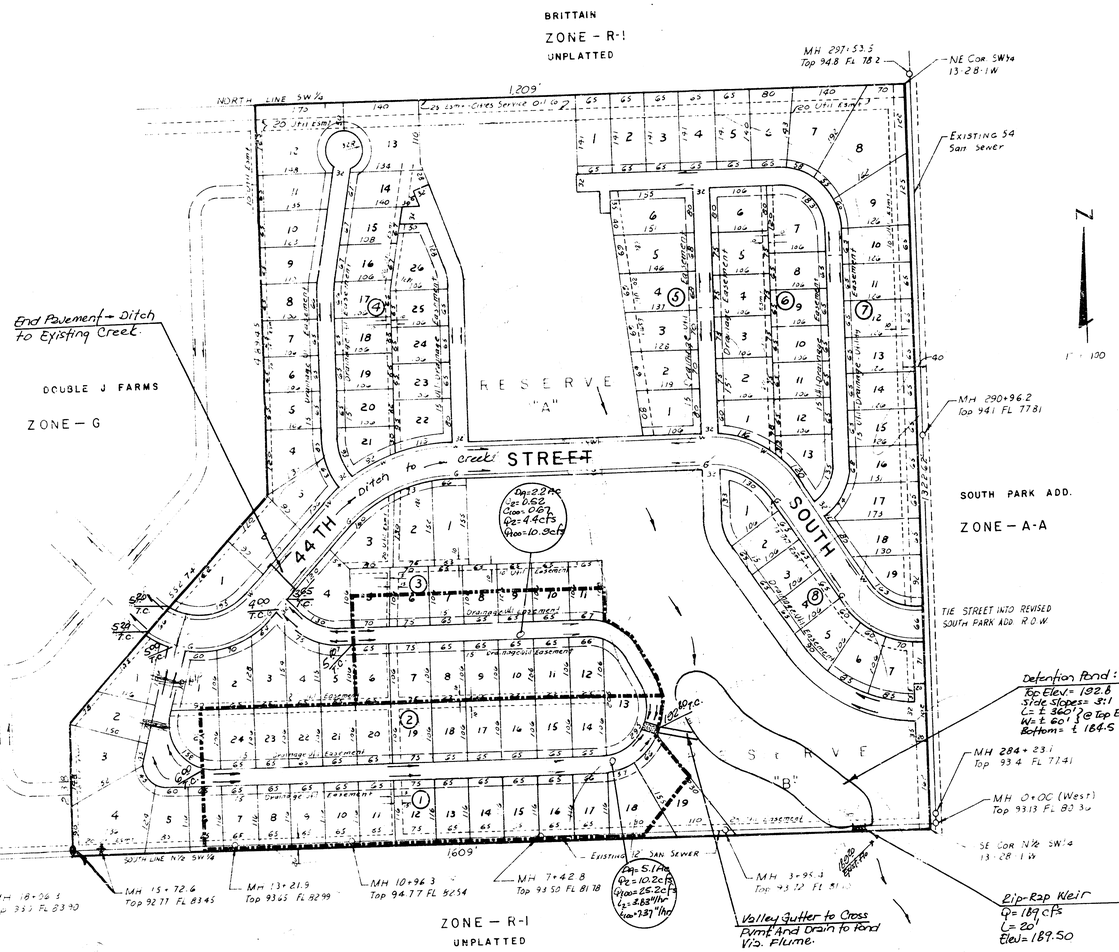
JAMES PLACE

WICHITA KANSAS



N

1" = 100'

LEGEND

Front yard building set-back is 20 feet

Reserve A and B are reserved for drainage, open space areas, ponds, and landscaping.

Direction of surface drainage ——

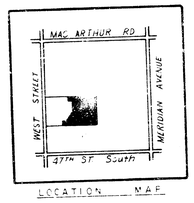
DRAINAGE PLAN

PRELIMINARY PLAT

OF

JAMES PLACE

A MANUFACTURED HOUSING SUBDIVISION



LOCATION MAP

DEVELOPER

DOUBLE J FARMS
4444 SOUTH WEST ST.
SUITE 94
WICHITA, KS 67217
316-529-4444

6/20/89

BAUGHMAN COMPANY, P.A.
SURVEYING & ENGINEERING
316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

...SON COMPANY
ENGINEERS — SURVEYORS
...0 N. MAIN, NEWTON, KS 67114
316-284-2793
FAX 316-283-6248
540 N. BROADWAY, WICHITA, KS 67214
SUITE 3002
316-269-2...

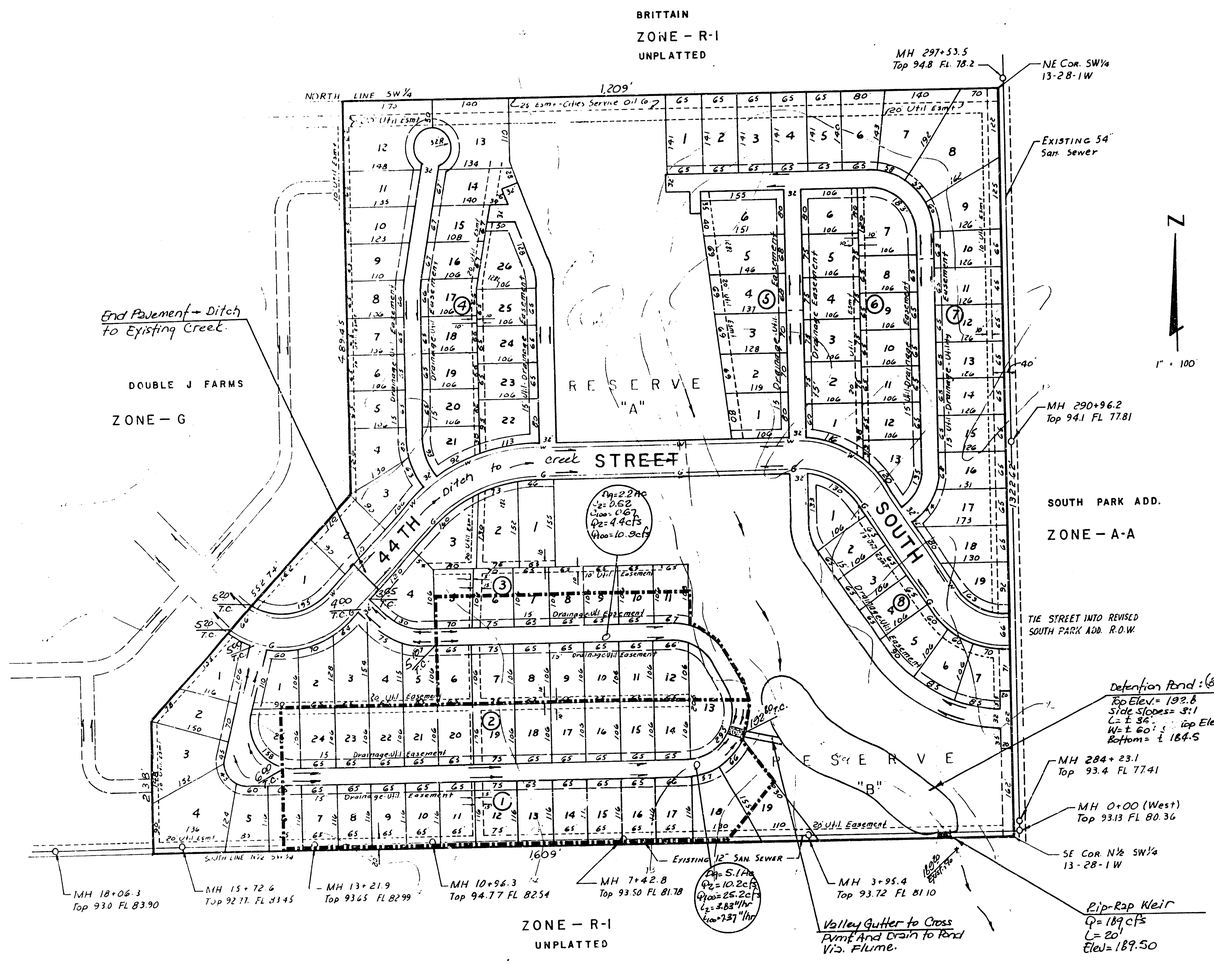
SCALE 1" = 30' | R.S.
DATE 6-21-89 | W.O. N 1255m

James Place

7

JAMES PLACE

WICHITA KANSAS



LEGEND

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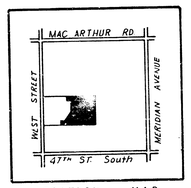
Reserve A and B are reserved for drainage, open space areas, ponds, and landscaping.

Direction of surface drainage ——

1" = 100

DRAINAGE PLAN
PRELIMINARY PLAT
OF
JAMES PLACE

A MANUFACTURED HOUSING SUBDIVISION



LOCATION MAP

DEVELOPER

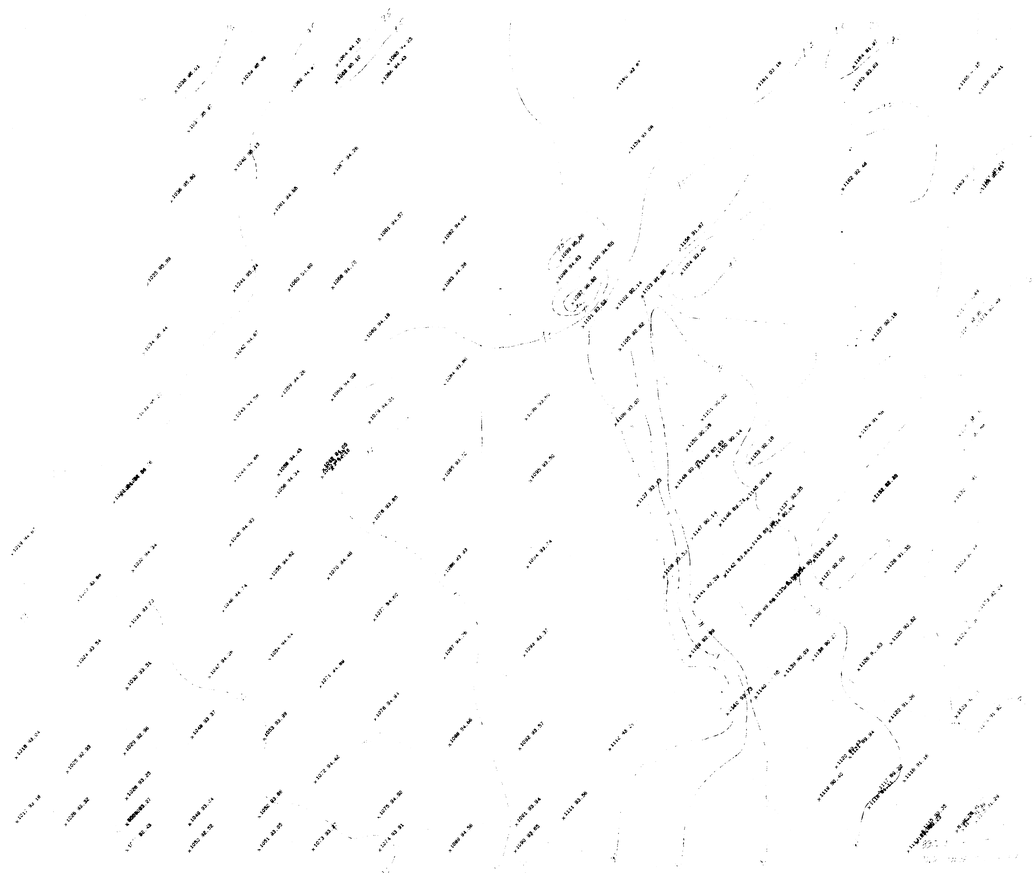
DOUBLE J FARMS
4444 SOUTH WEST ST.
SUITE 94
WICHITA, KS 67217
316-529-4444

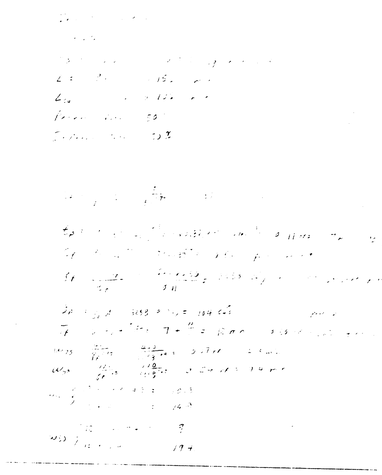
9/29/89

BAUGHMAN COMPANY, P.A.
SURVEYING & ENGINEERING
316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

MACON COMPANY
ENGINEERS — SURVEYORS
1710 N. MAIN, NEWTON, KS 67114
316 – 284 – 2799
FAX 316-283-6048
1540 N. BROADWAY, WICHITA, KS 67214
SUITE 2008
316 – 269 – 2772

Scale 1" = 100'	Rev.
Date 6-15-89	Proj. No. 100.30w

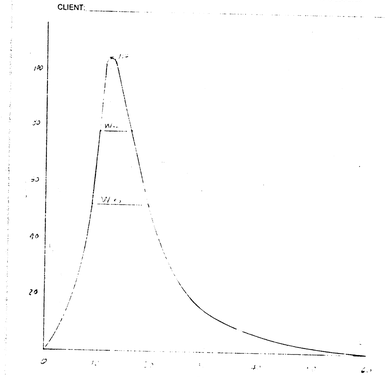




MACON COMPANY — ENGINEERS — SURVEYORS

Project No. _____ Sheet No. _____
Date: _____ By _____
CLIENT: _____

1710 N. MAIN, NEWTON, KS 67114 — 316-284-2799
1540 N. BROADWAY, SUITE 200 B, WICHITA, KS 67214 — 316-269-2772



MACON COMPANY — ENGINEERS — SURVEYORS

Project No. _____ Sheet No. _____
Date: 9-5-89 By _____
CLIENT: JAMES PLACE

6' CONCRETE FLUME

MACON COMPANY — ENGINEERS — SURVEYORS

Project No. _____ Sheet No. _____
Date: 8-1-89 By _____
CLIENT: JAMES PLACE

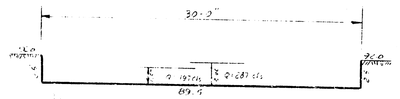
CONCRETE VALLEY GUTTER

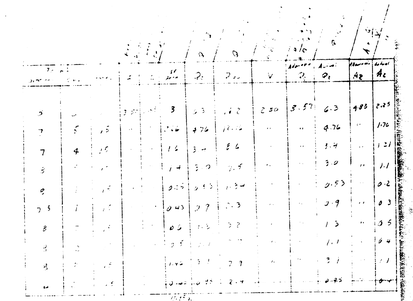
Q_2 = 17.46 cfs
Slope 0.86%
V 11.2 fps
A 1.8 s.f.

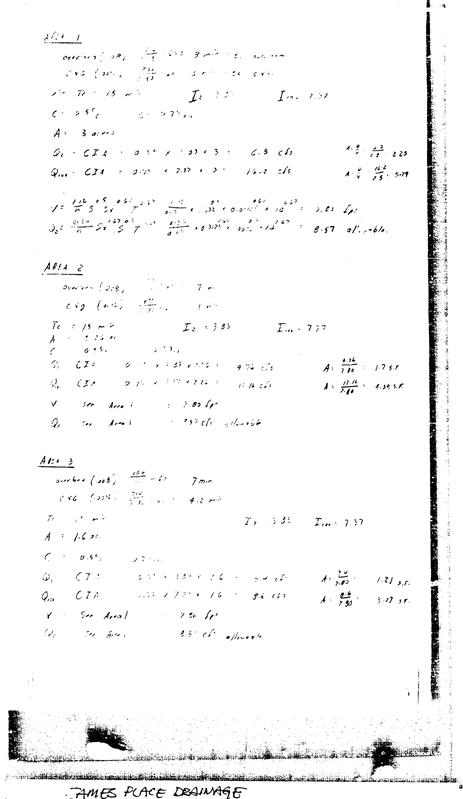
MACON COMPANY — ENGINEERS — SURVEYORS

Project No. _____ Sheet No. _____
Date: 8-1-89 By _____
CLIENT: JAMES PLACE

CONCRETE RECTANGULAR WEIR
WITHOUT END CONTRACTIONS

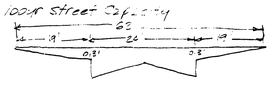






JAMES PLACE DRAINAGE
9/25/89 2 8
BAUGHMAN COMPANY, P.A.

No Bypass inlets needed on Approach for 24 Storm
100 yr Street Capacity



$K = 6.76\ ft^2/(street) + 0.2(24) + 0.3(19) = 21.66\ ft^2$

Weighted n_{Ave} = 83 Grass $n = 0.025$ = 0.95
25.1 Conc $n = 0.014$ = 0.35
1.30 ÷ 68.1
$\bar{n} = 0.0206$

Weighted K_{Ave} = $\frac{83 \times 0.2 + 25.1 \times 0.3}{68.1}$ = 0.23

slope = 0.32%

$V = \frac{1.49}{0.0206}\left(\frac{21.66}{68.1}\right)^{0.67}(0.0032)^{1/2}$

$V = 2.0\ ft/sec$

$Q = VA = (21.66/2) = 43.3\ cfs$

Max $Q_{100} = 10.9 + 25.2 = 36.1\ cfs$

Inlets will take up slack for 20 yr - low-street with use of 100 yr storm.
Note: No Bypass to next inlet.
Curve: Slow over dump to side & to yard.

Size inlets for 2 yr storm

Q_2 "Total" = 6.1 cfs + [illegible] cfs = 19.5 cfs

Full curb → Spread Width = 6.1 + 0.55' = 6.65'

Single Inlet Cap. @ 0.32% = 6.2 cfs (see Inlet Cap. Appn)

Need 19.5/6.2 = 2.4 → 3 inlets or Equ.

Note: Use Valley Cr. Inlet to Flow East — Per Vicky @ City 3/23/89.

Flume shall carry Initial storm and provide capacity for 100 yr. storm without flooding of E/W.

JAMES PLACE DRAINAGE
1 8
BAUGHMAN COMPANY, P.A.

James Place Drainage:

Soil Type from SCS "Soil Survey of Jefferson Co. KY"
Soil Use No. 1 = Undisturbed Soil
3 Soil Types

Proposed Use = Mobile Home Park
For C Factor Use 3 Fc. lots, Type B Soil

From Illinois Drainage Manual

$C_2 = 0.52$ $Q_{100} = 0.67$

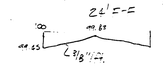
North Area = 2.2 Acres
Use 15 min T_c = 15 minutes

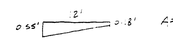
$Q_2 = (2.2 Fc)(3.83\ in)(0.52) = 4.38\ cfs$
$Q_{100} = (2.2 Fc)(7.37\ in)(0.67) = 10.9\ cfs$

South Area = 5.1 Ac Type Soil

$Q_2 = (5.1\ Ac)(3.83\ in)(0.52) = 10.2\ cfs$
$Q_{100} = (5.1\ Ac)(7.37\ in)(0.67) = 25.2\ cfs$

Street Capacity 3.0 32% for Curb





$A = \frac{2 \times 0.55 \times 2}{2} = 0.38\ ft^2 \times 2 = 0.76\ ft^2$ Total

$W/P = 25.10'$ $R = A/WP = 0.349$

$V = \frac{1.49}{n} R^{2/3} S^{1/2}$ Use 3rd Curve; $n = 0.014$

$V = \frac{1.49}{0.014}(0.349)^{0.67}(0.032)^{1/2} = 2.97\ ft/sec$

$Q = VA = 6.76(2.97) = 20.0\ cfs$

Worst Approach $Q = 10.2\ cfs$ (24 yr Storm)

JAMES PLACE DRAINAGE
2 8
BAUGHMAN COMPANY, P.A.

James Place Addition
Pond Calculations

Existing Area in Basin = 159.3 Acres
(From USGS Quad Sheet)

Assumption: The E. Entry forms the Eastern Limit of the Basin as the Ridge & Forest Edge.

Soil Type: From SCS "Soil Survey of Jefferson & Bullitt Counties, KY" Soil Type = No. 2 Loam to Silt Loam Group "B".

Existing Soil Use: From City of Kingsville Aerial Photo 1" = 1000' on 24" Sheet:

Developed Area: 15.4 Ac
(Includes 2 Lots)

Residential Areas: 5.9 Ac

Pond Area: 2.5 Ac.

Pasture Area: 82 Ac

Small Grain Crops: 52 Ac

Curve Numbers: From SCS "TR-55" Type B Soil

	CN	Area	CN x Area
Industrial	98	15.4	1355.2
Residential (1/2 ac)	90	5.9	531.0
Pond	100	2.5	250
Pasture	79	82	6478.0
Small Grain Crops	78	52	4056.0
			12670.2

$E = 12534.4$

Weighted Curve No. = $\frac{12534.4}{159.3\ Ac} = 78.7$

Use CN (Weighted) = 79

JAMES PLACE DRAINAGE
3 8
BAUGHMAN COMPANY, P.A.

Time of Concentration

Length of Drainage = 4600 Ft
Average Watershed Slope = 0.5% (8.1 Section - Dist Sheet)

SCS Eq: $T_c = 0.05262\ L^{0.8}\left(\frac{1000}{CN} - 9\right)^{0.7} S_0^{-0.5}$

$T_c = 0.05262(4600)^{0.8}\left(\frac{1000}{79} - 9\right)^{0.7}(0.5)^{-0.5}$

$T_c = 161.9$ Minutes

Lag Time = $0.6\ T_c = 0.6(161.9) = 97.1$ Minutes

Use Lag Time = 1.62 Hours.

HEC-1 Input Data (Existing Condition)

Basin Area = 159.3 Ac = 0.250 Sq. Miles
Lag Time = 1.62 Hours
100 yr - 24 hour Storm = 7.3 inches — SCS Type II Dist. (Adjusted to 22 Hours for Watershed Model)

Use No Value for "0" in Input Data Area — Values Selected in Outside Procedures.

JAMES PLACE DRAINAGE
4 8
BAUGHMAN COMPANY, P.A.

JAMES PLACE DRAINAGE
5 8
BAUGHMAN COMPANY, P.A.

Curve Number (Developed)

	CN	Area	CN x Area
Industrial	98	15.4	1355.2
Residential	90	5.9	531.0
Pond	100	2.5	250
Pasture	79	82	6478.0
Small Grain Crops	78	44	3300
New Area	100	10	1000
			12784.4

New CN = $\frac{12784.4}{159.3} = 80$

Same T_c - Same Lag

Developed Condition HEC-1 Input

Basin Area = 159.3 Ac = 0.250 Sq. Mi.
Lag Time = 1.62 Hours
100 yr - 24 hr Storm

JAMES PLACE DRAINAGE
6 8
BAUGHMAN COMPANY, P.A.

To provide temporary storage for Runoff from developed site, provide detention pond in treed area east of street cut.

Available Area between Trees for Aerial Photo:

Length = ±660 Feet
Width = ±60 Feet

Pond T.C. Adjacent to Pond Area = 192.80 City Datum
Flo Out @ S.E. Corner of Area = 189.2
Weir Elevation = Use 189.50
Storage = 192.8 - 0.55 - 189.5 = 2.75 Feet
Assume 3:1 Pond Side Slopes.

Elev	Length	Width	Pond S.A.
192.3	860'	60'	21,600 ft²
189.5	383'	43'	14,749 ft²

Storage Volume = (21600 - 14,749)(192.3 - 189.5) = 19,188 cu Ft.

JAMES PLACE DRAINAGE
7 8
BAUGHMAN COMPANY, P.A.

Check Temporary Detention Volume for Site:

Developed Condition → $Q_{100} = 36.1$ cfs

Undeveloped Condition:

Area = 9.3 Acres
T_c = 15 min
$C_{100} = 0.45$ (Type B Soil)

$Q_{100} = (7.3)(7.37)(0.45) = 24.2$ cfs Undeveloped

Developed = 36.1 cfs T_p = 15 min (Time to Peak = T_c)

Storage Eqn: $S = (Q_i - Q_o)t_p$

$S = (36.1 - 24.2)\ 15\ min = 178.5\ cfs \cdot min = 10,710\ cu.ft$

Storage Provided by Undeveloped Area = 19,118 cu.ft

Proposed Pond Data:

Outlet Weir from Pond must pass Ex. 5 yr, 100 yr - 24 hour Storm.

Q_{100} Undeveloped = 189 cfs
Max Head Available = 2.75' → Use 2.5' for design

JAMES PLACE DRAINAGE
8 8
BAUGHMAN COMPANY, P.A.

Final Pond Data:

Top Elevation = 192.3
Normal Pool Elevation = 189.5
Bottom Elevation = 186.5
Top Elevation Dimensions: L = 860', W = 60'

Side Slope = 3:1