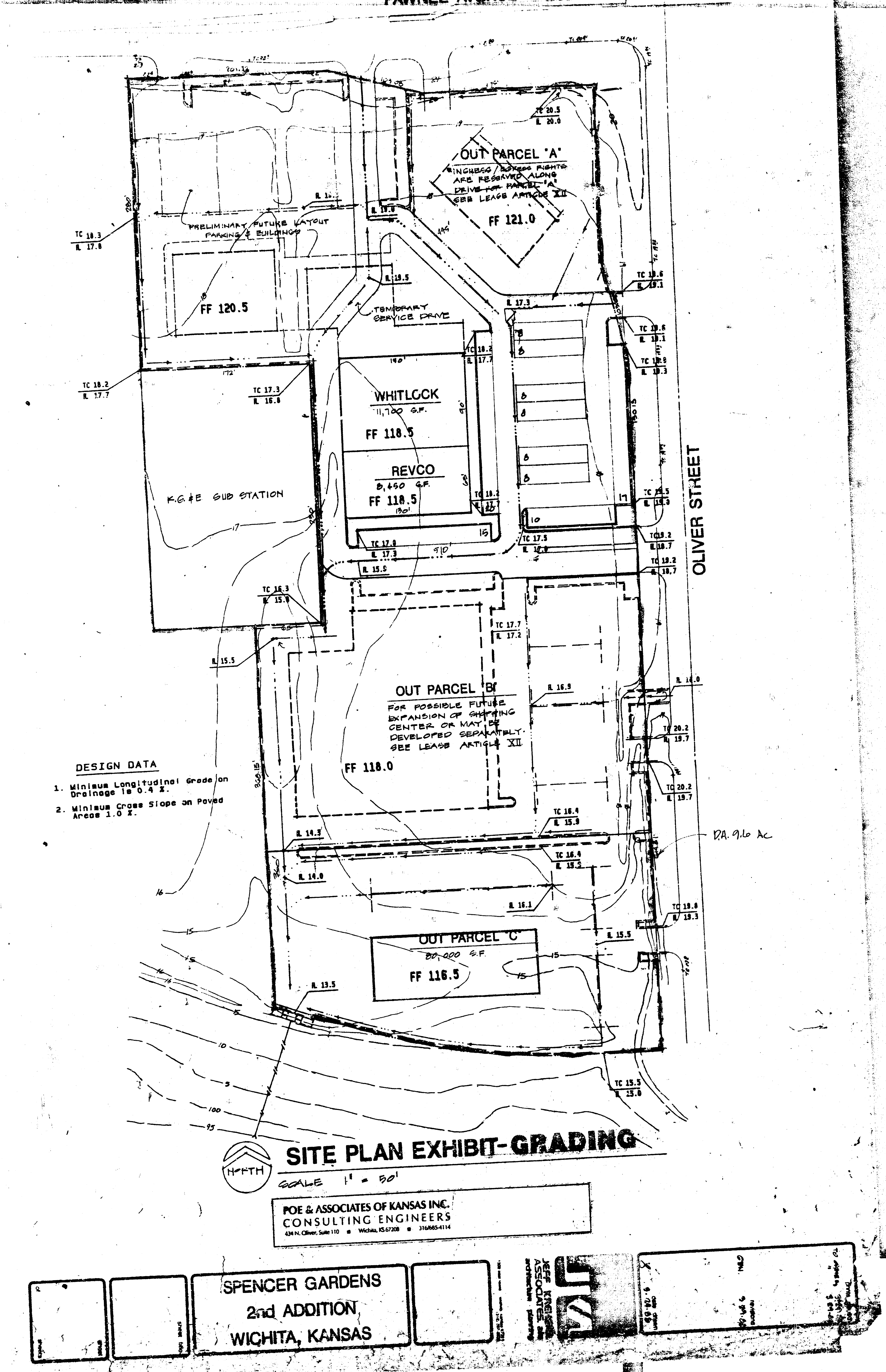

OUT PARCEL "A"
INGRESS / EGRESS RIGHTS ARE RESERVED ALONG DRIVE ON PARCEL "A" SEE LEASE ARTICLE XII
FF 121.0
PRELIMINARY FUTURE LAYOUT PARKING & BUILDINGS
FF 120.5
TEMPORARY SERVICE DRIVE
WHITLOCK
11,700 S.F.
FF 118.5
REVCO
8,450 S.F.
FF 118.5
K.G.&E. SUB STATION
OUT PARCEL "B"
FOR POSSIBLE FUTURE EXPANSION OF SHOPPING CENTER OR MAY BE DEVELOPED SEPARATELY. SEE LEASE ARTICLE XII
FF 118.0
OUT PARCEL "C"
30,000 S.F.
FF 116.5
OLIVER STREET
D.A. 9.6 Ac
NORTH

DESIGN DATA

1. Minimum Longitudinal Grade on Drainage is 0.4 %.
2. Minimum Cross Slope on Paved Areas 1.0 %.

SITE PLAN EXHIBIT-GRADING

SCALE 1" = 50'

POE & ASSOCIATES OF KANSAS INC.
CONSULTING ENGINEERS
434 N. Oliver, Suite 110 ■ Wichita, KS 67208 ■ 316/685-4114

SPENCER GARDENS
2nd ADDITION
WICHITA, KANSAS

POE & ASSOCIATES OF KANSAS INC.
CONSULTING ENGINEERS
434 N. Oliver, Suite 110 ● Wichita KS 67208 ● 316/685-4114

January 3, 1989

Ms. Vicki Huang, P.E.
Engineering, 7th Floor
455 North Main
Wichita, Kansas 67202

Re: Spencer Gardens 2nd Addition

Dear Vicki:

The enclosed plans are for the construction of an area inlet and storm sewer to drain the above referenced addition. Calculations for drainage runoff from the current site plan for this area indicate a 52 cfs peak discharge for the 100 year storm. This was the design storm used to size the inlet and pipe for this structure. Calculations for this design are enclosed.

Please review the plans and contact me if you have any questions.

Yours truly,

POE & ASSOCIATES OF KANSAS, INC.

Kenny E. Hill

Kenny E. Hill, P.E.
Project Manager

KEH:crb

Encl.

FINAL DESIGN

4 OPENINGS 3' × 6" A = 6

$Q = 0.67\,A\left[64.32\left(d - \frac{h}{2}\right)\right]^{1/2}$

d = 2.5 h = 0.5 Q = 48.4 112.5 + 2.5 = 115.0 HW

BEEHIVE

$Q = 5.37\,A d^{0.5}$

d = 1.5' $A = \frac{\pi r^2}{2} = 1.6$ 50% OPEN AREA

Q = 10.5 cfs 113.5 + 1.5 = 115.0 HW

10.5 + 48.4 = 58.9 cfs TOTAL INFLOW @ HW = 115

FINAL DESIGN

PROJECT SPENCER GARDENS 2ND

TABLE 6
MINOR LOSSES AND HYDRAULIC GRADE LINE

SHEET 1 OF 1
BY K HILL
DATE 12-20-88

① STRUCTURE NO.	② TYPE (MH OR C.B.)	③ MAX ELEVATION H.G.L.	④ D_2/D_1	⑤ K_j	⑥ V	⑦ H_f	⑧ H_j	⑨ H_{mh}	⑩ E.G.L.	⑪ H_v	⑫ H.G.L.	⑬ INVERT ELEVATION	⑭ DEPTH
1	HOWL	111.9			10.6				113.64	1.74	*111.9	*96.00	*
30' - 30" CMP @ 52 cfs PIPE @ 0.5%						0.93			114.57	1.74	112.83	96.15	
2	BEND				10.6		0.17		114.74	1.74	113.00		
86' - 30" CMP @ 52 cfs PIPE @ 13.78%						2.65			117.39	1.74	115.65	108.00	
3	INLET												

V = 4.2 fps @ 20.9 cfs

③ NOT LESS THAN 1 FT. BELOW BOTTOM OF SLAB.
④ RATIO OF LARGER TO SMALLER PIPE DIAMETER.
⑤ FROM CHART 7.
⑥ VELOCITY FROM TABLE 6
⑦ HEAD LOSS DUE TO FRICTION FROM TABLE 7
⑧ H_j = HEAD LOSS AT JUNCTION = COL. 5 X COL. 11
⑨ H_{mh} = HEAD LOSS AT MH = 0.02 ALWAYS.
⑩ EGL = ENERGY GRADE LINE.
⑪ H_v = VELOCITY HEAD = $V^2 \div 64.4$
⑫ HGL = HYDRAULIC GRADE LINE = E.G.L. − H_v

*GIVEN

```
HMV2.36 SN:84021495                      TEXAS HYDRAULIC SYSTEM - 221108
                                                    THYSYS


 DATA FILE: C:\FRIEND\SPENCR2.THY



                    ******************************
                    *                            *
                    *          THYSYS            *
                    *                            *
                    *  TEXAS HYDRAULICS SYSTEM   *
                    *                            *
                    ******************************
```

TO

SPENCER GARDENS - DRAINAGE COMPUTATIONS

WEST AREA 6.3 Ac. L = 1170' $S = \frac{6}{1110'} = 0.54\%$

V = 1.08 1170 ÷ 1.08 ÷ 60 = 18.0 MIN Tc C = 0.85 i = 4.2

$Q_5 = 6.3 \times 0.85 \times 4.2 = 22.5$ cfs

$Q_{100} = 6.3 \times 0.91 \times$ [illegible] $=$ 39.2 cfs

EAST AREA 3.3 Ac. L = [illegible] $S = \frac{2}{470} =$ [illegible] V = 1.0

690 ÷ 60 = 11.5 min. Tc i_5 = [illegible] C = 0.85

$Q_5 = 3.3 \times 0.85 \times$ [illegible] $=$ 14.2 cfs

$Q_{100} = 3.3 \times 0.91 \times 3.15 =$ [illegible] cfs

TYPE 1-A INLET MAX CAPACITY IN SUMP CONDITION WITH ORIFICE FLOW @ T.C. PONDING

$Q = 0.67\,A\left[64.32\left(d - \frac{h}{2}\right)\right]^{1/2}$ h = 0.5' A = 5' × .5 = 2.5 ft²

d = 11" = 0.92'

$Q = 0.67 \times 2.5\left[64.32\left(.92 - \frac{0.5}{2}\right)\right]^{1/2}$

Q = 11.0 cfs

WEST AREA - DESIGN FOR Q_{100} = 39.2 cfs

USE 4 TYPE 1-A INLETS = 44 cfs MAX TO T.C. 39.2 cfs REQ'ED
9.8 cfs / INLET

18" @ 9.3 cfs HGL @ 0.9% V = 5.6 fps
24" @ 19.6 cfs HGL @ 0.8% V = 6.2 fps
30" RCP @ 40 cfs HGL @ 1.0% V = 8 fps
30" Q_5 = 22.5 cfs HGL @ 0.3% V = 4.5 fps

EAST AREA - DESIGN FOR Q_{100} = 24.5

USE 3 TYPE 1-A INLETS = [illegible]
3.2 cfs / INL

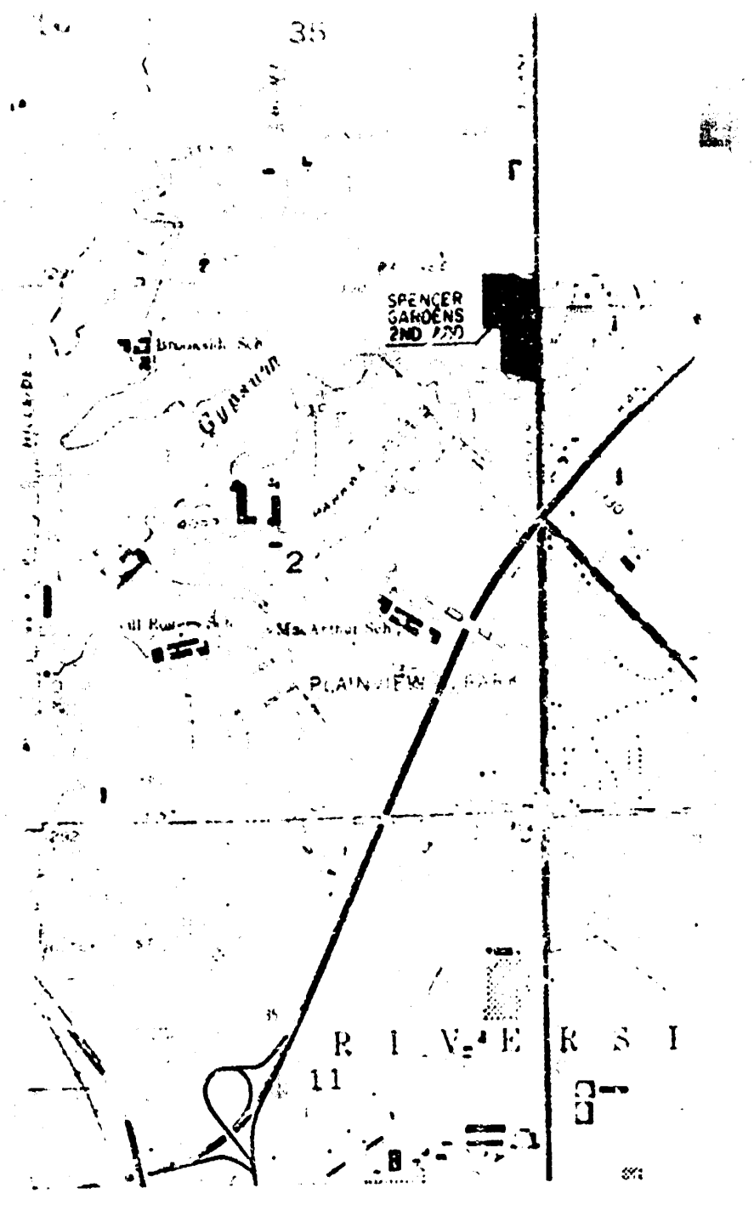
15" RCP @ 3.2 cfs HGL @ 1.5% V = 6.5
24" RCP @ 24.5 cfs HGL @ 1.25% V = 8 fps

24" Q_5 = 14.2 cfs HGL @ 0.3% V = 4.0 fps

```
YS AND PUBLIC TRANSPORTATION        XEQ: 12/27/1988 Time: 15:00
                                     TEXAS HYDRAULIC SYSTEM - 221108
HMV2.36 SN:84021495                              THYSYS



                              HYDRAULIC DATA

                                                                            PIPE
     U.S.  D.S.         JUNC          U.S.    D.S.    HYDR.                 CAPAC
RUN   ID    ID   'N'    LOSS   FLOW   HEAD    HEAD    GRAD    DEPTH VELOC.
                                                                            
 1    1    A 2  0.018   0.00  52.00  115.64  112.99  0.03082  0.49  21.7  110.
 2         A 3  0.018   0.17  52.00  112.99  111.90  0.03082  1.00  10.6   20.
```

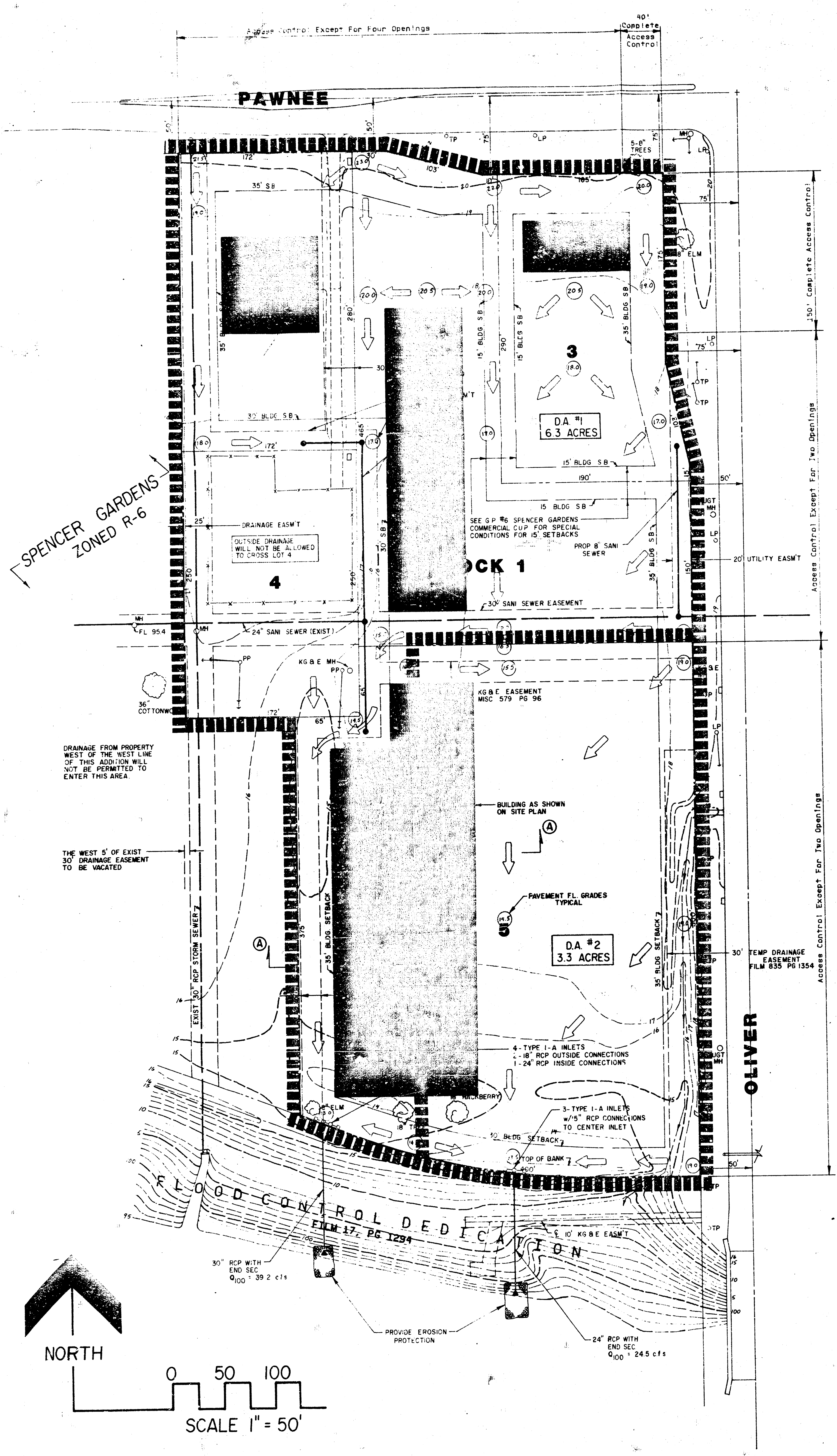
```
                                        TEXAS HYDRAULIC SYSTEM - 221108
HMV2.36 SN:84021495                                  THYSYS

SEWER                ANALYSIS                       SEWER   FREQUENCY=99 YR   2
DA A  1    9.6                            L1315V    T 22     30      6    52
JUNC A  1 TYPE= GSAG                                          38
SEW0028--INLET DATA INCOMPLETE.
JUNC A  2 TYPE=JUNCT
OUTLET    STATIONING      0.00 T.W. ELEV    111.9   A  3
DSGN  1  A  1 A  2 US  110.5 DS  98.65  86           .018     30 CIRC
DSGN  2  A  2 A  3 US  98.65 DS  98.50  30           .018     30 CIRC
ANAL  1  A  1 A  2     1  [illegible]
ANAL  2  A  2 A  3     1  [illegible]           .17
ENDATA
```

```
HIGHWAYS AND PUBLIC TRANSPORTATION        XEQ: 12/27/1988 Time: 15:00
                                   TEXAS HYDRAULIC SYSTEM - 221108
HMV2.36 SN:84021495                            THYSYS



SEWER

SEWER ANALYSIS
                        CONFIGURATION DATA

                  U.S.     D.S.
       U.S. D.S.  F.L.     F.L.   LENGTH
RUN    ID   ID    ELEV     ELEV   FEET     SLOPE   BBLS  RISE  SPAN  SHAPE

  1   A 1  A 2  108.00    96.15     86   0.13779    1     30    30   CIRC
  2   A 2  A 3   96.15    96.00     30   0.00500    1     30    30   CIRC
```


35
SPENCER GARDENS 2ND ADD
Brookside Sch
MacArthur Sch
PLAINVIEW PARK
2
RIVERSI
11

VICINITY
SCALE 1" =

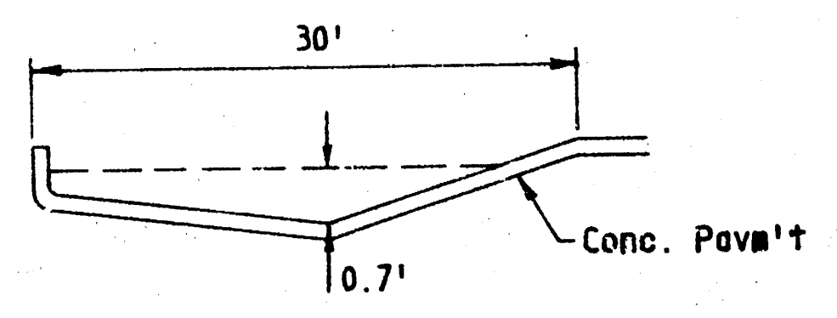
SPENCER GARDENS 2ND ADDITION
(Drainage)


Access Control Except For Four Openings
40' Complete Access Control
PAWNEE
50'
75'
TP
LP
MH
5-8" TREES
172'
103'
105'
35' SB
20
19
8" ELM
150' Complete Access Control
75'
280'
290'
30
15' BLDG SB
15' BLDG SB
35' BLDG SB
35' BLDG SB
3
D.A. #1
6.3 ACRES
30' BLDG SB
172'
465
15' BLDG SB
190'
15 BLDG SB
SEE G.P. #6 SPENCER GARDENS COMMERCIAL CUP FOR SPECIAL CONDITIONS FOR 15' SETBACKS
PROP 8" SANI SEWER
50'
UGT MH
20' UTILITY EASM'T
Access Control Except For Two Openings
SPENCER GARDENS ZONED R-6
25'
DRAINAGE EASM'T
OUTSIDE DRAINAGE WILL NOT BE ALLOWED TO CROSS LOT 4
4
250
250'
30' SB
BLOCK 1
30' SANI SEWER EASEMENT
150'
MH
FL 95.4
24" SANI SEWER (EXIST)
PP
KG & E MH
KG & E EASEMENT MISC 579 PG 96
36" COTTONWOOD
172'
65'
65
DRAINAGE FROM PROPERTY WEST OF THE WEST LINE OF THIS ADDITION WILL NOT BE PERMITTED TO ENTER THIS AREA.
BUILDING AS SHOWN ON SITE PLAN
A
THE WEST 5' OF EXIST 30' DRAINAGE EASEMENT TO BE VACATED
PAVEMENT FL. GRADES TYPICAL
5
EXIST 30" RCP STORM SEWER
375
35' BLDG. SETBACK
D.A. #2
3.3 ACRES
35' BLDG SETBACK
30' TEMP DRAINAGE EASEMENT FILM 835 PG 1354
Access Control Except For Two Openings
4-TYPE 1-A INLETS
2-18" RCP OUTSIDE CONNECTIONS
1-24" RCP INSIDE CONNECTIONS
OLIVER
8" ELM
18" TP
18" HACKBERRY
3-TYPE 1-A INLETS w/15" RCP CONNECTIONS TO CENTER INLET
30' BLDG SETBACK
TOP OF BANK
400'
50'
FLOOD CONTROL DEDICATION
FILM 17, PG 1294
10' KG & E EASM'T
30" RCP WITH END SEC Q_{100} = 39.2 cfs
PROVIDE EROSION PROTECTION
24" RCP WITH END SEC Q_{100} = 24.5 cfs
NORTH
0 50 100
SCALE 1" = 50'

NOTE:

1. Cross Lot Drainage Will Be Provided As Shown.
2. Refer To "Spencer Gardens Drainage Computations" Dated 5-15-87 For Detailed Calculations.

SECTION A-A


30'
Conc. Pavm't
0.7'

S=0.4%

Q=47 c.f.s.
Req. Q_{100}=39.2 c.f.s.

Cross lot drainage easements or agreements
lot 1 across lot 4, lot 3 across lot 2 i.e. 1,2,3,4 across
lot 5.
SWS may be part of site development
Temporary Drainage easement to be vacated?

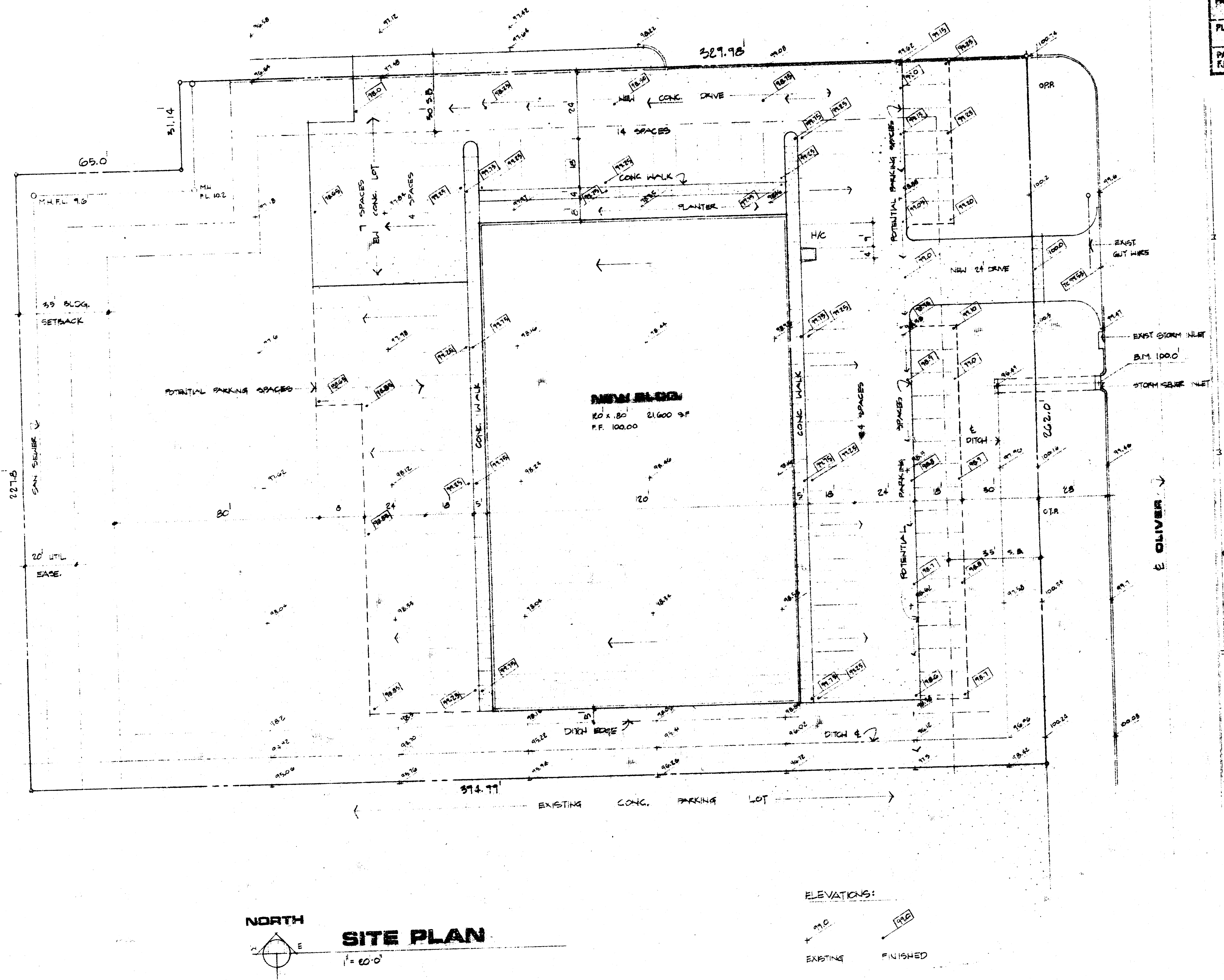
GENERAL NOTES:

1. Topographic Survey Completed Jan. 14, 1987
2. B.M. #1 City of Wichita Std. Disc 52' N. and 42' E. of the Centerlines of Oliver and Pawnee. Elev. 121.146
3. Elevations shown are to City of Wichita Datum.
4. Platting will conform to requirements indicated on the Spencer Gardens Commercial Community Unit Plan DP-169.
5. Spencer Gardens is a replat of part of Lots 2, 4 and all of Lots 3, 5 in Spencer Gardens Addition.
6. All Lots in this Subdivision will be zoned L-C.

DRAINAGE PLAN
SPENCER GARDENS SECOND ADDITION

DATA BLOCK

SITE	BUILDING	MECHANICAL
LEGAL DESCRIPTION	FLOOR AREA 21,600 S.F.	PLUMBING FIXTURES 2 TOILETS 2 LAVATORIES
ZONING	BUILDING TYPE 5-N	FIRE HYDRANT N.E. COR. OLIVER & [illegible]
ACREAGE [illegible] S.F.	OCCUPANCIES	ELECTRICAL
PARKING SPACES 49 SHOWN	SEPARATION	SPRINKLERS
FLOOD PLAIN	LIVE LOADS 20 # LIVE 25	
PAD ELEVATION F.F. 100.00	OCCUPANT LOADS	


329.98'
65.0'
51.14
NEW CONC. DRIVE
14 SPACES
CONC WALK
PLANTER
7 SPACES
4 SPACES
CONC. LOT
H/C
POTENTIAL PARKING SPACES
NEW 24' DRIVE
EXIST. CUT HERE
EXIST. STORM INLET
B.M. 100.0'
STORM SEWER INLET
222.0'
OLIVER
12" WATER
35 BLDG. SETBACK
POTENTIAL PARKING SPACES
NEW BLDG.
80 x 80 21,600 SF
F.F. 100.00
CONC. WALK
CONC. WALK
14 SPACES
227.8
SAN. SEWER
20' UTIL. EASE.
80'
80'
18'
24'
18'
30'
28
DITCH EDGE
DITCH ℄
374.77'
EXISTING CONC. PARKING LOT
ELEVATIONS:
EXISTING
FINISHED
NORTH
N
E
S

SITE PLAN
1" = 60'-0"

SHEET SCHEDULE

SHEET	DESCRIPTION
A-1	SITE PLAN
A-2	FOUNDATION PLAN & DETAILS
A-3	FOUNDATION PLAN & DETAILS
A-4	FLOOR PLAN
A-5	FINISH SCHEDULES
A-6	ELEVATIONS
M-1	PLUMBING PLAN
M-2	HVAC PLAN
E-1	ELECTRICAL PLAN

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SMITH CONSTRUCTION CO., INC.
P.O. BOX 13213
4620 ESTHNER
WICHITA, KS 67213
(316) 942-7869

THE BEDROOM
2505 S. OLIVER
WICHITA, KANSAS

REVISIONS
30 NOV. 1989
11 DEC 1989

7 NOV 89

1" = 20'

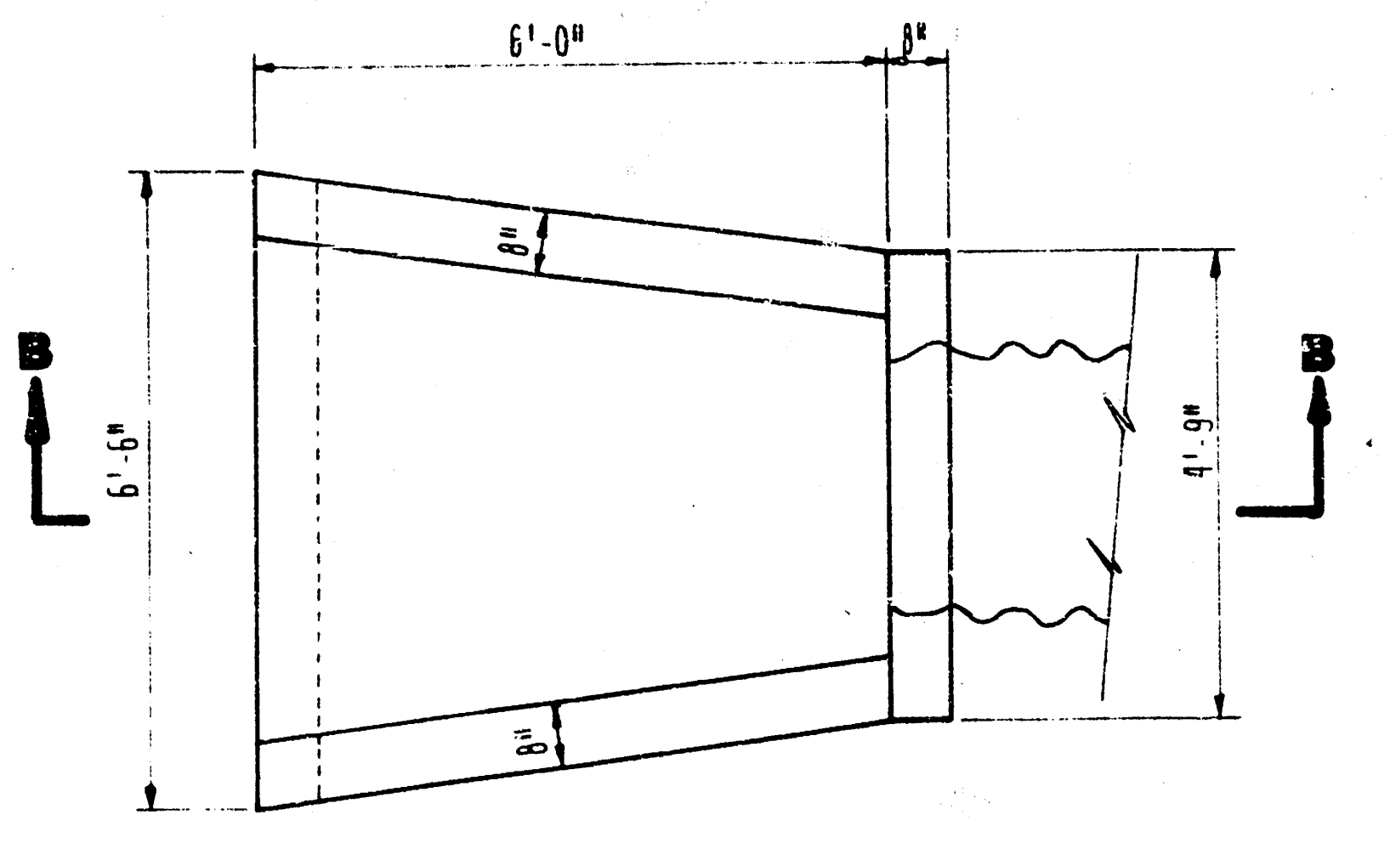
D. WILLIAMS

A-1

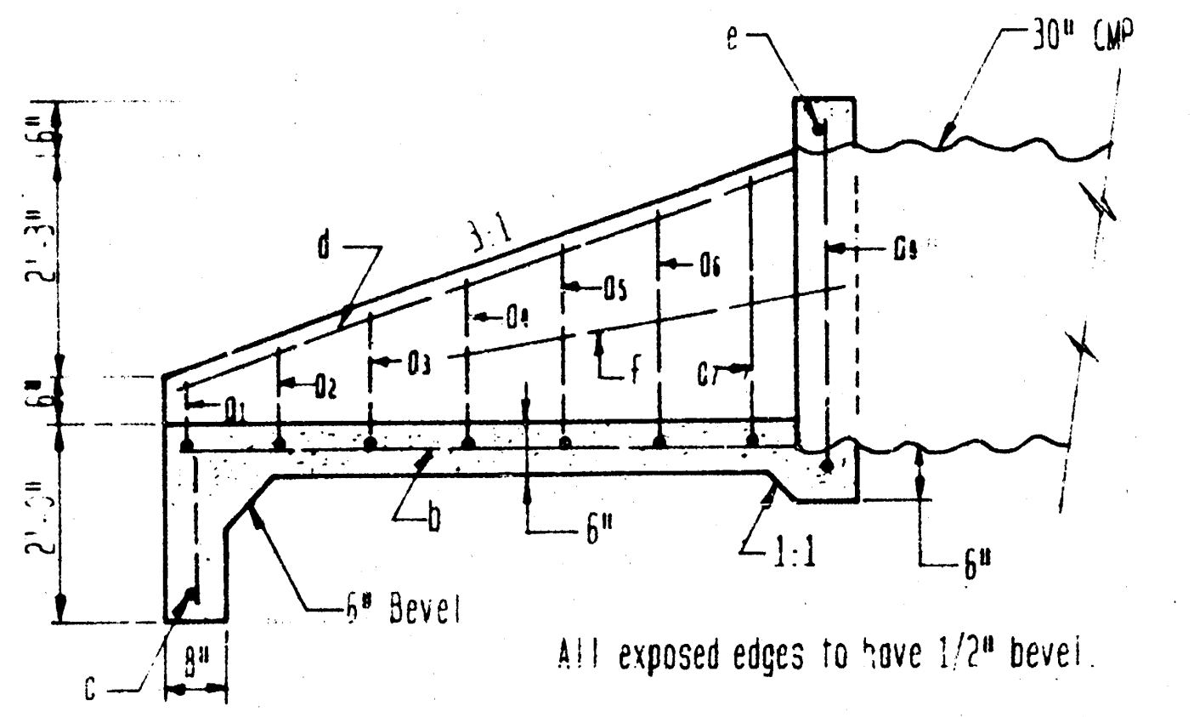
SPENCER GARDENS 2ND ADDITION
(Drainage)

	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS

B.M. "+" cut on KG&E Mounole Ring 42'± N. and 9'± W. of SE Cor. Lot 4 Spencer Gardens 2nd Addition Elev. 116.66 City of Wichita Datum

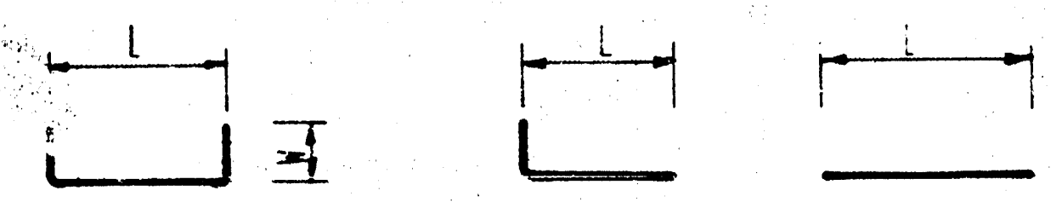

6'-0"
8"
B
B
6'-6"
8'-0"
8"
8"

PLAN


e
30" CMP
d
3:1
a_1
a_2
a_3
a_4
a_5
a_6
a_7
a_8
f
b
6"
1:1
6"
6" Bevel
c
8"
2'-3"
6"
6"
2'-3"

All exposed edges to have 1/2" bevel.

SECTION B-B

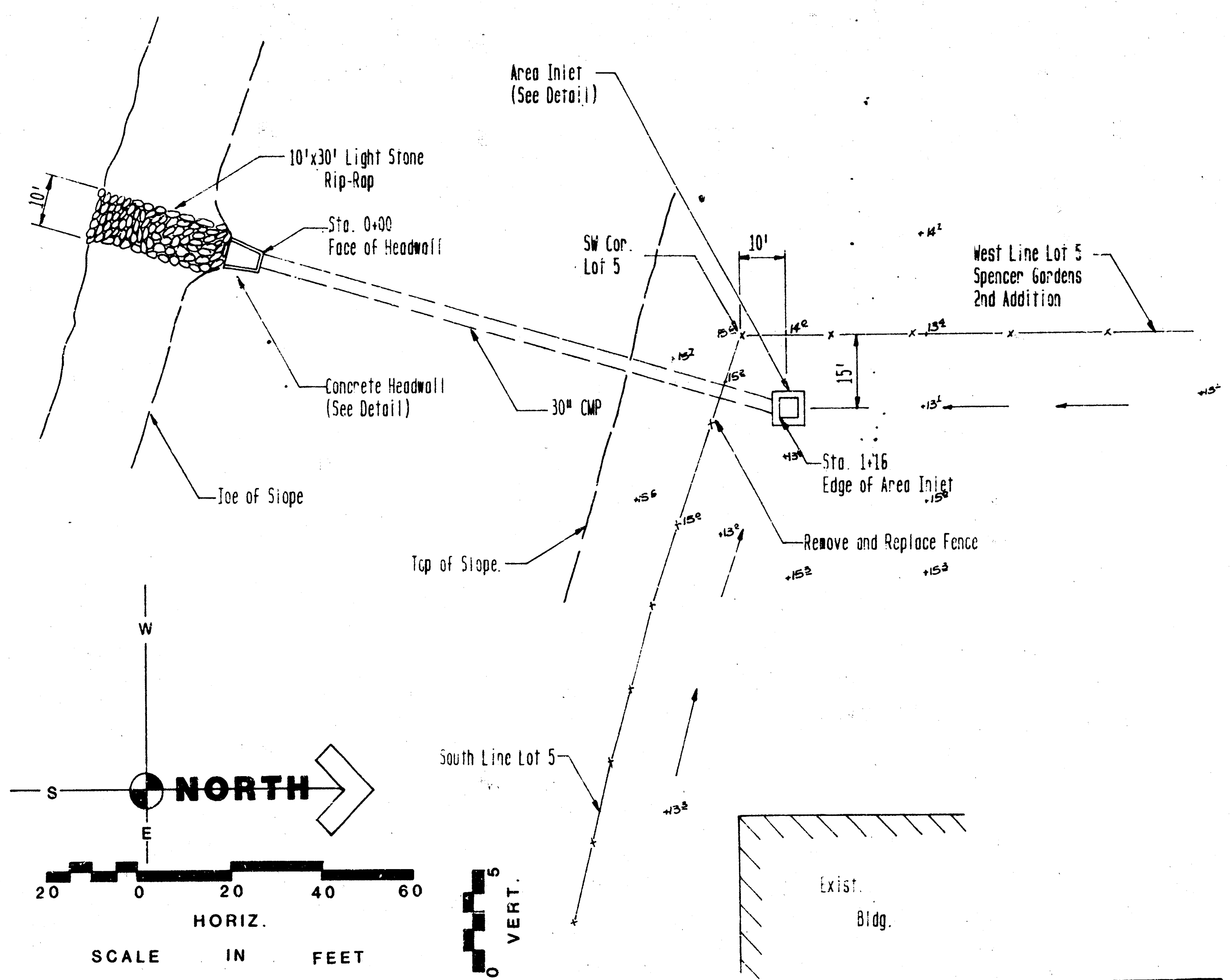


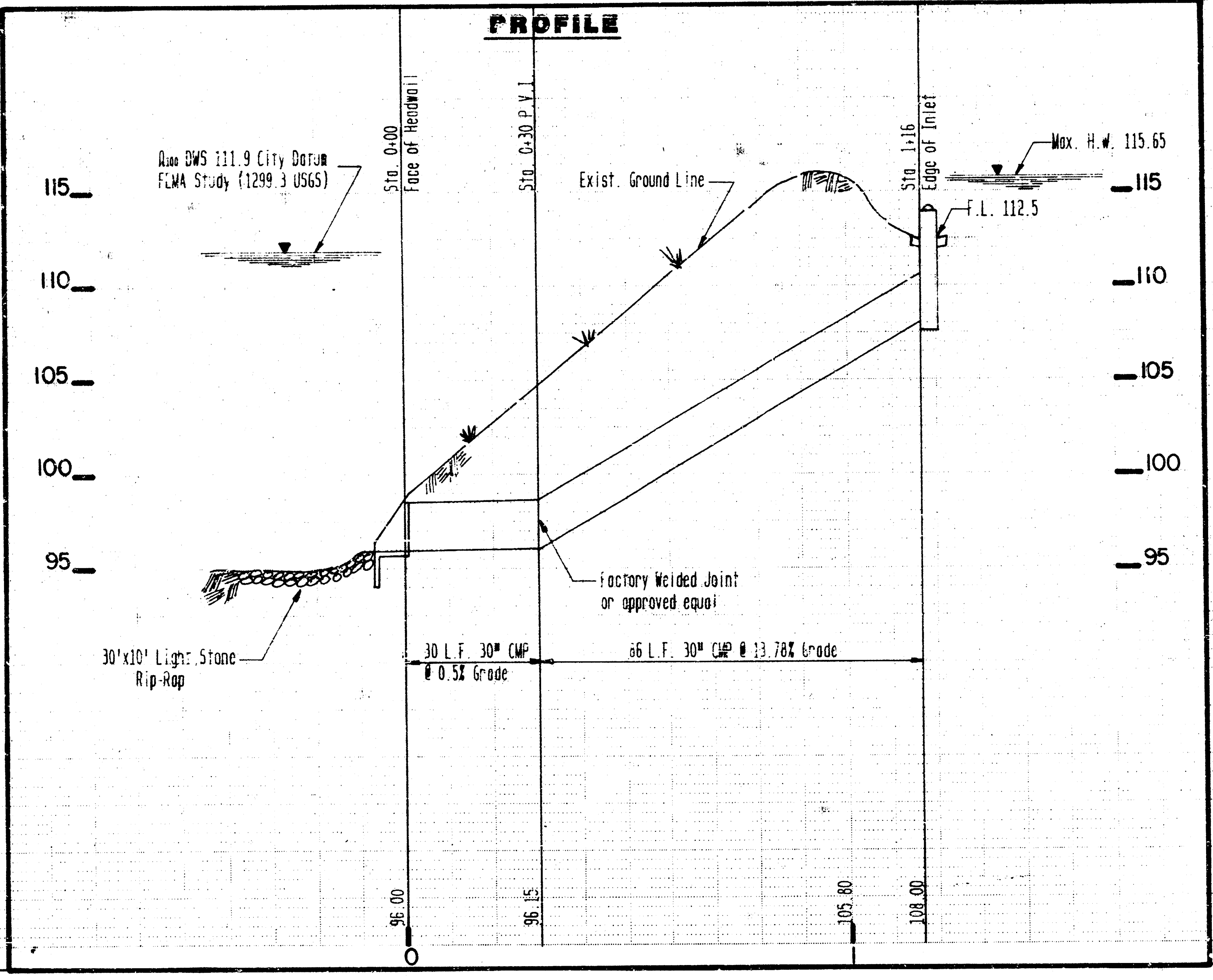
a bars **b bars** **c thru f bars**

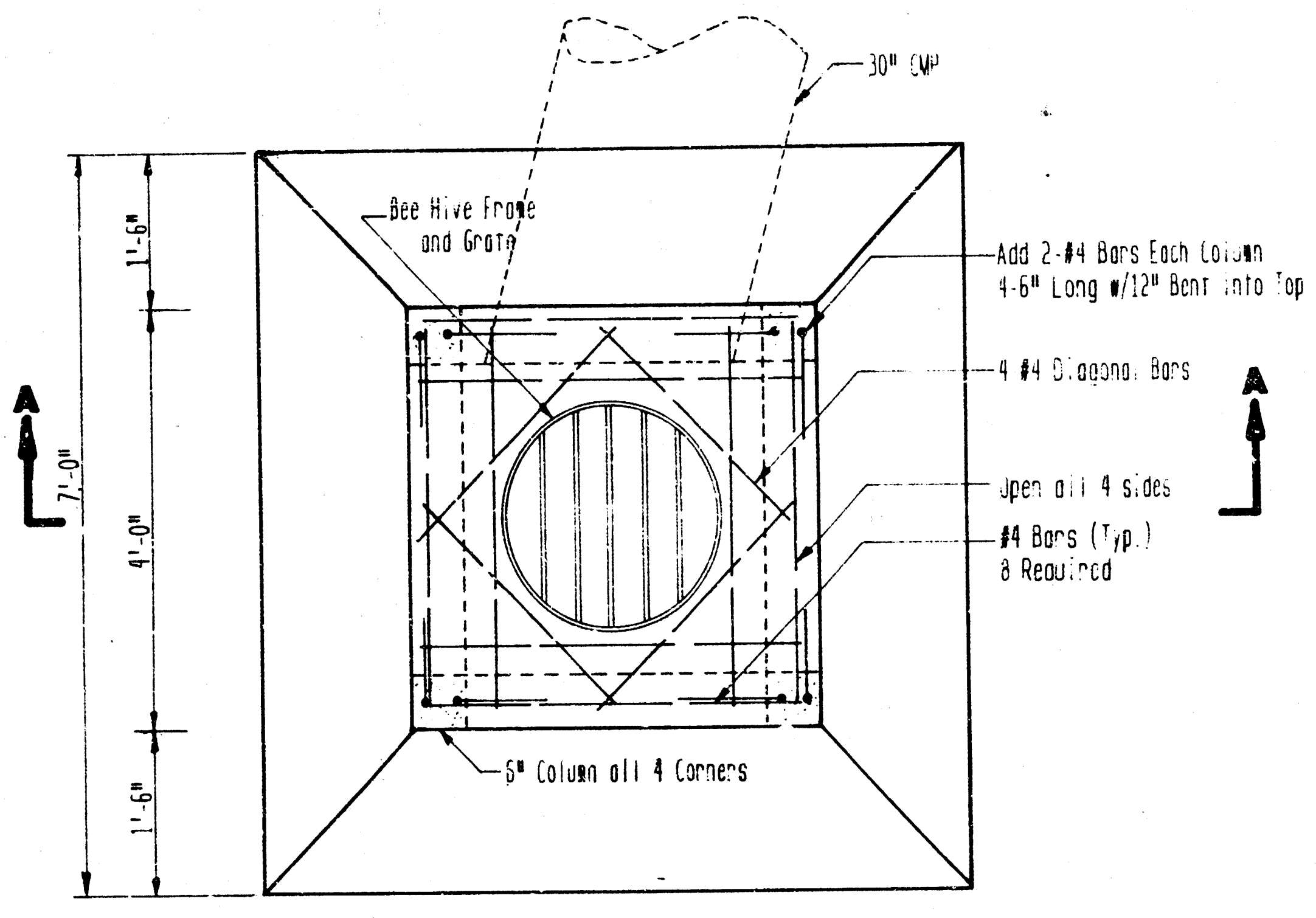
BAR	L	W	NUMBER	SIZE
a_1	5'-8"	8"	1	#4
a_2	5'-6"	11"	1	#4
a_3	5'-3"	1'-3"	1	#4
a_4	5'-0"	1'-7"	1	#4
a_5	4'-8"	1'-11"	1	#4
a_6	4'-6"	2'-3"	1	#4
a_7	4'-3"	2'-7"	1	#4
a_8	4'-1"	3'-6"	1	#4
b	7'-0"	1'-6"	7	#4
c	6'-0"	-	1	#4
d	7'-6"	-	2	#4
e	4'-5"	-	1	#4
f	4'-3"	-	2	#4

CONCRETE HEADWALL DETAILS

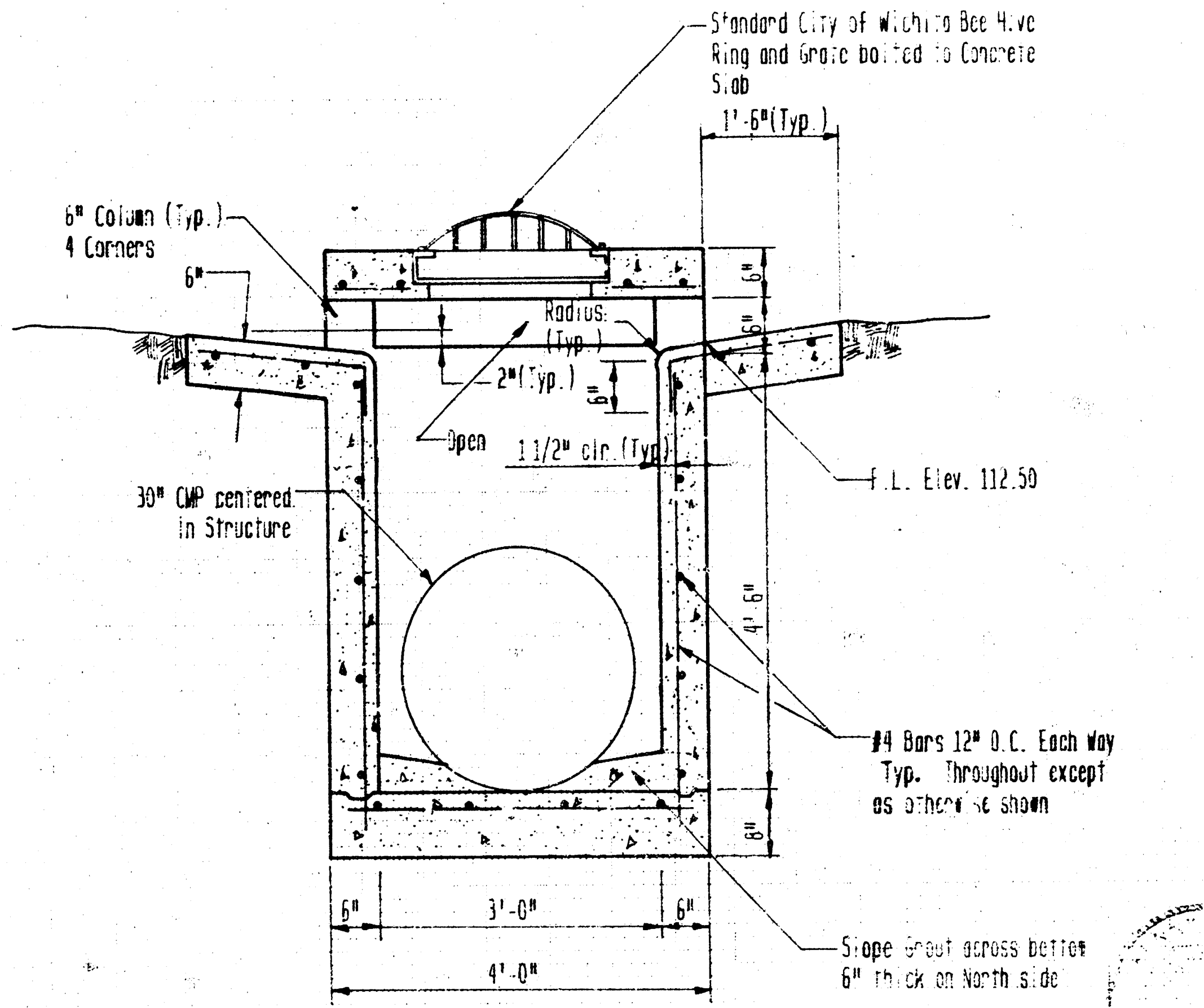
SCALE 1/2" = 1'-0"


10'x30' Light Stone Rip-Rap
10'
Sta. 0+00 Face of Headwall
Concrete Headwall (See Detail)
Toe of Slope
30" CMP
Area Inlet (See Detail)
SW Cor. Lot 5
10'
15'
West Line Lot 5 Spencer Gardens 2nd Addition
Sta. 1+16 Edge of Area Inlet
Remove and Replace Fence
Top of Slope
South Line Lot 5
Exist. Bldg.
W
S
E
NORTH
20
0
20
40
60
HORIZ.
SCALE IN FEET
VERT.
5
0


PROFILE
Q_{100} DWS 111.9 City Datum FEMA Study (1299.3 USGS)
Sta. 0+00 Face of Headwall
Sta. 0+30 P.V.I.
Exist. Ground Line
Sta. 1+16 Edge of Inlet
Max. H.W. 115.65
F.L. 112.5
Factory Welded Joint or approved equal
30'x10' Light Stone Rip-Rap
30 L.F. 30" CMP @ 0.5% Grade
86 L.F. 30" CMP @ 13.78% Grade
115
110
105
100
95
96.00
96.15
105.80
108.00
0


30" CMP
Bee Hive Frame and Grate
Add 2-#4 Bars Each Column 4-6" Long w/12" Bent into Top Slab
4 #4 Diagonal Bars
Open all 4 sides
#4 Bars (Typ.) 8 Required
6" Column all 4 Corners
A
A
1'-6"
4'-0"
1'-6"
7'-0"

PLAN


Standard City of Wichita Bee Hive Ring and Grate bolted to Concrete Slab
1'-6"(Typ.)
6" Column (Typ.) 4 Corners
6"
Radius (Typ.)
2"(Typ.)
Open
1 1/2" clr.(Typ.)
6"
6"
F.L. Elev. 112.50
30" CMP centered in Structure
4'-6"
#4 Bars 12" O.C. Each Way Typ. Throughout except as otherwise shown
6"
6"
3'-0"
6"
4'-0"
Slope Grout across bottom 6" thick on North side

SECTION A-A

AREA INLET

SCALE 3/4" = 1'-0"

POE & ASSOCIATES OF KANSAS INC.
CONSULTING ENGINEERS
434 N. Oliver Suite 110 ■ Wichita KS 67208 ■ 316-685-4114

ENGINEER K.H.
ENG. TECH.
DRAWN BY T.E.B.
DATE DEC. 1988
SHEET 1 OF 1

Spencer Gardens 2nd Addition
To
CITY OF WICHITA, KANSAS

PROJECT NO. 199

PLAN

PROFILE