



Drainage Plan

CASA BELLA 3rd ADDITION
WICHITA, SEDGWICK COUNTY, KANSAS

September 2010

Drainage Plan
Casa Bella 3rd Addition
Wichita, Sedgwick County, Kansas

Introduction

Casa Bella 3rd Addition is a proposed 13.8 acre replat of a portion of Casa Bella 2nd Addition in southeast Wichita. It is northwest of the intersection of Pawnee and 127th Street East. The site is not being used for any specific purpose at this time but was originally designed as single family residential lots. The new site will have 18 duplex lots and 28 single family residential lots. The entire site was originally graded with the Casa Bella Storm Water Project (COW project #468 84073). Ponds were constructed in Casa Bella to handle drainage from Casa Bella and most of Casa Bella 2nd Addition.

Existing Conditions

The majority of the site currently drains to the west into the previously mentioned ponds. There is no offsite drainage that enters this property. There are no floodplains, wetlands or riparian areas within the proposed area of work. A portion of the east half of the plat currently drains undetained to 127th Street but the construction of a detention pond was required when infrastructure improvements were installed. The existing conditions model of the site is based on the site before the grading was done with the first phase of Casa Bella. The onsite soils are Irwin Silty Clay Loam, which are Hydrologic Soil Group D. Aerial photos with contours showing both the pre-developed grading and current site conditions are included with this submittal.

The drainage basin in the Southeast corner of the Casa Bella 2nd Addition drains to the intersection of 127th Street East and Pawnee. There are 2 – 24” RCP and a 36” RCP to carry drainage under 127th Street. A total of 18.5 acres, including offsite areas, drains to the 127th Street RCPs. The capacity of the pipes was found to be 110 cfs using HY-8. The rating curves for the culvert pipes can be seen on the following pages. The Velocity Method was used to find the time of concentration of 32 minutes. A curve number of 83 was used considering the site was not maintained and the hydrologic group D type soils.

Length of longest reach = 1170’ (0.5% slope)

$T_c = 300'/(0.21)(60) + 200'/(1.0)(60) + 670'/(3.0)(60) = 32 \text{ min}$
(sheet flow) (grassed waterway) (channel flow)

Developed Conditions

As previously outlined, the proposed Casa Bella 3rd addition consists of 13.8 acres with a mix of single family and duplex residential lots. The proposed total impervious area is 4.6 acres (33%). Along the north line of the proposed plat, there is an existing reserve with berms and a swale to prevent offsite silt transport and keep storm water onsite. Rear

yard drains will be installed in backyard areas to pick up drainage and provide 1.5% rear yard slope where possible. A minimum of 1% grade will be provided in other rear yard areas. The drainage for the west half of the plat will be controlled by the existing ponds that were previously designed to handle the runoff. Because the proposed drainage basin to the west is unchanged and was included in the design of the original ponds, please refer to those drainage reports for detention calculations and analysis for runoff in that area. The drainage for the east half of the site will be detained by a new pond constructed in Reserve "E" of Casa Bella 2nd Addition that was proposed in that plat's drainage plan. The pond outfall structure and storm sewer serving the east portion of the property has been modified from the original plans and calculations are included here. The existing and proposed ponds will act as silt traps during construction, although silt fence and other BMP measures will be utilized to limit silt transport to the ponds.

Hydraulic and Hydrologic Modeling

The proposed pond was modeled using HEC-HMS. The runoff summary for the site can be seen in Table 1. The results for the detention pond can be seen in Table 2. Storm sewer systems are needed to drain proposed lots. Proposed Storm Sewer systems have been sized using StormCAD and those results can be found at the end of this drainage plan. System 100, which serves the west half of the site, is sized for the 100 year storm except for the last inlet on the north property line. That inlet is designed to handle smaller storms and excess runoff from it is allowed to overflow to the west along the rear easement. The time of concentration for the residential and commercial portions of the developed Southeast pond basin is 15 minutes. The time of concentration for the undetained areas is 24 minutes due to the length of the roadside ditches that carry the runoff to the junction point.

The developed runoff curve for the residential basin is assumed to be 86 and for the commercial basin its assumed to be 94. The Southeast pond will be controlled by an 24" culvert for smaller storms and a 36" culvert for larger storms. The 24" RCP will be set with an inlet elevation of 1352.0 and the 36" RCP will have an inlet elevation of 1352.5.

The system was evaluated with full development and an alternate scenario with no commercial development was included as well. See the summary table below for results. A copy of the HEC-HMS electronic data is included on the CD provided with the drainage plan. The HEC-HMS model has a north basin which comprises drainage basins C, D, G, H, I, J and K as indicated on the drainage basin map and is approximately 6.3 acres. The south basin is indicated as basin L. Currently, basin L only drains in part to the proposed pond. When the area is developed as commercial property, it will be graded in a manner that conveys the water through the pond.

The 100yr discharge of the Southeast basin of 76.3 cfs is handled by the existing culvert pipes under 127th Street. The total capacity of the 127th Street culverts is 110 cfs. There is approximately 50' of higher ground between the two sets of pipe that cross under 127th Street. The 36" RCP that drains the majority of the area has a capacity of approximately 73 cfs before water reaches the edge of the roadway. Approximately 68 cfs of the total

runoff is directed to the 36" RCP. The remaining runoff is directed to the 2-24" RCP's from Pawnee. At the time that the commercial property in Casa Bella 2nd is developed, a cross connecting pipe or ditch between the 36" RCP and 2-24" RCP's should be implemented to provide additional protection from street overflows.

The existing roadway does not have history of overtopping, but an evaluation of the ditches indicated that storms in excess of the 25 year rain event may exceed the ditch capacity when the site is fully developed. The existing ditch has a capacity of approximately 36 cfs. In the alternate analysis that includes no commercial site development, the pond discharges 22 cfs in the 100 year event. The street ditch south of the pond should be widened to a 5' wide bottom with 3' side slopes to provide capacity for the 100 year event at the time that the commercial site is developed and that runoff is directed into the detention pond. In addition to that, the channel will require additional protection at the outfall and we recommend that the ditch be improved in that area at the time of the initial pond construction.

Stormwater Runoff Summary

Storm Return Period	Existing Q (cfs)	Developed Q (cfs)	No Commercial Q
2 year	25.1	22.0	23.8
5 year	37.0	34.7	35.1
10 year	46.7	45.8	44.2
25 year	58.5	56.7	53.4
100 year	77.4	76.3	74.4

Table 1: Existing versus Developed storm runoff of the Southeast drainage basin of Casa Bella 3rd Addition to the intersection of 127th Street East and Pawnee.

Design Storm	Peak Qin (cfs)	Peak Qout (cfs)	Peak Storage (ac-ft)	Peak Elevation
2 yr	33.0	22.0	1.10	1354.0
5 yr	41.1	22.0	1.10	1354.0
10 yr	49.9	28.1	1.30	1354.2
25 yr	58.8	35.1	1.40	1354.5
100 yr	77.4	46.8	1.80	1355.0

Table 2: SE Pond Information (Developed Basin w/ Full Development)

Proposed SE Pond Data:

Static Pool = 1352.0 Pond Bottom = 1346.0 100 yr Water Surface = 1355.0

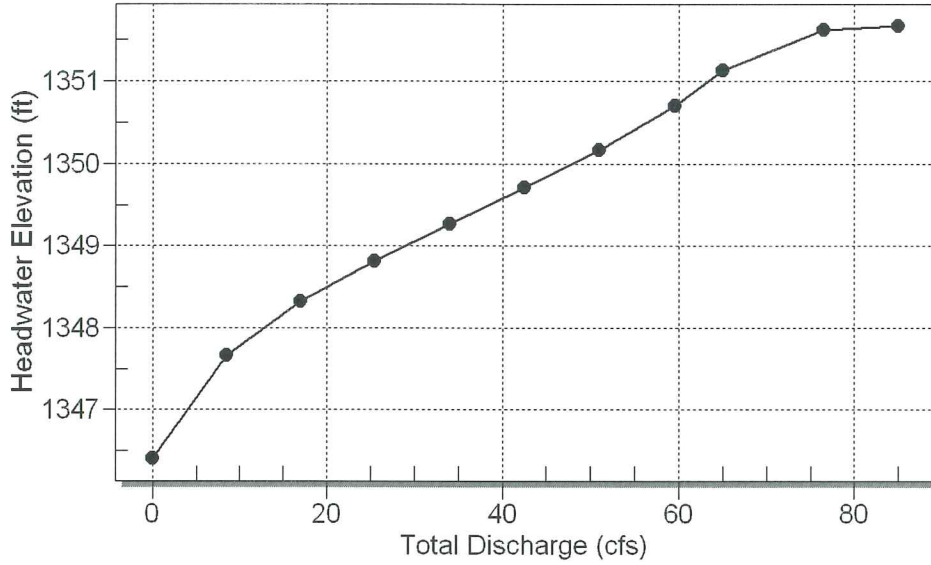
Elevation	Area (ac)	Discharge (cfs)
1352.0	0.48	0
1352.5	0.52	3.0
1353.0	0.56	7.5
1353.5	0.60	14.5
1354.0	0.64	23.0
1354.5	0.68	37.5
1355.0	0.73	48.0

Table 1: SE Pond Stage-Area-Discharge

Rating Curves for 36" RCP & 24" RCPs under 127th Street East.

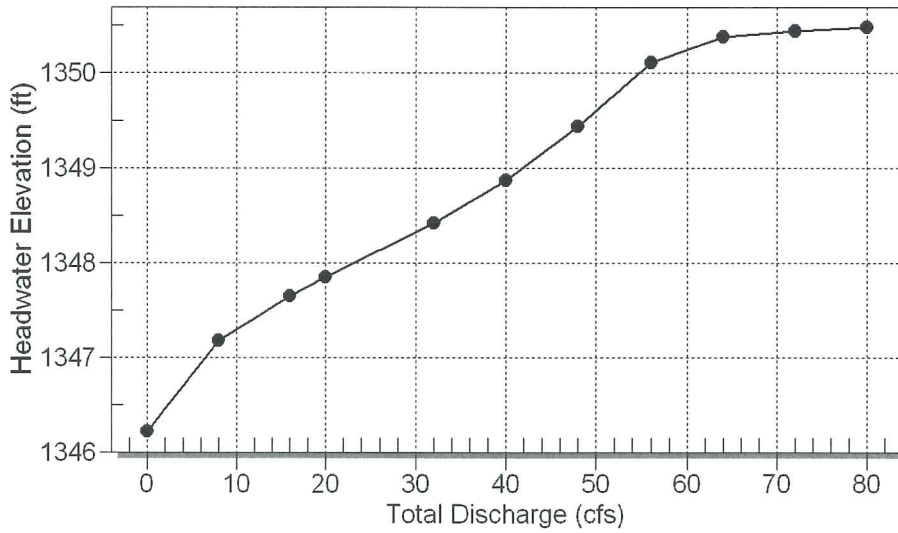
Total Rating Curve (Performance)

Crossing: Casa Bella 2nd 36" RCP



Total Rating Curve (Performance)

Crossing: Casa Bella 2nd 24" RCP (2)

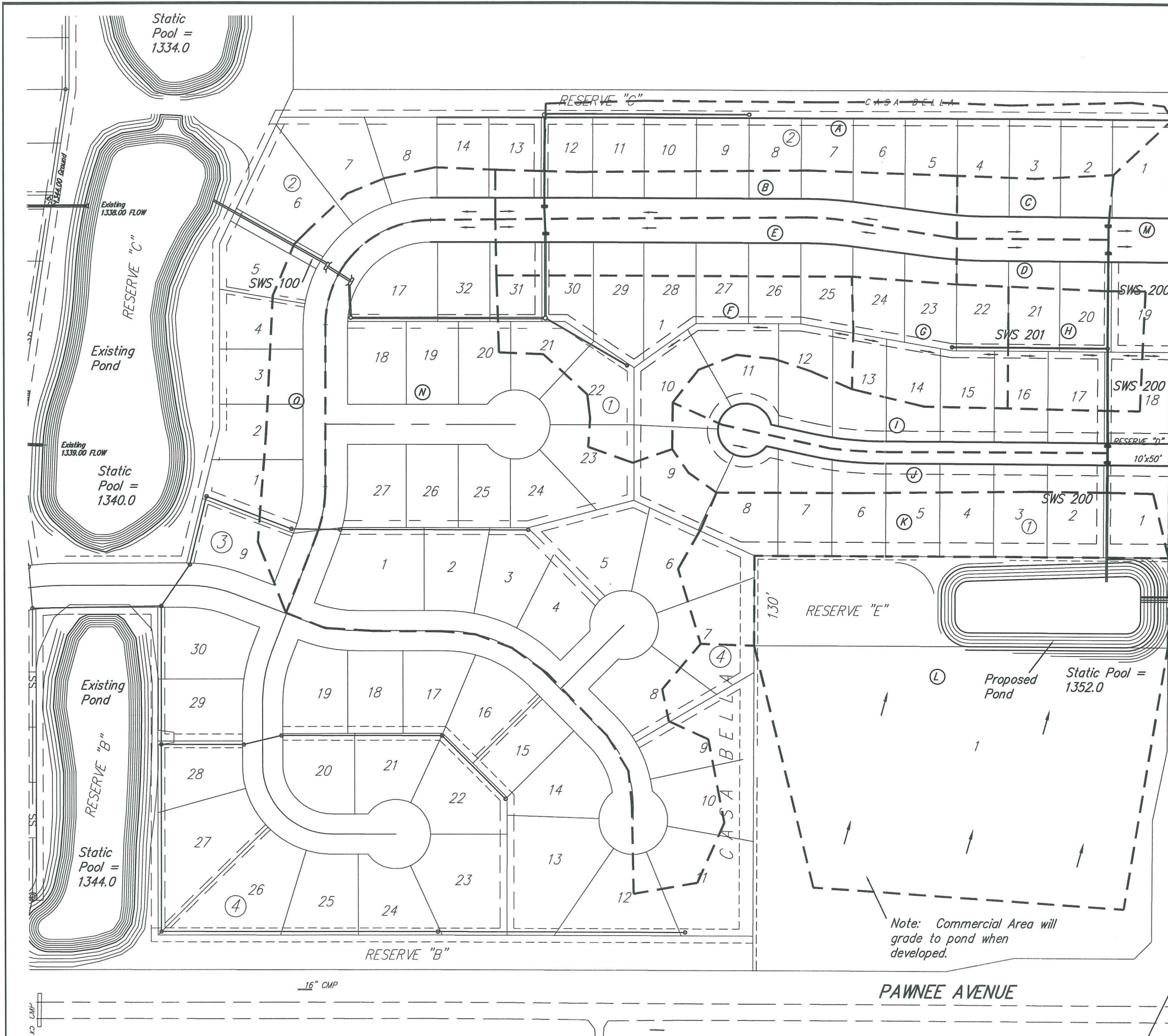


HY-8 Analysis Results

Crossing Summary Table

Culvert Crossing: Casa Bella3rd Pond Outlet

Headwater Elevation (ft)	Total Discharge (cfs)	24" Culvert Discharge (cfs)	36" Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
1352.00	0.00	0.00	0.00	0.00	0
1353.23	7.50	3.24	4.27	0.00	4
1353.64	15.00	6.01	8.97	0.00	5
1353.98	22.50	8.27	14.21	0.00	4
1354.22	30.00	9.87	20.15	0.00	4
1354.53	37.50	11.39	26.11	0.00	4
1354.64	40.00	11.75	28.25	0.00	3
1355.23	52.50	13.45	39.05	0.00	3
1355.57	60.00	14.39	45.56	0.00	12
1355.91	67.50	15.29	52.05	0.00	25
1356.07	75.00	15.55	54.93	4.43	9
1356.00	69.17	15.51	53.66	0.00	Overtopping



Basin	Area (Ac)	Tc (min)	I2 (in/hr)	I100 (in/hr)	C2	C100	Q2 (cfs)	Q100 (cfs)
A	2.04	15	3.83	7.37	0.5	0.76	3.9	11.4
B	1.09	15	3.83	7.37	0.5	0.76	2.1	6.1
C	0.46	15	3.83	7.37	0.5	0.76	0.9	2.6
D	0.36	15	3.83	7.37	0.5	0.76	0.7	2.0
E	1.23	15	3.83	7.37	0.5	0.76	2.4	6.9
F	1.77	15	3.83	7.37	0.5	0.76	3.4	9.9
G	0.90	15	3.83	7.37	0.5	0.76	1.7	5.0
H	0.78	15	3.83	7.37	0.5	0.76	1.5	4.4
I	1.11	15	3.83	7.37	0.5	0.76	2.1	6.2
J	0.98	15	3.83	7.37	0.5	0.76	1.9	5.5
K	1.68	15	3.83	7.37	0.5	0.76	3.2	9.4
L	6.19	20	3.33	6.53	0.5	0.76	10.3	30.7
M	0.84	15	3.83	7.37	0.5	0.76	1.6	4.7
N	6.69	20	3.33	6.53	0.5	0.76	11.1	33.2
O	1.36	15	3.83	7.37	0.5	0.76	2.6	7.6

Areas C, D, G, H, I, J, K & L Drain to Proposed Pond.

Proposed Pond
 Static Pool = 1352.0
 100 year WS = 1355.0
 Q_{100 in} = 77.4 cfs
 Q_{100 out} = 46.8 cfs



Scale: 1" = 100'

Street Ditch to be regraded at the time of commercial lot development.

Note: Commercial Area will grade to pond when developed.

PAWNEE AVENUE

Remove obstruction in street ditch between pipes or install connecting culvert at the time of commercial development.

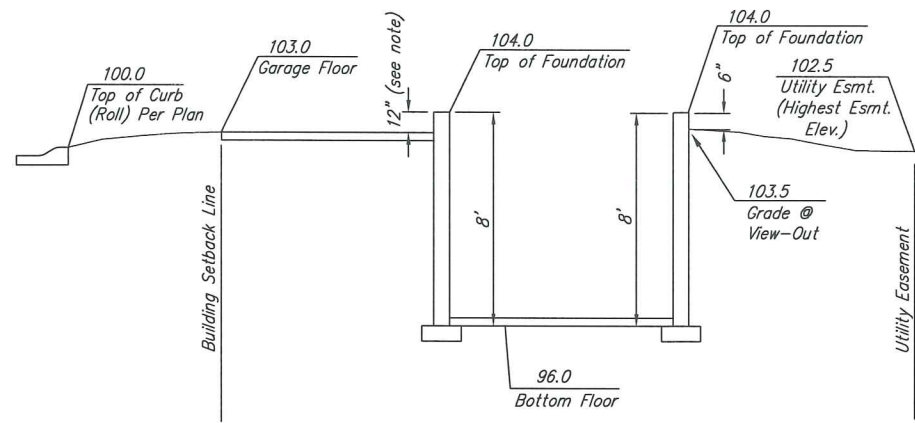
Casa Bella 2nd Addition
 Drainage Basins
 WICHITA, KANSAS

Ruggles & Bohm, P.A.
 Engineering, Surveying, Land Planning

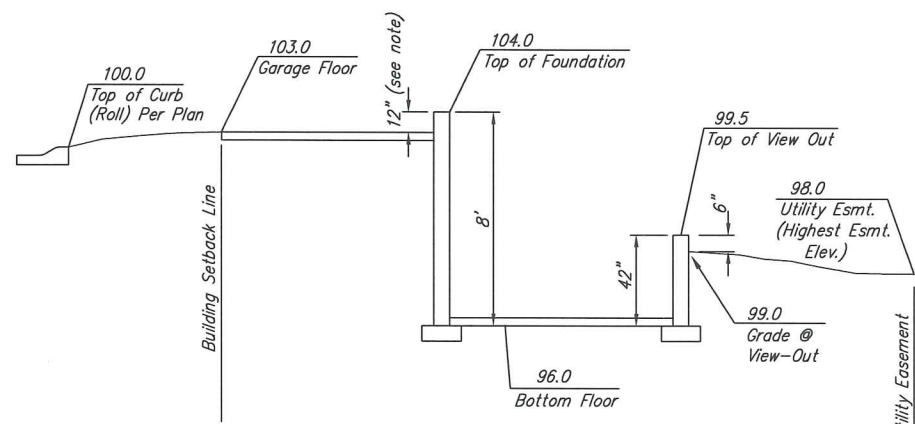
924 North Main
 Wichita, Kansas 67203
 www.rbkansas.com

(316) 264-8008
 (316) 264-4621 fax
 E-mail: info@rbkansas.com

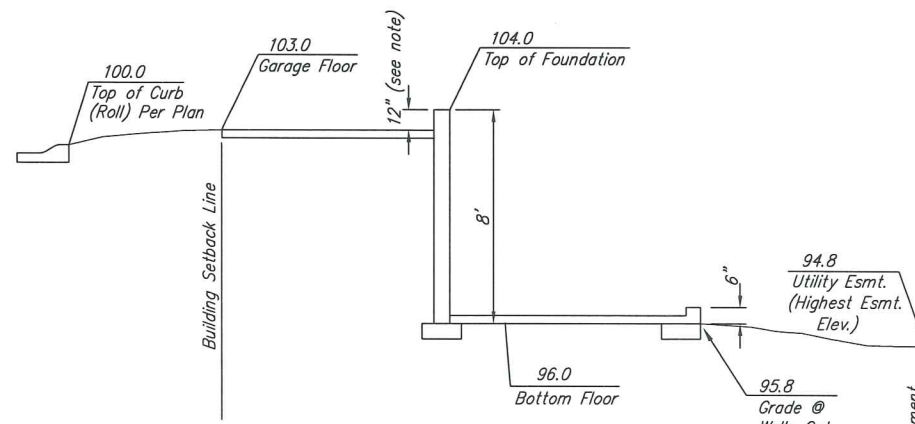
DESIGN	KWL	SHEET	1
DRAWN	KWL	OF	1
REVIEW		DATE	Oct. 1, 2010
UTILITY			
DRAWING FILE	Drainage Exhibits [Basins]	PROJECT NUMBER	



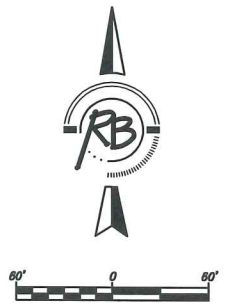
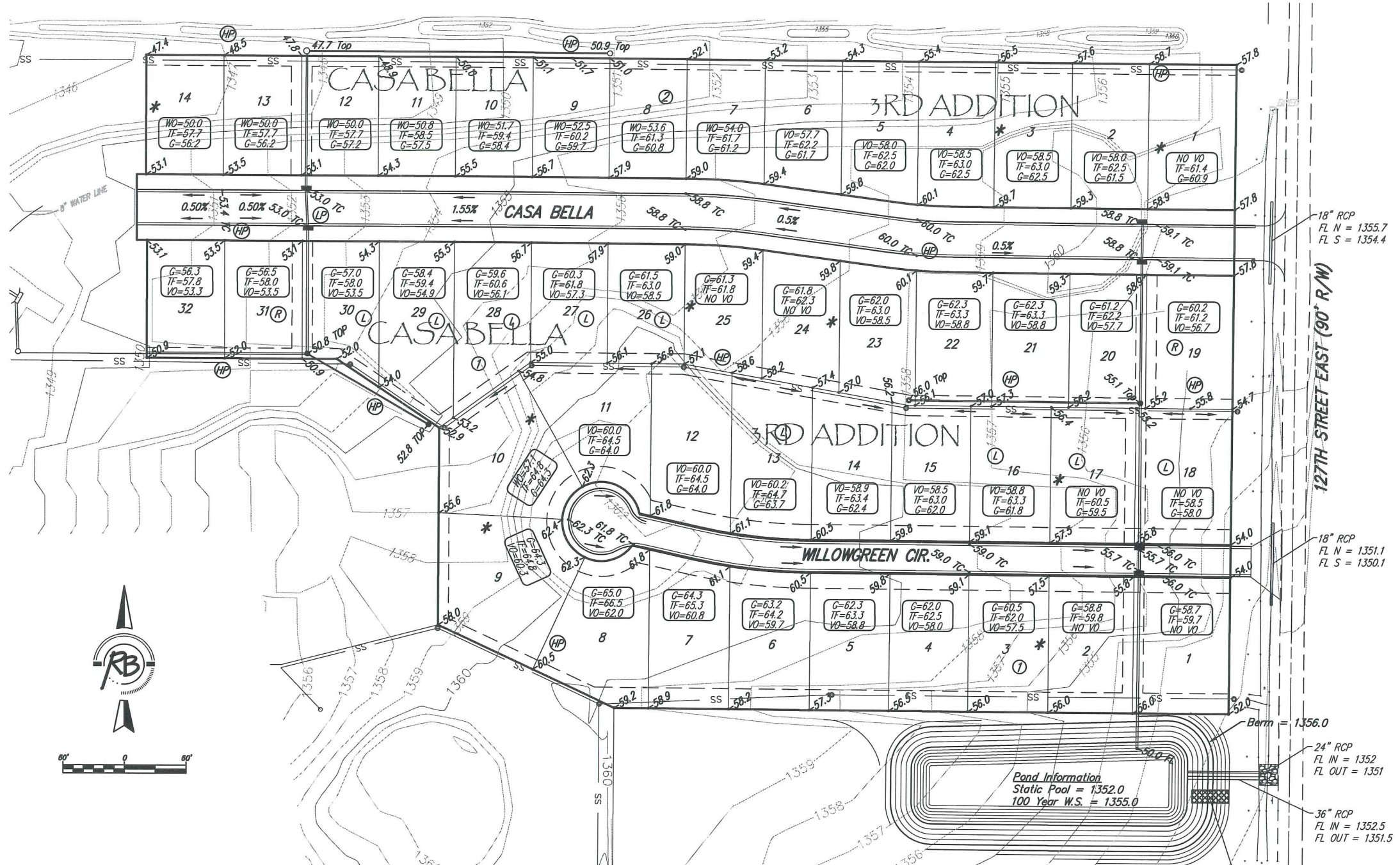
* Varies (Check Individual Lot)
Section Through Typical Full Basement



* Varies (Check Individual Lot)
Section Through Typical View-Out Lot



* Varies (Check Individual Lot)
Section Through Typical Walk-Out Lot



MINIMUM BUILDING PAD ELEVATION FOR LOWEST OPENING INTO STRUCTURES			
BLOCK	LOT NO.	ELEVATION (N.G.V.D.)	ELEVATION (NAVD 88)
1	LOTS 1-8	1357.0	1357.5

BENCHMARK: SRB BRASS DISC
 55.45' E. & 5.13' S. OF THE N.W.
 COR., SW 1/4 SEC 35, T27S, R2E.
 ELEVATION = 1348.35 (NGVD29)

**CASA BELLA THIRD ADDITION
 PRELIMINARY GRADING PLAN
 WICHITA, KANSAS**

Ruggles & Bohm, P.A.
 Engineering, Surveying, Land Planning

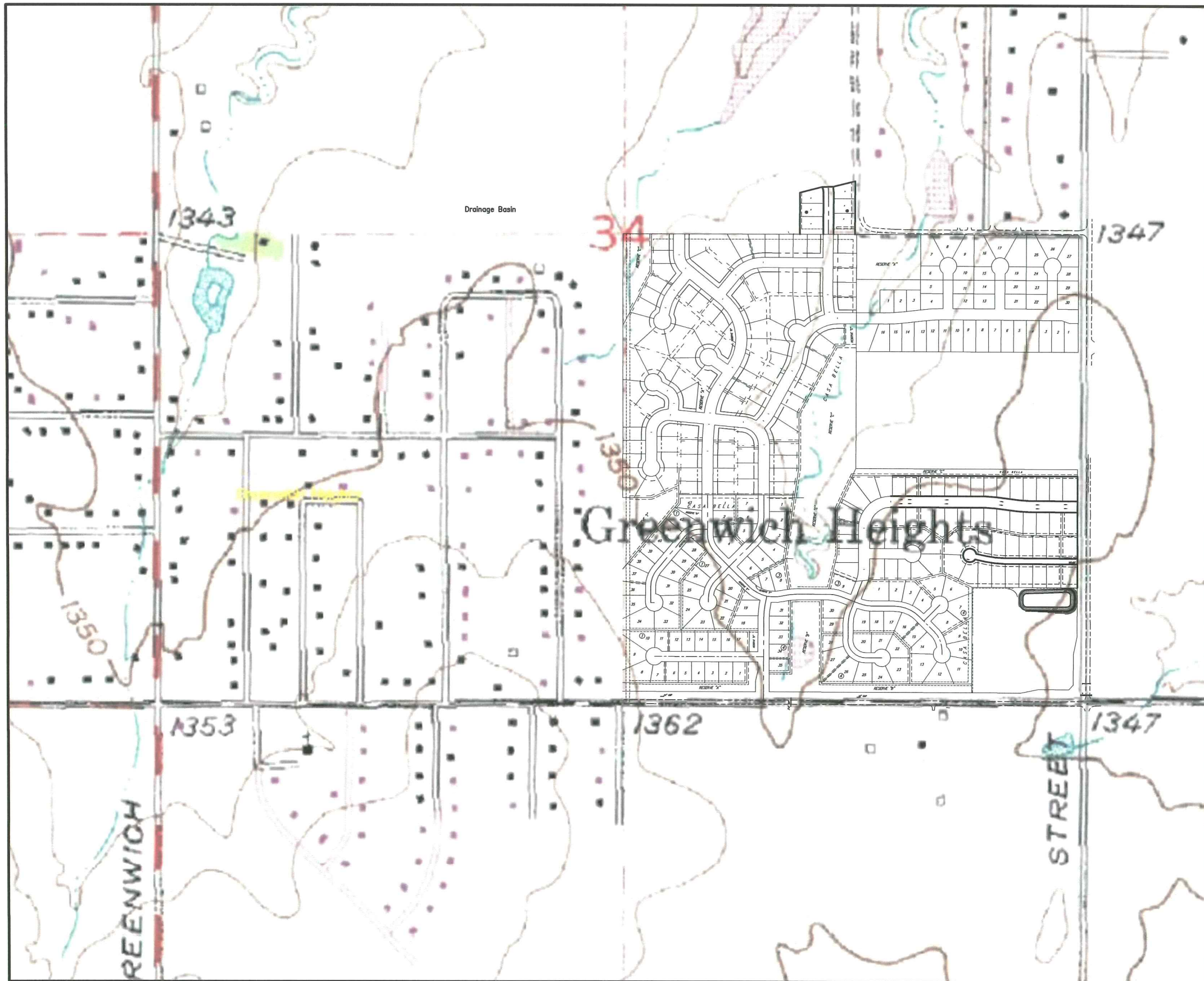
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 E-mail: info@rbkansas.com

DESIGN: KWL
 DRAWN: MLP
 REVIEW: []
 UTILITY: []
 DATE: Aug. 26, 2010

DRAWING FILE: [] PROJECT NUMBER: []

SHEET 1 OF 1



Scale: 1" = 200'

Casa Bella 3rd Addition USGS Exhibit WICHITA, KANSAS			
	Ruggles & Bohm, P.A. Engineering, Surveying, Land Planning		
	924 North Main Wichita, Kansas 67203 www.rbkansas.com	(316) 264-8008 (316) 264-4621 fax E-mail: info@rbkansas.com	DESIGN E.J.G. DRAWN K.W.L. REVIEW UTILITY DATE Aug. 26, 2010
DRAWING FILE Drainage Exhibits {USGS}	PROJECT NUMBER		



Existing Conditions
 Area = 13.8 acres
 0.0 acres Impervious

The contours on this sheet represent the natural site as it was prior to the Casa Bella Addition Storm Water Drain Project.



Scale: 1" = 200'

Casa Bella 2nd Addition
 Pre-Development Aerial
 WICHITA, KANSAS

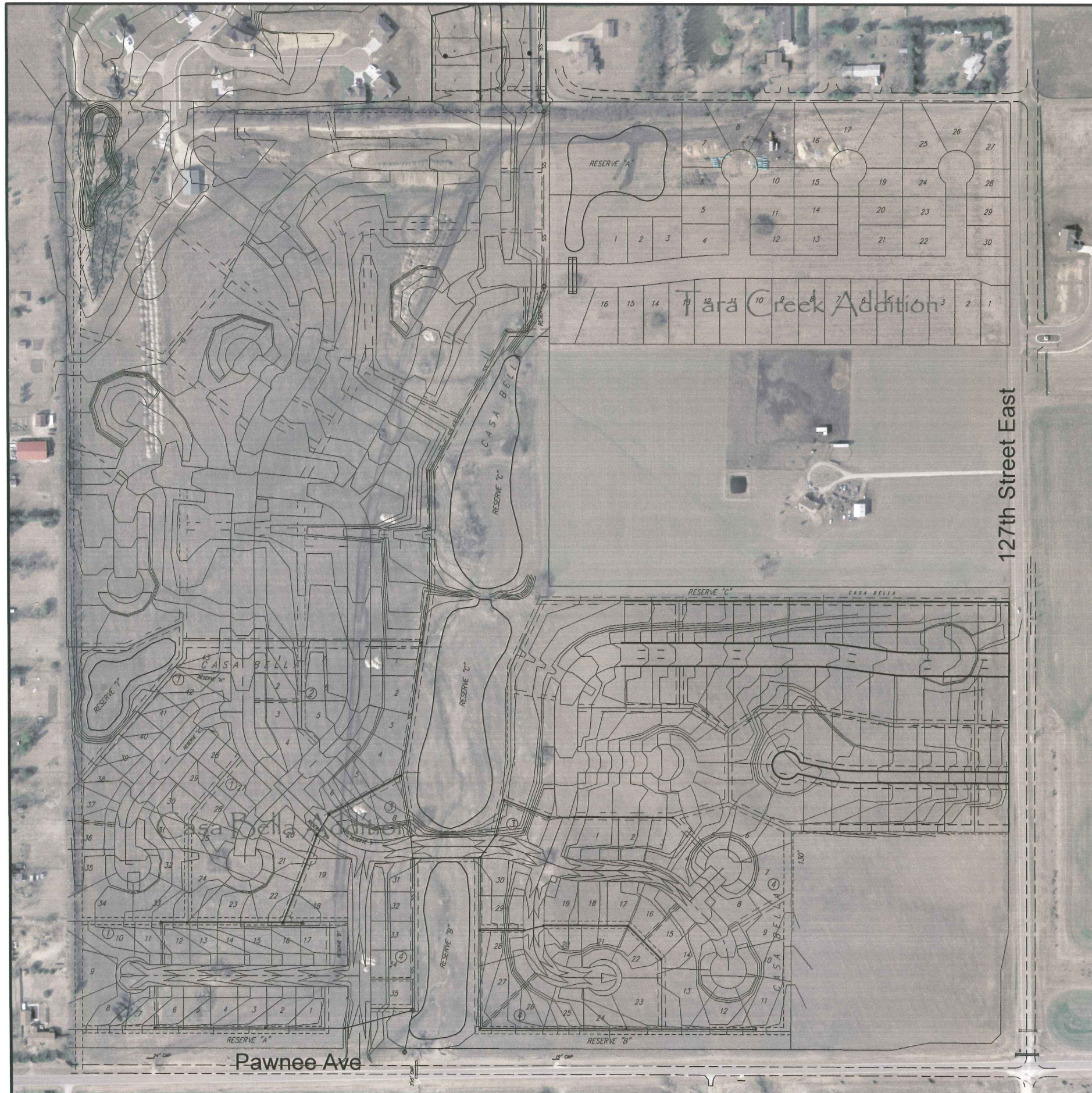


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DRAWING FILE
 Drainage Exhibits {aerial}

PROJECT NUMBER

DESIGN	KWL	SHEET 1 OF 1
DRAWN	KWL	
REVIEW		
UTILITY		
DATE	Aug. 26, 2010	



The contours on this sheet represent the site grading done with the Casa Bella Addition Storm Water Drain Project.



Scale: 1" = 200'

Casa Bella 2nd Addition
Current Site Conditions
WICHITA, KANSAS

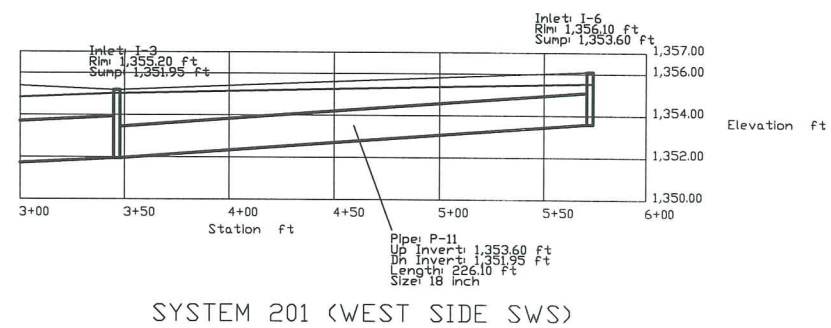
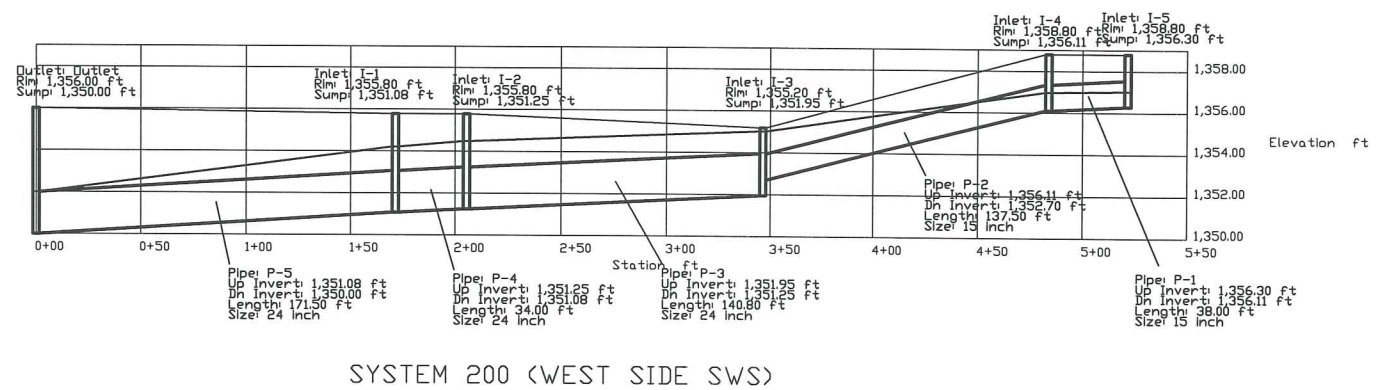
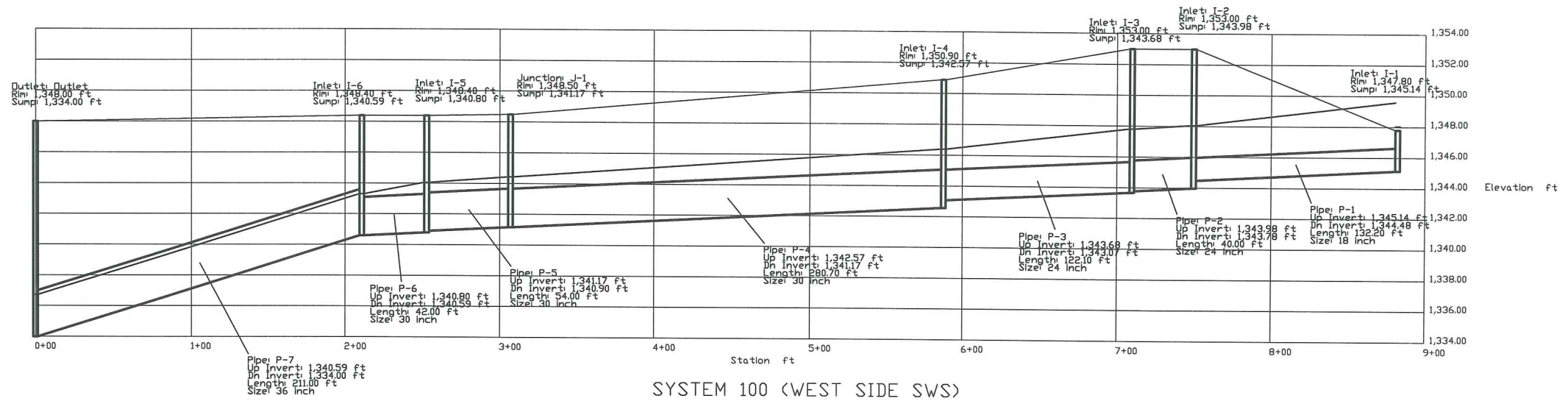


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Wichita, Kansas 67203 (316) 264-4621 fax
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DRAWING FILE: Drainage Exhibits {aerial (2)} PROJECT NUMBER: .

DESIGN	EJG	SHEET 1 OF 1
DRAWN	EJG	
REVIEW		
UTILITY		
DATE	Aug. 27, 2010	

JOB NO. 3253P



**Casa Bella 2nd Addition
StormCAD
WICHITA, KANSAS**

	Ruggles & Bohm, P.A. Engineering, Surveying, Land Planning		DESIGN KWL
	924 North Main Wichita, Kansas 67203 www.rbkansas.com		(316) 264-8008 (316) 264-4621 fax E-mail: info@rbkansas.com
DRAWING FILE Drainage Exhibits {StormCAD}		PROJECT NUMBER .	DATE Aug. 27, 2010

DRAWN KWL	SHEET 1
REVIEW	OF
UTILITY	1

HEC-HMS OUTPUT DATA

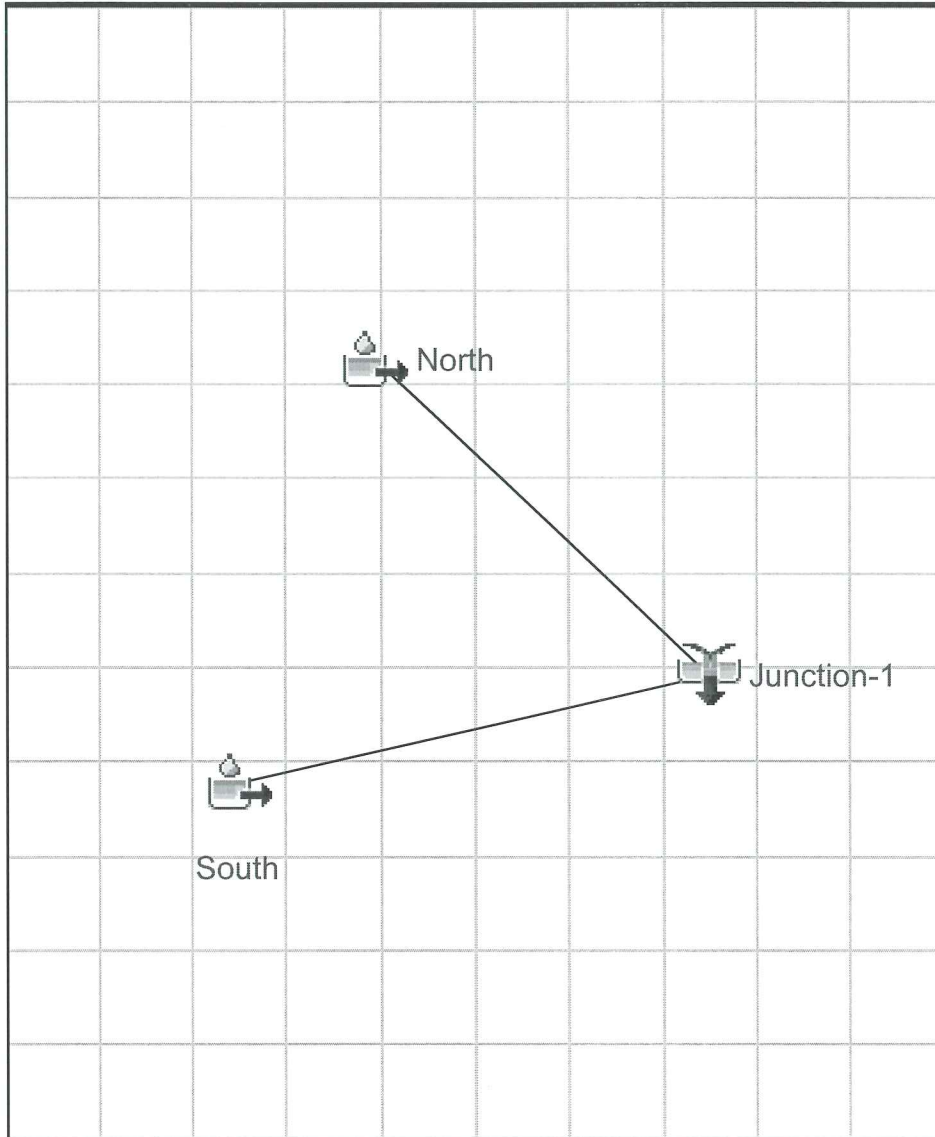


HEC-HMS

Project : casabella3rd

Basin Model : Pre Dev 127thandPawnee

Sep 17 15:35:20 CDT 2010



Existing Model
(uses predeveloped runoff for all areas)

Project: casabella3rd Simulation Run: Existing2

Start of Run: 01Jan2008, 12:00 Basin Model: Pre Dev 127thandPaw
End of Run: 02Jan2008, 12:02 Meteorologic Model: 2 year
Compute Time: 17Sep2010, 14:28:06 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.02190	20.6	02Jan2008, 00:1
South	0.00703	5.1	02Jan2008, 00:2
Junction-1	0.02893	25.1	02Jan2008, 00:1

Project: casabella3rd Simulation Run: Existing5

Start of Run: 01Jan2008, 12:00 Basin Model: Pre Dev 127thandPaw
End of Run: 02Jan2008, 12:02 Meteorologic Model: 5 year
Compute Time: 17Sep2010, 14:28:12 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.02190	30.4	02Jan2008, 00:1
South	0.00703	7.6	02Jan2008, 00:2
Junction-1	0.02893	37.0	02Jan2008, 00:1

Project: casabella3rd Simulation Run: Existing10

Start of Run: 01Jan2008, 12:00 Basin Model: Pre Dev 127thandPaw
End of Run: 02Jan2008, 12:02 Meteorologic Model: 10 year
Compute Time: 17Sep2010, 14:27:59 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.02190	38.4	02Jan2008, 00:1
South	0.00703	9.6	02Jan2008, 00:2
Junction-1	0.02893	46.7	02Jan2008, 00:1

Project: casabella3rd Simulation Run: Existing25

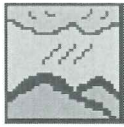
Start of Run: 01Jan2008, 12:00 Basin Model: Pre Dev 127thandPaw
End of Run: 02Jan2008, 12:02 Meteorologic Model: 25 year
Compute Time: 17Sep2010, 14:28:09 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.02190	46.4	02Jan2008, 00:1
South	0.00703	11.6	02Jan2008, 00:2
Junction-1	0.02893	56.5	02Jan2008, 00:1

Project: casabella3rd Simulation Run: Existing100

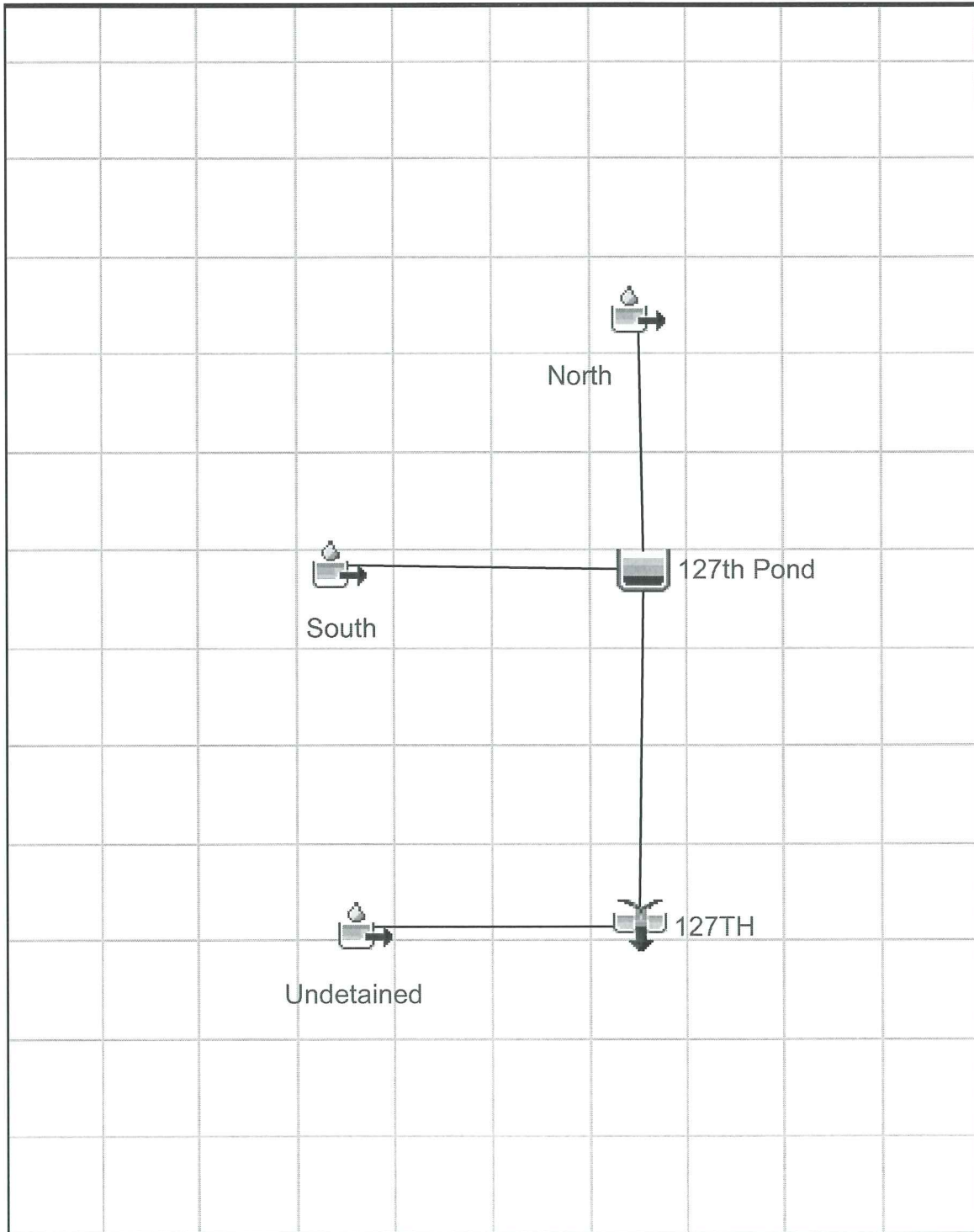
Start of Run: 01Jan2008, 12:00 Basin Model: Pre Dev 127thandPaw
End of Run: 02Jan2008, 12:02 Meteorologic Model: 100 year
Compute Time: 17Sep2010, 14:28:02 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.02190	63.7	02Jan2008, 00:1
South	0.00703	15.9	02Jan2008, 00:2
Junction-1	0.02893	77.4	02Jan2008, 00:1



HEC-HMS

Project : casabella3rd
Basin Model : Developed 127th
Sep 17 15:10:28 CDT 2010



Includes Future Commercial Development

Project: casabella3rd Simulation Run: Developed2

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 2 year
Compute Time: 17Sep2010, 14:27:47 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	13.2	02Jan2008, 00:0
South	0.00967	16.8	02Jan2008, 00:0
127th Pond	0.01955	22.0	01Jan2008, 12:0
Undetained	0.01070	9.9	02Jan2008, 00:1
127TH	0.03025	22.0	01Jan2008, 12:0

Project: casabella3rd
Simulation Run: Developed2 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 2 year
Compute Time: 17Sep2010, 14:27:47 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	30.0 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	22.0 (CFS)	Date/Time of Peak Outflow :	01Jan2008, 12:00
Total Inflow :	2.45 (IN)	Peak Storage :	1.1 (AC-FT)
Total Outflow :	3.49 (IN)	Peak Elevation :	1354.0 (FT)

Project: casabella3rd Simulation Run: Developed5

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 5 year
Compute Time: 17Sep2010, 14:27:55 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	18.8	02Jan2008, 00:0
South	0.00967	22.2	02Jan2008, 00:0
127th Pond	0.01955	22.0	01Jan2008, 12:0
Undetained	0.01070	14.5	02Jan2008, 00:1
127TH	0.03025	34.7	02Jan2008, 00:2

Project: casabella3rd
Simulation Run: Developed5 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 5 year
Compute Time: 17Sep2010, 14:27:55 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	41.1 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	22.0 (CFS)	Date/Time of Peak Outflow :	01Jan2008, 12:00
Total Inflow :	3.39 (IN)	Peak Storage :	1.1 (AC-FT)
Total Outflow :	4.41 (IN)	Peak Elevation :	1354.0 (FT)

Project: casabella3rd Simulation Run: Developed10

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 10 year
Compute Time: 17Sep2010, 14:27:39 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	23.3	02Jan2008, 00:0
South	0.00967	26.6	02Jan2008, 00:0
127th Pond	0.01955	28.1	02Jan2008, 00:2
Undetained	0.01070	18.2	02Jan2008, 00:1
127TH	0.03025	45.8	02Jan2008, 00:1

Project: casabella3rd
Simulation Run: Developed10 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 10 year
Compute Time: 17Sep2010, 14:27:39 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	49.9 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	28.1 (CFS)	Date/Time of Peak Outflow :	02Jan2008, 00:20
Total Inflow :	4.15 (IN)	Peak Storage :	1.3 (AC-FT)
Total Outflow :	5.17 (IN)	Peak Elevation :	1354.2 (FT)

Project: casabella3rd Simulation Run: Developed25

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 25 year
Compute Time: 17Sep2010, 14:27:51 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	27.9	02Jan2008, 00:0
South	0.00967	30.9	02Jan2008, 00:0
127th Pond	0.01955	35.1	02Jan2008, 00:2
Undetained	0.01070	21.9	02Jan2008, 00:1
127TH	0.03025	56.7	02Jan2008, 00:1

Project: casabella3rd
Simulation Run: Developed25 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 25 year
Compute Time: 17Sep2010, 14:27:51 Control Specifications: Control 1

Volume Units: IN

Computed Results

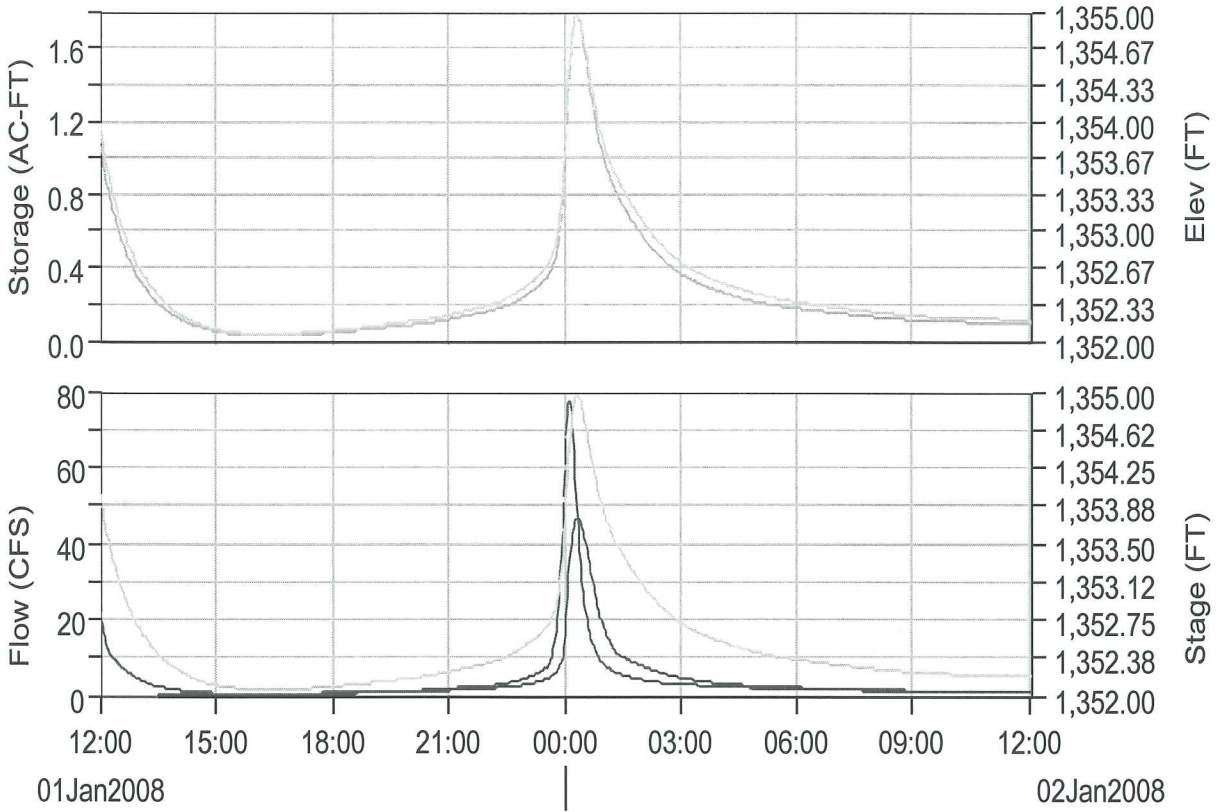
Peak Inflow :	58.8 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	35.1 (CFS)	Date/Time of Peak Outflow :	02Jan2008, 00:20
Total Inflow :	4.93 (IN)	Peak Storage :	1.4 (AC-FT)
Total Outflow :	5.93 (IN)	Peak Elevation :	1354.5 (FT)

Project: casabella3rd Simulation Run: Developed100

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 100 year
Compute Time: 17Sep2010, 14:53:30 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	37.5	02Jan2008, 00:0
South	0.00967	40.0	02Jan2008, 00:0
127th Pond	0.01955	46.8	02Jan2008, 00:2
Undetained	0.01070	29.9	02Jan2008, 00:1
127TH	0.03025	76.3	02Jan2008, 00:1

Reservoir "127th Pond" Results for Run "Developed100"



- Run:DEVELOPED100 Element:127TH POND Result:Storage
- . - . Run:DEVELOPED100 Element:127TH POND Result:Pool Elevation
- Run:Developed100 Element:127TH POND Result:Outflow
- Run:DEVELOPED100 Element:127TH POND Result:Combined Inflow
- - - - Run:Developed100 Element:127TH POND Result:Stage

Project: casabella3rd
Simulation Run: Developed100 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: Developed 127th
End of Run: 02Jan2008, 12:02 Meteorologic Model: 100 year
Compute Time: 17Sep2010, 14:53:30 Control Specifications: Control 1

Volume Units: IN

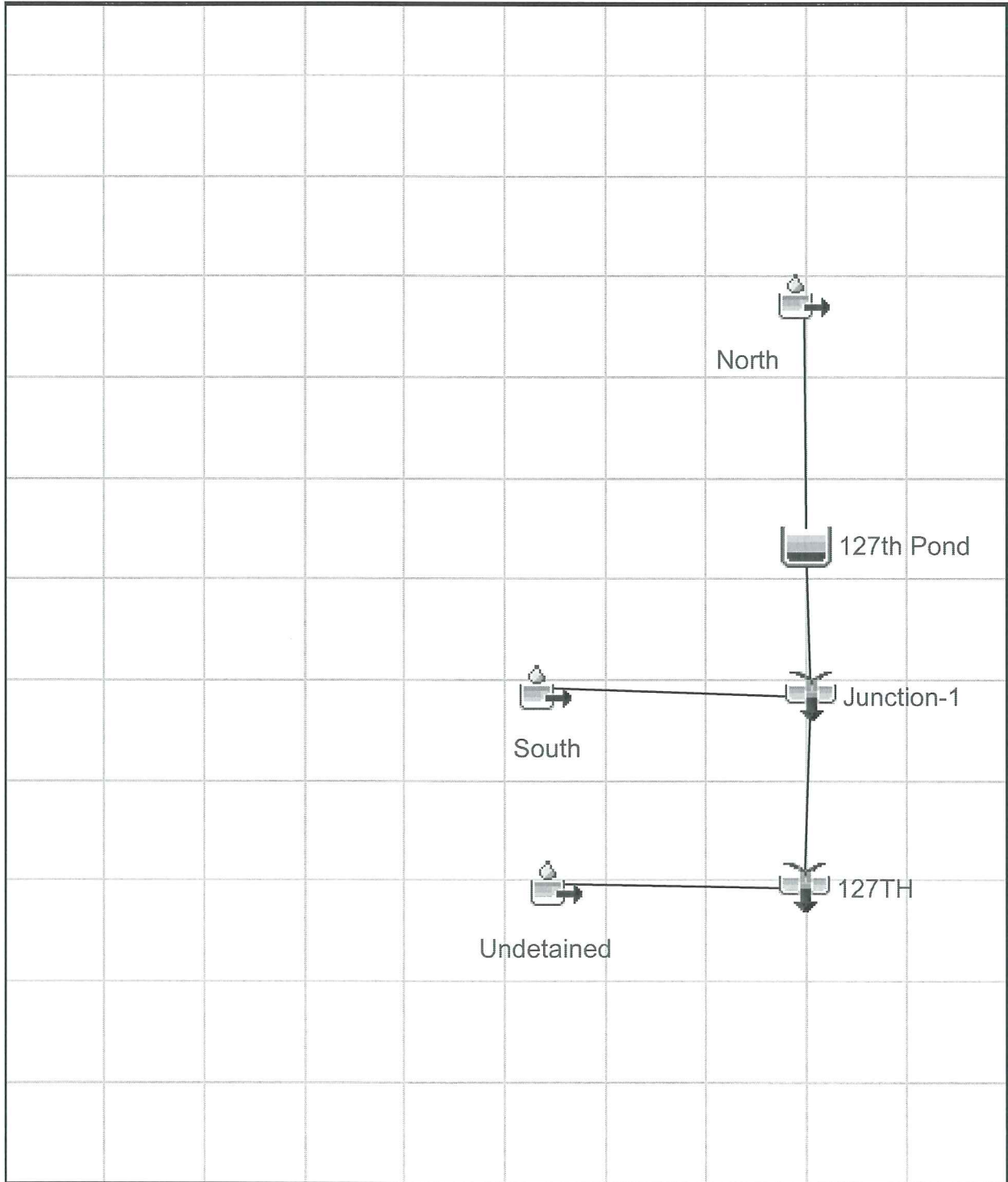
Computed Results

Peak Inflow :	77.4 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	46.8 (CFS)	Date/Time of Peak Outflow :	02Jan2008, 00:20
Total Inflow :	6.58 (IN)	Peak Storage :	1.8 (AC-FT)
Total Outflow :	7.56 (IN)	Peak Elevation :	1355.0 (FT)



HEC-HMS

Project : casabella3rd
Basin Model : No Commercial
Sep 17 15:19:55 CDT 2010



Project: casabella3rd Simulation Run: No Commercial 2

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 2 year
Compute Time: 17Sep2010, 14:28:40 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	13.2	02Jan2008, 00:0
127th Pond	0.00988	22.0	01Jan2008, 12:0
South	0.00967	11.5	02Jan2008, 00:0
Junction-1	0.01955	22.0	01Jan2008, 12:0
Undetained	0.01070	9.9	02Jan2008, 00:1
127TH	0.03025	23.8	02Jan2008, 00:1

Project: casabella3rd Simulation Run: No Commercial 5

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 5 year
Compute Time: 17Sep2010, 14:29:00 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	18.8	02Jan2008, 00:0
127th Pond	0.00988	22.0	01Jan2008, 12:0
South	0.00967	16.8	02Jan2008, 00:0
Junction-1	0.01955	22.0	01Jan2008, 12:0
Undetained	0.01070	14.5	02Jan2008, 00:1
127TH	0.03025	35.1	02Jan2008, 00:1

Project: casabella3rd Simulation Run: No Commercial 10

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 10 year
Compute Time: 17Sep2010, 14:29:22 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	23.3	02Jan2008, 00:0
127th Pond	0.00988	22.0	01Jan2008, 12:0
South	0.00967	21.2	02Jan2008, 00:0
Junction-1	0.01955	27.4	02Jan2008, 00:1
Undetained	0.01070	18.2	02Jan2008, 00:1
127TH	0.03025	44.2	02Jan2008, 00:1

Project: casabella3rd
Simulation Run: No Commercial 10 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 10 year
Compute Time: 17Sep2010, 14:29:22 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	23.3 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	22.0 (CFS)	Date/Time of Peak Outflow :	01Jan2008, 12:00
Total Inflow :	3.73 (IN)	Peak Storage :	1.1 (AC-FT)
Total Outflow :	5.80 (IN)	Peak Elevation :	1354.0 (FT)

Project: casabella3rd Simulation Run: No Commercial 25

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 25 year
Compute Time: 17Sep2010, 14:29:38 Control Specifications: Control 1

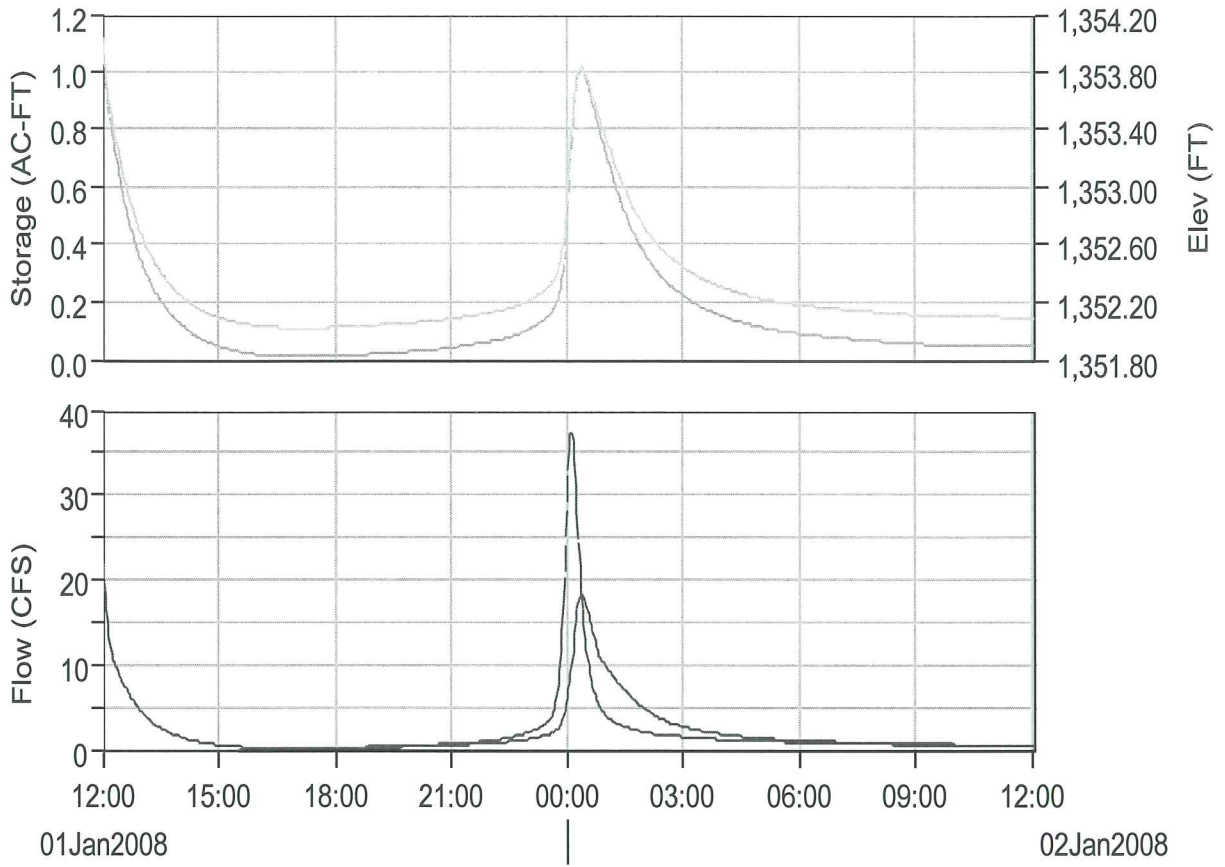
Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	27.9	02Jan2008, 00:0
127th Pond	0.00988	22.0	01Jan2008, 12:0
South	0.00967	25.6	02Jan2008, 00:0
Junction-1	0.01955	33.1	02Jan2008, 00:1
Undetained	0.01070	21.9	02Jan2008, 00:1
127TH	0.03025	53.4	02Jan2008, 00:1

Project: casabella3rd Simulation Run: No Commercial 100

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 100 year
Compute Time: 17Sep2010, 14:28:15 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
North	0.00988	37.5	02Jan2008, 00:0
127th Pond	0.00988	22.0	01Jan2008, 12:0
South	0.00967	35.0	02Jan2008, 00:0
Junction-1	0.01955	45.6	02Jan2008, 00:1
Undetained	0.01070	29.9	02Jan2008, 00:1
127TH	0.03025	74.4	02Jan2008, 00:1

Reservoir "127th Pond" Results for Run "No Commercial 100"



- Run:NO COMMERCIAL 100 Element:127TH POND Result:Storage
- . - . Run:NO COMMERCIAL 100 Element:127TH POND Result:Pool Elevation
- Run:No Commercial 100 Element:127TH POND Result:Outflow
- - - - Run:NO COMMERCIAL 100 Element:127TH POND Result:Combined Inflow

Project: casabella3rd
Simulation Run: No Commercial 100 Reservoir: 127th Pond

Start of Run: 01Jan2008, 12:00 Basin Model: No Commercial
End of Run: 02Jan2008, 12:02 Meteorologic Model: 100 year
Compute Time: 17Sep2010, 14:28:15 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	37.5 (CFS)	Date/Time of Peak Inflow :	02Jan2008, 00:08
Peak Outflow :	22.0 (CFS)	Date/Time of Peak Outflow :	01Jan2008, 12:00
Total Inflow :	6.11 (IN)	Peak Storage :	1.1 (AC-FT)
Total Outflow :	8.15 (IN)	Peak Elevation :	1354.0 (FT)
