STORMWATER MANAGEMENT MASTER PLAN
WARRINGTON BASIN
ESCAMBIA COUNTY, FLORIDA

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HMM Project Number 201935

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1.0 INTRODUCTION

1.1 BACKGROUND

Escambia County (County) contracted with Hatch Mott MacDonald (HMM) to prepare a Stormwater Management Master Plan for unincorporated Escambia County. During Phase 1 of the effort, forty-one major drainage basins were identified. The Warrington Basin is one of these basins selected to be studied in more detail and have a Stormwater Management Master Plan developed for the basin.

The Warrington Basin is a 8254-acre (12.90 square mile) watershed located in the south western portion of Escambia County (see Figure 1-1). The majority of the basins drain to Bayou Chico which outfalls into Pensacola Bay. A large portion of the primary drainage components of the basins consists of natural tributaries that drain into Jones Swamp Creek and Jackson Creek. Jones Swamp Creek is located in the southwest portion of the drainage basin south of Highway 98 and outfalls into Bayou Chico east of Old Corry Field Road. Jackson Creek is located near the center of the drainage basin running north to south and turns to the east just north of Corry Field, which also outfalls into the upper portions of Bayou Chico north of Navy Boulevard known as Bell's Head Branch. The overall basin has been divided into 11 areas labeled A thru K. These areas are referred to as Branches and can be seen on the overall drainage map (Attachment A).

Branch A of the system, a 2,259-acre watershed, consists of the Jones Swamp channel that discharges into Bayou Chico. Areas within this watershed are comprised of the storm sewer on Corry Field, portions of Navy Boulevard, and Highway 98, all of which discharge to Jones Swamp. Branch B, a 748-acre watershed, located in the area between Highway 98 and Lillian Highway. This system is primarily comprised of several small storm sewer systems that discharge to Lake Charlene. Other portions of the watershed are comprised by overland flow through a system of culverts and ridges, which connect the sub-basin areas together. The pop-off for Lake Charlene is through a sluice gate to an open channel system where it discharges through a large pipe system to Jones Swamp Creek. Branch C, a 677-acre watershed, is comprised primarily of overland flow through a system of open ditches, swales, and culverts along Fairfield Drive and areas south of

Highway 98. This ditch system also discharges to Jones Swamp Creek. Branch D, a 362-acre watershed, extends from Old Corry Field Road to Fleet Road on Barrancas Avenue. This system also includes the Star Lake Subdivision, which is in the southern portion of the watershed. The northern portion of the watershed consists primarily of a storm sewer that runs along Barrancas Avenue and discharges to Star Lake. The southern portion of the watershed comprises primarily of overland flow connected by a system of low areas in natural ridges. The portion also discharges to Star Lake. Branch E, a 140-acre watershed, consists of the storm sewer on East Barrancas Avenue. This branch of the storm sewer is located between Fleet Road and the old Bayou Chico Bridge and discharges directly to Bayou Chico. Branch F, a 336-acre watershed, is located between Navy Blvd and Barrancas Avenue. This watershed is separated by Bayou Chico. Both portions of this system are comprised primarily of overland flow through a system of culverts, which connect the sub-basin areas together. This system discharges to Bayou Chico. Branch G, a 334-acre watershed, does not have an existing storm sewer system. This area extends from Old Corry Field Rd to 'W' Street. The sub-basin areas in this branch are connected by a system of low areas in natural ridges. Branch H, a 561-acre watershed, is located from Corry Field to its outfall at Bayou Chico. This system is comprised primarily of overland flow through a system open channels, which connect the sub-basin areas together. Branch I, a 564-acred watershed, is located on New Warrington Road and extends from Highway 98 to Mobile Highway. This watershed contains a storm sewer system on New Warrington Road and a portion of Mobile Highway. This system discharges to Jackson Creek. Branch J, a 113-acre watershed, is located west of New Warrington Road from State Street to West Gregory Street. The lower portion of this system is comprised of open ditches and the upper portion of this system is a storm sewer system that extends from State Street to West Jackson Street. This system discharges to Jackson Creek. Branch K, a 586-acre watershed, extends from Lillian Highway to Prieto Drive. This system is comprised primarily of overland flow through a system of open channels, which connect the sub-basin areas together. This system also discharges to Jackson Creek.

Land surface elevations in the basins range from highs of 95 feet NGVD in the northern end to lows of 0 feet NGVD at the outfall. The Soil Conservation Service (SCS) hydrologic soil groups within the basin are approximately 83 percent group A, 2 percent group B, and 15 percent group D. No group C soils are present in the basin. The predominate Group A soils, which have excellent

infiltration rates, give the overall basin good percolation capabilities. The Warrington Basin contains two stream flow gauges. Stream gauge 87 is located on Jones Swamp Creek at Navy Boulevard just south of Highway 98, and stream gauge 89 is located on Jackson Creek east of Old Corry Field Road and south of Danbury Circle. These gauges were operated by the Northwest Florida Water Management District (NWFWMD) until the early 1990's. Land use throughout the basin is broken down as follows: 16.6 percent public, 47.6 percent residential, 18.0 percent commercial, 4.0 percent industrial, and 13.8 percent agricultural. The basin is essentially considered completely built-out. The existing development density for the basin is 2.10 Equivalent Residential Units (ERU's) per acre, which is the fourth highest of the 41 basins in Escambia County. The basin is not classified as one of Escambia County's projected high growth basins. The population increase for the basin from the year 2000 to the year 2015 is projected to be 15.2 percent.

1.2 OBJECTIVES

The purpose of the Stormwater Management Master Plan for the Warrington Basin is to address flooding and stormwater quality problems within the basin and prevent future flooding and stormwater quality problems from occurring. The analysis of this plan is confined to the primary drainage system only. The primary drainage system consists of streams, open ditches, lakes, and ponds draining an area of 50 acres or more and closed conveyances of equivalent diameter 36 inches or more. In areas of known flooding problems, smaller conveyances were modeled. This study involved the development of a hydrologic and hydraulic model of the primary drainage system. The results from this model show the extent of flooding at critical points along the primary drainage system for the "as is" condition assuming the system is maintained. The model will also show the extent of flooding at critical points, if upgrades to the primary system are employed in order to achieve an acceptable degree of flooding. Furthermore, the model can be used to show the flooding impacts that new developments will have on downstream areas. With this model, the County can recommend priorities for drainage improvement projects, determine existing levels of service standards, and provide design guidance to area engineers regarding tailwater conditions of the primary system.

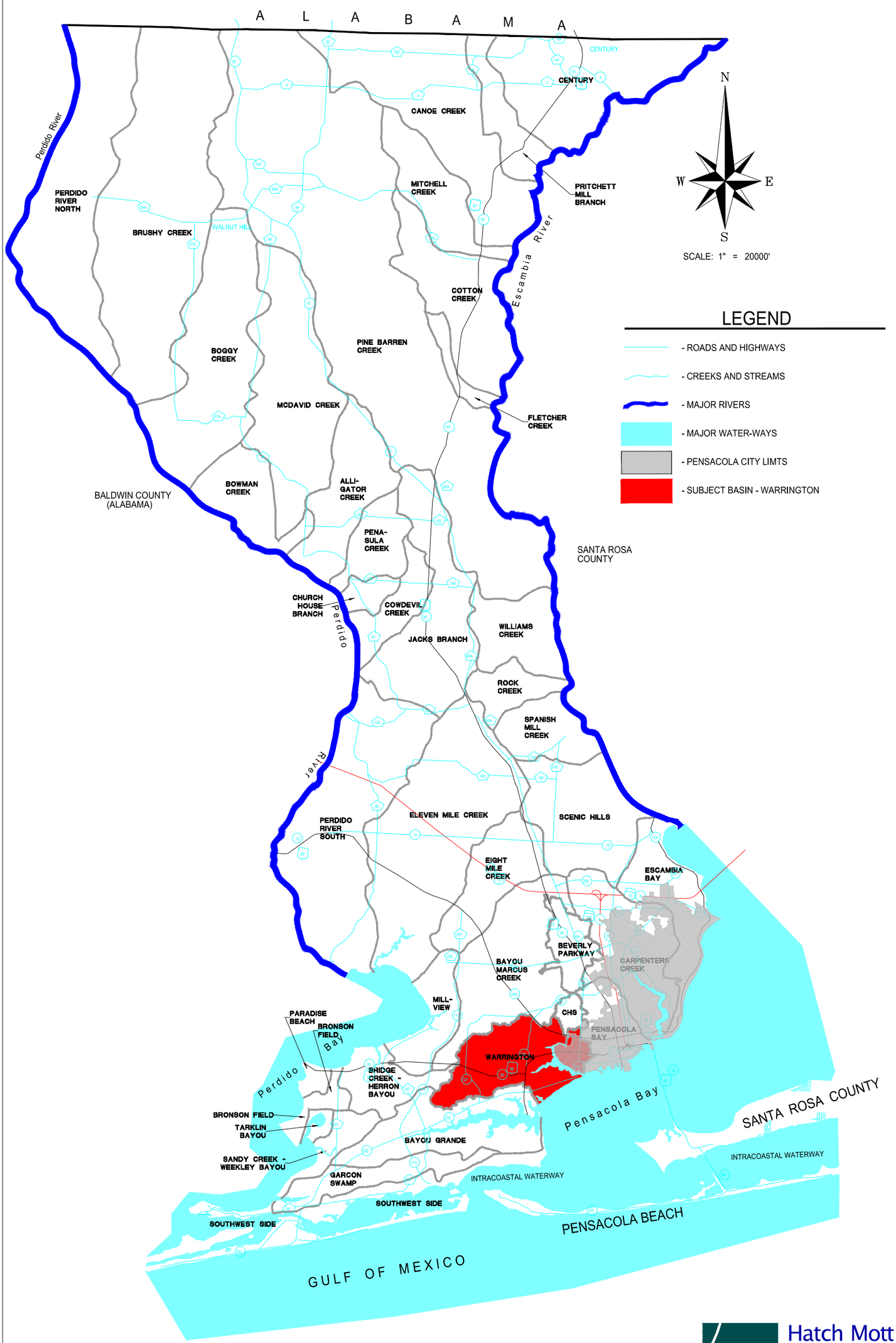

FIGURE 1 - 1
ESCAMBIA COUNTY DRAINAGE BASINS

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2.0 HYDROLOGIC / HYDRAULIC MODEL DEVELOPMENT

2.1 MODELING SOFTWARE

The Warrington drainage basin was modeled using the Advanced Interconnected Channel and Pond Routing (ADICPR) Model, Version 3.0 (Windows) marketed by Streamline Technologies, Inc. ADICPR is used to model hydrologic conditions to generate a runoff hydrograph from a drainage sub-basin and to hydrodynamically route stormwater flow through the stormwater conveyance system. As such, it combines the hydrologic and hydraulic modeling functions into one model.

ADICPR is a stormwater management analysis and design tool. There are routines to input and edit data, compare runoff hydrographs and flood route hydrographs through complex pond and conveyance systems. Time-variable tailwater conditions, flow reversals, and looped hydraulic networks are included in its solution algorithm. ADICPR is able to analyze an extensive array of hydraulic structures including culverts under all flow regimes. Results can be reviewed and analyzed with an extensive data base retrieval system. A variety of tabular and graphical reports can be easily generated for review by the user or for submittal to reviewing agencies.

2.2 DRAINAGE FACILITY INVENTORY, MAPPING AND DATA COLLECTION

Aerial and topographic information used for the model was provided by Escambia County's Geographic Information System (GIS) Division. The aerial photograph maps have topography with one-foot contour intervals, which provide a level of detail necessary to delineate the drainage patterns within the flat areas of the basin. These maps are provided as attachments in the back of this report.

Primary drainage facilities and sub-basin delineations are shown on the aerial maps and these maps represent the existing condition as of August 2005. Attachment A shows the Warrington Basin drainage map. HMM conducted extensive field research by driving and walking the basin, while recording drainage patterns, mapping drainage facilities, measuring facility dimensions, and inspecting the condition of the drainage facilities. An equally extensive amount of effort was expended in researching and collecting construction plans for roadways and developments

throughout the basin. The source of information for these plans was the County and FDOT. The construction plans allowed for explicit modeling of the roadways and developments and the retention/detention ponds that collect and control their discharge. All of this effort was required to develop the level of detail necessary to define the hydrologic and hydraulic conditions of the basin.

The development of the Warrington Basin model also required a tremendous amount of surveying effort. In order for the model to be a reasonably accurate representation of the actual hydrologic and hydraulic features of the basin, surveying information was required for drainage structures (pipes, culverts, storm sewers, and bridges), ponds (retention/detention ponds, natural ponds, and lakes), and channel cross-sections. Information obtained for drainage structures included type and shape of structure, upstream and downstream invert elevations, length of structure, and roadway profile elevations above the structure. Pond information included water surface elevation, surface area, berm profile elevations, size, type, and invert elevations of any control structures. Open channels and ditches located in the basin required cross-section data, length of the channel or ditch, and upstream and downstream invert elevations. Table 2-1 at the end of this chapter summarizes the existing drainage system.

2.3 HYDROLOGIC DATA

Hydrologic modeling with the ADICPR model was performed utilizing the Soil Conservation Service (SCS) Unit Hydrograph method as a means of computing stormwater runoff rates into the conveyance system. The SCS Unit Hydrograph method requires the following information:

(1) A non-dimensional unit hydrograph with associated peaking factor.
(2) Drainage area.
(3) Percentage of directly connected impervious areas.
(4) Runoff curve numbers for all areas, which are not considered to be directly, connected impervious areas.
(5) Times-of-concentration.

Whenever the SCS Unit Hydrograph method is selected, a non-dimensional unit hydrograph must be specified. The unit hydrograph and peaking factor directly affect the peak runoff rate. The proper selection of a unit hydrograph depends on the geographical area and local conditions. Flat

areas have lower peaking factors and steep areas have higher peaking factors. ADICPR has three standard curvilinear unit hydrograph files with corresponding peaking factors of 256, 323, and 484. ADICPR also allows the unit hydrograph and peaking factors to vary between sub-basins. For the Warrington Basin, a peaking factor of 256 was used for sub-basins with an average overland slope of less than 0.5 percent, a peaking factor of 323 was used for sub-basins with an average overland slope between 0.5 and 1.5 percent, and a peaking factor of 484 was used for sub-basins with an average overland slope greater than 1.5 percent.

To develop the Warrington Basin model, the basin was divided into 326 separate sub-basins, which are shown on the drainage map (Attachment A). These sub-basins were delineated from the County's aerial photograph maps with one-foot contour interval topography and by field reconnaissance of the basin.

Directly connected impervious area (DCIA) is defined as impervious area that is connected directly to the sub-basin outlet point (i.e. node) without flowing over any pervious surfaces. In the Warrington Basin, all curb and gutter roadways that convey runoff directly to inlets were included as DCIA.

A spreadsheet using the SCS Technical Release 55 (TR-55) procedures was used to calculate the runoff curve numbers (CN) and the time-of-concentrations (TC) for each individual drainage sub-basin. A copy of this spreadsheet is included in Appendix A. The runoff curve number (CN) is a function of a number of factors including hydrologic soil group, cover type, land use, treatment, hydrologic condition, and antecedent moisture condition. Each of the sub-basins was divided into land uses and then the land uses were further divided into soil types. From this area-weighting procedure, a composite CN number was then calculated. This method is detailed in the SCS TR-55 Manual, Urban Hydrology for Small Watersheds. Table 2-2 shows the land uses each of the Warrington basins were divided into. It also shows the CN numbers used to compute the composite CN numbers for each basin.

The sub-basin time-of-concentration (TC) represents the amount of time it takes for a particle of water to travel from the hydrologically most distant point in the drainage sub-basin to its outlet (node). The spreadsheet (Appendix A) based on the TR-55 method was used to calculate the TC's

for each of the Warrington model sub-basins. In this method, the TC is computed by summing all the travel times for consecutive components of the drainage conveyance system. Flow times are computed for sheet flow, shallow concentrated flow, open channel flow, and pipe flow as a function of slope and the type of flow path.

The hydrologic data input to the ADICPR model for the Warrington Basin is summarized in Table 2-3. Sub-basins range in size from 1.1 acres to 127.2 acres with an average of approximately 20.4 acres. Runoff curve numbers range from 56 to 98 and time-of-concentrations vary from 3 minutes to 336 minutes.

2.4 HYDRAULIC DATA

ADICPR hydrodynamically simulates unsteady flow in a drainage system that consists of open channels, ponds, culverts, and a variety of control structures. The model takes sub-basin runoff hydrographs and routes them through a series of reaches. The model can also accommodate time-varying boundary conditions. ADICPR works on a node-reach concept. This is a simple concept, which involves identifying locations in the drainage system where water surface elevations are to be calculated. Each of these locations is considered a node. Nodes are connected together with conveyance elements (channels, culverts, weirs, etc.) called reaches. Discharge rates are computed for each reach. The entire system of nodes and reaches forms the nodal network and serves as the computational framework for ADICPR.

The ADICPR model for the Warrington Basin was developed with the intention of explicitly modeling the primary system. After studying the system closer, it was determined that some portions of the secondary system would have to be modeled in order to more accurately distribute the runoff hydrographs into the primary system and define low lying flood prone areas. Figure 2-1 at the end of this chapter is a model schematic of the drainage network for the existing conditions. A more detailed schematic of the drainage network is shown on the drainage map (Attachment A). Each of the 326 sub-basins was assigned a discharge location (node) and flows were routed through the drainage network from that point on. As shown in the model schematic, the ADICPR model of the Warrington Basin consists of 393 nodes connected by 437 reaches.

Physical dimensions and elevations of the drainage system were obtained from field surveys, aerial photographs with contours, and construction plans as discussed earlier. Roughness coefficient (Manning's n) values of 0.012 and 0.024 are used for reinforced concrete pipe (RCP) and corrugated metal pipe (CMP) culverts, respectively. Channel roughness coefficients range from 0.050 to 0.060 for defined channels and from 0.080 to 0.100 for out of bank flood plains. Weir coefficients of 2.8 are used for both natural berms and roadway over-toppings. Culvert entrance loss coefficients range from 0.2 for pipes projecting into inlets to 0.7 for mitered end sections. Table 2-4 summarizes the ADICPR model network for the existing drainage facilities.

Also included in the model are retention/detention ponds, which serve in one capacity or another as storage reservoirs for surface water runoff. Some of these ponds have a very large storage capacity, and they serve to greatly attenuate peak flows within the basin. ADICPR simulates these ponds as nodes with elevation-area relationships defining the storage volume. Rating curves are used to give these ponds percolation rates. Percolation rates were taken from the Escambia County Soils Survey published by the United States Department of Agriculture, Soil Conservation Service based on the particular types of soils present. If a range of rates are listed, the most conservative value was used.

2.5 TAILWATER CONDITIONS

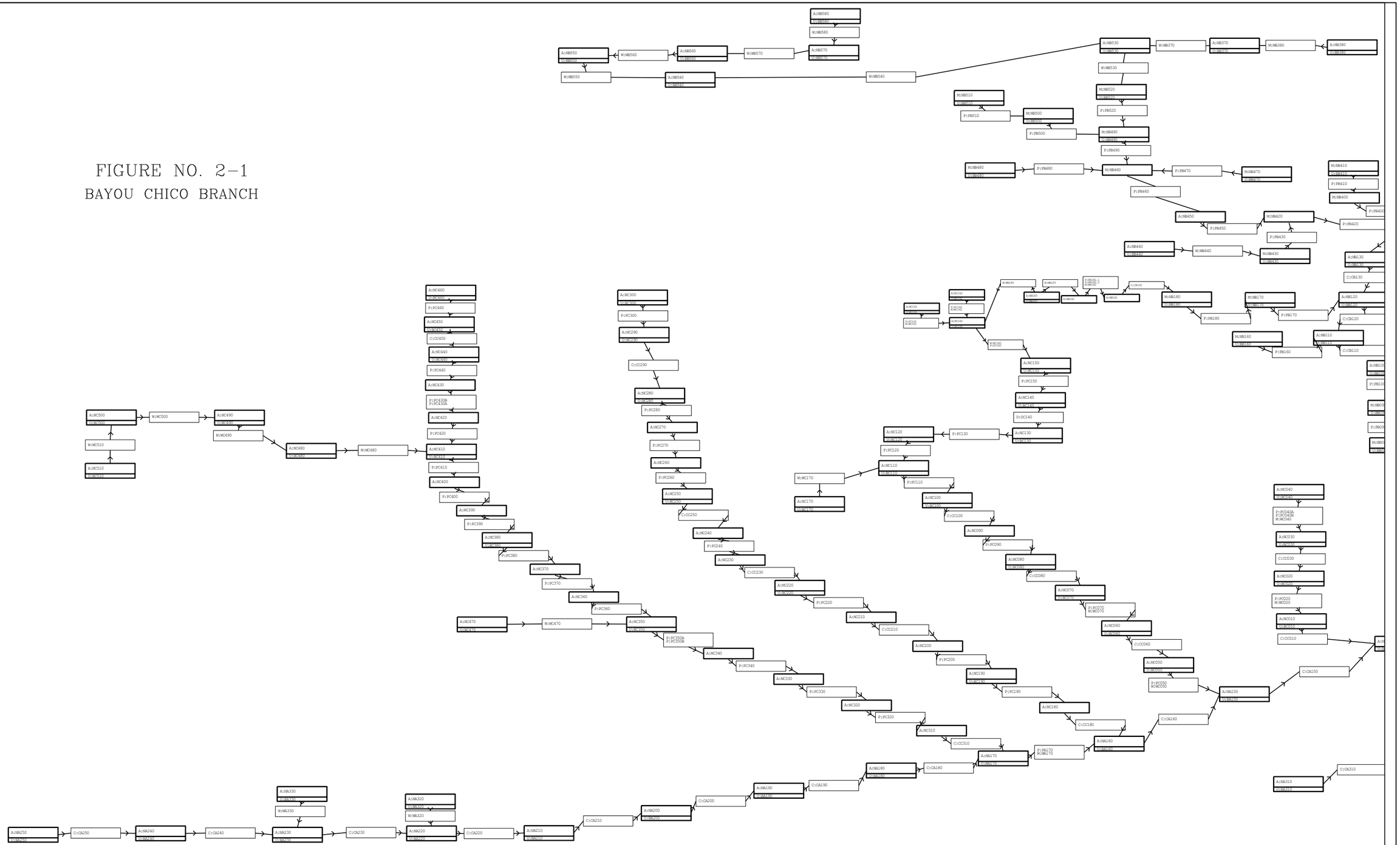
There are four discrete watersheds that make up the Warrington Basin, two of which outfall to the same water body. These two watersheds discharge to Bayou Chico, but in two different locations, Upper Bayou Chico, known as Bell's Head Branch, (Jackson Creek) and the central area of Bayou Chico (Jones Swamp Creek). Both of these systems discharge through an open ditch system that runs through Jones Swamp and Jackson Creek. The third discrete watershed discharges directly into Pensacola Bay and the fourth to Star Lake. These tailwater conditions are tidally influenced and the discharges are submerged. Since the tailwater fluctuates with the elevations of Bayou Chico, Pensacola Bay, and Star Lake, this will have some effects on the immediate upstream stages of the system. An initial stage of 0.00 was used for all three water bodies. It should be noted that there is a potential for storm surges from tropical storms and hurricanes to produce higher initial tailwater conditions at the beginning of a storm resulting in higher flood stages in all areas upstream of the outfall.

2.6 MODEL CALIBRATION

In order to validate the model, historical flood stage records and stream flow data must be used to determine which model parameters can be reasonably adjusted so that the model results are in reasonable agreement with measured flow and stage data. The Warrington Drainage Basin contains two stream gages. The stream gages are located on Jones Swamp Creek (S-87) just downstream of Navy Boulevard and on Jackson Creek (S-89) east of Old Corry Field Road. These gauges were operated by NWFWMD until the 1990's. No data exist after this period. Stream flow data from the gages were used for comparison of model hydrologic features such as hydrograph volumes, timing, shapes, and peak flows. Flood stage data from the gages was used for comparison of hydrologic features such as stream flow responses to storm hydrographs and hydraulic parameters such as channel roughness coefficients. Two historic rainfall events were used as model calibration storms. These events were the June 8, 1989 storm and the March 15, 1990 storm and they were selected based on their intensity and the amount of available stream flow and rainfall data. The June 8, 1989 storm had an average rainfall volume of 6.35 inches and an average duration of 29 hours. The March 15, 1990 storm had an average rainfall volume of 6.83 inches and an average duration of 35 hours.

The model simulated both storm events. It was the intent of the calibration to match the peak flows, the timing, the volumes and the overall hydrograph shapes of both simulations as closely as possible to the calibration storms. To achieve this calibration, the new CN numbers needed to be adjusted. Since most of the run-off curve numbers are on the conservative side, they tend to produce more runoff than occurs during the actual storm event. The CN numbers were reduced by an average of about 19 percent on all of the sub-basins. This achieved a practical model calibration to both storm events to validate the model and these calibration adjustments of the Warrington Basin model provide a reasonable depiction of actual conditions. Figure 2-2 shows the measured stream data verses the simulated data for both stream gages and calibration storm events.

FIGURE NO. 2-1
BAYOU CHICO BRANCH



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

HYDROLOGIC/HYDRAULIC MODEL SCHEMATIC

LEGEND

NODES
A -STAGE AREA
T -TIME/STAGE
M -MANHOLE

LINKS
P -PIPE
W -WEIR
C -CHANNEL
D -DROP STRUCTURE

BASINS
U -SCS UNIT HYDRO

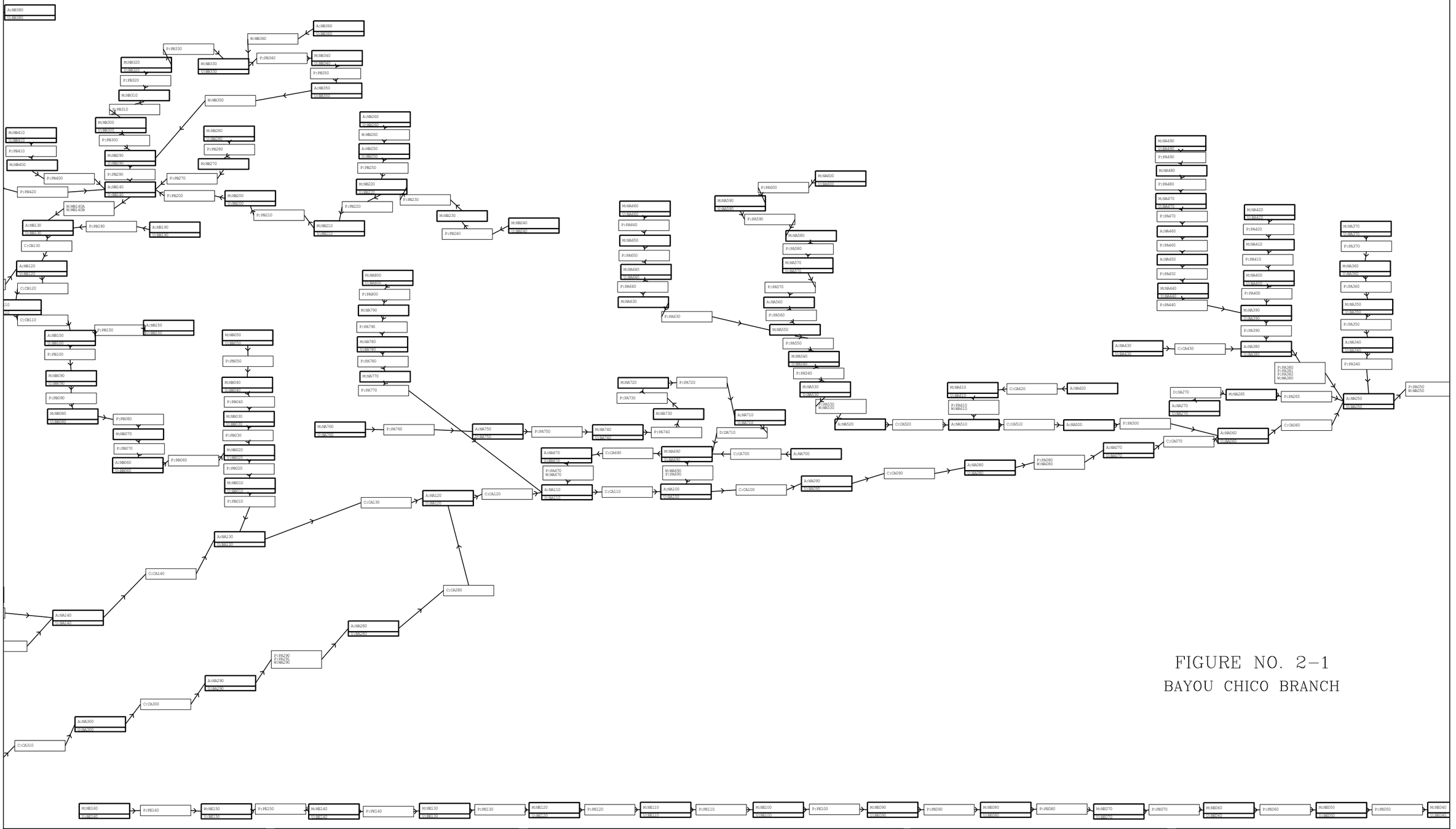

FIGURE NO. 2-1
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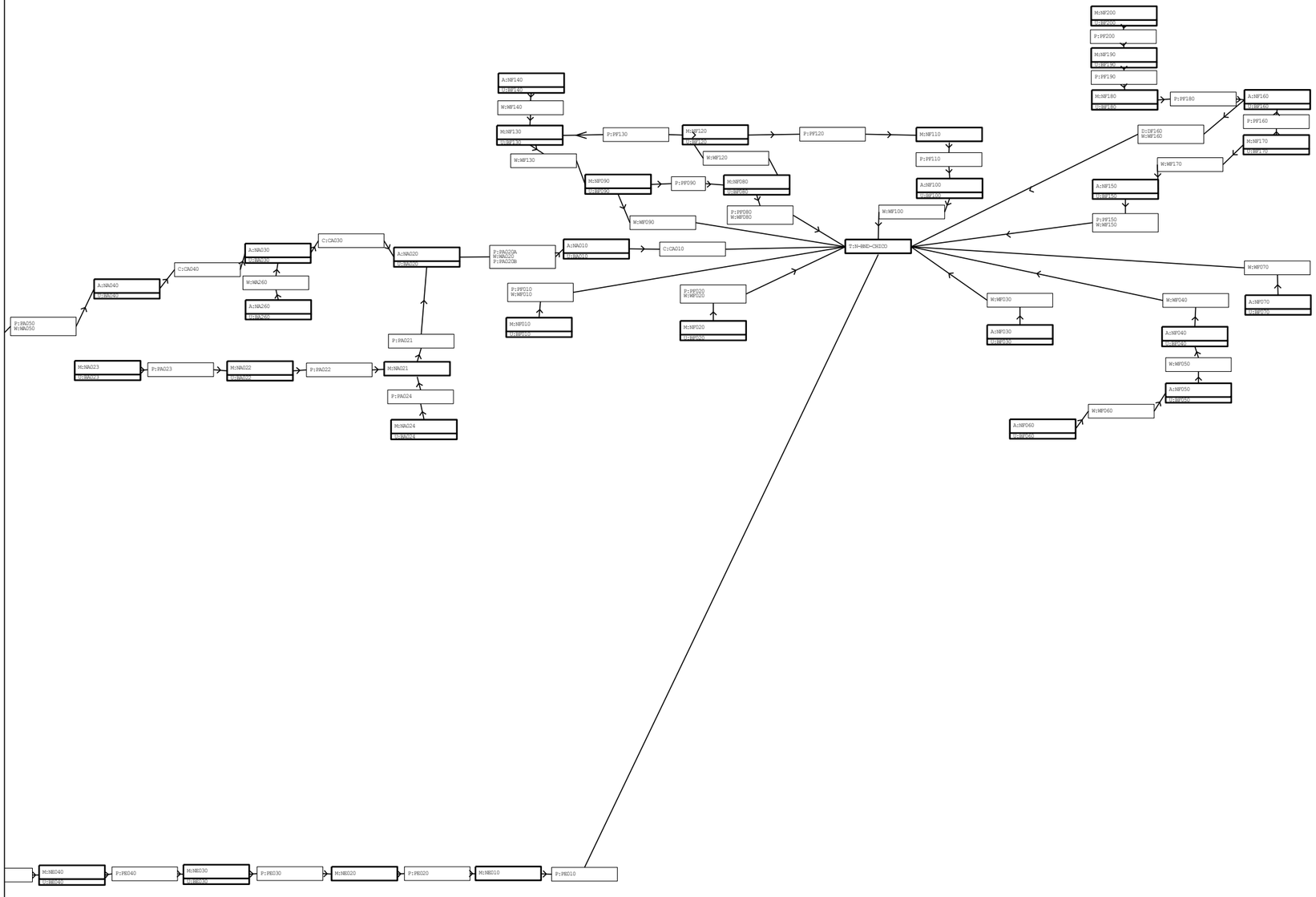

FIGURE NO. 2-1
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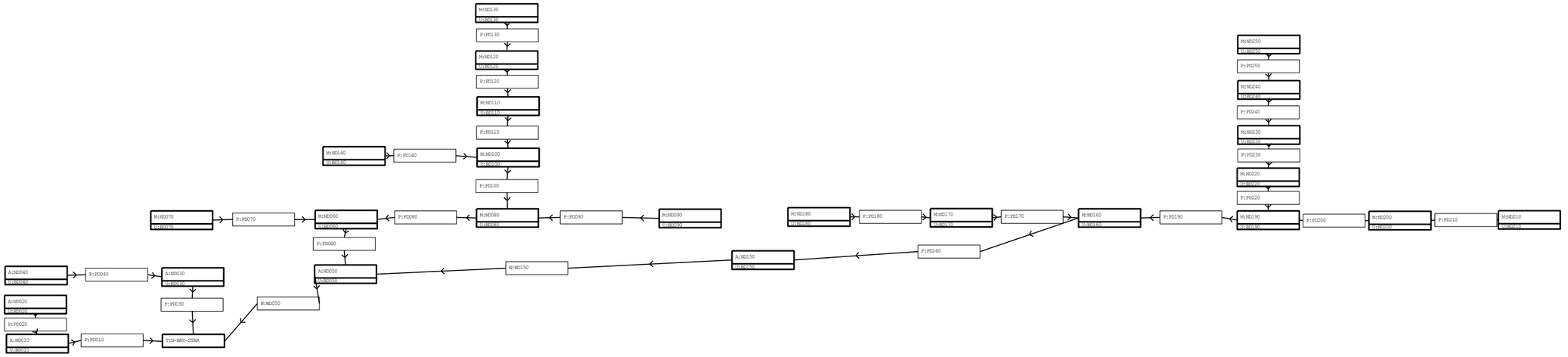

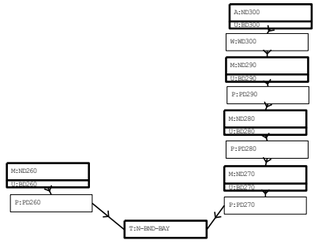

FIGURE NO. 2-1

STAR LAKE/PENSACOLA BAY BRANCHES

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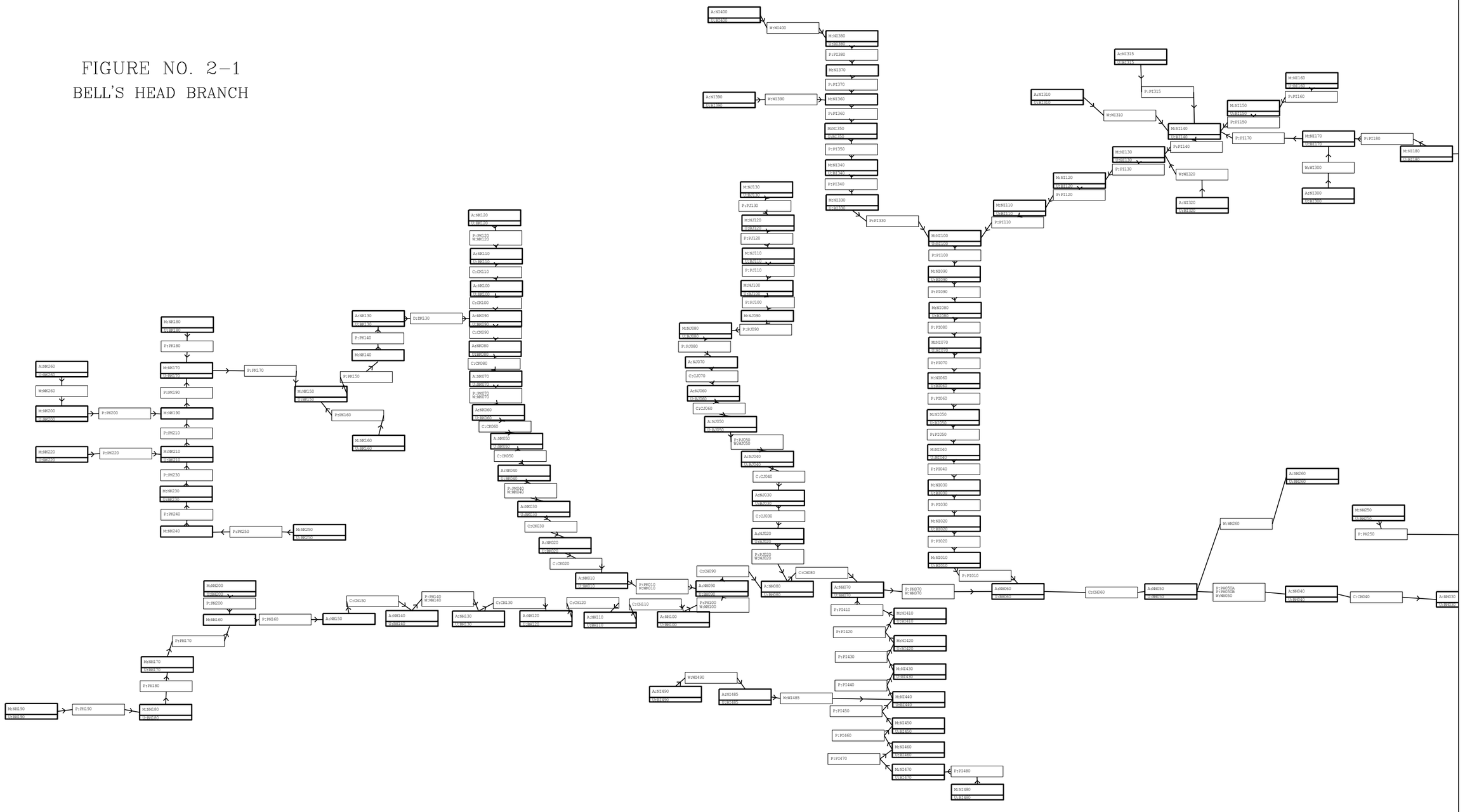
FIGURE NO. 2-1
BELL'S HEAD BRANCH



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BELL'S HEAD BRANCH

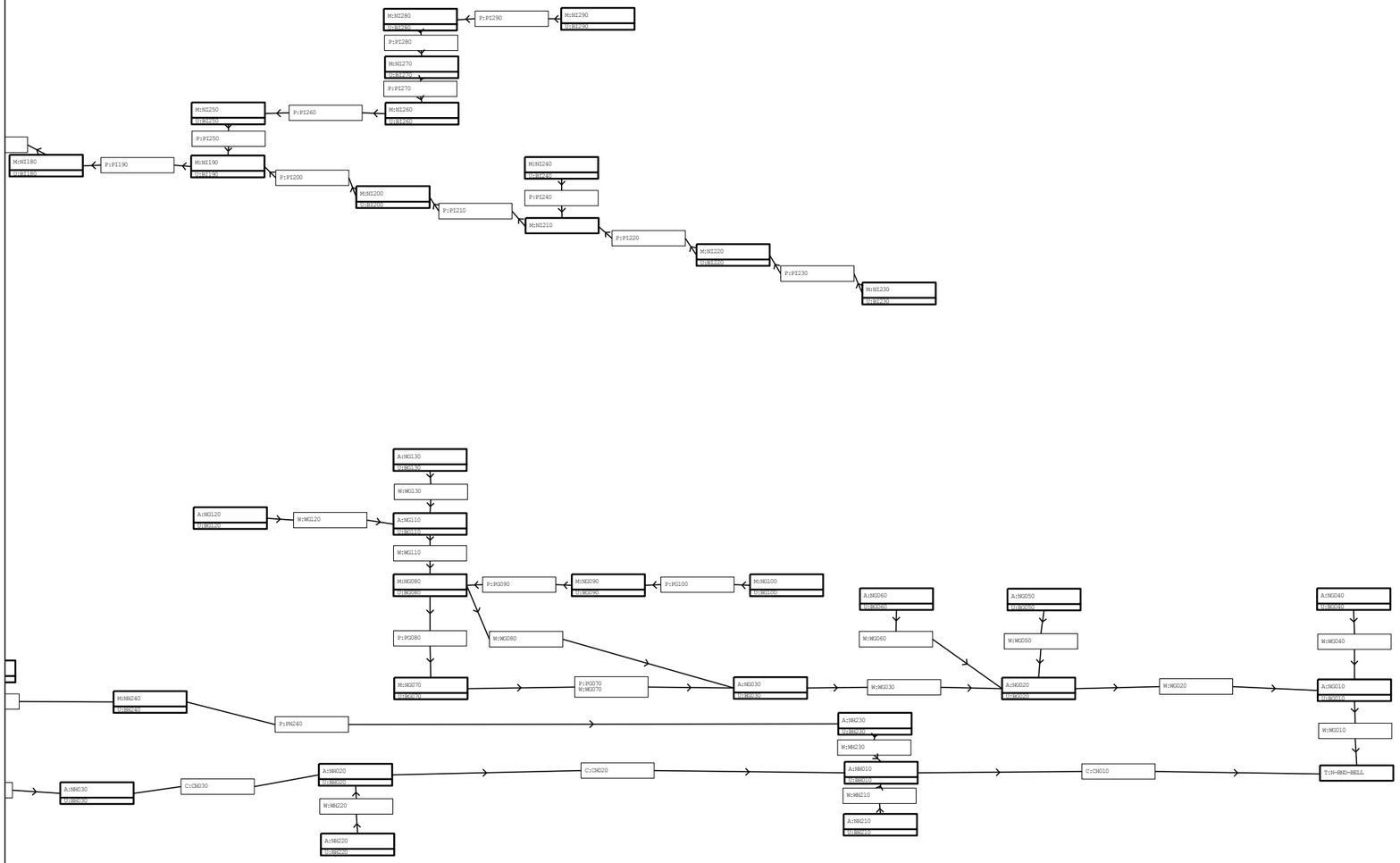

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TABLE 2-1

WARRINGTON BASIN - EXISTING DRAINAGE SYSTEM SUMMARY

DESCRIPTION	LOCATION	LENGTH FT.	UPSTREAM		DOWNSTREAM	
			INLET TOP	INVERT ELEV.	INLET TOP	INVERT ELEV.
ZONE A:						
36" RCP Stormsewer	S. Old Corry Field Rd.	1798	16.54	16.54	4.00	-1.71
30" RCP Stormsewer	Brandon Ave	275	16.87	16.87	16.54	16.54
24" RCP Stormsewer	Brandon Ave	293	17.78	17.78	16.87	17.43
24" RCP Stormsewer	S. Old Corry Field Rd.	750	18.04	18.04	16.54	16.54
36" RCP Stormsewer	W. Highway 98	127	6.11	6.11	4.90	5.74
30" RCP Stormsewer	Navy Blvd.	240	13.20	13.20	6.60	6.60
24" RCP Stormsewer	Navy Blvd.	512	19.90	19.90	13.20	13.70
24" RCP Stormsewer	Navy Blvd.	396	21.10	21.10	19.90	19.90
36" RCP Stormsewer	Corry Field	417	7.82	7.82	5.58	6.78
36" RCP Stormsewer	Corry Field	638	18.60	18.60	7.82	17.00
36" RCP Stormsewer	Corry Field	480	19.80	19.80	18.60	18.60
36" RCP Stormsewer	Corry Field	343	20.66	20.66	19.80	19.80
36" RCP Stormsewer	Corry Field	692	18.73	18.73	7.85	17.00
36" RCP Stormsewer	Corry Field	157	20.61	20.61	20.21	20.21
36" RCP Stormsewer	Corry Field	41	20.96	20.96	20.61	20.61
36" RCP Stormsewer	Corry Field	250	21.58	21.58	20.96	20.96
91" x 58" ERCP Stormsewer	W. Highway 98	185	13.62	13.62	13.05	13.05
60" RCP Stormsewer	Corry Field	1068	16.29	16.29	13.62	13.62
60" RCP Stormsewer	Corry Field	181	16.74	16.74	16.29	16.29
54" RCP Stormsewer	Corry Field	337	18.68	18.68	17.84	17.84
54" RCP Stormsewer	Corry Field	252	19.31	19.31	18.68	18.68
48" RCP Stormsewer	Corry Field	343	20.10	20.10	19.31	19.31
36" RCP Stormsewer	Corry Field	330	20.93	20.93	20.10	20.10
36" RCP Stormsewer	W. Highway 98	220	13.50	15.93	12.00	13.94
42" RCP Stormsewer	Corry Field	176	18.68	18.68	16.74	18.24
42" RCP Stormsewer	Corry Field	242	19.28	19.28	18.68	18.68
42" RCP Stormsewer	Corry Field	348	20.16	20.16	19.28	19.28
42" RCP Stormsewer	Corry Field	305	20.92	20.92	20.16	20.16
68" x 43" ERCP Stormsewer	W. Highway 98	175	15.55	15.55	7.20	14.96
60" RCP Stormsewer	Corry Field	265	7.80	7.80	7.50	7.54
60" RCP Stormsewer	Corry Field	325	7.84	7.84	7.80	7.80
60" RCP Stormsewer	Corry Field	110	8.22	8.22	7.84	7.84
48" RCP Stormsewer	W. Highway 98	700	15.00	15.00	9.79	10.30
48" RCP Stormsewer	Corry Field	825	14.80	14.80	9.80	14.66
48" RCP Stormsewer	Corry Field	370	15.73	15.73	14.80	14.80
48" RCP Stormsewer	Corry Field	250	16.36	16.36	15.73	15.73
36" RCP Stormsewer	Corry Field	443	17.97	17.97	16.36	16.86
ZONE B:						
60" RCP Stormsewer	S. 61st. Ave	110	15.40	15.40	8.44	14.72
72" RCP Stormsewer	S. 61st. Ave	813	18.10	18.10	15.40	15.40
36" RCP Stormsewer	S. 61st. Ave	449	21.90	21.90	18.10	20.80
30" RCP Stormsewer	S. 61st. Ave	590	23.80	23.80	21.90	22.50
27" RCP Stormsewer	S. 61st. Ave	630	26.16	26.16	23.80	24.90
65" x 40" ARCP Stormsewer	S. 61st. Ave	480	19.56	19.56	19.20	19.20
65" x 40" ARCP Stormsewer	S. 61st. Ave	135	20.10	20.10	19.56	19.56
65" x 40" ARCP Stormsewer	S. 61st. Ave	700	22.40	22.40	20.10	20.10

TABLE 2-1

WARRINGTON BASIN - EXISTING DRAINAGE SYSTEM SUMMARY

DESCRIPTION	LOCATION	LENGTH FT.	UPSTREAM		DOWNSTREAM	
			INLET TOP	INVERT ELEV.	INLET TOP	INVERT ELEV.
42" RCP Stormsewer	Kitty Hawk Dr.	360	21.73	21.73	16.00	20.65
42" RCP Stormsewer	Kitty Hawk Cir.	360	21.73	21.73	16.00	20.65
42" RCP Stormsewer	Kitty Hawk Cir.	500	23.11	23.11	21.73	21.73
30" RCP Stormsewer	S. 61st. Ave	145	23.29	23.29	18.68	23.00
27" RCP Stormsewer	S. 61st. Ave	235	24.37	24.37	23.29	23.54
27" RCP Stormsewer	S. 61st. Ave	380	25.95	25.95	24.37	24.37
18" RCP Stormsewer	S. 61st. Ave	230	27.26	27.26	25.95	25.95
18" RCP Stormsewer	S. 61st. Ave	60	28.67	31.00	25.95	30.80
24" RCP Stormsewer	Lake Charlene Dr.	80	20.43	20.43	18.68	19.59
24" RCP Stormsewer	Lake Charlene Dr.	170	23.80	23.80	20.43	20.43
27" RCP Stormsewer	Lake Charlene Dr.	160	22.90	22.90	18.68	19.70
21" RCP Stormsewer	Myrtle Hill Cir.	190	23.17	23.17	22.90	22.90
36" RCP Stormsewer	Myrtle Hill Cir.	247	24.21	24.21	23.17	23.17
30" RCP Stormsewer	Myrtle Hill Cir.	213	28.95	28.95	24.21	24.21
30" RCP Stormsewer	Myrtle Hill Cir.	250	28.15	28.95	26.50	28.15
30" RCP Stormsewer	Myrtle Hill Cir.	338	26.50	28.15	26.50	26.50
27" RCP Stormsewer	Lake Charlene Dr.	170	22.08	22.08	18.68	18.68
27" RCP Stormsewer	Lake Charlene Dr.	50	23.08	23.08	22.08	22.08
60" RCP Stormsewer	Bunker Hill Dr.	275	20.23	20.23	18.68	19.13
21" RCP Stormsewer	Bunker Hill Dr.	130	23.59	23.59	20.23	20.23
60" RCP Stormsewer	S. 69th Ave.	1350	30.24	30.24	24.84	24.84
24" RCP Stormsewer	Penton St.	330	34.07	33.24	30.24	34.07
24" RCP Stormsewer	Penton St.	520	34.54	34.54	30.24	33.24
36" RCP Stormsewer	N. 69th Ave.	650	33.86	33.86	30.24	32.24
24" RCP Stormsewer	N. 70th Ave.	145	35.55	35.55	33.86	35.50
18" RCP Stormsewer	N. 71th Ave.	290	37.50	37.50	35.55	36.60
36" RCP Stormsewer	Malvern St.	500	34.49	34.49	33.86	33.86
ZONE D:						
36" RCP Stormsewer	Barrancas Ave.	510	8.00	8.00	0.13	6.70
24" RCP Stormsewer	Barrancas Ave.	362	9.50	9.54	8.00	8.30
30" RCP Stormsewer	Barrancas Ave.	323	9.50	9.50	8.00	8.50
18" RCP Stormsewer	Barrancas Ave.	220	13.80	13.80	9.50	9.80
24" RCP Stormsewer	Iona St.	380	14.55	14.55	9.50	13.60
24" RCP Stormsewer	Iona St.	24	15.50	15.50	14.55	14.55
24" RCP Stormsewer	Iona St.	375	16.94	16.44	15.50	15.50
18" RCP Stormsewer	Iona St.	375	17.87	17.87	16.94	16.94
24" RCP Stormsewer	Wisteria Ave.	520	15.85	15.85	14.55	14.55
24" RCP Stormsewer	Barrancas Ave.	229	10.00	10.00	2.00	7.00
24" RCP Stormsewer	Barrancas Ave.	377	11.90	11.90	10.00	10.40
18" RCP Stormsewer	Barrancas Ave.	187	14.40	14.40	11.90	13.50
36" RCP Stormsewer	Barrancas Ave.	461	13.70	13.70	10.00	12.10
24" RCP Stormsewer	Barrancas Ave.	309	14.80	14.80	13.70	13.70
18" RCP Stormsewer	Barrancas Ave.	305	16.70	16.70	14.80	14.80
24" RCP Stormsewer	Jamison Ave.	350	16.18	16.18	13.70	15.30
24" RCP Stormsewer	Jamison Ave.	350	17.05	17.05	16.18	16.18
24" RCP Stormsewer	Jamison Ave.	410	18.08	18.08	17.05	17.05
18" RCP Stormsewer	Jamison Ave.	400	19.58	19.58	18.08	18.58

TABLE 2-1

WARRINGTON BASIN - EXISTING DRAINAGE SYSTEM SUMMARY

DESCRIPTION	LOCATION	LENGTH FT.	UPSTREAM		DOWNSTREAM	
			INLET TOP	INVERT ELEV.	INLET TOP	INVERT ELEV.
36" RCP Stormsewer	Harborview Cir.	310	2.34	2.34	Boundary	1.67
38x24 ERCP Stormsewer	Harborview Cir.	220	0.70	0.70	Boundary	-0.14
36" RCP Stormsewer	Harborview Cir.	270	1.23	1.23	0.70	0.75
30" RCP Stormsewer	Bayshore Dr.	200	1.59	1.59	1.23	1.23
ZONE E:						
54" RCP Stormsewer	Barrancas Ave.	328	-1.10	-1.10	Boundary	-1.40
54" RCP Stormsewer	Barrancas Ave.	242	-0.90	-0.90	-1.10	-1.10
54" RCP Stormsewer	Barrancas Ave.	242	-0.60	-0.60	-0.90	-0.90
54" RCP Stormsewer	Barrancas Ave.	527	0.90	0.90	-0.60	-0.60
54" RCP Stormsewer	Barrancas Ave.	417	3.50	3.50	0.90	0.90
54" RCP Stormsewer	Barrancas Ave.	427	6.00	6.00	3.50	3.50
54" RCP Stormsewer	Barrancas Ave.	510	7.30	7.30	6.00	6.00
48" RCP Stormsewer	Barrancas Ave.	425	9.00	9.00	7.30	7.80
48" RCP Stormsewer	Barrancas Ave.	621	10.40	10.40	9.00	9.00
48" RCP Stormsewer	Barrancas Ave.	446	10.50	10.50	10.40	10.40
42" RCP Stormsewer	Barrancas Ave.	567	11.40	11.40	10.50	10.50
42" RCP Stormsewer	Barrancas Ave.	280	11.90	11.90	11.40	11.40
36" RCP Stormsewer	Barrancas Ave.	229	12.80	12.80	11.90	11.90
36" RCP Stormsewer	Barrancas Ave.	205	13.70	13.70	12.80	12.80
24" RCP Stormsewer	Barrancas Ave.	215	14.20	14.40	13.70	13.70
18" RCP Stormsewer	Barrancas Ave.	171	15.70	15.70	14.20	14.40
ZONE F:						
24" x 12" Box Culvert	Rue Max St.	28	12.60	12.60	Boundary	12.60
18" RCP Stormsewer	Lakewood Rd.	180	9.47	9.47	Boundary	2.38
18" RCP Stormsewer	Edgewater Dr.	190	4.65	4.65	Boundary	2.01
18" RCP Stormsewer	Edgewater Dr.	648	5.95	5.95	4.65	4.65
36" RCP Stormsewer	Edgewater Dr.	500	4.25	4.25	3.00	3.00
36" RCP Stormsewer	Chaseville St.	378	5.20	5.20	4.25	4.25
24" RCP Stormsewer	Chaseville St.	770	6.20	8.13	5.20	6.20
38" x 24" ERCP Stormsewer	Chaseville St.	91	22.75	19.15	9.67	11.50
45" x 29" ERCP Stormsewer	Chaseville St.	280	20.50	20.50	19.15	19.15
45" x 29" ERCP Stormsewer	Chaseville St.	316	21.50	21.50	20.50	20.50
ZONE G:						
24" RCP Stormsewer	Wiggins Ave.	200	61.50	61.50	47.00	61.00
24" RCP Stormsewer	W. Jackson St.	939	63.85	63.85	61.50	61.50
18" RCP Stormsewer	W. Jackson St.	508	65.62	65.62	63.85	64.35
18" RCP Stormsewer	W. Jackson St.	737	67.46	67.46	65.62	65.62
ZONE H:						
54" RCP Stormsewer	Admiral Doyle Rd.	20	18.18	18.18	15.15	18.18
36" RCP Stormsewer	Corry Field	660	22.34	22.34	18.18	20.69
36" RCP Stormsewer	Corry Field	325	23.15	23.15	22.34	22.34
36" RCP Stormsewer	Corry Field	840	25.25	25.25	23.15	23.15
42" RCP Stormsewer	Admiral Doyle Rd.	175	18.58	18.58	18.18	18.18
30" RCP Stormsewer	W. Jackson St.	440	61.34	61.34	1.00	60.02
24" RCP Stormsewer	W. Jackson St.	312	63.09	63.09	61.34	61.84
ZONE I:						
60" RCP Stormsewer	New Warrington Rd	40	6.60	6.60	5.00	6.50

TABLE 2-1

WARRINGTON BASIN - EXISTING DRAINAGE SYSTEM SUMMARY

DESCRIPTION	LOCATION	LENGTH FT.	UPSTREAM		DOWNSTREAM	
			INLET TOP	INVERT ELEV.	INLET TOP	INVERT ELEV.
54" RCP Stormsewer	New Warrington Rd	240	18.63	18.63	6.60	7.70
60" RCP Stormsewer	New Warrington Rd	520	43.50	43.50	18.63	18.63
60" RCP Stormsewer	New Warrington Rd	320	44.61	44.61	43.50	43.50
60" RCP Stormsewer	New Warrington Rd	600	46.90	46.90	44.61	44.61
60" RCP Stormsewer	New Warrington Rd	320	47.51	47.51	46.90	46.90
60" RCP Stormsewer	New Warrington Rd	340	48.79	48.79	47.51	47.51
60" RCP Stormsewer	New Warrington Rd	540	50.90	50.90	48.79	48.79
60" RCP Stormsewer	New Warrington Rd	600	52.90	52.90	50.90	50.90
60" RCP Stormsewer	New Warrington Rd	600	54.60	54.60	52.90	52.90
60" RCP Stormsewer	New Warrington Rd	530	55.93	55.93	54.60	54.60
60" RCP Stormsewer	New Warrington Rd	270	56.60	56.60	55.93	55.93
60" RCP Stormsewer	New Warrington Rd	520	57.90	57.90	56.60	56.60
54" RCP Stormsewer	New Warrington Rd	380	60.20	60.20	57.90	58.40
30" RCP Stormsewer	New Warrington Rd	421	61.50	61.50	60.20	60.20
24" RCP Stormsewer	New Warrington Rd	260	63.50	63.50	61.50	62.90
42" RCP Stormsewer	Lillian Hwy	900	61.04	61.04	60.20	60.20
42" RCP Stormsewer	Mobile Hwy	342	64.20	64.20	61.04	61.04
48" RCP Stormsewer	Mobile Hwy	294	65.45	65.45	64.20	64.20
30" RCP Stormsewer	Mobile Hwy	700	67.20	67.20	65.45	65.45
30" RCP Stormsewer	Mobile Hwy	720	69.00	69.00	67.20	67.20
24" RCP Stormsewer	Mobile Hwy	610	70.22	70.22	69.00	69.00
24" RCP Stormsewer	Mobile Hwy	610	71.75	71.75	70.22	70.22
24" RCP Stormsewer	N. Kirk St.	367	69.92	69.92	69.00	69.00
36" RCP Stormsewer	Dominguez St.	590	66.18	66.18	65.45	65.00
24" RCP Stormsewer	Green St.	460	67.10	67.10	66.18	66.18
24" RCP Stormsewer	Green St.	520	68.14	68.14	67.10	67.10
24" RCP Stormsewer	Green St.	740	69.62	69.62	68.14	68.14
24" RCP Stormsewer	W. Moreno St.	850	71.32	71.32	69.62	69.62
42" RCP Stormsewer	New Warrington Spur	315	61.80	61.80	54.60	54.60
42" RCP Stormsewer	New Warrington Spur	594	63.40	63.40	61.80	61.80
36" RCP Stormsewer	New Warrington Spur	352	64.70	64.70	63.40	63.90
30" RCP Stormsewer	New Warrington Spur	225	65.20	65.20	64.70	64.70
30" RCP Stormsewer	New Warrington Spur	416	67.10	67.10	65.20	65.20
30" RCP Stormsewer	New Warrington Spur	382	69.50	69.50	67.10	67.10
36" RCP Stormsewer	New Warrington Rd	129	10.70	10.70	7.24	7.80
36" RCP Stormsewer	New Warrington Rd	434	12.70	12.70	10.70	10.70
36" RCP Stormsewer	New Warrington Rd	514	16.00	16.00	12.70	12.70
36" RCP Stormsewer	New Warrington Rd	391	17.60	17.60	16.00	16.00
30" RCP Stormsewer	New Warrington Rd	518	19.30	19.30	17.60	17.60
24" RCP Stormsewer	New Warrington Rd	256	20.90	20.90	19.30	19.30
18" RCP Stormsewer	New Warrington Rd	118	21.90	21.90	20.90	20.90
18" RCP Stormsewer	New Warrington Rd	191	22.30	22.30	21.90	21.90
ZONE J:						
36" RCP Stormsewer	W. Jackson St.	40	60.20	60.20	59.77	59.77
24" RCP Stormsewer	N. 46th Ave.	160	62.50	62.50	60.20	60.20
24" RCP Stormsewer	N. 46th Ave.	420	66.78	66.78	62.50	62.50
24" RCP Stormsewer	N. 46th Ave.	460	69.08	69.08	66.78	66.78

TABLE 2-1

WARRINGTON BASIN - EXISTING DRAINAGE SYSTEM SUMMARY

DESCRIPTION	LOCATION	LENGTH FT.	UPSTREAM		DOWNSTREAM	
			INLET TOP	INVERT ELEV.	INLET TOP	INVERT ELEV.
24" RCP Stormsewer	N. 46th Ave.	383	70.17	70.17	69.08	69.08
18" RCP Stormsewer	N. 46th Ave.	500	71.59	71.59	70.17	70.17
ZONE K:						
54" RCP Stormsewer	De Luna Cir.	982	56.49	46.75	65.22	44.72
60" RCP Stormsewer	De Luna Cir. (Drain Easment)	260	65.22	44.72	Pond	42.50
42" RCP Stormsewer	De Luna Cir.	255	62.29	47.28	65.22	46.71
36" RCP Stormsewer	De Luna Cir.	750	57.91	48.96	62.29	47.28
30" RCP Stormsewer	De Luna Cir.	310	58.68	49.41	57.91	48.96
18" RCP Stormsewer	N. 57th Ave.	175	64.49	60.81	61.52	57.96
24" RCP Stormsewer	N. 57th Ave.	276	61.52	57.82	58.60	55.12
30" RCP Stormsewer	N. 57th Ave.	343	58.60	54.00	56.51	51.42
36" RCP Stormsewer	N. 57th Ave.	488	56.51	51.42	56.49	48.90
42" RCP Stormsewer	N. 57th Ave.	990	57.23	48.83	56.49	47.77
36" RCP Stormsewer	N. 57th Ave.	250	57.30	50.40	57.23	49.83
24" RCP Stormsewer	Linda St.	698	54.01	51.41	59.36	49.00
18" RCP Stormsewer	Western Dr.	335	55.29	52.29	57.23	51.00
24" RCP Stormsewer	Lynwood Ave.	322	53.85	53.85	52.85	52.85

TABLE 2-2

EIGHT MILE CREEK BASIN - EXISTING OPEN CHANNEL S

LOCATION	INVERT ELEV. U/S	INVERT ELEV. D/S	LENGTH, FEET
MAIN CHANNEL 1-A; ELEVEN MILE CREEK TO KLONDIKE RD.	17.50	4.00	6000
MAIN CHANNEL 1-A; KLONDIKE RD. TO MOBILE HWY.	28.80	15.10	4050
MAIN CHANNEL 1-A; MOBILE HWY. TO PINE FORREST RD.	52.20	30.10	7900
MAIN CHANNEL 1-A; PINE FORREST RD. TO INTERSTATE CR.	62.80	53.82	2650
MAIN CHANNEL 1-A; INTERSTATE CR. TO PRIVATE DRIVEWAY	70.90	63.00	1400
MAIN CHANNEL 1-A; PRIVATE DRIVEWAY TO ASHLAND DR.	72.10	70.90	700
MAIN CHANNEL 1-A; ASHLAND DR. TO DETROIT BLVD.	91.23	72.53	3875
MAIN CHANNEL 1-A; DETROIT BLVD. TO COVE ST.	91.10	88.80	350
MAIN CHANNEL 1-A; COVE ST. TO BARMEL ST.	92.19	91.30	600
MAIN CHANNEL 1-A; BARMEL ST. TO FOWLER RD.	97.32	92.50	2600
MAIN CHANNEL 1-A; FOWLER RD. TO 9 MILE RD.	109.04	98.26	3200
TRIBUTARY 1-B; MAIN CHANNEL TO FOWLER RD.	113.00	112.01	625
TRIBUTARY 1-B; FOWLER RD. TO 9 1/2 MILE RD.	116.02	114.74	2500
TRIBUTARY 1-C; TRIBUTARY 1-B TO MCKINNON DR.	114.42	113.00	900
TRIBUTARY 1-C; MCKINNON DR. TO 9 1/2 MILE RD.	115.85	114.48	1650
TRIBUTARY 2-A; MAIN CHANNEL TO BLUE ANGEL PKWY.	79.24	15.00	4800
TRIBUTARY 6-A; MAIN CHANNEL TO MILLVIEW RD.	39.10	22.00	2000
TRIBUTARY 6-A; MILLVIEW RD. TO BLUE ANGEL PKWY.	42.50	39.38	800
TRIBUTARY 6-B; TRIBUTARY 6-A TO MOBILE HWY.	70.80	47.50	1600
TRIBUTARY 8-A; MAIN CHANNEL TO PINE FOREST RD.	76.12	36.00	6150
TRIBUTARY 8-B; TRIBUTARY 8-A TO PINE FOREST RD.	94.52	60.00	1800
TRIBUTARY 10-A; MAIN CHANNEL TO PINE FOREST RD.	74.65	39.00	4800
TRIBUTARY 11-A; MAIN CHANNEL TO FRIDINGER RD.	48.53	47.86	160
TRIBUTARY 13-A; MAIN CHANNEL TO POND 028P	64.29	47.00	2400
TRIBUTARY 15-A; MAIN CHANNEL TO STRATFORD RD.	59.78	51.00	1300
TRIBUTARY 16-A; MAIN CHANNEL TO LILLIE LN.	69.29	54.82	2450
TRIBUTARY 16-A; LILLIE LN. TO BELGIUM RD.	99.84	70.37	2000
TRIBUTARY 18-A; MAIN CHANNEL TO INTERSTATE CR.	97.29	60.00	3900
TRIBUTARY 18-C; TRIBUTARY 18-A TO POND 059P	79.35	73.19	1200
TRIBUTARY 19-A; MAIN CHANNEL TO INTERSTATE CR.	66.31	62.00	1300
TRIBUTARY 19-A; INTERSTATE CR. TO INTERSTATE 10	68.34	66.08	400
TRIBUTARY 19-A; INTERSTATE 10 TO DETROIT BLVD.	72.38	68.85	800
TRIBUTARY 19-B; TRIBUTARY 19-A TO I-10 RAMP	81.58	66.08	2050
TRIBUTARY 19-D; TRIBUTARY 19-B TO PINE FOREST RD.	91.28	84.00	1300
TRIBUTARY 21-A; MAIN CHANNEL TO DETROIT BLVD.	71.78	67.50	1000
TRIBUTARY 21-A; DETROIT BLVD. TO BUSH ST.	94.59	71.43	2000
TRIBUTARY 21-A; BUSH ST. TO DRIVEWAY OFF 9 MILE RD.	111.70	98.24	2460
TRIBUTARY 21-A; DRIVEWAY OFF 9 MILE RD. TO 9 MILE RD.	111.94	111.68	200
TRIBUTARY 21-B; TRIBUTARY 21-A TO THRUSH ST.	100.70	89.89	500
TRIBUTARY 25-A; MAIN CHANNEL TO DETROIT BLVD.	94.02	80.00	1300

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TABLE 2-2 (Con't)

TABLE 2-2

RUNOFF CURVE NUMBERS (CN) BASED ON SOIL CONSERVATION SERVICE (SCS) VALUES

COVER TYPE & HYDROLOGIC CONDITION	HYDROLOGIC SOIL GROUPS			
	A	B	C	D
PASTURE/GRASSLANDS	68	79	86	89
DENSE WOODS	36	60	73	79
ORCHARD TYPE WOODS	56	73	82	86
OPEN SPACE (Lawns, Parks, Golf Courses, Cemeteries, etc.)				
POOR HYDROLOGIC CONDITION (Grass Cover < 50%)	68	79	86	89
FAIR HYDROLOGIC CONDITION (Grass Cover 50% -75%)	49	69	79	84
GOOD HYDROLOGIC CONDITION (Grass Cover > 75%)	39	61	74	80
RESIDENTIAL DISTRICTS BY AVERAGE LOT SIZE				
1/4 ACRE (38% Avg. Impervious Area)	61	75	83	87
1/2 ACRE (25% Avg. Impervious Area)	54	70	80	85
1 ACRE (20% Avg. Impervious Area)	51	68	79	84
2 ACRE(12% Avg. Impervious Area)	46	65	77	82
COMMERCIAL & BUSINESS (85% Avg. Impervious Area)	89	92	94	95
INDUSTRIAL (72% Avg. Impervious Area)	81	88	91	93
STREETS & ROADS	98	98	98	98

All Group numbers have been adjusted for the calibration process. See Section 2.6

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
ZONE A:										
BA010	NA010	74.45	100	---	---	---	56	0	35	Uh323
BA020	NA020	32.44	100	---	---	---	71	0	28	Uh323
BA022	NA022	1.73	100	---	---	---	74	0	12	Uh256
BA023	NA023	2.09	100	---	---	---	61	0	18	Uh256
BA024	NA024	25.43	100	---	---	---	57	0	79	Uh256
BA030	NA030	45.09	100	---	---	---	70	0	24	Uh323
BA040	NA040	13	100	---	---	---	72	0	22	Uh323
BA050	NA050	6.87	100	---	---	---	77	0	15	Uh484
BA060	NA060	68.21	100	---	---	---	63	0	38	Uh323
BA070	NA070	29.87	100	---	---	---	57	0	35	Uh323
BA080	NA080	19.79	100	---	---	---	53	0	97	Uh323
BA090	NA090	47.63	100	---	---	---	51	0	154	Uh256
BA100	NA100	61.9	100	---	---	---	45	0	149	Uh256
BA110	NA110	115.34	---	100	---	---	54	0	133	Uh256
BA120	NA120	108.83	---	89	---	11	56	0	296	Uh256
BA130	NA130	37.18	100	---	---	---	57	0	43	Uh323
BA140	NA140	52.05	---	---	---	100	68	0	117	Uh323
BA150	NA150	34.01	---	---	---	100	66	0	124	Uh256
BA160	NA160	16.11	---	39	---	61	60	0	126	Uh256
BA170	NA170	16.11	---	---	---	100	73	0	56	Uh323
BA180	NA180	62.44	---	---	---	100	66	0	130	Uh323
BA190	NA190	108.16	---	---	---	100	67	0	50	Uh256
BA200	NA200	123.55	---	---	---	100	66	0	157	Uh256
BA210	NA210	97.38	---	---	---	100	66	0	171	Uh256
BA220	NA220	90.39	---	---	---	100	67	0	216	Uh256
BA230	NA230	105.21	---	---	---	100	65	0	271	Uh256
BA240	NA240	127.22	---	---	---	100	65	0	182	Uh256
BA250	NA250	90.59	---	---	---	100	65	0	162	Uh256
BA260	NA260	13.26	100	---	---	---	71	0	19	Uh323
BA270	NA270	11.42	100	---	---	---	69	0	5	Uh484
BA280	NA280	38.18	---	60	---	40	68	0	99	Uh256

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BA290	NA290	13.88	---	---	---	100	73	0	51	Uh256
BA300	NA300	21.18	---	---	---	100	69	0	59	Uh256
BA310	NA310	15.24	---	---	---	100	73	0	78	Uh256
BA320	NA320	40.15	---	---	---	100	64	0	180	Uh256
BA330	NA330	29.63	---	---	---	100	64	0	99	Uh323
BA340	NA340	5.65	100	---	---	---	71	0	14	Uh484
BA350	NA350	3.64	100	---	---	---	75	0	10	Uh323
BA360	NA360	5.63	100	---	---	---	72	0	14	Uh323
BA370	NA370	9.53	100	---	---	---	78	0	15	Uh256
BA380	NA380	8.05	100	---	---	---	57	0	21	Uh323
BA390	NA390	8.44	100	---	---	---	58	0	23	Uh323
BA400	NA400	6.15	100	---	---	---	53	0	37	Uh256
BA420	NA420	22.35	100	---	---	---	73	0	55	Uh256
BA430	NA430	15.52	100	---	---	---	62	0	23	Uh323
BA440	NA440	10.66	100	---	---	---	62	0	32	Uh256
BA470	NA470	11.95	100	---	---	---	60	0	33	Uh256
BA490	NA490	20.6	100	---	---	---	63	0	33	Uh323
BA530	NA530	17.73	100	---	---	---	58	0	109	Uh323
BA540	NA540	12.78	100	---	---	---	62	0	20	Uh323
BA570	NA570	18.5	100	---	---	---	74	0	37	Uh256
BA590	NA590	18.82	100	---	---	---	73	0	33	Uh256
BA600	NA600	21.95	100	---	---	---	62	0	82	Uh256
BA610	NA610	27.63	100	---	---	---	49	0	24	Uh484
BA640	NA640	14.1	100	---	---	---	76	0	23	Uh256
BA660	NA660	15.49	100	---	---	---	57	0	20	Uh256
BA670	NA670	25.71	100	---	---	---	61	0	54	Uh323
BA690	NA690	45.82	100	---	---	---	55	62	38	Uh323
BA710	NA710	19.02	100	---	---	---	55	0	39	Uh256
BA740	NA740	3.94	100	---	---	---	67	62	18	Uh256
BA750	NA750	4.21	100	---	---	---	67	62	19	Uh256
BA760	NA760	19.88	100	---	---	---	73	0	60	Uh323
BA780	NA780	22.43	100	---	---	---	57	0	47	Uh256
BA800	NA800	46.95	100	---	---	---	52	0	32	Uh256
ZONE B:										
BB010	NB010	11.13	100	---	---	---	61	0	9	Uh323

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BB020	NB020	15.54	100	---	---	---	66	0	22	Uh256
BB030	NB030	6.04	100	---	---	---	63	0	29	Uh323
BB040	NB040	9.96	100	---	---	---	59	0	46	Uh256
BB050	NB050	12.96	100	---	---	---	51	0	158	Uh256
BB060	NB060	4.89	100	---	---	---	71	0	26	Uh323
BB080	NB080	13.21	---	25	---	75	71	0	26	Uh323
BB090	NB090	5.78	100	---	---	---	57	0	69	Uh256
BB100	NB100	1.41	100	---	---	---	64	0	16	Uh323
BB110	NB110	7.34	100	---	---	---	77	0	9	Uh484
BB120	NB120	2.27	100	---	---	---	70	0	8	Uh484
BB130	NB130	4.24	100	---	---	---	65	0	28	Uh323
BB140	NB140	20.66	100	---	---	---	75	0	11	Uh484
BB150	NB150	3.41	100	---	---	---	65	0	15	Uh323
BB160	NB160	18.95	100	---	---	---	62	0	32	Uh323
BB170	NB170	5.78	100	---	---	---	59	0	24	Uh323
BB180	NB180	17.11	100	---	---	---	55	0	30	Uh323
BB183	NB183	20.1	---	39	---	61	82	0	51	Uh323
BB190	NB190	7.17	100	---	---	---	62	0	32	Uh256
BB200	NB200	1.08	100	---	---	---	61	0	14	Uh323
BB210	NB210	8.43	100	---	---	---	64	0	18	Uh323
BB220	NB220	4.28	100	---	---	---	61	0	14	Uh323
BB240	NB240	17.46	100	---	---	---	57	0	22	Uh323
BB250	NB250	7.13	100	---	---	---	60	0	13	Uh484
BB260	NB260	5.06	100	---	---	---	61	0	14	Uh484
BB280	NB280	6.85	100	---	---	---	59	0	18	Uh323
BB290	NB290	12.36	100	---	---	---	62	0	31	Uh256
BB300	NB300	4.09	100	---	---	---	58	0	14	Uh484
BB320	NB320	4.59	100	---	---	---	60	0	12	Uh484
BB330	NB330	12.7	100	---	---	---	56	0	18	Uh484
BB340	NB340	3.03	100	---	---	---	61	0	9	Uh484
BB350	NB350	19.03	100	---	---	---	65	0	13	Uh484
BB360	NB360	5.14	100	---	---	---	62	0	8	Uh484
BB370	NB370	26.82	100	---	---	---	59	0	39	Uh256
BB380	NB380	40.2	100	---	---	---	57	0	27	Uh323
BB410	NB410	27.26	100	---	---	---	62	0	17	Uh484

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BB430	NB430	6.53	100	---	---	---	61	0	16	Uh323
BB440	NB440	27.43	---	---	---	100	75	0	34	Uh323
BB470	NB470	7.31	100	---	---	---	60	0	3	Uh484
BB480	NB480	17.52	100	---	---	---	62	0	24	Uh323
BB490	NB490	26.01	100	---	---	---	60	0	25	Uh484
BB500	NB500	9.6	100	---	---	---	60	0	14	Uh484
BB510	NB510	10.63	100	---	---	---	61	0	23	Uh323
BB520	NB520	79.1	100	---	---	---	61	0	48	Uh323
BB530	NB530	23.62	100	---	---	---	55	0	48	Uh256
BB540	NB540	25.11	100	---	---	---	60	0	36	Uh323
BB550	NB550	10.18	100	---	---	---	54	0	31	Uh256
BB560	NB560	20.16	100	---	---	---	66	0	33	Uh256
BB570	NB570	46.38	100	---	---	---	68	0	32	Uh323
BB580	NB580	65.09	100	---	---	---	71	0	58	Uh323
ZONE C:										
BC010	NC010	12.83	---	50	---	50	59	0	97	Uh323
BC020	NC020	13.24	---	---	---	100	74	0	28	Uh323
BC030	NC030	10.63	---	---	---	100	76	0	14	Uh323
BC040	NC040	48.12	10	50	---	40	67	0	63	Uh256
BC050	NC050	28.88	---	40	---	60	70	0	35	Uh323
BC060	NC060	6.35	---	80	---	20	56	0	170	Uh256
BC070	NC070	34.5	---	12	---	88	71	0	74	Uh256
BC080	NC080	5.38	---	---	---	100	81	0	18	Uh256
BC100	NC100	6.16	---	7	---	93	79	0	10	Uh484
BC110	NC110	11.16	---	---	---	100	72	0	258	Uh256
BC120	NC120	2.66	---	---	---	100	67	0	28	Uh323
BC130	NC130	21.32	---	---	---	100	70	0	30	Uh323
BC140	NC140	9.51	---	---	---	100	77	0	34	Uh256
BC150	NC150	18.83	---	---	---	100	69	0	9	Uh323
BC160	NC160	23.1	---	50	---	50	79	0	94	Uh256
BC161	NC161	16.8	48	---	---	52	70	0	58	Uh323
BC162	NC162	10.2	48	---	---	52	70	0	25	Uh323
BC170	NC170	8.93	---	20	---	80	60	0	170	Uh256
BC190	NC190	4.99	---	---	---	100	69	0	34	Uh256
BC220	NC220	3.47	---	2	---	98	68	0	33	Uh323

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BC250	NC250	5.96	---	---	---	100	75	0	62	Uh256
BC280	NC280	13.88	---	---	---	100	69	0	145	Uh256
BC290	NC290	5.58	---	---	---	100	71	0	234	Uh256
BC300	NC300	56.56	50	---	---	50	57	0	336	Uh256
BC350	NC350	5.57	---	33	---	67	76	0	10	Uh256
BC380	NC380	19.73	---	32	---	54	59	0	69	Uh256
BC410	NC410	4.66	---	15	---	85	77	0	21	Uh323
BC440	NC440	3.98	---	---	---	100	67	0	178	Uh256
BC450	NC450	9.23	---	---	---	100	69	0	267	Uh256
BC460	NC460	53.38	2	19	---	79	73	0	103	Uh256
BC470	NC470	10.54	---	---	---	100	78	0	48	Uh256
BC480	NC480	32.68	---	---	---	100	70	0	112	Uh323
BC490	NC490	54.22	---	23	---	78	62	0	214	Uh256
BC500	NC500	61.14	---	---	---	100	64	0	269	Uh256
BC510	NC510	8.9	---	---	---	100	64	0	111	Uh323
ZONE D:										
BD010	ND010	4.69	100	---	---	---	55	0	28	Uh256
BD020	ND020	7.89	100	---	---	---	61	0	95	Uh256
BD030	ND030	13.77	100	---	---	---	45	0	43	Uh323
BD040	ND040	11.95	100	---	---	---	68	0	33	Uh323
BD050	ND050	24.82	100	---	---	---	51	0	25	Uh323
BD060	ND060	3.71	100	---	---	---	70	0	19	Uh323
BD070	ND070	3.74	100	---	---	---	68	0	15	Uh323
BD080	ND080	2.68	100	---	---	---	62	0	29	Uh256
BD090	ND090	1.92	100	---	---	---	62	18	27	Uh256
BD100	ND100	3.02	100	---	---	---	65	0	41	Uh256
BD110	ND110	10.69	100	---	---	---	62	0	62	Uh256
BD120	ND120	10.84	100	---	---	---	60	0	54	Uh256
BD130	ND130	13.45	100	---	---	---	60	0	49	Uh256
BD140	ND140	9.12	100	---	---	---	55	0	51	Uh256
BD150	ND150	38.99	100	---	---	---	53	0	23	Uh323
BD160	ND160	6.51	100	---	---	---	61	17	21	Uh323
BD170	ND170	2.01	100	---	---	---	62	18	19	Uh323
BD180	ND180	1.68	100	---	---	---	62	18	24	Uh256
BD190	ND190	2.18	100	---	---	---	76	22	16	Uh256

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BD200	ND200	1.9	100	---	---	---	74	22	26	Uh256
BD210	ND210	1.96	100	---	---	---	75	26	29	Uh256
BD220	ND220	22.7	100	---	---	---	62	0	65	Uh256
BD230	ND230	22.9	100	---	---	---	62	0	35	Uh323
BD240	ND240	19.42	100	---	---	---	62	0	62	Uh256
BD250	ND250	16.26	100	---	---	---	61	0	69	Uh256
BD260	ND260	10.85	100	---	---	---	54	0	51	Uh256
BD270	ND270	7.4	100	---	---	---	56	0	31	Uh323
BD280	ND280	4.5	100	---	---	---	54	0	40	Uh256
BD290	ND290	17.2	100	---	---	---	54	0	34	Uh323
BD300	ND300	62.99	100	---	---	---	59	0	46	Uh323
ZONE E:										
BE030	NE030	5.32	100	---	---	---	75	28	11	Uh323
BE040	NE040	2.91	100	---	---	---	65	19	15	Uh484
BE050	NE050	4.68	100	---	---	---	71	12	44	Uh256
BE060	NE060	4.81	100	---	---	---	60	7	34	Uh256
BE070	NE070	6.4	100	---	---	---	63	0	21	Uh323
BE080	NE080	17.95	100	---	---	---	51	5	47	Uh256
BE090	NE090	5.25	100	---	---	---	64	23	64	Uh256
BE100	NE100	8.97	100	---	---	---	58	8	55	Uh256
BE110	NE110	31.96	100	---	---	---	59	3	93	Uh256
BE120	NE120	17.15	100	---	---	---	60	5	69	Uh256
BE130	NE130	1.76	100	---	---	---	69	20	35	Uh256
BE140	NE140	19.21	100	---	---	---	67	15	35	Uh256
BE150	NE150	4.05	100	---	---	---	60	11	37	Uh256
BE160	NE160	9.5	100	---	---	---	62	8	38	Uh256
ZONE F:										
BF010	NF010	31.17	100	---	---	---	61	0	62	Uh256
BF020	NF020	8.39	100	---	---	---	59	0	24	Uh323
BF030	NF030	12.79	100	---	---	---	55	0	19	Uh484
BF040	NF040	9.21	100	---	---	---	55	0	22	Uh323
BF050	NF050	22.22	100	---	---	---	58	0	31	Uh484
BF060	NF060	28.74	100	---	---	---	57	0	71	Uh256
BF070	NF070	29.64	100	---	---	---	59	0	47	Uh256
BF080	NF080	4.51	100	---	---	---	55	0	19	Uh323

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BF090	NF090	7.98	100	---	---	---	55	0	39	Uh256
BF100	NF100	8.41	100	---	---	---	54	0	21	Uh484
BF120	NF120	37.04	100	---	---	---	62	0	46	Uh323
BF130	NF130	19.57	100	---	---	---	55	0	28	Uh323
BF140	NF140	31.48	100	---	---	---	62	0	34	Uh323
BF150	NF150	30.15	100	---	---	---	58	0	25	Uh484
BF160	NF160	7.02	100	---	---	---	48	0	17	Uh484
BF170	NF170	8.07	100	---	---	---	65	0	39	Uh323
BF180	NF180	9.33	100	---	---	---	43	0	51	Uh256
BF190	NF190	10.76	100	---	---	---	72	0	37	Uh256
BF200	NF200	19.68	100	---	---	---	72	0	72	Uh256
ZONE G:										
BG010	NG010	22.55	100	---	---	---	58	0	13	Uh484
BG020	NG020	50.26	100	---	---	---	59	0	11	Uh484
BG030	NG030	40.37	100	---	---	---	54	0	147	Uh323
BG040	NG040	20.42	100	---	---	---	65	0	29	Uh323
BG050	NG050	34.69	100	---	---	---	64	0	38	Uh323
BG060	NG060	36.73	100	---	---	---	62	0	34	Uh323
BG070	NG070	7.53	100	---	---	---	60	0	24	Uh323
BG080	NG080	6.11	100	---	---	---	65	0	28	Uh256
BG090	NG090	10.97	100	---	---	---	62	0	21	Uh323
BG100	NG100	5.27	100	---	---	---	64	0	7	Uh484
BG110	NG110	71.02	100	---	---	---	60	0	48	Uh256
BG120	NG120	10.69	100	---	---	---	65	0	50	Uh256
BG130	NG130	17.26	100	---	---	---	69	0	27	Uh323
ZONE A:										
BH010	NH010	4.1	100	---	---	---	41	0	75	Uh323
BH020	NH020	28.78	100	---	---	---	54	0	20	Uh484
BH030	NH030	47.78	100	---	---	---	63	0	34	Uh484
BH040	NH040	10.99	100	---	---	---	72	0	58	Uh484
BH050	NH050	44.19	100	---	---	---	59	0	93	Uh484
BH060	NH060	9.61	100	---	---	---	68	0	12	Uh323
BH070	NH070	6.53	100	---	---	---	71	0	10	Uh484
BH080	NH080	57.61	100	---	---	---	63	0	18	Uh484
BH090	NH090	5.92	100	---	---	---	55	0	5	Uh484

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BH100	NH100	11.88	100	---	---	---	70	0	33	Uh323
BH110	NH110	24.32	100	---	---	---	73	0	25	Uh256
BH120	NH120	31.76	100	---	---	---	72	0	12	Uh323
BH130	NH130	20.86	100	---	---	---	70	0	18	Uh323
BH140	NH140	18.73	19	---	---	82	71	0	19	Uh484
BH170	NH170	23.36	100	---	---	---	71	0	44	Uh256
BH180	NH180	6.19	100	---	---	---	74	0	15	Uh323
BH190	NH190	37.82	100	---	---	---	64	0	241	Uh256
BH200	NH200	86.65	100	---	---	---	58	0	44	Uh484
BH210	NH210	17.47	100	---	---	---	81	0	8	Uh484
BH220	NH220	18.72	100	---	---	---	83	0	8	Uh323
BH230	NH230	28.35	100	---	---	---	79	0	14	Uh484
BH240	NH240	1.21	100	---	---	---	62	0	35	Uh256
BH250	NH250	1.83	100	---	---	---	74	0	29	Uh256
BH260	NH260	16.42	100	---	---	---	60	0	26	Uh323
ZONE I:										
BI010	NI010	2.14	100	---	---	---	78	44	8	Uh484
BI020	NI020	2.85	100	---	---	---	76	40	8	Uh484
BI030	NI030	3.36	100	---	---	---	74	21	13	Uh323
BI040	NI040	3.2	100	---	---	---	75	28	12	Uh323
BI050	NI050	2.96	100	---	---	---	75	31	11	Uh323
BI060	NI060	3.56	100	---	---	---	74	19	14	Uh323
BI070	NI070	3.2	100	---	---	---	75	28	15	Uh323
BI080	NI080	9.52	100	---	---	---	74	16	23	Uh256
BI090	NI090	6.86	100	---	---	---	71	19	43	Uh256
BI100	NI100	3.67	100	---	---	---	75	46	25	Uh256
BI110	NI110	3.31	100	---	---	---	74	28	18	Uh323
BI120	NI120	4.09	100	---	---	---	68	24	24	Uh484
BI130	NI130	11.02	100	---	---	---	67	6	33	Uh323
BI140	NI140	3.95	100	---	---	---	77	28	16	Uh323
BI150	NI150	2.78	100	---	---	---	76	0	12	Uh323
BI160	NI160	1.18	100	---	---	---	75	0	15	Uh323
BI170	NI170	18.42	100	---	---	---	65	0	33	Uh323
BI180	NI180	1.92	100	---	---	---	81	80	8	Uh484
BI190	NI190	22.86	100	---	---	---	66	7	23	Uh323

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BI200	NI200	2.84	100	---	---	---	75	30	19	Uh323
BI220	NI220	8.05	100	---	---	---	76	52	20	Uh323
BI230	NI230	28.03	100	---	---	---	65	5	33	Uh323
BI240	NI240	17.13	100	---	---	---	61	0	42	Uh256
BI250	NI250	19.57	100	---	---	---	60	0	22	Uh323
BI260	NI260	18.82	100	---	---	---	58	0	24	Uh323
BI270	NI270	9.35	100	---	---	---	61	0	30	Uh256
BI280	NI280	5.9	100	---	---	---	61	0	20	Uh323
BI290	NI290	92.78	100	---	---	---	60	0	47	Uh323
BI300	NI300	23.25	100	---	---	---	63	0	37	Uh256
BI310	NI310	8.55	100	---	---	---	73	0	33	Uh256
BI315	NI315	23.43					73	0	33	Uh256
BI320	NI320	28.73	100	---	---	---	65	0	27	Uh323
BI330	NI330	11.22	100	---	---	---	58	4	50	Uh256
BI340	NI340	17.79	100	---	---	---	56	0	35	Uh256
BI350	NI350	8.37	100	---	---	---	71	0	56	Uh256
BI380	NI380	39.38	100	---	---	---	62	0	44	Uh256
BI390	NI390	19.02	100	---	---	---	61	0	26	Uh323
BI400	NI400	10.35	100	---	---	---	60	0	18	Uh323
BI410	NI410	2.18	100	---	---	---	79	65	5	Uh484
BI420	NI420	4	100	---	---	---	76	35	5	Uh323
BI430	NI430	4.68	100	---	---	---	75	26	23	Uh256
BI440	NI440	5.68	100	---	---	---	74	15	12	Uh323
BI450	NI450	2.8	100	---	---	---	76	0	18	Uh256
BI460	NI460	5	100	---	---	---	75	25	18	Uh256
BI470	NI470	3.12	100	---	---	---	76	0	13	Uh323
BI480	NI480	5.73	100	---	---	---	74	0	29	Uh256
BI485	NI485	4.65	100	---	---	---	50	0	27	Uh323
BI490	NI490	23.32	100	---	---	---	58	0	53	Uh256
ZONE J:										
BJ020	NJ020	7.74	100	---	---	---	56	0	18	Uh484
BJ030	NJ030	5.85	100	---	---	---	58	0	12	Uh484
BJ040	NJ040	1.72	100	---	---	---	59	0	6	Uh484
BJ050	NJ050	36.6	100	---	---	---	54	0	24	Uh484
BJ060	NJ060	12.56	100	---	---	---	56	0	19	Uh323

TABLE 2-3

WARRINGTON BASIN - ADICPR MODEL
SUBBASIN HYDROLOGIC DATA SUMMARY

SUBBASIN NO.	NODE NO.	DRAINAGE AREA, ACRES	HYDROLOGIC SOIL GROUP, %				RUNOFF CURVE NUMBER, CN	DIRECTLY CONNECTED IMPERVIOUS AREA, %	TIME OF CONCENTRATION, MINUTES	UNIT HYDROGRAPH
			A	B	C	D				
BJ080	NJ080	16.83	100	---	---	---	57	0	45	Uh256
BJ100	NJ100	7.13	100	---	---	---	58	0	38	Uh256
BJ110	NJ110	10.38	100	---	---	---	58	0	38	Uh256
BJ120	NJ120	8.35	100	---	---	---	57	0	34	Uh256
BJ130	NJ130	5.94	100	---	---	---	57	0	37	Uh256
ZONE K:										
BK010	NK010	4.67	100	---	---	---	60	0	5	Uh484
BK020	NK020	11.15	100	---	---	---	60	0	13	Uh484
BK030	NK030	6.04	100	---	---	---	58	0	11	Uh484
BK040	NK040	42.07	100	---	---	---	61	0	59	Uh323
BK050	NK050	14.66	100	---	---	---	60	0	25	Uh323
BK060	NK060	20.33	100	---	---	---	61	0	19	Uh484
BK070	NK070	31.06	100	---	---	---	61	0	24	Uh323
BK080	NK080	53.62	100	---	---	---	60	0	34	Uh323
BK090	NK090	89.77	100	---	---	---	59	0	47	Uh323
BK100	NK100	45.65	100	---	---	---	56	0	60	Uh256
BK110	NK110	32.85	100	---	---	---	65	0	205	Uh256
BK120	NK120	85.85	100	---	---	---	60	0	193	Uh256
BK130	NK130	7.8	100	---	---	---	58	0	13	Uh484
BK150	NK150	3.86	100	---	---	---	64	0	21	Uh323
BK160	NK160	8.8	100	---	---	---	61	0	24	Uh323
BK170	NK170	17.98	100	---	---	---	64	0	23	Uh323
BK180	NK180	14.51	100	---	---	---	59	0	41	Uh323
BK200	NK200	7.52	100	---	---	---	61	0	28	Uh323
BK210	NK210	6.32	100	---	---	---	52	0	35	Uh323
BK220	NK220	12.52	100	---	---	---	58	0	41	Uh256
BK230	NK230	14.39	100	---	---	---	55	0	52	Uh256
BK250	NK250	12.15	100	---	---	---	61	0	19	Uh256
BK260	NK260	42.3	100	---	---	---	60	0	37	Uh323

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
Branch A:					
Boundary		0+00	Bayou Chico	-2	
	CA010				Channel
NA010		10+35	Old Corry Field Rd.	-1.17	
	PA020				60" RCP Stormsewer
NA020		10+80	Old Corry Field Rd.	-1.71	
	CA030				Channel
NA030		16+56	Old Corry Field Rd.	0.00	
	CA040				Channel
NA040		22+56	N. Navy Blvd.	0.49	
	PA050				120" X 60" Box Culvert
NA050		24+01	N. Navy Blvd.	4.90	
	CA060				Channel
NA060		35+35	Jones Swamp	5.30	
	CA070				Channel
NA070		49+10	Jones Swamp	5.76	
	PA080				120" X 60" Box Culvert
NA080		49+78	Jones Swamp	5.87	
	CA090				Channel
NA090		59+37	Jones Swamp	10.25	
	CA100				Channel
NA100		68+87	Jones Swamp	7.20	
	CA110				Channel
NA110		81+37	Jones Swamp	9.80	
	CA120				Channel
NA120		95+71	Jones Swamp	10.50	
	CA130				Channel
NA130		101+71	Jones Swamp	8.44	
	CA140				Channel
NA140		109+71	Jones Swamp	13.50	
	CA150				Channel
NA150		119+41	Jones Swamp	14.00	
	CA160				Channel
NA160		128+51	Jones Swamp	12.03	
	PA170				84" X 48" Box Culvert
NA170		129+04	Jones Swamp	12.93	
	CA180				Channel
NA180		138+24	Jones Swamp	15.23	
	CA190				Channel
NA190		150+09	Jones Swamp	18.19	
	CA200				Channel
NA200		163+39	Jones Swamp	21.52	
	CA210				Channel
NA210		175+39	Jones Swamp	22.72	
	CA220				Channel
NA220		186+94	Jones Swamp	23.88	
	CA230				Channel
NA230		198+64	Jones Swamp	23.00	
	CA240				Channel
NA240		210+79	Jones Swamp	24.00	

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
	CA250				Channel
NA250		222+79	Jones Swamp	25.00	
Branch A:					
NA020		0+00	Old Corry Field Rd.	-1.71	
	PA021				36" RCP Stormsewer
NA021		17+98	S. Old Corry Field Rd.	16.54	
	PA022				30" RCP Stormsewer
NA022		20+73	Brandon Ave	16.87	
	PA023				24" RCP Stormsewer
NA023		23+66	Brandon Ave	17.78	
Branch A:					
NA020			S. Old Corry Field Rd.	-1.71	
	PA021				36" RCP Stormsewer
NA021		17+98	S. Old Corry Field Rd.	16.54	
	PA024				24" RCP Stormsewer
NA024		25+48	S. Old Corry Field Rd.	18.04	
Branch A:					
NA030		0+00	Old Corry Field Rd.	0.00	
	WA260				Weir
NA260		0+20	N. Navy Blvd.	9.80	
Branch A:					
NA050		0+00	N. Navy Blvd.	4.90	
	PA265				36" RCP Stormsewer
NA265		1+27	W. Highway 98	6.11	
	DA270				Drop Structure
NA270		1+70	W. Highway 98	6.23	
Branch A:					
NA120		0+00	Jones Swamp	10.50	
	CA280				Channel
NA280		8+60	Old Hickory Rd.	17.79	
	PA291				24" RCP Stormsewer
	PA290				18" RCP Stormsewer
NA290		9+01	Old Hickory Rd.	17.70	
	CA300				Channel
NA300		14+57	Old Hickory Rd.	19.09	
	CA310				Channel
NA310		21+92	Old Hickory Rd.	20.93	
Branch A:					
NA220		0+00	Jones Swamp	23.88	
	WA320				Weir
NA320		0+20	Jones Swamp	28.50	
Branch A:					
NA230		0+00	Jones Swamp	23.00	
	WA330				Weir
NA330		0+20	Jones Swamp	28.50	
Branch A:					
NA050		0+00	N. Navy Blvd.	4.90	
	PA340				30" RCP Stormsewer
NA340		2+22	N. Navy Blvd.	6.60	
	PA350				30" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NA350		4+62	N. Navy Blvd.	13.20	
	PA360				24" RCP Stormsewer
NA360		9+74	N. Navy Blvd.	19.90	
	PA370				24" RCP Stormsewer
NA370		13+70	N. Navy Blvd.	21.10	
Branch A:					
NA050		0+00	N. Navy Blvd.	4.90	
	WA380				Weir
	PA382				72" X 36" Box Culvert
	PA381				56" X 42" Box Culvert
	PA380				Weir
NA380		1+73	W. Highway 98	6.04	
	PA390				36" RCP Stormsewer
NA390		8+39	Corry Field	7.82	
	PA400				36" RCP Stormsewer
NA400		14+77	Corry Field	18.60	
	PA410				36" RCP Stormsewer
NA410		19+57	Corry Field	19.80	
	PA420				36" RCP Stormsewer
NA420		23+00	Corry Field	20.66	
Branch A:					
NA380		0+00	W. Highway 98	48.40	
	CA430				Channel
NA430		5+75	W. Highway 98	15.75	
Branch A:					
NA390		0+00	Corry Field	7.82	
	PA440				36" RCP Stormsewer
NA440		6+92	Corry Field	18.73	
	PA450				36" RCP Stormsewer
NA450		11+18	Corry Field	19.79	
	PA460				36" RCP Stormsewer
NA460		12+85	Corry Field	20.21	
	PA470				36" RCP Stormsewer
NA470		14+42	Corry Field	20.61	
	PA480				36" RCP Stormsewer
NA480		14+83	Corry Field	20.96	
	PA490				36" RCP Stormsewer
NA490		17+33	Corry Field	21.58	
Branch A:					
NA060		0+00	W. Highway 98	5.30	
	PA500				144" X 72" Box Culvert
NA500		0+78	W. Highway 98	9.59	
	CA510				Channel
NA510		9+80	W. Highway 98	12.00	
	CA520				Channel
NA520		13+05	W. Highway 98	13.05	
	PA530				91" x 58" ERCP Stormsewer
	WA530				Weir
NA530		14+90	W. Highway 98	13.05	
	PA540				60" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NA540		25+78	Corry Field	16.29	
	PA550				60" RCP Stormsewer
NA550		27+59	Corry Field	16.74	
	PA560				54" RCP Stormsewer
NA560		31+98	Corry Field	17.84	
	PA570				54" RCP Stormsewer
NA570		35+35	Corry Field	18.68	
	PA580				54" RCP Stormsewer
NA580		37+87	Corry Field	19.31	
	PA590				48" RCP Stormsewer
NA590		41+30	Corry Field	20.10	
	PA600				36" RCP Stormsewer
NA600		44+60	Corry Field	20.93	
Branch A:					
NA510		0+00	W. Highway 98	12.00	
	WA610				Weir
	PA610				36" RCP Stormsewer
NA610		2+20	W. Highway 98	15.93	
	CA620				Channel
NA620		5+90	W. Highway 98	13.94	
Branch A:					
NA550		0+00	Corry Field	16.74	
	PA630				42" RCP Stormsewer
NA630		1+76	Corry Field	18.68	
	PA640				42" RCP Stormsewer
NA640		4+18	Corry Field	19.28	
	PA650				42" RCP Stormsewer
NA650		7+66	Corry Field	20.16	
	PA660				42" RCP Stormsewer
NA660		10+71	Corry Field	20.92	
Branch A:					
NA110		0+00	Jones Swamp	9.80	
	WA670				Weir
	PA670				48" RCP Stormsewer
NA670		0+96	Corry Field	16.42	
Branch A:					
NA100		0+00	Jones Swamp	7.20	
	WA690				Weir
	PA690				68" x 43" ERCP Stormsewer
NA690		1+75	W. Highway 98	15.55	
	CA700				Channel
NA700		7+75		19.09	
Branch A:					
NA100		0+00	W. Highway 98	7.20	
	PA690				68" x 43" ERCP Stormsewer
	WA690				Weir
NA690		1+75	W. Highway 98	15.55	
	DA710				Drop Structure
NA710		7+75	W. Highway 98	19.09	
	PA720				60" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NA720		10+40	Corry Field	7.80	
	PA730				60" RCP Stormsewer
NA730		13+65	Corry Field	7.84	
	PA740				60" RCP Stormsewer
NA740		14+75	Corry Field	8.22	
	PA750				54" RCP Stormsewer
NA750		25+43	W. Highway 98	9.79	
	PA760				48" RCP Stormsewer
NA760		32+43	W. Highway 98	15.00	
Branch A:					
NA110		0+00	Jones Swamp	9.80	
	PA770				48" RCP Stormsewer
NA770		8+25	Corry Field	14.80	
	PA780				48" RCP Stormsewer
NA780		11+95	Corry Field	15.73	
	PA790				48" RCP Stormsewer
NA790		14+45	Corry Field	16.36	
	PA800				36" RCP Stormsewer
NA800		18+88	Corry Field	17.97	
Branch B:					
NA130		0+00	Jones Swamp	8.44	
	PB010				60" RCP Stormsewer
NB010		1+10	S. 61st. Ave	15.40	
	PB020				72" RCP Stormsewer
NB020		9+23	S. 61st. Ave	18.10	
	PB030				36" RCP Stormsewer
NB030		13+72	S. 61st. Ave	21.90	
	PB040				30" RCP Stormsewer
NB040		19+62	S. 61st. Ave	23.80	
	PB050				27" RCP Stormsewer
NB050		25+92	S. 61st. Ave	26.16	
Branch B:					
NB020		0+00	S. 61st. Ave	18.10	
	PB060				60" RCP Stormsewer
NB060		0+65	S. 61st. Ave	19.20	
	PB070				65" x 40" ARCP Stormsewer
NB070		5+45	S. 61st. Ave	19.56	
	PB080				65" x 40" ARCP Stormsewer
NB080		6+80	S. 61st. Ave	20.10	
	PB090				65" x 40" ARCP Stormsewer
NB090		13+80	S. 61st. Ave	22.40	
	PB100				65" x 40" ARCP Stormsewer
	WB100				Weir
	WB095				Weir
NB100		14+00	Lake Joanne Dr.	22.88	
	CB110				Channel
NB110		21+66	Lake Joanne Dr.	16.00	
	CB120				Channel
NB120		25+96	Lake Joanne Dr.	16.00	
	CB130				Channel

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NB130		31+56	Lake Joanne Dr.	16.00	
	WB140				Weir
NB140		31+76	Lake Joanne Dr.	23.00	
	PB290				27" RCP Stormsewer
NB290		33+66	Lake Charlene Dr.	22.90	
	PB300				21" RCP Stormsewer
NB300		35+26	Myrtle Hill Cir.	23.17	
	PB310				36" RCP Stormsewer
NB310		37+73	Myrtle Hill Cir.	24.21	
	PB320				30" RCP Stormsewer
NB320		39+86	Myrtle Hill Cir.	28.95	
Branch B:					
NB100		0+00	Lake Joanne Dr.	29.50	
	PB150				24" RCP Stormsewer
NB150		0+20	Long Lake Dr	23.40	
Branch B:					
NB110		0+00	Lake Joanne Dr.	16.00	
	PB160				42" RCP Stormsewer
NB160		3+60	Kitty Hawk Dr.	21.73	
Branch B:					
NB120		0+00	Lake Joanne Dr.	16.00	
	PB170				42" RCP Stormsewer
NB170		3+60	Kitty Hawk Cir.	21.73	
	PB180				42" RCP Stormsewer
NB180		8+60	Kitty Hawk Cir.	23.11	
	CB181				
NB181		16+20	72nd Ave., East Side	28.41	
	PB181.1				20"x24" ERCP
	PB181.2				14"x23" ERCP
	WB182				Road Top, 72nd Ave.
NB182		16+90	72nd Ave., West Side	27.25	
	WB183				Pond Overflow
NB183		18+51	Lago Vista detention Ponds	28.00	
Branch B:					
NB130		0+00	Lake Joanne Dr.	16.00	
	PB190				24" RCP Stormsewer
NB190		2+00	Long Lake Dr	23.40	
Branch B:					
NB140		0+00	Lake Joanne Dr.	23.00	
	PB200				30" RCP Stormsewer
NB200		1+45	S. 61st. Ave	23.29	
	PB210				27" RCP Stormsewer
NB210		3+80	S. 61st. Ave	24.37	
	PB220				27" RCP Stormsewer
NB220		7+60	S. 61st. Ave	25.95	
	PB230				18" RCP Stormsewer
NB230		9+90	S. 61st. Ave	27.26	
	PB250				18" RCP Stormsewer
NB240		10+50	S. 61st. Ave	31.00	
Branch B:					

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NB220		0+00	S. 61st. Ave	25.95	
	PB240				18" RCP Stormsewer
NB250		0+60	S. 61st. Ave	31.00	
	WB260				Weir
NB260		0+80	S. 61st. Ave	42.50	
Branch B:					
NB140		0+00	Lake Joanne Dr.	23.00	
	PB270				24" RCP Stormsewer
NB270		0+80	Lake Charlene Dr.	20.43	
	PB280				24" RCP Stormsewer
NB280		2+50	Lake Charlene Dr.	23.80	
Branch B:					
NB290		0+00	Lake Charlene Dr.	22.90	
	WB350				Weir
NB350		0+20	Myrtle Hill Cir.	34.30	
	PB350				30" RCP Stormsewer
NB340		3+58	Myrtle Hill Cir.	28.15	
	PB340				30" RCP Stormsewer
NB330		6+08	Myrtle Hill Cir.	28.95	
	PB330				30" RCP Stormsewer
NB320		8+58	Myrtle Hill Cir.	28.95	
Branch B:					
NB330		0+00	Myrtle Hill Cir.	28.95	
	WB360				Weir
NB360		0+20	W. La Rue St.	47.50	
Branch B:					
NB530		0+00	W. La Rue St.	47.20	
	WB370				Weir
NB370		0+20	W. La Rue St.	47.50	
	WB380				Weir
NB380		0+40	W. La Rue St.	48.40	
Branch B:					
NB140		0+00	Lake Joanne Dr.	23.00	
	PB400				27" RCP Stormsewer
NB400		1+70	Lake Charlene Dr.	22.08	
	PB410				27" RCP Stormsewer
NB410		2+20	Lake Charlene Dr.	23.08	
Branch B:					
NB420		0+00	Bunker Hill Dr.	20.23	
	PB430				21" RCP Stormsewer
NB430		1+30	Bunker Hill Dr.	23.59	
	WB440				Weir
NB440		1+50	Penton St.	26.50	
Branch B:					
NB140		0+00	Lake Joanne Dr.	23.00	
	PB420				60" RCP Stormsewer
NB420		2+75	Bunker Hill Dr.	20.23	
	CB450				Channel
NB450		6+86	S. 69th Ave.	24.84	
	PB460				60" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NB460		20+36	S. 69th Ave.	30.24	
	PB490				36" RCP Stormsewer
NB490		26+86	N. 69th Ave.	33.86	
	PB520				36" RCP Stormsewer
NB520		31+86	Malvern St.	34.49	
	WB530				Weir
NB530			S. 69th Ave.	47.20	
	WB540				Weir
NB540			S. 69th Ave.	48.20	
	WB560				Weir
NB560			S. 69th Ave.	50.50	
Branch B:					
NB460		0+00	S. 69th Ave.	30.24	
	PB470				24" RCP Stormsewer
NB470		3+30	Penton St.	33.24	
Branch B:					
NB460		0+00	S. 69th Ave.	30.24	
	PB480				24" RCP Stormsewer
NB480		5+20	Penton St.	34.54	
Branch B:					
NB490		0+00	N. 69th Ave.	33.86	
	PB500				24" RCP Stormsewer
NB500		1+45	N. 70th Ave.	35.55	
	PB510				18" RCP Stormsewer
NB510		4+35	N. 71th Ave.	37.50	
Branch B:					
NB540		0+00	S. 69th Ave.	48.20	
	WB550				Weir
NB550		0+20	Lillian Hwy	50.50	
Branch B:					
NB540		0+00	S. 69th Ave.	48.20	
	WB560				Weir
NB560		0+20	Lillian Hwy	50.50	
Branch B:					
NB540		0+00	S. 69th Ave.	48.20	
	WB570				Weir
NB570		0+20	Lillian Hwy	51.50	
	WB580				Weir
NB580		0+40	Lillian Hwy	54.50	
Branch C:					
NA140		0+00	Jones Swamp	13.50	
	CC010				Channel
NC010		9+80	Lake Aire Dr.	20.86	
	PC020				36" RCP Stormsewer
NC020		11+50	Lake Aire Dr.	23.42	
	CC025				Channel
NC025		15+50	W. Highway 98	24.00	
	PC030				42" RCP Stormsewer
NC030		15+70	W. Highway 98	24.40	
	CC035				Channel

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NC035		18+00	W. Highway 98	26.27	
	PC040B				60" X 36" Box Culvert
	PC040A				30" RCP Stormsewer
	WC040				Weir
NC040		18+20	W. Highway 98	23.78	
Branch C:					
NA150		0+00	Jones Swamp	14.00	
	PC050				36" RCP Stormsewer
NC050		0+40	Middlebrook Dr.	17.69	
	CC060				Channel
NC060		14+65	Middlebrook Dr.	24.68	
	PC070				36" RCP Stormsewer
NC070		16+60	Failfield Lakes Apts	25.30	
	CC080				Channel
NC080		21+60	Failfield Lakes Apts	25.40	
	PC090				72" x 30"Box Culvert
NC090		24+05	Failfield Lakes Apts	25.67	
	CC100				Channel
NC100		26+75	Failfield Lakes Apts	25.86	
	PC110				72" x 36" Box Culvert
NC110		31+45	Failfield Lakes Apts	26.28	
	PC120				30" RCP Stormsewer
NC120		32+95	W. Highway 98	26.96	
	PC130				30" RCP Stormsewer
NC130		33+35	W. Highway 98	27.00	
	DC140				Drop Structure
NC140		33+85	W. Highway 98	27.00	
	PC150				36" RCP Stormsewer
NC150		34+53	W. Highway 98	27.00	
	WC160				Weir
NC160		34+73	W. Highway 98	28.20	
	PC160				24" RCP Stormsewer
NC160		35+71	W. Highway 98	28.00	
Branch C:					
NC160		35+71	W. Highway 98	28.00	
	PC161				8" PVC
	WC161				Pond Overflow
NC161		43+26	Westlake Sub, S-W Pond	27.00	
Branch C:					
NC160		35+71	W. Highway 98	28.00	
	PC162				8" PVC
	WC162				Pond Overflow
NC162		45+98	Westlake Sub, S-E Pond	27.00	
Branch C:					
NC110		0+00	W. Highway 98	26.28	
	WC170				Weir
NC170		0+20	W. Highway 98	26.90	
Branch C:					
NA160		0+00	S. Fairfield Dr.	12.03	
	CC180				Channel

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NC180		10+00	S. Fairfield Dr.	15.17	
	PC190				36" RCP Stormsewer
NC190			S. Fairfield Dr.	15.33	
	PC200				36" RCP Stormsewer
NC200			S. Fairfield Dr.	17.00	
	CC210				Channel
NC210			S. Fairfield Dr.	20.33	
	PC220				48" RCP Stormsewer
NC220			S. Fairfield Dr.	20.50	
	CC230				Channel
NC230			S. Fairfield Dr.	21.91	
	PC240				48" RCP Stormsewer
NC240			S. Fairfield Dr.	22.42	
	CC250				Channel
NC250			S. Fairfield Dr.	25.42	
	PC260				36" RCP Stormsewer
NC260			S. Fairfield Dr.	25.58	
	PC270				36" RCP Stormsewer
NC270			S. Fairfield Dr.	24.50	
	PC280				30" RCP Stormsewer
NC280			S. Fairfield Dr.	24.00	
	CC290				Channel
NC290			S. Fairfield Dr.	25.75	
	PC300				60" x 36" Box Culvert
NC300			S. Fairfield Dr.	26.11	
Branch C:					
NA170		0+00	S. Fairfield Dr.	12.93	
	CC310				Channel
NC310		14+00	S. Fairfield Dr.	21.34	
	PC320				36" RCP Stormsewer
NC320		14+40	S. Fairfield Dr.	19.17	
	PC330				36" RCP Stormsewer
NC330		14+80	S. Fairfield Dr.	19.83	
	PC340				36" RCP Stormsewer
NC340		15+20	S. Fairfield Dr.	20.17	
	PC350A				36" RCP Stormsewer
	PC350B				24" RCP Stormsewer
NC350		15+60	S. Fairfield Dr.	23.91	
	PC360				36" RCP Stormsewer
NC360		16+60	S. Fairfield Dr.	24.58	
	PC370				36" RCP Stormsewer
NC370		17+00	S. Fairfield Dr.	23.47	
	PC380				36" RCP Stormsewer
NC380		17+40	S. Fairfield Dr.	23.58	
	PC390				36" RCP Stormsewer
NC390		17+80	S. Fairfield Dr.	24.33	
	PC400				36" RCP Stormsewer
NC400		18+20	S. Fairfield Dr.	24.75	
	PC410				30" RCP Stormsewer
NC410		18+60	S. Fairfield Dr.	25.42	

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
	PC420				24" RCP Stormsewer
NC420		19+00	S. Fairfield Dr.	23.33	
	PC430A				42" RCP Stormsewer
	PC430B				24" RCP Stormsewer
NC430		19+40	S. Fairfield Dr.	24.25	
	PC440				36" RCP Stormsewer
NC440		20+40	S. Fairfield Dr.	23.16	
	CC450				Channel
NC450		27+60	S. Fairfield Dr.	26.54	
	PC460				30" RCP Stormsewer
NC460		29+25	S. Fairfield Dr.	27.06	
Branch C:					
NC350		0+00	S. Fairfield Dr.	24.50	
	WC470				Weir
NC470		0+20	S. Fairfield Dr.	27.20	
Branch C:					
NC410		0+00	S. Fairfield Dr.	25.42	
	WC480				Weir
NC480		0+20	S. Fairfield Dr.	27.50	
	WC490				Weir
NC490		0+40	W. Highway 98	27.50	
	WC500				Weir
NC500		0+60	W. Highway 98	27.50	
	WC510				Weir
NC510		0+80	W. Highway 98	28.20	
Branch C:					
Boundary		0+00	Star Lake		
	PD010				18" RCP Stormsewer
ND010		1+30	Lakeside Dr.	2.04	
	PD020				24" RCP Stormsewer
ND020		1+59	Live Oak Dr.	7.33	
Branch D:					
Boundary		0+00	Star Lake		
	PD030				30" RCP Stormsewer
	WD030				Weir
ND030		0+20	Star Lake Dr.	1.46	
	PD040				24" RCP Stormsewer
	WD040				Weir
ND040		0+62	Live Oak Dr.	6.09	
Branch D:					
Boundary		0+00	Star Lake		
	WD050				Weir
ND050		0+20	Star Lake Dr.	0.13	
	PD060				36" RCP Stormsewer
ND060		5+30	Barrancas Ave.	8.00	
	PD070				24" RCP Stormsewer
ND070		8+92	Barrancas Ave.	9.54	
Branch D:					
ND060		0+00	Barrancas Ave.	8.00	
	PD080				30" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
ND080		3+23	Barrancas Ave.	9.50	
	PD090				18" RCP Stormsewer
ND090		5+23	Barrancas Ave.	13.80	
Branch D:					
ND080		0+00	Barrancas Ave.	9.50	
	PD100				24" RCP Stormsewer
ND100		3+80	Iona St.	14.55	
	PD110				24" RCP Stormsewer
ND110		4+04	Iona St.	15.50	
	PD120				24" RCP Stormsewer
ND120		7+79	Iona St.	16.44	
	PD130				18" RCP Stormsewer
ND130		11+54	Iona St.	17.87	
Branch D:					
ND100		0+00	Iona St.	14.55	
	PD140				24" RCP Stormsewer
ND140		5+20	Wisteria Ave.	15.85	
Branch D:					
ND160		0+00	Barrancas Ave.	10.00	
	PD170				24" RCP Stormsewer
ND170		3+77	Barrancas Ave.	11.90	
	PD180				18" RCP Stormsewer
ND180		1+87	Barrancas Ave.	14.40	
Branch D:					
ND050		0+00	Star Lake Dr.	0.13	
	WD150				Weir
ND150		0+20	Barrancas Ave.	7.50	
	PD160				24" RCP Stormsewer
ND160		2+29	Barrancas Ave.	10.00	
	PD190				36" RCP Stormsewer
ND190		4+61	Barrancas Ave.	13.70	
	PD200				24" RCP Stormsewer
ND200		3+09	Barrancas Ave.	14.80	
	PD210				18" RCP Stormsewer
ND210		13+24	Barrancas Ave.	16.70	
Branch D:					
ND190		0+00	Barrancas Ave.	13.70	
	PD220				24" RCP Stormsewer
ND220		3+50	Jamison Ave.	16.18	
	PD230				24" RCP Stormsewer
ND230		7+00	Jamison Ave.	17.05	
	PD240				24" RCP Stormsewer
ND240		11+10	Jamison Ave.	18.08	
	PD250				18" RCP Stormsewer
ND250		15+10	Jamison Ave.	19.58	
Branch D:					
Boundary		0+00	Pensacola Bay		
	PD260				24" RCP Stormsewer
ND260		3+10	Harborview Cir.	2.34	
Branch D:					

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
Boundary		0+00	Pensacola Bay		
	PD270				36" RCP Stormsewer
ND270		2+20	Harborview Cir.	0.70	
	PD280				38X24 ERCP Stormsewer
ND280		4+90	Harborview Cir.	1.23	
	PD290				36" RCP Stormsewer
ND290		6+90	Bayshore Dr.	1.59	
	WD300				Weir
ND300		6+90	Barrancas Ave.	7.50	
Branch E:					
Boundary		0+00	Bayou Chico		
	PE010				54" RCP Stormsewer
NE010		3+28	Barrancas Ave.	-1.10	
	PE020				54" RCP Stormsewer
NE020		5+70	Barrancas Ave.	-0.90	
	PE030				54" RCP Stormsewer
NE030		8+12	Barrancas Ave.	-0.60	
	PE040				54" RCP Stormsewer
NE040		13+39	Barrancas Ave.	0.90	
	PE050				54" RCP Stormsewer
NE050		17+56	Barrancas Ave.	3.50	
	PE060				54" RCP Stormsewer
NE060		21+83	Barrancas Ave.	6.00	
	PE070				54" RCP Stormsewer
NE070		26+93	Barrancas Ave.	7.30	
	PE080				48" RCP Stormsewer
NE080		31+18	Barrancas Ave.	9.00	
	PE090				48" RCP Stormsewer
NE090		37+39	Barrancas Ave.	10.40	
	PE100				48" RCP Stormsewer
NE100		41+85	Barrancas Ave.	10.50	
	PE110				42" RCP Stormsewer
NE110		47+52	Barrancas Ave.	11.40	
	PE120				42" RCP Stormsewer
NE120		50+32	Barrancas Ave.	11.90	
	PE130				36" RCP Stormsewer
NE130		52+61	Barrancas Ave.	12.80	
	PE140				36" RCP Stormsewer
NE140		54+66	Barrancas Ave.	13.70	
	PE150				24" RCP Stormsewer
NE150		56+81	Barrancas Ave.	14.40	
	PE160				18" RCP Stormsewer
NE160		58+52	Barrancas Ave.	15.70	
Branch E:					
Boundary		0+00	Bayou Chico		
	PF010				24" x 12" Box Culvert
NF010		0+28	Rue Max St.	12.60	
Branch F:					
Boundary		0+00	Bayou Chico		
	PF020				18" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NF020		1+80	Lakewood Rd.	9.47	
Branch F:					
Boundary		0+00	Bayou Chico		
	WF030				Weir
NF030		0+00	Lakewood Rd.	11.20	
Branch F:					
Boundary		0+00	Bayou Chico		
	WF040				Weir
NF040		0+20	Lakewood Rd.	10.80	
	WF050				Weir
NF050		0+40	Mandalay Dr.	18.50	
	WF060				Weir
NF060		0+60	Mandalay Dr.	22.50	
Branch F:					
Boundary		0+00	Bayou Chico		
	WF070				Weir
NF070		0+20	Lakewood Dr.	20.50	
Branch F:					
Boundary		0+00	Bayou Chico		
	PF080				18" RCP Stormsewer
NF080		1+90	Edgewater Dr.	4.65	
	PF090				18" RCP Stormsewer
NF090		8+38	Edgewater Dr.	5.95	
Branch F:					
Boundary		0+00	Bayou Chico		
	WF100				Weir
NF100		0+20	Chaseville St.	4.00	
	PF110				36" RCP Stormsewer
NF110		5+00	Edgewater Dr.	4.25	
	PF120				36" RCP Stormsewer
NF120		8+78	Chaseville St.	5.20	
	PF130				24" RCP Stormsewer
NF130		16+48	Chaseville St.	8.13	
	WF140				Weir
NF140		16+48		24.00	
Branch F:					
Boundary		0+00	Bayou Chico		
	PF150				18" RCP Stormsewer
NF150		3+40	Edgewater Dr.	3.45	
	WF170				Weir
NF170		3+60	Frisco Rd.	12.50	
	PF160				18" RCP Stormsewer
NF160		5+85	Frisco Rd.	9.67	
	PF180				38" x 24" ERCP Stormsewer
NF180		6+76	Chaseville St.	19.15	
	PF190				45" x 29" ERCP Stormsewer
NF190		9+56	Chaseville St.	20.50	
	PF200				45" x 29" ERCP Stormsewer
NF200		12+72	Chaseville St.	21.50	
Branch G:					

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NG010		0+00	Idlewood Dr.	25.00	
	WG020				Weir
NG020		0+20	W. La Rue St.	30.50	
	WG030				Weir
NG030		0+40	Idlewood Dr.	49.00	
	PG070				24" RCP Stormsewer
NG070		2+40	Wiggins Ave.	61.50	
	PG080				24" RCP Stormsewer
NG080		11+79	W. Jackson St.	63.85	
	WG110				Weir
NG110		11+99	Citrus St.	65.50	
	WG120				Weir
NG120		12+19	Citrus St.	65.50	
	WG130				Weir
NG130		12+39	Citrus St.	69.20	
Branch G:					
Boundary		0+00	Bell Outfall ??		
	WG010				Weir
NG010		0+20	Idlewood Dr.	25.00	
	WG040				Weir
NG040		0+40	W. Jackson St.	72.50	
Branch G:					
NG020		0+00	W. La Rue St.	30.50	
	WG050				Weir
NG050		0+20	W. Jackson St.	72.50	
Branch G:					
NG020		0+00	W. La Rue St.	30.50	
	WG060				Weir
NG060		0+20	W. Jackson St.	72.50	
Branch G:					
NG080		0+00	W. Jackson St.	63.85	
	PG090				18" RCP Stormsewer
NG090		5+08	W. Jackson St.	65.62	
	PG100				18" RCP Stormsewer
NG100		12+45	W. Jackson St.	67.46	
Branch H:					
Boundary		0+00	Bell Outfall ??		
	CH010				Channel
NH010		14+00	Idlewood Dr.	0.50	
	CH020				Channel
NH020		28+51	Idlewood Dr.	0.88	
	CH030				Channel
NH030		37+11	Idlewood Dr.	2.78	
	CH040				Channel
NH040		40+86	S. Old Corry Field Rd.	4.09	
	PH050				Arch Span Bridge
NH050		45+06	S. Old Corry Field Rd.	4.99	
	CH060				Channel
NH060		49+26	New Warrington Rd	4.99	
	PH070				240" x 60" Box Culvert

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NH070		50+99	New Warrington Rd	7.24	
	CH080				Channel
NH080		59+59	Twin Oaks Dr.	11.00	
	CH090				Channel
NH090		68+79	Prieto Dr.	14.40	
	PH100				54" RCP Stormsewer
NH100		69+39	Prieto Dr.	14.58	
	CH110				Channel
NH110		74+79	Prieto Dr.	16.00	
	CH120				Channel
NH120		80+54	Prieto Dr.	18.00	
	CH130				Channel
NH130		88+04	Prieto Dr.	18.18	
	PH140				24" RCP Stormsewer
NH140		88+29	Prieto Dr.	18.18	
	CH150				Channel
NH150		93+49	Prieto Dr.	18.18	
	PH160				54" RCP Stormsewer
NH160		93+69	Admiral Doyle Rd.	18.18	
	PH170				36" RCP Stormsewer
NH170		100+29	Corry Field	22.34	
	PH180				36" RCP Stormsewer
NH180		103+54	Corry Field	23.15	
	PH190				36" RCP Stormsewer
NH190		111+94	Corry Field	25.25	
Branch H:					
NH160		0+00	Admiral Doyle Rd.	18.18	
	PH200				42" RCP Stormsewer
NH200		1+75	Admiral Doyle Rd.	18.58	
Branch H:					
NH010		0+00	Idlewood Dr.	0.50	
	WH210				Weir
NH210		0+20	Chaseville St.	4.50	
Branch H:					
NH020		0+00	Idlewood Dr.	0.88	
	WH220				Weir
NH220		0+20	W. Navy Blvd.	8.50	
Branch H:					
NH010		0+00	Idlewood Dr.	0.50	
	WH230				Weir
NH230		0+20	Chaseville St.	5.50	
	PH240				30" RCP Stormsewer
NH240		4+60	W. Jackson St.	61.34	
	PH250				24" RCP Stormsewer
NH250		7+72	W. Jackson St.	63.09	
Branch H:					
NH050		0+00	S. Old Corry Field Rd.	4.99	
	WH260				Weir
NH260		0+00	S. Old Corry Field Rd.	68.50	
Branch H:					

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NH060		0+00	New Warrington Rd	4.99	
	PI010				60" RCP Stormsewer
NI010		0+40	New Warrington Rd	6.60	
	PI020				54" RCP Stormsewer
NI020		2+80	New Warrington Rd	18.63	
	PI030				60" RCP Stormsewer
NI030		8+00	New Warrington Rd	43.50	
	PI040				60" RCP Stormsewer
NI040		11+20	New Warrington Rd	44.61	
	PI050				60" RCP Stormsewer
NI050		17+20	New Warrington Rd	46.90	
	PI060				60" RCP Stormsewer
NI060		20+40	New Warrington Rd	47.51	
	PI070				60" RCP Stormsewer
NI070		23+80	New Warrington Rd	48.79	
	PI080				60" RCP Stormsewer
NI080		29+20	New Warrington Rd	50.90	
	PI090				60" RCP Stormsewer
NI090		35+20	New Warrington Rd	52.90	
	PI100				60" RCP Stormsewer
NI100		41+20	New Warrington Rd	54.60	
	PI110				60" RCP Stormsewer
NI110		46+50	New Warrington Rd	55.93	
	PI120				60" RCP Stormsewer
NI120		49+20	New Warrington Rd	56.60	
	PI130				60" RCP Stormsewer
NI130		54+40	New Warrington Rd	57.90	
	PI140	0+00			54" RCP Stormsewer
NI140		58+20	New Warrington Rd	60.20	
	PI150				30" RCP Stormsewer
NI150		62+41	New Warrington Rd	61.50	
	PI160				24" RCP Stormsewer
NI160		65+01	New Warrington Rd	63.50	
Branch I:					
NI140		0+00	New Warrington Rd	60.20	
	PI170				42" RCP Stormsewer
NI170		9+00	Lillian Hwy	61.04	
	PI180				42" RCP Stormsewer
NI180		12+42	Mobile Hwy	64.20	
	PI190				48" RCP Stormsewer
NI190		15+36	Mobile Hwy	65.45	
	PI200				30" RCP Stormsewer
NI200		22+36	Mobile Hwy	67.20	
	PI210				30" RCP Stormsewer
NI210		29+56	Mobile Hwy	69.00	
	PI220				24" RCP Stormsewer
NI220		35+66	Mobile Hwy	70.22	
	PI230				24" RCP Stormsewer
NI230		41+76	Mobile Hwy	71.75	
Branch I:					

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NI210		0+00	Mobile Hwy	69.00	
	PI240				24" RCP Stormsewer
NI240		3+67	N. Kirk St.	69.92	
Branch I:					
NI190		0+00	Mobile Hwy	65.45	
	PI250				36" RCP Stormsewer
NI250		5+90	Dominguez St.	66.18	
	PI260				24" RCP Stormsewer
NI260		10+50	Green St.	67.10	
	PI270				24" RCP Stormsewer
NI270		15+70	Green St.	68.14	
	PI280				24" RCP Stormsewer
NI280		23+10	Green St.	69.62	
	PI290				24" RCP Stormsewer
NI290		31+60	W. Moreno St.	71.32	
Branch I:					
NI170		0+00	Lillian Hwy	61.04	
	WI300				Weir
NI300		0+20	Citrus St.	65.50	
Branch I:					
NI140		0+00	New Warrington Rd	60.20	
	WI310				Weir
NI310		0+20	New Warrington Rd	64.20	
Branch I:					
NI130		0+00	New Warrington Rd	57.90	
	WI320				Weir
NI320		0+20	Old Corry Field Rd.	65.40	
Branch I:					
NI100		0+00	New Warrington Rd	54.60	
	PI330				42" RCP Stormsewer
NI330		3+15	New Warrington Spur	61.80	
	PI340				42" RCP Stormsewer
NI340		9+09	New Warrington Spur	63.40	
	PI350				36" RCP Stormsewer
NI350		12+61	New Warrington Spur	64.70	
	PI360				30" RCP Stormsewer
NI360		14+86	New Warrington Spur	65.20	
	PI370				30" RCP Stormsewer
NI370		19+02	New Warrington Spur	67.10	
	PI380				30" RCP Stormsewer
NI380		22+84	New Warrington Spur	69.50	
	WI400				Weir
NI400		22+84	Westover Ave.	80.50	
Branch I:					
NI360		0+00	New Warrington Spur	65.20	
	WI390				Weir
NI390		0+20	Norwood Dr.	70.50	
Branch I:					
NH070		0+00	New Warrington Rd	7.24	
	PI410				36" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NI410		1+29	New Warrington Rd	10.70	
	PI420				36" RCP Stormsewer
NI420		5+63	New Warrington Rd	12.70	
	PI430				36" RCP Stormsewer
NI430		10+77	New Warrington Rd	16.00	
	PI440				36" RCP Stormsewer
NI440		14+68	New Warrington Rd	17.60	
	PI450				30" RCP Stormsewer
NI450		19+86	New Warrington Rd	19.30	
	PI460				24" RCP Stormsewer
NI460		22+42	New Warrington Rd	20.90	
	PI470				18" RCP Stormsewer
NI470		23+60	New Warrington Rd	21.90	
	PI480				18" RCP Stormsewer
NI480		25+51	New Warrington Rd	22.30	
Branch I:					
NI440		0+00	New Warrington Rd	17.60	
	WI485				Weir
NI485		0+20	Chief's Way	27.50	
	WI490				Weir
NI490		0+40	Chief's Way	29.50	
Branch J:					
NH080		0+00	Bradford Dr.	11.00	
	CJ010				Channel
NJ010		3+20	W. Gregory St.	14.15	
	PJ020				96" x 48" Box Culvert
NJ020		3+70	Tyson St.	14.62	
	CJ030				Channel
NJ030		7+90	Tyson St.	21.00	
	CJ040				Channel
NJ040		12+22	Elm St.	34.06	
	PJ050				48" RCP Stormsewer
NJ050		12+70	Elm St.	35.79	
	CJ060				Channel
NJ060		20+90	Blanton Ct.	56.00	
	CJ070				Channel
NJ070		24+60	W. Jackson St.	59.77	
	PJ080				36" RCP Stormsewer
NJ080		25+00	W. Jackson St.	60.20	
	PJ090				24" RCP Stormsewer
NJ090		26+60	N. 46th Ave.	62.50	
	PJ100				24" RCP Stormsewer
NJ100		30+80	N. 46th Ave.	66.78	
	PJ110				24" RCP Stormsewer
NJ110		35+40	N. 46th Ave.	69.08	
	PJ120				24" RCP Stormsewer
NJ120		39+23	N. 46th Ave.	70.17	
	PJ130				18" RCP Stormsewer
NJ130		44+23	N. 46th Ave.	71.59	

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
Branch K:					
NH090		0+00	N. 46th Ave.	14.40	
	PK010				72" RCP Stormsewer
NK010		0+70	Prieto Dr.	17.83	
	CK020				Channel
NK020		7+35	Prieto Dr.	23.61	
	CK030				Channel
NK030		13+15	Redwood Cir.	24.75	
	PK040				60" RCP Stormsewer
NK040		13+81	Redwood Cir.	31.04	
	CK050				Channel
NK050		19+36	S. Edgewood Cir.	36.00	
	CK060				Channel
NK060		24+86	W. Jackson St.	38.13	
	PK070				90" RCP Stormsewer
NK070		25+26	W. Jackson St.	39.86	
	CK080				Channel
NK080		33+66	Edgecliff Dr.	44.05	
	CK090				Channel
NK090		41+36	N. 50th Ave.	45.00	
	CK100				Channel
NK100		52+46	N. 50th Ave.	51.00	
	CK110				Channel
NK110		61+96	Lillian Hwy	69.00	
	PK120				53" x 34" ERCP Stormsewer
NK120		62+62	Lillian Hwy	74.09	
Branch K:					
NK090		0+00	Pond F Outfall	45.00	
	DK130				Drop Structure
NK130		0+24	Myrtle Grove Sytem F Detention Pond	43.76	
	PK140				60" RCP Stormsewer
NK140		2+14	De Luna Cir.	43.76	
	PK150				60" RCP Stormsewer
NK150		5+44	De Luna Cir.	44.42	
	PK160				42" RCP Stormsewer
NK160		10+64	De Luna Cir.	46.46	
Branch K:					
NK150		0+00	De Luna Cir.	44.42	
	PK170				54" RCP Stormsewer
NK170		12+70	De Luna Cir.	46.96	
	PK180				36" RCP Stormsewer
NK180		17+70	N. 57th Ave.	49.46	
Branch K:					
NK210		0+00	N. 57th Ave.	49.84	
	PK220				18" RCP Stormsewer
NK220		3+80	Western Dr.	52.10	
Branch K:					
NK150		0+00	De Luna Cir.	44.42	
	PK170				54" RCP Stormsewer

TABLE 2-4

WARRINGTON BASIN - ADICPR MODEL NETWORK
EXISTING DRAINAGE FACILITIES

NODE	REACH	STATION	LOCATION	INVERT ELEV.	DRAINAGE FACILITY
NK170		12+70	De Luna Cir.	46.96	
	PK190				42" RCP Stormsewer
NK190		18+50	N. 57th Ave.	48.12	
	PK210				42" RCP Stormsewer
NK210		22+60	N. 57th Ave.	49.84	
	PK230				36" RCP Stormsewer
NK230		25+40	N. 57th Ave.	50.40	
	PK240				24" RCP Stormsewer
NK240		28+78	N. 57th Ave.	52.85	
	PK250				24" RCP Stormsewer
NK250		32+00	Lynwood Ave.	53.85	
Branch K:					
NK190		0+00	N. 57th Ave.	48.12	
	PK200				24" RCP Stormsewer
NK200		7+60	Linda St.	51.14	
	WK260				Weir
NK260			Annette St.	54.50	

3.0 EXISTING CONDITIONS FLOODING ASSESSMENT

3.1 DESIGN STORM EVENTS

The design storm events identified in the scope of services and chosen for simulation by the model were the 3-year, 25-year, and 100-year frequency, critical duration rainfall events. These three storm events provide a basin analysis for an above average storm condition (3-year), the County's design standard event (25-year), and a severe storm condition (100-year) likely to occur only during a hurricane or other exceptional rainfall occurrence. It should be noted that the 100-year storm event has a 1 percent chance of occurring in any given year. Hyetographs were developed using the Florida Department of Transportation (FDOT) Rainfall Intensity-Duration-Frequency (IDF) Curves for Zone 1.

To determine the critical duration for the Warrington Model, the 100-year storm event was simulated with durations of 1, 2, 4, 8, 24, 72, 168, and 240 hours. Each node was evaluated based on the maximum stage reached for each of these durations. Table 3-1 at the end of this chapter shows the results for this critical duration analysis. Based on these results, the 8-hour duration is the critical duration for the majority of the basin. The rainfall volumes used for each of the 8-hour duration storms are 5.1 inches for the 3-year, 7.4 inches for the 25-year, and 9.4 inches for the 100-year storm events.

3.2 FLOOD DATA COMPILATION:

To provide an accurate assessment of flooding conditions within the Warrington Basin, pertinent information was compiled which included review of previous studies, interviews with county staff and residents, review of Escambia County Road Operations Department records related to drainage, field reconnaissance, and citizen survey questionnaires. Two previous studies reviewed were the Preliminary Stormwater Management Assessment prepared in March 1991 and the Escambia County Stormwater Master Plan Needs Assessment prepared in November 1994 both by HMM (then Carlan Consulting Group) and Camp Dresser McKee (CDM). These two studies provided relevant information to existing flooding conditions. All work orders and drainage complaints within the Warrington Basin were obtained from the Road Operations Department and reviewed to

further evaluate the extent of flooding within the study area. All work orders outside the primary drainage system were field inspected to determine if the problem was a maintenance issue or an inadequate drainage system.

In order to incorporate the concerns of the citizens and to provide a historical reference of the flooding problems, questionnaires were mailed to approximately 7100 residents who lived, owned a business, or owned property within the Warrington Basin. A response of 6 percent was received from the questionnaires. Even with the low response rate, a considerable amount of information was obtained. It appeared that the residents within the flood prone areas were more inclined to respond than the ones who had no flooding problems. Results of these questionnaires are summarized in Table 3-2 and the questionnaire form is included as Appendix C. Figure 3-1 is a map that shows the locations of reported flooding problems from the questionnaires. HMM conducted telephone interviews and scheduled field meetings with some of the residents who reported the most severe flooding conditions.

3.3 ADICPR MODEL RESULTS

Table 3-3 shows the model results for the Warrington Basin for the three design storm events. The warning stage is set to the inlet top elevations for the storm sewer systems, top of bank or ditch elevations for channels and roadside ditches or swales and to the top of berm or top of bank elevations for all ponds. Any elevation in excess of this stage indicates a flooding condition. It should be noted, however, that a flooding condition does not necessarily mean a flooding problem. Flood conditions are as follows: 0 means no flooding conditions, 1 means a flooding condition during the 100-year storm event, 2 means a flooding condition during the 25-year storm event, and 3 means a flooding condition during the 3-year storm event. Also, Table 3-4 illustrates the height and duration of time the flood stage is above the warning stage for all nodes with flooding conditions. The depth varies from zero to the maximum and back to zero throughout the duration of the flooding condition.

From the model results, profiles were developed that show all nodes, warning stages, and the flood stages for the three design storm events. These profiles are shown in Figure 3-2 at the end of this chapter and are a valuable tool for evaluating flooding conditions to determine if there is a flooding

problem. The profiles show which problem areas are due to tailwater conditions and which problem areas are due to under sized conveyances. Furthermore, tailwater conditions can be traced downstream to their source. The model results were also used to develop 100-year flood plain maps. It should be noted that these flood plain maps are not the same as the Federal Emergency Management Agency (FEMA) flood plain maps. These maps show the 100-year flood plain based on the ADICPR Model results and are included as Attachment B.

3.4 FLOODING EVALUATION:

All model results were compared with the known flooding problems, the citizen questionnaires and the field investigations. Table 3-3 illustrates all areas with flooding conditions and Table 3-4 shows the depth and duration of these conditions. As noted earlier, a flooding condition does not necessarily mean a flooding problem. Flooding conditions are considered problems in areas with streets and yards flooding for an extended period during a 25-year storm event and any area where a home or business floods during a 100-year storm event. The following summarizes the flooding problems by delineating the branches and zones for the overall Warrington Basin.

Branch A:

The majority of the open ditch system running though Jones swamp has adequate capacity for the critical duration of the 25-year storm. Within Branch A, the majority of the stormwater system has sufficient capacity to convey the flow to the pop off at Bayou Chico. To determine whether or not these areas have flooding problems, the surrounding elevations and areas were reviewed. There is one area in this branch that is considered to have some minor flooding conditions in the 100-year critical storm event. This area is located in the perimeter of the Corry Field Naval Base. Since this area is not in the county right-of-way, no improvements are presented. In addition, there are two areas that are considered to have significant flooding conditions. One of these areas is located west of Fairfield Drive along Hickory Street. The model shows this area flooding during the 100-year critical storm event. The other area is located North of Patton Drive just west of Navy Boulevard. The flooding conditions in this area are associated with the 3-year critical storm event and show significant flooding to residences and businesses. Even though the model shows flooding conditions in these two areas, both areas are located in the flood plain, therefore; no improvements

are presented because there is very little that can be done to the actual Swamp to prevent these flooding conditions.

Branch B:

The primary drainage system for Branch B is a storm sewer system in the Lake Charlene Subdivision and extends north to Myrtle Hill Circle. This storm sewer system conveys the stormwater to Lake Charlene and then discharges via a dam and weir system, this system then pops-off to Jones Swamp. There are several areas that the model shows some minor flooding conditions during the 100-year critical storm event. The majority of the areas are located near the edge of the lake and canal that are associated with Lake Charlene. In addition, there are an extensive number of areas that show flooding during the 25 and 3-year critical storm events. These areas are located along Kitty Hawk Drive, Lake Joanne Drive, 61st Avenue, Lake Charlene Drive, Myrtle Hill Circle, and Penton Street, along with several other side streets. The flooding conditions in these areas are extensive and encroach citizen's private residence. In this basin alone, there are 57 sub-basins and of these 57 sub-basins, 37 are showing some type of flooding condition. It is apparent from the model that Lake Charlene is taking on too much stormwater, and the amount of stormwater needs to be drastically reduced, along with improving the existing systems that are in place.

Branch C:

The majority of Branch C is located along Fairfield Drive between Highway 98 and Baysprings Drive. The primary drainage system along Fairfield Drive is an open ditch and culvert system. There is also a secondary system along Highway 98, east of Fairfield, that collects and conveys the stormwater through a ditch and pipe system and discharges to Jones Swamp. There are a few areas that have some minor flooding conditions during the 100-year critical storm event. The majority of these areas are located in the woods to the west of Fairfield Drive. There is also an area that the model shows some flooding of a business along Highway 98 just west of Fairfield Apartments during the 25-year critical storm event. This flooding is caused by the business being constructed in an area that is too low. The conveyance downstream of this area cannot be increased without causing flooding in the subdivisions downstream.

Branch D:

The primary drainage system in this Branch is a storm sewer system on Barrancas Avenue that extends from Old Corry Field Road to Fleet Road. Barrancas Avenue is a state road and the storm sewer was designed by FDOT using the FDOT standard, 3-year storm event. Using this criteria, the majority of the system is adequate for draining the roadway. However, there is one branch of the system that is flooding during the 3-year critical storm event, which is located on Jamison Drive. Other areas that the model shows significant flooding during the 25-year critical storm event are along Iona Street and Branywine Road. These areas are very flat and the stormwater cannot reach the existing storm sewer system. The other area that shows flooding during the 25-year critical storm event is the Pensacola County Club Golf Course. The golf course is the discharge location for the Barrancas Avenue Storm Sewer system. Other minor flooding conditions are located on Bayshore Drive and Harbourview Circle. The model shows these flooding conditions in the 100-year critical storm event.

Branch E:

The primary drainage system in Branch E is the remaining portion of the storm sewer on Barrancas Avenue. This portion of the system is located from Nimitz Court down to Old Bayou Chico Bridge and discharges directly to Bayou Chico. This portion of Barrancas Avenue is also a state road and was designed by FDOT using the FDOT standard, 3-year storm event. Using this criteria, the system is adequate for draining the roadway. These design standards match the results of the model. However, there are a few areas that show flooding during the 25-year critical storm event. These areas are located near Dixon Lane, Halsey Road, and Milton Road. Most of these areas show the storm sewer backing into the streets with a couple of instances backing into private and commercial property. The overall storm sewer is adequate for handling the drainage along Barrancas Street.

Branch F:

This area is located to the South of Navy Boulevard and North of Barrancas Avenue, east of Old Corry Field Road. Branch F is separated by Bayou Chico and was modeled as two separate systems. The systems in this Branch include storm sewers in Edgewater Drive and Chaseville Street, both of which are in the northern portion of the basin. Both systems are secondary systems

but were modeled to fully evaluate the problems in the Edgewater and Chaseville area. The remaining portion of this Branch does not have an existing storm sewer system in the northern or southern portions of the basin causing water to stand in the streets and yards. Additionally, flooding problems in this area were verified by field reconnaissance and questionnaires. The model shows majority of the major flooding conditions around Lakewood Drive and Rue Max Street during the 3-year critical storm event. Other areas such as Chaseville Street, Edgewater Drive, and Pelham Road show some flooding during the 25-year critical storm event. The storm sewer in this area is too small and does not cover all of the problem areas.

Branch G:

Branch G is located south of Mobile Highway and east of Citrus Street and bounded by the CSX railroad to the south. There is a storm sewer on Jackson Street that extends from Fitzgerald Street to Wiggins Street and outfalls to the ditch adjacent to the railroad. This system is a secondary system and is adequate for the area that it extends to. However, the remaining areas in the basin have no existing system, and the model shows some significant flooding in the other areas of Jackson Street during the 3-year critical storm event. In addition, there are some flooding conditions along Citrus Street during the 25-year critical storm event. The flooding in these areas are due to the lack of drainage systems causing the water to stand in streets and yards.

Branch H:

The primary drainage system for Branch H is the existing channel system associated to Jackson Creek. This channel system extends from Corry Field to the upper end of Bayou Chico. There is a secondary system on Corry Field that discharges into the Jackson Creek drainage system. Since this system is located on Federal Property and not within the County's right-of-way, no improvements are presented. The majority of the channel is adequate to collect and convey the stormwater up to the 100-year critical storm event. However, the model shows some major flooding in a couple of areas. One of these areas is located south of Idlewood Drive. This area is located in the Creeks flood plain so no improvements are proposed. The other area is along Old Corry Filed Road north of Jackson Street. There is a church, mobile home park, and several residences in this area that have severe flooding even during the 3-year storm event. This flooding is due to the lack of any

existing drainage systems.

Branch I:

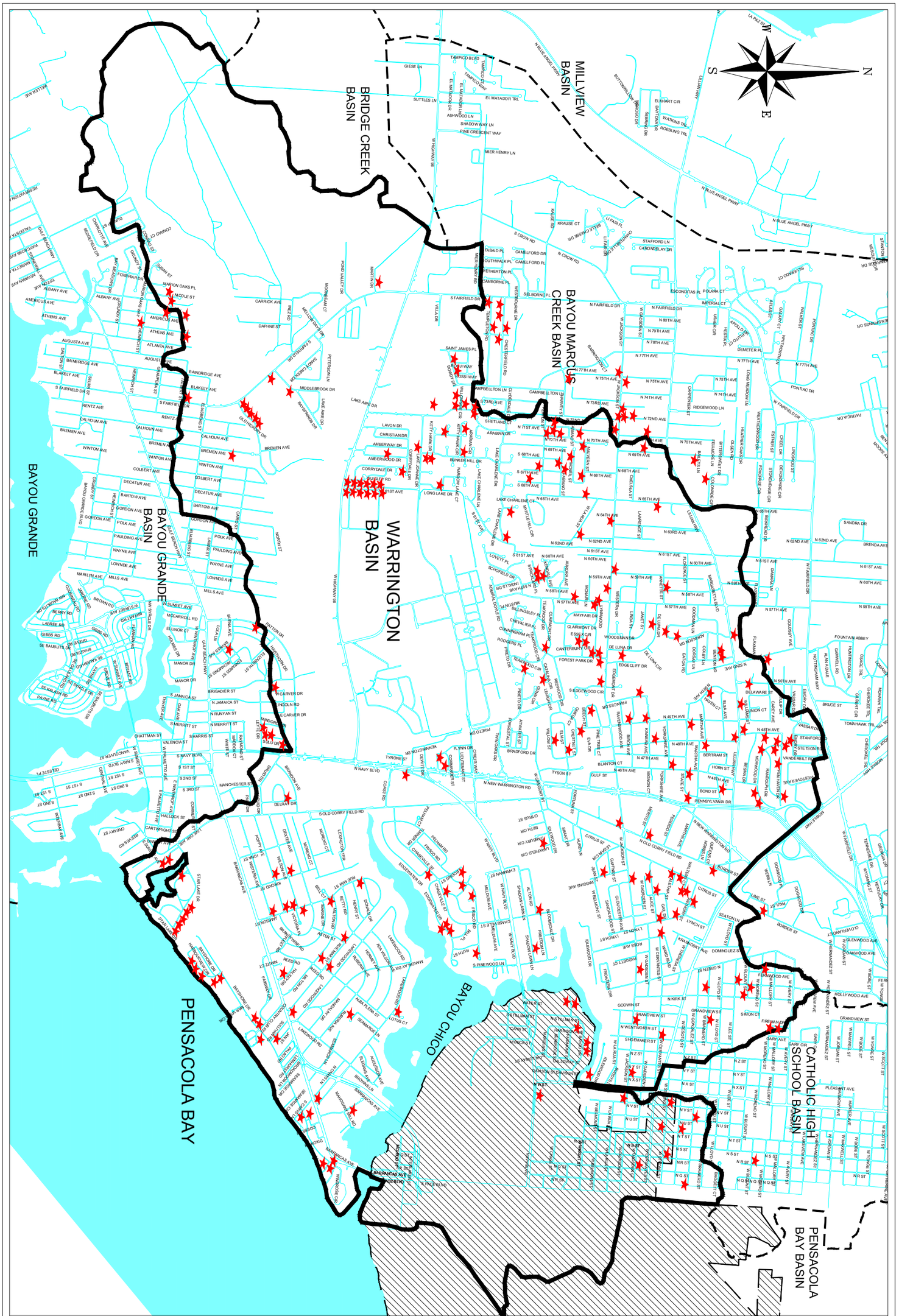
The primary drainage system in Branch I is the storm sewer on New Warrington Road that extends from Navy Boulevard to Mobile Highway. New Warrington Road is a state road and the storm sewer was designed by FDOT using the FDOT design standards, 3-year storm event. Using these criteria, the system is more than adequate for draining the roadway. There are three secondary drainage systems also located in this basin. One system is located on Lillian Highway and another is located on Mobile Highway. Both of these systems discharge to the New Warrington Road system, and both roads are state roads. These systems were also designed using the FDOT 3-year storm design standard. The third system is located on Green Street that extends from Moreno Street to Mobile Highway, where it discharges. The model shows some minor flooding areas around the intersection of New Warrington Road and Lillian Highway. There are a few areas that show flooding in the 25-year and 3-year storm event. The majority of the areas that show flooding during the 25-year critical storm event are sporadically located along Mobile Highway and Lillian Highway. Most of these areas show the stormwater backing up onto private and commercial property due to low-lying areas on the east and west side of the road. The majority of the areas that show flooding during the 3-year critical storm event are areas that flood due to the lack of any existing storm sewer drainage facilities. The system on Green Street is significantly under sized and there are bowls in this area with no existing drainage systems. The model shows flooding conditions in this area during the 3-year storm event.

Branch J:

The primary drainage facility for this branch begins as a storm sewer system that extends along North 46th Avenue from State Street to West Jackson Street. From this point, the storm sewer discharges into a ditch system that extends to West Gregory Street and pops-off into the Jackson Creek channel. The model only shows one area with very minor flooding conditions during the 100-year critical storm event. Even though the model shows very limited flooding, questionnaires and field reconnaissance verify that some problems do exist, which appear to be associated with poor maintenance conditions of the existing system.

Branch K:

The primary drainage system for this branch is the upper end of the Jackson Creek channel, which discharges to the lower portion of Jackson Creek. This portion of Jackson Creek extends from Lillian Highway to Prieto Road where it discharges into the lower portion of Jackson Creek. The model for this portion of the systems shows no flooding conditions. However, the questionnaire verifies that problems do exist in this area. These flooding problems are in areas that lack existing drainage systems. This branch also contains a secondary storm sewer system that is located on North 57th Street from Annette Street to Lynwood Drive. The model shows flooding conditions in this area. The flooding conditions in this area are because the existing storm sewer system does not extend far enough to reach other low areas. In addition, there are numerous reports of flooding in other portions of this basin, though most of the reports are from areas that do not have existing storm sewer systems.



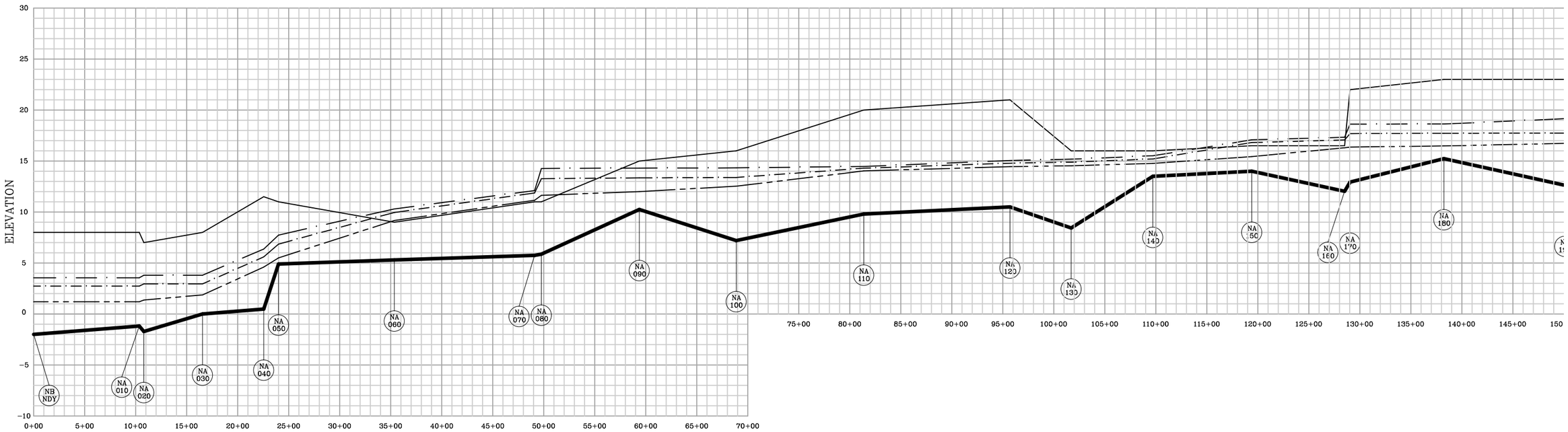
★ - REPORTED FLOODING PROBLEMS
——— - SUBJECT BASIN BOUNDARY
– – – - ADJACENT BASIN BOUNDARY

FIGURE 3 - 1

WARRINGTON BASIN
LOCATIONS OF REPORTED FLOODING PROBLEMS
FROM CITIZEN QUESTIONNAIRES

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, LLC

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
5111 North 12th Avenue (32504)
P. O. Box 2518 (32513-2518)
Pensacola, Florida
Telephone: (850) 484-6011 ¤ Fax: (850) 484-8199



BRANCH "A"

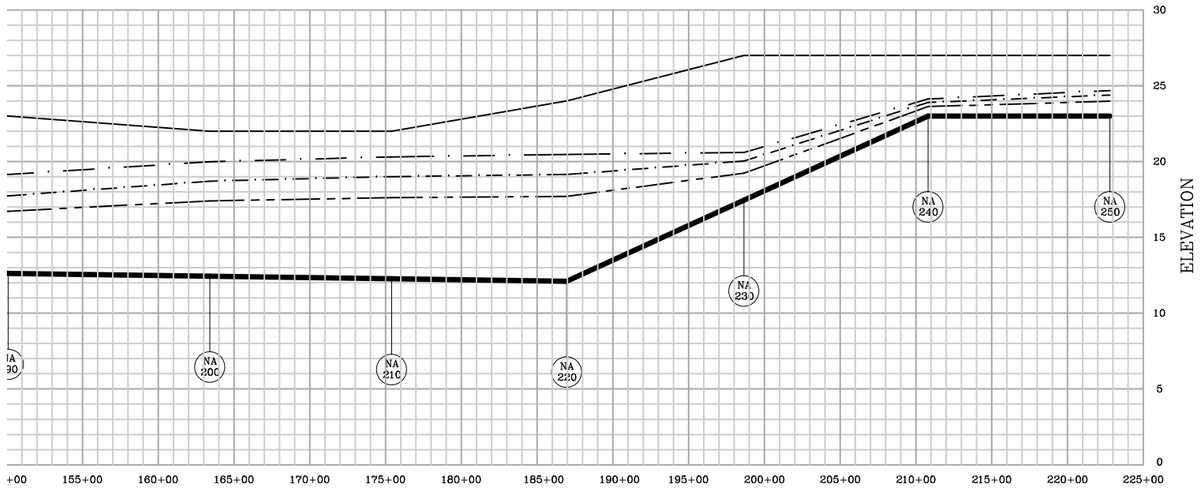


FIGURE NO. 3−2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
5111 North 12th Avenue (32504)
P. O. Box 2518 (32513-2518)
Pensacola, Florida
Telephone: (850) 484-6011 ¤ Fax: (850) 484-8199

ESCAMBIA COUNTY STORMWATER MASTER PLAN

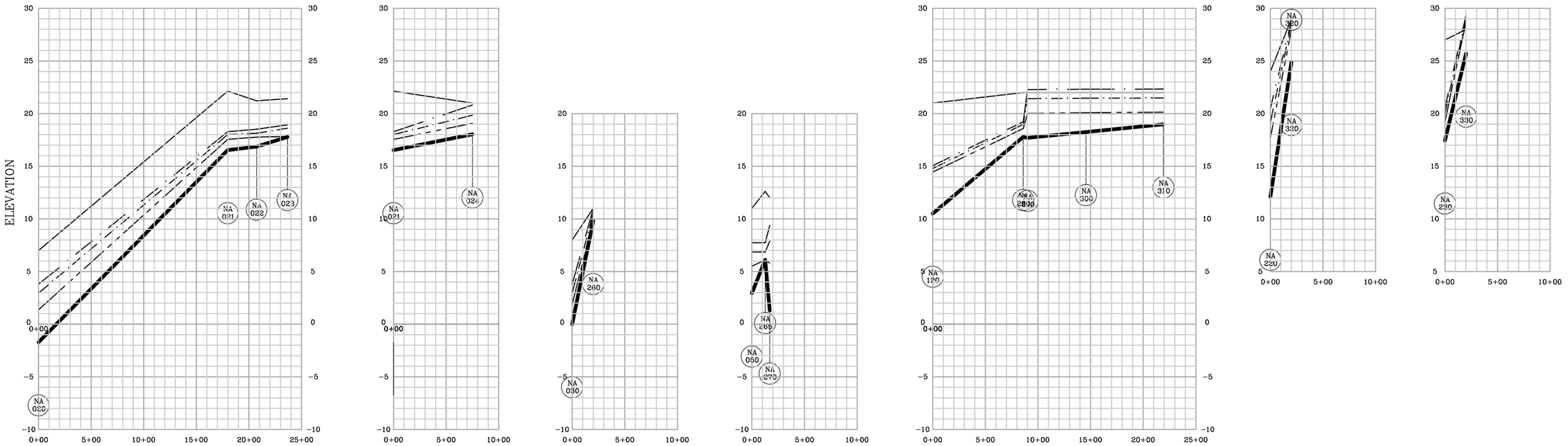
WARRINGTON BASIN

PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8−HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "A" CON'T.

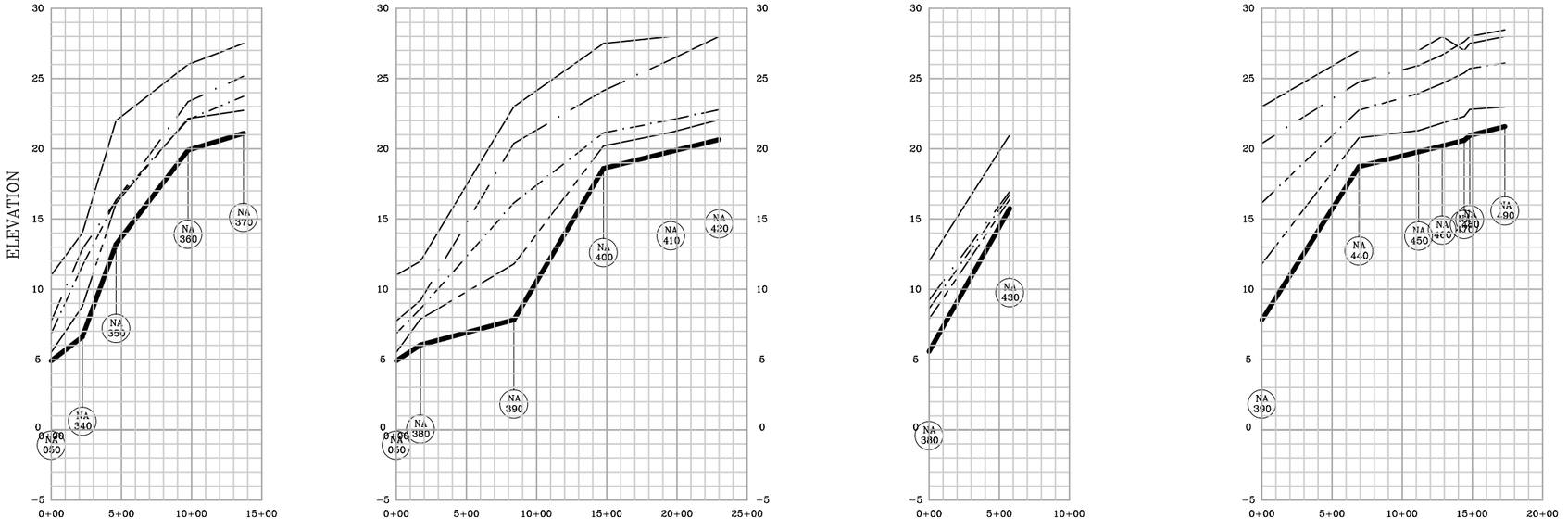


FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
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Pensacola, Florida
Telephone: (850) 484-6011 ¤ Fax: (850) 484-8199

ESCAMBIA COUNTY STORMWATER MASTER PLAN

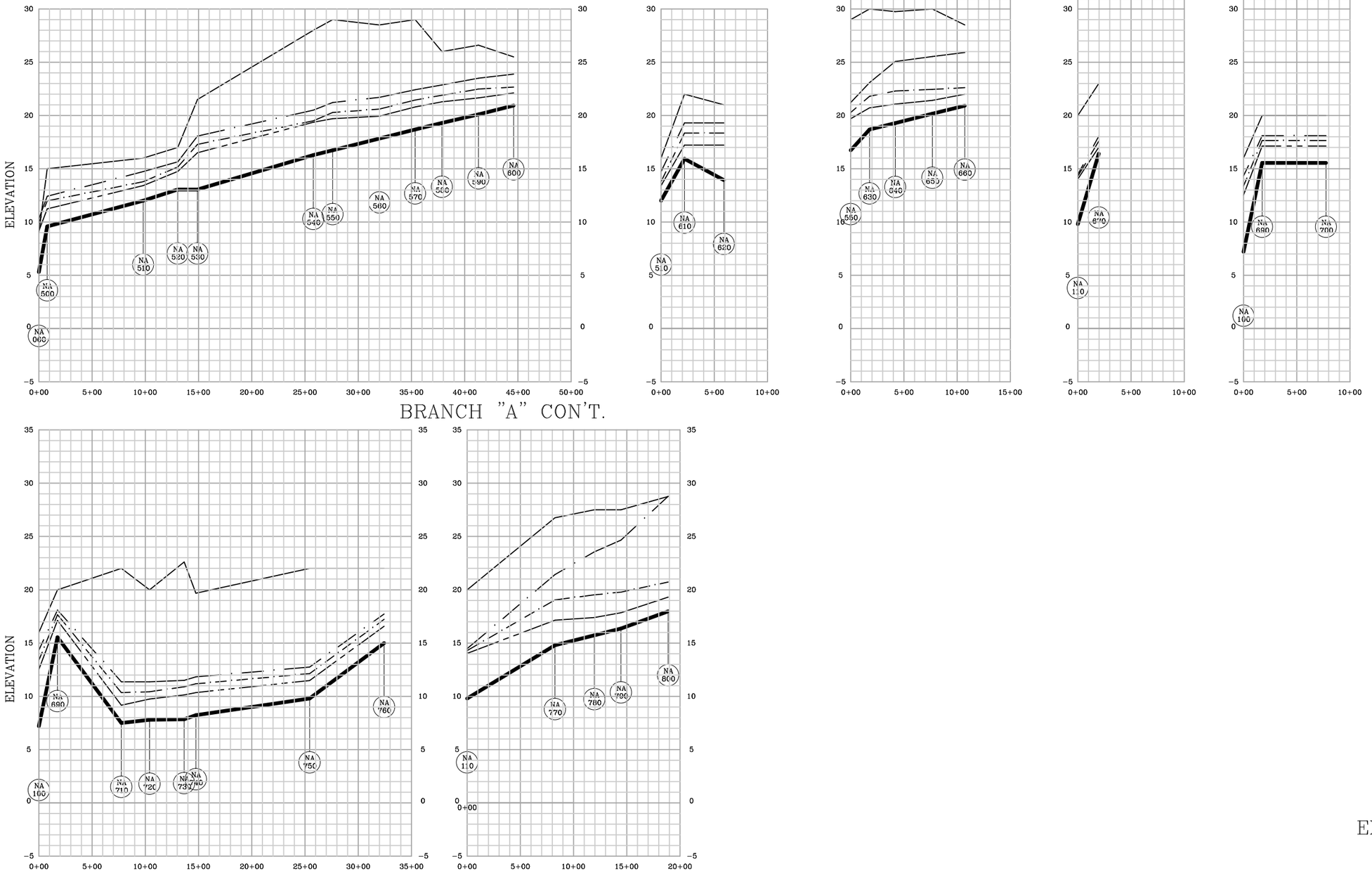
WARRINGTON BASIN

PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "A" CON'T.

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

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AA - C0000035 EB - 0000155 LB - 0006783
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ESCAMBIA COUNTY STORMWATER MASTER PLAN

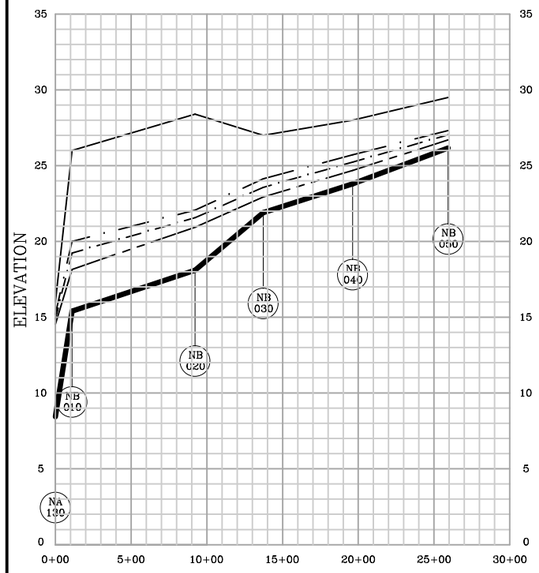
WARRINGTON BASIN

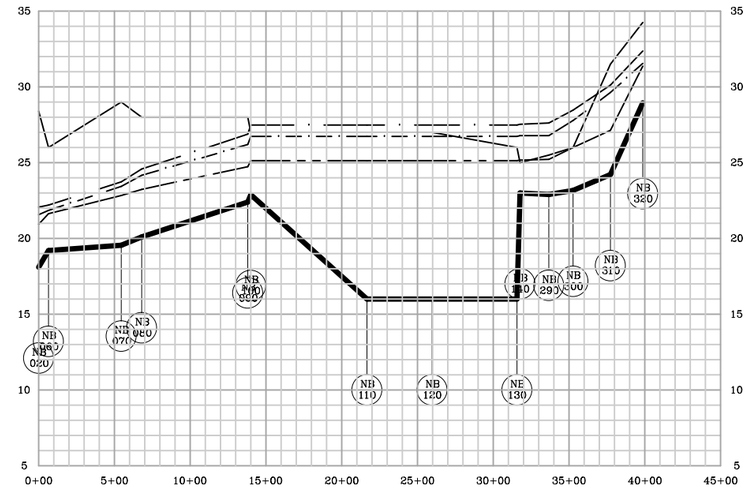
PROFILES

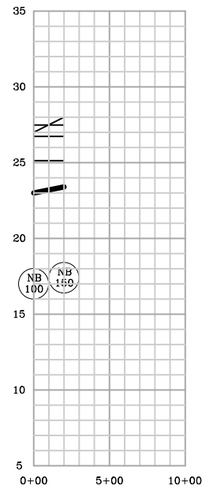
LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

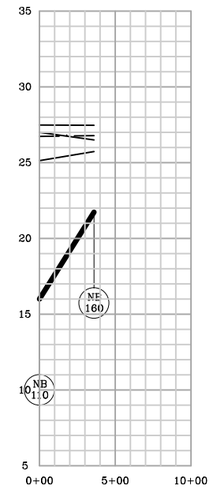
8-HOUR DURATION

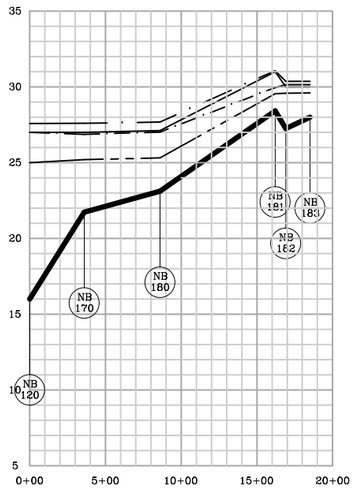
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'











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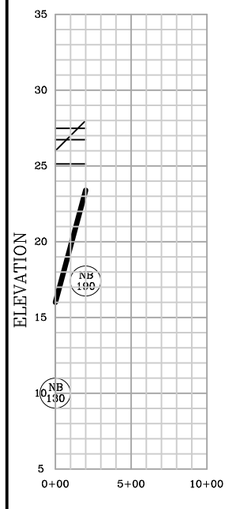

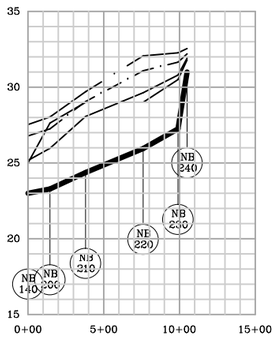

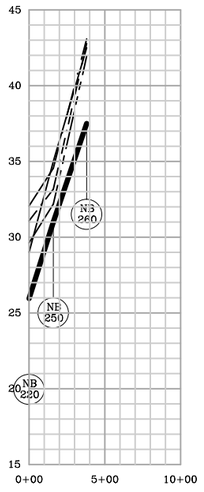

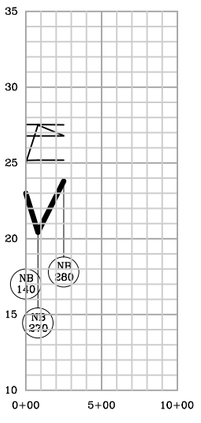

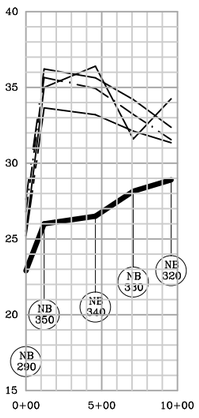

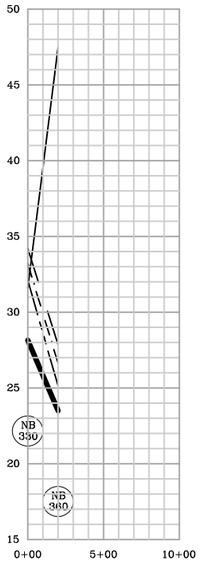

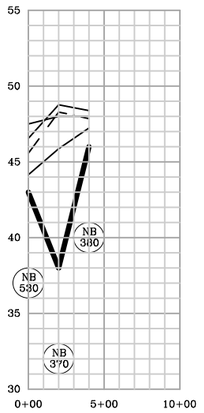

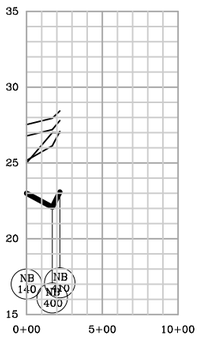

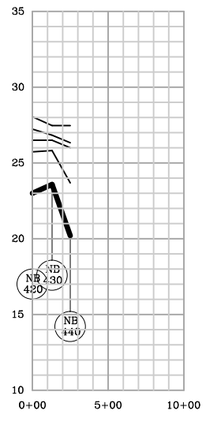

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
5111 North 12th Avenue (32504)
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Telephone: (850) 484-6011 ¤ Fax: (850) 484-8199

ESCAMBIA COUNTY STORMWATER MASTER PLAN

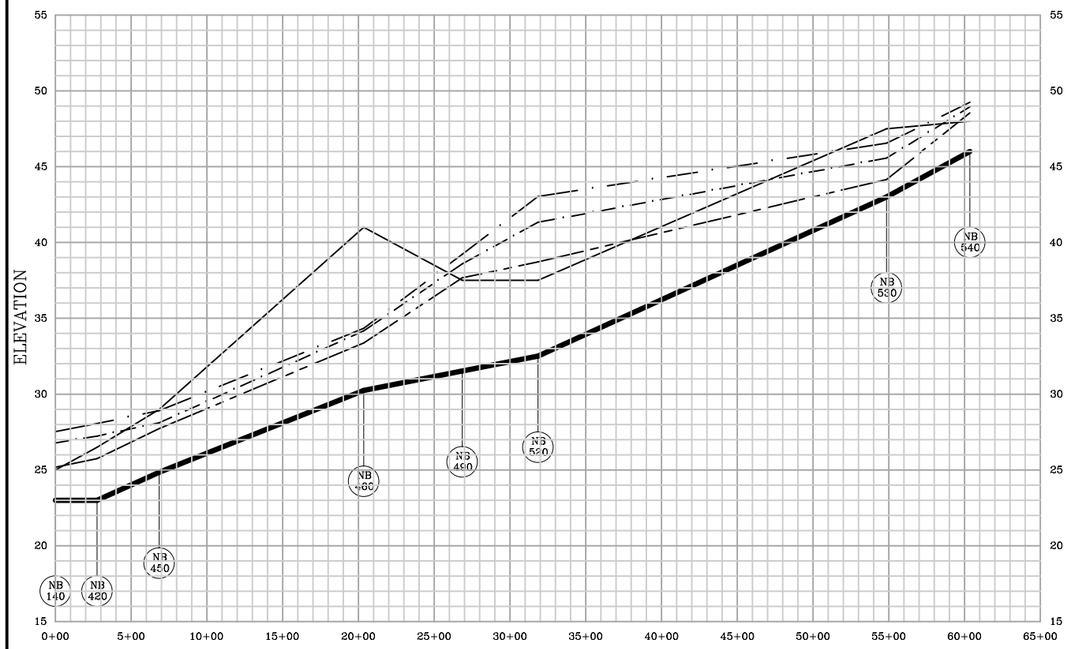
WARRINGTON BASIN

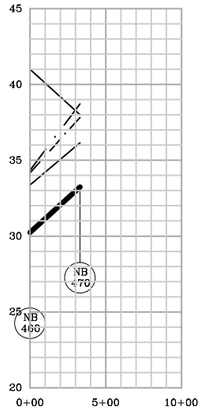
PROFILES

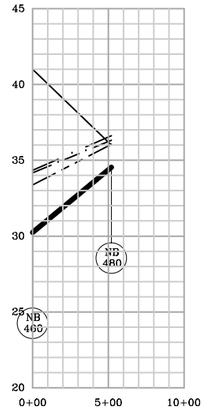
LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

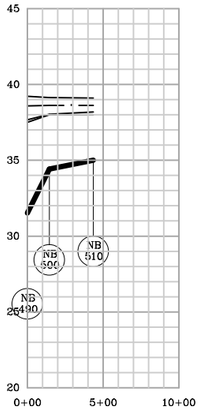
8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'









BRANCH "B" CON'T.

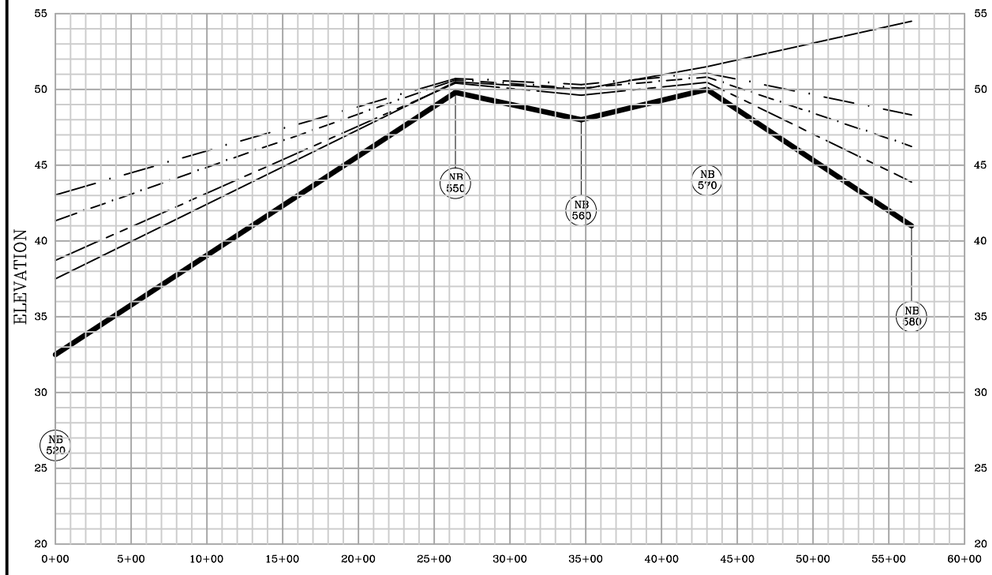


FIGURE NO. 3-2
EXISTING CONDITIONS

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WARRINGTON BASIN
PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'

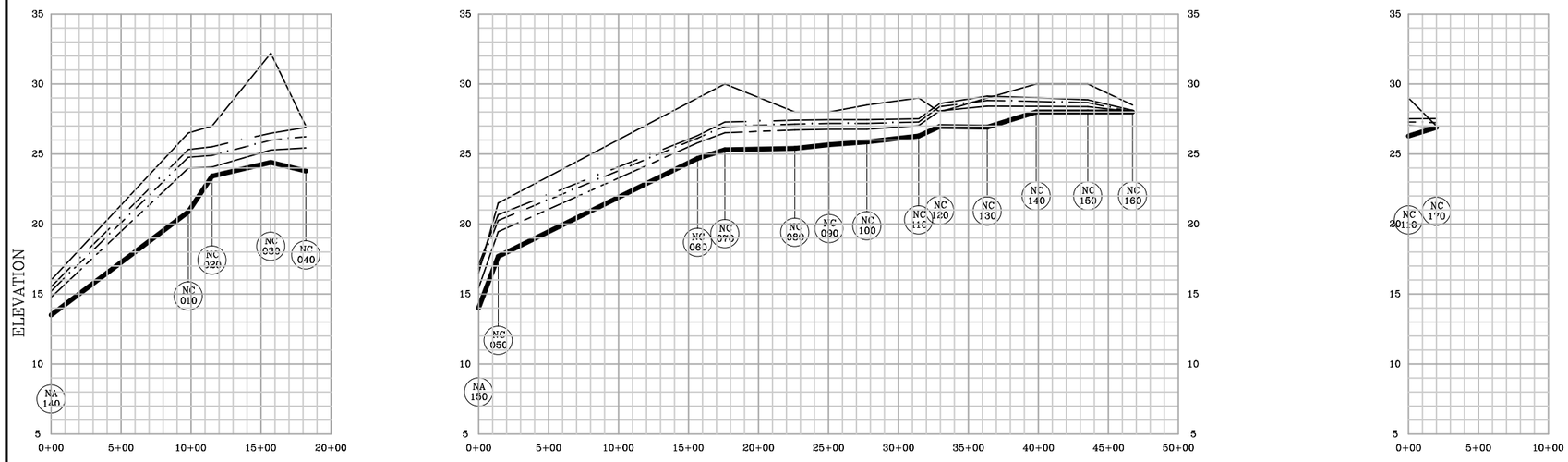

FIGURE NO. 3-2
EXISTING CONDITIONS

BRANCH "C"

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

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ESCAMBIA COUNTY STORMWATER MASTER PLAN

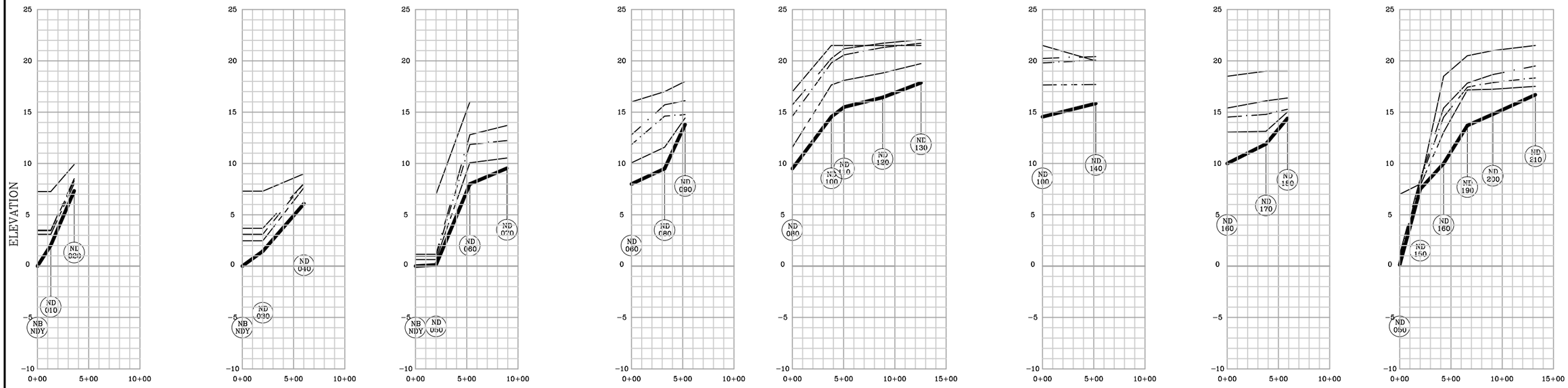
WARRINGTON BASIN

PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

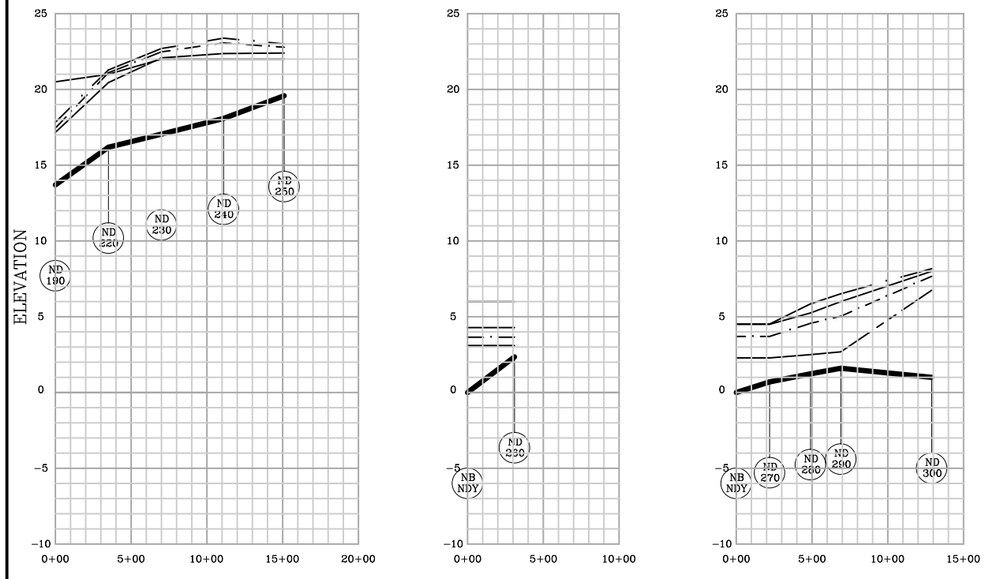
8-HOUR
DURATION

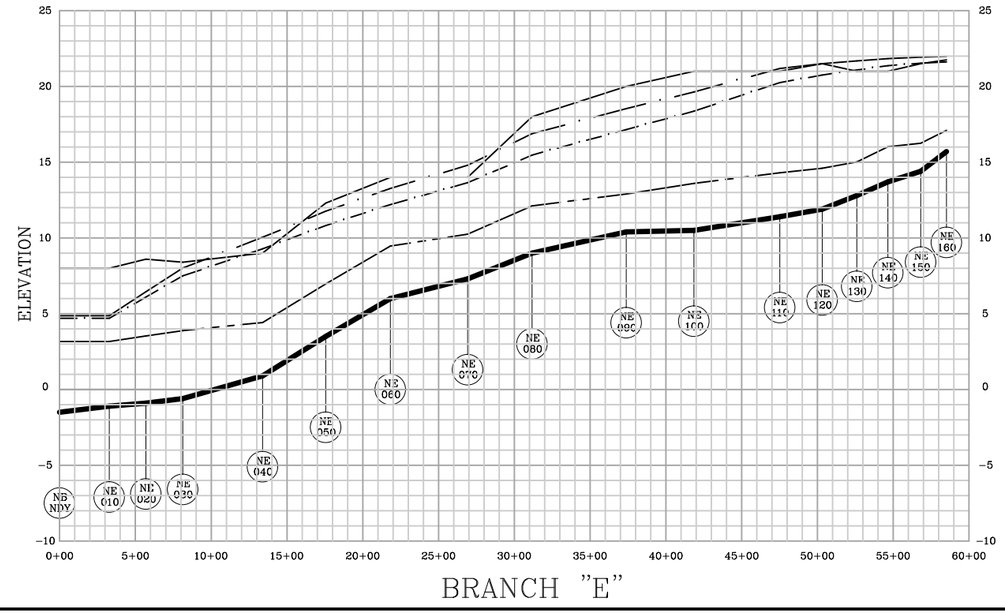
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "D"

FIGURE NO. 3-2
EXISTING CONDITIONS





BRANCH "E"

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Hatch Mott MacDonald Florida, Inc.

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ESCAMBIA COUNTY STORMWATER MASTER PLAN

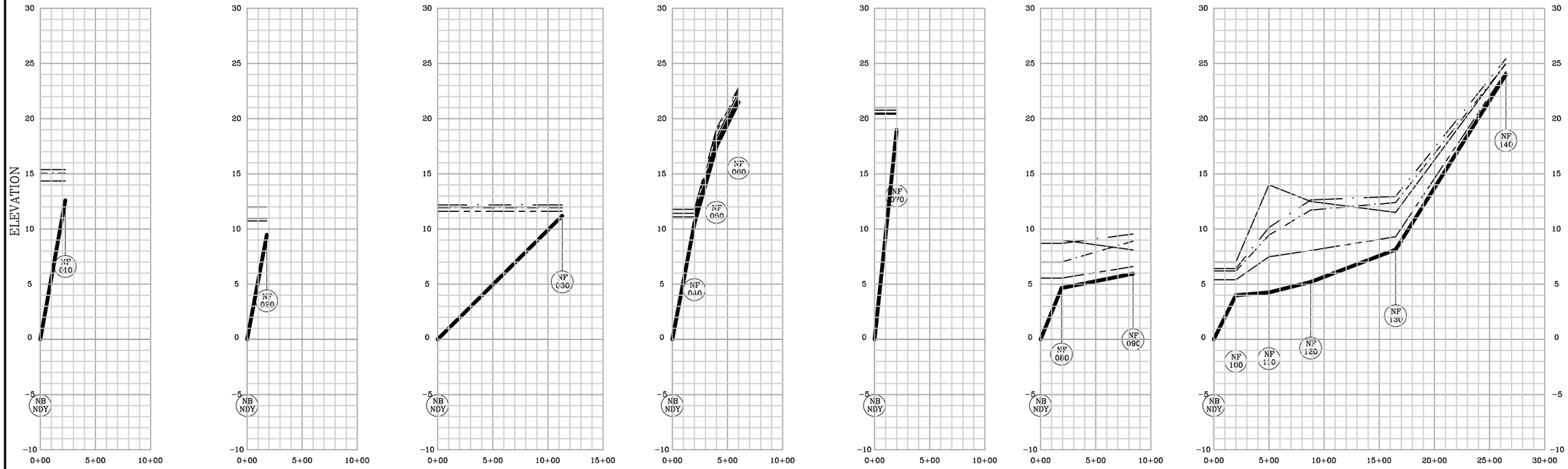
WARRINGTON BASIN

PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "F"

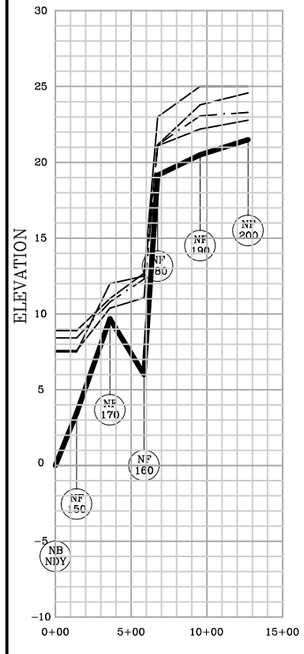


FIGURE NO. 3-2
EXISTING CONDITIONS

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WARRINGTON BASIN
PROFILES

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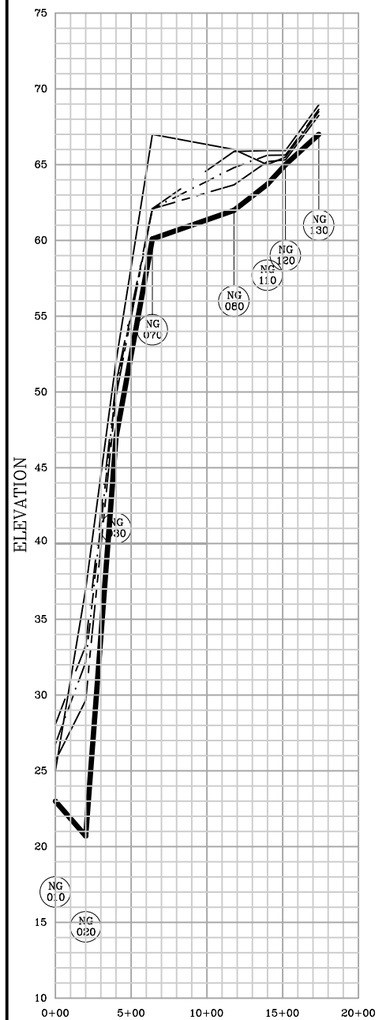
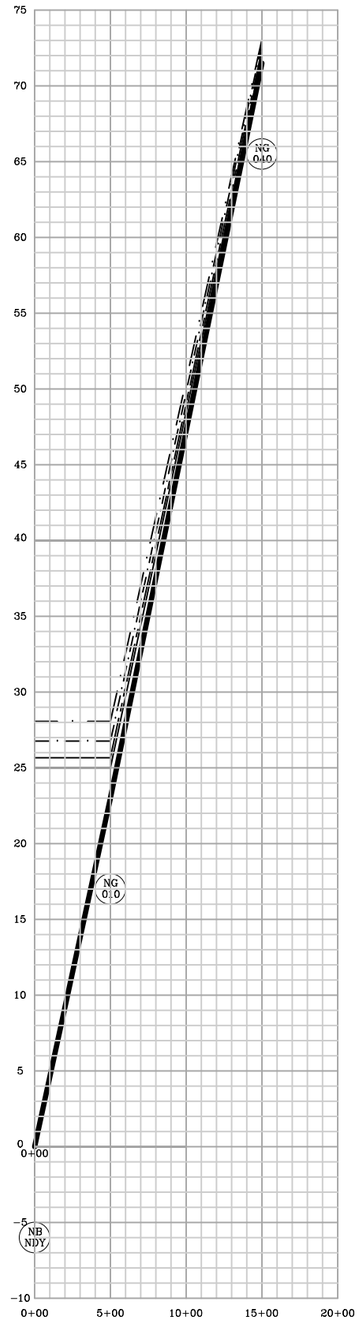
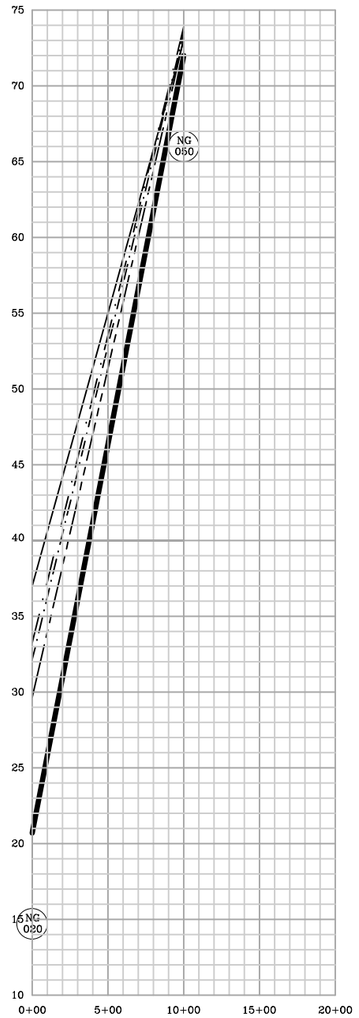
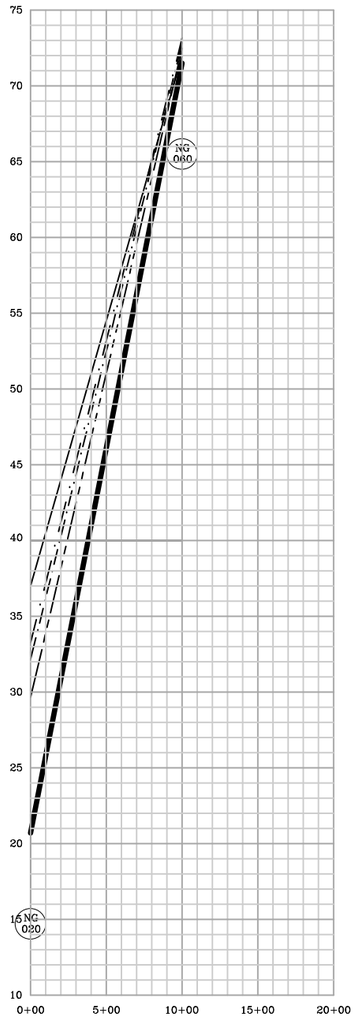
STORM EVENTS
100 YR.
25 YR.
3 YR.

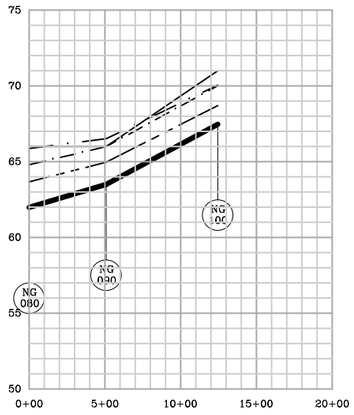
8-HOUR
DURATION
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'











BRANCH "G"

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
5111 North 12th Avenue (32504)
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Pensacola, Florida
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ESCAMBIA COUNTY STORMWATER MASTER PLAN

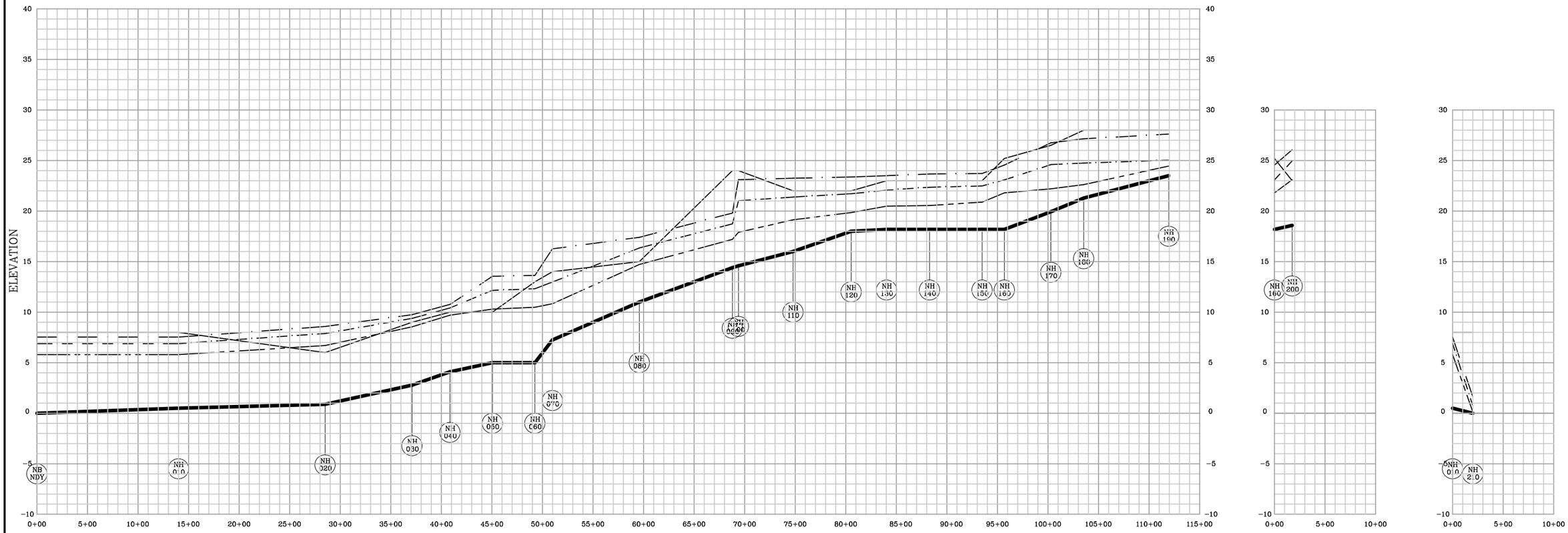
WARRINGTON BASIN

PROFILES

LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "H"

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
5111 North 12th Avenue (32504)
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ESCAMBIA COUNTY STORMWATER MASTER PLAN
WARRINGTON BASIN
PROFILES

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WARNING STAGE
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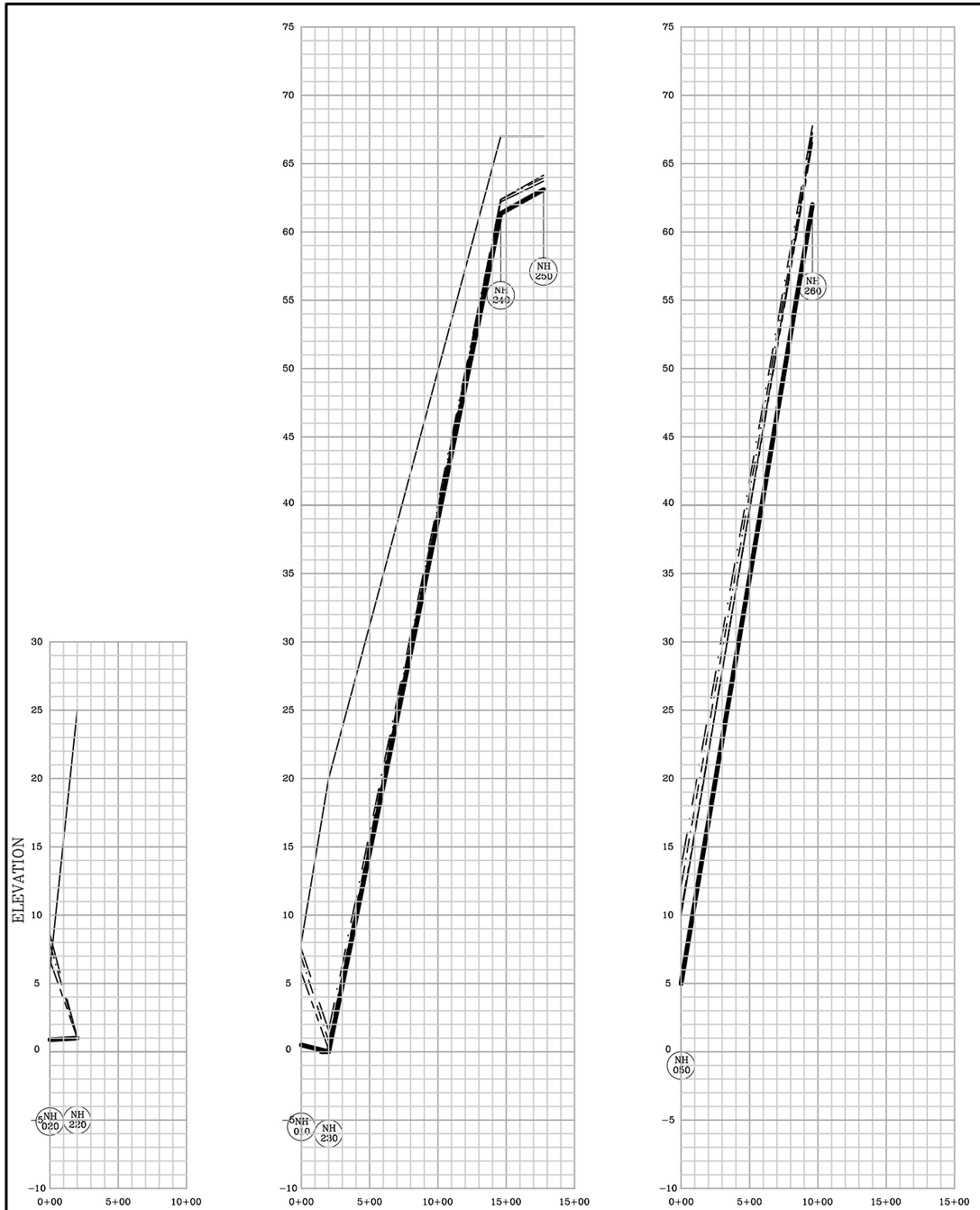
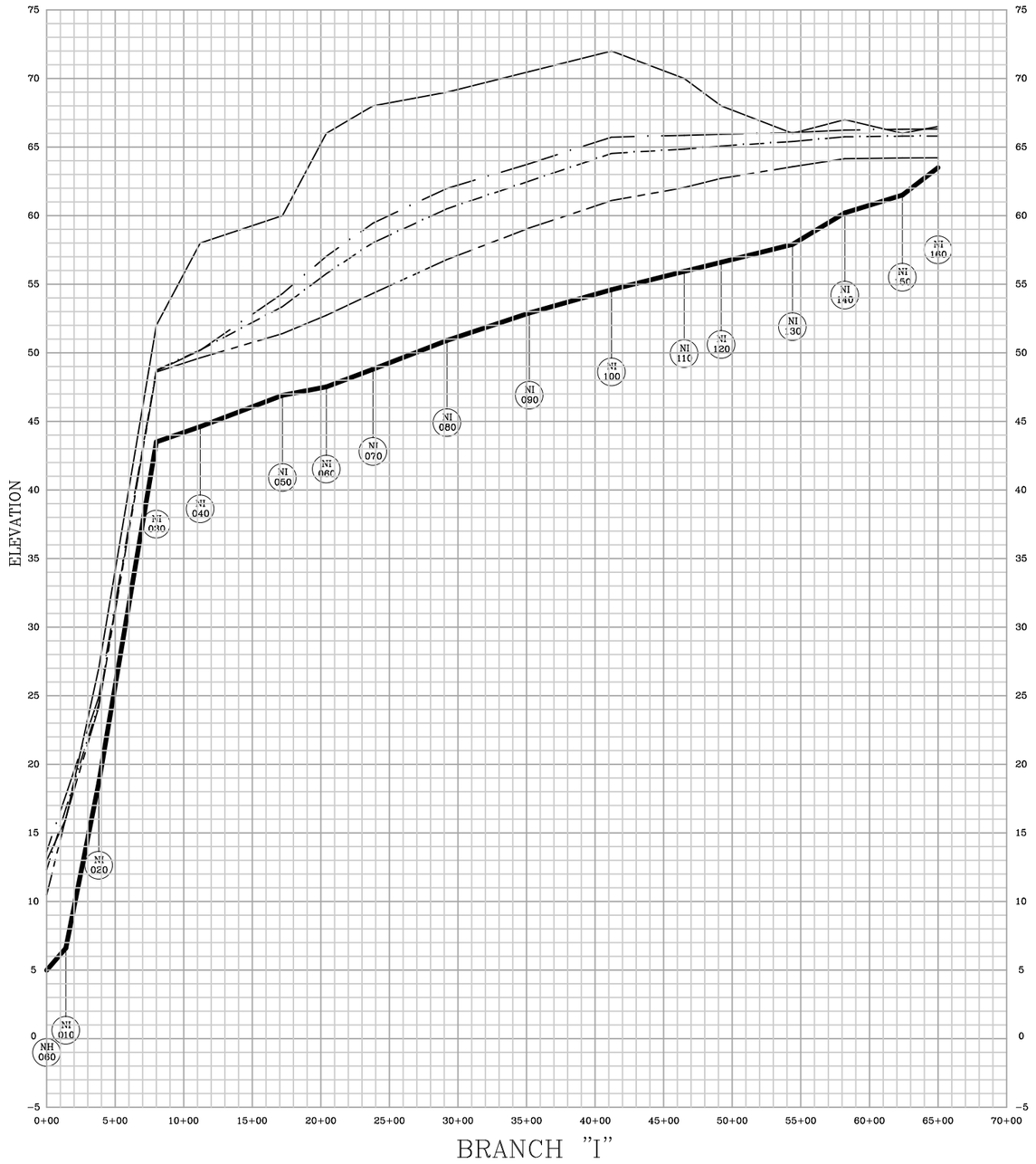
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "H" CON'T.



BRANCH "I"

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

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WARRINGTON BASIN

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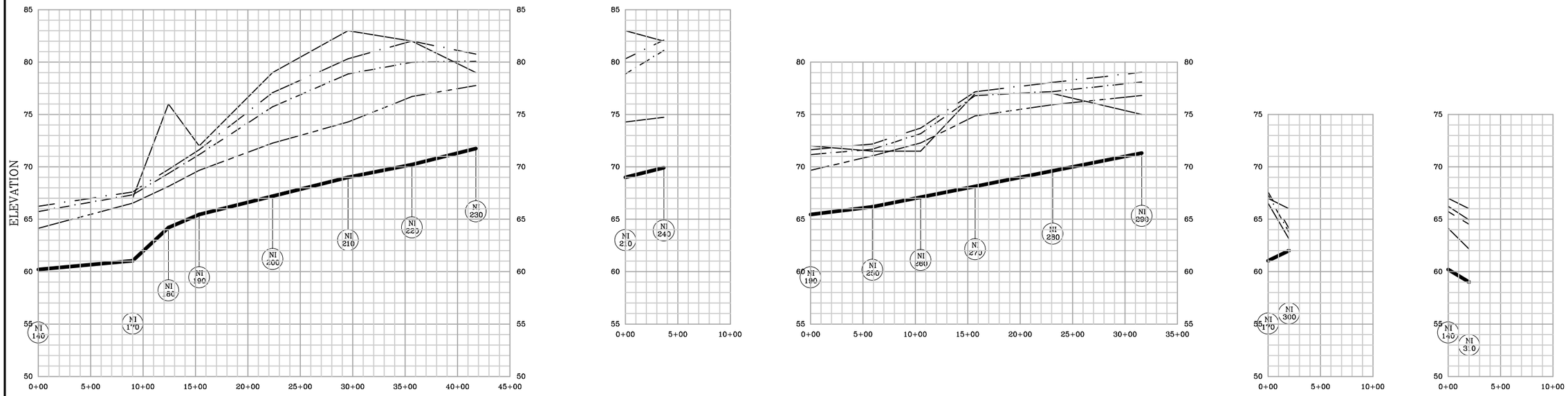
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "I" CON'T

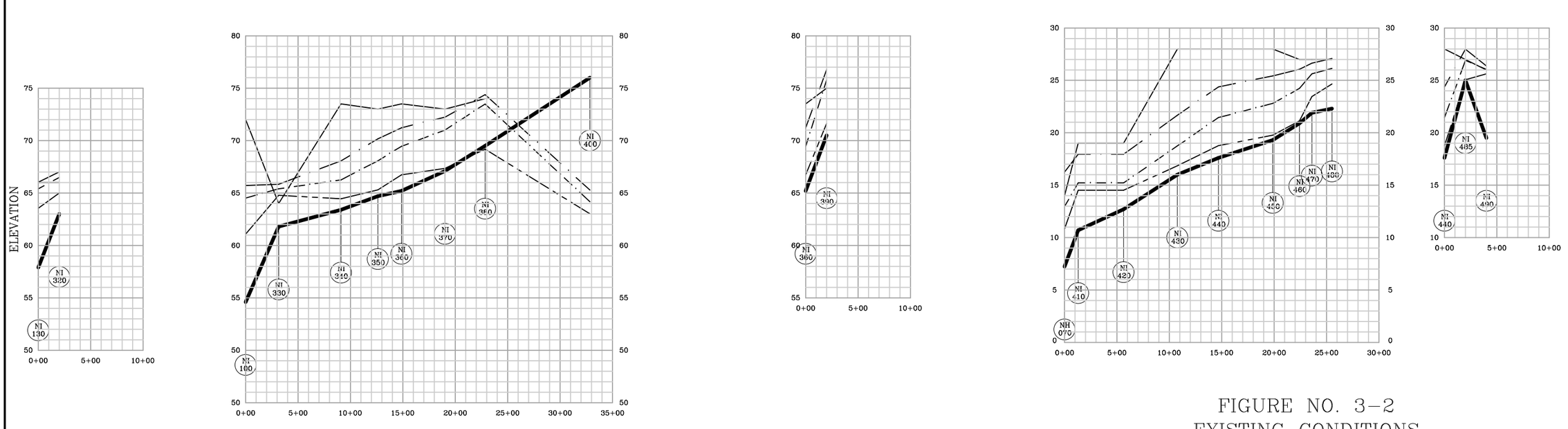


FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
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WARRINGTON BASIN

PROFILES

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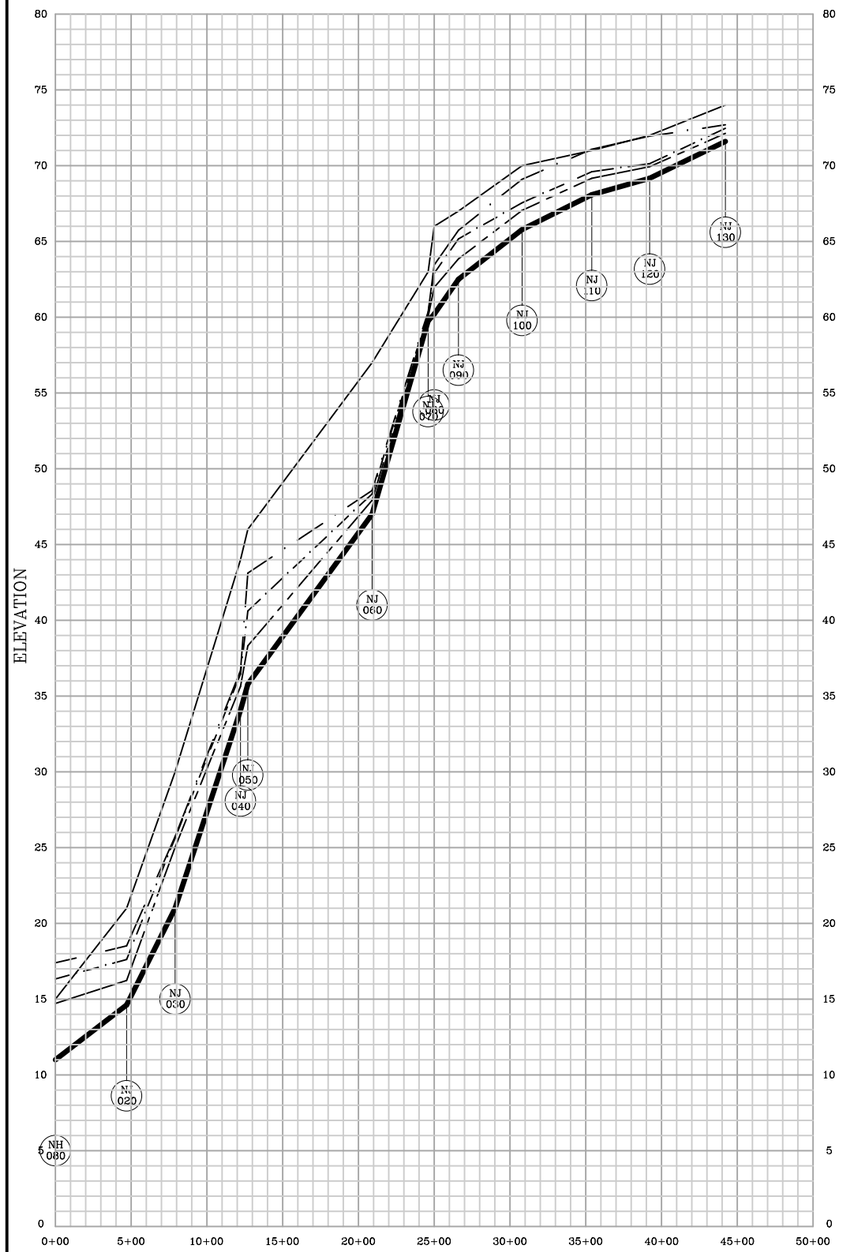
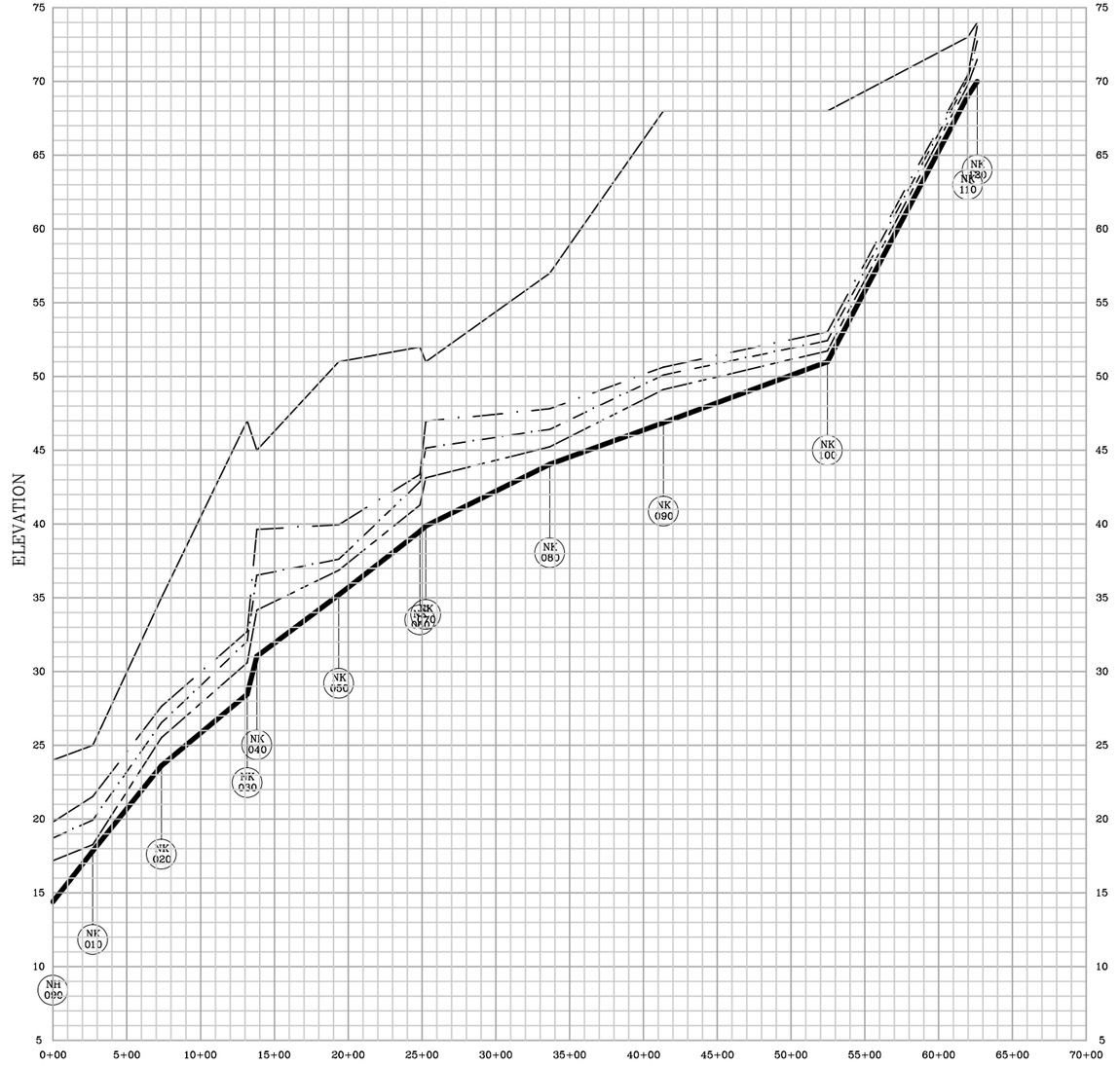
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'



BRANCH "J"



BRANCH "K"

FIGURE NO. 3-2
EXISTING CONDITIONS

Hatch Mott MacDonald
Hatch Mott MacDonald Florida, Inc.

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783
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ESCAMBIA COUNTY STORMWATER MASTER PLAN

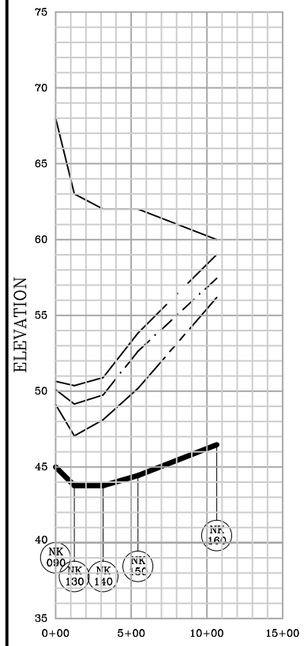
WARRINGTON BASIN

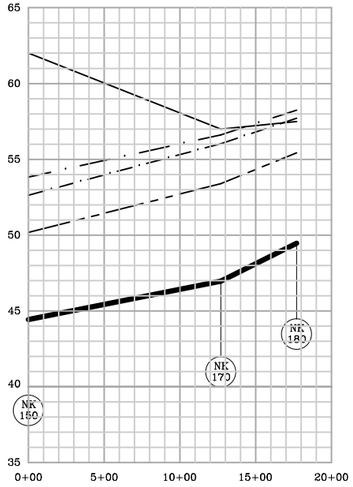
PROFILES

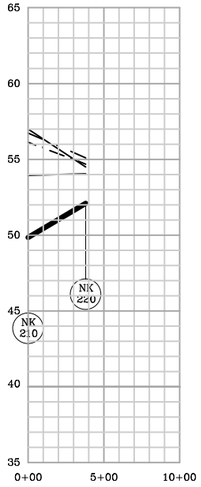
LEGEND
WARNING STAGE
INVERT
STORM EVENTS
100 YR.
25 YR.
3 YR.

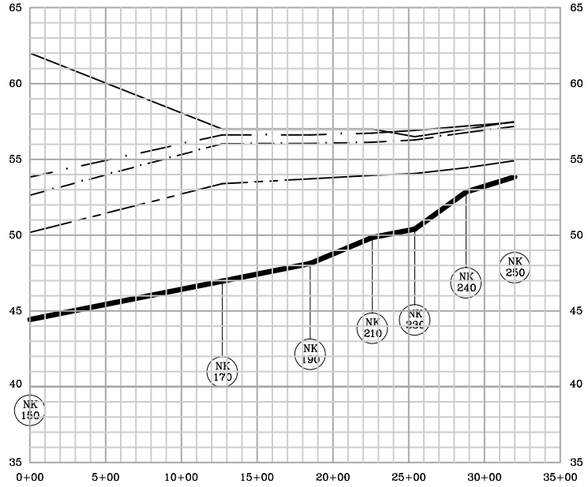
8-HOUR
DURATION

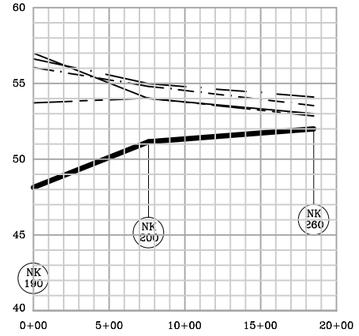
HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'











BRANCH "K" CON'T.

FIGURE NO. 3-2
EXISTING CONDITIONS

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Hatch Mott MacDonald Florida, Inc.

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WARRINGTON BASIN

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WARNING STAGE
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STORM EVENTS
100 YR.
25 YR.
3 YR.

8-HOUR
DURATION

HORIZONTIAL SCALE: 1" = 1000'
VERTICAL SCALE: 1" = 10'

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
Branch A:									
NA010	8.00	2.03	2.82	3.33	3.77	4.41	3.85	3.76	4.31
NA020	7.00	2.19	3.04	3.58	4.09	5.65	4.20	4.07	5.42
NA021	22.13	17.77	17.92	18.18	18.28	18.18	18.09	18.04	18.17
NA022	21.21	18.24	18.29	18.32	18.52	18.20	18.12	18.06	18.20
NA023	21.41	18.67	18.72	18.75	18.93	18.46	18.37	18.28	18.38
NA024	21.00	19.16	19.67	20.25	20.81	20.59	20.07	19.86	20.47
NA030	8.00	2.51	3.04	3.58	4.10	5.65	4.21	4.07	5.42
NA040	11.50	4.81	5.42	5.86	6.71	7.14	6.73	6.60	7.05
NA050	11.00	5.72	6.53	7.26	7.93	8.72	7.93	7.93	8.49
NA060	9.00	8.58	9.61	10.18	10.55	10.69	10.53	10.43	10.63
NA070	11.00	10.57	11.61	12.02	12.33	12.52	12.30	12.25	12.43
NA080	11.00	10.88	12.26	12.92	13.51	13.83	13.45	13.34	13.69
NA090	15.00	11.66	12.45	13.07	13.65	13.95	13.59	13.48	13.82
NA100	16.00	12.48	12.72	13.15	13.71	14.00	13.65	13.54	13.88
NA110	20.00	13.97	14.20	14.37	14.47	14.40	14.28	14.21	14.28
NA120	21.00	14.37	14.64	14.87	15.05	15.16	14.99	14.94	15.10
NA130	16.00	14.46	14.72	14.96	15.18	15.29	15.12	15.07	15.23
NA140	16.00	14.69	15.03	15.25	15.53	15.66	15.48	15.43	15.58
NA150	16.50	15.26	16.40	16.88	17.12	17.24	17.08	17.02	17.16
NA160	16.50	15.85	16.78	17.14	17.35	17.47	17.33	17.28	17.39
NA170	22.00	15.92	17.02	17.84	18.68	19.44	18.57	18.35	18.93
NA180	23.00	16.23	17.07	17.87	18.69	19.44	18.59	18.36	18.94
NA190	23.00	16.66	17.15	17.89	19.35	21.20	18.89	18.51	20.02
NA200	22.00	17.26	18.15	18.98	20.11	21.60	19.68	19.52	20.62
NA210	22.00	17.43	18.43	19.31	20.40	21.79	19.99	19.90	20.89
NA220	24.00	17.50	18.55	19.46	20.55	21.90	20.15	20.12	21.04
NA230	27.00	19.11	19.69	20.22	20.69	22.01	20.42	20.42	21.19
NA240	27.00	23.58	23.77	23.94	24.13	24.16	23.57	23.55	23.59
NA250	27.00	23.87	24.16	24.40	24.69	24.85	24.67	24.62	24.77
NA260	11.00	9.39	10.03	10.12	10.18	10.02	9.97	9.93	9.96
NA265	12.62	6.11	6.53	7.26	7.93	8.72	7.93	7.93	8.49
NA270	12.00	6.43	7.70	8.71	9.38	9.26	7.86	7.63	8.71
NA280	22.00	18.75	19.00	19.17	19.29	18.91	18.74	18.60	18.75
NA290	22.00	20.54	21.50	22.07	22.17	20.95	20.35	19.91	20.32
NA300	22.00	20.60	21.53	22.10	22.20	21.00	20.42	19.99	20.39
NA310	22.00	20.64	21.55	22.11	22.22	21.03	20.46	20.05	20.43
NA320	29.00	27.56	28.27	28.56	28.67	28.78	28.75	28.74	28.78
NA330	28.00	28.54	28.69	28.80	28.86	28.79	28.76	28.72	28.76
NA340	14.00	12.58	12.63	11.90	12.87	9.58	8.68	8.40	8.76
NA350	22.00	16.28	16.23	16.35	16.30	15.68	15.11	14.77	15.08
NA360	26.00	22.64	22.80	22.54	23.35	22.23	21.74	21.37	21.73
NA370	27.50	24.15	24.63	24.77	25.17	22.79	22.17	22.16	22.17
NA380	12.00	8.43	8.70	9.03	9.22	8.74	8.18	8.12	8.62
NA390	23.00	14.80	17.10	19.59	20.39	14.36	12.68	11.39	12.38
NA400	27.50	20.88	21.41	22.18	24.13	20.69	20.35	20.05	20.29
NA410	28.00	21.83	22.37	23.89	26.36	21.55	21.19	20.92	21.13
NA420	28.00	22.60	23.05	25.16	28.01	22.37	22.10	21.90	22.06
NA430	21.00	16.78	16.84	16.83	16.98	16.51	16.38	16.28	16.36
NA440	27.00	22.23	23.08	23.75	24.76	22.08	21.09	20.62	20.97
NA450	27.00	23.20	24.41	25.30	25.94	22.75	21.59	21.12	21.46
NA460	28.00	23.78	25.20	26.22	26.69	23.02	22.01	21.71	21.92

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NA470	27.00	24.39	26.03	27.23	27.63	23.33	22.48	22.14	22.39
NA480	27.50	24.65	26.37	27.64	28.01	23.48	22.95	22.58	22.86
NA490	28.00	24.98	26.80	28.15	28.47	23.66	23.13	22.75	23.03
NA500	15.00	11.65	11.99	12.41	12.42	11.80	11.54	11.32	11.51
NA510	16.00	13.62	13.78	14.64	14.73	13.69	13.56	13.45	13.54
NA520	17.00	14.88	15.19	15.56	15.66	15.03	14.84	14.73	14.81
NA530	21.50	16.71	17.34	17.84	18.07	16.98	16.60	16.47	16.55
NA540	28.00	19.45	19.58	20.19	20.50	19.18	19.14	19.30	19.13
NA550	29.00	19.89	20.37	20.96	21.21	19.93	19.48	19.63	19.47
NA560	28.50	19.97	20.65	21.26	21.70	20.19	19.82	19.87	19.82
NA570	29.00	21.00	21.49	22.03	22.42	21.16	20.84	20.77	20.81
NA580	26.00	22.03	22.24	22.51	22.87	21.61	21.29	21.24	21.28
NA590	26.60	22.43	22.67	23.15	23.50	22.22	21.92	21.71	21.92
NA600	25.50	22.46	22.75	23.41	23.88	22.46	22.20	22.15	22.23
NA610	22.00	18.13	18.46	18.73	19.31	17.96	17.74	17.50	17.72
NA620	21.00	18.13	18.46	18.73	19.31	17.96	17.74	17.50	17.72
NA630	30.00	22.07	22.32	22.30	23.08	20.97	20.53	20.22	20.45
NA640	29.75	22.66	23.29	23.27	25.06	21.35	20.90	20.59	20.82
NA650	30.00	22.77	23.43	23.45	25.53	21.56	21.39	21.22	21.36
NA660	28.50	22.87	23.52	23.58	25.91	22.10	21.97	21.83	21.94
NA670	23.00	17.81	17.92	17.88	18.05	17.10	16.83	16.73	16.78
NA690	20.00	17.90	18.00	17.94	18.10	17.16	16.88	16.76	16.83
NA700	20.00	17.90	18.00	17.94	18.10	17.16	16.88	16.76	16.83
NA710	22.00	8.85	9.62	10.35	11.36	13.27	14.22	15.38	16.11
NA720	20.00	10.38	10.66	10.77	11.36	13.26	14.21	15.37	16.10
NA730	22.61	10.85	11.17	11.31	11.50	13.29	14.23	15.39	16.12
NA740	19.68	11.11	11.46	11.61	11.82	13.28	14.22	15.38	16.11
NA750	22.00	12.05	12.36	12.52	12.74	13.28	14.22	15.38	16.11
NA760	22.00	17.14	17.38	17.51	17.72	16.82	16.53	16.29	16.47
NA770	26.75	18.15	19.14	20.50	21.42	18.72	18.32	17.79	18.24
NA780	27.50	18.45	19.65	22.03	23.55	19.10	18.65	18.04	18.55
NA790	27.50	18.76	19.91	22.82	24.66	19.37	18.94	18.39	18.85
NA800	28.75	20.07	21.09	25.74	28.77	20.32	20.04	19.78	19.99
Branch B:									
NB010	26.00	18.97	19.29	19.88	19.99	19.51	19.48	19.26	19.52
NB020	28.40	21.10	21.42	21.92	22.08	21.75	21.77	21.66	21.82
NB030	27.00	23.41	23.62	23.93	24.14	23.55	23.48	23.32	23.54
NB040	28.00	24.92	25.18	25.50	25.71	25.37	25.31	25.19	25.40
NB050	29.50	26.71	26.96	27.17	27.32	27.26	27.21	27.18	27.31
NB060	26.00	21.48	21.78	22.04	22.17	22.18	22.15	22.11	22.16
NB070	29.00	22.48	23.24	23.44	23.76	24.26	24.15	24.00	24.15
NB080	28.00	22.81	23.90	24.19	24.63	25.33	25.16	24.96	25.16
NB090	28.00	24.38	25.63	26.26	26.97	28.02	27.74	27.39	27.74
NB100	27.00	24.86	25.95	26.81	27.58	28.71	28.39	28.02	28.40
NB110	27.00	24.86	25.96	26.81	27.58	28.72	28.39	28.02	28.40
NB120	27.00	24.86	25.96	26.81	27.59	28.72	28.39	28.02	28.40
NB130	26.00	24.86	25.96	26.81	27.59	28.72	28.39	28.02	28.40
NB140	25.00	24.86	25.96	26.81	27.59	28.72	28.40	28.02	28.40
NB150	28.00	25.21	25.95	26.81	27.58	28.71	28.39	28.02	28.40
NB160	26.50	26.74	26.87	27.00	27.56	28.60	28.35	28.00	28.38
NB170	27.00	24.87	25.99	26.84	27.60	28.73	28.42	28.05	28.43
NB180	27.11	25.15	26.09	27.30	27.68	28.77	28.51	28.17	28.51

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NB181	31.00	29.43	29.81	30.01	30.07	30.03	29.98	29.95	29.99
NB182	30.00	29.46	29.94	30.24	30.36	30.28	30.19	30.15	30.21
NB183	30.00	29.47	29.94	30.25	30.37	30.28	30.20	30.15	30.22
NB190	28.00	24.86	25.96	26.81	27.59	28.72	28.40	28.02	28.40
NB200	27.64	26.24	26.51	27.31	28.07	29.08	28.74	28.39	28.73
NB210	29.00	28.71	29.11	29.41	29.70	30.05	29.70	29.48	29.80
NB220	29.00	30.37	31.09	31.71	32.09	31.47	31.09	30.92	31.49
NB230	30.50	31.21	31.64	32.02	32.27	32.04	31.69	31.58	31.99
NB240	31.80	32.01	32.17	32.34	32.56	32.64	32.33	32.22	32.47
NB250	35.00	33.59	33.73	34.23	34.67	32.85	32.33	32.02	32.25
NB260	42.50	42.37	42.61	42.65	42.69	42.59	42.56	42.54	42.56
NB270	27.50	24.86	25.96	26.81	27.58	28.72	28.40	28.02	28.40
NB280	26.81	26.27	26.83	26.94	27.58	28.71	28.40	28.02	28.41
NB290	25.50	26.20	26.51	27.01	27.59	28.72	28.41	28.04	28.42
NB300	26.00	27.50	27.71	28.06	28.42	28.78	28.49	28.30	28.80
NB310	31.50	29.62	29.59	29.81	30.09	29.69	29.38	28.86	29.67
NB320	34.25	31.45	31.57	32.03	32.30	31.36	31.36	31.06	31.36
NB330	31.60	32.77	33.24	33.73	33.97	32.56	32.07	31.49	31.99
NB340	36.40	34.73	34.79	34.82	35.04	33.77	32.65	31.80	32.48
NB350	35.00	35.40	35.42	35.28	35.40	34.25	32.87	31.91	32.67
NB360	47.50	25.13	26.07	26.89	27.85	29.13	28.42	27.90	28.31
NB370	48.00	44.50	47.54	47.79	47.87	47.83	47.93	47.87	47.93
NB380	48.00	47.05	47.49	47.86	48.33	48.63	48.70	48.67	48.71
NB400	27.00	26.30	26.86	27.35	27.97	28.80	28.46	28.08	28.46
NB410	26.98	27.54	27.83	28.15	28.43	28.87	28.49	28.19	28.53
NB420	26.50	25.71	26.51	27.24	28.10	29.37	28.85	28.48	28.85
NB430	26.51	26.57	26.59	26.65	27.51	28.72	28.62	28.25	28.69
NB440	26.00	23.13	24.64	26.65	27.51	28.72	28.62	28.26	28.69
NB450	29.00	27.82	27.82	28.14	28.94	30.70	29.58	29.17	29.70
NB460	41.00	33.91	34.26	34.32	34.34	34.39	33.21	33.36	33.58
NB470	38.00	37.92	38.21	38.41	38.72	36.41	35.98	35.74	35.92
NB480	36.00	36.15	36.33	36.49	36.63	36.39	36.25	36.16	36.34
NB490	37.50	37.87	38.34	38.76	39.22	39.08	38.60	38.38	38.92
NB500	38.00	38.22	38.43	38.75	39.13	39.14	38.71	38.50	38.93
NB510	38.00	38.38	38.57	38.74	39.11	39.19	38.75	38.55	38.94
NB520	37.50	39.88	41.25	42.29	43.03	41.30	40.59	39.74	41.03
NB530	47.50	44.18	45.08	46.04	46.82	47.23	47.29	47.33	47.59
NB540	48.00	48.37	48.51	48.60	48.64	48.50	48.47	48.42	48.46
NB550	50.50	50.33	50.52	50.57	50.60	50.58	50.58	50.57	50.58
NB560	50.00	49.77	50.07	50.23	50.35	50.10	50.03	49.84	50.04
NB570	51.50	50.67	50.85	50.99	51.07	50.67	50.54	50.39	50.51
NB580	54.50	43.39	44.89	46.38	48.32	50.95	50.65	49.76	49.68
Branch C:									
NC010	26.50	24.66	24.86	25.13	25.31	24.48	24.20	23.92	26.50
NC020	27.00	24.81	25.02	25.31	25.52	24.59	24.28	23.99	27.00
NC030	32.20	25.82	26.08	26.35	26.49	25.81	25.62	25.26	32.20
NC040	27.00	25.97	26.35	26.67	26.90	26.04	25.80	25.43	27.00
NC050	21.50	19.87	20.28	20.58	20.62	19.99	19.74	19.57	21.50
NC060	29.00	26.03	26.12	26.22	26.26	26.03	25.93	25.85	29.00
NC070	30.00	26.72	26.94	27.08	27.14	26.89	26.72	26.65	30.00
NC080	28.00	27.12	27.13	27.17	27.25	27.15	26.95	26.93	28.00
NC090	28.00	27.15	27.16	27.18	27.26	27.28	27.07	27.03	28.00

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NC100	28.50	27.16	27.16	27.18	27.26	27.29	27.08	27.03	28.50
NC110	29.00	26.97	27.15	27.36	27.59	27.60	27.38	27.32	29.00
NC120	28.00	28.11	28.34	28.50	28.60	28.37	28.26	28.19	28.00
NC130	29.00	28.65	28.86	29.03	29.14	28.75	28.60	28.50	29.00
NC140	30.00	28.46	28.68	28.85	28.97	28.72	28.58	28.49	30.00
NC150	30.00	28.31	28.42	28.51	28.55	28.49	28.45	28.42	30.00
NC160	28.50	28.01	28.01	28.08	28.18	28.01	28.01	28.01	28.50
NC161	29.50	29.58	29.64	29.68	29.72	29.54	29.47	29.42	29.50
NC162	29.50	29.61	29.64	29.62	29.67	29.46	29.39	29.34	29.50
NC170	27.00	26.92	27.15	27.36	27.60	27.60	27.39	27.33	27.00
NC180	20.00	15.87	16.82	17.19	17.42	17.55	17.40	17.35	20.00
NC190	21.00	16.50	16.90	17.28	17.58	17.70	17.52	17.46	21.00
NC200	24.00	17.97	18.32	18.60	18.96	18.98	18.78	18.72	24.00
NC210	28.00	20.74	20.83	20.95	21.10	21.10	21.02	21.00	28.00
NC220	25.00	21.90	22.38	22.76	23.22	23.22	22.96	22.89	25.00
NC230	26.00	22.35	22.76	23.11	23.52	23.51	23.28	23.21	26.00
NC240	27.00	23.82	24.28	24.68	25.11	25.08	24.84	24.78	27.00
NC250	27.00	24.53	25.00	25.40	25.81	25.78	25.55	25.48	27.00
NC260	28.00	24.59	25.05	25.48	25.91	25.89	25.64	25.58	28.00
NC270	27.00	24.66	25.13	25.57	26.01	26.00	25.74	25.67	27.00
NC280	27.00	25.03	25.31	25.79	26.33	26.33	25.99	25.91	27.00
NC290	28.00	26.15	26.55	26.78	27.04	27.13	26.97	26.94	28.00
NC300	28.00	26.50	26.73	26.98	27.24	27.34	27.17	27.14	28.00
NC310	24.00	19.37	19.39	19.57	19.65	19.87	19.73	19.70	24.00
NC320	25.00	20.58	21.01	21.36	21.53	21.53	21.48	21.45	25.00
NC330	26.00	21.22	21.64	21.99	22.17	22.17	22.11	22.08	26.00
NC340	25.00	22.24	22.94	24.01	24.47	24.48	24.32	24.23	25.00
NC350	27.00	23.66	24.12	24.41	25.11	25.12	24.76	24.66	27.00
NC360	27.00	24.36	24.94	25.30	25.72	25.86	25.88	25.87	27.00
NC370	28.00	24.54	25.19	25.62	26.40	26.64	26.67	26.65	28.00
NC380	27.00	24.69	25.40	26.16	27.08	27.42	27.45	27.43	27.00
NC390	27.00	24.72	25.44	26.32	27.26	27.61	27.61	27.56	27.00
NC400	27.00	24.75	25.49	26.49	27.43	27.81	27.78	27.72	27.00
NC410	27.00	24.84	25.76	27.00	27.97	28.43	28.35	28.27	27.00
NC420	27.00	25.08	26.54	27.55	28.53	28.93	28.68	28.56	27.00
NC430	27.00	25.16	26.60	27.70	28.61	29.00	28.73	28.60	27.00
NC440	28.00	25.36	27.08	28.38	29.02	29.35	28.97	28.82	28.00
NC450	29.00	27.13	27.42	28.40	29.03	29.35	28.97	28.82	29.00
NC460	30.00	28.27	28.60	28.90	29.12	29.42	29.02	28.86	30.00
NC470	28.00	27.26	27.32	27.38	27.41	27.37	27.34	27.32	28.00
NC480	29.00	26.87	27.60	27.73	27.99	28.45	28.37	28.29	29.00
NC490	28.00	27.58	27.69	27.79	28.01	28.47	28.38	28.31	28.00
NC500	28.00	27.58	27.71	27.81	28.02	28.48	28.39	28.32	28.00
NC510	28.00	26.76	27.14	27.44	27.81	28.48	28.39	28.32	28.00
Branch D:									
ND010	7.27	3.25	1.68	3.46	3.51	3.46	3.46	3.46	3.46
ND020	9.91	8.10	2.80	8.42	8.52	8.41	8.31	8.25	8.37
ND030	7.30	2.88	1.47	3.43	3.69	2.90	2.75	2.57	2.72
ND040	9.00	8.07	1.17	8.07	8.07	7.95	7.57	7.30	7.50
ND050	7.00	0.88	1.26	1.06	1.16	1.06	1.08	1.05	1.15
ND060	16.00	11.34	1.23	12.38	12.80	11.14	10.63	10.31	10.59
ND070	16.00	11.52	1.17	12.91	13.70	11.23	10.68	10.39	10.63

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
ND080	17.00	13.66	1.28	15.46	15.71	13.38	12.44	12.05	12.42
ND090	18.00	14.80	1.28	15.73	16.11	14.50	14.39	14.29	14.36
ND100	21.50	19.30	1.76	20.07	20.24	19.74	19.51	18.74	19.50
ND110	21.50	20.02	1.83	20.97	21.19	20.52	20.24	19.41	20.26
ND120	21.50	20.84	2.35	21.52	21.71	21.38	21.10	20.38	21.18
ND130	21.50	21.27	3.16	21.82	22.06	22.00	21.63	21.39	21.83
ND140	20.00	19.50	2.23	20.24	20.41	20.05	19.83	18.93	19.81
ND150	8.00	7.63	6.56	8.26	8.50	8.93	8.89	8.88	9.00
ND160	18.50	13.19	1.51	15.02	15.40	13.58	13.24	13.05	13.19
ND170	19.00	13.66	1.51	15.47	16.10	13.73	13.33	13.12	13.28
ND180	19.00	15.37	1.03	15.61	16.39	15.07	14.95	14.87	14.93
ND190	20.50	17.49	1.06	17.47	17.83	17.33	17.29	17.25	17.29
ND200	21.00	18.22	1.08	18.07	18.66	17.47	17.35	17.28	17.34
ND210	21.50	18.97	1.09	18.68	19.50	17.61	17.41	17.31	17.39
ND220	21.00	21.00	2.70	21.16	21.28	21.19	21.04	20.94	21.10
ND230	22.00	22.21	2.94	22.54	22.69	22.74	22.50	22.39	22.60
ND240	22.00	22.57	2.52	23.22	23.37	23.23	22.97	22.88	23.15
ND250	22.00	22.41	5.31	22.80	23.00	23.23	22.94	22.86	23.04
ND260	6.00	3.34	1.80	4.04	4.28	3.66	3.60	3.41	3.58
ND270	4.50	3.31	1.26	4.34	4.51	4.25	4.30	4.25	4.43
ND280	5.25	3.73	1.26	5.56	5.84	6.05	6.13	6.00	6.25
ND290	6.00	3.92	1.26	6.21	6.52	7.31	7.41	7.22	7.58
ND300	8.00	6.49	4.49	7.70	8.17	8.49	8.51	8.50	8.63
Branch E:									
NE010	8.00	4.47	1.88	4.83	4.87	4.60	4.40	3.51	4.39
NE020	8.60	5.69	1.88	6.37	6.45	5.94	5.55	3.99	5.53
NE030	8.40	6.88	1.90	7.88	8.01	7.26	6.69	4.67	6.66
NE040	9.00	8.43	2.01	9.81	10.04	8.97	8.20	5.30	8.15
NE050	12.30	9.85	1.81	11.51	11.76	10.42	9.49	7.03	9.40
NE060	14.00	11.09	1.71	13.00	13.26	11.75	10.25	9.55	10.15
NE070	14.00	12.37	1.68	14.53	14.80	13.16	11.12	10.30	11.03
NE080	18.00	14.01	1.69	16.59	16.88	14.99	12.35	12.13	12.30
NE090	20.00	15.61	1.74	18.29	18.53	16.68	13.58	12.95	13.55
NE100	21.00	16.77	1.81	19.43	19.63	17.94	14.59	13.81	14.57
NE110	21.00	18.68	1.92	21.02	21.18	19.96	16.54	14.63	16.51
NE120	21.50	19.51	1.95	21.33	21.50	20.48	17.13	14.82	17.04
NE130	21.00	20.37	2.11	21.50	21.68	20.87	17.65	15.00	17.50
NE140	21.00	21.01	2.40	21.65	21.82	21.20	18.10	15.71	17.88
NE150	21.50	21.18	2.78	21.74	21.93	21.48	18.58	15.89	18.31
NE160	21.75	21.31	2.87	21.79	21.98	21.62	18.78	16.93	18.48
Branch F:									
NF010	14.00	14.53	2.36	15.25	15.38	15.05	14.94	14.78	14.94
NF020	12.00	10.96	1.23	11.45	11.99	10.96	10.86	10.60	10.80
NF030	12.00	11.89	1.22	12.04	12.18	11.78	11.69	11.61	11.68
NF040	11.00	11.28	1.70	11.67	11.77	11.34	11.36	11.28	11.42
NF050	18.00	18.59	1.80	19.01	19.10	18.73	18.82	18.78	18.90
NF060	22.00	22.31	8.79	22.64	22.80	22.98	22.99	22.99	23.04
NF070	20.50	20.23	5.51	20.79	21.00	21.14	21.12	21.11	21.21
NF080	9.00	5.95	2.28	8.29	8.69	7.36	7.14	6.87	7.29
NF090	8.10	7.03	2.45	9.31	9.54	8.93	8.74	8.35	8.70
NF100	7.00	5.67	2.07	6.35	6.41	6.16	6.02	5.91	6.01
NF110	14.00	8.77	1.72	10.00	10.13	9.04	8.33	7.71	8.19

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NF120	12.50	10.90	1.61	12.44	12.62	11.00	9.95	8.71	9.72
NF130	11.50	11.62	2.21	12.75	12.94	12.37	12.17	11.83	12.12
NF140	25.00	24.30	2.03	25.31	25.43	24.93	24.75	24.58	24.71
NF150	7.50	8.38	1.25	8.63	8.90	8.05	7.81	7.56	7.77
NF160	12.00	10.48	1.89	10.95	11.01	10.70	10.59	10.47	10.58
NF170	12.50	12.16	2.04	12.56	12.67	12.01	11.32	10.84	11.21
NF180	23.00	21.15	1.60	21.15	21.16	21.15	21.15	21.07	21.15
NF190	25.00	22.80	1.59	23.58	23.79	22.67	22.31	22.03	22.27
NF200	25.00	23.13	1.60	24.22	24.57	23.13	22.93	22.69	22.91
Branch G:									
NG010	25.00	26.35	1.00	27.33	28.07	27.39	27.21	26.83	27.25
NG020	37.00	29.03	2.84	32.66	33.25	32.66	32.50	32.17	32.55
NG030	52.00	49.80	2.13	50.37	50.56	50.29	50.22	50.10	50.28
NG040	72.00	72.62	1.95	72.99	73.06	72.71	72.60	72.43	72.58
NG050	73.00	73.41	1.76	73.80	73.90	73.40	73.25	73.10	73.22
NG060	72.00	72.65	2.06	73.06	73.16	72.80	72.70	72.55	72.68
NG070	67.00	62.08	1.07	62.09	62.09	62.08	62.08	62.01	62.08
NG080	66.00	64.63	1.25	65.52	65.86	64.26	63.84	63.38	63.79
NG090	66.00	65.53	1.87	66.36	66.51	65.65	65.24	64.84	65.16
NG100	71.00	70.06	0.90	70.01	70.05	68.58	68.51	68.34	68.47
NG110	65.00	65.26	2.46	65.78	65.93	65.66	65.56	65.43	65.58
NG120	65.50	65.43	2.29	65.79	65.93	65.65	65.53	65.38	65.56
NG130	68.50	68.43	2.04	68.84	68.94	68.50	68.35	68.18	68.32
Branch H:									
NH010	8.00	6.48	1.90	7.33	7.52	6.61	6.29	5.95	6.28
NH020	6.00	7.49	1.81	8.38	8.58	7.57	7.22	6.84	7.20
NH030	9.00	9.21	1.67	9.64	9.74	9.20	8.97	8.67	8.96
NH040	10.00	10.36	1.62	10.65	10.76	10.26	10.06	9.77	10.05
NH050	10.00	11.77	1.63	13.12	13.54	11.62	11.06	10.47	11.04
NH060	13.00	11.94	1.63	13.22	13.63	11.81	11.24	10.65	11.22
NH070	14.00	12.40	1.61	15.49	16.26	12.24	11.64	11.03	11.63
NH080	15.00	15.98	1.53	17.17	17.40	15.90	15.50	15.00	15.51
NH090	24.00	18.37	1.53	19.51	19.80	18.33	17.92	17.43	17.96
NH100	24.00	20.42	1.39	22.40	23.10	19.38	18.46	17.79	18.48
NH110	22.00	21.03	1.38	22.59	23.24	20.06	19.32	18.70	19.32
NH120	22.00	21.54	1.35	22.77	23.36	20.60	19.97	19.37	19.97
NH130	23.00	22.02	1.33	22.97	23.50	21.14	20.61	20.04	20.62
NH140	23.00	22.34	1.32	23.19	23.66	21.43	20.74	20.11	20.76
NH150	23.00	22.44	1.33	23.27	23.71	21.70	21.16	20.64	21.20
NH160	25.20	22.85	1.36	24.25	24.55	22.61	22.26	21.74	22.33
NH170	26.50	24.27	1.32	26.52	26.74	24.02	23.02	22.46	23.29
NH180	28.00	24.47	1.30	26.81	27.14	24.60	23.25	22.90	23.64
NH190	28.00	24.47	1.30	26.88	27.61	25.31	25.04	24.86	25.15
NH200	23.00	24.39	2.15	25.64	26.06	24.60	24.10	22.73	24.14
NH210	8.00	0.32	2.77	1.13	1.63	1.15	0.35	0.08	0.62
NH220	25.00	1.13	1.07	1.01	1.05	1.01	1.01	1.01	1.01
NH230	20.00	0.36	2.71	1.12	1.57	1.19	0.40	0.14	0.66
NH240	67.00	62.37	1.14	62.37	62.38	62.30	62.14	61.81	62.10
NH250	67.00	64.02	1.11	64.05	64.15	63.76	63.63	63.55	63.61
NH260	67.00	66.32	3.27	67.30	67.77	68.49	68.59	68.56	68.55
Branch I:									
NI010	16.00	17.02	1.02	17.36	17.74	16.36	16.05	15.70	16.00

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NI020	27.00	24.41	0.95	24.48	24.89	24.35	24.32	24.21	24.25
NI030	52.00	48.72	1.83	48.74	48.67	48.71	48.67	48.59	48.65
NI040	58.00	50.25	0.94	50.11	50.18	50.02	49.90	49.54	49.82
NI050	60.00	54.09	0.96	53.67	54.31	52.32	51.65	51.22	51.57
NI060	66.00	56.63	0.96	56.30	57.03	54.23	52.97	52.59	52.91
NI070	68.00	58.84	1.03	58.69	59.45	56.38	55.11	54.00	54.93
NI080	69.00	61.10	1.09	61.27	61.98	58.92	57.73	55.62	57.53
NI090	70.50	62.74	1.17	63.30	63.78	61.24	60.26	57.17	60.06
NI100	72.00	64.46	1.39	65.44	65.72	63.65	62.49	58.67	62.28
NI110	70.00	64.74	1.54	65.65	65.85	64.13	63.24	59.48	63.11
NI120	68.00	64.90	1.64	65.76	65.93	64.46	63.77	60.15	63.70
NI130	66.00	65.17	1.80	65.90	66.04	64.91	64.42	61.17	64.42
NI140	67.00	65.50	1.82	66.10	66.23	65.40	65.01	63.91	65.00
NI150	66.00	65.57	1.71	66.17	66.30	65.43	65.03	63.92	65.02
NI160	66.50	65.61	1.68	66.18	66.32	65.43	65.03	63.99	65.03
NI170	67.00	67.03	2.30	67.51	67.61	67.18	66.95	66.55	66.98
NI180	76.00	69.15	2.00	69.61	69.76	69.07	68.60	67.59	68.64
NI190	72.00	71.17	1.82	71.49	71.64	70.83	70.08	68.38	70.11
NI200	79.00	76.57	1.11	76.59	77.08	74.61	73.42	71.29	73.44
NI210	83.00	79.49	1.11	79.93	80.31	77.65	76.30	73.94	76.37
NI220	82.00	81.83	1.05	81.32	82.01	79.42	78.58	76.87	78.94
NI230	79.00	79.38	2.58	80.44	80.76	80.39	79.47	78.42	79.94
NI240	82.00	80.81	1.49	82.04	82.10	79.22	77.34	74.51	77.28
NI250	71.50	71.35	2.75	71.88	72.18	72.04	71.54	71.21	71.80
NI260	71.50	72.26	4.16	73.18	73.71	74.44	73.95	73.63	74.03
NI270	77.00	76.41	1.61	77.08	77.17	77.06	77.00	76.78	77.03
NI280	77.00	76.52	1.99	77.55	78.06	78.71	78.38	78.03	78.29
NI290	75.00	76.61	4.26	78.17	79.03	80.35	80.15	79.59	79.99
NI300	66.00	63.26	3.27	63.91	64.12	63.92	63.65	63.45	63.77
NI310	66.00	64.01	2.71	64.76	64.94	64.44	64.15	64.01	64.14
NI315	66.00	66.13	2.37	66.83	67.03	66.11	65.52	64.23	65.48
NI320	64.00	64.61	3.64	65.49	65.84	65.98	66.01	66.00	66.11
NI330	73.50	65.88	1.48	67.59	68.07	65.26	65.25	64.67	65.16
NI340	73.00	67.49	1.54	69.61	70.18	66.67	66.30	65.52	66.13
NI350	73.50	68.84	1.65	70.77	71.23	67.91	67.29	66.77	67.14
NI360	73.00	70.42	2.01	71.81	72.24	69.89	68.50	67.39	68.06
NI370	74.00	73.00	2.42	74.00	74.39	72.78	70.66	69.18	69.55
NI380	75.00	75.25	2.29	76.33	76.78	75.32	72.55	71.76	72.09
NI390	74.00	62.81	3.38	64.22	65.29	67.42	68.03	68.50	68.57
NI400	80.00	78.71	2.82	79.79	80.12	80.55	80.57	80.54	80.56
NI410	19.00	17.19	0.85	17.29	17.96	13.66	13.11	13.10	12.97
NI420	28.00	22.08	0.84	20.33	21.67	15.03	15.02	15.02	14.89
NI430	28.00	24.47	0.87	22.83	24.38	18.78	18.12	18.22	18.00
NI440	28.00	25.51	0.89	24.08	25.43	19.77	19.51	19.63	19.41
NI450	27.00	25.83	1.05	25.30	26.06	20.93	20.72	20.64	20.70
NI460	27.00	26.34	1.40	26.42	26.65	23.45	22.76	22.36	22.64
NI470	27.00	26.46	1.91	26.84	27.09	24.78	23.22	23.13	23.22
NI480	27.00	26.92	2.19	27.68	27.97	25.45	23.48	23.29	23.44
NI485	26.00	25.51	4.17	26.04	26.37	26.97	27.71	28.02	27.91
NI490	29.00	20.33	7.25	22.86	24.92	29.22	29.76	30.03	29.96
Branch J:									
NJ020	21.00	17.08	1.39	18.17	18.51	17.24	16.92	16.53	16.85

TABLE 3-1

100-YEAR STORM EVENT
CRITICAL DURATION ANALYSIS

NODE	WARNING STAGE (ft)	MAXIMUM STAGE (ft)							
		1-HR	2-HR	4-HR	8-HR	24-HR	72-HR	168-HR	240-HR
NJ030	30.00	25.54	1.15	25.66	25.73	25.59	25.47	25.12	25.45
NJ040	44.00	36.19	1.15	36.53	36.69	36.39	36.03	35.80	35.99
NJ050	46.00	39.86	1.39	41.95	43.11	39.92	39.35	38.74	39.24
NJ060	57.00	48.22	1.34	48.48	48.56	48.25	48.14	48.02	48.12
NJ070	63.00	60.19	1.41	60.32	60.35	60.21	60.16	60.10	60.15
NJ080	66.00	62.59	1.40	63.30	63.44	62.66	62.40	62.15	62.35
NJ090	67.00	64.71	1.35	65.33	65.73	64.77	64.37	64.06	64.31
NJ100	70.00	67.55	1.37	68.42	69.10	67.55	67.52	67.23	67.46
NJ110	71.00	69.59	1.30	70.46	71.08	69.59	69.55	69.32	69.51
NJ120	72.00	70.13	1.34	70.92	71.94	70.13	70.13	70.04	70.13
NJ130	74.00	72.37	1.35	72.62	72.69	72.39	72.31	72.21	72.29
Branch K:									
NK010	25.00	19.26	20.14	20.97	21.53	19.75	19.40	18.96	19.48
NK020	35.00	26.13	26.64	27.21	27.62	26.42	26.21	25.94	26.26
NK030	47.00	31.60	32.15	32.52	32.72	31.90	31.65	31.29	31.71
NK040	45.00	35.61	36.79	38.42	39.64	36.24	35.71	35.10	35.82
NK050	51.00	37.46	37.62	38.88	39.95	37.59	37.48	37.29	37.51
NK060	52.00	42.35	42.98	43.24	43.36	42.76	42.52	42.12	42.61
NK070	51.00	44.33	45.31	46.32	46.97	45.02	44.64	44.16	44.80
NK080	57.00	45.81	46.50	47.30	47.81	46.42	46.21	45.95	46.36
NK090	68.00	49.61	50.05	50.48	50.64	50.28	50.10	49.93	50.24
NK100	68.00	51.82	52.29	52.73	53.03	52.82	52.56	52.48	52.79
NK110	73.00	69.74	70.06	70.28	70.42	70.32	70.20	70.16	70.31
NK120	74.00	71.50	72.26	73.13	73.75	73.45	72.98	72.87	73.36
NK130	63.00	46.64	48.70	50.48	52.46	54.56	53.57	52.84	53.79
NK140	62.00	48.22	48.74	50.54	52.51	54.61	53.62	52.88	53.83
NK150	62.00	49.38	49.53	50.78	52.63	54.69	53.72	53.04	53.98
NK160	60.00	49.86	50.00	50.79	52.63	54.69	53.73	53.05	54.00
NK170	57.00	51.22	51.97	53.02	53.65	54.84	54.02	53.55	54.48
NK180	57.50	53.08	53.29	53.49	54.18	54.88	54.05	53.60	54.58
NK190	57.00	52.29	53.39	54.34	54.66	54.96	54.27	54.00	54.82
NK200	54.00	53.16	54.06	54.47	54.66	54.65	54.29	54.07	54.63
NK210	57.00	53.15	54.32	55.25	55.56	55.21	54.52	54.39	55.19
NK220	54.50	55.39	55.47	55.65	55.86	55.68	55.43	55.39	55.57
NK230	56.50	53.76	55.12	56.15	56.51	55.36	54.72	54.56	55.48
NK240	57.00	55.92	57.22	57.93	58.29	55.69	55.30	54.81	56.01
NK250	57.50	58.25	58.89	59.36	59.71	56.32	55.64	55.05	56.43
NK260	53.00	53.02	53.44	53.77	54.09	53.53	53.35	53.15	53.49

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
F	ADA WILSON AVE.				4
K	ADKINSON DR.	1	1		4
H	ADMIRAL DOYLE RD.				2
G	ALETHIA ST.		1		
G	ALICE ST.	2	2		2
H	ALTON RD.	1			2
B	AMBERWAY DR.				1
B	AMBERWOOD DR.		1		1
A	AMERICUS AVE.	2	1		
G	ANTHONY ST.	1			
B	ARABIAN CIR.				1
B	ARABIAN DR.				2
A	ATHENS AVE.	2		1	
F	AUDUSSON AVE.				2
A	AUGUSTA AVE.				1
B	AURORA AVE.				1
E	BARRANCAS AVE.				1
City Limits	BAYOU DR.	1	1	1	1
D	BAYSHORE DR.	3	3	2	7
D	BAYSHORE LN.				2
D	BAYSHORE SQ.		1		
A	BAYSPRINGS DR.	1	1		1
K	BEECH ST.		1		2
K	BENTON RD.		1		
K	BERTRAM ST.	1	2		
H	BILLINGSLEY PL.				1
K	BIRCH AVE.	1			1
F	BOEING ST.	1		1	
A	BRANDON AVE.				1
A	BREMEN AVE.	1			
City Limits	BRIAR CLIFF DR.	2	1		
B	BUNKER HILL CIR.				1
B	BUNKER HILL DR.	1	1		1
B	BUNRIERHILL DR.			1	
K	CANTERBURY CIR.				1
E	CAREY AVE.	1			
K	CATALINA CIR.			1	
A	CAVALIER DR.				1
E	CHANTARENE DR.	1			6
F	CHASEVILLE ST.	1	1	1	4
B	CHELSEA ST.				1
J	CHESTNUT ST.				2
C	CHRISTIAN DR.				1

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
I	CITRUS ST.	1	1		1
B	CLYDESDALE DR.				4
I	COMMANDER ST.	1			1
A	CONRAD ST.				2
B	CORYDALE DR.		1		
E	DELRAY DR.	1	1		
K	DELUNA DR.	1	1		3
I	DEWITT DR.				1
D	DEXTER AVE.				1
F	DONALD DR.				2
D	DORSAY LN.				1
A	DUNLAP ST.				1
H	E. SRANT DR.				1
F	EARL ST.	1			
K	EDGECLIFF DR.				2
F	EDGEWATER DR.	5	2		4
City Limits	ELKTON ST.				1
J	ELM ST.	1			3
K	EMORY DR.		1		1
K	ESSEX CIR.	1			1
K	ESSEX DR.	1			
B	FABIANO ST.	1	1		2
City Limits	FAIRMONT ST.				1
D	FAIRWAY DR.				3
I	FIREMAN DR.		2		
D	FLEET RD.	1			1
I	FLYNN DR.	1	1		1
K	FOREST PARK DR.		1		1
H	FORRESTAL ST.				2
K	FRANCES DR.	1	1		1
H	FREEDOM LN.				1
F	FRISCO RD	2	2		1
K	GOODMAN LN.				1
City Limits	GOVERNMENT ST.				1
E	HALSEY DR.	1			
C	HARBOURVIEW CIR.	5	1	4	
City Limits	HARRISON AVE.			1	1
K	HAVEN CT.	1	1		
A	HAWTHORNE DR.				1
F	HENRY ST.				2
F	HERMEY AVE.				1
G	IDLEWOOD DR.		1		1
H	INGALLS DR.				1

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
City Limits	INTERLAKEN ST.	1			
D	JAMISON ST.	1			
K	JANET ST.				1
H	KENDALL AVE.		1		2
I	KENNINGTON DR.				2
G	KEYS CT.				1
J	KINNEAR AVE.		1		
B	KITTY HAWK CIR.		1		
B	KITTY HAWK DR.	2	1		2
I	KRASNOSKY AVE.				1
C	LAGO VISTA CT.	1			1
B	LAKE CHARLENE DR.	1			6
B	LAKE CHARLENE LN.				2
B	LAKE CHARLENE TERR.	1			
B	LAKE JOANNE DR.	1			4
H	LAKEFIELD CIR.	1	1		
D	LAKESIDE DR.	2	1		1
F	LAKEWOOD RD.			1	15
K	LEHIGH CIR.				1
E	LEMHURST RD.				4
I/K	LILLIAN HWY.	2	1	1	2
K	LINDA ST.				1
B	LONG LAKE DR.		1		4
B	LOVETT PL.				4
G	LYNCH ST.	2	1		
K	LYNWOOD RD.	2	3	1	
E	MAHOGANY MILL	1	1	1	
B	MALVERN ST.	1	1		2
E	MANDALAY DR.				6
J	MAPLE ST.				2
City Limits	MARQUES ST.				2
D	MARINE DR.				4
A	MARION OAKS WAY				4
C	MARTIN DR.	1			1
K	MAYFAIR DR.				3
K	MCNAIR LN.				1
B	MCNEIL ST.	1			
C	MELLOW DAYS DR.				1
D	MILTON RD.	1	1		3
H	MUSTIN PL.				1
B	MYRTLE HILL CIR.				1
B	NARROW LANE CT.				1
A	NAVY BLVD.		1	1	1

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
I	NEW WARRINGTON RD.				2
A	NICOLE ST.	2	1		
J	N. 46 AVE.	1			
K	N. 48 AVE.	4	2	3	
K	N. 49 AVE.	3		1	1
K	N. 50 AVE	1	1		
K	N. 52 AVE.	1	1		
B/H	N. 57 AVE.	2	1		3
B/K	N. 58 AVE.	1	1	1	2
K	N. 59 AVE.	1			2
B	N. 60 AVE.				2
B	N. 62 AVE.	1	1		5
B	N. 63 AVE.				5
B	N. 65 AVE.	2	1	1	1
B	N. 67 AVE.				1
B	N. 68 AVE.		1		3
B	N. 69 AVE.	1	1		2
B	N. 70 AVE.	3	1	1	5
B	N. 71 AVE	3	3	1	1
B	N. 72 AVE.	1	1		3
I	N. BORDER ST.	1	1	1	
I	N. CITRUS ST.				2
K	N. EDGEWOOD CIR.				1
G	N. GRANDVIEW ST.				1
I	N HOLLYWOOD	1	1		
City Limits	N. L ST.				1
City Limits	N. N ST.				2
A	N. NAVY BLVD.				1
H	N. OLD CORY RD.	1		2	
City Limits	N. P ST.				1
H	N. PINEWOOD LN.				4
City Limits	N. Q ST.				1
City Limits	N. R ST.	1	1		
City Limits	N. S ST.				1
G	N. SHOEMAKER ST.				1
City Limits	N. STRONG ST.		1		
City Limits	N. V ST.	1	1	1	
G	N. WIGGINS AVE.	1			
G	N. X ST.				1
City Limits	N. Y ST.				1
I/K	NORWOOD DR.	4	3	3	
A	OLD CORRY FIELD RD.				1
A	OLD HICKORY DR.	5	2		2

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
G	PADGETT DR.	1	1		
E	PALAO PL.				1
E	PALAO ST.				1
A	PATTON DR	1			
F	PELHAM RD.				2
I	PEN CT.	1	1	1	
I/K	PEN HAVEN DR.	2	2		
I	PENNSYLVANIA DR.	1			
B	PENTON ST.		1		3
D	POPPY AVE.	2	1		1
H	PRIETO DR.	1			4
B	QUIGLEY RD.		1		
I	RANDOLPH DR.				1
K	REDWOOD CIR.				4
E	REED RD.				1
C	RONJI WAY	1			
G	ROSS ST	1	1		
C	ROSSI WAY	2			
F	RUBERIA AVE.				1
E	RUE MAX	4	4	3	5
C	ST. JAMES PL.				4
G	SANDALWOOD ST.				1
C	SANDY CREEK CIR.				1
C	SANDY CREEK CT.				1
C	SANDY CREEK DR.				1
City Limits	SEABROOK				1
F	SEAMARGE CIR.				2
F	SEAMARGE LN.	1			2
H	SHADOW LAWN LN.	1			
B	S. 61 AVE.	2	2	2	6
B	S. 66 AVE.		1		1
B	S. 69 AVE.				1
B	S. 70 AVE.				2
C	S. 72 AVE.	1	1		2
K	S. BENTON RD.		1	1	
A	S. FAIRFIELD DR.	1			2
City Limits	S. H ST.		1		
City Limits	S. K ST.	3	3	1	1
City Limits	S. M ST.				2
City Limits	S. Q ST.				1
D	STAR LAKE DR.	6	3	1	5
D	STAR LAKE PL.				1
K/J	STATE ST.	1	1		

TABLE 3-2

WARRINGTON BASIN
RESIDENT QUESTIONNAIRES SUMMARY

Branch	LOCATION/ADDRESS	TYPE OF FLOODING			
		YARD	STREET	BUSINESS OR RESIDENCE	NONE
K	STETSON RD.				3
H	STRICKLAND PL.	1			3
E	SULLIVAN RD.	1	1		1
A	SUSAN ST.				1
A	TALBERT DR.	1	1	1	
H	TEAKWOOD CIR.				1
H	TEAKWOOD DR.	1			2
J	TYSON ST.				1
City Limits	S. .K. ST.	1	1		1
D	VICTORIA PL.				1
G	WALTERS CT.	2	2		1
G	WARD BLVD.				1
G	W. BELMONT ST.				1
I	W. BLOUNT ST.	2	1	1	1
I	W. BRAINERD ST.	1	1		
A	W. CARVER DR.	1			1
G	W. CERVANTES ST.		1		1
City Limits	W. CHASE ST.				2
City Limits	W. DESOTO ST.	1	1		
K	W. FAIRFIELD DR.				1
G	W. GADSDEN ST.				1
City Limits	W. GARDEN ST.	2	3	1	
City Limits	W. GREGORY ST.	1	2		1
B/G/K	W. JACKSON ST.	9	7		15
I	W. LEE ST.	1	1		3
I	W. MORENO CT.	1	1		
H	W. NAVY BLVD.				1
City Limits	W. ROMANA ST.				2
E	WEIS ST.	1			
D	WILLOW ST.		1		
C	WILLOWSIDE CIR.		3		1
D	WILSON AVE.	1	1		5
E	WINDROSE CIR.				1
D	WISTERIA AVE.				3
J	YORKSHIRE AVE.	1	1	1	
	TOTALS:	**176**	**133**	**46**	**374**

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
BRANCH A: 8-HOUR DURATION STORM EVENT						
NA010	Old Corry Field Rd.	8.00	3.77	2.75	1.20	0
NA020	S. Old Corry Field Rd.	7.00	4.09	2.97	1.38	0
NA021	S. Old Corry Field Rd.	22.13	18.28	18.01	17.55	0
NA022	Brandon Ave	21.21	18.52	18.13	17.77	0
NA023	Brandon Ave	21.41	18.93	18.62	17.83	0
NA024	S. Old Corry Field Rd.	21.00	20.81	19.85	19.08	0
NA030	Old Corry Field Rd.	8.00	4.10	2.97	1.87	0
NA040	N. Navy Blvd.	11.50	6.71	5.81	4.61	0
NA050	N. Navy Blvd.	11.00	7.93	7.18	5.51	0
NA060	Jones Swamp	9.00	10.55	10.14	9.18	3
NA070	Jones Swamp	11.00	12.33	11.98	11.16	3
NA080	Jones Swamp	11.00	13.51	12.85	11.64	3
NA090	Jones Swamp	15.00	13.65	13.00	12.02	0
NA100	Jones Swamp	16.00	13.71	13.09	12.53	0
NA110	Jones Swamp	20.00	14.47	14.30	14.03	0
NA120	Jones Swamp	21.00	15.05	14.79	14.45	0
NA130	Jones Swamp	16.00	15.18	14.89	14.54	0
NA140	Jones Swamp	16.00	15.53	15.22	14.77	0
NA150	Jones Swamp	16.50	17.12	16.85	15.44	2
NA160	Jones Swamp	16.50	17.35	17.10	16.31	2
NA170	Jones Swamp	22.00	18.68	17.73	16.38	0
NA180	Jones Swamp	23.00	18.69	17.76	16.49	0
NA190	Jones Swamp	23.00	19.35	17.78	16.73	0
NA200	Jones Swamp	22.00	20.11	18.76	17.43	0
NA210	Jones Swamp	22.00	20.40	19.07	17.64	0
NA220	Jones Swamp	24.00	20.55	19.21	17.74	0
NA230	Jones Swamp	27.00	20.69	20.07	19.27	0
NA240	Jones Swamp	27.00	24.13	23.90	23.63	0
NA250	Jones Swamp	27.00	24.69	24.39	23.98	0
NA260	N. Navy Blvd.	11.00	10.18	10.03	9.85	0
NA265	W. Highway 98	12.62	7.93	7.18	6.11	0
NA270	W. Highway 98	12.00	9.38	7.88	5.81	0
NA280	Old Hickory Rd.	22.00	19.29	18.99	18.58	0
NA290	Old Hickory Rd.	22.00	22.17	21.42	20.01	1
NA300	Old Hickory Rd.	22.00	22.20	21.46	20.09	1
NA310	Old Hickory Rd.	22.00	22.22	21.48	20.14	1
NA320	Jones Swamp	29.00	28.67	28.56	27.96	0
NA330	Jones Swamp	28.00	28.86	28.75	28.61	3
NA340	N. Navy Blvd.	14.00	12.87	11.66	8.78	0
NA350	N. Navy Blvd.	22.00	16.30	16.36	16.12	0
NA360	N. Navy Blvd.	26.00	23.35	22.07	22.16	0
NA370	N. Navy Blvd.	27.50	25.17	23.74	22.74	0
NA380	W. Highway 98	12.00	9.22	8.62	7.89	0
NA390	Corry Field	23.00	20.39	16.15	11.80	0
NA400	Corry Field	27.50	24.13	21.14	20.20	0
NA410	Corry Field	28.00	26.36	22.06	21.17	0
NA420	Corry Field	28.00	28.01	22.78	22.07	1
NA430	W. Highway 98	21.00	16.98	16.74	16.40	0
NA440	Corry Field	27.00	24.76	22.75	20.79	0
NA450	Corry Field	27.00	25.94	23.95	21.31	0
NA460	Corry Field	28.00	26.69	24.66	21.83	0

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NA470	Corry Field	27.00	27.63	25.41	22.30	1
NA480	Corry Field	27.50	28.01	25.72	22.81	1
NA490	Corry Field	28.00	28.47	26.11	22.99	1
NA500	W. Highway 98	15.00	12.42	11.98	11.23	0
NA510	W. Highway 98	16.00	14.73	13.78	13.42	0
NA520	W. Highway 98	17.00	15.66	15.17	14.75	0
NA530	W. Highway 98	21.50	18.07	17.29	16.50	0
NA540	Corry Field	28.00	20.50	19.50	19.37	0
NA550	Corry Field	29.00	21.21	20.28	19.70	0
NA560	Corry Field	28.50	21.70	20.60	19.93	0
NA570	Corry Field	29.00	22.42	21.45	20.80	0
NA580	Corry Field	26.00	22.87	21.90	21.28	0
NA590	Corry Field	26.60	23.50	22.48	21.65	0
NA600	Corry Field	25.50	23.88	22.66	22.12	0
NA610	W. Highway 98	22.00	19.31	18.35	17.22	0
NA620	W. Highway 98	21.00	19.31	18.35	17.22	0
NA630	Corry Field	30.00	23.08	21.80	20.71	0
NA640	Corry Field	29.75	25.06	22.30	21.07	0
NA650	Corry Field	30.00	25.53	22.45	21.42	0
NA660	Corry Field	28.50	25.91	22.61	22.00	0
NA670	Corry Field	23.00	18.05	17.58	17.02	0
NA690	W. Highway 98	20.00	18.10	17.66	17.13	0
NA700	W. Highway 98	20.00	18.10	17.66	17.13	0
NA710	W. Highway 98	22.00	11.36	10.35	9.16	0
NA720	Corry Field	20.00	11.36	10.42	9.75	0
NA730	Corry Field	22.61	11.50	10.90	10.12	0
NA740	Corry Field	19.68	11.82	11.17	10.35	0
NA750	W. Highway 98	22.00	12.74	12.13	11.48	0
NA760	W. Highway 98	22.00	17.72	17.22	16.58	0
NA770	Corry Field	26.75	21.42	19.05	17.14	0
NA780	Corry Field	27.50	23.55	19.52	17.40	0
NA790	Corry Field	27.50	24.66	19.78	17.84	0
NA800	Corry Field	28.75	28.77	20.72	19.31	1
BRANCH B: 8-HOUR DURATION STORM EVENT						
NB010	S. 61st. Ave	26.00	19.99	19.25	18.16	0
NB020	S. 61st. Ave	28.40	22.08	21.49	20.89	0
NB030	S. 61st. Ave	27.00	24.14	23.57	22.94	0
NB040	S. 61st. Ave	28.00	25.71	25.23	24.69	0
NB050	S. 61st. Ave	29.50	27.32	27.04	26.70	0
NB060	S. 61st. Ave	26.00	22.17	21.87	21.64	0
NB070	S. 61st. Ave	29.00	23.76	23.46	22.88	0
NB080	S. 61st. Ave	28.00	24.63	24.21	23.29	0
NB090	S. 61st. Ave	28.00	26.97	26.28	24.78	0
NB100	Lake Joanne Dr.	27.00	27.58	26.83	25.16	1
NB110	Lake Joanne Dr.	27.00	27.58	26.83	25.17	1
NB120	Lake Joanne Dr.	27.00	27.59	26.83	25.17	1
NB130	Lake Joanne Dr.	26.00	27.59	26.83	25.17	2
NB140	Lake Charlene	25.00	27.59	26.83	25.17	3
NB150	Long Lake Dr	28.00	27.58	26.83	25.17	0
NB160	Kitty Hawk Dr.	26.50	27.56	26.83	25.74	2
NB170	Kitty Hawk Cir.	27.00	27.60	26.87	25.20	1
NB180	Kitty Hawk Cir.	27.11	27.68	27.02	25.31	1

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NB181	72nd Ave @ Lago Vista (E)	31.00	30.07	29.95	29.55	0
NB182	72nd Ave @ Lago Vista (W)	30.00	30.36	30.15	29.59	2
NB183	Lago Vista Ponds	30.00	30.37	30.15	29.60	2
NB190	Long Lake Dr	28.00	27.59	26.83	25.17	0
NB200	S. 61st. Ave	27.64	28.07	27.29	25.97	1
NB210	S. 61st. Ave	29.00	29.70	29.07	28.07	2
NB220	S. 61st. Ave	29.00	32.09	31.11	29.64	3
NB230	S. 61st. Ave	30.50	32.27	31.66	30.81	3
NB240	S. 61st. Ave	31.80	32.56	32.21	31.92	3
NB250	S. 61st. Ave	35.00	34.67	33.45	32.18	0
NB260	S. 61st. Ave	42.50	42.69	42.63	41.96	2
NB270	Lake Charlene Dr.	27.50	27.58	26.83	25.17	1
NB280	Lake Charlene Dr.	26.81	27.58	26.83	25.18	2
NB290	Lake Charlene Dr.	25.50	27.59	26.83	25.19	2
NB300	Myrtle Hill Cir.	26.00	28.42	27.77	25.97	2
NB310	Myrtle Hill Cir.	31.50	30.09	29.62	27.13	0
NB320	Myrtle Hill Cir.	34.25	32.30	31.55	31.36	0
NB330	Myrtle Hill Cir.	31.60	33.97	33.10	32.12	3
NB340	Myrtle Hill Cir.	36.40	35.04	34.64	33.20	0
NB350	Myrtle Hill Cir.	35.00	35.40	35.23	33.65	2
NB360	W. La Rue St.	47.50	27.85	26.65	25.15	0
NB370	W. La Rue St.	48.00	47.87	47.70	45.87	0
NB380	W. La Rue St.	48.00	48.33	47.86	47.23	1
NB400	Lake Charlene Dr.	27.00	27.97	27.22	26.11	2
NB410	Lake Charlene Dr.	26.98	28.43	27.81	27.08	3
NB420	Bunker Hill Dr.	26.50	28.10	27.25	25.74	2
NB430	Bunker Hill Dr.	26.51	27.51	26.63	25.81	2
NB440	Penton St.	26.00	27.51	26.60	23.69	2
NB450	S. 69th Ave.	29.00	28.94	28.13	27.73	0
NB460	S. 69th Ave.	41.00	34.34	34.18	33.38	0
NB470	Penton St.	38.00	38.72	37.83	36.15	1
NB480	Penton St.	36.00	36.63	36.33	36.05	3
NB490	N. 69th Ave.	37.50	39.22	38.59	37.68	3
NB500	N. 70th Ave.	38.00	39.13	38.62	38.04	3
NB510	N. 71th Ave.	38.00	39.11	38.63	38.19	3
NB520	Malvern St.	37.50	43.03	41.33	38.72	3
NB530	W. La Rue St.	47.50	46.82	45.72	44.29	0
NB540	S. 69th Ave.	48.00	48.64	48.51	48.36	3
NB550	Lillian Hwy	50.50	50.60	50.55	50.41	2
NB560	Lillian Hwy	50.00	50.35	50.08	49.62	2
NB570	Lillian Hwy	51.50	51.07	50.81	50.47	0
NB580	Lillian Hwy	54.50	48.32	46.24	43.89	0
BRANCH C: 8-HOUR DURATION STORM EVENT						
NC010	Lake Aire Dr.	26.50	25.31	24.76	23.98	0
NC020	Lake Aire Dr.	27.00	25.52	24.90	24.07	0
NC030	W. Highway 98	32.20	26.49	25.98	25.29	0
NC040	W. Highway 98	27.00	26.90	26.24	25.44	0
NC050	Middlebrook Dr.	21.50	20.62	20.20	19.45	0
NC060	Middlebrook Dr.	29.00	26.26	26.11	25.80	0
NC070	Failfield Lakes Apts	30.00	27.14	26.91	26.52	0
NC080	Failfield Lakes Apts	28.00	27.25	27.03	26.72	0
NC090	Failfield Lakes Apts	28.00	27.26	27.06	26.77	0

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NC100	Failfield Lakes Apts	28.50	27.26	27.06	26.77	0
NC110	W. Highway 98	29.00	27.59	27.29	26.97	0
NC120	W. Highway 98	28.00	28.60	28.38	28.08	3
NC130	W. Highway 98	29.00	29.14	28.82	28.42	1
NC140	W. Highway 98	30.00	28.97	28.72	28.40	0
NC150	W. Highway 98	30.00	28.55	28.45	28.33	0
NC160	W. Highway 98	28.50	28.18	28.01	28.01	0
NC161	Westlake Sub. Pond	29.50	29.72	29.61	29.46	2
NC162	Westlake Sub. Pond	29.50	29.67	29.58	29.44	2
NC170	W. Highway 98	27.00	27.60	27.29	26.94	2
NC180	S. Fairfield Dr.	20.00	17.42	17.15	16.34	0
NC190	S. Fairfield Dr.	21.00	17.58	17.22	16.49	0
NC200	S. Fairfield Dr.	24.00	18.96	18.53	18.01	0
NC210	S. Fairfield Dr.	28.00	21.10	20.92	20.71	0
NC220	S. Fairfield Dr.	25.00	23.22	22.65	21.95	0
NC230	S. Fairfield Dr.	26.00	23.52	23.01	22.39	0
NC240	S. Fairfield Dr.	27.00	25.11	24.56	23.87	0
NC250	S. Fairfield Dr.	27.00	25.81	25.27	24.58	0
NC260	S. Fairfield Dr.	28.00	25.91	25.35	24.65	0
NC270	S. Fairfield Dr.	27.00	26.01	25.43	24.72	0
NC280	S. Fairfield Dr.	27.00	26.33	25.63	25.08	0
NC290	S. Fairfield Dr.	28.00	27.04	26.70	26.22	0
NC300	S. Fairfield Dr.	28.00	27.24	26.89	26.52	0
NC310	S. Fairfield Dr.	24.00	19.65	19.54	19.25	0
NC320	S. Fairfield Dr.	25.00	21.53	21.30	20.75	0
NC330	S. Fairfield Dr.	26.00	22.17	21.93	21.39	0
NC340	S. Fairfield Dr.	25.00	24.47	23.88	22.52	0
NC350	S. Fairfield Dr.	27.00	25.11	24.28	23.84	0
NC360	S. Fairfield Dr.	27.00	25.72	25.27	24.55	0
NC370	S. Fairfield Dr.	28.00	26.40	25.58	24.76	0
NC380	S. Fairfield Dr.	27.00	27.08	26.05	24.92	1
NC390	S. Fairfield Dr.	27.00	27.26	26.20	24.95	1
NC400	S. Fairfield Dr.	27.00	27.43	26.36	24.98	1
NC410	S. Fairfield Dr.	27.00	27.97	26.86	25.07	1
NC420	S. Fairfield Dr.	27.00	28.53	27.44	25.48	2
NC430	S. Fairfield Dr.	27.00	28.61	27.58	25.54	2
NC440	S. Fairfield Dr.	28.00	29.02	28.25	25.71	2
NC450	S. Fairfield Dr.	29.00	29.03	28.26	27.16	1
NC460	S. Fairfield Dr.	30.00	29.12	28.80	28.32	0
NC470	S. Fairfield Dr.	28.00	27.41	27.35	27.28	0
NC480	S. Fairfield Dr.	29.00	27.99	27.73	27.47	0
NC490	W. Highway 98	28.00	28.01	27.79	27.63	1
NC500	W. Highway 98	28.00	28.02	27.81	27.64	1
NC510	W. Highway 98	28.00	27.81	27.44	26.92	0
BRANCH D: 8-HOUR DURATION STORM EVENT						
ND010	Lakeside Dr.	7.27	3.51	3.46	3.11	0
ND020	Live Oak Dr.	9.91	8.52	8.32	8.03	0
ND030	Star Lake Dr.	7.30	3.69	3.11	2.47	0
ND040	Live Oak Dr.	9.00	8.07	8.07	7.65	0
ND050	Star Lake Dr.	7.00	0.89	0.69	0.47	0
ND060	Barrancas Ave.	16.00	12.80	11.85	10.07	0
ND070	Barrancas Ave.	16.00	13.70	12.24	10.53	0

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
ND080	Barrancas Ave.	17.00	15.71	14.61	11.58	0
ND090	Barrancas Ave.	18.00	16.11	14.76	14.44	0
ND100	Iona St.	21.50	20.24	19.80	17.65	0
ND110	Iona St.	21.50	21.19	20.58	18.10	0
ND120	Iona St.	21.50	21.71	21.30	18.82	1
ND130	Iona St.	21.50	22.06	21.71	19.74	2
ND140	Wisteria Ave.	20.00	20.41	20.06	17.70	2
ND150	Barrancas Ave.	8.00	8.00	7.88	7.70	1
ND160	Barrancas Ave.	18.50	15.40	14.52	13.05	0
ND170	Barrancas Ave.	19.00	16.10	14.79	13.13	0
ND180	Barrancas Ave.	19.00	16.39	15.28	15.02	0
ND190	Barrancas Ave.	20.50	17.83	17.44	17.16	0
ND200	Barrancas Ave.	21.00	18.66	17.89	17.23	0
ND210	Barrancas Ave.	21.50	19.50	18.34	17.52	0
ND220	Jamison Ave.	21.00	21.28	21.09	20.45	2
ND230	Jamison Ave.	22.00	22.69	22.47	22.07	3
ND240	Jamison Ave.	22.00	23.37	23.06	22.36	3
ND250	Jamison Ave.	22.00	23.00	22.78	22.39	3
ND260	Harborview Cir.	6.00	4.28	3.65	3.10	0
ND270	Harborview Cir.	5.36	4.03	3.16	2.04	0
ND280	Harborview Cir.	5.71	5.54	3.83	2.13	0
ND290	Bayshore Dr.	6.73	6.04	3.93	2.60	0
ND300	Barrancas Ave.	8.00	8.05	7.65	6.75	1
BRANCH E: 8-HOUR DURATION STORM EVENT						
NE010	Barrancas Ave.	8.00	4.87	4.69	3.16	0
NE020	Barrancas Ave.	8.60	6.45	6.10	3.53	0
NE030	Barrancas Ave.	8.40	8.01	7.49	3.88	0
NE040	Barrancas Ave.	9.00	10.04	9.28	4.42	2
NE050	Barrancas Ave.	12.30	11.76	10.82	6.97	0
NE060	Barrancas Ave.	14.00	13.26	12.20	9.47	0
NE070	Barrancas Ave.	14.00	14.80	13.64	10.24	1
NE080	Barrancas Ave.	18.00	16.88	15.47	12.12	0
NE090	Barrancas Ave.	20.00	18.53	17.15	12.89	0
NE100	Barrancas Ave.	21.00	19.63	18.36	13.60	0
NE110	Barrancas Ave.	21.00	21.18	20.25	14.30	1
NE120	Barrancas Ave.	21.50	21.50	20.74	14.60	0
NE130	Barrancas Ave.	21.00	21.68	21.08	15.02	2
NE140	Barrancas Ave.	21.00	21.82	21.36	16.02	2
NE150	Barrancas Ave.	21.50	21.93	21.53	16.25	2
NE160	Barrancas Ave.	21.75	21.98	21.61	17.09	1
BRANCH F: 8-HOUR DURATION STORM EVENT						
NF010	Rue Max St.	14.00	15.38	15.04	14.34	3
NF020	Lakewood Rd.	12.00	11.99	10.96	10.72	0
NF030	Lakewood Rd.	12.00	12.18	11.93	11.60	1
NF040	Lakewood Rd.	11.00	11.77	11.41	11.09	3
NF050	Mandalay Dr.	18.00	19.10	18.79	18.31	3
NF060	Mandalay Dr.	22.00	22.80	22.64	22.40	3
NF070	Lakewood Dr.	20.50	21.00	20.77	20.39	2
NF080	Edgewater Dr.	9.00	8.69	6.99	5.55	0
NF090	Edgewater Dr.	8.10	9.54	8.90	6.59	2
NF100	Chaseville St.	7.00	6.41	6.19	5.40	0
NF110	Edgewater Dr.	14.00	10.13	9.44	7.47	0

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NF120	Chaseville St.	12.50	12.62	11.71	8.05	1
NF130	Chaseville St.	11.50	12.94	12.39	9.29	2
NF140	Pelham Rd.	25.00	25.43	24.97	24.27	1
NF150	Edgewater Dr.	7.50	8.90	8.41	7.58	3
NF160	Frisco Rd.	12.00	11.01	10.78	10.38	0
NF170	Frisco Rd.	12.50	12.67	12.29	11.06	1
NF180	Chaseville St.	23.00	21.16	21.15	21.10	0
NF190	Chaseville St.	25.00	23.79	23.06	22.19	0
NF200	Chaseville St.	25.00	24.57	23.29	22.78	0
BRANCH G: 8-HOUR DURATION STORM EVENT						
NG010	Idlewood Dr.	25.00	28.07	26.76	25.67	3
NG020	W. La Rue St.	37.00	33.25	32.16	29.65	0
NG030	Idlewood Dr.	52.00	50.56	50.18	49.73	0
NG040	W. Jackson St.	72.00	73.06	72.81	72.42	3
NG050	W. Jackson St.	73.00	73.90	73.57	73.14	3
NG060	W. Jackson St.	72.00	73.16	72.87	72.48	3
NG070	Wiggins Ave.	67.00	62.09	62.08	62.08	0
NG080	W. Jackson St.	66.00	65.86	64.79	63.67	0
NG090	W. Jackson St.	66.00	66.51	65.99	64.96	1
NG100	W. Jackson St.	71.00	70.05	70.01	68.69	0
NG110	Citrus St.	65.00	65.93	65.62	65.20	3
NG120	Citrus St.	65.50	65.93	65.63	65.31	2
NG130	Citrus St.	68.50	68.94	68.64	68.24	2
BRANCH H: 8-HOUR DURATION STORM EVENT						
NH010	Idlewood Dr.	8.00	6.94	6.47	5.74	0
NH020	Idlewood Dr.	6.00	8.59	7.84	6.69	3
NH030	Idlewood Dr.	9.00	9.82	9.39	8.55	2
NH040	S. Old Corry Field Rd.	10.00	10.83	10.43	9.72	2
NH050	S. Old Corry Field Rd.	10.00	11.42	10.70	9.83	2
NH060	New Warrington Rd	13.00	11.86	11.08	10.08	0
NH070	New Warrington Rd	14.00	13.11	12.21	10.59	0
NH080	Twin Oaks Dr.	15.00	17.55	16.48	14.77	2
NH090	Prieto Dr.	24.00	19.78	18.75	17.17	0
NH100	Prieto Dr.	24.00	23.15	21.05	17.88	0
NH110	Prieto Dr.	22.00	23.28	21.42	19.13	1
NH120	Prieto Dr.	22.00	23.41	21.74	19.85	1
NH130	Prieto Dr.	23.00	23.55	22.09	20.48	1
NH140	Prieto Dr.	23.00	23.55	22.14	20.55	1
NH150	Prieto Dr.	23.00	23.61	22.30	20.88	1
NH160	Admiral Doyle Rd.	25.20	24.48	22.97	21.80	0
NH170	Corry Field	26.50	26.71	24.50	22.19	1
NH180	Corry Field	28.00	27.11	24.68	22.61	0
NH190	Corry Field	28.00	27.55	25.03	24.44	0
NH200	Admiral Doyle Rd.	23.00	26.02	24.94	23.09	3
NH210	Chaseville St.	8.00	4.37	1.99	0.18	0
NH220	W. Navy Blvd.	25.00	1.05	1.01	1.01	0
NH230	Chaseville St.	20.00	3.71	1.71	0.22	0
NH240	W. Jackson St.	67.00	62.38	62.37	62.20	0
NH250	W. Jackson St.	67.00	64.15	63.97	63.72	0
NH260	S. Old Corry Field Rd.	67.00	67.77	67.27	66.54	2
BRANCH I: 8-HOUR DURATION STORM EVENT						
NI010	New Warrington Rd	16.00	17.74	16.76	16.09	3

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NI020	New Warrington Rd	27.00	24.89	24.40	24.16	0
NI030	New Warrington Rd	52.00	48.67	48.73	48.60	0
NI040	New Warrington Rd	58.00	50.18	50.20	49.63	0
NI050	New Warrington Rd	60.00	54.31	53.37	51.40	0
NI060	New Warrington Rd	66.00	57.03	55.77	52.73	0
NI070	New Warrington Rd	68.00	59.45	58.02	54.33	0
NI080	New Warrington Rd	69.00	61.98	60.50	56.79	0
NI090	New Warrington Rd	70.50	63.78	62.51	59.09	0
NI100	New Warrington Rd	72.00	65.72	64.53	61.09	0
NI110	New Warrington Rd	70.00	65.85	64.85	62.04	0
NI120	New Warrington Rd	68.00	65.93	65.07	62.71	0
NI130	New Warrington Rd	66.00	66.04	65.40	63.56	1
NI140	New Warrington Rd	67.00	66.23	65.74	64.14	0
NI150	New Warrington Rd	66.00	66.30	65.79	64.19	1
NI160	New Warrington Rd	66.50	66.32	65.80	64.21	0
NI170	Lillian Hwy	67.00	67.61	67.33	66.53	2
NI180	Mobile Hwy	76.00	69.76	69.37	68.13	0
NI190	Mobile Hwy	72.00	71.64	71.17	69.67	0
NI200	Mobile Hwy	79.00	77.08	75.73	72.27	0
NI210	Mobile Hwy	83.00	80.31	78.87	74.28	0
NI220	Mobile Hwy	82.00	82.01	79.99	76.71	1
NI230	Mobile Hwy	79.00	80.76	80.08	77.77	2
NI240	N. Kirk St.	82.00	82.10	81.11	74.73	1
NI250	Dominguez St.	71.50	72.18	71.68	71.06	2
NI260	Green St.	71.50	73.71	73.17	72.29	3
NI270	Green St.	77.00	77.17	76.80	74.87	1
NI280	Green St.	77.00	78.06	77.19	75.94	2
NI290	W. Moreno St.	75.00	79.03	78.10	76.81	3
NI300	Citrus St.	66.00	64.12	63.76	63.12	0
NI310	New Warrington Rd	66.00	64.94	64.53	62.16	0
NI320	Old Corry Field Rd.	64.00	65.84	65.40	64.79	3
NI330	New Warrington Spur	73.50	68.07	66.26	64.46	0
NI340	New Warrington Spur	73.00	70.18	68.08	65.31	0
NI350	New Warrington Spur	73.50	71.23	69.46	66.74	0
NI360	New Warrington Spur	73.00	72.24	71.01	67.36	0
NI370	New Warrington Spur	74.00	74.39	73.49	69.19	1
NI380	New Warrington Spur	75.00	76.78	75.79	71.64	2
NI390	Norwood Dr.	74.00	65.29	64.18	63.02	0
NI400	Westover Ave.	80.00	80.12	79.76	79.16	1
NI410	New Warrington Rd	19.00	17.96	15.22	14.52	0
NI420	New Warrington Rd	28.00	21.67	18.75	16.86	0
NI430	New Warrington Rd	28.00	24.38	21.45	18.77	0
NI440	New Warrington Rd	28.00	25.43	22.80	19.77	0
NI450	New Warrington Rd	27.00	26.06	24.24	21.14	0
NI460	New Warrington Rd	27.00	26.65	25.63	23.46	0
NI470	New Warrington Rd	27.00	27.09	26.15	24.65	1
NI480	New Warrington Rd	27.00	27.97	26.91	25.05	1
NI485	Chief's Way	26.00	26.37	26.04	25.63	2
NI490	Chief's Way	29.00	24.92	22.87	20.79	0
BRANCH J: 8-HOUR DURATION STORM EVENT						
NJ020	Tyson St.	21.00	18.51	17.61	16.23	0
NJ030	Tyson St.	30.00	25.73	25.62	25.01	0

TABLE 3-3

WARRINGTON BASIN - MODEL RESULTS
EXISTING CONDITIONS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
NJ040	Elm St.	44.00	36.69	36.45	35.63	0
NJ050	Elm St.	46.00	43.11	40.61	38.31	0
NJ060	Blanton Ct.	57.00	48.56	48.34	47.92	0
NJ070	W. Jackson St.	63.00	60.35	60.25	60.05	0
NJ080	W. Jackson St.	66.00	63.44	62.89	61.97	0
NJ090	N. 46th Ave.	67.00	65.73	65.16	63.85	0
NJ100	N. 46th Ave.	70.00	69.10	67.55	67.04	0
NJ110	N. 46th Ave.	71.00	71.08	69.59	69.17	1
NJ120	N. 46th Ave.	72.00	71.94	70.13	69.93	0
NJ130	N. 46th Ave.	74.00	72.69	72.46	72.13	0
BRANCH K: 8-HOUR DURATION STORM EVENT						
NK010	Prieto Dr.	25.00	21.53	19.94	18.27	0
NK020	Prieto Dr.	35.00	27.62	26.53	25.52	0
NK030	Redwood Cir.	47.00	32.72	32.04	30.60	0
NK040	Redwood Cir.	45.00	39.64	36.53	34.16	0
NK050	S. Edgewood Cir.	51.00	39.95	37.61	36.87	0
NK060	W. Jackson St.	52.00	43.36	42.85	41.29	0
NK070	W. Jackson St.	51.00	46.97	45.15	43.14	0
NK080	Edgecliff Dr.	57.00	47.81	46.42	45.23	0
NK090	N. 50th Ave.	68.00	50.64	50.10	49.11	0
NK100	N. 50th Ave.	68.00	53.03	52.43	51.74	0
NK110	Lillian Hwy	73.00	70.42	70.13	69.73	0
NK120	Lillian Hwy	74.00	73.75	72.75	71.49	0
NK130	Myrtle Grove Sytem F Pond	63.00	52.46	50.18	46.94	0
NK140	De Luna Cir.	66.20	52.51	50.21	46.96	0
NK150	De Luna Cir.	63.05	52.63	50.25	47.69	0
NK160	De Luna Cir.	59.53	52.63	50.25	49.36	0
NK170	De Luna Cir.	57.44	53.65	51.66	49.11	0
NK180	N. 57th Ave.	57.50	54.18	53.20	52.55	0
NK190	N. 57th Ave.	59.78	54.66	53.10	50.58	0
NK200	Linda St.	54.48	54.66	53.73	52.49	1
NK210	N. 57th Ave.	57.23	55.56	54.06	51.15	0
NK220	Western Dr.	55.89	55.86	55.43	53.01	0
NK230	N. 57th Ave.	57.80	56.51	54.85	51.83	0
NK240	N. 57th Ave.	58.70	58.29	56.98	54.44	0
NK250	Lynwood Ave.	59.00	59.71	58.67	55.00	1
NK260	Annette St.	53.00	54.09	53.49	52.84	2

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
ZONE A: 8-HOUR DURATION STORM EVENT							
NA010	Old Corry Field Rd.	4.29	---	4.38	---	5.1	---
NA020	S. Old Corry Field Rd.	4.29	---	4.38	---	5.09	---
NA021	S. Old Corry Field Rd.	4.96	---	5.11	---	5.12	---
NA022	Brandon Ave	4.09	---	4.16	---	4.09	---
NA023	Brandon Ave	4.08	---	4.09	---	4.08	---
NA024	S. Old Corry Field Rd.	7.42	---	6.53	---	6.33	---
NA030	Old Corry Field Rd.	4.29	---	4.38	---	5.08	---
NA040	N. Navy Blvd.	7.2	---	9.92	---	10.07	---
NA050	N. Navy Blvd.	8.25	---	9.92	---	10.06	---
NA060	Jones Swamp	8.1	1.307	10.01	0.963	11.06	0.171
NA070	Jones Swamp	10.67	1.11	10.24	0.869	10.63	0.16
NA080	Jones Swamp	10.51	3.272	10.12	2.272	10.32	0.64
NA090	Jones Swamp	10.5	---	10.09	---	10.02	---
NA100	Jones Swamp	10.48	---	10.04	---	7.41	---
NA110	Jones Swamp	5.98	---	6.98	---	9.81	---
NA120	Jones Swamp	8.09	---	7.49	---	8.24	---
NA130	Jones Swamp	8.03	---	7.69	---	8.17	---
NA140	Jones Swamp	8.07	---	8.14	---	8.34	---
NA150	Jones Swamp	10.46	0.582	9.6	0.306	8.86	---
NA160	Jones Swamp	10.3	0.832	9.59	0.574	9.43	---
NA170	Jones Swamp	10.17	---	9.51	---	9.41	---
NA180	Jones Swamp	10.16	---	9.49	---	9.26	---
NA190	Jones Swamp	8.82	---	9.43	---	6.77	---
NA200	Jones Swamp	8.82	---	8.66	---	8.34	---
NA210	Jones Swamp	8.86	---	8.67	---	8.5	---
NA220	Jones Swamp	8.91	---	8.72	---	8.61	---
NA230	Jones Swamp	8.99	---	9.08	---	9.64	---
NA240	Jones Swamp	8.98	---	9.24	---	9.37	---
NA250	Jones Swamp	9.74	---	10.3	---	11.27	---
NA260	N. Navy Blvd.	5.21	---	5.43	---	8.31	---
NA265	W. Highway 98	8.25	---	9.89	---	0	---
NA270	W. Highway 98	5.21	---	5.19	---	5.14	---
NA280	Old Hickory Rd.	5.34	---	5.29	---	5.34	---
NA290	Old Hickory Rd.	5.64	0.287	5.33	---	5.29	---
NA300	Old Hickory Rd.	5.65	0.313	5.34	---	5.3	---
NA310	Old Hickory Rd.	5.66	0.325	5.34	---	5.31	---
NA320	Jones Swamp	16.19	---	20	---	20	---
NA330	Jones Swamp	7.75	1.329	8.34	1.073	9.88	0.713
NA340	N. Navy Blvd.	4.03	---	3.97	---	4	---
NA350	N. Navy Blvd.	3.26	---	3.49	---	4	---
NA360	N. Navy Blvd.	4.08	---	3.35	---	3.89	---
NA370	N. Navy Blvd.	4.51	---	4.28	---	4.15	---
NA380	W. Highway 98	4.24	---	4.41	---	4.43	---
NA390	Corry Field	4.31	---	4.48	---	4.42	---
NA400	Corry Field	4.37	---	4.47	---	4.51	---
NA410	Corry Field	4.37	---	4.45	---	4.46	---
NA420	Corry Field	4.42	0.009	4.43	---	4.43	---
NA430	W. Highway 98	4.09	---	4.09	---	4.1	---
NA440	Corry Field	4.35	---	4.52	---	4.34	---
NA450	Corry Field	4.45	---	4.62	---	4.33	---
NA460	Corry Field	4.55	---	4.64	---	4.3	---
NA470	Corry Field	5.22	0.63	4.68	---	4.3	---
NA480	Corry Field	5.26	0.507	4.71	---	4.3	---
NA490	Corry Field	5.33	0.469	4.74	---	4.3	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NA500	W. Highway 98	4.37	---	4.36	---	5.22	---
NA510	W. Highway 98	4.37	---	4.32	---	5.13	---
NA520	W. Highway 98	5.05	---	5.04	---	5.1	---
NA530	W. Highway 98	5.03	---	5.02	---	5.08	---
NA540	Corry Field	4.77	---	4.67	---	5.03	---
NA550	Corry Field	5.07	---	4.38	---	5.03	---
NA560	Corry Field	5.16	---	5	---	5.03	---
NA570	Corry Field	5.31	---	5.22	---	4.99	---
NA580	Corry Field	5.1	---	4.99	---	4.35	---
NA590	Corry Field	4.93	---	4.54	---	4.38	---
NA600	Corry Field	4.92	---	4.76	---	4.65	---
NA610	W. Highway 98	4.2	---	4.2	---	4.26	---
NA620	W. Highway 98	4.2	---	4.2	---	4.26	---
NA630	Corry Field	4.1	---	4.13	---	4.14	---
NA640	Corry Field	4.09	---	4.13	---	4.14	---
NA650	Corry Field	4.09	---	4.13	---	4.21	---
NA660	Corry Field	4.09	---	4.13	---	4.21	---
NA670	Corry Field	4.41	---	4.4	---	4.39	---
NA690	W. Highway 98	4.39	---	4.37	---	4.34	---
NA700	W. Highway 98	4.39	---	4.37	---	4.34	---
NA710	W. Highway 98	12.83	---	48.89	---	49.99	---
NA720	Corry Field	15.34	---	4.41	---	4.4	---
NA730	Corry Field	4.43	---	4.41	---	4.39	---
NA740	Corry Field	4.45	---	4.44	---	4.44	---
NA750	W. Highway 98	4.48	---	4.48	---	4.51	---
NA760	W. Highway 98	4.42	---	4.43	---	4.45	---
NA770	Corry Field	4.38	---	4.37	---	5.13	---
NA780	Corry Field	4.37	---	4.37	---	5.56	---
NA790	Corry Field	4.37	---	4.36	---	5.08	---
NA800	Corry Field	4.34	0.021	4.34	---	5.09	---
ZONE B: 8-HOUR DURATION STORM EVENT							
NB010	S. 61st. Ave	5	---	5.03	---	8.01	---
NB020	S. 61st. Ave	4.27	---	5.15	---	8.09	---
NB030	S. 61st. Ave	4.28	---	4.28	---	4.34	---
NB040	S. 61st. Ave	5.37	---	5.26	---	5.28	---
NB050	S. 61st. Ave	6.25	---	6.27	---	6.57	---
NB060	S. 61st. Ave	5.21	---	12.25	---	9.18	---
NB070	S. 61st. Ave	15.08	---	12.2	---	9.36	---
NB080	S. 61st. Ave	14.72	---	11.91	---	9.15	---
NB090	S. 61st. Ave	12.92	---	10.55	---	8.15	---
NB100	Lake Joanne Dr.	12.9	0.487	10.53	---	7.83	---
NB110	Lake Joanne Dr.	12.9	0.488	10.53	---	7.84	---
NB120	Lake Joanne Dr.	13.13	0.488	10.53	---	7.93	---
NB130	Lake Joanne Dr.	13.09	1.492	10.53	0.735	7.93	---
NB140	Lake Joanne Dr.	12.83	2.528	10.45	1.776	7.71	0.171
NB150	Long Lake Dr	12.9	---	10.53	---	7.82	---
NB160	Kitty Hawk Dr.	13.58	0.974	4.57	0.286	4.19	---
NB170	Kitty Hawk Cir.	12.94	0.488	10.53	---	7.85	---
NB180	Kitty Hawk Cir.	12.96	0.378	10.53	---	7.7	---
NB181	72nd Ave @ Lago Vista (E)	---	---	---	---	---	---
NB182	72nd Ave @ Lago Vista (W)	5.75	30.363	6.75	30.146	---	---
NB183	Lago Vista Ponds	5.75	30.369	7	30.153	---	---
NB190	Long Lake Dr	12.89	---	10.53	---	8.02	---
NB200	S. 61st. Ave	10.27	0.401	8.37	---	4.38	---
NB210	S. 61st. Ave	7.33	0.698	5.31	0.063	4.5	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NB220	S. 61st. Ave	5.34	3.073	5.29	2.077	5.05	0.638
NB230	S. 61st. Ave	5.43	1.767	5.34	1.145	5.08	0.309
NB240	S. 61st. Ave	7.88	0.763	6.54	0.411	5.21	0.115
NB250	S. 61st. Ave	4.19	---	4.15	---	4.07	---
NB260	S. 61st. Ave	4.09	0.585	4.24	0.292	5.29	---
NB270	Lake Charlene Dr.	12.86	0.025	10.45	---	7.68	---
NB280	Lake Charlene Dr.	13.04	0.713	10.45	---	7.63	---
NB290	Lake Charlene Dr.	7.99	2.11	10.47	1.276	7.13	---
NB300	Myrtle Hill Cir.	7.23	2.457	5.57	1.778	4.12	---
NB310	Myrtle Hill Cir.	5.08	---	5.44	---	4.09	---
NB320	Myrtle Hill Cir.	5	---	4.08	---	4.13	---
NB330	Myrtle Hill Cir.	5.16	2.61	4.59	1.621	4.19	0.52
NB340	Myrtle Hill Cir.	4.08	---	4.09	---	4.07	---
NB350	Myrtle Hill Cir.	4.15	1.215	4.12	0.647	4.06	---
NB360	W. La Rue St.	8.08	---	8.06	---	8.02	---
NB370	W. La Rue St.	5.8	0.77	7.09	0.292	11.92	---
NB380	W. La Rue St.	10.17	0.389	10.17	---	10.17	---
NB400	Lake Charlene Dr.	8.23	0.957	7.79	0.207	5.24	---
NB410	Lake Charlene Dr.	5.46	1.447	5.25	0.825	4.26	0.105
NB420	Bunker Hill Dr.	9.73	1.561	8.85	0.729	5.29	---
NB430	Bunker Hill Dr.	15.26	0.963	9.49	0.317	5.1	---
NB440	Penton St.	15.44	1.472	12.97	0.343	10.67	---
NB450	S. 69th Ave.	9.49	---	8.1	---	4.16	---
NB460	S. 69th Ave.	4.07	---	4.5	---	4.1	---
NB470	Penton St.	4.07	0.721	4.05	---	4.02	---
NB480	Penton St.	5.95	0.624	5.54	0.333	5.14	0.053
NB490	N. 69th Ave.	8.11	1.719	7.19	1.087	5.48	0.173
NB500	N. 70th Ave.	8.85	1.13	7.59	0.617	5.14	0.043
NB510	N. 71th Ave.	9.44	1.106	8.03	0.632	5.08	0.192
NB520	Malvern St.	5.9	5.525	5.57	3.827	5.28	1.218
NB530	W. La Rue St.	8.11	---	8.31	---	8.01	---
NB540	S. 69th Ave.	5.51	1.251	5.59	0.948	6.48	0.546
NB550	Lillian Hwy	6.57	0.215	7.86	0.115	11.17	---
NB560	Lillian Hwy	5.4	0.317	5.38	0.08	5.38	---
NB570	Lillian Hwy	5.18	---	5.14	---	4.94	---
NB580	Lillian Hwy	9.26	---	9.27	---	9.27	---
ZONE C: 8-HOUR DURATION STORM EVENT							
NC010	Lake Aire Dr.	4.24	---	4.27	---	4.34	---
NC020	Lake Aire Dr.	4.23	---	4.25	---	4.33	---
NC030	W. Highway 98	4.23	---	4.4	---	4.62	---
NC040	W. Highway 98	4.54	---	4.56	---	4.67	---
NC050	Middlebrook Dr.	5.38	---	5.11	---	5.17	---
NC060	Middlebrook Dr.	5.38	---	5.12	---	5.17	---
NC070	Failfield Lakes Apts	4.97	---	5.02	---	5.09	---
NC080	Failfield Lakes Apts	5.05	---	5.05	---	5.09	---
NC090	Failfield Lakes Apts	5.09	---	5.08	---	5.09	---
NC100	Failfield Lakes Apts	5.09	---	5.08	---	5.09	---
NC110	W. Highway 98	5.41	---	5.85	---	6.93	---
NC120	W. Highway 98	5.73	0.604	5.72	0.378	5.96	0.08
NC130	W. Highway 98	5.24	0.143	5.19	---	4.75	---
NC140	W. Highway 98	6.07	---	5.93	---	5.76	---
NC150	W. Highway 98	7.12	---	7.15	---	7.07	---
NC160	W. Highway 98	5.64	---	3.15	---	3.59	---
NC161	Westlake Sub. Pond	4.5	29.718	4.5	29.613	---	---
NC162	Westlake Sub. Pond	4	29.662	4	29.565	---	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NC170	W. Highway 98	9.62	0.528	10.16	0.239	17.44	---
NC180	S. Fairfield Dr.	8.25	---	9.29	---	9.35	---
NC190	S. Fairfield Dr.	7.81	---	8.77	---	7.07	---
NC200	S. Fairfield Dr.	7.53	---	7.76	---	7.18	---
NC210	S. Fairfield Dr.	7.53	---	7.75	---	7.19	---
NC220	S. Fairfield Dr.	7.45	---	7.65	---	7.1	---
NC230	S. Fairfield Dr.	7.46	---	7.71	---	7.96	---
NC240	S. Fairfield Dr.	7.45	---	7.7	---	7.91	---
NC250	S. Fairfield Dr.	7.39	---	7.62	---	7.79	---
NC260	S. Fairfield Dr.	7.39	---	7.66	---	7.86	---
NC270	S. Fairfield Dr.	7.39	---	7.69	---	7.9	---
NC280	S. Fairfield Dr.	7.39	---	7.77	---	8.11	---
NC290	S. Fairfield Dr.	9.04	---	9.28	---	9.58	---
NC300	S. Fairfield Dr.	8.75	---	8.77	---	8.75	---
NC310	S. Fairfield Dr.	6.45	---	8.02	---	8.18	---
NC320	S. Fairfield Dr.	6.44	---	6.82	---	8.11	---
NC330	S. Fairfield Dr.	6.44	---	6.82	---	8.12	---
NC340	S. Fairfield Dr.	6.44	---	6.81	---	8.11	---
NC350	S. Fairfield Dr.	6.44	---	6.81	---	8.11	---
NC360	S. Fairfield Dr.	8.45	---	8.42	---	8.59	---
NC370	S. Fairfield Dr.	8.42	---	8.38	---	8.55	---
NC380	S. Fairfield Dr.	8.34	---	8.35	---	8.51	---
NC390	S. Fairfield Dr.	8.42	0.009	8.5	---	8.53	---
NC400	S. Fairfield Dr.	8.49	0.101	8.7	---	8.54	---
NC410	S. Fairfield Dr.	8.85	0.401	9.49	---	8.56	---
NC420	S. Fairfield Dr.	9.68	1.288	10.14	0.436	8.66	---
NC430	S. Fairfield Dr.	9.77	1.416	10.16	0.584	8.66	---
NC440	S. Fairfield Dr.	10.07	0.993	10.12	0.245	8.61	---
NC450	S. Fairfield Dr.	10.03	0.003	10.07	---	8.02	---
NC460	S. Fairfield Dr.	9.47	---	8.01	---	8.03	---
NC470	S. Fairfield Dr.	7.69	---	8.14	---	8.86	---
NC480	S. Fairfield Dr.	25.72	---	30.82	---	50	---
NC490	W. Highway 98	17.63	0.181	18.61	---	20	---
NC500	W. Highway 98	17.35	0.234	18.57	0.018	20	---
NC510	W. Highway 98	22.82	---	16.83	---	16.83	---
ZONE D: 8-HOUR DURATION STORM EVENT							
ND010	Lakeside Dr.	5.21	---	5.08	---	5.24	---
ND020	Live Oak Dr.	6.6	---	6.27	---	5.65	---
ND030	Star Lake Dr.	4.34	---	4.38	---	4.68	---
ND040	Live Oak Dr.	4.17	---	4.17	---	4.38	---
ND050	Star Lake Dr.	4.15	---	4.2	---	4.41	---
ND060	Barrancas Ave.	4.05	---	4.15	---	4.79	---
ND070	Barrancas Ave.	4.02	---	4.1	---	4.06	---
ND080	Barrancas Ave.	4.09	---	4.2	---	5.99	---
ND090	Barrancas Ave.	4.1	---	4.2	---	4.17	---
ND100	Iona St.	5.26	---	5.08	---	5.11	---
ND110	Iona St.	5.25	---	5.09	---	5.11	---
ND120	Iona St.	6.66	0.212	5.7	---	5.1	---
ND130	Iona St.	8.44	0.56	7.02	0.208	5.09	---
ND140	Wisteria Ave.	6.44	0.413	5.5	0.06	5.12	---
ND150	Barrancas Ave.	9.37	0.501	11.1	0.283	10.34	---
ND160	Barrancas Ave.	4.09	---	4.23	---	5.09	---
ND170	Barrancas Ave.	4.09	---	4.24	---	5.09	---
ND180	Barrancas Ave.	4.09	---	4.1	---	4.14	---
ND190	Barrancas Ave.	4.09	---	4.08	---	5.03	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
ND200	Barrancas Ave.	4.1	---	4.1	---	5.03	---
ND210	Barrancas Ave.	4.11	---	4.11	---	4.17	---
ND220	Jamison Ave.	7.77	0.283	6.44	0.092	4.98	---
ND230	Jamison Ave.	8.26	0.693	7.35	0.469	5.41	0.07
ND240	Jamison Ave.	7.09	1.365	5.93	1.055	5.59	0.361
ND250	Jamison Ave.	10.69	0.998	9.69	0.776	6.86	0.391
ND260	Harborview Cir.	4.75	---	4.75	---	5.29	---
ND270	Harborview Cir.	---	---	---	---	---	---
ND280	Harborview Cir.	---	---	---	---	---	---
ND290	Bayshore Dr.	---	---	---	---	---	---
ND300	Barrancas Ave.	7.75	8.049	---	---	---	---
ZONE E: 8-HOUR DURATION STORM EVENT							
NE010	Barrancas Ave.	4.74	---	5.04	---	4.71	---
NE020	Barrancas Ave.	4.74	---	5.04	---	4.71	---
NE030	Barrancas Ave.	5.22	---	5.07	---	4.71	---
NE040	Barrancas Ave.	5.36	1.036	5.17	0.283	4.7	---
NE050	Barrancas Ave.	5.24	---	5.09	---	4.65	---
NE060	Barrancas Ave.	5.27	---	5.03	---	4.63	---
NE070	Barrancas Ave.	5.46	0.799	5.01	---	4.62	---
NE080	Barrancas Ave.	5.16	---	5.01	---	4.59	---
NE090	Barrancas Ave.	5.09	---	5.01	---	4.59	---
NE100	Barrancas Ave.	5.14	---	5.03	---	4.58	---
NE110	Barrancas Ave.	6.18	0.179	5.11	---	4.53	---
NE120	Barrancas Ave.	6.65	---	5.17	---	4.47	---
NE130	Barrancas Ave.	6.94	0.676	5.31	0.079	3.98	---
NE140	Barrancas Ave.	7.21	0.82	5.64	0.36	4.26	---
NE150	Barrancas Ave.	7.82	0.431	6.21	0.026	4.27	---
NE160	Barrancas Ave.	7.76	0.227	6.52	---	4.27	---
ZONE F: 8-HOUR DURATION STORM EVENT							
NF010	Rue Max St.	5.35	1.384	5.5	1.037	5.64	0.34
NF020	Lakewood Rd.	4.4	---	4.09	---	4.24	---
NF030	Lakewood Rd.	4.19	0.18	4.2	---	4.23	---
NF040	Lakewood Rd.	4.56	0.773	4.56	0.406	4.36	0.093
NF050	Mandalay Dr.	4.57	1.096	4.73	0.785	5.15	0.31
NF060	Mandalay Dr.	10.08	0.798	11.02	0.64	15	0.395
NF070	Lakewood Dr.	8.34	0.499	8.85	0.274	12.67	---
NF080	Edgewater Dr.	5.08	---	5.78	---	5.05	---
NF090	Edgewater Dr.	5.65	1.436	5.62	0.804	5.22	---
NF100	Chaseville St.	5.09	---	5.13	---	5.38	---
NF110	Edgewater Dr.	4.65	---	4.55	---	4.35	---
NF120	Chaseville St.	4.62	0.122	4.47	---	4.34	---
NF130	Chaseville St.	5.33	1.438	5.35	0.888	4.17	---
NF140	Chaseville St.	4.64	0.431	5.09	---	6.11	---
NF150	Edgewater Dr.	4.21	1.4	4.23	0.913	4.36	0.084
NF160	Frisco Rd.	4.74	---	4.8	---	5.42	---
NF170	Frisco Rd.	5.32	0.169	5.1	---	4.27	---
NF180	Chaseville St.	4.57	---	4.49	---	4.55	---
NF190	Chaseville St.	4.57	---	4.5	---	4.53	---
NF200	Chaseville St.	4.8	---	4.51	---	4.69	---
ZONE G: 8-HOUR DURATION STORM EVENT							
NG010	Idlewood Dr.	5.2	3.074	6.05	1.764	4.11	0.671
NG020	W. La Rue St.	5.25	---	6.03	---	8	---
NG030	Idlewood Dr.	5.37	---	5.32	---	5.26	---
NG040	W. Jackson St.	4.9	1.062	5.06	0.807	5.19	0.424
NG050	W. Jackson St.	4.66	0.9	4.64	0.566	4.7	0.139

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NG060	W. Jackson St.	5.18	1.157	5.2	0.873	5.26	0.483
NG070	Wiggins Ave.	4.08	---	4.14	---	4.24	---
NG080	W. Jackson St.	5.37	---	4.19	---	4.26	---
NG090	W. Jackson St.	5.12	0.511	5.06	---	4.3	---
NG100	W. Jackson St.	4.04	---	3.91	---	3.79	---
NG110	Citrus St.	5.68	0.927	5.7	0.617	5.73	0.196
NG120	Citrus St.	5.71	0.429	5.46	0.128	5.44	---
NG130	Citrus St.	5.22	0.442	5.18	0.139	5.15	---
ZONE H: 8-HOUR DURATION STORM EVENT							
NH010	Idlewood Dr.	5	---	4.76	---	4.93	---
NH020	Idlewood Dr.	4.92	2.58	4.66	1.883	4.77	0.687
NH030	Idlewood Dr.	4.8	0.741	4.48	0.375	4.58	---
NH040	S. Old Corry Field Rd.	4.78	0.757	4.44	0.405	4.32	---
NH050	S. Old Corry Field Rd.	4.8	3.541	4.46	2.148	4.38	0.301
NH060	New Warrington Rd	4.8	0.627	4.44	---	4.38	---
NH070	New Warrington Rd	4.7	2.255	4.44	---	4.38	---
NH080	Twin Oaks Dr.	4.16	2.404	4.23	1.338	4.39	---
NH090	Prieto Dr.	4.52	---	4.38	---	4.38	---
NH100	Prieto Dr.	4.32	---	4.31	---	4.3	---
NH110	Prieto Dr.	4.31	1.237	4.3	---	4.25	---
NH120	Prieto Dr.	4.3	1.363	4.27	---	4.22	---
NH130	Prieto Dr.	4.29	0.499	4.24	---	4.22	---
NH140	Prieto Dr.	4.28	0.664	4.21	---	4.22	---
NH150	Prieto Dr.	4.29	0.711	4.22	---	4.23	---
NH160	Admiral Doyle Rd.	4.42	---	4.31	---	4.32	---
NH170	Corry Field	5.18	0.243	4.3	---	4.25	---
NH180	Corry Field	5.09	---	4.29	---	4.18	---
NH190	Corry Field	5.93	---	6.16	---	7.14	---
NH200	Admiral Doyle Rd.	5.6	3.056	5.36	1.956	4.42	0.093
NH210	Chaseville St.	7.52	---	6.47	---	5.08	---
NH220	W. Navy Blvd.	4.09	---	1.94	---	2.32	---
NH230	Chaseville St.	7.51	---	6.52	---	5.19	---
NH240	W. Jackson St.	4.19	---	4.15	---	4.23	---
NH250	W. Jackson St.	4.17	---	4.17	---	4.18	---
NH260	S. Old Corry Field Rd.	8.71	0.765	8.68	0.265	8.68	---
ZONE I: 8-HOUR DURATION STORM EVENT							
NI010	New Warrington Rd	4.52	1.735	3.89	0.756	4.16	0.094
NI020	New Warrington Rd	4.08	---	4.15	---	4.17	---
NI030	New Warrington Rd	6.44	---	5.06	---	4.07	---
NI040	New Warrington Rd	4.01	---	4.06	---	4.18	---
NI050	New Warrington Rd	4.02	---	4.06	---	4.13	---
NI060	New Warrington Rd	4.08	---	4.06	---	4.14	---
NI070	New Warrington Rd	4.09	---	4.07	---	4.49	---
NI080	New Warrington Rd	4.09	---	4.13	---	4.5	---
NI090	New Warrington Rd	4.15	---	4.14	---	4.51	---
NI100	New Warrington Rd	4.3	---	4.28	---	4.51	---
NI110	New Warrington Rd	4.38	---	4.42	---	4.51	---
NI120	New Warrington Rd	4.52	---	4.65	---	4.52	---
NI130	New Warrington Rd	4.8	0.037	4.98	---	4.52	---
NI140	New Warrington Rd	5.08	---	5.08	---	4.52	---
NI150	New Warrington Rd	5.08	0.3	5.04	---	4.1	---
NI160	New Warrington Rd	5.09	---	5.03	---	4.1	---
NI170	Lillian Hwy	5.36	0.612	5.41	0.328	5.2	---
NI180	Mobile Hwy	5	---	5	---	4.18	---
NI190	Mobile Hwy	5.24	---	4.72	---	4.17	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NI200	Mobile Hwy	4.09	---	4.19	---	4.21	---
NI210	Mobile Hwy	4.09	---	4.23	---	4.32	---
NI220	Mobile Hwy	4.16	0.005	4.2	---	5.03	---
NI230	Mobile Hwy	7.24	1.764	6.22	1.077	5.44	---
NI240	N. Kirk St.	5.49	0.102	4.27	---	4.34	---
NI250	Dominguez St.	7.73	0.676	6	0.178	5.15	---
NI260	Green St.	9.63	2.211	8.95	1.668	7.4	0.791
NI270	Green St.	5.96	0.172	5.09	---	5.1	---
NI280	Green St.	8.56	1.055	6.01	0.189	5.1	---
NI290	W. Moreno St.	9.53	4.027	9.19	3.104	8.65	1.813
NI300	Citrus St.	7.16	---	6.69	---	6.47	---
NI310	New Warrington Rd	6.28	---	5.95	---	11.33	---
NI320	Old Corry Field Rd.	5.94	1.031	5.58	0.489	4.23	---
NI330	New Warrington Spur	7.8	1.838	9.01	1.398	9.22	0.788
NI340	New Warrington Spur	4.35	---	4.34	---	4.49	---
NI350	New Warrington Spur	4.41	---	4.42	---	4.47	---
NI360	New Warrington Spur	4.89	---	4.59	---	4.45	---
NI370	New Warrington Spur	5.36	---	5.18	---	4.19	---
NI380	New Warrington Spur	6.57	0.387	5.57	---	4.19	---
NI390	Norwood Dr.	6.34	1.775	5.52	0.794	4.42	---
NI400	Westover Ave.	9.07	---	8.95	---	8.73	---
NI410	New Warrington Rd	8.4	0.115	8.39	---	8.54	---
NI420	New Warrington Rd	4.58	---	3.64	---	4.01	---
NI430	New Warrington Rd	4.01	---	4.01	---	4.01	---
NI440	New Warrington Rd	4.03	---	4.03	---	3.83	---
NI450	New Warrington Rd	4.05	---	4.03	---	4	---
NI460	New Warrington Rd	4.18	---	4.06	---	3.97	---
NI470	New Warrington Rd	4.61	---	4.15	---	3.94	---
NI480	New Warrington Rd	5.51	0.091	4.42	---	3.94	---
NI485	Chief's Way	5.56	0.971	5.05	---	3.95	---
NI490	Chief's Way	10.17	0.369	10.17	0.04	10.17	---
ZONE J: 8-HOUR DURATION STORM EVENT							
NJ020	Tyson St.	4.15	---	4.12	---	4.45	---
NJ030	Tyson St.	4.3	---	4.07	---	4.43	---
NJ040	Elm St.	4.32	---	4.07	---	4.4	---
NJ050	Elm St.	4.3	---	4.3	---	4.39	---
NJ060	Blanton Ct.	4.17	---	4.29	---	4.46	---
NJ070	W. Jackson St.	4.34	---	4.33	---	4.46	---
NJ080	W. Jackson St.	4.34	---	4.28	---	4.45	---
NJ090	N. 46th Ave.	4.34	---	4.28	---	4.43	---
NJ100	N. 46th Ave.	4.33	---	4.28	---	4.42	---
NJ110	N. 46th Ave.	5.04	0.076	4.27	---	4.39	---
NJ120	N. 46th Ave.	4.27	---	3.89	---	4.36	---
NJ130	N. 46th Ave.	4.28	---	4.29	---	4.36	---
ZONE K: 8-HOUR DURATION STORM EVENT							
NK010	Prieto Dr.	4.55	---	4.45	---	5.01	---
NK020	Prieto Dr.	4.55	---	4.45	---	5.01	---
NK030	Redwood Cir.	4.41	---	4.41	---	4.62	---
NK040	Redwood Cir.	4.48	---	4.41	---	4.61	---
NK050	S. Edgewood Cir.	4.48	---	4.4	---	4.62	---
NK060	W. Jackson St.	4.01	---	4.4	---	5.08	---
NK070	W. Jackson St.	4.4	---	4.45	---	5.12	---
NK080	Edgecliff Dr.	4.41	---	4.48	---	5.41	---
NK090	N. 50th Ave.	5.27	---	5.31	---	5.33	---
NK100	N. 50th Ave.	7.05	---	7.33	---	5.33	---

TABLE 3-4

WARRINGTON BASIN - EXISTING CONDITIONS
DURATION & MAXIMUM DEPTH OF FLOODING CONDITIONS

NODE	LOCATION	100-YR		25-YR		3-YR	
		TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)	TIME (HRS)	DEPTH (FT)
NK110	Lillian Hwy	7.05	---	7.33	---	7.04	---
NK120	Lillian Hwy	7.06	---	7.23	---	7.09	---
NK130	Myrtle Grove System F Pond	11.28	---	10.25	---	8.05	---
NK140	De Luna Cir.	10.13	---	8.15	---	4.25	---
NK150	De Luna Cir.	4.07	---	4.12	---	4.25	---
NK160	De Luna Cir.	4.19	---	4.11	---	4.17	---
NK170	De Luna Cir.	4.51	---	4.21	---	4.33	---
NK180	N. 57th Ave.	6.4	0.752	5.68	0.207	4.34	---
NK190	N. 57th Ave.	5	---	4.23	---	4.36	---
NK200	Linda St.	6.03	0.982	5.73	0.801	5.14	0.024
NK210	N. 57th Ave.	5.2	---	4.3	---	4.36	---
NK220	Western Dr.	8.84	0.599	7.45	0.182	5.28	---
NK230	N. 57th Ave.	5.74	0.409	4.6	---	4.36	---
NK240	N. 57th Ave.	5.87	0.203	5.1	---	4.11	---
NK250	Lynwood Ave.	6.16	---	5.33	---	4.11	---
NK260	Annette St.	5.82	1.085	5.73	0.534	5.44	---

4.0 PROPOSED IMPROVEMENTS

4.1 OBJECTIVES & ALTERNATIVES

The development of a drainage improvement plan for the Warrington Basin as for all basins within Escambia County is conducted with the intent of meeting the following criteria:

(1) Eliminate roadway over-toppings at culvert/bridge crossings during the 100-year storm event for all primary arteries and evacuation routes.

(2) Eliminate roadway over-toppings at culvert/bridge crossings during the 25-year storm event for all secondary arteries and collectors.

(3) Contain the 25-year storm event within the banks of all open channels.

(4) Limit flooding during the 100-year storm event to streets and yards.

(5) Minimize street and yard flooding during the 25-year storm event.

(6) Provide for future growth/development in the basin where feasible.

(7) Reduce stormwater pollutant loadings to improve overall surface water quality standards.

Two different alternatives were explored to achieve these objectives. The first alternative is to increase the conveyance by up-sizing pipes and expanding channels. This method is the classic approach to solving stormwater flooding problems. However, increasing conveyance will yield relief at the point where improvements are made but it typically ends up moving problems to areas downstream. Another disadvantage to this method is that it does not address water quality improvements, making it extremely difficult to permit through the Florida Department of Environmental Protection (FDEP).

The second alternative is to increase storage in the upper reaches of the basin by constructing large retention/detention ponds to reduce the flows downstream. This method has become the industry standard in solving stormwater flooding problems. It provides a means to treat stormwater runoff as well as reduce flows downstream. These are the two main criteria FDEP reviews prior to issuing permits. The major disadvantage to this alternative is that it requires acquisition of large amounts of land, which can be a serious problem in built-out areas where vacant land is not available.

The approach used is a combination of the two methods. Retention/detention facilities will be used to treat and attenuate the runoff in all areas where there is vacant and/or obtainable land in practical locations. Conveyance will be increased in all areas deemed necessary to alleviate the remaining flooding problems without causing or exacerbating any downstream conditions. In built-out areas where there is no vacant and/or obtainable land for retention/detention facilities, roadside swales and underground treatment methods such as exfiltration trenches and treatment vaults (i.e. Stormceptors®) will be used to treat the runoff. This approach should satisfy FDEP's stormwater permitting requirements.

4.2 PROPOSED DRAINAGE IMPROVEMENTS

The improvements presented here are conceptual solutions offered to achieve the necessary objectives. Different alternatives were evaluated and those deemed the most feasible were selected. Because budget constraints may not permit funding of improvements for the entire basin, problem areas have been addressed by branch. This approach affords the county the opportunity to choose projects that will fit within the budget without having to implement the entire basin at once.

Branch A does not require any drainage improvements. There are a variety of drainage problems in Branch B. The major problem with the basin is that Lake Charlene is taking on too much stormwater. The first approach to solve these flooding problems is to determine which of the systems discharging to Lake Charlene can be re-designed and move outfalls to other locations. With this, some specific areas in the Lake Charlene drainage system have been identified that can be improved to help relieve and eliminate most of the flooding problems in this area. In addition to these proposed improvements, installing new systems to areas that have no existing drainage system will also help with the flooding problems in the area. In Branch C, most of the flooding problems are either flood plain related or not within the county's right-or-way. However, there is one area that does not have an existing stormwater system in place. The improvements in this area will be to construct a new stormwater system in the area of Saint James Place and discharge to the existing wetlands in the area. The proposed improvements in Branch D can be solved with a fairly straightforward approach. The primary branch of this system will not require any modifications.

One of the secondary branches of this system will need to have a few minor improvements, but the other secondary portion of this system will undergo a major modification and extension. Instead of this portion of the system discharging to the Barrancas system, this system will be turned around and extended to other areas that do not have an existing system. The new outfall for this system will be to Bayou Chico. Branch E: as stated earlier, this system was originally designed by FDOT using their standard of a 3-yr design storm; as a result certain areas flood during any storm equivalent to the 25-yr event and greater. Flooding problems in this area could be solved in several ways. If the proposed improvements, as suggested below in Branch F for the Lakewood Sub were constructed, then the overall basin draining to Barrancas Ave. would be reduced and flooding during the 25-yr storm would be eliminated. However the improvements to the Lakewood Sub are costly and also require significant land acquisitions. Other solutions that could be applied directly to Barrancas Ave would be to either redesign the storm sewer system to accommodate the 25-yr storm or provide an additional outfall to Pensacola Bay. As stated earlier, the Barrancas Ave system was designed to accommodate the 3-yr storm. Totally redesigning and reconstructing the system would eliminate all flooding during the 25-yr storm event and possibly the 100-yr storm, if the county should so choose. A third and possibly the most reasonable solution would be to provide an additional outfall south to Pensacola Bay, under Bayshore Drive. There are several side roads leading south from Barrancas Ave. on which the county owns right-of-way. Any of theses streets around the mid point of the Barrancas Drainage system would be suitable for constructing an additional outfall. Two examples would be Broadmoor Lane to Seamarge Circle or S Cary's Lane to Bayshore Lane. The restriction to this third option would be easement acquisition for the location of the outfall. Any of these three solutions could eliminate flooding issues during the 25-yr storm event; however the third option should be the most cost effective. One of the several possible locations for the new Barrancas Ave outfall has been included in the proposed conditions model, summarized in Table 4-1 and illustrated in Figure 4-1. Branch F will require some improvement in both the upper and lower portions of the basin. For the upper portion of the basin, the proposed improvements to the existing secondary system will be to modify and extend the system to areas the do not currently have an existing system. In addition, an outfall structure will need to be installed in the small drainage ditch on Frisco Road. The proposed improvements for the lower portion of this basin include a fairly large system that will require acquisition of land for a new retention/detention

facility. The proposed improvements for Branch G are also a straightforward approach. This improvement includes adding a storm sewer system along Citrus Street. This proposed system on Citrus Street will extend out to areas that do not have an existing storm sewer system and will have a pop-off to the ditch just north of the CSX railroad. The proposed improvement for Branch H is also a straightforward approach. This improvement includes adding a storm sewer system along Old Corry Field Road. The system on Old Corry Field will extend out to areas that do not have an existing storm sewer system and will pop-off to Jackson Creek. There are two areas in Branch I that have proposed improvements. One of the areas is in West Highlands, which does not have an existing storm sewer system. This proposed system will also require land acquisition for a new retention/detention pond. The other system is proposed for the Pen Haven Street area. This system is currently under construction as a County improvement project. Branch J does not require any improvements. All of the flooding in this area appears to be maintenance related. It is recommended that the county monitor this area for maintenance issues. Branch K has several areas of improvements proposed. One of these areas is located in the Emory Drive area. The proposed improvements on Emory Drive are to install a new system and construct a new retention/detention pond. A new system is also proposed for the Roosevelt Subdivision Area. In addition to constructing a new stormwater system, a retention/detention facility is also proposed. Land acquisitions will also be necessary for this proposed improvement. Another new system is being proposed for the area around Eaton Road. This system will only require the construction of the new stormwater system. The proposed pop-off for this system is to an existing stormwater pond south of Eaton Road. The fourth proposed system is the area of 49th Avenue at Lillian Highway. This improvement will be to construct a new system around the 49th Avenue area and discharge to the existing county stormwater pond on Lillian Highway. Figure 4-1 shows the proposed drainage improvements.

Lake Charlene / Querido Heights - Branch B:

There are several areas within this basin that need to be addressed. The biggest concern in this area is the amount of stormwater that is being diverted to Lake Charlene. Currently, Lake Charlene is at full capacity and cannot take on any additional stormwater without causing extensive flooding in and around the Lake Charlene Subdivision. It has recently been discovered that the County is

proposing and/or has completed several new projects in the area of Lake Charlene. Several of these systems are design to discharge directly or indirectly to Lake Charlene. The county systems that are in place are in the Myrtle Grove Drainage Improvements Projects. This project is broken up into seven systems. Of these seven systems, four of them will impact Lake Charlene. System B and parts of the Jackson Street system will directly discharge to Lake Charlene and System C, D and E will discharge to the pond on Myrtle Hill Circle which pops-off to Lake Charlene. Of these four systems, all of systems B, C and D have been completed with the exception of the interconnecting pipe that will link System D to System C. It is recommended that the County not proceed with any more of these projects that transport more runoff to Lake Charlene. Even though these systems have been mostly completed, there are several drainage improvements proposed in this study that will virtually eliminate the drainage problems in and around Lake Charlene. There are several separate areas that can be modified or re-design to achieve these improvements. One of the first improvements that need to occur is the modification to the Lake Charlene dam and outfall. This improvement will require that a large overflow structure be constructed at the south end of the Lake Charlene channel. This overflow structure will help reduce the overall water level of Lake Charlene and the channel associated with the Lake. The overflow structure will also help control the flow rate that is discharged into the outfall system. In addition to the overflow structure, the outfall system will need to be up-sized in order to get the necessary amount of water out of Lake Charlene to aid in the reduction of the flooding conditions. Another proposed improvement is to increase the size of the weir at the Lake Charlene Dam. The next proposed improvement is to take the discharge pipe on North 69th Avenue out of service. Taking this pipe out of service and re-designing the system on North 69th Avenue will reduce the amount of stormwater discharging into Lake Charlene. A new discharge location is proposed for the North 69th Avenue drainage system, which is to pop-off into the wetlands off of Campbellton Lane. Other areas of improvements involve up-sizing the storm sewer systems on 61st Avenue, Kittyhawk Drive, Lake Charlene Lane, and Myrtle Hill Circle. In addition to up-sizing the system on Myrtle Hill Circle, the discharge pipe from this system to Lake Charlene needs to be taken out of service and a new discharge constructed and connected to the proposed 69th Avenue system.

Should the above mentioned improvements to Lake Charlene be constructed excess capacity would be created in Lake Charlene. This would allow additional improvements to be made in Lago Vista Court. In particular an outfall for the three ponds in the Lago Vista development could be constructed, as shown in Fig 4-1 "Lago Vista Ponds".

Saint James Place - Branch C:

Most of the flooding problems in this Branch are either in the 100-year flood plain or not within the county's right-or-way. However, there is one area that does not have and existing stormwater system in place. Currently, there is no existing stormwater system in the area Saint James Place. The proposed improvements in this area will be to construct a new stormwater system designed for the 25-year storm event on Saint James Place and Dowdy drive. This system will discharge to the existing wetlands in the area.

Iona Street / Bayshore Drive - Branch D:

This portion of the Barrancas Avenue system at Iona Street will require minimal improvements to alleviate the flooding in this area. The proposed improvements to this part of the system are to up-size the pipes on Iona Street and Bayshore Drive. The proposed improvements for the Iona Street system are design for the 3-year storm event since this is a FDOT Highway and the improvements for Bayshore Drive are designed for the 25-year storm event. This is a straightforward and cost effective approach to alleviating the flooding in these areas.

Barrancas Avenue – Branch E:

Several options exist for addressing the flooding on Barrancas Ave; however the most straight forward and cost effective solution would be to construct an additional outfall to Pensacola Bay. There are several locations that a new outfall could be constructed. One such location has been modeled in the proposed conditions model to illustrate the benefits of an additional outfall. The suggested location would be to tie into the Barrancas system at Broadmoor Lane, south to Bayshore Drive, east to Seamarge Circle and then south to Pensacola Bay. Easements would have to be acquired from the residences in order to construct the outfall. If easements could not be acquired at this location then moving the outfall over a street to the east or west would still serve the same

purpose.

Jamison Street - Branch F:

The other portion of the Barrancas Avenue system will require more extensive improvements. This portion of the Barrancas system is at capacity and cannot carry any additional stormwater. Due to this, the proposed improvements for this system are to take the portion of the system on Jamison Street that connects the Barrancas Avenue out of service and install a new system along Jamison Street/Rue Max Street and discharge directly to Bayou Chico. This system will branch out to the local areas that do not currently have an existing system. The proposed improvements for the new system are designed for the 25-year storm event. This is a straightforward and cost effective approach to alleviating the flooding in the area.

Edgewater Drive - Branch F:

Branch F is separated by Bayou Chico. The proposed improvement for the northern portion of the basin is to extend and up-size the existing system on Edgewater and Chaseville Streets. The current system does not have the capacity nor does it extend far enough to areas that have flooding problems. The upgrades to this system are designed for the 25-year storm event. Also in the northern portion of the basin, improvements are proposed for the drainage ditch on Frisco Road and the Outfall pipe on eastern end of Edgewater Drive. The proposed improvement for the drainage ditch on Frisco road is to install an outfall structure in the drainage ditch and a discharge pipe directly out to Bayou Chico. The proposed improvement on the eastern end of Edgewater is to up-size the discharge pipe that currently extends out to Bayou Chico.

Lakewood / Millwood Terrace - Branch F:

The proposed improvements for the southern portion of the basin are to construct a new drainage system on Lakewood Road that will extend to most of the surrounding area. This new system will require the construction of a new retention/detention facility on Lakewood Road. The proposed location for the pond is on Lakewood Road across from Audusson Avenue. This property will need to be acquired in order to construct the new facility. An outfall system will also need to be constructed and is proposed to extend from the pond site across Lakewood Drive and out to Bayou

Chico. A drainage easement will be required to construct this outfall. In addition, a new secondary system is proposed for the northern area of Lakewood Drive. This system will extend down Lakewood Drive and connect to the existing discharge structure.

Citrus Street - Branch G:

The proposed improvements in Branch G include adding a new storm sewer system along Citrus Street. This proposed system on Citrus Street is designed for the 25-year storm event and will extend from Anthony Street down to Jackson Street and discharge to the ditch just north of the CSX railroad. In addition, this system will extend out to areas that do not have an existing stormwater system. A large regional stormwater pond will be required on this area to make the system work, therefore requiring land acquisition.

Old Corry Field Road - Branch H:

The proposed improvement for Branch H is also a straightforward approach. This improvement includes adding a storm sewer system along Old Corry Field Road. The proposed system extends from Border Street down to Jackson Creek, where it will discharge into Jackson Creek. This system will extend out to areas that do not have an existing storm sewer system. This proposed system is designed for the 25-year storm event.

West Highlands - Branch I:

There are two areas in Branch I that have improvements proposed. One of these areas is in West Highlands, which does not have an existing stormwater system. The proposed improvements for this area will be to construct a new stormwater system designed for the 25-year storm event. The new system will be located on Kirk Street and extend from West Avery Street to West Gonzalez Street and will extend to most of the surrounding area. This new system will also require the construction of a new retention/detention pond. The proposed pond site is at the corner of Kirk and Moreno Street. This pond site will need to be acquired in order to construct the pond. The proposed pop-off for this system will be to the Mobile Highway system.

Pen Haven - Branch I:

The other proposed improvement for this basin is a new system for the Pen Haven Street area. This system is currently under construction as a County improvement project and should solve the flooding problems in this area.

Emory Drive - Branch K:

There are several areas in Branch K where improvements are proposed. The first area is located in area of Emory Drive. The proposed improvements on Emory Drive are to install a new system along Emory Drive and extend it to Stanford, Stetson, and Vanderbilt Roads. This system will require a new retention/detention pond to be constructed. The proposed site for this pond is located at the eastern end of Tulip Drive. This property appears to be owned by Escambia County, so no land acquisition will be required. These proposed improvements are designed for the 25-year storm event.

Roosevelt - Branch K:

The second area that improvements are proposed is located in the Roosevelt Subdivision area. These improvements include a new storm sewer system along North 61st Street and will extend to 59th, 60th, 63rd, and 65th Streets. This new system will require the construction of a new retention/detention pond located just west of 61st Street. In order to construct the pond, land will need to be acquired. These proposed improvements are designed for the 25-year storm event.

Eaton Road - Branch K:

The third location for proposed improvements is the area around Eaton Road. This system will run along Eaton Road and extend to Feldor and Adkinson Drive. This improvement will only consist of the construction of the new stormwater system. The proposed discharge location of this system will be to the existing county stormwater pond south of Eaton Road. These proposed improvements are designed for the 25-year storm event.

49th Avenue - Branch K:

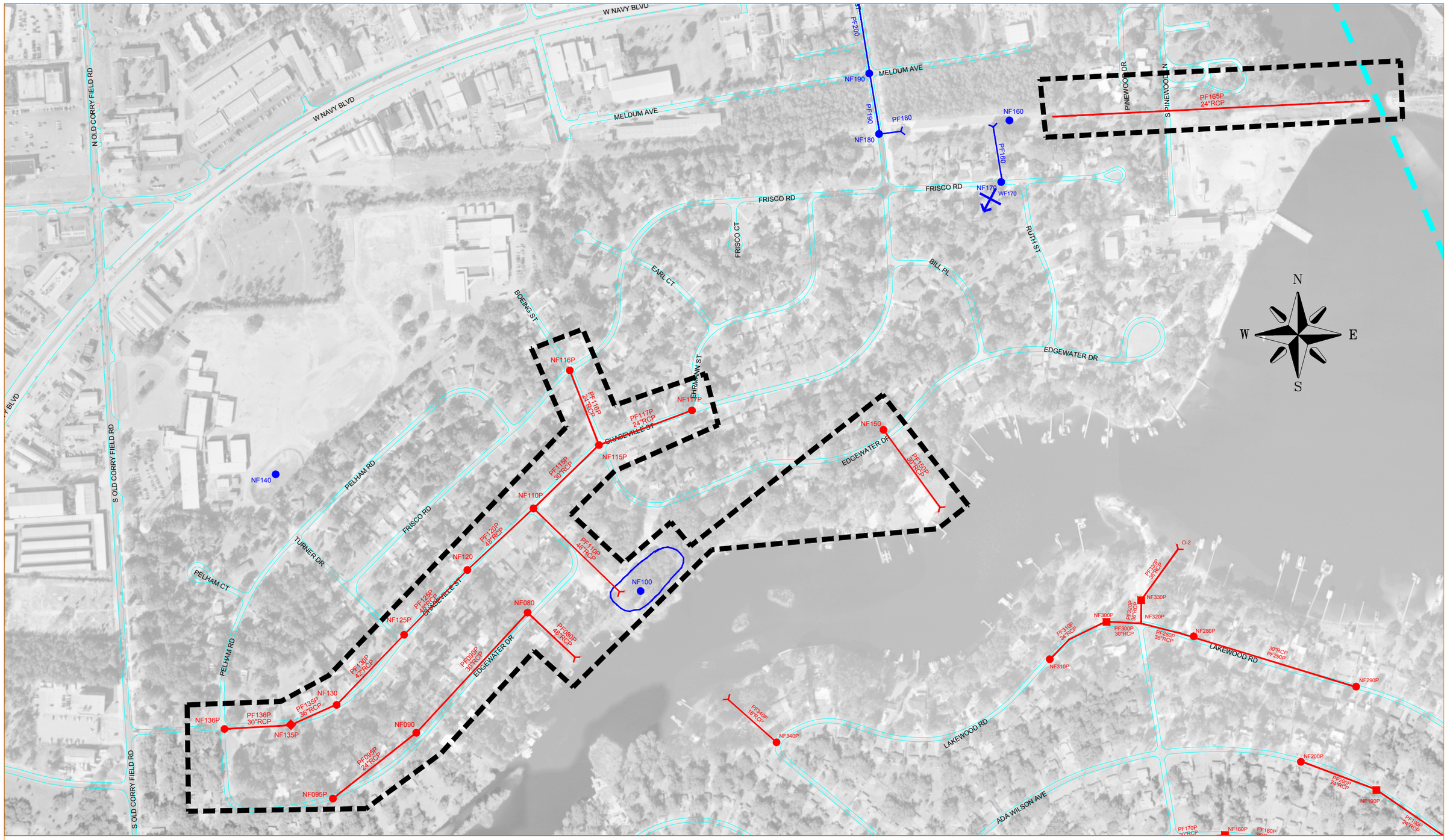
The last of the improvements that is proposed for this basin is located in the area of 49th Avenue. The proposed improvement for this area is to construct a new stormwater system along 49th

Avenue. This system will extend to the surrounding areas around 49th Avenue and discharge into the existing drainage ditch between 50th Avenue and 52nd Avenue. These proposed improvements are designed for the 25-year storm event.

4.3 DRAINAGE IMPROVEMENT RESULTS

The fourteen proposed drainage improvement plans offer solutions that bring almost all the flooding problem areas in the Warrington basin to within acceptable level of service standards specified in the objectives. These results will offer solutions that will help eliminate flooding in streets and yards during the 25-year storm event and eliminate residential and commercial flooding during the 100-year storm event. The proposed improvements were designed using software programs such as Storm CAD for storm sewers and Mod-Route for ponds to take advantage of the built in design mechanisms within the software that ADICPR does not contain. The results of these two programs are in Appendix E. The only exception to the design storm events is for the proposed improvements that tie into FDOT storm sewers that are only designed for a 3-year storm. These systems will have a 3-year capacity rather than a 25-year capacity unless available land can be obtained for a pond. The *Lake Charlene / Querido Heights* improvements are upgrades and expansion to an inadequate existing system. The design of this system was done with ADICPR because of the numerous drainage components within Lake Charlene. Table 4-1 shows the ADICPR model results storm for the proposed improvements. *Iona Road / Bayshore Drive* up-sizes the existing system for the western portion of the Barrancas system. Because this system ties into an FDOT system designed to their standards of a 3-year storm event, it will only have a 3-year capacity. *Jamison Street* improvements will require implementing a new system in the area where currently there is only a very small insufficient system. This system will be spilt off from the existing Barrancas system. Software results show no flooding conditions during the 25-year storm for this project. The *Saint James Place* improvements propose a system to an area that currently has no existing system. Software results show no flooding conditions during the 25-year system. *Edgewater Drive* improvements are upgrades and expansion to an inadequate existing system. *Lakewood Drive / Millwood Terrace* is in the southern portion of Branch F and will implement a new system in the area where currently there is no existing system. Program results show no flooding conditions during the 25-year storm for these proposed improvements. *Citrus Street* and

Old Corry Field Road will implement new systems in the areas where currently there are no existing systems. The Citrus Street system will require the construct of a regional stormwater pond. Program results show no flooding conditions during the 25-year storm event for these proposed improvements. The *West Highlands* project will implement a new storm sewer system in the area where currently there are no existing systems. This system will require the construction of a new stormwater pond. The software for this system shows no flooding conditions during the 25-year storm event. Branch K will require the implementation of four new systems in the area where currently there are no existing systems. Two of these systems (*Emory Drive* and *Roosevelt*) will require the construction of new stormwater ponds and the other two systems (*Eaton Road* and *49th Avenue*) will discharge into existing county stormwater ponds. These systems show no flooding conditions during the 25-year storm based on program results.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE

-EXISTING STORM PIPE

POND -PROPOSED POND

FIGURE 4-1
EDGEWATER-BRANCH F

SCALE: N.T.S.

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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

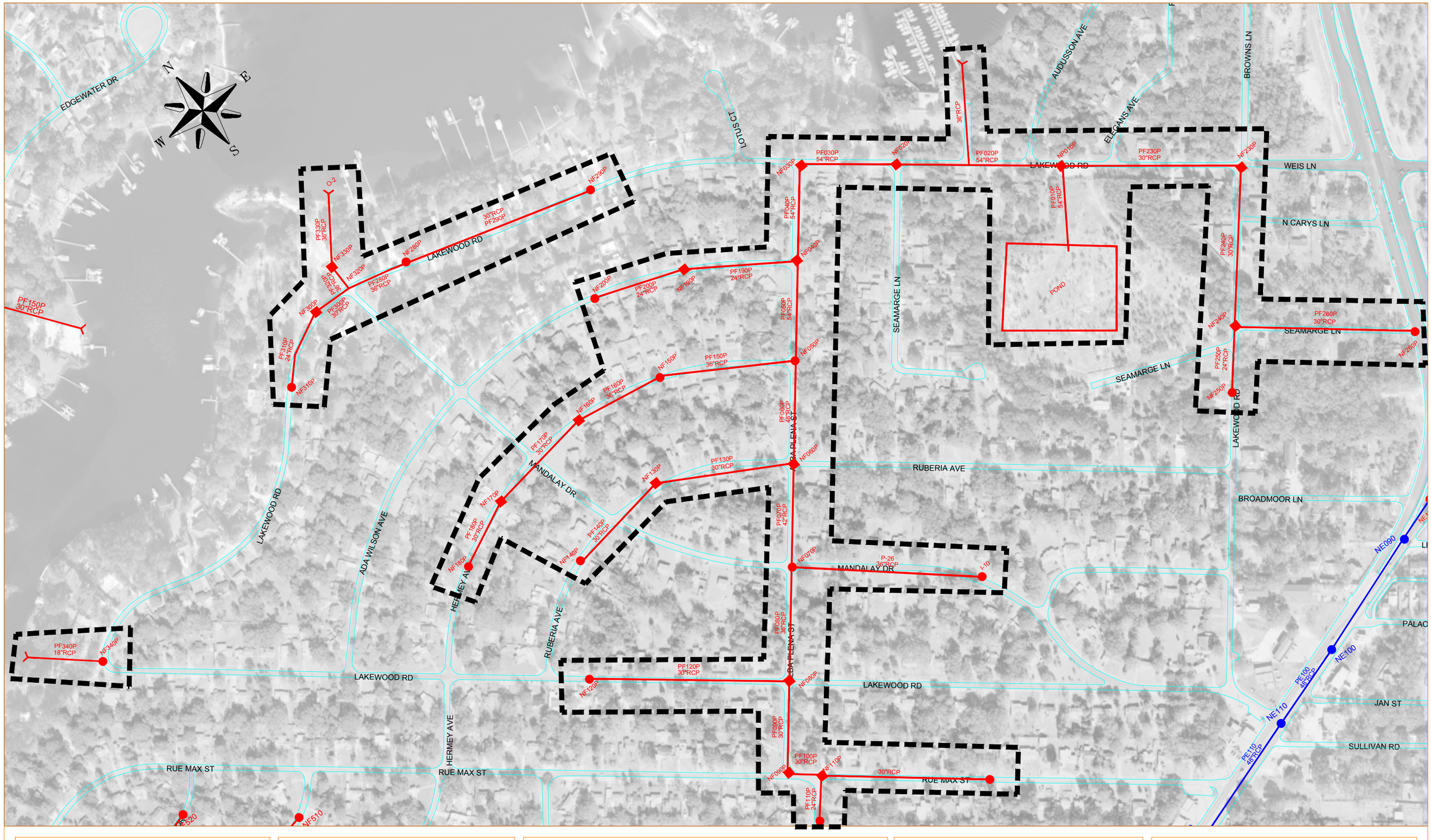
–PROPOSED STORM PIPE

–EXISTING STORM PIPE

POND –PROPOSED POND

FIGURE 4–1
JAMISON STREET–BRANCH F

SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE

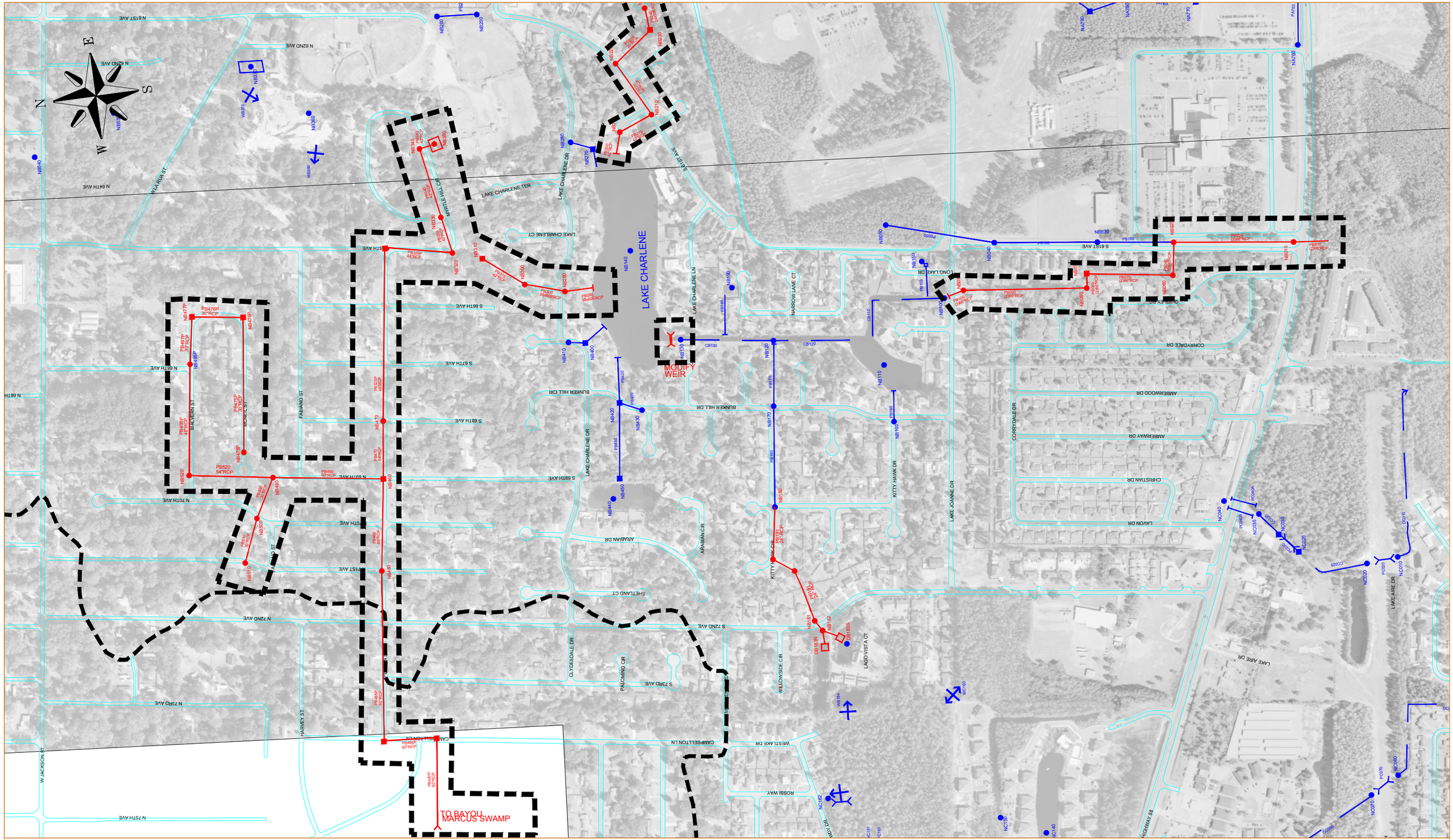
-EXISTING STORM PIPE

POND -PROPOSED POND

FIGURE 4-1

LAKEWOOD-BRANCH F

SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

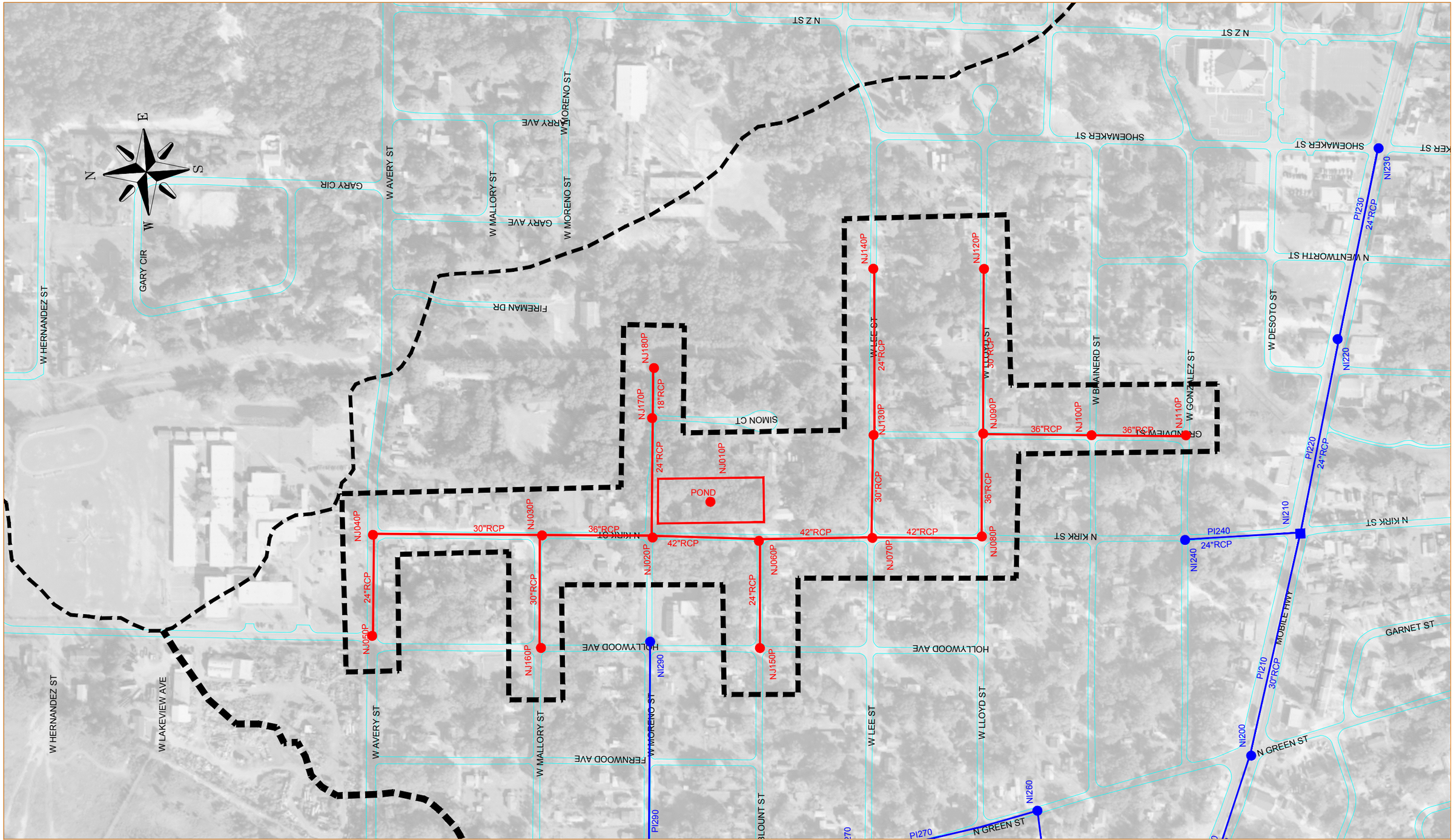
WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

●—● -PROPOSED STORM PIPE
●—● -EXISTING STORM PIPE
POND -PROPOSED POND

FIGURE 4-1
LAKE CHARLELE
QUERIDO HTS.-BRANCH B

SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE

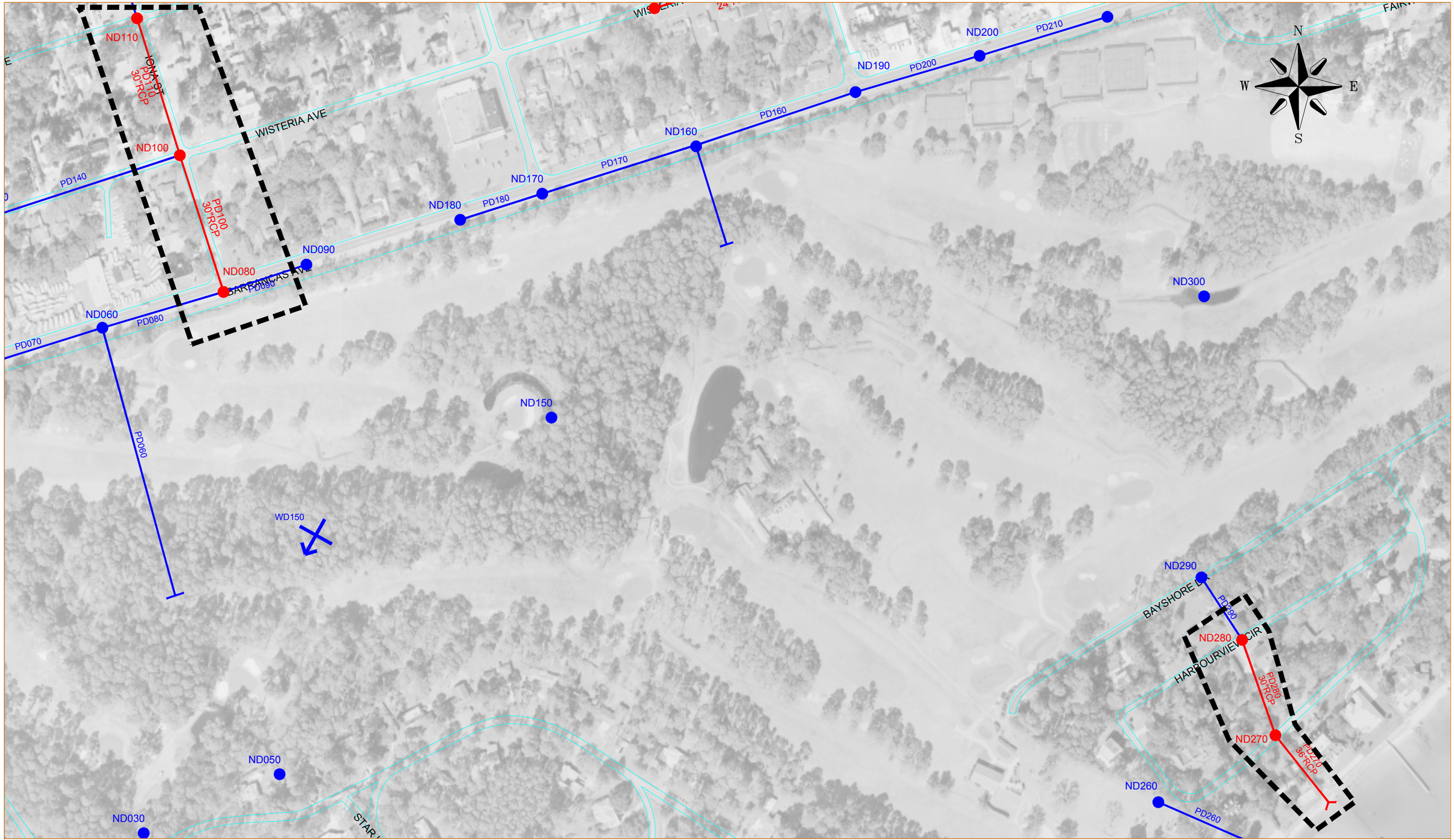
-EXISTING STORM PIPE

POND -PROPOSED POND

FIGURE 4-1

WEST HIGHLANDS-BRANCH I

SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE

-EXISTING STORM PIPE

POND -PROPOSED POND

FIGURE 4-1

IONA STREET-BRANCH D

SCALE: N.T.S.

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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

–PROPOSED STORM PIPE

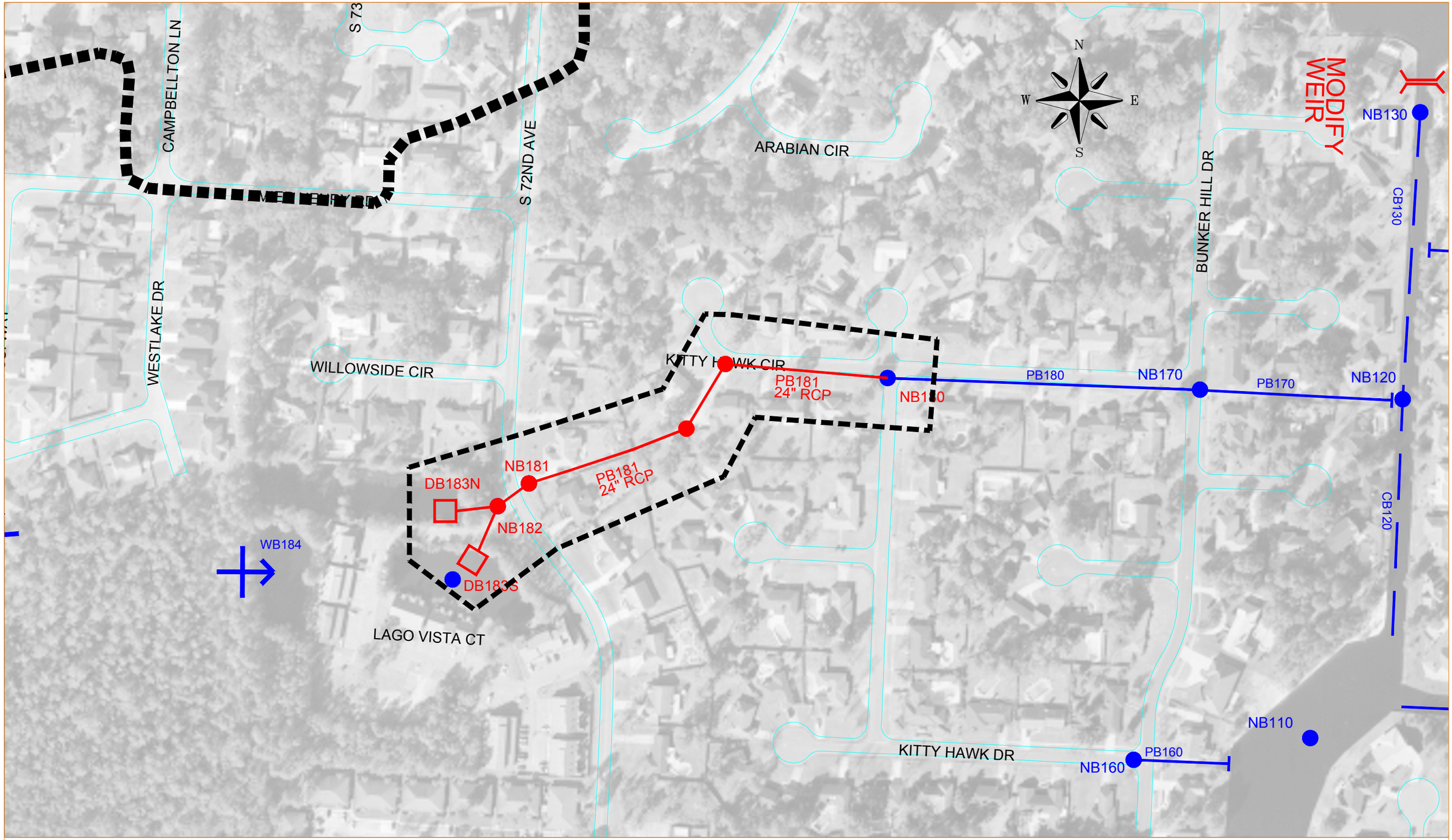
–EXISTING STORM PIPE

POND –PROPOSED POND

FIGURE 4–1

BARRANCAS AVE.–BRANCH E

SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE
-EXISTING STORM PIPE
POND -PROPOSED POND

FIGURE 4-1
LAGO VISTA PONDS
BRANCH B
SCALE: N.T.S.

VASSAR DR

STANFORD RD

STETSON RD

VANDERBILT RD

18" RCP

18" RCP

18" RCP

24" RCP

30" RCP

EMORY DR

24" RCP

24" RCP

36" RCP

POND

24" RCP

NI4

N

W

E

S

DR

PEN HAVEN DR

RANDOLPH DR

EY AVE

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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

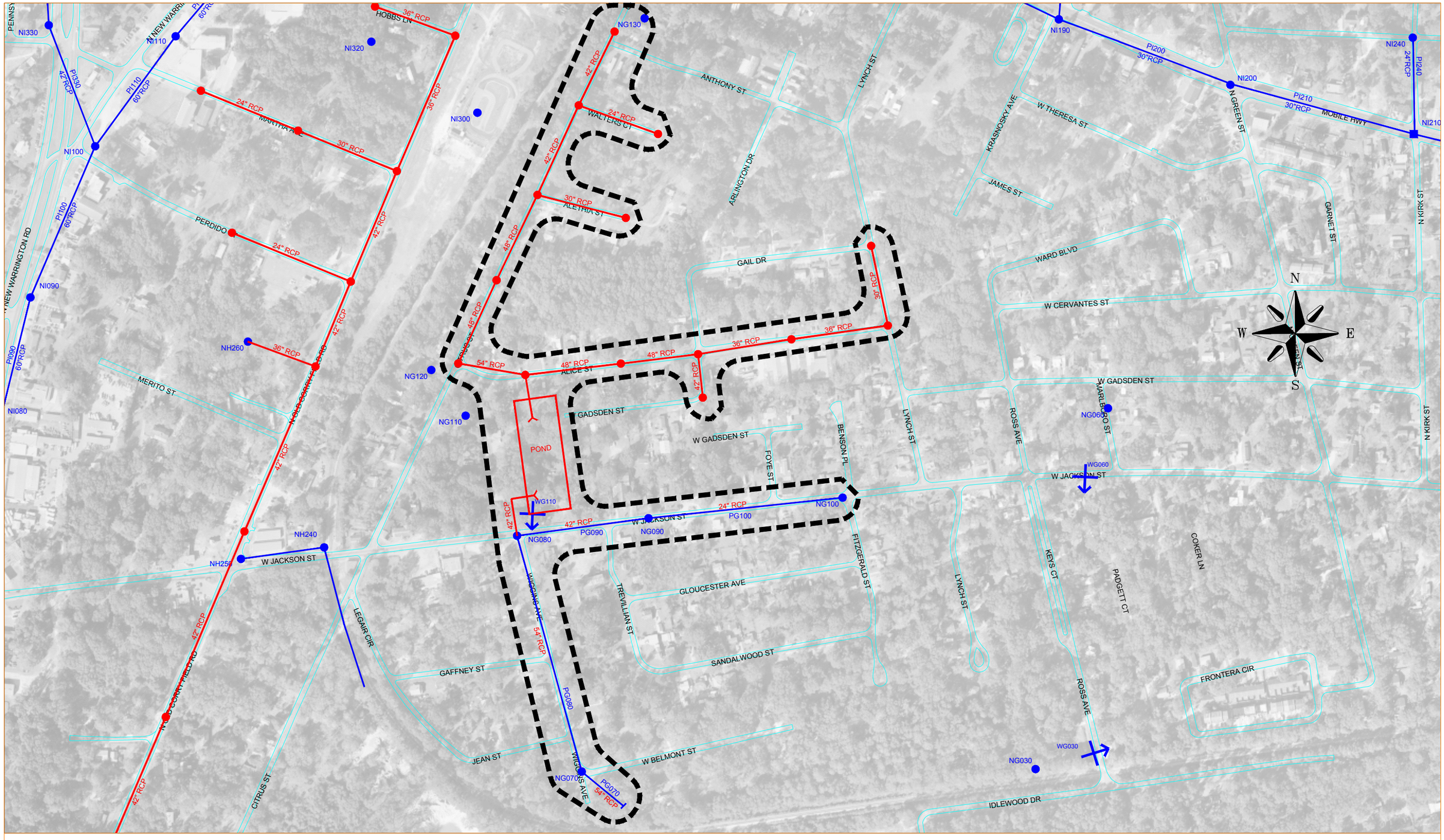
–PROPOSED STORM PIPE

–EXISTING STORM PIPE

POND –PROPOSED POND

FIGURE 4–1
EMORY DRIVE–BRANCH K

SCALE: N.T.S.



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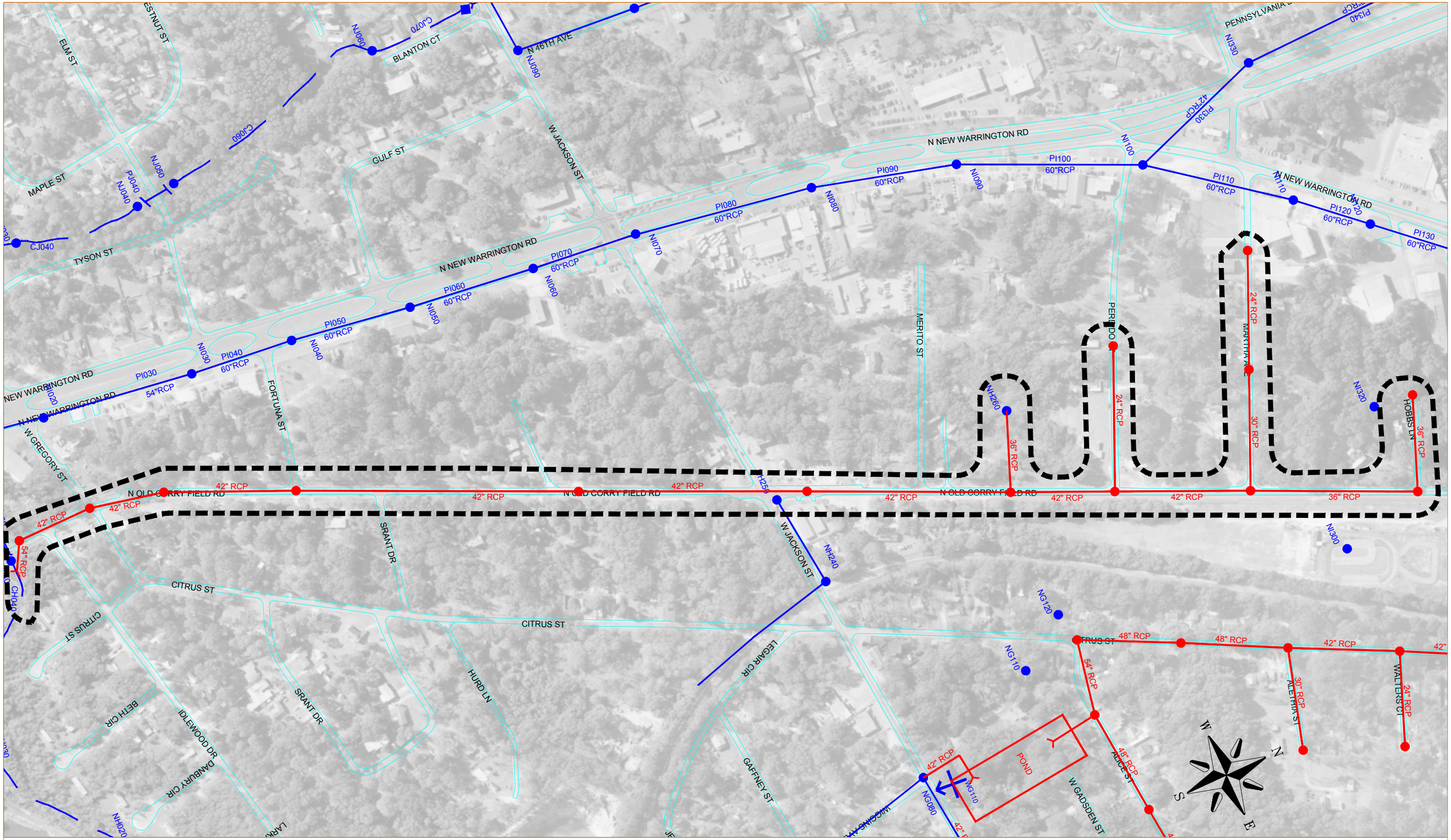
ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE
-EXISTING STORM PIPE
POND -PROPOSED POND

FIGURE 4-1
CITRUS STREET-BRANCH G
SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

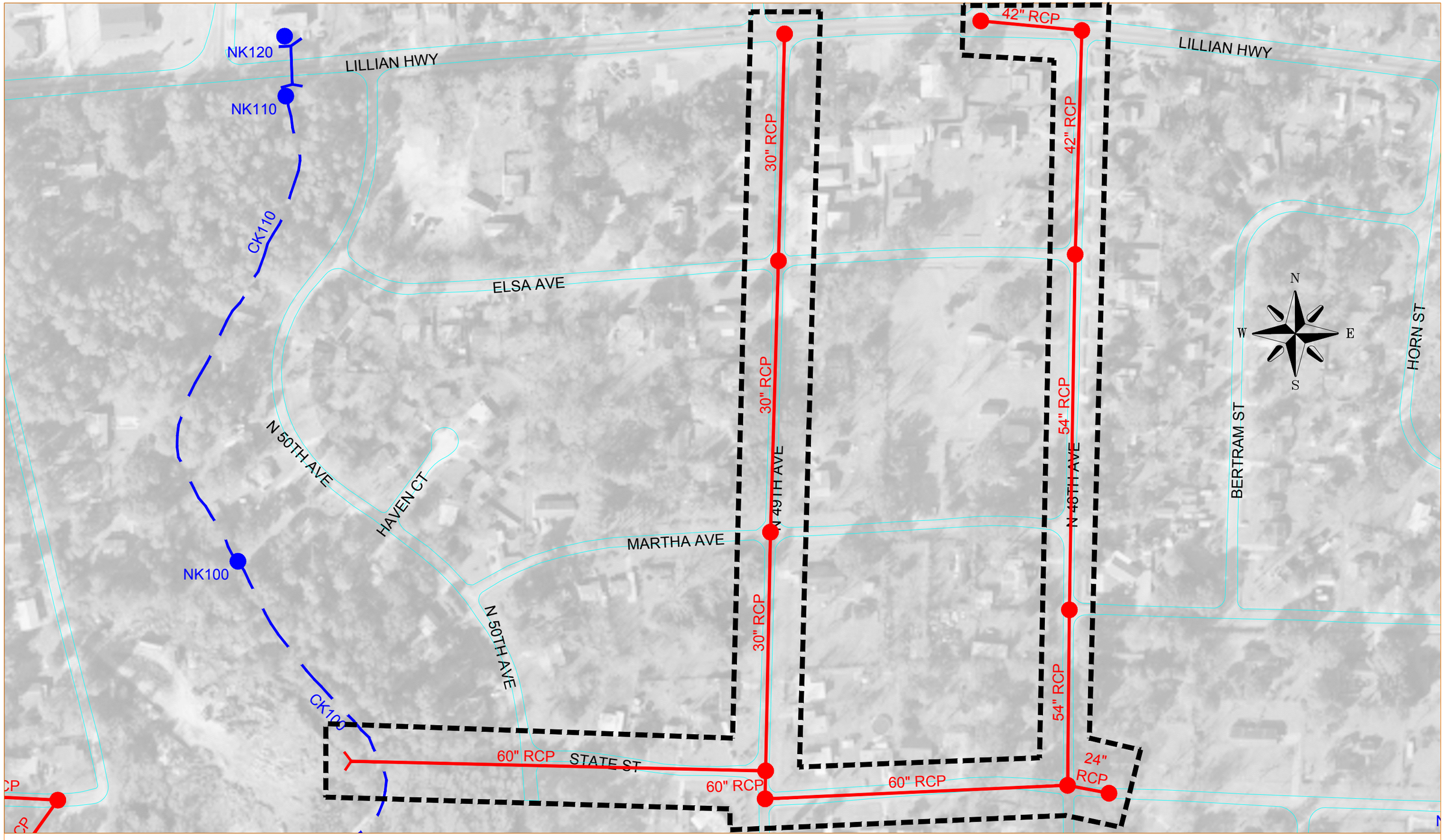
WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

—PROPOSED STORM PIPE
—EXISTING STORM PIPE
POND —PROPOSED POND

FIGURE 4-1
OLD CORRY FIELD-BRANCH H

SCALE: N.T.S.



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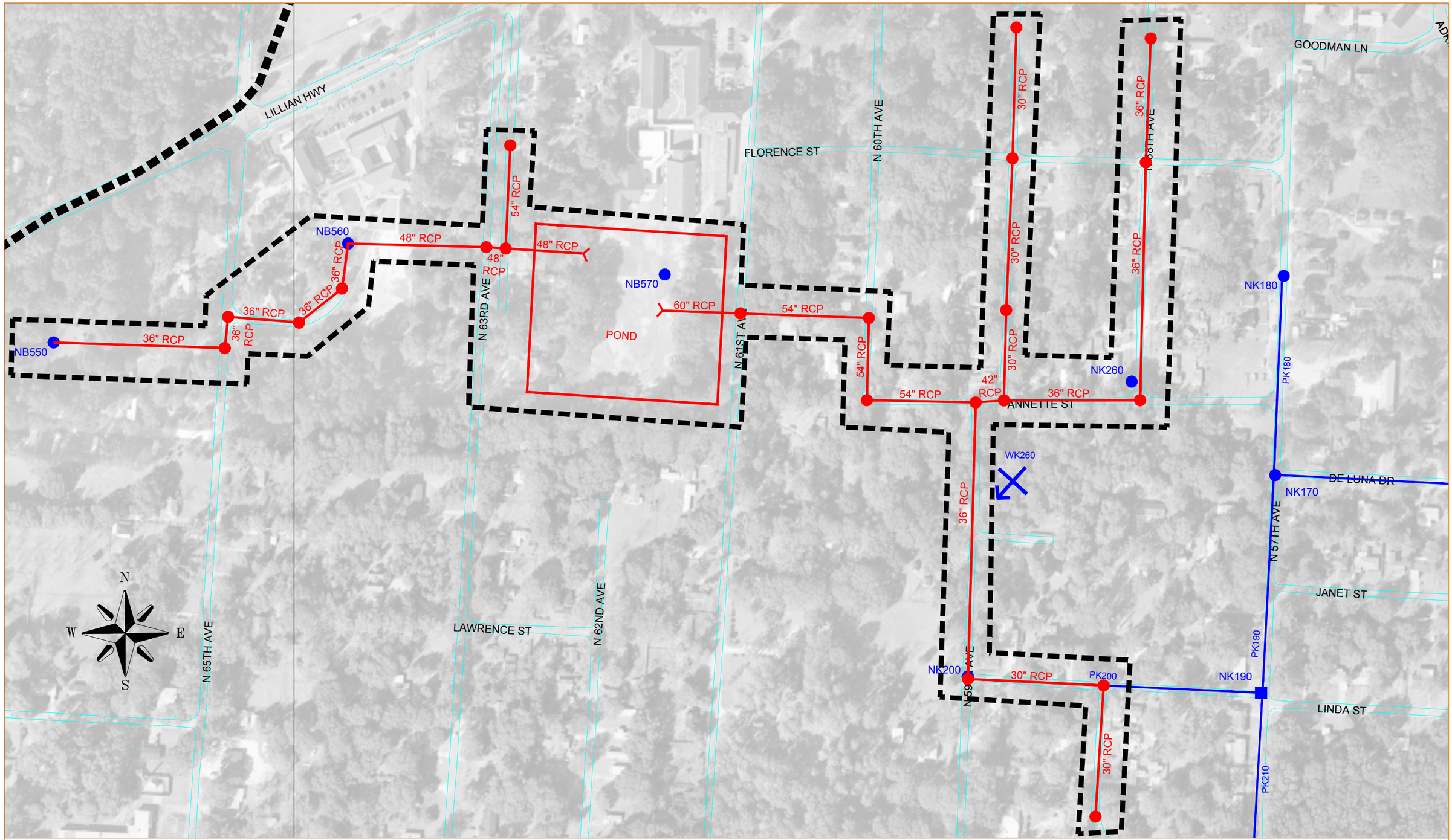
ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE
-EXISTING STORM PIPE
POND -PROPOSED POND

FIGURE 4-1
49TH AVENUE-BRANCH K
SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

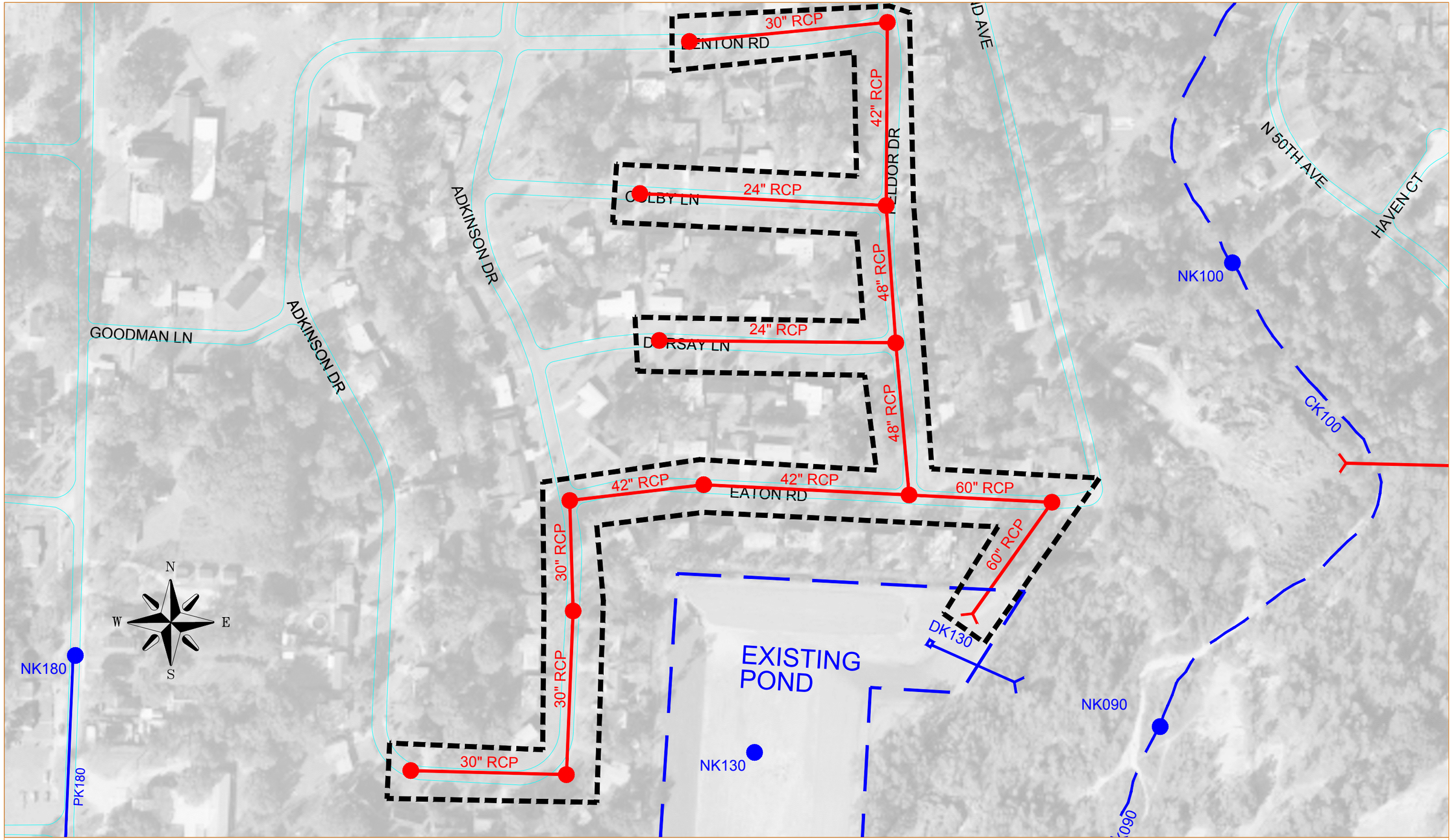
–PROPOSED STORM PIPE

–EXISTING STORM PIPE

POND –PROPOSED POND

FIGURE 4–1
ROOSEVELT–BRANCH K

SCALE: N.T.S.



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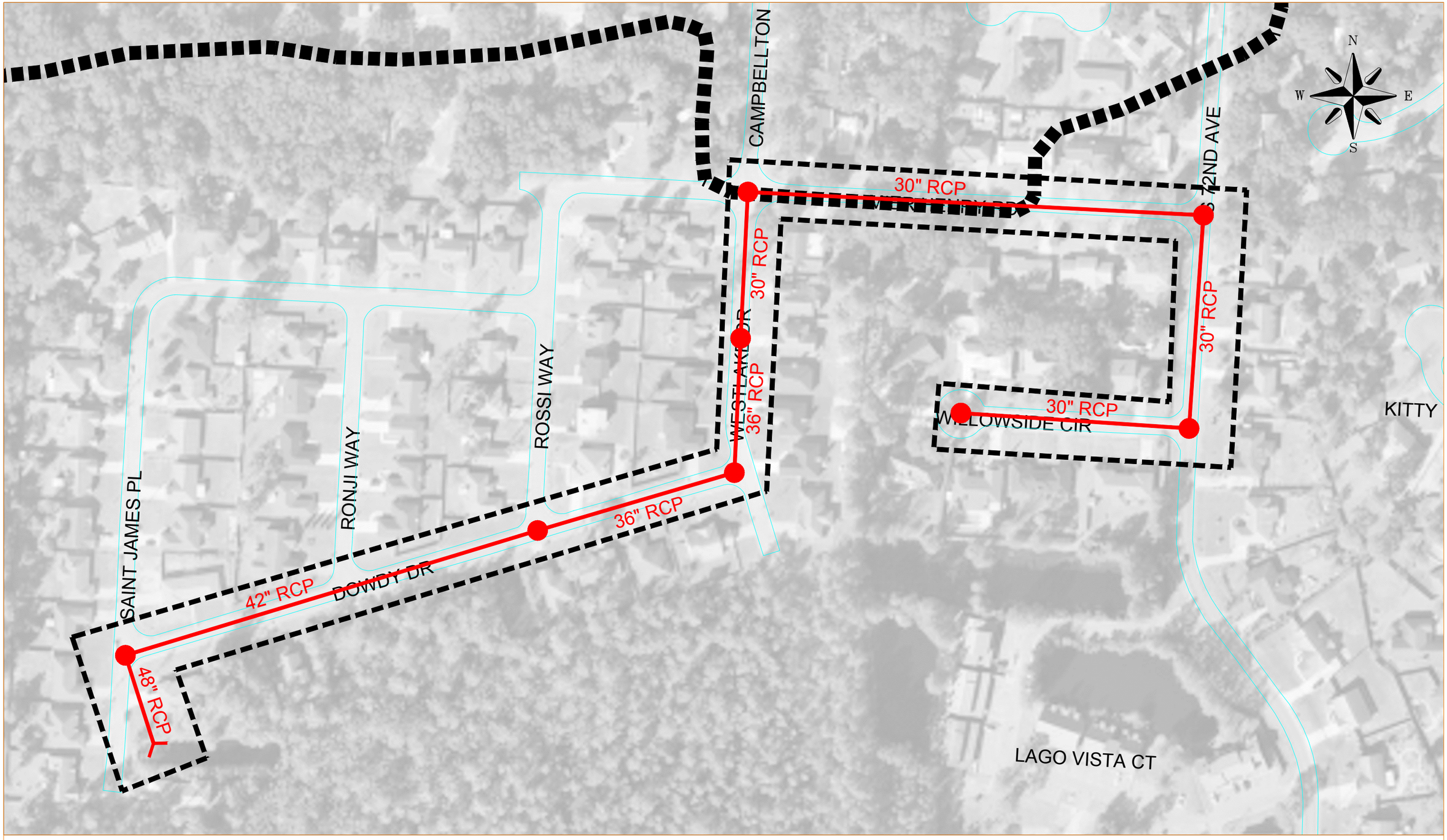
ESCAMBIA COUNTY STORMWATER MASTER PLAN
WARRINGTON BASIN
PROPOSED DRAINAGE IMPROVEMENTS

-PROPOSED STORM PIPE
-EXISTING STORM PIPE
POND -PROPOSED POND

FIGURE 4-1
EATON ROAD-BRANCH K
SCALE: N.T.S.



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ESCAMBIA COUNTY STORMWATER MASTER PLAN

WARRINGTON BASIN

PROPOSED DRAINAGE IMPROVEMENTS

–PROPOSED STORM PIPE

–EXISTING STORM PIPE

POND –PROPOSED POND

FIGURE 4–1

ST JAMES PLACE–BRANCH C

SCALE: N.T.S.

TABLE 4-1

WARRINGTON BASIN - MODEL RESULTS
PROPOSED IMPROVEMENTS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
Lake Charlene / Querido Heights - Branch B: 8-HOUR DURATION STORM EVENT						
NB010	S. 61st. Ave	26.00	17.19	16.59	15.21	0
NB020	S. 61st. Ave	28.40	19.01	18.19	16.59	0
NB030	S. 61st. Ave	27.00	24.14	23.57	22.94	0
NB040	S. 61st. Ave	28.00	25.71	25.23	24.69	0
NB050	S. 61st. Ave	29.50	27.32	27.04	26.70	0
NB060	S. 61st. Ave	26.00	19.55	18.68	17.04	0
NB070	S. 61st. Ave	29.00	20.84	19.77	18.03	0
NB080	S. 61st. Ave	28.00	21.61	20.39	18.56	0
NB090	S. 61st. Ave	28.00	22.97	21.05	19.16	0
NB100	Lake Joanne Dr.	27.00	23.86	23.55	23.33	0
NB110	Lake Joanne Dr.	27.00	23.92	23.61	23.34	0
NB120	Lake Joanne Dr.	27.00	23.95	23.63	23.35	0
NB130	Lake Joanne Dr.	26.00	23.97	23.66	23.35	0
NB140	Lake Charlene	25.00	24.10	23.73	23.38	0
NB150	Long Lake Dr	28.00	24.85	24.55	24.19	0
NB160	Kitty Hawk Dr.	26.50	26.66	26.10	25.23	1
NB170	Kitty Hawk Cir.	27.00	26.36	25.36	24.16	0
NB180	Kitty Hawk Cir.	27.11	27.27	25.95	24.85	1
NB181	72nd Ave @ Lago Vista (E)	31.00	29.58	28.41	28.41	0
NB182	72nd Ave @ Lago Vista (W)	29.50	30.05	28.84	27.83	1
NB183	Lago Vista Ponds	30.00	30.07	29.45	28.66	1
NB190	Long Lake Dr	28.00	25.41	24.87	24.33	0
NB200	S. 61st. Ave	27.64	26.97	26.67	25.38	0
NB210	S. 61st. Ave	29.00	28.08	27.53	26.65	0
NB220	S. 61st. Ave	29.00	30.54	29.09	28.00	2
NB230	S. 61st. Ave	30.50	31.39	30.10	28.83	1
NB240	S. 61st. Ave	31.80	32.00	30.85	29.90	1
NB270	Lake Charlene Dr.	27.50	25.19	24.57	23.53	0
NB280	Lake Charlene Dr.	26.81	26.96	25.65	24.85	1
NB290	Lake Charlene Dr.	25.50	24.23	23.79	23.41	0
NB300	Myrtle Hill Cir.	26.00	24.25	23.79	23.40	0
NB310	Myrtle Hill Cir.	31.50	24.25	23.79	23.40	0
NB320	Myrtle Hill Cir.	34.25	34.22	32.41	28.74	0
NB330	Myrtle Hill Cir.	31.60	34.44	32.52	31.45	2
NB340	Myrtle Hill Cir.	36.40	34.70	33.28	31.60	0
NB350	Myrtle Hill Cir.	35.00	35.18	33.66	31.70	1
NB400	Lake Charlene Dr.	27.00	26.16	25.82	24.61	0
NB410	Lake Charlene Dr.	26.98	27.40	27.01	25.60	2
NB420	Bunker Hill Dr.	26.50	24.14	23.79	23.43	0
NB430	Bunker Hill Dr.	26.51	26.60	26.05	24.76	1
NB440	Penton St.	26.00	26.66	25.74	23.69	1
NB450	S. 69th Ave.	29.00	24.84	24.84	24.84	0
NB460	S. 69th Ave.	41.00	33.98	32.19	28.43	0
NB470	Penton St.	38.00	34.11	32.31	28.51	0
NB475P	McNeil Street	37.00	38.87	36.98	33.83	1
NB476P	Malvern St.	45.50	38.99	36.69	32.52	0
NB477P	Malvern St.	45.50	39.16	36.56	31.97	0
NB480	Penton St.	36.00	31.33	30.04	27.51	0
NB490	N. 69th Ave.	37.50	36.59	34.32	29.09	0
NB495P	Malvern St.	43.00	39.34	36.42	30.40	0
NB500	N. 70th Ave.	38.00	36.82	34.81	33.91	0
NB510	N. 71th Ave.	38.00	37.01	35.09	34.11	0
NB520	Malvern St.	37.50	39.33	36.30	29.96	1

TABLE 4-1

WARRINGTON BASIN - MODEL RESULTS
PROPOSED IMPROVEMENTS

NODE	LOCATION	WARNING STAGE (FT)	100-YR STAGE (FT)	25-YR STAGE (FT)	3-YR STAGE (FT)	FLOOD CONDITION
Iona Street - Branch D: 8-HOUR DURATION STORM EVENT						
ND010	Lakeside Dr.	7.27	3.51	3.46	3.11	0
ND020	Live Oak Dr.	9.91	8.52	8.32	8.03	0
ND030	Star Lake Dr.	7.30	3.69	3.11	2.47	0
ND040	Live Oak Dr.	9.00	8.07	8.07	7.65	0
ND050	Star Lake Dr.	7.00	1.21	1.00	0.64	0
ND060	Barrancas Ave.	16.00	13.47	12.35	10.09	0
ND070	Barrancas Ave.	16.00	14.35	12.74	10.53	0
ND080	Barrancas Ave.	17.00	17.28	15.75	11.54	1
ND090	Barrancas Ave.	18.00	17.67	15.90	14.44	0
ND100	Iona St.	21.50	19.99	18.37	15.92	0
ND110	Iona St.	21.50	20.52	18.92	16.82	0
ND120	Iona St.	21.50	21.50	20.47	17.83	0
ND130	Iona St.	21.50	21.99	21.46	19.13	1
ND140	Wisteria Ave.	20.00	20.25	18.76	16.60	1
Barrancus Avenue / Jamison Street - Branch D: 8-HOUR DURATION STORM EVENT						
ND150	Barrancas Ave.	8.00	8.02	7.67	7.03	1
ND160	Barrancas Ave.	18.50	13.50	12.14	11.85	0
ND170	Barrancas Ave.	19.00	14.25	13.16	12.85	0
ND180	Barrancas Ave.	19.00	15.49	15.28	15.02	0
ND190	Barrancas Ave.	20.50	15.71	15.36	14.95	0
ND200	Barrancas Ave.	21.00	16.43	15.89	15.72	0
ND210	Barrancas Ave.	21.50	18.02	17.80	17.52	0
Harbourview Circle - Branch D: 8-HOUR DURATION STORM EVENT						
ND260	Harborview Cir.	6.00	3.93	3.50	3.04	0
ND270	Harborview Cir.	4.50	4.01	3.25	2.18	0
ND280	Harborview Cir.	5.25	5.57	3.87	2.45	1
ND290	Bayshore Dr.	6.00	6.41	4.26	2.65	1
ND300	Barrancas Ave.	8.00	8.17	7.67	6.75	1
Barrancas Avenue - Branch E: 8-HOUR DURATION STORM EVENT						
NE010	Barrancas Ave.	8.00	4.74	4.40	1.97	0
NE020	Barrancas Ave.	8.60	6.19	5.54	2.24	0
NE030	Barrancas Ave.	8.40	7.61	6.66	2.48	0
NE040	Barrancas Ave.	9.00	9.34	8.04	3.44	1
NE050	Barrancas Ave.	12.30	10.79	9.17	5.95	0
NE060	Barrancas Ave.	14.00	12.05	9.86	8.41	0
NE070	Barrancas Ave.	14.00	13.24	10.61	9.40	0
NE080	Barrancas Ave.	18.00	14.44	11.93	11.01	0
NE090	Barrancas Ave.	20.00	16.79	14.35	12.88	0
NE100	Barrancas Ave.	21.00	18.42	15.60	13.60	0
NE110	Barrancas Ave.	21.00	20.84	18.51	14.29	0
NE120	Barrancas Ave.	21.50	21.28	19.48	14.60	0
NE130	Barrancas Ave.	21.00	21.52	20.36	15.02	1
NE140	Barrancas Ave.	21.00	21.73	21.04	16.02	2
NE150	Barrancas Ave.	21.50	21.87	21.36	16.25	1
NE160	Barrancas Ave.	21.75	21.94	21.52	17.09	1
Frisco Road - Branch F: 8-HOUR DURATION STORM EVENT						
NF150	Edgewater Dr.	7.50	8.17	7.45	5.70	1
NF160	Frisco Rd.	12.00	10.96	10.74	10.37	0
NF170	Frisco Rd.	12.50	12.66	12.28	11.06	1
NF180	Chaseville St.	23.00	21.16	21.15	21.10	0
NF190	Chaseville St.	25.00	23.79	23.06	22.19	0
NF200	Chaseville St.	25.00	24.57	23.29	22.78	0

5.0 WATER QUALITY ASSESSMENT

5.1 INTRODUCTION

Two previous studies reviewed were the 1993 NPDES Phase 1 MS4 Permit Application for Escambia County and the Escambia County Stormwater Master Plan Needs Assessment prepared in November 1994 both by HMM and CDM. These two studies provided relevant information to water quality conditions. This analysis updates the water quality efforts of these two studies for the Warrington Basin. Escambia County was issued the NPDES MS4 Permit in January 1999 and has been required to submit annual update reports. The First, Second, and Third Year Annual Reports to this permit prepared by HMM and CDM contain updated pollutant loading estimates. These reports, however, have combined several of the original 41 basins in Escambia County and the data is not very basin specific.

This analysis is simulated using the same modeling protocol as the NPDES MS4 Permit annual reports with a more basin specific assessment. A spreadsheet, included in Appendix D, was used to estimate the total annual loading of various pollutants for the basin based on land use categories. This spreadsheet provides a basis for planning-level evaluations of long-term basin pollution loads and the relative benefits of Best Management Practices (BMP's) to reduce these loads. The 12 pollutants simulated in the loading analysis are the same 12 pollutants required by the Environmental Protection Agency (EPA) for the NPDES MS4 Permits. These 12 pollutants are five-day biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total dissolved solids (TDS), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), nitrite plus nitrate (NO_3+NO_2), dissolved phosphorus (DP), total phosphorus (TP), cadmium (Cd), copper (Cu), lead (Pb), zinc (Zn).

Since the proposed improvements for the Warrington Basin call for new stormwater management facilities to resolve flooding problems, there is a potential for water quality improvements as well. With the implementation of the proposed ponds, roadside swales, and underground treatment vaults additional removal of pollutants can be achieved in the basin. The additional pollution reduction will reduce annual pollutant loadings from the basin and improve the permit-ability of the proposed improvements.

5.2 HYDROLOGIC PARAMETERS

Annual rainfall data recorded at the Pensacola Regional Airport for the years 1949 through 2003 were obtained. Based on the data for this time period, the average annual rainfall was 62.15 inches. The rainfall data is summarized in Table 5-1 at the end of this chapter. The years with no data shown are years with incomplete records.

The water quality spreadsheet calculates annual runoff volumes for the pervious and impervious areas in each land use category by multiplying the average annual rainfall volume by a runoff coefficient. A runoff coefficient of 0.95 was used for the impervious surfaces and a runoff coefficient of 0.10 was used for the pervious surfaces. The composite runoff coefficient for each land use category is calculated by weighting the impervious and pervious coefficients with the percent of directly connected impervious area (DCIA) for each land use category.

The Northwest Florida Water Management District's (NWFWMD) Land Use / Cover Classification System (FLUCCS) map for 1995 was used to determine the land use categories for the basin. This map appears to be the most complete digital record of land use data for Escambia County. Figure 5-1 at the end of this chapter shows the land uses from this map within the Warrington Basin. To develop the water quality spreadsheet, the 90 plus FLUCCS land uses were grouped into 13 general categories as used in the water quality modeling in the NPDES MS4 Permit annual reports. Table 5-2 shows the 13-modeled categories compared to the FLUCCS land uses.

5.3 POLLUTION LOADING ANALYSIS

The water quality spreadsheet uses land use specific Event Mean Concentrations (EMC's) multiplied by the estimated runoff volumes to calculate the annual pollutant load from a specific land use. The loads for each land use are added together to yield the annual pollutant load for the basin. EMC's are flow-weighted average concentrations defined as the sum of the stormwater pollution loads divided by the runoff volume. EMC's are widely used as the primary statistic for evaluations of stormwater quality data and the stormwater pollutant-loading factor in analyses of pollutant loadings.

The EMC's used in this analysis are the same used in the NPDES MS4 Permit annual reports. The data used for the majority of the land use categories were obtained from the updated EMC database for the southeastern United States. Nationwide EMC's reported by the Federal Highway Administration (FHWA) and EPA's NURP program were used for major roadways. Table 5-3 summarizes the EMC's used in this analysis and also sums up the acreages and percent DCIA for each land use category. The annual runoff and pollutant loading estimates calculated by the water quality spreadsheet are summarized in Table 5-4.

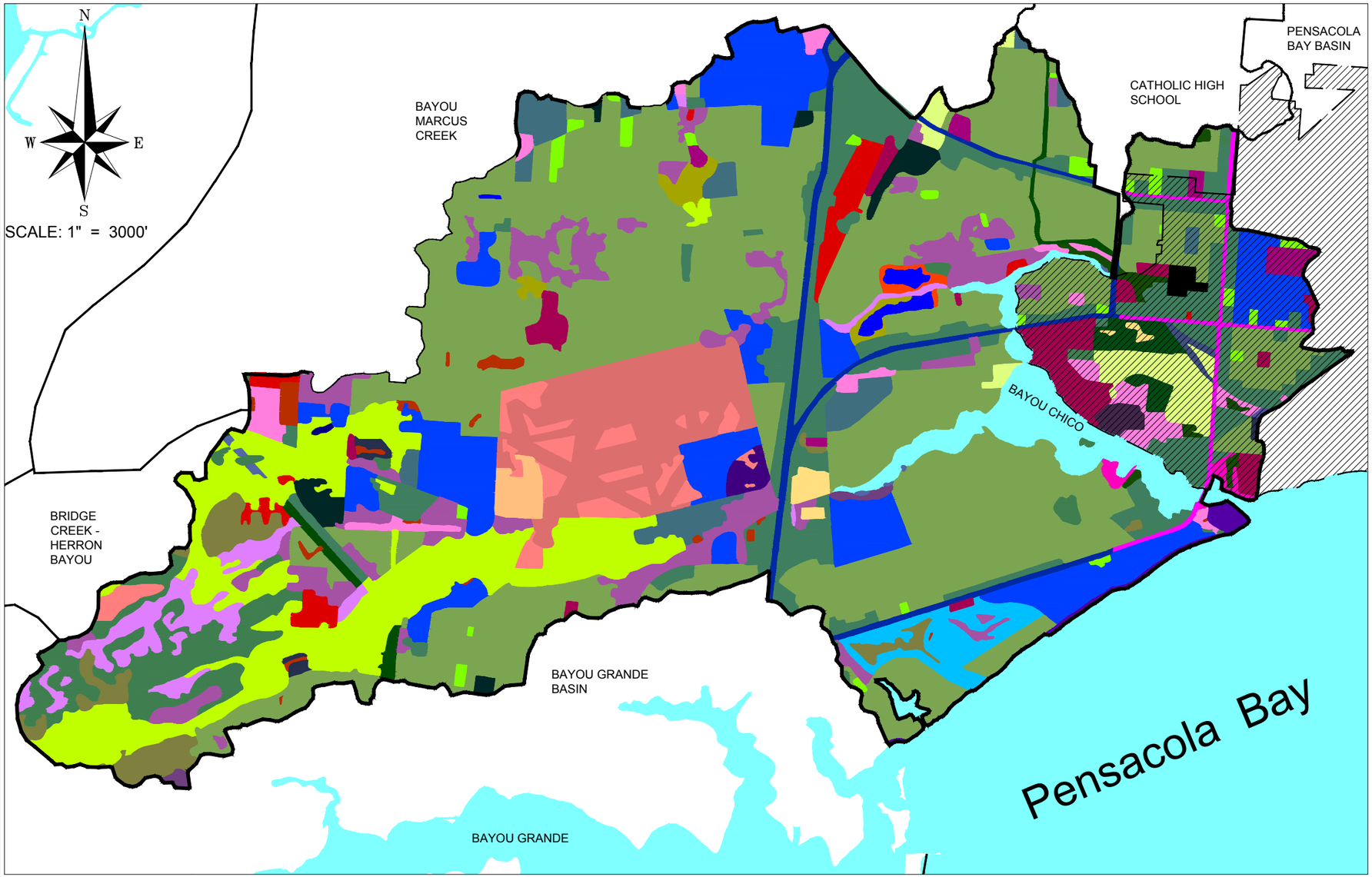
5.4 BEST MANAGEMENT PRATICES (BMP's)

BMP pollution reductions are estimated by reducing the loading from a specific pollutant by a relative amount related to the removal efficiency of a particular BMP and the drainage area covered by that BMP. Currently, BMP's in the basin are extended dry retention/detention ponds, which will remain the same for the proposed BMP's. Retention/detention ponds and roadside swales have both been classified as dry retention/detention. Removal efficiencies for the individual pollutants vary with the different BMP's and these values are listed in Table 5-5. The removal efficiencies for the treatment vaults are rough averages taken from several different manufactures.

Existing BMP's have a drainage area of approximately 158.9 acres treated by dry retention/detention ponds and approximately 558.7 acres treated by wet detention ponds. The proposed BMP's will provide an additional 474 acres of treatment by dry retention/detention ponds. Table 5-5 summarizes the pollutant loading reductions for each of the existing and proposed BMP's.

Table 5-6 shows the pollutant loading estimates for the basin without existing BMP's, with existing BMP's and with proposed BMP's called for by the anticipated improvements. It can be seen that while there is variation from parameter to parameter, the existing BMP's reduce individual pollutants by a range of about 1.2 to 9.2 percent. The addition of the proposed improvements increases pollution removal so that the effective reduction ranges up to an additional 5.2 percent for individual pollutants. Sediment-related parameters are reduced by about 2.1 percent overall, nutrients by 0.9 percent and metals by 3.4 percent. By comparing the estimated pollutant loading

for the Warrington Basin with and without the proposed BMP's, it can be concluded that the anticipated improvements will improve overall water quality within the basin.



LEGEND

CITY LIMITS (PENSACOLA)	
BASIN BOUNDARIES (MISC.)	
BASIN BOUNDARY (WARRINGTON)	
1100_Residential low density	102.9 ACRES
1200_Residential medium density	3072.4 ACRES
1300_Residential high density	696.8 ACRES
1320_Mobile home high density	60.1 ACRES
1400_Commercial and services	758.1 ACRES
1420_Junk Yards	1.3 ACRES
1480_Cemeteries	37.7 ACRES
1500_Industrial	113.6 ACRES
1560_Other heavy industrial	18.4 ACRES
1600_Extractive	43.0 ACRES
1610_Strip Mines	13.6 ACRES
1660_Holding ponds	28.9 ACRES
1710_Educational facilities	153.5 ACRES
1720_Religious	77.4 ACRES
1730_Military	19.5 ACRES
1740_Medical healthcare	36.6 ACRES
1800_Recreational	146.2 ACRES
1820_Golf course	109.5 ACRES
1840_Marinas and fish camps	17.2 ACRES
1890_Other recreational	13.4 ACRES
2100_Cropland and pastureland	114.6 ACRES
2200_Tree crops	1.7 ACRES
3200_Shrub and bushland	277.5 ACRES
4100_Upland coniferous forrest	149.0 ACRES
4200_Upland hardwood forests	31.0 ACRES
4340_Mixed coniferous/hardwood	419.0 ACRES
4410_Coniferous plantations	143.7 ACRES
5300_Reservoirs	43.0 ACRES
6100_Wetlands hardwood forrest	13.1 ACRES
6200_Wetland coniferous forrest	1.8 ACRES
6300_Wetland forrested mixed	692.1 ACRES
6410_Fresh water marsh	5.6 ACRES
6900_Wetland shrub	138.6 ACRES
7100_Beaches	26.0 ACRES
7400_Disturbed land	13.7 ACRES
8100_Transportation	116.0 ACRES
8110_Airports	387.2 ACRES
8120_Railroads	10.0 ACRES
8140_Roads and highways	37.6 ACRES
8310_Electrical power facility	0.4 ACRES
8320_Electrical power transmission lines	41.9 ACRES
8340_Sewage treatment	25.2 ACRES
8350_Solid waste disposal	46.0 ACRES
TOTAL	8254.8 ACRES

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FIGURE 5 - 1

WARRINGTON BASIN LAND USES
BASED ON 1995 NWFWMD FLUCCS DATA

TABLE 5-1

WARRINGTON BASIN
SUMMARY OF RAINFALL DATA - PENSACOLA REGIONAL AIRPORT

YEAR	TOTAL RAINFALL (in)	YEAR	TOTAL RAINFALL (in)
1949	70.61	1976	71.55
1950	47.57	1977	42.68
1951	59.29	1978	76.44
1952	44.05	1979	79.93
1953	93.44	1980	50.58
1954	28.61	1981	39.70
1955	50.16	1982	---
1956	65.77	1983	78.47
1957	59.96	1984	51.84
1958	63.53	1985	69.49
1959	75.87	1986	68.72
1960	71.65	1987	68.89
1961	75.52	1988	77.45
1962	49.73	1989	70.09
1963	61.59	1990	51.70
1964	---	1991	---
1965	51.14	1992	76.71
1966	52.98	1993	61.67
1967	63.84	1994	76.02
1968	41.43	1995	---
1969	68.73	1996	66.80
1970	68.23	1997	80.55
1971	44.91	1998	69.08
1972	51.78	1999	47.40
1973	72.74	2000	42.81
1974	48.44	2001	55.11
1975	81.72	2002	68.57
		2003	63.89
ANNUAL AVERAGE =		**62.15**	

Note: Years with no data shown means incomplete records for those years.

TABLE 5-2

WARRINGTON BASIN
MODELED LAND USES COMPARED TO NWFWMD FLUCCS LAND USES

Modeled Land Use	NWFWMD FLUCCS Land Use
Agriculture & Pasture	Cropland & Pastureland, Feeding Operations
Forest & Open	Burned Areas, Costal Scrub, Coniferous Plantations, Cypress, Dead Trees, Exposed Rocks, Forest Regeneration Areas, Mixed Coniferous/Hardwoods, Non-Vegetated, Nurseries & Vineyards, Other Open Lands (Rural), Shrub & Brushland, Tree Crops, Tree Plantations, Upland Coniferous Forests, Upland Hardwood Forest
LDSF	Mobile Home Units - Low Density, Residential - Low Density
MDSF	Mobile Home Units, Mobile Home Units - Medium Density, Residential - Medium Density
HDSF	Mobile Home Units - High Density, Residential - High Density
Commercial	Airports, Auto Parking Facilities, Commercial & Services, Communications, Communications Facilities, Race Tracks
Office & Institutional	Cemeteries, Cultural & Entertainment, Educational Facilities, Governmental, Historic Sites, Institutional, Institutional Under Construction, Marinas & Fish Camps, Medical & Health Care, Military, Religious, Tourist Service
Industrial	Electric Power Facilities, Electric Power Transmission Lines, Industrial, Junk Yards, Oil/Water/Gas Transmission Lines, Other Heavy Industrial, Port Facilities, Railroad, Sewage Treatment, Solid Waste Disposal, Transmission Towers, Utilities, Water Supply Plants
Extractive	Disturbed Lands, Extractive, Sand & Gravel Pitts, Sand Other Than Beaches, Strip Mines
Urban & Open Recreational	Community Recreational Facilities, Golf Courses, Parks & Zoos, Open Land (Urban) Other Recreational, Recreational, Swimming Beach
Water & Wetlands	Aquaculture, Bay Swamps, Beaches, Embayments (Gulf), Emergent Aquatic Vegetation, Freshwater Marches, Gum Swamps, Holding Ponds, Inland Ponds & Sloughs, Intermittent Ponds, Lakes, Mangrove Swamps, Outside Study Area, Reservoirs, Riverine Sandbars, Saltwater Marshes, Slough Waters, Stream & Lake Swamps, Streams & Waterways, Tidal Flats, Vegetated Non-Forested Wetlands, Wetland Coniferous Forests, Wetland Forested Mixed, Wetland Hardwood Forests, Wetland Shrub
County Roads	Roads & Highways (County), Transportation
FDOT Roads	Roads & Highways (State)

TABLE 5-3

WARRINGTON BASIN
SUMMARY OF EVENT MEAN CONCENTRATIONS FOR POLLUTANT LOADING ANALYSIS

Land Use	Area	DCIA	EVENT MEAN CONCENTRATIONS (EMCs)											
			Oxygen Demand		Sediments		Nutrients				Heavy Metals			
			BOD_5	COD	TDS	TSS	TKN	NO_2+NO_3	DP	TP	Cd	Cu	Pb	Zn
	ac	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Agriculture & Pasture	114.6	0.5%	13.2	70	113	50	0.87	0.28	0.12	0.14	0.000	0.004	0.005	0.023
Forest & Open	1021.9	0.5%	10.3	70	216	25	0.87	0.17	0.15	0.28	0.001	0.005	0.005	0.006
LDSF	102.9	7.0%	13.2	70	74	50	0.87	0.28	0.03	0.14	0.000	0.004	0.005	0.023
MDSF	3072.4	14.0%	9.4	50	70	48	1.22	0.46	0.10	0.27	0.000	0.006	0.009	0.034
HDSF	756.9	34.0%	9.6	54	50	38	1.01	0.40	0.17	0.19	0.000	0.008	0.012	0.080
Commercial	1145.3	47.0%	6.6	45	58	54	0.83	0.41	0.06	0.14	0.001	0.008	0.010	0.046
Office & Institutional	341.9	90.0%	5.3	37	74	17	0.73	0.19	0.03	0.10	0.000	0.005	0.005	0.055
Industrial	256.8	70.0%	6.5	39	67	60	1.00	0.49	0.05	0.15	0.001	0.007	0.005	0.043
Extractive	70.3	23.0%	9.6	39	67	94	0.68	0.50	0.07	0.15	0.001	0.007	0.202	0.122
Urban & Open Recreational	269.1	1.5%	1.5	37	74	11	0.99	0.26	0.00	0.05	0.000	0.005	0.025	0.006
Water & Wetlands	949.1	25.0%	4.0	36	100	5	1.10	0.30	0.02	0.09	0.000	0.000	0.010	0.005
County Roads	116	70.0%	14.0	114	58	287	1.83	0.76	0.04	0.44	0.002	0.054	0.400	0.329
FDOT Roads	37.6	70.0%	14.0	114	58	287	1.83	0.76	0.04	0.44	0.002	0.054	0.400	0.329
Total	**8254.8**	**25.3%**												

TABLE 5-4

WARRINGTON BASIN
SUMMARY OF AVERAGE ANNUAL POLLUTANT LOADINGS

Land Use	Runoff	ANNUAL POLLUTANT LOADING ESTIMATES											
		Oxygen Demand		Sediments		Nutrients				Heavy Metals			
		BOD_5	COD	TDS	TSS	TKN	NO_2+NO_3	DP	TP	Cd	Cu	Pb	Zn
	in/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
Agriculture & Pasture	6.48	2218	11764	18990	8403	146	47	20	24	0	1	1	4
Forest & Open	6.48	15435	104899	323689	37464	1304	255	225	420	1	7	7	9
LDSF	9.91	3047	16161	17084	11543	201	65	7	32	0	1	1	5
MDSF	13.61	88969	473240	662536	454310	11547	4354	946	2555	0	57	85	322
HDSF	24.18	39760	223651	207085	157384	4183	1657	704	787	0	33	50	331
Commercial	31.04	53111	362124	466737	434548	6679	3299	483	1127	8	64	80	370
Office & Institutional	53.76	22049	153924	307848	70722	3037	790	125	416	0	21	21	229
Industrial	43.19	16319	97912	168207	150633	2511	1230	126	377	3	18	13	108
Extractive	18.37	2805	11396	19578	27468	199	146	20	44	0	2	59	36
Urban & Open Recreational	7.01	640	15791	31583	4695	423	111	0	21	0	2	11	3
Water & Wetlands	19.42	16688	150195	417207	20860	4589	1252	83	375	0	0	42	21
County Roads	43.19	15877	129282	65775	325473	2075	862	45	499	2	61	454	373
FDOT Roads	43.19	5146	41905	21320	105498	673	279	15	162	1	20	147	121
Total	**19.60**	**282066**	**1792244**	**2727640**	**1809002**	**37566**	**14347**	**2800**	**6838**	**15**	**287**	**970**	**1931**
Runoff (ac-ft/yr):	**13481**												

TABLE 5-5

WARRINGTON BASIN
SUMMARY OF EXISTING & PROPOSED BMPs

Pollutant	EXISTING BMPs							PROPOSED BMPs						
	Dry Retention/ Detention		Wet Detention		Treatment Vaults		With Existing BMPs	Dry Retention/ Detention		Wet Detention		Treatment Vaults		With Proposed BMPs
	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Loading lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Loading lb/yr
Area of Coverage, ac	510.2		331.9		0.0			473.6		0.0		0.0		
BOD_5	30%	5230	30%	3403	30%	0	**273433**	30%	4855	30%	0	30%	0	**268579**
COD	30%	33230	30%	21619	30%	0	**1737394**	30%	30846	30%	0	30%	0	**1706548**
TDS	0%	0	40%	43871	0%	0	**2683769**	0%	0	40%	0	0%	0	**2683769**
TSS	90%	100623	90%	65465	60%	0	**1642914**	90%	93403	90%	0	60%	0	**1549511**
TKN	20%	464	30%	453	0%	0	**36649**	20%	431	30%	0	0%	0	**36218**
NO_2+NO_3	0%	0	30%	173	0%	0	**14174**	0%	0	30%	0	0%	0	**14174**
DP	0%	0	70%	79	0%	0	**2721**	0%	0	70%	0	0%	0	**2721**
TP	30%	127	30%	82	20%	0	**6629**	30%	118	30%	0	20%	0	**6511**
Cd	80%	1	80%	0	40%	0	**14**	80%	1	80%	0	40%	0	**13**
Cu	60%	11	70%	8	30%	0	**268**	60%	10	70%	0	30%	0	**258**
Pb	80%	48	80%	31	50%	0	**891**	80%	45	80%	0	50%	0	**847**
Zn	50%	60	50%	39	40%	0	**1833**	50%	55	50%	0	40%	0	**1777**

TABLE 5-6

WARRINGTON BASIN
SUMMARY OF BMP WATER QUALITY IMPROVEMENTS

Pollutant	ANNUAL POLLUTANT LOADING ESTIMATES					
	Without Existing BMPs lb/yr	With Existing BMPs lb/yr	Percent Change %	With Proposed BMPs lb/yr	Percent Change %	Total Improvement %
BOD_5	282066	273433	-306.0%	268579	-478.1%	-1.7%
COD	1792244	1737394	-306.0%	1706548	-478.1%	-1.7%
TDS	2727640	2683769	-160.8%	2683769	-160.8%	0.0%
TSS	1809002	1642914	-918.1%	1549511	-1434.4%	-5.2%
TKN	37566	36649	-244.2%	36218	-359.0%	-1.1%
NO_2+NO_3	14347	14174	-120.6%	14174	-120.6%	0.0%
DP	2800	2721	-281.5%	2721	-281.5%	0.0%
TP	6838	6629	-306.0%	6511	-478.1%	-1.7%
Cd	15	14	-816.1%	13	-1275.1%	-4.6%
Cu	287	268	-652.3%	258	-996.5%	-3.4%
Pb	970	891	-816.1%	847	-1275.1%	-4.6%
Zn	1931	1833	-510.1%	1777	-796.9%	-2.9%
Summary:						
Oxygen Demand	2074310	2010827	-306.0%	1975127	-478.1%	-1.7%
Sediments	4536642	4326683	-462.8%	4233281	-668.7%	-2.1%
Nutrients	61551	60172	-224.0%	59624	-313.1%	-0.9%
Metals	3204	3006	-617.0%	2896	-961.9%	-3.4%

Note: Total Improvement is the change between the results with proposed BMPs and existing BMPs.

6.0 RECOMMENDATIONS

6.1 COST ESTIMATES

Preliminary cost estimates were prepared for the proposed improvements in each project. Table 6-1 at the end of this chapter summarizes the estimates. These estimates include the costs for land acquisition for pond sites, engineering, construction costs, and contingencies such as mobilization, traffic control, and existing utility relocations. Engineering and contingencies have been estimated as percentages of the total construction costs. Unit prices were taken from the latest edition of the Pricing Agreement. Land values were estimated by taking the appraised values from the current tax rolls of the Escambia County Property Appraiser's Office. These values were multiplied by a factor of 1.5 since appraisal values tend to be less than market prices. An average land value per acre was used for portions of parcels. By project, the total estimated costs are as follows:

Lake Charlene / Querido Heights - Branch B	$ 5,060,253
Lago Vista Court – Branch B	$ 151,914
Saint James Place - Branch C	$ 675,196
Iona Road / Bayshore Drive - Branch D	$ 178,536
Barrancas Avenue – Branch E	$ 365,686
Jamison Street - Branch F	$ 1,968,915
Edgewater Drive - Branch F	$ 1,175,776
Lakewood / Millwood Terrace - Branch F	$ 3,373,773
Citrus Street - Branch G	$ 2,156,353
Old Corry Field Road - Branch H	$ 1,590,252
West Highlands - Branch I	$ 2,686,125
Emory Drive - Branch K	$ 476,795
Roosevelt - Branch K	$ 3,374,652
Eaton Road - Branch K	$ 911,957
49th Avenue - Branch K	$ 1,233,257
Total Cost	**$ 25,013,754**

6.2 PRIORITY RANKING CRITERIA

To help quantify the proposed drainage improvements, a matrix was developed to rank the improvements. The matrix is based on eight categories with six of these categories given points ranging from 0 to 10. The other two categories, flooding conditions and cost versus benefit, are weighted from 0 to 20. The points from the eight categories are summed for each project to produce a total score. Table 6-2 shows the matrix and the points given to each of the proposed improvements. This matrix was used to prioritize the proposed improvements within the Warrington Basin. The following is an explanation of the categories and scoring used in the Priority Ranking Matrix:

Improves Flooding Conditions: This category deals with improving existing flooding problems. A score of 16 to 20 indicates eliminating the most severe flooding problems such as flooding inside of homes and or businesses and roadway flooding of primary arteries and evacuation routes. Reducing severe yard, street and parking lot flooding and roadway flooding of secondary arteries and collectors would score in the range of 11 to 15. Improving moderate yard, street and parking lot flooding scores 6 to 10 and minor drainage conditions such as shallow puddles that tend to stand for periods of time after a rainfall event scores 0 to 5.

Improves Water Quality: This category rates the reduction of pollutants in stormwater runoff from the basin. A score of 8 to 10 would specify a significant reduction in pollutant loadings from an area that had a direct discharge to a surface water body with known water quality problems. Good to moderate overall reductions in pollutant loadings indicates a score of 4 to 7 and low to no reductions scores 0 to 3.

Provides for Future Growth / Development: This category scores the improvements based on the capacity of future growth and development the improvement provides. An improvement that provides stormwater treatment and conveyance for the majority of undeveloped areas would score in the range of 8 to 10. Improvements that supply capacity for portions of the undeveloped areas score 4 to 7. A score of 0 to 3 indicates that the area is either completely built-out or the improvement only provides for minor increases in runoff numbers.

Construct-ability: This category ranks the improvements on the ease or difficulty of building the project. A project that can be built fairly easily using straightforward construction techniques employed by the majority of local contractors that bid County jobs would score 8 to 10. A project that is more difficult but can still be accomplished by some of the local contractors with the aid of some specialty subcontractors and techniques would score 4 to 7. A score of 0 to 3 would be an extremely difficult to construct project that very few or none of the local contractors could build and would require out of town specialist.

Permit-ability: This category refers to the ease or difficulty of obtaining the necessary permits from the various regulatory agencies required to construct the improvements. A score of 8 to 10 identifies a project that does not require any permits or requires only general permits that can be easily obtained. A project that scores 4 to 7 requires permits that are more difficult to obtain but should still be granted by the regulatory agencies. A project that requires permits that have a good chance of being denied by one or more of the regulatory agencies scores 0 to 3.

Impacts Environmentally Sensitive Areas: Wetlands, shoreline protection zones, aquatic preserves, outstanding Florida waters, threatened or endangered species habitats, fishery and marine habitats, floodplains, potable water wells, areas containing endangered or threatened plants or vegetation, and areas identified by the Florida Natural Areas Inventory (FNAI) are all classified as environmentally sensitive areas. Any project having a negative impact on these areas would score a zero. A project that provides positive effects or has no impacts at all on these areas scores a ten. The potential for negative impacts to these areas would be scored a range of 1 to 9 based on the probability with nine being the lowest and one the highest.

Dependent / Independent: If a proposed improvement is a stand-alone project and independent of any other projects, it receives a score of ten for this category. If a proposed improvement cannot be implemented until another project is constructed first, it is considered a dependent project and receives a zero for this category. Projects with portions of the project dependent on other project are scored 1 to 9 based on the percentage of the overall project that is dependent.

Cost Versus Benefit: This category takes several factors into consideration. The project is rated based on the number of residences and businesses that benefit from the improvements, the severity

of flooding these residencies and businesses are experiencing, the appraised values of the residencies and businesses, and the cost to implement the proposed improvements. A score of 16 to 20 indicates a good rate of benefit for the cost to construct the project. A moderate rate of benefit for the cost to construct the improvements would score in the range of 11 to15 and a low rate of benefit per cost would score 6 to 10. A score of 5 or less would indicate a project that cost more than the value of the residences and businesses that flood.

6.3 RECOMMENDED PLAN OF ACTION

Based on the total score of each proposed improvement, the projects are broken down into four priority classifications. A Class I priority would designate a project that has a total score in the range of 80 to 100. Class I priority projects should be placed on the County's Capital Improvement Projects (CIP) list as the most immediate projects to be implemented. A score in the range of 60 to 79 would indicate a Class II priority and this class of projects should be placed on the CIP list to be implemented just behind the Class I projects. A Class III priority would be a project that scores 40 to 59 and the Class III projects should be placed on the CIP list to be implemented with any remaining funds left over after all Class I and Class II projects are complete. Any project scoring less than 40 is considered a Class IV priority. This class of projects should be placed at the bottom of the CIP list. It would probably be more feasible and cost effective for the County to look into buying-out and abandoning the residencies and businesses with severe flooding problems in the Class IV areas rather than implementing the proposed improvements.

The proposed drainage improvement projects for the Warrington Basin are listed below in order of priority along with their total scores and their priority classification:

Priority	Project	Score	Class
1	Lake Charlene / Querido Heights - Branch B	71	II
2	Jamison Street - Branch F	67	II
3	Lakewood / Millwood Terrace - Branch F	67	II
4	Emory Drive - Branch K	67	II
5	Citrus Street - Branch G	66	II
6	Old Corry Field Road - Branch H	66	II

7	West Highlands - Branch I	65	II
8	Edgewater Drive - Branch F	64	II
9	Lago Vista Court – branch B	62	II
10	Roosevelt - Branch K	60	II
11	Barrancas Avenue – Branch E	59	III
12	Iona Road / Bayshore Drive - Branch D	56	III
13	Eaton Road - Branch K	52	III
14	49th Avenue - Branch K	51	III
15	Saint James Place - Branch C	45	III

Lake Charlene / Querido Heights scores the highest and rates a Class II priority. It should be placed at the top Class II priority projects. Jamison Street, Lakewood Drive, and Emory Drive all score second and also ranks as a Class II Priority. These should also be placed on the CIP list with the rest of the Class II projects. Citrus Street and Old Corry Field Road score third and are also rated a Class II Priority. These projects should be placed on the CIP list with the Class II priority projects. Roosevelt and Lago Vista Court are the last of the Class II projects. Barrancas Avenue ranks at the top of the Class III priorities, followed by Iona Road, Eaton Road, 49th Avenue and lastly Saint James Place. All of these projects should be placed on the CIP list with the rest of the Class III projects.

TABLE 6-1

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Lake Charlene / Querido Heights - Branch B				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
Jack & Bore Steel Casing	120	LF	$800	$96,000
38" x 60" ERCP	380	LF	$150	$57,000
24" x 38" ERCP	160	LF	$90	$14,400
66" RCP	5064	LF	$195	$987,480
60" RCP	3012	LF	$180	$542,160
54" RCP	816	LF	$150	$122,400
48" RCP	2028	LF	$125	$253,500
42" RCP	1330	LF	$105	$139,650
36" RCP	540	LF	$90	$48,600
30" RCP	2109	LF	$70	$147,630
24" RCP	170	LF	$55	$9,350
Inlets/Structures w/"J" Bottoms	40	EA	$10,000	$400,000
Inlets/Structures	17	EA	$4,000	$68,000
Sod	8672	SY	$4	$34,688
Cast-in-Place	26	CY	$900	$23,400
Driveways	92	EA	$1,500	$138,000
Mail Box Relocations	92	EA	$95	$8,740
R/W Restoration	15609	LF	$7	$109,263
			Subtotal Costs:	**$3,200,261**
Contingencies:				
Mobilization		4%		$128,010
Traffic Control		3%		$96,008
Erosion Control		2%		$64,005
Utility Relocations		10%		$320,026
Other Contingencies		15%		$480,039
			Subtotal Contingencies:	**$1,088,089**
			Total Estimated Construction Costs:	**$4,288,350**
Engineering:				
Design and Surveying		12%		$514,602
Permitting		2%		$85,767
Construction Inspection		4%		$171,534
			Subtotal Engineering:	**$771,903**
			Total Estimated Costs:	**$5,060,253**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

lage Vista Court - Branch B				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
24" RCP	1040	LF	$55	$57,200
Inlets/Structures	6	EA	$4,000	$24,000
Sod	500	SY	$4	$2,000
Driveways	5	EA	$1,500	$7,500
Mail Box Relocations	5	EA	$95	$475
R/W Restoration	700	LF	$7	$4,900
			Subtotal Costs:	**$96,075**
Contingencies:				
Mobilization		4%		$3,843
Traffic Control		3%		$2,882
Erosion Control		2%		$1,922
Utility Relocations		10%		$9,608
Other Contingencies		15%		$14,411
			Subtotal Contingencies:	**$32,666**
			Total Estimated Construction Costs:	**$128,741**
Engineering:				
Design and Surveying		12%		$15,449
Permitting		2%		$2,575
Construction Inspection		4%		$5,150
			Subtotal Engineering:	**$23,173**
			Total Estimated Costs:	**$151,914**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Iona Street / Harbourview Circle - Branch D				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
30" RCP	760	LF	$70	$53,200
36" RCP	220	LF	$90	$19,800
Inlets/Structures	6	EA	$4,000	$24,000
Sod	668	SY	$4	$2,672
Driveways	4	EA	$1,500	$6,000
Mail Box Relocations	4	EA	$95	$380
R/W Restoration	980	LF	$7	$6,860
			Subtotal Costs:	**$112,912**
Contingencies:				
Mobilization		4%		$4,516
Traffic Control		3%		$3,387
Erosion Control		2%		$2,258
Utility Relocations		10%		$11,291
Other Contingencies		15%		$16,937
			Subtotal Contingencies:	**$38,390**
			Total Estimated Construction Costs:	**$151,302**
Engineering:				
Design and Surveying		12%		$18,156
Permitting		2%		$3,026
Construction Inspection		4%		$6,052
			Subtotal Engineering:	**$27,234**
			Total Estimated Costs:	**$178,536**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Barrancas Avenue - Branch E				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
30" RCP	1780	LF	$70	$124,600
Inlets/Structures w/"J" Bottoms	3	EA	$10,000	$30,000
Inlets/Structures	3	EA	$4,000	$12,000
FDOT Index 250 Headwall	1	EA	$8,000	$8,000
Stone Rip Rap W/ Geotextile	40	CY	$110	$4,400
Sod	1978	SY	$4	$7,911
Driveways	20	EA	$1,500	$30,000
Mail Box Relocations	20	EA	$95	$1,900
R/W Restoration	1780	LF	$7	$12,460
			Subtotal Costs:	**$231,271**
Contingencies:				
Mobilization		4%		$9,251
Traffic Control		3%		$6,938
Erosion Control		2%		$4,625
Utility Relocations		10%		$23,127
Other Contingencies		15%		$34,691
			Subtotal Contingencies:	**$78,632**
			Total Estimated Construction Costs:	**$309,903**
Engineering:				
Design and Surveying		12%		$37,188
Permitting		2%		$6,198
Construction Inspection		4%		$12,396
			Subtotal Engineering:	**$55,783**
			Total Estimated Costs:	**$365,686**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

West Highlands - Branch F				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Land Acquisition:				
Proposed Pond Site	2	LS	$107,655	$215,310
			Subtotal Land Acquisition:	**$215,310**
Proposed Pond:				
Clear & Grub	1.2	AC	$6,500	$7,800
Earthwork	97200	CY	$8	$777,600
Sod	2850	SY	$4	$11,400
Fencing	1050	LF	$14	$14,700
Gate	1	EA	$1,125	$1,125
Drainage System:				
48" RCP	441	LF	$125	$55,125
42" RCP	702	LF	$105	$73,710
36" RCP	1307	LF	$90	$117,630
30" RCP	1742	LF	$70	$121,940
24" RCP	1546	LF	$55	$85,030
18" RCP	160	LF	$45	$7,200
Energy Dissipaters	0	EA	$42,000	$0
Inlets/Structures w/"J" Bottoms	4	EA	$10,000	$40,000
Inlets/Structures	28	EA	$4,000	$112,000
Swales	0	LF	$6	$0
Sod	3280	SY	$4	$13,120
Driveways	52	EA	$1,500	$78,000
Mail Box Relocations	52	EA	$95	$4,940
R/W Restoration	5900	LF	$7	$41,300
			Subtotal Costs:	**$1,562,620**
Contingencies:				
Mobilization		4%		$62,505
Traffic Control		3%		$46,879
Erosion Control		2%		$31,252
Utility Relocations		10%		$156,262
Other Contingencies		15%		$234,393
			Subtotal Contingencies:	**$531,291**
			Total Estimated Construction Costs:	**$2,093,911**
Engineering:				
Design and Surveying		12%		$251,269
Permitting		2%		$41,878
Construction Inspection		4%		$83,756
			Subtotal Engineering:	**$376,904**
			Total Estimated Costs:	**$2,686,125**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Lakewood / Millwood Terrace - Branch F				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Land Acquisition:				
Proposed Pond Site	1	LS	$122,535	$122,535
			Subtotal Land Acquisition:	**$122,535**
Proposed Pond:				
Clear & Grub	2.75	AC	$6,500	$17,875
Earthwork	42877	CY	$8	$343,016
Sod	7300	SY	$4	$29,200
Fencing	1520	LF	$14	$21,280
Gate	1	EA	$1,125	$1,125
Drainage System:				
54" RCP	1960	LF	$150	$294,000
48" RCP	373	LF	$125	$46,625
42" RCP	364	LF	$105	$38,220
36" RCP	2144	LF	$90	$192,960
30" RCP	6342	LF	$70	$443,940
24" RCP	1384	LF	$55	$76,120
18" RCP	267	LF	$45	$12,015
Inlets/Structures w/"J" Bottoms	7	EA	$10,000	$70,000
Inlets/Structures	44	EA	$4,000	$176,000
Sod	7130	SY	$4	$28,520
Driveways	110	EA	$1,500	$165,000
Mail Box Relocations	110	EA	$95	$10,450
R/W Restoration	12834	LF	$7	$89,838
			Subtotal Costs:	**$2,056,184**
Contingencies:				
Mobilization		4%		$82,247
Traffic Control		3%		$61,686
Erosion Control		2%		$41,124
Utility Relocations		10%		$205,618
Other Contingencies		15%		$308,428
			Subtotal Contingencies:	**$699,103**
			Total Estimated Construction Costs:	**$2,755,287**
Engineering:				
Design and Surveying		12%		$330,634
Permitting		2%		$55,106
Construction Inspection		4%		$110,211
			Subtotal Engineering:	**$495,952**
			Total Estimated Costs:	**$3,373,773**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Jamison Street - Branch F				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
60" RCP	1438	LF	$180	$258,840
54" RCP	551	LF	$150	$82,650
48" RCP	367	LF	$125	$45,875
42" RCP	408	LF	$105	$42,840
36" RCP	567	LF	$90	$51,030
30" RCP	2222	LF	$70	$155,540
24" RCP	3016	LF	$55	$165,880
Inlets/Structures w/"J" Bottoms	10	EA	$10,000	$100,000
Inlets/Structures	28	EA	$4,000	$112,000
Sod	4760	SY	$4	$19,040
Driveways	95	EA	$1,500	$142,500
Mail Box Relocations	95	EA	$95	$9,025
R/W Restoration	8569	LF	$7	$59,983
			Subtotal Costs:	**$1,245,203**
Contingencies:				
Mobilization		4%		$49,808
Traffic Control		3%		$37,356
Erosion Control		2%		$24,904
Utility Relocations		10%		$124,520
Other Contingencies		15%		$186,780
			Subtotal Contingencies:	**$423,369**
			Total Estimated Construction Costs:	**$1,668,572**
Engineering:				
Design and Surveying		12%		$200,229
Permitting		2%		$33,371
Construction Inspection		4%		$66,743
			Subtotal Engineering:	**$300,343**
			Total Estimated Costs:	**$1,968,915**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Edgewater Drive - Branch F				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
48" RCP	1262	LF	$125	$157,750
42" RCP	402	LF	$105	$42,210
36" RCP	202	LF	$90	$18,180
30" RCP	1943	LF	$70	$136,010
24" RCP	2498	LF	$55	$137,390
Inlets/Structures w/"J" Bottoms	5	EA	$10,000	$50,000
Inlets/Structures	19	EA	$4,000	$76,000
Sod	3174	SY	$4	$12,696
Driveways	46	EA	$1,500	$69,000
Mail Box Relocations	46	EA	$95	$4,370
R/W Restoration	5713	LF	$7	$39,991
			Subtotal Costs:	**$743,597**
Contingencies:				
Mobilization		4%		$29,744
Traffic Control		3%		$22,308
Erosion Control		2%		$14,872
Utility Relocations		10%		$74,360
Other Contingencies		15%		$111,540
			Subtotal Contingencies:	**$252,823**
			Total Estimated Construction Costs:	**$996,420**
Engineering:				
Design and Surveying		12%		$119,570
Permitting		2%		$19,928
Construction Inspection		4%		$39,857
			Subtotal Engineering:	**$179,356**
			Total Estimated Costs:	**$1,175,776**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Citrus Street - Branch G				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Land Acquisition:				
Proposed Pond Site	1	LS	$80,000	$80,000
			Subtotal Land Acquisition:	**$80,000**
Proposed Pond:				
Clear & Grub	1.07	AC	$6,500	$6,955
Earthwork	15000	CY	$8	$120,000
Sod	4200	SY	$4	$16,800
Fencing	1200	LF	$14	$16,800
Gate	1	EA	$1,125	$1,125
Drainage System:				
54" RCP	220	LF	$150	$33,000
48" RCP	1630	LF	$125	$203,750
42" RCP	830	LF	$105	$87,150
36" RCP	710	LF	$90	$63,900
30" RCP	150	LF	$70	$10,500
24" RCP	150	LF	$55	$8,250
Energy Dissipaters	1	EA	$42,000	$42,000
Inlets/Structures w/"J" Bottoms	16	EA	$10,000	$160,000
Inlets/Structures	8	EA	$4,000	$32,000
Sod	1900	SY	$4	$7,600
Driveways	20	EA	$1,500	$30,000
Mail Box Relocations	20	EA	$95	$1,900
R/W Restoration	5490	LF	$7	$38,430
Energy Dissipaters	2	EA	$42,000	$84,000
Inlets/Structures w/"J" Bottoms	26	EA	$10,000	$260,000
Inlets/Structures	4	EA	$4,000	$16,000
Sod	3000	SY	$4	$12,000
Driveways	22	EA	$1,500	$33,000
Mail Box Relocations	22	EA	$95	$2,090
R/W Restoration	3700	LF	$7	$25,900
			Subtotal Costs:	**$1,313,150**
Contingencies:				
Mobilization		4%		$52,526
Traffic Control		3%		$39,395
Erosion Control		2%		$26,263
Utility Relocations		10%		$131,315
Other Contingencies		15%		$196,973
			Subtotal Contingencies:	**$446,471**
			Total Estimated Construction Costs:	**$1,759,621**
Engineering:				
Design and Surveying		12%		$211,155
Permitting		2%		$35,192
Construction Inspection		4%		$70,385
			Subtotal Engineering:	**$316,732**
			Total Estimated Costs:	**$2,156,353**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Old Corry Field Road - Branch H				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
54" RCP	100	LF	$150	$15,000
42" RCP	4300	LF	$105	$451,500
36" RCP	1180	LF	$90	$106,200
30" RCP	400	LF	$70	$28,000
Energy Dissipaters	1	EA	$42,000	$42,000
Inlets/Structures w/"J" Bottoms	22	EA	$10,000	$220,000
Inlets/Structures	8	EA	$4,000	$32,000
Sod	3300	SY	$4	$13,200
Driveways	35	EA	$1,500	$52,500
Mail Box Relocations	35	EA	$95	$3,325
R/W Restoration	6000	LF	$7	$42,000
			Subtotal Costs:	**$1,005,725**
Contingencies:				
Mobilization		4%		$40,229
Traffic Control		3%		$30,172
Erosion Control		2%		$20,115
Utility Relocations		10%		$100,573
Other Contingencies		15%		$150,859
			Subtotal Contingencies:	**$341,947**
			Total Estimated Construction Costs:	**$1,347,672**
Engineering:				
Design and Surveying		12%		$161,721
Permitting		2%		$26,953
Construction Inspection		4%		$53,907
			Subtotal Engineering:	**$242,581**
			Total Estimated Costs:	**$1,590,252**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

49th Avenue - Branch K				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
60" RCP	1200	LF	$180	$216,000
54" RCP	1000	LF	$150	$150,000
42" RCP	430	LF	$105	$45,150
36" RCP	1180	LF	$90	$106,200
30" RCP	450	LF	$70	$31,500
24" RCP	75	LF	$55	$4,125
Energy Dissipaters	1	EA	$42,000	$42,000
Inlets/Structures w/"J" Bottoms	4	EA	$10,000	$40,000
Inlets/Structures	16	EA	$4,000	$64,000
Sod	2400	SY	$4	$9,600
Driveways	25	EA	$1,500	$37,500
Mail Box Relocations	25	EA	$95	$2,375
R/W Restoration	4500	LF	$7	$31,500
			Subtotal Costs:	**$779,950**
Contingencies:				
Mobilization		4%		$31,198
Traffic Control		3%		$23,399
Erosion Control		2%		$15,599
Utility Relocations		10%		$77,995
Other Contingencies		15%		$116,993
			Subtotal Contingencies:	**$265,183**
			Total Estimated Construction Costs:	**$1,045,133**
Engineering:				
Design and Surveying		12%		$125,416
Permitting		2%		$20,903
Construction Inspection		4%		$41,805
			Subtotal Engineering:	**$188,124**
			Total Estimated Costs:	**$1,233,257**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Eaton Road - Branch K				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Drainage System:				
60" RCP	650	LF	$180	$117,000
48" RCP	550	LF	$125	$68,750
42" RCP	950	LF	$105	$99,750
30" RCP	800	LF	$70	$56,000
24" RCP	900	LF	$55	$49,500
Energy Dissipaters	1	EA	$42,000	$42,000
Inlets/Structures w/"J" Bottoms	6	EA	$10,000	$60,000
Inlets/Structures	12	EA	$4,000	$48,000
Sod	2200	SY	$4	$8,800
Driveways	0	EA	$1,500	$0
Mail Box Relocations	0	EA	$95	$0
R/W Restoration	3850	LF	$7	$26,950
			Subtotal Costs:	**$576,750**
Contingencies:				
Mobilization		4%		$23,070
Traffic Control		3%		$17,303
Erosion Control		2%		$11,535
Utility Relocations		10%		$57,675
Other Contingencies		15%		$86,513
			Subtotal Contingencies:	**$196,095**
			Total Estimated Construction Costs:	**$772,845**
Engineering:				
Design and Surveying		12%		$92,741
Permitting		2%		$15,457
Construction Inspection		4%		$30,914
			Subtotal Engineering:	**$139,112**
			Total Estimated Costs:	**$911,957**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Emory Drive - Branch K				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Proposed Pond:				
Clear & Grub	0.75	AC	$6,500	$4,875
Earthwork	6000	CY	$8	$48,000
Sod	1800	SY	$4	$7,200
Fencing	770	LF	$14	$10,780
Gate	1	EA	$1,125	$1,125
Drainage System:				
36" RCP	280	LF	$90	$25,200
30" RCP	150	LF	$70	$10,500
24" RCP	900	LF	$55	$49,500
18" RCP	750	LF	$45	$33,750
Inlets/Structures	16	EA	$4,000	$64,000
Sod	800	SY	$4	$3,200
Driveways	18	EA	$1,500	$27,000
Mail Box Relocations	18	EA	$95	$1,710
R/W Restoration	2100	LF	$7	$14,700
			Subtotal Costs:	**$301,540**
Contingencies:				
Mobilization		4%		$12,062
Traffic Control		3%		$9,046
Erosion Control		2%		$6,031
Utility Relocations		10%		$30,154
Other Contingencies		15%		$45,231
			Subtotal Contingencies:	**$102,524**
			Total Estimated Construction Costs:	**$404,064**
Engineering:				
Design and Surveying		12%		$48,488
Permitting		2%		$8,081
Construction Inspection		4%		$16,163
			Subtotal Engineering:	**$72,731**
			Total Estimated Costs:	**$476,795**

TABLE 6-1 (Con't)

WARRINGTON BASIN
PRELIMINARY COST ESTIMATE

Roosevelt - Branch K				
Description	**Quantities**	**Units**	**Unit Price**	**Total**
Land Acquisition:				
Proposed Pond Site	0	LS	$0	$0
			Subtotal Land Acquisition:	**$0**
Proposed Pond:				
Clear & Grub	8	AC	$6,500	$52,000
Earthwork	124,850	CY	$8	$998,800
Sod	8500	SY	$4	$34,000
Fencing	2700	LF	$14	$37,800
Gate	1	EA	$1,125	$1,125
Drainage System:				
60" RCP	150	LF	$180	$27,000
54" RCP	820	LF	$150	$123,000
48" RCP	710	LF	$125	$88,750
42" RCP	50	LF	$105	$5,250
36" RCP	2925	LF	$90	$263,250
30" RCP	2000	LF	$70	$140,000
24" RCP	400	LF	$55	$22,000
Energy Dissipaters	2	EA	$42,000	$84,000
Inlets/Structures w/"J" Bottoms	8	EA	$10,000	$80,000
Inlets/Structures	18	EA	$4,000	$72,000
Sod	4000	SY	$4	$16,000
Driveways	25	EA	$1,500	$37,500
Mail Box Relocations	25	EA	$95	$2,375
R/W Restoration	7055	LF	$7	$49,385
			Subtotal Costs:	**$2,134,235**
Contingencies:				
Mobilization		4%		$85,369
Traffic Control		3%		$64,027
Erosion Control		2%		$42,685
Utility Relocations		10%		$213,424
Other Contingencies		15%		$320,135
			Subtotal Contingencies:	**$725,640**
			Total Estimated Construction Costs:	**$2,859,875**
Engineering:				
Design and Surveying		12%		$343,185
Permitting		2%		$57,197
Construction Inspection		4%		$114,395
			Subtotal Engineering:	**$514,777**
			Total Estimated Costs:	**$3,374,652**

TABLE 6-2

WARRINGTON BASIN
PRIORITY RANKING MATRIX

Project	Improves Flooding Conditions (0-20)	Improves Water Quality (0-10)	Provides for Future Growth / Development (0-10)	Construct-ability (0-10)	Permit-ability (0-10)	Impacts Environmentally Sensitive Areas (0-10)	Dependent / Independent (0-10)	Cost vs. Benefit (0-20)	Score (100 Possible)
Lake Charlene / Querido Heights - Branch B	20	3	4	6	5	5	10	18	**71**
Lago Vista Court - Branch B	16	0	1	10	10	10	0	15	**62**
Saint James Place - Branch C	6	1	1	8	7	5	10	7	**45**
Iona Road / Byshore Drive - Branch D	10	2	3	7	6	6	10	12	**56**
Barrancas Avenue - Branch E	11	0	3	8	8	8	10	11	**59**
Jamison Street - Branch F	15	3	3	7	6	6	10	17	**67**
Edgewater Drive - Branch F	13	2	2	7	6	7	10	17	**64**
Lakewood / Millwood Terrace - Branch F	11	7	2	9	8	7	10	13	**67**
Citrus Street - Branch G	14	6	1	7	6	7	10	15	**66**
Old Corry Field Road - Branch H	13	2	2	8	8	6	10	17	**66**
West Highlands - Branch I	12	7	1	8	6	7	10	14	**65**
Emory Drive - Branch K	11	5	1	8	7	8	10	17	**67**
Roosevelt - Branch K	10	7	1	7	8	8	10	9	**60**
Eaton Road - Branch K	10	4	1	7	6	8	4	12	**52**
49th Avenue - Branch K	8	1	1	8	7	6	10	10	**51**

APPENDIX A

TR-55 - HYDROLOGIC DATA SPREADSHEET

PROJECT: Warrington Basin **COMPUTED BY:**

JOB NO.: 201935 **DATE:**

SUBBASIN NO..... XX

NODE NO..... XX

UNIT HYDROGRAPH..... 256

AREA (Ac.)..... 0.0

CURVE NUMBER (CN)..... 0

DCIA (%)..... 0

TIME OF CONCENTRATION (Min.)..... 0

NOTE: Unit hydrographs assume the follwing slopes
256 (< 0.5%)
323 (0.5% - 1.5%)
484 (> 1.5%)

CURVE NUMBER CALCULATION:

			SOIL GROUPS, %				CN, Soil Groups			
LAND USE	N	%	A	B	C	D	A	B	C	D
Pasture/Grasslands.....	0.024	0	0	0	0	0	72	79	86	89
Dense Woods.....	0.800	0	0	0	0	0	55	60	73	79
Orchard Type Woods.....	0.400	0	0	0	0	0	70	73	82	86
Open Space (Cover < 50%).....	0.110	0	0	0	0	0	77	79	86	89
Open Space (Cover 50-75%).....	0.150	0	0	0	0	0	65	69	79	84
Open Space (Cover > 75%).....	0.180	0	0	0	0	0	56	61	74	80
1/4 Ac. Residnetial.....	0.110	0	0	0	0	0	72	75	83	87
1/2 Ac. Residnetial.....	0.140	0	0	0	0	0	67	70	80	85
1 Ac. Residnetial.....	0.160	0	0	0	0	0	64	68	79	84
2 Ac. Residnetial.....	0.190	0	0	0	0	0	61	65	77	82
Industrial.....	0.050	0	0	0	0	0	91	92	94	95
Commercial.....	0.060	0	0	0	0	0	87	88	91	93
Streets & Roads.....	0.011	0	0	0	0	0	98	98	98	98
Other -.....	0.000	0	0	0	0	0	0	0	0	0
TOTALS.....			0	0	0	0	COMPOSITE CN.....			0

TIME OF CONCENTRATION CALCULATIONS:

TYPE FLOW	SLOPE, Ft./Ft.	MANNING, N	LENGTH, Ft.	VELOCITY,Ft/s	TIME, Min.
Sheet Flow..... ……..	0.000	0.000	300	0.0	0
Shallow Con. (Unpaved).. ……..	0.000	0.050	0	0.0	0
Shallow Con. (Paved)..... ……..	0.000	0.025	0	0.0	0
Pipe Flow..... ……..	N/A	0.012	0	3.5	0
Ditch Flow..... ……..	0.000	0.000	0	0.0	0

AVG. SLOPE..... 0.000 TOTAL TIME OF CONCENTRATION..... 0

NOTE: Ditch flow assumes a typical road side ditch with a 2' bot. width, 3:1 ss, and a 1' depth.

APPENDIX B

Warrington Basin
Photographs

Date: April 1, 2005


456-0833
N. OLD CORRY RD.
MOBILE HOME PARK


156-0833
N. OLD CORRY RD


Gulf Coast
Church of

APPENDIX C

ESCAMBIA COUNTY, FLORIDA
WARRINGTON BASIN DRAINAGE STUDY
QUESTIONNAIRE

The following questionnaire has been prepared to identify and evaluate drainage, flooding and/or water quality problems within your area. Please fill it out as completely as possible. Your cooperation is greatly appreciated.

RESPONDENTS NAME (Optional): _____

PHONE NUMBER (Optional): _____

ADDRESS (Please include): _____

RETURN TO: CarlanKillam Consulting Group, Inc.
Attention: Marc D. Bonifay, P.E.
5111 N. 12th Avenue
Pensacola, Florida 32504

1. How many years have you lived or conducted business at the above address? _____

2. Have you ever experienced flooding at this location? Yes _____ No _____

3. What type(s) of flooding have you experienced? (Check and describe below.)

   (a) Severe yard flooding of extended duration: _____
   (b) Severe street flooding of extended duration: _____
   (c) Flooding of business or residence: _____
   (b) Other (please describe.): _____
   _____
   _____

4. What date(s) do you recall flooding occurring? If you cannot remember exact date(s), give approximate date(s). If you have no idea, leave blank._____
   _____
   _____

5. What type of storm causes flooding of your property? (Check and describe below.)

   (a) A short intense rain, such as a thunderstorm: _____
   (b) A long moderate rain: _____
   (c) A long heavy rain: _____
   (d) Other (please describe): _____
   _____
   _____

6. If your house or business experiences flooding, how often does it occur? (Circle appropriate answer.)

(a)	Once a month	(d)	Once every two years
(b)	Once every six months	(e)	Once every five years
(c)	Once a year	(f)	Less than once every five years

7. If your yard or parking lot experiences flooding, how often does it occur? (Circle appropriate answer.)

(a)	Once a month	(d)	Once every two years
(b)	Once every six months	(e)	Once every five years
(c)	Once a year	(f)	Less than once every five years

8. If your street experiences flooding, how often does it occur? (Circle appropriate answer.)

(a)	Once a month	(d)	Once every two years
(b)	Once every six months	(e)	Once every five years
(c)	Once a year	(f)	Less than once every five years

9. Please name the streets and describe the locations that flood in your area. _____
_____
_____

10. What do you feel is the cause or major contributing factor to the flooding in your area? (Please describe.) _____
_____
_____

11. Are you aware of any water quality problems associated with stormwater runoff in your area?
Yes _____ No _____

Describe: _____
_____

Possible source of pollution: _____
_____

12. Please provide any additional comments you wish relating to drainage, flooding and/or water quality in your area. _____
_____
_____
_____
_____

APPENDIX D

WARRINGTON BASIN
STORMWATER QUALITY MODEL

Enter Rainfall & Runoff Coefficients:

Average Annual Rainfall (R) = 62.15 in/yr

Pervious Area Runoff Coefficient (C_P) = 0.10
Impervious Area Runoff Coefficient (C_I) = 0.95

Enter EMCs, Areas & % DCIA:

Land Use	DCIA %	A Area ac	EVENT MEAN CONCENTRATIONS (EMCs), C											
			Oxygen Demand		Sediments		Nutrients				Heavy Metals			
			BOD_5 mg/L	COD mg/L	TDS mg/L	TSS mg/L	TKN mg/L	NO_2+NO_3 mg/L	DP mg/L	TP mg/L	Cd mg/L	Cu mg/L	Pb mg/L	Zn mg/L
Agriculture & Pasture	0.5	114.6	13.2	70	113	50	0.87	0.28	0.12	0.14	0.000	0.004	0.005	0.023
Forest & Open Space	0.5	1021.9	10.3	70	216	25	0.87	0.17	0.15	0.28	0.001	0.005	0.005	0.006
LDSF	7	102.9	13.2	70	74	50	0.87	0.28	0.03	0.14	0.000	0.004	0.005	0.023
MDSF	14	3072.4	9.4	50	70	48	1.22	0.46	0.10	0.27	0.000	0.006	0.009	0.034
HDSF	34	756.9	9.6	54	50	38	1.01	0.40	0.17	0.19	0.000	0.008	0.012	0.080
Commercial	47	1145.3	6.6	45	58	54	0.83	0.41	0.06	0.14	0.001	0.008	0.010	0.046
Office & Institutional	90	341.9	5.3	37	74	17	0.73	0.19	0.03	0.10	0.000	0.005	0.005	0.055
Industrial	70	256.8	6.5	39	67	60	1.00	0.49	0.05	0.15	0.001	0.007	0.005	0.043
Extractive	23	70.3	9.6	39	67	94	0.68	0.50	0.07	0.15	0.001	0.007	0.202	0.122
Urban & Open Recreational	1.5	269.1	1.5	37	74	11	0.99	0.26	0.00	0.05	0.000	0.005	0.025	0.006
Water & Wetlands	25	949.1	4.0	36	100	5	1.10	0.30	0.02	0.09	0.000	0.000	0.010	0.005
County Roads	70	116	14.0	114	58	287	1.83	0.76	0.04	0.44	0.002	0.054	0.400	0.329
FDOT Roads	70	37.6	14.0	114	58	287	1.83	0.76	0.04	0.44	0.002	0.054	0.400	0.329
Total	**25.3**	**8254.8**												

Calculate Annual Pollutant Loads: $Q = \{C_P + [(C_I - C_P) \times \%DCIA]\} \times R$ $L = Q \times C \times A \times 2.716 / 12$

Land Use	DCIA ac	Q Runoff in/yr	ANNUAL POLLUTANT LOADING ESTIMATES, L											
			Oxygen Demand		Sediments		Nutrients				Heavy Metals			
			BOD_5 lb/yr	COD lb/yr	TDS lb/yr	TSS lb/yr	TKN lb/yr	NO_2+NO_3 lb/yr	DP lb/yr	TP lb/yr	Cd lb/yr	Cu lb/yr	Pb lb/yr	Zn lb/yr
Agriculture & Pasture	0.6	6.48	2218	11764	18990	8403	146	47	20	24	0	1	1	4
Forest & Open Space	5.1	6.48	15435	104899	323689	37464	1304	255	225	420	1	7	7	9
LDSF	7.2	9.91	3047	16161	17084	11543	201	65	7	32	0	1	1	5
MDSF	430.1	13.61	88969	473240	662536	454310	11547	4354	946	2555	0	57	85	322
HDSF	257.3	24.18	39760	223651	207085	157384	4183	1657	704	787	0	33	50	331
Commercial	538.3	31.04	53111	362124	466737	434548	6679	3299	483	1127	8	64	80	370
Office & Institutional	307.7	53.76	22049	153924	307848	70722	3037	790	125	416	0	21	21	229
Industrial	179.8	43.19	16319	97912	168207	150633	2511	1230	126	377	3	18	13	108
Extractive	16.2	18.37	2805	11396	19578	27468	199	146	20	44	0	2	59	36
Urban & Open Recreational	4.0	7.01	640	15791	31583	4695	423	111	0	21	0	2	11	3
Water & Wetlands	237.3	19.42	16688	150195	417207	20860	4589	1252	83	375	0	0	42	21
County Roads	81.2	43.19	15877	129282	65775	325473	2075	862	45	499	2	61	454	373
FDOT Roads	26.3	43.19	5146	41905	21320	105498	673	279	15	162	1	20	147	121
Total	**2091.1**	**19.60**	**282066**	**1792244**	**2727640**	**1809002**	**37566**	**14347**	**2800**	**6838**	**15**	**287**	**970**	**1931**
Runoff (ac-ft/yr):	**13481**													

WARRINGTON BASIN
STORMWATER QUALITY MODEL

Calculate Pollutant Load Reductions by BMP's:

Pollutant	EXISTING BMPs							PROPOSED BMPs						
	Dry Retention/ Detention		Wet Detention		Treatment Vaults		With BMPs	Dry Retention/ Detention		Wet Detention		Treatment Vaults		With BMPs
	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Loading lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Removal Efficiency %	Loading Reduction lb/yr	Loading lb/yr
Area of Coverage, ac	510.2		331.9		0.0			473.6		0.0		0.0		
BOD_5	30	5230	30	3403	30	0	**273433**	30	4855	30	0	30	0	**268579**
COD	30	33230	30	21619	30	0	**1737394**	30	30846	30	0	30	0	**1706548**
TDS	0	0	40	43871	0	0	**2683769**	0	0	40	0	0	0	**2683769**
TSS	90	100623	90	65465	60	0	**1642914**	90	93403	90	0	60	0	**1549511**
TKN	20	464	30	453	0	0	**36649**	20	431	30	0	0	0	**36218**
NO_2+NO_3	0	0	30	173	0	0	**14174**	0	0	30	0	0	0	**14174**
DP	0	0	70	79	0	0	**2721**	0	0	70	0	0	0	**2721**
TP	30	127	30	82	20	0	**6629**	30	118	30	0	20	0	**6511**
Cd	80	1	80	0	40	0	**14**	80	1	80	0	40	0	**13**
Cu	60	11	70	8	30	0	**268**	60	10	70	0	30	0	**258**
Pb	80	48	80	31	50	0	**891**	80	45	80	0	50	0	**847**
Zn	50	60	50	39	40	0	**1833**	50	55	50	0	40	0	**1777**

Summary:

Pollutant	ANNUAL POLLUTANT LOADING ESTIMATES					
	Without Existing BMPs lb/yr	With Existing BMPs lb/yr	Percent Change %	With Proposed BMPs lb/yr	Percent Change %	Total Improvement %
BOD_5	282066	273433	-3.1	268579	-4.8	**-1.7%**
COD	1792244	1737394	-3.1	1706548	-4.8	**-1.7%**
TDS	2727640	2683769	-1.6	2683769	-1.6	**0.0%**
TSS	1809002	1642914	-9.2	1549511	-14.3	**-5.2%**
TKN	37566	36649	-2.4	36218	-3.6	**-1.1%**
NO_2+NO_3	14347	14174	-1.2	14174	-1.2	**0.0%**
DP	2800	2721	-2.8	2721	-2.8	**0.0%**
TP	6838	6629	-3.1	6511	-4.8	**-1.7%**
Cd	15	14	-8.2	13	-12.8	**-4.6%**
Cu	287	268	-6.5	258	-10.0	**-3.4%**
Pb	970	891	-8.2	847	-12.8	**-4.6%**
Zn	1931	1833	-5.1	1777	-8.0	**-2.9%**
Summary:						
Oxygen Demand	2074310	2010827	-3.1	1975127	-4.8	**-1.7%**
Sediments	4536642	4326683	-4.6	4233281	-6.7	**-2.1%**
Nutrients	61551	60172	-2.2	59624	-3.1	**-0.9%**
Metals	3204	3006	-6.2	2896	-9.6	**-3.4%**

APPENDIX E

StormCAD Results

Warrington Basin Study

Saint James Place - Branch C

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-4	J-2	8.74	0.45	30 inch	320	25.50	24.86	0.002	4.33	66.00
P-2	J-2	J-3	N/A	N/A	30 inch	300	24.86	24.26	0.002	4.28	67.26
P-3	J-3	J-4	N/A	N/A	30 inch	650	24.26	22.96	0.002	4.24	68.43
P-4	J-4	I-3	N/A	N/A	30 inch	230	22.96	22.50	0.002	4.15	70.99
P-5	I-3	J-1	4.77	0.45	36 inch	160	22.50	22.18	0.002	4.11	71.90
P-6	J-1	I-2	N/A	N/A	36 inch	300	22.18	21.58	0.002	4.09	72.46
P-7	I-2	I-1	10.15	0.45	42 inch	640	21.58	20.30	0.002	4.05	73.52
P-8	I-1	O-1	11.00	0.3	48 inch	150	20.30	20.00	0.002	3.99	75.52

StormCAD Results

Warrington Basin Study

Edgewater Drive - Branch F

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
PF136-P	NF136-P	NF135-P	5.93	0.5	30 inch	286	6.33	5.75	0.0020	5.96	24.00
PF135-P	NF135-P	NF130	N/A	N/A	36 inch	202	5.25	4.84	0.0020	5.82	25.31
PF130	NF130	NF125-P	13.64	0.5	42 inch	402	4.34	3.53	0.0020	5.30	30.00
PF117-P	NF117-P	NF115-P	3.33	0.5	24 inch	410	7.26	6.44	0.0020	5.85	25.00
PF116-P	NF116-P	NF115-P	9.75	0.5	24 inch	336	16.00	6.40	0.0286	4.18	48.00
PF125-P	NF125-P	NF120	7.73	0.5	48 inch	373	2.53	1.78	0.0020	5.22	31.23
PF115-P	NF115-P	NF110-P	5.81	0.5	30 inch	372	5.90	5.20	0.0019	4.16	48.45
PF120	NF120	NF110-P	5.60	0.5	48 inch	379	1.78	1.02	0.0020	5.14	32.32
PF110-P	NF110-P	Bayou Marcus 1	4.65	0.5	48 inch	510	1.02	0.00	0.0020	4.11	49.22
PF095-P	NF095-P	NF090	3.79	0.5	24 inch	447	4.80	3.90	0.0020	5.10	33.00
PF090	NF090	NF080	4.18	0.5	30 inch	671	3.40	2.05	0.0020	4.96	35.02
PF080	NF080	Bayou Marcus 2	4.50	0.5	30 inch	274	2.05	0.00	0.0075	4.77	37.78
PF150-P	NF150-P	Bayou Marcus 3	26.82	0.5	36 inch	400	2.00	-1.00	0.0075	5.74	26.00

StormCAD Results

Warrington Basin Study

Jamison Street - Basin F

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
PF300-P	NF300-P	Bayou Chico 1	N/A	N/A	60 inch	252	6.59	-4.00	0.042	2.85	96.38
PF310-P	NF310-P	NF300-P	7.85	0.5	36 inch	204	9.00	8.59	0.002	6.40	20.00
PF320-P	NF320-P	NF300-P	N/A	N/A	60 inch	158	7.70	6.59	0.007	2.85	96.16
PF330-P	NF330-P	NF320-P	4.33	0.5	60 inch	300	8.30	7.70	0.002	2.86	95.44
PF340-P	NF340-P	NF330-P	6.06	0.5	60 inch	289	8.87	8.30	0.002	2.88	94.71
PF350-P	NF350-P	NF340-P	N/A	N/A	60 inch	439	9.75	8.87	0.002	2.90	93.63
PF360-P	NF360-P	NF350-P	16.26	0.5	54 inch	551	11.35	10.25	0.002	2.92	92.30
PF370-P	NF370-P	NF360-P	11.58	0.5	48 inch	367	12.69	11.85	0.002	2.94	91.41
PF380-P	NF380-P	NF370-P	N/A	N/A	42 inch	408	13.90	13.19	0.002	2.96	90.29
PF390-P	NF390-P	NF380-P	0.00	0	36 inch	141	14.69	14.40	0.002	2.97	89.95
PF400-P	NF400-P	NF390-P	N/A	N/A	36 inch	222	15.13	14.69	0.002	2.98	89.19
PF410-P	NF410-P	NF400-P	6.62	0.5	30 inch	77	15.78	15.63	0.002	2.99	88.96
PF420-P	NF420-P	NF410-P	N/A	N/A	30 inch	447	16.68	15.78	0.002	3.03	86.88
PF430-P	NF430-P	NF420-P	11.57	0.5	30 inch	411	17.50	16.68	0.002	3.06	85.00
PF440-P	NF440-P	NF400-P	4.51	0.5	24 inch	443	17.50	16.13	0.003	4.07	50.00
PF450-P	NF450-P	NF390-P	N/A	N/A	30 inch	417	16.64	15.19	0.003	3.52	65.88
PF460-P	NF460-P	NF450-P	10.32	0.5	30 inch	428	17.50	16.64	0.002	3.58	64.00
PF470-P	NF470-P	NF380-P	5.99	0.5	24 inch	364	17.50	16.77	0.002	4.03	51.00
PF480-P	NF480-P	NF370-P	7.84	0.5	30 inch	442	17.50	16.61	0.002	4.00	52.00
PF490-P	NF490-P	NF340-P	5.51	0.5	24 inch	680	19.00	17.64	0.002	3.67	61.00
PF500-P	NF500-P	NF330-P	N/A	N/A	24 inch	585	17.25	16.08	0.002	4.50	42.17
PF510-P	NF510-P	NF500-P	4.16	0.5	24 inch	289	18.00	17.25	0.003	4.57	41.00
PF520-P	NF520-P	NF320-P	3.98	0.5	24 inch	655	12.26	10.95	0.002	5.16	32.00

StormCAD Results

Warrington Basin Study

Lakewood / Millwood Terrance - Branch F

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
PF010-P	NF010-P	OUTLET NF-P	N/A	N/A	54 inch	351	7.72	7.00	0.002	3.24	75.63
PF020-P	NF020-P	NF010-P	N/A	N/A	54 inch	578	8.88	7.72	0.002	3.28	74.08
PF030-P	NF030-P	NF020-P	N/A	N/A	54 inch	347	9.57	8.88	0.002	3.31	73.16
PF040-P	NF040-P	NF030-P	N/A	N/A	54 inch	329	10.17	9.57	0.002	3.33	72.30
PF050-P	NF050-P	NF040-P	N/A	N/A	54 inch	355	10.85	10.17	0.002	3.36	71.30
PF060-P	NF060-P	NF050-P	N/A	N/A	48 inch	373	12.10	11.35	0.002	3.39	70.17
PF070-P	NF070-P	NF060-P	N/A	N/A	42 inch	364	13.33	12.60	0.002	3.42	69.19
PF080-P	NF080-P	NF070-P	N/A	N/A	36 inch	404	15.63	14.83	0.002	3.46	67.93
PF090-P	NF090-P	NF080-P	N/A	N/A	30 inch	334	16.79	16.13	0.002	3.50	66.61
PF100-P	NF110-P	NF090-P	N/A	N/A	30 inch	124	17.03	16.79	0.002	3.52	66.13
PF110-P	NF110-P	NF110-P	6.63	0.4	24 inch	172	17.87	17.53	0.002	3.89	55.00
PF120-P	NF120-P	NF080-P	12.50	0.4	30 inch	707	17.55	16.13	0.002	4.35	45.00
PF130-P	NF130-P	NF060-P	N/A	N/A	30 inch	488	15.57	14.60	0.002	4.65	39.52
PF140-P	NF140-P	NF130-P	7.82	0.4	30 inch	382	16.34	15.57	0.002	4.76	38.00
PF150-P	NF150-P	NF050-P	10.48	0.4	36 inch	473	13.30	12.35	0.002	5.52	28.00
PF160-P	NF160-P	NF150-P	N/A	N/A	30 inch	328	14.46	13.80	0.002	5.89	24.65
PF170-P	NF170-P	NF160-P	N/A	N/A	30 inch	398	15.26	14.46	0.002	6.07	23.03
PF180-P	NF180-P	NF170-P	8.26	0.4	30 inch	260	15.78	15.26	0.002	6.18	22.00
PF190-P	NF190-P	NF040-P	N/A	N/A	24 inch	391	13.83	13.04	0.002	6.15	22.25
PF200-P	NF200-P	NF190-P	5.55	0.4	24 inch	336	14.50	13.83	0.002	6.29	21.00
PF230-P	NF230-P	NF010-P	N/A	N/A	30 inch	640	13.28	12.00	0.002	4.42	43.62
PF240-P	NF240-P	NF230-P	N/A	N/A	30 inch	573	14.43	13.28	0.002	4.52	41.78
PF250-P	NF250-P	NF240-P	4.05	0.4	24 inch	238	15.41	14.93	0.002	4.96	35.00
PF260-P	NF260-P	NF240-P	9.91	0.4	30 inch	637	15.70	14.43	0.002	4.69	39.00
PF280-P	NF280-P	NF320-P	6.91	0.4	36 inch	229	0.18	-0.28	0.002	7.09	15.10
PF290-P	NF290-P	NF280-P	9.14	0.4	30 inch	707	2.10	0.68	0.002	7.46	13.00
PF300-P	NF300-P	NF320-P	N/A	N/A	30 inch	169	0.62	0.28	0.002	6.99	15.77
PF310-P	NF310-P	NF300-P	5.83	0.4	24 inch	247	1.62	1.12	0.002	7.10	15.00
PF320-P	NF320-P	NF330-P	N/A	N/A	36 inch	98	-0.28	-0.48	0.002	6.87	16.62
PF330-P	NF330-P	Bayou Chico 1	N/A	N/A	36 inch	262	-0.48	-1.00	0.002	6.85	16.81
PF340-P	NF340-P	Bayou Chico 2	8.40	0.4	18 inch	267	8.00	-1.50	0.036	5.96	24.00
PF350-P	NF350-P	NF110-P	8.04	0.4	30 inch	595	18.22	17.03	0.002	3.64	62.00
PF360-P	NF360-P	NF070-P	15.75	0.4	36 inch	678	15.70	14.33	0.002	4.13	49.00

StormCAD Results

Warrington Basin Study

Citrus Street - Branch G

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	I-2	17.50	0.4	42 inch	650	63.50	62.00	0.002	4.40	44.00
P-2	I-2	I-5	13.66	0.4	48 inch	850	62.00	59.50	0.003	4.24	47.00
P-5	I-3	J-1	16.68	0.45	36 inch	710	67.00	63.00	0.006	4.07	50.00
P-6	I-5	J-2	23.47	0.45	54 inch	140	59.50	59.20	0.002	3.70	60.00
P-7	I-4	J-1	18.92	0.45	42 inch	180	63.50	63.00	0.003	4.35	45.00
P-8	J-2	O-1	N/A	N/A	54 inch	80	59.20	58.50	0.009	3.69	60.36
P-9	J-1	J-2	N/A	N/A	48 inch	780	63.00	59.20	0.005	4.01	51.59

StormCAD Results

Warrington Basin Study

Old Corry Field Road - Branch H

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	J-1	19.88	0.35	36 inch	330	60.00	59.34	0.002	4.24	47.00
P-2	J-1	J-2	N/A	N/A	36 inch	600	59.34	58.14	0.002	4.17	48.14
P-3	J-2	J-3	N/A	N/A	42 inch	800	58.14	56.54	0.002	4.06	50.22
P-4	J-3	J-4	N/A	N/A	42 inch	3500	56.54	6.44	0.014	3.97	52.73
P-5	J-4	O-1	N/A	N/A	54 inch	70	6.44	2.50	0.056	3.80	57.38
P-6	I-2	J-2	9.22	0.35	30 inch	400	62.50	58.14	0.011	5.03	34.00
P-7	I-3	J-3	16.70	0.3	36 inch	250	59.00	56.54	0.010	4.62	40.00
P-8	I-4	J-4	45.10	0.45	54 inch	30	6.50	6.44	0.002	3.85	56.00

StormCAD Results

Warrington Basin Study

West Highlands Drive - Basin I

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
PJ050-P	NJ050-P	NJ040-P	6.58	0.5	24 inch	316	77.50	76.87	0.002	6.29	21.00
PJ040-P	NJ040-P	NJ030-P	4.70	0.5	30 inch	534	76.37	71.30	0.009	6.20	21.79
PJ030-P	NJ030-P	NJ020-P	1.20	0.5	36 inch	346	70.80	69.60	0.003	4.92	35.62
PJ020-P	NJ020-P	NJ010-P	12.11	0.5	48 inch	100	67.82	67.62	0.002	4.08	49.76
PJ180-P	NJ180-P	NJ170-P	3.35	0.5	18 inch	160	74.00	73.68	0.002	4.51	42.00
PJ170-P	NJ170-P	NJ020-P	3.76	0.5	24 inch	372	73.18	70.32	0.008	4.48	42.62
PJ160-P	NJ160-P	NJ030-P	7.00	0.5	30 inch	351	72.00	71.30	0.002	5.03	34.00
PJ110-P	NJ110-P	NJ100-P	11.35	0.5	36 inch	305	76.10	75.49	0.002	5.85	25.00
PJ100-P	NJ100-P	NJ090-P	1.82	0.5	36 inch	333	75.49	74.82	0.002	5.73	26.07
PJ090-P	NJ090-P	NJ080-P	2.63	0.5	36 inch	323	74.82	74.17	0.002	4.81	37.25
PJ080-P	NJ080-P	NJ070-P	1.83	0.5	42 inch	352	73.67	71.00	0.008	4.75	38.02
PJ070-P	NJ070-P	NJ060-P	3.46	0.5	42 inch	350	71.00	69.00	0.006	4.17	48.21
PJ060-P	NJ060-P	NJ020-P	5.35	0.5	48 inch	341	68.50	67.82	0.002	4.13	48.95
PJ150-P	NJ150-P	NJ060-P	1.14	0.5	24 inch	334	72.00	71.00	0.003	7.28	14.00
PJ140-P	NJ140-P	NJ130-P	5.24	0.5	24 inch	524	78.00	74.50	0.007	5.74	26.00
PJ130-P	NJ130-P	NJ070-P	5.19	0.5	30 inch	329	74.00	72.00	0.006	4.24	47.00
PJ120-P	NJ120-P	NJ090-P	4.42	0.5	30 inch	528	78.00	76.94	0.002	4.96	35.00

StormCAD Results

Warrington Basin Study

Emory Drive - Branch K

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	I-2	3.28	0.45	18 inch	350	78.00	76.25	0.005	4.69	39.00
P-2	I-2	I-3	1.10	0.45	24 inch	300	76.25	74.75	0.005	4.61	40.22
P-3	I-3	I-4	3.56	0.45	24 inch	300	74.75	73.25	0.005	4.13	49.00
P-4	I-4	J-1	4.57	0.45	30 inch	150	73.25	72.50	0.005	4.08	49.86
P-5	I-5	J-1	7.23	0.45	24 inch	300	76.00	72.50	0.012	4.29	46.00
P-6	J-1	O-1	N/A	N/A	36 inch	280	72.50	71.10	0.005	4.06	50.25

StormCAD Results

Warrington Basin Study

49th Avenue - Branch K

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	I-3	6.77	0.45	30 inch	450	70.50	69.60	0.002	4.46	43.00
P-4	I-2	I-8	13.46	0.45	36 inch	180	70.00	69.50	0.003	3.85	56.00
P-5	I-8	I-4	16.72	0.45	42 inch	430	69.50	67.50	0.005	3.74	59.00
P-6	I-4	I-5	13.28	0.45	54 inch	650	67.50	66.20	0.002	3.70	59.92
P-7	I-6	J-1	4.17	0.45	24 inch	75	70.00	65.50	0.060	5.10	33.00
P-8	J-1	I-7	N/A	N/A	60 inch	530	65.50	64.44	0.002	3.62	62.60
P-9	I-5	J-1	7.66	0.45	54 inch	350	66.20	65.50	0.002	3.65	61.67
P-10	I-7	J-2	10.55	0.45	60 inch	30	64.44	64.38	0.002	3.58	63.94
P-11	J-2	O-1	N/A	N/A	60 inch	640	64.38	46.00	0.029	3.58	64.02
P-12	I-3	J-2	8.45	0.45	36 inch	1000	69.60	64.38	0.005	4.35	44.83

StormCAD Results

Warrington Basin Study

Eaton Road - Branch K

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	I-2	27.40	0.45	42 inch	350	61.50	60.00	0.004	4.59	59.00
P-2	I-2	I-3	6.90	0.35	48 inch	550	60.00	58.70	0.002	4.56	59.76
P-3	I-3	J-2	3.77	0.45	60 inch	300	58.70	58.10	0.002	3.78	84.87
P-4	J-2	O-1	N/A	N/A	60 inch	350	58.10	57.40	0.002	3.76	85.61
P-5	I-4	J-1	9.70	0.45	30 inch	300	61.50	60.90	0.002	3.91	79.00
P-6	J-1	I-5	N/A	N/A	30 inch	500	60.90	59.90	0.002	3.88	80.43
P-7	I-5	I-3	17.44	0.45	42 inch	600	59.90	58.70	0.002	3.83	82.82

StormCAD Results

Warrington Basin Study

Roosevelt - Branch K

Label	Upstream Node	Downstream Node	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Section Size	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	System Intensity (in/hr)	System Flow Time (min)
P-1	I-1	J-1	4.58	0.45	30 inch	400	50.50	49.70	0.002	5.85	25.00
P-2	J-1	I-2	N/A	N/A	30 inch	350	49.70	49.00	0.002	5.67	26.67
P-3	I-2	I-5	15.62	0.3	36 inch	725	48.50	47.05	0.002	3.81	57.00
P-4	I-4	J-4	9.94	0.45	36 inch	900	51.00	49.20	0.002	5.41	29.00
P-5	I-3	J-5	14.94	0.3	30 inch	900	51.50	49.04	0.003	3.81	57.00
P-6	J-4	J-5	N/A	N/A	36 inch	330	49.20	48.54	0.002	5.15	32.19
P-7	J-5	I-5	N/A	N/A	42 inch	50	48.04	46.55	0.030	3.72	59.51
P-8	I-5	J-2	9.96	0.45	54 inch	300	45.55	44.95	0.002	3.64	62.00
P-9	J-2	J-3	N/A	N/A	54 inch	200	44.95	44.55	0.002	3.62	62.81
P-10	J-3	I-7	N/A	N/A	54 inch	320	44.55	43.91	0.002	3.60	63.35
P-11	I-7	O-1	8.27	0.45	60 inch	150	43.41	43.11	0.002	3.57	64.21
P-12	I-8	I-7	4.55	0.45	24 inch	400	50.00	46.41	0.009	4.29	46.00
P-13	I-6	I-7	7.23	0.45	30 inch	350	48.50	48.50	0.000	4.96	35.00
P-14	I-9	J-6	10.60	0.45	36 inch	450	45.80	44.90	0.002	4.76	38.00
P-15	J-6	J-7	N/A	N/A	36 inch	80	44.90	44.74	0.002	4.65	39.61
P-16	J-7	J-8	N/A	N/A	36 inch	220	44.74	44.30	0.002	4.63	39.90
P-17	J-8	I-10	N/A	N/A	36 inch	220	44.30	43.86	0.002	4.58	40.69
P-18	I-10	O-2	20.10	0.45	48 inch	710	42.86	41.44	0.002	4.51	42.00

ATTACHMENT A

STORMWATER MANAGEMENT MASTER PLAN
WARRINGTON BASIN

PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
ESCAMBIA COUNTY, FLORIDA

ESCAMBIA COUNTY
COMMISSIONERS

MIKE WHITEHEAD -DISTRICT 1
BILL DICKSON -DISTRICT 2
MARIE YOUNG -DISTRICT 3
TOM BANJANIN -DISTRICT 4
KEVIN WHITE -DISTRICT 5

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Hatch Mott MacDonald Florida, LLC

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P. O. Box 2518 (32513-2518)
Pensacola, Florida
Telephone: (850) 484-6011 ¤ Fax: (850) 484-8199

H.M.M. FILE NO.
201935

INDEX OF DRAWINGS

SHEET	TITLE
1 – 14	ATTACHMENT A DRAINAGE MAP ADICPR MODEL NETWORK EXISTING CONDITIONS

ATTACHMENT - A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 1

ATTACHMENT – A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 2

SHEET NUMBER: 3	KEY MAP 1 2 3 4 5 6 7 8 9 10 11 12 13 14	Scale: 1" = 200' (200 0 200)	LEGEND: EXISTING REACHES; EXISTING NODES; OVERALL BASIN BOUNDARY; SUB-BASIN BOUNDARY	ATTACHMENT – A DRAINAGE MAP ADICPR MODEL NETWORK EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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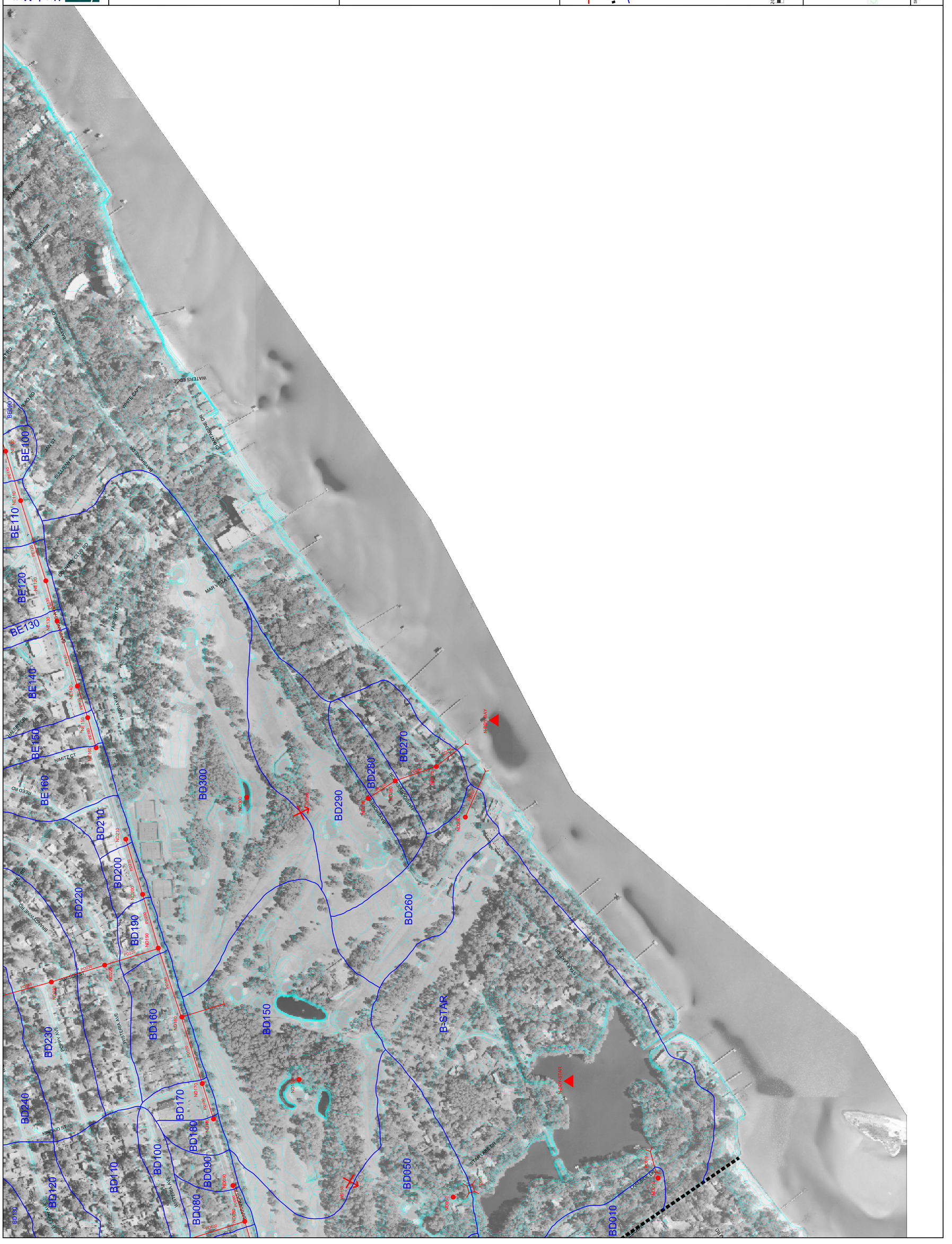

ATTACHMENT – A
DRAINAGE MAP ADICPR MODEL NETWORK
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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

Scale: 1" = 200'
200 0 200

KEY MAP
13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER: 5

ATTACHMENT - A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

N W E S

Scale: 1" = 200'

KEY MAP

13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER: 6

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ATTACHMENT - A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 8

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

ATTACHMENT - A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

N

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 9

Hatch Mott MacDonald Florida, LLC
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ATTACHMENT - A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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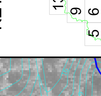
LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

Scale: 1" = 200'

KEY MAP



SHEET NUMBER: 10

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WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

ATTACHMENT – A
MAP ADICPR MODEL NETWORK
DRAINAGE MAP AND EXISTING CONDITIONS

CATHOLIC HIGH BASIN

ADDRESSED AS PART OF CATHOLIC HIGH BASIN

ADDRESSED AS PART OF CATHOLIC HIGH BASIN

ESCAMBIA COUNTY
CITY OF PENSACOLA

ESCAMBIA COUNTY
CITY OF PENSACOLA

ESCAMBIA COUNTY
CITY OF PENSACOLA

CITY OF PENSACOLA

BI190 BI200 BI210 BI220 BI230 BI240 BI250 BI260 BI290

BG010 BG020 BG040 BG050 BG060

LEGEND

- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY

N
W E
S

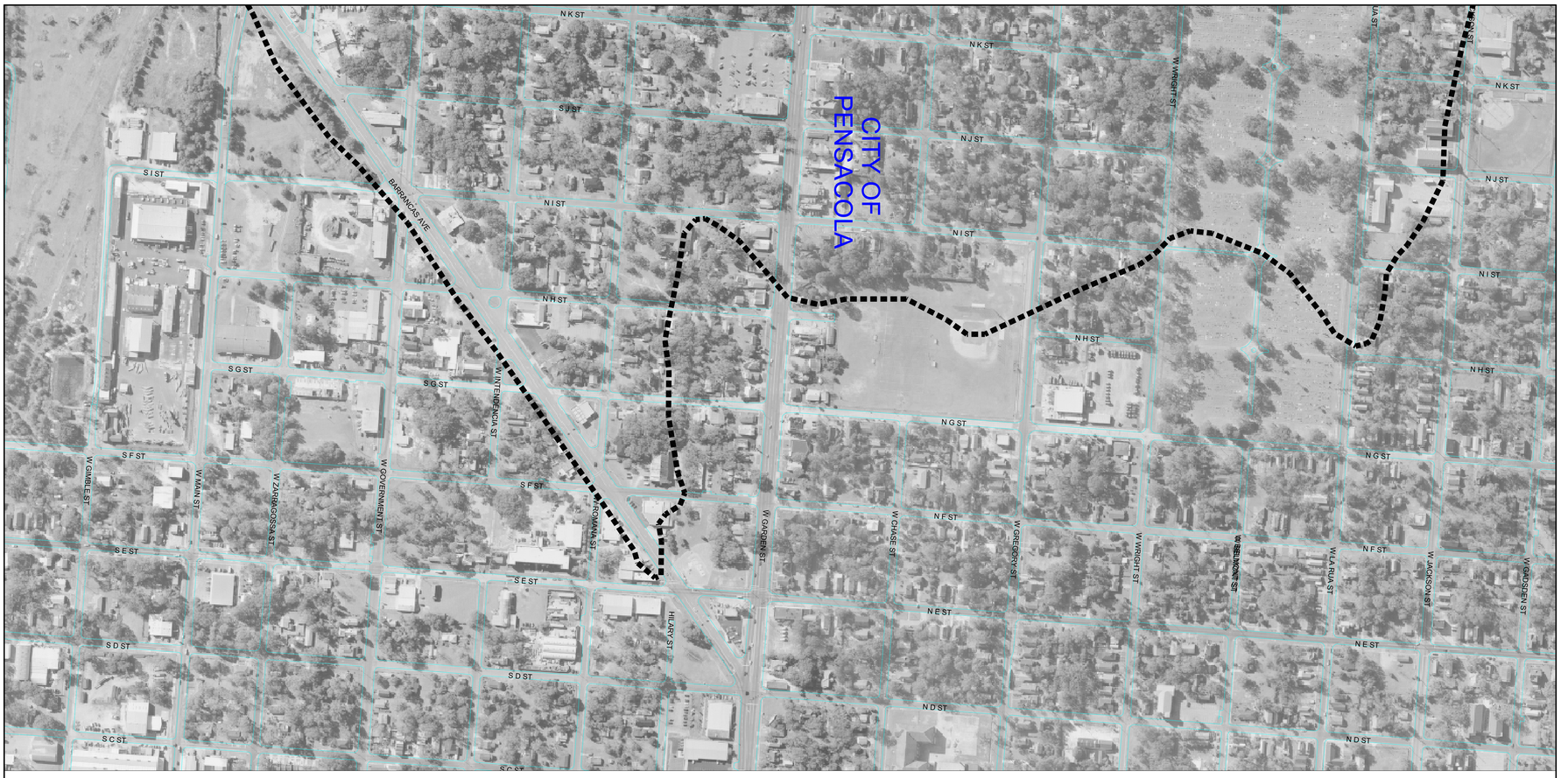
200 0 200

Scale: 1"= 200'

KEY MAP

13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER:
11



LEGEND

EXISTING REACHES

EXISTING NODES

OVERALL BASIN BOUNDARY

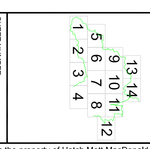
SUB-BASIN BOUNDARY

N S E W

Scale: 1" = 200'

200 0 200

KEY MAP



SHEET NUMBER: 12

ATTACHMENT – A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

Hatch Mott MacDonald
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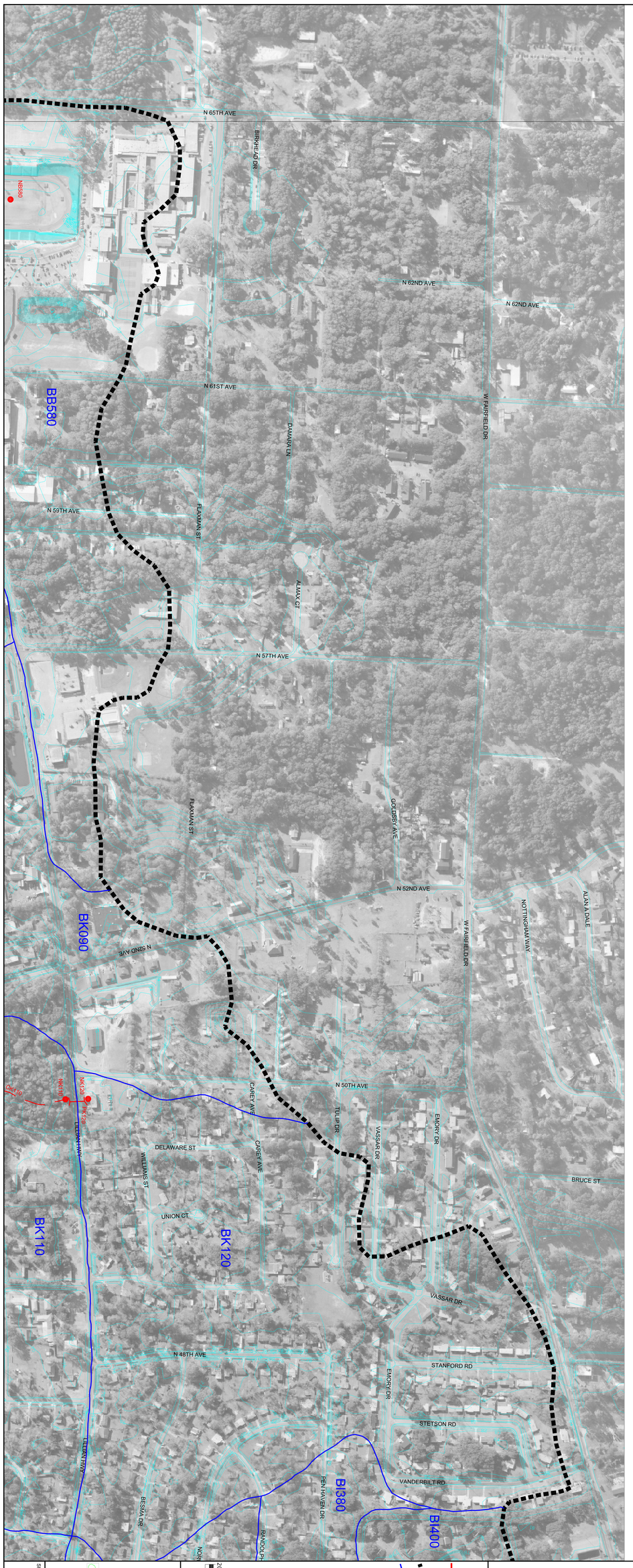

ATTACHMENT – A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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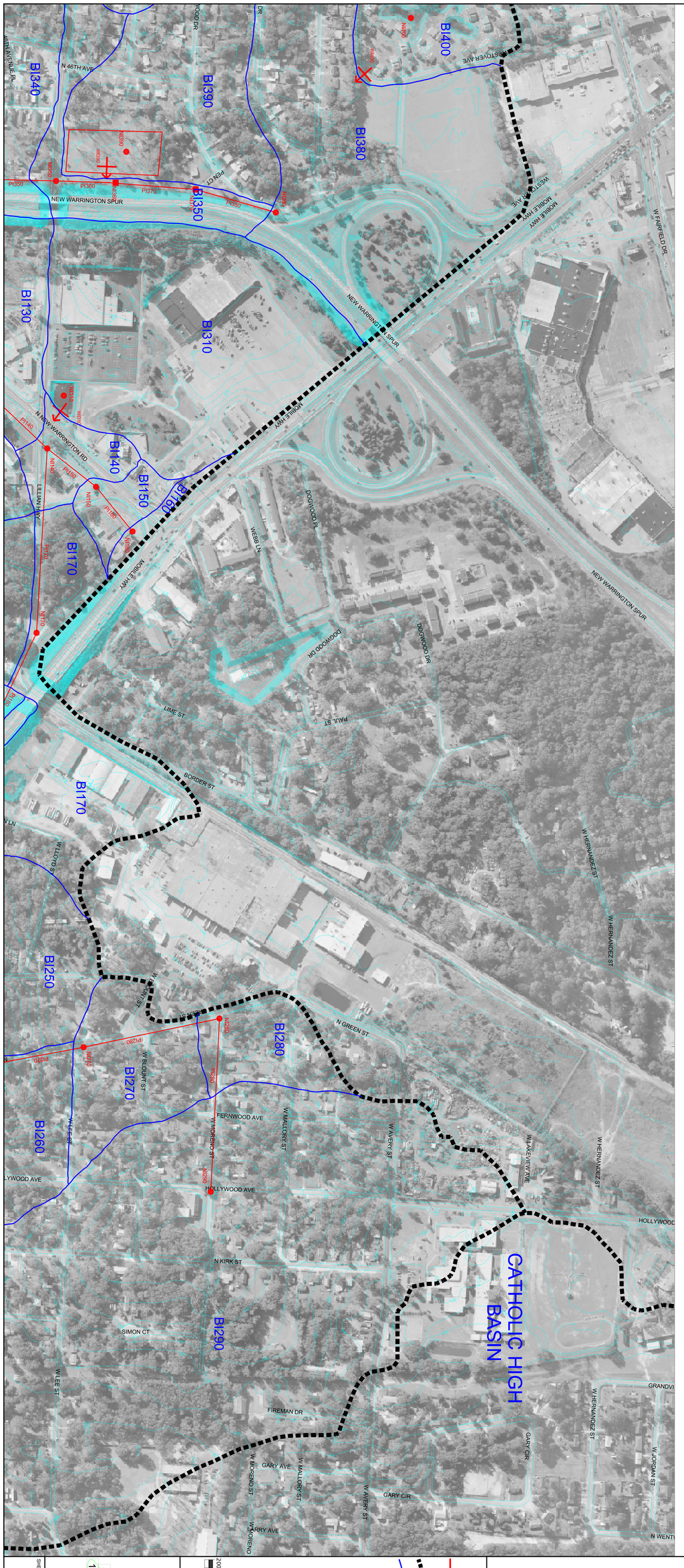

LEGEND

EXISTING REACHES
EXISTING NODES
OVERALL BASIN BOUNDARY
SUB-BASIN BOUNDARY

Scale: 1" = 200'

200 0 200

KEY MAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14

SHEET NUMBER: 14

ATTACHMENT – A
DRAINAGE MAP ADICPR MODEL NETWORK
EXISTING CONDITIONS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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ATTACHMENT B

STORMWATER MANAGEMENT MASTER PLAN
WARRINGTON BASIN

PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
ESCAMBIA COUNTY, FLORIDA

ESCAMBIA COUNTY
COMMISSIONERS

MIKE WHITEHEAD -DISTRICT 1
BILL DICKSON -DISTRICT 2
MARIE YOUNG -DISTRICT 3
TOM BANJANIN -DISTRICT 4
KEVIN WHITE -DISTRICT 5

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H.M.M. FILE NO.
201935

INDEX OF DRAWINGS

SHEET	TITLE
1 – 14	ATTACHMENT B 100 YEAR FLOOD PLAIN MAP BASED ON ADICPR MODEL RESULTS

ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 1

ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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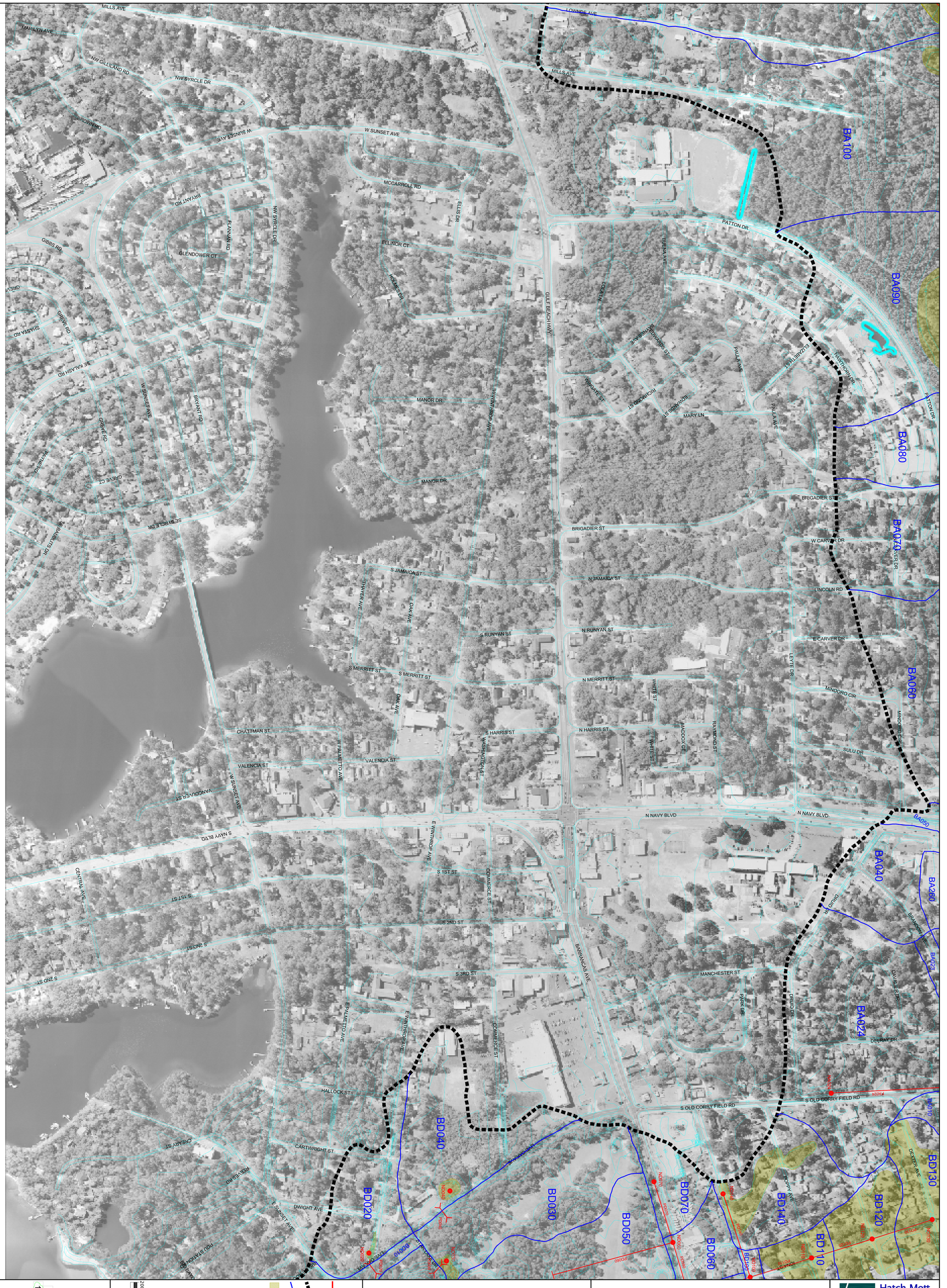
LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1" = 200'
200 0 200

KEY MAP
13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER: 2



SHEET NUMBER: 3

KEY MAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Scale: 1" = 200'

200 0 200

N E S W

LEGEND

- 100 YEAR FLOOD PLAINS
- SUB-BASIN BOUNDARY
- OVERALL BASIN BOUNDARY
- EXISTING NODES
- EXISTING REACHES

ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

N W E S

200 0 200
Scale: 1" = 200'

KEY MAP

13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER: 4

ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 5

ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

N W E S

Scale: 1" = 200'
200 0 200

KEY MAP
13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER: 6

SHEET NUMBER: 7

KEY MAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Scale: 1" = 200'

200 0 200

LEGEND

- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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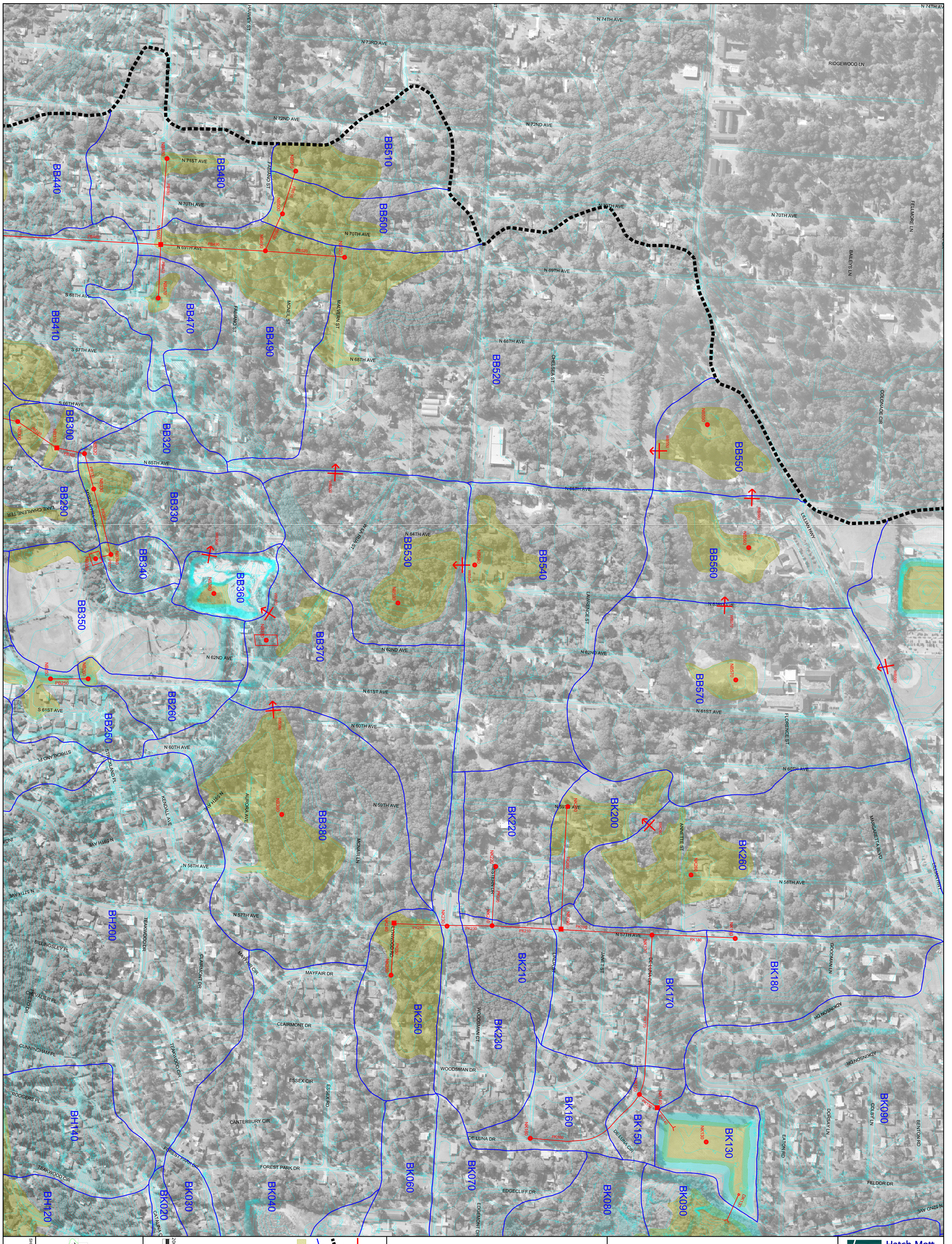
LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1" = 200'

KEY MAP

SHEET NUMBER: 8

CITY OF PENSACOLA
ESCAMBIA COUNTY



ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

LEGEND

- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1" = 200'

200 0 200

KEY MAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14

SHEET NUMBER: 9

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WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

LEGEND

- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

N W E S

200 0 200

Scale: 1"= 200'

KEY MAP

13 14
9 10 11 12
5 6 7 8
1 2 3 4

SHEET NUMBER:
10

CATHOLIC HIGH BASIN
ADDRESSED AS PART OF CATHOLIC HIGH BASIN
ADDRESSED AS PART OF CATHOLIC HIGH BASIN
ESCAMBIA COUNTY
CITY OF PENSACOLA
CITY OF PENSACOLA
BI290
BI260
BI250
BI240
BI230
BI220
BI200
BI190
BG060
BG050
BG040
BG020
BG010
W LLOYD ST
W BRAINERD ST
W GONZALEZ ST
W DESOTO ST
W STRONG ST
MOBILE HWY
W CERVANTES ST
W GADSDEN ST
W JACKSON ST
W LA RUA ST
W BELMONT ST
W WRIGHT ST
W CHASE ST
W GREGORY ST
W GARDEN ST
IDLEWOOD DR
BAYOU DR
FAIRMONT ST
SEABROOK ST
MARQUES ST
ELKTON ST
NAVY BLVD
N PACE BLVD
N W ST
N KIRK ST
SHOEMAKER ST
N WENTWORTH ST
GRANDVIEW ST

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WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

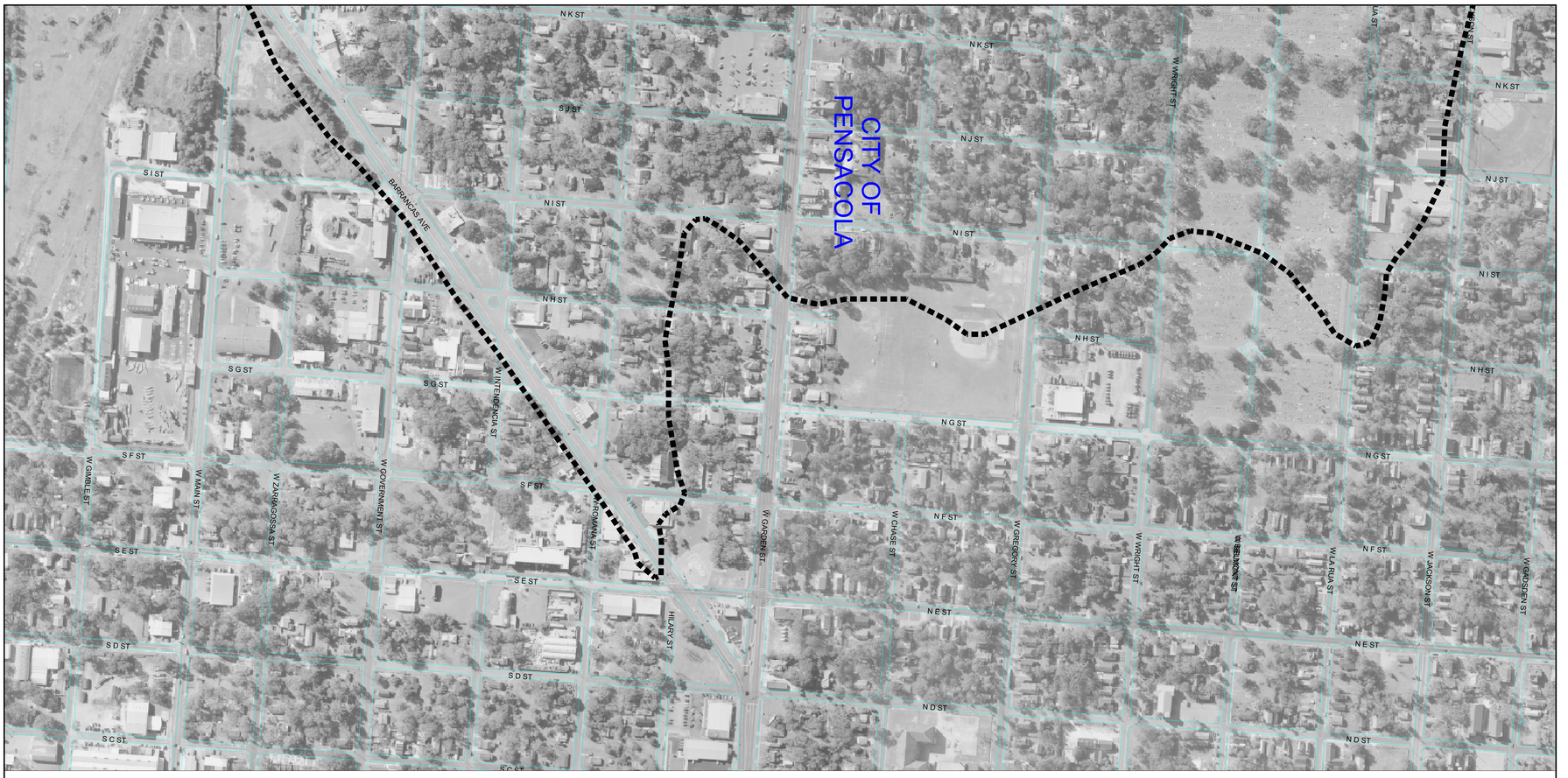
ATTACHMENT - B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

LEGEND
- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

Scale: 1"= 200'

KEY MAP

SHEET NUMBER:
11



LEGEND

EXISTING REACHES

EXISTING NODES

OVERALL BASIN BOUNDARY

SUB-BASIN BOUNDARY

100 YEAR FLOOD PLAINS

Scale: 1" = 200'

200 0 200

KEY MAP

SHEET NUMBER: 12

ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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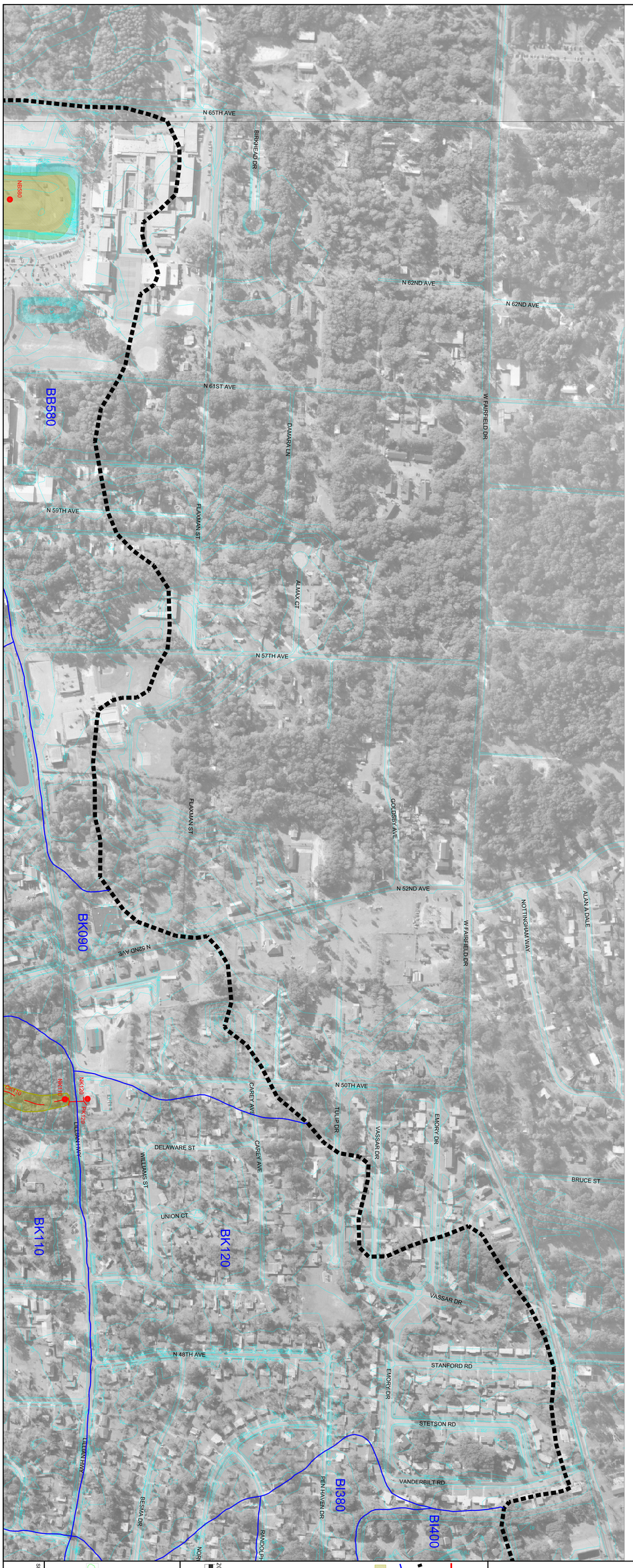

KEY MAP

SHEET NUMBER: 13

Scale: 1" = 200'

200 0 200

LEGEND

- EXISTING REACHES
- EXISTING NODES
- OVERALL BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- 100 YEAR FLOOD PLAINS

ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

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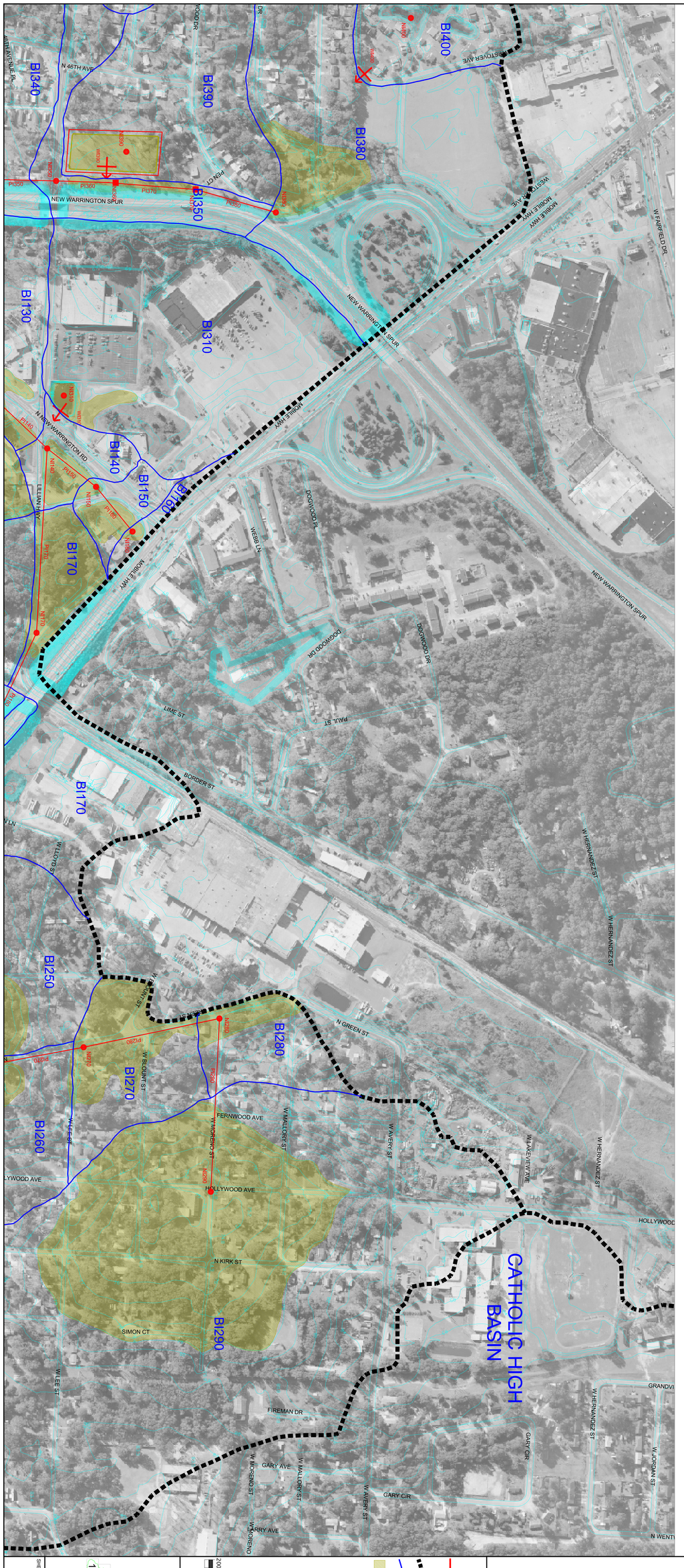

LEGEND

EXISTING REACHES
EXISTING NODES
OVERALL BASIN BOUNDARY
SUB-BASIN BOUNDARY
100 YEAR FLOOD PLAINS

ATTACHMENT – B
100 YEAR FLOOD PLAIN MAP
BASED ON ADICPR MODEL RESULTS

WARRINGTON DRAINAGE BASIN
ESCAMBIA COUNTY STORMWATER MASTER PLAN

KEY MAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Scale: 1" = 200'

200 0 200

SHEET NUMBER: 14

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