

DRAINAGE PLAN
RISHEL ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS

PREPARED BY



30 APRIL 2008



DRAINAGE PLAN RISHEL ADDITION

FINAL REPORT

**Prepared by Baughman Company, P.A.
30 April 2008**

**By N. Brent Wooten, P.E.
Trevor R. Kurth, P.E.
Nicholas H. Jefferson, P.E.**

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PROJECT NARRATIVE

EXISTING CONDITIONS

The site is located along Ridge Circle just south of Taft Avenue in Wichita, Sedgwick County, Kansas. The site is currently two (2) residential homes on approximately 1.1 acres. The site is located adjacent to the west of Office Max.

There appears to be a small amount of offsite runoff from the north adjoining residential property, although the property line appears relatively flat. The overall site drains to the south, although relatively flat, and eventually into the Hoover Street Drain Dugan Tributary.

The site location is depicted on the USGS Quadrangle Sheet as Exhibit 1. The aerial photograph with existing topography can be seen as Exhibit 2.

There is no FEMA Special Flood Hazard Area on the property as of this report.

PROPOSED CONDITIONS

The proposed Rishel Addition will consist of one (1) commercial lot. The north home is expected to remain, at this time, as the south home will be removed and a commercial building with associated parking will be constructed. The site is expected to drain to the south, as it does today, via sheet flow. The runoff appears to flow south and then west and into the Ridge Circle street section. The flow then enters the tributary via stormwater sewer in the Ridge Circle ROW.

Detention is not proposed on this site at this time. The site is approximately 1 acre and is not expected to increase runoff by significant amounts.

For a half scale copy of the Plat, see Exhibit 3.

OFFSITE CONDITIONS

The site currently drains to the south via sheet flow. The surrounding properties are developed into commercial business with paved parking and drives. There are existing residential properties to the adjacent north. There appears to be a small amount of sheet flow from the north residential property that appears to travel along the rear property lines of these properties.

EXISTING CONDITIONS RUNOFF CALCULATIONS

DRAINAGE METHODS & STANDARDS

The following methods and standards, although not a complete list, were used in calculating the existing conditions runoff values.

- STORM SERIES
 - 24-hour; 2-yr, 5-yr, 10-yr, 25-yr, 100-yr Storm Events Calculated
 - 2-yr Rainfall Depth = 3.83 in/hr
 - 5-yr Rainfall Depth = 4.56 in/hr
 - 10-yr Rainfall Depth = 5.22 in/hr
 - 25-yr Rainfall Depth = 6.06 in/hr
 - 100-yr Rainfall Depth = 7.37 in/hr

- FLOW DATA
 - Existing Conditions runoff calculated using Rational Method
 - Areas per USGS Quadrangle Sheet, Aerial Photos, and Site Visits
 - Rational Runoff Coefficient: 'C' = 0.57 (Type B Soils, 1/3 acre Single Family)
 - Time of Concentration: Lag method (15 min minimum)

SITE CHARACTERISTICS

The proposed site is currently two (2) residential lots with existing homes and outbuildings. The primary soil type is Type B Soil.

The site is generally flat and appears to ultimately drain south and west and eventually into the Hoover Street Drain Dugan Tributary. There are existing commercial buildings as well as paved parking and drives on 3 sides of this property. The Aerial Exhibit can be seen as Exhibit 2.

EXISTING CONDITIONS HYDROLOGIC ANALYSIS

The site was analyzed for pre-development conditions using the Rational Method and City of Wichita standards for Intensity and Runoff Coefficients. A Rational Coefficient of 0.57 was used for existing conditions. This was based on Soil Type B with a 1/3 acre single-family cover type. This was due to approximately 30% of the site as impervious area. The time of concentration used was the City of Wichita minimum of 15 minutes.

DOWNSTREAM DRAINAGE CAPACITY

Currently, the site drains to the south and onto the adjacent commercial paved parking/drive area. This runoff then appears to drain to the south and west and down Ridge Circle to the Hoover Street Drain Dugan Tributary. The surrounding areas also appear to drain south and into this tributary. There does not appear to be any drainage problems in the area. The Hoover Street Drain Dugan Tributary is a studied FEMA SFHA and the floodplain and floodway coincide along this reach.

POST-DEVELOPMENT HYDROLOGIC ANALYSIS

DRAINAGE METHODS & STANDARDS

The following methods and standards, although not a complete list, were used in developing the drainage and grading plans.

- STORM SERIES
 - 24-hour; 2-yr, 5-yr, 10-yr, 25-yr, 100-yr Storm Events Modeled
 - Rational Method software for existing flows
 - Rational Runoff Coefficient; 'C' = 0.80 (Type B Soils, Business – Neighborhood Area)
 - Time of Concentration; Lag method, minimum Tc = 15min

- GRADING CONSTRAINTS
 - Minimum 0.5% Street & Pavement Grades (where applicable)
 - Double Curb Inlets utilized at all street sump locations (where applicable)
 - Emergency Overflows for 24-hr, 100-yr Storm Event
 - Match existing grades along all property lines

DETENTION FACILITIES

There is no detention proposed on the proposed site. The runoff, when developed, will be increased by approximately 2 cfs during the 100-year Storm Event. This increase is not expected to cause any negative effects downstream. The runoff flows to the south and into the existing tributary.

DETENTION SUMMARY

No detention is proposed on this site at this time.

DISCHARGE POINTS SUMMARY

The site currently sheet flows to the south and then to the west into Ridge Circle. The overall basin seems to flow south and into the tributary located to the south.

POTENTIAL UPSTREAM/DOWNSTREAM IMPACTS

There does not appear to be any offsite impacts related to the re-development of this property. The site will continue to sheet flow to the south and west and into the existing tributary. The tributary is currently located in a FEMA SFHA.

FLOODPLAIN SUBMITTAL

SOURCE OF FLOODPLAIN INFORMATION

The site lies within a FEMA Zone X. The site is not located within a mapped FEMA SFHA. The location of the property, on FEMA FIRM Panels 345 of 700, is attached as Exhibit 5 (for Sedgwick County, Kansas; effective February 2, 2007).

FEDERAL, STATE, & LOCAL PERMITTING

US ARMY CORPS OF ENGINEERS

We do not expect any USACOE permitting at this time.

KANSAS DEPT OF AGRICULTURE – DWR PERMITTING

There does not appear to be any DWR permitting needed on the proposed site at this time.

FEMA

There is no mapped floodplain located upon the proposed site. Therefore, no FEMA permitting is expected at this time.

KANSAS DEPT OF TRANSPORTATION

There does not appear to be any KDOT permitting needed on the proposed project.

SEDGWICK COUNTY ROW

There does not appear to be any discharge into the county ROW. No permit is expected at this time.

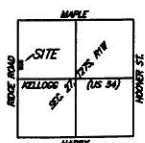
EXHIBITS

- EXHIBIT 1: Site Location Map
- EXHIBIT 2: Aerial Photo Exhibit with Topography
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- EXHIBIT 5: Floodplain Location (FIRM)

AERIAL EXHIBIT
RISHEL ADDITION
 WICHITA, SEDGWICK COUNTY, KANSAS



0 75 150
 DATE OF PREPARATION: 16 JANUARY 2007



VICINITY MAP

EXHIBIT 2
RISHEL ADDITION

29 APRIL 2004
Baughman Company, P.A.
 315 E 10th St, Wichita, KS 67211 P 316-262-7271 F 316-262-0149
 ENGINEERING | SURVEYING | PLANNING | LANDMARK ARCHITECTURE
F:\01117-VA\Drawings\Rishel Addition\02SITE1.Plot.dwg 2/20/04

ONE-STEP FINAL PLAT

RISHEL ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS

State of Kansas) SS We, *Baughman Company, P.A.*, Surveyors in Sedgwick County and state do hereby certify that we have surveyed and platted "RISHEL ADDITION", Wichita, Sedgwick County, Kansas and that the accompanying plat is a true and correct exhibit of the property surveyed, described as follows: The south 150 feet of the north 480 feet of the west 197 feet of the S1/2 of the NW1/4 of Sec. 27, Twp. 27-S, R-1-W of the 6th P.M., Sedgwick County, Kansas, together with the south 150 feet of the north 630 feet of the west 197 feet of the S1/2 of said NW1/4, all being subject to road rights-of-way of record.

Existing public easements and dedications being vacated by virtue of K.S.A. 12-512(b).
Baughman Company, P.A.

_____, Surveyor
Michael G. Conroy

This plat of "RISHEL 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

_____, Chair
M. S. Mitchell

_____, 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 _____, 2008.

_____, Mayor
Carl Brewer

_____, City Clerk
Karen Sublett

Reviewed in accordance with K.S.A. 58-2005 on this _____ day of _____, 2008.

Know all men by these presents that we, the undersigned, have caused the land in the surveyors certificate to be platted into a Lot, and a Block, to be known as "RISHEL ADDITION", Wichita, Sedgwick County, Kansas. The utility easements are hereby granted as indicated for the construction and maintenance of all public utilities. Access controls shall be as depicted on the face of the plat and are hereby granted to the City of Wichita, Kansas. The permitted access opening locations shall be as determined by the City Engineer for the City of Wichita, Kansas.

_____, Trustee
Howard Rishel

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

_____, County Clerk
Don Brace

State of Kansas) 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.

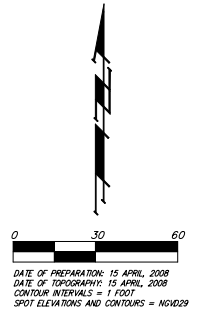
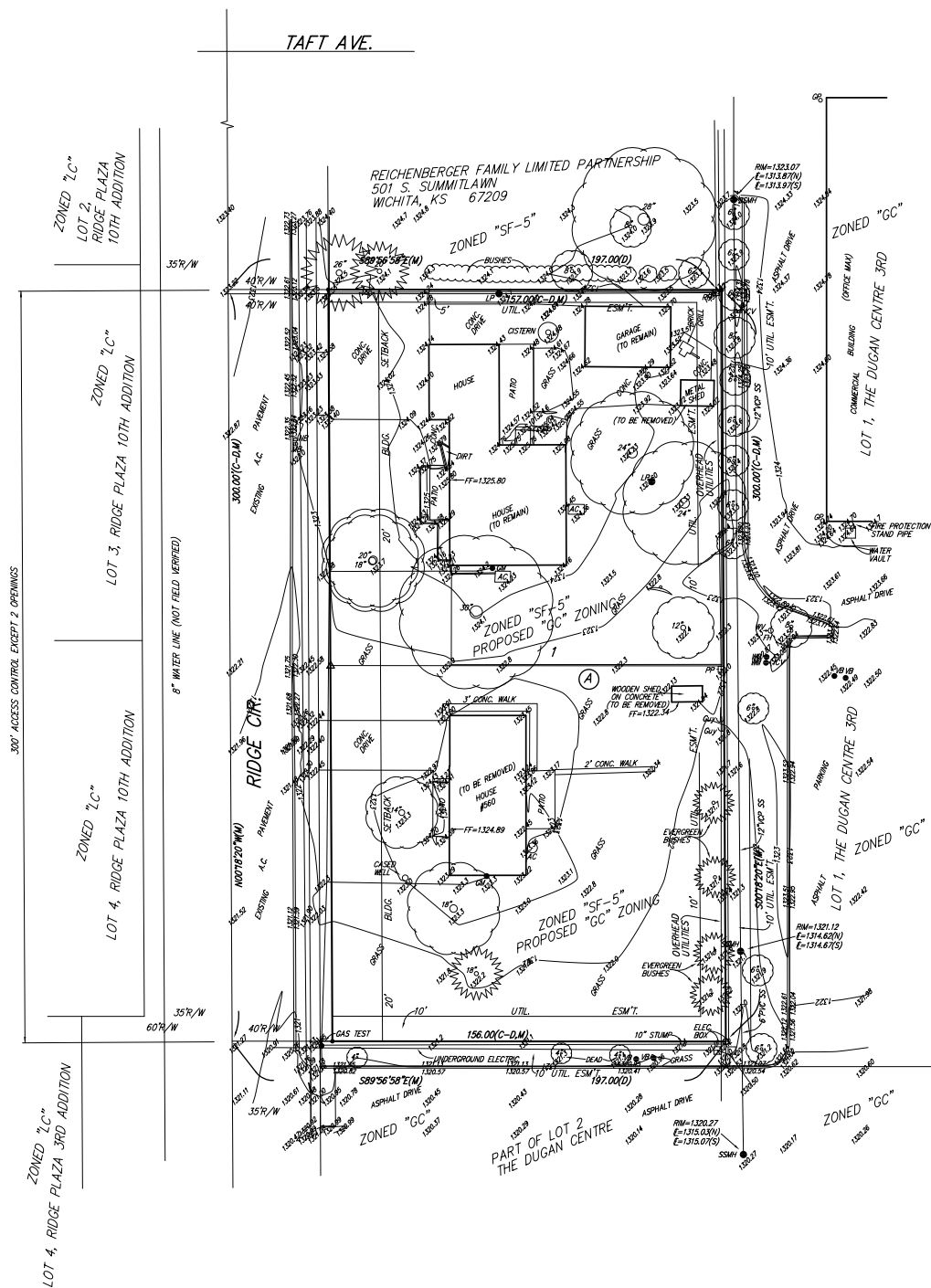
_____, Register of Deeds
Bill Meek

_____, Deputy
Tonya Buckingham

State of Kansas) SS The foregoing instrument acknowledged before me, this _____ day of _____, 2008, by Howard Rishel, Trustee of the Howard Rishel Trust, on behalf of the trust.

_____, Notary Public

My App't. Exp. _____



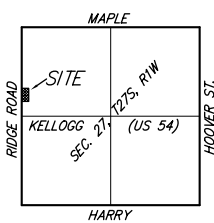
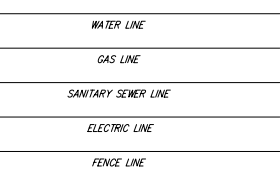
- = #4 REBAR W/ "BAUGHMAN" SET (SET)
 - = 1/2" IRON (FOUND)
 - △ = 1/2" PINCHED IRON (FOUND)
 - X = CROSS (FOUND)
- (M) = MEASURED
 (C-D) = CALCULATED PER DESCRIBED INFO.

OWNER:
 HOWARD RISHEL
 1425W W. HIGHWAY 54
 WICHITA, KS 67235
 PH: (316) 722-1209

LEGAL DESCRIPTION:
 THE SOUTH 150 FEET OF THE NORTH 480 FEET OF THE WEST 197 FEET OF THE S1/2 OF THE NW1/4 OF SEC. 27, TWP. 27-S, R-1-W OF THE 6TH P.M., SEDGWICK COUNTY, KANSAS, TOGETHER WITH THE SOUTH 150 FEET OF THE NORTH 630 FEET OF THE WEST 197 FEET OF THE S1/2 OF SAID NW1/4, ALL BEING SUBJECT TO ROAD RIGHTS-OF-WAY OF RECORD.

BENCHMARK:
 [] CUT, SW COR. OF PARKING LOT, RIDGE PLAZA 9TH ADDITION, NE COR. OF MID CONTINENT ROAD AND TAFT AVE.
 ELEV. = 1327.65 NGVD29
 [] CUT, TOP OF CURB AT N. LINE OF RISHEL ADDITION, E. SIDE OF RIDGE CT.
 ELEV. = 1323.13 NGVD29

- = Deciduous Tree
- = Pine or Cedar Tree
- = Guy Anchor
- = Power Pole
- EM = Electric Meter
- WM = Water Meter
- FM = Fire Hydrant
- GM = Gas Meter
- GV = Gas Valve
- SSM = Sanitary Sewer Manhole
- MB = Mail Box
- SD = Satellite Dish
- LP = Light Pole
- WB = Water Valve Box
- NB = News Box
- ICV = Irrigation Control Valve Box
- GP = Guard Post

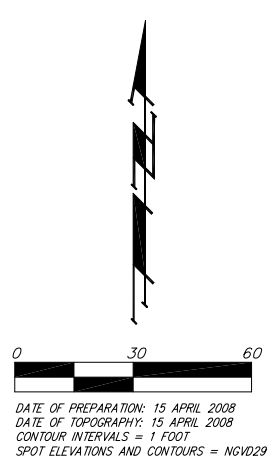
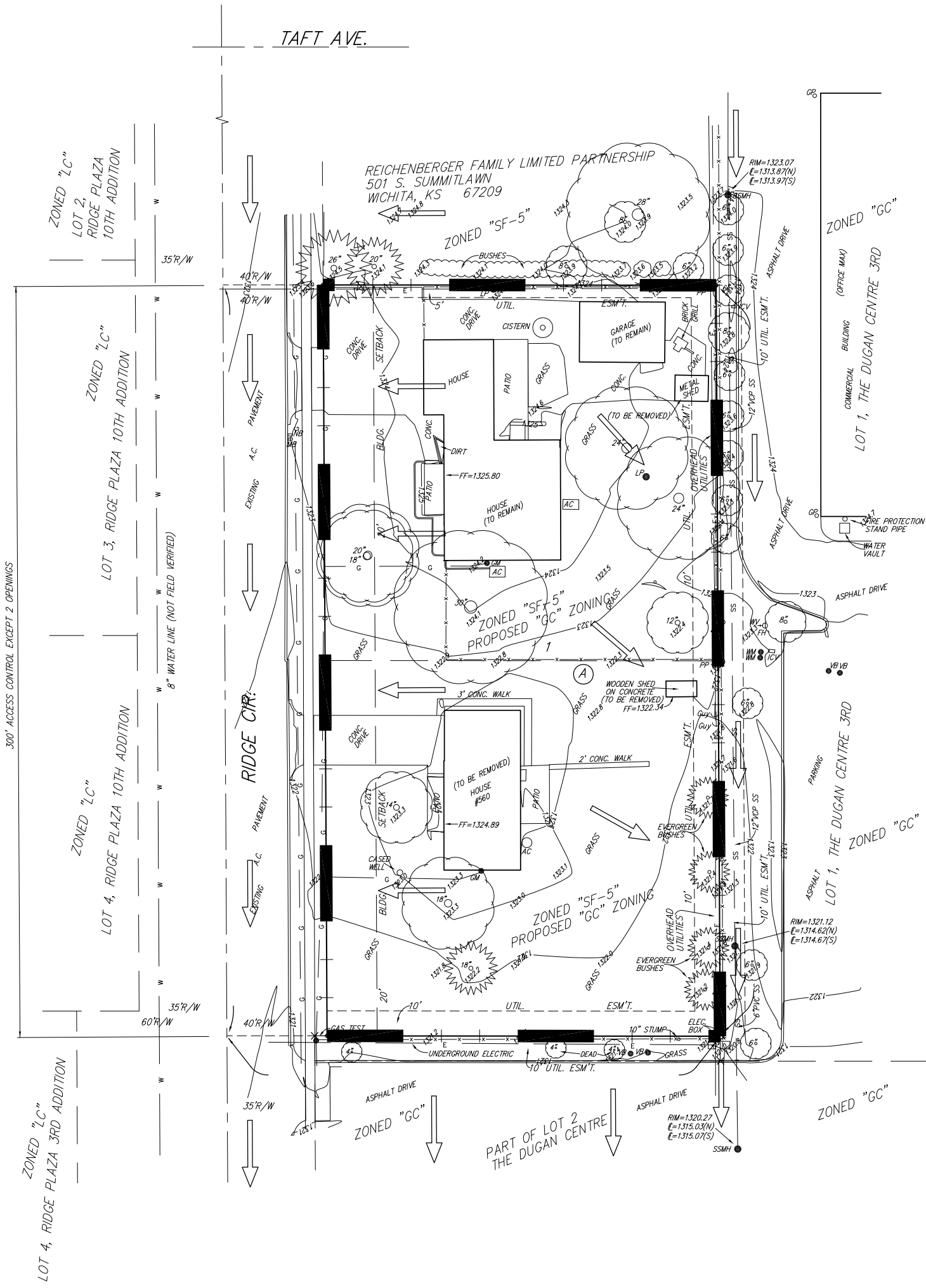


VICINITY MAP

RISHEL ADDITION
 28 APRIL, 2008

Baughman Company, P.A.
 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE
 E:\PLAT\RISHEL ADDITION\DWG\RISHEL P.DWG\MDC

DRAINAGE PLAN
RISHEL ADDITION
 WICHITA, SEDGWICK COUNTY, KANSAS



- = #4 REBAR W/ "BAUGHMAN" SET (SET)
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 - × = CROSS (FOUND)
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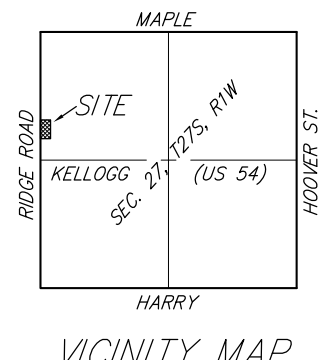
OWNER:
 HOWARD RISHEL
 14528 W. HIGHWAY 54
 WICHITA, KS 67235
 PH: (316) 722-1209

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- LP = Light Pole
- VB = Water Valve Box
- NB = News Box
- ICV = Irrigation Control Valve Box
- GP = Guard Post



EXISTING	DEVELOPED
DA = 1.1 acres	DA = 1.1 acres
Tc = 15 min	Tc = 15 min
C' = 0.57	C' = 0.80
Q ₂ = 2.4 cfs	Q ₂ = 3.4 cfs
Q ₅ = 2.9 cfs	Q ₅ = 4.0 cfs
Q ₁₀ = 3.3 cfs	Q ₁₀ = 4.6 cfs
Q ₁₀₀ = 4.6 cfs	Q ₁₀₀ = 6.5 cfs

NOTE: There is no FEMA SFHA on this property as of April 29, 2008, per FEMA FIRM Panel 345 of 700 for Sedgwick County, Kansas, effective February 2, 2007.

DRAINAGE PLAN
RISHEL ADDITION
 29 APRIL 2008

Baughman Company, P.A.
 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

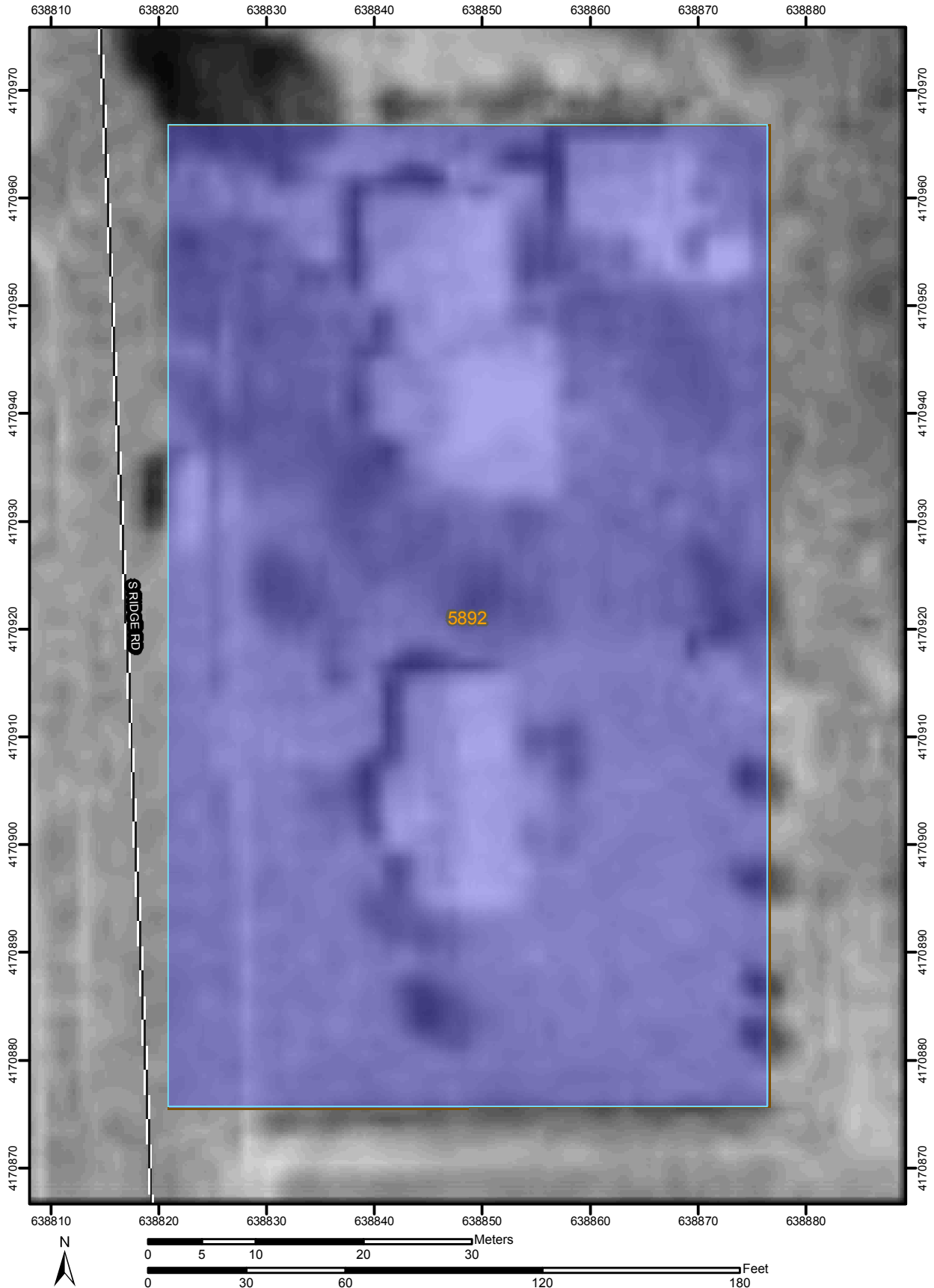
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SUPPORTING CALCULATIONS

APPENDIX A: USGS Soils Survey


USGS Soils Survey

Hydrologic Soil Group—Sedgwick County, Kansas
(Rishel Addition)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

 A

 A/D

 B

 B/D

 C


 C/D


 D

 Not rated or not available

Political Features


Municipalities

 Cities

 Urban Areas

Water Features

 Oceans

 Streams and Canals

Transportation

 Rails


Roads

 Interstate Highways

 US Routes

 State Highways

 Local Roads

 Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 14N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sedgwick County, Kansas
Survey Area Data: Version 4, Dec 29, 2007

Date(s) aerial images were photographed: 3/20/1996; 3/31/1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Sedgwick County, Kansas				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5892	Farnum loam, 0 to 1 percent slopes	B	1.2	100.0%
Totals for Area of Interest (AOI)			1.2	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie.

The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

DRAINAGE & GRADING PLAN

Scale 1:30