7-28-08

Spoke w/ Bryan Bubnick 7-28-08
Concerning his request for ~~or~~ a S/W
Culvert to pond A1.

I accepted his analysis/design but
we got hung up a little on the authorization
process.

We concluded that he would certify
existing plan. Then come in with a new
plan for SD 19 Approval

cc

V-N
7/28/08

A Fax from: ISAACSON & ARFMAN, P.A.

CONSULTING ENGINEERING ASSOCIATES
128 MONROE STREET NE
ALBUQUERQUE, NM 87108
PH: 505.268.8828
FAX: 505.268.2632

To: Mr. Timothy Sims
COA Hydrology

Phone: 924-3986
Fax: 924-3864

From: Bryan Bobrick

- ○ Urgent
- ◉ Information Request
- ○ Reply ASAP
- ○ For Your Use
- ○ Top Secret

# of pages including cover sheet: 5

Date: 7/23/2008 **Project Number:** 1490.1

Reference: Hydrology project G16/D095C

Tim,

This project has been constructed and has received Temporary CO (per your letter dated July 3, 2008). Contractor is waiting on S.O.19 permit approval for the final. The owner wishes to modify the pond discharge to include a new sidewalk culvert outlet for Pond A1. I assume this would require an addition to the S.O.19 but am not sure what the procedure would be. All on-site work is complete and certified. This would just be an additional sidewalk culvert within the ROW.

I have attached analysis, design, calculations and details for review / approval. If I need to make a more formal submittal, please let me know what format you would need.

Thanks

RECEIVED
JUL 23 2008
HYDROLOGY SECTION

This fax is intended only for the personal and confidential use of the addressee or addressees named above. It contains information that is privileged and confidential. Any unauthorized review, disclosure, copying or dissemination of the transmission is strictly prohibited. If you have received this transmission in error, please notify the sender by telephone at **505-268-8828** immediately so that we can arrange for its return to us. Thank you for your cooperation.

1 of 5

BACKGROUND: The building and site development for Lot 1, Interstate Business Park were constructed using the approved Drainage and Grading Plan – G16/D95C, (Engineer's Stamp dated 8/14/07). Engineer's Certification of Substantial Compliance (Engineer's Stamp dated 10/16/07) was submitted and approved for Permanent Certificate of Occupancy per the letter from Timothy Sims, Plan Checker – Hydrology dated October 17, 2007.

During recent rainstorms, the building owner noted that after the peak, Pond A1 retained an approximate 6" depth. He has asked for an outlet for Pond A1 to drain to Midtown Place N.E. to eliminate all retention.

PROPOSED IMPROVEMENTS: Per the approved Master Drainage Plan "Drainage Analysis for Midtown Business Park, Tract 3A" dated 11/04/1998 by Andrews, Asbury and Robert, Inc., the referenced property must detain developed flow on-site and release at a rate not to exceed 2.0 cfs.

As constructed, an 18" dia. pipe between detention ponds A1 and A2 acts to keep the ponds equalized. At a maximum depth of 3.3', the as-constructed covered sidewalk culvert with a 6" wide x 5" high orifice plat at the northwest end of pond A2 discharges 1.8 cfs to Midtown Place. In addition, 0.2 cfs free discharges at the northeast drive entrance for a total release rate of 2.0 cfs.

In order to provide discharge from pond A1, the following steps are proposed:

55.5

- Raise bottom of pond A1 to 55.7. Although this will reduce the pond volume by 319 cf, the required storage volume is still provided. Original pond design provided additional 447 cf.
  - Pond volume required: 7569 CF
  - Pond volume constructed: 8016 CF
  - Pond volume revised 7697 CF > 7569 CF = OK

- Construct 12" wide (bottom width) covered sidewalk culvert at the northeast corner of pond A1. Invert in = 55.7. Invert out (flowline of existing curb and gutter) = 55.6.

- Install 4" wide x 4" high orifice plat at new covered sidewalk culvert opening per detail exhibit 'A'. See orifice calculations, exhibit 'B'.

- Remove existing 6"x5" orifice plate at pond A2 and replace with 4" wide x 4"high orifice plate per detail exhibit 'A'. See orifice calculations, exhibit 'B'.

Per orifice calculations (exhibit 'B'), peak discharge from the site will be maintained at 2.0 cfs with the proposed revisions.

An S.O.19 permit for construction within the city right-of-way will be required.

2. need new stamped for invert

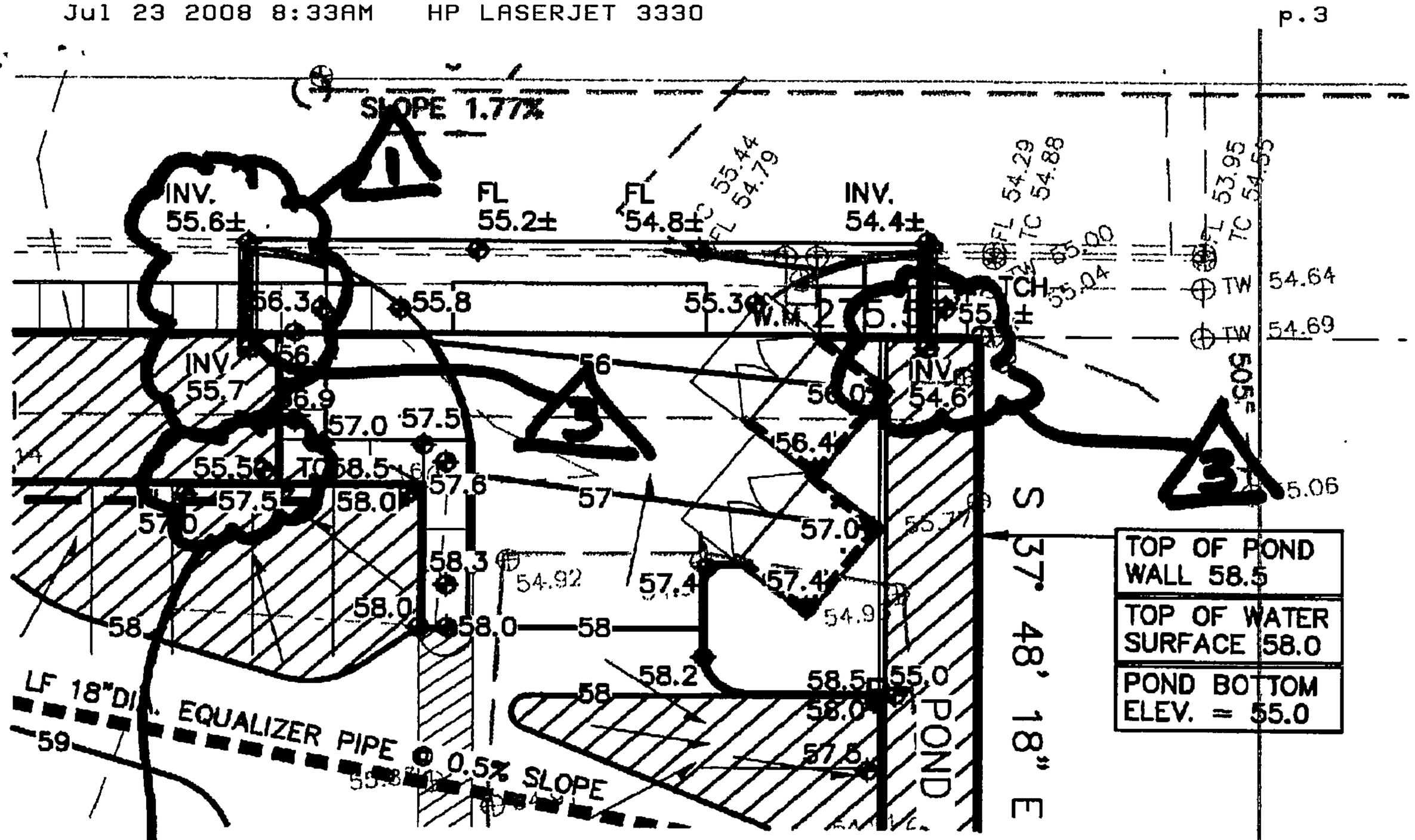
invert into pnd A1

55.32

how will work w/ both at 55.7 pnds

RECEIVED
JUL 23 2008
HYDROLOGY SECTION

2 of 5



S.O.19 : NOTICE TO CONTRACTORS

1	AN EXCAVATION / CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY.
2	ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #7 AMENDMENT 1.
3	TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (260-1990) FOR LOCATION OF EXISTING UTILITIES.
4	PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5	BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC / STREET USE.
6	MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7	WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		

1 CONSTRUCT 12" WIDE CURVED SIDE WALK CULVERT PER C.O.A. ST DWG. 2236 (S.O.19 PERM REQUIRED)

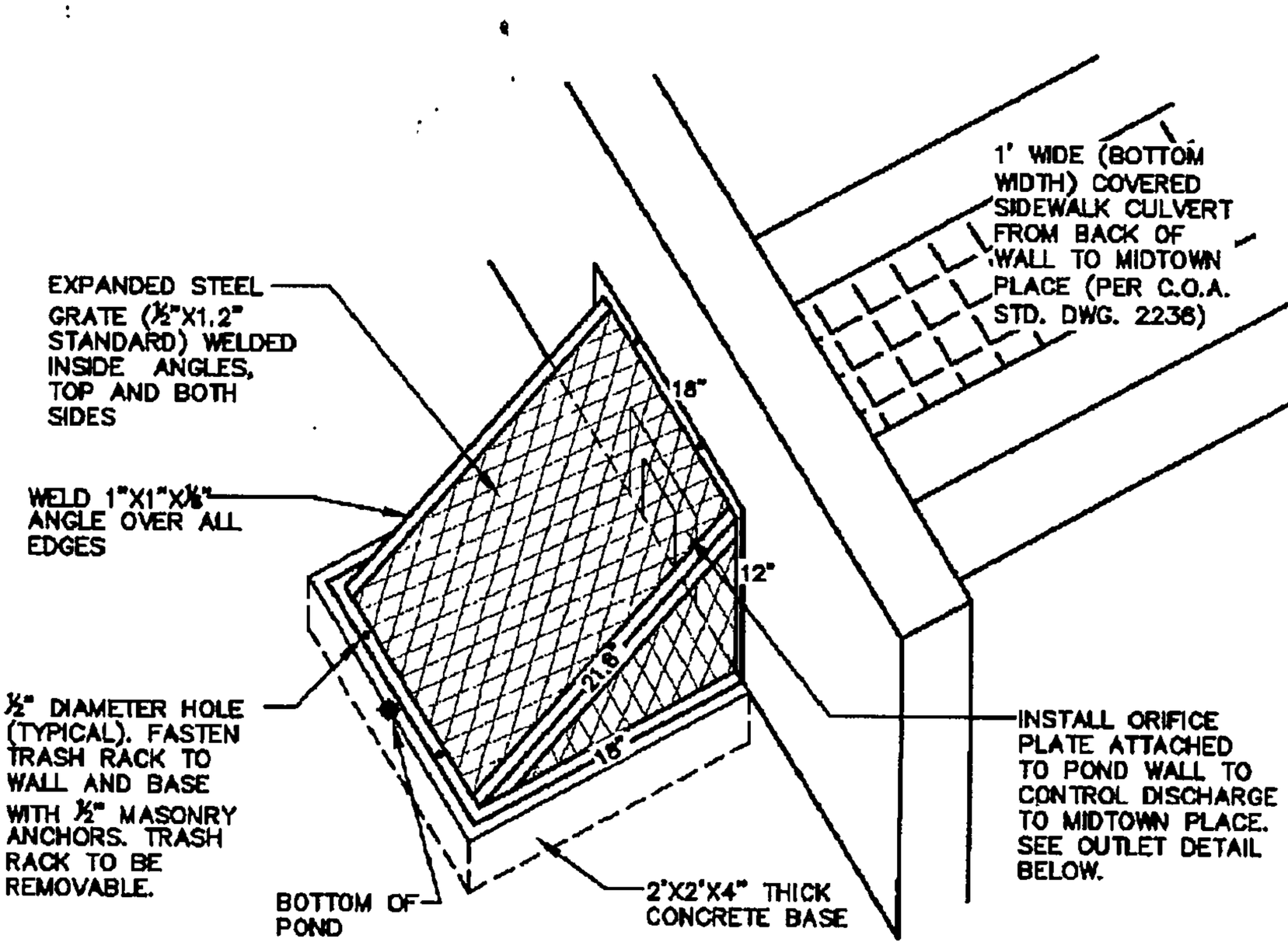
2 Raise P All bottom 55.7 TY

3 INSTALL 4"x4" ORIFI PLATES AT BOTH SIDEW CULVERTS P EXHIBIT 'A'

RECEIVED
JUL 23 2008
HYDROLOGY SECTION

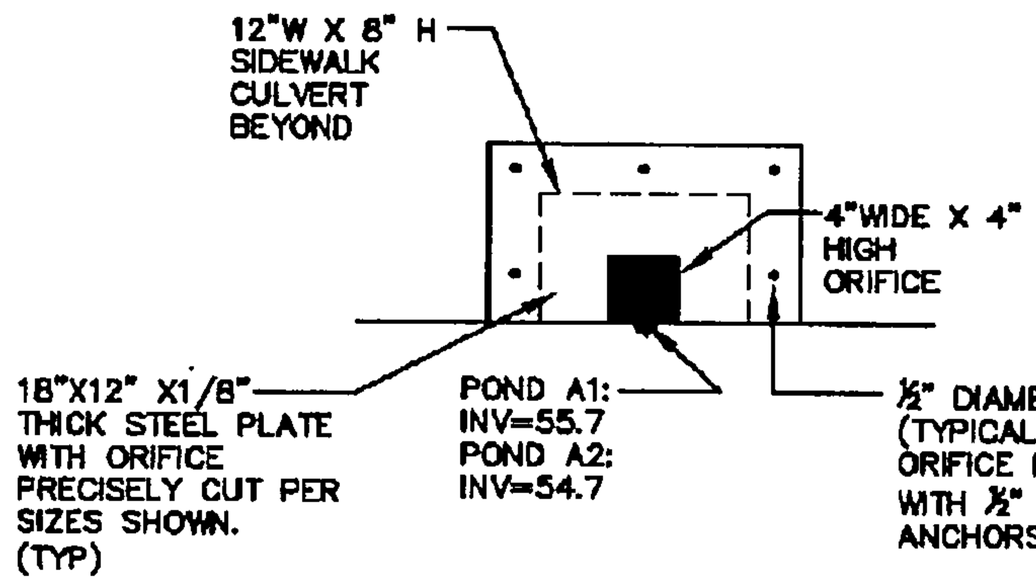
M:\CAD FILES\1400-1499\1490.1\dwg\1490.1CNTR.dwg, Layout1, 7/22/2008 2:02:57 PM, 1:1

EXHIBIT 'A'



POND A1 AND A2 OUTLET PROTECTION

OWNER'S OPTION NTS



POND A1 AND A2 ORIFICE PLATE

NTS

RECEIVED
JUL 23 2008
HYDROLOGY SECTION

4 of 5

M:\CAD FILES\1400-1499\1490.1\dwg\1490GRD.1.dwg, GRADING, 7/22/2008 1:15:17 PM, 1:1.44216

USR 56.2 - 55.87 = H = 2.3

EXHIBIT 'B'

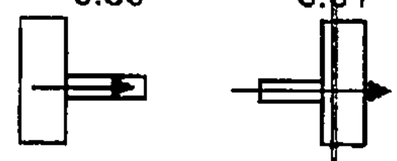
55.7
1" = .167 55.87

Pond Discharge

ORIFICE EQUATION - POND A1 - RECTANGULAR								
Rectangular Area	16 sq.in.		0.11 sq.ft.					
Width	4	in	0.33	ft				
Height	4	in	0.33	ft				
Headwater Elevation	2.3	feet ✓	2.13	Actual H to centerline of culvert				
C	0.6		C values		Rounded	Sharp	Tube Out	Tube In
g	32.2 f/s^2				0.98	0.61	0.80	0.51

56.2 55.87 ✓

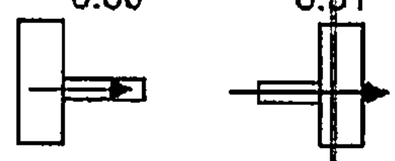
Headwater = 58.0 (top of pond) - 55.7 (orifice invert) = 2.3 feet ✓



Q = C*A*((2*g*H)^0.5) = 0.8 cfs for 0.11 sq.ft. orifice

ORIFICE EQUATION - POND A2 - RECTANGULAR								
Rectangular Area	16 sq.in.		0.11 sq.ft.					
Width	4	in	0.33	ft				
Height	4	in	0.33	ft				
Headwater Elevation	3.3	feet	3.13	Actual H to centerline of culvert				
C	0.6		C values		Rounded	Sharp	Tube Out	Tube In
g	32.2 f/s^2				0.98	0.61	0.80	0.51

Headwater = 58.0 (top of pond) - 54.7 (orifice invert) = 3.3 feet



Q = C*A*((2*g*H)^0.5) = 1 cfs for 0.11 sq.ft. orifice

RECEIVED
JUL 23 2008
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

November 12, 2006

LOT 9
Interstate Business Park

Christopher Gunning, R.A.
Decker Perich Sabatini
6801 Jefferson NE Suite 100
Albuquerque, NM 87109

Re: Midtown Professional Office Park, 2210 Midtown Place NE, Traffic Circulation Layout

Architect's Stamp dated 4-13-06 (G16-D95C)

Dear Mr. Gunning,

Based upon the information provided in your submittal received 11-28-06, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. For passenger vehicles, the minimum end island radius is 15 feet.
2. Please show the location of the nearest driveway on the adjacent lots.
3. Note the maximum slope allowed (1:12) on all wheelchair ramps.
4. Per the Development Process Manual, Chapter 27, Section 1, "Standard sheets must be 24" by 36" having a margin of 2" along the left and 1" on the top and bottom. Use of non-standard sheets must have prior approval of the City Engineer or City Architect in writing."
5. The street names should be legible on the vicinity map. Please amend this.
6. Please provide a 6-foot minimum width of sidewalk.
7. All standard parking spaces must be a minimum of 8.5 feet in width.
8. Please note that the 2-foot overhang is not allowed to encroach on the 6 foot required width of sidewalk. Also, all standard parking spaces have a minimum length of 18 feet. Therefore, the sidewalk can be 8 feet wide with a 2-foot overhang, or the parking spaces must be 20 feet in length with bumpers.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

January 25, 2006

Fred C. Arfman, PE
Isaacson & Arfman, P.A.
128 Monroe St. NE.
Albuquerque, NM 87110

Re: Midtown Professional Office, 2210 Midtown Pl. NE.
Grading and Drainage Plan
Engineer's Stamp dated 1-17-06 (G16-D95C)

Dear Mr. Arfman,

Based upon the information provided in your submittal received 1-18-06, the above referenced plan is approved for Building Permit and Grading Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. **Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.**

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rudy E. Rael, Associate Engineer
Planning Department.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

December 13, 2006

Scott M. McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. NE
Albuquerque, NM 87108

Re: Midtown Professional Office Grading and Drainage Plan
Engineer's Stamp dated 12-11-06 (G16/D95C)

Dear Mr. Arfman,

Based upon the information provided in your submittal dated 12-12-06, the above referenced plan is approved for Grading Permit. This project requires a National Pollutant Discharge Elimination System (NPDES) permit.

However, the plan cannot be approved for Building Permit until the following comments are addressed:

- Per the DPM Chapter 22 Section 9, runoff from the trash enclosure pad is required to drain to the sanitary sewer.
- Specify the means to provide permanent erosion control (Keyed note 15).
- Keyed note 8 specifies …two 4" diameter pipes at the low point….. Is this water to fall 16 feet onto landscaping? It seems this will cause erosion. Could this be piped to the roof drain system or provide a non-erosive conveyance to the ground? Please show approximate location of 4" pipes.
- Provide pond volumes provided.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

C: file
Sertil Kanbar

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

2300 Midtown Pl NE OR
4343 Pan American Frwy NE

December 27, 2006

TRACT 1

Scott M. McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. NE
Albuquerque, NM 87108

Re: Midtown Professional Office Grading and Drainage Plan
Engineer's Stamp dated 12-18-06 (G16/D95C)

Dear Mr. McGee,

Based upon the information provided in your submittal dated 12-20-06, the above referenced plan is approved for Building Permit and SO19 Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within City R/W. A copy of this approval letter must be on hand when applying for the excavation permit.

Also, prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

C: file
Antoinette Baldonado, Excavation and Barricading
Edward Elwell, Street/Storm Drain Maintenance

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

POND VOLUME CALCULATIONS

POND A1		
Contour	Area	Volume
61.00	705	
60.00	705	705 CF
59.50	705	353 CF
TOTAL VOL.		**1058** CF

POND A2		
Contour	Area	Volume
60.00	1045	
59.00	1045	1045 CF
58.50	1045	523 CF
TOTAL VOL.		**1568** CF

PONDS A1 + A2
Required = 2572 CF
Provided = 2625 CF OK

POND B		
Contour	Area	Volume
58.00	1630	
57.00	1630	1630 CF
56.50	1630	815 CF
TOTAL VOL.		**2445** CF

POND B (PAVEMENT PONDING)		
Contour	Area	Volume
58.00	1125	
57.50	450	394 CF
57.00	35	121 CF
TOTAL VOL.		**515** CF

POND B
Required = 2907 CF
Provided = 2960 CF OK

POND C		
Contour	Area	Volume
56.50	1300	
56.00	1300	650 CF
55.00	1300	1300 CF
TOTAL VOL.		**1950** CF

POND C
Required = 1925 CF
Provided = 1950 CF OK

RECEIVED
DEC 20 2006
HYDROLOGY SECTION

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE & LS • Fred C. Arfman, PE
Scott M. McGee, PE

December 18, 2006

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: MIDTOWN PROFESSIONAL OFFICE (G16 / D95C)

Dear Mr. Cherne,

Included with this resubmittal are two copies of the revised grading and drainage plan for the above mentioned property. Revisions made to address your review comments dated December 13, 2006 are as follows:

1. Drainline from trash enclosure to sanitary sewer was keynoted – master utility plan provides specific information.

2. Keyed note 15 removed – no concentrated flow will affect the area between the retaining wall and the property line.

3. 4" diameter pipes eliminated. There is no concentrated discharge to the landscaped area adjacent to the building. Sidewalk culverts are provided.

4. Pond volume calculations attached.

Please don't hesitate to call me with any questions or comments.

Sincerely,
ISAACSON AND ARFMAN

Bryan J. Bobrick
Project Manager

RECEIVED
DEC 20 2006
HYDROLOGY SECTION

128 Monroe St. NE • Albuquerque, NM 87108 • (505) 268-8828 • FAX (505) 268-2632

TRACT 1, INTERSTATE BUSINESS PARK
DRAINAGE SUMMARY

November 29, 2006

I&A Project No.	1490
Owner:	Mechenbier Construction
Legal:	Tract 1, Interstate Business Park
Zone Map:	G-16
Flood Zone:	Zone X (Outside 500 Year Flood Zone) F.I.R.M.#138

Existing Conditions:

The Property is an undeveloped commercial property located in Albuquerque SOUTHWEST OF THE INTERSECTION OF i-25 AND Montano Rd. NE. I-25 Frontage Road borders the property to the southeast, Midtown Road to the southwest, Midtown Place to the northwest and developed commercial property to the northeast. The undeveloped site was previously rough graded in 1999. Site grading for the interim conditions included a temporary detention and sediment pond at the northernmost corner. Excess flow passes to Midtown Place, flows northeast to an existing drainage channel.

Proposed Conditions:

The proposed improvements consist of a commercial office building with associated paved parking and landscaping. The proposed improvments will increase the amount of impervious area which will result in an increase in peak rate and volume of runoff. The peak discharge from the site will be controlled to allowable rates per the approved Master Drainage Plan. *"Drainage Analysis for Midtown Business Park, Tract 3A,* dated 11/04/1998 by Andrews, Asbury and Robert, Inc. G16-D95C

The property is isolated from off-site flow. — from I-25 ROW missing

Per the calculations, the developed runoff of will be detained on-site within three separate detention ponds and released at a controlled rate to Midtown Place NE at a rate not to exceed ~~1.99~~ cfs.

The developed site will be divided into four basins:

Basin A: Consisting of the upper level parking, the southwest on-site access road and associated landscaping will drain to Pond A. Per the calculations, this basin will generate 2.8 cfs and will release 0.9 cfs to Midtown Place via a 1' wide sidewalk culvert with a 4" high x 5.67" wide orifice plate to control the discharge.

Basin B: Consisting of approximately 1/3 of the roof, the majority of the lower level parking and associated landscaping will drain to Pond B. Per the calculations, this basin will generate 2.1 cfs and will release 0.2 cfs to

Midtown Place via a 1' wide sidewalk culvert with a 2" wide x 2.5" high orifice plate to control the discharge.

Basin C: Consisting of 2/3 of the roof, a small portion of the lower level parking and associated landscaping will drain to Pond C. Per the calculations, this basin will generate 2.3 cfs and will release 0.85 cfs to Midtown Place via a 1' wide sidewalk culvert with a 5.5" wide x 4" high orifice plate to control the discharge.

Basin D: Consisting of two landscaped areas adjacent to building on the lower level will be sized to capture the 100-year, 10-day volume for the area and utilize for landscaping. Discharge will naturally percolate into the surrounding grade with a percolation pit provided within each landscaped area to assist in the percolation. Although these ponding areas are adjacent to the building, the structure of the building (to be built on piers) will not be adversely affected.

The total discharge from the site will be

Basin A:	0.9 cfs
Basin B:	0.2 cfs
Basin C:	0.85 cfs
Total	1.95 cfs < 1.99 cfs OK

CALCULATIONS: Lot 1 - Interstate Business Park : Dec. 11, 2006

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 73212 SF = 1.68 Ac.

HISTORIC FLOWS:

On-Site Historic Land Condition

Area a	=	0	SF
Area b	=	0	SF
Area c	=	73212	SF
Area d	=	0	SF
Total Area	=	73212	SF

DEVELOPED FLOWS:

On-Site Developed Land Condition

Area a	=	0	SF
Area b	=	7775	SF
Area c	=	3579	SF
Area d	=	61858	SF
Total Area	=	73212	SF

EXCESS PRECIP:

Precip. Zone 2

Ea = 0.53

Eb = 0.78

Ec = 1.13

Ed = 2.12

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{EaAa + EbAb + EcAc + EdAd}{Aa + Ab + Ac + Ad}$$

Historic E	=	1.13	in.	Developed E	=	1.93	in.

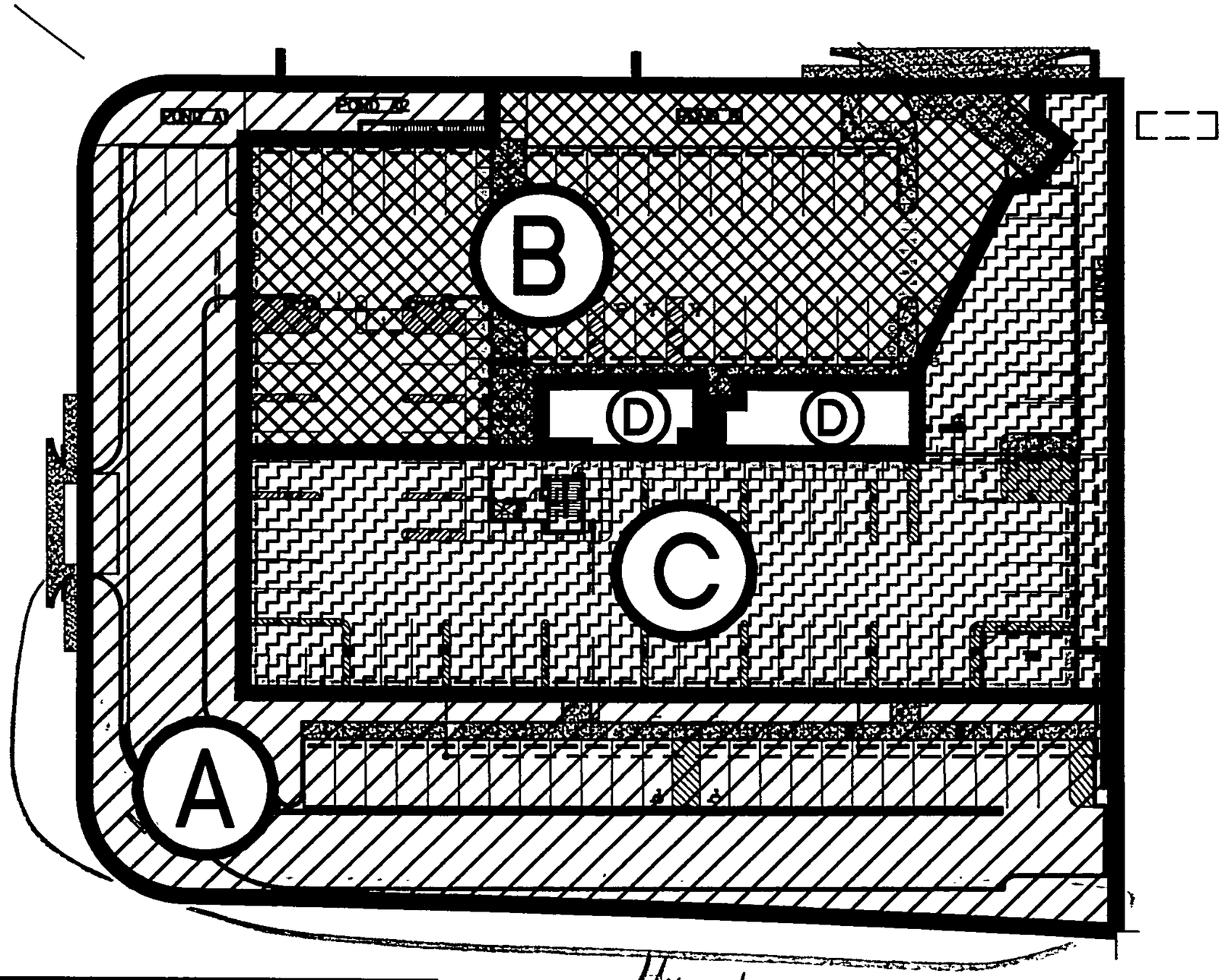
On-Site Volume of Runoff: V360 = E*A / 12

Historic V360	=	6894	CF	Developed V360	=	11771	CF

On-Site Peak Discharge Rate: Qp = QpaAa+QpbAb+QpcAc+QpdAd / 43,560

For Precipitation Zone 2

Qpa	=	1.56		Qpc	=	3.14	
Qbb	=	2.28		Qpd	=	4.70	
Historic Qp	=	5.3	CFS	Developed Qp	=	7.3	CFS



ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
· 128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632
1490GRD.dwg Dec 01,2006

DRAINAGE SUB-BASINS

C:\Documents and Settings\Owner\Desktop\1490GRD.dwg, SUB-BASIN EXHIBIT, 12/1/2006 1:55:39 PM

BASIN NO. A **DESCRIPTION**

Area of basin flows = 28269 SF = 0.6 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.89 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 4445 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 2.8 cfs

TREATMENT	
A =	0%
B =	10%
C =	10%
D =	80%

BASIN NO. B **DESCRIPTION**

Area of basin flows = 19800 SF = 0.5 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.05 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 3387 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 2.1 cfs

TREATMENT	
A =	0%
B =	5%
C =	0%
D =	95%

BASIN NO. C **DESCRIPTION**

Area of basin flows = 22703 SF = 0.5 Ac.

The following calculatio 26470

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.99 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 3757 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 2.3 cfs

TREATMENT	
A =	0%
B =	10%
C =	0%
D =	90%

BASIN NO. D **DESCRIPTION**

Area of basin flows = 2110 SF = 0.0 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 0.85 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 149 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 0.1 cfs

TREATMENT	
A =	0%
B =	80%
C =	20%
D =	0%

CALCULATIONS: Lot 1 - Interstate Business Park : ='DPM Calculations'!C6
HYDROGRAPH FOR SMALL WATERSHED DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B, for a small watershed hydrograph is,

tB = (2.107 * E * AT / QP) - (0.25 * AD / AT)

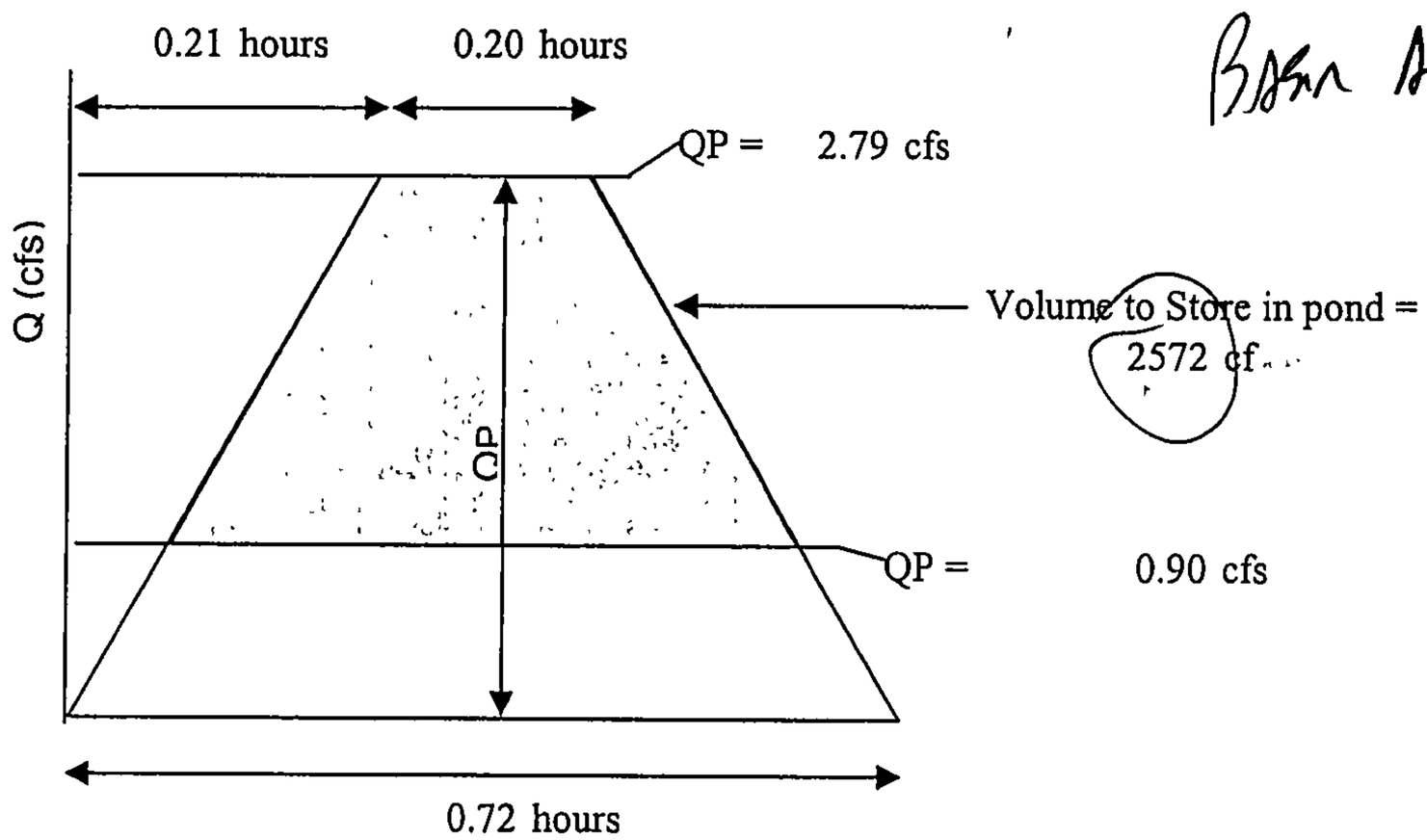
Where			
	E	=	1.89 inches
	AT	=	0.65 acres
	AD	=	0.52 acres
	QP	=	2.8 cfs
	tB	=	0.72 hours

E is the excess precipitation in inches (from DPM TABLE A-8), QP is the peak flow, AD is the area (acres) of treatment D, and AT is the total area in acres. Using the time of concentration, tC (hours), the time to peak in hours is:

tP = (0.7 * tC) + ((1.6 - (AD / AT)) / 12)

Where			
	tC	=	0.20 hours
	tP	=	0.21 hours

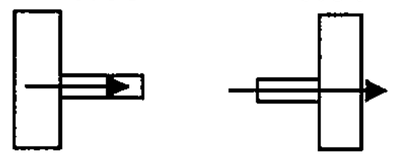
Continue the peak for 0.25 * AD / AT hours. When AD is zero, the hydrograph will be triangular. When AD is not zero, the hyrograph will be trapezoidal. see the graph below:



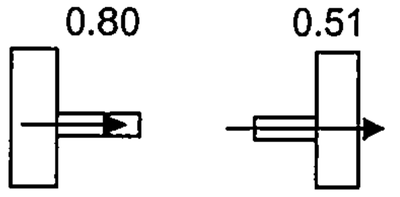
INFLOW / OUTFLOW HYDROGRAPH

Pond A Discharge

ORIFICE EQUATION - CIRCULAR								
Orifice Diameter	**5.5**	inches	0.46	feet				
Orifice Area	23.76	sq.in.	0.16	square feet				
Headwater Elevation	**1.5**	feet	1.27	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		**0.98**	**0.61**	**0.80**	**0.51**	
Q = C*A*((2*g*H)^0.5)	**=**	**0.91 cfs**	**for 5.5 in. diameter orifice**					



ORIFICE EQUATION - RECTANGULAR								
Rectangular Area	22.668	sq.in.	0.16	sq.ft.				
Width	**5.667**	in	0.47	ft				
Height	**4**	in	0.33	ft				
Headwater Elevation	**1.5**	feet	1.33	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		0.98	0.61	0.80	0.51	
Q = C*A*((2*g*H)^0.5)	**=**	**0.89 cfs**	**for 0.16 sq.ft. orifice**					



CALCULATIONS: Lot 1 - Interstate Business Park : ='DPM Calculations'!C6

HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B, for a small watershed hydrograph is,

tB = (2.107 * E * AT / QP) - (0.25 * AD / AT)

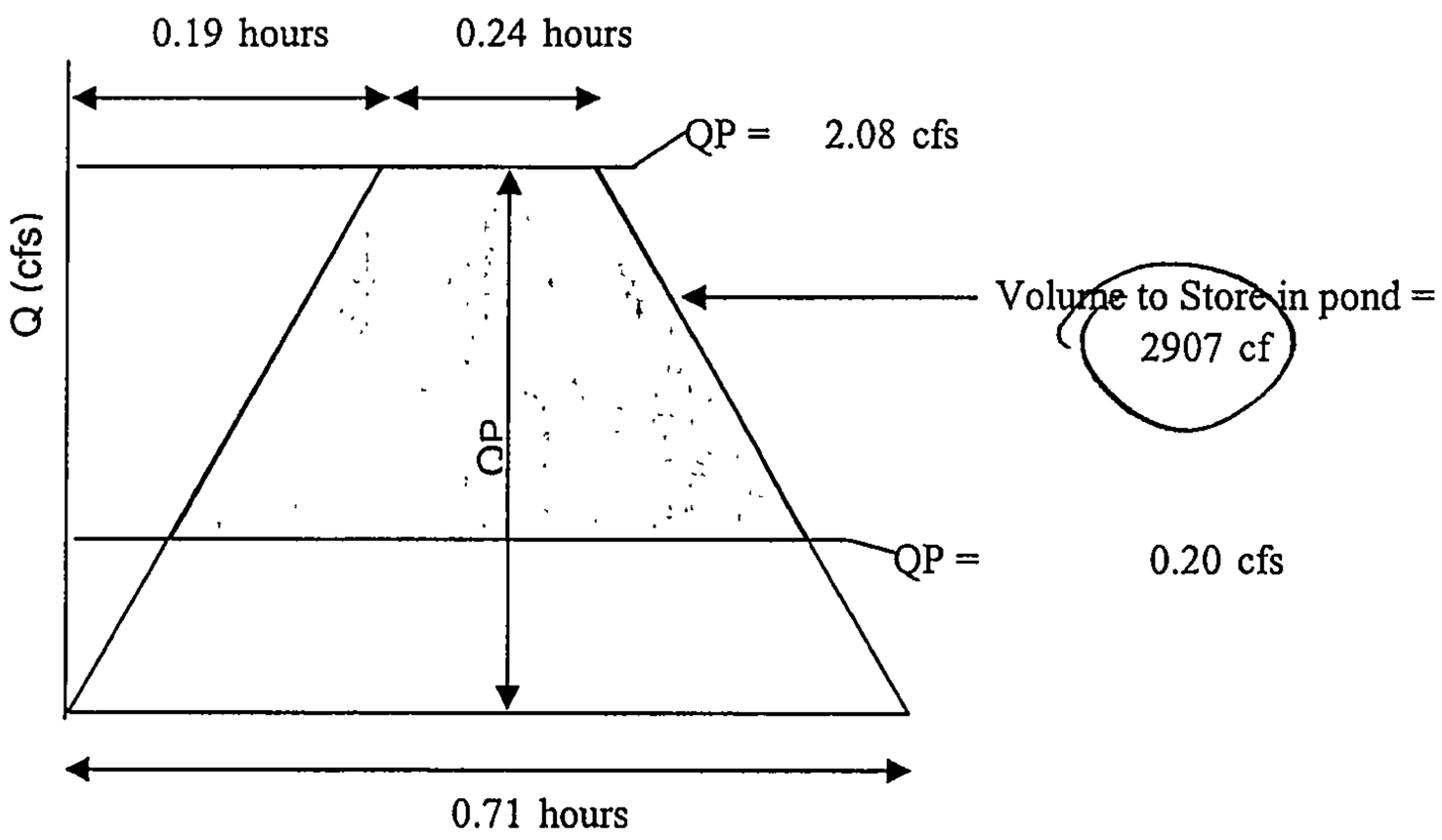
Where			
	E	=	2.05 inches
	AT	=	0.45 acres
	AD	=	0.43 acres
	QP	=	2.1 cfs
	tB	=	0.71 hours

E is the excess precipitation in inches (from DPM TABLE A-8), QP is the peak flow, AD is the area (acres) of treatment D, and AT is the total area in acres. Using the time of concentration, tC (hours), the time to peak in hours is:

tP = (0.7 * tC) + ((1.6 - (AD / AT)) / 12)

Where			
	tC	=	0.20 hours
	tP	=	0.19 hours

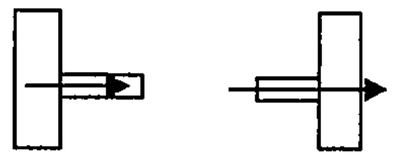
Continue the peak for 0.25 * AD / AT hours. When AD is zero, the hydrograph will be triangular. When AD is not zero, the hyrograph will be trapezoidal. see the graph below:



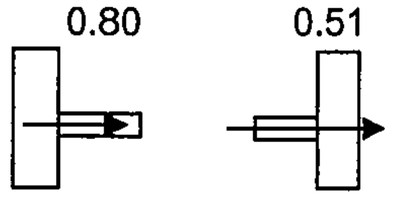
INFLOW / OUTFLOW HYDROGRAPH

Pond B Discharge

ORIFICE EQUATION - CIRCULAR								
Orifice Diameter	**2.5**	inches	0.21	feet				
Orifice Area	4.91	sq.in.	0.03	square feet				
Headwater Elevation	**1.5**	feet	1.40	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		**0.98**	**0.61**	**0.80**	**0.51**	
Q = C*A*((2*g*H)^0.5)	**=**	**0.2 cfs**	**for 2.5 in. diameter orifice**					



ORIFICE EQUATION - RECTANGULAR								
Rectangular Area	5	sq.in.	0.03	sq.ft.				
Width	**2**	in	0.17	ft				
Height	**2.5**	in	0.21	ft				
Headwater Elevation	**1.5**	feet	1.40	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		0.98	0.61	0.80	0.51	
Q = C*A*((2*g*H)^0.5)	**=**	**0.2 cfs**	**for 0.03 sq.ft. orifice**					



CALCULATIONS: Lot 1 - Interstate Business Park : ='DPM Calculations'!C6

HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B, for a small watershed hydrograph is,

tB = (2.107 * E * AT / QP) - (0.25 * AD / AT)

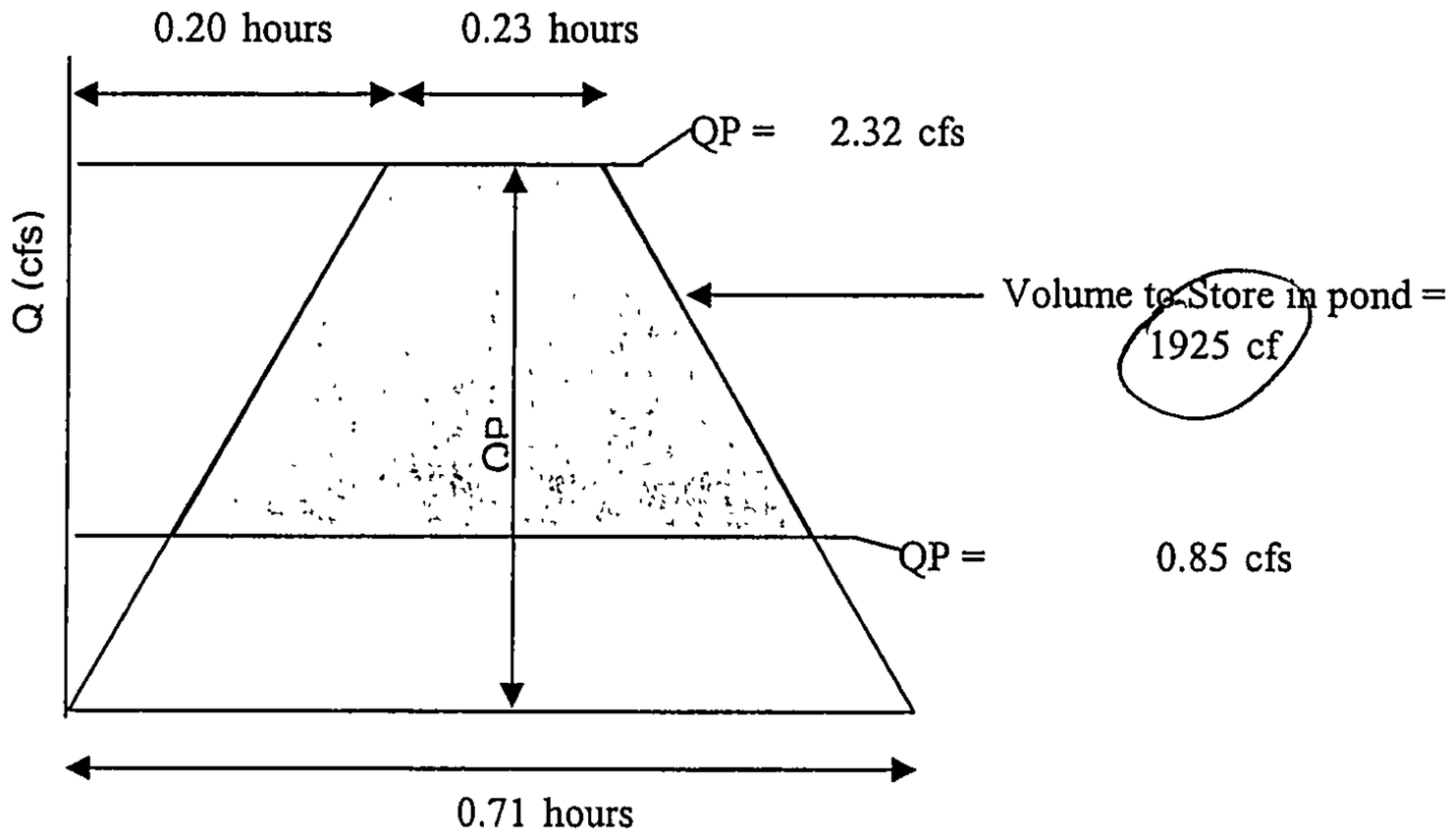
Where			
	E	=	1.99 inches
	AT	=	0.52 acres
	AD	=	0.47 acres
	QP	=	2.3 cfs
	tB	=	0.71 hours

E is the excess precipitation in inches (from DPM TABLE A-8), QP is the peak flow, AD is the area (acres) of treatment D, and AT is the total area in acres. Using the time of concentration, tC (hours), the time to peak in hours is:

tP = (0.7 * tC) + ((1.6 - (AD / AT)) / 12)

Where			
	tC	=	0.20 hours
	tP	=	0.20 hours

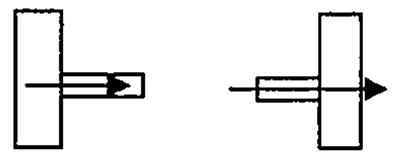
Continue the peak for 0.25 * AD / AT hours. When AD is zero, the hydrograph will be triangular. When AD is not zero, the hyrograph will be trapezoidal. see the graph below:



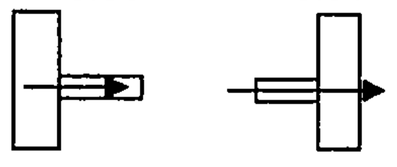
INFLOW / OUTFLOW HYDROGRAPH

Pond C Discharge

ORIFICE EQUATION - CIRCULAR								
Orifice Diameter	**5.33**	inches	0.44	feet				
Orifice Area	22.31	sq.in.	0.15	square feet				
Headwater Elevation	**1.5**	feet	1.28	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		**0.98**	**0.61**	**0.80**	**0.51**	
Q = C*A*((2*g*H)^0.5)	**=**	**0.85 cfs**	**for 5.33 in. diameter orifice**					



ORIFICE EQUATION - RECTANGULAR								
Rectangular Area	22	sq.in.	0.15	sq.ft.				
Width	**5.5**	in	0.46	ft				
Height	**4**	in	0.33	ft				
Headwater Elevation	**1.5**	feet	1.33	Actual H to centerline of culvert				
C	**0.6**		C values	Rounded	Sharp	Tube Out	Tube In	
g	32.2	f/s^2		0.98	0.61	0.80	0.51	
Q = C*A*((2*g*H)^0.5)	**=**	**0.86 cfs**	**for 0.15 sq.ft. orifice**					



Manning Pipe Calculator

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	6.0000 in
Depth	6.0000 in
Slope	0.0300 ft/ft
Manning's n	0.0110

Computed Results:

Flowrate	1.1486 cfs
Area	0.1963 ft2
Wetted Area	0.1963 ft2
Wetted Perimeter	18.8496 in
Perimeter	18.8496 in
Velocity	5.8496 fps
Hydraulic Radius	1.5000 in
Percent Full	100.0000 %
Full flow Flowrate	1.1486 cfs
Full flow velocity	5.8496 fps

Manning Pipe Calculator

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	8.0000 in
Depth	8.0000 in
Slope	0.0300 ft/ft
Manning's n	0.0110

Computed Results:

Flowrate	2.4736 cfs
Area	0.3491 ft2
Wetted Area	0.3491 ft2
Wetted Perimeter	25.1327 in
Perimeter	25.1327 in
Velocity	7.0863 fps
Hydraulic Radius	2.0000 in
Percent Full	100.0000 %
Full flow Flowrate	2.4736 cfs
Full flow velocity	7.0863 fps

CITY OF ALBUQUERQUE

December 28, 2006

Christopher Gunning, R.A.
Decker Perich Sabatini
6801 Jefferson NE Suite 100
Albuquerque, NM 87109

Re: Midtown Professional Office Park, 2210 Midtown Place NE, Traffic Circulation Layout
Architect's Stamp dated 12-19-06 (G16-D95C)

Dear Mr. Gunning,

The TCL submittal received 12-19-06 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation. **Public infrastructure or work done within City Right-of-Way shown on these plans is for information only and is not part of approval. A separate DRC and/or other appropriate permits are required to construct these items.**

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

Tract 9

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

April 11, 2007

Christopher Gunning, R.A.
Decker Perich Sabatini
7601 Jefferson NE Suite 100
Albuquerque, NM 87109

Re: Midtown Professional Office Building, Tract 1 Interstate Business Park,
4343 Pan American Hwy, Traffic Circulation Layout
Architect's Stamp dated 4-02-07 (G16-D95C)

Dear Mr. Gunning,

The TCL submittal received 4-02-07 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation. **Public infrastructure or work done within City Right-of-Way shown on these plans is for information only and is not part of approval. A separate DRC and/or other appropriate permits are required to construct these items.**

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Midtown Professional Office Bldg
TRACT 1

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Midtown prof. office BLDG. TRACT 1 ZONE MAP/DRG. FILE #: G-16-Z/D-95C
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: ~~4343~~ 4333 Pan Am Hwy OR 2300 Midtown PI NE →

ENGINEERING FIRM: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

OWNER: MECHENBIER
ADDRESS: 8804 WASHINGTON NE SUITE A CONTACT: JOHN MECHENBIER
CITY, STATE: Albuquerque NM 87113 PHONE: 505· ~~867-1616~~ 314-7900
ZIP CODE: 87113

ARCHITECT: PEICKER · PERICH · SABATINI
ADDRESS: 7601 JEFFERSON NE CONTACT: TOM DIETERLE
CITY, STATE: Albuquerque NM PHONE: 505· 761-9700
ZIP CODE: 87109

SURVEYOR: ISAACSON & ROFMAC
ADDRESS 128 MONROE ST NE CONTACT: Scott M. McGee
CITY, STATE: Albuquerque NM PHONE: 505.924.3696
ZIP CODE: 87108

CONTRACTOR: MECHENBIER CONST.
ADDRESS: 8804 WASHINGTON NE SUITE A CONTACT: Jim Dixon
CITY, STATE: Albuquerque NM PHONE: _____
ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- X TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

<Resubmittal>

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA / FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

RECEIVED
APR 2 2007
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- X NO
- ____ COPY PROVIDED

DATE SUBMITTED: _____ BY: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

October 17, 2007

Fred Arfman, P.E.
Isaacson & Arfman
128 Monroe St NE
Albuquerque, NM 87108

Re: Midtown Professional Office, 2210 Midtown Place NE,
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 1/17/06 (G16/D95C)
Certification dated 10/16/07

Based upon the information provided in your submittal received 10/17/07, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy Sims
Plan Checker-Hydrology, Planning Dept.
Development and Building Services

C: CO Clerk-Katrina Sigala
File

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Midtown Professional Office
ZONE MAP / DRG. FILE #: G-16 / D95C
DRB #: _____ EPC #: _____
WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 9, Interstate Business Park, Albuquerque, NM
CITY ADDRESS: 2210 Midtown Place, NE

ENGINEERING FIRM: Isaacson & Arfman, P.A.
CONTACT: Bryan Bobrick
ADDRESS: 128 Monroe St. NE
PHONE: 268-8828
CITY, STATE: Albuquerque, NM
ZIP CODE: 87108

OWNER: Mechenbier Construction
CONTACT: John Mechenbier
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

ARCHITECT: _____
CONTACT: _____
ADDRESS: _____
PHONE: _____
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

SURVEYOR: Forstbauer Surveying Co.
CONTACT: Ron Forstbauer
ADDRESS: _____
PHONE: 268-2112
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

CONTRACTOR: _____
CONTACT: _____
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
_____DRAINAGE REPORT
_____DRAINAGE PLAN 1ST *REQUIRES TCL or equal*
_____DRAINAGE PLAN RESUBMITTAL
_____CONCEPTUAL GRADING & DRAINAGE PLAN
_____GRADING PLAN
_____EROSION CONTROL PLAN
__X__ENGINEER'S CERTIFICATION (HYDROLOGY)
_____CLOMR / LOMR
_____TRAFFIC CIRCULATION LAYOUT (TCL)
_____ENGINEER'S CERTIFICATION (TCL)
_____ENGINEER'S CERTIFICATION (DRB APPR, SITE PLAN)
_____OTHER (Supplemental Calculations)

CHECK TYPE OF APPROVAL SOUGHT:
_____SIA / FINANCIAL GUARANTEE RELEASE
_____PRELIMINARY PLAT APPROVAL
_____S. DEV. PLAN FOR SUB'D APPROVAL
_____S. DEV. PLAN FOR BLDG. PERMIT APPR.
_____SECTOR PLAN APPROVAL
_____FINAL PLAT APPROVAL
_____FOUNDATION PERMIT APPROVAL
_____BUILDING PERMIT APPROVAL
__X__CERTIFICATE OF OCCUPANCY (PERM)
_____CERTIFICATE OF OCCUPANCY (TEMP)
_____GRADING PERMIT APPROVAL
_____PAVING PERMIT APPROVAL
_____WORK ORDER APPROVAL
_____OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____YES
_____NO
_____COPY PROVIDED

RECEIVED
OCT 17 2007
HYDROLOGY SECTION

DATE SUBMITTED: Wednesday, October 17, 2007
BY: Bryan Bobrick
Isaacson & Arfman, P.A.

Requests for approvals of Site Development Plans and / or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five acres
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five acres or more.

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

October 12, 2007

Christopher R. Gunning, Registered Architect
7601 Jefferson NE, Ste. 100
Albuquerque, NM 87109

Re: Certification Submittal for Final Building Certificate of Occupancy for
Midtown Professional Office Park, [G-16 / D95C]
2210 Midtown Place NE
Architect's Stamp Dated 10/11/07

Dear Mr. Gunning:

The TCL / Letter of Certification submitted on October 11, 2007 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: MIDTOWN PROFESSIONAL OFFICE ZONE MAP/DRG. FILE # 6-16-Z/D095C
DRB#: N/A EPC#: N/A WORK ORDER#:

LEGAL DESCRIPTION: LOT 9 INTERSTATE BUSINESS PARK, BOOK 2000C, PAGE 131
CITY ADDRESS:

ENGINEERING FIRM: BRYSON & ARFMAN CONTACT: BRYAN BOBRICK
ADDRESS: 128 MANPOE CT. NE PHONE: 268-3828
CITY, STATE: ABQ. NM ZIP CODE: 87108

OWNER: MECHENBIER CONSTRUCTION, INC CONTACT: JOHN MECHENBIER
ADDRESS: 8500 WASHINGTON NE, A-6 PHONE: 314-7700
CITY, STATE: ABQ. NM ZIP CODE: 87113

ARCHITECT: DEKKER/PERICH/SABATINI CONTACT: KEVIN KOFCHUR
ADDRESS: 7601 JEFFERSON NE, #100 PHONE: 761-9700
CITY, STATE: ABQ., NM ZIP CODE: 87109

SURVEYOR: WAYDON SURVEYING, INC. CONTACT: THOMAS JOHNSTON
ADDRESS: 330 LOUISIANA BLVD NE PHONE: 255-1052
CITY, STATE: ABQ., NM ZIP CODE: 87108

CONTRACTOR: MECHENBIER CONSTRUCTION, INC CONTACT: JOHN MECHENBIER
ADDRESS: 8500 WASHINGTON NE, A-6 PHONE: 314-7700
CITY, STATE: ABQ. NM ZIP CODE: 87113

TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- X TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER/ARCHITECT CERT (TCL)
- ____ ENGINEER/ARCHITECT CERT (DRB S.P.)
- ____ ENGINEER/ARCHITECT CERT (AA)
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- X CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- X YES
- X NO
- ____ COPY PROVIDED

Please call when complete cc

SUBMITTED BY: Kevin Kofchur DATE: 10/11/07
KEVIN KOFCHUR

RECEIVED
OCT 11 2007
HYDROLOGY SECTION

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Dekker/Perich/Sabatini
architecture interiors landscape planning engineering

October 11, 2007

Traffic Engineer
City of Albuquerque
Public Works Department
Development & Building Services Division
600 2nd Street NW
Albuquerque, New Mexico 87102

Re: Midtown Professional Office Park
2210 Midtown Place NE
TCL for Certificate of Occupancy

To Whom It May Concern:

I, Christopher R. Gunning, NMRA no.3203 of the firm Dekker/Perich/Sabatini, hereby certify that this referenced project is in substantial compliance in accordance with the design intent of the approved December 19, 2006 TCL for Building Permit, with the exception of the items listed below. Dekker/Perich/Sabatini visited the project site on October 11, 2007 in order to verify what has been constructed is in accordance with the attached site plan. The following is a list of items that are not complete but shall be completely installed by October 12, 2007:

1. Install sign for motorcycle parking designation.
2. Complete installation of all concrete wheel stops.

This certification is submitted in support of a request for Certificate of Occupancy.

The record information presented herein is not complete and intended only to verify substantial compliance of the traffic aspects of this project as they relate to this building. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

If you have any questions, please feel free to contact Kevin Kofchur or myself at 761-9700, thank you.

Very truly yours,

Dekker/Perich/Sabatini Ltd.

Christopher R. Gunning AIA
Principal

STATE OF NEW MEXICO
CHRISTOPHER R. GUNNING
NO. 3203
10/11/07
REGISTERED ARCHITECT

Cc: File

7601 Jefferson NE
Suite 100
Albuquerque NM
87109
505.761.9700
fax 761.4222
www dpsdesign.org

CITY OF ALBUQUERQUE

March 19, 2007

Christopher Gunning, R.A.
Decker Perich Sabatini
7601 Jefferson NE Suite 100
Albuquerque, NM 87109

Re: Midtown Professional Office Building, Tract 1 Interstate Business Park, 4343 Pan American Hwy, Traffic Circulation Layout

Architect's Stamp dated 12-18-06 (G16-D95C)

Dear Mr. Gunning,

Based upon the information provided in your submittal received 3-12-07, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. For passenger vehicles, the minimum end island radius is 15 feet.
2. A five-foot keyway is required for deadend parking aisles.
3. The majority of the cross hatching is not defined. Please include the items on the legend.
4. A scale must be shown on the plan. Per the Development Process Manual, Chapter 27, Section 2, Part B.1, only the following scales may be used:
   - 1" = 50'
   - 1" = 40'
   - 1" = 20'
   - 1" = 10'
   - 1" = 100' (for overall layouts only)
5. Clarify conditions at street level versus the underground parking.
6. Are there gates at the parking entrances?
7. Show the location of all sidewalk located in the right of way. Clarify whether the sidewalk is proposed or existing.
8. Please include two identical copies of the traffic circulation layout at the next submittal.
9. Per the *Development Process Manual*, Chapter 27, Section 1, "Standard sheets must be 24" by 36" having a margin of 2" along the left and 1" on the top and bottom."

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

August 22, 2007

Scott M. McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. NE
Albuquerque, NM 87108

Re: Midtown Professional Office Grading and Drainage Plan

Engineer's Stamp dated 8-14-07 (G16/D95C)

Dear Mr. McGee,

Based upon the information provided in your submittal dated 8-21-07, the above referenced plan is approved for Building Permit and SO 19 Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit is required for construction within City ROW. A copy of this approval letter must be on hand when applying for the excavation permit.

To obtain a temporary or permanent CO, Engineer Certification of the Grading Plan per the DPM is required and the storm drain work in the City ROW must be inspected and accepted. Please contact Duane Schmitz, 235-8016, to schedule an inspection.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne

Curtis A. Cherne, P.E.
Engineering Associate, Planning Dept.
Development and Building Services

C: file
Antoinette Baldonado, Excavation and Barricading
Duane Schmitz, Street/Storm Drain Maintenance

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Midtown Professional Office
ZONE MAP / DRG. FILE #: G-16 / D95C
DRB #: _____ EPC #: _____
WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1, Interstate Business Park, Albuquerque, NM
CITY ADDRESS: 2300 Midtown Place, NE

ENGINEERING FIRM: Isaacson & Arfman, P.A.
CONTACT: Bryan Bobrick
ADDRESS: 128 Monroe St. NE
PHONE: 268-8828
CITY, STATE: Albuquerque, NM
ZIP CODE: 87108

OWNER: Mechenbier Construction
CONTACT: John Mechenbier
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

ARCHITECT: DPS Architects
CONTACT: Tom Dieterle
ADDRESS: _____
PHONE: _____
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

SURVEYOR: Wayjohn Surveying Inc.
CONTACT: Thomas D. Johnston - #14269
ADDRESS: _____
PHONE: _____
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

CONTRACTOR: _____
CONTACT: _____
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1ST *REQUIRES TCL or equal*
__X__ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
__X__ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR / LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEER'S CERTIFICATION (TCL)
_____ ENGINEER'S CERTIFICATION (DRB APPR, SITE PLAN)
_____ OTHER (Supplemental Calculations)

CHECK TYPE OF APPROVAL SOUGHT:

_____ SIA / FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPR.
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
__X__ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
__X__ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES
_____ NO
_____ COPY PROVIDED

RECEIVED
AUG 21 2007
HYDROLOGY SECTION

DATE SUBMITTED: Tuesday, August 21, 2007
BY: Bryan Bobrick
Isaacson & Arfman, P.A.

Requests for approvals of Site Development Plans and / or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five acres
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five acres or more.

376

ISAACSON & ARFMAN, P.A.

CONSULTING ENGINEERING ASSOCIATES

128 MONROE STREET NE
ALBUQUERQUE, NM 87108
PH: 505.268.8828
FAX: 505.268.2632

A Letter of Transmittal From: Bryan Bobrick

To	COA HYDROLOGY
Address	
City	
Attention	Curtis A. Cherne, E.I.
Date	14 Aug, 07 **Job No.** 1490.1
RE	Midtown Professional Office G16 / D95C

WE ARE SENDING YOU: ● Attached ○ Under Separate Cover

1. Revised Grading and Draiange Plan - 2 sets
2.
3.
4.
5.
6.
7.
8.
9.
10.

COMMENTS:

RE: Midtown Professional Office (G16 / D95C)

Dear Mr. Cherne,

Included with this transmittal are two sets of the revised Grading and Drainage Plan for your review.

This project was previously approved per your letter dated December 27, 2006

Revisions were made, in part, due to revised a Architectural Site Plan. In addition, the original drainage concept utilizing multiple shallow ponds has been completely revised to a single (using equalizer pipe) large pond. All calculations and exhibits are provided on Sheet C001.

Please don't hesitate to call me or Scott McGee, P.E. at 281-1800 with any questions or comments.

Bryan Bobrick

Letter of Transmittal

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108

To: COA Hydrology Date: 8.21.07

Job No. 1490.1

Attn: Curtis Cherne

Reference:

We transmit to you _____ copy(ies) of the following:

☐	_____ Plats	☐	Specifications
☒	2 sets Plans	☐	Submittals
☐	_____ Disks	☐	Shop Drawings
☐	_____ Report	☐	Copy of Letter
☐	_____		
☐	_____		

This information is transmitted:

☐	As per your request	☐	For your files
☐	For your review & approval	☒	For your use
☐	For your information	☐	Please review & return
☐	For your attention	☐	For return to your files
☐	For your signature	☐	Please advise
☐	_____		
☐	_____		

Remarks: Per our phone conversation, the 4" pond bleeder pipe from pond A1 was eliminated.

Thanks

By: Bryan Babcock Copies to: _____

(505) 268 - 8828; FAX: (505) 268 - 2632; EMAIL: iamengrs@swcp.com

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

August 20, 2008

Christopher R. Gunning, Registered Architect,
Dekker/Perich/Sabatini
7601 Jefferson, Ste. 100
Albuquerque, NM 87109

Re: Approval of Temporary Certificate of Occupancy (C.O.) for
Midtown Professional Office Bldg, [G-16 / D095C]
4373 Pan American Freeway
Architect's Stamp Dated 08/18/08

Dear Mr. Gunning:

Based on the information provided on your submittal dated August 20, 2008, the above referenced project is approved for a 30-day Temporary C.O.

A Temporary C.O. has been issued allowing the outstanding date (***the correct date of the approved site plan is 4/11/08 and needs to be reflected on letter of certification instead of the date 4/2/08)*** issue to be completed within this time period. When these remaining issues have been fully completed, are in substantial compliance, and a final Certification for Transportation has been resubmitted to the City's Hydrology office for approval, a Permanent C.O. will be issued.

The Certification package for Final C.O. must include an ***exact*** copy of the approved TCL, or signed off D.R.B. Site Plan, which is in each of the two City Permit Plan Sets—the contractor's City field set and the City's plan set in the basement of the Plaza Del Sol building. Package also must include a letter of certification on designer's letterhead-stamped with his seal, signed, and dated. Submit package along with fully completed Drainage Information Sheet to front counter personnel for log in and evaluation by Transportation.

If you have any questions, please call me at 924-3630.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Midtown Professional Office Building ZONE MAP/DRG. FILE # G-16 / D095C
DRB#: N/A EPC#: N/A WORK ORDER#:

LEGAL DESCRIPTION: Lot 1 of Interstate Business Park, being Replat as Tract 3A Midtown Business Park, Book 2000C p. 131
CITY ADDRESS: 4343 Pan American Freeway NE

ENGINEERING FIRM: Isaacson & Arfman
ADDRESS: 128 Monroe St. NE
CITY, STATE: ABQ. NM
CONTACT: Bryan Bobrick
PHONE: 268-8828
ZIP CODE: 87108

OWNER: Mechenbier Construction Inc.
ADDRESS: 8500 Washington NE A-6
CITY, STATE: ABQ. NM
CONTACT: John Mechenbier
PHONE: 314-7700
ZIP CODE: 87113

ARCHITECT: Dekker/Perich/Sabatini
ADDRESS: 7601 Jefferson NE #100
CITY, STATE: ABQ. NM
CONTACT: Chris Gunnins
PHONE: 761-9700
ZIP CODE: 87109

SURVEYOR: Wayjohn Surveying Inc.
ADDRESS: 330 Louisiana Blvd. NE
CITY, STATE: ABQ. NM
CONTACT: Thomas Johnston
PHONE: 255-1052
ZIP CODE: 87108

CONTRACTOR: Mechenbier Construction Inc.
ADDRESS: 8500 Washington NE #6
CITY, STATE: ABQ. NM
CONTACT: John Mechenbier
PHONE: 314-7700
ZIP CODE: 87113

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
__X__ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT CERT (DRB S.P.)
_____ ENGINEER/ARCHITECT CERT (AA)
_____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
__X__ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
AUG 20 2008
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
__X__ NO
_____ COPY PROVIDED

SUBMITTED BY: Kevin Kofchur DATE: 8/20/08
KEVIN KOFCHUR

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Dekker/Perich/Sabatini
architecture interiors landscape planning engineering

August 18, 2008

Traffic Engineer
City of Albuquerque
Public Works Department
Development & Building Services Division
600 2nd Street NW
Albuquerque, New Mexico 87102

Re: Final Certificate of Occupancy
Midtown Professional Office Building
Tract 1 Interstate Business Park
4343 Pan American Hwy. Albuquerque, NM

To Whom It May Concern:

I, Christopher R. Gunning, NMRA no.3203 of the firm Dekker/Perich/Sabatini, hereby certify that the referenced portion of this project is in substantial compliance with and in accordance with the design intent of the approved April 2, 2007 Traffic Circulation Layout Plan of the Midtown Professional Office Building located at 4343 Pan American Highway. Dekker/Perich/Sabatini visited the project site on August 13, 2008 in order to verify what has been constructed in accordance with the attached site plan.

This certification is submitted in support of a request for Final Certificate of Occupancy. The record information presented herein is not complete and intended only to verify substantial compliance of the traffic aspects of this project as they relate to the above referenced building. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

If you have any questions, please feel free to contact Kevin Kofchur or me at 761-9700, thank you.

Very truly yours,

Dekker/Perich/Sabatini Ltd.

Christopher R. Gunning AIA
Principal

Cc: File

STATE OF NEW MEXICO
CHRISTOPHER R GUNNING
NO. 3203
8/18/08
REGISTERED ARCHITECT

RECEIVED
AUG 20 2008
HYDROLOGY SECTION

7601 Jefferson NE
Suite 100
Albuquerque NM
87109
505.761.9700
fax 761.4222
www.dpsdesign org

CITY OF ALBUQUERQUE

August 12, 2008

Scott McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street N.E.
Albuquerque, NM 87108

Re: Midtown Professional Office, 4343 Midtown Place NE,
Request for Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 8/14/07 (G-16/D095C)
Certification dated 8/12/08

Mr. McGee,

Based upon the information provided in your submittal received 8/12/08, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims
Plan Checker, Hydrology
Development and Building Services

C: CO Clerk—Katrina Sigala
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Midtown Professional Office — ZONE MAP / DRG. FILE #: G-16 / D95C
DRB #: _____ EPC #: _____ — WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1, Interstate Business Park, Albuquerque, NM
CITY ADDRESS: ~~2300 Midtown Place~~, NE
4333 per American Pkwy NE

ENGINEERING FIRM: Isaacson & Arfman, P.A. — CONTACT: Scott M. McGee
ADDRESS: 128 Monroe St. NE — PHONE: 268-8828
CITY, STATE: Albuquerque, NM — ZIP CODE: 87108

OWNER: Mechenbier Construction — CONTACT: John Mechenbier
ADDRESS: _____ — PHONE: _____
CITY, STATE: _____ — ZIP CODE: _____

ARCHITECT: DPS Architects — CONTACT: Tom Dieterle
ADDRESS: _____ — PHONE: _____
CITY, STATE: Albuquerque, New Mexico — ZIP CODE: _____

SURVEYOR: Wayjohn Surveying Inc. — CONTACT: Thomas D. Johnston - #14269
ADDRESS: _____ — PHONE: _____
CITY, STATE: Albuquerque, New Mexico — ZIP CODE: _____

CONTRACTOR: _____ — CONTACT: _____
ADDRESS: _____ — PHONE: _____
CITY, STATE: _____ — ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1ST *REQUIRES TCL or equal*
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
__X__ ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR / LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEER'S CERTIFICATION (TCL)
_____ ENGINEER'S CERTIFICATION (DRB APPR, SITE PLAN)
_____ OTHER (Supplemental Calculations)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA / FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPR.
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
__X__ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

RECEIVED
AUG 12 2008
HYDROLOGY SECTION

DATE SUBMITTED: Tuesday, August 21, 2007 — BY: Scott M. McGee
Isaacson & Arfman, P.A.

Requests for approvals of Site Development Plans and / or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five acres
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five acres or more.

CITY OF ALBUQUERQUE

August 21, 2008

Scott M. McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. NE
Albuquerque, NM 87108

Re: Midtown Professional Office Drainage Improvements Drainage Plan Engineer's Stamp dated 8-20-08 (G16/D95C)

Dear Mr. McGee,

Based upon the information provided in your submittal received 8-21-08, the above referenced plan is approved for Grading Permit and SO 19 Permit.

A separate permit is required for construction within City ROW. A copy of this approval letter must be on hand when applying for the excavation permit.

Storm drain work in the City ROW must be inspected and accepted. Please contact Duane Schmitz, 235-8016, to schedule an inspection.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: file
Antoinette Baldonado, Excavation and Barricading
Duane Schmitz, Street/Storm Drain Maintenance

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Midtown Professional Office ZONE MAP / DRG. FILE #: G-16 / D95C
DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1, Interstate Business Park, Albuquerque, NM
CITY ADDRESS: 4343 Midtown Place, NE

ENGINEERING FIRM: Isaacson & Arfman, P.A. CONTACT: Scott M. McGee
ADDRESS: 128 Monroe St. NE PHONE: 268-8828
CITY, STATE: Albuquerque, NM ZIP CODE: 87108

OWNER: Mechenbier Construction CONTACT: John Mechenbier
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1ST *REQUIRES TCL or equal*
__X__ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR / LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEER'S CERTIFICATION (TCL)
_____ ENGINEER'S CERTIFICATION (DRB APPR, SITE PLAN)
_____ OTHER (Supplemental Calculations)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA / FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPR.
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
__X__ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
__X__ OTHER (S.O. 19 PERMIT)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

RECEIVED
AUG 21 2008
HYDROLOGY SECTION

DATE SUBMITTED: Aug. 20, 08 BY: Scott M. McGee
Isaacson & Arfman, P.A.

Requests for approvals of Site Development Plans and / or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five acres
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five acres or more.

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

September 12, 2008

Christopher R. Gunning, Registered Architect
7601 Jefferson NE, Ste. 100
Albuquerque, NM 87109

Re: Certification Submittal for Final Building Certificate of Occupancy for Midtown Professional Office Bldg (Tract 1 Interstate Business Park), [G-16 / D095C]
4343 Pan American Hwy
Architect's Stamp Dated 09/10/08

Dear Mr. Gunning:

The TCL / Letter of Certification submitted on September 12, 2008 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

PO Box 1293
Albuquerque
NM 87103 --
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Midtown Professional Office Buildings ZONE MAP/DRG. FILE # G-16 / D095C
DRB#: N/A EPC#: N/A WORK ORDER#:

LEGAL DESCRIPTION: Lot 1 Interstate Business Park, Replat Tract 3A, Midtown Bus. Park,
CITY ADDRESS: 4343 Pan American Hwy. Albu., NM

May 15, 2000, Book 2000C, Page 1

ENGINEERING FIRM: Isaacson & Arfman
ADDRESS: 128 Monroe St. NE
CITY, STATE: Albu. NM
CONTACT: Bryan Bobrick
PHONE: 268-8828
ZIP CODE: 87108

OWNER: Mechenbier Construction Inc.
ADDRESS: 8500 Washington NE, A-6
CITY, STATE: Albu. NM
CONTACT: John Mechenbier
PHONE: 314-7700
ZIP CODE: 87113

ARCHITECT: Dekker / Perich / Sabatini
ADDRESS: 7601 Jefferson NE Suite 100
CITY, STATE: Albu. NM
CONTACT: Jim Wesley
PHONE: 761-9700
ZIP CODE: 87109

SURVEYOR: Watson Surveying Inc.
ADDRESS: 330 Louisiana Blvd. NE
CITY, STATE: Albu. NM
CONTACT: Thomas Johnston
PHONE: 255-1052
ZIP CODE: 87108

CONTRACTOR: - Same as Owner -
ADDRESS:
CITY, STATE:
CONTACT: ⊘
PHONE:
ZIP CODE:

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
__X__ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT CERT (DRB S.P.)
_____ ENGINEER/ARCHITECT CERT (AA)
_____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
__X__ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
SEP 12 2008
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: [Kevin Kofchur] DATE: 9/10/08

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Dekker/Perich/Sabatini
architecture interiors landscape planning engineering

September 10, 2008

Traffic Engineer
City of Albuquerque
Public Works Department
Development & Building Services Division
600 2nd Street NW
Albuquerque, New Mexico 87102

Re: Final Certificate of Occupancy
Midtown Professional Office Building
Tract 1 Interstate Business Park
4343 Pan American Hwy. Albuquerque, NM

To Whom It May Concern:

I, Christopher R. Gunning, NMRA no.3203 of the firm Dekker/Perich/Sabatini, hereby certify that the referenced portion of this project is in substantial compliance with and in accordance with the design intent of the approved April 11, 2007 Traffic Circulation Layout Plan of the Midtown Professional Office Building located at 4343 Pan American Highway. Dekker/Perich/Sabatini visited the project site on August 13, 2008 in order to verify what has been constructed in accordance with the attached site plan.

This certification is submitted in support of a request for Final Certificate of Occupancy. The record information presented herein is not complete and intended only to verify substantial compliance of the traffic aspects of this project as they relate to the above referenced building. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

If you have any questions, please feel free to contact Kevin Kofchur or me at 761-9700, thank you.

Very truly yours,

Dekker/Perich/Sabatini Ltd.

Christopher R. Gunning AIA
Principal

Cc: File

STATE OF NEW MEXICO
CHRISTOPHER R. GUNNING
NO. 3203
9/10/08
REGISTERED ARCHITECT

RECEIVED
SEP 12 2008
HYDROLOGY SECTION

7601 Jefferson NE
Suite 100
Albuquerque NM
87109
505.761.9700
fax 761.4222
www.dpsdesign.org

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

September 6, 2005

Kenneth R. Hovey, Registered Architect
3808 Simms Avenue SE
Albuquerque, NM 87108

Re: Certification Submittal for Final Building Certificate of Occupancy for
Interstate Commerce Phase II, Bldg No. 2, [G-16 / D95C]
4380 Alexander Blvd NE
Architect's Stamp Dated 09/02/05

Dear Mr. Hovey:

The TCL / Letter of Certification submitted on September 2, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 06/22/2005)

PROJECT TITLE: (Bldg. 2) INTERSTATE COMMERCE CENTER - PHASE 2 ZONE MAP/DRG. FILE # G-16/D95C
DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT S-A
CITY ADDRESS: 4380 ALEXANDER BLVD, NE

ENGINEERING FIRM: JNA CONTACT: GRAEME MEANS
ADDRESS: 6010-B MIDTOWN PARK NE PHONE: 345-4250
CITY, STATE: ALBUQ NM 87109 ZIP CODE: 87109

OWNER: ISCC - PHASE II, LLC CONTACT: BOB RUSSELL
ADDRESS: 2430 MIDTOWN PL, NE, SUITE A PHONE: (480) 505-4048
CITY, STATE: ALBUQ, NM 87107 ZIP CODE: 87107

ARCHITECT: KEN HOVEY CONTACT: KEN HOVEY
ADDRESS: 3808 SIMMS AVE SE PHONE: 259 8458
CITY, STATE: ALBUQ. NM 87108 ZIP CODE: 87108

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: THS CONSTRUCTION CONTACT: FRANK THOMAS
ADDRESS: NO. 7 PINE ROAD PHONE: 867 0323
CITY, STATE: PLACITAS NM 87043 ZIP CODE: 87043

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
✓ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ OTHER
ENGINEER'S

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
✓ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
SEP 02 2005
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: _____ DATE: 9-2-05

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

September 2, 2005

Ken Hovey, Architect
3808 Simms Avenue SE
Albuquerque, NM 87108

Transportation Dept.
City of Albuquerque
600 Second Street NW
Albuquerque, NM 87102

Subject: 4380 Alexander Blvd. NE,
Interstate Commerce Center Phase II, Building No. 2

Gentlemen:

I have inspected the subject project located at 4380 Alexander Blvd. NE, being Building No. 2 of Interstate Commerce Center, Phase II, and I find the construction to be in substantial compliance with the approved Traffic Circulation Layout (TCL). I have redlined the attached TCL to show any departures in the construction from that which was approved.

Note that a C.O. was previously issued for 4370 Alexander Blvd. NE, being Building No. 1 of Interstate Commerce Center, Phase II

Sincerely,

Ken Hovey

STATE OF NEW MEXICO
KENNETH R. HOVEY
NO. 1055
REGISTERED ARCHITECT
9-2-05

RECEIVED
SEP 02 2005
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

August 10, 2005

Kenneth R. Hovey, Registered Architect
3808 Simms Ave SE
Albuquerque, NM 87108

Re: Certification Submittal for Final Building Certificate of Occupancy for
Interstate Commerce Center Phase II, [G-16 / D95C]
4370 Alexander Blvd NE
Architect's Stamp Dated 08/10/05

Dear Mr. Hovey:

The TCL / Letter of Certification submitted on August 10, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

August 10, 2005

Ken Hovey, Architect
3808 Simms Avenue SE
Albuquerque, NM 87108

Transportation Dept.
City of Albuquerque
600 Second Street NW
Albuquerque, NM 87102

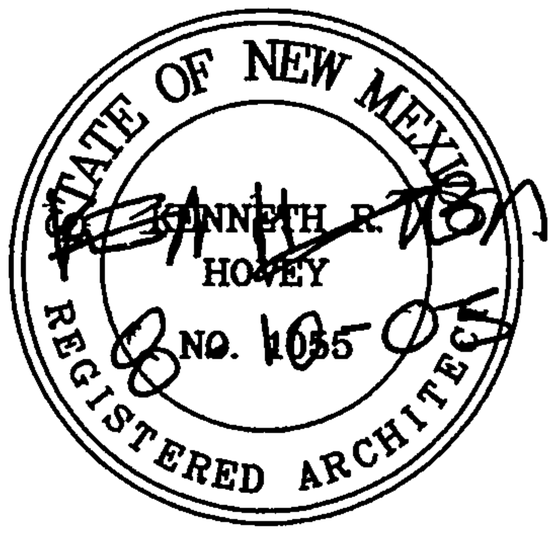
Subject: 4370 Alexander Blvd. NE,
Interstate Commerce Center Phase II, Building No. One

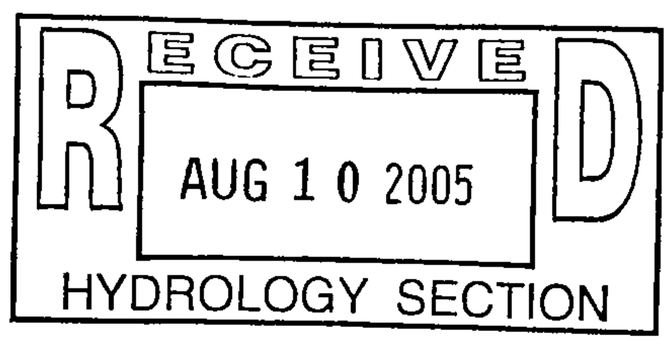
Gentlemen:

I have inspected the subject project located at 4370 Alexander Blvd. NE, being Building No. One of Interstate Commerce Center, Phase II, and I find the construction to be in substantial compliance with the approved Traffic Circulation Layout (TCL). I have redlined the attached TCL to show any departures in the construction from that which was approved.

Sincerely,

Ken Hovey





DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 06/22/2005)

PROJECT TITLE: INTERSTATE COMMERCE CENTER - PHASE II ZONE MAP/DRG. FILE # G-16 / D95C
DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT S-A
CITY ADDRESS: 4370 ALEXANDER BLVD NE

ENGINEERING FIRM: JMA CONTACT: GRAEME MORRIS
ADDRESS: 6010-B MIDDLE PARK NE PHONE: 345-4250
CITY, STATE: ALBUQ. NM 87109 ZIP CODE: 87109

OWNER: ISCC - PHASE II, LLC CONTACT: BOB RUSSELL
ADDRESS: 2430 MIDTOWN PLACE NE SUITE A PHONE: (480) 505 9048
CITY, STATE: ALBUQ. NM 87107 ZIP CODE: 87107

ARCHITECT: KEN HOVEY CONTACT: KEN HOVEY
ADDRESS: 3808 SIMMS AVE SE PHONE: 259 8458
CITY, STATE: ALBUQ. NM 87108 ZIP CODE: 87108

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: THS CONSTRUCTION CONTACT: FRANK THOMAS
ADDRESS: NO. 7 PINE ROAD PHONE: 867 0323
CITY, STATE: PLACITAS NM 87043 ZIP CODE: 87043

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
✓ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
✓ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

RECEIVED
AUG 10 2005
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: KEN HOVEY DATE: 8-10-05

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
AUG 10 2005
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

August 9, 2005

Graeme Means, PE
JEFF MORTENSEN & ASSOCIATES
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

Re: INTERSTATE COMMERCE CENTER, PHASE 2 Bldg. 1
4370 Alexander Blvd. NE
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 12/23/2004 (G-16/D95C)
Certification dated 08/09/2005

Dear Graeme:

Based upon the information provided in your submittal received 08/09/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Arlene V. Portillo
Plan Checker, Planning Dept. - Hydrology
Development and Building Services

C: Phyllis Villanueva
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

April 5, 2005

Ken Hovey, R.A.
3808 Simms Ave. SE
Albuquerque, NM 87108

Re: Interstate Commerce Center Phase II, 4370 and 4380 Alexander Blvd NE, Traffic Circulation Layout
Architect's Stamp dated 4-02-05 (G16-D95C)

Dear Mr. Hovey,

The TCL submittal received 4-04-05 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation.

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

cc: file

Tracts 5A1, 5A2

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE ANALYSIS

for

MIDTOWN BUSINESS PARK
TRACT 3A

Albuquerque, New Mexico

Revised
October 22, 1998

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
JOHN A. ANDREWS
11-4-98

Prepared by

AAR-The Larkin Group
Consulting Engineers
8500 Menaul Boulevard, NE, Suite A-440
Albuquerque, New Mexico 87112

RECEIVED
NOV 05 1998
HYDROLOGY SECTION

TABLE OF CONTENTS

I. Introduction 1

II. Existing Conditions
A. On-site
1. General 3
2. Discharge to Desert Surf Circle 3
3. Discharge to Alexander Boulevard 4
4. Discharge to the Existing Retention Pond in Lot 10 5
B. Off-site 5

III. Interim Conditions
A. On-site
1. General 8
2. Discharge to Desert Surf Circle 8
3. Discharge to Alexander Boulevard 9
4. Discharge to the Existing Retention Pond in Lot 10 10
B. Off-site 11

IV. Fully Developed Conditions
A. On-site
1. General 14
2. Discharge to Desert Surf Circle 14
3. Discharge to Alexander Boulevard 15
4. Discharge to the Existing Retention Pond in Lot 10 15

V. Conclusion 18

APPENDIX A- HYDROLOGY FOR EXISTING CONDITIONS

APPENDIX B- HYDROLOGY FOR INTERIM CONDITIONS

APPENDIX C- HYDROLOGY FOR FULLY DEVELOPED CONDITIONS

APPENDIX D- HYDRAULICS

CONTROLLED RELEASE FROM PONDS	D-1
CAPACITY OF 10' CHANNEL AT BEND (AP5)	D-2
PROPOSED 10' CHANNEL CAPACITY CALCULATION (AP1)	D-3
STREET CAPACITY ON MONTBEL LOOP (AP3)	D-4
4' CURB OPENING CAPACITY (AP6)	D-5
DROP INLET CAPACITY (AP7&8)	D-6
OFF-SITE 24" STORM DRAIN CAPACITY CALCULATION (AP7&8)	D-7
DIKE CAPACITY CALCULATION	D-7
PONDING VOLUME REQUIRED UNDER FULLY DEVELOPED CONDITIONS	D-8,9

APPENDIX E- HYDROLOGY PRE-DESIGN CONFERENCE MINUTES

ATTACHMENTS

Map No. 2 - Existing Conditions Basin Map
Map Nos. 3A, 3B - Grading and Drainage Plan
Sheet Nos. 8, 15, 16, 17 of the Public Infrastructure Documents - Details

ATTACHMENTS FROM PRIOR REPORTS

Map No. 4 - Drainage Master Plan for Montano-Montbel Venture
Map No. 5 - Renaissance III Preliminary Drainage Plan Proposed Conditions

I. INTRODUCTION

It is proposed to subdivide and grade ten lots as part of the interim phase for site development of Tract 3A of Midtown Business Park before any of the individual lots are fully developed in the future. In the interim phase, Midtown Road, Midtown Place, and a right-turn deceleration lane on West Frontage Road will be constructed to provide access to all of the lots. The purpose of this report is to analyze the drainage for existing, interim, and fully developed conditions and to propose a grading and drainage plan for development based on that analysis.

The proposed site for Tract 3A of Midtown Business Park is located approximately a quarter of a mile north of Comanche Road and west of I-25. It is bordered by Alexander Boulevard on the northwest side and the I-25 West Frontage Road on the southeast side (See Vicinity Map, Map No. 1). Sundt's Industrial Center and undeveloped land on Parcel D of Renaissance III are adjacent to the north side of the site, and Tract 3B of the developed Midtown Business Park is adjacent to the southwest side.

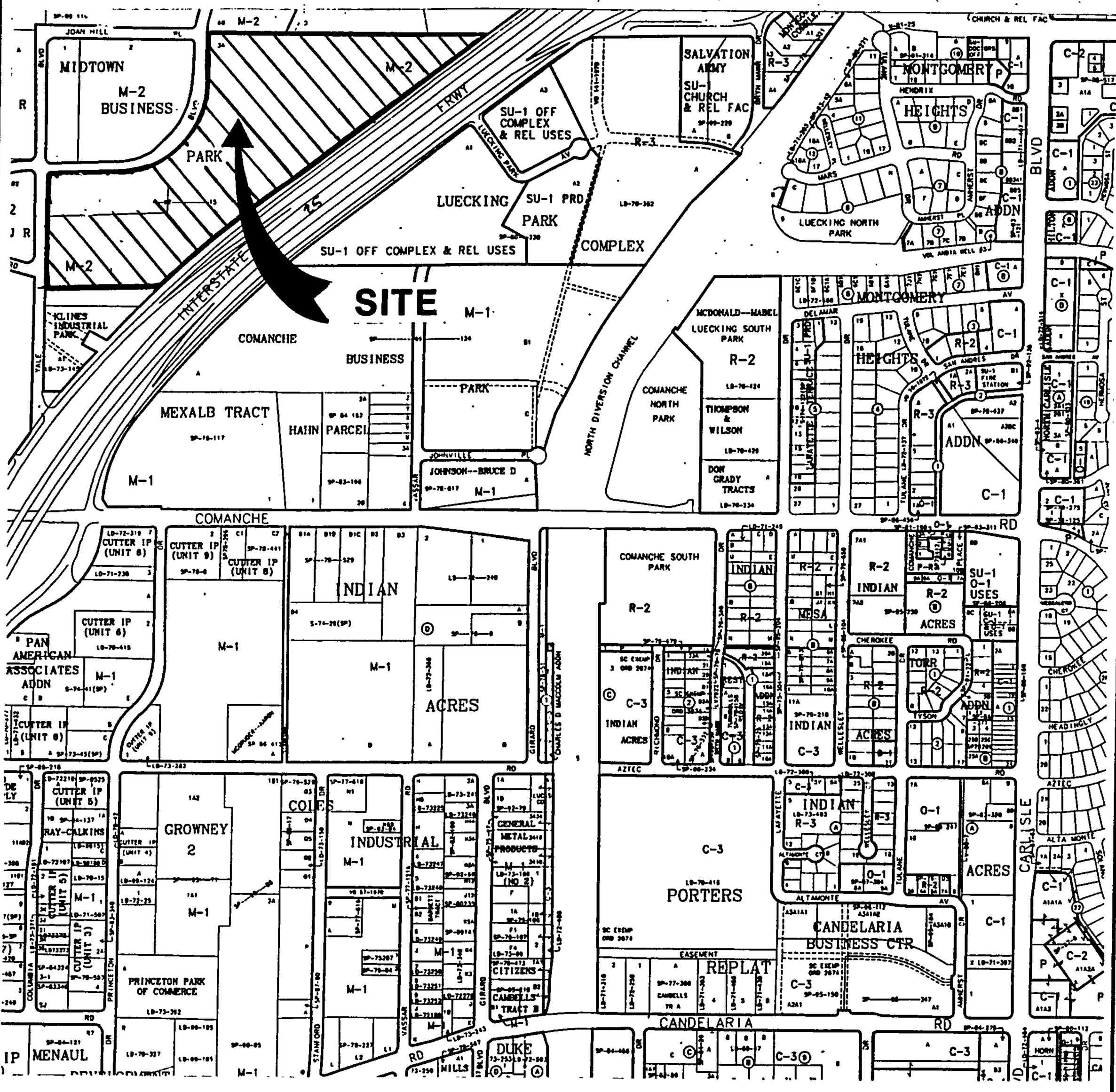
Existing drainage areas are shown on Map No. 2, and interim and developed drainage areas are shown on Map Nos. 3A and 3B. Existing land usage and drainage conditions were determined from site visits and topographic site information.

The drainage analysis was based on Section 22.2 of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993. The computer program

AHYMO (developed by the Albuquerque Municipal Arroyo Flood Control Authority) was used to calculate existing and proposed runoff. Drainage calculations and basin areas may be found in Appendices A, B, and C.

The following were reviewed and used in preparation of this report:

1. Master Drainage Plan, Andrews, Asbury, and Robert, Inc., December 1981(updated Feb.1987)
2. Drainage Report for Renaissance III, Andrews, Asbury, and Robert, Inc., March 1987
3. Drainage Report for SAD 216, Andrews, Asbury, and Robert, Inc., December 1992



ZONE ATLAS MAP G-16

SCALE: 1"=750'

PINON CO – TENANCY

MIDTOWN BUSINESS PARK

VICINITY MAP

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO

FILE No.	DRAWN	CHECKED	DATE	
97–783	MS	JA	OCT., 1997	MAP NO. 1

II. EXISTING CONDITIONS AND DRAINAGE PATTERN

A. On-site

1. General

The existing site is primarily undeveloped and covered with a fair amount of vegetation. The only on-site development includes the A.M.N. Spur Line which runs through the site from Alexander Boulevard to the north side of the site and then continues north along the backside of Sundt's Industrial Center. Also, a number of undesignated dirt roads cross through the site which indicate that it is partially compacted by human activity.

The site is divided into existing basins E1, E2, E3, and E4. As shown by Map No. 2, the majority of the site drains to the north by overland flow at slopes that vary between 0.5% and 1.5%. Steep slopes that form the embankment for the I-25 West Frontage Road cover the far east side of the site.

2. Discharge to Desert Surf Circle

Runoff from Basin E1 drains through Parcel D of Renaissance III to Desert Surf Circle by overland flow (See Map No. 2). This runoff will flow east and north on Desert Surf Circle until it is collected by a series of inlets on each side of the road. As indicated by the "Drainage Report for Renaissance III", these inlets were designed to handle 17.10 cfs of runoff from this on-site area in addition to downstream off-site flows. These inlets then discharge to a 42"storm drain under Desert Surf Circle which connects to an existing storm drain under Montano Road which is then extended to the

Renaissance Center storm drain system (See Map No. 5). As discussed in the Renaissance Center Drainage Report, stormwater runoff in excess of existing runoff shall be released at a maximum rate of 0.1 cfs/acre.

An existing 20' wide drainage easement extends through Parcel D from the north side of the property to Desert Surf Circle on the east side and parallel to the A.M.N. Spur Line. Within this drainage easement, a very shallow earthen ditch collects a small amount of on-site flow from Basin E-1 and off-site runoff from Parcel D and conveys it to Desert Surf Circle.

3. Discharge to Alexander Boulevard

Runoff from Basin E2 drains to Alexander Boulevard which conveys flow north to Montbel Loop from where the runoff discharges west until it reaches the low point in Montbel Loop. At this location, an existing valley gutter slopes across the road to the Montbel Detention Basin. The Drainage Master Plan for Montbel - Montano Venture shows that the detention basin was designed for a total runoff flow of 76.2 cfs from Montbel Loop. (See Map No. 4). The Drainage Master Plan and the existing downstream facilities for this area provide for free discharge frm the drainage basin under existing conditions. The Drainage Master Plan also states that increased runoff created by development such as the construction of impermeable areas shall be detained and released at a maximum rate of 0.10 cfs per acre.

4. Discharge to the Existing Retention Pond in Lot 10

Basins E3 and E4 drain west to an existing retention pond located on Lot 10. (See Map No. 2.) In addition to on-site areas, this pond collects off-site runoff from Tract 3B of Midtown Business Park which is designated as Basin O-1-A and from off-site Basin O-1-B. This pond has a capacity of four acre-feet.

Under SAD 216, it is proposed to eliminate the pond and extend the existing storm drain system in Yale Boulevard that will discharge to a proposed 84" storm drain in Carmony Boulevard. Based on an impervious land percentage of 85%, 8% for land treatment "B" and 7% for land treatment "C", this SAD system has been designed to handle developed runoff from Lots 7, 8, 9, and 10 and contributing off-site areas under fully developed conditions.

B. Off-site

Off-site runoff that enters the site from the I-25 West Frontage Road is limited to a small portion of runoff from Interstate 25. As shown on the Drainage Master Plan (Map No. 4) and Grading and Drainage Plan (Map Nos. 3A and 3B), these off-site areas are designated as Drainage Areas I-3, I-4, I-5, and I-6.

An existing 24" diameter culvert runs from the east side of Interstate 25 to the west edge of the site. A couple of median inlets that collect runoff from Basin I-4 discharge directly to this culvert. The flow from this culvert is presently collected in a retention pond at the outlet of the culvert (See Map No. 4). However, because the culvert has been plugged at the upstream end, there is no runoff from the east side of I-25 entering the site.

Basins B-1, B-2, and B-3, which are shown on the Drainage Master Plan (Map No.4), discharge to Alexander Boulevard and Montbel Loop and are ultimately collected by the Montbel Detention Basin. The land treatments used to recalculate the runoff for these basins under the new hydrology method were obtained by site visits and site topography.

Table 1
Peak Flow/ Volume of Runoff Generated by a 100 Year, 24-hour Event
Existing Conditions

Basin	Area (Acres)	Land Treatment "A" (Percent)	Land Treatment "B" (Percent)	Land Treatment "C" (Percent)	Land Treatment "D" (Percent)	100-YEAR Peak Discharge (CFS)	100-YEAR 24-hour Runoff Volume (Ac-Ft)
*E-1	18.35	75	10	15	0	33.53	0.9489
*E-2	2.21	90	0	10	0	3.75	0.1058
*E-3	1.37	30	15	55	0	3.40	0.0976
*E-4	5.39	70	20	10	0	9.84	0.2780
On-site Runoff Total	27.32					50.52	1.4303
**B-1	2.59	0	10	0	90	11.43	0.4862
**B-2	7.34	0	10	0	90	31.96	1.3615
**B-3	13.59	15	10	0	75	45.57	2.2484
**O-1	10.38	0	10	0	90	46.18	1.9668
**I-3	3.00	0	10	0	90	13.37	0.5900
I-4	1.50	0	100	0	0	3.42	0.0980
I-5	0.316	0	100	0	0	0.721	0.0210
I-6	3.70	0	35	0	65	4.34	0.1460
Off-site Runoff Total	40.29					156.99	6.1979

*See Map Number 2.
** See Map Number 4 .

Note: Basins B-1, B-2, and B-3 all discharge to the Montbel Detention Basin. All other off-site basins will discharge to the future SAD 216 storm drain system.

III. INTERIM CONDITIONS

1. General

The site will be graded to discharge runoff in the directions that are proposed in the Drainage Master Plan for Montbel - Montano Venture, the Renaissance III grading and drainage plan, and the grading and drainage plan for SAD 216. The proposed streets of Midtown Road and Midtown Place in the site area will be used for runoff conveyance. Similar to existing conditions, the three drainage outfalls that the site will discharge to are the storm drain in Desert Surf Circle, the Montbel Detention Basin, and the existing retention pond in Lot 10 (See Map Nos. 3A, 4 and 5).

Along the far south east side of the site, 2:1 slopes are proposed to maximize the usable lot area. Gravel mulching will be necessary for these steep slopes to control erosion. Additionally, an earthen dike will be constructed along the top of this slope for further protection from erosion.

2. Discharge to Desert Surf Circle

All lots within Basin P-1 will be required to detain runoff since the 100-year runoff of 35 cfs is greater than what downstream conditions will allow. Release of runoff into the public right-of-way is controlled in each lot either by a proposed concrete channel or sidewalk culvert. Capacity calculations for these channels/sidewalk culverts may be found in Appendix D.

Proposed on-site basin P-1 will discharge to Desert Surf Circle via a proposed rectangular concrete

channel. This concrete channel will be constructed at a 10' width within the proposed drainage easement that extends from the cul-de-sac to the north end of the site and within the existing 20' wide drainage easement that extends from the north side of the site to Desert Surf Circle. At a proposed slope of 0.33% and a height of 8" on each side, the 10' wide channel has the capacity to convey 20.66 cfs at Analysis Point 1, and at Analysis Point 5 where the channel bends at a slope of 0.48%, it has the capacity to handle a 100-year storm runoff flow of 10.41 cfs (See Pages D-2 and D-3 of Appendix D). It is proposed to combine the drainage easement between Lots 3 and 6 with a public utility easement for installation of water and sanitary sewer lines.

Once the runoff discharges to Desert Surf Circle, it discharges east and north on Desert Surf Circle until it is collected by the series of catch basins on both sides of the street. At Analysis Point 1, a runoff amount of 16.31 cfs was calculated to flow east on Desert Surf Circle. Because the existing storm drain system east of Analysis Point 1 in Desert Surf Circle was designed to handle 17.10 cfs of on-site runoff, this runoff discharge amount is acceptable.

3. Discharge to Alexander Boulevard

Proposed on-site Basin P-2 and off-site basins B-1, B-2, and B-3 will discharge to the existing Montbel Detention Basin. At Analysis Point 3 (Map No. 4) just before discharge into the basin, the street capacity of Montbel Loop at curb depth was calculated as 72 cfs (See page D-4 in Appendix D). As shown on the Master Drainage Plan for Montbel - Montano Venture (Map No.4), an existing runoff flow of 43.3 cfs was originally calculated at Analysis Point 3. Based on these calculations and

that discharge from P-2 is substantially the same as under existing conditions, we conclude that the proposed discharge from Basin P-2 under interim conditions is allowable. Therefore, no detention ponding is required.

4. Discharge to the Existing Retention Pond in Lot 10

Basin P-3-1 drains from Midtown Road to Alexander Boulevard and then flows southwest on Alexander Boulevard. In order to avoid conveying stormwater runoff across the A.M.N. Spur Line at Alexander Boulevard, a valley gutter will be constructed south of the spur line to convey the stormwater from Midtown Road to Alexander Boulevard. The runoff is then captured by a curb inlet on Alexander Boulevard just east of Yale Boulevard and routed to the existing retention pond in Lot 10 via an existing 30" storm drain.

Basin P-3-2 drains from Midtown Place across Lot 10 to the existing retention pond. A 7' wide curb opening is provided to allow the discharge onto Lot 10 from the cul-de-sac. The 7' wide curb opening is sufficient for the conveyance of the 100-year runoff flow of 9.38 cfs as shown on Page D-5.

All of on-site Basins P-3 and P-4 and off-site Basin O-1 will ultimately discharge to the existing retention pond in Lot 10. By using the topographic information provided, the calculated existing pond volume is 4.00 acre-feet. This capacity is enough hold the accumulated 100-year 24-hour volume of 2.77 acre-feet from all three basins. As shown in the Hydrology Pre-design Conference

Minutes on Page E-1, it was decided that temporary discharge to this retention pond before SAD216 installations are in place is acceptable if the pond has sufficient capacity.

A drainage covenant and blanket easement has been obtained from the owner of Lot 10 to allow surface discharge across this lot into the retention pond from Lots 8 and 9.

B. OFF-SITE

The small portion of runoff that discharges on-site from Basins I-3, I-4, I-5, and I-6 (Interstate 25 area) will be collected by two "D" inlets and taken through a proposed 24" underground storm drain to an existing open channel south of Lot 10 within the NMSH& TD Tract. This new storm drain system will be built under the 12' wide dike along the top of the 2:1 slopes which has a capacity to handle over 30.68 cfs, and the new inlets and 24" storm drain have the capacity to handle more than the calculated 100-year runoff of 21.50 cfs (See Pages D-7 and D-8). Ultimately, the 72" storm drain that is proposed to be constructed in Yale Boulevard under SAD 216 will collect this runoff from the open channel. The new 24" storm drain will be built within the new 20' wide drainage easement.

Table 2
Peak Flow/ Volume of Runoff Generated by a 100 Year, 24-hour Event
Interim Conditions

Basin	Area (Acres)	Land Treatment "A" (Percent)	Land Treatment "B" (Percent)	Land Treatment "C" (Percent)	Land Treatment "D" (Percent)	100-YEAR Peak Discharge (CFS)	100-YEAR 24-hour Runoff Volume (Ac-Ft)
P-1-L1	1.39	0	75	10	15	3.85	0.1242
P-1-L2	1.46	0	75	10	15	4.02	0.1298
P-1-L3	7.27	0	85	5	10	18.68	0.5835
P-1-L6	1.46	0	95	0	5	3.54	0.1057
P-1-RD	1.13	0	10	0	90	4.87	0.2067
P-1 Total	12.71					34.96	1.1499
P-2	3.20	0	95	0	5	7.68	0.2298
P-3-1	1.35	0	80	0	20	3.73	0.1245
P-3-2	2.94	0	60	4	36	9.38	0.3411
P-4	5.39	40	50	5	5	11.40	0.3431
On-site Runoff Total	25.59					67.15	2.1884*
**B-1	2.59	0	10	0	90	11.43	0.4862
**B-2	7.34	0	10	0	90	31.96	1.3615
**B-3	13.59	15	10	0	75	45.57	2.2484
**O-1	10.38	0	10	0	90	46.18	1.9668
**I-3	3.00	0	10	0	90	13.37	0.5900
I-4	1.50	0	100	0	0	3.42	0.0980
I-5	0.316	0	100	0	0	0.721	0.0120
I-6	1.57	0	75	0	25	4.71	0.1590
Off-site Runoff Total	40.29					157.36	6.2109

** See Map Number 4 .

Table 3
Peak Flow/ Volume of Runoff Generated by a 100 Year, 24-hour Event
Interim Conditions

Analysis Point	Peak Discharge, Qp, for a 100-year 24-hour Event (cfs)	Volume of Runoff Generated from 100-year 24-hour Event (ac-ft)
AP1	16.31	1.1493
**AP2	46.45	2.0774
**AP3	43.3 cfs (Prior Report Calculation)	--------
AP4	70.66	2.7756
AP5	10.41	0.5662
AP6	9.38	0.3411
AP7	16.79	0.9230
AP8	4.71	0.1590

** See Map Numbers 4 and 5. See Map Numbers 3A and 3B for all other analysis points.

IV. FULLY DEVELOPED CONDITIONS

1. General

The overall drainage pattern for fully developed conditions will be essentially the same as for interim conditions. Based on Section 22.2 of the Development Process Manual for commercial areas, an impervious land percentage of 90% was used to calculate the peak discharge from all basins. Due to lack of downstream capacity to handle runoff under developed conditions, most lots will need detention ponding.

2. Discharge to Desert Surf Circle

Similar to interim conditions, the proposed on-site basin P-1 will discharge to Desert Surf Circle via the proposed concrete channel. In order to discharge no more than the allowable runoff amount of 17.10 cfs from the site to Desert Surf Circle, on-site detention ponding for each of the lots will be required. (See Detention Pond Calculations on Map 3A of the Grading and Drainage Plan.)

Based on criteria laid out in the Master Drainage Plan, the volume of free runoff from the Basin P-1 is calculated from a runoff coefficient of 0.40 and a runoff depth of 2.2". See Table 5 for maximum allowable volumes of runoff from each of the lots within Basin P-1.

3. Discharge to Alexander Boulevard

Proposed on-site Basin P-2 will discharge to the existing Montbel Detention Basin. In order to comply with the guidelines laid out by the Master Drainage Plan, runoff in excess of existing runoff will be released at a maximum rate of 0.1 cfs/acre to Alexander Boulevard from each of the lots within Basin P-2. Volume of free runoff is also based on criteria laid out in the Master Drainage Plan. See Table 5 for maximum allowable runoff volumes from each of the lots within Basin P-2 and Map 3A for allowable runoff flow rates.

4. Discharge to the Existing Retention Pond in Lot 10

Under fully developed conditions, runoff from Lots 7, 8, 9, and 10 will be required to discharge to the existing retention pond until the SAD 216 storm drain improvements are in place. The estimated 100-year 24-hour volume of runoff of 3.8095 acre-feet from Basins P-3, P-4, and O-1 is still less than the four acre-foot capacity of the pond.

Once the new storm drain system in Yale Boulevard is constructed, the four lots must discharge to the storm drain. Because the proposed storm drain is designed to handle runoff based upon an 85% "D" land treatment factor, an 8% "B" land treatment factor, and a 7% "C" land treatment factor over the entire basin area, these lots will be required to detain any additional runoff generated.

Table 4
Peak Flow/ Volume of Runoff Generated by a 100 Year, 24-hour Event
Fully Developed Conditions (for information only)
Based on Theoretical Impervious Land Treatment of 90%

Basin	Area (Acres)	Land Treatment "A" (Percent)	Land Treatment "B" (Percent)	Land Treatment "C" (Percent)	Land Treatment "D" (Percent)	100-YEAR Peak Discharge (CFS)	100-YEAR 24-hour Runoff Volume (Ac-Ft)
P-1	12.71	0	0	10	90	57.89	2.4562
P-2	3.20	0	10	0	90	14.28	0.6078
P-3-1	1.35	0	10	0	90	6.01	0.2553
P-3-2	2.94	0	0	10	90	13.14	0.5592
P-4	5.39	0	5	5	90	24.02	1.0282
On-site Runoff Total	25.59					115.34	4.9067
B-1	2.59	0	10	0	90	11.43	0.4862
B-2	7.34	0	10	0	90	31.96	1.3615
B-3	13.59	15	10	0	75	45.57	2.2484
O-1	10.38	0	10	0	90	46.18	1.9668
I-3	3.00	0	10	0	90	13.37	0.5900
I-4	1.50	0	100	0	0	3.42	0.0980
I-5	0.316	0	100	0	0	0.721	0.0210
I-6	1.57	0	75	0	25	4.71	0.1590
Off-site Runoff Total	40.29					157.36	6.2109

TABLE 5
ALLOWABLE VOLUME OF RUNOFF
(See Pages D-8 and D-9)

LOT	Allowable Runoff Volume (ac-ft)	Ponding Volume Required (ac-ft)
1	0.112	0.183
2	0.118	0.193
3	0.585	0.960
4	0.108	0.173
5	0.102	0.164
6	0.118	0.193
7	*	
8	*	
9	*	
10	*	

Note: Ponding volume required is based on assumed land treatment as per Table 4.

* The maximum allowable runoff volume is that which is obtained by using land treatment percentages of 85%"D", 8% "B", and 7% "C" for these areas.

V. CONCLUSION

As shown by the downstream capacity calculations, regrading of the site will not have any adverse effects on drainage downstream of the site if the proposed recommendations in this report are followed. The basin areas that are created with the proposed regrading of the site under interim conditions will comply with the Drainage Master Plan and improvements proposed under SAD 216. When future development occurs, the necessary on-site detention ponding will be needed in order to meet downstream capacities.

APPENDIX A

Hydrology for Existing Conditions

```
 AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
      RUN DATE (MON/DAY/YR) = 10/29/1998
      START TIME (HR:MIN:SEC) = 07:28:55
      INPUT FILE = c:\ahymo\midtown3.wpd

*S*****************************************************************************
*S*************           AAR- THE LARKIN GROUP           *S******************
*S*************            MIDTOWN BUSINESS PARK          *S******************
*S*************             EXISTING CONDITIONS           *S******************
*S*****************************************************************************
*S*  FILENAME: C:\AHYMO\MIDTOWN3.DAT                      *S******************
*S*****************************************************************************
*S******* 100 YEAR, 24 HOUR STORM (Section 22.2 Hydrology)*S******************
START                   0.00
RAINFALL            TYPE=2 RAIN QUARTER=0.0 RAIN ONE=2.01
                           RAIN SIX=2.35 RAIN DAY=2.75 DT=0.03333

                    COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT
1.40 HR.

                    DT =     .033330 HOURS       END TIME =     19.964670 HOURS
                      .0000    .0016    .0033    .0049    .0066    .0084    .0102
                      .0120    .0139    .0158    .0178    .0199    .0219    .0241
                      .0263    .0286    .0309    .0333    .0358    .0384    .0411
                      .0439    .0467    .0497    .0529    .0561    .0596    .0631
                      .0669    .0709    .0751    .0807    .0866    .0930    .1066
                      .1371    .1840    .2514    .3434    .4644    .6186    .8106
                     1.0449   1.2624   1.3533   1.4300   1.4982   1.5602   1.6174
                     1.6704   1.7200   1.7668   1.8102   1.8514   1.8904   1.9273
                     1.9622   1.9953   2.0268   2.0566   2.0850   2.0915   2.0976
                     2.1033   2.1088   2.1140   2.1191   2.1239   2.1285   2.1329
                     2.1373   2.1414   2.1454   2.1494   2.1531   2.1568   2.1604
                     2.1639   2.1673   2.1706   2.1739   2.1771   2.1802   2.1832
                     2.1862   2.1891   2.1919   2.1947   2.1975   2.2002   2.2028
                     2.2054   2.2080   2.2105   2.2130   2.2154   2.2178   2.2202
                     2.2225   2.2248   2.2270   2.2293   2.2315   2.2336   2.2358
                     2.2379   2.2399   2.2420   2.2440   2.2460   2.2480   2.2500
                     2.2519   2.2538   2.2557   2.2576   2.2594   2.2612   2.2631
                     2.2648   2.2666   2.2684   2.2701   2.2718   2.2735   2.2752
                     2.2769   2.2785   2.2802   2.2818   2.2834   2.2850   2.2866
                     2.2881   2.2897   2.2912   2.2928   2.2943   2.2958   2.2973
                     2.2987   2.3002   2.3017   2.3031   2.3045   2.3060   2.3074
                     2.3088   2.3102   2.3115   2.3129   2.3143   2.3156   2.3169
                     2.3183   2.3196   2.3209   2.3222   2.3235   2.3248   2.3261
                     2.3273   2.3286   2.3298   2.3311   2.3323   2.3335   2.3348
                     2.3360   2.3372   2.3384   2.3396   2.3408   2.3419   2.3431
                     2.3443   2.3454   2.3466   2.3477   2.3488   2.3500   2.3511
                     2.3523   2.3534   2.3546   2.3557   2.3568   2.3580   2.3591
                     2.3602   2.3613   2.3625   2.3636   2.3647   2.3658   2.3669
                     2.3680   2.3691   2.3702   2.3713   2.3724   2.3735   2.3746
                     2.3757   2.3768   2.3779   2.3790   2.3801   2.3811   2.3822
                     2.3833   2.3844   2.3854   2.3865   2.3876   2.3886   2.3897
                     2.3907   2.3918   2.3928   2.3939   2.3949   2.3960   2.3970
                     2.3981   2.3991   2.4001   2.4012   2.4022   2.4032   2.4043
                     2.4053   2.4063   2.4073   2.4083   2.4094   2.4104   2.4114
                     2.4124   2.4134   2.4144   2.4154   2.4164   2.4174   2.4184
                     2.4194   2.4204   2.4214   2.4224   2.4233   2.4243   2.4253
                     2.4263   2.4273   2.4282   2.4292   2.4302   2.4312   2.4321
                     2.4331   2.4341   2.4350   2.4360   2.4369   2.4379   2.4388
                     2.4398   2.4408   2.4417   2.4426   2.4436   2.4445   2.4455
                     2.4464   2.4474   2.4483   2.4492   2.4502   2.4511   2.4520
                     2.4529   2.4539   2.4548   2.4557   2.4566   2.4575   2.4585
                     2.4594   2.4603   2.4612   2.4621   2.4630   2.4639   2.4648
                     2.4657   2.4666   2.4675   2.4684   2.4693   2.4702   2.4711
                     2.4720   2.4729   2.4738   2.4747   2.4756   2.4764   2.4773
                     2.4782   2.4791   2.4799   2.4808   2.4817   2.4826   2.4834
                     2.4843   2.4852   2.4860   2.4869   2.4878   2.4886   2.4895
                     2.4903   2.4912   2.4921   2.4929   2.4938   2.4946   2.4955
                     2.4963   2.4971   2.4980   2.4988   2.4997   2.5005   2.5014
                     2.5022   2.5030   2.5039   2.5047   2.5055   2.5064   2.5072
```

2.5080	2.5088	2.5097	2.5105	2.5113	2.5121	2.5129
2.5138	2.5146	2.5154	2.5162	2.5170	2.5178	2.5186
2.5194	2.5203	2.5211	2.5219	2.5227	2.5235	2.5243
2.5251	2.5259	2.5267	2.5274	2.5282	2.5290	2.5298
2.5306	2.5314	2.5322	2.5330	2.5338	2.5345	2.5353
2.5361	2.5369	2.5377	2.5384	2.5392	2.5400	2.5408
2.5415	2.5423	2.5431	2.5438	2.5446	2.5454	2.5461
2.5469	2.5477	2.5484	2.5492	2.5500	2.5507	2.5515
2.5522	2.5530	2.5537	2.5545	2.5552	2.5560	2.5567
2.5575	2.5582	2.5590	2.5597	2.5605	2.5612	2.5619
2.5627	2.5634	2.5642	2.5649	2.5656	2.5664	2.5671
2.5678	2.5686	2.5693	2.5700	2.5707	2.5715	2.5722
2.5729	2.5736	2.5744	2.5751	2.5758	2.5765	2.5773
2.5780	2.5787	2.5794	2.5801	2.5808	2.5815	2.5823
2.5830	2.5837	2.5844	2.5851	2.5858	2.5865	2.5872
2.5879	2.5886	2.5893	2.5900	2.5907	2.5914	2.5921
2.5928	2.5935	2.5942	2.5949	2.5956	2.5963	2.5970
2.5976	2.5983	2.5990	2.5997	2.6004	2.6011	2.6018
2.6024	2.6031	2.6038	2.6045	2.6052	2.6058	2.6065
2.6072	2.6079	2.6085	2.6092	2.6099	2.6106	2.6112
2.6119	2.6126	2.6132	2.6139	2.6146	2.6152	2.6159
2.6166	2.6172	2.6179	2.6186	2.6192	2.6199	2.6205
2.6212	2.6219	2.6225	2.6232	2.6238	2.6245	2.6251
2.6258	2.6264	2.6271	2.6277	2.6284	2.6290	2.6297
2.6303	2.6310	2.6316	2.6322	2.6329	2.6335	2.6342
2.6348	2.6355	2.6361	2.6367	2.6374	2.6380	2.6386
2.6393	2.6399	2.6405	2.6412	2.6418	2.6424	2.6431
2.6437	2.6443	2.6449	2.6456	2.6462	2.6468	2.6474
2.6481	2.6487	2.6493	2.6499	2.6506	2.6512	2.6518
2.6524	2.6530	2.6536	2.6543	2.6549	2.6555	2.6561
2.6567	2.6573	2.6579	2.6586	2.6592	2.6598	2.6604
2.6610	2.6616	2.6622	2.6628	2.6634	2.6640	2.6646
2.6652	2.6658	2.6664	2.6670	2.6676	2.6682	2.6688
2.6694	2.6700	2.6706	2.6712	2.6718	2.6724	2.6730
2.6736	2.6742	2.6748	2.6754	2.6760	2.6765	2.6771
2.6777	2.6783	2.6789	2.6795	2.6801	2.6807	2.6812
2.6818	2.6824	2.6830	2.6836	2.6841		

```
*S COMPUTE RUNOFF FROM ON-SITE BASIN E-1
COMPUTE NM HYD       ID=1 HYD=E-1 DA=0.02867 SQ MI
                     %A=75 %B=10 %C=15 %D=0
                     TP=0.1333 RAINFALL=-1

     K =   .149441HR    TP =   .133300HR    K/TP RATIO =  1.121091     SHAPE CONSTANT,
N =  3.155604
     UNIT PEAK =   63.292    CFS   UNIT VOLUME =    .9998       B =   294.27      P60
= 2.0100
     AREA =      .028670 SQ MI    IA =    .59000 INCHES    INF =   1.50200 INCHES PER
HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD            ID=1 CODE=1

                                        HYDROGRAPH FROM AREA E-1

     RUNOFF VOLUME =      .62056 INCHES     =        .9489 ACRE-FEET
     PEAK DISCHARGE RATE =      33.53 CFS  AT   1.533 HOURS   BASIN AREA =   .0287 SQ.
MI.


*S COMPUTE RUNOFF FROM ON-SITE BASIN E-2
COMPUTE NM HYD       ID=1 HYD=E-2 DA=0.00345 SQ MI
                     %A=90 %B=0 %C=10 %D=0
                     TP=0.1333  RAINFALL=-1

     K =   .154884HR    TP =   .133300HR    K/TP RATIO =  1.161917     SHAPE CONSTANT,
N =  3.050921
     UNIT PEAK =   7.4008    CFS   UNIT VOLUME =    .9978       B =   285.95      P60
```

```
= 2.0100
        AREA =      .003450 SQ MI    IA =    .62000 INCHES    INF =   1.58600 INCHES PER
HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

     PRINT HYD          ID=1 CODE=1

                                                HYDROGRAPH FROM AREA E-2


        RUNOFF VOLUME =      .57503 INCHES     =        .1058 ACRE-FEET
        PEAK DISCHARGE RATE =      3.75 CFS  AT   1.533 HOURS   BASIN AREA =   .0035 SQ.
MI.



     *S COMPUTE RUNOFF FROM ON-SITE BASIN E-3
     COMPUTE NM HYD      ID=3 HYD=E-3 DA=0.00214 SQ MI
                         %A=30 %B=15 %C=55 %D=0
                         TP=0.1333  RAINFALL=-1

        K =   .126955HR    TP =   .133300HR    K/TP RATIO =   .952399     SHAPE CONSTANT,
N =  3.710886
        UNIT PEAK =   5.3847    CFS   UNIT VOLUME =    .9976       B =   335.41       P60
= 2.0100
        AREA =      .002140 SQ MI    IA =    .46250 INCHES    INF =   1.14500 INCHES PER
HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

     PRINT HYD          ID=3 CODE=1

                                                HYDROGRAPH FROM AREA E-3


        RUNOFF VOLUME =      .85486 INCHES     =        .0976 ACRE-FEET
        PEAK DISCHARGE RATE =      3.40 CFS  AT   1.500 HOURS   BASIN AREA =   .0021 SQ.
MI.



     *S COMPUTE RUNOFF FROM ON-SITE BASIN E-4
     COMPUTE NM HYD      ID=13 HYD=E-4 DA=0.0084 SQ MI
                         %A=70 %B=20 %C=10 %D=0
                         TP=0.1333 RAINFALL=-1

        K =   .149270HR    TP =   .133300HR    K/TP RATIO =  1.119807     SHAPE CONSTANT,
N =  3.159051
        UNIT PEAK =   18.561    CFS   UNIT VOLUME =    .9993       B =   294.54       P60
= 2.0100
        AREA =      .008400 SQ MI    IA =    .59000 INCHES    INF =   1.50200 INCHES PER
HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

     PRINT HYD          ID=13 CODE=1

                                                HYDROGRAPH FROM AREA E-4


        RUNOFF VOLUME =      .62056 INCHES     =        .2780 ACRE-FEET
        PEAK DISCHARGE RATE =      9.84 CFS  AT   1.533 HOURS   BASIN AREA =   .0084 SQ.
MI.



     FINISH
```

```
NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 07:28:56
```

APPENDIX B

Hydrology for Interim Conditions

```
 AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
    RUN DATE (MON/DAY/YR) = 10/29/1998
    START TIME (HR:MIN:SEC) = 14:54:11
    INPUT FILE = c:\ahymo\midtown2.txt

*S**************************************************************************
*S*************          AAR-LARKIN                  *S*******************
*S*************      MIDTOWN BUSINESS PARK           *S*******************
*S*************        INTERIM CONDITIONS            *S*******************
*S**************************************************************************
 *S* FILENAME: C:\AHYMO\MIDTOWN.IN                   *S*******************
*S**************************************************************************
*S******* 100 YEAR, 24 HOUR STORM (Section 22.2 Hydrology)*S***************
START          0.00
RAINFALL       TYPE=2 RAIN QUARTER=0.0 RAIN ONE=2.01
               RAIN SIX=2.35 RAIN DAY=2.75 DT=0.03333


      COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
      DT =   .033330 HOURS     END TIME =   19.964670 HOURS
        .0000  .0016  .0033  .0049  .0066  .0084  .0102
        .0120  .0139  .0158  .0178  .0199  .0219  .0241
        .0263  .0286  .0309  .0333  .0358  .0384  .0411
        .0439  .0467  .0497  .0529  .0561  .0596  .0631
        .0669  .0709  .0751  .0807  .0866  .0930  .1066
        .1371  .1840  .2514  .3434  .4644  .6186  .8106
       1.0449 1.2624 1.3533 1.4300 1.4982 1.5602 1.6174
       1.6704 1.7200 1.7664 1.8102 1.8514 1.8904 1.9273
       1.9622 1.9953 2.0268 2.0566 2.0850 2.0915 2.0976
       2.1033 2.1088 2.1140 2.1191 2.1239 2.1285 2.1329
       2.1373 2.1414 2.1454 2.1494 2.1531 2.1568 2.1604
       2.1639 2.1673 2.1706 2.1739 2.1771 2.1802 2.1832
       2.1862 2.1891 2.1919 2.1947 2.1975 2.2002 2.2028
       2.2054 2.2080 2.2105 2.2130 2.2154 2.2178 2.2202
       2.2225 2.2248 2.2270 2.2293 2.2315 2.2336 2.2358
       2.2379 2.2399 2.2420 2.2440 2.2460 2.2480 2.2500
       2.2519 2.2538 2.2557 2.2576 2.2594 2.2612 2.2631
       2.2648 2.2666 2.2684 2.2701 2.2718 2.2735 2.2752
       2.2769 2.2785 2.2802 2.2818 2.2834 2.2850 2.2866
       2.2881 2.2897 2.2912 2.2928 2.2943 2.2958 2.2973
       2.2987 2.3002 2.3017 2.3031 2.3045 2.3060 2.3074
       2.3088 2.3102 2.3115 2.3129 2.3143 2.3156 2.3169
       2.3183 2.3196 2.3209 2.3222 2.3235 2.3248 2.3261
       2.3273 2.3286 2.3298 2.3311 2.3323 2.3335 2.3348
       2.3360 2.3372 2.3384 2.3396 2.3408 2.3419 2.3431
       2.3443 2.3454 2.3466 2.3477 2.3488 2.3500 2.3511
       2.3523 2.3534 2.3546 2.3557 2.3568 2.3580 2.3591
       2.3602 2.3613 2.3625 2.3636 2.3647 2.3658 2.3669
       2.3680 2.3691 2.3702 2.3713 2.3724 2.3735 2.3746
       2.3757 2.3768 2.3779 2.3790 2.3801 2.3811 2.3822
       2.3833 2.3844 2.3854 2.3865 2.3876 2.3886 2.3897
       2.3907 2.3918 2.3928 2.3939 2.3949 2.3960 2.3970
       2.3981 2.3991 2.4001 2.4012 2.4022 2.4032 2.4043
       2.4053 2.4063 2.4073 2.4083 2.4094 2.4104 2.4114
       2.4124 2.4134 2.4144 2.4154 2.4164 2.4174 2.4184
       2.4194 2.4204 2.4214 2.4224 2.4233 2.4243 2.4253
       2.4263 2.4273 2.4282 2.4292 2.4302 2.4312 2.4321
       2.4331 2.4341 2.4350 2.4360 2.4369 2.4379 2.4388
       2.4398 2.4408 2.4417 2.4426 2.4436 2.4445 2.4455
       2.4464 2.4474 2.4483 2.4492 2.4502 2.4511 2.4520
       2.4529 2.4539 2.4548 2:4557 2.4566 2.4575 2.4585
       2.4594 2.4603 2.4612 2.4621 2.4630 2.4639 2.4648
       2.4657 2.4666 2.4675 2.4684 2.4693 2.4702 2.4711
       2.4720 2.4729 2.4738 2.4747 2.4756 2.4764 2.4773
       2.4782 2.4791 2.4799 2.4808 2.4817 2.4826 2.4834
       2.4843 2.4852 2.4860 2.4869 2.4878 2.4886 2.4895
       2.4903 2.4912 2.4921 2.4929 2.4938 2.4946 2.4955
```

2.4963 2.4971 2.4980 2.4988 2.4997 2.5005 2.5014
2.5022 2.5030 2.5039 2.5047 2.5055 2.5064 2.5072
2.5080 2.5088 2.5097 2.5105 2.5113 2.5121 2.5129
2.5138 2.5146 2.5154 2.5162 2.5170 2.5178 2.5186
2.5194 2.5203 2.5211 2.5219 2.5227 2.5235 2.5243
2.5251 2.5259 2.5267 2.5274 2.5282 2.5290 2.5298
2.5306 2.5314 2.5322 2.5330 2.5338 2.5345 2.5353
2.5361 2.5369 2.5377 2.5384 2.5392 2.5400 2.5408
2.5415 2.5423 2.5431 2.5438 2.5446 2.5454 2.5461
2.5469 2.5477 2.5484 2.5492 2.5500 2.5507 2.5515
2.5522 2.5530 2.5537 2.5545 2.5552 2.5560 2.5567
2.5575 2.5582 2.5590 2.5597 2.5605 2.5612 2.5619
2.5627 2.5634 2.5642 2.5649 2.5656 2.5664 2.5671
2.5678 2.5686 2.5693 2.5700 2.5707 2.5715 2.5722
2.5729 2.5736 2.5744 2.5751 2.5758 2.5765 2.5773
2.5780 2.5787 2.5794 2.5801 2.5808 2.5815 2.5823
2.5830 2.5837 2.5844 2.5851 2.5858 2.5865 2.5872
2.5879 2.5886 2.5893 2.5900 2.5907 2.5914 2.5921
2.5928 2.5935 2.5942 2.5949 2.5956 2.5963 2.5970
2.5976 2.5983 2.5990 2.5997 2.6004 2.6011 2.6018
2.6024 2.6031 2.6038 2.6045 2.6052 2.6058 2.6065
2.6072 2.6079 2.6085 2.6092 2.6099 2.6106 2.6112
2.6119 2.6126 2.6132 2.6139 2.6146 2.6152 2.6159
2.6166 2.6172 2.6179 2.6186 2.6192 2.6199 2.6205
2.6212 2.6219 2.6225 2.6232 2.6238 2.6245 2.6251
2.6258 2.6264 2.6271 2.6277 2.6284 2.6290 2.6297
2.6303 2.6310 2.6316 2.6322 2.6329 2.6335 2.6342
2.6348 2.6355 2.6361 2.6367 2.6374 2.6380 2.6386
2.6393 2.6399 2.6405 2.6412 2.6418 2.6424 2.6431
2.6437 2.6443 2.6449 2.6456 2.6462 2.6468 2.6474
2.6481 2.6487 2.6493 2.6499 2.6506 2.6512 2.6518
2.6524 2.6530 2.6536 2.6543 2.6549 2.6555 2.6561
2.6567 2.6573 2.6579 2.6586 2.6592 2.6598 2.6604
2.6610 2.6616 2.6622 2.6628 2.6634 2.6640 2.6646
2.6652 2.6658 2.6664 2.6670 2.6676 2.6682 2.6688
2.6694 2.6700 2.6706 2.6712 2.6718 2.6724 2.6730
2.6736 2.6742 2.6748 2.6754 2.6760 2.6765 2.6771
2.6777 2.6783 2.6789 2.6795 2.6801 2.6807 2.6812
2.6818 2.6824 2.6830 2.6836 2.6841

*S COMPUTE RUNOFF FROM ON-SITE BASIN P1_L1 (LOT 1)
COMPUTE NM HYD ID=2 HYD=P1_L1 DA=0.0022 SQ MI
%A=0 %B=75 %C=10 %D=15
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 1.3029 CFS UNIT VOLUME= .9911 B= 526.28 P60= 2.0100
AREA= .000330 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

K= .129189HR TP= .133300HR K/TP RATIO= .969157 SHAPE CONSTANT, N= 3.644769
UNIT PEAK= 4.6399 CFS UNIT VOLUME= .9974 B= 330.75 P60= 2.0100
AREA= .001870 SQ MI IA= .48235 INCHES INF= 1.20059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA P1_L1

RUNOFF VOLUME= 1.05839 INCHES = .1242 ACRE-FEET
PEAK DISCHARGE RATE= 3.85 CFS AT 1.500 HOURS BASIN AREA= .0022 SQ. MI.

*S ROUTE BASIN P1_L1 THROUGH THE DETENTION POND.

ROUTE RESERVOIR ID=1 HYD=BASIN_P1_L1_ROUTE INFLOW ID=2 CODE=10
OUTFLOW (CFS) STORAGE (AC_FT) ELEVATION
0 0 0
2.96 0.075 0.67

* * * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	.40	.01	.001	.06
1.67	2.14	.42	.047	1.86
2.00	.53	.28	.032	1.26
2.33	.16	.14	.015	.60
2.67	.06	.06	.007	.27
3.00	.03	.03	.003	.12
3.33	.01	.01	.001	.05
3.67	.01	.01	.001	.02
4.00	.01	.00	.000	.01
4.33	.01	.00	.000	.01
4.67	.01	.00	.000	.01
5.00	.01	.00	.000	.01
5.33	.01	.00	.000	.01
5.67	.01	.00	.000	.01
6.00	.01	.00	.000	.01
6.33	.01	.00	.000	.01
6.67	.01	.00	.000	.01
7.00	.01	.00	.000	.01
7.33	.01	.00	.000	.01
7.67	.01	.00	.000	.01
8.00	.01	.00	.000	.01
8.33	.01	.00	.000	.01
8.67	.01	.00	.000	.01
9.00	.01	.00	.000	.01
9.33	.01	.00	.000	.01
9.67	.01	.00	.000	.01
10.00	.01	.00	.000	.01
10.33	.01	.00	.000	.01
10.67	.01	.00	.000	.01
11.00	.01	.00	.000	.01
11.33	.01	.00	.000	.01
11.67	.01	.00	.000	.01
12.00	.01	.00	.000	.01
12.33	.00	.00	.000	.01
12.67	.00	.00	.000	.01
13.00	.00	.00	.000	.00

PEAK DISCHARGE = 1.869 CFS - PEAK OCCURS AT HOUR 1.70
MAXIMUM WATER SURFACE ELEVATION = .423
MAXIMUM STORAGE = .0474 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BASIN_P1_L1_ROUTE

RUNOFF VOLUME = 1.05758 INCHES = .1241 ACRE-FEET
PEAK DISCHARGE RATE = 1.87 CFS AT 1.700 HOURS BASIN AREA = .0022 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P1_L2 (LOT 2)
COMPUTE NM HYD ID=2 HYD=P1_L2 DA=0.0023 SQ MI
%A=0 %B=75 %C=10 %D=15

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.3621 CFS UNIT VOLUME = .9911 B = 526.28 P60 = 2.0100
AREA = .000345 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .129189HR TP = .133300HR K/TP RATIO = .969157 SHAPE CONSTANT, N = 3.644769
UNIT PEAK = 4.8508 CFS UNIT VOLUME = .9974 B = 330.75 P60 = 2.0100
AREA = .001955 SQ MI IA = .48235 INCHES INF = 1.20059 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA P1_L2

RUNOFF VOLUME = 1.05839 INCHES = .1298 ACRE-FEET
PEAK DISCHARGE RATE = 4.02 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

*S ROUTE BASIN P1_L2 THROUGH THE DETENTION POND.
ROUTE RESERVOIR ID=3 HYD=BASIN_P1_L2_ROUTE INFLOW ID=2 CODE=10
OUTFLOW (CFS) STORAGE (AC_FT) ELEVATION
0 0 0
2.96 0.075 0.67

* * * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	.41	.01	.002	.06
1.67	2.23	.44	.049	1.94
2.00	.55	.30	.033	1.31
2.33	.16	.14	.016	.63
2.67	.07	.06	.007	.28
3.00	.03	.03	.003	.12
3.33	.01	.01	.001	.06
3.67	.01	.01	.001	.02
4.00	.01	.00	.000	.01
4.33	.01	.00	.000	.01
4.67	.01	.00	.000	.01
5.00	.01	.00	.000	.01
5.33	.01	.00	.000	.01
5.67	.01	.00	.000	.01
6.00	.01	.00	.000	.01
6.33	.01	.00	.000	.01
6.67	.01	.00	.000	.01
7.00	.01	.00	.000	.01
7.33	.01	.00	.000	.01
7.67	.01	.00	.000	.01
8.00	.01	.00	.000	.01
8.33	.01	.00	.000	.01
8.67	.01	.00	.000	.01
9.00	.01	.00	.000	.01
9.33	.01	.00	.000	.01
9.67	.01	.00	.000	.01
10.00	.01	.00	.000	.01
10.33	.01	.00	.000	.01
10.67	.01	.00	.000	.01

```
 11.00    .01    .00    .000    .01
 11.33    .01    .00    .000    .01
 11.67    .01    .00    .000    .01
 12.00    .01    .00    .000    .01
 12.33    .01    .00    .000    .01
 12.67    .01    .00    .000    .01
 13.00    .01    .00    .000    .01
 13.33    .01    .00    .000    .01
 13.67    .01    .00    .000    .01
 14.00    .00    .00    .000    .00
PEAK DISCHARGE =      1.954 CFS - PEAK OCCURS AT HOUR   1.70
MAXIMUM WATER SURFACE ELEVATION =      .442
MAXIMUM STORAGE =      .0495 AC-FT    INCREMENTAL TIME=    .033330HRS

PRINT HYD       ID=3  CODE=1

                    HYDROGRAPH FROM AREA BASIN_P1_L2_ROUTE


  RUNOFF VOLUME =    1.05758 INCHES    =      .1297 ACRE-FEET
  PEAK DISCHARGE RATE =     1.95 CFS  AT   1.700 HOURS   BASIN AREA =  .0023 SQ. MI.


*S  ADD BASIN P1_L1 AND BASIN P1_L2
ADD HYD         ID=1  HYD NO=BASINS_L1,L2 ID I=1 ID II=3
PRINT HYD       ID=1 CODE=1

                    HYDROGRAPH FROM AREA BASINS_L1,L2


  RUNOFF VOLUME =    1.05758 INCHES    =      .2538 ACRE-FEET
  PEAK DISCHARGE RATE =     3.82 CFS  AT   1.700 HOURS   BASIN AREA =  .0045 SQ. MI.



*S COMPUTE RUNOFF FROM ON-SITE BASIN P1_L6 (LOT 6)
COMPUTE NM HYD     ID=2 HYD=P1_L6 DA=0.0023 SQ MI
          %A=0 %B=95 %C=0 %D=5
          TP=0.1333 RAINFALL=-1

  K =  .072649HR   TP =  .133300HR   K/TP RATIO =  .545000    SHAPE CONSTANT, N =  7.106420
  UNIT PEAK =  .45403   CFS  UNIT VOLUME =  .9751     B =  526.28     P60 = 2.0100
  AREA =     .000115 SQ MI   IA =  .10000 INCHES   INF =  .04000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033330


  K =  .132088HR   TP =  .133300HR   K/TP RATIO =  .990905    SHAPE CONSTANT, N =  3.563124
  UNIT PEAK =  5.3258   CFS  UNIT VOLUME =  .9979     B =  324.91     P60 = 2.0100
  AREA =     .002185 SQ MI   IA =  .50000 INCHES   INF =  1.25000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033330

PRINT HYD       ID=2 CODE=1

                    HYDROGRAPH FROM AREA P1_L6


  RUNOFF VOLUME =     .86161 INCHES    =      .1057 ACRE-FEET
  PEAK DISCHARGE RATE =     3.54 CFS  AT   1.500 HOURS   BASIN AREA =  .0023 SQ. MI.



*S  ROUTE BASIN P1_L6 THROUGH THE DETENTION POND.
ROUTE RESERVOIR    ID=3  HYD=BASIN_P1_L6_ROUTE  INFLOW ID=2  CODE=10
          OUTFLOW (CFS)   STORAGE (AC_FT)  ELEVATION
```

0 0 0
2.96 0.075 0.67

* * * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	.20	.01	.001	.02
1.67	2.02	.38	.043	1.70
2.00	.39	.25	.028	1.10
2.33	.14	.12	.013	.52
2.67	.06	.05	.006	.23
3.00	.03	.02	.003	.10
3.33	.01	.01	.001	.05
3.67	.00	.00	.000	.02
4.00	.00	.00	.000	.01
4.33	.00	.00	.000	.00

PEAK DISCHARGE = 1.716 CFS - PEAK OCCURS AT HOUR 1.70
MAXIMUM WATER SURFACE ELEVATION = .388
MAXIMUM STORAGE = .0435 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_P1_L6_ROUTE

RUNOFF VOLUME = .86134 INCHES = .1057 ACRE-FEET
PEAK DISCHARGE RATE = 1.72 CFS AT 1.700 HOURS BASIN AREA = .0023 SQ. MI.

*S ADD BASIN P1_L6
ADD HYD ID=1 HYD NO=BASINS_L1,L2,L6 ID I=1 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BASINS_L1,L2,L6

RUNOFF VOLUME = .99120 INCHES = .3595 ACRE-FEET
PEAK DISCHARGE RATE = 5.54 CFS AT 1.700 HOURS BASIN AREA = .0068 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P1_L3 (LOT 3)
COMPUTE NM HYD ID=2 HYD=P1_L3 DA=0.0114 SQ MI
%A=0 %B=85 %C=5 %D=10
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.5008 CFS UNIT VOLUME = .9969 B = 526.28 P60 = 2.0100
AREA = .001140 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .130719HR TP = .133300HR K/TP RATIO = .980635 SHAPE CONSTANT, N = 3.601109
UNIT PEAK = 25.218 CFS UNIT VOLUME = .9998 B = 327.64 P60 = 2.0100
AREA = .010260 SQ MI IA = .49167 INCHES INF = 1.22667 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA P1_L3

RUNOFF VOLUME = .95973 INCHES = .5835 ACRE-FEET
PEAK DISCHARGE RATE = 18.68 CFS AT 1.500 HOURS BASIN AREA = .0114 SQ. MI.

*S ROUTE BASIN P1_L3 THROUGH THE DETENTION POND.
ROUTE RESERVOIR ID=3 HYD=BASIN_P1_L3_ROUTE INFLOW ID=2 CODE=10
OUTFLOW (CFS) STORAGE (AC_FT) ELEVATION
0 0 0
13.96 0.40 0.67

* * * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	1.51	.01	.005	.18
1.67	10.50	.40	.239	8.34
2.00	2.33	.29	.171	5.97
2.33	.77	.15	.088	3.07
2.67	.32	.07	.042	1.47
3.00	.15	.03	.020	.69
3.33	.07	.02	.009	.32
3.67	.04	.01	.004	.16
4.00	.03	.00	.002	.08
4.33	.02	.00	.001	.04
4.67	.02	.00	.001	.03
5.00	.02	.00	.001	.02
5.33	.02	.00	.001	.02
5.67	.02	.00	.001	.02
6.00	.02	.00	.001	.02
6.33	.02	.00	.001	.02
6.67	.02	.00	.001	.02
7.00	.02	.00	.001	.02
7.33	.02	.00	.001	.02
7.67	.02	.00	.001	.02
8.00	.02	.00	.001	.02
8.33	.02	.00	.001	.02
8.67	.02	.00	.001	.02
9.00	.02	.00	.001	.02
9.33	.02	.00	.001	.02
9.67	.02	.00	.001	.02
10.00	.02	.00	.001	.02
10.33	.02	.00	.001	.02
10.67	.02	.00	.001	.02
11.00	.02	.00	.001	.02
11.33	.02	.00	.001	.02
11.67	.02	.00	.001	.02
12.00	.02	.00	.001	.02
12.33	.02	.00	.001	.02
12.67	.02	.00	.001	.02
13.00	.02	.00	.000	.02
13.33	.02	.00	.000	.02
13.67	.02	.00	.000	.02
14.00	.02	.00	.000	.02
14.33	.02	.00	.000	.02
14.67	.02	.00	.000	.02
15.00	.02	.00	.000	.02
15.33	.02	.00	.000	.02
15.67	.02	.00	.000	.02

16.00	.01	.00	.000	.02
16.33	.01	.00	.000	.01
16.67	.01	.00	.000	.01
17.00	.01	.00	.000	.01
17.33	.01	.00	.000	.01
17.66	.01	.00	.000	.01
18.00	.01	.00	.000	.01
18.33	.01	.00	.000	.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
18.66	.01	.00	.000	.01
19.00	.01	.00	.000	.01
19.33	.01	.00	.000	.01
19.66	.01	.00	.000	.01

PEAK DISCHARGE = 8.463 CFS - PEAK OCCURS AT HOUR 1.70
MAXIMUM WATER SURFACE ELEVATION = .406
MAXIMUM STORAGE = .2425 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_P1_L3_ROUTE

RUNOFF VOLUME = .95911 INCHES = .5831 ACRE-FEET
PEAK DISCHARGE RATE = 8.46 CFS AT 1.700 HOURS BASIN AREA = .0114 SQ. MI.

*S ADD BASIN P1_L3
ADD HYD ID=1 HYD NO=BASINS_L1,L2,L3,L6 ID I=1 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BASINS_L1,L2,L3,L6

RUNOFF VOLUME = .97110 INCHES = .9426 ACRE-FEET
PEAK DISCHARGE RATE = 14.00 CFS AT 1.700 HOURS BASIN AREA = .0182 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P1_RD (PUBLIC ROAD)
COMPUTE NM HYD ID=3 HYD=P1_RD DA=0.0017 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.0405 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 2.0100
AREA = .001530 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = .41436 CFS UNIT VOLUME = .9666 B = 324.91 P60 = 2.0100
AREA = .000170 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA P1_RD

RUNOFF VOLUME = 2.27930 INCHES = .2067 ACRE-FEET
PEAK DISCHARGE RATE = 4.87 CFS AT 1.500 HOURS BASIN AREA = .0017 SQ. MI.

```
*S  ADD BASIN P1_RD
ADD HYD        ID=1  HYD NO=BASIN_P1_TOTAL ID I=1 ID II=3
PRINT HYD      ID=1 CODE=1

                    HYDROGRAPH FROM AREA BASIN_P1_TOTAL

  RUNOFF VOLUME =    1.08286 INCHES    =     1.1493 ACRE-FEET
  PEAK DISCHARGE RATE =    16.31 CFS  AT   1.667 HOURS   BASIN AREA =   .0199 SQ. MI.



*S COMPUTE RUNOFF FROM ON-SITE BASIN P-2 (LOTS 4, 5)
COMPUTE NM HYD     ID=1 HYD=P-2 DA=0.0050 SQ MI
           %A=0 %B=95 %C=0 %D=5
           TP=0.1333  RAINFALL=-1

  K =  .072649HR   TP =  .133300HR   K/TP RATIO =  .545000    SHAPE CONSTANT, N =  7.106420
  UNIT PEAK =  .98701   CFS  UNIT VOLUME =  .9881      B =  526.28     P60 = 2.0100
  AREA =     .000250 SQ MI   IA =   .10000 INCHES   INF =   .04000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033330


  K =  .132088HR   TP =  .133300HR   K/TP RATIO =  .990905    SHAPE CONSTANT, N =  3.563124
  UNIT PEAK =  11.578   CFS  UNIT VOLUME =  .9992      B =  324.91     P60 = 2.0100
  AREA =     .004750 SQ MI   IA =   .50000 INCHES   INF =  1.25000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033330

PRINT HYD       ID=1 CODE=1

                    HYDROGRAPH FROM AREA P-2


  RUNOFF VOLUME =    .86161 INCHES    =     .2298 ACRE-FEET
  PEAK DISCHARGE RATE =     7.68 CFS  AT   1.500 HOURS   BASIN AREA =   .0050 SQ. MI.



*ROUTE BASIN P-2 THROUGH BASIN B-1
COMPUTE RATING CURVE CID=1  VS NO=1 NO SEGS=1
           MIN ELEV=0 MAX ELEV=0.67
           CH SLP=0.01 FP SLP=0.01 N=0.017 DIST=50
      DIST  ELEV
            0    0.67
            0    0
           48    0
           48    0.67

RATING CURVE VALLEY SECTION 1.0
  WATER      FLOW      FLOW      TOP
 SURFACE     AREA      RATE     WIDTH
  ELEV       SQ FT     CFS       FT
  .00        .00       .00       .00
  .04       1.62      1.06     44.67
  .07       3.15      3.11     42.01
  .11       4.58      5.67     39.36
  .14       5.93      8.49     36.71
  .18       7.17     11.41     34.05
  .21       8.33     14.30     31.40
  .25       9.39     17.09     28.75
  .28      10.36     19.71     26.10
  .32      11.23     22.11     23.45
  .35      12.01     24.24     20.80
```

.39	12.70	26.09	18.15
.42	13.29	27.64	15.50
.46	13.79	28.87	12.85
.49	14.20	29.77	10.20
.53	14.51	30.34	7.55
.56	14.73	30.60	4.90
.60	14.86	30.53	2.25
.63	14.89	30.16	-.40
.67	14.83	29.50	-3.09

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=630 SLP=0.01

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	1.622	1.06	.2689
.071	3.150	3.11	.1773
.106	4.585	5.67	.1415
.141	5.926	8.49	.1221
.176	7.173	11.41	.1101
.212	8.327	14.30	.1019
.247	9.388	17.09	.0961
.282	10.355	19.71	.0919
.317	11.229	22.11	.0889
.353	12.009	24.24	.0867
.388	12.696	26.09	.0852
.423	13.290	27.64	.0841
.458	13.790	28.87	.0836
.494	14.196	29.77	.0835
.529	14.509	30.34	.0837
.564	14.729	30.60	.0842
.555	14.673	30.53	.0841
.518	14.409	30.16	.0836
.483	14.077	29.50	.0835

ROUTE ID=2 HYD NO=ROUTED_P-2 INFLOW ID=1 DT=0.03333
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA ROUTED_P-2

RUNOFF VOLUME = .86137 INCHES = .2297 ACRE-FEET
PEAK DISCHARGE RATE = 5.49 CFS AT 1.600 HOURS BASIN AREA = .0050 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-1
COMPUTE NM HYD ID=3 HYD=BASIN_B-1 DA=0.0040 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 14.213 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 2.0100
AREA = .003600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = .97497 CFS UNIT VOLUME = .9858 B = 324.91 P60 = 2.0100
AREA = .000400 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-1

RUNOFF VOLUME = 2.27928 INCHES = .4862 ACRE-FEET
PEAK DISCHARGE RATE = 11.43 CFS AT 1.500 HOURS BASIN AREA = .0040 SQ. MI.

*S ADD BASIN P-2 AND BASIN B-1
ADD HYD ID=1 HYD NO=BASINS_P-2,B-1 ID I=2 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BASINS_P-2,B-1

RUNOFF VOLUME = 1.49155 INCHES = .7159 ACRE-FEET
PEAK DISCHARGE RATE = 15.26 CFS AT 1.533 HOURS BASIN AREA = .0090 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-2
COMPUTE NM HYD ID=3 HYD=BASIN_B-2 DA=0.0112 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 39.796 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 2.0100
AREA = .010080 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 2.7299 CFS UNIT VOLUME = .9955 B = 324.91 P60 = 2.0100
AREA = .001120 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-2

RUNOFF VOLUME = 2.27927 INCHES = 1.3615 ACRE-FEET
PEAK DISCHARGE RATE = 31.96 CFS AT 1.500 HOURS BASIN AREA = .0112 SQ. MI.

*S ADD BASIN P-2, B-1 AND BASIN B-2 AT ANALYSIS POINT 2
ADD HYD ID=1 HYD NO=AP2 ID I=1 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA AP2

RUNOFF VOLUME = 1.92831 INCHES = 2.0774 ACRE-FEET
PEAK DISCHARGE RATE = 46.45 CFS AT 1.500 HOURS BASIN AREA = .0202 SQ. MI.

*ROUTE BASINS P-2, B-1 AND B-2 THROUGH BASIN B-3
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=0.67
CH SLP=0.01 FP SLP=0.01 N=0.017 DIST=40

DIST	ELEV
0	0.67
0	0
40	0
40	0.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.04	1.41	1.33	40.00
.07	2.82	4.20	40.00
.11	4.23	8.26	40.00
.14	5.64	13.33	40.00
.18	7.05	19.33	40.00
.21	8.46	26.18	40.00
.25	9.87	33.82	40.00
.28	11.28	42.23	40.00
.32	12.69	51.36	40.00
.35	14.11	61.18	40.00
.39	15.52	71.67	40.00
.42	16.93	82.81	40.00
.46	18.34	94.57	40.00
.49	19.75	106.94	40.00
.53	21.16	119.91	40.00
.56	22.57	133.45	40.00
.60	23.98	147.55	40.00
.63	25.39	162.20	40.00
.67	26.80	177.40	40.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=1600 SLP=0.01

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	1.411	1.33	.4731
.071	2.821	4.20	.2982
.106	4.232	8.26	.2277
.141	5.642	13.33	.1881
.176	7.053	19.33	.1622
.212	8.463	26.18	.1437
.247	9.874	33.82	.1297
.282	11.284	42.23	.1188
.317	12.695	51.36	.1099
.353	14.105	61.18	.1025
.388	15.516	71.67	.0962
.423	16.926	82.81	.0908
.458	18.337	94.57	.0862
.494	19.747	106.94	.0821
.529	21.158	119.91	.0784
.564	22.568	133.45	.0752
.599	23.979	147.55	.0722
.635	25.389	162.20	.0696
.670	26.800	177.40	.0671

ROUTE ID=2 HYD NO=ROUTED_O-1,B-1,B-2 INFLOW ID=1 DT=0.03333
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA ROUTED_O-1,B-1,B-2

RUNOFF VOLUME = 1.92250 INCHES = 2.0712 ACRE-FEET
PEAK DISCHARGE RATE = 36.24 CFS AT 1.567 HOURS BASIN AREA = .0202 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-3
COMPUTE NM HYD ID=3 HYD=BASIN_B-3 DA=0.0212 SQ MI
%A=15 %B=10 %C=0 %D=75

TP=0.1876 RAINFALL=-1

K = .102242HR TP = .187600HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 44.604 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 2.0100
AREA = .015900 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .209594HR TP = .187600HR K/TP RATIO = 1.117237 SHAPE CONSTANT, N = 3.165979
UNIT PEAK = 8.3366 CFS UNIT VOLUME = .9982 B = 295.09 P60 = 2.0100
AREA = .005300 SQ MI IA = .59000 INCHES INF = 1.50200 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-3

RUNOFF VOLUME = 1.98857 INCHES = 2.2484 ACRE-FEET
PEAK DISCHARGE RATE = 45.57 CFS AT 1.567 HOURS BASIN AREA = .0212 SQ. MI.

*S ADD BASIN BASIN B-3 AT ANALYSIS POINT AP3
ADD HYD ID=1 HYD NO=AP3 ID I=2 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA AP3

RUNOFF VOLUME = 1.95634 INCHES = 4.3196 ACRE-FEET
PEAK DISCHARGE RATE = 81.81 CFS AT 1.567 HOURS BASIN AREA = .0414 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-3-1 (LOTS 7, AND MIDTOWN ROAD)
COMPUTE NM HYD ID=12 HYD=P-3-1 DA=0.0021 SQ MI
%A=0 %B=80 %C=0 %D=20
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.6582 CFS UNIT VOLUME = .9922 B = 526.28 P60 = 2.0100
AREA = .000420 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 4.0949 CFS UNIT VOLUME = .9969 B = 324.91 P60 = 2.0100
AREA = .001680 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA P-3-1

RUNOFF VOLUME = 1.11180 INCHES = .1245 ACRE-FEET
PEAK DISCHARGE RATE = 3.73 CFS AT 1.500 HOURS BASIN AREA = .0021 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-3-2 (LOTS 8, 9, AND MIDTOWN RD.)
COMPUTE NM HYD ID=13 HYD=P-3-2 DA=0.0046 SQ MI
%A=0 %B=60 %C=4 %D=36
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.5380 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 2.0100
AREA = .001656 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .130548HR TP = .133300HR K/TP RATIO = .979351 SHAPE CONSTANT, N = 3.605931
UNIT PEAK = 7.2436 CFS UNIT VOLUME = .9984 B = 327.98 P60 = 2.0100
AREA = .002944 SQ MI IA = .49062 INCHES INF = 1.22375 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA P-3-2

RUNOFF VOLUME = 1.39047 INCHES = .3411 ACRE-FEET
PEAK DISCHARGE RATE = 9.38 CFS AT 1.500 HOURS BASIN AREA = .0046 SQ. MI.

*S ADD BASIN P-3-1 AND BASIN P-3-2
ADD HYD ID=12 HYD NO=BASINS_P-3-1,P-3-2 ID I=12 ID II=13
PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA BASINS_P-3-1,P-3-2

RUNOFF VOLUME = 1.30313 INCHES = .4656 ACRE-FEET
PEAK DISCHARGE RATE = 13.11 CFS AT 1.500 HOURS BASIN AREA = .0067 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-4 (LOT 10)
COMPUTE NM HYD ID=13 HYD=P-4 DA=0.0084 SQ MI
%A=40 %B=50 %C=5 %D=5
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.6582 CFS UNIT VOLUME = .9922 B = 526.28 P60 = 2.0100
AREA = .000420 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .142608HR TP = .133300HR K/TP RATIO = 1.069830 SHAPE CONSTANT, N = 3.301302
UNIT PEAK = 18.291 CFS UNIT VOLUME = .9993 B = 305.53 P60 = 2.0100
AREA = .007980 SQ MI IA = .55526 INCHES INF = 1.40474 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA P-4

RUNOFF VOLUME = .76575 INCHES = .3431 ACRE-FEET
PEAK DISCHARGE RATE = 11.40 CFS AT 1.533 HOURS BASIN AREA = .0084 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN O-1-A
COMPUTE NM HYD ID=14 HYD=O-1-A DA=0.0047 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = 16.700 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 2.0100
AREA = .004230 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 1.1456 CFS UNIT VOLUME = .9881 B = 324.91 P60 = 2.0100
AREA = .000470 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=14 CODE=1

HYDROGRAPH FROM AREA O-1-A

RUNOFF VOLUME = 2.27928 INCHES = .5713 ACRE-FEET
PEAK DISCHARGE RATE = 13.42 CFS AT 1.500 HOURS BASIN AREA = .0047 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN O-1-B
COMPUTE NM HYD ID=15 HYD=O-1 DA=0.01148 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 40.791 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 2.0100
AREA = .010332 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 2.7982 CFS UNIT VOLUME = .9955 B = 324.91 P60 = 2.0100
AREA = .001148 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA O-1

RUNOFF VOLUME = 2.27927 INCHES = 1.3955 ACRE-FEET
PEAK DISCHARGE RATE = 32.76 CFS AT 1.500 HOURS BASIN AREA = .0115 SQ. MI.

*S ADD BASIN P-3 AND BASIN P-4
ADD HYD ID=20 HYD NO=BASINS_P-3,P-4 ID I=12 ID II=13
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA BASINS_P-3,P-4

RUNOFF VOLUME = 1.00419 INCHES = .8087 ACRE-FEET
PEAK DISCHARGE RATE = 24.47 CFS AT 1.500 HOURS BASIN AREA = .0151 SQ. MI.

*S ADD BASIN O-1-A WITH BASINS P-3 AND P-4 AT ANALYSIS POINT 4
ADD HYD ID=20 HYD NO=AP4 ID I=20 ID II=14
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA AP4

RUNOFF VOLUME = 1.30686 INCHES = 1.3800 ACRE-FEET
PEAK DISCHARGE RATE = 37.89 CFS AT 1.500 HOURS BASIN AREA = .0198 SQ. MI.

*S ADD BASIN O-1-B WITH BASINS P-3 AND P-4 AT ANALYSIS POINT 4
ADD HYD ID=20 HYD NO=AP4 ID I=20 ID II=15
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA AP4

RUNOFF VOLUME = 1.66374 INCHES = 2.7756 ACRE-FEET
PEAK DISCHARGE RATE = 70.66 CFS AT 1.500 HOURS BASIN AREA = .0313 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:54:13

APPENDIX C

Hydrology for Fully Developed Conditions

```
 AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
    RUN DATE (MON/DAY/YR) = 10/29/1998
    START TIME (HR:MIN:SEC) = 08:53:02
    INPUT FILE = C:\AHYMO\MIDTOWN1.WPD

*S*************************************************************************
*S*************          AAR - LARKIN                 *S*******************
*S*************      MIDTOWN BUSINESS PARK            *S*******************
*S*************       DEVELOPED CONDITIONS            *S*******************
*S*************************************************************************
*S* FILENAME: C:\AHYMO\MIDTOWN1.DAT                   *S*******************
*S*************************************************************************
*S******* 100 YEAR, 24 HOUR STORM (Section 22.2 Hydrology)*S***************
START           0.00
RAINFALL        TYPE=2 RAIN QUARTER=0.0 RAIN ONE=2.01
                RAIN SIX=2.35 RAIN DAY=2.75 DT=0.03333

      COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
      DT =   .033330 HOURS     END TIME =   19.964670 HOURS
        .0000  .0016  .0033  .0049  .0066  .0084  .0102
        .0120  .0139  .0158  .0178  .0199  .0219  .0241
        .0263  .0286  .0309  .0333  .0358  .0384  .0411
        .0439  .0467  .0497  .0529  .0561  .0596  .0631
        .0669  .0709  .0751  .0807  .0866  .0930  .1066
        .1371  .1840  .2514  .3434  .4644  .6186  .8106
       1.0449 1.2624 1.3533 1.4300 1.4982 1.5602 1.6174
       1.6704 1.7200 1.7664 1.8102 1.8514 1.8904 1.9273
       1.9622 1.9953 2.0268 2.0566 2.0850 2.0915 2.0976
       2.1033 2.1088 2.1140 2.1191 2.1239 2.1285 2.1329
       2.1373 2.1414 2.1454 2.1494 2.1531 2.1568 2.1604
       2.1639 2.1673 2.1706 2.1739 2.1771 2.1802 2.1832
       2.1862 2.1891 2.1919 2.1947 2.1975 2.2002 2.2028
       2.2054 2.2080 2.2105 2.2130 2.2154 2.2178 2.2202
       2.2225 2.2248 2.2270 2.2293 2.2315 2.2336 2.2358
       2.2379 2.2399 2.2420 2.2440 2.2460 2.2480 2.2500
       2.2519 2.2538 2.2557 2.2576 2.2594 2.2612 2.2631
       2.2648 2.2666 2.2684 2.2701 2.2718 2.2735 2.2752
       2.2769 2.2785 2.2802 2.2818 2.2834 2.2850 2.2866
       2.2881 2.2897 2.2912 2.2928 2.2943 2.2958 2.2973
       2.2987 2.3002 2.3017 2.3031 2.3045 2.3060 2.3074
       2.3088 2.3102 2.3115 2.3129 2.3143 2.3156 2.3169
       2.3183 2.3196 2.3209 2.3222 2.3235 2.3248 2.3261
       2.3273 2.3286 2.3298 2.3311 2.3323 2.3335 2.3348
       2.3360 2.3372 2.3384 2.3396 2.3408 2.3419 2.3431
       2.3443 2.3454 2.3466 2.3477 2.3488 2.3500 2.3511
       2.3523 2.3534 2.3546 2.3557 2.3568 2.3580 2.3591
       2.3602 2.3613 2.3625 2.3636 2.3647 2.3658 2.3669
       2.3680 2.3691 2.3702 2.3713 2.3724 2.3735 2.3746
       2.3757 2.3768 2.3779 2.3790 2.3801 2.3811 2.3822
       2.3833 2.3844 2.3854 2.3865 2.3876 2.3886 2.3897
       2.3907 2.3918 2.3928 2.3939 2.3949 2.3960 2.3970
       2.3981 2.3991 2.4001 2.4012 2.4022 2.4032 2.4043
       2.4053 2.4063 2.4073 2.4083 2.4094 2.4104 2.4114
       2.4124 2.4134 2.4144 2.4154 2.4164 2.4174 2.4184
       2.4194 2.4204 2.4214 2.4224 2.4233 2.4243 2.4253
       2.4263 2.4273 2.4282 2.4292 2.4302 2.4312 2.4321
       2.4331 2.4341 2.4350 2.4360 2.4369 2.4379 2.4388
       2.4398 2.4408 2.4417 2.4426 2.4436 2.4445 2.4455
       2.4464 2.4474 2.4483 2.4492 2.4502 2.4511 2.4520
       2.4529 2.4539 2.4548 2.4557 2.4566 2.4575 2.4585
       2.4594 2.4603 2.4612 2.4621 2.4630 2.4639 2.4648
       2.4657 2.4666 2.4675 2.4684 2.4693 2.4702 2.4711
       2.4720 2.4729 2.4738 2.4747 2.4756 2.4764 2.4773
       2.4782 2.4791 2.4799 2.4808 2.4817 2.4826 2.4834
       2.4843 2.4852 2.4860 2.4869 2.4878 2.4886 2.4895
       2.4903 2.4912 2.4921 2.4929 2.4938 2.4946 2.4955
```

2.4963 2.4971 2.4980 2.4988 2.4997 2.5005 2.5014
2.5022 2.5030 2.5039 2.5047 2.5055 2.5064 2.5072
2.5080 2.5088 2.5097 2.5105 2.5113 2.5121 2.5129
2.5138 2.5146 2.5154 2.5162 2.5170 2.5178 2.5186
2.5194 2.5203 2.5211 2.5219 2.5227 2.5235 2.5243
2.5251 2.5259 2.5267 2.5274 2.5282 2.5290 2.5298
2.5306 2.5314 2.5322 2.5330 2.5338 2.5345 2.5353
2.5361 2.5369 2.5377 2.5384 2.5392 2.5400 2.5408
2.5415 2.5423 2.5431 2.5438 2.5446 2.5454 2.5461
2.5469 2.5477 2.5484 2.5492 2.5500 2.5507 2.5515
2.5522 2.5530 2.5537 2.5545 2.5552 2.5560 2.5567
2.5575 2.5582 2.5590 2.5597 2.5605 2.5612 2.5619
2.5627 2.5634 2.5642 2.5649 2.5656 2.5664 2.5671
2.5678 2.5686 2.5693 2.5700 2.5707 2.5715 2.5722
2.5729 2.5736 2.5744 2.5751 2.5758 2.5765 2.5773
2.5780 2.5787 2.5794 2.5801 2.5808 2.5815 2.5823
2.5830 2.5837 2.5844 2.5851 2.5858 2.5865 2.5872
2.5879 2.5886 2.5893 2.5900 2.5907 2.5914 2.5921
2.5928 2.5935 2.5942 2.5949 2.5956 2.5963 2.5970
2.5976 2.5983 2.5990 2.5997 2.6004 2.6011 2.6018
2.6024 2.6031 2.6038 2.6045 2.6052 2.6058 2.6065
2.6072 2.6079 2.6085 2.6092 2.6099 2.6106 2.6112
2.6119 2.6126 2.6132 2.6139 2.6146 2.6152 2.6159
2.6166 2.6172 2.6179 2.6186 2.6192 2.6199 2.6205
2.6212 2.6219 2.6225 2.6232 2.6238 2.6245 2.6251
2.6258 2.6264 2.6271 2.6277 2.6284 2.6290 2.6297
2.6303 2.6310 2.6316 2.6322 2.6329 2.6335 2.6342
2.6348 2.6355 2.6361 2.6367 2.6374 2.6380 2.6386
2.6393 2.6399 2.6405 2.6412 2.6418 2.6424 2.6431
2.6437 2.6443 2.6449 2.6456 2.6462 2.6468 2.6474
2.6481 2.6487 2.6493 2.6499 2.6506 2.6512 2.6518
2.6524 2.6530 2.6536 2.6543 2.6549 2.6555 2.6561
2.6567 2.6573 2.6579 2.6586 2.6592 2.6598 2.6604
2.6610 2.6616 2.6622 2.6628 2.6634 2.6640 2.6646
2.6652 2.6658 2.6664 2.6670 2.6676 2.6682 2.6688
2.6694 2.6700 2.6706 2.6712 2.6718 2.6724 2.6730
2.6736 2.6742 2.6748 2.6754 2.6760 2.6765 2.6771
2.6777 2.6783 2.6789 2.6795 2.6801 2.6807 2.6812
2.6818 2.6824 2.6830 2.6836 2.6841

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-1 (LOTS 1, 2, 3, and 6)
COMPUTE NM HYD ID=1 HYD=P-1 DA=0.0199 SQ MI
%A=0 %B=0 %C=10 %D=90
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 70.710 CFS UNIT VOLUME= .9992 B= 526.28 P60= 2.0100
AREA= .017910 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

K= .107446HR TP= .133300HR K/TP RATIO= .806046 SHAPE CONSTANT, N= 4.440701
UNIT PEAK= 5.7259 CFS UNIT VOLUME= .9983 B= 383.55 P60= 2.0100
AREA= .001990 SQ MI IA= .35000 INCHES INF= .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA P-1

RUNOFF VOLUME= 2.31424 INCHES = 2.4562 ACRE-FEET
PEAK DISCHARGE RATE= 57.89 CFS AT 1.500 HOURS BASIN AREA= .0199 SQ. MI.

*S ROUTE BASIN P-1 THROUGH THE DETENTION POND.

ROUTE RESERVOIR ID=2 HYD=BASIN_P-1_ROUTE INFLOW ID=1 CODE=10

OUTFLOW (CFS)	STORAGE (AC_FT)	ELEVATION
0	0	0
17.10	1.35	1.0

* * * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	16.99	.06	.080	1.02
1.67	29.35	.76	1.020	12.92
2.00	13.99	.87	1.172	14.85
2.33	2.95	.73	.992	12.56
2.67	1.21	.55	.743	9.41
3.00	.65	.40	.544	6.89
3.33	.43	.29	.396	5.02
3.67	.35	.21	.288	3.65
4.00	.32	.16	.211	2.67
4.33	.30	.12	.156	1.98
4.67	.31	.09	.117	1.48
5.00	.31	.07	.090	1.14
5.33	.33	.05	.071	.90
5.67	.35	.04	.058	.73
6.00	.38	.04	.049	.62
6.33	.39	.03	.044	.56
6.67	.38	.03	.040	.51
7.00	.38	.03	.037	.47
7.33	.37	.03	.035	.44
7.67	.36	.02	.033	.42
8.00	.35	.02	.032	.40
8.33	.34	.02	.030	.38
8.67	.34	.02	.029	.37
9.00	.33	.02	.028	.36
9.33	.32	.02	.028	.35
9.67	.32	.02	.027	.34
10.00	.31	.02	.026	.33
10.33	.31	.02	.026	.33
10.67	.30	.02	.025	.32
11.00	.30	.02	.025	.31
11.33	.29	.02	.024	.31
11.67	.28	.02	.024	.30
12.00	.28	.02	.023	.30
12.33	.27	.02	.023	.29
12.67	.27	.02	.023	.29
13.00	.27	.02	.022	.28
13.33	.26	.02	.022	.28
13.67	.26	.02	.021	.27
14.00	.26	.02	.021	.27
14.33	.25	.02	.021	.26
14.67	.25	.02	.020	.26
15.00	.24	.01	.020	.26
15.33	.24	.01	.020	.25
15.67	.24	.01	.020	.25
16.00	.23	.01	.019	.24
16.33	.23	.01	.019	.24
16.67	.23	.01	.019	.24
17.00	.23	.01	.019	.23
17.33	.22	.01	.018	.23
17.66	.22	.01	.018	.23
18.00	.22	.01	.018	.23
18.33	.21	.01	.018	.22

TIME INFLOW ELEV VOLUME OUTFLOW

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
18.66	.21	.01	.017	.22
19.00	.21	.01	.017	.22
19.33	.21	.01	.017	.21
19.66	.20	.01	.017	.21

PEAK DISCHARGE = 14.865 CFS - PEAK OCCURS AT HOUR 1.97
MAXIMUM WATER SURFACE ELEVATION = .869
MAXIMUM STORAGE = 1.1736 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA BASIN_P-1_ROUTE

RUNOFF VOLUME = 2.29867 INCHES = 2.4396 ACRE-FEET
PEAK DISCHARGE RATE = 14.87 CFS AT 1.966 HOURS BASIN AREA = .0199 SQ. MI.

*ROUTE BASIN P-1 THROUGH PROPOSED 10' CHANNEL
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=0.67
CH SLP=0.005 FP SLP=0.005 N=0.013 DIST=10

DIST	ELEV
0	1.0
0	0
10	0
10	1.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.04	.35	.31	10.00
.07	.71	.97	10.00
.11	1.06	1.90	10.00
.14	1.41	3.06	10.00
.18	1.76	4.43	10.00
.21	2.12	5.99	10.00
.25	2.47	7.72	10.00
.28	2.82	9.63	10.00
.32	3.17	11.69	10.00
.35	3.53	13.90	10.00
.39	3.88	16.26	10.00
.42	4.23	18.75	10.00
.46	4.58	21.38	10.00
.49	4.94	24.14	10.00
.53	5.29	27.02	10.00
.56	5.64	30.02	10.00
.60	5.99	33.14	10.00
.63	6.35	36.37	10.00
.67	6.70	39.71	10.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=350 SLP=0.005

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.353	.31	.1121
.071	.705	.97	.0708
.106	1.058	1.90	.0542
.141	1.411	3.06	.0448

.176	1.763	4.43	.0387
.212	2.116	5.99	.0344
.247	2.468	7.72	.0311
.282	2.821	9.63	.0285
.317	3.174	11.69	.0264
.353	3.526	13.90	.0247
.388	3.879	16.26	.0232
.423	4.232	18.75	.0219
.458	4.584	21.38	.0208
.494	4.937	24.14	.0199
.529	5.289	27.02	.0190
.564	5.642	30.02	.0183
.599	5.995	33.14	.0176
.635	6.347	36.37	.0170
.670	6.700	39.71	.0164

ROUTE ID=10 HYD NO=AP1 INFLOW ID=2 DT=0.03333
PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA AP1

RUNOFF VOLUME = 2.29683 INCHES = 2.4377 ACRE-FEET
PEAK DISCHARGE RATE = 14.86 CFS AT 1.966 HOURS BASIN AREA = .0199 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-2 (LOTS 4, 5, and part of 7)
COMPUTE NM HYD ID=2 HYD=P-2 DA=0.0050 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 17.766 CFS UNIT VOLUME= .9988 B= 526.28 P60= 2.0100
AREA= .004500 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

K= .132088HR TP= .133300HR K/TP RATIO= .990905 SHAPE CONSTANT, N= 3.563124
UNIT PEAK= 1.2187 CFS UNIT VOLUME= .9891 B= 324.91 P60= 2.0100
AREA= .000500 SQ MI IA= .50000 INCHES INF= 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA P-2

RUNOFF VOLUME = 2.27928 INCHES = .6078 ACRE-FEET
PEAK DISCHARGE RATE = 14.28 CFS AT 1.500 HOURS BASIN AREA = .0050 SQ. MI.

*S DIVIDE ROUTED BASIN P-2 BY PROPOSED DISCHARGE RELEASE
DIVIDE HYD ID=2 Q=0.32 CFS ID I=1 HYD=P-2_RELEASE
ID II=20 HYD=TRASH
PRINT HYD ID=1

HYDROGRAPH FROM AREA P-2_RELEASE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.1	7.999	.1	11.999	.1	15.998	.1
.033	.0	4.033	.1	8.033	.1	12.032	.1	16.032	.1
.067	.0	4.066	.1	8.066	.1	12.065	.1	16.065	.1

.100	.0	4.100	.1	8.099	.1	12.099	.1	16.098	.1
.133	.0	4.133	.1	8.133	.1	12.132	.1	16.132	.1
.167	.0	4.166	.1	8.166	.1	12.165	.1	16.165	.1
.200	.0	4.200	.1	8.199	.1	12.199	.1	16.198	.1
.233	.0	4.233	.1	8.233	.1	12.232	.1	16.232	.1
.267	.0	4.266	.1	8.266	.1	12.265	.1	16.265	.1
.300	.0	4.300	.1	8.299	.1	12.299	.1	16.298	.1
.333	.0	4.333	.1	8.332	.1	12.332	.1	16.332	.1
.367	.0	4.366	.1	8.366	.1	12.365	.1	16.365	.1
.400	.0	4.400	.1	8.399	.1	12.399	.1	16.398	.1
.433	.0	4.433	.1	8.432	.1	12.432	.1	16.432	.1
.467	.0	4.466	.1	8.466	.1	12.465	.1	16.465	.1
.500	.0	4.500	.1	8.499	.1	12.499	.1	16.498	.1
.533	.0	4.533	.1	8.532	.1	12.532	.1	16.532	.1
.567	.0	4.566	.1	8.566	.1	12.565	.1	16.565	.1
.600	.0	4.600	.1	8.599	.1	12.599	.1	16.598	.1
.633	.0	4.633	.1	8.632	.1	12.632	.1	16.632	.1
.667	.0	4.666	.1	8.666	.1	12.665	.1	16.665	.1
.700	.0	4.700	.1	8.699	.1	12.699	.1	16.698	.1
.733	.0	4.733	.1	8.732	.1	12.732	.1	16.732	.1
.767	.0	4.766	.1	8.766	.1	12.765	.1	16.765	.1
.800	.0	4.800	.1	8.799	.1	12.799	.1	16.798	.1
.833	.0	4.833	.1	8.832	.1	12.832	.1	16.832	.1
.867	.0	4.866	.1	8.866	.1	12.865	.1	16.865	.1
.900	.0	4.900	.1	8.899	.1	12.899	.1	16.898	.1
.933	.0	4.933	.1	8.932	.1	12.932	.1	16.932	.1
.967	.0	4.966	.1	8.966	.1	12.965	.1	16.965	.1
1.000	.0	4.999	.1	8.999	.1	12.999	.1	16.998	.1
1.033	.0	5.033	.1	9.032	.1	13.032	.1	17.032	.1
1.067	.0	5.066	.1	9.066	.1	13.065	.1	17.065	.1
1.100	.0	5.099	.1	9.099	.1	13.099	.1	17.098	.1
1.133	.0	5.133	.1	9.132	.1	13.132	.1	17.132	.1
1.167	.0	5.166	.1	9.166	.1	13.165	.1	17.165	.1
1.200	.3	5.199	.1	9.199	.1	13.199	.1	17.198	.1
1.233	.3	5.233	.1	9.232	.1	13.232	.1	17.232	.1
1.267	.3	5.266	.1	9.266	.1	13.265	.1	17.265	.1
1.300	.3	5.299	.1	9.299	.1	13.299	.1	17.298	.1
1.333	.3	5.333	.1	9.332	.1	13.332	.1	17.332	.1
1.367	.3	5.366	.1	9.366	.1	13.365	.1	17.365	.1
1.400	.3	5.399	.1	9.399	.1	13.399	.1	17.398	.1
1.433	.3	5.433	.1	9.432	.1	13.432	.1	17.432	.1
1.467	.3	5.466	.1	9.466	.1	13.465	.1	17.465	.1
1.500	.3	5.499	.1	9.499	.1	13.499	.1	17.498	.1
1.533	.3	5.533	.1	9.532	.1	13.532	.1	17.532	.1
1.567	.3	5.566	.1	9.566	.1	13.565	.1	17.565	.1
1.600	.3	5.599	.1	9.599	.1	13.599	.1	17.598	.1
1.633	.3	5.633	.1	9.632	.1	13.632	.1	17.632	.1
1.666	.3	5.666	.1	9.666	.1	13.665	.1	17.665	.1
1.700	.3	5.699	.1	9.699	.1	13.699	.1	17.698	.1
1.733	.3	5.733	.1	9.732	.1	13.732	.1	17.732	.1
1.766	.3	5.766	.1	9.766	.1	13.765	.1	17.765	.1
1.800	.3	5.799	.1	9.799	.1	13.799	.1	17.798	.1
1.833	.3	5.833	.1	9.832	.1	13.832	.1	17.832	.1
1.866	.3	5.866	.1	9.866	.1	13.865	.1	17.865	.1
1.900	.3	5.899	.1	9.899	.1	13.899	.1	17.898	.1
1.933	.3	5.933	.1	9.932	.1	13.932	.1	17.932	.1
1.966	.3	5.966	.1	9.966	.1	13.965	.1	17.965	.1
2.000	.3	5.999	.1	9.999	.1	13.999	.1	17.998	.1
2.033	.3	6.033	.1	10.032	.1	14.032	.1	18.032	.1
2.066	.3	6.066	.1	10.066	.1	14.065	.1	18.065	.1
2.100	.3	6.099	.1	10.099	.1	14.099	.1	18.098	.1
2.133	.3	6.133	.1	10.132	.1	14.132	.1	18.132	.1
2.166	.3	6.166	.1	10.166	.1	14.165	.1	18.165	.1
2.200	.3	6.199	.1	10.199	.1	14.199	.1	18.198	.1
2.233	.3	6.233	.1	10.232	.1	14.232	.1	18.232	.1
2.266	.3	6.266	.1	10.266	.1	14.265	.1	18.265	.1
2.300	.3	6.299	.1	10.299	.1	14.299	.1	18.298	.1
2.333	.3	6.333	.1	10.332	.1	14.332	.1	18.332	.1

2.366	.3	6.366	.1	10.366	.1	14.365	.1	18.365	.1
2.400	.3	6.399	.1	10.399	.1	14.399	.1	18.398	.1
2.433	.3	6.433	.1	10.432	.1	14.432	.1	18.432	.1
2.466	.3	6.466	.1	10.466	.1	14.465	.1	18.465	.1
2.500	.3	6.499	.1	10.499	.1	14.499	.1	18.498	.1
2.533	.3	6.533	.1	10.532	.1	14.532	.1	18.532	.1
2.566	.3	6.566	.1	10.566	.1	14.565	.1	18.565	.1
2.600	.3	6.599	.1	10.599	.1	14.599	.1	18.598	.1
2.633	.3	6.633	.1	10.632	.1	14.632	.1	18.632	.1
2.666	.3	6.666	.1	10.666	.1	14.665	.1	18.665	.1
2.700	.3	6.699	.1	10.699	.1	14.699	.1	18.698	.1
2.733	.3	6.733	.1	10.732	.1	14.732	.1	18.732	.1
2.766	.2	6.766	.1	10.766	.1	14.765	.1	18.765	.1
2.800	.2	6.799	.1	10.799	.1	14.799	.1	18.798	.1
2.833	.2	6.833	.1	10.832	.1	14.832	.1	18.832	.1
2.866	.2	6.866	.1	10.866	.1	14.865	.1	18.865	.1
2.900	.2	6.899	.1	10.899	.1	14.898	.1	18.898	.1
2.933	.2	6.933	.1	10.932	.1	14.932	.1	18.932	.1
2.966	.2	6.966	.1	10.966	.1	14.965	.1	18.965	.1
3.000	.2	6.999	.1	10.999	.1	14.998	.1	18.998	.1
3.033	.1	7.033	.1	11.032	.1	15.032	.1	19.031	.1
3.066	.1	7.066	.1	11.066	.1	15.065	.1	19.065	.1
3.100	.1	7.099	.1	11.099	.1	15.098	.1	19.098	.1
3.133	.1	7.133	.1	11.132	.1	15.132	.1	19.131	.1
3.166	.1	7.166	.1	11.166	.1	15.165	.1	19.165	.1
3.200	.1	7.199	.1	11.199	.1	15.198	.1	19.198	.1
3.233	.1	7.233	.1	11.232	.1	15.232	.1	19.231	.1
3.266	.1	7.266	.1	11.266	.1	15.265	.1	19.265	.1
3.300	.1	7.299	.1	11.299	.1	15.298	.1	19.298	.1
3.333	.1	7.333	.1	11.332	.1	15.332	.1	19.331	.1
3.366	.1	7.366	.1	11.366	.1	15.365	.1	19.365	.1
3.400	.1	7.399	.1	11.399	.1	15.398	.1	19.398	.1
3.433	.1	7.433	.1	11.432	.1	15.432	.1	19.431	.1
3.466	.1	7.466	.1	11.466	.1	15.465	.1	19.465	.1
3.500	.1	7.499	.1	11.499	.1	15.498	.1	19.498	.1
3.533	.1	7.533	.1	11.532	.1	15.532	.1	19.531	.1
3.566	.1	7.566	.1	11.565	.1	15.565	.1	19.565	.1
3.600	.1	7.599	.1	11.599	.1	15.598	.1	19.598	.1
3.633	.1	7.633	.1	11.632	.1	15.632	.1	19.631	.1
3.666	.1	7.666	.1	11.665	.1	15.665	.1	19.665	.1
3.700	.1	7.699	.1	11.699	.1	15.698	.1	19.698	.1
3.733	.1	7.733	.1	11.732	.1	15.732	.1	19.731	.1
3.766	.1	7.766	.1	11.765	.1	15.765	.1	19.765	.1
3.800	.1	7.799	.1	11.799	.1	15.798	.1	19.798	.1
3.833	.1	7.833	.1	11.832	.1	15.832	.1	19.831	.1
3.866	.1	7.866	.1	11.865	.1	15.865	.1	19.865	.1
3.900	.1	7.899	.1	11.899	.1	15.898	.1	19.898	.1
3.933	.1	7.933	.1	11.932	.1	15.932	.1	19.931	.1
3.966	.1	7.966	.1	11.965	.1	15.965	.1	19.965	.1

RUNOFF VOLUME = 2.27928 INCHES = .1479 ACRE-FEET
PEAK DISCHARGE RATE = .32 CFS AT 1.233 HOURS BASIN AREA = .0012 SQ. MI.

*ROUTE BASIN P-2 THROUGH BASIN B-1
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=0.67
CH SLP=0.01 FP SLP=0.01 N=0.017 DIST=50

DIST	ELEV
0	0.67
0	0
48	0
48	0.67

RATING CURVE VALLEY SECTION 1.0

WATER	FLOW	FLOW	TOP

SURFACE ELEV	AREA SQ FT	RATE CFS	WIDTH FT
.00	.00	.00	.00
.04	1.15	.43	32.10
.07	2.26	1.30	31.17
.11	3.35	2.45	30.27
.14	4.40	3.77	29.34
.18	5.42	5.22	28.43
.21	6.40	6.76	27.52
.25	7.36	8.35	26.61
.28	8.28	9.97	25.70
.32	9.17	11.59	24.77
.35	10.00	13.22	22.37
.39	10.75	14.72	19.84
.42	11.40	16.05	17.32
.46	11.97	17.19	14.79
.49	12.45	18.13	12.27
.53	12.83	18.87	9.75
.56	13.13	19.38	7.22
.60	13.34	19.68	4.70
.63	13.46	19.76	2.19
.67	13.50	19.63	-.37

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=630 SLP=0.01

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	1.148	.43	.4663
.071	2.264	1.30	.3037
.106	3.347	2.45	.2394
.141	4.398	3.77	.2041
.176	5.416	5.22	.1815
.212	6.403	6.76	.1658
.247	7.357	8.35	.1542
.282	8.279	9.97	.1454
.317	9.169	11.59	.1384
.353	10.002	13.22	.1324
.388	10.747	14.72	.1278
.423	11.402	16.05	.1243
.458	11.968	17.19	.1218
.494	12.445	18.13	.1201
.529	12.833	18.87	.1190
.564	13.133	19.38	.1186
.599	13.343	19.68	.1186
.635	13.464	19.76	.1192
.594	13.309	19.63	.1186

ROUTE ID=2 HYD NO=ROUTED_P-2 INFLOW ID=1 DT=0.03333
PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA ROUTED_P-2

RUNOFF VOLUME = 2.24861 INCHES = .1460 ACRE-FEET
PEAK DISCHARGE RATE = .31 CFS AT 2.666 HOURS BASIN AREA = .0012 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-1
COMPUTE NM HYD ID=3 HYD=BASIN_B-1 DA=0.0040 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 14.213 CFS UNIT VOLUME= .9985 B= 526.28 P60 = 2.0100

AREA = .003600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = .97497 CFS UNIT VOLUME = .9858 B = 324.91 P60 = 2.0100
AREA = .000400 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-1

RUNOFF VOLUME = 2.27928 INCHES = .4862 ACRE-FEET
PEAK DISCHARGE RATE = 11.43 CFS AT 1.500 HOURS BASIN AREA = .0040 SQ. MI.

*S ADD BASIN P-2 AND BASIN B-1
ADD HYD ID=1 HYD NO=BASINS_P-2,B-1 ID I=2 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA BASINS_P-2,B-1

RUNOFF VOLUME = 2.27213 INCHES = .6322 ACRE-FEET
PEAK DISCHARGE RATE = 11.58 CFS AT 1.500 HOURS BASIN AREA = .0052 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-2
COMPUTE NM HYD ID=3 HYD=BASIN_B-2 DA=0.0112 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 39.796 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 2.0100
AREA = .010080 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 2.7299 CFS UNIT VOLUME = .9955 B = 324.91 P60 = 2.0100
AREA = .001120 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-2

RUNOFF VOLUME = 2.27927 INCHES = 1.3615 ACRE-FEET
PEAK DISCHARGE RATE = 31.96 CFS AT 1.500 HOURS BASIN AREA = .0112 SQ. MI.

*S ADD BASIN P-2, B-1 AND BASIN B-2 AT ANALYSIS POINT 2
ADD HYD ID=1 HYD NO=AP2 ID I=1 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA AP2

RUNOFF VOLUME = 2.27700 INCHES = 1.9937 ACRE-FEET

PEAK DISCHARGE RATE = 43.55 CFS AT 1.500 HOURS BASIN AREA = .0164 SQ. MI.

*ROUTE BASINS P-2, B-1 AND B-2 THROUGH BASIN B-3
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=1.00
CH SLP=0.01 FP SLP=0.01 N=0.017 DIST=40

DIST	ELEV
0	0.67
0	0
40	0
40	0.67

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	2.11	2.58	40.00
.11	4.21	8.19	40.00
.16	6.32	16.09	40.00
.21	8.42	25.96	40.00
.26	10.53	37.62	40.00
.32	12.63	50.93	40.00
.37	14.74	65.80	40.00
.42	16.84	82.13	40.00
.47	18.95	99.85	40.00
.53	21.05	118.92	40.00
.58	23.16	139.27	40.00
.63	25.26	160.87	40.00
.68	27.37	183.71	40.00
.74	29.47	207.86	40.00
.79	31.58	233.19	40.00
.84	33.68	259.68	40.00
.89	35.79	287.28	40.00
.95	37.89	316.00	40.00
1.00	40.00	345.80	40.00

COMPUTE TRAVEL TIME ID=2 REACH NO=1 NO VS=1 L=1600 SLP=0.01

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.053	2.105	2.58	.3624
.105	4.211	8.19	.2285
.158	6.316	16.09	.1745
.211	8.421	25.96	.1442
.263	10.526	37.62	.1244
.316	12.632	50.93	.1102
.368	14.737	65.80	.0995
.421	16.842	82.13	.0911
.474	18.947	99.85	.0843
.526	21.053	118.92	.0787
.579	23.158	139.27	.0739
.632	25.263	160.87	.0698
.684	27.368	183.71	.0662
.737	29.474	207.86	.0630
.789	31.579	233.19	.0602
.842	33.684	259.68	.0577
.895	35.789	287.28	.0554
.947	37.895	316.00	.0533
1.000	40.000	345.80	.0514

ROUTE ID=2 HYD NO=ROUTED_O-1,B-1,B-2 INFLOW ID=1 DT=0.03333

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA ROUTED_O-1,B-1,B-2

RUNOFF VOLUME = 2.26987 INCHES = 1.9874 ACRE-FEET
PEAK DISCHARGE RATE = 33.08 CFS AT 1.567 HOURS BASIN AREA = .0164 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN B-3
COMPUTE NM HYD ID=3 HYD=BASIN_B-3 DA=0.021 SQ MI
%A=15 %B=10 %C=0 %D=75
TP=0.1876 RAINFALL=-1

K = .102242HR TP = .187600HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 44.184 CFS UNIT VOLUME = .9995 B = 526.28 P60 = 2.0100
AREA = .015750 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .209594HR TP = .187600HR K/TP RATIO = 1.117237 SHAPE CONSTANT, N = 3.165979
UNIT PEAK = 8.2580 CFS UNIT VOLUME = .9982 B = 295.09 P60 = 2.0100
AREA = .005250 SQ MI IA = .59000 INCHES INF = 1.50200 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA BASIN_B-3

RUNOFF VOLUME = 1.98857 INCHES = 2.2272 ACRE-FEET
PEAK DISCHARGE RATE = 45.14 CFS AT 1.567 HOURS BASIN AREA = .0210 SQ. MI.

*S ADD BASIN BASIN B-3 AT ANALYSIS POINT 3
ADD HYD ID=1 HYD NO=AP3 ID I=2 ID II=3
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA AP3

RUNOFF VOLUME = 2.11199 INCHES = 4.2146 ACRE-FEET
PEAK DISCHARGE RATE = 78.22 CFS AT 1.567 HOURS BASIN AREA = .0374 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-3-1 (LOT 7 AND MIDTOWN ROAD)
COMPUTE NM HYD ID=12 HYD=P-3-1 DA=0.0021 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.4618 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 2.0100
AREA = .001890 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = .51186 CFS UNIT VOLUME = .9742 B = 324.91 P60 = 2.0100
AREA = .000210 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA P-3-1

RUNOFF VOLUME = 2.27930 INCHES = .2553 ACRE-FEET
PEAK DISCHARGE RATE = 6.01 CFS AT 1.500 HOURS BASIN AREA = .0021 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-3-2 (LOTS 8 AND 9 AND MIDTOWN)
COMPUTE NM HYD ID=13 HYD=P-3-2 DA=0.0046 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 16.345 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 2.0100
AREA = .004140 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132088HR TP = .133300HR K/TP RATIO = .990905 SHAPE CONSTANT, N = 3.563124
UNIT PEAK = 1.1212 CFS UNIT VOLUME = .9881 B = 324.91 P60 = 2.0100
AREA = .000460 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA P-3-2

RUNOFF VOLUME = 2.27928 INCHES = .5592 ACRE-FEET
PEAK DISCHARGE RATE = 13.14 CFS AT 1.500 HOURS BASIN AREA = .0046 SQ. MI.

*S ADD BASIN P-3-1 AND BASIN P-3-2
ADD HYD ID=12 HYD NO=P-3-1,P-3-2 ID I=12 ID II=13
PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA P-3-1,P-3-2

RUNOFF VOLUME = 2.27929 INCHES = .8145 ACRE-FEET
PEAK DISCHARGE RATE = 19.15 CFS AT 1.500 HOURS BASIN AREA = .0067 SQ. MI.

*S COMPUTE RUNOFF FROM ON-SITE BASIN P-4 (LOT 10)
COMPUTE NM HYD ID=13 HYD=P-4 DA=0.0084 SQ MI
%A=0 %B=5 %C=5 %D=90
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 29.847 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 2.0100
AREA = .007560 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .119767HR TP = .133300HR K/TP RATIO = .898476 SHAPE CONSTANT, N = 3.944947
UNIT PEAK = 2.2149 CFS UNIT VOLUME = .9946 B = 351.48 P60 = 2.0100
AREA = .000840 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=13 CODE=1

HYDROGRAPH FROM AREA P-4

RUNOFF VOLUME = 2.29512 INCHES = 1.0282 ACRE-FEET
PEAK DISCHARGE RATE = 24.20 CFS AT 1.500 HOURS BASIN AREA = .0084 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN O-1-A
COMPUTE NM HYD ID=14 HYD=O-1 DA=0.0047 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 16.700 CFS UNIT VOLUME= .9987 B= 526.28 P60= 2.0100
AREA= .004230 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

K= .132088HR TP= .133300HR K/TP RATIO= .990905 SHAPE CONSTANT, N= 3.563124
UNIT PEAK= 1.1456 CFS UNIT VOLUME= .9881 B= 324.91 P60= 2.0100
AREA= .000470 SQ MI IA= .50000 INCHES INF= 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

PRINT HYD ID=14 CODE=1

HYDROGRAPH FROM AREA O-1

RUNOFF VOLUME = 2.27928 INCHES = .5713 ACRE-FEET
PEAK DISCHARGE RATE = 13.42 CFS AT 1.500 HOURS BASIN AREA = .0047 SQ. MI.

*S COMPUTE RUNOFF FROM OFF-SITE BASIN O-1-B
COMPUTE NM HYD ID=15 HYD=O-1 DA=0.01148 SQ MI
%A=0 %B=10 %C=0 %D=90
TP=0.1333 RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 40.791 CFS UNIT VOLUME= .9991 B= 526.28 P60= 2.0100
AREA= .010332 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

K= .132088HR TP= .133300HR K/TP RATIO= .990905 SHAPE CONSTANT, N= 3.563124
UNIT PEAK= 2.7982 CFS UNIT VOLUME= .9955 B= 324.91 P60= 2.0100
AREA= .001148 SQ MI IA= .50000 INCHES INF= 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033330

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA O-1

RUNOFF VOLUME = 2.27927 INCHES = 1.3955 ACRE-FEET
PEAK DISCHARGE RATE = 32.76 CFS AT 1.500 HOURS BASIN AREA = .0115 SQ. MI.

*S ADD BASIN P-3 AND BASIN P-4
ADD HYD ID=20 HYD NO=P-3,P-4 ID I=12 ID II=13
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA P-3,P-4

RUNOFF VOLUME = 2.28810 INCHES = 1.8427 ACRE-FEET
PEAK DISCHARGE RATE = 43.35 CFS AT 1.500 HOURS BASIN AREA = .0151 SQ. MI.

*S ADD BASIN O-1-A WITH BASINS P-3 AND P-4 AT ANALYSIS POINT 4
ADD HYD ID=20 HYD NO=AP4 ID I=20 ID II=14
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA AP4

RUNOFF VOLUME = 2.28600 INCHES = 2.4140 ACRE-FEET
PEAK DISCHARGE RATE = 56.77 CFS AT 1.500 HOURS BASIN AREA = .0198 SQ. MI.

*S ADD BASIN O-1-B WITH BASINS P-3 AND P-4 AT ANALYSIS POINT 4
ADD HYD ID=20 HYD NO=AP4 ID I=20 ID II=15
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA AP4

RUNOFF VOLUME = 2.28353 INCHES = 3.8095 ACRE-FEET
PEAK DISCHARGE RATE = 89.54 CFS AT 1.500 HOURS BASIN AREA = .0313 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 08:53:04

AAR-LARKIN

Project: Midtown
By: JAW
Date: 10-21-98

Calculation of Runoff for Basins I3, I4, I5, I6 (Section 22.2 Hydrology - DPM)

Basin	Acreage	%D	%B	D ($\frac{CFS}{AC}$)	B ($\frac{CFS}{AC}$)	Q_{100} (CFS)
I3	3.00	90	10	4.70	2.28	13.37
I4	1.50	0	100	4.70	2.28	3.42
I5	0.316	0	100	4.70	2.28	0.721
I6 (EXIS.)	1.57	20	80	4.70	2.28	4.34
I6 (INTERIM DEVELOPED)	1.57	25	75	4.70	2.28	4.71

Basin	Acreage	D (in)	B (in)	E (in.)	V_{360} (ac-ft)	V_{1440} (ac-ft)
I3	3.00	2.12	0.78	1.99	0.500	0.590
I4	1.50	2.12	0.78	0.78	0.098	0.098
I5	0.316	2.12	0.78	0.78	0.021	0.021
I6 (EXIS.)	1.57	2.12	0.78	1.04	0.136	0.146
I6 (INTERIM DEV.)	1.57	2.12	0.78	1.12	0.146	0.159

Q_{100} = 100-YEAR STORM FLOW
B, D = LAND TREATMENT TYPES
E = DEPTH
V_{360} = 100-Year - 6-hour STORM VOLUME
V_{1440} = 100-Year - 24-hour STORM VOLUME

APPENDIX D

Hydraulics

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Midtown Business Park Sheet 1 of
Job No. 783
By JAW Chk'd ✓ Date 02-19-98

CONTROLLED RELEASE FROM PONDS

WEIR EQUATION: $Q = L C H^{1.5}$
$C = 3.087$
L = Width, of channel
H = Head

$H = 0.67'$
$L = 1'$
$Q = (1')(3.087)(0.67)^{1.5} = 1.69$ CFS (1' wide channel)

$H = 0.67'$
$L = 1.75'$
$Q = (1.75)(3.087)(0.67)^{1.5} = \underline{2.96}$ CFS (21" wide channel) (21" SW CULVERT)

$H = 0.67'$
$L = 8.25'$
$Q = (8.25)(3.087)(0.67)^{1.5} = \underline{13.96}$ CFS (8.25' wide channel)

Use 21" SW culverts for Basins P1-L1, P1-L2. (Lots 1 and 2)
Use 21" channel for Basin P1-L6. (Lot 6)
Use 8.25' wide channel for Basin P1-L3. (Lot 3)
Values of 2.96 cfs and 13.96 cfs are used in AHYMO for a pond depth of 0.67'.

$Q = \frac{1.49}{n} R^{2/3} S^{1/2} A$

$R = \frac{bd}{b+2d} = \frac{1.75'(0.67)}{1.75+2(0.67)} = 0.38$

$Q = \frac{1.49}{0.013}(0.38)^{0.67}(0.01)^{0.5}(1.17)$

$= 7.03$ CFS $>$ 2.96 cfs ✓ (21" SW culvert/channel)
2.96 cfs is maximum capacity. (AP 9, 10, and 11) Flow.

$Q = \frac{1.49}{n} R^{2/3} S^{1/2} A$

$R = \frac{bd}{b+2d} = \frac{8.25(0.67)}{8.25+2(0.67)} = 0.58$

$Q = \frac{1.49}{0.013}(0.58)^{0.67}(0.01)^{0.5}(5.53)$

$= 44.00$ CFS $>$ 13.96 CFS (8.25' channel)
13.96 cfs is maximum capacity. (AP 12 Flow.

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Midtown Business Park Sheet 2 of
Job No. 783
By JAW Chk'd Date 10-21-98

CAPACITY OF 10' CHANNEL AT BEND

ANALYSIS POINT 5

Q_{100} @ Analysis Point 6 = 10.41 cfs = Runoff from Lots 1, 2, 6 & Midtown Road

$V = 1.49/n \, R^{2/3} S^{1/2} A$

Channel width = 10'
Depth = 0.67'
S = 0.48%

V = 3.44 fps
F = 1.10 (supercritical flow)
Depth of Flow = 0.30'

$s = \frac{v^2 b}{2gr}$ = superelevation for supercritical flow

$s = \frac{(3.44)^2(10')}{2g(10')} = \underline{\underline{0.18'}}$ superelevation depth

$0.30' + 0.18' = \underline{\underline{0.48'}} < \underline{\underline{0.67'}}$ channel height

OK

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Midtown Business Park Sheet 3 of ____
Job No. 783
By JW Chk'd ✓ Date April 15, 1998

PROPOSED 10' CHANNEL

CAPACITY (Midtown Place to Desert Surf Circle)

Analysis Point 1

Proposed Section

$Q = {}^{1.49}/_{n} R^{2/3} S^{1/2} A$

$R = {}^{A}/_{P} = \frac{bd}{b+2d} = {}^{6.70}/_{11.34} = 0.591'$

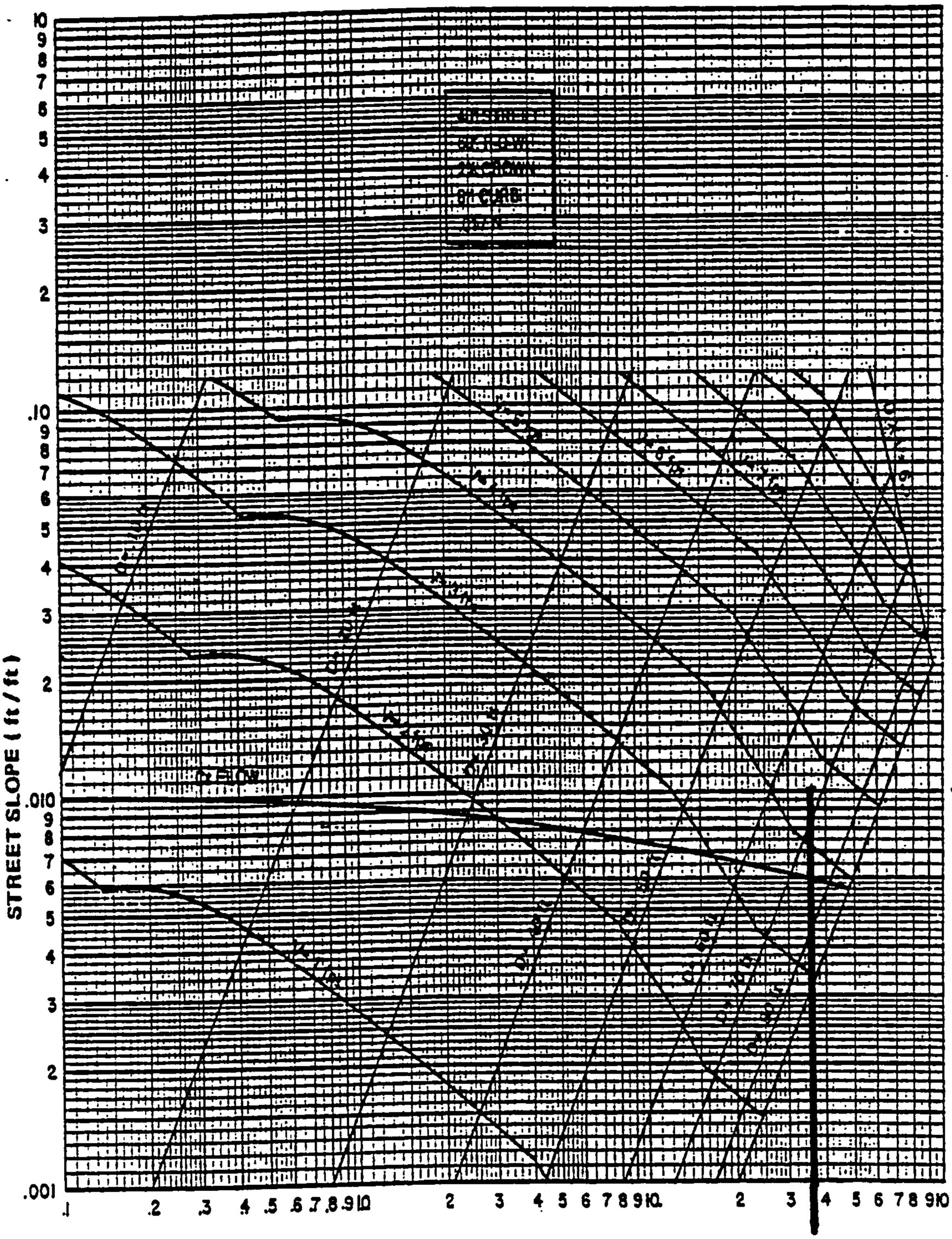
$Q = {}^{1.49}/_{0.013} (0.591)^{0.67} (0.003)^{0.5} (6.70)$

$= \underline{29.57 \text{ CFS}} >$ 17.10 CFS (On-site runoff allowed)
+ 2.75 CFS (Off-site - Basin O-2)

19.85 CFS ✓

OK CAPACITY

STREET CAPACITY
(ANALYSIS POINT 3)
MONTBEL LOOP



-0.67' Depth

36 CFS

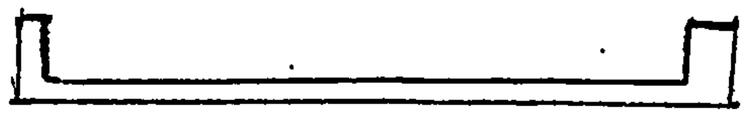
PLATE 22.3 D-3

36 CFS * 2 = 72 CFS Total Street Flow Capacity

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Midtown Business Park Sheet 5 of
Job No. 783
By JAW Chk'd ✓ Date 10-21-98

PROPOSED 7' CURB OPENING (AP6)



Manning: $Q = 1.49/n \, R^{2/3} S^{1/2} A$

$R = A/p = bd/b+2d = \frac{7'(0.67')}{7'+(0.67')2} = 0.562$

$Q = 1.49/0.013 (0.562)^{2/3} (0.005)^{0.50} (7')(0.67')$

$= \underline{\underline{25.84 \text{ cfs}}} > 9.38 \text{ cfs}$ from Basin P-3-2

Weir Equation: $CLH^{1.5} = Q$

$C = 2.6$
$L = 7'$
$H = 0.67'$

$\underline{\underline{9.98 \text{ CFS}}} = Q > 9.38 \text{ CFS}$ ✓

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

DROP INLET CAPACITY (ANALYSIS PTS 7+8)

AP7

* $Q = 3.0 \, L \, D^{1.5}$

$Q = 3.42$ cfs @ AP7

Q_{100} @ AP7 $= 3.42$ cfs $= 3.0(7.65 \text{ ft})(D)^{1.5}$

L = 7.65' perimeter for single "D" w/ 15% clog

$0.149 = D^{1.5}$

$D = 0.28'$ min depth @ AP7 with 1-"D" Inlet

AP8

$Q = 3.0 \, L \, D^{1.5}$

$Q = 4.71$ CFS @ AP8

Q_{100} @ AP8 $= 4.71$ CFS $= 3.0(13.6 \text{ ft})(D)^{1.5}$

L = 13.6' perimeter for double "D" w/ 15% clog

$0.115 = D^{1.5}$

$D = 0.235'$ min. depth @ AP8 with 1 Double "D" Inlet

* Equation from Page 120 of Modern Sewer Design From American Iron and Steel Institute

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Midtown Business Park Sheet 7 of
Job No. 783
By JAW Chk'd Date 10-21-98

FRONTAGE ROAD STORM DRAIN
(STORM DRAIN CARRYING OFF-SITE FLOWS)

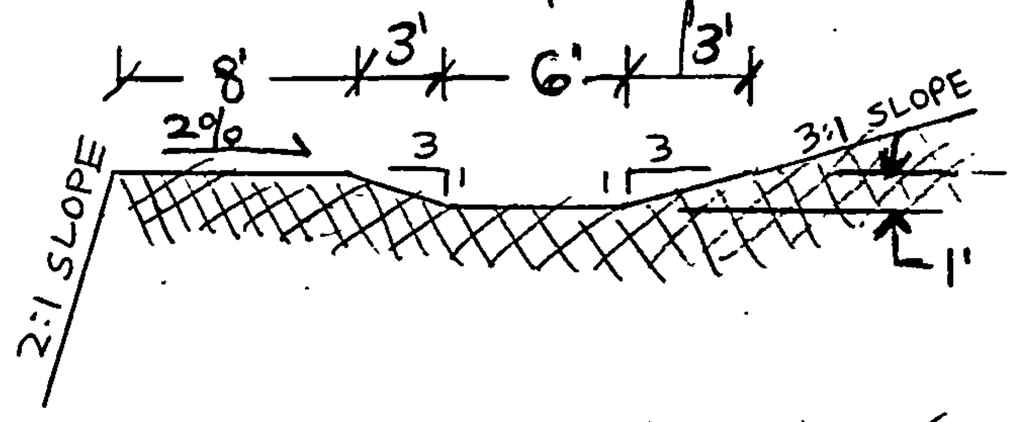
$Q = 1.49/n \, R^{2/3} S^{1/2} A$

$n = 0.013$

Storm Drain Depth Calculations:

Pipe Size	Q	Slope	Velocity	Depth	Basin Area
24"	21.50	3.78%	13.92	0.99'	I3, I4, I6
24"	21.50	2.20%	11.33	1.16'	I3, I4, I6
24"	16.79	0.70%	6.81	1.47'	I3, I4
18"	4.71	1.70%	7.03	0.61'	I6
24"	16.79	1.17%	9.69	1.08'	I3, I4

New Dike Capacity Calculation



Trapezoidal Channel (Collects runoff from I-4, I-5, I-6)

D = 1.0'
n = 0.025
S = 0.005
Bottom Width = 6'
Side Slopes = 3:1

$Q = 1.49/n \, R^{2/3} S^{1/2} A$

Q = 30.68 CFS CAPACITY ✓

30.68 CFS > 8.851 CFS (Combined 100-year flow from I-4, I-5, I-6)

Drainage Basin P-1 = 12.71 Acres

★ Runoff Allowed = 12.71 Acres × $\frac{2.2''}{12^{in}/ft}$ (.40) = 0.932 Ac-ft
(0.805 ac-ft/ac)

Runoff from Table 4 = 2.4562 Ac-ft

Volume of ponding required = 2.4562 − 0.932 = 1.5242 Ac-ft

Distribute ponding to Lots 1, 2, 3, 6

Total Acreage = 11.58 Acres

Ponding required per acre = $\frac{1.5242 \text{ Ac-ft}}{11.58 \text{ Ac}}$ = 0.132 ac-ft/ac.

Ponding required per Lot:

Lot	Basin	Acreage	(Acreage * 0.132 ac-ft/ac) (Ponding Volume)	(Acreage * 0.805 ac-ft/ac) (Allowable Runoff)
1	L1	1.39 Ac	0.183	0.112
2	L2	1.46 Ac	0.193	0.118
3	L3	7.27 Ac	0.960	0.585
6	L6	1.46 Ac	0.193	0.118

★ 2.2" = Maximum depth of runoff per Acre.
0.40 = "C" Value (runoff coefficient)

Values of 2.2" and "C" value of 0.40 were obtained from the Master Plan of Drainage for this area.

Drainage Basin P-2 = 3.20 Acres

★ Runoff Allowed = 3.20 Acres * $\frac{2.2''}{12 \text{ In/Ft}}$ (0.40) = 0.2347 Ac-Ft
(0.073 ac-Ft/ac)

Runoff from Table 4 = 0.6078 Ac-ft

Volume of ponding required = 0.2347 − 0.6078 = 0.3731 Ac-ft

Distribute ponding to Lots 4, 5

Ponding required per acre = $\frac{0.3731 \text{ Ac-ft}}{3.20 \text{ Ac}} = 0.117 \frac{\text{ac-ft}}{\text{ac}}$

Ponding required per Lot:

Lot	Acreage	(Acreage × 0.117 $\frac{\text{ac-ft}}{\text{ac}}$) Ponding Volume	(Acreage × 0.073 $\frac{\text{ac-ft}}{\text{ac}}$) Allowable runoff
4	1.478	0.173	0.108
5	1.402	0.164	0.102
7	0.32	0.037	0.023

★ 2.2" = Max depth of runoff per Acre
0.40 = "C" Value (runoff coefficient)

Value of 2.2" and "C" value of 0.40 were obtained from the Master Plan of Drainage for this area.

APPENDIX E

Hydrology Pre-design Conference Minutes

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: G16 DATE: 10-2-97

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: Midtown Business Park

STREET ADDRESS (IF KNOWN): _____

SUBDIVISION NAME: Tract 3A, Midtown Business Park

APPROVAL REQUESTED:

✓	PRELIMINARY PLAT	✓	FINAL PLAT
_____	SITE DEVELOPMENT PLAN	_____	BUILDING PERMIT
_____	OTHER	_____	ROUGH GRADING

_____

	WHO	REPRESENTING
ATTENDANCE:	John Andrews	AAR
	Jeanne Wolfenbarger	AAR
	Fred J. Aguirre	City

FINDINGS:

An approved drainage report is required for preliminary plat approval.

- Basin draining to the future SAD 216. (~~across and into future Tract 3A~~) The drainage concept in the interim (before SAD is constructed): is to enlarge ~~the~~ existing pond or create a new pond. A blanket temporary public drainage easement with an agreement and covenant must be granted with this concept. Concept (permanent): Identify the permanent system to drain basin to the future SAD. and financially guarantee these improvements (may ~~be~~ not be required if design is premature)
- Basin draining to the existing pond along Montano Verify carrying capacity of the streets draining to the Montano Pond. Identify the allowable discharge from each tract. subdivided

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Fred J Aguirre	SIGNED:	John Andrews
TITLE:	_____	TITLE:	_____
DATE:	10-2-97	DATE:	_____

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

CITY OF ALBUQUERQUE

2004215

March 10, 2005

J. Graeme Means, PE
Jeff Mortensen & Associates, Inc
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

Midtown Place

4370 and 4380 Alexander Blvd NE

Re: Interstate Commerce Center Phase 2 Grading and Drainage Plan
Engineer's Stamp dated 12-~~30~~23-04 (G16/D95C)

Dear Mr. Means,

Based upon the information provided in your submittal dated 1-3-05, the above referenced plan is approved for Building Permit and SO#19 Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

Also, prior to Certificate of Occupancy release, Engineer Certification of the grading plan per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3990.

Sincerely,

Phillip J. Lovato

Phillip J. Lovato, E.I.
Associate Engineer, Planning Dept.
Development and Building Services

C: Chuck Caruso, DMD
Pam Lujan, Excavation and Barricading
Matt Cline, Storm Drain Maintenance
file

Tracts 5A1, 5A2

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

February 17, 2005

Ken Hovey, R.A.
3808 Simms Ave. SE
Albuquerque, NM 87108

Re: Interstate Commerce Center Phase II, 4370 and 4380 Alexander Blvd NE, Traffic Circulation Layout

Architect's Stamp dated 2-15-05 (G16-D95C)

Dear Mr. Hovey,

Based upon the information provided in your submittal received 2-15-05, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. List radii for all curves shown.
2. Provide the widths for the handicapped spaces. Please note that the handicapped spaces must be a minimum of 8.5 feet in width, and must include an 8-foot wide van access aisle; all other aisles should be 5 feet in width.
3. Please refer to all applicable city standards.
4. Show the heavy vehicle route. For heavy vehicles, the minimum end island radius is 25 feet.
5. Describe Alexander Blvd in this area. Are there medians? What is located across the street?

If you have any questions, you can contact me at 924-3991.

Sincerely,

Wilfred A. Gallegos, P.E.
Traffic Engineer, Planning Dept.
Development and Building Services

C: file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 31, 2000

John A. Andrews, P.E.
AAR - The Larkin Group
8500 Menaul Boulevard
Suite A-440
Albuquerque, NM 87112

RE: MIDTOWN BUSINESS PARK (G16-D95C). ENGINEER'S CERTIFICATION FOR FINAL PLAT APPROVAL. ENGINEER'S STAMP DATED MARCH 14, 2000.

Dear Mr. Andrews:

Based upon the information that had been provided on your November 14, 2000 submittal , the above referenced project is approved for Final Plat.

***N.B. The Certified G&D Plan is stamped January 18, 1999. Except for the orientation of the interim detention ponds, this is the same as the G&D Plan stamped November 4, 1998 and approved by Hydrology at that time. CADD procedures preclude producing the earlier dated plan with changes.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Whitney Reierson
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

CITY OF ALBUQUERQUE

July 3, 2008

Scott McGee, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street N.E.
Albuquerque, NM 87108

Re: Midtown Professional Office, 2300 Midtown Place NE,
Reject of Request for Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 8/14/07 (G-16/D095C)
Certification dated 6/25/08

Mr. McGee,

Based upon the information provided in your submittal received 6/26/08, the above referenced certification cannot be approved until the following comments are addressed:

1. A SO#19 inspection must be completed and approved prior to any approval. Please contact Duane Schmitz for approval of SO#19 at 235-8016.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims
Plan Checker, Hydrology
Development and Building Services

C: File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: Midtown Professional Office
ZONE MAP / DRG. FILE #: G-16 / D95C
DRB #: _____ EPC #: _____
WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1, Interstate Business Park, Albuquerque, NM
CITY ADDRESS: 2300 Midtown Place, NE

ENGINEERING FIRM: Isaacson & Arfman, P.A.
CONTACT: Scott M. McGee
ADDRESS: 128 Monroe St. NE
PHONE: 268-8828
CITY, STATE: Albuquerque, NM
ZIP CODE: 87108

OWNER: Mechenbier Construction
CONTACT: John Mechenbier
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

ARCHITECT: DPS Architects
CONTACT: Tom Dieterle
ADDRESS: _____
PHONE: _____
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

SURVEYOR: Wayjohn Surveying Inc.
CONTACT: Thomas D. Johnston - #14269
ADDRESS: _____
PHONE: _____
CITY, STATE: Albuquerque, New Mexico
ZIP CODE: _____

CONTRACTOR: _____
CONTACT: _____
ADDRESS: _____
PHONE: _____
CITY, STATE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1ST *REQUIRES TCL or equal*
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
X ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR / LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEER'S CERTIFICATION (TCL)
_____ ENGINEER'S CERTIFICATION (DRB APPR, SITE PLAN)
_____ OTHER (Supplemental Calculations)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA / FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG. PERMIT APPR.
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
X CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER

RECEIVED
JUN 26 2008
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

-W-
150-19 permit.
Mechinbeir

DATE SUBMITTED: Tuesday, August 21, 2007
BY: Scott M. McGee
Isaacson & Arfman, P.A.

Requests for approvals of Site Development Plans and / or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five acres
3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five acres or more.

CITY OF
Albuquerque

November 20, 1998

John A. Andrews, P.E.
AAR - The Larkin Group
8500 Menaul Boulevard
Suite A-440
Albuquerque, NM 87112

Attn: Jeanne Wolfenbarger, E.I.

RE: MIDTOWN BUSINESS PARK (G16-D95C). GRADING AND DRAINAGE PLAN FOR FINAL PLAT, ROUGH GRADING AND GRADING PERMIT APPROVALS. ENGINEER'S STAMP DATED NOVEMBER 4, 1998.

Dear Mr. Andrews:

Based upon the information that had been provided on your November 5, 1998 submittal , the above referenced project is approved for Final Plat and the Grading Permits.

The Agreement and Covenant for the Drainage Easement was received at the November 17, 1998 DRC meeting.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Andrew Garcia
File