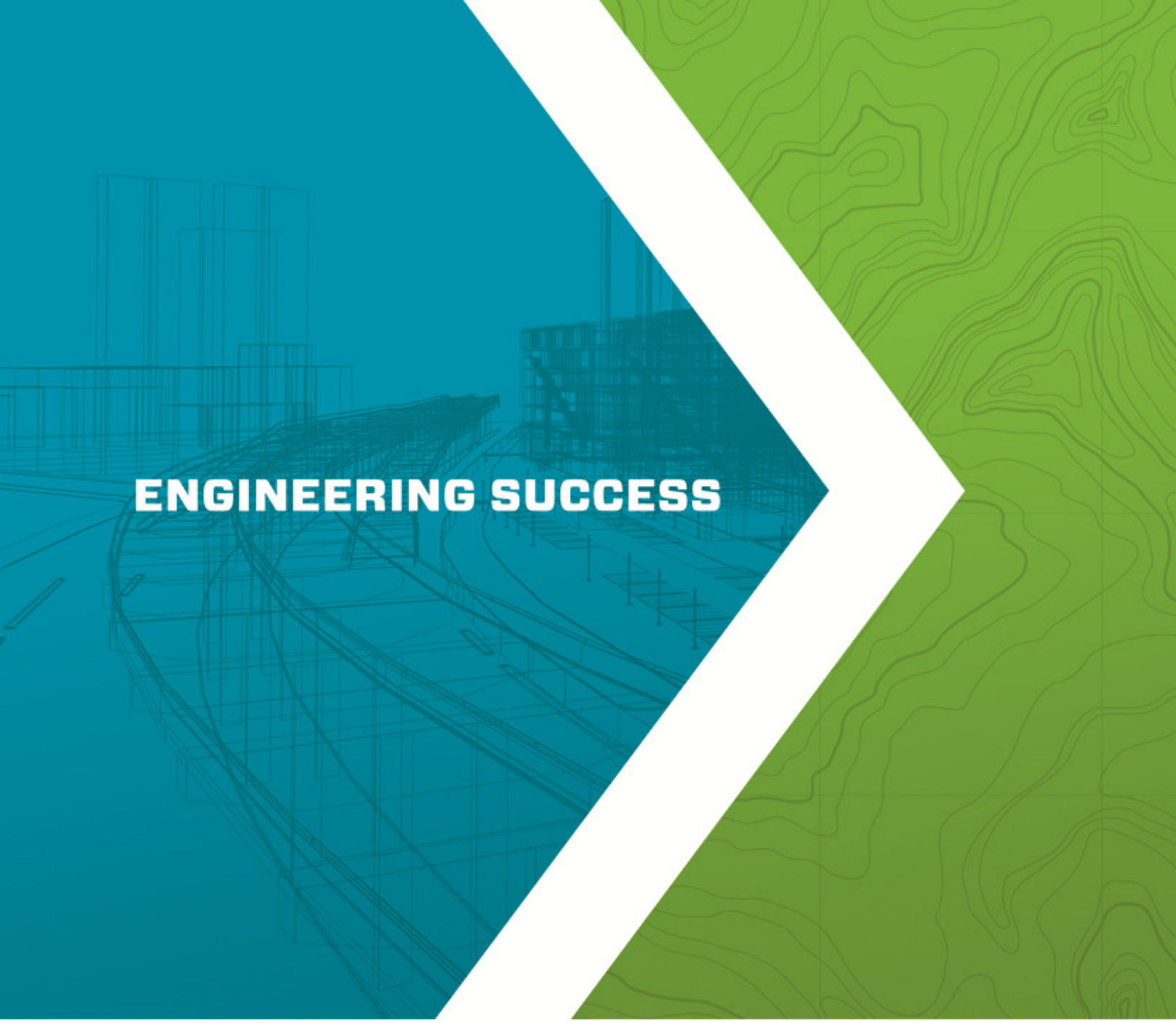


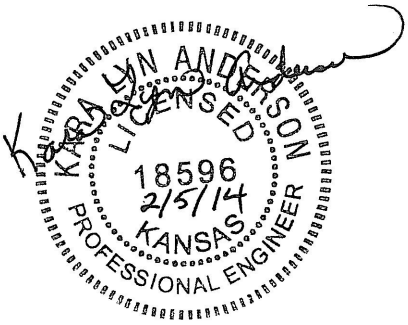
DRAINAGE REPORT FOR

Fox Ridge Plaza Addition
Wichita, Kansas

MKEC

411 N. Webb Rd.
Wichita, KS 67206
316.684.9600

PROJECT NUMBER:	1101010577
DATE:	December 2011
REVISION 1:	January 2014
REVISION 2:	February 2014



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Tab O. Checklist

City of Wichita/Sedgwick County
Subdivision Drainage Plan Checklist

Submit completed forms to:
City of Wichita Public Works & Utilities, 455 N. Main 8th Floor, Wichita KS 67202; or
Sedgwick County Stormwater Management, 1144 S. Seneca, Wichita KS 67213.

Project Name:	Fox Ridge Plaza Addition				
Total Area of Project:	48.3 **acres**				
Development Type:	Commercial	**Other:**			
Developer Name:	Hampton Lakes, LLC	**Contact:**	Marv Schellenberg	**Phone:**	(316) 721-2153
Email:	marvs@premierwichita.com				
Engineer Name:	MKEC Engineering Consultants	**Contact:**	Kara Anderson	**Phone:**	(316) 684-9600
Email:	kanderson@mkec.com				

Directions:

(1) Fill-out this checklist completely and include it with the Drainage Plan submittal. This checklist should be included in the bound copy, behind the cover sheet for the submittal. Incomplete Drainage Plans and checklists will not be accepted.

*(2) Indicate whether a plan element is included or not included in the submittal by choosing "**Yes**" or "**No**" from the dropdown list in the **"Element Included?"** column. The question must be answered for every plan element for this checklist to be considered complete. An explanation must be provided for all **"No"** answers.*

Drainage Plan Checklist

#	Plan Element Description	Element Included?	Explanation/Notes
1.0	**General**		
1.1	Digital copy of drainage plan, including preliminary Master Grading Plan, preliminary plat and proposed plat, in PDF format and one half size, bound, paper copy.	Yes	
1.2	Professional Engineer's seal, signature and date on plan cover.	Yes	
1.3	Site location map, using color ortho-imagery and showing the project boundaries, a north arrow and an accurate scale.	Yes	
1.4	Narrative of the development type, existing conditions and proposed impacts on stormwater runoff, wetlands, riparian zones and floodplains/floodways.	Yes	
1.5	Discussion of off-site conditions surrounding the proposed development.	Yes	
1.6	Summary table of runoff calculations (pre/post development).	no	Volumes were calculated
1.7	Narrative description of the type and function of the permanent structural stormwater management facilities.	Yes	
2.0	**Existing Conditions Information**		
2.1	**Existing Conditions Drainage Map**		
2.1.1	On-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations	Yes	
2.1.2	On-site and off-site drainage features, including perennial and intermittent streams (with names labeled), conveyance systems such as open channels, ditches, swales and areas of overland flow. Flow direction must be indicated by arrows.	Yes	
2.1.3	Storm sewer system components, including storm drains, inlets, catch basins, gutters, manholes, headwalls, pipes and culverts. Material and size must be noted for all pipes and culverts.	Yes	
2.1.4	Location and boundaries of natural features such as wetlands, lakes, ponds with the normal water elevation noted, rock outcroppings, wooded areas and tree rows.	Yes	
2.1.5	Location, dimensions and elevations of existing bridges and culvert crossings.	Yes	
2.1.6	Location of existing utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.	Yes	
2.1.7	Groundwater elevations, if applicable.	Yes	
2.1.8	Delineation of predominant soil based on USDA soil surveys and/or on-site soil borings; indicate NRCS soil name and Hydrologic Soil Group for undisturbed surface soils.	Yes	
2.1.9	Land use types per NRCS nomenclature.	Yes	
2.1.10	Footprint of existing impervious areas (labeled, area given in acres).	Yes	
2.1.11	Internal drainage subbasin boundaries used for hydrologic calculations (labeled with ID, total area in acres, impervious area in acres and curve number).	Yes	
2.1.12	Time of concentration flow paths. Indicate and label each segment separately (i.e., overland flow, shallow concentrated, channel1, channel2, etc.). For each segment, provide the appropriate data to calculate Tc (e.g., length, slope, cover type, paved/unpaved, roughness parameters, geometric properties, etc.).	Yes	

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
2.2	**Existing Conditions Hydrology and Hydraulics Analysis**		
2.2.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).	Yes	
2.2.2	A summary table of drainage subbasin hydrologic parameters (subbasin ID, area in acres, curve number, Tc, etc.).	Yes	
2.2.3	Table of existing condition runoff curve numbers with supporting data and calculations.	Yes	
2.2.4	Table of existing condition times of concentration with supporting data and calculations.	Yes	
2.2.5	A summary table of rainfall data used in the hydrologic analysis, and a reference for the source of the data.	Yes	
2.2.6	Cross-sections and other diagrams of existing open channels, bridge and culvert sections and other hydraulic features as required to illustrate the basis for hydraulic analysis.		N/A
2.2.7	Hydrologic and hydraulic analyses for runoff rates, volumes, velocities and elevations. Provide supporting data not specified above and identify assumptions. Include detailed calculations for the 2, 5, 10, 25 & 100-year, 24-hour storm events. Provide results in a tabular form. Provide digital copies of any computer files and models used.		N/A
3.0	**postdevelopment Conditions Information**		
3.1	**postdevelopment Conditions Drainage Map**		
3.1.1	Proposed project boundary.	Yes	
3.1.2	on-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations.	Yes	
3.1.3	Existing on-site and off-site drainage features that are to remain after development, including perennial and intermittent streams (with names labeled), conveyance systems such as open channels, ditches, swales and areas of overland flow. Flow direction must be indicated by arrows.	Yes	
3.1.4	Location and description of off-site through-drainage conveyances which are confined to an easement, dedication and/or reserve.	Yes	
3.1.5	Footprint of proposed impervious areas, including roads, parking lots, buildings and other structures.		Not known
3.1.6	Location of proposed utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.	Yes	
3.1.7	Delineation of predominant soils, based on anticipated soil textures and NRCS guidelines if different from predevelopment soil conditions; indicate NRCS soil name and Hydrologic Soil Group for surface soils.	Yes	
3.1.8	Land use cover per NRCS nomenclature.	Yes	
3.1.9	Internal drainage subbasin boundaries used for hydrologic calculations (labeled with ID, total area in acres, impervious area in acres and curve number).	Yes	
3.1.10	Proposed limits of land disturbing activity (i.e., grading limits).	Yes	
3.1.11	Time of concentration flow paths. Indicate and label each segment separately (i.e., overland flow, shallow concentrated, channel1, channel2, etc.). For each segment, provide the appropriate data to calculate Tc (e.g., length, slope, cover type, paved/unpaved, roughness parameters, geometric properties, etc.).	Yes	
3.2	**Proposed Conveyances Map**		
3.2.1	on-site and off-site drainage features, including perennial and intermittent streams (with names labeled), proposed conveyance systems (such as open channels, ditches, swales and areas of overland flow, including backyard drainage). Flow direction must be indicated by arrows.	Yes	
3.2.2	Storm sewer system components, including storm drains, inlets, catchbasins, gutters, manholes, headwalls, pipes and culverts. Material and size must be noted for all pipes and culverts.	Yes	
3.2.3	For any subbasin or drainage area > 40 acres, show that the stormwater flow is confined to an open channel with required side benches and freeboard, or conformance to applicable policy and design requirements if partially enclosed.	Yes	
3.2.4	Location(s) of stormwater management facilities and any associated drainage easements.	Yes	
3.2.5	Proposed energy dissipaters and other channel protection devices.	Yes	
3.2.6	Location(s) and dimension(s) of proposed channel, bridge and culvert crossings.	Yes	
3.2.7	Normal pool and 100-year pool elevations for ponds and lakes.	Yes	
3.2.8	Permanent concrete outfall control structure(s) for ponds.	Yes	
3.2.9	Emergency overflow spillways and top of berm elevations for ponds and other volume/peak discharge control facilities.	Yes	
3.2.10	Floodplains, ponds, and stormwater management facilities located in reserves.	Yes	
3.3	**postdevelopment Conditions Hydrology & Hydraulics**		

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
3.3.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).	Yes	
3.3.2	A summary table of drainage subbasin hydrologic parameters (subbasin ID, area in acres, curve number, Tc, etc.).	Yes	
3.3.3	Table of postdevelopment condition runoff curve numbers with supporting data and calculations.	Yes	
3.3.4	Table of postdevelopment condition times of concentration with supporting data and calculations.	Yes	
3.3.5	Cross-sections and other diagrams of existing open channels, bridge and culvert sections and other hydraulic features as	no	
3.3.6	Hydrologic and hydraulic analyses for runoff rates, volumes, velocities and elevations. Provide supporting data not specified above and identify assumptions. Include detailed calculations for the 2, 5, 10, 25 & 100-year, 24-hour storm events. Provide results in a tabular form. Provide digital copies of any computer files and models used.	Yes	
3.3.7	Downstream peak discharge assessment (10% Rule) results and supporting data and calculations. Provide digital copies of any computer files and models used.	Yes	
3.3.8	Stage-storage-discharge or other outlet rating curves and inflow/outflow hydrographs for all ponds.		Use existing
3.3.9	Demonstrate that the pond contours on the master grading plan and the stage-storage-discharge data are consistent for all ponds.	Yes	
3.3.10	Demonstrate that all ponds have one foot of freeboard above the 100-year, 24-hour high water level.	Yes	
3.3.11	Demonstrate that runoff from the proposed project site is discharged in the same manner as prior to development, using level spreaders, energy dissipaters, other devices or grading as required, or identify an appropriate flowage easement.	Yes	
3.4	**Stormwater Quantity Control Sizing**		
3.4.1	Hydraulic sizing calculations for all stormwater management controls.	Yes	
3.4.2	Table(s) listing all stormwater management controls. Present the types, sizes, elevations, flows, velocities and depths for each control, as applicable. Verify that velocities are self-cleaning and non-erosive.	Yes	
3.4.3	Typical details (including cross-sections where applicable) for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc.	Yes	
3.5	**Stormwater Quality Management Facilities**		
3.5.1	Table(s) listing all stormwater management facilities. Present the description, % TSS removal value, water quality volume handled, contributing drainage area in acres and contributing impervious area in acres.	Yes	
3.5.2	Indicate the responsible party for maintenance, as shown in the plat text (i.e., Home Owners Association, Lot Owners Association, property owner, etc.).	Yes	
3.5.3	Water quality volume (total and by facility), with supporting data and calculations.	Yes	
3.5.4	% TSS removal value (total and by facility) with supporting data and calculation. Must be equal to or greater than 80%.	Yes	
3.5.5	Channel protection volume with supporting data and calculations.	Yes	
3.5.6	Water quality volume and channel protection volume orifice size calculations.	Yes	
3.5.7	Other calculations required for each stormwater management facility as specified in the Wichita/Sedgwick County Stormwater Manual.	Yes	
3.5.8	Typical details (including cross-sections where applicable) for outlet structures, embankments, internal grading, forebays and other siltation prefilters, filtration/infiltration media, vegetation, check dams, operational controls, etc.	Yes	
4.0	**Floodplains**		
4.1	Reference the source of flood profile, floodplain, floodway and stream discharge information.	Yes	
4.2	Delineation of nearest base flood elevations.	Yes	
4.3	Delineation of predevelopment regulatory floodplain/floodway limits using FEMA's current GIS database; limits to be per elevation and scaled location.	no	N/A
4.4	Delineation of postdevelopment regulatory floodplain/floodway limits; limits to be per elevation and scaled location, with project limits shown.	no	N/A
4.5	Floodway data table and discharges.	no	N/A
4.6	Hydrologic and hydraulic study information for local floodplain analysis, unnumbered Zone A elevation determinations and floodplain map revisions or required permits.		N/A
4.7	Regulatory floodway and four natural profile models (10, 50, 100 and 500-year) for existing and postdevelopment conditions.		N/A
4.8	Floodplains and floodways located within a reserve, where necessary.		N/A

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
4.9	Floodplain cut and fill calculations for volume sensitive basins.	Yes	
4.10	Demonstrate that floodway elevations and velocities do not increase due to construction in the floodway ("No Rise Certification").		N/A
5.0	**Federal, State and Local Permits**		
5.1	US Army Corps of Engineers regulatory program permits (Section 404 permit)		N/A
5.2	Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Floodplain Fill, Levee, Water Appropriations, Dam Safety permit, etc.).		N/A
5.3	FEMA letters of map change/revision - LOMA, LOMR, LOMR-f, CLOMR, etc.; shall be included and approved when project modifies the limits of the floodplain/floodway.		N/A
6.0	**Half Scale Preliminary Master Grading Plan**		
6.1	One set of plans and associated PDF of plans.	Yes	
6.2	Professional Engineer's seal, signature and date.		
6.3	Title block including subdivision name and phase and dated revision documentation.		
6.4	Future phases shown but cross-hatched as information only.		
6.5	Scale, not greater than 1-inch = 60 feet.		
6.6	North arrow.		
6.7	Index or legend key.		
6.8	Benchmarks (minimum of 2) used for site control (NAVD 88 vertical datum).		
6.9	Existing contours of entire site with contour interval of one foot.		
6.10	Proposed contours for channels, ponds, and other permanent stormwater management facilities, with contour interval of one foot.		
6.11	Spot elevations shown to the nearest tenth of a foot for critical locations, including lot and property boundaries.		
6.12	Proposed lot and street layout.		
6.13	Locations of underground storm drains.		
6.14	Overflow locations for storms exceeding storm drain capacity, with elevations.		
6.15	Top elevations of storm drains at all inlets, manholes, and flow line elevations for all outfalls.		
6.16	Locations of open ditches and lakes.		
6.17	Flow direction arrows.		
6.18	Proposed flow line elevations of all open ditches at maximum 100 foot intervals, and 100-year flood elevations thereon.		
6.19	Ponds: Location, bottom elevation, normal pool elevation, 100-year flood elevation, emergency overflow elevation.		
6.20	Proposed top-of-curb elevations at points where drainage will be required to flow over the curb.		
6.21	Platted minimum building opening elevation for each lot, in table form for all lots (excluding basement floor elevations).		
6.22	Standard foundation and elevation detail for slab on grade, full basement, view-out, partial view-out and/or walk-out construction.		
6.23	Top of foundation elevation for each lot.		
6.24	Notation for builders for each lot as to the type of structure that may be constructed and the view-out, walk-out or pad elevation, as applicable.		
6.25	Indicate that all lots are above the 100-year flood elevation.		
6.26	Indicate that grading around structures conforms to perimeter drainage requirements.		
6.27	Indicate that backyard drainage grading conforms to backyard drainage requirements.		
6.28	Adjacent subdivision lot lines, with lot labels and subdivision names.		
6.29	Boundaries and labels for all easements, rights-of-way and reserves.		
6.30	Statement on proposed final plat: "*A drainage plan has been developed for the subdivision and all drainage easements, rights-of-way, or reserves shall remain at the established grades and remain unobstructed to allow for the conveyance of stormwater.*"		
End of Checklist			

Tab 1. General

Location

The subject property is in the City of Wichita, Sedgwick County, Kansas. The proposed development is on Maize Road between 29th Street North and 37th Street North. The site is the southwest quarter of the northwest quarter of Section 32, Township 26 South, Range 1 West of the 6th P.M. The Stonebridge Commercial Addition borders the site to the north, the Maize School South Campus Addition borders the site to the east, and the Fox Ridge Addition borders the site to the south. The plat area is 48.3 acres. The site is shown on the USGS Map, Appendix 1.1. The site is also shown on the aerial photograph, Appendix 1.2.

Discussion of Project

Existing

The site was previously platted as Maize School South Campus with the area developed with school land usage. The site was included in the drainage report for Maize School South Campus.

The site is adjacent to the Maize School South Campus and Stonebridge Commercial Additions as shown on the preliminary plat, Appendix 1.3. The site is part of the Cadillac Lake Basin and a series of interconnected detention facilities. During an observed rain event on September 12, 2008 that was equal to or greater than a 100-year event, the water surface elevation of Cadillac Lake was observed to be 1351.6. A detention pond has been constructed on the eastern portion of the site. This provides back flow storage capacity for Cadillac Lake and the surrounding areas. This pond is part of the Cadillac Lake Basin and has the 100-year water surface elevation of 1351.6. The pond flows to the south under 34th Street and into a smaller pond. This pond has a riser outlet structure that controls the flow from this site.

Proposed

Development Type

The proposed development is a commercial development with 8 lots. The six lots that front onto Maize Road have areas of 1.0-1.2 acres. The two larger lots are approximately 9.2 acres in size. The basic site is shown on the final plat, Appendix 1.4. Existing dry detention in Reserve A will be modified to fill in a portion and expanded to provide additional detention. The dry pond will also be modified to a wet pond. Existing downstream structures will continue to control this pond and the basin. Compensatory storage will be provided for the volume of existing pond which is proposed to be filled. Detention is also proposed for the remaining school property along 37th Street. This remaining school property is planned for highly dense commercial development.

Preliminary site grading is shown on the Master Grading Plan, Appendix 1.5.

Impacts on Stormwater

A portion of the existing dry detention basin will be filled. The detention basin will be expanded to provide compensatory storage, detention for the proposed development plus 10%, and detention for future development on the remaining school property plus 10%. The pond will also be expanded to include wet detention. The site will be graded to drain to the detention.

Permanent Structural Stormwater Management Facilities

The detention pond will provide detention, water quality, and channel protection for all remaining undeveloped property within the north half of this section.

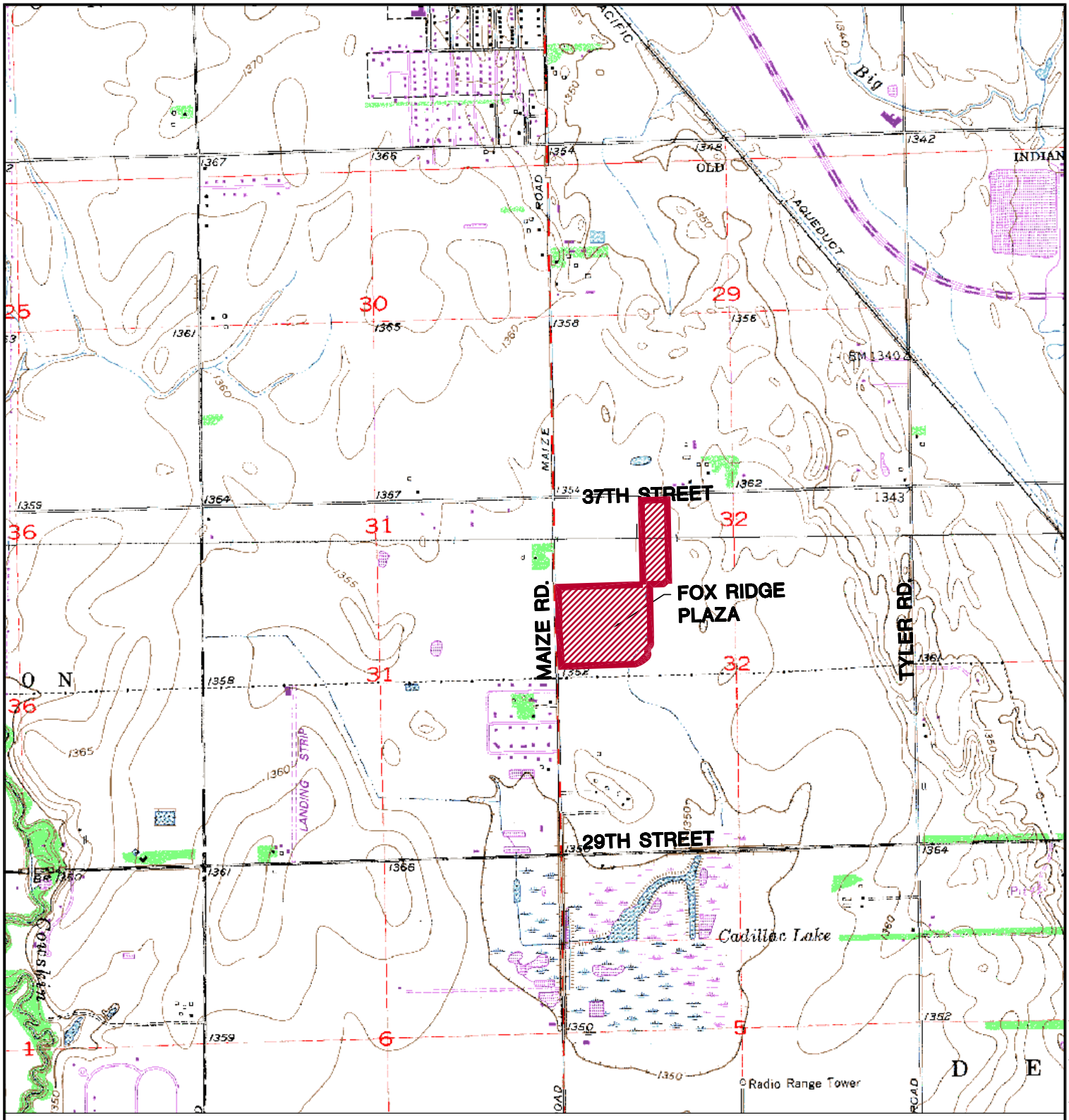
Offsite

The site is bounded by Maize School South Campus, Stonebridge Commercial, and Fox Ridge Additions. All of these developments are part of Cadillac Lake Drainage Basin and have interconnected detention ponds.

Summary

The site will develop from proposed school usage to proposed commercial usage. The existing dry detention on site will be modified to include a wet pond and provide additional detention. The development of this site and the undeveloped school property along 37th Street will provide an approximately 32 acre-feet of detention. This provides the 23 acre feet required for the development of the site, undeveloped school property along 37th Street, and compensatory storage. The project provides 9 acre feet of storage above what is necessary for the development.

Appendix 1.1 - USGS Quadrangle Map



NORTH

SCALE: 1"=2000'

0 2000 4000

SECTION 32
TOWNSHIP 26 SOUTH
RANGE 1 WEST

MKEC
Wichita, KS · 316.684.9600

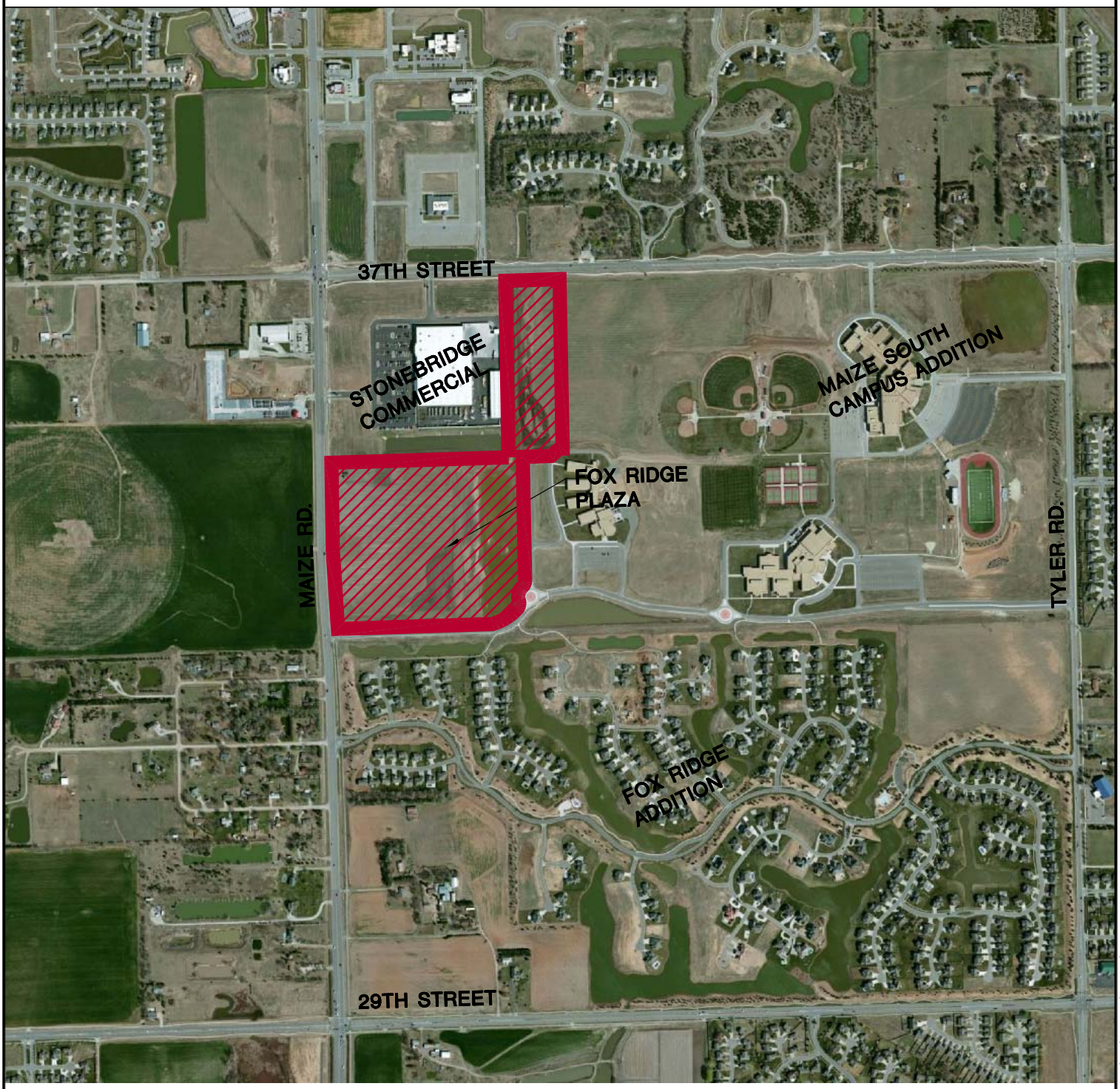
USGS QUAD EXHIBIT
FOX RIDGE PLAZA

PROJECT NO.	DATE:	SHEET NO.
1101010577	JANUARY 2014	1 OF 1

DRAWN BY:	DESIGNED BY:	APPROVED BY:
JGD	KLA	GJA

J:\PROJECTS\2011\1101010577 PREMIER FOX RIDGE PLAZA\5-CIVIL\CAD\DRAINAGE\DRAWING\11577_QUAD.DWG

Appendix 1.2 - Aerial Photograph



SECTION 32
TOWNSHIP 26 SOUTH
RANGE 1 WEST

NORTH

SCALE: 1"=1000'

0 1000 2000

MKEC
Wichita, KS • 316.684.9600

USGS QUAD EXHIBIT
FOX RIDGE PLAZA

PROJECT NO.	DATE:	SHEET NO.
1101010577	JANUARY 2014	1 OF 1

DRAWN BY:	DESIGNED BY:	APPROVED BY:
JGD	KLA	GJA

J:\PROJECTS\2011\1101010577 PREMIER FOX RIDGE PLAZA\5-CIVIL\CAD\DRAINAGE\DRAWING\11577_AERIAL.DWG

Appendix 1.3 - Preliminary Plat

NW cor., Sec. 32, T26S, R1W, 6th P.M. Fnd. PK Nail

NOTES

1. LOCATION: In the northwest Wichita, lying adjacent to the City of Maize on the West south ¼th of a mile south of the intersection of Maize Road and 37th Street North in a suburban area. The property has access to K-96 via Maize Road, 2 miles north of the plat. Existing surrounding land uses include suburban residential (S), rural residential (SW), commercial (N,NW), public school (E), and agricultural production (W).
2. LOT TOTAL - 8
3. ANNEXATION: Incorporated into Wichita (4-16-2003) / Case A03-09 / Ord. 45-701
4. EXISTING USE: Vacant school property / non-production agricultural
5. ZONING: Existing SF-5 Proposed - LC with CUP DP-330
   This plat is subject to the conditions of Community Unit Plan DP 330.
6. PLAT AREA: Gross - 2,095,019 s.f. or 48.1 Ac.
7. SURVEY DATE: Nov. 11th, 2011 (by MKEC) 2' Contours by LIDAR (City of Wichita)
8. PUBLIC UTILITIES: 20" Water along Maize Road - 10" Sanitary Sewer 1,700 ft east of subject property.
9. LEGAL DESCRIPTION: As described hereon
10. ACCESS CONTROLS: As shown hereon
11. RESERVE: 5. See uses on final plat.
12. FLOOD: According to FEMA FIRM Community Unit Panel 20173C0330E, Effective Date Feb. 2nd, 2007: this property lies within flood zone "X", *"Areas determined to be outside the 0.2 % annual chance floodplain."*
13. DRAINAGE: A drainage report shall accompany this plat.

LEGAL DESCRIPTION

A contiguous tract of land lying within portions of Lots 1 and 2, Block A, and a portion of Reserve B, Maize South School Campus Addition, an addition to Wichita, Sedgwick County, Kansas, said contiguous tract being more particularly described as follow:

BEGINNING at the northwest corner of said Lot 2, thence along the northerly line of said addition, being coincident with the south line of Stonebridge Commercial Addition, an addition to Wichita, Sedgwick County, Kansas, on a Kansas coordinate system of 1983 south zone bearing of N88°12'08"E, 1247.57 feet; thence along the westerly line of said addition, being coincident with the east line of said Stonebridge Commercial Addition, N01°03'47"W, 1242.46 feet to a point lying 80.00 feet south of the north line of said Northwest Quarter, Section 32, Township 26 South, Range 1 West of the Sixth Principal Meridian; thence parallel with and 80.00 feet south of said north line; thence N88°14'57"E, 380.03 feet; thence S01°03'47"E, 1192.40 feet; thence S89°27'12"W, 18.13 feet; thence S50°37'42"W, 82.23 feet; thence S88°12'08"W, 197.37 feet to the east line of said Reserve B; thence along said east line; thence S01°03'47"E, 872.45 feet to a point on a curve to the right, having a radius of 55.00 feet, a central angle of 49°02'45", a chord bearing of S23°27'35"W, and a chord distance of 45.66 feet; thence along the arc of said curve a distance of 47.08 feet to a point on a curve to the left, having a radius of 92.00 feet, a central angle of 66°32'50", a chord bearing of S14°42'33"W, and a chord distance of 100.95 feet; thence along the arc of said curve a distance of 106.86 feet to a point on a curve to the right, having a radius of 55.00 feet, a central angle of 46°10'35", a chord bearing of S04°31'25"W, and a chord distance of 43.14 feet; thence along the arc of said curve a distance of 44.33 feet; thence S27°36'43"W, 23.40 feet to a point on a curve to the right, having a radius of 110.00 feet, a central angle of 77°48'12", a chord bearing of S66°30'49"W, and a chord distance of 138.16 feet; thence along the arc of said curve a distance of 149.37 feet to a point on a curve to the left, having a radius of 340.00 feet, a central angle of 17°15'07", a chord bearing of N83°12'39"W, and a chord distance of 101.99 feet; thence along the arc of said curve a distance of 102.38 feet; thence S01°50'13"E, 138.00 feet to the south line of said Reserve B, said Maize South School Campus Addition; thence along the south lines of said Reserve B and Lot 2, S88°09'47"W, 1030.64 feet to the west line of said addition; thence along said west line for the next two courses, N03°47'54"W, 622.36 feet; thence N00°55'39"W, 626.34 feet to the POINT OF BEGINNING.

CONTAINING: 2,095,019 square feet or 48.1 acres of land, more or less.

LEGEND

- Coniferous Tree & Diameter
- Deciduous Tree & Diameter
- Sign
- Power Pole And Guy Anchor
- Electric Box
- Light Pole
- Fire Hydrant
- Water Valve
- Water Meter
- Section Corner
- Benchmark
- Easement
- Building Setback
- Fence
- Storm Sewer Pipe
- Water Line
- Sanitary Sewer Line
- Gas Line
- Gas Pipeline
- Telephone Line
- Underground Electric Line
- Overhead Electric
- Fiber Optic Cable !

NORTH
100 0 100 200
1"=100'
1 : 1,200

R 1 W
W. 37th St.
PLAT LOCATION
Maize School South Campus
T 26 S
Maize Road
Tyler Road
32
W. 29th St.

VICINITY MAP

PRELIMINARY PLAT

A portion of the NW. ¼, Sec. 32, T26S, R1W, 6th P.M.

FOX RIDGE PLAZA ADDITION

OWNER: USD #266 Attn: Amber Casement, BOE President 11611 W 49th St. N., Maize, KS 67101 316-722-0614
DEVELOPER: Tier 1, LLC Attn: Marv Schellenberg 7926 W 21st ST. N. Wichita, KS 67205 316-721-2153

SW cor., NW. ¼, Sec. 32, T26S, R1W, 6th P.M. Fnd. ½" Bar w/ Moehring id cap

Date submitted January 13th, 2014
Subdivision Hearings January 30th

MKEC Wichita, KS • 316.684.9600

Fox Ridge Plaza (SUB 2011-00055)

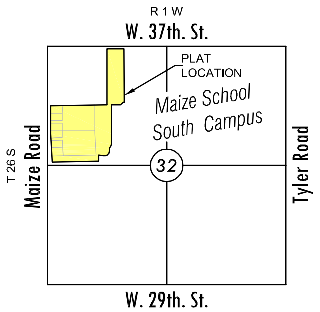
Appendix 1.4 - Final Plat

FINAL PLAT

FOX RIDGE PLAZA ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

A replat of a portion of Maize South School Campus Addition



VICINITY MAP

1"=100' / 1 : 1200

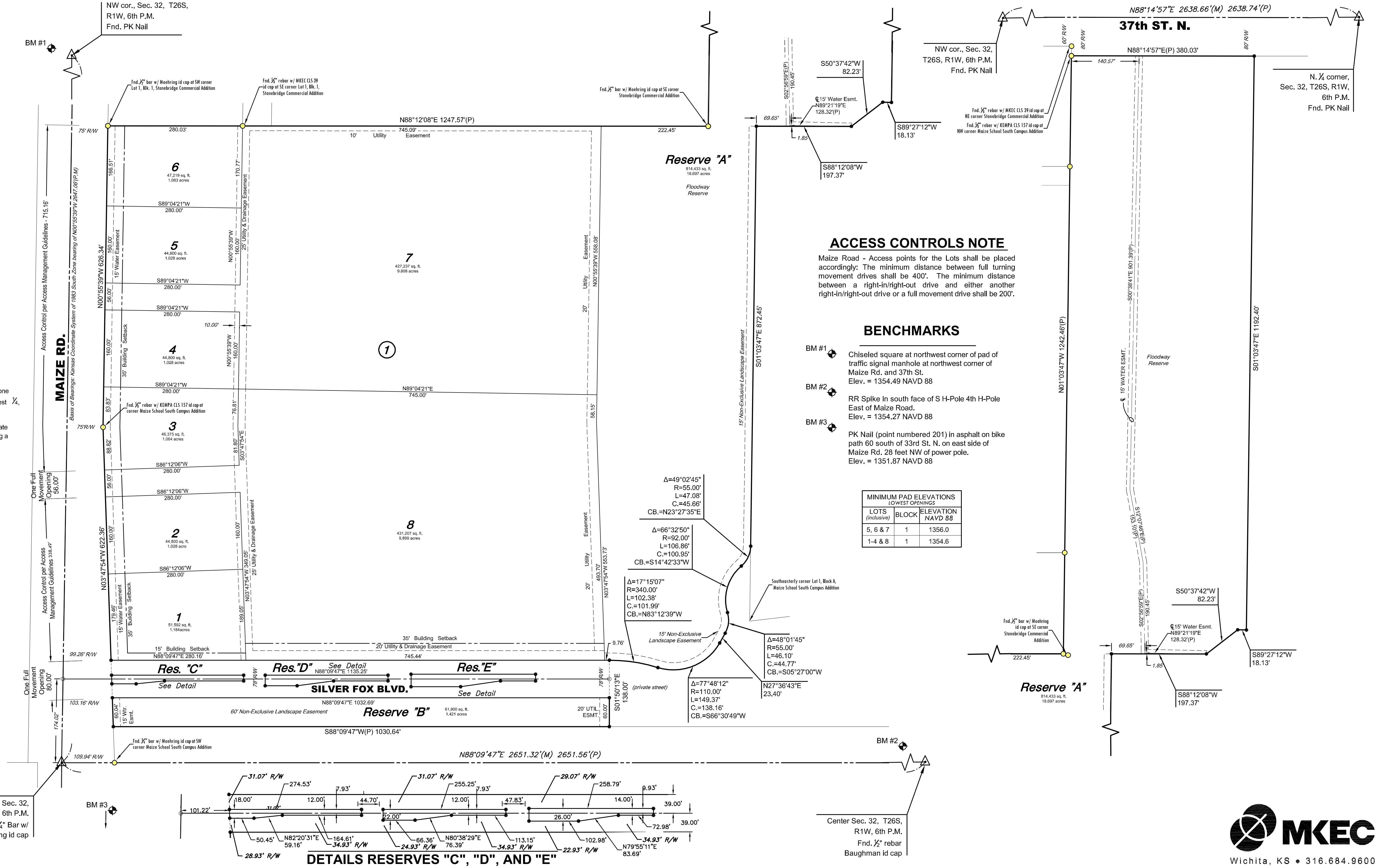
Basis of Bearing: Kansas coordinate system of 1983 south zone grid bearing of N00°55'39"W along the West line of the Northwest ¼, Sec. 32, T26S, R1W, 6th P.M.

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 1.000120014

LEGEND

Date of Survey: Oct. 5th, 2011

- △ = Section corner monument found
- ○ = Found see annotation
- ● = Set ⅝" rebar w/ MKEC CLS 39 id. cap
- (M) = Measured
- (P) = Platted



ACCESS CONTROLS NOTE

Maize Road - Access points for the Lots shall be placed accordingly: The minimum distance between full turning movement drives shall be 400'. The minimum distance between a right-in/right-out drive and either another right-in/right-out drive or a full movement drive shall be 200'.

BENCHMARKS

BM #1 Chiseled square at northwest corner of pad of traffic signal manhole at northwest corner of Maize Rd. and 37th St. Elev. = 1354.49 NAVD 88

BM #2 RR Spike in south face of S H-Pole 4th H-Pole East of Maize Road. Elev. = 1354.27 NAVD 88

BM #3 PK Nail (point numbered 201) in asphalt on bike path 60 south of 33rd St. N. on east side of Maize Rd. 28 feet NW of power pole. Elev. = 1351.87 NAVD 88

MINIMUM PAD ELEVATIONS LOWEST OPENINGS		
LOTS (inclusive)	BLOCK	ELEVATION NAVD 88
5, 6 & 7	1	1356.0
1-4 & 8	1	1354.6

MKEC

Wichita, KS • 316.684.9600

FINAL PLAT

FOX RIDGE PLAZA ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

A replat of a portion of Maize South School Campus Addition

CERTIFICATE OF SURVEY

I, Gregory J. Allison, a registered land surveyor in Kansas, do hereby certify that I have been in responsible charge of surveying and platting of "FOX RIDGE PLAZA ADDITION", an addition to Sedgwick County, Kansas, into a Lots, a Block, Reserves, and a Street, the same being accurately set forth in the accompanying plat and described herein:

A contiguous tract of land lying within portions of Lots 1 and 2, Block A, and a portion of Reserve B, Maize South School Campus Addition, an addition to Wichita, Sedgwick County, Kansas, said contiguous tract being more particularly described as follow:
BEGINNING at the northwest corner of said Lot 2, thence along the northerly line of said addition, being coincident with the south line of Stonebridge Commercial Addition, an addition to Wichita, Sedgwick County, Kansas, on a Kansas coordinate system of 1983 south zone bearing of N88°12'08"E, 1247.57 feet; thence along the westerly line of said addition, being coincident with the east line of said Stonebridge Commercial Addition, N01°03'47"W, 1242.46 feet to a point lying 80.00 feet south of the north line of said Northwest Quarter, Section 32, Township 26 South, Range 1 West of the Sixth Principal Meridian; thence parallel with and 80.00 feet south of said north line; thence N88°14'57"E, 380.03 feet; thence S01°03'47"E, 1192.40 feet; thence S89°27'12"W, 18.13 feet; thence S50°37'42"W, 82.23 feet; thence S88°12'08"W, 197.37 feet to the east line of said Reserve B; thence along said east line; thence S01°03'47"E, 872.45 feet to a point on a curve to the right, having a radius of 55.00 feet, a central angle of 49°02'45", a chord bearing of S23°27'35"W, and a chord distance of 45.66 feet; thence along the arc of said curve a distance of 47.08 feet to a point on a curve to the left, having a radius of 92.00 feet, a central angle of 66°32'50", a chord bearing of S14°42'33"W, and a chord distance of 100.95 feet; thence along the arc of said curve a distance of 106.86 feet to a point on a curve to the right, having a radius of 55.00 feet, a central angle of 46°10'35", a chord bearing of S04°31'25"W, and a chord distance of 43.14 feet; thence along the arc of said curve a distance of 44.33 feet; thence S27°36'43"W, 23.40 feet to a point on a curve to the right, having a radius of 110.00 feet, a central angle of 77°48'12", a chord bearing of S66°30'49"W, and a chord distance of 138.16 feet; thence along the arc of said curve a distance of 149.37 feet to a point on a curve to the left, having a radius of 340.00 feet, a central angle of 17°15'07", a chord bearing of N83°12'39"W, and a chord distance of 101.99 feet; thence along the arc of said curve a distance of 102.38 feet; thence S01°50'13"E, 138.00 feet to the south line of said Reserve B, said Maize South School Campus Addition; thence along the south lines of said Reserve B and Lot 2, S88°09'47"W, 1030.64 feet to the west line of said addition; thence along said west line for the next two courses, N03°47'54"W, 622.36 feet; thence N00°55'39"W, 626.34 feet to the POINT OF BEGINNING.

CONTAINING: 2,095,019 square feet or 48.1 acres of land, more or less.

All easements, right-of-ways, building setbacks, and access controls, together with all other public dedications within the above described property, are hereby vacated and replatted by virtue of K.S.A. 12-512b.

I hereby certify that the details of this plat are correct to the best of my knowledge and belief this ___day of ____________, 2014.

Gregory J. Allison, PE, LS #1257
MKEC Engineering Consultants, Inc.
411 North Webb Road
Wichita, Kansas 67206

OWNER'S CERTIFICATE

Know all men by these presents that the undersigned property owner of the land above set forth in the Registered Land Surveyor's Certificate, has caused the same to be surveyed and platted into a Lots, a Block, Reserves, and a Street the same to be known as "FOX RIDGE PLAZA ADDITION," an addition to Wichita, Sedgwick County, Kansas.

Easements for the construction and maintenance of public utilities and drainage, as indicated on the accompanying plat are hereby granted to the public. The non-exclusive landscape easements are hereby granted to the undersigned owner and their successor's and assigns.

The streets are hereby dedicated to and for the use of the public.

All abutters rights of access to or from Maize Road over and across the west line of "FOX RIDGE PLAZA ADDITION," are hereby granted to the appropriate governing body, as indicated hereon.

Reserve "A" is platted for floodway, drainage, (walls, landscaping, irrigation, and berming within the east and southmost 15 feet thereof), and utilities confined by easement(s) or rights-of-way . Reserve "B", is platted for landscaping, irrigation, berming, screening measures, walls, and utilities confined by easement(s) or rights-of-way. Reserves "C", "D", & "E" are platted for wayfinding signs, landscaping, irrigation, berming, and utilities confined by easement(s) or rights-of-way. The Reserves shall be owned and maintained by the owner(s) of Lots 1, 2, 3, 4, 5, 6, 7, and 8, Block 1, and/or their successors, assigns, and/or a Lot Owner's Association.

A drainage plan has been developed for this plat. All drainage easements, right-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.

This plat is subject to the conditions of Community Unit Plan DP 330.

TIER 1, LLC, a Kansas limited liability company

________________________, Managing Member
Marvin L. Schellenberg, Managing Member

STATE OF KANSAS, SEDGWICK COUNTY} ss:

This instrument was acknowledged before me on ____ day of __________, 2014, by Marvin L. Schellenberg, Managing Member, Tier 1, LLC, a Kansas limited liability company .

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

____________________, Notary Public
Notary Public:
My Term Expires: __________

PLANNING COMMISSION CERTIFICATE

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

Dated this ____ day of __________, 2014

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION

________________________, Chair
Don Klausmeyer, Chair

Attest:

________________________, Secretary
John L. Schlegel, Secretary

Affix MAPC Seal

GOVERNING BODY CERTIFICATE

The dedications shown on this plat are hereby accepted and this plat is hereby approved by the governing body of the City of Wichita, Kansas.

Dated this ____ day of __________, 2014

At the direction of the City Council.

________________________, Mayor
Carl Brewer, Mayor

Attest:

________________________, City Clerk
Karen Sublett, City Clerk

Affix City Seal

COUNTY SURVEYOR

STATE OF KANSAS, SEDGWICK COUNTY} ss:

Reviewed in accordance with K.S.A. 58-2005 on this ____ day of __________, 2014.

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

TRANSFER RECORD

STATE OF KANSAS, SEDGWICK COUNTY} ss:

Entered on transfer record this ____ day of __________, 2014

________________________, County Clerk
Kelly B. Arnold, County Clerk

Affix County Clerk Seal

REGISTER OF DEEDS' CERTIFICATE

STATE OF KANSAS, SEDGWICK COUNTY} ss:

This is to certify that this instrument was filed for record in the Register of Deeds office this ____ day of __________ , 2014, at ________ o'clock _M; and is duly recorded.

________________________, Register of Deeds
Bill Meek, Register of Deeds

Attest:

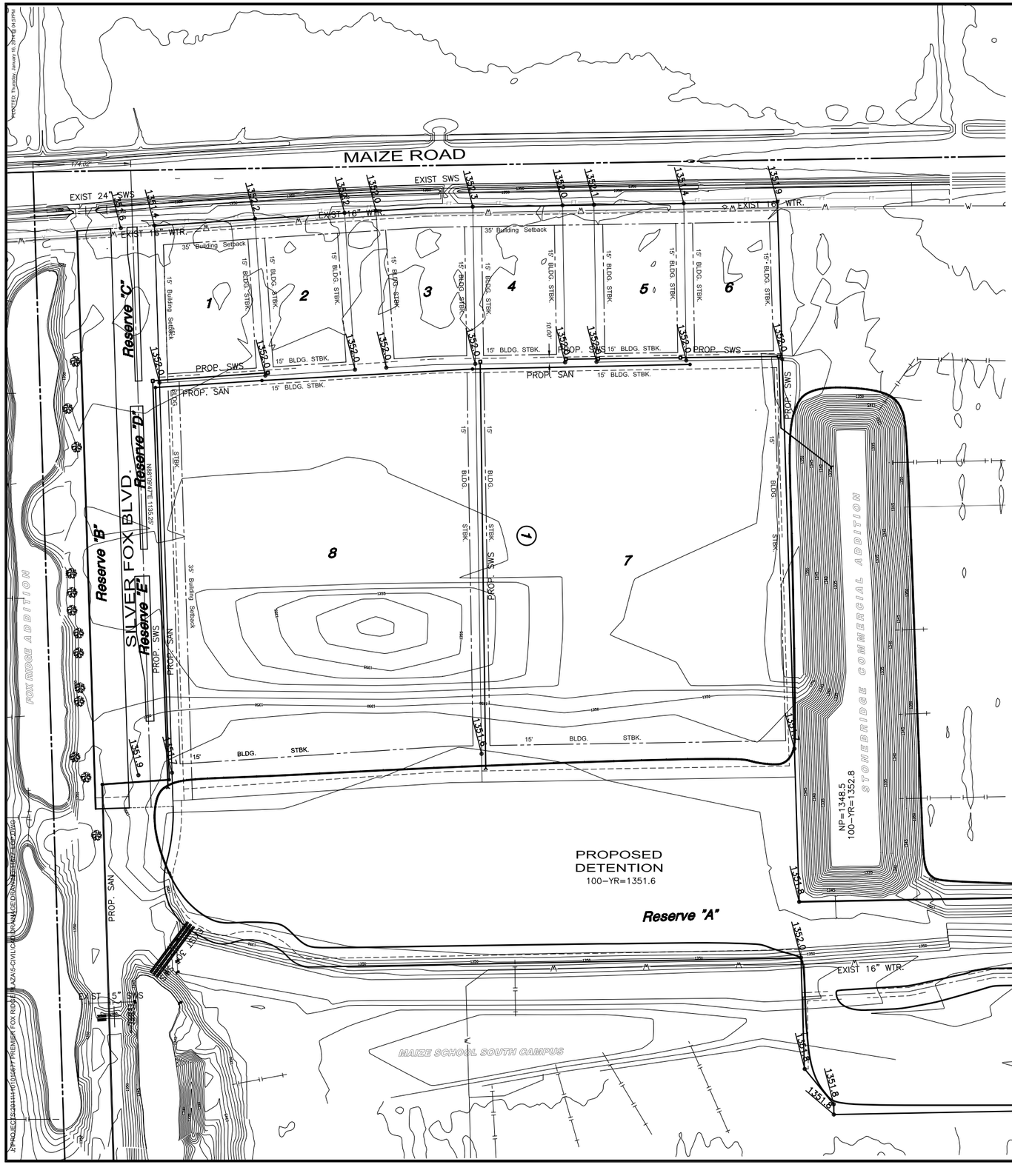
________________________, Deputy
Tonya E. Buckingham, Deputy

Affix Register of Deeds Seal

MKEC
Wichita, KS • 316.684.9600

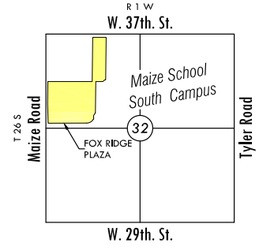
J:\Projects\2011\1101010577 Premier Fox Ridge Plaza\5-Civil\CAD\Plat\11577a.dwg 01/13/2014 09:26:47 AM CST

Appendix 1.5 - Master Grading Plan



LEGEND

- 6IN - CONIFEROUS TREE
- 3IN - DECIDUOUS TREE
- SN - SIGN
- PP - POWER POLE
- ELEC BOX - ELECTRIC BOX
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- SECTION CORNER
- BM - BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UGE - UNDERGROUND ELEC.
- OHE - OVERHEAD ELECTRIC
- FOC - FIBER OPTIC CABLE
- DRAINAGE SUB BASIN
- DRAINAGE BASIN
- FLOW ARROW
- A17 - AREA FOR SWS SIZING
- 1372.2 - PROP. SPOT ELEV.



VICINITY MAP

MKEC
Wichita, KS · 316.684.9600

LOT GRADING PLAN

FOX RIDGE PLAZA

WICHITA, KANSAS

LOT GRADING PLAN

PROJECT NO.	1101010577
DATE	1/17/14
SCALE	1" = 100'

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE

SHEET NO.

1 OF 1

Tab 2. Existing Conditions

Datum

The site is shown in NAVD 88 datum. All elevations from previous reports have been converted to NAVD 88. The Fox Ridge Addition used City of Wichita Datum (NAVD 88 = COW + 1187.9'). The Stonebridge Commercial Addition used NGVD 29 Datum (NAVD 88 = NGVD 29 Datum + 0.5').

Drainage Patterns

The site is extremely flat with an elevation of 1352 for most of the western portion of the site. Along the east side of the site is a dry detention pond with a top of bank of approximately 1352 and a bottom of 1347. The pond drains to the south under 34th Street through 3-26" RCP's, into an existing pond on Maize School South Campus Addition and then through a riser structure and an 18" RCP to the south into Fox Ridge Addition. The riser structure controls the normal pool elevation at 1347.5 and provides channel protection and water quality. Lager storms overflow through the larger spillway pipe. The existing conditions are shown on the Existing Conditions Drainage Map, Appendix 2.1.

The detention ponds on Fox Ridge Plaza, Maize Campus South, and Fox Ridge Additions are all part of the interconnected Cadillac Lake Basin. During an observed rain event on September 12, 2008 that was greater than a 100-year event, the water surface elevation of Cadillac Lake which back flowed into these ponds at an observed elevation of 1351.6. A detention pond has been constructed on the eastern portion of the site. This pond is part of Cadillac Lake and has the 100-year water surface elevation of 1351.6.

Groundwater Elevations

According to the Kansas Geological Survey Water Well Records (http://www.kgs.ku.edu/Magellan/WaterWell/index.html) there is an existing domestic water well on site with a static water level approximately 25' below existing ground.

Utilities

Water

An existing 20" water line runs along the east side of Maize Road. A water line also crosses the site from north to south on the east side of the existing detention.

Sanitary Sewer

An existing sanitary sewer line flows along the south edge of Maize School South Campus Addition.

Stormwater

An existing roadside ditch conveys flows from north to south along Maize Road. The site drains to existing 3-36" RCP's under 34th Street.

Others

There are no other existing utilities on site.

Hydrologic Analysis

This site was included in previous reports for the Maize School South Campus as prepared by KE Miller dated October 2007. In that report the area is included as Basin A2 under developed school conditions on the Drainage Plan, Appendix 2.2. This basin was modeled using the Rational Method. The Rational C values were increased from 0.51 to 0.58 in the 100-year design storm to represent school use in that report, as indicated on the exhibit from the KE Miller Report.

For this report, due to the complexity of the Cadillac Lake drainage basin, the site was modeled as a single basin to estimate runoff in this report. Calculations for this report use the NRCS Curve Number method in Hydraflow Hydrographs, Appendix 2.3.

Table 2.1. Rainfall Depths for 24-Hour Design Storms

Location	Design Storm Rainfall Depth (in)							
	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Sedgwick County	2.8	3.5	4.5	5.2	6.1	6.9	7.8	9.4

Soil Type

- Blanket Silt Loam, 0 to 1 percent slopes, HSG "C"
- Waurika Silt Loam, 0 to 1 percent slopes, HSG "D"

The HSG used to select curve numbers is HSG "D." The site is shown on the soil survey, Appendix 2.4.

Land Use, Impervious Area, and Curve Number

The site is currently undeveloped land with natural grass covering the site. It was planned for school use with 40% impervious in the KE Miller Report dated October 2007. The SCS curve number was calculated as 92.0 to represent the school land use from the KE Miller Report, Appendix 2.5.

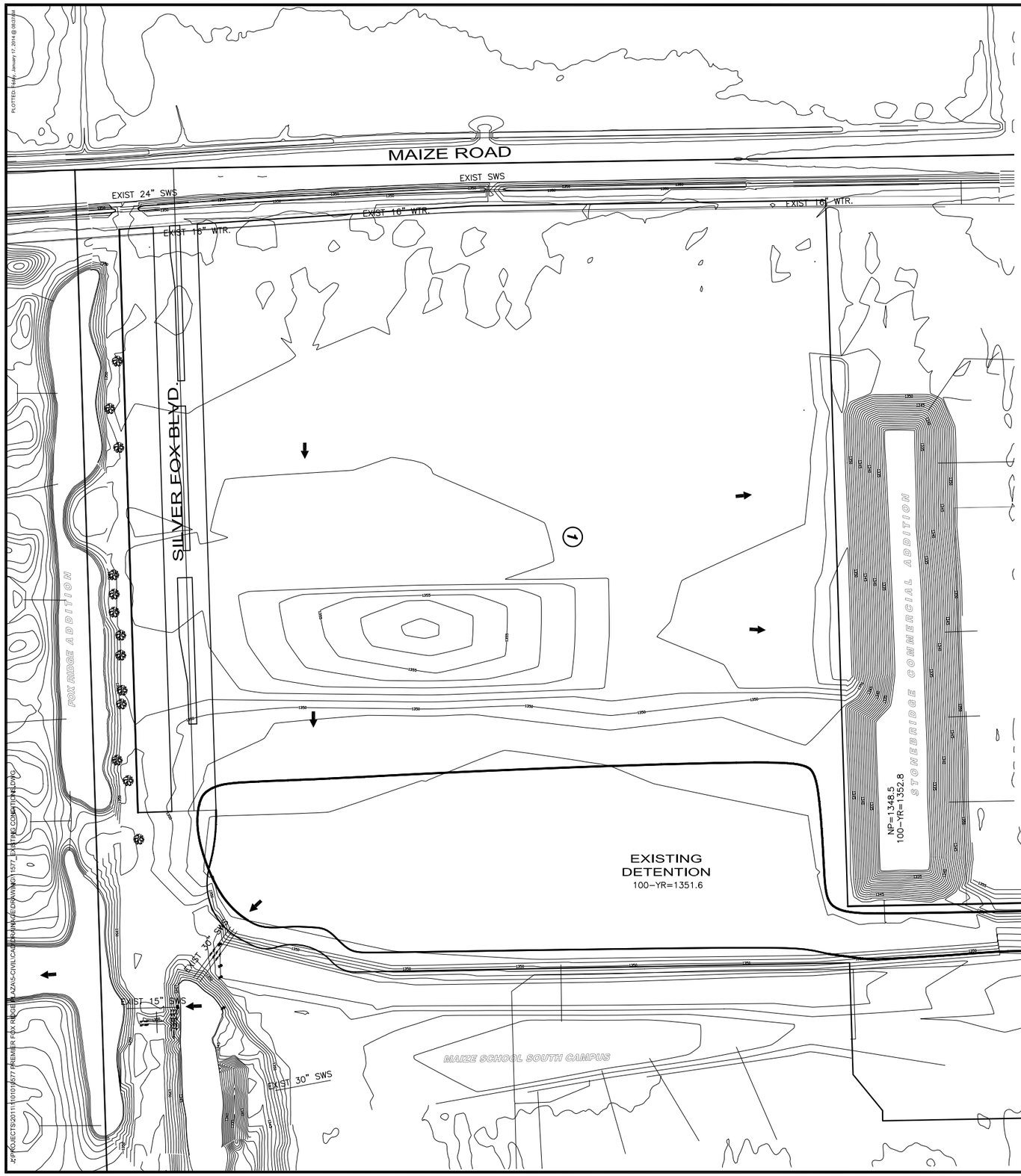
Time of Concentration

The time of concentration was calculated using to be 31.1 minutes by assuming that the site is unpaved and draining to the existing detention pond, Appendix 2.6.

Basin Summary

Since the property is part of Cadillac Lake Basin, the flows from the site are controlled offsite by Cadillac Lake. The site currently provides storage for Cadillac Lake. Any area below 1351.6 in elevation will need to be replaced. Additional detention needs to be provided to accommodate development. In the Cadillac Lake Basin, each project that develops is required to provide an additional 10% of storage above what is required for typical development.

Appendix 2.1 - Existing Conditions Drainage Map



LEGEND

6IN - CONIFEROUS TREE
3IN - DECIDUOUS TREE
SN - SIGN
PP - POWER POLE
ELEC BOX - ELECTRIC BOX
LP - LIGHT POLE
FH - FIRE HYDRANT
WV - WATER VALVE
WM - WATER METER
△ - SECTION CORNER
BM - BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UNDERGROUND ELEC.
- OVERHEAD ELECTRIC
- FIBER OPTIC CABLE
- DRAINAGE SUB BASIN
- DRAINAGE BASIN
→ - FLOW ARROW
A17 - AREA FOR SWS SIZING

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EXISTING CONDITIONS

FOX RIDGE PLAZA

WICHITA, KANSAS

EXISTING
CONDITIONS

PROJECT NO.	1101010577
DATE	1/77/14
SCALE	1" = 100'

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE

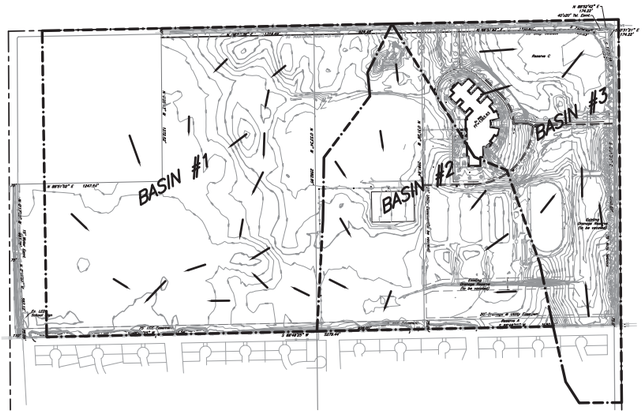
SHEET NO.

1 OF 1

Appendix 2.2 - Maize South Campus Drainage Plan

DRAINAGE PLAN FOR MAIZE SOUTH CAMPUS

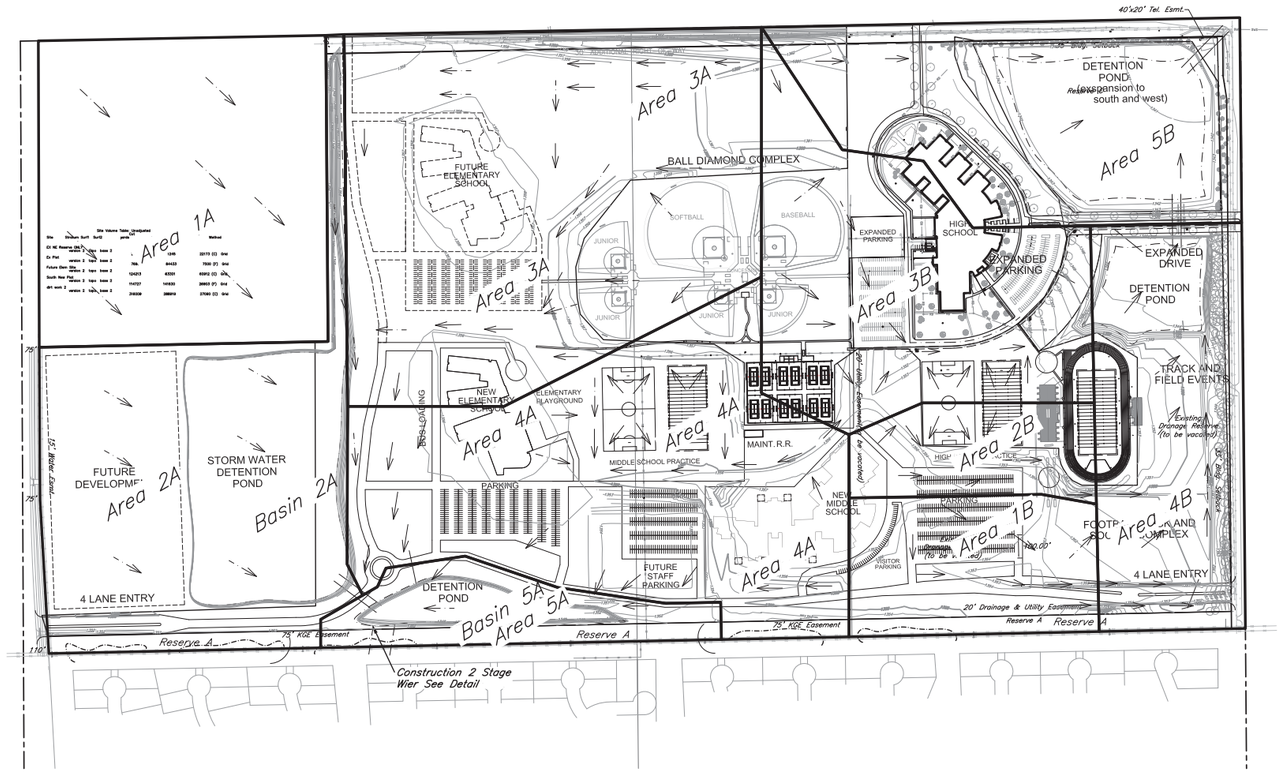
Existing Drainage Fields



Existing Site Drainage									
Block	# Acres	Tc	C5	I5	C100	I100	Q5	Q100
Basin 1	153.37	143.6 min	0.27	1.16	0.51	2.00	48.03	156.44
Basin 2	77.61	85.6 min	0.27	1.69	0.51	2.93	35.41	115.97
Basin 3	77.30	134.4 min	0.27	1.22	0.51	2.11	25.46	83.18
					Total Runoff=		108.90	355.59

Proposed Site Drainage										
Site	Acres	C2	I2	C5	I5	C100	I100	Q2	Q5	Q100
1A	37.80	0.24	0.21	0.27	0.28	0.51	0.47	1.90	2.86	9.06
2A	42.04	0.36	0.21	0.39	0.28	0.58	0.47	3.18	4.59	11.46
3A	59.67	0.49	0.21	0.51	0.28	0.66	0.47	6.14	8.52	18.51
4A&5A	57.77	0.45	0.21	0.47	0.28	0.63	0.47	5.46	7.60	17.11
1B	14.62	0.49	0.31	0.51	0.41	0.60	0.55	2.27	3.05	5.32
2B	9.41	0.49	0.31	0.51	0.41	0.66	0.55	1.46	1.96	3.42
3B	33.82	0.49	0.31	0.51	0.41	0.66	0.55	5.25	7.05	12.31
4B	25.86	0.24	0.31	0.27	0.41	0.51	0.55	1.97	2.85	7.27
5B	33.87	0.32	0.31	0.35	0.41	0.56	0.55	3.43	4.85	10.46

Proposed Drainage Plan



Engineer's Note:
Site drainage calculations developed using the Rational Method for peak runoff. "C" & "I" values established from the City of Wichita Design Criteria and Documentation. Detention Pond requirements developed from Stor-INd Method.

LEGEND

- Cedar Tree
- Fire Hydrant
- Light Pole
- Manhole (MH)
- Power Pole (PP)
- Sign
- Tree
- Water Valve
- Kansas Gas Service Line
- Sanitary Sewer
- Fence

OWNER: MAIZE SCHOOL DISTRICT
AREA: 269.56 acres (Existing)

Benchmark:
Inlet manhole lid. East side of Seville and South of Dubon. Elev. = 1324.90

- 1/2" Rebar (found) PEC LS #65
- 1/2" Rebar (found)
- 5/8" Rebar (found)
- 3/4" Iron Pipe (found)
- 3/4" Pinched Iron Pipe (found)

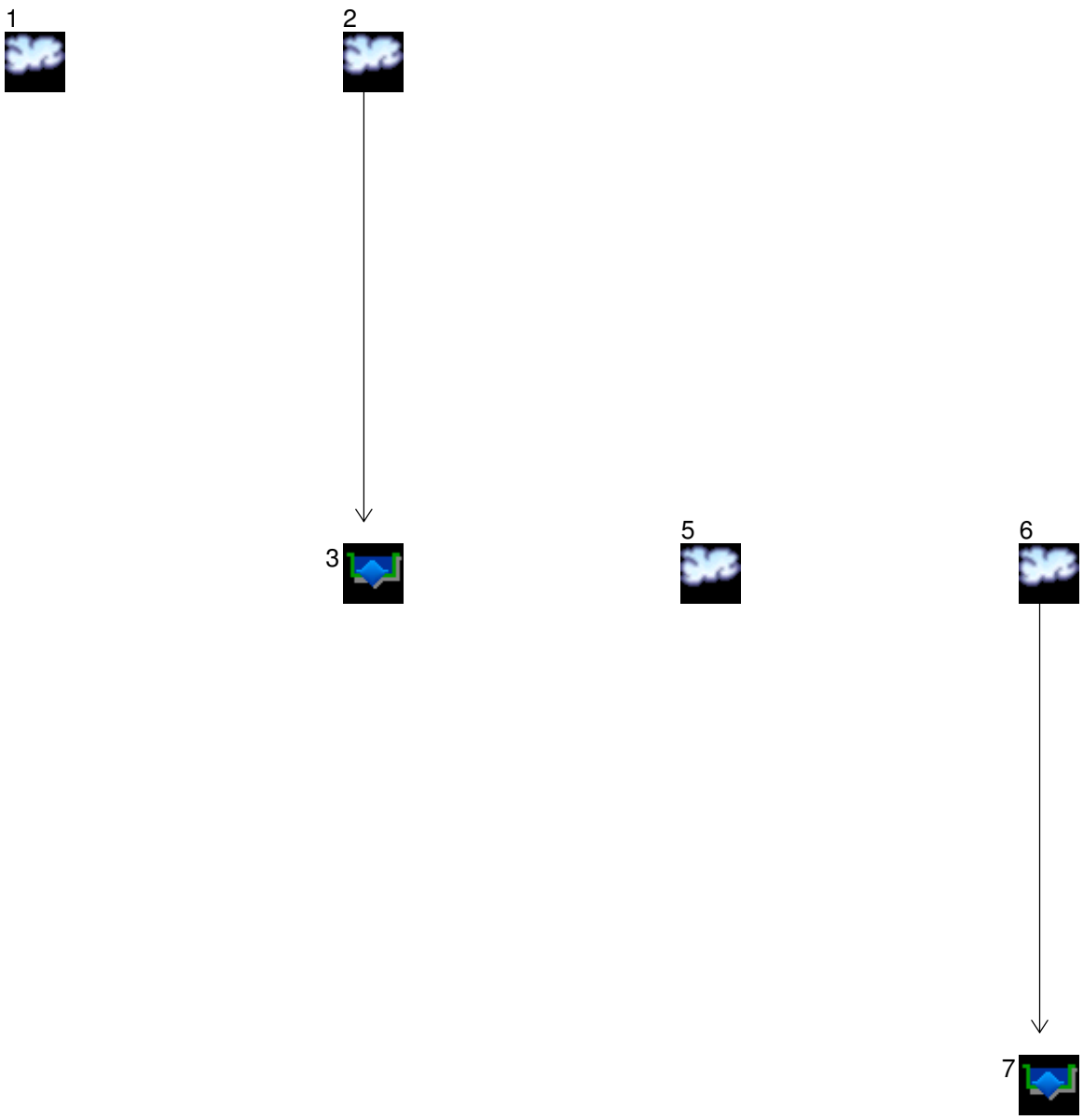
300 150 0 300
(IN FEET)
1 inch = 300 ft.

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

Appendix 2.3 - Hydraflow Hydrographs

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066



Legend

Hyd.	Origin	Description
1	SCS Runoff	Pre-Project - SBCS - School
2	SCS Runoff	Post-Project - SBCS
3	Reservoir	Detention - SBCS
5	SCS Runoff	Pre-Project - Future - School
6	SCS Runoff	Post-Project - Future
7	Reservoir	Detention - Future

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	------	-------	-------	-------	-------	-------	-------	-------	127.27	Pre-Project - SBCS - School
2	SCS Runoff	------	-------	-------	-------	-------	-------	-------	-------	264.89	Post-Project - SBCS
3	Reservoir	2	-------	-------	-------	-------	-------	-------	-------	126.59	Detention - SBCS
5	SCS Runoff	------	-------	-------	-------	-------	-------	-------	-------	124.02	Pre-Project - Future - School
6	SCS Runoff	------	-------	-------	-------	-------	-------	-------	-------	316.81	Post-Project - Future
7	Reservoir	6	-------	-------	-------	-------	-------	-------	-------	123.00	Detention - Future

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	127.27	6	732	15.413	------	------	------	Pre-Project - SBCS - School
2	SCS Runoff	264.89	2	718	16.115	------	------	------	Post-Project - SBCS
3	Reservoir	126.59	2	726	16.115	2	1352.74	4.49	Detention - SBCS
5	SCS Runoff	124.02	6	744	19.396	------	------	------	Pre-Project - Future - School
6	SCS Runoff	316.81	2	720	21.566	------	------	------	Post-Project - Future
7	Reservoir	123.00	2	730	21.566	6	1352.82	7.21	Detention - Future

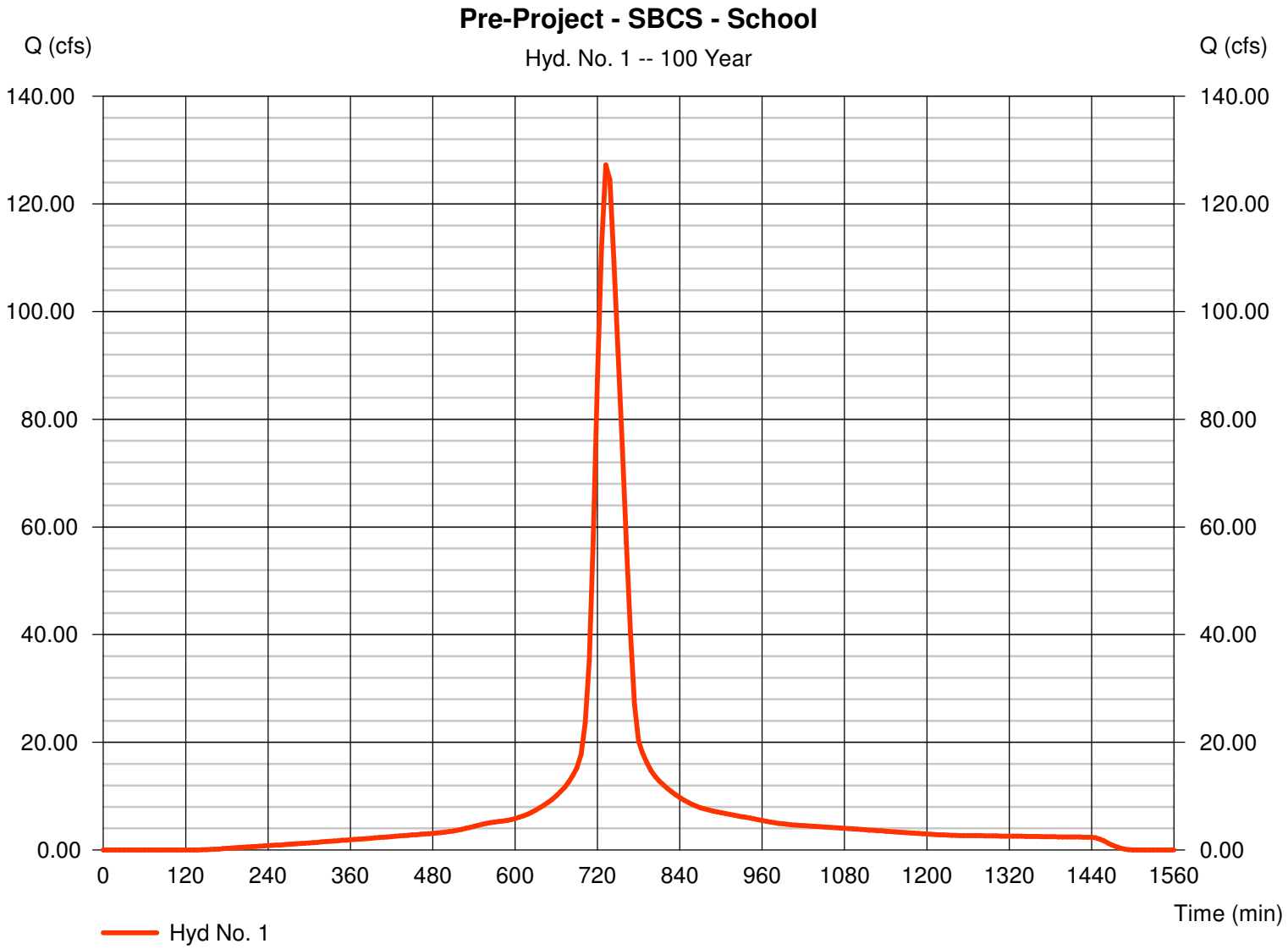
Hydrograph Report

Hyd. No. 1

Pre-Project - SBCS - School

Hydrograph type	= SCS Runoff	Peak discharge	= 127.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 732 min
Time interval	= 6 min	Hyd. volume	= 15.413 acft
Drainage area	= 26.200 ac	Curve number	= 92*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 31.10 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(9.200 x 98) + (13.800 x 88)] / 26.200

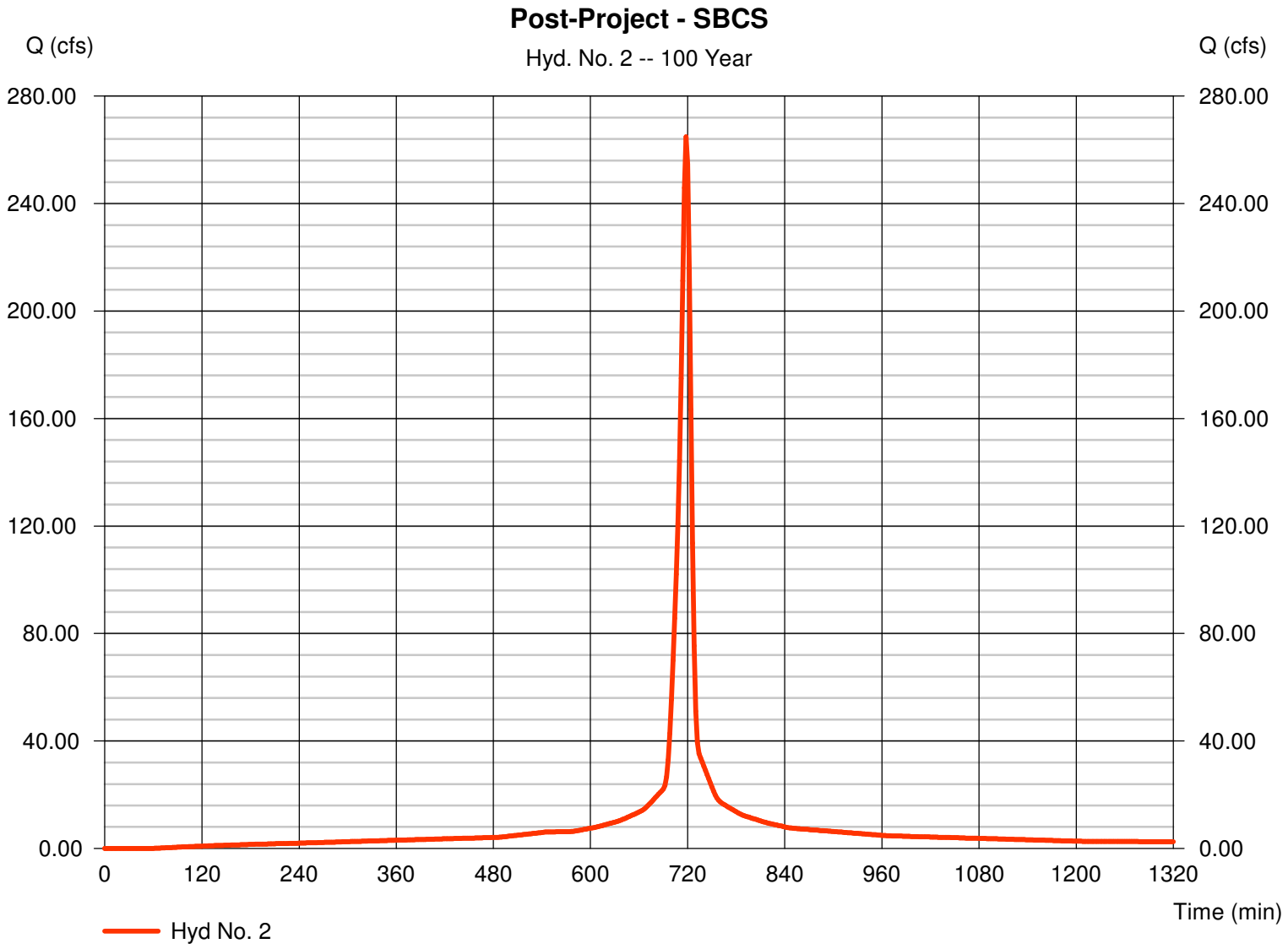


Hydrograph Report

Hyd. No. 2

Post-Project - SBCS

Hydrograph type	=	SCS Runoff	Peak discharge	=	264.89 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	16.115 acft
Drainage area	=	26.200 ac	Curve number	=	96.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	8.30 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



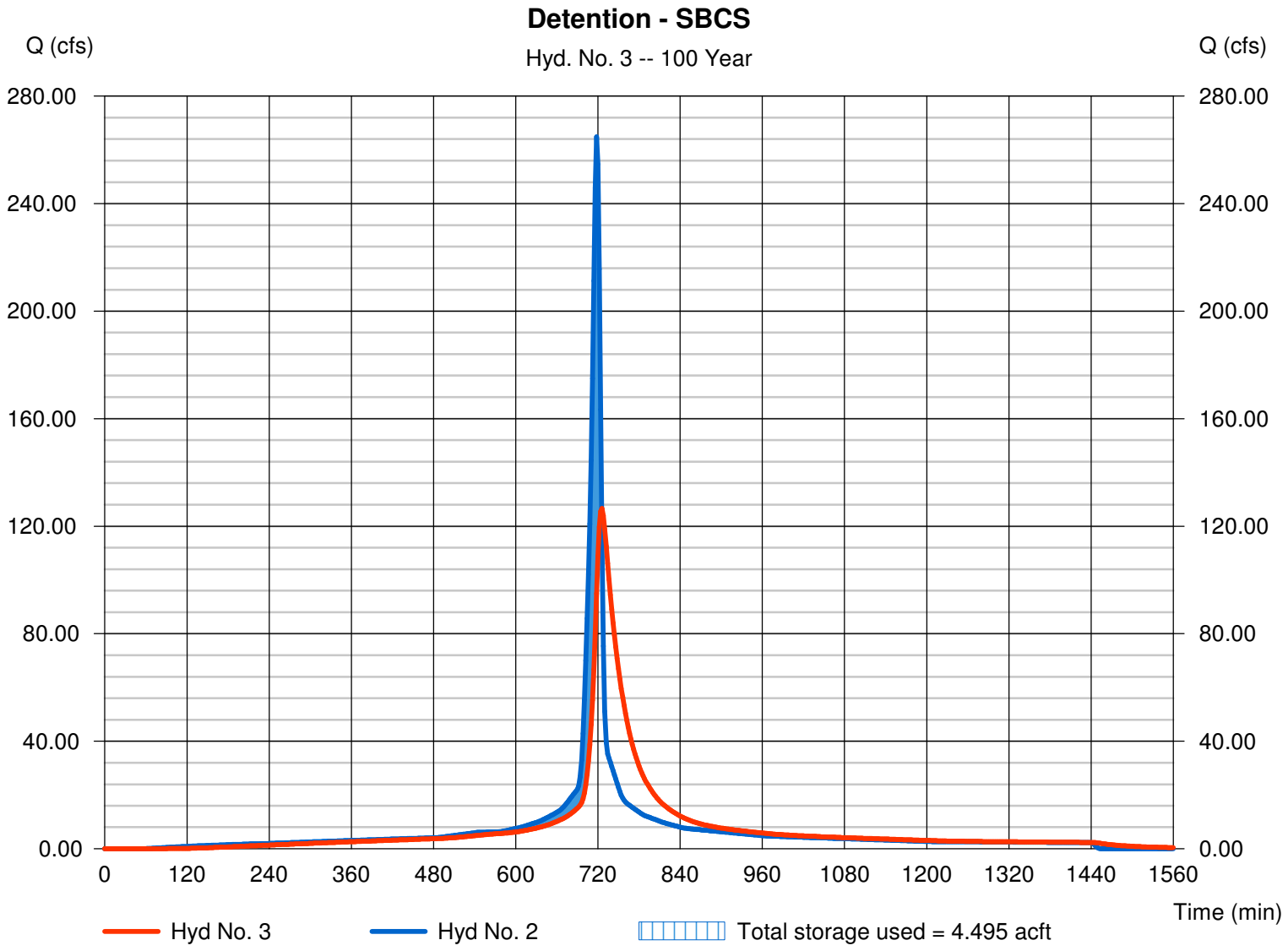
Hydrograph Report

Hyd. No. 3

Detention - SBCS

Hydrograph type	=	Reservoir	Peak discharge	=	126.59 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	16.115 acft
Inflow hyd. No.	=	2 - Post-Project - SBCS	Max. Elevation	=	1352.74 ft
Reservoir name	=	Detention Estimate - School to Commercial	Max. Storage	=	4.495 acft

Storage Indication method used.



Pond No. 1 - Detention Estimate - School to Commercial

Pond Data

Trapezoid - Bottom L x W = 280.0 x 105.0 ft, Side slope = 6.00:1, Bottom elev. = 1348.00 ft, Depth = 5.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1348.00	29,400	0.000	0.000
0.50	1348.50	31,746	0.351	0.351
1.00	1349.00	34,164	0.378	0.729
1.50	1349.50	36,654	0.406	1.135
2.00	1350.00	39,216	0.435	1.571
2.50	1350.50	41,850	0.465	2.036
3.00	1351.00	44,556	0.496	2.532
3.50	1351.50	47,334	0.527	3.059
4.00	1352.00	50,184	0.560	3.619
4.50	1352.50	53,106	0.593	4.211
5.00	1353.00	56,100	0.627	4.838

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.70	0.00	0.00	0.00
Crest El. (ft)	= 1348.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1348.00	---	---	---	---	0.00	---	---	---	---	---	0.000
0.05	0.035	1348.05	---	---	---	---	0.14	---	---	---	---	---	0.138
0.10	0.070	1348.10	---	---	---	---	0.39	---	---	---	---	---	0.390
0.15	0.105	1348.15	---	---	---	---	0.72	---	---	---	---	---	0.717
0.20	0.140	1348.20	---	---	---	---	1.10	---	---	---	---	---	1.104
0.25	0.175	1348.25	---	---	---	---	1.54	---	---	---	---	---	1.542
0.30	0.211	1348.30	---	---	---	---	2.03	---	---	---	---	---	2.028
0.35	0.246	1348.35	---	---	---	---	2.55	---	---	---	---	---	2.555
0.40	0.281	1348.40	---	---	---	---	3.12	---	---	---	---	---	3.122
0.45	0.316	1348.45	---	---	---	---	3.72	---	---	---	---	---	3.725
0.50	0.351	1348.50	---	---	---	---	4.36	---	---	---	---	---	4.356
0.55	0.389	1348.55	---	---	---	---	5.03	---	---	---	---	---	5.026
0.60	0.427	1348.60	---	---	---	---	5.73	---	---	---	---	---	5.728
0.65	0.464	1348.65	---	---	---	---	6.46	---	---	---	---	---	6.459
0.70	0.502	1348.70	---	---	---	---	7.22	---	---	---	---	---	7.219
0.75	0.540	1348.75	---	---	---	---	8.01	---	---	---	---	---	8.007
0.80	0.578	1348.80	---	---	---	---	8.82	---	---	---	---	---	8.821
0.85	0.616	1348.85	---	---	---	---	9.66	---	---	---	---	---	9.661
0.90	0.653	1348.90	---	---	---	---	10.53	---	---	---	---	---	10.53
0.95	0.691	1348.95	---	---	---	---	11.42	---	---	---	---	---	11.42
1.00	0.729	1349.00	---	---	---	---	12.32	---	---	---	---	---	12.32
1.05	0.770	1349.05	---	---	---	---	13.26	---	---	---	---	---	13.26
1.10	0.810	1349.10	---	---	---	---	14.22	---	---	---	---	---	14.22
1.15	0.851	1349.15	---	---	---	---	15.20	---	---	---	---	---	15.20
1.20	0.892	1349.20	---	---	---	---	16.20	---	---	---	---	---	16.20
1.25	0.932	1349.25	---	---	---	---	17.22	---	---	---	---	---	17.22
1.30	0.973	1349.30	---	---	---	---	18.27	---	---	---	---	---	18.27
1.35	1.014	1349.35	---	---	---	---	19.33	---	---	---	---	---	19.33
1.40	1.054	1349.40	---	---	---	---	20.42	---	---	---	---	---	20.42
1.45	1.095	1349.45	---	---	---	---	21.52	---	---	---	---	---	21.52
1.50	1.135	1349.50	---	---	---	---	22.64	---	---	---	---	---	22.64
1.55	1.179	1349.55	---	---	---	---	23.78	---	---	---	---	---	23.78
1.60	1.223	1349.60	---	---	---	---	24.94	---	---	---	---	---	24.94

Continues on next page...

Detention Estimate - School to Commercial

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.65	1.266	1349.65	---	---	---	---	26.12	---	---	---	---	---	26.12
1.70	1.310	1349.70	---	---	---	---	27.31	---	---	---	---	---	27.31
1.75	1.353	1349.75	---	---	---	---	28.53	---	---	---	---	---	28.53
1.80	1.397	1349.80	---	---	---	---	29.76	---	---	---	---	---	29.76
1.85	1.440	1349.85	---	---	---	---	31.01	---	---	---	---	---	31.01
1.90	1.484	1349.90	---	---	---	---	32.28	---	---	---	---	---	32.28
1.95	1.527	1349.95	---	---	---	---	33.56	---	---	---	---	---	33.56
2.00	1.571	1350.00	---	---	---	---	34.85	---	---	---	---	---	34.85
2.05	1.617	1350.05	---	---	---	---	36.17	---	---	---	---	---	36.17
2.10	1.664	1350.10	---	---	---	---	37.50	---	---	---	---	---	37.50
2.15	1.710	1350.15	---	---	---	---	38.85	---	---	---	---	---	38.85
2.20	1.757	1350.20	---	---	---	---	40.21	---	---	---	---	---	40.21
2.25	1.803	1350.25	---	---	---	---	41.59	---	---	---	---	---	41.59
2.30	1.850	1350.30	---	---	---	---	42.99	---	---	---	---	---	42.99
2.35	1.896	1350.35	---	---	---	---	44.40	---	---	---	---	---	44.40
2.40	1.943	1350.40	---	---	---	---	45.82	---	---	---	---	---	45.82
2.45	1.989	1350.45	---	---	---	---	47.26	---	---	---	---	---	47.26
2.50	2.036	1350.50	---	---	---	---	48.70	---	---	---	---	---	48.70
2.55	2.086	1350.55	---	---	---	---	50.17	---	---	---	---	---	50.17
2.60	2.135	1350.60	---	---	---	---	51.66	---	---	---	---	---	51.66
2.65	2.185	1350.65	---	---	---	---	53.16	---	---	---	---	---	53.16
2.70	2.234	1350.70	---	---	---	---	54.67	---	---	---	---	---	54.67
2.75	2.284	1350.75	---	---	---	---	56.20	---	---	---	---	---	56.20
2.80	2.333	1350.80	---	---	---	---	57.74	---	---	---	---	---	57.74
2.85	2.383	1350.85	---	---	---	---	59.29	---	---	---	---	---	59.29
2.90	2.433	1350.90	---	---	---	---	60.86	---	---	---	---	---	60.86
2.95	2.482	1350.95	---	---	---	---	62.44	---	---	---	---	---	62.44
3.00	2.532	1351.00	---	---	---	---	64.02	---	---	---	---	---	64.02
3.05	2.585	1351.05	---	---	---	---	65.63	---	---	---	---	---	65.63
3.10	2.637	1351.10	---	---	---	---	67.25	---	---	---	---	---	67.25
3.15	2.690	1351.15	---	---	---	---	68.89	---	---	---	---	---	68.89
3.20	2.743	1351.20	---	---	---	---	70.54	---	---	---	---	---	70.54
3.25	2.795	1351.25	---	---	---	---	72.20	---	---	---	---	---	72.20
3.30	2.848	1351.30	---	---	---	---	73.87	---	---	---	---	---	73.87
3.35	2.901	1351.35	---	---	---	---	75.56	---	---	---	---	---	75.56
3.40	2.954	1351.40	---	---	---	---	77.26	---	---	---	---	---	77.26
3.45	3.006	1351.45	---	---	---	---	78.97	---	---	---	---	---	78.97
3.50	3.059	1351.50	---	---	---	---	80.68	---	---	---	---	---	80.68
3.55	3.115	1351.55	---	---	---	---	82.41	---	---	---	---	---	82.41
3.60	3.171	1351.60	---	---	---	---	84.16	---	---	---	---	---	84.16
3.65	3.227	1351.65	---	---	---	---	85.92	---	---	---	---	---	85.92
3.70	3.283	1351.70	---	---	---	---	87.70	---	---	---	---	---	87.70
3.75	3.339	1351.75	---	---	---	---	89.48	---	---	---	---	---	89.48
3.80	3.395	1351.80	---	---	---	---	91.28	---	---	---	---	---	91.28
3.85	3.451	1351.85	---	---	---	---	93.09	---	---	---	---	---	93.09
3.90	3.507	1351.90	---	---	---	---	94.91	---	---	---	---	---	94.91
3.95	3.563	1351.95	---	---	---	---	96.74	---	---	---	---	---	96.74
4.00	3.619	1352.00	---	---	---	---	98.57	---	---	---	---	---	98.57
4.05	3.678	1352.05	---	---	---	---	100.42	---	---	---	---	---	100.42
4.10	3.737	1352.10	---	---	---	---	102.29	---	---	---	---	---	102.29
4.15	3.797	1352.15	---	---	---	---	104.17	---	---	---	---	---	104.17
4.20	3.856	1352.20	---	---	---	---	106.06	---	---	---	---	---	106.06
4.25	3.915	1352.25	---	---	---	---	107.96	---	---	---	---	---	107.96
4.30	3.974	1352.30	---	---	---	---	109.87	---	---	---	---	---	109.87
4.35	4.034	1352.35	---	---	---	---	111.80	---	---	---	---	---	111.80
4.40	4.093	1352.40	---	---	---	---	113.73	---	---	---	---	---	113.73
4.45	4.152	1352.45	---	---	---	---	115.68	---	---	---	---	---	115.68
4.50	4.211	1352.50	---	---	---	---	117.62	---	---	---	---	---	117.62
4.55	4.274	1352.55	---	---	---	---	119.58	---	---	---	---	---	119.58
4.60	4.337	1352.60	---	---	---	---	121.56	---	---	---	---	---	121.56
4.65	4.399	1352.65	---	---	---	---	123.55	---	---	---	---	---	123.55
4.70	4.462	1352.70	---	---	---	---	125.55	---	---	---	---	---	125.55
4.75	4.525	1352.75	---	---	---	---	127.56	---	---	---	---	---	127.56
4.80	4.587	1352.80	---	---	---	---	129.58	---	---	---	---	---	129.58
4.85	4.650	1352.85	---	---	---	---	131.61	---	---	---	---	---	131.61
4.90	4.713	1352.90	---	---	---	---	133.66	---	---	---	---	---	133.66
4.95	4.775	1352.95	---	---	---	---	135.71	---	---	---	---	---	135.71
5.00	4.838	1353.00	---	---	---	---	137.75	---	---	---	---	---	137.75

...End

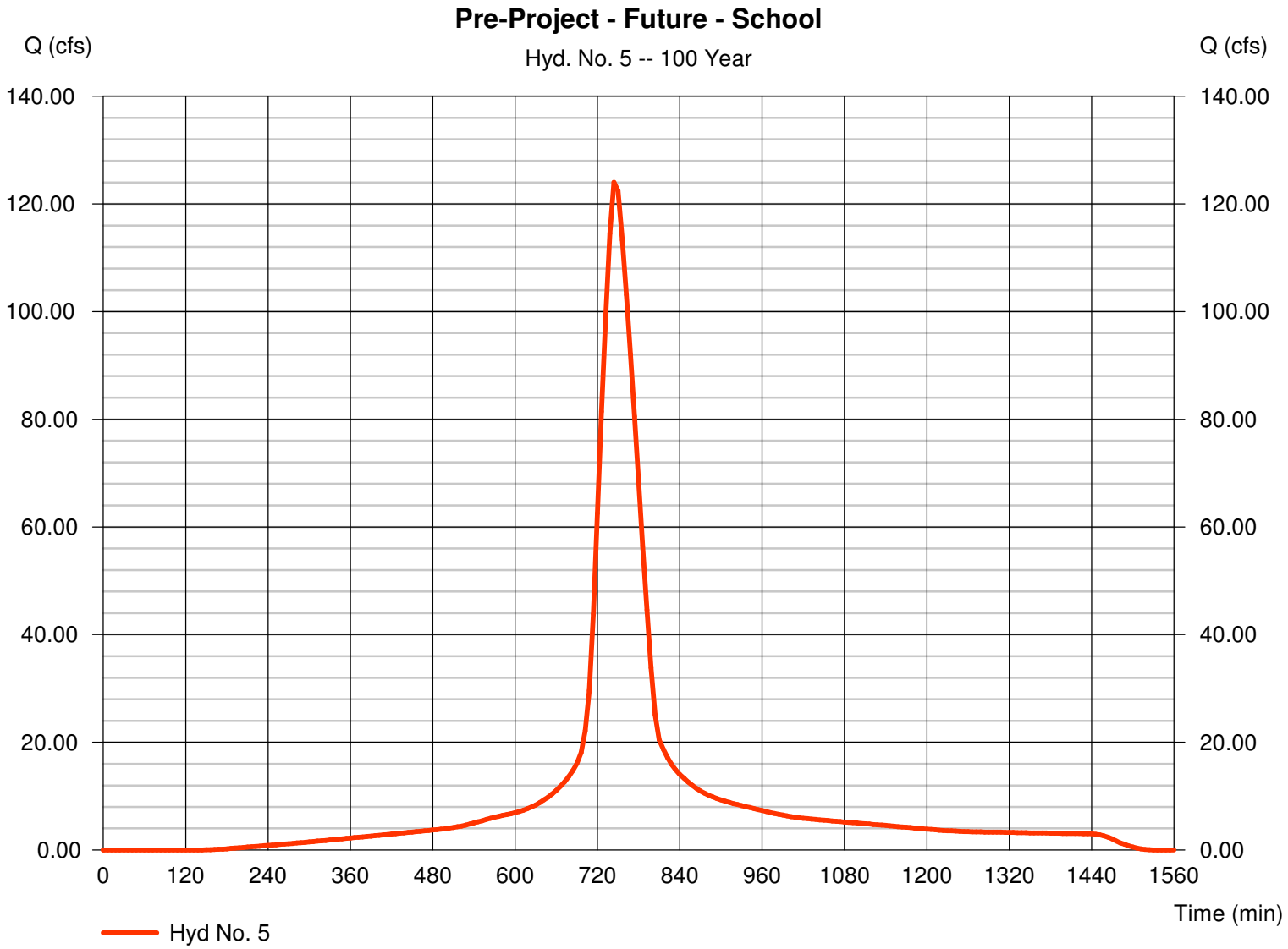
Hydrograph Report

Hyd. No. 5

Pre-Project - Future - School

Hydrograph type	=	SCS Runoff	Peak discharge	=	124.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	744 min
Time interval	=	6 min	Hyd. volume	=	19.396 acft
Drainage area	=	34.000 ac	Curve number	=	92*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	55.00 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(9.200 x 98) + (13.800 x 88)] / 34.000

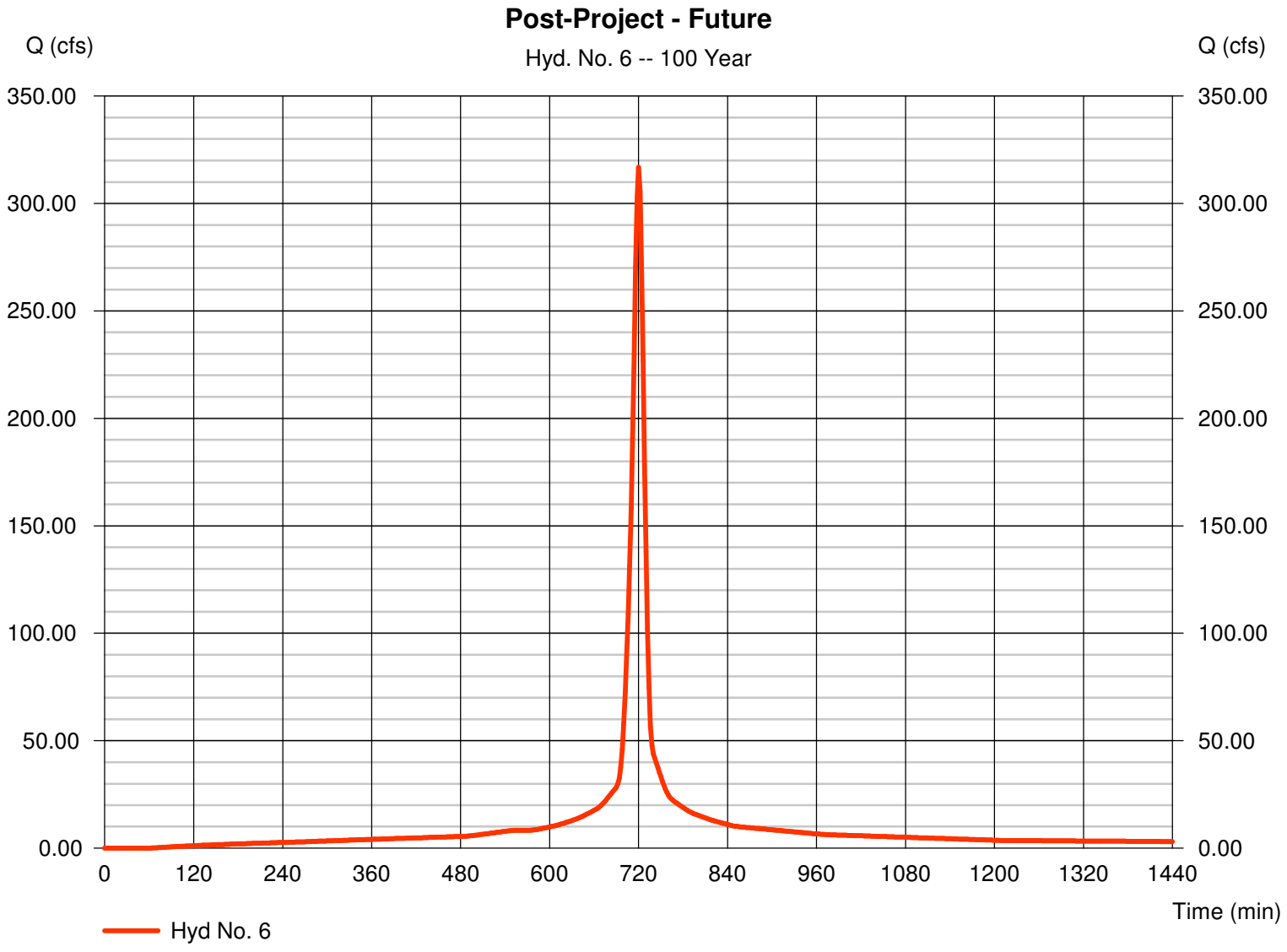


Hydrograph Report

Hyd. No. 6

Post-Project - Future

Hydrograph type	=	SCS Runoff	Peak discharge	=	316.81 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	21.566 acft
Drainage area	=	34.000 ac	Curve number	=	96.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.70 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



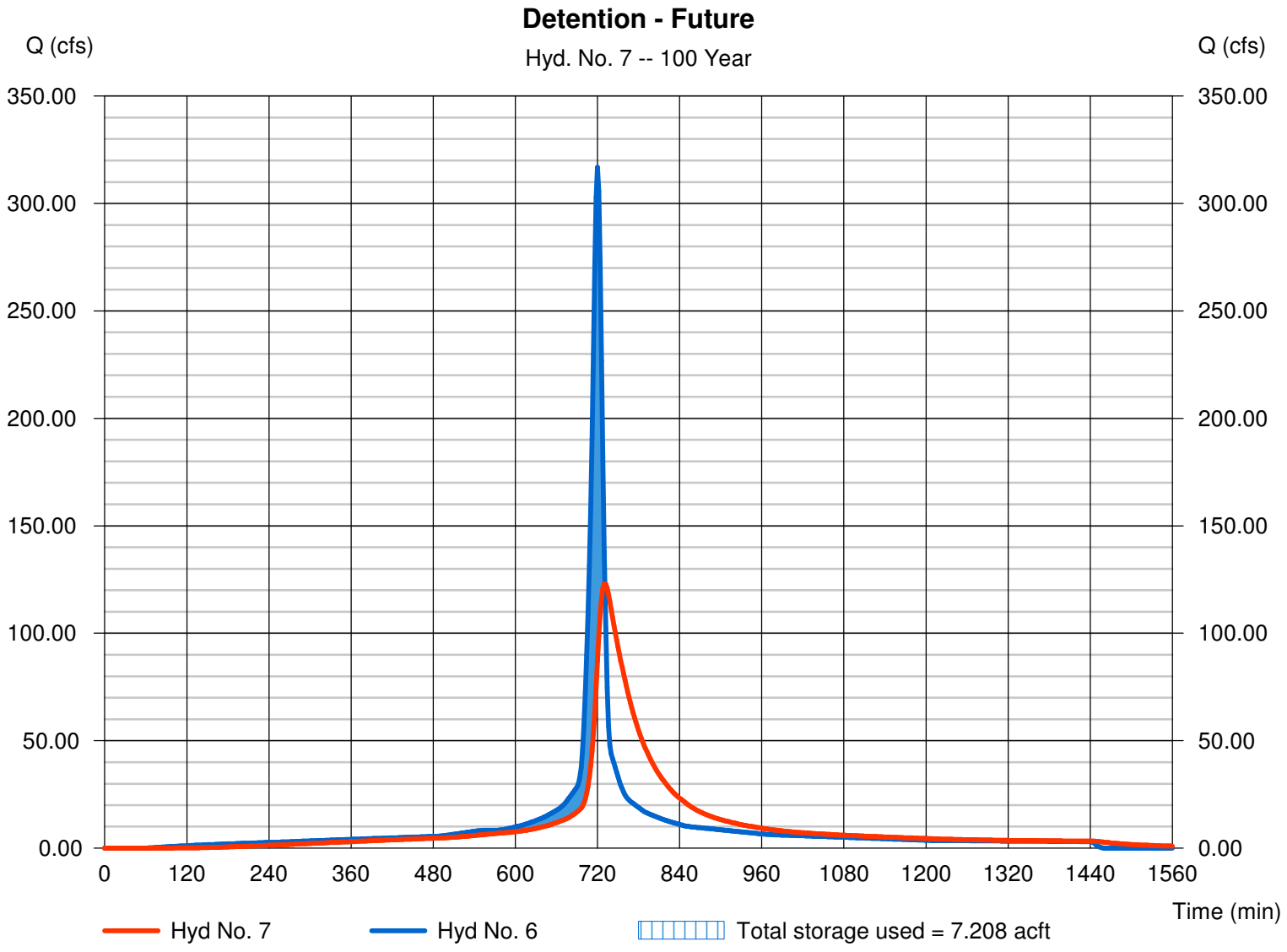
Hydrograph Report

Hyd. No. 7

Detention - Future

Hydrograph type	=	Reservoir	Peak discharge	=	123.00 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	21.566 acft
Inflow hyd. No.	=	6 - Post-Project - Future	Max. Elevation	=	1352.82 ft
Reservoir name	=	Detention Estimate - Future	Max. Storage	=	7.208 acft

Storage Indication method used.



Pond No. 2 - Detention Estimate - Future

Pond Data

Trapezoid - Bottom L x W = 475.0 x 100.0 ft, Side slope = 6.00:1, Bottom elev. = 1348.00 ft, Depth = 5.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1348.00	47,500	0.000	0.000
0.50	1348.50	50,986	0.565	0.565
1.00	1349.00	54,544	0.606	1.171
1.50	1349.50	58,174	0.647	1.818
2.00	1350.00	61,876	0.689	2.507
2.50	1350.50	65,650	0.732	3.238
3.00	1351.00	69,496	0.776	4.014
3.50	1351.50	73,414	0.820	4.834
4.00	1352.00	77,404	0.866	5.700
4.50	1352.50	81,466	0.912	6.611
5.00	1353.00	85,600	0.959	7.570

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.50	0.00	0.00	0.00
Crest El. (ft)	= 1348.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1348.00	---	---	---	---	0.00	---	---	---	---	---	0.000
0.05	0.057	1348.05	---	---	---	---	0.13	---	---	---	---	---	0.130
0.10	0.113	1348.10	---	---	---	---	0.37	---	---	---	---	---	0.369
0.15	0.170	1348.15	---	---	---	---	0.68	---	---	---	---	---	0.678
0.20	0.226	1348.20	---	---	---	---	1.04	---	---	---	---	---	1.044
0.25	0.283	1348.25	---	---	---	---	1.46	---	---	---	---	---	1.459
0.30	0.339	1348.30	---	---	---	---	1.92	---	---	---	---	---	1.918
0.35	0.396	1348.35	---	---	---	---	2.42	---	---	---	---	---	2.417
0.40	0.452	1348.40	---	---	---	---	2.95	---	---	---	---	---	2.953
0.45	0.509	1348.45	---	---	---	---	3.52	---	---	---	---	---	3.523
0.50	0.565	1348.50	---	---	---	---	4.12	---	---	---	---	---	4.121
0.55	0.626	1348.55	---	---	---	---	4.75	---	---	---	---	---	4.755
0.60	0.686	1348.60	---	---	---	---	5.42	---	---	---	---	---	5.418
0.65	0.747	1348.65	---	---	---	---	6.11	---	---	---	---	---	6.110
0.70	0.807	1348.70	---	---	---	---	6.83	---	---	---	---	---	6.829
0.75	0.868	1348.75	---	---	---	---	7.57	---	---	---	---	---	7.574
0.80	0.929	1348.80	---	---	---	---	8.34	---	---	---	---	---	8.344
0.85	0.989	1348.85	---	---	---	---	9.14	---	---	---	---	---	9.139
0.90	1.050	1348.90	---	---	---	---	9.96	---	---	---	---	---	9.958
0.95	1.110	1348.95	---	---	---	---	10.80	---	---	---	---	---	10.80
1.00	1.171	1349.00	---	---	---	---	11.66	---	---	---	---	---	11.66
1.05	1.235	1349.05	---	---	---	---	12.54	---	---	---	---	---	12.54
1.10	1.300	1349.10	---	---	---	---	13.45	---	---	---	---	---	13.45
1.15	1.365	1349.15	---	---	---	---	14.38	---	---	---	---	---	14.38
1.20	1.429	1349.20	---	---	---	---	15.32	---	---	---	---	---	15.32
1.25	1.494	1349.25	---	---	---	---	16.29	---	---	---	---	---	16.29
1.30	1.559	1349.30	---	---	---	---	17.28	---	---	---	---	---	17.28
1.35	1.624	1349.35	---	---	---	---	18.29	---	---	---	---	---	18.29
1.40	1.688	1349.40	---	---	---	---	19.31	---	---	---	---	---	19.31
1.45	1.753	1349.45	---	---	---	---	20.36	---	---	---	---	---	20.36
1.50	1.818	1349.50	---	---	---	---	21.41	---	---	---	---	---	21.41
1.55	1.886	1349.55	---	---	---	---	22.49	---	---	---	---	---	22.49
1.60	1.955	1349.60	---	---	---	---	23.59	---	---	---	---	---	23.59

Continues on next page...

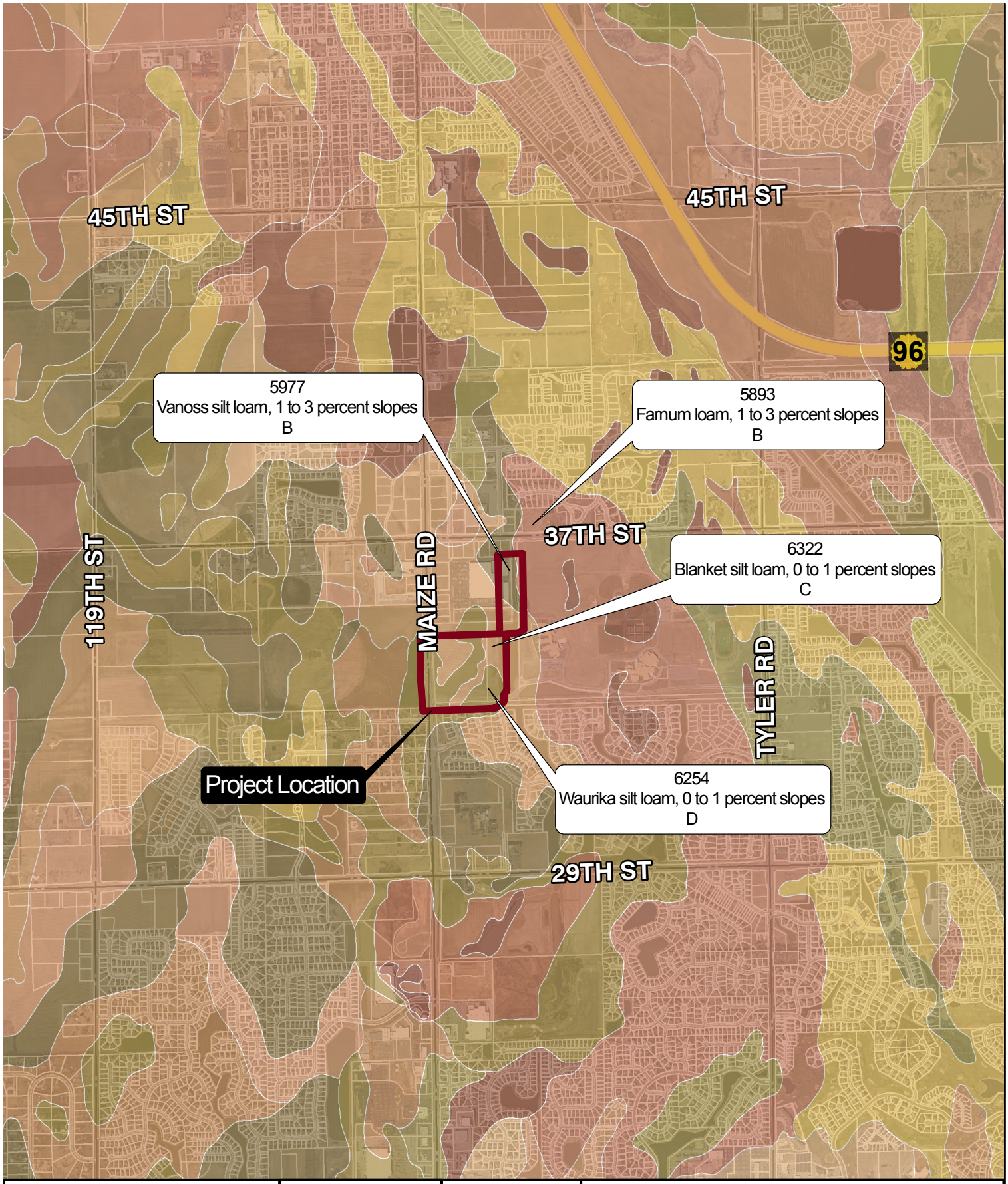
Detention Estimate - Future

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.65	2.024	1349.65	---	---	---	---	24.71	---	---	---	---	---	24.71
1.70	2.093	1349.70	---	---	---	---	25.84	---	---	---	---	---	25.84
1.75	2.162	1349.75	---	---	---	---	26.99	---	---	---	---	---	26.99
1.80	2.231	1349.80	---	---	---	---	28.15	---	---	---	---	---	28.15
1.85	2.300	1349.85	---	---	---	---	29.34	---	---	---	---	---	29.34
1.90	2.369	1349.90	---	---	---	---	30.53	---	---	---	---	---	30.53
1.95	2.438	1349.95	---	---	---	---	31.75	---	---	---	---	---	31.75
2.00	2.507	1350.00	---	---	---	---	32.97	---	---	---	---	---	32.97
2.05	2.580	1350.05	---	---	---	---	34.21	---	---	---	---	---	34.21
2.10	2.653	1350.10	---	---	---	---	35.47	---	---	---	---	---	35.47
2.15	2.726	1350.15	---	---	---	---	36.75	---	---	---	---	---	36.75
2.20	2.799	1350.20	---	---	---	---	38.04	---	---	---	---	---	38.04
2.25	2.872	1350.25	---	---	---	---	39.34	---	---	---	---	---	39.34
2.30	2.946	1350.30	---	---	---	---	40.66	---	---	---	---	---	40.66
2.35	3.019	1350.35	---	---	---	---	42.00	---	---	---	---	---	42.00
2.40	3.092	1350.40	---	---	---	---	43.34	---	---	---	---	---	43.34
2.45	3.165	1350.45	---	---	---	---	44.71	---	---	---	---	---	44.71
2.50	3.238	1350.50	---	---	---	---	46.07	---	---	---	---	---	46.07
2.55	3.316	1350.55	---	---	---	---	47.46	---	---	---	---	---	47.46
2.60	3.393	1350.60	---	---	---	---	48.86	---	---	---	---	---	48.86
2.65	3.471	1350.65	---	---	---	---	50.28	---	---	---	---	---	50.28
2.70	3.549	1350.70	---	---	---	---	51.71	---	---	---	---	---	51.71
2.75	3.626	1350.75	---	---	---	---	53.16	---	---	---	---	---	53.16
2.80	3.704	1350.80	---	---	---	---	54.62	---	---	---	---	---	54.62
2.85	3.781	1350.85	---	---	---	---	56.09	---	---	---	---	---	56.09
2.90	3.859	1350.90	---	---	---	---	57.57	---	---	---	---	---	57.57
2.95	3.936	1350.95	---	---	---	---	59.07	---	---	---	---	---	59.07
3.00	4.014	1351.00	---	---	---	---	60.56	---	---	---	---	---	60.56
3.05	4.096	1351.05	---	---	---	---	62.08	---	---	---	---	---	62.08
3.10	4.178	1351.10	---	---	---	---	63.62	---	---	---	---	---	63.62
3.15	4.260	1351.15	---	---	---	---	65.16	---	---	---	---	---	65.16
3.20	4.342	1351.20	---	---	---	---	66.72	---	---	---	---	---	66.72
3.25	4.424	1351.25	---	---	---	---	68.29	---	---	---	---	---	68.29
3.30	4.506	1351.30	---	---	---	---	69.88	---	---	---	---	---	69.88
3.35	4.588	1351.35	---	---	---	---	71.47	---	---	---	---	---	71.47
3.40	4.670	1351.40	---	---	---	---	73.08	---	---	---	---	---	73.08
3.45	4.752	1351.45	---	---	---	---	74.70	---	---	---	---	---	74.70
3.50	4.834	1351.50	---	---	---	---	76.32	---	---	---	---	---	76.32
3.55	4.921	1351.55	---	---	---	---	77.96	---	---	---	---	---	77.96
3.60	5.007	1351.60	---	---	---	---	79.61	---	---	---	---	---	79.61
3.65	5.094	1351.65	---	---	---	---	81.28	---	---	---	---	---	81.28
3.70	5.180	1351.70	---	---	---	---	82.96	---	---	---	---	---	82.96
3.75	5.267	1351.75	---	---	---	---	84.65	---	---	---	---	---	84.65
3.80	5.353	1351.80	---	---	---	---	86.35	---	---	---	---	---	86.35
3.85	5.440	1351.85	---	---	---	---	88.06	---	---	---	---	---	88.06
3.90	5.526	1351.90	---	---	---	---	89.78	---	---	---	---	---	89.78
3.95	5.613	1351.95	---	---	---	---	91.51	---	---	---	---	---	91.51
4.00	5.700	1352.00	---	---	---	---	93.24	---	---	---	---	---	93.24
4.05	5.791	1352.05	---	---	---	---	95.00	---	---	---	---	---	95.00
4.10	5.882	1352.10	---	---	---	---	96.76	---	---	---	---	---	96.76
4.15	5.973	1352.15	---	---	---	---	98.54	---	---	---	---	---	98.54
4.20	6.064	1352.20	---	---	---	---	100.33	---	---	---	---	---	100.33
4.25	6.155	1352.25	---	---	---	---	102.13	---	---	---	---	---	102.13
4.30	6.247	1352.30	---	---	---	---	103.93	---	---	---	---	---	103.93
4.35	6.338	1352.35	---	---	---	---	105.75	---	---	---	---	---	105.75
4.40	6.429	1352.40	---	---	---	---	107.58	---	---	---	---	---	107.58
4.45	6.520	1352.45	---	---	---	---	109.43	---	---	---	---	---	109.43
4.50	6.611	1352.50	---	---	---	---	111.26	---	---	---	---	---	111.26
4.55	6.707	1352.55	---	---	---	---	113.12	---	---	---	---	---	113.12
4.60	6.803	1352.60	---	---	---	---	114.99	---	---	---	---	---	114.99
4.65	6.899	1352.65	---	---	---	---	116.87	---	---	---	---	---	116.87
4.70	6.995	1352.70	---	---	---	---	118.76	---	---	---	---	---	118.76
4.75	7.091	1352.75	---	---	---	---	120.67	---	---	---	---	---	120.67
4.80	7.187	1352.80	---	---	---	---	122.58	---	---	---	---	---	122.58
4.85	7.282	1352.85	---	---	---	---	124.50	---	---	---	---	---	124.50
4.90	7.378	1352.90	---	---	---	---	126.43	---	---	---	---	---	126.43
4.95	7.474	1352.95	---	---	---	---	128.37	---	---	---	---	---	128.37
5.00	7.570	1353.00	---	---	---	---	130.31	---	---	---	---	---	130.31

...End

Appendix 2.4 - Soil Survey



SEC: 32
TWP: T26S
RNG: R1W

0 500 1,000 2,000
Feet

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NRCS SOIL SURVEY EXHIBIT
FOX RIDGE PLAZA

PROJECT NO.	DATE:	SHEET NO.
1101010577	1/17/2014	1 OF 1

DRAWN BY:	DESIGNED BY:	APPROVED BY:
JGD	KLA	GJA

Path: J:\Projects\2011\1101010577 Premier Fox Ridge Plaza\5-Civil\CAD\Drainage\Drawing\Dmg-NRCS-Soil-new2.mxd - Date: 1/17/2014

Appendix 2.5 - Curve Number Calculations

Curve Number Calculations
Fox Ridge Plaza Addition

Basin Name	Basin Area	% of Basin	Soil Group	Land Use	Average % Impervious	Impervious Area (ac)	Impervious CN	Pervious Area (ac)	Pevious Condition	Pervious CN	CN
Existing Conditions	26	100%	D	Other	40.0%	10.4	98	15.6	Disturbed	88	92.0
Proposed Conditions	26	100%	D	Commercial and Business	85.0%	22.1	98	3.9	Disturbed	88	96.5

Curve Number Calculations

Stonebridge Commercial South Addition

Basin Name	Basin Area	% of Basin	Soil Group	Land Use	Average % Impervious	Impervious Area (ac)	Impervious CN	Pervious Area (ac)	Pevious Condition	Pervious CN	CN
Existing Conditions	23	100%	D	Other	40.0%	9.2	98	13.8	Disturbed	88	92.0
Proposed Conditions	23	100%	D	Commercial and Business	85.0%	19.55	98	3.45	Disturbed	88	96.5

Appendix 2.6 - Time of Concentration Calculations

Tab 3. Proposed Conditions

Datum

The site is shown in NAVD 88 datum.

Drainage Patterns

The proposed site will drain from west to east into an existing detention pond east of the site. The site includes approximately 26 acres of commercial development. The remaining platted area will be used as reserves for detention. The western boundary of the existing detention will be filled in to accommodate the site plan. This will reduce the existing detention volume by approximately 10 acre-feet. The existing detention pond will be expanded to the northeast to compensate for the additional fill and development.

In addition to the planned development, the remaining undeveloped school property along 37th Street is being considered in this analysis as a fully developed dense commercial property to provide flexibility as this property develops. This school property along 37th Street is approximately 34 acres in size and drains from east to west into the proposed expansion of the detention pond.

The proposed conditions are shown on the Proposed Conditions Drainage Map, Appendix 3.1.

Groundwater Elevations

According to the Kansas Geological Survey Water Well Records (http://www.kgs.ku.edu/Magellan/WaterWell/index.html) there is an existing domestic water well on site with a static water level approximately 25' below existing ground.

Utilities

Water

The existing 16" water line along Maize Road will provide service to all lots. Proposed utilities are shown on the Drainage and Utility Plan, Appendix 3.2.

Sanitary Sewer

A proposed sewer line will cross 34th Street to the south of the property and then to the east to connect with the existing sewer line on the Maize School South Campus. Sanitary sewer will be constructed on the east side of Lots 1-6 to provide service to all lots.

Stormwater

Proposed stormwater sewer systems will convey runoff from the west portion of the site to the detention pond. Proposed storm water sewer will be modeled and sizes will be determined in the future. The pond will be excavated to provide detention volume and fill material to elevate the site. This will create a wet pond for water quality purposes.

Hydrologic Analysis

This site was included in the previous report for the Maize School South Campus by KE Miller dated October 2007 under developed school conditions. This basin was modeled using the Rational Method in that report. Calculations for this report use the NRCS Curve Number method. The Fox Ridge Plaza Addition and the undeveloped school property along 37th Street development were both modeled as single basins to determine a 100-year peak flow rate.

Table 2.1. Rainfall Depths for 24-Hour Design Storms

Location	Design Storm Rainfall Depth (in)							
	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Sedgwick County	2.8	3.5	4.5	5.2	6.1	6.9	7.8	9.4

Soil Type

- Blanket Silt Loam, 0 to 1 percent slopes, HSG "C"
- Waurika Silt Loam, 0 to 1 percent slopes, HSG "D"

The HSG used to select curve numbers is HSG "D." The site is shown on the soil survey, Appendix 2.2.

Land Use, Impervious Area, and Curve Number

The land use of the site will be commercial development. The site will have 8 lots; 6 small lots along Maize Road and 2 larger lots. Final site layouts have not been determined at this time. The site will be approximately 85% impervious. The curve number was calculated to be 96.5, Appendix 2.3.

Time of Concentration

The time of concentration was calculated to be 8.3 minutes by assuming that the site is paved and draining to the existing detention pond, Appendix 2.4.

Basin Summary

The site was modeled as one basin. The pre-project and post-project flows were calculated and 4.5 acre-feet of detention is needed to reduce the post-project to the pre-project flow rate. Because this site is in the Cadillac Lake basin, an extra 10% of detention was added to the detention needed to maintain the peak flow rate. Therefore, the detention required for the development of this site is 5.0 acre-feet. In addition to this site, additional calculations were done for the remaining undeveloped school property along 37th Street to determine that future development will need 7.2 acre-feet for development and 7.9 acre-feet to provide an additional 10% of storage. The proposed basin is estimated to provide 29 acre-feet of storage which accounts for the 24 acre-feet of compensatory storage, development storage, and storage for the undeveloped school property along 37th Street. The basin is estimated to provide 5 acre-feet more detention than required for the development. It is estimated that an additional 45 acre-feet of volume will be excavated below the normal pool of the south pond. This detention volume could potential double depending on final grading of the site. The ponds will be sloped to drain at 0.5% with a v-bottom if the pond is dry. A summary of the detention volumes is shown in Table 3.1. Final Calculations will be provided at the time of construction plan design.

It is recommended that the reserve area be dedicated to the City of Wichita as a drainage dedication because of the overall public benefit now and in the future.

Table 3.1. Detention Summary

Description	Storage (ac-ft)
Fox Ridge Plaza Development	5
Fox Ridge Plaza Compensatory	11
Undeveloped School Property on 37th Street as Commercial	8
Detention Volume Required	24
Proposed Detention Volume	29
Additional Detention Provided	5
Potential Detention Below Normal Pool at South Pond	45

Drainage Feature Summary

The detention pond on site will continue to be interconnected with Cadillac Lake. The 100-year water surface elevation of 1351.6 for Cadillac Lake will also be the 100-yer water surface elevation of the detention on site. The detention pond will have a peak water surface elevation caused by the local flooding draining to the pond. This will recede and when the peak elevation of Cadillac Lake Basin occurs, water will back up into the detention area and the water surface elevation will rise again.

Downstream Peak Discharge Assessment (10% Rule)

The location for the downstream peak discharge assessment for Fox Ridge Plaza Addition is Cadillac Lake. Cadillac Lake has a drainage area of approximately 2200 acres, Appendix 3.3. Since the site and the undeveloped school property along 37th Street combined are approximately 60 acres, the development and undeveloped school property along 37th Street are less than 3% of the drainage basin to Cadillac Lake.

Stormwater Quality Management

The water quality volume required for the Fox Ridge Plaza Addition was calculated to be 2.2 acre-feet, Appendix 3.4. The water quality volume was also calculated to be 2.9 acre-feet for the future commercial development. The total water quality needed for both sites is 5.1 acre-feet. The existing dry detention pond will be excavated to a wet pond. A wet pond will remove 80% of the Total Suspended Solids (TSS). This wet pond will provide a minimum of 2.6 acre-feet of water quality volume below the normal pool elevation and the remaining 2.6 acre-feet of water quality volume above the normal pool elevation. The proposed detention pond will provide the water quality volume required for this site and also the future development east of the site.

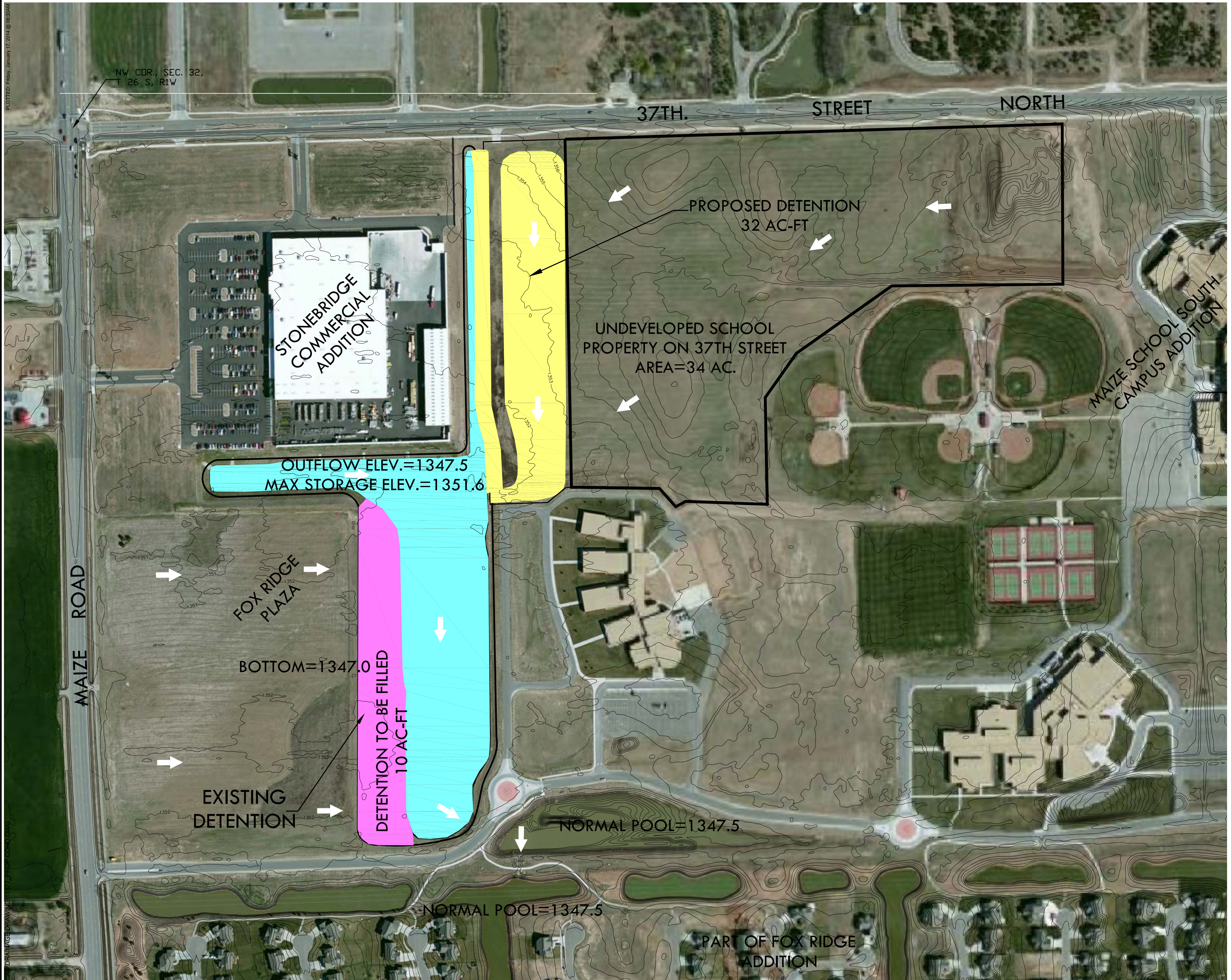
Channel Protection Volume

The channel protection is provided by the system of ponds and control structures the site drains into. The pond drains through 3-36" pipes under 34th Street into a pond on Maize School South Campus. The outlet of this pond is a riser structure on an 18" pipe that restricts smaller design storms. Since the pond providing detention on site drains to this pond, the existing outlet structure will provide downstream stabilization.

Stormwater Sewer System

The stormwater sewer system is show in the drainage and utility plan. The pipes were preliminarily sized for the 5-year design event. The pipe sizes were calculated using Hydraflow Storm Sewer, Appendix 3.5.

Appendix 3.1 - Proposed Conditions Drainage Map



DETENTION SUMMARY

FOX RIDGE PLAZA DEVELOPMENT	5* AC-FT
FOX RIDGE PLAZA COMPENSATORY	11 AC-FT
FUTURE DEVELOPMENT ON 37TH STREET	8* AC-FT
REQUIRED DETENTION	24 AC-FT
PROPOSED DETENTION	29 AC-FT
ADDITIONAL DETENTION	5 AC-FT
POTENTIAL VOLUME AT SOUTH POND (PUMPED LAKE)	45 AC-FT

*INCLUDES 10% ADDITIONAL VOLUME AS REQUIRED WITHIN CADILLAC LAKE BASIN.
DETENTION VOLUMES TO BE CONFIRMED W/MORE DETAILED CALCULATIONS AND SUBMITTED AT TIME OF DETAILED DRAINAGE REPORT.

N

LEGEND

- -EXISTING DETENTION
- -PROPOSED DETENTION
- -REDUCED DETENTION

ALL ELEVATIONS IN NAVD 88
OBSERVED 9/12/08 WSEL=1351.6

SCALE: 1"=200'
200 0 200 400

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PROPOSED CONDITIONS DRAINAGE MAP
FOX RIDGE PLAZA
WICHITA, KANSAS

PROPOSED CONDITIONS DRAINAGE

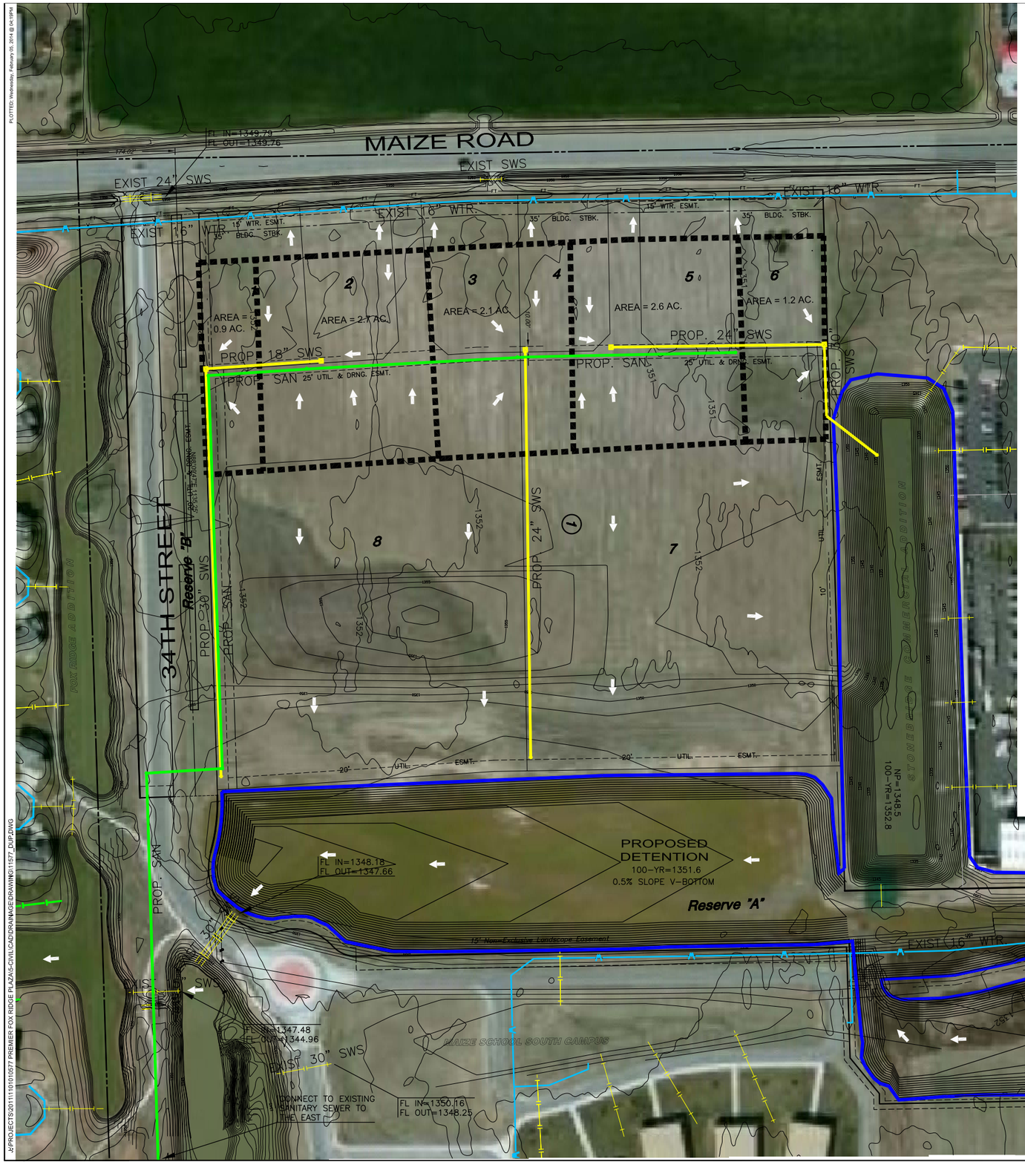
PROJECT NO.	1101010577
DATE	1/17/14
SCALE	1" = 100'

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE

SHEET NO.
1 OF 1

Appendix 3.2 - Drainage and Utility Plan



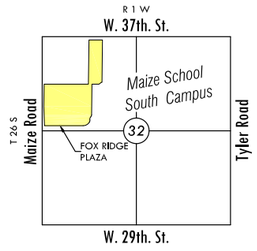
LEGEND

- CON - CONIFEROUS TREE
- DIN - DECIDUOUS TREE
- SN - SIGN
- PP - POWER POLE
- ELEC BOX - ELECTRIC BOX
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- SECTION CORNER
- BM - BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- EXISTING STORM SEWER PIPE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UGE - UNDERGROUND ELEC.
- OHE - OVERHEAD ELECTRIC
- FOC - FIBER OPTIC CABLE
- DRAINAGE SUB BASIN
- DRAINAGE BASIN
- FLOW ARROW
- A17 - AREA FOR SWS SIZING
- PROPOSED STORM SEWER PIPE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED DETENTION
- DRAINAGE AREAS

N

SCALE: 1" = 100'

100 0 100 200



VICINITY MAP

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DRAINAGE AND UTILITY PLAN

FOX RIDGE PLAZA

WICHITA, KANSAS

DRAINAGE & UTILITY PLAN

PROJECT NO.	1101010577
DATE	1/17/14
SCALE	1" = 100'

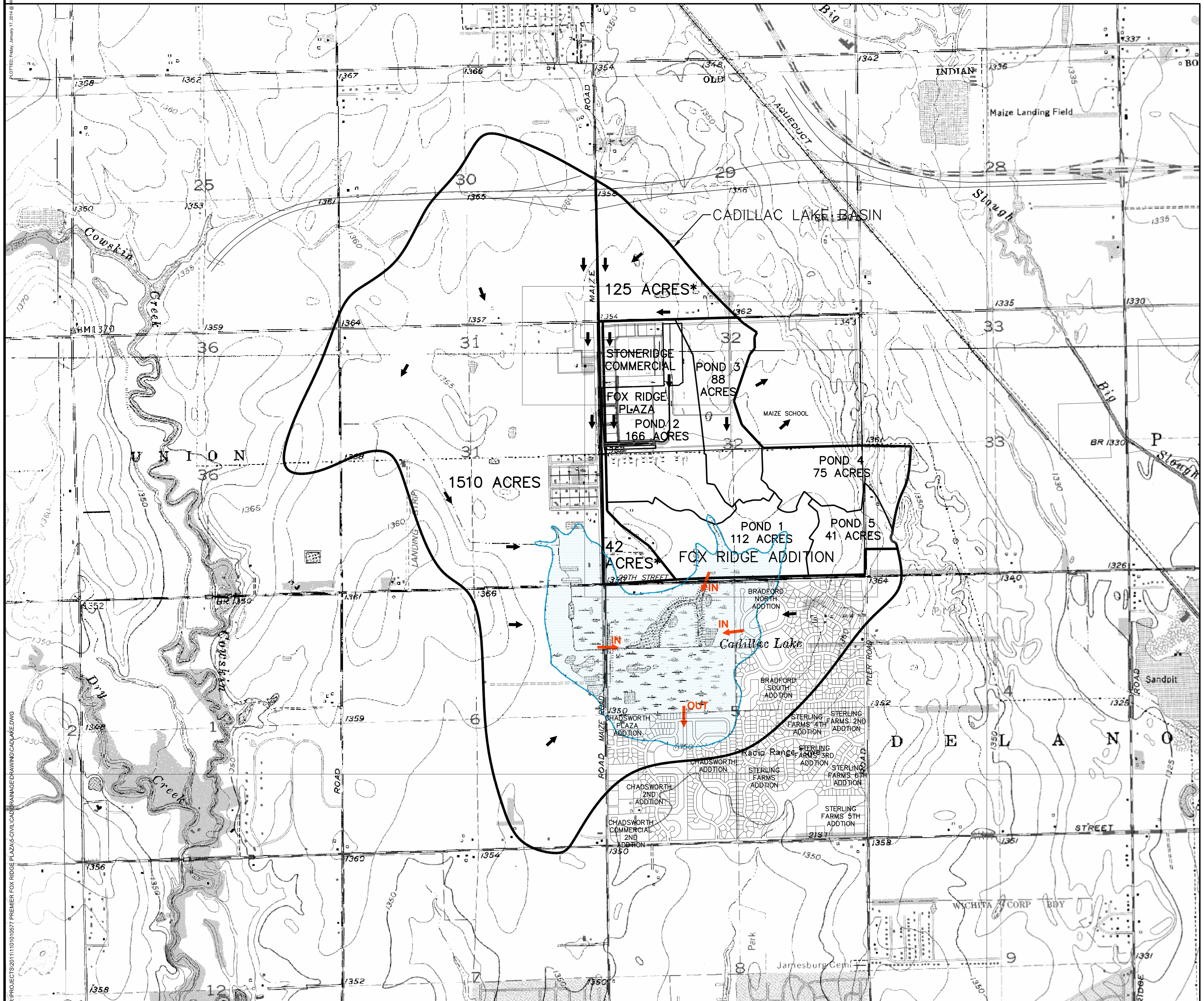
DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE
	PIPE SIZES	2/5/14

SHEET NO.

1 OF 1

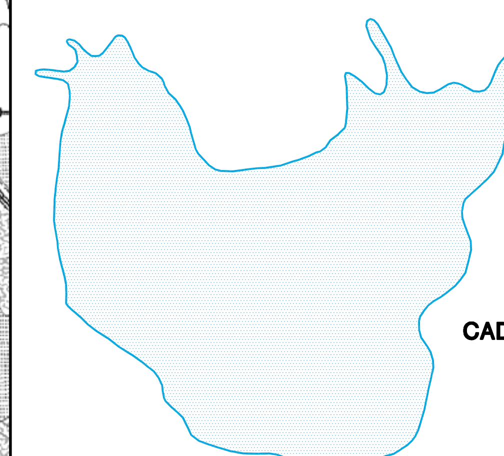
Appendix 3.3 - Cadillac Lake Map


CADILLAC LAKE BASIN
125 ACRES*
STONERIDGE COMMERCIAL
FOX RIDGE PLAZA
POND 2 166 ACRES
POND 3 88 ACRES
MAIZE SCHOOL
POND 4 75 ACRES
1510 ACRES
POND 1 112 ACRES
POND 5 41 ACRES
42 ACRES*
FOX RIDGE ADDITION
29TH STREET
IN
IN
IN
OUT
Cadillac Lake
BRADFORD NORTH ADDITION
BRADFORD SOUTH ADDITION
CHADSWORTH PLAZA ADDITION
CHADSWORTH ADDITION
CHADSWORTH 2ND ADDITION
CHADSWORTH COMMERCIAL 2ND ADDITION
STERLING FARMS 4TH ADDITION
STERLING FARMS 2ND ADDITION
STERLING FARMS 3RD ADDITION
STERLING FARMS ADDITION
STERLING FARMS 6TH ADDITION
STERLING FARMS 5TH ADDITION
Radio Range
MAIZE ROAD
TYLER ROAD
21ST STREET
Maize Landing Field
INDIAN
AQUEDUCT
Big Slough
Cowskin Creek
Dry Creek
U N I O N
D E L A N O
Sandpit
WICHITA CORP BDY
Jamesburg Cem
Park

N

SCALE: 1" = 1000'

1000 0 1000 2000



CADILLAC LAKE

* SHOWN ON MAIZE ROAD PLANS (BY PEC)

** ORIGINAL LIMITS CADILLAC LAKE FROM USGS WICHITA WEST QUADRANGLE – 1961

MKEC

Wichita, KS • 316.684.9600

DRAINAGE BASINS

FOX RIDGE PLAZA

WICHITA, KANSAS

DRAINAGE BASINS

PROJECT NO.	1101010577
DATE	1/17/14
SCALE	1" = 1000'

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE

SHEET NO.

1 OF 1

Appendix 3.4 - Water Quality Calculations

Water Quality Calculations

	Hydrologic Soil Group			
Land Use	A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05
Disturbed Pervious	0.15	0.2	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Table from pg 4-44

P = 1.2 Per pg. 4-43

Site Information

Area impervious	22.3	ac
Area disturbed pervious	3.9	ac
Area undisturbed		ac
Total Area	26.2	ac
HSG	D	
R_v =	0.85	
WQ_v =	2.22	ac - ft
Q_{wv} =	1.01	in

Eq 4-24, pg 4-43

Eq 4-25, pg 4-44

Eq 4-26, Pg 4-44

HSG = Hydrologic Soil Group

WQ_v = water quality protection volume (acre-feet)

P = rainfall depth (in)

R_v = volumetric runoff coefficient

Q_{wv} = water quality protection volume (inches)

Water Quality Calculations

	Hydrologic Soil Group			
Land Use	A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05
Disturbed Pervious	0.15	0.2	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Table from pg 4-44

P = 1.2 Per pg. 4-43

Site Information

Area impervious	28.9	ac
Area disturbed pervious	5.1	ac
Area undisturbed		ac
Total Area	34	ac
HSG	D	
R_v =	0.85	
WQ_v =	2.87	ac - ft
Q_{wv} =	1.01	in

Eq 4-24, pg 4-43

Eq 4-25, pg 4-44

Eq 4-26, Pg 4-44

HSG = Hydrologic Soil Group

WQ_v = water quality protection volume (acre-feet)

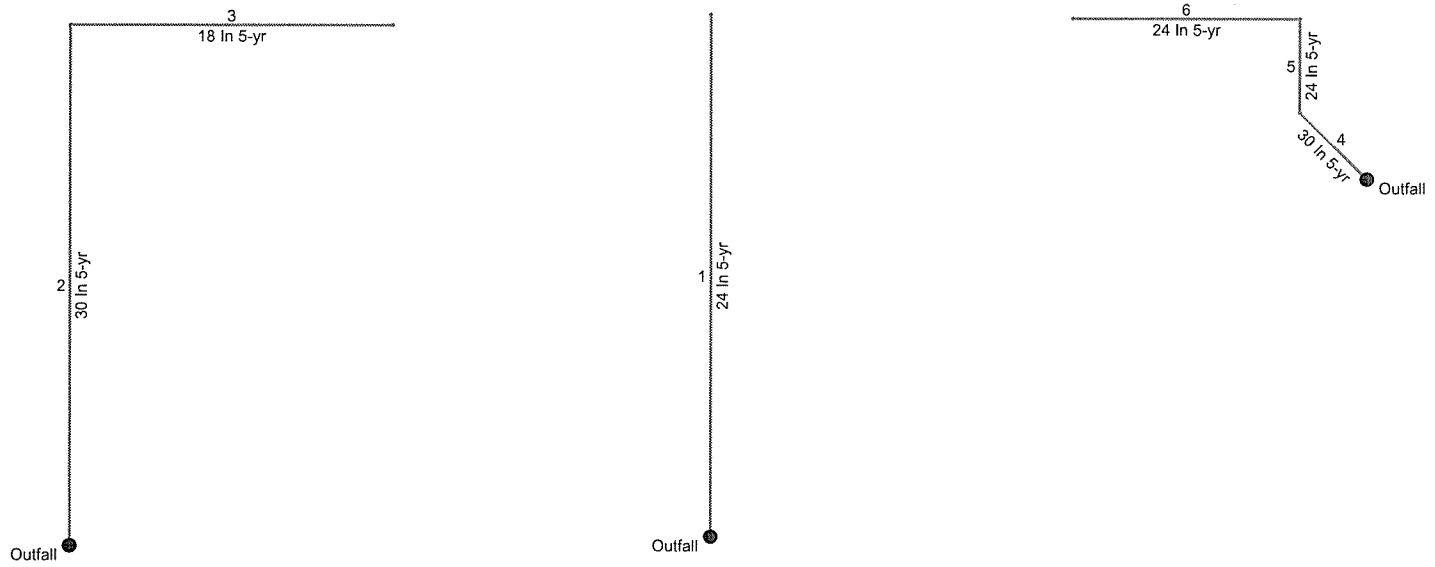
P = rainfall depth (in)

R_v = volumetric runoff coefficient

Q_{wv} = water quality protection volume (inches)

Appendix 3.5 – Hydraflow Storm Sewer

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2009 Plan



Project File: Fox Ridge Plaza Prelim Sizes.stm	Number of lines: 6	Date: 02-05-2014

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1		12.33	0.00	12.33	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	0.73	23.50	0.90	23.50	2.0	Off
2		15.85	0.00	15.85	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	0.95	30.64	1.12	30.64	2.0	Off
3		5.28	0.00	5.28	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	0.41	13.32	0.58	13.32	2.0	Off
4		0.00	0.00	0.00	0.00	MH	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	0.00	0.00	0.00	0.00	0.0	Off
5		7.04	0.00	7.04	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	0.50	16.15	0.67	16.15	2.0	Off
6		15.26	0.00	15.26	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.031	0.031	0.000	1.54	49.71	1.54	49.71	0.0	Off

Project File: Fox Ridge Plaza Prelim Sizes.stm | Number of lines: 6 | Run Date: 02-05-2014

NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	1400.000	2.10	2.10	0.90	1.89	1.89	5.0	5.0	6.5	12.33	14.30	4.55	24	0.40	1344.00	1349.60	1346.24	1351.02	1348.00	1355.00	24 In 5-yr
2	End	1400.000	2.70	3.60	0.90	2.43	3.24	5.0	9.7	5.4	17.44	25.94	4.89	30	0.40	1344.00	1349.60	1346.40	1351.00	1348.00	1355.00	30 In 5-yr
3	2	850.000	0.90	0.90	0.90	0.81	0.81	5.0	5.0	6.5	5.28	6.64	3.94	18	0.40	1349.70	1353.10	1351.00	1354.03	1355.00	1355.00	18 In 5-yr
4	End	250.000	0.00	3.80	0.90	0.00	3.42	5.0	7.7	5.8	19.85	25.94	4.19	30	0.40	1344.00	1345.00	1346.68	1347.20	1348.00	1355.00	30 In 5-yr
5	4	250.000	1.20	3.80	0.90	1.08	3.42	5.0	7.1	6.0	20.40	14.30	7.03	24	0.40	1345.85	1346.85	1347.45	1349.77	1355.00	1355.00	24 In 5-yr
6	5	600.000	2.60	2.60	0.90	2.34	2.34	5.0	5.0	6.5	15.26	14.30	4.86	24	0.40	1346.20	1348.60	1350.75	1353.48	1355.00	1355.00	24 In 5-yr

Project File: Fox Ridge Plaza Prelim Sizes.stm

Number of lines: 6

Run Date: 02-05-2014

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	24 In 5-yr	12.33	24	Cir	1400.000	1344.00	1349.60	0.400	1346.24	1351.02	0.42	1351.43	End	Curb-
2	30 In 5-yr	17.44	30	Cir	1400.000	1344.00	1349.60	0.400	1346.40	1351.00	0.89	1351.00	End	Curb-
3	18 In 5-yr	5.28	18	Cir	850.000	1349.70	1353.10	0.400	1351.00	1354.03	0.33	1354.36	2	Curb-
4	30 In 5-yr	19.85	30	Cir	250.000	1344.00	1345.00	0.400	1346.68	1347.20	0.22	1347.42	End	Manhole
5	24 In 5-yr	20.40	24	Cir	250.000	1345.85	1346.85	0.400	1347.45*	1349.77*	0.98	1350.75	4	Curb-
6	24 In 5-yr	15.26	24	Cir	600.000	1346.20	1348.60	0.400	1350.75*	1353.48*	0.37	1353.85	5	Curb-

Project File: Fox Ridge Plaza Prelim Sizes.stm

Number of lines: 6

Run Date: 02-05-2014

NOTES: Return period = 5 Yrs. ; *Surcharged (HGL above crown).

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line shape	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	1400.000	-90.000	Curb	0.00	2.10	0.90	5.0	1344.00	0.40	1349.60	24	Cir	0.013	1.00	1355.00	24 In 5-yr
2	End	1400.000	-90.000	Curb	0.00	2.70	0.90	5.0	1344.00	0.40	1349.60	30	Cir	0.013	1.50	1355.00	30 In 5-yr
3	2	850.000	90.000	Curb	0.00	0.90	0.90	5.0	1349.70	0.40	1353.10	18	Cir	0.013	1.00	1355.00	18 In 5-yr
4	End	250.000	-135.000	MH	0.00	0.00	0.90	5.0	1344.00	0.40	1345.00	30	Cir	0.013	0.75	1355.00	30 In 5-yr
5	4	250.000	45.000	Curb	0.00	1.20	0.90	5.0	1345.85	0.40	1346.85	24	Cir	0.013	1.50	1355.00	24 In 5-yr
6	5	600.000	-90.000	Curb	0.00	2.60	0.90	5.0	1346.20	0.40	1348.60	24	Cir	0.013	1.00	1355.00	24 In 5-yr

Project File: Fox Ridge Plaza Prelim Sizes.stm

Number of lines: 6

Date: 02-05-2014

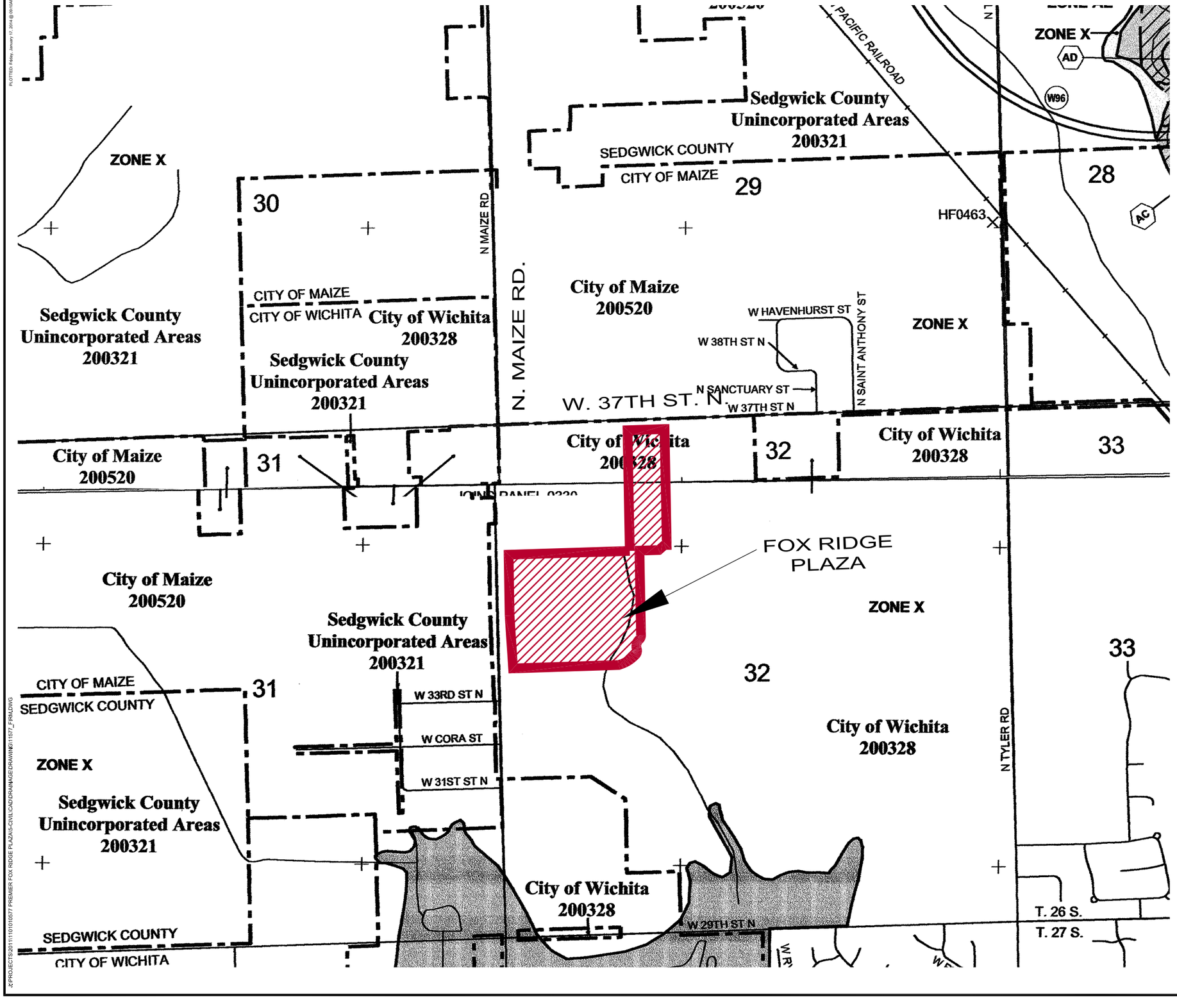
Tab 4. Floodplains

FEMA FIRM

The site is in Zone X unshaded, areas outside of the 500-year according to FIRM panel 20173C0330E effective February 2, 2007, Appendix 4.1. The nearest 100-year floodplain is approximately ¼ of a mile south of the site per LOMR Case Number 06-07-BB40P.

Although there is no mapped FEMA floodplain on site, there is floodplain on site that is connected with mapped FEMA floodplain.

Appendix 4.1 - Flood Insurance Rate Map (FIRM)



MKEC
Wichita, KS · 316.684.9600

FIRM MAP

FOX RIDGE PLAZA

WICHITA, KANSAS

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

PANEL 0330E

FIRM

FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY, KANSAS
AND INCORPORATED AREAS

PANEL 330 OF 700

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MAIZE, CITY OF	200520	0330	E
SEDGWICK COUNTY	200321	0330	E
WICHITA, CITY OF	200328	0330	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
20173C0330E

EFFECTIVE DATE
FEBRUARY 2, 2007
Federal Emergency Management Agency

FIRM MAP

PROJECT NO.	1101010577
DATE	1/17/14
SCALE	1" = 500'

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE

SHEET NO.

1 OF 1

Tab 5. Federal, State, and Local Permits

US Army Corps of Engineers

The site will not modify any jurisdictional streams or wetlands.

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.