Haley Village Addition
Drainage Plan
December 2009

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements	X		Sheet 8		
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Sheet 8		
L. Flow paths	X		Sheet 5		
M. Location and dimensions of existing channels, bridges or culvert crossings		X	None		
N. Existing conditions hydrologic analysis for runoff rates, volumes and velocities showing methodologies used and supporting calculations (2, 5, 10, 25 & 100 year, 24-hour storm events) or Critical Duration	X		Sheet 1		
O. Assumed pre-developed runoff curve numbers		X	Rational Method		
P. Existing time of concentrations used in calculations		X	Rational Method		
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site		X			
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)	X		Sheet 8		
S. Cross-section data for open channels		X	NONE		
T. Ground water elevations, if applicable		X	NOT AVAILABLE		

	Applicant			Engr	
Tab 3. Post-Development Hydrologic Analysis	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Proposed (post-development) conditions hydrologic and hydraulic analysis for runoff rates, volumes, HGL, and velocities showing the methodologies used and supporting calculations for all applicable design storms (2, 5, 10, 25 & 100 year, 24-hour storm events)	X		Sheet 6		
B. Proposed time of concentrations used in calculations		X	Rational Method		
C. Assumed post-developed runoff curve numbers		X	Rational Method		
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)		X	None		
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration	X		Sheet 8		
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities		X	None		
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary	X		Sheet 6		
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)	X		Sheet 8		
I. Design water surface elevations and normal pool elevation for ponds.		X	None		
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.		X	None		
K. Proposed limits of clearing and grading	X		Entire Site		
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.	X		Sheet 8		
M. Location of existing and proposed utilities (e.g., water, sewer) and easements	X		Sheet 8		
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Sheet 8		
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings		X	None		

Consulting Engineer Initials

Adopted: February 23, 2007

CITY OF WICHITA

Public Works, Engineering Division
Final Drainage Plan Submittal Checklist

Reviewer:_____ Date:_____

Subdivision Name: HALEY Village Addition Location: 44th S and Victoria St

Total Land Area Of Ownership: 0.83 Acres

Type: X Residential _____Commercial _____Industrial _____Recreation _____Municipal _____Other

Applicant: Habitat for Humanity Contact: Linda Stewart Phone #: 269.0755

Engineer: Ruggles and Bohm Contact: Eric Glover Phone # 264.8008

Please check the appropriate box: I = Included; NA = Non-Applicable; R= Required prior to development
(If "NA" is checked, an explanation must be entered)

	Applicant			Engr	
Tab 1. Project Narrative	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Site Location Map, using USGS Map	X		Sheet 2		
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain	X		Sheet 1		
C. Discussion of offsite conditions	X		Sheet 1		
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series	X		Sheet 1		
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design	X		Sheet 6		
F. Copy of the plat	X		Sheet 2		
G. Preliminary grading plan (The final grading plan shall be sealed, signed and dated prior to Engineering receiving the final sanitary sewer plans. One plan sheet and PDF shall be submitted to the Subdivision Engineer.)	X		Sheet 7		
H. Professional Engineer seal, signature and date on cover of report	X				
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover	X				

	Applicant			Engr	
Tab 2. Existing Conditions Runoff Calculations	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Copy of applicable orthophoto showing proposed project boundaries (preferable in color)	X		Sheet 2		
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)	X		Sheet 1		
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)	X		Sheet 4		
D. Total Site Area and Total Impervious Area (acres)	X		Sheet 4		
E. Benchmarks used for site control	X		Sheet 4		
F. Streams, creeks, and waterway labeled		X	NONE		
G. Predominant soils from USDA soil surveys, and/or on site soil borings	X		Sheet 1		
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted		X	None		
I. Location of existing roads, buildings, parking lots and other impervious areas.	X		Sheet 4		

Consulting Engineer Initials

P. Preliminary selection and location of stormwater controls	X		Sheet 8		
Q. Emergency overflow structure's flow path	X		sheet 7		
R. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)		X	None		
S. The 100-year 24-hour HWL delineated on the plan for detention pond		X	None		
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds		X	None		
U. Stormwater Management Facilities located within a Reserve		X	None		
V. Maintenance responsibility of stormwater management facility shall be specified in the platters text. (e.g. HOA, Lot Owners Association, or lot)		X	None		
W. Off-site drainage easements or agreements required, where necessary		X	None		

	Applicant			Engr	
Tab 4. Floodplain Submittal	I	NA	Explanation / Location in Plan	I	NA
A. Provide source of flood profile		X			
B. Nearest base flood elevations		X			
C. Delineation of pre-developed regulatory floodplain/floodway limits		X			
D. Delineation of post-developed regulatory floodplain and floodway limits		X	This project		
E. Floodplain boundary determination per elevation (project limits shown)		X	is not within		
F. Provide source of floodway data table and discharges		X	a FEMA		
G. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone A area elevation determinations and flood plain map revisions or required permits		X	Designated floodway.		
H. Provide regulatory floodway and four natural profile models (10,50,100, and 500-yr) for existing and future watershed conditions		X			
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)		X			
J. Flood plains and floodways located within a Reserve, where necessary		X			

	Applicant			Engr	
Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	**I/R**	**NA**	**Explanation / Location in Plan**	**I/R**	**NA**
			N/A		
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)		X	N/A		
B. Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Flood Plain Fill, Levee, Water Appropriations, Dam safety permit, etc.)		X	N/A		
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) Shall be included and approved when project modifies the limits of the floodway.		X	N/A		
D. Kansas Department of Transportation		X	N/A		
E. Sedgwick County Right-of-way Permit		X	N/A		

Consulting Engineer Initials

Haley Village Drainage Plan

Haley Village Addition is a 0.83 acre infill project site in South Wichita. The site will be subdivided into 5 residential lots. In the existing condition, water flows across the site onto an adjoining street and then into an existing storm sewer system. There is a small portion of the adjacent property that drains onto the proposed site. An existing storm sewer picks up runoff from the properties to the West. After development grassed lawns will prevent silt transportation in drainage easements.

Runoff Summary:

Return Period	2yr	5yr	10yr	25yr	100yr
Existing Q_{100} (cfs)	1.26	1.60	2.09	2.61	3.76
Developed Q_{100} (cfs)	2.41	2.97	3.72	4.62	5.97

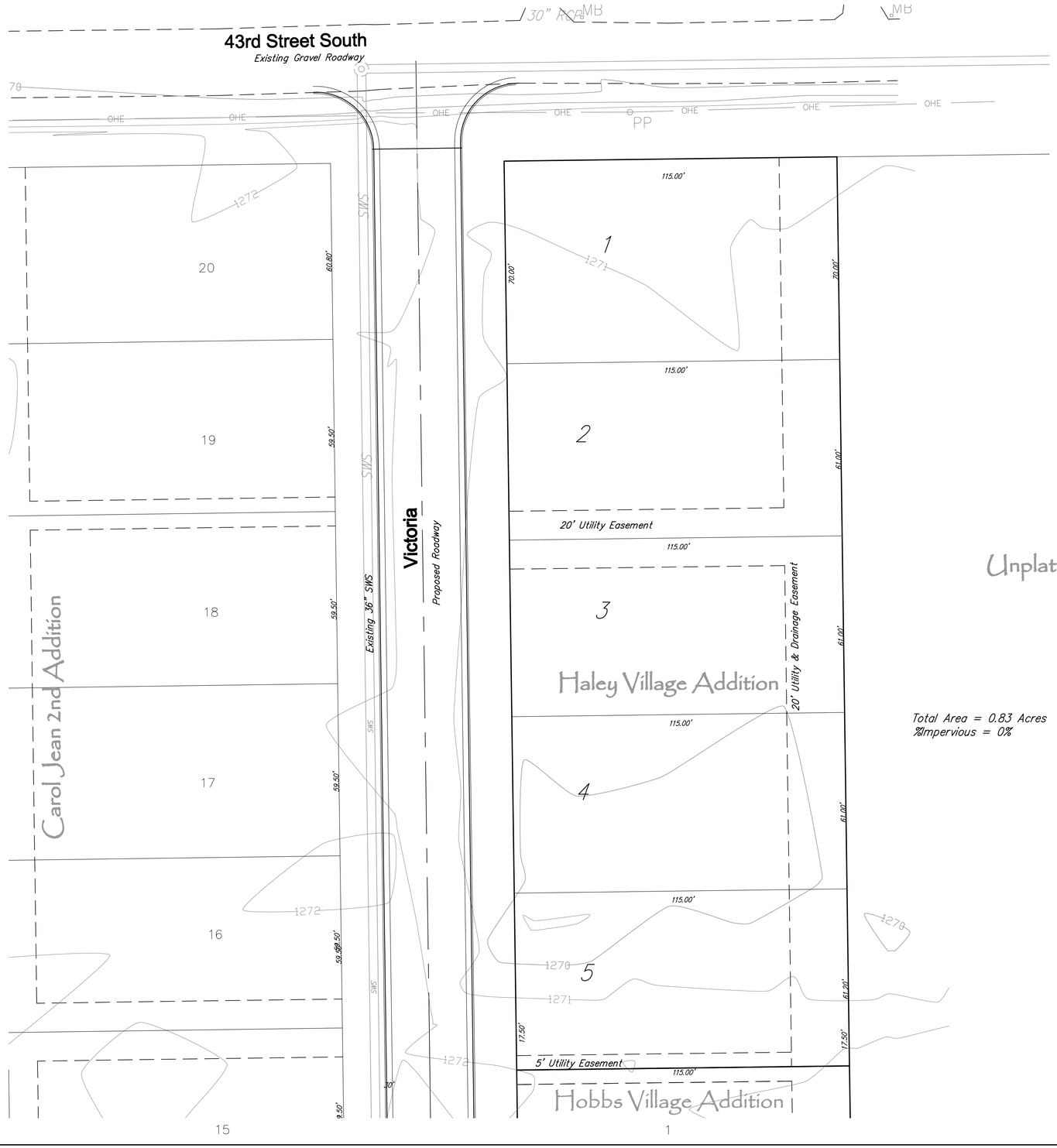
Existing Site Conditions

The site is currently not used in any capacity. From the web soil survey the onsite soils are Candian-Waldeck fine sandy loam, hydrologic soil group B. The site is not in any FEMA Flood designation area. There are no wetland, riparian or flood plain areas located within the proposed site.

Storm	2yr	5yr	10yr	25yr	100yr
C	0.33	0.35	0.40	0.43	0.51
I (in/hr)	3.83	4.56	5.22	6.06	7.37
A (acres)	1.0	1.0	1.0	1.0	1.0
Q (cfs)	1.26	1.60	2.09	2.61	3.76

Developed Conditions

Single family homes are to be constructed on each of the 5 proposed lots. The rear yards will drain through a swale within a drainage easement and then into a proposed storm sewer to be connected to an existing system. The rest of the site will drain into streets and then into an existing storm sewer system. The Q is increased in the developed condition for each storm event but considering the insignificance of the volumes for each event there should be no noticeable impact on the existing system.



Total Area = 0.83 Acres
%Impervious = 0%

BENCH MARKS

BENCH MARK #1: CHISELED SQUARE AT THE WEST CURB RETURN AT THE SOUTHWEST CORNER OF VICTORIA AND 44TH STREET SOUTH
ELEVATION = 1270.50 (NAVD88)

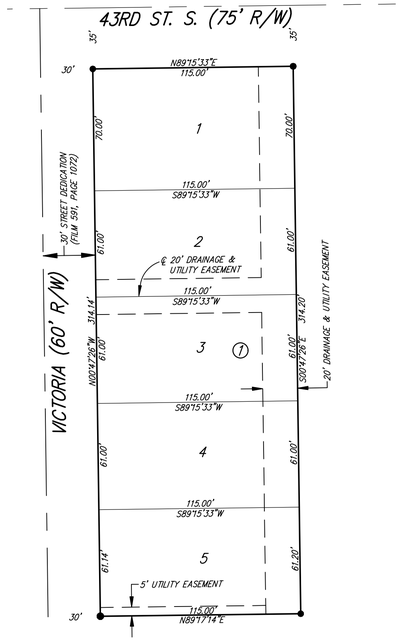
HALEY VILLAGE ADDITION
Existing Contours
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main (316) 264-8008
Wichita, Kansas 67203 (316) 264-4621 fax
www.rbkansas.com

DESIGN	EJG
DRAWN	EJG
REVIEW	
UTILITY	
DATE	Dec. 9, 2009
RB JOB	3550P
SHEET	4 OF 9
DRAWING FILE	DRAINAGE BASE [Existing Contours]
PROJECT NUMBER	.

HALEY ADDITION

Wichita, Sedgwick County, Kansas



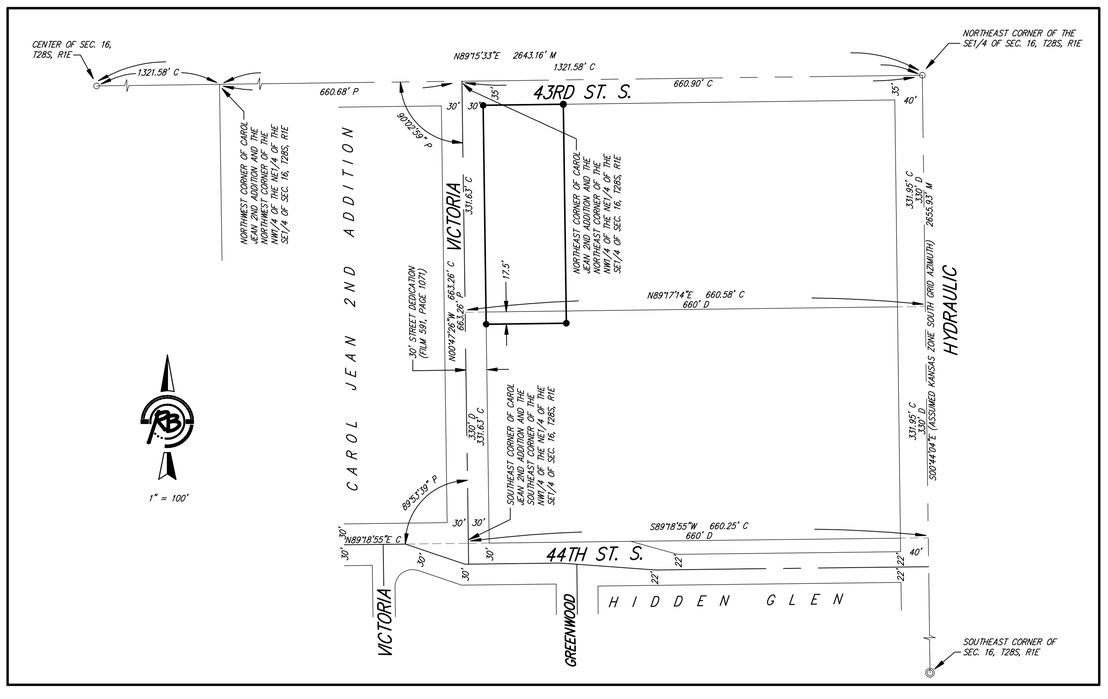
1" = 40'

M = Measured
D = Described
C = Calculated
P = Platted (Carol Jean 2nd Addition)

SURVEY MARKER LEGEND

○ . . . . . 1/2" IRON PIPE (FOUND - ORIGIN UNKNOWN)
◎ . . . . . 1/2" IRON PIPE IN THIMBLE (FOUND - ORIGIN UNKNOWN)
● . . . . . 5/8" REBAR W/RUGGLES & BOHM CAP (SET)

BENCH MARK: CHISELED SQUARE AT THE WEST CURB RETURN AT THE SOUTHWEST CORNER OF VICTORIA AND 44TH ST. S.
ELEVATION = 1270.50 (NAVD88)



1" = 100'

State of Kansas)
Sedgwick County) SS

We, Ruggles & Bohm, P.A., Land Surveyors in aforesaid county and state, do hereby certify that, under the supervision of the undersigned, we have surveyed and platted "HALEY ADDITION", Wichita, Sedgwick County, Kansas, and that the accompanying plat is a true and correct exhibit of the property surveyed, described as follows:

The east 115.00 feet of the west 145.00 feet of a tract beginning at the northeast corner of the SE1/4 of Section 16, Township 28 South, Range 1 East of the Sixth Principal Meridian, Sedgwick County, Kansas; thence south 20 rods; thence west 40 rods; thence north 20 rods; thence east to the point of beginning, EXCEPT the north 35 feet for road, TOGEGHER WITH The north 17.50 feet of the East 115.00 feet of the West 145.00 feet of a tract beginning 330.00 feet south of the Northeast corner of the SE1/4 of Sec. 16, T28S, R1E of the 6th P.M., Sedgwick County, Kansas; thence south 330.00 feet; thence west 660.00 feet; thence north 330.00 feet; thence east 660.00 feet to the point of beginning.

All public easements and dedications are hereby vacated by virtue of K.S.A. 12-512(b).

Ruggles & Bohm, P.A.

_____ Land Surveyor
Thomas C. Ruggles

Know all men by these presents that we, the undersigned, have caused the land described in the surveyor's certificate to be platted into Lots and a Block, to be known as "HALEY ADDITION", Wichita, Sedgwick County, Kansas. Utility Easements are hereby granted for the construction and maintenance of all public utilities. Drainage Easements are hereby granted to the public as indicated for drainage purposes. A drainage plan has been developed for this plat; the property shall remain at established grades, or as modified with the approval of the City Engineer, and unobstructed to allow for the conveyance of storm water.

Wichita Habitat for Humanity, Inc.

_____ Executive Director
Linda Stewart

State of Kansas)
Sedgwick County) SS

The foregoing instrument acknowledged before me, this _____ day of _____, 200__, by Linda Stewart, Executive Director, on behalf of Wichita Habitat for Humanity, Inc.

_____ Notary Public

My appointment expires _____

This plat of "HALEY ADDITION", Wichita, Sedgwick County, Kansas, has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this ____ day of _____, 200__.

Wichita-Sedgwick County Metropolitan Area Planning Commission

_____ Chair
G. Nelson Van Fleet

_____ Secretary
John L. Schlegel

This plat approved and all dedications shown hereon accepted by the City Council of the City of Wichita, Kansas, this ____ day of _____, 200__.

At the Direction of the City Council

_____ Mayor
Carl Brewer

_____ City Clerk
Karen Sublett

Reviewed in accordance with K.S.A. 58-2005 on this _____ day of _____, 200__.

Deputy County Surveyor
Sedgwick County Kansas
_____
Tricia L. Robello, LS #1246

Entered on transfer record this ____ day of _____, 200__.

_____ County Clerk
Kelly B. Arnold

State of Kansas)
Sedgwick County) SS

This is to certify that this plat has been filed for record in the office of the Register of Deeds, this ____ day of _____, 200__, at ____ o'clock___ M, and is duly recorded.

_____ Register of Deeds
Bill Meek

_____ Deputy
Tonya Buckingham

DWG FILE: SURVEY BASE
PROJECT NO. 3550P
DECEMBER 10, 2009

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
604 North Main
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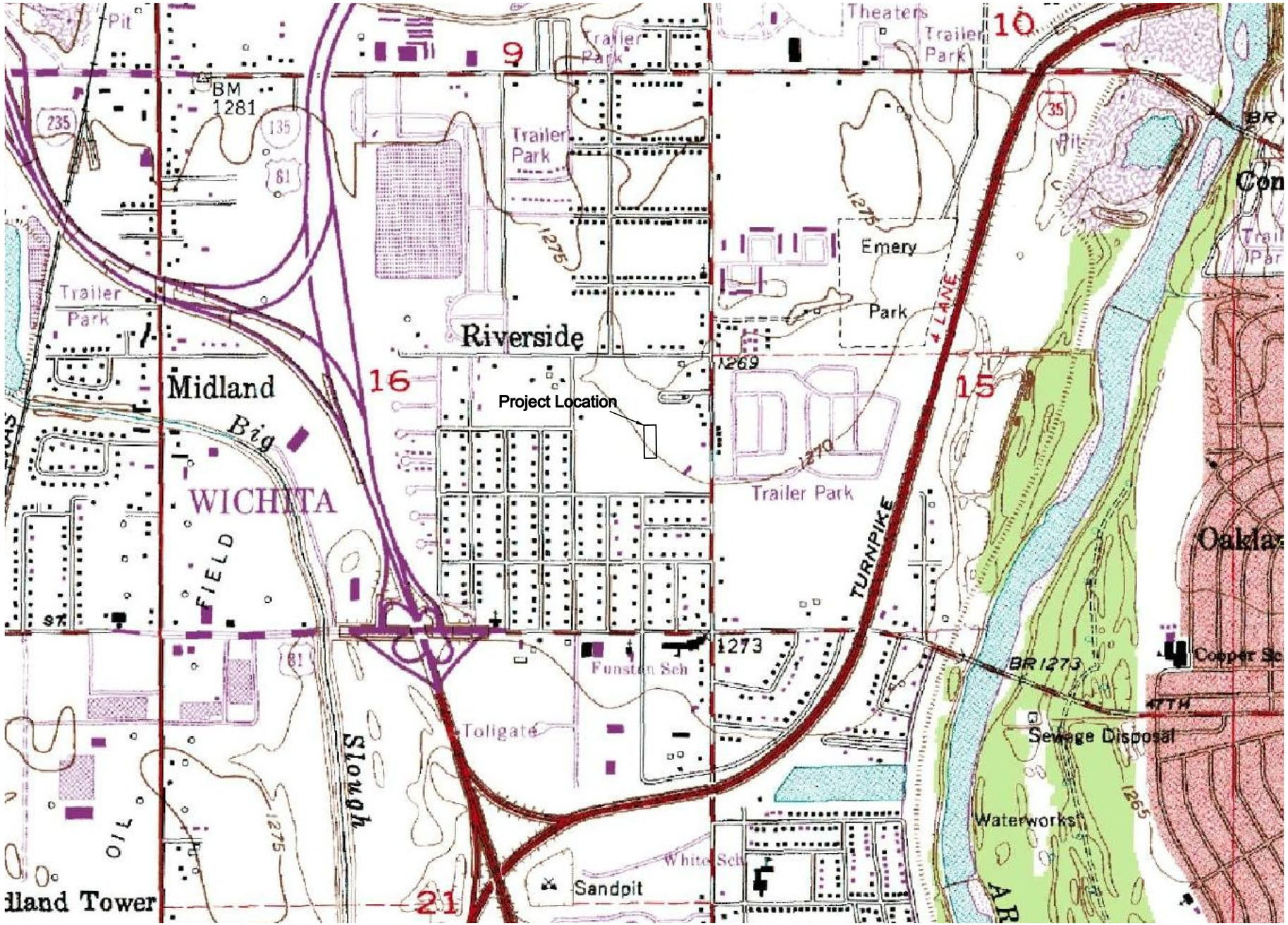

Haley VIllage Addition
USGS MAP
WICHITA, KANSAS

Ruggles & Bohm, P.A.
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Wichita, Kansas 67203 (316) 264-4621 fax
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DESIGN	EJG
DRAWN	EJG
REVIEW	
UTILITY	
DRAWING FILE	DRAINAGE BASE {USGS}
PROJECT NUMBER	.
DATE	Dec. 9, 2009
RB JOB	355DP
SHEET	2 OF 9

30 0 30'

BENCH MARKS

BENCH MARK #1: CHISELED SQUARE AT THE WEST CURB RETURN AT THE SOUTHWEST CORNER OF VICTORIA AND 44TH STREET SOUTH
ELEVATION = 1270.50 (NAVD88)

HALEY VILLAGE ADDITION
Aerial Photo
WICHITA, KANSAS

Ruggles & Bohm, P.A.
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Wichita, Kansas 67203 (316) 264-4621 fax
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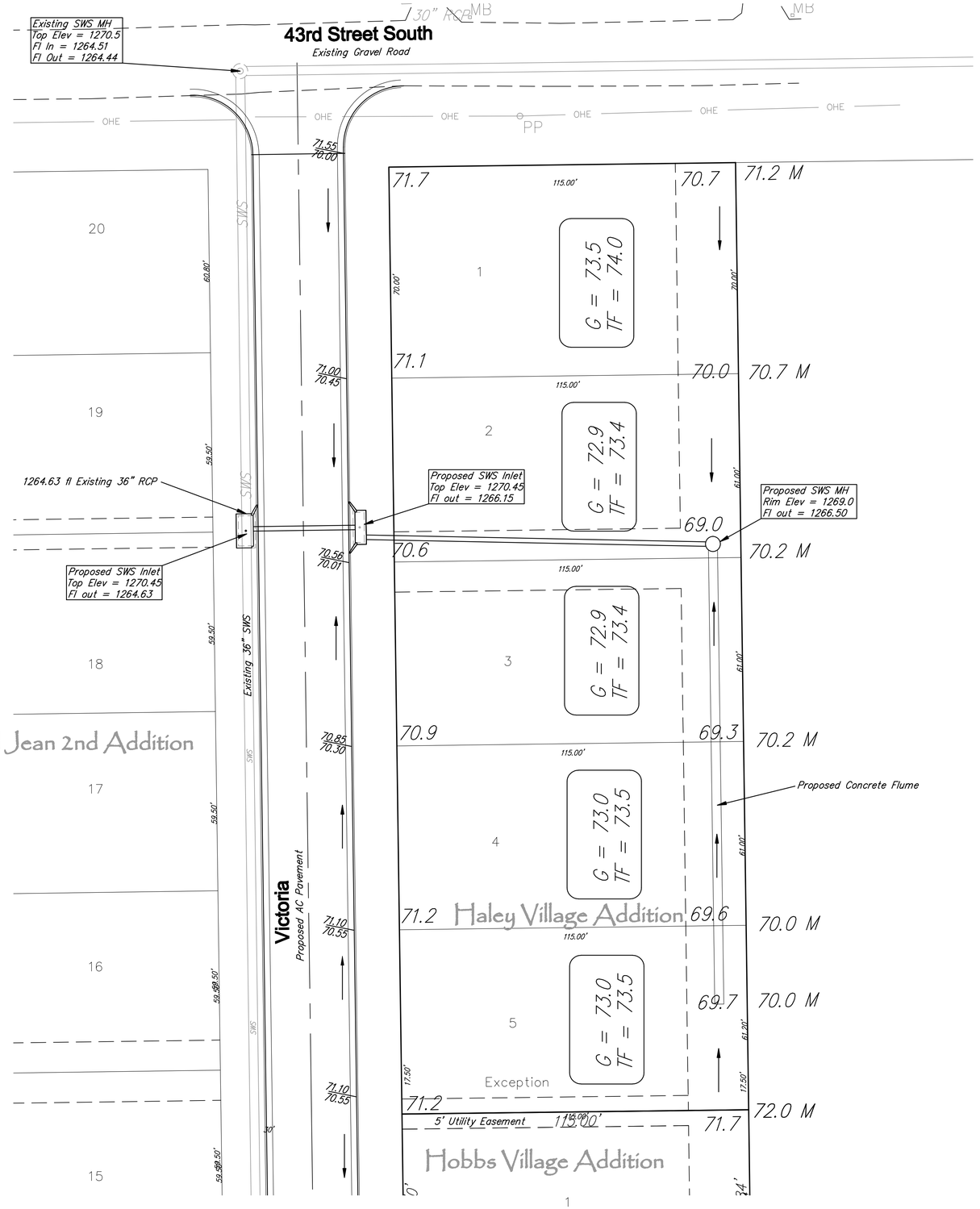
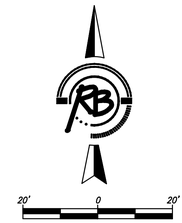
DESIGN	EJG
DRAWN	EJG
REVIEW	
UTILITY	
DATE	Dec. 9, 2009
RB JOB	3550P
SHEET	5 OF 9

DRAWING FILE	PROJECT NUMBER
DRAINAGE BASE [Existing Contours]	.





HALEY VILLAGE ADDITION
Grading Plan
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main (316) 264-8008
Wichita, Kansas 67203 (316) 264-4621 fax
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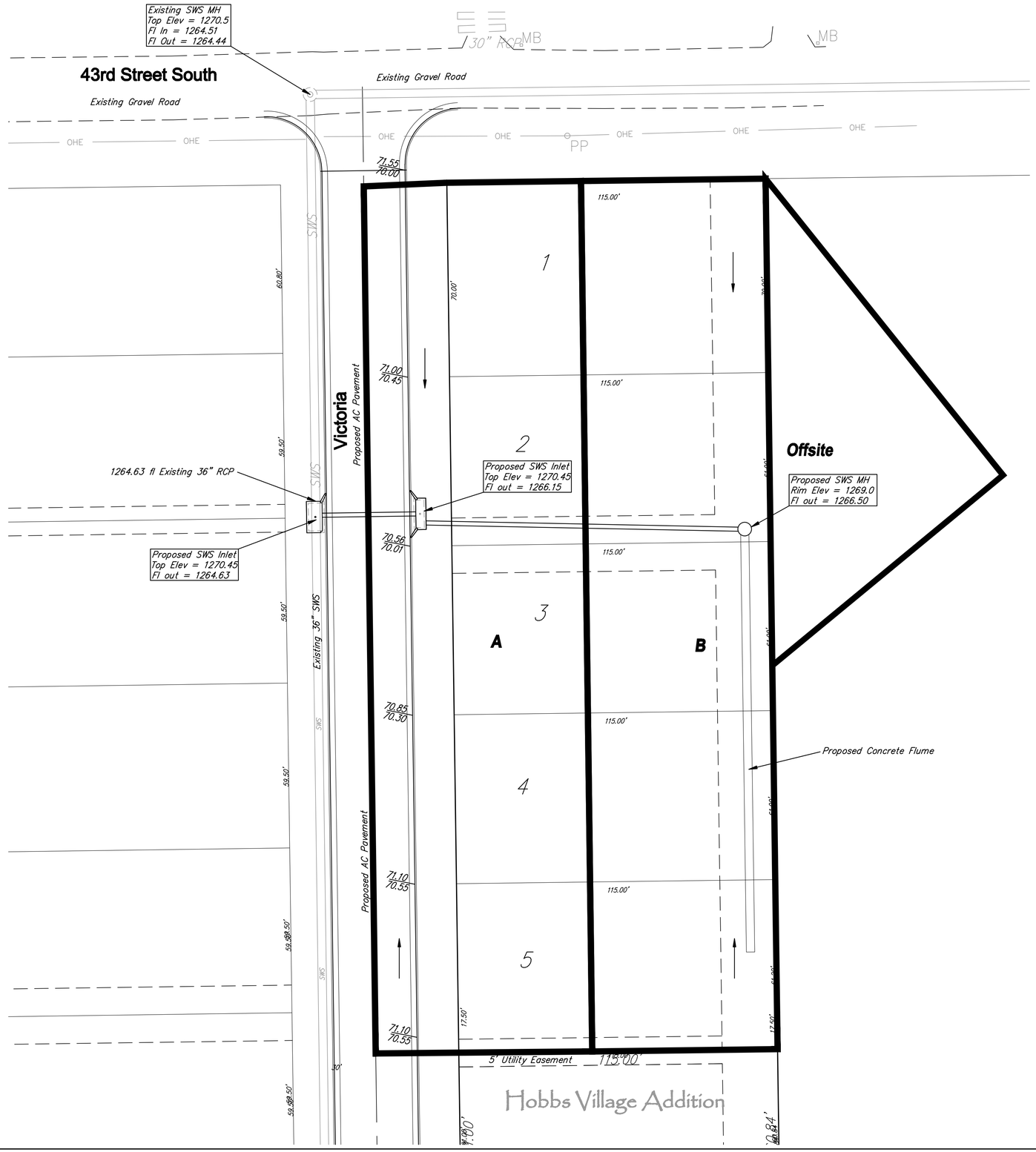
DRAINAGE BASE (Grading Plan)

PROJECT NUMBER
.

DESIGN EJG
DRAWN EJG
REVIEW
UTILITY
DATE Dec. 9, 2009

RB JOB 3550P

SHEET 7 OF 9



BASIN	AREA	C_2	Q_2	C_5	Q_5	C_{10}	Q_{10}	C_{25}	Q_{25}	C_{100}	Q_{100}
A	0.56	0.52	1.11	0.54	1.37	0.59	1.72	0.63	2.14	0.67	2.76
B	0.48	0.52	0.96	0.54	1.18	0.59	1.48	0.63	1.83	0.67	2.37
Offsite	0.17	0.52	0.34	0.54	0.42	0.59	0.52	0.63	0.65	0.67	0.84

RAINFALL INTENSITIES: I_2 = 3.83; I_5 = 4.56, I_{10} = 5.22; I_{25} = 6.06; I_{100} = 7.37

HALEY VILLAGE ADDITION
Drainage Basins
WICHITA, KANSAS

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Wichita, Kansas 67203 (316) 264-4621 fax
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DESIGN	EJG
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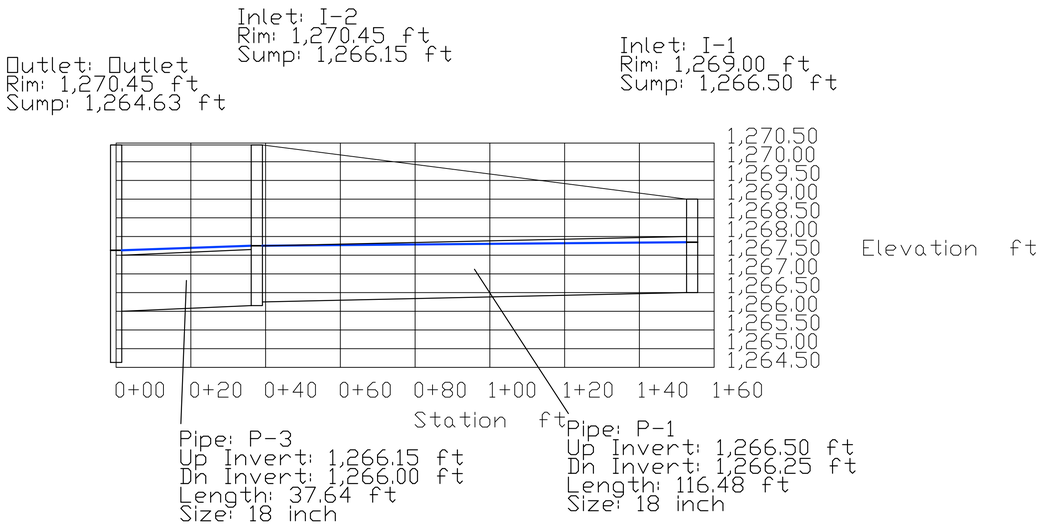
DRAWING FILE	DRAINAGE BASE {Drainage Basins}
PROJECT NUMBER	.
DATE	Dec. 9, 2009
RB JOB	3550P
SHEET	8 OF 9



ADDITION

StormCAD Profiles

WICHITA, KANSAS

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RB JOB	3550P
SHEET	9 OF 9