Drainage Report

Trans-Net Addition,

To Wichita, Sedgwick County, Kansas

September 2008
(Revised: October 2008)

kemiller engineering

516 S. Market
Wichita, Kansas 67202
(316) 264-0242

KIRK E. MILLER
LICENSED
11283
10/6/08
KANSAS
PROFESSIONAL ENGINEER

Table of Contents

Drainage Report

Trans-Net ADDITION

Introduction

The subject property is located on the west side of Tyler Road, about 1/5 mile south of 29th St. The property is currently un-platted, developed and is zoned as Single family SF-5. The tract of land is about 1.81 acres total. The property is being platted into one lot under the name Trans-Net Addition. The tract of land is owned by USD 266 – Maize, and is being platted because of the addition of a building.

Current Conditions

The site is served by City of Wichita utilities. The land currently has a concrete paved parking lot on east of the area and entrance and exit driveways. The rest of the area is unpaved and covered with grass. There are single family developed areas on the west and north of the area and multi family developed area on south. The soils are a Type C, with a moderate runoff coefficient. There are no signs of wetlands and the land is not in a floodplain. The paved parking area on East side drains to the east and rest of the portion drains to the area on southwest side. There is no other drainage management except surface drainage. The area of land drains the water at an average slope of 1.3%.

The attached plat with topography shows existing features including contours, utilities, storm sewer, and proposed easements.

Proposed Improvements

The site will be developed for school use with an additional building added. The lot will drain all the water from east to southwest as shown on the attached drainage plan. A dry detention pond will be constructed on the Southwest corner of the property to catch water coming out of the property. The runoff from the pond will be drained into the existing storm water system on Tyler road. A Storm water manhole will be installed to tie the pipe coming out of the pond into the existing 24" storm water pipe.

The Trans-Net Addition dictates 100 year peak runoff of 5.49 cfs in undeveloped and 10.27 cfs in developed condition. A dry detention pond of 2188.0 sq ft on southwest corner of the property will be able to detain the excess water from the property. A 15" pipe will drain the excess water from pond to the existing 24" SWS line on Tyler.

Best management practices for erosion control will include seeding disturbed areas and installing city approved measures. The attached drainage plan shows the calculations of the existing and developed peak runoffs including assumed coefficients and conditions and proposed improvements in storm water.

Site Hydrological Analysis

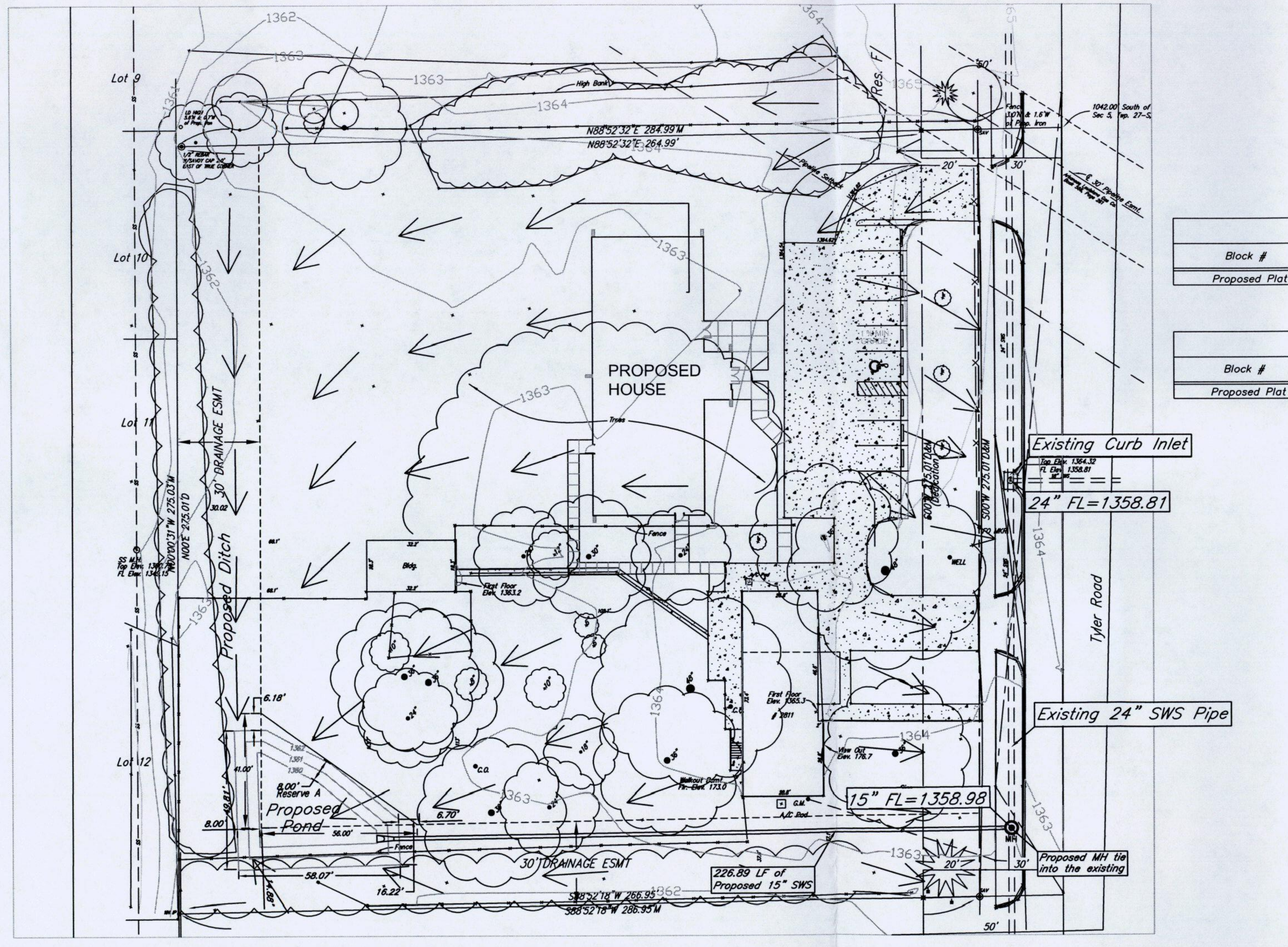
Existing and proposed site conditions have been modeled using the rational method. The Values for Rainfall Intensity and Runoff Coefficients were established using the *Drainage and Storm Sewer Policy for Design Criteria and Documentation, City of Wichita, Kansas.* A time of concentration of 15 minutes was used as it is the minimum inlet time. A proposed time of concentration of 15 minutes was also used.

Future Development

There will be one additional structure built at this time.

Appendix A

Drainage Plan
Final Plat
USGS map with area highlighted
Aerial Photograph



Undeveloped Site Drainage

Block #	Acres	Tc	C5	I5	C100	I100	Q5	Q100
Proposed Plat	1.81	35.5 min	0.40	2.96	0.61	4.97	2.14cfs	5.49cfs

Proposed Site Drainage

Block #	Acres	Tc	C5	I5	C100	I100	Q5	Q100
Proposed Plat	1.81	15 min	0.63	4.56	0.77	7.37	5.20cfs	10.27cfs

Site Improvement

Area	Acres
Building Area	0.17
Concrete paved Area	0.25
Grassed Area	1.39

(IN FEET)
1 inch = 20 ft.

Trans-Net Addition
Drainage Plan
Wichita, Kansas

kemiller engineering
318 S. Market, Wichita, KS 67202 316/264-0242

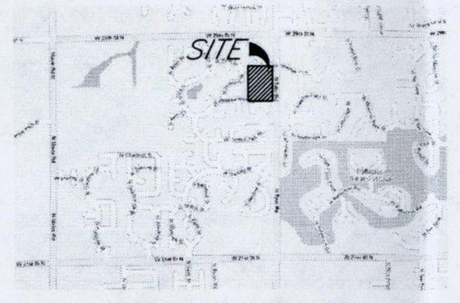
KEM NO.	FILE	DATE	SHEET
08138	drainage	09/2008	1
DESIGN	DRAWN	REVISED	OF
KM	GP		1

ONE-STEP PLAT OF
Trans-Net Addition
WICHITA, SEDGWICK COUNTY, KANSAS

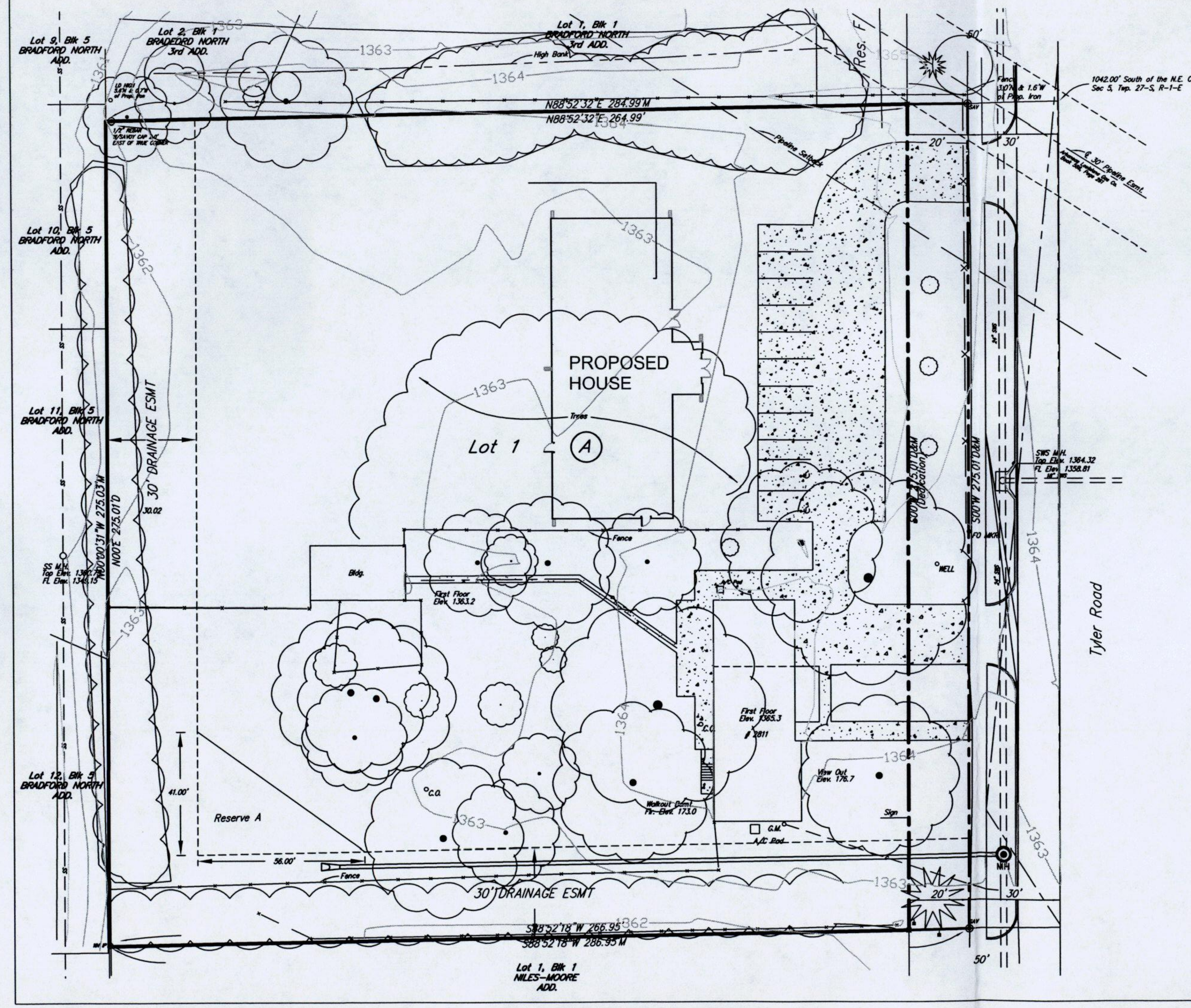
Part of the Northeast 1/4, Section 5, Township 27 South, Range 1 West of the 6th. P.M.

LEGEND

- ● ½" Iron Pin (found)
- ⊠ 5/8" Rebar (set) RLS #1294
- ◉ ½" Iron Pin w/Savoy cap (found)
- (P) Platted measurements from record
- (D) Described measurements from deed
- (M) Measured from actual field location
- =Fire Hydrant
- =Water Valve
- =Water Meter
- =Telephone Riser
- =Power Pole
- =Benchmark with elevation
- =Existing Sanitary Sewer
- =Existing underground Telephone
- =Existing Gas Line
- =Existing Overhead Electric
- =Existing Water line
- =Existing Fence
- =Existing Center line of road



LOCATION MAP



State of Kansas)
County of Sedgwick) SS

I, Randall L. Elkins, a licensed land surveyor of the State of Kansas, do hereby certify that the following described tract of land was surveyed on the 11th day of September, 2008 and the accompanying final plat prepared and that all the monuments shown herein actually exist and their positions are correctly shown to the best of my knowledge and belief:

Described as the Trans-Net Addition, Wichita, Sedgwick County, Kansas, beggining 1042 ft South of the Northeast Corner of the NE ¼, West 317 ft, South 275 ft, East 317 ft, Excluding existing 30 ft Right-of-Way on Tyler Road.

All being situated in the NE ¼ of Section 5, Township 27-S, Range 1, West to the 6th P.M., Sedgwick County, Kansas.

Said tract contains 1.81 acres ±.

All easements and rights-of-way within said lots are hereby vacated by virtue of KSA 12-512(b) amended.

____
Randall L Elkins, L.S. #1294 Date

State of Kansas)
County of Sedgwick) ss

Know all men by these presents, that we, the undersigned, have caused the land described in the surveyor's certificate to be platted into a Lot and Block to be known as Trans-Net Addition, Wichita, Sedgwick County, Kansas. Any easements are hereby granted as indicated for constructing, maintaining, operating, and repairing public utilities. A drainage plan has been developed for the plat and 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. And further that the land contained herein is held and shall be conveyed subject to any applicable restrictions, reservations and covenants now on file or hereafter filed in the Office of the Register of Deeds of Sedgwick County, Kansas.

Access Control is hereby granted as follows:
1. There shall be a maximum of 2 openings on Tyler Road.

By:________________________________
Maize USD 266, Superintendent Date

State of Kansas)
County of Sedgwick) ss

This instrument was acknowledged before me on this _____day of_______________2008, by ____________________

____
Notary Public

My Commission Expires: ____________________

State of Kansas)
County of Sedgwick) ss

This instrument was acknowledged before me on this _____day of_______________2008, by ____________________

____
Notary Public

My Commission Expires: ____________________

State of Kansas)
City of Wichita) ss

This plat of Transnet 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 _________, 2008. Wichita-Sedgwick County Metropolitan Area Planning Commission.

____
M.S. Mitchell, Chairman

____
John L. Schlegel, Secretary

State of Kansas)
City of Wichita) ss

This plat approved and all dedications shown hereon accepted by the City Council of the City of Wichita, Kansas, this_____ day of________, 2008.

At the Direction of the City Council

____
Carl Brewer, Mayor

____
Karen Sublett, City Clerk

Entered on transfer record this _____ day of ____________, 2008.

____
Donald Brace, County Clerk

State of Kansas)
County of Sedgwick) ss

This is to certify that this plat has been filed for record in the Office of the Register of Deeds this____day of______, 2008, at ______ o'clock__M; and is duly recorded.

____
Bill Meek, Register of Deeds

____
Tonya Buckingham, Deputy

Reviewed in accordance with K.S.A. 58-2005 on this_____day of__________, 2008.

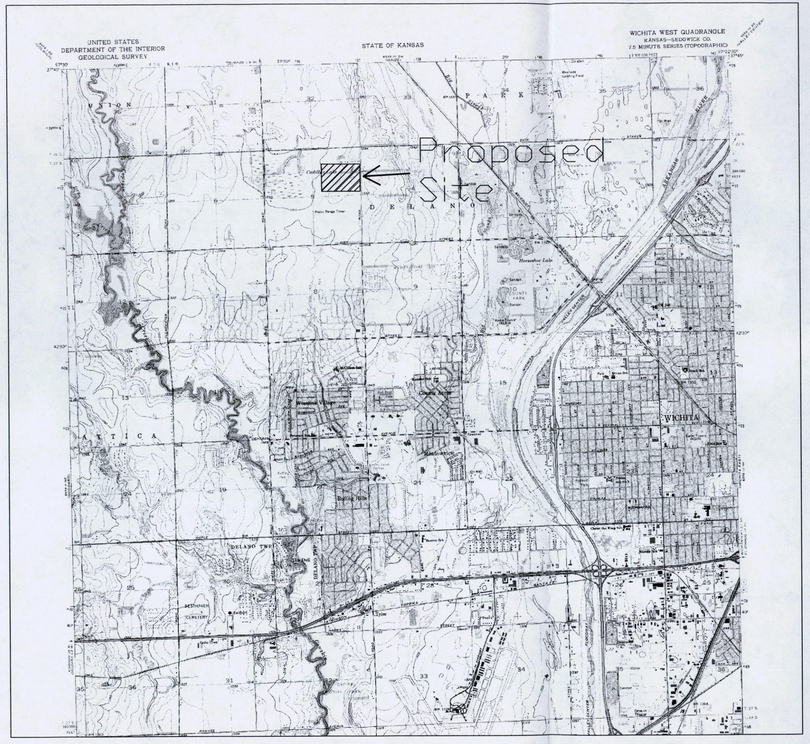
____
Tricia L. Robello, L.S. #1246
Deputy County Surveyor
Sedgwick County, Kansas

B.M. "□" cut in top of curb on north side of curb inlet 1162.9'S from the N.E. Cor. of the NE1/4 of Sec. 5, Twp. 27-S, R-1-W of the 6th P.M. & 30'W of centerline of Tyler Road
Elev. 1364.18 (NAVD 88)

20 40 0 20
(IN FEET)
1 inch = 20 ft.

Filename: 08138 TRANS-NET PLAT

kemiller engineering
516 S. Market, Wichita, KS 67202 316/264-0242



Trans-Net Addition
USGS Map
Wichita, Kansas

PROJECT NUMBER

kemiller engineering

FCM NO.	FILE	DATE	SHEET
081.10	usgs	09/2008	1
DESIGN	DRAWN	REVISED	OF
KM	CP		1

316 S. Market, Wichita, KS 67202 316/264-0242

Trans-Net Addition
Aerial Map
Wichita, Kansas

kemiller engineering	PROJECT NUMBER			
	KEM NO. 08138	FILE aerial	DATE 09/2008	SHEET 1
516 S. Market, Wichita, KS 67202 316/264-0242	DESIGN KM	DRAWN GP	REVISED	OF 1

Appendix B

Public Works, Eng. Div. Storm water checklist

Appendix C

Electronic copies of Report

CITY OF WICHITA

Public Works, Engineering Division
Stormwater Management Subdivision Submittal Checklist

Reviewer: _____ Date: _____

Subdivision Name: Trans-Net Addition Location: 2811 N Tyler Rd.

Total Land Area Of Ownership: 1.81 Acres

Type: X Residential _____ Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other

Applicant: USD #266 Contact: _____ Phone #: 722-8538

Engineer: K E Miller Eng. PA Contact: Kirk Miller Phone # 264-0242

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		App A		
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain	X		Report		
C. Discussion of offsite conditions	X		Report		
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series	X		App A		
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design	X		Report		
F. Copy of the plat	X		App A		
G. Prelim. four corner lot grading plan (The final grading plan shall be sealed, signed and dated prior to Engineering receiving the final paving and stormwater drain plans.One plan sheet and PDF shall be submitted to the Subdivision Engineer.)	X		App A		
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		App A		
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)	X		App A		
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)	X		App A		
D. Total Site Area and Total Impervious Area (acres)	X		App A		
E. Benchmarks used for site control	X		App A		
F. Streams, creeks, and waterway labeled		X			
G. Predominant soils from USDA soil surveys, and/or on site soil borings	X		Report/App A		
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted		X	No Such Features		
I. Location of existing roads, buildings, parking lots and other impervious areas	X		Plan		

Consulting Engineer Initials KM

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements	X		Plan		
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Plan		
L. Flow paths	X		Plan		
M. Location and dimensions of existing channels, bridges or culvert crossings		X			
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		Plan		
O. Assumed pre-developed runoff curve numbers	X		Plan		
P. Existing time of concentrations used in calculations	X		Plan		
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			
S. Cross-section data for open channels		X			
T. Ground water elevations, if applicable		X	Not Required		

	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		Plan		
B. Proposed time of concentrations used in calculations	X		Plan		
C. Assumed post-developed runoff curve numbers	X		Plan		
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)		X			
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration		X			
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities		X			
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary		X			
H. Dam safety analysis, where necessary		X			
I. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)		X			
J. Design water surface elevations and normal pool elevation for ponds.		X			
K. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.		X			
L. Proposed limits of clearing and grading		X	Includes Entire Site		
M. Location of existing and proposed roads, buildings, parking lots and other impervious areas.	X		Plan		
N. Location of existing and proposed utilities (e.g., water, sewer) and easements	X		Plan		
O. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Plan		
P. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings		X	No Downstream Improv		

Consulting Engineer Initials KM

Q. Preliminary selection and location of stormwater controls		X			
R. Emergency overflow structure's flow path		X			
S. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)		X			
T. The 100-year 24-hour HWL delineated on the plan for detention pond		X			
U. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds		X			
V. Stormwater Management Facilities located within a Reserve		X			
W. Maintenance of stormwater management facility specified in the platters text as the responsibility of the Homeowner or Business Association		X			
X. Off-site drainage easements or agreements required		X			

	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			
E. Floodplain boundary determination per elevation (project limits shown)		X			
F. Provide source of floodway data table and discharges		X			
G. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone A area elevation determinations and flood plain map revisions		X			
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		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**
		X			
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)		X			
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			
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) CLOMR shall be included and approved for fill placed in the regulatory floodway		X			
D. Kansas Department of Transportation		X			
E. Sedgwick County Right-of-way Permit		X			

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