APPENDIX A. AQUIFER CONTINUOUS SURFACES

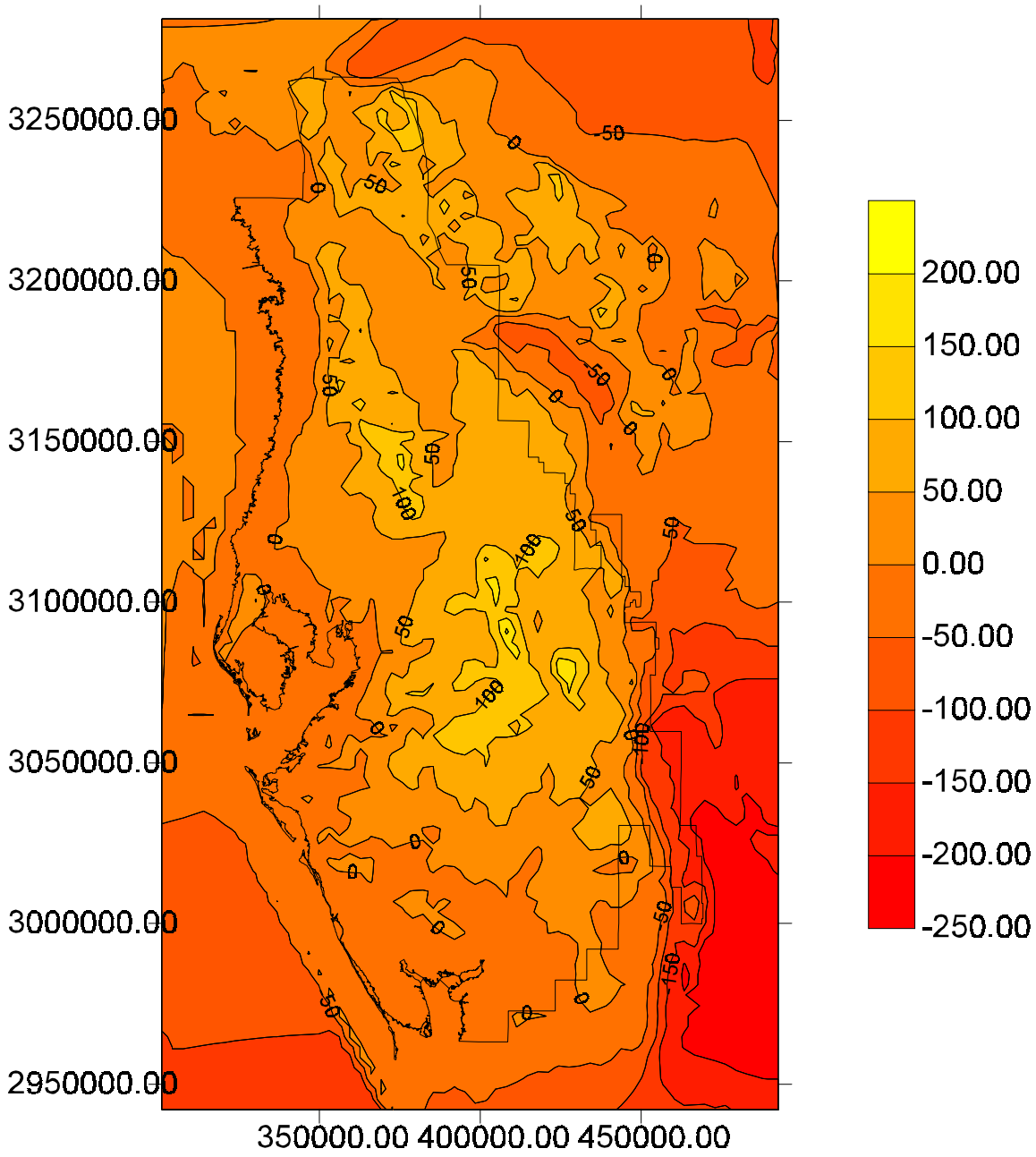

Figure A.1 Surficial Aquifer Bottom

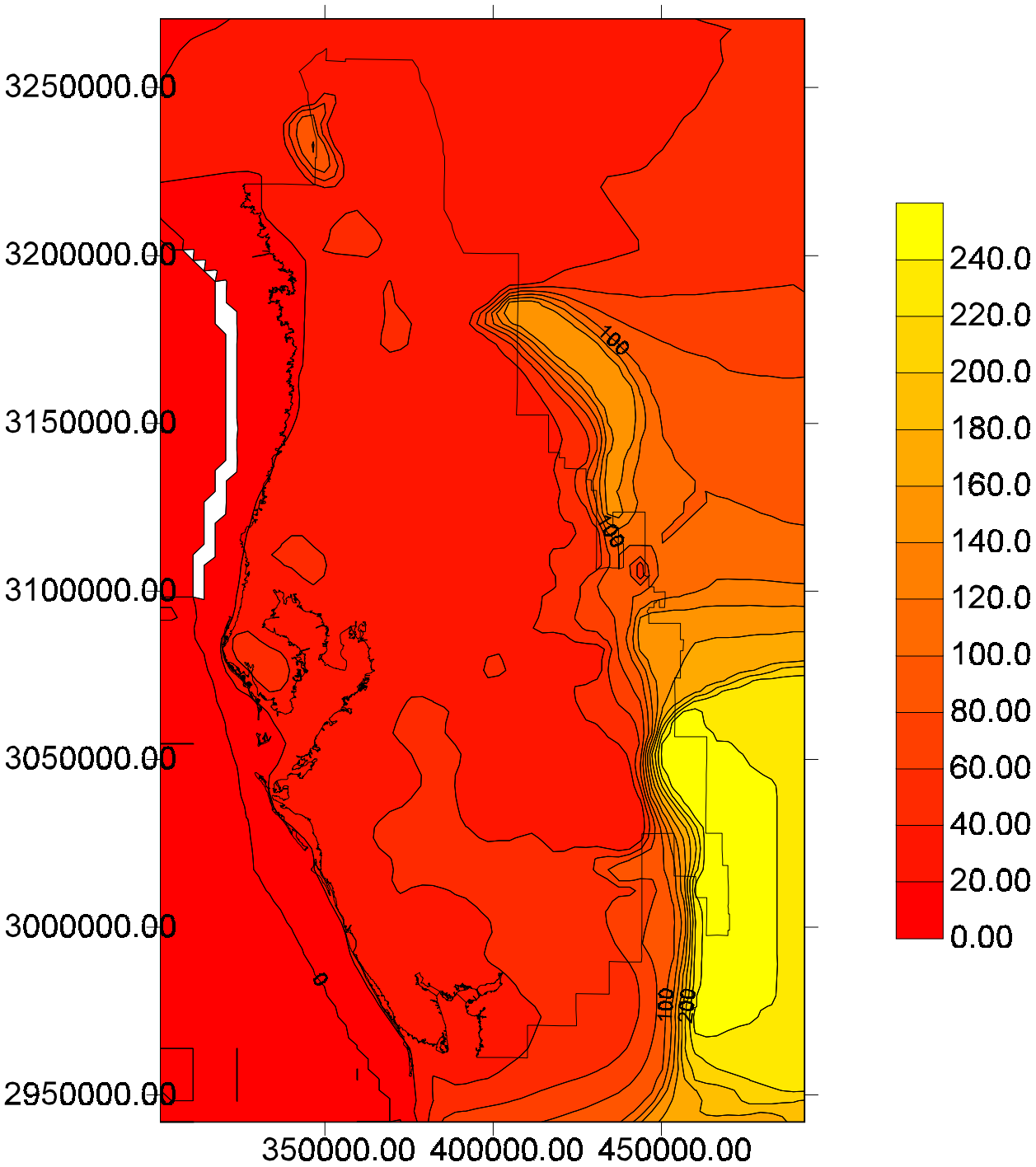

Figure A.2 Surficial Aquifer Thickness

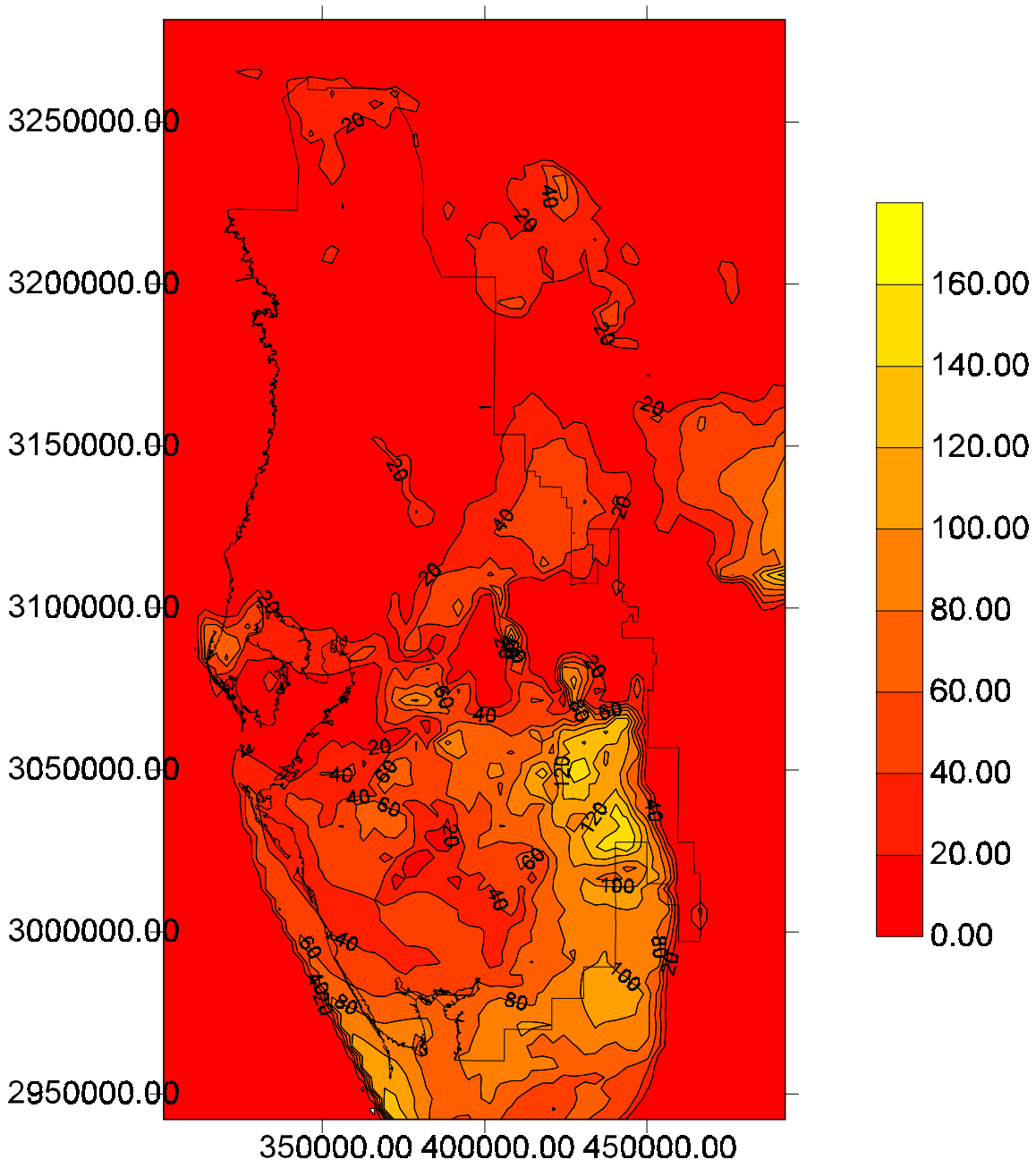

Figure A.3 Confining Bed Thickness Below Surficial Aquifer

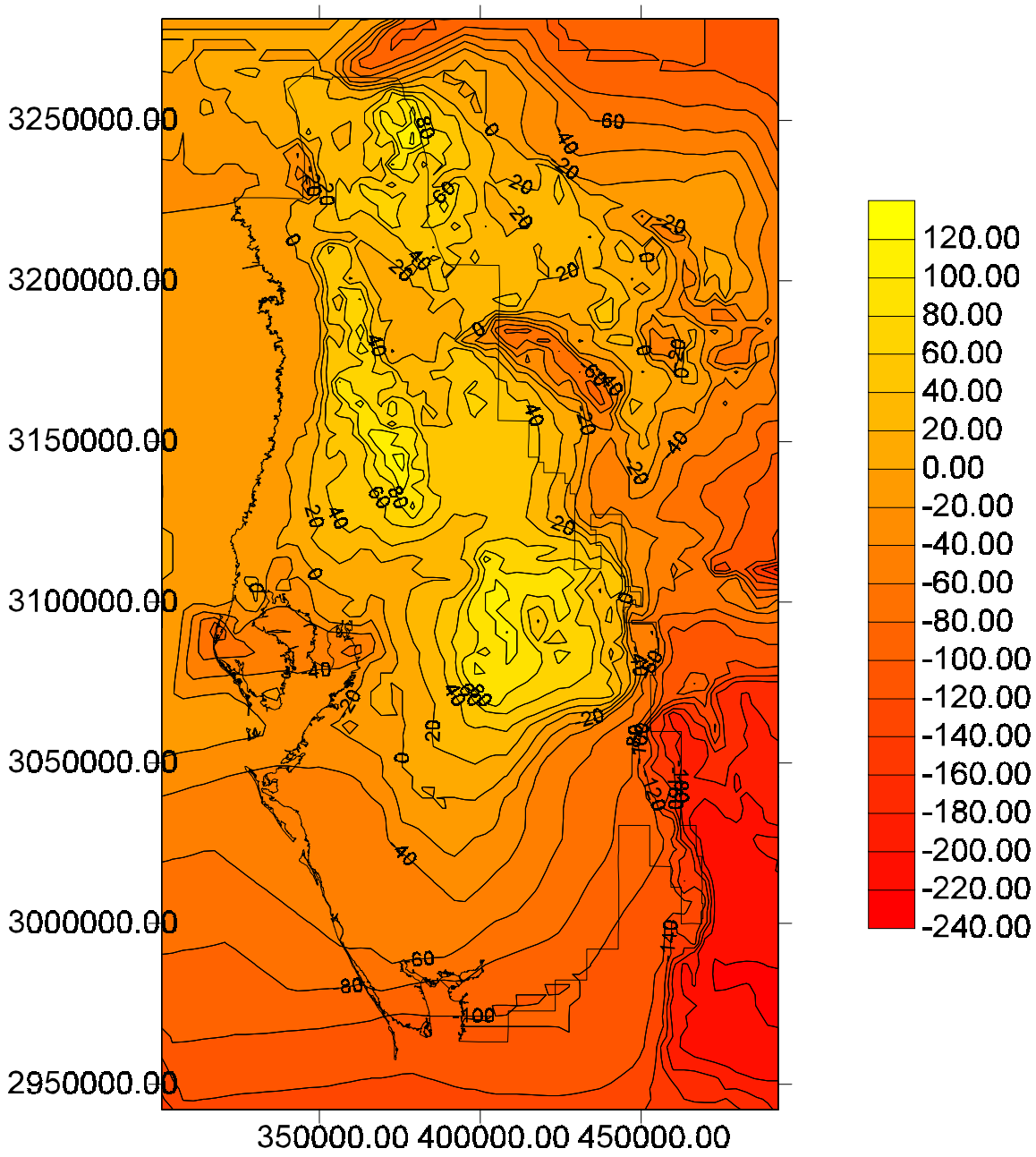

Figure A.4 Intermediate Aquifer Top

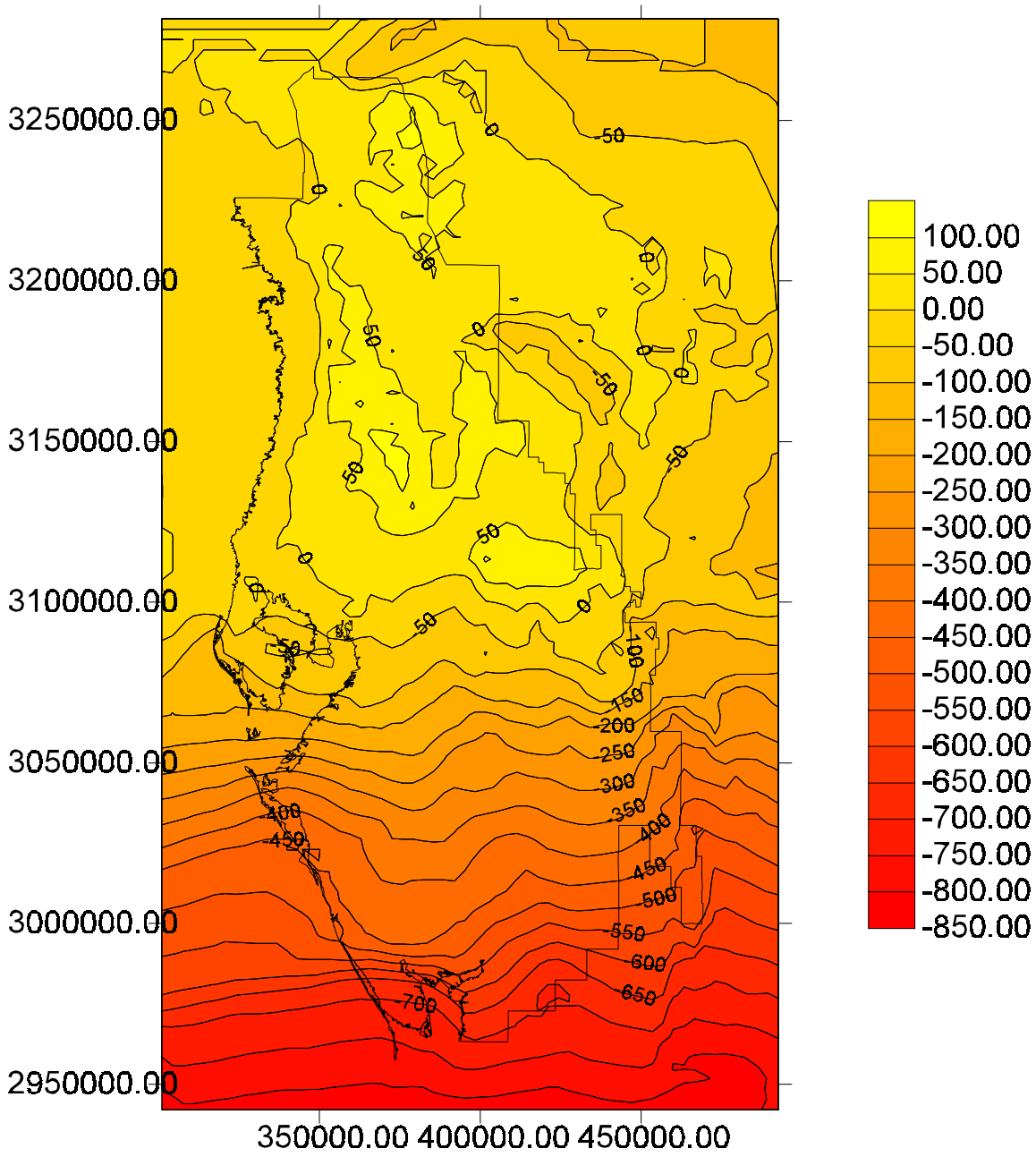

Figure A.5 Intermediate Aquifer Bottom

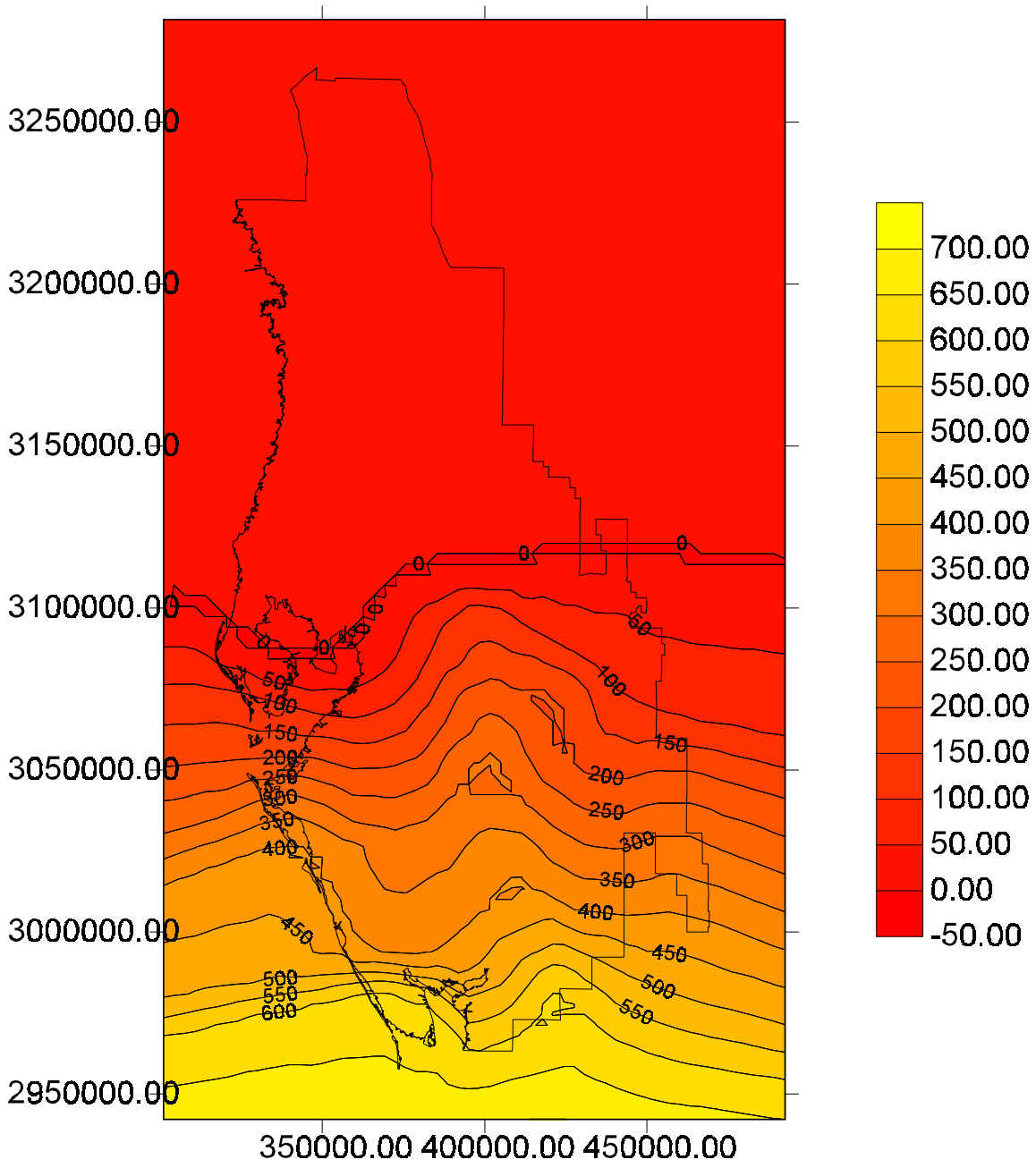

Figure A.6 Intermediate Aquifer Thickness

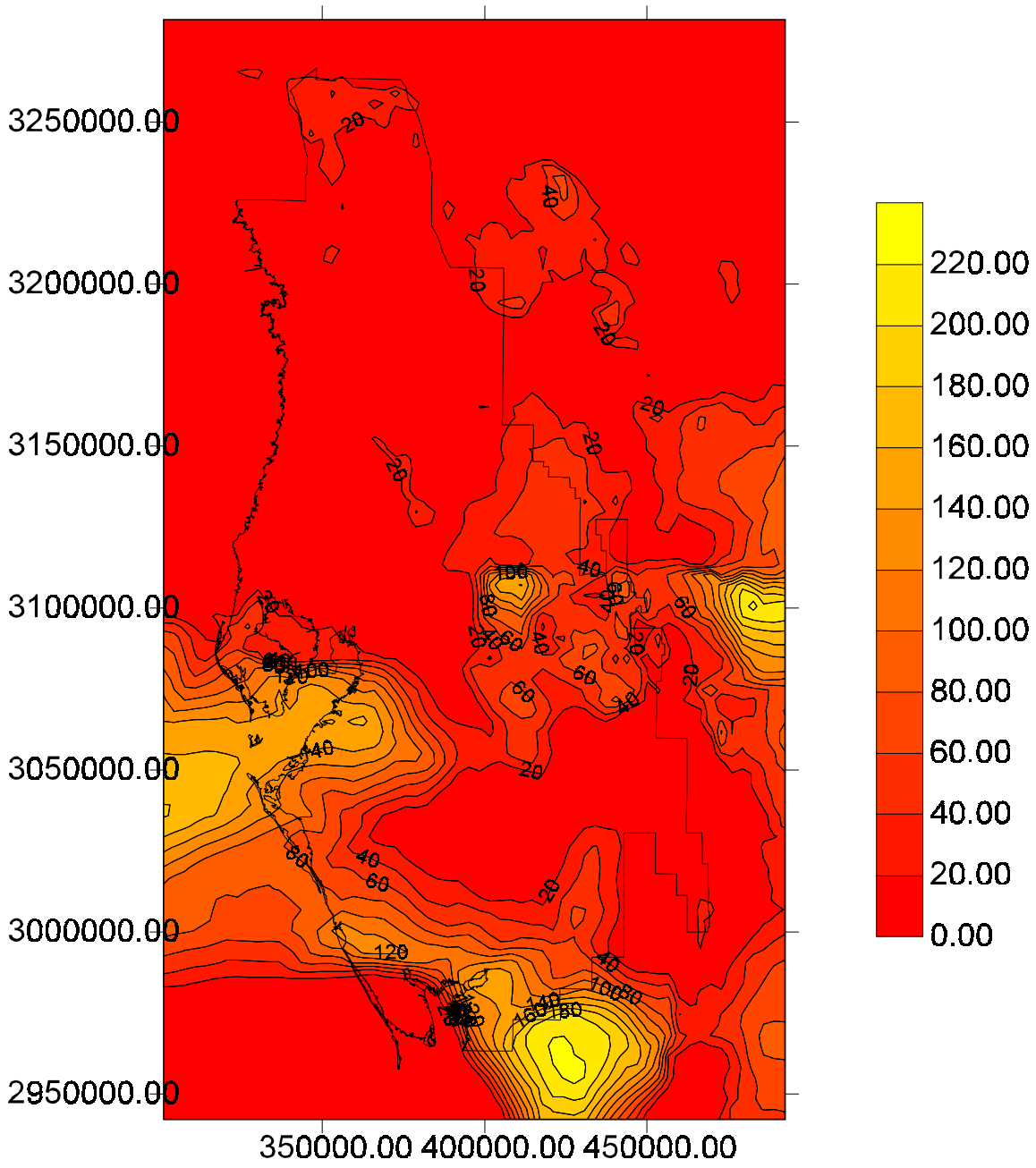

Figure A.7 Confining Bed Thickness Below Intermediate Aquifer

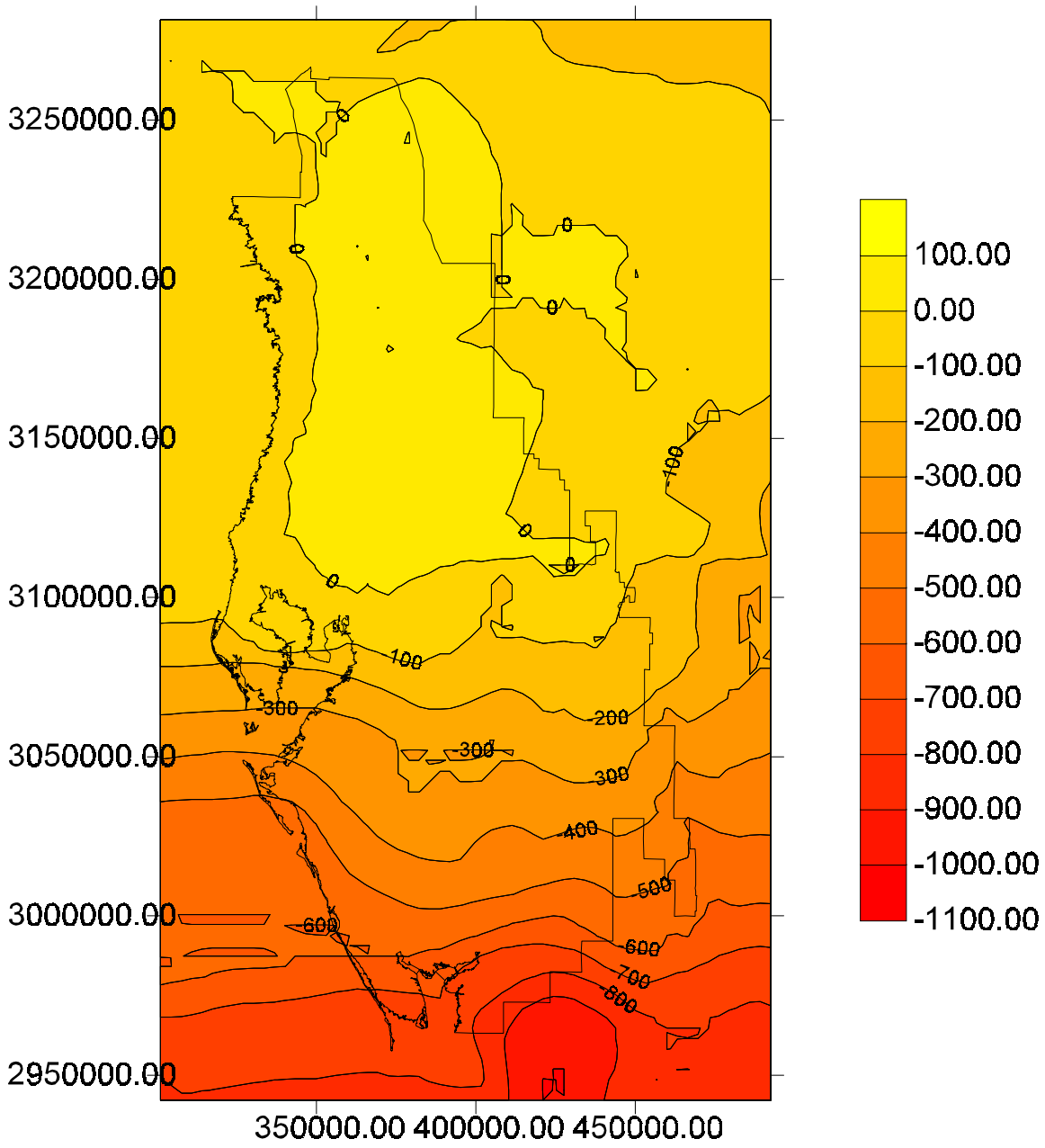

Figure A.8 Top of Upper Floridan Aquifer

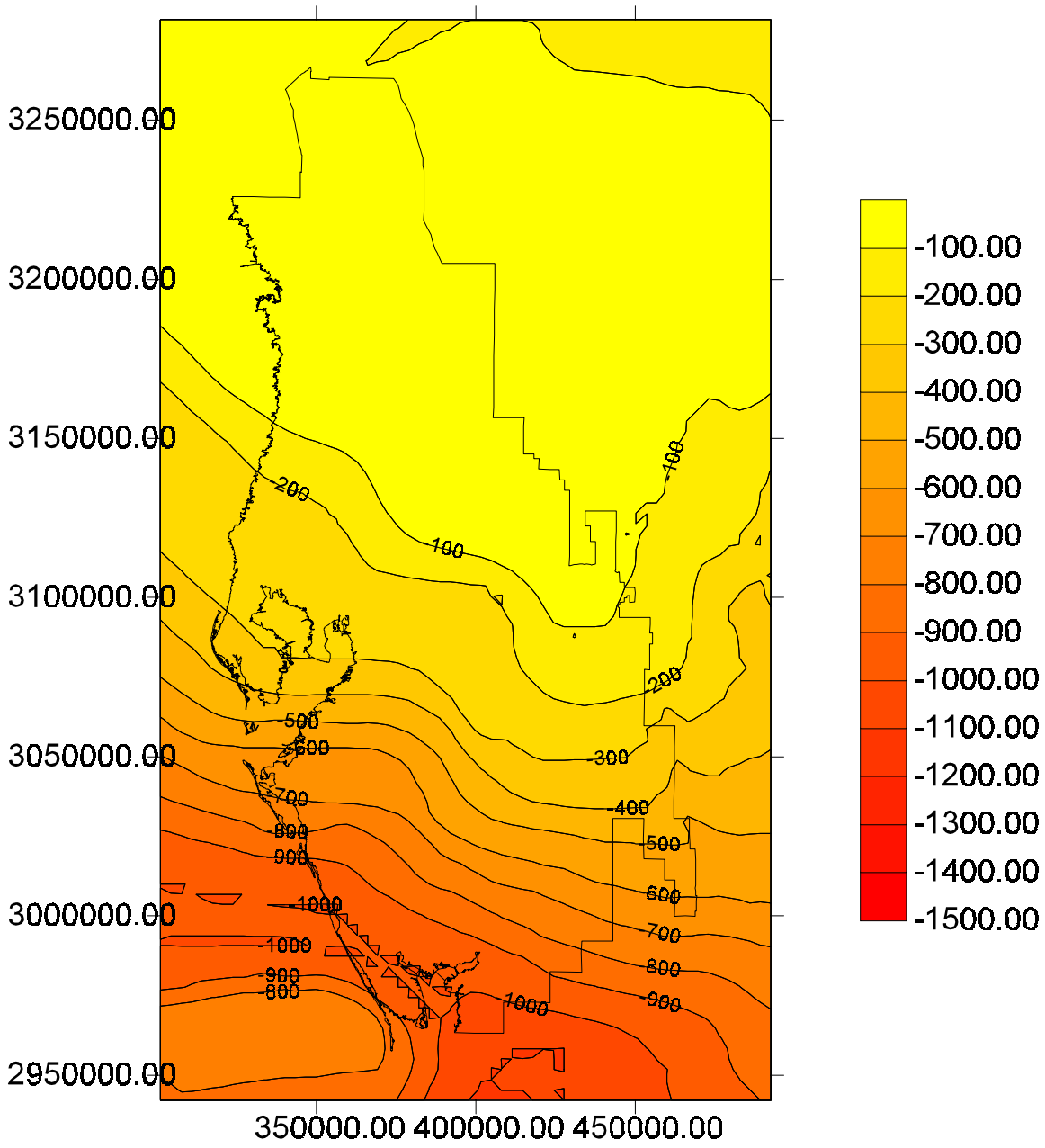

Figure A.9 Ocala Limestone Top

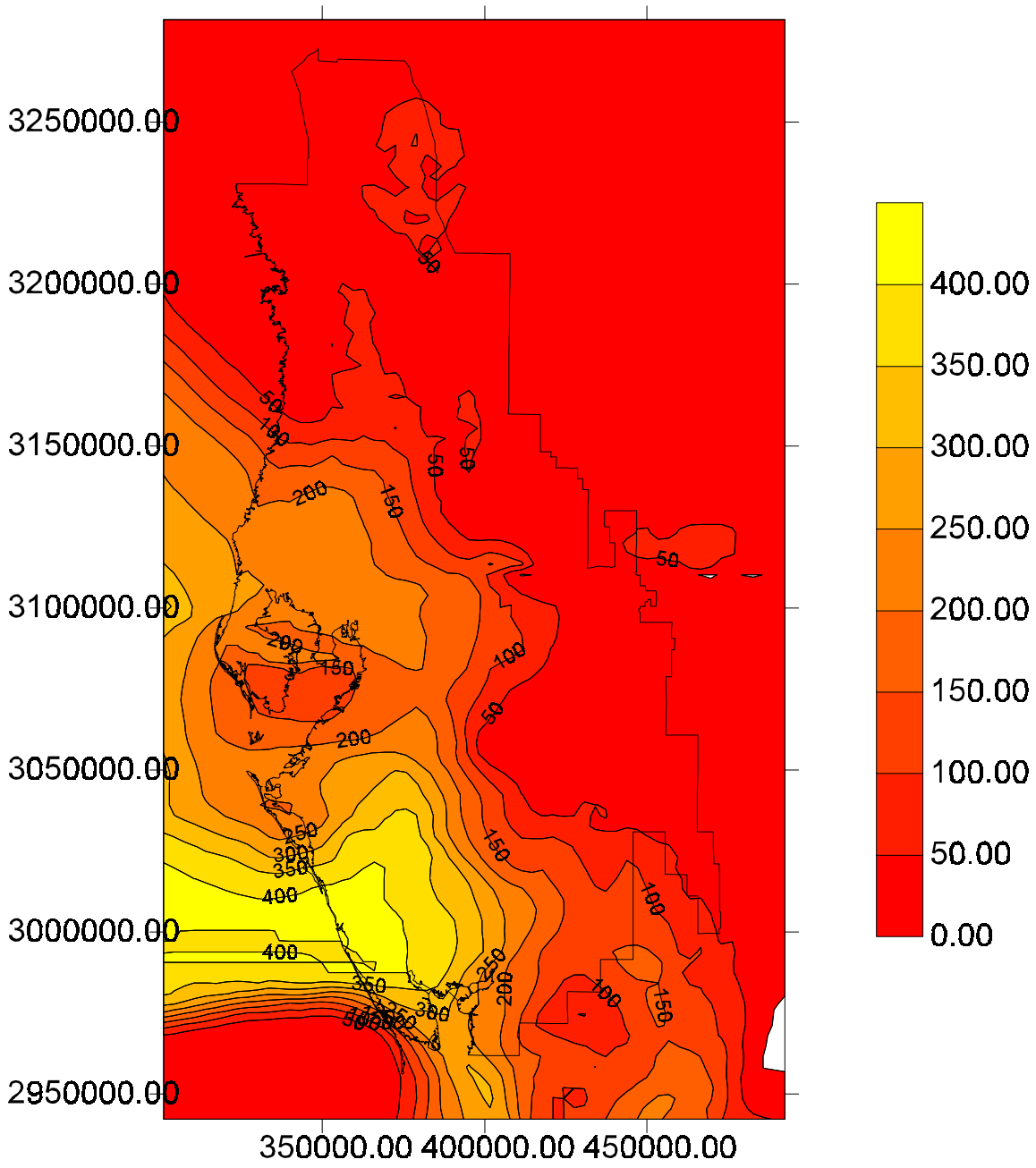

Figure A.10 Thickness of Tampa/Suwannee Units

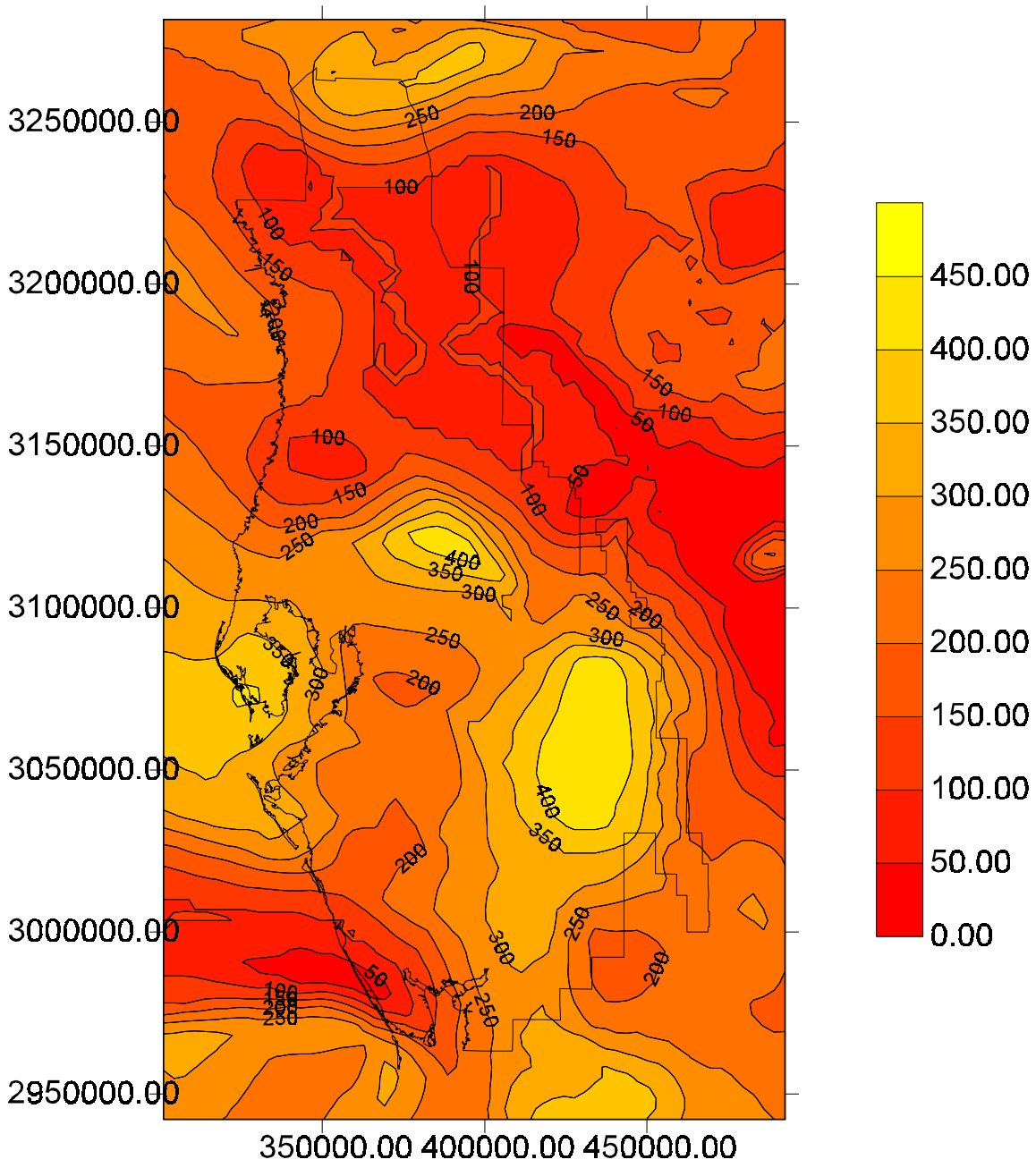

Figure A.11 Ocala Limestone Thickness

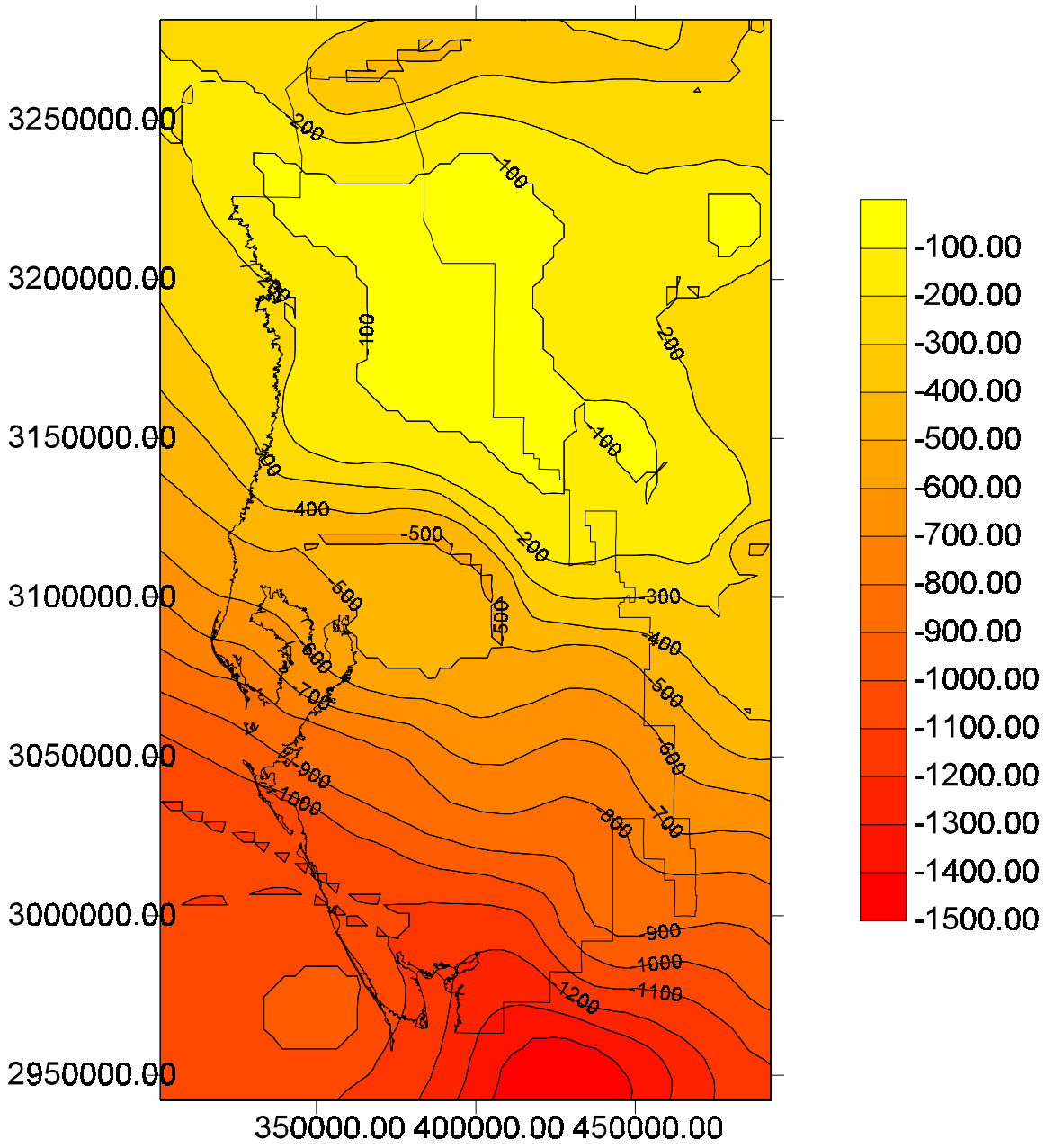

Figure A.12 Avon Park Formation Top

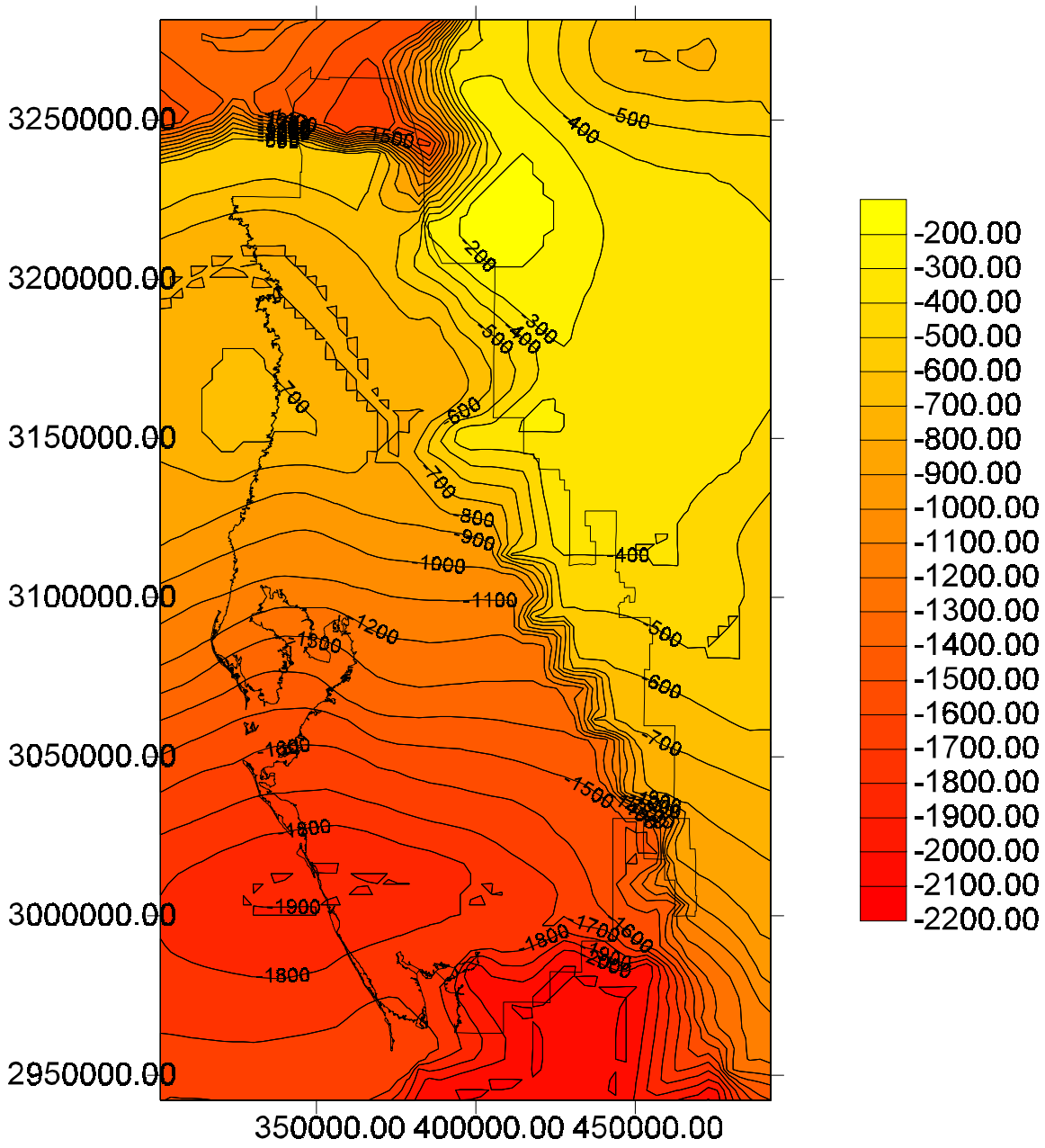

Figure A.13 Bottom of Upper Floridan Aquifer

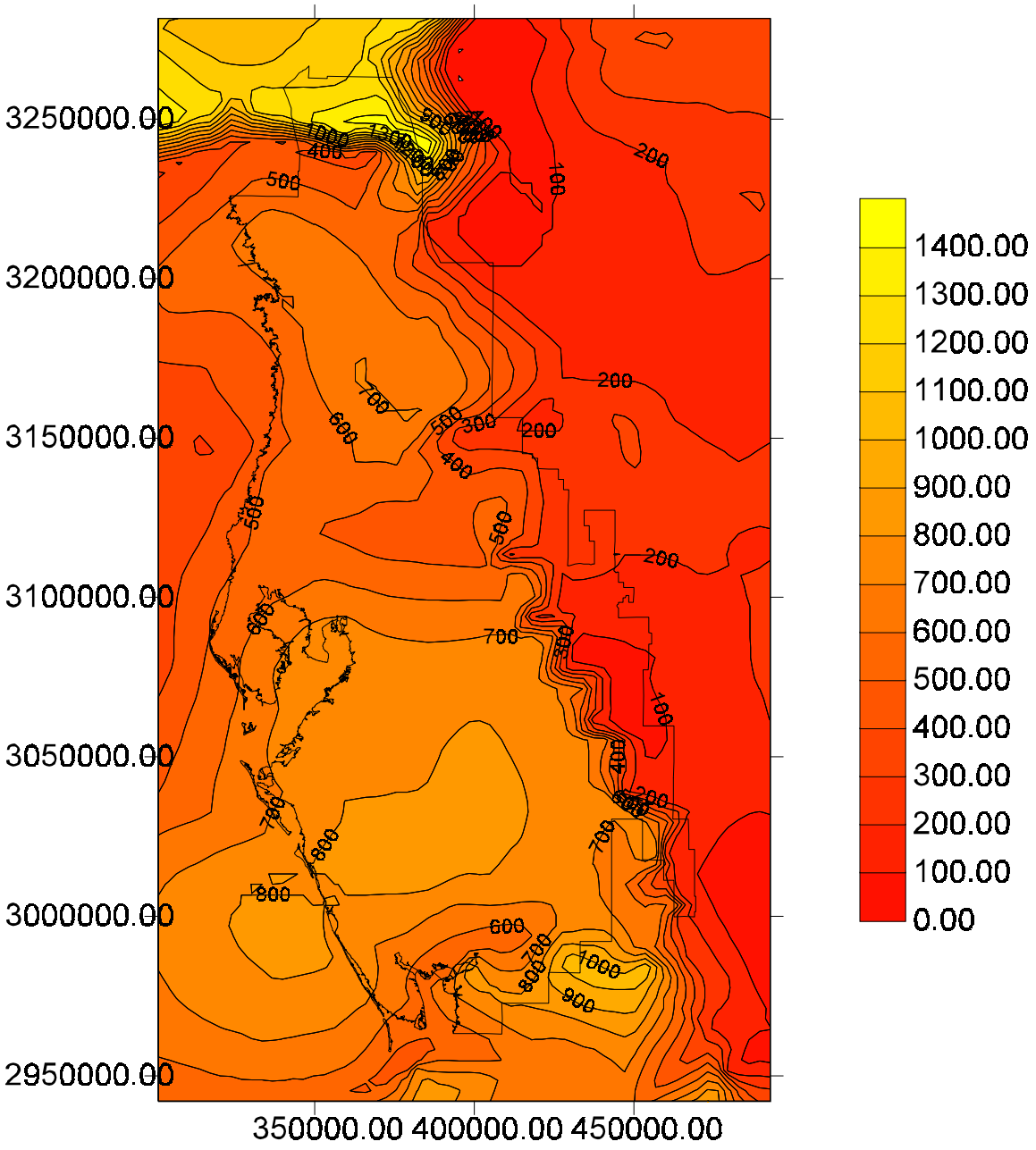

Figure A.14 Avon Park Formation Thickness

APPENDIX B. STATSGO SOILS ATTRIBUTES, DISTRICT GIS DATABASE

Table B.1 STATSGO Soils Attributes, District GIS Data Base

Map Unit ID	Florida STATSGO Map Unit Name	Porosity	Field Capacity	Permeability (in/hr)
FL005	DOTHAN-ORANGEBURG-TROUP (FL005)	0.47	0.12	5.35
FL019	DOROVAN-PAMLICO-PLUMMER (FL019)	0.50	0.14	5.80
FL030	LAKELAND-TROUP-WATER (FL030)	0.50	0.07	11.28
FL040	CHAIRES-OTELA-ORTEGA (FL040)	0.46	0.08	13.00
FL041	SCRANTON-PLUMMER-RUTLEGE (FL041)	0.47	0.09	12.53
FL042	MORIAH-SHADEVILLE-ORTEGA (FL042)	0.47	0.08	11.11
FL046	TOOLES-NUTALL-CHAIRES (FL046)	0.50	0.11	11.78
FL048	NUTALL-TOOLES-CHAIRES (FL048)	0.50	0.10	12.82
FL059	PENNEY-OTELA-BLANTON (FL059)	0.46	0.06	13.00
FL061	ORTEGA-RIDGEWOOD-BLANTON (FL061)	0.46	0.05	13.00
FL062	PLUMMER-PAMLICO-DASHER (FL062)	0.50	0.14	7.57
FL064	ALPIN-CHIEFLAND-LAKELAND (FL064)	0.50	0.07	8.31
FL066	PENNEY-KERSHAW-OTELA (FL066)	0.45	0.06	13.77
FL070	JONESVILLE-PEDRO-SHADEVILLE (FL070)	0.50	0.05	12.28
FL071	LEON-MASCOTTE-MANDARIN (FL071)	0.46	0.10	13.00
FL072	EUNOLA-BIGBEE-MEGGETT (FL072)	0.47	0.10	8.32
FL077	BONNEAU-BLANTON-ICHETUCKNEE (FL077)	0.49	0.09	12.92
FL078	BONNEAU-BLANTON-EUNOLA (FL078)	0.47	0.09	11.55
FL081	PELHAM-PLUMMER-SAPELO (FL081)	0.47	0.10	11.71
FL083	ALBANY-BLANTON-PENNEY (FL083)	0.45	0.07	12.92
FL084	LEON-HURRICANE-MANDARIN (FL084)	0.46	0.09	13.00
FL085	GOLDHEAD-CHAIRES-PELHAM (FL085)	0.50	0.08	13.00
FL091	MAUREPAS-PAMLICO-WESCONNETT (FL091)	0.50	0.25	10.48
FL100	MYAKKA-POMELLO-IMMOKALEE (FL100)	0.46	0.08	14.00
FL101	TAVARES-ZOLFO-PAOLA (FL101)	0.50	0.05	14.30
FL102	PALM BEACH-CANAVERAL-URBAN LAND (FL102)	0.50	0.05	14.51
FL103	POMONA-EAUGALLIE-MALABAR (FL103)	0.48	0.09	12.44
FL104	WABASSO-FELDA-PINEDA (FL104)	0.47	0.09	12.88
FL105	FLORIDANA-RIVIERA-TERRA CEIA (FL105)	0.50	0.13	12.87
FL106	SMYRNA-IMMOKALEE-BASINGER (FL106)	0.49	0.07	12.22
FL107	TERRA CEIA-SAMSULA-TOMOKA (FL107)	0.50	0.24	12.09
FL108	WABASSO-PINEDA-EAUGALLIE (FL108)	0.50	0.11	13.44
FL109	UDORTHENTS-PALM BEACH-URBAN LAND (FL109)	0.50	0.03	13.25
FL110	ARENTS-MATLACHA-HYDRAQUENTS (FL110)	0.50	0.09	7.49
FL111	WATER-PECKISH-ESTERO (FL111)	0.50	0.09	8.47
FL112	URBAN LAND-SMYRNA-MYAKKA (FL112)	0.50	0.05	8.94
FL113	CANDLER-TAVARES-ASTATULA (FL113)	0.46	0.05	13.54
FL114	PAOLA-ORSINO-ASTATULA (FL114)	0.50	0.05	16.31
FL115	FELDA-CHOBEE-KALIGA (FL115)	0.49	0.11	8.86

Table B.1 STATSGO Soils Attributes, District GIS Data Base (cont.)

Map Unit ID	Florida STATSGO Map Unit Name	Porosity	Field Capacity	Permeability (in/hr)
FL116	MILLHOPPER-SPARR-LOCHLOOSA (FL116)	0.49	0.08	11.31
FL117	BOCA-JONESVILLE-OTELA (FL117)	0.50	0.06	12.13
FL118	TIDEWATER-CRACKER-HOMOSASSA (FL118)	0.50	0.06	2.87
FL120	CANDLER-ASTATULA-TAVARES (FL120)	0.49	0.05	13.09
FL121	ARREDONDO-SPARR-TAVARES (FL121)	0.46	0.09	12.80
FL122	BLICHTON-FLEMINGTON-KANAPAHA (FL122)	0.48	0.12	12.10
FL123	POMONA-MYAKKA-WAUCHULA (FL123)	0.47	0.10	12.88
FL124	SMYRNA-MYAKKA-IMMOKALEE (FL124)	0.48	0.08	12.95
FL126	OKEELANTA-ARIPEKA-TERRA CEIA (FL126)	0.50	0.17	12.35
FL127	HOMOSASSA-WEEKIWACHEE-WATER (FL127)	0.50	0.09	7.34
FL128	ANCLOTE-EMERALDA-BLUFF (FL128)	0.50	0.10	11.09
FL129	TAVARES-ZOLFO-SATELLITE (FL129)	0.47	0.06	14.16
FL130	CHOBEE-NITTAW-FLORIDANA (FL130)	0.47	0.11	8.35
FL132	BASINGER-IMMOKALEE-EAUGALLIE (FL132)	0.48	0.09	12.35
FL133	SAMSULA-HONTOON-EVERGLADES (FL133)	0.50	0.24	12.35
FL134	SPARR-SUMTERVILLE-MILLHOPPER (FL134)	0.45	0.09	12.70
FL135	HYDRAQUENTS-UDORTHENTS-ARENTS (FL135)	0.50	0.08	8.66
FL136	MALABAR-FELDA-HICORIA (FL136)	0.48	0.09	12.55
FL137	CANDLER-ARREDONDO-ASTATULA (FL137)	0.50	0.06	12.56
FL139	BASINGER-URBAN LAND-IMMOKALEE (FL139)	0.50	0.09	11.31
FL210	TERRA CEIA-PAHOKEE-OKEELANTA (FL210)	0.50	0.31	12.52
FL211	TORRY-PAHOKEE-TERRA CEIA (FL211)	0.50	0.23	3.60
FL213	BOCA-RIVIERA-COPELAND (FL213)	0.50	0.08	13.00
FL215	RIVIERA-PINEDA-FELDA (FL215)	0.45	0.08	13.00
FL216	TERRA CEIA-GATOR-CANOVA (FL216)	0.50	0.24	13.00
FL217	MALABAR-FELDA-FLORIDANA (FL217)	0.45	0.08	10.30
FL218	TERRA CEIA-GATOR-WINDER (FL218)	0.50	0.27	13.00
FL219	HALLANDALE-MARGATE-BOCA (FL219)	0.50	0.06	11.70
FL220	PLANTATION-LAUDERHILL-DANIA (FL220)	0.50	0.21	13.00
FL224	MARGATE-BOCA-DANIA (FL224)	0.50	0.08	13.00
FLW	WATER	1.00	1.00	1.00

APPENDIX C. HYDROGRAPHY ATTRIBUTES AND ASSIGNMENTS

FILE: hydroarc_exp (arc topology)
CONTENTS: surface water and ground water attributes

cu	cataloging unit (watershed ID) from the EPA RF3 coverage
seg	arc segment number from the EPA RF3 coverage
mi	arc marker index from the EPA RF3 coverage
rf3rchid	stream arc unique ID from the EPA RF3 coverage (redefined from concatenated cu, seg, mi)
order	stream order (Strahler method), established from January, 1996 field survey
width	stream channel bottom width, established from January, 1996 field survey
sidslope	stream channel (H:V) side slope at or below top of bank, est. from January, 1996 field survey
manningn	stream channel Manning n friction coefficient, est. from January, 1996 field survey and literature
depthavg	mean annual water depth, established from January, 1996 field survey and model simulations
depthtob	depth from bed bottom to top of bank, est. from January, 1996 field survey and model simulations
widthtob	width of stream channel at top of bank, established from January, 1996 field survey
sidslopeb	flood plain sideslope (H:V) above top of bank (presently, the reciprocal of average basin slope within which the arc exists)
depthbed	depth from bed bottom to proxy datum, est. from January, 1996 field survey and model simulations
dsstage	downstream mean annual stage elevation, dsrbot + depthavg
usstage	upstream mean annual stage elevation, usrbot + depthavg
dsrbot	downstream bed bottom elevation, dsdatum - depthbed
usrbot	upstream bed bottom elevation, usdatum - depthbed
dsdatum	downstream topographic proxy datum of element, established from 1:250,000 lattice
usdatum	upstream topographic proxy datum of element, established from 1:250,000 lattice

FILE: hydroarclay_exp (arc topology)
CONTENTS: ground water only attributes for model layers

cu	cataloging unit (watershed ID) from the EPA RF3 coverage
seg	arc segment number from the EPA RF3 coverage
mi	arc marker index from the EPA RF3 coverage
rf3rchid	stream arc unique ID from the EPA RF3 coverage (redefined from concatenated cu, seg, mi)
order	stream order (Strahler method), established from January, 1996 field survey
layer	aquifer layer number, established from District regional models and pot. surface maps
bedthk	stream bed thickness, assumed to be one (1) everywhere
bedhyc	stream bed vertical hydraulic conductivity, est. through baseflow calibration using a ground water model

FILE: hydropoly_exp (polygon topology)
CONTENTS: surface water and ground water attributes

rf3polyid	hydrography polygon unique ID, concatenated the watershed cu and the internal polygon number
reachtype	type of hydrography polygon, e.g., lake, wetland, wide river, from the EPA RF3 coverage
depthavg	mean annual water depth, established from January, 1996 field survey and model simulations
depthtob	depth from bed bottom to top of bank, est. from January, 1996 field survey and model simulations
depthtobs	depth from bed bottom to top of bank of downstream connecting stream, established from January, 1996 field survey and model simulations
depthbed	depth from bed bottom to proxy datum, est. from January, 1996 field survey and model simulations
depthmax	maximum water depth for which depth/surface area relationship is defined
samin	at depth = zero, the minimum water surface area factor
samax	at depth = depthmax, the maximum water surface area factor

stage	mean annual stage elevation, rbot + depthavg
rbot	bed bottom elevation, datum - depthbed
datum	topographic proxy datum of element, established from 1:250,000 lattice

FILE: hydropolylay_exp (polygon topology)
CONTENTS: ground water only attributes for model layers

rf3polyid	hydrography polygon unique ID, concatenated the watershed cu and the internal polygon number
reachtype	type of hydrography polygon, e.g., lake, wetland, wide river, from the EPA RF3 coverage
layer	aquifer layer number, established from District regional models and pot. surface maps
bedthk	bed thickness, assumed to be one (1) everywhere
bedhyc	bed vertical hydraulic conductivity, est. through baseflow calibration using a ground water model

FILE: springlay_exp (point topology)
CONTENTS: ground water only attributes for springs

springuid	spring unique ID for spring locations, sequential number
spgname	common spring name, established from District regional models
layer	aquifer layer number, established from District regional models and pot. surface maps
bedhyc	spring conductance, established from District regional models
datum	topographic proxy datum of element, established from 1:250,000 lattice
stage	mean annual stage elevation, established from District regional models

The attribute layers for hydrography line and polygon elements which were found to produce the best simulated baseflow results are displayed in Tables C.1 to C.4. If the basin is not specifically listed in Tables C.3 and C.4, then the global bed hydraulic conductivity value for the order or reachtype was used. The values in Tables C.1 to C.4 were derived from iterative, District, steady-state model simulations until a qualitative good match between simulated baseflow and estimated baseflow was produced for calender year 1989.

Table C.1 Line Element Hydrography Attributes Related to Elevation

order	1	2	3	4	5
width	4	9	19	41	87
depthavg	0.25	0.6	1.8	4.9	10.4
depthtob	2.8	5.7	8.5	9.4	16.2
depthbed	7.8	10.7	13.5	14.4	21.2
bedthk	1	1	1	1	1

All values in feet.

Table C.2 Polygon Element Hydrography Attributes Related to Elevation

reachtype	lake (A, H, L)	wetland (O, P)	wide river (W)
depthavg	7.0	0.5	10.0
depthtob	8.0	2.0	16.0
depthbed	13.0	7.0	21.0
bedthk	1	1	1

All values in feet.

Table C.3 Vertical Hydraulic Conductivity for Hydrography Beds of Line Elements

order	1	2	3	4	5
global	0.5	0.5	0.25	0.05	0.05
Withlacoochee/ Trilby	0.125	0.125	0.0625	0.0625	0.0125
Blackwater Creek	0.125	0.125	0.0625	0.0625	0.0125
Hillsborough/ Zephyrhills	0.25	0.25	0.125	0.125	0.025
Cypress Creek	0.125	0.125	0.0625	0.0625	0.0125
Peace/Ft. Meade	0.125	0.125	0.0625	0.0625	0.0125
Peace/Zolfo Springs	0.167	0.167	0.083	0.083	0.0167
Peace/Arcadia	0.125	0.125	0.0625	0.0625	0.0125
Peace below Arcadia	0.125	0.125	0.0625	0.0625	0.0125

All values in feet/day units.

Table C.4 Vertical Hydraulic Conductivity for Hydrography Beds of Polygon Elements

reachtype	lake (A, H, L)	wetland (O, P)	wide river (W)
global	0.01	0.01	0.05
Pithlachascotee	0.0025	0.0025	0.0125
Withlacoochee/Trilby	0.0025	0.0025	0.0125
Blackwater Creek	0.0025	0.0025	0.0125
Hillsborough/Zephyrhills	0.005	0.005	0.025
Cypress Creek	0.0025	0.0025	0.0125
Peace/Ft. Meade	0.00125	0.00125	0.00625
Peace/Zolfo Springs	0.0033	0.0033	0.0167
Peace/Arcadia	0.0025	0.0025	0.0125
Peace below Arcadia	0.0025	0.0025	0.0125

All values shown in feet/day units.

APPENDIX D. DISTRICT MODEL RESULTS

Table D.1 District Surface Water Model (1989), Surface Water Balance for District Subbasins

Basin No.	Watershed/Basin Name	Area (acres)	Precip (in)	Runoff (in)	Base Flow (in)	ET (in)	Recharge (in)	Stream Flow (in)
1	North Coastal	302398.2	44.20	0.93	0.20	39.88	6.66	1.14
2	Pith @ N P Richey	125277.2	43.66	0.78	0.19	39.39	6.64	0.99
3	Anclote	82833.1	43.40	0.48	0.21	38.71	7.23	0.71
4	With @ Floral City	379458.0	42.67	0.19	1.22	33.64	7.01	1.40
5	With @ Trilby	360093.7	43.10	1.54	1.10	38.59	7.15	2.65
6	Blackwater Creek	71899.8	46.16	3.23	1.29	37.55	7.63	4.52
7	Cypress Creek	110706.0	40.11	0.60	0.34	32.17	6.92	0.93
8	Zephyr Hills	81877.5	40.73	2.49	7.52	37.27	7.81	10.02
9	Morris Bridge	127406.3	42.49	0.42	0.13	37.29	7.17	0.55
10	Tampa Dam	20157.7	39.28	4.28	1.19	35.24	5.33	5.47
11	Below Tampa Dam	15889.7	43.63	4.39	3.48	27.02	8.63	7.86
12	Lake Tarpon	36946.4	43.63	7.16	0.16	32.24	6.31	7.33
13	NW Hills. County	102226.5	43.63	4.31	3.51	27.02	8.73	7.82
14	Tampa Bypass Canal	57238.8	43.63	4.49	3.47	27.01	8.58	7.96
15	Gulf Pinellas	65210.3	47.63	18.24	0.09	28.61	3.79	18.36
16	Bay Pinellas	65365.0	47.68	18.51	0.09	28.07	3.92	18.63
17	Fort Meade	292303.5	46.92	1.52	0.48	42.68	9.18	1.99
18	Zolfo Springs	225952.9	46.92	3.09	1.24	41.86	8.99	4.34
19	Arcadia	341993.3	48.14	1.72	1.63	41.73	10.26	3.36
20	Lower Peace	282398.4	46.09	2.14	1.48	35.50	11.05	3.62
21	Alafia	269984.3	47.25	5.44	3.76	28.31	9.05	9.20
22	Bullfrog	86150.0	52.98	9.54	4.26	27.66	10.27	13.80
23	Manatee	230619.1	55.30	11.84	3.54	33.12	8.85	15.39
24	Little Manatee	142176.5	55.30	15.44	3.52	29.36	8.21	18.95
25	Oklawaha	220751.4	45.40	1.35	1.74	36.47	9.78	3.10
26	Kissimee North	305564.3	45.66	2.28	1.36	38.96	8.99	3.63
27	Kissimee South	781743.3	46.69	2.83	1.40	36.72	10.20	4.23
28	South Coastal	226258.6	44.28	3.28	1.39	33.32	10.52	4.68
29	Myakka	382762.9	43.82	3.25	1.35	33.64	10.20	4.61
30	Peace/Shell	336644.3	50.91	4.71	1.58	36.96	11.83	6.30
31	Caloosahatchee	599972.8	53.10	9.00	1.24	39.43	9.92	10.25
	area weighted average		46.79	3.99	1.56	36.33	9.05	5.55

Table D.2 District Integrated Model (1989) with 3X Mean Rhizosphere Depth, Surface Water Balance for District Subbasins

Basin No.	Watershed/Basin Name	Area (acres)	Precip (in)	Runoff (in)	Base Flow (in)	ET (in)	Recharge (in)	Stream Flow (in)
1	North Coastal	302398.2	44.20	0.64		39.58	6.27	0.64
2	Pith @ N P Richey	125277.2	43.66	0.71	0.05	38.94	6.61	0.75
3	Anclote	82833.1	43.40	0.35		38.19	6.24	0.35
4	With @ Floral City	379458.0	42.67	0.22	1.12	32.63	7.58	1.34
5	With @ Trilby	360093.7	43.10	1.33	1.72	37.33	7.26	3.05
6	Blackwater Creek	71899.8	46.16	2.81	1.30	35.98	6.82	4.11
7	Cypress Creek	110706.0	40.11	0.34	0.54	31.30	6.39	0.88
8	Zephyr Hills	81877.5	40.73	1.34	5.05	34.68	5.10	6.39
9	Morris Bridge	127406.3	42.49	0.29	1.13	35.76	6.18	1.42
10	Tampa Dam	20157.7	39.28	3.40	-9.22	32.69	4.12	-5.82
11	Below Tampa Dam	15889.7	43.63	5.94		24.63	10.04	5.94
12	Lake Tarpon	36946.4	43.63	5.95		31.35	5.42	5.95
13	NW Hills. County	102226.5	43.63	6.04		24.25	10.18	6.04
14	Tampa Bypass Canal	57238.8	43.63	5.37		25.64	9.54	5.37
15	Gulf Pinellas	65210.3	47.63	16.76		27.82	3.12	16.76
16	Bay Pinellas	65365.0	47.68	17.69		26.34	3.37	17.69
17	Fort Meade	292303.5	46.92	1.17	0.32	41.17	8.28	1.49
18	Zolfo Springs	225952.9	46.92	2.07	1.26	39.59	6.90	3.33
19	Arcadia	341993.3	48.14	1.13	1.72	39.27	7.94	2.85
20	Lower Peace	282398.4	46.09	1.93	1.39	33.65	9.37	3.32
21	Alafia	269984.3	47.25	5.99		27.97	9.54	5.99
22	Bullfrog	86150.0	52.98	12.25		26.75	11.22	12.25
23	Manatee	230619.1	55.30	12.32		31.67	8.92	12.32
24	Little Manatee	142176.5	55.30	14.95		27.93	7.64	14.95
25	Oklawaha	220751.4	45.40	1.14		35.00	8.92	1.14
26	Kissimee North	305564.3	45.66	1.93		35.81	7.34	1.93
27	Kissimee South	781743.3	46.69	2.14		35.48	8.92	2.14
28	South Coastal	226258.6	44.28	3.17		31.05	9.13	3.17
29	Myakka	382762.9	43.82	2.56		31.68	8.51	2.56
30	Peace/Shell	336644.3	50.91	4.35		35.05	10.38	4.35
31	Caloosahatchee	599972.8	53.10	7.55		37.48	8.61	7.55
	area weighted average		46.79	3.63	1.21	34.75	8.14	n/a

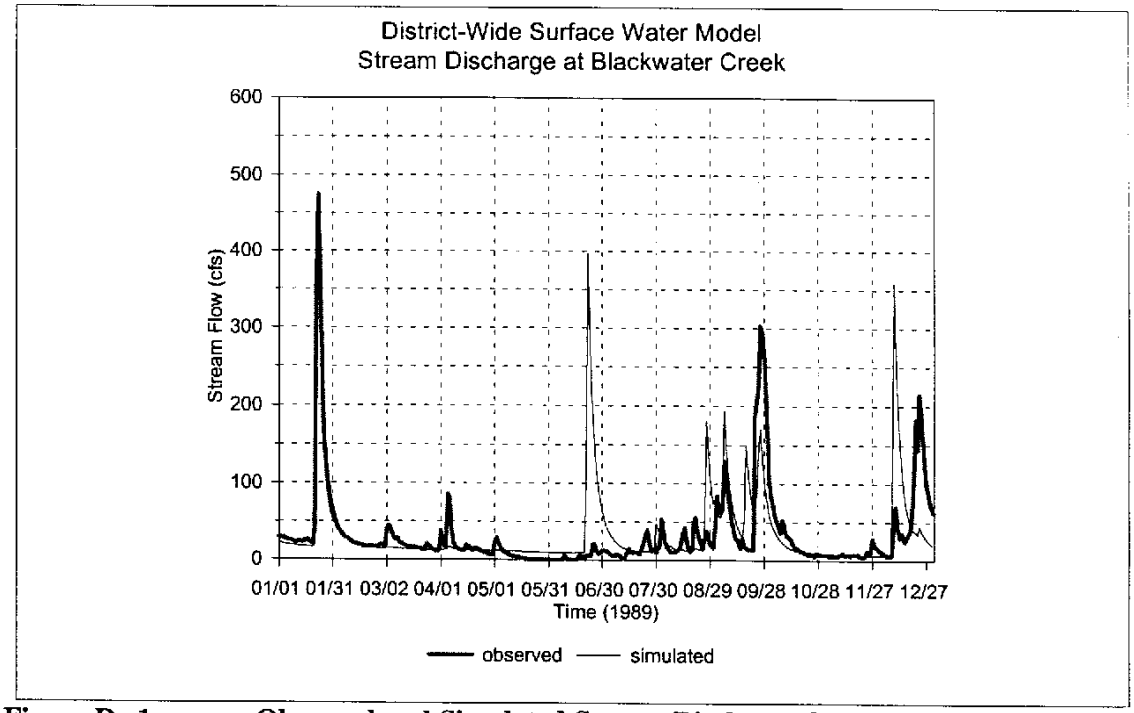

Figure D. 1 **Observed and Simulated Stream Discharge from the District Surface Water Model for Blackwater Creek**

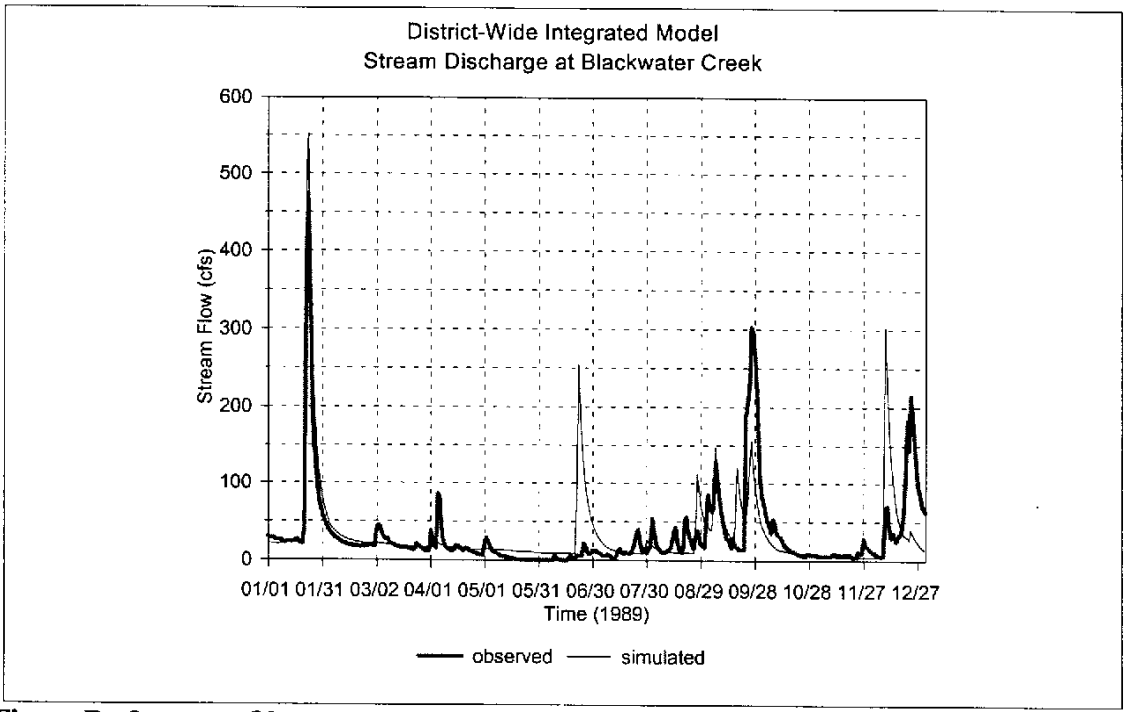

Figure D. 2 **Observed and Simulated Stream Discharge from the District Integrated Model for Blackwater Creek**

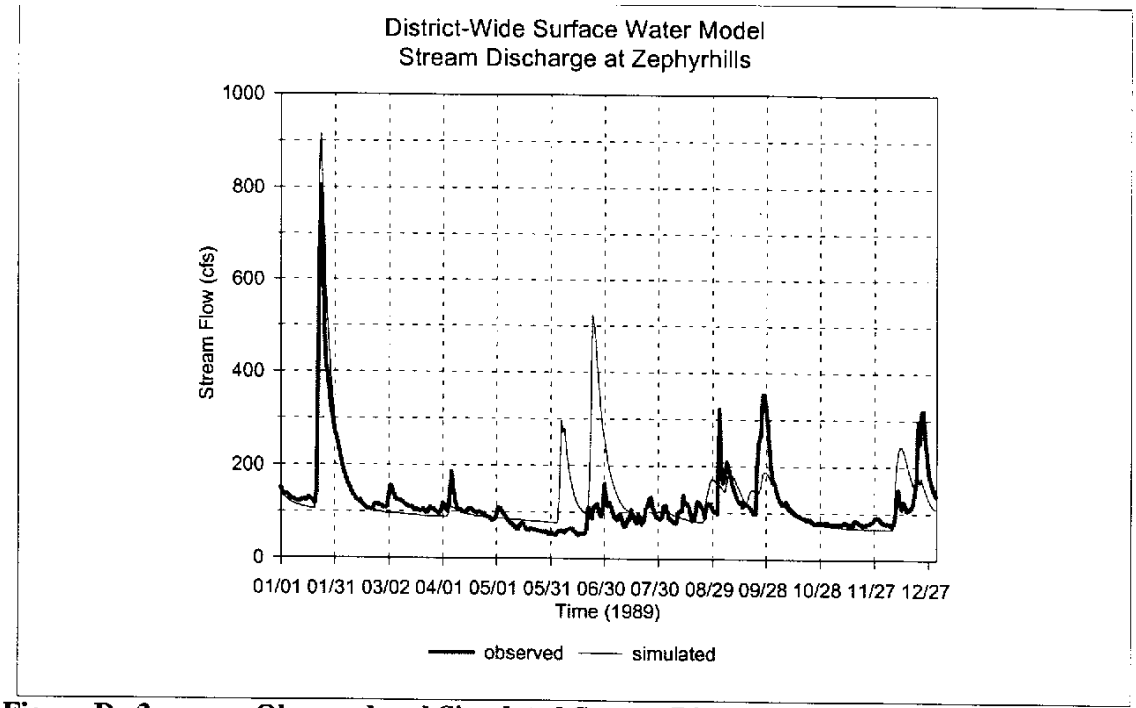

Figure D. 3 **Observed and Simulated Stream Discharge from the District Surface Water Model for Hillsborough River at Zephyrhills**

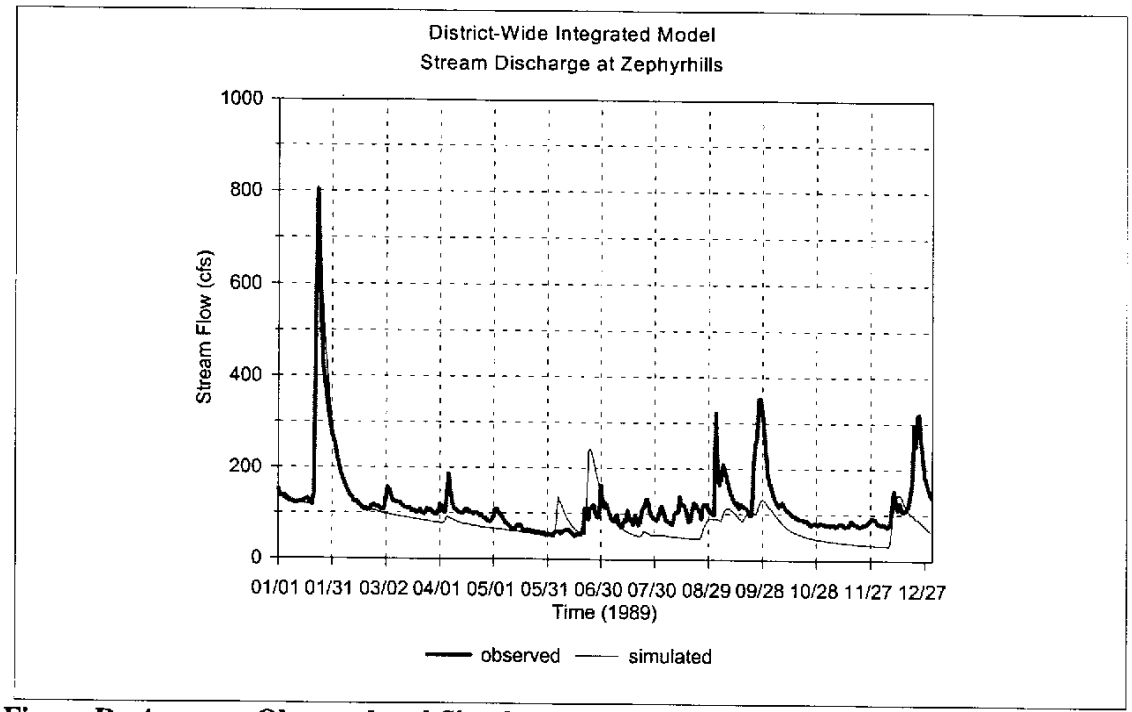

Figure D. 4 **Observed and Simulated Stream Discharge from the District Integrated Model for Hillsborough River at Zephyrhills**

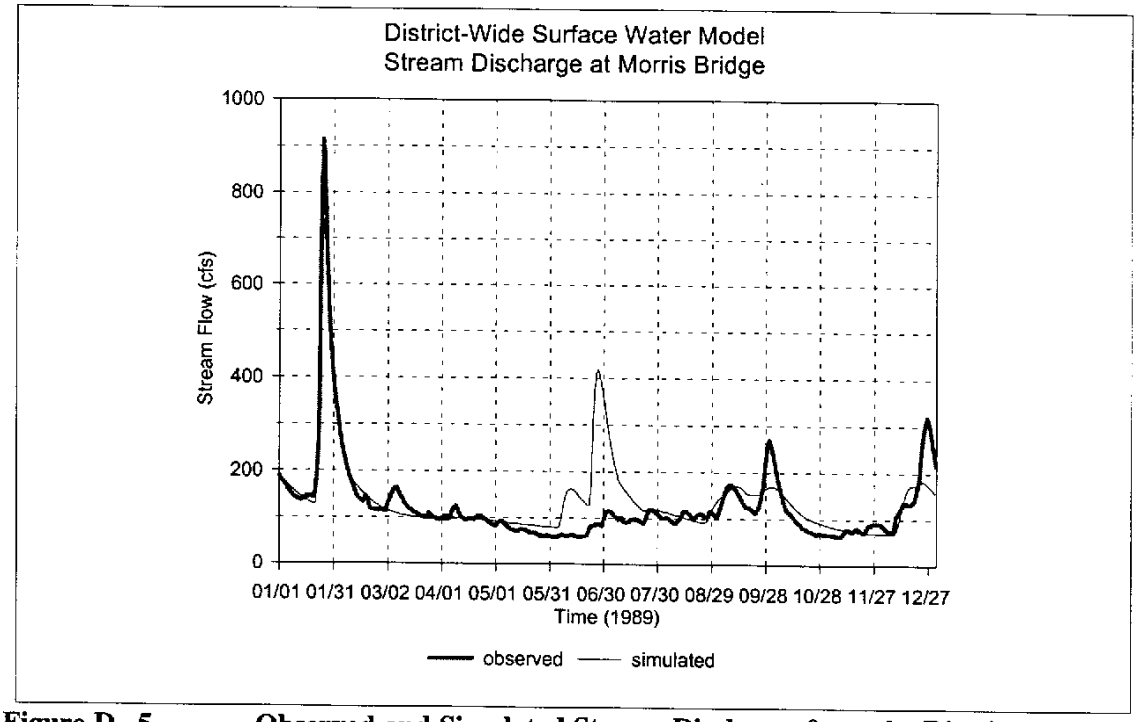

Figure D. 5 **Observed and Simulated Stream Discharge from the District Surface Water Model for Hillsborough River at Morris Bridge**

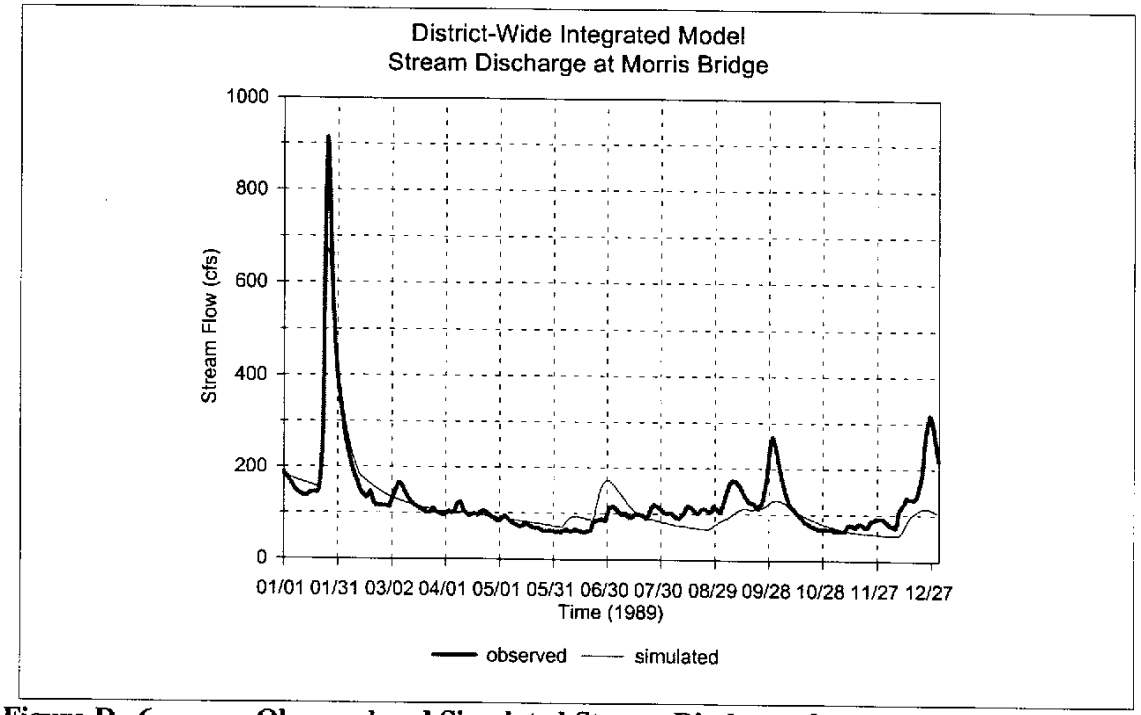

Figure D. 6 **Observed and Simulated Stream Discharge from the District Integrated Model for Hillsborough River at Morris Bridge**

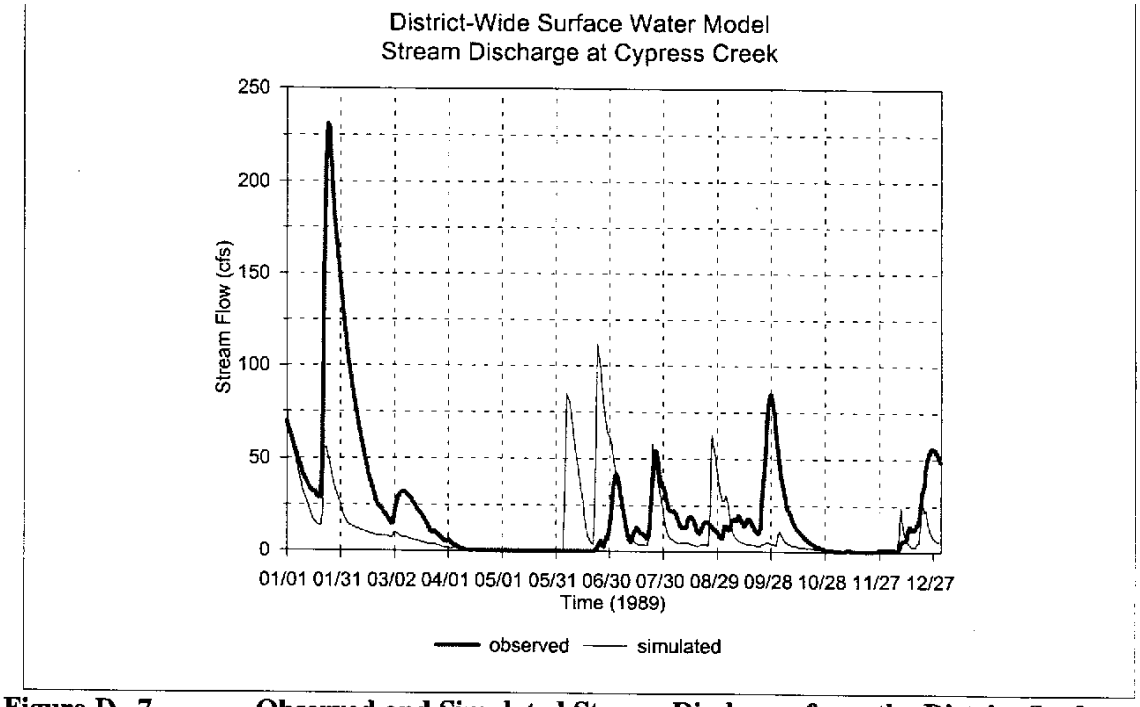

Figure D. 7 **Observed and Simulated Stream Discharge from the District Surface Water Model for Cypress Creek at Sulphur Springs**

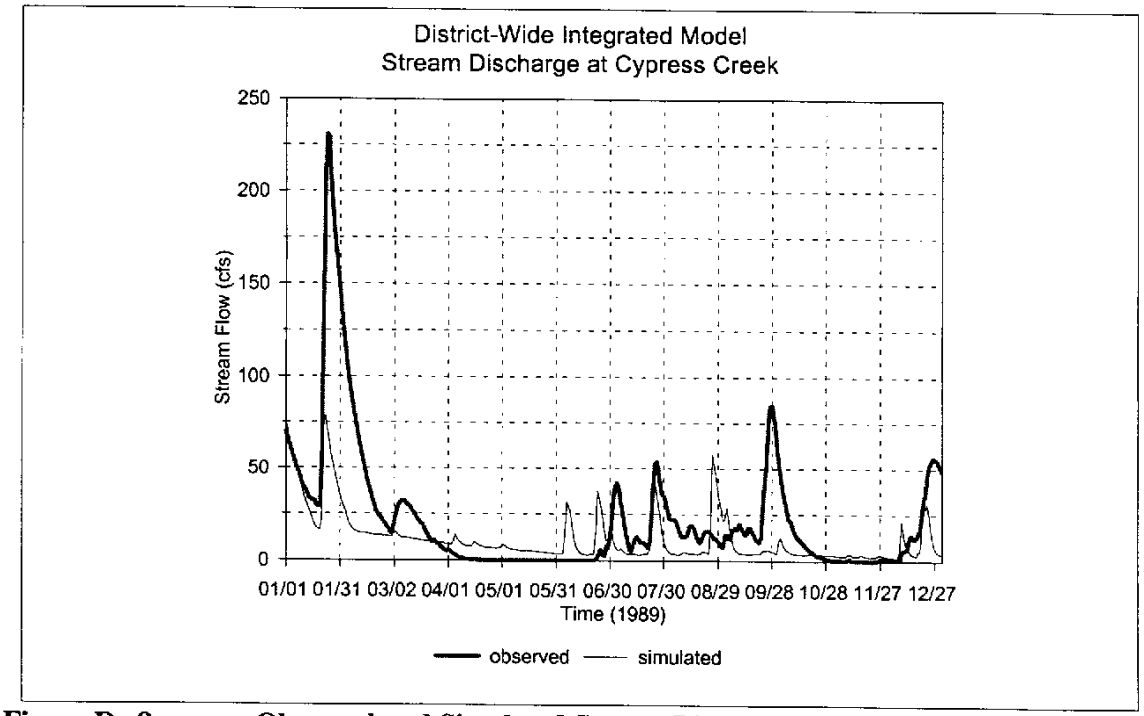

Figure D. 8 **Observed and Simulated Stream Discharge from the District Integrated Model for Cypress Creek at Sulphur Springs**

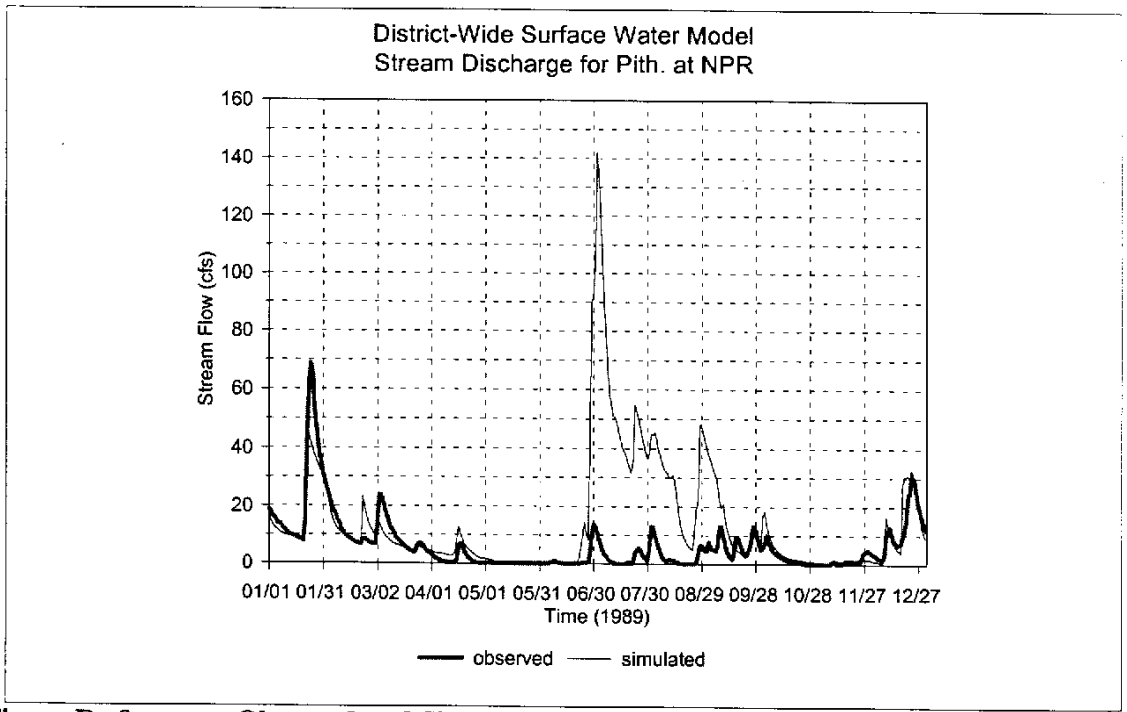

Figure D. 9 **Observed and Simulated Stream Discharge from the District Surface Water Model for Pithlachascotee River at New Port Richey**

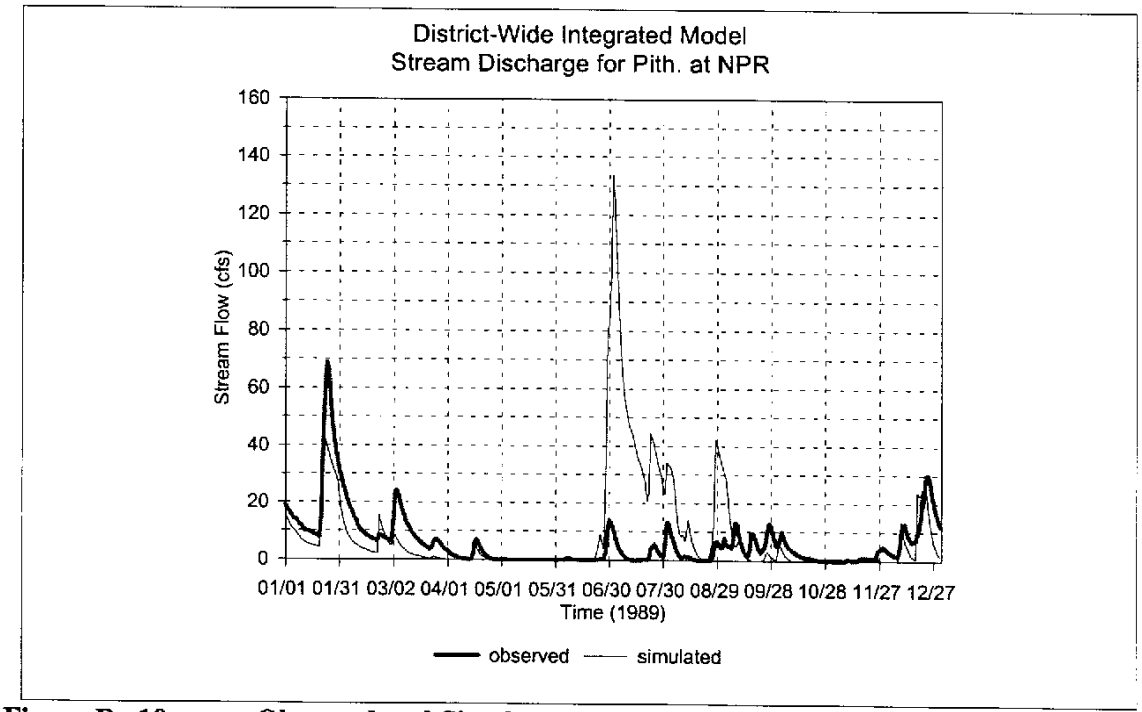

Figure D. 10 **Observed and Simulated Stream Discharge from the District Integrated Model for Pithlachascotee River at New Port Richey**

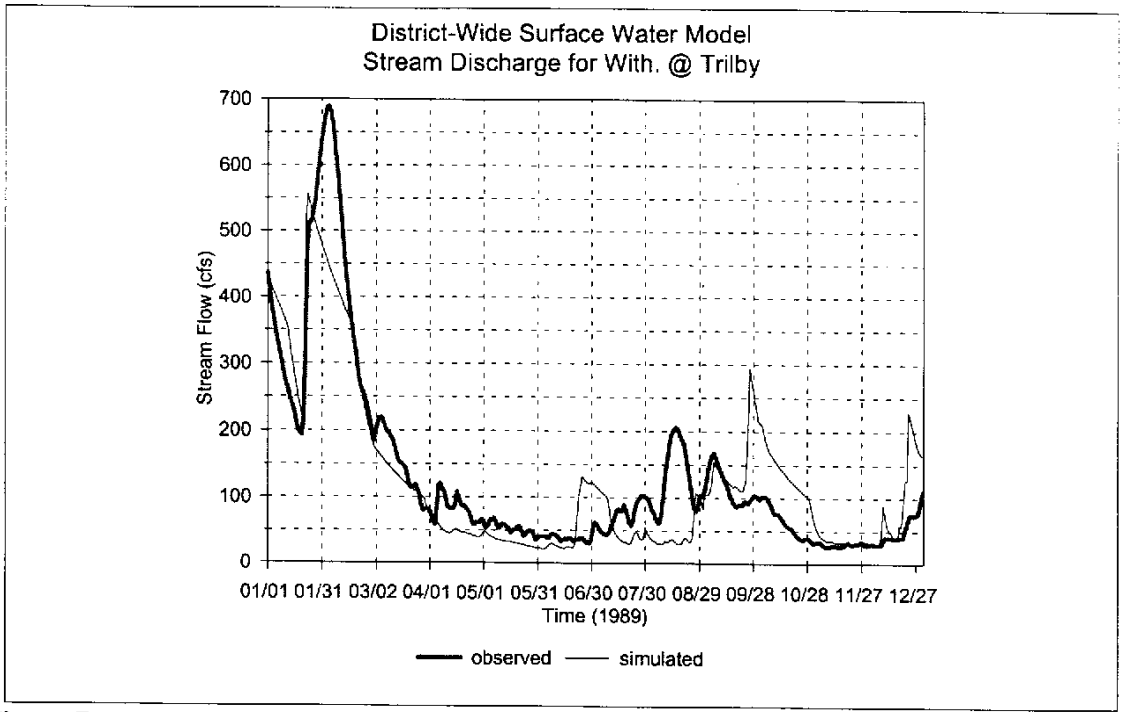

Figure D. 11 **Observed and Simulated Stream Discharge from the District Surface Water Model for Withlacoochee River at Trilby**

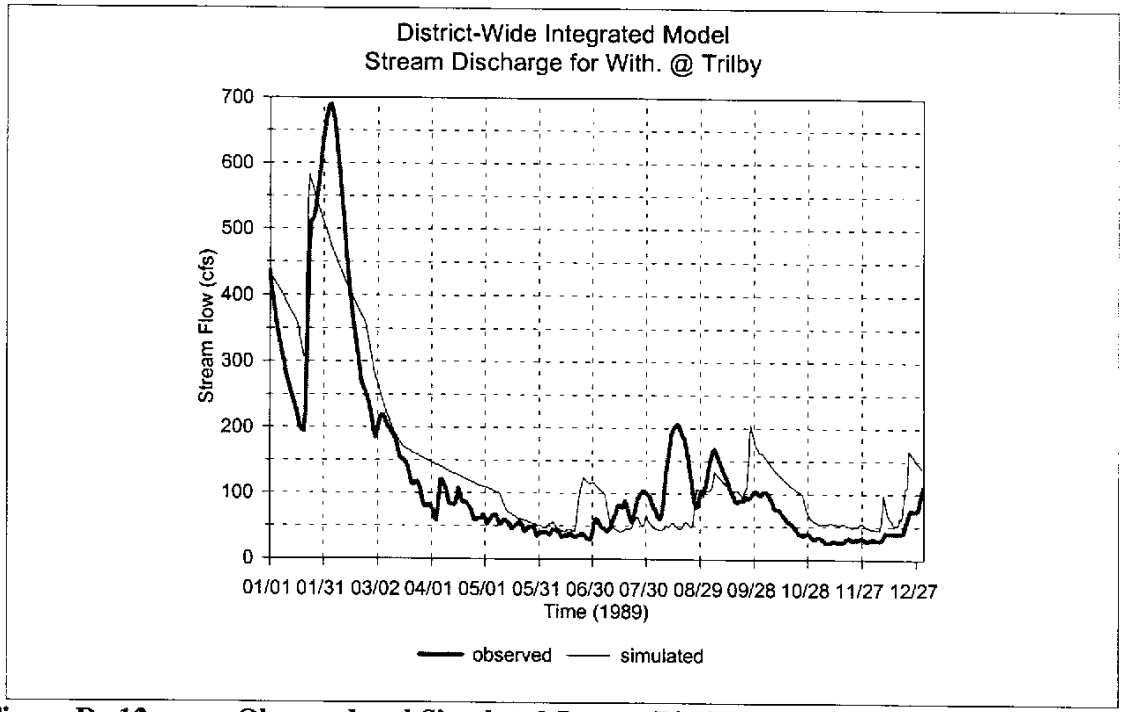

Figure D. 12 **Observed and Simulated Stream Discharge from the District Integrated Model for Withlacoochee River at Trilby**

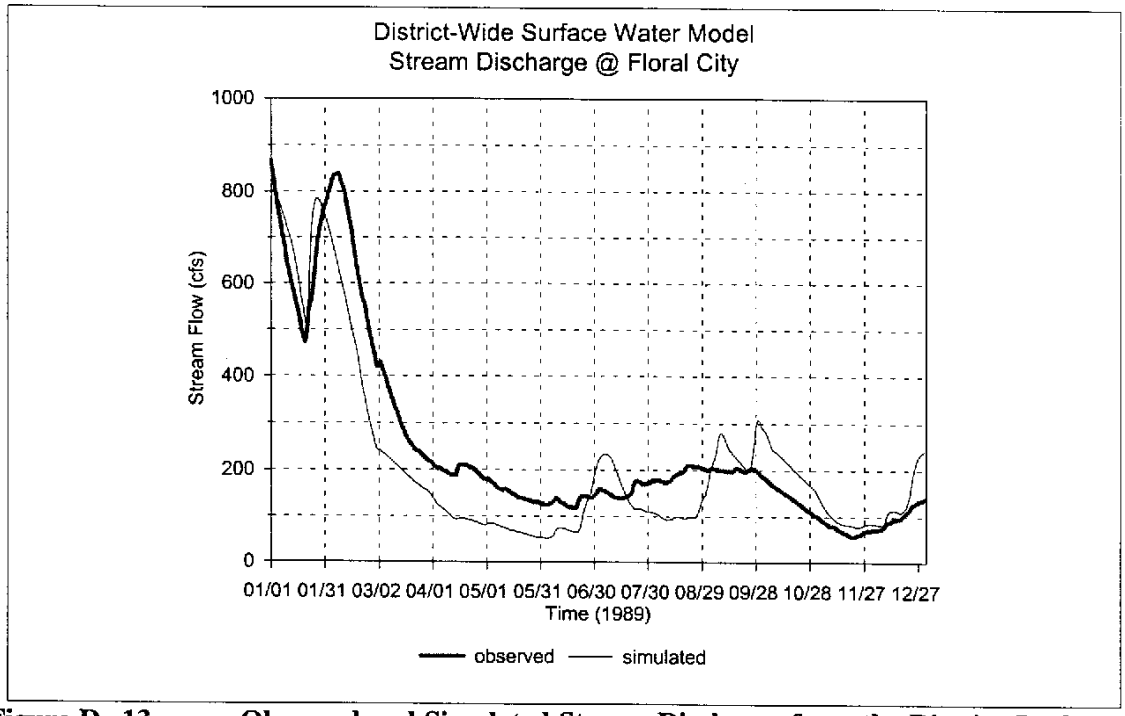

Figure D. 13 **Observed and Simulated Stream Discharge from the District Surface Water Model for Withlacoochee River at Floral City**

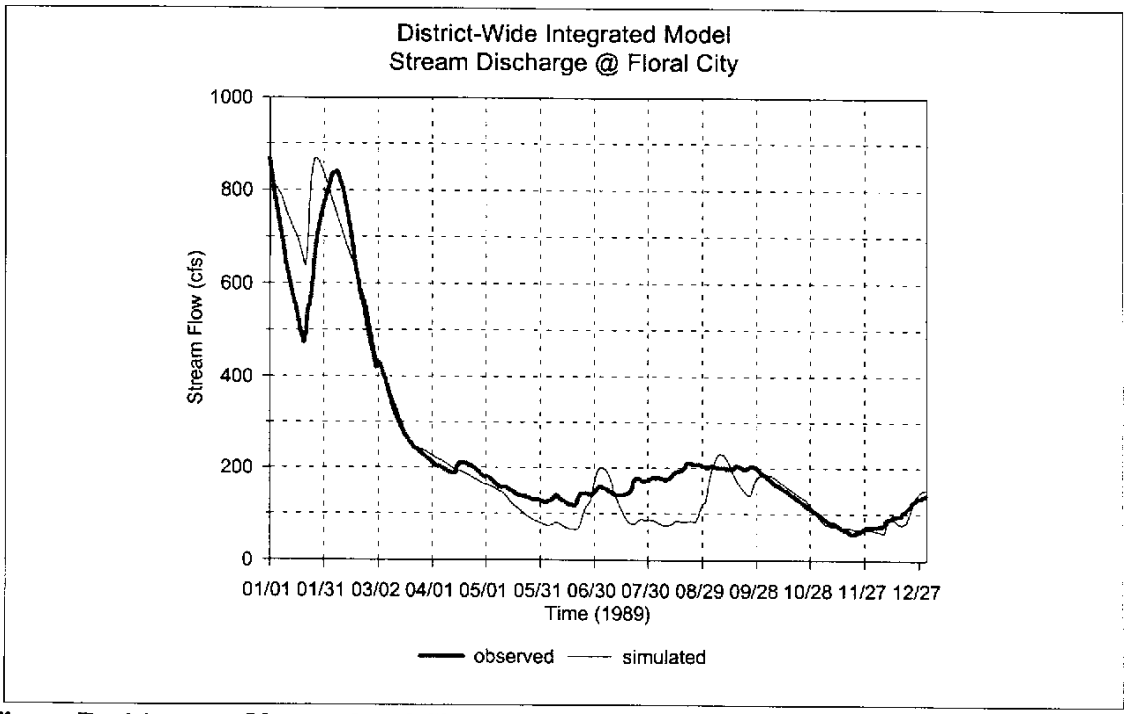

Figure D. 14 **Observed and Simulated Stream Discharge from the District Integrated Model for Withlacoochee River at Floral City**

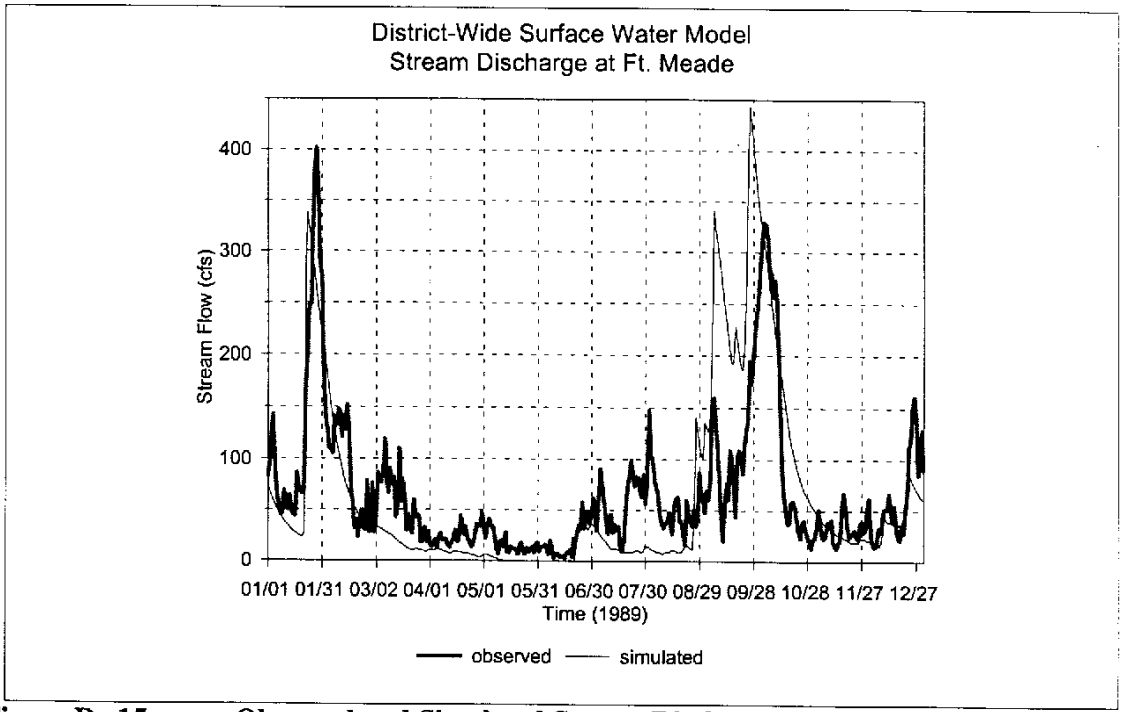

Figure D. 15 **Observed and Simulated Stream Discharge from the District Surface Water Model for Peace River at Fort Meade**

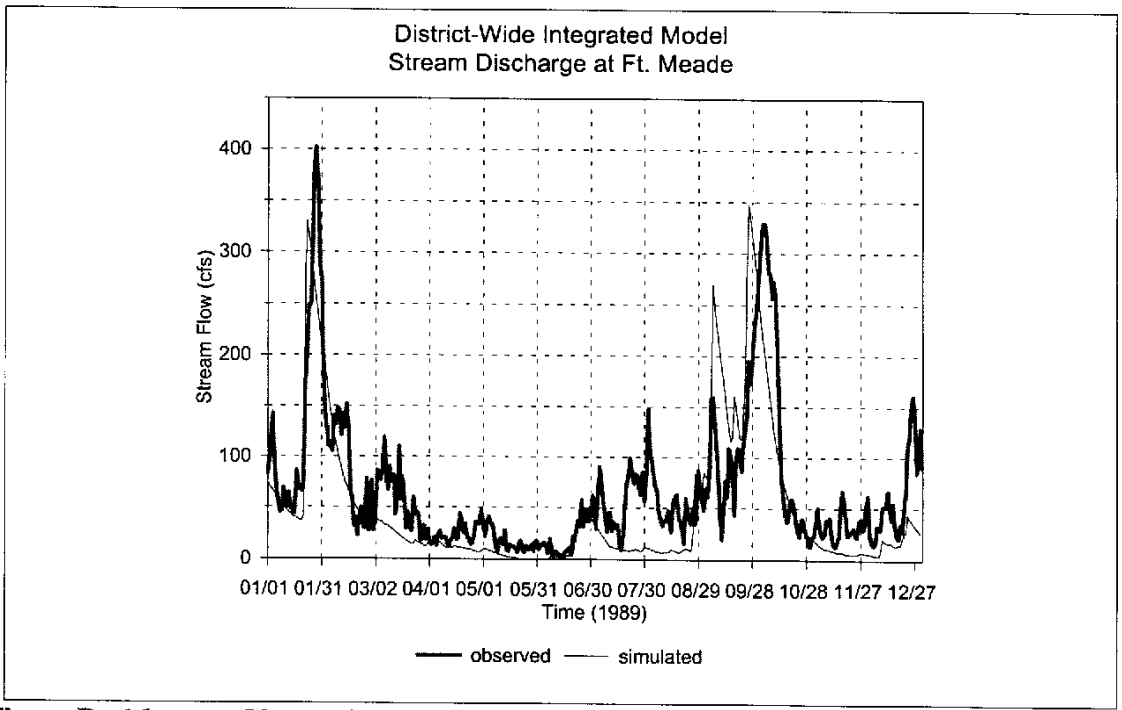

Figure D. 16 **Observed and Simulated Stream Discharge from the District Integrated Model for Peace River at Fort Meade**

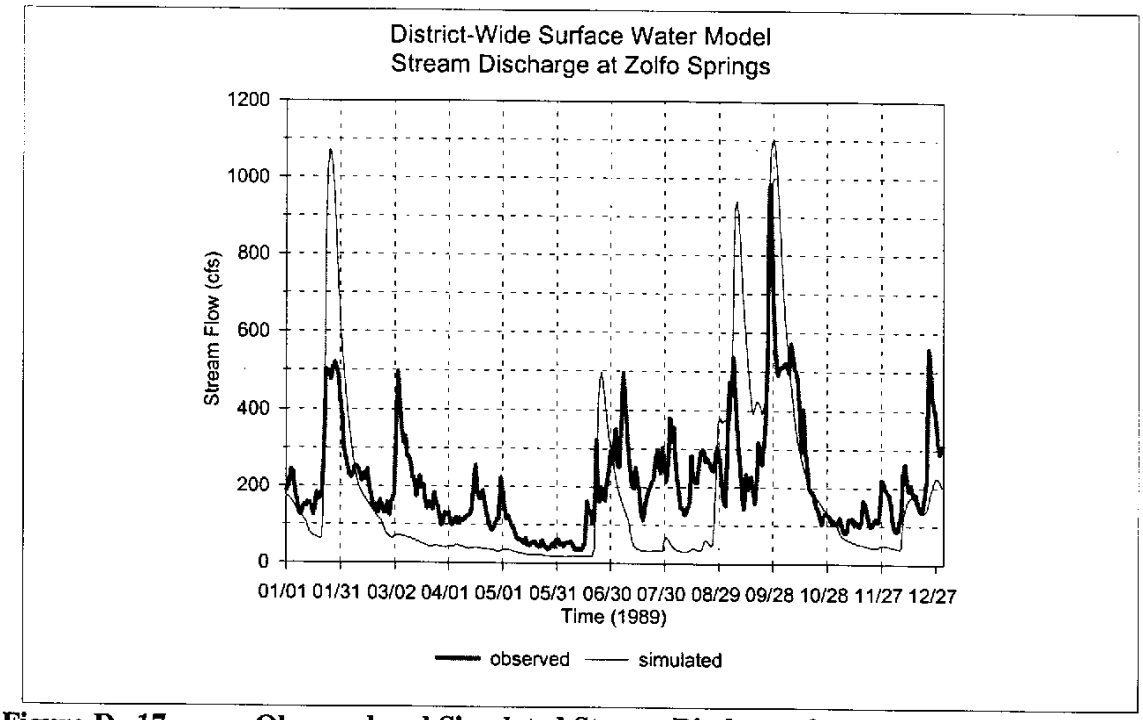

Figure D. 17 **Observed and Simulated Stream Discharge from the District Surface Water Model for Peace River at Zolfo Springs**

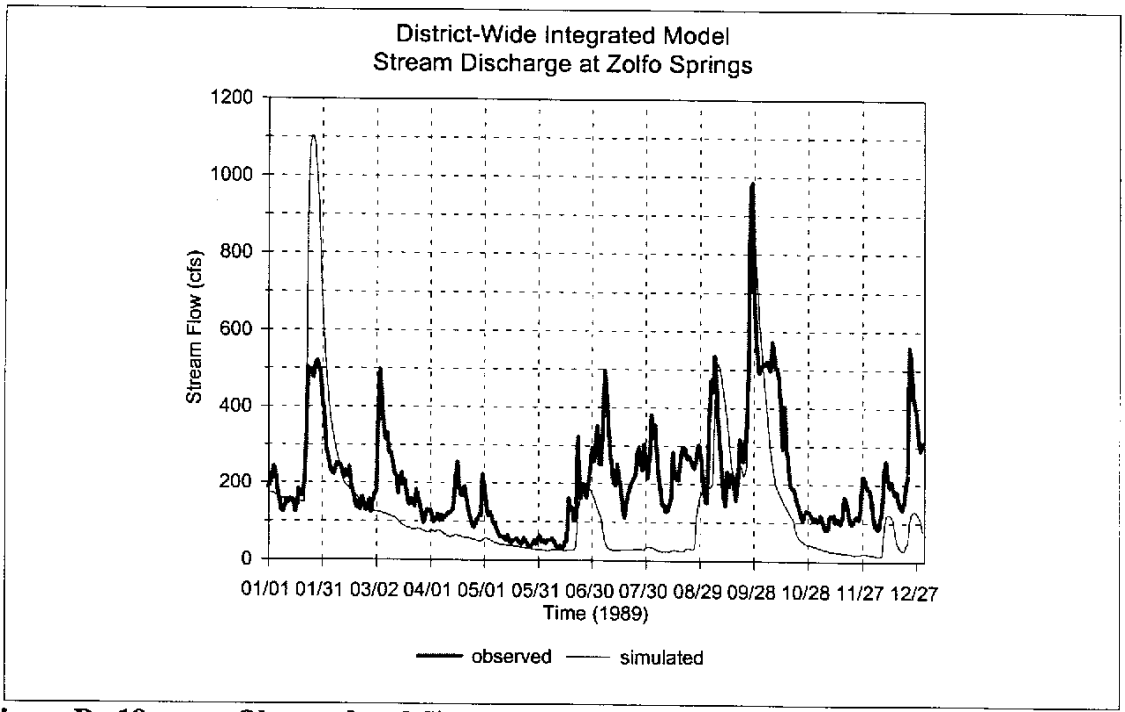

Figure D. 18 **Observed and Simulated Stream Discharge from the District Integrated Model for Peace River at Zolfo Springs**

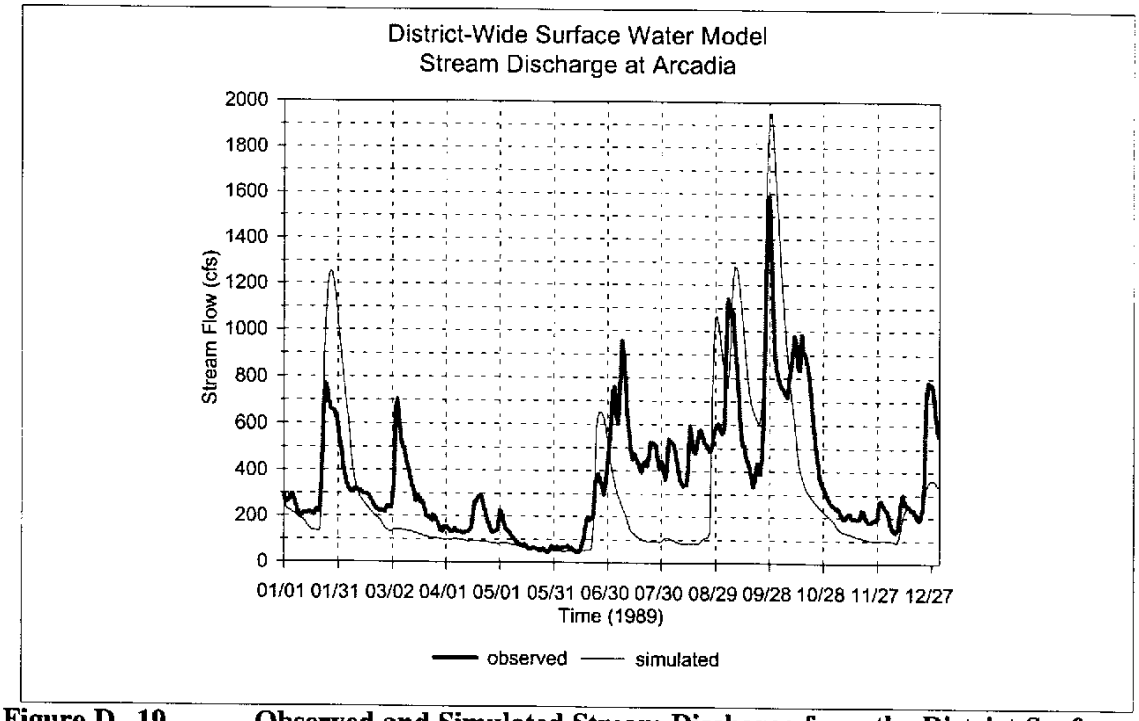

Figure D. 19 **Observed and Simulated Stream Discharge from the District Surface Water Model for Peace River at Arcadia**

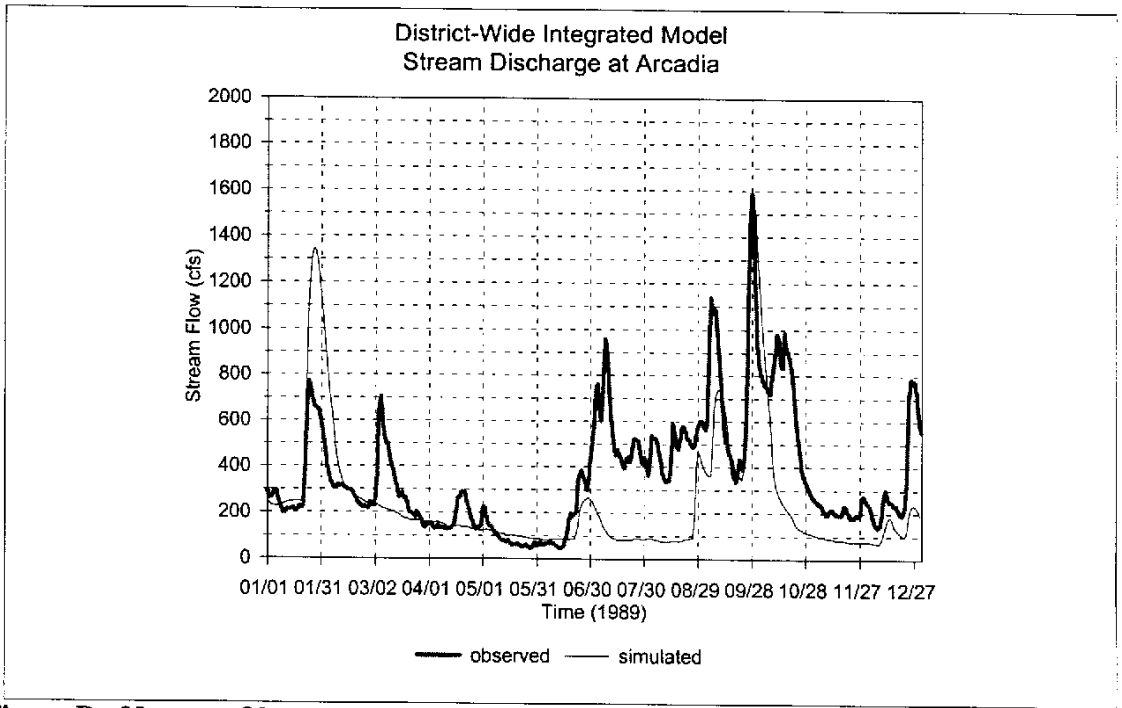

Figure D. 20 **Observed and Simulated Stream Discharge from the District Integrated Model for Peace River at Arcadia**

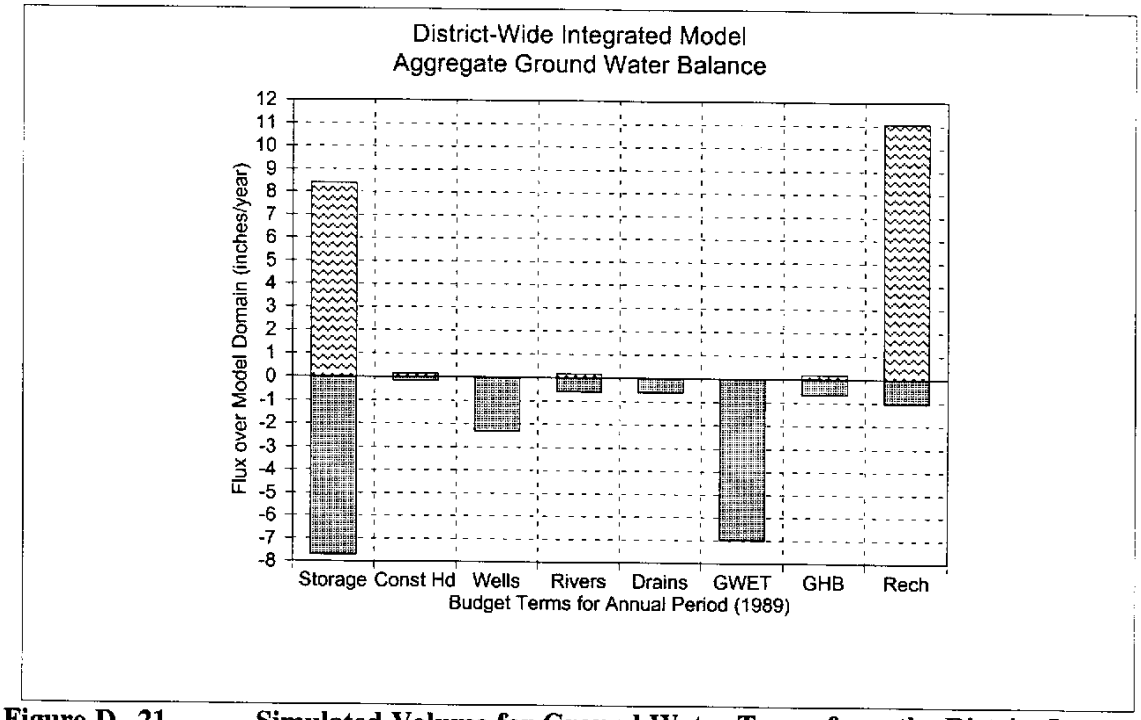

Figure D. 21 **Simulated Volume for Ground Water Terms from the District Integrated Model. Volume is Distributed over Active Cells (10520 sq. mi.)**

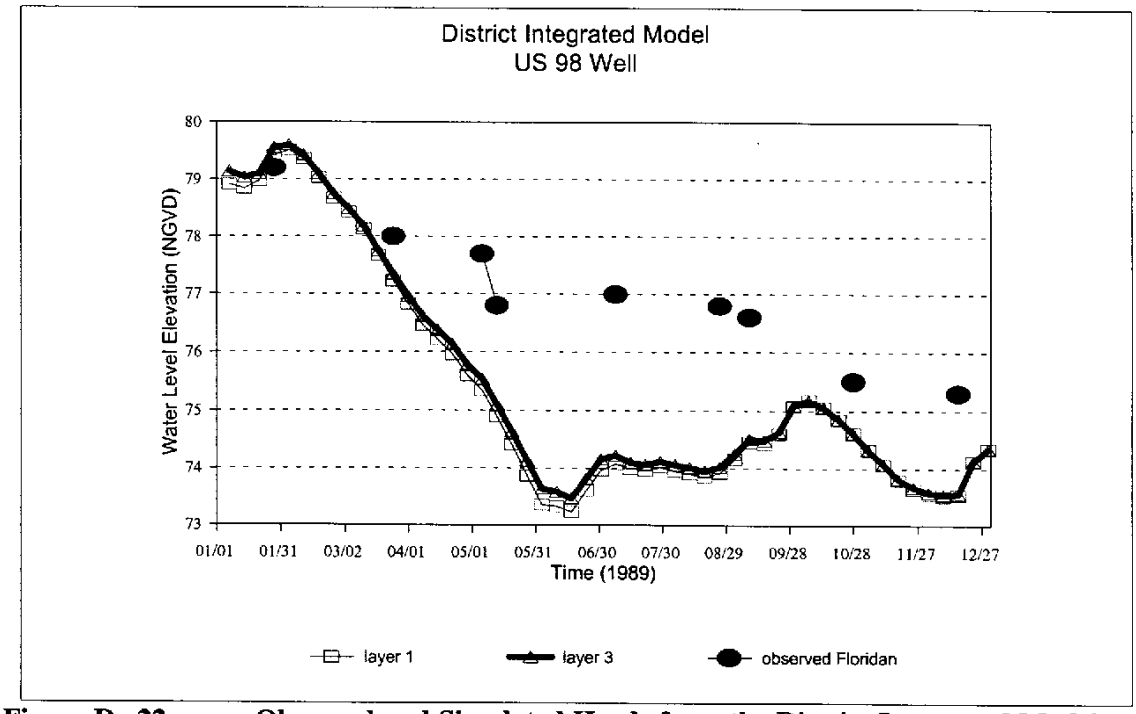

Figure D. 22 **Observed and Simulated Heads from the District Integrated Model for Well US 98**

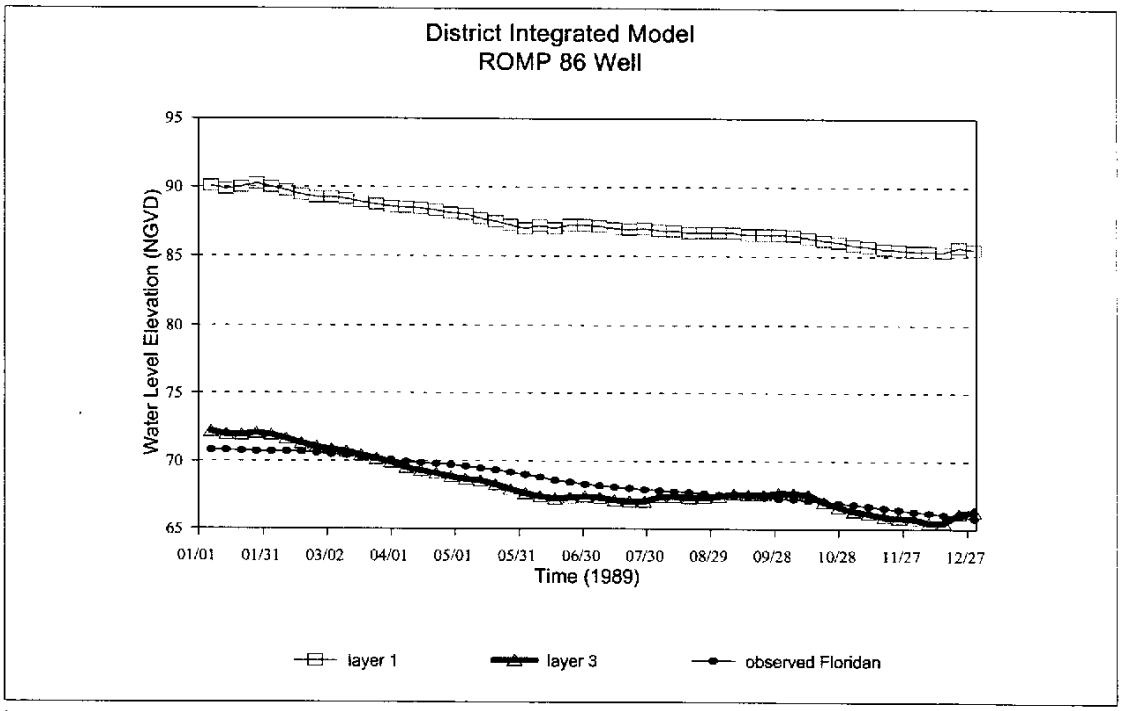

Figure D. 23 **Observed and Simulated Heads from the District Integrated Model for Well ROMP 86**

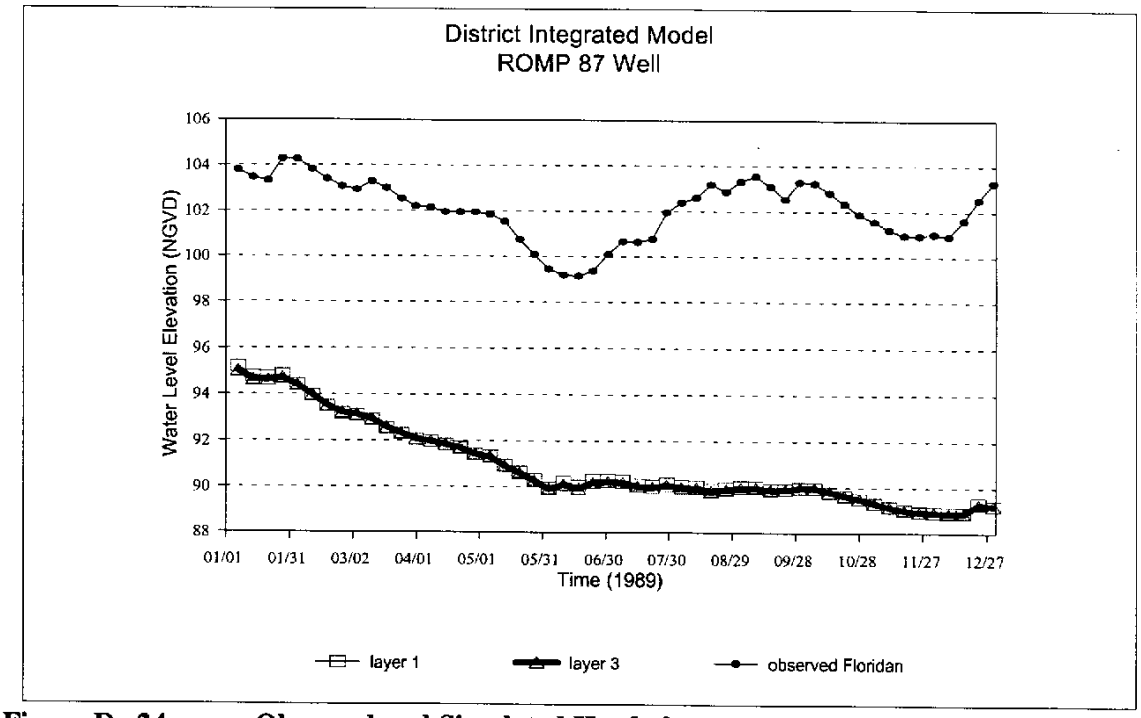

Figure D. 24 **Observed and Simulated Heads from the District Integrated Model for Well ROMP 87**

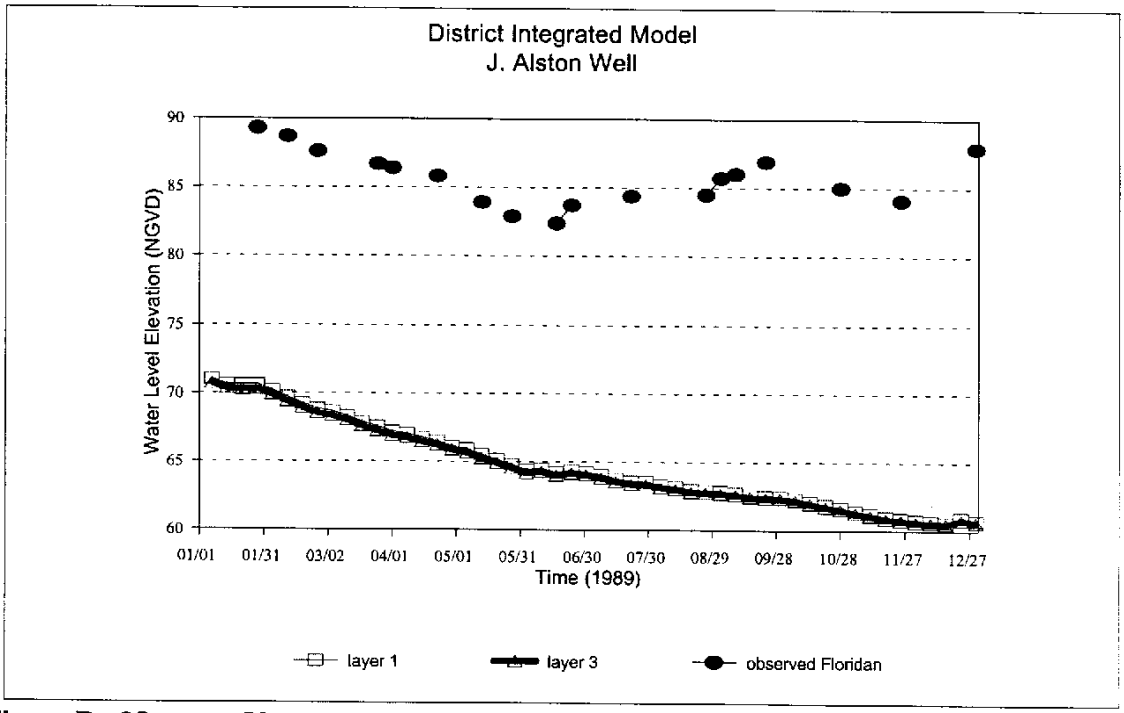

Figure D. 25 **Observed and Simulated Heads from the District Integrated Model for Well J. Alston**

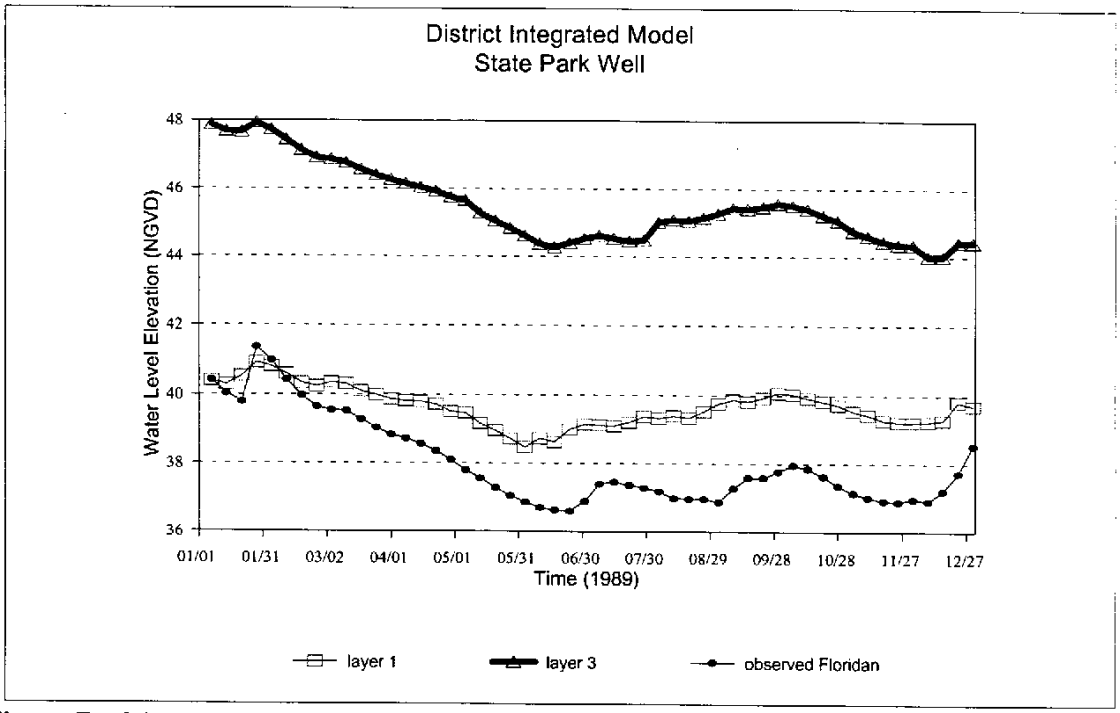

Figure D. 26 **Observed and Simulated Heads from the District Integrated Model for Well State Park**

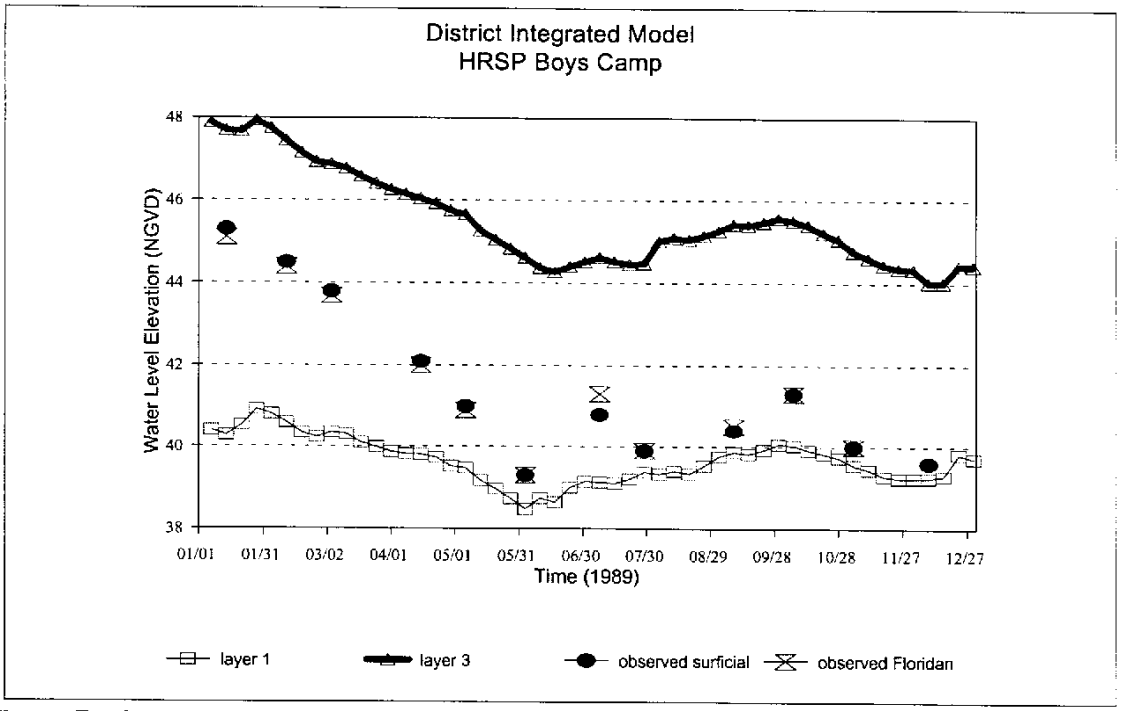

Figure D. 27 **Observed and Simulated Heads from the District Integrated Model for Well State Park Boys Camp**

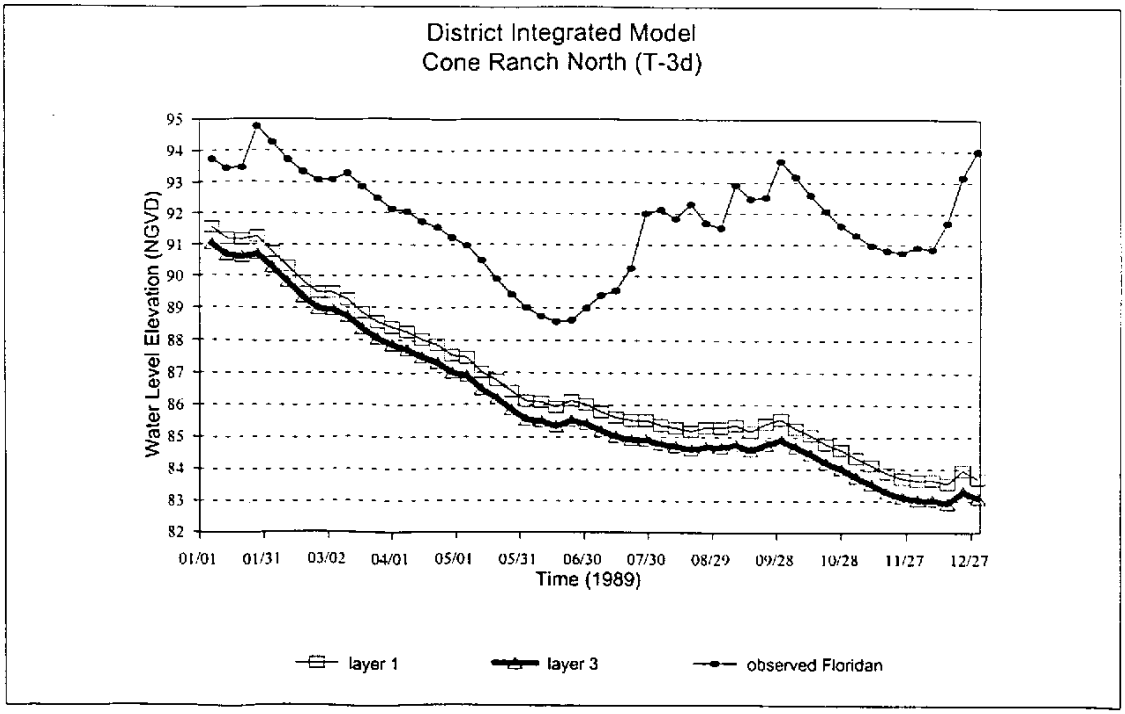

Figure D. 28 **Observed and Simulated Heads from the District Integrated Model for Well Cone Ranch North (T-3d)**

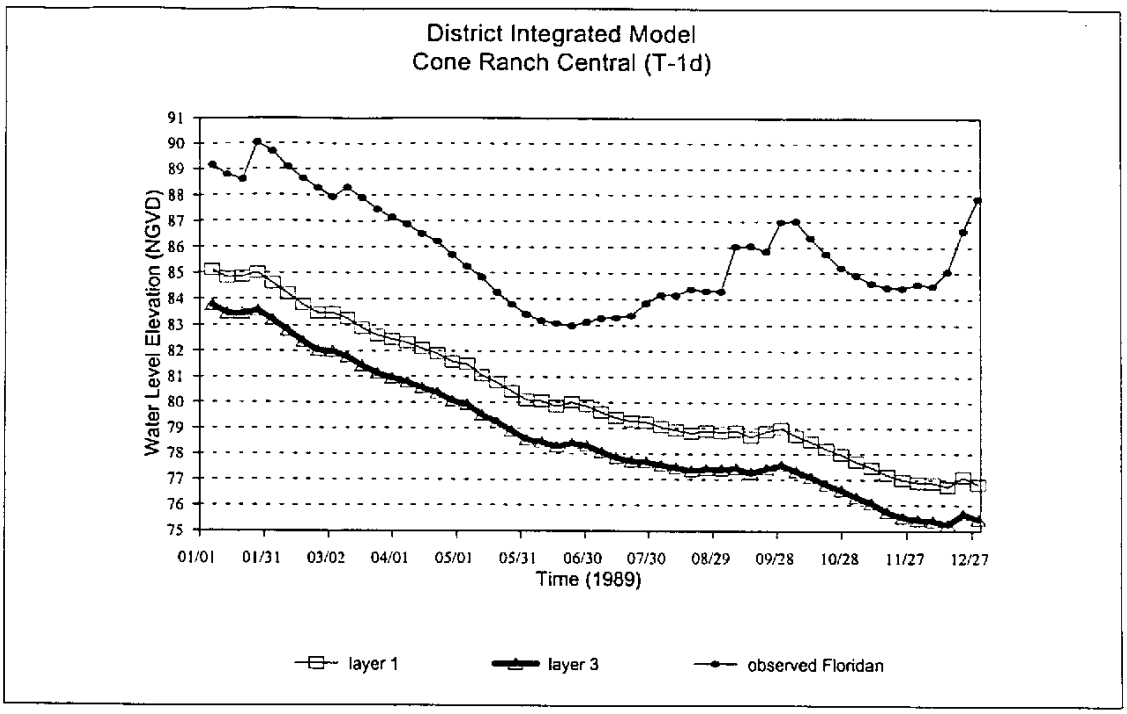

Figure D. 29 **Observed and Simulated Heads from the District Integrated Model for Well Cone Ranch Central (T-1d)**

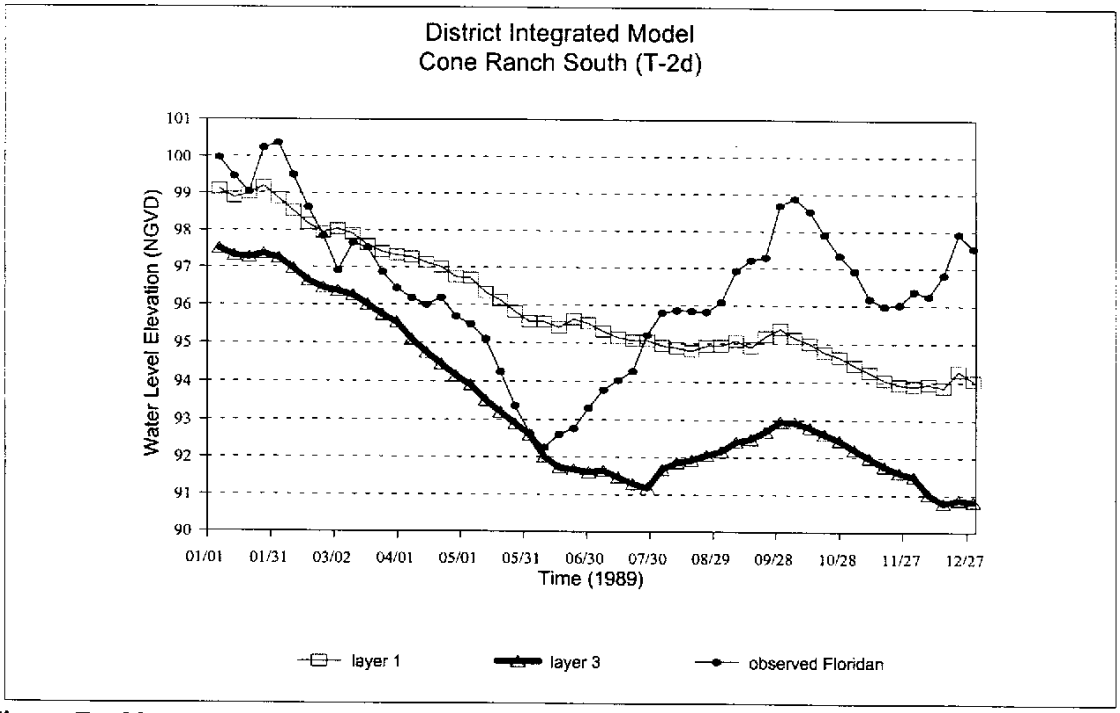

Figure D. 30 **Observed and Simulated Heads from the District Integrated Model for Well Cone Ranch South (T-2d)**

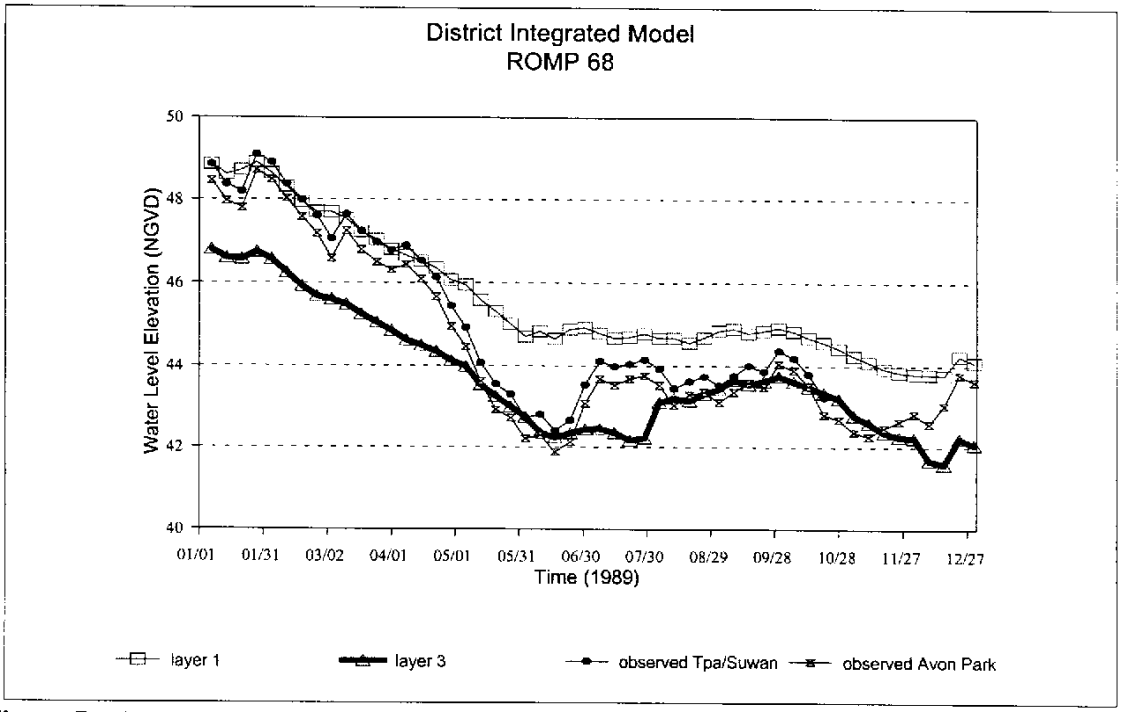

Figure D. 31 **Observed and Simulated Heads from the District Integrated Model for Well ROMP 68**

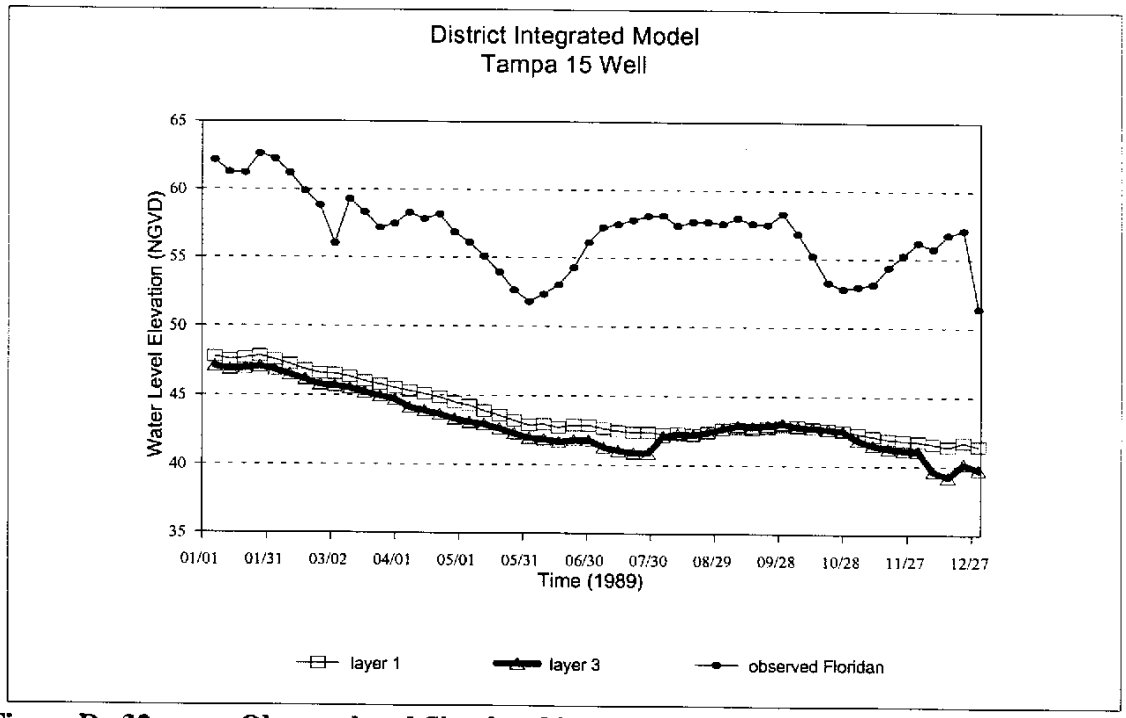

Figure D. 32 **Observed and Simulated Heads from the District Integrated Model for Well Tampa 15**

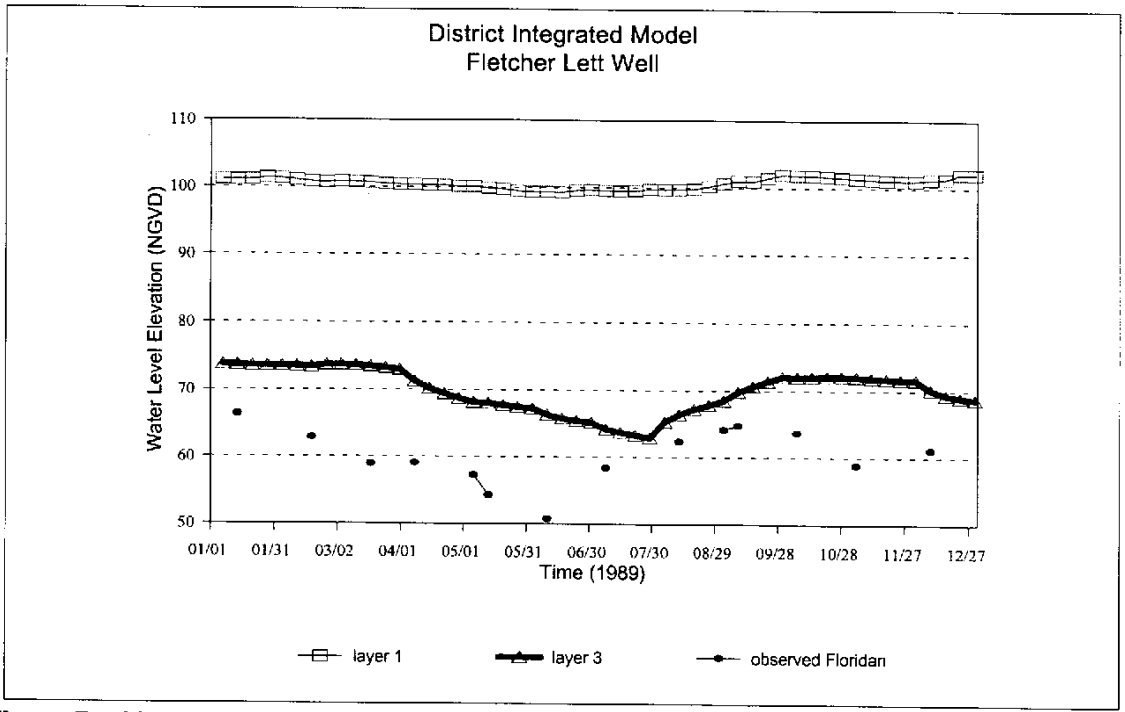

Figure D. 33 **Observed and Simulated Heads from the District Integrated Model for Well Fletcher Lett**

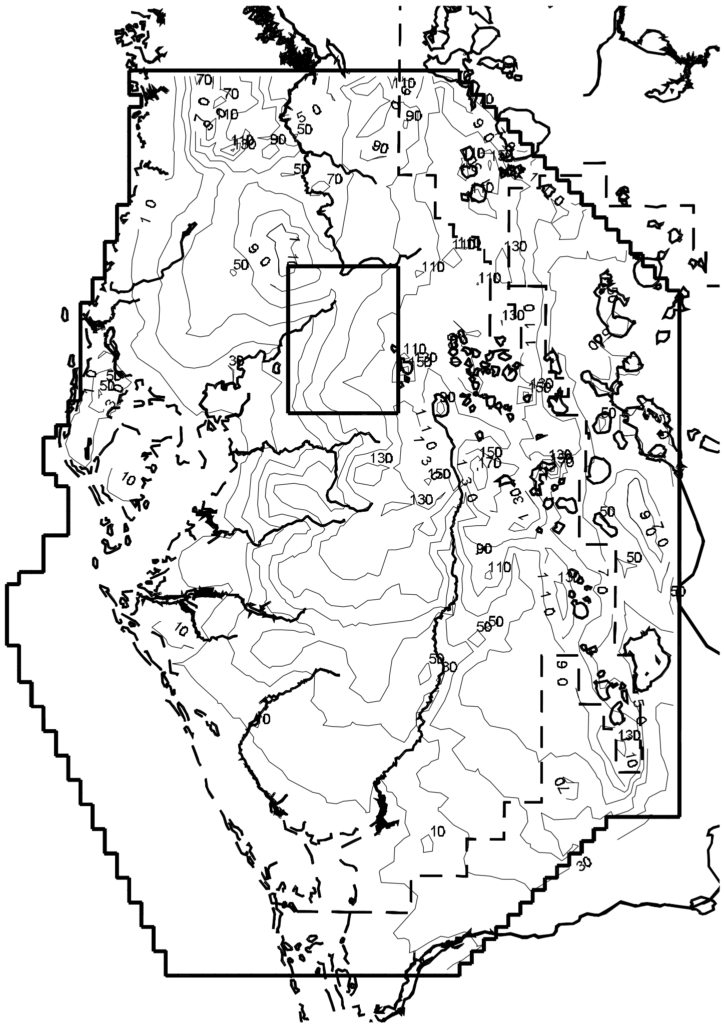

Figure D.34 Surficial Simulated Heads (layer 1), District Integrated Model, May, 1989 (week 24)

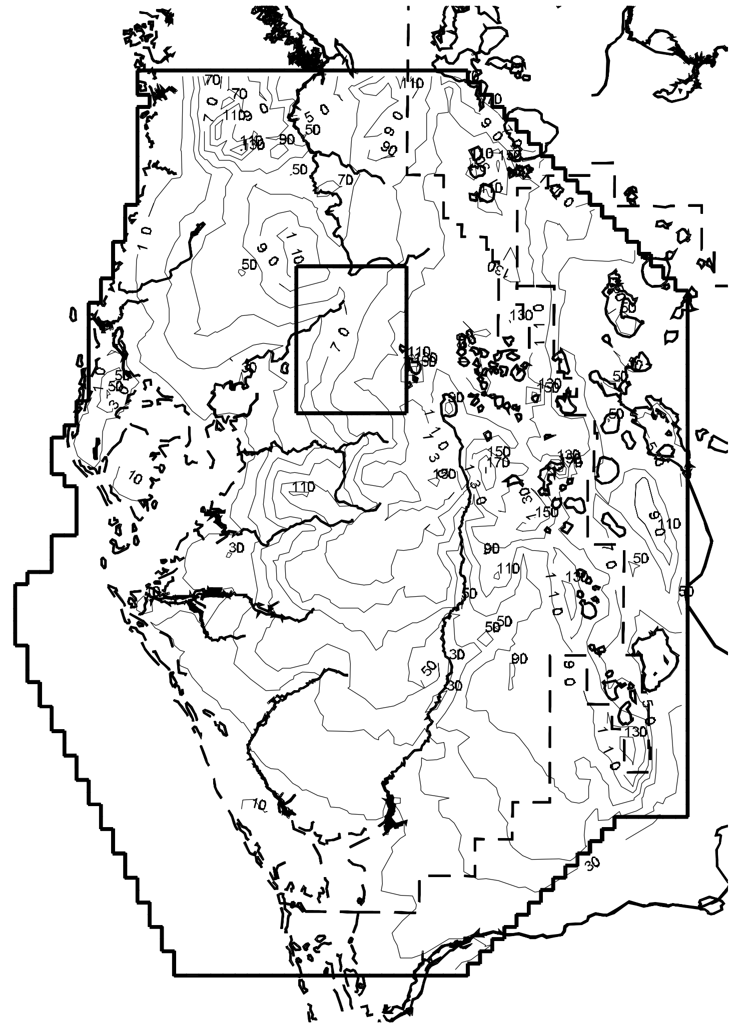

Figure D.35 Surficial Simulated Heads (layer 1), District Integrated Model, Sept., 1989 (week 42)

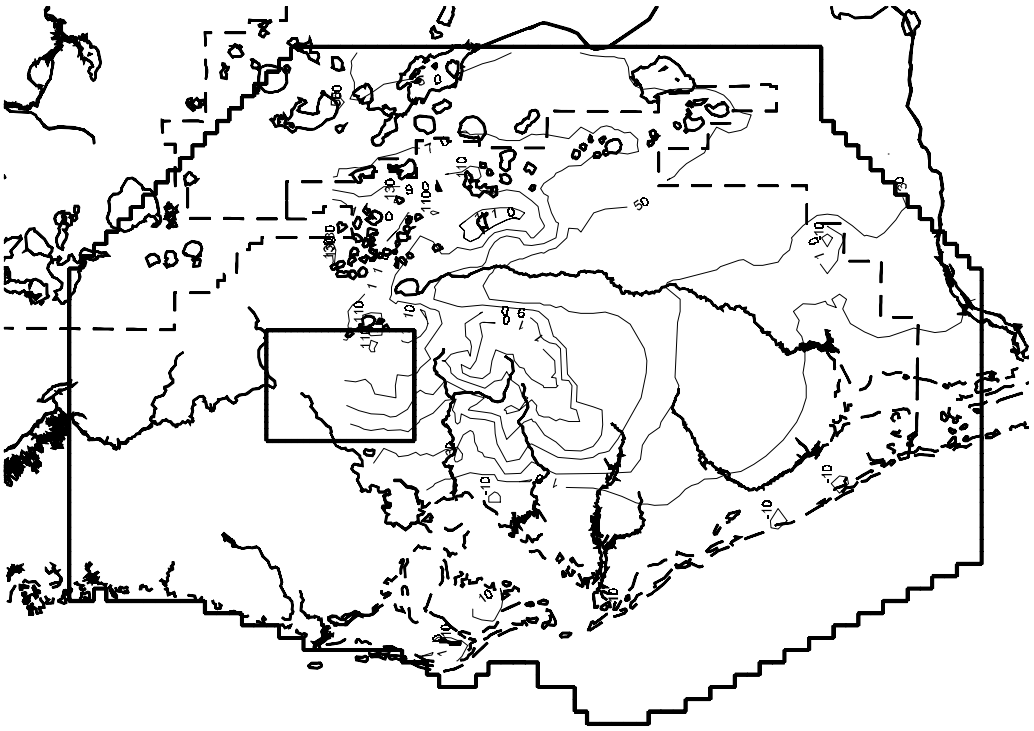

Figure D.37 Intermediate Simulated Heads (layer 2), District Integr. Model, May, 1989 (week 24)

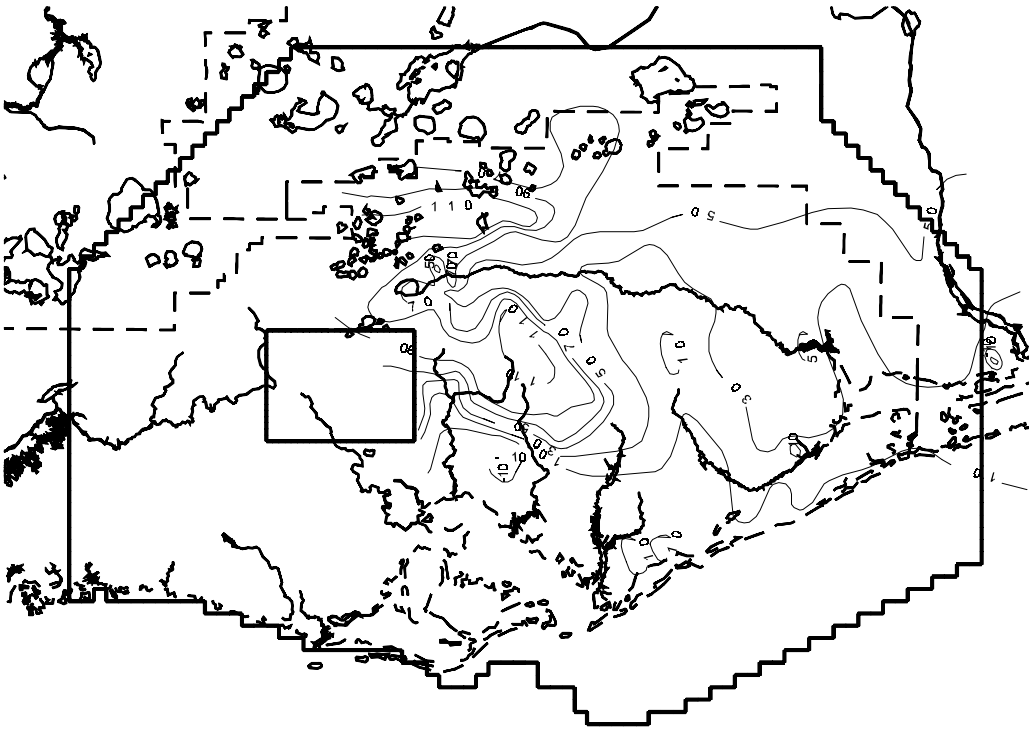

Figure D.36 Intermediate Observed Heads, May, 1989

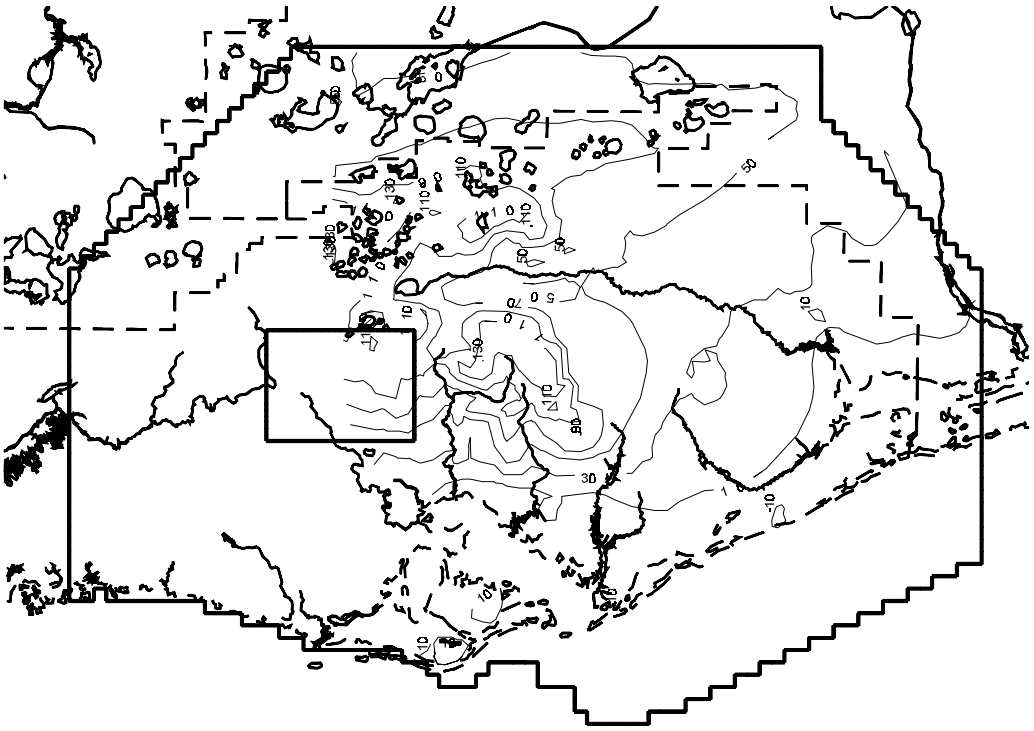

Figure D.39 Intermediate Simulated Heads (layer 2), District Integr. Model, Sept., 1989 (week 42)

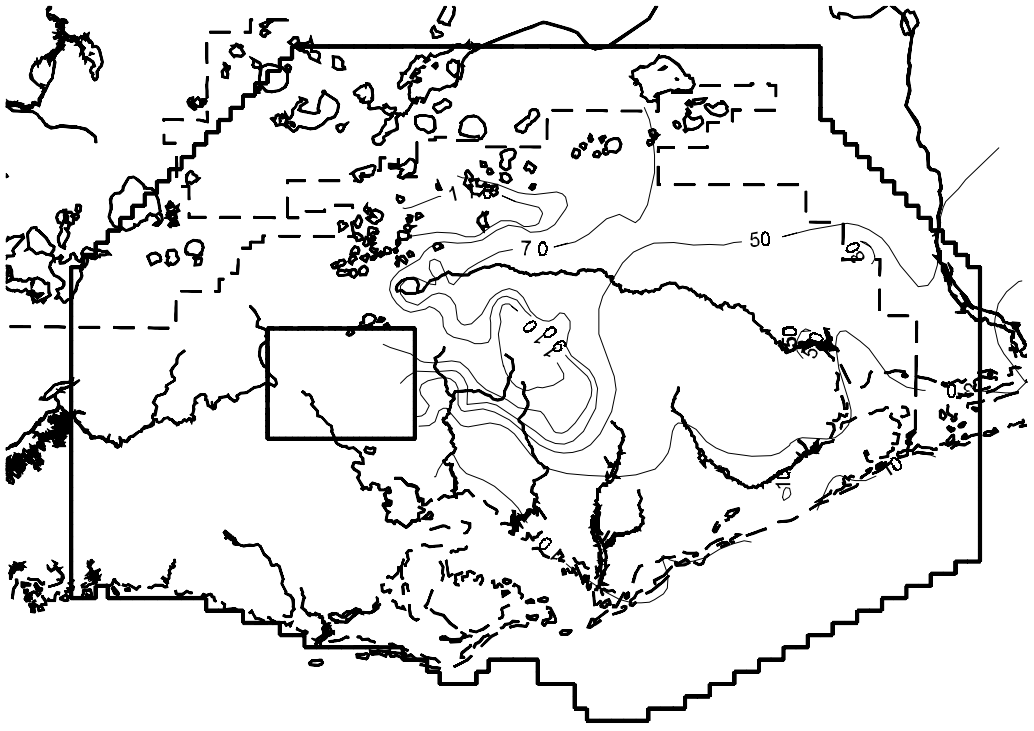

Figure D.38 Intermediate Observed Heads, September, 1989

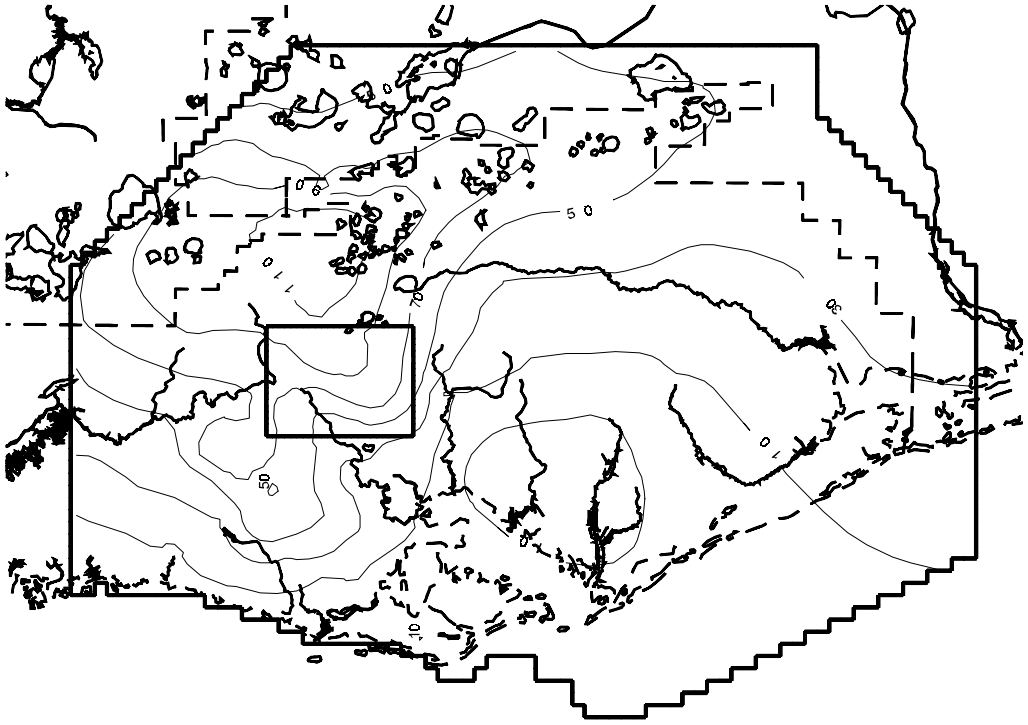

Figure D.41 Floridan Simulated Heads (layer 3), District Integrated Model, May, 1989 (week 24)

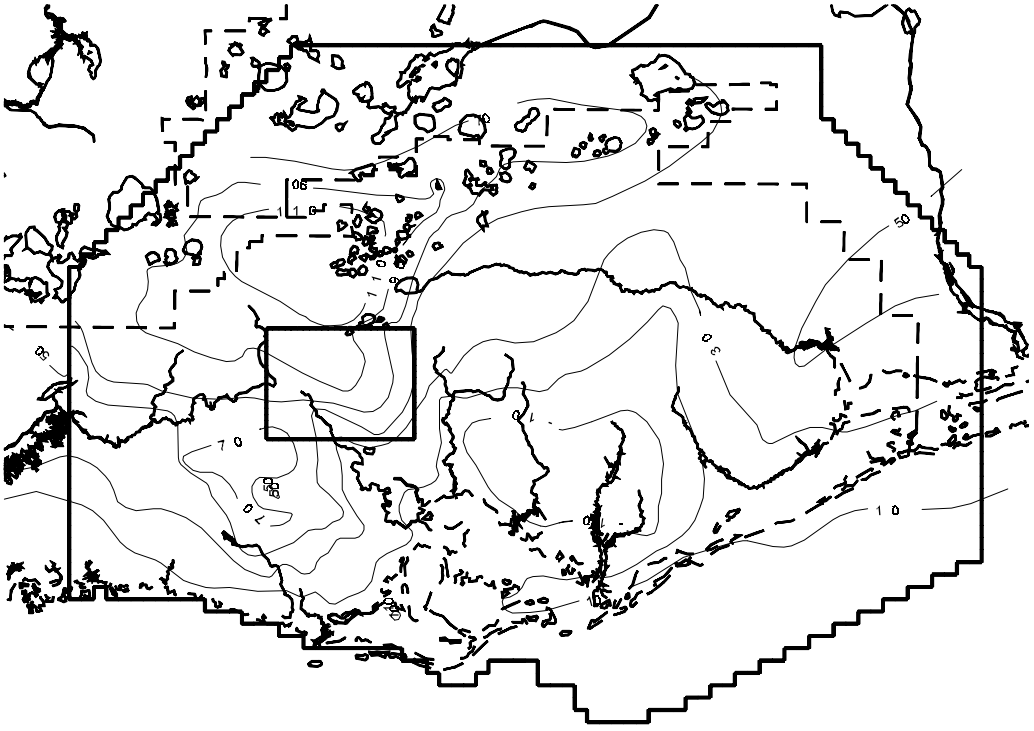

Figure D.40 Floridan Observed Heads, May, 1989

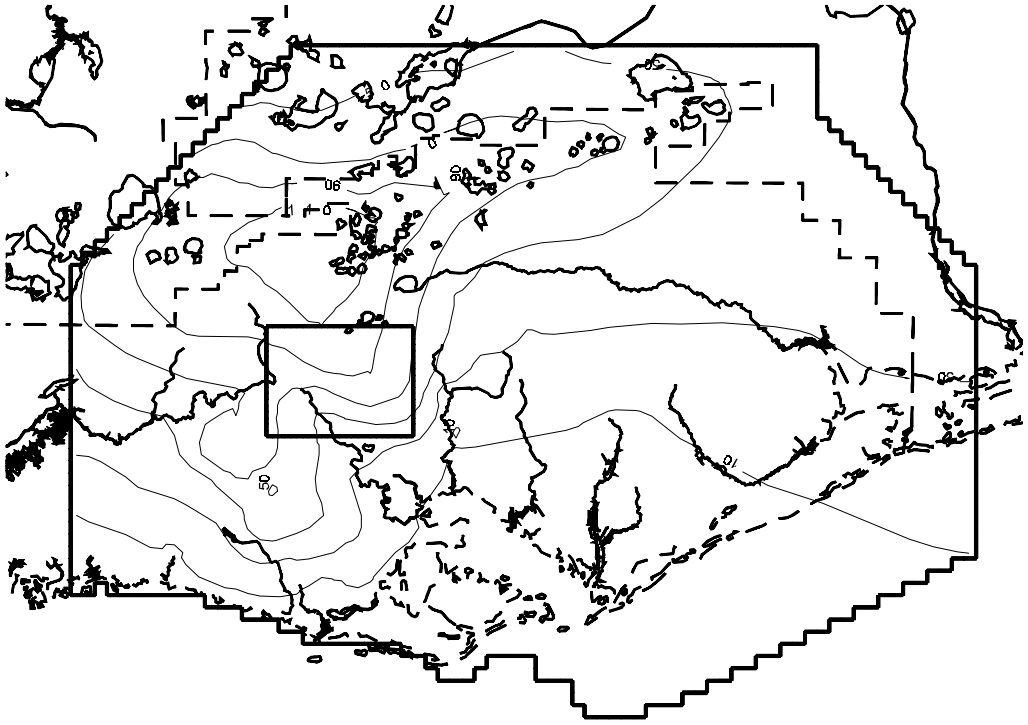

Figure D.43 Floridan Simulated Heads (layer 3), District Integrated Model, Sept., 1989 (week 42)

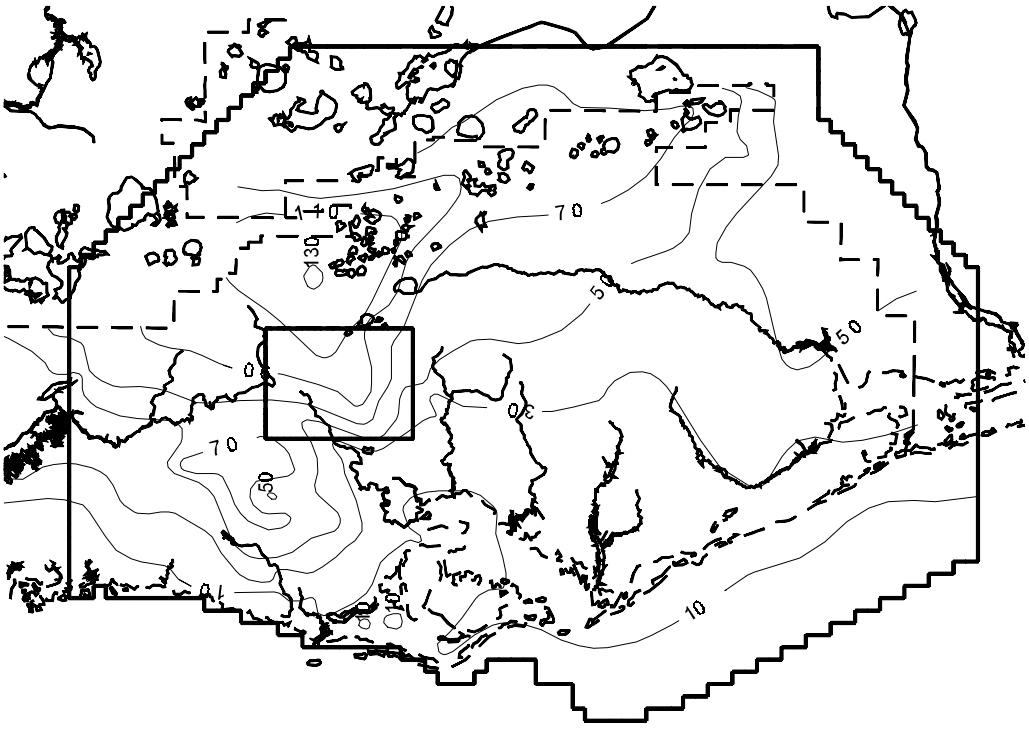

Figure D.42 Floridan Observed Heads, September, 1989

APPENDIX E. NORTHEAST HILLSBOROUGH MODEL RESULTS

Table E.1 NE Hillsborough Surface Water Model (1989), Surface Water Balance for NE Hillsborough Subbasins

Basin No.	Watershed/Basin Name	Area (acres)	Precip (in)	Runoff (in)	Base Flow (in)	ET (in)	Recharge (in)	Stream Flow (in)
1	Blackwater Creek	8587.1	46.92	3.55	1.30	37.11	8.19	4.85
2	Blackwater Creek	23175.5	46.92	3.55	1.30	37.03	8.27	4.85
3	Blackwater Creek	21328.4	46.92	3.79	1.29	37.03	8.15	5.09
4	Blackwater Creek	4734.8	46.92	2.48	1.32	37.16	8.66	3.81
5	Blackwater Creek	5255.4	45.39	1.80	1.30	37.49	7.97	3.11
6	Zephyrhills	8823.3	41.57	2.12	1.24	37.87	6.07	3.36
7	Above Crystal Springs	7372.5	39.28	3.02	2.66	37.84	7.11	5.68
8	Above Crystal Springs	5187.1	39.28	2.02	2.70	37.90	7.65	4.72
9	Above Crystal Springs	5863.1	41.57	1.86	2.73	38.51	8.11	4.59
10	Zephyrhills	6353.4	41.57	2.56	2.70	38.52	7.64	5.27
11	Above Crystal Springs	13217.9	45.01	3.66	2.78	38.60	8.63	6.44
12	Withlacoochee/Trilby	60910.9	44.55	1.87	1.04	40.19	7.36	2.91
13	Withlacoochee/Trilby	10219.5	39.28	1.51	0.82	38.75	5.08	2.33
14	Above Crystal Springs	17819.9	39.28	3.31	2.72	35.62	7.52	6.04
15	Zephyrhills	5546.7	39.28	3.34	2.66	37.69	7.09	5.99
16	Cypress Creek	3230.1	39.28	0.98	0.25	35.83	5.79	1.23
17	Zephyrhills	11855.0	39.28	2.50	2.68	37.77	7.50	5.18
18	Morris Bridge	19426.0	42.03	0.87	0.13	37.53	6.60	1.01
19	Morris Bridge	6830.5	45.18	1.39	0.13	37.78	7.35	1.53
20	Morris Bridge	13301.9	46.92	3.76	0.13	37.64	7.67	3.89
21	Morris Bridge	10724.1	44.16	1.76	0.11	36.77	7.43	1.88
22	Alafia	9971.7	46.92	4.53	2.70	37.35	6.89	7.23
23	Alafia	24045.0	46.92	5.19	2.61	37.33	6.61	7.80
24	Peace/Ft. Meade	6469.9	46.92	1.73	0.47	42.66	9.08	2.19
	area weighted average		44.04	2.76	1.49	38.07	7.42	4.26
weighted averages for station for simulated data (excludes flow upstream of upstream stations, if any)								
	Blackwater Creek	63081.3	46.79	3.41	1.30	37.09	8.22	4.71
	Above Crystal Springs	49460.4	41.08	3.05	2.73	37.33	7.84	5.78
	Zephyrhills (incl Crys Spr)	32578.5	40.35	2.55	14.36	37.93	7.07	16.91
observed flow data for station (excludes flow upstream of upstream stations, if any)								
	Blackwater Creek			3.30	1.20			4.50
	Above Crystal Springs			2.40	2.90			5.30
	Zephyrhills (incl Crys Spr)			3.70	12.40			16.10
weighted average for Zephyrhills (includes total flow as recorded at zhills less flow at Blackwater Cr)								
	Simulated (incl Crystal Spr)			2.9	7.3			10.2
	Observed (incl Crystal Spr)			2.8	6.7			9.50

Table E.2 NE Hillsborough Integrated Model (1989) with 3X Mean Rhizosphere Depth, Surface Water Balance for NE Hillsborough Subbasins

Basin No.	Watershed/Basin Name	Area (acres)	Precip (in)	Runoff (in)	Base Flow (in)	ET (in)	Recharge (in)	Stream Flow (in)
1	Blackwater Creek	8587.1	46.92	3.03		35.25	7.35	3.03
2	Blackwater Creek	23175.5	46.92	3.10		35.44	7.52	3.10
3	Blackwater Creek	21328.4	46.92	3.35		35.50	7.41	3.35
4	Blackwater Creek	4734.8	46.92	2.29		34.16	8.42	2.29
5	Blackwater Creek	5255.4	45.39	1.61		34.60	7.28	1.61
6	Zephyrhills	8823.3	41.57	1.52		35.02	4.50	1.52
7	Above Crystal Springs	7372.5	39.28	1.53		32.40	4.38	1.53
8	Above Crystal Springs	5187.1	39.28	1.07		33.59	4.46	1.07
9	Above Crystal Springs	5863.1	41.57	1.12		35.18	5.04	1.12
10	Zephyrhills	6353.4	41.57	1.22		34.87	4.64	1.22
11	Above Crystal Springs	13217.9	45.01	2.69		36.64	6.63	2.69
12	Withlacoochee/Trilby	60910.9	44.55	1.19		37.73	7.35	1.19
13	Withlacoochee/Trilby	10219.5	39.28	1.16		36.81	5.35	1.16
14	Above Crystal Springs	17819.9	39.28	2.46		33.80	5.58	2.46
15	Zephyrhills	5546.7	39.28	1.92		34.57	4.52	1.92
16	Cypress Creek	3230.1	39.28	0.91		35.28	5.48	0.91
17	Zephyrhills	11855.0	39.28	0.93		32.73	4.36	0.93
18	Morris Bridge	19426.0	42.03	0.69		35.72	5.44	0.69
19	Morris Bridge	6830.5	45.18	1.23		36.44	6.67	1.23
20	Morris Bridge	13301.9	46.92	3.34		36.25	6.91	3.34
21	Morris Bridge	10724.1	44.16	1.54		35.42	6.81	1.54
22	Alafia	9971.7	46.92	4.00		35.66	6.13	4.00
23	Alafia	24045.0	46.92	4.60		35.66	5.87	4.60
24	Peace/Ft. Meade	6469.9	46.92	1.44		41.33	8.37	1.44
	area weighted average		44.04	2.14		35.82	6.39	n/a
	weighted averages for station for simulated data (excludes flow upstream of upstream stations, if any)							
	Blackwater Creek	63081.3	46.79	2.99	1.49	35.27	7.51	4.48
	Above Crystal Springs	49460.4	41.08	2.08	2.65	34.49	5.50	4.73
	Zephyrhills (incl Crys Sp)	32578.5	40.35	1.32	13.00	34.08	4.48	14.32
	observed flow data for station (excludes flow upstream of upstream stations, if any)							
	Blackwater Creek			3.30	1.20			4.50
	Above Crystal Springs			2.40	2.90			5.30
	Zephyrhills (incl Crys Sp)			3.70	12.40			16.10
	weighted average for Zephyrhills (includes total flow as recorded at zhills less flow at Blackwater Cr)							
	Simulated (incl Crystal Spr)			1.78	6.76			8.54
	Observed (incl Crystal Spr)			2.8	6.7			9.50

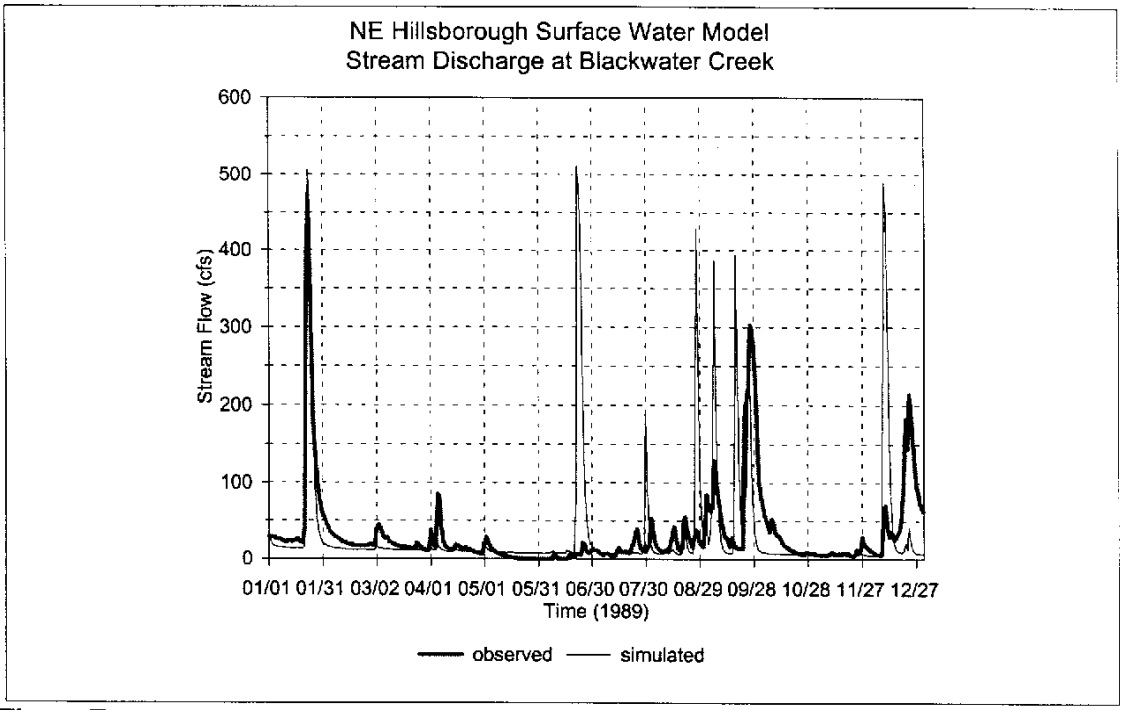

Figure E. 1 **Observed and Simulated Stream Discharge from the NE Hillsborough Surface Water Model for Blackwater Creek**

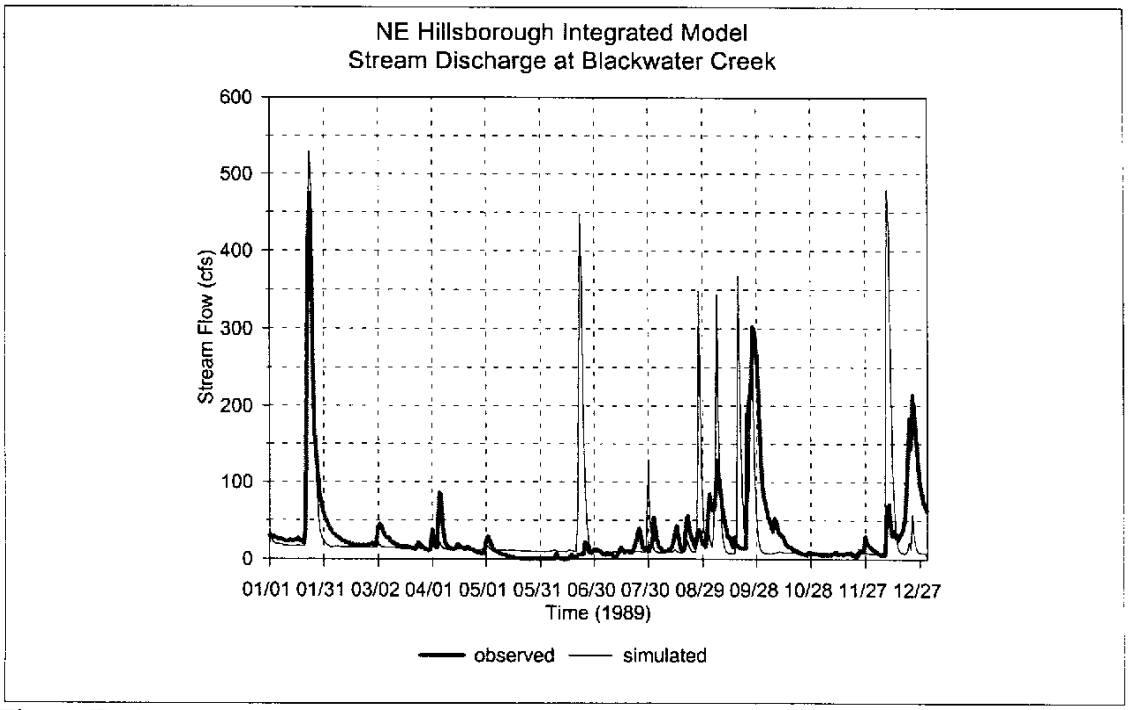

Figure E. 2 **Observed and Simulated Stream Discharge from the NE Hillsborough Integrated Model for Blackwater Creek**

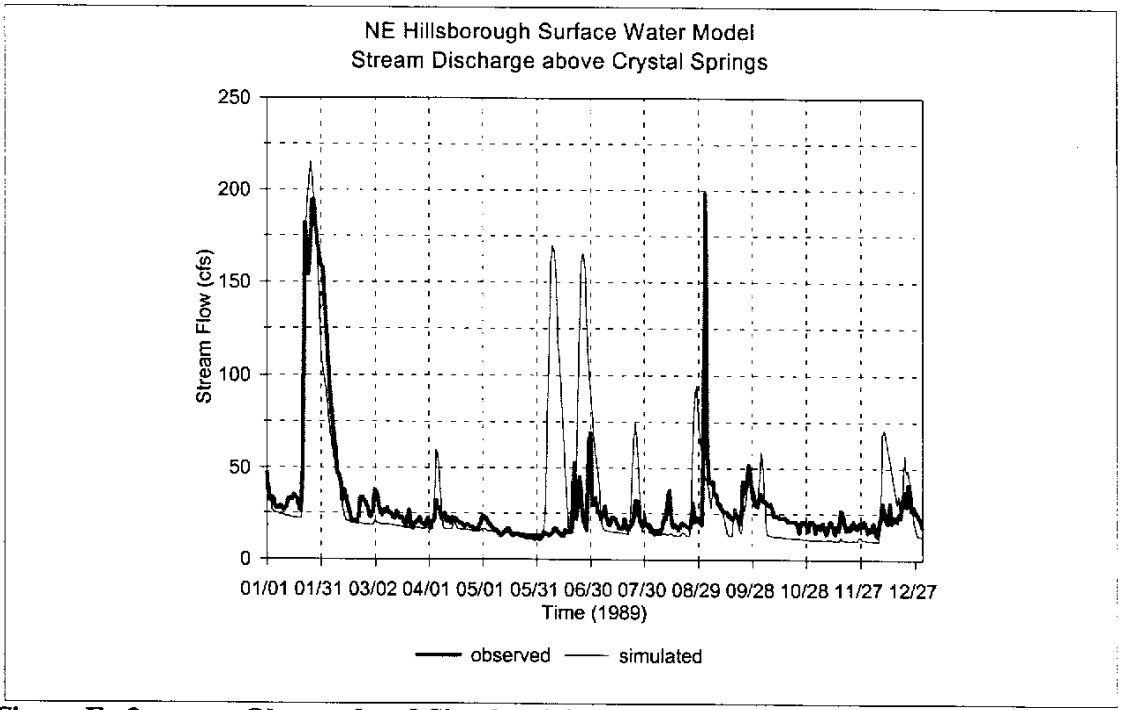

Figure E. 3 **Observed and Simulated Stream Discharge from the NE Hillsborough Surface Water Model for Hillsborough River above Crystal Springs**

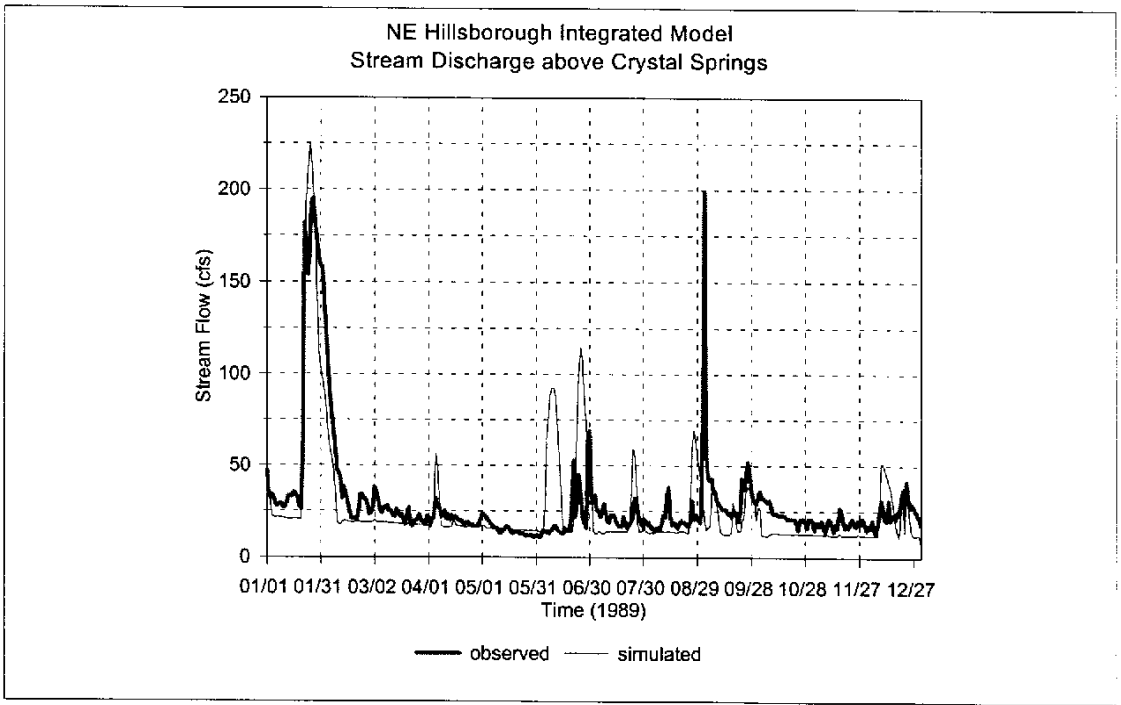

Figure E. 4 **Observed and Simulated Stream Discharge from the NE Hillsborough Integrated Model for Hillsborough River above Crystal Springs**

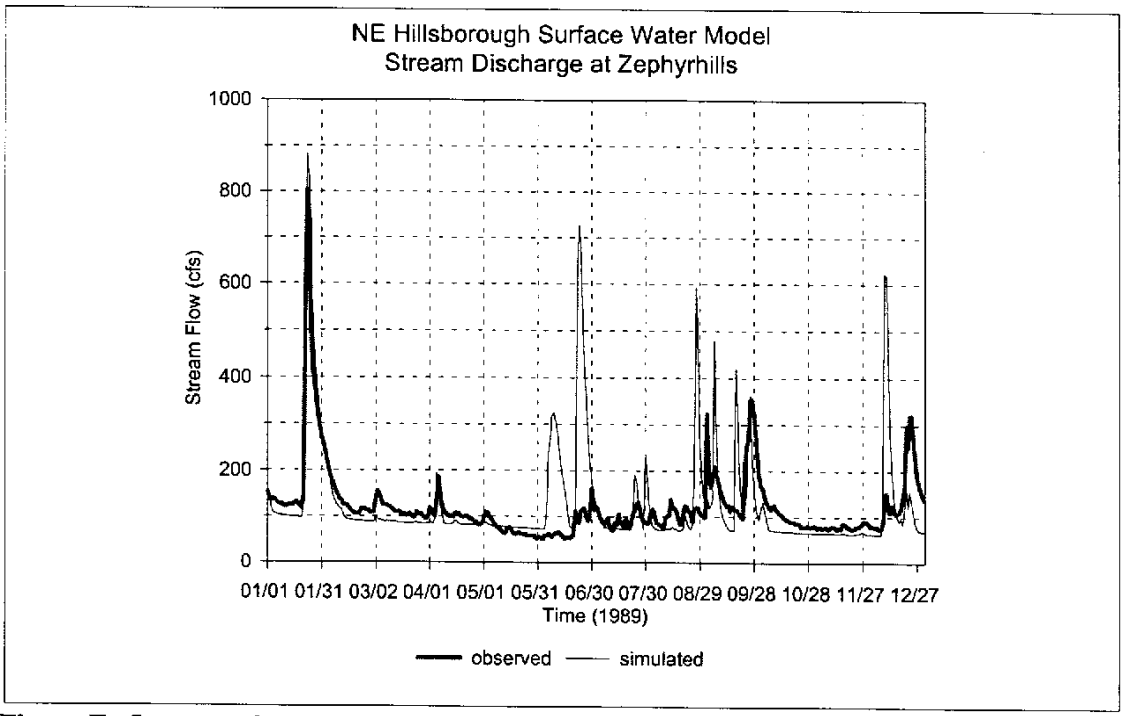

Figure E. 5 **Observed and Simulated Stream Discharge from the NE Hillsborough Surface Water Model for Hillsborough River at Zephyrhills**

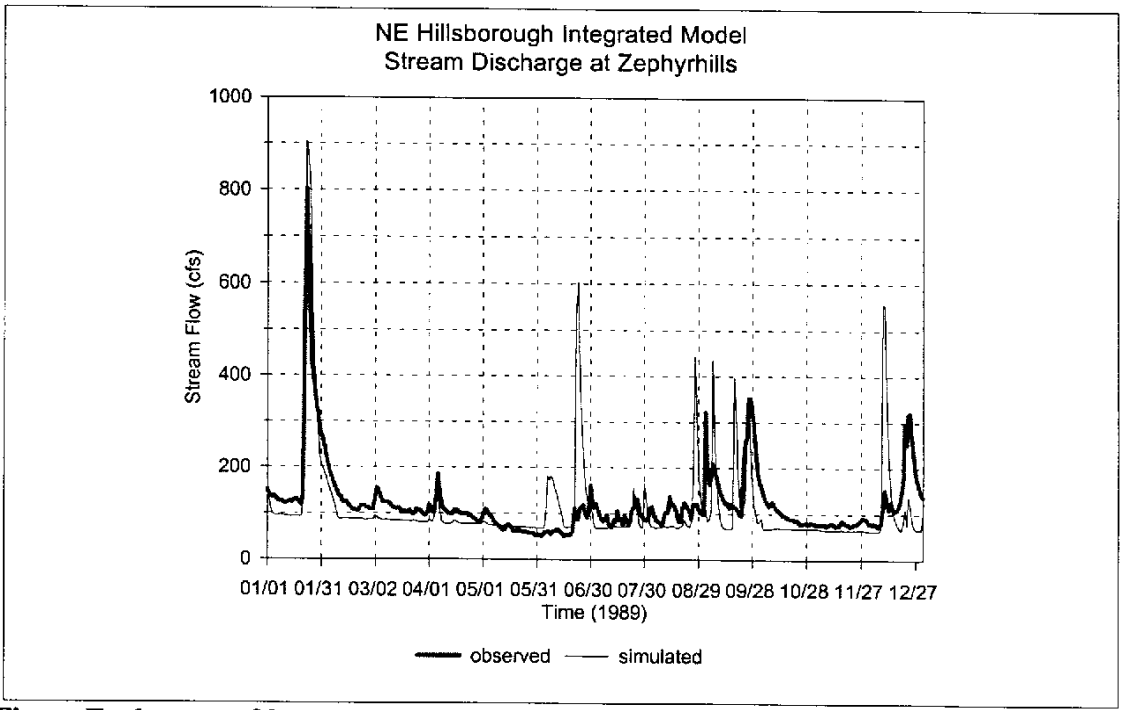

Figure E. 6 **Observed and Simulated Stream Discharge from the NE Hillsborough Integrated Model for Hillsborough River at Zephyrhills**

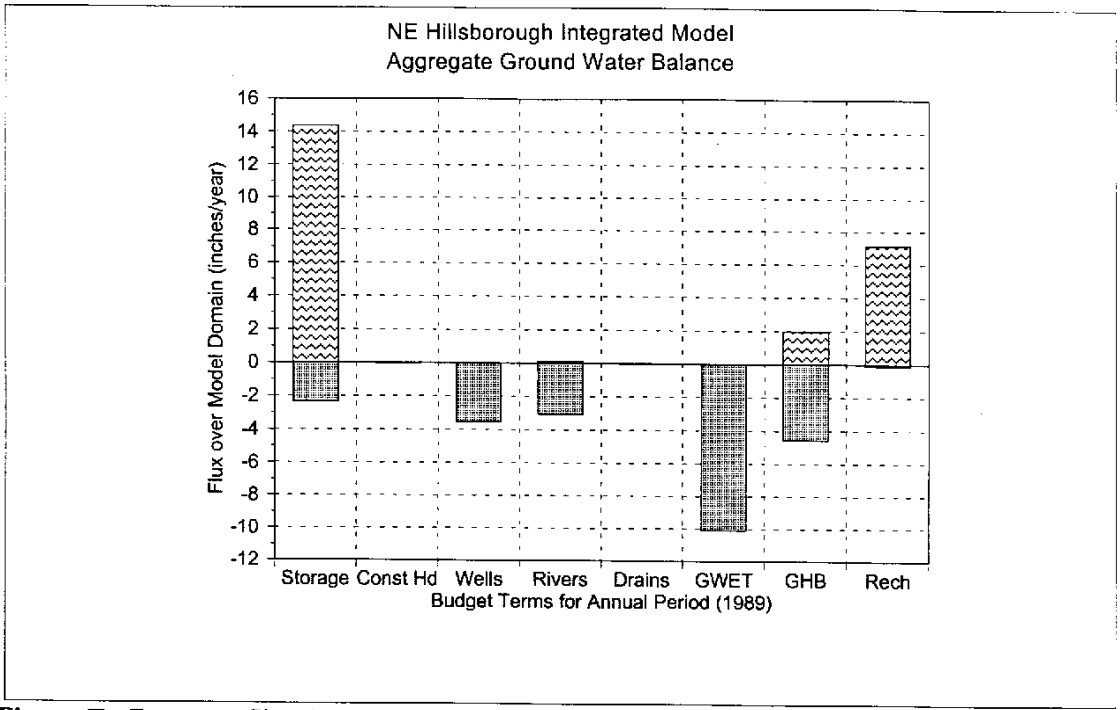

Figure E. 7 **Simulated Volume for Ground Water Terms from the NE Hillsborough Integrated Model, Volume is Distributed over Active Cells (432 sq. mi.)**

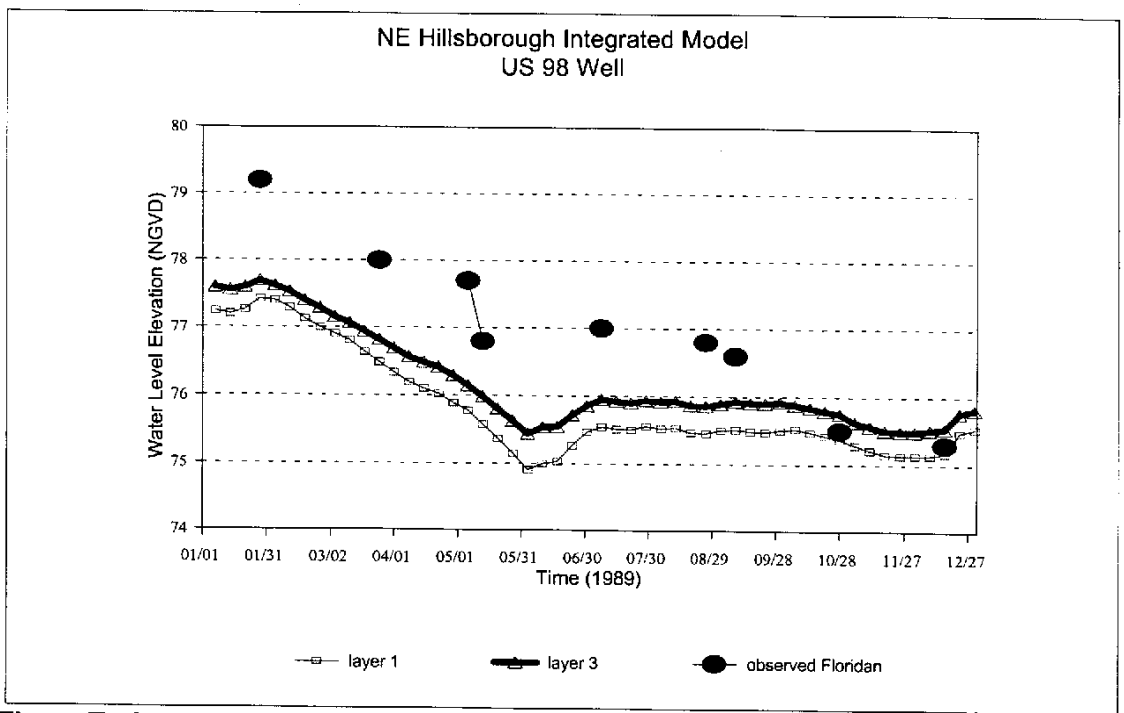

Figure E. 8 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well US 98**

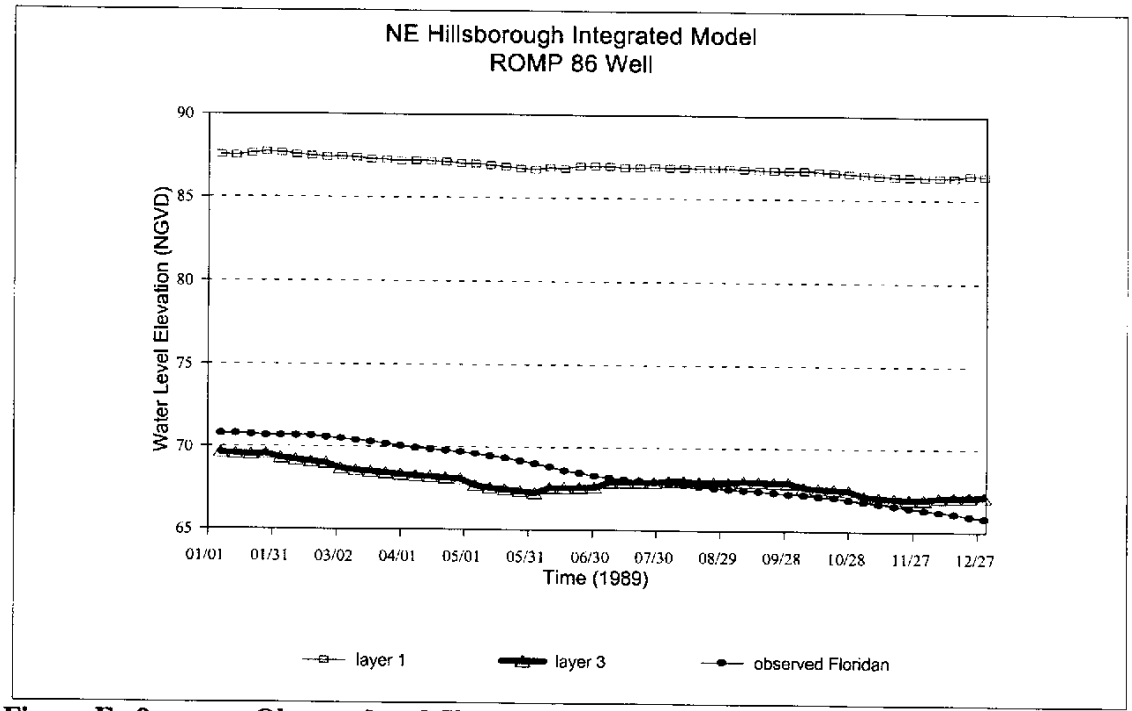

Figure E. 9 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well ROMP 86**

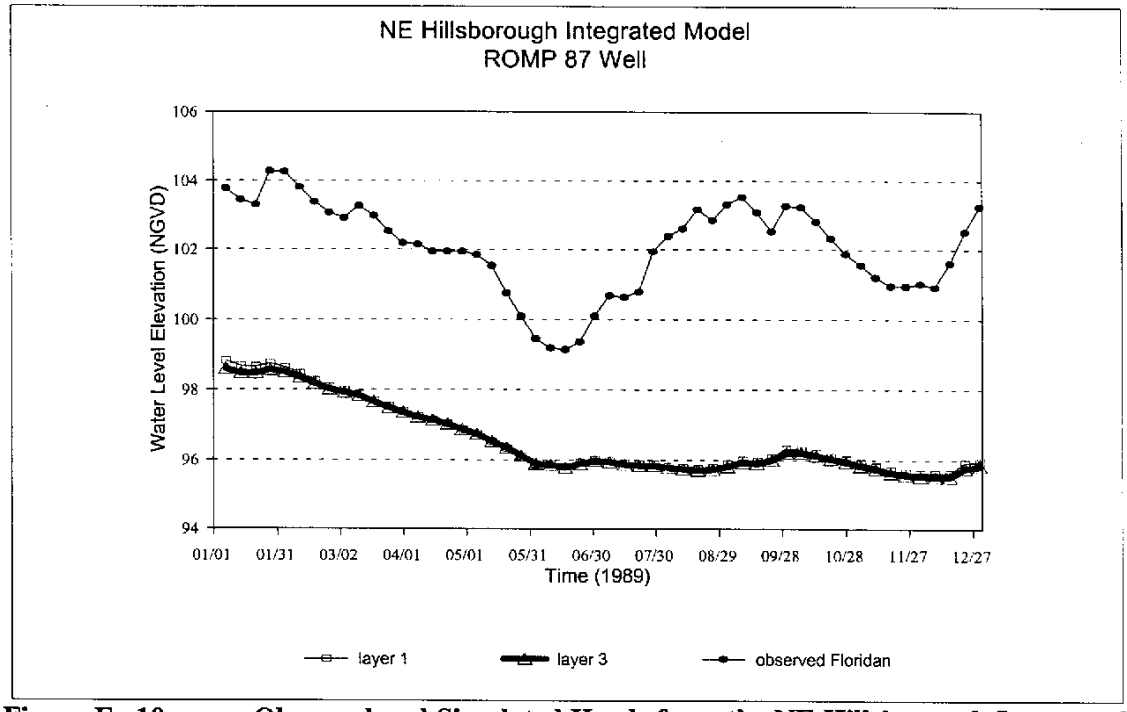

Figure E. 10 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well ROMP 87**

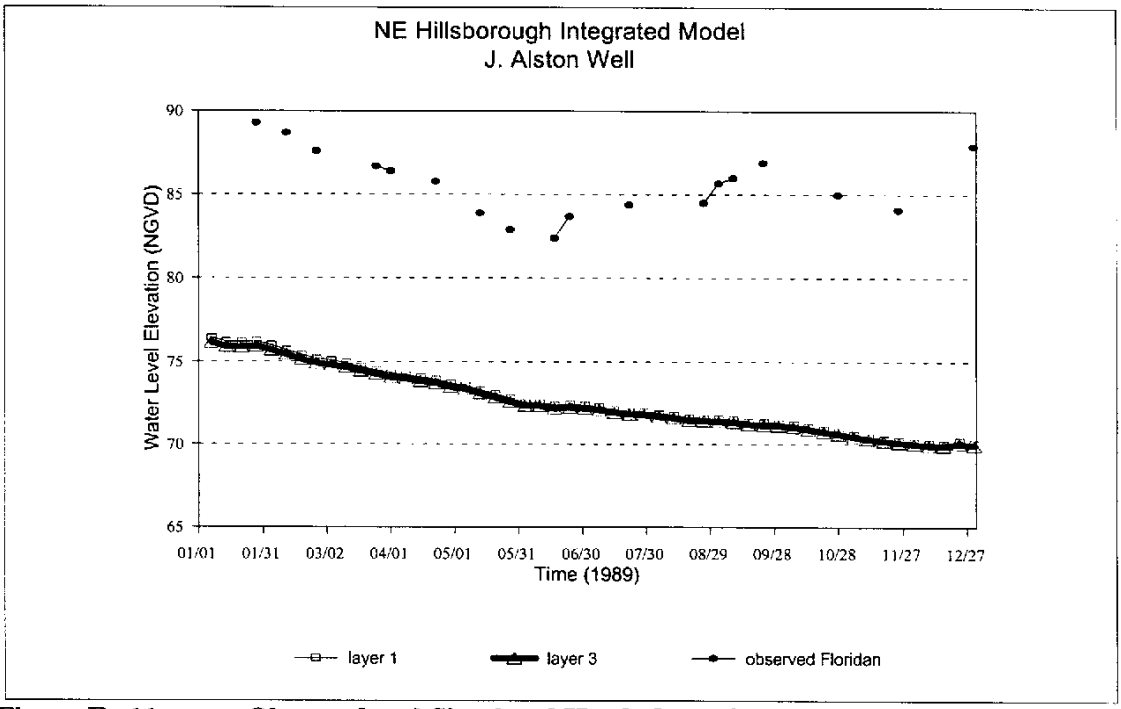

Figure E. 11 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well J. Alston**

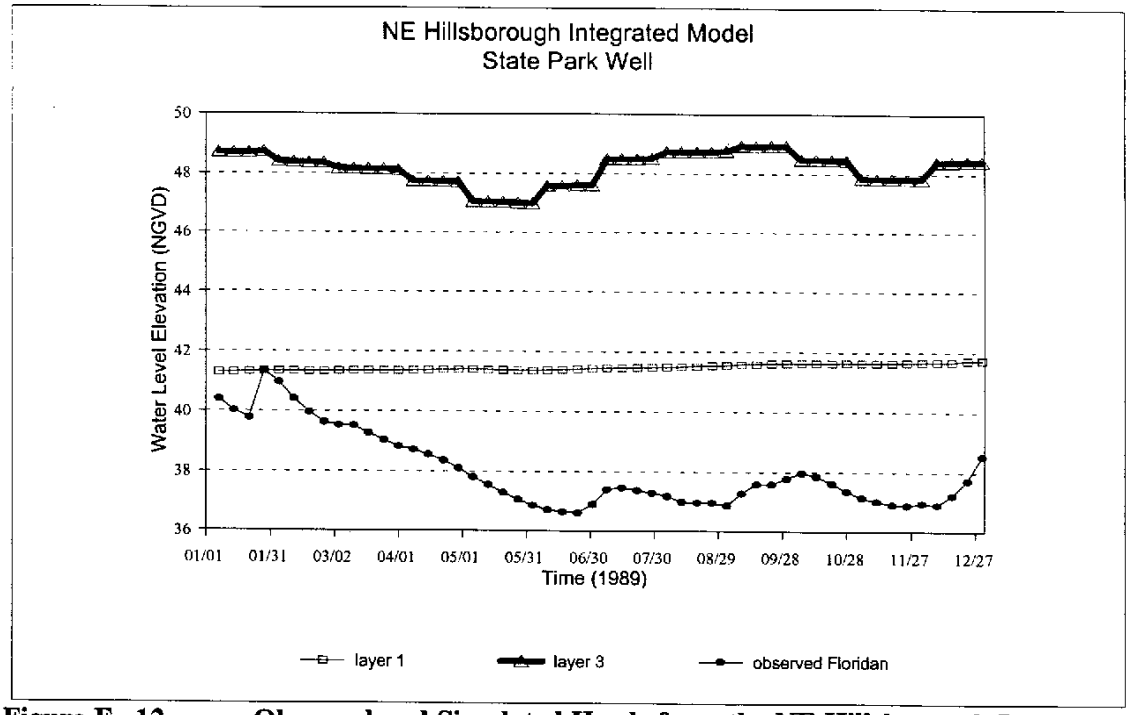

Figure E. 12 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well State Park**

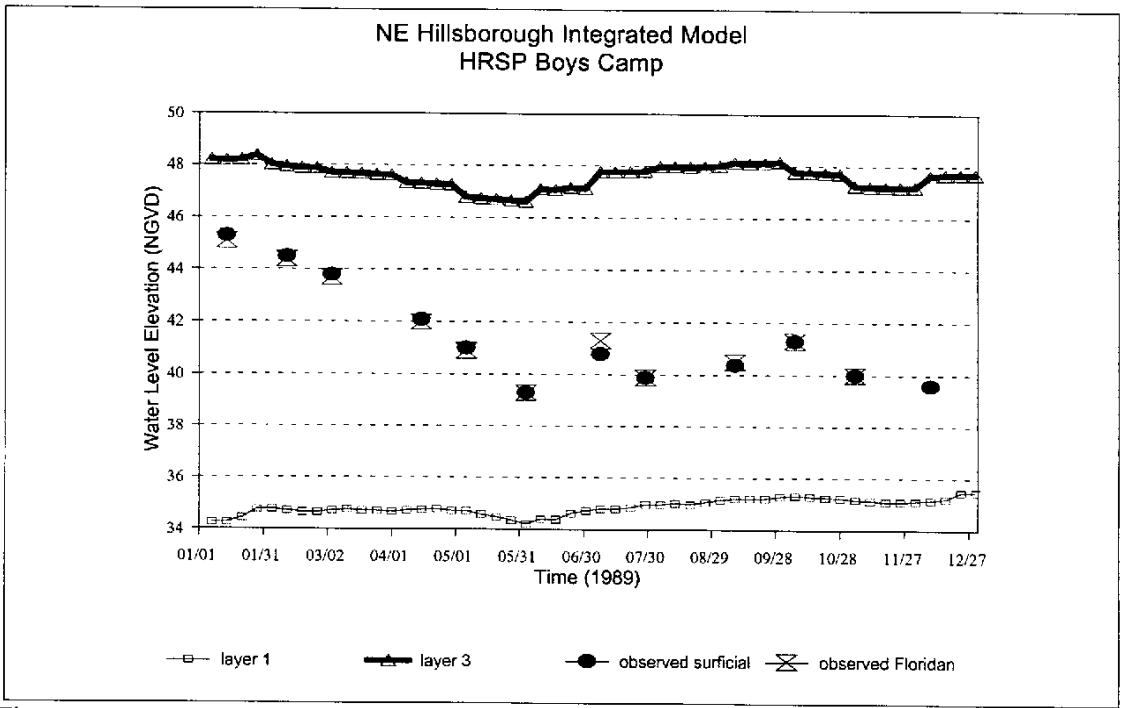

Figure E. 13 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well State Park Boys Camp**

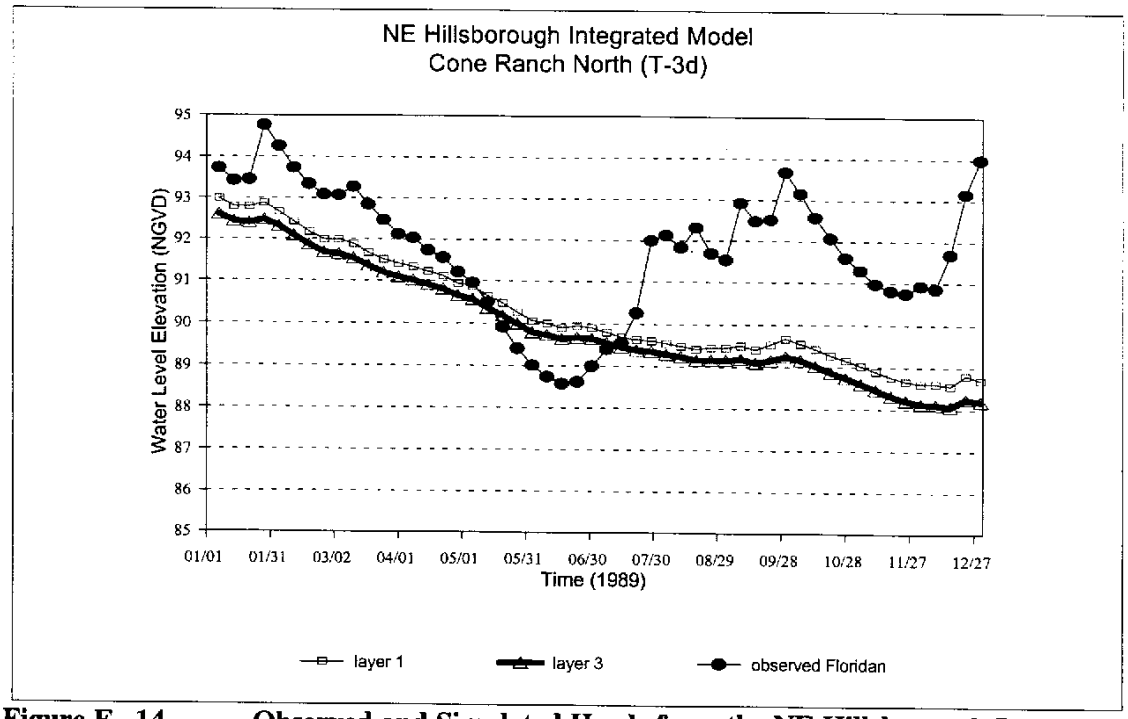

Figure E. 14 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well Cone Ranch North (T-3d)**

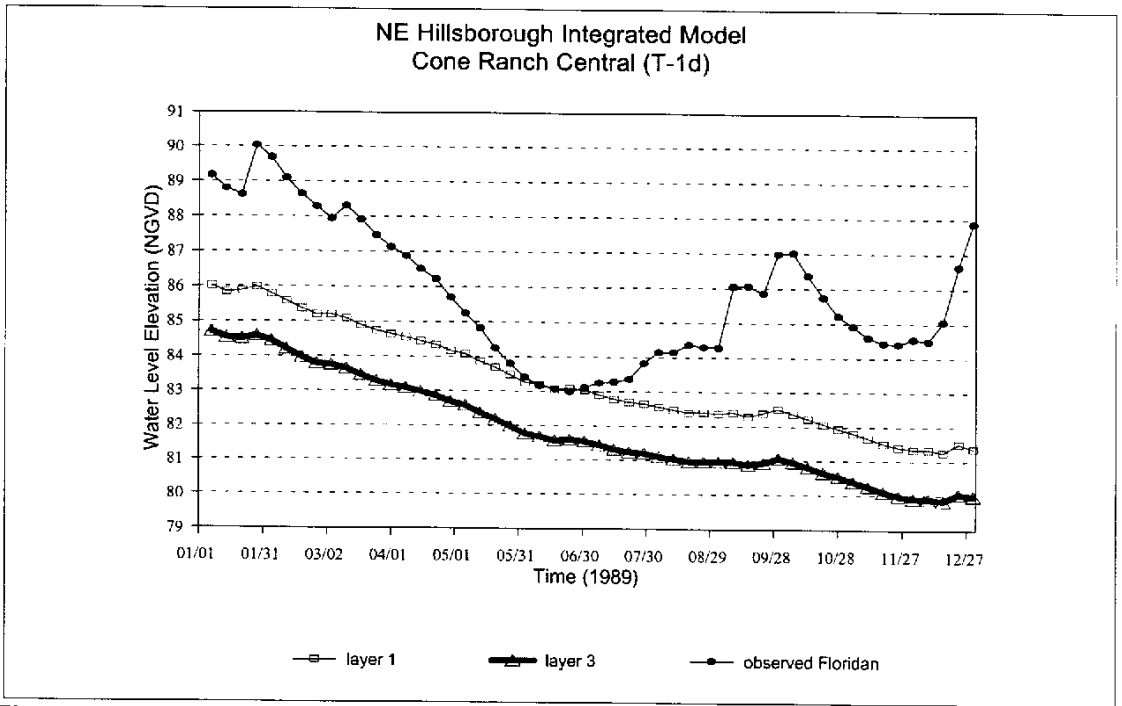

Figure E. 15 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well Cone Ranch Central (T-1d)**

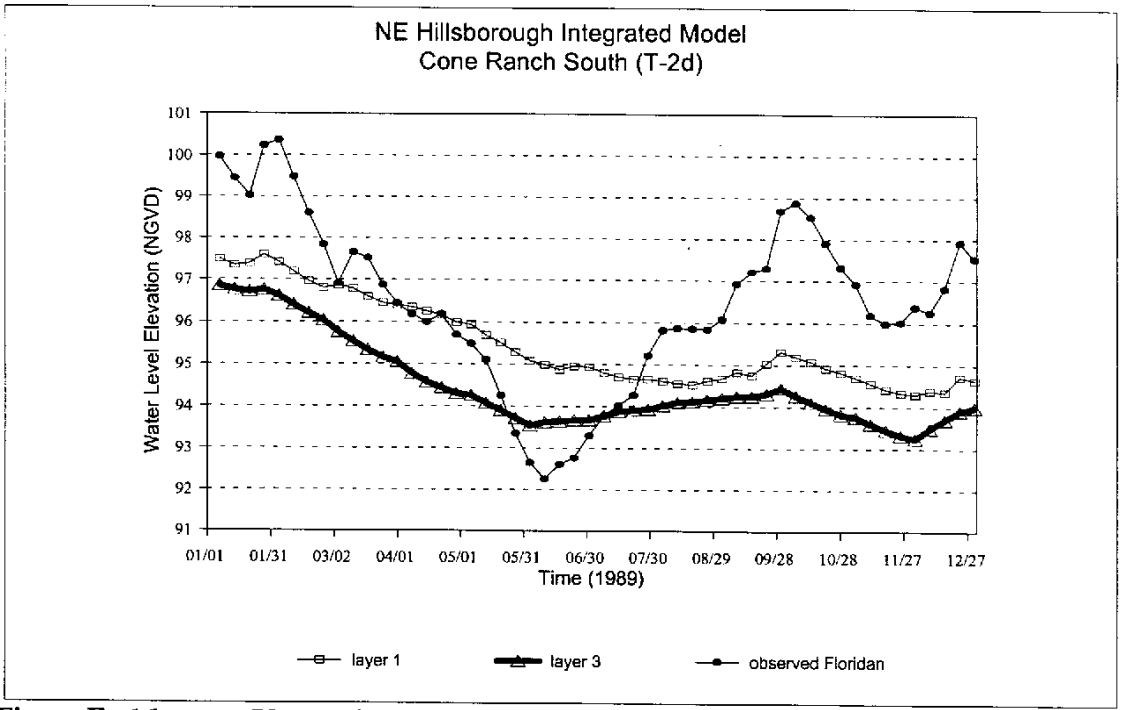

Figure E. 16 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well Cone Ranch South (T-2d)**

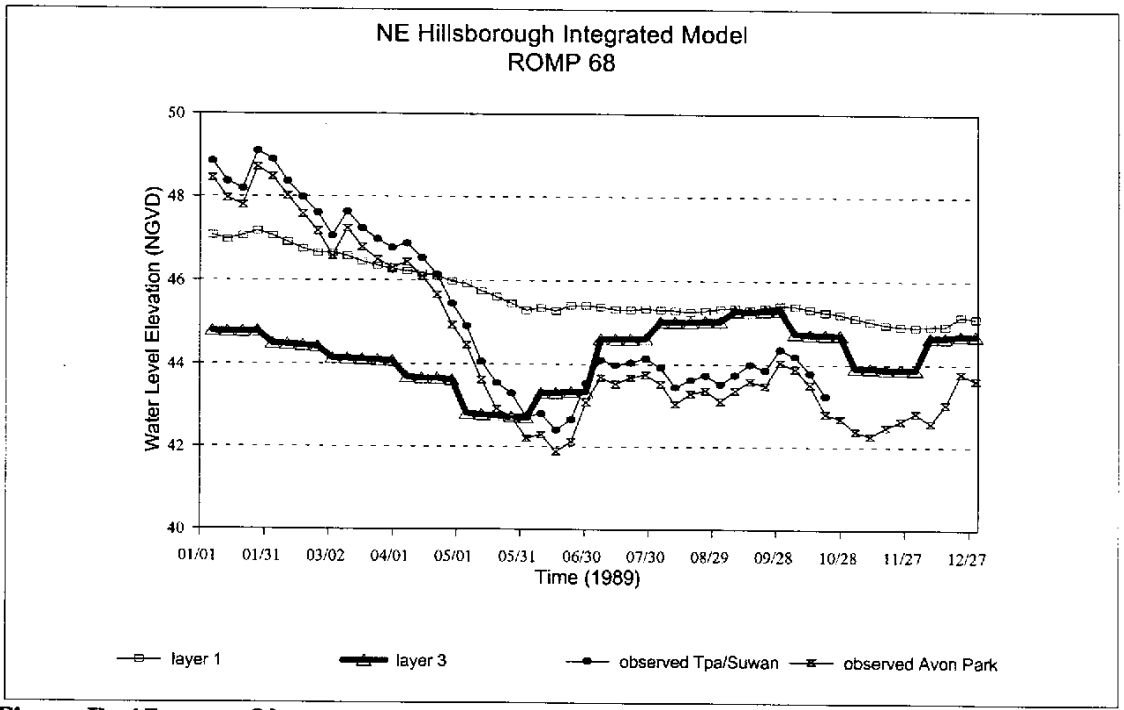

Figure E. 17 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well ROMP 68**

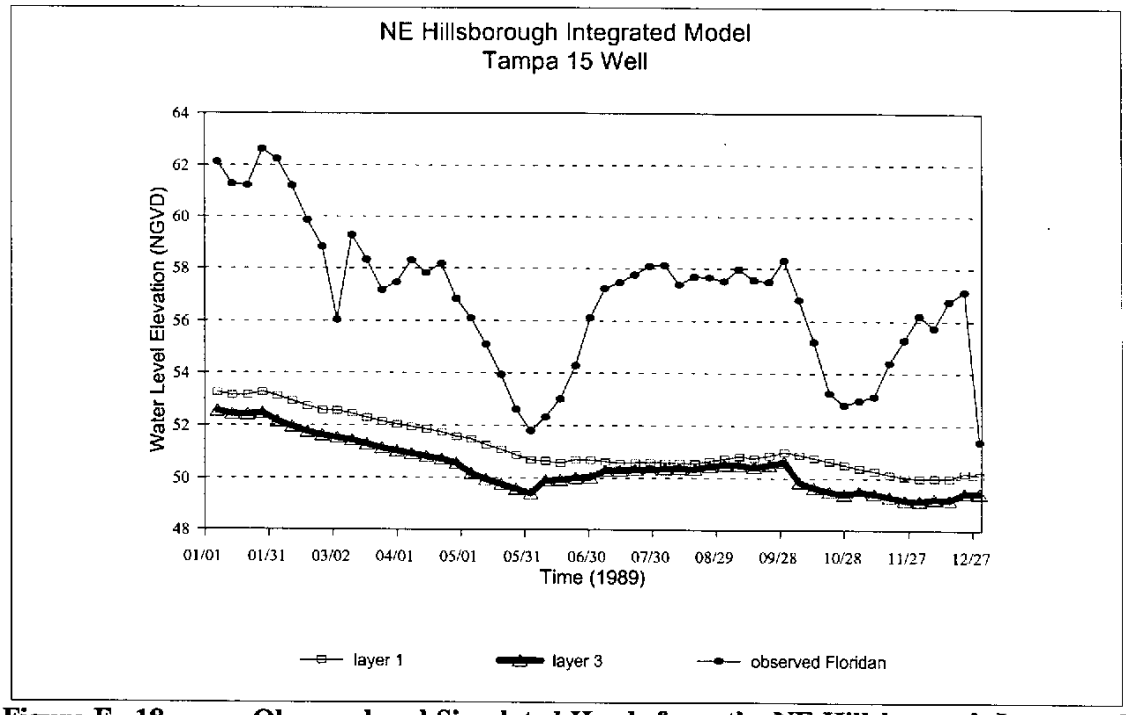

Figure E. 18 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well Tampa 15**

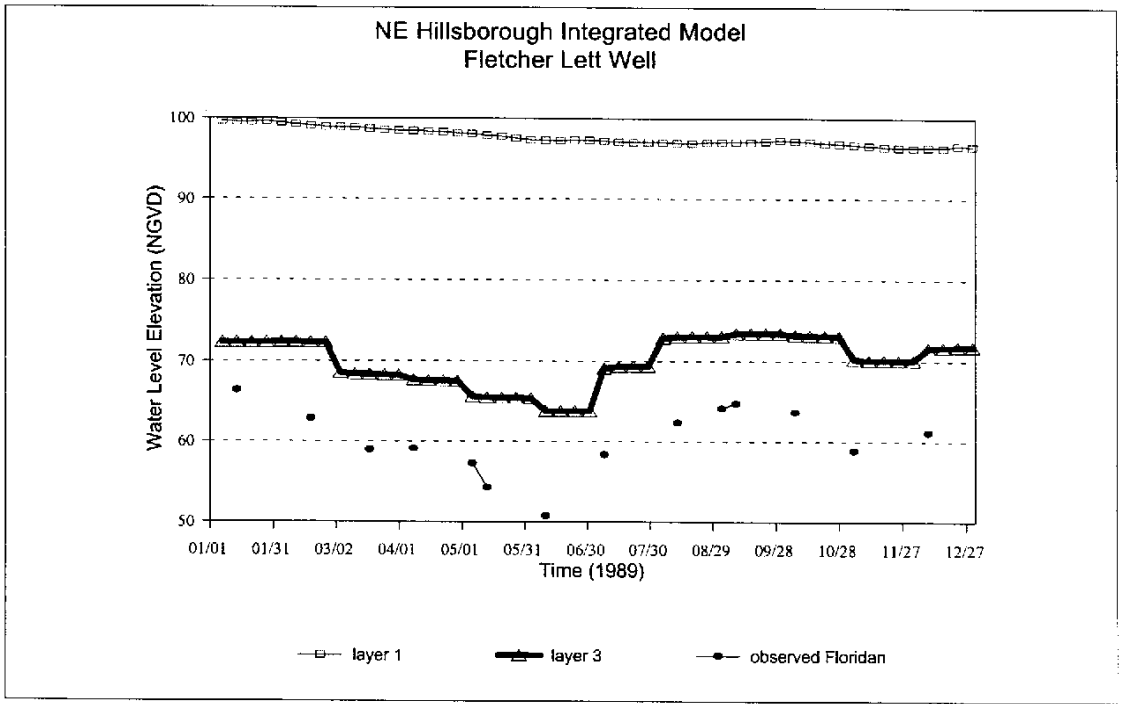

Figure E. 19 **Observed and Simulated Heads from the NE Hillsborough Integrated Model for Well Fletcher Lett**

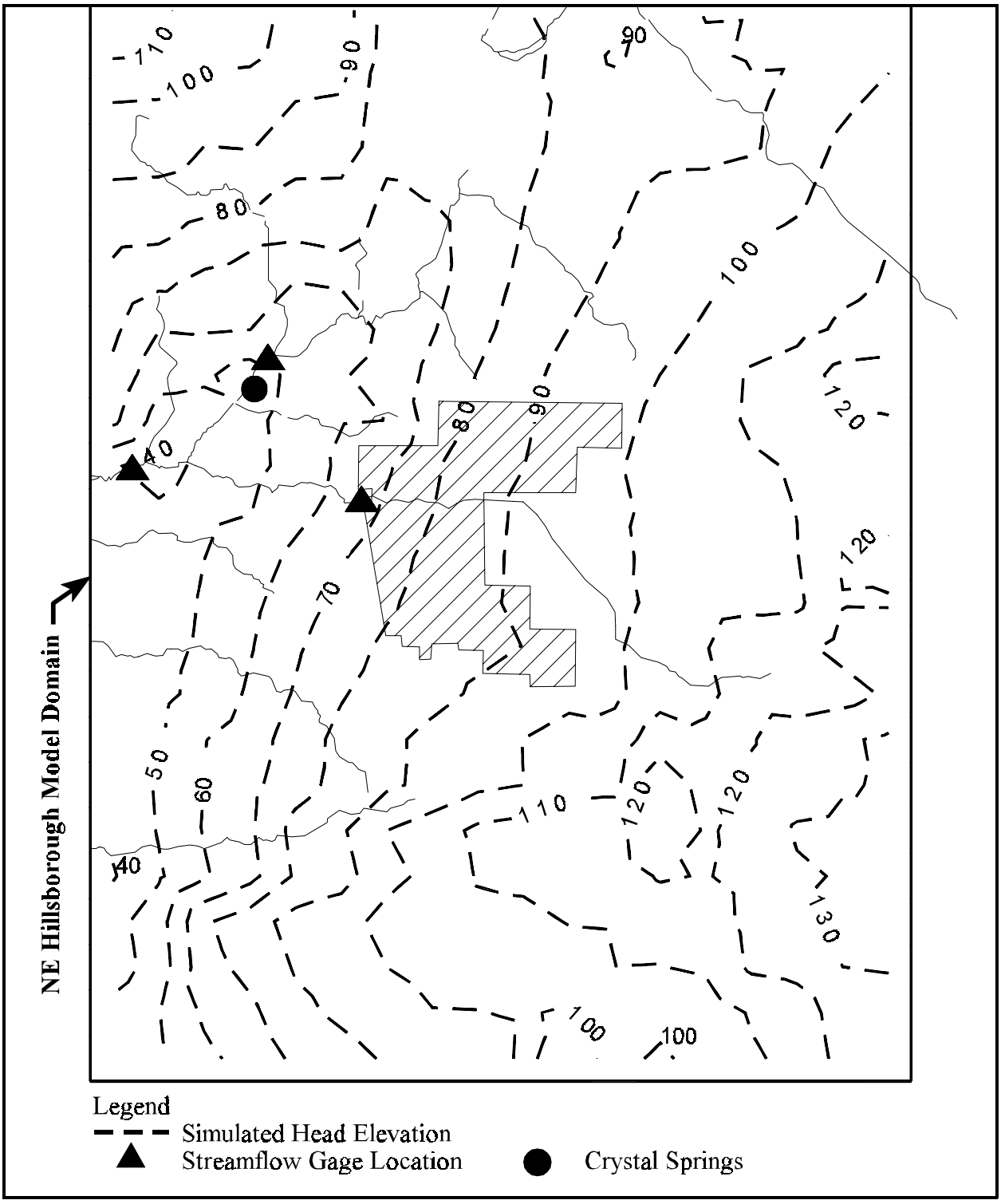

Figure E.20 Simulated Heads in the Surficial Aquifer (layer 1) from the NE Hillsborough Model for May, 1989 (week 24)

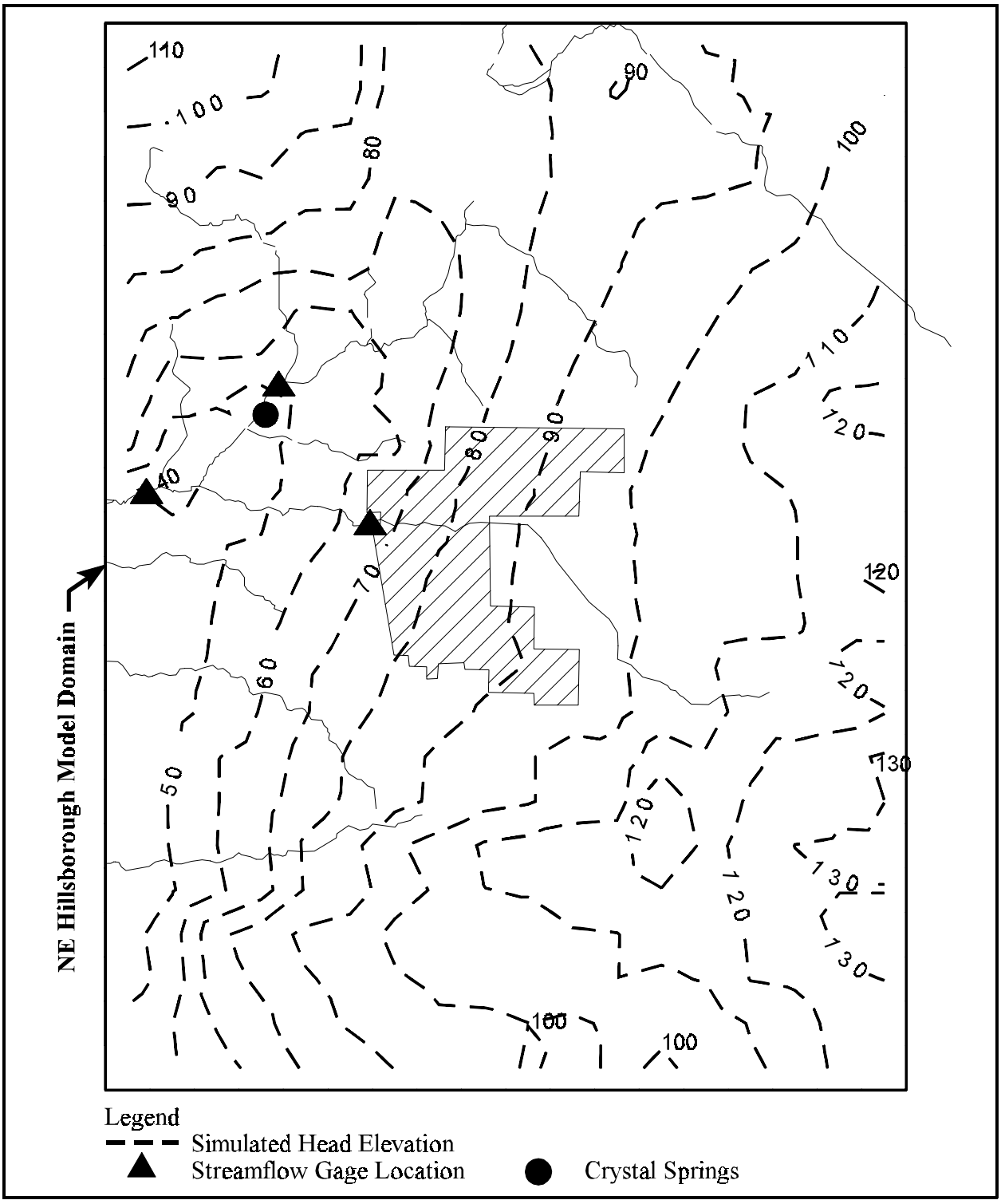

Figure E.21 Simulated Heads in the Surficial Aquifer (layer 1) from the NE Hillsborough Model for Sept., 1989 (week 42)

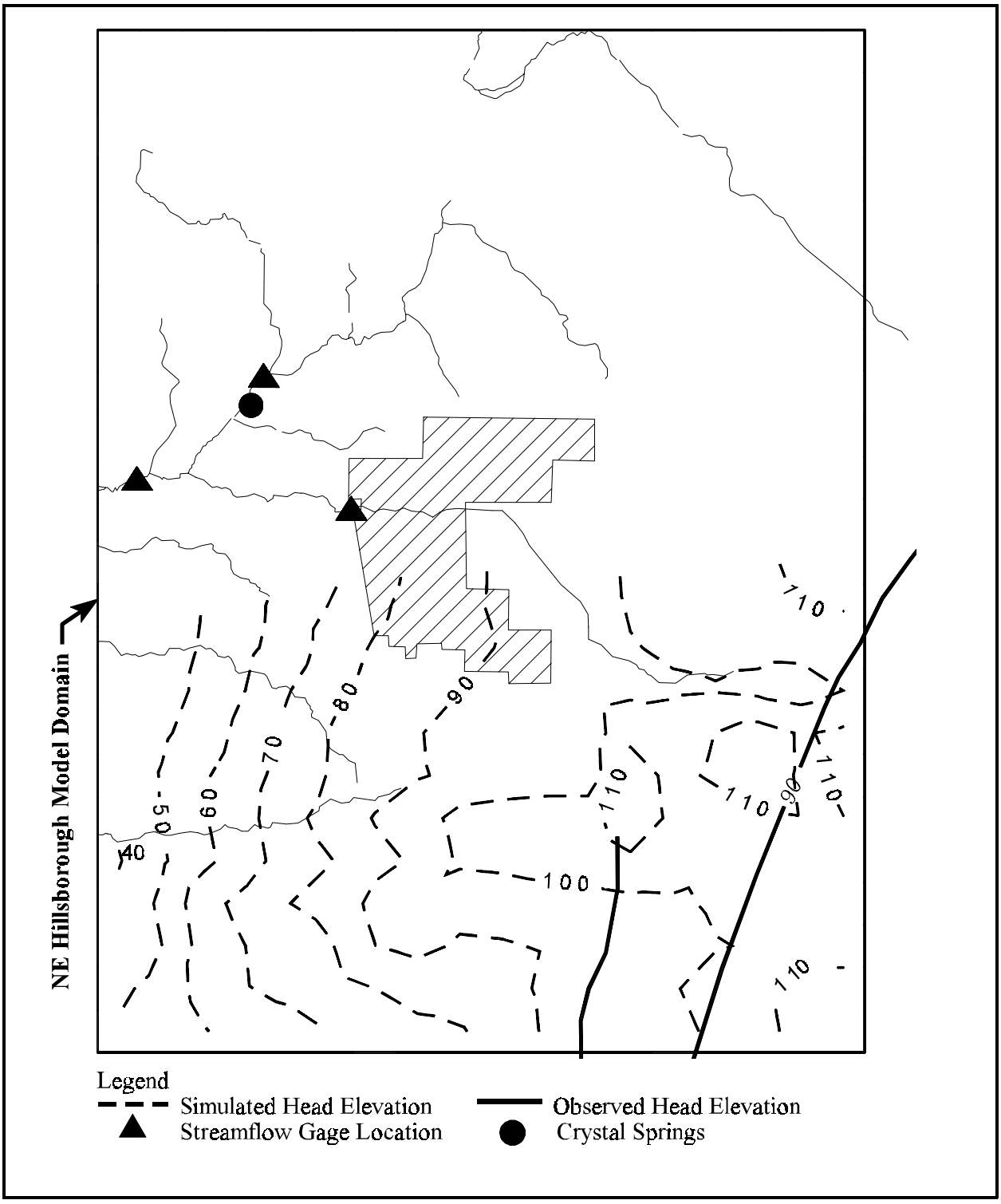

Figure E.22 Observed and Simulated Heads in the Intermediate Aquifer (layer 2) from the NE Hillsborough Model for May, 1989 (week 24)

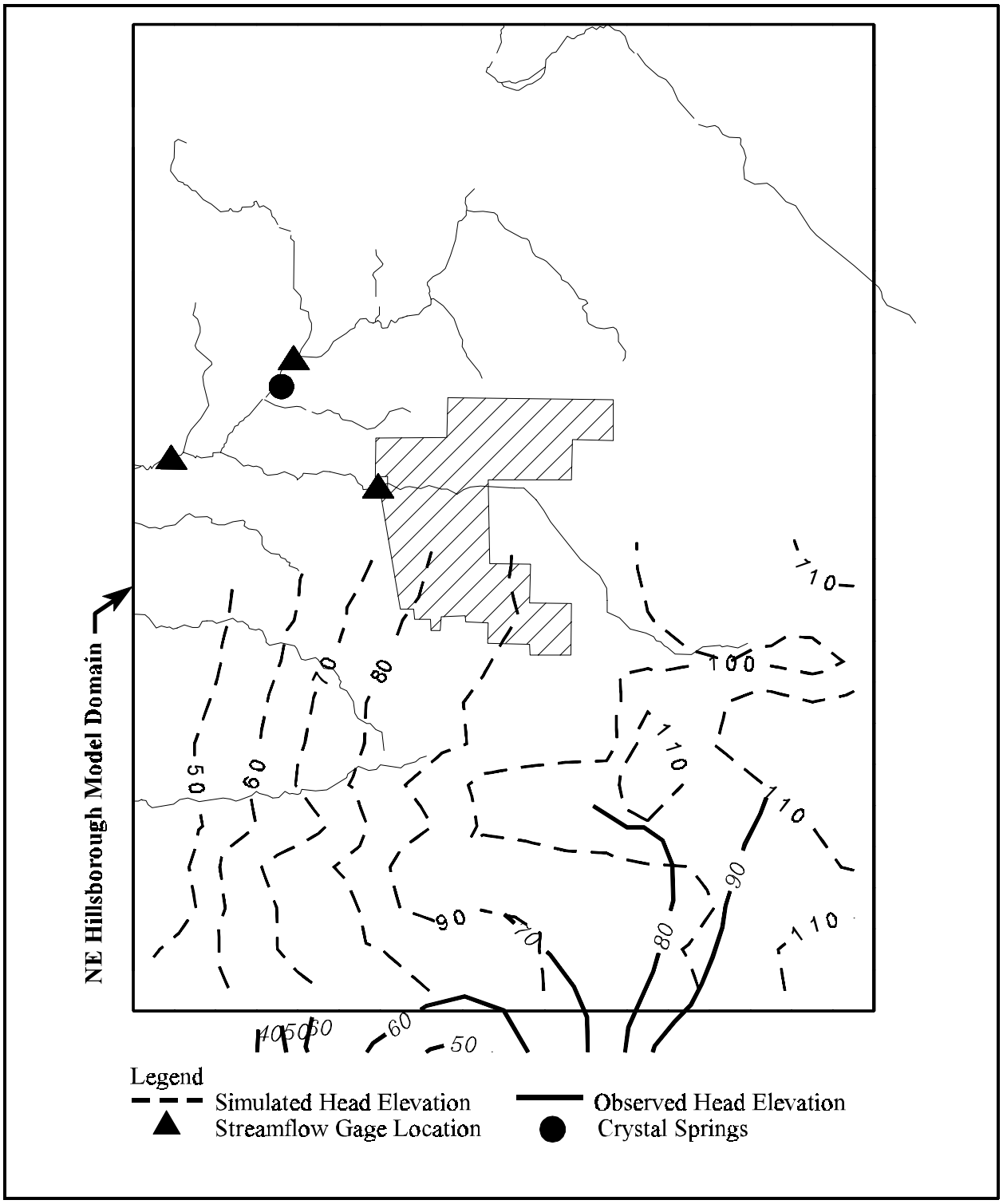

Figure E.23 Observed and Simulated Heads in the Intermediate Aquifer (layer 2) from the NE Hillsborough Model for Sept., 1989 (week 42)

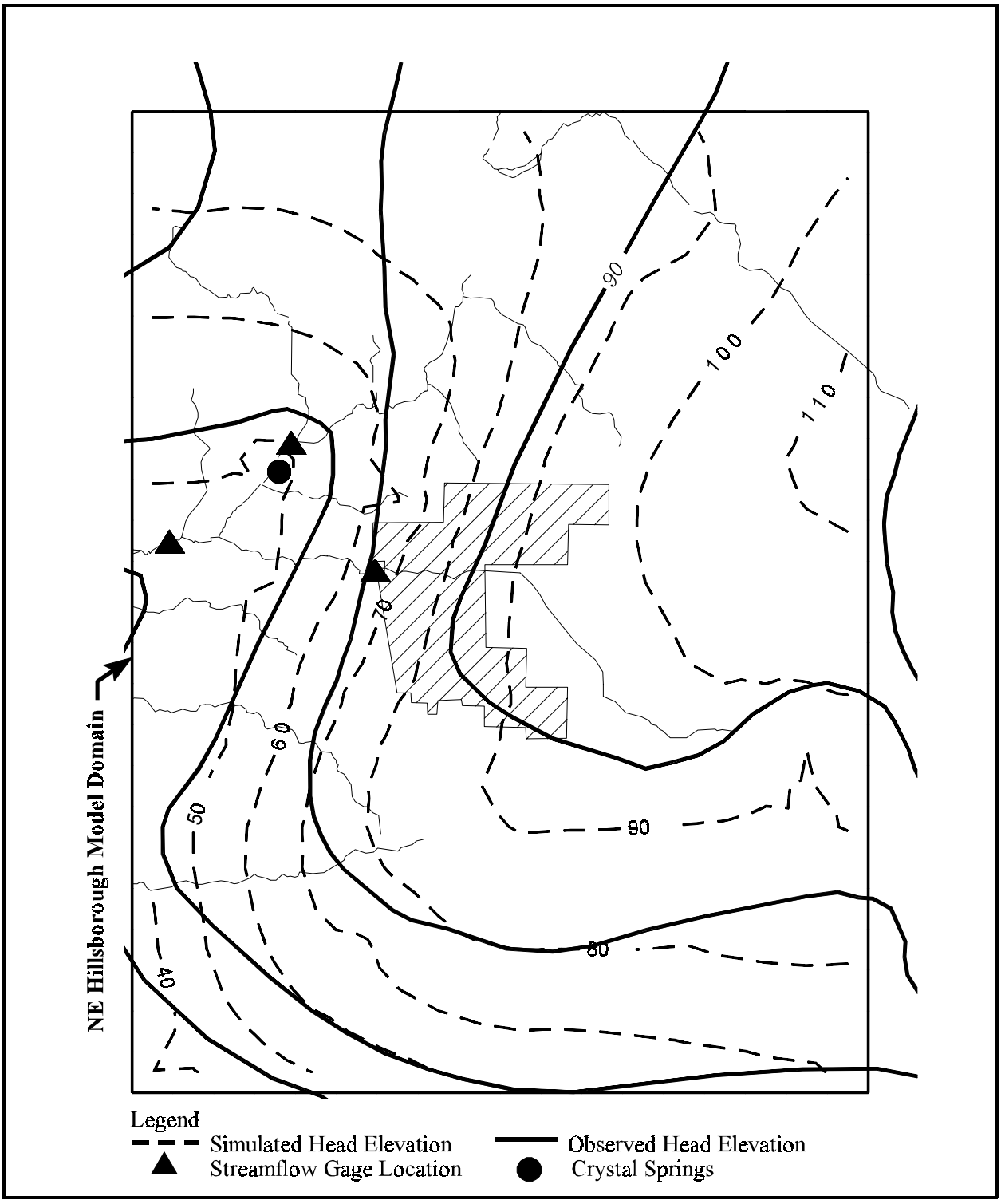

Figure E.24 Observed and Simulated Heads in the Floridan Aquifer (layer 3) from the NE Hillsborough Model for May, 1989 (week 24)

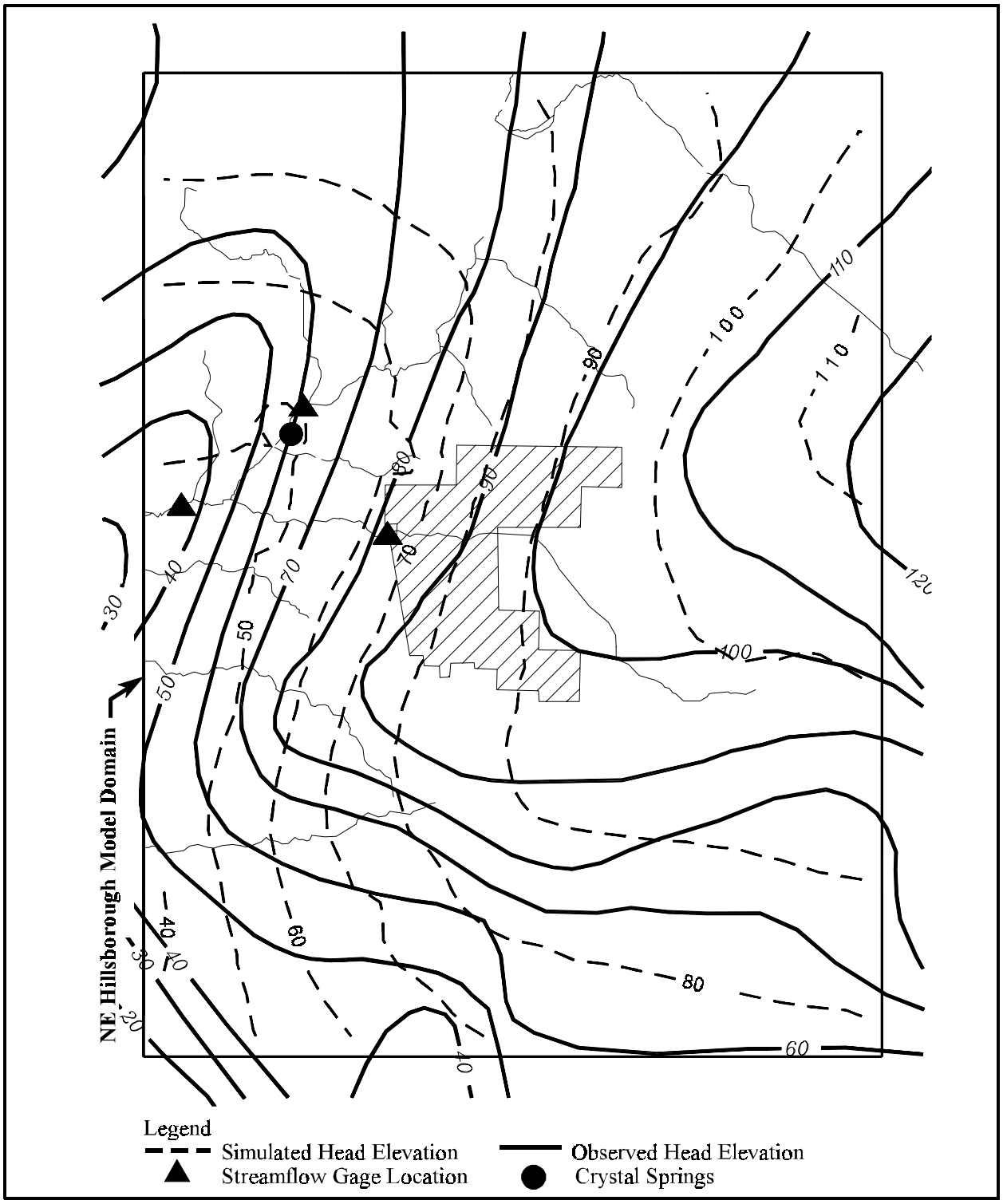

Figure E.25 Observed and Simulated Heads in the Floridan Aquifer (layer 3) from the NE Hillsborough Model for Sept., 1989 (week 42)