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**ENGINEERING & SURVEYING**

August 15, 1994

REVISED DRAINAGE PLAN REPORT  
FOR LOT SPLIT OF LOT 1, P.C. INDUSTRIAL ADDITION  
WICHITA, SEDGWICK COUNTY, KANSAS

The Drainage Plan approved for the plat of P.C. Industrial Addition in 1986 (prepared by Baughman Company, P.A.) demonstrates that no outlet exists for the drainage system adjacent to the site. The approved plan notes that further improvements including an outlet for the existing system will be constructed at some future time with an area drainage project. Until such improvements are made, runoff from the site and adjacent areas will be contained in a retention pond.

This report and the accompanying Drainage Plan (revised August 15, 1994) demonstrate adequate retention pond capacity for development of the northerly part of Parcel B of the Lot Split and the southerly part of Parcel A. Development of the southerly part of Parcel B (11.2 acres) will require additional retention pond volume or development of outfall capacity for a detention pond system.

Drainage area includes 3.6 acres of Parcel A, all of Parcel B, 1.6 acres of adjacent street area, and 10.0 acres of offsite area east of Water Circle. Total D.A. = 36.1 acres. (Note: The drainage area is 32.0 acres in the approved drainage plan for P.C. Industrial Addition (Baughman Company, 1986).

The soils in the area to be developed with the first phase are predominantly Hydrologic Soil Group B (Canadian) as shown in the Sedgwick County Soil Survey.

Runoff volume from the site has been calculated using TR-55 methods. The design storm was the 100-year, 6-hour rainfall, which produces 6.0" of rainfall.

Runoff curve numbers (CN) for the TR-55 method were taken from Table 2-2, as follows:

Developed Parcel A area	3.6 acres	CN 88
Developed Parcel B area	9.7 acres	CN 88
Undeveloped Parcel B area	11.2 acres	CN 61
Street Area	1.6 acres	CN 98
Offsite developed area	10.0 acres	CN 88
Weighted CN = (23.8x88 + 11.2x61 + 1.6x98) / 36.1 = CN 80		

Runoff depth from Table 2-1 w/ CN 80 = 3.78"

Runoff volume = 3.78" x 36.1 Ac. / 12"/Ft. = 11.3 Acre-Feet

Revised Drainage Plan  
Lot Split  
Page 2

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CN for future full development of Parcel B would be  
(34.5 x 88 + 1.6 x 98) / 36.1 = CN 89

Runoff depth = 4.74".  
Runoff volume = 4.74 x 36.1 / 12 = 14.27 Acre-Feet.  
Additional future volume required = 14.3 - 11.3 = 3.0 Ac-Ft.  
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#### RETENTION POND VOLUMES

Available retention pond volume is calculated below elevation 84.6 City Datum (1272 MSL) to correspond with the maximum storage elevation indicated in the drainage report prepared for the City by VanDoren Hazard Stallings in 1984.

Retention volume is to be provided by both existing channel and ponds and additional channel and pond volume to be excavated with the development of the northerly part of Parcel B as follows:

Existing east channel adjacent to site	3.7 ac-ft
Existing south channel adjacent to site	3.6 ac-ft
Proposed west channel on site	2.6 ac-ft
Proposed addition to south channel	1.4 ac-ft

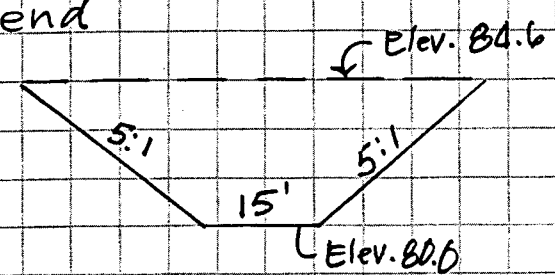
Total retention pond volume	11.3 ac-ft
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See accompanying Drainage Plan for pond and channel locations.

P.C. Industrial Add. Pond Volumes

Existing east channel sections

N. end

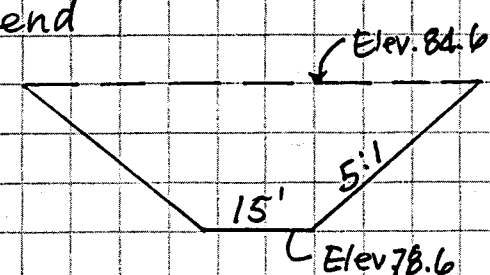


Area = 174.8 SF

L = 720'

Vol = 161208 CF  
 = 3.7 Ac.-ft.

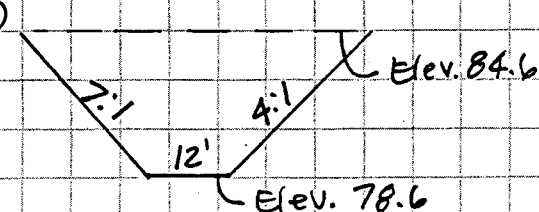
S. end



Area = 273 SF

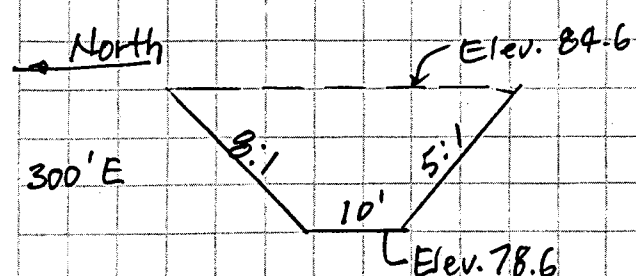
Existing south channel sections

(West end)  
 0 to 150' E.



Typical (avg) sect. west 150'  
 270 SF x 150 = 40500 CF

North

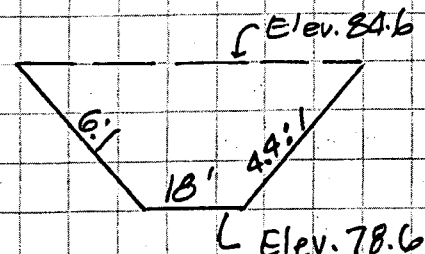


Area = 294 SF

L = 250'

294.5 x 250 = 73650 CF

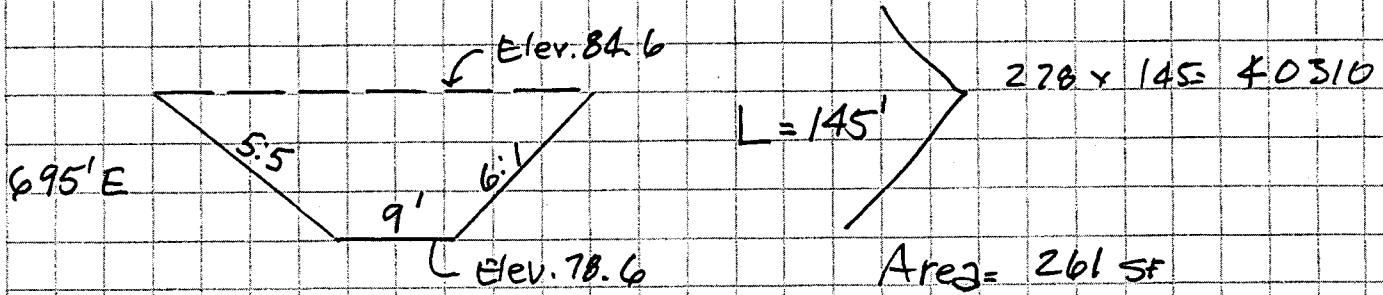
550'  
~~550~~ E



Area = 295 SF

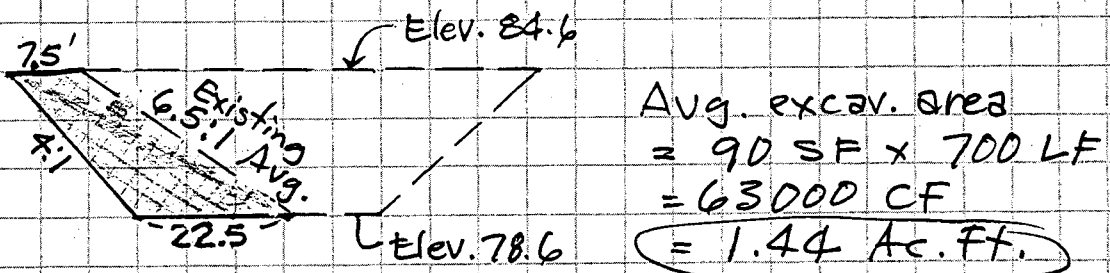
(continued next page)

Existing south channel sections (cont.)

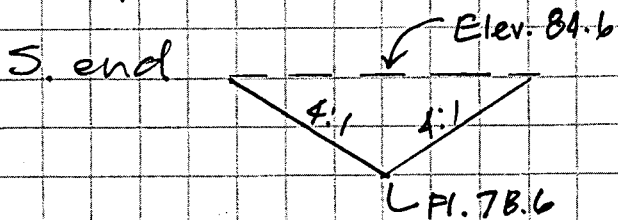


Total volume = 154,460  
 = 3.6 Ac. Ft.

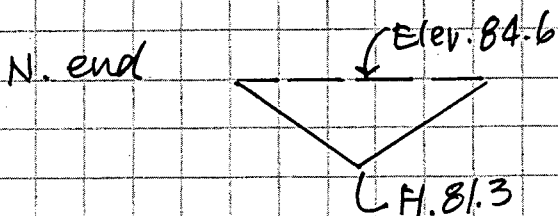
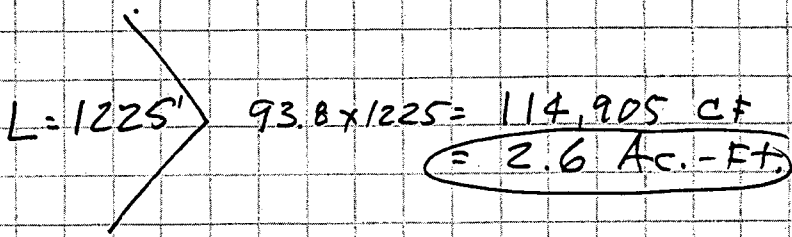
Additional volume to be excavated on s. channel



Proposed Channel cross sections (v-btm on site)



Area = 144 SF



Area = 43.6 SF

Total all existing and proposed volume @ 84.6

E. channel	3.7
S. channel	3.6
W. channel	2.6
S. additional	<u>1.4</u>

Total = 11.3 Acre-Feet @ elev. 84.6

FINAL DRAINAGE REPORT  
AND PLAN  
for

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P. C. INDUSTRIAL PARK ADDITION  
Wichita, Kansas

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November 15, 1985  
Baughman Company, P.A.  
330 Laura  
Wichita, Kansas

FINAL DRAINAGE REPORT FOR  
P.C. INDUSTRIAL PARK ADDITION

I. General

The P.C. Industrial Park Addition plat located south of 47th Street South and west of Water Street in Wichita, KS. The tract of ground is being platted to confirm requirements placed on the parcel of land. The addition is zoned for industrial development usage. The addition will not be allowed to develop for several years. Presently the tract of ground is adjacent to paved Water Street and adjacent to Railroad R.W. at the west side of the property. The 31 acre tract drains generally south with a small portion draining to the north to 47th St. The R.R. R.W. at the west side of the property will not discharge onto or across any portion of this land.

The City of Wichita constructed the pavement and storm sewer system for Water St. in prior years with the storm sewer discharging into only a temporary pond drainage site at the south and east end of the plat as indicated. Presently the drainage dedications is a 100 foot wide tract of land which extends approximately 1400 feet in length. Average depth of the drainage pond is presently five to six feet. Water Street presently discharges a 24" R.C.P. into the pond. No outlet exists to relieve the pond except the consideration of infiltration of runoff water into the subsoils.

A soil investigation report was performed for this area in 1978 by Engineering Testing Company of Wichita. The report identifies subsoil types with borings taken as silty sands and pure sands which are capable of passing water into the ground water vertically with ease from elevations 85 to 79. Average water table elevation at that time was observed to be 75.5. Soil conditions are identified for the local area in an earlier drainage concept report submitted to the City of Wichita.

### I. Drainage Calculations

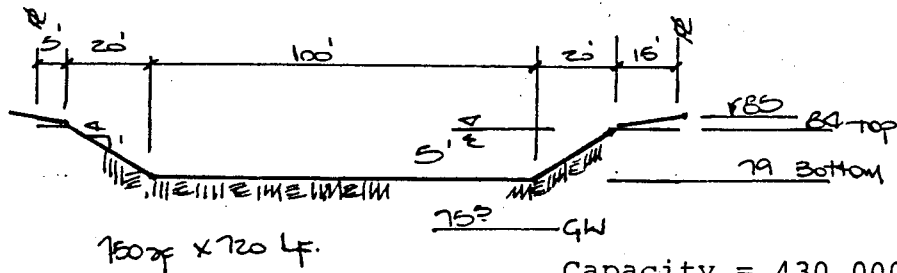
The area from the P.C. Industrial Park Addition plat which will discharge to either Water Street and south in storm sewers or directly into the drainage pond site is 25.4 acres. Street R.W. areas will amount to 1.6 acres. The acres to the east of Water St. will contribute approximately 5 acres. The total drainage area amount to 32 acres which will be considered for the drainage pond site. The north portion as indicated on the plan will drain to Water Street and drain north to 47th St. So.

The volume considered for the design pond will be the 6 hour - 6 inch storm. Using the average S.C.S. Runoff Curve Number of 91, the amount of runoff from the 6 inch storm will be 4.95 inches.

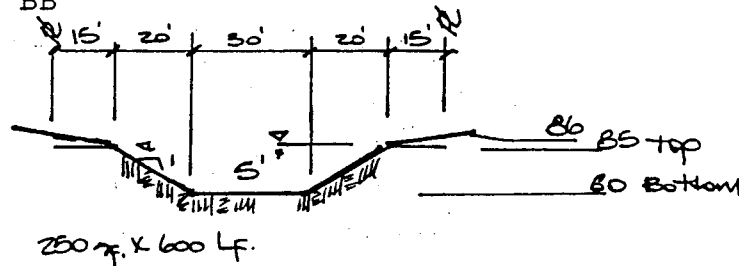
Design Inflow Volume = 32 Acres(4.95/12) = 13.2 AC-Ft.

Proposed pond sections for the drainage dedications -

Section AA



Section BB



Capacity = 150,000 CF  
Total = 580,000 CF  
or = 13.3 Ac-Ft

The proposed ditch and pond improvements will require reshaping the existing pond for both sections of site and excavating additional width to conform to the new pond geometrics design and will provide the necessary volume capacity required. All of the work required for the reshaping and the excavating will be included in a petitioned project thru the City of Wichita as necessary.

## II. Improvements

Presently, the City of Wichita has plans to construct a large drainage improvement district for south Wichita which will at somepoint relieve this temporary drainage pond site. This is the basis for the City constructing Water Street and discharging into a temporary pond site. The plat cannot develop for several years due to encumbrances placed of the land. On that basis, the drainage plan provided herein will allow for the design of a detention site to recieve the 6 hour - 6 inch storm volume and maintain that volume for a period of time to relieve itself and regain the capacity again without over flowing onto adjacent properties, although no development has ocured to the immediate south of this land. This will provide assurances that the plat could someday develop to its entireity assuming that the City of Wichita is not able to complete the planned drainage improvement district.

The pond enlargement areas as required will be dedicated on the plat as an additional 60 drainage dedication. If the City drainage improvements are ever implemented as proposed it would allow the owners of the addition to request vacation of the drainage dedication area. The extra amount of pond widening necessary for the total proposed pond will be guaranteed by petition and will not be activated till development occurs on the plat.

All interior site grading and drainage to the streets or pond site in the future will be done so at the time of development as is necessary.

Provided herein are copies of the soil investigation report performed in 1978 and also copies of the drainage plan and topography for the addition.