Kurtis J. Jones, P.E.
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Architects, Engineers & Surveyors
A Division of Crafton, Tull & Associates, Inc.

February 23, 2000

Mr. Jeff Pipkin
Russellville Economic Development Partnership, Inc.
708 West Main
Russellville, AR 72801

RE: East End Industrial Park
Drainage Study – Final Report
Project No. 007011-00

Dear Jeff:

We have completed overall drainage computations for the East End Industrial Park. Specifically, we have computed stormwater runoff computations for the 2-year through the 100-year frequency storm event for both existing (undeveloped) and future (fully developed) conditions.

The property currently owned by RedPi (including the Goody's site – Lot 3) discharges into two (2) separate drainage basins. Roughly half of the property (the western basin – basin "A") drains to the west into an unnamed tributary of *Whig Creek*, and the other half of the property (the eastern basin – basin "B") drains to the south into a railroad ditch along the south side of the basin that is an unnamed tributary of *Galla Creek*. The following is a summary of those drainage areas:

BASIN	REDPI OWNED PROPERTY	OTHER PROPERTY	TOTAL AREA
A	73 acres	267 acres	340 acres
B	91 acres	199 acres	290 acres

Runoff flows for the two basins were computed using the Corps of Engineers hydrologic modeling software, HEC-1. The computation point for the western basin ("A") was the

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box culvert structure under Tyler Road, and the computation point for the eastern basin ("B") was railroad ditch at the south border of the RedPi property (see the attached drainage basin map).

The following is a summary of the computed flows:

BASIN "A"

STORM FREQUENCY (years)	EXISTING RUNOFF (cfs)	PROPOSED RUNOFF (cfs)	INCREASE IN RUNOFF (cfs)
		(1)	(1)
2	251	318 / *258*	67 / *7*
10	532	619 / *542*	87 / *10*
25	695	789 / *706*	94 / *11*
50	847	945 / *858*	98 / *11*
100	981	1,083 / *993*	102 / *12*

BASIN "B"

STORM FREQUENCY (years)	EXISTING RUNOFF (cfs)	PROPOSED RUNOFF (cfs)	INCREASE IN RUNOFF (cfs)
		(1)	(1)
2	248	346 / *267*	98 / *19*
10	517	639 / *544*	122 / *27*
25	673	802 / *701*	129 / *28*
50	817	952 / *846*	135 / *29*
100	945	1,083 / *975*	138 / *30*

(1) Flows computed based on the Goody's development alone.

As indicated above, complete development of the RedPi property will result in a runoff increase of 102 cfs or 10.4% for the western basin ("A"), and 138 cfs or 14.6% for the eastern basin ("B"). The Goody's development alone will result in a runoff increase of 12 cfs or 1.2% for the western basin ("A"), and 30 cfs or 3.2% for the eastern basin ("B").

Please note that the actual runoff increases at the point of discharge from the Goody's site itself will be significantly greater than the values indicated above; however, due to differing peak times within the overall basins, the actual peaks at the points of computation are somewhat lower.

Based on our knowledge of the conditions downstream from the RedPi property, the increase caused by the development of the Goody's site will not cause any significant downstream drainage problems. However, the overall development of the area will significantly increase the downstream peak flows. Based on this data, we recommend that RedPi explore the option of requiring future developers to provide individual detention basins for their developments to limit runoff from their property to predevelopment rates.

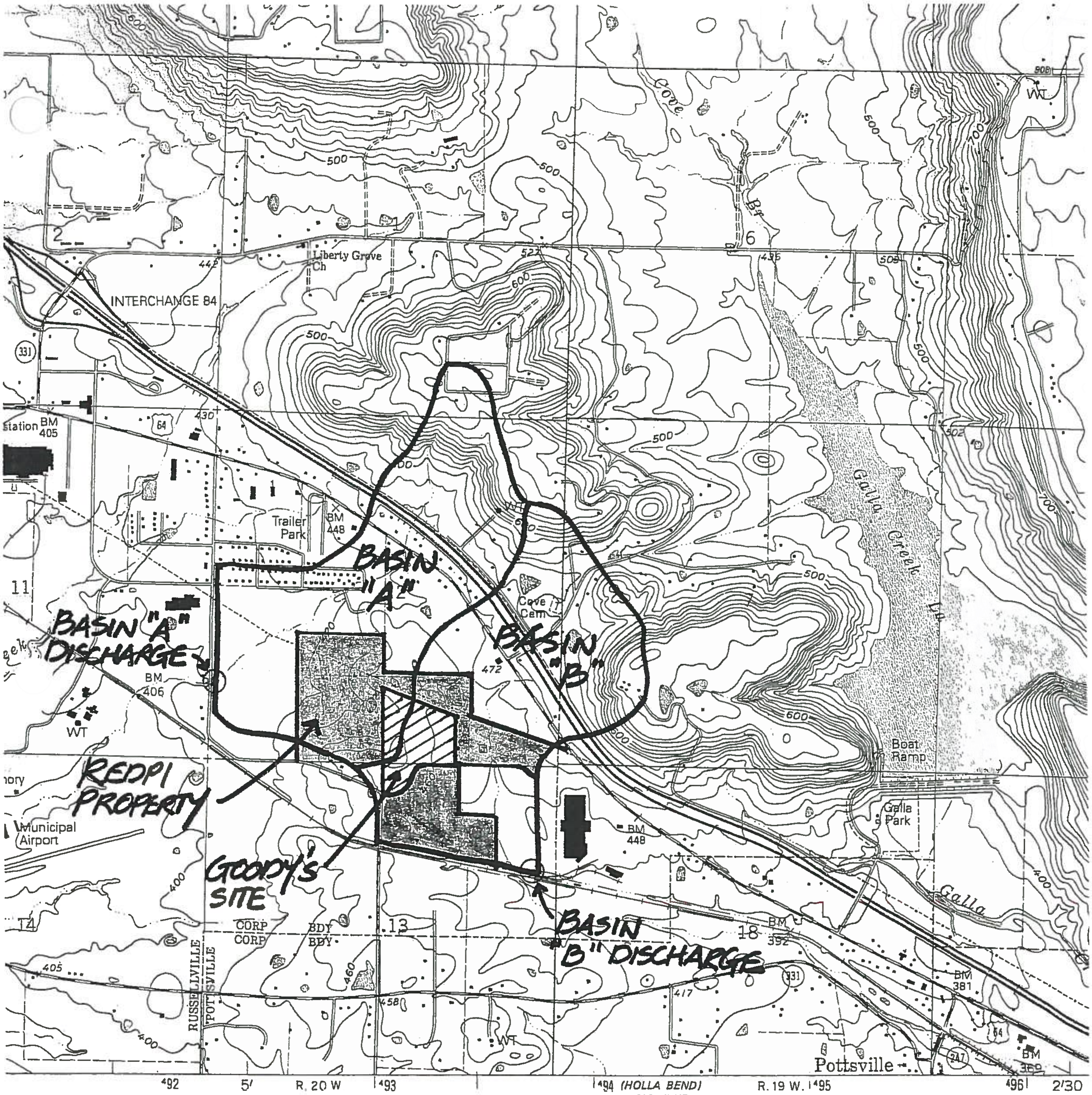
Attached is a copy of the stormwater detention policy and requirements from the City of Rogers, Arkansas Drainage Manual, which we developed for the City of Rogers a few years ago. Please review this information. It is possible that this policy (or one similar) could be adopted by RedPi with minimal alterations.

Should you have any questions regarding the information, please feel free to contact us at your convenience.

Sincerely,

PERKINS & ASSOCIATES
A DIVISION OF CRAFTON, TULL & ASSOCIATES, INC.

Kurtis J. Jones, P.E.



SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN
GN
0°02′ 1 MIL
3½° 62 MILS

UTM GRID AND 1993 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

COMPLIES WITH U.S. GEOLOGICAL SURVEY STANDARDS FOR SPATIAL ACCURACY - CLASS 2
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND ARKANSAS GEOLOGICAL COMMISSION, LITTLE ROCK, ARKANSAS 72204
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

REDPI DRAINAGE
PROJ NO. 002011-00

HEC-1 INPUT SUMMARY

PROJECT: RedPi - East End Industrial Park
JOB NUMBER: 007011-00
DATE: 2/9/00
BY: K. Jones

BASIN NO.	AREA (AC)	AREA (SQ MI)	LENGTH(L) (FT)	AVG. BASIN SLOPE (Y) (%)	(1) RCN	S	T (LAG) (HR)
Predevelopment							
A	340	0.53125	6500	3.5	80	2.500	0.7593
B	290	0.45313	5600	4.3	80	2.500	0.6080
Postdevelopment - Total development of RedPi property							
A	340	0.53125	6500	3.5	83.2	2.019	0.6847
B	290	0.45313	5600	4.3	84.7	1.806	0.5209
Postdevelopment - Development of Goody's site only							
A	340	0.53125	6500	3.5	80.4	2.438	0.7498
B	290	0.45313	5600	4.3	81.1	2.330	0.5872

(1) Predominant soil types are Mountainburg (hydrologic group D), Linker (hydrologic group C), Leadvale (hydrologic group C), Enders (hydrologic group C), and Taft (hydroligic group C).