File - One Kellogg Place

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 • FAX 316/262-0149 • 315 ELLIS • WICHITA, KANSAS 67211

January 4, 2002

Christopher Carrier, P.E.
Storm Water Management
City Hall - 8th Floor
455 N. Main
Wichita, KS 67202

RECEIVED
JAN 04 2002

Re: ***One Kellogg Place 2nd Addition***
Detention Pond Design

Dear Chris,

During the preparation of the site development plans for the above referenced property, our office re-assessed the drainage design.

The original "Drainage Plan" depicted 141 cfs discharging from the western detention pond. This discharge would be conveyed to the existing 42" culvert crossing under the KTA. However, the 42" culvert does not have sufficient capacity to pass that rate of runoff.

The revised storage routing for the detention pond accounts for the inherent detention effect of the KTA culvert and embankment. A two-stage discharge outlet was modeled using FHWA's HY8 computer program, and then input into HEC-1 for the hydrograph routing.

Based on our calculations, the 42" culvert acts as the control for the detention pond. The significant headwaters generated at this culvert create a tailwater control for the detention pond's primary outlet. We modeled this pond using two different rainfall durations. The primary concern was for the 100-yr, 24-hr rainfall event, however we also computed

the responses during a shorter more intense rainfall event, where the duration of the rainfall was equal to three times the time of concentration. The 24-hr event produced both the highest detention volume and the highest peak discharge.

The results of the computations show a maximum discharge from the 42" culvert to be 65 cfs, with a ponding elevation of 163.9 This elevation is lower than the lowest elevation (164.0, field survey information) in the turnpike ditch section. This indicates that no discharge will be conveyed to the Greenwich right-of-way.

Please feel free to contact me if you need additional information, or would like copies of the supporting documentation.

Thank you.

Sincerely,
Baughman Co., P.A.

Brian L. Glenn, P.E.

cc: File
Vicky Huang, P.E., City of Wichita
Greg Allison, P.E., MKEC
N. Brent Wooten, P.E., Baughman Co.

File - One Kellogg Place

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 • FAX 316/262-0149 • 315 ELLIS • WICHITA, KANSAS 67211

January 7, 2002

Vicky Huang, P.E.
Dept. of Engineering
City Hall - 7th Floor
455 N. Main
Wichita, KS 67202

RECEIVED
JAN 07 2002

Re: ***One Kellogg Place 2nd Addition***
Detention Pond Calculations

Dear Vicky,

Per our phone conversation, I am supplying you with copies of the HEC-1 storage routing for the western detention pond for the above referenced property. Also included is a copy of the FHWA's HY8 results that were used in creating the tailwater-rating curve for the stage-discharge relationship used in the HEC-1 routing.

Please contact me if you need further information or have additional comments regarding the calculations.

Thank you.

Sincerely,
Baughman Co., P.A.

Brian L. Glenn

Brian L. Glenn, P.E.

cc: File
Chris Carrier, P.E., City of Wichita