

STAFF REPORT
(Preliminary Plat)

CASE NUMBER: SUB 2005-148 -- BELLECHASE ADDITION

OWNER/APPLICANT: JBC, LLC, Attn: Steve Miller, 527 N. Forrestview, Wichita, KS 67235

SURVEYOR/ENGINEER: Ruggles & Bohm, P.A., 924 N. Main, Wichita, KS 67203

LOCATION: East side of 127th St. East, North of Harry

SITE SIZE: 104.33 acres

NUMBER OF LOTS

Residential:	223
Office:	
Commercial:	
Industrial:	
Total:	223

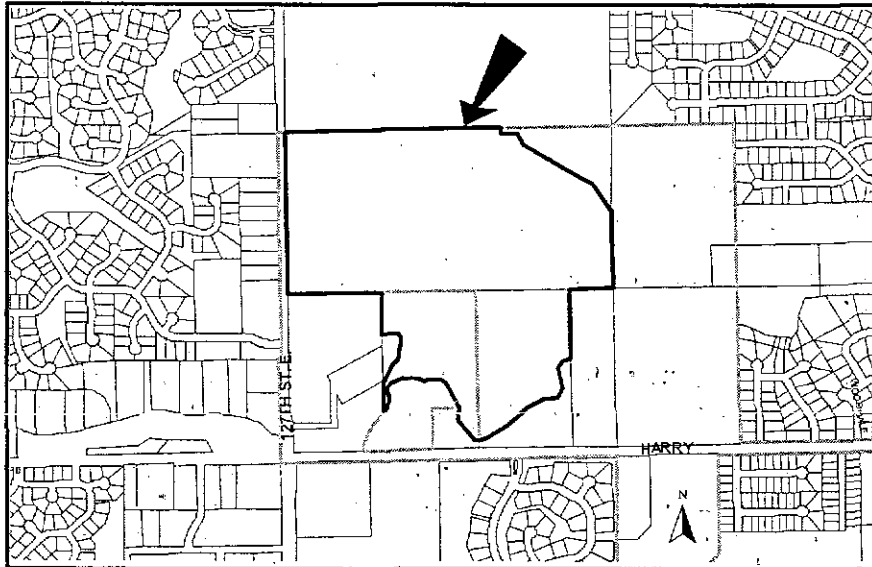
MINIMUM LOT AREA: 8,034 sq. ft.

CURRENT ZONING: SF-20, Single-Family Residential

PROPOSED ZONING: SF-5, Single-Family Residential

*Approved
4-0*

VICINITY MAP



NOTE: This site is located in the County adjoining Wichita's city limits and annexation is required. The site is currently zoned SF-20, Single-Family Residential and will be converted to SF-5, Single-Family Residential upon annexation. The site is located within the 100-year floodplain.

STAFF COMMENTS:

- A. Prior to this plat being scheduled for City Council review, annexation of the property will need to be completed. Upon annexation, the property will be zoned SF-5, Single-Family Residential and allow for the lot sizes being platted.
- B. The applicant shall guarantee the extension of sanitary sewer and City water to serve the lots being platted.
- C. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning Department for recording.
- D. City/County Engineering needs to comment on the status of the applicant's drainage concept. County Engineering needs to review drainage plan. County Engineering advises that no contour elevations are shown in the area of Spring Creek Branch to determine the limits of the FEMA flood plain.
- E. If the final plat requires minimum pads, an on-site benchmark will be required.
- F. ~~County Public Works~~ advises that the City of Wichita needs to annex 127th Street East abutting plat
- G. Reserve A and B appears to be split. It is recommended the reserve be continuous. If split, each reserve should be designated separately.
- H. The plat's text should include language that protects the public from cost to reconstruct improvements in Reserves A and B.
- I. Traffic Engineering needs to comment on the need for any improvements to perimeter streets. A left-turn lane petition is needed.
- J. The plat denotes two street openings along 127th St. East. The final plat shall reference the dedication of access controls in the plat's text.
- K. The Applicant shall guarantee the paving of the proposed streets. The guarantee shall also provide for sidewalks on at least one side of all through, non cul-de-sac streets.
- L. In accordance with the KS Wetland Mapping Conventions under the Memorandum of Understanding between the USDA-NRCS; USEPA; USACE; and USF&WS, this site has been identified as one with potential wetland hydrology. The US Army Corps of Engineers (USACE) should be contacted (316-322-8247) to have a wetland determination completed.
- M. It is recommended that Reserve D be extended to the street by access easements or by narrow strips of Reserve between the lots to increase its accessibility and usefulness for all homeowners in the Addition.

- N. Because of the landlocked nature of Reserve E being platted, a means of access for maintenance shall be provided.
- O. The final plat tracing shall state in the plattor's text the purposes of the proposed reserves as well as the ownership and maintenance responsibilities.
- P. Provisions shall be made for ownership and maintenance of the proposed reserves. The applicant shall either form a lot owners' association prior to recording the plat or shall submit a covenant stating when the association will be formed, when the reserves will be deeded to the association and who is to own and maintain the reserves prior to the association taking over those responsibilities.
- Q. For those reserves being platted for drainage purposes, the required covenant which provides for ownership and maintenance of the reserves shall grant, to the appropriate governing body, the authority to maintain the drainage reserves in the event the owner(s) fail to do so. The covenant shall provide for the cost of such maintenance to be charged back to the owner(s) by the governing body.
- R. The applicant shall submit a covenant which provides for four (4) off-street parking spaces per dwelling unit on each lot which abuts a 58-foot street. The covenant shall inventory the affected lots by lot and block number and shall state that the covenant runs with the land and is binding on future owners and assigns.
- S. The wall easement shall be referenced in the plattor's text.
- T. GIS needs to comment on the plat's street names. *New street names are needed.*
- U. The applicant shall submit a copy of the instrument, which establishes the pipeline easements on the property, which verifies that the easements shown are sufficient and that utilities may be located adjacent to and within the easements. Any relocation, lowering or encasement of the pipeline, required by this development, will not be at the expense of the City of Wichita.
- V. The applicant's agent shall determine any setback requirements for the pipelines by researching the text of the pipeline agreements. If a setback from the pipeline easements is provided for in the pipeline easement agreements, it shall be indicated on the face of the plat.
- W. The Applicant is reminded that a platting binder is required with the final plat. Approval of this plat will be subject to submittal of this binder and any relevant conditions found by such a review.
- X. The plattor's text shall include language that a drainage plan has been developed for the plat and that all drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater.
- Y. The applicant shall install or guarantee the installation of all utilities and facilities that are applicable and described in Article 8 of the MAPC Subdivision Regulations. (Water service and fire hydrants required by Article 8 for fire protection shall be as per the direction and approval of the Chief of the Fire Department.)
- Z. The applicant's engineer is advised that the Register of Deeds is requiring the name(s) of the notary public, who acknowledges the signatures on this plat, to be printed beneath the notary's signature.

- AA. To receive mail delivery without delay, and to avoid unnecessary expense, the applicant is advised of the necessity to meet with the U.S. Postal Service Growth Management Coordinator (Phone: 316-946-4556) prior to development of the plat so that the type of delivery, and the tentative mailbox locations can be determined.
- BB. The applicant is advised that various State and Federal requirements (specifically but not limited to the Army Corps of Engineers, Kanopolis Project Office, Rt. 1, Box 317, Valley Center, KS 67147) for the control of soil and wind erosion and the protection of wetlands may impact how this site can be developed. It is the applicant's responsibility to contact all appropriate agencies to determine any such requirements.
- CC. The owner of the subdivision should note that any construction that results in earthwork activities that will disturb one (1) acre or more of ground cover requires a Federal/State NPDES Storm Water Discharge Permit from the Kansas Department of Health and Environment in Topeka. Also, for projects located within the City of Wichita, erosion and sediment control devices must be used on ALL projects. For projects outside of the City of Wichita, but within the Wichita Metropolitan area, the owner should contact the appropriate governmental jurisdiction concerning erosion and sediment control device requirements.
- DD. Perimeter closure computations shall be submitted with the final plat tracing.
- EE. Recording of the plat within 30 days after approval by the City Council and/or County Commission.
- FF. ~~The representatives from the utility companies should be prepared to comment on the need for any additional utility easements to be platted on this property.~~
- GG. A compact disc (CD), which will be used by the City and County GIS Departments, detailing the final plat in digital format in AutoCAD. If a disc is not provided, please send via e-mail to Cheryl Holloway (E-Mail address: cholloway@wichita.gov). Please include the name of the plat on the disc.

STAFF REPORT
(Final Plat, Overall Preliminary Plat Approved 12/29/05)

CASE NUMBER: SUB 2005-148 -- BELLECHASE ADDITION

OWNER/APPLICANT: JBC, LLC, Attn: Steve Miller, 527 N. Forrestview, Wichita, KS 67235

SURVEYOR/ENGINEER: Ruggles & Bohm, P.A., 924 N. Main, Wichita, KS 67203

LOCATION: East side of 127th St. East, North of Harry

SITE SIZE: 18.19 acres

NUMBER OF LOTS

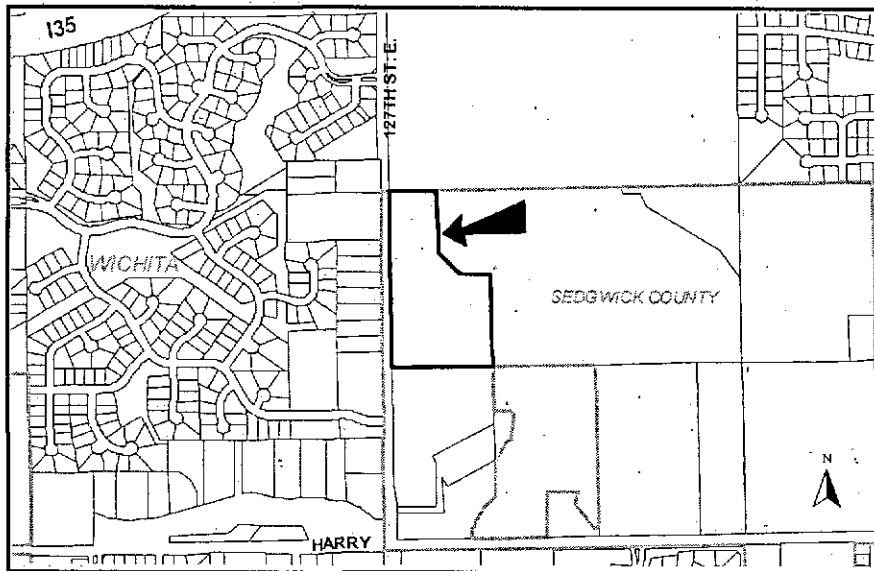
Residential:	36
Office:	
Commercial:	
Industrial:	
Total:	36

MINIMUM LOT AREA: 8,034 square feet

CURRENT ZONING: SF-20, Single-Family Residential

PROPOSED ZONING: SF-5, Single-Family Residential

VICINITY MAP



NOTE: This site is located in the County adjoining Wichita's city limits and annexation is required. The site is currently zoned SF-20, Single-Family Residential and will be converted to SF-5, Single-Family Residential upon annexation. The site is located within the 100-year floodplain.

This final plat consists of the northeastern portion of the overall preliminary plat approved for the site and represents the first phase of development. The street layout is consistent with the preliminary plat.

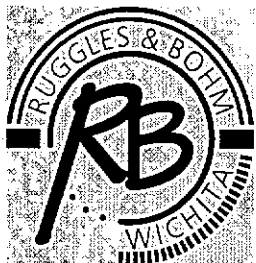
STAFF COMMENTS:

- A. Prior to this plat being scheduled for City Council review, annexation of the property will need to be completed. Upon annexation, the property will be zoned SF-5, Single-Family Residential and allow for the lot sizes being platted.
- B. The applicant shall guarantee the extension of sanitary sewer and City water to serve the lots being platted.
- C. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning Department for recording.
- D. City/County Engineering needs to comment on the status of the applicant's drainage plan. County Engineering needs to review drainage plan. County Engineering advises that no contour elevations are shown in the area of Spring Creek Branch to determine the limits of the FEMA flood plain.
- E. County Public Works advises that the City of Wichita needs to annex 127th Street East abutting plat.
- F. The plat's text should include language that protects the public from cost to reconstruct improvements in Reserves A, B, C and D.
- G. Traffic Engineering needs to comment on the need for any improvements to perimeter streets. A left-turn lane petition is needed.
- H. The plat denotes two street openings along 127th St. East. Access controls are approved.
- I. The Applicant shall guarantee the paving of the proposed streets. The guarantee shall also provide for sidewalks on at least one side of all through, non cul-de-sac streets.
- J. In accordance with the KS Wetland Mapping Conventions under the Memorandum of Understanding between the USDA-NRCS; USEPA; USACE; and USF&WS, this site has been identified as one with potential wetland hydrology. The US Army Corps of Engineers (USACE) should be contacted (316-322-8247) to have a wetland determination completed.
- K. Provisions shall be made for ownership and maintenance of the proposed reserves. The applicant shall either form a lot owners' association prior to recording the plat or shall submit a covenant stating when the association will be formed, when the reserves will be deeded to the association and who is to own and maintain the reserves prior to the association taking over those responsibilities.

- L. For those reserves being platted for drainage purposes, the required covenant which provides for ownership and maintenance of the reserves shall grant, to the appropriate governing body, the authority to maintain the drainage reserves in the event the owner(s) fail to do so. The covenant shall provide for the cost of such maintenance to be charged back to the owner(s) by the governing body.
- M. The applicant shall submit a covenant which provides for four (4) off-street parking spaces per dwelling unit on each lot which abuts a 58-foot street. The covenant shall inventory the affected lots by lot and block number and shall state that the covenant runs with the land and is binding on future owners and assigns.
- N. GIS needs to comment on the plat's street names. *The street names are approved.*
- O. The applicant shall submit a copy of the instrument, which establishes the pipeline easements on the property, which verifies that the easements shown are sufficient and that utilities may be located adjacent to and within the easements. Any relocation, lowering or encasement of the pipeline, required by this development, will not be at the expense of the City of Wichita.
- P. The applicant's agent shall determine any setback requirements for the pipelines by researching the text of the pipeline agreements. If a setback from the pipeline easements is provided for in the pipeline easement agreements, it shall be indicated on the face of the plat.
- Q. The Applicant is reminded that a platting binder is required with the final plat. Approval of this plat will be subject to submittal of this binder and any relevant conditions found by such a review.
- R. In the title block "An Addition to Wichita, Sedgwick County" needs to be added.
- S. The plat's text shall include language that a drainage plan has been developed for the plat and that all drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater.
- T. The applicant shall install or guarantee the installation of all utilities and facilities that are applicable and described in Article 8 of the MAPC Subdivision Regulations. (Water service and fire hydrants required by Article 8 for fire protection shall be as per the direction and approval of the Chief of the Fire Department.)
- U. The applicant's engineer is advised that the Register of Deeds is requiring the name(s) of the notary public, who acknowledges the signatures on this plat, to be printed beneath the notary's signature.
- V. To receive mail delivery without delay, and to avoid unnecessary expense, the applicant is advised of the necessity to meet with the U.S. Postal Service Growth Management Coordinator (Phone: 316-946-4556) prior to development of the plat so that the type of delivery, and the tentative mailbox locations can be determined.
- W. The applicant is advised that various State and Federal requirements (specifically but not limited to the Army Corps of Engineers, Kanopolis Project Office, Rt. 1, Box 317, Valley Center, KS 67147) for the control of soil and wind erosion and the protection of wetlands may impact how this site can be developed. It is the applicant's responsibility to contact all appropriate agencies to determine any such requirements.

SUB 2005-148 -- Final Plat of BELLECHASE ADDITION
February 23, 2006 - Page 4

- X. The owner of the subdivision should note that any construction that results in earthwork activities that will disturb one (1) acre or more of ground cover requires a Federal/State NPDES Storm Water Discharge Permit from the Kansas Department of Health and Environment in Topeka. Also, for projects located within the City of Wichita, erosion and sediment control devices must be used on ALL projects. For projects outside of the City of Wichita, but within the Wichita Metropolitan area, the owner should contact the appropriate governmental jurisdiction concerning erosion and sediment control device requirements.
- Y. Perimeter closure computations shall be submitted with the final plat tracing.
- Z. Recording of the plat within 30 days after approval by the City Council and/or County Commission.
- AA. The representatives from the utility companies should be prepared to comment on the need for any additional utility easements to be platted on this property.
- BB. A compact disc (CD), which will be used by the City and County GIS Departments, detailing the final plat in digital format in AutoCAD. If a disc is not provided, please send via e-mail to Cheryl Holloway (E-Mail address: cholloway@wichita.gov). Please include the name of the plat on the disc.



Ruggles & Bohm, P.A.

Engineering, Surveying, Land Planning
 924 N. Main
 Wichita, Kansas 67203

Date: Tuesday, May 30, 2006

MEMO

To: Scott Lindebak
City of Wichita

Description:

- Confirmation
- Transmittal
- Transmittal under separate cover by

From: Kenneth Lee

Purpose:

- Approval
- Review & comment
- Use
- Other :
- Distribution
- Information
- Record

Project: Bellechase Drainage

Enclosures/Attachments:

- Prints
- Originals
- Diskettes containing:
- Change Order
- Shop Drawings

RB Project No.: 2668P

Other Project Reference No.:

Other: _____

Copies	Description
1	Drainage Plan Revision
2	Revised Grading Plan

Remarks: Scott,

Attached is the commentary and supporting documentation for the Bellechase Drainage Plan. Also, attached are specific discussions from the previous email thread. Let me know if you have any questions.

Thank you,

Kenneth Lee

Copies to:

If checked below, please:

- Acknowledge receipt of enclosures
- Return enclosures to us.

Signed _____

*If Enclosures are not as noted above, please inform us immediately
 Phone (316) 264-8008 Fax (316) 264-4621*

CN = 85, 10% Impervious
 SCS Lag = 28 minutes
 7.8" Type II Storm
 Q100 = 1537.7 cfs

Lower Reach

Area = 0.084 sq. mi.
 CN = 80, 0% Impervious
 SCS Lag = 75 minutes
 7.8" Type II Storm
 Q100 = 6685.5 cfs

Total Runoff (Existing Overall model) = 7108 cfs

SCANNED

**BELLECHASE ADDITION
WICHITA, SEDGWICK COUNTY, KANSAS
DRAINAGE ANALYSIS
MAY 2006**

INTRODUCTION

Belle Chase Addition is located near the northwest corner of the intersection of 127th Street East and Harry Street. The plat consists of approximately 16.3 Acres. From the Soil Survey of Sedgwick County, Kansas, the predominant soils on site are Rd and Ce, Type D and C Hydrological Group soils respectively. For the sake of the drainage analysis, Type D Hydrological Group soils will be used for analysis. The site is used for pasture at this time.

Belle Chase is situated immediately south of Country Hollow Addition, Wichita, Sedgwick County, Kansas, with a tributary feeding Spring Creek draining from north to south across the site. A FEMA Zone B Flood Zone exists on the site, looping into Reserve E, South of the South Entrance. There is no other flood zone encroachment on the Addition.

PREDEVELOPED CONDITIONS

The site is currently used as a pasture with well established ground cover. The offsite areas in this study were evaluated using the assumption that there is 10% impervious development in those basins. Attached is a basin exhibit showing the drainage basins for this study superimposed on a USGS map.

DEVELOPED CONDITIONS

The site will be subdivided into 36 residential lots with this phase. No detention ponds are proposed with this project. Streets will be constructed with curb & gutter and storm sewer will be installed as necessary to transport stormwater runoff to the channel that runs adjacent to the site. Drainage easements have been obtained for unplatted ground along the east side that will be impacted by runoff by the current phase of the development. Culvert pipes will be installed under the hookups to 127th Street East to transport existing street drainage to the south. A minor amount of ditch-regarding will be required to install the pipes.

Additionally, 10 acres of offsite drainage from Country Hollow Addition is being routed internally through detention ponds and will be released in a channel along the west line of that addition. A comparison of the impact from that has been previously studied. A comparison of the results for the 2 year storm is included in this submittal.

HYDROLOGY & HYDRAULICS

HEC-HMS 2.2.2 was used for the hydrologic analysis for this site. The Tulsa District method was used to calculate lag. The TR-55 method was used to cross-check the results of that method. The resulting runoff of 6686 cfs for the Lower Reach is within 2% of the figure shown in the Spring Branch Master Plan for sections in this area. See the attached supporting data for output from the analysis.

HEC-RAS 3.1 was used for the hydraulic analysis. Three sections were prepared based on a combination of surveyed data and USGS map data. The backwater from the appropriate section of the Spring Branch Master Drainage Plan was used to establish the known water surface for our analysis.

CONCLUSIONS

Due to the significant difference in basin sizes (which results in differences in time of concentration) between the proposed site and the tributary channel and the fact that the subject property is directly adjacent to the Lower Reach of the Spring Branch, we are recommending that no detention be implemented with this project. The HEC-HMS results demonstrate that there is no increase in the peak runoff rate for the 2 year, 5 year or 100 year storms. While the overall runoff volume is increased, the same is true regardless of the presence of onsite detention.

As mentioned in the previous report, development north of the subject property has diverted approximately 10 acres of runoff to the east into a new detention pond, which also reduces the runoff that will be directed into the channel adjacent to the site. That runoff runs along another channel adjacent to the future phases of this addition.

Implementing onsite detention would delay the peak runoff and actually increases the peak runoff for the overall basin. As shown in the runoff output comparison, the runoff in the tributary increases from 7108 cfs to 7117 cfs due to the fact that the peak runoff for the onsite basin is delayed to a higher point on the Lower Reach's hydrograph. As such, onsite detention is detrimental to the properties downstream of the subject property. It should be noted that this is a unique situation where the property is directly adjacent to a major tributary and should not be applied to other properties without suitable supporting documentation. Future phases of this plat may require the implementation of detention and analysis of those areas should be required.

Drainage Basin Information**OFFSITE LAG CALCULATIONS****Unnamed Tributary**

Using Tulsa Lag Equation

Channel length = 7339 feet = 1.39 miles, Length to centroid = 0.80 miles

Slope = 43 ft/mile

$$T_{lag} = 0.92 * [(L * Lca) / S^{0.5}]^{0.39} = 0.92 * [(1.39 * 0.80) / (43)^{0.5}]^{0.39} = 0.46 \text{ hours} = 28 \text{ min.}$$

Lower Reach

Using Tulsa Lag Equation

Channel length = 21316 feet = 4.04 miles, Length to centroid = 1.39 miles

Slope = 23 ft/mile

$$T_{lag} = 1.17 * [(L * Lca) / S^{0.5}]^{0.39} = 1.17 * [(4.04 * 1.39) / (23)^{0.5}]^{0.39} = 1.24 \text{ hours} = 75 \text{ min.}$$

EXISTING BASINS**Onsite**

Area = 0.026 sq. mi.

CN = 85, 0% Impervious

Tc = 33 minutes, Lag = 20 minutes

7.8" Type II Storm

Q100 = 80.0 cfs

Unnamed Tributary

From USGS, 0.60 sq. mi.

CN = 85, 10% Impervious

SCS Lag = 28 minutes

7.8" Type II Storm

Q100 = 1537.7 cfs

Lower Reach

Area = 0.084 sq. mi.

CN = 80, 0% Impervious

SCS Lag = 75 minutes

7.8" Type II Storm

Q100 = 6685.5 cfs

Total Runoff (Existing Overall model) = 7108 cfs

DEVELOPED BASINS

Onsite

Area = 0.026 sq. mi.
 CN = 85, 0% Impervious
 Tc = 25 minutes, Lag = 15 minutes
 7.8" Type II Storm
 Q100 = 97.2 cfs

Unnamed Tributary

From USGS, 0.60 sq. mi.
 CN = 85, 10% Impervious
 SCS Lag = 28 minutes
 7.8" Type II Storm
 Q100 = 1537.7 cfs

Lower Reach

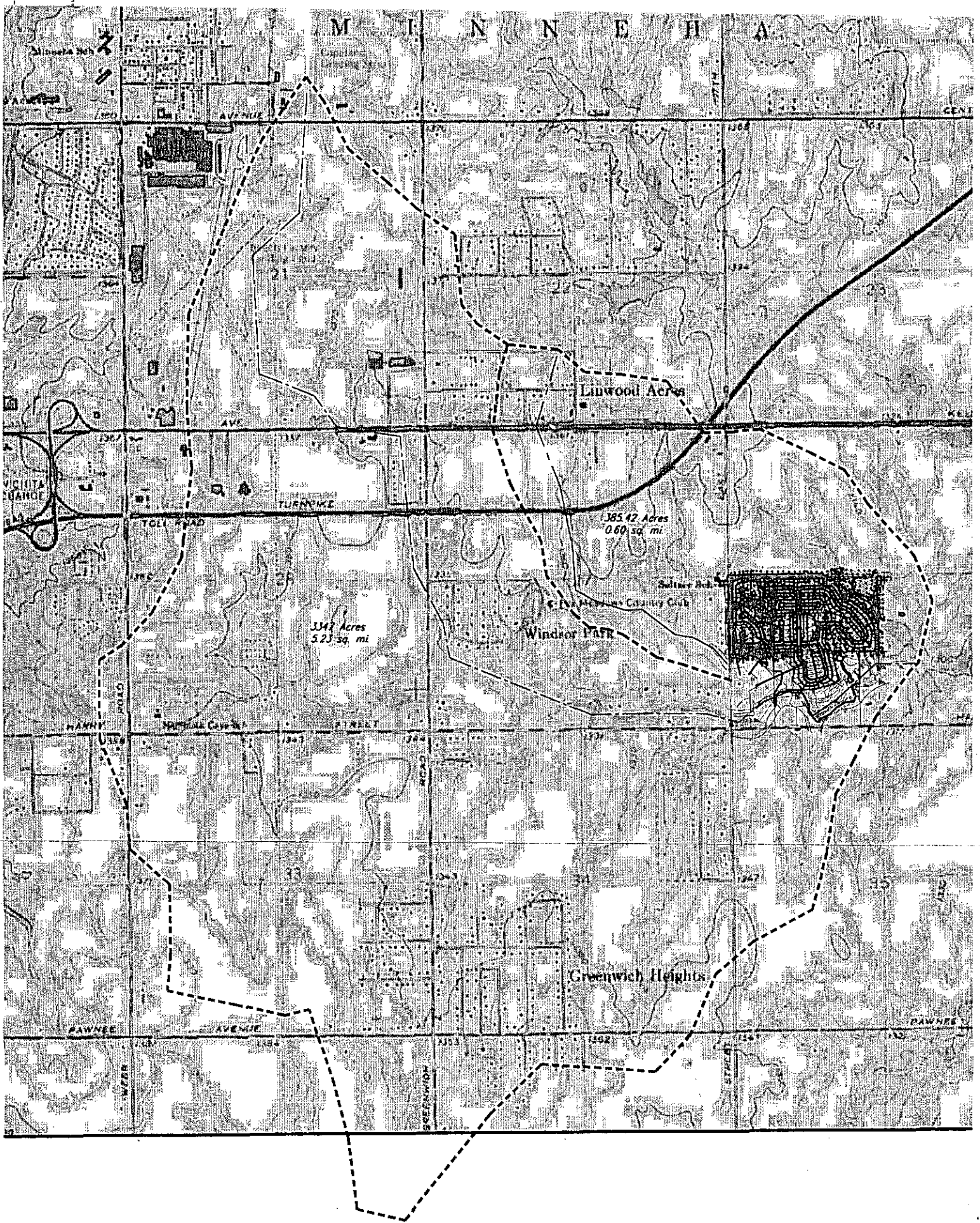
Area = 0.084 sq. mi.
 CN = 80, 0% Impervious
 SCS Lag = 75 minutes
 7.8" Type II Storm
 Q100 = 6585.5 cfs

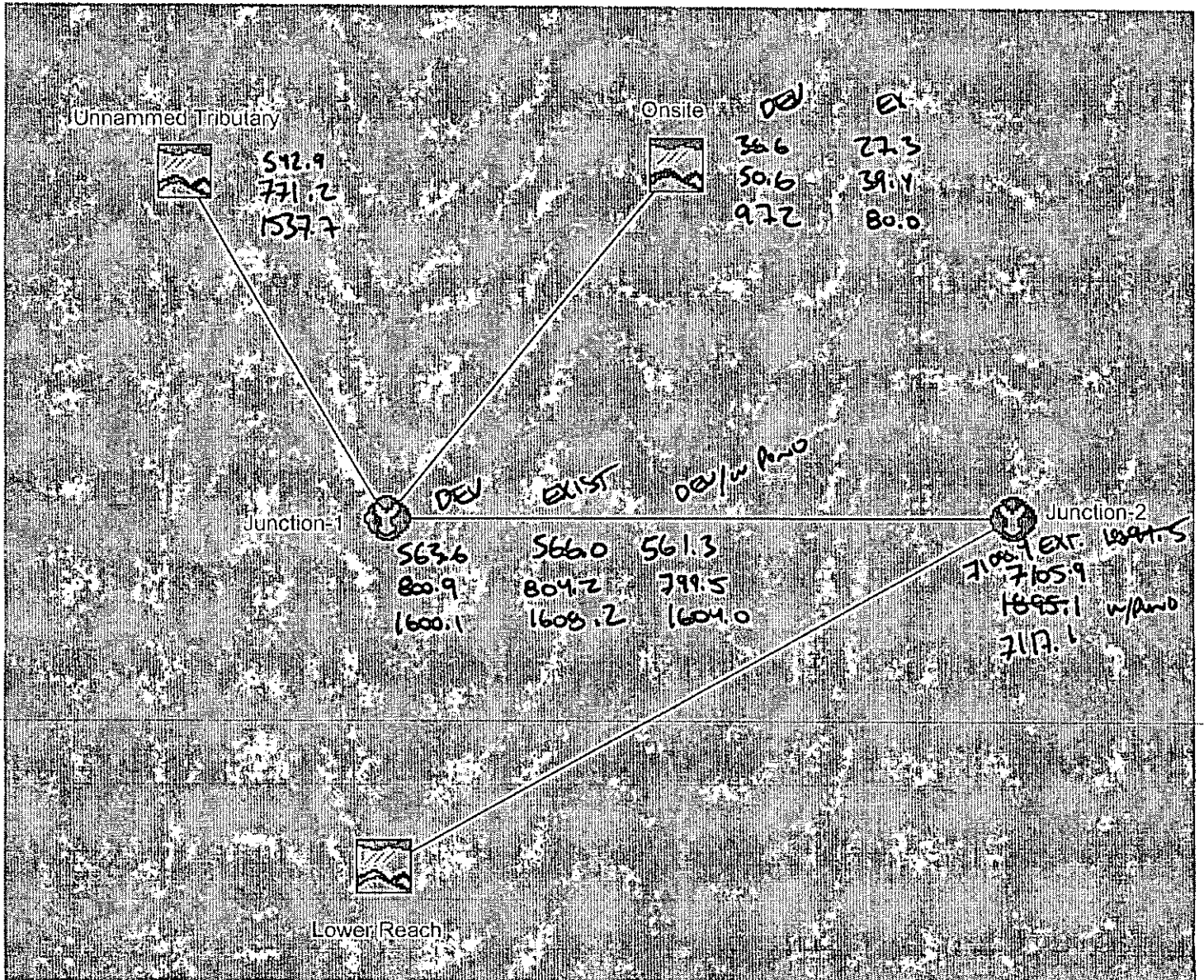
Total Runoff (Developed model) = 7106 cfs < 7108 cfs

Total Basin Runoff Comparison

	Pre-developed	Developed	Developed w/ Pond
2 Year	2486.0	2485.4	2490.5
5 Year	3541.7	3540.8	3546.5
100 Year	7108.4	7105.9	7117.1

M I N N E S O T A





HMS * Summary of Results

Project : bellechase

Run Name : Dev2

Start of Run : 01Apr06 1200 Basin Model : Developed

End of Run : 02Apr06 1200 Met. Model : Met2

Execution Time : 18May06 1135 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnammed Tributary	542.89	02 Apr 06 0021	68.595	0.600
Onsite	36.632	02 Apr 06 0009	3.3448	0.026
Junction-1	563.56	02 Apr 06 0021	71.940	0.626
Lower Reach	2335.6	02 Apr 06 0112	587.72	5.230
Junction-2	2485.4	02 Apr 06 0106	659.66	5.856

HMS * Summary of Results

Project : bellechase

Run Name : Dev5

Start of Run : 01Apr06 1200 Basin Model : Developed

End of Run : 02Apr06 1200 Met. Model : Met5

Execution Time : 18May06 1456 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnammed Tributary	771.21	02 Apr 06 0021	97.278	0.600
Onsite	50.583	02 Apr 06 0006	4.6025	0.026
Junction-1	800.86	02 Apr 06 0018	101.88	0.626
Lower Reach	3328.7	02 Apr 06 0109	834.27	5.230
Junction-2	3540.8	02 Apr 06 0106	936.15	5.856

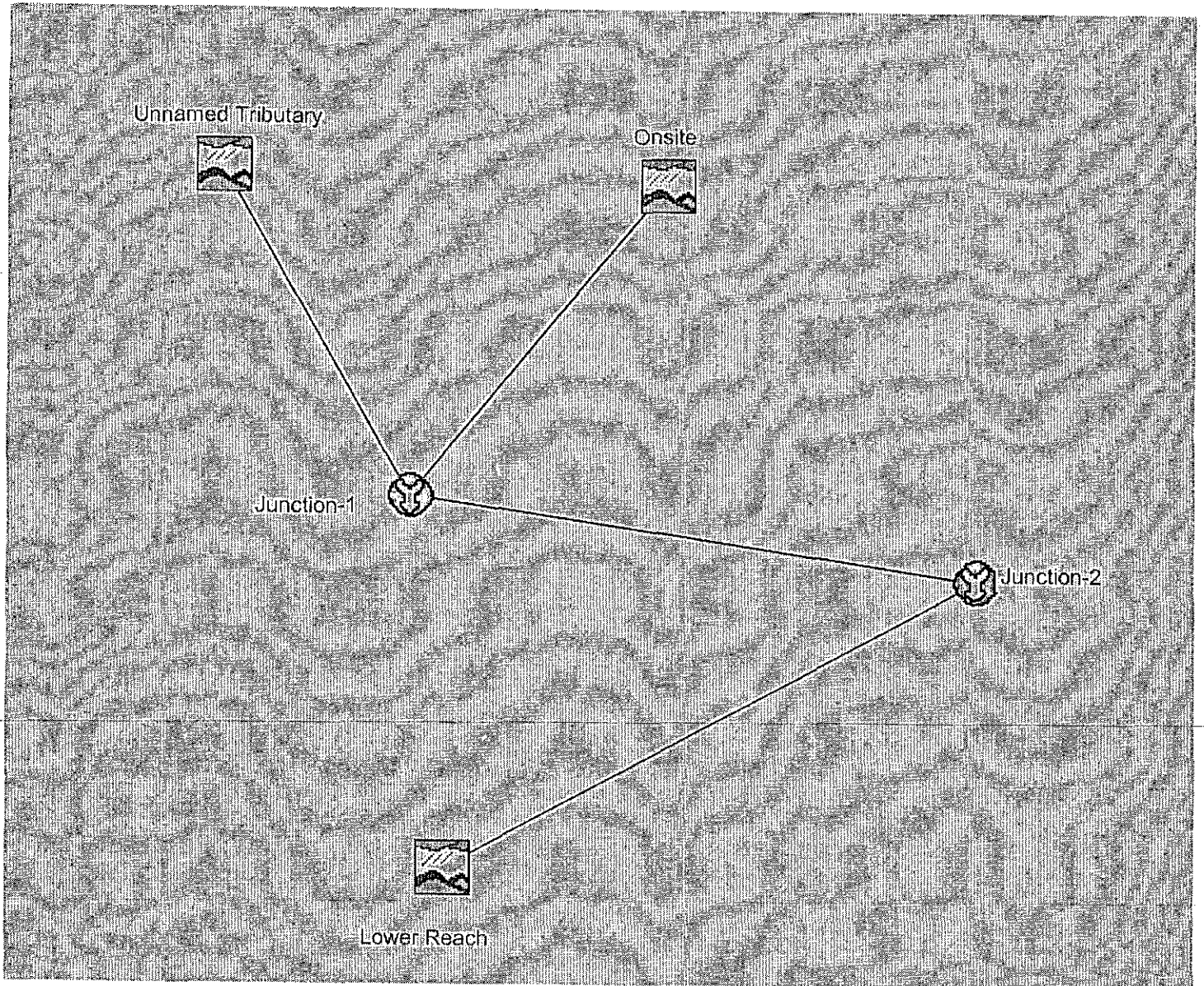
HMS * Summary of Results

Project : bellechase

Run Name : Dev100

Start of Run : 01Apr06 1200 Basin Model : Developed
 End of Run : 02Apr06 1200 Met. Model : Met100
 Execution Time : 18May06 1135 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnammed Tributary	1537.7	02 Apr 06 0021	196.70	0.600
Onsite	97.248	02 Apr 06 0006	8.9108	0.026
Junction-1	1600.1	02 Apr 06 0018	205.61	0.626
Lower Reach	6685.5	02 Apr 06 0109	1689.6	5.230
Junction-2	7105.9	02 Apr 06 0103	1895.2	5.856



HMS * Summary of Results

Project : bellechase

Run Name : Predev2

Start of Run : 01Apr06 1200 Basin Model : Predeveloped

End of Run : 02Apr06 1200 Met. Model : Met2

Execution Time : 18May06 1134 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnamed Tributary	542.89	02 Apr 06 0021	68.595	0.600
Onsite	27.344	02 Apr 06 0012	2.7328	0.026
Junction-1	566.00	02 Apr 06 0021	71.328	0.626
Lower Reach	2335.6	02 Apr 06 0112	587.72	5.230
Junction-2	2486.0	02 Apr 06 0106	659.05	5.856

HMS * Summary of Results

Project : bellechase

Run Name : Predev5

Start of Run : 01Apr06 1200 Basin Model : Predeveloped
 End of Run : 02Apr06 1200 Met. Model : Met5
 Execution Time : 18May06 1447 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnamed Tributary	771.21	02 Apr 06 0021	97.278	0.600
Onsite	39.432	02 Apr 06 0012	3.9447	0.026
Junction-1	804.18	02 Apr 06 0021	101.22	0.626
Lower Reach	3328.7	02 Apr 06 0109	834.27	5.230
Junction-2	3541.7	02 Apr 06 0106	935.49	5.856

HMS * Summary of Results

Project : bellechase

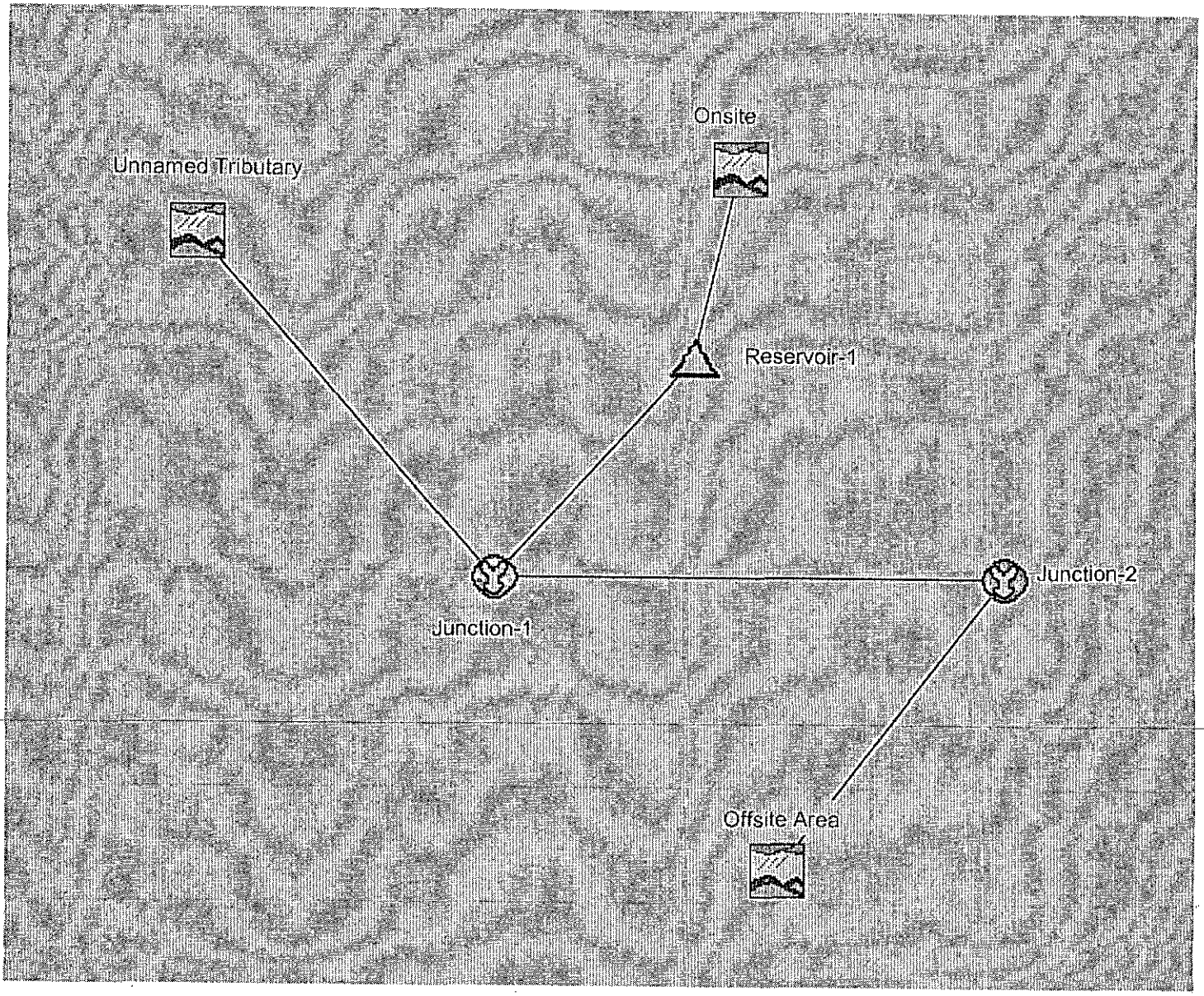
Run Name : Predev100

Start of Run : 01Apr06 1200 Basin Model : Predeveloped

End of Run : 02Apr06 1200 Met. Model : Met100

Execution Time : 18May06 1134 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Unnamed Tributary	1537.7	02 Apr 06 0021	196.70	0.600
Onsite	80.032	02 Apr 06 0012	8.1699	0.026
Junction-1	1608.2	02 Apr 06 0018	204.87	0.626
Lower Reach	6685.5	02 Apr 06 0109	1689.6	5.230
Junction-2	7108.4	02 Apr 06 0103	1894.5	5.856



HMS * Summary of Results

Project : bellechase

Run Name : pond2

Start of Run : 01Apr06 1200 Basin Model : Developed with Pond
 End of Run : 02Apr06 1200 Met. Model : Met2
 Execution Time : 18May06 1718 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Onsite	36.632	02 Apr 06 0009	3.3448	0.026
Reservoir-1	18.450	02 Apr 06 0024	3.3006	0.026
Unnamed Tributary	542.89	02 Apr 06 0021	68.595	0.600
Junction-1	561.27	02 Apr 06 0021	71.896	0.626
Offsite Area	2335.6	02 Apr 06 0112	587.72	5.230
Junction-2	2490.5	02 Apr 06 0106	659.61	5.856

HMS * Summary of Results

Project : bellechase

Run Name : Pond5

Start of Run : 01Apr06 1200 Basin Model : Developed with Pond
 End of Run : 02Apr06 1200 Met. Model : Met5
 Execution Time : 18May06 1718 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Onsite	50.583	02 Apr 06 0006	4.6025	0.026
Reservoir-1	28.328	02 Apr 06 0021	4.5438	0.026
Unnamed Tributary	771.21	02 Apr 06 0021	97.278	0.600
Junction-1	799.54	02 Apr 06 0021	101.82	0.626
Offsite Area	3328.7	02 Apr 06 0109	834.27	5.230
Junction-2	3546.5	02 Apr 06 0106	936.09	5.856

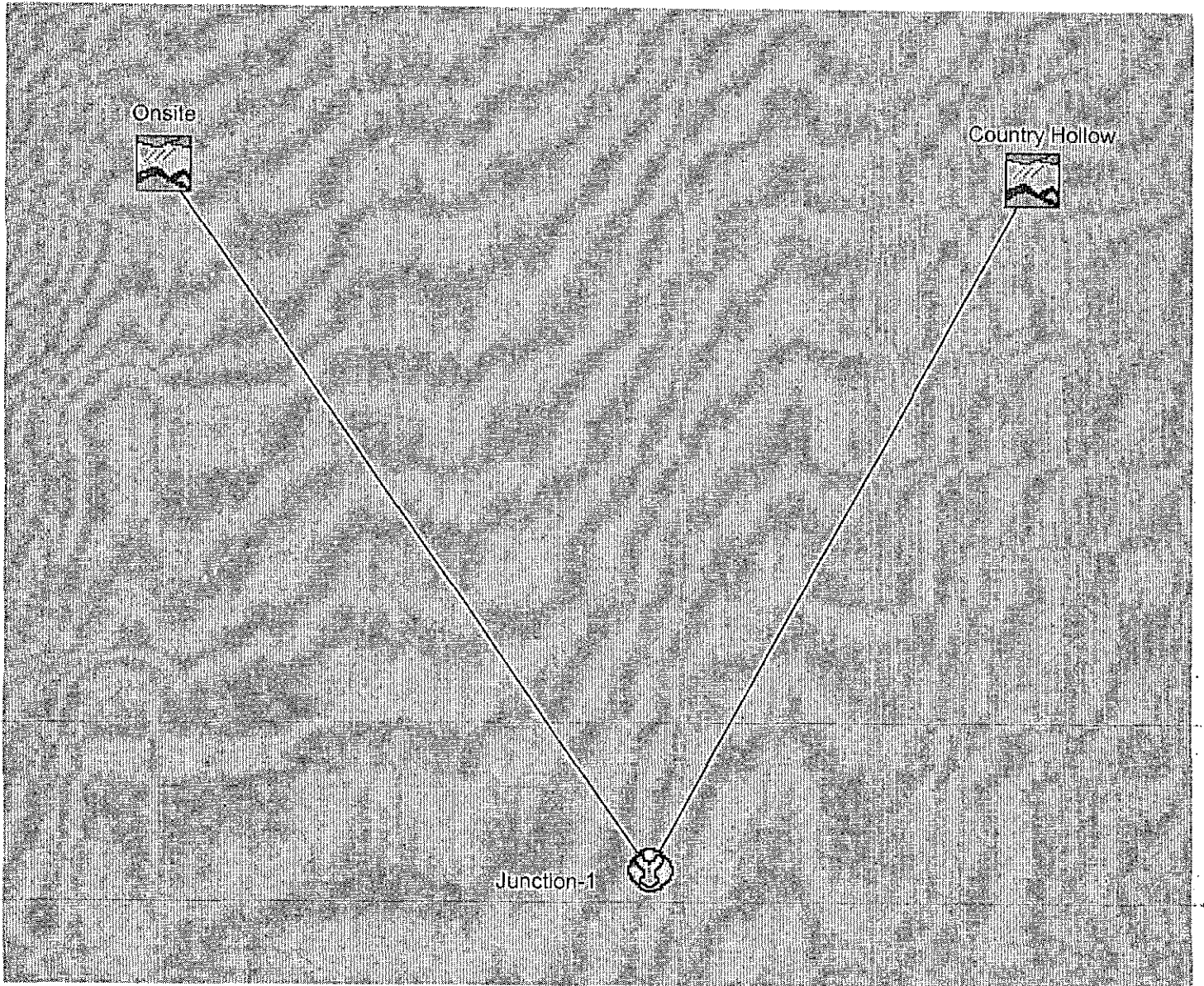
HMS * Summary of Results

Project : bellechase

Run Name : Pond100

Start of Run : 01Apr06 1200 Basin Model : Developed with Pond
 End of Run : 02Apr06 1200 Met. Model : Met100
 Execution Time : 18May06 1640 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Onsite	97.248	02 Apr 06 0006	8.9108	0.026
Reservoir-1	68.592	02 Apr 06 0018	8.8051	0.026
Unnamed Tributary	1537.7	02 Apr 06 0021	196.70	0.600
Junction-1	1604.0	02 Apr 06 0021	205.50	0.626
Lower Reach	6685.5	02 Apr 06 0109	1689.6	5.230
Junction-2	7117.1	02 Apr 06 0103	1895.1	5.856



HMS * Summary of Results

Project : bellechase

Run Name : Onsite2

Start of Run : 01Apr06 1200 Basin Model : Onsite w/ north flow

End of Run : 02Apr06 1200 Met. Model : Met2

Execution Time : 30May06 0947 Control Specs : Control 1

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Onsite	27.344	02 Apr 06 0012	2.7328	0.026
Country Hollow	20.091	02 Apr 06 0009	1.7111	0.016
Junction-1	46.389	02 Apr 06 0009	4.4439	0.042

I have reviewed **Belle Chase** drainage plan that was submitted on February 7, 2006 and have the following comments:

1. This development is not providing detention and is relying on receiving a credit for the stormwater benefits County Hollow is providing for the Spring Branch basin. Each development needs to provide its own stormwater management facilities and should take care of its own runoff internally. I just returned a phone call today of a concerned resident of the subdivision adjacent to Spring Branch to the east.

We agreed that the overall basin is not negatively impacted without detention on this phase of the development.

[Lindebak, Scott]

Please look at the minor storm event.

An evaluation of the 2 year storm shows the onsite runoff increasing from 27.3 cfs to 36.6 cfs. However, due to the differences in time of concentration between the large basin and the small basin, the combined flow for the channel doesn't change. Attached are the flow summaries for the predeveloped and developed basins. Also included is a comparison that includes the Country Hollow diversion. It shows a predeveloped combined flow of 46.4 cfs from Bellechase and Country Hollow Addition compared to a post-developed flow of 36.6 cfs from Bellechase. By both measurements, detention should not be required for Bellechase.

2. It appears that the lot grading plan does not meet the min. rear lot grading of one percent along lots 1-3 & 9, Blk 2.

The grade along the rear of Lot 9 has been adjusted to provide 1.0%.

[Lindebak, Scott]

Okay

3. The storm water along the rear lots of 127th Street East should be handled internally within the development either by pipe, Spring Valley row, Belle chase row or ditch and be directed to a detention facility.

I would like to request that this be allowed. The southerly two lots, Lots 1 and 2, Block 2 already drain into the east ditch of 127th East, leaving only the two northerly lots. The total runoff from this basin (Basin G) results in 6.9 cfs of flow in the 100-year rainfall event. A small culvert pipe can easily pass this discharge, saving thousands of dollars in routing a storm water sewer to the intersection of 127th and Spring Valley.

[Lindebak, Scott]

I prefer the subdivisions handle their own runoff, however that will be fine to drain the lots to the street. We will need to have a grading plan that shows that it is possible. I thought the previous grading plan showed the elevations in the street RW higher than the proposed spot elevation.

We have modified the grading plan to provide positive drainage from the lot corners to the street ditch. 18" RCP Culvert pipes with flows have been added to the grading plan.

4. A hydraulic model of the unnamed tributary of Spring Branch should be extended from Spring Branch that identifies the BFE of the drainage way within Reserve E. The 100-yr flood limits should be delineated. It appears on system 300 a 1315 was used as a tail water condition, how was this determined? How was the min. pad elevation of 1317 was determined?

This information is contained on FEMA Panel 200321 0225A, and verified by the Spring Branch Master Drainage Plan, City of Wichita, Kansas, prepared by PEC December of 2004. I have attached a copy of the FIRM map with the report. The FIRM Map shading extends into Reserve E as Zone B. The minimum pad was set by Ruggles & Bohm to be 2.0 feet above the FEMA BFE.

[Lindebak, Scott]

The drainage creek immediately south is an u/s unstudied tributary to Spring Branch and would have its own HGL, different from what was calculated by PEC.

Attached are the results of the HEC-RAS run. We are adjusting the low openings on the subject lots to 2' above the new elevation.

5. The peak flow rates for the minor storms should be evaluated in the drainage report, in addition to the 100-year event.

Flow rates for both the two year and one hundred storm are calculated for the storm water sewer sizing. The two, five, and 100 year basin runoff calculations are now included in the plan. Since each of the interior storm water sewer systems is designed for the 100 year event, the two year event is more than satisfied.[Lindebak, Scott]

See my new comments I have recently sent.

Attached are the HEC-HMS runs for the pre and post developed storm events.

6. The plated utility easements along the perimeter of the plat on the east and north should be labeled to include drainage.

Agreed and completed.

7. The grading plan or drainage plan should show flow arrows for the flow pattern between lots.

Done.

8. The drainage plan should include the culvert size, flow line and capacity, drainage area, etc for the entrance culverts along 127th Street.

Done.

9. A drainage agreement and easement should be obtained from the landowner to the west and south where pipe system's 100 & 200 are shown to be constructed offsite.

We are in the process of obtaining this easement.

10. A copy of the drainage report, drainage plan and grading plan should be submitted in pdf format.

Done.

11. There appears to be a significant amount of runoff to the east line of the plat that must be contained within a 10 foot utility and drainage easement. This area should be in a drainage reserve as shown, since this drainage handles street right-of-way, offsite drainage, and piped stormwater sewer systems. Please evaluate how the drainage is going to be contained and make ninety degree turns at Lot 5, Block 3. This area may need to consider extending additional stormwater sewer.

We visited about this, and have submitted a storm water drain project that will allow the extension of a SWS pipe further to the north if necessary. We will continue to work with the owner on this rear yard system.
[Lindebak, Scott]

I am fine with the drainage proposal as long as the drainage easement is increased.