

PRELIMINARY DRAINAGE REPORT

FOR

K-96 & GREENWICH NORTH
Wichita, Sedgwick County, Kansas

MARCH 2013

REVISED APRIL 2013

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General Information

Location

The subject property is in the City of Wichita, Sedgwick County, Kansas. The site is located at K-96 on the east side of Greenwich Road. The development is bounded by Greenwich Road to the west and K-96 Highway to the south. The site is south of the Greenwich Business Center. The site is in the west half of Section 3, Township 27 South, Range 2 East of the 6th P.M. The plat area is 105.6 acres as shown on the pre-plat, Appendix A. The site is shown on the USGS Quadrangle Map, Appendix B. The site is also shown on the aerial photograph, Appendix C.

Datum

The site is shown in NAVD 88 datum.

Soils

According to the USDA NRCS Soil Survey, Appendix D, the site contains the following soil groups:

- Rosehill silty clay, 1 to 3 percent lopes, HSG "D"
- Goessel silty clay, 1 to 3 percent slopes, HSG "D"
- Irwin silty clay loam, 1 to 3 percent slopes, HSG "D"

The HSG used to select curve numbers is HSG "D."

Flood Insurance Rate Map (FIRM)

The site is shown on the FEMA FIRM Panel 20173C0377E, Sedgwick County Kansas and Incorporated Areas, Effective February 2, 2007, Appendix E. The site is in the City of Wichita, Community Number 200328. The entire site is in Zone X (unshaded), areas outside of the 0.2% annual chance flood. The nearest Zone A floodplains, areas of 100-year flooding, are approximately 100' southwest of the site or ½-mile south of the site.

Groundwater

According to the Kansas Geological Survey Water Wells Map (located at <http://www.kgs.ku.edu/Magellan/WaterWell/index.html> and referenced in March 2013,) the static water level of existing wells on site is approximately 22 feet deep.

Existing Development

Description

The site is currently undeveloped, but was planned for limited industrial/commercial land use. The area of this plat was included in the Greenwich Business Center Addition Drainage Reports with the most recent report dated November 2011.

Drainage Characteristics

The basins onsite drain to West Fork Fourmile Creek. Slopes across the site range from 0.1% to 3.0%.

The site is divided into two drainage basins in this drainage report, Basin E lies in the West Drainage Basin and Basin B lies in the East drainage basin. Both basins drain to stormwater sewer under K-96 and Greenwich. The stormwater sewer systems are not large enough to

handle undeveloped flow, so all detention provided reduces the peak flow rate to the capacity of the stormwater system.

The West Basin consists of Sub-Basin A2 which is north of 29th Street and east of Greenwich Road and is unplatted, Sub-Basin B is north of 29th Street and west of Greenwich Road and is unplatted, Sub-Basin C is south of 29th and west of Greenwich Road and is developed as Regency Park Addition. Sub-Basins D1, Upper D2 and Lower D2 are north of the site, south of 29th Street, east of Greenwich Road and platted as Greenwich Business Center. The site is shown on the Existing Conditions Drainage Plan, Appendix F. The West Basin drains to the south into an existing 2-6'x3' RCB under K-96. In the previous drainage report, there was a total of 64.0 acre-feet in the drainage basin divided amongst Sub-Basins A1, A2, B, Upper D2, Lower D2, and E. Sub-Basin E, which is made up entirely of the site, had 19.5 acre-feet. A summary of the storage volumes is shown in Table 1.

The East Basin is divided into Sub-Basin A which includes a portion of the platted Greenwich Business Center Addition. Sub-Basin B includes the site. Sub-Basin C includes a portion of the platted Fairmont Addition. The basin drains to the southwest to an existing 2-48" RCP that lows under K-96 Highway. The East Basin is planned to have a total of 30.3 acre-feet of storage in Sub-Basins A, B, and C. Sub-Basin B that contains a portion of the site is anticipated to have 17.0 acre-feet of detention.

The Corps of Engineers' HEC-HMS software was used to calculate hydrographs/peak flow rates from the watersheds in the Greenwich Business Center Drainage Report dated January 2007. The previous drainage reports on Greenwich Business Center calculated additional storage in each basin to reduce the runoff to the capacity of the undersized structures under K-96 Highway.

Table 1. Detention Volume Summary.

Location	Basin Area (acres)	Existing/Previously Planned Volume (ac-ft)	Post-Project Volume (ac-ft)
West Sub-Basin E	62.7	19.5	25.1*
West Basin	215.6	64.0	69.6*
East - Sub-Basin B	44.2	17.0	17.0
East Basin	128.5	30.3	30.3

* An additional 5.6 acre-feet of storage may be provided to mitigate for other offsite detention requirements.

Utilities

There is existing water and sanitary sewer service adjacent to the site. There is an existing stormwater sewer system that conveys runoff from north to south along Greenwich Road. An existing 60" RCP system outlets into an open channel that will become the proposed detention. This system conveys runoff from Greenwich Road to the site.

Proposed Development

Description

The proposed site will develop as 11 lots for limited industrial/commercial land use as previously planned. A proposed street through the site will provide access to each lot.

Drainage Characteristics

The site will continue to drain as previously planned. The shapes of the detention facilities have changed with the proposed development.

The detention basins in the West Basin, in Sub-Basin E may provide an additional 5.6 acre-feet of detention in order to provide detention for future development in the basin. The area of this future development is shown on the Drainage and Utility Plan, Appendix G.

Utilities

The proposed utility layout is shown on the Drainage and Utility Plan, Appendix G. Proposed water lines will run along each street. Sanitary sewer will be provided to serve each lot. Stormwater sewer will be constructed to convey runoff from the streets into the detention ponds. An open channel will convey runoff along the east property line to the detention pond. An RCB has been sized to convey runoff from the proposed channel to the proposed detention in the event a road is extended in the future, Appendix H. An open channel has been sized to convey runoff along the east property line, Appendix I. Storm water sewer on the site is sized for the 5-year design event. Calculations are included as Appendix J.

Lowest Opening

The lowest openings of proposed buildings will be set as pond shapes and outlet structures are finalized.

Water Quality

With the increase of impervious area of approximately 89.8 acres, the site will be required to meet water quality requirements. The final design of the ponds has not been decided, if the ponds are wet ponds they will provide the required water quality volume. If the ponds are dry ponds, then a system of measures such as the dry detention or proprietary devices will be determined. The volume required will be approximately 8.9 acre-feet. Calculations were done in Microsoft Excel, Appendix K.

Channel Protection

The channel protection volume required for the site is 13.6 acre-feet, Appendix L. The channel protection volume will be stored in the proposed detention ponds onsite.

Federal, State, and Local Permits

US Army Corps of Engineers

The site will not modify any jurisdictional streams or wetlands. The Army Corps of Engineers was previously contacted on this property, Appendix M.

Kansas Department of Agriculture – Division of Water Resources

There are no proposed changes to a stream, floodplain, or pond with a drainage area of more than 160 acres.

FEMA

The site will not modify any FEMA floodplains. No FEMA permits will be required.

Summary

The site will develop as 11 commercial/industrial lots as was originally planned. The site provides the same volume of detention as was previously anticipated in the Greenwich Business Center Drainage Reports. In addition, the proposed plan provides detention for a portion of land south of K-96 that is to be developed in the future. Water Quality and Channel Protection volumes will be accounted for when the final detention facilities are designed



NOTES

- LOCATION: Located in northeast Wichita, northeast of the intersection of Kansas Highway 96 and Greenwich Road in an area of vacant land surrounded by mixed uses: industrial to the west, single family residential to the southeast, commercial to the south and southwest, offices to the west, and medical facilities to the north.
- LOT TOTAL: 11
- ANNEXATION: City of Wichita (Ordinance No. 49-178, dated 12-23-2011)
- EXISTING: Vacant industrial land
- PROPOSED USES: Destination sports complex, Regional Commercial, Regional Retail, Hotels, & Family Entertainment.
- ZONING: LI - Limited Industrial by ZON2000-23, ZON2000-62, and ZON2004-69 with CUP DP-333 (CUP2013-00006)
- PLAT AREA = 105.64 acres, more or less
- SURVEY DATE: October 2008 (by MKEC)
- PUBLIC UTILITIES: Municipal water and sanitary sewer shall be extended to the site from the west from existing mains lines along Greenwich Road. All proposed municipal water and sanitary sewer will lie within easements or rights-of-way.
- EASEMENTS: Easements shall be positioned in order to encompass all existing and proposed utilities alignments. All easements containing sanitary sewer, and or storm sewer lines shall not be less than 20 feet in width; easements containing municipal water lines shall not be less than 10 feet in width; franchise utilities shall be contained within easements not less than 5 feet. All existing easements shall remain to encompass all existing pipelines and electric overhead lines.
- ACCESS CONTROLS: Complete access controls shall be maintained long the right-of-way of Kansas Highway 96. Access points for along Greenwich Road shall be placed accordingly: Complete access controls except two full movement openings, as shown.
- PIPELINE: Existing Nustar Pipeline is located in proposed Lots 7 and 8, Block 2, and Reserve 'C' of subject property. They maintain a 50 foot easement upon the subject property as indicated. Habitable structures shall not encroach into their easement or building setback.
- PUBLIC IMPROVEMENTS: The development infrastructure and facilities shall be built publicly.
- RESERVES: Reserves 'A', 'B', 'C', 'D', and 'E' are platted for berms, landscaping, irrigation, open space, monuments, sidewalks, and utilities in designated locations (by easements). Reserves 'A', 'B', and 'C' are also platted for drainage. The reserves shall be owned and maintained by the development owner and/or a lot owner's association.
- FLOOD ZONE: According to FEMA FIRM Map 20173C0377E, effective date February 2, 2007; this property lies within flood ZONE 'X' - 'Areas determined to be outside the 0.2% annual chance floodplain'.
- MINIMUM PADS (Lowest Opening): As shown hereon and as finalized on the final drainage plan.
- DRAINAGE: A drainage plan has been developed for this plat. All drainage easements and rights-of-way shall remain at established grades or as modified with the approval of applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater.

LEGAL DESCRIPTION

The South Half of the Northwest Quarter of Section 3, Township 27 South, Range 2 East of the Sixth Principal Meridian, Wichita, Sedgewick County, Kansas, EXCEPT that part dedicated for street right-of-way, TOGETHER WITH A tract of land in the Southwest Quarter of Section 3, Township 27 South, Range 2 East of the Sixth Principal Meridian, Wichita, Sedgewick County, Kansas more particularly described as follows:
 COMMENCING at the Northwest corner of the Southwest Quarter of Section 3, Township 27 South, Range 2 East of the Sixth Principal Meridian, thence N89°07'30"E along the North line of said Southwest Quarter, a distance of 50.00 feet to the POINT OF BEGINNING; thence bearing N89°07'30"E along the North line of said Southwest Quarter, a distance of 2,597.70 feet to the Northeast corner of said Southwest Quarter; thence bearing S00°33'35"E along the East line of said Southwest Quarter, a distance of 1,815.28 feet to the intersection of the North Right of Way of K-96 Highway; thence along the North Right-of-Way of the K-96 Highway the following courses and distances; N24°08'00"W a distance of 532.89 feet to the Point of Curvature of a curve to the left with a radius of 2,039.86 feet and a chord distance of 1,696.46 feet bearing N48°12'42"W; thence along said curve to the left through a central angle of 49°08'34", an arc distance of 1,749.60 feet; thence bearing N73°44'11"W a distance 322.28 feet; thence bearing N85°58'54"W, a distance of 301.62 feet; thence bearing S89°49'11"W, a distance of 522.46 feet; thence bearing N00°43'07"W, parallel with the West line of said Southwest Quarter a distance of 49.03 feet to the POINT OF BEGINNING.

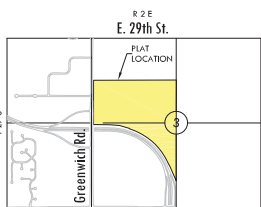
LEGEND

- - BUSH
- - EDGE OF TREES
- - DECIDUOUS TREE
- - SIGN
- - MANHOLE ELECTRIC
- - POWER POLE
- - POWER POLE WITH LIGHT
- - ELECTRIC BOX
- - ELECTRIC TRANSFORMER
- - LIGHT POLE
- - FIRE HYDRANT
- - WATER VALVE
- - WATER METER
- - WATER SPOUT
- - IRRIGATION CONTROL VALVE
- - WATER METER VAULT
- - STORM WATER MANHOLE
- - SANITARY SEWER MANHOLE
- - CLEAN OUT
- - TELEPHONE RISER
- - CABLE TV RISER
- - FIBER OPTICS INDICATOR SIGN
- - GRATE INLET
- - GAS METER
- - GAS VALVE
- - Set 1/2" REBAR/MKEC CLS 39
- - PROPERTY CORNER FOUND
- △ - SECTION CORNER FOUND
- P - PLATTED
- M - MEASURED
- CM - CALCULATED FROM MEASURED
- D - DEEDED
- - EASEMENT
- - BUILDING SETBACK
- - FENCE
- - UNDERGROUND ELECTRIC LINE
- - WATER LINE
- - SANITARY SEWER LINE
- - GAS LINE
- - TELEPHONE LINE
- - UNDERGROUND CABLE TV LINE
- - STORM SEWER PIPE
- - OVERHEAD TELEPHONE
- - OVERHEAD ELECTRIC
- - PIPELINE
- - BUILDING

BENCH MARK

Brass disc in top of south curb of 26th Street North, 67' west of centerline Greenwich Road, 20' of centerline 26th Street.
 Elev. = 1379.44 (NAVD 88)

LOTS	BLOCK	ELEVATION NAVD88
1, 2, 3, 4	1	1380.00
4 & 5	2	1375.00
3 & 8	2	1381.00



VICINITY MAP



Basis of Bearing: Kansas coordinate system of 1983 south zone grid bearing of N00°32'28"W on the west line of the NW 1/4, Section 3, T27S, R2E.
 This plat is surveyed and platted on NAD83 using Kansas state plane south zone coordinates, modified to the surface, having a combined adjustment scale factor of 1.000120014401728

PRELIMINARY PLAT

A portion of the NW & SW 1/4, Sec. 8, T27S, R2E, 6th P.M.

K-96 & GREENWICH NORTH

OWNER: Medical Practice Association Properties, LLC Attn: Lorene Valentine 1010 N. Kansas, Suite: 3049, Wichita, KS 67206 316-293-3526

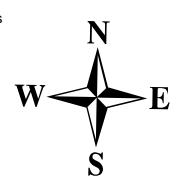
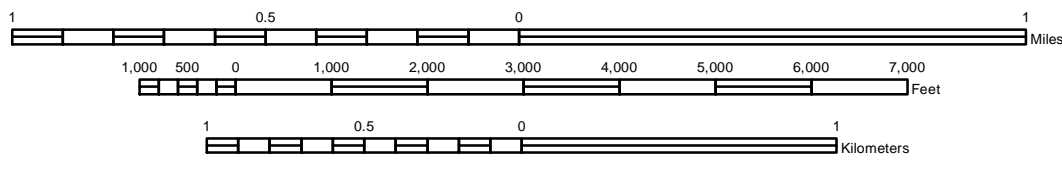
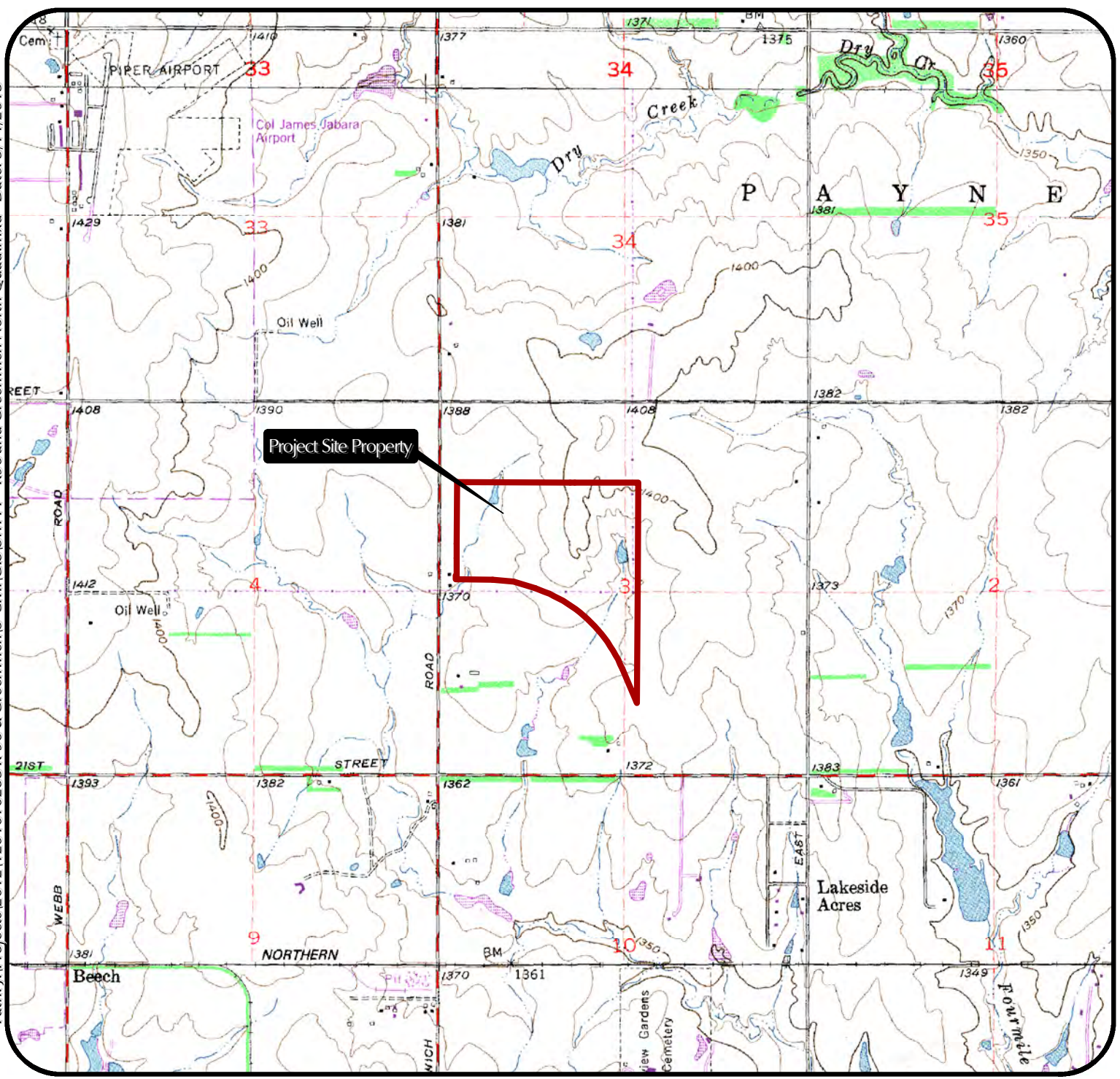
MKEC
 ENGINEERING
 CONSULTANTS, INC.

411 N. WEBB ROAD
 WICHITA, KS 67206
 316-684-9600

Appendix B

USGS Quadrangle Map

Path: J:\Projects\2012\1201010283 K-96 & Greenwich15-Civil\GIS\SWPPP - K96 and Greenwich North Quad.mxd - Date: 3/14/2013



SEC: 3
TWP: T27S
RNG: R2E

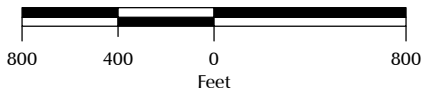
K-96 and Greenwich North

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USGS Quadrangle
Sheet Title:



JGD	3/14/2013
Drawn By:	Date:
KLA	1201010283
Design / Review:	Job No.:

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SEC: 3
TWP: T27S
RNG: R2E

K-96 and Greenwich North

Project Name:

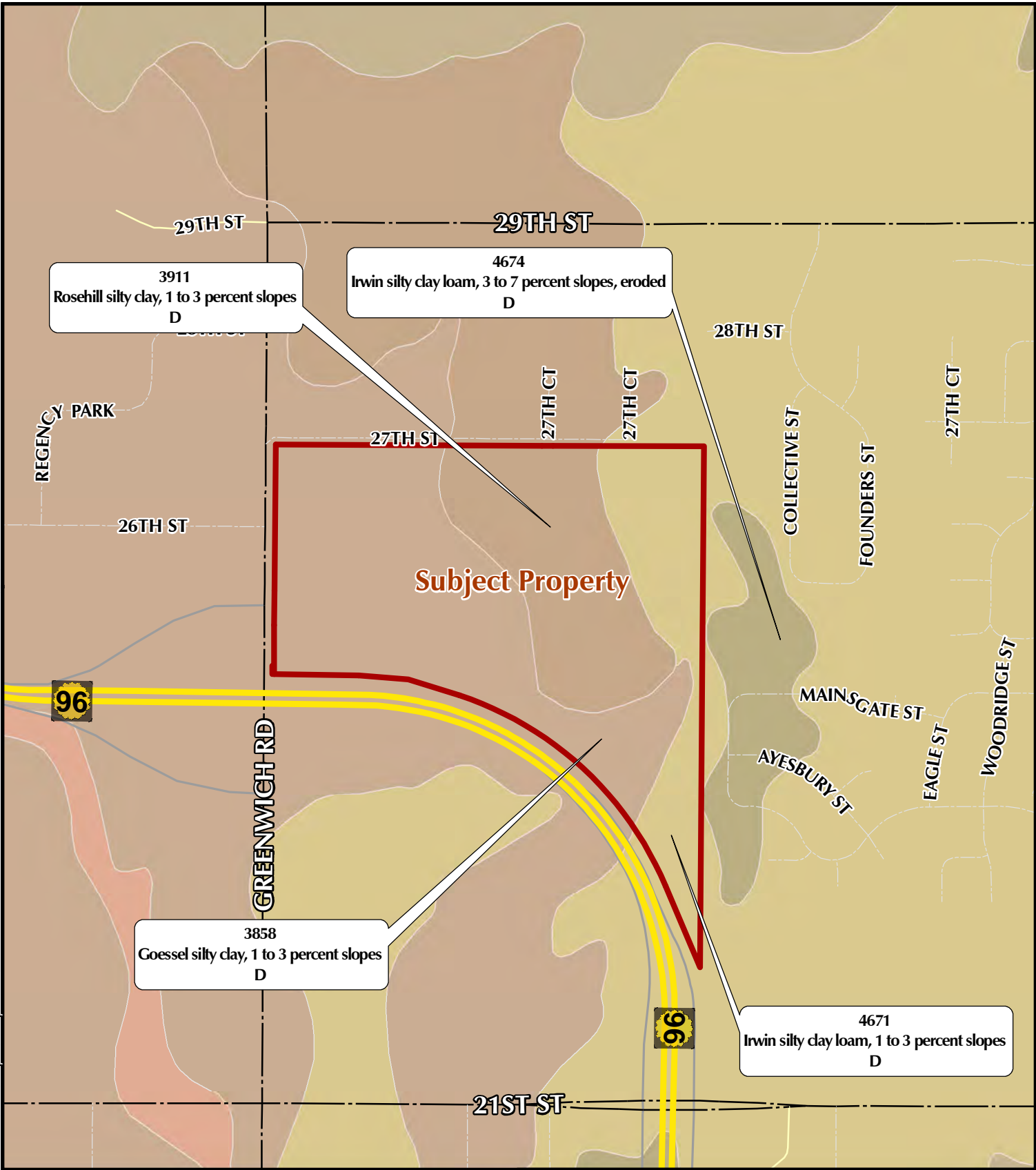
2011 Aerial Photography

Sheet Title:

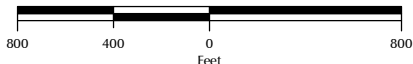


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Design / Review:	KLA	Job No.:	1201010283

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SEC: 3
TWP: T27S
RNG: R2E



K-96 and Greenwich North

Project Name:

NRCS Soil Survey

Sheet Title:



JGD	3/14/2013
Drawn By:	Date:
KLA	1201010283
Design / Review:	Job No.:

Appendix E

FEMA Flood Insurance Rate Map (FIRM)