

**DRAINAGE REPORT
FOR**

Carpenter's Training Center

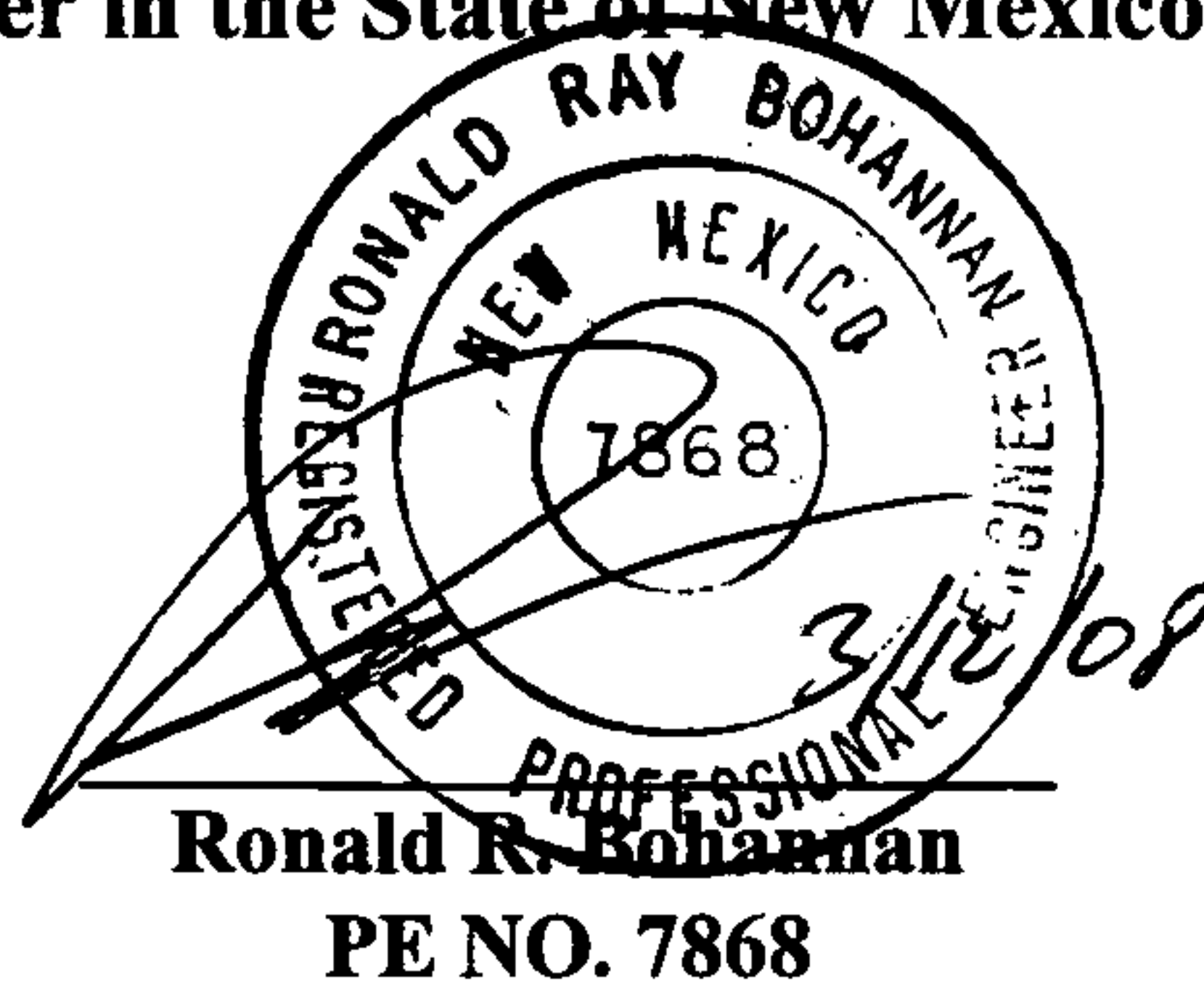
Prepared by:

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5571 Midway Park Place NE
Albuquerque, New Mexico 87109**

**Prepared for:
Randy Sowell
United Brotherhood of Carpenters and Joiners of America
Los Angeles, CA 90071**

March 2008

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Job No 27101

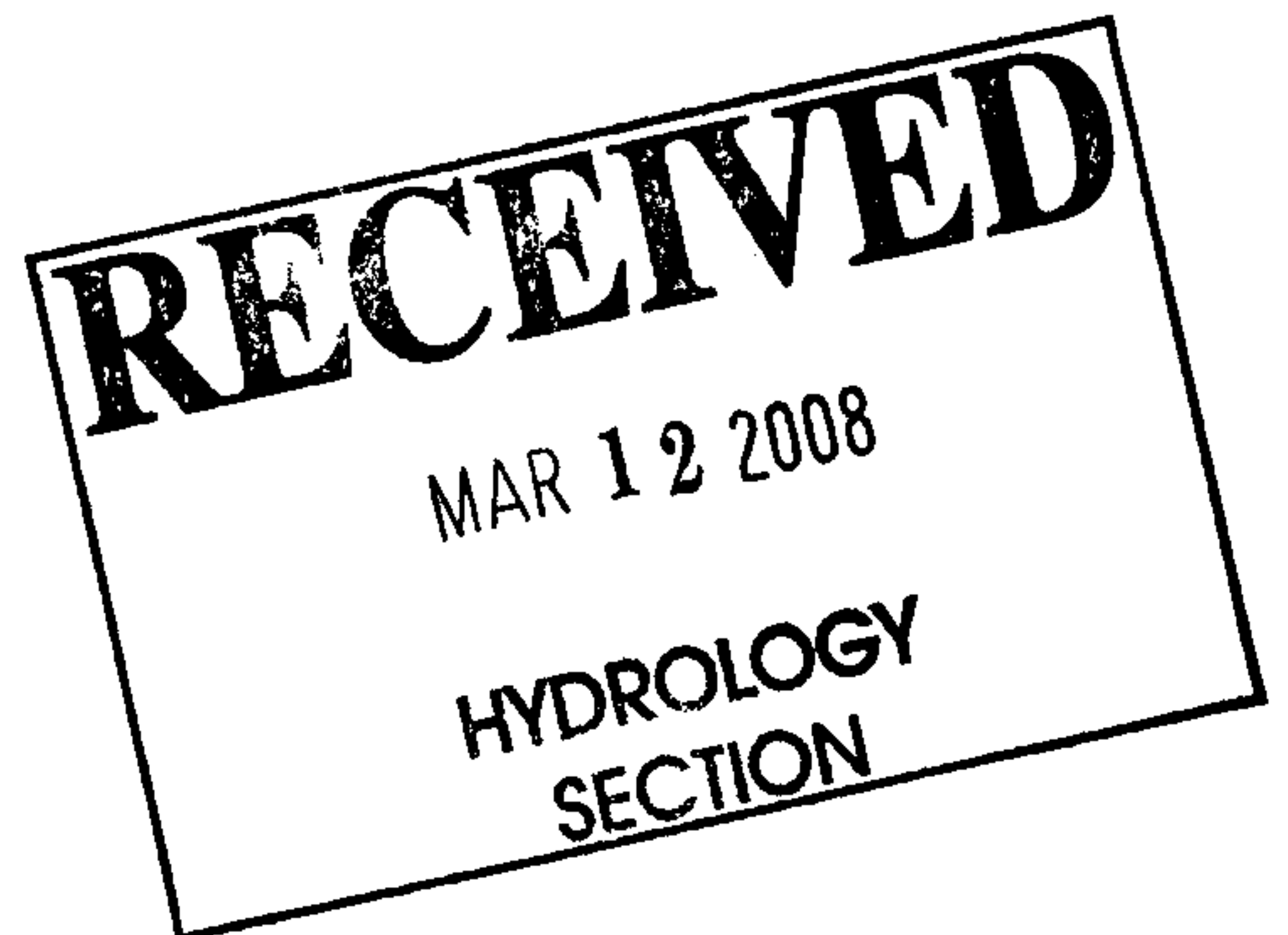


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MAP POCKET

Grading and Drainage Plan

APPENDIX A

Section of Final Design Report for the Amole Del Norte Storm Diversion Facilities, Tierra Bayita Drainage Facilities, Phase III March 1998

Section I

Report

Purpose

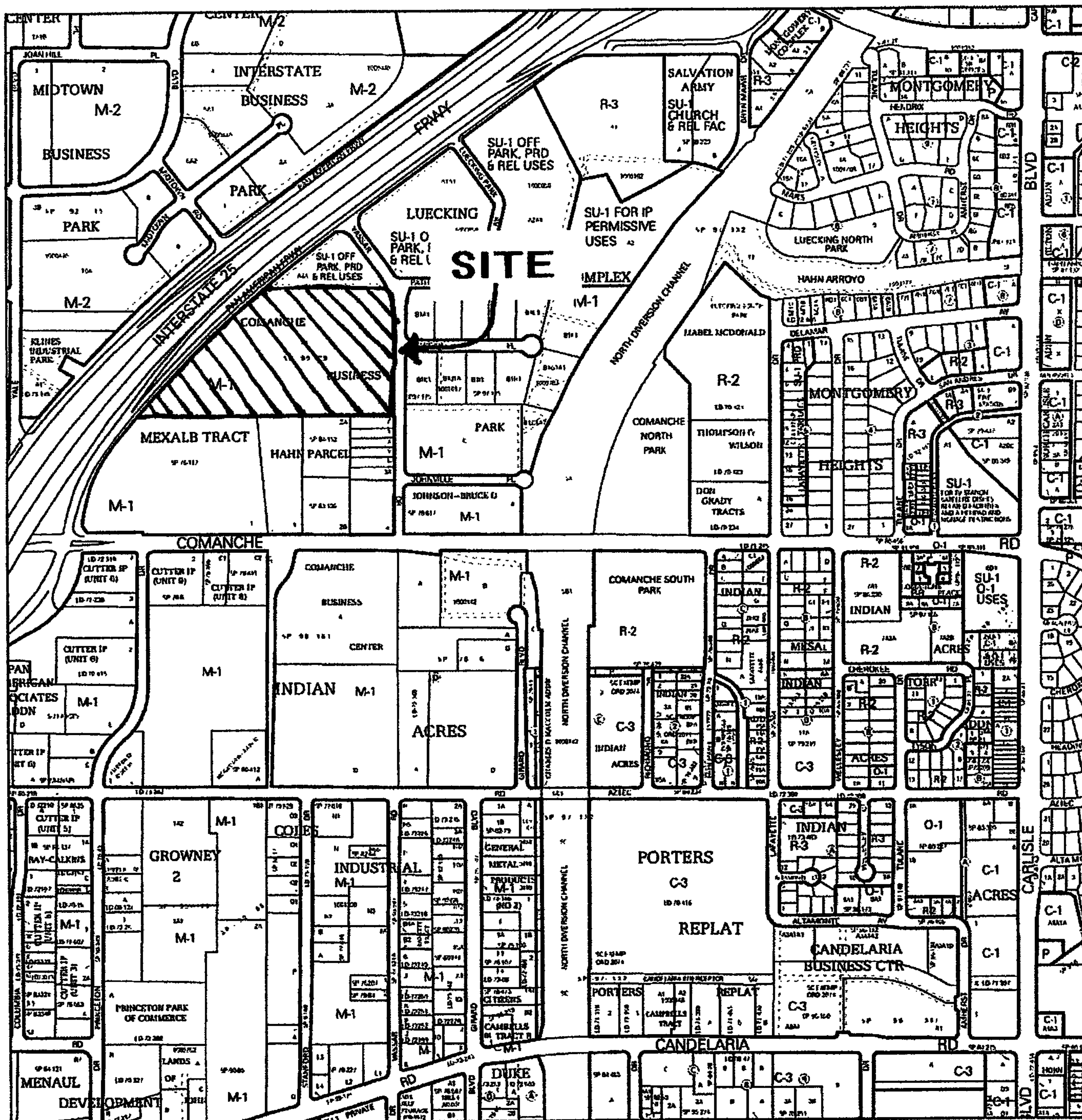
The purpose of this report is to provide the Master Drainage Management Plan for a 15.701± acre parcel of land entitled the Carpenters Training Center. The site will be built in phases. The first phase will consist of the Carpenters Training Center, the second phase will consist of two office buildings and a restaurant development.

Location

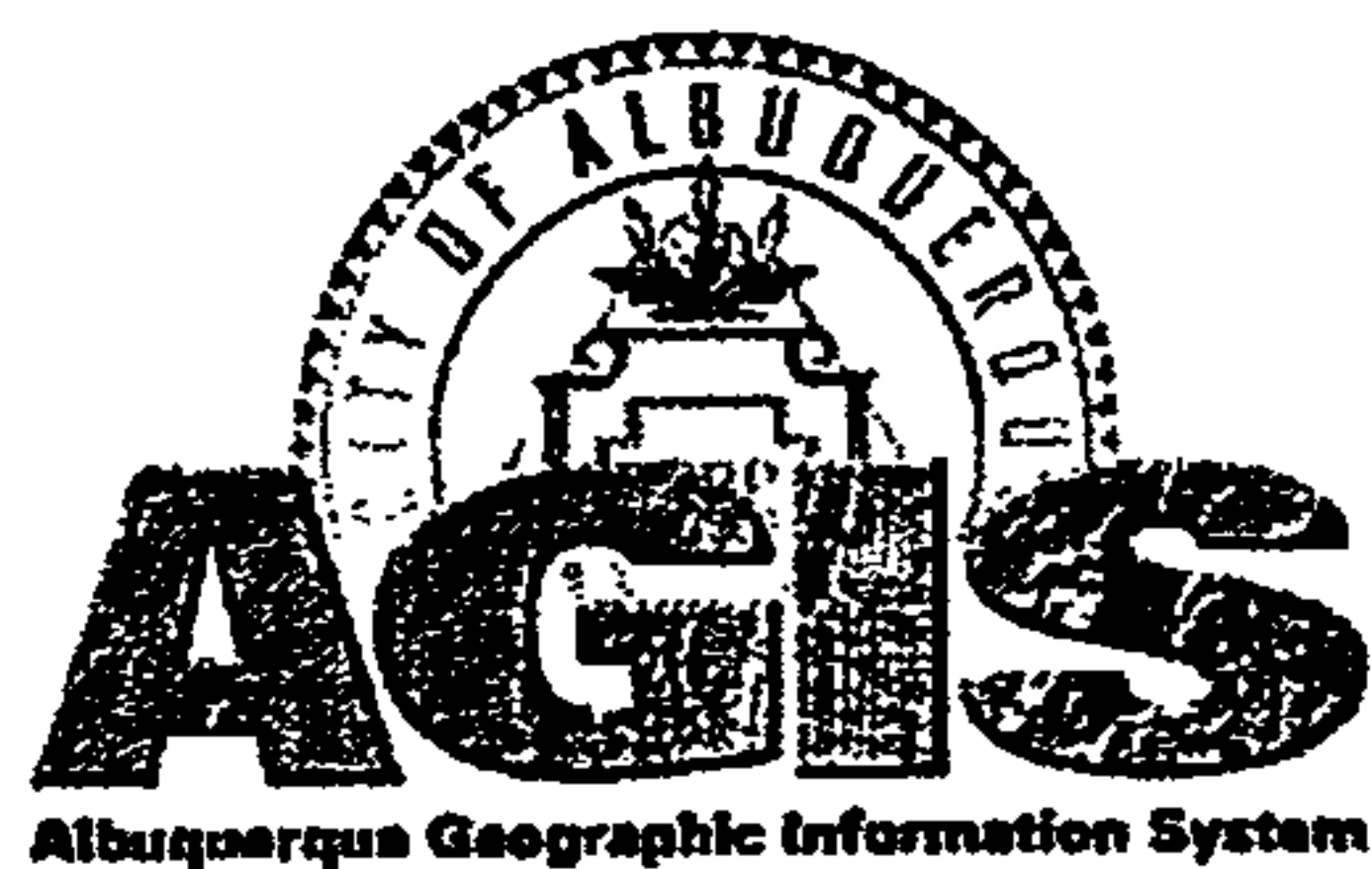
The site is located at 3900 Pan American on Pan American Freeway NE between Comanche Road and Vassar Drive. The site is shown on the enclosed Vicinity Map, G-16-Z.

Existing Drainage Conditions

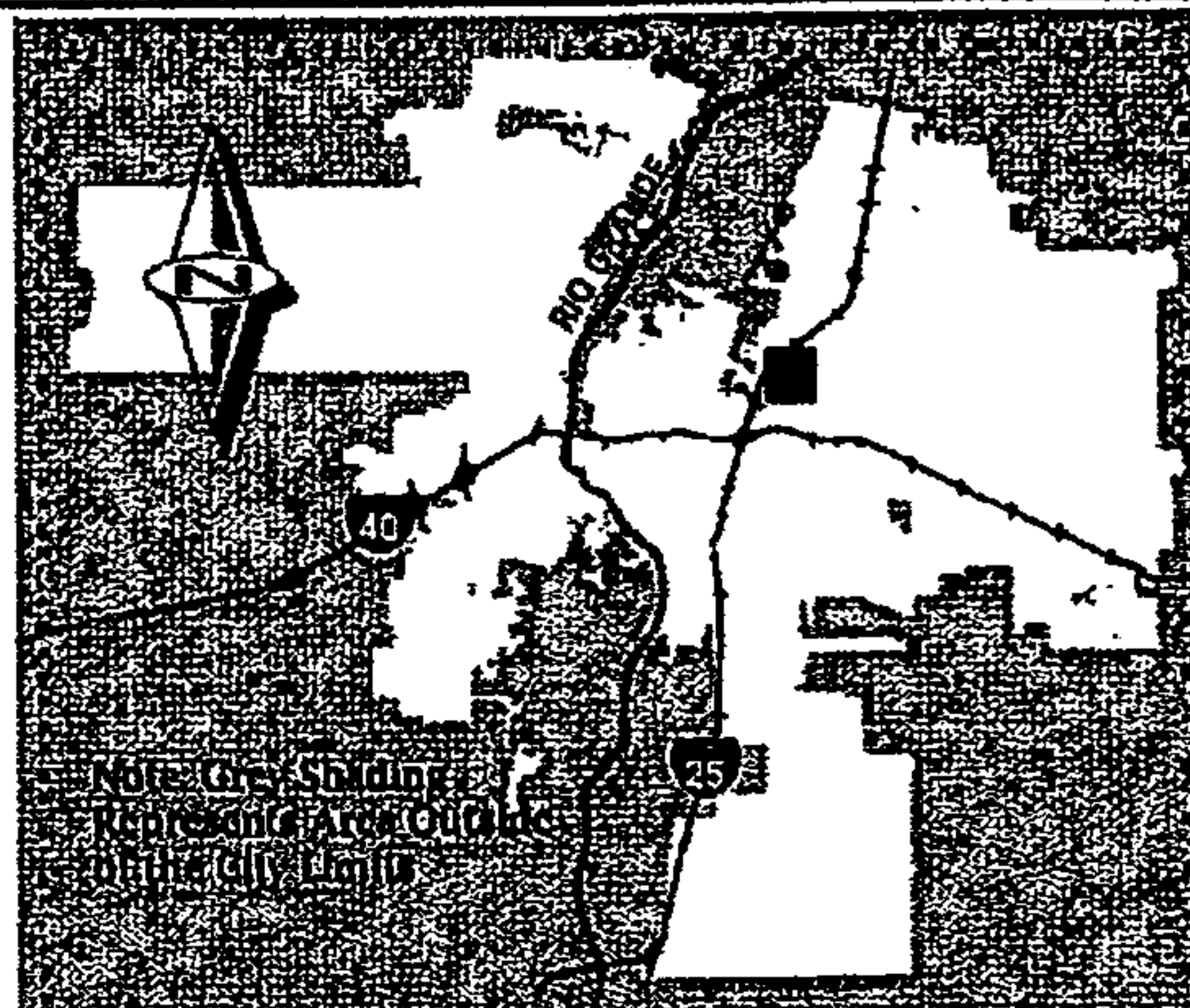
The 15.701± acre site is currently undeveloped and drains naturally from the east to west to two existing box culverts located along Pan American. The site was previously analyzed with SAD 216. The drainage from the box culverts is conveyed via storm drain which eventually drains to the Griegos Pond built under the SAD. There is a storm drain within an existing easement which runs adjacent to the south property line which was also installed with SAD 216. There is an existing dirt channel within this easement which is meant as an overflow for the flows which are conveyed within the storm drain in the easement. There is an existing retention pond to the north of the site which ^{accepts} ~~drains~~ the development ^{runoff} ~~to~~ the northeast. With the construction of the SAD 216 storm drain improvements, no off-site flows enter the site from Vassar or the dirt lined channel to the south. There is some offsite drainage from Pan American that enters the site at the northwest corner, which are included in the calculations.



For more current information and more details visit: <http://www.cabq.gov/gis>



Map amended through: 9/6/2007



Zone Atlas Page:

G-16-Z

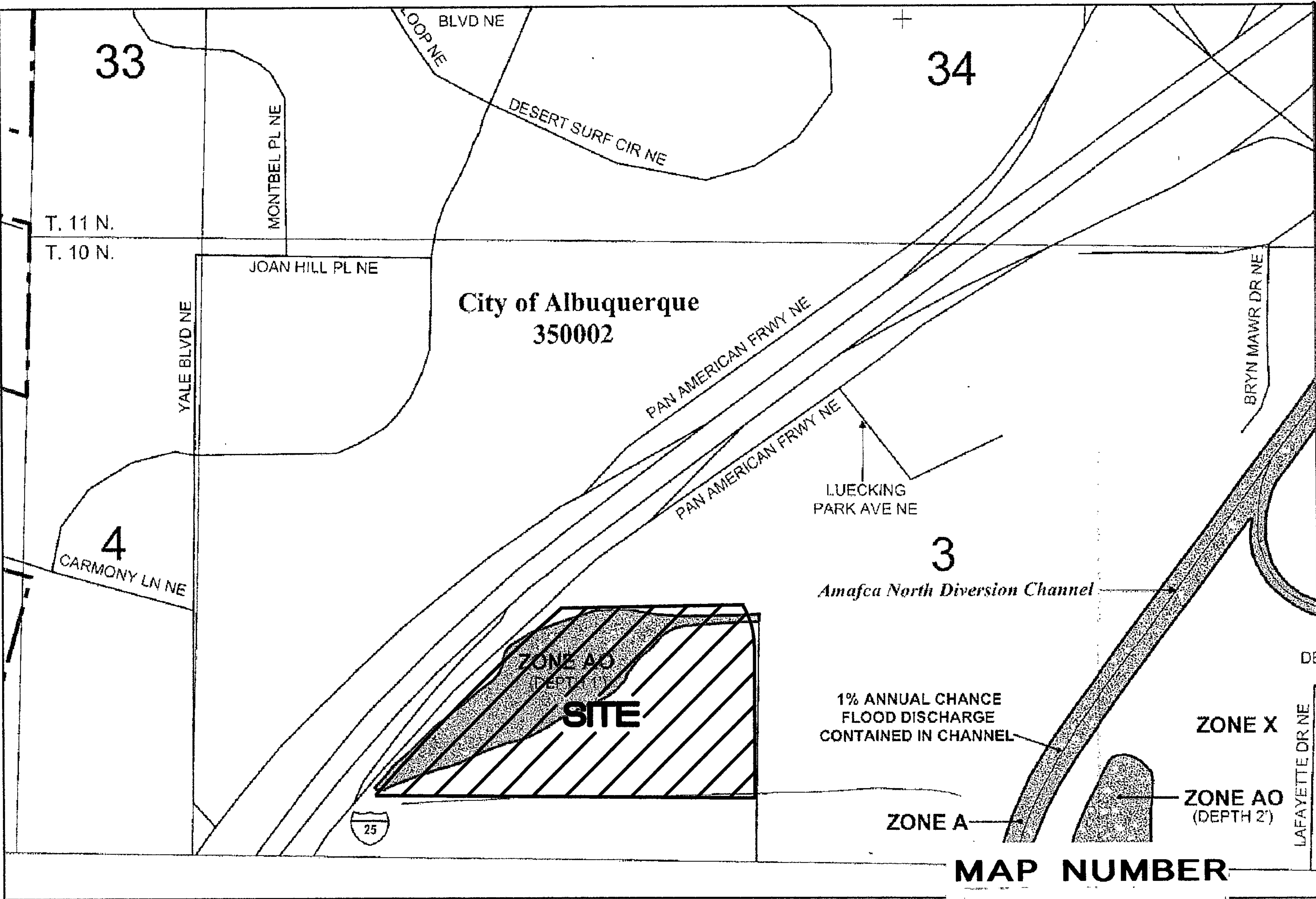
Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

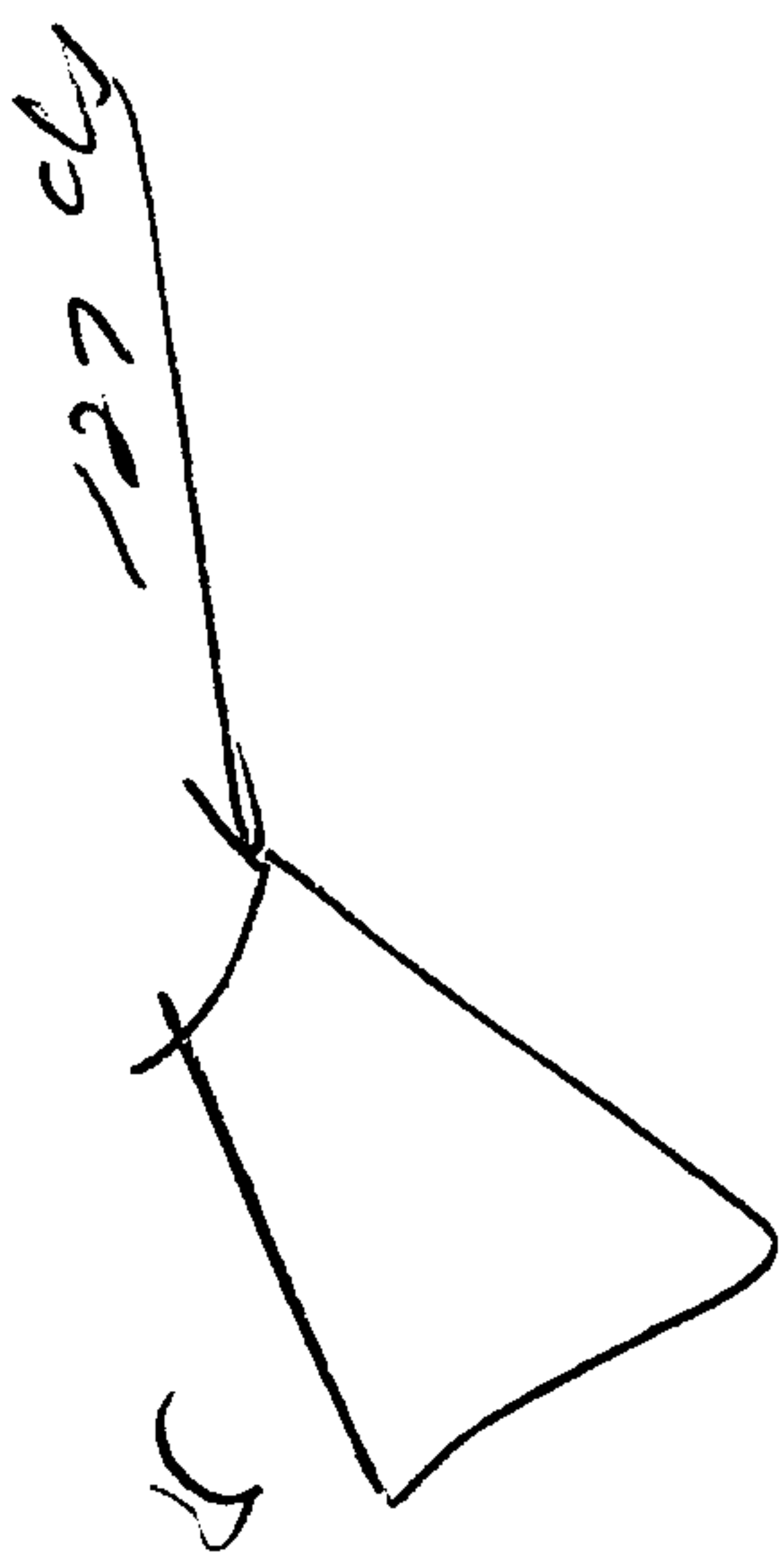
0 750 1,500 Feet

Flood Plain

The site is located on Firm Map 35001C0138E. The map indicates that the site does lie within a 100-year flood plain as shown on the following page. The improvements built with SAD 216 and Pathway Office Park (G16/D114) have eliminated any offsite flows entering the site causing the floodplain. A LOMR will be submitted to FEMA to eliminate the floodplain.



MAP NUMBER
35001C0138E

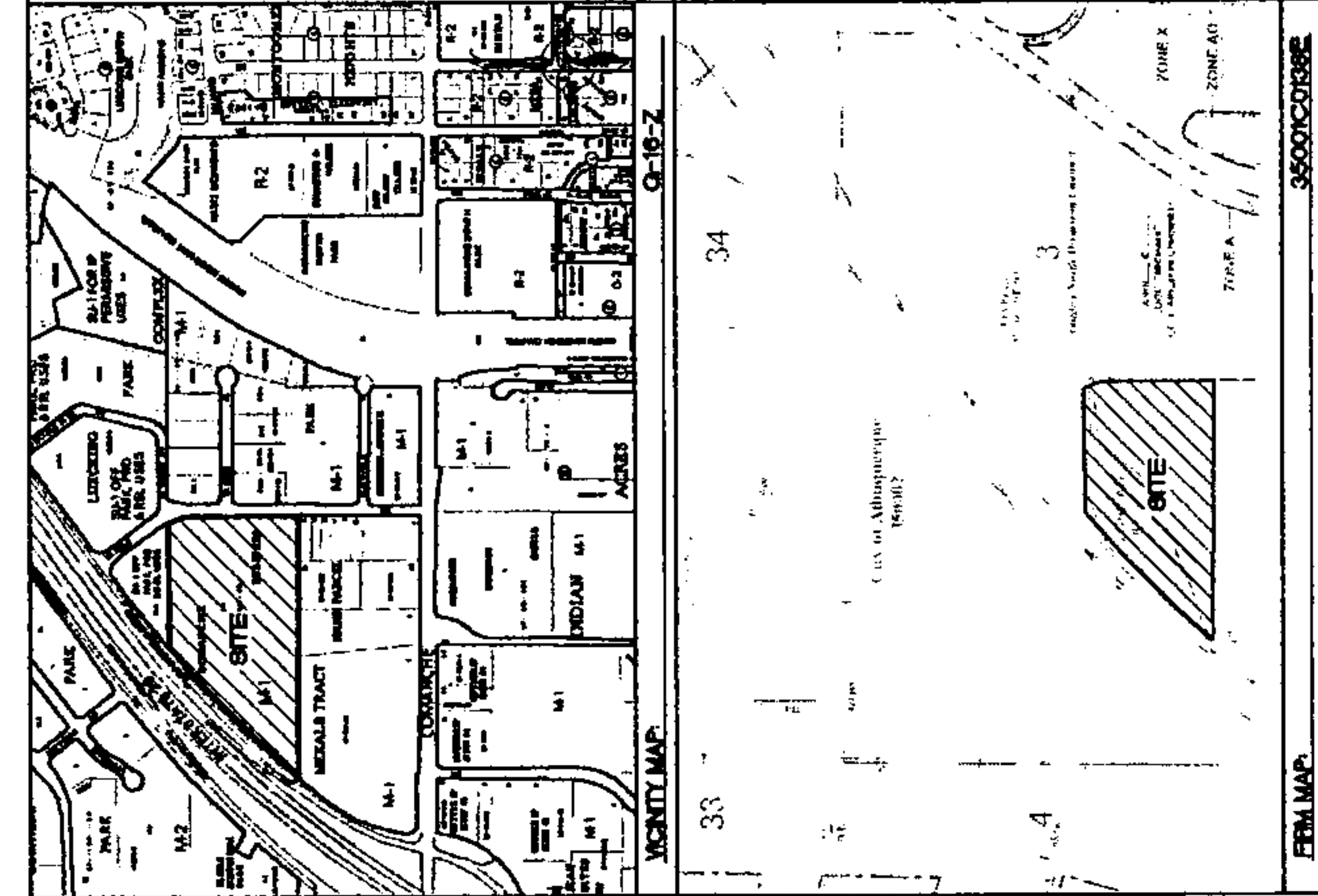


Proposed Drainage Management Plan

The entire site will be graded and all of the surface improvements will be built out in their entirety. The enclosed Grading Plan (in the map pocket) shows the grades for the entire project. To further analyze the conditions the site was separated into 19 basins as shown on Basin Map on the following page.

The drainage conditions for this site were previously analyzed in the Special Assessment District 216 Final Drainage Analysis prepared by Andrews, Asbury & Robert, Inc. dated December 1992. According to the Drainage Area Map (Appendix A) the northern portion of the site lies within Basin A-5 and the southern half of the site falls within basin B-3, as shown on the following page. Basin A drains to an existing double 10'X10' concrete box culvert (CBC) which was modified by NMDOT by plugging the southern most 10'X10' box culvert and installing a 48" diameter reinforced concrete pipe inside the northernmost box culvert. This northernmost CBC drains west under I-25 to an existing dirt lined channel which drains to the storm drain in Yale Boulevard. There is an existing drainage pond directly north of the property. With the construction of the Carpenters Training Center the storm drain will be installed from the existing pond to the existing 10'X10' CBC to capture the drainage and reclaim the area for development. The drainage from Basin B is directed to the 10'X5' box culvert crossing under I-25 at the southwest corner of the Carpenters Training Center site.

According to the Grading Plan prepared for Pathway Office Park by Jeff Mortensen & Associates, Inc. (G16/D114), the total developed discharge entering the retention pond directly north of the site is 127.4 cfs. This 127.4 cfs accounts for offsite drainage which enters from the east. According to the drainage analysis prepared for SAD 216, the Pathway Office Park development and the properties directly east and north fall within Basin A. According to the drainage

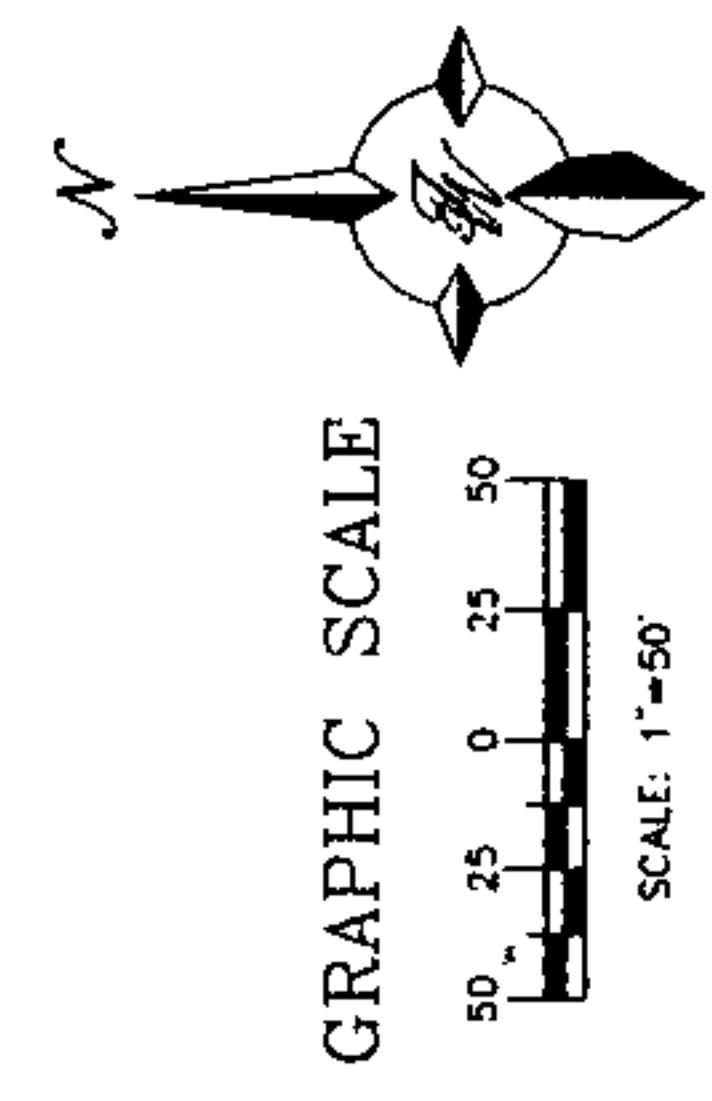
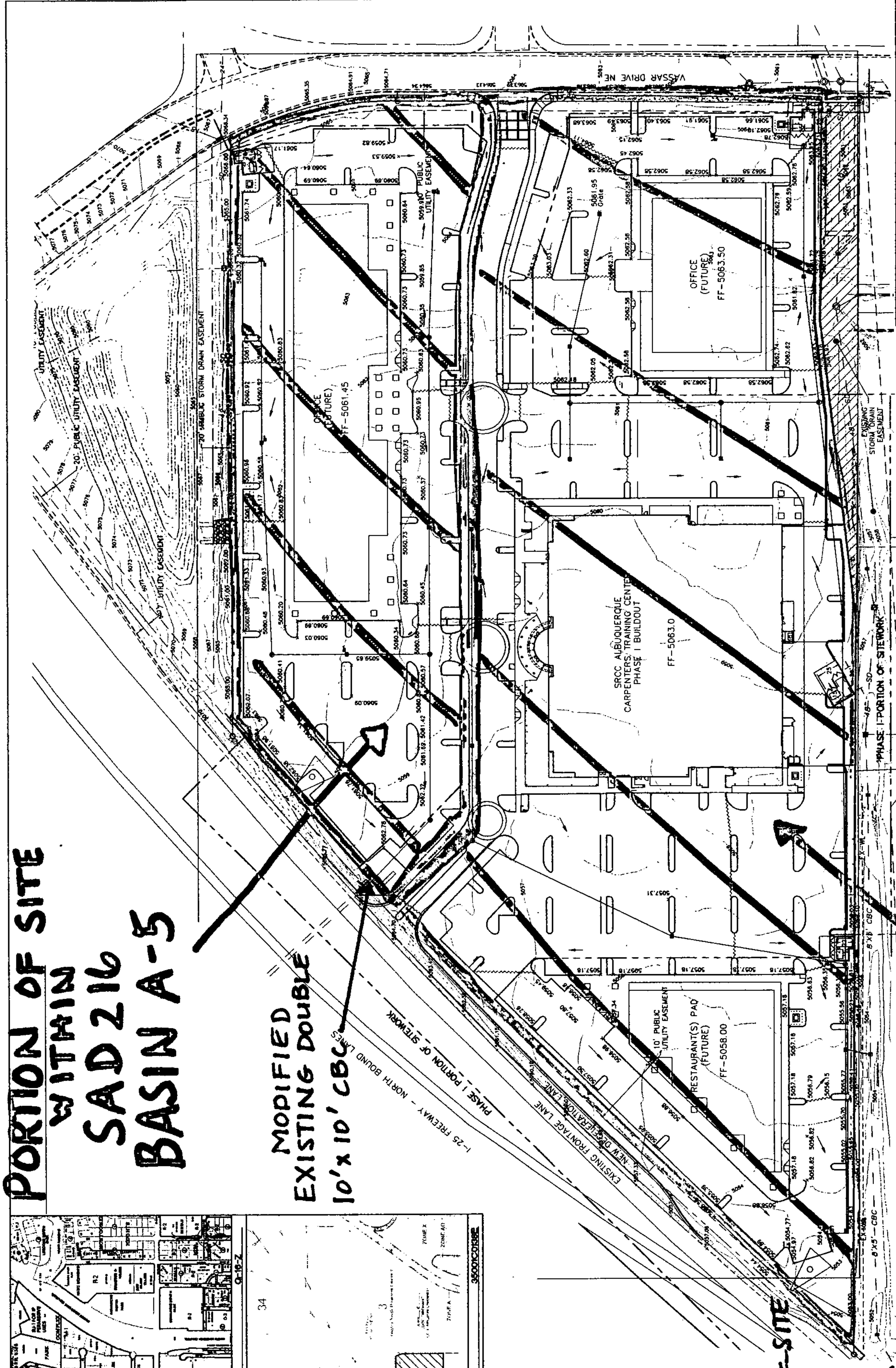


PORTION OF SITE WITHIN SAD 216 BASIN A-5

MODIFIED
EXISTING DOUBLE
10'x10' CBC

EXISTING OFF-SITE
10'x5' CBC

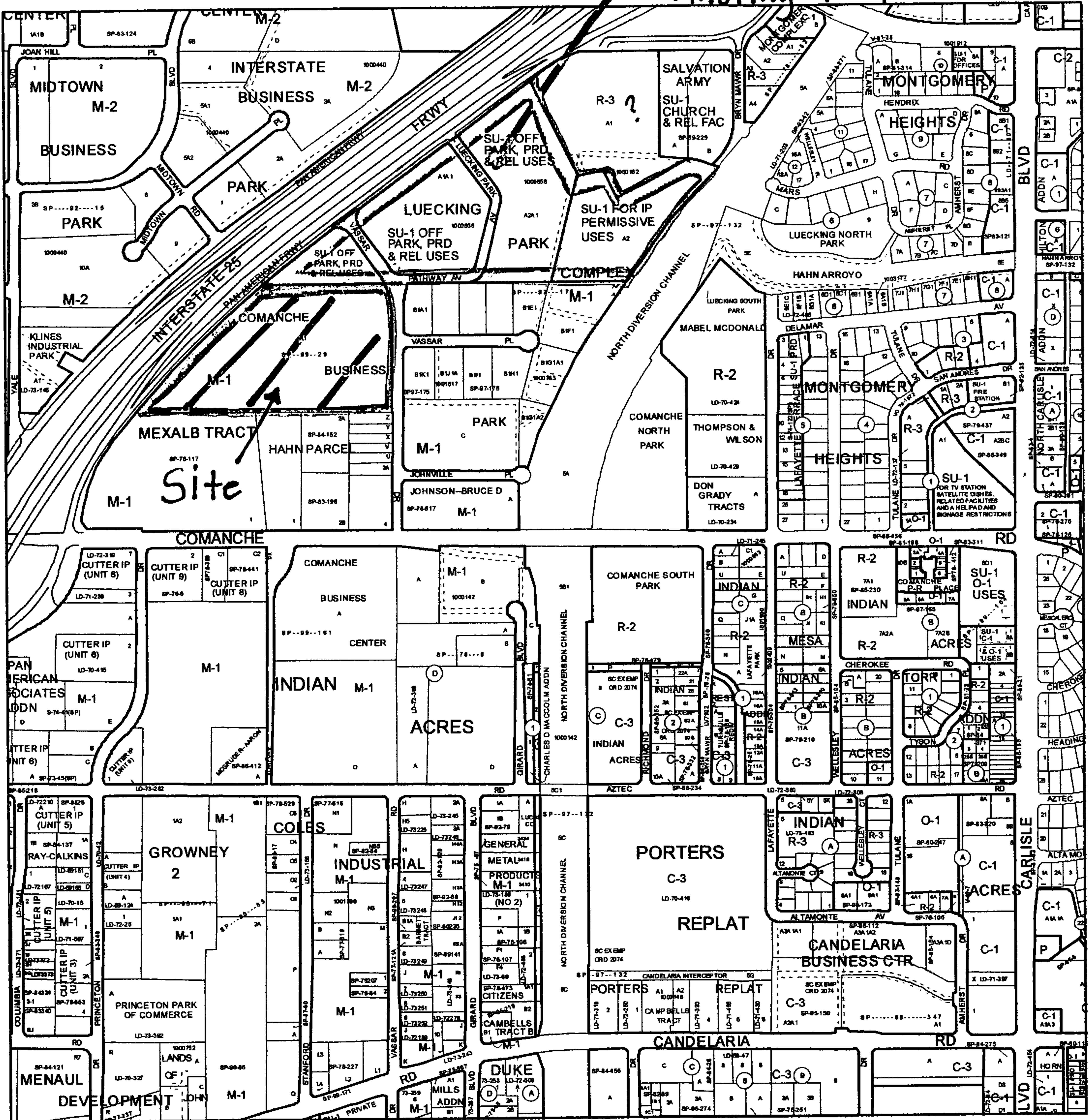
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.



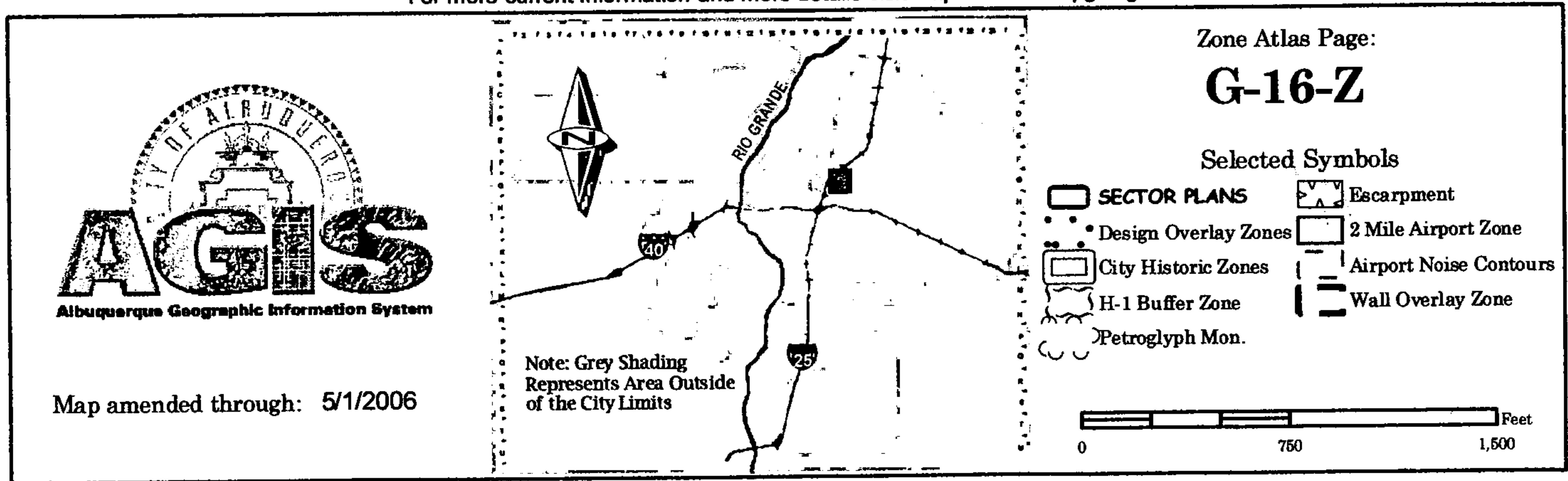
PORTION OF SITE WITHIN SAD 216 BASIN B-3

ENGINEER'S SEAL	CARPENTERS CENTER 3900 PAN AMERICAN FREEWAY
DRAWN BY BUT	DATE 01/21/08
	24026 BASIN MAP
	SHEET # C-1
	TERRA WEST, LLC 5371 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505)858-3100
	RONALD R. BOHANNAN P.E. #71668
	JOB # 24026

Upland Basin Discharging to Existing Pond North of Site



For more current information and more details visit: <http://www.cabq.gov/gis>



analysis prepared for this site the storm drain installed with SAD 216 can handle the flows from the pond, the drainage from the office park and the site can convey directly to the existing 10'X10' CBC via storm drain.

Through our drainage analysis we have determined the existing 10'X10' CBC would need to accept approximately 159.55 cfs. The 159.55 cfs includes the 127.4 cfs from the existing retention pond, 13.04 cfs from I-25 which currently drains to the CBC and 18.68 cfs from a portion of the Carpenter's Training Center and .43 cfs of off-site drainage entering the site. It has been determined that the existing 48" RCP installed within the existing CBC under I-25 is at approximately 1.25%. At this slope it has been determined that the 48" has capacity for 161 cfs at this percent which is greater than the 159.55 required. To capture the 127.4 cfs from the pond additional storm drain would be required to be installed in the I-25 frontage road. The portion of the training center (+/-4.43 acres) which would drain to the CBC are basins 15 through 19. The basins were analyzed using the land treatment types 80% Type D and 20% Type B. These basins will drain to the CBC via drop inlets and storm drain on site that will discharge to the CBC. The CBC drains to a dirt lined drainage channel on the west side of I-25. In order for the storm drain in Yale Boulevard to accept the additional flow an orifice will need to be placed on the existing 48" outlet from the dirt lined channel. According to the AHYMO output, using this ditch as a temporary pond to restrict the discharge entering the storm drain system, brings the water surface elevation to 5037.21. If the existing ditch/pond were to overflow the drainage would spill over onto Yale Boulevard, it would not reach the adjacent properties to the north or south.

The remaining portion of the site lies within Basin B as shown on the drainage analysis prepared with SAD 216. This remaining portion of the training center site (+/- 10.89 acres) will drain to drop inlets located throughout the site and be conveyed to the existing 8'X5' concrete

box culvert which runs along the southern boundary of the site. Basins 1 through 14 will drain to the existing box culvert.

The existing storm drain system (Appendix A) was analyzed using StormCAD to verify the existing storm drain system constructed with SAD 216 has capacity for the drainage from the Carpenter's site and capacity to drain the flow which is currently entering the existing retention pond. The profiles showing the hydraulic grade line are enclosed in the calculations section of the report.

Calculations

The weighted E method from the "City of Albuquerque Development Process Manual Volume 11 – Design Criteria, 1997 Revision" was used to calculate the runoff and volume for the Site.

Summary

To analyze the conditions the site was separated into 19 basins as shown on Basin Map. The site was previously analyzed in the Special Assessment District 216 Final Drainage Analysis prepared by Andrew, Asbury & Robert, Inc. dated December 1992. The existing pond to the north constructed with the Pathway office development will be reclaimed by installing storm drain to the existing CBC adjacent to Pan American. Approximately 4.43 cfs from the training center site will also drain to the CBC. In order for the existing storm drain system constructed with SAD 216 to have capacity for this additional flow the existing dirt channel on the west side of I-25 which the CBC discharges to will need to act as a detention pond with a 36" orifice on the existing 48" RCP which drains to the storm drain in Yale Boulevard. If this pond were to overflow the drainage would flow to Yale Boulevard and not reach the adjacent properties to the north or south.

The remaining portion of the site (10.89 acres) will drain to the existing 8'X5' CBC south of the site. The discharge from the 10'X5' CBC and the 10'X10' CBC are both conveyed to the

existing storm drain in Yale Boulevard built with SAD 216, has capacity for the additional drainage utilizing StormCAD to analyze the existing system.

Section II

Runoff Calculations

Weighted E Method

Developed Basins

Basin	Area (sf)	Area (acres)									100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	60667	1.39	0%	0	20%	0.28	0%	0.00	80%	1.11	1.852	0.215	5.87	1.128	0.131	3.76
2	27445	0.63	0%	0	20%	0.13	0%	0.00	80%	0.50	1.852	0.097	2.66	1.128	0.059	1.70
3	55465	1.27	0%	0	20%	0.25	0%	0.00	80%	1.02	1.852	0.197	5.37	1.128	0.120	3.44
4	63380	1.46	0%	0	20%	0.29	0%	0.00	80%	1.16	1.852	0.225	6.13	1.128	0.137	3.93
5	3805	0.09	0%	0	20%	0.02	0%	0.00	80%	0.07	1.852	0.013	0.37	1.128	0.008	0.24
6	58557	1.34	0%	0	20%	0.27	0%	0.00	80%	1.08	1.852	0.207	5.67	1.128	0.126	3.63
7	37992	0.87	0%	0	20%	0.17	0%	0.00	80%	0.70	1.852	0.135	3.68	1.128	0.082	2.36
8	33344	0.77	0%	0	20%	0.15	0%	0.00	80%	0.61	1.852	0.118	3.23	1.128	0.072	2.07
9	22245	0.51	0%	0	20%	0.10	0%	0.00	80%	0.41	1.852	0.079	2.15	1.128	0.048	1.38
10	19052	0.44	0%	0	20%	0.09	0%	0.00	80%	0.35	1.852	0.067	1.84	1.128	0.041	1.18
11	17795	0.41	0%	0	20%	0.08	0%	0.00	80%	0.33	1.852	0.063	1.72	1.128	0.038	1.10
12	17008	0.39	0%	0	20%	0.08	0%	0.00	80%	0.31	1.852	0.060	1.65	1.128	0.037	1.06
13	33152	0.76	0%	0	20%	0.15	0%	0.00	80%	0.61	1.852	0.117	3.21	1.128	0.072	2.06
14	24303	0.56	0%	0	20%	0.11	0%	0.00	80%	0.45	1.852	0.086	2.35	1.128	0.052	1.51
15	72208	1.66	0%	0	20%	0.33	0%	0.00	80%	1.33	1.852	0.256	6.99	1.128	0.156	4.48
16	23194	0.53	0%	0	20%	0.11	0%	0.00	80%	0.43	1.852	0.082	2.24	1.128	0.050	1.44
17	26713	0.61	0%	0	20%	0.12	0%	0.00	80%	0.49	1.852	0.095	2.59	1.128	0.058	1.66
18	30366	0.70	0%	0	20%	0.14	0%	0.00	80%	0.56	1.852		2.94	1.128	0.066	1.88
19	40496	0.93	0%	0	20%	0.19	0%	0.00	80%	0.74	1.852	0.143	3.92	1.128	0.087	2.51
TOTAL			667,188	15.32								0.215	64.57		0.131	41.39

Off-site Basins

Basin	Area (sf)	Area (acres)									100-Year			10-Year		
			Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1A	11996	0.28	100%	0.275396	0%	0.00	0%	0.00	0%	0.00	0.530	0.012	0.43	0.130	0.003	0.10
TOTAL			11,996	0.28								0.012	0.43		0.003	0.10

$$\text{Weighted E} = E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d / (\text{Total Area})$$

$$\text{Volume} = \text{Weighted D} \cdot \text{Total Area}$$

$$\text{Flow} = Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$$

Excess Precipitation, E (Inches)		
Zone 2	100-Year	10 - Year
E _a	0.53	0.13
E _b	0.78	0.28
E _c	1.13	0.52
E _d	2.12	1.34

Peak Discharge (cfs/acre)		
Zone 2	100-Year	10 - Year
Q _a	1.56	0.38
Q _b	2.28	0.95
Q _c	3.14	1.71
Q _d	4.7	3.14

45.90

18.68

Pipe Capacity

Pipe Capacity for On-Site Storm Drain

Contributing

Pipe	D (in)	Slope (%)	Area (ft^2)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)
Exiting Culvert to Inlet 1	36	1	7.07	0.750	66.88	45.90	6.49
Inlet 1 to Inlet 2	18	1	1.77	0.375	10.53	5.87	3.32
Inlet 1 to MH 1	30	1	4.91	0.625	41.13	40.03	8.15
MH 1 to Inlet 3	24	1.3	3.14	0.500	25.86	25.31	8.06
Inlet 3 to Inlet 4	24	1	3.14	0.500	22.68	19.94	6.35
Inlet 4 to MH 2	24	1	3.14	0.500	22.68	14.27	4.54
MH 2 to Inlet 5	18	1	1.77	0.375	10.53	5.38	3.04
Inlet 5 to MH 3	12	1	0.79	0.250	3.57	2.15	2.74
Inlet 6 to MH 3	12	1	0.79	0.250	3.57	2.15	2.74
MH 4 to MH 2	18	1	1.77	0.375	10.53	8.89	5.03
Inlet 7 to MH 4	12	1.5	0.79	0.250	4.38	3.68	4.69
MH 4 to MH 5	18	1	1.77	0.375	10.53	5.21	2.95
Inlet 8 to MH 5	12	1	0.79	0.250	3.57	1.62	2.06
Inlet 9 to MH 5	12	1	0.79	0.250	3.57	3.56	4.53
Inlet 9 to Inlet 10	12	1	0.79	0.250	3.57	1.84	2.34
Inlet 11 to MH 1	18	1.3	1.77	0.375	12.01	11.69	6.62
Inlet 11 to MH 6	18	1	1.77	0.375	10.53	5.56	3.15
MH 6 to Inlet 12	18	1	1.77	0.375	10.53	5.56	3.15
Inlet 12 to Inlet 13	12	1	0.79	0.250	3.57	3.21	4.09
MH 7 to MH 8	24	1	3.14	0.500	22.68	19.11	6.08
Inlet 14 to MH 8	18	1.55	1.77	0.375	13.11	12.95	7.33
MH 9 to Inlet 14	18	0.6	1.77	0.375	8.16	5.53	3.13
Inlet 5A to MH 9	18	0.6	1.77	0.375	8.16	5.53	3.13
Inlet 15 to Inlet 16	12	0.8	0.79	0.250	3.20	2.94	3.74
MH 8 to Inlet 17	18	0.8	1.77	0.375	9.42	6.16	3.49
Inlet 17 to MH 10	12	0.7	0.79	0.250	2.99	2.94	3.74
Inlet 18 to MH 10	12	0.7	0.79	0.250	2.99	2.94	3.74
MH 11 to MH 12	48	1	12.57	1.000	144.03	127.40	10.14
MH 12 to Existing 42"	42	1	9.62	0.875	100.88	93.40	9.71
MH 12 to MH 13	24	5	3.14	0.500	50.72	24.50	7.80
MH 10 to ex. Culvert	48	1.4	12.57	1.000	170.42	146.51	11.66
MH 7 to MH 10	24	1.4	3.14	0.500	26.84	19.11	6.08

AP 1

Manning's Equation:

$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area

R = D/4

S = Slope

n = 0.013

Pipe Capacity Existing 48" RCP Under I-25

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
	48	1.25	12.57	1.000	161.03	159.55	12.70

Manning's Equation:

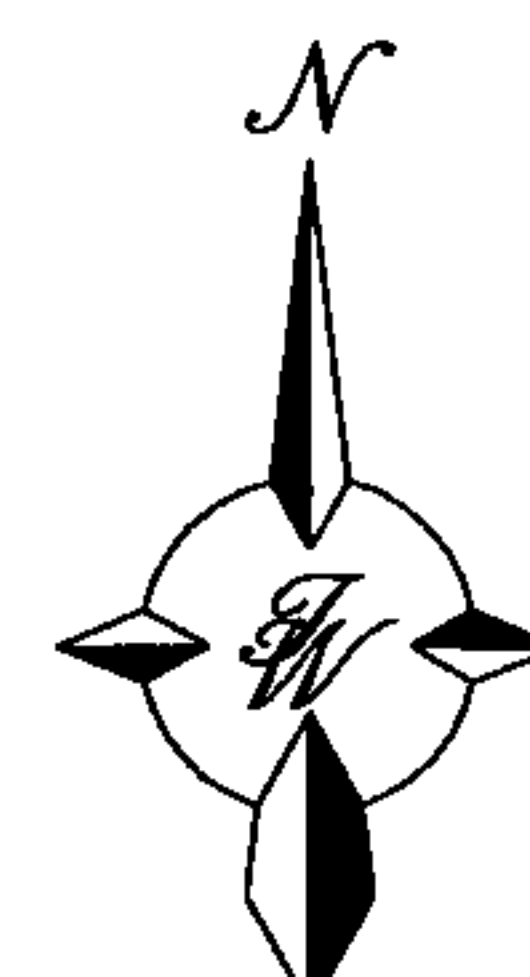
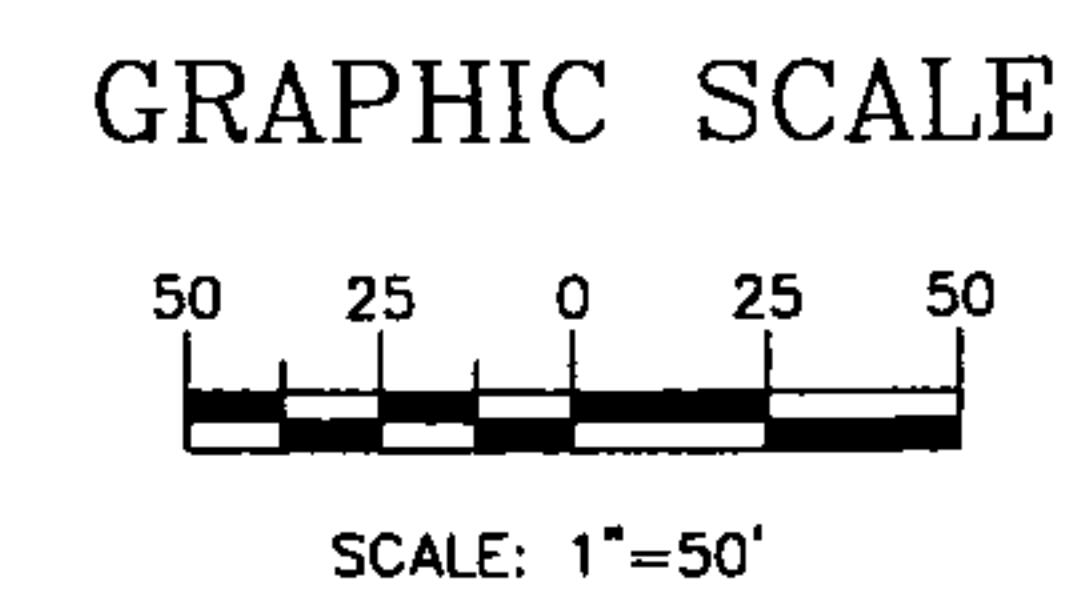
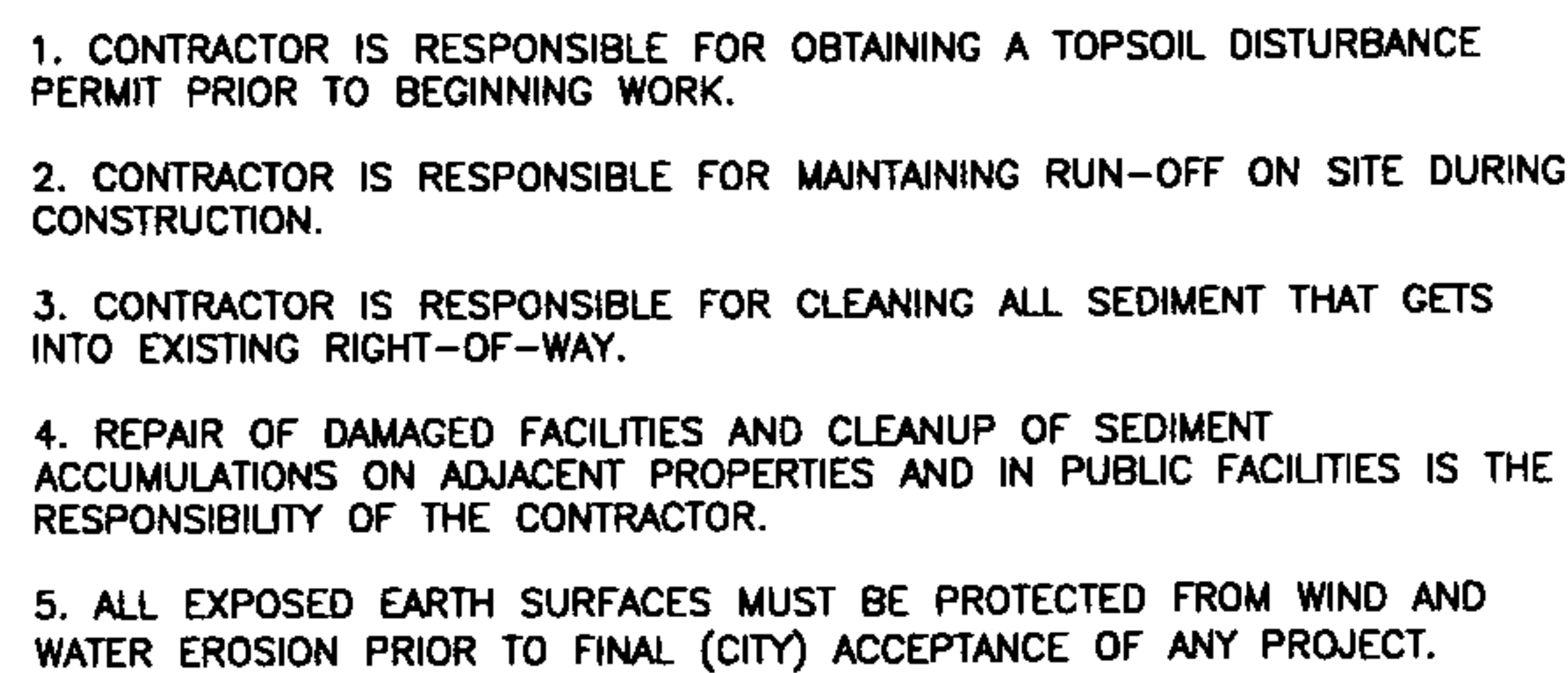
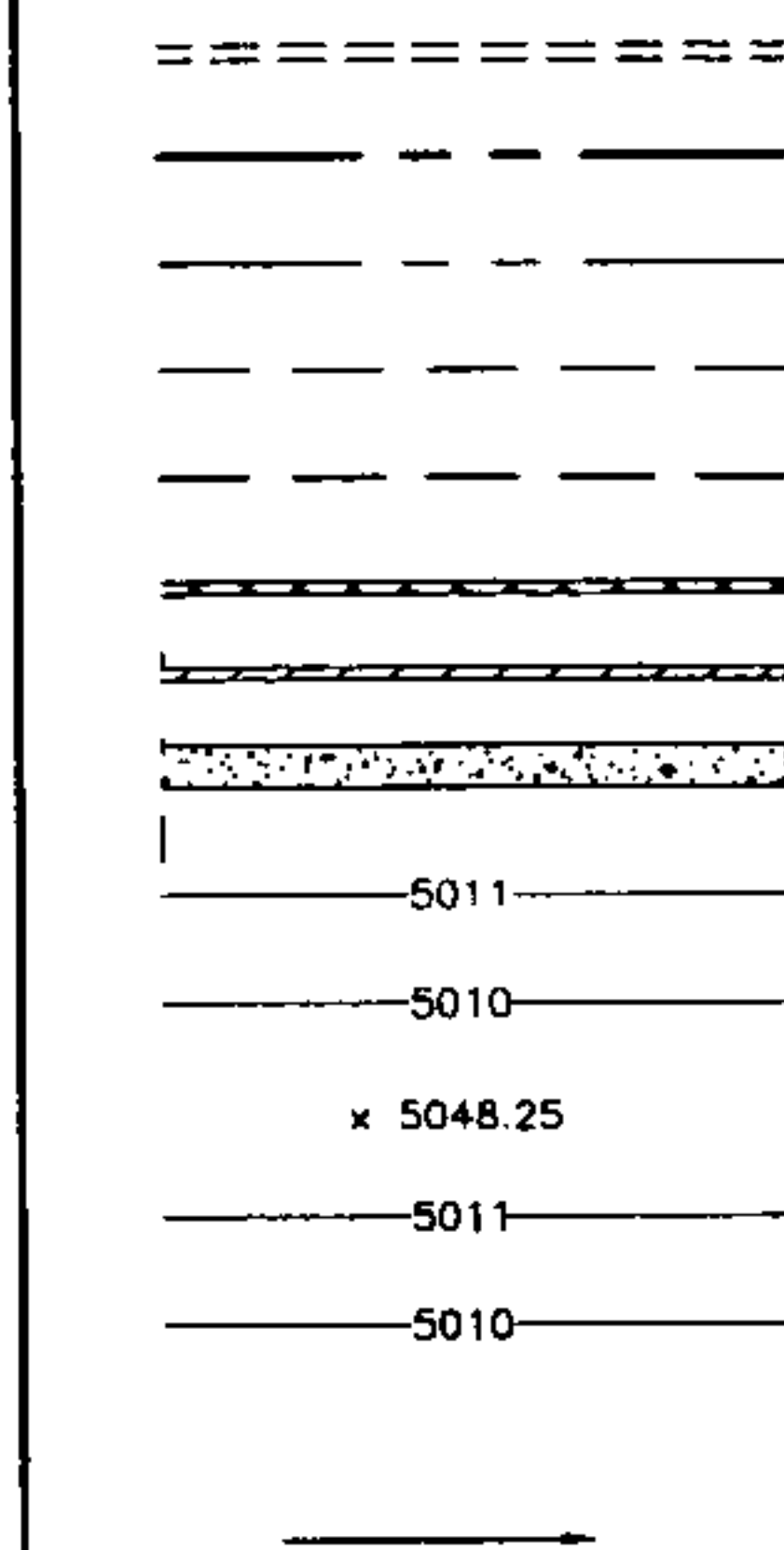
$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$

A = Area

R = D/4

S = Slope

n = 0.013



ENGINEER'S SEAL	CARPENTERS CENTER 3900 PAN AMERICAN FREEWAY	DRAWN BY BJF
		DATE 01/21/08
	ANALYSIS POINT MAP	26026 ANALYSIS POINT MAP
		SHEET # C-1
RONALD R. BOHANNAN P.E. #7868	 TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505)858-3100	JOB # 26026

AHYMO
DATA
and
POND VOLUME CALCULATIONS

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
 =03/04/2008
 INPUT FILE = C:\DOCUME~1\Sarah\Desktop\27101--1.TXT
 AHYMO-S-9702d1TierraW-AH

AHYMO.SUM

- VERSION: 1997.02d

RUN DATE (MON/DAY/YR)

USER NO.=

		FROM	TO		PEAK	RUNOFF		TIME TO	CFS	PAGE
	HYDROGRAPH	ID	ID	AREA	DISCHARGE	VOLUME	RUNOFF	PEAK	PER	
COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE	
NOTATION										
START										TIME=
.00										
RAINFALL TYPE= 2										RAIN24=
2.750										
SEDIMENT BULK										PK BF =
1.06										
COMPUTE NM HYD	101.10	-	2	.08194	134.10	4.406	1.00822	1.499	2.557	PER
IMP= 15.00										
ROUTE RESERVOIR	103.00	2	4	.08194	84.78	4.406	1.00822	1.632	1.617	AC-FT=
.720										
FINISH										

START TIME=0.0 HR

RAINFALL TYPE=2 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.0333 HR

SEDIMENT BULK CODE=1 BULK FACTOR = 1.06

* Carpenter's Center Zone 2 *

*

COMPUTE NM HYD ID=2 HYD NO=101.1 AREA=0.08194 SQ MI
PER A=48.00 PER B=17.00 PER C=20.00 PER D=15.00
TP=0.0 HR MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

*****DETENTION POND 1*****

ROUTE RESERVOIR	ID=4 HYD NO=103 INFLOW ID=2 CODE=24	OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
		0.0000	0.0000	5031
		34.0400	0.0040	5032
		48.1300	0.0190	5033
		58.9500	0.0628	5034
		68.0700	0.1619	5035
		76.1000	0.3370	5036
		83.3700	0.6272	5037
		90.0500	1.0634	5038

PRINT HYD ID=4 CODE=1

*
*
Finish

AHYMO.OUT

AHYMO PROGRAM (AHYMO 97) -

- Version: 1997.02d

RUN DATE (MON/DAY/YR) = 03/04/2008

START TIME (HR:MIN:SEC) = 09:54:15

USER NO.= AHYMO-S-9702d1TierraW-AH

INPUT FILE = C:\DOCUME~1\Sarah\Desktop\27101-~1.TXT

START

TIME=0.0 HR

RAINFALL

TYPE=2 RAIN QUARTER=0.0 IN

RAIN ONE=2.01 IN RAIN SIX=2.35 IN

RAIN DAY=2.75 IN DT=0.0333 HR

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

1.40 HR.

DT = .033300 HOURS END TIME = 19.946700 HOURS

.0000	.0016	.0033	.0049	.0066	.0084	.0102
.0120	.0139	.0158	.0178	.0198	.0219	.0241
.0263	.0285	.0309	.0333	.0358	.0384	.0410
.0438	.0467	.0497	.0528	.0561	.0595	.0630
.0668	.0708	.0750	.0805	.0864	.0928	.1059
.1359	.1822	.2488	.3398	.4596	.6124	.8028
1.0352	1.2584	1.3500	1.4271	1.4955	1.5577	1.6150
1.6682	1.7178	1.7644	1.8082	1.8495	1.8885	1.9255
1.9605	1.9937	2.0252	2.0551	2.0835	2.0912	2.0972
2.1030	2.1085	2.1137	2.1188	2.1236	2.1282	2.1327
2.1370	2.1412	2.1452	2.1491	2.1529	2.1566	2.1602
2.1637	2.1671	2.1704	2.1737	2.1768	2.1799	2.1830
2.1859	2.1889	2.1917	2.1945	2.1973	2.2000	2.2026
2.2052	2.2078	2.2103	2.2128	2.2152	2.2176	2.2200
2.2223	2.2246	2.2268	2.2291	2.2313	2.2334	2.2356
2.2377	2.2397	2.2418	2.2438	2.2458	2.2478	2.2498
2.2517	2.2536	2.2555	2.2574	2.2592	2.2611	2.2629
2.2647	2.2664	2.2682	2.2699	2.2716	2.2733	2.2750
2.2767	2.2784	2.2800	2.2816	2.2832	2.2848	2.2864
2.2880	2.2895	2.2911	2.2926	2.2941	2.2956	2.2971
2.2986	2.3000	2.3015	2.3029	2.3044	2.3058	2.3072
2.3086	2.3100	2.3113	2.3127	2.3141	2.3154	2.3168
2.3181	2.3194	2.3207	2.3220	2.3233	2.3246	2.3259
2.3271	2.3284	2.3297	2.3309	2.3321	2.3334	2.3346
2.3358	2.3370	2.3382	2.3394	2.3406	2.3418	2.3429
2.3441	2.3452	2.3464	2.3475	2.3487	2.3498	2.3509
2.3521	2.3532	2.3544	2.3555	2.3566	2.3578	2.3589
2.3600	2.3612	2.3623	2.3634	2.3645	2.3656	2.3667
2.3678	2.3689	2.3700	2.3711	2.3722	2.3733	2.3744
2.3755	2.3766	2.3777	2.3788	2.3799	2.3809	2.3820
2.3831	2.3842	2.3852	2.3863	2.3874	2.3884	2.3895
2.3905	2.3916	2.3926	2.3937	2.3947	2.3958	2.3968
2.3978	2.3989	2.3999	2.4010	2.4020	2.4030	2.4040
2.4051	2.4061	2.4071	2.4081	2.4091	2.4101	2.4112
2.4122	2.4132	2.4142	2.4152	2.4162	2.4172	2.4182
2.4192	2.4202	2.4211	2.4221	2.4231	2.4241	2.4251
2.4261	2.4270	2.4280	2.4290	2.4300	2.4309	2.4319
2.4329	2.4338	2.4348	2.4358	2.4367	2.4377	2.4386
2.4396	2.4405	2.4415	2.4424	2.4434	2.4443	2.4452
2.4462	2.4471	2.4481	2.4490	2.4499	2.4509	2.4518
2.4527	2.4536	2.4546	2.4555	2.4564	2.4573	2.4582
2.4591	2.4601	2.4610	2.4619	2.4628	2.4637	2.4646
2.4655	2.4664	2.4673	2.4682	2.4691	2.4700	2.4709
2.4718	2.4727	2.4735	2.4744	2.4753	2.4762	2.4771
2.4779	2.4788	2.4797	2.4806	2.4815	2.4823	2.4832
2.4841	2.4849	2.4858	2.4867	2.4875	2.4884	2.4892

AHYMO.OUT

2.4901	2.4909	2.4918	2.4927	2.4935	2.4944	2.4952
2.4961	2.4969	2.4977	2.4986	2.4994	2.5003	2.5011
2.5019	2.5028	2.5036	2.5044	2.5053	2.5061	2.5069
2.5078	2.5086	2.5094	2.5102	2.5110	2.5119	2.5127
2.5135	2.5143	2.5151	2.5159	2.5168	2.5176	2.5184
2.5192	2.5200	2.5208	2.5216	2.5224	2.5232	2.5240
2.5248	2.5256	2.5264	2.5272	2.5280	2.5288	2.5296
2.5304	2.5311	2.5319	2.5327	2.5335	2.5343	2.5351
2.5358	2.5366	2.5374	2.5382	2.5390	2.5397	2.5405
2.5413	2.5420	2.5428	2.5436	2.5443	2.5451	2.5459
2.5466	2.5474	2.5482	2.5489	2.5497	2.5504	2.5512
2.5520	2.5527	2.5535	2.5542	2.5550	2.5557	2.5565
2.5572	2.5580	2.5587	2.5594	2.5602	2.5609	2.5617
2.5624	2.5631	2.5639	2.5646	2.5654	2.5661	2.5668
2.5676	2.5683	2.5690	2.5697	2.5705	2.5712	2.5719
2.5726	2.5734	2.5741	2.5748	2.5755	2.5763	2.5770
2.5777	2.5784	2.5791	2.5798	2.5805	2.5813	2.5820
2.5827	2.5834	2.5841	2.5848	2.5855	2.5862	2.5869
2.5876	2.5883	2.5890	2.5897	2.5904	2.5911	2.5918
2.5925	2.5932	2.5939	2.5946	2.5953	2.5960	2.5967
2.5974	2.5980	2.5987	2.5994	2.6001	2.6008	2.6015
2.6022	2.6028	2.6035	2.6042	2.6049	2.6056	2.6062
2.6069	2.6076	2.6083	2.6089	2.6096	2.6103	2.6109
2.6116	2.6123	2.6130	2.6136	2.6143	2.6150	2.6156
2.6163	2.6169	2.6176	2.6183	2.6189	2.6196	2.6202
2.6209	2.6216	2.6222	2.6229	2.6235	2.6242	2.6248
2.6255	2.6261	2.6268	2.6274	2.6281	2.6287	2.6294
2.6300	2.6307	2.6313	2.6319	2.6326	2.6332	2.6339
2.6345	2.6352	2.6358	2.6364	2.6371	2.6377	2.6383
2.6390	2.6396	2.6402	2.6409	2.6415	2.6421	2.6428
2.6434	2.6440	2.6446	2.6453	2.6459	2.6465	2.6471
2.6478	2.6484	2.6490	2.6496	2.6503	2.6509	2.6515
2.6521	2.6527	2.6533	2.6540	2.6546	2.6552	2.6558
2.6564	2.6570	2.6576	2.6582	2.6589	2.6595	2.6601
2.6607	2.6613	2.6619	2.6625	2.6631	2.6637	2.6643
2.6649	2.6655	2.6661	2.6667	2.6673	2.6679	2.6685
2.6691	2.6697	2.6703	2.6709	2.6715	2.6721	2.6727
2.6733	2.6739	2.6745	2.6751	2.6756	2.6762	2.6768
2.6774	2.6780	2.6786	2.6792	2.6798	2.6803	2.6809
2.6815	2.6821	2.6827	2.6833	2.6838		

SEDIMENT BULK CODE=1 BULK FACTOR = 1.06

 * Carpenter's Center Zone 2 *

 *

COMPUTE NM HYD

ID=2 HYD NO=101.1 AREA=0.08194 SQ MI
 PER A=48.00 PER B=17.00 PER C=20.00 PER D=15.00
 TP=0.0 HR MASS RAINFALL=-1

*****Warning*****A value for the Time to Peak was not previously computed; use
 Tp=0.133333 hrs.

TIME TO PEAK (hrs)= .1333

K = .072897HR TP = .133333HR K/TP RATIO = .546730 SHAPE CONSTANT, N
 = 7.077668

UNIT PEAK = 48.389 CFS UNIT VOLUME = .9991 B = 524.92 P60 =
 2.0100

AREA = .012291 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
 HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

AHYMO.OUT

K = .140490HR TP = .133333HR K/TP RATIO = 1.053680 SHAPE CONSTANT, N
 = 3.350895
 UNIT PEAK = 161.56 CFS UNIT VOLUME = .9999 B = 309.28 P60 =
 2.0100
 AREA = .069649 SQ MI IA = .54941 INCHES INF = 1.38835 INCHES PER
 HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.06000 AT PEAK FLOW.

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.00822 INCHES = 4.4061 ACRE-FEET
 PEAK DISCHARGE RATE = 134.10 CFS AT 1.499 HOURS BASIN AREA = .0819 SQ.
 MI.

*
 *****DETENTION POND 1*****

ROUTE RESERVOIR	ID=4 HYD NO=103	INFLOW ID=2 CODE=24	OUTFLOW (CFS)	STORAGE (AC-FT)	ELEVATION (FT)
			0.0000	0.0000	5031
			34.0400	0.0040	5032
			48.1300	0.0190	5033
			58.9500	0.0628	5034
			68.0700	0.1619	5035
			76.1000	0.3370	5036
			83.3700	0.6272	5037
			90.0500	1.0634	5038

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5031.00	.000	.00
.80	.00	5031.00	.000	.00
1.60	105.48	5037.13	.684	84.23
2.40	5.07	5031.18	.001	6.23
3.20	.86	5031.03	.000	.88
4.00	.31	5031.01	.000	.31
4.80	.23	5031.01	.000	.23
5.59	.25	5031.01	.000	.25
6.39	.29	5031.01	.000	.29
7.19	.27	5031.01	.000	.27
7.99	.26	5031.01	.000	.26
8.79	.24	5031.01	.000	.24
9.59	.23	5031.01	.000	.23
10.39	.22	5031.01	.000	.22
11.19	.21	5031.01	.000	.21
11.99	.20	5031.01	.000	.20
12.79	.20	5031.01	.000	.20
13.59	.19	5031.01	.000	.19
14.39	.18	5031.01	.000	.18
15.18	.18	5031.01	.000	.18
15.98	.17	5031.00	.000	.17
16.78	.17	5031.00	.000	.17
17.58	.16	5031.00	.000	.16

			AHYMO.OUT	
18.38	.16	5031.00	.000	.16
19.18	.15	5031.00	.000	.15
PEAK DISCHARGE = 84.784 CFS - PEAK OCCURS AT HOUR 1.63				
~~MAXIMUM WATER SURFACE ELEVATION = 5037.2 FT~~				
MAXIMUM STORAGE = .7195 AC-FT INCREMENTAL TIME = .033300HRS				

PRINT HYD ID=4 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME =	1.00822 INCHES	=	4.4060 ACRE-FEET
PEAK DISCHARGE RATE =	84.78 CFS	AT	1.632 HOURS BASIN AREA = .0819 SQ.

MI.

*
*

Finish

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 09:54:15

Storm Drop Inlets

Capacity of Single “D” Storm Drop Inlet

Single 'D' Drop Inlet
EFFECTIVE AREA ASSUMING A 50% CLOGGING FACTOR

SINGLE 'D':

Area at the grate:

$$\begin{aligned} L &= 38.375" - 7 (1/2" \text{ middle bars}) \\ &= 34.875" \\ &= 2.906' \end{aligned}$$

$$\begin{aligned} W &= 25.5" - 13 (1/2" \text{ middle bars}) \\ &= 19" \\ &= 1.583' \end{aligned}$$

$$\begin{aligned} \text{Area} &= 1.583' \times 2.906' \\ &= 4.601 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Effective Area} &= 4.601 - 0.5 (4.601) \\ &= 2.30 \text{ ft}^2 \end{aligned}$$

$$\text{Effective Area} = 2.30 \text{ ft}^2$$

Orifice Equation

$$Q = CA \sqrt{2gH}$$

$$Q = 0.6 \times 2.30 \times \sqrt{2 \times 32.2 \times 0.5}$$

$$Q = 7.83 \text{ cfs}$$

Total Capacity

$$Q = 7.83 \text{ cfs}$$

AP# 1

$$\text{Flow required} = 5.87 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 2

$$\text{Flow required} = 2.66 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 3

$$\text{Flow required} = 5.37 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 4

Flow required = 5.67 cfs < 7.83 cfs

Single D inlet has capacity

AP# 5

Flow required = 3.68 cfs < 7.83 cfs

Single D inlet has capacity

AP# 6

Flow required = 1.65 cfs < 7.83 cfs

Single D inlet has capacity

AP# 7

Flow required = 1.72 cfs < 7.83 cfs

Single D inlet has capacity

AP# 8

Flow required = 1.84 cfs < 7.83 cfs

Single D inlet has capacity

AP# 9

Flow required = 2.15 cfs < 7.83 cfs

Single D inlet has capacity

AP# 10

Flow required = 3.23 cfs < 7.83 cfs

Single D inlet has capacity

AP# 11

Flow required = 3.21 cfs < 7.83 cfs

Single D inlet has capacity

AP# 12

Flow required = 2.35 cfs < 7.83 cfs

Single D inlet has capacity

AP# 13

Flow required = 6.13 cfs < 7.83 cfs

Single D inlet has capacity

AP# 14

Flow required = 2.24 cfs < 7.83 cfs

Single D inlet has capacity

AP# 15

Flow required = 3.92 cfs < 7.83 cfs
Single D inlet has capacity

AP# 16

Flow required = 2.94 cfs < 7.83 cfs
Single D inlet has capacity

AP# 17

Flow required = 2.59 cfs < 7.83 cfs
Single D inlet has capacity

AP# 18

Flow required = 7.42 cfs < 7.83 cfs
Single D inlet has capacity

VOLUME CALCULATIONS POND

$$V = \frac{L}{2} (A1 + A2)$$

V = Volume

L = Length (Distance between sections)

A1 = Area of section 1

A2 = Area of section 2

STAGE	AREA		VOLUME		Q
	[ft ²]	[acres]	INC [acre-feet]	CUM [acre-feet]	[cfs]
5031	22	0.00	0.00	0.0000	0.00
5032	330	0.01	0.00	0.0040	34.04
5033	973	0.02	0.01	0.0190	48.13
5034	2,843	0.07	0.04	0.0628	58.95
5035	5,787	0.13	0.10	0.1619	68.07
5036	9,468	0.22	0.18	0.3370	76.10
5037	15,814	0.36	0.29	0.6272	83.37
5038	22,189	0.51	0.44	1.0634	90.05

Orifice Equation

$$Q = CA \text{ SQRT}(2gH)$$

C = 0.6

Diameter (i 36

Area (ft²): 7.069

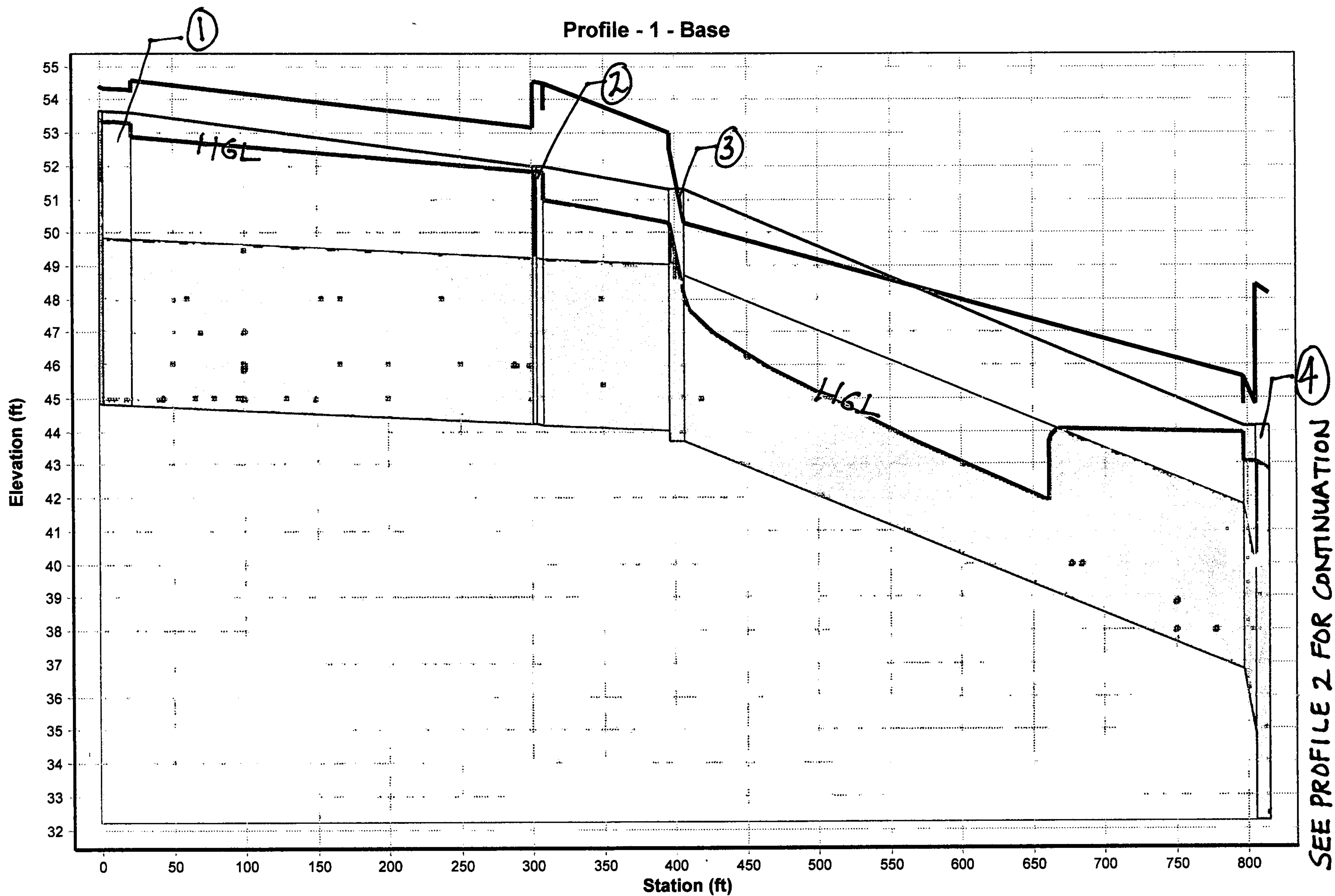
g = 32.2

H (Ft) = Depth of water above center of orifice

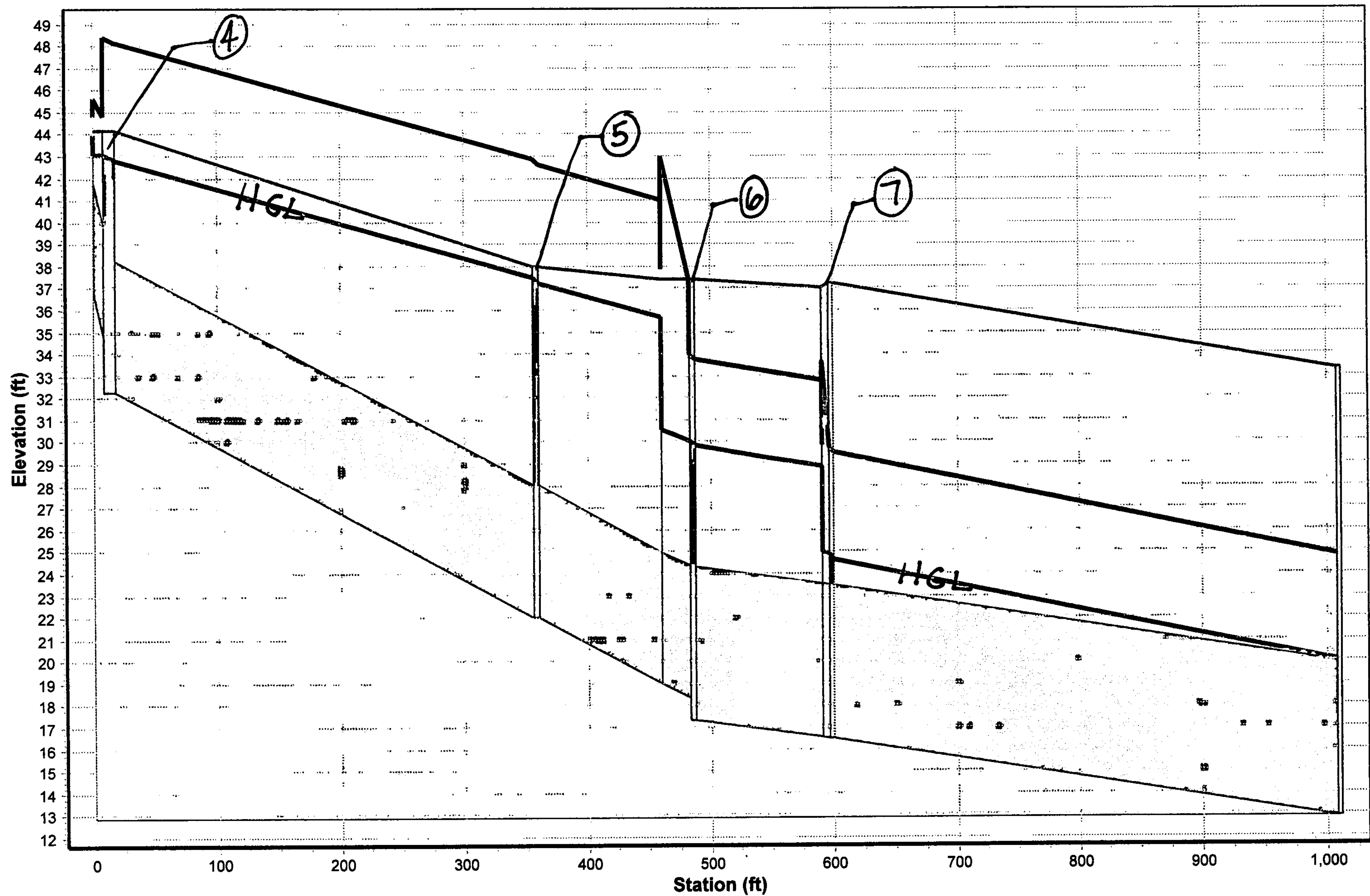
Q (CFS)= Flow

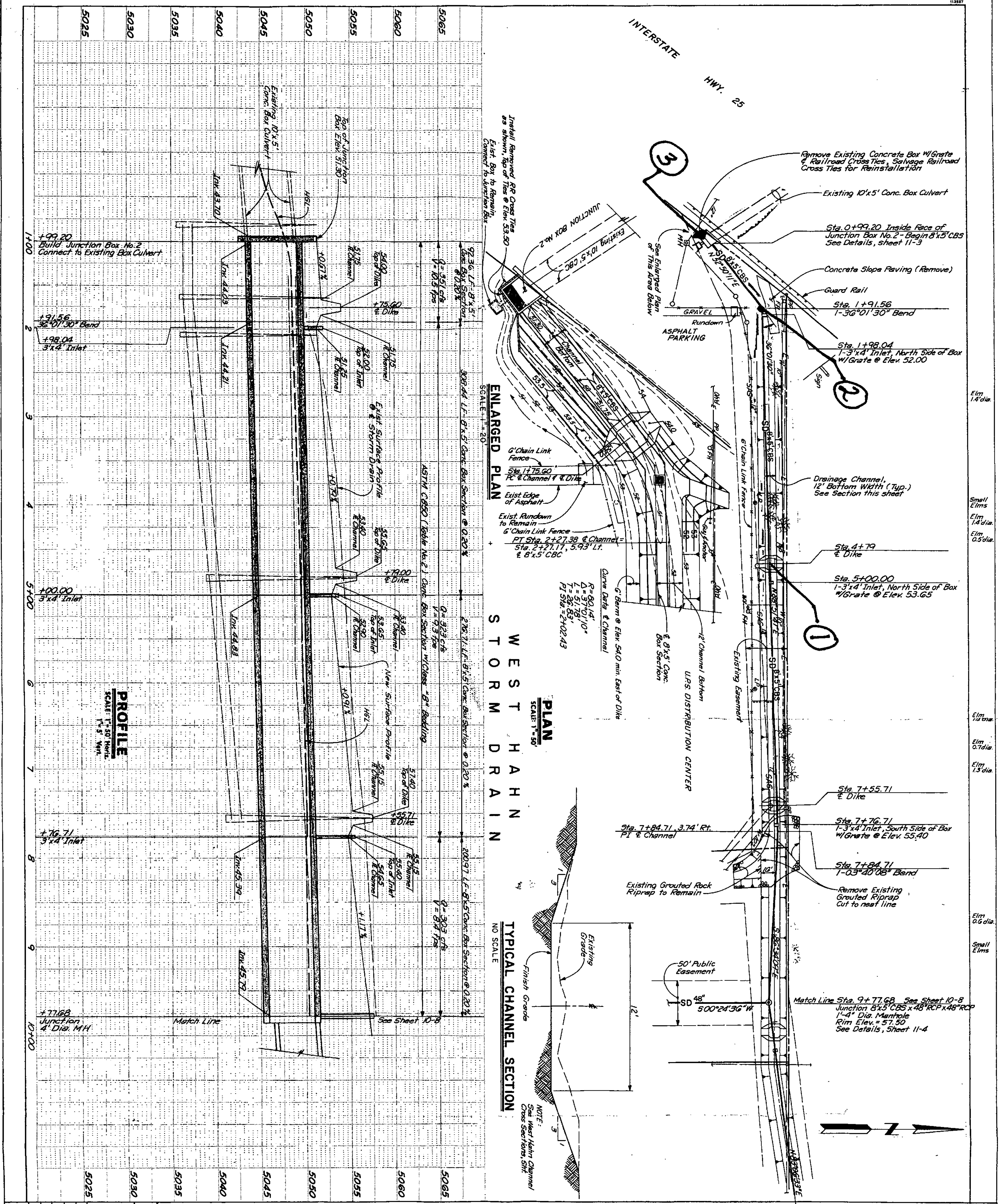
STORM CAD PROFILES

Profile - 1 - Base

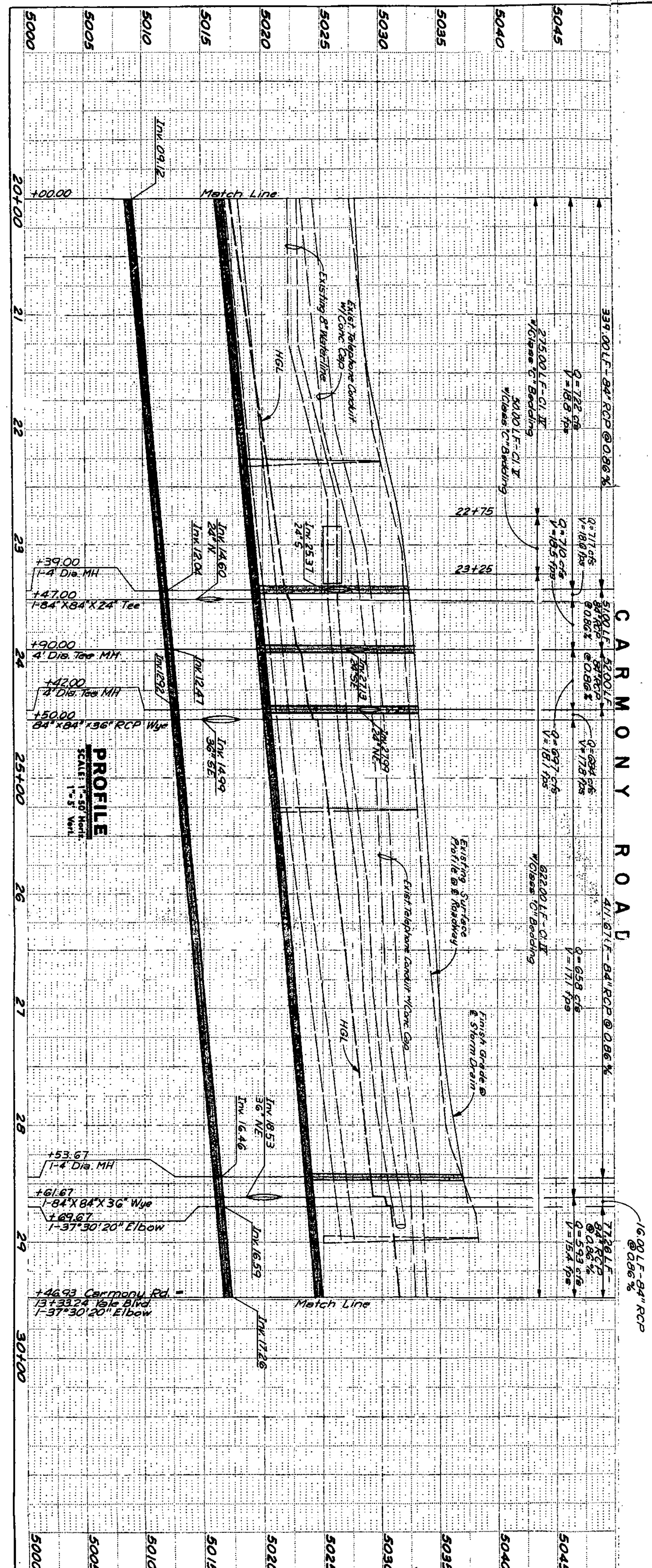
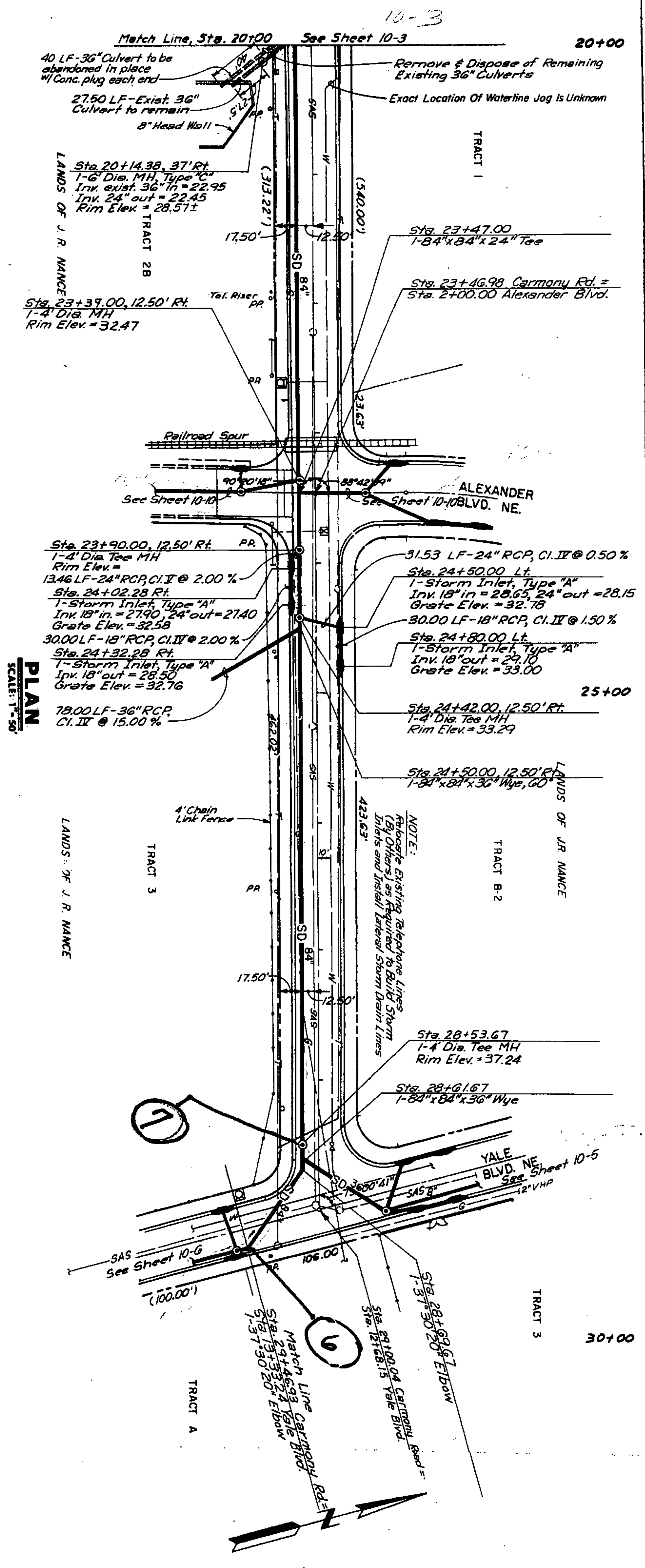


Profile - 2 - Base





COUNTY OF BERNALILLO PUBLIC WORKS DEPARTMENT SPECIAL ASSESSMENT DISTRICT BC-83-1 SPECIAL ASSESSMENT DISTRICT 216 STORM DRAIN PLAN & PROFILE			
APPROVALS	ENGINEER	DATE	APPROVALS
D.R.C. Chair			ENGINEER
Time Dev.			
Utility Dev.			
DRAWING NO.	3960	WAP NO.	6-16
		SHEET	10-7
ENGINEER'S SEAL		SURVEY INFORMATION	
 ANDREWS, ASBURY & ROBERT, INC. CONSULTING ENGINEERS ALBUQUERQUE 83-347 NEW MEXICO		FIELD NOTES	
		NO. BY DATE	
REMARKS		BENCH MARKS	
DESIGNED BY DA,JA DATE Feb. 1990		ACS/RNHC STA. "I-25-20"	
DRAWN BY JCS DATE Mar. 1990		BRASS TABLET SET IN CONCRETE POST LOCATED ON THE	
CHECKED BY JA DATE Mar. 1990		WESTERLY R.O.W. LINE OF I-25, 0.5 MILES SOUTHWESTERLY	
		FROM THE INTERSECTION WITH MONTANO RD.	
		ELEV. 5079.46	
		AS BUILT INFORMATION	
		CONTRACTOR	
		WORK	
		STAKED BY	
		INSPECTOR'S	
		ACCEPTANCE BY	
		DATE	
		FIELD	
		VERIFICATION BY	
		DRAWINGS	
		CONNECTED BY	
		DATE	
		MICRO-FILM INFORMATION	
		RECORDED BY	
		DATE	
		NO.	



COUNTY OF BERNALILLO PUBLIC WORKS DEPARTMENT SPECIAL ASSESSMENT DISTRICT BC-83-1 SPECIAL ASSESSMENT DISTRICT 216 CARMONY ROAD NE		PROJECT NO. 3960 MAP NO. G-15 SHEET 10-4 OF	
APPROVALS ENGINEER: _____ DATE: _____ TRANSPORTATION: _____ HYDROLOGY: _____		APPROVALS ENGINEER: _____ DATE: _____ WASTE WATER: _____	
DESIGNED BY J.M. JA DATE Oct. 1989 DRAWN BY JCS, TL DATE Oct. 1989 CHECKED BY JA, DA DATE Oct. 1991		NO. DATE REMARKS BY REVISIONS DESIGN	
ENGINEER'S SEAL ANDREW ASSBURY & ROBERT, INC. CONSULTING ENGINEERS ALBUQUERQUE 83-347 NEW MEXICO		SURVEY INFORMATION FIELD NOTES NO. BY DATE ACS/NMCS STA. "I-25-20" BRASS TABLET SET IN CONCRETE POST LOCATED ON THE WESTERLY R.O.W. LINE OF I-25, 0.5 MILES SOUTHWESTERLY FROM THE INTERSECTION WITH MONTANO RD. ELEV. 5079.46	
BENCH MARKS ACS/NMCS STA. "I-25-20" BRASS TABLET SET IN CONCRETE POST LOCATED ON THE WESTERLY R.O.W. LINE OF I-25, 0.5 MILES SOUTHWESTERLY FROM THE INTERSECTION WITH MONTANO RD. ELEV. 5079.46		AS BUILT INFORMATION CONTRACTOR WORK STARTED BY INSPECTOR'S ACCEPTANCE BY FIELD VERIFICATION BY CORRECTED BY MICRO-FILM INFORMATION RECORDED BY NO	

Map Pocket

Grading and Drainage Plan

APPENDIX A

**Section of Final Design Report for the Amole Del Norte
Storm Diversion Facilities, Tierra
Bayita Drainage Facilities, Phase III March 1998**



gaf

TIERRA WEST, LLC

August 19, 2010

Mr. Nilo Salgado-Fernandez, P.E.
Development and Building Services
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

**RE: DRB Signed-Off Site Plan Certification for
Permanent Certificate of Occupancy
Carpenter's Training Center
3900 Pan American Freeway NE**

Dear Mr. Salgado-Fernandez:

I, Ronald R. Bohannon, NMPE # 7868, of the firm Tierra West LLC, hereby certify that this project is in substantial compliance with and in accordance with the design intent of the Site Development Plan for Building Permit, approved plan dated November 15, 2007. I further certify that I have personally visited the site on August 18, 2010 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Temporary Certificate of Occupancy.

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

Enclosed, please find the information sheet and the as-built approved Site Development Plan for Building Permit. All items specified previously as outstanding are complete. Therefore, we request approval of the as-built DRB Sign-off Site Plan for Building Permit for a Temporary Certificate of Occupancy

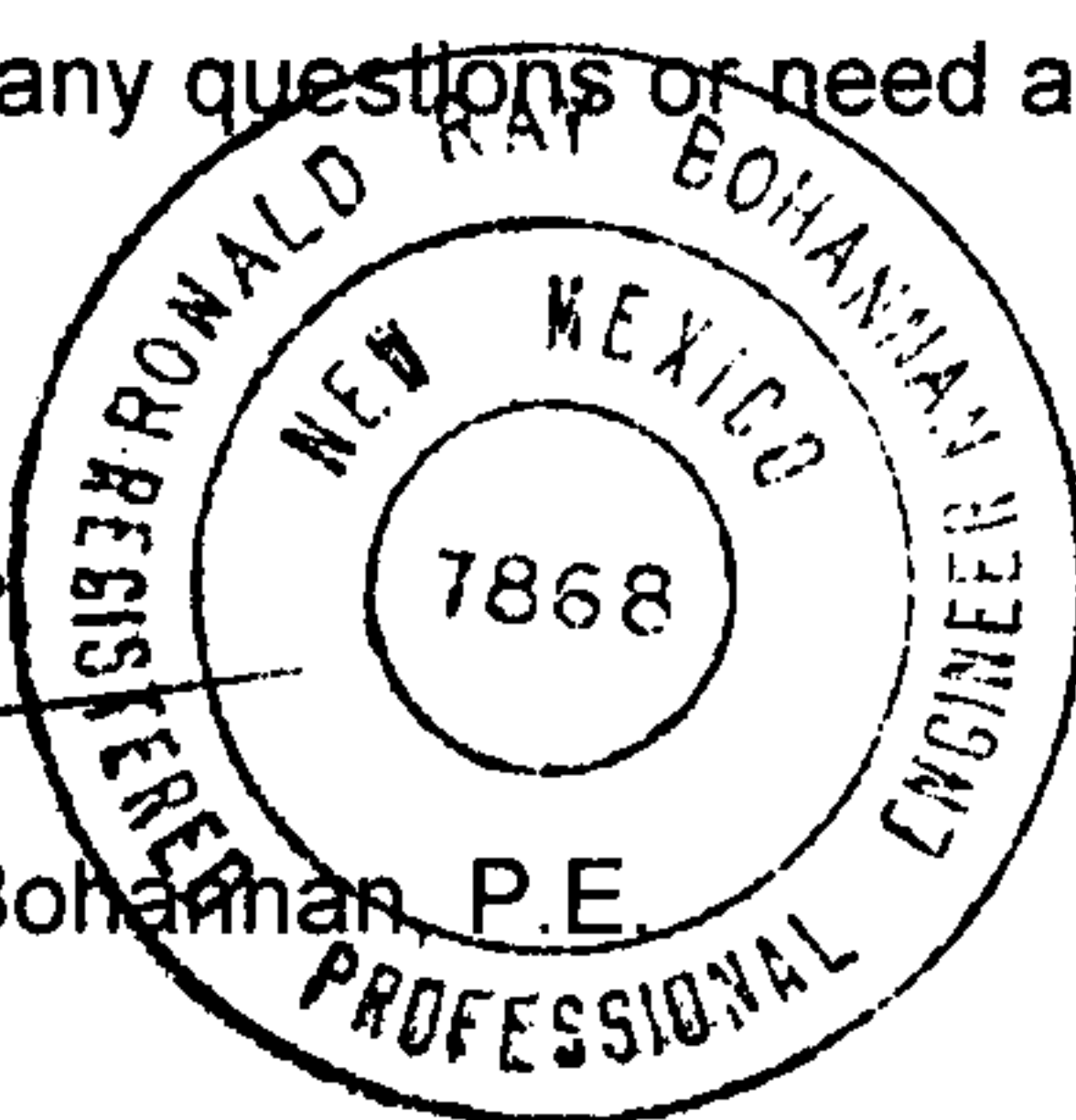
If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannon, P.E.

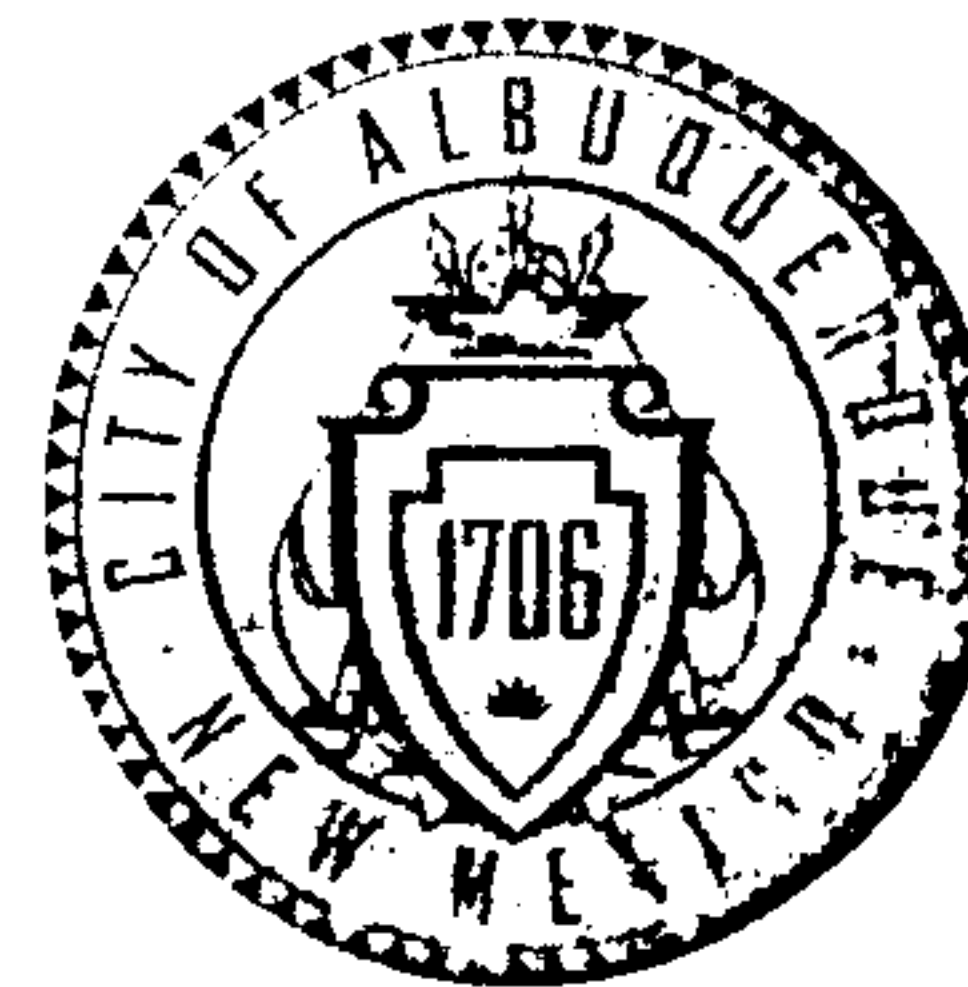
Enclosure/s

JN: 27101
RRB/kdk



5571 Midway Park Place NE
(505) 858-3100
Albuquerque, NM 87109
Fax (505) 858-1118
1-800-245-3102
tierrawestllc.com

CITY OF ALBUQUERQUE



March 17, 2008

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Carpenter's Training Center Drainage Report
Engineer's Stamp dated 3-12-08 (G16-D145)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 3-12-08, the above referenced plan is approved for Site Development Plan for Building Permit action by the DRB. Once that board approves the grading plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. In addition to submitting an NOI to the EPA and preparing a SWPPP, please send a copy of the SWPPP on a CD in .pdf format to the following address:

PO Box 1293

Department of Municipal Development
Storm Drainage Division
P.O. Box 1293, One Civic Plaza, Rm. 301
Attn: Kathy Verhage
Albuquerque, NM 87103

Albuquerque

NM 87103

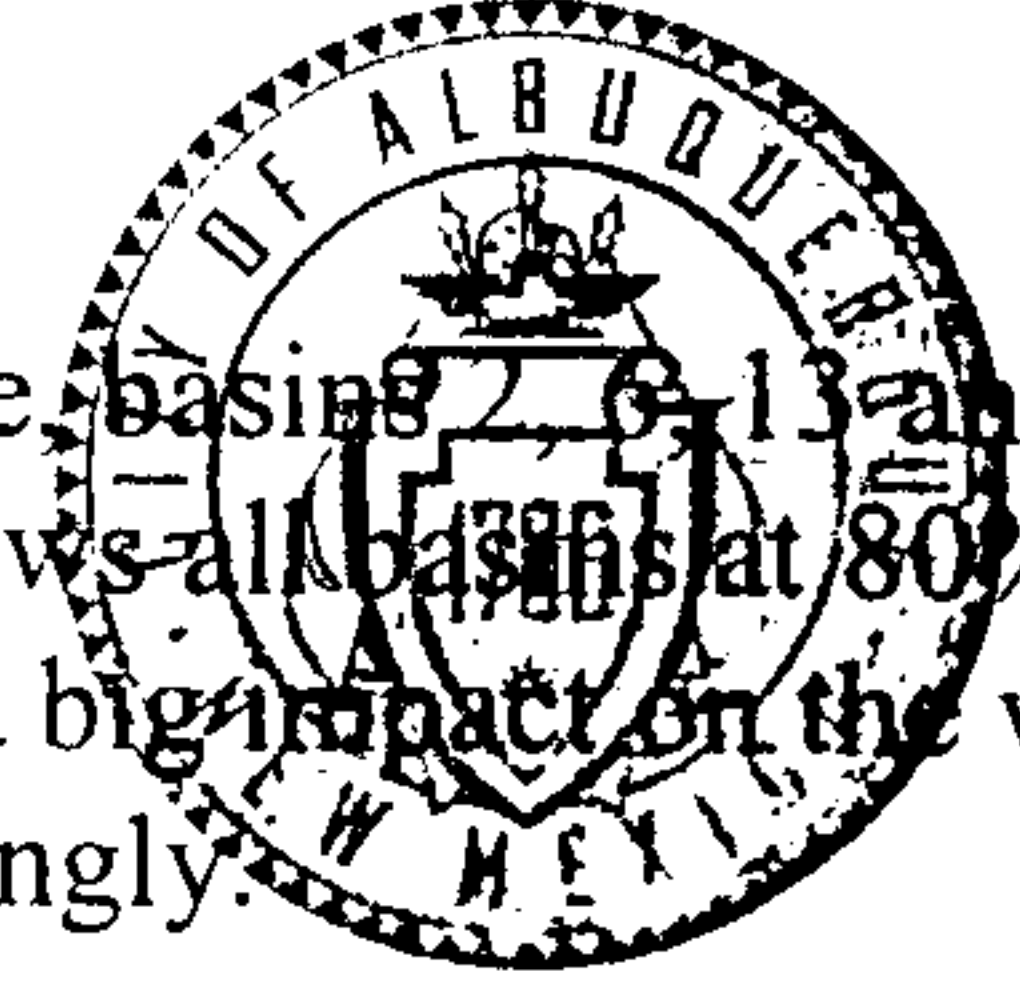
This CD must be delivered prior to Hydrology signing off on the permit. If you have any questions about this permit, please feel free to call the Municipal Development Department, Hydrology section at 768-3654.

www.cabq.gov

Prior to Building Permit or Work Order approval, please address the following comments:

- You call out that you are using the ditch/pond on the west side of I-25 to attenuate your flows to an acceptable amount. Who is maintaining this ditch/pond? Is this facility supposed to be permanent (you have said it was temporary in your write-up)? Provide all platting information and ownership records and a survey of the existing conditions of the ditch/pond in order to determine any improvements needed beside the orifice plate proposed.
- Please add a column to your pipe capacity table to provide contributing basins and analysis points so I can track your on-site storm drain design. Provide Table 1 of the SAD 216 report to justify allowable discharge at the 2 analysis points.

CITY OF ALBUQUERQUE



- Land treatments for some of the basins are suspect. For instance, basins 2, 6, 13 and 14 appear to be closer to 100% impervious, yet the spreadsheet shows all basins at 80% "D" and the AHYMO uses 15% "D" and 48% "A". This will have a big impact on the water surface in the above channel. Please recheck and revise accordingly.

If you have any questions, you can contact me at 924-3986.

Sincerely,

A handwritten signature in black ink that reads "Bradley L. Bingham". The signature is written in a cursive style.

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: file

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Figure 6: Notice of DRC SessionProcessing Date 5/7/08Project#: 554483 Zone Atlas: G-16 DRB#: _____Project Name: Carpenters Training Center☒ Scheduled with DRC on Tuesday May 13, 2008 at 4:00
☐ No DRC Meeting Scheduled. Please return at comments by _____Project Location: 3900 Pan American FwyTYPE OF PROJECT: ☒-AHBA ☐-CIP ☐-SAD/PID ☐-ABCWUAPROJECT COORDINATOR: Ronald Bohannon Phone: 858-3100Company: Tierra WestDesign Engineer: SAME Phone: _____

Company: _____

The Project Is Scheduled For the Following DRC Session:☐-Pre-Design Review ☐- Final Plan Review ☐- _____
☒-Preliminary Plan Review ☐- Signature Review ☐-Route for Signature**The Project Relates to City Infrastructure Systems:**☒- Water ☒- San. Sewer ☒- Paving ☒-Storm Drainage ☐- _____**The Attached Package Includes:**

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. (It will be the Project Coordinator's responsibility to notify consulting engineering firms of date and time of scheduled DRC meetings).

D- Drawings MU- Markups M- Memo Only E- Estimate R- Report

			D	MU	M	E	R
DRC Chairman	<u>Stephen</u>	Design Review Section	☒	☐	☐	☐	☐
Traffic Dev.	<u>Nilo</u>	Transportation Development	☒	☐	☐	☐	☐
Utility Dev.	<u>Jeremy Hoover</u>	Utility Development	☒	☐	☐	☐	☐
Utility Des.	<u>(CIP)</u>	Utility Design	☐	☐	☐	☐	☐
Hydr. Dev.	<u>Brad</u>	Hydrology Development	☒	☐	☐	☐	☐
Hydr. Des.	<u>(CIP)</u>	Hydrology Design	☐	☐	☐	☐	☐
<u>Anthony Lopez</u>	<u>Paul Olson</u>	Construction Division	☒	☐	☐	☐	☐
Const. Div.	<u>(CIP) Ted Korbin</u>	Construction Division	☐	☐	☐	☐	☐
Kevin Broderick/Andrew Gallegos		Traffic Operations Division	☒	☐	☐	☐	☐
Donald Bartlett		Risk Management	☒	☐	☐	☐	☐
George Gee		City Architect	☐	☐	☐	☐	☐
Gene Bustamante		General Services Department	☐	☐	☐	☐	☐
Parks & Rec.		Parks & Recreation Department	☐	☐	☐	☐	☐
Project Manager			☐	☐	☐	☐	☐

Notified Runner of DRC meeting date & time on 5/13/08 at 4:00 via Counter

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Carpenters Training Center
DRB : 1006865 EPC #: 07EPC-40066

ZONE MAP/DRG. FILE #: G-16 / D145
WORK ORDER #:

LEGAL DESCRIPTION: Comanche Business Park
CITY ADDRESS: 3900 Pan American

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 5571 Midway Park Place
CITY, STATE: Albuquerque, NM

CONTACT: Ron Bohannon
PHONE: (505) 858-3100
ZIP CODE: 87109

OWNER: United Brotherhood of Carpenters
ADDRESS: 533 S. Fremone Avenu, 9th Floor
CITY, STATE: Los Angeles, CA

CONTACT: Randy Sowell
PHONE: (213) 488-2957
ZIP CODE: 90071

ARCHITECT: Gin Wong Associates
ADDRESS: 4465 Wilshire Blvd, Suite 100
CITY, STATE: Los Angeles, CA

CONTACT: Bruce Bailey
PHONE: (323) 938-4422
ZIP CODE: 90010

SURVEYOR: Surv-tek
ADDRESS: 9384 Valley View NW Suite 100
CITY, STATE: Albuquerque, NM

CONTACT: Russ Hugg
PHONE: (505) 897-3366
ZIP CODE: 87114

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

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
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

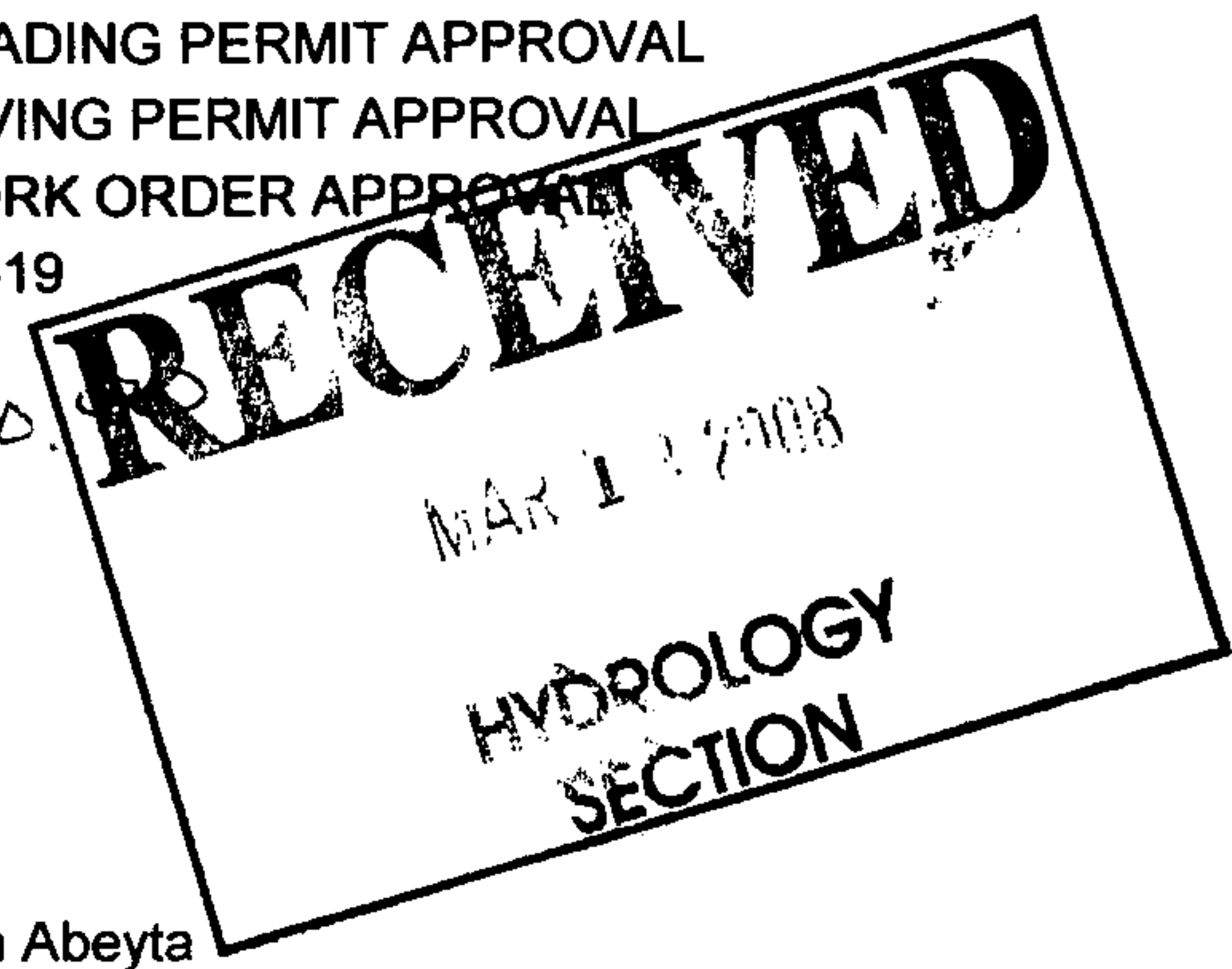
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL 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
☐ SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED

DATE SUBMITTED: 3/12/2008 BY: Sarah Abeyta



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 Plans:** 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.

TABLE NO. 1

PEAK RUNOFF RATES

DEVELOPED CONDITIONS (6 HOUR STORM)

ANALYSIS POINT	Q(10) (CFS)	Q(100) (CFS)
1	18	30
2	29	49
3	60	101
4	61	104
5	63	109
6	96	151
6A	70	109
6B	197	308
7	241	377
8	248	393
9	70	110
10	87	138
11	63	65
12	363	544
13	376	565
14	47	73
15	413	627
16	454	688
17	519	789
18	569	870
19	71	111
20	638	979
21	636	971
22	66	104
23	37	93
24	84	171
25	114	212
26	163	297
27	167	301
28	48	81
29	40	63
* 30	864	1376

* Analysis Point 30 - Includes runoff from Total Drainage Area.

**DRAINAGE REPORT
FOR**

Carpenter's Training Center

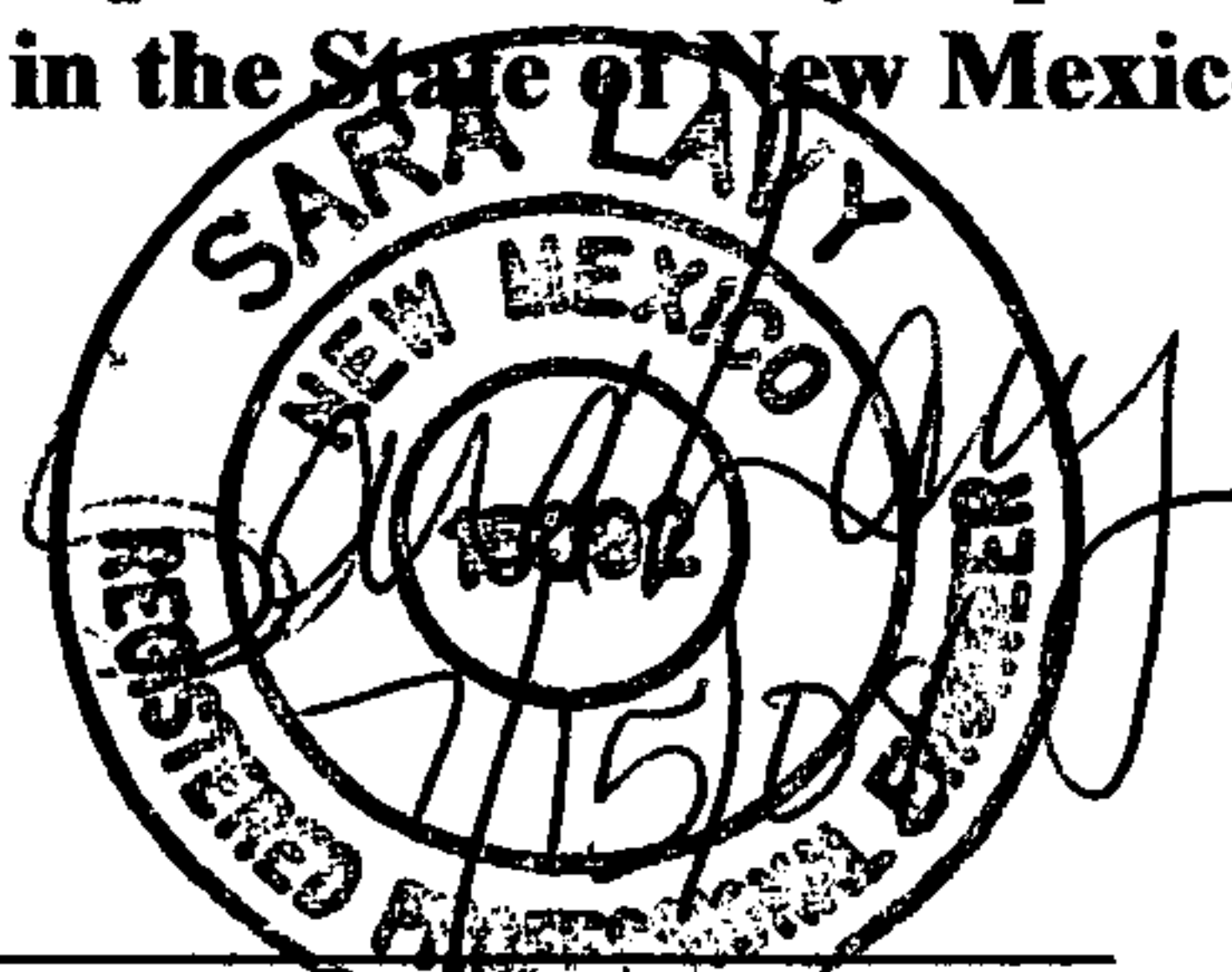
Prepared by:

**Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109**

**Prepared for:
Randy Sowell
United Brotherhood of Carpenters and Joiners of America
Los Angeles, CA 90071**

July 2008

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



**Sara Lavy
PE NO. 15092**

Job No 27101

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Carpenters Training Center
DRB # 1006865 EPC #: 07EPC-40066

ZONE MAP/DRG. FILE #: G-16/D145
WORK ORDER #:

LEGAL DESCRIPTION: Comanche Business Park
CITY ADDRESS: 3900 Pan American

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 5571 Midway Park Place
CITY, STATE: Albuquerque, NM

CONTACT: Ron Bohannon
PHONE: (505) 858-3100
ZIP CODE: 87109

OWNER: United Brotherhood of Carpenters
ADDRESS: 533 S. Fremone Avenu, 9th Floor
CITY, STATE: Los Angeles, CA

CONTACT: Randy Sowell
PHONE: (213) 488-2957
ZIP CODE: 90071

ARCHITECT: Gin Wong Associates
ADDRESS: 4465 Wilshire Blvd, Suite 100
CITY, STATE: Los Angeles, CA

CONTACT: Bruce Bailey
PHONE: (323) 938-4422
ZIP CODE: 90010

SURVEYOR: Surv-tek
ADDRESS: 9384 Valley View NW Suite 100
CITY, STATE: Albuquerque, NM

CONTACT: Russ Hugg
PHONE: (505) 897-3366
ZIP CODE: 87114

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

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
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

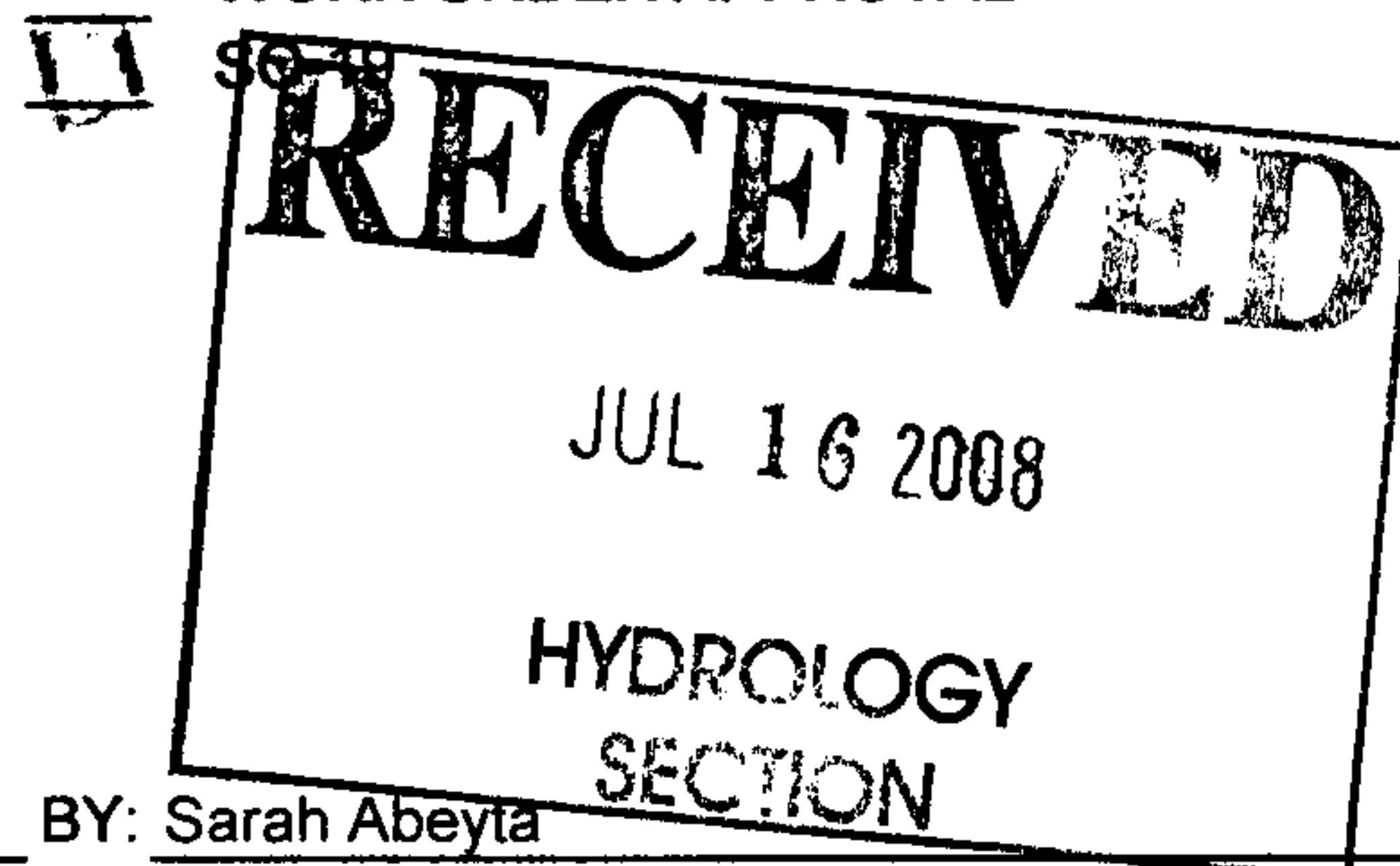
- ☐ SIA / FINANACIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
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☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED

DATE SUBMITTED: 7/15/2008

BY: Sarah Abeyta



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 Plans:** 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.

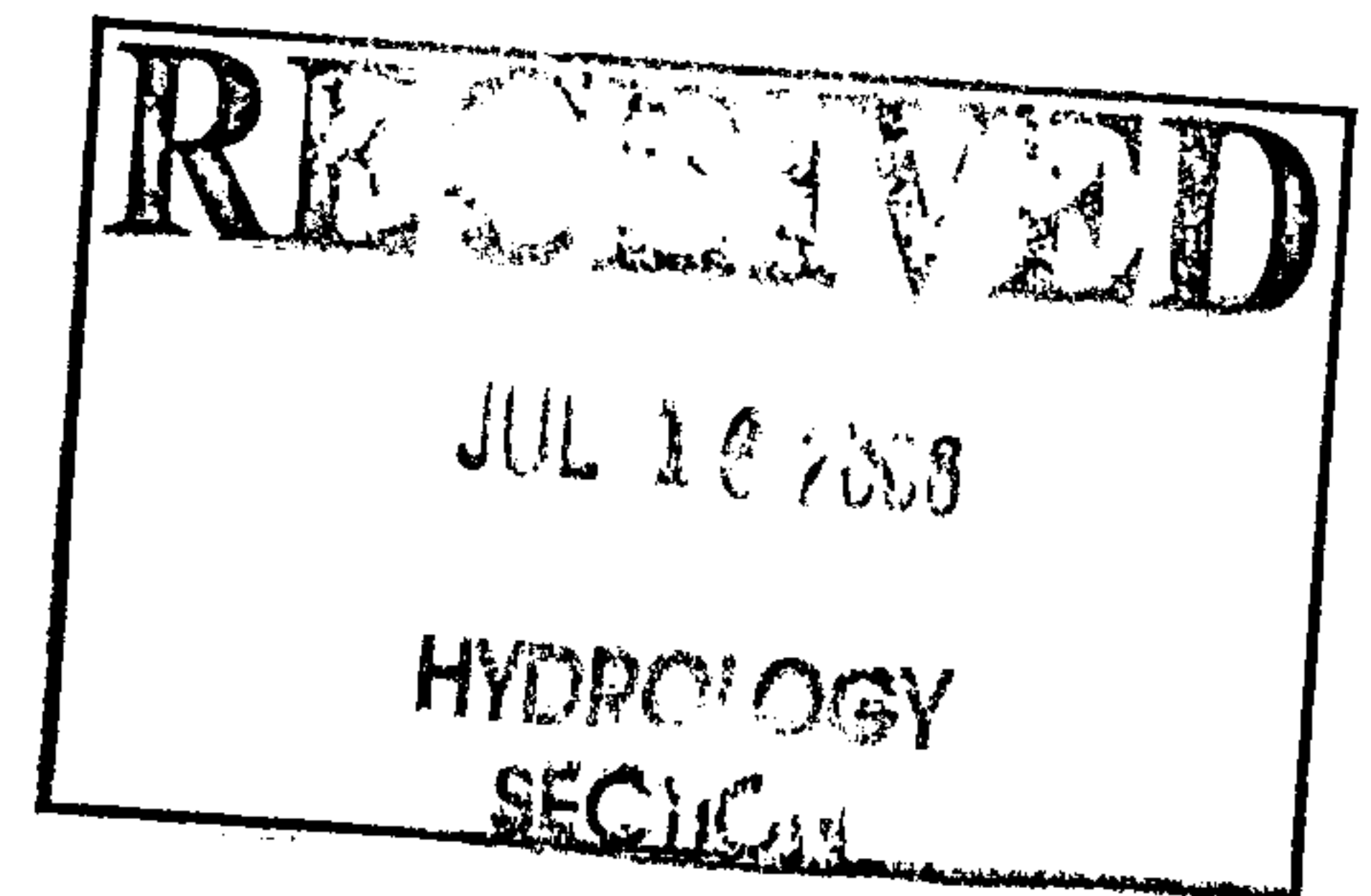
gan

TIERRA WEST, LLC

July 15, 2008

Mr. Bradley Bingham, PE
Sr. Engineer
City of Albuquerque - Public Works Hydrology Department
P.O. Box 1293
Albuquerque, NM 87103

**RE: Carpenters Training Center
Request for Grading and Building Permit Approval
Zone Atlas Page G16/D145**



Dear Mr. Bingham:

Per your correspondence dated March 17, 2008, regarding the above referenced property, please find the following responses addressing the comments listed below.

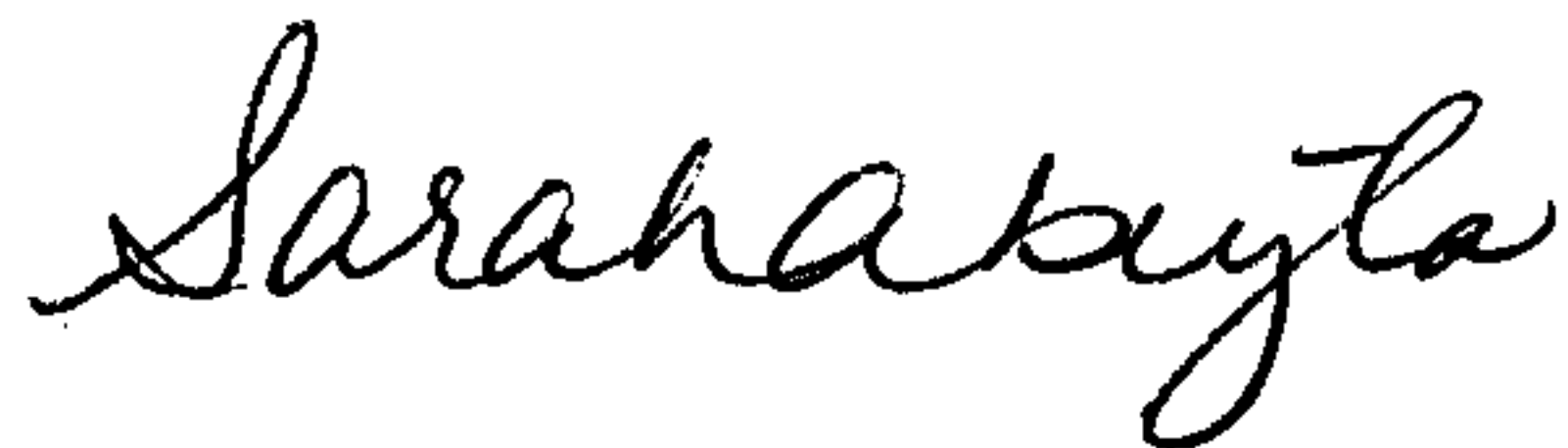
1. You call out that you are using the ditch/pond on the west side of I-25 to attenuate your flows to an acceptable amount. Who is maintaining this ditch/pond? Is this facility supposed to be permanent (you have said it was temporary in your write-up)? Provide all platting information and ownership records and a survey of the existing conditions of the ditch/pond in order to determine any improvements needed beside the orifice plate proposed.
As discussed with Brad Bingham with the City, we can assume the pond belongs to the City of Albuquerque. The pond will be permanent and is dirt lined. As part of the project the developer of the Carpenters Training Center will be responsible for installing the orifice plate on the outlet to the pond and make the required modifications to the pond required to accept the drainage generated by the site.
2. Please add a column to our pipe capacity table to provide contributing basins and analysis points so I can track your on-site storm drain design. Provide Table 1 of the SAD 216 report to justify allowable discharge at the 2 analysis points.
A column was added to the pipe capacity table to provide the contributing basins and analysis points to help track on-site storm drain design. Table 1 of the SAD 216 is included for reference.
3. Land treatment types for some of the basins are suspect. For instance basins 2, 11 and 14 appear to be closer to 100% impervious, yet the spreadsheet shows all basins 80% D and the AHYMO uses 15% "D" and 48% "A". This will have a big impact on the water surface in the above channel. Please recheck and revise accordingly.

5571 Midway Park Place NE
(505) 858-3100
Albuquerque, NM 87109
Fax (505) 858-1118
1-800-245-3102
tierrawestllc.com

The land treatment types for all basins were revised. The discharge for the site did increase slightly after the land treatment types were changed. The AHYMO data, Storm CAD profiles, drop inlet calculations, and pipe capacity table were revised to reflect the correct information. The pond will need to be modified in order to accept the discharge and allow for 1' of freeboard as required. The modification will include regrading the pond to increase its capacity. The proposed contours are shown on the revised plan.

If you have any questions or need additional information regarding this matter, please do not hesitate to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sarah Abeyta".

Sarah Abeyta

Enclosure/s

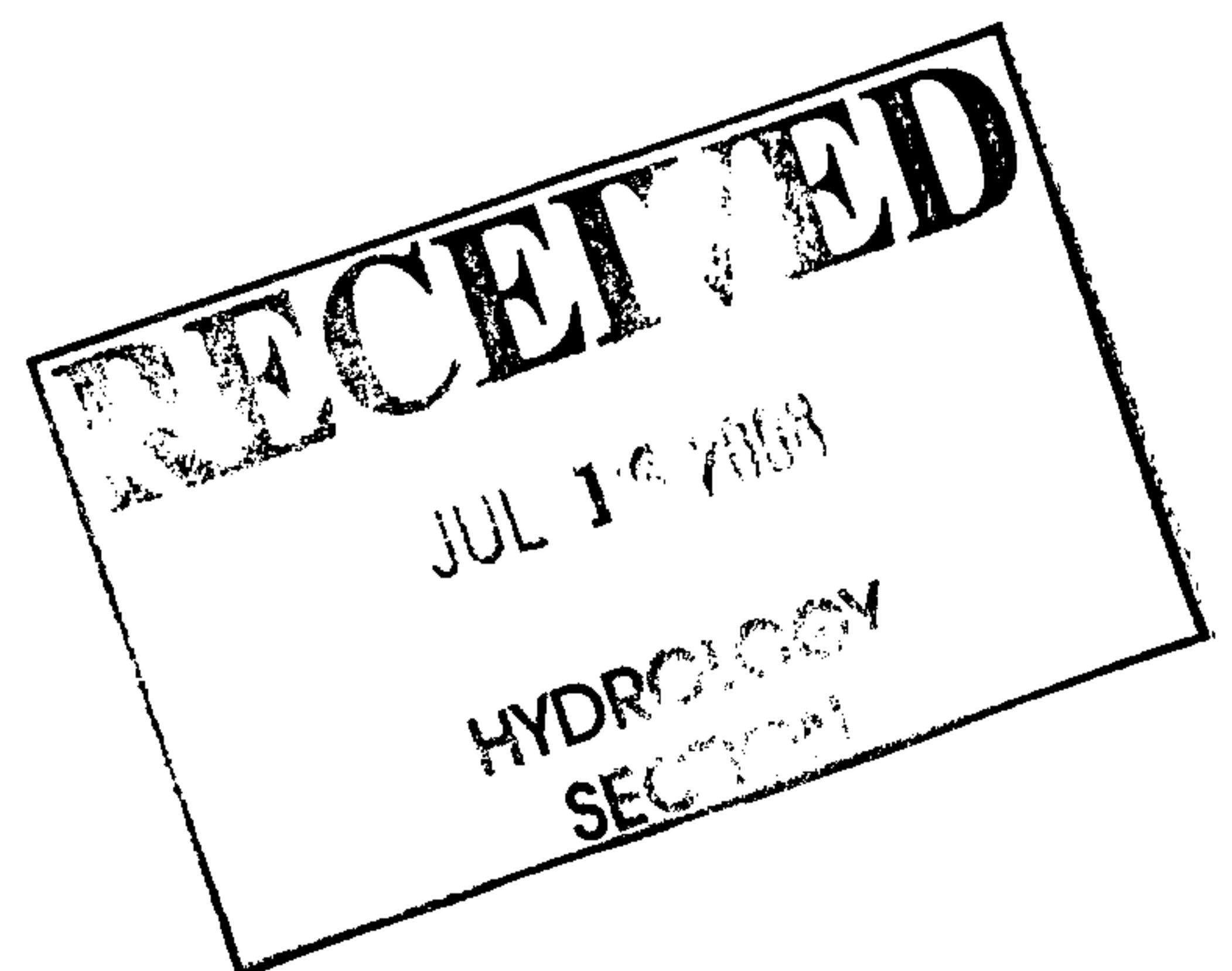
JN: 27101
SA/cia

Revised

Storm Drop Inlets

Capacity of Single “D” Storm Drop Inlet

Revised Runoff Calculations



Weighted E Method

Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1	60667	1.39	0%	0	32%	0.45	0%	0.00	68%	0.95	1.691	0.196	5.47	1.001	0.116	3.40
2	27445	0.63	0%	0	8%	0.05	0%	0.00	92%	0.58	2.013	0.106	2.84	1.255	0.066	1.87
3	55465	1.27	0%	0	7%	0.09	0%	0.00	93%	1.18	2.026	0.215	5.77	1.266	0.134	3.80
4	63380	1.46	0%	0	12%	0.17	0%	0.00	88%	1.28	1.959	0.238	6.42	1.213	0.147	4.19
5	3805	0.09	0%	0	100%	0.09	0%	0.00	0%	0.00	0.780	0.006	0.20	0.280	0.002	0.08
6	58557	1.34	0%	0	0%	0.00	0%	0.00	100%	1.34	2.120	0.237	6.32	1.340	0.150	4.22
7	37992	0.87	0%	0	16%	0.14	0%	0.00	84%	0.73	1.906	0.139	3.76	1.170	0.085	2.43
8	33344	0.77	0%	0	7%	0.05	0%	0.00	93%	0.71	2.026	0.129	3.47	1.266	0.081	2.29
9	22245	0.51	0%	0	28%	0.14	0%	0.00	72%	0.37	1.745	0.074	2.05	1.043	0.044	1.29
10	19052	0.44	0%	0	21%	0.09	0%	0.00	79%	0.35	1.839	0.067	1.83	1.117	0.041	1.17
11	17795	0.41	0%	0	13%	0.05	0%	0.00	87%	0.36	1.946	0.066	1.79	1.202	0.041	1.17
12	17008	0.39	0%	0	11%	0.04	0%	0.00	89%	0.35	1.973	0.064	1.73	1.223	0.040	1.13
13	33152	0.76	0%	0	20%	0.15	0%	0.00	80%	0.61	1.852	0.117	3.21	1.128	0.072	2.06
14	24303	0.56	0%	0	24%	0.13	0%	0.00	76%	0.42	1.798	0.084	2.30	1.086	0.050	1.46
15	72208	1.66	0%	0	19%	0.31	0%	0.00	81%	1.34	1.865	0.258	7.03	1.139	0.157	4.52
16	23194	0.53	0%	0	14%	0.07	0%	0.00	86%	0.46	1.932	0.086	2.32	1.192	0.053	1.51
17	26713	0.61	0%	0	12%	0.07	0%	0.00	88%	0.54	1.959	0.100	2.70	1.213	0.062	1.76
18	30366	0.70	0%	0	12%	0.08	0%	0.00	88%	0.61	1.959	0.114	3.07	1.213	0.070	2.01
19	40496	0.93	0%	0	19%	0.18	0%	0.00	81%	0.75	1.865	0.145	3.94	1.139	0.088	2.53
TOTAL	667,188	15.32										0.196	66.23		0.116	42.88

Off-site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1A	11996	0.28	100%	0.275396	0%	0.00	0%	0.00	0%	0.00	0.530	0.012	0.43	0.130	0.003	0.10
TOTAL	11,996	0.28										0.012	0.43		0.003	0.10

$$\text{Weighted E} = E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d / (\text{Total Area})$$

$$\text{Volume} = \text{Weighted D} \cdot \text{Total Area}$$

$$\text{Flow} = Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$$

Excess Precipitation, E (inches)		
Zone 2	100-Year	10 - Year
E _a	0.53	0.13
E _b	0.78	0.28
E _c	1.13	0.52
E _d	2.12	1.34

Peak Discharge (cfs/acre)		
Zone 2	100-Year	10 - Year
Q _a	1.56	0.38
Q _b	2.28	0.95
Q _c	3.14	1.71
Q _d	4.7	3.14

47.16

19.07

Revised Pipe Capacity

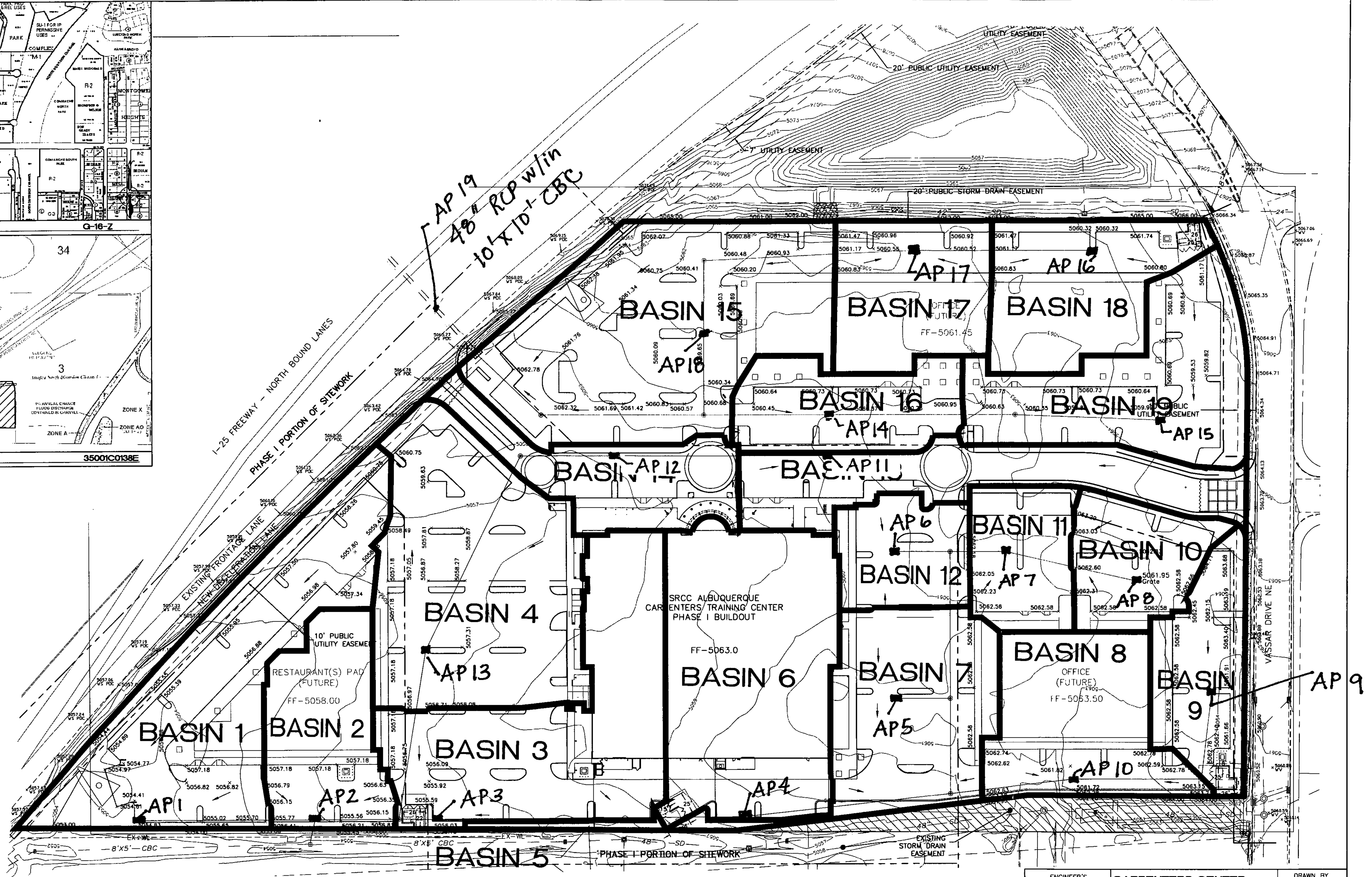
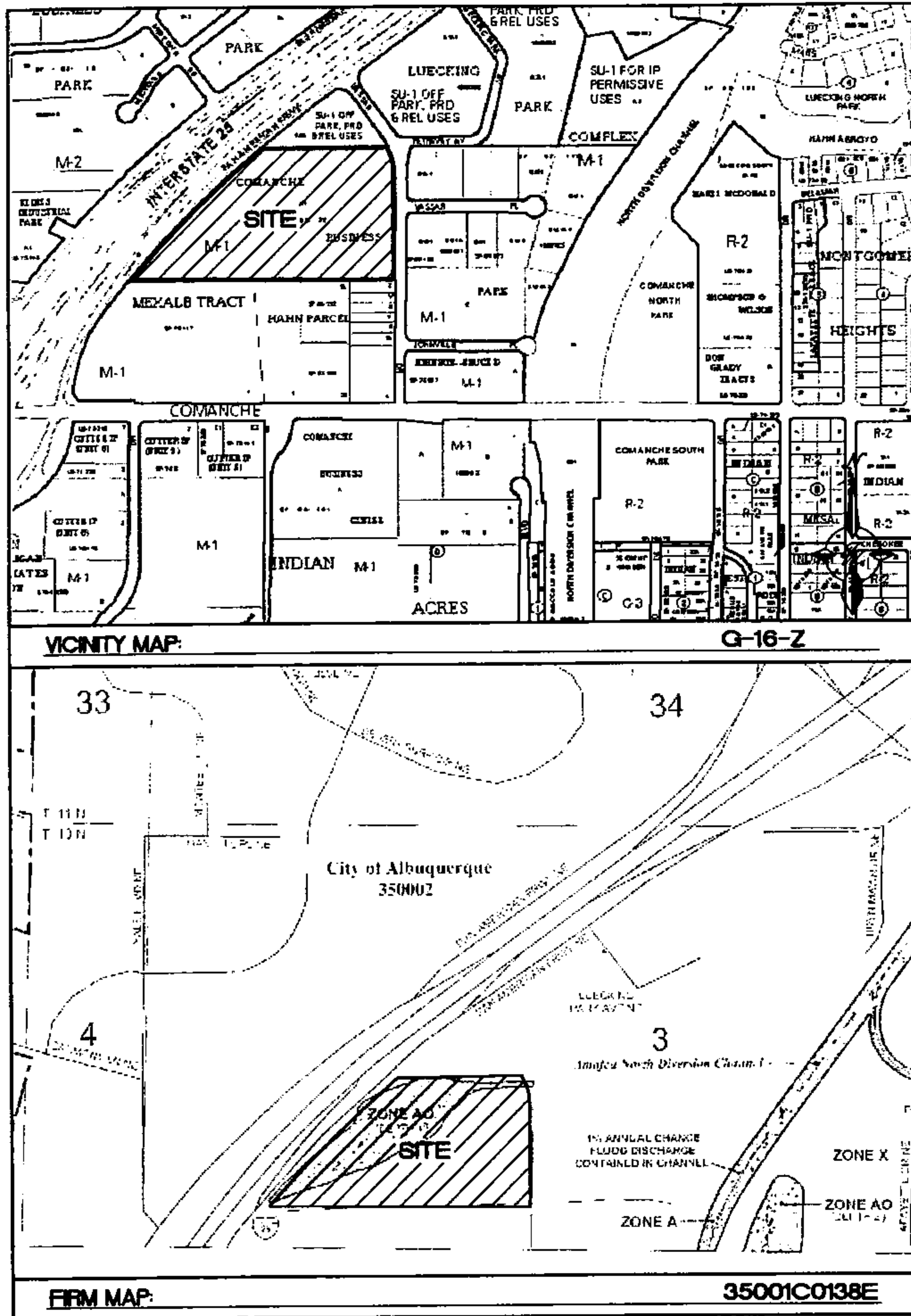
Pipe Capacity for On-Site Storm Drain

Pipe Run #	Pipe	D (in)	Slope (%)	Area (ft ²)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)	Contributing Basins
R1	Exiting Culvert to Inlet 1	36	1	7.07	0.750	66.88	47.16	6.67	1,2,3,4,6,7,8,9, 10,11,12,13,14
R2	Inlet 1 to Inlet 2	18	1	1.77	0.375	10.53	5.47	3.10	1
R3	Inlet 1 to MH 1	30	1	4.91	0.625	41.13	38.85	7.91	3 thru 14
	MH 1 to Inlet 3	24	1.4	3.14	0.500	26.84	26.72	8.51	3,6,7,8,9,10,11, 12
R4	Inlet 3 to Inlet 4	24	1	3.14	0.500	22.68	20.95	6.67	6,7,8,9,10, 11,12
R5	Inlet 4 to MH 2	24	1	3.14	0.500	22.68	14.63	4.66	7,8,9,10,11,12
R12	MH 2 to Inlet 5	18	1	1.77	0.375	10.53	5.52	3.12	8,9
R13	Inlet 5 to MH 4	12	1	0.79	0.250	3.57	2.05	2.61	9
R14	Inlet 6 to MH 4	12	1	0.79	0.250	3.57	2.05	2.61	9
R6	MH 3 to MH 2	18	1	1.77	0.375	10.53	9.17	5.16	7,10,11,12
R8	Inlet 7 to MH 3	12	1.5	0.79	0.250	4.38	3.26	4.79	12
R7	MH 3 to MH 5	18	1	1.77	0.375	10.53	5.35	3.03	10,11,12
R9	Inlet 8 to MH 5	12	1	0.79	0.250	3.57	1.73	2.20	12
R10	Inlet 9 to MH 5	12	1.1	0.79	0.250	3.75	3.62	4.61	10,11
R11	Inlet 9 to Inlet 10	12	1	0.79	0.250	3.57	1.83	2.33	10
R15	Inlet 11 to MH 1	18	1.3	1.77	0.375	12.01	11.93	6.75	4,13,14
R16	Inlet 11 to MH 6	18	1	1.77	0.375	10.53	5.51	3.12	13,14
R17	MH 6 to Inlet 12	18	1	1.77	0.375	10.53	5.57	3.12	13,14
R18	Inlet 12 to Inlet 13	12	2	0.79	0.250	5.05	3.21	4.09	13
R22	MH 7 to MH 8	24	1	3.14	0.500	22.68	19.49	6.20	15,16,17,18,19, 1A
R23	Inlet 14 to MH 8	18	1.6	1.77	0.375	13.32	13.23	7.49	15,17,18,1A
R24	MH 9 to Inlet 14	18	0.6	1.77	0.375	8.16	5.77	3.27	17,18
R25	Inlet 15 to MH 9	18	0.6	1.77	0.375	8.16	5.77	3.27	17,18
R26	Inlet 15 to Inlet 16	12	0.8	0.79	0.250	3.20	3.07	3.91	18
R21	MH 8 to Inlet 17	18	0.8	1.77	0.375	9.42	6.26	3.54	1A(15)19
R20	Inlet 17 to MH 10	18	0.6	1.77	0.375	8.16	3.94	2.23	19
R19	Inlet 18 to MH 10	18	0.6	1.77	0.375	8.16	3.94	2.23	19
R28	MH 11 to MH 12	48	1	12.57	1.000	144.03	127.40	10.14	Upland Basin
R30	MH 12 to Existing 42" Stub	42	1	9.62	0.875	100.88	93.40	9.71	Upland Basin
R31	MH 12 to MH 13	24	5	3.14	0.500	50.72	24.50	7.80	Upland Basin
R29	MH 11 to ex. Culvert	48	1.4	12.57	1.000	170.42	146.89	11.69	Upland Basin + 15,16,17,18,19, 1A
R27	MH 7 to MH 11	24	1.4	3.14	0.500	26.84	19.49	6.20	15,16,17,18,19, 1A

Manning's Equation:

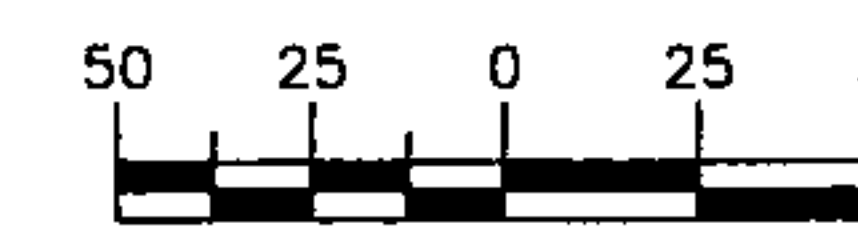
$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area
 R = D/4
 S = Slope
 n = 0.013

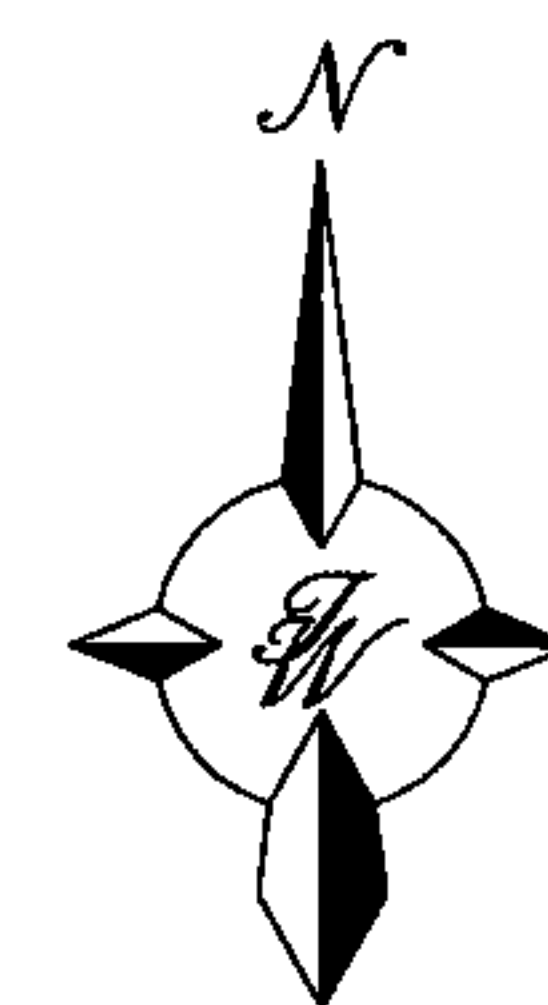


1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

GRAPHIC SCALE



SCALE: 1"=50'



ENGINEER'S SEAL RONALD R. BOHANNAN P.E. #7868	CARPENTERS CENTER 3900 PAN AMERICAN FREEWAY	DRAWN BY BJF
	ANALYSIS POINT MAP	DATE 01/21/08
	TERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505)858-3100	26026 ANALYSIS POINT MAP
		SHEET # C-1
		JOB # 26026

Single 'D' Drop Inlet AP # 1-18

EFFECTIVE AREA ASSUMING A 50% CLOGGING FACTOR

SINGLE 'D':

Area at the grate:

$$\begin{aligned} L &= 38.375" - 7 (1/2" \text{ middle bars}) \\ &= 34.875" \\ &= 2.906' \end{aligned}$$

$$\begin{aligned} W &= 25.5" - 13 (1/2" \text{ middle bars}) \\ &= 19" \\ &= 1.583' \end{aligned}$$

$$\begin{aligned} \text{Area} &= 1.583' \times 2.906' \\ &= 4.601 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Effective Area} &= 4.601 - 0.5 (4.601) \\ &= 2.30 \text{ ft}^2 \end{aligned}$$

$$\text{Effective Area} = 2.30 \text{ ft}^2$$

Orifice Equation

$$Q = CA \sqrt{2gH}$$

$$Q = 0.6 \times 2.30 \times \sqrt{2 \times 32.2 \times 0.5}$$

$$Q = 7.83 \text{ cfs}$$

Total Capacity

$$Q = 7.83 \text{ cfs}$$

AP# 1

$$\text{Flow required} = 5.47 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 2

$$\text{Flow required} = 2.84 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 3

$$\text{Flow required} = 5.77 \text{ cfs} < 7.83 \text{ cfs}$$

Single D inlet has capacity

AP# 4

Flow required = 6.32 cfs < 7.83 cfs
Single D inlet has capacity

AP# 5

Flow required = 3.76 cfs < 7.83 cfs
Single D inlet has capacity

AP# 6

Flow required = 1.73 cfs < 7.83 cfs
Single D inlet has capacity

AP# 7

Flow required = 1.79 cfs < 7.83 cfs
Single D inlet has capacity

AP# 8

Flow required = 1.83 cfs < 7.83 cfs
Single D inlet has capacity

AP# 9

Flow required = 2.05 cfs < 7.83 cfs
Single D inlet has capacity

AP# 10

Flow required = 3.47 cfs < 7.83 cfs
Single D inlet has capacity

AP# 11

Flow required = 3.21 cfs < 7.83 cfs
Single D inlet has capacity

AP# 12

Flow required = 2.30 cfs < 7.83 cfs
Single D inlet has capacity

AP# 13

Flow required = 6.42 cfs < 7.83 cfs
Single D inlet has capacity

AP# 14

Flow required = 2.32 cfs < 7.83 cfs
Single D inlet has capacity

AP# 15

Flow required = 3.94 cfs < 7.83 cfs

Single D inlet has capacity

AP# 16

Flow required = 3.07 cfs < 7.83 cfs

Single D inlet has capacity

AP# 17

Flow required = 2.70 cfs < 7.83 cfs

Single D inlet has capacity

AP# 18

Flow required = 7.46 cfs < 7.83 cfs

Single D inlet has capacity

Pipe Capacity Existing 48" RCP Under I-25

AP# 19

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
	48	1.25	12.57	1.000	161.03	159.94	12.73

Manning's Equation:

$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area

R = D/4

S = Slope

n = 0.013

48" RCP UNDER
I-25 STILL HAS
CAPACITY W/
REVISED TREATMENT
TYPES

$$159.94 \text{ CFS} = 127.4 \left(\begin{matrix} \text{upland} \\ \text{basin} \end{matrix} \right) + 0.43 \left(\begin{matrix} \text{off-site} \\ \text{basin 1A} \end{matrix} \right) + 19.07 \text{ (from site)} + 13.07 \text{ (from I-25)}$$

**REVISED
AHYMO DATA
and
POND VOLUME CALCULATIONS**

VOLUME CALCULATIONS POND

$$V = \frac{L}{2}(A1 + A2)$$

V = Volume

L = Length (Distance between sections)

A1 = Area of section 1

A2 = Area of section 2

STAGE	AREA		VOLUME		Q
	[ft ²]	[acres]	INC [acre-feet]	CUM [acre-feet]	[cfs]
5031	22	0.00	0.00	0.0000	0.00
5032	1,331	0.03	0.02	0.0155	34.04
5033	3,640	0.08	0.06	0.0726	48.13
5034	6,405	0.15	0.12	0.1879	58.95
5035	15,406	0.35	0.25	0.4383	68.07
5036	18,431	0.42	0.39	0.8266	76.10
5037	21,524	0.49	0.46	1.2853	83.37
5038	25,742	0.59	0.54	1.8278	90.05

Orifice Equation

$$Q = CA \text{ SQRT}(2gH)$$

C = 0.6

Diameter (i 36

Area (ft²): 7.069

g = 32.2

H (Ft) = Depth of water above center of orifice

Q (CFS)= Flow

AHYMO

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR)
=05/08/2008
INPUT FILE = Z:\2007\27101\Reports\Drainage\AHYMO\270E9D~1.TXT USER NO.=
AHYMO-S-9702d3TierraW-AH

FROM	TO	PEAK	RUNOFF	TIME TO	CFS	PAGE
HYDROGRAPH	ID	ID	AREA	DISCHARGE	VOLUME	RUNOFF
IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)
COMMAND						
NOTATION						
START						TIME=
.00						
RAINFALL TYPE= 2						RAIN24=
2.750						
SEDIMENT BULK						PK BF =
1.00						
*S OFF-SITE BASIN DRAINING TO EXISTING POND NORTH OF CARPENTERS TRAINING SITE						
*S LAND TREATMENT TYPES NOT ACCURATE ASSUMED TO GENERATE CORRECT CFS						
*S ENTERING POND						
COMPUTE NM HYD	101.10	-	2	.04210	126.65	5.492
IMP= 100.00						2.44591
*S OFF-SITE BASIN FROM I-25 LAND TREATMENT TYPES ASSUMED TO GENERATE CORRECT CFS						1.499
COMPUTE NM HYD	101.1P	-	3	.00430	12.94	.561
IMP= 100.00						2.44593
*S OFF-SITE BASIN 1A						1.499
COMPUTE NM HYD	101.1A	-	4	.00040	.41	.011
IMP= .00						.53109
*S Basin 15						1.532
COMPUTE NM HYD	101.15	-	15	.00260	7.07	.295
IMP= 81.00						2.12905
*S Basin 16						1.499
COMPUTE NM HYD	101.16	-	16	.00080	2.25	.094
IMP= 86.00						2.21248
*S Basin 17						1.499
COMPUTE NM HYD	101.17	-	17	.00100	2.84	.120
IMP= 88.00						2.24583
*S Basin 18						1.499
COMPUTE NM HYD	101.18	-	18	.00110	3.12	.132
IMP= 88.00						2.24582
*S Basin 19						1.499
COMPUTE NM HYD	101.19	-	19	.00150	4.09	.170
IMP= 81.00						2.12906
*S ADD ALL BASINS AND ROUTE TO POND 1						1.499
ADD HYD	101.20	17&18	22	.00210	5.96	.252
ADD HYD	101.30	22&15	23	.00470	13.03	.547
ADD HYD	101.40	3& 4	24	.00470	13.34	.572
ADD HYD	101.50	23&24	25	.00940	26.37	1.119
ADD HYD	101.60	19&16	26	.00230	6.34	.265
ADD HYD	101.70	26&25	27	.01170	32.70	1.384
ADD HYD	101.80	27& 2	28	.05380	159.35	6.876
*S ROUTE BASINS THRU POND 3						2.24582
ROUTE RESERVOIR	103.00	28	30	.05380	82.87	6.875
1.253						2.39615
						1.665
						2.407 AC-FT=

27101-Input 5-6-08

START TIME=0.0 HR

RAINFALL TYPE=2 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.0333 HR

SEDIMENT BULK CODE=1 BULK FACTOR = 1.00

* Carpenter's Center Zone 2 *

*S OFF-SITE BASIN DRAINING TO EXISTING POND NORTH OF CARPENTERS TRAINING SITE
*S LAND TREATMENT TYPES NOT ACCURATE ASSUMED TO GENERATE CORRECT CFS
*S ENTERING POND

COMPUTE NM HYD ID=2 HYD NO=101.1 AREA=.0421 SQ MI
PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1

*S OFF-SITE BASIN FROM I-25 LAND TREATMENT TYPES ASSUMED TO GENERATE CORRECT CFS

COMPUTE NM HYD ID=3 HYD NO=101.1P AREA=0.0043 SQ MI
PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=3 CODE=1

*S OFF-SITE BASIN 1A

COMPUTE NM HYD ID=4 HYD NO=101.1A AREA=0.0004 SQ MI
PER A=100 PER B=0.00 PER C=0.00 PER D=0.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=4 CODE=1

*S Basin 15

COMPUTE NM HYD ID=15 HYD NO=101.15 AREA=0.0026 SQ MI
PER A=0.00 PER B=19.00 PER C=0.00 PER D=81.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=15 CODE=1

*S Basin 16

COMPUTE NM HYD ID=16 HYD NO=101.16 AREA=0.0008 SQ MI
PER A=0.00 PER B=14.00 PER C=0.00 PER D=86.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=16 CODE=1

*S Basin 17

COMPUTE NM HYD ID=17 HYD NO=101.17 AREA=0.001 SQ MI
PER A=0.00 PER B=12.00 PER C=0.00 PER D=88.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=17 CODE=1

*S Basin 18

COMPUTE NM HYD ID=18 HYD NO=101.18 AREA=0.0011 SQ MI
PER A=0.00 PER B=12.00 PER C=0.00 PER D=88.00
TP=0.0 HR MASS RAINFALL=-1
PRINT HYD ID=18 CODE=1

*S Basin 19

COMPUTE NM HYD ID=19 HYD NO=101.19 AREA=0.0015 SQ MI
PER A=0.00 PER B=19.00 PER C=0.00 PER D=81.00

27101-Input 5-6-08
 TP=0.0 HR MASS RAINFALL=-1
 PRINT HYD ID=19 CODE=1

*S ADD ALL BASINS AND ROUTE TO POND 1

ADD HYD ID=22 HYD=101.2 ID I=17 II=18
 ADD HYD ID=23 HYD=101.3 ID I=22 II=15
 ADD HYD ID=24 HYD=101.4 ID I=3 II=4
 ADD HYD ID=25 HYD=101.5 ID I=23 II=24
 ADD HYD ID=26 HYD=101.6 ID I=19 II=16
 ADD HYD ID=27 HYD=101.7 ID I=26 II=25
 ADD HYD ID=28 HYD=101.8 ID I=27 II=2

PRINT HYD ID=28 CODE=1

*S ROUTE BASINS THRU POND 3

*****DETENTION POND 3*****

ROUTE RESERVOIR	ID=30 HYD NO=103	INFLOW ID=28 CODE=24
	OUTFLOW(CFS)	STORAGE(AC-FT) ELEVATION(FT)
	0.0000	0.0000 5031
	34.0400	0.0155 5032
	48.1300	0.0726 5033
	58.9500	0.1879 5034
	68.0700	0.4383 5035
	76.1000	0.8266 5036
	83.3700	1.2853 5037
	90.0500	1.8278 5038

PRINT HYD ID=30 CODE=1

*
 Finish

AHYMO

AHYMO PROGRAM (AHYMO_97) - - Version: 1997.02d
 RUN DATE (MON/DAY/YR) = 05/08/2008
 START TIME (HR:MIN:SEC) = 08:29:03 USER NO.= AHYMO-S-9702d3Tierraw-AH
 INPUT FILE = Z:\2007\27101\Reports\Drainage\AHYMO\270E9D~1.TXT

START TIME=0.0 HR
 RAINFALL TYPE=2 RAIN QUARTER=0.0 IN
 RAIN ONE=2.01 IN RAIN SIX=2.35 IN
 RAIN DAY=2.75 IN DT=0.0333 HR

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

1.40 HR.

DT =	.033300 HOURS	END TIME =	19.946700 HOURS
.0000	.0016	.0033	.0049
.0066	.0084	.0102	.0120
.0139	.0158	.0178	.0198
.0219	.0241	.0263	.0285
.0309	.0333	.0358	.0384
.0410	.0438	.0467	.0497
.0528	.0561	.0595	.0630
.0668	.0708	.0750	.0805
.0864	.0928	.1059	.1359
.1822	.2488	.3398	.4596
.6124	.8028	1.0352	1.2584
1.3500	1.4271	1.4955	1.5577
1.6150	1.6682	1.7178	1.7644
1.8082	1.8495	1.8885	1.9255
1.9605	1.9937	2.0252	2.0551
2.0835	2.0912	2.0972	2.1030
2.1085	2.1137	2.1188	2.1370
2.1412	2.1452	2.1491	2.1637
2.1671	2.1704	2.1737	2.1859
2.1889	2.1917	2.1945	2.2052
2.2078	2.2103	2.2128	2.2223
2.2246	2.2268	2.2291	2.2377
2.2397	2.2418	2.2438	2.2517
2.2536	2.2555	2.2574	2.2647
2.2664	2.2682	2.2699	2.2767
2.2784	2.2800	2.2816	2.2880
2.2895	2.2911	2.2926	2.2986
2.3000	2.3015	2.3029	2.3086
2.3100	2.3113	2.3127	2.3181
2.3194	2.3207	2.3220	2.3271
2.3284	2.3297	2.3309	2.3358
2.3370	2.3382	2.3394	2.3441
2.3452	2.3464	2.3475	2.3521
2.3532	2.3544	2.3555	2.3600
2.3612	2.3623	2.3634	2.3678
2.3689	2.3700	2.3711	2.3755
2.3766	2.3777	2.3788	2.3831
2.3842	2.3852	2.3863	2.3905
2.3916	2.3926	2.3937	2.3978
2.3989	2.3999	2.4010	2.4051
2.4061	2.4071	2.4081	2.4122
2.4132	2.4142	2.4152	2.4192
2.4202	2.4211	2.4221	2.4261
2.4270	2.4280	2.4290	2.4329
2.4338	2.4348	2.4358	2.4396
2.4405	2.4415	2.4424	2.4462
2.4471	2.4481	2.4490	2.4527
2.4536	2.4546	2.4555	2.4591
2.4601	2.4610	2.4619	2.4655
2.4664	2.4673	2.4682	2.4718
2.4727	2.4735	2.4744	2.4779
2.4788	2.4797	2.4806	2.4841
2.4849	2.4858	2.4867	2.4901
2.4909	2.4918	2.4927	2.4961
2.4969	2.4977	2.4986	2.5019
2.5028	2.5036	2.5044	2.5078
2.5086	2.5094	2.5102	2.5135
2.5143	2.5151	2.5159	

AHYMO						
2.5192	2.5200	2.5208	2.5216	2.5224	2.5232	2.5240
2.5248	2.5256	2.5264	2.5272	2.5280	2.5288	2.5296
2.5304	2.5311	2.5319	2.5327	2.5335	2.5343	2.5351
2.5358	2.5366	2.5374	2.5382	2.5390	2.5397	2.5405
2.5413	2.5420	2.5428	2.5436	2.5443	2.5451	2.5459
2.5466	2.5474	2.5482	2.5489	2.5497	2.5504	2.5512
2.5520	2.5527	2.5535	2.5542	2.5550	2.5557	2.5565
2.5572	2.5580	2.5587	2.5594	2.5602	2.5609	2.5617
2.5624	2.5631	2.5639	2.5646	2.5654	2.5661	2.5668
2.5676	2.5683	2.5690	2.5697	2.5705	2.5712	2.5719
2.5726	2.5734	2.5741	2.5748	2.5755	2.5763	2.5770
2.5777	2.5784	2.5791	2.5798	2.5805	2.5813	2.5820
2.5827	2.5834	2.5841	2.5848	2.5855	2.5862	2.5869
2.5876	2.5883	2.5890	2.5897	2.5904	2.5911	2.5918
2.5925	2.5932	2.5939	2.5946	2.5953	2.5960	2.5967
2.5974	2.5980	2.5987	2.5994	2.6001	2.6008	2.6015
2.6022	2.6028	2.6035	2.6042	2.6049	2.6056	2.6062
2.6069	2.6076	2.6083	2.6089	2.6096	2.6103	2.6109
2.6116	2.6123	2.6130	2.6136	2.6143	2.6150	2.6156
2.6163	2.6169	2.6176	2.6183	2.6189	2.6196	2.6202
2.6209	2.6216	2.6222	2.6229	2.6235	2.6242	2.6248
2.6255	2.6261	2.6268	2.6274	2.6281	2.6287	2.6294
2.6300	2.6307	2.6313	2.6319	2.6326	2.6332	2.6339
2.6345	2.6352	2.6358	2.6364	2.6371	2.6377	2.6383
2.6390	2.6396	2.6402	2.6409	2.6415	2.6421	2.6428
2.6434	2.6440	2.6446	2.6453	2.6459	2.6465	2.6471
2.6478	2.6484	2.6490	2.6496	2.6503	2.6509	2.6515
2.6521	2.6527	2.6533	2.6540	2.6546	2.6552	2.6558
2.6564	2.6570	2.6576	2.6582	2.6589	2.6595	2.6601
2.6607	2.6613	2.6619	2.6625	2.6631	2.6637	2.6643
2.6649	2.6655	2.6661	2.6667	2.6673	2.6679	2.6685
2.6691	2.6697	2.6703	2.6709	2.6715	2.6721	2.6727
2.6733	2.6739	2.6745	2.6751	2.6756	2.6762	2.6768
2.6774	2.6780	2.6786	2.6792	2.6798	2.6803	2.6809
2.6815	2.6821	2.6827	2.6833	2.6838		

SEDIMENT BULK CODE=1 BULK FACTOR = 1.00

 * Carpenter's Center Zone 2 *

 *S OFF-SITE BASIN DRAINING TO EXISTING POND NORTH OF CARPENTERS TRAINING SITE
 *S LAND TREATMENT TYPES NOT ACCURATE ASSUMED TO GENERATE CORRECT CFS
 *S ENTERING POND

COMPUTE NM HYD ID=2 HYD NO=101.1 AREA=.0421 SQ MI
 PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
 TP=0.0 HR MASS RAINFALL=-1

*****Warning*****A value for the Time to Peak was not previously computed; use
 Tp=0.133333 hrs.

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
 = 7.106420
 UNIT PEAK = 166.17 CFS UNIT VOLUME = .9993 B = 526.28 P60 =
 2.0100
 AREA = .042100 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
 HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 2.44591 INCHES = 5.4918 ACRE-FEET
 PEAK DISCHARGE RATE = 126.65 CFS AT 1.499 HOURS BASIN AREA = .0421 SQ.

MI.

AHYMO

*S OFF-SITE BASIN FROM I-25 LAND TREATMENT TYPES ASSUMED TO GENERATE CORRECT CFS

COMPUTE NM HYD ID=3 HYD NO=101.1P AREA=0.0043 SQ MI
PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
= 7.106420
UNIT PEAK = 16.972 CFS UNIT VOLUME = .9986 B = 526.28 P60 =
2.0100
AREA = .004300 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 101.1P

RUNOFF VOLUME = 2.44593 INCHES = .5609 ACRE-FEET
PEAK DISCHARGE RATE = 12.94 CFS AT 1.499 HOURS BASIN AREA = .0043 SQ.
MI.

*S OFF-SITE BASIN 1A

COMPUTE NM HYD ID=4 HYD NO=101.1A AREA=0.0004 SQ MI
PER A=100 PER B=0.00 PER C=0.00 PER D=0.00
TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .160194HR TP = .133333HR K/TP RATIO = 1.201459 SHAPE CONSTANT, N
= 2.957910
UNIT PEAK = .83512 CFS UNIT VOLUME = .9824 B = 278.37 P60 =
2.0100
AREA = .000400 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300
PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 101.1A

RUNOFF VOLUME = .53109 INCHES = .0113 ACRE-FEET
PEAK DISCHARGE RATE = .41 CFS AT 1.532 HOURS BASIN AREA = .0004 SQ.
MI.

*S Basin 15

COMPUTE NM HYD ID=15 HYD NO=101.15 AREA=0.0026 SQ MI
PER A=0.00 PER B=19.00 PER C=0.00 PER D=81.00
TP=0.0 HR MASS RAINFALL=-1

AHYMO

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
= 7.106420
UNIT PEAK = 8.3125 CFS UNIT VOLUME = .9980 B = 526.28 P60 =
2.0100
AREA = .002106 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .132120HR TP = .133333HR K/TP RATIO = .990905 SHAPE CONSTANT, N
= 3.563129
UNIT PEAK = 1.2038 CFS UNIT VOLUME = .9890 B = 324.91 P60 =
2.0100
AREA = .000494 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 101.15

RUNOFF VOLUME = 2.12905 INCHES = .2952 ACRE-FEET
PEAK DISCHARGE RATE = 7.07 CFS AT 1.499 HOURS BASIN AREA = .0026 SQ.
MI.

*S Basin 16

COMPUTE NM HYD ID=16 HYD NO=101.16 AREA=0.0008 SQ MI
PER A=0.00 PER B=14.00 PER C=0.00 PER D=86.00
TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
= 7.106420
UNIT PEAK = 2.7156 CFS UNIT VOLUME = .9948 B = 526.28 P60 =
2.0100
AREA = .000688 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .132120HR TP = .133333HR K/TP RATIO = .990905 SHAPE CONSTANT, N
= 3.563129
UNIT PEAK = .27292 CFS UNIT VOLUME = .9489 B = 324.91 P60 =
2.0100
AREA = .000112 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 101.16

RUNOFF VOLUME = 2.21248 INCHES = .0944 ACRE-FEET
PEAK DISCHARGE RATE = 2.25 CFS AT 1.499 HOURS BASIN AREA = .0008 SQ.
MI.

AHYMO

*S Basin 17

COMPUTE NM HYD ID=17 HYD NO=101.17 AREA=0.001 SQ MI
PER A=0.00 PER B=12.00 PER C=0.00 PER D=88.00
TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
= 7.106420
UNIT PEAK = 3.4734 CFS UNIT VOLUME = .9960 B = 526.28 P60 =
2.0100
AREA = .000880 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .132120HR TP = .133333HR K/TP RATIO = .990905 SHAPE CONSTANT, N
= 3.563129
UNIT PEAK = .29242 CFS UNIT VOLUME = .9530 B = 324.91 P60 =
2.0100
AREA = .000120 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 101.17

RUNOFF VOLUME = 2.24583 INCHES = .1198 ACRE-FEET
PEAK DISCHARGE RATE = 2.84 CFS AT 1.499 HOURS BASIN AREA = .0010 SQ.
MI.

*S Basin 18

COMPUTE NM HYD ID=18 HYD NO=101.18 AREA=0.0011 SQ MI
PER A=0.00 PER B=12.00 PER C=0.00 PER D=88.00
TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
= 7.106420
UNIT PEAK = 3.8208 CFS UNIT VOLUME = .9965 B = 526.28 P60 =
2.0100
AREA = .000968 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .132120HR TP = .133333HR K/TP RATIO = .990905 SHAPE CONSTANT, N
= 3.563129
UNIT PEAK = .32166 CFS UNIT VOLUME = .9569 B = 324.91 P60 =
2.0100
AREA = .000132 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER
HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=18 CODE=1

AHYMO

PARTIAL HYDROGRAPH 101.18

MI. RUNOFF VOLUME = 2.24582 INCHES = .1318 ACRE-FEET
 PEAK DISCHARGE RATE = 3.12 CFS AT 1.499 HOURS BASIN AREA = .0011 SQ.

*S Basin 19

COMPUTE NM HYD ID=19 HYD NO=101.19 AREA=0.0015 SQ MI
 PER A=0.00 PER B=19.00 PER C=0.00 PER D=81.00
 TP=0.0 HR MASS RAINFALL=-1

TIME TO PEAK (hrs)= .1333

*****Warning*****This Tp value was used for a previously computed hydrograph.
 A new Tp value should be computed.

= 7.106420 K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N
 2.0100 UNIT PEAK = 4.7957 CFS UNIT VOLUME = .9969 B = 526.28 P60 =
 HOUR AREA = .001215 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

= 3.563129 K = .132120HR TP = .133333HR K/TP RATIO = .990905 SHAPE CONSTANT, N
 2.0100 UNIT PEAK = .69449 CFS UNIT VOLUME = .9799 B = 324.91 P60 =
 HOUR AREA = .000285 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 101.19

MI. RUNOFF VOLUME = 2.12906 INCHES = .1703 ACRE-FEET
 PEAK DISCHARGE RATE = 4.09 CFS AT 1.499 HOURS BASIN AREA = .0015 SQ.

*S ADD ALL BASINS AND ROUTE TO POND 1

ADD HYD ID=22 HYD=101.2 ID I=17 II=18
 ADD HYD ID=23 HYD=101.3 ID I=22 II=15
 ADD HYD ID=24 HYD=101.4 ID I=3 II=4
 ADD HYD ID=25 HYD=101.5 ID I=23 II=24
 ADD HYD ID=26 HYD=101.6 ID I=19 II=16
 ADD HYD ID=27 HYD=101.7 ID I=26 II=25
 ADD HYD ID=28 HYD=101.8 ID I=27 II=2

PRINT HYD ID=28 CODE=1

PARTIAL HYDROGRAPH 101.80

RUNOFF VOLUME = 2.39624 INCHES = 6.8756 ACRE-FEET
 PEAK DISCHARGE RATE = 159.35 CFS AT 1.499 HOURS BASIN AREA = .0538 SQ.

MI.

AHYMO

*S ROUTE BASINS THRU POND 3

*****DETENTION POND 3*****

ROUTE RESERVOIR	ID=30 HYD NO=103	INFLOW ID=28 CODE=24
	OUTFLOW(CFS)	STORAGE(AC-FT) ELEVATION(FT)
	0.0000	0.0000 5031
	34.0400	0.0155 5032
	48.1300	0.0726 5033
	58.9500	0.1879 5034
	68.0700	0.4383 5035
	76.1000	0.8266 5036
	83.3700	1.2853 5037
	90.0500	1.8278 5038

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5031.00	.000	.00
.80	.00	5031.00	.000	.00
1.60	110.09	5036.79	1.188	81.83
2.40	6.79	5031.20	.003	6.83
3.20	1.43	5031.04	.001	1.44
4.00	.94	5031.03	.000	.94
4.80	.89	5031.03	.000	.89
5.59	1.01	5031.03	.000	1.01
6.39	1.14	5031.03	.001	1.14
7.19	1.09	5031.03	.000	1.09
7.99	1.04	5031.03	.000	1.04
8.79	.98	5031.03	.000	.98
9.59	.92	5031.03	.000	.92
10.39	.89	5031.03	.000	.89
11.19	.86	5031.03	.000	.86
11.99	.82	5031.02	.000	.82
12.79	.79	5031.02	.000	.80
13.59	.76	5031.02	.000	.76
14.39	.73	5031.02	.000	.73
15.18	.71	5031.02	.000	.71
15.98	.69	5031.02	.000	.69
16.78	.66	5031.02	.000	.66
17.58	.64	5031.02	.000	.64
18.38	.63	5031.02	.000	.63
19.18	.61	5031.02	.000	.61

PEAK DISCHARGE = 82.865 CFS - PEAK OCCURS AT HOUR 1.67
(MAXIMUM WATER SURFACE ELEVATION = 5036.931
MAXIMUM STORAGE = 1.2534 AC-FT INCREMENTAL TIME= .033300HRS

PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 2.39615 INCHES = 6.8753 ACRE-FEET
PEAK DISCHARGE RATE = 82.87 CFS AT 1.665 HOURS BASIN AREA = .0538 SQ.

MI.

*

Finish

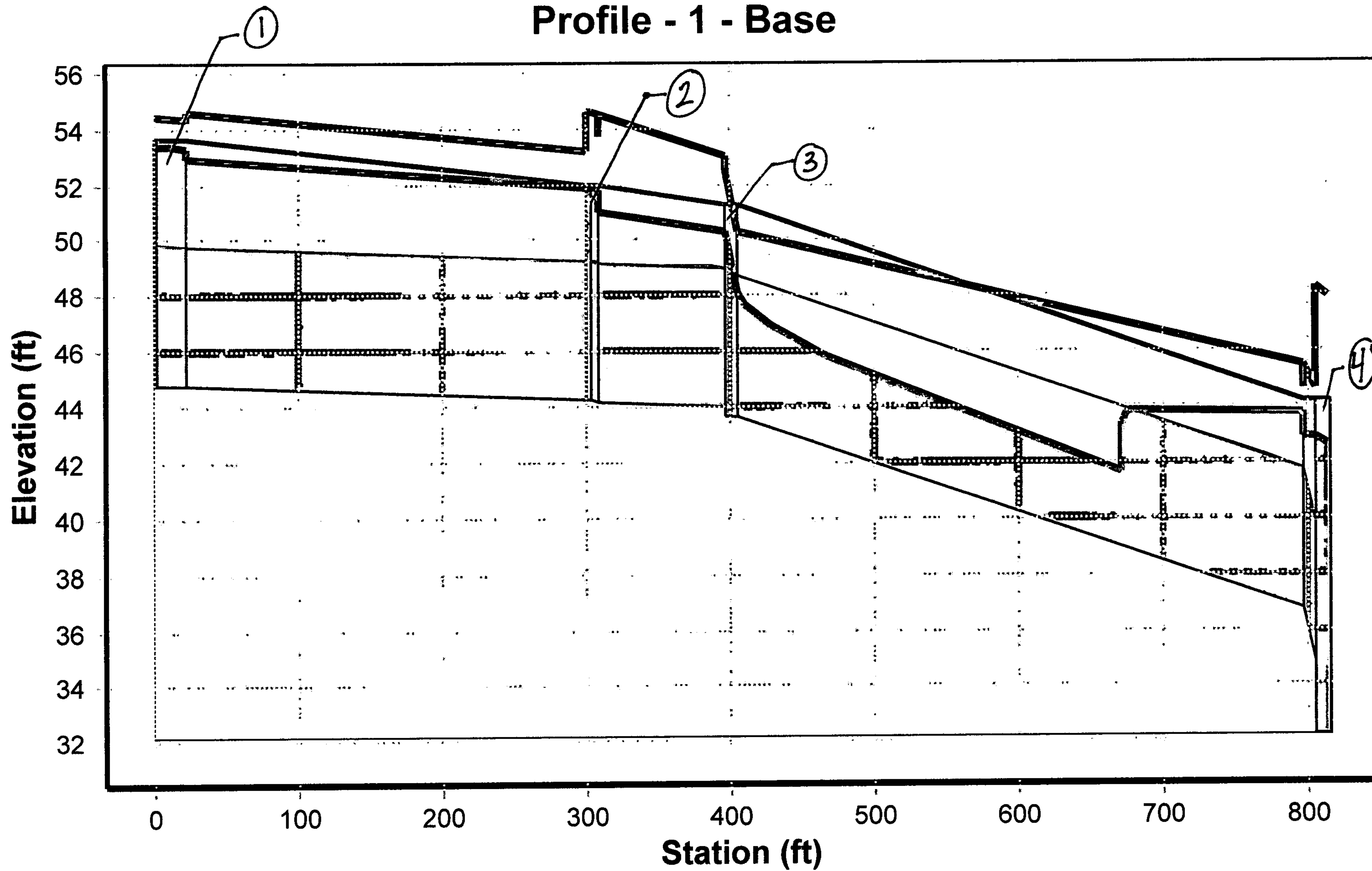
AHYMO

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 08:29:04

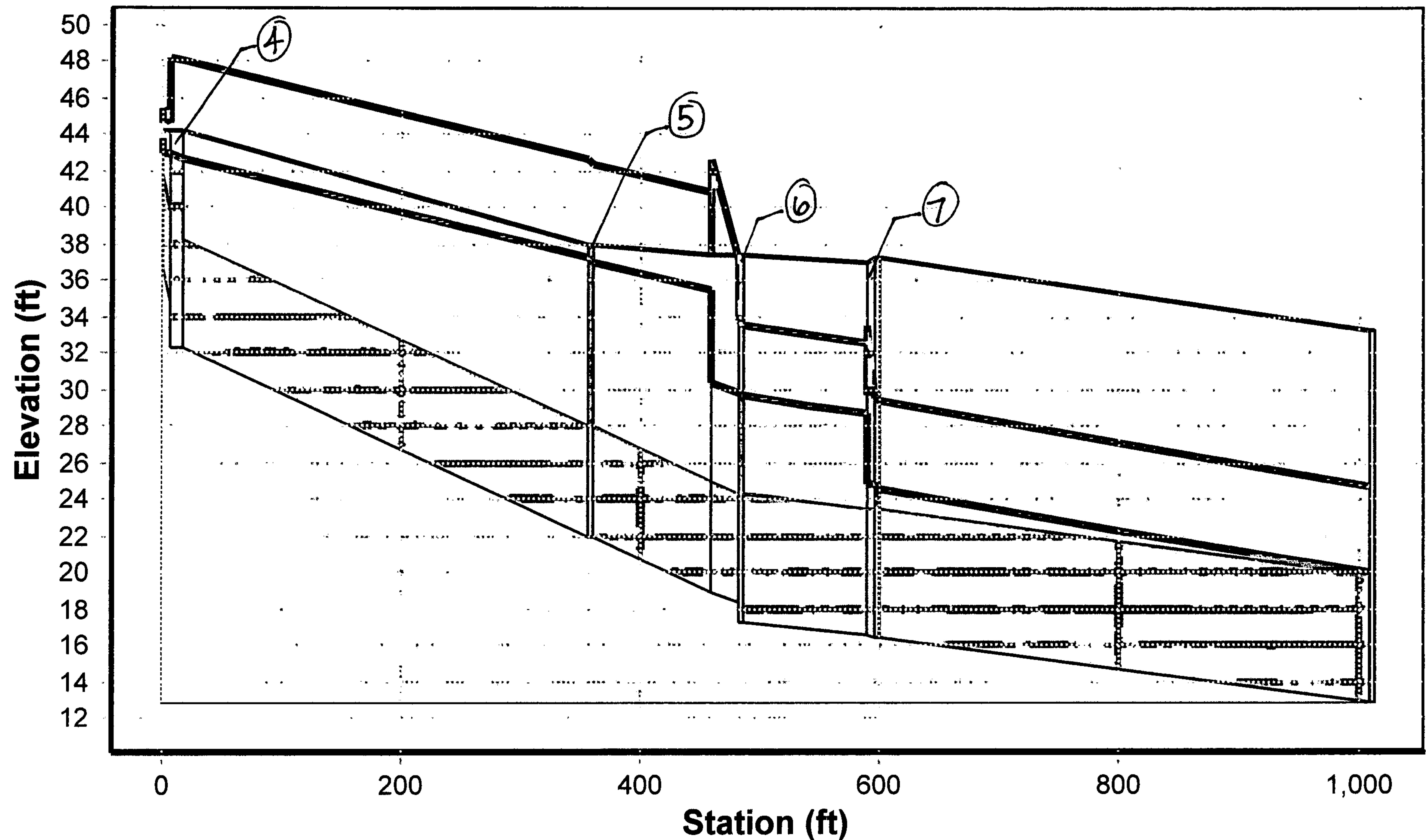
Revised STORM CAD PROFILES

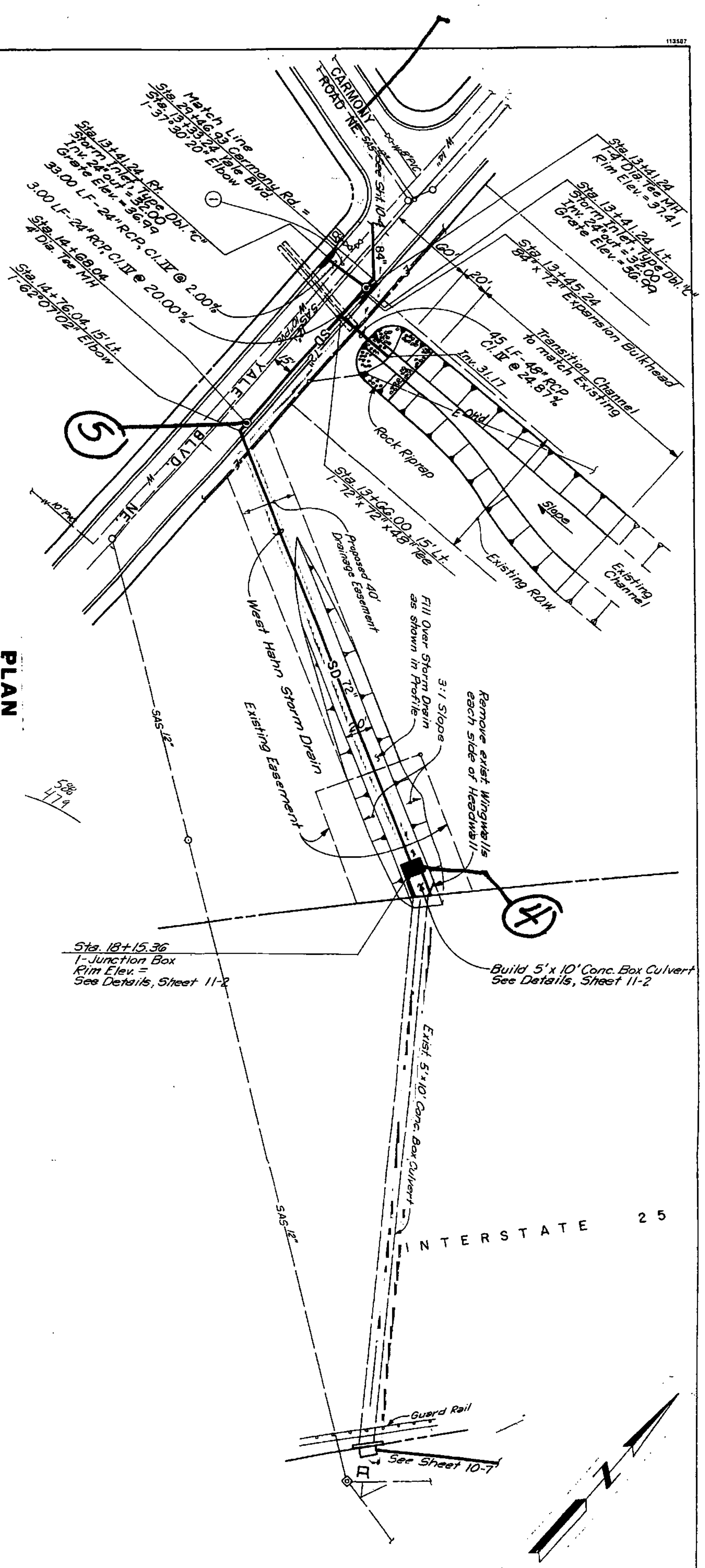
Profile - 1 - Base



SEE PROFILE 2 FOR CONTINUATION

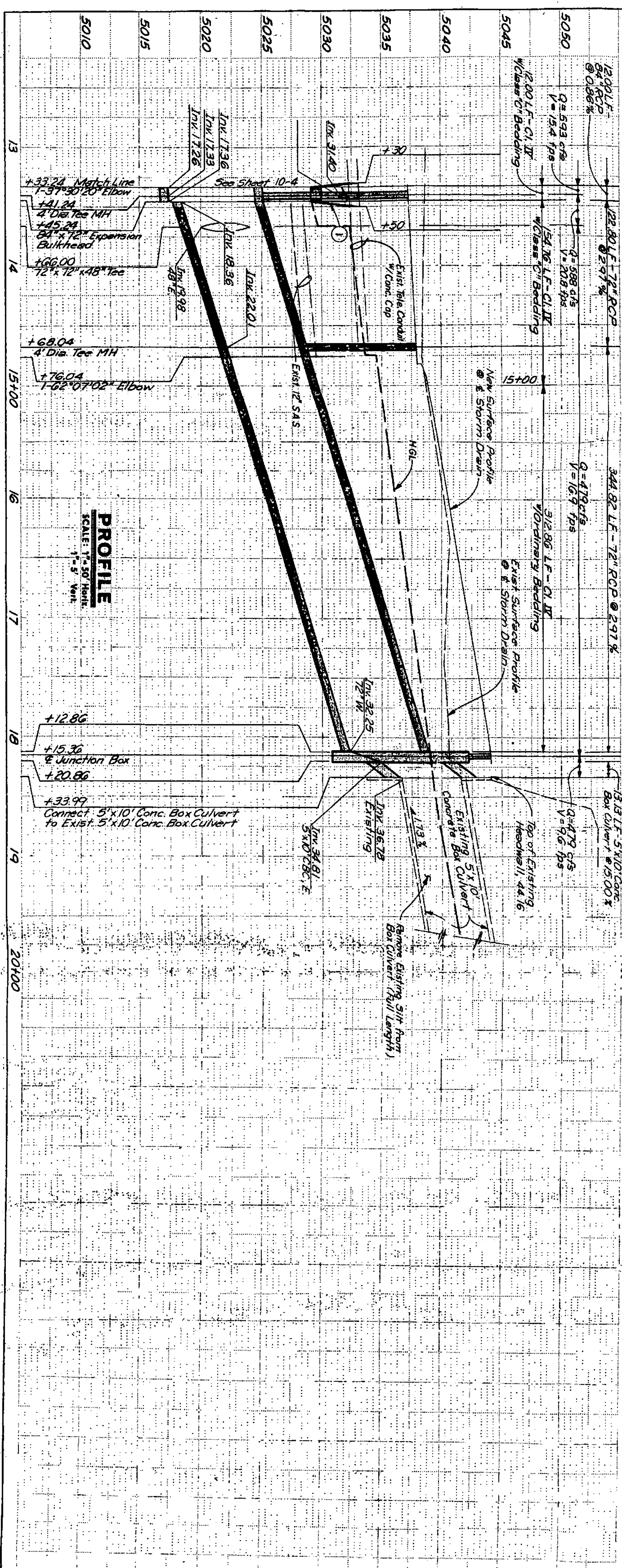
Profile - 2 - Base





YALE BLVD. & WEST HAHN STORM DRAIN

PLAN
SCALE 1"=50'



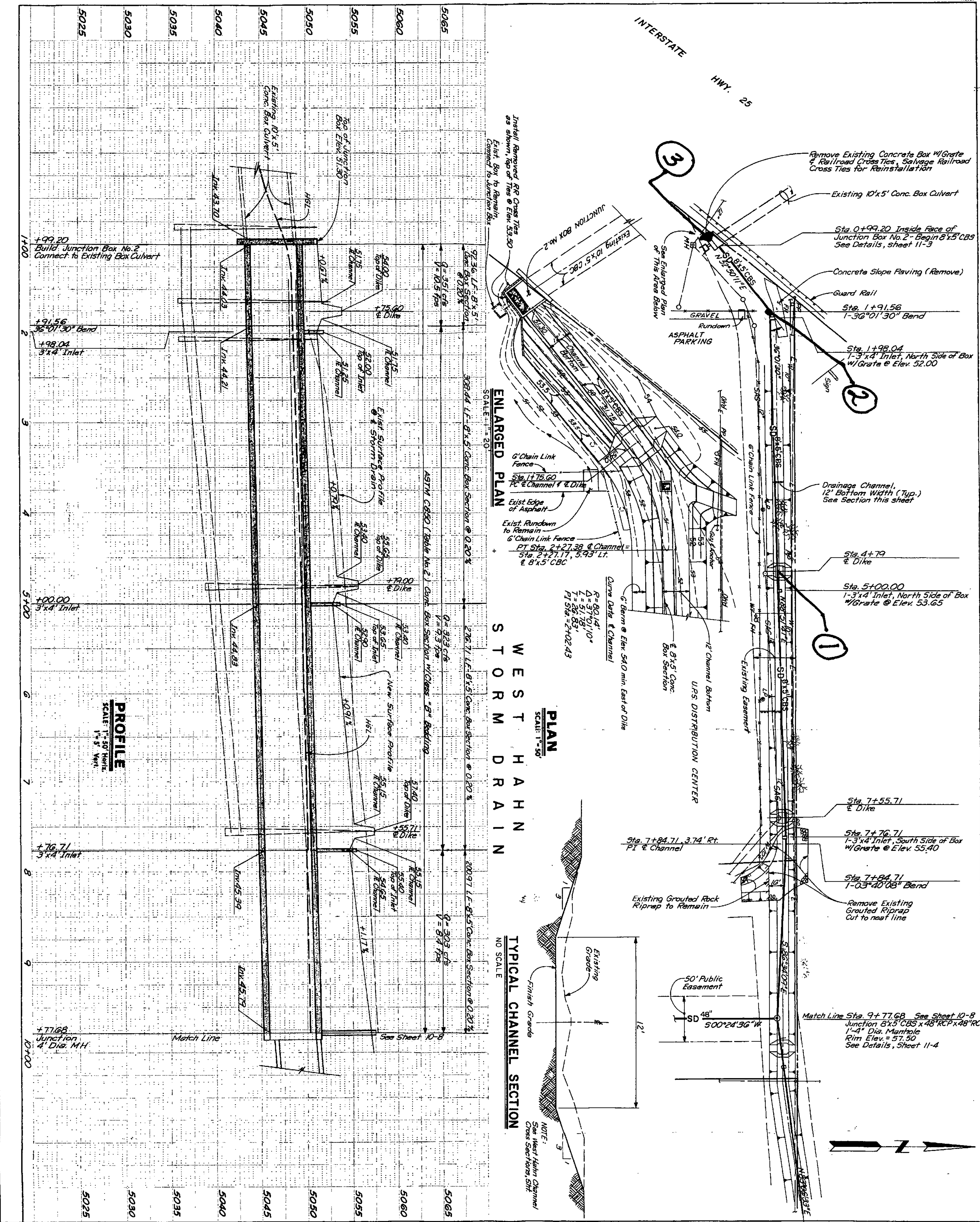
PROFILE
SCALE 1"=5' VERT.

- REMOVE EXISTING AND INSTALL NEW 10" W.L. AS SHOWN.
- 20' LF 10" W.L. REMOVAL
- 4 - 10' 45" BENDS
- 2 - 10' TRANSITION COUPLINGS
- 23' LF 10" W.L.
- 2 NON-PRESSURE CONN.

NOTE
SEE SHEET 11-1 FOR PIPE BEDDING REQUIREMENTS.
ALL LATERAL STORM DRAIN LINES WILL BE LAID WITH ORDINARY BEDDING.

COUNTY OF BERNALILLO PUBLIC WORKS DEPARTMENT SPECIAL ASSESSMENT DISTRICT BC-83-1 SPECIAL ASSESSMENT DISTRICT 216 YALE BLVD. & WEST HAHN STORM DRAIN PLAN & PROFILE		ENGINEER'S SEAL REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO No. 3960 JOHN A. ANDREWS ANDREWS, ASBURY & ROBERT, INC. CONSULTING ENGINEERS ALBUQUERQUE 83-347 NEW MEXICO		SURVEY INFORMATION FIELD NOTES NO. BY DATE		BENCH MARKS ACS/NNMCS STA. "I-25-20" BRASS TABLET SET IN CONCRETE POST LOCATED ON THE WESTERLY R.O.W. LINE OF I-25, 0.5 MILES SOUTHWESTERLY FROM THE INTERSECTION WITH MONTANO RD. ELEV. 5079.46		AS BUILT INFORMATION CONTRACTOR WORK STAKED BY INSPECTOR'S ACCEPTANCE BY FIELD VERIFICATION BY DRAWINGS CORRECTED BY MICRO-FILM INFORMATION RECORDED BY NO	
DESIGNED BY DA, JA DRAWN BY JCS CHECKED BY JA		DATE Feb. 1990 DATE Mar. 1990 DATE Mar. 1990							
NO. DATE		REMARKS		BY					
		REVISIONS							
		DESIGN							

DRAWING NO.	3960	MAP NO.	6-16	SHEET	10-6
APPROVALS					
DESIGNED BY	DA, JA	ENGINEER		DATE	
DRAWN BY	JCS	ENGINEER		DATE	
CHECKED BY	JA	ENGINEER		DATE	



NOTE
SEE SHEET 11-1 FOR PIPE BEDDING REQUIREMENTS.
ALL LATERAL STORM DRAIN LINES WILL BE LAID WITH
ORDINARY BEDDING.

			ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
					FIELD NOTES		ACS/RMHCS STA. "I-25-20"		CONTRACTOR	
					NO. BY DATE		BRASS TABLET SET IN CONCRETE POST LOCATED ON THE		WORK STAKED BY	
							WESTERLY R.O.W. LINE OF I-25, 0.5 MILES SOUTHWESTERLY		INSPECTOR'S ACCEPTANCE BY	
							FROM THE INTERSECTION WITH MONTANO RD.		FIELD VERIFICATION BY	
							ELEV. 5079.46		DRAWINGS CORRECTED BY	
									MICRO-FILM INFORMATION	
									RECORDED BY	
									NO	

DESIGNED BY *DA,JA*DATE *Feb. 1990*

DRAWN BY *JCS*DATE *Mar. 1990*

CHECKED BY *JA*DATE *Mar. 1990*

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE 83-347 NEW MEXICO

COUNTY OF BERNALILLO
PUBLIC WORKS DEPARTMENT
SPECIAL ASSESSMENT DISTRICT BC-83-1
SPECIAL ASSESSMENT DISTRICT 216
WEST HAHN
STORM DRAIN PLAN & PROFILE

APPROVALS
ENGINEER
DATE
APPROVALS
ENGINEER
DATE

DRAWING NO. 3960
MAP NO. 6-16
SHEET 10-7 OF

Table No. 1 & Drainage Area Map

from

Special Assessment District 216 Final Drainage Analysis

CITY OF ALBUQUERQUE



July 8, 2010

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

Re: Carpenters Training Center
3900 Pan American Frwy NE
Request for 90-Day Temporary C.O.—Approved
Approved Stamp Date 7-15-08
Certification dated: 7-7-10 (G16-D145)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 7-7-10 and telephone conversation with Jason Casuga 7-8-10, verifying that the drainage from the NMDOT ROW will not cause a water surface elevation higher than the finished floor of the building, the above referenced certification is approved for release of a 90 Day Temporary Certificate of Occupancy by Hydrology.

When submitting for Permanent Certificate of Occupancy:

1. Show the storm drains from the NMDOT ROW on the plan.
2. Provide the WSE for the ponding area west of the building and the corresponding Hydrology.
3. Provide as-built grades in the undeveloped, but recently graded areas.
4. Show the two 12 inch CMP storm drains including inverts upstream and downstream.
5. Certify the approved plan, stamp date 7-15-08.

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

Sincerely,

Curtis C. Cherne

Curtis Cherne, P.E.
Senior Engineer-- Hydrology,
Development and Building Services

C: CO Clerk—Katrina Sigala
File

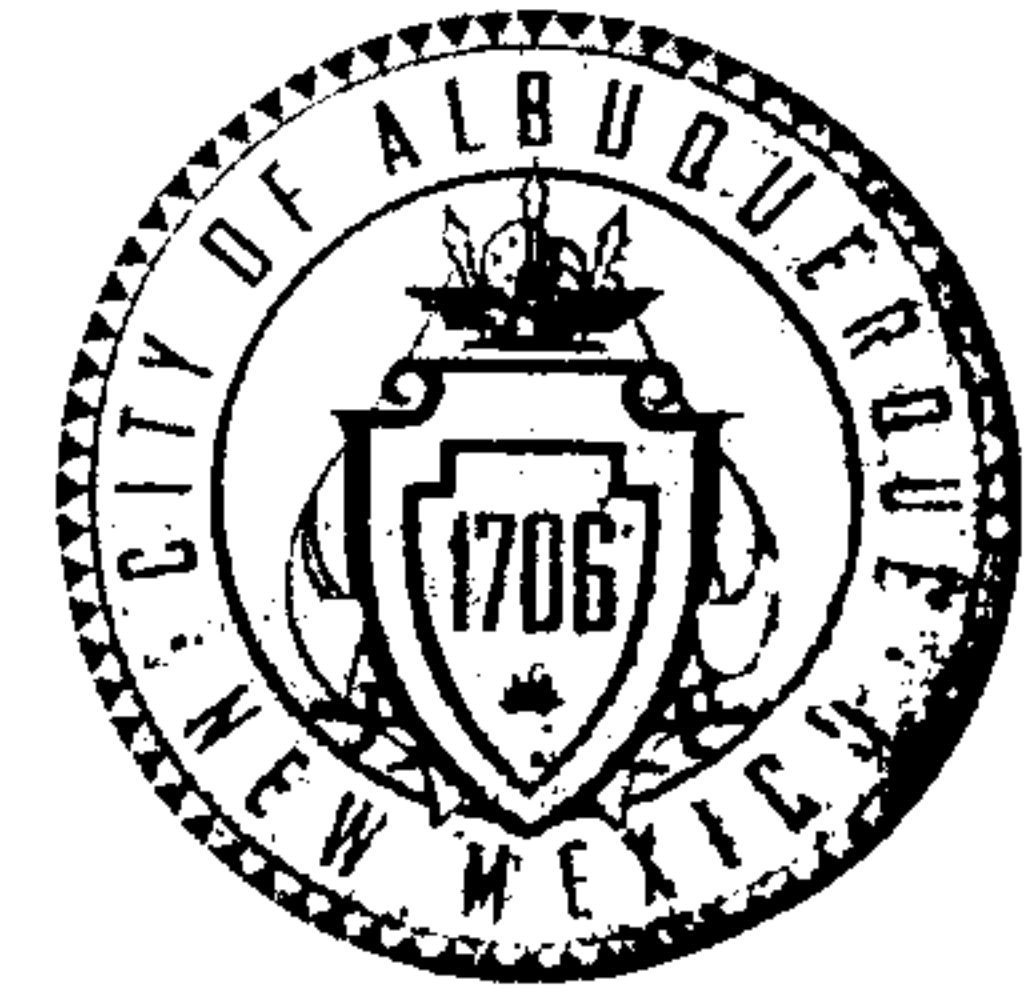
PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

CITY OF ALBUQUERQUE



August 14, 2008

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Carpenter's Training Center Drainage Report
Engineer's Stamp dated 7-15-08 (G16-D145)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 7-16-08, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

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

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. In addition to submitting an NOI to the EPA and preparing a SWPPP, please send a copy of the SWPPP on a CD in .pdf format to the following address:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Department of Municipal Development
Storm Drainage Division
P.O. Box 1293, One Civic Plaza, Rm. 301
Attn: Kathy Verhage
Albuquerque, NM 87103

This CD must be delivered prior to Hydrology signing off on the permit. If you have any questions about this permit, please feel free to call the Municipal Development Department, Hydrology section at 768-3654.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: file

CITY OF ALBUQUERQUE



**Planning Department
Transportation Development Services Section**

August 20, 2010

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Certification Submittal for a Permanent Building Certificate of Occupancy
(C.O.) for Carpenters Training Center, [G-16 / D145]
3900 Pan American
Engineer's Stamp Dated 08/19/10

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 08-19-10,
Transportation Development has approved your request for a Permanent Certificate of
Occupancy.

This letter serves as a "green tag" from Transportation Development for a
Permanent Certificate of Occupancy to be issued by the Building and Safety Division.

If you have any questions, please contact me at (505)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 SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Carpenters Training Center
DRB #: 1006865 EPC #: 07EPC-40066

ZONE MAP/DRG. FILE # G-16 D145
WORK ORDER #: 554483

LEGAL DESCRIPTION Comanche Business Park
CITY ADDRESS: 3900 Pan American

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 5571 Midway Park Place
CITY, STATE: Albuquerque, NM

CONTACT: Ron Bohannon
PHONE: (505) 858-3100
ZIP CODE: 87109

OWNER: United Brotherhood of Carpenters
ADDRESS: 533 S. Fremone Avenu, 9th Floor
CITY, STATE: Los Angeles, CA

CONTACT: Randy Sowell
PHONE: (213) 488-2957
ZIP CODE: 90071

ARCHITECT: Gin Wong Associates
ADDRESS: 4465 Wilshire Blvd, Suite 100
CITY, STATE: Los Angeles, CA

CONTACT: Bruce Bailey
PHONE: (323) 938-4422
ZIP CODE: 90010

SURVEYOR: Cartesian Surveys
ADDRESS: 2104 Southern Blvd.
CITY, STATE: Rio Rancho, NM

CONTACT: Brian Martinez
PHONE: 505-896-3050
ZIP CODE: 87124

CONTRACTOR: Oltman's Construction
ADDRESS: 10005 Mission Mill Road
CITY, STATE: Whittier, CA

CONTACT: Chris Bell
PHONE: 562-884-5871
ZIP CODE: 90608

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
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☒ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

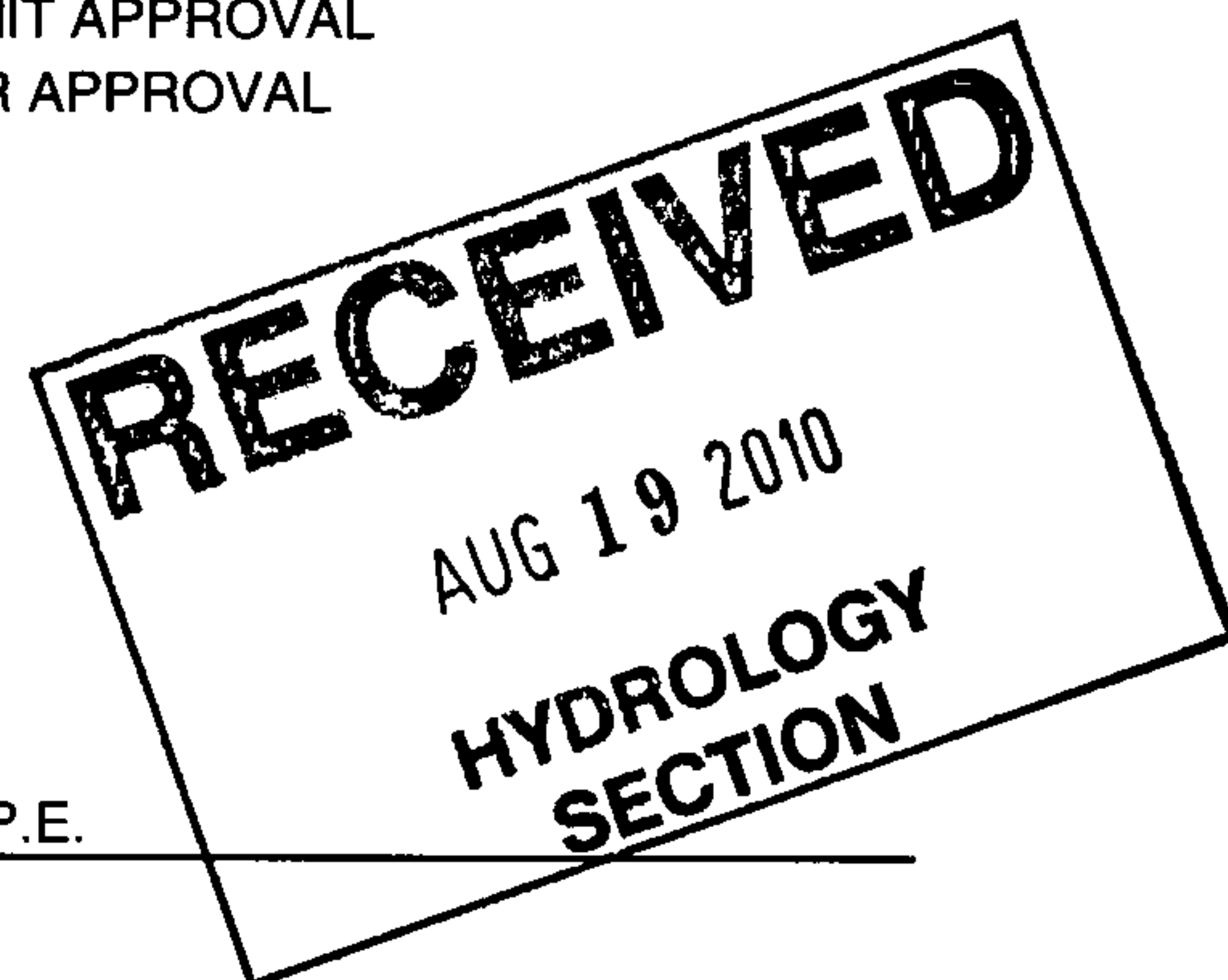
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL 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
- ☐ SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: 8/17/2010 BY: Vincent Carrica, P.E.



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 Plans:** 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.

G-16/D145

Salgado-Fernandez, Nilo E.

From: Bruce Bailey [bbailey@gwa-architects.com]
Sent: Friday, April 16, 2010 10:00 AM
To: Salgado-Fernandez, Nilo E.; Lopez, Anthony C.; Benavidez, Orlando V.
Cc: Vince Ruesch; Lara Lund; Chris Bell
Subject: RE: Albuquerque Carpenters Train Center

Nilo, I will be on site from 8:00 am until noon. Anytime you are available will be fine. Let us know what works best.

Regards, Bruce

Bruce A. Bailey, A.I.A.
 Vice President
Gin Wong Associates
 4465 Wilshire Blvd. Suite 100
 Los Angeles, CA 90010-3704
 323-938-4422 Ext. 14

From: Salgado-Fernandez, Nilo E. [mailto:NSalgado@cabq.gov]
Sent: Friday, April 16, 2010 6:54 AM
To: Bruce Bailey; Lopez, Anthony C.; Benavidez, Orlando V.
Cc: Vince Ruesch; Lara Lund; Chris Bell
Subject: RE: Albuquerque Carpenters Train Center

Prefer to meet Monday in the field. Please provide a time for meeting.

Nilo Salgado-Fernandez, Senior Traffic Engineer
 Planning Department
 Development&Building Services Division
 City of Albuquerque

From: Bruce Bailey [mailto:bbailey@gwa-architects.com]
Sent: Thursday, April 15, 2010 4:12 PM
To: Salgado-Fernandez, Nilo E.
Cc: Vince Ruesch; Lara Lund; Chris Bell
Subject: Albuquerque Carpenters Train Center

Dear Nilo, Here are enlarged sketches of most of the curb ramp locations on the site. We downloaded from the internet almost 1/4" thick of paper with various standards for curb ramps and detectable warnings (truncated domes). There are lots of ways that this is done, including a series of proposed changes to the current code (one was that detectable warnings were not required at a crossing that did not have traffic signals).

We based our plans on the ADA and New Mexico standards, and specifically sheet 10 of 10 from the NMDOT Detectable Warning Surface that indicates the truncated domes to be on the ramp itself and within 6" of the face of the curb line or walkway. The concrete curbs that surround these sidewalks and ramps are all poured based on the attached sketches from the permit drawings. We would prefer to install these as currently shown and partially built, but are happy to meet with you to make sure we have a safe installation.

4/19/2010

I will be available all day by phone on Friday to discuss this matter, and I will be on the jobsite Monday morning if you prefer to meet in person. Thank you for your attention to this matter.

Regards, Bruce

Bruce A. Bailey, A.I.A.

Vice President

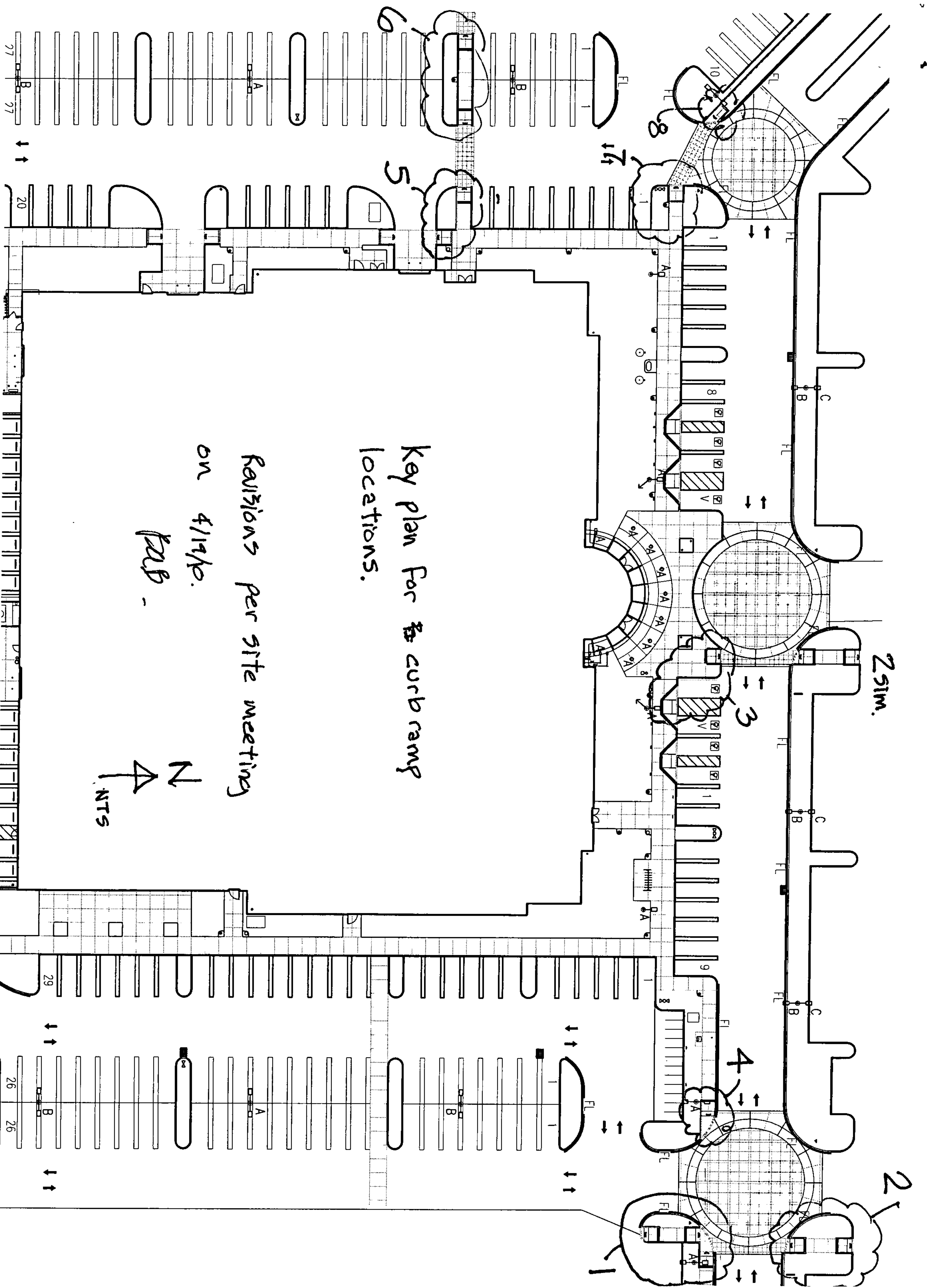
Gin Wong Associates

4465 Wilshire Blvd. Suite 100

Los Angeles, CA 90010-3704

323-938-4422 Ext. 14

4/19/2010



→
Roadway

Asphalt

6' Typ.

←
sidewalk
→

1:12
Curb
1:50

1:12 Ramp

Stop
Sign.

conc.
↓
Asphalt

Landscaping

1:12 Ramp

Grooved
Border

6'
sidewalk

Truncated Domes
Detectable
Warnings
ADAAG 4.29.1-6

A

light pole

Landscaping

Parking

1:12

1:50

Carpenters

OK/PAB.

|

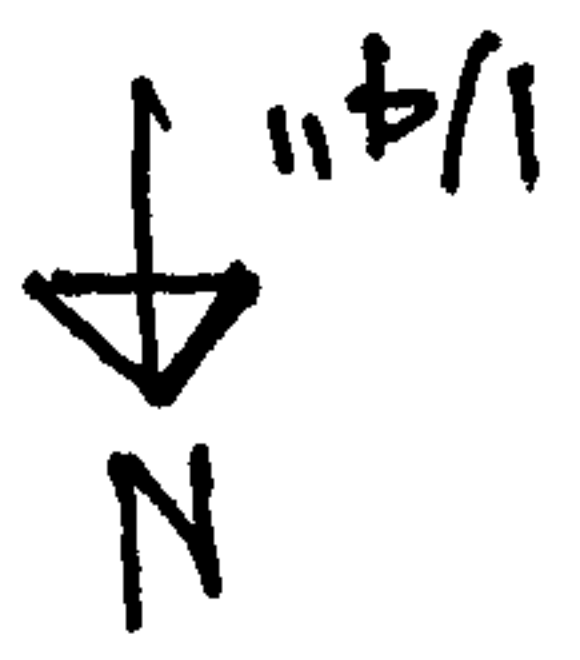
1/4"

N
↑

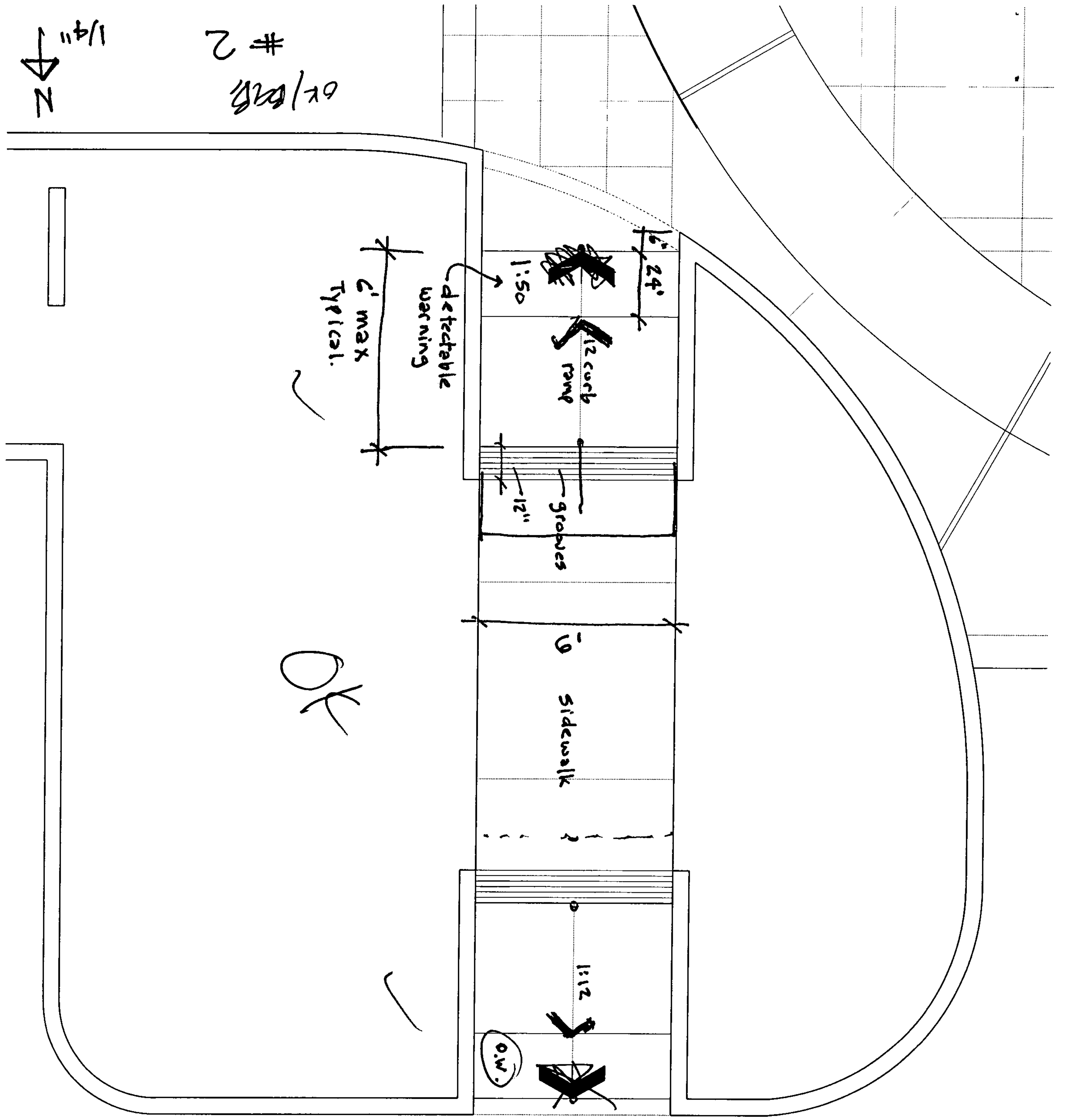
TD
MD

1 1/2" Typ. 1:12

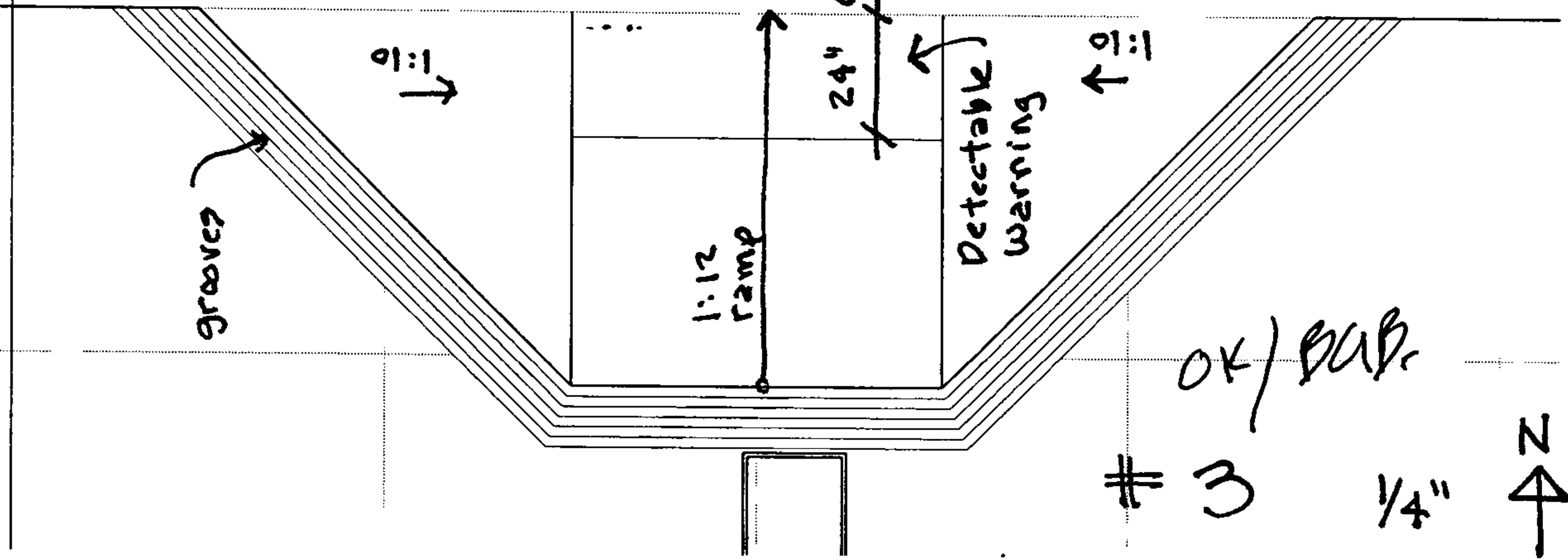
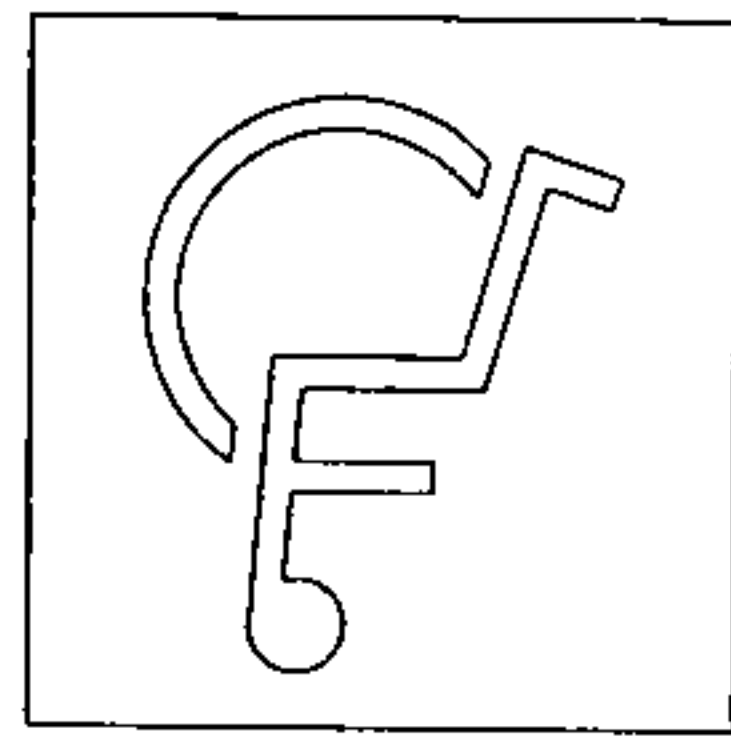
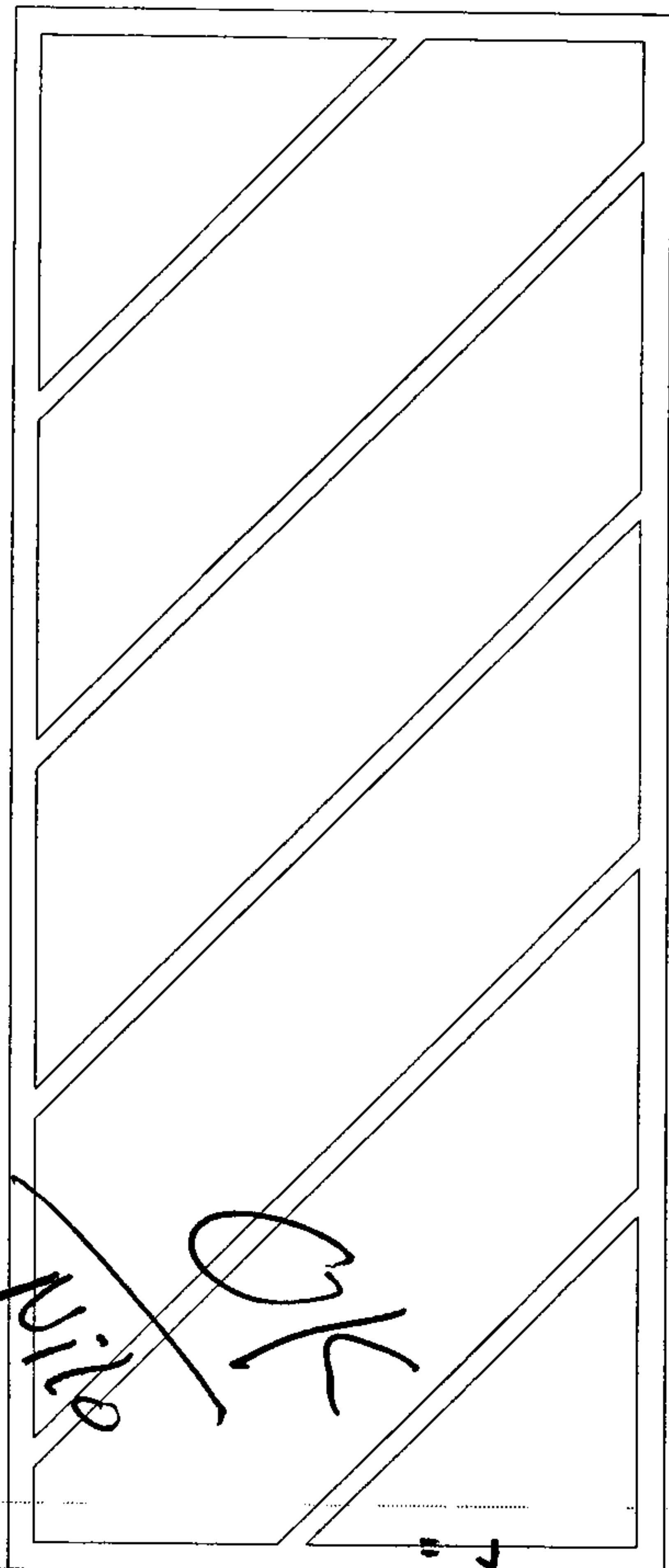
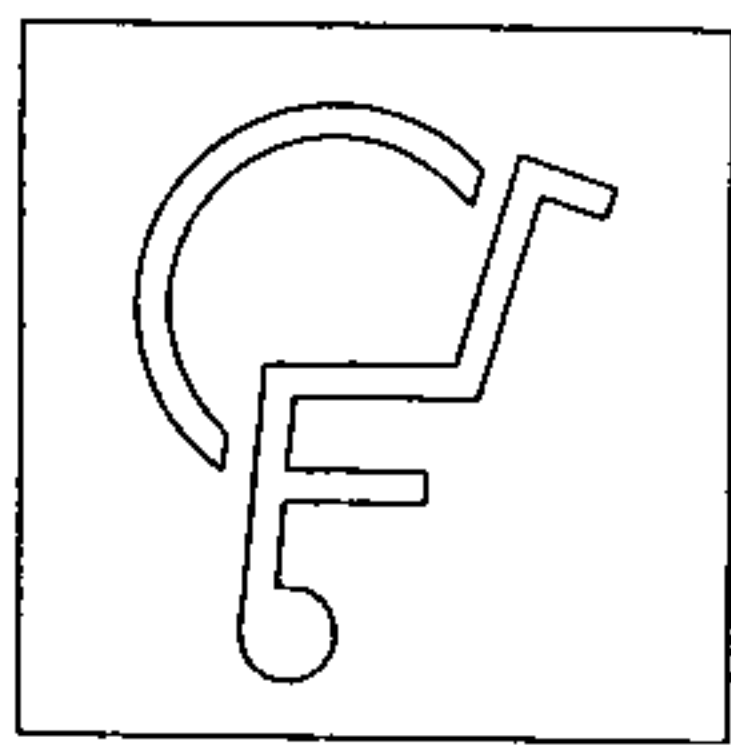
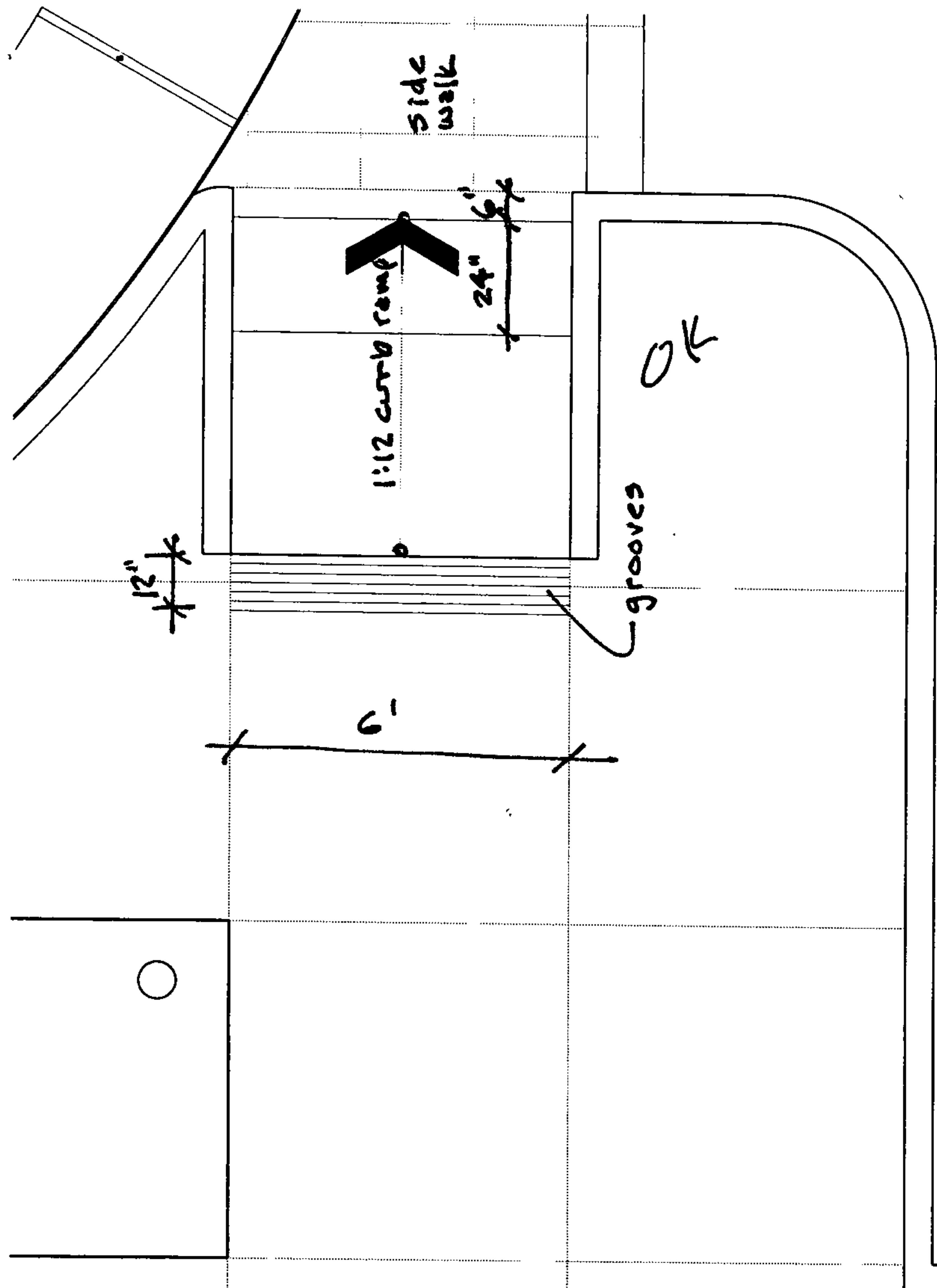
Ramp.



#2
02/09/10



OK



#3 1/4" N

21/2/20
OK

grooves

1:12

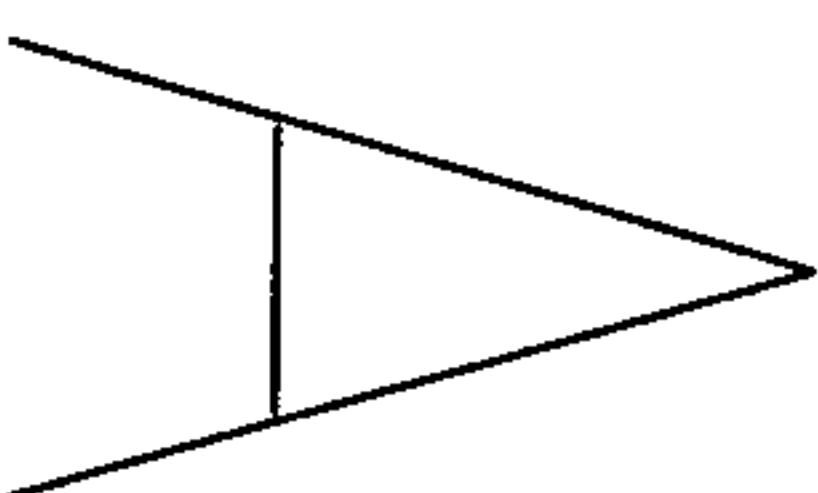
D.W

walk way

2.6

1:50

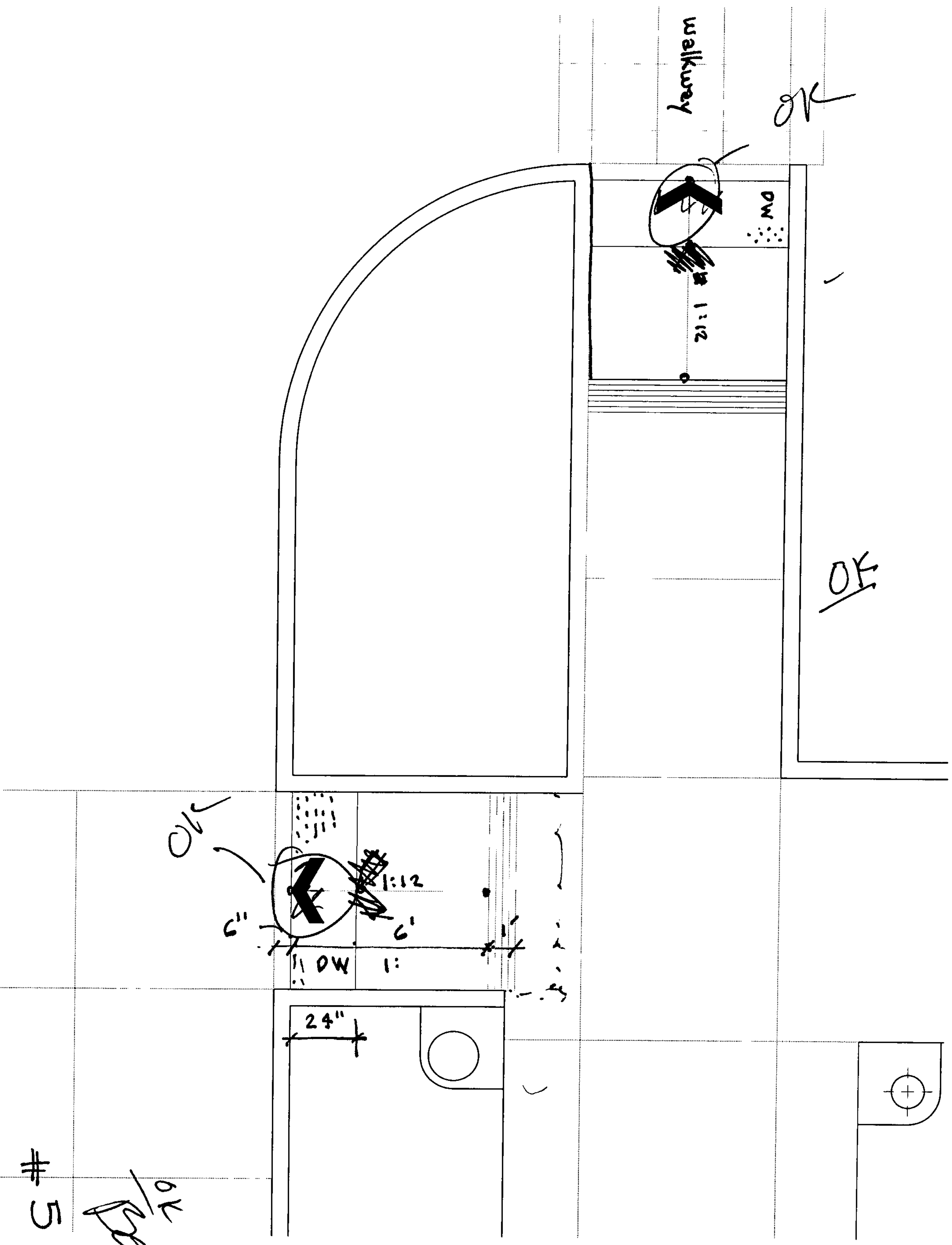
T/D/DW



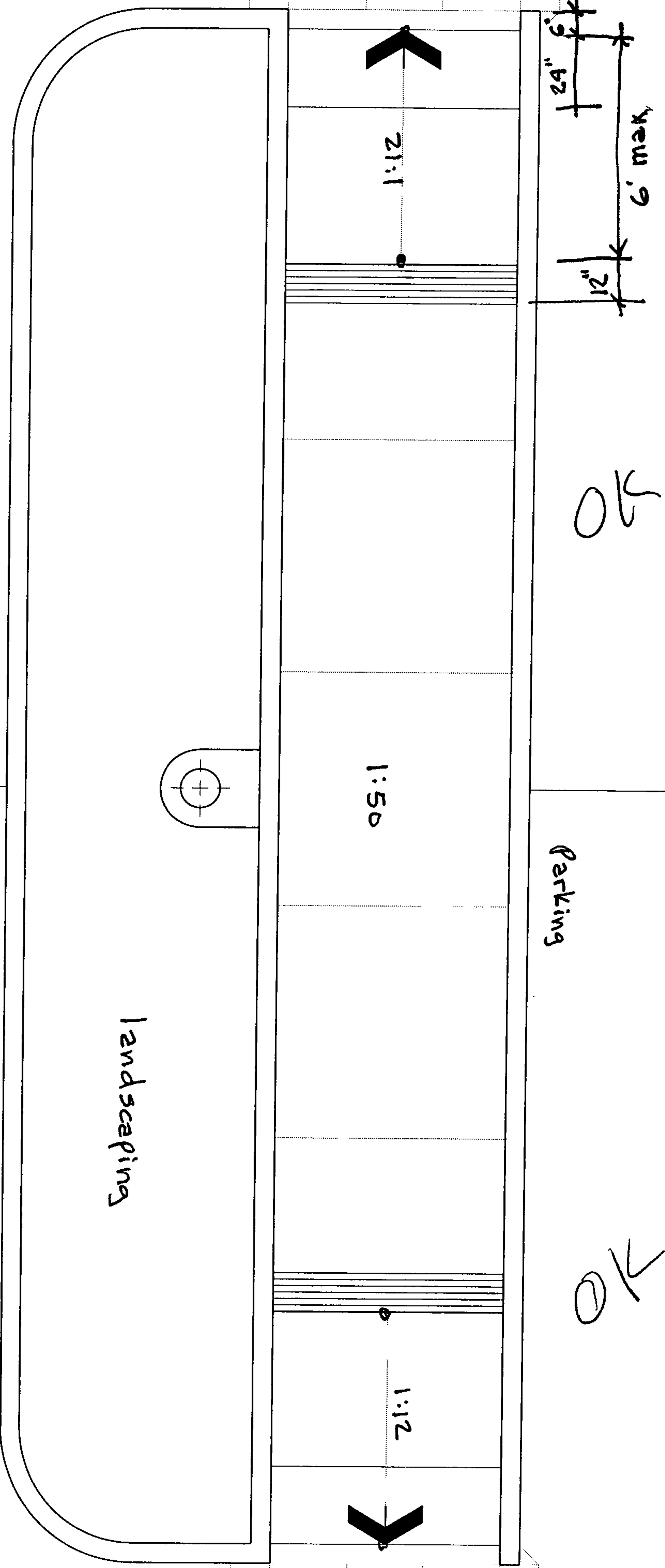
OK / BMB

#4

N
1/4" = 1'



#5
1/4" N
OK



Parking

Landscaping

Parking

OK ~~PAV~~
#6 1/4" 



1/4"

#7

6k
RHS

Landscaping

F.H.

Light

grooves

1:12

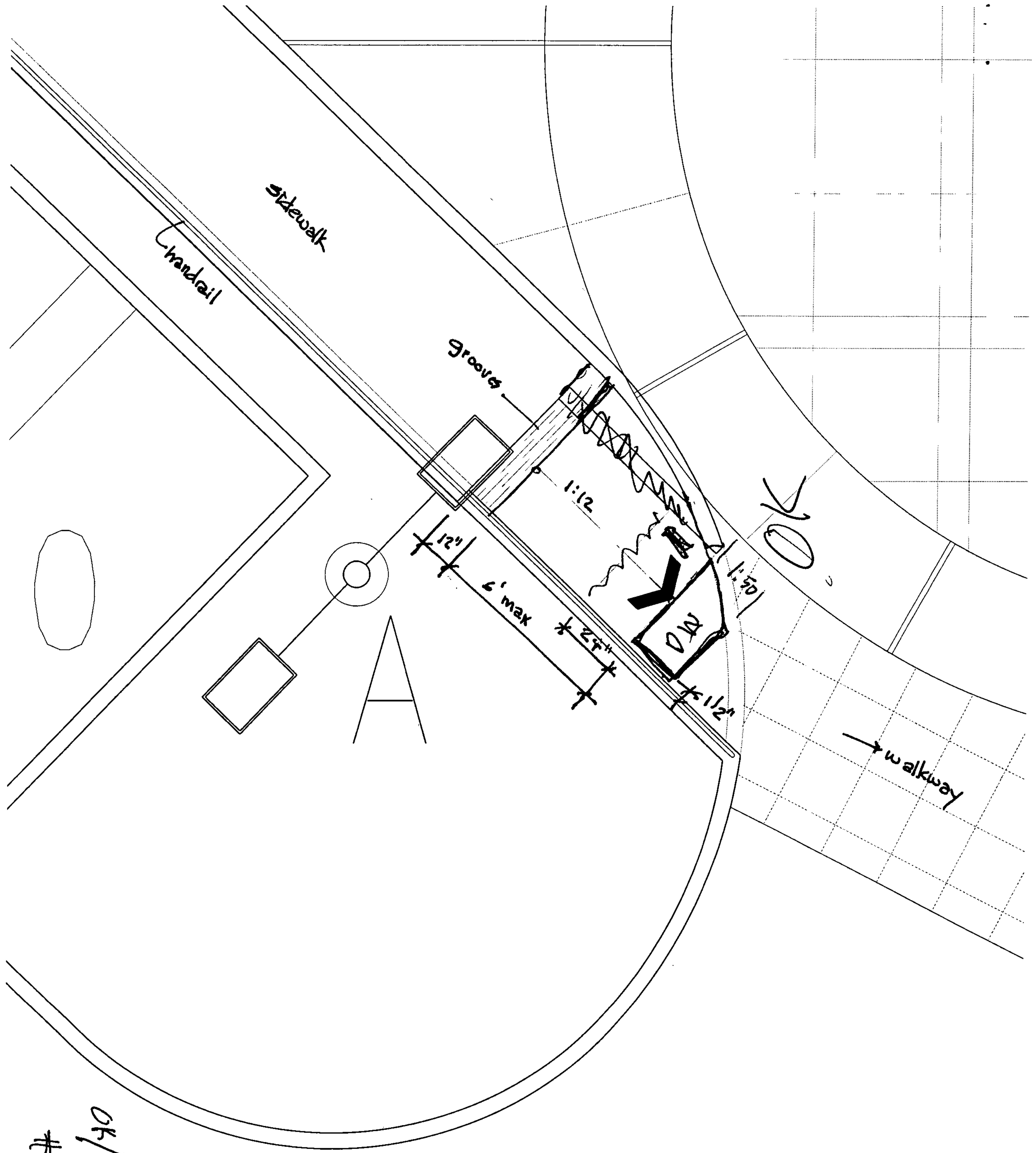
D.W.

Walkway

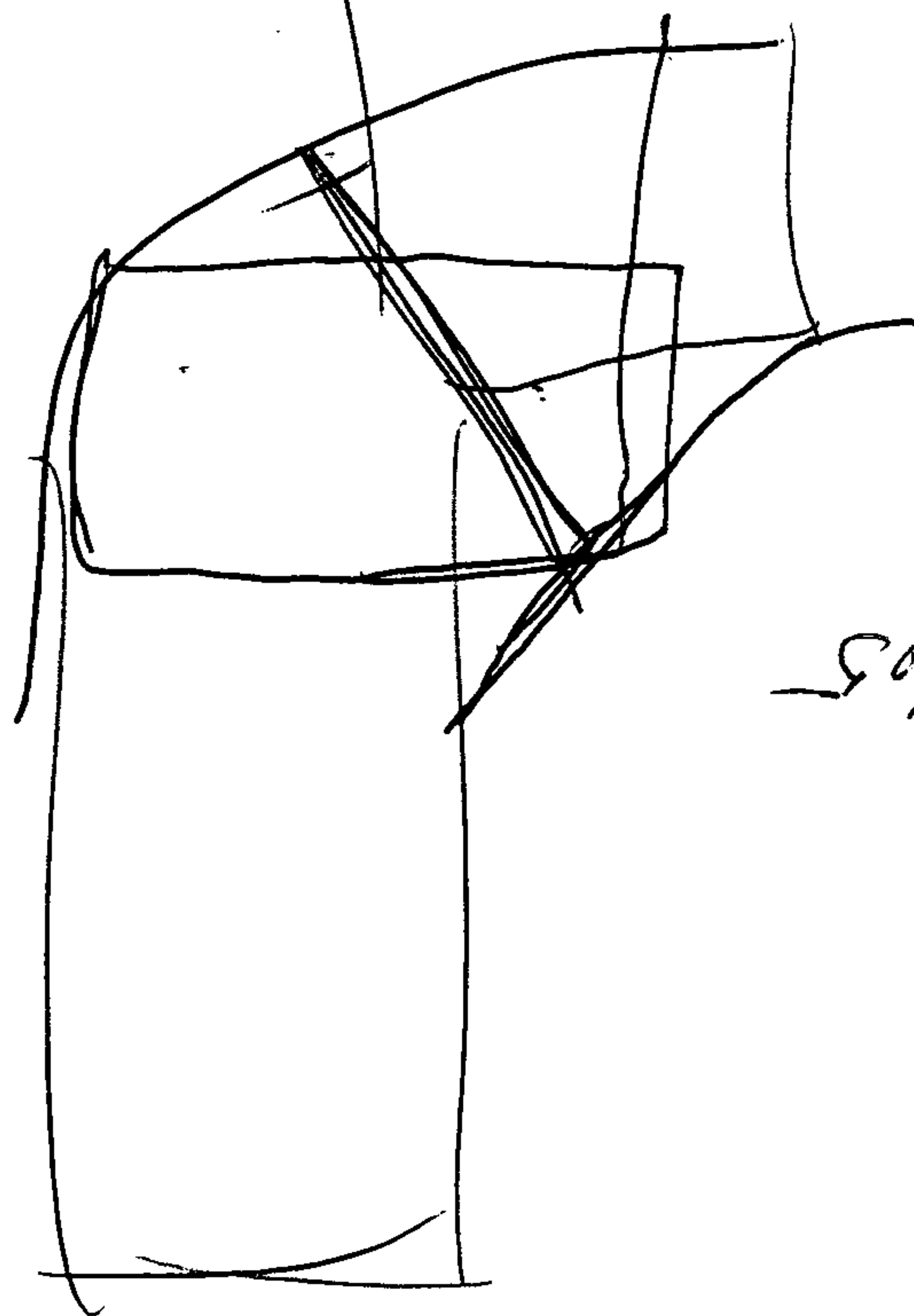
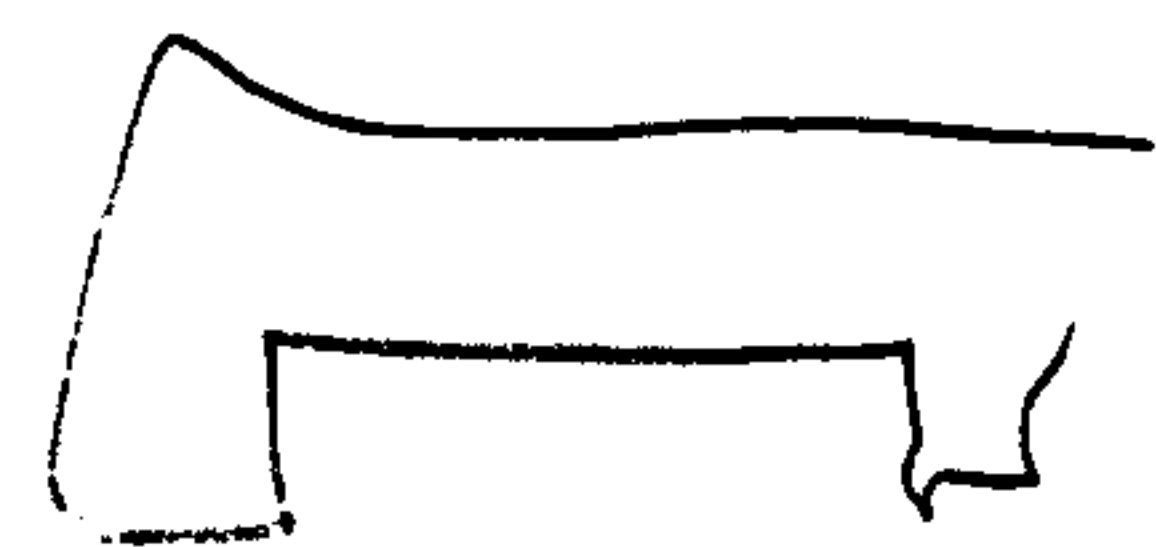
Landscaping

10

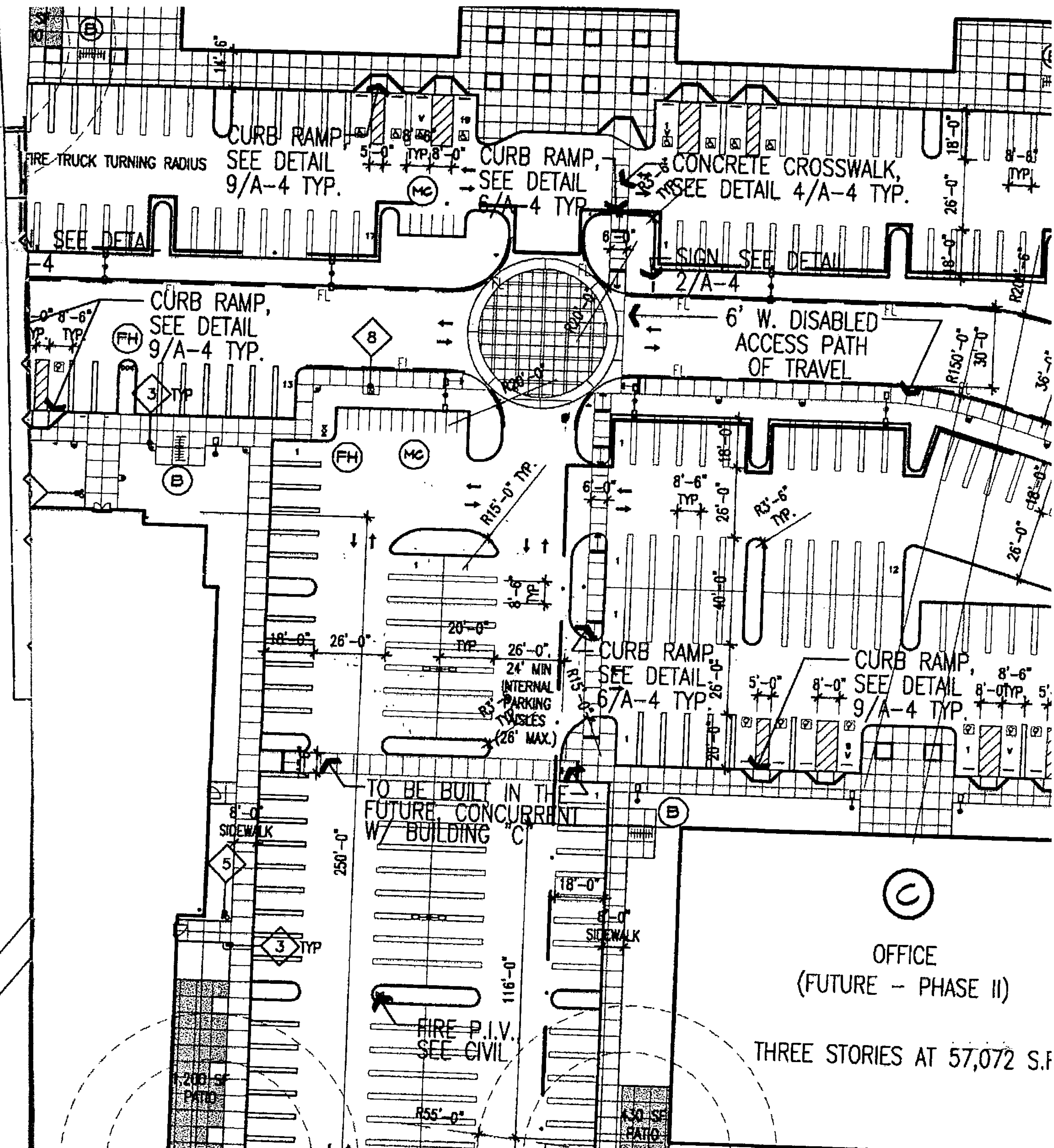
6"
6' max
24"
12"



OK/PAB
#8
1/4"
N
↑

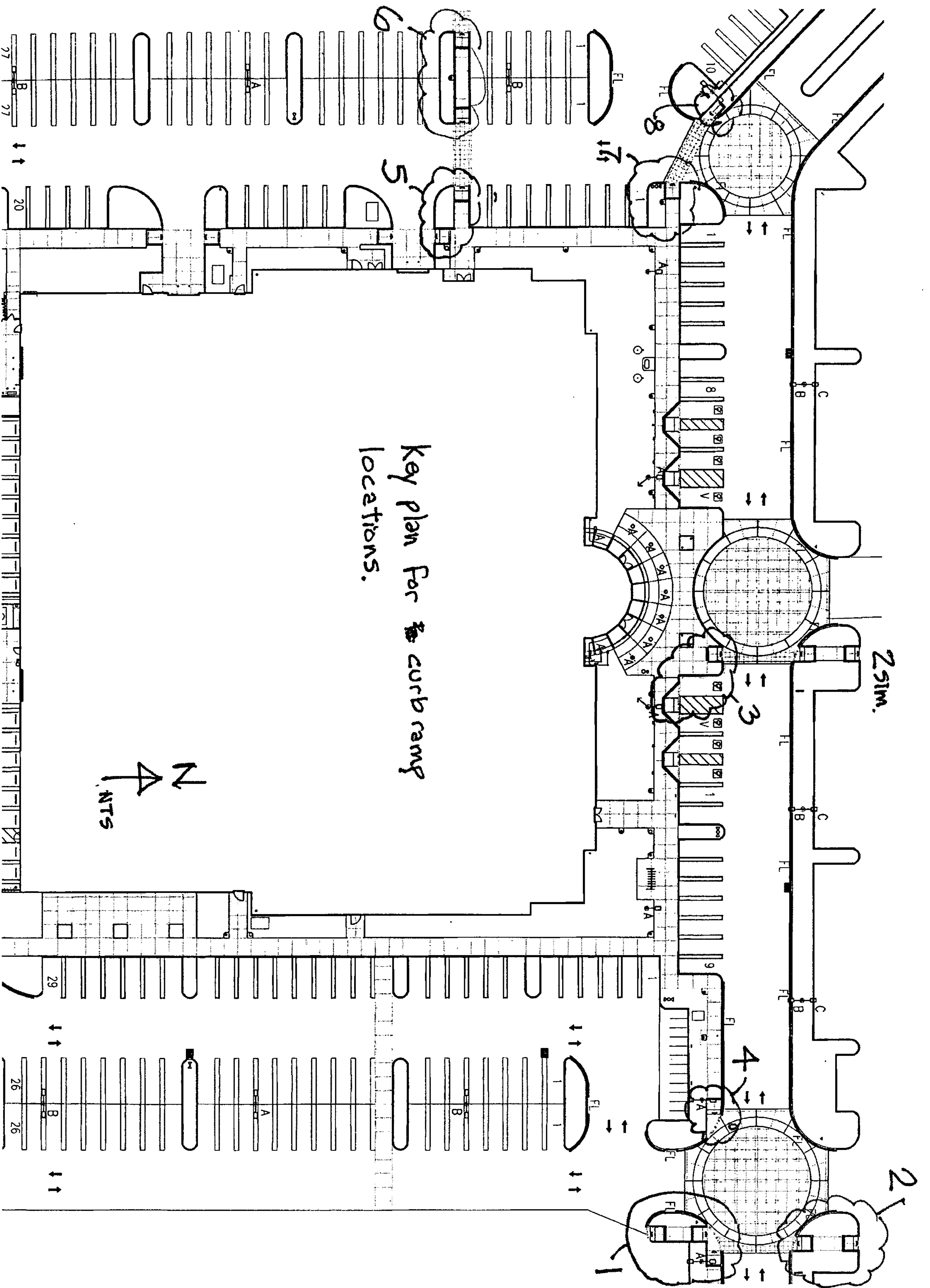


578700/



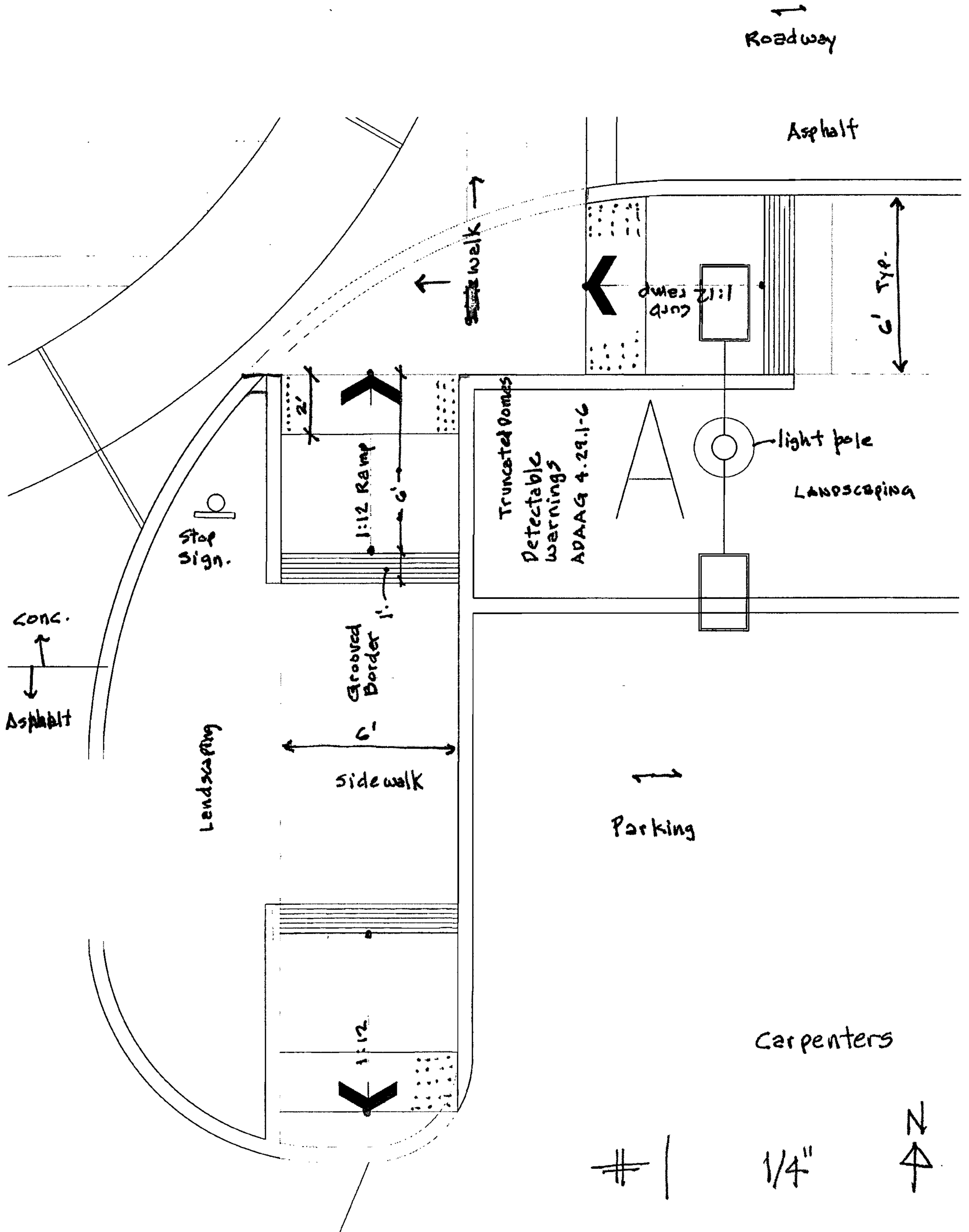
10-6-30
246 286 289 272
184 348

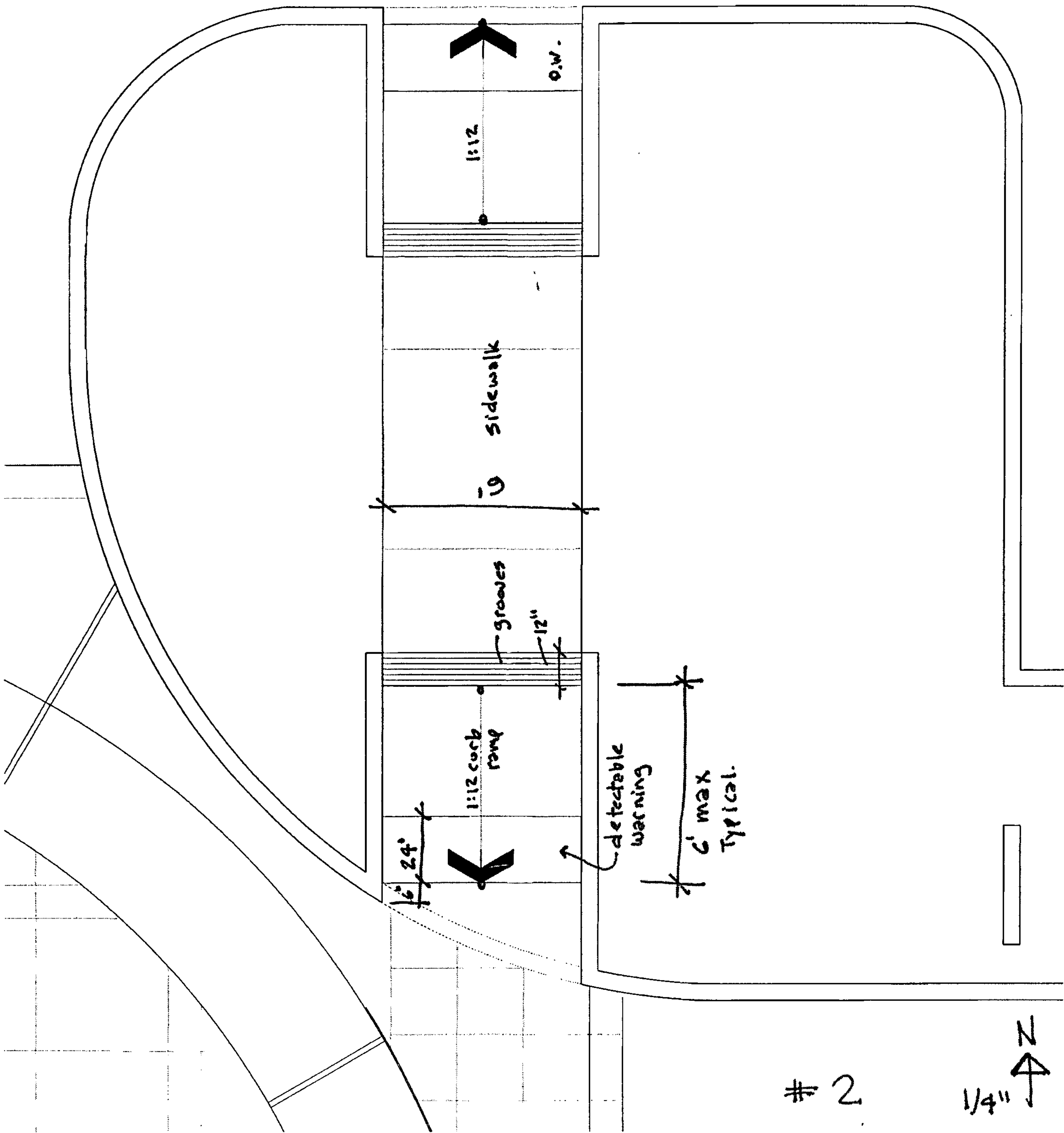
✓



Key plan for ~~the~~ curb camp locations.

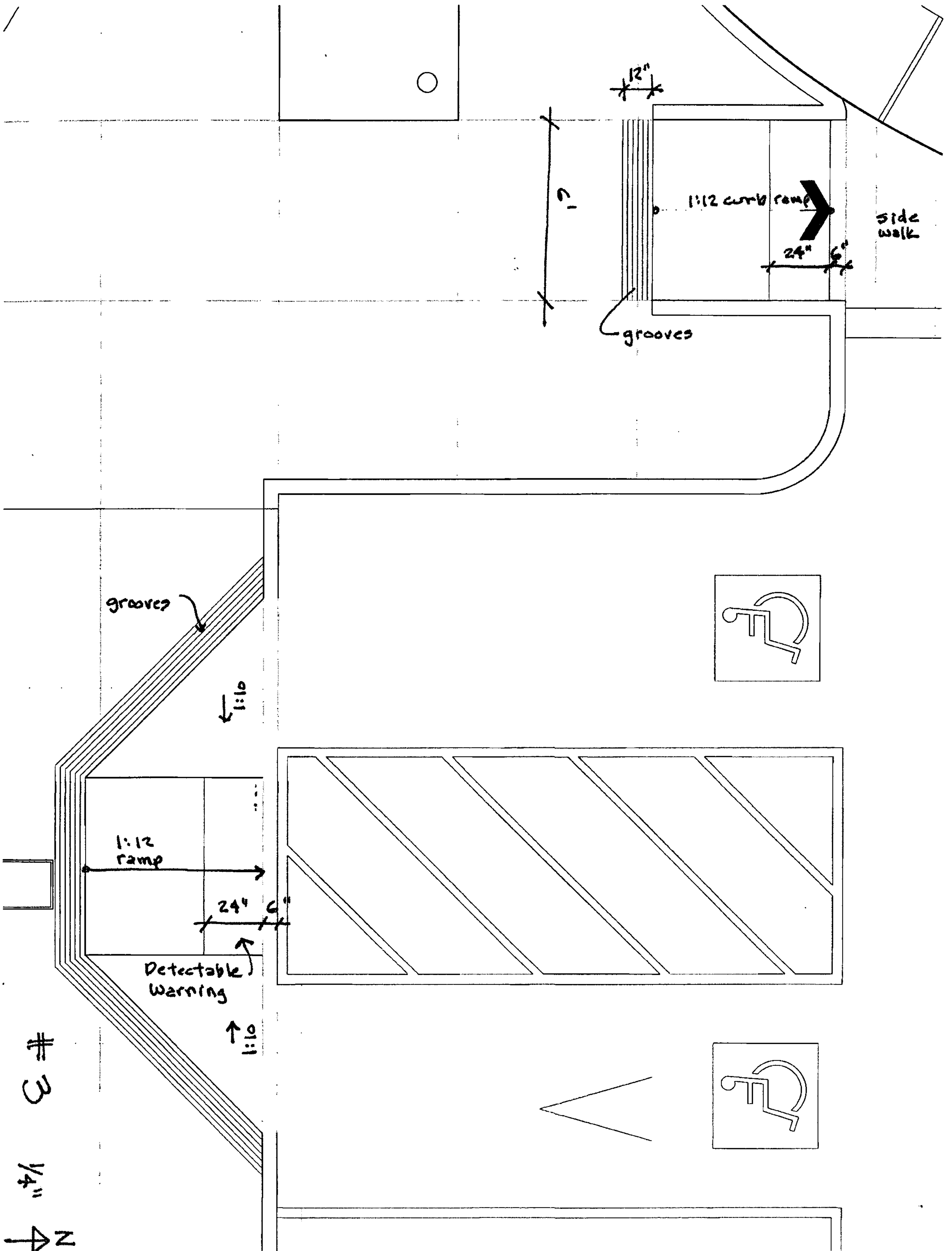
N
NTS

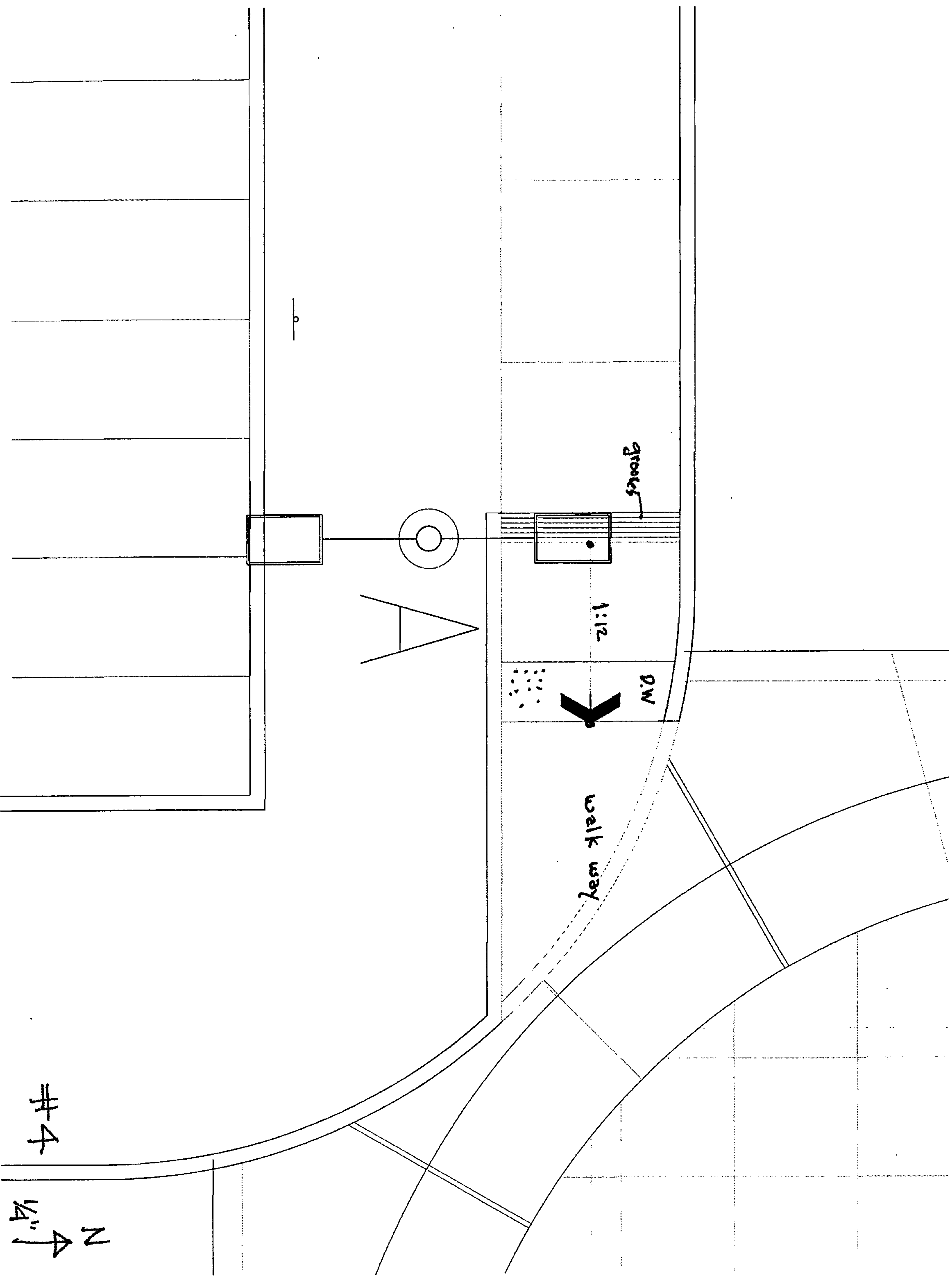




2





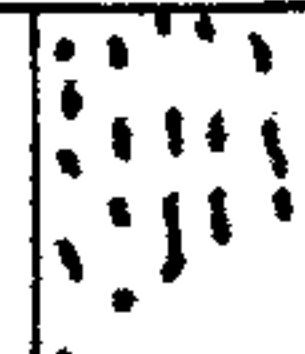
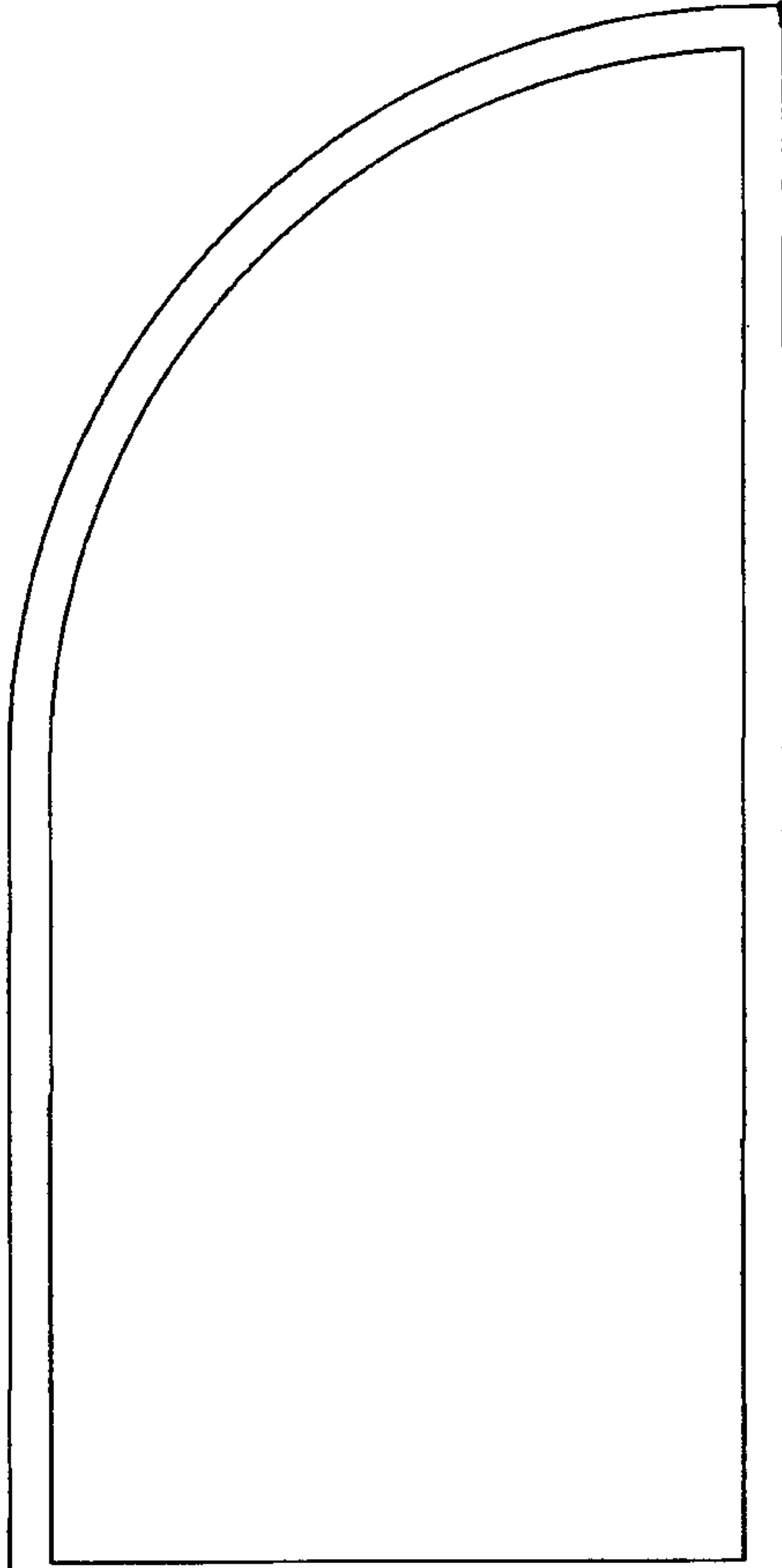


walkway



DW

1:12



1:12

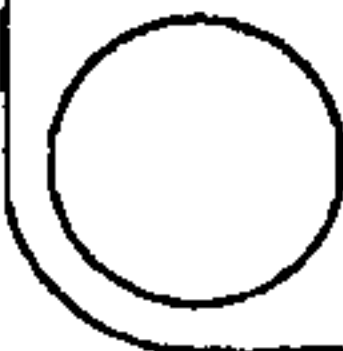
6'

1:

6"

DW

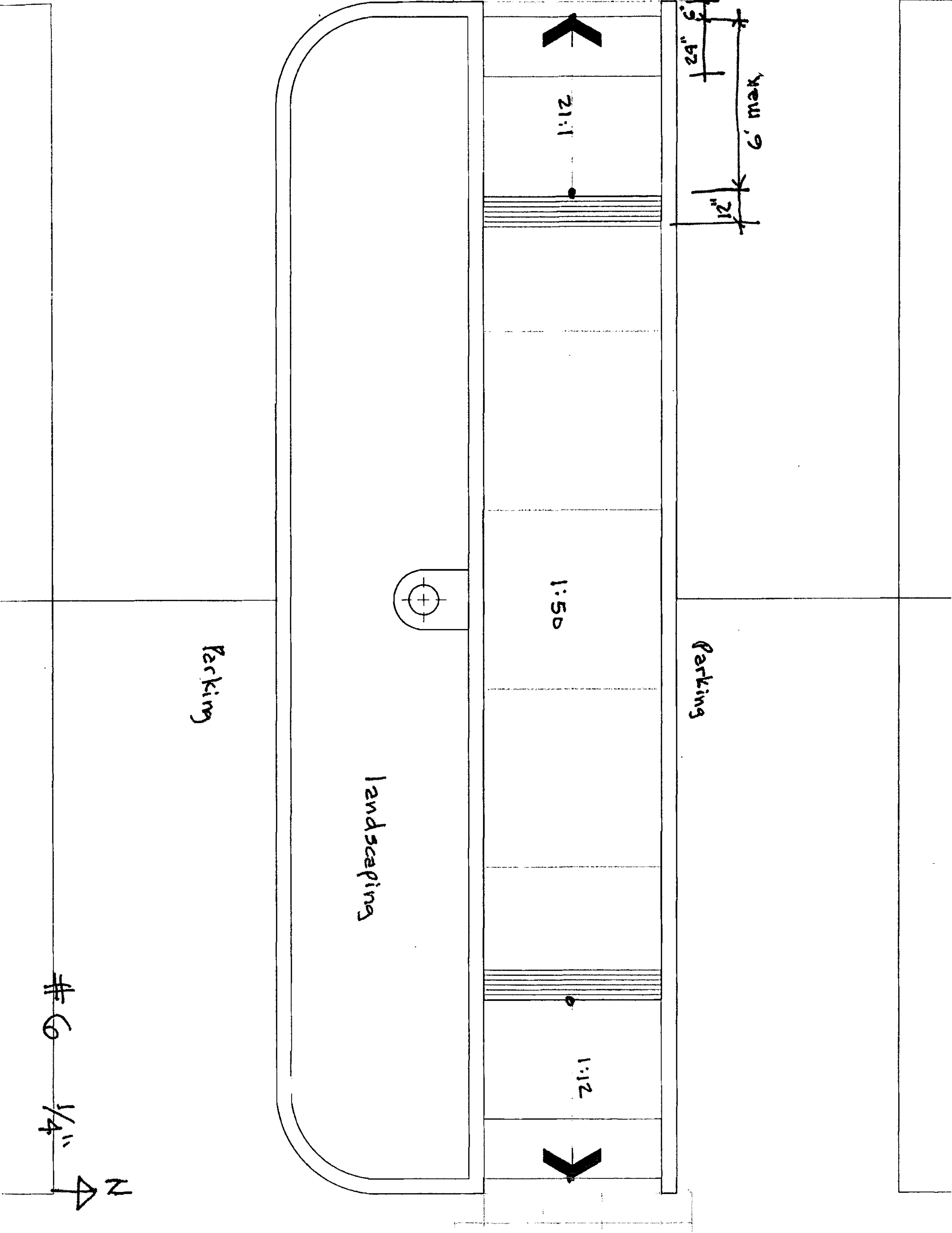
24"

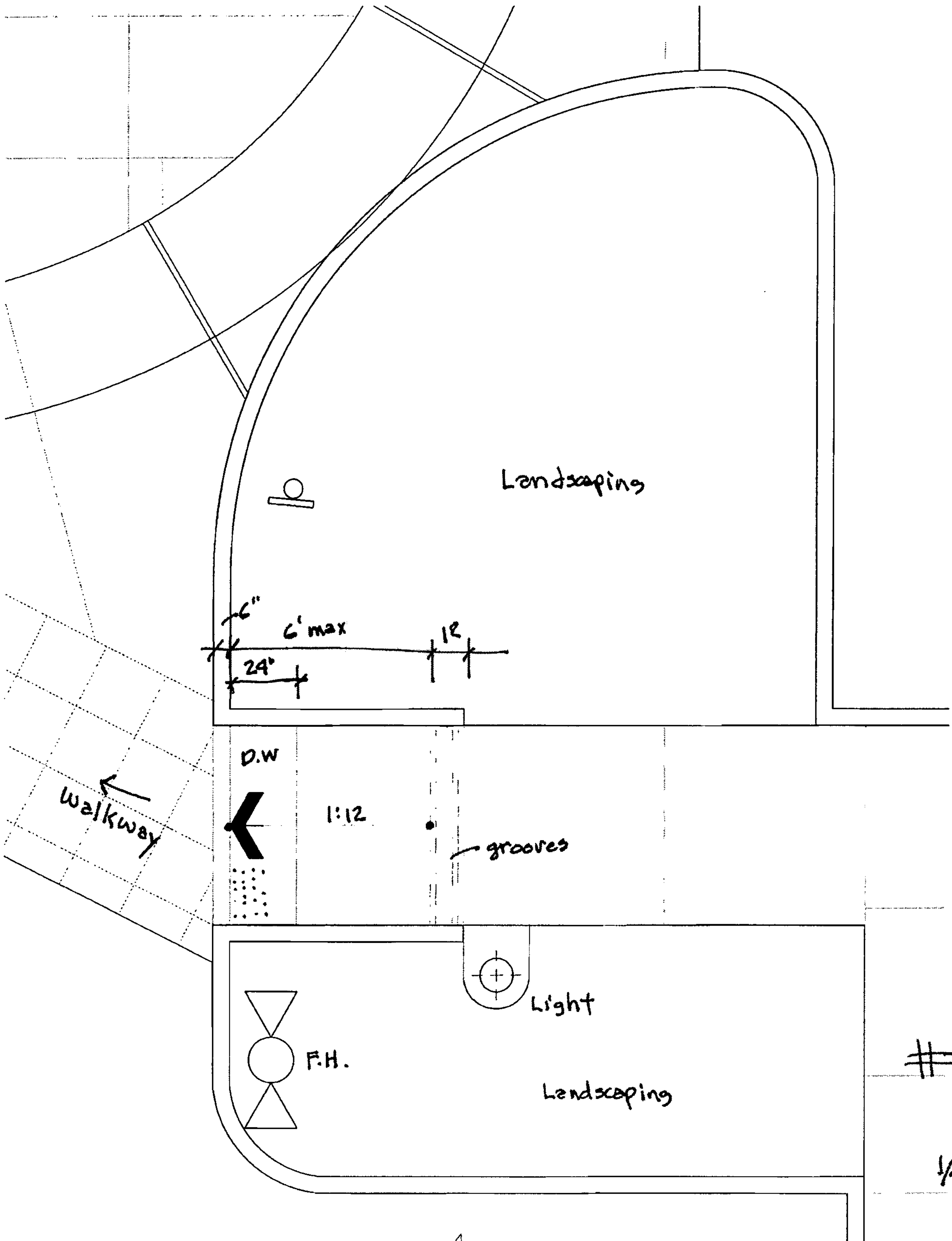


5

4"

N

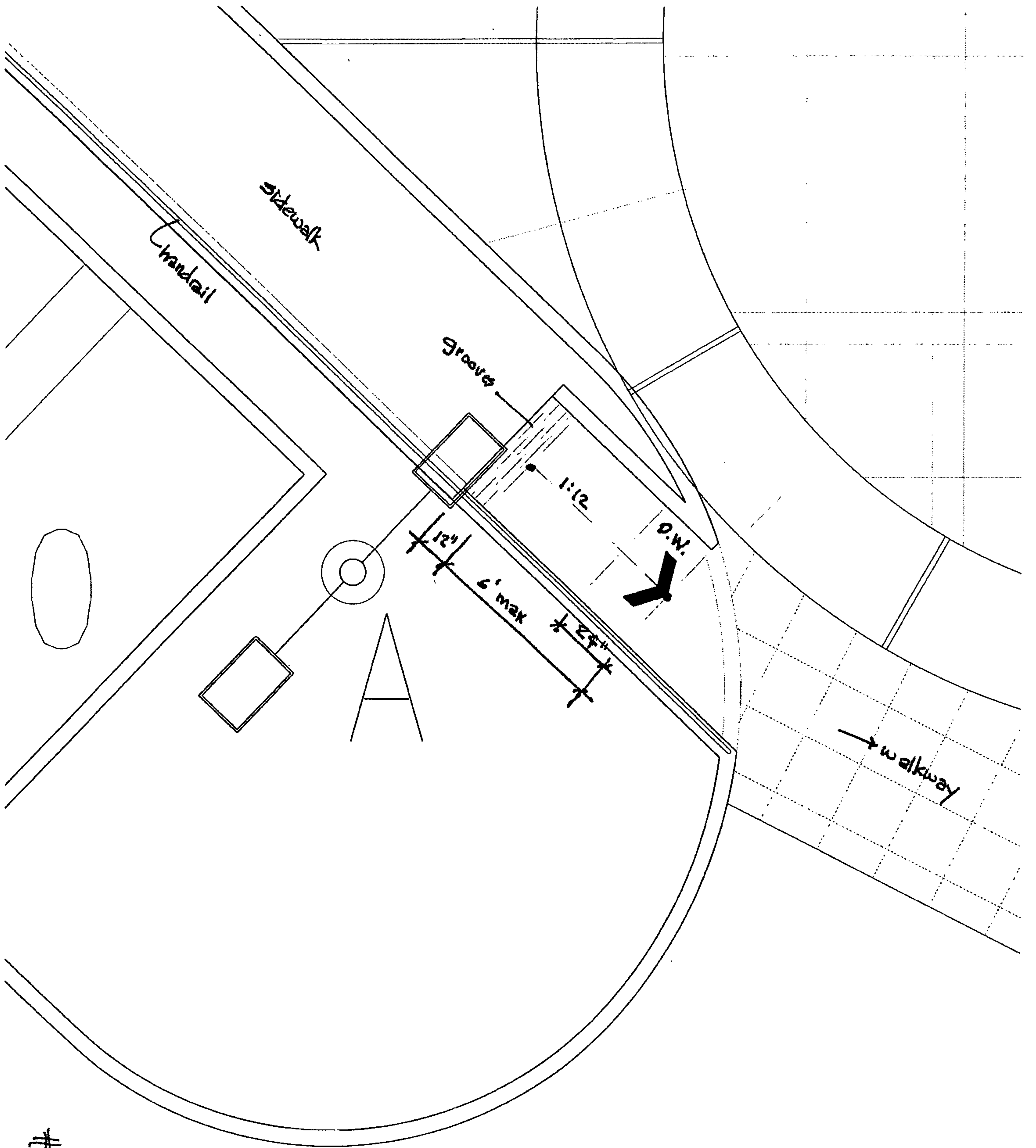




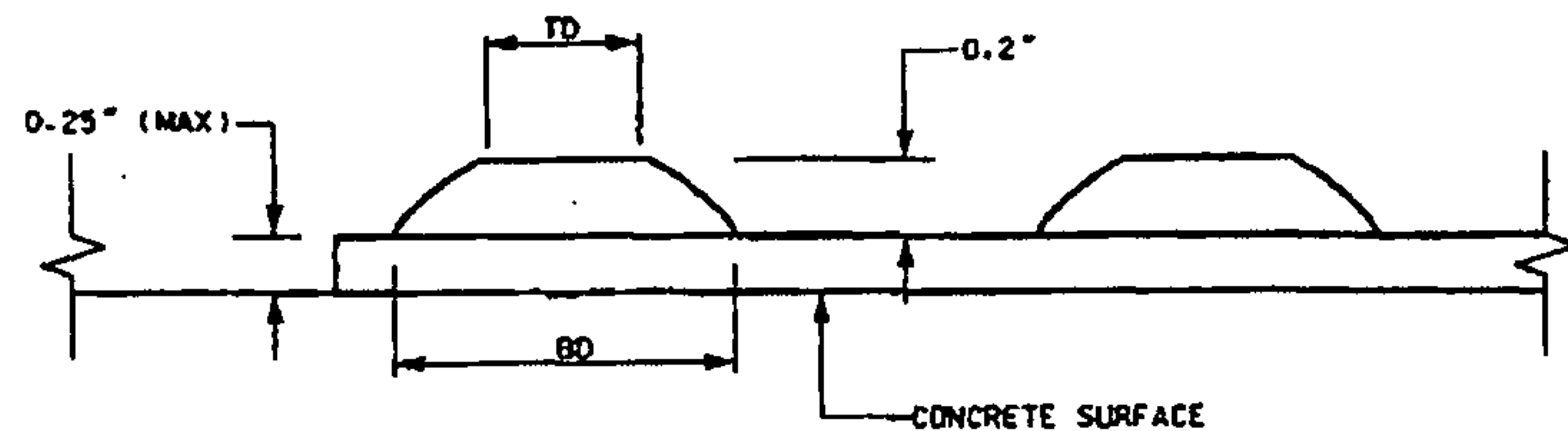
#7

1/4"



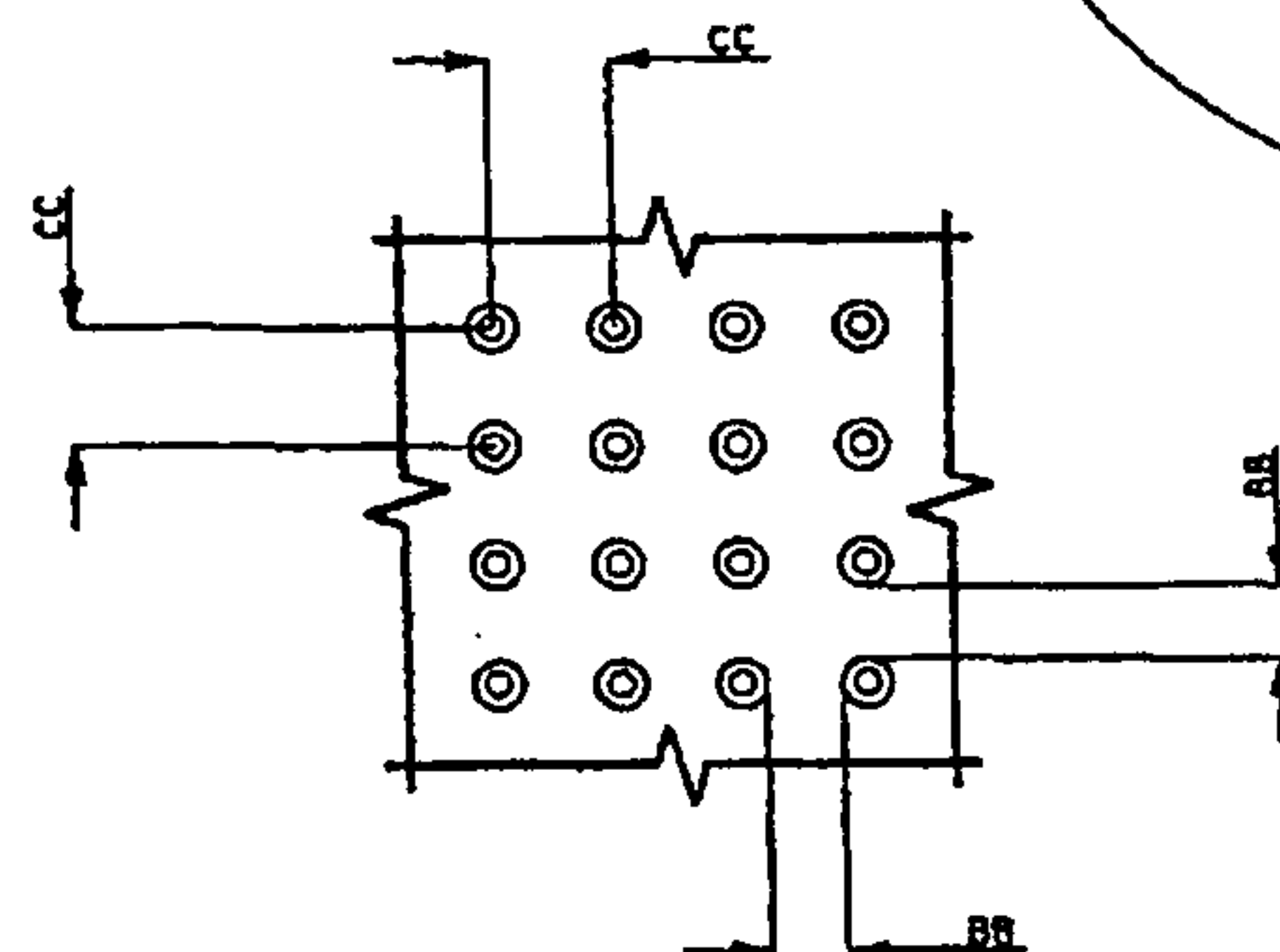
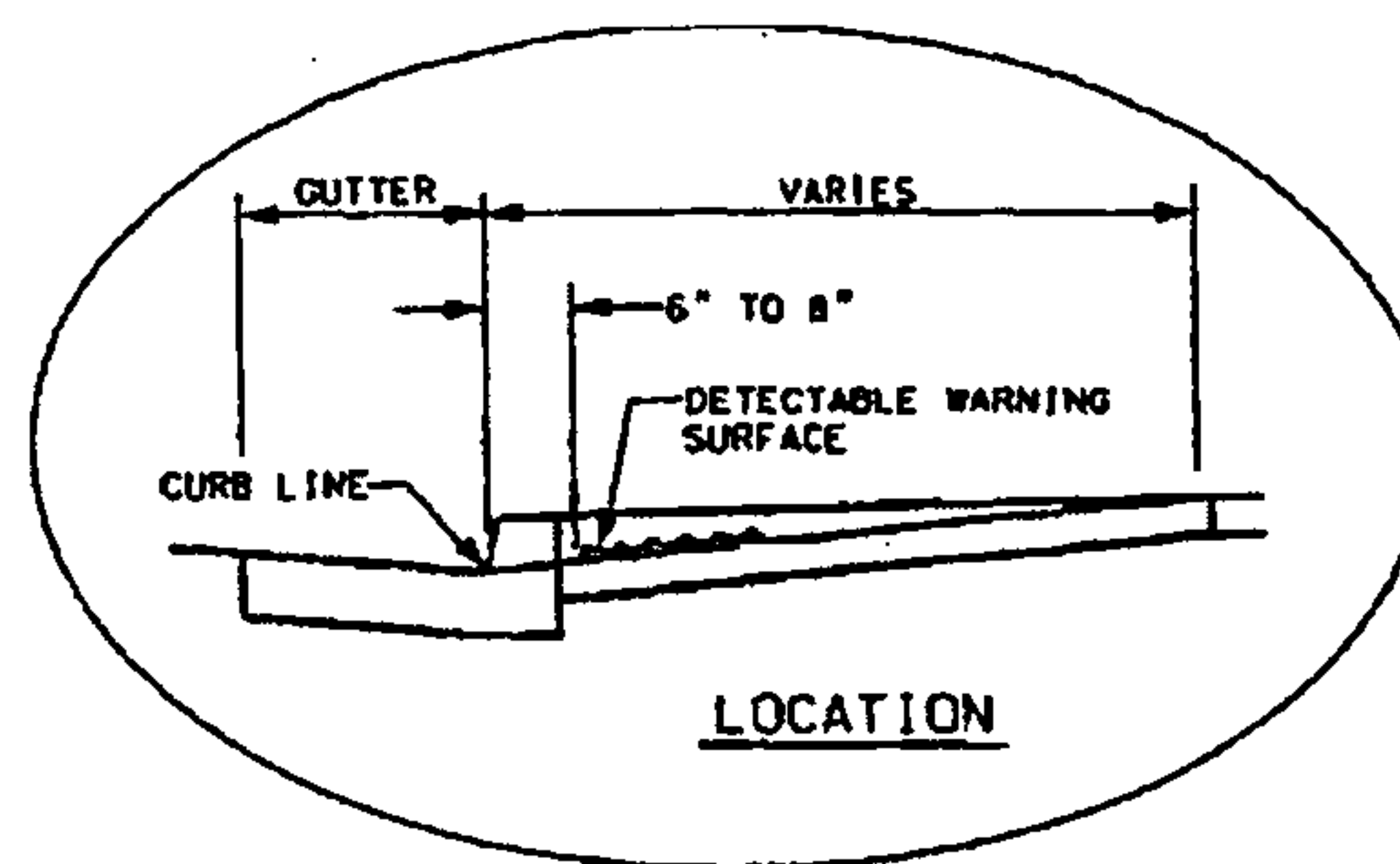


#8
1/4"
↑ N



DOME SECTION

BD - BASE DIAMETER
0.9" MIN TO 1.4" MAX
TD - TOP DIAMETER
50% OF BD MIN TO 65% OF BD MAX



DOME SPACING

CC - CENTER TO CENTER SPACING
1.6" MIN TO 2.4" MAX
BB - BASE TO BASE SPACING
0.65" MIN

DOME ALIGNMENT

DETECTABLE WARNING SURFACES SHALL EXTEND 24" MIN. IN THE DIRECTION OF TRAVEL AND FULL WIDTH OF THE CURB RAMP, LANDING, OR TRANSITION. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE CROSSWALK TO PERMIT WHEELS TO ROLL BETWEEN DOMES.

DEFINITIONS:

DETECTABLE WARNINGS. A SURFACE FEATURE BUILT IN OR APPLIED TO WALKING SURFACES OR OTHER ELEMENTS TO WARN OF HAZARDS ON A CIRCULATION PATH TO AID PERSONS WITH VISUAL IMPAIRMENTS.

CURB LINE. A LINE AT THE FACE OF THE CURB THAT MARKS THE TRANSITION BETWEEN THE SIDEWALK AND THE GUTTER OR ROADWAY.

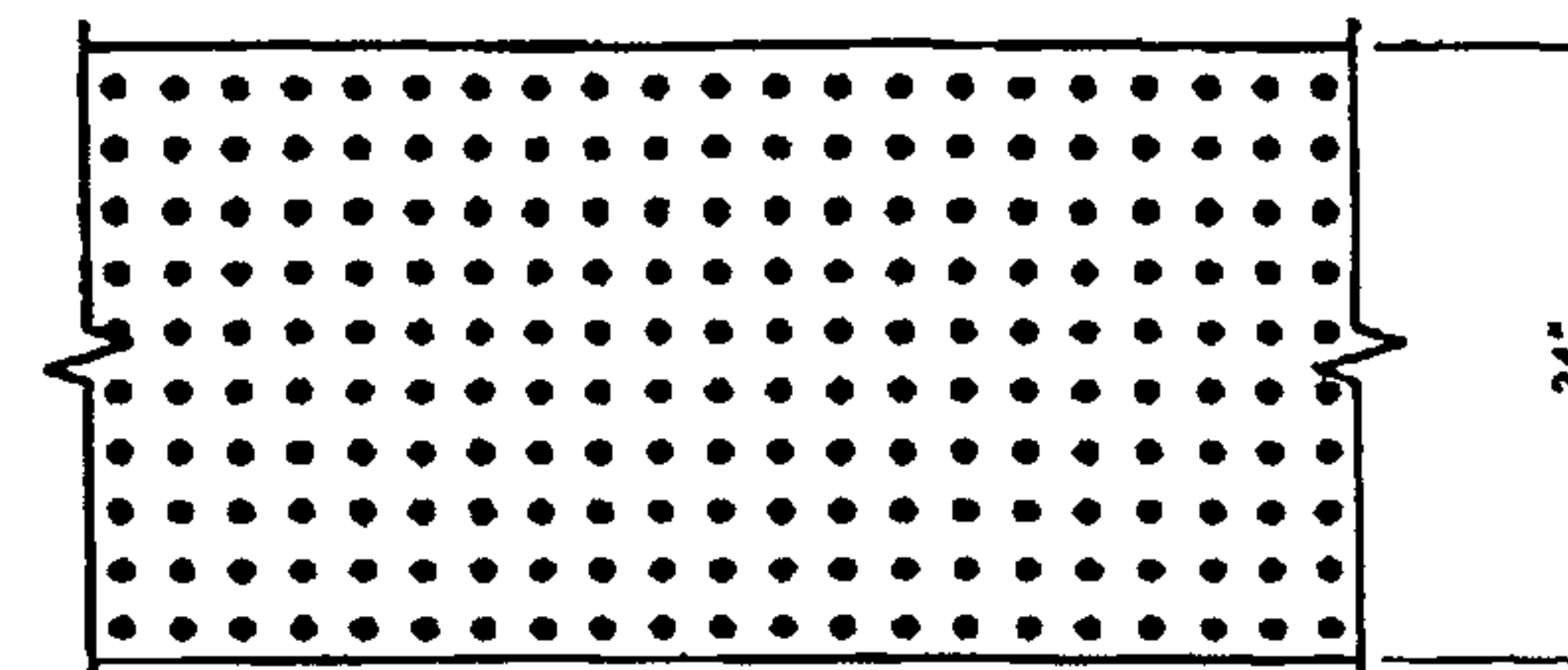
LOCATION:

1. DETECTABLE WARNING SURFACES SHALL BE PROVIDED WHERE A CURB RAMP OR LANDING CONNECTS TO A CROSSWALK AND OR PEDESTRIAN ROUTE CROSSING A ROADWAY.
2. DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES (150 MM) MINIMUM AND 8 INCHES (205 MM) MAXIMUM FROM THE CURB LINE.
3. MEDIAN AND REFUGE ISLANDS SHALL HAVE DETECTABLE WARNINGS. DETECTABLE WARNINGS AT CUT THROUGH ISLANDS SHALL BE SEPARATED BY A 24 INCH (610 MM) MINIMUM LENGTH OF WALKWAY WITHOUT WARNINGS.

EXCEPTION: DETECTABLE WARNINGS SHALL NOT BE REQUIRED ON CUT THROUGH ISLANDS WHERE THE CROSSINGS ARE CONTROLLED BY SIGNALS AND ARE TIMED FOR FULL CROSSING ON MEDIANS LESS THAN 7' WIDE.

NOTES:

1. DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS, OR SIDEWALKS BY ALL PUBLIC AGENCIES AND BY ALL PRIVATE ORGANIZATIONS CONSTRUCTING FACILITIES FOR PUBLIC USE.
2. SIDEWALKS RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.
4. ALL PRODUCTS USED FOR DETECTABLE WARNING SURFACES SHALL BE ON THE DEPARTMENT'S APPROVED PRODUCT LIST.

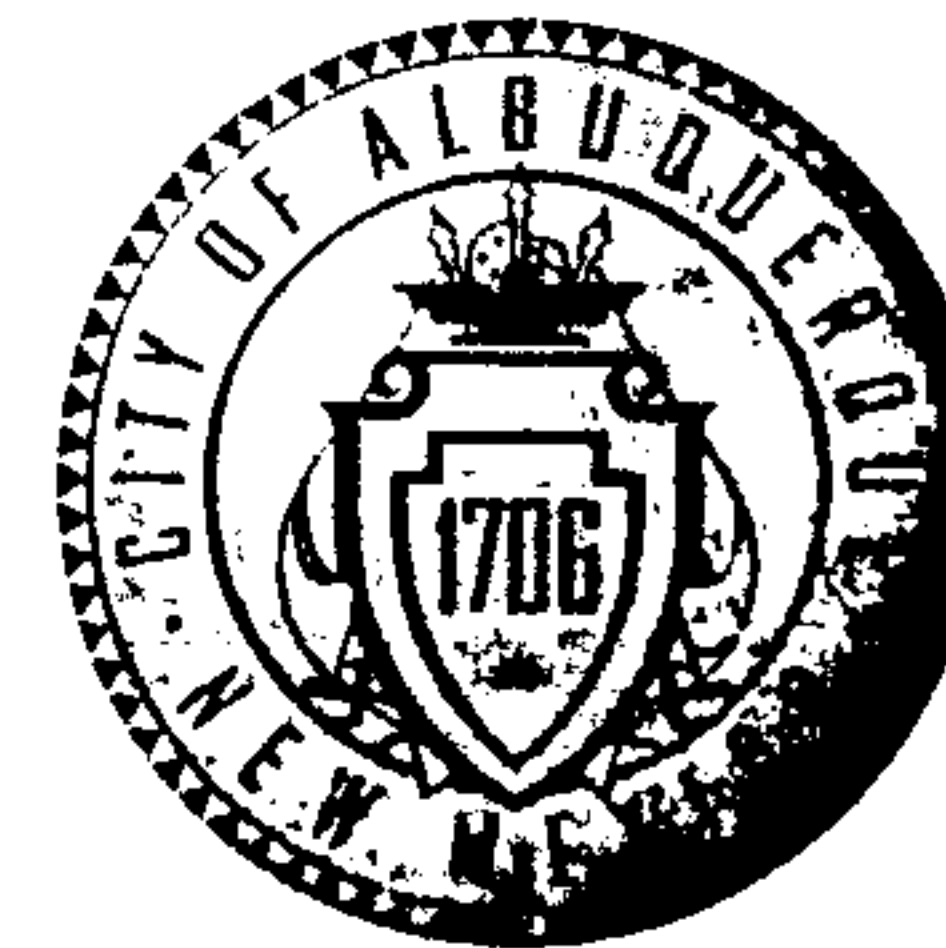


METRIC CONVERSIONS

0.2" - 5.1 MM
0.25" - 6.4 MM
0.65" - 16.5 MM
0.9" - 22.9 MM
1.4" - 35.6 MM
1.6" - 40.6 MM
2.4" - 61 MM
24" - 610 MM

N.T.S.			
NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION			
DETECTABLE WARNING SURFACE			
APPROVAL		12/31/03	
RECOMMENDED		DATE	
PAD-001		01/01/04	
		Sheet 10 of 10	

CITY OF ALBUQUERQUE



August 19, 2010

Ronald Ray Bohannon, P.E.
Tierra West, LLC.
5571 Midway Park Place N.E.
Albuquerque, NM 87109

**Re: Carpenter's Training Center, 3900 Pan American,
Permanent Certificate of Occupancy - Approved
Engineer's Stamp dated: 7-15-08 (G-16/D145)
Certification dated: 08-19-10**

Dear Mr. Bohannon,

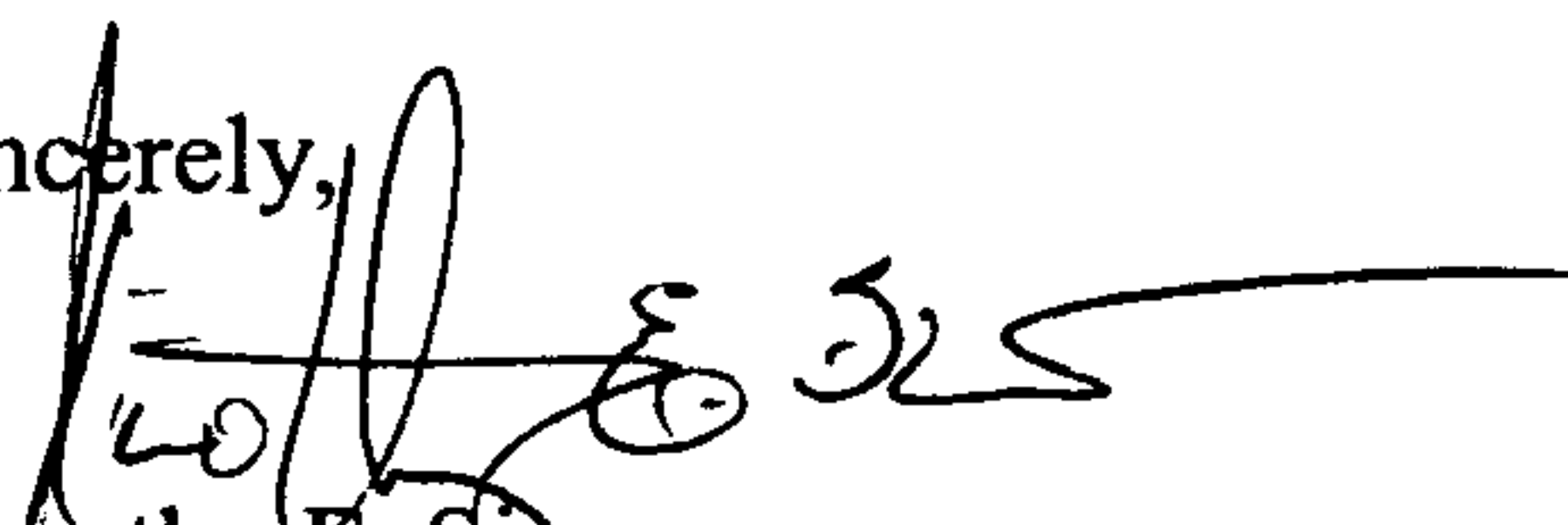
Based upon the information provided in the Certification received 8-19-10, the above referenced Certification is approved for a release of a Permanent Certificate of Occupancy by Hydrology.

PO Box 1293

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

Albuquerque

Sincerely,


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

NM 87103

www.cabq.gov

C: CO Clerk—Katrina Sigala
File

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

PROJECT TITLE: Carpenters Training Center
DRB: 1006865 EPC #: 07EPC-40066

ZONE MAP/DRG. FILE # G-16 10145
WORK ORDER #: 554483

LEGAL DESCRIPTION Comanche Business Park
CITY ADDRESS: 3900 Pan American

ENGINEERING FIRM: Tierra West, LLC
ADDRESS: 5571 Midway Park Place
CITY, STATE: Albuquerque, NM

CONTACT: Ron Bohannon
PHONE: (505) 858-3100
ZIP CODE: 87109

OWNER: United Brotherhood of Carpenters
ADDRESS: 533 S. Fremone Avenu, 9th Floor
CITY, STATE: Los Angeles, CA

CONTACT: Randy Sowell
PHONE: (213) 488-2957
ZIP CODE: 90071

ARCHITECT: Gin Wong Associates
ADDRESS: 4465 Wilshire Blvd, Suite 100
CITY, STATE: Los Angeles, CA

CONTACT: Bruce Bailey
PHONE: (323) 938-4422
ZIP CODE: 90010

SURVEYOR: Cartesian Surveys
ADDRESS: 2104 Southern Blvd.
CITY, STATE: Rio Rancho, NM

CONTACT: Brian Martinez
PHONE: 505-896-3050
ZIP CODE: 87124

CONTRACTOR: Oltman's Construction
ADDRESS: 10005 Mission Mill Road
CITY, STATE: Whittier, CA

CONTACT: Chris Bell
PHONE: 562-884-5871
ZIP CODE: 90608

CHECK TYPE OF SUBMITTAL:

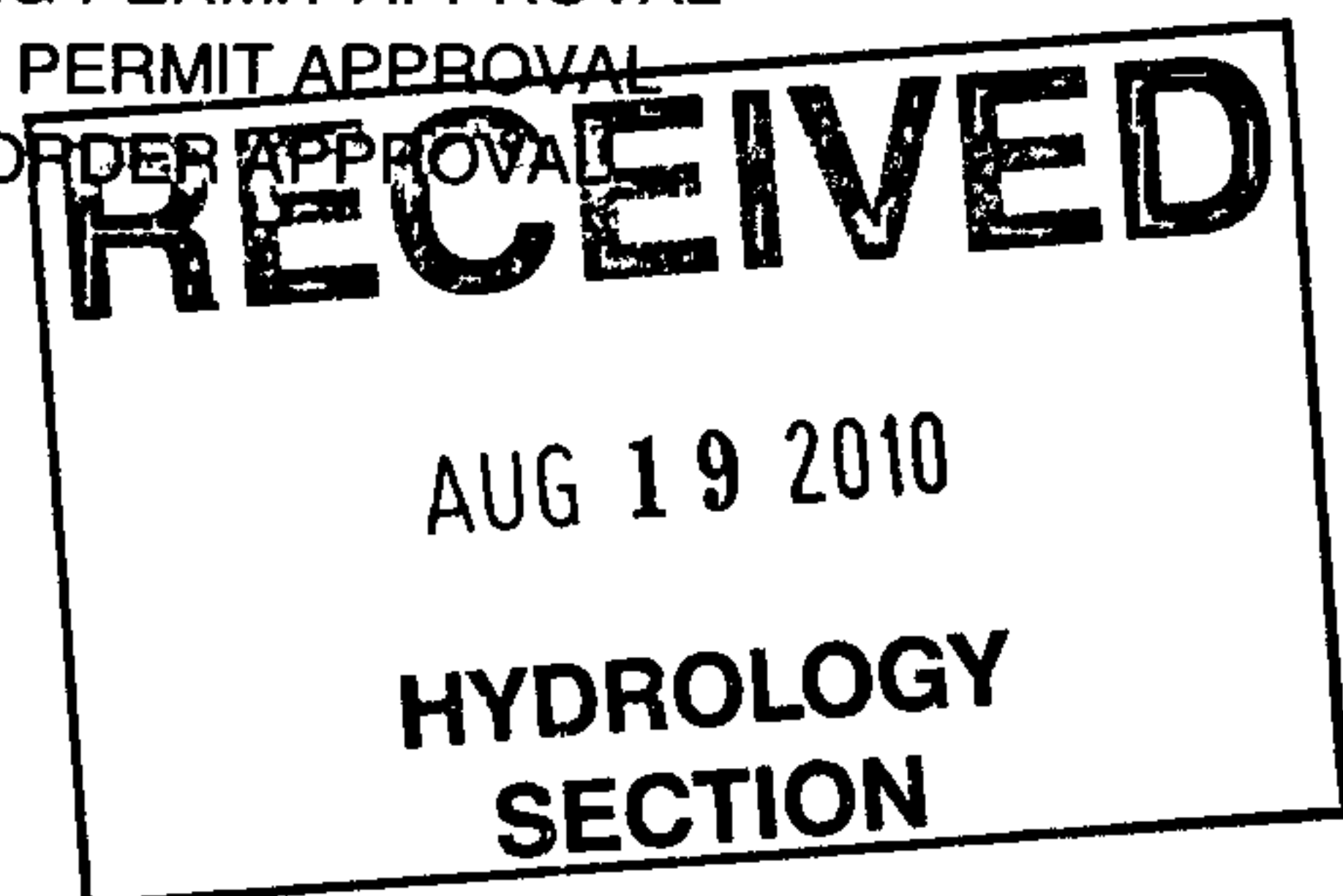
- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL, **REQUIRES TCL or equal**
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐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

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANACIAL 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
☐ SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☒ NO
☐ COPY PROVIDED



DATE SUBMITTED: 8/17/2010 BY: Vincent Carrica, P.E.

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 Plans:** 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.