WRRDA 7001 Submissions Package

U.S. Army Corps of Engineers

Proposal Name: 1077-1085 Regional Drainage Report

Submission Date: 09/19/2016

Proposal ID Number: 9abcf0d5-f8bb-4f68-811f-6c1571b18ee7

Purpose of Proposal: The purpose of this project is to identify the flood prone areas and recommend drainage improvements that will alleviate flooding within the project area. The recommended improvements are based on the HEC-RAS Model Runs for this Hydrologic and Hydraulic (H&H) study for a 10 Year Design Storm.

1. Administrative Details

Proposal Name: 1077-1085 Regional Drainage Report

by Agency: St. Tammany Parish Government

Locations: LA

Date Submitted: 09/19/2016

Confirmation Number: 9abcf0d5-f8bb-4f68-811f-6c1571b18ee7

Supporting Documents

File Name	Date Uploaded
1077-1085 Regional Drainage Study Cost .pdf	09/19/2016
1077-1085 Drainage Report.pdf	09/19/2016
1077-1085 Regional Drainage Study Map.pdf	09/19/2016
1077-1085 Regional Drainage Study Support Letter.pdf	09/19/2016

2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

Sponsor	**Letter of Support**
St. Tammany Parish Government(Primary)	The St. Tammany Parish Administration is in full support of this project and will provide all necessary resources to ensure that it is completed.

3. State if this proposal is for a feasibility study, a modification to an authorized USACE feasibility study or a modification to an authorized USACE project. If it is a proposal for a modification, provide the authorized water resources development feasibility study or project name.

[x] Feasibility Study

4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.

The purpose of this project is to identify the flood prone areas and recommend drainage improvements that will alleviate flooding within the project area. The recommended improvements are based on the HEC-RAS Model Runs for this Hydrologic and Hydraulic (H&H) study for a 10 Year Design Storm.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	**Non-Federal**	**Total**
Study	$1,204,789	$0	$1,204,789
Construction	$12,047,886	$0	$12,047,886

Explanation (if necessary)

The project construction cost will be $12,047,789. The soft cost (engineering, permitting, etc.) is $1,204,786. The total cost is $13,252,672. The estimated Federal study cost is 10% of the total construction cost for a total of $1,204,789.

6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.

The study area includes three (3) adjoining watersheds, totaling 20 square miles. East Bedico Creek watershed which includes two tributaries, Fox Branch and East Bedico Tributary No. 3, flows southwest into Tangipahoa Parish. The Black River watershed flows south to Lake Pontchartrain. The Soap and Tallow Creek watershed, which includes the Tallow creek tributary, flows southeast to the Tchefuncte River. Because the 3 watersheds are adjoining, the same detention pond(s) can be utilized for more than one watershed. The overall area of study is bounded by the Tangipahoa Parish line (west boundary), Dummyline Road (south boundary), Gottschalk Road (north boundary) and Rousseau Road (east boundary).

7. Does local support exist? If 'Yes', describe the local support for the proposal.

[x] Yes

Local Support Description

The St. Tammany Parish Administration is in full support of this project and will provide all necessary resources to ensure that it is completed.

8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?

[x] Yes

Additional Proposal Information

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1077-1085 Regional Drainage Study Cost .pdf

Engineer's Opinion Of Probable Construction Cost

Location	Item	Unit	Quantity	Unit Cost	Cost
1077 & Tallow Creek	RCP Diameter - 54 inch w/ Headwalls	Lin.Ft.	40.0	$1,000.00	$40,000.00
Fox Run Branch & Perilloux Rd.	RCP Diameter - 2 - 54 inch w/ Headwalls	Lin.Ft.	80.0	$1,000.00	$80,000.00
Bedico Creek & Bedico Creek Blvd.	RCB 35' X 12.5' High, w/ Headwalls	Lin.Ft.	64.0	$3,000.00	$192,000.00
LA HW 1085 - between LaHwy 1077 & Divestited blvd.	RCB - 48 in. x Width - 96 inch. w/ Headwalls Height	Lin.Ft.	50.0	$3,000.00	$150,000.00
Ponds (No. 1 thru No.6)	Reinforced Concrete Control Structure	Cu Yd.	144.0	$400.00	$57,600.00
Ponds (No. 1 thru No.6)	Rock Channel Protection	Cu Yd.	2,800.0	$50.00	$140,000.00
Ponds (No. 1 thru No.6)	Excavation	Cu Yd.	840,185.7	$10.70	$8,989,986.99
Ponds (No. 1 thru No.6)	Hydro-Seeding	Acre	82.7	$2,000.00	$165,400.00
Ponds (No. 1 thru No.6)	Grading	Acre	82.7	$2,000.00	$165,400.00
Ponds (No. 1 thru No.6)	Real Estate Acquisition	Acre	82.7	$25,000.00	$2,067,500.00
			Total Estimated Cost of Construction		**$12,047,886.99**

NOTE: This cost estimate represents a professional opinion based on currently available information. Actual construction cost may vary significantly from this figure depending upon the time of construction, changed conditions, availability of materials, and other factors beyond the control of the consultant or owner. This figure is not a guaranteed maximum cost.

Additional Proposal Information

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1077-1085 Drainage Report.pdf

LA 1077/1085 DRAINAGE STUDY

ST. TAMMANY PARISH, LOUISIANA

August, 2016

Prepared By:

N-Y ASSOCIATES, INC.
ENGINEERS • ARCHITECTS • PLANNERS
PROGRAM & PROJECT MANAGERS

N-Y JOB NO. 15008

Executive Summary

The purpose of this Hydrologic and Hydraulic study is to evaluate the flood inundation and water surface elevation within three (3) adjoining watershed areas in northwestern St. Tammany Parish, LA.

The total area of the 3 adjoining watersheds is 19.6 square miles. The watersheds are:

- East Bedico Creek (7,254.3 Acres) includes tributaries Fox Branch and Tributary No. 3.
- Soap and Tallow Creek (4,412.0 Acres) includes tributaries Tallow Creek, Tallow Creek No.3 and Tuscany.
- Black River (833.0 Acres).

The average slope across the study area is relatively flat, less than 0.2%. Also, average profile grades of creeks are relatively flat, less than 0.2%. The soil conditions are also poor for drainage. Therefore, flood inundation is widespread but shallow, as illustrated on the flood inundation maps and the water surface profiles.

Dry detention ponds are proposed to reduce flood inundation and water surface elevations (W.S.E.) Six (6) dry detention ponds are proposed. The total real estate acquisition required is 82.7 acres.

Also, proposed are additional culverts at:

- La Hwy 1077 (Tallow Creek), Structure No. **1**
- Perriloux Road (Fox Branch), Structure No. **2**
- Bedico Creek Blvd. (Bedico Creek), Structure No. **3**
- La Hwy 1085 - between La Hwy 1077 & Diversified Blvd., (Pond Interconnect) Structure No. 4

Culverts are designed for the 10 year – 24 hour storm. The dry detention ponds allow culverts to be added without an increase in flow downstream. The depth and duration of flow overtopping the roadways is reduced for the 100 year – 24 hour storm.

Also, Channel (creek) maintenance is proposed. The existing conditions model assumes a friction coefficient of 0.05 for channels (not maintained). The proposed conditions model assumes a friction coefficient of 0.03 for channels (maintained). Channels and Creeks do not need to be lined; however, it is recommended that channels and Creeks be maintained on a regular basis. Channels should be free trees and bushes. It is recommended that cross slopes be protected from erosion with grass and rock channel protection where velocities are high.

The model shows a reduction in water surface elevation (W.S.E.) as follows:

Fox Branch (Fox Branch and Bonita Estates)

The average water surface elevation reduction from Interstate 12 to La Hwy 1085 is 0.99 feet and 0.64 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 2.5 miles.

Tallow Creek (La Hwy 1077 and White Chapel Road)

The average water surface elevation reduction from La Hwy 1077 to a commercial driveway labeled as New Road in the report, is 0.64 feet and 0.56 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 1.6 miles.

Black River (Rex Road and Brewster Road)

The average water surface elevation reduction from Rex Road to Brewster Road is 0.78 feet and 0.32 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 0.7 miles.

The existing culverts (2 – 9 foot diameter RCP) at Bedico Creek Blvd. on Bedico Creek were evaluated and found to be insufficient for the 10 year storm. It is recommended that a Reinforced Concrete Box, (35 feet wide by 12.5 feet high), Structure No. 3 replace the existing culverts. Also, just downstream of this location Fox Branch flows into Bedico Creek. It is recommended that the junction of Bedico Creek and Fox Branch be realigned. This will improve flow and thus, reduce the W.S.E. (water surface elevation).

Channel re-alignment and widening at the inlet and outlet of the existing culvert at Fox Branch and Interstate 12 is recommended to allow for reverse flow in the culvert, providing an interconnection of the detention ponds. It is recommended that the channel re-alignment be included in the design phase.

The total estimated cost for the proposed improvements including real estate acquisition is $12,000,000.

SECTION 1 – INTRODUCTION

1.1 Background

St. Tammany Parish (Parish) is geographically located in the south eastern part of Louisiana, north of Lake Pontchartrain (Lake) and abuts the State of Mississippi on the east. Based on the data provided by the U.S. Bureau of Census, St. Tammany Parish has a total area of 1,124 square miles. Of this total area, 846 square miles is land and 279 square miles is water. In general, the land slopes from the north to the south.

The study area includes three (3) adjoining watersheds, totaling 20 square miles. East Bedico Creek watershed which includes two tributaries, Fox Branch and East Bedico Tributary No. 3, flows southwest into Tangipahoa Parish. The Black River watershed flows south to Lake Pontchartrain. The Soap and Tallow Creek watershed, which includes the Tallow creek tributary, flows southeast to the Tchefuncte River.

Because the 3 watersheds are adjoining, the same detention pond(s) can be utilized for more than one watershed.

The overall area of study is bounded by the Tangipahoa Parish line (west boundary), Dummyline Road (south boundary), Gottschalk Road (north boundary) and Rousseau Road (east boundary).

1.2 Purpose of Project

The purpose of this project is to identify the flood prone areas and recommend drainage improvements that will alleviate flooding within the project area shown in Figure No. 1.1.

The recommended improvements are based on the HEC-RAS Model Runs for this Hydrologic and Hydraulic (H&H) study for a 10 Year Design Storm.

1.3 Scope of Work

The scope of work required the preparation of a hydraulic and hydrologic study for East Bedico Creek, Soap and Tallow Creek and the Black River watersheds, the evaluation of the existing and proposed conditions and the determination of the area of flood inundation and water surface elevations, propose solutions to reduce the area of flood inundation and the reduction of the water surface elevations (W.S.E.).

The following is also included:

i. Flood inundation which impacts existing subdivisions were addressed.
ii. Existing W.S.E. and proposed W.S.E. were compared.
iii. An Opinion of Probable Construction Cost for the proposed improvements is provided.

1.4 Description of Project Area

The three watersheds evaluated are:

East Bedico Creek (7,254.3 Acres) Approximately bounded by Gottschalk Road, the Tangipahoa Parish line just west of La Hwy 1077 and Brewster Road. Bonita Estates and Fox Branch Estates subdivisions are within this drainage area.

Soap and Tallow Creek (4,412.0 Acres) Approximately bounded by US 190, La Hwy 1085 just west of La Hwy 1077 and Rousseau Road. Tuscany Estates subdivision is within this drainage area.

Black River (833.0 Acres) Approximately bounded by Dummyline Road, La Hwy 1077 just South of I-12, Powerline Road and Galatas Road. Madisonville Farms subdivision is within this drainage area.

The watershed drainage area studied is less than 30% developed. Thus, it is critical to note that based on the 2015 land use map CN values are estimated to increase approximately 8% when the area is built out. This evaluation will be important if regional detention is considered by the Parish. See Appendix H for existing and future CN values. The CN values used in this study are based on existing conditions.

The areas are drained by gravity using a network of natural creeks, manmade ditches, drainage laterals and culverts. The ditches and culverts drain into the drainage laterals and creeks that in turn drain into the Tchefuncte River or into Lake Pontchartrain. Several man made ponds have been constructed over the years to provide some storm water detention and/or storage.

SECTION 2 – DATA COLLECTION AND FIELD WORK

2.1 Topographic Surveying

In order to accurately determine the invert elevations of the existing culverts, the flow lines of creeks and ditches and to verify the existing ground elevations that were obtained from other sources, N-Y completed a partial topographic survey of the project area for the purpose of computer modeling the drainage basin. The survey data was prepared in the NAVD 88 datum. Light Detection and Ranging (LIDAR) data was down loaded from the Atlas Lidar web site. The topographic survey is included in Appendices H and I.

SECTION 3 – MODELING AND ANALYSIS

3.1 Methodology

LiDAR and topographical survey data was used to generate a 3-D digital surface from which contour lines are generated. Drainage boundaries (area) were delineated based on the contours. The contours were used to determine the existing storage volume (detention) of the drainage areas.

The length of time of concentration is the length from a remote point in the drainage area to the point of concentration. The SCS TR – 55 method is used to calculate the time of concentration. See Appendix C – Delineated Drainage Area Sheets for the path of the time of concentration. Appendix C also shows a plan area number for each delineated area. This plan area number corresponds to the plan area number in Table 1.1.

Included in Table No. 1.1 are Acres, CN values, time of concentration and the length of time of concentration per each drainage area. The CN values (runoff coefficient) are based on the USGS soil type maps and the existing land use / development. The determination of CN values is shown In Appendix H – USGS Soil Maps and Appendix I – CN – Runoff Coefficient Calculation Tables.

The rainfall curve is a Type III SCS distribution curve. Rainfall intensity is shown in the figure below.

Return Period	Depth of Rainfall over 24 hours (inches)
10 - Year	8.5
25 - Year	9.9
50 - Year	11.1
100 - Year	12.6

Data including drainage area, length of time of concentration and CN values, rainfall distribution curve and existing storage volume / detention were input into the Storm Water Management Model (SWMM) software. SWMM generated the flows for the 10, 25, 50 and 100 year – 24 hour storm events. The method of flow determination is shown in Appendix J – Hydrographs and Flows 10, 25, 50, 100 Year – 24 Hour Storms. Also, SWMM generated water surface elevations, time of concentration for each drainage area, and evaluated the required storm water detention for the design year storm. Thus, existing and proposed conditions are evaluated for the 10, 25, 50 and 100 year – 24 hour storm events. See Table No. 1.2.

The flows generated by SWMM and cross sections from the 3-D digital surface were input into Hec Ras. Hec Ras generated a water surface profile for each stream. The flood inundation boundaries are based on the output from Hec Ras 4.1.0. Finally, water surface elevations of existing and proposed conditions are compared for the 10 and 100 year – 24 hour storms. See Table 1.3 Summary Proposed Vs. Existing Water Surface Profile Elevations. The 10-year storm is the basis for pond and culvert design. The 100 year storm serves as a check (calibration) against the 100 year DFIRM Map. See Appendix A for water surface profiles for each stream. The existing profile for the 10 and 100 year storm is shown on the same sheet for a particular stream. The following sheet shows the proposed 10 and 100 year storm for the same stream. See Appendix F, Tables 1.4 and 1.5 for existing water surface elevations at culverts and bridges. See Appendix G, Tables 1.6 and 1.7 for proposed water surface elevations at culverts and bridges.

3.2 Software

The Storm Water Management Model (SWMM) version 5.0.022 developed by the US Environmental Protection Agency (USEPA) computer modeling system was utilized for modeling this project.

According to the US EPA web site (http://www.epa.gov/nrmrl/wswrd/wq/models/swmm/), "This general purpose urban hydrology and conveyance system hydraulics software is a dynamic rainfall-runoff simulation model used for a single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas." The runoff component of SWMM operates on a collection of sub-catchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through:

- a system of pipes
- channels
- storage/treatment devices

The Hydrologic Engineering Center River Analysis System (HEC-RAS 4.1.0) software allows the user to perform one-dimensional steady flow, one and two-dimensional unsteady flow calculations, sediment transport / mobile bed computations, and water temperature/water quality modeling.

3.3 Existing & Proposed Drainage Area Basins

The drainage areas and streams vary in slope from 0.5 % to 0.01%. Based on USGS soil maps, the soil types drain poorly. Therefore, flooding is relatively wide and shallow at a given cross section. See Appendix H for soil maps and Table 1.1 for CN values (runoff coefficients). The drainage area evaluated is roughly 30% developed. However, because the native soil drains poorly (high impermeability equates to high CN values) the planned future development (per the 2015 Land Use Map) will increase CN values from approximately 79 to 86 on average. Appendix I shows the projected CN values.

The delineated drainage areas are based on contour lines and roadways. The USGS quad maps and DFIRM flood maps (100 year storm) were reviewed to evaluate the overall watersheds.

The Parish land development ordinance requires storm water detention. Therefore, the area of existing detention ponds is significant. However, the existing detention ponds are wet ponds and their volume was not included in this study. It is recommended that the existing ponds be included in the design phase. Conversion of existing wet ponds to dry ponds and pond inter-connection should be evaluated in the design phase.

3.4 Manning's Roughness Coefficient

The following values of Manning's Roughness Coefficient (n) were used as shown below. These are calibration parameters and were adjusted to match the existing conditions. For example, if the ditches are not maintained and are subject to heavy brush growth, the n value can be increased.

i. For Concrete Culverts, n = 0.013
ii. For Corrugated Metal Culverts, n = 0.024
iii. For Plastic and PVC pipes, n = 0.012
iv. For roadside ditches and drainage laterals (canals), n = 0.03 (value for open excavated channels with dense weeds).
v. For winding ditches with some weeds and pools, n = 0.05 was used.

3.5 Model Results (Existing & Proposed)

The model shows a reduction in water surface elevation (W.S.E.) as follows:

Fox Branch (Fox Branch and Bonita Estates)

The average water surface elevation reduction from Interstate 12 to La Hwy 1085 is 0.99 feet and 0.64 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 2.5 miles.

Tallow Creek (La Hwy 1077 and White Chapel Road)

The average water surface elevation reduction from La Hwy 1077 to a commercial driveway labeled as New Road in the report, is 0.64 feet and 0.56 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 1.6 miles.

Black River (Rex Road and Brewster Road)

The average water surface elevation reduction from Rex Road to Brewster Road is 0.78 feet and 0.32 feet, for the 10 year and 100 year storms, respectively. This average water surface elevation reduction is over a distance of 0.7 miles.

Additionally, Tuscany Estates is within the study area. The master drainage plan (2007) included with the subdivision plans, shows the outfall being routed south to Tallow Creek. The hydrologic and hydraulic model assumes the outfall as per the master drainage plan. The model indicates that the water surface elevation (10 year storm) will be reduced from 25.47 feet to 25.30 feet, a reduction of 0.17 feet. The Tuscany Estates subdivision plan shows roadway elevations from 26.40 to 24.90 feet. The existing wet detention pond, top of berm elevation is 24.97, according to the plan. Therefore, the existing pond and a portion of the roadway will be overtopped. Thus, flooding will be reduced but not eliminated within the subdivision. The model indicates the flooding within the subdivision is minimal. Therefore, the issue may be within the subdivision. Specifically, the outfall of the detention should be evaluated in the design phase.

3.6 Proposed Improvements

Dry detention ponds are proposed to reduce flood inundation and water surface elevations (W.S.E.) See Figure 1.0 for Dry Detention Pond Locations. Table No. 1.8 below, shows the overall pond dimensions.

Table No. 1.8 Overall Pond Dimensions

Pond No.	Top of Bank Elevation	Bottom Elevation	Depth (Feet)	Real Estate Acquisition
				Acres
1	26.5	17	9.5	5.8
2	24	17.5	6.5	16.4
3	24	17	7	16.5
4	24	17	7	32.0
5	24	17	7	7.0
6	22	16	6	4.7

Also, additional culverts are proposed at the following locations. See Figure 1.0 Proposed Improvement Plan Sheet.

- La Hwy 1077 (Tallow Creek), Structure No. 1, RCP Diameter 54 inch
- Perriloux Road (Fox Branch), Structure No. 2, 2 - RCP Diameter 54 inch
- Bedico Creek Blvd. (Bedico Creek), Structure No. 3, - RCB 35 ft. x 12.5 ft.
- La Hwy 1085 - between La Hwy 1077 & Diversified Blvd., (Pond Interconnect) Structure No. 4, Reinforced Concrete Box Height - 48 in. x Width - 96 in.

Culverts are designed for the 10 year – 24 hour storm. The dry detention ponds allow culverts to be added without an increase in flow downstream. The depth and duration of flow over topping the roadways is reduced for the 100 year – 24 hour storm.

Also, Channel (creek) maintenance is proposed. The existing conditions model assumes a friction coefficient of 0.05 for channels (not maintained). The proposed conditions model assumes a friction coefficient of 0.03 for channels (maintained). Channels and Creeks do not need to be lined, but it is recommended that channels and Creeks be maintained on a regular basis. Channels should be kept free of trees and bushes. It is recommended that cross slopes be protected from erosion with grass and rock channel protection where velocities are high.

The existing culverts (2 – 9 foot diameter RCP) at Bedico Creek Blvd. on Bedico Creek were evaluated and found to be insufficient for the 10 year – 24 storm. It is recommended that a Reinforced Concrete Box (35 feet wide by 12.5 feet high), Structure no. 3, replace the existing culverts, or an equivalent bridge should be included in the design phase. Also, the confluence (junction) of Fox Branch and Bedico Creek should be improved to increase flow and reduced tail water. Currently, Fox Branch flows into Bedico Creek at a 90 degree angle. The channels should be re-aligned to reduce the angle from 90 to 45 degrees.

Channel re-alignment at the inlet and outlet of the existing culvert at Fox Branch and Interstate 12 is recommended to allow for reverse flow in the culvert and provide an interconnection of the detention ponds. It is recommended that the channel re-alignment be included in the design phase.

In summary, dry detention ponds are needed to reduce the W.S.E. within the three water sheds. Culverts are added (designed) based on the 10 year storm. Thus, the proposed W.S.E. is below the pavement at roadways (La Hwy 1077, Perriloux Road and Bedico Creek Blvd.) Also, culverts minimize the pond size (volume). The proposed pond and culvert combination is balanced to ensure outflow from the three water sheds does not increase water surface elevations downstream.

SECTION 4 – ESTIMATED CONSTRUCTION COSTS OF THE PROPOSED IMPROVEMENTS

4.1 Discussion of Estimated Construction Cost (Engineer's Opinion of Probable Costs)

The proposed construction includes 6 dry detention ponds, culverts and the acquisition of 83 acres of land. The total estimated cost for the improvements is $12,047,877. See Table No. 2.0 for the itemized costs. Costs may be significantly reduced if the existing wet ponds in the northwest and southwest quadrants of Interstate 12 and La 1077 can be included in the design phase and converted from wet ponds to dry ponds. Based on the opinion of probable costs, the cost to excavate an acre (depth of 7 feet) is $109,000 and the cost of the existing ponds is $25,000 per acre. Table No. 1.9 below itemizes quantities for dry detention pond construction. These quantities are carried to Table No. 2.0.

Table No. 1.9 Pond Quantities

Pond No.	Real Estate Acquisition	Excavation	Reinforced Concrete Control Structure	Rock Channel Protection	Hydro-Seeding	Grading
	Acres	Cubic Yards	Cubic Yards	Cubic Yards	Acres	Acres
1	5.8	70,370	24	400	5.8	5.8
2	16.4	156,481	24	400	16.4	16.4
3*	16.9	170,000	24	800	16.9	16.9
4	32.0	337,037	24	400	32.0	32.0
5	7.0	67,407	24	400	7.0	7.0
6	4.7	38,889	24	400	4.7	4.7
	82.3	838,703.7	144.0	2,400.0	82.3	82.3

* NOTE: Pond No. 3 includes quantities for Channel No. 1.

Benefits of the proposed improvements include reduced frequency of flooding at roadways (La Hwy 1077, Perriloux Road and Bedico Creek Blvd.), in residential areas (Fox Branch, Bonita, Tuscany and Madisonville Farms Estates) and the commercial area in the northwest corner of La Hwy 1077 and Interstate 12. The benefits are achieved without impacting areas downstream of the three water sheds.

Engineer's Opinion Of Probable Construction Cost

Table No. 2.0

Location	Item	Unit	Quantity	Unit Cost	Cost
1077 & Tallow Creek	RCP Diameter - 54 inch w/ Headwalls	Lin.Ft.	40.0	$1,000.00	$40,000.00
Fox Run Branch & Perilloux Rd.	RCP Diameter - 2 - 54 inch w/ Headwalls	Lin.Ft.	80.0	$1,000.00	$80,000.00
Bedico Creek & Bedico Creek Blvd.	RCB 35' X 12.5' High, w/ Headwalls	Lin.Ft.	64.0	$3,000.00	$192,000.00
LA HW 1085 - beween LaHwy 1077 & Divesified blvd.	RCB Hieght - 48 in. x Width - 96 inch. w/ Headwalls	Lin.Ft.	50.0	$3,000.00	$150,000.00
Ponds (No. 1 thru No.6)	Reinforced Concrete Control Structure	Cu Yd.	144.0	$400.00	$57,600.00
Ponds (No. 1 thru No.6)	Rock Channel Protection	Cu Yd.	2,800.0	$50.00	$140,000.00
Ponds (No. 1 thru No.6)	Excavation	Cu Yd.	840,185.7	$10.70	$8,989,986.99
Ponds (No. 1 thru No.6)	Hydro-Seeding	Acre	82.7	$2,000.00	$165,400.00
Ponds (No. 1 thru No.6)	Grading	Acre	82.7	$2,000.00	$165,400.00
Ponds (No. 1 thru No.6)	Real Estate Acquisition	Acre	82.7	$25,000.00	$2,067,500.00
	Total Estimated Cost of Construction				**$12,047,886.99**

NOTE. This cost estimate represents a professional opinion based on currently available information. Actual construction cost may vary significantly from this figure depending upon the time of construction, changed conditions, availability of materials, and other factors beyond the control of the consultant or owner. This figure is not a guaranteed maximum cost.

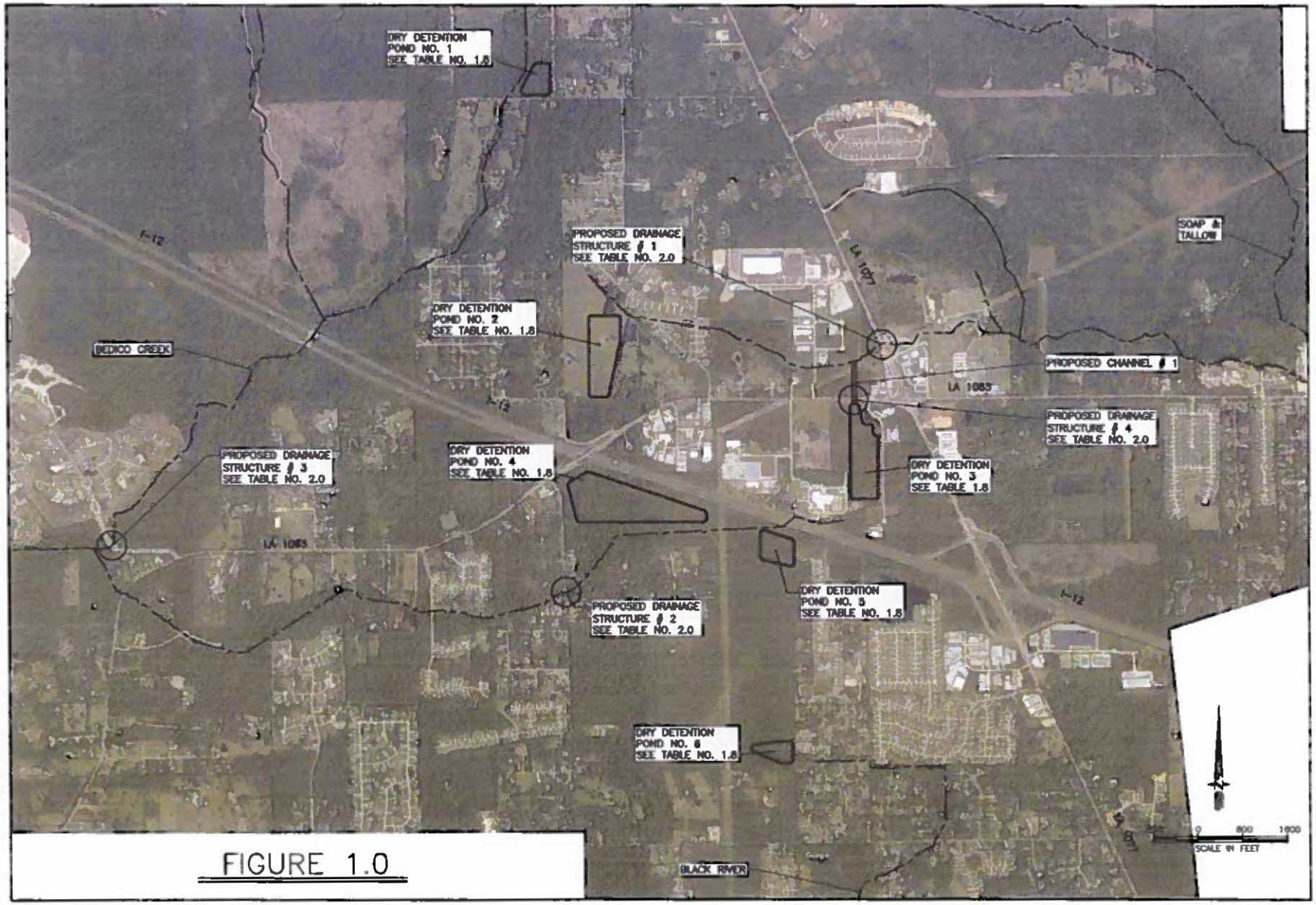

FIGURE 1.0

LA 1077/1085 DRAINAGE STUDY
PROPOSED IMPROVEMENTS
FIGURE 1.0
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2018

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SWMM Input Area, CN Values, Length for Time Of Concentration

Table No. 1.1

Plan Area Number	Acres	Element	Description	CN Values	Time of Concentration (days hh:mm:ss)	T.O.C. Length (feet)
1.0	310.0	Area-01	Northwestcorner1077&190	78.50	0 04:00:38	6,700
2.0	294.0	Area--02		78.10	0 03:19:50	8,310
3.0	112.0	Area-3	JoinerWynerRd.	78.10	0 02:15:53	2,936
4.0	165.0	Areas-4and4.1		78.10	0 02:25:37	4,339
4.0	159.0					
4.1	6.0					
5.0	678.0	Area--05	area5	78.10	0 06:07:34	10,700
6.0	66.0	Area-6-InterState12		90.00	0 01:19:04	4,590
7.0	843.0	areas7and8	combineareas7&8	79.40	0 03:34:06	6,515
7.0	792.0					
8.0	51.0					
9.0	51.0	area17&9	area17&9	79.40	0 01:14:35	2,660
9.0	10.0					
17.0	41.0					
10.0	274.0	Area-10		79.40	0 02:34:02	3,510
11.0	1867.0	Area-11		75.70	0 06:16:52	12,100
12.0	646.0	Area-12	westbetween190andI-12	76.70	0 04:00:28	3,200
12.1	268.0	Area--12.1	Evaluate-Culverts@Trace	76.70	0 02:34:01	9,700
12.2	267.0	Area-12.2		72.00	0 02:45:52	6,680
12.3	769.0	Area-12.3		76.70	0 05:11:56	11,600
13.0	538	Area-13	areaeastofPenlouxRd.	78.90	0 05:35:55	7,110
14.0	255	Area--14	area Penloux&FoxBranchCross	80.50	0 03:24:37	4,540
15.0	93	Area---15	area15	79.60	0 02:19:37	2,900
16.0	454	Area-16		79.60	0 02:45:29	7,650
31.0	181	Area-31	914.00	78.90	0 02:43:22	3,928
32.0	68.0	Area-32		78.10	0 02:32:02	3,200
33.0	414.0	Area-33		77.70	0 05:01:12	9,800
34.0	281.0	Area-34		77.70	0 02:00:34	4,614
35.0	201.0	Area-35		77.70	0 02:59:41	4,984
36.0	104.0	Area-36		77.70	0 01:51:54	4,241
37.0	45.0	Area-37		79.30	0 00:28:02	2,170
38.0	23.0	Area-38		79.30	0 00:26:18	2,036
39.0	45.0	Area-39		79.30	0 00:55:41	2,853
40.0	33.0	Area-40		79.30	0 00:17:58	1,100

SWMM Input Area, CN Values, Length for Time Of Concentration

Table No. 1.1

Plan Area Number	Acres	Element	Description	CN Values	Time of Concentration (days hh:mm:ss)	T.O.C. Length (feet)
41.0	163.0	Area-41		79.30	0 00:55:11	2,817
42.0	504.0	Area-42		80.90	0 01:48:47	5,300
43.0	233.0	Area-43		82.50	0 01:16:40	2,300
44.0	85.0	Area-44		82.50	0 02:16:35	4,400
45.0	362.0	Area-45		82.50	0 03:48:21	8,300
46.0	144.0	Area46.0		81.90	0 02:06:14	4,336
46.1	29.0	Areas-46.1	Soccer-Fields	81.90	0 01:27:13	1,900
47.0	57.0	Areas-47&48		77.80	0 00:58:22	900
47.0	31.0					
48.0	26.0					
49.0	167.0	Areas-49and50		77.80	0 01:45:11	4,168
49.0	24.0					
50.0	143.0					
51.0	60.0	Area-51	new-road	77.80	0 01:13:35	2,766
52.0	17.0	Area-52		77.80	0 00:50:53	1,385
53.0	480.0	Area-53		78.30	0 04:24:20	9,600
60.0	112.0	Area-60		79.30	0 02:53:09	2,300
61.0	141.0	Area-61		84.40	0 02:38:10	4,018
62.0	190.0	Area-62		80.10	0 02:02:40	3,837
63.0	27.0	Area-63	2nd culvert at brewster	84.30	0 01:42:41	1,200
64.0	32.0	Area-64		78.20	0 01:17:02	1,709
65.0	130.0	Area-65		78.20	0 01:08:10	3,400
66.0	25.0	Area-66		78.20	0 01:18:56	1,371
67.0	86.0	Area-67		78.20	0 01:01:59	2,041
68.0	40.0	Area-68		78.20	0 00:53:18	1,735
69.0	50.0	Area-69		78.20	0 01:54:08	1,635

Bedico Creek	7,970.3	Acres
Soap and Tallow Creek	3,696.0	Acres
Black River	833.0	Acres
	+	
Total Area	12,499	Acres
	19.53	Square Mile

Table No. 1.2

SWMM Output Flows
Existing & Proposed Flows (CFS) 10, 25, 50, 100 Year - 24 Hour Storms

River	Reach	RS	Existing 100 Year-24 Hour Storm	Proposed 100 Year-24 Hour Storm	Existing 50 Year-24 Hour Storm	Proposed 50 Year-24 Hour Storm	Existing 25 Year-24 Hour Storm	Proposed 25 Year-24 Hour Storm	Existing 10 Year-24 Hour Storm	Proposed 10 Year-24 Hour Storm
			CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS
Bedico Cr.	Bed. Cr. No.3	27449.91	324	220	188	187	183	184	175	174
Bedico Cr.	Bed. Cr. No.3	27000	324	220	188	187	183	184	175	174
Bedico Cr.	Bed. Cr. No.3	25000	325	220	188	187	183	184	175	174
Bedico Cr.	Bed. Cr. No.3	20000	540	476	345	326	325	320	269	265
Bedico Cr.	Bed. Cr. No.3	18000	551	388	350	330	331	326	300	265
Bedico Cr.	Bed. Cr. No.3	14000	1284	1219	1135	1121	1019	991	804	849
Bedico Cr.	Trib. No.3	13349.4	2306	2238	1926	1891	1691	1659	1288	462
Bedico Cr.	Trib. No.3	11000	2000	1432	662	590	475	1466	700	256
Bedico Cr.	Trib. No.3	10000	2000	1432	662	590	475	1466	700	256
Bedico Cr.	Trib. No.3	6000	2028	1687	1063	1064	845	1470	700	782
Bedico Cr.	Bed. Cr. No.2	12250	2281	2095	1974	2064	1946	2364	2039	2132
Bedico Cr.	Bed. Cr. No.2	11000	2287	2106	1039	2063	1966	2351	2030	2123
Bedico Cr.	Bed. Cr. No.2	7000	3014	3154	2806	2988	2717	2913	2397	2325
Bedico Cr.	Bed. Cr. No.2	5632.59	3014	3154	2806	2988	2717	2913	2397	2325
Bedico Cr.	Fox Branch	15605.26	195	272	192	271	178	220	139	250
Bedico Cr.	Fox Branch	9000	957	409	803	374	558	411	506	250
Bedico Cr.	Fox Branch	7000	1236	683	1003	590	780	530	700	351
Bedico Cr.	Fox Branch	5000	1304	756	1063	596	845	538	741	400
Bedico Cr.	Fox Branch	470	1557	1113	1255	883	1005	727	927	679
Bedico Cr.	Bed. Cr. No.1	5383.49*	4508	4260	4017	3866	3691	3639	3313	3021
Bedico Cr.	Bed. Cr. No.1	5000	4539	4288	4045	3898	3712	3658	3326	3042
Bedico Cr.	Bed. Cr. No.1	4000	4618	4384	4117	3983	3766	3704	3359	3069
Bedico Cr.	Bed. Cr. No.1	3000	4785	4480	4326	4068	4006	3750	3392	3170
Black River	B River No.1	12498.06	252	137	218	123	192	118	142	117
Black River	B River No.1	12000	253	137	218	123	192	118	142	117
Black River	B River No.1	10000	607	478	523	417	459	375	333	295
Black River	B River No.1	9000	823	736	755	694	710	653	595	534
Black River	B River No.1	7000	942	872	847	802	784	738	642	688
Black River	B River No.1	4000	1313	1295	1146	1123	1000	965	801	746
Black River	B River No.1	2000	1528	1505	1314	1287	1120	1085	864	805
Soap & Tallow Cr	S & T No.2	17598.69	207	206	161	137	152	132	142	142
Soap & Tallow Cr	S & T No.2	16000	207	206	195	203	183	193	181	182
Soap & Tallow Cr	S & T No.2	8546.33	759	749	697	695	602	633	517	494
Soap & Tallow Cr	S & T No.2	6000	930	900	840	815	720	820	721	711
Soap & Tallow Cr	S & T No.2	4000	941	917	842	820	728	830	721	730
Soap & Tallow Cr	S & T No.2	2000	1170	1139	1034	1281	886	1117	1004	1052
Soap & Tallow Cr	S & T No. 1	4521.83	3409	3114	2983	2607	2604	2320	2106	1988
Soap & Tallow Cr	S & T No. 1	3000	3409	3114	2983	2607	2604	2320	2175	1988
Soap & Tallow Cr	S & T No. 1	1000	3470	3176	3033	2686	2649	2389	2166	2059
Tallow Cr	T Cr No.2	20935.8	901	273	720	455	630	414	908	238
Tallow Cr	T Cr No.2	14858.05	1079	856	986	756	906	615	778	429
Tallow Cr	T Cr No.2	13000	1164	947	1056	868	980	605	865	658
Tallow Cr	T Cr No.3	1270.74	13	14	15	16	16	16	16	16
Tallow Cr	T Cr No.1	12332.*	1177	961	1072	884	996	621	881	574
Tallow Cr	Tuscany	4076.12	570	582	517	667	443	577	469	490
Tallow Cr	T Cr No.2-1	12000	1848	1617	1667	1258	1466	1030	1083	840
Tallow Cr	T Cr No.2-1	11000	1848	1617	1667	1258	1466	1030	1083	840
Tallow Cr	T Cr No.2-1	8000	2030	1772	1810	1258	1585	1120	1144	902
Tallow Cr	T Cr No.2-1	6000	2109	1834	1867	1258	1633	1133	1170	870

Summary Proposed & Existing Water Surface Profile Elevations

Table 1.3

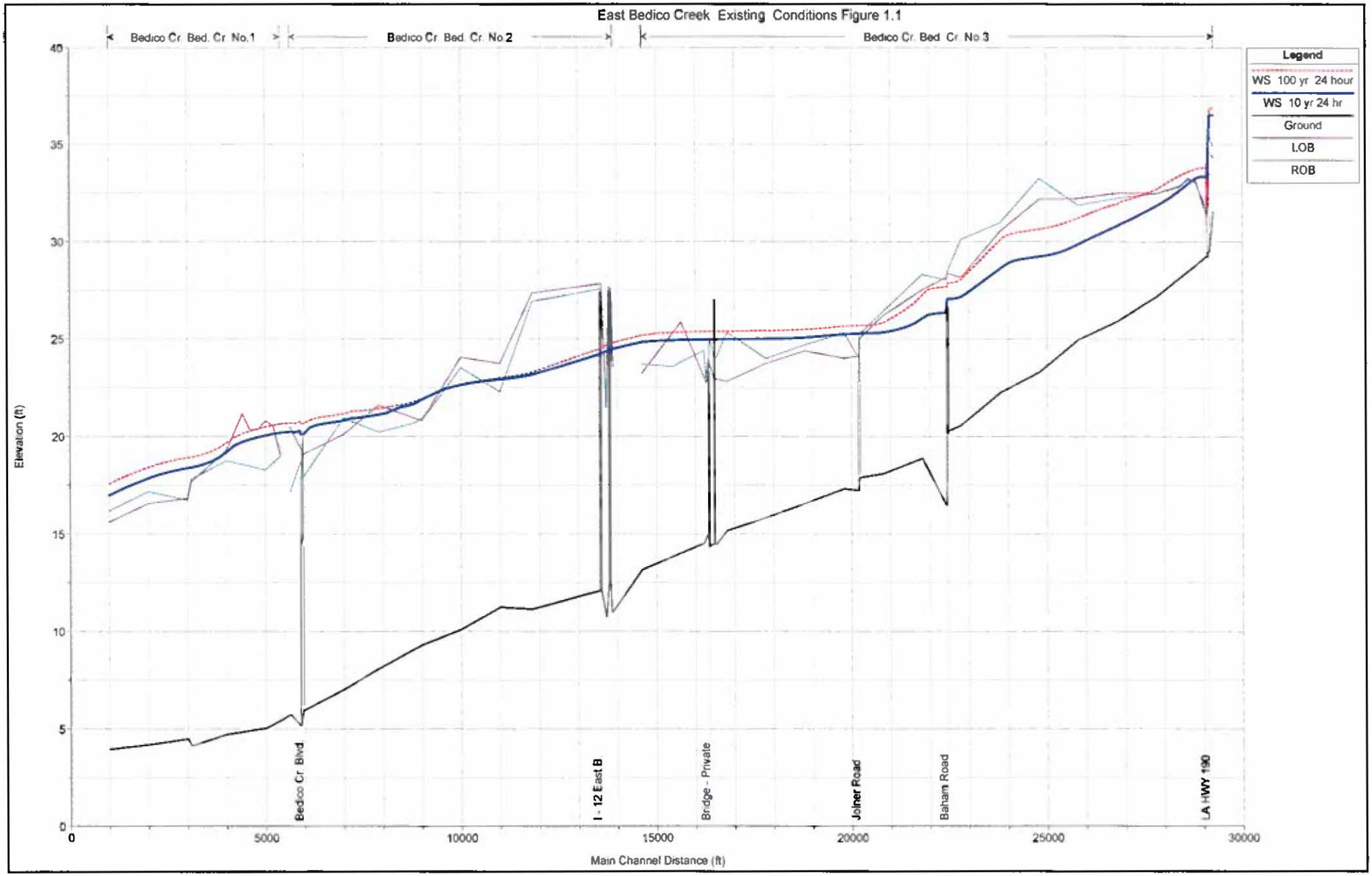
River	Reach	River Sta		Profile	Existing Water Surface Elevations, Up Stream	Proposed Water Surface Elevations, Up Stream	Reduction of Water Surface Elevation (Existing W.S.E. less Proposed W.S.E.)
					(ft)	(ft)	(ft)
Tallow Cr	T Cr No 2	14912.13 1077	Culvert #3	100 yr 24 hour		23.73	
Tallow Cr	T Cr No 2	14912.13 1077	Culvert #2	100 yr 24 hour	24.03	23.73	0.3
Tallow Cr	T Cr No 2	14912.13 1077	Culvert #1	100 yr 24 hour	24.03	23.73	0.3
Tallow Cr	T Cr No.2	14912.13 1077	Culvert #3	10 yr 24 hr		23.45	
Tallow Cr	T Cr No 2	14912.13 1077	Culvert #2	10 yr 24 hr	23.76	23.45	0.31
Tallow Cr	T Cr No.2	14912.13 1077	Culvert #1	10 yr 24 hr	23.76	23.45	0.31
Tallow Cr	T Cr No.2	14683.69 School 2 - 72' c	Culvert #1	100 yr 24 hour	23.99	23.65	0.34
Tallow Cr	T Cr No 2	14683.69 School 2 - 72' c	Culvert #1	10 yr 24 hr	23.66	22.99	0.67
Tallow Cr	T Cr No.2	13692.5 School 2 - 48" c	Culvert #1	100 yr 24 hour	23.8	23.53	0.27
Tallow Cr	T Cr No 2	13692.5 School 2 - 48" c	Culvert #1	10 yr 24 hr	23.44	22.78	0.66
Tallow Cr	T Cr No.2	12839.83 School 90" x 13	Culvert #1	100 yr 24 hour	23.67	23.44	0.23
Tallow Cr	T Cr No 2	12839.83 School 90" x 13	Culvert #1	10 yr 24 hr	23.31	22.7	0.61
Tallow Cr	T Cr No 2-1	11577.05 Cleco Access Roa	Culvert #1	100 yr 24 hour	23.35	23.27	0.08
Tallow Cr	T Cr No.2-1	11577.05 Cleco Access Roa	Culvert #1	10 yr 24 hr	23.12	22.57	0.55
Tallow Cr	T Cr No 2-1	8428.31 White Chapel Roa	Culvert #1	100 yr 24 hour	21.88	20.87	1.01
Tallow Cr	T Cr No 2-1	8428.31 White Chapel Roa	Culvert #1	10 yr 24 hr	20.79	20.29	0.5
Tallow Cr	T Cr No 2-1	6080 New Road	Culvert #1	100 yr 24 hour	21.21	20.1	1.11
Tallow Cr	T Cr No.2-1	6080 New Road	Culvert #1	10 yr 24 hr	20	18.88	1.12
Soap & Tallow Cr	S & T No.2	8700 Fitzsimmons Road	Culvert #1	100 yr 24 hour	24.3	24.28	0.02
Soap & Tallow Cr	S & T No.2	8700 Fitzsimmons Road	Culvert #1	10 yr 24 hr	23.81	23.75	0.06
Black River	B River No 1	12310.73 Rex Road	Culvert #1	100 yr 24 hour	21.79	21.46	0.33
Black River	B River No.1	12310.73 Rex Road	Culvert #1	10 yr 24 hr	21.53	20.97	0.56
Black River	B River No.1	8666 Brewster Rd.	Culvert #1	100 yr 24 hour	18.47	18.15	0.32
Black River	B River No 1	8666 Brewster Rd	Culvert #1	10 yr 24 hr	17.84	16.85	0.99
Black River	B River No.1	7684.62 Tchefuncte Parc	Culvert #1	100 yr 24 hour	17.61	16.9	0.71
Black River	B River No.1	7684.62 Tchefuncte Parc	Culvert #1	10 yr 24 hr	16.7	15.98	0.72
Black River	B River No 1	4444.8 Private Driveway	Culvert #1	100 yr 24 hour	14.15	13.91	0.24
Black River	B River No 1	4444.8 Private Driveway	Culvert #1	10 yr 24 hr	13.69	13.55	0.14
Black River	B River No.1	3827.40 Private Driveway	Culvert #1	100 yr 24 hour	13.78	13.39	0.39
Black River	B River No 1	3827.40 Private Driveway	Culvert #1	10 yr 24 hr	12.92	12.59	0.33

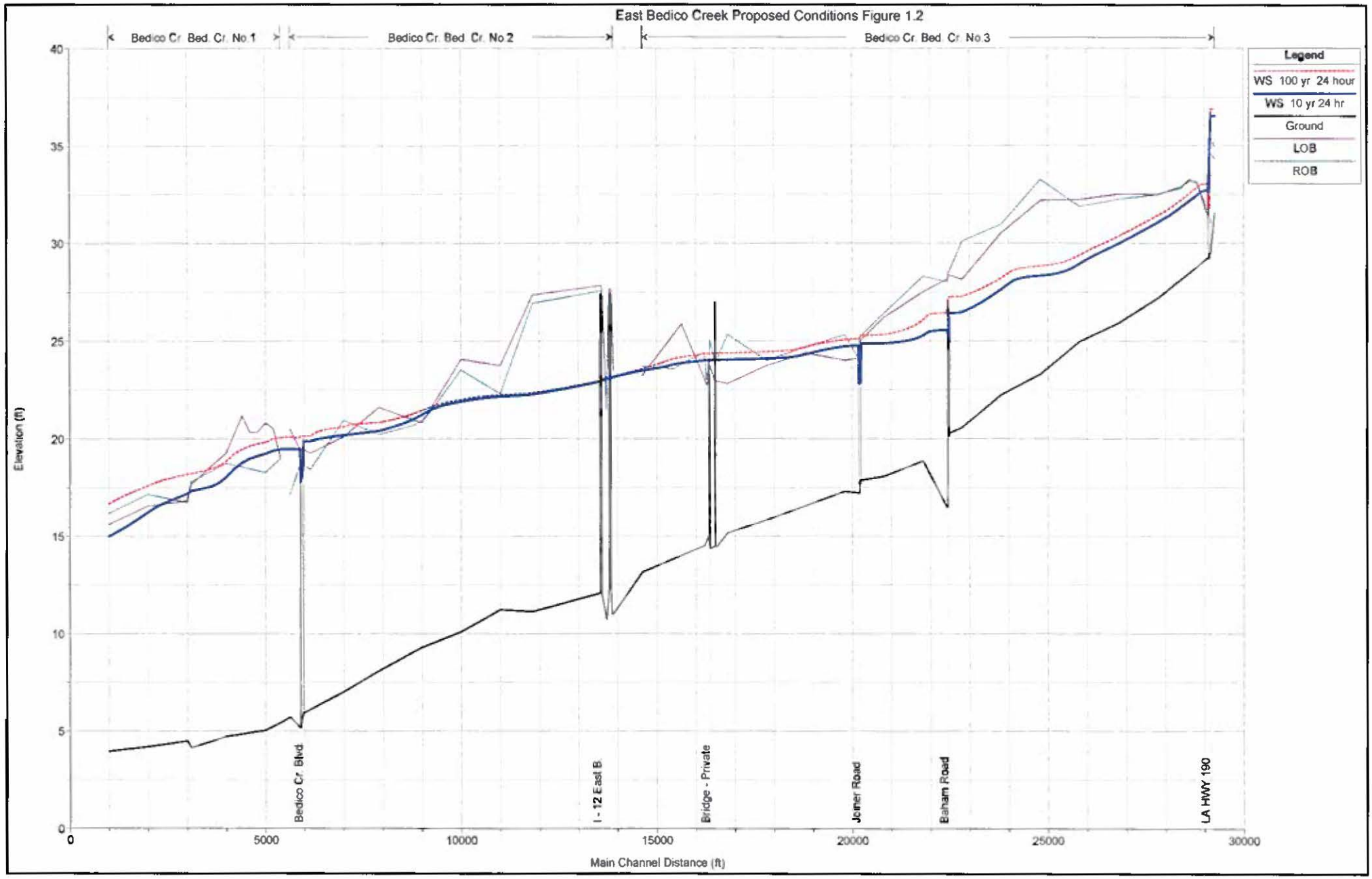
Table 1.3

Summary Proposed & Existing Water Surface Profile Elevations

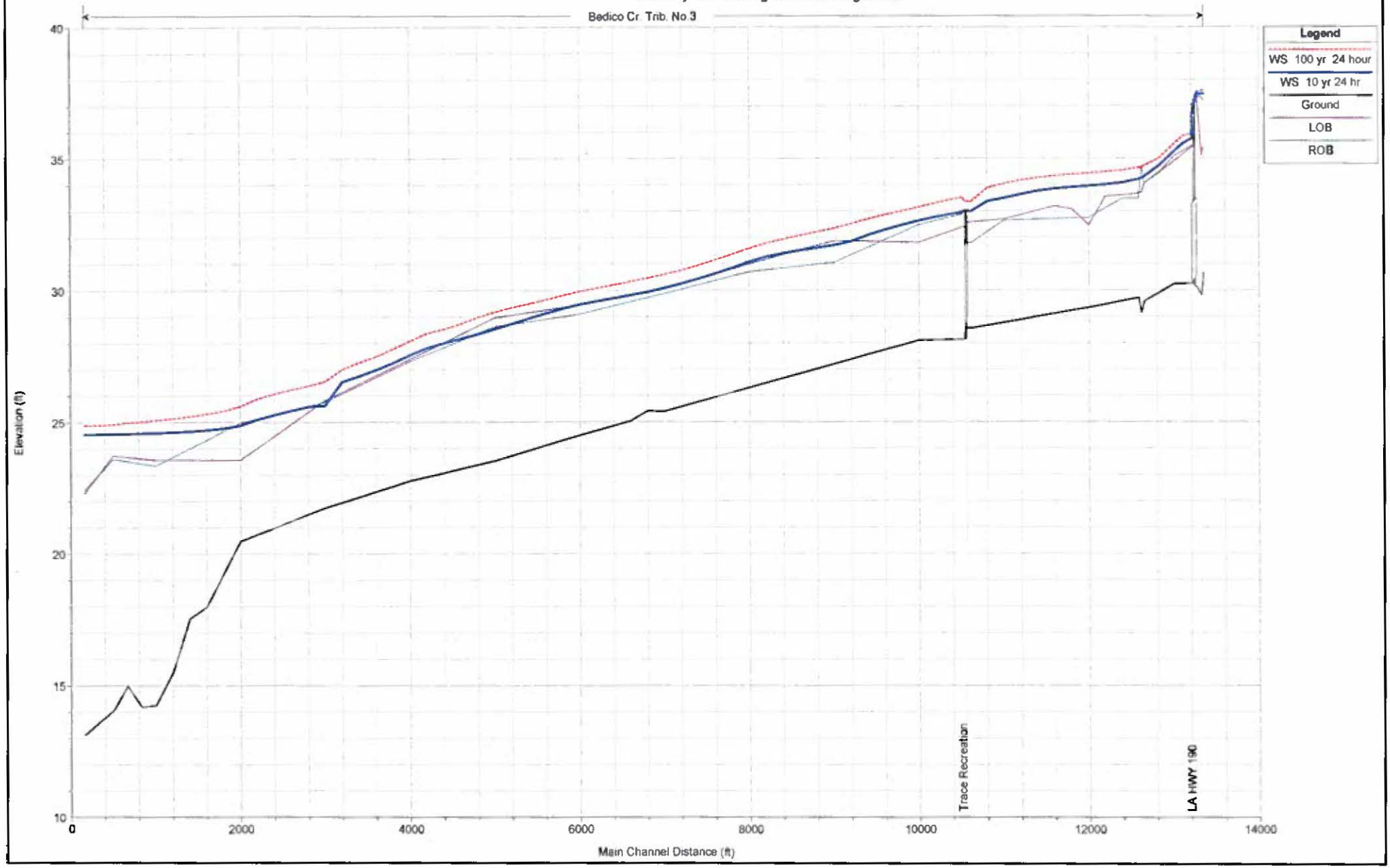
River	Reach	River Sta	Profile	Existing Water Surface Elevations, Up Stream	Proposed Water Surface Elevations, Up Stream	Reduction of Water Surface Elevation (Existing W.S.E. less Proposed W.S.E.)
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	100 yr 24 hour	13.32	12.95	0.37
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	10 yr 24 hr	12.48	12.17	0.31
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	100 yr 24 hour	13.25	12.96	0.29
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	10 yr 24 hr	12.01	11.32	0.69
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #1	100 yr 24 hour	36.87	36.87	0
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #2	100 yr 24 hour	36.87	36.87	0
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #1	10 yr 24 hr	36.52	36.52	0
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #2	10 yr 24 hr	36.52	36.52	0
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #1	100 yr 24 hour	27.87	27.26	0.61
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	100 yr 24 hour	27.87	27.26	0.61
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #1	10 yr 24 hr	27.06	26.42	0.64
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	10 yr 24 hr	27.06	26.42	0.64
Bedico Cr.	Bed. Cr. No.3	18384 Joiner Road Culvert #1	100 yr 24 hour	25.7	25.28	0.42
Bedico Cr.	Bed. Cr. No.3	18384 Joiner Road Culvert #1	10 yr 24 hr	25.29	24.86	0.43
Bedico Cr.	Trib. No.3	13241.52 LA HWY 190 Culvert #1	100 yr 24 hour	37.52	37.51	0.01
Bedico Cr.	Trib. No.3	13241.52 LA HWY 190 Culvert #1	10 yr 24 hr	37.43	37.06	0.37
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #2	100 yr 24 hour	33.34	33.28	0.06
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #1	100 yr 24 hour	33.34	33.28	0.06
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #2	10 yr 24 hr	32.98	33.05	-0.07
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #1	10 yr 24 hr	32.98	33.05	-0.07
Bedico Cr.	Bed. Cr. No.2	5930.27 Bedico Cr. Blvd. Culvert #1	100 yr 24 hour	20.65	20.16	0.49
Bedico Cr.	Bed. Cr. No.2	5930.27 Bedico Cr. Blvd. Culvert #1	10 yr 24 hr	20.12	19.96	0.16
Bedico Cr.	Fox Branch	14560 I-12 Culvert #1	100 yr 24 hour	25.22	24.15	1.07
Bedico Cr.	Fox Branch	14560 I-12 Culvert #1	10 yr 24 hr	24.91	23.65	1.26
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #1	100 yr 24 hour	23.36	22.97	0.39
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #3	100 yr 24 hour		22.97	
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #1	10 yr 24 hr	23.05	22.49	0.56
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #3	10 yr 24 hr		22.49	
Bedico Cr.	Fox Branch	5593.71 Private Driveway Culvert #1	100 yr 24 hour	22.36	21.95	0.41
Bedico Cr.	Fox Branch	5593.71 Private Driveway Culvert #1	10 yr 24 hr	21.95	20.78	1.17

APPENDIX A – Water Surface Profiles

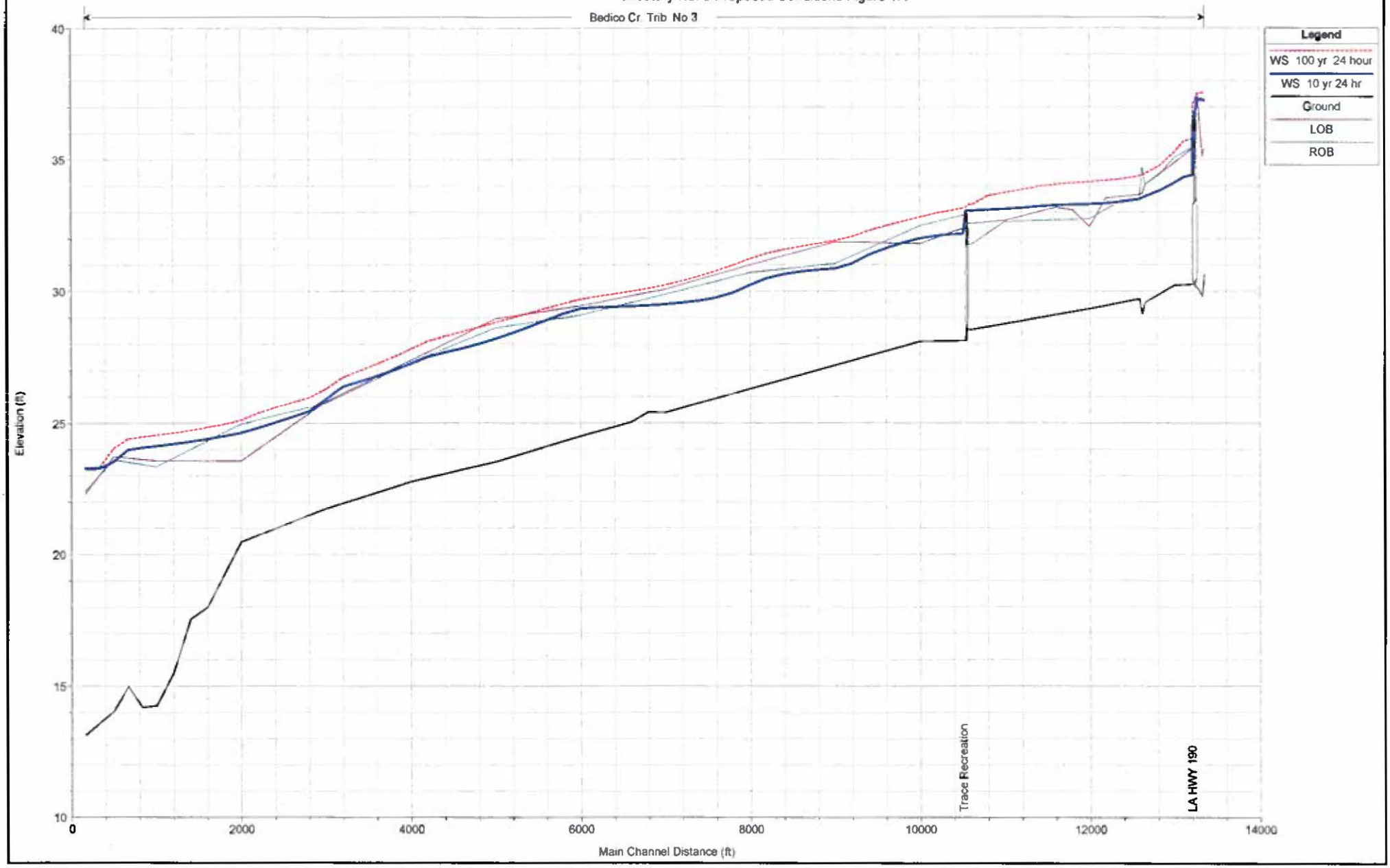

East Bedico Creek Existing Conditions Figure 1.1
Bedico Cr Bed. Cr No.1
Bedico Cr Bed. Cr No.2
Bedico Cr Bed. Cr No.3
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
0
5
10
15
20
25
30
35
40
0
5000
10000
15000
20000
25000
30000
Bedico Cr Blvd
I - 12 East B
Bridge - Private
Joiner Road
Baham Road
LA HWY 190

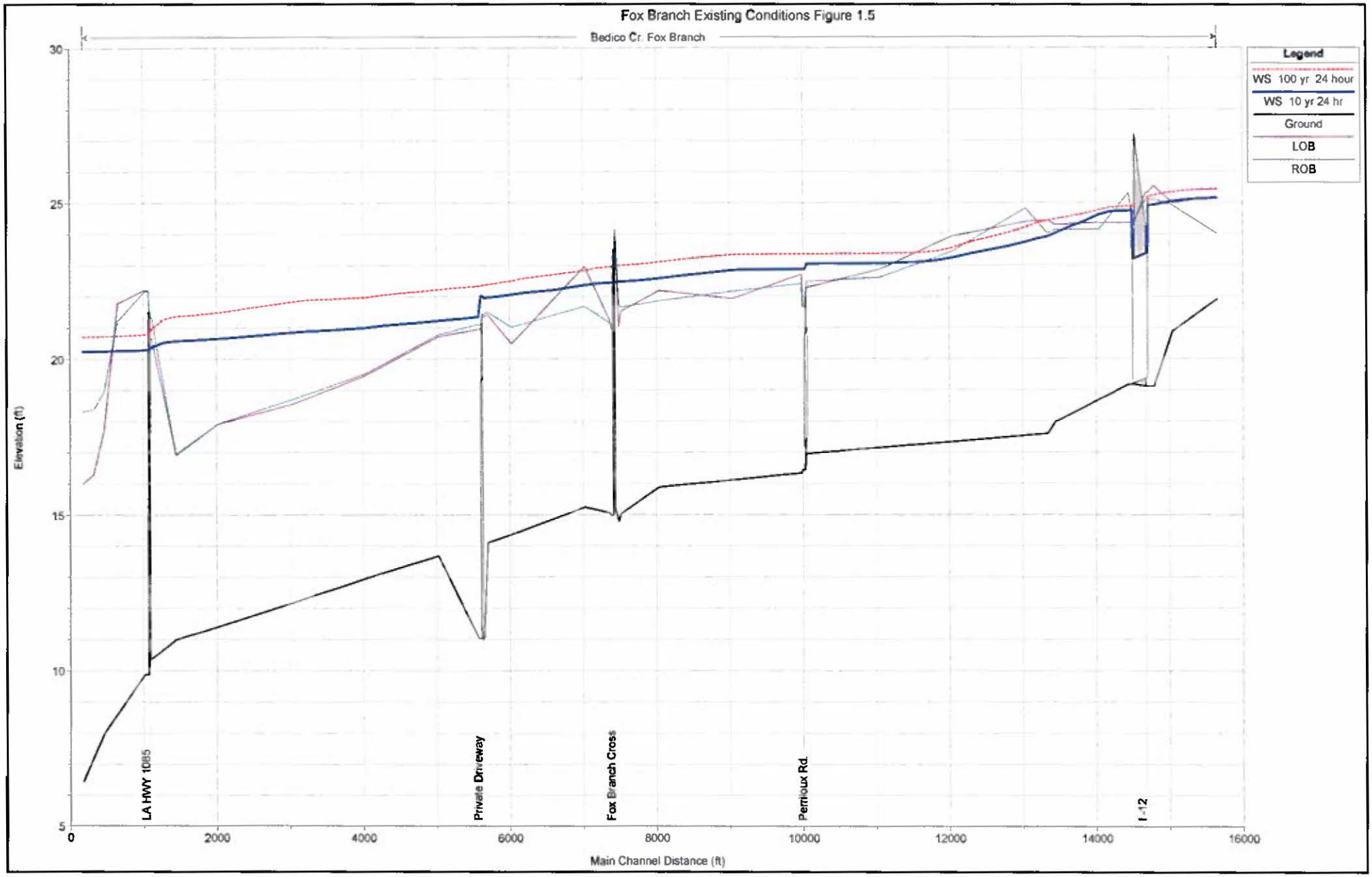

East Bedico Creek Proposed Conditions Figure 1.2
Bedico Cr. Bed. Cr. No.1
Bedico Cr. Bed. Cr. No.2
Bedico Cr. Bed. Cr. No.3
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
0
5
10
15
20
25
30
35
40
0
5000
10000
15000
20000
25000
30000
Bedico Cr. Blvd.
I - 12 East B.
Bridge - Private
Joiner Road
Baham Road
LA HWY 190

Tributary # 3 Existing Conditions Figure 1.3

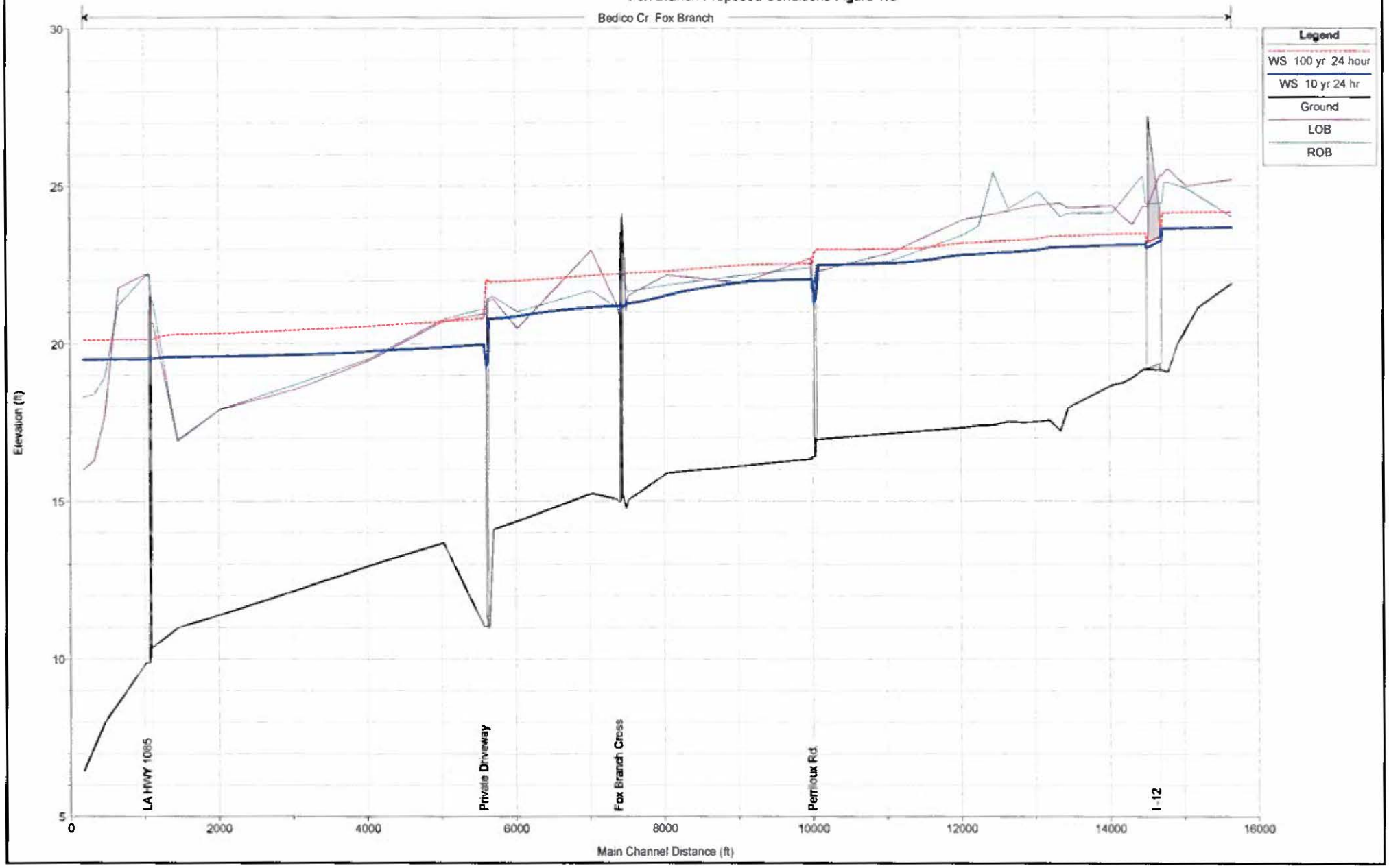


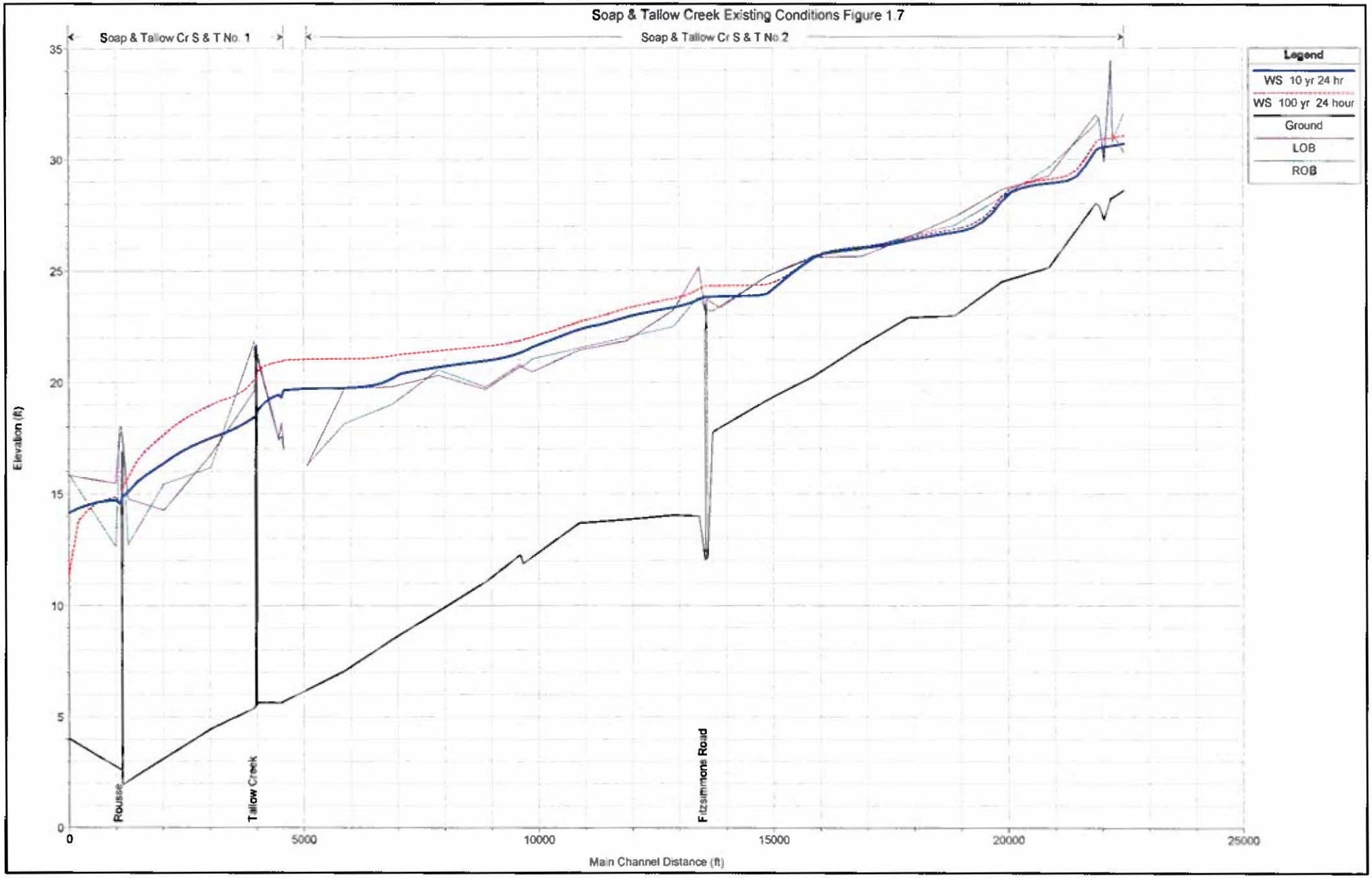
Tributary No. 3 Proposed Conditions Figure 1.4

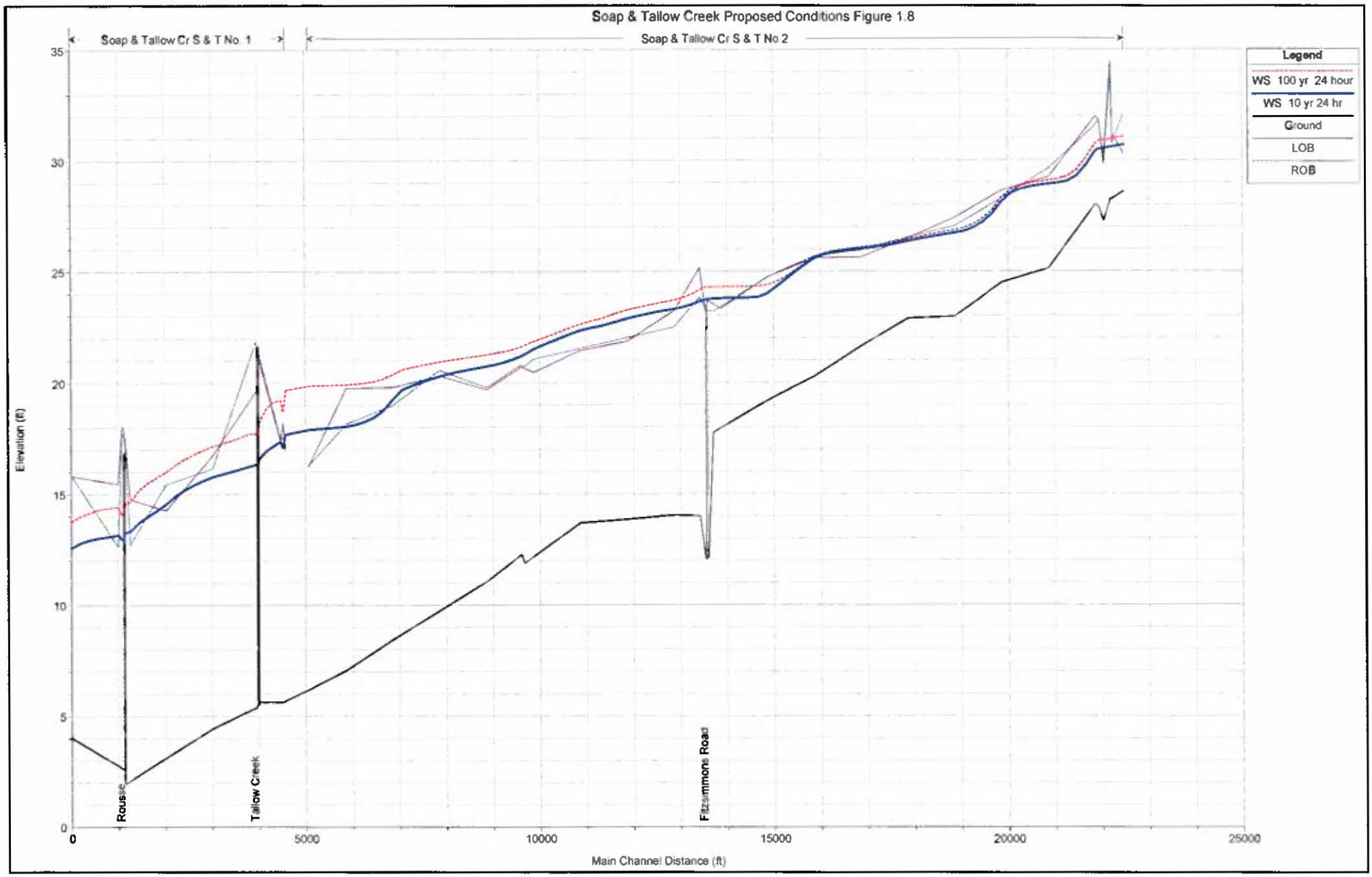


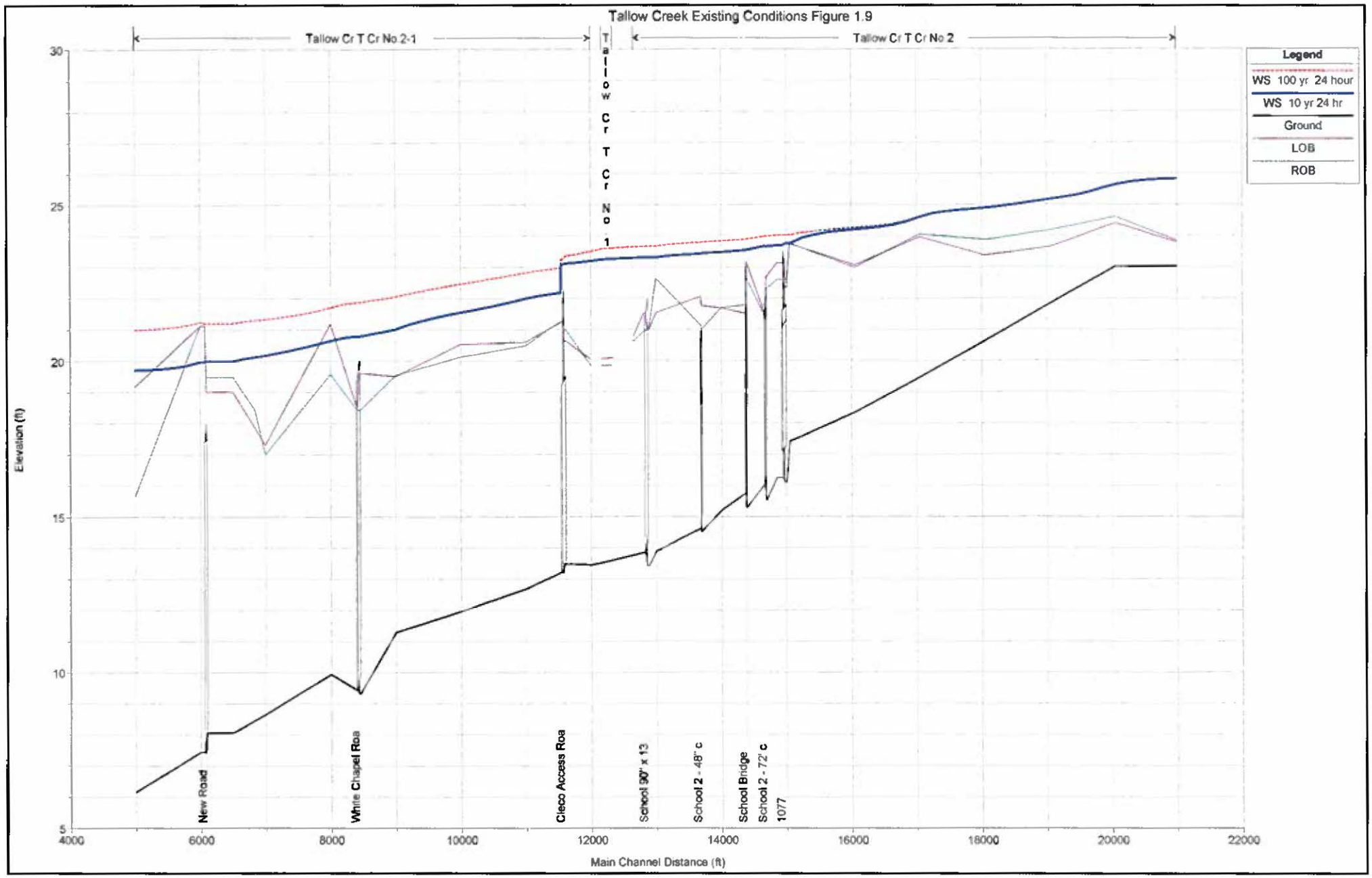

Fox Branch Existing Conditions Figure 1.5
Bedico Cr. Fox Branch
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
LA HWY 1085
Private Driveway
Fox Branch Cross
Perrioux Rd.
I-12
30
25
20
15
10
5
0
2000
4000
6000
8000
10000
12000
14000
16000

Fox Branch Proposed Conditions Figure 1.6

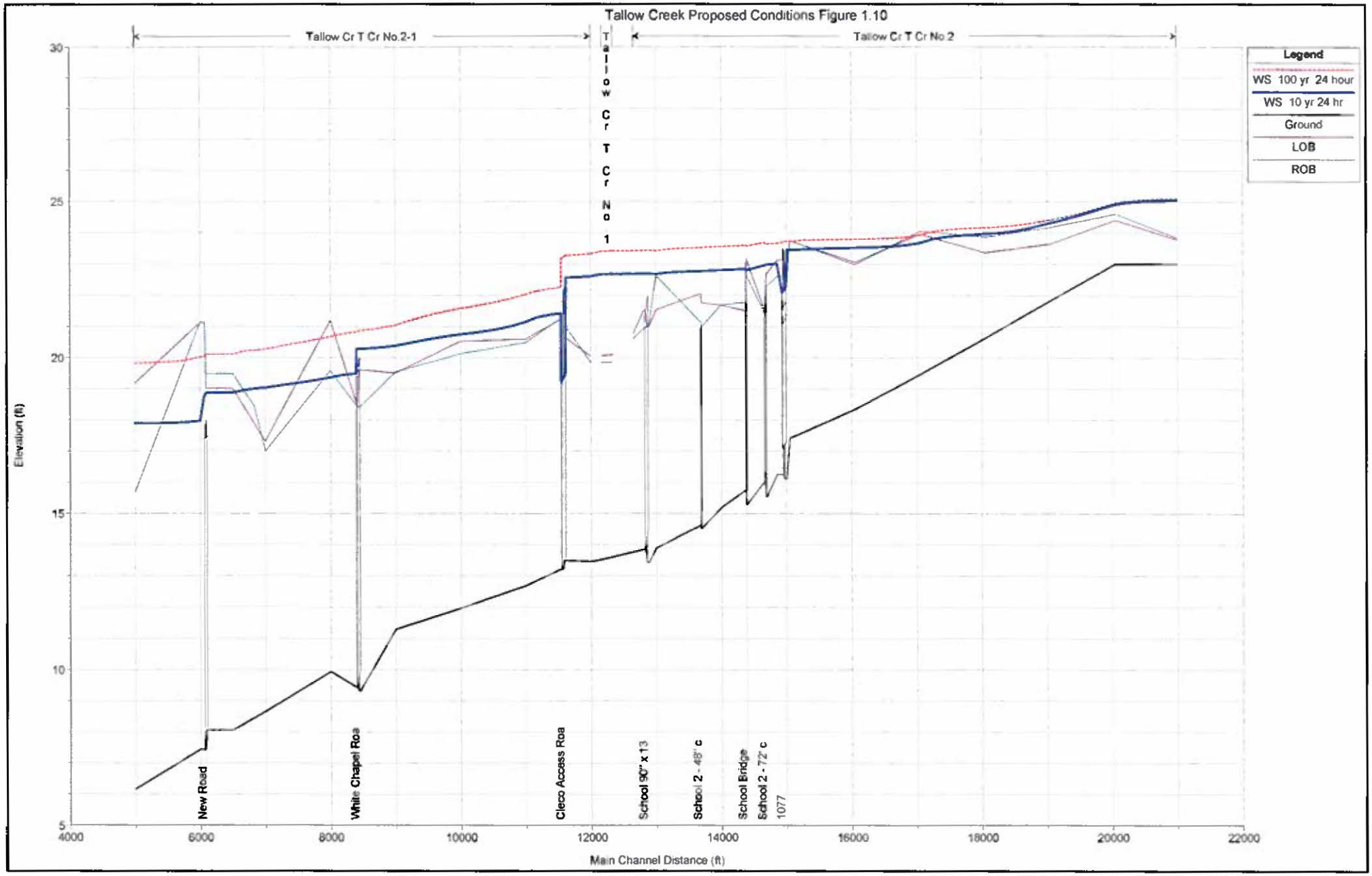


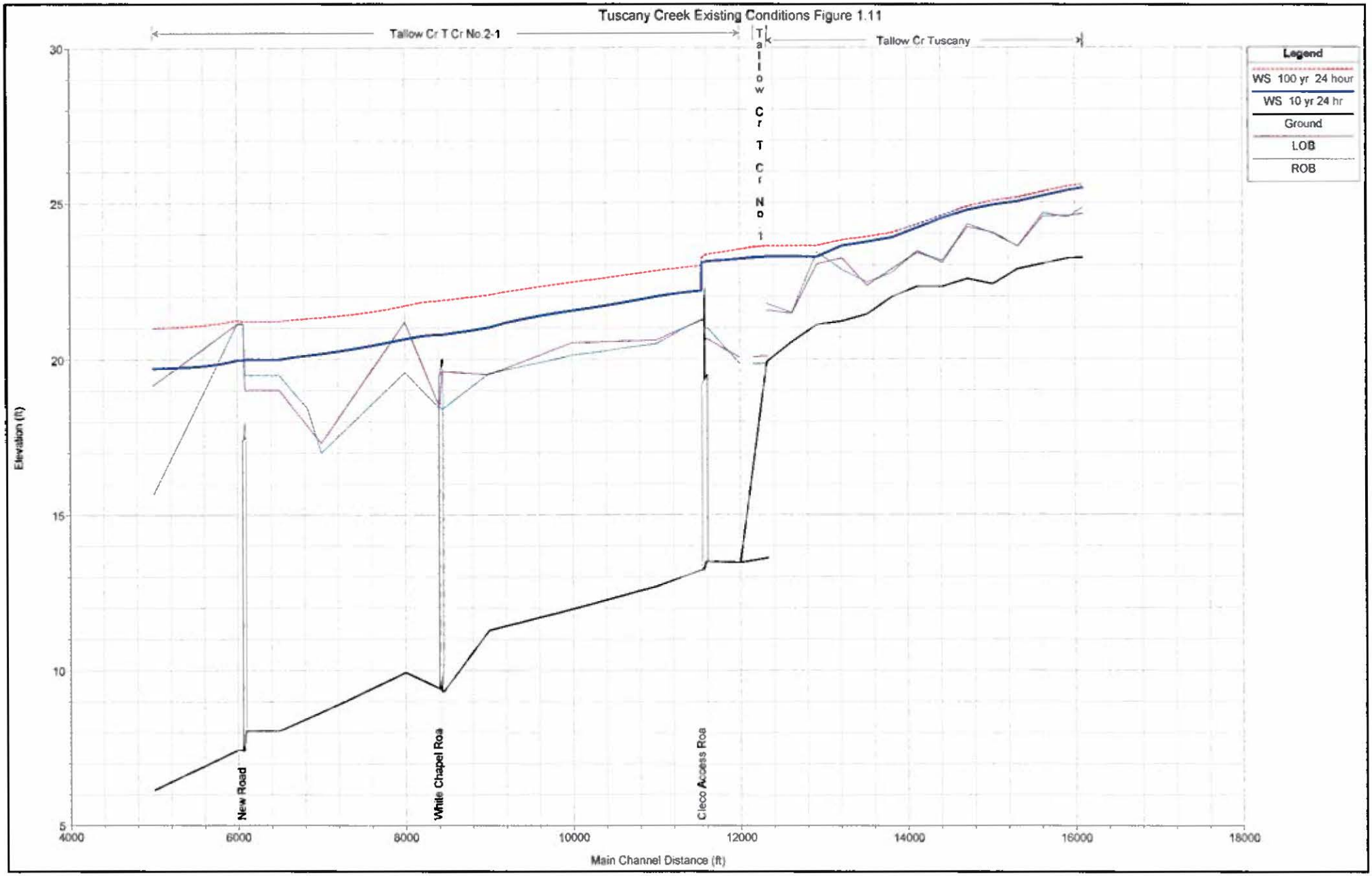

Soap & Tallow Creek Existing Conditions Figure 1.7
Soap & Tallow Cr S & T No. 1
Soap & Tallow Cr S & T No. 2
Legend
WS 10 yr 24 hr
WS 100 yr 24 hour
Ground
LOB
ROB
Rousse
Tallow Creek
Fitzsimmons Road
Elevation (ft)
Main Channel Distance (ft)
0
5
10
15
20
25
30
35
0
5000
10000
15000
20000
25000

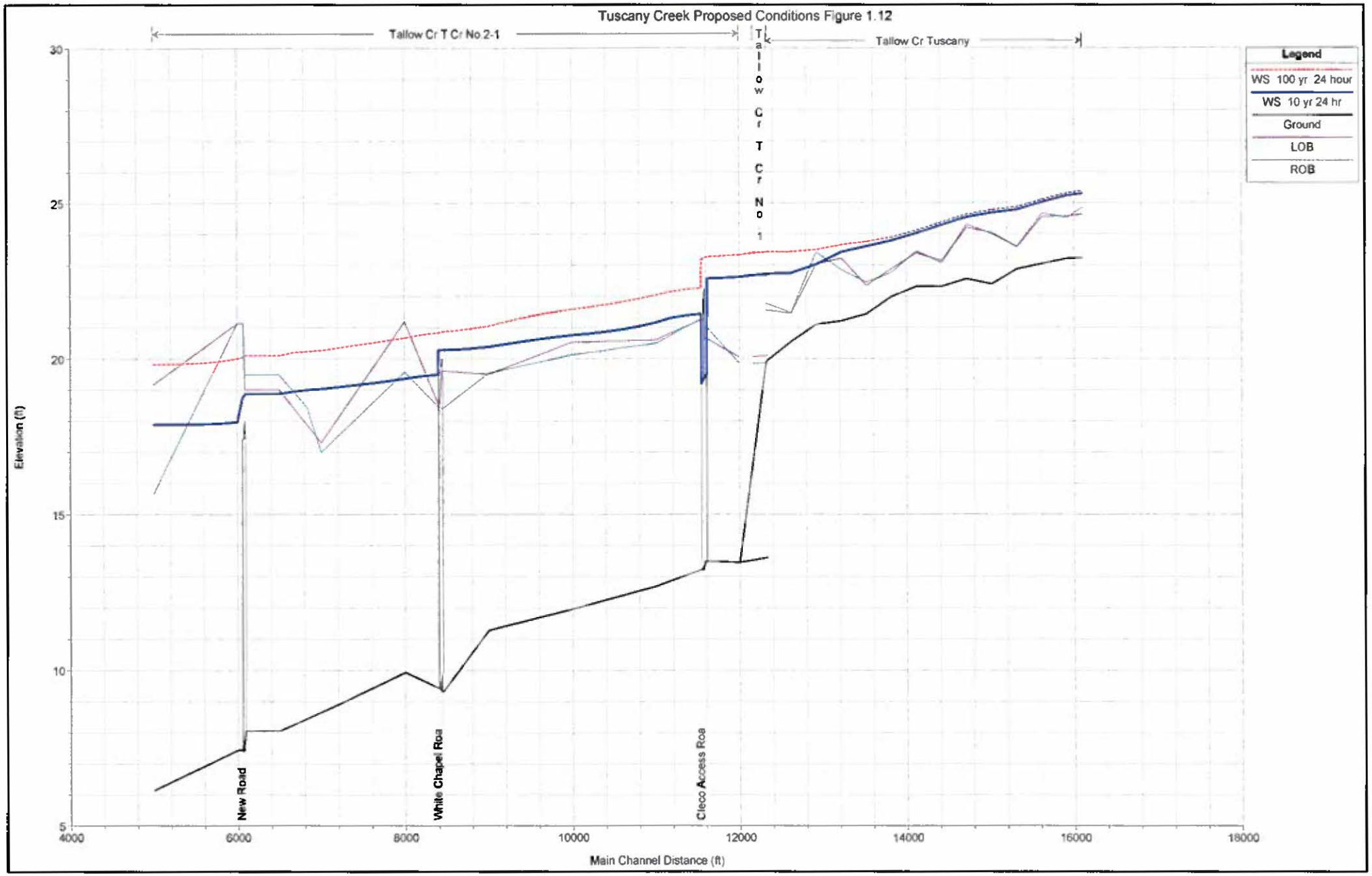

Soap & Tallow Creek Proposed Conditions Figure 1.8
Soap & Tallow Cr S & T No. 1
Soap & Tallow Cr S & T No 2
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
Rousse
Tallow Creek
Fitzsimmons Road
0
5
10
15
20
25
30
35
0
5000
10000
15000
20000
25000

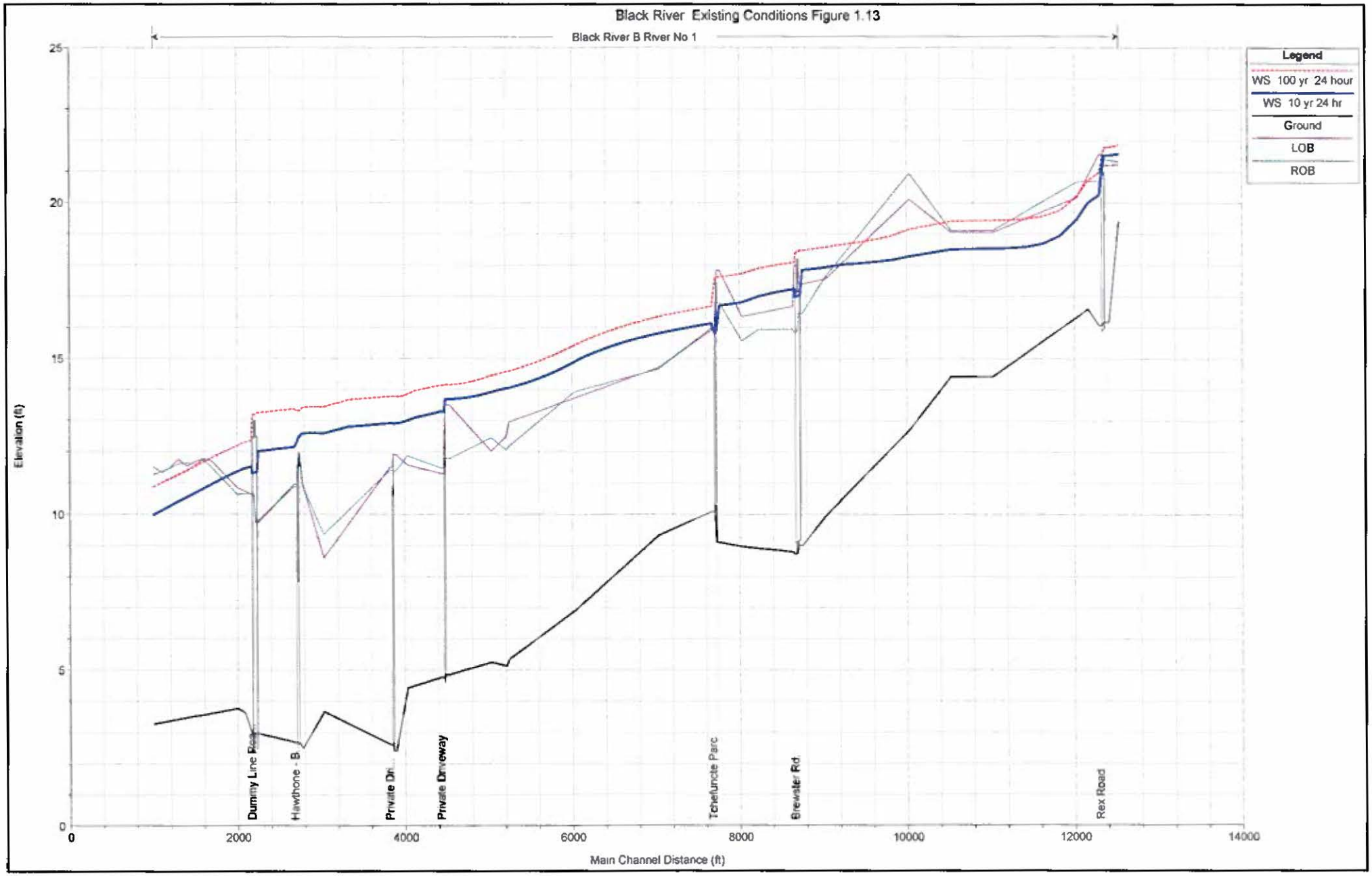

Tallow Creek Existing Conditions Figure 1.9
Tallow Cr T Cr No 2-1
Tallow Cr T Cr No 1
Tallow Cr T Cr No 2
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
New Road
White Chapel Roa
Cleco Access Roa
School 90" x 13
School 2 - 48" c
School Bridge
School 2 - 72" c
1077
30
25
20
15
10
5
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000

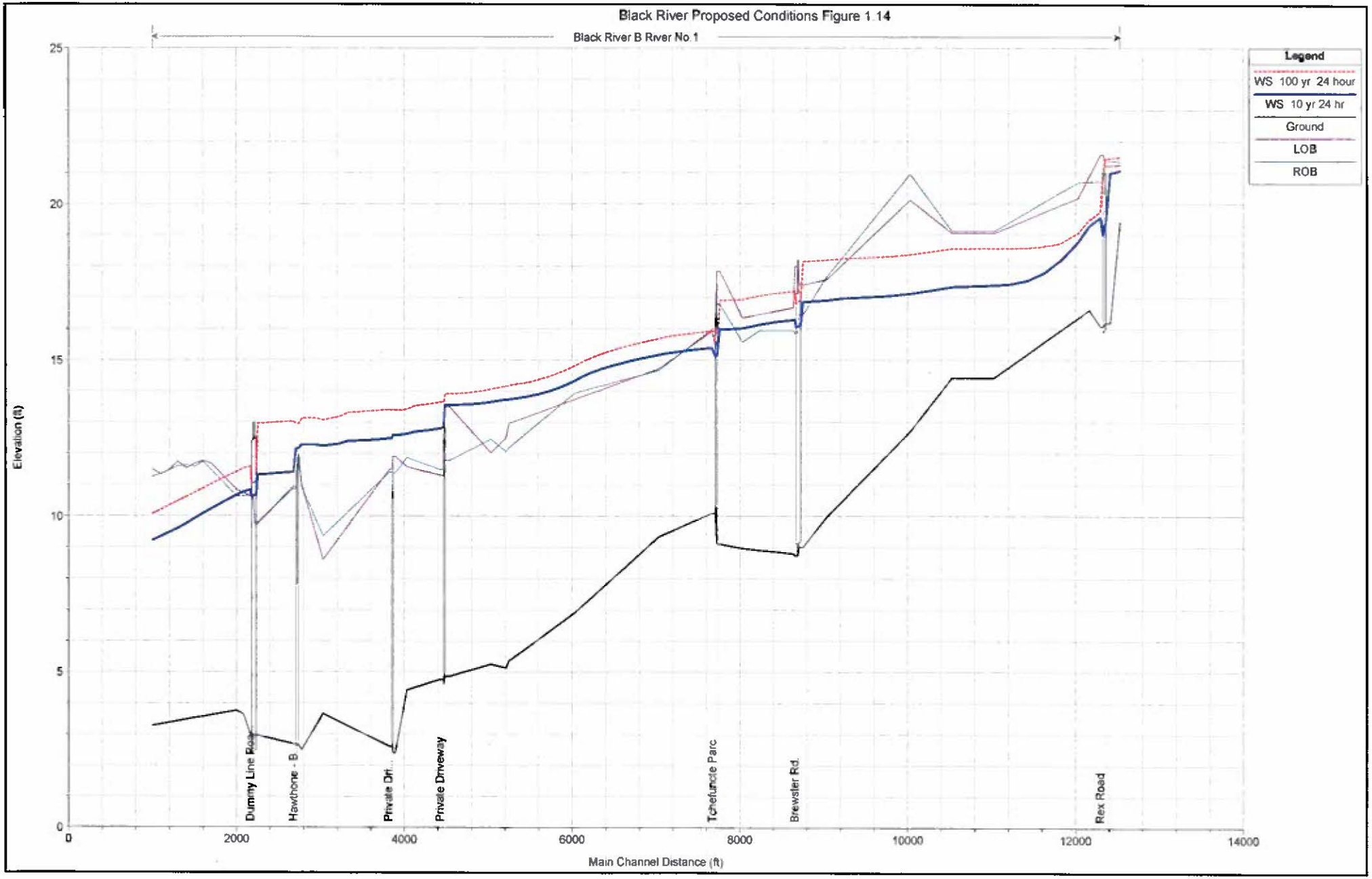
Tallow Creek Proposed Conditions Figure 1.10




Tuscany Creek Existing Conditions Figure 1.11
Tallow Cr T Cr No.2-1
Tallow Cr T Cr No 1
Tallow Cr Tuscany
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
New Road
White Chapel Roa
Cleco Access Roa
Elevation (ft)
Main Channel Distance (ft)
30
25
20
15
10
5
4000
6000
8000
10000
12000
14000
16000
18000


Tuscany Creek Proposed Conditions Figure 1.12
Tallow Cr T Cr No 2-1
Tallow Cr T Cr No 1
Tallow Cr Tuscany
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
New Road
White Chapel Roa
Cleco Access Roa
Elevation (ft)
Main Channel Distance (ft)
30
25
20
15
10
5
4000
6000
8000
10000
12000
14000
16000
18000


Black River Existing Conditions Figure 1.13
Black River B River No 1
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
0
5
10
15
20
25
0
2000
4000
6000
8000
10000
12000
14000
Dummy Line Rec
Hawthone - B
Private Dri
Private Driveway
Tchefuncte Parc
Brewster Rd
Rex Road


Black River Proposed Conditions Figure 1.14
Black River B River No.1
Legend
WS 100 yr 24 hour
WS 10 yr 24 hr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
0
5
10
15
20
25
0
2000
4000
6000
8000
10000
12000
14000
Dummy Line Rea
Hawthorne - B
Private Dri
Private Driveway
Tchefuncte Parc
Brewster Rd.
Rex Road

APPENDIX B – Drainage Area Index

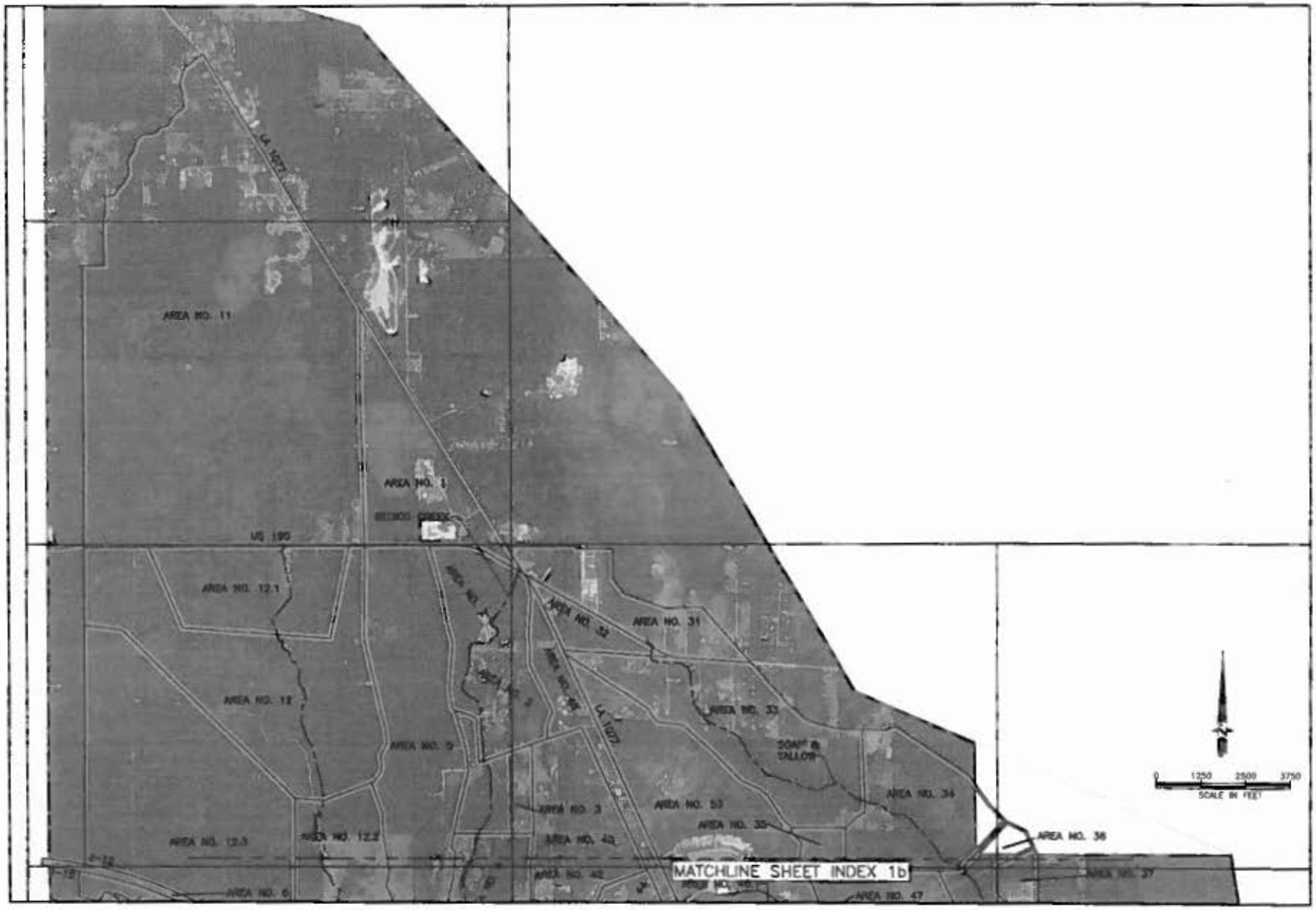
INDEX

PROJ# ST. TAMMANY

DESIGNED F.M.
DRAWN D.K.
CHECKED D.K./F.M.
APPROVED F.M.
DATE AUGUST 2010

LA 1077/1085 DRAINAGE STUDY
"PLAN AREA" INDEX
ST. TAMMANY PARISH, LOUISIANA

N&Y ASSOCIATES, INC.



LA 1077/1085 DRAINAGE STUDY
"PLAN AREA" INDEX ENLARGED TO SHOW DRAINAGE AREAS
ST. TAMMANY PARISH, LOUISIANA

ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2014

LA 1077/1085 DRAINAGE STUDY
"PLAN AREA" INDEX ENLARGED
TO SHOW DRAINAGE AREAS
ST. TAMMANY PARISH, LOUISIANA

NX ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2016

APPENDIX C – Delineated Drainage Area Sheets

LEGEND

CREEK ALIGNMENT

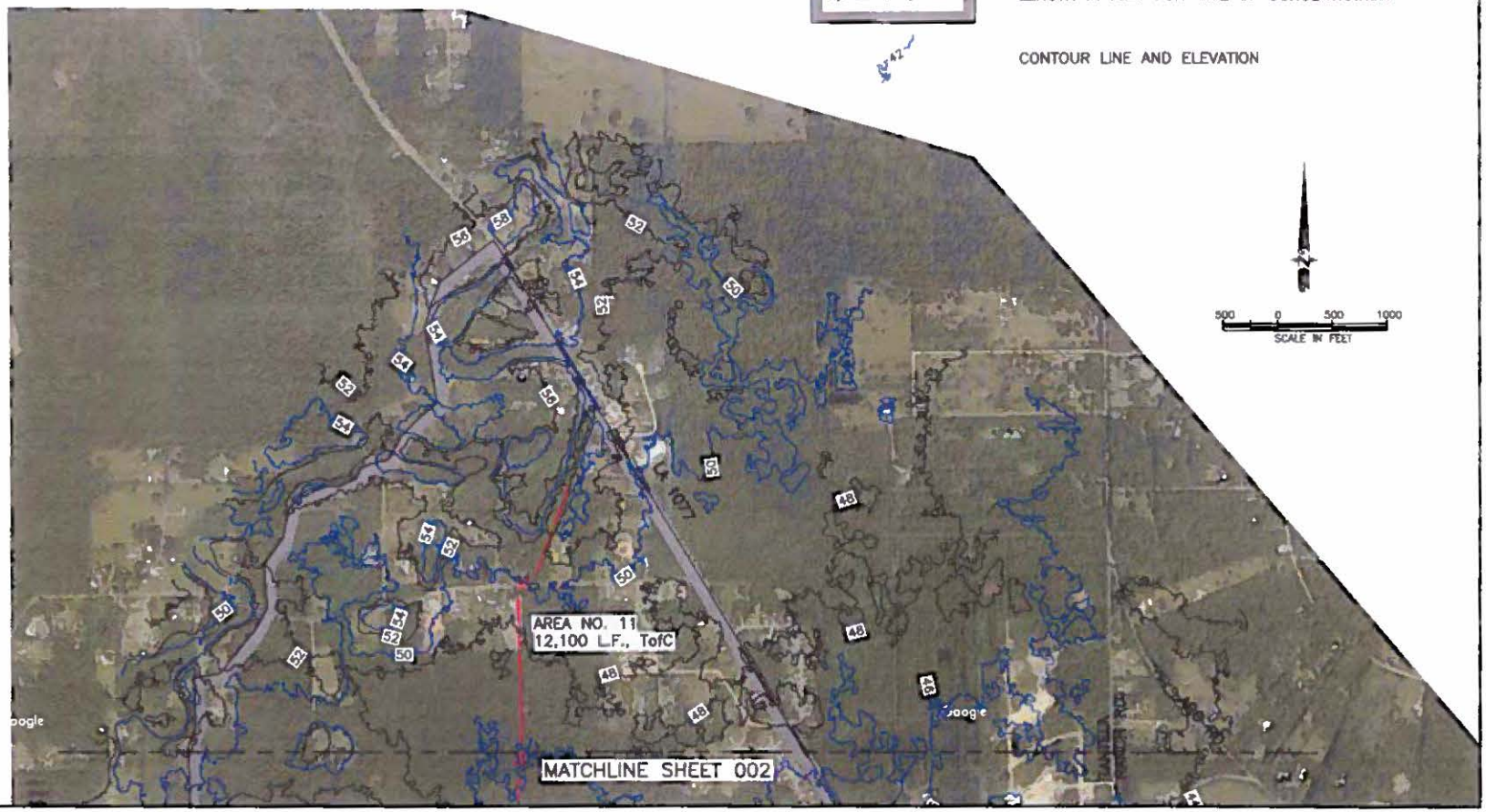
EXIST. DRAINAGE STRUCTURE NUMBER AND LOCATION (SEE APPENDIX)

TC — TIME OF CONCENTRATION

DRAINAGE AREA

AREA NO. 24 — DRAINAGE AREA NUMBER
2,365 L.F., TofC — LENGTH IN FEET FOR TIME OF CONCENTRATION

CONTOUR LINE AND ELEVATION

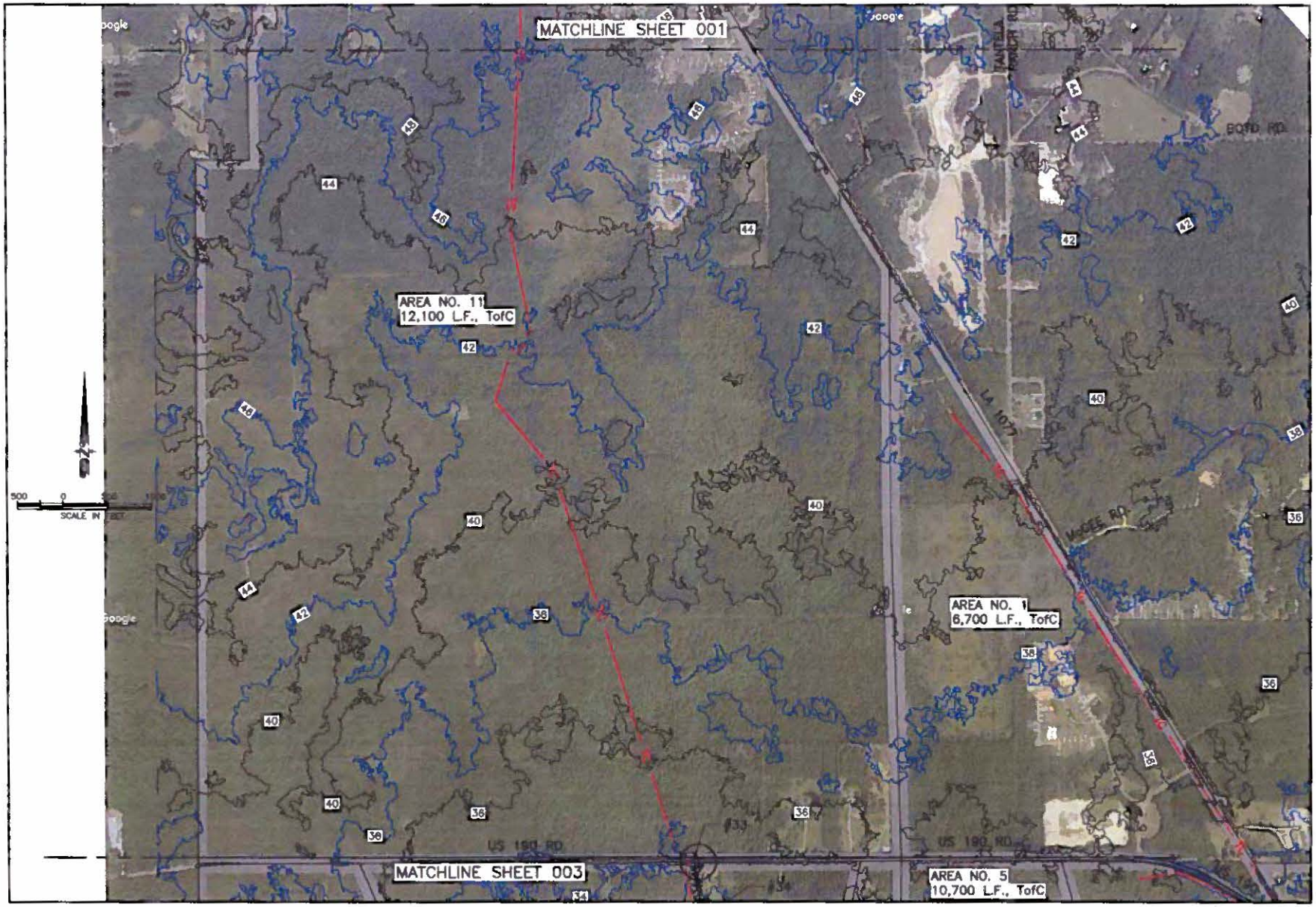


LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA A-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2010

001

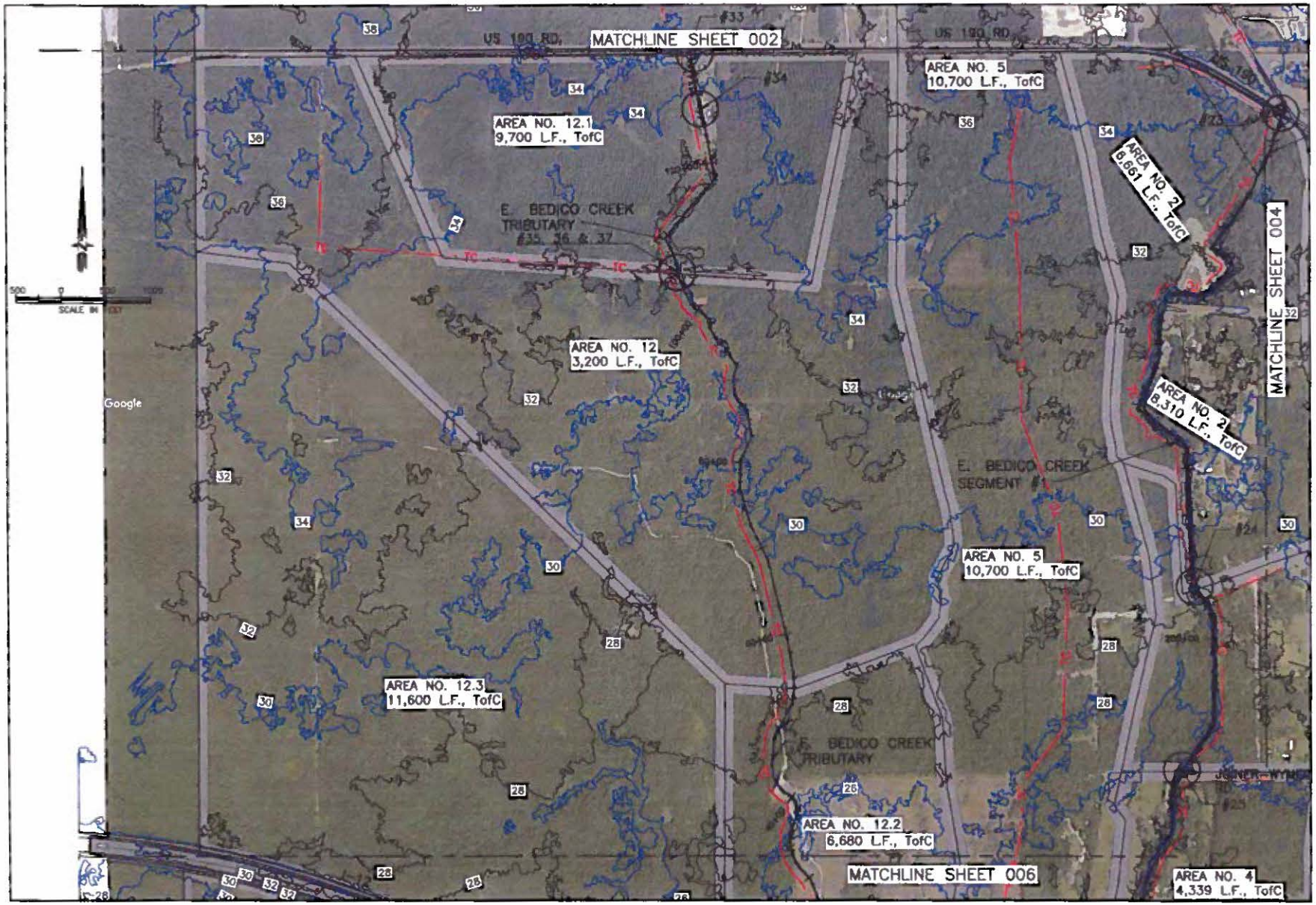


LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA B-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

002

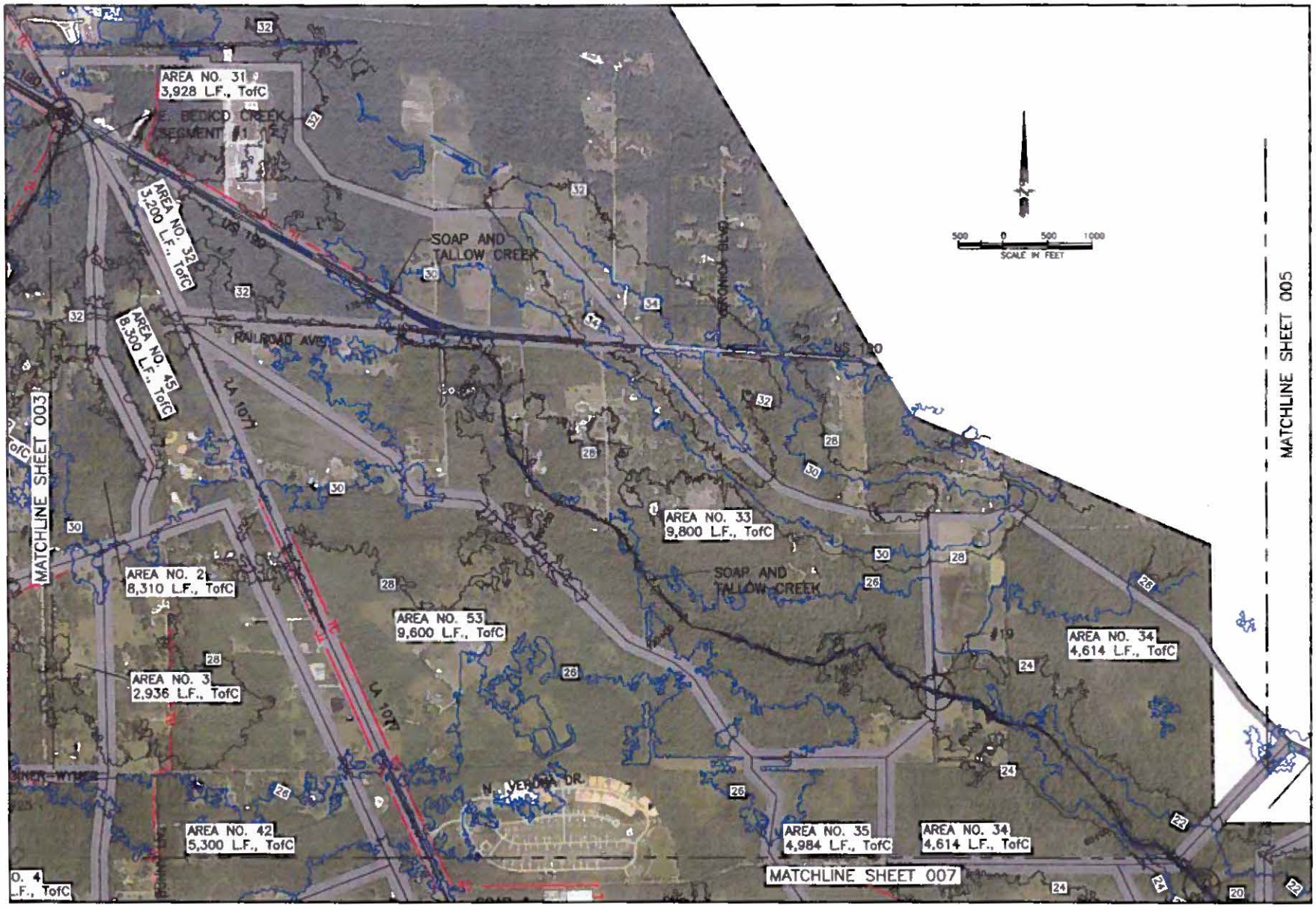
AUGUST 2010



LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA C-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

003

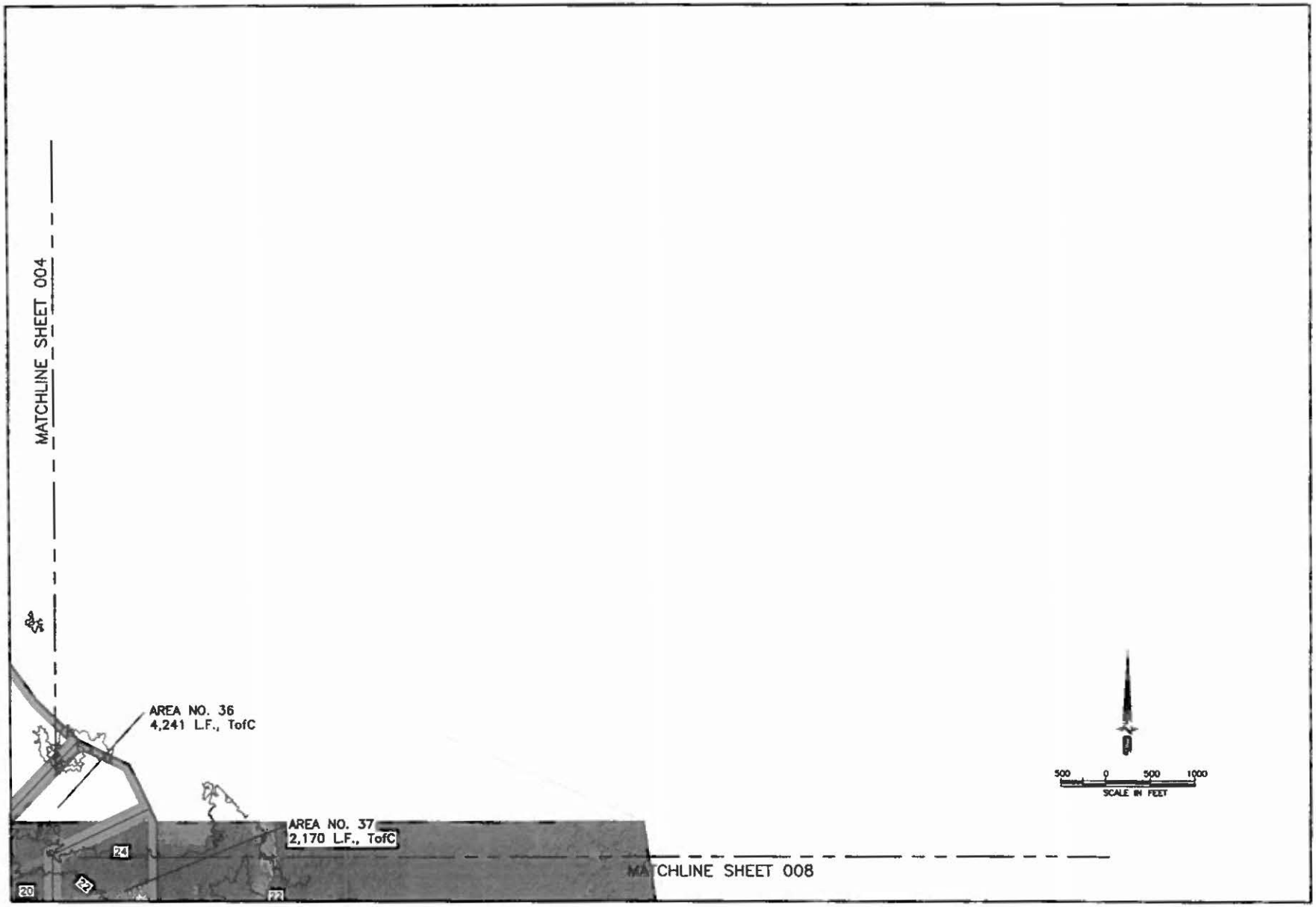


LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA C-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

004

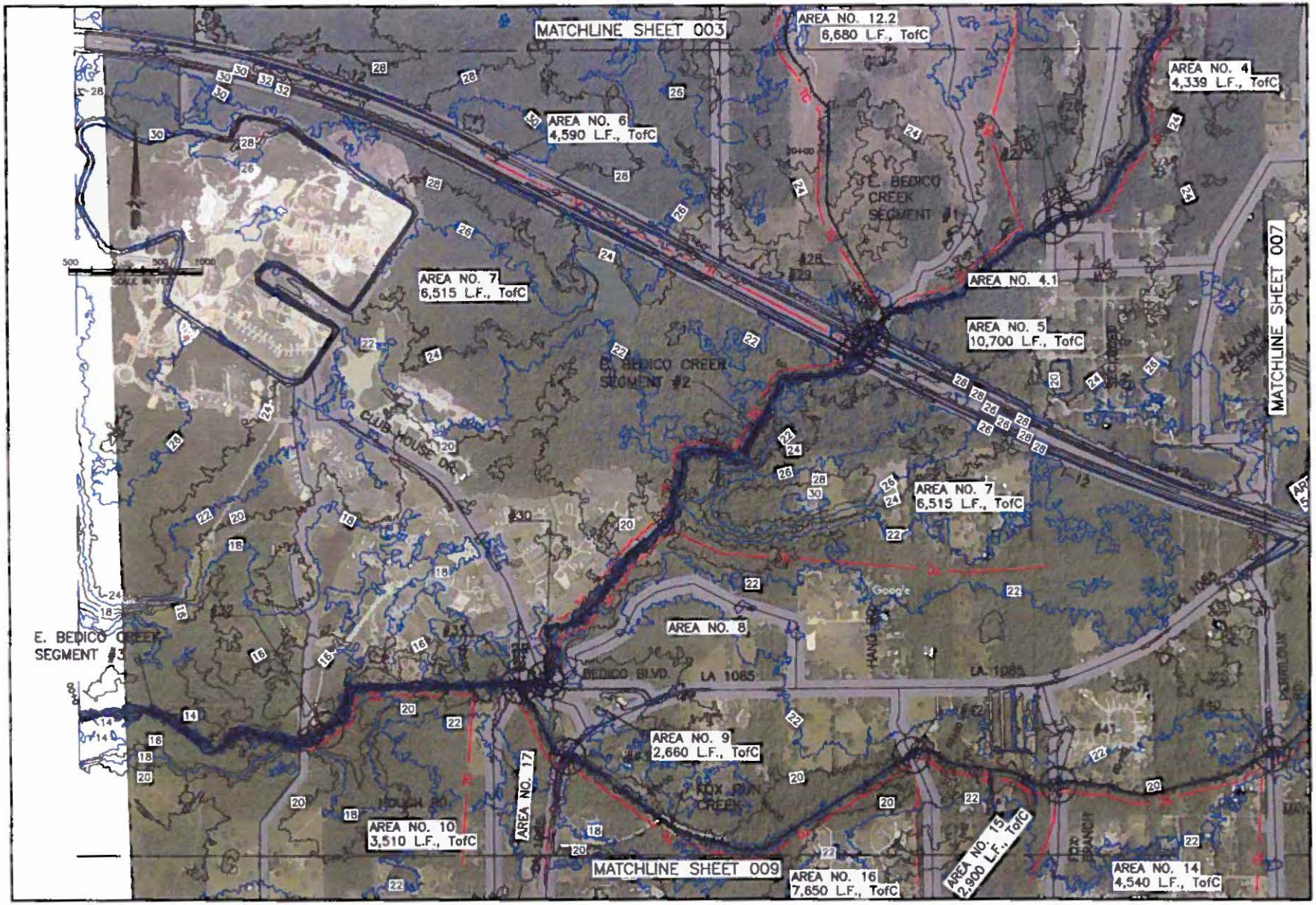


LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA C-3
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

005

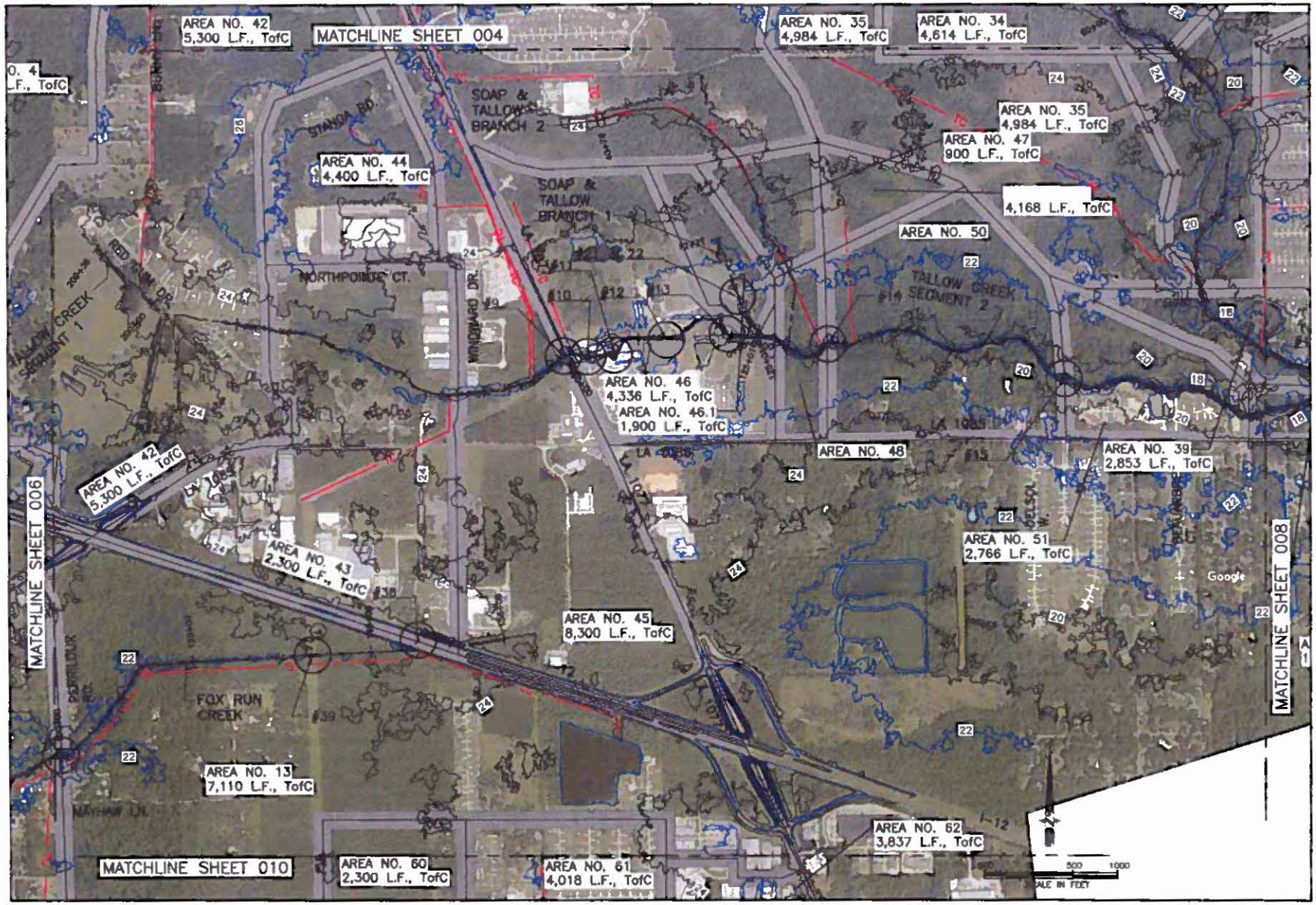


LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA D-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2013

006



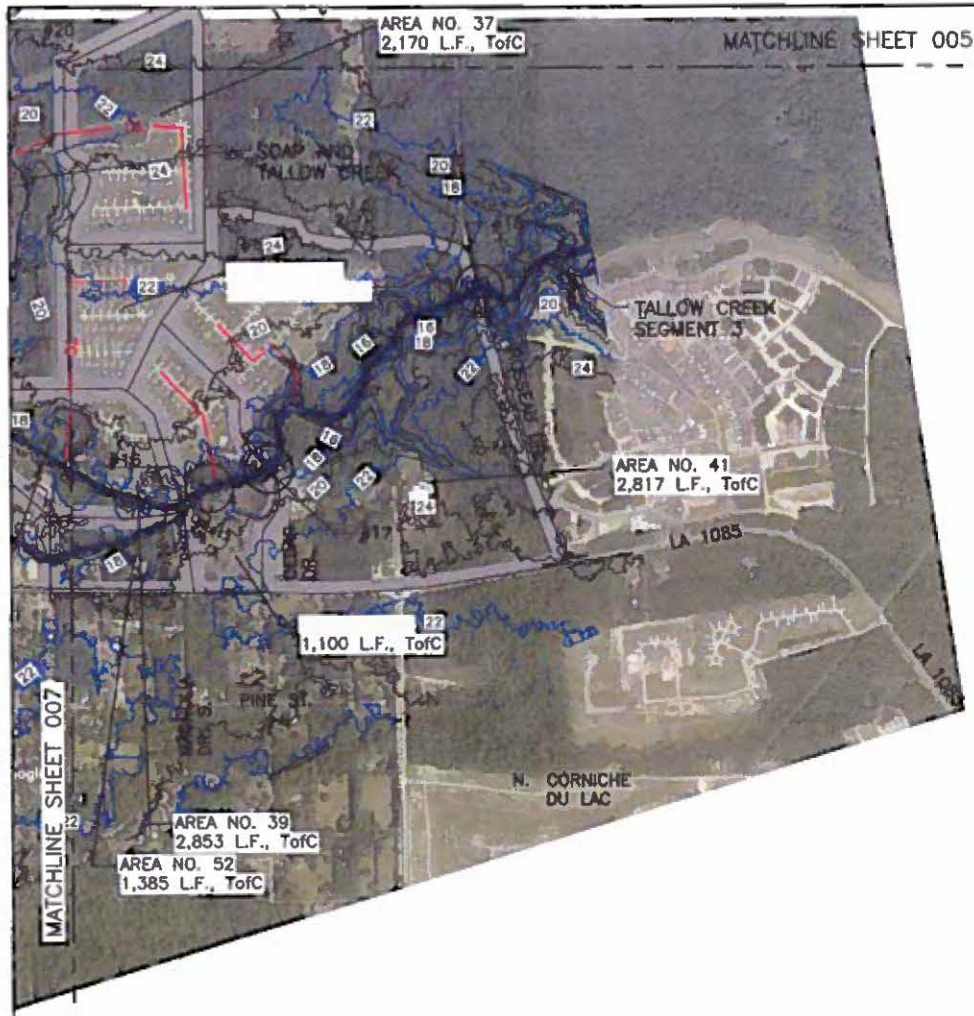
LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA D-2
ST. TAMMANY PARISH, LOUISIANA

N.V. ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2016

007



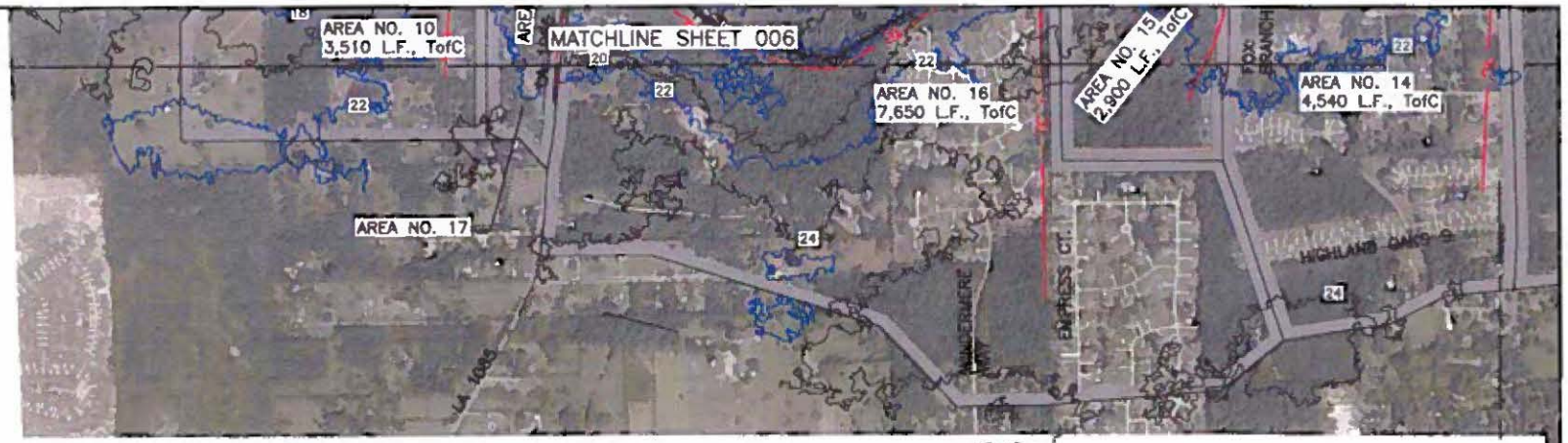
500 0 500 1000
SCALE IN FEET

LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA D-3
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

008



MATCHLINE SHEET 010

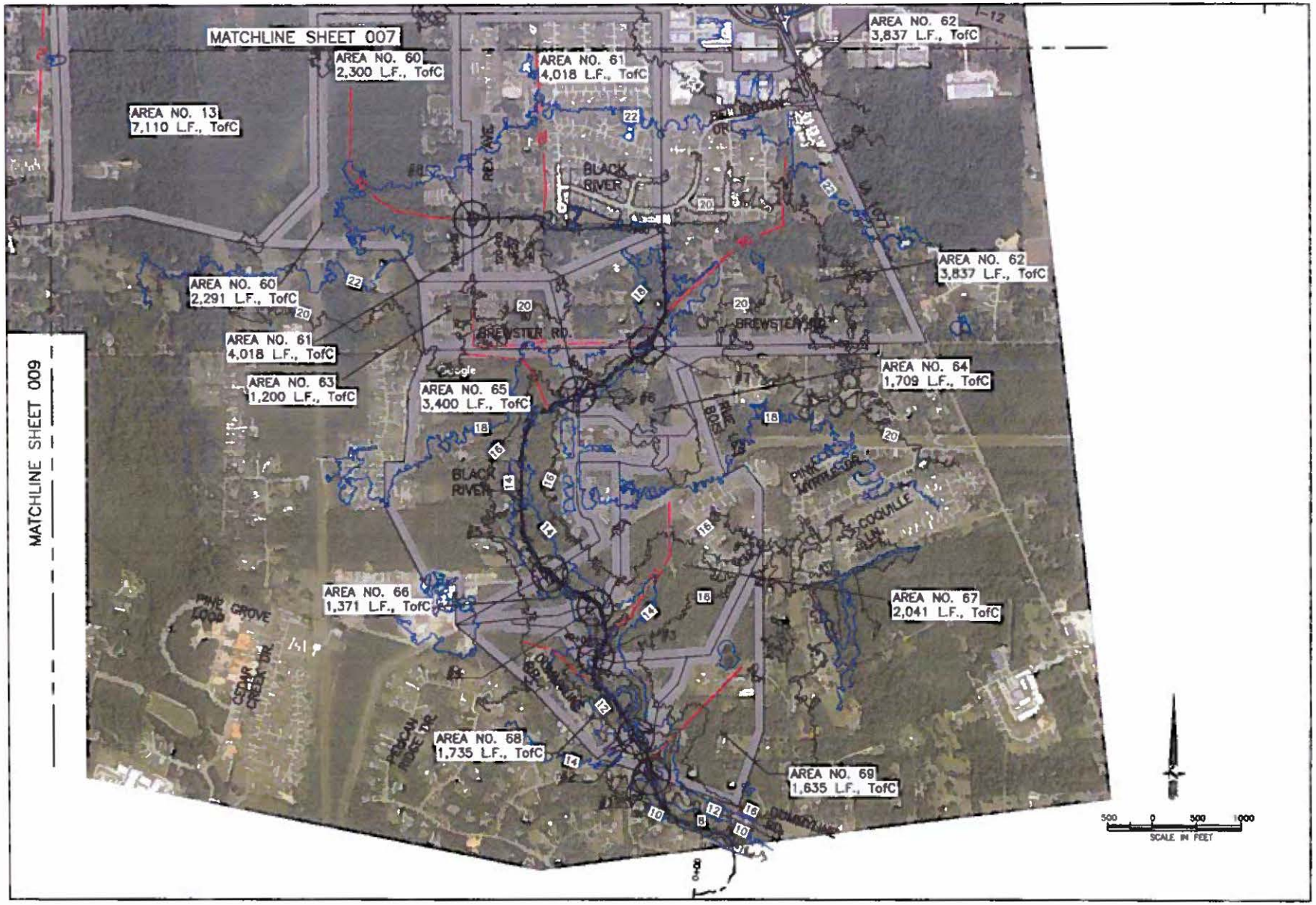
500 0 500 1000
SCALE IN FEET

009

ST. TAMMANY

LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA E-1
ST. TAMMANY PARISH, LOUISIANA

NV ASSOCIATES, INC.



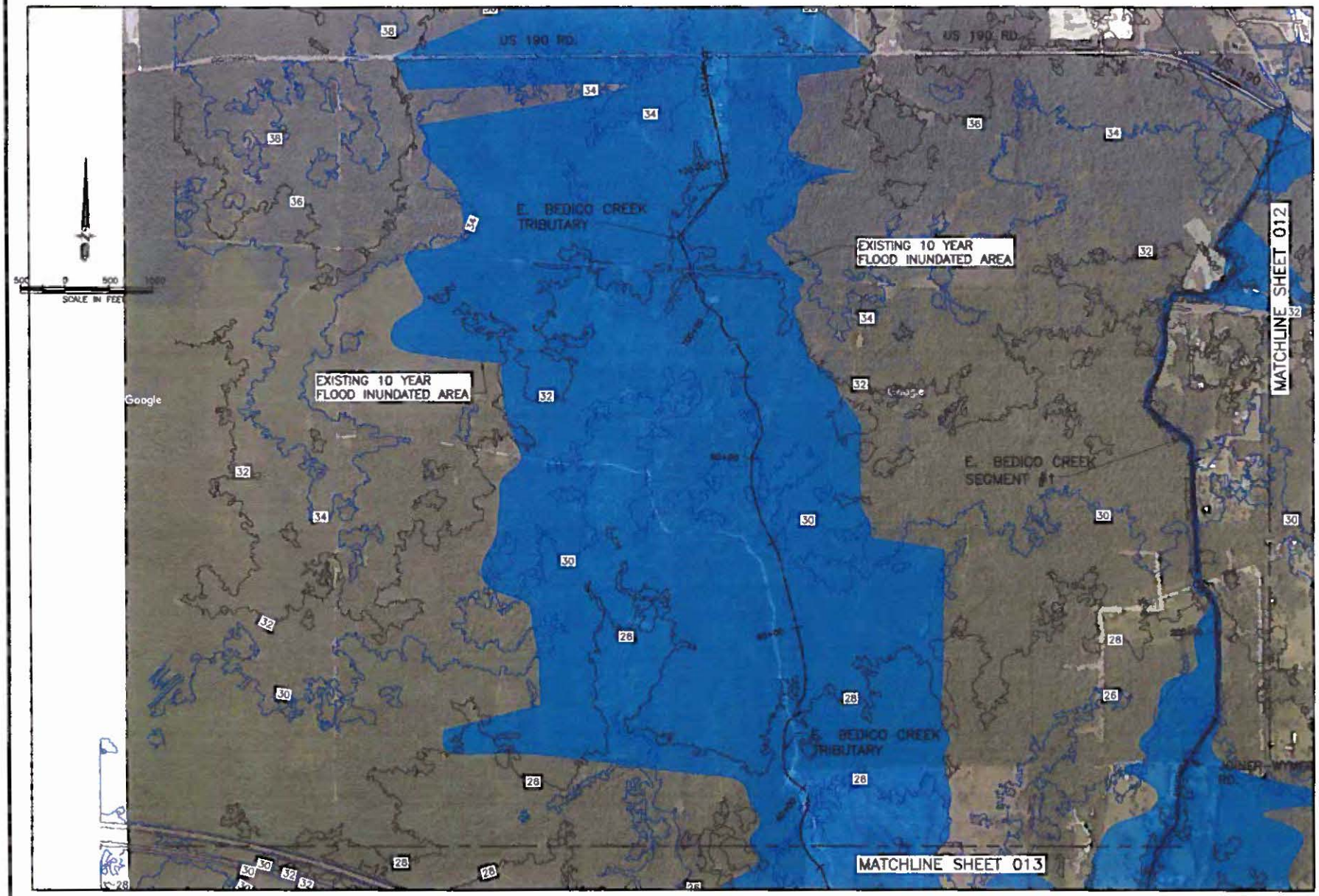
LA 1077/1085 DRAINAGE STUDY
EXISTING DRAINAGE
INDEX AREA E-2
ST. TAMMANY PARISH, LOUISIANA

AUGUST 2016

ST. TAMMANY

010

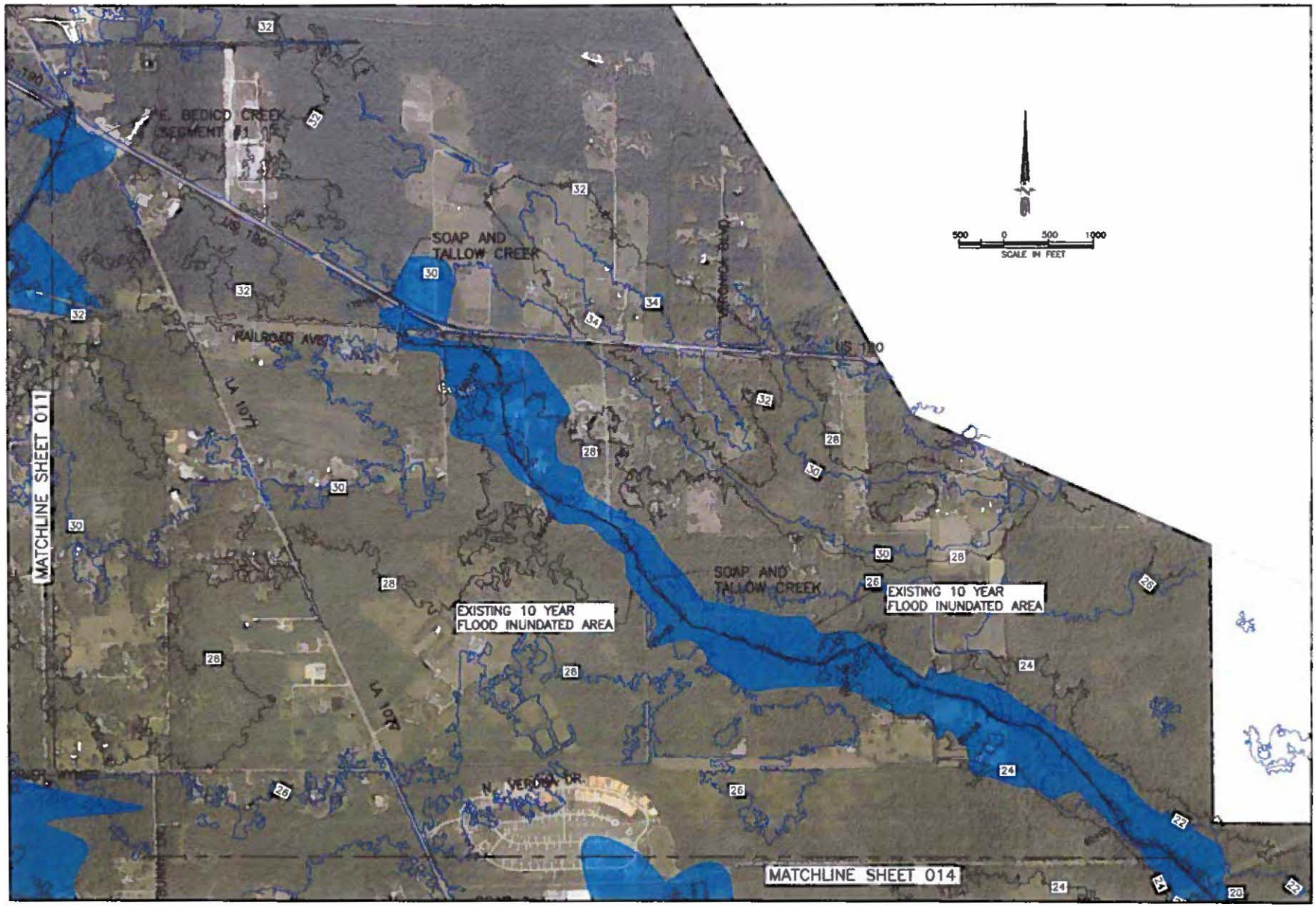
APPENDIX D – Flood Inundation Maps Existing & Proposed 10 Year – 24 Hour Storm Sheets



LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA C-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

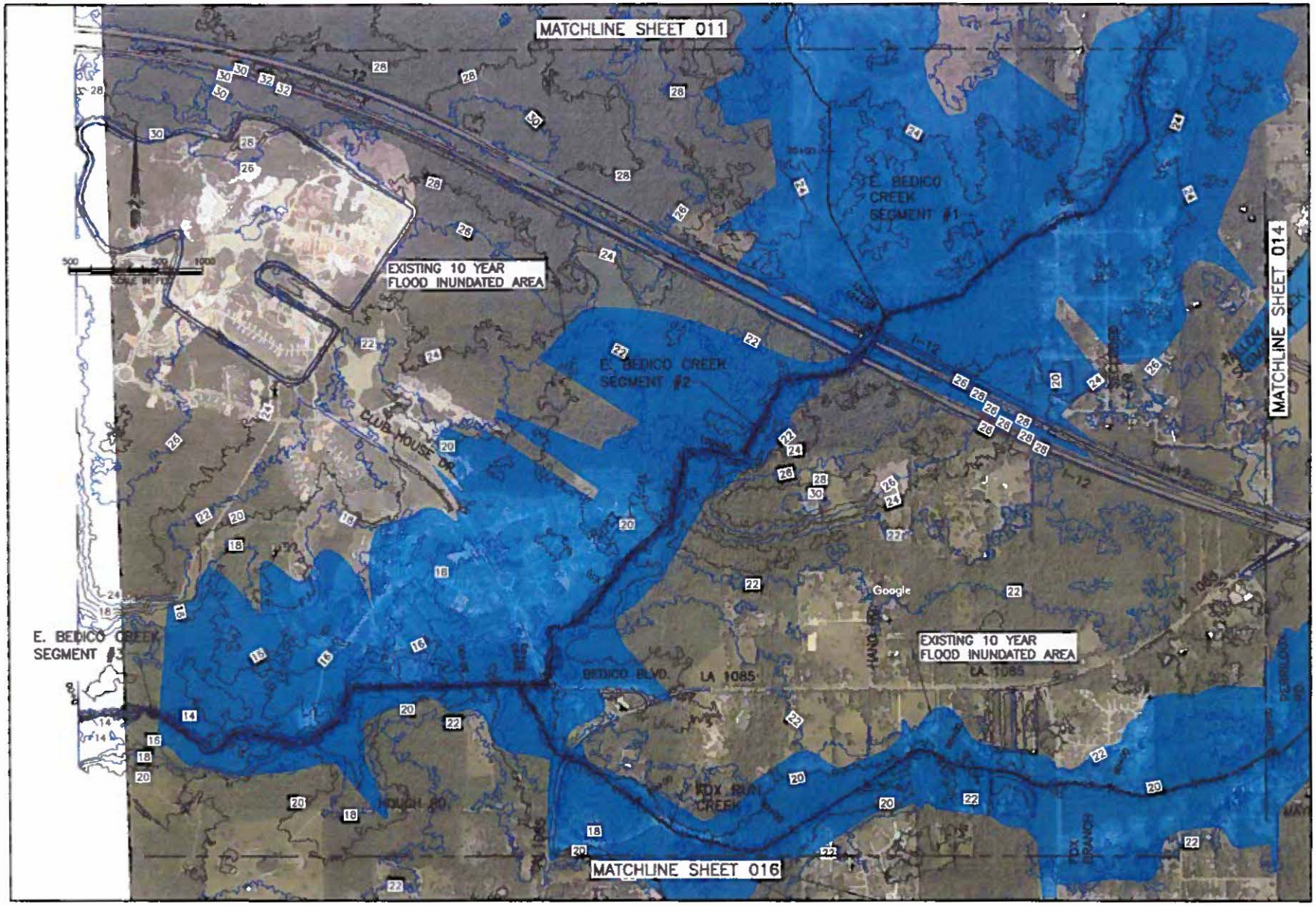
011



LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA C-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

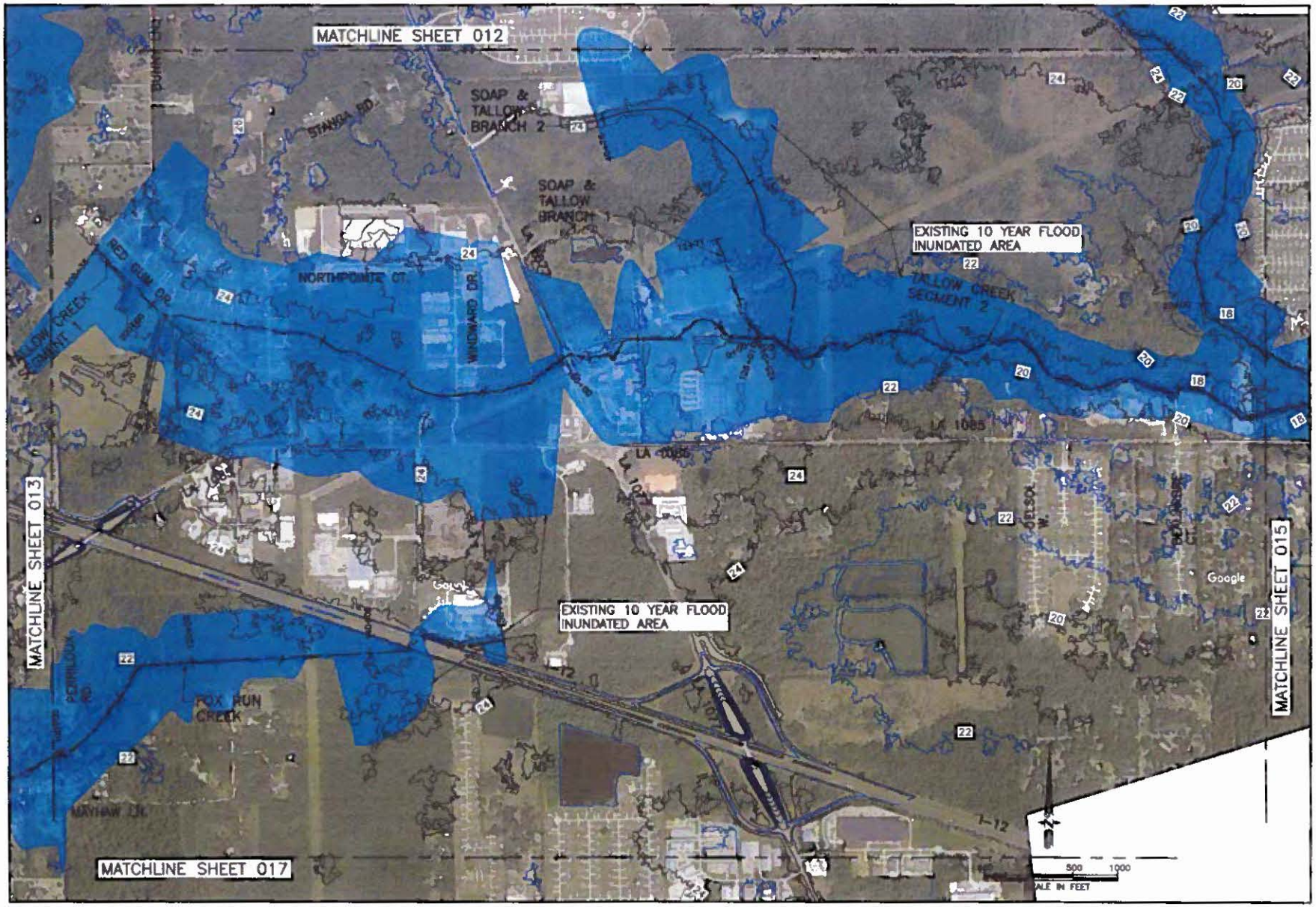
012



LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA D-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

013

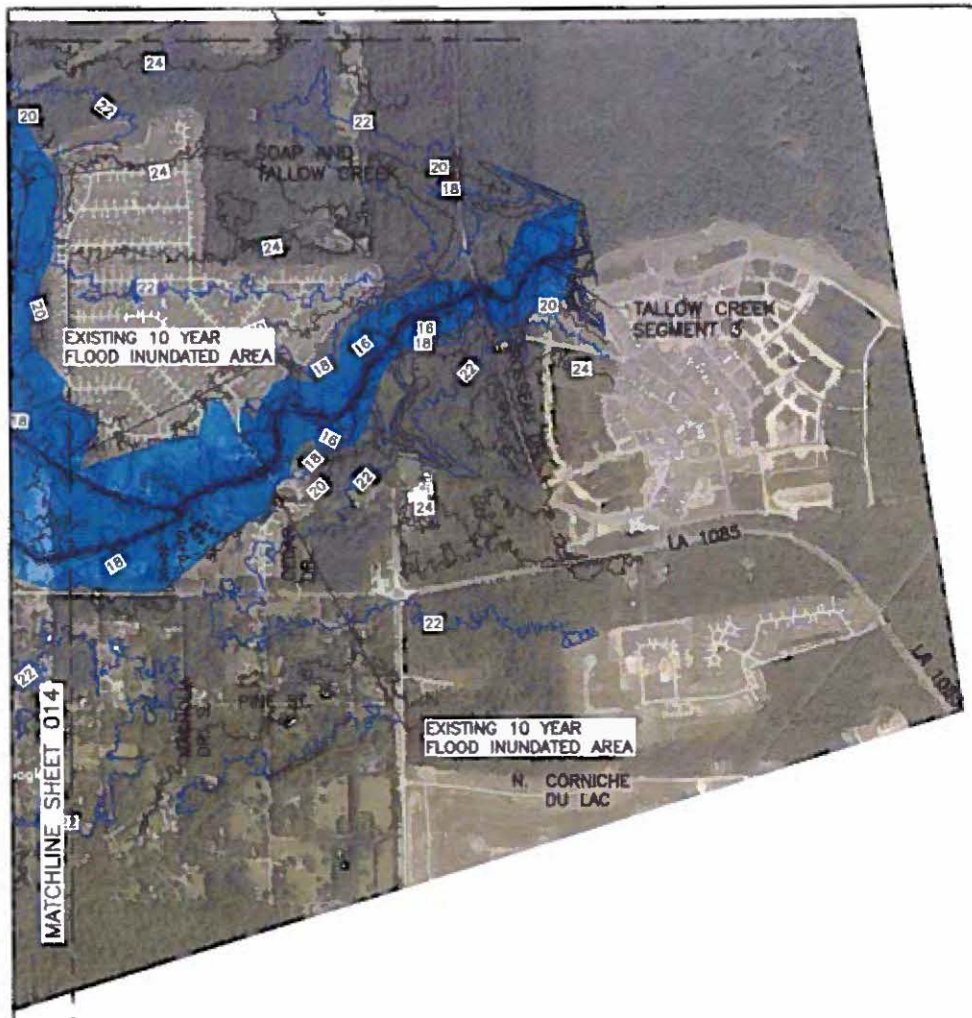


LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. DRAINAGE
INDEX AREA D-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

F.M.
D.K.
KV/F.M.
F.M.
AUGUST 2018

014



500 0 500 1000
SCALE IN FEET

LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA D-3
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

F.M.
D.A.
B.V./F.M.
F.M.
AUGUST 2014

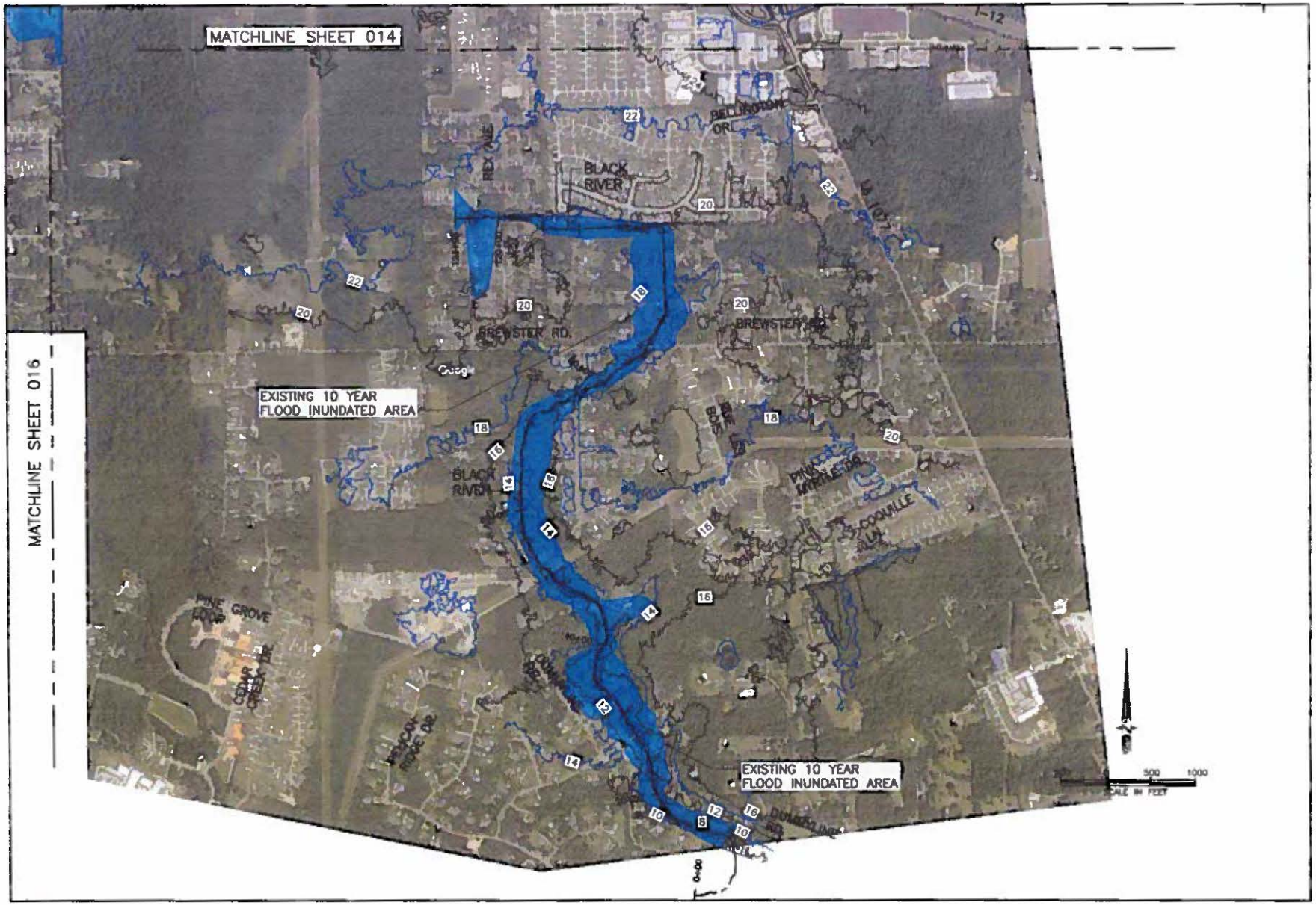
015

LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA E-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

016



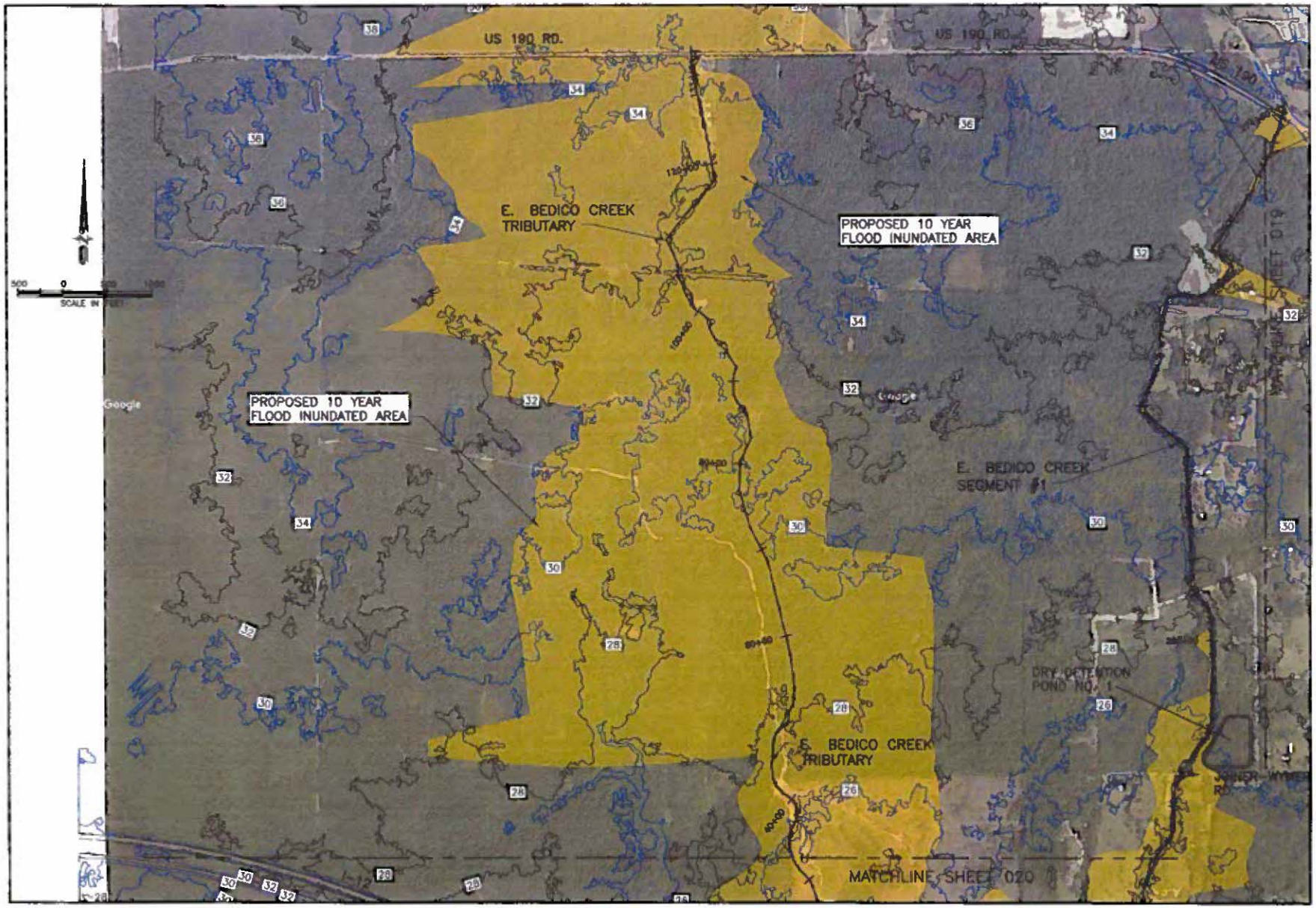
017

ST. TAMMANY

F.A.L.
B.K.
E.V./F.M.
F.A.
AUGUST 2016

LA 1077/1085 DRAINAGE STUDY
EXISTING 10 YR. INUNDATION
INDEX AREA E-2
ST. TAMMANY PARISH, LOUISIANA

NAY ASSOCIATES, INC.

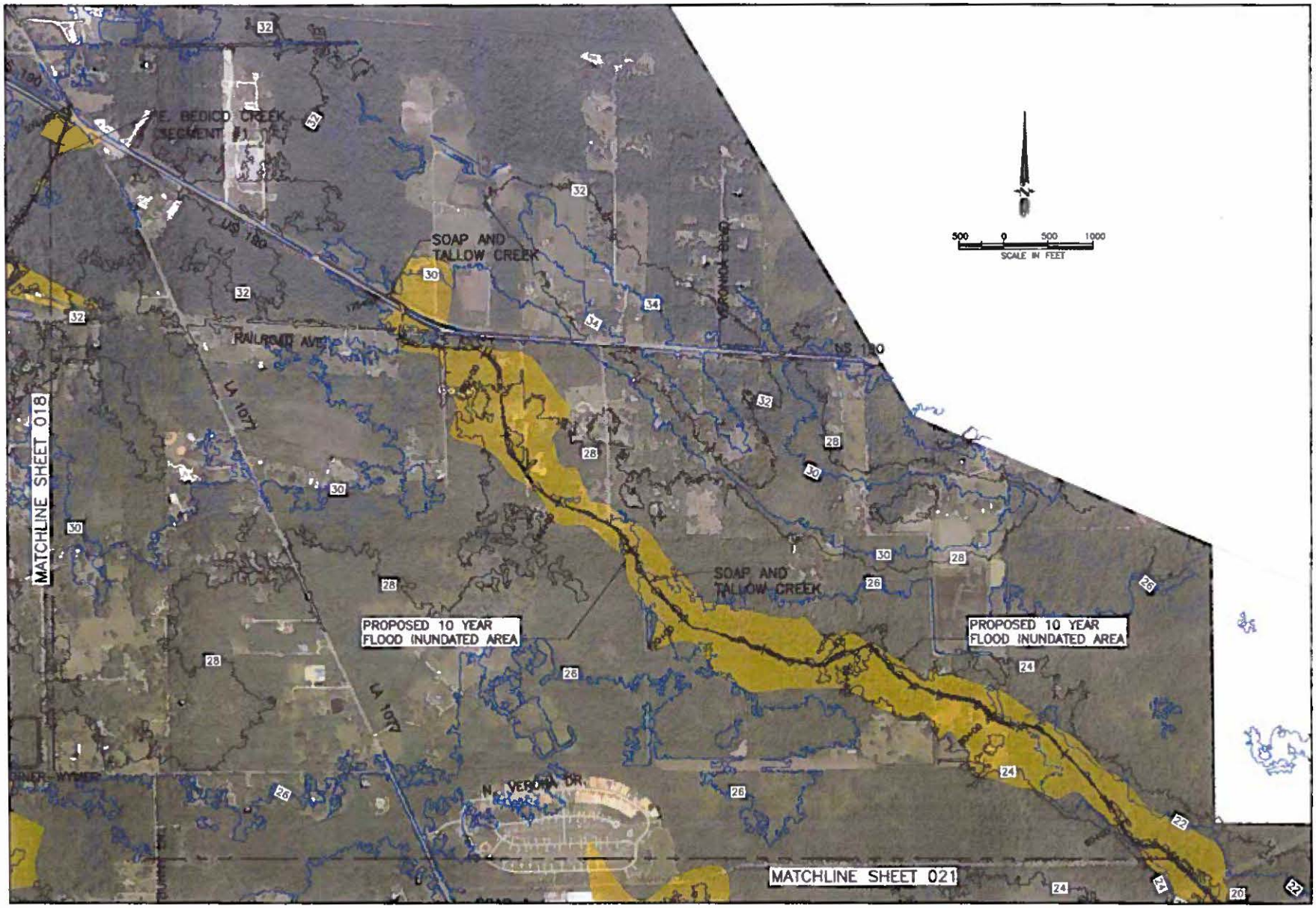


LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. INUNDATION
INDEX AREA C-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

018

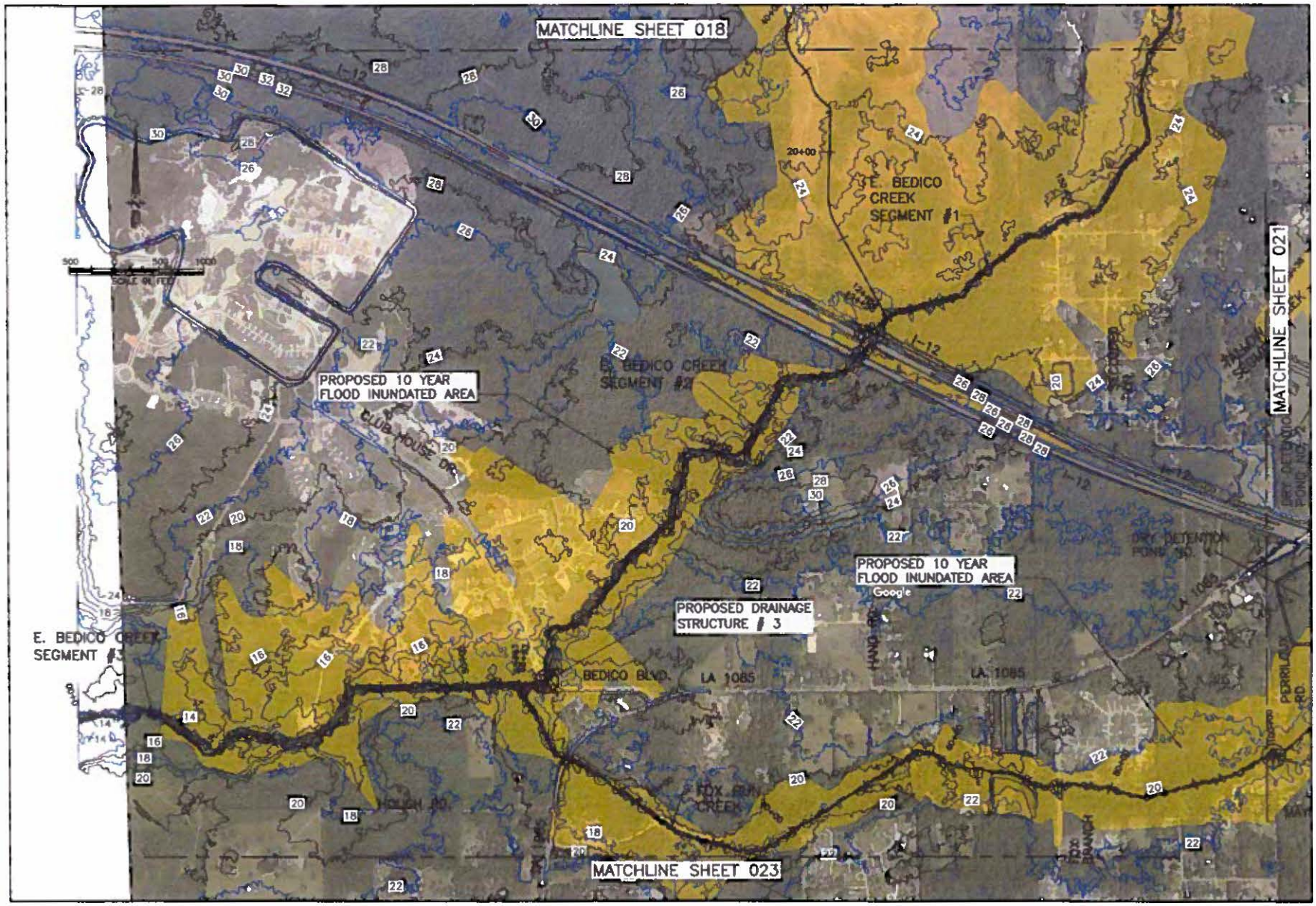


LA 1077/1085 DRAINAGE STUDY
PROPOSE 10 YR. INUNDATION
INDEX AREA C-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

019

AUGUST 2016



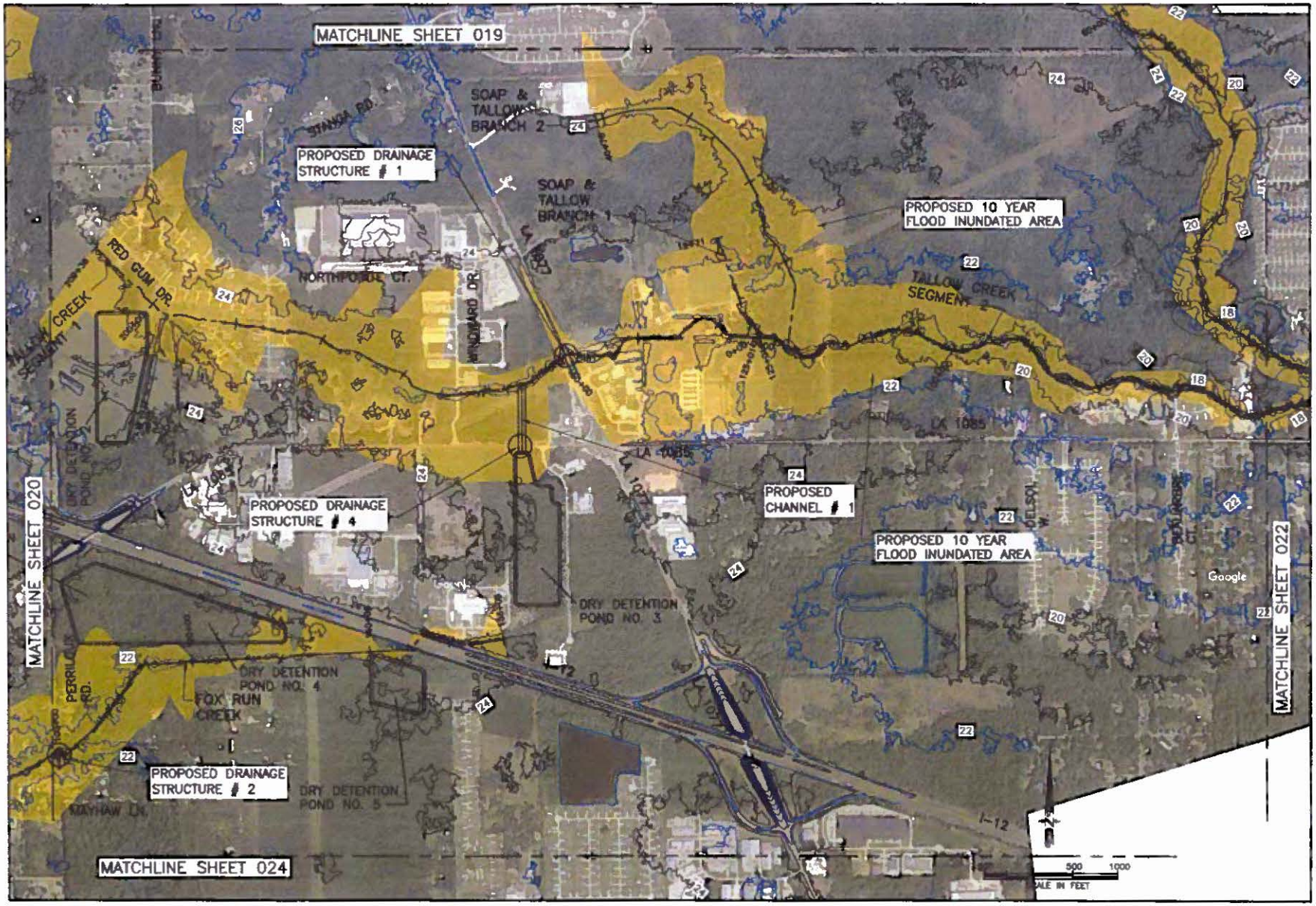
LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. INUNDATION
INDEX AREA D-1
ST. TAMMANY PARISH, LOUISIANA

NV ASSOCIATES, INC.

PROJ# ST. TAMMANY

F.M. DWN.
CLV/F.M. CHKD.
F.M. APVD.
AUGUST 2016

020

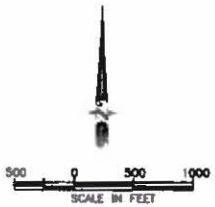


LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. DRAINAGE
INDEX AREA D-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

021

NV ASSOCIATES, INC.



022

ST. TAMMANY

F.M.
D.K.
B.V./F.M.
F.M.
AUGUST 2016

LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. INUNDATION
INDEX AREA D-3
ST. TAMMANY PARISH, LOUISIANA

NV ASSOCIATES, INC.

MATCHLINE SHEET 024

500 0 500 1000
SCALE IN FEET

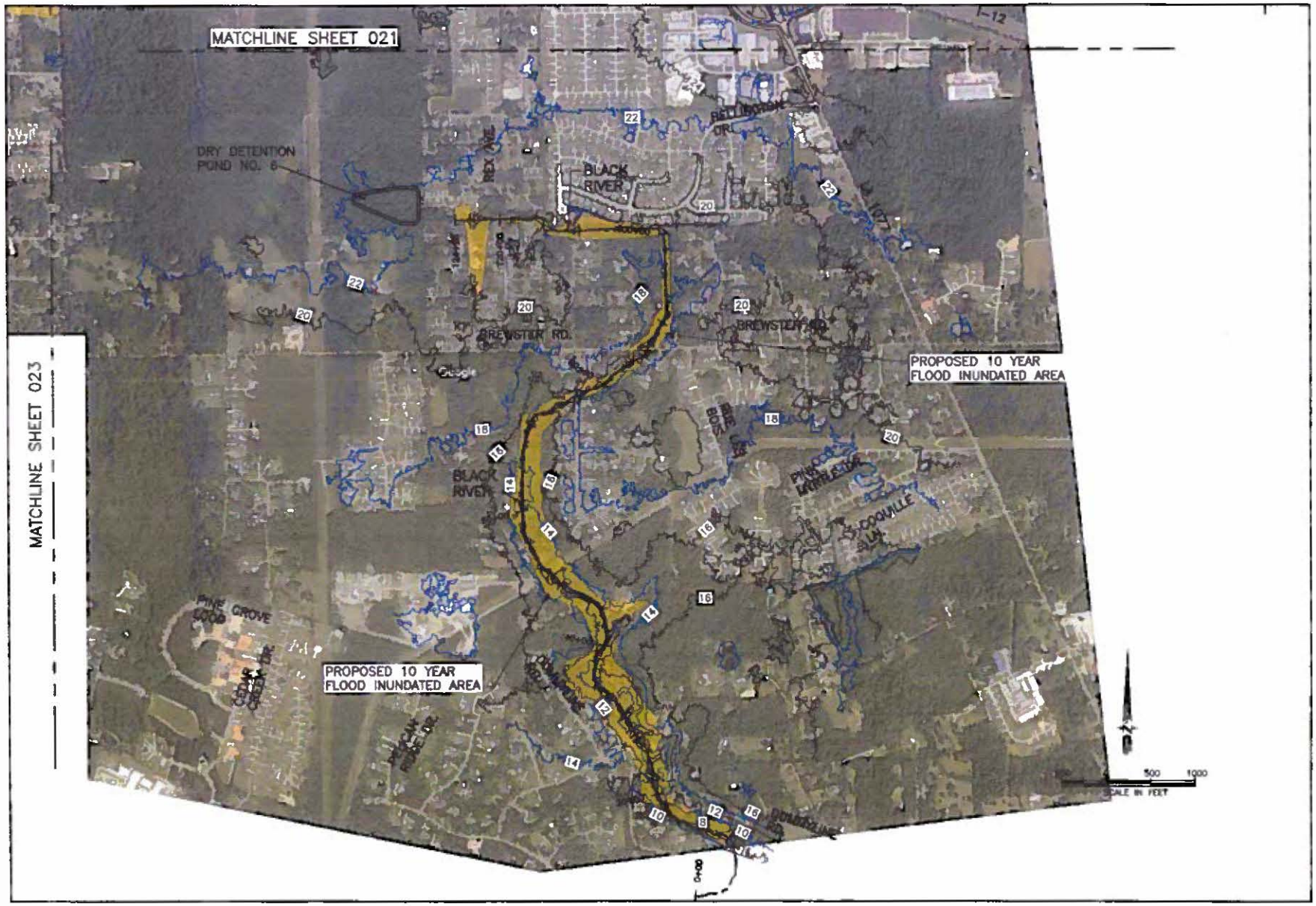
LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. INUNDATION
INDEX AREA E-1
ST. TAMMANY PARISH, LOUISIANA

N/ ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2010

023



LA 1077/1085 DRAINAGE STUDY
PROPOSED 10 YR. INUNDATION
INDEX AREA E-2
ST. TAMMANY PARISH, LOUISIANA

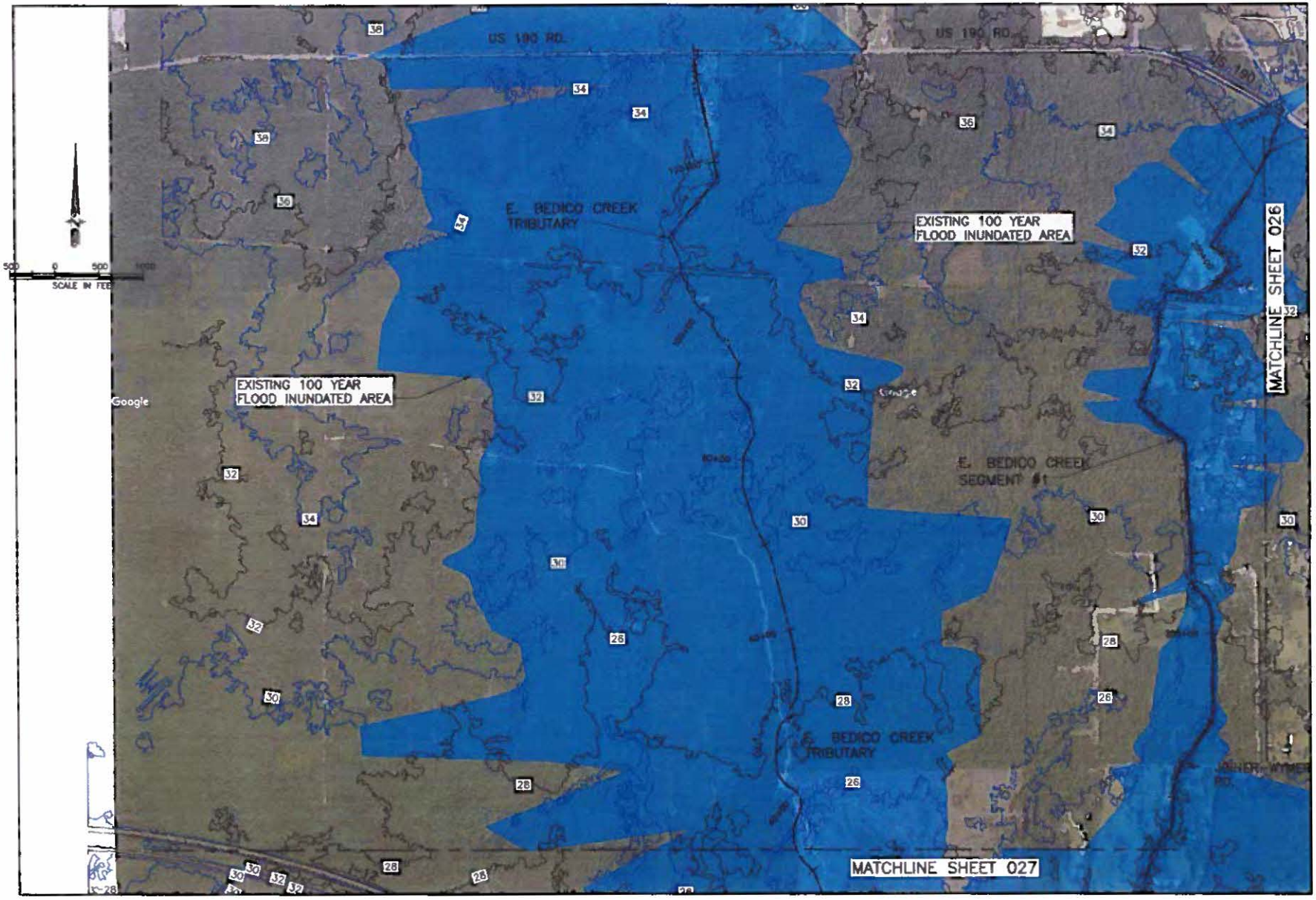
ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2010

024

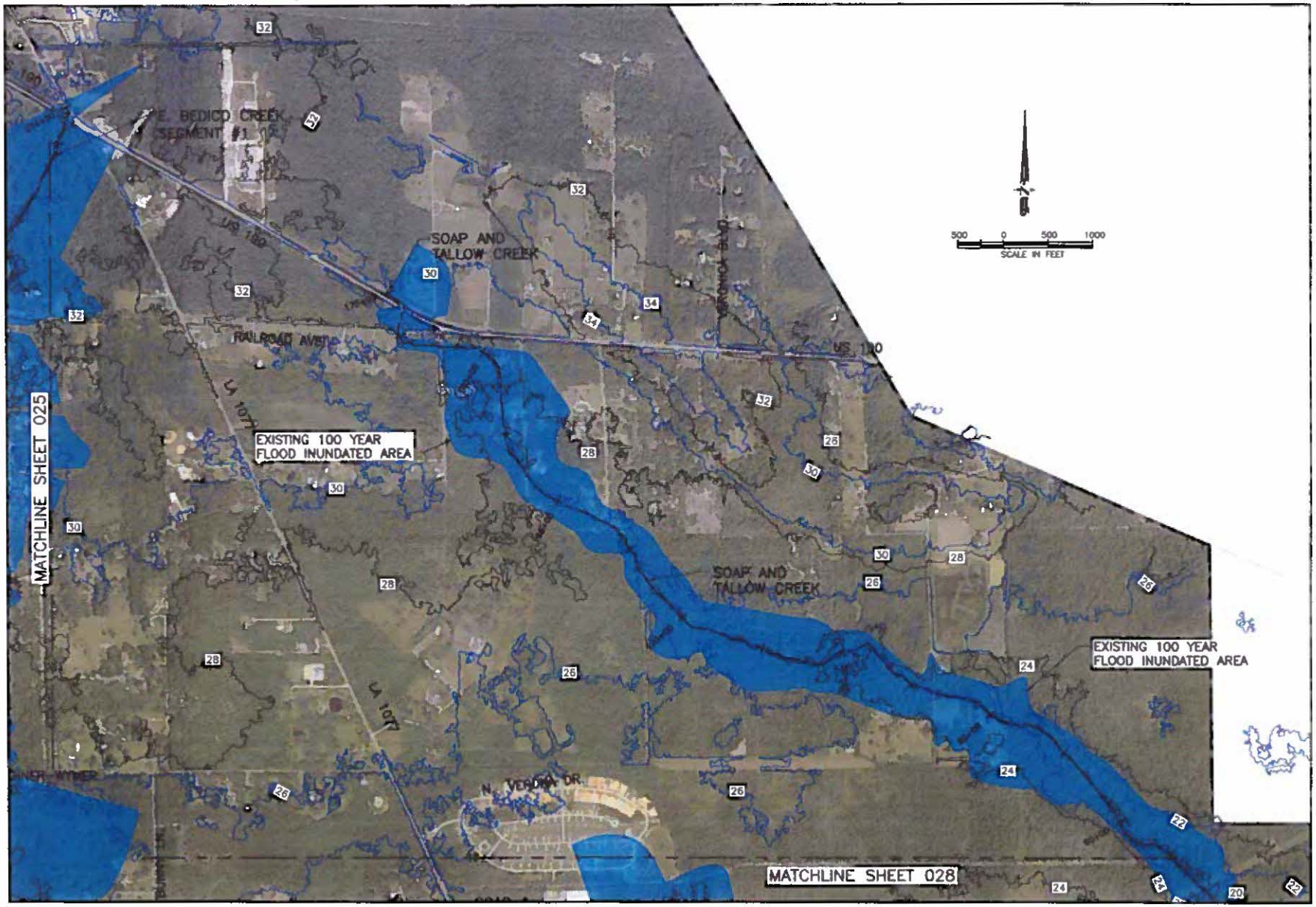
APPENDIX E – Flood Inundation Maps Existing & Proposed 100 Year – 24 Hour Storm Sheets



LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA C-1
ST. TAMMANY PARISH, LOUISIANA

N ASSOCIATES, INC.

025



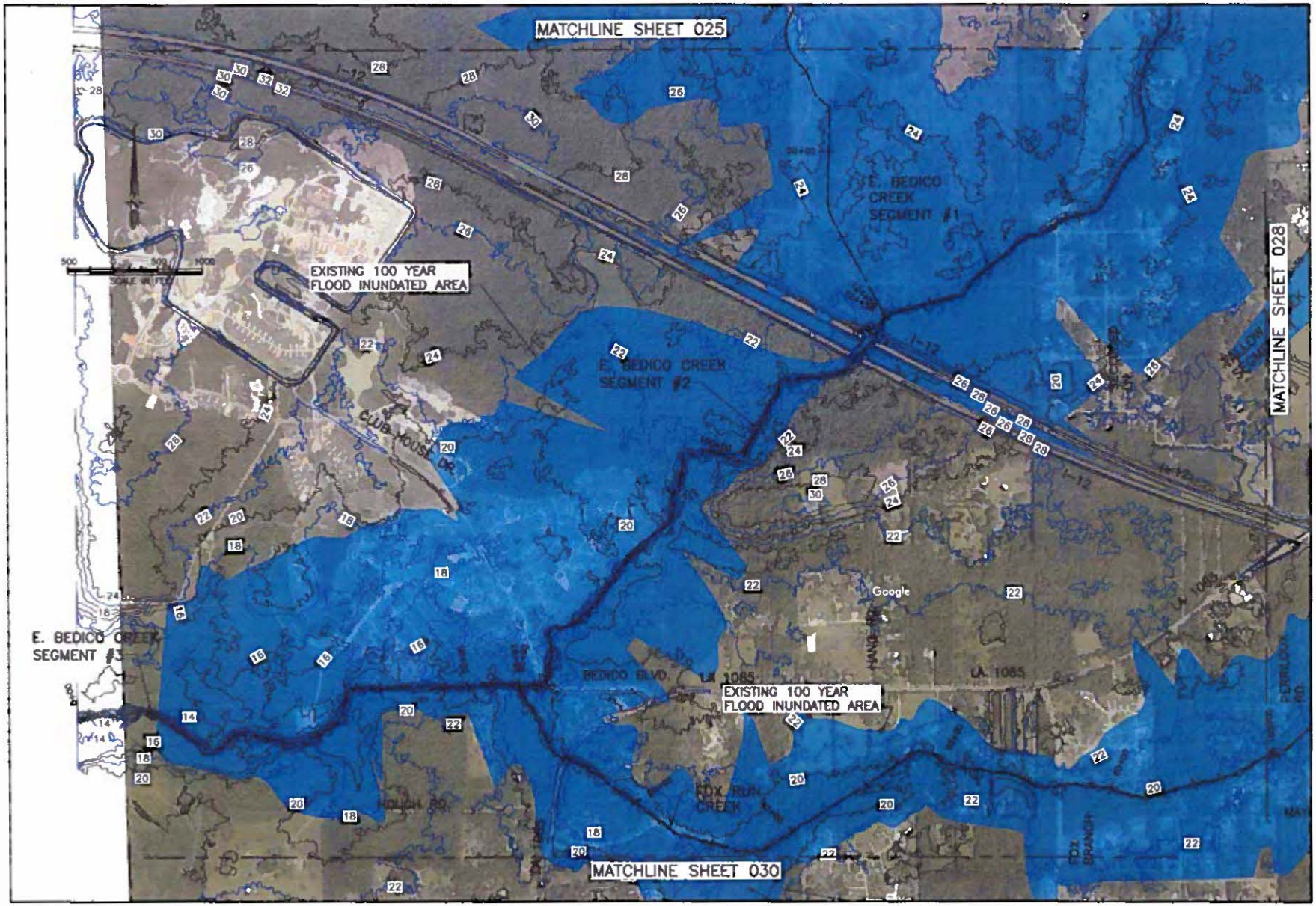
026

ST. TAMMANY

F.M.
D.W.
E.W./J.K.
F.M.
AUGUST 2010

LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA C-2
ST. TAMMANY PARISH, LOUISIANA

NV ASSOCIATES, INC.

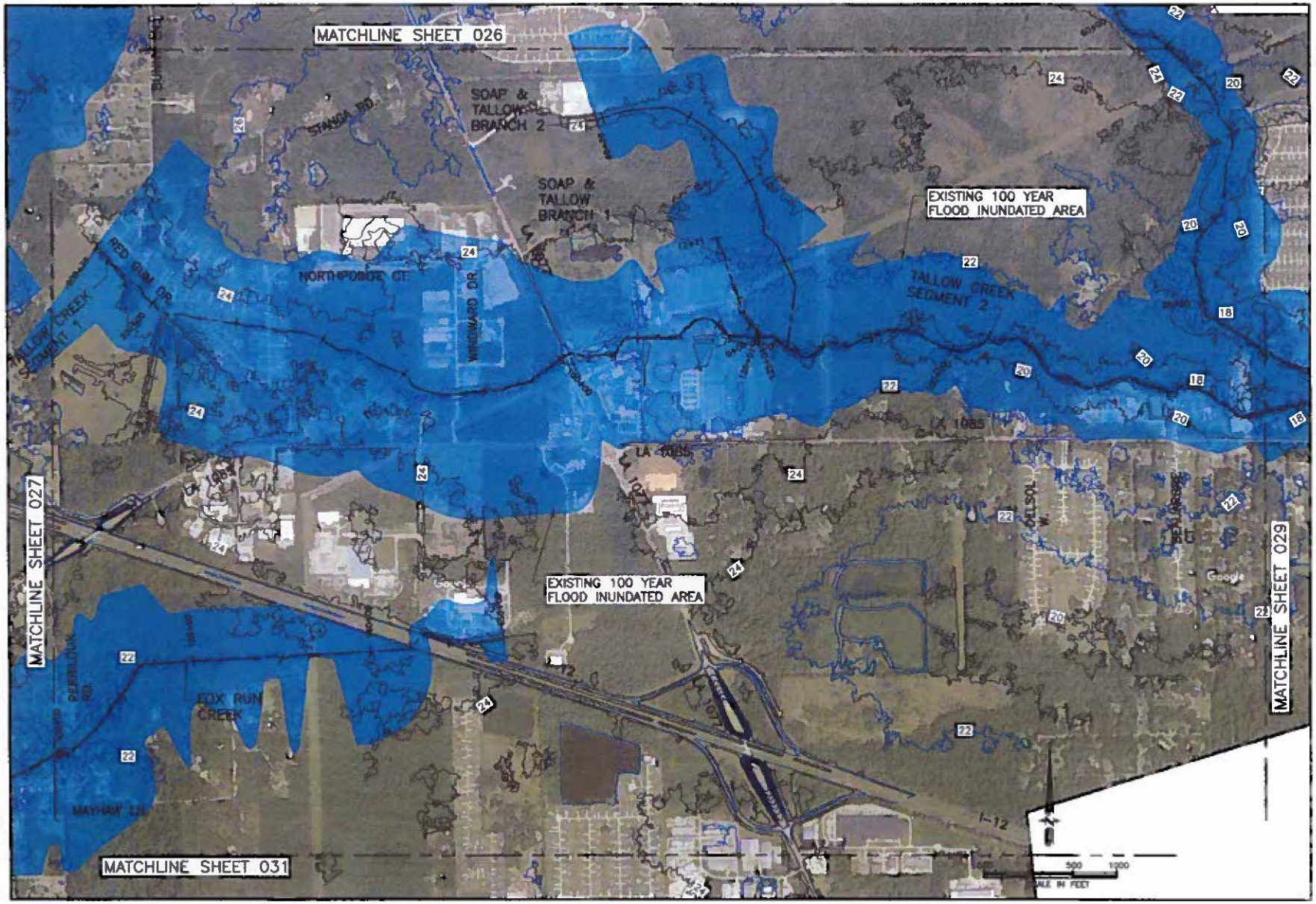


LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA D-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

027



LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
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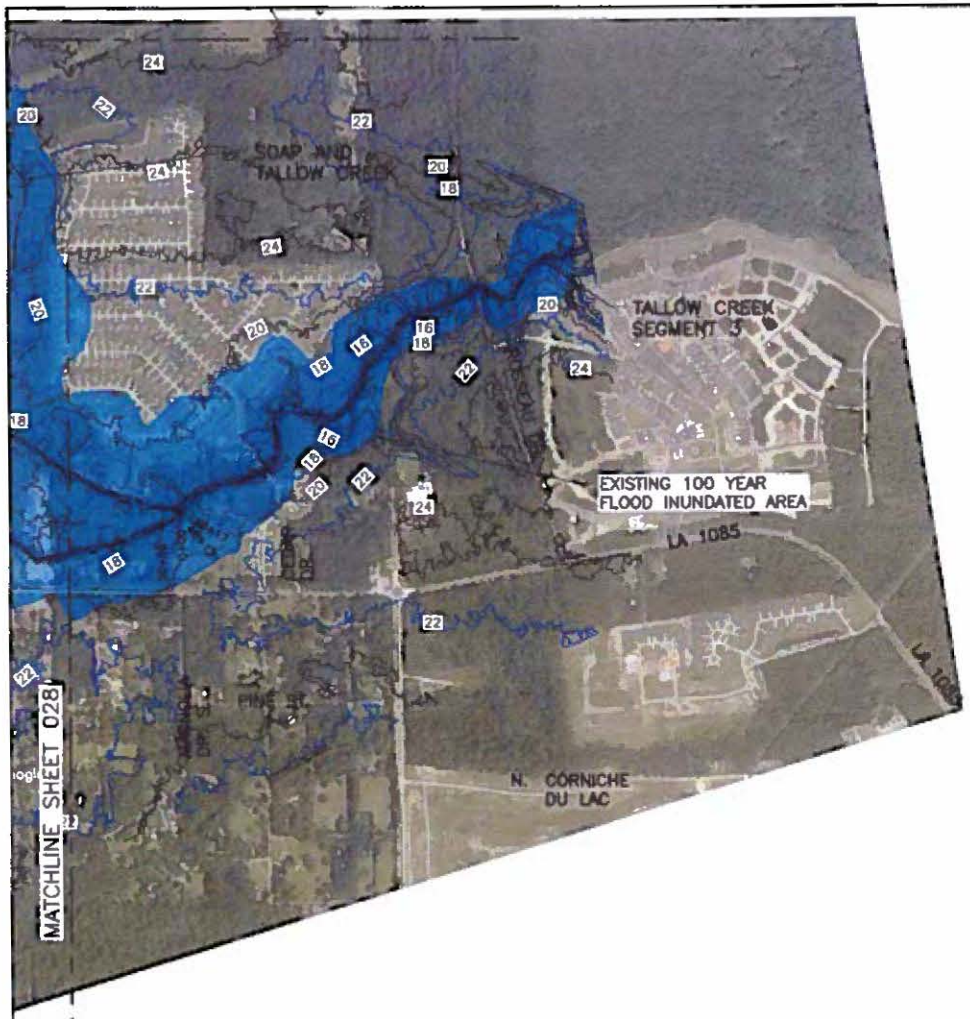
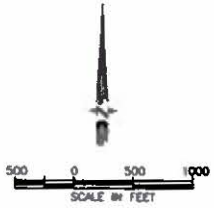
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2015

028





LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA D-3
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2010

029

MATCHLINE SHEET 031

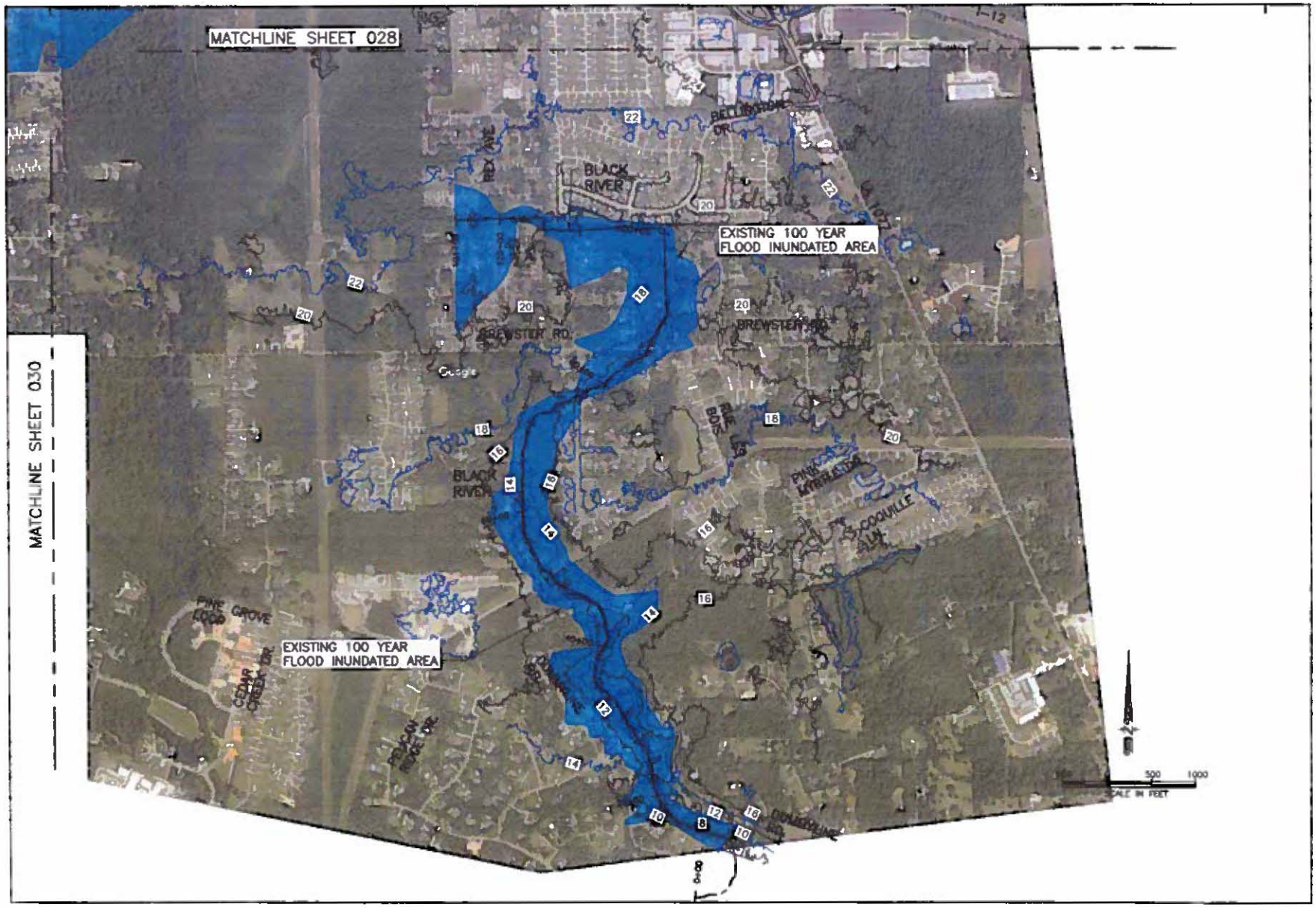
500 0 500 1000
SCALE IN FEET

LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA E-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2010

030

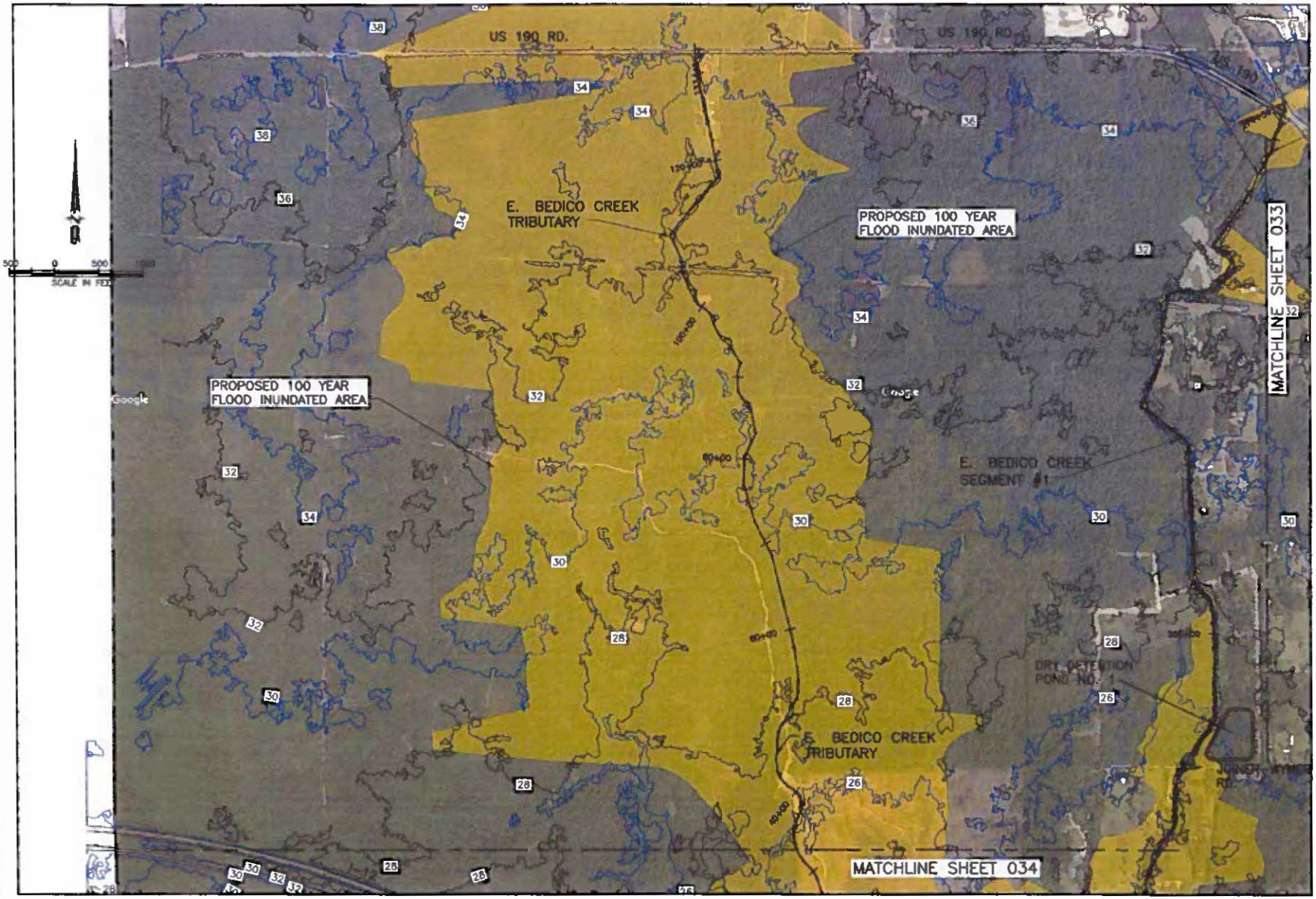


LA 1077/1085 DRAINAGE STUDY
EXISTING 100 YR. INUNDATION
INDEX AREA E-2
ST. TAMMANY PARISH, LOUISIANA

N.V. ASSOCIATES, INC.

ST. TAMMANY

031



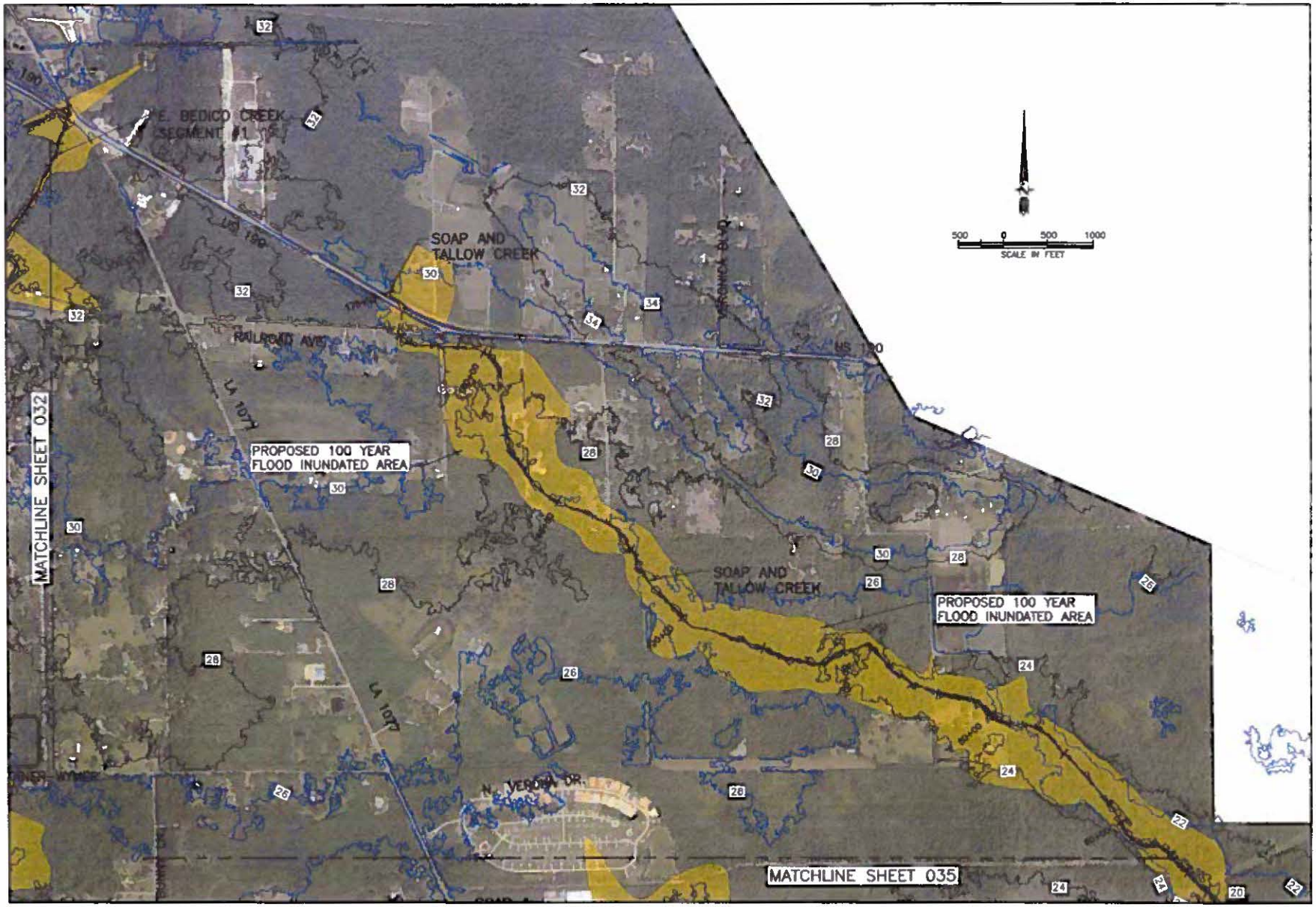
LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION
INDEX AREA C-1
ST. TAMMANY PARISH, LOUISIANA

NV ASSOCIATES, INC.

ST. TAMMANY

AUGUST 2010

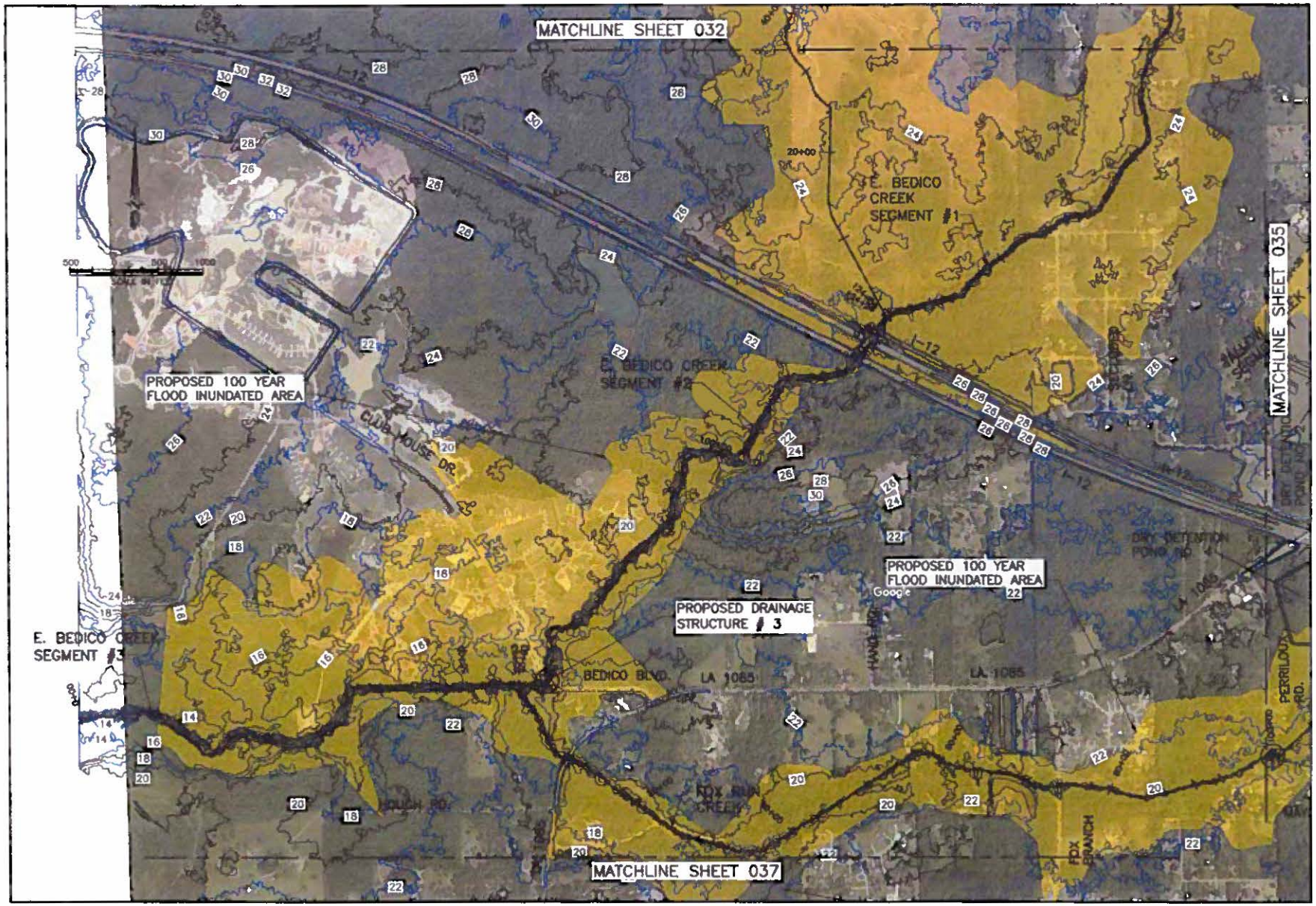
032



SHEET	033
PARISH	ST. TAMMANY
DESIGNED	F.A.
DRAWN	S.G./F.A.
CHECKED	F.A.
DATE	AUGUST 2016

LA 1077/1085 DRAINAGE STUDY
PROPOSE 100 YR. INUNDATION
INDEX AREA C-2
ST. TAMMANY PARISH, LOUISIANA

NAVASOTA, INC.

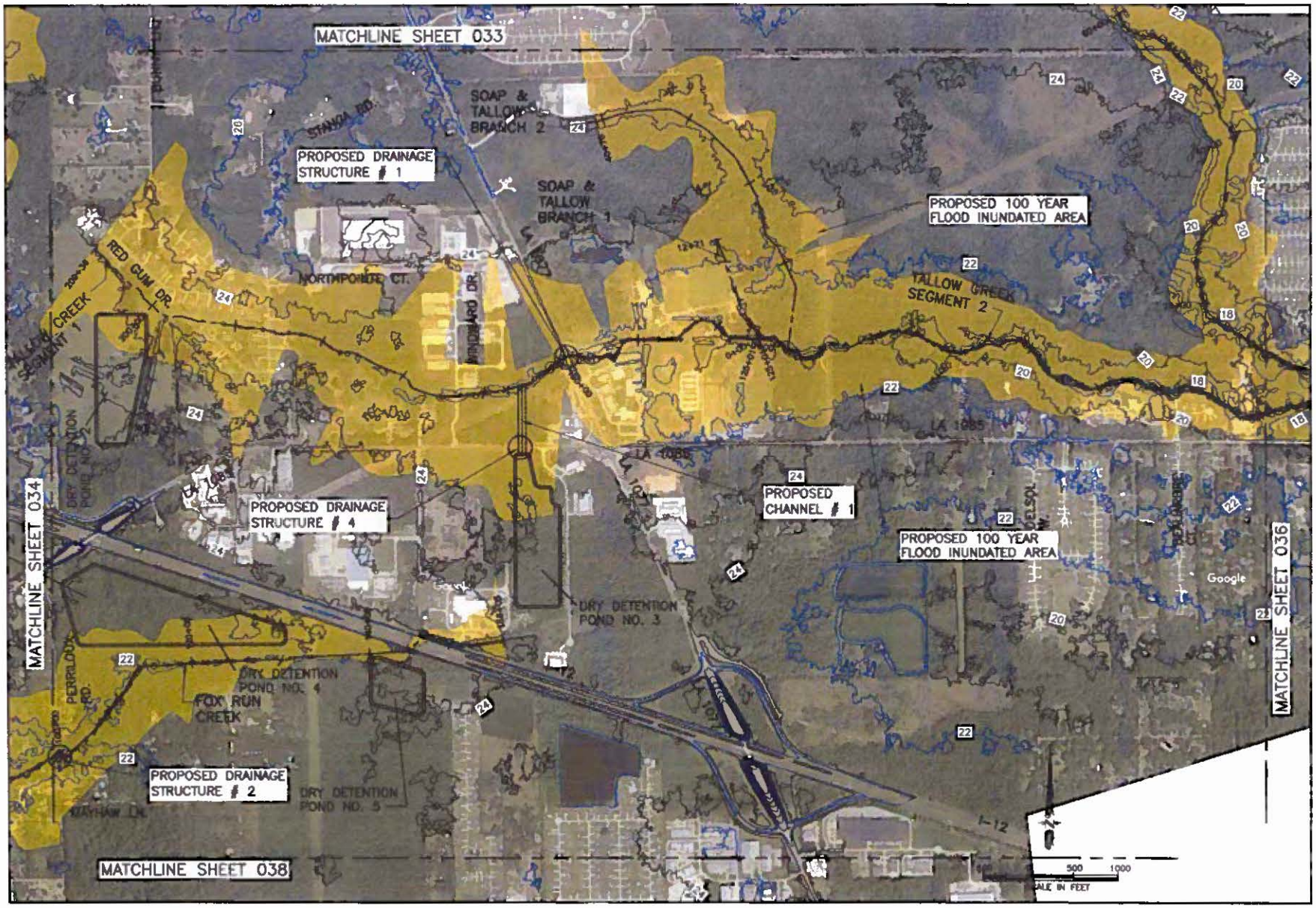


LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION
INDEX AREA D-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

034



LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION
INDEX AREA D-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2019

035

500 0 500 1000
SCALE IN FEET

LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION
INDEX AREA D-3
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2010

036

MATCHLINE SHEET 038

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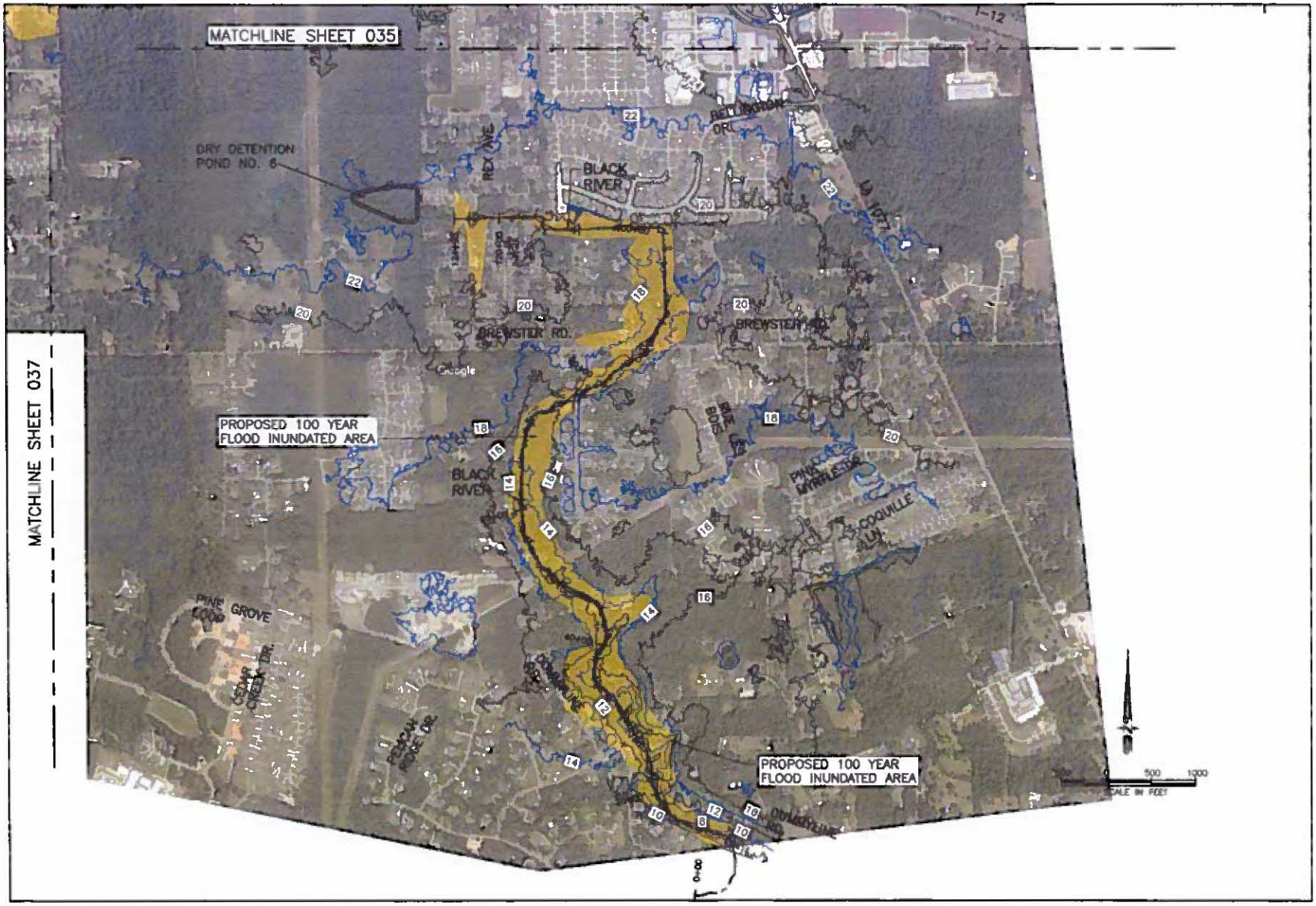
SCALE IN FEET

LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION
INDEX AREA E-1
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2018

037



LA 1077/1085 DRAINAGE STUDY
PROPOSED 100 YR. INUNDATION INDEX AREA E-2
ST. TAMMANY PARISH, LOUISIANA

ST. TAMMANY

AUGUST 2016

036

APPENDIX F

Existing Water Surface Profile Elevations, Culverts

Table 1.4

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #2	100 yr 24 hour	24.03	24.03	18.21	24.03	23.51	13	865.66	0.01	0.55	0.55
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #1	100 yr 24 hour	24.03	24.03	18.14	24.03	23.51	22.34	865.66	0.01	0.54	0.54
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #2	10 yr 24 hr	23.77	23.76	19.08	23.76	23.51	40.56	797.07	0.07	1.73	1.73
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #1	10 yr 24 hr	23.77	23.76	18.99	23.77	23.51	70.37	797.07	0.07	1.69	1.69
Tallow Cr	T Cr No.2	14683.69 School 2 - 72' c Culvert #1	100 yr 24 hour	24	23.99	23.99	24	22.32	32.52	1046.48	0.01	0.58	0.58
Tallow Cr	T Cr No.2	14683.69 School 2 - 72' c Culvert #1	10 yr 24 hr	23.72	23.66	23.72	23.69	22.32	527.78	250.22	0.01	9.33	9.33
Tallow Cr	T Cr No.2	13692.5 School 2 - 48" c Culvert #1	100 yr 24 hour	23.8	23.8	23.8	23.8	21.01	16.83	1062.17	0.01	0.67	0.67
Tallow Cr	T Cr No.2	13692.5 School 2 - 48" c Culvert #1	10 yr 24 hr	23.45	23.44	23.43	23.45	21.01	25.67	752.33	0.02	1.02	1.02
Tallow Cr	T Cr No.2	12839.83 School 90" x 13 Culvert #1	100 yr 24 hour	23.67	23.67	23.66	23.67	21	53.79	1111.21	0.01	0.7	0.7
Tallow Cr	T Cr No.2	12839.83 School 90" x 13 Culvert #1	10 yr 24 hr	23.31	23.31	23.31	23.31	21	31.35	799.89	0	0.41	0.41
Tallow Cr	T Cr No.2-1	11577.05 Cleco Access Roa Culvert #1	100 yr 24 hour	23.37	23.35	23.13	23.37	23	492.9	1355.1	0.38	4.71	4.71
Tallow Cr	T Cr No.2-1	11577.05 Cleco Access Roa Culvert #1	10 yr 24 hr	23.13	23.12	20.43	23.13	23	758.71	324.29	0.93	7.24	7.24
Tallow Cr	T Cr No.2-1	8428.31 White Chapel Roa Culvert #1	100 yr 24 hour	21.91	21.88	21.89	21.91	20.01	102.31	1745.69	0.01	1.3	1.3
Tallow Cr	T Cr No.2-1	8428.31 White Chapel Roa Culvert #1	10 yr 24 hr	20.82	20.79	20.81	20.82	20.01	86.85	996.15	0	1.11	1.11
Tallow Cr	T Cr No.2-1	6080 New Road Culvert #1	100 yr 24 hour	21.29	21.21	21.29	21.29	18.01	54.87	1975.13	0.03	0.7	0.7
Tallow Cr	T Cr No.2-1	6080 New Road Culvert #1	10 yr 24 hr	20.04	20	20.03	20.04	18.01	87.74	1056.26	0.02	1.12	1.12
Soap & Tallow Cr	S & T No.2	8700 Fitzsimmons Road Culvert #1	100 yr 24 hour	24.31	24.3	17.15	24.31	23.51	29.84	177.16	0	0.38	0.38

Existing Water Surface Profile Elevations, Culverts

Table 1.4

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Soap & Tallow Cr	S & T No.2	8700 Fitzsimmons Road Culvert #1	10 yr 24 hr	23.82	23.81	16.82	23.82	23.51	59.14	121.86	0.01	0.75	0.75
Black River	B River No.1	12310.73 Rex Road Culvert #1	100 yr 24 hour	21.81	21.79	21.81	21.81	21.3	130.55	2111.06	0.8	6.78	6.78
Black River	B River No.1	12310.73 Rex Road Culvert #1	10 yr 24 hr	21.54	21.53	21.43	21.54	21.3	138.01	3.99	1.27	8.43	8.63
Black River	B River No.1	8666 Brewster Rd. Culvert #1	100 yr 24 hour	18.51	18.47	17.25	18.51	18.21	485.3	337.7	0.39	4.83	4.83
Black River	B River No.1	8666 Brewster Rd. Culvert #1	10 yr 24 hr	17.87	17.84	15.65	17.87	18.21	595		0.6	5.95	5.94
Black River	B River No.1	7684.62 Tchefuncte Parc Culvert #1	100 yr 24 hour	17.66	17.61	16.82	17.66	17.51	759.55	63.45	0.95	7.54	7.54
Black River	B River No.1	7684.62 Tchefuncte Parc Culvert #1	10 yr 24 hr	16.74	16.7	15.51	16.74	17.51	595		0.58	5.9	5.9
Black River	B River No.1	4444.8 Private Driveway Culvert #1	100 yr 24 hour	14.19	14.15	14.16	14.19	13.01	81.05	860.95	0.01	1.61	1.61
Black River	B River No.1	4444.8 Private Driveway Culvert #1	10 yr 24 hr	13.72	13.69	13.43	13.72	13.01	253.18	388.82	0.4	5.04	5.04
Black River	B River No.1	3827.40 Private Driveway Culvert #1	100 yr 24 hour	13.81	13.78	13.8	13.81	12.01	58.68	1254.32	0	1.17	1.17
Black River	B River No.1	3827.40 Private Driveway Culvert #1	10 yr 24 hr	12.95	12.92	12.94	12.95	12.01	54.91	746.09	0.01	1.09	1.09
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	100 yr 24 hour	13.42	13.32	13.4	13.42	12.01	140.95	1172.05	0.05	1.53	1.53
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	10 yr 24 hr	12.58	12.48	9.56	12.58	12.01	454.35	346.65	0.34	4.93	4.93
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	100 yr 24 hour	13.28	13.25	11.93	13.28	13.01	1124.38	188.62	0.9	7.27	7.26
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	10 yr 24 hr	12.04	12.01	9.34	12.04	13.01	801		0.49	5.45	5.42
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #1	100 yr 24 hour	36.88	36.87	35.97	36.8	36.41	30.41	34.56	3.06	9.68	9.68
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #2	100 yr 24 hour	36.88	36.87	36.9	36.67	36.41	136.87	34.56	3.06	10.89	11.83

Existing Water Surface Profile Elevations, Culverts

Table 1.4

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #1	10 yr 24 hr	36.53	36.52	36.01	36.52	36.41	30.56	9.79	3.17	9.73	10
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #2	10 yr 24 hr	36.53	36.52	36.75	36.53	36.41	134.65	9.79	3.17	10.72	11.66
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #1	100 yr 24 hour	27.88	27.87	25.16	27.88	27.01	53.49	225.65	0.2	3.36	3.36
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	100 yr 24 hour	27.88	27.87	22.87	27.88	27.01	44.86	225.65	0.2	2.82	2.82
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #1	10 yr 24 hr	27.07	27.06	26.32	27.06	27.01	87.95	3.65	0.71	5.74	5.53
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	10 yr 24 hr	27.07	27.06	24.18	27.07	27.01	83.4	3.65	0.71	5.24	5.24
Bedico Cr.	Bed. Cr. No.3	18384 Joiner Road Culvert #1	100 yr 24 hour	25.7	25.7	22.19	25.7	25.01	103.63	436.37	0.01	1.01	1.01
Bedico Cr.	Bed. Cr. No.3	18384 Joiner Road Culvert #1	10 yr 24 hr	25.29	25.29	20.64	25.29	25.01	147.72	121.28	0.03	1.45	1.45
Bedico Cr.	Trib. No.3	13241.52 LA HWY 190 Culvert #1	100 yr 24 hour	37.55	37.52	37.55	37.55	37.01	111.13	2187.29	1.57	7.86	7.86
Bedico Cr.	Trib. No.3	13241.52 LA HWY 190 Culvert #1	10 yr 24 hr	37.45	37.43	37.44	37.45	37.01	117.98	1193.75	1.68	8.35	8.35
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #2	100 yr 24 hour	33.53	33.34	30.24	33.53	33.01	2.41	2083.23	0.17	0.34	0.34
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #1	100 yr 24 hour	33.53	33.34	29.43	33.54	33.01	3.54	2083.23	0.17	0.18	0.18
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #2	10 yr 24 hr	33.13	32.98	31.75	33.13	33.01	21.32	665.12	0.02	3.02	3.02
Bedico Cr.	Trib. No.3	10553.56 Trace Recreation Culvert #1	10 yr 24 hr	33.13	32.98	29.96	33.12	33.01	13.57	665.12	0.02	0.71	0.71
Bedico Cr.	Bed. Cr. No.2	5930.27 Bedico Cr. Blvd. Culvert #1	100 yr 24 hour	20.81	20.65	20.8	20.81	20.01	70.32	2943.68	0.11	0.55	0.55
Bedico Cr.	Bed. Cr. No.2	5930.27 Bedico Cr. Blvd. Culvert #1	10 yr 24 hr	20.4	20.12	20.39	20.4	20.01	173.79	2223.21	0.17	1.37	1.37
Bedico Cr.	Fox Branch	14560 I-12 Culvert #1	100 yr 24 hour	25.23	25.22	22.02	25.23	27.21	195		0.33	3.05	3.05
Bedico Cr.	Fox Branch	14560 I-12 Culvert #1	10 yr 24 hr	24.92	24.91	21.49	24.92	27.21	139		0.16	2.17	2.17

Existing Water Surface Profile Elevations, Culverts

Table 1.4

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Bedico Cr	Fox Branch	9998.61 Perriloux Rd. Culvert #1	100 yr 24 hour	23.36	23.36	23.36	23.36	22.83	5.38	189.62	0	0.28	0.28
Bedico Cr.	Fox Branch	9998.61 Perriloux Rd. Culvert #1	10 yr 24 hr	23.05	23.05	21.9	23.05	22.83	58.12	80.88	0.18	3.02	3.02
Bedico Cr	Fox Branch	5593.71 Private Driveway Culvert #1	100 yr 24 hour	22.38	22.36	22.35	22.38	22.01	78.57	1113.43	0.03	1.56	1.56
Bedico Cr.	Fox Branch	5593.71 Private Driveway Culvert #1	10 yr 24 hr	21.96	21.95	21.96	21.96	22.01	304.02	662.61	0.6	6.05	6.05

Table 1.5

Existing Water Surface Profile Elevations, Bridge

River	Reach	River Sta	Profile	E.G. US. (ft)	Min El Prs (ft)	BR Open Area (sq ft)	Prs O WS (ft)	Q Total (cfs)	Min El Weir Flow (ft)	Q Weir (cfs)	Delta EG (ft)	W.S. US. (ft)
Tallow Cr	T Cr No.2	14383.7 School Bridge	100 yr 24 hour	23.91	23	155.67		1079	22.65		0.01	23.89
Tallow Cr	T Cr No.2	14383.7 School Bridge	10 yr 24 hr	23.58	23	155.67		778	22.65		0.02	23.55
Soap & Tallow Cr	S & T No. 1	3947.96 Tallow Creek	100 yr 24 hour	20.63	21.6	571.14		3409	19.01		0.15	20.35
Soap & Tallow Cr	S & T No. 1	3947.96 Tallow Creek	10 yr 24 hr	18.97	21.6	571.14		2106	19.01		0.15	18.6
Soap & Tallow Cr	S & T No. 1	1106.54 Rousseau Road	100 yr 24 hour	15.85	15.7	545.94		3409	19.01		0.51	15.33
Soap & Tallow Cr	S & T No. 1	1106.54 Rousseau Road	10 yr 24 hr	15.14	15.7	545.94		2175	19.01		0.22	14.9
Bedico Cr.	Bed. Cr. No.3	14857.8 Bridge - Private	100 yr 24 hour	25.39	27	236.91		551	23		0	25.39
Bedico Cr.	Bed. Cr. No.3	14857.8 Bridge - Private	10 yr 24 hr	24.98	27	236.91		300	23		0	24.98
Bedico Cr.	Bed. Cr. No.3	14711.98 Bridge - Private	100 yr 24 hour	25.38	23.3	102.29		551	23		0	25.38
Bedico Cr.	Bed. Cr. No.3	14711.98 Bridge - Private	10 yr 24 hr	24.97	23.3	102.29		300	23		0	24.97
Bedico Cr.	Bed. Cr. No.2	12122.58 I - 12 West B.	100 yr 24 hour	24.8	25.4	1030.44		2281	27.41		0.05	24.71
Bedico Cr.	Bed. Cr. No.2	12122.58 I - 12 West B.	10 yr 24 hr	24.48	25.4	1030.44		2039	27.41		0.04	24.41
Bedico Cr.	Bed. Cr. No.2	11884.24 I - 12 East B.	100 yr 24 hour	24.66	25.4	937.26		2281	27.41		0.06	24.55
Bedico Cr.	Bed. Cr. No.2	11884.24 I - 12 East B.	10 yr 24 hr	24.36	25.4	937.26		2039	27.41		0.05	24.26
Bedico Cr.	Fox Branch	7400.48 Fox Branch Cross	100 yr 24 hour	22.98	23.5	176.3		963	21.51		0.02	22.97
Bedico Cr.	Fox Branch	7400.48 Fox Branch Cross	10 yr 24 hr	22.46	23.5	176.3		506	21.51		0.02	22.45
Bedico Cr.	Fox Branch	1056.25 LA HWY 1085	100 yr 24 hour	21.18	21.5	342.07		1257	23		0.28	20.96
Bedico Cr.	Fox Branch	1056.25 LA HWY 1085	10 yr 24 hr	20.48	21.5	342.07		741	23		0.13	20.38

APPENDIX G

Proposed Water Surface Profile Elevations, Culverts

Table 1.6

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Tallow Cr	T Cr No 2	14912.13 1077 Culvert #3	100 yr 24 hour	23.73	23.73	19.93	23.74	23.51	45.47	703.99	0.06	2.32	2.32
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #2	100 yr 24 hour	23.73	23.73	19.23	23.74	23.51	46.24	703.99	0.06	1.97	1.97
Tallow Cr	T Cr No 2	14912.13 1077 Culvert #1	100 yr 24 hour	23.73	23.73	18.83	23.73	23.51	60.3	703.99	0.06	1.45	1.45
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #3	10 yr 24 hr	23.46	23.45	22.23	23.46	23.51	123.54		0.43	6.29	6.29
Tallow Cr	T Cr No 2	14912.13 1077 Culvert #2	10 yr 24 hr	23.46	23.45	21.26	23.47	23.51	132.36		0.43	5.65	5.65
Tallow Cr	T Cr No.2	14912.13 1077 Culvert #1	10 yr 24 hr	23.46	23.45	20.45	23.45	23.51	173.09		0.43	4.16	4.16
Tallow Cr	T Cr No 2	14683.69 School 2 - 72" c Culvert #1	100 yr 24 hour	23.72	23.65	23.72	23.72	22.32	12.55	843.45	0.05	0.22	0.22
Tallow Cr	T Cr No.2	14683.69 School 2 - 72" c Culvert #1	10 yr 24 hr	23.01	22.99	22.6	23.01	22.32	50.86	378.14	0.02	0.9	0.9
Tallow Cr	T Cr No 2	13692.5 School 2 - 48" c Culvert #1	100 yr 24 hour	23.55	23.53	23.54	23.55	21.01	16.14	839.86	0.01	0.64	0.64
Tallow Cr	T Cr No.2	13692.5 School 2 - 48" c Culvert #1	10 yr 24 hr	22.79	22.78	22.79	22.79	21.01	10.36	418.64	0.01	0.41	0.41
Tallow Cr	T Cr No.2	12839.83 School 90" x 13 Culvert #1	100 yr 24 hour	23.45	23.44	23.44	23.45	21	53.76	893.24	0.01	0.7	0.7
Tallow Cr	T Cr No 2	12839.83 School 90" x 13 Culvert #1	10 yr 24 hr	22.7	22.7	21.57	22.7	21	33.76	524.24	0	0.44	0.44
Tallow Cr	T Cr No 2-1	11577.05 Cleco Access Roa Culvert #1	100 yr 24 hour	23.3	23.27	23.02	23.3	23	793.57	823.43	1.01	7.58	7.58
Tallow Cr	T Cr No.2-1	11577.05 Cleco Access Roa Culvert #1	10 yr 24 hr	22.59	22.57	19.4	22.59	23	840		1.14	8.02	8.02
Tallow Cr	T Cr No 2-1	8428.31 White Chapel Roa Culvert #1	100 yr 24 hour	20.93	20.87	20.88	20.93	20.01	165.14	1451.86	0.04	2.1	2.1
Tallow Cr	T Cr No 2-1	8428.31 White Chapel Roa Culvert #1	10 yr 24 hr	20.31	20.29	20.17	20.31	20.01	530.6	309.4	0.8	7.04	6.8
Tallow Cr	T Cr No 2-1	6080 New Road Culvert #1	100 yr 24 hour	20.21	20.1	20.16	20.21	18.01	170.67	1601.33	0.09	2.17	2.17
Tallow Cr	T Cr No.2-1	6080 New Road Culvert #1	10 yr 24 hr	18.94	18.88	18.44	18.94	18.01	583.69	318.31	0.91	7.43	7.43
Soap & Tallow Cr	S & T No 2	8700 Fitzsimmons Road Culvert #1	100 yr 24 hour	24.28	24.28	17.15	24.28	23.51	26.75	180.25	0	0.34	0.34

Proposed Water Surface Profile Elevations, Culverts

Table 1.6

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Soap & Tallow Cr	S & T No.2	8700 Fitzsimmons Road Culvert #1	10 yr 24 hr	23.76	23.75	16.83	23.76	23.51	80.17	101.83	0.01	1.02	1.02
Black River	B River No.1	12310.73 Rex Road Culvert #1	100 yr 24 hour	21.46	21.46	21.31	21.46	21.3	135.55	1.45	1.71	8.77	9.75
Black River	B River No.1	12310.73 Rex Road Culvert #1	10 yr 24 hr	20.98	20.97	20.74	20.98	21.3	117		1.41	8.29	9.19
Black River	B River No.1	8666 Brewster Rd. Culvert #1	100 yr 24 hour	18.19	18.15	16.64	18.19	18.21	736		0.94	7.41	7.41
Black River	B River No.1	8666 Brewster Rd. Culvert #1	10 yr 24 hr	16.89	16.85	15.22	16.89	18.21	534		0.55	5.79	5.75
Black River	B River No.1	7684.62 Tchefuncte Parc Culvert #1	100 yr 24 hour	16.94	16.9	16.33	16.94	17.51	736		0.98	7.65	7.73
Black River	B River No.1	7684.62 Tchefuncte Parc Culvert #1	10 yr 24 hr	16.01	15.98	15.13	16.01	17.51	534		0.59	6.13	6.02
Black River	B River No.1	4444.8 Private Driveway Culvert #1	100 yr 24 hour	13.96	13.91	13.73	13.96	13.01	216.65	655.35	0.27	4.31	4.31
Black River	B River No.1	4444.8 Private Driveway Culvert #1	10 yr 24 hr	13.58	13.55	13.36	13.58	13.01	306.47	281.53	0.76	6.11	6.1
Black River	B River No.1	3827.40 Private Driveway Culvert #1	100 yr 24 hour	13.46	13.39	13.45	13.46	12.01	71.1	1223.9	0.01	1.41	1.41
Black River	B River No.1	3827.40 Private Driveway Culvert #1	10 yr 24 hr	12.64	12.59	12.52	12.64	12.01	148.36	597.64	0.1	2.95	2.95
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	100 yr 24 hour	13.13	12.95	13.06	13.13	12.01	210.02	1084.98	0.08	2.28	2.28
Black River	B River No.1	2710.49 Hawthone - Bridg Culvert #1	10 yr 24 hr	12.28	12.17	6.93	12.28	12.01	643.57	102.43	0.76	6.98	6.98
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	100 yr 24 hour	13	12.96	11.84	13	13.01	1295		1.37	8.99	9
Black River	B River No.1	2207.93 Dummy Line Road Culvert #1	10 yr 24 hr	11.35	11.32	9.05	11.35	13.01	746		0.49	5.43	5.39
Bedico Cr.	Bed. Cr. No.3	27316 LA HWY 190 Culvert #1	100 yr 24 hour	36.88	36.87	36.23	36.79	38.41	31.47	34.96	3.82	10.02	10.02

Proposed Water Surface Profile Elevations, Culverts

Table 1.6

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Bedico Cr.	Bed. Cr. No 3	27316 LA HWY 190 Culvert #2	100 yr 24 hour	36.88	36.87	36.9	36.67	36.41	136.87	34.96	3.82	10.89	11.83
Bedico Cr.	Bed. Cr. No 3	27316 LA HWY 190 Culvert #1	10 yr 24 hr	36.52	36.52	36.01	36.52	36.41	30.56	9.01	3.8	9.73	10
Bedico Cr.	Bed. Cr. No 3	27316 LA HWY 190 Culvert #2	10 yr 24 hr	36.52	36.52	36.73	36.52	36.41	134.43	9.01	3.8	10.7	11.65
Bedico Cr.	Bed. Cr. No 3	20631 Baham Road Culvert #1	100 yr 24 hour	27.27	27.26	26.6	27.26	27.01	96.44	33.64	0.83	6.24	6.06
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	100 yr 24 hour	27.27	27.26	24.4	27.27	27.01	89.91	33.64	0.83	5.65	5.65
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #1	10 yr 24 hr	26.43	26.42	26.14	26.42	27.01	82.63		0.85	7.99	5.8
Bedico Cr.	Bed. Cr. No.3	20631 Baham Road Culvert #2	10 yr 24 hr	26.43	26.42	24.45	26.43	27.01	91.37		0.85	5.74	5.74
Bedico Cr.	Bed. Cr. No.3	18384 Joiner Road Culvert #1	100 yr 24 hour	25.29	25.28	21.84	25.29	25.01	355.7	120.3	0.16	3.48	3.48
Bedico Cr.	Bed. Cr. No 3	18384 Joiner Road Culvert #1	10 yr 24 hr	24.86	24.86	20.61	24.86	25.01	265		0.09	2.59	2.59
Bedico Cr.	Trib. No 3	13241.52 LA HWY 190 Culvert #1	100 yr 24 hour	37.55	37.51	37.54	37.55	37.01	115.42	2148.9	1.7	8.16	8.16
Bedico Cr.	Trib. No.3	13241.52 LA HWY 190 Culvert #1	10 yr 24 hr	37.06	37.06	37.06	36.77	37.01	151.28	31.67	3.31	10.7	11.84
Bedico Cr.	Trib. No 3	10553.56 Trace Recreation Culvert #2	100 yr 24 hour	33.29	33.28	31.54	33.29	33.01	18.05	1403.28	0.13	2.55	2.55
Bedico Cr.	Trib. No 3	10553.56 Trace Recreation Culvert #1	100 yr 24 hour	33.29	33.28	29.83	33.29	33.01	10.67	1403.28	0.13	0.55	0.55
Bedico Cr.	Trib. No 3	10553.56 Trace Recreation Culvert #2	10 yr 24 hr	33.07	33.05	32.96	33.06	33.01	41.01	187.04	0.88	6.79	7.06
Bedico Cr.	Trib. No 3	10553.56 Trace Recreation Culvert #1	10 yr 24 hr	33.07	33.05	30.59	33.08	33.01	31.97	187.04	0.88	1.66	1.66
Bedico Cr.	Bed. Cr. No 2	5930.27 Bedico Cr. Blvd. Culvert #1	100 yr 24 hour	20.35	20.16	17.4	20.35	20.01	1328.23	1825.77	0.08	3.62	3.62
Bedico Cr.	Bed. Cr. No 2	5930.27 Bedico Cr. Blvd. Culvert #1	10 yr 24 hr	20.08	19.96	15.34	20.08	20.01	2129.7	195.3	0.48	5.8	5.8
Bedico Cr.	Fox Branch	14560 I-12 Culvert #1	100 yr 24 hour	24.15	24.15	22.67	24.15	27.21	272		0.66	4.25	4.25

Proposed Water Surface Profile Elevations, Culverts

Table 1.6

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
Bedico Cr.	Fox Branch	14560 1-12 Culvert #1	10 yr 24 hr	23.65	23.65	22.49	23.65	27.21	250		0.5	4.04	4.08
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #1	100 yr 24 hour	22.97	22.97	20.7	22.98	22.83	91.35	26.71	0.44	4.75	4.75
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #3	100 yr 24 hour	22.97	22.97	20.92	22.97	22.83	153.93	26.71	0.44	4.84	4.84
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #1	10 yr 24 hr	22.5	22.49	20.74	22.5	22.83	93.14		0.45	4.84	4.84
Bedico Cr.	Fox Branch	9998.61 Perrioux Rd. Culvert #3	10 yr 24 hr	22.5	22.49	20.97	22.49	22.83	156.86		0.45	4.93	4.93
Bedico Cr.	Fox Branch	5593.71 Private Driveway Culvert #1	100 yr 24 hour	21.96	21.95	21.96	21.96	22.01	418.34	668.37	1.15	8.32	8.32
Bedico Cr.	Fox Branch	5593.71 Private Driveway Culvert #1	10 yr 24 hr	20.79	20.78	18.59	20.79	22.01	351		0.8	6.98	6.98

Proposed Water Surface Profile Elevations, Bridges

Table No. 1.7

River	Reach	River Sta	Profile	E.G. US.	Min El Prs	BR Open Area	Prs O WS	Q Total	Min El Weir Flow	Q Weir	Delta EG	W.S. US.
				(ft)	(ft)	(sq ft)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(ft)
Tallow Cr	T Cr No.2	14383.7 School Bridge	100 yr 24 hour	23.66	23	155.67		856	22.65		0.03	23.58
Tallow Cr	T Cr No.2	14383.7 School Bridge	10 yr 24 hr	22.93	23	155.67		429	22.65		0.03	22.81
Soap & Tallow Cr	S & T No. 1	3947.96 Tallow Creek	100 yr 24 hour	18.88	21.6	571.14		3114	19.7		0.19	17.94
Soap & Tallow Cr	S & T No. 1	3947.96 Tallow Creek	10 yr 24 hr	17.05	21.6	571.14		1988	19.7		0.12	16.46
Soap & Tallow Cr	S & T No. 1	1106.54 Rousseau Road	100 yr 24 hour	15.1	15.7	545.94		3114	19.01		0.24	14.56
Soap & Tallow Cr	S & T No. 1	1106.54 Rousseau Road	10 yr 24 hr	13.6	15.7	545.94		1988	19.01		0.16	13.27
Bedico Cr.	Bed. Cr. No.3	14857.8 Bridge - Private	100 yr 24 hour	24.37	27	236.91		388	23		0.01	24.37
Bedico Cr.	Bed. Cr. No.3	14857.8 Bridge - Private	10 yr 24 hr	24.04	27	236.91		265	23		0.01	24.03
Bedico Cr.	Bed. Cr. No.3	14711.98 Bridge - Private	100 yr 24 hour	24.36	23.3	102.29		388	23		0.01	24.34
Bedico Cr.	Bed. Cr. No.3	14711.98 Bridge - Private	10 yr 24 hr	24.02	23.3	102.29		265	23		0.01	24
Bedico Cr.	Bed. Cr. No.2	12122.58 I - 12 West B.	100 yr 24 hour	23.26	25.4	1030.44		2095	27.41		0.03	23.13
Bedico Cr.	Bed. Cr. No.2	12122.58 I - 12 West B.	10 yr 24 hr	23.24	25.4	1030.44		2132	27.41		0.03	23.11
Bedico Cr.	Bed. Cr. No.2	11884.24 I - 12 East B.	100 yr 24 hour	23.15	25.4	937.26		2095	27.41		0.04	23
Bedico Cr.	Bed. Cr. No.2	11884.24 I - 12 East B.	10 yr 24 hr	23.13	25.4	937.26		2132	27.41		0.04	22.97
Bedico Cr.	Fox Branch	7400.48 Fox Branch Cross	100 yr 24 hour	22.23	23.5	176.3		409	21.51		0.02	22.2
Bedico Cr.	Fox Branch	7400.48 Fox Branch Cross	10 yr 24 hr	21.23	23.5	176.3		250	21.51		0.04	21.16
Bedico Cr.	Fox Branch	1056.25 LA HWY 1085	100 yr 24 hour	20.27	21.5	342.07		756	23		0.07	20.16
Bedico Cr.	Fox Branch	1056.25 LA HWY 1085	10 yr 24 hr	19.58	21.5	342.07		400	23		0.03	19.54

Map Document

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1077-1085 Regional Drainage Study Map.pdf

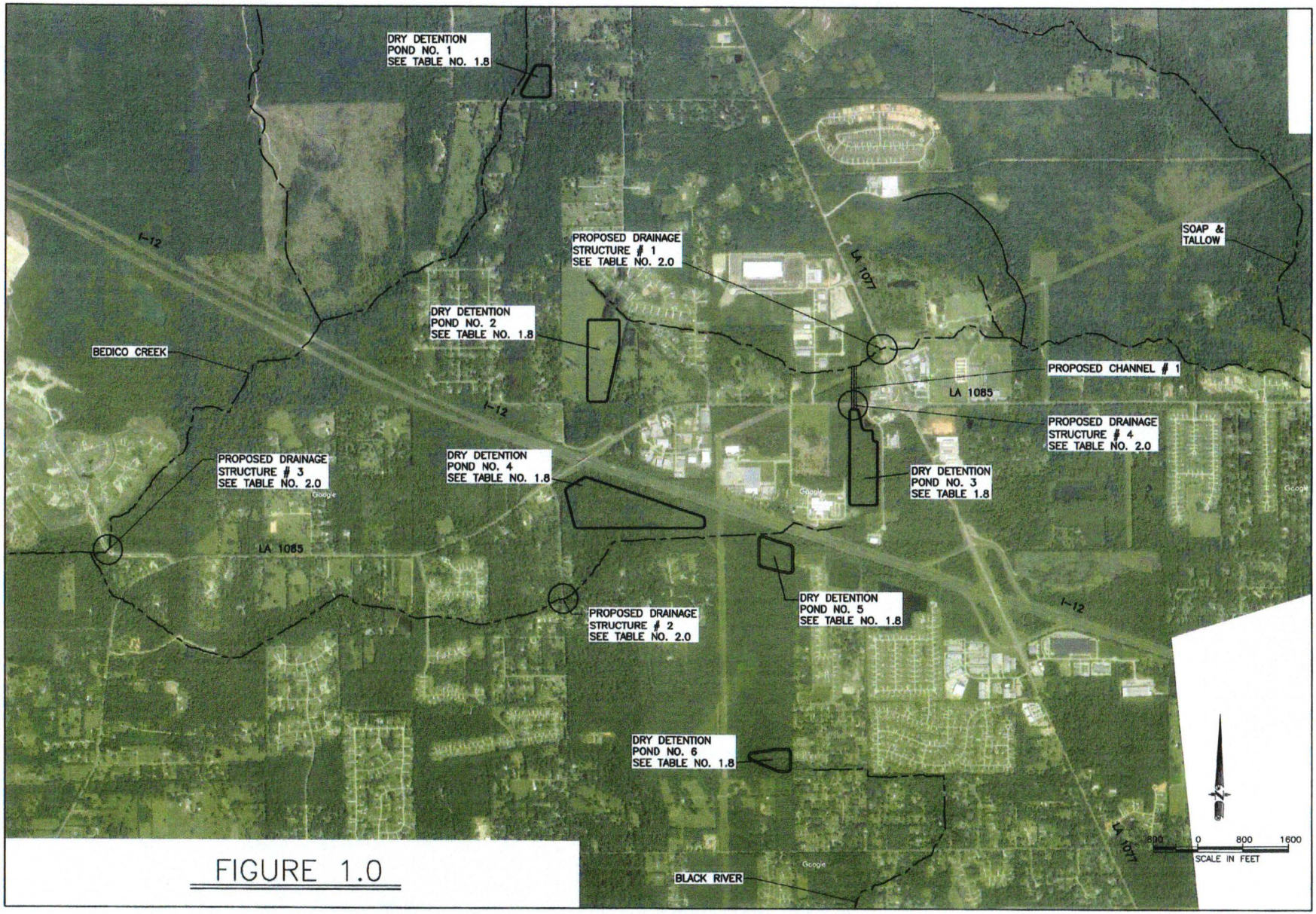

FIGURE 1.0

SHEET NUMBER	PAGE 7
PARISH	ST. TAMMANY
DESIGNED / CHECKED	F.M. / D.K.
REDRAWN / CHECKED	D.V./F.M. / F.M.
DATE / SHEET	AUGUST 2016

NO.	DATE	REVISION DESCRIPTION	BY

LA 1077/1085 DRAINAGE STUDY
PROPOSED IMPROVEMENTS
FIGURE 1.0
ST. TAMMANY PARISH, LOUISIANA

NY ASSOCIATES, INC.
ENGINEERS • ARCHITECTS • PLANNERS
FINANCIAL & PROJECT MANAGERS

Primary Sponsor Letter of Support

(As uploaded)

1077-1085 Regional Drainage Study Support Letter.pdf

ST. TAMMANY PARISH
PATRICIA P. BRISTER
PARISH PRESIDENT

September 9, 2016

Re: Hwy 1077/1085 Regional Drainage Report Project

Dear Sir/Madam:

On behalf of St. Tammany Parish, I am pleased to submit the Hwy 1077/1085 Regional Drainage Report project for consideration under WRRDA and hereby request funding assistance from United States Army Corps of Engineers.

Subdivisions in an estimated 12,500 acres surrounding East Bedico Creek, Soap Creek, Tallow Creek and the Black River watersheds are included in the study.

The Hwy 1077/1085 Regional Drainage Report project identifies flood prone areas and recommend drainage improvements that will alleviate flooding within the project area.

Sincerely,

Patricia P. Brister
Parish President

OFFICE OF THE PARISH PRESIDENT
P.O. BOX 628 | COVINGTON, LOUISIANA | 70434 | PBRISTER@STPGOV.ORG | 985-898-2362
WWW.STPGOV.ORG