FINAL DRAINAGE STUDY FOR THE STONEBRIDGE SUBDIVISION AND MASTER PLAN FOR THE MCMAHON PROPERTIES

FEBRUARY 24, 1999

PREPARED FOR:

CENTEX HOMES
BUILDING B
6700 JEFFERSON NE
ALBUQUERQUE, NEW MEXICO 87109

STONEBRIDGE SUBDIVISION
MASTER DRAINAGE PLAN

September 2, 1999

PREPARED BY:

BOHANNAN HUSTON, INC.
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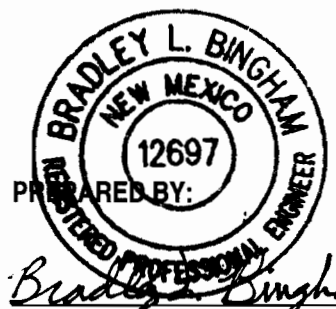

PREPARED BY:

Bradley L. Bingham 9/1/99

Bradley Bingham, P.E. Date

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PLATES

INTRODUCTION

...a nage Study will address the developed storm runoff of the properties ...acts 13, 20, 21 lands of Haeglin, Tracts 14-16, 22, 28, 33 lands of Smith, ...o J.N.M, Parcels 17, 26, 30 lands of Lincoln Road, LTD Tracts 18, 29, ...TD, Tracts 3-B lands of Dr. Harville, Tracts 36, 39 lands of Achen, Tracts ...North and Tracts 34A, 35B lands of A and P, which will be called the ...r

...g Subdivision is bounded by McMahon Blvd. on the south, and ...he west, and north, and the Paradise Heights to the east. It is zoned R-1.

...ap for location. **(Figure 1)**

...dy is necessary in order to establish a comprehensive drainage plan that ..., with respect to drainage, and allows for a well-planned, phased project.

METHODOLOGY

...roposed site hydrological conditions were analyzed for the 100-year, 6-hour ...with the revised Section 22.2, Hydrology, of the Development Process ...City of Albuquerque, dated January 1993. Street capacities were analyzed ...ation, consistent with the revised DPM Section 22.2. All data and calculations ...are located in Appendix B. The new rational method hydrologic procedures ...revised DPM Section 22.2 are utilized to determine peak flow rates for design ...improvements within the projects. The 100-year, 6-hour storm is used as ...results are included in the **Appendix.**

...system internal to each phase will be preliminarily sized and designed at ...analyzed and revised (if necessary) during the preliminary platting process for ...

EXISTING CONDITIONS

Topography and Existing Drainage Patterns

The Subdivision will be sited on undeveloped land with slopes ranging [illegible] to the northeast. Soils are highly absorptive sandy soils with [illegible] vegetation is light, consisting of chamisa, weeds and desert grasses. The [illegible] FEMA floodplain as shown on FIRM map 108. The existing drainage [illegible] graphically on the Existing Conditions Basin Map, **Plate 2**. The region was [illegible] analysis. In Basin UD1, recent earthwork was done; thus some of the [illegible] Basin UD2, there are slopes greater than 10 percent. The land treatments [illegible] reflect these conditions.

Offsite Drainage

[illegible] portion of the north side of McMahon Blvd., when McMahon is fully built, [illegible] will be designed to coincide with the intersection of Stonebridge Dr. [illegible] subdivision, according to the Tuscany West Master Drainage Report [illegible] Table 1. This runoff will be accounted for in the design of the internal storm [illegible] A small amount of existing land to the west of the property (designated by [illegible] drains onto the Stonebridge property. Basin UD4A will drain along its [illegible] Stonebridge Arroyo and will not enter the subdivision until it is developed. This [illegible] accounted for in the design of the northerly road. This runoff will be directed [illegible] swale that will run northward along the western boundary in a temporary 20'- [illegible] easement. This swale will be designed for developed runoff from this offsite basin. However, [illegible] this offsite property is developed, the developed runoff shall be picked up at the access, [illegible] and conveyed northward. A desiltation pond will be necessary during the interim of Unit 2 [illegible] in the southeast corner of the property, a small portion (Basins DF1 and DF2) drains [illegible] McMahon and is accounted for in the Tuscany West Master Plan.

Black Arroyo Detention Facility

[illegible] and east of the proposed subdivision is the Black Arroyo Detention [illegible] fully developed runoff from the Stonebridge subdivision as well as all [illegible] stream. There is an improved inlet to this dam on the Black Arroyo. Runoff [illegible] the Black Arroyo Dam at the improved inlet. The actual connection to [illegible] done during the last phase of the project. Per agreement with AMAFCA, [illegible] operation of the connection. **See Plate 2.**

SAD 225

[illegible] of the project area is included in Special Assessment District 225, [illegible] drainage, access and sanitary sewer problems in the Paradise Heights [illegible] to the east. A drainage area basin map, **Plate 4**, shows Basins W-1D, W-2D [illegible] which shows that 136.6 cfs drains to the district. A storm drain shall be built to [illegible] this. This project will contribute only 114.2 cfs. If this SAD is not [illegible] runoff from this basin will be diverted to the north and combined with the [illegible] Stonebridge runoff. See **Plate 5** for storm drain sizes with and without the SAD

LAND TREATMENTS

[illegible] Table 1 for land treatments for each basin. Land treatments are for developed

FULLY DEVELOPED CONDITIONS

Plate 3 [illegible] represents full development of the Stonebridge Subdivision. All drainage areas [illegible] percentages have been determined and are presented in **Table 2**. With each [illegible] drainage report will be required.

Phasing

[illegible] shows the phasing boundaries and order of construction.

Interim Conditions

The development of phase 1 will include a surge pond to be built in the northeast corner of the parcel. The outfall structure of this pond will include a temporary energy dissipator. See attached addendum for surge pond analysis and approval request.

Phase 3A will require that a temporary detention pond be built in the northwest corner of the Phase 4 parcel to reduce flows to historic levels and release to a temporary arroyo. The outfall from this pond will also include a temporary energy dissipator. Also, a desiltation pond will be required for upstream runoff before it enters the subdivision.

Phase 3B shall require a temporary detention pond and temporary energy dissipator in the northeast corner of the subdivision.

Phase 4 is the last and final phase of the project. All storm drain connections to prior phases shall be part of this construction as well as the connection to the Black Arroyo. Design and analysis of the channel shall be necessary at that time. The temporary detention pond built in Phases 2, 3A and 3B will be replaced with appropriate storm drain.

Connection to the Black Arroyo

All runoff from the Stonebridge Subdivision shall be collected to a <u>single</u> point of connection into the Black Arroyo at station 4+00 (per the Black Arroyo Dam Plans). Design of the connection, as well as any channel treatment, shall be approved by AMAFCA during the prelirminary platting process of Phase 4.

VII. CONCLUSION

The development of Stonebridge Subdivision shall be phased per this report. all interim detention facilities shall be designed and approved as each phase develops. Any deviations from this plan may affect platting and approving the master plan.

AHYMO SUMMARY TABLE WITH SAD (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/31/1999
INPUT FILE = USER NO.= BOHN_HNM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	PEAK AREA (SQ MI)	RUNOFF DISCHARGE (CFS)	VOLUME (AC-FT)	TIME TO RUNOFF (INCHES)	CFS PEAK (HOURS)	PER ACRE	NOTATION
*S Developed McMahon INTO THE SAD STORMDRAIN										
START							TIME= .00			
RAINFALL TYPE= 1							RAIN6= 2.200			
COMPUTE NM HYD	Q	17		.00633	13.45	.475	1.40676	1.500	3.320	PER IMP= 56.90
COMPUTE NM HYD	R	18		.00625	12.27	.421	1.26233	1.500	3.067	PER IMP= 45.80
COMPUTE NM HYD	S	19		.00628	12.65	.438	1.30787	1.500	3.146	PER IMP= 49.30
COMPUTE NM HYD	T	20		.00708	13.82	.473	1.25322	1.500	3.050	PER IMP= 45.10
COMPUTE NM HYD	U	21		.00984	18.03	.602	1.14652	1.500	2.862	PER IMP= 36.90
COMPUTE NM HYD	V	22		.00128	2.58	.089	1.29876	1.500	3.144	PER IMP= 48.60
COMPUTE NM HYD	W	23		.00123	2.50	.086	1.31568	1.500	3.174	PER IMP= 49.90
COMPUTE NM HYD	X	24		.00124	2.52	.087	1.31568	1.500	3.174	PER IMP= 49.90
COMPUTE NM HYD	Y	25		.00078	2.05	.076	1.83748	1.500	4.101	PER IMP= 90.00
COMPUTE NM HYD	Z1	26		.00480	10.00	.351	1.37033	1.500	3.257	PER IMP= 54.10
COMPUTE NM HYD	Z2	27		.00992	20.66	.725	1.37033	1.500	3.255	PER IMP= 54.10
COMPUTE NM HYD	OFF3	38		.00404	7.38	.214	.99307	1.500	2.853	PER IMP= .00
COMPUTE NM HYD	OFF4	39		.00345	6.30	.183	.99307	1.500	2.853	PER IMP= .00
*S COMBINE HYDROGRAPHS FOR BASINS R AND S										
ADD HYD	RS	18&19	40	.01253	24.91	.859	1.28510	1.500	3.107	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, AND T										
ADD HYD	RST	40&20	41	.01961	38.73	1.332	1.27358	1.500	3.086	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, AND Q										
ADD HYD	RSTQ	41&17	42	.02594	52.18	1.807	1.30607	1.500	3.143	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, AND U										
ADD HYD	RSTQOU	42&21	43	.03578	70.21	2.409	1.26218	1.500	3.066	
*S COMBINE HYDROGRAPHS FOR BASINS OFF3 AND OFF4										
ADD HYD	OFF34	38&39	44	.00749	13.68	.397	.99303	1.500	2.853	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3 AND OFF 4										
ADD HYD	RSTQU34	44&43	45	.04327	83.89	2.805	1.21559	1.500	3.029	
*S COMBINE HYDROGRAPHS FOR BASINS R,S,T,Q,U,3,4, AND Y										
ADD HYD	RSTQU34Y	45&25	46	.04405	85.93	2.882	1.22660	1.500	3.048	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, 3, 4, Y, AND X										
ADD HYD	RSTQU34YX	46&24	60	.04529	88.45	2.969	1.22903	1.500	3.052	
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3, OFF 4, Y, X, AND W										
ADD HYD	RSTQU34YXW	60&23	61	.04652	90.95	3.055	1.23131	1.500	3.055	
*S COMBINE HYDROGRAPHS FOR BASINS R,S,T,Q,U,3,4,Y,X,W,V										
ADD HYD	RSTQU34YXWV	61&22	62	.04780	93.53	3.144	1.23311	1.500	3.057	
*S COMBINE HYDROGRAPHS FOR BASINS R,S,T,Q,U,3,4,Y,X,W,V,Z2										
ADD HYD	ALL	62&27	63	.05772	114.19	3.869	1.25669	1.500	3.091	
FINISH										

EAST STREET @ QUARRY
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	36.00	in
Discharge	109.00	ft^3/s

Results		
Depth	2.17	ft
Flow Area	5.48	ft^2
Wetted Perimeter	6.10	ft
Top Width	2.68	ft
Critical Depth	2.92	ft
Percent Full	72.37	%
Critical Slope	0.023693	ft/ft
Velocity	19.90	ft/s
Velocity Head	6.15	ft
Specific Energy	8.32	ft
Froude Number	2.45	
Maximum Discharge	134.22	ft^3/s
Full Flow Capacity	124.77	ft^3/s
Full Flow Slope	0.026710	ft/ft
Flow is supercritical.		

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/31/1999
INPUT FILE =stone.txt USER NO.= BOHN_HNM.STE

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	PEAK AREA (SQ MI)	RUNOFF DISCHARGE (CFS)	TIME TO VOLUME (AC-FT)	CFS RUNOFF (INCHES)	PAGE = 1 PEAK (HOURS)	PER ACRE	NOTATION
*S Developed McMahon WITH NO SAD STORMDRAIN										
START							TIME= .00			
RAINFALL TYPE= 1							RAIN6= 2.200			
*S****UNIT 1 BASINS										
COMPUTE NM HYD	OFF.MCM	-	91	.00536	13.20	.488	1.70735	1.500	3.848	PER IMP= 80.00
COMPUTE NM HYD	UD3B	-	27	.00960	20.12	.708	1.38204	1.500	3.275	PER IMP= 55.00
COMPUTE NM HYD	UD4A	-	28	.00330	6.93	.243	1.38204	1.500	3.280	PER IMP= 55.00
COMPUTE NM HYD	1A	-	1	.00636	11.55	.381	1.12240	1.500	2.838	PER IMP= 34.00
COMPUTE NM HYD	1B	-	2	.01633	34.22	1.204	1.38204	1.500	3.274	PER IMP= 55.00
COMPUTE NM HYD	1C	-	3	.01516	28.45	.960	1.18685	1.500	2.932	PER IMP= 40.00
COMPUTE NM HYD	1D	-	4	.00436	7.24	.231	.99167	1.500	2.594	PER IMP= 25.00
*S AP#4										
COMPUTE NM HYD	1E	-	5	.00616	15.33	.566	1.72166	1.500	3.889	PER IMP= 80.00
COMPUTE NM HYD	10.00	-	10	.04837	39.89	1.133	.43936	1.500	1.289	PER IMP= .00
*S ROUTE MCMAHON BLVD BASIN THRU BASIN 1A AND ADD TO BASIN 1A										
ROUTE	NEW1A	91	20	.00536	12.84	.488	1.70744	1.500	3.743	
*S AP#3										
ADD HYD	1A.C	20& 1	21	.01172	24.39	.869	1.38988	1.500	3.252	
*S ROUTE TO BASIN 1B AND ADD TO BASIN 1B										
ROUTE	A+B+OFF.R	21	22	.01172	23.92	.869	1.38994	1.500	3.188	
ADD HYD	1A+1B.C	22& 2	23	.02805	58.14	2.072	1.38531	1.500	3.238	
*S ROUTE HYDROGRAPH 1E THRU BASIN 1C AND TO BASIN 1C										
ROUTE	NEW1E	5	24	.00616	14.56	.566	1.72175	1.500	3.693	
ADD HYD	1C+1E.R	24& 3	25	.02132	43.01	1.525	1.34136	1.500	3.152	
*S AMOUNT ENTERING STORM DRAIN IN BASIN 1C										
*S COMBINE HYDROGRAPHS FOR BASINS 1A+1B+1C+1E+OFF										
*S AP#5										
ADD HYD	31.00	23&25	31	.04937	101.14	3.598	1.36633	1.500	3.201	
COMPUTE NM HYD	A	-	1	.00846	17.55	.615	1.36252	1.500	3.242	PER IMP= 53.50
COMPUTE NM HYD	B	-	2	.01089	22.48	.786	1.35341	1.500	3.225	PER IMP= 52.80
ADD HYD	3.00	1& 2	3	.01935	40.03	1.401	1.35737	1.500	3.232	
*S ADD TO STORM DRAIN										
ADD HYD	32.00	31& 3	32	.06872	141.17	4.998	1.36380	1.500	3.210	
*S DIVIDE COMBINED HYD TO FORCE ALL BUT 24" CAPACITY TO GO TO SURGE POND										
DIVIDE HYD	BYPASS	32	47	.03373	27.00	2.453	1.36380	1.350	1.251	
	PONDIN AND	48		.03499	114.17	2.545	1.36380	1.500	5.098	
*S ADD 1D TO PONDIN FLOW										
ADD HYD	PONDINP	48& 4	49	.03935	121.41	2.776	1.32257	1.500	4.820	
*S RUNOFF ENTERING POND										
ROUTE RESERVOIR	POND	49	50	.03935	14.54	2.776	1.32251	1.850	.577	AC-FT= 2.267
*S ADD BACK TO PIPE										
*S AP#6										
ADD HYD	33.00	47&50	33	.07308	41.54	5.229	1.34154	1.850	.888	
*S RUNOFF IN TEMP ENERGY DISSIPATOR										
*S DIVIDE UD3B										
DIVIDE HYD	C	27	90	.00480	10.06	.354	1.38201	1.500	3.275	
	E AND	92		.00480	10.06	.354	1.38201	1.500	3.275	
COMPUTE NM HYD	C	-	3	.01100	23.14	.815	1.38855	1.500	3.286	PER IMP= 55.50
*S ROUTE UD3B THROUGH BASIN C										
ROUTE	UD3BSPLIT	90	93	.00480	8.18	.354	1.38213	1.550	2.663	
*S ADD BASIN C TO OUTFLOW FROM SURGE POND										
ADD HYD	34.00	33& 3	34	.08408	55.38	6.043	1.34768	1.550	1.029	
*S ADD UD3B1 TO BASIN C AND OUTFLOW FROM POND										
ADD HYD	94.00	34&93	94	.08888	63.56	6.397	1.34954	1.550	1.117	
*S ROUTE UD3B2 THROUGH BASIN E										
ROUTE	UD3BSPLIT	92	95	.00480	7.74	.354	1.38214	1.600	2.519	
COMPUTE NM HYD	D	-	4	.00528	11.22	.396	1.40676	1.500	3.320	PER IMP= 56.90
COMPUTE NM HYD	E	-	5	.00572	12.00	.422	1.38204	1.500	3.277	PER IMP= 55.00
*S ADD UD3B2 TO BASIN E										
ADD HYD	96.00	5&95	96	.01052	18.33	.775	1.38199	1.550	2.722	
COMPUTE NM HYD	F	-	6	.01920	28.98	1.355	1.32348	1.600	2.359	PER IMP= 50.50
COMPUTE NM HYD	G	-	7	.00128	3.35	.125	1.83748	1.500	4.090	PER IMP= 90.00
COMPUTE NM HYD	H	-	8	.00689	14.39	.505	1.37423	1.500	3.263	PER IMP= 54.40

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COMPUTE NM HYD        I  -  9     .00275      4.71     .152    1.03591   1.500   2.674 PER IMP=  28.40
*S ROUTE HYDROGRAPH UD4A THRU BASIN F
ROUTE          NEWUD4A  28  45     .00330      5.30     .243    1.38219   1.600   2.508
*S COMBINE HYDROGRAPHS FOR BASINS UD4A AND F
ADD HYD        31.00 45& 6  31     .02250     34.28    1.598    1.33205   1.600   2.380
*S COMBINE HYDROGRAPHS FOR BASINS E+UD3B AND UD4A+F
ADD HYD        51.00 96&31  51     .03302     50.94    2.374    1.34796   1.550   2.411
*S COMBINE HYDROGRAPHS FOR BASINS D AND I
ADD HYD        33.00  4& 9  33     .00803     15.93     .548    1.27968   1.500   3.099
*S COMBINE HYDROGRAPHS FOR BASINS D+I AND UD4A+F+E
*S
ADD HYD        34.00 33&51  34     .04105     65.20    2.922    1.33460   1.550   2.482
*S COMBINE HYDROGRAPHS FOR BASINS D+I AND UD4A+F+E AND G
*S
ADD HYD        52.00 34& 7  52     .04233     68.12    3.047    1.34980   1.550   2.515
*S COMBINE HYDROGRAPHS FOR BASINS D+I AND UD4A+F+E, G AND UD3B1, C AND POND OUTF
*S AP#7
ADD HYD        53.00 94&52  53     .13121    131.68    9.444    1.34962   1.550   1.568
COMPUTE NM HYD        J  -  10     .00569     12.09     .427    1.40676   1.500   3.320 PER IMP=  56.90
COMPUTE NM HYD        K  -  11     .00558     11.61     .407    1.36773   1.500   3.252 PER IMP=  53.90
COMPUTE NM HYD        L  -  12     .00386      7.56     .259    1.25712   1.500   3.060 PER IMP=  45.40
*S COMBINE HYDROGRAPHS FOR AP#7 AND BASIN J
*S
ADD HYD        97.00 53&10  97     .13690    142.43    9.871    1.35200   1.550   1.626
*S COMBINE HYDROGRAPHS FOR AP#7, BASINS J AND K
*S
ADD HYD        98.00 97&11  98     .14248    152.77   10.278    1.35261   1.550   1.675
*S COMBINE HYDROGRAPHS FOR AP#7, BASINS J, K AND L
*S AP#11
ADD HYD        99.00 98&12  99     .14634    159.55   10.537    1.35009   1.550   1.704
COMPUTE NM HYD        M  -  13     .00477      9.34     .320    1.25712   1.500   3.059 PER IMP=  45.40
COMPUTE NM HYD        N  -  14     .00306      6.04     .207    1.27013   1.500   3.084 PER IMP=  46.40
COMPUTE NM HYD        O  -  15     .00803     16.24     .563    1.31568   1.500   3.159 PER IMP=  49.90
COMPUTE NM HYD        P  -  16     .00212      2.86     .078     .69362   1.500   2.105 PER IMP=   .00
COMPUTE NM HYD        Q  -  17     .00633     13.45     .475    1.40676   1.500   3.320 PER IMP=  56.90
COMPUTE NM HYD        R  -  18     .00625     12.27     .421    1.26233   1.500   3.067 PER IMP=  45.80
COMPUTE NM HYD        S  -  19     .00628     12.65     .438    1.30787   1.500   3.146 PER IMP=  49.30
COMPUTE NM HYD        T  -  20     .00708     13.82     .473    1.25322   1.500   3.050 PER IMP=  45.10
COMPUTE NM HYD        U  -  21     .00984     18.03     .602    1.14652   1.500   2.862 PER IMP=  36.90
COMPUTE NM HYD        V  -  22     .00128      2.58     .089    1.29876   1.500   3.144 PER IMP=  48.60
COMPUTE NM HYD        W  -  23     .00123      2.50     .086    1.31568   1.500   3.174 PER IMP=  49.90
COMPUTE NM HYD        X  -  24     .00124      2.52     .087    1.31568   1.500   3.174 PER IMP=  49.90
COMPUTE NM HYD        Y  -  25     .00078      2.05     .076    1.83748   1.500   4.101 PER IMP=  90.00
COMPUTE NM HYD       Z1  -  36     .00480     10.00     .351    1.37033   1.500   3.257 PER IMP=  54.10
COMPUTE NM HYD       Z2  -  37     .00992     20.66     .725    1.37033   1.500   3.255 PER IMP=  54.10
COMPUTE NM HYD     OFF3  -  38     .00404      7.38     .214     .99307   1.500   2.853 PER IMP=   .00
COMPUTE NM HYD     OFF4  -  39     .00345      6.30     .183     .99307   1.500   2.853 PER IMP=   .00
*S COMBINE HYDROGRAPHS FOR BASINS R AND S
ADD HYD         RS 18&19  40     .01253     24.91     .859    1.28510   1.500   3.107
*S COMBINE HYDROGRAPHS FOR BASINS R, S, AND T
ADD HYD        RST 40&20  41     .01961     38.73    1.332    1.27358   1.500   3.086
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, AND Q
*S AP #9A
ADD HYD       RSTQ 41&17  42     .02594     52.18    1.807    1.30607   1.500   3.143
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, AND U
ADD HYD      RSTQOU 42&21  43     .03578     70.21    2.409    1.26218   1.500   3.066
*S COMBINE HYDROGRAPHS FOR BASINS OFF3 AND OFF4
ADD HYD      OFF34 38&39  44     .00749     13.68     .397     .99303   1.500   2.853
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3 AND OFF 4
*S AP #9B
ADD HYD     RSTQU34 44&43  45     .04327     83.89    2.805    1.21559   1.500   3.029
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3, OFF 4, AND O
*S
ADD HYD     RSTQU34O 45&15  70     .05130    100.12    3.369    1.23125   1.500   3.050
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3, OFF 4, O, AND P
*S
ADD HYD    RSTQU34OP 70&16  71     .05342    102.98    3.447    1.20991   1.500   3.012
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3, OFF 4,  O, P, AND N
*S
ADD HYD   RSTQU34OPN 71&14  72     .05648    109.02    3.654    1.21317   1.500   3.016
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*S COMBINE HYDROGRAPHS FOR BASINS X AND Y
ADD HYD              XY 24&25  46      .00202       4.57      .163     1.51687   1.500   3.532
*S COMBINE HYDROGRAPHS FOR BASINS W, Y, AND X
ADD HYD             WYX 46&23  47      .00325       7.06      .250     1.44063   1.500   3.397
*S COMBINE HYDROGRAPHS FOR BASINS Y, X, W, AND V
ADD HYD        RSTQU34YXW 47&22  48      .00453       9.64      .338     1.40047   1.500   3.325
*S COMBINE HYDROGRAPHS FOR BASINS Y,X,W,V AND Z2
ADD HYD            YXWVZ2 48&37  49      .01445      30.30     1.063     1.37976   1.500   3.277
*S COMBINE HYDROGRAPHS FOR BASINS  Y, X, W, V, Z2 AND Z1
ADD HYD            ALLSAD 49&36  48      .01925      40.30     1.414     1.37740   1.500   3.272
*S COMBINE HYDROGRAPHS FOR BASINS R, S, T, Q, U, OFF 3, OFF 4, OPN AND YXWVZ2Z1
*S  AP #12
ADD HYD       RSTQU34OPB.Y 48&72  74      .07573     149.32     5.068     1.25491   1.500   3.081
*S COMBINE HYDROGRAPHS FOR AP#11 AND AP#12
*S  AP #13
ADD HYD          AP11.12 74&99  76      .22207     305.15    15.605     1.31763   1.500   2.147
*S TEMPORARY POND FOR UNIT 2
RECALL HYD          PONDIN  -  53      .13121     131.68     9.444     1.34962   1.550   1.568
ROUTE RESERVOIR       POND  53  80      .13121      65.40     9.444     1.34962   2.050   .779 AC-FT=   2.951
FINISH
```

100 YR PEAK DISCHARGE

EXISTING CONDITIONS

BASIN	AREA (ACRES)	% LAND TREATMENT* A	B	C	D	PEAK DISCHARGE - (CFS/ACRE)** 1.29	2.03	2.87	4.37	Q(100-YR) UNDEVELOPED (CFS)
UD1	12.07	85.00	10.00	5.00	0.00	1.29	2.03	2.87	4.37	17.42
UD2	36.39	85.00	10.00	5.00	0.00	1.29	2.03	2.87	4.37	52.51
UD3A	60.92	100.00	0.00	0.00	0.00	1.29	2.03	2.87	4.37	78.59
UD3B	6.14	0.00	45.00	0.00	55.00	1.29	2.03	2.87	4.37	20.37
UD4A	2.11	0.00	45.00	0.00	55.00	1.29	2.03	2.87	4.37	7.00
UD4B	7.14	100.00	0.00	0.00	0.00	1.29	2.03	2.87	4.37	9.21
UD5	2.61	100.00	0.00	0.00	0.00	1.29	2.03	2.87	4.37	3.37
										188.46

MASTER CONDITIONS

BASIN	AREA (ACRES)	% LAND TREATMENT* A	B	C	D	PEAK DISCHARGE - (CFS/ACRE)** 1.29	2.03	2.87	4.37	Q(100-YR) DEVELOPED (CFS)
1E	3.94	0.00	15.00	5.00	80.00	1.29	2.03	2.87	4.37	15.54
2D	5.47	0.00	45.00	0.00	55.00	1.29	2.03	2.87	4.37	18.14
3E	4.64	0.00	15.00	5.00	80.00	1.29	2.03	2.87	4.37	18.30
3F	12.25	0.00	15.00	5.00	80.00	1.29	2.03	2.87	4.37	48.31
UD4A	2.11	0.00	45.00	0.00	55.00	1.29	2.03	2.87	4.37	7.00
A	5.41	0.00	46.50	0.00	53.50	1.29	2.03	2.87	4.37	17.76
B	6.97	0.00	47.20	0.00	52.80	1.29	2.03	2.87	4.37	22.76
C	7.04	0.00	44.50	0.00	55.50	1.29	2.03	2.87	4.37	23.43
D	3.38	0.00	43.10	0.00	56.90	1.29	2.03	2.87	4.37	11.36
E	3.66	0.00	45.00	0.00	55.00	1.29	2.03	2.87	4.37	12.14
F	12.29	0.00	49.50	0.00	50.50	1.29	2.03	2.87	4.37	28.98
G	0.82	0.00	10.00	0.00	90.00	1.29	2.03	2.87	4.37	3.39
H	4.41	0.00	45.60	0.00	54.40	1.29	2.03	2.87	4.37	14.57
I	1.76	0.00	71.60	0.00	28.40	1.29	2.03	2.87	4.37	4.74
J	3.64	0.00	43.10	0.00	56.90	1.29	2.03	2.87	4.37	12.24
K	3.57	0.00	46.10	0.00	53.90	1.29	2.03	2.87	4.37	11.75
L	2.47	0.00	54.60	0.00	45.40	1.29	2.03	2.87	4.37	7.64
M	3.05	0.00	54.60	0.00	45.40	1.29	2.03	2.87	4.37	9.43
N	1.96	0.00	53.60	0.00	46.40	1.29	2.03	2.87	4.37	6.11
O	5.14	0.00	50.10	0.00	49.90	1.29	2.03	2.87	4.37	16.44
P	1.36	0.00	90.00	0.00	10.00	1.29	2.03	2.87	4.37	3.08
Q	4.05	0.00	43.10	0.00	56.90	1.29	2.03	2.87	4.37	13.61
R	4.00	0.00	54.20	0.00	45.80	1.29	2.03	2.87	4.37	12.41
S	4.02	0.00	50.70	0.00	49.30	1.29	2.03	2.87	4.37	12.80
T	4.53	0.00	54.90	0.00	45.10	1.29	2.03	2.87	4.37	13.98
U	6.30	0.00	63.10	0.00	36.90	1.29	2.03	2.87	4.37	18.23
V	0.82	0.00	51.40	0.00	48.60	1.29	2.03	2.87	4.37	2.60
W	0.79	0.00	50.10	0.00	49.90	1.29	2.03	2.87	4.37	2.53
X	0.79	0.00	50.10	0.00	49.90	1.29	2.03	2.87	4.37	2.53
Y	0.50	0.00	10.00	0.00	90.00	1.29	2.03	2.87	4.37	2.07
OFF3	2.59	0.00	0.00	100.00	0.00	1.29	2.03	2.87	4.37	7.43
OFF4	2.21	0.00	0.00	100.00	0.00	1.29	2.03	2.87	4.37	6.34
Z1	3.07	0.00	45.90	0.00	45.90	1.29	2.03	2.87	4.37	10.00
Z2	6.35	0.00	45.90	0.00	45.90	1.29	2.03	2.87	4.37	20.66
										438.28

TABLE 2

RIDGE ROCK AVENUE

Basin F $Q = 28.98$ cfs SEE SHEET 3 for Flows.

lots = 63

$\frac{Q}{lot} = 0.46$ cfs/lot

at slope = 1.63% $Q = 36.9$ cfs can be contained in Street.

Including off-site flow, 18.6 cfs is at Stonebrook / Ridge Rock Intersection.

36.9 cfs allowed − 18.6 cfs = 18.3 more flow allowed.

$18.3 \text{ cfs} \times \frac{1 \text{ lot}}{.46 \text{ cfs}} = 39.8$ additional lots.

Therefore, inlets are required just east of Flat Rock Ct.

RIVER RIDGE AVE.

Basins D + E $Q = 11.22 + 12.00 = 23.22$ cfs

lots = 42

$Q/lot = 23.22/42 = 0.55$ cfs/lot

at slope 2.38%, the road carries 32.2 cfs.

Off-site = 8.6 cfs.

32.2 − 8.6 = 23.6 cfs available

$\frac{23.6 \text{ cfs}}{.55 \text{ cfs/lot}} = 42.91$ lots

No inlets required for 42 lots.

Bohannan ▲ Huston

PROJECT NAME		SHEET	OF
PROJECT NO		BY	DATE
SUBJECT		CHD	DATE

RIDGE ROCK AVE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	RIDGE ROCK
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.016300	ft/ft
Diameter	24.00	in
Discharge	14.50	ft^3/s

Results		
Depth	1.00	ft
Flow Area	1.58	ft^2
Wetted Perimeter	3.15	ft
Top Width	2.00	ft
Critical Depth	1.37	ft
Percent Full	50.12	%
Critical Slope	0.006181	ft/ft
Velocity	9.20	ft/s
Velocity Head	1.32	ft
Specific Energy	2.32	ft
Froude Number	1.83	
Maximum Discharge	31.07	ft^3/s
Full Flow Capacity	28.88	ft^3/s
Full Flow Slope	0.004109	ft/ft
Flow is supercritical.		

RIDGE ROCK AVE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	RIDGE ROCK
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.016300	ft/ft
Diameter	24.00	in
Discharge	29.00	ft^3/s

Results		
Depth	1.65	ft
Flow Area	2.77	ft^2
Wetted Perimeter	4.55	ft
Top Width	1.53	ft
Critical Depth	1.85	ft
Percent Full	82.34	%
Critical Slope	0.014247	ft/ft
Velocity	10.48	ft/s
Velocity Head	1.71	ft
Specific Energy	3.35	ft
Froude Number	1.37	
Maximum Discharge	31.07	ft^3/s
Full Flow Capacity	28.88	ft^3/s
Full Flow Slope	0.016435	ft/ft
Flow is supercritical.		

RIVER RIDGE AVE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	RIVER RIDGE
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.023800	ft/ft
Diameter	24.00	in
Discharge	23.20	ft^3/s

Results		
Depth	1.19	ft
Flow Area	1.95	ft^2
Wetted Perimeter	3.53	ft
Top Width	1.96	ft
Critical Depth	1.71	ft
Percent Full	59.59	%
Critical Slope	0.009802	ft/ft
Velocity	11.89	ft/s
Velocity Head	2.20	ft
Specific Energy	3.39	ft
Froude Number	2.10	
Maximum Discharge	37.54	ft^3/s
Full Flow Capacity	34.90	ft^3/s
Full Flow Slope	0.010518	ft/ft
Flow is supercritical.		

Stream Stone

Basin C Q = 23.14 cfs.

lots = 41

$\frac{Q}{lot} = \frac{23.14}{41} = 0.56$ cfs/lot

at slope of 2.73%, the road carries 29.6 cfs.

offsite contributes 13.6 cfs

29.6 − 13.6 = 16 cfs available

$\frac{16 \text{ cfs}}{.56 \text{ cfs/lot}} = 28.6$ lots.

→ Need inlets.

Feather Rock

Basin B Q = 22.48 cfs.

lots = 38

$\frac{Q}{lot} = \frac{22.48}{38} = 0.59$ cfs/lot

at slope of 1.47%, road carries 37.1 cfs.

$\frac{37.1 \text{ cfs}}{.59} = 62.9$ lots > 38 lots

no inlets needed.

STREAM STONE AVE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	STREAM STONE
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.027300	ft/ft
Diameter	24.00	in
Discharge	23.10	ft^3/s

Results		
Depth	1.14	ft
Flow Area	1.84	ft^2
Wetted Perimeter	3.42	ft
Top Width	1.98	ft
Critical Depth	1.71	ft
Percent Full	56.87	%
Critical Slope	0.009742	ft/ft
Velocity	12.52	ft/s
Velocity Head	2.44	ft
Specific Energy	3.57	ft
Froude Number	2.29	
Maximum Discharge	40.21	ft^3/s
Full Flow Capacity	37.38	ft^3/s
Full Flow Slope	0.010428	ft/ft
Flow is supercritical.		

Crooked Creek

Basin A $Q = 17.55$ cfs

. # lots 30

$\frac{Q}{lot} = \frac{17.55}{30} = 0.585$ cfs/lot

at slope 2.33%, the RRC can carry 31.8 cfs

$\frac{31.8 \text{ cfs}}{17.55/30} = 54.4$ lots > 30 lots

no inlets needed.

Bohannan ▲ Huston

PROJECT NAME		SHEET	OF
PROJECT NO		BY	DATE
SUBJECT		CHD	DATE

STONBRIDGE @ STREAMSTONE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	STONEBRIDGE
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Diameter	30.00	in
Discharge	63.50	ft^3/s

Results		
Depth	1.84	ft
Flow Area	3.88	ft^2
Wetted Perimeter	5.16	ft
Top Width	2.20	ft
Critical Depth	2.41	ft
Percent Full	73.74	%
Critical Slope	0.020988	ft/ft
Velocity	16.36	ft/s
Velocity Head	4.16	ft
Specific Energy	6.00	ft
Froude Number	2.17	
Maximum Discharge	76.42	ft^3/s
Full Flow Capacity	71.04	ft^3/s
Full Flow Slope	0.023970	ft/ft
Flow is supercritical.		

NORTH ROAD @ BASIN K
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	42.00	in
Discharge	152.80	ft^3/s

Results		
Depth	2.39	ft
Flow Area	7.01	ft^2
Wetted Perimeter	6.82	ft
Top Width	3.25	ft
Critical Depth	3.39	ft
Percent Full	68.40	%
Critical Slope	0.020308	ft/ft
Velocity	21.79	ft/s
Velocity Head	7.38	ft
Specific Energy	9.77	ft
Froude Number	2.62	
Maximum Discharge	202.46	ft^3/s
Full Flow Capacity	188.21	ft^3/s
Full Flow Slope	0.023068	ft/ft
Flow is supercritical.		

NORTH ROAD @ BASIN L
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	42.00	in
Discharge	159.60	ft^3/s

Results		
Depth	2.47	ft
Flow Area	7.27	ft^2
Wetted Perimeter	6.99	ft
Top Width	3.19	ft
Critical Depth	3.41	ft
Percent Full	70.69	%
Critical Slope	0.022309	ft/ft
Velocity	21.95	ft/s
Velocity Head	7.49	ft
Specific Energy	9.96	ft
Froude Number	2.56	
Maximum Discharge	202.46	ft^3/s
Full Flow Capacity	188.21	ft^3/s
Full Flow Slope	0.025167	ft/ft
Flow is supercritical.		

BASIN Q @ BASIN S
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.040000	ft/ft
Diameter	24.00	in
Discharge	31.60	ft^3/s

Results		
Depth	1.23	ft
Flow Area	2.03	ft^2
Wetted Perimeter	3.61	ft
Top Width	1.95	ft
Critical Depth	1.88	ft
Percent Full	61.56	%
Critical Slope	0.016869	ft/ft
Velocity	15.57	ft/s
Velocity Head	3.77	ft
Specific Energy	5.00	ft
Froude Number	2.69	
Maximum Discharge	48.67	ft^3/s
Full Flow Capacity	45.24	ft^3/s
Full Flow Slope	0.019514	ft/ft
Flow is supercritical.		

NORTH ROAD
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	36.00	in
Discharge	131.70	ft^3/s

Results		
Depth	2.65	ft
Flow Area	6.60	ft^2
Wetted Perimeter	7.32	ft
Top Width	1.94	ft
Critical Depth	2.96	ft
Percent Full	88.20	%
Critical Slope	0.035678	ft/ft
Velocity	19.96	ft/s
Velocity Head	6.19	ft
Specific Energy	8.83	ft
Froude Number	1.91	
Maximum Discharge	134.22	ft^3/s
Full Flow Capacity	124.77	ft^3/s
Full Flow Slope	0.038993	ft/ft
Flow is supercritical.		

NORTH ROAD @ BASIN J
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	42.00	in
Discharge	142.40	ft^3/s

Results		
Depth	2.28	ft
Flow Area	6.62	ft^2
Wetted Perimeter	6.57	ft
Top Width	3.34	ft
Critical Depth	3.36	ft
Percent Full	65.01	%
Critical Slope	0.017466	ft/ft
Velocity	21.51	ft/s
Velocity Head	7.19	ft
Specific Energy	9.46	ft
Froude Number	2.69	
Maximum Discharge	202.46	ft^3/s
Full Flow Capacity	188.21	ft^3/s
Full Flow Slope	0.020035	ft/ft
Flow is supercritical.		

NORTH ROAD @ BASIN K
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	42.00	in
Discharge	152.80	ft^3/s

Results		
Depth	2.39	ft
Flow Area	7.01	ft^2
Wetted Perimeter	6.82	ft
Top Width	3.25	ft
Critical Depth	3.39	ft
Percent Full	68.40	%
Critical Slope	0.020308	ft/ft
Velocity	21.79	ft/s
Velocity Head	7.38	ft
Specific Energy	9.77	ft
Froude Number	2.62	
Maximum Discharge	202.46	ft^3/s
Full Flow Capacity	188.21	ft^3/s
Full Flow Slope	0.023068	ft/ft
Flow is supercritical.		

NORTH ROAD @ BASIN L
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	NORTH ROAD
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	42.00	in
Discharge	159.60	ft^3/s

Results		
Depth	2.47	ft
Flow Area	7.27	ft^2
Wetted Perimeter	6.99	ft
Top Width	3.19	ft
Critical Depth	3.41	ft
Percent Full	70.69	%
Critical Slope	0.022309	ft/ft
Velocity	21.95	ft/s
Velocity Head	7.49	ft
Specific Energy	9.96	ft
Froude Number	2.56	
Maximum Discharge	202.46	ft^3/s
Full Flow Capacity	188.21	ft^3/s
Full Flow Slope	0.025167	ft/ft
Flow is supercritical.		

BASIN Q @ BASIN S
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.040000	ft/ft
Diameter	24.00	in
Discharge	31.60	ft^3/s

Results		
Depth	1.23	ft
Flow Area	2.03	ft^2
Wetted Perimeter	3.61	ft
Top Width	1.95	ft
Critical Depth	1.88	ft
Percent Full	61.56	%
Critical Slope	0.016869	ft/ft
Velocity	15.57	ft/s
Velocity Head	3.77	ft
Specific Energy	5.00	ft
Froude Number	2.69	
Maximum Discharge	48.67	ft^3/s
Full Flow Capacity	45.24	ft^3/s
Full Flow Slope	0.019514	ft/ft
Flow is supercritical.		

EAST STREET @ BENTON
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	36.00	in
Discharge	114.20	ft^3/s

Results		
Depth	2.26	ft
Flow Area	5.71	ft^2
Wetted Perimeter	6.30	ft
Top Width	2.59	ft
Critical Depth	2.94	ft
Percent Full	75.24	%
Critical Slope	0.026209	ft/ft
Velocity	20.02	ft/s
Velocity Head	6.23	ft
Specific Energy	8.48	ft
Froude Number	2.38	
Maximum Discharge	134.22	ft^3/s
Full Flow Capacity	124.77	ft^3/s
Full Flow Slope	0.029319	ft/ft
Flow is supercritical.		

EAST STREET @ 1ST CULDESAC
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.035000	ft/ft
Diameter	24.00	in
Discharge	14.90	ft^3/s

Results		
Depth	0.82	ft
Flow Area	1.21	ft^2
Wetted Perimeter	2.78	ft
Top Width	1.97	ft
Critical Depth	1.39	ft
Percent Full	40.97	%
Critical Slope	0.006291	ft/ft
Velocity	12.30	ft/s
Velocity Head	2.35	ft
Specific Energy	3.17	ft
Froude Number	2.76	
Maximum Discharge	45.52	ft^3/s
Full Flow Capacity	42.32	ft^3/s
Full Flow Slope	0.004339	ft/ft
Flow is supercritical.		

EAST STREET @ DODGE(IF SAD 225 IS CONST)
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Diameter	48.00	in
Discharge	194.70	ft^3/s

Results		
Depth	2.66	ft
Flow Area	8.89	ft^2
Wetted Perimeter	7.64	ft
Top Width	3.77	ft
Critical Depth	3.83	ft
Percent Full	66.59	%
Critical Slope	0.015979	ft/ft
Velocity	21.91	ft/s
Velocity Head	7.46	ft
Specific Energy	10.12	ft
Froude Number	2.52	
Maximum Discharge	267.62	ft^3/s
Full Flow Capacity	248.78	ft^3/s
Full Flow Slope	0.018374	ft/ft
Flow is supercritical.		

EAST STREET @ DODGE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Diameter	60.00	in
Discharge	305.00	ft^3/s

Results		
Depth	3.01	ft
Flow Area	12.36	ft^2
Wetted Perimeter	8.89	ft
Top Width	4.89	ft
Critical Depth	4.69	ft
Percent Full	60.25	%
Critical Slope	0.011853	ft/ft
Velocity	24.67	ft/s
Velocity Head	9.46	ft
Specific Energy	12.47	ft
Froude Number	2.74	
Maximum Discharge	485.22	ft^3/s
Full Flow Capacity	451.08	ft^3/s
Full Flow Slope	0.013716	ft/ft
Flow is supercritical.		

EAST STREET @ DODGE
Worksheet for Circular Channel

Project Description	
Project File	c:\flowma~1\stone2.fm2
Worksheet	BASIN Q
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Diameter	54.00	in
Discharge	305.00	ft^3/s

Results		
Depth	3.32	ft
Flow Area	12.59	ft^2
Wetted Perimeter	9.31	ft
Top Width	3.95	ft
Critical Depth	4.39	ft
Percent Full	73.86	%
Critical Slope	0.021394	ft/ft
Velocity	24.22	ft/s
Velocity Head	9.12	ft
Specific Energy	12.44	ft
Froude Number	2.39	
Maximum Discharge	366.37	ft^3/s
Full Flow Capacity	340.59	ft^3/s
Full Flow Slope	0.024058	ft/ft
Flow is supercritical.		