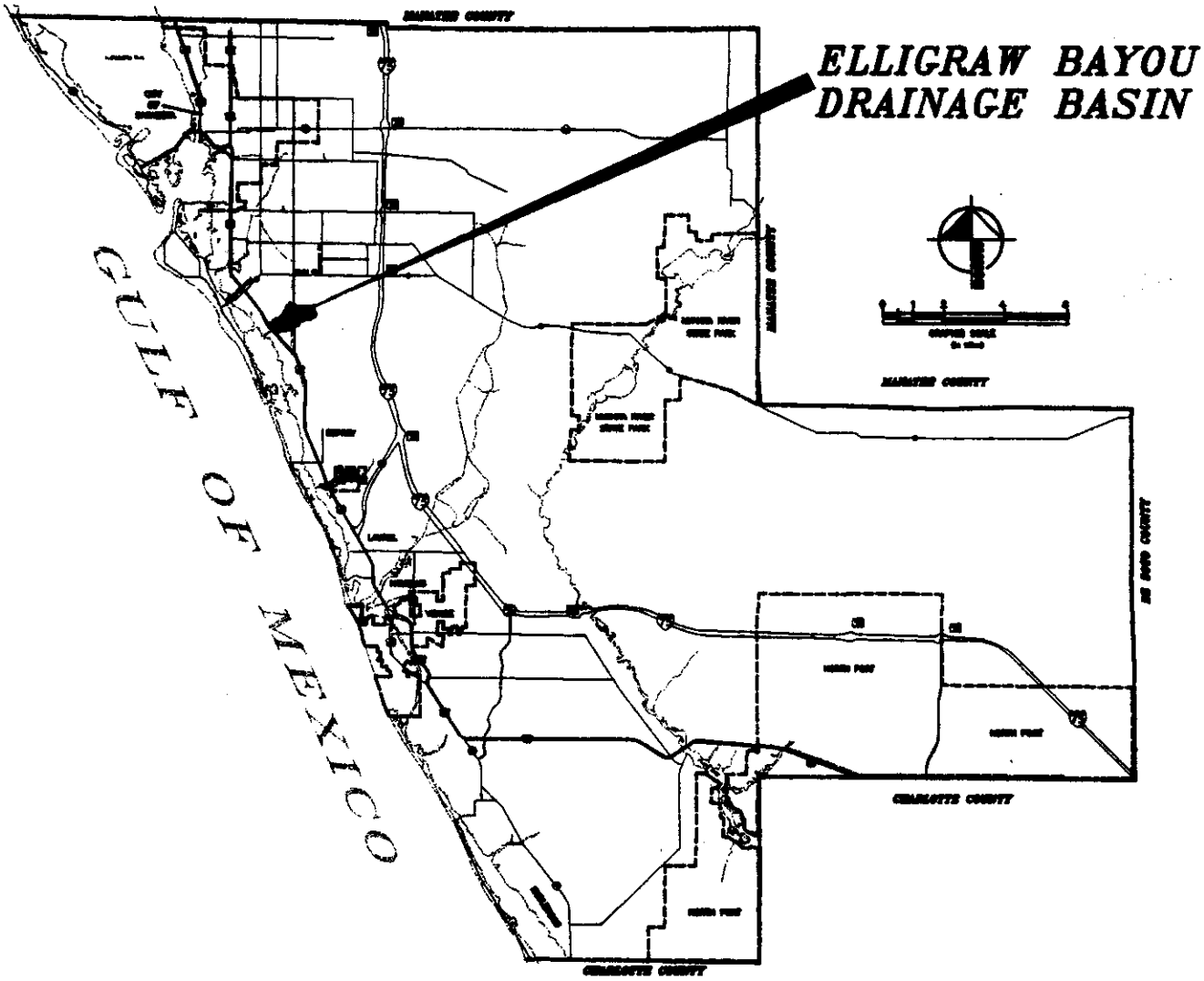
ELLIGRAW BAYOU – BASIN MASTER PLAN

FINAL REPORT



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Sarasota County
Stormwater Environmental Utility

SARASOTA COUNTY

August 8, 1994

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Prepared for:

SARASOTA COUNTY
STORMWATER ENVIRONMENTAL UTILITY

Prepared by:

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1.0 EXECUTIVE SUMMARY

1.1 OVERVIEW

The Elligraw Bayou basin contains 460 acres which ultimately empty into Little Sarasota Bay. The study area generally extends from the tidal confluence of the Elligraw Bayou Main at U.S. 41, east to the entrance to Marbella Subdivision. The Elligraw Bayou basin is bordered by the Matheny Creek basin to the north, the Catfish Creek basin to the east, and the Holiday Bayou basin to the south.

Drainage from the basin is serviced by two major conveyance systems referenced herein as the Elligraw Bayou Main which extends easterly to the headwaters of the basin from U.S. 41, and the Gulf Gate Lateral which extends north from its confluence with the Elligraw Bayou Main south of Curtiss Avenue to Gulf Gate Drive. Three water level control structures (EB-1, EB-2 and EB-3) are located in the Elligraw Bayou Main and one water level control structure (GGL-1) is located in the Gulf Gate Lateral.

At present, the Elligraw Bayou basin is essentially 100% developed. Existing land uses within the basin include 242.52 acres of medium density residential (53%), 88.48 acres of high density residential (19%), 82.88 acres of open spaces (18%), 12.95 acres of commercial (3%), 16.50 acres of office (4%), and 16.33 acres of major public roads with closed drainage (4%). Of the total basin area, approximately 198.36 acres (43.2%) are impervious and 122.89 acres (26.7%) are directly connected impervious.

The surface waters within the Elligraw Bayou basin are classified as Class III waters (i.e. recreation and the propagation and management of fish and wildlife). Under existing conditions, an estimated 36% of the Elligraw Bayou basin is effectively serviced by stormwater treatment best management practices, BMPs.

1.2 BACKGROUND

Historically, the basin was frequented by numerous isolated wetlands. The extent of these wetlands contracted and expanded throughout the year in response to rainfall. During periods of heavy rainfall, many of these wetlands extended well into upland areas where they may have become hydraulically connected to similarly extended wetlands. Over the years, dredge and fill activities drained and altered most of the wetlands within the basin.

The Sarasota Board of County Commissioners authorized a flood control plan for the basin in 1969. This study was adopted by the County in 1970 pursuant to Resolution No. 70-110. Right-of-way and cross-sectional area requirements for the Elligraw Bayou Main were established as part of this

study. The adopted improvements were primarily implemented by subsequent developments located along these drainage courses with public drainage right-of-ways and/or easements being dedicated upon their completion. However, the actual improvements in the lower Elligraw Bayou subbasin are somewhat less than those specified in the adopted study.

1.3 ASSESSMENT

As an initial activity of this study, extensive research was conducted relative to flood protection and water quality in the Elligraw Bayou basin. This research included: (1) the review of all development drainage plans and correspondence available from the Sarasota County Transportation Department; (2) the review of previous authoritative studies relative to the Elligraw Bayou drainage basin; (3) the review of information from the June, 1992 flood; (4) review of field survey data and field reconnaissances; (5) review of citizen's complaints; (6) interviews with residents in the Elligraw Bayou drainage basin; (7) interviews with Sarasota County Stormwater Maintenance personnel; and (8) coordination with other agencies.

One-foot contours aerials, field surveying, and development plan information were used to define the hydrologic and hydraulic characteristics of the Elligraw Bayou basin. In all, 34 subbasin areas were delineated for the analyses. A listing of the hydrologic characteristics for all 34 subbasin areas is provided within APPENDIX A. However, for the sake of simplicity and evaluation, these subbasin areas were aggregated into one of three (3) primary subbasins as summarized in TABLE 1.3.

SUBBASIN SUMMARY

SUBBASIN NAME	AREA (acres)	Directly Connected Impervious Area (acres/%)	Total Impervious Area (acres/%)
LOWER ELLIGRAW BAYOU	177.82	17.6%	43.2%
UPPER ELLIGRAW BAYOU	204.77	31.3%	41.4%
GULF GATE LATERAL	77.07	35.8%	47.7%
TOTAL	459.66	26.7%	43.2%

TABLE 1.3

An inventory of structures located within the study reaches is also presented in APPENDIX A.

Land use designations and best management practices (BMP) type and coverage were determined for each of the 34 subbasin areas as required to conduct the pollutant loading analysis. A listing of these land use and BMP quantities for all 34 subbasin areas is provided within APPENDIX C.

An overview of three primary subbasins is provided below:

Lower Elligraw Bayou Subbasin

The lower Elligraw Bayou subbasin encompasses 177.82 acres and is defined by the area which drains directly to that portion of the Elligraw Bayou Main located upstream of U.S. 41 and downstream of Beneva Road. This subbasin contains approximately 31.28 acres of directly connected impervious areas (17.6%) and 76.79 acres of total impervious coverage (43.2%). This subbasin is essentially built-out and consists of an estimated 164.61 acres of medium density residential (93%), 11.66 acres commercial (7%), and 1.55 acres of high density residential (1%). Approximately 5.17 acres (3%) are presently serviced by stormwater best management practices (BMP's).

Upper Elligraw Bayou Subbasin

The upper Elligraw Bayou subbasin is defined by the area which drains directly to that portion of the Elligraw Bayou Main located upstream of, and including Beneva Road. It contains 204.77 acres. Directly connected and total impervious coverage within this subbasin are 64.00 acres (31.3%) and 84.84 acres (41.4%), respectively. Existing land uses within the subbasin include 45.95 acres of medium density residential (22%), 1.58 acres of office/light industrial (1%), 14.56 acres of major public roadways with closed drainage systems (7%), 77.75 acres of high density residential (38%), and 64.93 acres of open spaces (32%). An estimated 161.83 acres (79%) are presently serviced by stormwater best management practices (BMP's).

Gulf Gate Lateral Subbasin

The Gulf Gate Lateral Subbasin is defined by that area which drains directly to the Gulf Gate Lateral. This area constitutes 77.07 acres. The directly connected and total impervious coverages for the 77.07 acre basin total 27.61 acres (35.8%) and 36.73 acres (47.7%), respectively. This subbasin area is made up of 31.96 acres of medium density residential (41%), 9.18 acres of high density residential (12%), 14.92 acres of office/light industrial (19%), 1.29 acres of commercial (2%), 17.95 acres of open space (23%), and 1.77 acres of major public roadways with closed drainage systems (2%). Although the majority, if not all of this subbasin drains through a system of interconnected lakes and ditches, the pollutant removal efficiency is suspect with respect to both design and maintenance. Therefore, it was assumed that this basin is not effectively serviced by stormwater best management practices.

1.3.1 FLOOD PROTECTION DEFICIENCIES

The existing conditions assessment identified numerous floodprone areas within the Elligraw Bayou drainage basin. In order to evaluate and prioritize these problem areas, Flood Protection Level of Service (FPLOS) objective criteria recently adopted by Sarasota County pursuant to Comprehensive Plan Amendment RU-24 was utilized. This FPLOS objective criteria is also consistent with that conceptually developed by the five Florida Water Management Districts and the Florida Department of Environmental Protection in 1993 for possible Statewide application. Specifically, the FPLOS objective criteria considers both structural and roadway flood protection for flood events up to and including the 100-year frequency.

With respect to structural flooding, an estimated 8, 22, 26, and 50 habitable structures are susceptible to flooding from the 5, 10, 25, and 100 year floods, respectively. One (1) employment/service center structure was identified to be flood prone during the 10, 25, and 100 year floods. Based upon the analysis, areas identified as most susceptible to flooding from the 100 year storm include portions of Pinehurst Park, Gulf Gate Woods and Captiva Gardens. These areas are all located in the Lower Elligraw Bayou subbasin. The estimated number of habitual structures susceptible to flooding by subbasin are inventoried in TABLE 1.3.1.a.

HABITABLE STRUCTURES SUBJECT TO FLOODING BY SUBBASIN

SUBBASIN NAME	2-YR	5-YR	10-YR	25-YR	100-YR
LOWER ELLIGRAW BAYOU	0	8	22	26	50
UPPER ELLIGRAW BAYOU	0	0	0	0	0
GULF GATE LATERAL	0	0	0	0	0
TOTAL	0	8	22	26	50

TABLE 1.3.1.a.

Since the susceptibility of structure flooding was estimated from interpretation of 1" = 200' and 1" = 30' scale, 1 foot contour aerials, the final determination of structural susceptibility to flooding should be based on actual survey measurements of finished floor elevations.

With respect to roadways, designated arterials within the basin include U.S. 41 and Beneva Road. Segments of Gulf Gate Drive and Palmer Ranch Parkway are located within the

Elligraw Bayou basin and are designated collector roads.

Under existing conditions, portions of U.S. 41, Doud Street, Pinehurst Street, Kai Drive, Pine View Circle, Marianna Drive, Biltmore Way, Coventry Way, Biltmore Drive, Hardee Drive, Tuckerstown Drive, Curtiss Avenue, and Antiqua Way were determined to be susceptible to flooding to the extent that they do not meet the adopted FPLOS. The frequency and depth of this flooding for these roads are identified in TABLE 1.3.1.b.

EVACUATION/ARTERIAL/COLLECTOR ROAD FPLOS DEFICIENCIES

ROAD	2-YR	5-YR	10-YR	25-YR	100-YR
U.S. 41	-	-	1.6'	2.0'	2.4'
Doud Street	-	-	1.4'	1.8'	2.2'
Pinehurst Street	0.4'	0.6'	1.6'	2.2'	3.2'
Kai Drive	-	-	0.6'	1.3'	2.3'
Pine View Circle	-	1.2'	1.4'	1.5'	1.6'
Marianna Drive	0.7'	1.9'	2.1'	2.2'	2.3'
Biltmore Way	-	1.9'	2.1'	2.2'	2.3'
Coventry Way	0.8'	2.0'	2.2'	2.3'	2.4'
Biltmore Drive	-	0.5'	0.7'	0.8'	0.9'
Hardee Drive	0.3'	1.1'	1.3'	1.5'	1.8'
Tuckerstown Drive	0.5'	1.3'	1.5'	1.7'	2.0'
Curtiss Avenue	-	0.2'	0.5'	0.8'	1.3'
Antiqua Place	-	-	0.3'	0.7'	1.3'

TABLE 1.3.1.b

1.3.2 WATER QUALITY DEFICIENCIES

Although not finalized, the Sarasota Bay National Estuary Program (SBNEP) has indicated that baywide, the contributions of nutrients and toxins from existing stormwater discharges should be reduced 7% and 27%, respectively.

Since the Elligraw Bayou drainage basin lies within the SBNEP watershed, these baywide pollutant load reduction goals (PLRG's) were utilized as a baseline standard in determining water quality deficiencies. For the parameters of interest to the SBNEP, TABLE 1.3.2

identifies the existing and PLRGs' for the Elligraw Bayou Basin. Existing pollutant loads were determined by applying the Sarasota County Pollutant Loading Model to the Elligraw Bayou.

PARAMETER	POLLUTANT LOAD (in lbs/yr)	
	Existing	PLRG
TKN	2,873	2,670
NO_2 + NO_3	558	519
TSS	251,980	183,945
Lead	158	115
Copper	80	58
Zinc	134	98
Cadmium	3.8	2.8

TABLE 1.3.2

1.4 ALTERNATIVE ANALYSES

1.4.1 FLOOD PROTECTION ALTERNATIVES

Three alternative solutions were evaluated to address the existing flood protection level of service deficiencies.

Alternative 1 involved only those conveyance improvements necessary to address downstream restrictions at the Pinehurst Street outfall and at Biltmore Drive to the extent that FPLOS deficiencies could be resolved.

Alternative 2 addressed the same FPLOS deficiencies but took advantage of the reduction in downstream conveyance improvements resulting from the enhancement of available storage capacity in the upper portions of the drainage basin.

Alternative 3 improvements are identical as those proposed under Alternative 2 with addition of a low-flow bleeder at the basin outfall to divert stormwater associated with the 'first-flush' of runoff to the historical Elligraw Bayou swale.

TABLE 1.4.1.a compares the associated 100-year flood elevations for the three (3)

alternatives with those under existing conditions. Similarly, TABLE 1.4.1.b compares the 100-year peak discharge rates of the three (3) alternatives with those under existing conditions. With respect to cost, it is estimated that Alternatives 2 and 3 would be approximately one-third more cost effective than Alternative 1.

COMPARISON OF 100-YEAR WATER SURFACE ELEVATION (NGVD)

Location	Existing Conditions	Alternative No. 1	Alternative No. 2	Alternative No. 3
Upstream of U.S. 41	2.12	2.92	2.38	2.35
Downstream end of Elligraw Bayou Swale	12.69	9.23	9.25	9.40
Upstream of Pinehurst Street	14.24	11.71	11.69	11.74
Upstream end of Elligraw Bayou Swale	14.59	11.84	12.04	12.13
Downstream of Biltmore Drive	14.72	13.28	13.28	13.45
Upstream of Biltmore Drive	15.51	14.12	14.05	14.18
Downstream of Beneva Road	15.59	14.63	14.30	14.40
Upstream of Beneva Road	15.66	14.81	16.00	16.00
Upstream of Ballantrae Drive	15.77	15.01	16.03	16.05
Upstream of Palmer Ranch Parkway	15.87	15.37	16.07	16.09
Upstream of S. Curtiss Avenue	16.19	15.63	15.60	15.65
Upstream of N. Curtiss Avenue	16.53	16.16	16.14	16.16

TABLE 1.4.1.a

COMPARISON OF 100-YEAR DISCHARGE RATES (CFS)

Location	Existing Conditions	Alternative No. 1	Alternative No. 2	Alternative No. 3
Upstream of U.S. 41	341	528	407	400
Downstream end of Elligraw Bayou Swale	338	85	86	93
Upstream Pinehurst Street	285	52	51	58
Upstream end of Elligraw Bayou Swale	297	53	51	58
Downstream of Biltmore Drive	326	445	321	315
Upstream of Biltmore Drive	247	337	213	209
Downstream of Beneva Road	229	310	190	187
Upstream of Beneva Road	151	202	156	153
Upstream of Ballantrae Drive	118	157	77	80
Upstream of Palmer Ranch Parkway	19	22	19	19
Upstream of S. Curtiss Avenue	47	64	64	62
Upstream of N. Curtiss Avenue	37	48	48	47

TABLE 1.4.1.b

1.4.2 WATER QUALITY ALTERNATIVES

Opportunities to improve water quality through both improved maintenance and stormwater retrofit were quantified and assessed through application of the Sarasota County Pollutant Loading Model to the Elligraw Bayou drainage basin. Together these proposed water quality improvements constitute a water quality capital improvement program (WQCIP) for the Elligraw Bayou drainage basin. The effectiveness of the WQCIP was evaluated by comparison to the previously identified PLRG's in TABLE 1.3.2. TABLE 1.4.2 compares the pollutant loads resulting from the alternative analyses to the PLRG's for the parameters of interest.

PARAMETER	POLLUTANT LOAD (in lbs/yr)	
	PLRG	Proposed WQCIP
TKN	2,670	2,650
$NO_2 + NO_3$	519	436
TSS	183,945	198,809
Lead	115	101
Copper	58	62
Zinc	98	112
Cadmium	2.8	3.3

TABLE 1.4.2

As indicated in TABLE 1.4.2, with the exception of total suspended solids, TSS, the proposed WQCIP will be effective in meeting the SBNEP baywide PLRGs. However, it is anticipated that the non-quantifiable water quality benefits proposed in association with Alternative 3 of the FPCIP will be effective in further reducing TSS.

1.5 CONCLUSIONS AND RECOMMENDATIONS

With respect to flood protection, significant level of service deficiencies exist within the Lower Elligraw Bayou basin. These level of service deficiencies were fully realized in late June of 1992 when over 18 inches of rainfall fell in a three day period. As such, an immediate need exists to implement a FPCIP to resolve these FPLOS deficiencies.

State Water Policy requires that the Southwest Florida Water Management District establish pollutant load reduction goals for Elligraw Bayou. In addition, the National Estuary Program for Sarasota Bay is expected to reveal specific stormwater pollutant load reduction goals (PLRG's) by the end of the

year. Preliminary discussions with the SBNEP have revealed that baywide PLRG's for nitrogen and toxins of 7% and 27%, respectively, are to be proposed for stormwater. It is anticipated that these PLRG's will establish a baseline WQLOS standard for the entire SBNEP watershed which contains the Elligraw Bayou Drainage basin. However, it may be prudent to wait for adoption and implementation of a WQCIP until such PLRG's are formally proposed by SBNEP, adopted by SWFWMD, and assessed within the context of the entire SBNEP Watershed by the Sarasota County Pollutant Loading Model.

Therefore, it is recommended that Sarasota County proceed with the implementation of the FPCIP identified under Alternative No. 3 but wait for final adoption of the PLRG's before proceeding with modification and/or implementation of the proposed WQCIP. Discussions with the Sarasota County Stormwater Environmental Utility and the Southwest Florida Water Management District has yielded a consensus that FPCIP Alternative No. 3 is preferred because it also contains the most significant provisions to enhance water quality. Implementation of this proposed FPCIP and its interim water quality enhancement components are expected to compliment the development and implementation of the subsequent WQCIP. Alternative No. 3 is also considered as cost effective as Alternative 2 and more cost effective than Alternative 1.

2.0 INTRODUCTION

2.1 PURPOSE

The purpose of the Elligraw Bayou Basin Master Plan is to identify Level of Service Deficiencies with respect to flood protection and water quality for the purpose of establishing a Capital Improvement Program and/or basin specific design criteria.

2.2 AUTHORIZATION

This basin Master Plan for Elligraw Bayou was authorized by the Sarasota Board of County Commissioners on 10/22/93 pursuant to purchase order no. 582062. This Basin Master Plan is specifically required pursuant to the Public Facilities Chapter (Stormwater Component) of the Sarasota County Comprehensive Plan.

2.3 COORDINATION WITH FEDERAL, STATE AND LOCAL AGENCIES

This study has been coordinated with the Soil Conservation Service, the Southwest Florida Water Management District (SWFWMD), the Florida Department of Transportation (FDOT), the Florida Department of Environmental Protection (FDEP), the National Estuary Program for Sarasota Bay, the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Federal Stormwater Permitting Program, and the Sarasota County Stormwater Environmental Utility.

3.0 BACKGROUND

3.1 HISTORIC FLOODING

EXHIBIT 4 identifies those areas which have historically been susceptible to flooding. Identification of these areas is based upon Depressional and Frequently Flooded SCS soils. Once inundated for significant durations throughout the year (i.e. wet season), these areas have to varying degrees been dredged and filled over the years. However, many of these areas are relatively low and are still susceptible to flooding following heavy rainfall. In all, some fifteen (15) historic flood prone areas are identified on EXHIBIT 4. A brief description and location of these fifteen (15) sites are provided below and a summary of these areas are provided on TABLE 3.1.

1. Portion of County drainage/park area north and west of Biltmore Drive and segment of Biltmore Drive from Coventry Drive to Tuckerstown Drive.
2. Developed area centered on Pinehurst Street between Nixon Avenue and Wright Avenue.
3. Large developed area in Gulf Gate Woods, Unit No. 3 containing northeast segment of Biltmore Drive, southeast segment of Antiqua Drive and portion of Gulf Gate Golf Course with Lake L11-15.
4. Excavated pond (L11-17) and surrounding area located in Gulf Gate Woods, Unit No. 3.
5. Developed area south of Gulf Gate Drive and Curtiss Avenue intersection, extending southeast to Beneva Road and west to include Gulf Gate Library area.
6. Small undeveloped area located east of Beneva Road, north of Palmer Ranch Parkway within Parcel F of Palmer Ranch, AIDA II.
7. Developed area in Mira Lago subdivision.
8. Large area extending from eastern end of Tuckerstown Drive across Beneva Road into Ballantrae Condominium including forested areas located on north and south sides of Ballantrae Drive.
9. Developed area in the northwest portion of the Country Club of Sarasota subdivision.
10. Developed area in Mira Lago subdivision.
11. Small area north of, and including Palmer Ranch Parkway.
12. Small area contained within stormwater lake servicing the Estates of Prestancia (Parcel B).
13. Small area at the headwaters of Elligraw Bayou containing existing ditch between entrances to Mira Lago and Marbella subdivision.
14. Small developed area in the Estates of Prestancia (Parcel B).
15. Large area located in present Prestancia Golf Course.

SUMMARY OF HISTORICAL FLOOD PRONE AREAS

Historical Flood Prone Area	Area (in acres)	Dredged	Filled (i.e. developed)	Maintained	Existing Flood Prone Area
1	6.09		X	X	X
2	3.96		X		
3	13.68	X	X		X
4	4.37	X	X		X
5	10.64	X	X		
6	2.57		X		
7	5.41		X		
8	22.79	X	X	X	X
9	2.65		X		
10	1.86		X		
11	3.15	X	X	X	X
12	1.97	X			X
13	4.13	X		X	X
14	2.17		X		
15	7.54		X		

TABLE 3.1

3.2 PRIOR STUDIES

The Elligraw Bayou drainage basin has been the subject of several authoritative studies. While most of these studies have dealt primarily with flood protection issues such as drainage and flood control, the most recent emphasis has been on water quality.

With respect to flood protection, the most authoritative studies include the 1969 Flood Control Study prepared by Smally, Wellford and Nalven, Inc. which was adopted by the Sarasota Board of County Commissioners pursuant to Resolution No. 70-110 and the 1993 Flood Plain Management Study performed by the United States Department of Agriculture Soil Conservation Service.

Recent water quality studies which considered the Elligraw Bayou basin include those provided as part of the 1992 Sarasota Bay - *Framework for Action* prepared by the National Estuary Program and Sarasota County's National Pollution Discharge Elimination System (NPDES) permit application.

A list of the prior studies which were obtained and reviewed for the Elligraw Bayou Basin Master Plan are provided below:

May 1959 - State of Florida, State Road Department Drainage Map

Elligraw Bayou drained 556 acres (upstream of 41)

(3) 36" Concrete Pipes at U.S. 41

September 1961 - Engineering Report

Basin Status: undeveloped with ± 1/6 in planning stage

Structure at U.S. 41 was reportedly undersized

Main drainage way was reportedly inadequate and almost invisible at U.S. 41

August 1969 - Elligraw Bayou Basin Flood Control Study

Elligraw Bayou drained 675 acres (1.05 SM) at U.S. 41

Design Discharge = 472 cfs

June 1973 - Flood Plain Report

Elligraw Bayou drained 1,152 acres (1.80 SM)

IRF Discharge = 220 cfs

SPF Discharge = 300 cfs

IRF Elevation @ U.S. 41 = 1.3/1.6 NGVD

SPF Elevation @ U.S. 41 = 1.3/1.9 NGVD

Low Chord Elevation = 6.6 NGVD

Low Bridge Approach Elevation = 10.5 NGVD

March 1987 Sarasota County - Stormwater Master Plan

Elligraw Bayou contained as part of Gulf Gate Canal drainage subbasin 0502 of 659 acres (1.03 SM). Subbasin 0502 actually contains both the Elligraw Bayou basin and the Holiday Bayou basin.

Flooding reported in the area of its headwaters.

Modeling of 25-year design storm indicated that flooding does not pose a threat to the welfare of the public.

Design Discharge = 168 cfs

2 - 12' x 10' Boxes @ U.S. 41

3 - 8' x 8' boxes at Beneva Road

50% developed (50% residential, and 50% undeveloped)

August 1988 - Florida Non-point Source Assessment

Elligraw Bayou given a MODERATE water quality rating by FDEP. Primary poor water quality source identified as urbanization. Associated pollutants suspected is habitat alteration.

April 1993 - Flood Plain Management Study

Elligraw Bayou Drained 640 acres (1.00 SM)

Design Flows: Q_2 = 243 cfs Q_{25} = 536 cfs

Q_5 = 369 cfs Q_{50} = 621 cfs

Q_{10} = 452 cfs Q_{100} = 706 cfs

1992 - Framework for Action - Sarasota Bay National Estuary Program

*Elligraw Bayou Drainage Area = 3,800 acres

Existing Loadings

Total Runoff = 36.96 inches

Total Phosphorus = 11,390 lb

Total Nitrogen = 57,290 lb

Lead = 2,040 lb

Zinc = 2,100 lb

Future Loadings

Total Runoff = 44.41 inches

Total Phosphorus = 15,560 lb

Total Nitrogen = 74,830 lb

Lead = 3,290 lb

Zinc = 3,010 lb

* Study delineation of encompasses Elligraw Bayou drainage basin, Holiday Bayou drainage basin, Clower Creek drainage basin, Matheny Creek drainage basin, and headwaters of Catfish Creek drainage basin.

1993 - National Pollution Discharge Elimination System (NPDES) Permit Application for Sarasota County

*Clower Creek Drainage Area = 1,004 acres (1.57 SM)

Existing Statistics

1990 Population - 3,958

Dwelling Units - 2,336

EXISTING LAND USE ALLOCATIONS		
Land Use Category	Area (in acres)	BMP Coverage (%)
Forest/Open	326	0%
LDSF Residential	33	0%
MDSF Residential/Instit.	256	25%
HDSF/MF Residential	200	1%
Commercial CBD	152	75%
Office/Light Industrial	10	0%
Water	27	0%

FUTURE LAND USE ALLOCATIONS		
Land Use Category	Area (in acres)	BMP Coverage (%)
Forest/Open	179	0%
LDSF Residential	40	0%
MDSF Residential/Instit.	314	38%
HDSF/MF Residential	245	19%
Commercial/CBD	186	79%
Office/Light Industrial	12	18%
Water	27	0%

Pollutant Loading Parameter	Loading For Stormwater/BF (lb/yr)	Annual Yield Rate (lbs/acre/yr)	Annual EMC's (Runoff = 23") (mg/L)
BOD	48,900	50	9.1
COD	318,500	320	60
TSS	583,500	580	110
TDS	860,800	860	100
TP	1,500	1.5	0.3
DP	690	0.7	0.1
TKN	6,600	6.6	1.1
NO2 & NO3	1,400	1.4	0.2
PB	330	0.3	0.06
CU	150	0.1	0.03
ZN	340	0.3	0.06
CD	10	0.007	0.001

* Study delineation encompasses Elligraw Bayou, Clower Creek, and Holiday Bayou drainage basins.

3.3 PREVIOUS IMPROVEMENTS

Two primary conveyance facilities exist within the Elligraw Bayou basin. These facilities are the Elligraw Bayou Main and the Gulf Gate Lateral.

The Elligraw Bayou Main consists of ±1,120' of an underground pipe at its downstream end and a man-made canal and ditch in it mid and upper reaches, respectively. In all, this system extends from U.S. 41 to the entrance of Marbella subdivision located at the easterly headwaters of the basin. Three water level control weirs are located in the Elligraw Bayou main. The first weir is located approximately 1,120 feet upstream of U.S. 41. The second weir is located approximately 500 feet upstream of Biltmore Drive. These two weirs were constructed in the early 1970's by the developer of the Gulf Gate Woods subdivision. The third weir was installed immediately downstream of Beneva Road in 1981 as part of the of Beneva Road widening project.

The Gulf Gate Lateral is a system of man-made lakes and ditches which extends from its confluence with Elligraw Bayou Main to Gulf Gate Drive. This lateral has one water level control weir located approximately 500' upstream of it's confluence with the Elligraw Bayou main.

A chronology of previous improvements within the Elligraw Bayou basin is provided below:

Date

5/59 At this time FDOT identified the following on drainage maps prepared in association with U.S. 41:

- 3 - 36" RCP at Elligraw Bayou Main U.S. 41 (HW = 6.3 NGVD)
- At future Beneva Road Crossing (HW = 15.3 NGVD)
- At future Marbella Entrance (HW = 16.3 NGVD)

8/69 By August of 1969, SWN study identified the following in their Flood Control Study for the Elligraw Bayou basin:

- 2 - 12' x 8' Box Culverts at U.S. 41
- 3 - 8' x 8' Box Culverts at Beneva Road

07/03/70 Lower Elligraw Bayou Main constructed to present configuration from Pinehurst Street to Curtiss Avenue by Gulf Gate Woods development. Gulf Gate Lateral constructed to present configuration from Curtiss Avenue to Gulf Gate Drive by Gulf Gate Woods development. (Master Drainage Layout Plan for Gulf Gate Woods prepared by Bennett and Bishop, Inc. for First Development Corporation of America).

03/71	40" x 65" CMP outfall culvert constructed from U.S. 41 to Dale Avenue by Gulf Gate Woods development. (Construction Plans for Gulf Gate Woods prepared by Bennett and Bishop, Inc. for First Development Corporation of America).
01/80	Upper Elligraw Bayou Main constructed to present configuration between Beneva Road and Ballantrae Drive by Ballantrae Development. (Preliminary Drainage Plan for Ballantrae Condominium, Phase 1 prepared by Smally, Wellford and Nalven, Inc.)
06/81	Upper Elligraw Bayou Main constructed to present configuration between Ballantrae Drive and Palmer Ranch. (Plans for Ballantrae, a Condominium, Phase 2 prepared by Smally, Wellford and Nalven, Inc.)
11/81	Existing Beneva Road 8' x 8' Box Culverts extended. Water level control structure constructed just downstream of Beneva Road in Elligraw Bayou Main (Control Water Elevation = 12.0 NGVD). (Beneva Road Construction Plans prepared by Glace & Radcliffe, Inc. for the Sarasota Board of County Commissioners.)
03/89	Upper Elligraw Bayou Main constructed to present configuration from Ballantrae Condominium to Marbella subdivision entrance. (Plans for Elligraw Bayou Improvements prepared by Smally, Wellford and Nalven, Inc. for Palmer Venture, Inc.)

4.0 INVESTIGATION METHODS

4.1 DATA SOURCES

4.1.1 FLOOD PROTECTION

In addition to the prior studies previously inventoried, numerous data sources were reviewed in the initial phases of the Elligraw Bayou Basin Master Plan. These other data sources included a review of Sarasota County's files for developments located within the study area. A complete list of the development plans and correspondence which were reviewed is provided in the bibliography. Other data sources include pictures of flooded areas (refer to APPENDIX D), SWFWMD 1-foot contour aerials, interviews with residents and County maintenance personnel, and review of Sarasota County citizen's drainage complaint forms.

4.1.2 WATER QUALITY

In addition to the prior studies previously inventoried in Section 3.2, a detailed pollutant loading analysis for the Elligraw Bayou drainage basin was conducted using the Watershed Management Model developed for the Sarasota County NPDES permit application by Camp, Dresser and McKee. The land use maps developed in association with the NPDES permit application were reviewed in addition to 1990 aerials, plat maps and zoning maps.

4.2 COMPUTER MODELING

4.2.1 FLOOD ANALYSIS

In order to accurately and economically assess the implications of basin modifications or improvements, it is first necessary to develop a computer model which can predict the effects of actual or observed flood events with a reasonable degree of accuracy.

4.2.1.1 METHODOLOGY

Initial computer simulations where performed using the Advanced Interconnected Pond Routing (AdICPR) program. This program utilizes the SCS unit hydrograph methodology and a hydrodynamic routing method for the hydrologic and hydraulic components of the analyses, respectively. The AdICPR program is well suited to complex coastal watersheds such as Elligraw Bayou and was used to conduct a detailed assessment of the basin. An overview of the modeling methodology is provided below.

Depression Storage: The effects of depression storage and the relationship of contributing area to time were accounted for by routing hydrograph flows through existing stormwater lakes and major depressions (wetlands). As such, a unit hydrograph peak rate factor of 256 was used.

Watershed Retention: Rainfall losses were determined by computing a weighted CN for the pervious and non-directly connected impervious areas. The portion of the basin area which is directly connected impervious was specified and is considered independently by the model. The retention storage, S was computed by the following relationship:

$$S = \frac{1000}{CN} - 10 \qquad \text{Eq. 1}$$

Initial abstraction, Ia were computed as 20% of the watershed retention storage, S:

$$Ia = 0.2S \qquad \text{Eq. 2}$$

Employing Eq. 1 and Eq. 2, rainfall volumes (P) were converted to runoff volumes (R) by the following standard SCS equation:

$$R = \frac{(P-0.2S)^2}{P + 0.8S} \qquad \text{Eq. 3}$$

Time of Concentration: The time of concentration was computed using the Kinematic Wave Formula, consistent with the guidelines prescribed by the SCS in Technical Release No. 55.

Design Storm Event(s): Consistent with the Rules of the Southwest Florida Water Management District, the following design 24-hour duration rainfall volumes were used:

Frequency	Volume
2-year	4.25"
5-year	6.00"
10-year	7.00"
25-year	8.00"
100-year	10.00"

The SCS - TYPE II MODIFIED 24-hour, dimensionless rainfall distribution was used.

Initial simulations were conducted utilizing only the largest design storm (i.e. 100-year, 24-hour) to assure that the model input adequately accounted for both watershed storage and their attenuation effects on discharge rates. Numerous trial and error simulations were required to accomplish this objective. Simulations were then completed for the 2-year, 5-year, 10-years, and 25-year design storms.

4.2.1.2 RESULTS

The subbasin hydrologic inventory is provided in APPENDIX A along with the node (or junction)/reach (or link) schematic developed for the AdICPR model. The computer modeling input/output results are contained in APPENDIX B. A Summary of Existing Discharges for the study reaches is provided herein as TABLE 4.2.1.2. A Summary of Existing Surface Water Elevations for the study reaches are provided in TABLES 4.2.1.2.a through 4.2.1.2.c. These surface water profiles are also presented graphically on EXHIBITS 4.2.1.2.a through 4.2.1.2.c.

The results of the 1993 Flood Plain Management Study (FPMS) for Elligraw Bayou are compared with those of the Basin Master Plan (BMP) in TABLE 4.2.1.2.d. This comparison reveals that significant discrepancies exist with respect to discharge

rates and water surface elevations throughout the basin. Both the discharge rates and base flood elevations generated by the BMP analyses are lower than those established by the FPMS in the lower portions of the Elligraw Bayou watershed. However, this is attributable to the fact that the contributing area was over estimated by the FPMS.

The hydrologic analysis for the FPMS indicated a total basin area of 640 acres as opposed to 460 acres determined for the BMP. In general, the base flood elevations (BFEs) determined by the BMP are based upon more accurate information and more scientifically and technically correct hydrologic and hydraulic methodologies.

It is anticipated that the final base flood elevations determined by the BMP would provide the supporting data report for revisions to the effective base flood elevations for the Elligraw Bayou basin, as well as providing base flood elevations for un-numbered 'A' Zones and previously unstudied areas of watershed.

SUMMARY OF EXISTING DISCHARGES (in cfs)

NODE I.D.	LOCATION	2-YR Q	5-YR Q	10-YR Q	25-YR Q	100-YR Q
LOWER ELLIGRAW BAYOU MAIN						
101	U.S. 41 (U.S.)	101	128	180	237	341
102	±200' Upstream of U.S. 41	98	127	179	235	338
104	Downstream End of Swale	27	67	143	201	305
106	Pinehurst Street (D.S.)	27	67	144	201	306
108	Pinehurst Street (U.S.)	17	59	137	189	285
110	Upstream End of Swale	17	59	140	195	297
120	WLCS EB-1 (U.S.)	77	115	171	222	326
130	Bispham Road (U.S.)	64	102	137	173	247
140	WLCS EB-2 (U.S.)	62	97	130	162	229
UPPER ELLIGRAW BAYOU MAIN						
150	WLCS EB-3 (U.S.)	53	79	93	113	151
151	Beneva Road (U.S.)	89	127	141	144	151
157	Ballantrae Drive (D.S.)	61	84	102	115	147
158	Ballantrae Drive (U.S.)	44	60	78	93	118
159	631' Upstream of Ballantrae Drive	57	77	92	103	138
161	1,181' Upstream of Ballantrae Drive	82	131	148	168	184
162	Palmer Ranch Parkway (D.S.)	33	41	64	63	75
163	Palmer Ranch Parkway (U.S.)	6	13	17	19	19
164	Mira Lago Entrance (D.S.)	6	10	12	14	18
165	Mira Lago Entrance (U.S.)	1	2	2	3	5
GULF GATE LATERAL						
200	GGL-1 (U.S.)	16	23	31	37	47
210	S. Curtiss Avenue (U.S.)	18	25	27	30	37
220	N. Curtiss Avenue (U.S.)	7	8	8	9	13

TABLE 4.2.1.2

LOWER ELLIGRAW BAYOU MAIN (CANAL 11-209 & L11-18)
SUMMARY OF EXISTING WATER SURFACE ELEVATIONS

NODE	LOCATION	2-YR	5-YR	10-YR	25-YR	100-YR	JUNE 1992
100	U.S. 41 (D.S.)	1.50	1.50	1.50	1.50	1.50	
101	U.S. 41 (U.S.)	1.56	1.59	1.68	1.80	2.12	5.69
102	±200 Upstream of U.S. 41	6.18	8.95	11.88	12.25	12.69	Photo
104	Downstream End of Swale	9.20	9.47	11.92	12.31	12.78	
106	Pinehurst Street (D.S.)	9.90	10.86	12.63	13.29	14.24	
108	Pinehurst Street (U.S.)	11.47	11.69	12.65	13.31	14.26	
110	Upstream End of Swale	11.49	11.86	12.91	13.59	14.59	
120	WLCS EB-1 (U.S.)	13.11	14.30	14.47	14.57	14.72	
130	Biltmore Road (U.S.)	13.98	14.81	15.02	15.20	15.51	
140	WLCS EB-2 (U.S.)	14.05	14.89	15.09	15.28	15.59	

TABLE 4.2.1.2.a

UPPER ELLIGRAW BAYOU MAIN (CANAL 11-208)
SUMMARY OF EXISTING WATER SURFACE ELEVATIONS

NODE	LOCATION	2-YR	5-YR	10-YR	25-YR	100-YR	JUNE 1992
150	WLCS EL-3 (U.S.)	14.09	14.92	15.13	15.32	15.64	
151	Beneva Road (U.S.)	14.09	14.92	15.14	15.32	15.66	14.02
157	Ballantrae Drive (D.S.)	14.11	14.94	15.14	15.39	15.70	
158	Ballantrae Drive (U.S.)	14.11	14.96	15.19	15.40	15.77	
159	631 Ft. Upstream of Ballantrae Drive	14.11	14.95	15.19	15.42	15.77	
161	1181 Ft. Upstream of Ballantrae Drive	14.13	14.97	15.20	15.43	15.80	
162	Palmer Ranch Parkway (D.S.)	14.14	14.97	15.24	15.44	15.80	
163	Palmer Ranch Parkway (U.S.)	14.28	15.04	15.27	15.48	15.87	14.61
164	Mira Lago Entrance (D.S.)	15.63	15.78	15.90	16.01	16.17	
165	Mira Lago Entrance (U.S.)	15.63	15.79	15.91	16.02	16.18	

TABLE 4.2.1.2.b

GULF GATE LATERAL (CANAL 11-210)
SUMMARY OF EXISTING WATER SURFACE ELEVATIONS

NODE	LOCATION	2-YR	5-YR	10-YR	25-YR	100-YR	JUNE 1992
140	WLCS GGL-1 (D.S.)	14.05	14.89	15.09	15.28	15.59	
200	WLCS GGL-1 (U.S.)	14.14	15.06	15.37	15.67	16.19	
210	Curtis Avenue (D.S.)	14.19	15.15	15.53	15.90	16.53	
220	Curtis Avenue (U.S.)	14.22	15.19	15.58	15.97	16.50	

TABLE 4.2.1.2.c

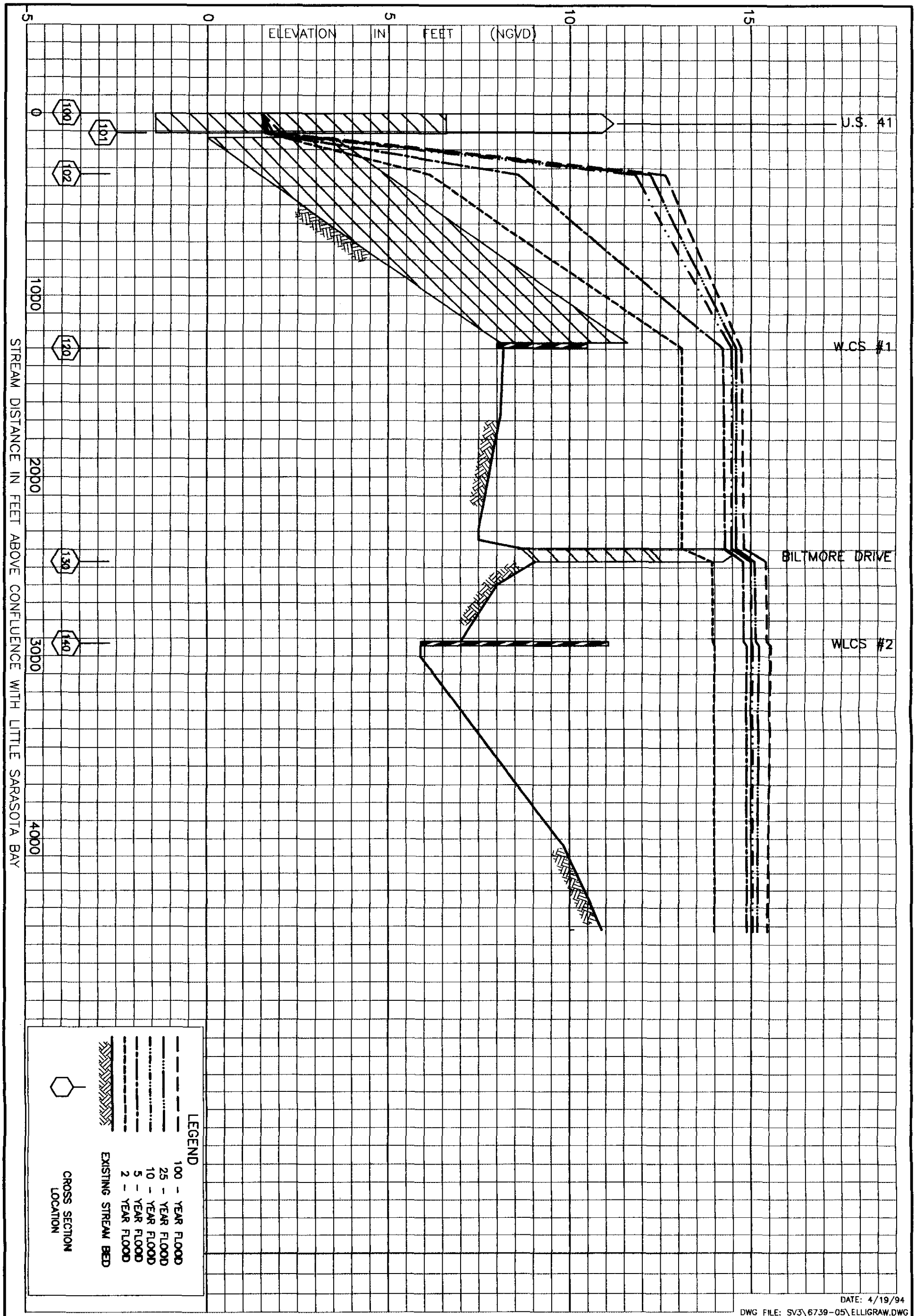
COMPARISON OF WATER SURFACE ELEVATIONS (NGVD)

	2-YR		5-YR		10-YR		25-YR		100-YR	
	FPMS	BMP	FPMS	BMP	FPMS	BMP	FPMS	BMP	FPMS	BMP
U.S. 41	7.1	6.2	7.3	9.0	7.4	11.9	7.7	12.3	8.2	12.7
WLCS EB-1	14.9	13.1	15.2	14.3	15.3	14.5	15.3	14.6	15.5	14.7
BILTMORE DRIVE	14.9	14.0	15.3	14.8	15.4	15.0	15.4	15.2	15.6	15.5
WLCS EB-2	15.0	14.1	15.4	14.9	15.5	15.1	15.5	15.3	15.7	15.6
WLCS EB-3	15.2	14.1	15.6	14.9	15.7	15.1	15.8	15.3	16.1	15.6
BENEVA ROAD	15.2	14.1	15.6	14.9	15.7	15.1	15.9	15.3	16.1	15.7
BALLANTRAE DRIVE	15.2	14.1	15.7	15.0	15.9	15.2	16.2	15.4	16.4	15.8
PALMER RANCH PARKWAY	15.4	14.3	16.0	15.0	16.3	15.3	16.7	15.5	17.4	15.9
MIRA LAGO DRIVE	16.8	15.6	17.4	15.8	17.7	15.9	18.1	16.0	18.8	16.2
CURTIS AVE.(SOUTH)	15.7	14.1	15.7	15.1	15.7	15.4	15.7	15.7	15.8	16.2
CURTIS AVE.(NORTH)	16.2	14.2	16.2	15.2	16.2	15.5	16.2	15.9	16.4	16.5
GOLF COURSE LAKE	16.3	14.2	16.3	15.2	16.3	15.6	16.4	16.0	16.7	16.5

TABLE 4.2.1.2.d

FPMS - Floodplain Management Study

BMP - Basin Master Plan



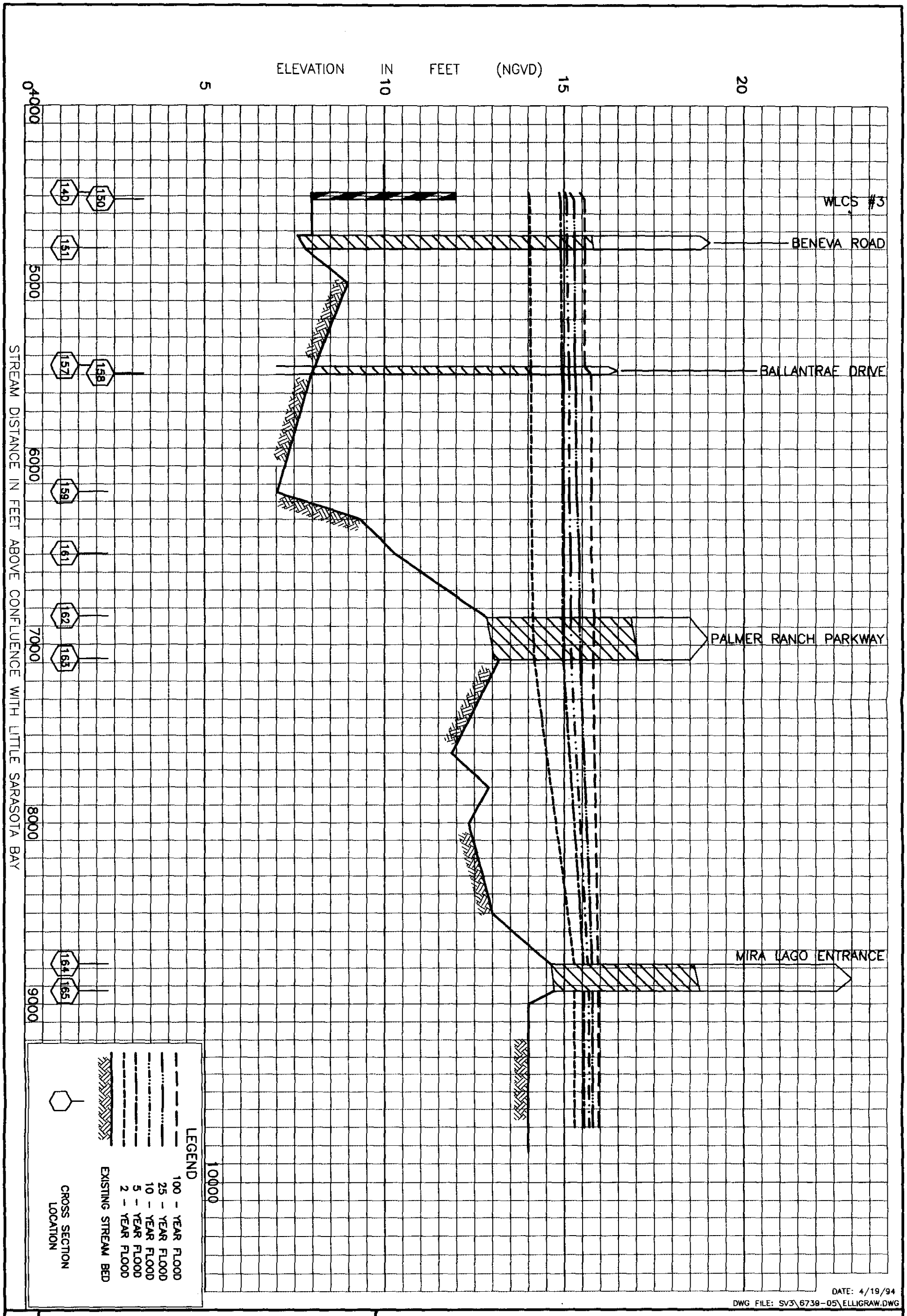
DATE: 4/19/94
DWG FILE: SVJ\6739-05\ELLIGRAW.DWG

ELLIGRAW BAYOU BASIN MASTER PLAN
EXISTING SURFACE WATER PROFILES
LOWER ELLIGRAW BAYOU MAIN
(CANAL 11-209)

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

EXHIBIT 4.2.1.2.a - EXISTING SURFACE WATER PROFILES

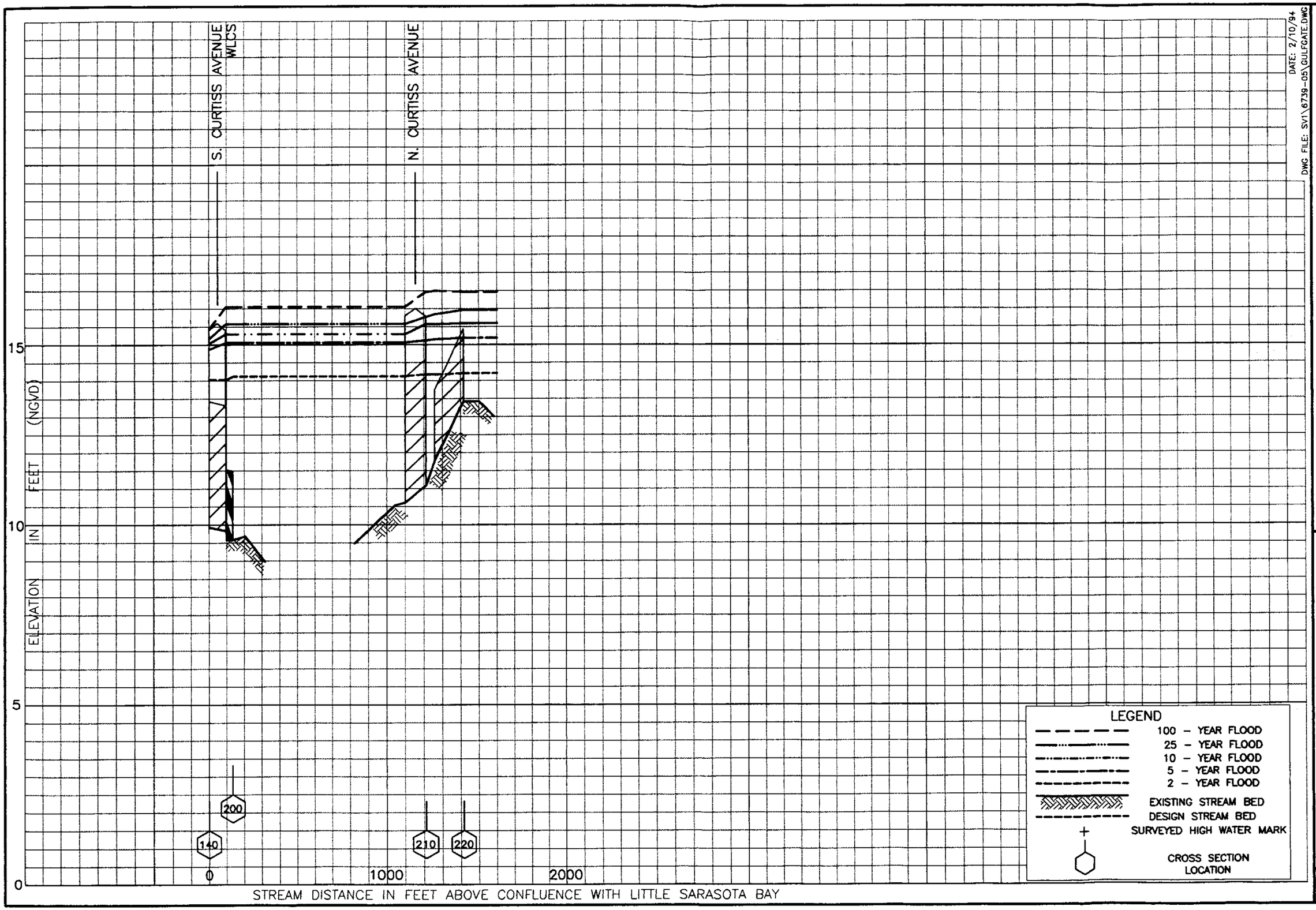


ELLIGRAW BAYOU BASIN MASTER PLAN
EXISTING SURFACE WATER PROFILES
UPPER ELLIGRAW BAYOU MAIN
(CANAL 11-208)

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

EXHIBIT 4.2.1.2.b - EXISITNG SURFACE WATER PROFILES



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DATE: 2/10/94

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

ELLIGRAW BAYOU BASIN MASTER PLAN
GULF GATE LATERAL
(CANAL 11-210)

EXHIBIT 4.2.1.2.c

4.2.2 POLLUTANT LOADING ANALYSIS

4.2.2.1 METHODOLOGY

For consistency, the Watershed Management Model Version 3.10 (WMM) developed by Camp, Dresser & McKee (CDM) for the Sarasota County NPDES permit was used for the pollutant loading analyses. The WMM is a spreadsheet model which estimates seasonal and annual nonpoint source loads using direct runoff based upon event mean concentrations (EMC's) and runoff volumes (CDM, 1992). The model requires the identification and input of land use and best management practices information for each subbasin to be analyzed. This information is inventoried in APPENDIX C for all 34 existing subbasins.

The features of the WMM spreadsheet model are:

- Use of the Lotus 1-2-3 spreadsheet program.
- Estimates annual runoff pollutant load for nutrients, heavy metals, oxygen demand, and solids based upon EMC's, land use, percent impervious surface, and annual rainfall.
- Estimates of stormwater treatment or load reduction through partial or full scale implementation of on site or regional Best Management Practices (BMP's).

While the WMM projects the average annual pollutant loads in a watershed, it is limited in its ability to estimate these loads. It is not appropriate to use the model for analysis of short-term water quality impacts (CDM, 1992). In addition, pollutant loads resulting from incremental development of a watershed will not be appropriately determined by the model (CDM, 1992).

4.2.2.2 RESULTS

Using the WMM spreadsheet model, existing pollutant loads were determined for the Elligraw Bayou watershed. The model estimates pollutant loads in a watershed as the product of runoff and mean concentration in that runoff. For a given pollutant, both mean concentration and runoff will vary by land use.

A total of fifteen (15) land use categories can be used in the model (12 listed and

3 optional categories). The twelve listed categories are:

- Forest/Open
- Agricultural/Pasture
- Cropland
- Low Density Single Family (LDSF) Residential
- Medium Density Single Family (MDSF) Residential
- High Density Single Family/Multi-Family (HDSF/MF) Residential
- Commercial/Central Business District (CBD)
- Office/Light Industrial
- Heavy Industrial
- Water
- Wetlands
- Roads

The Elligraw Bayou watershed covers an area of approximately 460 acres with three (3) major subbasins, as depicted on EXHIBIT 1. TABLE 4.2.2.2.a summarizes the total acreages for each land use type by basin in Elligraw Bayou. The modeling results for the three major subbasins are provided in APPENDIX C.

The most predominant land use in the Elligraw Bayou watershed is MDSF Residential which comprises approximately 53% of the total acreage as shown in FIGURE 4.2.2.2.a. All together, residential areas comprise approximately 72% of the land use in the Elligraw Bayou watershed. Open spaces (i.e. wetlands, water, and open/forest) comprise approximately 18% of the watershed.

Estimated gross pollutant loads for the Elligraw Bayou watershed are summarized by parameter in FIGURE 4.2.2.2.b. Gross pollutant loads and unit loading rates were determined by subbasin and parameter and are summarized in TABLE 4.2.2.2.b. In addition, results to the pollutant loading analyses for the three primary subbasins in the Elligraw Bayou basins are provided in APPENDIX C.

Unit loading rates determined for each parameter in the three major subbasins generally varied by less than 15% (TABLE 4.2.2.2.b). This relatively low variation in unit loading rates can be attributed to residential land use comprising greater than 50% of the total land use in each of the three basins. The unit loading rates for nutrients (total P and nitrate + nitrite) and total lead varied by greater than 15% in the Elligraw Bayou watershed. Unit loading rates for nutrients were relatively

higher in Subbasin 1 where residential land use is greater than 90% of the total area of that subbasin. The higher loading rates in nutrients are believed to result from fertilizer application as well as from landscape maintenance and decaying vegetation. Subbasin 3, which contains 21% commercial and industrial land use, had a greater unit loading rate of total lead. The total lead is believed to be attributed to runoff containing contributions from automobile emissions. Total suspended solids and total dissolved solids had the most uniform unit loading rates varying by $\leq$ 2%.

Overall, the highest gross pollutant loads were associated with the largest subbasins (TABLE 4.2.2.2.b). Subbasins 1 and 2 contributed to greater than 80% of the total pollutant load in the Elligraw Bayou watershed. Interestingly, residential land use for these two subbasins makes up approximately 63% of the area in the entire watershed.

As a result of existing mitigative features in the Elligraw Bayou watershed, gross pollutant loadings are reduced prior to their introduction into the surface water (FIGURE 4.2.2.2.b). Approximately 36% of the Elligraw Bayou watershed is treated through Best Management Practices (BMP's) with an average efficiency of 20% (TABLE 4.2.2.2.c). The two BMP's utilized in the Elligraw Bayous watershed are retention and wet detention (TABLE 4.2.2.2.d). Subbasin 1 utilized only retention as a means of treating stormwater, while BMP's were assumed ineffective Subbasin 3. In subbasin 2, stormwater is treated using a combination of both retention and wet detention.

TABLE 4.2.2.2.d shows the removal of pollutants through the use of BMP's under existing conditions. In general, approximately 5% to 29% of the pollutant load is removed by the treatment systems presently in place in the Elligraw Bayou watershed. As expected, removal of the TDS load was the lowest for the watershed at approximately 5%.

Subbasin 3 had the lowest pollutant removal of the three basins because no effective BMP coverage was assumed. Subbasin 1 has a BMP coverage of only

3% resulting in a net removal of less than 5% of the pollutant load. The highest pollutant removal is estimated for subbasin 2 where 79% of the runoff is treated. The resulting loadings for this basin are reduced by an average of approximately 40%.

Pollutant load reductions for the Elligraw Bayou watershed are summarized in TABLE 4.2.2.2.d. In addition, net loadings are graphically depicted by parameter for the Elligraw Bayou watershed in FIGURE 4.2.2.2.b.

TABLE 4.2.2.2.a LAND USES IN ELLIGRAW BAYOU WATERSHED UNDER EXISTING CONDITIONS.

	Basin No. 1	Basin No. 2	Basin No. 3	Total
Number of Sub-basins	7	24	3	34
Land Use Type (Acres):				
Forest/Open	0	37	18	55
Agricultural/Pasture	0	0	0	0
Cropland	0	0	0	0
LDSF Residential	0	0	0	0
MDSF Residential	165	46	32	243
HDSF/MF Residential	2	78	9	88
Commercial/CBD	12	0	1	13
Office/Light Industrial	0	2	15	17
Heavy Industrial	0	0	0	0
Water	0	3	0	3
Wetlands	0	25	0	25
Roads	0	15	2	16
Total	178	205	77	460

TABLE 4.2.2.2.b GROSS POLLUTANT LOADS AND UNIT LOADING RATES PER BASIN IN THE ELLIGRAW BAYOU WATERSHED.

	Basin No. 1	2	3	Total
Drainage Area (acres)	178	205	77	460
Runoff (acre-ft/yr)	360	405	158	924
Gross Pollutant Loads (lbs/yr)				
Biochemical Oxygen Demand	10,452	10,497	4,367	25,316
Chemical Oxygen Demand	78,807	83,959	31,699	194,465
Total Suspended Solids	130,878	153,368	55,641	339,888
Total Dissolved Solids	97,968	110,150	43,095	251,212
Total Phosphorus	351	311	114	777
Dissolved Phosphorus	147	151	54	351
Total Kjeldahl Nitrogen	1,412	1,306	535	3,252
Nitrate + Nitrite	330	344	108	782
Total Lead	73	92	53	218
Total Copper	44	48	17	109
Total Zinc	58	82	32	172
Total Cadmium	2.0	1.9	0.8	4.7
Unit Loading Rates (lbs/yr-acre)				
Biochemical Oxygen Demand	59	51	57	55
Chemical Oxygen Demand	443	410	411	423
Total Suspended Solids	736	749	722	739
Total Dissolved Solids	551	538	559	547
Total Phosphorus	2.0	1.5	1.5	1.7
Dissolved Phosphorus	0.8	0.7	0.7	0.8
Total Kjeldahl Nitrogen	7.9	6.4	6.9	7.1
Nitrate + Nitrite	1.9	1.7	1.4	1.7
Total Lead	0.4	0.4	0.7	0.5
Total Copper	0.2	0.2	0.2	0.2
Total Zinc	0.3	0.4	0.4	0.4
Total Cadmium	0.01	0.01	0.01	0.01

TABLE 4.2.2.2.c ESTIMATED TOTAL POLLUTANT LOADING FOR SURFACE RUNOFF IN THE ELLIGRAW BAYOU WATERSHED FOR EXISTING CONDITION, SARASOTA COUNTY, FLORIDA.

Parameters	Gross Load	Removal	Net Load
Drainage Area (acres)	460	----	460
Total Impervious Area (acres)	153	----	153
Runoff (acre-ft/yr)	924	----	924
Pollutant Loads (lbs/yr):			
Biochemical Oxygen Demand	25,316	3,054	22,262
Chemical Oxygen Demand	194,465	35,177	159,287
Total Suspended Solids	339,888	87,908	251,980
Total Dissolved Solids	251,212	11,344	239,868
Total Phosphorus	777	135	642
Dissolved Phosphorus	351	98	253
Total Kjeldahl Nitrogen	3,252	379	2,873
Nitrate + Nitrite	782	224	558
Total Lead	218	60	158
Total Copper	109	29	80
Total Zinc	172	38	134
Total Cadmium	5	1	4

TABLE 4.2.2.2.d POLLUTANT LOADING REDUCTIONS PER BASIN UTILIZING EXISTING BMP's IN THE ELLIGRAW BAYOU WATERSHED UNDER EXISTING CONDITIONS.

Constituents (lbs/yr)	Basin No. 1	2	3	Total
Biochemical Oxygen Demand	493	2,560	0	3,054
Chemical Oxygen Demand	3,100	32,077	0	35,177
Total Suspended Solids	4,588	83,320	0	87,908
Total Dissolved Solids	5,067	6,278	0	11,344
Total Phosphorus	8	128	0	135
Orthophosphate	5	93	0	98
Total Kjeldahl Nitrogen	54	326	0	379
Nitrate + Nitrite	6	218	0	224
Total Lead	12	48	0	60
Total Copper	2	27	0	29
Total Zinc	6	32	0	38
Total Cadmium	0.1	0.7	0.0	0.8
Mitigation Type	Retention	Retention Wet Detention	None	

Removal Efficiencies (CDM, 1992):

Retention: 90% efficiency for all constituents

Wet Detention: Biochemical Oxygen Demand = 30%; Chemical Oxygen Demand = 50%; Total Suspended Solids = 70%; Total Dissolved Solids = 0%; Total Phosphorus = 50%; Dissolved Phosphorus = 80%; Total Kjeldahl Nitrogen = 30%; Nitrate + Nitrite = 80%; Total Lead = 80%; Total Copper = 75%; Total Zinc = 50%; Total Cadmium = 50%.

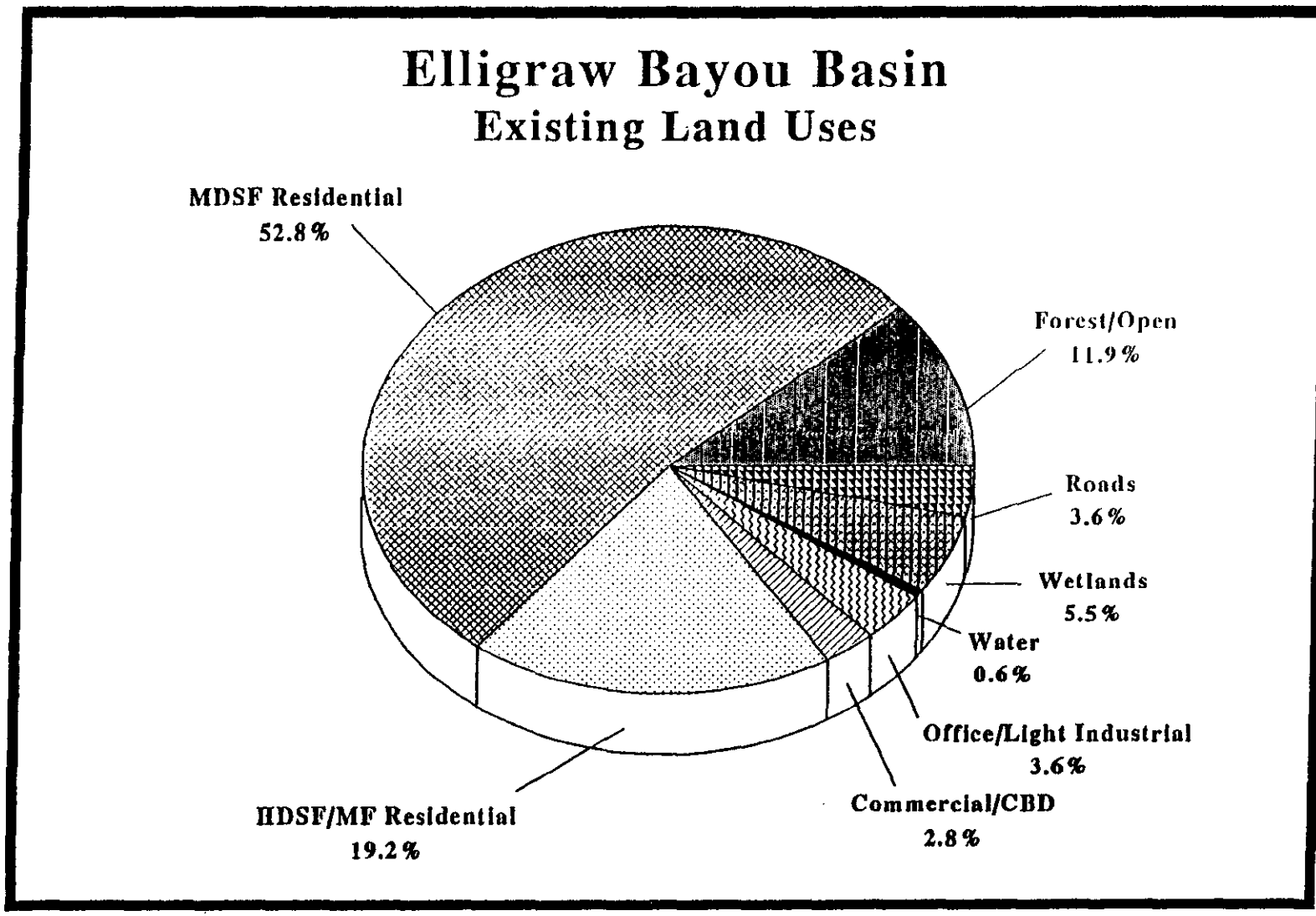


FIGURE 4.2.2.2.a **Existing land uses in the Elligraw Bayou watershed.**

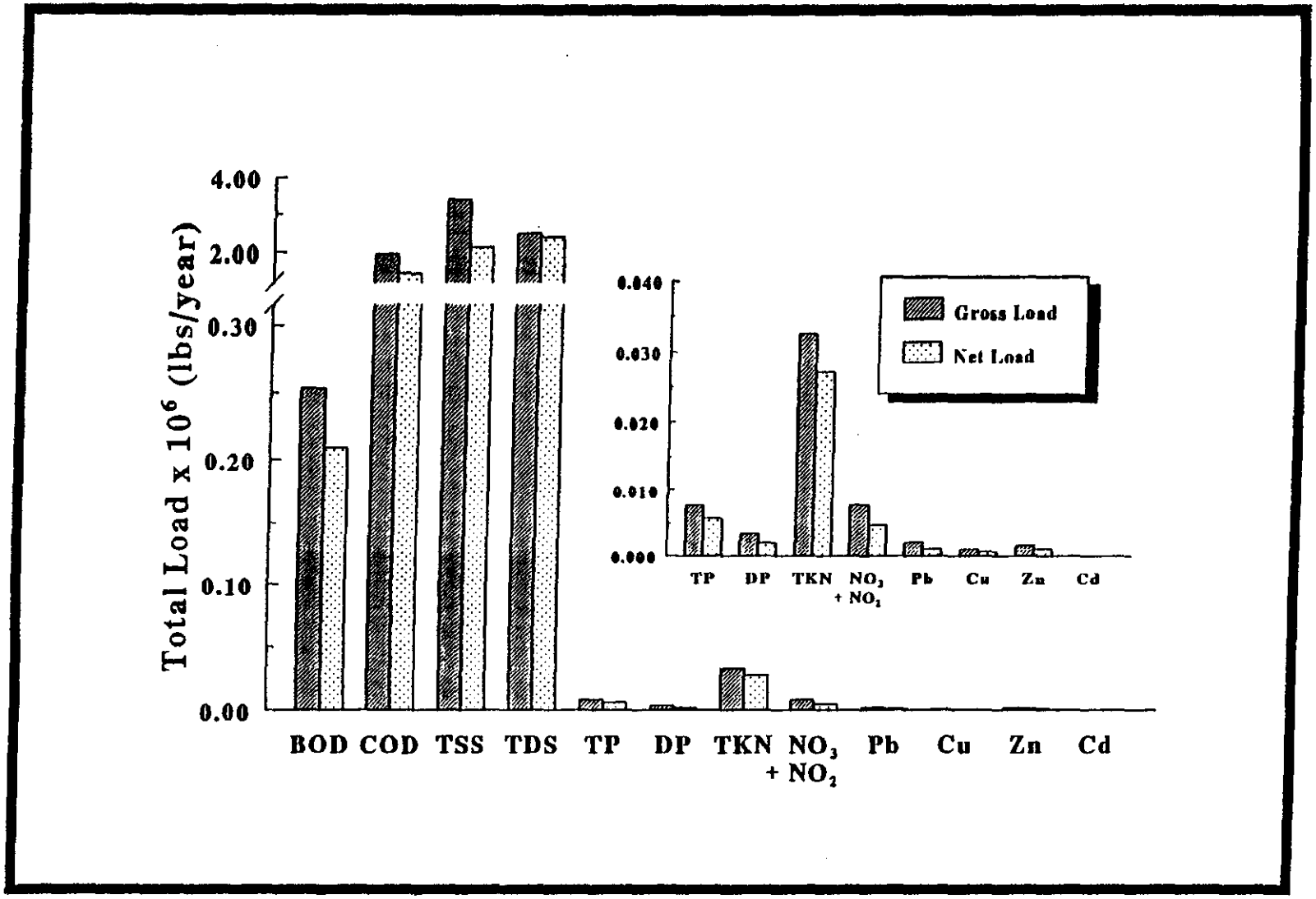


FIGURE 4.2.2.2.b **Gross pollutant loading and net pollutant loading for the Elligraw Bayou watershed under existing conditions.**

5.0 LEVEL OF SERVICE

This section presents water quantity and water quality level of service objectives and deficiencies for the Elligraw Bayou basin.

5.1 LEVEL OF SERVICE OBJECTIVES

5.1.1 FLOOD PROTECTION LEVEL OF SERVICE OBJECTIVES

The flood protection level of service (FPLOS) objectives proposed for the Elligraw Bayou basin are based upon those adopted by Sarasota County Comprehensive Plan Amendment RU-24 and are consistent with that recently developed by the five Florida Water Management Districts and the Florida Department of Environmental Protection (FDEP) during workshops held in 1993 for application throughout the State of Florida.

TABLE 5.1.1 presents the proposed FPLOS for the Elligraw Bayou basin. Flood protection and floodplain management within the Elligraw Bayou basin are also subject to applicable Federal and State regulations as briefly discussed below:

5.1.1.1 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

In September of 1992, the Sarasota Board of County Commissioners adopted regulatory requirements for unincorporated Sarasota County pursuant to Ordinance No. 92-055 relative to floodplain management and minimum finished floor elevations. This Ordinance as adopted qualifies unincorporated Sarasota County for the Federal Flood Insurance Program. The 1969 Elligraw Bayou Flood Study was also adopted by reference. The FEMA floodplain maps are based upon the 100-year storm.

5.1.1.2 STATE OF FLORIDA

The State of Florida is currently proposing amendments to Chapter 17-40, F.A.C., Water Policy requiring the State Water Management Districts to determine flood elevations for priority floodplains. At a minimum, this is to include the 100-year return flood levels.

With respect to flood protection design criteria, the Florida Department of Transportation currently requires control of the 100-year storm pursuant to Chapter 14-86, F.A.C. The Southwest Florida Water Management District currently utilizes the 25-year design storm for flood protection and control but requires compensation for encroachments and displacements of the 100-year floodplain pursuant to Chapters 40D-4 and 40D-40, F.A.C. As previously indicated, the Southwest Florida Water Management District, in cooperation with the other four

Florida Water Management Districts and the Florida Department of Environmental Protection, has developed conceptual Flood Protection Level of Service objectives based upon flooding frequency up to and including the 100-year event. This FPLOS was used as a basis for Sarasota County Comprehensive Plan Amendment RU-24 and the Elligraw Bayou Basin Master Plan.

PROPOSED
STORMWATER QUANTITY LEVEL OF SERVICE AND DESIGN CRITERIA

FLOODING REFERENCE (BUILDINGS, ROADS AND SITES)		LEVEL OF SERVICE (FLOOD INTERVALS ARE IN YEARS)
I.	BUILDINGS: Pre-FIRM or Post-FIRM structures are at or above the flood water elevation.	
	A. Emergency shelters and essential services	>100
	B. Habitable	100
	C. Employment/Service Centers	100
II.	ROAD ACCESS: roads shall be passable during flooding. Roadway flooding ≤ 6" depth at the outside edge of pavement is considered passable.	
	A. Evacuation	>100
	B. Arterials	100
	C. Collectors	25
	D. Neighborhood	10
III.	The water quantity level of service can be adjusted to allow for greater amounts of flooding of roads and sites if the flooding does not adversely impact public health and safety, natural resources or property. The level of service for improvements to existing roadways may be adjusted based on existing conditions such as adjacent topography and economic impacts.	

ACCEPTABLE FLOODING CRITERIA

ROADWAYS	10-YR	25-YR	100-YR
A. Evacuation	NONE	NONE	NONE
B. Arterials	NONE	NONE	6 inches
C. Collectors	NONE	6 inches	9 inches
D. Neighborhood	6 inches	9 inches	12 inches

TABLE 5.1.1

5.1.2 WATER QUALITY LEVEL OF SERVICE OBJECTIVES

Currently, water quality is presumed to satisfy level of service standards if the runoff from the first inch of rainfall is treated through stormwater retention or detention facilities designed and constructed in accordance with accepted criteria. This level of service criteria is only applicable to new development. In the case of the Elligraw Bayou basin, a significant portion of the watershed has previously been developed without implementation of any stormwater treatment methods. In addition, the entire basin is essentially developed. Therefore, different level of service objectives may be appropriate in order to improve or even maintain water quality.

For guidance in establishing more appropriate and site specific water quality level of service objectives for the Elligraw Bayou basin, four developing programs/policies were investigated. These include the Sarasota County National Pollution Discharge Elimination System (NPDES) permit program, the National Estuary Program for Sarasota Bay, the currently evolving Florida State Water Policy, and the Florida Department of Environmental Protection's Non-point Source Assessment. A brief description of each of these four water quality programs is provided below:

5.1.2.1 SARASOTA COUNTY'S NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)

In 1987 the "Federal Water Pollution Control Act", U.S. Public Law 92-500, was amended to stipulate that the existing NPDES permit program also applies to stormwater runoff. In 1990 the Federal Environmental Protection Agency issued regulations for implementation of the amendment. These regulations generally require that the impact of urban development on water quality be reduced to the "maximum extent practical". Specifically, these regulations require the preparation of an extensive baseline inventory of water quality at certain stormwater discharge points including ditches, paved channels, and man-made canals that discharge into the Waters of the United States, as well as development of a water quality management plan that will meet federal standards.

Sarasota County is required to obtain a NPDES Permit for the discharge of stormwater into Waters of the United States. In July 1993, unincorporated Sarasota County in cooperation with the incorporated municipalities (i.e. City of Sarasota, City of Venice, City of North Port, City of Longboat Key) and the Florida Department of Transportation, submitted a comprehensive stormwater quality management program (permit application) to the U.S. Environmental Protection

Agency.

Sarasota County is scheduled to receive a NPDES permit from the Federal Environmental Protection Agency in July of 1994. This permit will stipulate what measures are to be implemented to provide reasonable assurance that impacts of existing and future urban development on water quality will be reduced to the "maximum extent possible". It is expected that the permit will stipulate specific pollutant load reduction goals.

5.1.2.2 NATIONAL ESTUARY PROGRAM FOR SARASOTA BAY

In July of 1988 Sarasota Bay was selected by the U.S. Environmental Protection Agency for inclusion in the National Estuary Program. The National Estuary Program brings together knowledge from citizen and technical advisory groups, governmental agencies and staff, and elected officials to promote bay protection and enhancement. On June 26, 1989 the Sarasota Bay Program was officially initiated with the signing of a five-year interagency agreement between local, state and federal government agencies. This agreement specified that the Program would produce three major documents: The *State of the Bay Report* in 1990, the *Framework for Action* in 1992 and the *Comprehensive Conservation and Management Plan* in 1994.

Goals identified as part of the Sarasota Bay Program which are relevant to the subject study include:

- Improve water transparency
- Reduce the quantity and improve the quality of stormwater runoff

The publication of the *Framework for Action* in 1992 identified water quality management strategies relative to stormwater which essentially proposed developing density restrictions/cluster development strategies to limit the amount of new impervious area, and thus runoff, in the watershed.

Other management strategies noted but not investigated by NEP included:

- Restoration of channelized areas.
- Retrofitting existing development with stormwater BMP's.

To date, the Sarasota Bay Program has not established a method for evaluating the effectiveness of watershed load reductions on the achievement of Sarasota Bay

Program goals. Therefore the *Framework for Action* does not provide "target" reductions or a basis for recommending one loading reduction alternative over another. However, based upon discussions with Sarasota County and the National Estuary Program technical staff, it is anticipated that the *Comprehensive Conservation and Management Plan* scheduled for publication in 1994 will recommend target watershed pollutant load reduction goals.

In a letter to the Sarasota County Stormwater Environmental Utility Advisory Committee from the Sarasota Bay National Estuary Program Director dated June 6, 1994, the following baywide Pollutant Load Reduction Goals for stormwater were identified for the contributing SBNEP watershed.

BAYWIDE POLLUTANT LOAD REDUCTION GOALS FOR SBNEP WATERSHED

Nutrient (nitrogen)	Toxins
7%	27%

TABLE 5.1.2

The Florida Yards and Neighborhoods program, currently being finalized in association with the Cooperative Extension Service is an example of a preventative program actively being supported by the Sarasota Bay Project. The Florida Yards and Neighborhood program is aimed at educating homeowners and residents of pollution prevention measures such as xeroscaping, lawn management, water conservation, etc.

5.1.2.3 FLORIDA STATE WATER POLICY

Florida State Water Policy is contained within Chapter 17-40, Florida Administrative Code. The Florida Department of Environmental Protection is currently proposing amendments for 1994 to Chapter 17-40. As part of the proposed amendments, the Southwest Florida Water Management District must develop water body specific pollutant reduction goals for non-SWIM bodies on a priority basis according to a schedule provided in the District's Water Management Plan. Priority consideration shall be given to water bodies that are required to obtain a NPDES municipal stormwater discharge permit. Sarasota County was required to obtain a NPDES permit. The Elligraw Bayou basin is included within the Sarasota County NPDES permit application which was submitted in July of 1993. The receiving water body

for the Elligraw Bayou basin is Little Sarasota Bay, a non-SWIM water body.

Pursuant to Section 403.0891, F.S. State Water Policy, the Florida Department of Environmental Protection, the Southwest Florida Water Management District, and Sarasota County are required to cooperatively implement on a watershed basis, a comprehensive stormwater management program designed to minimize the adverse effects of stormwater on land and water resources. Further, programs are to be implemented in a manner that will improve and restore the quality of waters that do not meet state water quality standards and maintain the quality of those waters which meet or exceed state water quality standards. To accomplish these objectives for the Elligraw Bayou drainage basin, pollutant load reduction goals (estimated numeric reductions in pollutant loadings as needed to preserve or restore designated uses of receiving waters and maintain water quality consistent with applicable state standards) are to be established by the Southwest Florida Water Management District. The Southwest Florida Water Management District has indicated that they are looking to the Sarasota Bay National Estuary Program to establish these Pollutant Load Reduction Goals for the Sarasota Bay watershed. The Elligraw Bayou drainage basin is a non-priority basin situated within the Sarasota Bay watershed.

In 1993, water quality level of service criteria (WQLOS) were developed during workshops for possible application throughout the State of Florida by the Florida Department of Environmental Protection and the five (5) Water Management Districts. This WQLOS is based upon a system which considers the effectiveness and extent of the BMPs within a watershed. Specifically, the adequacy of water quality treatment for each land parcel is denoted by a multiplier. The multiplier is a numerical measure between 0 and 5, with 5 corresponding to lands with native vegetation which are designated and protected as preservation areas.

A multiplier of 4 denotes areas with an advanced level of stormwater treatment (i.e. no less than 150% of the required stormwater quality treatment).

A multiplier of 3 comprises stormwater treatment systems which improves the quality of stormwater runoff to meet or exceed state water quality standards (i.e. no less than 100% of the required stormwater quality treatment).

A multiplier of 2 consists of a best management practices system which improves

the quality of stormwater runoff but may not meet state water quality standards (i.e. between 50% and 100% of the required stormwater quality treatment volume).

A multiplier of 1 also consists of a limited best management practices system which improves the quality of stormwater runoff but may not meet state water quality standards (i.e. between 25% and 50% of the required stormwater quality treatment volume).

A multiplier of 0 applies to areas with few if any stormwater best management practices (i.e. less than 25% of the required stormwater quality treatment volume).

A watershed water quality index (WQI) is computed as the area average of multipliers for all lands in the watershed. The watershed WQI is used to determine the water quality level of service (WQLOS) as illustrated in the following table.

WQLOS	A	B	C	D	E	F
WQI	WQI = 5	5>WQI≥ 4	4>WQI≥ 3	3>WQI≥ 2	2>WQI≥ 1	WQI<1

A preliminary assessment of the Elligraw Bayou Watershed resulted in a WQI of 1.135 and a WQLOS of E based upon the following assumptions:

- 36% watershed BMP coverage provides stormwater quality treatment which meets or exceeds state water quality standards.
- Watershed contains 25.24 acres of designated preserve areas.
- WQI = .36 (3) + .585 (0) + .055(1) = 1.135

5.1.2.4 FLORIDA NONPOINT SOURCE ASSESSMENT

In 1988 the Florida Department of Environmental Protection (formerly the Department of Environmental Regulation) published the 'Florida Nonpoint Source Assessment'. This publication presented general assessments of water quality within Florida watersheds based upon a compilation of input from local, regional, state and federal sources. From the database, nonpoint sources, surface water symptoms, and pollutants were estimated for each watershed. A water quality rating system was also developed consisting of five categories: good, suspected, threatened, moderate, and severe. Each watershed was given a water quality rating. These five categories correspond to differing degrees of water quality impairment as identified below.

Water Quality Rating System

Good — No impairment of the water body's designated use throughout the water body.

Suspected — No known impairment from pollution of the water body's designated use, throughout the water body, but knowledge indicates that the water body may be experiencing impairment in part or in all of its aerial extent from non-point causes.

Threatened — No current impairment from pollution of the water body's designated use throughout the water body but knowledge indicates:

1. an existing or potential downward trend in water quality that, in the absence of additional management, will lead to use impairment in some or all portions of the water body within the next five (5) years, or

2. will lead to degradation of an "Outstanding Florida Waters" or Florida Wild and Scenic River.

Moderate — Some interference with designated uses of the water body from pollution but impairment is not throughout the water body's entirety.

Severe — Designated use of water body is precluded for the entire water body.

With respect to the Elligraw Bayou basin, the 1988 Florida Nonpoint Source Assessment indicated the likely source of pollutants to be urbanization. Surface water symptoms identified were fish kills and turbidity/siltation. Pollutants identified were limited to habitat alteration. Elligraw Bayou was given a water quality rating of moderate.

With respect to WQLOS under this criteria, a moderate rating would warrant an objective of improving existing water quality while a threatened rating would warrant an objective of maintaining or improving existing water quality.

5.2 LEVEL OF SERVICE DEFICIENCIES

5.2.1 FLOOD PROTECTION LEVEL OF SERVICES DEFICIENCIES

Flood protection level of service deficiencies are identified for each of the major subbasins in the Elligraw Bayou basin in TABLES 5.2.1.a through 5.2.1.c. A brief discussion of these deficiencies for each subbasin is provided below:

5.2.1.1 LOWER ELLIGRAW BAYOU SUBBASIN

There are no emergency shelters/essential services located in this subbasin. However, one (1) employment/service centers is anticipated to be susceptible to flooding for events including and greater than the 10-year design storm. In addition, 8, 22, 26, and 50 habitable structures are estimated to be susceptible to flooding during the 5, 10, 25, and 100-year design storms, respectively. Flooding of habitable structures was estimated by comparing site computed flood elevations with SWFWMD 1" = 200' scale 1-ft. contour maps and 1" = 30' scale topographic aerials flown for the project. The final determination of flood susceptibility of structures should be subject to field survey measurements of finished floor elevations.

With respect to road access, one (1) designated arterial road and ten (10) designated neighborhood roads were determined to be deficient from the proposed level of service objectives for flood protection. These deficiencies are identified on TABLE 5.2.1.a.

Most of the flood protection level of service (FPLOS) deficiencies in this subbasin could generally be resolved by addressing inadequate conveyance at the downstream end of the basin (i.e. Pinehurst Street outfall culvert).

5.2.1.2 UPPER ELLIGRAW BAYOU SUBBASIN

There are no emergency shelters/essential services located in this subbasin. In addition, TABLE 5.2.1.b indicates that this subbasin does not contain any apparent level of service deficiencies with respect to structures. This subbasin contains portions of one (1) arterial roadway (Beneva Road) and one (1) collector roadway (Palmer Ranch Parkway). As indicated on TABLE 5.2.1.b, there are no existing FPLOS deficiencies in this subbasin with respect to road access.

5.2.1.3 GULF GATE LATERAL SUBBASIN

There are no emergency shelters/essential services located in this subbasin. In addition, no structure flooding was apparent within this subbasin. However, as indicated in TABLE 5.2.1.c, two (2) neighborhood roadways do not meet the FPLOS standards.

LOWER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(EXISTING CONDITIONS)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	8	22	26	50
C. Employment/Service Centers		0	0	1	1	1
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• U.S. 41	10.3	6.2	9.0	11.9	12.3	12.7
C. Collectors (not applicable)						
D. Neighborhood						
• Doud Street	10.5	6.2	9.0	11.9	12.3	12.7
• Pinehurst Street	11.1	11.5	11.7	12.7	13.3	14.3
• Kai Drive	12.3	11.5	11.9	12.9	13.6	14.6
• Pine View Circle	13.1	13.1	14.3	14.5	14.6	14.7
• Marianna Drive	12.4	13.1	14.3	14.5	14.6	14.7
• Biltmore Way	12.4	13.1	14.3	14.5	14.6	14.7
• Coventry Way	12.3	13.1	14.3	14.5	14.6	14.7
• Biltmore Drive	13.8	13.1	14.3	14.5	14.6	14.7
• Hardee Drive West	13.9	14.0	14.8	15.0	15.2	15.5
East	13.8	14.1	14.9	15.1	15.3	15.6
• Tuckerstown Drive West	13.5	14.0	14.8	15.0	15.2	15.5
East	13.8	14.1	14.9	15.1	15.3	15.6

T521-A.F01(E-RPT)

TABLE 5.2.1.a

▒ FPLOS Deficiency

UPPER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(EXISTING CONDITIONS)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• Beneva Road	15.5	14.1	14.9	15.1	15.3	15.7
C. Collector						
• Palmer Ranch Parkway	17.9	14.3	15.0	15.3	15.5	15.9
D. Neighborhood (not deficiencies)						

T521-B.F03(E-RPT)

TABLE 5.2.1.b

▒ FPLOS Deficiency

GULF GATE LATERAL SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(EXISTING CONDITIONS)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
• Gulf Gate Elementary School						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials (not applicable)						
C. Collectors						
• Gulf Gate Drive	15.8	14.2	15.2	15.6	16.0	16.5
D. Neighborhood						
• Curtiss Avenue	14.9	14.1	15.1	15.4	15.7	16.2
• Antiqua Place	15.2	14.2	15.2	15.5	15.9	16.5

T521-C.F03(E-RPT)

TABLE 5.2.1.c

FPLOS Deficiency

5.2.2 WATER QUALITY LEVEL OF SERVICE DEFICIENCIES

As of August, 1994, Stormwater Pollutant Load Reduction Goals (PLRGs) of 7% for nutrient (nitrogen) loads and 27% for toxin loads are to be proposed baywide by the Sarasota Bay National Estuary Program. Based upon the Pollutant Loading Analysis performed for existing conditions, the following pollutant load reduction goals would therefore be warranted for the Elligraw Bayou drainage basin:

POLLUTANT LOAD REDUCTION GOALS (WQLOS DEFICIENCIES)

PARAMETER	POLLUTANT LOAD (in lbs/yr)	
	Existing	PLRG
TKN	2,873	2,672
$NO_2 + NO_3$	558	519
TSS	251,980	183,945
Lead	158	115
Copper	80	58
Zinc	134	98
Cadmium	3.8	2.8

TABLE 5.2.2.a

The results of the existing conditions pollutant loading analyses are summarized by parameter and basin/subbasin in TABLE 5.2.2.b.

POLLUTNAT LOADING ANALYSIS - SUMMARY OF RESULTS

EXISTING CONDITIONS USING A MEDIUM LOADING FACTOR

Basin		Runoff (ac-ft/yr)	BOD	COD	TSS	TDS	Total-P	Dissolved-P	TKN	NO2+NO3	Lead	Copper	Zinc	Cadmium
							(lbs/yr)							
Elligraw 1	Drainage Area (ac)	178	178	178	178	178	178	178	178	178	178	178	178	178
	Impervious Area (ac)	60	60	60	60	60	60	60	60	60	60	60	60	60
	% Impervious	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
	Total Gross Load	360	10,452	78,807	130,878	97,968	351	147	1,412	330	73	44	58	2.0
	Total Net Load	360	9,959	75,707	126,290	92,901	343	142	1,358	324	61	42	52	1.9
	% Pollutant Removal		4.7%	3.9%	3.5%	5.2%	2.2%	3.4%	3.8%	1.8%	16.4%	4.3%	10.5%	5.2%
Elligraw 2	Drainage Area (ac)	205	205	205	205	205	205	205	205	205	205	205	205	205
	Impervious Area (ac)	66	66	66	66	66	66	66	66	66	66	66	66	66
	% Impervious	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
	Total Gross Load	405	10,497	83,959	153,368	110,150	311	151	1,306	344	92	48	82	1.9
	Total Net Load	405	7,937	51,881	70,048	103,872	184	57	980	126	44	21	50	1.2
	% Pollutant Removal		24.4%	38.2%	54.3%	5.7%	41.0%	62.0%	24.9%	63.3%	52.0%	56.4%	39.5%	38.8%
Elligraw 3	Drainage Area (ac)	77	77	77	77	77	77	77	77	77	77	77	77	77
	Impervious Area (ac)	27	27	27	27	27	27	27	27	27	27	27	27	27
	% Impervious	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%
	Total Gross Load	158	4,367	31,699	55,641	43,095	114	54	535	108	53	17	32	0.8
	Total Net Load	158	4,367	31,699	55,641	43,095	114	54	535	108	53	17	32	0.8
	% Pollutant Removal		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Elligraw Bayou Totals	Total Gross Load	924	25,316	194,465	339,888	251,212	777	351	3,252	782	218	109	172	4.7
	Total Net Load	924	22,262	159,287	251,980	239,868	642	253	2,873	558	158	80	134	3.8
	Total Pollutant Removal		3,054	35,177	87,908	11,344	135	98	379	224	60	29	38	0.8
	% Pollutant Removal		12.1%	18.1%	25.9%	4.5%	17.4%	28.0%	11.7%	28.7%	27.4%	26.4%	22.3%	18.2%

TABLE 5.2.2.b

6.0 ALTERNATIVE SOLUTIONS TO UPGRADING LEVEL OF SERVICE

Conceptual alternatives intended to address both flood protection and water quality level of service deficiencies in each subbasin are presented herein for consideration. The following stormwater management strategies might be worthy of investigation from a basin-wide perspective.

(1) Require all new public and private development within the study area to conform with the Level of Service objectives of the Elligraw Bayou Basin Master Plan. The effectiveness of this strategy may be somewhat limited due to the fact that this basin is essentially developed.

(2) Encourage regional common-use stormwater management facilities over small single-use facilities wherever feasible.

(3) Develop a basin-wide maintenance program. To this end, schedules for sediment removal and vegetation harvesting should be established for stormwater management facilities.

(4) Pro-actively participate in the Florida Yards and Neighborhoods program.

(5) Enhance the pollutant removal efficiencies of all existing, man-made stormwater storage and conveyance facilities to the extent practical.

(6) Prohibit the perpetuation of open swale enclosures without both adequate conveyance provisions and water quality mitigation.

Specific capital improvement projects for each subbasin are identified below for consideration.

6.1 CONCEPTUAL ALTERNATIVES INVESTIGATED

6.1.1 LOWER ELLIGRAW BAYOU SUBBASIN

6.1.1.a FLOOD PROTECTION

(1) Increase conveyance efficiency of Pinehurst Street outfall culvert.

(2) Increase efficiency of Water Level Control Structure at Dale Avenue.

(3) Increase conveyance at Biltmore Drive.

6.1.1.b WATER QUALITY

(1) Provide bleeder diversion structure at downstream end of Elligraw Bayou Main to existing pond and swale outfall.

(2) Modify County drainage and park area south of Biltmore Way to enhance habitat and pollutant removal efficiency.

(3) Reconstruct/Modify Tuckerstown Water Level Control Structure to enhance upstream residence time.

(4) Reshape and provide aquatic vegetation corridor in Elligraw Bayou

Main between Biltmore Drive and the Beneva Road water level control structure.

(5) Open to the extent possible, Lower Elligraw Bayou Main within Dale Street right-of-way.

(6) Provide a stormwater treatment facility in available open space located behind Robb & Stuckey Furniture Store and north of Kai Drive.

(7) Test, remove, and properly dispose of sediment accumulation in upper Elligraw Bayou Main. Reshape canal banks to minimize erosion and scouring.

6.1.2 UPPER ELLIGRAW BAYOU SUBBASIN

6.1.2.a. FLOOD PROTECTION

None

6.1.2.b WATER QUALITY

(1) Modify Beneva Road water level control structure to enhance upstream residence time.

(2) Modify outfall structures in Ballantrae Condominium to enhance residence time.

(3) Modify outfall structures in Mira Lago Subdivision to enhance upstream residence time.

(4) Modify outfall control structures for Prestancia Subdivision to enhance upstream residence time.

(5) Divert untreated areas from Ballantrae Condominium and Country Club of Sarasota subdivision to existing lakes in Ballantrae Condominium.

6.1.3 GULF GATE LATERAL SUBBASIN

6.1.3.a FLOOD PROTECTION

None

6.1.3.b WATER QUALITY

(1) Modify/Reconstruct existing water level control structure at Curtiss Drive to enhance upstream residence time.

(2) Test, remove, and properly dispose of sediment accumulation in Gulf Gate Lateral. Reshape canal banks to minimize erosion and scouring.

6.2 ALTERNATIVES SELECTED FOR DETAILED HYDROLOGIC AND HYDRAULIC INVESTIGATION

6.2.1 FLOOD PROTECTION

Three (3) alternatives to address flood protection level of service deficiencies were investigated as part of the detailed hydrologic and hydraulic analyses. These alternatives and their effectiveness in resolving level of service deficiencies are discussed herein.

6.2.1.1 ALTERNATIVE 1

This alternative considered the downstream conveyance improvements needed to address the FPLOS deficiencies in the basin. Specifically, these improvements include three (3) primary components:

- Replace existing 40" x 65" CMPA Pinehurst Street outfall with 3 - 4' x 11' reinforced concrete box culverts (or hydraulic equivalent).
- Replace existing water level control, structure upstream of Pinehurst Street culvert with more efficient structure, and
- Replace existing 40" x 65" CMPA at Biltmore Drive with 2 - 5' x 6' Concrete Box Culverts (or hydraulic equivalents).

Additional minor improvements considered include:

- Enlarge culvert at downstream end Elligraw Bayou swale.
- Enlarge culvert at Pinehurst Street and Elligraw Bayou swale.

The detailed analyses for alternative 1 are provided in APPENDIX B. As summarized in TABLES 6.2.1.1.a, 6.2.1.1.b and 6.2.1.1.c, the detailed analyses indicate that the alternative 1 improvements would address all FPLOS deficiencies identified within the Elligraw Bayou basin.

6.2.1.2 ALTERNATIVE 2

Alternative 2 considered the corresponding reduction in downstream conveyance improvements which would result from the over-attenuation of flood flows in the Upper Elligraw Bayou subbasin and the Gulf Gate Lateral subbasin. The specific upstream activities considered are itemized below:

1. Modify Canal Weir (EB-3) downstream of Beneva Road (elevate top of weir/embankment to 16.0 NGVD, reduce weir opening to 4.0' width).
2. Modify Ballantrae lake (reach 171) control structure (reduce width to 1.0').
3. Modify Ballantrae lake (reach 173) control structure (replace weir with 8" orifice).
4. Modify Ballantrae lake (reach 175) control structure (replace weir with 8" orifice).
5. Modify Palmer Ranch Parkway lake (reach 180) control structure (reduce weir width to 2.0', elevate top of structure to 16.7 NGVD).

6. Modify Mira Lago lake control structures (reduce width of structure 181B to 1.5'). Elevate both structures 181A and 181B to elevation 17.3 NGVD.
7. Modify Mira Lago lake (reach 183) control structure (reduce weir width to 1.25', elevate top of structure to 18.5 NGVD).
8. Modify Prestancia, Parcel 'B' bermed marsh (reach 191) control structure (replace weir with 12" orifice, elevate top of structure to 17.2 NGVD).
9. Modify Prestancia, Parcel 'B' lake (reach 192) control structure (replace weir with 15" orifice, elevate top of structure to 17.2 NGVD).
10. Replace existing corrugated metal riser at Curtiss Avenue with an FDOT TYPE H inlet with 5.0' wide slot.

As a result of these upstream stormwater enhancement activities, the FPLOS deficiencies could be addressed with 2 - 4' x 7' reinforced concrete box culverts (or hydraulic equivalent) at the Pinehurst Street outfall and 2 - 4' x 5' concrete box culverts at Biltmore Drive. The detailed analyses for alternative 2 are provided in APPENDIX B. As summarized in TABLES 6.2.1.2.a, 6.2.1.2.b, and 6.2.1.2.c, the detailed analyses indicate that the Alternative 2 improvements would address all FPLOS deficiencies identified within the Elligraw Bayou basin.

6.2.1.3 ALTERNATIVE 3

This alternative considered all of the stormwater conveyance and enhancement activities included in Alternative 2 with the addition of a low-flow diversion to the historical open swale outfall for the Elligraw Bayou basin. Although this modification is proposed to enhance stormwater quality of stormwater in the Elligraw Bayou associated with the "first-flush" of runoff, it was analyzed for implications to FPLOS. This proposed low-flow diversion would be effectuated by the placement of a riser structure upstream of the Pinehurst Street weir at elevation ±10.5 NGVD with an 18" RCP culvert to convey flows to the west to a man-made pond located at the upstream of the Elligraw Bayou swale. In addition, the water level control structure upstream of Pinehurst Street would need to be proposed with an overflow elevation of 11.0 NGVD. Since this pond and the Elligraw Bayou swale are located on private property, a pubic easement would need to be obtained from the effected property owners.

The detailed analyses for Alternative 3 are contained in APPENDIX B. As summarized in TABLES 6.2.1.3.a, 6.2.1.3.b, and 6.2.1.3.c, the detailed analyses indicate the Alternative 3 improvements would address all FPLOS deficiencies

identified within the Elligraw Bayou Basin with the exception of Marianna Drive and Biltmore Way which will both be subject to 1.1 feet of flooding in their lower portions during a 100-year flood and Coventry Way which will be subject to 1.2 feet of flooding in its lower portion during a 100-year flood. Water surface profiles for this proposed Alternative are presented in EXHIBITS 6.2.1.3.a, 6.2.1.3.b, and 6.2.1.3.c.

LOWER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 1)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• U.S. 41	10.3	3.0	3.7	4.1	4.4	4.9
C. Collectors (not applicable)						
D. Neighborhood						
• Doud Street	10.5	3.0	3.7	4.1	4.4	4.9
• Pinehurst Street	11.1	11.0	11.5	11.6	11.6	11.7
• Kai Drive	12.3	11.1	11.5	11.6	11.7	11.8
• Pine View Circle	13.1	11.6	12.2	12.5	12.8	13.3
• Marianna Drive	12.4	11.6	12.2	12.5	12.8	13.3
• Biltmore Way	12.4	11.6	12.2	12.5	12.8	13.3
• Coventry Way	12.3	11.6	12.2	12.5	12.8	13.3
• Biltmore Drive	13.8	11.6	12.2	12.5	12.8	13.3
• Hardee Drive West	13.9	11.8	12.6	13.0	13.4	14.1
East	13.8	13.0	13.5	13.8	14.1	14.6
• Tuckerstown Drive West	13.5	11.8	12.6	13.0	13.4	14.1
East	13.8	13.0	13.5	13.8	14.1	14.6

T621-A.F18(E-RPT)

TABLE 6.2.1.1.a

▒ FPLOS Deficiency

UPPER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 1)

I. BUILDINGS (No. of Structures Below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• Beneva Road	15.5	13.6	13.8	14.0	14.3	14.8
C. Collector						
• Palmer Ranch Parkway	17.9	14.2	14.7	14.9	15.1	15.4
D. Neighborhood (not deficiencies)						

T621-B.F18(E-RPT)

TABLE 6.2.1.1.b

▒ FPLOS Deficiency

GULF GATE LATERALSUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVENO. 1)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
• Gulf Gate Elementary School						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials (not applicable)						
C. Collectors						
• Gulf Gate Drive	15.8	14.2	14.7	15.1	15.5	16.2
D. Neighborhood						
• Curtiss Avenue	14.9	13.3	14.2	14.6	15.0	15.6
• Antiqua Place	15.2	13.5	14.5	15.0	15.4	16.2

T621-C.F22(E-RPT)

TABLE 6.2.1.1.c

FPLOS Deficiency

LOWER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 2)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	E/P	2-YR	5-YR	10-YR	25-YR	100-YR
A. Evacuation (not applicable)						
B. Arterials						
• U.S. 41	10.3	3.9	4.9	5.4	5.9	6.5
C. Collectors (not applicable)						
D. Neighborhood						
• Doud Street	10.5	3.9	4.9	5.4	5.9	6.5
• Pinehurst Street	11.1	11.0	11.2	11.4	11.5	11.7
• Kai Drive	12.3	11.3	11.6	11.7	11.9	12.0
• Pine View Circle	13.1	11.6	12.1	12.5	12.8	13.3
• Marianna Drive	12.4	11.6	12.1	12.5	12.8	13.3
• Biltmore Way	12.4	11.6	12.1	12.5	12.8	13.3
• Coventry Way	12.3	11.6	12.1	12.5	12.8	13.3
• Biltmore Drive	13.8	11.6	12.1	12.5	12.8	13.3
• Hardee Drive West	13.9	11.7	12.4	12.9	13.3	14.1
East	13.8	12.7	13.1	13.4	13.7	14.3
• Tuckerstown Drive West	13.5	11.7	12.4	12.9	13.3	14.1
East	13.8	12.7	13.1	13.4	13.7	14.3

T622-A.F22(E-RPT)

TABLE 6.2.1.2.a

▒ FPLOS Deficiency

UPPER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 2)

I. BUILDINGS (No. of Structures Below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• Beneva Road	15.5	13.7	14.6	15.0	15.4	16.0
C. Collector						
• Palmer Ranch Parkway	17.9	14.1	14.7	15.1	15.5	16.1
D. Neighborhood (not deficiencies)						

T622-B.F22(E-RPT)

TABLE 6.2.1.2.b

▒ FPLOS Deficiency

GULF GATE LATERAL SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 2)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
• Gulf Gate Elementary School						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials (not applicable)						
C. Collectors						
• Gulf Gate Drive	15.8	14.2	14.7	15.1	15.5	16.2
D. Neighborhood						
• Curtiss Avenue	14.9	13.3	14.1	14.6	14.9	15.6
• Antiqua Place	15.2	13.5	14.5	14.9	15.4	16.1

T622-C.F22(E-RPT)

TABLE 6.2.1.2.c

▒ FPLOS Deficiency

LOWER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 3)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	E/P	2-YR	5-YR	10-YR	25-YR	100-YR
A. Evacuation (not applicable)						
B. Arterials						
• U.S. 41	10.3	3.9	4.9	5.4	5.8	6.5
C. Collectors (not applicable)						
D. Neighborhood						
• Doud Street	10.5	3.9	4.9	5.4	5.8	6.5
• Pinehurst Street	11.1	11.0	11.4	11.5	11.6	11.7
• Kai Drive	12.3	11.5	11.7	11.8	11.9	12.1
• Pine View Circle	13.1	12.0	12.5	12.8	13.0	13.5
• Marianna Drive	12.4	12.0	12.5	12.8	13.0	13.5
• Biltmore Way	12.4	12.0	12.5	12.8	13.0	13.5
• Coventry Way	12.3	12.0	12.5	12.8	13.0	13.5
• Biltmore Drive	13.8	12.0	12.5	12.8	13.0	13.5
• Hardee Drive West	13.9	12.1	12.8	13.1	13.5	14.2
East	13.8	12.7	13.2	13.5	13.8	14.4
• Tuckerstown Drive West	13.5	12.1	12.8	13.1	13.5	14.2
East	13.8	12.7	13.2	13.5	13.8	14.4

T623-A.F03(E-RPT)

TABLE 6.2.1.3.a

FPLOS Deficiency

UPPER ELLIGRAW BAYOU SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 3)

I. BUILDINGS (No. of Structures Below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials						
• Beneva Road	15.5	13.7	14.6	15.1	15.5	16.0
C. Collector						
• Palmer Ranch Parkway	17.9	14.1	14.7	15.1	15.5	16.1
D. Neighborhood (not deficiencies)						

T623-B.F18(E-RPT)

TABLE 6.2.1.3.b

▒ FPLOS Deficiency

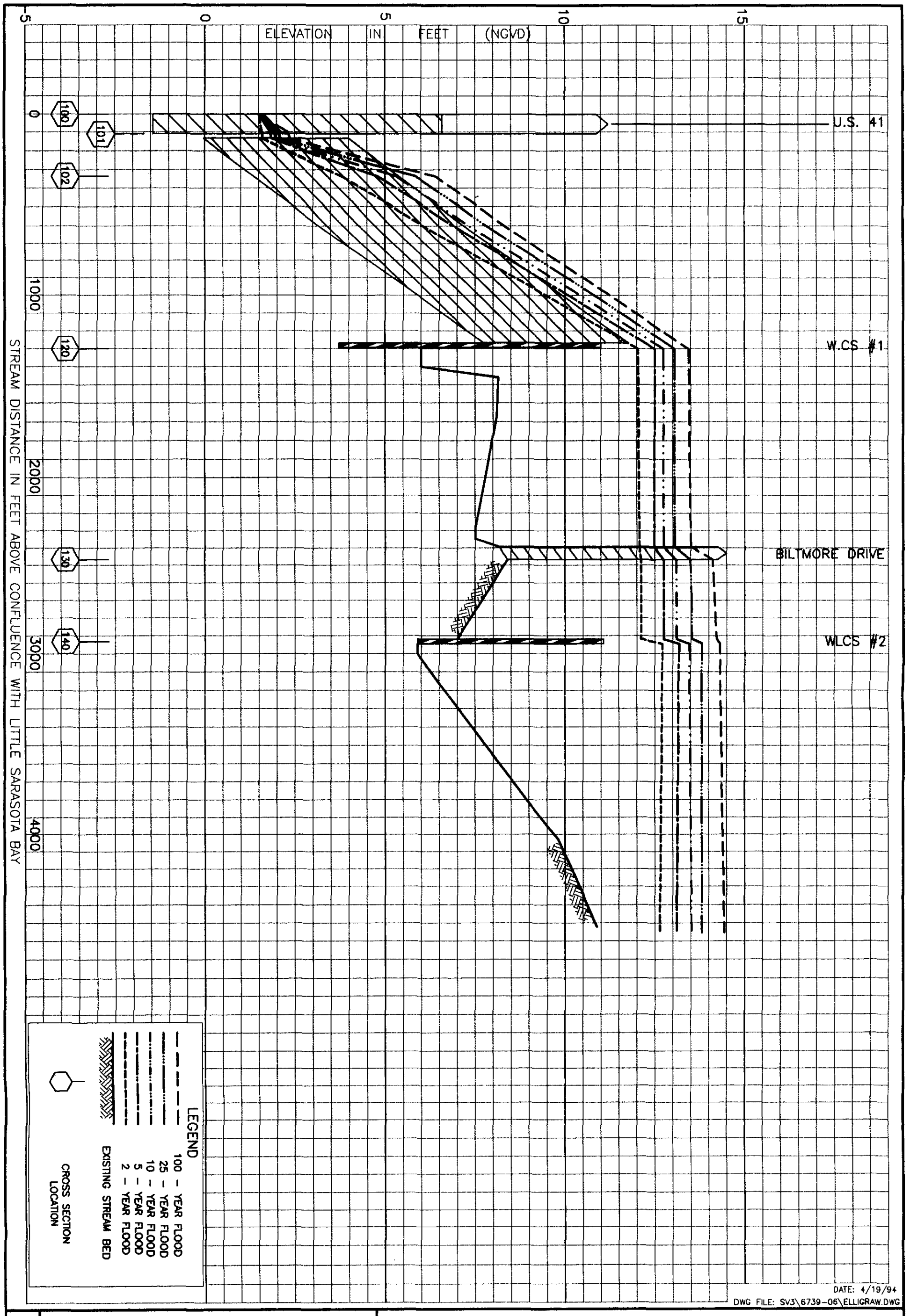
GULF GATE LATERAL SUBBASIN
FLOOD PROTECTION LEVEL OF SERVICE DEFICIENCIES
(ALTERNATIVE NO. 3)

I. BUILDINGS (No. of Structures below)		2-YR	5-YR	10-YR	25-YR	100-YR
A. Emergency Shelters/Essential Services (N/A)						
• Gulf Gate Elementary School						
B. Habitable		0	0	0	0	0
C. Employment/Service Centers		0	0	0	0	0
II. ROAD ACCESS (Elevation)	**E/P**	**2-YR**	**5-YR**	**10-YR**	**25-YR**	**100-YR**
A. Evacuation (not applicable)						
B. Arterials (not applicable)						
C. Collectors						
• Gulf Gate Drive	15.8	14.2	14.7	15.1	15.5	16.2
D. Neighborhood						
• Curtiss Avenue	14.9	13.3	14.2	14.6	15.0	15.7
• Antiqua Place	15.2	13.5	14.5	15.0	15.4	16.2

T623-C.F22(E-RPT)

TABLE 6.2.1.3.c

FPLOS Deficiency

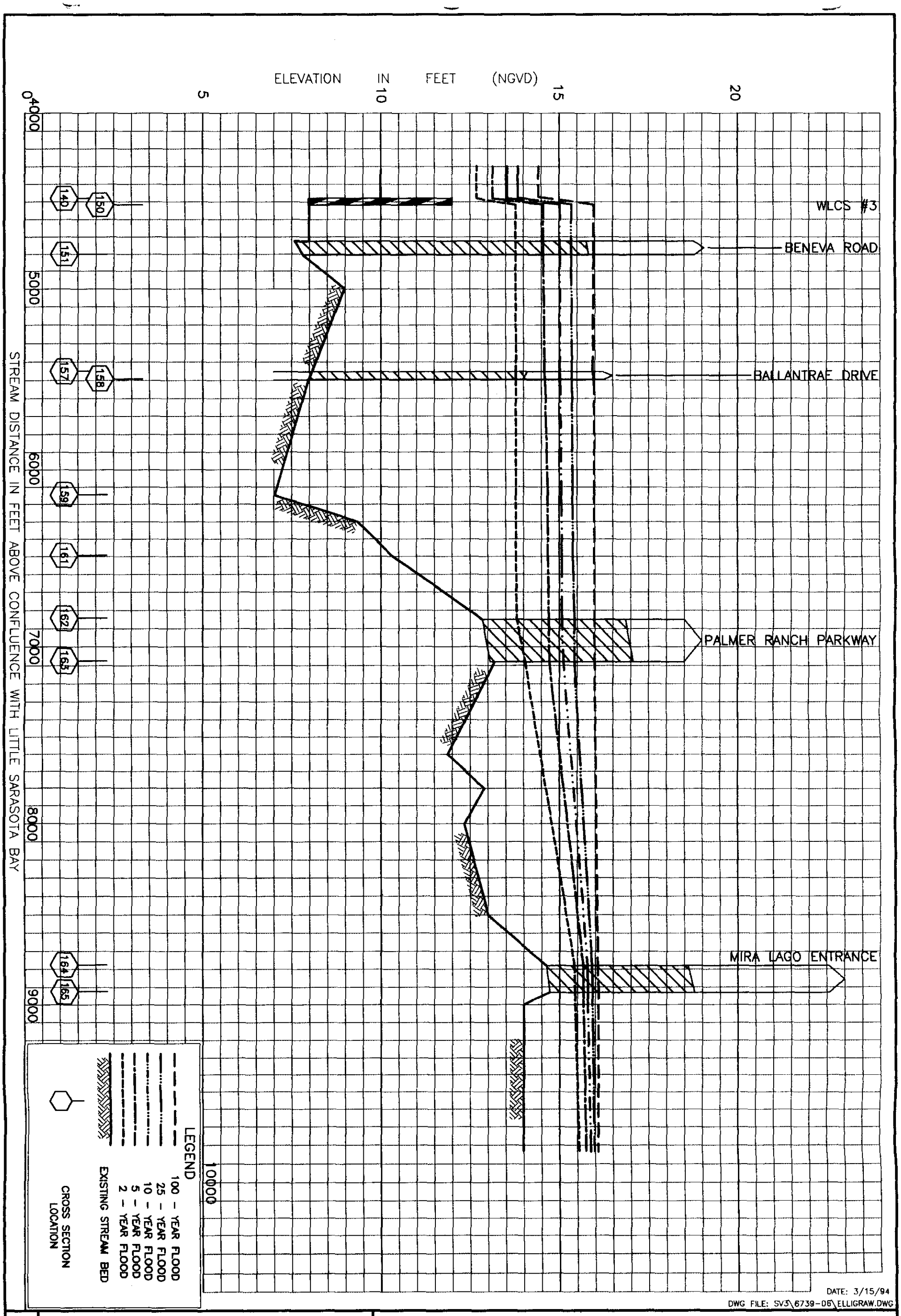


ELLIGRAW BAYOU BASIN MASTER PLAN
PROPOSED WATER SURFACE PROFILES
LOWER ELLIGRAW BAYOU MAIN
(CANAL 11-209)

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

EXHIBIT 6.2.1.3.a

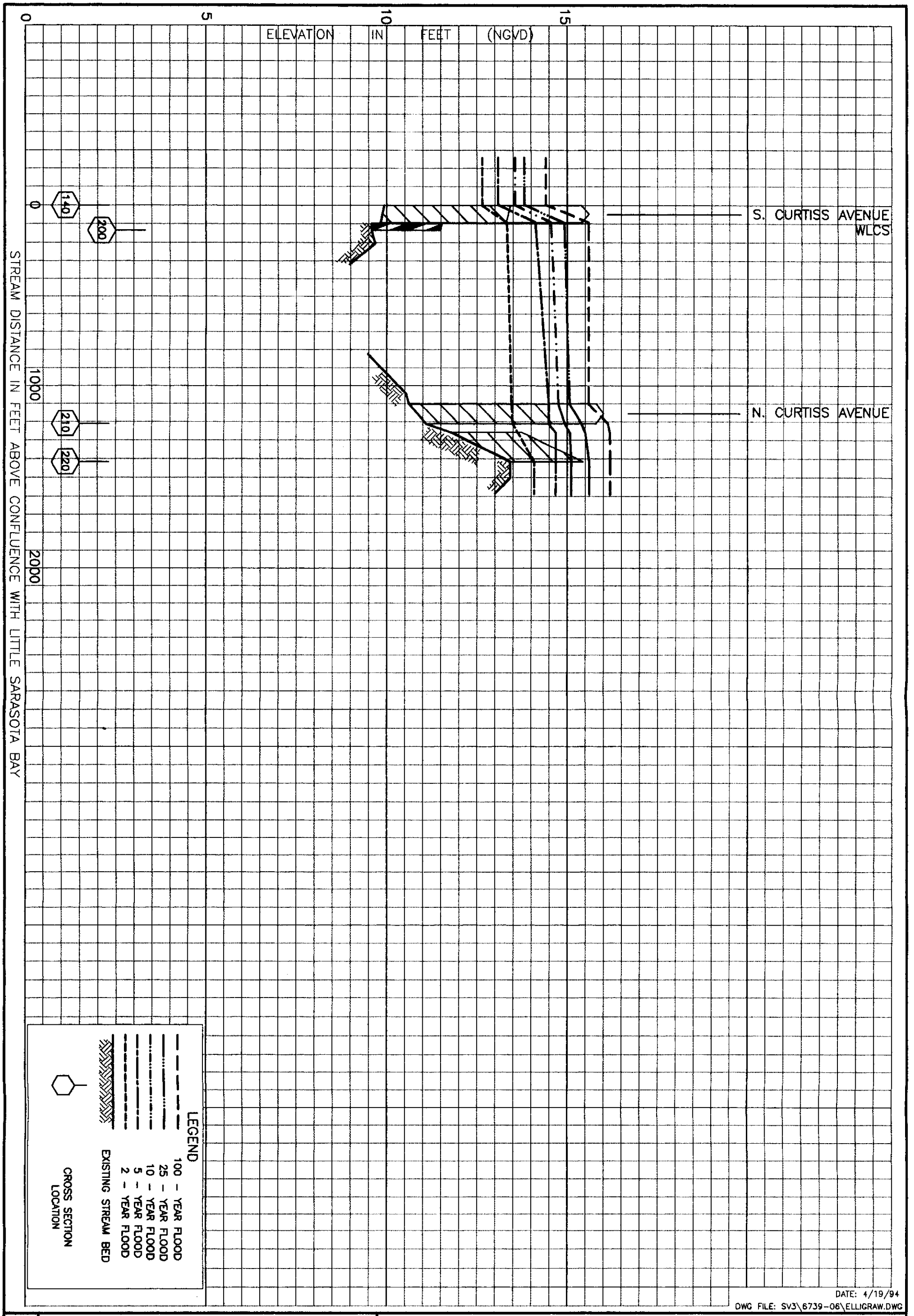


ELLIGRAW BAYOU BASIN MASTER PLAN
PROPOSED WATER SURFACE PROFILES
UPPER ELLIGRAW BAYOU MAIN
(CANAL 11-208)

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

EXHIBIT 6.2.1.3.b



ELLIGRAW BAYOU BASIN MASTER PLAN
PROPOSED WATER SURFACE PROFILES
GULF GATE LATERAL
(CANAL 11-210)

PREPARED FOR: SARASOTA BOARD OF COUNTY COMMISIONERS

PREPARED BY: KIMLEY-HORN & ASSOCIATES, INC.

EXHIBIT 6.2.1.3.c

6.2.2 WATER QUALITY

Although Section 6.1 identifies numerous water quality improvement projects, only those which could be quantified in terms of BMP coverage increases were considered. The pollutant loading model is capable of predicting the reduction in gross pollutant loads resulting from increased BMP coverage within the watershed. As such, the following modifications to the pollutant loading model were made:

Lower Elligraw Bayou Basin

1. Wet detention BMP (#3) was added to service commercial area (i.e. Robb & Stuckey Furniture Store) in subbasin 05110.
2. Small wetland habitat restoration project in County park area south of Biltmore Way was considered as wet detention BMP (#3) to service 2% of residential development in subbasin 05120.

Upper Elligraw Bayou Basin

1. Directed subbasin 05172 (portion of Ballantrae) to existing wet detention BMP (#3) in Ballantrae.
2. Directed subbasin 05174 (portions of Ballantrae and County Club of Sarasota) to existing wet detention BMP (#3) in Ballantrae.

Gulf Gate Lateral

1. Convert Gulf Gate Lateral conveyance system to a stormwater BMP by modifying the existing weir structure at Curtiss Drive to increase residence time and by testing, removing, and properly disposing of sediment accumulation.

The estimated gross and net pollutant loads from Elligraw Bayou are presented in TABLE 6.2.2.a for the alternative condition. Under this alternative condition, additional BMP's (i.e. wet detention ponds) will be in place in both Subbasins 1 and 2. In addition, BMP's in Subbasin 3 will be assumed effective in removing pollutant loads.

Based upon the pollutant loadings analyses, the alternative condition is expected to reduce the nitrogen loads by 8% to 22% and toxin loads by 23% to 26% below existing conditions. Therefore, the alternative condition analyses indicates that the proposed QCIP can be expected to exceed the nutrient PLRG of 7% and approximate the toxin PLRG of 27%. However, it is anticipated that the non-quantifiable water quality benefits proposed in association with ALTERNATIVE 3 of the FPCIP will be effective in further reducing toxin loads.

TABLE 6.2.2.b identifies the pollutant loading reductions for each basin under the alternative condition. The results of the pollutant loading analyses are contained in APPENDIX C and are summarized on TABLE 6.2.2.c.

TABLE 6.2.2.a ESTIMATED TOTAL POLLUTANT LOADING FOR SURFACE RUNOFF IN THE ELLIGRAW BAYOU WATERSHED FOR ALTERNATIVE CONDITION, SARASOTA COUNTY, FLORIDA.

Parameters	Gross Load*	Removal	Net Load
Drainage Area (acres)	460	----	460
Total Impervious Area (acres)	153	----	153
Runoff (acre-ft/yr)	924	----	924
Pollutant Loads (lbs/yr):			
Biochemical Oxygen Demand	25,316	4,866	20,450
Chemical Oxygen Demand	194,465	57,148	137,317
Total Suspended Solids	339,888	141,079	198,809
Total Dissolved Solids	251,212	11,344	239,868
Total Phosphorus	777	216	561
Dissolved Phosphorus	351	159	192
Total Kjeldahl Nitrogen	3,252	602	2,650
Nitrate + Nitrite	782	346	436
Total Lead	218	117	101
Total Copper	109	47	62
Total Zinc	172	61	112
Total Cadmium	5	1	3

* Loadings do not reflect planned elimination of all septic tank systems within the watershed.

TABLE 6.2.2.b POLLUTANT LOADING REDUCTIONS PER BASIN UTILIZING EXISTING BMP's IN THE ELLIGRAW BAYOU WATERSHED UNDER ALTERNATIVE CONDITION.

Constituents (lbs/yr)	Basin No. 1	2	3	Total
Biochemical Oxygen Demand	652	2,904	1,310	4,866
Chemical Oxygen Demand	4,818	36,480	15,850	57,148
Total Suspended Solids	8,233	93,897	38,949	141,079
Total Dissolved Solids	5,067	6,278	0	11,344
Total Phosphorus	12	146	57	216
Dissolved Phosphorus	10	107	43	159
Total Kjeldahl Nitrogen	72	370	160	602
Nitrate + Nitrite	13	247	86	346
Total Lead	21	53	43	117
Total Copper	3	31	13	47
Total Zinc	9	35	16	61
Total Cadmium	0.2	0.9	0.4	1.4
Mitigation Type	Retention Wet Detention	Retention Wet Detention	Wet Detention	

Removal Efficiencies (CDM, 1992):

Retention: 90% efficiency for all constituents

Wet Detention: Biochemical Oxygen Demand = 30%; Chemical Oxygen Demand = 50%; Total Suspended Solids = 70%; Total Dissolved Solids = 0%; Total Phosphorus = 50%; Dissolved Phosphorus = 80%; Total Kjeldahl Nitrogen = 30%; Nitrate + Nitrite = 80%; Total Lead = 80%; Total Copper = 75%; Total Zinc = 50%; Total Cadmium = 50%.

POLLUTANT LOADING ANALYSIS - SUMMARY OF RESULTS

ALTERNATIVE CONDITION USING A MEDIUM LOADING FACTOR

Basin No. Cadmium		Runoff	BOD	COD	TSS	TDS	Total P	Dissolved P	TKN	NO2 + NO3	Lead	Copper	Zinc	
		(ac-ft/yr)	(lbs/year)											
1	Drainage Area (ac)	178	178	178	178	178	178	178	178	178	178	178	178	178
	Impervious Area (ac)	60	60	60	60	60	60	60	60	60	60	60	60	60
	% Impervious	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%	33.7%
	Total Gross Load	360	10,452	78,807	130,878	97,968	351	147	1,412	330	73	44	58	2.0
	Total Net Load	360	9,800	73,989	122,645	92,901	339	137	1,340	318	52	41	49	1.8
	% Pollutant Removal		6.2%	6.1%	6.3%	5.2%	3.6%	6.5%	5.1%	3.8%	28.8%	7.8%	15.6%	7.9%
2	Drainage Area (ac)	205	205	205	205	205	205	205	205	205	205	205	205	205
	Impervious Area (ac)	66	66	66	66	66	66	66	66	66	66	66	66	66
	% Impervious	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
	Total Gross Load	405	10,497	83,959	153,368	110,150	311	151	1,306	344	92	48	82	1.9
	Total Net Load	405	7,593	47,478	59,472	103,872	165	44	936	97	39	17	47	1.1
	% Pollutant Removal		27.7%	43.5%	61.2%	5.7%	47.0%	70.8%	28.3%	71.8%	58.1%	64.0%	43.0%	44.3%
3	Drainage Area (ac)	77	77	77	77	77	77	77	77	77	77	77	77	77
	Impervious Area (ac)	27	27	27	27	27	27	27	27	27	27	27	27	27
	% Impervious	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%
	Total Gross Load	158	4,367	31,699	55,641	43,095	114	54	535	108	53	17	32	0.8
	Total Net Load	158	3,057	15,850	16,692	43,095	57	11	374	22	11	4	16	0.4
	% Pollutant Removal		30.0%	50.0%	70.0%	0.0%	50.0%	80.0%	30.0%	80.0%	80.0%	75.0%	50.0%	50.0%
Total	Total Gross Load	924	25,316	194,465	339,888	251,212	777	351	3,252	782	218	109	172	4.7
	Total Net Load	924	20,450	137,317	198,809	239,868	561	192	2,650	436	101	62	112	3.3
	Total Pollutant Removal		4,866	57,148	141,079	11,344	216	159	602	346	117	47	61	1.4
	% Pollutant Removal		19.2%	29.4%	41.5%	4.5%	27.8%	45.4%	18.5%	44.2%	53.6%	42.9%	35.1%	30.0%

TABLE 6.2.2.c

7.0 CONCLUSIONS

With respect to flood protection, significant level of service deficiencies exist within the Lower Elligraw Bayou basin. These level of service deficiencies were fully realized in lake June of 1992 when over 18 inches of rainfall fell in a three day period. As such, an immediate need exists to implement a FPCIP to resolve these FPLOS deficiencies.

State Water Policy requires that the Southwest Florida Water Management District establish pollutant load reduction goals for Elligraw Bayou. In addition, the National Estuary Program for Sarasota Bay is expected to reveal specific stormwater pollutant load reduction goals (PLRG's) by the end of the year. Preliminary discussions with the SBNEP have revealed that baywide PLRG's nitrogen and toxins of 7% and 27%, respectively, are to be proposed for stormwater. It is anticipated that these PLRG's will establish a baseline WQLOS standard for the entire SBNEP watershed which contains the Elligraw Bayou Drainage basin. However, it may be prudent to wait for adoption and implementation of a WQCIP until such PLRG's are formally proposed by SBNEP, adopted by SWFWMD, and assessed within the context of the entire SBNEP Watershed by the Sarasota County Pollutant Loading Model.

Therefore, it is recommended that Sarasota County proceed with the implementation of the FPCIP identified under Alternative No. 3 but wait for final adoption of the PLRG's before proceeding with modification and/or implementation of the proposed WQCIP. Discussions with the Sarasota County Stormwater Environmental Utility and the Southwest Florida Water Management District has yielded a consensus that FPCIP Alternative No. 3 is preferred because it also contains the most significant provisions to enhance water quality. Implementation of this proposed FPCIP and its interim water quality enhancement components are expected to compliment the development and implementation of the subsequent WQCIP. Alternative No. 3 is also considered as cost effective as Alternative 2 and more cost effective than Alternative 1.

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DEVELOPMENT PLANS

Residential Developments

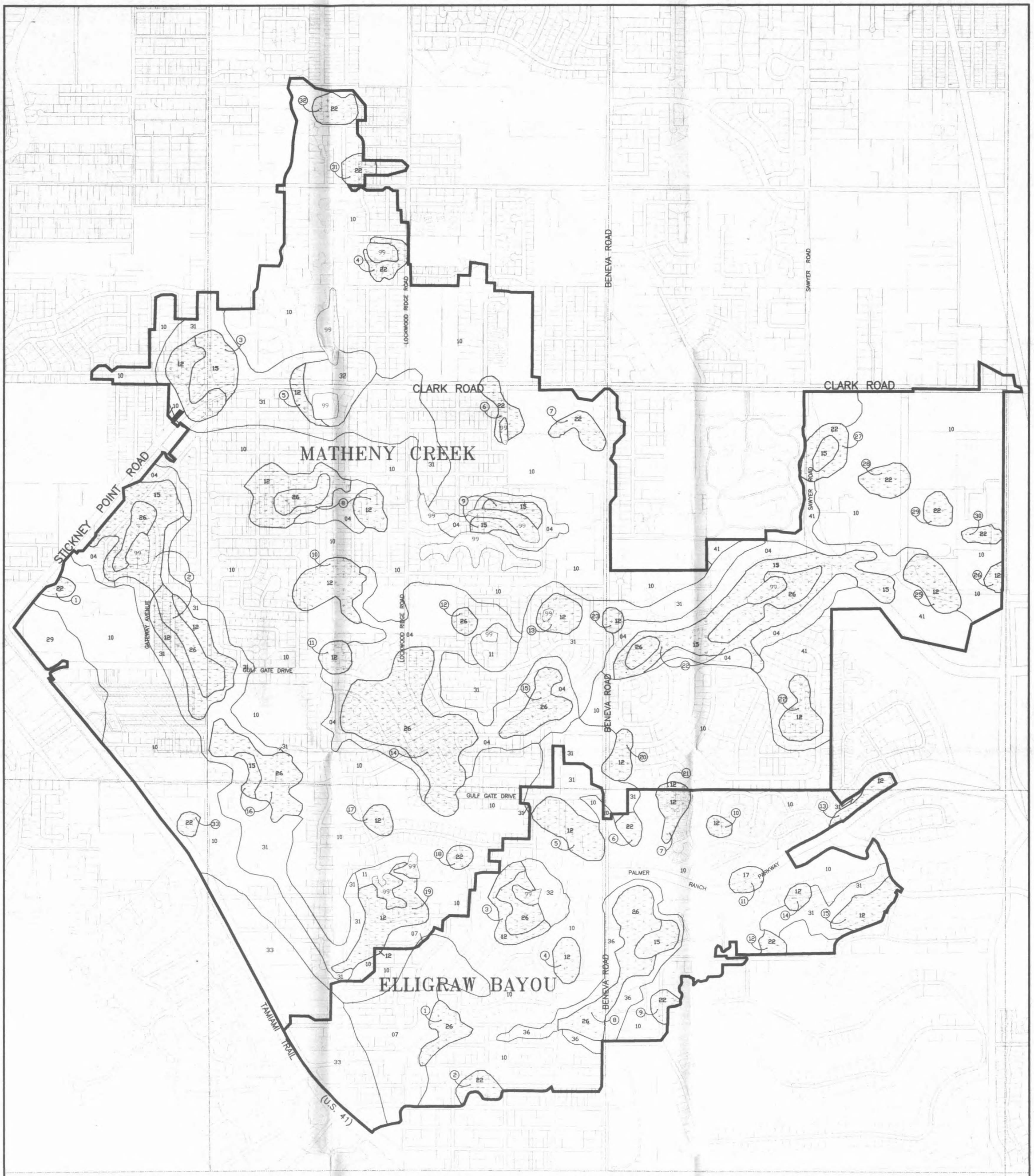
1. Ballantrae Condominium
2. Church site at Beneva Road and Gulf Gate Drive
3. Gulf Gate Woods
4. Mira Lago
5. Prestancia

Commercial Developments

1. Robb & Stuckey Furniture Store

Major Roadway Corridors

1. U.S. 41
2. Beneva Road (from Gulf Gate Drive to Country Club of Sarasota)
3. Palmer Ranch Parkway (from Beneva Road to McIntosh Road)



LEGEND

4	Bradenton fine sand
7	Cassia fine sand
10	EauGallie and Myakka fine sands
12	Felda fine sand, depressional
15	Floridian and Gator soils, depressional
17	Gator muck
22	Holopaw fine sand, depressional
26	Manatee loamy fine sand, depressional
29	Orsino fine sand
31	Pineda fine sand
33	Pomello fine sand
36	Pople fine sand
41	Wabasso fine sand
99	Pits, Lakes
	Depressional / Frequently Flooded Soils
(33)	Historical Flood Prone Area I.D. No.

NORTH

0 300 600 1200 1800

GRAPHIC SCALE
(In Feet)

SARASOTA COUNTY 1921

1

FOR: SARASOTA BOARD OF COUNTY COMMISSIONERS
TITLE: STORMWATER BASIN MASTER PLAN
MATHENY CREEK / ELLIGRAW BAYOU

DESC: EXHIBIT 4 - SCS SOILS MAP

X
STEPHEN M. SUAU P.E.
FLA. CERT. NO. 36390
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

Kimley-Horn
Engineers ◇ Planners ◇ Surveyors

Kimley-Horn and Associates, Inc.
7202 BENEVA ROAD SOUTH
SARASOTA, FLORIDA 34238
PHONE (813) 922-8187
FAX (813) 922-2351

Design By: KHA	Drawn By: E.R.B.	Checked By: S.M.S.	Project No.: 6739
CADD File: B_BASE.DWG	Plot Index: B_SOILS.LMN	Date: JAN., 1994	SCALE: 1" = 600'

PHILLIPPI CREEK DRAINAGE BASIN

MATHENY CREEK DRAINAGE BASIN

CATFISH CREEK DRAINAGE BASIN

ELLIGRAW BAYOU DRAINAGE BASIN

CLARK ROAD

BENEVA ROAD

SAWYER ROAD

LOCKWOOD RIDGE ROAD

STICKNEY POINT ROAD

GULF GATE DRIVE

TAMIAMI TRAIL (U.S. 41)

0 300 600 1200 1800

GRAPHIC SCALE
(In Feet)

NORTH

LEGEND

MATHENY CREEK / ELLIGRAW BAYOU DRAINAGE BASIN RIDGE

LIMITS OF EXISTING 100 YEAR FLOOD (RIVERINE ONLY)

LIMITS OF PROPOSED 100 YEAR FLOOD (RIVERINE ONLY)

1

FOR: SARASOTA BOARD OF COUNTY COMMISSIONERS

TITLE: STORMWATER BASIN MASTER PLAN
MATHENY CREEK / ELLIGRAW BAYOU

DESC: EXHIBIT 5 - 100 YEAR FLOODPLAIN MAP

X
STEPHEN M. SUAU P.E.
FLA. CERT. NO. 36390
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

Kimley-Horn
Engineers ◇ Planners ◇ Surveyors

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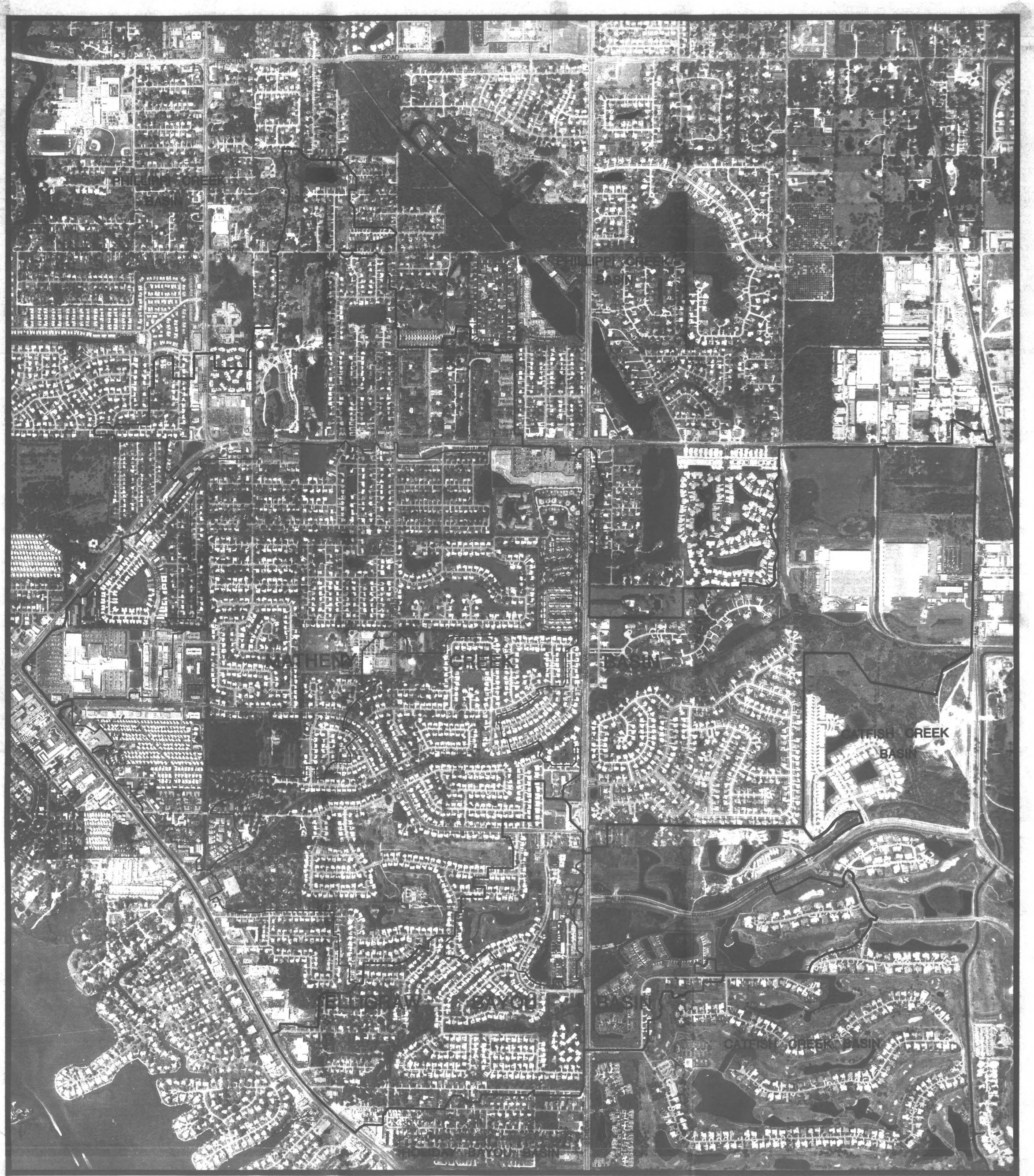
Design By: KHA	Drawn By: E.R.B.	Checked By: S.M.S.	Project No.: 6739
CADD File: B_BASE.DWG	Plot Index: B_FLDPLN.LMN	Date: JAN. 1994	SCALE: 1" = 600'



LEGEND

MAJOR BASIN RIDGE

MINOR BASIN RIDGE LINE

NORTH

N.T.S.

SARASOTA COUNTY 1921

2

FOR: SARASOTA BOARD OF COUNTY COMMISSIONERS

TITLE: STORMWATER BASIN MASTER PLAN
MATHENEY CREEK / ELLIGRAW BAYOU

DESC: AERIAL W/BASIN DELINEATIONS

X
STEVEN M. SUAU P.E.
FLA. CERT. NO. 36390
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

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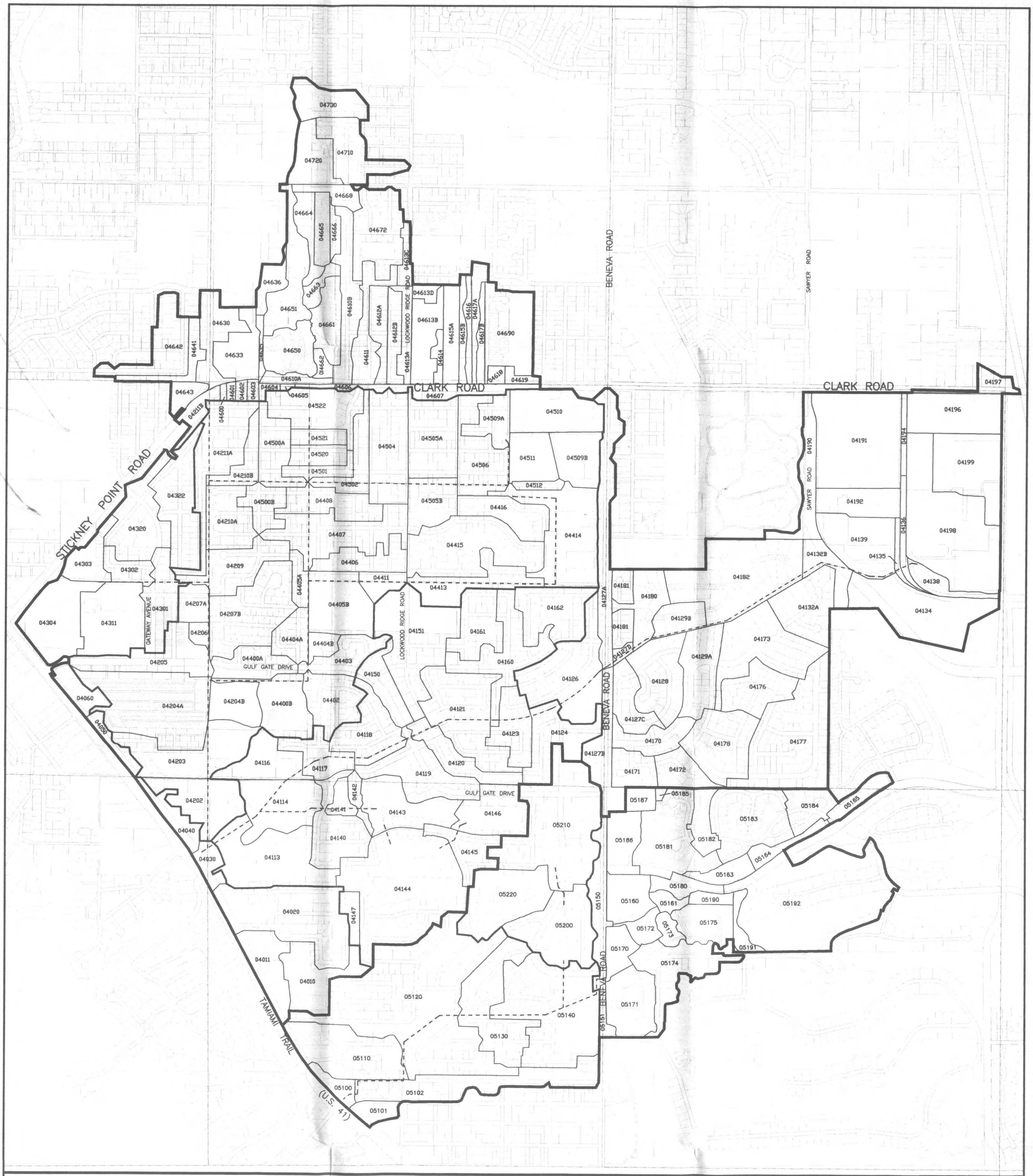
Design By: KHA	Drawn By: E.R.B.	Checked By: E.R.B.	Project No.: 6739-06
CADD File: AERIAL	Plot Index: AERIAL	Date: 12/93	SCALE: N.T.S.



NORTH

0 300 600 1200 1800

GRAPHIC SCALE
(In Feet)

LEGEND

MAJOR BASIN RIDGE	———
MINOR BASIN RIDGE	———
SUBBASIN RIDGE	———
SYUDY REACHES	- - - - - -
MATHENY CREEK SUBBASIN NUMBER	04000
ELIGRAW BAYOU SUBBASIN NUMBER	05000

SARASOTA COUNTY 1921

1

FOR: SARASOTA BOARD OF COUNTY COMMISSIONERS

TITLE: STORMWATER BASIN MASTER PLAN
MATHENY CREEK / ELLIGRAW BAYOU

DESC: EXHIBIT 2 - BASIN / SUBBASIN MAP

X
STEPHEN M. SUAU P.E.
FLA. CERT. NO. 36390
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

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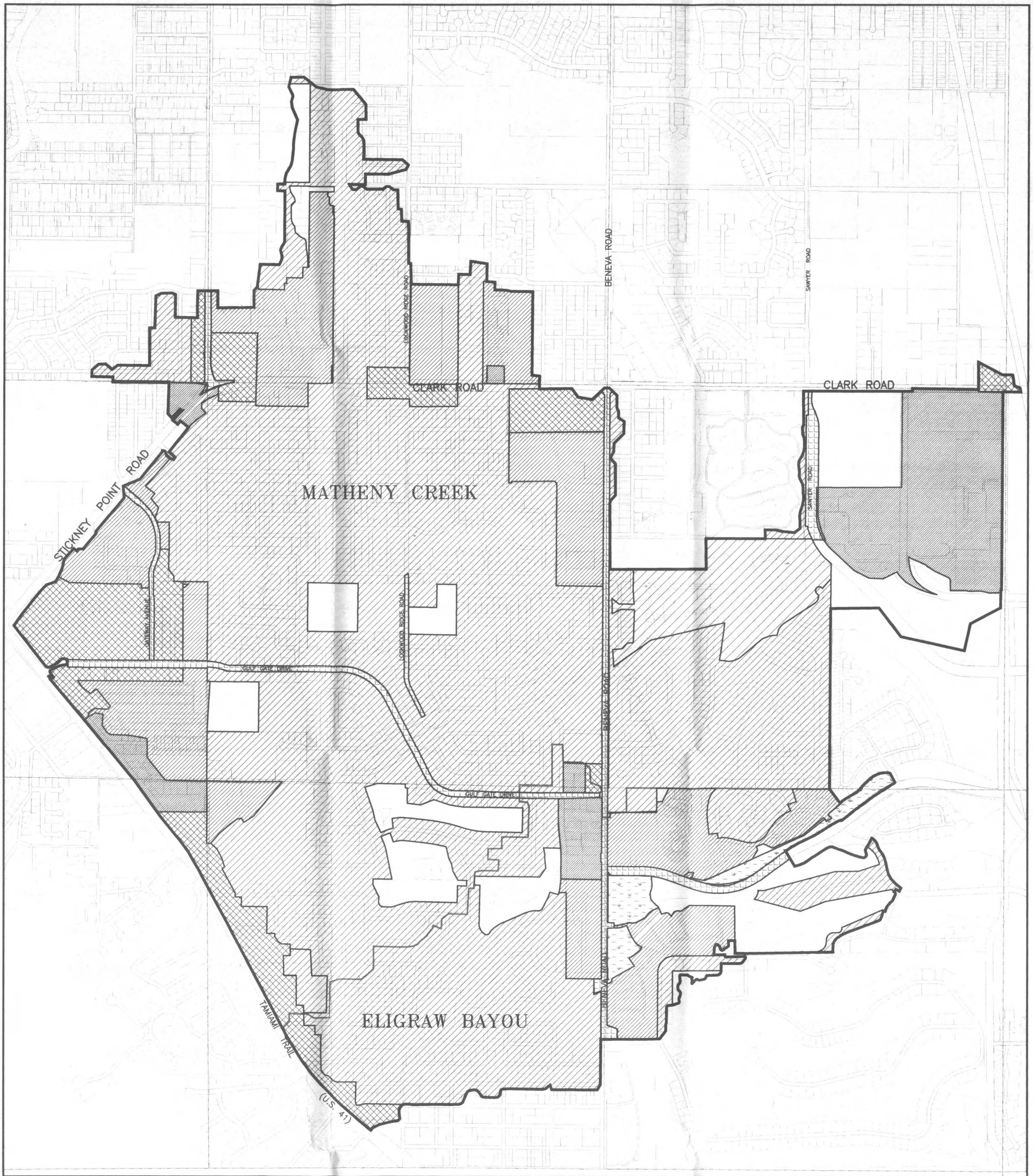
Design By: KHA	Drawn By: E.R.B.	Checked By: S.M.S.	Project No.: 6739
CADD File: B_BASE.DWG	Plot Index: B_BASIN.LMN	Date: JAN., 1994	SCALE: 1" = 600'



LEGEND

- MAJOR BASIN RIDGE
- FOREST / OPEN LANDS
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL
- OFFICE / LIGHT INDUSTRIAL
- WETLANDS
- ROADWAYS

NORTH

0 300 600 1200 1800

GRAPHIC SCALE
(In Feet)

SARASOTA COUNTY 1921

1

FOR: SARASOTA BOARD OF COUNTY COMMISSIONERS
TITLE: STORMWATER BASIN MASTER PLAN
MATHENY CREEK / ELLIGRAW BAYOU

DESC: EXHIBIT 3 - EXISTING LAND USE MAP

X
STEPHEN M. SUAU P.E.
FLA. CERT. NO. 36390
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

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Design By: KHA	Drawn By: E.R.B.	Checked By: S.M.S.	Project No.: 6739
CADD File: B_BASE.DWG	Plot Index: B_LANDU.LMN	Date: JAN. 1994	SCALE: 1" = 600'

ELLIGRAW BAYOU - SUBBASIN HYDROLOGIC INVENTORY

SUBBASIN NO.	AREA (acres)	DCIA (acres)	NON-DCIA (acres)	PERVIOUS (acres)	CURVE NUMBER	Tc (min.)
05100	3.62	0.00	2.72	0.90	92.3	10
05101	3.78	0.00	2.64	1.14	91.1	10
05102	21.79	1.26	2.94	17.59	78.3	72
05110	21.05	6.74	3.41	10.90	80.5	37
05120	69.92	11.58	18.34	40.00	82.2	37
05130	20.92	3.81	6.47	10.64	83.7	31
05140	36.74	7.89	8.99	19.86	82.2	32
	177.82					
05150	8.63	6.70	0.00	1.93	75.0	42
05151	2.52	1.56	0.00	0.96	75.0	24
05160	8.43	3.94	0.00	4.49	75.0	29
05161	2.40	0.12	0.00	2.28	75.0	60
05163	4.51	0.13	0.00	4.38	75.0	27
05164	3.97	0.26	0.00	3.71	75.0	13
05165	1.62	0.08	0.00	1.54	75.0	10
05170	5.12	1.36	0.29	3.47	76.8	102
05171	12.70	2.95	2.99	6.76	82.0	34
05172	3.55	1.28	0.85	1.42	83.6	10
05173	2.66	0.83	0.73	1.10	84.2	10
05174	15.74	2.07	1.93	11.74	78.2	33
05175	8.95	4.13	1.32	3.50	81.3	22
05180	4.45	1.68	0.00	2.77	75.0	15
05181	19.78	4.58	3.18	12.02	79.8	15
05182	5.78	1.82	1.31	2.65	82.6	15
05183	19.53	8.32	3.22	7.99	81.6	15
05184	7.20	1.89	1.38	3.92	81.0	15
05185	0.51	0.14	0.00	0.37	75.0	15
05186	8.18	5.73	0.00	2.45	75.0	15
05187	1.46	0.88	0.00	0.58	75.0	10
05190	2.22	0.55	0.00	1.67	75.0	15
05191	2.97	2.40	0.00	0.57	75.0	10
05192	51.89	10.60	3.64	37.64	77.0	65
	204.77					
05200	19.85	8.65	2.13	9.07	79.4	22
05210	37.97	16.59	4.98	16.40	80.4	65
05220	19.25	2.37	2.01	14.87	77.7	28
	77.07					
	459.66					

ELLIGRAW BAYOU - BASIN MASTER PLAN

	I.D.	NO.	SIZE	TYPE	LENGTH (FT.)	INVERT U.S.	INVERT D.S.	LOCATION
ELLIGRAW BAYOU	101	2	12'x 8'	RC BOX	110	-1.4	-1.4	U.S. 41
MAIN	120	1	40"x 65"	CMPA	1,130.6	8.12	0.00	1,150' UPSTREAM OF U.S.41
(Canal 11-209 Lower)	120	1	-	WLCS EB-1	-	10.5	-	1,165' UPSTREAM OF U.S.41
(Canal 11-208 Upper)	130	1	40"x 65"	CMPA	75	9.1	8.6	BILTMORE DRIVE
	140	1	-	WLCS EB-2	-	11.1	-	500' UPSTREAM OF BILTMORE DR.
	150	1	-	WLCS EB-3	-	12.0	-	2,000' UPSTREAM OF BILTMORE DR.
	151	3	8'x 8'	RC BOX	79	7.80	7.67	BENEVA RD.
	158	2	72"	RCP	40	7.97	8.03	BALLANTRAE DRIVE
	163	1	48"	RCP	230	12.97	12.81	PALMER RANCH PARKWAY
	165	1	48"	RCP	150	14.73	14.63	MIRA LAGO ENTRANCE
GULF GATE LATERAL	200	1	40" x 65"	CMPA	94	9.78	9.90	CURTISS AVENUE
(Canal 11-210)	200	1	-	WLCS GGL-1	-	11.5	-	
	210	1	40"x 65"	CMPA	109	11.17	10.64	CURTISS AVENUE
	220	1	24"x 36"	CMPA	156	13.40	11.76	

INVENTORY OF STRUCTURES

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

STEPHEN M. SUAU, P.E. #36309

DATE: 8/9/94

EXISTING CONDITIONS

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

CONTROL PARAMETERS

START TIME: .00
END TIME: 48.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
100.00	1.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
100	TIME	1.500	.000	.000	.000	1.500	.000
						1.500	100.000
101	AREA	1.500	.000	.000	.000	1.500	.000
						9.000	.060
						10.000	.190
						11.000	.870
						12.000	2.500
						13.000	4.750
102	AREA	1.500	.000	.000	.000	1.500	.001
						8.300	.002
						9.000	.060
						10.000	.120
						11.000	.860
						12.000	2.140
						13.000	3.360
						14.000	7.060
104	AREA	6.620	.000	.000	.000	9.000	.110
						10.000	.230
						11.000	.300
						12.000	.400
						13.000	1.110
						14.000	2.470
106	AREA	8.100	.000	.000	.000	11.000	.030
						12.000	.400
						13.000	1.120
						14.000	2.480
108	AREA	8.100	.000	.000	.000	11.000	.140
						12.000	.170
						13.000	.620
						14.000	2.230
						15.000	3.060
110	AREA	9.700	.000	.000	.000	9.700	.070
						11.000	.090
						12.000	.180
						13.000	.630
						14.000	2.240
						15.000	3.060

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
Copyright 1989, Streamline Technologies, Inc.

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
120	AREA	10.540	.000	.000	.000	9.400	1.000
						11.000	1.051
						12.000	2.517
						13.000	4.192
						14.000	9.681
						15.000	16.480
						16.000	36.096
130	AREA	10.540	.000	.000	.000	9.000	.200
						11.000	.247
						14.000	.665
						15.000	2.741
						15.500	3.729
						16.000	5.006
140	AREA	11.080	.000	.000	.000	11.000	2.380
						14.000	4.338
						15.000	6.464
						16.000	13.794
150	AREA	12.000	.000	.000	.000	8.000	.126
						12.000	.243
						16.000	.371
						17.000	.402
151	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
157	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
158	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
159	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
160	AREA	14.790	.000	.000	.000	14.000	2.090
						15.000	3.785
						15.500	4.719
						16.000	5.727
						16.500	6.603

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
161	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
162	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
163	AREA	12.970	.000	.000	.000	15.000	.540
						16.000	1.000
						16.500	1.240
						17.000	1.520
164	AREA	14.630	.000	.000	.000	18.500	.000
						19.500	.000
165	AREA	14.730	.000	.000	.000	14.000	.020
						15.000	.130
						16.000	.820
						17.000	1.930
170	AREA	15.000	.000	.000	.000	15.000	.842
						15.500	1.235
						16.000	1.635
						16.500	2.984
171	AREA	13.720	.000	.000	.000	13.500	1.620
						14.000	1.840
						15.000	2.280
						16.000	2.650
						17.000	3.900
173	AREA	14.180	.000	.000	.000	14.000	.690
						15.000	.780
						16.000	.860
						17.000	.940
						18.000	1.110
175	AREA	14.000	.000	.000	.000	14.000	3.150
						15.000	3.420
						16.000	3.760
						17.000	4.400

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NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
180	AREA	14.550	.000	.000	.000	14.500	.606
						17.500	.862
181	AREA	14.730	.000	.000	.000	15.000	3.566
						20.000	5.138
182	AREA	16.200	.000	.000	.000	15.500	1.621
						20.000	2.452
183	AREA	16.200	.000	.000	.000	15.500	3.021
						20.000	4.307
183A	AREA	14.710	.000	.000	.000	14.710	.000
						20.000	.002
184	AREA	16.500	.000	.000	.000	16.500	.706
						20.500	1.019
185A	STRG	14.730	.000	.000	.000	14.730	.000
						19.000	.001
185B	AREA	14.730	.000	.000	.000	15.000	.144
						20.000	.305
186	AREA	14.730	.000	.000	.000	14.500	.490
						18.500	.973
187	AREA	16.430	.000	.000	.000	16.000	.395
						17.500	.423
						17.800	.735
190	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
191	AREA	14.940	.000	.000	.000	14.500	2.130
						18.000	2.890
192	AREA	14.910	.000	.000	.000	14.500	7.740
						18.000	9.500
200	AREA	11.510	.000	.000	.000	11.500	1.614
						15.000	2.183
						16.000	2.803
						17.000	5.465

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NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
210	AREA	11.510	.000	.000	.000	11.500	.589
						15.000	1.286
						16.000	2.073
						17.000	3.690
						18.000	30.610
220	AREA	13.400	.000	.000	.000	13.400	2.140
						14.000	2.280
						15.000	2.680
						16.000	4.020
						17.000	8.630

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

```
>>REACH NAME       : 102A
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.500 BTM. WIDTH (ft):  35.000   LEFT SS (h/v):  15.000
     RGHT SS (h/v):  15.000    OPENING (ft): 999.000      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 104A
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):   9.000  NUMBER X-Y PTS:   9.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	11.300
22.000	11.000
27.000	10.000
28.000	9.500
40.000	9.000
94.000	8.999
134.000	10.000
182.000	11.000
185.000	11.300

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.03	54.04	54.04
.501	35.04	86.04	86.02
1.001	83.30	107.14	107.00
2.001	216.80	160.25	160.00
2.301	268.55	185.27	185.00
999.000	184657.90	185.27	185.00
1004.000	185582.90	185.27	185.00

NOTE:

>>REACH NAME : 108A
FROM NODE : 108
TO NODE : 106
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 11.300 NUMBER X-Y PTS: 11.000 OPENING (ft): 999.000
WEIR COEF.: 2.600 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	14.000
100.000	13.000
280.000	12.200
330.000	11.900
380.000	11.500
430.000	11.300
480.000	11.500
530.000	12.300
580.000	12.900
630.000	13.500
680.000	14.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.200	10.00	100.00	100.00
.600	65.00	175.01	175.00
.900	127.81	243.76	243.75
1.000	153.63	272.51	272.50
1.600	372.63	457.52	457.50
1.700	419.92	488.35	488.33
2.200	687.00	580.02	580.00
2.700	1002.00	680.03	680.00
999.000	678486.00	680.03	680.00
1004.000	681886.00	680.03	680.00

NOTE:

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>>REACH NAME : 112
FROM NODE : 120
TO NODE : 110
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 14.000 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.000 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	15.300
50.000	15.000
130.000	14.000
220.000	13.999
420.000	14.500

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.05	90.42	90.42
.501	105.15	330.00	330.00
1.001	280.15	370.01	370.00
1.301	398.65	420.01	420.00
999.000	419432.20	420.01	420.00
1004.000	421532.20	420.01	420.00

NOTE:

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>>REACH NAME : 140
FROM NODE : 140
TO NODE : 130
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 11.080 NUMBER X-Y PTS: 19.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	16.000
15.000	15.000
21.000	13.920
29.000	12.210
34.000	11.570
39.000	11.510
39.010	11.080
40.500	11.079
40.510	11.530
44.000	11.540
44.010	12.730
52.000	12.750
53.500	13.410
55.500	13.430
55.510	14.070
58.000	14.100
65.000	15.000
85.000	15.500
105.000	15.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	1.49	1.49
.431	.65	2.35	1.51
.451	.69	4.04	3.18
.461	.75	8.36	7.50
.491	1.01	10.89	10.00
1.131	9.01	16.57	15.01
1.651	17.45	19.58	17.44
1.671	17.88	27.67	25.53
2.331	36.24	32.46	30.11
2.351	36.86	34.56	32.21
2.841	53.21	37.39	34.51
2.991	58.45	38.39	35.34
3.021	59.55	41.05	38.00
3.921	99.15	53.19	50.00
4.421	136.02	100.72	97.50
4.921	186.65	108.23	105.00
999.000	104564.90	108.23	105.00
1004.000	105089.90	108.23	105.00

NOTE: TUCKERSTOWN WEIR

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>>REACH NAME : 150
FROM NODE : 150
TO NODE : 140
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 12.000 NUMBER X-Y PTS: 11.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	15.500
50.000	15.010
55.000	15.000
55.010	13.510
85.000	13.500
85.010	12.000
95.000	11.999
95.010	13.500
125.000	13.510
125.010	16.000
145.000	16.100

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	10.00	9.99
1.501	15.01	12.99	10.01
1.511	15.41	72.97	69.99
3.001	119.70	75.95	70.01
3.011	120.43	80.96	75.01
3.501	169.43	131.45	125.01
4.001	231.93	131.95	125.01
4.101	245.44	151.94	145.00
999.000	144505.80	151.94	145.00
1004.000	145230.80	151.94	145.00

NOTE:

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```
>>REACH NAME       : 193
  FROM NODE        : 192
  TO NODE          : 191
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.500 BTM. WIDTH (ft):1025.000   LEFT SS (h/v):    5.000
     RGHT SS (h/v):   5.000    OPENING (ft): 999.000      WEIR COEF.:    2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 160
  FROM NODE        : 160
  TO NODE          : 159
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.700  NUMBER X-Y PTS:   5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

                    X-VAL (ft) Y-VAL (ft)
                         .000     16.800
                       250.000     16.000
                       350.000     15.700
                       450.000     16.000
                       580.000     17.000

                    DEPTH (ft)  AREA (sf) PERIM (ft) TOPWD (ft)
                          .000       .00        .00        .00
                          .300     30.00     200.00     200.00
                         1.100    331.60     554.01     554.00
                         1.300    445.00     580.01     580.00
                       999.000 579111.00     580.01     580.00
                      1004.000 582011.00     580.01     580.00

              NOTE:
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04-01-94

```
>>REACH NAME       : 170
  FROM NODE        : 170
  TO NODE          : 157
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.200  NUMBER X-Y PTS:    5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	17.000
30.000	16.000
50.000	15.200
80.000	16.000
100.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	20.00	50.03	50.00
1.800	95.00	100.07	100.00
999.000	99815.00	100.07	100.00
1004.000	100315.00	100.07	100.00

NOTE:

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

```
>>REACH NAME       : 101
  FROM NODE        : 101
  TO NODE          : 100
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  144.000       RISE (in):   96.000     LENGTH (ft): 110.000
   U/S INVERT (ft):   -1.400 D/S INVERT (ft):   -1.400       MANNING N:    .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   11.200  CREST LN. (ft): 100.000     WEIR COEF.:   2.800
        RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
        RESERVED:********        RESERVED:********       RESERVED:********

             NOTE: U.S. 41 CROSSING

>>REACH NAME       : 102
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   65.000       RISE (in):   40.000     LENGTH (ft): 198.500
   U/S INVERT (ft):    1.410 D/S INVERT (ft):     .000       MANNING N:    .024
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

             NOTE: BASED UPON RECORD DRAWING
```

```
>>REACH NAME       : 104
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  24.000        RISE (in):  24.000     LENGTH (ft):  36.000
   U/S INVERT (ft):   6.620 D/S INVERT (ft):   5.380       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

               NOTE:

>>REACH NAME       : 108
  FROM NODE        : 108
  TO NODE          : 106
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000        RISE (in):  18.000     LENGTH (ft):  43.000
   U/S INVERT (ft):   7.580 D/S INVERT (ft):   7.230       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft): 999.000  CREST LN. (ft):    .000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

               NOTE:
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>>REACH NAME        : 130
  FROM NODE         : 130
  TO NODE           : 120
  REACH TYPE        : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   65.000        RISE (in):   40.000     LENGTH (ft):   75.000
   U/S INVERT (ft):   9.100 D/S INVERT (ft):    8.600       MANNING N:     .024
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  14.300  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********          RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********          RESERVED:********       RESERVED:********

              NOTE: BILTMORE ROAD CROSSING

>>REACH NAME        : 151
  FROM NODE         : 151
  TO NODE           : 150
  REACH TYPE        : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   96.000        RISE (in):   96.000     LENGTH (ft):   79.000
   U/S INVERT (ft):   7.800 D/S INVERT (ft):    7.670       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    3.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  19.100  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********          RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********          RESERVED:********       RESERVED:********

              NOTE: BENEVA ROAD CROSSING
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
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```
>>REACH NAME       : 158
  FROM NODE        : 158
  TO NODE          : 157
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  72.000       RISE (in):  72.000     LENGTH (ft):  40.000
   U/S INVERT (ft):   7.970 D/S INVERT (ft):   8.030      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  16.500  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 163
  FROM NODE        : 163
  TO NODE          : 162
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft): 230.000
   U/S INVERT (ft):  12.970 D/S INVERT (ft):  12.810      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  19.000  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: PALMER RANCH PARKWAY CROSSING
```

```
>>REACH NAME       : 165
  FROM NODE        : 165
  TO NODE          : 164
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft): 150.000
   U/S INVERT (ft):  14.730 D/S INVERT (ft):  14.630       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  23.000  CREST LN. (ft):  50.000     WEIR COEF.:    2.800
         RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
         RESERVED:********         RESERVED:********       RESERVED:********

              NOTE: MIRA LAGO ENTRANCE

>>REACH NAME       : 182
  FROM NODE        : 182
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  89.000
   U/S INVERT (ft):  16.200 D/S INVERT (ft):  15.000       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
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```
>>REACH NAME       : 183
  FROM NODE        : 183
  TO NODE          : 182
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft): 104.000
   U/S INVERT (ft): 15.100 D/S INVERT (ft): 15.100       MANNING N:     .013
       ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : 183A
  FROM NODE        : 183A
  TO NODE          : 164
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  19.000     LENGTH (ft): 307.000
   U/S INVERT (ft): 14.710 D/S INVERT (ft): 14.100       MANNING N:     .013
       ENTRNC LOSS:  1.100   # OF CULVERTS:  1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

```
>>REACH NAME       : 184
  FROM NODE        : 184
  TO NODE          : 183
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   38.000       RISE (in):   24.000     LENGTH (ft):   94.000
   U/S INVERT (ft):   16.500 D/S INVERT (ft):   15.100       MANNING N:     .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 185A
  FROM NODE        : 185A
  TO NODE          : 181
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   30.000       RISE (in):   30.000     LENGTH (ft):  160.000
   U/S INVERT (ft):   13.960 D/S INVERT (ft):   13.480       MANNING N:     .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

```
>>REACH NAME       : 185B
  FROM NODE        : 185B
  TO NODE          : 185A
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  73.000
  U/S INVERT (ft):  13.480 D/S INVERT (ft):  13.960       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 186
  FROM NODE        : 186
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  87.000
  U/S INVERT (ft):  14.460 D/S INVERT (ft):  14.440       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

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```
>>REACH NAME        : 210
  FROM NODE         : 210
  TO NODE           : 200
  REACH TYPE        : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   65.000        RISE (in):   40.000     LENGTH (ft): 109.000
   U/S INVERT (ft):  11.170 D/S INVERT (ft):   10.640       MANNING N:     .024
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   16.560  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

               NOTE:

>>REACH NAME        : 220
  FROM NODE         : 220
  TO NODE           : 210
  REACH TYPE        : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   36.000        RISE (in):   24.000     LENGTH (ft): 156.000
   U/S INVERT (ft):  13.400 D/S INVERT (ft):   11.760       MANNING N:     .024
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   17.500  CREST LN. (ft):   25.000     WEIR COEF.:    2.600
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

               NOTE:
```

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```
>>REACH NAME       : 120
  FROM NODE        : 120
  TO NODE          : 102
  REACH TYPE       : DROP STRUCTURE w/ ARCH CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft): 932.100
 U/S INVERT (ft):   8.120 D/S INVERT (ft):   1.410       MANNING N:    .024
     ENTRNC LOSS:   1.300   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  10.540  CREST LN. (ft):   3.000    OPENING (ft):    .640
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : TRAPEZOIDAL RISER SLOT
    CREST EL. (ft):  11.180 BOT. WIDTH (ft):   8.600        SS (h/v):   2.500
      OPENING (ft): 999.000       WEIR COEF.:   3.200      GATE COEF.:    .600

              NOTE: BASED UPON RECORD DRAWING

>>REACH NAME       : 171
  FROM NODE        : 171
  TO NODE          : 151
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  32.000
 U/S INVERT (ft):  12.510 D/S INVERT (ft):  12.100       MANNING N:    .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  13.720  CREST LN. (ft):   4.600    OPENING (ft):   1.550
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY
```

```
>>REACH NAME       : 173
  FROM NODE        : 173
  TO NODE          : 159
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  32.000
   U/S INVERT (ft):  12.950 D/S INVERT (ft):  12.580       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.180  CREST LN. (ft):   4.800     OPENING (ft):   1.150
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000     OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY

>>REACH NAME       : 175
  FROM NODE        : 175
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  42.000
   U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.550       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.000  CREST LN. (ft):   4.900     OPENING (ft):   1.260
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 999.000  CREST LN. (ft):    .000     OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY
```

```
>>REACH NAME       : 180
  FROM NODE        : 180
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  54.000        RISE (in):  54.000     LENGTH (ft): 119.000
   U/S INVERT (ft):   9.400 D/S INVERT (ft):   9.260       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.550  CREST LN. (ft):  18.000    OPENING (ft):   1.510
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.060  CREST LN. (ft):  33.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY

>>REACH NAME       : 181A
  FROM NODE        : 181
  TO NODE          : 160
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000        RISE (in):  24.000     LENGTH (ft): 293.000
   U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.560       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.790  CREST LN. (ft):   2.200    OPENING (ft):   1.440
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.230  CREST LN. (ft):  26.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY
```

```
>>REACH NAME       : 181B
  FROM NODE        : 181
  TO NODE          : 180
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   54.000       RISE (in):   54.000     LENGTH (ft): 220.000
   U/S INVERT (ft):    8.990 D/S INVERT (ft):    8.830       MANNING N:    .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):   14.730  CREST LN. (ft):    5.950    OPENING (ft):   1.190
        WEIR COEF.:    3.200       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):   15.920  CREST LN. (ft):   26.000    OPENING (ft):9999.000
        WEIR COEF.:    3.200       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY

>>REACH NAME       : 183B
  FROM NODE        : 183
  TO NODE          : 183A
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   18.000       RISE (in):   18.000     LENGTH (ft): 238.000
   U/S INVERT (ft):   15.170 D/S INVERT (ft):   14.710       MANNING N:    .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):   16.230  CREST LN. (ft):    3.080    OPENING (ft):    .530
        WEIR COEF.:    3.200       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):   18.380  CREST LN. (ft):   14.000    OPENING (ft):9999.000
        WEIR COEF.:    3.200       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED ON PROJECT SURVEY
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```
>>REACH NAME       : 187
  FROM NODE        : 187
  TO NODE          : 181
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  48.000
   U/S INVERT (ft):  13.110 D/S INVERT (ft):  12.140       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.430  CREST LN. (ft):   1.750    OPENING (ft):   1.490
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  17.920  CREST LN. (ft):  10.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 191
  FROM NODE        : 191
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft):  40.000
   U/S INVERT (ft):  10.290 D/S INVERT (ft):  10.210       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.940  CREST LN. (ft):   8.000    OPENING (ft):   1.330
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.270  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE:
```

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```
>>REACH NAME       : 192
  FROM NODE        : 192
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft): 105.000
   U/S INVERT (ft):  10.500 D/S INVERT (ft):  10.290       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.910  CREST LN. (ft):  18.000    OPENING (ft):   1.550
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.460  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

               NOTE:

>>REACH NAME       : 200
  FROM NODE        : 200
  TO NODE          : 140
  REACH TYPE       : DROP STRUCTURE w/ ARCH CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft):  94.000
   U/S INVERT (ft):   9.780 D/S INVERT (ft):   9.900       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  11.510  CREST LN. (ft):   8.300    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.010  CREST LN. (ft):   8.500    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

               NOTE: DATA BASED ON PROJECT SURVEY
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```
>>REACH NAME       : 106
  FROM NODE        : 106
  TO NODE          : 104
  REACH TYPE       : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  OUTLET CONTROL   : FREE
       LENGTH (ft): 265.000 U/S INVERT (ft):   8.100 D/S INVERT (ft):   6.600
    MAX. DEPTH (ft):   1.500
```

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	8.700	.040
3.000	7.200	.040
7.000	8.700	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	5.25	7.63	7.00	152.0
1.500	5.25	7.63	7.00	152.0
6.500	40.25	7.63	7.00	4532.4

NOTE:

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>>REACH NAME : 110
FROM NODE : 110
TO NODE : 108
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 315.000 U/S INVERT (ft): 9.700 D/S INVERT (ft): 7.580
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	10.800	.040
7.500	9.200	.040
15.000	11.100	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	9.71	13.30	12.95	292.7
1.600	11.05	13.30	13.82	363.0
1.900	15.38	13.30	15.00	629.2
6.900	90.38	13.30	15.00	12045.8

NOTE:

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>>REACH NAME : 157
FROM NODE : 157
TO NODE : 151
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 8.030 D/S INVERT (ft): 7.800
MAX. DEPTH (ft): 8.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	16.500	.035
15.000	11.800	.035
20.000	10.300	.035
30.000	10.100	.035
40.000	9.000	.035
54.000	11.900	.035
62.000	16.900	.035
70.000	17.100	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.100	8.42	15.48	15.31	238.2
1.300	12.58	26.47	26.28	325.2
2.800	61.17	39.09	38.52	3501.1
2.900	65.07	39.92	39.32	3826.3
7.500	296.63	63.98	61.36	35017.0
7.900	321.30	64.73	62.00	39693.1
8.000	327.70	68.74	66.00	39411.8
8.100	334.50	68.74	70.00	40784.2
13.100	684.50	68.74	70.00	134520.3

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

>>REACH NAME : 159
FROM NODE : 159
TO NODE : 158
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.970
MAX. DEPTH (ft): 9.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.200	327.54	79.20	75.88	35829.4
9.500	350.89	83.15	79.79	38902.8
9.900	383.85	83.15	85.00	45181.6
10.600	445.10	83.15	90.00	57825.8
15.600	895.10	83.15	90.00	185272.7

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

>>REACH NAME : 161
FROM NODE : 161
TO NODE : 159
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.000
MAX. DEPTH (ft): 9.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.000	312.98	73.00	69.71	35068.8
9.200	327.54	73.00	75.88	37829.5
9.900	383.85	73.00	85.00	49278.4
10.600	445.10	73.00	90.00	63069.1
15.600	895.10	73.00	90.00	202072.2

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

>>REACH NAME : 162
FROM NODE : 162
TO NODE : 161
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 11.740 D/S INVERT (ft): 10.300
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.100	.035
22.000	13.100	.035
24.000	12.200	.040
31.000	11.500	.040
37.000	12.200	.040
38.000	13.500	.040
57.000	17.500	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.700	4.55	13.08	13.00	83.6
1.600	17.46	16.41	15.69	676.3
2.000	24.24	19.15	18.20	1116.8
5.600	156.18	56.75	55.10	13460.6
6.000	178.60	58.69	57.00	16279.6
7.000	235.60	58.69	57.00	24992.5
12.000	520.60	58.69	57.00	91018.8

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

>>REACH NAME : 164
FROM NODE : 164
TO NODE : 163
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1700.000 U/S INVERT (ft): 14.630 D/S INVERT (ft): 12.970
MAX. DEPTH (ft): 2.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	18.200	.035
24.000	13.100	.035
31.000	12.300	.060
37.000	13.300	.060
65.000	19.900	.035
89.000	22.800	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.800	4.72	11.91	11.80	63.1
1.000	7.29	14.09	13.94	120.3
2.000	25.71	23.26	22.89	823.3
5.900	183.03	23.26	57.79	29075.2
7.600	287.40	23.26	65.00	67913.7
10.500	510.70	23.26	89.00	201421.7
15.500	955.70	23.26	89.00	647949.0

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

>>REACH NAME : 190
FROM NODE : 190
TO NODE : 162
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 10.210 D/S INVERT (ft): 9.710
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.000	.060
35.000	10.000	.060
55.000	9.999	.060
90.000	17.000	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	20.00	20.00	.0
7.000	384.94	91.38	89.99	30103.5
7.001	385.03	91.38	90.00	30115.5
12.001	835.03	91.38	90.00	112281.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	102A	102	101	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
2	104A	104	102	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	108A	108	106	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	112	120	110	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
5	140	140	130	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
6	150	150	140	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
7	193	192	191	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
8	160	160	159	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
9	170	170	157	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
10	101	101	100	CULVERT, RECTANGULAR w/ ROADWAY
11	102	102	101	CULVERT, ARCH w/ ROADWAY
12	104	104	102	CULVERT, CIRCULAR w/ ROADWAY
13	108	108	106	CULVERT, CIRCULAR w/ ROADWAY
14	130	130	120	CULVERT, ARCH w/ ROADWAY
15	151	151	150	CULVERT, RECTANGULAR w/ ROADWAY
16	158	158	157	CULVERT, CIRCULAR w/ ROADWAY
17	163	163	162	CULVERT, CIRCULAR w/ ROADWAY
18	165	165	164	CULVERT, CIRCULAR w/ ROADWAY
19	182	182	181	CULVERT, ELLIPTICAL w/ ROADWAY
20	183	183	182	CULVERT, ELLIPTICAL w/ ROADWAY
21	183A	183A	164	CULVERT, ELLIPTICAL w/ ROADWAY
22	184	184	183	CULVERT, ELLIPTICAL w/ ROADWAY
23	185A	185A	181	CULVERT, CIRCULAR w/ ROADWAY
24	185B	185B	185A	CULVERT, CIRCULAR w/ ROADWAY
25	186	186	181	CULVERT, ELLIPTICAL w/ ROADWAY
26	210	210	200	CULVERT, ARCH w/ ROADWAY
27	220	220	210	CULVERT, ARCH w/ ROADWAY
28	120	120	102	DROP STRUCTURE w/ ARCH CULVERT
29	171	171	151	DROP STRUCTURE w/ CIRC. CULVERT
30	173	173	159	DROP STRUCTURE w/ CIRC. CULVERT
31	175	175	161	DROP STRUCTURE w/ CIRC. CULVERT
32	180	180	161	DROP STRUCTURE w/ CIRC. CULVERT
33	181A	181	160	DROP STRUCTURE w/ ELLP. CULVERT
34	181B	181	180	DROP STRUCTURE w/ CIRC. CULVERT
35	183B	183	183A	DROP STRUCTURE w/ CIRC. CULVERT
36	187	187	181	DROP STRUCTURE w/ CIRC. CULVERT
37	191	191	190	DROP STRUCTURE w/ ELLP. CULVERT
38	192	192	190	DROP STRUCTURE w/ ELLP. CULVERT
39	200	200	140	DROP STRUCTURE w/ ARCH CULVERT
40	106	106	104	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
41	110	110	108	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
42	157	157	151	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
43	159	159	158	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
44	161	161	159	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
45	162	162	161	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
46	164	164	163	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
47	190	190	162	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	41
REACHES	
WEIRS	9
CULVERTS	18
DROP STRUCTURES	12
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	8
RATING CURVES	0
TOTAL REACHES	47

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 2 YR)
04-01-94

BASIN NAME	100	101	102	110	120
NODE NAME	101	101	106	110	120
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	3.62	3.78	21.79	19.73	69.92
CURVE NUMBER	92.30	91.10	78.30	79.70	82.20
DCIA (%)	.00	.00	5.80	32.00	16.60
TC (mins)	10.00	10.00	72.00	37.00	37.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	7.40	12.02	3.39	
101	7.52	12.02	3.27	
102	11.01	12.80	2.23	
110	18.20	12.33	2.84	
120	63.26	12.33	2.72	

BASIN NAME	130	140	150	151	160
NODE NAME	130	140	151	151	160
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	20.92	36.74	8.63	2.52	8.43
CURVE NUMBER	83.70	82.20	75.00	75.00	75.00
DCIA (%)	18.20	21.50	77.60	62.00	46.70
TC (mins)	31.00	32.00	42.00	24.00	29.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
130	21.90	12.19	2.85	
140	36.97	12.23	2.80	
150	9.21	12.32	3.63	
151	3.27	12.16	3.28	
160	8.90	12.18	2.93	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 2 YR)
04-01-94

BASIN NAME	161	190	163	164	165
NODE NAME	161	190	163	164	165
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.40	2.22	4.51	3.97	1.62
CURVE NUMBER	75.00	75.00	75.00	75.00	75.00
DCIA (%)	4.90	24.70	2.80	6.50	5.00
TC (mins)	60.00	15.00	27.00	13.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
161	1.17	12.67	1.97	
190	2.71	12.07	2.42	
163	3.35	12.18	1.92	
164	4.35	12.08	2.00	
165	1.94	12.04	1.97	

BASIN NAME	170	171	172	173	174
NODE NAME	170	171	159	173	157
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	5.12	12.70	3.55	2.66	15.74
CURVE NUMBER	76.80	82.00	83.60	84.10	78.20
DCIA (%)	26.60	23.20	36.00	31.20	13.10
TC (mins)	102.00	34.00	10.00	10.00	33.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
170	2.31	13.15	2.56	
171	12.40	12.24	2.82	
172	6.51	12.02	3.13	
173	4.85	12.02	3.08	
174	13.05	12.25	2.37	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 2 YR)
04-01-94

BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	19.78	5.78	19.53
CURVE NUMBER	81.30	75.00	79.80	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	12.06	12.12	3.18	
180	6.02	12.07	2.72	
181	27.27	12.07	2.68	
182	8.89	12.07	3.00	
183	30.92	12.07	3.14	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	8.18	1.46	2.97
CURVE NUMBER	81.00	75.00	75.00	75.00	75.00
DCIA (%)	26.30	27.50	70.00	60.30	80.80
TC (mins)	15.00	15.00	15.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	10.41	12.07	2.81	
185	.64	12.07	2.49	
186	13.77	12.07	3.46	
187	2.65	12.02	3.24	
191	6.08	12.02	3.71	

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 2 YR)
04-01-94

BASIN NAME	192	200	210	220
NODE NAME	192	200	210	220
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	4.25	4.25	4.25	4.25
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	51.89	19.85	37.97	19.25
CURVE NUMBER	77.00	79.40	80.40	77.70
DCIA (%)	20.40	43.60	43.70	12.30
TC (mins)	65.00	22.00	65.00	28.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
192	29.98	12.71	2.44	
200	25.56	12.12	3.05	
210	27.65	12.71	3.10	
220	17.08	12.20	2.32	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 2 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW -------\> OTHER (cfs)	OUTFLOW (cfs)
100	1.50	101.54	.00	.00	100.68	.00
101	1.56	.10	14.80	.00	97.72	100.68
102	6.18	.15	.00	.00	97.76	97.72
104	9.20	.06	.00	.00	27.09	27.16
106	9.90	.03	10.92	.00	16.81	27.09
108	11.47	.19	.00	.00	17.20	16.81
110	11.49	.24	18.18	.00	.00	17.20
120	13.11	7.58	63.09	.00	63.85	76.98
130	13.98	1.82	21.88	.00	61.63	63.85
140	14.05	10.36	36.86	.00	67.09	61.63
150	14.09	1.53	.00	.00	88.68	53.36
151	14.09	1.80	12.12	.00	65.39	88.68
157	14.11	1.65	13.05	.00	45.78	60.51
158	14.11	1.32	.00	.00	56.93	44.21
159	14.11	2.31	6.45	.00	82.87	56.93
160	15.39	4.63	8.83	.00	2.81	.00
161	14.13	1.15	1.17	.00	44.74	82.24
162	14.14	1.27	.00	.00	35.31	32.51
163	14.28	.15	3.33	.00	5.58	6.44
164	15.63	.31	4.16	.00	4.95	5.58
165	15.63	.38	1.89	.00	.00	.61
170	15.35	.36	2.29	.00	.00	1.62
171	14.29	1.46	12.39	.00	.00	5.30
173	14.47	.35	4.80	.00	.00	2.41
175	14.36	1.18	11.30	.00	.00	3.34
180	14.92	.36	5.77	.00	11.26	12.93
181	15.47	2.05	26.06	.00	11.87	14.04
182	16.89	2.84	8.55	.00	4.83	2.90
183	16.90	5.13	29.81	.00	3.65	8.26
183A	15.87	.01	.00	.00	4.52	4.52
184	17.28	.68	9.98	.00	.00	3.65
185A	15.47	.01	.00	.00	.80	1.59
185B	15.47	.11	.61	.00	.00	.80
186	15.69	.87	13.36	.00	.00	7.29
187	16.77	.32	2.63	.00	.00	1.11
190	14.15	1.01	2.58	.00	16.39	28.96
191	15.11	1.53	6.04	.00	.00	1.78
192	15.32	7.08	29.90	.00	.00	15.21
200	14.14	5.03	23.99	.00	18.06	16.36
210	14.19	2.54	27.51	.00	7.37	18.06
220	14.22	1.87	16.94	.00	.00	7.37

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 5 YR)
04-01-94

BASIN NAME	100	101	102	110	120
NODE NAME	101	101	106	110	120
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	3.62	3.78	21.79	19.73	69.92
CURVE NUMBER	92.30	91.10	78.30	79.70	82.20
DCIA (%)	.00	.00	5.80	32.00	16.60
TC (mins)	10.00	10.00	72.00	37.00	37.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	10.91	12.02	5.10	
101	11.20	12.02	4.97	
102	18.84	12.80	3.74	
110	28.81	12.25	4.43	
120	101.47	12.25	4.32	

BASIN NAME	130	140	150	151	160
NODE NAME	130	140	151	151	160
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	20.92	36.74	8.63	2.52	8.43
CURVE NUMBER	83.70	82.20	75.00	75.00	75.00
DCIA (%)	18.20	21.50	77.60	62.00	46.70
TC (mins)	31.00	32.00	42.00	24.00	29.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
130	34.60	12.19	4.48	
140	58.69	12.23	4.41	
150	13.48	12.32	5.31	
151	4.93	12.16	4.90	
160	13.90	12.18	4.50	

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 5 YR)
04-01-94

BASIN NAME	161	190	163	164	165
NODE NAME	161	190	163	164	165
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.40	2.22	4.51	3.97	1.62
CURVE NUMBER	75.00	75.00	75.00	75.00	75.00
DCIA (%)	4.90	24.70	2.80	6.50	5.00
TC (mins)	60.00	15.00	27.00	13.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
161	2.10	12.67	3.41	
190	4.48	12.07	3.93	
163	6.07	12.18	3.35	
164	7.66	12.05	3.45	
165	3.41	12.04	3.41	

BASIN NAME	170	171	172	173	174
NODE NAME	170	171	159	173	157
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	5.12	12.70	3.55	2.66	15.74
CURVE NUMBER	76.80	82.00	83.60	84.10	78.20
DCIA (%)	26.60	23.20	36.00	31.20	13.10
TC (mins)	102.00	34.00	10.00	10.00	33.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
170	3.77	13.15	4.10	
171	19.67	12.24	4.43	
172	9.92	12.02	4.78	
173	7.41	12.02	4.73	
174	21.92	12.25	3.90	

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 5 YR)
04-01-94

BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	19.78	5.78	19.53
CURVE NUMBER	81.30	75.00	79.80	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	18.38	12.12	4.83	
180	9.60	12.07	4.27	
181	43.71	12.07	4.26	
182	13.75	12.07	4.63	
183	47.22	12.07	4.78	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	8.18	1.46	2.97
CURVE NUMBER	81.00	75.00	75.00	75.00	75.00
DCIA (%)	26.30	27.50	70.00	60.30	80.80
TC (mins)	15.00	15.00	15.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	16.43	12.07	4.41	
185	1.05	12.07	4.00	
186	20.41	12.07	5.11	
187	4.00	12.02	4.86	
191	8.83	12.02	5.40	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 5 YR)
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BASIN NAME	192	200	210	220
NODE NAME	192	200	210	220
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	6.00	6.00	6.00	6.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	51.89	19.85	37.97	19.25
CURVE NUMBER	77.00	79.40	80.40	77.70
DCIA (%)	20.40	43.60	43.70	12.30
TC (mins)	65.00	22.00	65.00	28.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
192	49.64	12.71	3.97	
200	39.44	12.12	4.67	
210	42.46	12.71	4.73	
220	28.87	12.20	3.83	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 5 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	-------> OTHER (cfs)	OUTFLOW (cfs)
100	1.50	161.48	.00	.00	128.30	.00
101	1.59	.11	21.97	.00	127.03	128.30
102	8.95	.23	.00	.00	127.02	127.03
104	9.47	.11	.00	.00	67.08	67.13
106	10.86	.04	18.74	.00	59.34	67.08
108	11.69	.24	.00	.00	59.32	59.34
110	11.86	.31	28.79	.00	54.94	59.32
120	14.30	17.71	101.43	.00	101.61	114.76
130	14.81	3.21	34.45	.00	96.83	101.61
140	14.89	14.88	58.47	.00	100.65	96.83
150	14.92	1.80	.00	.00	126.69	79.13
151	14.92	2.18	17.87	.00	85.98	126.69
157	14.94	2.01	21.91	.00	62.90	83.63
158	14.96	1.64	.00	.00	77.22	59.82
159	14.95	2.81	9.84	.00	131.74	77.22
160	15.68	6.01	13.76	.00	4.99	.00
161	14.97	1.46	2.08	.00	57.29	131.35
162	14.97	1.71	.00	.00	54.02	41.11
163	15.04	.43	5.99	.00	9.88	13.47
164	15.78	.36	7.40	.00	7.01	9.88
165	15.79	.46	3.35	.00	.00	1.56
170	15.41	.42	3.72	.00	.00	3.17
171	15.01	2.94	19.65	.00	.00	5.30
173	14.96	.71	7.35	.00	.00	3.99
175	14.93	3.05	17.15	.00	.00	3.87
180	15.14	.51	9.23	.00	18.83	21.51
181	15.80	3.48	42.05	.00	18.33	23.67
182	17.29	3.65	13.29	.00	8.14	6.62
183	17.33	6.71	45.70	.00	7.28	13.05
183A	16.06	.01	.00	.00	5.55	5.55
184	17.65	.99	15.84	.00	.00	7.28
185A	15.81	.01	.00	.00	.80	2.84
185B	15.80	.18	1.00	.00	.00	.80
186	16.03	1.12	19.82	.00	.00	11.30
187	16.91	.37	3.97	.00	.00	1.85
190	15.01	1.34	4.29	.00	29.27	45.97
191	15.17	1.69	8.78	.00	3.95	2.87
192	15.51	8.73	49.44	.00	.00	30.72
200	15.06	6.81	36.88	.00	24.88	23.43
210	15.15	3.56	42.22	.00	8.06	24.88
220	15.19	4.44	28.51	.00	.00	8.06

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 10 YR)
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BASIN NAME	100	101	102	110	120
NODE NAME	101	101	106	110	120
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	3.62	3.78	21.79	19.73	69.92
CURVE NUMBER	92.30	91.10	78.30	79.70	82.20
DCIA (%)	.00	.00	5.80	32.00	16.60
TC (mins)	10.00	10.00	72.00	37.00	37.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	12.90	12.02	6.09	
101	13.29	12.02	5.95	
102	23.49	12.80	4.64	
110	35.01	12.25	5.37	
120	123.76	12.25	5.26	

BASIN NAME	130	140	150	151	160
NODE NAME	130	140	151	151	160
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	20.92	36.74	8.63	2.52	8.43
CURVE NUMBER	83.70	82.20	75.00	75.00	75.00
DCIA (%)	18.20	21.50	77.60	62.00	46.70
TC (mins)	31.00	32.00	42.00	24.00	29.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
130	41.94	12.19	5.43	
140	71.29	12.23	5.36	
150	15.94	12.32	6.28	
151	5.90	12.16	5.85	
160	16.84	12.18	5.43	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 10 YR)
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BASIN NAME	161	190	163	164	165
NODE NAME	161	190	163	164	165
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.40	2.22	4.51	3.97	1.62
CURVE NUMBER	75.00	75.00	75.00	75.00	75.00
DCIA (%)	4.90	24.70	2.80	6.50	5.00
TC (mins)	60.00	15.00	27.00	13.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
161	2.66	12.67	4.28	
190	5.54	12.07	4.83	
163	7.71	12.18	4.22	
164	9.64	12.05	4.33	
165	4.29	12.04	4.29	

BASIN NAME	170	171	172	173	174
NODE NAME	170	171	159	173	157
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	5.12	12.70	3.55	2.66	15.74
CURVE NUMBER	76.80	82.00	83.60	84.10	78.20
DCIA (%)	26.60	23.20	36.00	31.20	13.10
TC (mins)	102.00	34.00	10.00	10.00	33.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
170	4.63	13.15	5.01	
171	23.89	12.24	5.37	
172	11.88	12.02	5.74	
173	8.88	12.02	5.69	
174	27.16	12.25	4.81	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 10 YR)
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BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	19.78	5.78	19.53
CURVE NUMBER	81.30	75.00	79.80	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	22.03	12.12	5.78	
180	11.70	12.07	5.18	
181	53.29	12.07	5.19	
182	16.55	12.07	5.59	
183	56.63	12.07	5.73	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	8.18	1.46	2.97
CURVE NUMBER	81.00	75.00	75.00	75.00	75.00
DCIA (%)	26.30	27.50	70.00	60.30	80.80
TC (mins)	15.00	15.00	15.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	19.93	12.07	5.35	
185	1.29	12.07	4.90	
186	24.26	12.07	6.07	
187	4.78	12.02	5.81	
191	10.42	12.02	6.37	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 10 YR)
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BASIN NAME	192	200	210	220
NODE NAME	192	200	210	220
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	7.00	7.00	7.00	7.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	51.89	19.85	37.97	19.25
CURVE NUMBER	77.00	79.40	80.40	77.70
DCIA (%)	20.40	43.60	43.70	12.30
TC (mins)	65.00	22.00	65.00	28.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
192	61.27	12.71	4.88	
200	47.51	12.12	5.61	
210	51.06	12.71	5.68	
220	35.84	12.20	4.74	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 10 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW -------\> OTHER (cfs)	OUTFLOW (cfs)
100	1.50	196.86	.00	.00	180.44	.00
101	1.68	.11	26.03	.00	178.85	180.44
102	11.88	2.15	.00	.00	180.06	178.85
104	11.92	.84	.00	.00	144.03	142.85
106	12.63	.77	23.38	.00	136.51	144.03
108	12.65	.59	.00	.00	140.10	136.51
110	12.91	.75	34.99	.00	132.87	140.10
120	14.47	19.92	123.71	.00	137.36	170.87
130	15.02	3.61	41.71	.00	129.64	137.36
140	15.09	16.43	71.00	.00	122.43	129.64
150	15.13	1.87	.00	.00	141.24	93.38
151	15.14	2.27	21.20	.00	105.12	141.24
157	15.14	2.09	27.14	.00	81.08	101.80
158	15.19	1.73	.00	.00	92.38	77.70
159	15.19	2.96	11.79	.00	148.43	92.38
160	15.79	6.60	16.66	.00	6.40	3.84
161	15.20	1.54	2.63	.00	81.54	148.34
162	15.24	1.86	.00	.00	68.37	64.23
163	15.27	.74	7.58	.00	12.33	16.68
164	15.90	.41	9.35	.00	7.73	12.33
165	15.91	.51	4.23	.00	.00	2.15
170	15.44	.45	4.57	.00	.00	4.12
171	15.28	3.61	23.86	.00	.00	5.16
173	15.20	.90	8.81	.00	.00	4.31
175	15.13	3.77	20.53	.00	.00	4.10
180	15.36	.68	11.28	.00	23.00	26.23
181	15.99	4.33	51.39	.00	22.49	29.31
182	17.50	4.08	16.03	.00	10.19	9.09
183	17.59	7.67	54.89	.00	9.56	15.59
183A	16.17	.01	.00	.00	5.96	5.97
184	17.84	1.16	19.25	.00	.00	9.56
185A	16.01	.01	.00	.00	.72	2.76
185B	16.00	.23	1.24	.00	.00	.72
186	16.22	1.26	23.57	.00	.00	13.61
187	16.98	.40	4.75	.00	.00	2.30
190	15.24	1.43	5.32	.00	34.67	58.17
191	15.55	2.63	10.36	.00	21.74	10.45
192	15.55	9.04	61.00	.00	.00	46.99
200	15.37	7.58	44.35	.00	27.32	30.54
210	15.53	4.19	50.76	.00	8.20	27.32
220	15.58	5.74	35.35	.00	.00	8.20

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 25 YR)
04-01-94

BASIN NAME	100	101	102	110	120
NODE NAME	101	101	106	110	120
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	3.62	3.78	21.79	19.73	69.92
CURVE NUMBER	92.30	91.10	78.30	79.70	82.20
DCIA (%)	.00	.00	5.80	32.00	16.60
TC (mins)	10.00	10.00	72.00	37.00	37.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	14.88	12.02	7.08	
101	15.37	12.02	6.93	
102	28.19	12.80	5.57	
110	41.25	12.25	6.32	
120	146.15	12.25	6.21	

BASIN NAME	130	140	150	151	160
NODE NAME	130	140	151	151	160
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	20.92	36.74	8.63	2.52	8.43
CURVE NUMBER	83.70	82.20	75.00	75.00	75.00
DCIA (%)	18.20	21.50	77.60	62.00	46.70
TC (mins)	31.00	32.00	42.00	24.00	29.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
130	49.28	12.19	6.39	
140	83.93	12.23	6.31	
150	18.42	12.32	7.26	
151	6.87	12.16	6.81	
160	19.81	12.18	6.37	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 25 YR)
04-01-94

BASIN NAME	161	190	163	164	165
NODE NAME	161	190	163	164	165
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.40	2.22	4.51	3.97	1.62
CURVE NUMBER	75.00	75.00	75.00	75.00	75.00
DCIA (%)	4.90	24.70	2.80	6.50	5.00
TC (mins)	60.00	15.00	27.00	13.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
161	3.22	12.67	5.18	
190	6.60	12.07	5.75	
163	9.38	12.18	5.12	
164	11.65	12.05	5.22	
165	5.18	12.04	5.18	

BASIN NAME	170	171	172	173	174
NODE NAME	170	171	159	173	157
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	5.12	12.70	3.55	2.66	15.74
CURVE NUMBER	76.80	82.00	83.60	84.10	78.20
DCIA (%)	26.60	23.20	36.00	31.20	13.10
TC (mins)	102.00	34.00	10.00	10.00	33.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
170	5.50	13.15	5.94	
171	28.13	12.24	6.33	
172	13.84	12.02	6.71	
173	10.35	12.02	6.66	
174	32.46	12.25	5.74	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 25 YR)
04-01-94

BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	19.78	5.78	19.53
CURVE NUMBER	81.30	75.00	79.80	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	25.69	12.12	6.75	
180	13.82	12.07	6.12	
181	62.92	12.07	6.13	
182	19.36	12.07	6.55	
183	66.06	12.07	6.70	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	8.18	1.46	2.97
CURVE NUMBER	81.00	75.00	75.00	75.00	75.00
DCIA (%)	26.30	27.50	70.00	60.30	80.80
TC (mins)	15.00	15.00	15.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	23.43	12.07	6.31	
185	1.53	12.07	5.83	
186	28.13	12.07	7.04	
187	5.57	12.02	6.76	
191	12.02	12.02	7.35	

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 25 YR)
04-01-94

BASIN NAME	192	200	210	220
NODE NAME	192	200	210	220
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	51.89	19.85	37.97	19.25
CURVE NUMBER	77.00	79.40	80.40	77.70
DCIA (%)	20.40	43.60	43.70	12.30
TC (mins)	65.00	22.00	65.00	28.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
192	73.06	12.71	5.81	
200	55.62	12.12	6.57	
210	59.70	12.71	6.64	
220	42.89	12.20	5.66	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 25 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	232.80	.00	.00	236.99	.00
101	1.80	.12	30.07	.00	235.08	236.99
102	12.25	3.02	.00	.00	236.24	235.08
104	12.31	1.11	.00	.00	201.42	200.73
106	13.29	1.59	28.08	.00	189.36	201.42
108	13.31	1.20	.00	.00	194.69	189.36
110	13.59	1.67	41.23	.00	186.84	194.69
120	14.57	21.13	146.09	.00	173.31	222.41
130	15.20	4.17	48.98	.00	161.78	173.31
140	15.28	18.30	83.56	.00	148.60	161.78
150	15.32	1.94	.00	.00	143.81	113.43
151	15.32	2.37	24.55	.00	119.36	143.81
157	15.39	2.21	32.43	.00	95.25	115.50
158	15.40	1.81	.00	.00	103.28	92.69
159	15.42	3.10	13.74	.00	176.15	103.28
160	15.83	6.83	19.58	.00	7.77	8.51
161	15.43	1.63	3.19	.00	86.83	168.29
162	15.44	1.98	.00	.00	74.93	63.28
163	15.48	1.00	9.21	.00	14.30	18.51
164	16.01	.46	11.33	.00	8.77	14.30
165	16.02	.58	5.11	.00	.00	2.94
170	15.46	.48	5.44	.00	.00	5.02
171	15.57	4.34	28.08	.00	.00	5.30
173	15.41	1.07	10.27	.00	.00	4.74
175	15.32	4.43	23.92	.00	.00	4.32
180	15.58	.84	13.35	.00	34.63	32.43
181	16.16	5.05	60.79	.00	24.99	42.40
182	17.70	4.48	18.77	.00	12.40	11.59
183	17.85	8.60	64.11	.00	11.44	18.06
183A	16.28	.01	.00	.00	6.11	6.21
184	18.01	1.31	22.67	.00	.00	11.44
185A	16.16	.01	.00	.00	.80	2.13
185B	16.17	.26	1.47	.00	.00	.80
186	16.42	1.40	27.35	.00	.00	15.84
187	17.05	.43	5.53	.00	.00	2.77
190	15.44	1.52	6.35	.00	38.92	64.48
191	15.68	2.97	11.95	.00	36.22	12.08
192	15.68	10.20	72.71	.00	.00	61.57
200	15.67	8.33	51.86	.00	30.18	37.41
210	15.90	4.82	59.34	.00	8.91	30.18
220	15.97	7.05	42.26	.00	.00	8.91

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
04-01-94

BASIN NAME	100	101	102	110	120
NODE NAME	101	101	106	110	120
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	3.62	3.78	21.79	19.73	69.92
CURVE NUMBER	92.30	91.10	78.30	79.70	82.20
DCIA (%)	.00	.00	5.80	32.00	16.60
TC (mins)	10.00	10.00	72.00	37.00	37.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	18.82	12.02	9.06	
101	19.50	12.02	8.91	
102	37.68	12.80	7.45	
110	53.79	12.25	8.25	
120	190.97	12.25	8.14	

BASIN NAME	130	140	150	151	160
NODE NAME	130	140	151	151	160
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	20.92	36.74	8.63	2.52	8.43
CURVE NUMBER	83.70	82.20	75.00	75.00	75.00
DCIA (%)	18.20	21.50	77.60	62.00	46.70
TC (mins)	31.00	32.00	42.00	24.00	29.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
130	63.96	12.19	8.33	
140	109.22	12.23	8.25	
150	23.40	12.32	9.22	
151	8.83	12.16	8.75	
160	25.81	12.18	8.28	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
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BASIN NAME	161	190	163	164	165
NODE NAME	161	190	163	164	165
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.40	2.22	4.51	3.97	1.62
CURVE NUMBER	75.00	75.00	75.00	75.00	75.00
DCIA (%)	4.90	24.70	2.80	6.50	5.00
TC (mins)	60.00	15.00	27.00	13.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
161	4.38	12.67	7.02	
190	8.75	12.07	7.62	
163	12.77	12.18	6.96	
164	15.73	12.05	7.07	
165	6.98	12.02	7.03	

BASIN NAME	170	171	172	173	174
NODE NAME	170	171	159	173	157
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	5.12	12.70	3.55	2.66	15.74
CURVE NUMBER	76.80	82.00	83.60	84.10	78.20
DCIA (%)	26.60	23.20	36.00	31.20	13.10
TC (mins)	102.00	34.00	10.00	10.00	33.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
170	7.26	13.15	7.83	
171	36.61	12.24	8.26	
172	17.74	12.02	8.67	
173	13.28	12.02	8.62	
174	43.13	12.25	7.63	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
04-01-94

BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	19.78	5.78	19.53
CURVE NUMBER	81.30	75.00	79.80	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	33.02	12.12	8.70	
180	18.11	12.07	8.01	
181	82.21	12.07	8.05	
182	24.97	12.07	8.49	
183	84.91	12.07	8.65	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	8.18	1.46	2.97
CURVE NUMBER	81.00	75.00	75.00	75.00	75.00
DCIA (%)	26.30	27.50	70.00	60.30	80.80
TC (mins)	15.00	15.00	15.00	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	30.44	12.07	8.24	
185	2.02	12.07	7.71	
186	35.89	12.07	8.99	
187	7.16	12.02	8.70	
191	15.21	12.02	9.32	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
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BASIN NAME	192	200	210	220
NODE NAME	192	200	210	220
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00
AREA (ac)	51.89	19.85	37.97	19.25
CURVE NUMBER	77.00	79.40	80.40	77.70
DCIA (%)	20.40	43.60	43.70	12.30
TC (mins)	65.00	22.00	65.00	28.00
LAG TIME (hrs)	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
192	96.87	12.71	7.69	
200	71.89	12.12	8.51	
210	77.03	12.71	8.58	
220	57.11	12.20	7.55	

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	305.63	.00	.00	340.66	.00
101	2.12	.14	38.10	.00	337.82	340.66
102	12.69	4.21	.00	.00	338.47	337.82
104	12.78	1.48	.00	.00	305.58	305.40
106	14.24	3.33	37.58	.00	284.98	305.58
108	14.26	2.93	.00	.00	296.63	284.98
110	14.59	3.88	53.77	.00	292.68	296.63
120	14.72	23.19	190.90	.00	247.07	326.06
130	15.51	5.19	63.49	.00	228.60	247.07
140	15.59	21.52	108.71	.00	196.35	228.60
150	15.64	2.04	.00	.00	150.63	150.75
151	15.66	2.54	31.28	.00	153.70	150.63
157	15.70	2.35	43.09	.00	125.10	147.17
158	15.77	1.96	.00	.00	137.56	118.37
159	15.77	3.34	17.63	.00	200.25	137.56
160	15.90	7.19	25.48	.00	12.47	19.68
161	15.80	1.79	4.32	.00	97.96	184.01
162	15.80	2.19	.00	.00	88.09	74.76
163	15.87	1.52	12.50	.00	17.90	19.27
164	16.17	.54	15.35	.00	11.71	17.90
165	16.18	.81	6.91	.00	.00	5.29
170	15.68	.78	7.20	.00	.00	6.72
171	16.03	5.50	36.54	.00	.00	6.80
173	15.79	1.38	13.19	.00	.00	4.83
175	15.66	5.65	30.69	.00	.00	5.00
180	16.06	1.19	17.54	.00	43.47	46.09
181	16.46	6.35	79.65	.00	37.11	55.75
182	18.05	5.20	24.26	.00	16.07	16.59
183	18.36	10.48	82.55	.00	13.98	22.44
183A	16.50	.01	.00	.00	6.62	6.63
184	18.48	1.71	29.53	.00	.00	13.98
185A	16.47	.01	.00	.00	.80	3.01
185B	16.48	.33	1.96	.00	.00	.80
186	16.84	1.71	34.94	.00	.00	19.66
187	17.19	.49	7.11	.00	.00	3.72
190	15.81	1.67	8.45	.00	52.13	75.57
191	16.02	3.82	15.12	.00	21.36	17.51
192	16.02	13.13	96.35	.00	.00	49.34
200	16.19	9.92	66.89	.00	37.10	47.13
210	16.53	6.51	76.54	.00	12.60	37.10
220	16.50	10.30	56.17	.00	.00	12.60

ALTERNATIVE 1

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

CONTROL PARAMETERS

START TIME: .00
END TIME: 50.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
100.00	1.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
100	TIME	1.500	.000	.000	.000	1.500	.000
						1.500	100.000
101	AREA	1.500	.000	.000	.000	1.500	.000
						9.000	.060
						10.000	.190
						11.000	.870
						12.000	2.500
						13.000	4.750
102	AREA	1.500	.000	.000	.000	1.500	.001
						8.300	.002
						9.000	.060
						10.000	.120
						11.000	.860
						12.000	2.140
						13.000	3.360
						14.000	7.060
104	AREA	6.000	.000	.000	.000	9.000	.110
						10.000	.230
						11.000	.300
						12.000	.400
						13.000	1.110
						14.000	2.470
106	AREA	8.500	.000	.000	.000	11.000	.030
						12.000	.400
						13.000	1.120
						14.000	2.480
108	AREA	9.000	.000	.000	.000	11.000	.140
						12.000	.170
						13.000	.620
						14.000	2.230
						15.000	3.060
110	AREA	9.700	.000	.000	.000	9.700	.070
						11.000	.090
						12.000	.180
						13.000	.630
						14.000	2.240
						15.000	3.060

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
120	AREA	10.500	.000	.000	.000	9.400	1.000
						11.000	1.051
						12.000	2.517
						13.000	4.192
						14.000	9.681
						15.000	16.480
						16.000	36.096
130	AREA	10.500	.000	.000	.000	9.000	.200
						11.000	.247
						14.000	.665
						15.000	2.741
						15.500	3.729
						16.000	5.006
140	AREA	11.080	.000	.000	.000	11.000	2.380
						14.000	4.338
						15.000	6.464
						16.000	13.794
150	AREA	12.000	.000	.000	.000	8.000	.126
						12.000	.243
						16.000	.371
						17.000	.402
151	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
157	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
158	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
159	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
160	AREA	14.790	.000	.000	.000	14.000	2.090
						15.000	3.785
						15.500	4.719
						16.000	5.727
						16.500	6.603

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
161	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
162	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
163	AREA	12.970	.000	.000	.000	15.000	.540
						16.000	1.000
						16.500	1.240
						17.000	1.520
164	AREA	14.630	.000	.000	.000	18.500	.000
						19.500	.000
165	AREA	14.730	.000	.000	.000	14.000	.020
						15.000	.130
						16.000	.820
						17.000	1.930
170	AREA	15.000	.000	.000	.000	15.000	.842
						15.500	1.235
						16.000	1.635
						16.500	2.984
171	AREA	13.720	.000	.000	.000	13.500	1.620
						14.000	1.840
						15.000	2.280
						16.000	2.650
						17.000	3.900
173	AREA	14.180	.000	.000	.000	14.000	.690
						15.000	.780
						16.000	.860
						17.000	.940
						18.000	1.110
175	AREA	14.000	.000	.000	.000	14.000	3.150
						15.000	3.420
						16.000	3.760
						17.000	4.400

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
180	AREA	14.520	.000	.000	.000	14.500	.606
						17.500	.862
181	AREA	14.730	.000	.000	.000	15.000	3.566
						20.000	5.138
182	AREA	16.200	.000	.000	.000	15.500	1.621
						20.000	2.452
183	AREA	16.200	.000	.000	.000	15.500	3.021
						20.000	4.307
183A	AREA	14.710	.000	.000	.000	14.710	.000
						20.000	.002
184	AREA	16.500	.000	.000	.000	16.500	.706
						20.500	1.019
185A	STRG	14.730	.000	.000	.000	14.730	.000
						19.000	.001
185B	AREA	14.730	.000	.000	.000	15.000	.144
						20.000	.305
186	AREA	14.730	.000	.000	.000	14.500	.490
						18.500	.973
187	AREA	16.430	.000	.000	.000	16.000	.395
						17.500	.423
						17.800	.735
190	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
191	AREA	14.940	.000	.000	.000	14.500	2.130
						18.000	2.890
192	AREA	14.910	.000	.000	.000	14.500	7.740
						18.000	9.500
200	AREA	11.510	.000	.000	.000	11.500	1.614
						15.000	2.183
						16.000	2.803
						17.000	5.465

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
210	AREA	11.510	.000	.000	.000	11.500	.589
						15.000	1.286
						16.000	2.073
						17.000	3.690
						18.000	30.610
220	AREA	13.400	.000	.000	.000	13.400	2.140
						14.000	2.280
						15.000	2.680
						16.000	4.020
						17.000	8.630

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 102A
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.500 BTM. WIDTH (ft):  35.000   LEFT SS (h/v):  15.000
     RGHT SS (h/v):  15.000    OPENING (ft): 999.000     WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
```

```
>>REACH NAME       : 108A
  FROM NODE        : 108
  TO NODE          : 106
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.400  NUMBER X-Y PTS:   6.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	14.000
100.000	13.000
280.000	11.900
330.000	11.700
430.000	11.400
730.000	14.400

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	19.50	130.00	130.00
.500	52.50	200.00	200.00
1.600	432.00	490.01	490.00
2.600	1022.00	690.02	690.00
3.000	1306.00	730.03	730.00
999.000	728386.00	730.03	730.00
1004.000	732036.00	730.03	730.00

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 112
  FROM NODE        : 120
  TO NODE          : 110
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  14.000  NUMBER X-Y PTS:    5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.000       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	15.300
50.000	15.000
130.000	14.000
220.000	13.999
420.000	14.500

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.05	90.42	90.42
.501	105.15	330.00	330.00
1.001	280.15	370.01	370.00
1.301	398.65	420.01	420.00
999.000	419432.20	420.01	420.00
1004.000	421532.20	420.01	420.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 140
FROM NODE : 140
TO NODE : 130
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 11.080 NUMBER X-Y PTS: 19.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	16.000
15.000	15.000
21.000	13.920
29.000	12.210
34.000	11.570
39.000	11.510
39.010	11.080
40.500	11.079
40.510	11.530
44.000	11.540
44.010	12.730
52.000	12.750
53.500	13.410
55.500	13.430
55.510	14.070
58.000	14.100
65.000	15.000
85.000	15.500
105.000	15.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	1.49	1.49
.431	.65	2.35	1.51
.451	.69	4.04	3.18
.461	.75	8.36	7.50
.491	1.01	10.89	10.00
1.131	9.01	16.57	15.01
1.651	17.45	19.58	17.44
1.671	17.88	27.67	25.53
2.331	36.24	32.46	30.11
2.351	36.86	34.56	32.21
2.841	53.21	37.39	34.51
2.991	58.45	38.39	35.34
3.021	59.55	41.05	38.00
3.921	99.15	53.19	50.00
4.421	136.02	100.72	97.50
4.921	186.65	108.23	105.00
999.000	104564.90	108.23	105.00
1004.000	105089.90	108.23	105.00

NOTE: TUCKERSTOWN WEIR

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 150
FROM NODE : 150
TO NODE : 140
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 12.000 NUMBER X-Y PTS: 11.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	15.500
50.000	15.010
55.000	15.000
55.010	13.510
85.000	13.500
85.010	12.000
95.000	11.999
95.010	13.500
125.000	13.510
125.010	16.000
145.000	16.100

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	10.00	9.99
1.501	15.01	12.99	10.01
1.511	15.41	72.97	69.99
3.001	119.70	75.95	70.01
3.011	120.43	80.96	75.01
3.501	169.43	131.45	125.01
4.001	231.93	131.95	125.01
4.101	245.44	151.94	145.00
999.000	144505.80	151.94	145.00
1004.000	145230.80	151.94	145.00

NOTE: BENEVA ROAD WEIR

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 160
  FROM NODE        : 160
  TO NODE          : 159
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.700  NUMBER X-Y PTS:    5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	16.800
250.000	16.000
350.000	15.700
450.000	16.000
580.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	30.00	200.00	200.00
1.100	331.60	554.01	554.00
1.300	445.00	580.01	580.00
999.000	579111.00	580.01	580.00
1004.000	582011.00	580.01	580.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 193
  FROM NODE        : 192
  TO NODE          : 191
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.500 BTM. WIDTH (ft):1025.000   LEFT SS (h/v):    5.000
     RGHT SS (h/v):   5.000    OPENING (ft): 999.000      WEIR COEF.:    2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 170
  FROM NODE        : 170
  TO NODE          : 157
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.200  NUMBER X-Y PTS:   5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	17.000
30.000	16.000
50.000	15.200
80.000	16.000
100.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	20.00	50.03	50.00
1.800	95.00	100.07	100.00
999.000	99815.00	100.07	100.00
1004.000	100315.00	100.07	100.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 104A
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):   8.500  CREST LN. (ft):   4.900    OPENING (ft): 999.000
        WEIR COEF.:   3.130       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME        : 101
  FROM NODE         : 101
  TO NODE           : 100
  REACH TYPE        : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):  144.000        RISE (in):   96.000     LENGTH (ft): 110.000
   U/S INVERT (ft):  -1.400 D/S INVERT (ft):   -1.400       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    2.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  11.200  CREST LN. (ft): 100.000     WEIR COEF.:    2.800
          RESERVED:********          RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********          RESERVED:********       RESERVED:********

              NOTE: U.S. 41 CROSSING

>>REACH NAME        : 102
  FROM NODE         : 102
  TO NODE           : 101
  REACH TYPE        : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):  132.000        RISE (in):   48.000     LENGTH (ft): 200.000
   U/S INVERT (ft):   1.410 D/S INVERT (ft):    .000       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    3.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME        : 104
  FROM NODE         : 104
  TO NODE           : 102
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000        RISE (in):   24.000    LENGTH (ft):   15.000
   U/S INVERT (ft):   6.000 D/S INVERT (ft):    2.000     MANNING N:      .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    2.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):9999.000  CREST LN. (ft):     .000    WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********    WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE:

>>REACH NAME        : 108
  FROM NODE         : 108
  TO NODE           : 106
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000        RISE (in):   24.000    LENGTH (ft):   56.000
   U/S INVERT (ft):   9.000 D/S INVERT (ft):    9.000     MANNING N:      .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft): 999.000  CREST LN. (ft):     .000    WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********    WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE:
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
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```
>>REACH NAME       : 130
  FROM NODE        : 130
  TO NODE          : 120
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  72.000        RISE (in):  60.000     LENGTH (ft):  80.000
   U/S INVERT (ft):   8.400 D/S INVERT (ft):   8.200      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  14.300  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: BILTMORE ROAD CROSSING

>>REACH NAME       : 151
  FROM NODE        : 151
  TO NODE          : 150
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  96.000        RISE (in):  96.000     LENGTH (ft):  79.000
   U/S INVERT (ft):   7.800 D/S INVERT (ft):   7.670      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   3.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  19.100  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: BENEVA ROAD CROSSING
```

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```
>>REACH NAME       : 158
  FROM NODE        : 158
  TO NODE          : 157
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  72.000       RISE (in):  72.000    LENGTH (ft):  40.000
   U/S INVERT (ft):   7.970 D/S INVERT (ft):   8.030     MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  16.500  CREST LN. (ft):  50.000    WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********    WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 163
  FROM NODE        : 163
  TO NODE          : 162
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000    LENGTH (ft): 230.000
   U/S INVERT (ft):  12.970 D/S INVERT (ft):  12.810     MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  19.000  CREST LN. (ft):  50.000    WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********    WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE: PALMER RANCH PARKWAY CROSSING
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```
>>REACH NAME        : 165
  FROM NODE         : 165
  TO NODE           : 164
  REACH TYPE        : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   48.000       RISE (in):   48.000     LENGTH (ft): 150.000
   U/S INVERT (ft):  14.730 D/S INVERT (ft):   14.630      MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  23.000  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: MIRA LAGO ENTRANCE

>>REACH NAME        : 182
  FROM NODE         : 182
  TO NODE           : 181
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000       RISE (in):   24.000     LENGTH (ft):  89.000
   U/S INVERT (ft):  16.200 D/S INVERT (ft):   15.000      MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:
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```
>>REACH NAME        : 183
  FROM NODE         : 183
  TO NODE           : 182
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000       RISE (in):   24.000     LENGTH (ft): 104.000
   U/S INVERT (ft):  15.100 D/S INVERT (ft):   15.100       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    1.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:

>>REACH NAME        : 183A
  FROM NODE         : 183A
  TO NODE           : 164
  REACH TYPE        : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   30.000       RISE (in):   19.000     LENGTH (ft): 307.000
   U/S INVERT (ft):  14.710 D/S INVERT (ft):   14.100       MANNING N:     .013
       ENTRNC LOSS:   1.100   # OF CULVERTS:    1.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:
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```
>>REACH NAME       : 184
  FROM NODE        : 184
  TO NODE          : 183
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  94.000
   U/S INVERT (ft): 16.500 D/S INVERT (ft):  15.100       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 185A
  FROM NODE        : 185A
  TO NODE          : 181
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  30.000     LENGTH (ft): 160.000
   U/S INVERT (ft): 13.960 D/S INVERT (ft):  13.480       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
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>>REACH NAME       : 185B
  FROM NODE        : 185B
  TO NODE          : 185A
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  73.000
   U/S INVERT (ft): 13.480 D/S INVERT (ft):  13.960       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 186
  FROM NODE        : 186
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  87.000
   U/S INVERT (ft): 14.460 D/S INVERT (ft):  14.440       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
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>>REACH NAME       : 210
  FROM NODE        : 210
  TO NODE          : 200
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000        RISE (in):  40.000     LENGTH (ft): 109.000
 U/S INVERT (ft):  11.170 D/S INVERT (ft):  10.640       MANNING N:     .024
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  16.560  CREST LN. (ft):  50.000     WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:

>>REACH NAME       : 220
  FROM NODE        : 220
  TO NODE          : 210
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000        RISE (in):  24.000     LENGTH (ft): 156.000
 U/S INVERT (ft):  13.400 D/S INVERT (ft):  11.760       MANNING N:     .024
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  17.500  CREST LN. (ft):  25.000     WEIR COEF.:    2.600
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:
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```
>>REACH NAME       : 120
  FROM NODE        : 120
  TO NODE          : 102
  REACH TYPE       : DROP STRUCTURE w/ RECT. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in): 132.000        RISE (in):  48.000     LENGTH (ft): 932.600
   U/S INVERT (ft):   7.930 D/S INVERT (ft):   1.400       MANNING N:     .013
       ENTRNC LOSS:   1.300   # OF CULVERTS:   3.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  10.500  CREST LN. (ft):  35.000    OPENING (ft):9999.000
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:  1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.: 999.000       GATE COEF.:  3.200 NUMBER OF ELEM.:   .600

               NOTE:

>>REACH NAME       : 171
  FROM NODE        : 171
  TO NODE          : 151
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  18.000        RISE (in):  18.000     LENGTH (ft):  32.000
   U/S INVERT (ft):  12.510 D/S INVERT (ft):  12.100       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  13.720  CREST LN. (ft):   4.600    OPENING (ft):   1.550
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:  1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):******** CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.:  3.200       GATE COEF.:    .660 NUMBER OF ELEM.:  1.000

               NOTE: DATA BASED UPON PROJECT SURVEY
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```
>>REACH NAME       : 173
  FROM NODE        : 173
  TO NODE          : 159
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  32.000
   U/S INVERT (ft):  12.950 D/S INVERT (ft):  12.580       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.180  CREST LN. (ft):   4.800    OPENING (ft):   1.150
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 175
  FROM NODE        : 175
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  42.000
   U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.550       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.000  CREST LN. (ft):   4.900    OPENING (ft):   1.260
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY
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```
>>REACH NAME       : 180
  FROM NODE        : 180
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  54.000        RISE (in):  54.000     LENGTH (ft): 119.000
   U/S INVERT (ft):   9.400 D/S INVERT (ft):   9.260       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.550  CREST LN. (ft):  18.000    OPENING (ft):   1.510
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.060  CREST LN. (ft):  33.000    OPENING (ft):9999.000
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

               NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 181A
  FROM NODE        : 181
  TO NODE          : 160
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  38.000        RISE (in):  24.000     LENGTH (ft): 293.000
   U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.560       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.790  CREST LN. (ft):   2.200    OPENING (ft):   1.440
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.230  CREST LN. (ft):  26.000    OPENING (ft):9999.000
         WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

               NOTE: DATA BASED UPON PROJECT SURVEY
```

```
>>REACH NAME       : 181B
  FROM NODE        : 181
  TO NODE          : 180
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  54.000       RISE (in):  54.000     LENGTH (ft): 220.000
   U/S INVERT (ft):   8.990 D/S INVERT (ft):   8.830       MANNING N:    .013
      ENTRNC LOSS:    .500  # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.730  CREST LN. (ft):   5.950    OPENING (ft):   1.190
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  15.920  CREST LN. (ft):  26.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 183B
  FROM NODE        : 183
  TO NODE          : 183A
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft): 238.000
   U/S INVERT (ft):  15.170 D/S INVERT (ft):  14.710       MANNING N:    .013
      ENTRNC LOSS:    .500  # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.230  CREST LN. (ft):   3.080    OPENING (ft):    .530
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  18.380  CREST LN. (ft):  14.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY
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```
>>REACH NAME       : 187
  FROM NODE        : 187
  TO NODE          : 181
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  48.000
   U/S INVERT (ft): 13.110 D/S INVERT (ft):  12.140       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 16.430  CREST LN. (ft):   1.750    OPENING (ft):   1.490
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.920  CREST LN. (ft):  10.000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 191
  FROM NODE        : 191
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft):  40.000
   U/S INVERT (ft): 10.290 D/S INVERT (ft):  10.210       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.940  CREST LN. (ft):   8.000    OPENING (ft):   1.330
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 16.270  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE:
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Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

```
>>REACH NAME       : 192
  FROM NODE        : 192
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft): 105.000
   U/S INVERT (ft):  10.500 D/S INVERT (ft):  10.290       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.910  CREST LN. (ft):  18.000    OPENING (ft):   1.550
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.460  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE:

>>REACH NAME       : 200
  FROM NODE        : 200
  TO NODE          : 140
  REACH TYPE       : DROP STRUCTURE w/ ARCH CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft):  94.000
   U/S INVERT (ft):   9.780 D/S INVERT (ft):   9.900       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  11.510  CREST LN. (ft):   8.300    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.010  CREST LN. (ft):   8.500    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: DATA BASED UPON PROJECT SURVEY
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 106
FROM NODE : 106
TO NODE : 104
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 265.000 U/S INVERT (ft): 8.100 D/S INVERT (ft): 6.600
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	8.700	.040
3.000	7.200	.040
7.000	8.700	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	5.25	7.63	7.00	152.0
1.500	5.25	7.63	7.00	152.0
6.500	40.25	7.63	7.00	4532.4

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 110
FROM NODE : 110
TO NODE : 108
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 315.000 U/S INVERT (ft): 9.700 D/S INVERT (ft): 7.580
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	10.800	.040
7.500	9.200	.040
15.000	11.100	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	9.71	13.30	12.95	292.7
1.600	11.05	13.30	13.82	363.0
1.900	15.38	13.30	15.00	629.2
6.900	90.38	13.30	15.00	12045.8

NOTE:

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 157
FROM NODE : 157
TO NODE : 151
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 8.030 D/S INVERT (ft): 7.800
MAX. DEPTH (ft): 8.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	16.500	.035
15.000	11.800	.035
20.000	10.300	.035
30.000	10.100	.035
40.000	9.000	.035
54.000	11.900	.035
62.000	16.900	.035
70.000	17.100	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.100	8.42	15.48	15.31	238.2
1.300	12.58	26.47	26.28	325.2
2.800	61.17	39.09	38.52	3501.1
2.900	65.07	39.92	39.32	3826.3
7.500	296.63	63.98	61.36	35017.0
7.900	321.30	64.73	62.00	39693.1
8.000	327.70	68.74	66.00	39411.8
8.100	334.50	68.74	70.00	40784.2
13.100	684.50	68.74	70.00	134520.3

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 159
FROM NODE : 159
TO NODE : 158
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.970
MAX. DEPTH (ft): 9.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.200	327.54	79.20	75.88	35829.4
9.500	350.89	83.15	79.79	38902.8
9.900	383.85	83.15	85.00	45181.6
10.600	445.10	83.15	90.00	57825.8
15.600	895.10	83.15	90.00	185272.7

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 161
FROM NODE : 161
TO NODE : 159
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.000
MAX. DEPTH (ft): 9.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.000	312.98	73.00	69.71	35068.8
9.200	327.54	73.00	75.88	37829.5
9.900	383.85	73.00	85.00	49278.4
10.600	445.10	73.00	90.00	63069.1
15.600	895.10	73.00	90.00	202072.2

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 162
FROM NODE : 162
TO NODE : 161
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 11.740 D/S INVERT (ft): 10.300
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.100	.035
22.000	13.100	.035
24.000	12.200	.040
31.000	11.500	.040
37.000	12.200	.040
38.000	13.500	.040
57.000	17.500	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.700	4.55	13.08	13.00	83.6
1.600	17.46	16.41	15.69	676.3
2.000	24.24	19.15	18.20	1116.8
5.600	156.18	56.75	55.10	13460.6
6.000	178.60	58.69	57.00	16279.6
7.000	235.60	58.69	57.00	24992.5
12.000	520.60	58.69	57.00	91018.8

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 164
FROM NODE : 164
TO NODE : 163
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1700.000 U/S INVERT (ft): 14.630 D/S INVERT (ft): 12.970
MAX. DEPTH (ft): 2.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	18.200	.035
24.000	13.100	.035
31.000	12.300	.060
37.000	13.300	.060
65.000	19.900	.035
89.000	22.800	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.800	4.72	11.91	11.80	63.1
1.000	7.29	14.09	13.94	120.3
2.000	25.71	23.26	22.89	823.3
5.900	183.03	23.26	57.79	29075.2
7.600	287.40	23.26	65.00	67913.7
10.500	510.70	23.26	89.00	201421.7
15.500	955.70	23.26	89.00	647949.0

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

>>REACH NAME : 190
FROM NODE : 190
TO NODE : 162
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 10.210 D/S INVERT (ft): 9.710
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.000	.060
35.000	10.000	.060
55.000	9.999	.060
90.000	17.000	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	20.00	20.00	.0
7.000	384.94	91.38	89.99	30103.5
7.001	385.03	91.38	90.00	30115.5
12.001	835.03	91.38	90.00	112281.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	102A	102	101	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
2	108A	108	106	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	112	120	110	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	140	140	130	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
5	150	150	140	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
6	160	160	159	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
7	193	192	191	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
8	170	170	157	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
9	104A	104	102	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
10	101	101	100	CULVERT, RECTANGULAR w/ ROADWAY
11	102	102	101	CULVERT, RECTANGULAR w/ ROADWAY
12	104	104	102	CULVERT, ELLIPTICAL w/ ROADWAY
13	108	108	106	CULVERT, ELLIPTICAL w/ ROADWAY
14	130	130	120	CULVERT, RECTANGULAR w/ ROADWAY
15	151	151	150	CULVERT, RECTANGULAR w/ ROADWAY
16	158	158	157	CULVERT, CIRCULAR w/ ROADWAY
17	163	163	162	CULVERT, CIRCULAR w/ ROADWAY
18	165	165	164	CULVERT, CIRCULAR w/ ROADWAY
19	182	182	181	CULVERT, ELLIPTICAL w/ ROADWAY
20	183	183	182	CULVERT, ELLIPTICAL w/ ROADWAY
21	183A	183A	164	CULVERT, CIRCULAR w/ ROADWAY
22	184	184	183	CULVERT, ELLIPTICAL w/ ROADWAY
23	185A	185A	181	CULVERT, CIRCULAR w/ ROADWAY
24	185B	185B	185A	CULVERT, CIRCULAR w/ ROADWAY
25	186	186	181	CULVERT, ELLIPTICAL w/ ROADWAY
26	210	210	200	CULVERT, ARCH w/ ROADWAY
27	220	220	210	CULVERT, ARCH w/ ROADWAY
28	120	120	102	DROP STRUCTURE w/ RECT. CULVERT
29	171	171	151	DROP STRUCTURE w/ CIRC. CULVERT
30	173	173	159	DROP STRUCTURE w/ CIRC. CULVERT
31	175	175	161	DROP STRUCTURE w/ CIRC. CULVERT
32	180	180	161	DROP STRUCTURE w/ CIRC. CULVERT
33	181A	181	160	DROP STRUCTURE w/ ELLP. CULVERT
34	181B	181	180	DROP STRUCTURE w/ CIRC. CULVERT
35	183B	183	183A	DROP STRUCTURE w/ CIRC. CULVERT
36	187	187	181	DROP STRUCTURE w/ CIRC. CULVERT
37	191	191	190	DROP STRUCTURE w/ ELLP. CULVERT
38	192	192	190	DROP STRUCTURE w/ ELLP. CULVERT
39	200	200	140	DROP STRUCTURE w/ ARCH CULVERT
40	106	106	104	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
41	110	110	108	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
42	157	157	151	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
43	159	159	158	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
44	161	161	159	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
45	162	162	161	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
46	164	164	163	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
47	190	190	162	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1)
04-01-94

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	41
REACHES	
WEIRS	9
CULVERTS	18
DROP STRUCTURES	12
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	8
RATING CURVES	0
TOTAL REACHES	47

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1 - 2 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	<------- INFLOW -------> RUNOFF (cfs)	OFFSITE (cfs)	OTHER (cfs)	OUTFLOW (cfs)
100	1.50	101.87	.00	.00	160.70	.00
101	1.64	.19	14.80	.00	157.76	160.70
102	2.97	.42	.00	.00	157.76	157.76
104	7.65	.01	.00	.00	27.52	27.52
106	10.51	.04	10.92	.00	17.44	27.52
108	11.00	.10	.00	.00	17.46	17.44
110	11.05	.16	18.18	.00	.00	17.46
120	11.64	2.82	63.09	.00	105.74	135.97
130	11.82	.86	21.88	.00	97.37	105.74
140	12.97	6.64	36.86	.00	85.44	97.37
150	13.56	1.35	.00	.00	88.13	60.05
151	13.57	1.58	12.12	.00	68.49	88.13
157	13.59	1.44	13.05	.00	48.76	63.98
158	13.60	1.14	.00	.00	61.90	47.99
159	13.61	2.03	6.45	.00	71.72	61.90
160	15.39	4.63	8.83	.00	2.81	.00
161	13.64	.99	1.17	.00	42.90	70.73
162	13.66	1.03	.00	.00	36.75	28.86
163	14.16	.12	3.33	.00	5.01	6.49
164	15.68	.32	4.16	.00	4.55	5.01
165	15.68	.40	1.89	.00	.00	.38
170	15.35	.36	2.29	.00	.00	1.62
171	14.27	1.42	12.39	.00	.00	5.64
173	14.47	.35	4.80	.00	.00	2.41
175	14.36	1.18	11.30	.00	.00	3.26
180	14.92	.36	5.77	.00	11.26	12.93
181	15.47	2.05	26.06	.00	11.87	14.04
182	16.89	2.84	8.55	.00	4.83	2.90
183	16.90	5.13	29.81	.00	3.65	8.26
183A	15.88	.01	.00	.00	4.52	4.52
184	17.28	.68	9.98	.00	.00	3.65
185A	15.47	.01	.00	.00	.63	1.53
185B	15.47	.11	.61	.00	.00	.63
186	15.69	.87	13.36	.00	.00	7.29
187	16.77	.32	2.63	.00	.00	1.11
190	13.66	.84	2.58	.00	16.39	31.54
191	15.11	1.53	6.04	.00	.00	1.78
192	15.32	7.08	29.90	.00	.00	15.21
200	13.30	3.42	23.99	.00	22.58	26.31
210	13.45	1.85	27.51	.00	4.17	22.58
220	14.16	1.73	16.94	.00	.00	4.17

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1 - 5 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	162.11	.00	.00	291.31	.00
101	1.96	.21	21.97	.00	287.14	291.31
102	3.74	.61	.00	.00	287.55	287.14
104	8.22	.01	.00	.00	44.40	44.34
106	10.67	.04	18.74	.00	26.93	44.40
108	11.48	.20	.00	.00	27.25	26.93
110	11.53	.25	28.79	.00	.00	27.25
120	12.20	4.15	101.43	.00	186.03	248.22
130	12.61	1.23	34.45	.00	169.91	186.03
140	13.53	8.52	58.47	.00	141.77	169.91
150	13.78	1.43	.00	.00	104.76	104.38
151	13.79	1.67	17.87	.00	91.27	104.76
157	13.80	1.52	21.91	.00	73.84	84.11
158	13.84	1.23	.00	.00	73.11	70.68
159	13.86	2.17	9.84	.00	102.11	73.11
160	15.67	5.97	13.76	.00	4.99	.00
161	13.87	1.06	2.08	.00	67.99	100.65
162	13.92	1.16	.00	.00	63.61	43.04
163	14.70	.27	5.99	.00	9.88	13.76
164	15.78	.36	7.40	.00	6.81	9.88
165	15.79	.46	3.35	.00	.00	1.48
170	15.41	.42	3.72	.00	.00	3.17
171	14.61	2.12	19.65	.00	.00	7.86
173	14.59	.44	7.35	.00	.00	3.89
175	14.55	1.81	17.15	.00	.00	4.52
180	15.07	.46	9.23	.00	18.86	21.51
181	15.80	3.48	42.05	.00	18.33	23.70
182	17.29	3.65	13.29	.00	8.14	6.62
183	17.33	6.71	45.70	.00	7.28	13.05
183A	16.06	.01	.00	.00	5.55	5.56
184	17.65	.99	15.84	.00	.00	7.28
185A	15.81	.01	.00	.00	.80	2.84
185B	15.80	.18	1.00	.00	.00	.80
186	16.03	1.12	19.82	.00	.00	11.30
187	16.91	.37	3.97	.00	.00	1.85
190	13.92	.93	4.29	.00	29.46	53.90
191	15.17	1.69	8.78	.00	3.81	2.87
192	15.51	8.73	49.44	.00	.00	30.76
200	14.16	5.08	36.88	.00	34.29	43.25
210	14.50	2.84	42.22	.00	11.93	34.29
220	14.69	3.05	28.51	.00	.00	11.93

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1 - 10 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW -------> OTHER (cfs)	OUTFLOW (cfs)
100	1.50	197.56	.00	.00	359.10	.00
101	2.19	.24	26.03	.00	354.09	359.10
102	4.09	.70	.00	.00	354.12	354.09
104	8.56	.02	.00	.00	55.45	55.39
106	10.80	.05	23.38	.00	33.50	55.45
108	11.57	.22	.00	.00	33.42	33.50
110	11.63	.27	34.99	.00	.00	33.42
120	12.51	5.17	123.71	.00	226.84	304.96
130	13.02	1.42	41.71	.00	207.54	226.84
140	13.82	9.48	71.00	.00	173.76	207.54
150	14.00	1.50	.00	.00	123.46	123.08
151	14.02	1.77	21.20	.00	116.60	123.46
157	14.03	1.62	27.14	.00	98.15	108.18
158	14.10	1.32	.00	.00	93.97	94.14
159	14.11	2.31	11.79	.00	129.92	93.97
160	15.78	6.56	16.66	.00	6.39	3.27
161	14.18	1.17	2.63	.00	88.58	127.90
162	14.19	1.29	.00	.00	78.46	60.09
163	14.93	.35	7.58	.00	12.28	17.61
164	15.90	.41	9.35	.00	7.66	12.28
165	15.91	.51	4.23	.00	.00	2.09
170	15.44	.45	4.57	.00	.00	4.12
171	14.85	2.62	23.86	.00	.00	8.70
173	14.67	.49	8.81	.00	.00	4.36
175	14.68	2.24	20.53	.00	.00	4.93
180	15.15	.53	11.28	.00	23.82	26.98
181	15.99	4.32	51.39	.00	20.80	30.02
182	17.50	4.08	16.03	.00	10.19	9.10
183	17.59	7.67	54.89	.00	9.56	15.59
183A	16.17	.01	.00	.00	5.92	5.92
184	17.84	1.16	19.25	.00	.00	9.56
185A	15.99	.01	.00	.00	.80	2.75
185B	16.00	.23	1.24	.00	.00	.80
186	16.22	1.26	23.57	.00	.00	13.61
187	16.98	.40	4.75	.00	.00	2.30
190	14.22	1.04	5.32	.00	38.72	68.16
191	15.50	2.52	10.36	.00	19.42	10.81
192	15.54	8.94	61.00	.00	.00	48.05
200	14.59	5.88	44.35	.00	39.08	51.15
210	14.98	3.29	50.76	.00	13.33	39.08
220	15.12	4.23	35.35	.00	.00	13.33

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1 - 25 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	233.63	.00	.00	422.66	.00
101	2.44	.26	30.07	.00	416.83	422.66
102	4.39	.78	.00	.00	416.58	416.83
104	8.81	.02	.00	.00	65.79	65.72
106	10.95	.05	28.08	.00	39.32	65.79
108	11.63	.23	.00	.00	40.00	39.32
110	11.71	.28	41.23	.00	.00	40.00
120	12.81	6.18	146.09	.00	264.41	358.78
130	13.40	1.60	48.98	.00	243.22	264.41
140	14.10	10.62	83.56	.00	206.06	243.22
150	14.25	1.58	.00	.00	151.21	151.61
151	14.28	1.88	24.55	.00	140.60	151.21
157	14.29	1.73	32.43	.00	119.65	132.37
158	14.38	1.42	.00	.00	117.81	114.85
159	14.41	2.49	13.74	.00	163.22	117.81
160	15.83	6.81	19.58	.00	7.73	8.01
161	14.43	1.26	3.19	.00	108.66	159.37
162	14.53	1.47	.00	.00	96.78	71.46
163	15.07	.47	9.21	.00	14.29	19.77
164	16.01	.46	11.33	.00	8.77	14.29
165	16.02	.58	5.11	.00	.00	2.94
170	15.46	.48	5.44	.00	.00	5.02
171	15.11	3.19	28.08	.00	.00	9.39
173	14.75	.55	10.27	.00	.00	4.87
175	14.84	2.76	23.92	.00	.00	5.52
180	15.27	.61	13.35	.00	31.40	35.41
181	16.16	5.04	60.79	.00	24.88	39.09
182	17.70	4.48	18.77	.00	12.40	11.59
183	17.85	8.60	64.11	.00	11.44	18.06
183A	16.28	.01	.00	.00	6.22	6.24
184	18.01	1.31	22.67	.00	.00	11.44
185A	16.15	.01	.00	.00	.80	2.45
185B	16.17	.26	1.47	.00	.00	.80
186	16.42	1.40	27.35	.00	.00	15.84
187	17.05	.43	5.53	.00	.00	2.77
190	14.53	1.16	6.35	.00	47.31	77.95
191	15.60	2.77	11.95	.00	33.75	13.86
192	15.61	9.53	72.71	.00	.00	63.54
200	14.95	6.57	51.86	.00	42.52	55.52
210	15.40	3.98	59.34	.00	14.70	42.52
220	15.54	5.63	42.26	.00	.00	14.70

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 1 - 100 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	306.83	.00	.00	528.07	.00
101	2.92	.30	38.10	.00	520.77	528.07
102	4.87	.90	.00	.00	520.69	520.77
104	9.23	.07	.00	.00	86.00	84.97
106	11.26	.11	37.58	.00	52.00	86.00
108	11.71	.25	.00	.00	52.73	52.00
110	11.84	.31	53.77	.00	.00	52.73
120	13.28	8.75	190.90	.00	337.20	444.54
130	14.12	2.08	63.49	.00	310.18	337.20
140	14.63	13.50	108.71	.00	262.72	310.18
150	14.77	1.75	.00	.00	202.41	202.43
151	14.81	2.12	31.28	.00	187.99	202.41
157	14.83	1.96	43.09	.00	163.58	180.72
158	15.01	1.66	.00	.00	156.54	156.90
159	15.04	2.87	17.63	.00	203.46	156.54
160	15.89	7.15	25.48	.00	11.79	18.01
161	15.06	1.49	4.32	.00	130.88	184.58
162	15.11	1.79	.00	.00	90.22	85.64
163	15.37	.86	12.50	.00	17.32	22.08
164	16.17	.54	15.35	.00	10.86	17.32
165	16.18	.81	6.91	.00	.00	4.35
170	15.51	.53	7.20	.00	.00	6.80
171	15.64	4.51	36.54	.00	.00	11.03
173	15.07	.80	13.19	.00	.00	5.17
175	15.20	4.01	30.69	.00	.00	6.46
180	15.70	.93	17.54	.00	48.54	53.23
181	16.42	6.18	79.65	.00	37.68	60.23
182	18.05	5.20	24.26	.00	16.07	16.60
183	18.36	10.49	82.55	.00	13.98	22.39
183A	16.50	.01	.00	.00	6.69	6.70
184	18.48	1.71	29.53	.00	.00	13.98
185A	16.42	.01	.00	.00	.88	3.13
185B	16.44	.32	1.96	.00	.00	.88
186	16.83	1.71	34.94	.00	.00	19.72
187	17.19	.49	7.11	.00	.00	3.72
190	15.11	1.38	8.45	.00	63.38	70.94
191	15.79	3.25	15.12	.00	22.35	19.42
192	15.80	11.17	96.35	.00	.00	61.94
200	15.63	8.23	66.89	.00	48.20	64.45
210	16.16	5.44	76.54	.00	19.38	48.20
220	16.24	8.68	56.17	.00	.00	19.38

ALTERNATIVE 2

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

CONTROL PARAMETERS

START TIME: .00
END TIME: 48.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
100.00	1.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
100	TIME	1.500	.000	.000	.000	1.500	.000
						1.500	100.000
101	AREA	1.500	.000	.000	.000	1.500	.000
						9.000	.060
						10.000	.190
						11.000	.870
						12.000	2.500
						13.000	4.750
102	AREA	1.500	.000	.000	.000	1.500	.001
						8.300	.002
						9.000	.060
						10.000	.120
						11.000	.860
						12.000	2.140
						13.000	3.360
						14.000	7.060
104	AREA	6.000	.000	.000	.000	9.000	.110
						10.000	.230
						11.000	.300
						12.000	.400
						13.000	1.110
						14.000	2.470
106	AREA	8.500	.000	.000	.000	11.000	.030
						12.000	.400
						13.000	1.120
						14.000	2.480
108	AREA	9.000	.000	.000	.000	11.000	.140
						12.000	.170
						13.000	.620
						14.000	2.230
						15.000	3.060
110	AREA	9.700	.000	.000	.000	8.500	.050
						9.700	.070
						11.000	.090
						12.000	.180
						13.000	.630
						14.000	2.240
						15.000	3.060

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
120	AREA	10.500	.000	.000	.000	9.400	1.000
						11.000	1.051
						12.000	2.517
						13.000	4.192
						14.000	9.681
						15.000	16.480
						16.000	36.096
130	AREA	10.500	.000	.000	.000	9.000	.200
						11.000	.247
						14.000	.665
						15.000	2.741
						15.500	3.729
						16.000	5.006
140	AREA	11.080	.000	.000	.000	11.000	2.380
						14.000	4.338
						15.000	6.464
						16.000	13.794
150	AREA	12.000	.000	.000	.000	8.000	.126
						12.000	.243
						16.000	.371
						17.000	.402
151	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
157	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
158	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
159	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
160	AREA	14.790	.000	.000	.000	14.000	2.090
						15.000	3.785
						15.500	4.719
						16.000	5.727
						16.500	6.603

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
161	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
162	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
163	AREA	12.970	.000	.000	.000	15.000	.540
						16.000	1.000
						16.500	1.240
						17.000	1.520
164	AREA	14.630	.000	.000	.000	18.500	.000
						19.500	.000
165	AREA	14.730	.000	.000	.000	14.000	.020
						15.000	.130
						16.000	.820
						17.000	1.930
170	AREA	15.000	.000	.000	.000	15.000	.842
						15.500	1.235
						16.000	1.635
						16.500	2.984
171	AREA	13.720	.000	.000	.000	13.500	1.620
						14.000	1.840
						15.000	2.280
						16.000	2.650
						17.000	3.900
173	AREA	14.180	.000	.000	.000	14.000	.690
						15.000	.780
						16.000	.860
						17.000	.940
						18.000	1.110
175	AREA	14.000	.000	.000	.000	14.000	3.150
						15.000	3.420
						16.000	3.760
						17.000	4.400

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
180	AREA	14.520	.000	.000	.000	14.500	.606
						17.500	.862
181	AREA	14.730	.000	.000	.000	15.000	3.566
						20.000	5.138
182	AREA	16.200	.000	.000	.000	15.500	1.621
						20.000	2.452
183	AREA	16.200	.000	.000	.000	15.500	3.021
						20.000	4.307
183A	AREA	14.710	.000	.000	.000	14.710	.000
						20.000	.002
184	AREA	16.500	.000	.000	.000	16.500	.706
						20.500	1.019
185A	STRG	14.730	.000	.000	.000	14.730	.000
						19.000	.001
185B	AREA	14.730	.000	.000	.000	15.000	.144
						20.000	.305
186	AREA	14.730	.000	.000	.000	14.500	.490
						18.500	.973
187	AREA	16.430	.000	.000	.000	16.000	.395
						17.500	.423
						17.800	.735
190	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
191	AREA	15.000	.000	.000	.000	14.500	2.130
						18.000	2.890
192	AREA	14.910	.000	.000	.000	14.500	7.740
						18.000	9.500
200	AREA	11.510	.000	.000	.000	11.500	1.614
						15.000	2.183
						16.000	2.803
						17.000	5.465

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
210	AREA	11.510	.000	.000	.000	11.500	.589
						15.000	1.286
						16.000	2.073
						17.000	3.690
						18.000	30.610
220	AREA	13.400	.000	.000	.000	13.400	2.140
						14.000	2.280
						15.000	2.680
						16.000	4.020
						17.000	8.630

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

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>>REACH NAME       : 102A
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.500 BTM. WIDTH (ft):  35.000   LEFT SS (h/v):  15.000
     RGHT SS (h/v):  15.000    OPENING (ft): 999.000      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
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>>REACH NAME       : 108A
  FROM NODE        : 108
  TO NODE          : 106
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.400  NUMBER X-Y PTS:   6.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	14.000
100.000	13.000
280.000	11.900
330.000	11.700
430.000	11.400
730.000	14.400

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	19.50	130.00	130.00
.500	52.50	200.00	200.00
1.600	432.00	490.01	490.00
2.600	1022.00	690.02	690.00
3.000	1306.00	730.03	730.00
999.000	728386.00	730.03	730.00
1004.000	732036.00	730.03	730.00

NOTE: PINEHURST STREET

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 112
FROM NODE : 120
TO NODE : 110
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 14.000 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.000 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	15.300
50.000	15.000
130.000	14.000
220.000	13.999
420.000	14.500

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.05	90.42	90.42
.501	105.15	330.00	330.00
1.001	280.15	370.01	370.00
1.301	398.65	420.01	420.00
999.000	419432.20	420.01	420.00
1004.000	421532.20	420.01	420.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 140
FROM NODE : 140
TO NODE : 130
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 11.080 NUMBER X-Y PTS: 19.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	16.000
15.000	15.000
21.000	13.920
29.000	12.210
34.000	11.570
39.000	11.510
39.010	11.080
40.500	11.079
40.510	11.530
44.000	11.540
44.010	12.730
52.000	12.750
53.500	13.410
55.500	13.430
55.510	14.070
58.000	14.100
65.000	15.000
85.000	15.500
105.000	15.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	1.49	1.49
.431	.65	2.35	1.51
.451	.69	4.04	3.18
.461	.75	8.36	7.50
.491	1.01	10.89	10.00
1.131	9.01	16.57	15.01
1.651	17.45	19.58	17.44
1.671	17.88	27.67	25.53
2.331	36.24	32.46	30.11
2.351	36.86	34.56	32.21
2.841	53.21	37.39	34.51
2.991	58.45	38.39	35.34
3.021	59.55	41.05	38.00
3.921	99.15	53.19	50.00
4.421	136.02	100.72	97.50
4.921	186.65	108.23	105.00
999.000	104564.90	108.23	105.00
1004.000	105089.90	108.23	105.00

NOTE: TUCKERSTOWN WEIR

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 160
FROM NODE : 160
TO NODE : 159
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 15.700 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.600 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	16.800
250.000	16.000
350.000	15.700
450.000	16.000
580.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	30.00	200.00	200.00
1.100	331.60	554.01	554.00
1.300	445.00	580.01	580.00
999.000	579111.00	580.01	580.00
1004.000	582011.00	580.01	580.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 170
FROM NODE : 170
TO NODE : 157
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 15.200 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.600 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	17.000
30.000	16.000
50.000	15.200
80.000	16.000
100.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	20.00	50.03	50.00
1.800	95.00	100.07	100.00
999.000	99815.00	100.07	100.00
1004.000	100315.00	100.07	100.00

NOTE:

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 193
  FROM NODE        : 192
  TO NODE          : 191
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.500 BTM. WIDTH (ft):1025.000   LEFT SS (h/v):   5.000
     RGHT SS (h/v):   5.000    OPENING (ft): 999.000      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 104A
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):   8.500  CREST LN. (ft):   4.900    OPENING (ft): 999.000
        WEIR COEF.:   3.130       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 150
  FROM NODE        : 150
  TO NODE          : 140
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  12.000  CREST LN. (ft):   4.000    OPENING (ft): 999.000
        WEIR COEF.:   3.130       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME        : 101
  FROM NODE         : 101
  TO NODE           : 100
  REACH TYPE        : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):  144.000        RISE (in):   96.000     LENGTH (ft): 110.000
   U/S INVERT (ft):  -1.400 D/S INVERT (ft):   -1.400       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    2.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  11.200  CREST LN. (ft): 100.000     WEIR COEF.:    2.800
          RESERVED:********          RESERVED:********       RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********          RESERVED:********       RESERVED:********

               NOTE: U.S. 41 CROSSING

>>REACH NAME        : 102
  FROM NODE         : 102
  TO NODE           : 101
  REACH TYPE        : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   84.000        RISE (in):   48.000     LENGTH (ft): 200.000
   U/S INVERT (ft):   1.400 D/S INVERT (ft):    .000       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:    2.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

               NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME        : 104
  FROM NODE         : 104
  TO NODE           : 102
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000       RISE (in):   24.000    LENGTH (ft):   15.000
   U/S INVERT (ft):   6.000 D/S INVERT (ft):    2.000     MANNING N:      .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    2.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):9999.000  CREST LN. (ft):     .000    WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):******** WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE:

>>REACH NAME        : 108
  FROM NODE         : 108
  TO NODE           : 106
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):   38.000       RISE (in):   24.000    LENGTH (ft):   56.000
   U/S INVERT (ft):   9.000 D/S INVERT (ft):    9.000     MANNING N:      .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    2.000

  POSITION A        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft): 999.000  CREST LN. (ft):     .000    WEIR COEF.:    2.800
          RESERVED:********        RESERVED:********      RESERVED:********

  POSITION B        : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):******** WEIR COEF.:********
          RESERVED:********        RESERVED:********      RESERVED:********

              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 130
  FROM NODE        : 130
  TO NODE          : 120
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   60.000       RISE (in):   48.000     LENGTH (ft):   80.000
 U/S INVERT (ft):    8.400 D/S INVERT (ft):    8.200      MANNING N:      .013
     ENTRNC LOSS:     .500   # OF CULVERTS:    2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   14.300  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
        RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):******** WEIR COEF.:********
        RESERVED:********        RESERVED:********       RESERVED:********

            NOTE: BILTMORE ROAD CROSSING

>>REACH NAME       : 151
  FROM NODE        : 151
  TO NODE          : 150
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   96.000       RISE (in):   96.000     LENGTH (ft):   79.000
 U/S INVERT (ft):    7.800 D/S INVERT (ft):    7.670      MANNING N:      .013
     ENTRNC LOSS:     .500   # OF CULVERTS:    3.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   19.100  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
        RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):******** WEIR COEF.:********
        RESERVED:********        RESERVED:********       RESERVED:********

            NOTE: BENEVA ROAD CROSSING
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 158
  FROM NODE        : 158
  TO NODE          : 157
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   72.000       RISE (in):   72.000     LENGTH (ft):   40.000
   U/S INVERT (ft):    7.970 D/S INVERT (ft):    8.030      MANNING N:     .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   16.500  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 163
  FROM NODE        : 163
  TO NODE          : 162
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   48.000       RISE (in):   48.000     LENGTH (ft):  230.000
   U/S INVERT (ft):   12.970 D/S INVERT (ft):   12.810      MANNING N:     .013
      ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   19.000  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

              NOTE: PALMER RANCH PARKWAY CROSSING
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 165
  FROM NODE        : 165
  TO NODE          : 164
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   48.000       RISE (in):   48.000     LENGTH (ft): 150.000
 U/S INVERT (ft):   14.730 D/S INVERT (ft):   14.630       MANNING N:     .013
     ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  23.000  CREST LN. (ft):  50.000     WEIR COEF.:    2.800
        RESERVED:******** RESERVED:********              RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
        RESERVED:******** RESERVED:********              RESERVED:********

            NOTE: MIRA LAGO ENTRANCE

>>REACH NAME       : 182
  FROM NODE        : 182
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   38.000       RISE (in):   24.000     LENGTH (ft):  89.000
 U/S INVERT (ft):   16.200 D/S INVERT (ft):   15.000       MANNING N:     .013
     ENTRNC LOSS:     .500   # OF CULVERTS:    1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

            NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME        : 183
  FROM NODE         : 183
  TO NODE           : 182
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft): 104.000
   U/S INVERT (ft):  15.100 D/S INVERT (ft):  15.100       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:

>>REACH NAME        : 183A
  FROM NODE         : 183A
  TO NODE           : 164
  REACH TYPE        : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION    : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH      : OFF

  CULVERT DATA      :
        SPAN (in):  30.000       RISE (in):  19.000     LENGTH (ft): 307.000
   U/S INVERT (ft):  14.710 D/S INVERT (ft):  14.100       MANNING N:    .013
       ENTRNC LOSS:   1.100   # OF CULVERTS:   1.000

  POSITION A        : NOT USED

  POSITION B        : NOT USED

              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 184
  FROM NODE        : 184
  TO NODE          : 183
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  94.000
   U/S INVERT (ft): 16.500 D/S INVERT (ft):  15.100       MANNING N:     .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 185A
  FROM NODE        : 185A
  TO NODE          : 181
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  30.000     LENGTH (ft): 160.000
   U/S INVERT (ft): 13.960 D/S INVERT (ft):  13.480       MANNING N:     .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 185B
  FROM NODE        : 185B
  TO NODE          : 185A
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  15.000        RISE (in):  15.000     LENGTH (ft):  73.000
   U/S INVERT (ft):  13.480 D/S INVERT (ft):  13.960       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : 186
  FROM NODE        : 186
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  38.000        RISE (in):  24.000     LENGTH (ft):  87.000
   U/S INVERT (ft):  14.460 D/S INVERT (ft):  14.440       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE: PROPOSED CULVERT ENLARGEMENT
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 210
  FROM NODE        : 210
  TO NODE          : 200
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft): 109.000
 U/S INVERT (ft):  11.170 D/S INVERT (ft):  10.640       MANNING N:     .024
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  16.560  CREST LN. (ft):  50.000     WEIR COEF.:    2.800
        RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
        RESERVED:********        RESERVED:********       RESERVED:********

             NOTE:

>>REACH NAME       : 220
  FROM NODE        : 220
  TO NODE          : 210
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000       RISE (in):  24.000     LENGTH (ft): 156.000
 U/S INVERT (ft):  13.400 D/S INVERT (ft):  11.760       MANNING N:     .024
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  17.500  CREST LN. (ft):  25.000     WEIR COEF.:    2.600
        RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
        RESERVED:********        RESERVED:********       RESERVED:********

             NOTE:
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 120
  FROM NODE        : 120
  TO NODE          : 102
  REACH TYPE       : DROP STRUCTURE w/ RECT. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  84.000        RISE (in):  48.000     LENGTH (ft): 932.600
  U/S INVERT (ft):   7.930 D/S INVERT (ft):   1.400       MANNING N:    .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  10.500  CREST LN. (ft):  30.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):   .000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

              NOTE: PROPOSED CULVERT AND WLCS

>>REACH NAME       : 171
  FROM NODE        : 171
  TO NODE          : 151
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000        RISE (in):  18.000     LENGTH (ft):  32.000
  U/S INVERT (ft):  12.510 D/S INVERT (ft):  12.100       MANNING N:    .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  13.720  CREST LN. (ft):   1.000    OPENING (ft):   1.550
        WEIR COEF.:   3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):******** CREST LN. (ft):   .000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:   .660 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

```
>>REACH NAME       : 173
  FROM NODE        : 173
  TO NODE          : 159
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  32.000
   U/S INVERT (ft): 12.950 D/S INVERT (ft):  12.580       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
   INVERT EL. (ft): 14.180       SPAN (in):   8.000       RISE (in):   8.000
        WEIR COEF.:  3.200     GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000 CREST LN. (ft):    .000    OPENING (ft): 999.000
        WEIR COEF.:  3.200     GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 175
  FROM NODE        : 175
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  42.000
   U/S INVERT (ft): 12.920 D/S INVERT (ft):  12.550       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
   INVERT EL. (ft): 14.000       SPAN (in):   8.000       RISE (in):   8.000
        WEIR COEF.:  3.200     GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 999.000 CREST LN. (ft):    .000    OPENING (ft): 999.000
        WEIR COEF.:  3.200     GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

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>>REACH NAME       : 180
  FROM NODE        : 180
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  54.000       RISE (in):  54.000     LENGTH (ft): 119.000
 U/S INVERT (ft):   9.400 D/S INVERT (ft):   9.260       MANNING N:     .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.520  CREST LN. (ft):   2.000    OPENING (ft):   2.480
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.000  CREST LN. (ft):  33.000    OPENING (ft):9999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 181A
  FROM NODE        : 181
  TO NODE          : 160
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft): 293.000
 U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.560       MANNING N:     .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.790  CREST LN. (ft):   6.000    OPENING (ft):   1.440
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.300  CREST LN. (ft):  26.000    OPENING (ft):9999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

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>>REACH NAME       : 181B
  FROM NODE        : 181
  TO NODE          : 180
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  54.000       RISE (in):  54.000     LENGTH (ft): 220.000
  U/S INVERT (ft):   8.990 D/S INVERT (ft):   8.830       MANNING N:    .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  14.730  CREST LN. (ft):   1.500    OPENING (ft):   3.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  17.500  CREST LN. (ft):  26.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 183B
  FROM NODE        : 183
  TO NODE          : 183A
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft): 238.000
  U/S INVERT (ft):  15.170 D/S INVERT (ft):  14.710       MANNING N:    .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.230  CREST LN. (ft):   1.250    OPENING (ft):    .500
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  19.000  CREST LN. (ft):  14.000    OPENING (ft):9999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

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>>REACH NAME       : 187
  FROM NODE        : 187
  TO NODE          : 181
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  48.000
 U/S INVERT (ft):  13.110 D/S INVERT (ft):  12.140       MANNING N:     .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  16.430  CREST LN. (ft):   1.750    OPENING (ft):   1.490
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  17.920  CREST LN. (ft):  10.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 191
  FROM NODE        : 191
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft):  40.000
 U/S INVERT (ft):  10.290 D/S INVERT (ft):  10.210       MANNING N:     .013
     ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
   INVERT EL. (ft):  15.000       SPAN (in):  12.000       RISE (in):  12.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  17.500  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

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>>REACH NAME       : 192
  FROM NODE        : 192
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):   1.000
   U/S INVERT (ft): 14.510 D/S INVERT (ft):  14.510       MANNING N:    .010
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.910  CREST LN. (ft):   8.000    OPENING (ft):   2.590
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.500  CREST LN. (ft):  33.000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 200
  FROM NODE        : 200
  TO NODE          : 140
  REACH TYPE       : DROP STRUCTURE w/ ARCH CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft):  94.000
   U/S INVERT (ft):  9.780 D/S INVERT (ft):   9.900       MANNING N:    .024
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 11.510  CREST LN. (ft):   5.000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000 CREST LN. (ft):    .000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 106
FROM NODE : 106
TO NODE : 104
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 265.000 U/S INVERT (ft): 8.500 D/S INVERT (ft): 6.600
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	8.700	.040
3.000	7.200	.040
7.000	8.700	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	5.25	7.63	7.00	152.0
1.500	5.25	7.63	7.00	152.0
6.500	40.25	7.63	7.00	4532.4

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 110
FROM NODE : 110
TO NODE : 108
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 315.000 U/S INVERT (ft): 9.700 D/S INVERT (ft): 9.000
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	10.800	.040
7.500	9.200	.040
15.000	11.100	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	9.71	13.30	12.95	292.7
1.600	11.05	13.30	13.82	363.0
1.900	15.38	13.30	15.00	629.2
6.900	90.38	13.30	15.00	12045.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 157
FROM NODE : 157
TO NODE : 151
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 8.030 D/S INVERT (ft): 7.800
MAX. DEPTH (ft): 8.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	16.500	.035
15.000	11.800	.035
20.000	10.300	.035
30.000	10.100	.035
40.000	9.000	.035
54.000	11.900	.035
62.000	16.900	.035
70.000	17.100	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.100	8.42	15.48	15.31	238.2
1.300	12.58	26.47	26.28	325.2
2.800	61.17	39.09	38.52	3501.1
2.900	65.07	39.92	39.32	3826.3
7.500	296.63	63.98	61.36	35017.0
7.900	321.30	64.73	62.00	39693.1
8.000	327.70	68.74	66.00	39411.8
8.100	334.50	68.74	70.00	40784.2
13.100	684.50	68.74	70.00	134520.3

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 159
FROM NODE : 159
TO NODE : 158
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.970
MAX. DEPTH (ft): 9.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.200	327.54	79.20	75.88	35829.4
9.500	350.89	83.15	79.79	38902.8
9.900	383.85	83.15	85.00	45181.6
10.600	445.10	83.15	90.00	57825.8
15.600	895.10	83.15	90.00	185272.7

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 161
FROM NODE : 161
TO NODE : 159
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.000
MAX. DEPTH (ft): 9.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.000	312.98	73.00	69.71	35068.8
9.200	327.54	73.00	75.88	37829.5
9.900	383.85	73.00	85.00	49278.4
10.600	445.10	73.00	90.00	63069.1
15.600	895.10	73.00	90.00	202072.2

NOTE: BASED UPON SCS CROSS-SECTION

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 162
FROM NODE : 162
TO NODE : 161
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 11.740 D/S INVERT (ft): 10.300
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.100	.035
22.000	13.100	.035
24.000	12.200	.040
31.000	11.500	.040
37.000	12.200	.040
38.000	13.500	.040
57.000	17.500	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.700	4.55	13.08	13.00	83.6
1.600	17.46	16.41	15.69	676.3
2.000	24.24	19.15	18.20	1116.8
5.600	156.18	56.75	55.10	13460.6
6.000	178.60	58.69	57.00	16279.6
7.000	235.60	58.69	57.00	24992.5
12.000	520.60	58.69	57.00	91018.8

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 164
FROM NODE : 164
TO NODE : 163
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1700.000 U/S INVERT (ft): 14.630 D/S INVERT (ft): 12.970
MAX. DEPTH (ft): 2.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	18.200	.035
24.000	13.100	.035
31.000	12.300	.060
37.000	13.300	.060
65.000	19.900	.035
89.000	22.800	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.800	4.72	11.91	11.80	63.1
1.000	7.29	14.09	13.94	120.3
2.000	25.71	23.26	22.89	823.3
5.900	183.03	23.26	57.79	29075.2
7.600	287.40	23.26	65.00	67913.7
10.500	510.70	23.26	89.00	201421.7
15.500	955.70	23.26	89.00	647949.0

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

>>REACH NAME : 190
FROM NODE : 190
TO NODE : 162
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 10.210 D/S INVERT (ft): 9.710
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.000	.060
35.000	10.000	.060
55.000	9.999	.060
90.000	17.000	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	20.00	20.00	.0
7.000	384.94	91.38	89.99	30103.5
7.001	385.03	91.38	90.00	30115.5
12.001	835.03	91.38	90.00	112281.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	102A	102	101	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
2	108A	108	106	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	112	120	110	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	140	140	130	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
5	160	160	159	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
6	170	170	157	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
7	193	192	191	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
8	104A	104	102	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
9	150	150	140	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
10	101	101	100	CULVERT, RECTANGULAR w/ ROADWAY
11	102	102	101	CULVERT, RECTANGULAR w/ ROADWAY
12	104	104	102	CULVERT, ELLIPTICAL w/ ROADWAY
13	108	108	106	CULVERT, ELLIPTICAL w/ ROADWAY
14	130	130	120	CULVERT, RECTANGULAR w/ ROADWAY
15	151	151	150	CULVERT, RECTANGULAR w/ ROADWAY
16	158	158	157	CULVERT, CIRCULAR w/ ROADWAY
17	163	163	162	CULVERT, CIRCULAR w/ ROADWAY
18	165	165	164	CULVERT, CIRCULAR w/ ROADWAY
19	182	182	181	CULVERT, ELLIPTICAL w/ ROADWAY
20	183	183	182	CULVERT, ELLIPTICAL w/ ROADWAY
21	183A	183A	164	CULVERT, ELLIPTICAL w/ ROADWAY
22	184	184	183	CULVERT, ELLIPTICAL w/ ROADWAY
23	185A	185A	181	CULVERT, CIRCULAR w/ ROADWAY
24	185B	185B	185A	CULVERT, CIRCULAR w/ ROADWAY
25	186	186	181	CULVERT, ELLIPTICAL w/ ROADWAY
26	210	210	200	CULVERT, ARCH w/ ROADWAY
27	220	220	210	CULVERT, ARCH w/ ROADWAY
28	120	120	102	DROP STRUCTURE w/ RECT. CULVERT
29	171	171	151	DROP STRUCTURE w/ CIRC. CULVERT
30	173	173	159	DROP STRUCTURE w/ CIRC. CULVERT
31	175	175	161	DROP STRUCTURE w/ CIRC. CULVERT
32	180	180	161	DROP STRUCTURE w/ CIRC. CULVERT
33	181A	181	160	DROP STRUCTURE w/ ELLP. CULVERT
34	181B	181	180	DROP STRUCTURE w/ CIRC. CULVERT
35	183B	183	183A	DROP STRUCTURE w/ CIRC. CULVERT
36	187	187	181	DROP STRUCTURE w/ CIRC. CULVERT
37	191	191	190	DROP STRUCTURE w/ ELLP. CULVERT
38	192	192	190	DROP STRUCTURE w/ ELLP. CULVERT
39	200	200	140	DROP STRUCTURE w/ ARCH CULVERT
40	106	106	104	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
41	110	110	108	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
42	157	157	151	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
43	159	159	158	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
44	161	161	159	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
45	162	162	161	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
46	164	164	163	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
47	190	190	162	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2)
04-01-94

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	41
REACHES	
WEIRS	9
CULVERTS	18
DROP STRUCTURES	12
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	8
RATING CURVES	0
TOTAL REACHES	47

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2 - 2 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	92.30	.00	.00	142.99	.00
101	1.61	.13	14.80	.00	138.63	142.99
102	3.94	.28	.00	.00	138.90	138.63
104	7.66	.01	.00	.00	27.67	27.65
106	10.85	.04	10.92	.00	17.63	27.67
108	10.95	.06	.00	.00	17.64	17.63
110	11.31	.27	18.18	.00	.00	17.64
120	11.61	2.76	63.09	.00	69.90	112.11
130	11.71	.80	21.88	.00	61.79	69.90
140	12.66	5.58	36.86	.00	49.68	61.79
150	13.66	1.39	.00	.00	74.46	24.30
151	13.66	1.62	12.12	.00	38.42	74.46
157	13.67	1.47	13.05	.00	30.55	35.86
158	13.67	1.17	.00	.00	30.24	29.72
159	13.68	2.07	6.45	.00	53.09	30.24
160	15.74	6.33	8.83	.00	6.64	.69
161	13.68	1.00	1.17	.00	17.93	52.44
162	13.68	1.04	.00	.00	15.40	13.10
163	14.05	.10	3.33	.00	2.97	5.41
164	15.52	.26	4.16	.00	2.25	2.97
165	15.52	.32	1.89	.00	.00	.23
170	15.35	.36	2.29	.00	.00	1.62
171	14.58	2.07	12.39	.00	.00	2.56
173	14.72	.53	4.80	.00	.00	.71
175	14.54	1.77	11.30	.00	.00	.71
180	15.30	.63	5.77	.00	3.95	4.39
181	15.74	3.23	26.06	.00	9.63	9.42
182	16.97	2.99	8.55	.00	5.38	3.50
183	16.98	5.43	29.81	.00	4.08	7.02
183A	15.58	.00	.00	.00	2.12	2.12
184	17.28	.68	9.98	.00	.00	4.08
185A	15.76	.01	.00	.00	.40	2.72
185B	15.74	.17	.61	.00	.00	.40
186	15.74	.91	13.36	.00	.00	7.30
187	16.77	.32	2.63	.00	.00	1.11
190	13.68	.83	2.58	.00	4.58	12.68
191	15.63	2.83	6.04	.00	11.43	1.31
192	15.63	9.71	29.90	.00	.00	14.16
200	13.31	3.45	23.99	.00	22.79	26.15
210	13.46	1.86	27.51	.00	4.18	22.79
220	14.16	1.73	16.94	.00	.00	4.18

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2 - 5 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	150.40	.00	.00	231.11	.00
101	1.79	.14	21.97	.00	226.67	231.11
102	4.92	.39	.00	.00	226.50	226.67
104	8.24	.01	.00	.00	44.99	44.93
106	10.98	.05	18.74	.00	27.49	44.99
108	11.21	.10	.00	.00	27.63	27.49
110	11.57	.31	28.79	.00	.00	27.63
120	12.14	3.94	101.43	.00	121.44	185.83
130	12.40	1.12	34.45	.00	106.71	121.44
140	13.12	7.14	58.47	.00	86.64	106.71
150	14.57	1.69	.00	.00	90.91	46.59
151	14.57	2.01	17.87	.00	69.68	90.91
157	14.60	1.86	21.91	.00	56.29	66.27
158	14.61	1.51	.00	.00	60.47	54.36
159	14.62	2.61	9.84	.00	91.29	60.47
160	15.85	6.89	13.76	.00	10.42	10.02
161	14.62	1.33	2.08	.00	33.86	84.93
162	14.64	1.53	.00	.00	28.16	26.75
163	14.67	.26	5.99	.00	7.64	11.70
164	15.65	.31	7.40	.00	4.40	7.64
165	15.66	.39	3.35	.00	.00	1.57
170	15.41	.42	3.72	.00	.00	3.17
171	15.07	3.10	19.65	.00	.00	3.53
173	15.00	.73	7.35	.00	.00	1.17
175	14.84	2.77	17.15	.00	.00	1.20
180	15.62	.87	9.23	.00	5.79	7.38
181	16.09	4.75	42.05	.00	15.67	15.30
182	17.35	3.77	13.29	.00	8.88	7.31
183	17.41	6.99	45.70	.00	7.28	11.43
183A	15.73	.00	.00	.00	2.90	2.90
184	17.65	.99	15.84	.00	.00	7.28
185A	16.11	.01	.00	.00	.57	2.88
185B	16.10	.25	1.00	.00	.00	.57
186	16.10	1.17	19.82	.00	.00	11.01
187	16.91	.37	3.97	.00	.00	1.85
190	14.66	1.18	4.29	.00	7.89	24.87
191	16.03	3.84	8.78	.00	10.63	2.55
192	16.03	13.20	49.44	.00	.00	13.53
200	14.12	4.98	36.88	.00	35.60	42.27
210	14.46	2.80	42.22	.00	11.89	35.60
220	14.67	3.00	28.51	.00	.00	11.89

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2 - 10 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	184.46	.00	.00	281.96	.00
101	1.93	.15	26.03	.00	276.94	281.96
102	5.43	.44	.00	.00	276.80	276.94
104	8.54	.02	.00	.00	54.75	54.78
106	11.08	.06	23.38	.00	33.12	54.75
108	11.40	.14	.00	.00	33.37	33.12
110	11.72	.34	34.99	.00	.00	33.37
120	12.48	5.07	123.71	.00	149.76	226.23
130	12.86	1.33	41.71	.00	133.06	149.76
140	13.39	8.06	71.00	.00	106.25	133.06
150	15.02	1.84	.00	.00	123.74	58.03
151	15.03	2.22	21.20	.00	92.29	123.74
157	15.03	2.04	27.14	.00	62.94	89.13
158	15.04	1.67	.00	.00	70.38	61.13
159	15.05	2.87	11.79	.00	112.51	70.38
160	15.88	7.05	16.66	.00	12.42	14.69
161	15.05	1.49	2.63	.00	40.27	102.31
162	15.07	1.76	.00	.00	30.28	31.83
163	15.10	.51	7.58	.00	10.04	15.01
164	15.77	.35	9.35	.00	5.47	10.04
165	15.79	.45	4.23	.00	.00	2.28
170	15.44	.45	4.57	.00	.00	4.12
171	15.38	3.87	23.86	.00	.00	4.12
173	15.17	.88	8.81	.00	.00	1.31
175	15.09	3.60	20.53	.00	.00	1.43
180	15.83	1.02	11.28	.00	7.23	9.21
181	16.36	5.93	51.39	.00	19.39	18.58
182	17.56	4.20	16.03	.00	11.03	9.80
183	17.67	7.94	54.89	.00	9.80	14.14
183A	15.87	.01	.00	.00	3.27	3.28
184	17.84	1.16	19.25	.00	.00	9.80
185A	16.35	.01	.00	.00	.80	3.03
185B	16.37	.31	1.24	.00	.00	.80
186	16.37	1.37	23.57	.00	.00	12.96
187	16.98	.40	4.75	.00	.00	2.30
190	15.07	1.34	5.32	.00	9.56	25.55
191	16.30	4.52	10.36	.00	15.87	3.38
192	16.30	15.53	61.00	.00	.00	18.63
200	14.55	5.80	44.35	.00	40.34	49.69
210	14.94	3.25	50.76	.00	12.85	40.34
220	15.10	4.15	35.35	.00	.00	12.85

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2 - 25 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	218.83	.00	.00	329.51	.00
101	2.08	.16	30.07	.00	323.74	329.51
102	5.87	.49	.00	.00	323.63	323.74
104	8.80	.02	.00	.00	65.04	64.96
106	11.21	.10	28.08	.00	39.19	65.04
108	11.54	.16	.00	.00	39.28	39.19
110	11.85	.36	41.23	.00	.00	39.28
120	12.80	6.14	146.09	.00	175.00	264.10
130	13.32	1.54	48.98	.00	155.32	175.00
140	13.71	9.10	83.56	.00	123.02	155.32
150	15.41	1.97	.00	.00	136.50	69.44
151	15.42	2.42	24.55	.00	103.89	136.50
157	15.45	2.23	32.43	.00	69.16	100.71
158	15.45	1.83	.00	.00	83.44	66.41
159	15.45	3.12	13.74	.00	169.58	83.44
160	15.91	7.22	19.58	.00	15.07	20.92
161	15.47	1.65	3.19	.00	44.05	151.66
162	15.47	1.99	.00	.00	42.60	34.99
163	15.49	1.02	9.21	.00	12.23	17.66
164	15.89	.41	11.33	.00	6.24	12.23
165	15.91	.51	5.11	.00	.00	2.68
170	15.46	.48	5.44	.00	.00	5.02
171	15.73	4.72	28.08	.00	.00	4.62
173	15.49	1.13	10.27	.00	.00	1.39
175	15.34	4.50	23.92	.00	.00	1.63
180	16.09	1.22	13.35	.00	8.52	10.67
181	16.61	7.04	60.79	.00	23.17	23.56
182	17.75	4.59	18.77	.00	13.14	12.34
183	17.92	8.89	64.11	.00	11.62	16.56
183A	16.00	.01	.00	.00	3.61	3.62
184	18.02	1.32	22.67	.00	.00	11.62
185A	16.63	.01	.00	.00	.73	3.30
185B	16.63	.37	1.47	.00	.00	.73
186	16.63	1.56	27.35	.00	.00	14.62
187	17.05	.43	5.53	.00	.00	2.77
190	15.47	1.50	6.35	.00	11.12	34.09
191	16.57	5.20	11.95	.00	14.30	3.91
192	16.57	17.85	72.71	.00	.00	17.84
200	14.91	6.50	51.86	.00	42.39	54.60
210	15.36	3.92	59.34	.00	14.17	42.39
220	15.51	5.53	42.26	.00	.00	14.17

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 2 - 100 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	288.13	.00	.00	406.63	.00
101	2.38	.18	38.10	.00	399.14	406.63
102	6.54	.56	.00	.00	398.98	399.14
104	9.25	.07	.00	.00	86.06	85.82
106	11.51	.17	37.58	.00	51.15	86.06
108	11.69	.19	.00	.00	51.25	51.15
110	12.04	.41	53.77	.00	.00	51.25
120	13.28	8.73	190.90	.00	213.27	321.41
130	14.05	1.93	63.49	.00	190.21	213.27
140	14.30	11.71	108.71	.00	148.78	190.21
150	15.99	2.16	.00	.00	155.77	85.51
151	16.00	2.71	31.28	.00	128.95	155.77
157	16.01	2.49	43.09	.00	84.16	125.09
158	16.03	2.06	.00	.00	102.81	77.28
159	16.03	3.53	17.63	.00	187.84	102.81
160	16.05	8.02	25.48	.00	19.32	33.36
161	16.04	1.90	4.32	.00	57.85	165.35
162	16.06	2.35	.00	.00	54.93	46.07
163	16.07	1.81	12.50	.00	15.67	18.92
164	16.08	.50	15.35	.00	8.35	15.67
165	16.09	.68	6.91	.00	.00	4.31
170	16.01	1.27	7.20	.00	.00	11.53
171	16.31	6.40	36.54	.00	.00	5.68
173	16.06	1.61	13.19	.00	.00	1.49
175	15.81	6.19	30.69	.00	.00	1.93
180	16.62	1.60	17.54	.00	11.35	13.44
181	17.16	9.42	79.65	.00	28.96	30.64
182	18.11	5.33	24.26	.00	16.90	17.49
183	18.46	10.84	82.55	.00	13.40	20.93
183A	16.23	.01	.00	.00	4.10	4.10
184	18.52	1.75	29.53	.00	.00	13.40
185A	17.18	.01	.00	.00	.70	3.33
185B	17.18	.49	1.96	.00	.00	.70
186	17.18	1.96	34.94	.00	.00	17.87
187	17.20	.49	7.11	.00	.00	3.47
190	16.06	1.75	8.45	.00	14.20	46.07
191	17.17	6.71	15.12	.00	24.76	4.85
192	17.17	23.04	96.35	.00	.00	27.59
200	15.60	8.17	66.89	.00	47.72	63.56
210	16.14	5.40	76.54	.00	19.04	47.72
220	16.23	8.60	56.17	.00	.00	19.04

ALTERNATIVE 3

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

CONTROL PARAMETERS

START TIME: .00
END TIME: 48.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
100.00	1.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
100	TIME	1.500	.000	.000	.000	1.500	.000
						1.500	100.000
101	AREA	1.500	.000	.000	.000	1.500	.000
						9.000	.060
						10.000	.190
						11.000	.870
						12.000	2.500
						13.000	4.750
102	AREA	1.500	.000	.000	.000	1.500	.001
						8.300	.002
						9.000	.060
						10.000	.120
						11.000	.860
						12.000	2.140
						13.000	3.360
						14.000	7.060
104	AREA	6.000	.000	.000	.000	9.000	.110
						10.000	.230
						11.000	.300
						12.000	.400
						13.000	1.110
						14.000	2.470
106	AREA	8.500	.000	.000	.000	11.000	.030
						12.000	.400
						13.000	1.120
						14.000	2.480
108	AREA	9.000	.000	.000	.000	11.000	.140
						12.000	.170
						13.000	.620
						14.000	2.230
						15.000	3.060
110	AREA	9.700	.000	.000	.000	8.500	.050
						9.700	.070
						11.000	.090
						12.000	.180
						13.000	.630
						14.000	2.240
						15.000	3.060

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
120	AREA	10.500	.000	.000	.000	9.400	1.000
						11.000	1.051
						12.000	2.517
						13.000	4.192
						14.000	9.681
						15.000	16.480
						16.000	36.096
130	AREA	10.500	.000	.000	.000	9.000	.200
						11.000	.247
						14.000	.665
						15.000	2.741
						15.500	3.729
						16.000	5.006
140	AREA	11.080	.000	.000	.000	11.000	2.380
						14.000	4.338
						15.000	6.464
						16.000	13.794
150	AREA	12.000	.000	.000	.000	8.000	.126
						12.000	.243
						16.000	.371
						17.000	.402
151	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
157	AREA	12.000	.000	.000	.000	16.600	.000
						17.600	.000
158	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
159	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
160	AREA	14.790	.000	.000	.000	14.000	2.090
						15.000	3.785
						15.500	4.719
						16.000	5.727
						16.500	6.603

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
161	AREA	12.000	.000	.000	.000	17.000	.000
						18.000	.000
162	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
163	AREA	12.970	.000	.000	.000	15.000	.540
						16.000	1.000
						16.500	1.240
						17.000	1.520
164	AREA	14.630	.000	.000	.000	18.500	.000
						19.500	.000
165	AREA	14.730	.000	.000	.000	14.000	.020
						15.000	.130
						16.000	.820
						17.000	1.930
170	AREA	15.000	.000	.000	.000	15.000	.842
						15.500	1.235
						16.000	1.635
						16.500	2.984
171	AREA	13.720	.000	.000	.000	13.500	1.620
						14.000	1.840
						15.000	2.280
						16.000	2.650
						17.000	3.900
173	AREA	14.180	.000	.000	.000	14.000	.690
						15.000	.780
						16.000	.860
						17.000	.940
						18.000	1.110
175	AREA	14.000	.000	.000	.000	14.000	3.150
						15.000	3.420
						16.000	3.760
						17.000	4.400

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
180	AREA	14.520	.000	.000	.000	14.500	.606
						17.500	.862
181	AREA	14.730	.000	.000	.000	15.000	3.566
						20.000	5.138
182	AREA	16.200	.000	.000	.000	15.500	1.621
						20.000	2.452
183	AREA	16.200	.000	.000	.000	15.500	3.021
						20.000	4.307
183A	AREA	14.710	.000	.000	.000	14.710	.000
						20.000	.002
184	AREA	16.500	.000	.000	.000	16.500	.706
						20.500	1.019
185A	STRG	14.730	.000	.000	.000	14.730	.000
						19.000	.001
185B	AREA	14.730	.000	.000	.000	15.000	.144
						20.000	.305
186	AREA	14.730	.000	.000	.000	14.500	.490
						18.500	.973
187	AREA	16.430	.000	.000	.000	16.000	.395
						17.500	.423
						17.800	.735
190	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
191	AREA	15.000	.000	.000	.000	14.500	2.130
						18.000	2.890
192	AREA	14.910	.000	.000	.000	14.500	7.740
						18.000	9.500
200	AREA	11.510	.000	.000	.000	11.500	1.614
						15.000	2.183
						16.000	2.803
						17.000	5.465

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
210	AREA	11.510	.000	.000	.000	11.500	.589
						15.000	1.286
						16.000	2.073
						17.000	3.690
						18.000	30.610
220	AREA	13.400	.000	.000	.000	13.400	2.140
						14.000	2.280
						15.000	2.680
						16.000	4.020
						17.000	8.630

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 102A
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.500 BTM. WIDTH (ft):  35.000   LEFT SS (h/v):  15.000
     RGHT SS (h/v):  15.000    OPENING (ft): 999.000      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 108A
  FROM NODE        : 108
  TO NODE          : 106
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  11.400  NUMBER X-Y PTS:   6.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	14.000
100.000	13.000
280.000	11.900
330.000	11.700
430.000	11.400
730.000	14.400

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	19.50	130.00	130.00
.500	52.50	200.00	200.00
1.600	432.00	490.01	490.00
2.600	1022.00	690.02	690.00
3.000	1306.00	730.03	730.00
999.000	728386.00	730.03	730.00
1004.000	732036.00	730.03	730.00

NOTE: PINEHURST STREET

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 112
  FROM NODE        : 120
  TO NODE          : 110
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  14.000  NUMBER X-Y PTS:   5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.000       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	15.300
50.000	15.000
130.000	14.000
220.000	13.999
420.000	14.500

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.05	90.42	90.42
.501	105.15	330.00	330.00
1.001	280.15	370.01	370.00
1.301	398.65	420.01	420.00
999.000	419432.20	420.01	420.00
1004.000	421532.20	420.01	420.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
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>>REACH NAME : 140
FROM NODE : 140
TO NODE : 130
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 11.080 NUMBER X-Y PTS: 19.000 OPENING (ft): 999.000
WEIR COEF.: 3.130 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	16.000
15.000	15.000
21.000	13.920
29.000	12.210
34.000	11.570
39.000	11.510
39.010	11.080
40.500	11.079
40.510	11.530
44.000	11.540
44.010	12.730
52.000	12.750
53.500	13.410
55.500	13.430
55.510	14.070
58.000	14.100
65.000	15.000
85.000	15.500
105.000	15.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.00	1.49	1.49
.431	.65	2.35	1.51
.451	.69	4.04	3.18
.461	.75	8.36	7.50
.491	1.01	10.89	10.00
1.131	9.01	16.57	15.01
1.651	17.45	19.58	17.44
1.671	17.88	27.67	25.53
2.331	36.24	32.46	30.11
2.351	36.86	34.56	32.21
2.841	53.21	37.39	34.51
2.991	58.45	38.39	35.34
3.021	59.55	41.05	38.00
3.921	99.15	53.19	50.00
4.421	136.02	100.72	97.50
4.921	186.65	108.23	105.00
999.000	104564.90	108.23	105.00
1004.000	105089.90	108.23	105.00

NOTE: TUCKERSTOWN WEIR

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 160
  FROM NODE        : 160
  TO NODE          : 159
  REACH TYPE       : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.700  NUMBER X-Y PTS:    5.000    OPENING (ft): 999.000
        WEIR COEF.:   2.600       GATE COEF.:     .600 NUMBER OF ELEM.:   1.000
```

X-VAL (ft)	Y-VAL (ft)
.000	16.800
250.000	16.000
350.000	15.700
450.000	16.000
580.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.300	30.00	200.00	200.00
1.100	331.60	554.01	554.00
1.300	445.00	580.01	580.00
999.000	579111.00	580.01	580.00
1004.000	582011.00	580.01	580.00

NOTE:

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>>REACH NAME : 170
FROM NODE : 170
TO NODE : 157
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 15.200 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.600 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	17.000
30.000	16.000
50.000	15.200
80.000	16.000
100.000	17.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	20.00	50.03	50.00
1.800	95.00	100.07	100.00
999.000	99815.00	100.07	100.00
1004.000	100315.00	100.07	100.00

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 193
  FROM NODE        : 192
  TO NODE          : 191
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  15.500 BTM. WIDTH (ft):1025.000   LEFT SS (h/v):   5.000
     RGHT SS (h/v):   5.000    OPENING (ft): 999.000      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 104A
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):   8.500  CREST LN. (ft):   4.900    OPENING (ft): 999.000
        WEIR COEF.:   3.130      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : 150
  FROM NODE        : 150
  TO NODE          : 140
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  12.000  CREST LN. (ft):   4.000    OPENING (ft): 999.000
        WEIR COEF.:   3.130      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 101
  FROM NODE        : 101
  TO NODE          : 100
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in): 144.000       RISE (in):  96.000     LENGTH (ft): 110.000
   U/S INVERT (ft):  -1.400 D/S INVERT (ft):  -1.400       MANNING N:    .013
      ENTRNC LOSS:    .500    # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  11.200  CREST LN. (ft): 100.000     WEIR COEF.:   2.800
        RESERVED:******** RESERVED:******** RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):******** WEIR COEF.:********
        RESERVED:******** RESERVED:******** RESERVED:********

             NOTE: U.S. 41 CROSSING

>>REACH NAME       : 102
  FROM NODE        : 102
  TO NODE          : 101
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  84.000       RISE (in):  48.000     LENGTH (ft): 200.000
   U/S INVERT (ft):   1.400 D/S INVERT (ft):    .000       MANNING N:    .013
      ENTRNC LOSS:    .500    # OF CULVERTS:   2.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

             NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
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```
>>REACH NAME       : 104
  FROM NODE        : 104
  TO NODE          : 102
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  15.000
   U/S INVERT (ft):   6.000 D/S INVERT (ft):   2.000       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:

>>REACH NAME       : 108
  FROM NODE        : 108
  TO NODE          : 106
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  56.000
   U/S INVERT (ft):   9.000 D/S INVERT (ft):   9.000       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft): 999.000  CREST LN. (ft):    .000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 130
  FROM NODE        : 130
  TO NODE          : 120
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  60.000       RISE (in):  48.000     LENGTH (ft):  80.000
   U/S INVERT (ft):   8.400 D/S INVERT (ft):   8.200      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  14.300  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: BILTMORE ROAD CROSSING

>>REACH NAME       : 151
  FROM NODE        : 151
  TO NODE          : 150
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  96.000       RISE (in):  96.000     LENGTH (ft):  79.000
   U/S INVERT (ft):   7.800 D/S INVERT (ft):   7.670      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   3.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  19.100  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE: BENEVA ROAD CROSSING
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 158
  FROM NODE        : 158
  TO NODE          : 157
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   72.000       RISE (in):   72.000     LENGTH (ft):   40.000
   U/S INVERT (ft):    7.970 D/S INVERT (ft):    8.030      MANNING N:     .013
      ENTRNC LOSS:     .500    # OF CULVERTS:    2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   16.500  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

              NOTE: DATA BASED UPON PROJECT SURVEY

>>REACH NAME       : 163
  FROM NODE        : 163
  TO NODE          : 162
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):   48.000       RISE (in):   48.000     LENGTH (ft):  230.000
   U/S INVERT (ft):   12.970 D/S INVERT (ft):   12.810      MANNING N:     .013
      ENTRNC LOSS:     .500    # OF CULVERTS:    1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):   19.000  CREST LN. (ft):   50.000     WEIR COEF.:    2.800
          RESERVED:********         RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********         RESERVED:********       RESERVED:********

              NOTE: PALMER RANCH PARKWAY CROSSING
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 165
  FROM NODE        : 165
  TO NODE          : 164
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft): 150.000
   U/S INVERT (ft): 14.730 D/S INVERT (ft): 14.630       MANNING N:     .013
      ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft): 23.000  CREST LN. (ft): 50.000      WEIR COEF.:    2.800
        RESERVED:********       RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):********  CREST LN. (ft):********    WEIR COEF.:********
        RESERVED:********       RESERVED:********       RESERVED:********

             NOTE: MIRA LAGO ENTRANCE

>>REACH NAME       : 182
  FROM NODE        : 182
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  89.000
   U/S INVERT (ft): 16.200 D/S INVERT (ft): 15.000       MANNING N:     .013
      ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

             NOTE:
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 183
  FROM NODE        : 183
  TO NODE          : 182
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft): 104.000
   U/S INVERT (ft):  15.100 D/S INVERT (ft):  15.100       MANNING N:     .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : 183A
  FROM NODE        : 183A
  TO NODE          : 164
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  30.000       RISE (in):  19.000     LENGTH (ft): 307.000
   U/S INVERT (ft):  14.710 D/S INVERT (ft):  14.100       MANNING N:     .013
       ENTRNC LOSS:   1.100   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

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04-01-94

```
>>REACH NAME       : 184
  FROM NODE        : 184
  TO NODE          : 183
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  94.000
   U/S INVERT (ft): 16.500 D/S INVERT (ft):  15.100       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : 185A
  FROM NODE        : 185A
  TO NODE          : 181
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  30.000     LENGTH (ft): 160.000
   U/S INVERT (ft): 13.960 D/S INVERT (ft):  13.480       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

```
>>REACH NAME       : 185B
  FROM NODE        : 185B
  TO NODE          : 185A
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  73.000
   U/S INVERT (ft): 13.480 D/S INVERT (ft):  13.960       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 186
  FROM NODE        : 186
  TO NODE          : 181
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft):  87.000
   U/S INVERT (ft): 14.460 D/S INVERT (ft):  14.440       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE: PROPOSED CULVERT ENLARGEMENT
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 210
  FROM NODE        : 210
  TO NODE          : 200
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft): 109.000
   U/S INVERT (ft):  11.170 D/S INVERT (ft):  10.640       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  16.560  CREST LN. (ft):  50.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:

>>REACH NAME       : 220
  FROM NODE        : 220
  TO NODE          : 210
  REACH TYPE       : CULVERT, ARCH w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000       RISE (in):  24.000     LENGTH (ft): 156.000
   U/S INVERT (ft):  13.400 D/S INVERT (ft):  11.760       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  17.500  CREST LN. (ft):  25.000     WEIR COEF.:   2.600
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 116
  FROM NODE        : 120
  TO NODE          : 110
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft): 120.000
   U/S INVERT (ft):   8.500 D/S INVERT (ft):   8.200       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  10.500  CREST LN. (ft):  14.000    OPENING (ft): 999.000
       WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : 120
  FROM NODE        : 120
  TO NODE          : 102
  REACH TYPE       : DROP STRUCTURE w/ RECT. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  84.000       RISE (in):  48.000     LENGTH (ft): 932.600
   U/S INVERT (ft):   7.930 D/S INVERT (ft):   1.400       MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  11.000  CREST LN. (ft):  30.000    OPENING (ft):9999.000
       WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
       WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: PROPOSED CULVERT AND WLCS
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 171
  FROM NODE        : 171
  TO NODE          : 151
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  32.000
   U/S INVERT (ft):  12.510 D/S INVERT (ft):  12.100       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  13.720  CREST LN. (ft):   1.000    OPENING (ft):   1.550
         WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):******** CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.:   3.200       GATE COEF.:    .660 NUMBER OF ELEM.:   1.000

               NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 173
  FROM NODE        : 173
  TO NODE          : 159
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  32.000
   U/S INVERT (ft):  12.950 D/S INVERT (ft):  12.580       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
    INVERT EL. (ft):  14.180       SPAN (in):   8.000       RISE (in):   8.000
         WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
         WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

               NOTE: WEIR/ORIFICE CONTROL MODIFIED
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

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>>REACH NAME       : 175
  FROM NODE        : 175
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):  42.000
   U/S INVERT (ft):  12.920 D/S INVERT (ft):  12.550       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
    INVERT EL. (ft):  14.000       SPAN (in):   8.000       RISE (in):   8.000
       WEIR COEF.:    3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
     CREST EL. (ft): 999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
       WEIR COEF.:    3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 180
  FROM NODE        : 180
  TO NODE          : 161
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  54.000       RISE (in):  54.000     LENGTH (ft): 119.000
   U/S INVERT (ft):   9.400 D/S INVERT (ft):   9.260       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
     CREST EL. (ft):  14.520  CREST LN. (ft):   2.000    OPENING (ft):   2.480
       WEIR COEF.:    3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
     CREST EL. (ft):  17.000  CREST LN. (ft):  33.000    OPENING (ft):9999.000
       WEIR COEF.:    3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 181A
  FROM NODE        : 181
  TO NODE          : 160
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  38.000       RISE (in):  24.000     LENGTH (ft): 293.000
   U/S INVERT (ft): 12.920 D/S INVERT (ft): 12.560       MANNING N:     .013
      ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.790  CREST LN. (ft):  6.000    OPENING (ft):   1.440
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.300  CREST LN. (ft): 26.000    OPENING (ft):9999.000
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 181B
  FROM NODE        : 181
  TO NODE          : 180
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  54.000       RISE (in):  54.000     LENGTH (ft): 220.000
   U/S INVERT (ft):  8.990 D/S INVERT (ft):  8.830       MANNING N:     .013
      ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 14.730  CREST LN. (ft):  1.500    OPENING (ft):   3.000
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.500  CREST LN. (ft): 26.000    OPENING (ft):9999.000
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 183B
  FROM NODE        : 183
  TO NODE          : 183A
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft): 238.000
   U/S INVERT (ft): 15.170 D/S INVERT (ft): 14.710       MANNING N:     .013
       ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 16.230  CREST LN. (ft):  1.250    OPENING (ft):    .500
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:  1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 19.000  CREST LN. (ft): 14.000    OPENING (ft):9999.000
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:  1.000

              NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 187
  FROM NODE        : 187
  TO NODE          : 181
  REACH TYPE       : DROP STRUCTURE w/ CIRC. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  48.000
   U/S INVERT (ft): 13.110 D/S INVERT (ft): 12.140       MANNING N:     .013
       ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 16.430  CREST LN. (ft):  1.750    OPENING (ft):   1.490
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:  1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft): 17.920  CREST LN. (ft): 10.000    OPENING (ft): 999.000
        WEIR COEF.:  3.200       GATE COEF.:   .600 NUMBER OF ELEM.:  1.000

              NOTE: DATA BASED UPON PROJECT SURVEY
```

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

```
>>REACH NAME       : 191
  FROM NODE        : 191
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  76.000       RISE (in):  48.000     LENGTH (ft):  40.000
   U/S INVERT (ft): 10.290 D/S INVERT (ft):  10.210       MANNING N:    .013
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : CIRCULAR RISER SLOT
    INVERT EL. (ft): 15.000       SPAN (in):  12.000       RISE (in):  12.000
       WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
     CREST EL. (ft): 17.500  CREST LN. (ft):  33.000    OPENING (ft): 999.000
       WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED

>>REACH NAME       : 192
  FROM NODE        : 192
  TO NODE          : 190
  REACH TYPE       : DROP STRUCTURE w/ ELLP. CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  15.000       RISE (in):  15.000     LENGTH (ft):   1.000
   U/S INVERT (ft): 14.510 D/S INVERT (ft):  14.510       MANNING N:    .010
      ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
     CREST EL. (ft): 14.910  CREST LN. (ft):   8.000    OPENING (ft):   2.590
       WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
     CREST EL. (ft): 17.500  CREST LN. (ft):  33.000    OPENING (ft): 999.000
       WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
```

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04-01-94

```
>>REACH NAME       : 200
  FROM NODE        : 200
  TO NODE          : 140
  REACH TYPE       : DROP STRUCTURE w/ ARCH CULVERT
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
         SPAN (in):  65.000       RISE (in):  40.000     LENGTH (ft):  94.000
   U/S INVERT (ft):   9.780 D/S INVERT (ft):   9.900       MANNING N:    .024
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR RISER SLOT
    CREST EL. (ft):  11.510  CREST LN. (ft):   5.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

  POSITION B       : RECTANGULAR RISER SLOT
    CREST EL. (ft):9999.000  CREST LN. (ft):    .000    OPENING (ft): 999.000
        WEIR COEF.:   3.200       GATE COEF.:    .600 NUMBER OF ELEM.:   1.000

             NOTE: WEIR/ORIFICE CONTROL MODIFIED
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 106
FROM NODE : 106
TO NODE : 104
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 265.000 U/S INVERT (ft): 8.500 D/S INVERT (ft): 6.600
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	8.700	.040
3.000	7.200	.040
7.000	8.700	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	5.25	7.63	7.00	152.0
1.500	5.25	7.63	7.00	152.0
6.500	40.25	7.63	7.00	4532.4

NOTE:

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04-01-94

>>REACH NAME : 110
FROM NODE : 110
TO NODE : 108
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 315.000 U/S INVERT (ft): 9.700 D/S INVERT (ft): 9.000
MAX. DEPTH (ft): 1.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	10.800	.040
7.500	9.200	.040
15.000	11.100	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.500	9.71	13.30	12.95	292.7
1.600	11.05	13.30	13.82	363.0
1.900	15.38	13.30	15.00	629.2
6.900	90.38	13.30	15.00	12045.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 157
FROM NODE : 157
TO NODE : 151
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 8.030 D/S INVERT (ft): 7.800
MAX. DEPTH (ft): 8.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	16.500	.035
15.000	11.800	.035
20.000	10.300	.035
30.000	10.100	.035
40.000	9.000	.035
54.000	11.900	.035
62.000	16.900	.035
70.000	17.100	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.100	8.42	15.48	15.31	238.2
1.300	12.58	26.47	26.28	325.2
2.800	61.17	39.09	38.52	3501.1
2.900	65.07	39.92	39.32	3826.3
7.500	296.63	63.98	61.36	35017.0
7.900	321.30	64.73	62.00	39693.1
8.000	327.70	68.74	66.00	39411.8
8.100	334.50	68.74	70.00	40784.2
13.100	684.50	68.74	70.00	134520.3

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 159
FROM NODE : 159
TO NODE : 158
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 650.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.970
MAX. DEPTH (ft): 9.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.200	327.54	79.20	75.88	35829.4
9.500	350.89	83.15	79.79	38902.8
9.900	383.85	83.15	85.00	45181.6
10.600	445.10	83.15	90.00	57825.8
15.600	895.10	83.15	90.00	185272.7

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 161
FROM NODE : 161
TO NODE : 159
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 7.000 D/S INVERT (ft): 7.000
MAX. DEPTH (ft): 9.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.600	.035
10.000	16.200	.035
20.000	15.800	.035
25.000	11.900	.035
32.000	8.600	.035
40.000	7.000	.035
50.000	8.200	.035
60.000	11.800	.035
90.000	16.900	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
1.200	9.60	16.19	16.00	287.7
1.600	16.62	19.41	19.11	636.4
4.800	102.86	36.36	34.79	8734.8
4.900	106.38	37.19	35.59	9100.3
8.800	299.66	66.81	63.53	34603.3
9.000	312.98	73.00	69.71	35068.8
9.200	327.54	73.00	75.88	37829.5
9.900	383.85	73.00	85.00	49278.4
10.600	445.10	73.00	90.00	63069.1
15.600	895.10	73.00	90.00	202072.2

NOTE: BASED UPON SCS CROSS-SECTION

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 162
FROM NODE : 162
TO NODE : 161
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 350.000 U/S INVERT (ft): 11.740 D/S INVERT (ft): 10.300
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.100	.035
22.000	13.100	.035
24.000	12.200	.040
31.000	11.500	.040
37.000	12.200	.040
38.000	13.500	.040
57.000	17.500	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.700	4.55	13.08	13.00	83.6
1.600	17.46	16.41	15.69	676.3
2.000	24.24	19.15	18.20	1116.8
5.600	156.18	56.75	55.10	13460.6
6.000	178.60	58.69	57.00	16279.6
7.000	235.60	58.69	57.00	24992.5
12.000	520.60	58.69	57.00	91018.8

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 164
FROM NODE : 164
TO NODE : 163
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1700.000 U/S INVERT (ft): 14.630 D/S INVERT (ft): 12.970
MAX. DEPTH (ft): 2.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	18.200	.035
24.000	13.100	.035
31.000	12.300	.060
37.000	13.300	.060
65.000	19.900	.035
89.000	22.800	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.800	4.72	11.91	11.80	63.1
1.000	7.29	14.09	13.94	120.3
2.000	25.71	23.26	22.89	823.3
5.900	183.03	23.26	57.79	29075.2
7.600	287.40	23.26	65.00	67913.7
10.500	510.70	23.26	89.00	201421.7
15.500	955.70	23.26	89.00	647949.0

NOTE: BASED UPON PALMER RANCH RECORD DRWG

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

>>REACH NAME : 190
FROM NODE : 190
TO NODE : 162
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 10.210 D/S INVERT (ft): 9.710
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	17.000	.060
35.000	10.000	.060
55.000	9.999	.060
90.000	17.000	.035

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	20.00	20.00	.0
7.000	384.94	91.38	89.99	30103.5
7.001	385.03	91.38	90.00	30115.5
12.001	835.03	91.38	90.00	112281.8

NOTE:

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	102A	102	101	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
2	108A	108	106	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	112	120	110	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	140	140	130	IRREGULAR WEIR/GATE/ORIFICE, MAVIS EQ.
5	160	160	159	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
6	170	170	157	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
7	193	192	191	TRAPEZOIDAL WEIR/GATE/ORIFICE, FREAD EQ.
8	104A	104	102	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
9	150	150	140	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
10	101	101	100	CULVERT, RECTANGULAR w/ ROADWAY
11	102	102	101	CULVERT, RECTANGULAR w/ ROADWAY
12	104	104	102	CULVERT, ELLIPTICAL w/ ROADWAY
13	108	108	106	CULVERT, ELLIPTICAL w/ ROADWAY
14	130	130	120	CULVERT, RECTANGULAR w/ ROADWAY
15	151	151	150	CULVERT, RECTANGULAR w/ ROADWAY
16	158	158	157	CULVERT, CIRCULAR w/ ROADWAY
17	163	163	162	CULVERT, CIRCULAR w/ ROADWAY
18	165	165	164	CULVERT, CIRCULAR w/ ROADWAY
19	182	182	181	CULVERT, ELLIPTICAL w/ ROADWAY
20	183	183	182	CULVERT, ELLIPTICAL w/ ROADWAY
21	183A	183A	164	CULVERT, ELLIPTICAL w/ ROADWAY
22	184	184	183	CULVERT, ELLIPTICAL w/ ROADWAY
23	185A	185A	181	CULVERT, CIRCULAR w/ ROADWAY
24	185B	185B	185A	CULVERT, CIRCULAR w/ ROADWAY
25	186	186	181	CULVERT, ELLIPTICAL w/ ROADWAY
26	210	210	200	CULVERT, ARCH w/ ROADWAY
27	220	220	210	CULVERT, ARCH w/ ROADWAY
28	116	120	110	DROP STRUCTURE w/ CIRC. CULVERT
29	120	120	102	DROP STRUCTURE w/ RECT. CULVERT
30	171	171	151	DROP STRUCTURE w/ CIRC. CULVERT
31	173	173	159	DROP STRUCTURE w/ CIRC. CULVERT
32	175	175	161	DROP STRUCTURE w/ CIRC. CULVERT
33	180	180	161	DROP STRUCTURE w/ CIRC. CULVERT
34	181A	181	160	DROP STRUCTURE w/ ELLP. CULVERT
35	181B	181	180	DROP STRUCTURE w/ CIRC. CULVERT
36	183B	183	183A	DROP STRUCTURE w/ CIRC. CULVERT
37	187	187	181	DROP STRUCTURE w/ CIRC. CULVERT
38	191	191	190	DROP STRUCTURE w/ ELLP. CULVERT
39	192	192	190	DROP STRUCTURE w/ ELLP. CULVERT
40	200	200	140	DROP STRUCTURE w/ ARCH CULVERT
41	106	106	104	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
42	110	110	108	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
43	157	157	151	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
44	159	159	158	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
45	161	161	159	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
46	162	162	161	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
47	164	164	163	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
48	190	190	162	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)

ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3)
04-01-94

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	41
REACHES	
WEIRS	9
CULVERTS	18
DROP STRUCTURES	13
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	8
RATING CURVES	0
TOTAL REACHES	48

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3 - 2 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	91.69	.00	.00	137.08	.00
101	1.60	.13	14.80	.00	133.06	137.08
102	3.87	.28	.00	.00	133.02	133.06
104	7.83	.01	.00	.00	32.70	32.71
106	10.88	.04	10.92	.00	22.37	32.70
108	11.03	.06	.00	.00	22.56	22.37
110	11.45	.29	18.18	.00	6.34	22.56
120	12.04	3.61	63.09	.00	69.28	108.23
130	12.12	.99	21.88	.00	61.40	69.28
140	12.74	5.85	36.86	.00	49.37	61.40
150	13.68	1.39	.00	.00	76.43	24.19
151	13.68	1.63	12.12	.00	37.80	76.43
157	13.69	1.48	13.05	.00	27.92	35.34
158	13.70	1.17	.00	.00	30.29	27.09
159	13.70	2.08	6.45	.00	51.78	30.29
160	15.74	6.33	8.83	.00	6.64	.69
161	13.70	1.01	1.17	.00	20.32	51.16
162	13.72	1.06	.00	.00	16.04	15.55
163	14.05	.10	3.33	.00	2.97	5.41
164	15.51	.26	4.16	.00	2.27	2.97
165	15.51	.32	1.89	.00	.00	.23
170	15.35	.36	2.29	.00	.00	1.62
171	14.58	2.07	12.39	.00	.00	2.55
173	14.72	.53	4.80	.00	.00	.71
175	14.54	1.77	11.30	.00	.00	.71
180	15.30	.63	5.77	.00	3.95	4.39
181	15.74	3.23	26.06	.00	9.63	9.42
182	16.97	2.99	8.55	.00	5.38	3.50
183	16.98	5.43	29.81	.00	4.08	7.02
183A	15.57	.00	.00	.00	2.12	2.12
184	17.28	.68	9.98	.00	.00	4.08
185A	15.76	.01	.00	.00	.40	2.72
185B	15.74	.17	.61	.00	.00	.40
186	15.74	.91	13.36	.00	.00	7.30
187	16.77	.32	2.63	.00	.00	1.11
190	13.72	.84	2.58	.00	4.58	13.26
191	15.63	2.83	6.04	.00	11.43	1.31
192	15.63	9.71	29.90	.00	.00	14.16
200	13.34	3.51	23.99	.00	22.55	25.78
210	13.49	1.88	27.51	.00	4.18	22.55
220	14.16	1.73	16.94	.00	.00	4.18

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3 - 5 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	149.72	.00	.00	229.36	.00
101	1.79	.14	21.97	.00	225.09	229.36
102	4.91	.39	.00	.00	224.85	225.09
104	8.41	.02	.00	.00	50.26	50.29
106	11.03	.05	18.74	.00	32.91	50.26
108	11.35	.13	.00	.00	33.23	32.91
110	11.70	.34	28.79	.00	6.89	33.23
120	12.51	5.18	101.43	.00	120.30	183.93
130	12.75	1.28	34.45	.00	106.10	120.30
140	13.21	7.44	58.47	.00	85.96	106.10
150	14.61	1.70	.00	.00	108.21	46.75
151	14.61	2.03	17.87	.00	76.46	108.21
157	14.63	1.87	21.91	.00	56.40	73.09
158	14.64	1.52	.00	.00	56.97	54.35
159	14.63	2.62	9.84	.00	86.02	56.97
160	15.85	6.89	13.76	.00	10.42	10.02
161	14.64	1.33	2.08	.00	35.57	77.98
162	14.64	1.53	.00	.00	27.98	28.12
163	14.69	.27	5.99	.00	7.64	11.71
164	15.65	.31	7.40	.00	4.41	7.64
165	15.66	.39	3.35	.00	.00	1.57
170	15.41	.42	3.72	.00	.00	3.17
171	15.07	3.10	19.65	.00	.00	3.50
173	15.00	.73	7.35	.00	.00	1.17
175	14.85	2.78	17.15	.00	.00	1.20
180	15.62	.87	9.23	.00	5.78	7.38
181	16.09	4.75	42.05	.00	15.67	15.30
182	17.35	3.77	13.29	.00	8.88	7.31
183	17.41	6.99	45.70	.00	7.28	11.43
183A	15.73	.00	.00	.00	2.90	2.90
184	17.65	.99	15.84	.00	.00	7.28
185A	16.11	.01	.00	.00	.56	2.88
185B	16.10	.25	1.00	.00	.00	.56
186	16.10	1.17	19.82	.00	.00	11.01
187	16.91	.37	3.97	.00	.00	1.85
190	14.64	1.17	4.29	.00	7.89	25.13
191	16.03	3.84	8.78	.00	10.63	2.55
192	16.03	13.21	49.44	.00	.00	13.53
200	14.16	5.06	36.88	.00	35.16	41.76
210	14.49	2.83	42.22	.00	11.61	35.16
220	14.69	3.03	28.51	.00	.00	11.61

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3 - 10 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	183.72	.00	.00	279.22	.00
101	1.92	.15	26.03	.00	274.22	279.22
102	5.40	.44	.00	.00	274.15	274.22
104	8.68	.02	.00	.00	60.19	60.11
106	11.15	.08	23.38	.00	38.77	60.19
108	11.51	.16	.00	.00	38.85	38.77
110	11.83	.36	34.99	.00	7.62	38.85
120	12.77	6.06	123.71	.00	148.54	224.61
130	13.14	1.46	41.71	.00	132.42	148.54
140	13.52	8.47	71.00	.00	105.41	132.42
150	15.04	1.85	.00	.00	122.44	58.02
151	15.05	2.24	21.20	.00	85.73	122.44
157	15.07	2.06	27.14	.00	62.42	82.36
158	15.08	1.68	.00	.00	72.38	60.53
159	15.08	2.89	11.79	.00	142.41	72.38
160	15.88	7.05	16.66	.00	12.42	14.69
161	15.08	1.50	2.63	.00	42.47	127.43
162	15.08	1.77	.00	.00	31.52	33.73
163	15.12	.53	7.58	.00	10.04	15.12
164	15.77	.35	9.35	.00	5.48	10.04
165	15.79	.45	4.23	.00	.00	2.28
170	15.44	.45	4.57	.00	.00	4.12
171	15.39	3.89	23.86	.00	.00	4.18
173	15.18	.88	8.81	.00	.00	1.31
175	15.10	3.63	20.53	.00	.00	1.44
180	15.83	1.02	11.28	.00	7.21	9.19
181	16.36	5.93	51.39	.00	19.39	18.58
182	17.56	4.20	16.03	.00	11.03	9.80
183	17.67	7.94	54.89	.00	9.80	14.14
183A	15.87	.01	.00	.00	3.27	3.28
184	17.84	1.16	19.25	.00	.00	9.80
185A	16.34	.01	.00	.00	.80	2.64
185B	16.37	.31	1.24	.00	.00	.80
186	16.37	1.37	23.57	.00	.00	12.96
187	16.98	.40	4.75	.00	.00	2.30
190	15.09	1.35	5.32	.00	9.55	26.17
191	16.30	4.52	10.36	.00	15.87	3.39
192	16.30	15.54	61.00	.00	.00	18.63
200	14.60	5.90	44.35	.00	39.48	48.88
210	14.98	3.29	50.76	.00	12.67	39.48
220	15.12	4.22	35.35	.00	.00	12.67

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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3 - 25 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW -------> OTHER (cfs)|	OUTFLOW (cfs)
100	1.50	218.07	.00	.00	324.98	.00
101	2.07	.16	30.07	.00	318.47	324.98
102	5.82	.49	.00	.00	318.30	318.47
104	8.93	.02	.00	.00	71.13	71.15
106	11.29	.12	28.08	.00	44.45	71.13
108	11.60	.18	.00	.00	45.03	44.45
110	11.93	.38	41.23	.00	8.29	45.03
120	13.03	7.05	146.09	.00	173.03	259.85
130	13.54	1.65	48.98	.00	154.31	173.03
140	13.84	9.56	83.56	.00	122.31	154.31
150	15.44	1.98	.00	.00	136.70	69.14
151	15.45	2.43	24.55	.00	103.61	136.70
157	15.45	2.23	32.43	.00	75.93	100.72
158	15.47	1.84	.00	.00	87.33	72.87
159	15.47	3.13	13.74	.00	144.87	87.33
160	15.91	7.22	19.58	.00	15.08	20.92
161	15.48	1.65	3.19	.00	51.12	131.11
162	15.50	2.01	.00	.00	36.68	41.76
163	15.51	1.05	9.21	.00	12.24	17.69
164	15.89	.41	11.33	.00	6.24	12.24
165	15.91	.51	5.11	.00	.00	2.69
170	15.48	.50	5.44	.00	.00	5.02
171	15.74	4.74	28.08	.00	.00	4.63
173	15.51	1.15	10.27	.00	.00	1.39
175	15.35	4.52	23.92	.00	.00	1.64
180	16.10	1.22	13.35	.00	8.49	10.62
181	16.62	7.04	60.79	.00	23.17	23.53
182	17.75	4.59	18.77	.00	13.14	12.34
183	17.92	8.89	64.11	.00	11.62	16.56
183A	16.00	.01	.00	.00	3.61	3.62
184	18.02	1.32	22.67	.00	.00	11.62
185A	16.64	.01	.00	.00	.73	3.30
185B	16.63	.37	1.47	.00	.00	.73
186	16.63	1.56	27.35	.00	.00	14.62
187	17.05	.43	5.53	.00	.00	2.77
190	15.50	1.52	6.35	.00	11.11	29.76
191	16.57	5.20	11.95	.00	14.32	3.91
192	16.57	17.85	72.71	.00	.00	17.82
200	14.97	6.61	51.86	.00	41.66	53.71
210	15.40	3.98	59.34	.00	14.00	41.66
220	15.54	5.63	42.26	.00	.00	14.00

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ELLIGRAW BAYOU - BASIN MASTER PLAN (ALTERNATIVE 3 - 100 YR)
04-01-94

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW |<------- RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW -------> OTHER (cfs)|	OUTFLOW (cfs)
100	1.50	287.27	.00	.00	399.93	.00
101	2.35	.18	38.10	.00	392.65	399.93
102	6.48	.56	.00	.00	392.56	392.65
104	9.40	.10	.00	.00	92.73	93.12
106	11.61	.19	37.58	.00	57.98	92.73
108	11.74	.20	.00	.00	58.13	57.98
110	12.13	.45	53.77	.00	9.49	58.13
120	13.45	9.92	190.90	.00	209.42	315.07
130	14.18	2.17	63.49	.00	186.89	209.42
140	14.40	12.26	108.71	.00	146.48	186.89
150	15.99	2.16	.00	.00	152.89	85.00
151	16.00	2.71	31.28	.00	130.94	152.89
157	16.05	2.51	43.09	.00	87.22	127.09
158	16.05	2.07	.00	.00	107.49	80.29
159	16.05	3.54	17.63	.00	206.25	107.49
160	16.06	8.09	25.48	.00	19.25	30.80
161	16.06	1.91	4.32	.00	61.75	177.31
162	16.08	2.36	.00	.00	52.87	50.11
163	16.09	1.84	12.50	.00	15.67	18.87
164	16.09	.50	15.35	.00	8.43	15.67
165	16.09	.68	6.91	.00	.00	4.39
170	16.03	1.30	7.20	.00	.00	16.03
171	16.32	6.43	36.54	.00	.00	5.64
173	16.07	1.62	13.19	.00	.00	1.49
175	15.82	6.22	30.69	.00	.00	1.94
180	16.62	1.60	17.54	.00	11.34	13.38
181	17.16	9.43	79.65	.00	28.96	30.55
182	18.11	5.33	24.26	.00	16.90	17.49
183	18.46	10.84	82.55	.00	13.40	20.93
183A	16.24	.01	.00	.00	4.09	4.09
184	18.52	1.75	29.53	.00	.00	13.40
185A	17.15	.01	.00	.00	.79	2.52
185B	17.18	.49	1.96	.00	.00	.79
186	17.18	1.97	34.94	.00	.00	17.87
187	17.20	.49	7.11	.00	.00	3.47
190	16.09	1.77	8.45	.00	14.22	42.60
191	17.18	6.72	15.12	.00	24.76	4.86
192	17.18	23.08	96.35	.00	.00	27.59
200	15.65	8.29	66.89	.00	46.83	61.78
210	16.16	5.46	76.54	.00	18.86	46.83
220	16.24	8.71	56.17	.00	.00	18.86

ELLIGRAW BAYOU - SUBBASIN POLLUTANT LOADING ANALYSIS INVENTORY

EXISTING CONDITIONS ALTERNATIVE

WATER QUALITY SUBBASIN NO. 1 (LOWER ELLIGRAW BAYOU)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05100	7	3.26	25	0	0
05101	7	3.78	0	0	0
05102	5	21.79	0	100	0
05110	5/7	16.79/4.2	0/100	100/0	0
05120	5	69.92	0	0	0
05130	5	20.92	0	0	0
05140	5/6	35.19/1.5	0	0	0

WATER QUALITY SUBBASIN NO. 2 (UPPER ELLIGRAW BAYOU)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05150	6/8/12	2.18/1.58	0	0	0
05151	12	2.52	0	0	0
05160	11	8.43	100	0	0
05161	1	2.40	0	0	0
05163	6/11	1.38/3.13	0	0	0
05164	11	3.97	0	0	0
05165	11	1.62	0	0	0
05170	11	5.12	100	0	0
05171	6	12.70	0	0	100
05172	6	3.55	0	0	0
05173	6	2.66	0	0	100
05174	1/5/6	1.15/7.35	0	0	0
05175	6	8.95	0	0	100
05180	1/12	2.38/2.0	0	0	100
05181	6/12	18.54/1.2	0	0	100
05182	5/6	1.72/4.06	0	0	100
05183	5/6	16.32/3.2	0	0	100
05184	5/6	0.86/6.34	0	0	100
05185	10	0.51	0	0	100
05186	6/12	6.94/1.24	0	0	100
05187	5	1.46	100	0	0
05190	10	2.22	0	0	100
05191	11	2.97	0	0	100
05192	1/5/12	31.03/18.	0	0	100

WATER QUALITY SUBBASIN NO. 3 (GULF GATE LATERAL)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05200	5/7	10.66/9.1	0	0	0
05110	1/5/7/8/12	2.07/17.9	0	0	0
		1.29/14.92/1.77			
05120	1/5	15.87/3.3	0	0	0

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER EXISTING CONDITIONS.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5100	4	3	85.0%	Runoff	(ac-ft/yr)	15	0	0	15	15	0	0	15	
5100	4	3	85.0%	BOD	(lbs/yr)	384	0	0	384	298	0	0	298	-22.5%
5100	4	3	85.0%	COD	(lbs/yr)	2,414	0	0	2,414	1,871	0	0	1,871	-22.5%
5100	4	3	85.0%	TSS	(lbs/yr)	3,573	0	0	3,573	2,769	0	0	2,769	-22.5%
5100	4	3	85.0%	TDS	(lbs/yr)	3,946	0	0	3,946	3,058	0	0	3,058	-22.5%
5100	4	3	85.0%	Total P	(lbs/yr)	6	0	0	6	5	0	0	5	-22.5%
5100	4	3	85.0%	Dissolved P	(lbs/yr)	4	0	0	4	3	0	0	3	-22.5%
5100	4	3	85.0%	TKN	(lbs/yr)	42	0	0	42	32	0	0	32	-22.5%
5100	4	3	85.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	4	0	0	4	-22.5%
5100	4	3	85.0%	Lead	(lbs/yr)	9	0	0	9	7	0	0	7	-22.5%
5100	4	3	85.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	-22.5%
5100	4	3	85.0%	Zinc	(lbs/yr)	5	0	0	5	4	0	0	4	-22.5%
5100	4	3	85.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-22.5%
5101	4	3	85.0%	Runoff	(ac-ft/yr)	15	0	0	15	15	0	0	15	
5101	4	3	85.0%	BOD	(lbs/yr)	401	0	0	401	401	0	0	401	0.0%
5101	4	3	85.0%	COD	(lbs/yr)	2,521	0	0	2,521	2,521	0	0	2,521	0.0%
5101	4	3	85.0%	TSS	(lbs/yr)	3,731	0	0	3,731	3,731	0	0	3,731	0.0%
5101	4	3	85.0%	TDS	(lbs/yr)	4,120	0	0	4,120	4,120	0	0	4,120	0.0%
5101	4	3	85.0%	Total P	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5101	4	3	85.0%	Dissolved P	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5101	4	3	85.0%	TKN	(lbs/yr)	44	0	0	44	44	0	0	44	0.0%
5101	4	3	85.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5101	4	3	85.0%	Lead	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5101	4	3	85.0%	Copper	(lbs/yr)	2	0	0	2	2	0	0	2	0.0%
5101	4	3	85.0%	Zinc	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5101	4	3	85.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5102	22	7	30.0%	Runoff	(ac-ft/yr)	41	0	0	41	41	0	0	41	
5102	22	7	30.0%	BOD	(lbs/yr)	1,206	0	0	1,206	1,206	0	0	1,206	0.0%
5102	22	7	30.0%	COD	(lbs/yr)	9,297	0	0	9,297	9,297	0	0	9,297	0.0%
5102	22	7	30.0%	TSS	(lbs/yr)	15,624	0	0	15,624	15,624	0	0	15,624	0.0%
5102	22	7	30.0%	TDS	(lbs/yr)	11,159	0	0	11,159	11,159	0	0	11,159	0.0%
5102	22	7	30.0%	Total P	(lbs/yr)	44	0	0	44	44	0	0	44	0.0%
5102	22	7	30.0%	Dissolved P	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5102	22	7	30.0%	TKN	(lbs/yr)	167	0	0	167	167	0	0	167	0.0%
5102	22	7	30.0%	NO_2+NO_3	(lbs/yr)	41	0	0	41	41	0	0	41	0.0%
5102	22	7	30.0%	Lead	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5102	22	7	30.0%	Copper	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5102	22	7	30.0%	Zinc	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5102	22	7	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5110	21	9	41.1%	Runoff	(ac-ft/yr)	49	0	0	49	49	0	0	49	
5110	21	9	41.1%	BOD	(lbs/yr)	1,381	0	0	1,381	975	0	0	975	-29.5%
5110	21	9	41.1%	COD	(lbs/yr)	10,005	0	0	10,005	7,448	0	0	7,448	-25.6%
5110	21	9	41.1%	TSS	(lbs/yr)	16,244	0	0	16,244	12,459	0	0	12,459	-23.3%
5110	21	9	41.1%	TDS	(lbs/yr)	13,242	0	0	13,242	9,063	0	0	9,063	-31.6%
5110	21	9	41.1%	Total P	(lbs/yr)	40	0	0	40	34	0	0	34	-15.5%
5110	21	9	41.1%	Dissolved P	(lbs/yr)	18	0	0	18	14	0	0	14	-22.7%
5110	21	9	41.1%	TKN	(lbs/yr)	178	0	0	178	134	0	0	134	-24.9%
5110	21	9	41.1%	NO_2+NO_3	(lbs/yr)	37	0	0	37	32	0	0	32	-13.4%
5110	21	9	41.1%	Lead	(lbs/yr)	15	0	0	15	5	0	0	5	-64.6%
5110	21	9	41.1%	Copper	(lbs/yr)	6	0	0	6	4	0	0	4	-27.2%
5110	21	9	41.1%	Zinc	(lbs/yr)	10	0	0	10	5	0	0	5	-50.8%
5110	21	9	41.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-31.6%
5120	70	21	30.0%	Runoff	(ac-ft/yr)	132	0	0	132	132	0	0	132	
5120	70	21	30.0%	BOD	(lbs/yr)	3,870	0	0	3,870	3,870	0	0	3,870	0.0%
5120	70	21	30.0%	COD	(lbs/yr)	29,833	0	0	29,833	29,833	0	0	29,833	0.0%
5120	70	21	30.0%	TSS	(lbs/yr)	50,135	0	0	50,135	50,135	0	0	50,135	0.0%
5120	70	21	30.0%	TDS	(lbs/yr)	35,808	0	0	35,808	35,808	0	0	35,808	0.0%
5120	70	21	30.0%	Total P	(lbs/yr)	140	0	0	140	140	0	0	140	0.0%
5120	70	21	30.0%	Dissolved P	(lbs/yr)	56	0	0	56	56	0	0	56	0.0%
5120	70	21	30.0%	TKN	(lbs/yr)	537	0	0	537	537	0	0	537	0.0%
5120	70	21	30.0%	NO_2+NO_3	(lbs/yr)	132	0	0	132	132	0	0	132	0.0%
5120	70	21	30.0%	Lead	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5120	70	21	30.0%	Copper	(lbs/yr)	17	0	0	17	17	0	0	17	0.0%
5120	70	21	30.0%	Zinc	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5120	70	21	30.0%	Cadmium	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5130	21	6	30.0%	Runoff	(ac-ft/yr)	39	0	0	39	39	0	0	39	
5130	21	6	30.0%	BOD	(lbs/yr)	1,158	0	0	1,158	1,158	0	0	1,158	0.0%
5130	21	6	30.0%	COD	(lbs/yr)	8,926	0	0	8,926	8,926	0	0	8,926	0.0%
5130	21	6	30.0%	TSS	(lbs/yr)	15,000	0	0	15,000	15,000	0	0	15,000	0.0%
5130	21	6	30.0%	TDS	(lbs/yr)	10,714	0	0	10,714	10,714	0	0	10,714	0.0%
5130	21	6	30.0%	Total P	(lbs/yr)	42	0	0	42	42	0	0	42	0.0%
5130	21	6	30.0%	Dissolved P	(lbs/yr)	17	0	0	17	17	0	0	17	0.0%
5130	21	6	30.0%	TKN	(lbs/yr)	161	0	0	161	161	0	0	161	0.0%
5130	21	6	30.0%	NO_2+NO_3	(lbs/yr)	40	0	0	40	40	0	0	40	0.0%
5130	21	6	30.0%	Lead	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Copper	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Zinc	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5140	37	11	30.4%	Runoff	(ac-ft/yr)	70	0	0	70	70	0	0	70	
5140	37	11	30.4%	BOD	(lbs/yr)	2,051	0	0	2,051	2,051	0	0	2,051	0.0%
5140	37	11	30.4%	COD	(lbs/yr)	15,812	0	0	15,812	15,812	0	0	15,812	0.0%
5140	37	11	30.4%	TSS	(lbs/yr)	26,572	0	0	26,572	26,572	0	0	26,572	0.0%
5140	37	11	30.4%	TDS	(lbs/yr)	18,979	0	0	18,979	18,979	0	0	18,979	0.0%
5140	37	11	30.4%	Total P	(lbs/yr)	73	0	0	73	73	0	0	73	0.0%
5140	37	11	30.4%	Dissolved P	(lbs/yr)	30	0	0	30	30	0	0	30	0.0%
5140	37	11	30.4%	TKN	(lbs/yr)	283	0	0	283	283	0	0	283	0.0%
5140	37	11	30.4%	NO_2+NO_3	(lbs/yr)	70	0	0	70	70	0	0	70	0.0%
5140	37	11	30.4%	Lead	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5140	37	11	30.4%	Copper	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5140	37	11	30.4%	Zinc	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5140	37	11	30.4%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
Total Sum	178	60	33.7%	Runoff	(ac-ft/yr)	360	0	0	360	360	0	0	360	
Total Sum	178	60	33.7%	BOD	(lbs/yr)	10,452	0	0	10,452	9,959	0	0	9,959	
Total Sum	178	60	33.7%	COD	(lbs/yr)	78,807	0	0	78,807	75,707	0	0	75,707	
Total Sum	178	60	33.7%	TSS	(lbs/yr)	130,878	0	0	130,878	126,290	0	0	126,290	
Total Sum	178	60	33.7%	TDS	(lbs/yr)	97,968	0	0	97,968	92,901	0	0	92,901	
Total Sum	178	60	33.7%	Total P	(lbs/yr)	351	0	0	351	343	0	0	343	
Total Sum	178	60	33.7%	Dissolved P	(lbs/yr)	147	0	0	147	142	0	0	142	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
Total Sum	178	60	33.7%	TKN	(lbs/yr)	1,412	0	0	1,412	1,358	0	0	1,358	
Total Sum	178	60	33.7%	NO_2+NO_3	(lbs/yr)	330	0	0	330	324	0	0	324	
Total Sum	178	60	33.7%	Lead	(lbs/yr)	73	0	0	73	61	0	0	61	
Total Sum	178	60	33.7%	Copper	(lbs/yr)	44	0	0	44	42	0	0	42	
Total Sum	178	60	33.7%	Zinc	(lbs/yr)	58	0	0	58	52	0	0	52	
Total Sum	178	60	33.7%	Cadmium	(lbs/yr)	2	0	0	2	2	0	0	2	
EMC	178	60	33.7%	BOD	(mg/L)	10.67	0.00	0.00	10.67	10.16	0.00	0.00	10.16	
EMC	178	60	33.7%	COD	(mg/L)	80.43	0.00	0.00	80.43	77.27	0.00	0.00	77.27	
EMC	178	60	33.7%	TSS	(mg/L)	133.58	0.00	0.00	133.58	128.90	0.00	0.00	128.90	
EMC	178	60	33.7%	TDS	(mg/L)	99.99	0.00	0.00	99.99	94.82	0.00	0.00	94.82	
EMC	178	60	33.7%	Total P	(mg/L)	0.36	0.00	0.00	0.36	0.35	0.00	0.00	0.35	
EMC	178	60	33.7%	Dissolved P	(mg/L)	0.15	0.00	0.00	0.15	0.14	0.00	0.00	0.14	
EMC	178	60	33.7%	TKN	(mg/L)	1.44	0.00	0.00	1.44	1.39	0.00	0.00	1.39	
EMC	178	60	33.7%	NO_2+NO_3	(mg/L)	0.34	0.00	0.00	0.34	0.33	0.00	0.00	0.33	
EMC	178	60	33.7%	Lead	(mg/L)	0.07	0.00	0.00	0.07	0.06	0.00	0.00	0.06	
EMC	178	60	33.7%	Copper	(mg/L)	0.05	0.00	0.00	0.05	0.04	0.00	0.00	0.04	
EMC	178	60	33.7%	Zinc	(mg/L)	0.06	0.00	0.00	0.06	0.05	0.00	0.00	0.05	
EMC	178	60	33.7%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.002	0.000	0.000	0.002	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5150	9	6	73.7%	Runoff	(ac-ft/yr)	31	0	0	31	31	0	0	31	
5150	9	6	73.7%	BOD	(lbs/yr)	829	0	0	829	829	0	0	829	0.0%
5150	9	6	73.7%	COD	(lbs/yr)	7,754	0	0	7,754	7,754	0	0	7,754	0.0%
5150	9	6	73.7%	TSS	(lbs/yr)	11,142	0	0	11,142	11,142	0	0	11,142	0.0%
5150	9	6	73.7%	TDS	(lbs/yr)	8,382	0	0	8,382	8,382	0	0	8,382	0.0%
5150	9	6	73.7%	Total P	(lbs/yr)	15	0	0	15	15	0	0	15	0.0%
5150	9	6	73.7%	Dissolved P	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5150	9	6	73.7%	TKN	(lbs/yr)	92	0	0	92	92	0	0	92	0.0%
5150	9	6	73.7%	NO_2+NO_3	(lbs/yr)	13	0	0	13	13	0	0	13	0.0%
5150	9	6	73.7%	Lead	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5150	9	6	73.7%	Copper	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5150	9	6	73.7%	Zinc	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5150	9	6	73.7%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5151	3	2	90.0%	Runoff	(ac-ft/yr)	11	0	0	11	11	0	0	11	
5151	3	2	90.0%	BOD	(lbs/yr)	279	0	0	279	279	0	0	279	0.0%
5151	3	2	90.0%	COD	(lbs/yr)	2,966	0	0	2,966	2,966	0	0	2,966	0.0%
5151	3	2	90.0%	TSS	(lbs/yr)	4,101	0	0	4,101	4,101	0	0	4,101	0.0%
5151	3	2	90.0%	TDS	(lbs/yr)	2,879	0	0	2,879	2,879	0	0	2,879	0.0%
5151	3	2	90.0%	Total P	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5151	3	2	90.0%	Dissolved P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	TKN	(lbs/yr)	31	0	0	31	31	0	0	31	0.0%
5151	3	2	90.0%	NO_2+NO_3	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	Lead	(lbs/yr)	7	0	0	7	7	0	0	7	0.0%
5151	3	2	90.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5151	3	2	90.0%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5160	8	2	25.0%	Runoff	(ac-ft/yr)	14	0	0	14	14	0	0	14	
5160	8	2	25.0%	BOD	(lbs/yr)	120	0	0	120	12	0	0	12	-90.0%
5160	8	2	25.0%	COD	(lbs/yr)	737	0	0	737	74	0	0	74	-90.0%
5160	8	2	25.0%	TSS	(lbs/yr)	3,509	0	0	3,509	351	0	0	351	-90.0%
5160	8	2	25.0%	TDS	(lbs/yr)	3,874	0	0	3,874	387	0	0	387	-90.0%
5160	8	2	25.0%	Total P	(lbs/yr)	7	0	0	7	1	0	0	1	-90.0%
5160	8	2	25.0%	Dissolved P	(lbs/yr)	5	0	0	5	0	0	0	0	-90.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5160	8	2	25.0%	TKN	(lbs/yr)	19	0	0	19	2	0	0	2	-90.0%
5160	8	2	25.0%	NO_2+NO_3	(lbs/yr)	19	0	0	19	2	0	0	2	-90.0%
5160	8	2	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5160	8	2	25.0%	Copper	(lbs/yr)	2	0	0	2	0	0	0	0	-90.0%
5160	8	2	25.0%	Zinc	(lbs/yr)	6	0	0	6	1	0	0	1	-90.0%
5160	8	2	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5161	2	0	1.0%	Runoff	(ac-ft/yr)	2	0	0	2	2	0	0	2	
5161	2	0	1.0%	BOD	(lbs/yr)	40	0	0	40	40	0	0	40	0.0%
5161	2	0	1.0%	COD	(lbs/yr)	253	0	0	253	253	0	0	253	0.0%
5161	2	0	1.0%	TSS	(lbs/yr)	1,076	0	0	1,076	1,076	0	0	1,076	0.0%
5161	2	0	1.0%	TDS	(lbs/yr)	498	0	0	498	498	0	0	498	0.0%
5161	2	0	1.0%	Total P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5161	2	0	1.0%	Dissolved P	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	TKN	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5161	2	0	1.0%	NO_2+NO_3	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5161	2	0	1.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5163	5	1	29.6%	Runoff	(ac-ft/yr)	8	0	0	8	8	0	0	8	
5163	5	1	29.6%	BOD	(lbs/yr)	137	0	0	137	137	0	0	137	0.0%
5163	5	1	29.6%	COD	(lbs/yr)	983	0	0	983	983	0	0	983	0.0%
5163	5	1	29.6%	TSS	(lbs/yr)	2,495	0	0	2,495	2,495	0	0	2,495	0.0%
5163	5	1	29.6%	TDS	(lbs/yr)	2,290	0	0	2,290	2,290	0	0	2,290	0.0%
5163	5	1	29.6%	Total P	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5163	5	1	29.6%	Dissolved P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5163	5	1	29.6%	TKN	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5163	5	1	29.6%	NO_2+NO_3	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5163	5	1	29.6%	Lead	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5163	5	1	29.6%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5163	5	1	29.6%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5163	5	1	29.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5164	4	1	25.0%	Runoff	(ac-ft/yr)	7	0	0	7	7	0	0	7	
5164	4	1	25.0%	BOD	(lbs/yr)	56	0	0	56	56	0	0	56	0.0%
5164	4	1	25.0%	COD	(lbs/yr)	347	0	0	347	347	0	0	347	0.0%
5164	4	1	25.0%	TSS	(lbs/yr)	1,652	0	0	1,652	1,652	0	0	1,652	0.0%
5164	4	1	25.0%	TDS	(lbs/yr)	1,825	0	0	1,825	1,825	0	0	1,825	0.0%
5164	4	1	25.0%	Total P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5164	4	1	25.0%	Dissolved P	(lbs/yr)	2	0	0	2	2	0	0	2	0.0%
5164	4	1	25.0%	TKN	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5164	4	1	25.0%	NO_2+NO_3	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5164	4	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5164	4	1	25.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5164	4	1	25.0%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5164	4	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Runoff	(ac-ft/yr)	3	0	0	3	3	0	0	3	
5165	2	0	25.0%	BOD	(lbs/yr)	23	0	0	23	23	0	0	23	0.0%
5165	2	0	25.0%	COD	(lbs/yr)	142	0	0	142	142	0	0	142	0.0%
5165	2	0	25.0%	TSS	(lbs/yr)	674	0	0	674	674	0	0	674	0.0%
5165	2	0	25.0%	TDS	(lbs/yr)	745	0	0	745	745	0	0	745	0.0%
5165	2	0	25.0%	Total P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	Dissolved P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	TKN	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5165	2	0	25.0%	NO_2+NO_3	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5165	2	0	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Zinc	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5170	5	1	25.0%	Runoff	(ac-ft/yr)	9	0	0	9	9	0	0	9	
5170	5	1	25.0%	BOD	(lbs/yr)	73	0	0	73	7	0	0	7	-90.0%
5170	5	1	25.0%	COD	(lbs/yr)	448	0	0	448	45	0	0	45	-90.0%
5170	5	1	25.0%	TSS	(lbs/yr)	2,131	0	0	2,131	213	0	0	213	-90.0%
5170	5	1	25.0%	TDS	(lbs/yr)	2,353	0	0	2,353	235	0	0	235	-90.0%
5170	5	1	25.0%	Total P	(lbs/yr)	4	0	0	4	0	0	0	0	-90.0%
5170	5	1	25.0%	Dissolved P	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5170	5	1	25.0%	TKN	(lbs/yr)	12	0	0	12	1	0	0	1	-90.0%
5170	5	1	25.0%	NO_2+NO_3	(lbs/yr)	11	0	0	11	1	0	0	1	-90.0%
5170	5	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5170	5	1	25.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-90.0%
5170	5	1	25.0%	Zinc	(lbs/yr)	4	0	0	4	0	0	0	0	-90.0%
5170	5	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5171	13	5	40.0%	Runoff	(ac-ft/yr)	29	0	0	29	29	0	0	29	
5171	13	5	40.0%	BOD	(lbs/yr)	847	0	0	847	593	0	0	593	-30.0%
5171	13	5	40.0%	COD	(lbs/yr)	6,530	0	0	6,530	3,265	0	0	3,265	-50.0%
5171	13	5	40.0%	TSS	(lbs/yr)	10,974	0	0	10,974	3,292	0	0	3,292	-70.0%
5171	13	5	40.0%	TDS	(lbs/yr)	7,838	0	0	7,838	7,838	0	0	7,838	0.0%
5171	13	5	40.0%	Total P	(lbs/yr)	26	0	0	26	13	0	0	13	-50.0%
5171	13	5	40.0%	Dissolved P	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5171	13	5	40.0%	TKN	(lbs/yr)	103	0	0	103	72	0	0	72	-30.0%
5171	13	5	40.0%	NO_2+NO_3	(lbs/yr)	26	0	0	26	5	0	0	5	-80.0%
5171	13	5	40.0%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5171	13	5	40.0%	Copper	(lbs/yr)	4	0	0	4	1	0	0	1	-75.0%
5171	13	5	40.0%	Zinc	(lbs/yr)	5	0	0	5	2	0	0	2	-50.0%
5171	13	5	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5172	4	1	40.0%	Runoff	(ac-ft/yr)	8	0	0	8	8	0	0	8	
5172	4	1	40.0%	BOD	(lbs/yr)	237	0	0	237	237	0	0	237	0.0%
5172	4	1	40.0%	COD	(lbs/yr)	1,825	0	0	1,825	1,825	0	0	1,825	0.0%
5172	4	1	40.0%	TSS	(lbs/yr)	3,068	0	0	3,068	3,068	0	0	3,068	0.0%
5172	4	1	40.0%	TDS	(lbs/yr)	2,191	0	0	2,191	2,191	0	0	2,191	0.0%
5172	4	1	40.0%	Total P	(lbs/yr)	7	0	0	7	7	0	0	7	0.0%
5172	4	1	40.0%	Dissolved P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5172	4	1	40.0%	TKN	(lbs/yr)	29	0	0	29	29	0	0	29	0.0%
5172	4	1	40.0%	NO_2+NO_3	(lbs/yr)	7	0	0	7	7	0	0	7	0.0%
5172	4	1	40.0%	Lead	(lbs/yr)	2	0	0	2	2	0	0	2	0.0%
5172	4	1	40.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5172	4	1	40.0%	Zinc	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5172	4	1	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5173	3	1	40.0%	Runoff	(ac-ft/yr)	6	0	0	6	6	0	0	6	
5173	3	1	40.0%	BOD	(lbs/yr)	177	0	0	177	124	0	0	124	-30.0%
5173	3	1	40.0%	COD	(lbs/yr)	1,368	0	0	1,368	684	0	0	684	-50.0%
5173	3	1	40.0%	TSS	(lbs/yr)	2,299	0	0	2,299	690	0	0	690	-70.0%
5173	3	1	40.0%	TDS	(lbs/yr)	1,642	0	0	1,642	1,642	0	0	1,642	0.0%
5173	3	1	40.0%	Total P	(lbs/yr)	5	0	0	5	3	0	0	3	-50.0%
5173	3	1	40.0%	Dissolved P	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5173	3	1	40.0%	TKN	(lbs/yr)	22	0	0	22	15	0	0	15	-30.0%
5173	3	1	40.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5173	3	1	40.0%	Lead	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5173	3	1	40.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5173	3	1	40.0%	Zinc	(lbs/yr)	1	0	0	1	0	0	0	0	-50.0%
5173	3	1	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5174	16	5	32.5%	Runoff	(ac-ft/yr)	31	0	0	31	31	0	0	31	
5174	16	5	32.5%	BOD	(lbs/yr)	909	0	0	909	909	0	0	909	0.0%
5174	16	5	32.5%	COD	(lbs/yr)	6,980	0	0	6,980	6,980	0	0	6,980	0.0%
5174	16	5	32.5%	TSS	(lbs/yr)	12,042	0	0	12,042	12,042	0	0	12,042	0.0%
5174	16	5	32.5%	TDS	(lbs/yr)	8,471	0	0	8,471	8,471	0	0	8,471	0.0%
5174	16	5	32.5%	Total P	(lbs/yr)	30	0	0	30	30	0	0	30	0.0%
5174	16	5	32.5%	Dissolved P	(lbs/yr)	13	0	0	13	13	0	0	13	0.0%
5174	16	5	32.5%	TKN	(lbs/yr)	117	0	0	117	117	0	0	117	0.0%
5174	16	5	32.5%	NO_2+NO_3	(lbs/yr)	29	0	0	29	29	0	0	29	0.0%
5174	16	5	32.5%	Lead	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5174	16	5	32.5%	Copper	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5174	16	5	32.5%	Zinc	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5174	16	5	32.5%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5175	9	4	40.0%	Runoff	(ac-ft/yr)	20	0	0	20	20	0	0	20	
5175	9	4	40.0%	BOD	(lbs/yr)	597	0	0	597	418	0	0	418	-30.0%
5175	9	4	40.0%	COD	(lbs/yr)	4,602	0	0	4,602	2,301	0	0	2,301	-50.0%
5175	9	4	40.0%	TSS	(lbs/yr)	7,734	0	0	7,734	2,320	0	0	2,320	-70.0%
5175	9	4	40.0%	TDS	(lbs/yr)	5,524	0	0	5,524	5,524	0	0	5,524	0.0%
5175	9	4	40.0%	Total P	(lbs/yr)	18	0	0	18	9	0	0	9	-50.0%
5175	9	4	40.0%	Dissolved P	(lbs/yr)	9	0	0	9	2	0	0	2	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5175	9	4	40.0%	TKN	(lbs/yr)	73	0	0	73	51	0	0	51	-30.0%
5175	9	4	40.0%	NO_2+NO_3	(lbs/yr)	18	0	0	18	4	0	0	4	-80.0%
5175	9	4	40.0%	Lead	(lbs/yr)	4	0	0	4	1	0	0	1	-80.0%
5175	9	4	40.0%	Copper	(lbs/yr)	3	0	0	3	1	0	0	1	-75.0%
5175	9	4	40.0%	Zinc	(lbs/yr)	3	0	0	3	2	0	0	2	-50.0%
5175	9	4	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5180	4	2	42.4%	Runoff	(ac-ft/yr)	11	0	0	11	11	0	0	11	
5180	4	2	42.4%	BOD	(lbs/yr)	269	0	0	269	188	0	0	188	-30.0%
5180	4	2	42.4%	COD	(lbs/yr)	2,687	0	0	2,687	1,343	0	0	1,343	-50.0%
5180	4	2	42.4%	TSS	(lbs/yr)	4,435	0	0	4,435	1,331	0	0	1,331	-70.0%
5180	4	2	42.4%	TDS	(lbs/yr)	2,859	0	0	2,859	2,859	0	0	2,859	0.0%
5180	4	2	42.4%	Total P	(lbs/yr)	4	0	0	4	2	0	0	2	-50.0%
5180	4	2	42.4%	Dissolved P	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5180	4	2	42.4%	TKN	(lbs/yr)	29	0	0	29	20	0	0	20	-30.0%
5180	4	2	42.4%	NO_2+NO_3	(lbs/yr)	4	0	0	4	1	0	0	1	-80.0%
5180	4	2	42.4%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5180	4	2	42.4%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5180	4	2	42.4%	Zinc	(lbs/yr)	3	0	0	3	1	0	0	1	-50.0%
5180	4	2	42.4%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5181	20	9	43.1%	Runoff	(ac-ft/yr)	47	0	0	47	47	0	0	47	
5181	20	9	43.1%	BOD	(lbs/yr)	1,374	0	0	1,374	962	0	0	962	-30.0%
5181	20	9	43.1%	COD	(lbs/yr)	10,993	0	0	10,993	5,496	0	0	5,496	-50.0%
5181	20	9	43.1%	TSS	(lbs/yr)	18,038	0	0	18,038	5,412	0	0	5,412	-70.0%
5181	20	9	43.1%	TDS	(lbs/yr)	12,859	0	0	12,859	12,859	0	0	12,859	0.0%
5181	20	9	43.1%	Total P	(lbs/yr)	40	0	0	40	20	0	0	20	-50.0%
5181	20	9	43.1%	Dissolved P	(lbs/yr)	19	0	0	19	4	0	0	4	-80.0%
5181	20	9	43.1%	TKN	(lbs/yr)	166	0	0	166	116	0	0	116	-30.0%
5181	20	9	43.1%	NO_2+NO_3	(lbs/yr)	39	0	0	39	8	0	0	8	-80.0%
5181	20	9	43.1%	Lead	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5181	20	9	43.1%	Copper	(lbs/yr)	6	0	0	6	2	0	0	2	-75.0%
5181	20	9	43.1%	Zinc	(lbs/yr)	9	0	0	9	4	0	0	4	-50.0%
5181	20	9	43.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5182	6	2	37.0%	Runoff	(ac-ft/yr)	12	0	0	12	12	0	0	12	
5182	6	2	37.0%	BOD	(lbs/yr)	366	0	0	366	256	0	0	256	-30.0%
5182	6	2	37.0%	COD	(lbs/yr)	2,822	0	0	2,822	1,411	0	0	1,411	-50.0%
5182	6	2	37.0%	TSS	(lbs/yr)	4,742	0	0	4,742	1,422	0	0	1,422	-70.0%
5182	6	2	37.0%	TDS	(lbs/yr)	3,387	0	0	3,387	3,387	0	0	3,387	0.0%
5182	6	2	37.0%	Total P	(lbs/yr)	12	0	0	12	6	0	0	6	-50.0%
5182	6	2	37.0%	Dissolved P	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5182	6	2	37.0%	TKN	(lbs/yr)	46	0	0	46	32	0	0	32	-30.0%
5182	6	2	37.0%	NO_2+NO_3	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5182	6	2	37.0%	Lead	(lbs/yr)	2	0	0	2	0	0	0	0	-80.0%
5182	6	2	37.0%	Copper	(lbs/yr)	2	0	0	2	0	0	0	0	-75.0%
5182	6	2	37.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5182	6	2	37.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5183	20	6	31.6%	Runoff	(ac-ft/yr)	38	0	0	38	38	0	0	38	
5183	20	6	31.6%	BOD	(lbs/yr)	1,117	0	0	1,117	782	0	0	782	-30.0%
5183	20	6	31.6%	COD	(lbs/yr)	8,614	0	0	8,614	4,307	0	0	4,307	-50.0%
5183	20	6	31.6%	TSS	(lbs/yr)	14,476	0	0	14,476	4,343	0	0	4,343	-70.0%
5183	20	6	31.6%	TDS	(lbs/yr)	10,339	0	0	10,339	10,339	0	0	10,339	0.0%
5183	20	6	31.6%	Total P	(lbs/yr)	39	0	0	39	20	0	0	20	-50.0%
5183	20	6	31.6%	Dissolved P	(lbs/yr)	16	0	0	16	3	0	0	3	-80.0%
5183	20	6	31.6%	TKN	(lbs/yr)	152	0	0	152	106	0	0	106	-30.0%
5183	20	6	31.6%	NO_2+NO_3	(lbs/yr)	37	0	0	37	7	0	0	7	-80.0%
5183	20	6	31.6%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5183	20	6	31.6%	Copper	(lbs/yr)	5	0	0	5	1	0	0	1	-75.0%
5183	20	6	31.6%	Zinc	(lbs/yr)	5	0	0	5	3	0	0	3	-50.0%
5183	20	6	31.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5184	7	3	38.8%	Runoff	(ac-ft/yr)	16	0	0	16	16	0	0	16	
5184	7	3	38.8%	BOD	(lbs/yr)	471	0	0	471	329	0	0	329	-30.0%
5184	7	3	38.8%	COD	(lbs/yr)	3,627	0	0	3,627	1,813	0	0	1,813	-50.0%
5184	7	3	38.8%	TSS	(lbs/yr)	6,095	0	0	6,095	1,829	0	0	1,829	-70.0%
5184	7	3	38.8%	TDS	(lbs/yr)	4,353	0	0	4,353	4,353	0	0	4,353	0.0%
5184	7	3	38.8%	Total P	(lbs/yr)	15	0	0	15	7	0	0	7	-50.0%
5184	7	3	38.8%	Dissolved P	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5184	7	3	38.8%	TKN	(lbs/yr)	58	0	0	58	41	0	0	41	-30.0%
5184	7	3	38.8%	NO_2+NO_3	(lbs/yr)	15	0	0	15	3	0	0	3	-80.0%
5184	7	3	38.8%	Lead	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5184	7	3	38.8%	Copper	(lbs/yr)	2	0	0	2	1	0	0	1	-75.0%
5184	7	3	38.8%	Zinc	(lbs/yr)	3	0	0	3	1	0	0	1	-50.0%
5184	7	3	38.8%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Runoff	(ac-ft/yr)	1	0	0	1	1	0	0	1	
5185	1	0	25.0%	BOD	(lbs/yr)	7	0	0	7	5	0	0	5	-30.0%
5185	1	0	25.0%	COD	(lbs/yr)	45	0	0	45	22	0	0	22	-50.0%
5185	1	0	25.0%	TSS	(lbs/yr)	212	0	0	212	64	0	0	64	-70.0%
5185	1	0	25.0%	TDS	(lbs/yr)	234	0	0	234	234	0	0	234	0.0%
5185	1	0	25.0%	Total P	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Dissolved P	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5185	1	0	25.0%	TKN	(lbs/yr)	1	0	0	1	1	0	0	1	-30.0%
5185	1	0	25.0%	NO_2+NO_3	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5185	1	0	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5185	1	0	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-75.0%
5185	1	0	25.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5186	8	4	47.6%	Runoff	(ac-ft/yr)	21	0	0	21	21	0	0	21	
5186	8	4	47.6%	BOD	(lbs/yr)	600	0	0	600	420	0	0	420	-30.0%
5186	8	4	47.6%	COD	(lbs/yr)	5,028	0	0	5,028	2,514	0	0	2,514	-50.0%
5186	8	4	47.6%	TSS	(lbs/yr)	8,015	0	0	8,015	2,404	0	0	2,404	-70.0%
5186	8	4	47.6%	TDS	(lbs/yr)	5,700	0	0	5,700	5,700	0	0	5,700	0.0%
5186	8	4	47.6%	Total P	(lbs/yr)	16	0	0	16	8	0	0	8	-50.0%
5186	8	4	47.6%	Dissolved P	(lbs/yr)	8	0	0	8	2	0	0	2	-80.0%
5186	8	4	47.6%	TKN	(lbs/yr)	72	0	0	72	50	0	0	50	-30.0%
5186	8	4	47.6%	NO_2+NO_3	(lbs/yr)	16	0	0	16	3	0	0	3	-80.0%
5186	8	4	47.6%	Lead	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5186	8	4	47.6%	Copper	(lbs/yr)	3	0	0	3	1	0	0	1	-75.0%
5186	8	4	47.6%	Zinc	(lbs/yr)	4	0	0	4	2	0	0	2	-50.0%
5186	8	4	47.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5187	1	0	30.0%	Runoff	(ac-ft/yr)	3	0	0	3	3	0	0	3	
5187	1	0	30.0%	BOD	(lbs/yr)	81	0	0	81	8	0	0	8	-90.0%
5187	1	0	30.0%	COD	(lbs/yr)	623	0	0	623	62	0	0	62	-90.0%
5187	1	0	30.0%	TSS	(lbs/yr)	1,047	0	0	1,047	105	0	0	105	-90.0%
5187	1	0	30.0%	TDS	(lbs/yr)	748	0	0	748	75	0	0	75	-90.0%
5187	1	0	30.0%	Total P	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%
5187	1	0	30.0%	Dissolved P	(lbs/yr)	1	0	0	1	0	0	0	0	-90.0%
5187	1	0	30.0%	TKN	(lbs/yr)	11	0	0	11	1	0	0	1	-90.0%
5187	1	0	30.0%	NO_2+NO_3	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%
5187	1	0	30.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5190	2	1	25.0%	Runoff	(ac-ft/yr)	4	0	0	4	4	0	0	4	
5190	2	1	25.0%	BOD	(lbs/yr)	32	0	0	32	22	0	0	22	-30.0%
5190	2	1	25.0%	COD	(lbs/yr)	194	0	0	194	97	0	0	97	-50.0%
5190	2	1	25.0%	TSS	(lbs/yr)	924	0	0	924	277	0	0	277	-70.0%
5190	2	1	25.0%	TDS	(lbs/yr)	1,020	0	0	1,020	1,020	0	0	1,020	0.0%
5190	2	1	25.0%	Total P	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5190	2	1	25.0%	Dissolved P	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5190	2	1	25.0%	TKN	(lbs/yr)	5	0	0	5	4	0	0	4	-30.0%
5190	2	1	25.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5190	2	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5190	2	1	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-75.0%
5190	2	1	25.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5190	2	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5191	3	1	25.0%	Runoff	(ac-ft/yr)	5	0	0	5	5	0	0	5	
5191	3	1	25.0%	BOD	(lbs/yr)	42	0	0	42	30	0	0	30	-30.0%
5191	3	1	25.0%	COD	(lbs/yr)	260	0	0	260	130	0	0	130	-50.0%
5191	3	1	25.0%	TSS	(lbs/yr)	1,236	0	0	1,236	371	0	0	371	-70.0%
5191	3	1	25.0%	TDS	(lbs/yr)	1,365	0	0	1,365	1,365	0	0	1,365	0.0%
5191	3	1	25.0%	Total P	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5191	3	1	25.0%	Dissolved P	(lbs/yr)	2	0	0	2	0	0	0	0	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5191	3	1	25.0%	TKN	(lbs/yr)	7	0	0	7	5	0	0	5	-30.0%
5191	3	1	25.0%	NO_2+NO_3	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5191	3	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5191	3	1	25.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5191	3	1	25.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5191	3	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5192	52	8	15.7%	Runoff	(ac-ft/yr)	69	0	0	69	69	0	0	69	
5192	52	8	15.7%	BOD	(lbs/yr)	1,815	0	0	1,815	1,270	0	0	1,270	-30.0%
5192	52	8	15.7%	COD	(lbs/yr)	14,132	0	0	14,132	7,066	0	0	7,066	-50.0%
5192	52	8	15.7%	TSS	(lbs/yr)	31,252	0	0	31,252	9,376	0	0	9,376	-70.0%
5192	52	8	15.7%	TDS	(lbs/yr)	18,773	0	0	18,773	18,773	0	0	18,773	0.0%
5192	52	8	15.7%	Total P	(lbs/yr)	51	0	0	51	26	0	0	26	-50.0%
5192	52	8	15.7%	Dissolved P	(lbs/yr)	22	0	0	22	4	0	0	4	-80.0%
5192	52	8	15.7%	TKN	(lbs/yr)	225	0	0	225	157	0	0	157	-30.0%
5192	52	8	15.7%	NO_2+NO_3	(lbs/yr)	51	0	0	51	10	0	0	10	-80.0%
5192	52	8	15.7%	Lead	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5192	52	8	15.7%	Copper	(lbs/yr)	6	0	0	6	1	0	0	1	-75.0%
5192	52	8	15.7%	Zinc	(lbs/yr)	8	0	0	8	4	0	0	4	-50.0%
5192	52	8	15.7%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
Total Sum	205	66	32.5%	Runoff	(ac-ft/yr)	405	0	0	405	405	0	0	405	
Total Sum	205	66	32.5%	BOD	(lbs/yr)	10,497	0	0	10,497	7,937	0	0	7,937	
Total Sum	205	66	32.5%	COD	(lbs/yr)	83,959	0	0	83,959	51,881	0	0	51,881	
Total Sum	205	66	32.5%	TSS	(lbs/yr)	153,368	0	0	153,368	70,048	0	0	70,048	
Total Sum	205	66	32.5%	TDS	(lbs/yr)	110,150	0	0	110,150	103,872	0	0	103,872	
Total Sum	205	66	32.5%	Total P	(lbs/yr)	311	0	0	311	184	0	0	184	
Total Sum	205	66	32.5%	Dissolved P	(lbs/yr)	151	0	0	151	57	0	0	57	
Total Sum	205	66	32.5%	TKN	(lbs/yr)	1,306	0	0	1,306	980	0	0	980	
Total Sum	205	66	32.5%	NO_2+NO_3	(lbs/yr)	344	0	0	344	126	0	0	126	
Total Sum	205	66	32.5%	Lead	(lbs/yr)	92	0	0	92	44	0	0	44	
Total Sum	205	66	32.5%	Copper	(lbs/yr)	48	0	0	48	21	0	0	21	
Total Sum	205	66	32.5%	Zinc	(lbs/yr)	82	0	0	82	50	0	0	50	
Total Sum	205	66	32.5%	Cadmium	(lbs/yr)	2	0	0	2	1	0	0	1	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
EMC	205	66	32.5%	BOD	(mg/L)	9.53	0.00	0.00	9.53	7.20	0.00	0.00	7.20	
EMC	205	66	32.5%	COD	(mg/L)	76.21	0.00	0.00	76.21	47.10	0.00	0.00	47.10	
EMC	205	66	32.5%	TSS	(mg/L)	139.22	0.00	0.00	139.22	63.59	0.00	0.00	63.59	
EMC	205	66	32.5%	TDS	(mg/L)	99.99	0.00	0.00	99.99	94.29	0.00	0.00	94.29	
EMC	205	66	32.5%	Total P	(mg/L)	0.28	0.00	0.00	0.28	0.17	0.00	0.00	0.17	
EMC	205	66	32.5%	Dissolved P	(mg/L)	0.14	0.00	0.00	0.14	0.05	0.00	0.00	0.05	
EMC	205	66	32.5%	TKN	(mg/L)	1.19	0.00	0.00	1.19	0.89	0.00	0.00	0.89	
EMC	205	66	32.5%	NO_2+NO_3	(mg/L)	0.31	0.00	0.00	0.31	0.11	0.00	0.00	0.11	
EMC	205	66	32.5%	Lead	(mg/L)	0.08	0.00	0.00	0.08	0.04	0.00	0.00	0.04	
EMC	205	66	32.5%	Copper	(mg/L)	0.04	0.00	0.00	0.04	0.02	0.00	0.00	0.02	
EMC	205	66	32.5%	Zinc	(mg/L)	0.07	0.00	0.00	0.07	0.05	0.00	0.00	0.05	
EMC	205	66	32.5%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.001	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 3 UNDER EXISTING CONDITIONS.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5200	20	7	34.6%	Runoff	(ac-ft/yr)	41	0	0	41	41	0	0	41	
5200	20	7	34.6%	BOD	(lbs/yr)	1,202	0	0	1,202	1,202	0	0	1,202	0.0%
5200	20	7	34.6%	COD	(lbs/yr)	9,269	0	0	9,269	9,269	0	0	9,269	0.0%
5200	20	7	34.6%	TSS	(lbs/yr)	15,576	0	0	15,576	15,576	0	0	15,576	0.0%
5200	20	7	34.6%	TDS	(lbs/yr)	11,125	0	0	11,125	11,125	0	0	11,125	0.0%
5200	20	7	34.6%	Total-P	(lbs/yr)	40	0	0	40	40	0	0	40	0.0%
5200	20	7	34.6%	Dissolved-P	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5200	20	7	34.6%	TKN	(lbs/yr)	157	0	0	157	157	0	0	157	0.0%
5200	20	7	34.6%	NO_2+NO_3	(lbs/yr)	39	0	0	39	39	0	0	39	0.0%
5200	20	7	34.6%	Lead	(lbs/yr)	7	0	0	7	7	0	0	7	0.0%
5200	20	7	34.6%	Copper	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5200	20	7	34.6%	Zinc	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5200	20	7	34.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5210	38	19	48.8%	Runoff	(ac-ft/yr)	99	0	0	99	99	0	0	99	
5210	38	19	48.8%	BOD	(lbs/yr)	2,714	0	0	2,714	2,714	0	0	2,714	0.0%
5210	38	19	48.8%	COD	(lbs/yr)	19,318	0	0	19,318	19,318	0	0	19,318	0.0%
5210	38	19	48.8%	TSS	(lbs/yr)	30,528	0	0	30,528	30,528	0	0	30,528	0.0%
5210	38	19	48.8%	TDS	(lbs/yr)	26,946	0	0	26,946	26,946	0	0	26,946	0.0%
5210	38	19	48.8%	Total-P	(lbs/yr)	62	0	0	62	62	0	0	62	0.0%
5210	38	19	48.8%	Dissolved-P	(lbs/yr)	32	0	0	32	32	0	0	32	0.0%
5210	38	19	48.8%	TKN	(lbs/yr)	325	0	0	325	325	0	0	325	0.0%
5210	38	19	48.8%	NO_2+NO_3	(lbs/yr)	56	0	0	56	56	0	0	56	0.0%
5210	38	19	48.8%	Lead	(lbs/yr)	45	0	0	45	45	0	0	45	0.0%
5210	38	19	48.8%	Copper	(lbs/yr)	11	0	0	11	11	0	0	11	0.0%
5210	38	19	48.8%	Zinc	(lbs/yr)	25	0	0	25	25	0	0	25	0.0%
5210	38	19	48.8%	Cadmium	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5220	19	1	6.1%	Runoff	(ac-ft/yr)	18	0	0	18	18	0	0	18	
5220	19	1	6.1%	BOD	(lbs/yr)	451	0	0	451	451	0	0	451	0.0%
5220	19	1	6.1%	COD	(lbs/yr)	3,113	0	0	3,113	3,113	0	0	3,113	0.0%
5220	19	1	6.1%	TSS	(lbs/yr)	9,538	0	0	9,538	9,538	0	0	9,538	0.0%
5220	19	1	6.1%	TDS	(lbs/yr)	5,024	0	0	5,024	5,024	0	0	5,024	0.0%
5220	19	1	6.1%	Total-P	(lbs/yr)	12	0	0	12	12	0	0	12	0.0%
5220	19	1	6.1%	Dissolved-P	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 3 UNDER EXISTING CONDITIONS (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5220	19	1	6.1%	TKN	(lbs/yr)	53	0	0	53	53	0	0	53	0.0%
5220	19	1	6.1%	NO_2+NO_3	(lbs/yr)	13	0	0	13	13	0	0	13	0.0%
5220	19	1	6.1%	Lead	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5220	19	1	6.1%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5220	19	1	6.1%	Zinc	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5220	19	1	6.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
Total Sum	77	27	34.5%	Runoff	(ac-ft/yr)	158	0	0	158	158	0	0	158	
Total Sum	77	27	34.5%	BOD	(lbs/yr)	4,367	0	0	4,367	4,367	0	0	4,367	
Total Sum	77	27	34.5%	COD	(lbs/yr)	31,699	0	0	31,699	31,699	0	0	31,699	
Total Sum	77	27	34.5%	TSS	(lbs/yr)	55,641	0	0	55,641	55,641	0	0	55,641	
Total Sum	77	27	34.5%	TDS	(lbs/yr)	43,095	0	0	43,095	43,095	0	0	43,095	
Total Sum	77	27	34.5%	Total-P	(lbs/yr)	114	0	0	114	114	0	0	114	
Total Sum	77	27	34.5%	Dissolved-P	(lbs/yr)	54	0	0	54	54	0	0	54	
Total Sum	77	27	34.5%	TKN	(lbs/yr)	535	0	0	535	535	0	0	535	
Total Sum	77	27	34.5%	NO_2+NO_3	(lbs/yr)	108	0	0	108	108	0	0	108	
Total Sum	77	27	34.5%	Lead	(lbs/yr)	53	0	0	53	53	0	0	53	
Total Sum	77	27	34.5%	Copper	(lbs/yr)	17	0	0	17	17	0	0	17	
Total Sum	77	27	34.5%	Zinc	(lbs/yr)	32	0	0	32	32	0	0	32	
Total Sum	77	27	34.5%	Cadmium	(lbs/yr)	1	0	0	1	1	0	0	1	
EMC	77	27	34.5%	BOD	(mg/L)	10.13	0.00	0.00	10.13	10.13	0.00	0.00	10.13	
EMC	77	27	34.5%	COD	(mg/L)	73.55	0.00	0.00	73.55	73.55	0.00	0.00	73.55	
EMC	77	27	34.5%	TSS	(mg/L)	129.10	0.00	0.00	129.10	129.10	0.00	0.00	129.10	
EMC	77	27	34.5%	TDS	(mg/L)	99.99	0.00	0.00	99.99	99.99	0.00	0.00	99.99	
EMC	77	27	34.5%	Total-P	(mg/L)	0.27	0.00	0.00	0.27	0.27	0.00	0.00	0.27	
EMC	77	27	34.5%	Dissolved-P	(mg/L)	0.13	0.00	0.00	0.13	0.13	0.00	0.00	0.13	
EMC	77	27	34.5%	TKN	(mg/L)	1.24	0.00	0.00	1.24	1.24	0.00	0.00	1.24	
EMC	77	27	34.5%	NO_2+NO_3	(mg/L)	0.25	0.00	0.00	0.25	0.25	0.00	0.00	0.25	
EMC	77	27	34.5%	Lead	(mg/L)	0.12	0.00	0.00	0.12	0.12	0.00	0.00	0.12	
EMC	77	27	34.5%	Copper	(mg/L)	0.04	0.00	0.00	0.04	0.04	0.00	0.00	0.04	
EMC	77	27	34.5%	Zinc	(mg/L)	0.08	0.00	0.00	0.08	0.08	0.00	0.00	0.08	
EMC	77	27	34.5%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.002	0.000	0.000	0.002	

ELLIGRAW BAYOU - SUBBASIN POLLUTANT LOADING ANALYSIS INVENTORY

PROPOSED CONDITIONS ALTERNATIVE

WATER QUALITY SUBBASIN NO. 1 (LOWER ELLIGRAW BAYOU)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05100	7	3.26	25	0	0
05101	7	3.78	0	0	0
05102	5	21.79	0	100	0
05110	5/7	16.79/4.2	0/100	100/0	0/100
05120	5	69.92	0	0	2
05130	5	20.92	0	0	0
05140	5/6	35.19/1.5	0	0	0

WATER QUALITY SUBBASIN NO. 2 (UPPER ELLIGRAW BAYOU)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05150	6/8/12	2.18/1.58	0	0	0
05151	12	2.52	0	0	0
05160	11	8.43	100	0	0
05161	1	2.40	0	0	0
05163	6/11	1.38/3.13	0	0	0
05164	11	3.97	0	0	0
05165	11	1.62	0	0	0
05170	11	5.12	100	0	0
05171	6	12.70	0	0	100
05172	6	3.55	0	0	100
05173	6	2.66	0	0	100
05174	1/5/6	1.15/7.35	0	0	100
05175	6	8.95	0	0	100
05180	1/12	2.38/2.0	0	0	100
05181	6/12	18.54/1.2	0	0	100
05182	5/6	1.72/4.06	0	0	100
05183	5/6	16.32/3.2	0	0	100
05184	5/6	0.86/6.34	0	0	100
05185	10	0.51	0	0	100
05186	6/12	6.94/1.24	0	0	100
05187	5	1.46	100	0	0
05190	10	2.22	0	0	100
05191	11	2.97	0	0	100
05192	1/5/12	31.03/18.	0	0	100

WATER QUALITY SUBBASIN NO. 3 (GULF GATE LATERAL)

SUBBASIN NO.	LANDUSE (ID No.)	AREA (acres)	BMP #1 (%)	BMP #2 (%)	BMP #3 (%)
05200	5/7	10.66/9.1	0	0	100
05110	1/5/7/8/12	2.07/17.9	0	0	100
		1.29/14.92/1.77			
05120	1/5	15.87/3.3	0	0	100

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER PROPOSED ALTERNATIVE.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5100	4	3	85.0%	Runoff	(ac-ft/yr)	15	0	0	15	15	0	0	15	
5100	4	3	85.0%	BOD	(lbs/yr)	384	0	0	384	298	0	0	298	-22.5%
5100	4	3	85.0%	COD	(lbs/yr)	2,414	0	0	2,414	1,871	0	0	1,871	-22.5%
5100	4	3	85.0%	TSS	(lbs/yr)	3,573	0	0	3,573	2,769	0	0	2,769	-22.5%
5100	4	3	85.0%	TDS	(lbs/yr)	3,946	0	0	3,946	3,058	0	0	3,058	-22.5%
5100	4	3	85.0%	Total-P	(lbs/yr)	6	0	0	6	5	0	0	5	-22.5%
5100	4	3	85.0%	Dissolved-P	(lbs/yr)	4	0	0	4	3	0	0	3	-22.5%
5100	4	3	85.0%	TKN	(lbs/yr)	42	0	0	42	32	0	0	32	-22.5%
5100	4	3	85.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	4	0	0	4	-22.5%
5100	4	3	85.0%	Lead	(lbs/yr)	9	0	0	9	7	0	0	7	-22.5%
5100	4	3	85.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	-22.5%
5100	4	3	85.0%	Zinc	(lbs/yr)	5	0	0	5	4	0	0	4	-22.5%
5100	4	3	85.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-22.5%
5101	4	3	85.0%	Runoff	(ac-ft/yr)	15	0	0	15	15	0	0	15	
5101	4	3	85.0%	BOD	(lbs/yr)	401	0	0	401	401	0	0	401	0.0%
5101	4	3	85.0%	COD	(lbs/yr)	2,521	0	0	2,521	2,521	0	0	2,521	0.0%
5101	4	3	85.0%	TSS	(lbs/yr)	3,731	0	0	3,731	3,731	0	0	3,731	0.0%
5101	4	3	85.0%	TDS	(lbs/yr)	4,120	0	0	4,120	4,120	0	0	4,120	0.0%
5101	4	3	85.0%	Total-P	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5101	4	3	85.0%	Dissolved-P	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5101	4	3	85.0%	TKN	(lbs/yr)	44	0	0	44	44	0	0	44	0.0%
5101	4	3	85.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5101	4	3	85.0%	Lead	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5101	4	3	85.0%	Copper	(lbs/yr)	2	0	0	2	2	0	0	2	0.0%
5101	4	3	85.0%	Zinc	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5101	4	3	85.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5102	22	7	30.0%	Runoff	(ac-ft/yr)	41	0	0	41	41	0	0	41	
5102	22	7	30.0%	BOD	(lbs/yr)	1,206	0	0	1,206	1,206	0	0	1,206	0.0%
5102	22	7	30.0%	COD	(lbs/yr)	9,297	0	0	9,297	9,297	0	0	9,297	0.0%
5102	22	7	30.0%	TSS	(lbs/yr)	15,624	0	0	15,624	15,624	0	0	15,624	0.0%
5102	22	7	30.0%	TDS	(lbs/yr)	11,159	0	0	11,159	11,159	0	0	11,159	0.0%
5102	22	7	30.0%	Total-P	(lbs/yr)	44	0	0	44	44	0	0	44	0.0%
5102	22	7	30.0%	Dissolved-P	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5102	22	7	30.0%	TKN	(lbs/yr)	167	0	0	167	167	0	0	167	0.0%
5102	22	7	30.0%	NO_2+NO_3	(lbs/yr)	41	0	0	41	41	0	0	41	0.0%
5102	22	7	30.0%	Lead	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5102	22	7	30.0%	Copper	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5102	22	7	30.0%	Zinc	(lbs/yr)	6	0	0	6	6	0	0	6	0.0%
5102	22	7	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5110	21	9	41.1%	Runoff	(ac-ft/yr)	49	0	0	49	49	0	0	49	
5110	21	9	41.1%	BOD	(lbs/yr)	1,381	0	0	1,381	839	0	0	839	-39.3%
5110	21	9	41.1%	COD	(lbs/yr)	10,005	0	0	10,005	6,028	0	0	6,028	-39.8%
5110	21	9	41.1%	TSS	(lbs/yr)	16,244	0	0	16,244	9,516	0	0	9,516	-41.4%
5110	21	9	41.1%	TDS	(lbs/yr)	13,242	0	0	13,242	9,063	0	0	9,063	-31.6%
5110	21	9	41.1%	Total-P	(lbs/yr)	40	0	0	40	31	0	0	31	-24.1%
5110	21	9	41.1%	Dissolved-P	(lbs/yr)	18	0	0	18	10	0	0	10	-42.8%
5110	21	9	41.1%	TKN	(lbs/yr)	178	0	0	178	119	0	0	119	-33.1%
5110	21	9	41.1%	NO_2+NO_3	(lbs/yr)	37	0	0	37	28	0	0	28	-25.3%
5110	21	9	41.1%	Lead	(lbs/yr)	15	0	0	15	(3)	0	0	(3)	-121.9%
5110	21	9	41.1%	Copper	(lbs/yr)	6	0	0	6	3	0	0	3	-49.9%
5110	21	9	41.1%	Zinc	(lbs/yr)	10	0	0	10	2	0	0	2	-79.0%
5110	21	9	41.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-49.1%
5120	70	21	30.0%	Runoff	(ac-ft/yr)	132	0	0	132	132	0	0	132	
5120	70	21	30.0%	BOD	(lbs/yr)	3,870	0	0	3,870	3,847	0	0	3,847	-0.6%
5120	70	21	30.0%	COD	(lbs/yr)	29,833	0	0	29,833	29,535	0	0	29,535	-1.0%
5120	70	21	30.0%	TSS	(lbs/yr)	50,135	0	0	50,135	49,433	0	0	49,433	-1.4%
5120	70	21	30.0%	TDS	(lbs/yr)	35,808	0	0	35,808	35,808	0	0	35,808	0.0%
5120	70	21	30.0%	Total-P	(lbs/yr)	140	0	0	140	138	0	0	138	-1.0%
5120	70	21	30.0%	Dissolved-P	(lbs/yr)	56	0	0	56	55	0	0	55	-1.6%
5120	70	21	30.0%	TKN	(lbs/yr)	537	0	0	537	534	0	0	534	-0.6%
5120	70	21	30.0%	NO_2+NO_3	(lbs/yr)	132	0	0	132	130	0	0	130	-1.6%
5120	70	21	30.0%	Lead	(lbs/yr)	18	0	0	18	18	0	0	18	-1.6%
5120	70	21	30.0%	Copper	(lbs/yr)	17	0	0	17	16	0	0	16	-1.5%
5120	70	21	30.0%	Zinc	(lbs/yr)	18	0	0	18	18	0	0	18	-1.0%
5120	70	21	30.0%	Cadmium	(lbs/yr)	1	0	0	1	1	0	0	1	-1.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5130	21	6	30.0%	Runoff	(ac-ft/yr)	39	0	0	39	39	0	0	39	
5130	21	6	30.0%	BOD	(lbs/yr)	1,158	0	0	1,158	1,158	0	0	1,158	0.0%
5130	21	6	30.0%	COD	(lbs/yr)	8,926	0	0	8,926	8,926	0	0	8,926	0.0%
5130	21	6	30.0%	TSS	(lbs/yr)	15,000	0	0	15,000	15,000	0	0	15,000	0.0%
5130	21	6	30.0%	TDS	(lbs/yr)	10,714	0	0	10,714	10,714	0	0	10,714	0.0%
5130	21	6	30.0%	Total-P	(lbs/yr)	42	0	0	42	42	0	0	42	0.0%
5130	21	6	30.0%	Dissolved-P	(lbs/yr)	17	0	0	17	17	0	0	17	0.0%
5130	21	6	30.0%	TKN	(lbs/yr)	161	0	0	161	161	0	0	161	0.0%
5130	21	6	30.0%	NO_2+NO_3	(lbs/yr)	40	0	0	40	40	0	0	40	0.0%
5130	21	6	30.0%	Lead	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Copper	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Zinc	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5130	21	6	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5140	37	11	30.4%	Runoff	(ac-ft/yr)	70	0	0	70	70	0	0	70	
5140	37	11	30.4%	BOD	(lbs/yr)	2,051	0	0	2,051	2,051	0	0	2,051	0.0%
5140	37	11	30.4%	COD	(lbs/yr)	15,812	0	0	15,812	15,812	0	0	15,812	0.0%
5140	37	11	30.4%	TSS	(lbs/yr)	26,572	0	0	26,572	26,572	0	0	26,572	0.0%
5140	37	11	30.4%	TDS	(lbs/yr)	18,979	0	0	18,979	18,979	0	0	18,979	0.0%
5140	37	11	30.4%	Total-P	(lbs/yr)	73	0	0	73	73	0	0	73	0.0%
5140	37	11	30.4%	Dissolved-P	(lbs/yr)	30	0	0	30	30	0	0	30	0.0%
5140	37	11	30.4%	TKN	(lbs/yr)	283	0	0	283	283	0	0	283	0.0%
5140	37	11	30.4%	NO_2+NO_3	(lbs/yr)	70	0	0	70	70	0	0	70	0.0%
5140	37	11	30.4%	Lead	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5140	37	11	30.4%	Copper	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5140	37	11	30.4%	Zinc	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5140	37	11	30.4%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
Total Sum	178	60	33.7%	Runoff	(ac-ft/yr)	360	0	0	360	360	0	0	360	
Total Sum	178	60	33.7%	BOD	(lbs/yr)	10,452	0	0	10,452	9,800	0	0	9,800	
Total Sum	178	60	33.7%	COD	(lbs/yr)	78,807	0	0	78,807	73,989	0	0	73,989	
Total Sum	178	60	33.7%	TSS	(lbs/yr)	130,878	0	0	130,878	122,645	0	0	122,645	
Total Sum	178	60	33.7%	TDS	(lbs/yr)	97,968	0	0	97,968	92,901	0	0	92,901	
Total Sum	178	60	33.7%	Total-P	(lbs/yr)	351	0	0	351	339	0	0	339	
Total Sum	178	60	33.7%	Dissolved-P	(lbs/yr)	147	0	0	147	137	0	0	137	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 1 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
Total Sum	178	60	33.7%	TKN	(lbs/yr)	1,412	0	0	1,412	1,340	0	0	1,340	
Total Sum	178	60	33.7%	NO_2+NO_3	(lbs/yr)	330	0	0	330	318	0	0	318	
Total Sum	178	60	33.7%	Lead	(lbs/yr)	73	0	0	73	52	0	0	52	
Total Sum	178	60	33.7%	Copper	(lbs/yr)	44	0	0	44	41	0	0	41	
Total Sum	178	60	33.7%	Zinc	(lbs/yr)	58	0	0	58	49	0	0	49	
Total Sum	178	60	33.7%	Cadmium	(lbs/yr)	2	0	0	2	2	0	0	2	
EMC	178	60	33.7%	BOD	(mg/L)	10.67	0.00	0.00	10.67	10.00	0.00	0.00	10.00	
EMC	178	60	33.7%	COD	(mg/L)	80.43	0.00	0.00	80.43	75.52	0.00	0.00	75.52	
EMC	178	60	33.7%	TSS	(mg/L)	133.58	0.00	0.00	133.58	125.18	0.00	0.00	125.18	
EMC	178	60	33.7%	TDS	(mg/L)	99.99	0.00	0.00	99.99	94.82	0.00	0.00	94.82	
EMC	178	60	33.7%	Total-P	(mg/L)	0.36	0.00	0.00	0.36	0.35	0.00	0.00	0.35	
EMC	178	60	33.7%	Dissolved-P	(mg/L)	0.15	0.00	0.00	0.15	0.14	0.00	0.00	0.14	
EMC	178	60	33.7%	TKN	(mg/L)	1.44	0.00	0.00	1.44	1.37	0.00	0.00	1.37	
EMC	178	60	33.7%	NO_2+NO_3	(mg/L)	0.34	0.00	0.00	0.34	0.32	0.00	0.00	0.32	
EMC	178	60	33.7%	Lead	(mg/L)	0.07	0.00	0.00	0.07	0.05	0.00	0.00	0.05	
EMC	178	60	33.7%	Copper	(mg/L)	0.05	0.00	0.00	0.05	0.04	0.00	0.00	0.04	
EMC	178	60	33.7%	Zinc	(mg/L)	0.06	0.00	0.00	0.06	0.05	0.00	0.00	0.05	
EMC	178	60	33.7%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.002	0.000	0.000	0.002	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5150	9	6	73.7%	Runoff	(ac-ft/yr)	31	0	0	31	31	0	0	31	
5150	9	6	73.7%	BOD	(lbs/yr)	829	0	0	829	829	0	0	829	0.0%
5150	9	6	73.7%	COD	(lbs/yr)	7,754	0	0	7,754	7,754	0	0	7,754	0.0%
5150	9	6	73.7%	TSS	(lbs/yr)	11,142	0	0	11,142	11,142	0	0	11,142	0.0%
5150	9	6	73.7%	TDS	(lbs/yr)	8,382	0	0	8,382	8,382	0	0	8,382	0.0%
5150	9	6	73.7%	Total-P	(lbs/yr)	15	0	0	15	15	0	0	15	0.0%
5150	9	6	73.7%	Dissolved-P	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5150	9	6	73.7%	TKN	(lbs/yr)	92	0	0	92	92	0	0	92	0.0%
5150	9	6	73.7%	NO_2+NO_3	(lbs/yr)	13	0	0	13	13	0	0	13	0.0%
5150	9	6	73.7%	Lead	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5150	9	6	73.7%	Copper	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5150	9	6	73.7%	Zinc	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5150	9	6	73.7%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5151	3	2	90.0%	Runoff	(ac-ft/yr)	11	0	0	11	11	0	0	11	
5151	3	2	90.0%	BOD	(lbs/yr)	279	0	0	279	279	0	0	279	0.0%
5151	3	2	90.0%	COD	(lbs/yr)	2,966	0	0	2,966	2,966	0	0	2,966	0.0%
5151	3	2	90.0%	TSS	(lbs/yr)	4,101	0	0	4,101	4,101	0	0	4,101	0.0%
5151	3	2	90.0%	TDS	(lbs/yr)	2,879	0	0	2,879	2,879	0	0	2,879	0.0%
5151	3	2	90.0%	Total-P	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5151	3	2	90.0%	Dissolved-P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	TKN	(lbs/yr)	31	0	0	31	31	0	0	31	0.0%
5151	3	2	90.0%	NO_2+NO_3	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	Lead	(lbs/yr)	7	0	0	7	7	0	0	7	0.0%
5151	3	2	90.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5151	3	2	90.0%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5151	3	2	90.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5160	8	2	25.0%	Runoff	(ac-ft/yr)	14	0	0	14	14	0	0	14	
5160	8	2	25.0%	BOD	(lbs/yr)	120	0	0	120	12	0	0	12	-90.0%
5160	8	2	25.0%	COD	(lbs/yr)	737	0	0	737	74	0	0	74	-90.0%
5160	8	2	25.0%	TSS	(lbs/yr)	3,509	0	0	3,509	351	0	0	351	-90.0%
5160	8	2	25.0%	TDS	(lbs/yr)	3,874	0	0	3,874	387	0	0	387	-90.0%
5160	8	2	25.0%	Total-P	(lbs/yr)	7	0	0	7	1	0	0	1	-90.0%
5160	8	2	25.0%	Dissolved-P	(lbs/yr)	5	0	0	5	0	0	0	0	-90.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5160	8	2	25.0%	TKN	(lbs/yr)	19	0	0	19	2	0	0	2	-90.0%
5160	8	2	25.0%	NO_2+NO_3	(lbs/yr)	19	0	0	19	2	0	0	2	-90.0%
5160	8	2	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5160	8	2	25.0%	Copper	(lbs/yr)	2	0	0	2	0	0	0	0	-90.0%
5160	8	2	25.0%	Zinc	(lbs/yr)	6	0	0	6	1	0	0	1	-90.0%
5160	8	2	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5161	2	0	1.0%	Runoff	(ac-ft/yr)	2	0	0	2	2	0	0	2	
5161	2	0	1.0%	BOD	(lbs/yr)	40	0	0	40	40	0	0	40	0.0%
5161	2	0	1.0%	COD	(lbs/yr)	253	0	0	253	253	0	0	253	0.0%
5161	2	0	1.0%	TSS	(lbs/yr)	1,076	0	0	1,076	1,076	0	0	1,076	0.0%
5161	2	0	1.0%	TDS	(lbs/yr)	498	0	0	498	498	0	0	498	0.0%
5161	2	0	1.0%	Total-P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5161	2	0	1.0%	Dissolved-P	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	TKN	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5161	2	0	1.0%	NO_2+NO_3	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5161	2	0	1.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5161	2	0	1.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5163	5	1	29.6%	Runoff	(ac-ft/yr)	8	0	0	8	8	0	0	8	
5163	5	1	29.6%	BOD	(lbs/yr)	137	0	0	137	137	0	0	137	0.0%
5163	5	1	29.6%	COD	(lbs/yr)	983	0	0	983	983	0	0	983	0.0%
5163	5	1	29.6%	TSS	(lbs/yr)	2,495	0	0	2,495	2,495	0	0	2,495	0.0%
5163	5	1	29.6%	TDS	(lbs/yr)	2,290	0	0	2,290	2,290	0	0	2,290	0.0%
5163	5	1	29.6%	Total-P	(lbs/yr)	5	0	0	5	5	0	0	5	0.0%
5163	5	1	29.6%	Dissolved-P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5163	5	1	29.6%	TKN	(lbs/yr)	18	0	0	18	18	0	0	18	0.0%
5163	5	1	29.6%	NO_2+NO_3	(lbs/yr)	10	0	0	10	10	0	0	10	0.0%
5163	5	1	29.6%	Lead	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5163	5	1	29.6%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5163	5	1	29.6%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5163	5	1	29.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5164	4	1	25.0%	Runoff	(ac-ft/yr)	7	0	0	7	7	0	0	7	
5164	4	1	25.0%	BOD	(lbs/yr)	56	0	0	56	56	0	0	56	0.0%
5164	4	1	25.0%	COD	(lbs/yr)	347	0	0	347	347	0	0	347	0.0%
5164	4	1	25.0%	TSS	(lbs/yr)	1,652	0	0	1,652	1,652	0	0	1,652	0.0%
5164	4	1	25.0%	TDS	(lbs/yr)	1,825	0	0	1,825	1,825	0	0	1,825	0.0%
5164	4	1	25.0%	Total-P	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5164	4	1	25.0%	Dissolved-P	(lbs/yr)	2	0	0	2	2	0	0	2	0.0%
5164	4	1	25.0%	TKN	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5164	4	1	25.0%	NO_2+NO_3	(lbs/yr)	9	0	0	9	9	0	0	9	0.0%
5164	4	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5164	4	1	25.0%	Copper	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5164	4	1	25.0%	Zinc	(lbs/yr)	3	0	0	3	3	0	0	3	0.0%
5164	4	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Runoff	(ac-ft/yr)	3	0	0	3	3	0	0	3	
5165	2	0	25.0%	BOD	(lbs/yr)	23	0	0	23	23	0	0	23	0.0%
5165	2	0	25.0%	COD	(lbs/yr)	142	0	0	142	142	0	0	142	0.0%
5165	2	0	25.0%	TSS	(lbs/yr)	674	0	0	674	674	0	0	674	0.0%
5165	2	0	25.0%	TDS	(lbs/yr)	745	0	0	745	745	0	0	745	0.0%
5165	2	0	25.0%	Total-P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	Dissolved-P	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	TKN	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5165	2	0	25.0%	NO_2+NO_3	(lbs/yr)	4	0	0	4	4	0	0	4	0.0%
5165	2	0	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5165	2	0	25.0%	Zinc	(lbs/yr)	1	0	0	1	1	0	0	1	0.0%
5165	2	0	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	0.0%
5170	5	1	25.0%	Runoff	(ac-ft/yr)	9	0	0	9	9	0	0	9	
5170	5	1	25.0%	BOD	(lbs/yr)	73	0	0	73	7	0	0	7	-90.0%
5170	5	1	25.0%	COD	(lbs/yr)	448	0	0	448	45	0	0	45	-90.0%
5170	5	1	25.0%	TSS	(lbs/yr)	2,131	0	0	2,131	213	0	0	213	-90.0%
5170	5	1	25.0%	TDS	(lbs/yr)	2,353	0	0	2,353	235	0	0	235	-90.0%
5170	5	1	25.0%	Total-P	(lbs/yr)	4	0	0	4	0	0	0	0	-90.0%
5170	5	1	25.0%	Dissolved-P	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Impery	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5170	5	1	25.0%	TKN	(lbs/yr)	12	0	0	12	1	0	0	1	-90.0%
5170	5	1	25.0%	NO_2+NO_3	(lbs/yr)	11	0	0	11	1	0	0	1	-90.0%
5170	5	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5170	5	1	25.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-90.0%
5170	5	1	25.0%	Zinc	(lbs/yr)	4	0	0	4	0	0	0	0	-90.0%
5170	5	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5171	13	5	40.0%	Runoff	(ac-ft/yr)	29	0	0	29	29	0	0	29	
5171	13	5	40.0%	BOD	(lbs/yr)	847	0	0	847	593	0	0	593	-30.0%
5171	13	5	40.0%	COD	(lbs/yr)	6,530	0	0	6,530	3,265	0	0	3,265	-50.0%
5171	13	5	40.0%	TSS	(lbs/yr)	10,974	0	0	10,974	3,292	0	0	3,292	-70.0%
5171	13	5	40.0%	TDS	(lbs/yr)	7,838	0	0	7,838	7,838	0	0	7,838	0.0%
5171	13	5	40.0%	Total-P	(lbs/yr)	26	0	0	26	13	0	0	13	-50.0%
5171	13	5	40.0%	Dissolved-P	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5171	13	5	40.0%	TKN	(lbs/yr)	103	0	0	103	72	0	0	72	-30.0%
5171	13	5	40.0%	NO_2+NO_3	(lbs/yr)	26	0	0	26	5	0	0	5	-80.0%
5171	13	5	40.0%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5171	13	5	40.0%	Copper	(lbs/yr)	4	0	0	4	1	0	0	1	-75.0%
5171	13	5	40.0%	Zinc	(lbs/yr)	5	0	0	5	2	0	0	2	-50.0%
5171	13	5	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5172	4	1	40.0%	Runoff	(ac-ft/yr)	8	0	0	8	8	0	0	8	
5172	4	1	40.0%	BOD	(lbs/yr)	237	0	0	237	166	0	0	166	-30.0%
5172	4	1	40.0%	COD	(lbs/yr)	1,825	0	0	1,825	913	0	0	913	-50.0%
5172	4	1	40.0%	TSS	(lbs/yr)	3,068	0	0	3,068	920	0	0	920	-70.0%
5172	4	1	40.0%	TDS	(lbs/yr)	2,191	0	0	2,191	2,191	0	0	2,191	0.0%
5172	4	1	40.0%	Total-P	(lbs/yr)	7	0	0	7	4	0	0	4	-50.0%
5172	4	1	40.0%	Dissolved-P	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5172	4	1	40.0%	TKN	(lbs/yr)	29	0	0	29	20	0	0	20	-30.0%
5172	4	1	40.0%	NO_2+NO_3	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5172	4	1	40.0%	Lead	(lbs/yr)	2	0	0	2	0	0	0	0	-80.0%
5172	4	1	40.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5172	4	1	40.0%	Zinc	(lbs/yr)	1	0	0	1	1	0	0	1	-50.0%
5172	4	1	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5173	3	1	40.0%	Runoff	(ac-ft/yr)	6	0	0	6	6	0	0	6	
5173	3	1	40.0%	BOD	(lbs/yr)	177	0	0	177	124	0	0	124	-30.0%
5173	3	1	40.0%	COD	(lbs/yr)	1,368	0	0	1,368	684	0	0	684	-50.0%
5173	3	1	40.0%	TSS	(lbs/yr)	2,299	0	0	2,299	690	0	0	690	-70.0%
5173	3	1	40.0%	TDS	(lbs/yr)	1,642	0	0	1,642	1,642	0	0	1,642	0.0%
5173	3	1	40.0%	Total-P	(lbs/yr)	5	0	0	5	3	0	0	3	-50.0%
5173	3	1	40.0%	Dissolved-P	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5173	3	1	40.0%	TKN	(lbs/yr)	22	0	0	22	15	0	0	15	-30.0%
5173	3	1	40.0%	NO_2+NO_3	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5173	3	1	40.0%	Lead	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5173	3	1	40.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5173	3	1	40.0%	Zinc	(lbs/yr)	1	0	0	1	0	0	0	0	-50.0%
5173	3	1	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5174	16	5	32.5%	Runoff	(ac-ft/yr)	31	0	0	31	31	0	0	31	
5174	16	5	32.5%	BOD	(lbs/yr)	909	0	0	909	636	0	0	636	-30.0%
5174	16	5	32.5%	COD	(lbs/yr)	6,980	0	0	6,980	3,490	0	0	3,490	-50.0%
5174	16	5	32.5%	TSS	(lbs/yr)	12,042	0	0	12,042	3,613	0	0	3,613	-70.0%
5174	16	5	32.5%	TDS	(lbs/yr)	8,471	0	0	8,471	8,471	0	0	8,471	0.0%
5174	16	5	32.5%	Total-P	(lbs/yr)	30	0	0	30	15	0	0	15	-50.0%
5174	16	5	32.5%	Dissolved-P	(lbs/yr)	13	0	0	13	3	0	0	3	-80.0%
5174	16	5	32.5%	TKN	(lbs/yr)	117	0	0	117	82	0	0	82	-30.0%
5174	16	5	32.5%	NO_2+NO_3	(lbs/yr)	29	0	0	29	6	0	0	6	-80.0%
5174	16	5	32.5%	Lead	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5174	16	5	32.5%	Copper	(lbs/yr)	4	0	0	4	1	0	0	1	-75.0%
5174	16	5	32.5%	Zinc	(lbs/yr)	5	0	0	5	2	0	0	2	-50.0%
5174	16	5	32.5%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5175	9	4	40.0%	Runoff	(ac-ft/yr)	20	0	0	20	20	0	0	20	
5175	9	4	40.0%	BOD	(lbs/yr)	597	0	0	597	418	0	0	418	-30.0%
5175	9	4	40.0%	COD	(lbs/yr)	4,602	0	0	4,602	2,301	0	0	2,301	-50.0%
5175	9	4	40.0%	TSS	(lbs/yr)	7,734	0	0	7,734	2,320	0	0	2,320	-70.0%
5175	9	4	40.0%	TDS	(lbs/yr)	5,524	0	0	5,524	5,524	0	0	5,524	0.0%
5175	9	4	40.0%	Total-P	(lbs/yr)	18	0	0	18	9	0	0	9	-50.0%
5175	9	4	40.0%	Dissolved-P	(lbs/yr)	9	0	0	9	2	0	0	2	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5175	9	4	40.0%	TKN	(lbs/yr)	73	0	0	73	51	0	0	51	-30.0%
5175	9	4	40.0%	NO_2+NO_3	(lbs/yr)	18	0	0	18	4	0	0	4	-80.0%
5175	9	4	40.0%	Lead	(lbs/yr)	4	0	0	4	1	0	0	1	-80.0%
5175	9	4	40.0%	Copper	(lbs/yr)	3	0	0	3	1	0	0	1	-75.0%
5175	9	4	40.0%	Zinc	(lbs/yr)	3	0	0	3	2	0	0	2	-50.0%
5175	9	4	40.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5180	4	2	42.4%	Runoff	(ac-ft/yr)	11	0	0	11	11	0	0	11	
5180	4	2	42.4%	BOD	(lbs/yr)	269	0	0	269	188	0	0	188	-30.0%
5180	4	2	42.4%	COD	(lbs/yr)	2,687	0	0	2,687	1,343	0	0	1,343	-50.0%
5180	4	2	42.4%	TSS	(lbs/yr)	4,435	0	0	4,435	1,331	0	0	1,331	-70.0%
5180	4	2	42.4%	TDS	(lbs/yr)	2,859	0	0	2,859	2,859	0	0	2,859	0.0%
5180	4	2	42.4%	Total-P	(lbs/yr)	4	0	0	4	2	0	0	2	-50.0%
5180	4	2	42.4%	Dissolved-P	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5180	4	2	42.4%	TKN	(lbs/yr)	29	0	0	29	20	0	0	20	-30.0%
5180	4	2	42.4%	NO_2+NO_3	(lbs/yr)	4	0	0	4	1	0	0	1	-80.0%
5180	4	2	42.4%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5180	4	2	42.4%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5180	4	2	42.4%	Zinc	(lbs/yr)	3	0	0	3	1	0	0	1	-50.0%
5180	4	2	42.4%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5181	20	9	43.1%	Runoff	(ac-ft/yr)	47	0	0	47	47	0	0	47	
5181	20	9	43.1%	BOD	(lbs/yr)	1,374	0	0	1,374	962	0	0	962	-30.0%
5181	20	9	43.1%	COD	(lbs/yr)	10,993	0	0	10,993	5,496	0	0	5,496	-50.0%
5181	20	9	43.1%	TSS	(lbs/yr)	18,038	0	0	18,038	5,412	0	0	5,412	-70.0%
5181	20	9	43.1%	TDS	(lbs/yr)	12,859	0	0	12,859	12,859	0	0	12,859	0.0%
5181	20	9	43.1%	Total-P	(lbs/yr)	40	0	0	40	20	0	0	20	-50.0%
5181	20	9	43.1%	Dissolved-P	(lbs/yr)	19	0	0	19	4	0	0	4	-80.0%
5181	20	9	43.1%	TKN	(lbs/yr)	166	0	0	166	116	0	0	116	-30.0%
5181	20	9	43.1%	NO_2+NO_3	(lbs/yr)	39	0	0	39	8	0	0	8	-80.0%
5181	20	9	43.1%	Lead	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5181	20	9	43.1%	Copper	(lbs/yr)	6	0	0	6	2	0	0	2	-75.0%
5181	20	9	43.1%	Zinc	(lbs/yr)	9	0	0	9	4	0	0	4	-50.0%
5181	20	9	43.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5182	6	2	37.0%	Runoff	(ac-ft/yr)	12	0	0	12	12	0	0	12	
5182	6	2	37.0%	BOD	(lbs/yr)	366	0	0	366	256	0	0	256	-30.0%
5182	6	2	37.0%	COD	(lbs/yr)	2,822	0	0	2,822	1,411	0	0	1,411	-50.0%
5182	6	2	37.0%	TSS	(lbs/yr)	4,742	0	0	4,742	1,422	0	0	1,422	-70.0%
5182	6	2	37.0%	TDS	(lbs/yr)	3,387	0	0	3,387	3,387	0	0	3,387	0.0%
5182	6	2	37.0%	Total-P	(lbs/yr)	12	0	0	12	6	0	0	6	-50.0%
5182	6	2	37.0%	Dissolved-P	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5182	6	2	37.0%	TKN	(lbs/yr)	46	0	0	46	32	0	0	32	-30.0%
5182	6	2	37.0%	NO_2+NO_3	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5182	6	2	37.0%	Lead	(lbs/yr)	2	0	0	2	0	0	0	0	-80.0%
5182	6	2	37.0%	Copper	(lbs/yr)	2	0	0	2	0	0	0	0	-75.0%
5182	6	2	37.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5182	6	2	37.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5183	20	6	31.6%	Runoff	(ac-ft/yr)	38	0	0	38	38	0	0	38	
5183	20	6	31.6%	BOD	(lbs/yr)	1,117	0	0	1,117	782	0	0	782	-30.0%
5183	20	6	31.6%	COD	(lbs/yr)	8,614	0	0	8,614	4,307	0	0	4,307	-50.0%
5183	20	6	31.6%	TSS	(lbs/yr)	14,476	0	0	14,476	4,343	0	0	4,343	-70.0%
5183	20	6	31.6%	TDS	(lbs/yr)	10,339	0	0	10,339	10,339	0	0	10,339	0.0%
5183	20	6	31.6%	Total-P	(lbs/yr)	39	0	0	39	20	0	0	20	-50.0%
5183	20	6	31.6%	Dissolved-P	(lbs/yr)	16	0	0	16	3	0	0	3	-80.0%
5183	20	6	31.6%	TKN	(lbs/yr)	152	0	0	152	106	0	0	106	-30.0%
5183	20	6	31.6%	NO_2+NO_3	(lbs/yr)	37	0	0	37	7	0	0	7	-80.0%
5183	20	6	31.6%	Lead	(lbs/yr)	6	0	0	6	1	0	0	1	-80.0%
5183	20	6	31.6%	Copper	(lbs/yr)	5	0	0	5	1	0	0	1	-75.0%
5183	20	6	31.6%	Zinc	(lbs/yr)	5	0	0	5	3	0	0	3	-50.0%
5183	20	6	31.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5184	7	3	38.8%	Runoff	(ac-ft/yr)	16	0	0	16	16	0	0	16	
5184	7	3	38.8%	BOD	(lbs/yr)	471	0	0	471	329	0	0	329	-30.0%
5184	7	3	38.8%	COD	(lbs/yr)	3,627	0	0	3,627	1,813	0	0	1,813	-50.0%
5184	7	3	38.8%	TSS	(lbs/yr)	6,095	0	0	6,095	1,829	0	0	1,829	-70.0%
5184	7	3	38.8%	TDS	(lbs/yr)	4,353	0	0	4,353	4,353	0	0	4,353	0.0%
5184	7	3	38.8%	Total-P	(lbs/yr)	15	0	0	15	7	0	0	7	-50.0%
5184	7	3	38.8%	Dissolved-P	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5184	7	3	38.8%	TKN	(lbs/yr)	58	0	0	58	41	0	0	41	-30.0%
5184	7	3	38.8%	NO_2+NO_3	(lbs/yr)	15	0	0	15	3	0	0	3	-80.0%
5184	7	3	38.8%	Lead	(lbs/yr)	3	0	0	3	1	0	0	1	-80.0%
5184	7	3	38.8%	Copper	(lbs/yr)	2	0	0	2	1	0	0	1	-75.0%
5184	7	3	38.8%	Zinc	(lbs/yr)	3	0	0	3	1	0	0	1	-50.0%
5184	7	3	38.8%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Runoff	(ac-ft/yr)	1	0	0	1	1	0	0	1	
5185	1	0	25.0%	BOD	(lbs/yr)	7	0	0	7	5	0	0	5	-30.0%
5185	1	0	25.0%	COD	(lbs/yr)	45	0	0	45	22	0	0	22	-50.0%
5185	1	0	25.0%	TSS	(lbs/yr)	212	0	0	212	64	0	0	64	-70.0%
5185	1	0	25.0%	TDS	(lbs/yr)	234	0	0	234	234	0	0	234	0.0%
5185	1	0	25.0%	Total-P	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Dissolved-P	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5185	1	0	25.0%	TKN	(lbs/yr)	1	0	0	1	1	0	0	1	-30.0%
5185	1	0	25.0%	NO_2+NO_3	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5185	1	0	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5185	1	0	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-75.0%
5185	1	0	25.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5185	1	0	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5186	8	4	47.6%	Runoff	(ac-ft/yr)	21	0	0	21	21	0	0	21	
5186	8	4	47.6%	BOD	(lbs/yr)	600	0	0	600	420	0	0	420	-30.0%
5186	8	4	47.6%	COD	(lbs/yr)	5,028	0	0	5,028	2,514	0	0	2,514	-50.0%
5186	8	4	47.6%	TSS	(lbs/yr)	8,015	0	0	8,015	2,404	0	0	2,404	-70.0%
5186	8	4	47.6%	TDS	(lbs/yr)	5,700	0	0	5,700	5,700	0	0	5,700	0.0%
5186	8	4	47.6%	Total-P	(lbs/yr)	16	0	0	16	8	0	0	8	-50.0%
5186	8	4	47.6%	Dissolved-P	(lbs/yr)	8	0	0	8	2	0	0	2	-80.0%
5186	8	4	47.6%	TKN	(lbs/yr)	72	0	0	72	50	0	0	50	-30.0%
5186	8	4	47.6%	NO_2+NO_3	(lbs/yr)	16	0	0	16	3	0	0	3	-80.0%
5186	8	4	47.6%	Lead	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5186	8	4	47.6%	Copper	(lbs/yr)	3	0	0	3	1	0	0	1	-75.0%
5186	8	4	47.6%	Zinc	(lbs/yr)	4	0	0	4	2	0	0	2	-50.0%
5186	8	4	47.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5187	1	0	30.0%	Runoff	(ac-ft/yr)	3	0	0	3	3	0	0	3	
5187	1	0	30.0%	BOD	(lbs/yr)	81	0	0	81	8	0	0	8	-90.0%
5187	1	0	30.0%	COD	(lbs/yr)	623	0	0	623	62	0	0	62	-90.0%
5187	1	0	30.0%	TSS	(lbs/yr)	1,047	0	0	1,047	105	0	0	105	-90.0%
5187	1	0	30.0%	TDS	(lbs/yr)	748	0	0	748	75	0	0	75	-90.0%
5187	1	0	30.0%	Total-P	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%
5187	1	0	30.0%	Dissolved-P	(lbs/yr)	1	0	0	1	0	0	0	0	-90.0%
5187	1	0	30.0%	TKN	(lbs/yr)	11	0	0	11	1	0	0	1	-90.0%
5187	1	0	30.0%	$NO_2 + NO_3$	(lbs/yr)	3	0	0	3	0	0	0	0	-90.0%
5187	1	0	30.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Zinc	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5187	1	0	30.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-90.0%
5190	2	1	25.0%	Runoff	(ac-ft/yr)	4	0	0	4	4	0	0	4	
5190	2	1	25.0%	BOD	(lbs/yr)	32	0	0	32	22	0	0	22	-30.0%
5190	2	1	25.0%	COD	(lbs/yr)	194	0	0	194	97	0	0	97	-50.0%
5190	2	1	25.0%	TSS	(lbs/yr)	924	0	0	924	277	0	0	277	-70.0%
5190	2	1	25.0%	TDS	(lbs/yr)	1,020	0	0	1,020	1,020	0	0	1,020	0.0%
5190	2	1	25.0%	Total-P	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5190	2	1	25.0%	Dissolved-P	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5190	2	1	25.0%	TKN	(lbs/yr)	5	0	0	5	4	0	0	4	-30.0%
5190	2	1	25.0%	$NO_2 + NO_3$	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5190	2	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5190	2	1	25.0%	Copper	(lbs/yr)	0	0	0	0	0	0	0	0	-75.0%
5190	2	1	25.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5190	2	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5191	3	1	25.0%	Runoff	(ac-ft/yr)	5	0	0	5	5	0	0	5	
5191	3	1	25.0%	BOD	(lbs/yr)	42	0	0	42	30	0	0	30	-30.0%
5191	3	1	25.0%	COD	(lbs/yr)	260	0	0	260	130	0	0	130	-50.0%
5191	3	1	25.0%	TSS	(lbs/yr)	1,236	0	0	1,236	371	0	0	371	-70.0%
5191	3	1	25.0%	TDS	(lbs/yr)	1,365	0	0	1,365	1,365	0	0	1,365	0.0%
5191	3	1	25.0%	Total-P	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5191	3	1	25.0%	Dissolved-P	(lbs/yr)	2	0	0	2	0	0	0	0	-80.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5191	3	1	25.0%	TKN	(lbs/yr)	7	0	0	7	5	0	0	5	-30.0%
5191	3	1	25.0%	NO_2+NO_3	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5191	3	1	25.0%	Lead	(lbs/yr)	0	0	0	0	0	0	0	0	-80.0%
5191	3	1	25.0%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5191	3	1	25.0%	Zinc	(lbs/yr)	2	0	0	2	1	0	0	1	-50.0%
5191	3	1	25.0%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5192	52	8	15.7%	Runoff	(ac-ft/yr)	69	0	0	69	69	0	0	69	
5192	52	8	15.7%	BOD	(lbs/yr)	1,815	0	0	1,815	1,270	0	0	1,270	-30.0%
5192	52	8	15.7%	COD	(lbs/yr)	14,132	0	0	14,132	7,066	0	0	7,066	-50.0%
5192	52	8	15.7%	TSS	(lbs/yr)	31,252	0	0	31,252	9,376	0	0	9,376	-70.0%
5192	52	8	15.7%	TDS	(lbs/yr)	18,773	0	0	18,773	18,773	0	0	18,773	0.0%
5192	52	8	15.7%	Total-P	(lbs/yr)	51	0	0	51	26	0	0	26	-50.0%
5192	52	8	15.7%	Dissolved-P	(lbs/yr)	22	0	0	22	4	0	0	4	-80.0%
5192	52	8	15.7%	TKN	(lbs/yr)	225	0	0	225	157	0	0	157	-30.0%
5192	52	8	15.7%	NO_2+NO_3	(lbs/yr)	51	0	0	51	10	0	0	10	-80.0%
5192	52	8	15.7%	Lead	(lbs/yr)	12	0	0	12	2	0	0	2	-80.0%
5192	52	8	15.7%	Copper	(lbs/yr)	6	0	0	6	1	0	0	1	-75.0%
5192	52	8	15.7%	Zinc	(lbs/yr)	8	0	0	8	4	0	0	4	-50.0%
5192	52	8	15.7%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
Total Sum	205	66	32.5%	Runoff	(ac-ft/yr)	405	0	0	405	405	0	0	405	
Total Sum	205	66	32.5%	BOD	(lbs/yr)	10,497	0	0	10,497	7,593	0	0	7,593	
Total Sum	205	66	32.5%	COD	(lbs/yr)	83,959	0	0	83,959	47,478	0	0	47,478	
Total Sum	205	66	32.5%	TSS	(lbs/yr)	153,368	0	0	153,368	59,472	0	0	59,472	
Total Sum	205	66	32.5%	TDS	(lbs/yr)	110,150	0	0	110,150	103,872	0	0	103,872	
Total Sum	205	66	32.5%	Total-P	(lbs/yr)	311	0	0	311	165	0	0	165	
Total Sum	205	66	32.5%	Dissolved-P	(lbs/yr)	151	0	0	151	44	0	0	44	
Total Sum	205	66	32.5%	TKN	(lbs/yr)	1,306	0	0	1,306	936	0	0	936	
Total Sum	205	66	32.5%	NO_2+NO_3	(lbs/yr)	344	0	0	344	97	0	0	97	
Total Sum	205	66	32.5%	Lead	(lbs/yr)	92	0	0	92	39	0	0	39	
Total Sum	205	66	32.5%	Copper	(lbs/yr)	48	0	0	48	17	0	0	17	
Total Sum	205	66	32.5%	Zinc	(lbs/yr)	82	0	0	82	47	0	0	47	
Total Sum	205	66	32.5%	Cadmium	(lbs/yr)	2	0	0	2	1	0	0	1	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 2 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
EMC	205	66	32.5%	BOD	(mg/L)	9.53	0.00	0.00	9.53	6.89	0.00	0.00	6.89	
EMC	205	66	32.5%	COD	(mg/L)	76.21	0.00	0.00	76.21	43.10	0.00	0.00	43.10	
EMC	205	66	32.5%	TSS	(mg/L)	139.22	0.00	0.00	139.22	53.99	0.00	0.00	53.99	
EMC	205	66	32.5%	TDS	(mg/L)	99.99	0.00	0.00	99.99	94.29	0.00	0.00	94.29	
EMC	205	66	32.5%	Total-P	(mg/L)	0.28	0.00	0.00	0.28	0.15	0.00	0.00	0.15	
EMC	205	66	32.5%	Dissolved-P	(mg/L)	0.14	0.00	0.00	0.14	0.04	0.00	0.00	0.04	
EMC	205	66	32.5%	TKN	(mg/L)	1.19	0.00	0.00	1.19	0.85	0.00	0.00	0.85	
EMC	205	66	32.5%	NO_2+NO_3	(mg/L)	0.31	0.00	0.00	0.31	0.09	0.00	0.00	0.09	
EMC	205	66	32.5%	Lead	(mg/L)	0.08	0.00	0.00	0.08	0.04	0.00	0.00	0.04	
EMC	205	66	32.5%	Copper	(mg/L)	0.04	0.00	0.00	0.04	0.02	0.00	0.00	0.02	
EMC	205	66	32.5%	Zinc	(mg/L)	0.07	0.00	0.00	0.07	0.04	0.00	0.00	0.04	
EMC	205	66	32.5%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.001	

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 3 UNDER PROPOSED ALTERNATIVE.

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual Surface	Baseflow	Point Source	Total	With Wet Pond BMPs Average Annual Surface	Baseflow	Point Source	Total	% Reduction Surface NPS Loads
5200	20	7	34.6%	Runoff	(ac-ft/yr)	41	0	0	41	41	0	0	41	
5200	20	7	34.6%	BOD	(lbs/yr)	1,202	0	0	1,202	842	0	0	842	-30.0%
5200	20	7	34.6%	COD	(lbs/yr)	9,269	0	0	9,269	4,634	0	0	4,634	-50.0%
5200	20	7	34.6%	TSS	(lbs/yr)	15,576	0	0	15,576	4,673	0	0	4,673	-70.0%
5200	20	7	34.6%	TDS	(lbs/yr)	11,125	0	0	11,125	11,125	0	0	11,125	0.0%
5200	20	7	34.6%	Total P	(lbs/yr)	40	0	0	40	20	0	0	20	-50.0%
5200	20	7	34.6%	Dissolved P	(lbs/yr)	18	0	0	18	4	0	0	4	-80.0%
5200	20	7	34.6%	TKN	(lbs/yr)	157	0	0	157	110	0	0	110	-30.0%
5200	20	7	34.6%	NO^2+NO^3	(lbs/yr)	39	0	0	39	8	0	0	8	-80.0%
5200	20	7	34.6%	Lead	(lbs/yr)	7	0	0	7	1	0	0	1	-80.0%
5200	20	7	34.6%	Copper	(lbs/yr)	5	0	0	5	1	0	0	1	-75.0%
5200	20	7	34.6%	Zinc	(lbs/yr)	6	0	0	6	3	0	0	3	-50.0%
5200	20	7	34.6%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
5210	38	19	48.8%	Runoff	(ac-ft/yr)	99	0	0	99	99	0	0	99	
5210	38	19	48.8%	BOD	(lbs/yr)	2,714	0	0	2,714	1,900	0	0	1,900	-30.0%
5210	38	19	48.8%	COD	(lbs/yr)	19,318	0	0	19,318	9,659	0	0	9,659	-50.0%
5210	38	19	48.8%	TSS	(lbs/yr)	30,528	0	0	30,528	9,158	0	0	9,158	-70.0%
5210	38	19	48.8%	TDS	(lbs/yr)	26,946	0	0	26,946	26,946	0	0	26,946	0.0%
5210	38	19	48.8%	Total P	(lbs/yr)	62	0	0	62	31	0	0	31	-50.0%
5210	38	19	48.8%	Dissolved P	(lbs/yr)	32	0	0	32	6	0	0	6	-80.0%
5210	38	19	48.8%	TKN	(lbs/yr)	325	0	0	325	227	0	0	227	-30.0%
5210	38	19	48.8%	NO_2+NO_3	(lbs/yr)	56	0	0	56	11	0	0	11	-80.0%
5210	38	19	48.8%	Lead	(lbs/yr)	45	0	0	45	9	0	0	9	-80.0%
5210	38	19	48.8%	Copper	(lbs/yr)	11	0	0	11	3	0	0	3	-75.0%
5210	38	19	48.8%	Zinc	(lbs/yr)	25	0	0	25	13	0	0	13	-50.0%
5210	38	19	48.8%	Cadmium	(lbs/yr)	1	0	0	1	0	0	0	0	-50.0%
5220	19	1	6.1%	Runoff	(ac-ft/yr)	18	0	0	18	18	0	0	18	
5220	19	1	6.1%	BOD	(lbs/yr)	451	0	0	451	315	0	0	315	-30.0%
5220	19	1	6.1%	COD	(lbs/yr)	3,113	0	0	3,113	1,556	0	0	1,556	-50.0%
5220	19	1	6.1%	TSS	(lbs/yr)	9,538	0	0	9,538	2,861	0	0	2,861	-70.0%
5220	19	1	6.1%	TDS	(lbs/yr)	5,024	0	0	5,024	5,024	0	0	5,024	0.0%
5220	19	1	6.1%	Total P	(lbs/yr)	12	0	0	12	6	0	0	6	-50.0%
5220	19	1	6.1%	Dissolved P	(lbs/yr)	5	0	0	5	1	0	0	1	-80.0%
5220	19	1	6.1%	TKN	(lbs/yr)	53	0	0	53	37	0	0	37	-30.0%

RESULTS FROM CDM WATERSHED MANAGEMENT MODEL FOR ELLIGRAW BAYOU BASIN 3 UNDER PROPOSED ALTERNATIVE (Continued).

Basin	Drainage Area	Imperv Area	% Imperv	Constituent	(units)	No BMP Controls Average Annual				With Wet Pond BMPs Average Annual				% Reduction Surface NPS Loads
						Surface	Baseflow	Point Source	Total	Surface	Baseflow	Point Source	Total	
5220	19	1	6.1%	NO^2+NO^3	(lbs/yr)	13	0	0	13	3	0	0	3	-80.0%
5220	19	1	6.1%	Lead	(lbs/yr)	1	0	0	1	0	0	0	0	-80.0%
5220	19	1	6.1%	Copper	(lbs/yr)	1	0	0	1	0	0	0	0	-75.0%
5220	19	1	6.1%	Zinc	(lbs/yr)	1	0	0	1	0	0	0	0	-50.0%
5220	19	1	6.1%	Cadmium	(lbs/yr)	0	0	0	0	0	0	0	0	-50.0%
Total Sum	77	27	34.5%	Runoff	(ac-ft/yr)	158	0	0	158	158	0	0	158	
Total Sum	77	27	34.5%	BOD	(lbs/yr)	4,367	0	0	4,367	3,057	0	0	3,057	
Total Sum	77	27	34.5%	COD	(lbs/yr)	31,699	0	0	31,699	15,850	0	0	15,850	
Total Sum	77	27	34.5%	TSS	(lbs/yr)	55,641	0	0	55,641	16,692	0	0	16,692	
Total Sum	77	27	34.5%	TDS	(lbs/yr)	43,095	0	0	43,095	43,095	0	0	43,095	
Total Sum	77	27	34.5%	Total P	(lbs/yr)	114	0	0	114	57	0	0	57	
Total Sum	77	27	34.5%	Dissolved P	(lbs/yr)	54	0	0	54	11	0	0	11	
Total Sum	77	27	34.5%	TKN	(lbs/yr)	535	0	0	535	374	0	0	374	
Total Sum	77	27	34.5%	NO_2+NO_3	(lbs/yr)	108	0	0	108	22	0	0	22	
Total Sum	77	27	34.5%	Lead	(lbs/yr)	53	0	0	53	11	0	0	11	
Total Sum	77	27	34.5%	Copper	(lbs/yr)	17	0	0	17	4	0	0	4	
Total Sum	77	27	34.5%	Zinc	(lbs/yr)	32	0	0	32	16	0	0	16	
Total Sum	77	27	34.5%	Cadmium	(lbs/yr)	1	0	0	1	0	0	0	0	
EMC	77	27	34.5%	BOD	(mg/L)	10.13	0.00	0.00	10.13	7.09	0.00	0.00	7.09	
EMC	77	27	34.5%	COD	(mg/L)	73.55	0.00	0.00	73.55	36.77	0.00	0.00	36.77	
EMC	77	27	34.5%	TSS	(mg/L)	129.10	0.00	0.00	129.10	38.73	0.00	0.00	38.73	
EMC	77	27	34.5%	TDS	(mg/L)	99.99	0.00	0.00	99.99	99.99	0.00	0.00	99.99	
EMC	77	27	34.5%	Total P	(mg/L)	0.27	0.00	0.00	0.27	0.13	0.00	0.00	0.13	
EMC	77	27	34.5%	Dissolved P	(mg/L)	0.13	0.00	0.00	0.13	0.03	0.00	0.00	0.03	
EMC	77	27	34.5%	TKN	(mg/L)	1.24	0.00	0.00	1.24	0.87	0.00	0.00	0.87	
EMC	77	27	34.5%	NO_2+NO_3	(mg/L)	0.25	0.00	0.00	0.25	0.05	0.00	0.00	0.05	
EMC	77	27	34.5%	Lead	(mg/L)	0.12	0.00	0.00	0.12	0.02	0.00	0.00	0.02	
EMC	77	27	34.5%	Copper	(mg/L)	0.04	0.00	0.00	0.04	0.01	0.00	0.00	0.01	
EMC	77	27	34.5%	Zinc	(mg/L)	0.08	0.00	0.00	0.08	0.04	0.00	0.00	0.04	
EMC	77	27	34.5%	Cadmium	(mg/L)	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.001	

LOWER ELLIGRAW BAYOU

Location: Tuckerstown Drive at Captiva Way (looking east)

Date: 06/26/92

Time: 3:55 p.m.

Location: Tuckerstown Drive at Coventry Drive (looking south)

Date: 06/26/92

Time: 3:55 p.m.

LOWER ELLIGRAW BAYOU

Location: Dickens Drive at Hardee Drive (looking north on Dickens Drive)

Date: 06/92

Location: Tuckerstown Drive and Biltmore Drive (looking west on Biltmore Drive)

Date: 06/92

LOWER ELLIGRAW BAYOU

Location: Tuckerstown Drive at Biltmore Drive (looking east)

Date: 06/26/92

Time: 3:55 p.m.

UPPER ELLIGRAW BAYOU

Location: The Estates of Prestancia, Parcel B (looking east from Palmer Ranch Parkway)

Date: 06/26/92

Location: The Estates of Prestancia, Parcel B (looking south from Palmer Ranch Parkway - Country Club of Sarasota in background, Ballantrae Condominium to the right)

Date: 06/26/92

ELLIGRAW BAYOU GULF GATE LATERAL

Location: Antiqua Place (looking south from Bounty Road)

Date: 06/26/92

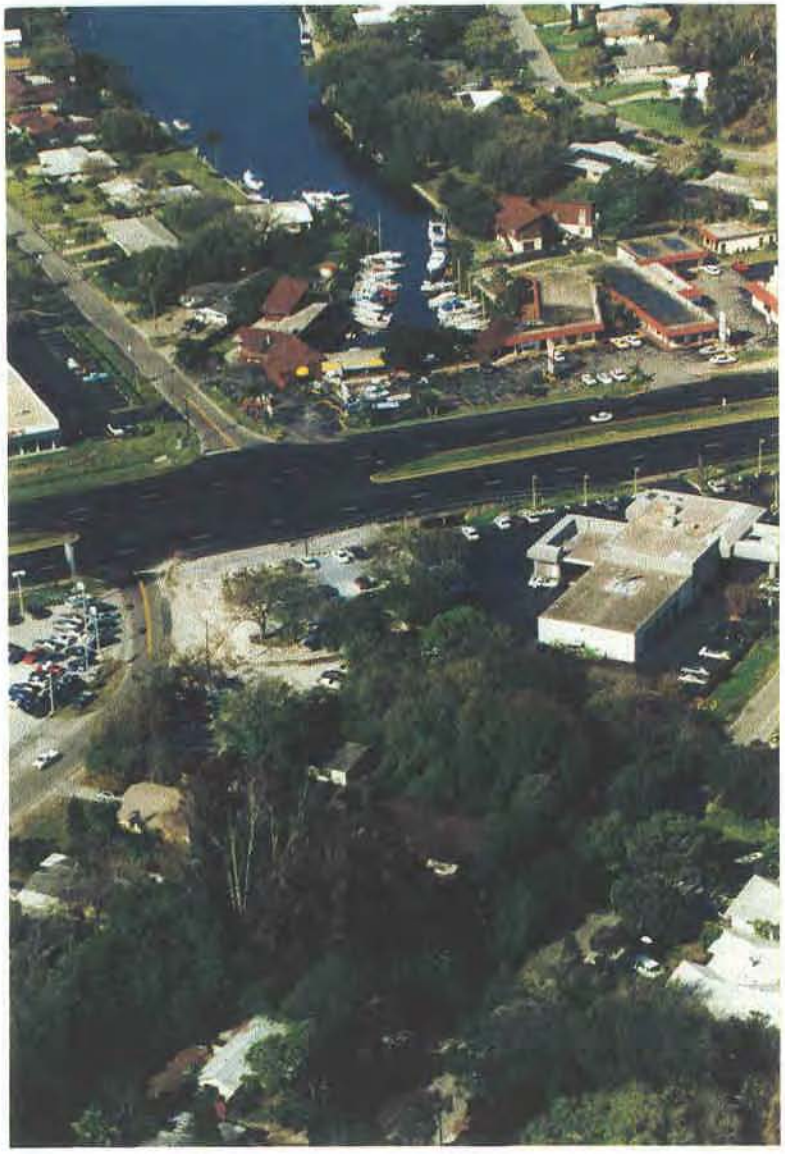
Time: 3:45 p.m.

Location: Biltmore Drive and Biltmore Way (looking south on Biltmore Drive)

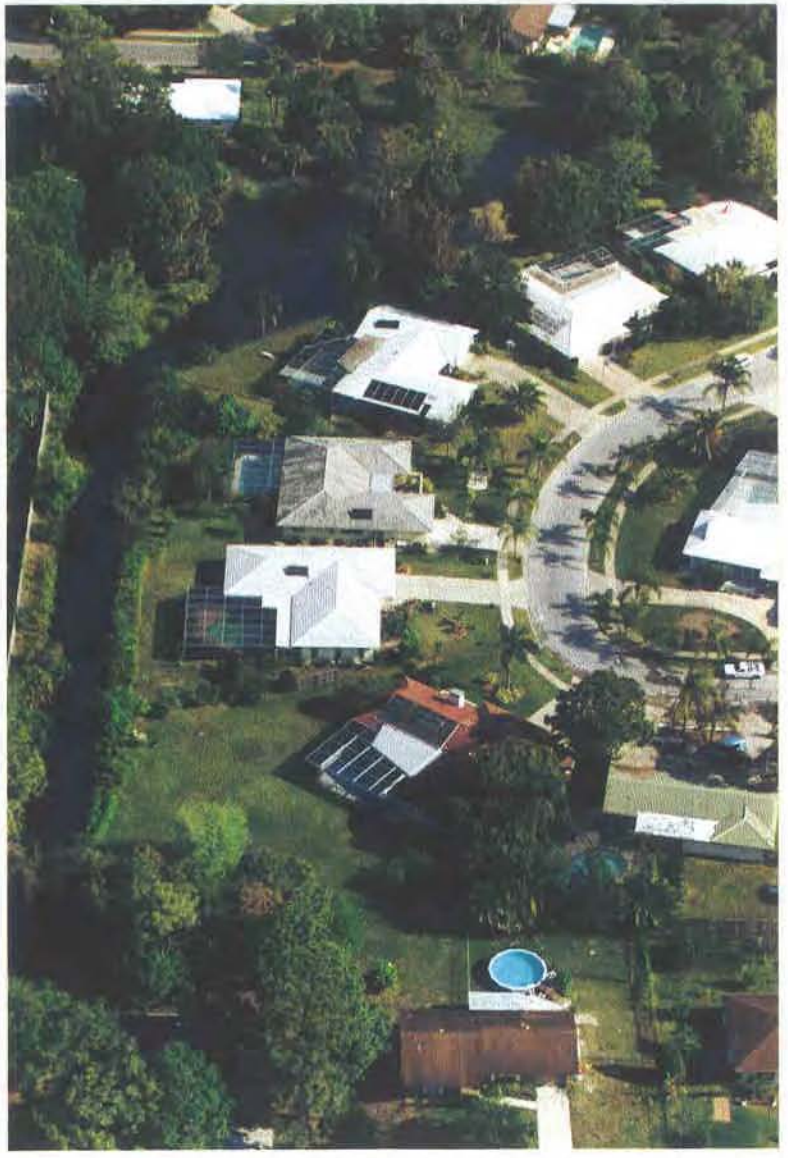
Date: 06/26/92

Time: 3:50 p.m.

LOWER ELLIGRAW BAYOU
(CANAL 11-209/L11-18)

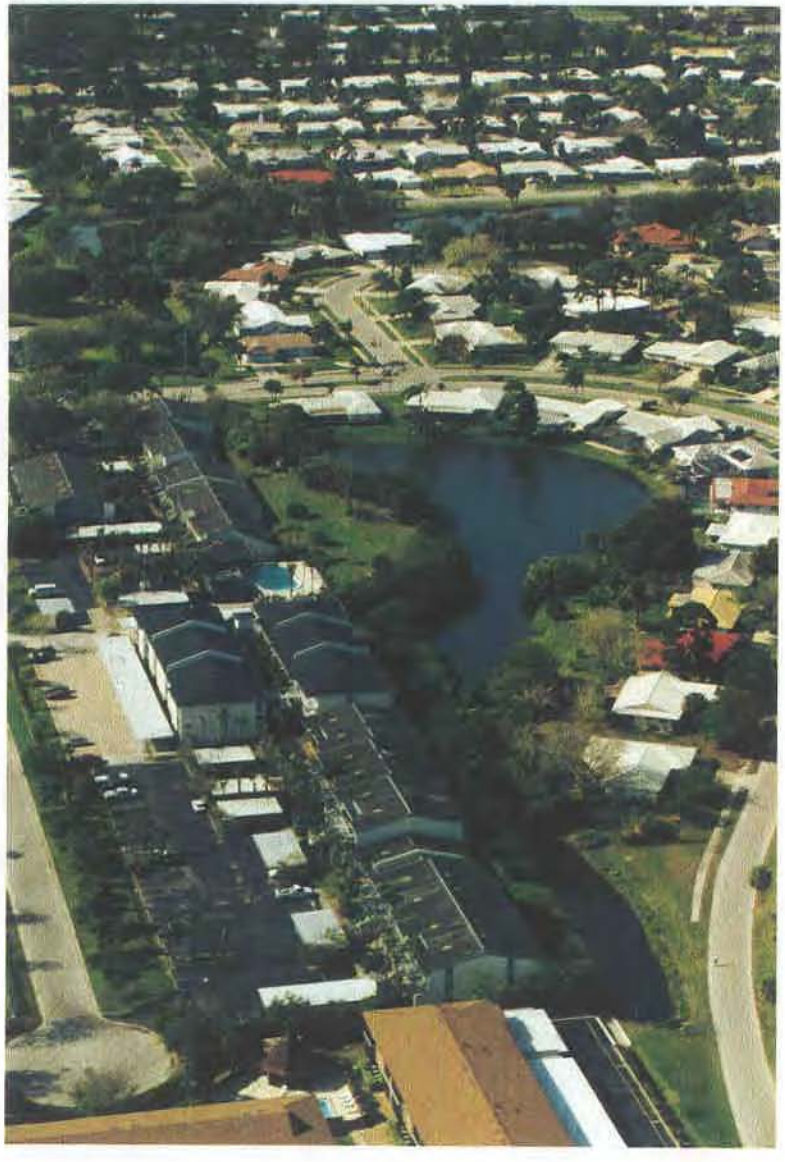


Looking downstream to U.S. 41 where stormwater exits underground culvert outfall



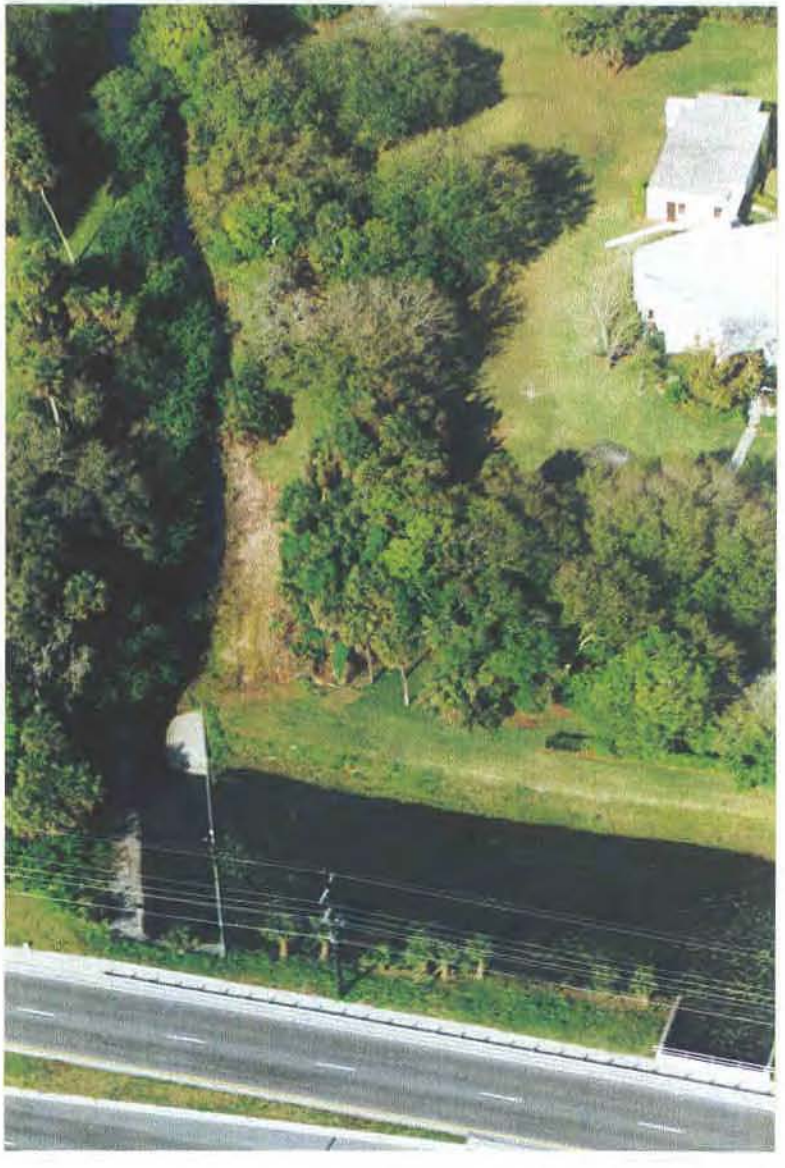
Looking upstream where stormwater enters underground culvert outfall

GULF GATE LATERAL (L11-16)



Gulf Gate Lateral (looking south from Curtis Avenue)

ELLIGRAW BAYOU
BENEVA ROAD WATER LEVEL CONTROL STRUCTURE (CANAL 11-208)



Upper Elligraw Bayou Control Structure (looking west from Beneva Road)

LOWER ELLIGRAW BAYOU

Location: Dale Avenue at U.S. 41 (looking northeast)

Date: 06/26/92

Time: 4:15 p.m.

Location: Dale Avenue at U.S. 41 (looking northwest)

Date: 06/22/92

Time: 4:15 p.m.

LOWER ELLIGRAW BAYOU

Location: U.S. 41 south of Dale Avenue (looking north)

Date: 06/26/92

Time: 4:15 p.m.

Location: Pinehurst Street at Dale Avenue (looking west)

Date: 06/26/92

Time: 4:20 p.m.

LOWER ELLIGRAW BAYOU

Location: Pinehurst Street at Dale Avenue (looking north)

Date: 06/26/92

Time: 4:20 p.m.

Location: Pinehurst Street at Spring Place (looking west)

Date: 06/26/92

Time: 4:20 p.m.

LOWER ELLIGRAW BAYOU

Location: Biltmore Drive and Biltmore Way (looking west on Biltmore to Marianna Drive)

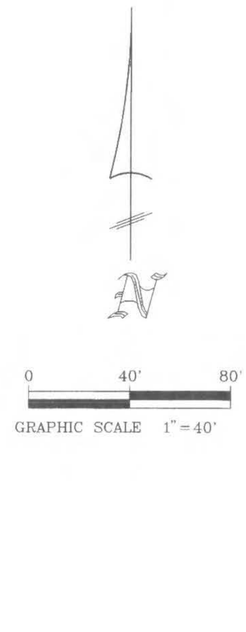
Date: 06/26/92

Time: 3:50 p.m.

Location: Biltmore Drive and Tuckerstown Drive (looking southwest to Biltmore Drive)

Date: 06/26/92

Time: 3:50 p.m.



FOR:

TITLE:

PARCEL-F

DESC: PRELIMINARY LAY-OUT

X

P.E.

FLA. CERT. NO. #

DATE:

NO.	REVISION	DATE	BY

Kimley-Horn and Associates, Inc.
Engineering, Planning and Environmental Consultants
7202 BENEVA ROAD SOUTH
SARASOTA, FLORIDA 34238
TEL (813) 922-8187
FAX (813) 922-2351

Design By: K.H.A.	Drawn By: R.B.K.	Checked By: R.C.	Project No.: 48005-00
CADD File: SIENNA AT PALMER RANCH A		Date: 2/13/95	SCALE: 1"=40'

GENEVA ROAD

PALMER RANCH PARKWAY

LAKE

LAKE

BASIN NO. A

Site Coverage Worksheet

Impervious

A. DCIA: (~~24.47~~ 23,91 %)

a. Street Pavement/Curb 650 LF x 24 + 150 x 12 + CUL DE SAC — 0.50 acs.

b. Driveways 25 x 400 SF — 0.23 acs.

c. Ponds — 0.49 acs.

d. Other — ____ acs.

DCIA Total 1.22 acs.

B. Other Impervious

a. House/Garage 2584 SF x 27 3/4 — 1.65 acs.

b. Sidewalk 5 x 200 — 0.02 acs.

c. Other POOL 50 x 34 (- 150 SF) + 200 SF BLDG (PART) — 0.04 acs.

NON-DCIA Total 1.71 acs.

Pervious

2.15 acs.

TOTAL 5.09 acs.

CN = 89

Tc = 22

BASIN NO. B

Site Coverage Worksheet

Impervious

A. DCIA: (~~30.57~~ 30.17 %)

a.	Street Pavement/Curb	580 LF x 24 + 160 x 22 + CMC OR SAC	0.50 acs.
b.	Driveways	22 x 400 SF	0.20 acs.
c.	Ponds		0.86 acs.
d.	Other		____ acs.

DCIA Total 1.56 acs.

B. Other Impervious

a.	House/Garage	2584 SF x 1 3/4	1.05 acs.
b.	Sidewalk	80 x 5 EXIST.	0.01 acs.
c.	Other	POOL BLDG (PART) 200 SF POOL 150 SF	0.01 acs.

NON-DCIA Total 1.07 acs.

Pervious

2.54 acs.

TOTAL 5.17 acs.

11
12

CN = 85
Tc = 11

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXIST. COND. - 100 YR)
04-01-94

BASIN NAME	175	180	181	182	183
NODE NAME	175	180	181	182	183
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	8.95	4.45	~~19.78~~ 16.93	5.78	19.53
CURVE NUMBER	81.30	75.00	~~79.80~~	82.60	81.60
DCIA (%)	46.10	37.70	23.20	31.50	42.60
TC (mins)	22.00	15.00	15.00	15.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
175	33.02	12.12	8.70	
180	18.11	12.07	8.01	
181	82.21	12.07	8.05	
182	24.97	12.07	8.49	
183	84.91	12.07	8.65	

BASIN NAME	184	185	186	187	191
NODE NAME	184	185B	186	187	191
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	10.00	10.00	10.00	10.00	10.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	.51	~~8.18~~ 6.48	1.46	2.97
CURVE NUMBER	81.00	75.00	~~75.00~~ 85	75.00	75.00
DCIA (%)	26.30	27.50	~~70.00~~ 30	60.30	80.80
TC (mins)	15.00	15.00	~~15.00~~ 11	10.00	10.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
184	30.44	12.07	8.24	
185	2.02	12.07	7.71	
186	35.89	12.07	8.99	
187	7.16	12.02	8.70	
191	15.21	12.02	9.32	

TOTAL = 27.96 acres

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ELLIGRAW BAYOU - BASIN MASTER PLAN (EXISTING COND.)
04-01-94

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
180	AREA	14.550	.000	.000	.000	14.500	.606
						17.500	.862
181	AREA	14.730	.000	.000	.000	15.000	~~3.566~~ 3.54
						20.000	~~5.138~~ 5.1
182	AREA	16.200	.000	.000	.000	15.500	1.621
						20.000	2.452
183	AREA	16.200	.000	.000	.000	15.500	3.021
						20.000	4.307
183A	AREA	14.710	.000	.000	.000	14.710	.000
						20.000	.002
184	AREA	16.500	.000	.000	.000	16.500	.706
						20.500	1.019
185A	STRG	14.730	.000	.000	.000	14.730	.000
						19.000	.001
185B	AREA	14.730	.000	.000	.000	15.000	.144
						20.000	.305
186	AREA	14.730	.000	.000	.000	14.500	0.86 ~~0.490~~ .490
						~~18.500~~	1.43 .973
187	AREA	16.430	.000	.000	.000	16.000	.395
						17.500	.423
						17.800	.735
190	AREA	12.000	.000	.000	.000	18.000	.000
						19.000	.000
191	AREA	14.940	.000	.000	.000	14.500	2.130
						18.000	2.890
192	AREA	14.910	.000	.000	.000	14.500	7.740
						18.000	9.500
200	AREA	11.510	.000	.000	.000	11.500	1.614
						15.000	2.183
						16.000	2.803
						17.000	5.465
~~186B~~	AREA	14.73					
						14.5	0.49
						~~18.5~~	0.74

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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ELLIGRAW BAYOU (UPDATED FOR PARCEL F)
03-16-95

NODAL MAXIMUM CONDITIONS REPORT

NODE ID	STAGE (ft)	VOLUME (af)	INFLOW RUNOFF (cfs)	INFLOW OFFSITE (cfs)	INFLOW OTHER (cfs)	OUTFLOW (cfs)
100	1.50	284.39	.00	.00	399.25	.00
101	2.35	.18	38.10	.00	391.99	399.25
102	6.47	.56	.00	.00	391.89	391.99
104	9.40	.10	.00	.00	92.71	93.10
106	11.61	.19	37.58	.00	57.97	92.71
108	11.74	.20	.00	.00	58.12	57.97
110	12.13	.45	53.77	.00	9.42	58.12
120	13.44	9.87	190.90	.00	207.32	314.18
130	14.16	2.13	63.49	.00	184.07	207.32
140	14.38	12.13	108.71	.00	143.72	184.07
150	15.93	2.14	.00	.00	150.43	81.58
151	15.93	2.68	31.28	.00	123.92	150.43
157	15.93	2.46	43.09	.00	90.37	119.83
158	15.95	2.03	.00	.00	95.43	79.68
159	15.97	3.48	17.63	.00	160.30	95.43
160	15.99	7.67	25.48	.00	16.46	28.66
161	15.97	1.87	4.32	.00	53.06	145.51
162	16.00	2.32	.00	.00	53.80	43.65
163	16.01	1.69	12.50	.00	15.70	19.05
164	16.08	.50	15.35	.00	8.32	15.70
165	16.09	.69	6.91	.00	.00	4.17
170	15.95	1.16	7.20	.00	.00	13.43
171	16.27	6.28	36.54	.00	.00	5.63
173	16.00	1.56	13.19	.00	.00	1.49
175	15.78	6.07	30.69	.00	.00	1.91
180	16.38	1.43	17.54	.00	8.48	11.17
181	16.79	9.94	67.89	.00	23.38	24.93
182	18.32	5.78	24.26	.00	15.23	13.22
183	18.52	11.06	82.55	.00	13.14	19.10
183A	16.21	.01	.00	.00	4.17	4.17
184	18.55	1.78	29.53	.00	.00	13.14
185A	16.81	.01	.00	.00	.55	3.34
185B	16.81	.41	1.96	.00	.00	.55
186	17.04	2.92	31.31	.00	.00	4.18
187	17.19	.49	7.11	.00	.00	3.73
188	16.89	1.50	21.91	.00	4.18	10.08
190	16.00	1.73	8.45	.00	14.20	43.91
191	17.15	6.66	15.12	.00	24.76	4.85
192	17.15	22.88	96.35	.00	.00	27.59
200	15.64	8.27	66.89	.00	47.04	62.26
210	16.16	5.45	76.54	.00	18.68	47.04
220	16.24	8.69	56.17	.00	.00	18.68

ELLIGRAW BAYOU - 100 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.
100	1.50	1.50	0.00
101	2.35	2.35	0.00
102	6.48	6.48	0.00
104	9.40	9.40	0.00
106	11.61	11.61	0.00
108	11.74	11.74	0.00
110	12.13	12.13	0.00
120	13.45	13.45	0.00
130	14.18	14.18	0.00
140	14.40	14.40	0.00
150	15.99	15.99	0.00
151	16.00	16.00	0.00
157	16.05	16.00	-0.05
158	16.05	16.03	-0.02
159	16.05	16.04	-0.01
160	16.06	16.06	0.00
161	16.06	16.05	-0.01
162	16.08	16.05	-0.03
163	16.09	16.07	-0.02
164	16.09	16.08	-0.01
165	16.09	16.09	0.00
170	16.03	16.01	-0.02
171	16.32	16.31	-0.01
173	16.07	16.06	-0.01
175	15.82	15.81	-0.01
180	16.62	16.57	-0.05
181	17.16	17.06	-0.10
182	18.11	18.30	0.19
183	18.46	18.51	0.05
183A	16.24	16.24	0.00
184	18.52	18.55	0.03
185A	17.15	17.06	-0.09
185B	17.18	17.08	-0.10
186	17.18	17.11	-0.07
187	17.20	17.20	0.00
190	16.09	16.05	-0.04
191	17.18	17.17	-0.01
192	17.18	17.17	-0.01
200	15.65	15.65	0.00
210	16.16	16.16	0.00
220	16.24	16.24	0.00

ELLIGRAW BAYOU - 100 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.	ALT 5	DIFF.
100	1.50	1.50	0.00	1.50	0.00
101	2.35	2.35	0.00	2.35	0.00
102	6.48	6.48	0.00	6.48	0.00
104	9.40	9.40	0.00	9.40	0.00
106	11.61	11.61	0.00	11.61	0.00
108	11.74	11.74	0.00	11.74	0.00
110	12.13	12.13	0.00	12.13	0.00
120	13.45	13.45	0.00	13.45	0.00
130	14.18	14.18	0.00	14.20	0.02
140	14.40	14.40	0.00	14.41	0.01
150	15.99	15.99	0.00	16.03	0.04
151	16.00	16.00	0.00	16.03	0.03
157	16.05	16.00	-0.05	16.03	-0.02
158	16.05	16.03	-0.02	16.06	0.01
159	16.05	16.04	-0.01	16.07	0.02
160	16.06	16.06	0.00	16.08	0.02
161	16.06	16.05	-0.01	16.08	0.02
162	16.08	16.05	-0.03	16.08	0.00
163	16.09	16.07	-0.02	16.10	0.01
164	16.09	16.08	-0.01	16.11	0.02
165	16.09	16.09	0.00	16.11	0.02
170	16.03	16.01	-0.02	16.04	0.01
171	16.32	16.31	-0.01	16.34	0.02
173	16.07	16.06	-0.01	16.08	0.01
175	15.82	15.81	-0.01	15.82	0.00
180	16.62	16.57	-0.05	16.65	0.03
181	17.16	17.06	-0.10	17.19	0.03
182	18.11	18.30	0.19	18.04	-0.07
183	18.46	18.51	0.05	18.25	-0.21
183A	16.24	16.24	0.00	16.25	0.01
184	18.52	18.55	0.03	18.39	-0.13
185A	17.15	17.06	-0.09	17.21	0.06
185B	17.18	17.08	-0.10	17.20	0.02
186	17.18	17.11	-0.07	17.27	0.09
187	17.20	17.20	0.00	17.22	0.02
190	16.09	16.05	-0.04	16.08	-0.01
191	17.18	17.17	-0.01	17.18	0.00
192	17.18	17.17	-0.01	17.18	0.00
200	15.65	15.65	0.00	15.66	0.01
210	16.16	16.16	0.00	16.17	0.01
220	16.24	16.24	0.00	16.25	0.01

ELLIGRAW BAYOU - 2 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.
100	1.50	1.50	0.00
101	1.60	1.60	0.00
102	3.87	3.87	0.00
104	7.83	7.83	0.00
106	10.88	10.88	0.00
108	11.03	11.03	0.00
110	11.45	11.45	0.00
120	12.04	12.04	0.00
130	12.12	12.12	0.00
140	12.74	12.74	0.00
150	13.68	13.67	-0.01
151	13.68	13.67	-0.01
157	13.69	13.68	-0.01
158	13.70	13.68	-0.02
159	13.70	13.70	0.00
160	15.74	15.71	-0.03
161	13.70	13.70	0.00
162	13.72	13.72	0.00
163	14.05	14.05	0.00
164	15.51	15.53	0.02
165	15.51	15.53	0.02
170	15.35	15.35	0.00
171	14.58	14.58	0.00
173	14.72	14.72	0.00
175	14.54	14.54	0.00
180	15.30	15.29	-0.01
181	15.74	15.70	-0.04
182	16.97	17.01	0.04
183	16.98	17.02	0.04
183A	15.57	15.60	0.03
184	17.28	17.29	0.01
185A	15.76	15.69	-0.07
185B	15.74	15.71	-0.03
186	15.74	15.72	-0.02
187	16.77	16.77	0.00
190	13.72	13.73	0.01
191	15.63	15.63	0.00
192	15.63	15.63	0.00
200	13.34	13.34	0.00
210	13.49	13.49	0.00
220	14.16	14.16	0.00

ELLIGRAW BAYOU - 2 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.	ALT 5	DIFF.
100	1.50	1.50	0.00	1.50	0.00
101	1.60	1.60	0.00	1.60	0.00
102	3.87	3.87	0.00	3.88	0.01
104	7.83	7.83	0.00	7.84	0.01
106	10.88	10.88	0.00	10.88	0.00
108	11.03	11.03	0.00	11.03	0.00
110	11.45	11.45	0.00	11.45	0.00
120	12.04	12.04	0.00	12.05	0.01
130	12.12	12.12	0.00	12.12	0.00
140	12.74	12.74	0.00	12.74	0.00
150	13.68	13.67	-0.01	13.68	0.00
151	13.68	13.67	-0.01	13.69	0.01
157	13.69	13.68	-0.01	13.70	0.01
158	13.70	13.68	-0.02	13.70	0.00
159	13.70	13.70	0.00	13.70	0.00
160	15.74	15.71	-0.03	15.78	0.04
161	13.70	13.70	0.00	13.71	0.01
162	13.72	13.72	0.00	13.73	0.01
163	14.05	14.05	0.00	14.02	-0.03
164	15.51	15.53	0.02	15.40	-0.11
165	15.51	15.53	0.02	15.40	-0.11
170	15.35	15.35	0.00	15.35	0.00
171	14.58	14.58	0.00	14.58	0.00
173	14.72	14.72	0.00	14.72	0.00
175	14.54	14.54	0.00	14.54	0.00
180	15.30	15.29	-0.01	15.36	0.06
181	15.74	15.70	-0.04	15.83	0.09
182	16.97	17.01	0.04	16.70	-0.27
183	16.98	17.02	0.04	16.74	-0.24
183A	15.57	15.60	0.03	15.45	-0.12
184	17.28	17.29	0.01	17.27	-0.01
185A	15.76	15.69	-0.07	15.84	0.08
185B	15.74	15.71	-0.03	15.83	0.09
186	15.74	15.72	-0.02	15.83	0.09
187	16.77	16.77	0.00	16.77	0.00
190	13.72	13.73	0.01	13.73	0.01
191	15.63	15.63	0.00	15.63	0.00
192	15.63	15.63	0.00	15.63	0.00
200	13.34	13.34	0.00	13.34	0.00
210	13.49	13.49	0.00	13.49	0.00
220	14.16	14.16	0.00	14.16	0.00

ELLIGRAW BAYOU - 5 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.
100	1.50	1.50	0.00
101	1.79	1.79	0.00
102	4.91	4.90	-0.01
104	8.41	8.41	0.00
106	11.03	11.03	0.00
108	11.35	11.35	0.00
110	11.70	11.70	0.00
120	12.51	12.51	0.00
130	12.75	12.75	0.00
140	13.21	13.21	0.00
150	14.61	14.57	-0.04
151	14.61	14.58	-0.03
157	14.63	14.58	-0.05
158	14.64	14.59	-0.05
159	14.63	14.60	-0.03
160	15.85	15.84	-0.01
161	14.64	14.60	-0.04
162	14.64	14.63	-0.01
163	14.69	14.67	-0.02
164	15.65	15.65	0.00
165	15.66	15.67	0.01
170	15.41	15.41	0.00
171	15.07	15.07	0.00
173	15.00	15.00	0.00
175	14.85	14.84	-0.01
180	15.62	15.61	-0.01
181	16.09	16.03	-0.06
182	17.35	17.44	0.09
183	17.41	17.46	0.05
183A	15.73	15.72	-0.01
184	17.65	17.65	0.00
185A	16.11	16.05	-0.06
185B	16.10	16.05	-0.05
186	16.10	16.08	-0.02
187	16.91	16.91	0.00
190	14.64	14.63	-0.01
191	16.03	16.03	0.00
192	16.03	16.03	0.00
200	14.16	14.16	0.00
210	14.49	14.49	0.00
220	14.69	14.69	0.00

ELLIGRAW BAYOU - 5 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.	ALT 5	DIFF.
100	1.50	1.50	0.00	1.50	0.00
101	1.79	1.79	0.00	1.79	0.00
102	4.91	4.90	-0.01	4.91	0.00
104	8.41	8.41	0.00	8.41	0.00
106	11.03	11.03	0.00	11.03	0.00
108	11.35	11.35	0.00	11.36	0.01
110	11.70	11.70	0.00	11.70	0.00
120	12.51	12.51	0.00	12.51	0.00
130	12.75	12.75	0.00	12.76	0.01
140	13.21	13.21	0.00	13.21	0.00
150	14.61	14.57	-0.04	14.68	0.07
151	14.61	14.58	-0.03	14.69	0.08
157	14.63	14.58	-0.05	14.71	0.08
158	14.64	14.59	-0.05	14.72	0.08
159	14.63	14.60	-0.03	14.73	0.10
160	15.85	15.84	-0.01	15.86	0.01
161	14.64	14.60	-0.04	14.72	0.08
162	14.64	14.63	-0.01	14.73	0.09
163	14.69	14.67	-0.02	14.76	0.07
164	15.65	15.65	0.00	15.61	-0.04
165	15.66	15.67	0.01	15.62	-0.04
170	15.41	15.41	0.00	15.41	0.00
171	15.07	15.07	0.00	15.08	0.01
173	15.00	15.00	0.00	15.00	0.00
175	14.85	14.84	-0.01	14.86	0.01
180	15.62	15.61	-0.01	15.69	0.07
181	16.09	16.03	-0.06	16.20	0.11
182	17.35	17.44	0.09	17.10	-0.25
183	17.41	17.46	0.05	17.18	-0.23
183A	15.73	15.72	-0.01	15.68	-0.05
184	17.65	17.65	0.00	17.63	-0.02
185A	16.11	16.05	-0.06	16.20	0.09
185B	16.10	16.05	-0.05	16.21	0.11
186	16.10	16.08	-0.02	16.20	0.10
187	16.91	16.91	0.00	16.91	0.00
190	14.64	14.63	-0.01	14.72	0.08
191	16.03	16.03	0.00	16.03	0.00
192	16.03	16.03	0.00	16.03	0.00
200	14.16	14.16	0.00	14.16	0.00
210	14.49	14.49	0.00	14.49	0.00
220	14.69	14.69	0.00	14.69	0.00

ELLIGRAW BAYOU - 10 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.
100	1.50	1.50	0.00
101	1.92	1.92	0.00
102	5.40	5.40	0.00
104	8.68	8.68	0.00
106	11.15	11.15	0.00
108	11.51	11.51	0.00
110	11.83	11.83	0.00
120	12.77	12.77	0.00
130	13.14	13.14	0.00
140	13.52	13.52	0.00
150	15.04	15.03	-0.01
151	15.05	15.03	-0.02
157	15.07	15.04	-0.03
158	15.08	15.05	-0.03
159	15.08	15.06	-0.02
160	15.88	15.87	-0.01
161	15.08	15.09	0.01
162	15.08	15.09	0.01
163	15.12	15.11	-0.01
164	15.77	15.78	0.01
165	15.79	15.79	0.00
170	15.44	15.44	0.00
171	15.39	15.39	0.00
173	15.18	15.18	0.00
175	15.10	15.09	-0.01
180	15.83	15.79	-0.04
181	16.36	16.28	-0.08
182	17.56	17.67	0.11
183	17.67	17.72	0.05
183A	15.87	15.88	0.01
184	17.84	17.84	0.00
185A	16.34	16.30	-0.04
185B	16.37	16.30	-0.07
186	16.37	16.30	-0.07
187	16.98	16.98	0.00
190	15.09	15.09	0.00
191	16.30	16.30	0.00
192	16.30	16.30	0.00
200	14.60	14.60	0.00
210	14.98	14.98	0.00
220	15.12	15.12	0.00

ELLIGRAW BAYOU - 10 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.	ALT 5	DIFF.
100	1.50	1.50	0.00	1.50	0.00
101	1.92	1.92	0.00	1.92	0.00
102	5.40	5.40	0.00	5.40	0.00
104	8.68	8.68	0.00	8.68	0.00
106	11.15	11.15	0.00	11.15	0.00
108	11.51	11.51	0.00	11.51	0.00
110	11.83	11.83	0.00	11.83	0.00
120	12.77	12.77	0.00	12.78	0.01
130	13.14	13.14	0.00	13.15	0.01
140	13.52	13.52	0.00	13.53	0.01
150	15.04	15.03	-0.01	15.10	0.06
151	15.05	15.03	-0.02	15.10	0.05
157	15.07	15.04	-0.03	15.11	0.04
158	15.08	15.05	-0.03	15.12	0.04
159	15.08	15.06	-0.02	15.12	0.04
160	15.88	15.87	-0.01	15.88	0.00
161	15.08	15.09	0.01	15.13	0.05
162	15.08	15.09	0.01	15.13	0.05
163	15.12	15.11	-0.01	15.17	0.05
164	15.77	15.78	0.01	15.72	-0.05
165	15.79	15.79	0.00	15.74	-0.05
170	15.44	15.44	0.00	15.44	0.00
171	15.39	15.39	0.00	15.41	0.02
173	15.18	15.18	0.00	15.20	0.02
175	15.10	15.09	-0.01	15.11	0.01
180	15.83	15.79	-0.04	15.92	0.09
181	16.36	16.28	-0.08	16.48	0.12
182	17.56	17.67	0.11	17.32	-0.24
183	17.67	17.72	0.05	17.45	-0.22
183A	15.87	15.88	0.01	15.81	-0.06
184	17.84	17.84	0.00	17.83	-0.01
185A	16.34	16.30	-0.04	16.50	0.16
185B	16.37	16.30	-0.07	16.49	0.12
186	16.37	16.30	-0.07	16.48	0.11
187	16.98	16.98	0.00	16.98	0.00
190	15.09	15.09	0.00	15.13	0.04
191	16.30	16.30	0.00	16.30	0.00
192	16.30	16.30	0.00	16.30	0.00
200	14.60	14.60	0.00	14.60	0.00
210	14.98	14.98	0.00	14.98	0.00
220	15.12	15.12	0.00	15.12	0.00

ELLIGRAW BAYOU - 25 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.
100	1.50	1.50	0.00
101	2.07	2.07	0.00
102	5.82	5.82	0.00
104	8.93	8.93	0.00
106	11.29	11.29	0.00
108	11.60	11.60	0.00
110	11.93	11.93	0.00
120	13.03	13.03	0.00
130	13.54	13.54	0.00
140	13.84	13.84	0.00
150	15.44	15.42	-0.02
151	15.45	15.42	-0.03
157	15.45	15.44	-0.01
158	15.47	15.45	-0.02
159	15.47	15.45	-0.02
160	15.91	15.91	0.00
161	15.48	15.46	-0.02
162	15.50	15.48	-0.02
163	15.51	15.49	-0.02
164	15.89	15.90	0.01
165	15.91	15.92	0.01
170	15.48	15.47	-0.01
171	15.74	15.73	-0.01
173	15.51	15.48	-0.03
175	15.35	15.33	-0.02
180	16.10	16.05	-0.05
181	16.62	16.54	-0.08
182	17.75	17.90	0.15
183	17.92	17.98	0.06
183A	16.00	16.01	0.01
184	18.02	18.04	0.02
185A	16.64	16.56	-0.08
185B	16.63	16.55	-0.08
186	16.63	16.56	-0.07
187	17.05	17.05	0.00
190	15.50	15.48	-0.02
191	16.57	16.57	0.00
192	16.57	16.57	0.00
200	14.97	14.97	0.00
210	15.40	15.40	0.00
220	15.54	15.54	0.00

ELLIGRAW BAYOU - 100 YEAR STORM COMP

NODE	ALT3	ALT3MOD	DIFF.
100	1.50	1.50	0.00
101	2.35	2.35	0.00
102	6.48	6.47	-0.01
104	9.40	9.40	0.00
106	11.61	11.61	0.00
108	11.74	11.74	0.00
110	12.13	12.13	0.00
120	13.45	13.44	-0.01
130	14.18	14.16	-0.02
140	14.40	14.38	-0.02
150	15.99	15.93	-0.06
151	16.00	15.93	-0.07
157	16.05	15.93	-0.12
158	16.05	15.95	-0.10
159	16.05	15.97	-0.08
160	16.06	15.99	-0.07
161	16.06	15.97	-0.09
162	16.08	16.00	-0.08
163	16.09	16.01	-0.08
164	16.09	16.08	-0.01
165	16.09	16.09	0.00
170	16.03	15.95	-0.08
171	16.32	16.27	-0.05
173	16.07	16.00	-0.07
175	15.82	15.78	-0.04
180	16.62	16.38	-0.24
181	17.16	16.79	-0.37
182	18.11	18.32	0.21
183	18.46	18.52	0.06
183A	16.24	16.21	-0.03
184	18.52	18.55	0.03
185A	17.15	16.81	-0.34
185B	17.18	16.81	-0.37
186	17.18	17.04	-0.14
187	17.20	17.19	-0.01
188		16.89	
190	16.09	16.00	-0.09
191	17.18	17.15	-0.03
192	17.18	17.15	-0.03
200	15.65	15.64	-0.01
210	16.16	16.16	0.00
220	16.24	16.24	0.00

ELLIGRAW BAYOU - 25 YEAR STORM COMPARISON

NODE	ALT 3	ALT 4	DIFF.	ALT 5	DIFF.
100	1.50	1.50	0.00	1.50	0.00
101	2.07	2.07	0.00	2.07	0.00
102	5.82	5.82	0.00	5.82	0.00
104	8.93	8.93	0.00	8.93	0.00
106	11.29	11.29	0.00	11.29	0.00
108	11.60	11.60	0.00	11.60	0.00
110	11.93	11.93	0.00	11.93	0.00
120	13.03	13.03	0.00	13.04	0.01
130	13.54	13.54	0.00	13.56	0.02
140	13.84	13.84	0.00	13.86	0.02
150	15.44	15.42	-0.02	15.48	0.04
151	15.45	15.42	-0.03	15.49	0.04
157	15.45	15.44	-0.01	15.50	0.05
158	15.47	15.45	-0.02	15.53	0.06
159	15.47	15.45	-0.02	15.54	0.07
160	15.91	15.91	0.00	15.92	0.01
161	15.48	15.46	-0.02	15.54	0.06
162	15.50	15.48	-0.02	15.54	0.04
163	15.51	15.49	-0.02	15.56	0.05
164	15.89	15.90	0.01	15.84	-0.05
165	15.91	15.92	0.01	15.86	-0.05
170	15.48	15.47	-0.01	15.53	0.05
171	15.74	15.73	-0.01	15.76	0.02
173	15.51	15.48	-0.03	15.54	0.03
175	15.35	15.33	-0.02	15.36	0.01
180	16.10	16.05	-0.05	16.17	0.07
181	16.62	16.54	-0.08	16.70	0.08
182	17.75	17.90	0.15	17.53	-0.22
183	17.92	17.98	0.06	17.72	-0.20
183A	16.00	16.01	0.01	15.94	-0.06
184	18.02	18.04	0.02	18.01	-0.01
185A	16.64	16.56	-0.08	16.72	0.08
185B	16.63	16.55	-0.08	16.72	0.09
186	16.63	16.56	-0.07	16.72	0.09
187	17.05	17.05	0.00	17.05	0.00
190	15.50	15.48	-0.02	15.54	0.04
191	16.57	16.57	0.00	16.57	0.00
192	16.57	16.57	0.00	16.57	0.00
200	14.97	14.97	0.00	14.98	0.01
210	15.40	15.40	0.00	15.40	0.00
220	15.54	15.54	0.00	15.54	0.00