



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 29, 1996

Stephen Crawford, PE
Crawford Dev. Services
PO Box 1573
Los Lunas, NM 87031

RE: GRADING & DRAINAGE PLAN FOR NORTH TOWNE PLAZA (E19/D15)
RECEIVED FEBRUARY 15, 1996 FOR GRADING/PAVING & S.O.19
ENGINEER'S STAMP DATED 1-30-96

Dear Mr. Crawford:

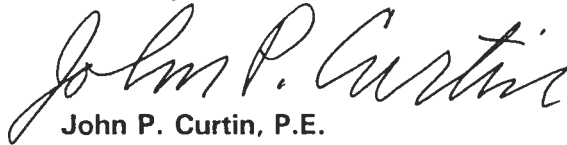
Based on the information included in the submittal referenced above and the supplemental calculations received February 29, 1996; City Hydrology approves a Grading/Paving permit & S.O.19 for this project.

A separate permit is required for construction of private drainage facilities within the City right of way. A copy of this letter must be on hand when applying for the excavation permit.

Engineer's Certification of grading & drainage per DPM checklist is required for this project. Include the revised 18" PVC Outlet detail and a copy of the "green tag" for the S.O.19 in the Engineer's Certification.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,



John P. Curtin, P.E.
Civil Engineer, Hydrology

c: Andrew Garcia
Arlene Portillo
Gary Wankum, Weingarten Realty, P.O. Box 924133, Houston TX 77292

L V 133

DRAINAGE COVENANT

This Drainage Covenant, between Weingarten Realty Investors ("Owner"), whose address is P.O. Box 9241334, Houston, TX 77292, and the City of Albuquerque, New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner signs this Covenant.

1. Recital. Owner is the owner of certain real property described as: Tract A-1 and A-4 North Towne Plaza V 95C, F 234, Albuquerque, NM in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain Drainage Facilities on the Property, and the parties wish to enter into this Agreement to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facilities. Owner shall construct the following "Drainage Facility" within the Property at Owner's sole expense in accordance with the standards, plans and specifications approved by the City pursuant to Drainage File No. E19/D15: Rundown channel, 42" CMP, Detention, and outlet pipe

The Drainage Facility is more particularly described in the attached Exhibit A. The Owner will not permit the Drainage Facility to constitute a hazard to the health or safety of the general public.

3. Maintenance of Drainage Facility. The Owner will maintain the Drainage Facility at Owner's cost in accordance with the approved Drainage Report and plans.

4. City's Right of Entry. The City has the right to enter upon the Property at any time and perform whatever inspection, maintenance or repair of the Drainage Facility it deems appropriate, without liability to the Owner.

5. Demand for Construction or Repair. The City may send written notice ("Notice") to the Owner requiring the Owner to construct or repair the Drainage Facility within 30 days ("Deadline") of receipt of the Notice, as provided in Section 11, and the Owner will comply promptly with the requirements of the Notice. The Owner will perform all required work by the Deadline, at Owner's sole expense.

6. Failure to Perform by Owner and Emergency Work by City. If the Owner fails to comply with the terms of the Notice by the Deadline, or if the City determines that an emergency condition exists, the City may perform the work itself. The City may assess the Owner for the cost of the work and for any other expenses or damages which result from Owner's failure to perform. The Owner agrees promptly to pay the City the amount assessed. If the Owner fails to pay the City within thirty (30) days after the City gives the Owner written notice of the amount due, the City may impose a lien against Owner's Property for the total resulting amount.

(Approved by Legal Dept.
as to form only 06/90)

FEB 15 1996

7. Liability of City for Repair after Notice or as a Result of Emergency. The City shall not be liable to the Owner for any damages resulting from the City's repair or maintenance following notice to the Owner as required in this agreement or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City.

8. Indemnification. Owner agrees to indemnify and save the City, its officials, agents and employees harmless from all claims, actions, suits and proceedings arising out of or resulting from the Owner's negligent maintenance, construction, repair or use of the Drainage Facility. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Cancellation of Agreement and Release of Covenant. This Agreement may be released if the Drainage Facility is no longer required for the protection of the public health, safety and welfare by the City filing a "Notice of Release" with the Bernalillo County Clerk. The Notice of Release must be signed by the City's Chief Administrative Officer, or his designee, and the approval of the City Hydrologist must be endorsed thereon.

10. Assessment. Nothing in this agreement shall be construed to relieve the Owner, his heirs, assigns, and successors from an assessment against Owner's Property for improvements to the property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

11. Notice. For purposes of given formal written notice to the Owner, Owner's address is:

P.O. Box 924133
Houston, Texas 77292

Notice may be given to the Owner either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the Owner within three days after the notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by given written notice of the change by Certified Mail, return receipt requested, to the City Public Works Department, P.O. Box 1293, Albuquerque, New Mexico, 87103.

12. Term. This Agreement shall continue until terminated by the City pursuant to Section 9 above.

13. Binding on Owner's Property. The covenants and obligations of the Owner said forth herein shall be binding on Owner, its heirs, personal representatives, assigns and successors and on Owner's Property and shall constitute covenants running the Owner's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supercedes any and all other agreements or understanding, oral or written, whether previous to the execution hereof or contemporaneous herewith regarding this subject matter.

15. Changes to Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

17. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

OWNER: Weingarten Realty Investors

By: [Signature]

Its: Executive Vice President

Dated: _____

STATE OF Texas)

) ss

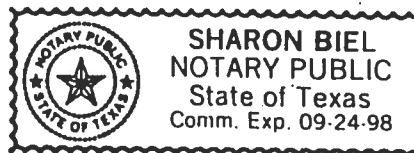
COUNTY OF Harris)

This
~~The foregoing~~ instrument was acknowledged before me on 31st day
of January, 1996, [by name of person:] Bill Robertson, Jr.,
[title or capacity, for instance "president" or "owner":] Executive Vice President
of [Subdivider:] Weingarten Realty Investors.

[Signature]
Notary Public

My Commission Expires:

9-24-98



CITY OF ALBUQUERQUE:

Approved:

By: _____
Title: _____
Dated: _____

(EXHIBIT A ATTACHED)

(Approved by Legal Dept.
as to form only 06/90)

Velocity in 18" PVC

$$Q = 7.28 \text{ in TEN YEAR FLOW}$$

PER KING'S HANDBOOK TAB. 7-14

$$Q = K' / N \cdot d^{8/3} S^{1/2}$$

$$7.28 = \frac{K'}{.01} \cdot 1.5^{8/3} \cdot .01^{1/2}$$

$$K' = .247$$

INTO TABLE TO SOLVE FOR D/d

$$D/d = .52$$

$$\text{Depth} = 1.5 \times 0.52 = \underline{0.78'}$$

PER KING'S HAND BOOK TAB 7-4

$$A = C_A d^2$$

USE D/d IN TABLE SOLVE FOR C_A

$$C_A = .413$$

$$A = .413 \cdot 1.5^2$$

$$A = .929$$

$$V = Q/A = 7.28 / .929 = \underline{7.83 \text{ F/S}}$$

2-28-96

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = tendev.dat

RUN DATE (MON/DAY/YR) =02/15/1996
USER NO.= DAGGETTK.S94

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S	NORTHTOWNE SHOPPING CENTER 227-02-030										
*S	PROPOSED DETENTION POND BEHIND PAD SITES										
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.070
*S	COMPUTE HYDROGRAPH BASIN B-1										
COMPUTE NM HYD	101.00	-	1	.00659	14.06	.624	1.77617	1.499	3.335 PER IMP=	100.00	
*S	COMPUTE HYDROGRAPH BASIN B-2										
COMPUTE NM HYD	102.00	-	2	.00213	4.23	.184	1.61990	1.499	3.100 PER IMP=	89.00	
*S	COMPUTE HYDROGRAPH BASIN B-3										
COMPUTE NM HYD	103.00	-	3	.01696	35.24	1.555	1.71933	1.499	3.247 PER IMP=	96.00	
*S	COMPUTE HYDROGRAPH BASIN B-4										
COMPUTE NM HYD	104.00	-	4	.00025	.54	.024	1.77631	1.499	3.371 PER IMP=	100.00	
*S	COMPUTE HYDROGRAPH BASIN B-5										
COMPUTE NM HYD	105.00	-	5	.00103	2.06	.090	1.63413	1.499	3.131 PER IMP=	90.00	
*S	COMPUTE HYDROGRAPH BASIN B-6a										
COMPUTE NM HYD	106.10	-	6	.00047	.62	.017	.66339	1.499	2.070 PER IMP=	5.00	
*S	COMPUTE HYDROGRAPH BASIN B-6b										
COMPUTE NM HYD	106.20	-	7	.00174	3.48	.152	1.63411	1.499	3.124 PER IMP=	90.00	
*S	ADD HYDROGRAPHS 101.00 & 103.00 (BASINS B-1 & B-3)										
ADD HYD	107.13	1&	3 8	.02355	49.30	2.179	1.73524	1.499	3.271		
*S	ADD HYDROGRAPHS 107.13 & 105.00 (BASINS B-1,B-3 & B-5)										
ADD HYD	108.23	5&	8 9	.02458	51.37	2.269	1.73100	1.499	3.265		
*S	ADD HYDROGRAPHS 108.23 & 106.10 (B-1,B-3,B-5 & B-6a)										
ADD HYD	109.16	6&	9 10	.02505	51.99	2.285	1.71063	1.499	3.243		
*S	ROUTE HYDROGRAPH 109.16 THROUGH POND										
ROUTE RESERVOIR	110.00	10	11	.02505	7.29	2.248	1.68239	2.131	.454 AC-FT=	1.334	
FINISH											

Q₁₀

2' Sidewalk Culvert

2-28-96

$$D = 6 \frac{1}{2}''$$

DEPTH--GUESS (FT): 0.53
DEPTH--GIVEN (FT): 0.53

FLOW RATE--CALCULATED (CFS): 0.00
FLOW RATE--GIVEN (CFS): 7.34 $Q > 7.29 \text{ cfs}$

MANNING'S "n" VALUE: 0.015

BED SLOPE (FT/FT): 0.0200
BOTTOM WIDTH (FT): 2.00
SIDESLOPE #1 (HORZ:VERT): 0.00
SIDESLOPE #2 (HORZ:VERT): 0.00
CROWN--NEG. FOR INVERTED (FT): 0.00

OUTPUT

CROSS SECT. AREA (SF): 1.06
TOP WIDTH (FT): 2.00
WETTED PERIMETER (FT): 3.06
HYDRAULIC RADIUS (FT): 0.35
VELOCITY (FPS): 6.93
FROUDE NUMBER: 1.68

SIDE WALK CULVERT

DEPTH--GUESS (FT): 0.67 0.67
DEPTH--GIVEN (FT):

FLOW RATE--CALCULATED (CFS): 7.06 7.06
FLOW RATE--GIVEN (CFS):

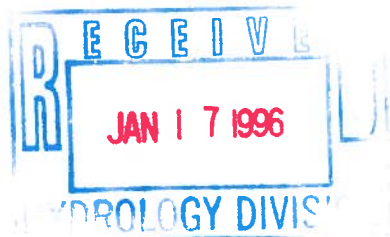
MANNING'S "n" VALUE: 0.015

BED SLOPE (FT/FT): 0.0200
BOTTOM WIDTH (FT): 1.50
SIDESLOPE #1 (HORZ:VERT): 0.00
SIDESLOPE #2 (HORZ:VERT): 0.00
CROWN--NEG. FOR INVERTED (FT): 0.00

OUTPUT

CROSS SECT. AREA (SF): 1.01
TOP WIDTH (FT): 1.50
WETTED PERIMETER (FT): 2.84
HYDRAULIC RADIUS (FT): 0.35
VELOCITY (FPS): 7.03
FROUDE NUMBER: 1.51

Use 24"



TRAPEZOIDAL CHANNEL ANALYSIS
RATING CURVE COMPUTATION

January 29, 1996
North Towne Plaza
24" Sidewalk Culvert

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PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Channel Bottom Slope (feet per foot).....	0.0200
Manning's Roughness Coefficient (n-value).....	0.0150
Channel Side Slope - Left Side (horizontal/vertical)....	0.00
Channel Side Slope - Right Side (horizontal/vertical)...	0.00
Channel Bottom Width (feet).....	2.0

=====

PROGRAM RESULTS:

Depth (ft)	Flow Rate (cfs)	Velocity (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sq ft)	Top Width (ft)
0.05	0.2	1.84	1.451	0.053	0.103	0.1	2.0
0.1	0.6	2.83	1.579	0.125	0.225	0.2	2.0
0.15	1.1	3.60	1.640	0.202	0.352	0.3	2.0
0.2	1.7	4.24	1.672	0.280	0.480	0.4	2.0
0.3	2.4	4.79	1.689	0.356	0.606	0.5	2.0
0.3	3.2	5.27	1.696	0.431	0.731	0.6	2.0
0.35	4.0	5.70	1.697	0.504	0.854	0.7	2.0
0.4	4.9	6.08	1.693	0.574	0.974	0.8	2.0
0.45	5.8	6.42	1.687	0.640	1.090	0.9	2.0
0.5	6.7	6.74	1.679	0.704	1.204	1.0	2.0
0.55	7.7	7.02	1.669	0.766	1.316	1.1	2.0

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TRAPEZOIDAL CHANNEL ANALYSIS COMPUTER PROGRAM, Version 1.3 (c) 1986
Dodson & Associates, Inc., 5629 FM 1960 W., #314, Houston, TX 77069
(713) 440-3787. A manual with equations & flow chart is available.

TRAPEZOIDAL CHANNEL ANALYSIS
RATING CURVE COMPUTATION

January 29, 1996
North Towne Plaza
Sidewalk Culvert
18" Width

=====

PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Channel Bottom Slope (feet per foot).....	0.0200
Manning's Roughness Coefficient (n-value).....	0.0150
Channel Side Slope - Left Side (horizontal/vertical)....	0.00
Channel Side Slope - Right Side (horizontal/vertical)...	0.00
Channel Bottom Width (feet).....	1.5

=====

PROGRAM RESULTS:

Depth (ft)	Flow Rate (cfs)	Velocity (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sq ft)	Top Width (ft)
0.05	0.1	1.82	1.435	0.052	0.102	0.1	1.5
0.1	0.4	2.78	1.547	0.120	0.220	0.1	1.5
0.15	0.8	3.50	1.594	0.190	0.340	0.2	1.5
0.2	1.2	4.09	1.613	0.260	0.460	0.3	1.5
0.3	1.7	4.59	1.618	0.327	0.577	0.4	1.5
0.3	2.3	5.02	1.614	0.391	0.691	0.4	1.5
0.35	2.8	5.39	1.606	0.451	0.801	0.5	1.5
0.4	3.4	5.72	1.594	0.508	0.908	0.6	1.5
0.45	4.1	6.01	1.580	0.562	1.012	0.7	1.5
0.5	4.7	6.28	1.565	0.612	1.112	0.8	1.5
0.55	5.4	6.52	1.549	0.660	1.210	0.8	1.5

=====

TRAPEZOIDAL CHANNEL ANALYSIS COMPUTER PROGRAM, Version 1.3 (c) 1986
Dodson & Associates, Inc., 5629 FM 1960 W., #314, Houston, TX 77069
(713) 440-3787. A manual with equations & flow chart is available.

CIRCULAR CHANNEL ANALYSIS
RATING CURVE COMPUTATION

January 29, 1996
North Towne Plaza
Pond Outlet Line
Upper Reach

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PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Channel Bottom Slope (feet per foot).....	0.0040
Manning's Roughness Coefficient (n-value).....	0.0100
Channel Diameter (feet).....	1.50

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PROGRAM RESULTS:

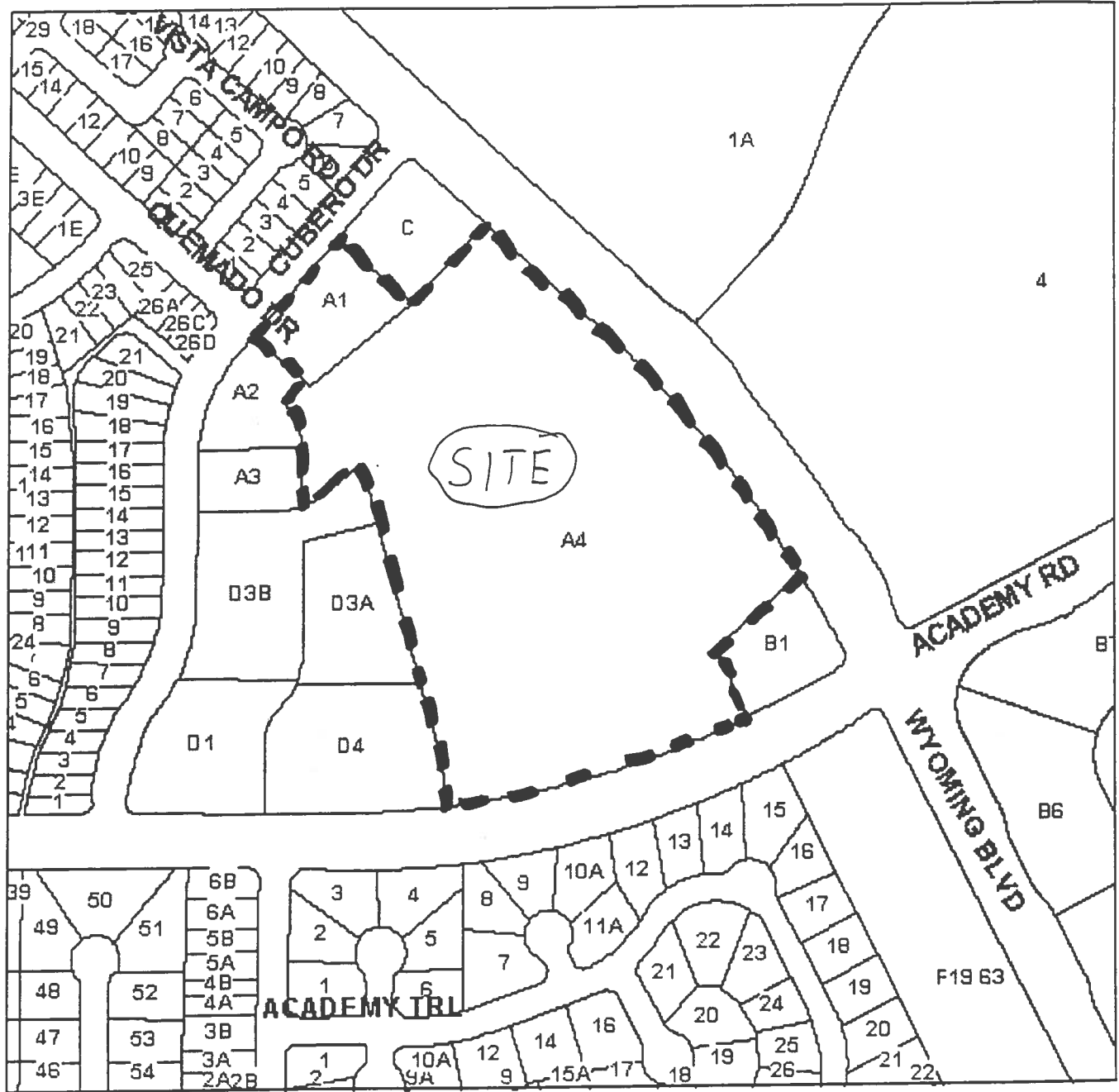
Depth (ft)	Flow Rate (cfs)	Velocity (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sq ft)	Top Width (ft)
0.1	0.1	1.51	1.025	0.036	0.136	0.05	0.75
0.2	0.3	2.35	1.117	0.086	0.286	0.14	1.02
0.3	0.8	3.01	1.157	0.140	0.440	0.25	1.20
0.4	1.3	3.55	1.172	0.196	0.596	0.38	1.33
0.5	2.1	4.02	1.172	0.250	0.750	0.52	1.41
0.6	2.9	4.41	1.159	0.302	0.902	0.66	1.47
0.7	3.8	4.74	1.137	0.349	1.049	0.81	1.50
0.8	4.8	5.02	1.105	0.391	1.191	0.96	1.50
0.9	5.8	5.24	1.064	0.427	1.327	1.11	1.47
1.0	6.8	5.41	1.013	0.454	1.454	1.25	1.41
1.1	7.7	5.52	0.951	0.473	1.573	1.39	1.33
1.2	8.4	5.57	0.873	0.482	1.682	1.52	1.20
1.3	9.0	5.54	0.774	0.477	1.777	1.63	1.02
1.4	9.3	5.41	0.630	0.455	1.855	1.72	0.75
1.5	8.7	4.90	0.102	0.373	1.873	1.77	0.02

=====

CIRCULAR CHANNEL ANALYSIS COMPUTER PROGRAM, Version 1.5 (c) 1986
Dodson & Associates, Inc., 5629 FM 1960 W., #314, Houston, TX 77069
(713) 440-3787. A complete program manual is available.

Activate By 'Clicking' on the Map

⌂ Zoom In ⌂ Id Address ⌂ Id ZM ⌂ Pan ⌂ Zoom Out



ReDraw Screen

1999 AIR PHOTO (Metro Area Coverage)

GRID E-19