



**DRAINAGE REPORT**

**Reeds Cove Medical Campus Addition  
WICHITA, SEDGWICK COUNTY,  
KANSAS**

**April 5, 2011**

**Ruggles & Bohm P.A.**

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Engineering, Surveying, Land Planning



### Public Works, Engineering Division Final Drainage Plan Submittal Checklist

Reviewer: \_\_\_\_\_ Date: 4-13-11  
 Subdivision Name: Reeds Cove Medical Campus Location: 127th E & 21st N  
 Total Land Area Of Ownership: 11.9 Acres  
 Type: \_\_\_\_\_ Residential X Commercial \_\_\_\_\_ Industrial \_\_\_\_\_ Recreation \_\_\_\_\_ Municipal \_\_\_\_\_ Other \_\_\_\_\_  
 Applicant: Physicians Development Group LLC Contact: Matthew Lillie Phone #: \_\_\_\_\_  
 Engineer: Ruggles & Bohm P.A. Contact: Alex Lane Phone #: 261-8008

Please check the appropriate box:

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

Tab 1. Project Narrative	Applicant		Engr	
	I	NA	Explanation / Location in Plan	
A. Site Location Map, using USGS Map			Drainage Report	I ✓
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain			Drainage Report	I ✓
C. Discussion of offsite conditions			Drainage Report	I ✓
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series			Detention Accounted for in Previous Development Downstream	I ✓
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design			Drainage Report	I ✓
F. Copy of the plat			Drainage Report	I ✓
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.)			GRADING PLAN TBD @ OCI SUBMITAL	NA ✓
H. Professional Engineer seal, signature and date on cover of report			—	I ✓
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover			—	I ✓

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



**Final Drainage Plan Submittal Checklist**  
Adopted: February 23, 2007

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements			DRAINAGE PLAN	✓	
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			DRAINAGE PLAN	✓	
L. Flow paths			DRAINAGE PLAN	✓	
M. Location and dimensions of existing channels, bridges or culvert crossings			NONE ON SITE		✓
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			DRAINAGE REPORT	✓	
O. Assumed pre-developed runoff curve numbers			DRAINAGE REPORT	✓	
P. Existing time of concentrations used in calculations			DRAINAGE REPORT	✓	
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site			DRAINAGE REPORT	✓	
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)			DRAINAGE MAP	✓	
S. Cross-section data for open channels			N/A		✓
T. Ground water elevations, if applicable			N/A		✓

Tab 3. Post-Development Hydrologic Analysis	Applicant			Engr	
	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)			DRAINAGE REPORT	✓	
B. Proposed time of concentrations used in calculations			DRAINAGE REPORT	✓	
C. Assumed post-developed runoff curve numbers			RATIONAL EQUATION, C-FACTORS	✓	
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)			DRAINAGE MAP	✓	
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration			DRAINAGE PLAN - C <sub>W</sub> POND INTERNAL DRAINAGE TBD	✓	
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities			Drainage Report	✓	
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary			DRAINAGE REPORT	✓	
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)			DRAINAGE MAP	✓	
I. Design water surface elevations and normal pool elevation for ponds.			DRAINAGE MAP	✓	
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.			DRAINAGE REPORT	✓	
K. Proposed limits of clearing and grading			DRAINAGE MAP	✓	
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.			TBD w/ OCI SUBMITTAL		✓
M. Location of existing and proposed utilities (e.g., water, sewer) and easements			Drainage Map	✓	
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			Internal Drainage System to be determined @ OCI submittal		✓
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings			NONE		✓



**Final Drainage Plan Submittal Checklist**  
Adopted: February 23, 2007

P. Preliminary selection and location of stormwater controls			DRAINAGE REPORT/MAP	✓	
Q. Emergency overflow structure's flow path			DRAINAGE PLAN	✓	
R. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)			DRAINAGE PLAN	✓	
S. The 100-year 24-hour HWL delineated on the plan for detention pond			N/A 100-yr Detention Not Provided		✓
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds			PLAT 3 DRAINAGE MAP	✓	
U. Stormwater Management Facilities located within a Reserve			PLAT 3 DRAINAGE MAP	✓	
V. Maintenance responsibility of stormwater management facility shall be specified in the plat text. (e.g. HOA, Lot Owners Association, or lot)			PLAT	✓	
W. Off-site drainage easements or agreements required, where necessary			N/A		✓

Tab 4. Floodplain Submittal	Applicant		Explanation / Location in Plan	Engr	
	I	NA		I	NA
A. Provide source of flood profile			N/A		✓
B. Nearest base flood elevations			N/A		✓
C. Delineation of pre-developed regulatory floodplain/floodway limits			N/A		✓
D. Delineation of post-developed regulatory floodplain and floodway limits			N/A		✓
E. Floodplain boundary determination per elevation (project limits shown)			N/A		✓
F. Provide source of floodway data table and discharges			N/A		✓
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			N/A		✓
H. Provide regulatory floodway and four natural profile models (10, 50, 100, and 500-yr) for existing and future watershed conditions			N/A		✓
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)			N/A		✓
J. Flood plains and floodways located within a Reserve, where necessary			N/A		✓

Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	Applicant		Explanation / Location in Plan	Engr	
	I/R	NA		I/R	NA
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)			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.)			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.			N/A		✓
D. Kansas Department of Transportation			N/A		✓
E. Sedgwick County Right-of-way Permit			N/A		✓

**DRAINAGE REPORT**  
**Reeds Cove Medical Campus Addition**  
**WICHITA, SEDGWICK COUNTY,**  
**KANSAS**

**April 5, 2011**

**Reed's Cove Medical Campus Addition  
DRAINAGE ANALYSIS  
April 5, 2010**

**INTRODUCTION**

This report contains supporting documentation and calculations for the proposed Reed's Cove Medical Campus Addition development. The proposed site is an undeveloped 11.9 acre parcel of land located in the NW ¼ of Section 11 T27S R2E on 127<sup>th</sup> St. East just south of 21<sup>st</sup> Street North. The area also included in the drainage plan an additional 1.7 acres of Reed's Commercial Lot 1 that not be part of the proposed plat but will be included in calculations for stormwater treatment. The area is currently pasture land and the soil type located on site is Irwin and Rosehill silty clay loam, both in hydrologic group D. The site generally drains in two directions with approximately 2.4 acres draining west to a roadside ditch along 127<sup>th</sup> Street East while the remaining 11.2 acres drains east to an existing detention pond located in Reed's Cove residential subdivision. No offsite tributary drain onto the proposed project site. The information located on the attached FEMA FIRM 20173C0377E, effective date Feb. 7, 2007, indicates the site is located in unshaded Zone X, defined as areas outside of the 0.2% floodplain.

**DETENTION**

The detention necessary to reduce the post development runoff to pre development levels is provided in the pond just downstream in the Reed's Cove residential subdivision. The drainage plans for both the Reed Commercial and the Reed's Cove Addition indicate the eastern portion of what is now referred to as Reed's Cove Medical Campus Addition is to be detained in the large pond located in Reed's Cove Addition. The project site will reduce the area draining to the east to reduce the peak post development flows to predevelopment levels. The additional area will be directed to the existing Reed's Cove detention pond. The Reed's Cove drainage report indicates the pond reduces the 100-yr runoff of the development from 1979 cfs to 1915 cfs, while storing over 74 ac.-ft. Therefore the extra capacity of the pond will easily store the additional 0.9 acre directed to it.

	Area (ac.)	TC (min.)	C2	C5	C10	C100	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q100 (cfs)
Existing										
West	2.4	15	0.30	0.35	0.45	0.65	2.8	3.8	5.6	11.5
East	11.2	29	0.30	0.35	0.45	0.65	9.1	12.9	19.3	40.0

	Area (ac.)	TC (min.)	C2	C5	C10	C100	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q100 (cfs)
Proposed										
West	1.1	15	0.68	0.69	0.73	0.80	2.8	3.5	4.2	6.5
East	12.5	29	0.68	0.69	0.73	0.80	23.1	28.5	40.8	54.9

## CHANNEL PROTECTION AND WATER QUALITY VOLUMES

Channel protection volume for the development will be provided in a pond at the eastern end of the site. An existing 36" RCP with a flowline of 1361.3 flows from just inside the east property line to Reserve C of Reed's Cove. A wet pond will be constructed such that the existing 36" can be modified for the outlet of the pond. This pond will also provide water quality volume and detain the channel protection volume. The calculations to determine the water quality and channel protection volumes are as follows;

### Water Quality Volume

$$\text{Eq. 4-26 } R_v = R_{vu}U + R_{vd}D + R_{vi}I = 0.00*0.05 + 0.25*0.25 + 0.95*0.75 = 0.775$$

$$\text{Eq. 4-24 } WQ_v = PR_v A/12 = (1.2*0.775*13.6)/12 = 1.05 \text{ ac.-ft.}$$

$$\text{Eq. 4-25 } Q_{wv} = PR_v = 1.2*0.775 = 0.93 \text{ in.}$$

### Channel Protection Volume

Calculate composite CN

$$CN = 0.75(98) + 0.25(88) = 95.5$$

$$S = 1000/CN - 10 = 0.47 \text{ in.}; I_a = 0.2S = 0.2(0.47) = 0.094; I_a/P = 0.094/1.2 = 0.0783$$

$$Q = (P - I_a)^2 / [(P - I_a) + S] = (2.8 - 0.094)^2 / [(2.8 - 0.094) + 0.47] = 2.30 \text{ in.}$$

Where P = 2.8 inches (1-year, 24-hr rainfall)

From Figure 4-6 using  $I_a/P$  and  $t_c = 0.25$  hrs,  $q_u = 800$  cfs/mi<sup>2</sup>/in

$$\text{Eq. 4-18 } Q_p = q_u A Q_{wv} F_p = 800 * (11.9/640) * 0.93 * 1.00 = 13.83 \text{ cfs}$$

Figure 4-17  $q_o/q_i = 0.25$

$$\text{Eq. 4-30 } V_s/V_r = 0.682 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3 = 0.647$$

$$V_s = ((V_s/V_r)QA)/12 = (0.647)(2.3)(12.5)/12 = 1.55 \text{ ac.-ft.}$$

$$Q_{\text{outlet}} = (q_o/q_i) * q_i = 0.025 * 13.83 = 0.35 \text{ cfs}$$

The wet pond shall have a static water surface of 1361.0 and a peak water surface of 1365.0. The outlet shall be controlled by an orifice in a stand pipe or structure. The orifice shall be 2.5" in diameter and shall serve as the outlet control for both the water quality and channel

protection volume. The larger storms shall be passed by a weir structure dropping into the existing 36" RCP. The water quality volume of 0.92 ac.-ft. is provided completely in the wet pond and will share the outlet structure. The pond stage and area is shown in the table below;

Stage	Area (ac.)
1361	0.30
1362	0.34
1363	0.39
1364	0.43
1365	0.47

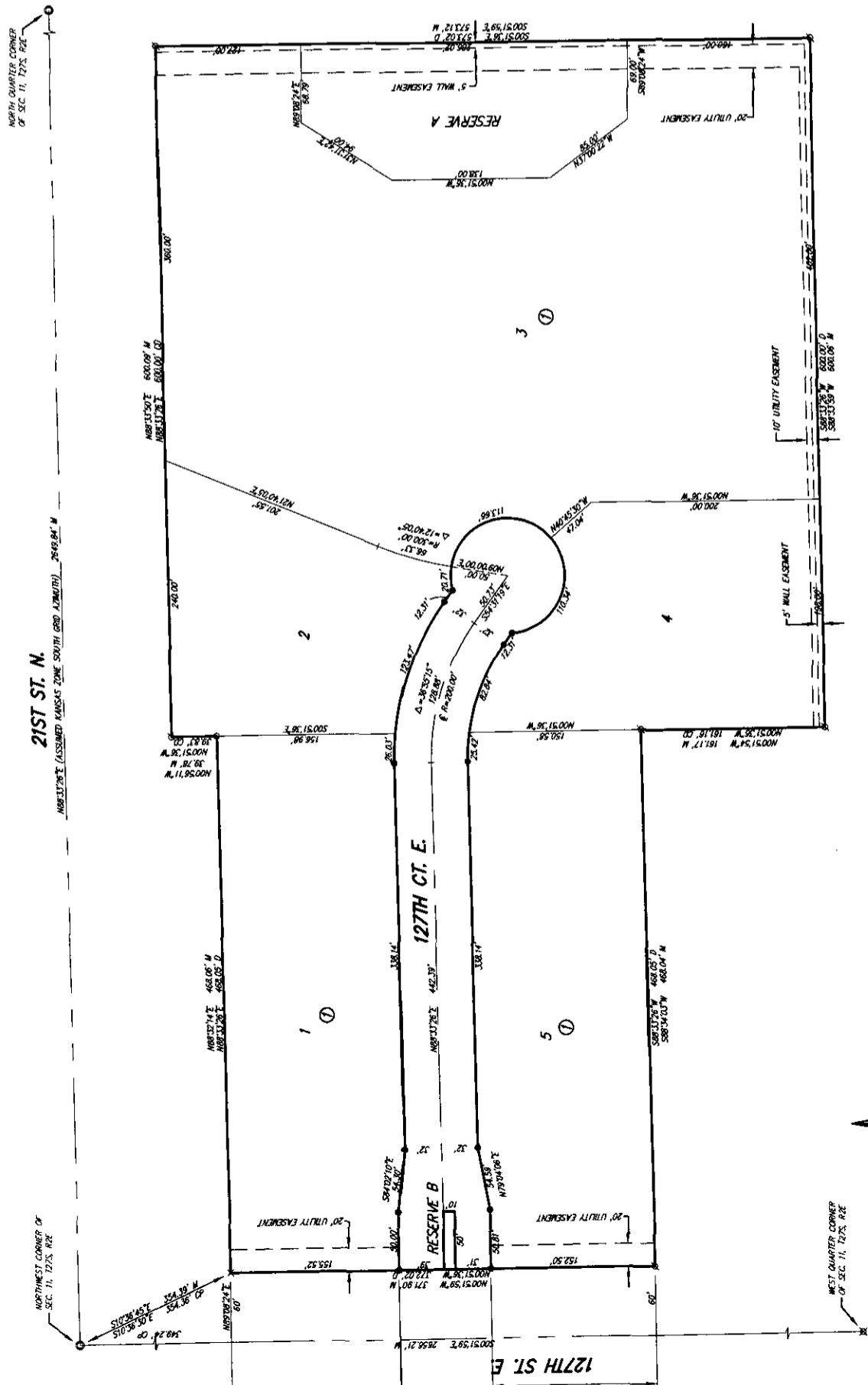
**INTERNAL DRAINAGE**

The internal drainage system shall utilize grassed swales and storm sewer to direct the runoff to the proposed wet pond. The particular details of the internal drainage system will have to be determined as the site is developed and a final layout is available.

**PLAT**

# One-Step REEDS COVE MEDICAL CAMPUS

a Replat of part of Reed Commercial Addition  
an Addition to Wichita, Sedgwick County, Kansas



BLOCK	LOT NO.	ELEVATION (MAD08)
1	3	1188.0

BRONZE MARK: CHECKED SQUARE ON THE TOP OF CURB AT THE SOUTH CORNER RETURN OF THE SOUTH DRAINAGE DRAIN ENTRANCE ON THE EAST SIDE OF 127TH ST. E. 26' 0" WEST OF THE CENTERLINE OF 21ST ST. N. ELEVATION = 1181.07 (MAD08)

ON-SITE BENCH MARK: CHECKED SQUARE ON THE TOP OF CURB AT THE WEST CORNER RETURN AT THE NORTHWEST CORNER OF 127TH ST. E. AND SHADYBROOK, 51' WEST OF THE CENTERLINE OF 127TH ST. E. AND 24' SOUTH OF THE CENTERLINE OF 21ST ST. N. ELEVATION = 1177.13 (MAD08)

"REEDS COVE MEDICAL CAMPUS" is subject to the conditions of Community Unit Plan (DP-222)

- ALL DIMENSIONS ARE PLATTED UNLESS OTHERWISE NOTED
- ⊙ = Platted
  - ⊙ = Measured
  - ⊙ = Descended from Platted
  - ⊙ = Computed from Descended
- SURVEY MARKER LEGEND
- 1/2" IRON PIPE IN THIMBLE (FOUND - ORIGIN UNKNOWN)
  - ⊙ CHECKED CROSS (FOUND - ORIGIN UNKNOWN)
  - ⊙ 1/2" REBAR W/ALUMINUM CAP (FOUND)
  - ⊙ 5/8" REBAR W/ALUMINUM CAP (FOUND)
  - ⊙ W/REC METAL CAP (FOUND)
  - ⊙ 5/8" REBAR W/BRASS & IRON CAP (SET)

State of Kansas) SS  
Sedgwick County)

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

A tract of land lying in portions of Lots 1 and 2, Block 1, Reed Commercial Addition, an Addition to Wichita, Sedgwick County, Kansas, being located in the Northwest Quarter of Section 11, Township 27 South, Range 2 East of the 6th Principal Meridian, and being more particularly described as follows:  
BEGINNING at a westerly corner of said Lot 2 being 125.00 feet north of the southwest corner of said Lot 2; thence on a platted bearing of N88°33'26"E, parallel with the south line of said Lot 1, a distance of 468.05 feet; thence S00°51'36"E, parallel with the west line of said Lot 1, a distance of 533.18 feet to the south line of said Lot 1; thence S88°33'26"W, along the south line of said Lot 1, a distance of 468.05 feet to the southwest corner of said Lot 1; thence N00°51'36"W along the west line of said Lot 1, a distance of 533.18 feet to the POINT OF BEGINNING, EXCEPT, the south 161.16 feet thereof, TOGETHER WITH

A tract of land lying in a portion of Reed Commercial Addition, an Addition to Wichita, Sedgwick County, Kansas, being located in the Northwest Quarter of Section 11, Township 27 South, Range 2 East of the 6th Principal Meridian, and being more particularly described as follows:  
BEGINNING at the northeast corner of Lot 5, Block 1, Reed Commercial Addition; thence on a platted bearing of S00°51'36"E, along the east line of said Lot 1 and 5, a distance of 823.03 feet to the southeast corner of said Lot 1; thence S88°33'26"W, along the south line of said Lot 1, a distance of 600.00 feet; thence parallel with the east line of said Lot 1, N00°51'36"W, a distance of 573.02 feet; thence parallel with the south line of said Lot 1, N88°33'26"E, a distance of 402.00 feet to the southwest corner of said Lot 5, Block 1; thence along the west line of said Lot 5, N01°26'34"W, a distance of 250.00 feet to the northwest corner of said Lot 5; thence N88°33'26"E, along the north line of said Lot 5, a distance of 202.54 feet to the POINT OF BEGINNING, EXCEPT, Lot 5, Block 1, said addition.

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

Ruggles & Bohm, P.A.  
Land Surveyor  
William K. Cleverger

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, a Block, Reserves and a Street, to be known as "REEDS COVE MEDICAL CAMPUS", an Addition to Wichita, Sedgwick County, Kansas. The utility easements are hereby granted for the construction and maintenance of all public utilities. The drainage easements are hereby granted to the public as indicated for drainage purposes. Access Controls as indicated are hereby granted to the appropriate governing body. The street is hereby dedicated to and for the use of the public. Reserve "A" is hereby reserved for irrigation, walls, landscaping, berms, lakes, drainage, drainage structures, and utilities confined to easements. Reserve "B" is hereby reserved for irrigation, landscaping, signage and entry features. The Reserves are to be owned and maintained by the lot owners association for the addition. A drainage plan has been developed for this plat and all drainage easements 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.

Physicians Development Group, LLC,  
a Kansas limited liability company

Member  
Matthew Lillie  
State of Kansas) SS  
Sedgwick County)

The foregoing instrument acknowledged before me, this \_\_\_\_\_ day of \_\_\_\_\_, 2011, by Matthew Lillie, Member, on behalf of Physicians Development Group, LLC, a Kansas limited liability company.

My appointment expires \_\_\_\_\_, Notary Public

We the undersigned, holders of a mortgage on a portion of the above described property, do hereby consent to this plat of "REEDS COVE MEDICAL CAMPUS" an Addition to Wichita, Sedgwick County, Kansas.

Legacy Bank, N.A.  
Executive VP Commercial Lending  
Brad Yaeger

State of Kansas) SS  
Sedgwick County)

The foregoing instrument acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2011, by Brad Yaeger, Executive VP Commercial Lending, on behalf of Legacy Bank, N.A., on behalf of the Bank.  
My appointment expires \_\_\_\_\_, Notary Public

This plat of "REEDS COVE MEDICAL CAMPUS", an Addition to 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 \_\_\_\_\_, 2011.

Wichita-Sedgwick County Metropolitan Area Planning Commission  
Chair  
David Uhruh  
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 \_\_\_\_\_, 2011.  
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 \_\_\_\_\_, 2011.

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

Entered on transfer record this \_\_\_\_\_ day of \_\_\_\_\_, 2011.  
County Clerk  
Kelly B. Arnold

State of Kansas) SS  
Sedgwick County)

This is to certify that this plat has been filed for record in the office of the Register of Deeds, this \_\_\_\_\_ day of \_\_\_\_\_, 2011, at \_\_\_\_\_ o'clock \_\_\_\_\_ M, and is duly recorded.

Register of Deeds  
Bill Meek  
Deputy  
Tonya Buckingham



Ruggles & Bohm, P.A.  
Engineering, Surveying, Land Planning  
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(316) 264-8008  
(316) 264-4621 fax  
E-mail: info@rbkansas.com

REV APR. 12, 2011  
KANSAS SURVEYOR STATE BOARD  
PROJECT NO. 37888  
APRIL 8, 2011

**AERIAL**



**AERIAL**  
**REEDS COVE MEDICAL CAMPUS**  
**WICHITA, KANSAS**

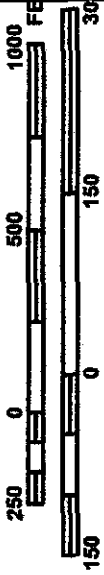
**Ruggles & Bohm, P.A.**  
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924 North Main  
Wichita, Kansas 67203  
www.rbkansas.com  
(316) 264-8008  
(316) 264-4623 fax  
E-mail: info@rbkansas.com

DESIGN	AML	PROJECT NUMBER	
DRAWN	AML		
REVIEW			
UTILITY			
DATE	Apr. 8, 2011		

PROJECT NUMBER: [Blank]  
DRAWING FILE: [Blank]  
Drohnage Plan (Layout)

**FEMA FIRM**

MAP SCALE 1" = 500'



PANEL 0377E

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**SEDGWICK COUNTY,**  
**KANSAS**  
**AND INCORPORATED AREAS**

PANEL 377 OF 700

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	200321	0377	E
WICHITA, CITY OF	200328	0377	E

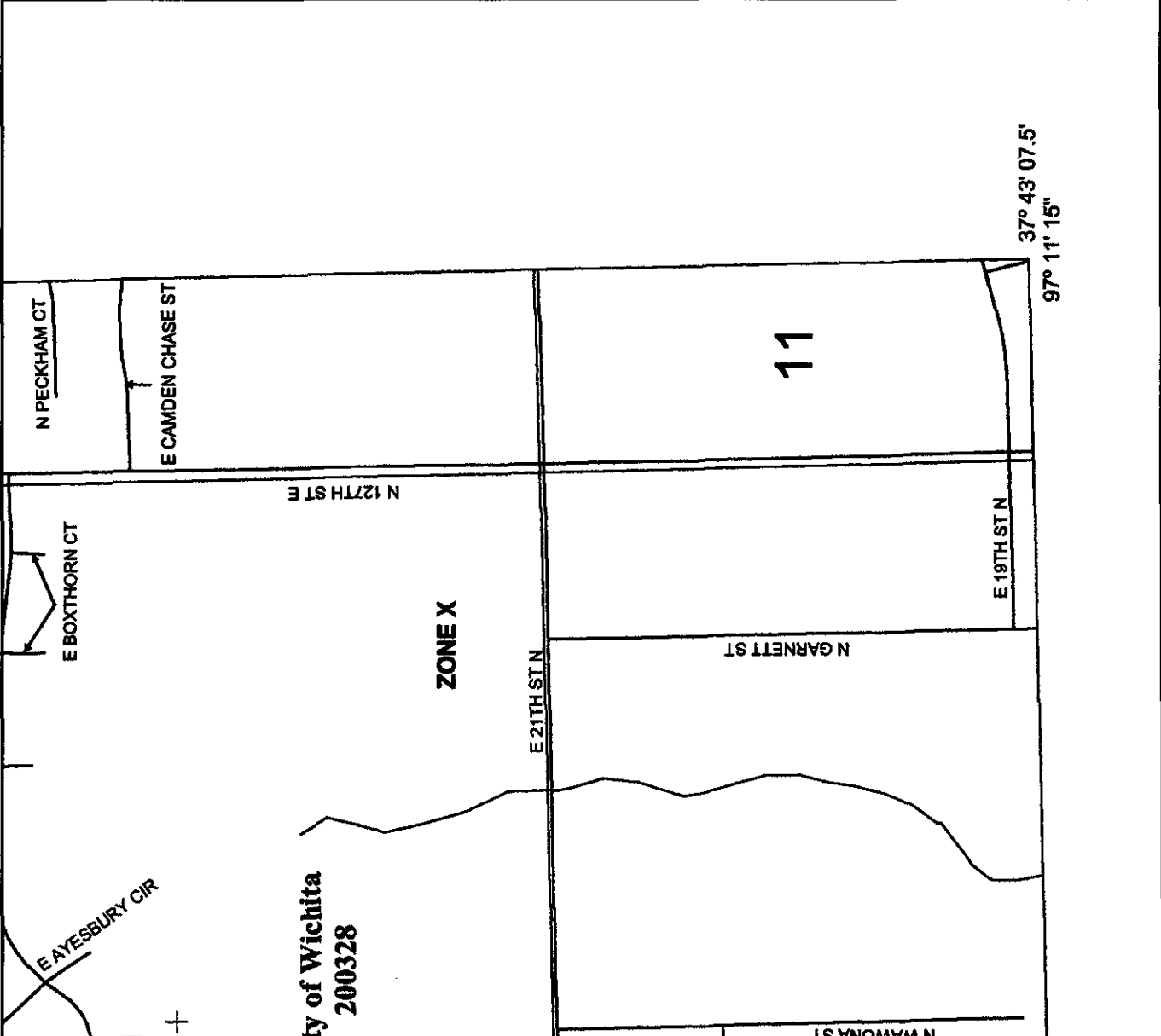
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



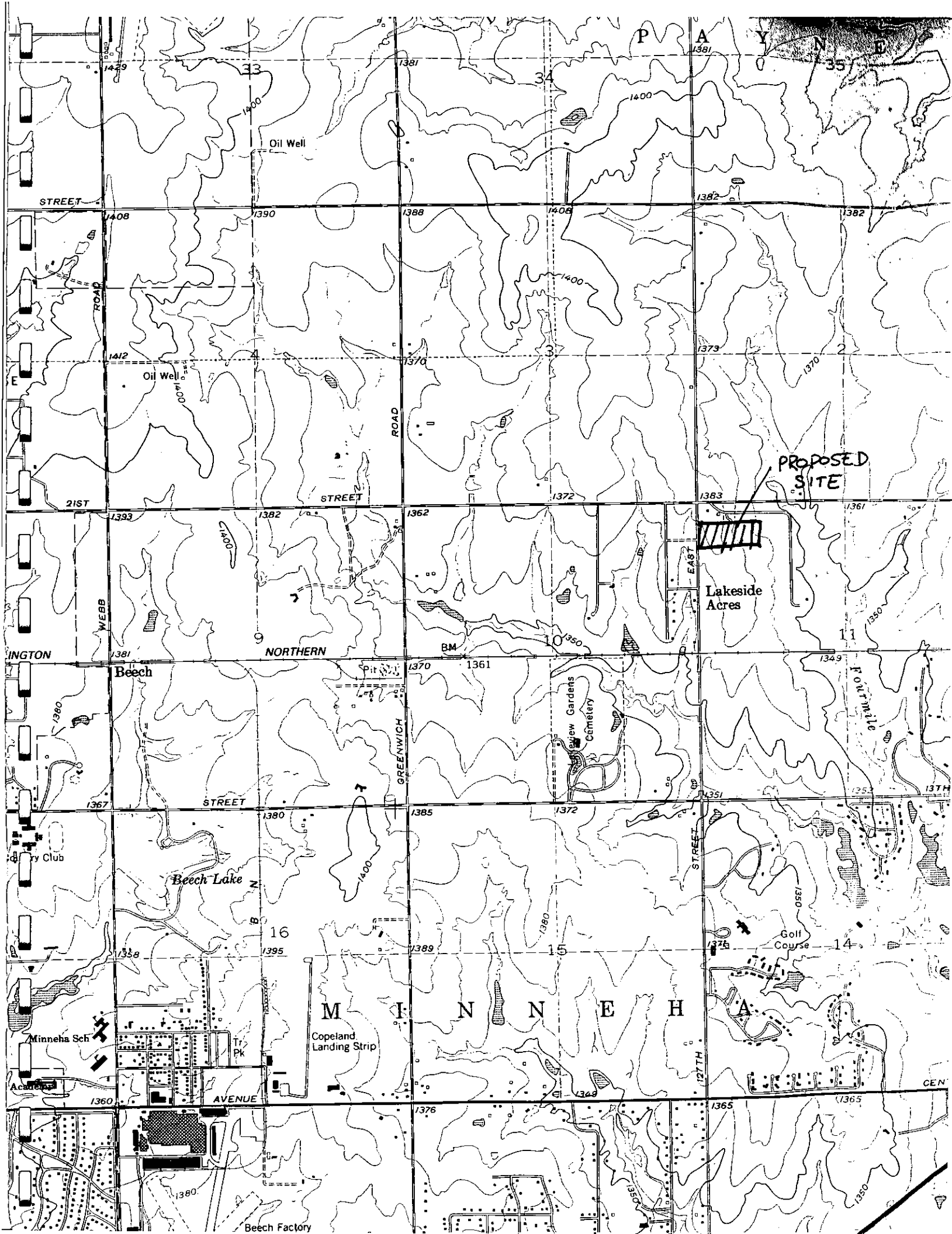
MAP NUMBER  
20173C0377E

EFFECTIVE DATE  
FEBRUARY 2, 2007  
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

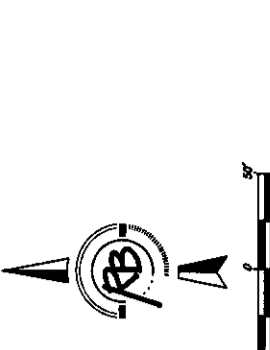
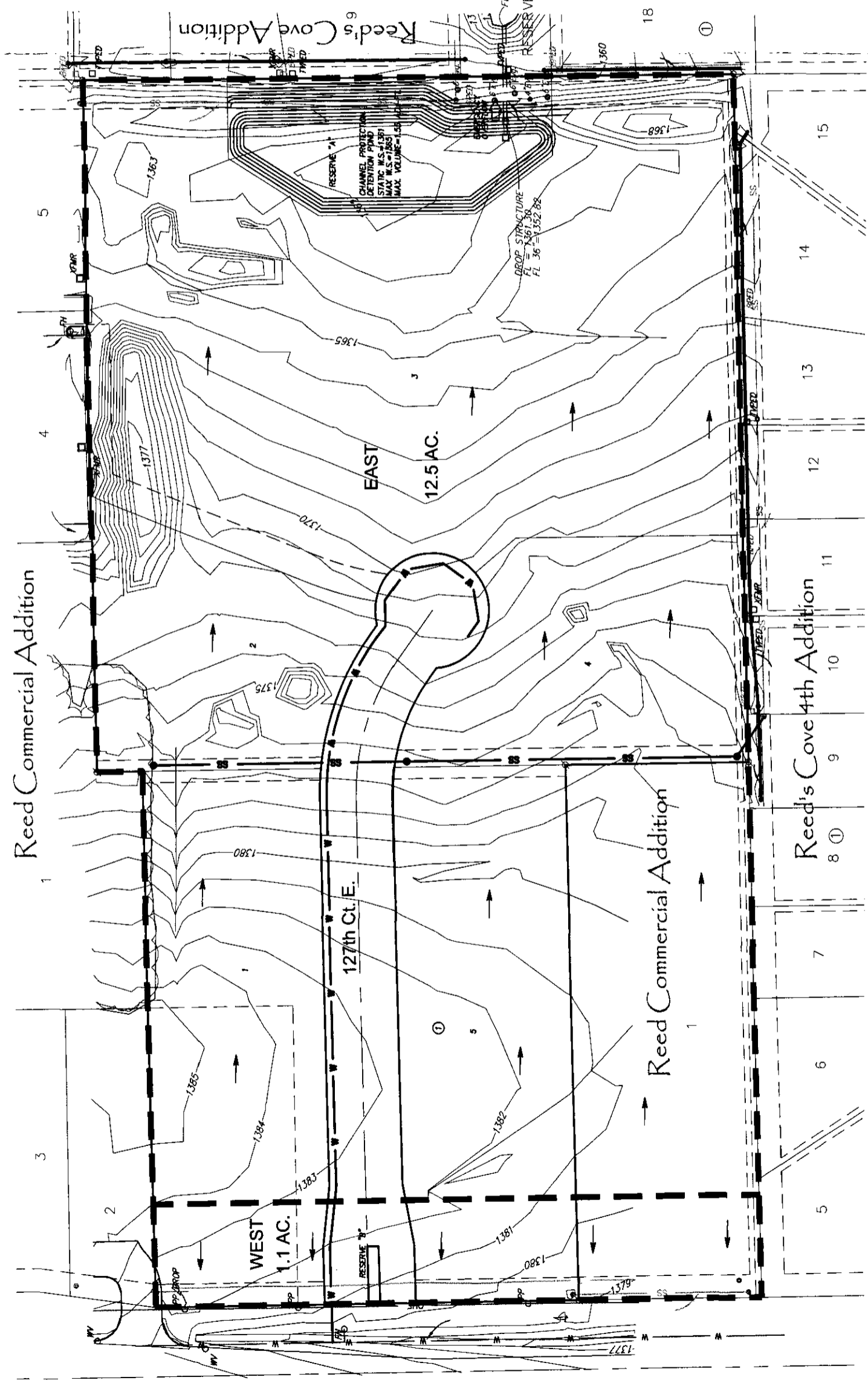


**USGS MAP**

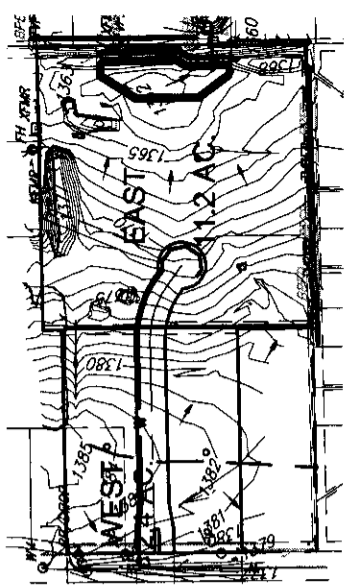


**DRAINAGE MAP**

Reed Commercial Addition



MINIMUM BUILDING PAD ELEVATION FOR LOWEST OPENING INTO STRUCTURES	LOT NO.	ELEVATION (MADSB)	AREA
	1	3	1,862.0

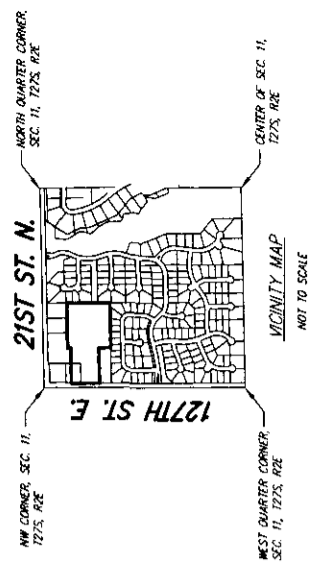


EXISTING DRAINAGE PATTERNS

BENCH MARK: CHISELED SQUARE ON THE NORTHEAST CORNER OF INLET ON SOUTH SIDE OF ADDITION. THE OTHER BENCH MARKS HAVE ELEVATION = 1356.23 (MADSB)

ON-SITE BENCH MARK: CHISELED SQUARE ON THE NORTHEAST CORNER OF INLET ON SOUTH SIDE OF THE EAST SIDE OF 127TH ST. E. 26' EAST OF THE CENTERLINE OF 127TH ST. E. AND 377' SOUTH OF THE CENTERLINE OF 21ST ST. N. ELEVATION = 1350.07 (MADSB)

ON-SITE BENCH MARK: CHISELED SQUARE ON THE TOP OF CURB AT THE WEST CURB RETURN AND SHOULDER, 51' WEST OF THE CENTERLINE OF 21ST ST. N. SOUTH OF THE CENTERLINE OF EAST ST. N. ELEVATION = 1372.53 (MADSB)



**AERIAL**  
**REEDS COVE MEDICAL CAMPUS**  
**WICHITA, KANSAS**



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DESIGN	AML	DATE	Apr. 8, 2011
CHECK	AML	PROJECT NUMBER	Drainage Plan [Layout]
REVIEW	AML	SHEET	1 of 1
UTILITY	AML		

EXISTING	AREA (AC)	$i_c$	$i_s$	$i_a$	$i_p$	$i_e$	$i_w$	$i_b$	$i_m$	$i_r$	$i_o$	$i_u$	$i_v$	$i_{av}$	$Q_p$
WEST	2.4	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	17.5
EAST	11.2	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	40.0

PROPOSED	AREA (AC)	$i_c$	$i_s$	$i_a$	$i_p$	$i_e$	$i_w$	$i_b$	$i_m$	$i_r$	$i_o$	$i_u$	$i_v$	$i_{av}$	$Q_p$
WEST	1.1	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	6.5
EAST	12.5	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	54.9

NOTE: PROJECT DRAINAGE IS PROVIDED IN EXISTING POND TO THE EAST. THE DRAINAGE FLOWS FIRST INTO RESERVE "C" OF REEDS COVE ADDITION AND THEN CONTINUES EAST TO THE LARGE DRAINAGE POND IN RESERVE "A".