(1) 100 YEAR FREQUENCY - MONTGOMERY

INLET No. 1	INLET STATION 2	D.A. No. 3	Qa cfs 4	CARRY OVER cfs 5	TOTAL Qa cfs 6	z 7	z/n 8	s ft/ft 9	y ft 10	PONDED WIDTH y x z ft 11	a ft 12	qL cfs 13	La=Qa/qL ft 14	L ft 15	L/La 16	a/y 17	Q/Qa 18	Q= Qa x Q/Qa cfs 19	GRATE CAPACITY cfs 20	INTER-CEPTED Q cfs 21	CARRY OVER Q cfs 22
	0+00	A-1, A-2, A-3	105.76	-	105.76	50	2500	.033	.72	25.78	.30	.711	148.66	7.5	.050	0.417	.0926	9.80	16.73	13.27	92.47
	0+00	A-1, A-2, A-3	105.76	-	105.76	50	2500	.033	.72	25.78	.30	.711	148.66	7.5	.050	0.417	.0926	9.80	16.73	13.27	92.47
	0+75	"	0.	92.47	92.47	50	2500	.033	0.65	24.21	.30	0.676	136.91	7.5	.050	0.44	.100	9.16	15.38	12.78	80.17
	0+75	"	0.	92.47	92.47	50	2500	.033	0.65	24.21	.30	0.676	136.91	7.5	.050	0.44	.100	9.16	15.38	12.78	80.17
	2+00	A-4 RT	52.42	53.73	106.15	50	2500	.022	0.78	38.88	.30	0.769	138.11	7.5 D/C	.054	0.39	.100	10.66	17.01	13.84	1/3 of 92.31
	2+00	A-4 LT	52.42	53.73	106.15	50	2500	.022	0.78	38.88	.30	0.769	138.11	7.5 D/C	.054	0.39	.100	10.66	17.01	13.84	1/3 of 92.31
	MONTGOMERY RT		MONT.	61.85	61.85	50	2500	.025	0.62	31.00											61.85
	EUBANK LT		MONT.	61.85	61.85	50	2500	.025	0.62	31.00											61.85
			EUBANK	30.46	30.46	50	2500	.011	0.55	27.72	.30	0.55	55.58	7.5 D/C	.135	0.54	.219	6.68	7.98	7.33	23.13
			EUBANK	23.13	23.13	50	2500	.011	0.50	25.00	.30	.494	46.80	7.5 D/C	.160	0.60	.253	5.84	6.71	6.28	16.85


MAP "B"
A-4
95.55 ACRES
A-3
59.53 ACRES
B-2
B-3
B-4
18.14 ACRES
10.07 ACRES
13.77 ACRES
18.25 ACRES
1.31 ACRES
1.49 ACRES
9.43 ACRES
5.84 ACRES
3.90 ACRES
4.93 ACRES
34.18 ACRES
7.13 ACRES
5.21 ACRES
5.39 ACRES
2.56 ACRES
2.47 ACRES
.55 AC
2.01 ACRES
14.67 ACRES
1.70 ACRES
13.06 ACRES
26.90 ACRES
1.60 AC
14.91 ACRES
27.01 ACRES
2.95 ACRES
1.50 AC
2.11 ACRES
15.78 ACRES
.92 AC
2.10 AC
1.58 ACRES
4.39 ACRES
5.78 ACRES
5.56 ACRES
2.89 ACRES
7.13 ACRES
.95 AC
2.24 ACRES
.78 AC
2.20 ACRES
2.98 ACRES
7.70 ACRES


17
2.81 ACRES
16
14.67 ACRES
18.25 ACRES
13
.55 AC
5
2.56 ACRES
4
5.21 ACRES
3
5.39 ACRES
2
2.47 ACRES
B-3
15a
1.70 ACRES
15b
6
13.06 ACRES
5
26.90 ACRES
9
1.80 AC.
8
14.91 ACRES
14a
2.95 ACRES
10
1.50 AC.
B-4
1
27.01 ACRES
14b
.92 AC.
11
7
2.11 ACRES
4
15.78 ACRES
13a
1.58 ACRES
12
4.39 ACRES
10
5.56 ACRES
9
2.89 ACRES
8
7.13 ACRES
7
11
2.10 AC.
6
2.24 ACRES
5
3
2.20 ACRES
2
2.98 ACRES
13b
.95 AC.
.78 AC.
7.70 ACRES
24
31.24 ACRES
23
54.02 ACRES
C-2
2
5704 ACRES
C-1
1
37.62 ACRES
22c
1.72 AC.
22a
6.70 ACRES
20
51.48 ACRES
22b
1.72 ACRES
21
8.94 ACRES
3
2.37 ACRES
LEGEND
+ SINGLE INLET
@ DOUBLE INLET
Jacob A. Vigil
Consulting Engineers
PLATE
2