ACKNOWLEDGEMENTS

The Aloma Woods Drainage Basin Study was prepared as a joint effort between PEC/Professional Engineering Consultants and the Seminole County Road Operations and Stormwater Division. To that extent, several Seminole County staff members deserve special mention for their efforts in providing information and guidance to PEC throughout the project's development.

Mark Flomerfelt, Seminole County Road Operations and Stormwater Division - Manager

Mark served as manager and overseer throughout the duration of the project. He provided valuable guidance relative to the County's project related goals and objectives, including insightful suggestions pertinent to both the County's budgetary framework and retrofit improvement alternatives.

Tom Radzai, Seminole County Road Operations and Stormwater Division - Senior Engineer

Tom served as project manager throughout the duration of the project. In addition to valuable guidance, Tom also coordinated all interactions between the County and PEC relative to information needs.

As always, PEC has enjoyed the opportunity to serve Seminole County on this assignment, and would also like to express our appreciation for the continued support of the County Commissioners.

- Grant E. Maloy, District 1
- Randall C. Morris, District 2
- Dick Van Der Weide, District 3
- Carlton D. Henley, District 4
- Daryl G. McLain, District 5

The information contained within the following **Drainage Basin Study** was prepared by PEC/Professional Engineering Consultants under the supervision and direction of the respective undersigned, whose seal as a registered professional engineer is affixed below. This report was prepared solely for the Seminole County Road Operations and Stormwater Division of the Public Works Department.

CERTIFICATION

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Certification

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Greg A. Teague, P.E.
Florida Registration No. 47663

Date: _____

EXECUTIVE SUMMARY

Aloma Woods Drainage Basin Study

INTRODUCTION

The watershed area encompassed by this drainage basin study for Aloma Woods is located in the South-central portion of Seminole County, immediately north of the Seminole-Orange county line, south of Chapman Road, east of SR 417 (Central Florida GreeneWay), and west of SR 434 (Alafaya Trail). The study area encompasses approximately 364-acres, occupying portions of Sections 29, 30, 31 and 32 within Township 21 South and Range 30 East. This watershed is tributary to the Bear Gully Canal, and is therefore considered part of the Howell Branch Drainage Basin (refer to the following **Figure No. 1**).

In September of 2001, the County reports that substantial flooding occurred due to the rainfall associated with Tropical Storm "Gabrielle". Flooding was documented within Wentworth Subdivision, around the residential properties abutting Church Street, and along the central outfall ditch between Wentworth Subdivision and SR 426 (Aloma Avenue).

September 2001 Flooding
(Ashton Terrace Within Wentworth Subdivision)

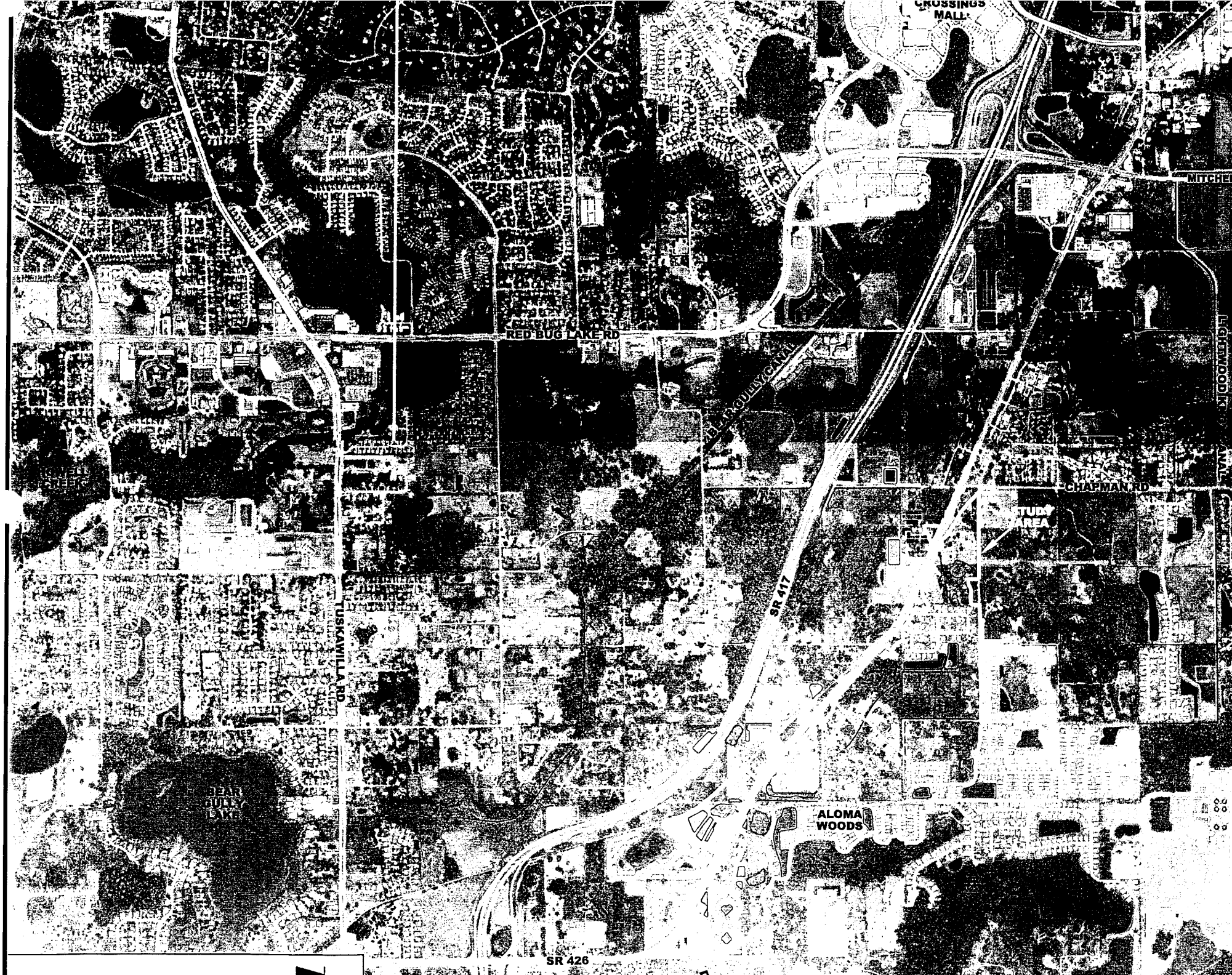
At present, the County does not know if the documented flooding was caused solely by maintenance issues, or if additional system deficiencies are also a problem. In that regard, and although design engineers previously prepared a drainage basin study for the watershed encompassing Wentworth Subdivision, the County requires a more detailed and comprehensive analysis to evaluate the cause(s) of the documented flooding - whether maintenance related, deficiency related, or some combination of both. Additionally, this detailed analysis will also investigate the viability of any retrofit improvements.

EXISTING FLOOD PROTECTION

Exhibit No. 1-2 within the following engineering report provides a graphical illustration of the predicted 100-year flood plains throughout the study area. Predicted 100-year flood elevations for wetlands, ponds, roadway culvert crossings, and at other significant areas are also shown on this exhibit.

Once the flood plains were delineated, additional survey work was performed to obtain any critical elevations for flood protection. These critical elevations correspond to garages and habitable structures that are situated within delineated flood plains or other flood prone areas. As shown on **Exhibit No. 1-2**, a total of nine separate parcels were surveyed to determine their critical elevations.

Comparing the surveyed critical elevations for flood protection and level of service (LOS) with the flood elevations predicted for the study area, it appears that flooding of structures is problematic at 2350 Church Street (Survey Location 4) and 2362 Church Street (Survey Location 5). Although flooding within habitable structures is not predicted to occur, some flooding of garages is predicted to occur for the 100-year storm event.



REC Professional Engineering

In addition to flood protection and level of service (LOS) issues associated with the 100-year storm event, there are several other areas where existing drainage deficiencies are problematic for storm events of magnitude less than the 100-year frequency.

- Elmhurst Village
- Aloma Woods Boulevard at Sabel Oak Place
- Phase 1 of Aloma Woods
- Aloma Woods Boulevard, Progress Energy, and Phase 4 of Aloma Woods
- Walker Road and Phase 6 of Aloma Woods
- Wentworth Subdivision and Church Street
- Eagle Pass Road

PEC's field reviews also indicate that significant drainage deficiencies exist between Eagle Pass Road and SR 417 (Central Florida GreeneWay), which is outside the limits for this study area. Although, it does not appear that increasing the hydraulic conveyance capacity of drainage systems within the study area is appropriate unless downstream improvements are implemented first, PEC performed some hypothetical model simulations to evaluate any potential benefits to the study area.

RECOMMENDATIONS

With regard to improving flood protection within the study area, the following recommendations are offered for Seminole County's consideration:

- The watershed area downstream of PEC's study area, specifically between Eagle Pass Road and SR 417 (Central Florida GreeneWay), should be evaluated. Conveyance improvements related to retrofitting existing drainage deficiencies and improving flood protection could then be collectively evaluated between SR 417 (Central Florida GreeneWay) and Wentworth Subdivision.

- The permitting feasibility of increasing the discharge from Phase 1 of Aloma Woods to the Little Econ River watershed should be further investigated. This permitting feasibility would have to consider any wetland impacts necessary to convey the additional discharge, as well as any water quality concerns related to the introduction of additional stormwater into the Little Econ River watershed. Lastly, the engineering feasibility of increasing the discharge from Phase 1 of Aloma Woods, in terms of downstream impacts, should be investigated using SAI's comprehensive model of the entire Little Econ River watershed.

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INTRODUCTION ..... SECTION 1

The watershed area encompassed by this drainage basin study for Aloma Woods is located in the South-central portion of Seminole County, immediately north of the Seminole-Orange county line, south of Chapman Road, east of SR 417 (Central Florida GreeneWay), and west of SR 434 (Alafaya Trail). The study area encompasses approximately 364-acres, occupying portions of Sections 29, 30, 31 and 32 within Township 21 South and Range 30 East. This watershed is tributary to the Bear Gully Canal, and is therefore considered part of the Howell Branch Drainage Basin (refer to the following **Figure No. 1**).

In September of 2001, the County reports that substantial flooding occurred due to the rainfall associated with Tropical Storm "Gabrielle". Flooding was documented within Wentworth Subdivision, around the residential properties abutting Church Street, and along the central outfall ditch between Wentworth Subdivision and SR 426 (Aloma Avenue).

September 2001 Flooding
(Ashton Terrace Within Wentworth Subdivision)

With regard to Tropical Storm "Gabrielle", the following excerpt was obtained from the National Hurricane Center archives.

Monthly Tropical Weather Summary
National Weather Service - Miami, Florida
http://www.nhc.noaa.gov/archive/2001/tws/MIATWSAT_sep.html

Summary Of Tropical Cyclone Activity For September 2001...
For The North Atlantic...Caribbean Sea And The Gulf of Mexico...

"Gabrielle formed over the southeastern Gulf of Mexico on the 11th. After looping slowly for a few days...it moved inland across the West coast of Central Florida on the 14th as a 70-mph tropical Storm. Over 10-inches of rain caused major river flooding in West-central Florida and there was coastal storm surge flooding along the Central Florida west coast of up to 5-feet above normal. Strong winds across Central Florida caused damage to roofs...mobile homes...and trees. Gabrielle then moved northeastward over the Western North Atlantic Ocean and strengthened to an 80-mph hurricane on the 18th while located about 250 miles north of Bermuda. It became an extratropical storm on the 19th and caused up to 6 inches of rain on the avalon peninsula of Newfoundland. Two drowning deaths are attributed to Gabrielle."


RED BUG LAKE RD
BEAR GULLY CANAL
CHAPMAN RD
SR 417
TUSKAWILLA RD
BEAR GULLY LAKE
ALOMA WOODS
SR 426

In response to the flooding within Wentworth Subdivision and the surrounding areas, the County dispatched a crew from the Road Operations and Stormwater Division to provide any emergency relief possible.

The following emergency repairs were implemented:

Mueller's Nursery
(West of SR 426)

❶ The outfall ditch located west of SR 426 was partially blocked by concrete rubble and debris in the immediate vicinity of Mueller's Nursery.

❷ A culvert crossing the power easement north of Wentworth Subdivision was partially crushed. In lieu of replacement, this pipe was removed to allow water to cross the power easement unobstructed.

❸ The 54-inch culvert that conveys upstream drainage areas through Wentworth Subdivision was also blocked on the upstream (south) side by vegetative debris.

At present, the County does not know if the documented flooding was caused solely by the maintenance issues presented above, or if additional system deficiencies are also a problem. In that regard, and although design engineers previously prepared a drainage basin study for the watershed encompassing Wentworth Subdivision, the County requires a more detailed and comprehensive analysis to evaluate the cause(s) of the documented flooding - whether maintenance related, deficiency related, or some combination of both. Additionally, this detailed analysis will also investigate the viability of any retrofit improvements.

■■■■

REPORT ORGANIZATION ..... SECTION 2

Tabbed Section 1 **Engineering Report**

The Engineering Report will provide an overview of this project, including discussions inherent to the purpose, intent, and development of the drainage basin study. The Engineering Report will conclude with presentation of viable retrofit improvement alternatives (if any) to improve flood protection, associated estimates of construction costs, and ultimately a recommendation of a preferred alternative.

Tabbed Section 2 **"Existing" Conditions Analysis**

A hydrologic and hydraulic analysis (i.e., ICPR) was performed for the watershed of interest under what can be considered "existing" conditions. This existing conditions analysis is considered present day, and is therefore germane to evaluating the documented flooding that previously occurred within this mostly developed watershed.

Tabbed Section 3 **Supporting Documentation for "Existing" Conditions Analysis**

This section provides the hydrology computations (i.e., runoff curve numbers and times of concentration) that were utilized to simulate the rate and volume of stormwater runoff within the watershed.

Tabbed Section 4 **Supporting Documentation for Boundary Conditions at the Little Econ River**

In May of 2001, Singhofen & Associates, Inc. (SAI) completed a report entitled **Engineering Study and Drainage Inventory for the Little Econlockhatchee River Basin**. Although SAI's study included a portion of the watershed that encompasses the Aloma Woods area, PEC's analysis was provided to SAI as an update. Although the specifics of this update will be discussed later within this report, SAI provided PEC with revised stage versus time information for the Little Econ River system immediately downstream (south) of Aloma Woods.

Tabbed Section A **Appendix**

This section provides supporting documentation inherent to this drainage basin study, namely the deliverables prepared by PEC's survey sub-consultant.

■ ■ ■ ■

OVERVIEW OF DATA COLLECTION EFFORTS ..... SECTION 3

3.1 LITERATURE SEARCHES

The development of this drainage basin study was initiated with a search of documents, records, studies, surveys, aerial photographs, topographic maps, construction plans, and related information available from: Seminole County archives; Federal agencies (FEMA); State agencies (SJRWMD and FDOT); and other consulting engineers. The purpose of this activity was: to gain an understanding of drainage patterns within the study area; to determine the location of principal drainage structures; and to develop a preliminary framework for the study. Based on the information compiled, field review and survey requirements were then evaluated. As the study progressed, additional information was obtained as deemed necessary. Ultimately, all readily available information related to the watershed for the study area was acquired.

Where possible, the data collected was checked for correlation between sources. Because the opportunity for such verification was limited, it was necessary to assume that the information provided by all sources was based on a consistent datum. Having made this assumption, the assimilated data was used to generate: sub-basin delineations; land use delineations; soil type delineations; and an inventory of drainage structures, conveyance facilities, retention/detention systems (stormwater ponds), and other collection systems. The above information was utilized to develop a computer model of the existing drainage systems within the study area.

3.2 FIELD REVIEWS

In conjunction with the information obtained through the data collection effort, extensive field reviews were performed. The field reviews served many purposes, some of which included:

- Verifying the extents of the overall watershed (drainage) area.
- Refining sub-basin delineations and verifying drainage structure information obtained through data collection efforts.
- Establishing and refining land use delineations throughout the study area.
- Making observations during and/or after heavy rainfall to gauge whether the final analyses seemed reasonable.

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SUB-CONSULTANT ASSESSMENTS ..... SECTION 4

PEC's contract with Seminole County included sub-consultant agreements related to both survey and ecological assessments.

4.1 SITE-SPECIFIC SURVEY

Once PEC had completed the data collection effort, two (2) survey requests were prepared and transmitted to the survey sub-consultant (Southeastern Surveying & Mapping Corporation). The first survey request identified various drainage systems for which information could not be obtained by data collection efforts. The second survey request identified various locations where critical elevations of garages and structures were required to more accurately quantify existing flood protection. Copies of PEC's survey requests and the surveyor's field notes are provided within the **Tabbed Appendix** section of this report.

It should be noted that PEC has assumed that all information obtained during both the data collection effort and the site-specific survey is based upon a consistent vertical datum, in this case, the National Geodetic Vertical Datum of 1929 (NGVD29).

4.2 ECOLOGICAL

Although ecological consulting services were originally included for the purpose of predicting seasonal high water (SHW) levels within any depressional and/or wetland areas, the urbanization of this watershed minimized the need for such an ecological assessment. Based upon the elevations of existing drainage and outfall systems, PEC was able to accurately quantify the approximate SHW levels for the few depressional and wetland areas scattered throughout the study area.

■ ■ ■ ■

DEVELOPMENT WITHIN THE STUDY AREA AND REVIEW OF PUBLISHED INFORMATION ..... SECTION 5

Before presenting PEC's "existing" conditions analysis, some discussion of the development that has occurred within the study area is worthwhile. The following **Exhibit No. 1-1** provides a graphic representation of the study area using the County's 2002 aerial images.

To date, PEC has researched and reviewed the following published information (listed below in chronological order).

- **Site Plan for Florida Power Corporation - Winter Park East Operational Center, Bowyer, Singleton & Associates, Inc., June 1979.**

  The Progress Energy (f.k.a., Florida Power Corporation) Jamestown Operations site is located east of SR 426, north of Aloma Woods Boulevard, and west of Security Avenue. Although this site plan does not reflect the most recent site modifications associated with the widening of SR 426, the plan does illustrate the existing stormwater management pond and a portion of the outfall system into the Aloma Woods Boulevard right-of-way.

- **St. Johns River Water Management District (SJRWMD) 1-foot Contour Topographic Maps, January 1985.**

  Although a large part of the study area has developed since these maps were created, the contours were beneficial for those portions of the watershed that existed prior to 1985 as well as wetland and depressional storage areas.

- **Summary of Existing Infrastructure and Master Plan for Jamestown - CDBG Program, A.R. Miller Engineering, Inc., August 1987.**

  Seminole County previously implemented Community Development Block Grant (CDBG) improvements within the Jamestown neighborhood, an overview of which was presented within the A.R. Miller report. This report provided a general assessment of the drainage, water, and sewer infrastructure within the Jamestown area, including any needs for improvement. With regard to the drainage infrastructure, the A.R. Miller report concluded that the primary drainage canal between South Street and James Drive appeared to function adequately, although the lack of swales in some areas, or the improper grading of swales in other areas, did result in some localized flooding.

- **Howell Creek Basin - Drainage Inventory Engineering Study, DRMP/Dyer, Riddle, Mills & Precourt, Inc., February 1994.**

  Although discharge rates and peak stages presented within this drainage study are no longer current due to the changes in land use that have resulted from development within the watershed, this drainage study may provide some useful information pertinent to the northern boundary condition (i.e., Bear Gully Canal) for the study area.

- **Technical Publication SJ94-3, Flood Management Study - Howell Creek Basin - Orange and Seminole Counties, SJRWMD, 1994.**

  This study developed flood discharges and profiles along the main stem of Howell Creek as well as any major tributaries thereto. However, no detailed information was provided within the report that was applicable to PEC's study area.

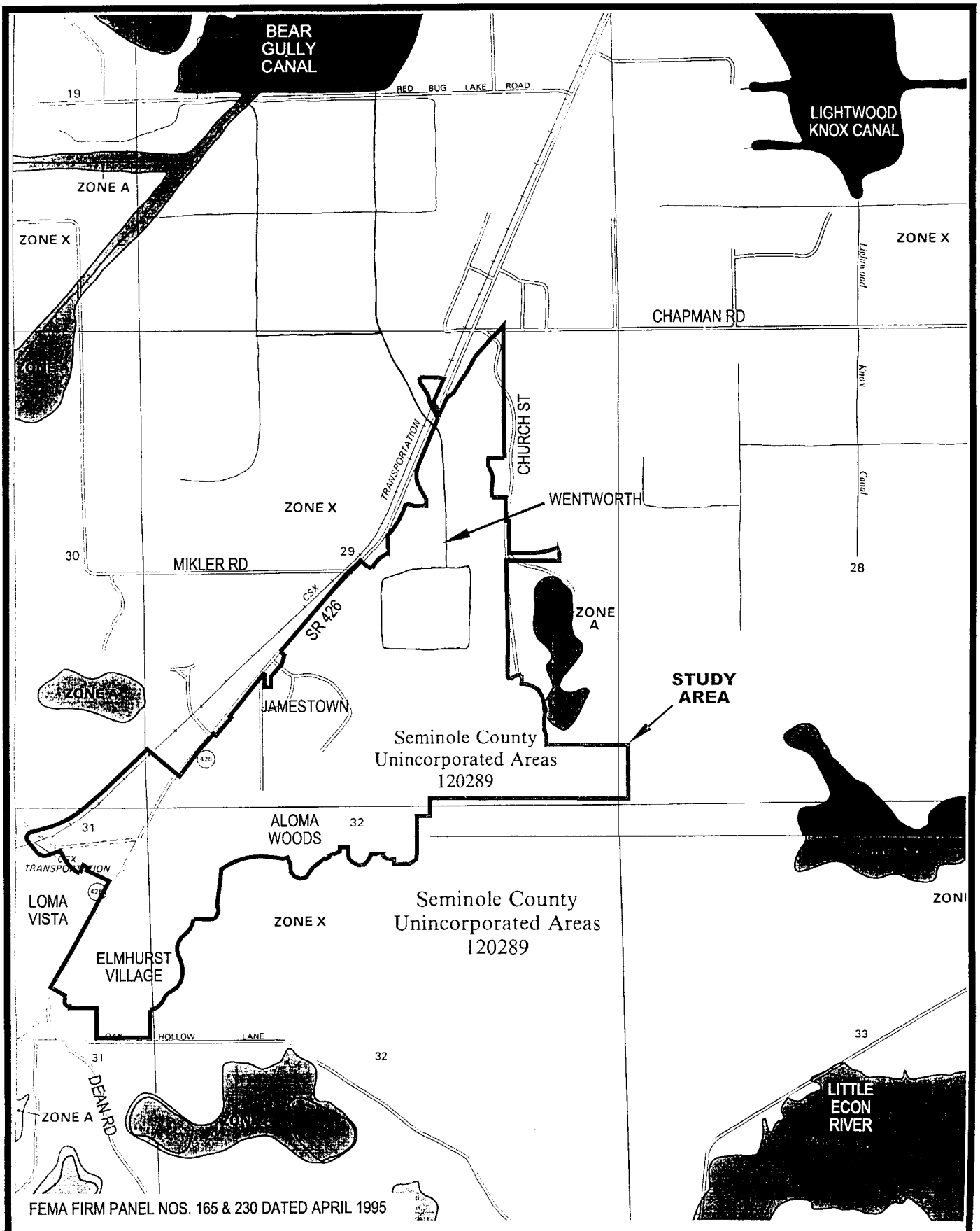
- **Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), Panel Nos. 165 & 230, April 1995.**

  The following **Figure No. 2** provides a representation of the FEMA FIRM map with the watershed for this drainage basin study superimposed. **Although the FIRM map depicts the central ditch that provides an outfall from the study area to the Bear Gully Canal, no elevations are provided for any conveyance systems or flood storage areas within the study area.**

- **Construction Plans for Aloma Woods Subdivision, Phases 1 - 5, Harling, Locklin & Associates, Inc., various dates.**

  Aloma Woods Subdivision was constructed in several phases, although not all of the development phases discharge stormwater runoff towards the central ditch outfall within PEC's study area. In addition to providing a stormwater outfall for portions of both SR 426 and offsite areas located west of SR 426, the construction plans for Phase 1 of Aloma Woods Subdivision (f.k.a., Camden and Aloma Verde Subdivision) also illustrate the overflow systems from two (2) interconnected stormwater management ponds. **It is important to mention that these Phase 1 stormwater management ponds can discharge in more than one direction to two (2) different watersheds, namely: ❶ north to Lake Jesup via Wentworth Subdivision, the central outfall ditch and the Bear Gully Canal; and ❷ south to tributaries of the Little Econ River.**

  The construction plans for Phase 1 of Aloma Woods also illustrate a temporary ditch along the north side of the property to provide a conveyance of stormwater runoff east from SR 426. Although commercial development was originally proposed within outparcels of Aloma Woods, it appears that enclosure of this temporary ditch and construction of the commercial outparcels never occurred.



FEMA FIRM PANEL NOS. 165 & 230 DATED APRIL 1995

PEC Professional Engineering Consultants
engineers planners surveyors

1" = 1,500'

ALOMA WOODS DRAINAGE BASIN STUDY
SEMINOLE COUNTY, FLORIDA

FIGURE NO. 2

The construction plans for Phase 3 of Aloma Woods (f.k.a., Camden) also illustrate a drainage system to convey offsite discharge located southwest of the Sabel Oak Place cul-de-sac. **Field reviews conducted by PEC staff during the development of this drainage basin study identified a significant baseflow originating within this isolated wetland, the specifics of which will be discussed later within this report.**

- **Construction Plans and SJRWMD Environmental Resource Permit (ERP) application package for Wentworth Subdivision (f.k.a., Eagle Crest), Genesis Engineering Group of Central Florida, Inc., March 1997 and January 1996, respectively.**

Wentworth Subdivision is located immediately east of SR 426 and north of a large wetland area abutting Walker Road. Although stormwater runoff enters this large wetland area from several conveyance systems serving the upstream (south) portions of the study area, discharge can only occur northward via a central outfall ditch. Construction of Wentworth Subdivision enclosed a portion of this central outfall ditch with a 54-inch culvert.

As part of the development review process, Seminole County staff required the developer/engineer of Wentworth Subdivision to prepare a drainage basin study to determine the elevation of the 100-year flood elevation within the limits of the proposed development. The 100-year flood elevation determined by the design engineer was utilized to estimate both flood plain encroachment and the required compensating storage volumes.

In addition to the flood plain encroachment and compensating storage issues, construction of Wentworth Subdivision also resulted in impacts to existing wetland systems. To accomplish the necessary wetland mitigation, enhancement of the large wetland area located south of Wentworth Subdivision was also included. The approved SJRWMD permit (4-117-22484-1) for Wentworth Subdivision included substantial discussion related to the historical hydrology of this large wetland area, which apparently had been partially impacted by a perimeter ditch implemented to drain/improve the interior area for agriculture (celery).

- **Construction Plans and Drainage Computations for Aloma Bend Plaza (a.k.a., Aloma Bend Marketplace), Design Service Group, March 1998.**

This commercial plaza is located southeast of SR 426 and northeast of the SR 426 and Dean Road intersection. The northern portion of the site is located within PEC's study area, whereas the southern portion of the site discharges stormwater runoff towards Deep Lake (refer to **Figure No. 1**). Historically, the stormwater management pond that serves the northern portion of the site discharged north towards the SR 426 right-of-way (SJRWMD permit 42-117-49822-1). **However, the outfall from this pond was re-routed and connected to the secondary storm sewer system serving Elmhurst Village. PEC was not able to locate any plans and/or calculations that document the specifics of re-routing the outfall from this pond.**

- **Construction Plans for SR 426 Roadway Improvements, Consul-Tech Engineering, Inc., December 1998.**

  Construction activities associated with the widening (4-laning) of SR 426 north of Dean Road were recently completed. As part of the roadway improvements, a number of stormwater management ponds were implemented. However, only SR 426 Pond 3, located west of SR 426 and immediately north of Melrose Place, is located within PEC's study area.

  It should be noted that Pond 3 provides stormwater management for both SR 426 and private development. Because engineer's for the Loma Vista P.U.D. re-designed Pond 3 to better serve the future Loma Vista development, the SR 426 roadway plans do not provide an accurate representation of the pond that was actually constructed (SJRWMD permits 4-117-22357-3 and 4-117-22480-2). It should also be noted that the roadway plans for SR 426 were prepared using metric units.

- **Construction Plans and Stormwater Report for Aloma Woods Phases 6, 7 and 8, Madden Engineering, Inc., February 1999.**

  Phases 6, 7 and 8 of Aloma Woods are located at the east end of Aloma Woods Boulevard, south of Mikler Road and east of Walker Road. Although permitted collectively by the SJRWMD (4-117-22121-10, 4-117-22121-11, and 4-117-22121-12), only the western portion of Phase 6 discharges stormwater runoff towards the central ditch outfall within PEC's study area.

- **Construction Plans and Engineering Report for Elmhurst Village P.U.D., Madden Engineering, Inc., September 1999.**

  Elmhurst Village is located immediately north of Oak Hollow Lane and east of Aloma Bend Plaza. Three (3) interconnected stormwater ponds collectively discharge via a single outfall pipe to an isolated wetland within Phase 3 of Aloma Woods just west of the Sabel Oak Place cul-de-sac. **As previously mentioned, PEC was not able to locate any plans and/or calculations that document the specifics of re-routing the stormwater outfall from the Aloma Bend Plaza pond into Elmhurst Village (SJRWMD permit 40-117-56514-1).**

- **Construction Plans and Stormwater Management System Report for Mobil Center at Loma Vista, Florida Engineering Group, Inc., June 2000.**

  This commercial plaza is located immediately west of SR 426 and north of Melrose Place. Although small retention ponds are provided on-site to satisfy pollution abatement criteria, additional stormwater management is provided within SR 426 Pond 3 for the Mobil Center at Loma Vista (SJRWMD permit 42-117-65877-1).

- **Engineering Study and Drainage Inventory for the Little Econlockhatchee River Basin, Singhofen & Associates, Inc. (SAI), May 2001.**

  This study provides a detailed and recent analysis of the Little Econ River basin within Seminole County. Because a portion of the Aloma Woods development can overflow south toward tributaries of the Little Econ River, SAI's study also includes a portion of PEC's study area (i.e., SAI's 10-5 System). PEC utilized a stage versus time relationship from the SAI study as one (1) of the boundary conditions for this drainage basin study.

- **Construction Plans and Stormwater Calculations for Aloma Square, Harling, Locklin & Associates, August 2001.**

  The Aloma Square P.U.D. is located east of SR 426 and north of Elmhurst Village. Two (2) interconnected stormwater management ponds collectively outfall to Phase 1 of Aloma Woods via a wetland system located east of SR 426 and south of Aloma Woods Boulevard. The site was under construction during the field reviews conducted by PEC staff during the development of this drainage basin study (SJRWMD permit 40-117-22121-11).

- **Construction Plans for SR 426 Pond 3 at Loma Vista, Harling, Locklin & Associates, November 2001.**

  These plans provided a revised and updated configuration of the SR 426 Pond 3 as compared to the SR 426 roadway improvement plans previously referenced. In lieu of a single large pond, these plans depict two (2) ponds that are interconnected by a large overflow weir with a drawdown orifice. A large overflow weir with drawdown orifice in the downstream (north) cell regulates the discharge from both ponds to a small wetland area just west of SR 426. A ditch connects this wetland to the existing culvert crossing SR 426, which discharges into Phase 1 of Aloma Woods. These construction plans also illustrate a future control structure and pipe between the wetland and SR 426. However, PEC's field reviews conducted during the development of this drainage basin study indicate that the future control structure and pipe between the wetland and SR 426 has not been constructed.

- **Topographic Survey for the Slavia Drainage District - Church Street Ditch, Southeastern Surveying & Mapping Corporation (SSMC), March 2002.**

  In follow-up to the flooding that occurred within and around Wentworth Subdivision during Tropical Storm "Gabrielle" in September 2001, Seminole County authorized SSMC to complete a topographic survey of the central outfall ditch. This survey extended north from Ashton Terrace within Wentworth Subdivision, crossing SR 426 and terminating near the intersection of Chapman Road (Hurban Street) and Tatra Street.

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DOCUMENTED COMPLAINTS ..... SECTION 6

PEC's review of the SJRWMD permit archives resulted in some additional information of interest that does not pertain specifically to any particular development project within the study area. During the SJRWMD permitting of Wentworth Subdivision, property owners located immediately downstream (north) of the subdivision lodged complaints with both the County and the SJRWMD. Specifically, these property owners were protesting the approval of additional development within the watershed, which in their opinion had already exacerbated flooding problems on their property.

Additionally, the complaints also disputed the County's legal right to approve development that would discharge stormwater runoff to the central outfall ditch located north of Wentworth Subdivision. Before responding to the property owner's complaints, Seminole County conducted some research as to the history of the central outfall ditch located north of Wentworth Subdivision. Apparently, the central outfall ditch was one (1) of a number of ditches that were excavated as part of various drainage works implemented within the Slavia Drainage District (formed in the 1930's) to improve the land for agriculture.

The Florida Supreme Court is responsible for legislating cases and controversies that pertain to surface water drainage law and the legal rights of both property owners and the discharge/use of stormwater. Although legal suits are handled on a case-by-case basis, Florida Law typically relies upon historical drainage patterns to decide if the legal rights of either the property owner or an entities right to discharge/use stormwater have been violated. Although a permanent drainage easement over the central outfall ditch would provide the County with legal authority for access and maintenance, the County responded to the property owners that this ditch has historically provided an outfall for stormwater runoff within the wateshed, and would continue to do so in the absence of a permanent drainage easement.

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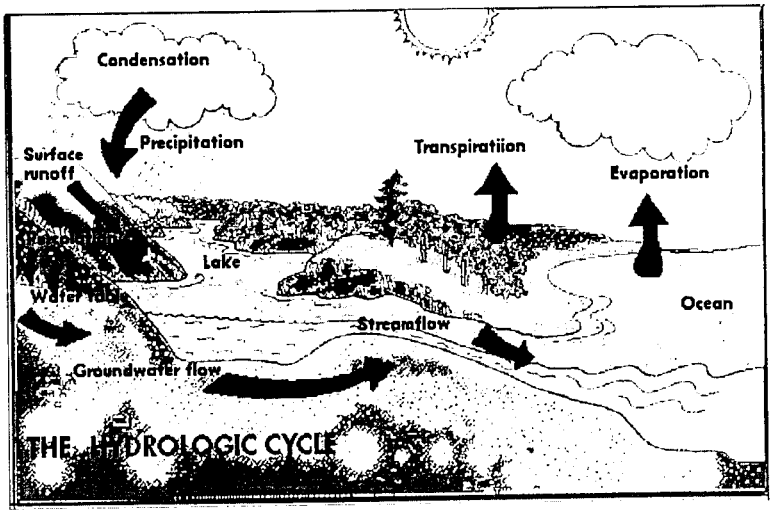
STUDY METHODOLOGY ..... SECTION 7

7.1 CONTINUOUS SIMULATION MODELING

Annual rainfall totals within Central Florida are generally referred to using terms as average, above average, and below average. Although average annual rainfall varies by location throughout Central Florida, approximately 52-inches per year is considered an annual average at the Orlando International Airport (OIA) recording station.

Central Florida experiences natural weather cycles that can cause dramatic variations in annual rainfall totals, from well below (La Nina) to well above (El Nino) statistical averages. Furthermore, Central Florida receives the majority of the annual rainfall total within what is commonly referred to as the "wet" season, beginning in June and lasting through September/October. To further complicate things, water levels within land-locked water bodies and watersheds having deficient outfalls with limited discharge can vary tremendously. During wet periods, water levels will remain high for a long time, while periods of drought can cause water bodies to virtually disappear.

Analyzing these naturally occurring weather cycles and seasonal variations is very difficult, although recent attempts have been made using state of the art analytical procedures termed continuous simulation, or extended duration, modeling. Continuous simulation modeling, as the name implies, attempts to predict water levels on a daily basis in response to recorded rainfall for the period of record. All of the components of the hydrologic cycle are included within the analysis, such that accurate predictions are possible.



❶ Evaporation and condensation from the water surface.

❷ Transpiration by vegetation.

❸ Percolation (leakage) to the underlying groundwater system (this can be into or out of the lake, depending upon the surface water and groundwater elevations).

The continuous simulation modeling gains additional accuracy and validity if it can be calibrated using daily rainfall and stage data at the location of interest. However, this information is rarely available for remote areas. Such is the case for all of the water bodies located within the watershed for this study area. Although daily rainfall records could be obtained from recording stations in the nearby vicinity, no records are available to correlate the daily water level that occurred in response to the rainfall.

Continuous simulation models represent the most accurate, and potentially the most realistic, method for analyzing land-locked watersheds (i.e., no positive outfall). However, and because the study area is not a land-locked watershed, preparation of a continuous simulation model is not required to accurately characterize the performance of the existing drainage systems.

7.2 Synthetic Storm Event Modeling

In lieu of continuous simulation modeling, a detailed hydrologic and hydraulic engineering analysis was performed for the study area using a single, synthetic storm event modeling approach. This effort included the development of an extensive surface water model (ICPR Version 3) to simulate/predict the hydrologic and hydraulic responses (e.g., runoff rates, flood stages and duration of flooding) for the existing drainage system during storm events of various frequency and duration.

ICPR simulates single storm events utilizing a two-step process.

- The first step consists of a hydrologic analysis of the areas contributing stormwater runoff to various points of concentration within the drainage system. Although three (3) methods are available for computing runoff hydrographs within ICPR, the National Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), Unit Hydrograph Method was selected. The NRCS method utilizes soil storage and infiltration rates to calculate stormwater runoff rates throughout a single storm event. The NRCS method of estimating direct runoff from rainfall events is based on methods developed by hydrologists at the NRCS over the past four (4) decades, and is a widely and universally accepted method for estimating runoff.

  The NRCS method for estimating runoff is discussed in detail in the National Engineering Handbook - Hydrology, Section 4 (NEH-4), National Resources Conservation Service - United States Department of Agriculture. To implement the NRCS method, data requirements include a rainfall distribution (i.e., mass curve) for the storm event being simulated and various parameters describing the physical features of the drainage sub-basins (e.g., drainage areas, curve number, time of concentration, and peak rate factor).

- The second step of the modeling process involves the simulation of moving stormwater runoff through the various hydraulic components of the drainage system within the study area. This is accomplished by hydrodynamically routing the runoff hydrographs computed in the first step through the drainage system. ICPR is used to model natural channels, prismatic channels and inline ponds, as well as overbank flooding. Complex water control structures, culverts, drop structures, weirs, gates and orifices are included in a manner that enables simulation of discharge under time-varying tailwater conditions, including submerged and reverse flows. Water surface elevations and flow rates throughout the watershed are calculated by ICPR during the storm event being analyzed.

In some instances, drainage structures within the watershed were not included within the engineering analysis and computer model because their overall function was not critical. Furthermore, it is not the intent of this drainage basin study to evaluate the performance of all secondary drainage systems (e.g., storm sewer systems, drainage ditches, etc.), but rather to selectively analyze any facilities which are critical to flood protection.

7.3 Unit Hydrograph And Rainfall

A unit hydrograph is the runoff response of a given sub-basin (in terms of runoff rate versus time) that would result from one (1) inch of rainfall excess (runoff). This assumption is predicated on the fact that each sub-basin has a characteristic unit hydrograph that is a unique function of its physical configuration. The unit hydrograph method requires that the rainfall event be divided into discrete increments over fixed time intervals. Infiltration is subtracted at each incremental value, with the remaining value representing the rainfall excess (runoff). Each rainfall excess increment is then applied to the sub-basin's unit hydrograph to obtain a response for the discrete time interval. Responses for all rainfall increments are then distributed in sequence to produce a sub-basin runoff hydrograph. To implement this procedure, a rainfall distribution must be specified for the desired storm event as a function of time for the sub-basin's unit hydrograph.

For this drainage investigation, the Florida Modified rainfall distribution developed by the National Resources Conservation Service (NRCS) will be utilized to distribute the total rainfall over the event duration for the following storm events.

Table 1
Rainfall Totals For Synthetic Storm Event Modeling

Storm Event	Event Frequency	Event Duration (hours)	Total Rainfall (inches)
10-Year, 24-Hour	10-Year	24-Hour	7.5
25-Year, 24-Hour	25-Year	24-Hour	8.6
100-Year, 24-Hour	100-Year	24-Hour	10.6

As mentioned previously, the NRCS Unit Hydrograph Method also requires selection of a hydrograph peak rate factor. Although selecting peak rate factors is somewhat subjective, the following table provides a summary of recommended parameters.

Table 2
NRCS Hydrograph Peak Rate Factors

Site Conditions	Peak Rate Factor 'K'
Represents watersheds with very mild slopes, recommended by NRCS for watersheds with average slope of 0.50 percent or less. Significant surface storage throughout the watershed. Limited on-site drainage ditches. Typical ecological communities include: North Florida flatwoods, freshwater marsh and ponds, swamp hardwoods, cabbage palm flatlands, cypress swamp and similar vegetative communities.	256-284
Intermediate peak rate factor representing watersheds with moderate surface storage in some locations due to depressional areas, mild slopes and/or lack of existing drainage features. Typical ecological communities include: Oak Hammock, upland hardwood hammock, mixed hardwood and similar vegetative communities.	323
Standard peak rate factor developed for watersheds with little or no surface storage. Represents watersheds with moderate to steep slopes and/or significant drainage works. Typical ecological communities include: Long leaf pine, turkey oak hills and similar vegetative communities.	484

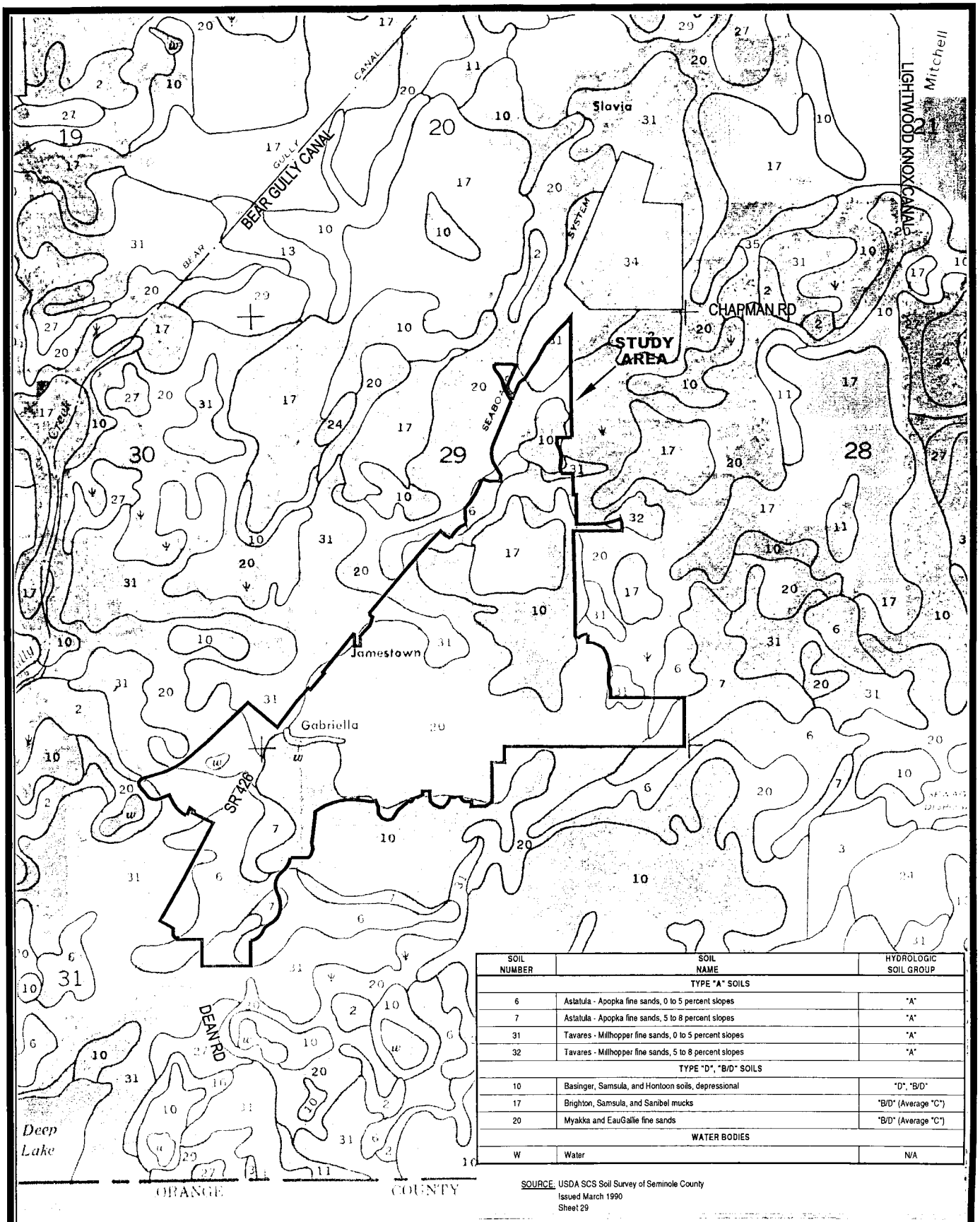
Reference: Procedure For Selection of SCS Peak Rate Factors For Use in MSSW Permit Applications, St. Johns River Water Management District (SJRWMD), April 1990.

For this drainage basin study, a hydrograph peak rate factor of 256 was generally assigned to undeveloped areas, whereas, hydrograph peak rates factors of 323 and 484 were assigned to developed areas, depending upon the land use intensity.

7.4 Soils

Performing a hydrologic analysis for this drainage basin study must include a thorough investigation of the various soil types prevalent within the watershed. The National Resources Conservation Service (NRCS) provides a delineation of soil types throughout Seminole County, including the watershed associated with this project's study area. Using the soil delineations contained within the NRCS soil survey is both a common practice and widely accepted method for implementing hydrologic models.

The following **Figure Nos. 3A and 3B** provide an illustration of the soil delineations and hydrologic soil groups (HSG) for PEC's study area as presented within the NRCS soil survey for Seminole County issued March 1990.



SOIL NUMBER	SOIL NAME	HYDROLOGIC SOIL GROUP
	TYPE "A" SOILS	
6	Astatula - Apopka fine sands, 0 to 5 percent slopes	"A"
7	Astatula - Apopka fine sands, 5 to 8 percent slopes	"A"
31	Tavares - Millhopper fine sands, 0 to 5 percent slopes	"A"
32	Tavares - Millhopper fine sands, 5 to 8 percent slopes	"A"
	TYPE "D", "B/D" SOILS	
10	Basinger, Samsula, and Hontoon soils, depressional	"D", "B/D"
17	Brighton, Samsula, and Sanibel mucks	"B/D" (Average "C")
20	Myakka and EauGallie fine sands	"B/D" (Average "C")
	WATER BODIES	
W	Water	N/A

SOURCE: USDA SCS Soil Survey of Seminole County
Issued March 1990
Sheet 29

PEC Professional Engineering Consultants
engineers planners surveyors

1" = 1,667'

ALOMA WOODS DRAINAGE BASIN STUDY
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FIGURE NO. 3A

Professional

NRCS classifies soils according to their runoff producing characteristics by one of four hydrologic soil groups, namely: "A", "B", "C", or "D". The chief consideration is the inherent capacity of bare soil to permit infiltration. Slope and vegetative cover are not considered for soil hydrologic grouping, but they are utilized within the NRCS Unit Hydrograph Method and associated runoff curve number to predict stormwater runoff. Group "A" soils have high infiltration rates when thoroughly wet and a corresponding low runoff potential. Group "A" soils are primarily deep, well-drained sandy soils. Group "D" soils, by contrast, are soils characterized as having very slow infiltration rates and a corresponding high runoff potential. Typically, a clay layer, a permanent high water table, or shallow soils over nearly impervious bedrock are found at or near the surface for this hydrologic soil group classification.

It should be noted that several soil types are given a dual hydrologic soil classification, such as: "A/D", "B/D", etc. In this case the first classification applies to the drained condition when the groundwater table is well below the surface. The second classification applies to the undrained condition, which would normally occur in a rural, flat basin during the wet season, when the groundwater table is at or near the ground surface. Urbanization tends to increase the depth to the water table through construction of storm sewers and ditches, which reduces the amount of water supplying the shallow groundwater table. Often times, soils having a dual classification are located beneath water bodies, depressions, or wetland areas. In this case, the undrained condition must be utilized to select runoff curve numbers for the basin.

As illustrated on Figure No. 3B, the outer fringes of the study area are comprised of high recharge and low runoff soils (Group "A"), whereas, a large area within the central portion of the watershed is comprised of low recharge and high runoff soils (Group "D"). The majority of the watershed is comprised by soils having the dual hydrologic soil group of "B/D". Because most of the areas delineated with a dual hydrologic soil group have been impacted by at least some level of development, an average hydrologic soil group of "C" was utilized within this drainage basin study.

7.5 LAND USE

Land uses within the watershed to be analyzed as part of this drainage basin study will be defined by the Florida Land Use, Cover and Forms Classification System (FLUCCS) developed by the Florida Department of Transportation (FDOT). In general, this land use, vegetative cover and land form classification system is arranged in hierarchical levels with each level containing subcategories of increasing specificity.

Land use delineation was performed from visual inspection of aerial photography dated 2002 and provided by the Seminole County Geographic Information Systems (GIS) division. The initial land use delineation was also modified as necessary to reflect any land use anomalies pertinent to the time period being analyzed (i.e., recent development not reflected on the aerial photography). This is an important consideration, as interpretation of storm event modeling is directly dependent upon the land use associated with the level of development inherent to that particular analysis.

7.6 RUNOFF CURVE NUMBERS

Antecedent Moisture Conditions

Rainfalls in antecedent periods of 5 to 30 or more days prior to a storm event are commonly used as indexes of watershed wetness. An increase in an index means an increase in the runoff potential. The National Resources Conservation Service (NRCS) classifies watershed wetness using three (3) levels of Antecedent Moisture Condition (AMC).

AMC-I. Lowest runoff potential. The watershed soils are dry enough for satisfactory plowing or cultivation to take place.

AMC-II. The average condition.

AMC-III. Highest runoff potential. The watershed is practically saturated from antecedent rains.

Excluding the stormwater storage and conveyance systems that receive the seasonal baseflow that emanates from upstream portions of the watershed as previously discussed, average wetness prevails throughout the remainder of the watershed. **Therefore, AMC-II conditions will be utilized to compute runoff curve numbers for the watershed area analyzed within this drainage basin study. However, and in an effort to simulate the localized wetness effects, runoff curve numbers for water bodies (i.e., ponds) will assume an open water condition (CN=100) for the land area encompassed by the antecedent water level observed during PEC's field reviews. In some cases, these antecedent water levels correlate with the outfall elevation, whereas in other cases, these antecedent water levels are higher than the outfall elevation.**

Computations

The data takeoff function was largely automated through the use of VALENCE, a computer program developed by Streamline Technologies located in Winter Park, Florida. This program allows easy manipulation of large geographically dependent databases. Existing land use, soils, and drainage basins are digitized, or sent electronically, to the computer and then processed by VALENCE which stores the data files for subsequent manipulation. Each information type is stored as a separate layer and registered to State Plane coordinates.

Land use, soil, and drainage basin delineation data is initially entered into the database as a system of lines. These lines connect at various points and form polygons that are identified by "seeding" them with identification names. For example, a series of lines are used to outline the drainage divides for a particular basin. A name is then placed within this polygon that uniquely identifies the basin. VALENCE converts line and polygon information into a system of small cells. For this drainage basin study, each cell was only two (2) feet long by two (2) feet wide (i.e., 4 square feet in area) and tied to a fixed position on the ground. Attributes for drainage basins, soil types and land uses were assigned to each cell in the database.

Once the line and polygon "seeds" are converted to cells, VALENCE can manipulate the data in a number of ways. Areas can be calculated by simply adding cells with similarly defined attributes. The total number of cells is then multiplied by the cell area (i.e., 4 square feet) to obtain the area of the basin. In addition to area breakdowns, VALENCE can perform area-weighted averages. By superimposing drainage basins with soil and land use delineations, VALENCE can calculate weighted runoff curve numbers for each drainage basin. Areas and curve numbers can be sent directly to computer data files for subsequent hydrograph generation. Each cell has a land use designation as well as a soils designation. VALENCE is instructed to retrieve land use information from a particular cell in one layer and soils information from the same cell in another layer. The program utilizes these two (2) pieces of information to determine the corresponding curve number from a separate table that correlates curve numbers for different land uses and soil types. Each basin is comprised of thousands of cells, each having a different curve number. VALENCE utilizes these individual cells to automatically calculate the average runoff curve number for the entire basin.

The following table summarizes the correlation between land use, hydrologic soil group, and runoff curve number that will be utilized to develop weighted runoff curve numbers for each sub-basin analyzed within this drainage basin study. Weighted runoff curve numbers, as computed by VALENCE, are included within **Tabbed Section 3** of this report.

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TABLE 3
Tabulation of Runoff Curve Numbers Based On Existing Land Use

FLUCCS LAND USE CLASSIFICATION		SCS COVER DESCRIPTION	CURVE NUMBER FOR HYDROLOGIC SOIL GROUP (*)			
NUMBER	DEFINITION		A	B	C	D
110	Residential, Low Density (<2 DU/acre)	1 acre avg. lot	51	68	79	84
120	Residential, Medium Density (2-5 DU/acre)	1/3 acre avg. lot	57	72	81	86
133	Multiple Dwelling Units (Apartments and Condominiums)	1/8 acre avg. lot (or less)	77	85	90	92
140	Commercial and Services	Commercial and Business	89	92	94	95
141	Retail Sales and Services	Commercial and Business	89	92	94	95
150a	Industrial (Urban)	Industrial	81	88	91	93
150b	Industrial (Rural)	Grass Cover (50% to 75%)	49	69	79	84
172	Religious	Assume 70% Impervious	80	87	91	93
190	Open Land (Storage Yard)	Gravel and Grass Cover	76	85	89	91
193	Urban Land In Transition (Cleared For Future Development)	Meadow (50% to 75% Ground Cover)	49	69	79	84
240	Nurseries and Vineyards	Cultivated Land w/o Conservation[1]	72	81	88	91
330	Mixed Rangeland (Trees, Grass, Pasture)	Grass Cover (> 75%)	39	61	74	80
400	Upland Forests	Woods (Good)	30	55	70	77
530a	Stormwater Ponds (Wet)	Water Surface and Grass Cover (>75%)	95	95	95	95
530b	Stormwater Ponds (Dry)	Grass Cover (>75%)	39	61	74	80
600	Wetlands	SJRWMD Tech Pub. #85-5, Table 2	98	98	98	98
814a	Roads and Highways (SR 426)	Average 75% Impervious	83	89	92	94
814b	Roads and Highways (Unpaved Local Streets)	Dirt (Including Right-of-way)	72	82	87	89

REFERENCE:

Technical Release 55, Soils Conservation Service, June 1986 (second edition)

[1] Technical Release 55, Soils Conservation Service, January 1975 (first edition)

7.7 TIME OF CONCENTRATION

In addition to the drainage basin area and runoff curve number, the time of concentration is utilized within the NRCS Unit Hydrograph Method to determine stormwater runoff rates. Times of concentration are computed by determining the path of longest travel time within each of the delineated sub-basins. Flow velocities are estimated from land slopes and land cover conditions. By definition, the time of concentration is the time it takes stormwater runoff to travel from the hydraulically most distant part of a watershed to a point of interest within the watershed, and is typically composed of segmented travel times. The equation for the cumulative sub-basin time of concentration is as follows:

$$T_c = T_1 + T_2 + \ldots + T_n$$

where: T_c = the time of concentration in minutes.

$T_1, T_2, \ldots T_n$ = travel times in minutes, along consecutive flow path segments, that differ by land cover category or flow path slope.

Travel times for this drainage basin study will be estimated using two (2) methods as outlined in the NRCS TR-55 manual (Second Edition, June 1986). The first method will consist of the application of the kinematic wave equation for sheet flow for a maximum of 300 feet of overland flow. The kinematic wave equation and definition of the variables within the equation are provided as follows:

$$\text{Time of Travel (hr)} = \frac{0.007\,(nL)^{0.8}}{(P_2)^{0.5}\,(S)^{0.4}}$$

where:
- n = Manning's Roughness Coefficient
- L = Overland Flow Length in feet (maximum of 300 feet)
- P_2 = 2-year, 24-hour rainfall in inches
- S = Land Slope in feet/foot

After a maximum of 300 feet, sheet flow usually becomes shallow concentrated flow. The shallow concentrated flow equation and definition of the variables within the equation are provided below.

$$\text{Travel Time (hr)} = \frac{L}{3600V}$$

where:
- L = Overland Flow Length in feet
- V = Average Velocity in feet per second (refer to TR-55, Figure 3-1)
- 3600 = Conversion Factor from seconds to hours

For specific cases where the time of concentration calculation also includes a travel time component consisting of pipe and/or ditch flow, the shallow concentrated flow equation will also be utilized. An average velocity based upon the type of reach (i.e., ditch or pipe) will be assumed, and when combined with the distance for the flow path, will allow the travel time to be computed. For ditch, channel, or pipe flow, the average velocity will be assumed to be three (3) feet per second (where no hydraulic data on the ditch, channel or pipe is available). It should be noted that compared to travel time computed for overland flow paths, this component of the total time of concentration is normally negligible.

Urban areas are most often sub-divided by the construction of roadway curb and gutter that conveys stormwater runoff to drainage inlets and pipes. Times of concentration for these sub-basins are normally dominated by the overland flow component, which can easily be approximated without fully implementing the procedures outlined above.

Time of concentration computations for each sub-basin analyzed within this drainage basin study are included within **Tabbed Section 3** of this report.

7.8 Storage and Impoundment Areas (ICPR Nodes)

As mentioned previously, ICPR was used to create a model capable of simulating the hydrodynamic behavior of the existing drainage systems located throughout the study area. This ICPR model requires a spatial network consisting of nodes and links. Nodes are used to identify specific locations along a drainage system for which stage elevations are to be computed. They can also be used to identify ponds, lakes or other depressions in the system (e.g., sinkholes and/or wetlands) where impounding of water (storage) occurs. Data requirements for nodes include initial elevations and stage-area, or stage-storage, relationships for any location where impounding of water occurs.

Initial stages of stormwater management ponds, sinkholes and any other depressional storage areas were estimated from: field surveys; water surface elevations shown on aerial photogrammetry; construction plans; surveyed discharge elevations of outfall structures; or assumed. Water control structures and culverts were also utilized as guidelines for estimating initial elevations.

For undeveloped areas, the SJRWMD aerial photography with contours dated January 1985 was used to develop stage-area relationships. For urban areas, a combination of: construction plans; drainage calculations; and water management district permits; were utilized to develop stage-area relationships for development that has occurred within the watershed since 1985. In lieu of providing complete copies of this supporting documentation, previous sections of this engineering report have provided a summary of the published information that was collected and reviewed during the development of this drainage basin study.

The stage-area and/or stage-storage relationships developed for the "existing" conditions analysis are contained within the ICPR input data provided within **Tabbed Section 2** of this report.

7.9 HYDRAULIC COMPONENTS (ICPR LINKS)

Links are used to connect nodes, thus providing hydraulic connections where water is to flow. Types of links allowed by ICPR include: trapezoidal, parabolic and irregular section channels; weirs, gates and orifices; culverts; drop (control) structures; and various types of rating curves. Numerous geometric configurations can be used to simulate weirs and culverts including circular, elliptical, arch and rectangular cross sections. ICPR allows for the construction of very complex networks through the use of the various reaches described above. Looped systems, as well as diverging (i.e., flow leaving a single node in two (2) or more different directions) systems, can also be modeled. ICPR solves the equations of flow for the entire network at each time step in the simulation. This approach allows realistic influences of tailwater, on both structure and channel hydraulics, and also provides for the dynamic allocation of flood plain storage. This aspect is critical for systems with upstream storage, impoundment and tailwater influenced characteristics.

The data required to adequately describe the major structural features within the study area was obtained from a variety of sources. Primarily, the links were developed to represent the actual hydraulic components as illustrated within the construction plans and/or drainage calculations amassed during the data collection efforts. In several instances, information regarding a specific link varied amongst the sources. In this case, observations made during the field reviews were used as a guide in determining which data to use. If information was otherwise unavailable and considered crucial to the accuracy of the analysis, survey was conducted to develop the missing information.

The stormwater model developed by PEC for this drainage basin study assumes that all hydraulic components (i.e., model links) are well maintained and free of silt or debris. Based on field observations, this assumption is valid in most cases. Nonetheless, some structures may have persistent siltation problems in spite of good maintenance. The effect of major siltation problems should be considered in evaluating flood stages estimated within this drainage basin study due to the fact that the results shown assume one hundred (100) percent operating efficiency of the hydraulic components.

■ ■ ■ ■

"EXISTING" CONDITIONS ANALYSIS ..... SECTION 8

8.1 GENERAL

Printouts of the synthetic storm event modeling for PEC's "existing" conditions analysis is provided within **Tabbed Section 2** of this report. In support of the "existing" conditions analysis, ICPR Node-Link Maps using the County's aerial photography as well as an export from the model's "network builder" are also provided within **Tabbed Section 2** of this report as **Exhibit No. 2-1** and **Exhibit No. 2-2**, respectively.

8.2 WATERSHED OVERVIEW

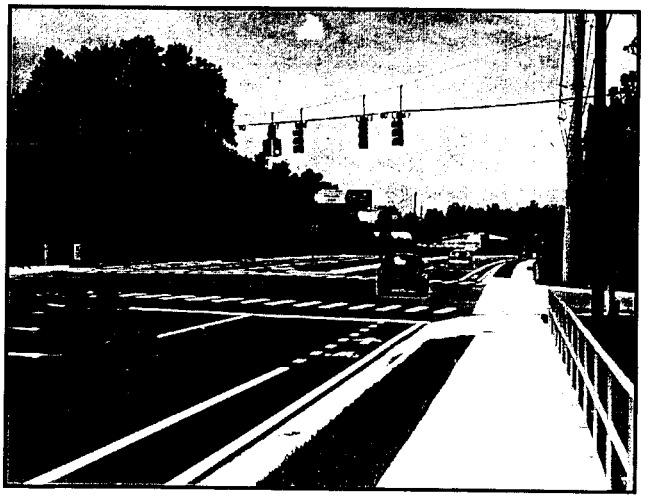
In terms of nomenclature, the names of drainage sub-basins, storage nodes, conveyance links, etc., contained within the ICPR model utilize primary codes that were established within previous studies for both the Howell Creek and Little Econ watersheds. Therefore, PEC's naming conventions will begin with 118* (i.e., 11-08) for the Bear Gully Canal tributary within the Howell Creek watershed, and 105* (i.e., 10-05) for the Aloma Woods outfall to tributaries of the Little Econ River.

For both analysis and discussion purposes, drainage sub-basins, storage nodes, conveyance links, etc. within the watershed for this study area have also been assimilated based upon geographic location using the following ICPR groups:

- S SR 426 (South SR 426)
- Aloma Woods Bv (Aloma Woods Boulevard)
- Jamestown (Jamestown area)
- Walker Rd (Walker Road)
- Wentworth (Wentworth Subdivision)
- Power Easement (Power Easement north of Wentworth Subdivision)
- N SR 426 (North SR 426)
- Little Econ (Little Econ River)
- Bear Gully (Bear Gully Canal)

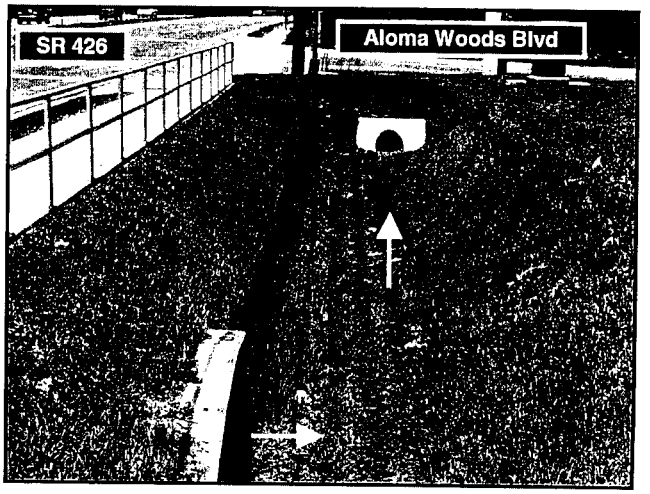
ICPR Group "S SR 426" (Identified As 1181**)

This group includes all of the drainage sub-basins and drainage systems located west of SR 426, including a portion of SR 426 (i.e., the Pond 3 system). SR 426 Pond 3 was constructed as part of the recently completed 4-laning of SR 426, and provides storage of the stormwater runoff generated by the contributing drainage area for the 100-year, 24-hour storm event. PEC understands from conversations with County staff that 100-year storage requirements were imposed for this drainage area due to the documented deficiencies associated with the downstream conveyance system.



SR 426 at Aloma Woods Boulevard

A small lake/wetland immediately west of SR 426 provides a conveyance of stormwater runoff from the drainage areas west of the roadway, including any retention volume drawdown discharged from SR 426 Pond 3. Two 24-inch RCP cross culverts, one under SR 426 and one under Aloma Woods Boulevard, continue the conveyance of stormwater runoff north and east along Aloma Woods Boulevard.



SR 426 at Aloma Woods Boulevard

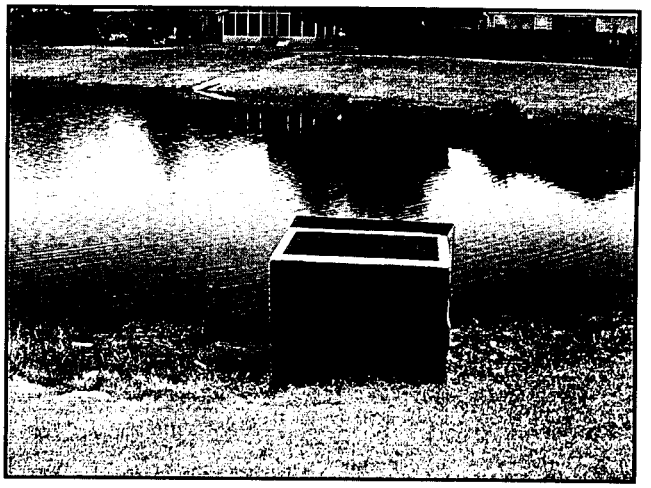
ICPR Group "Aloma Woods Bv" (Identified As 1182**)

This group includes all of the drainage sub-basins and drainage systems located east of SR 426 and south of Aloma Woods Boulevard. Existing developments within this group include: Aloma Bend Plaza; Elmhurst Village; Aloma Square P.U.D.; Aloma Woods - Phases 1, 2 and 3; and the large residential parcels along Hometown Court.

There are two (2) wetland areas located within this group, one immediately southwest of the Sabel Oak Place cul-de-sac within Aloma Woods - Phase 3, and one immediately southwest of the Aloma Woods Boulevard and Sabel Oak Place intersection. Although both of these wetlands have existing control structures that regulate their discharge into the stormwater management ponds within Phase 1 of Aloma Woods, the wetland located immediately southwest of the Sabel Oak Place cul-de-sac can also overflow to the Little Econ watershed. This "high-level" overflow to the Little Econ occurs once a naturally occurring topographic saddle is crested, and is predicted by PEC's model to occur for storm events of 25-year frequency and above.

A portion of Aloma Bend Plaza and Elmhurst Village (apartments) overflow into the wetland located immediately southwest of the Sabel Oak Place cul-de-sac, whereas, the Aloma Square P.U.D. overflows into the wetland located immediately southwest of the Aloma Woods Boulevard and Sabel Oak Place intersection. The rest of the roadways and developments within this group discharge directly to the interconnected stormwater management ponds within Phase 1 of Aloma Woods.

The stormwater management ponds within Phase 1 of Aloma Woods are interconnected by a 48-inch diameter pipe that also conveys stormwater runoff collected by the curb inlets along Pine Grove Run. A control structure within the eastern pond regulates the discharge of stormwater into the outfall system on the north side of Aloma Woods Boulevard.



Aloma Woods - Phase 1 Control Structure

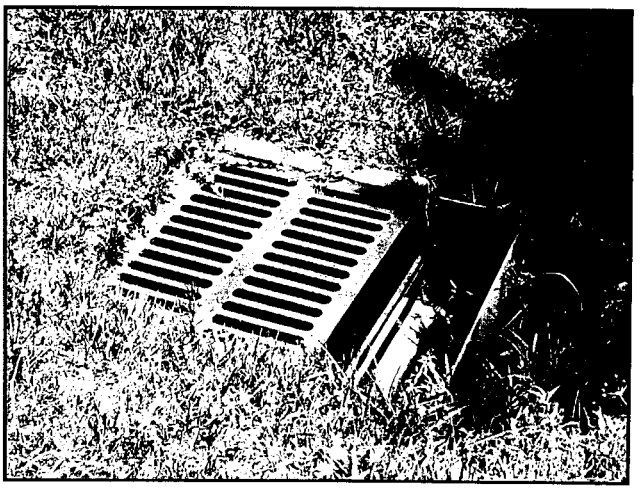
PEC understands from conversations with Seminole County staff that flooding was problematic within Phase 1 of Aloma Woods shortly after the roadway and drainage infrastructure was constructed. In an effort to improve flood protection for the subdivision, an additional "high-level" overflow was constructed at the southern end of the eastern pond within Phase 1 of Aloma Woods. This "high-level" overflow consists of a 35-foot broad-crested weir, and connects the watershed for the study area to tributaries of the Little Econ River. Although the "high-level" overflow structure was designed and constructed with a weir crest elevation of 49-feet, NGVD, high-points between the weir and the downstream forested wetland range from 50- to 51-feet, NGVD (refer to the **Tabbed Appendix** of this report for survey notes of this area).

"High-Level" Overflow - Phase 1 of Aloma Woods

"High-Level" Overflow - Phase 1 of Aloma Woods

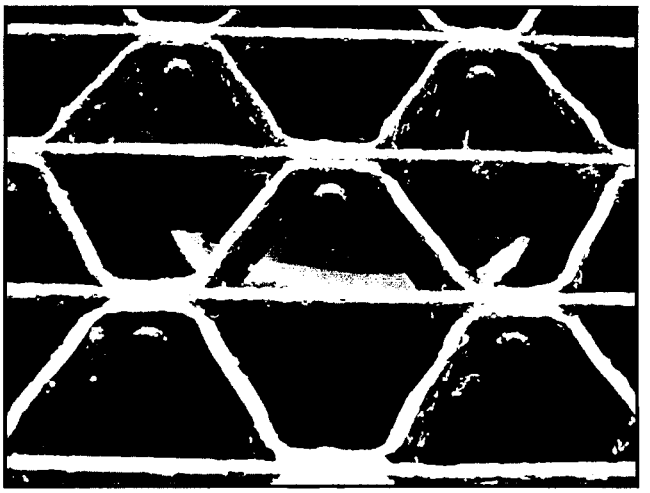
Field reviews conducted by PEC staff during late December 2003 and early January 2004 identified a significant baseflow originating within the wetland located immediately southwest of the Sabel Oak Place cul-de-sac, as well as the interconnected ponds within Phase 1 of Aloma Woods. As illustrated on **Exhibit No. 1-1**, a number of existing drainage systems provide a conveyance of the observed baseflow throughout the Aloma Woods watershed.

- A modified ditch bottom inlet located immediately southwest of the Sabel Oak Place cul-de-sac provides an overflow into the western cell of the two interconnected stormwater ponds within Phase 1 of Aloma Woods.



Wetland Outfall Structure - Sabel Oak Place Cul-de-sac

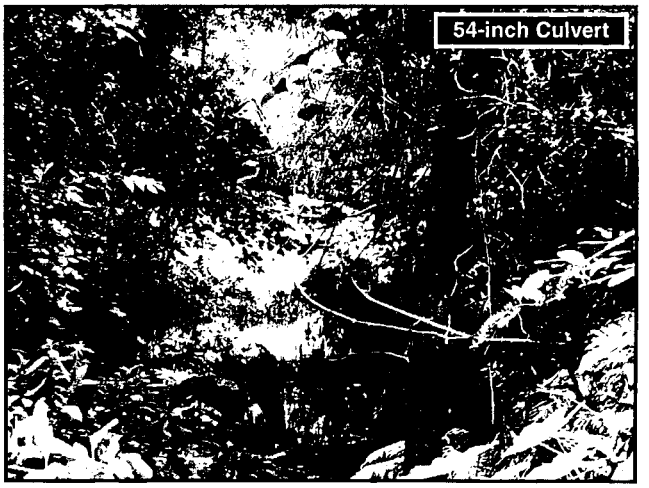
- A control structure, with a 24-inch circular orifice and a 30-inch RCP outfall pipe, provides an overflow from the eastern pond within Phase 1 of Aloma Woods to a storm pipe along the north right-of-way for Aloma Woods Boulevard. This outfall system turns north and continues along the undeveloped portion of Walker Road.



Control Structure (24-inch Orifice) - Phase 1 of Aloma Woods

- Ultimately, the outfall system from the Aloma Woods development discharges to a large wetland system located immediately north of Walker Road and south of Wentworth Subdivision. This wetland system was enhanced as part of the wetland mitigation plan associated with the construction of Wentworth Subdivision (SJRMWD Permit 4-117-22484-1).

- A 54-inch culvert conveys the baseflow through Wentworth Subdivision, discharging into the central outfall ditch for the study area. With the exception of several roadway cross culverts, this central outfall ditch conveys the baseflow unobstructed out of the Aloma Woods watershed in the immediate vicinity of Eagle Pass Road.



Downstream (North) End of 54-inch
Culvert Through Wentworth Subdivision

- A series of 36-inch CMP's convey the baseflow through a nursery on the west side of SR 426 towards Eagle Pass Road and ultimately to the Bear Gully Canal tributary to Lake Jesup.

Downstream (North) End of 36-inch
Culvert Crossing Eagle Pass Road

With the exception of anecdotal reports obtained from conversations between PEC staff and long-time residents (±30-years) within the study area, PEC was not able to absolutely determine the source of the baseflow within the wetland located immediately southwest of the Sabel Oak Place cul-de-sac. The lack of rainfall that occurred between January and June of 2004 may explain why the baseflow was not observed during June 2004, and would therefore indicate that this baseflow does not emanate from a boil or artesian well. A review of the potentiometric surface in this area indicates that the "pot" surface is well below the wetland elevation, although baseflow could still occur from a surficial aquifer seepage face.

Although long-time residents within the study area report that a baseflow has always emanated from the upper portions of the watershed, it appears at this time that the baseflow from the wetland is seasonal. The current condition may be altogether different then what historically occurred, as developments over high recharge soils within the watershed may have reduced the baseflow into the wetland, which is now influenced primarily by surface water sources.

Additionally, baseflow from the interconnected ponds within Phase 1 of Aloma Woods has always been observed during PEC's field reviews, even during June 2004. The construction plans for Phase 1 of Aloma Woods indicate that pond filter drains were constructed at elevation 43.45-feet, NGVD, or approximately 3.4-feet below the 24-inch circular orifice invert (elevation 46.84-feet, NGVD). Typically, the performance and longevity of these filter drains is poor, which would ultimately result in an elevated control water level (CWL) within the ponds. Thus, failure of these pond filter drains may at least explain the baseflow that is continuously conveyed by the 24-inch circular orifice.

ICPR Group "Jamestown" (Identified As 1183**)

This group includes all of the drainage sub-basins and drainage systems located east of SR 426, west of the Walker Road right-of-way, north of Aloma Woods Boulevard and south of James Street. Existing developments within this group include: Progress Energy (f.k.a., Florida Power at Jamestown); and the Jamestown residential area.

In 1921, Benjamin and Esther James filed a homestead for ±160-acres previously known as "The Woods". Although originally intended as both a homestead and farm for his family, Ben James sold portions of the land to families displaced by a hurricane that struck Miami in 1926. The St. James Church was constructed in 1938 at the intersection of SR 426 and James Street, and still stands today. Over time, and in recognition of the James' family history, the area previously known as "The Woods" became known as Jamestown.

Stormwater runoff from the Jamestown area discharges in three (3) different directions, namely:

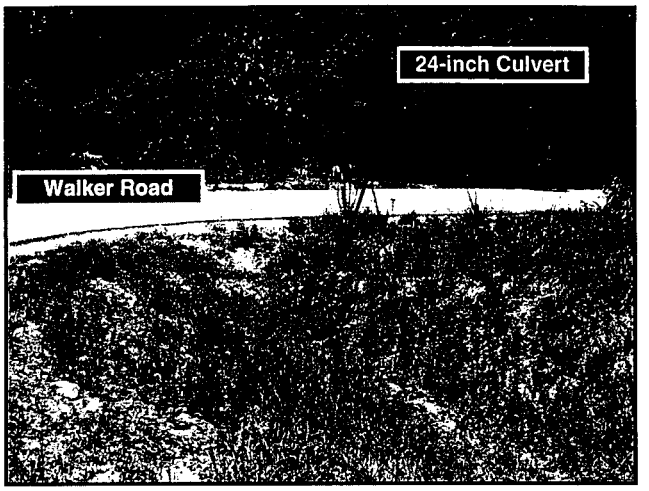
❶ A ditch along the north right-of-way for Aloma Woods Boulevard conveys stormwater runoff for drainage areas west of SR 426. This ditch ends at the southeast corner of the Progress Energy development, where a storm pipe continues east along the Aloma Woods Boulevard right-of-way. This outfall pipe ranges in size from 24- to 30-inch diameter, and provides a stormwater outfall for: drainage areas west of SR 426; Aloma Square P.U.D.; Phases 1 and 2 of Aloma Woods; Progress Energy; and the south end of Security Avenue. This outfall pipe ultimately discharges to a ditch on the north side of Walker Road.

❷ The majority of the Jamestown area drains toward a ditch system that begins on the east side of Security Avenue. This ditch ultimately discharges to a large wetland located east of SR 426 and north of Walker Road, with roadway cross culverts at South Street and James Street.

Upstream (South) End of 36-inch Culvert Crossing James Street

Ditch Immediately North of James Street

❸ The eastern portion of the Jamestown area drains toward the intersection of James Street and Walker Road. A modified ditch bottom inlet collects the stormwater runoff at the southwest corner of the intersection, and crosses Walker Road via a 19"x30" RCP. A ditch on the east side of Walker Road continues the conveyance to the north, where a 24-inch CMP crosses Walker Road. At this point, the discharge combines with the Aloma Woods outfall system, and continues east via a ditch on the north side of Walker Road.



Upstream (South) End of 24-inch Culvert
Crossing Walker Road (West End)

ICPR Group "Walker Rd" (Identified As 1184**)

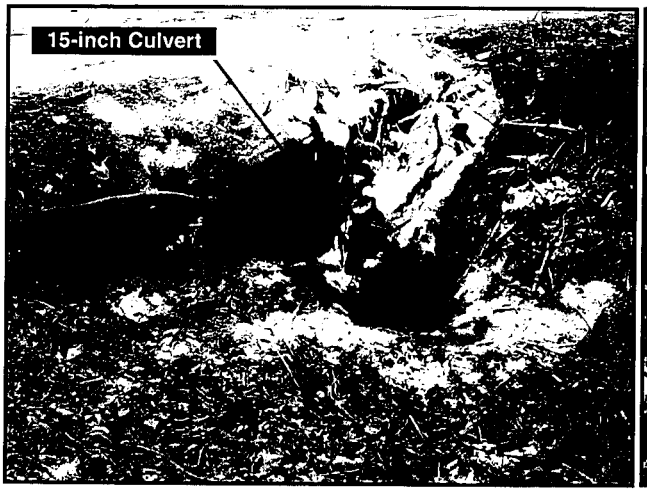
This group includes all of the drainage sub-basins and drainage systems located south and east of Walker Road. Existing developments within this group include: Phases 4 and 5 of Aloma Woods; and a portion of Phase 6 of Aloma Woods. The portion of Walker Road located north of James Street was recently paved by Seminole County; however, the portion of Walker Road located east of James Street and south of Mikler Road remains an unpaved private drive.

A large undeveloped area immediately south of Walker Road encompasses a wetland system that extends north from Aloma Oaks Drive within Phases 4 and 5 of Aloma Woods. Collectively, four culverts cross Walker Road to provide an outlet for stormwater runoff.

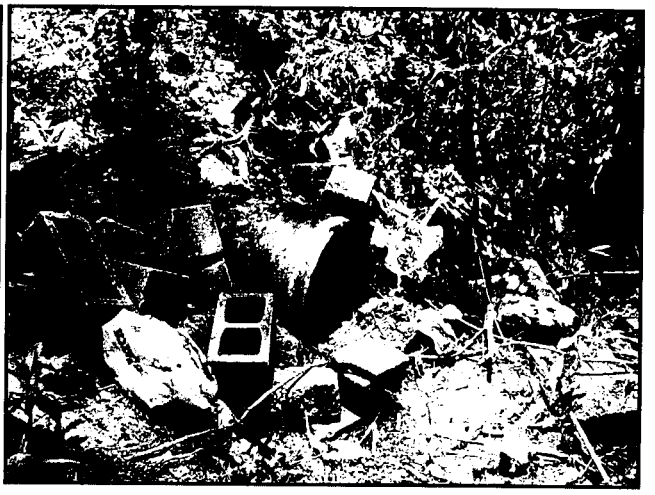
❶ The westernmost culvert is the Aloma Woods Boulevard outfall as previously discussed. In addition to conveying stormwater runoff from the areas south of Aloma Woods Boulevard, this culvert also provides an outfall for Phase 4 of Aloma Woods.

❷ Just east of the westernmost culvert, a 24-inch CMP crosses Walker Road to provide a stormwater outfall for the east side of the Jamestown area as previously discussed.

❸ At the approximate mid-point of the roadway, a 15-inch CMP crosses Walker Road to provide a stormwater outfall for a portion of the undeveloped land located south of the road. This culvert is almost entirely blocked on the upstream (south) end of the pipe.



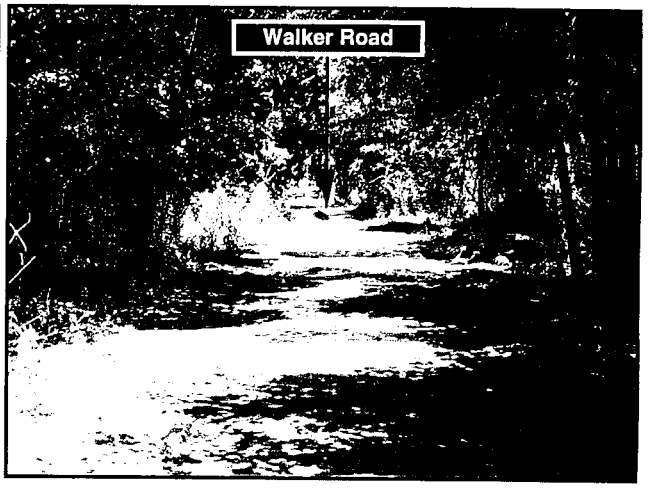
Upstream (South) End of 15-inch Culvert Crossing Walker Road



Downstream (North) End of 15-inch Culvert Crossing Walker Road

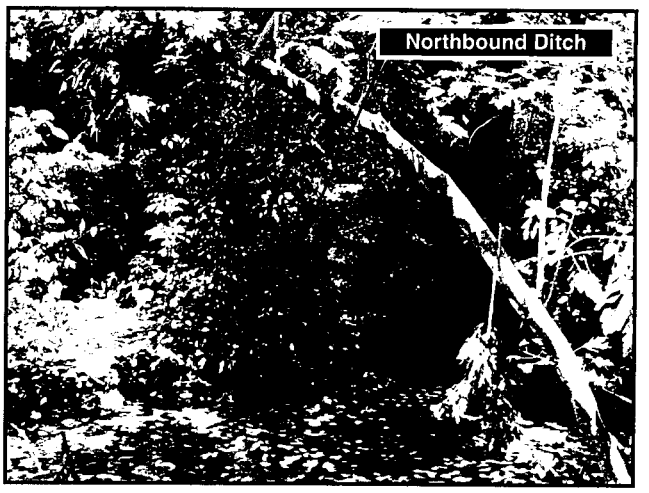
❹ At the east end of the roadway, a 24-inch CMP crosses Walker Road to provide a stormwater outfall for Phase 5 and a portion of Phase 6 of Aloma Woods.

Upstream (South) End of 24-inch Culvert Crossing Walker Road (East End)



Walker Road Right-of-way (East End Looking West)

All four of the culverts that cross Walker Road discharge to a ditch on the north side of Walker Road. This ditch flows in the east direction from the west end of Walker Road, and in the west direction from the east end of Walker Road. A confluence occurs at the approximate mid-point of Walker Road, immediately north of the 15-inch culvert crossing Walker Road. At the confluence, the ditch turns north toward the large wetland located south of Wentworth Subdivision.



Ditch Confluence Immediately
North of Walker Road

With regard to the wetland system located south of Walker Road, it appears that the seasonal high water level within the wetland is above the invert of the roadway cross culvert at the east end of the roadway. In that regard, PEC utilized a drop structure with a very wide overflow weir to simulate the discharge from the wetland system. The overflow weir was set at the estimated seasonal high water (ESHW) level, which will prevent discharge through the culvert below this elevation.

ICPR Group "Wentworth" (Identified As 1185**)

This group includes all of the drainage sub-basins and drainage systems located east of SR 426, north of Walker Road, up to and including Wentworth Subdivision. A large wetland system is located immediately south of Wentworth, and was partly encroached upon to construct the subdivision. In addition to construction of the typical subdivision infrastructure, a 54-inch pipe was also constructed to culvert the existing wetland and ditch through the subdivision.

PEC's review of the SJRWMD permit archives for Wentworth Subdivision indicate that mitigation for wetland impacts was achieved through enhancement of the existing wetland. Specifically, and because a perimeter ditch had historically existed to improve the interior land portions for agriculture (celery), restoration efforts were considered beneficial to the entire wetland.

Stormwater management for Wentworth Subdivision is accomplished within two separate facilities. The west stormwater pond provides treatment and attenuation of stormwater runoff, while the east stormwater pond provides compensating flood storage to offset flood plain encroachments. Although flood plain encroachment and compensating flood storage calculations were not included within the SJRWMD Environmental Resource Permit (ERP) application for Wentworth Subdivision, the following points deserve special mention.

- "As-built" construction plans for Wentworth Subdivision indicate that the compensating flood storage area was excavated with a minimum bottom elevation of 37.5-feet, NGVD. Apparently, compensating flood storage volume was claimed between elevation 38-feet, NGVD and the predicted 100-year flood elevation of 43.2-feet, NGVD. The stormwater treatment and attenuation pond discharges into the compensating flood storage area, and was designed with a control water level (CWL) of elevation 38-feet, NGVD.

- "As-built" construction plans for Wentworth Subdivision also indicate that the 54-inch culvert through the subdivision was constructed with upstream (south) and downstream (north) invert elevations of 37.39- and 36.22-feet, NGVD, respectively.

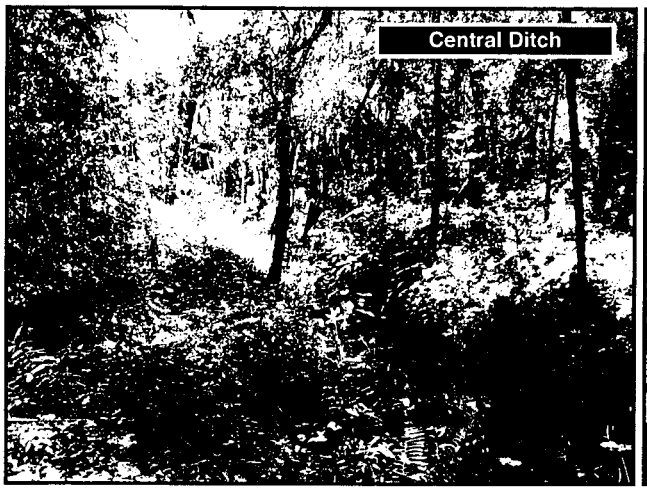
- A topographic survey prepared for Seminole County by Southeastern Surveying & Mapping Corporation identifies a downstream (north) invert elevation of 36.31-feet, NGVD for the 54-inch culvert through Wentworth Subdivision. This survey also indicates that the ditch bottom immediately north of the culvert is approximately elevation 39-feet, NGVD, or more than 2 ½-feet higher than the culvert invert. Further downstream, this survey indicates that the next downstream control occurs within the plant nursery immediately south of Eagle Pass Road. The first of three 36-inch CMP's culverts within the nursery has a controlling invert elevation for upstream drainage systems of 37.32-feet, NGVD.

- A geotechnical investigation prepared for Wentworth Subdivision by Devo Seereeram, Ph.D., P.E. in July 1995 included a number of borings within the limits of the proposed development. Measured water levels and estimated seasonal high water (ESHW) levels were presented within the report for each of the borings. The boring in closest proximity to the proposed stormwater management facilities indicated an ESHW level at the existing ground surface, or approximately elevation 41.5-feet, NGVD using the topography surveyed for the subdivision design.

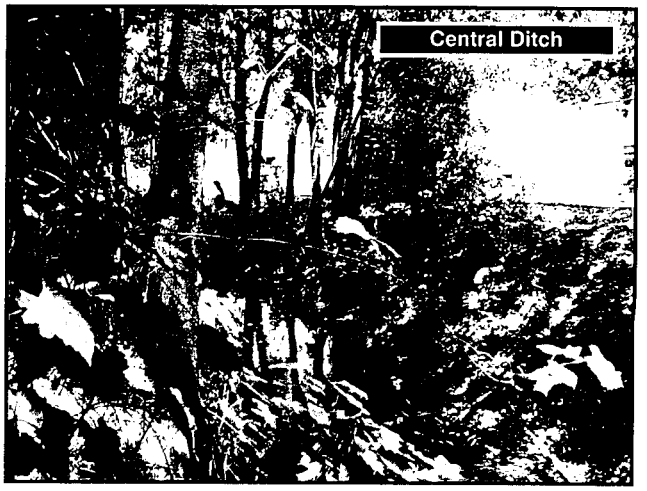
In consideration of the issues presented above, it appears that the design elevations for the stormwater management ponds within Wentworth Subdivision were set too low. A pond CWL and compensating storage area set at approximate elevation 40-feet, NGVD would have been more appropriate.

ICPR Group "Power Easement" (Identified As 1186**)

This group includes all of the drainage sub-basins and drainage systems located north of Wentworth Subdivision, east of SR 426, south of Chapman Road, and west of Church Street. A well-defined central outfall ditch begins on the north side of Wentworth Subdivision where the 54-inch culvert through the subdivision daylights. This central outfall ditch cuts through two wetlands as it makes its way in a slight northwest direction towards SR 426.



Central Outfall Ditch At
Approximate Mid-point

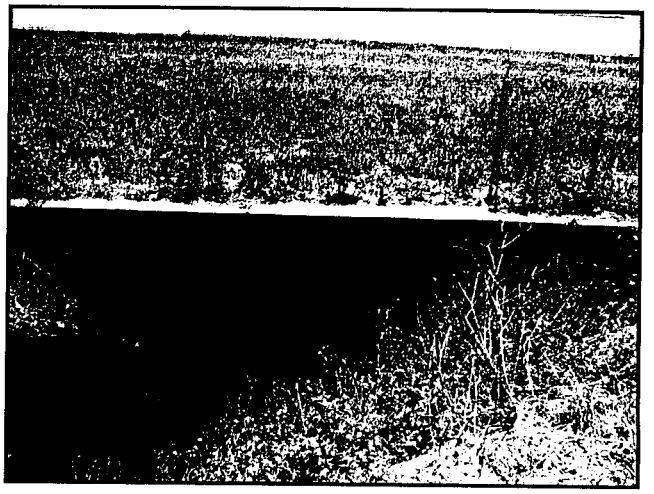


Central Outfall Ditch Just South of
Power Easement and Storage Facility

The previously mentioned topographic survey prepared by Southeastern Surveying & Mapping Corporation identified a total of three small cuts/breaches that connect the two wetland systems located along the east side of the central outfall ditch. These cuts/breaches were also observed during field reviews conducted by PEC staff during the development of this drainage basin study. For stormwater modeling purposes, these wetlands were modeled as overbank storage for the central outfall ditch, in lieu of separate storage nodes connected by some type of hydraulic component (i.e., weir or channel).

Because Seminole County crews removed a dilapidated culvert that crossed the power easement after the flooding that occurred during Tropical Storm "Gabrielle" in September 2001, the central outfall ditch maintains a fairly uniform and un-culverted cross section between Wentworth Subdivision and SR 426. However, the topographic survey prepared by Southeastern Surveying & Mapping Corporation does not identify any drainage easements over the central outfall ditch between Wentworth Subdivision and SR 426.

As part of the recently completed 4-laning of SR 426, a larger box culvert was installed in place of the existing culvert. PEC understands from conversations with County staff that upgrading of this cross culvert was required due to the documented drainage deficiencies that existed within the upstream watershed.



Downstream (West) End of 4'x5' Box Culvert Crossing SR 426

ICPR Group "N SR 426" (Identified As 1187**)

This group includes all of the drainage sub-basins and drainage systems located west of SR 426 and south of Eagle Pass Road. Once the central outfall ditch crosses SR 426 via a 4'x5' box culvert, the ditch crosses a plant nursery on its way towards Eagle Pass Road. Although two culverts maintain conveyance across dirt driveways within the nursery, the conveyance capacity of these 36-inch CMP's is substantially less than that of the box culvert crossing SR 426.

Eagle Pass Road (Looking West)

Outfall Ditch North of Eagle Pass Road

The topographic survey prepared by Southeastern Surveying & Mapping Corporation does not identify any drainage easements over the central outfall ditch between SR 426 and Eagle Pass Road.

ICPR Group "Little Econ"

This group includes a boundary condition and three hydraulic links on the south side of the study area where interaction between tributaries of Bear Gully Canal and the Little Econ can occur. As previously mentioned, one hydraulic link represents the "high-level" overflow across a natural saddle from the wetland located immediately southwest of the Sabel Oak Place cul-de-sac, and the other two hydraulic links represent the "high-level" overflow from the interconnected ponds within Phase 1 of Aloma Woods.

Additional discussions regarding the Little Econ boundary condition will be provided later within this report.

ICPR Group "Bear Gully"

This group includes a boundary condition for the outfall ditch between Eagle Pass Road and Chapman Road, a tributary of Lake Jesup via the Bear Gully Canal. Additional discussions regarding the Bear Gully Canal boundary condition will be provided later within this report.

8.3 Overview Of Downstream Drainage Systems

Although PEC's study area has been delineated using boundary conditions at Eagle Pass Road for the Bear Gully Canal watershed and immediately south of Phase 1 of Aloma Woods for the Little Econ River watershed, some discussion of drainage systems downstream of these boundary conditions is beneficial.

Bear Gully Canal Watershed

Although somewhat dated, the most comprehensive analysis of the Bear Gully Canal watershed is provided within a report entitled **Howell Creek Basin - Drainage Inventory Engineering Study**, prepared by DRMP/Dyer, Riddle, Mills & Precourt, Inc. in February 1994. Because emphasis was placed upon determining peak flow rates and corresponding flood stages for only the largest tributaries of Howell Creek, detailed information for PEC's study area was not provided within the report.

PEC staff conducted additional field reviews of the watershed area downstream of Eagle Pass Road in an effort to provide some representation of the outfall to Bear Gully Canal. As shown on **Exhibit No. 1-1**, the outfall ditch north of Eagle Pass Road discharges north to Chapman Road (Hurban Street), where it makes a 90-degree turn to the west via a 36-inch CMP driveway culvert. The topographic survey prepared by Southeastern Surveying & Mapping Corporation identifies a 60-foot wide drainage easement over the ditch between Eagle Pass Road and Chapman Road (Hurban Street).

The ditch continues west along the south side of Chapman Road (Hurban Street) towards Tatra Sreet within a 50-foot wide right-of-way. The Chapman Road (Hurban Street) right-of-way reduces to a width of 30-feet between Tatra Street and SR 417. Portions of the ditch along the south side of Chapman Road (Hurban Street) appear to be at least partly located outside the road right-of-way on private property.

Overflow from SR 426 Ponds 4 and 5 enters the ditch along the south side of Chapman Road (Hurban Street) immediately north of Eagle Pass Road and in the general vicinity of Tatra Street, respectively. PEC's conversations with local residents indicate that drainage along Chapman Road (Hurban Street) is very poor, and is also exacerbated by seepage through the berm of SR 426 Pond 5.

Chapman Road (Hurban Street) makes a turn to the south at SR 417. A deep culvert crosses the road at this location, and combines with another drainage system located between Chapman Road (Hurban Street) and SR 417. These two drainage systems are then conveyed under SR 417 by two large arch culverts. A large ditch on the west side of SR 417 discharges north and then west directly to the Bear Gully Canal.

PEC's field reviews indicate that significant drainage deficiencies exist between Eagle Pass Road and SR 417. Therefore, it does not appear that increasing the hydraulic conveyance capacity of drainage systems within PEC's study area is appropriate unless downstream improvements are implemented first.

Little Econ River Watershed

A comprehensive analysis of the Little Econ River watershed within Seminole County is provided within a report entitled **Engineering Study and Drainage Inventory for the Little Econlockhatchee River Basin** prepared by Singhofen & Associates, Inc. (SAI) in May 2001.

As shown on **Exhibit No. 1-1**, a large forested wetland located immediately south of Phases 1 and 2 of Aloma Woods drains east towards Devon Forest Subdivision. Twin culverts cross Bay Head Run within Devon Forest and continue the discharge east, eventually crossing Iron Bridge Road en route to the main stem of the Little Econ River.

8.4 BOUNDARY CONDITIONS

General

As previously mentioned, two boundary conditions are contained within the ICPR model for PEC's study area. The boundary condition for the Bear Gully Canal tributary was input as a stage versus time relationship, whereas, the boundary condition for the Little Econ tributary utilized the ICPR boundary stage method with a different relationship input for each storm event to be analyzed.

Bear Gully Canal

Because published information was unavailable for the Bear Gully Canal tributary, PEC had to assume a realistic relationship. The following **Figure No. 4** provides a graphical representation of the assumed stage versus time relationship, which can also be described as follows:

- The topographic survey prepared by Southeastern Surveying & Mapping Corporation characterizes the existing culvert that crosses Eagle Pass Road as follows: 36-inch diameter CMP; upstream (south) invert elevation of 36.09-feet, NGVD; downstream (north) invert elevation of 35.92-feet, NGVD; and approximate roadway overtopping elevation 40.8-feet, NGVD.

- The downstream invert elevation was assumed at time zero. It should be noted that an upstream baseflow is normally conveyed at this location even in the absence of antecedent rainfall; however, the pipe's downstream invert elevation is slightly above the water level within the ditch.

- The upstream baseflow, combined with some almost instantaneous stormwater runoff near the boundary condition, was assumed to result in a half-full pipe at hour 3. For conservative purposes, this data point used the pipe's slightly higher upstream invert elevation to compute the half-full flow condition.

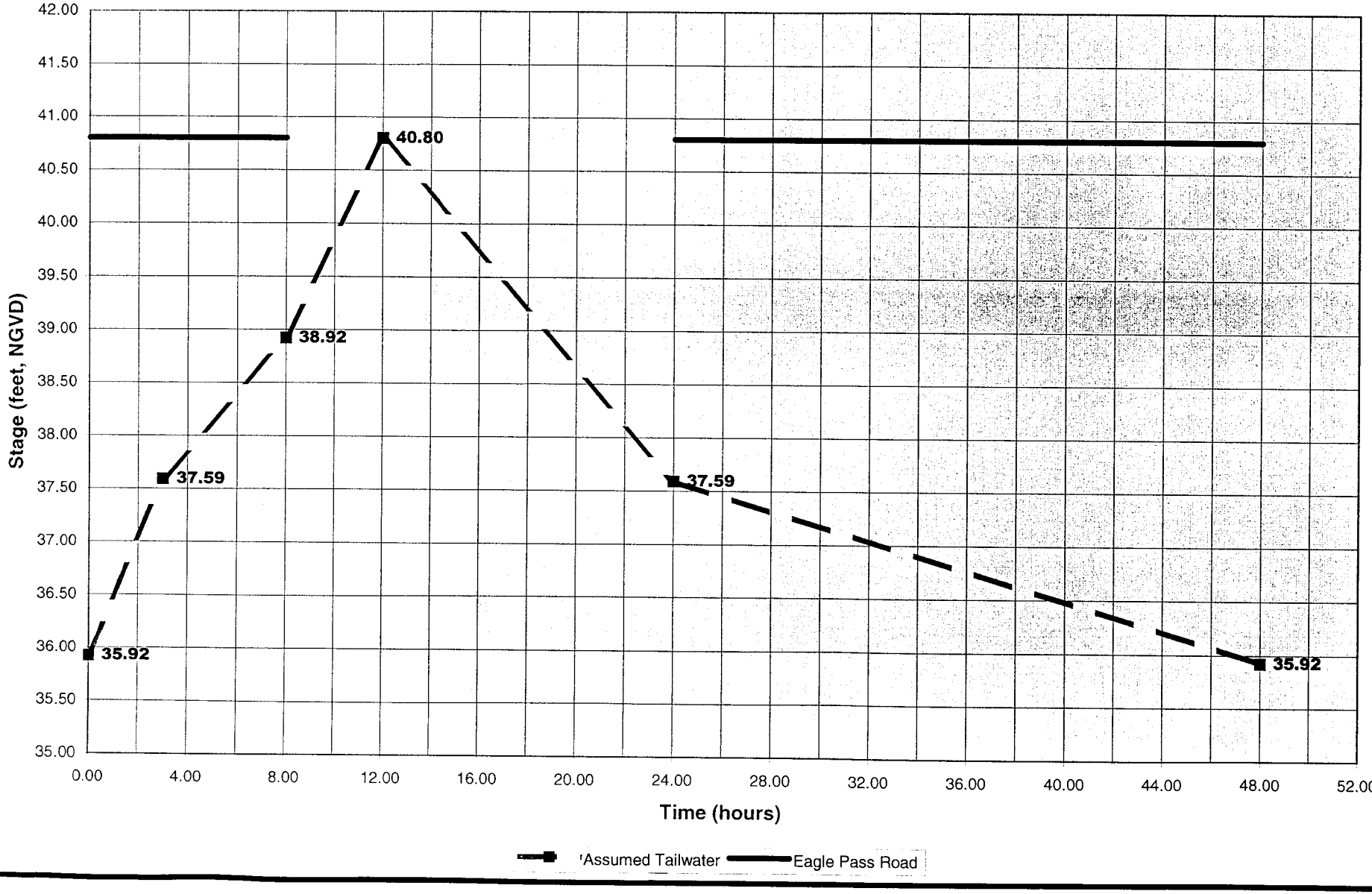
- A full-flow condition within the pipe was assumed to occur at hour 8, approximately 4-hours prior to the peak stormwater runoff rate from all of the drainage sub-basins within the study area.

- Overtopping of Eagle Pass Road was assumed to occur at hour 12, concurrent with the time at which the peak stormwater runoff rate from all of the drainage sub-basins within the study area occurs.

- In terms of the receding limb of the stage versus time relationship, a half-full pipe was assumed at hour 24, with an empty pipe (excluding upstream baseflow) assumed to occur at hour 48.

Aloma Woods Drainage Basin Study

Bear Gully Canal Boundary Condition (ICPR Node 118035N)



PEC/Professional Engineering Consultants, Inc.

FIGURE NO. 4

Little Econ River

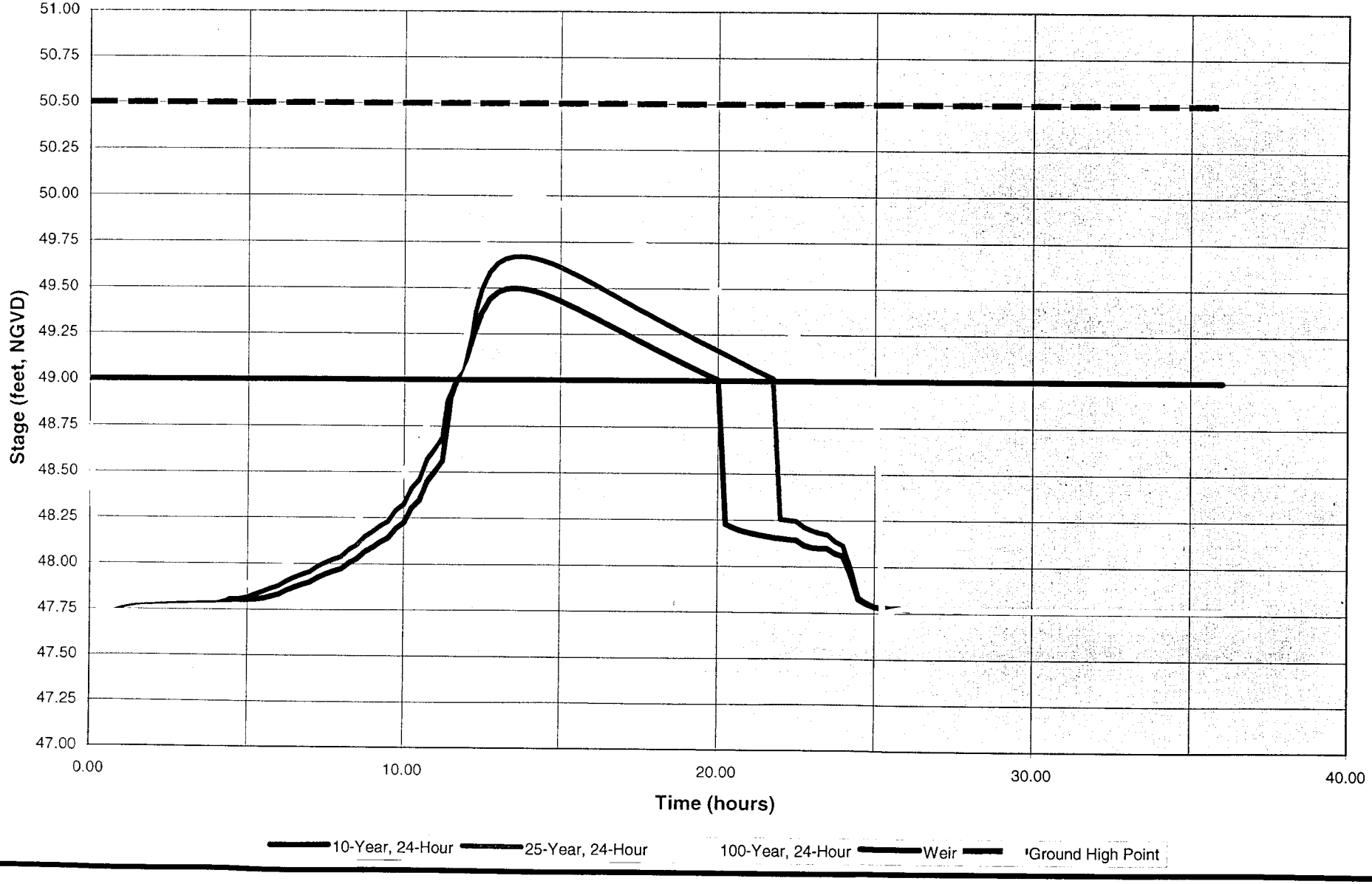
Initially, PEC extracted stage versus time information from SAI's Little Econ River study for each storm event to be analyzed. However, and after some review of the information contained within the SAI model for the Aloma Woods area, a coordination meeting was conducted between representatives of Seminole County, PEC and SAI. During this meeting, PEC provided SAI with drainage maps and the ICPR model for the Aloma Woods drainage basin study. Sometime after the meeting, SAI incorporated PEC's updated basin delineations and model input for the Aloma Woods drainage basin study, and executed additional model simulations for the entire Little Econ River watershed.

Revised information was published by SAI and transmitted to both Seminole County and PEC for use in finalizing the Aloma Woods drainage basin study. Although SAI's updated information is included within **Tabbed Section 4** of this report, the following **Figure No. 5** provides a graphical representation of the SAI boundary stages for each storm event analyzed within this drainage basin study.

It should be noted that SAI's updated Little Econ analysis changed somewhat due to the increased inflow from the Aloma Woods area. However, the peak downstream tailwater at PEC's boundary condition for the Little Econ River is still below all of the "high-level" overflows from the Aloma Woods development.

Aloma Woods Drainage Basin Study

Little Econ River Boundary Condition (ICPR Node 105330N)



PEC/Professional Engineering Consultants, Inc.

FIGURE NO. 5

8.5 RESULTS OF SYNTHETIC STORM EVENT MODELING

Baseflows

As previously mentioned, field reviews conducted by PEC staff during late December 2003 and early January 2004 identified a significant baseflow originating within the wetland located immediately southwest of the Sabel Oak Place cul-de-sac, as well as the interconnected ponds within Phase 1 of Aloma Woods. However, subsequent field reviews conducted by PEC staff in June 2004 did not observe any baseflow from the wetland, although some baseflow was being discharged from the east pond within Phase 1 of Aloma Woods.

Because the baseflow from the wetland appears to be somewhat seasonal in nature, and significantly reduced/eliminated during the winter months, PEC performed model simulations with and without any baseflow present. For the purposes of this drainage basin study, PEC assumed a combined baseflow of 5 cfs emanating from the wetland located immediately southwest of the Sabel Oak Place cul-de-sac (ICPR Node 118204W).

Predicted Flood Elevations and Discharges

Flood routing results, including the model simulations with and without the previously discussed baseflow, are provided within **Tabbed Section 2** of this report. In terms of the predicted peak flood elevations, and as shown within the abbreviated summary table below, there is little or no difference for the model simulations with and without the baseflow. Although some minor increase occurs at the wetland immediately south of the Sabel Oak Place cul-de-sac (where the baseflow is introduced), the effect is dampened by the various water bodies and storage areas downstream of the wetland. In that regard, any predicted peak flood elevations and/or discharges presented within the remainder of this report will correspond to the model simulation without the baseflow.

Table 4
Predicted Flood Elevations - With and Without Modeled Baseflow

ICPR Node [1]	General Location	Peak Flood Elevations Without Baseflow (feet, NGVD)			Peak Flood Elevations With Baseflow (feet, NGVD) [2]		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr	10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118602N	North SR 426	42.22	42.47	42.95	42.23	42.50	42.97
118600W	North of Wentworth	42.26	42.51	42.98	42.28	42.54	43.00
118500W	South of Wentworth	42.61	42.92	43.54	42.63	42.94	43.56
118403W	South of Walker Road	44.87	45.11	45.48	44.87	45.11	45.48
118209P	Phase 1 of Aloma Woods	51.11	51.22	51.38	51.13	51.23	51.39
118208P	Phase 1 of Aloma Woods	51.70	51.88	52.14	51.71	51.89	52.14
118204W	Phase 3 of Aloma Woods	55.68	56.21	56.32	56.36	56.40	56.47
118203P	Elmhurst Village	61.96	62.34	63.08	61.96	62.34	63.08

[1] The ICPR nodes are presented in downstream to upstream order.

[2] PEC assumed a 5 cfs baseflow at ICPR Node 118204W.

Because they utilize the same ICPR model data, comparisons between SAI's Little Econ River study and PEC's Aloma Woods study are not required. However, the stormwater calculations for Wentworth Subdivision prepared by Genesis Engineering Group also included a drainage basin study that can be considered comprehensive enough for comparative purposes. The following table provides a summary of the flood elevations and discharges predicted by both Genesis Engineering Group for Wentworth Subdivision and PEC for this drainage basin study.

Table 5
Comparison of Predicted Flood Elevations and Discharges

ICPR Node [1]		Predicted 100-Year Flood Elevation (feet, NGVD)		Predicted 100-Year Discharge (cfs)	
Genesis	**PEC**	**Genesis**	**PEC**	**Genesis**	**PEC**
11-0827C	118602N	41.8'	42.9'	76	49
CELERYDS	118600W	42.0'	43.0'	69	47
EAGLE	118501P	43.2'	43.5'	16	29
CELERY	118500W	43.2'	43.5'	68	46
DITCH2	118302N	51.3'	51.3'	39	52
FLPOWER	118300P	52.6'	53.0'	29	62

[1] The ICPR nodes are presented in downstream to upstream order.

The comparisons presented within the summary above indicate that the two studies are in good agreement, excluding the flood elevations predicted east of SR 426 and north of Wentworth Subdivision. The predicted 100-year flood elevation at Wentworth Subdivision (PEC's ICPR Node 118500W) varies by only 0.3-feet between both studies.

Discharge To Boundary Conditions

The following **Figure Nos. 6 and 7** provide a graphical illustration of the inflow relationship at the Bear Gully Canal and Little Econ River boundary conditions, respectively. As illustrated by the graphs, the peak discharge from the study area into the Bear Gully Canal watershed (ICPR Node 118035N) is approximately 50 cfs for all storm events, whereas, the peak discharge from the study area into the Little Econ watershed (ICPR Node 105330N) varies between 125-250 cfs for the 10- and 100-year storm events, respectively. Due to the hydraulic deficiencies that exist throughout the watershed for this study area, a small portion of the total discharge exits the watershed via the Bear Gully Canal tributary, whereas, the larger portion of the total discharge exits the watershed via the Little Econ River tributary.

■■■■

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)

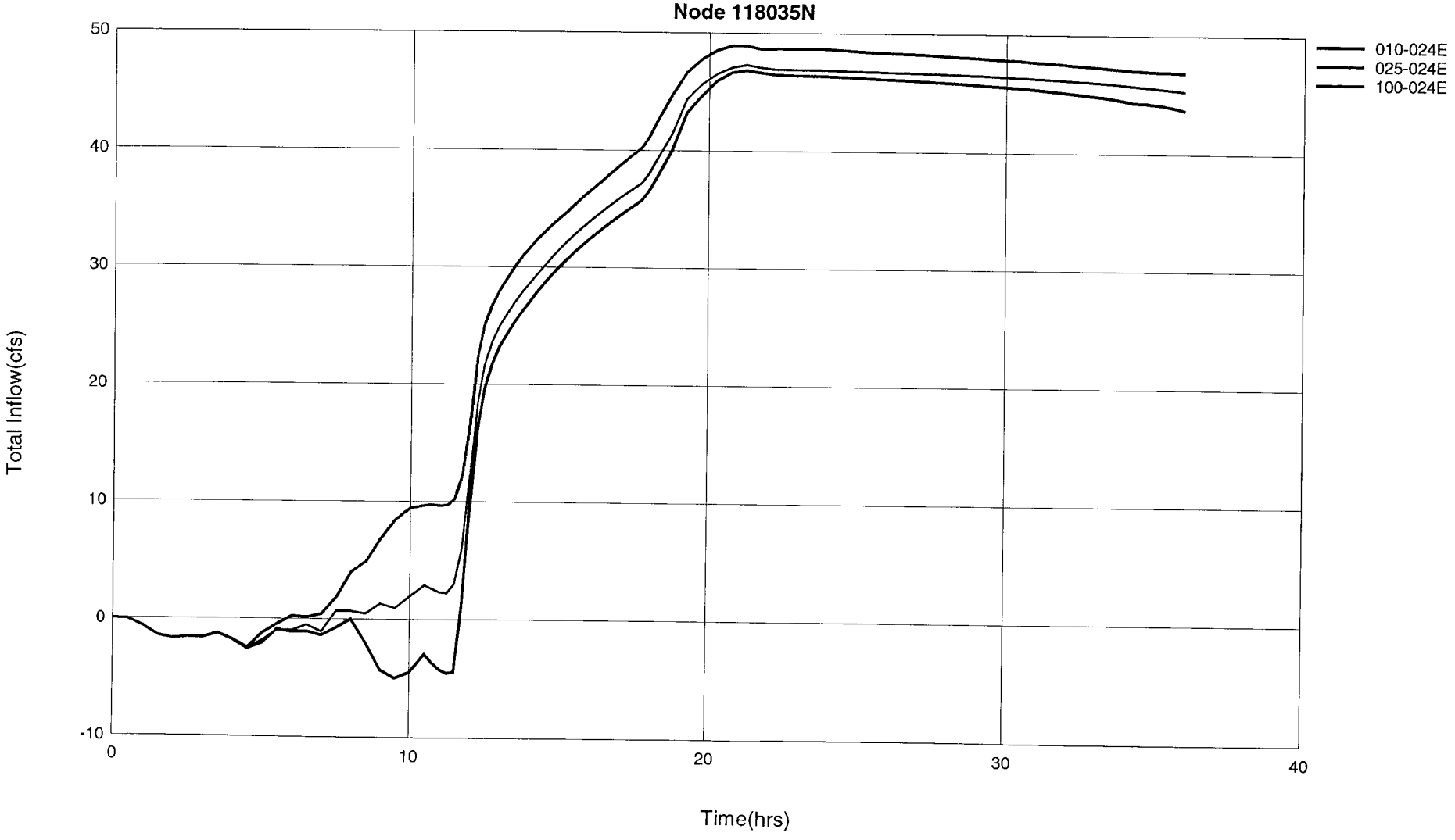


FIGURE NO. 6

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)

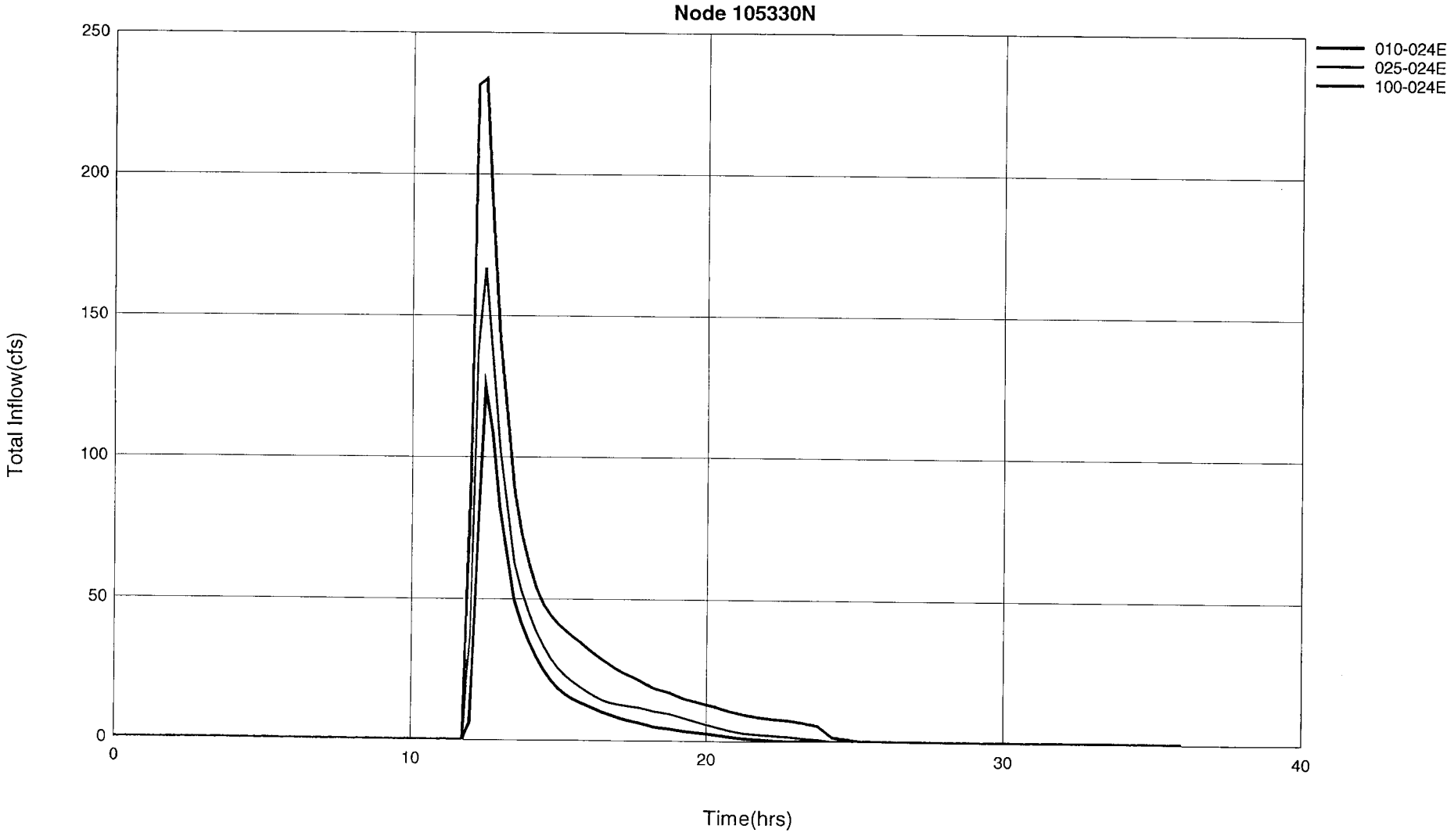


FIGURE NO. 7

EXISTING FLOOD PROTECTION ..... SECTION 9

9.1 LEVEL OF SERVICE

A level of service (LOS) designation is a relative assessment of a drainage system's capacity, based on the hydraulic performance of the individual drainage elements (e.g., culverts, channels, storm sewers, ponds, etc.) contained throughout the study area. Level of service (LOS) reflects the impact of flood stage and duration on the safety of the public-at-large and the potential for property damage. Prioritization of facility improvement funding, operations, maintenance, regulation and enforcement of development programs can be properly and efficiently addressed once a level of service (LOS) standard is established. For inhabited residential structures, Seminole County's Land Development Code stipulates that structures should provide flood protection, and thus a level of service (LOS), for the 100-year frequency storm event.

9.2 PREDICTED FLOOD PLAINS

The following **Exhibit No. 1-2** provides a graphical illustration of the predicted 100-year flood plains throughout the study area. Predicted 100-year flood elevations for wetlands, ponds, roadway culvert crossings, and at other significant areas are also shown on this exhibit.

The 100-year flood plains were delineated using 1-foot contours digitized from aerial topographic maps and/or construction plans. Once the flood plains were delineated, additional survey work was performed to obtain any critical elevations for flood protection. These critical elevations correspond to garages and habitable structures that are situated within delineated flood plains or other flood prone areas. As shown on the following **Exhibit No. 1-2**, a total of nine separate parcels were surveyed to determine their critical elevations.

Comparing the surveyed critical elevations for flood protection and level of service (LOS) with the flood elevations predicted for the study area, it appears that flooding of structures is problematic at 2350 Church Street (Survey Location 4) and 2362 Church Street (Survey Location 5). Although flooding within habitable structures is not predicted to occur, some flooding of garages is predicted to occur for the 100-year storm event.

9.3 OTHER PROBLEM AREAS

In addition to flood protection and level of service (LOS) issues associated with the 100-year storm event, there are several other areas where existing drainage deficiencies are problematic for storm events of magnitude less than the 100-year frequency.

Elmhurst Village

Some pond overtopping will result in minor flooding of parking areas and driveways and is predicted to occur for the 25- and 100-year, 24-hour storm events. Based upon PEC's review of the construction plans and drainage calculations for Elmhurst Village, one or more of the following issues may be the cause of the predicted drainage deficiencies.

- The design engineer utilized ICPR stage-area relationships for each of the three ponds within Elmhurst Village. However, it appears that the data input to the computer model for stage-area was actually stage-storage. Because the ICPR model re-computed the stage-storage using what was incorrectly input as stage-area, pond storage volume was modeled that does not actually exist.

- Although not substantial in magnitude, the ICPR model prepared by the design engineer did not include the discharge from the north pond within the Aloma Bend Plaza. It appears that a field change may have occurred during construction, whereby the north pond within Aloma Bend Plaza was connected across a commercial outparcel (Tract A) by a pipe to the middle pond within Elmhurst Village.

The inundation of the parking areas and driveways is not significant in magnitude or duration of flooding. Therefore, no retrofit improvements are deemed necessary.

Aloma Woods Boulevard at Sabel Oak Place

Sabel Oak Place has a sag in the roadway profile approximately 175-feet south of the Aloma Woods Boulevard intersection. Two curb inlets collect stowmater runoff at the roadway sag, and also convey discharge from the wetland overflow immediately to the west. The elevation of this roadway sag allows some minor flooding during all of the storm events analyzed within this drainage basin study. Even if discharge into the wetland located west of Sabel Oak Place was reduced in an effort to lower the wetland's flood elevation, some roadway flooding would still be caused by overtopping of the ponds within Phase 1 of Aloma Woods during the 100-year storm event.

Phase 1 of Aloma Woods

As mentioned previously, a "high-level" overflow structure was constructed at the south end of the east pond within Phase 1 of Aloma Woods to alleviate flooding that reportedly occurred shortly after constructing the infrastructure for this subdivision. In terms of overflow elevations, the following summary is provided:

- Elevation 46.84-feet, NGVD (24-inch circular orifice)
- Elevation 50.5-feet, NGVD (top of grate for control structure)
- Elevation 49-feet, NGVD (broad-crested weir elevation for "high-level" overflow)
- Elevation 50.5-feet, NGVD (approximate high-point downstream of "high-level" overflow)

Apparently, elevation 49-feet, NGVD was determined to be the minimum elevation to achieve the desired level of flood protection within Phase 1 of Aloma Woods. However, and as previously mentioned, ground elevations between the "high-level" overflow and the downstream forested wetland will not allow discharge to occur until approximate elevation 50.5-feet, NGVD is achieved. As shown within the following table, minor roadway flooding is predicted to occur for the 10-year storm event, with pond overtopping and more substantial roadway flooding predicted to occur for the 100-year storm event.

Table 6
Existing Deficiencies For Phase 1 of Aloma Woods

ICPR Node	Location	Predicted Flood Elevations (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118208P	West Pond	51.7	51.9	52.1
Critical Elevation for Flood Protection		50.5 min. PGL	51.0 pond TOB	53.2 min. FF
118209P	East Pond	51.1	51.2	51.4
Critical Elevation for Flood Protection		50.5 min. PGL	51.0 pond TOB	53.2 min. FF

Notes:

min. PGL = minimum road grade, pond TOB = pond top of bank, min. FF = minimum finished floor

As illustrated within the table above, the 48-inch pipe interconnecting the east and west ponds within Phase 1 of Aloma Woods has some hydraulic gradient, even for the 10-year storm event. Although improving the conveyance capacity of the equalizer pipe could help minimize the hydraulic gradient between the two ponds, it would most likely result in the discharge of additional water into the Little Econ River watershed.

Aloma Woods Boulevard, Progress Energy, and Phase 4 of Aloma Woods

The inadequate hydraulic capacity of the storm outfall along the north side of Aloma Woods Boulevard results in surcharging of the system for all of the storm events analyzed within this drainage basin study. The inadequacy of the storm outfall along the north side of Aloma Woods Boulevard, and along the west side of Walker Road, is also at least partly the cause of flooding and pond overtopping within the Progress Energy development and Phase 4 of Aloma Woods.

As shown within the following table, surcharging of the outfall system on the west end will result in overflow across Aloma Woods Boulevard at the roadway low-point (elevation 51.4-feet, NGVD), eventually discharging into the west pond within Phase 1 of Aloma Woods. Surcharging of the outfall system on the east end is not substantial, and is not predicted to inundate or overflow Aloma Woods Boulevard. The hydraulic grade line of the outfall system north of Aloma Woods Boulevard, along the Walker Road right-of-way, causes some minor pond overtopping and substantial roadway flooding within Phase 4 of Aloma Woods. More importantly, the predicted 100-year flood elevation is nearly coincident with the lowest finished floor elevation within the subdivision.

Table 7
Existing Deficiencies For Aloma Woods Boulevard,
Progress Energy, and Phase 4 of Aloma Woods

ICPR Node	Location	Predicted Flood Elevations (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118209N	E. Aloma Woods Blvd	50.5	50.6	50.9
Critical Elevation for Flood Protection		50.3 min. TOS	±52 avg. PGL	None
118210N	W. Aloma Woods Blvd	51.7	51.9	52.2
Critical Elevation for Flood Protection		51.4 min. PGL	None	None
118300P	Progress Energy	52.8	52.9	53.0
Critical Elevation for Flood Protection		None	52.5 pond TOB	None
118400P	PH 4 of Aloma Woods	49.1	49.5	50.2
Critical Elevation for Flood Protection		48.2 min. PGL	50.0 pond TOB	50.3 min. FF

Notes:

avg. PGL = average road grade, min. TOS = minimum top of structure

min. PGL = minimum road grade, pond TOB = pond top of bank, min. FF = minimum finished floor

Improving flood protection for these areas would require significant improvements to the outfall system along the north side of Aloma Woods Boulevard, as well as the remainder of the outfall system that extends northward along the west side of Walker Road. Additionally, increasing the discharge via an improved outfall system could adversely impact already flood prone properties downstream in the vicinity of Wentworth Subdivision.

Walker Road and Phase 6 of Aloma Woods

Collectively, four roadway cross culverts provide an outfall for drainage areas located south of Walker Road. Although a large wetland at the east end of Walker Road provides storage and attenuation of stormwater runoff from the contributing drainage areas, the predicted flood elevations within the wetland result in some minor road flooding for the 25-year storm and some pond overtopping for the 100-year storm within Phase 6 of Aloma Woods. The design engineer for Phase 6 of Aloma Woods assumed a peak tailwater within this wetland of elevation 40-feet, NGVD, which is approximately 5-feet below the peak elevations predicted within this drainage basin study.

With regard to the west end of Walker Road, the two roadway cross culverts located east of the Aloma Woods outfall as previously discussed do not have significant upstream storage. As a result, and as shown within the following table, roadway overtopping at the west end of Walker Road is predicted. It should be noted that the flood elevations predicted for the middle culvert crossing Walker Road (ICPR Node 118404N) do not account for the upstream pipe blockage that was observed in the field by PEC staff.

Table 8
Existing Deficiencies For Walker Road and Phase 6 of Aloma Woods

ICPR Node	Location	Predicted Flood Elevations (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118403W	Walker Road (East)	44.9	45.1	45.5
Critical Elevation for Flood Protection		45.8 min. PGL	None	None
118402P	PH 6 of Aloma Woods	48.2	48.3	48.6
Critical Elevation for Flood Protection		48.5 min. PGL	48.5 pond TOB	50.7 min. FF
118404N	Walker Road (Middle)	46.1	46.2	46.3
Critical Elevation for Flood Protection		45.7 min. PGL	None	None
118405N	Walker Road (West)	44.2	44.5	45.2
Critical Elevation for Flood Protection		45.0 min. PGL	None	None

Notes:

min. PGL = minimum road grade, pond TOB = pond top of bank, min. FF = minimum finished floor

Flood protection for the areas south of Walker Road could potentially be improved by increasing the conveyance capacity of the culverts crossing the roadway; however, this would most likely result in adverse impacts to already flood prone properties downstream in the vicinity of Wentworth Subdivision.

Wentworth Subdivision and Church Street

As previously mentioned, flooding within Wentworth Subdivision and along Church Street has been observed and documented by Seminole County staff. As shown within the following table, the hydraulic inadequacy of the existing outfall system causes substantial flooding both north and south of Wentworth Subdivision.

Table 9
Existing Deficiencies For Wentworth Subdivision and Church Street

ICPR Node	Location	Predicted Flood Elevations (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118500W	South of Wentworth	42.6	42.9	43.5
Critical Elevation for Flood Protection		42.0 min. PGL	43.0 pond TOB	45.0 min. FF
118600W	North of Wentworth	42.3	42.5	43.0
Critical Elevation for Flood Protection		None	None	42.2 min. GF

Notes:

min. GF = minimum garage floor

min. PGL = minimum road grade, pond TOB = pond top of bank, min. FF = minimum finished floor

It is interesting to note that the design engineer for Wentworth Subdivision predicted a 25-year flood elevation of 42.3-feet, NGVD and a 100-year flood elevation of 43.2-feet, NGVD. Because the flood elevations predicted by the design engineer are in good agreement with PEC's predictions, it is unknown as to why the roadway low-points within Wentworth Subdivision were not elevated above 42-feet, NGVD.

The compensating flood storage provided for flood plain encroachments by Wentworth Subdivision is most likely inadequate for the reasons discussed previously. Eliminating flood storage within a watershed with such a limited outfall capacity has most likely had a quantifiable impact upon flood elevations, in this case exacerbating flooding of residential properties along Church Street.

PEC's field reviews indicate that significant drainage deficiencies exist between Eagle Pass Road and SR 417. Therefore, it does not appear that increasing the hydraulic conveyance capacity of drainage systems to improve the level of flood protection in the vicinity of Wentworth Subdivision is appropriate unless downstream improvements are implemented first.

Eagle Pass Road

The conveyance capacity of the existing drainage system through the plant nursery immediately west of SR 426 is substantially less than what is provided at SR 426. Specifically, 36-inch CMP's provide a conveyance of stormwater downstream of the 4'x5' box culvert crossing SR 426. Additionally, the overtopping elevation of the culverted driveways within the nursery are substantially higher than the overtopping elevation of Eagle Pass Road.

As shown within the following table, the limited culvert capacity through the nursery, combined with the overtopping elevations south of Eagle Pass Road, result in substantial flooding east of SR 426. More specifically, a hydraulic gradient of approximately 3-feet is predicted for the 100-year flood elevations at the upstream and downstream boundaries of the plant nursery.

Table 10
Existing Deficiencies For Eagle Pass Road

ICPR Node	Location	Predicted Flood Elevations (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118700N1	Nursery (South Culvert)	42.1	42.4	42.8
Critical Elevation for Flood Protection		42.7 min. PGL	None	None
118700N2	Nursery (Middle Culvert)	41.4	41.5	41.7
Critical Elevation for Flood Protection		42.0 min. PGL	None	None
118700N3	Eagle Pass Road	40.9	40.9	41.0
Critical Elevation for Flood Protection		40.8 min. PGL	None	None

Notes:
min. PGL = minimum road grade, pond TOB = pond top of bank, min. FF = minimum finished floor

PEC's field reviews indicate that significant drainage deficiencies exist between Eagle Pass Road and SR 417. Therefore, it does not appear that increasing the hydraulic conveyance capacity of drainage systems between SR 426 and Eagle Pass Road is appropriate unless downstream improvements are implemented first.

■ ■ ■ ■

IMPENDING DEVELOPMENT ISSUES ..... SECTION 10

Based upon PEC's conversations with County staff, it appears that at least two developments are impending within the study area.

- The first site is located east of SR 426, west of Wentworth Subdivision, and immediately north of the Sikh Society (refer to **Exhibit No. 1-1**). This project will entail re-development of the existing site, but will not result in flood plain encroachment. Existing topographic information indicates that a portion of the existing site drains generally west towards SR 426, with the remainder of the site draining south towards the large wetland immediately south of Wentworth Subdivision. Because only a portion of this small project is located within the watershed for this study area, re-development should not cause adverse/measurable impacts within the study area.

- The second site is located east of SR 426, immediately north of Wentworth Subdivision, and west of the central outfall ditch (refer to **Exhibit No. 1-1**). The Seminole County property appraiser records indicate that this parcel comprises approximately 6.7-acres, and is presently occupied by one single-family residence.

The 100-year flood elevations predicted within this drainage study indicate that a substantial portion of this property lies within the flood plain. Because the majority of the property is not heavily treed, the 1-foot contours shown on the SJRWMD aerial topographic maps are in good agreement with a site-specific survey provided to Seminole County by the developer/engineer. However, the following **Figure No. 8** provides an illustration of PEC's predicted 100-year flood plain superimposed on the survey provided by the developer/engineer. As shown on this figure, approximately 6.0 ac-ft of 100-year flood plain storage is provided on this site. As such, Seminole County will have to work closely with the developer/engineer to insure that adverse impacts are not caused within the study area as a result of developing this property.

■ ■ ■ ■

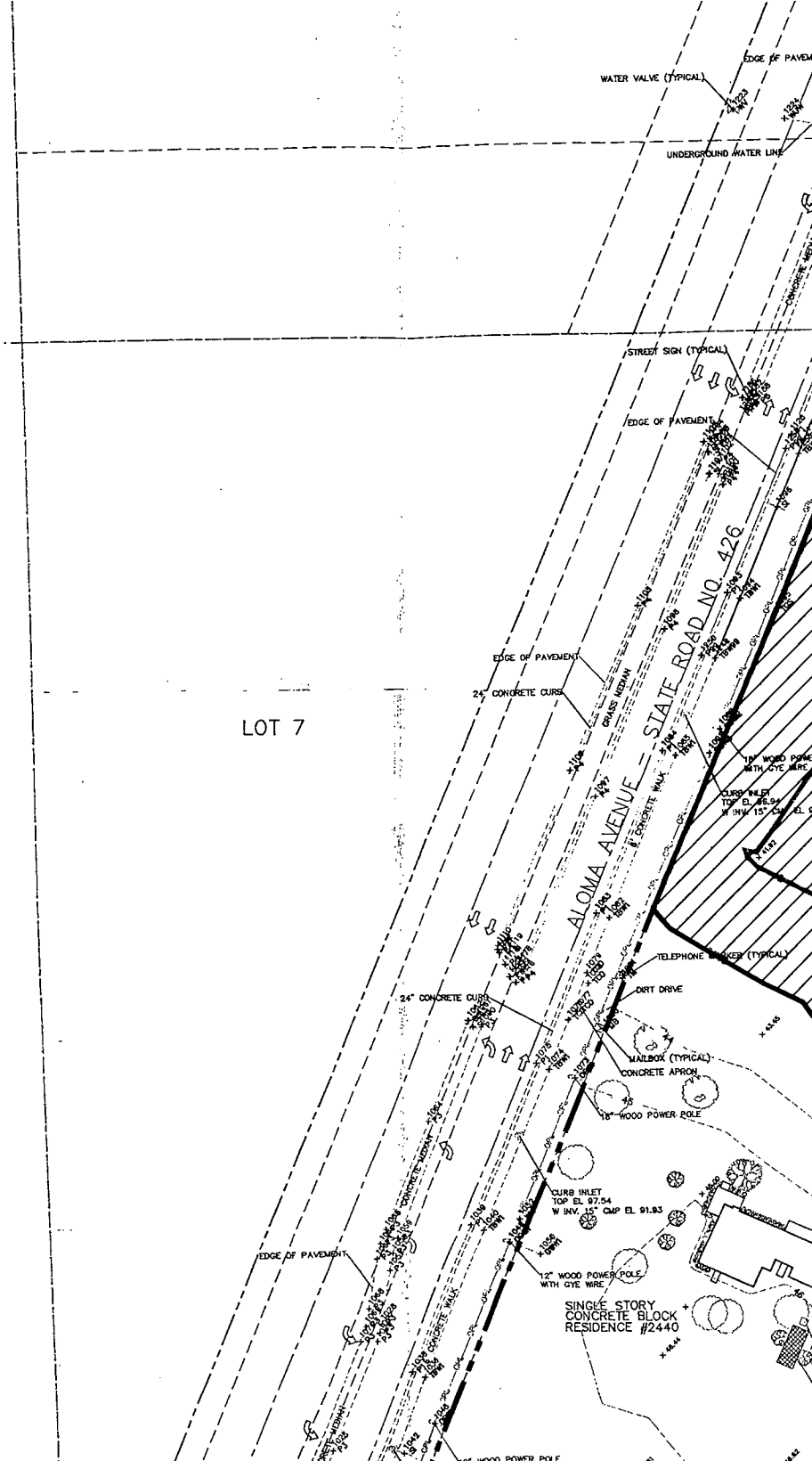
Aloma Woods Drainage Basin Study

Depressional Storage South of Power Easement (Ratcliff Property)

	Stage	Area		Storage
	(ft)	(sq ft)	(ac)	(ac-ft)
Bottom EL. >	40.00	11,831	0.27	0.00
	41.00	30,170	0.69	0.48
Predicted	42.00	135,816	3.12	2.39
100-Year EL. >	43.00	176,860	4.06	5.98

Notes:

1. Topographic survey provided by developer/engineer.
2. Represents storage outside limits of outfall ditch.



QUALITATIVE INVESTIGATION OF RETROFIT IMPROVEMENT ALTERNATIVES ..... SECTION 11

11.1 GENERAL

Previous discussions provided within this report have documented the flooding that has been observed within the study area, as well as additional drainage deficiencies that are predicted to be problematic by this drainage basin study.

PEC's field reviews indicate that significant drainage deficiencies exist between Eagle Pass Road and SR 417, which is outside the limits for this study area. Although, it does not appear that increasing the hydraulic conveyance capacity of drainage systems within the study area is appropriate unless downstream improvements are implemented first, PEC has performed some hypothetical model simulations to evaluate any potential benefits to the study area.

11.2 SUMMARY OF QUALITATIVE INVESTIGATIONS

The following discussions provide a brief overview of the various retrofit alternatives that have been qualitatively investigated to date. If any of the alternatives appear to be viable, a recommendation will be made to consider this alternative for further quantitative investigation. Proceeding in this manner prevents the unnecessary expenditure of the County's budget on alternatives that can be dismissed early on due to obvious deficiencies.

As previously mentioned, all of the model simulations that follow will utilize the existing conditions analysis without upstream baseflow. In some cases, simulations will be executed with different tailwater relationships at the model boundary conditions, the specifics of which will be discussed during the presentation of each qualitative investigation.

In lieu of providing printouts of the ICPR input data and flood routing results for each qualitative investigation, abbreviated summary tables will provide the peak flood elevations for strategic locations predicted by both the analyses of existing and proposed (i.e., retrofit alternative) conditions.

Alternative 1

Before performing any simulations related to potential retrofit improvements, an additional simulation was executed to evaluate the study area's dependency upon tailwater conditions immediately north of Eagle Pass Road. For the purposes of this evaluation, the simulation without tailwater impacts assumed that downstream drainage improvements would result in at most a tailwater north of Eagle Pass Road that is coincident with the pipe's crown elevation.

Table 11
Predicted Flood Elevations - With and Without Tailwater Impacts

ICPR Node [1]	General Location	Peak Flood Elevations With Tailwater (feet, NGVD)			Peak Flood Elevations Without Tailwater (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr	10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118602N	North SR 426	42.22	42.47	42.95	41.72	42.07	42.72
118600W	North of Wentworth	42.26	42.51	42.98	41.83	42.15	42.77
118500W	South of Wentworth	42.61	42.92	43.54	42.33	42.67	43.33
118403W	South of Walker Road	44.87	45.11	45.48	44.87	45.10	45.48
118209P	Phase 1 of Aloma Woods	51.11	51.22	51.38	51.11	51.22	51.38
118208P	Phase 1 of Aloma Woods	51.70	51.88	52.14	51.70	51.88	52.14
118204W	Phase 3 of Aloma Woods	55.68	56.21	56.32	55.68	56.21	56.32
118203P	Elmhurst Village	61.96	62.34	63.08	61.96	62.34	63.08

[1] The ICPR nodes are presented in downstream to upstream order.

As shown within the table above, portions of the study area located north of Wentworth Subdivision experience some moderate dependency (varies between 0.3- to 0.5-feet) upon tailwater conditions north of Eagle Pass Road. Therefore, implementation of improvements downstream of Eagle Pass Road alone will not dramatically improve flood protection within the study area.

Alternative 2

The topographic survey prepared by Southeastern Surveying & Mapping Corporation indicates that the central outfall ditch is adversely sloped between Wentworth Subdivision and SR 426. More specifically, the downstream invert of the 54-inch culvert through Wentworth Subdivision is 36.31-feet, NGVD, whereas the upstream invert of the 4'x5' box culvert under SR 426 is 36.42-feet, NGVD. However, this topographic survey also indicates that the ditch bottom immediately north of the 54-inch culvert through Wentworth Subdivision is roughly 2.7-feet higher than the pipes downstream invert elevation. It should be noted that PEC's existing conditions model utilizes the surveyed ditch bottom elevation, but does not utilize clipping effects related to siltation and/or blockage of the culvert.

A model simulation was executed to evaluate the effects of the upstream ditch bottom, especially with regard to its impact upon controlling the initial stage of upstream storage areas. This simulation utilizes the existing conditions analysis, without upstream baseflow and with the tailwater impacts assumed at the Eagle Pass Road boundary condition. Additionally, initial stages within the large wetland located south of Wentworth Subdivision (ICPR Node 118500W) were reduced from elevation 39-feet, NGVD (existing conditions) to elevation 37.39-feet, NGVD (proposed conditions). The initial stage for proposed conditions coincides with the upstream invert elevation of the 54-inch culvert through Wentworth Subdivision.

Table 12
Predicted Flood Elevations - Ditch Grading Between Wentworth and SR 426

ICPR Node [1]	General Location	Peak Flood Elevations for Existing (feet, NGVD)			Peak Flood Elevations for Proposed (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr	10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118602N	North SR 426	42.22	42.47	42.95	42.20	42.46	42.92
118600W	North of Wentworth	42.66	42.51	42.98	42.21	42.47	42.93
118500W	South of Wentworth	42.61	42.92	43.54	42.57	42.87	43.48
118403W	South of Walker Road	44.87	45.11	45.48	44.87	45.11	45.48
118209P	Phase 1 of Aloma Woods	51.11	51.22	51.38	51.11	51.22	51.38
118208P	Phase 1 of Aloma Woods	51.70	51.88	52.14	51.70	51.88	52.14
118204W	Phase 3 of Aloma Woods	55.68	56.21	56.32	55.68	56.21	56.32
118203P	Elmhurst Village	61.96	62.34	63.08	61.96	62.34	63.08

[1] The ICPR nodes are presented in downstream to upstream order.

As shown within the table above, some minor reduction in flood stage occurs between SR 426 and the large wetland located south of Wentworth Subdivision. However, a cursory benefit/cost evaluation indicates that excavating and re-grading the central outfall ditch between SR 426 and Wentworth Subdivision (approximately 960-feet of channel) is not worthwhile.

Alternative 3

The reduction in hydraulic conveyance capacity between SR 426 and Eagle Pass Road is an obvious contributor of upstream flooding. Therefore, a model simulation was executed to evaluate any improvements to upstream flood protection if the hydraulic conveyance of the SR 426 box culvert is maintained through the nursery and under Eagle Pass Road. In addition to the improved conveyance capacity, a high-point within the existing drainage system (i.e., elevated pipe invert) that impacts initial stages upstream of SR 426 could also be eliminated.

This simulation utilizes the existing conditions analysis, without upstream baseflow and without the tailwater impacts assumed at the Eagle Pass Road boundary condition. Eliminating the tailwater impacts assumes that downstream drainage improvements have already been implemented and would result in at most a tailwater north of Eagle Pass Road that is coincident with the crown elevation of the existing 36-inch CMP.

Table 13
Predicted Flood Elevations - Box Culverts Through Nursery

ICPR Node [1]	General Location	Peak Flood Elevations for Existing (feet, NGVD)			Peak Flood Elevations for Proposed (feet, NGVD)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr	10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118602N	North SR 426	42.22	42.47	42.95	39.95	40.19	40.58
118600W	North of Wentworth	42.66	42.51	42.98	41.14	41.21	41.37
118500W	South of Wentworth	42.61	42.92	43.54	42.06	42.33	42.83
118403W	South of Walker Road	44.87	45.11	45.48	44.87	45.11	45.48
118209P	Phase 1 of Aloma Woods	51.11	51.22	51.38	51.11	51.22	51.38
118208P	Phase 1 of Aloma Woods	51.70	51.88	52.14	51.70	51.88	52.14
118204W	Phase 3 of Aloma Woods	55.68	56.21	56.32	55.68	56.21	56.32
118203P	Elmhurst Village	61.96	62.34	63.08	61.96	62.34	63.08

[1] The ICPR nodes are presented in downstream to upstream order.

As shown within the table above, substantial reduction in flood stage occurs between SR 426 and Wentworth Subdivision. More specifically, the predicted 100-year floods elevation immediately north and south of Wentworth Subdivision are reduced approximately 1.6- and 0.7-feet, respectively. No changes in flood elevations or improvements to flood protection are predicted to occur south of Walker Road.

With regard to construction cost, PEC estimates that $125,000 to $150,000 would be required to replace the existing three 36-inch CMP's with three 4'x5' box culverts, assuming that the existing culvert length does not substantially increase.

In addition to evaluating the reductions in flood stage, it is also important to compare the discharge rates conveyed to the boundary conditions. The following table provides a summary of the boundary condition inflows for both existing and proposed conditions.

Table 14
Boundary Condition Inflows - Box Culverts Through Nursery

ICPR Node [1]	General Location	Existing - Boundary Condition Inflows (cfs)			Proposed - Boundary Condition Inflows (cfs)		
		10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr	10-Yr, 24-Hr	25-Yr, 24-Hr	100-Yr, 24-Hr
118035N	Bear Gully Canal (Eagle Pass Road)	46.8	47.3	49.0	78.3	89.3	104.5
105330N	Little Econ River (South of Aloma Woods)	125.6	170.9	247.2	125.7	171.1	247.2

As shown in the table above, discharge into the Bear Gully Canal watershed is increased by the proposed conveyance improvements, whereas, discharge into the Little Econ River watershed remains virtually the same.

Alternative 4

Improving flood protection in the vicinity of Aloma Woods Boulevard through conveyance improvements that discharge north would most likely result in additional downstream impacts in the vicinity of Wentworth Subdivision.

Alternatively, flood protection could potentially be improved by the conveyance of additional discharge from Aloma Woods south to tributaries of the Little Econ River. However, the engineering feasibility of this proposition should be investigated using SAI's model for the entire Little Econ River watershed, which is considered beyond the scope of this drainage basin study. Additionally, such a proposition may not be at all feasible from the permitting perspective, and would therefore not warrant further quantitative investigation.

11.3 RECOMMENDATIONS

With regard to improving flood protection within the study area, the following recommendations are offered for Seminole County's consideration:

- The watershed area downstream of PEC's study area, specifically between Eagle Pass Road and SR 417, should be evaluated. Conveyance improvements related to retrofitting existing drainage deficiencies and improving flood protection could then be collectively evaluated between SR 417 and Wentworth Subdivision.

- The permitting feasibility of increasing the discharge from Phase 1 of Aloma Woods to the Little Econ River watershed should be further investigated. This permitting feasibility would have to consider any wetland impacts necessary to convey the additional discharge, as well as any water quality concerns related to the introduction of additional stormwater into the Little Econ River watershed. Lastly, the engineering feasibility of increasing the discharge from Phase 1 of Aloma Woods, in terms of downstream impacts, should be investigated using SAI's comprehensive model of the entire Little Econ River watershed.

■ ■ ■ ■

TAB 2.1

ICPR NODE AND LINK MAPS - EXISTING CONDITIONS

TAB 2.2

ICPR INPUT DATA - EXISTING CONDITIONS

Name:	B118100	B118101	B118102	B118200	B118201
Group:	S SR 426	S SR 426	S SR 426	ALOMA WOODS BV	ALOMA WOODS BV
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118100P	118101P	118102W	118200P	118201P
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh484	Uh323	Uh323	Uh323	Uh484
Peaking Fact:	484.0	323.0	323.0	323.0	484.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	15.00	10.00	20.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	16.800	1.900	11.000	7.000	4.500
Curve Num:	80.00	95.00	83.00	78.00	90.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118202	B118203	B118204	B118205	B118206
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118202P	118203P	118204W	118205P	118206P
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh323	Uh323	Uh256	Uh323	Uh323
Peaking Fact:	323.0	323.0	256.0	323.0	323.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	10.00	10.00	28.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	8.100	3.000	8.800	5.100	2.600
Curve Num:	79.00	78.00	58.00	55.00	62.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118207	B118208	B118209	B118210	B118300
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	JAMESTOWN
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118207W	118208P	118209P	118210N	118300P
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh256	Uh323	Uh323	Uh256	Uh323
Peaking Fact:	256.0	323.0	323.0	256.0	323.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	15.00	31.00	35.00	15.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.500	26.100	22.300	5.800	14.100
Curve Num:	87.00	82.00	81.00	77.00	90.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118301	B118302	B118303	B118304	B118305
Group:	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118301N	118302N	118303N	118304N	118305N
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Fact:	256.0	256.0	256.0	256.0	256.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	71.00	21.00	20.00	20.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	15.600	13.500	3.100	5.600	6.100
Curve Num:	77.00	79.00	79.00	71.00	67.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118306	B118400	B118401	B118402	B118403
Group:	JAMESTOWN	WALKER RD	WALKER RD	WALKER RD	WALKER RD
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118306N	118400P	118401P	118402P	118403W
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh256	Uh323	Uh323	Uh323	Uh256
Peaking Fact:	256.0	323.0	323.0	323.0	256.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	10.00	31.00	31.00	30.00	30.00

Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	0.600	13.000	21.200	8.400	10.600
Curve Num:	70.00	82.00	73.00	80.00	84.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118404	B118405	B118500	B118501	B118600
Group:	WALKER RD	WALKER RD	WENTWORTH	WENTWORTH	POWER EASEMENT
Type:	SCS	SCS	SCS	SCS	SCS
Node:	118404N	118405N	118500W	118501P	118600W
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh256	Uh256	Uh256	Uh323	Uh256
Peaking Fact:	256.0	256.0	256.0	323.0	256.0
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00	0.00
TC(min):	17.00	10.00	30.00	40.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.600	1.000	61.700	23.600	6.100
Curve Num:	78.00	76.00	78.00	79.00	74.00
DCIA(%):	0.00	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000	999999.000

Name:	B118601	B118602	B118603	B118700
Group:	POWER EASEMENT	POWER EASEMENT	POWER EASEMENT	N SR 426
Type:	SCS	SCS	SCS	SCS
Node:	118601W	118602N	118602N	118700N2
Status:	Onsite	Onsite	Onsite	Onsite
Unit Hyd:	Uh256	Uh256	Uh256	Uh323
Peaking Fact:	256.0	256.0	256.0	323.0
Rain File:	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	0.000	0.000	0.000	0.000
Storm Dur(hrs):	0.00	0.00	0.00	0.00
TC(min):	15.00	43.00	46.00	15.00
Time Shift(hrs):	0.00	0.00	0.00	0.00
Area(ac):	5.700	4.400	10.400	1.200
Curve Num:	90.00	77.00	57.00	86.00
DCIA(%):	0.00	0.00	0.00	0.00
Max Q(cfs):	999999.000	999999.000	999999.000	999999.000

Name: 10-YEAR Node: 105330N Type: Stage

Time(hrs)	Stage(ft)
0.000	48.750
0.250	47.770
0.500	47.770
0.750	47.770
1.000	47.770
1.250	47.780
1.500	47.780
1.750	47.790
2.000	47.790
2.250	47.790
2.500	47.790
2.750	47.790
3.000	47.800
3.250	47.800
3.500	47.800
3.750	47.800
4.000	47.800
4.250	47.800
4.500	47.800
4.750	47.800
5.000	47.800
5.250	47.810
5.500	47.810
5.750	47.820
6.000	47.840
6.250	47.860
6.500	47.870
6.750	47.890
7.000	47.900
7.250	47.930
7.500	47.950
7.750	47.960
8.000	47.970
8.250	48.010
8.500	48.030
8.750	48.070
9.000	48.090
9.250	48.120
9.500	48.140
9.750	48.190
10.000	48.220
10.250	48.300
10.500	48.350
10.750	48.450
11.000	48.510
11.250	48.560
11.500	48.900
11.750	49.020
12.000	49.120
12.250	49.250
12.500	49.370
12.750	49.440
13.000	49.480
13.250	49.490
13.500	49.500
13.750	49.500
14.000	49.490
14.250	49.480
14.500	49.470
14.750	49.450
15.000	49.430
15.250	49.410
15.500	49.390
15.750	49.370
16.000	49.350
16.250	49.330
16.500	49.300
16.750	49.280
17.000	49.260
17.250	49.240
17.500	49.220
17.750	49.190
18.000	49.170
18.250	49.150
18.500	49.130
18.750	49.110
19.000	49.090
19.250	49.070
19.500	49.050

19.750	49.030
20.000	49.010
20.250	48.230
20.500	48.210
20.750	48.190
21.000	48.180
21.250	48.170
21.500	48.170
21.750	48.160
22.000	48.150
22.250	48.150
22.500	48.140
22.750	48.120
23.000	48.100
23.250	48.100
23.500	48.100
23.750	48.070
24.000	48.060
24.250	47.960
24.500	47.830
24.750	47.800
25.000	47.790
25.250	47.780
25.500	47.780
25.750	47.780
26.000	47.770
26.250	47.770
26.500	47.770
26.750	47.770
27.000	47.770
27.250	47.770
27.500	47.770
27.750	47.770
28.000	47.770
28.250	47.770
28.500	47.770
28.750	47.770
29.000	47.770
29.250	47.770
29.500	47.770
29.750	47.770
30.000	47.770
30.250	47.770
30.500	47.770
30.750	47.770
31.000	47.770
31.250	47.770
31.500	47.770
31.750	47.770
32.000	47.770
32.250	47.770
32.500	47.770
32.750	47.770
33.000	47.770
33.250	47.770
33.500	47.770
33.750	47.770
34.000	47.770
34.250	47.770
34.500	47.770
34.750	47.770
35.000	47.770
35.250	47.770
35.500	47.770
35.750	47.770
36.000	47.770

Name: 100-YEAR Node: 105330N Type: Stage

Time(hrs)	Stage(ft)
0.000	48.750
0.250	47.770
0.500	47.770
0.750	47.770
1.000	47.780
1.250	47.790
1.500	47.800
1.750	47.800
2.000	47.800
2.250	47.800
2.500	47.810

2.750	47.810
3.000	47.810
3.250	47.810
3.500	47.810
3.750	47.810
4.000	47.810
4.250	47.830
4.500	47.850
4.750	47.870
5.000	47.890
5.250	47.910
5.500	47.930
5.750	47.950
6.000	47.960
6.250	48.000
6.500	48.020
6.750	48.040
7.000	48.060
7.250	48.100
7.500	48.120
7.750	48.140
8.000	48.160
8.250	48.210
8.500	48.240
8.750	48.290
9.000	48.320
9.250	48.360
9.500	48.380
9.750	48.450
10.000	48.490
10.250	48.590
10.500	48.640
10.750	48.770
11.000	48.840
11.250	48.900
11.500	49.010
11.750	49.060
12.000	49.240
12.250	49.520
12.500	49.730
12.750	49.860
13.000	49.930
13.250	49.960
13.500	49.990
13.750	50.000
14.000	50.000
14.250	49.990
14.500	49.980
14.750	49.970
15.000	49.960
15.250	49.940
15.500	49.920
15.750	49.910
16.000	49.890
16.250	49.870
16.500	49.840
16.750	49.820
17.000	49.800
17.250	49.780
17.500	49.750
17.750	49.730
18.000	49.700
18.250	49.670
18.500	49.650
18.750	49.620
19.000	49.600
19.250	49.570
19.500	49.540
19.750	49.520
20.000	49.490
20.250	49.460
20.500	49.440
20.750	49.410
21.000	49.390
21.250	49.360
21.500	49.340
21.750	49.310
22.000	49.290
22.250	49.270
22.500	49.240
22.750	49.220
23.000	49.200
23.250	49.180

23.500	49.160
23.750	49.130
24.000	49.110
24.250	49.090
24.500	49.060
24.750	49.040
25.000	49.010
25.250	47.750
25.500	47.760
25.750	47.770
26.000	47.780
26.250	47.770
26.500	47.770
26.750	47.770
27.000	47.770
27.250	47.770
27.500	47.770
27.750	47.770
28.000	47.770
28.250	47.770
28.500	47.770
28.750	47.770
29.000	47.770
29.250	47.770
29.500	47.770
29.750	47.770
30.000	47.770
30.250	47.770
30.500	47.770
30.750	47.770
31.000	47.770
31.250	47.770
31.500	47.770
31.750	47.770
32.000	47.770
32.250	47.770
32.500	47.770
32.750	47.770
33.000	47.770
33.250	47.770
33.500	47.770
33.750	47.770
34.000	47.770
34.250	47.770
34.500	47.770
34.750	47.770
35.000	47.770
35.250	47.770
35.500	47.770
35.750	47.770
36.000	47.770

Name: 25-YEAR Node: 105330N Type: Stage

Time(hrs)	Stage(ft)
0.000	48.750
0.250	47.770
0.500	47.770
0.750	47.770
1.000	47.770
1.250	47.780
1.500	47.790
1.750	47.790
2.000	47.790
2.250	47.800
2.500	47.800
2.750	47.800
3.000	47.800
3.250	47.800
3.500	47.800
3.750	47.800
4.000	47.810
4.250	47.810
4.500	47.810
4.750	47.810
5.000	47.820
5.250	47.830
5.500	47.850
5.750	47.870
6.000	47.880
6.250	47.910

6.500	47.930
6.750	47.940
7.000	47.960
7.250	47.990
7.500	48.010
7.750	48.020
8.000	48.040
8.250	48.080
8.500	48.100
8.750	48.150
9.000	48.170
9.250	48.210
9.500	48.230
9.750	48.290
10.000	48.320
10.250	48.410
10.500	48.460
10.750	48.570
11.000	48.630
11.250	48.690
11.500	49.000
11.750	49.040
12.000	49.160
12.250	49.340
12.500	49.490
12.750	49.590
13.000	49.630
13.250	49.660
13.500	49.670
13.750	49.670
14.000	49.670
14.250	49.660
14.500	49.650
14.750	49.630
15.000	49.610
15.250	49.590
15.500	49.570
15.750	49.550
16.000	49.530
16.250	49.510
16.500	49.480
16.750	49.460
17.000	49.430
17.250	49.410
17.500	49.390
17.750	49.360
18.000	49.340
18.250	49.320
18.500	49.300
18.750	49.270
19.000	49.250
19.250	49.230
19.500	49.210
19.750	49.190
20.000	49.160
20.250	49.140
20.500	49.120
20.750	49.100
21.000	49.080
21.250	49.060
21.500	49.040
21.750	49.020
22.000	48.260
22.250	48.250
22.500	48.250
22.750	48.210
23.000	48.200
23.250	48.180
23.500	48.180
23.750	48.140
24.000	48.120
24.250	47.990
24.500	47.840
24.750	47.810
25.000	47.790
25.250	47.780
25.500	47.780
25.750	47.780
26.000	47.770
26.250	47.770
26.500	47.770
26.750	47.770
27.000	47.770

27.250	47.770
27.500	47.770
27.750	47.770
28.000	47.770
28.250	47.770
28.500	47.770
28.750	47.770
29.000	47.770
29.250	47.770
29.500	47.770
29.750	47.770
30.000	47.770
30.250	47.770
30.500	47.770
30.750	47.770
31.000	47.770
31.250	47.770
31.500	47.770
31.750	47.770
32.000	47.770
32.250	47.770
32.500	47.770
32.750	47.770
33.000	47.770
33.250	47.770
33.500	47.770
33.750	47.770
34.000	47.770
34.250	47.770
34.500	47.770
34.750	47.770
35.000	47.770
35.250	47.770
35.500	47.770
35.750	47.770
36.000	47.770

Name: 105330N
Group: LITTLE ECON
Type: Time/Stage

Base Flow(cfs): 0.000

Init Stage(ft): 999.000
Warn Stage(ft): 50.500

BOUNDARY CONDITION FROM SAI LITTLE ECON STUDY

Time(hrs)	Stage(ft)
0.00	999.000
999.00	999.000

Name: 118035N
Group: BEAR GULLY
Type: Time/Stage

Base Flow(cfs): 0.000

Init Stage(ft): 35.920
Warn Stage(ft): 40.800

BOUNDARY CONDITION FROM DRMP HOWELL CREEK STUDY

Time(hrs)	Stage(ft)
0.00	35.920
3.00	37.590
8.00	38.920
12.00	40.800
24.00	37.590
48.00	35.920

Name: 118100P
Group: S SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 53.300
Warn Stage(ft): 59.000

S SR 426 POND 3

Stage(ft)	Area(ac)
47.000	0.2100
48.000	0.2600
49.000	0.3200
50.000	0.3700
51.000	0.4300
52.000	0.5300
53.000	0.6400
54.000	0.7500
55.000	0.8600
56.000	0.9800
57.000	1.1300
58.000	1.3400
59.000	1.5800

Name: 118101P
Group: S SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 53.300
Warn Stage(ft): 59.000

S SR 426 POND 3

Stage(ft)	Area(ac)
52.000	1.1700
53.000	1.2400
54.000	1.3100
55.000	1.3800
56.000	1.4600
57.000	1.6200
58.000	1.8400
59.000	2.0900

Name: 118102N
Group: S SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 52.530
Warn Stage(ft): 57.000

EAST END OF S SR 426 CULVERT

Stage(ft)	Area(ac)
52.530	0.1000
57.000	0.1000

Name: 118102W
Group: S SR 426

Base Flow(cfs): 0.000

Init Stage(ft): 53.280
Warn Stage(ft): 57.000

Type: Stage/Area

WETLAND WEST OF S SR 426

Stage(ft)	Area(ac)
49.000	0.6800
50.000	0.7400
51.000	0.9500
52.000	1.2700
53.000	1.6700
54.000	2.1100
55.000	2.6600
56.000	3.6600
57.000	4.5100

Name: 118200P Base Flow(cfs): 0.000 Init Stage(ft): 64.000
Group: ALOMA WOODS BV Warn Stage(ft): 68.000
Type: Stage/Area

ELMHURST VILLAGE SOUTH POND

Stage(ft)	Area(ac)
64.000	0.2700
68.000	0.5800

Name: 118201P Base Flow(cfs): 0.000 Init Stage(ft): 68.800
Group: ALOMA WOODS BV Warn Stage(ft): 72.000
Type: Stage/Area

ALOMA BEND PLAZA POND

Stage(ft)	Area(ac)
64.500	0.1000
65.500	0.1300
66.000	0.1700
66.500	0.1900
68.500	0.3100
69.500	0.4000
70.500	0.4500
71.000	0.8700
71.500	1.6500
72.000	2.5300

Name: 118202N Base Flow(cfs): 0.000 Init Stage(ft): 60.970
Group: ALOMA WOODS BV Warn Stage(ft): 69.250
Type: Stage/Area

ELMHURST VILLAGE OUTFALL

Stage(ft)	Area(ac)
60.970	0.0100
69.250	0.0100

Name: 118202P Base Flow(cfs): 0.000 Init Stage(ft): 64.000
Group: ALOMA WOODS BV Warn Stage(ft): 68.000
Type: Stage/Area

ELMHURST VILLAGE MIDDLE POND

Stage(ft)	Area(ac)
64.000	0.4300
68.000	0.7700

Name: 118203N Base Flow(cfs): 0.000 Init Stage(ft): 57.900
Group: ALOMA WOODS BV Warn Stage(ft): 63.000
Type: Stage/Area

ELMHURST VILLAGE OUTFALL

Stage(ft)	Area(ac)
57.900	0.0100
63.000	0.0100

Name: 118203P Base Flow(cfs): 0.000 Init Stage(ft): 59.000
Group: ALOMA WOODS BV Warn Stage(ft): 63.000
Type: Stage/Area

ELMHURST VILLAGE NORTH POND

Stage(ft)	Area(ac)
59.000	0.1500
63.000	0.3400

Name: 118204W Base Flow(cfs): 0.000 Init Stage(ft): 53.540
Group: ALOMA WOODS BV Warn Stage(ft): 56.000
Type: Stage/Area

WETLAND ,SOUTH OF ALOMA WOODS PH 3
** ASSUMED NO BASEFLOW **

Stage(ft)	Area(ac)
53.500	0.0100
54.000	1.1500
55.000	1.8300
56.000	1.8300

Name: 118205P Base Flow(cfs): 0.000 Init Stage(ft): 60.000
Group: ALOMA WOODS BV Warn Stage(ft): 64.000
Type: Stage/Area

ALOMA SQUARE SOUTH POND

Stage(ft)	Area(ac)
60.000	0.4700
61.000	0.5500
62.000	0.6400
63.000	0.7300
64.000	0.8300

Name: 118206P Base Flow(cfs): 0.000 Init Stage(ft): 54.000
Group: ALOMA WOODS BV Warn Stage(ft): 57.000
Type: Stage/Area

ALOMA SQUARE NORTH POND

Stage(ft)	Area(ac)
54.000	0.1700
55.000	0.2000
56.000	0.2400
57.000	0.2800

Name: 118207W Base Flow(cfs): 0.000 Init Stage(ft): 51.660
Group: ALOMA WOODS BV Warn Stage(ft): 52.000
Type: Stage/Area

WETLAND SOUTH OF ALOMA WOODS BLVD

Stage(ft)	Area(ac)
51.000	0.4400
52.000	2.2400
53.000	2.9600
54.000	3.3200

Name: 118208P Base Flow(cfs): 0.000 Init Stage(ft): 46.840
Group: ALOMA WOODS BV Warn Stage(ft): 51.000
Type: Stage/Area

ALOMA WOODS PH 1 POND

Stage(ft)	Area(ac)

Name: 118209N Base Flow(cfs): 0.000 Init Stage(ft): 42.890

Group: ALOMA WOODS BV
Type: Stage/Area
Warn Stage(ft): 50.000

ALOMA WOODS BLVD OUTFALL

Stage(ft)	Area(ac)
42.890	0.0100
50.000	0.0100

Name: 118209P
Group: ALOMA WOODS BV
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 46.840
Warn Stage(ft): 51.000

ALOMA WOODS PH 2 POND

Stage(ft)	Area(ac)
38.000	0.2000
39.000	0.2500
40.000	0.2900
41.000	0.3500
42.000	0.4000
43.000	0.4600
44.000	0.5200
45.000	0.6300
46.000	0.7400
47.000	0.8700
48.000	0.9900
49.000	1.1300
50.000	1.2700
50.500	1.4100
51.000	1.4900

Name: 118210N
Group: ALOMA WOODS BV
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 46.990
Warn Stage(ft): 50.990

ALOMA WOODS BLVD OUTFALL

Stage(ft)	Area(ac)
46.930	0.0100
50.990	0.0100

Name: 118210W
Group: ALOMA WOODS BV
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 52.000
Warn Stage(ft): 55.000

NORTH END OF ALOMA WOODS BLVD CULVERT

Stage(ft)	Area(ac)
52.000	0.5000
55.000	0.5000

Name: 118300P
Group: JAMESTOWN
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 50.500
Warn Stage(ft): 52.500

PROGRESS ENERGY POND

Stage(ft)	Area(ac)
45.000	0.6900
52.000	1.5300
53.000	1.5300

Name: 118301N
Group: JAMESTOWN
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 47.700
Warn Stage(ft): 50.000

SOUTHWEST CORNER OF JAMES ST AND WALKER RD

Stage(ft)	Area(ac)
47.700	0.1000
48.990	0.1000

49.000	0.4200
50.000	2.5400

Name: 118302N
Group: JAMESTOWN
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 47.560
Warn Stage(ft): 53.500

U/S END OF SOUTH ST CULVERT

Stage(ft)	Area(ac)
47.560	0.1000
53.500	0.1000

Name: 118303N
Group: JAMESTOWN
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 47.100
Warn Stage(ft): 53.500

D/S END OF SOUTH ST CULVERT

Stage(ft)	Area(ac)
47.100	0.1000
53.500	0.1000

Name: 118304N
Group: JAMESTOWN
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 45.400
Warn Stage(ft): 52.500

U/S END OF JAMES ST CULVERT

Stage(ft)	Area(ac)
45.400	0.1000
52.500	0.1000

Name: 118305N
Group: JAMESTOWN
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 45.010
Warn Stage(ft): 52.500

D/S END OF JAMES ST CULVERT

Stage(ft)	Area(ac)
45.010	0.1000
52.500	0.1000

Name: 118306N
Group: JAMESTOWN
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 42.430
Warn Stage(ft): 50.130

ALOMA WOODS BLVD OUTFALL

Stage(ft)	Area(ac)
42.430	0.0100
50.130	0.0100

Name: 118400N
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 42.650
Warn Stage(ft): 51.250

ALOMA WOODS BLVD OUTFALL

Stage(ft)	Area(ac)
42.650	0.0100
51.250	0.0100

Name: 118400P
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 44.700
Warn Stage(ft): 50.000

ALOMA WOODS PH 4 POND

Stage(ft)	Area(ac)

36.500	0.2200
41.500	0.3500
44.500	0.6000
50.000	1.4000

Name: 118401P
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 46.000
Warn Stage(ft): 50.000

ALOMA WOODS PH 5 POND

Stage(ft)	Area(ac)
37.000	1.6700
43.000	2.2600
50.000	3.4600

Name: 118402P
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 45.000
Warn Stage(ft): 48.500

ALOMA WOODS PH 6 POND

Stage(ft)	Area(ac)
32.500	0.0900
35.500	0.1300
42.500	0.2600
44.500	0.4100
46.500	0.5900
48.500	0.8800

Name: 118403W
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 44.000
Warn Stage(ft): 45.800

SOUTH OF WALKDER ROAD EAST CULVERT

Stage(ft)	Area(ac)
43.080	0.0100
43.990	0.0100
44.000	1.0600
45.000	3.5100
46.000	5.8500

Name: 118404N
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 41.670
Warn Stage(ft): 45.660

SOUTH OF WALKDER ROAD MIDDLE CULVERT

Stage(ft)	Area(ac)
40.080	0.1000
45.660	0.1000

Name: 118405N
Group: WALKER RD
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 41.480
Warn Stage(ft): 45.000

SOUTH OF WALKDER ROAD WEST CULVERT

Stage(ft)	Area(ac)
41.480	0.1000
45.000	0.1000

Name: 118500W
Group: WENTWORTH
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 39.000
Warn Stage(ft): 43.000

WETLAND NORTH OF WALKER RD AND SOUTH OF WENTWORTH

Stage(ft)	Area(ac)

37.390	0.1000
37.490	0.1000
37.500	1.1400
40.000	1.5200
41.000	9.4100
42.000	31.3700
43.000	34.4400
44.000	36.9600
45.000	39.7000

Name: 118501P
Group: WENTWORTH
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 39.100
Warn Stage(ft): 43.000

WENTWORTH POND

Stage(ft)	Area(ac)
32.000	0.7000
36.000	1.0000
38.000	1.5000
43.000	2.6000

Name: 118600W
Group: POWER EASEMENT
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 39.000
Warn Stage(ft): 43.000

DEPRESSION JUST NORTH OF WENTWORTH

Stage(ft)	Area(ac)
36.310	0.1000
39.990	0.1000
40.000	0.3500
41.000	0.7300
42.000	1.6000
43.000	2.7800

Name: 118601W
Group: POWER EASEMENT
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 38.500
Warn Stage(ft): 43.000

DEPRESSION JUST SOUTH OF POWER EASEMENT

Stage(ft)	Area(ac)
38.500	0.1000
40.990	0.1000
41.000	1.7900
42.000	3.4300
43.000	4.5200

Name: 118602N
Group: POWER EASEMENT
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 37.320
Warn Stage(ft): 43.000

U/S END OF N SR 426 BOX CULVERT

Stage(ft)	Area(ac)
36.420	0.1000
43.000	0.1000

Name: 118700N1
Group: N SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 37.320
Warn Stage(ft): 42.700

OUTFALL DITCH THRU NURSERY

Stage(ft)	Area(ac)
36.290	0.1000
43.000	0.1000

Name: 118700N2
Group: N SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 36.520
Warn Stage(ft): 42.000

OUTFALL DITCH THRU NURSERY

Stage(ft)	Area(ac)
36.410	0.1000
42.000	0.1000

Name: 118700N3
Group: N SR 426
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 36.090
Warn Stage(ft): 40.800

OUTFALL DITCH THRU NURSERY

Stage(ft)	Area(ac)
36.090	0.1000
41.000	0.1000

Name: 118102P1 | From Node: 118102W | Length(ft): 114.00
Group: S SR 426 | To Node: 118102N | Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 1.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	53.280	52.990
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

S SR 426 CROSS CULVERT

Name: 118102P2 | From Node: 118102N | Length(ft): 117.00
Group: S SR 426 | To Node: 118210W | Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	52.170	52.530
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ALOMA WOODS BLVD CULVERT

Name: 118202P | From Node: 118202N | Length(ft): 343.00
Group: ALOMA WOODS BV | To Node: 118203N | Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 2.20
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	60.970	57.900
Manning's N:	0.010000	0.010000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ELMHURST VILLAGE OUTFALL

Name: 118203P | From Node: 118203N | Length(ft): 146.00
Group: ALOMA WOODS BV | To Node: 118204W | Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 0.80
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	57.900	57.500
Manning's N:	0.010000	0.010000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ELMHURST VILLAGE OUTFALL

Name: 118208P
Group: ALOMA WOODS BV
From Node: 118208P
To Node: 118209P
Length(ft): 1192.00
Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 3.80
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	48.00	48.00
Rise(in):	48.00	48.00
Invert(ft):	43.000	42.800
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

EQUALIZER PIPE BETWEEN ALOMA WOODS PH 1 & 2 PONDS

Name: 118209P
Group: ALOMA WOODS BV
From Node: 118209N
To Node: 118400N
Length(ft): 508.00
Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 0.80
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	30.00	30.00
Rise(in):	30.00	30.00
Invert(ft):	42.890	42.650
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ALOMA WOODS BLVD OUTFALL

Name: 118210P
Group: ALOMA WOODS BV
From Node: 118210N
To Node: 118209N
Length(ft): 1000.00
Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.00
Bend Loss Coef: 1.40
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	46.990	43.110
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ALOMA WOODS BLVD OUTFALL

Name: 118302P
Group: JAMESTOWN
From Node: 118302N
To Node: 118303N
Length(ft): 50.00
Count: 1
Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular

Span(in):	36.00	36.00	Entrance Loss Coef:	0.50
Rise(in):	36.00	36.00	Exit Loss Coef:	0.00
Invert(ft):	47.560	47.100	Bend Loss Coef:	0.00
Manning's N:	0.024000	0.024000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular CMP: Headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Headwall

SOUTH ST CROSS CULVERT

Name:	118304P	From Node:	118304N	Length(ft):	50.00
Group:	JAMESTOWN	To Node:	118305N	Count:	1
				Friction Equation:	Average Conveyance
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Automatic
Geometry:	Circular	Circular		Flow:	Both
Span(in):	36.00	36.00		Entrance Loss Coef:	0.50
Rise(in):	36.00	36.00		Exit Loss Coef:	0.00
Invert(ft):	45.400	45.010		Bend Loss Coef:	0.00
Manning's N:	0.024000	0.024000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular CMP: Headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Headwall

JAMES ST CROSS CULVERT

Name:	118306P	From Node:	118306N	Length(ft):	560.00
Group:	JAMESTOWN	To Node:	118500W	Count:	1
				Friction Equation:	Average Conveyance
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Automatic
Geometry:	Circular	Circular		Flow:	Both
Span(in):	30.00	30.00		Entrance Loss Coef:	0.50
Rise(in):	30.00	30.00		Exit Loss Coef:	0.00
Invert(ft):	42.430	41.760		Bend Loss Coef:	0.50
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ALOMA WOODS BLVD OUTFALL

Name:	118400P	From Node:	118400N	Length(ft):	692.00
Group:	ALOMA WOODS BV	To Node:	118306N	Count:	1
				Friction Equation:	Average Conveyance
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Automatic
Geometry:	Circular	Circular		Flow:	Both
Span(in):	30.00	30.00		Entrance Loss Coef:	0.50
Rise(in):	30.00	30.00		Exit Loss Coef:	0.00
Invert(ft):	42.650	42.430		Bend Loss Coef:	1.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

ALOMA WOODS BLVD OUTFALL

Name:	118404P	From Node:	118404N	Length(ft):	30.00
Group:	WALKER RD	To Node:	118500W	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	40.080	41.670
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Headwall

WALKER RD MIDDLE CROSS CULVERT

Name:	118405P	From Node:	118405N	Length(ft):	30.00
Group:	WALKER RD	To Node:	118500W	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	41.480	41.480
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

WALKER RD WEST CULVERT

Name:	118500P	From Node:	118500W	Length(ft):	690.00
Group:	WENTWORTH	To Node:	118600W	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	1.90
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	54.00	54.00
Rise(in):	54.00	54.00
Invert(ft):	37.390	36.310
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

PIPE THRU WENTWORTH

Name:	118602P	From Node:	118602N	Length(ft):	149.00
Group:	N SR 426	To Node:	118700N1	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn

	UPSTREAM	DOWNSTREAM
Geometry:	Rectangular	Rectangular
Span(in):	60.00	60.00
Rise(in):	48.00	48.00
Invert(ft):	36.420	36.290
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000

Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Rectangular Box: 30° to 75° wingwall flares

Downstream FHWA Inlet Edge Description:
Rectangular Box: 30° to 75° wingwall flares

N SR 426 BOX CULVERT

Name:	118700P1	From Node:	118700N1	Length(ft):	37.00
Group:	N SR 426	To Node:	118700N2	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	37.250	37.320
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

NURSERY CULVERT

Name:	118700P2	From Node:	118700N2	Length(ft):	40.00
Group:	N SR 426	To Node:	118700N3	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	36.410	36.520
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

NURSERY CULVERT

Name:	118700P3	From Node:	118700N3	Length(ft):	35.00
Group:	N SR 426	To Node:	118035N	Count:	1
				Friction Equation:	Average Conveyance
				Solution Algorithm:	Automatic
				Flow:	Both
				Entrance Loss Coef:	0.50
				Exit Loss Coef:	0.00
				Bend Loss Coef:	0.00
				Outlet Ctrl Spec:	Use dc or tw
				Inlet Ctrl Spec:	Use dn
				Stabilizer Option:	None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	36.090	35.920
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:
Circular CMP: Projecting

EAGLE PASS RD CROSS CULVERT

Name: 118210C | From Node: 118210W | Length(ft): 1050.00
Group: ALOMA WOODS BV | To Node: 118210N | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	52.000	51.830
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.035000	0.035000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	2.000	2.000
LtSdSlp(h/v):	4.00	4.00
RtSdSlp(h/v):	4.00	4.00

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.000
Expansion Coef: 0.000
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

TEMPORARY DITCH ON NORTH SIDE OF ALOMA WOODS BLVD

Name: 118303C | From Node: 118303N | Length(ft): 580.00
Group: JAMESTOWN | To Node: 118304N | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	47.100	45.400
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.027000	0.027000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	8.000	8.000
LtSdSlp(h/v):	2.00	2.00
RtSdSlp(h/v):	2.00	2.00

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.000
Expansion Coef: 0.000
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

DITCH BETWEEN SOUTH ST AND JAMES ST

Name: 118305C | From Node: 118305N | Length(ft): 400.00
Group: JAMESTOWN | To Node: 118500W | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	45.010	43.000
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.027000	0.027000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	8.000	8.000
LtSdSlp(h/v):	2.00	2.00
RtSdSlp(h/v):	2.00	2.00

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.000
Expansion Coef: 0.000
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

DITCH NORTH OF JAMES ST

Name: 118600C | From Node: 118600W | Length(ft): 550.00
Group: POWER EASEMENT | To Node: 118601W | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	39.000	38.500
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.035000	0.035000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.000
Expansion Coef: 0.000
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw

AuxElev1(ft):			Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):				
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	14.000	14.000		
LtSdSlp(h/v):	1.50	1.50		
RtSdSlp(h/v):	1.50	1.50		

DITCH NORTH OF WENTWORTH

Name:	118601C	From Node: 118601W	Length(ft):	410.00
Group:	POWER EASEMENT	To Node: 118602N	Count:	1
	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Trapezoidal	Trapezoidal	Solution Algorithm:	Automatic
Invert(ft):	38.500	38.000	Flow:	Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef:	0.000
Manning's N:	0.035000	0.035000	Expansion Coef:	0.000
Top Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Bot Clip(ft):	0.000	0.000	Exit Loss Coef:	0.000
Main XSec:			Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):			Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):				
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	9.000	9.000		
LtSdSlp(h/v):	1.50	1.50		
RtSdSlp(h/v):	1.50	1.50		

DITCH SOUTH OF N SR 426

Name: 118200D | From Node: 118200P | Length(ft): 638.00
Group: ALOMA WOODS BV | To Node: 118202N | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	62.310	60.890
Manning's N:	0.010000	0.010000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 2.800
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ELMHURST VILLAGE SOUTH POND
*** Weir 1 of 3 for Drop Structure 118200D ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Vertical: Mavis | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.000
Geometry: Circular | Orifice Disc Coef: 0.600

Span(in): 0.91 | Invert(ft): 64.000
Rise(in): 0.91 | Control Elev(ft): 64.000

*** Weir 2 of 3 for Drop Structure 118200D ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Vertical: Mavis | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Rectangular | Orifice Disc Coef: 0.600

Span(in): 24.00 | Invert(ft): 66.400
Rise(in): 7.92 | Control Elev(ft): 66.400

*** Weir 3 of 3 for Drop Structure 118200D ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Horizontal | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Rectangular | Orifice Disc Coef: 0.600

Span(in): 37.00 | Invert(ft): 67.060
Rise(in): 24.00 | Control Elev(ft): 67.060

Name: 118202D | From Node: 118202P | Length(ft): 176.00
Group: ALOMA WOODS BV | To Node: 118202N | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	62.660	60.970
Manning's N:	0.010000	0.010000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ELMHURST VILLAGE MIDDLE POND
*** Weir 1 of 3 for Drop Structure 118202D ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Vertical: Mavis | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.000
Geometry: Circular | Orifice Disc Coef: 0.600

Span(in): 1.20 | Invert(ft): 64.000
Rise(in): 1.20 | Control Elev(ft): 64.000

*** Weir 2 of 3 for Drop Structure 118202D ***

TABLE

Count: 1 | Bottom Clip(in): 0.000

```
                Type: Vertical: Mavis          Top Clip(in): 0.000
                Flow: Both                   Weir Disc Coef: 3.200
            Geometry: Rectangular          Orifice Disc Coef: 0.600

            Span(in): 24.00                      Invert(ft): 66.060
            Rise(in): 12.00                   Control Elev(ft): 66.060

*** Weir 3 of 3 for Drop Structure 118202D ***
                                                                  TABLE
               Count: 1                     Bottom Clip(in): 0.000
                Type: Horizontal              Top Clip(in): 0.000
                Flow: Both                   Weir Disc Coef: 3.200
            Geometry: Rectangular          Orifice Disc Coef: 0.600

            Span(in): 37.00                      Invert(ft): 67.060
            Rise(in): 24.00                   Control Elev(ft): 67.060


-------------------------------------------------------------------------------------------------
        Name: 118203D            From Node: 118203P          Length(ft): 31.00
       Group: ALOMA WOODS BV       To Node: 118203N               Count: 1

             UPSTREAM      DOWNSTREAM            Friction Equation: Average Conveyance
    Geometry: Circular     Circular              Solution Algorithm: Automatic
    Span(in): 15.00        15.00                           Flow: Both
    Rise(in): 15.00        15.00                 Entrance Loss Coef: 0.500
  Invert(ft): 56.120       57.900                    Exit Loss Coef: 0.000
Manning's N: 0.010000      0.010000                Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000        0.000                    Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000        0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ELMHURST VILLAGE NORTH POND
*** Weir 1 of 3 for Drop Structure 118203D ***
                                                                  TABLE
               Count: 1                     Bottom Clip(in): 0.000
                Type: Vertical: Mavis         Top Clip(in): 0.000
                Flow: Both                   Weir Disc Coef: 3.000
            Geometry: Circular             Orifice Disc Coef: 0.600

            Span(in): 0.64                       Invert(ft): 59.000
            Rise(in): 0.64                    Control Elev(ft): 59.000

*** Weir 2 of 3 for Drop Structure 118203D ***
                                                                  TABLE
               Count: 1                     Bottom Clip(in): 0.000
                Type: Vertical: Mavis         Top Clip(in): 0.000
                Flow: Both                   Weir Disc Coef: 3.200
            Geometry: Rectangular          Orifice Disc Coef: 0.600

            Span(in): 24.00                      Invert(ft): 61.320
            Rise(in): 6.00                    Control Elev(ft): 61.320

*** Weir 3 of 3 for Drop Structure 118203D ***
                                                                  TABLE
               Count: 1                     Bottom Clip(in): 0.000
                Type: Horizontal              Top Clip(in): 0.000
                Flow: Both                   Weir Disc Coef: 3.200
            Geometry: Rectangular          Orifice Disc Coef: 0.600

            Span(in): 37.00                      Invert(ft): 61.820
            Rise(in): 24.00                   Control Elev(ft): 61.820


-------------------------------------------------------------------------------------------------
        Name: 118204D            From Node: 118204W          Length(ft): 268.00
       Group: ALOMA WOODS BV       To Node: 118208P               Count: 1

             UPSTREAM      DOWNSTREAM            Friction Equation: Average Conveyance
    Geometry: Circular     Circular              Solution Algorithm: Automatic
    Span(in): 15.00        15.00                           Flow: Both
    Rise(in): 15.00        15.00                 Entrance Loss Coef: 2.300
  Invert(ft): 50.910       48.540                    Exit Loss Coef: 0.000
Manning's N: 0.013000      0.013000                Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000        0.000                    Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000        0.000

Upstream FHWA Inlet Edge Description:
```

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR WETLAND SOUTH OF ALOMA WOODS PH 3
*** Weir 1 of 2 for Drop Structure 118204D ***

Count:	1		TABLE
Type:	Vertical: Mavis	Bottom Clip(in):	0.000
Flow:	Both	Top Clip(in):	0.000
Geometry:	Rectangular	Weir Disc Coef:	3.200
		Orifice Disc Coef:	0.600
Span(in):	36.00	Invert(ft):	53.540
Rise(in):	13.44	Control Elev(ft):	53.540

*** Weir 2 of 2 for Drop Structure 118204D ***

Count:	1		TABLE
Type:	Horizontal	Bottom Clip(in):	0.000
Flow:	Both	Top Clip(in):	0.000
Geometry:	Rectangular	Weir Disc Coef:	3.200
		Orifice Disc Coef:	0.600
Span(in):	37.00	Invert(ft):	54.660
Rise(in):	24.00	Control Elev(ft):	54.660

Name:	118205D	From Node:	118205P
Group:	ALOMA WOODS BV	To Node:	118206P
		Length(ft):	720.00
		Count:	1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	18.00	18.00
Rise(in):	18.00	18.00
Invert(ft):	59.000	54.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation:	Average Conveyance
Solution Algorithm:	Automatic
Flow:	Both
Entrance Loss Coef:	2.400
Exit Loss Coef:	0.000
Outlet Ctrl Spec:	Use dc or tw
Inlet Ctrl Spec:	Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ALOMA SQUARE SOUTH POND
*** Weir 1 of 2 for Drop Structure 118205D ***

Count:	1		TABLE
Type:	Vertical: Mavis	Bottom Clip(in):	0.000
Flow:	Both	Top Clip(in):	0.000
Geometry:	Rectangular	Weir Disc Coef:	3.000
		Orifice Disc Coef:	0.600
Span(in):	4.00	Invert(ft):	62.000
Rise(in):	2.00	Control Elev(ft):	62.000

*** Weir 2 of 2 for Drop Structure 118205D ***

Count:	1		TABLE
Type:	Vertical: Mavis	Bottom Clip(in):	0.000
Flow:	Both	Top Clip(in):	0.000
Geometry:	Rectangular	Weir Disc Coef:	3.200
		Orifice Disc Coef:	0.600
Span(in):	42.00	Invert(ft):	63.020
Rise(in):	12.00	Control Elev(ft):	63.020

Name:	118207D	From Node:	118207W
Group:	ALOMA WOODS BV	To Node:	118208P
		Length(ft):	99.00
		Count:	1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	47.860	46.380
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation:	Average Conveyance
Solution Algorithm:	Automatic
Flow:	Both
Entrance Loss Coef:	1.500
Exit Loss Coef:	0.000
Outlet Ctrl Spec:	Use dc or tw
Inlet Ctrl Spec:	Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR WETLAND SOUTH OF ALOMA WOODS BLVD
*** Weir 1 of 1 for Drop Structure 118207D ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	37.00	Invert(ft):	51.660
Rise(in):	24.00	Control Elev(ft):	51.660

Name: 118209D
Group: ALOMA WOODS BV
From Node: 118209P
To Node: 118209N
Length(ft): 237.00
Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	30.00	30.00
Rise(in):	30.00	30.00
Invert(ft):	43.350	43.110
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ALOMA WOODS PH 1 & 2 PONDS
*** Weir 1 of 2 for Drop Structure 118209D ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.000
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	24.00	Invert(ft):	46.840
Rise(in):	24.00	Control Elev(ft):	46.840

*** Weir 2 of 2 for Drop Structure 118209D ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	49.00	Invert(ft):	50.500
Rise(in):	37.00	Control Elev(ft):	50.500

Name: 118300D
Group: JAMESTOWN
From Node: 118300P
To Node: 118210N
Length(ft): 125.00
Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	47.340	46.930
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR PROGRESS ENERGY
*** Weir 1 of 1 for Drop Structure 118300D ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600

Span(in): 37.00 Invert(ft): 51.830
Rise(in): 24.00 Control Elev(ft): 51.830

Name: 118301D From Node: 118301N Length(ft): 30.00
Group: JAMESTOWN To Node: 118405N Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Horz Ellipse	Horz Ellipse
Span(in):	30.00	30.00
Rise(in):	19.00	19.00
Invert(ft):	47.000	46.700
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

INLET AT SOUTHWEST CORNER OF JAMES ST AND WALKER RD
*** Weir 1 of 2 for Drop Structure 118301D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 24.00 Invert(ft): 47.700
Rise(in): 15.60 Control Elev(ft): 47.700

*** Weir 2 of 2 for Drop Structure 118301D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 49.00 Invert(ft): 49.000
Rise(in): 37.00 Control Elev(ft): 49.000

Name: 118400D From Node: 118400P Length(ft): 127.00
Group: WALKER RD To Node: 118400N Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Horz Ellipse	Horz Ellipse
Span(in):	38.00	38.00
Rise(in):	24.00	24.00
Invert(ft):	43.500	42.650
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

CONTROL STRUCTURE FOR ALOMA WOODS PH 4 POND
*** Weir 1 of 2 for Drop Structure 118400D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.000
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 2.81 Invert(ft): 44.700
Rise(in): 2.81 Control Elev(ft): 44.700

*** Weir 2 of 2 for Drop Structure 118400D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 79.00 Invert(ft): 46.140
Rise(in): 36.00 Control Elev(ft): 46.140

Name: 118401D From Node: 118401P Length(ft): 132.00
Group: WALKER RD To Node: 118403W Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	45.790	45.600
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ALOMA WOODS PH 5 POND
*** Weir 1 of 2 for Drop Structure 118401D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.000
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.89 Invert(ft): 46.000
Rise(in): 3.89 Control Elev(ft): 46.000

*** Weir 2 of 2 for Drop Structure 118401D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 49.00 Invert(ft): 48.780
Rise(in): 37.00 Control Elev(ft): 48.780

Name: 118402D From Node: 118402P Length(ft): 30.00
Group: WALKER RD To Node: 118403W Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	15.00	15.00
Rise(in):	15.00	15.00
Invert(ft):	45.260	45.280
Manning's N:	0.010000	0.010000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR ALOMA WOODS PH 6 POND
*** Weir 1 of 2 for Drop Structure 118402D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.000
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 1.80 Invert(ft): 45.160
Rise(in): 1.80 Control Elev(ft): 45.160

*** Weir 2 of 2 for Drop Structure 118402D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 37.00 Invert(ft): 47.810

Rise(in): 24.00 Control Elev(ft): 47.810

Name: 118403D From Node: 118403W Length(ft): 30.00
Group: WALKER RD To Node: 118500W Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	43.080	42.900
Manning's N:	0.024000	0.024000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular CMP: Headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Headwall

WALKER ROAD EAST CROSS CULVERT
*** Weir 1 of 1 for Drop Structure 118403D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 600.00 Invert(ft): 44.000
Rise(in): 999.00 Control Elev(ft): 44.000

Name: 118501D From Node: 118501P Length(ft): 40.00
Group: WENTWORTH To Node: 118500W Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	37.620	37.270
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CONTROL STRUCTURE FOR WENTWORTH POND
*** Weir 1 of 3 for Drop Structure 118501D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: None Weir Disc Coef: 3.000
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 2.80 Invert(ft): 38.000
Rise(in): 2.80 Control Elev(ft): 38.000

*** Weir 2 of 3 for Drop Structure 118501D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 36.00 Invert(ft): 39.100
Rise(in): 39.24 Control Elev(ft): 39.100

*** Weir 3 of 3 for Drop Structure 118501D ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 49.00 Invert(ft): 42.370
Rise(in): 37.00 Control Elev(ft): 42.370

```
        Name: 118100W1            From Node: 118100P
       Group: S SR 426              To Node: 118101P
        Flow: Both                    Count: 1
        Type: Vertical: Mavis      Geometry: Circular

                  Span(in): 6.00
                  Rise(in): 6.00
                Invert(ft): 53.300
      Control Elevation(ft): 53.300
                                      TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.000
     Orifice Discharge Coef: 0.600

S SR 426 POND 3 ORIFICE

        Name: 118100W2            From Node: 118100P
       Group: S SR 426              To Node: 118101P
        Flow: Both                    Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 480.00
                  Rise(in): 999.00
                Invert(ft): 54.500
      Control Elevation(ft): 54.500
                                      TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600

S SR 426 POND 3 OVERFLOW

        Name: 118101W1            From Node: 118101P
       Group: S SR 426              To Node: 118102W
        Flow: Both                    Count: 1
        Type: Vertical: Mavis      Geometry: Circular

                  Span(in): 6.00
                  Rise(in): 6.00
                Invert(ft): 53.300
      Control Elevation(ft): 53.300
                                      TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.000
     Orifice Discharge Coef: 0.600

S SR 426 POND 3 ORIFICE

        Name: 118101W2            From Node: 118101P
       Group: S SR 426              To Node: 118102W
        Flow: Both                    Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 240.00
                  Rise(in): 999.00
                Invert(ft): 58.610
      Control Elevation(ft): 58.610
                                      TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.000
     Orifice Discharge Coef: 0.600

S SR 426 POND 3 OVERFLOW

        Name: 118102W1            From Node: 118102W
       Group: S SR 426              To Node: 118102N
        Flow: Both                    Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 600.00
                  Rise(in): 999.00
                Invert(ft): 57.400
      Control Elevation(ft): 57.400
                                      TABLE
           Bottom Clip(in): 0.000
```

```
                Top Clip(in): 0.000
           Weir Discharge Coef: 2.800
      Orifice Discharge Coef: 0.600

S SR 426 OVERTOPPING AT CULVERT

        Name: 118102W2              From Node: 118102N
       Group: S SR 426                To Node: 118207W
        Flow: Both                     Count: 1
        Type: Vertical: Mavis       Geometry: Rectangular

                  Span(in): 600.00
                  Rise(in): 999.00
                Invert(ft): 57.000
      Control Elevation(ft): 57.000
                                          TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
           Weir Discharge Coef: 2.600
      Orifice Discharge Coef: 0.600

DITCH OVERTOPPING TO EAST

        Name: 118201W1              From Node: 118201P
       Group: ALOMA WOODS BV          To Node: 118202P
        Flow: Both                     Count: 1
        Type: Vertical: Mavis       Geometry: Circular

                  Span(in): 4.00
                  Rise(in): 4.00
                Invert(ft): 68.000
      Control Elevation(ft): 68.000
                                          TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
           Weir Discharge Coef: 3.000
      Orifice Discharge Coef: 0.600

ALOMA BEND PLAZA POND ORIFICE

        Name: 118201W2              From Node: 118201P
       Group: ALOMA WOODS BV          To Node: 118202P
        Flow: Both                     Count: 1
        Type: Vertical: Mavis       Geometry: Rectangular

                  Span(in): 1.00
                  Rise(in): 24.60
                Invert(ft): 69.700
      Control Elevation(ft): 69.700
                                          TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600

ALOMA BEND PLAZA POND OVERFLOW

        Name: 118201W3              From Node: 118201P
       Group: ALOMA WOODS BV          To Node: 118202P
        Flow: Both                     Count: 1
        Type: Horizontal            Geometry: Rectangular

                  Span(in): 37.00
                  Rise(in): 24.00
                Invert(ft): 71.750
      Control Elevation(ft): 71.750
                                          TABLE
             Bottom Clip(in): 0.000
                Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600

ALOMA BEND PLAZA POND TOP OF GRATE

        Name: 118204W               From Node: 118204W
       Group: LITTLE ECON             To Node: 105330N
        Flow: Both                     Count: 1
        Type: Vertical: Mavis       Geometry: Parabolic
```

Top Width(ft): 50.00
Corres Depth(ft): 1.00
Invert(ft): 56.000
Control Elevation(ft): 56.000
Struct Opening Dim(ft): 9999.00
TABLE
Bottom Clip(ft): 0.000
Top Clip(ft): 0.000
Weir Discharge Coef: 2.600
Orifice Discharge Coef: 0.600

SADDLE OVERFLOW NORTH OF HOME TOWN CT

Name: 118206W1 From Node: 118206P
Group: ALOMA WOODS BV To Node: 118207W
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 8.00
Rise(in): 999.00
Invert(ft): 55.800
Control Elevation(ft): 55.800
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

CONTROL STRUCTURE FOR ALOMA SQUARE NORTH POND

Name: 118206W2 From Node: 118206P
Group: ALOMA WOODS BV To Node: 118207W
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 600.00
Rise(in): 999.00
Invert(ft): 58.000
Control Elevation(ft): 58.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

OVERTOPPING OF WALL FOR ALOMA SQUARE NORTH POND

Name: 118207W From Node: 118207W
Group: ALOMA WOODS BV To Node: 118208P
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 600.00
Rise(in): 999.00
Invert(ft): 52.000
Control Elevation(ft): 52.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 2.800
Orifice Discharge Coef: 0.600

OVERTOPPING OF SABEL OAK PL

Name: 118208W From Node: 118208P
Group: LITTLE ECON To Node: 105330N
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 600.00
Rise(in): 999.00
Invert(ft): 51.000
Control Elevation(ft): 51.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 2.600
Orifice Discharge Coef: 0.600

OVERTOPPING TO LITTLE ECON FROM ALOMA WOODS PH 1 POND

```
         Name: 118209W              From Node: 118209P
        Group: LITTLE ECON            To Node: 105330N
         Flow: Both                     Count: 1
         Type: Vertical: Mavis       Geometry: Rectangular

                    Span(in): 420.00
                    Rise(in): 999.00
                  Invert(ft): 50.500
       Control Elevation(ft): 50.500
                                          TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
        Orifice Discharge Coef: 0.600
```

OVERFLOW WEIR TO LITTLE ECON FROM ALOMA WOODS PH 2 POND

```
         Name: 118210W              From Node: 118210N
        Group: JAMESTOWN              To Node: 118208P
         Flow: Both                     Count: 1
         Type: Vertical: Mavis       Geometry: Rectangular

                    Span(in): 1200.00
                    Rise(in): 999.00
                  Invert(ft): 51.400
       Control Elevation(ft): 51.400
                                          TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 2.800
        Orifice Discharge Coef: 0.600
```

OVERTOPPING OF ALOMA WOODS BLVD AT SAG

```
         Name: 118300W              From Node: 118300P
        Group: JAMESTOWN              To Node: 118210N
         Flow: Both                     Count: 1
         Type: Vertical: Mavis       Geometry: Rectangular

                    Span(in): 600.00
                    Rise(in): 999.00
                  Invert(ft): 52.500
       Control Elevation(ft): 52.500
                                          TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 2.600
        Orifice Discharge Coef: 0.600
```

OVERTOPPING OF PROGRESS ENERGY POND TO THE SOUTHEAST

```
         Name: 118302W1             From Node: 118302N
        Group: JAMESTOWN              To Node: 118303N
         Flow: Both                     Count: 1
         Type: Vertical: Mavis       Geometry: Rectangular

                    Span(in): 300.00
                    Rise(in): 999.00
                  Invert(ft): 53.400
       Control Elevation(ft): 53.400
                                          TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 2.800
        Orifice Discharge Coef: 0.600
```

OVERTOPPING OF SOUTH ST

```
         Name: 118302W2             From Node: 118302N
        Group: JAMESTOWN              To Node: 118301N
         Flow: Both                     Count: 1
         Type: Vertical: Mavis       Geometry: Rectangular

                    Span(in): 300.00
                    Rise(in): 999.00
```

```
                Invert(ft): 52.000
      Control Elevation(ft): 52.000
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 2.600
    Orifice Discharge Coef: 0.600

OVERFLOW SOUTH AND EAST TO WALKER RD

-------------------------------------------------------------------------------------------------------------
       Name: 118304W             From Node: 118304N
      Group: JAMESTOWN             To Node: 118305N
       Flow: Both                    Count: 1
       Type: Vertical: Mavis      Geometry: Rectangular

                Span(in): 300.00
                Rise(in): 999.00
              Invert(ft): 52.500
    Control Elevation(ft): 52.500
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 2.800
    Orifice Discharge Coef: 0.600

OVERTOPPING OF JAMES ST

-------------------------------------------------------------------------------------------------------------
       Name: 118402W             From Node: 118402P
      Group: WALKER RD             To Node: 118403W
       Flow: Both                    Count: 1
       Type: Vertical: Mavis      Geometry: Rectangular

                Span(in): 600.00
                Rise(in): 999.00
              Invert(ft): 48.500
    Control Elevation(ft): 48.500
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 2.600
    Orifice Discharge Coef: 0.600

OVERTOPPING OF ALOMA WOODS PHASE 6 POND

-------------------------------------------------------------------------------------------------------------
       Name: 118403W             From Node: 118403W
      Group: WALKER RD             To Node: 118500W
       Flow: Both                    Count: 1
       Type: Vertical: Mavis      Geometry: Rectangular

                Span(in): 600.00
                Rise(in): 999.00
              Invert(ft): 45.800
    Control Elevation(ft): 45.800
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 2.600
    Orifice Discharge Coef: 0.600

OVERTOPPING OF WALKER RD AT EAST CULVERT

-------------------------------------------------------------------------------------------------------------
       Name: 118404W             From Node: 118404N
      Group: WALKER RD             To Node: 118500W
       Flow: Both                    Count: 1
       Type: Vertical: Mavis      Geometry: Rectangular

                Span(in): 300.00
                Rise(in): 999.00
              Invert(ft): 45.660
    Control Elevation(ft): 45.660
                                          TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 2.600
    Orifice Discharge Coef: 0.600

OVERTOPPING OF WALKER RD AT MIDDLE CULVERT

-------------------------------------------------------------------------------------------------------------
```

```
        Name: 118405W              From Node: 118405N
       Group: WALKER RD              To Node: 118500W
        Flow: Both                     Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 300.00
                  Rise(in): 999.00
                Invert(ft): 46.000
      Control Elevation(ft): 46.000
                                             TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
         Weir Discharge Coef: 2.600
     Orifice Discharge Coef: 0.600

OVERTOPPING OF WALKER RD AT WEST CULVERT

        Name: 118602W              From Node: 118602N
       Group: N SR 426               To Node: 118700N1
        Flow: Both                     Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 600.00
                  Rise(in): 999.00
                Invert(ft): 44.300
      Control Elevation(ft): 44.300
                                             TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
         Weir Discharge Coef: 2.800
     Orifice Discharge Coef: 0.600

OVERTOPPING OF N SR 426 AT BOX CULVERT

        Name: 118700W1             From Node: 118700N1
       Group: N SR 426               To Node: 118700N2
        Flow: Both                     Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 300.00
                  Rise(in): 999.00
                Invert(ft): 42.700
      Control Elevation(ft): 42.700
                                             TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
         Weir Discharge Coef: 2.600
     Orifice Discharge Coef: 0.600

OVERTOPPING OF NURSERY DRIVE

        Name: 118700W2             From Node: 118700N2
       Group: N SR 426               To Node: 118700N3
        Flow: Both                     Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 300.00
                  Rise(in): 999.00
                Invert(ft): 42.000
      Control Elevation(ft): 42.000
                                             TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
         Weir Discharge Coef: 2.600
     Orifice Discharge Coef: 0.600

OVERTOPPING OF NURSERY DRIVE

        Name: 118700W3             From Node: 118700N3
       Group: N SR 426               To Node: 118035N
        Flow: Both                     Count: 1
        Type: Vertical: Mavis      Geometry: Rectangular

                  Span(in): 300.00
                  Rise(in): 999.00
                Invert(ft): 40.800
      Control Elevation(ft): 40.800
                                             TABLE
           Bottom Clip(in): 0.000
```

```
               Top Clip(in): 0.000
         Weir Discharge Coef: 2.600
      Orifice Discharge Coef: 0.600

OVERTOPPING OF EAGLE PASS RD
```

Name: 010-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\010-024\0

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.50

Time(hrs)	Print Inc(min)
24.000	5.00

Name: 025-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\025-024\0

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 8.60

Time(hrs)	Print Inc(min)
24.000	5.00

Name: 100-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\100-024\1

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 10.60

Time(hrs)	Print Inc(min)
24.000	5.00

Name: 010-024E Hydrology Sim: 010-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\010-024\0

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.01000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.2500 Max Calc Time(sec): 5.0000
Boundary Stages: 10-YEAR Boundary Flows:

Existing Conditions With NO Baseflow (10-year, 24-hour storm event)

Time(hrs)	Print Inc(min)
10.000	30.000
18.000	15.000
999.000	30.000

Group	Run
ALOMA WOODS BV	Yes
BASE	Yes
BEAR GULLY	Yes
JAMESTOWN	Yes
LITTLE ECON	Yes
N SR 426	Yes
POWER EASEMENT	Yes
S SR 426	Yes
WALKER RD	Yes
WENTWORTH	Yes

Name: 025-024E Hydrology Sim: 025-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\025-024\0

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.01000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.2500 Max Calc Time(sec): 5.0000
Boundary Stages: 25-YEAR Boundary Flows:

Existing Conditions With NO Baseflow (25-year, 24-hour storm event)

Time(hrs)	Print Inc(min)
10.000	30.000
18.000	15.000
999.000	30.000

Group	Run
ALOMA WOODS BV	Yes
BASE	Yes
BEAR GULLY	Yes
JAMESTOWN	Yes
LITTLE ECON	Yes
N SR 426	Yes
POWER EASEMENT	Yes
S SR 426	Yes
WALKER RD	Yes
WENTWORTH	Yes

Name: 100-024E Hydrology Sim: 100-024E
Filename: L:\Gteague\GAT Project Files\Seminole\SC-084 (Aloma Woods)\ICPR\Existing (NO baseflow)\100-024\1

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.01000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.2500 Max Calc Time(sec): 5.0000
Boundary Stages: 100-YEAR Boundary Flows:

Existing Conditions With NO Baseflow (100-year, 24-hour storm event)

Time(hrs)	Print Inc(min)
10.000	30.000
18.000	15.000
999.000	30.000

Group	Run
ALOMA WOODS BV	Yes
BASE	Yes
BEAR GULLY	Yes
JAMESTOWN	Yes
LITTLE ECON	Yes
N SR 426	Yes
POWER EASEMENT	Yes
S SR 426	Yes
WALKER RD	Yes
WENTWORTH	Yes

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TAB 2.3

ICPR FLOOD ROUTING RESULTS - EXISTING CONDITIONS
⌖ BASINS

Name:	B118100	B118101	B118102	B118200	B118201
Group:	S SR 426	S SR 426	S SR 426	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118100P	118101P	118102W	118200P	118201P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh484	Uh323	Uh323	Uh323	Uh484
Peaking Factor:	484.0	323.0	323.0	323.0	484.0
Spec Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Comp Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	10.00	20.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	16.800	1.900	11.000	7.000	4.500
Vol of Unit Hyd(in):	1.001	1.001	1.000	1.000	1.001
Curve Num:	80.000	95.000	83.000	78.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.07	12.02	12.13	12.04	12.02
Flow Max(cfs):	70.308	9.199	35.726	26.772	23.373
Runoff Volume(in):	5.151	6.906	5.504	4.933	6.305
Runoff Volume(ft3):	314128.587	47632.983	219757.150	125344.166	102998.723

Name:	B118202	B118203	B118204	B118205	B118206
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118202P	118203P	118204W	118205P	118206P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh256	Uh323	Uh323
Peaking Factor:	323.0	323.0	256.0	323.0	323.0
Spec Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Comp Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	10.00	28.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	8.100	3.000	8.800	5.100	2.600
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.001	1.000
Curve Num:	79.000	78.000	58.000	55.000	62.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.04	12.32	12.04	12.04
Flow Max(cfs):	31.606	11.474	9.879	9.316	6.391
Runoff Volume(in):	5.046	4.933	2.752	2.449	3.175
Runoff Volume(ft3):	148376.193	53718.928	87902.835	45337.504	29967.072

Name:	B118207	B118208	B118209	B118210	B118300
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	JAMESTOWN
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118207W	118208P	118209P	118210N	118300P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh256	Uh323
Peaking Factor:	256.0	323.0	323.0	256.0	323.0
Spec Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Comp Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	31.00	35.00	15.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.500	26.100	22.300	5.800	14.100
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.001
Curve Num:	87.000	82.000	81.000	77.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.26	12.29	12.10	12.13
Flow Max(cfs):	15.530	67.209	52.985	16.610	50.859
Runoff Volume(in):	5.962	5.387	5.271	4.816	6.317
Runoff Volume(ft3):	97383.713	510364.898	426690.506	101398.900	323298.476

Name:	B118301	B118302	B118303	B118304	B118305
Group:	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118301N	118302N	118303N	118304N	118305N
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Factor:	256.0	256.0	256.0	256.0	256.0
Spec Time Inc(min):	9.47	2.80	2.67	2.67	2.67

Comp Time Inc(min):	9.47	2.80	2.67	2.67	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	71.00	21.00	20.00	20.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	15.600	13.500	3.100	5.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	77.000	79.000	79.000	71.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.78	12.13	12.13	12.13	12.13
Flow Max(cfs):	18.412	34.185	8.082	11.945	11.505
Runoff Volume(in):	4.815	5.042	5.042	4.147	3.709
Runoff Volume(ft3):	272659.474	247059.755	56742.633	84291.469	82124.003

Name:	B118306	B118400	B118401	B118402	B118403
Group:	JAMESTOWN	WALKER RD	WALKER RD	WALKER RD	WALKER RD
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118306N	118400P	118401P	118402P	118403W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh323	Uh256
Peaking Factor:	256.0	323.0	323.0	323.0	256.0
Spec Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Comp Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	31.00	31.00	30.00	30.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	0.600	13.000	21.200	8.400	10.600
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.000
Curve Num:	70.000	82.000	73.000	80.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.26	12.26	12.20	12.27
Flow Max(cfs):	1.709	33.476	44.583	21.143	24.664
Runoff Volume(in):	4.036	5.387	4.370	5.160	5.614
Runoff Volume(ft3):	8791.371	254204.739	336275.193	157341.281	216032.678

Name:	B118404	B118405	B118500	B118501	B118600
Group:	WALKER RD	WALKER RD	WENTWORTH	WENTWORTH	POWER EASEMENT
Simulation:	010-024E	010-024E	010-024E	010-024E	010-024E
Node:	118404N	118405N	118500W	118501P	118600W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323	Uh256
Peaking Factor:	256.0	256.0	256.0	323.0	256.0
Spec Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Comp Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	17.00	10.00	30.00	40.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.600	1.000	61.700	23.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001	1.000
Curve Num:	78.000	76.000	78.000	79.000	74.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.13	12.04	12.27	12.36	12.07
Flow Max(cfs):	29.170	3.318	127.091	50.052	16.688
Runoff Volume(in):	4.928	4.704	4.929	5.046	4.479
Runoff Volume(ft3):	189632.712	17073.861	1103976.515	432305.945	99170.623

Name:	B118601	B118602	B118603	B118700
Group:	POWER EASEMENT	POWER EASEMENT	POWER EASEMENT	N SR 426
Simulation:	010-024E	010-024E	010-024E	010-024E
Node:	118601W	118602N	118602N	118700N2
Type:	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323
Peaking Factor:	256.0	256.0	256.0	323.0
Spec Time Inc(min):	2.00	5.73	6.13	2.00
Comp Time Inc(min):	2.00	5.73	6.13	2.00
Rain File:	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	7.500	7.500	7.500	7.500
Duration(hrs):	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	43.00	46.00	15.00
Time Shift(hrs):	0.00	0.00	0.00	0.00
Area(ac):	5.700	4.400	10.400	1.200

Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001
Curve Num:	90.000	77.000	57.000	86.000
DCIA(%):	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.42	12.57	12.07
Flow Max(cfs):	20.478	7.205	8.312	4.618
Runoff Volume(in):	6.312	4.815	2.647	5.850
Runoff Volume(ft3):	130595.432	76906.373	99927.285	25482.877

Name:	B118100	B118101	B118102	B118200	B118201
Group:	S SR 426	S SR 426	S SR 426	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	025-024E	025-024E	025-024E	025-024E	025-024E
Node:	118100P	118101P	118102W	118200P	118201P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh484	Uh323	Uh323	Uh323	Uh484
Peaking Factor:	484.0	323.0	323.0	323.0	484.0
Spec Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Comp Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	10.00	20.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	16.800	1.900	11.000	7.000	4.500
Vol of Unit Hyd(in):	1.001	1.001	1.000	1.000	1.001
Curve Num:	80.000	95.000	83.000	78.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.07	12.02	12.13	12.04	12.02
Flow Max(cfs):	83.674	10.588	42.278	32.086	27.107
Runoff Volume(in):	6.181	8.003	6.555	5.951	7.387
Runoff Volume(ft3):	376963.469	55193.495	261728.701	151206.861	120664.931

Name:	B118202	B118203	B118204	B118205	B118206
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	025-024E	025-024E	025-024E	025-024E	025-024E
Node:	118202P	118203P	118204W	118205P	118206P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh256	Uh323	Uh323
Peaking Factor:	323.0	323.0	256.0	323.0	323.0
Spec Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Comp Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	10.00	28.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	8.100	3.000	8.800	5.100	2.600
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.001	1.000
Curve Num:	79.000	78.000	58.000	55.000	62.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.04	12.32	12.04	12.04
Flow Max(cfs):	37.761	13.751	13.012	12.458	8.171
Runoff Volume(in):	6.071	5.951	3.550	3.203	4.029
Runoff Volume(ft3):	178519.050	64802.940	113385.890	59299.294	38023.747

Name:	B118207	B118208	B118209	B118210	B118300
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	JAMESTOWN
Simulation:	025-024E	025-024E	025-024E	025-024E	025-024E
Node:	118207W	118208P	118209P	118210N	118300P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh256	Uh323
Peaking Factor:	256.0	323.0	323.0	256.0	323.0
Spec Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Comp Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	31.00	35.00	15.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.500	26.100	22.300	5.800	14.100
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.001
Curve Num:	87.000	82.000	81.000	77.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.26	12.29	12.10	12.13
Flow Max(cfs):	18.180	79.822	63.162	20.034	59.104
Runoff Volume(in):	7.032	6.432	6.309	5.825	7.400
Runoff Volume(ft3):	114875.290	609356.850	510741.765	122649.874	378750.210

Name:	B118301	B118302	B118303	B118304	B118305
Group:	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN
Simulation:	025 024E	025-024E	025-024E	025-024E	025-024E
Node:	118301N	118302N	118303N	118304N	118305N
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Factor:	256.0	256.0	256.0	256.0	256.0
Spec Time Inc(min):	9.47	2.80	2.67	2.67	2.67

Comp Time Inc(min):	9.47	2.80	2.67	2.67	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	71.00	21.00	20.00	20.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	15.600	13.500	3.100	5.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	77.000	79.000	79.000	71.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.78	12.13	12.13	12.13	12.13
Flow Max(cfs):	22.291	41.044	9.699	14.763	14.470
Runoff Volume(in):	5.824	6.066	6.067	5.103	4.622
Runoff Volume(ft3):	329805.703	297252.056	68269.988	103726.362	102355.739

Name:	B118306	B118400	B118401	B118402	B118403
Group:	JAMESTOWN	WALKER RD	WALKER RD	WALKER RD	WALKER RD
Simulation:	025-024E	025-024E	025-024E	025-024E	025-024E
Node:	118306N	118400P	118401P	118402P	118403W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh323	Uh256
Peaking Factor:	256.0	323.0	323.0	323.0	256.0
Spec Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Comp Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	31.00	31.00	30.00	30.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	0.600	13.000	21.200	8.400	10.600
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.000
Curve Num:	70.000	82.000	73.000	80.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.26	12.26	12.20	12.27
Flow Max(cfs):	2.112	39.758	54.585	25.300	29.151
Runoff Volume(in):	4.982	6.432	5.345	6.192	6.670
Runoff Volume(ft3):	10851.725	303511.075	411356.101	188814.127	256663.839

Name:	B118404	B118405	B118500	B118501	B118600
Group:	WALKER RD	WALKER RD	WENTWORTH	WENTWORTH	POWER EASEMENT
Simulation:	025-024E	025-024E	025-024E	025-024E	025-024E
Node:	118404N	118405N	118500W	118501P	118600W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323	Uh256
Peaking Factor:	256.0	256.0	256.0	323.0	256.0
Spec Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Comp Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	17.00	10.00	30.00	40.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.600	1.000	61.700	23.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001	1.000
Curve Num:	78.000	76.000	78.000	79.000	74.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.13	12.04	12.27	12.36	12.07
Flow Max(cfs):	35.075	4.010	153.077	60.045	20.357
Runoff Volume(in):	5.945	5.705	5.946	6.071	5.463
Runoff Volume(ft3):	228761.447	20708.688	1331763.802	520129.578	120961.491

Name:	B118601	B118602	B118603	B118700
Group:	POWER EASEMENT	POWER EASEMENT	POWER EASEMENT	N SR 426
Simulation:	025-024E	025-024E	025-024E	025-024E
Node:	118601W	118602N	118602N	118700N2
Type:	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323
Peaking Factor:	256.0	256.0	256.0	323.0
Spec Time Inc(min):	2.00	5.73	6.13	2.00
Comp Time Inc(min):	2.00	5.73	6.13	2.00
Rain File:	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	8.600	8.600	8.600	8.600
Duration(hrs):	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	43.00	46.00	15.00
Time Shift(hrs):	0.00	0.00	0.00	0.00
Area(ac):	5.700	4.400	10.400	1.200

Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001
Curve Num:	90.000	77.000	57.000	86.000
DCIA(%):	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.42	12.57	12.07
Flow Max(cfs):	23.800	8.714	11.027	5.419
Runoff Volume(in):	7.394	5.824	3.430	6.917
Runoff Volume(ft3):	152994.991	93024.948	129479.244	30130.776

Name:	B118100	B118101	B118102	B118200	B118201
Group:	S SR 426	S SR 426	S SR 426	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118100P	118101P	118102W	118200P	118201P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh484	Uh323	Uh323	Uh323	Uh484
Peaking Factor:	484.0	323.0	323.0	323.0	484.0
Spec Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Comp Time Inc(min):	2.00	1.33	2.67	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	10.00	20.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	16.800	1.900	11.000	7.000	4.500
Vol of Unit Hyd(in):	1.001	1.001	1.000	1.000	1.001
Curve Num:	80.000	95.000	83.000	78.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.07	12.02	12.13	12.04	12.02
Flow Max(cfs):	107.926	13.106	54.146	41.759	33.856
Runoff Volume(in):	8.085	9.998	8.489	7.837	9.362
Runoff Volume(ft3):	493068.703	68954.930	338947.963	199150.700	152921.845

Name:	B118202	B118203	B118204	B118205	B118206
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118202P	118203P	118204W	118205P	118206P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh256	Uh323	Uh323
Peaking Factor:	323.0	323.0	256.0	323.0	323.0
Spec Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Comp Time Inc(min):	1.33	1.33	3.73	1.33	1.33
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	10.00	28.00	10.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	8.100	3.000	8.800	5.100	2.600
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.001	1.000
Curve Num:	79.000	78.000	58.000	55.000	62.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.04	12.26	12.04	12.04
Flow Max(cfs):	48.949	17.897	19.143	18.579	11.546
Runoff Volume(in):	7.969	7.837	5.104	4.688	5.671
Runoff Volume(ft3):	234304.889	85350.300	163028.506	86791.966	53519.179

Name:	B118207	B118208	B118209	B118210	B118300
Group:	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	ALOMA WOODS BV	JAMESTOWN
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118207W	118208P	118209P	118210N	118300P
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh256	Uh323
Peaking Factor:	256.0	323.0	323.0	256.0	323.0
Spec Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Comp Time Inc(min):	2.00	4.13	4.67	2.00	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	31.00	35.00	15.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	4.500	26.100	22.300	5.800	14.100
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.001
Curve Num:	87.000	82.000	81.000	77.000	90.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.26	12.29	12.10	12.13
Flow Max(cfs):	22.969	102.710	81.660	26.292	74.006
Runoff Volume(in):	8.993	8.357	8.225	7.700	9.378
Runoff Volume(ft3):	146903.161	791733.315	665816.814	162112.716	480000.119

Name:	B118301	B118302	B118303	B118304	B118305
Group:	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN	JAMESTOWN
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118301N	118302N	118303N	118304N	118305N
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Factor:	256.0	256.0	256.0	256.0	256.0
Spec Time Inc(min):	9.47	2.80	2.67	2.67	2.67

Comp Time Inc(min):	9.47	2.80	2.67	2.67	2.67
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	71.00	21.00	20.00	20.00	20.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	15.600	13.500	3.100	5.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	77.000	79.000	79.000	71.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.78	12.13	12.13	12.13	12.13
Flow Max(cfs):	29.411	53.551	12.646	19.991	20.038
Runoff Volume(in):	7.698	7.961	7.963	6.899	6.356
Runoff Volume(ft3):	435926.257	390144.035	89603.838	140248.680	140736.755

Name:	B118306	B118400	B118401	B118402	B118403
Group:	JAMESTOWN	WALKER RD	WALKER RD	WALKER RD	WALKER RD
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118306N	118400P	118401P	118402P	118403W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh323	Uh323	Uh323	Uh256
Peaking Factor:	256.0	323.0	323.0	323.0	256.0
Spec Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Comp Time Inc(min):	1.33	4.13	4.13	4.00	4.00
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	31.00	31.00	30.00	30.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	0.600	13.000	21.200	8.400	10.600
Vol of Unit Hyd(in):	1.000	1.001	1.000	1.000	1.000
Curve Num:	70.000	82.000	73.000	80.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.04	12.26	12.26	12.20	12.27
Flow Max(cfs):	2.860	51.158	73.038	32.869	37.280
Runoff Volume(in):	6.764	8.357	7.171	8.099	8.611
Runoff Volume(ft3):	14732.275	394349.927	551850.711	246969.122	331319.892

Name:	B118404	B118405	B118500	B118501	B118600
Group:	WALKER RD	WALKER RD	WENTWORTH	WENTWORTH	POWER EASEMENT
Simulation:	100-024E	100-024E	100-024E	100-024E	100-024E
Node:	118404N	118405N	118500W	118501P	118600W
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323	Uh256
Peaking Factor:	256.0	256.0	256.0	323.0	256.0
Spec Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Comp Time Inc(min):	2.27	1.33	4.00	5.33	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	17.00	10.00	30.00	40.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	10.600	1.000	61.700	23.600	6.100
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001	1.000
Curve Num:	78.000	76.000	78.000	79.000	74.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.13	12.04	12.27	12.36	12.07
Flow Max(cfs):	45.849	5.276	200.561	78.267	27.107
Runoff Volume(in):	7.830	7.568	7.832	7.969	7.301
Runoff Volume(ft3):	301297.887	27470.685	1754032.137	682666.096	161655.043

Name:	B118601	B118602	B118603	B118700
Group:	POWER EASEMENT	POWER EASEMENT	POWER EASEMENT	N SR 426
Simulation:	100-024E	100-024E	100-024E	100-024E
Node:	118601W	118602N	118602N	118700N2
Type:	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh256	Uh256	Uh256	Uh323
Peaking Factor:	256.0	256.0	256.0	323.0
Spec Time Inc(min):	2.00	5.73	6.13	2.00
Comp Time Inc(min):	2.00	5.73	6.13	2.00
Rain File:	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	10.600	10.600	10.600	10.600
Duration(hrs):	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite
TC(min):	15.00	43.00	46.00	15.00
Time Shift(hrs):	0.00	0.00	0.00	0.00
Area(ac):	5.700	4.400	10.400	1.200

Vol of Unit Hyd(in):	1.000	1.000	1.000	1.001
Curve Num:	90.000	77.000	57.000	86.000
DCIA(%):	0.000	0.000	0.000	0.000
Time Max(hrs):	12.10	12.42	12.47	12.07
Flow Max(cfs):	29.804	11.480	16.397	6.866
Runoff Volume(in):	9.371	7.698	4.960	8.873
Runoff Volume(ft3):	193894.582	122957.122	187250.401	38650.518

TAB 2.4

ICPR FLOOD ROUTING RESULTS - EXISTING CONDITIONS
⌖ NODE MAXIMUM COMPARISONS - WITHOUT BASEFLOW

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
105330N	LITTLE ECON	010-024E	13.50	49.500	50.500	-950.2500	0	12.50	125.601	0.00	0.000
105330N	LITTLE ECON	025-024E	13.50	49.670	50.500	-950.2500	0	12.44	170.921	0.00	0.000
105330N	LITTLE ECON	100-024E	13.75	50.000	50.500	-950.2500	0	12.38	247.182	0.00	0.000
118035N	BEAR GULLY	010-024E	12.00	40.800	40.800	0.0008	3	21.27	46.830	0.00	0.000
118035N	BEAR GULLY	025-024E	12.00	40.800	40.800	0.0008	3	21.27	47.301	0.00	0.000
118035N	BEAR GULLY	100-024E	12.00	40.800	40.800	0.0008	3	21.05	48.973	0.00	0.000
118100P	S SR 426	010-024E	23.66	56.435	59.000	0.0025	45534	12.08	68.963	12.05	60.408
118100P	S SR 426	025-024E	23.76	56.988	59.000	0.0014	49147	12.08	82.012	12.03	62.267
118100P	S SR 426	100-024E	24.00	57.921	59.000	0.0018	57650	12.08	105.688	12.02	61.690
118101P	S SR 426	010-024E	23.68	56.434	59.000	0.0024	66624	12.05	69.203	24.58	1.462
118101P	S SR 426	025-024E	23.77	56.987	59.000	0.0022	70479	12.03	72.526	24.95	1.610
118101P	S SR 426	100-024E	24.00	57.920	59.000	0.0020	79385	12.02	74.471	25.68	1.834
118102N	S SR 426	010-024E	13.53	54.098	57.000	0.0011	4530	13.31	7.915	13.53	7.848
118102N	S SR 426	025-024E	13.38	54.347	57.000	0.0010	4494	13.14	9.677	13.38	9.604
118102N	S SR 426	100-024E	13.31	54.668	57.000	0.0008	4466	13.12	12.260	13.31	12.214
118102W	S SR 426	010-024E	13.27	54.603	57.000	0.0007	106457	12.08	35.939	13.31	7.915
118102W	S SR 426	025-024E	13.23	54.796	57.000	0.0008	111074	12.08	42.591	13.14	9.677
118102W	S SR 426	100-024E	13.22	55.140	57.000	0.0008	122032	12.08	54.548	13.12	12.260
118200P	ALOMA WOODS BV	010-024E	13.08	67.840	68.000	0.0032	24726	12.00	26.067	12.19	4.543
118200P	ALOMA WOODS BV	025-024E	13.23	68.500	68.000	0.0030	26953	12.00	31.323	12.06	4.818
118200P	ALOMA WOODS BV	100-024E	13.65	69.649	68.000	0.0035	30833	12.00	40.904	11.91	4.799
118201P	ALOMA WOODS BV	010-024E	14.27	71.279	72.000	0.0031	56840	12.00	23.318	14.27	1.270
118201P	ALOMA WOODS BV	025-024E	14.58	71.475	72.000	0.0029	70180	12.00	27.056	14.58	1.394
118201P	ALOMA WOODS BV	100-024E	14.72	71.771	72.000	0.0033	92617	12.00	33.813	15.10	1.556
118202N	ALOMA WOODS BV	010-024E	12.93	66.455	69.250	-0.0100	446	12.20	11.669	14.55	8.828
118202N	ALOMA WOODS BV	025-024E	13.08	67.025	69.250	-0.0100	446	12.07	12.590	15.69	9.094
118202N	ALOMA WOODS BV	100-024E	13.25	68.005	69.250	0.0100	446	11.91	12.746	16.46	9.527
118202P	ALOMA WOODS BV	010-024E	13.00	67.672	68.000	0.0026	32328	12.00	31.690	12.20	7.149
118202P	ALOMA WOODS BV	025-024E	13.16	68.284	68.000	0.0025	34592	12.00	37.930	12.07	7.874
118202P	ALOMA WOODS BV	100-024E	13.62	69.354	68.000	0.0028	38556	12.00	49.218	11.91	7.992
118203N	ALOMA WOODS BV	010-024E	12.70	61.766	63.000	0.0099	458	12.61	11.137	12.70	11.122
118203N	ALOMA WOODS BV	025-024E	12.71	62.134	63.000	-0.0094	457	12.18	12.001	12.71	11.753
118203N	ALOMA WOODS BV	100-024E	12.73	62.766	63.000	-0.0099	456	12.63	12.774	12.73	12.762
118203P	ALOMA WOODS BV	010-024E	12.66	61.964	63.000	0.0025	12666	12.00	11.172	12.49	2.663
118203P	ALOMA WOODS BV	025-024E	12.66	62.341	63.000	0.0024	13447	12.00	13.424	12.18	3.500
118203P	ALOMA WOODS BV	100-024E	12.68	63.075	63.000	0.0028	14965	12.00	17.530	12.01	4.225
118204W	ALOMA WOODS BV	010-024E	17.33	55.680	56.000	0.0009	79772	12.42	20.356	25.91	7.066
118204W	ALOMA WOODS BV	025-024E	18.84	56.207	56.000	0.0009	79753	12.33	24.414	18.88	9.935
118204W	ALOMA WOODS BV	100-024E	16.17	56.316	56.000	0.0009	79741	12.33	31.413	16.19	13.160

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118205P	ALOMA WOODS BV	010-024E	24.00	61.892	64.000	0.0009	27455	12.08	9.036	0.00	0.000
118205P	ALOMA WOODS BV	025-024E	24.00	62.320	64.000	0.0009	29131	12.08	12.016	24.00	0.130
118205P	ALOMA WOODS BV	100-024E	24.00	63.010	64.000	0.0012	31841	12.08	17.806	24.00	0.257
118206P	ALOMA WOODS BV	010-024E	15.26	56.140	57.000	0.0016	10698	12.08	6.135	15.26	0.422
118206P	ALOMA WOODS BV	025-024E	13.62	56.343	57.000	0.0015	11052	12.08	7.815	13.62	0.854
118206P	ALOMA WOODS BV	100-024E	12.76	56.845	57.000	0.0018	11926	12.00	11.121	12.76	2.278
118207W	ALOMA WOODS BV	010-024E	12.66	52.041	52.000	0.0003	98859	12.08	15.504	12.77	7.631
118207W	ALOMA WOODS BV	025-024E	12.60	52.093	52.000	0.0003	100489	12.08	18.156	12.72	10.246
118207W	ALOMA WOODS BV	100-024E	12.50	52.203	52.000	0.0003	103929	12.08	23.051	12.58	17.330
118208P	ALOMA WOODS BV	010-024E	12.40	51.695	51.000	-0.0099	232	12.34	105.055	12.40	105.726
118208P	ALOMA WOODS BV	025-024E	12.34	51.879	51.000	-0.0100	232	12.34	137.247	12.34	139.122
118208P	ALOMA WOODS BV	100-024E	12.33	52.140	51.000	0.0100	232	12.22	194.984	12.33	191.224
118209N	ALOMA WOODS BV	010-024E	13.22	50.455	50.000	0.0100	517	12.30	26.210	12.36	25.561
118209N	ALOMA WOODS BV	025-024E	12.92	50.629	50.000	0.0092	517	12.19	26.179	12.25	25.440
118209N	ALOMA WOODS BV	100-024E	12.73	50.927	50.000	0.0087	517	12.04	25.764	12.09	25.050
118209P	ALOMA WOODS BV	010-024E	12.60	51.114	51.000	0.0030	65821	12.17	89.851	12.58	70.388
118209P	ALOMA WOODS BV	025-024E	12.52	51.219	51.000	0.0027	66549	12.25	96.475	12.51	84.102
118209P	ALOMA WOODS BV	100-024E	12.45	51.381	51.000	0.0026	67678	12.25	114.693	12.43	106.819
118210N	ALOMA WOODS BV	010-024E	12.45	51.749	50.990	0.0100	1862	12.48	41.063	12.48	41.116
118210N	ALOMA WOODS BV	025-024E	12.36	51.931	50.990	0.0100	2153	12.37	57.444	12.38	57.469
118210N	ALOMA WOODS BV	100-024E	12.32	52.198	50.990	0.0100	3236	12.28	84.296	12.22	91.381
118210W	ALOMA WOODS BV	010-024E	15.06	53.432	55.000	0.0013	27975	13.53	7.848	15.06	6.655
118210W	ALOMA WOODS BV	025-024E	14.79	53.564	55.000	0.0014	28443	13.38	9.604	14.79	8.434
118210W	ALOMA WOODS BV	100-024E	14.49	53.741	55.000	0.0008	29096	13.31	12.214	14.49	11.285
118300P	JAMESTOWN	010-024E	12.53	52.762	52.500	0.0015	66647	12.08	50.288	12.53	30.587
118300P	JAMESTOWN	025-024E	12.41	52.876	52.500	0.0013	66647	12.08	58.484	12.42	42.561
118300P	JAMESTOWN	100-024E	12.31	53.029	52.500	0.0012	66647	12.08	73.292	12.31	61.854
118301N	JAMESTOWN	010-024E	13.01	49.275	50.000	-0.0013	43679	12.75	18.356	13.01	17.434
118301N	JAMESTOWN	025-024E	13.12	49.368	50.000	-0.0015	52234	12.75	22.234	13.12	20.260
118301N	JAMESTOWN	100-024E	13.20	49.536	50.000	-0.0016	67782	12.75	29.355	13.20	25.624
118302N	JAMESTOWN	010-024E	12.24	50.112	53.500	0.0030	4414	12.17	34.157	12.24	33.143
118302N	JAMESTOWN	025-024E	12.25	50.508	53.500	0.0027	4388	12.17	40.968	12.25	39.452
118302N	JAMESTOWN	100-024E	12.22	51.263	53.500	0.0032	4373	12.17	53.381	12.23	52.046
118303N	JAMESTOWN	010-024E	12.48	48.792	53.500	0.0070	9190	12.23	40.897	12.02	41.098
118303N	JAMESTOWN	025-024E	12.49	49.289	53.500	0.0062	9762	12.22	48.709	12.38	42.753
118303N	JAMESTOWN	100-024E	12.50	50.136	53.500	0.0060	10689	12.22	64.145	12.30	53.178
118304N	JAMESTOWN	010-024E	12.48	48.748	52.500	-0.0098	10099	12.02	51.249	12.48	44.269
118304N	JAMESTOWN	025-024E	12.49	49.256	52.500	-0.0087	10683	12.33	55.847	12.49	52.653
118304N	JAMESTOWN	100-024E	12.50	50.115	52.500	-0.0088	11675	12.27	71.792	12.50	65.828

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118305N	JAMESTOWN	010-024E	12.45	46.485	52.500	-0.0017	7097	12.42	53.779	12.45	53.696
118305N	JAMESTOWN	025-024E	12.45	46.629	52.500	-0.0017	7203	12.42	64.365	12.45	64.278
118305N	JAMESTOWN	100-024E	12.43	46.845	52.500	-0.0018	7360	12.40	81.991	12.43	81.907
118306N	JAMESTOWN	010-024E	14.21	46.288	50.130	0.0051	671	14.20	23.447	14.21	23.454
118306N	JAMESTOWN	025-024E	13.99	46.443	50.130	0.0047	669	13.95	24.303	13.99	24.302
118306N	JAMESTOWN	100-024E	13.62	46.708	50.130	0.0057	667	13.58	25.723	13.62	25.721
118400N	WALKER RD	010-024E	14.25	49.046	51.250	0.0072	511	14.21	23.299	14.24	23.299
118400N	WALKER RD	025-024E	13.99	49.396	51.250	0.0064	511	13.93	24.108	13.99	24.106
118400N	WALKER RD	100-024E	13.70	49.994	51.250	0.0095	511	13.70	25.433	13.76	25.435
118400P	WALKER RD	010-024E	14.28	49.090	50.000	0.0023	55219	12.25	33.426	28.97	6.347
118400P	WALKER RD	025-024E	14.03	49.483	50.000	0.0021	57710	12.25	39.712	14.22	7.043
118400P	WALKER RD	100-024E	13.77	50.210	50.000	0.0018	62316	12.25	51.119	13.94	11.263
118401P	WALKER RD	010-024E	24.00	48.387	50.000	0.0010	138670	12.25	44.446	24.00	0.585
118401P	WALKER RD	025-024E	24.00	48.858	50.000	0.0009	142187	12.25	54.445	24.00	1.612
118401P	WALKER RD	100-024E	15.84	49.026	50.000	0.0009	143446	12.25	72.899	15.84	6.160
118402P	WALKER RD	010-024E	13.31	48.167	48.500	0.0018	36226	12.25	21.096	13.31	7.021
118402P	WALKER RD	025-024E	13.00	48.311	48.500	0.0017	37141	12.25	25.210	13.00	11.508
118402P	WALKER RD	100-024E	12.76	48.625	48.500	0.0015	39124	12.25	32.695	12.76	19.840
118403W	WALKER RD	010-024E	14.08	44.874	45.800	0.0005	139476	12.25	24.986	14.08	11.470
118403W	WALKER RD	025-024E	14.12	45.105	45.800	0.0005	163569	12.73	30.687	14.12	13.216
118403W	WALKER RD	100-024E	14.44	45.482	45.800	0.0005	202019	12.64	48.024	14.44	16.532
118404N	WALKER RD	010-024E	12.13	46.085	45.660	0.0077	4359	12.08	28.894	12.13	28.677
118404N	WALKER RD	025-024E	12.12	46.171	45.660	0.0069	4359	12.08	34.802	12.12	34.566
118404N	WALKER RD	100-024E	12.11	46.313	45.660	0.0063	4358	12.08	45.588	12.11	45.292
118405N	WALKER RD	010-024E	13.15	44.174	45.000	0.0014	4364	12.95	18.003	13.15	17.719
118405N	WALKER RD	025-024E	13.22	44.514	45.000	-0.0016	4363	13.08	20.841	13.22	20.662
118405N	WALKER RD	100-024E	13.34	45.213	45.000	-0.0019	4362	13.15	26.294	13.34	26.072
118500W	WENTWORTH	010-024E	20.72	42.614	43.000	0.0010	1451028	12.41	240.356	34.17	45.198
118500W	WENTWORTH	025-024E	21.70	42.917	43.000	0.0010	1491504	12.34	291.660	24.55	43.366
118500W	WENTWORTH	100-024E	24.00	43.537	43.000	0.0010	1561701	12.33	381.397	24.26	45.825
118501P	WENTWORTH	010-024E	20.75	42.620	43.000	0.0014	109614	12.33	49.846	13.22	13.678
118501P	WENTWORTH	025-024E	21.78	42.923	43.000	0.0012	112523	12.33	59.834	13.36	20.859
118501P	WENTWORTH	100-024E	24.00	43.543	43.000	0.0011	118462	12.33	78.049	13.01	28.925
118600W	POWER EASEMENT	010-024E	18.56	42.260	43.000	0.0010	89794	34.17	45.198	34.31	44.173
118600W	POWER EASEMENT	025-024E	18.78	42.513	43.000	0.0010	102968	24.00	43.761	24.48	44.498
118600W	POWER EASEMENT	100-024E	19.23	42.977	43.000	0.0012	127227	23.58	46.448	24.21	46.813
118601W	POWER EASEMENT	010-024E	18.47	42.238	43.000	0.0011	171769	34.31	44.173	24.14	46.129
118601W	POWER EASEMENT	025-024E	18.72	42.493	43.000	0.0010	184247	23.58	44.705	24.17	46.671
118601W	POWER EASEMENT	100-024E	19.14	42.961	43.000	0.0012	207136	23.58	47.056	24.13	48.462

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118602N	POWER EASEMENT	010-024E	18.32	42.217	43.000	0.0023	8739	21.37	46.517	21.33	46.623
118602N	POWER EASEMENT	025-024E	18.62	42.474	43.000	0.0015	8897	21.34	47.029	21.32	47.104
118602N	POWER EASEMENT	100-024E	19.05	42.945	43.000	0.0013	9187	21.28	48.728	21.25	48.744
118700N1	N SR 426	010-024E	17.96	42.109	42.700	0.0025	4377	21.33	46.623	21.31	46.678
118700N1	N SR 426	025-024E	18.04	42.353	42.700	0.0027	4377	21.32	47.104	21.30	47.142
118700N1	N SR 426	100-024E	18.30	42.791	42.700	0.0012	4377	21.25	48.744	21.23	48.751
118700N2	N SR 426	010-024E	14.28	41.365	42.000	0.0019	4362	21.31	46.800	21.28	46.818
118700N2	N SR 426	025-024E	14.65	41.495	42.000	0.0019	4362	21.30	47.284	21.28	47.297
118700N2	N SR 426	100-024E	15.40	41.742	42.000	0.0019	4362	21.23	48.927	21.07	48.958
118700N3	N SR 426	010-024E	12.52	40.895	40.800	0.0018	4362	21.28	46.818	21.27	46.830
118700N3	N SR 426	025-024E	12.52	40.924	40.800	0.0018	4362	21.28	47.297	21.27	47.301
118700N3	N SR 426	100-024E	12.46	40.973	40.800	0.0018	4362	21.07	48.958	21.05	48.973

TAB 2.5

ICPR FLOOD ROUTING RESULTS - EXISTING CONDITIONS
⌖ NODE MAXIMUM COMPARISONS - WITH BASEFLOW

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name: 118204W
Group: ALOMA WOODS BV
Type: Stage/Area

Base Flow(cfs): 5.000

Init Stage(ft): 53.540
Warn Stage(ft): 56.000

WETLAND SOUTH OF ALOMA WOODS PH 3
** ASSUMED 5 CFS BASEFLOW **

Stage(ft)	Area(ac)
53.500	0.0100
54.000	1.1500
55.000	1.8300
56.000	1.8300

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
105330N	LITTLE ECON	010-024E	13.50	49.500	50.500	-950.2500	0	12.46	132.088	0.00	0.000
105330N	LITTLE ECON	025-024E	13.50	49.670	50.500	-950.2500	0	12.41	176.157	0.00	0.000
105330N	LITTLE ECON	100-024E	13.75	50.000	50.500	-950.2500	0	12.38	249.877	0.00	0.000
118035N	BEAR GULLY	010-024E	12.00	40.800	40.800	0.0008	3	21.27	46.864	0.00	0.000
118035N	BEAR GULLY	025-024E	12.00	40.800	40.800	0.0008	3	21.27	47.332	0.00	0.000
118035N	BEAR GULLY	100-024E	12.00	40.800	40.800	0.0008	3	21.05	49.140	0.00	0.000
118100P	S SR 426	010-024E	23.66	56.435	59.000	0.0025	45534	12.08	68.957	12.05	60.410
118100P	S SR 426	025-024E	23.76	56.988	59.000	0.0017	49147	12.08	82.011	12.03	62.269
118100P	S SR 426	100-024E	24.00	57.921	59.000	0.0018	57650	12.08	105.686	12.02	61.690
118101P	S SR 426	010-024E	23.68	56.434	59.000	0.0026	66624	12.05	69.205	24.58	1.462
118101P	S SR 426	025-024E	23.77	56.987	59.000	0.0029	70479	12.03	72.528	24.95	1.610
118101P	S SR 426	100-024E	24.00	57.920	59.000	0.0020	79385	12.02	74.471	25.68	1.834
118102N	S SR 426	010-024E	13.53	54.098	57.000	0.0011	4530	13.30	7.915	13.53	7.848
118102N	S SR 426	025-024E	13.38	54.347	57.000	0.0008	4494	13.14	9.677	13.38	9.604
118102N	S SR 426	100-024E	13.31	54.668	57.000	0.0008	4466	13.12	12.260	13.31	12.214
118102W	S SR 426	010-024E	13.27	54.603	57.000	0.0008	106457	12.08	35.939	13.30	7.915
118102W	S SR 426	025-024E	13.23	54.796	57.000	0.0009	111074	12.08	42.591	13.14	9.677
118102W	S SR 426	100-024E	13.22	55.140	57.000	0.0008	122032	12.08	54.549	13.12	12.260
118200P	ALOMA WOODS BV	010-024E	13.08	67.840	68.000	0.0038	24726	12.00	26.068	12.19	4.543
118200P	ALOMA WOODS BV	025-024E	13.23	68.500	68.000	0.0043	26953	12.00	31.322	12.06	4.818
118200P	ALOMA WOODS BV	100-024E	13.65	69.649	68.000	0.0032	30833	12.00	40.903	11.91	4.799
118201P	ALOMA WOODS BV	010-024E	14.27	71.279	72.000	0.0035	56841	12.00	23.316	14.27	1.270
118201P	ALOMA WOODS BV	025-024E	14.58	71.475	72.000	0.0040	70181	12.00	27.056	14.58	1.394
118201P	ALOMA WOODS BV	100-024E	14.73	71.771	72.000	0.0030	92617	12.00	33.813	15.10	1.556
118202N	ALOMA WOODS BV	010-024E	12.93	66.455	69.250	0.0100	446	12.20	11.669	14.55	8.828
118202N	ALOMA WOODS BV	025-024E	13.07	67.025	69.250	0.0099	446	12.07	12.589	15.69	9.094
118202N	ALOMA WOODS BV	100-024E	13.25	68.005	69.250	-0.0100	446	11.91	12.746	16.46	9.527
118202P	ALOMA WOODS BV	010-024E	13.00	67.672	68.000	0.0032	32328	12.00	31.691	12.20	7.149
118202P	ALOMA WOODS BV	025-024E	13.16	68.284	68.000	0.0036	34592	12.00	37.929	12.07	7.874
118202P	ALOMA WOODS BV	100-024E	13.62	69.354	68.000	0.0026	38556	12.00	49.218	11.91	7.991
118203N	ALOMA WOODS BV	010-024E	12.70	61.766	63.000	0.0099	458	12.61	11.137	12.70	11.122
118203N	ALOMA WOODS BV	025-024E	12.71	62.134	63.000	-0.0095	457	12.18	12.001	12.71	11.753
118203N	ALOMA WOODS BV	100-024E	12.73	62.766	63.000	-0.0099	456	12.63	12.774	12.73	12.762
118203P	ALOMA WOODS BV	010-024E	12.66	61.964	63.000	0.0031	12666	12.00	11.172	12.49	2.663
118203P	ALOMA WOODS BV	025-024E	12.66	62.341	63.000	0.0034	13447	12.00	13.424	12.18	3.500
118203P	ALOMA WOODS BV	100-024E	12.68	63.075	63.000	0.0026	14965	12.00	17.530	12.01	4.225
118204W	ALOMA WOODS BV	010-024E	16.51	56.357	56.000	0.0029	79753	12.42	25.356	16.53	15.016
118204W	ALOMA WOODS BV	025-024E	15.78	56.398	56.000	0.0029	79746	12.33	29.414	15.80	16.731
118204W	ALOMA WOODS BV	100-024E	14.53	56.473	56.000	0.0029	79738	12.33	36.413	14.54	20.561

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118205P	ALOMA WOODS BV	010-024E	24.00	61.892	64.000	0.0009	27455	12.08	9.035	0.00	0.000
118205P	ALOMA WOODS BV	025-024E	24.00	62.320	64.000	0.0010	29131	12.08	12.016	24.00	0.130
118205P	ALOMA WOODS BV	100-024E	24.00	63.010	64.000	0.0012	31841	12.08	17.806	24.00	0.257
118206P	ALOMA WOODS BV	010-024E	15.26	56.140	57.000	0.0018	10698	12.08	6.134	15.26	0.422
118206P	ALOMA WOODS BV	025-024E	13.62	56.343	57.000	0.0020	11052	12.08	7.815	13.62	0.854
118206P	ALOMA WOODS BV	100-024E	12.76	56.845	57.000	0.0018	11926	12.00	11.121	12.76	2.278
118207W	ALOMA WOODS BV	010-024E	12.65	52.042	52.000	0.0003	98899	12.08	15.504	12.76	7.671
118207W	ALOMA WOODS BV	025-024E	12.60	52.094	52.000	0.0004	100529	12.08	18.156	12.71	10.299
118207W	ALOMA WOODS BV	100-024E	12.49	52.205	52.000	0.0003	104017	12.08	23.050	12.59	17.527
118208P	ALOMA WOODS BV	010-024E	12.44	51.709	51.000	0.0099	232	12.41	105.039	12.37	106.728
118208P	ALOMA WOODS BV	025-024E	12.35	51.889	51.000	0.0100	232	12.34	138.108	12.34	140.078
118208P	ALOMA WOODS BV	100-024E	12.33	52.143	51.000	-0.0100	232	12.24	194.491	12.30	191.526
118209N	ALOMA WOODS BV	010-024E	13.16	50.471	50.000	0.0097	517	12.22	26.711	12.27	26.038
118209N	ALOMA WOODS BV	025-024E	12.89	50.648	50.000	0.0049	517	12.12	26.542	12.17	25.845
118209N	ALOMA WOODS BV	100-024E	12.71	50.953	50.000	0.0064	517	11.94	25.883	12.00	25.320
118209P	ALOMA WOODS BV	010-024E	12.54	51.133	51.000	0.0033	65949	12.17	84.227	12.53	73.012
118209P	ALOMA WOODS BV	025-024E	12.49	51.233	51.000	0.0034	66645	12.25	94.422	12.47	86.119
118209P	ALOMA WOODS BV	100-024E	12.44	51.388	51.000	0.0026	67731	12.25	114.136	12.42	107.753
118210N	ALOMA WOODS BV	010-024E	12.44	51.758	50.990	0.0100	1849	12.48	41.139	12.49	41.214
118210N	ALOMA WOODS BV	025-024E	12.35	51.940	50.990	0.0100	2171	12.37	57.524	12.38	57.571
118210N	ALOMA WOODS BV	100-024E	12.32	52.203	50.990	0.0100	3247	12.28	84.356	12.24	89.977
118210W	ALOMA WOODS BV	010-024E	15.06	53.432	55.000	0.0013	27975	13.53	7.848	15.06	6.655
118210W	ALOMA WOODS BV	025-024E	14.79	53.564	55.000	0.0013	28443	13.38	9.604	14.79	8.434
118210W	ALOMA WOODS BV	100-024E	14.49	53.741	55.000	0.0008	29095	13.31	12.214	14.49	11.285
118300P	JAMESTOWN	010-024E	12.52	52.763	52.500	0.0018	66647	12.08	50.288	12.53	30.655
118300P	JAMESTOWN	025-024E	12.41	52.876	52.500	0.0019	66647	12.08	58.484	12.42	42.626
118300P	JAMESTOWN	100-024E	12.31	53.030	52.500	0.0011	66647	12.08	73.294	12.31	61.905
118301N	JAMESTOWN	010-024E	13.01	49.275	50.000	-0.0013	43678	12.75	18.356	13.01	17.434
118301N	JAMESTOWN	025-024E	13.11	49.368	50.000	-0.0015	52234	12.75	22.234	13.11	20.260
118301N	JAMESTOWN	100-024E	13.20	49.536	50.000	-0.0016	67782	12.75	29.355	13.20	25.624
118302N	JAMESTOWN	010-024E	12.24	50.112	53.500	0.0036	4414	12.17	34.156	12.24	33.143
118302N	JAMESTOWN	025-024E	12.25	50.508	53.500	0.0043	4388	12.17	40.966	12.25	39.452
118302N	JAMESTOWN	100-024E	12.22	51.263	53.500	0.0029	4373	12.17	53.382	12.23	52.046
118303N	JAMESTOWN	010-024E	12.48	48.792	53.500	0.0066	9190	12.23	40.898	12.02	41.097
118303N	JAMESTOWN	025-024E	12.49	49.289	53.500	0.0062	9762	12.22	48.710	12.38	42.753
118303N	JAMESTOWN	100-024E	12.50	50.136	53.500	0.0059	10689	12.22	64.145	12.30	53.178
118304N	JAMESTOWN	010-024E	12.48	48.748	52.500	-0.0088	10099	12.02	51.254	12.48	44.269
118304N	JAMESTOWN	025-024E	12.49	49.256	52.500	-0.0086	10683	12.33	55.847	12.49	52.654
118304N	JAMESTOWN	100-024E	12.50	50.115	52.500	-0.0087	11675	12.27	71.792	12.50	65.828

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118305N	JAMESTOWN	010-024E	12.45	46.485	52.500	0.0018	7097	12.42	53.779	12.45	53.696
118305N	JAMESTOWN	025-024E	12.45	46.629	52.500	0.0019	7203	12.42	64.365	12.45	64.278
118305N	JAMESTOWN	100-024E	12.43	46.845	52.500	-0.0018	7360	12.40	81.991	12.43	81.907
118306N	JAMESTOWN	010-024E	14.14	46.301	50.130	0.0034	671	14.13	23.529	14.14	23.534
118306N	JAMESTOWN	025-024E	13.95	46.461	50.130	0.0035	669	13.89	24.390	13.95	24.390
118306N	JAMESTOWN	100-024E	13.59	46.731	50.130	0.0029	666	13.56	25.848	13.59	25.846
118400N	WALKER RD	010-024E	14.20	49.078	51.250	0.0056	511	14.17	23.378	14.21	23.377
118400N	WALKER RD	025-024E	13.95	49.434	51.250	0.0055	511	13.88	24.193	13.95	24.192
118400N	WALKER RD	100-024E	13.66	50.047	51.250	0.0049	511	13.68	25.549	13.73	25.552
118400P	WALKER RD	010-024E	14.23	49.125	50.000	0.0023	55441	12.25	33.425	14.62	5.084
118400P	WALKER RD	025-024E	13.99	49.528	50.000	0.0023	57991	12.25	39.713	14.20	7.296
118400P	WALKER RD	100-024E	13.73	50.279	50.000	0.0018	62750	12.25	51.118	13.90	11.668
118401P	WALKER RD	010-024E	24.00	48.387	50.000	0.0010	138670	12.25	44.445	24.00	0.585
118401P	WALKER RD	025-024E	24.00	48.858	50.000	0.0009	142187	12.25	54.446	24.00	1.612
118401P	WALKER RD	100-024E	15.84	49.026	50.000	0.0009	143446	12.25	72.898	15.84	6.160
118402P	WALKER RD	010-024E	13.31	48.167	48.500	0.0018	36226	12.25	21.095	13.31	7.021
118402P	WALKER RD	025-024E	13.00	48.311	48.500	0.0016	37141	12.25	25.210	13.00	11.508
118402P	WALKER RD	100-024E	12.76	48.625	48.500	0.0015	39124	12.25	32.694	12.76	19.840
118403W	WALKER RD	010-024E	14.08	44.874	45.800	0.0005	139476	12.25	24.985	14.08	11.470
118403W	WALKER RD	025-024E	14.12	45.105	45.800	0.0005	163569	12.74	30.687	14.12	13.216
118403W	WALKER RD	100-024E	14.44	45.482	45.800	0.0004	202019	12.64	48.024	14.44	16.532
118404N	WALKER RD	010-024E	12.13	46.085	45.660	0.0083	4359	12.08	28.895	12.13	28.678
118404N	WALKER RD	025-024E	12.12	46.171	45.660	0.0091	4359	12.08	34.803	12.12	34.566
118404N	WALKER RD	100-024E	12.11	46.313	45.660	0.0072	4358	12.08	45.590	12.11	45.292
118405N	WALKER RD	010-024E	13.15	44.174	45.000	0.0015	4364	12.95	18.002	13.15	17.718
118405N	WALKER RD	025-024E	13.22	44.514	45.000	-0.0016	4363	13.07	20.841	13.22	20.661
118405N	WALKER RD	100-024E	13.34	45.213	45.000	-0.0019	4362	13.15	26.294	13.34	26.072
118500W	WENTWORTH	010-024E	20.72	42.632	43.000	0.0011	1453347	12.37	244.182	35.65	45.989
118500W	WENTWORTH	025-024E	21.69	42.941	43.000	0.0012	1494729	12.34	294.266	24.53	43.390
118500W	WENTWORTH	100-024E	24.00	43.563	43.000	0.0009	1564538	12.33	382.752	24.25	45.975
118501P	WENTWORTH	010-024E	20.75	42.637	43.000	0.0013	109780	12.33	49.846	13.16	14.348
118501P	WENTWORTH	025-024E	21.77	42.948	43.000	0.0012	112754	12.33	59.832	13.26	21.743
118501P	WENTWORTH	100-024E	24.00	43.569	43.000	0.0009	118709	12.33	78.048	12.99	29.399
118600W POWER EASEMENT		010-024E	18.56	42.276	43.000	0.0011	90622	35.65	45.989	35.79	44.687
118600W POWER EASEMENT		025-024E	18.78	42.535	43.000	0.0012	104128	24.00	43.789	24.42	44.531
118600W POWER EASEMENT		100-024E	19.23	42.999	43.000	0.0010	128360	23.58	46.604	24.21	46.970
118601W POWER EASEMENT		010-024E	18.46	42.254	43.000	0.0012	172557	35.79	44.687	24.13	46.169
118601W POWER EASEMENT		025-024E	18.71	42.516	43.000	0.0012	185348	23.58	44.737	24.14	46.709
118601W POWER EASEMENT		100-024E	19.15	42.983	43.000	0.0010	208202	23.58	47.216	24.12	48.621

ALOMA WOODS DRAINAGE BASIN STUDY
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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
118602N	POWER EASEMENT	010-024E	18.32	42.233	43.000	0.0017	8749	21.36	46.552	21.33	46.658
118602N	POWER EASEMENT	025-024E	18.62	42.497	43.000	0.0012	8911	21.34	47.062	21.32	47.136
118602N	POWER EASEMENT	100-024E	19.06	42.967	43.000	0.0014	9200	21.26	48.891	21.23	48.906
118700N1	N SR 426	010-024E	17.96	42.125	42.700	0.0022	4377	21.33	46.658	21.30	46.713
118700N1	N SR 426	025-024E	18.04	42.375	42.700	0.0012	4377	21.32	47.136	21.30	47.173
118700N1	N SR 426	100-024E	18.27	42.812	42.700	0.0013	4377	21.23	48.906	21.21	48.913
118700N2	N SR 426	010-024E	14.29	41.375	42.000	0.0019	4362	21.30	46.835	21.28	46.853
118700N2	N SR 426	025-024E	14.67	41.510	42.000	0.0019	4362	21.30	47.315	21.28	47.327
118700N2	N SR 426	100-024E	15.44	41.757	42.000	0.0019	4362	21.21	49.089	21.06	49.124
118700N3	N SR 426	010-024E	12.50	40.900	40.800	0.0018	4362	21.28	46.853	21.27	46.864
118700N3	N SR 426	025-024E	12.48	40.930	40.800	0.0018	4362	21.28	47.327	21.27	47.332
118700N3	N SR 426	100-024E	12.43	40.979	40.800	0.0018	4362	21.06	49.124	21.05	49.140

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TAB 2.6

ICPR FLOOD ROUTING RESULTS - EXISTING CONDITIONS
⌖ LINK MAXIMUM COMPARISONS - WITHOUT BASEFLOW

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118100W1	S SR 426	010-024E	11.76	0.964	-0.001	23.66	56.435	23.68	56.434
118100W1	S SR 426	025-024E	11.49	0.914	-0.001	23.76	56.988	23.77	56.987
118100W1	S SR 426	100-024E	10.67	0.899	0.001	24.00	57.921	24.00	57.920
118100W2	S SR 426	010-024E	12.05	59.727	0.179	23.66	56.435	23.68	56.434
118100W2	S SR 426	025-024E	12.03	61.755	0.124	23.76	56.988	23.77	56.987
118100W2	S SR 426	100-024E	12.02	61.382	0.152	24.00	57.921	24.00	57.920
118101W1	S SR 426	010-024E	24.58	1.462	0.004	23.68	56.434	13.27	54.603
118101W1	S SR 426	025-024E	24.95	1.610	0.003	23.77	56.987	13.23	54.796
118101W1	S SR 426	100-024E	25.68	1.834	0.002	24.00	57.920	13.22	55.140
118101W2	S SR 426	010-024E	0.00	0.000	0.000	23.68	56.434	13.27	54.603
118101W2	S SR 426	025-024E	0.00	0.000	0.000	23.77	56.987	13.23	54.796
118101W2	S SR 426	100-024E	0.00	0.000	0.000	24.00	57.920	13.22	55.140
118102P1	S SR 426	010-024E	13.31	7.915	0.006	13.27	54.603	13.53	54.098
118102P1	S SR 426	025-024E	13.14	9.677	0.007	13.23	54.796	13.38	54.347
118102P1	S SR 426	100-024E	13.12	12.260	0.007	13.22	55.140	13.31	54.668
118102P2	S SR 426	010-024E	13.53	7.848	0.007	13.53	54.098	13.53	53.527
118102P2	S SR 426	025-024E	13.38	9.604	0.006	13.38	54.347	13.38	53.638
118102P2	S SR 426	100-024E	13.31	12.214	0.005	13.31	54.668	13.19	53.786
118102W1	S SR 426	010-024E	0.00	0.000	0.000	13.27	54.603	13.53	54.098
118102W1	S SR 426	025-024E	0.00	0.000	0.000	13.23	54.796	13.38	54.347
118102W1	S SR 426	100-024E	0.00	0.000	0.000	13.22	55.140	13.31	54.668
118102W2	S SR 426	010-024E	0.00	0.000	0.000	13.53	54.098	12.66	52.041
118102W2	S SR 426	025-024E	0.00	0.000	0.000	13.38	54.347	12.60	52.093
118102W2	S SR 426	100-024E	0.00	0.000	0.000	13.31	54.668	12.50	52.203
118200D	ALOMA WOODS BV	010-024E	12.19	4.543	0.017	13.08	67.840	12.93	66.455
118200D	ALOMA WOODS BV	025-024E	12.06	4.818	0.024	13.23	68.500	13.08	67.025
118200D	ALOMA WOODS BV	100-024E	11.91	4.799	0.027	13.65	69.649	13.25	68.005
118201W1	ALOMA WOODS BV	010-024E	14.27	0.741	0.334	14.27	71.279	13.00	67.672
118201W1	ALOMA WOODS BV	025-024E	14.58	0.764	0.334	14.58	71.475	13.16	68.284
118201W1	ALOMA WOODS BV	100-024E	19.33	0.788	0.334	14.72	71.771	13.62	69.354
118201W2	ALOMA WOODS BV	010-024E	14.27	0.529	0.001	14.27	71.279	13.00	67.672
118201W2	ALOMA WOODS BV	025-024E	14.58	0.631	0.001	14.58	71.475	13.16	68.284
118201W2	ALOMA WOODS BV	100-024E	14.72	0.793	0.001	14.72	71.771	13.62	69.354
118201W3	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	14.27	71.279	13.00	67.672
118201W3	ALOMA WOODS BV	025-024E	0.00	0.000	0.000	14.58	71.475	13.16	68.284
118201W3	ALOMA WOODS BV	100-024E	14.72	0.096	0.000	14.72	71.771	13.62	69.354
118202D	ALOMA WOODS BV	010-024E	12.20	7.149	-0.072	13.00	67.672	12.93	66.455
118202D	ALOMA WOODS BV	025-024E	12.07	7.874	-0.071	13.16	68.284	13.08	67.025
118202D	ALOMA WOODS BV	100-024E	11.91	7.992	-0.072	13.62	69.354	13.25	68.005

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118202P	ALOMA WOODS BV	010-024E	14.55	8.828	-4.473	12.93	66.455	12.70	61.766
118202P	ALOMA WOODS BV	025-024E	15.69	9.094	-4.478	13.08	67.025	12.71	62.134
118202P	ALOMA WOODS BV	100-024E	16.46	9.527	-4.477	13.25	68.005	12.73	62.766
118203D	ALOMA WOODS BV	010-024E	12.49	2.663	0.007	12.66	61.964	12.70	61.766
118203D	ALOMA WOODS BV	025-024E	12.18	3.500	-0.078	12.66	62.341	12.71	62.134
118203D	ALOMA WOODS BV	100-024E	12.01	4.225	-0.113	12.68	63.075	12.73	62.766
118203P	ALOMA WOODS BV	010-024E	12.70	11.122	0.508	12.70	61.766	12.65	58.705
118203P	ALOMA WOODS BV	025-024E	12.71	11.753	0.507	12.71	62.134	12.64	58.714
118203P	ALOMA WOODS BV	100-024E	12.73	12.762	0.505	12.73	62.766	12.63	58.723
118204D	ALOMA WOODS BV	010-024E	25.91	7.066	-0.034	17.33	55.680	12.40	51.695
118204D	ALOMA WOODS BV	025-024E	26.70	7.853	-0.033	18.84	56.207	12.34	51.879
118204D	ALOMA WOODS BV	100-024E	27.36	8.192	-0.033	16.17	56.316	12.33	52.140
118204W	LITTLE ECON	010-024E	0.00	0.000	0.000	17.33	55.680	13.50	49.500
118204W	LITTLE ECON	025-024E	18.84	2.566	-0.003	18.84	56.207	13.50	49.670
118204W	LITTLE ECON	100-024E	16.17	5.955	0.008	16.17	56.316	13.75	50.000
118205D	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	24.00	61.892	15.26	56.140
118205D	ALOMA WOODS BV	025-024E	24.00	0.130	0.000	24.00	62.320	13.62	56.343
118205D	ALOMA WOODS BV	100-024E	24.00	0.257	0.000	24.00	63.010	12.76	56.845
118206W1	ALOMA WOODS BV	010-024E	15.26	0.422	0.001	15.26	56.140	12.66	52.041
118206W1	ALOMA WOODS BV	025-024E	13.62	0.854	0.001	13.62	56.343	12.60	52.093
118206W1	ALOMA WOODS BV	100-024E	12.76	2.278	0.002	12.76	56.845	12.50	52.203
118206W2	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	15.26	56.140	12.66	52.041
118206W2	ALOMA WOODS BV	025-024E	0.00	0.000	0.000	13.62	56.343	12.60	52.093
118206W2	ALOMA WOODS BV	100-024E	0.00	0.000	0.000	12.76	56.845	12.50	52.203
118207D	ALOMA WOODS BV	010-024E	12.98	6.798	0.063	12.66	52.041	12.40	51.695
118207D	ALOMA WOODS BV	025-024E	13.09	7.143	0.111	12.60	52.093	12.34	51.879
118207D	ALOMA WOODS BV	100-024E	13.29	7.377	0.397	12.50	52.203	12.33	52.140
118207W	ALOMA WOODS BV	010-024E	12.66	1.161	-0.004	12.66	52.041	12.40	51.695
118207W	ALOMA WOODS BV	025-024E	12.60	3.966	-0.009	12.60	52.093	12.34	51.879
118207W	ALOMA WOODS BV	100-024E	12.57	12.358	1.044	12.50	52.203	12.33	52.140
118208P	ALOMA WOODS BV	010-024E	11.97	47.745	4.952	12.40	51.695	12.60	51.114
118208P	ALOMA WOODS BV	025-024E	11.90	46.046	4.987	12.34	51.879	12.52	51.219
118208P	ALOMA WOODS BV	100-024E	11.82	42.924	4.746	12.33	52.140	12.45	51.381
118208W	LITTLE ECON	010-024E	12.40	75.331	1.516	12.40	51.695	13.50	49.500
118208W	LITTLE ECON	025-024E	12.34	107.222	-1.711	12.34	51.879	13.50	49.670
118208W	LITTLE ECON	100-024E	12.33	158.267	-2.074	12.33	52.140	13.75	50.000
118209D	ALOMA WOODS BV	010-024E	12.36	17.283	0.021	12.60	51.114	13.22	50.455
118209D	ALOMA WOODS BV	025-024E	12.26	17.017	0.021	12.52	51.219	12.92	50.629
118209D	ALOMA WOODS BV	100-024E	12.07	16.525	-0.026	12.45	51.381	12.73	50.927

ALOMA WOODS DRAINAGE BASIN STUDY
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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118209P	ALOMA WOODS BV	010-024E	12.36	25.561	0.093	13.22	50.455	14.25	49.046
118209P	ALOMA WOODS BV	025-024E	12.25	25.440	0.060	12.92	50.629	13.99	49.396
118209P	ALOMA WOODS BV	100-024E	12.09	25.050	0.059	12.73	50.927	13.70	49.994
118209W	LITTLE ECON	010-024E	12.60	53.936	0.189	12.60	51.114	13.50	49.500
118209W	LITTLE ECON	025-024E	12.52	68.270	0.179	12.52	51.219	13.50	49.670
118209W	LITTLE ECON	100-024E	12.45	92.581	0.152	12.45	51.381	13.75	50.000
118210C	ALOMA WOODS BV	010-024E	15.06	6.655	0.007	15.06	53.432	15.06	52.334
118210C	ALOMA WOODS BV	025-024E	14.79	8.434	0.010	14.79	53.564	14.79	52.400
118210C	ALOMA WOODS BV	100-024E	14.49	11.285	0.011	14.49	53.741	14.49	52.491
118210P	ALOMA WOODS BV	010-024E	12.07	11.285	3.545	12.45	51.749	13.22	50.455
118210P	ALOMA WOODS BV	025-024E	11.97	11.259	2.908	12.36	51.931	12.92	50.629
118210P	ALOMA WOODS BV	100-024E	11.81	11.000	0.472	12.32	52.198	12.73	50.927
118210W	JAMESTOWN	010-024E	12.50	32.970	2.960	12.45	51.749	12.40	51.695
118210W	JAMESTOWN	025-024E	12.38	49.179	5.184	12.36	51.931	12.34	51.879
118210W	JAMESTOWN	100-024E	12.22	82.825	8.226	12.32	52.198	12.33	52.140
118300D	JAMESTOWN	010-024E	12.91	13.379	0.031	12.53	52.762	12.45	51.749
118300D	JAMESTOWN	025-024E	13.00	13.244	0.026	12.41	52.876	12.36	51.931
118300D	JAMESTOWN	100-024E	13.22	12.897	0.028	12.31	53.029	12.32	52.198
118300W	JAMESTOWN	010-024E	12.53	17.469	0.067	12.53	52.762	12.45	51.749
118300W	JAMESTOWN	025-024E	12.41	29.926	0.085	12.41	52.876	12.36	51.931
118300W	JAMESTOWN	100-024E	12.31	50.033	0.098	12.31	53.029	12.32	52.198
118301D	JAMESTOWN	010-024E	13.01	17.434	0.626	13.01	49.275	13.15	44.174
118301D	JAMESTOWN	025-024E	13.12	20.260	-0.632	13.12	49.368	13.22	44.514
118301D	JAMESTOWN	100-024E	13.20	25.624	-0.632	13.20	49.536	13.34	45.213
118302P	JAMESTOWN	010-024E	12.24	33.143	0.049	12.24	50.112	12.24	48.970
118302P	JAMESTOWN	025-024E	12.25	39.452	0.048	12.25	50.508	12.49	49.289
118302P	JAMESTOWN	100-024E	12.23	52.046	0.059	12.22	51.263	12.50	50.136
118302W1	JAMESTOWN	010-024E	0.00	0.000	0.000	12.24	50.112	12.48	48.792
118302W1	JAMESTOWN	025-024E	0.00	0.000	0.000	12.25	50.508	12.49	49.289
118302W1	JAMESTOWN	100-024E	0.00	0.000	0.000	12.22	51.263	12.50	50.136
118302W2	JAMESTOWN	010-024E	0.00	0.000	0.000	12.24	50.112	13.01	49.275
118302W2	JAMESTOWN	025-024E	0.00	0.000	0.000	12.25	50.508	13.12	49.368
118302W2	JAMESTOWN	100-024E	0.00	0.000	0.000	12.22	51.263	13.20	49.536
118303C	JAMESTOWN	010-024E	12.02	41.098	-23.772	12.48	48.792	12.48	48.748
118303C	JAMESTOWN	025-024E	12.38	42.753	-23.544	12.49	49.289	12.49	49.256
118303C	JAMESTOWN	100-024E	12.30	53.178	-23.423	12.50	50.136	12.50	50.115
118304P	JAMESTOWN	010-024E	12.48	44.269	-0.182	12.48	48.748	12.46	47.178
118304P	JAMESTOWN	025-024E	12.49	52.653	-0.153	12.49	49.256	12.46	47.368
118304P	JAMESTOWN	100-024E	12.50	65.828	-0.156	12.50	50.115	12.47	47.609

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118304W	JAMESTOWN	010-024E	0.00	0.000	0.000	12.48	48.748	12.45	46.485
118304W	JAMESTOWN	025-024E	0.00	0.000	0.000	12.49	49.256	12.45	46.629
118304W	JAMESTOWN	100-024E	0.00	0.000	0.000	12.50	50.115	12.43	46.845
118305C	JAMESTOWN	010-024E	12.45	53.696	-0.111	12.45	46.485	12.45	44.023
118305C	JAMESTOWN	025-024E	12.45	64.278	-0.110	12.45	46.629	12.45	44.141
118305C	JAMESTOWN	100-024E	12.43	81.907	-2.935	12.43	46.845	12.43	44.320
118306P	JAMESTOWN	010-024E	14.21	23.454	-0.057	14.21	46.288	14.17	43.409
118306P	JAMESTOWN	025-024E	13.99	24.302	-0.051	13.99	46.443	13.75	43.440
118306P	JAMESTOWN	100-024E	13.62	25.721	-0.062	13.62	46.708	24.00	43.537
118400D	WALKER RD	010-024E	28.97	6.347	-0.444	14.28	49.090	14.25	49.046
118400D	WALKER RD	025-024E	14.22	7.043	-0.075	14.03	49.483	13.99	49.396
118400D	WALKER RD	100-024E	13.94	11.263	-0.156	13.77	50.210	13.70	49.994
118400P	ALOMA WOODS BV	010-024E	14.24	23.299	-0.051	14.25	49.046	14.21	46.288
118400P	ALOMA WOODS BV	025-024E	13.99	24.106	-0.046	13.99	49.396	13.99	46.443
118400P	ALOMA WOODS BV	100-024E	13.76	25.435	-0.043	13.70	49.994	13.62	46.708
118401D	WALKER RD	010-024E	24.00	0.585	0.000	24.00	48.387	14.08	44.874
118401D	WALKER RD	025-024E	24.00	1.612	-0.001	24.00	48.858	14.12	45.105
118401D	WALKER RD	100-024E	15.84	6.160	0.008	15.84	49.026	14.44	45.482
118402D	WALKER RD	010-024E	13.31	7.021	0.027	13.31	48.167	14.08	44.874
118402D	WALKER RD	025-024E	13.00	11.508	0.022	13.00	48.311	14.12	45.105
118402D	WALKER RD	100-024E	12.76	14.075	0.024	12.76	48.625	14.44	45.482
118402W	WALKER RD	010-024E	0.00	0.000	0.000	13.31	48.167	14.08	44.874
118402W	WALKER RD	025-024E	0.00	0.000	0.000	13.00	48.311	14.12	45.105
118402W	WALKER RD	100-024E	12.76	5.765	0.017	12.76	48.625	14.44	45.482
118403D	WALKER RD	010-024E	14.08	11.470	0.008	14.08	44.874	20.72	42.614
118403D	WALKER RD	025-024E	14.12	13.216	-0.006	14.12	45.105	21.70	42.917
118403D	WALKER RD	100-024E	14.44	16.532	-0.016	14.44	45.482	24.00	43.537
118403W	WALKER RD	010-024E	0.00	0.000	0.000	14.08	44.874	20.72	42.614
118403W	WALKER RD	025-024E	0.00	0.000	0.000	14.12	45.105	21.70	42.917
118403W	WALKER RD	100-024E	0.00	0.000	0.000	14.44	45.482	24.00	43.537
118404P	WALKER RD	010-024E	12.13	10.664	0.019	12.13	46.085	12.09	42.868
118404P	WALKER RD	025-024E	12.13	10.803	-0.018	12.12	46.171	21.70	42.917
118404P	WALKER RD	100-024E	12.11	11.025	0.021	12.11	46.313	24.00	43.537
118404W	WALKER RD	010-024E	12.13	18.014	0.169	12.13	46.085	20.72	42.614
118404W	WALKER RD	025-024E	12.12	23.764	0.145	12.12	46.171	21.70	42.917
118404W	WALKER RD	100-024E	12.11	34.267	0.179	12.11	46.313	24.00	43.537
118405P	WALKER RD	010-024E	13.15	17.719	0.018	13.15	44.174	13.14	42.998
118405P	WALKER RD	025-024E	13.22	20.662	-0.019	13.22	44.514	13.22	43.111
118405P	WALKER RD	100-024E	13.34	26.072	-0.021	13.34	45.213	24.00	43.537

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (NO BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118405W	WALKER RD	010-024E	0.00	0.000	0.000	13.15	44.174	20.72	42.614
118405W	WALKER RD	025-024E	0.00	0.000	0.000	13.22	44.514	21.70	42.917
118405W	WALKER RD	100-024E	0.00	0.000	0.000	13.34	45.213	24.00	43.537
118500P	WENTWORTH	010-024E	34.17	45.198	5.463	20.72	42.614	18.56	42.260
118500P	WENTWORTH	025-024E	24.55	43.366	-2.566	21.70	42.917	18.78	42.513
118500P	WENTWORTH	100-024E	24.26	45.825	-1.838	24.00	43.537	19.23	42.977
118501D	WENTWORTH	010-024E	13.22	13.678	4.384	20.75	42.620	20.72	42.614
118501D	WENTWORTH	025-024E	13.36	20.859	3.803	21.78	42.923	21.70	42.917
118501D	WENTWORTH	100-024E	13.01	28.925	3.340	24.00	43.543	24.00	43.537
118600C	POWER EASEMENT	010-024E	34.31	44.173	0.867	18.56	42.260	18.47	42.238
118600C	POWER EASEMENT	025-024E	24.48	44.498	1.176	18.78	42.513	18.72	42.493
118600C	POWER EASEMENT	100-024E	24.21	46.813	0.300	19.23	42.977	19.14	42.961
118601C	POWER EASEMENT	010-024E	24.14	46.129	-3.421	18.47	42.238	18.32	42.217
118601C	POWER EASEMENT	025-024E	24.17	46.671	-0.463	18.72	42.493	18.62	42.474
118601C	POWER EASEMENT	100-024E	24.13	48.462	2.740	19.14	42.961	19.05	42.945
118602P	N SR 426	010-024E	21.33	46.623	6.000	18.32	42.217	17.96	42.109
118602P	N SR 426	025-024E	21.32	47.104	7.609	18.62	42.474	18.04	42.353
118602P	N SR 426	100-024E	21.25	48.744	2.708	19.05	42.945	18.30	42.791
118602W	N SR 426	010-024E	0.00	0.000	0.000	18.32	42.217	17.96	42.109
118602W	N SR 426	025-024E	0.00	0.000	0.000	18.62	42.474	18.04	42.353
118602W	N SR 426	100-024E	0.00	0.000	0.000	19.05	42.945	18.30	42.791
118700P1	N SR 426	010-024E	21.31	46.678	-1.778	17.96	42.109	14.28	41.365
118700P1	N SR 426	025-024E	21.30	47.142	2.290	18.04	42.353	14.65	41.495
118700P1	N SR 426	100-024E	21.29	48.460	0.321	18.30	42.791	15.40	41.742
118700P2	N SR 426	010-024E	21.28	46.818	1.475	14.28	41.365	12.52	40.895
118700P2	N SR 426	025-024E	21.28	47.297	2.735	14.65	41.495	12.52	40.924
118700P2	N SR 426	100-024E	21.07	48.958	1.086	15.40	41.742	12.46	40.973
118700P3	N SR 426	010-024E	21.27	46.830	-1.234	12.52	40.895	12.00	40.800
118700P3	N SR 426	025-024E	21.27	47.301	-1.458	12.52	40.924	12.00	40.800
118700P3	N SR 426	100-024E	21.05	48.973	0.765	12.46	40.973	12.00	40.800
118700W1	N SR 426	010-024E	0.00	0.000	0.000	17.96	42.109	14.28	41.365
118700W1	N SR 426	025-024E	0.00	0.000	0.000	18.04	42.353	14.65	41.495
118700W1	N SR 426	100-024E	18.30	1.797	-0.002	18.30	42.791	15.40	41.742
118700W2	N SR 426	010-024E	0.00	0.000	0.000	14.28	41.365	12.52	40.895
118700W2	N SR 426	025-024E	0.00	0.000	0.000	14.65	41.495	12.52	40.924
118700W2	N SR 426	100-024E	0.00	0.000	0.000	15.40	41.742	12.46	40.973
118700W3	N SR 426	010-024E	12.52	1.910	0.007	12.52	40.895	12.00	40.800
118700W3	N SR 426	025-024E	12.52	2.848	0.005	12.52	40.924	12.00	40.800
118700W3	N SR 426	100-024E	12.46	4.690	0.007	12.46	40.973	12.00	40.800

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TAB 2.7

ICPR FLOOD ROUTING RESULTS - EXISTING CONDITIONS
⌖ LINK MAXIMUM COMPARISONS - WITH BASEFLOW

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118100W1	S SR 426	010-024E	11.76	0.964	-0.002	23.66	56.435	23.68	56.434
118100W1	S SR 426	025-024E	11.49	0.914	-0.001	23.76	56.988	23.77	56.987
118100W1	S SR 426	100-024E	10.67	0.899	-0.001	24.00	57.921	24.00	57.920
118100W2	S SR 426	010-024E	12.05	59.729	0.179	23.66	56.435	23.68	56.434
118100W2	S SR 426	025-024E	12.03	61.756	0.194	23.76	56.988	23.77	56.987
118100W2	S SR 426	100-024E	12.02	61.382	0.131	24.00	57.921	24.00	57.920
118101W1	S SR 426	010-024E	24.58	1.462	0.005	23.68	56.434	13.27	54.603
118101W1	S SR 426	025-024E	24.95	1.610	0.005	23.77	56.987	13.23	54.796
118101W1	S SR 426	100-024E	25.68	1.834	0.002	24.00	57.920	13.22	55.140
118101W2	S SR 426	010-024E	0.00	0.000	0.000	23.68	56.434	13.27	54.603
118101W2	S SR 426	025-024E	0.00	0.000	0.000	23.77	56.987	13.23	54.796
118101W2	S SR 426	100-024E	0.00	0.000	0.000	24.00	57.920	13.22	55.140
118102P1	S SR 426	010-024E	13.30	7.915	0.006	13.27	54.603	13.53	54.098
118102P1	S SR 426	025-024E	13.14	9.677	0.005	13.23	54.796	13.38	54.347
118102P1	S SR 426	100-024E	13.12	12.260	0.007	13.22	55.140	13.31	54.668
118102P2	S SR 426	010-024E	13.53	7.848	0.007	13.53	54.098	13.53	53.527
118102P2	S SR 426	025-024E	13.38	9.604	0.006	13.38	54.347	13.38	53.638
118102P2	S SR 426	100-024E	13.31	12.214	0.005	13.31	54.668	13.19	53.786
118102W1	S SR 426	010-024E	0.00	0.000	0.000	13.27	54.603	13.53	54.098
118102W1	S SR 426	025-024E	0.00	0.000	0.000	13.23	54.796	13.38	54.347
118102W1	S SR 426	100-024E	0.00	0.000	0.000	13.22	55.140	13.31	54.668
118102W2	S SR 426	010-024E	0.00	0.000	0.000	13.53	54.098	12.65	52.042
118102W2	S SR 426	025-024E	0.00	0.000	0.000	13.38	54.347	12.60	52.094
118102W2	S SR 426	100-024E	0.00	0.000	0.000	13.31	54.668	12.49	52.205
118200D	ALOMA WOODS BV	010-024E	12.19	4.543	0.017	13.08	67.840	12.93	66.455
118200D	ALOMA WOODS BV	025-024E	12.06	4.818	0.024	13.23	68.500	13.07	67.025
118200D	ALOMA WOODS BV	100-024E	11.91	4.799	0.027	13.65	69.649	13.25	68.005
118201W1	ALOMA WOODS BV	010-024E	14.27	0.741	0.334	14.27	71.279	13.00	67.672
118201W1	ALOMA WOODS BV	025-024E	14.58	0.764	0.334	14.58	71.475	13.16	68.284
118201W1	ALOMA WOODS BV	100-024E	19.33	0.788	0.334	14.73	71.771	13.62	69.354
118201W2	ALOMA WOODS BV	010-024E	14.27	0.529	0.001	14.27	71.279	13.00	67.672
118201W2	ALOMA WOODS BV	025-024E	14.58	0.631	0.001	14.58	71.475	13.16	68.284
118201W2	ALOMA WOODS BV	100-024E	14.73	0.793	0.001	14.73	71.771	13.62	69.354
118201W3	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	14.27	71.279	13.00	67.672
118201W3	ALOMA WOODS BV	025-024E	0.00	0.000	0.000	14.58	71.475	13.16	68.284
118201W3	ALOMA WOODS BV	100-024E	14.73	0.096	0.000	14.73	71.771	13.62	69.354
118202D	ALOMA WOODS BV	010-024E	12.20	7.149	-0.071	13.00	67.672	12.93	66.455
118202D	ALOMA WOODS BV	025-024E	12.07	7.874	-0.071	13.16	68.284	13.07	67.025
118202D	ALOMA WOODS BV	100-024E	11.91	7.991	-0.071	13.62	69.354	13.25	68.005

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118202P	ALOMA WOODS BV	010-024E	14.55	8.828	-4.474	12.93	66.455	12.70	61.766
118202P	ALOMA WOODS BV	025-024E	15.69	9.094	-4.479	13.07	67.025	12.71	62.134
118202P	ALOMA WOODS BV	100-024E	16.46	9.527	-4.477	13.25	68.005	12.73	62.766
118203D	ALOMA WOODS BV	010-024E	12.49	2.663	0.007	12.66	61.964	12.70	61.766
118203D	ALOMA WOODS BV	025-024E	12.18	3.500	-0.080	12.66	62.341	12.71	62.134
118203D	ALOMA WOODS BV	100-024E	12.01	4.225	-0.111	12.68	63.075	12.73	62.766
118203P	ALOMA WOODS BV	010-024E	12.70	11.122	0.513	12.70	61.766	12.65	58.705
118203P	ALOMA WOODS BV	025-024E	12.71	11.753	0.507	12.71	62.134	12.64	58.714
118203P	ALOMA WOODS BV	100-024E	12.73	12.762	0.505	12.73	62.766	12.63	58.723
118204D	ALOMA WOODS BV	010-024E	26.58	8.570	0.023	16.51	56.357	12.44	51.709
118204D	ALOMA WOODS BV	025-024E	27.02	8.574	0.023	15.78	56.398	12.35	51.889
118204D	ALOMA WOODS BV	100-024E	27.53	8.606	0.023	14.53	56.473	12.33	52.143
118204W	LITTLE ECON	010-024E	16.51	7.625	0.010	16.51	56.357	13.50	49.500
118204W	LITTLE ECON	025-024E	15.78	9.433	0.015	15.78	56.398	13.50	49.670
118204W	LITTLE ECON	100-024E	14.53	13.350	0.028	14.53	56.473	13.75	50.000
118205D	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	24.00	61.892	15.26	56.140
118205D	ALOMA WOODS BV	025-024E	24.00	0.130	0.000	24.00	62.320	13.62	56.343
118205D	ALOMA WOODS BV	100-024E	24.00	0.257	0.000	24.00	63.010	12.76	56.845
118206W1	ALOMA WOODS BV	010-024E	15.26	0.422	0.001	15.26	56.140	12.65	52.042
118206W1	ALOMA WOODS BV	025-024E	13.62	0.854	0.001	13.62	56.343	12.60	52.094
118206W1	ALOMA WOODS BV	100-024E	12.76	2.278	0.002	12.76	56.845	12.49	52.205
118206W2	ALOMA WOODS BV	010-024E	0.00	0.000	0.000	15.26	56.140	12.65	52.042
118206W2	ALOMA WOODS BV	025-024E	0.00	0.000	0.000	13.62	56.343	12.60	52.094
118206W2	ALOMA WOODS BV	100-024E	0.00	0.000	0.000	12.76	56.845	12.49	52.205
118207D	ALOMA WOODS BV	010-024E	12.98	6.797	0.064	12.65	52.042	12.44	51.709
118207D	ALOMA WOODS BV	025-024E	13.08	7.137	0.119	12.60	52.094	12.35	51.889
118207D	ALOMA WOODS BV	100-024E	13.29	7.364	-0.383	12.49	52.205	12.33	52.143
118207W	ALOMA WOODS BV	010-024E	12.65	1.215	-0.004	12.65	52.042	12.44	51.709
118207W	ALOMA WOODS BV	025-024E	12.60	4.048	-0.009	12.60	52.094	12.35	51.889
118207W	ALOMA WOODS BV	100-024E	12.57	12.544	-0.814	12.49	52.205	12.33	52.143
118208P	ALOMA WOODS BV	010-024E	11.91	43.431	4.757	12.44	51.709	12.54	51.133
118208P	ALOMA WOODS BV	025-024E	11.83	41.248	4.757	12.35	51.889	12.49	51.233
118208P	ALOMA WOODS BV	100-024E	11.80	35.435	4.757	12.33	52.143	12.44	51.388
118208W	LITTLE ECON	010-024E	12.44	77.626	-1.504	12.44	51.709	13.50	49.500
118208W	LITTLE ECON	025-024E	12.35	109.044	-1.756	12.35	51.889	13.50	49.670
118208W	LITTLE ECON	100-024E	12.33	158.813	-2.018	12.33	52.143	13.75	50.000
118209D	ALOMA WOODS BV	010-024E	12.28	17.735	0.022	12.54	51.133	13.16	50.471
118209D	ALOMA WOODS BV	025-024E	12.16	17.445	0.012	12.49	51.233	12.89	50.648
118209D	ALOMA WOODS BV	100-024E	12.00	16.980	0.018	12.44	51.388	12.71	50.953

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118209P	ALOMA WOODS BV	010-024E	12.27	26.038	0.054	13.16	50.471	14.20	49.078
118209P	ALOMA WOODS BV	025-024E	12.17	25.845	0.024	12.89	50.648	13.95	49.434
118209P	ALOMA WOODS BV	100-024E	12.00	25.320	0.017	12.71	50.953	13.66	50.047
118209W	LITTLE ECON	010-024E	12.54	56.374	0.118	12.54	51.133	13.50	49.500
118209W	LITTLE ECON	025-024E	12.49	70.239	0.122	12.49	51.233	13.50	49.670
118209W	LITTLE ECON	100-024E	12.44	93.786	0.107	12.44	51.388	13.75	50.000
118210C	ALOMA WOODS BV	010-024E	15.06	6.655	0.007	15.06	53.432	15.06	52.334
118210C	ALOMA WOODS BV	025-024E	14.79	8.434	0.010	14.79	53.564	14.79	52.400
118210C	ALOMA WOODS BV	100-024E	14.49	11.285	0.011	14.49	53.741	14.49	52.491
118210P	ALOMA WOODS BV	010-024E	12.05	10.890	1.193	12.44	51.758	13.16	50.471
118210P	ALOMA WOODS BV	025-024E	11.96	10.807	-0.219	12.35	51.940	12.89	50.648
118210P	ALOMA WOODS BV	100-024E	11.79	10.401	-0.205	12.32	52.203	12.71	50.953
118210W	JAMESTOWN	010-024E	12.49	33.192	3.577	12.44	51.758	12.44	51.709
118210W	JAMESTOWN	025-024E	12.39	49.402	5.566	12.35	51.940	12.35	51.889
118210W	JAMESTOWN	100-024E	12.24	81.620	8.114	12.32	52.203	12.33	52.143
118300D	JAMESTOWN	010-024E	12.90	13.369	0.039	12.52	52.763	12.44	51.758
118300D	JAMESTOWN	025-024E	13.01	13.234	0.030	12.41	52.876	12.35	51.940
118300D	JAMESTOWN	100-024E	13.21	12.886	0.026	12.31	53.030	12.32	52.203
118300W	JAMESTOWN	010-024E	12.52	17.571	0.066	12.52	52.763	12.44	51.758
118300W	JAMESTOWN	025-024E	12.41	30.030	0.073	12.41	52.876	12.35	51.940
118300W	JAMESTOWN	100-024E	12.31	50.113	0.098	12.31	53.030	12.32	52.203
118301D	JAMESTOWN	010-024E	13.01	17.434	0.625	13.01	49.275	13.15	44.174
118301D	JAMESTOWN	025-024E	13.11	20.260	-0.631	13.11	49.368	13.22	44.514
118301D	JAMESTOWN	100-024E	13.20	25.624	-0.632	13.20	49.536	13.34	45.213
118302P	JAMESTOWN	010-024E	12.24	33.143	0.059	12.24	50.112	12.24	48.970
118302P	JAMESTOWN	025-024E	12.25	39.452	0.068	12.25	50.508	12.49	49.289
118302P	JAMESTOWN	100-024E	12.23	52.046	0.058	12.22	51.263	12.50	50.136
118302W1	JAMESTOWN	010-024E	0.00	0.000	0.000	12.24	50.112	12.48	48.792
118302W1	JAMESTOWN	025-024E	0.00	0.000	0.000	12.25	50.508	12.49	49.289
118302W1	JAMESTOWN	100-024E	0.00	0.000	0.000	12.22	51.263	12.50	50.136
118302W2	JAMESTOWN	010-024E	0.00	0.000	0.000	12.24	50.112	13.01	49.275
118302W2	JAMESTOWN	025-024E	0.00	0.000	0.000	12.25	50.508	13.11	49.368
118302W2	JAMESTOWN	100-024E	0.00	0.000	0.000	12.22	51.263	13.20	49.536
118303C	JAMESTOWN	010-024E	12.02	41.097	-23.414	12.48	48.792	12.48	48.748
118303C	JAMESTOWN	025-024E	12.38	42.753	-23.180	12.49	49.289	12.49	49.256
118303C	JAMESTOWN	100-024E	12.30	53.178	-22.809	12.50	50.136	12.50	50.115
118304P	JAMESTOWN	010-024E	12.48	44.269	-0.157	12.48	48.748	12.46	47.178
118304P	JAMESTOWN	025-024E	12.49	52.654	-0.153	12.49	49.256	12.46	47.368
118304P	JAMESTOWN	100-024E	12.50	65.828	-0.155	12.50	50.115	12.47	47.609

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118304W	JAMESTOWN	010-024E	0.00	0.000	0.000	12.48	48.748	12.45	46.485
118304W	JAMESTOWN	025-024E	0.00	0.000	0.000	12.49	49.256	12.45	46.629
118304W	JAMESTOWN	100-024E	0.00	0.000	0.000	12.50	50.115	12.43	46.845
118305C	JAMESTOWN	010-024E	12.45	53.696	-0.107	12.45	46.485	12.45	44.023
118305C	JAMESTOWN	025-024E	12.45	64.278	-0.111	12.45	46.629	12.45	44.141
118305C	JAMESTOWN	100-024E	12.43	81.907	-3.061	12.43	46.845	12.43	44.320
118306P	JAMESTOWN	010-024E	14.14	23.534	-0.037	14.14	46.301	14.09	43.413
118306P	JAMESTOWN	025-024E	13.95	24.390	-0.038	13.95	46.461	13.62	43.442
118306P	JAMESTOWN	100-024E	13.59	25.846	-0.031	13.59	46.731	24.00	43.563
118400D	WALKER RD	010-024E	14.62	5.084	-0.360	14.23	49.125	14.20	49.078
118400D	WALKER RD	025-024E	14.20	7.296	-0.039	13.99	49.528	13.95	49.434
118400D	WALKER RD	100-024E	13.90	11.668	-0.030	13.73	50.279	13.66	50.047
118400P	ALOMA WOODS BV	010-024E	14.21	23.377	-0.025	14.20	49.078	14.14	46.301
118400P	ALOMA WOODS BV	025-024E	13.95	24.192	-0.027	13.95	49.434	13.95	46.461
118400P	ALOMA WOODS BV	100-024E	13.73	25.552	-0.022	13.66	50.047	13.59	46.731
118401D	WALKER RD	010-024E	24.00	0.585	0.000	24.00	48.387	14.08	44.874
118401D	WALKER RD	025-024E	24.00	1.612	-0.001	24.00	48.858	14.12	45.105
118401D	WALKER RD	100-024E	15.84	6.160	0.008	15.84	49.026	14.44	45.482
118402D	WALKER RD	010-024E	13.31	7.021	0.026	13.31	48.167	14.08	44.874
118402D	WALKER RD	025-024E	13.00	11.508	0.022	13.00	48.311	14.12	45.105
118402D	WALKER RD	100-024E	12.76	14.075	-0.022	12.76	48.625	14.44	45.482
118402W	WALKER RD	010-024E	0.00	0.000	0.000	13.31	48.167	14.08	44.874
118402W	WALKER RD	025-024E	0.00	0.000	0.000	13.00	48.311	14.12	45.105
118402W	WALKER RD	100-024E	12.76	5.765	0.016	12.76	48.625	14.44	45.482
118403D	WALKER RD	010-024E	14.08	11.470	0.008	14.08	44.874	20.72	42.632
118403D	WALKER RD	025-024E	14.12	13.216	-0.006	14.12	45.105	21.69	42.941
118403D	WALKER RD	100-024E	14.44	16.532	-0.016	14.44	45.482	24.00	43.563
118403W	WALKER RD	010-024E	0.00	0.000	0.000	14.08	44.874	20.72	42.632
118403W	WALKER RD	025-024E	0.00	0.000	0.000	14.12	45.105	21.69	42.941
118403W	WALKER RD	100-024E	0.00	0.000	0.000	14.44	45.482	24.00	43.563
118404P	WALKER RD	010-024E	12.13	10.664	0.024	12.13	46.085	12.09	42.868
118404P	WALKER RD	025-024E	12.13	10.803	0.027	12.12	46.171	21.69	42.941
118404P	WALKER RD	100-024E	12.11	11.025	0.017	12.11	46.313	24.00	43.563
118404W	WALKER RD	010-024E	12.13	18.014	0.169	12.13	46.085	20.72	42.632
118404W	WALKER RD	025-024E	12.12	23.764	0.145	12.12	46.171	21.69	42.941
118404W	WALKER RD	100-024E	12.11	34.268	0.224	12.11	46.313	24.00	43.563
118405P	WALKER RD	010-024E	13.15	17.718	0.017	13.15	44.174	13.14	42.998
118405P	WALKER RD	025-024E	13.22	20.661	-0.019	13.22	44.514	13.22	43.111
118405P	WALKER RD	100-024E	13.34	26.072	-0.021	13.34	45.213	24.00	43.563

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS (ASSUMED UPSTREAM BASEFLOW)
JUNE 28, 2004

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
118405W	WALKER RD	010-024E	0.00	0.000	0.000	13.15	44.174	20.72	42.632
118405W	WALKER RD	025-024E	0.00	0.000	0.000	13.22	44.514	21.69	42.941
118405W	WALKER RD	100-024E	0.00	0.000	0.000	13.34	45.213	24.00	43.563
118500P	WENTWORTH	010-024E	35.65	45.989	5.547	20.72	42.632	18.56	42.276
118500P	WENTWORTH	025-024E	24.53	43.390	-2.509	21.69	42.941	18.78	42.535
118500P	WENTWORTH	100-024E	24.25	45.975	-1.754	24.00	43.563	19.23	42.999
118501D	WENTWORTH	010-024E	13.16	14.348	4.511	20.75	42.637	20.72	42.632
118501D	WENTWORTH	025-024E	13.26	21.743	3.763	21.77	42.948	21.69	42.941
118501D	WENTWORTH	100-024E	12.99	29.399	3.334	24.00	43.569	24.00	43.563
118600C	POWER EASEMENT	010-024E	35.79	44.687	-1.327	18.56	42.276	18.46	42.254
118600C	POWER EASEMENT	025-024E	24.42	44.531	1.228	18.78	42.535	18.71	42.516
118600C	POWER EASEMENT	100-024E	24.21	46.970	0.220	19.23	42.999	19.15	42.983
118601C	POWER EASEMENT	010-024E	24.13	46.169	-1.988	18.46	42.254	18.32	42.233
118601C	POWER EASEMENT	025-024E	24.14	46.709	-0.184	18.71	42.516	18.62	42.497
118601C	POWER EASEMENT	100-024E	24.12	48.621	-2.878	19.15	42.983	19.06	42.967
118602P	N SR 426	010-024E	21.33	46.658	3.493	18.32	42.233	17.96	42.125
118602P	N SR 426	025-024E	21.32	47.136	0.543	18.62	42.497	18.04	42.375
118602P	N SR 426	100-024E	21.23	48.906	-0.729	19.06	42.967	18.27	42.812
118602W	N SR 426	010-024E	0.00	0.000	0.000	18.32	42.233	17.96	42.125
118602W	N SR 426	025-024E	0.00	0.000	0.000	18.62	42.497	18.04	42.375
118602W	N SR 426	100-024E	0.00	0.000	0.000	19.06	42.967	18.27	42.812
118700P1	N SR 426	010-024E	21.30	46.713	1.583	17.96	42.125	14.29	41.375
118700P1	N SR 426	025-024E	21.30	47.173	0.102	18.04	42.375	14.67	41.510
118700P1	N SR 426	100-024E	25.94	48.430	0.143	18.27	42.812	15.44	41.757
118700P2	N SR 426	010-024E	21.28	46.853	0.217	14.29	41.375	12.50	40.900
118700P2	N SR 426	025-024E	21.28	47.327	0.239	14.67	41.510	12.48	40.930
118700P2	N SR 426	100-024E	21.06	49.124	-0.126	15.44	41.757	12.43	40.979
118700P3	N SR 426	010-024E	21.27	46.864	0.664	12.50	40.900	12.00	40.800
118700P3	N SR 426	025-024E	21.27	47.332	-0.746	12.48	40.930	12.00	40.800
118700P3	N SR 426	100-024E	21.05	49.140	-1.126	12.43	40.979	12.00	40.800
118700W1	N SR 426	010-024E	0.00	0.000	0.000	17.96	42.125	14.29	41.375
118700W1	N SR 426	025-024E	0.00	0.000	0.000	18.04	42.375	14.67	41.510
118700W1	N SR 426	100-024E	18.27	2.425	-0.002	18.27	42.812	15.44	41.757
118700W2	N SR 426	010-024E	0.00	0.000	0.000	14.29	41.375	12.50	40.900
118700W2	N SR 426	025-024E	0.00	0.000	0.000	14.67	41.510	12.48	40.930
118700W2	N SR 426	100-024E	0.00	0.000	0.000	15.44	41.757	12.43	40.979
118700W3	N SR 426	010-024E	12.50	2.043	0.008	12.50	40.900	12.00	40.800
118700W3	N SR 426	025-024E	12.48	3.052	0.007	12.48	40.930	12.00	40.800
118700W3	N SR 426	100-024E	12.43	4.915	0.007	12.43	40.979	12.00	40.800

PEC Professional Engineering Consultants
engineers planners surveyors

TAB 3.1

RUNOFF CURVE NUMBER COMPUTATIONS

VALENCE (Version 1.10)

LAYER(S):I-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME	VALUE	AREA	DESCRIPTION
110	.0000	65.1255	
120	.0000	110.4785	
133	.0000	16.0283	
140	.0000	2.7738	
141	.0000	6.5734	
150A	.0000	16.7320	
150B	.0000	3.2889	
172	.0000	1.6238	
190	.0000	1.8949	
193	.0000	6.1017	
240	.0000	1.1667	
330	.0000	37.8248	
400	.0000	43.7348	
530A	.0000	22.6248	
530B	.0000	.6132	
600	.0000	17.0197	
814A	.0000	8.5326	
814B	.0000	2.1824	
TOTAL	.0000	364.3197	

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118100	7	814A	83.000	.083	6.875	6.875
B118100	20	814A	92.000	.915	84.194	91.069
B118100	20	141	94.000	.048	4.489	95.557
B118100	20	193	79.000	.014	1.095	96.653
B118100	20	530A	95.000	.468	44.447	141.099
B118100	W	530A	95.000	.106	10.084	151.184
B118100	31	400	30.000	.004	.118	151.302
B118100	20	400	70.000	.300	21.000	172.302
B118100	10	814A	94.000	.294	27.665	199.967
B118100	6	814A	83.000	3.351	278.168	478.135
B118100	VOID	400	.000	.000	.000	478.135
B118100	VOID	814A	.000	.000	.000	478.135
B118100	10	120	86.000	.024	2.069	480.204
B118100	31	141	89.000	2.449	217.948	698.152
B118100	10	330	80.000	.000	.022	698.174
B118100	31	150A	81.000	.000	.007	698.182
B118100	6	120	57.000	.000	.005	698.187
B118100	31	193	49.000	3.113	152.525	850.712
B118100	31	814A	83.000	3.761	312.199	1162.911
B118100	31	VOID	.000	.000	.000	1162.911
B118100	31	530A	95.000	1.766	167.764	1330.675
B118100	6	141	89.000	.138	12.308	1342.983
Subtotal			.000	16.835	1342.983	79.773
B118101	W	530A	95.000	.007	.663	.663
B118101	20	530A	95.000	.771	73.226	73.889
B118101	31	530A	95.000	1.136	107.928	181.817
Subtotal			.000	1.914	181.817	95.000
B118102	20	150A	91.000	1.290	117.364	117.364
B118102	20	530A	95.000	.234	22.271	139.635
B118102	31	150A	81.000	3.420	277.021	416.657
B118102	W	600	98.000	.595	58.332	474.989
B118102	31	530A	95.000	.005	.497	475.486
B118102	20	193	79.000	2.550	201.425	676.911
B118102	31	193	49.000	.255	12.486	689.397
B118102	W	193	94.000	.169	15.865	705.262
B118102	20	141	94.000	.016	1.459	706.721
B118102	20	VOID	.000	.001	.000	706.721
B118102	20	600	98.000	1.101	107.863	814.584
B118102	20	814A	92.000	.001	.051	814.635
B118102	20	400	70.000	1.400	97.974	912.609
Subtotal			.000	11.036	912.609	82.707

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118200	31	530A	95.000	.431	40.940	40.940
B118200	31	133	77.000	2.414	185.846	226.786
B118200	6	530A	95.000	.012	1.099	227.885
B118200	6	133	77.000	4.095	315.283	543.168
B118200	VOID	133	.000	.000	.000	543.168
Subtotal			.000	6.951	543.168	78.146
B118201	6	530A	95.000	.473	44.927	44.927
B118201	31	140	89.000	.041	3.637	48.563
B118201	31	530A	95.000	.008	.742	49.305
B118201	6	133	77.000	.004	.325	49.630
B118201	6	140	89.000	.058	5.190	54.820
B118201	31	141	89.000	2.496	222.181	277.001
B118201	6	141	89.000	1.427	126.962	403.963
Subtotal			.000	4.507	403.963	89.629
B118202	31	140	89.000	.005	.458	.458
B118202	6	133	77.000	5.460	420.453	420.910
B118202	6	140	89.000	.875	77.877	498.787
B118202	7	400	30.000	.004	.113	498.900
B118202	31	133	77.000	.828	63.792	562.692
B118202	7	133	77.000	.399	30.708	593.400
B118202	6	530A	95.000	.486	46.139	639.539
B118202	6	400	30.000	.004	.113	639.652
Subtotal			.000	8.061	639.652	79.351
B118203	31	133	77.000	.087	6.696	6.696
B118203	7	530A	95.000	.219	20.823	27.519
B118203	6	133	77.000	1.705	131.310	158.829
B118203	7	133	77.000	1.036	79.736	238.566
Subtotal			.000	3.047	238.566	78.295
B118204	10	600	98.000	.757	74.224	74.224
B118204	VOID	110	.000	.002	.000	74.224
B118204	7	600	98.000	.391	38.291	112.516
B118204	7	133	77.000	.000	.007	112.523
B118204	7	120	57.000	.272	15.525	128.047
B118204	10	120	86.000	.000	.016	128.063
B118204	10	110	84.000	.774	65.048	193.111
B118204	31	400	30.000	.025	.736	193.846
B118204	10	400	77.000	1.235	95.059	288.905
B118204	7	400	30.000	1.469	44.072	332.977
B118204	7	110	51.000	1.666	84.977	417.953

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118204	6	400	30.000	.815	24.435	442.388
B118204	6	110	51.000	1.430	72.941	515.329
Subtotal			.000	8.836	515.329	58.334
B118205	7	120	57.000	1.201	68.463	68.463
B118205	31	120	57.000	.003	.152	68.615
B118205	7	530B	39.000	.452	17.627	86.242
B118205	6	814A	83.000	.000	.008	86.249
B118205	7	400	30.000	.000	.003	86.252
B118205	6	120	57.000	3.453	196.831	283.083
Subtotal			.000	5.109	283.083	55.408
B118206	20	120	81.000	.191	15.479	15.479
B118206	10	530B	80.000	.109	8.727	24.206
B118206	10	120	86.000	.126	10.874	35.080
B118206	20	530B	74.000	.052	3.860	38.940
B118206	20	814A	92.000	.001	.051	38.991
B118206	6	120	57.000	1.550	88.363	127.354
B118206	10	400	77.000	.003	.233	127.587
B118206	7	120	57.000	.525	29.945	157.532
Subtotal			.000	2.558	157.532	61.585
B118207	20	400	70.000	.003	.225	.225
B118207	7	120	57.000	.262	14.917	15.142
B118207	10	400	77.000	1.574	121.199	136.341
B118207	10	600	98.000	2.238	219.290	355.631
B118207	10	814A	94.000	.000	.009	355.640
B118207	10	120	86.000	.472	40.552	396.191
Subtotal			.000	4.548	396.191	87.109
B118208	10	120	86.000	9.308	800.448	800.448
B118208	10	530A	95.000	4.874	463.040	1263.487
B118208	VOID	120	.000	.000	.000	1263.487
B118208	10	330	80.000	.000	.007	1263.495
B118208	20	120	81.000	8.501	688.574	1952.069
B118208	10	400	77.000	.000	.021	1952.090
B118208	6	120	57.000	.019	1.110	1953.200
B118208	10	814A	94.000	.006	.596	1953.796
B118208	7	120	57.000	3.453	196.825	2150.621
Subtotal			.000	26.162	2150.621	82.205

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118209	20	530A	95.000	1.061	100.784	100.784
B118209	VOID	120	.000	.001	.000	100.784
B118209	20	120	81.000	19.476	1577.529	1678.313
B118209	10	120	86.000	.619	53.266	1731.579
B118209	20	330	74.000	1.164	86.136	1817.715
Subtotal			.000	22.320	1817.715	81.439
B118210	W	400	77.000	.465	35.778	35.778
B118210	20	110	79.000	1.364	107.720	143.498
B118210	20	330	74.000	.999	73.918	217.416
B118210	10	814A	94.000	.099	9.340	226.756
B118210	31	330	39.000	.112	4.387	231.143
B118210	31	400	30.000	.020	.603	231.746
B118210	20	150A	91.000	.000	.008	231.755
B118210	20	814A	92.000	.020	1.850	233.605
B118210	10	400	77.000	.710	54.699	288.304
B118210	10	120	86.000	.037	3.206	291.510
B118210	W	330	80.000	1.167	93.348	384.858
B118210	10	330	80.000	.803	64.220	449.078
Subtotal			.000	5.797	449.078	77.474
B118300	20	150A	91.000	10.842	986.627	986.627
B118300	31	530A	95.000	.061	5.766	992.394
B118300	20	110	79.000	.875	69.112	1061.506
B118300	W	150A	93.000	.154	14.279	1075.785
B118300	VOID	VOID	.000	.000	.000	1075.785
B118300	20	530A	95.000	1.269	120.525	1196.310
B118300	W	530A	95.000	.147	13.984	1210.294
B118300	31	150A	81.000	.744	60.270	1270.564
B118300	20	330	74.000	.000	.007	1270.571
Subtotal			.000	14.091	1270.571	90.168
B118301	20	110	79.000	10.778	851.444	851.444
B118301	20	330	74.000	4.828	357.273	1208.717
B118301	31	110	51.000	.001	.028	1208.745
Subtotal			.000	15.606	1208.745	77.452
B118302	VOID	150B	.000	.001	.000	.000
B118302	31	150B	49.000	.228	11.190	11.190
B118302	20	150A	91.000	.282	25.687	36.878
B118302	20	150B	79.000	3.060	241.730	278.607
B118302	20	330	74.000	.462	34.194	312.801
B118302	20	110	79.000	9.488	749.557	1062.358

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA SUM	(V x A)
Subtotal			.000	13.521	1062.358	78.573
B118303	20	110	79.000	3.145	248.476	248.476
Subtotal			.000	3.145	248.476	79.000
B118304	20	110	79.000	4.106	324.350	324.350
B118304	31	110	51.000	1.519	77.460	401.810
Subtotal			.000	5.625	401.810	71.439
B118305	20	400	70.000	.113	7.926	7.926
B118305	VOID	400	.000	.000	.000	7.926
B118305	31	400	30.000	.440	13.187	21.113
B118305	VOID	110	.000	.000	.000	21.113
B118305	31	110	51.000	1.889	96.319	117.432
B118305	20	110	79.000	3.609	285.075	402.507
Subtotal			.000	6.050	402.507	66.531
B118306	20	110	79.000	.416	32.833	32.833
B118306	20	400	70.000	.012	.829	33.662
B118306	31	110	51.000	.197	10.022	43.684
Subtotal			.000	.624	43.684	70.011
B118400	20	120	81.000	11.272	913.002	913.002
B118400	10	120	86.000	.680	58.447	971.448
B118400	20	530A	95.000	1.037	98.481	1069.929
Subtotal			.000	12.988	1069.929	82.379
B118401	6	120	57.000	2.950	168.168	168.168
B118401	VOID	120	.000	.000	.000	168.168
B118401	20	400	70.000	.079	5.554	173.722
B118401	7	120	57.000	3.928	223.917	397.639
B118401	31	120	57.000	1.861	106.049	503.689
B118401	20	530A	95.000	3.077	292.275	795.964
B118401	20	120	81.000	9.341	756.647	1552.611
Subtotal			.000	21.237	1552.611	73.111
B118402	20	530A	95.000	.495	47.029	47.029

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LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118402	20	400	70.000	.191	13.389	60.418
B118402	10	400	77.000	.055	4.249	64.668
B118402	20	120	81.000	6.880	557.308	621.976
B118402	31	120	57.000	.562	32.059	654.035
B118402	10	530A	95.000	.179	17.011	671.046
Subtotal			.000	8.363	671.046	80.236
B118403	10	110	84.000	.179	15.034	15.034
B118403	20	110	79.000	.035	2.771	17.805
B118403	20	VOID	.000	.001	.000	17.805
B118403	20	400	70.000	2.037	142.590	160.395
B118403	10	330	80.000	3.146	251.710	412.105
B118403	20	330	74.000	.010	.768	412.873
B118403	20	600	98.000	.197	19.348	432.221
B118403	10	400	77.000	1.646	126.721	558.942
B118403	20	120	81.000	.001	.097	559.039
B118403	10	600	98.000	3.338	327.144	886.182
Subtotal			.000	10.592	886.182	83.678
B118404	20	110	79.000	.039	3.098	3.098
B118404	10	110	84.000	.283	23.781	26.878
B118404	10	330	80.000	6.734	538.689	565.567
B118404	20	330	74.000	3.540	261.949	827.516
Subtotal			.000	10.596	827.516	78.099
B118405	20	330	74.000	.565	41.825	41.825
B118405	20	110	79.000	.449	35.481	77.306
Subtotal			.000	1.014	77.306	76.214
B118500	10	110	84.000	6.968	585.347	585.347
B118500	31	110	51.000	4.077	207.934	793.280
B118500	10	600	98.000	2.540	248.960	1042.240
B118500	VOID	110	.000	.001	.000	1042.240
B118500	31	400	30.000	.159	4.777	1047.017
B118500	17	400	70.000	6.726	470.845	1517.862
B118500	20	400	70.000	6.793	475.499	1993.360
B118500	17	600	98.000	3.815	373.867	2367.227
B118500	17	110	79.000	.785	62.010	2429.238
B118500	17	120	81.000	.450	36.454	2465.691
B118500	17	530A	95.000	1.909	181.337	2647.029
B118500	10	172	93.000	.097	9.035	2656.064
B118500	20	172	91.000	1.429	130.041	2786.105
B118500	6	172	80.000	.098	7.809	2793.914

VALENCE (Version 1.10)

LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
B118500	VOID	400	.000	.000	.000	2793.914
B118500	6	400	30.000	.166	4.986	2798.900
B118500	10	120	86.000	.999	85.913	2884.813
B118500	20	814B	87.000	1.415	123.110	3007.923
B118500	32	814B	72.000	.692	49.831	3057.754
B118500	10	530A	95.000	.049	4.615	3062.369
B118500	20	120	81.000	.080	6.493	3068.863
B118500	31	814B	72.000	.075	5.408	3074.271
B118500	VOID	814B	.000	.000	.000	3074.271
B118500	20	110	79.000	5.059	399.694	3473.965
B118500	10	400	77.000	17.285	1330.969	4804.933
Subtotal			.000	61.669	4804.933	77.916
B118501	17	530A	95.000	2.347	222.958	222.958
B118501	31	120	57.000	.989	56.367	279.324
B118501	20	120	81.000	8.682	703.264	982.589
B118501	17	120	81.000	6.028	488.276	1470.865
B118501	6	120	57.000	2.794	159.239	1630.104
B118501	10	120	86.000	2.801	240.863	1870.967
Subtotal			.000	23.641	1870.967	79.142
B118600	10	120	86.000	.161	13.820	13.820
B118600	6	330	39.000	.979	38.176	51.996
B118600	6	120	57.000	.009	.508	52.504
B118600	20	330	74.000	.371	27.446	79.950
B118600	20	110	79.000	.551	43.526	123.476
B118600	10	110	84.000	2.452	205.966	329.442
B118600	31	110	51.000	.214	10.898	340.340
B118600	20	120	81.000	.189	15.307	355.647
B118600	10	600	98.000	.250	24.540	380.188
B118600	10	330	80.000	.828	66.219	446.406
B118600	31	120	57.000	.110	6.271	452.677
Subtotal			.000	6.113	452.677	74.050
B118601	20	110	79.000	1.018	80.422	80.422
B118601	VOID	110	.000	.000	.000	80.422
B118601	10	600	98.000	1.731	169.642	250.064
B118601	20	600	98.000	.066	6.425	256.489
B118601	20	140	94.000	.369	34.700	291.189
B118601	10	140	95.000	.219	20.815	312.003
B118601	10	190	91.000	.431	39.233	351.236
B118601	20	190	89.000	.467	41.533	392.769
B118601	20	VOID	.000	.000	.000	392.769
B118601	VOID	VOID	.000	.000	.000	392.769
B118601	10	110	84.000	1.429	120.014	512.784

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LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME I	NAME J	NAME K	VALUE	AREA	VAL x AREA	SUM (V x A)
Subtotal			.000	5.730	512.784	89.501
B118602	20	110	79.000	.319	25.209	25.209
B118602	10	110	84.000	.001	.085	25.294
B118602	6	330	39.000	.143	5.583	30.877
B118602	VOID	330	.000	.000	.000	30.877
B118602	20	120	81.000	.217	17.576	48.453
B118602	20	140	94.000	.734	68.959	117.412
B118602	20	330	74.000	3.011	222.795	340.207
Subtotal			.000	4.425	340.207	76.890
B118603	10	140	95.000	.028	2.678	2.678
B118603	10	190	91.000	.261	23.749	26.427
B118603	20	190	89.000	.736	65.512	91.939
B118603	20	140	94.000	.444	41.778	133.716
B118603	20	330	74.000	3.044	225.241	358.958
B118603	31	330	39.000	5.918	230.813	589.770
B118603	VOID	330	.000	.000	.000	589.770
Subtotal			.000	10.432	589.770	56.536
B118700	20	240	88.000	.997	87.693	87.693
B118700	VOID	240	.000	.000	.000	87.693
B118700	31	240	72.000	.170	12.245	99.938
Subtotal			.000	1.167	99.938	85.668
TOTAL			.000	364.309	28426.326	78.030

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LAYER(S):I-BASINS J-SOILS K-LANDUSE

ALOMA WOODS DRAINAGE BASIN STUDY
EXISTING CONDITIONS
FEBRUARY 11, 2004

NAME	VOID AREA	SUB-AREA	% VOIDS
B118100	.0004	16.8354	.00
B118102	.0014	11.0356	.01
B118200	.0001	6.9508	.00
B118204	.0018	8.8360	.02
B118208	.0001	26.1619	.00
B118209	.0006	22.3205	.00
B118300	.0001	14.0913	.00
B118302	.0006	13.5213	.00
B118305	.0003	6.0502	.00
B118401	.0003	21.2367	.00
B118403	.0013	10.5916	.01
B118500	.0011	61.6690	.00
B118601	.0003	5.7297	.00
B118602	.0001	4.4247	.00
B118603	.0001	10.4319	.00
B118700	.0001	1.1667	.01
TOTAL	.0085	364.3092	.00

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TAB 3.2

TIME OF CONCENTRATION COMPUTATIONS

ALOMA WOODS DRAINAGE BASIN STUDY
Seminole County, Florida

Calculation of Sub-basin Times of Concentration

SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

Existing Conditions

SUB-BASIN I.D.	SHEET FLOW							SHALLOW CONCENTRATED FLOW						CHANNEL FLOW				TOTAL TIME OF CONC.		SUB-BASIN I.D.
	I.D.	SURFACE DESC.	("n")	FLOW LENGTH (feet)	2-yr, 24-hr RAINFALL (inch)	CALC'D SLOPE (foot/foot)	TRAVEL TIME (hour)	I.D.	PAVED OR UNPAVED	FLOW LENGTH (feet)	CALC'D SLOPE (foot/foot)	VEL. (fps)	TRAVEL TIME (hour)	I.D.	VEL. (fps)	FLOW LENGTH (feet)	TRAVEL TIME (hour)	(hour)	(min.)	
B118100																		0.25	15	B118100
B118101																		0.17	10	B118101
B118102																		0.34	20	B118102
B118200																		0.17	10	B118200
B118201																		0.17	10	B118201
B118202																		0.17	10	B118202
B118203																		0.17	10	B118203
B118204	AB	Desnse Grass	0.24	300	4.50	0.023	0.45	BC	UNPAVED	140	0.057	3.9	0.01					0.46	28	B118204
B118205																		0.17	10	B118205
B118206																		0.17	10	B118206
B118207																		0.25	15	B118207
B118208	AB	Bermuda Grass	0.41	120	4.50	0.010	0.46	BC	PAVED	200	0.005	1.4	0.04	CD	3.00	210	0.02	0.52	31	B118208
B118209	AB	Bermuda Grass	0.41	120	4.50	0.010	0.46	BC	PAVED	400	0.005	1.4	0.08	CD	3.00	550	0.05	0.59	35	B118209
B118210																		0.25	15	B118210
B118300																		0.33	20	B118300
B118301	AB	Short Grass Prairie	0.15	300	4.50	0.003	0.68	BC	UNPAVED	1,200	0.002	0.7	0.51					1.19	71	B118301
B118302	AB	Short Grass Prairie	0.15	150	4.50	0.007	0.28							BC	3.00	700	0.06	0.35	21	B118302
B118303																		0.33	20	B118303
B118304																		0.33	20	B118304
B118305																		0.33	20	B118305
B118306																		0.17	10	B118306
B118400	AB	Bermuda Grass	0.41	120	4.50	0.010	0.46	BC	PAVED	300	0.005	1.4	0.06					0.52	31	B118400
B118401	AB	Bermuda Grass	0.41	120	4.50	0.010	0.46	BC	PAVED	300	0.005	1.4	0.06					0.52	31	B118401

ALOMA WOODS DRAINAGE BASIN STUDY
Seminole County, Florida

Calculation of Sub-basin Times of Concentration

Existing Conditions

SUB-BASIN I.D.	SHEET FLOW							SHALLOW CONCENTRATED FLOW						CHANNEL FLOW						SUB-BASIN I.D.
	I.D.	SURFACE DESC.	("n")	FLOW LENGTH (feet)	2-yr, 24-hr RAINFALL (inch)	CALC'D SLOPE (foot/foot)	TRAVEL TIME (hour)	I.D.	PAVED OR UNPAVED	FLOW LENGTH (feet)	CALC'D SLOPE (foot/foot)	VEL. (fps)	TRAVEL TIME (hour)	I.D.	VEL. (fps)	FLOW LENGTH (feet)	TRAVEL TIME (hour)	TOTAL TIME OF CONC. (hour)	TOTAL TIME OF CONC. (min.)	
B118402	AB	Bermuda Grass	0.41	120	4.50	0.010	0.46	BC	PAVED	225	0.005	1.5	0.04					0.50	30	B118402
B118403																		0.50	30	B118403
B118404	AB	Dense Grass	0.24	100	4.50	0.010	0.26	BC	UNPAVED	120	0.008	1.5	0.02					0.29	17	B118404
B118405																		0.17	10	B118405
B118500																		0.50	30	B118500
B118501	AB	Bermuda Grass	0.41	140	4.50	0.010	0.53	BC	PAVED	650	0.005	1.4	0.13					0.66	40	B118501
B118600	AB	Dense Grass	0.24	200	4.50	0.057	0.23	BC	UNPAVED	100	0.040	3.2	0.01					0.24	14	B118600
B118601																		0.25	15	B118601
B118602	AB	Dense Grass	0.24	300	4.50	0.009	0.66	BC	UNPAVED	150	0.002	0.7	0.06					0.72	43	B118602
B118603	AB	Dense Grass	0.24	300	4.50	0.013	0.57	BC	UNPAVED	600	0.003	0.9	0.18	CD	3.00	280	0.03	0.77	46	B118603
B118700																		0.25	15	B118700

REFERENCE:

URBAN HYDROLOGY FOR SMALL WATERSHEDS
TECHNICAL RELEASE 55, SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
JUNE 1986

NOTES:

1. Empty cells indicate that the time of concentration for that sub-basin was assumed.

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PEC Professional Engineering Consultants
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TAB 4.1

SUPPORTING DOCUMENTATION FOR LITTLE ECON BOUNDARY CONDITION

Greg Teague

From: Mark Troilo, P.E. [mxt@saiengineers.com]
Sent: Wednesday, April 14, 2004 11:51 AM
To: Greg Teague
Cc: Lisa A Mages; Tom Radzai
Subject: Little Econ (SC) - Aloma Woods Revisions

Gentlemen,

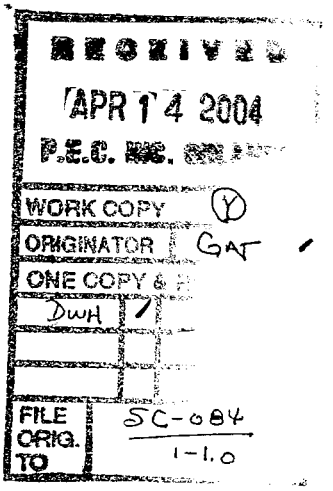
I have attached a spreadsheet that contains a summary of peak stages and flow rates in the portion of Little Econ near Aloma Woods. You will note that there is a small increase in peak stage in the wetland south of the development (0.20 - 0.45 feet), however, it does not appear to affect the Aloma Woods peak stages Greg originally calculated using the older (i.e., 2001) time series. The increase in the Little Econ basin is pretty much dampened out by the time the water makes it's way to the river (e.g., increases of about 0.06-0.08 feet at Iron Bridge Road).

The spreadsheet also contains the updated time-series for the 10, 25 and 100-year, 24-hour storms in the wetland south of Aloma Woods. This is based on the revised basins (to match PEC's delineation) and incorporating PEC's model for Aloma Woods and areas to the north. This can be cut/pasted into the PEC Aloma Woods model as an updated boundary condition.

Tom, I will put together a quick summary letter for your files (including this spreadsheet). Greg, please let me know if you need anything further.

Sincerely,

Mark X. Troilo, P.E.
Singhofen & Associates, Inc.



Little Econlockhatchee River - Aloma Woods Area revisions

By: mxt
Date: 4/14/2004

Stage hydrographs for Node: 105330N

Time	10 year Stage (ft)	Time	25 year Stage (ft)	Time	100 year Stage (ft)
0.00	48.75	0.00	48.75	0.00	48.75
0.25	47.77	0.25	47.77	0.25	47.77
0.50	47.77	0.50	47.77	0.50	47.77
0.75	47.77	0.75	47.77	0.75	47.77
1.00	47.77	1.00	47.77	1.00	47.78
1.25	47.78	1.25	47.78	1.25	47.79
1.50	47.78	1.50	47.79	1.50	47.80
1.75	47.79	1.75	47.79	1.75	47.80
2.00	47.79	2.00	47.79	2.00	47.80
2.25	47.79	2.25	47.80	2.25	47.80
2.50	47.79	2.50	47.80	2.50	47.81
2.75	47.79	2.75	47.80	2.75	47.81
3.00	47.80	3.00	47.80	3.00	47.81
3.25	47.80	3.25	47.80	3.25	47.81
3.50	47.80	3.50	47.80	3.50	47.81
3.75	47.80	3.75	47.80	3.75	47.81
4.00	47.80	4.00	47.81	4.00	47.81
4.25	47.80	4.25	47.81	4.25	47.83
4.50	47.80	4.50	47.81	4.50	47.85
4.75	47.80	4.75	47.81	4.75	47.87
5.00	47.80	5.00	47.82	5.00	47.89
5.25	47.81	5.25	47.83	5.25	47.91
5.50	47.81	5.50	47.85	5.50	47.93
5.75	47.82	5.75	47.87	5.75	47.95
6.00	47.84	6.00	47.88	6.00	47.96
6.25	47.86	6.25	47.91	6.25	48.00
6.50	47.87	6.50	47.93	6.50	48.02
6.75	47.89	6.75	47.94	6.75	48.04
7.00	47.90	7.00	47.96	7.00	48.06
7.25	47.93	7.25	47.99	7.25	48.10
7.50	47.95	7.50	48.01	7.50	48.12
7.75	47.96	7.75	48.02	7.75	48.14
8.00	47.97	8.00	48.04	8.00	48.16
8.25	48.01	8.25	48.08	8.25	48.21
8.50	48.03	8.50	48.10	8.50	48.24
8.75	48.07	8.75	48.15	8.75	48.29
9.00	48.09	9.00	48.17	9.00	48.32
9.25	48.12	9.25	48.21	9.25	48.36
9.50	48.14	9.50	48.23	9.50	48.38
9.75	48.19	9.75	48.29	9.75	48.45
10.00	48.22	10.00	48.32	10.00	48.49
10.25	48.30	10.25	48.41	10.25	48.59
10.50	48.35	10.50	48.46	10.50	48.64
10.75	48.45	10.75	48.57	10.75	48.77
11.00	48.51	11.00	48.63	11.00	48.84
11.25	48.56	11.25	48.69	11.25	48.90

Little Econlockhatchee River - Aloma Woods Area revisions

By: mxt
Date: 4/14/2004

Stage hydrographs for Node: 105330N

Time	10 year Stage (ft)	Time	25 year Stage (ft)	Time	100 year Stage (ft)
11.50	48.90	11.50	49.00	11.50	49.01
11.75	49.02	11.75	49.04	11.75	49.06
12.00	49.12	12.00	49.16	12.00	49.24
12.25	49.25	12.25	49.34	12.25	49.52
12.50	49.37	12.50	49.49	12.50	49.73
12.75	49.44	12.75	49.59	12.75	49.86
13.00	49.48	13.00	49.63	13.00	49.93
13.25	49.49	13.25	49.66	13.25	49.96
13.50	49.50	13.50	49.67	13.50	49.99
13.75	49.50	13.75	49.67	13.75	50.00
14.00	49.49	14.00	49.67	14.00	50.00
14.25	49.48	14.25	49.66	14.25	49.99
14.50	49.47	14.50	49.65	14.50	49.98
14.75	49.45	14.75	49.63	14.75	49.97
15.00	49.43	15.00	49.61	15.00	49.96
15.25	49.41	15.25	49.59	15.25	49.94
15.50	49.39	15.50	49.57	15.50	49.92
15.75	49.37	15.75	49.55	15.75	49.91
16.00	49.35	16.00	49.53	16.00	49.89
16.25	49.33	16.25	49.51	16.25	49.87
16.50	49.30	16.50	49.48	16.50	49.84
16.75	49.28	16.75	49.46	16.75	49.82
17.00	49.26	17.00	49.43	17.00	49.80
17.25	49.24	17.25	49.41	17.25	49.78
17.50	49.22	17.50	49.39	17.50	49.75
17.75	49.19	17.75	49.36	17.75	49.73
18.00	49.17	18.00	49.34	18.00	49.70
18.25	49.15	18.25	49.32	18.25	49.67
18.50	49.13	18.50	49.30	18.50	49.65
18.75	49.11	18.75	49.27	18.75	49.62
19.00	49.09	19.00	49.25	19.00	49.60
19.25	49.07	19.25	49.23	19.25	49.57
19.50	49.05	19.50	49.21	19.50	49.54
19.75	49.03	19.75	49.19	19.75	49.52
20.00	49.01	20.00	49.16	20.00	49.49
20.25	48.23	20.25	49.14	20.25	49.46
20.50	48.21	20.50	49.12	20.50	49.44
20.75	48.19	20.75	49.10	20.75	49.41
21.00	48.18	21.00	49.08	21.00	49.39
21.25	48.17	21.25	49.06	21.25	49.36
21.50	48.17	21.50	49.04	21.50	49.34
21.75	48.16	21.75	49.02	21.75	49.31
22.00	48.15	22.00	48.26	22.00	49.29
22.25	48.15	22.25	48.25	22.25	49.27
22.50	48.14	22.50	48.25	22.50	49.24
22.75	48.12	22.75	48.21	22.75	49.22

Little Econlockhatchee River - Aloma Woods Area revisions

By: mxt
Date: 4/14/2004

Stage hydrographs for Node: 105330N

Time	10 year Stage (ft)	Time	25 year Stage (ft)	Time	100 year Stage (ft)
23.00	48.10	23.00	48.20	23.00	49.20
23.25	48.10	23.25	48.18	23.25	49.18
23.50	48.10	23.50	48.18	23.50	49.16
23.75	48.07	23.75	48.14	23.75	49.13
24.00	48.06	24.00	48.12	24.00	49.11
24.25	47.96	24.25	47.99	24.25	49.09
24.50	47.83	24.50	47.84	24.50	49.06
24.75	47.80	24.75	47.81	24.75	49.04
25.00	47.79	25.00	47.79	25.00	49.01
25.25	47.78	25.25	47.78	25.25	47.75
25.50	47.78	25.50	47.78	25.50	47.76
25.75	47.78	25.75	47.78	25.75	47.77
26.00	47.77	26.00	47.77	26.00	47.78
26.25	47.77	26.25	47.77	26.25	47.77
26.50	47.77	26.50	47.77	26.50	47.77
26.75	47.77	26.75	47.77	26.75	47.77
27.00	47.77	27.00	47.77	27.00	47.77
27.25	47.77	27.25	47.77	27.25	47.77
27.50	47.77	27.50	47.77	27.50	47.77
27.75	47.77	27.75	47.77	27.75	47.77
28.00	47.77	28.00	47.77	28.00	47.77
28.25	47.77	28.25	47.77	28.25	47.77
28.50	47.77	28.50	47.77	28.50	47.77
28.75	47.77	28.75	47.77	28.75	47.77
29.00	47.77	29.00	47.77	29.00	47.77
29.25	47.77	29.25	47.77	29.25	47.77
29.50	47.77	29.50	47.77	29.50	47.77
29.75	47.77	29.75	47.77	29.75	47.77
30.00	47.77	30.00	47.77	30.00	47.77
30.25	47.77	30.25	47.77	30.25	47.77
30.50	47.77	30.50	47.77	30.50	47.77
30.75	47.77	30.75	47.77	30.75	47.77
31.00	47.77	31.00	47.77	31.00	47.77
31.25	47.77	31.25	47.77	31.25	47.77
31.50	47.77	31.50	47.77	31.50	47.77
31.75	47.77	31.75	47.77	31.75	47.77
32.00	47.77	32.00	47.77	32.00	47.77
32.25	47.77	32.25	47.77	32.25	47.77
32.50	47.77	32.50	47.77	32.50	47.77
32.75	47.77	32.75	47.77	32.75	47.77
33.00	47.77	33.00	47.77	33.00	47.77
33.25	47.77	33.25	47.77	33.25	47.77
33.50	47.77	33.50	47.77	33.50	47.77
33.75	47.77	33.75	47.77	33.75	47.77
34.00	47.77	34.00	47.77	34.00	47.77
34.25	47.77	34.25	47.77	34.25	47.77

Little Econlockhatchee River - Aloma Woods Area revisions

By: mxt
Date: 4/14/2004

Stage hydrographs for Node: 105330N

Time	10 year Stage (ft)	Time	25 year Stage (ft)	Time	100 year Stage (ft)
34.50	47.77	34.50	47.77	34.50	47.77
34.75	47.77	34.75	47.77	34.75	47.77
35.00	47.77	35.00	47.77	35.00	47.77
35.25	47.77	35.25	47.77	35.25	47.77
35.50	47.77	35.50	47.77	35.50	47.77
35.75	47.77	35.75	47.77	35.75	47.77
36.00	47.77	36.00	47.77	36.00	47.77
36.25	47.77	36.25	47.77	36.25	47.77
36.75	47.77	36.75	47.77	36.75	47.77
37.25	47.77	37.25	47.77	37.25	47.77
37.75	47.77	37.75	47.77	37.75	47.77
38.25	47.77	38.25	47.77	38.25	47.77
38.75	47.77	38.75	47.77	38.75	47.77
39.25	47.77	39.25	47.77	39.25	47.77
39.75	47.77	39.75	47.77	39.75	47.77
40.25	47.77	40.25	47.77	40.25	47.77
40.75	47.77	40.75	47.77	40.75	47.77
41.25	47.77	41.25	47.77	41.25	47.77
41.75	47.77	41.75	47.77	41.75	47.77
42.25	47.77	42.25	47.77	42.25	47.77
42.75	47.77	42.75	47.77	42.75	47.77
43.25	47.77	43.25	47.77	43.25	47.77
43.75	47.77	43.75	47.77	43.75	47.77
44.25	47.77	44.25	47.77	44.25	47.77
44.75	47.77	44.75	47.77	44.75	47.77
45.25	47.77	45.25	47.77	45.25	47.77
45.75	47.77	45.75	47.77	45.75	47.77
46.25	47.77	46.25	47.77	46.25	47.77
46.75	47.77	46.75	47.77	46.75	47.77
47.25	47.77	47.25	47.77	47.25	47.77
47.75	47.77	47.75	47.77	47.75	47.77
48.25	47.77	48.25	47.77	48.25	47.77
48.75	47.77	48.75	47.77	48.75	47.77
49.25	47.77	49.25	47.77	49.25	47.77
49.75	47.77	49.75	47.77	49.75	47.77
50.25	47.77	50.25	47.77	50.25	47.77
50.75	47.77	50.75	47.77	50.75	47.77
51.25	47.77	51.25	47.77	51.25	47.77
51.75	47.77	51.75	47.77	51.75	47.77
52.25	47.77	52.25	47.77	52.25	47.77
52.75	47.77	52.75	47.77	52.75	47.77
53.25	47.77	53.25	47.77	53.25	47.77
53.75	47.77	53.75	47.77	53.75	47.77
54.25	47.77	54.25	47.77	54.25	47.77
54.75	47.77	54.75	47.77	54.75	47.77
55.25	47.77	55.25	47.77	55.25	47.77

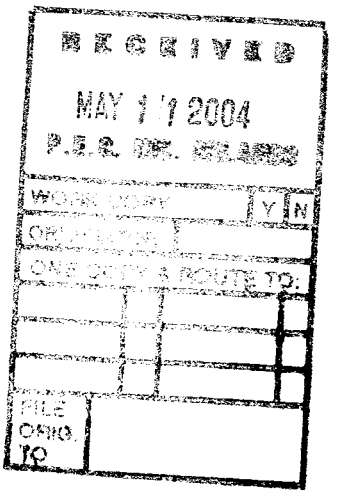
Little Econlockhatchee River - Aloma Woods Area revisions

By: mxt
Date: 4/14/2004

Stage hydrographs for Node: 105330N

Time	10 year Stage (ft)	Time	25 year Stage (ft)	Time	100 year Stage (ft)
55.75	47.77	55.75	47.77	55.75	47.77
56.25	47.77	56.25	47.77	56.25	47.77
56.75	47.77	56.75	47.77	56.75	47.77
57.25	47.77	57.25	47.77	57.25	47.77
57.75	47.77	57.75	47.77	57.75	47.77
58.25	47.77	58.25	47.77	58.25	47.77
58.75	47.77	58.75	47.77	58.75	47.77
59.25	47.77	59.25	47.77	59.25	47.77
59.75	47.77	59.75	47.77	59.75	47.77
60.25	47.77	60.25	47.77	60.25	47.77
60.75	47.77	60.75	47.77	60.75	47.77
61.25	47.77	61.25	47.77	61.25	47.77
61.75	47.77	61.75	47.77	61.75	47.77
62.25	47.77	62.25	47.77	62.25	47.77
62.75	47.77	62.75	47.77	62.75	47.77
63.25	47.77	63.25	47.77	63.25	47.77
63.75	47.77	63.75	47.77	63.75	47.77
64.25	47.77	64.25	47.77	64.25	47.77
64.75	47.77	64.75	47.77	64.75	47.77
65.25	47.77	65.25	47.77	65.25	47.77
65.75	47.77	65.75	47.77	65.75	47.77
66.25	47.77	66.25	47.77	66.25	47.77
66.75	47.77	66.75	47.77	66.75	47.77
67.25	47.77	67.25	47.77	67.25	47.77
67.75	47.77	67.75	47.77	67.75	47.77
68.25	47.77	68.25	47.77	68.25	47.77
68.75	47.77	68.75	47.77	68.75	47.77
69.25	47.77	69.25	47.77	69.25	47.77
69.75	47.77	69.75	47.77	69.75	47.77
70.25	47.77	70.25	47.77	70.25	47.77
70.75	47.77	70.75	47.77	70.75	47.77
71.25	47.77	71.25	47.77	71.25	47.77
71.75	47.77	71.75	47.77	71.75	47.77
72.00	47.77	72.00	47.77	72.00	47.77

SINGHOFEN
& ASSOCIATES
INCORPORATED



May 10, 2004

Mr. Tom Radzai
Seminole County Public Works
Stormwater Division
520 Lake Mary Boulevard, Suite 200
Sanford, FL 32773

Re: Little Econlockhatchee River Study – Aloma Woods Area Update

Dear Tom:

As promised, this letter provides a summary of the model changes and results we evaluated for the subject area to assist in the study being conducted by Professional Engineering Consultants (PEC).

As you probably know, Greg Teague (PEC) provided us with digital maps depicting refined basin divides in the area of Aloma Woods as well as an ICPR3 model for that system and areas north of Aloma Woods. PEC's model included a boundary condition in the wetland south of Aloma Woods were discharges flow toward the Little Econ River (Node: 105330N). The stage-time data for that boundary condition was based on results from our original 2001 modeling effort at that location. Greg noted that discharges to the wetland in their modeling were greater than indicated in our original modeling and questioned if they would have associated impacts on the wetland staging. Our evaluation included incorporation of PEC's refined basin layout and model for Aloma Woods into the overall Little Econ model and updated simulations as described below to evaluate this potential impact.

We updated the Little Econ model to ICPR Version 3 so that we could more efficiently merge the PEC information and generate a more complete model that was free of tailwater assumptions at the Aloma Woods receiving wetland (Node: 105330N). The PEC model data were combined with the Little Econ model using the Group Cut/Paste option available in ICPR3. We also incorporated PEC's basin linework into our Little Econ mapping system so that we could refine basin parameters (e.g., area, CN, etc.) for areas adjacent to Aloma Woods outside of the PEC data. This included updates to all sub-basins within System 5 (Group: SC5) of the model. The PEC model data were incorporated and used as is for this modeling effort.

STORMWATER MANAGEMENT AND CIVIL ENGINEERING
925 S. Semoran Boulevard, Suite 104 • Winter Park, FL 32792
Telephone (407) 679-3001 • Fax (407) 679-2691

Simulations for the 10, 25 and 100 year – 24 hour storms were generated and compared to the findings of PEC's preliminary analysis. Results for several locations in the Aloma Woods area and downstream locations approaching Old Iron Bridge Road are included in **Table 1.** The "PEC nodes" include locations within their model limits while those listed for SAI represent either the same location (e.g., PEC Node: 118204W and SAI Node: 105305N) or additional locations beyond the limits of the PEC effort. The link discharge information listed in **Table 1** represents combined flow into the PEC boundary wetland node (Node: 105330N).

Based on our simulation results, there is some increase in peak stages at the boundary wetland node (0.20 - 0.45 feet), however, it does not affect peak stages in the Aloma Woods system as originally calculated by PEC using the older (i.e., 2001) time series. The increases result from higher discharge rates than those calculated for the 2001 study. Stage increases in the downstream locations of the Little Econ basin are essentially "dampened out" by the time stormwater makes its way to the river area (e.g., increases of about 0.06-0.08 feet at Old Iron Bridge Road).

Thank you for the opportunity to work on this project. Should you have any questions or need further information, please don't hesitate to call me directly.

Sincerely,
SINGHOFEN & ASSOCIATES, INC.

Mark Troilo, P.E.
Vice-President

MT/lam

Cc: Mr. Greg Teague, P.E., Professional Engineering Consultants
File

Table 1. Little Econlockhatchee River – Aloma Woods Area Revisions (2001 Study Results versus 2004 Updated Results)

Model and Nodes	10-yr, 24-hr Stage (ft)	25-yr, 24-hr Stage (ft)	100-yr, 24-hr Stage (ft)
Wetland System southwest of Aloma Woods			
PEC (Node: 118204W)	55.7	56.2	56.3
SAI (Node: 105305N - 2001)	53.9	54.1	54.5
SAI (Node: 105305N - 2004)	55.7	56.2	56.3
Wetland System west of Aloma Woods			
PEC (Node: 118207W)	52.0	52.1	52.2
SAI (Node: 105310N - 2001)	51.8	51.9	52.1
SAI (Node: 105310N - 2004)	52.0	52.1	52.2
Wetland System south of Aloma Woods (PEC Boundary Condition)			
PEC	Boundary Condition	Boundary Condition	Boundary Condition
SAI (Node: 105330N - 2001)	49.29	49.36	49.55
SAI (Node: 105330N - 2004)	49.50	49.67	50.00
Wetland System between Aloma Woods and Old Iron Bridge Road			
PEC	Not modeled	Not modeled	Not modeled
SAI (Node: 105005N - 2001)	46.82	47.02	47.38
SAI (Node: 105005N - 2004)	46.88	47.08	47.44
Old Iron Bridge Road			
PEC	Not modeled	Not modeled	Not modeled
SAI (Node: 105010N - 2001)	42.87	43.29	44.62
SAI (Node: 105010N - 2004)	42.93	43.37	44.69

Model and Links	10-yr, 24-hr Flow (cfs)	25-yr, 24-hr Flow (cfs)	100-yr, 24-hr Flow (cfs)
PEC[1]	129.1 (0+75.2+53.9)	163.6 (2.6+107.1+53.9)	256.3 (6+157.7+92.6)
SAI[2] (2001)	0 (0+0)	8.7 (8.7+0)	45 (33.7+11.2)
SAI[1] (2004)	128 (0+74+54)	177 (3+106+68)	255 (6+156+93)

1) Includes links 118204W, 118208W and 118209W as provided by PEC
2) Inciudes links 105315W and 105320W from SAI, 2001 study

PEC Professional Engineering Consultants
engineers planners surveyors

TAB A.1

SURVEY NOTES FOR EXISTING DRAINAGE SYSTEMS

(Prepared By Southeastern Surveying)

PEC

PROFESSIONAL ENGINEERING CONSULTANTS, INC.

December 31, 2003

SC-084
1-1.0

Mr. James L. Petersen, P.S.M.
Vice President/Project Manager
Southeastern Surveying & Mapping Corp.
6500 All American Boulevard
Orlando, Florida 32810

Subj: **Aloma Woods Drainage Basin Study**
Seminole County, Florida

Re: **Notice To Proceed for Surveying Services**
Survey Request #1

Dear Jim:

PEC has been retained by the Seminole County Road Operations and Stormwater Division to prepare a drainage basin study within the general vicinity of the Aloma Woods development. In anticipation of this survey request, PEC has already completed data collection efforts, which included the archives of: Seminole County; the St. Johns River Water Management District (SJRWMD); the Florida Department of Transportation (FDOT); and Southeastern Surveying (i.e., Seminole County's drainage system inventory). Although a substantial portion of the existing primary drainage system within the study area was identified and characterized within the archives, some information is still missing.

In consideration of the above, we are hereby issuing this Notice To Proceed to commence the surveying services embodied within this request. The following issues should be noted with respect to these surveying services, and should serve to answer any questions that you may have prior to initiating the work.

1. PEC's approved work order with Seminole County includes a lump sum survey budget of $5,000. If you cannot complete the requested surveying services within this assumed budget, please notify us in writing as soon as possible.

2. An aerial based location map is enclosed with this Notice To Proceed that illustrates the surveying services embodied within this request. The specifics of this survey request will also be discussed during a field meeting presently scheduled for Wednesday, December 31, 2003.

3. In terms of survey deliverables, reduced field notes will be sufficient to adequately summarize the surveyed information.

4. In addition to Seminole County survey benchmarks, some as-built construction plans are also enclosed with this Notice To Proceed. These as-built plans provide additional information in close proximity to many of the existing drainage systems that you will be surveying. Using surveyed elevations from these as-built plans is also acceptable in lieu of performing lengthy bench level runs from Seminole County survey benchmarks. In any and all cases, all vertical elevations shall be based upon the NGVD29 datum.

5. This first survey request is intended to characterize the remaining portions of the existing primary drainage systems within the study area. Once stormwater modeling is complete, additional survey requests may be required to characterize finished floor elevations within areas predicted to be flood prone.

6. Lotspeich & Associates is also under contract to investigate seasonal high water (SHW) levels for some of the more substantial wetland and flood plain storage areas within the study area. Because Lotspeich & Associates has not been issued a Notice To Proceed at this time, survey of SHW nails and/or flags may also be required as part of a future survey request.

7. PEC's project schedule includes approximately 30 days for your completion of this survey assignment. If you cannot perform the required work in this period, please notify us in writing as to the necessary schedule revisions.

8. All invoices for full or partial payment should be sent to the offices of PEC, to my attention, with PEC's Project No. **SC-084** clearly identified.

If you should have any questions or need any additional information, please do not hesitate to contact me directly at 422-8062, Extension 193 or by e-mail: gat@peconline.com.

Very truly yours,

PROFESSIONAL ENGINEERING CONSULTANTS, INC.

Greg A. Teague

Greg A. Teague, P.E.
Associate Principal / Senior Project Engineer

sc-084.southeastern ntp #1.doc

Enclosures
- As-built construction plans
- PEC Location Map for requested surveying services

cc: Tom Radzai, Seminole County (w/o enclosures)
David Hamstra, PEC (w/o enclosures)

PEC

PROFESSIONAL ENGINEERING CONSULTANTS, INC.

January 5, 2004

SC-084
1-1.0

Mr. James L. Petersen, P.S.M.
Vice President/Project Manager
Southeastern Surveying & Mapping Corp.
6500 All American Boulevard
Orlando, Florida 32810

Subj: **Aloma Woods Drainage Basin Study**
Seminole County, Florida

Re: **Addendum to Survey Request #1**

Dear Jim:

In follow-up to your recently issued Notice To Proceed, this letter contains additional surveying services to be completed as part of PEC's first survey request. As shown on the following figure, please provide a survey of the control structure located south of Aloma Woods Boulevard and immediately west of Sabel Oak Place. Although the enclosed as-built construction plans provide some information for this control structure, PEC staff could not locate this structure during recent field reviews. A metal detector or probe rod may be required to physically locate the structure before you can commence your survey.

If you should have any questions or need any additional information, please do not hesitate to contact me directly at 422-8062, Extension 193 or by e-mail: gat@peconline.com.

Very truly yours,

PROFESSIONAL ENGINEERING CONSULTANTS, INC.

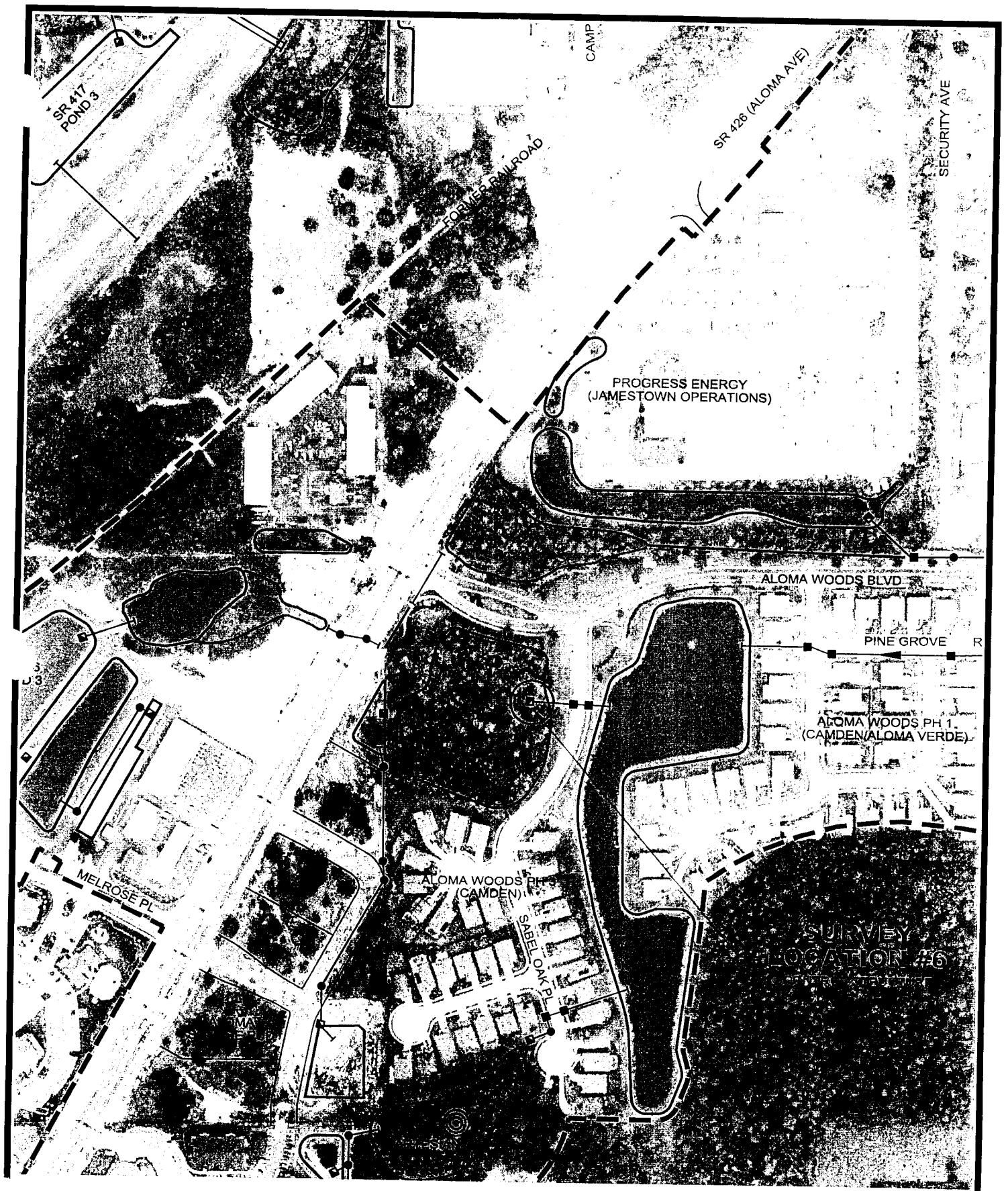
Greg A. Teague

Greg A. Teague, P.E.
Associate Principal / Senior Project Engineer

sc-084.southeastern ntp #2.doc

Enclosures
- As-built construction plans
- PEC Location Map for requested surveying services

cc: Tom Radzai, Seminole County (w/o enclosures)
David Hamstra, PEC (w/o enclosures)

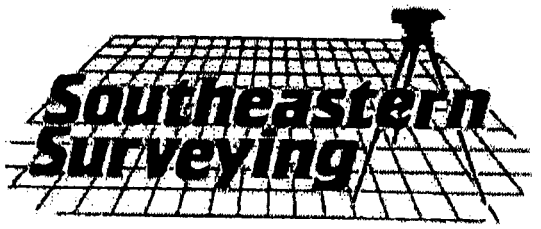


PEC Professional Engineering Consultants
engineers planners surveyors

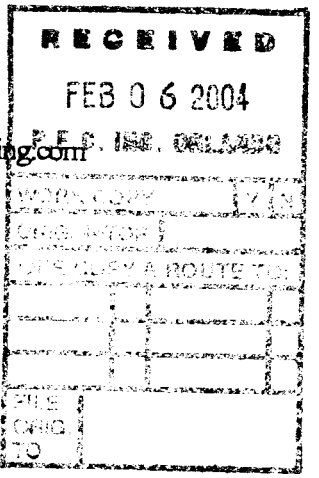
1" = 300'

ALOMA WOODS DRAINAGE BASIN STUDY
SEMINOLE COUNTY, FLORIDA

ADDENDUM TO SURVEY REQUEST #1
LOCATION MAP



Southeastern Surveying and Mapping Corporation
6500 All American Boulevard
Orlando, Florida 32810-4350
Phone (407) 292-8580
Fax (407) 292-0141
e-mail: info@southeasternsurveying.com



Fax

To: Greg Teague **From:** Jim Petersen

Fax: 407-849-9401 **Pages:** 12

Phone: 407-422-8062 **Date:** February 6, 2004

Re: Aloma Woods **CC:**

☐ **Urgent** X **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Message:** Greg... Please review the attached survey data. Let me know if you have any additional survey needs

James L. Petersen, P.S.M.
Phone (407) 292-8580 ext. 215
Fax: (407) 292-0141
e-mail: jpetersen@southeasternsurveying.com

Alamo Woods Drainage Study

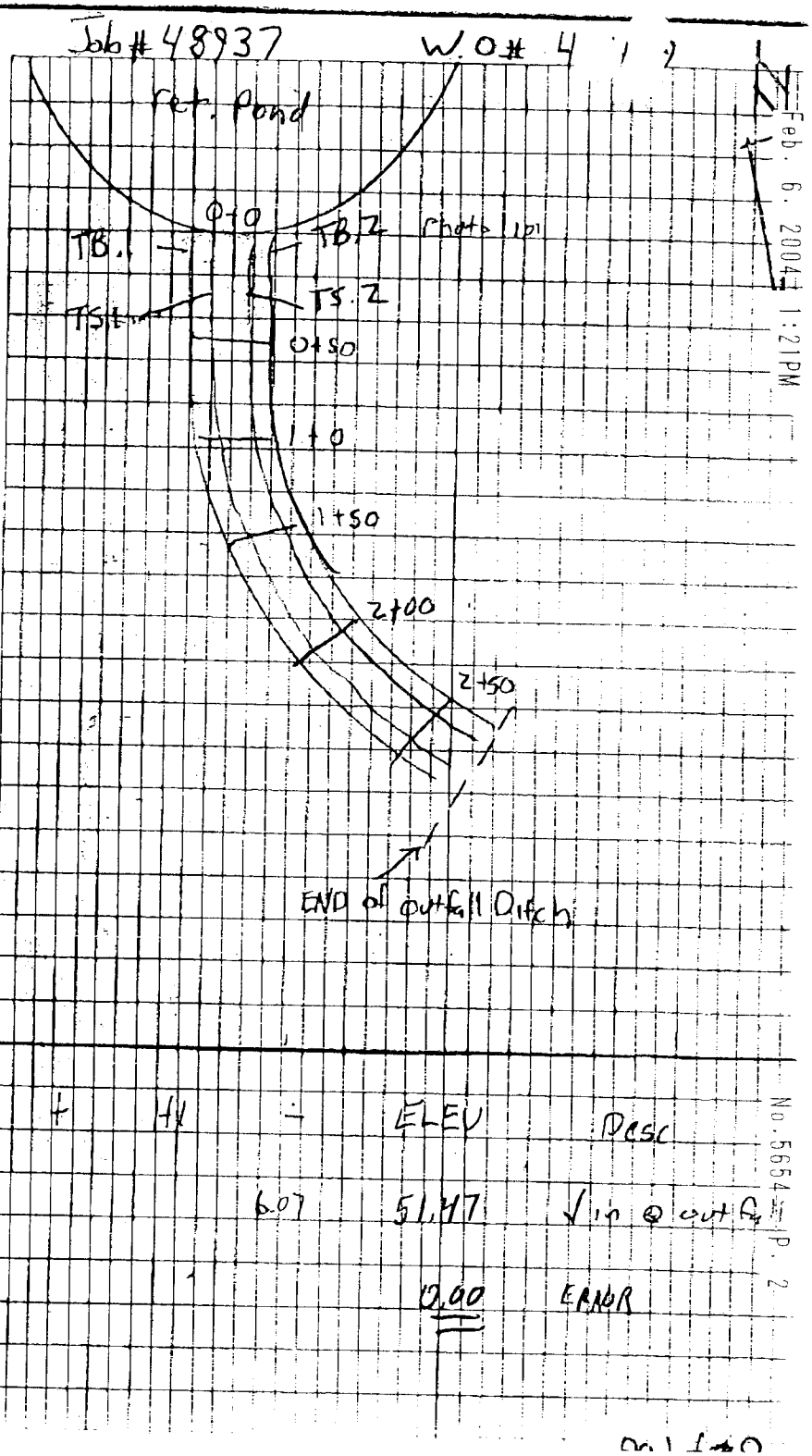
Survey Location #1

Profile of outfall Ditch

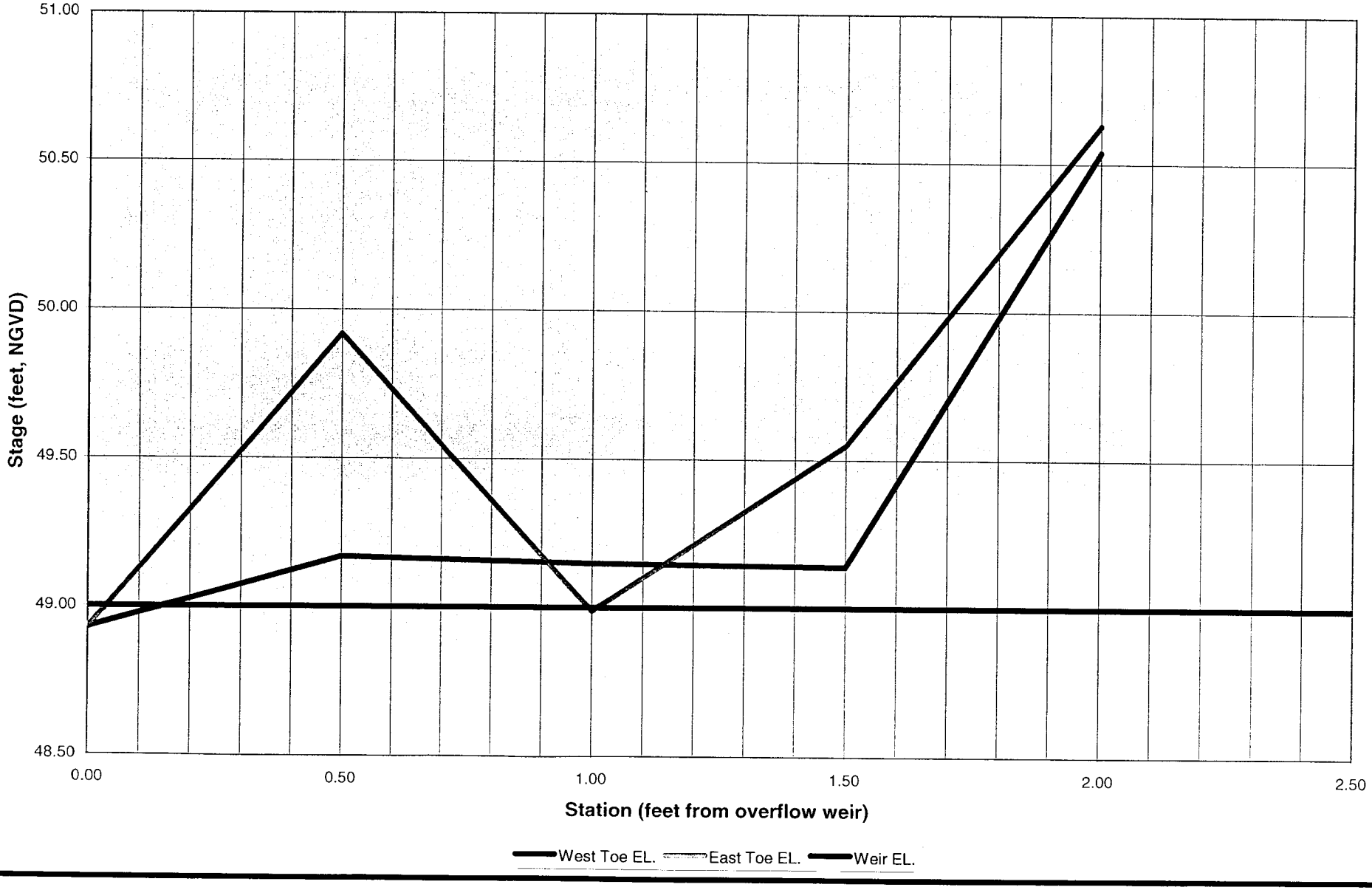
M. Luckey
S. Johnson

+	HI	−	ELEV	Desc.
2.82	54.61		51.79	Top Sew MH #53
5.18	55.63	4.16	50.45	Top outfall struct
		5.06	50.57	TB.1 @ 0+00
	DESIGN = 49'	6.70	48.93	TS.1 @ 0+00
		6.70	48.93	TS.2 @ 0+00
		4.52	51.11	TB.2 @ 0+00
		4.11	51.52	TB.2 @ 0+50
		5.71	49.92	TS.2 @ 0+50
		6.46	49.17	TS.1 @ 0+50
		5.22	50.41	TB.1 @ 0+50
		4.75	50.88	TB.1 @ 1+00
		6.48	49.15	TS.1 @ 1+00
		6.61	48.99	TS.2 @ 1+00
		4.30	51.33	TB.2 @ 1+00
		4.51	51.12	TB.2 @ 1+50
		6.08	49.55	TS.2 @ 1+50
		6.49	49.14	TS.1 @ 1+50
		5.20	50.43	TB.1 @ 1+50
		5.14	50.49	TB.2 @ 2+00
6.07	57.54	4.16	51.47	out fall struct.
		6.91	50.63	TS.2 @ 2+00
		7.0	50.54	TS.1 @ 2+00
		5.47	52.07	TB.1 @ 2+00
		5.41	52.13	TB.2 @ 2+50

SURVEY LOCATION #1



Aloma Woods Drainage Basin Study
Ground Profiles Between Aloma Woods Overflow and
Little Econ River Boundary Condition (ICPR Node 105330N)



Moody Woods Drainage Study 1/14

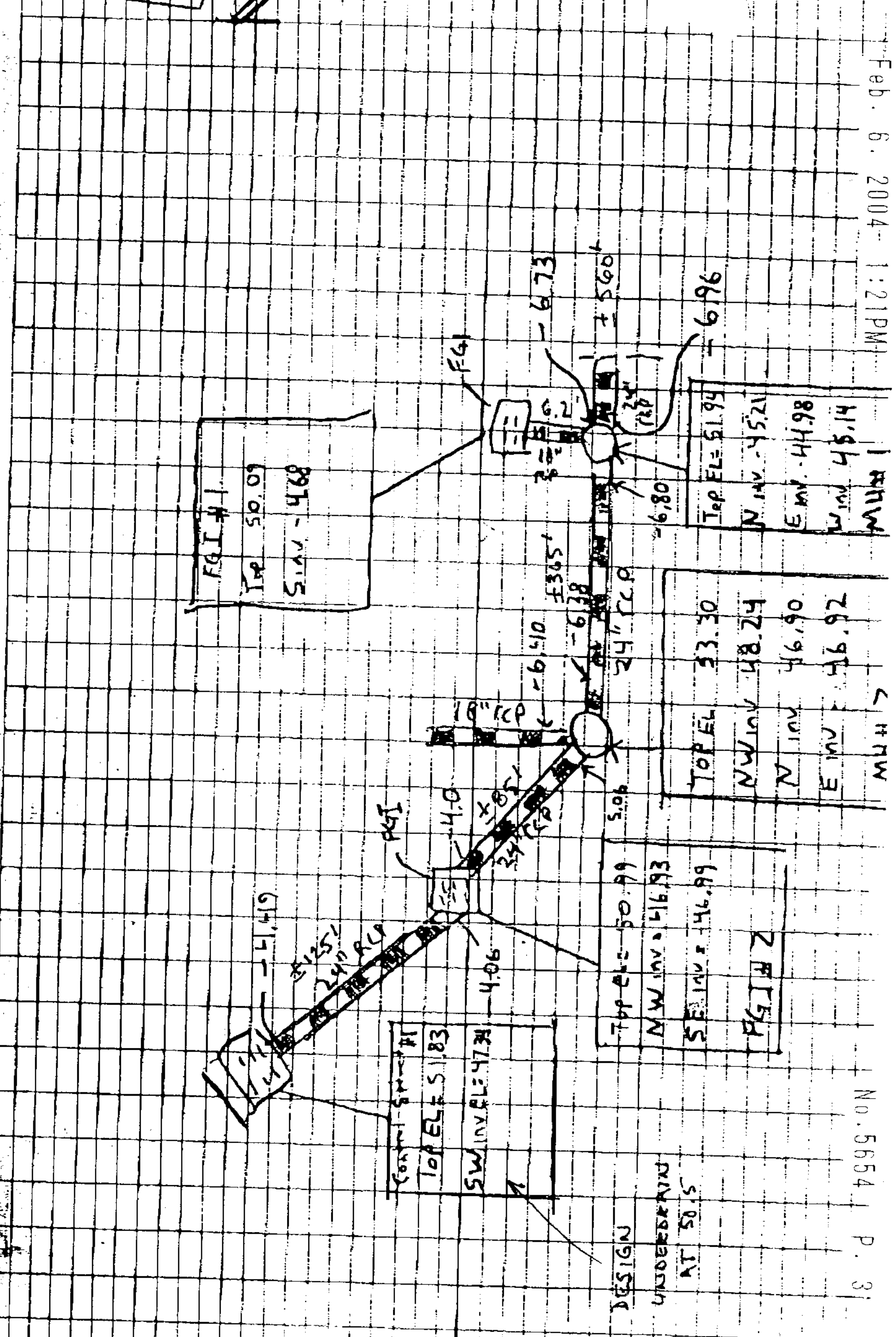
M. Key
S. Johnson

Storm Details @ Survey Location #2

+	HI	−	ELEV	Desc
5,73	58.28		52.55	Top of Struct #61 (Lift Station)
		8.19	50.09	FGI-1
6.37	58.31	6.34	51.94	MH-1
		5.01	53.30	MH-2
6.41	57.40	7.32	50.99	FGI-2
5.81	58.02	5.19	52.21	TP@ conc. Footer of Fence cnr
		6.19	51.83	Control Struct #1
		5.80	52.22	ckin @ TP@ conc Footer
			0.01	ERROR

SURVEY LOCATION 2

Job # 40731 W/O# 45437



Pg 7 of 8

Aloma Woods Drainage Study 1/14/

Job # 48937 w/o# 45437

M. Luckey
S. Johnson

Drainage Details @ Survey Location's 3 & 4

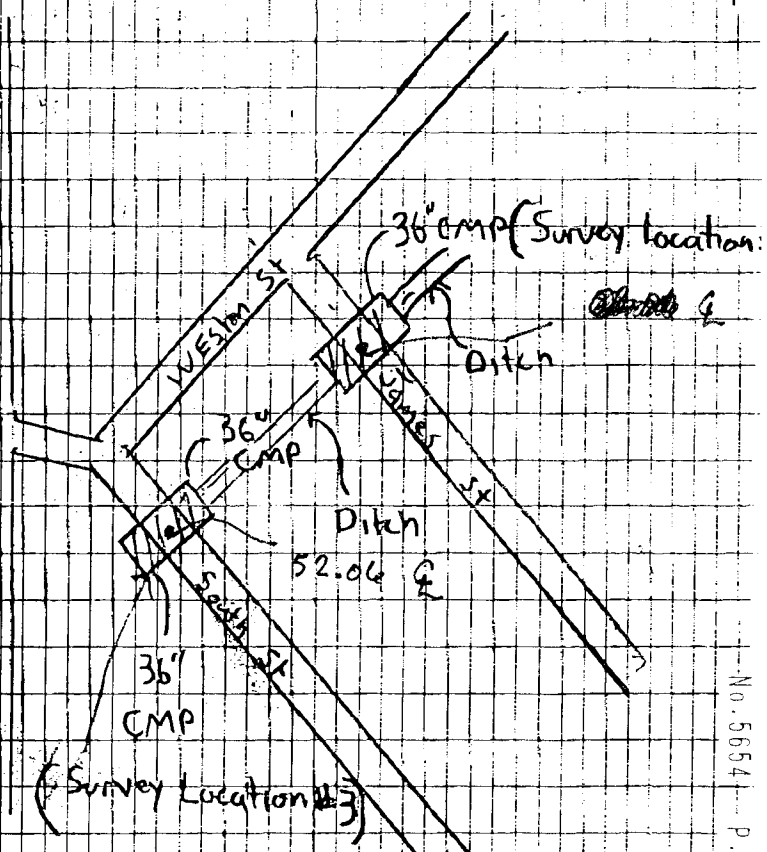
+	HI	−	ELEV	Desc.
9.32				
	49.40		40.08	N. INV of 15" CMP @ Survey Location 5
7.13	53.86	2.67	46.73	TP #1 (Paint dot on Asp.)
5.86	54.35	5.37	48.49	TP #2 (Paint dot on Asp)
5.35	55.89	3.81	50.54	TP #3 (Paint dot on Asp)
		10.88	45.01	INV @ 36" CMP N. Side of James St.
		10.92	44.97	Toe/Slope N. Side of James St.
		10.49	45.40	INV @ CMP S. Side James St.
		10.72	45.17	Toe/Slope @ S. Side of James St.
5.29	57.22	3.96	51.93	TP #4 (Paint dot on Asp)
		10.12	47.10	INV @ 31" CMP N. Side of South St.
		10.12	47.10	Toe/Slope @ N. Side

* ORIENTATION/SPACING OF ROADWAY SHOTS?

* NO CANAL X-SEC?

* TOPO MAP ROAD EL. DIFFERENT THAN SURVEY SPOT EL?

SURVEY LOCATIONS 3 & 4



Feb. 6. 2004 1:22PM

No. 5654 P. 4

pg 3 of 3

Alamo Woods Drainage Study

M. Lindley
S. Johnson

Survey locations 3&4 (continued from last pg)

+	HI	−	ELEV	Desc.
5.29	57.22	9.66	47.56	inv @ 36" CMP S. Side South St.
		9.62	47.60	Toe/slope S. Side South St.
4.84	56.94	5.12	52.10	Top of H.W (Tree #15)
5.62	55.98	6.58	50.36	TP #6 (paint dot)
5.47	53.96	7.49	48.49	TP #7 (paint dot)
7.57	49.35	7.18	46.78	TP #8 (paint dot)
		9.24	40.11	Inv 15" CMP
			recorded EL = 40.08	
			(Error < 0.03)	

SURVEY LOCATIONS 3 & 4

Feb. 6. 2004 1:23PM

No. 5654 P. 5

Homa Woods Drainage Study 1-15-04

M. Luckas
T. Thompson

Addit. Levels/work @ Location #4 & 3

+	HI	-	ELEV	DESC.	
		5.92	91.04	TP8	
6.44	97.48			TP8	
		4.21	91.27	TP9	
4.42	95.69			TP9	
		3.39	92.30	TP10	
4.56	96.86			TP10	
		0.80	94.06	TP11	
5.05	91.11			TP11	
		9.58	91.53	TBM cmp @ END	91.670

-.14

(-.14 error)

SURVEY LOCATION 3 & 4

Feb. 6. 2004 1:25PM

No. 5654 P. 10

pg 9 of 3

Continued From PG 11

+	HI	-	ELEV.	DESC	
10.15	57.25		47.10	36" CMP	Northside of South St.
		6.02	51.23	TOB N.W.	South st.
		4.91	52.34	TOB S.E.	South st.
		5.19	52.06	CL rd	
		6.75	50.50	TP 1	
9.52	55.02			TP 1	
		4.42	50.60	TB N.W.	James St.
		4.50	50.52	TB N.E.	James St.
		9.66	45.36	Southside of cmt James St	45.70

(.09 ERROR)

* CANAL X-SEC NORTH OF JAMES ST?

SURVEY LOCATION 3 ; 4

DITCH NORTH OF JAMES ST

50.6 TOB
45.01 BOT
50.5 TOB
— WIDE @ BOTTOM

DITCH

51.23
47.1
52.34
— WIDE @ BOTTOM

Alema Woods Drainage Study 1/12/04

Survey Location # 5

Job # 48937 W/O # 4<L 7

M Luckey
S Johnson

+	HI	–	ELEV	Desc.
				MATCHES HLA SURVEY
7.75	50.65		42.90	N. INV of 24" CPP
				15" ON HLA Survey
		10.57	40.08	S. INV 15" CMP
				15"?
291	50.58	8.98	41.67	N. INV 15" CMP
		4.99	45.66	℄ of 12' wide Paved
		7.65	42.93	I.E. 24" CPP
			Error = 0.03	

See Photo Copy

SURVEY @ LOCATION 5

Feb. 6. 2004 1:23PM

No. 5654 P. 6

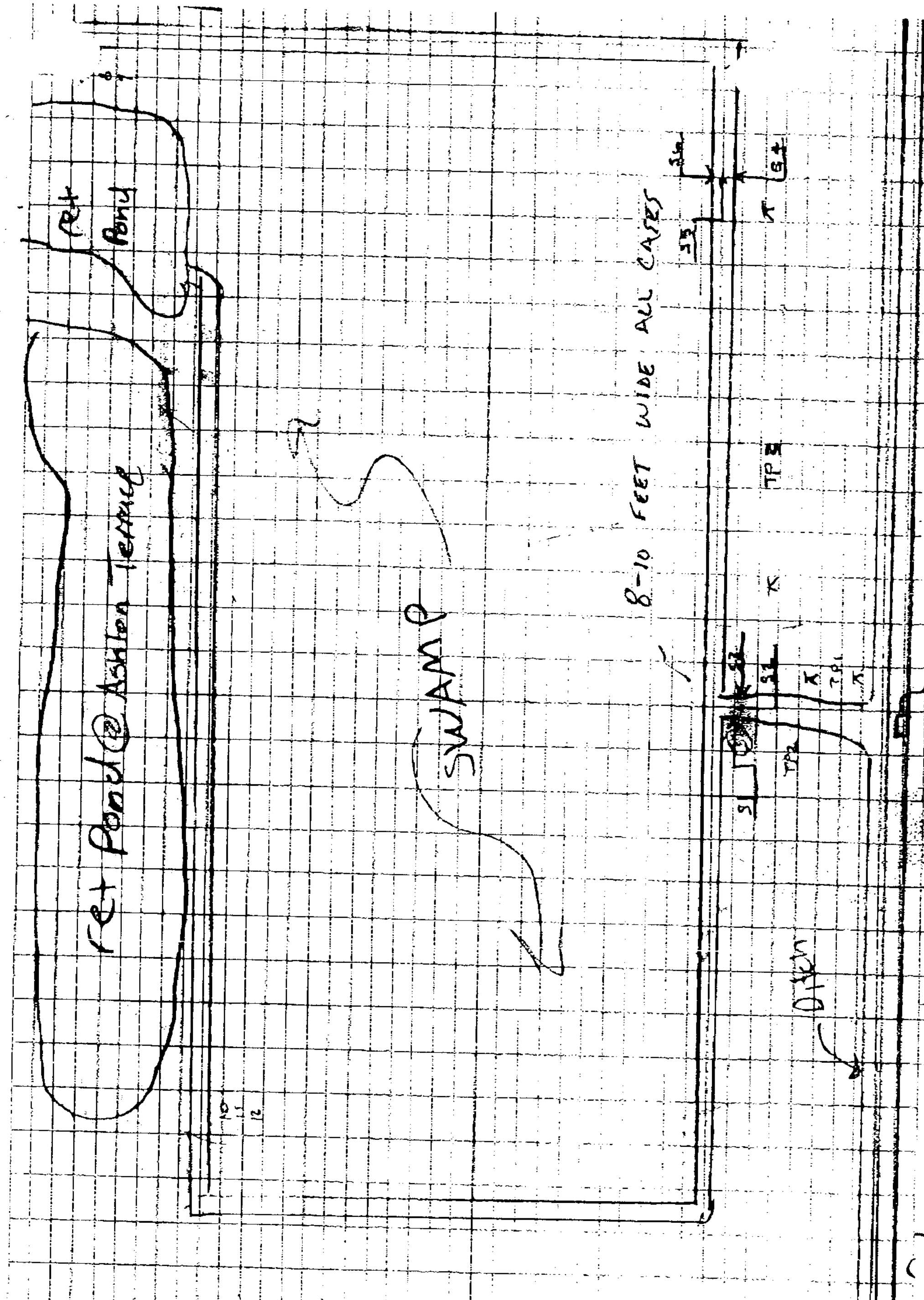
pg 5 of 8

psan
Milwaukee
7, Inc

Alamo Woods Drainage Study 1-15-04
Addl Level work @ Location #5

HI		-	ELEV	Desc	
~~47.498~~			41.670	INV @ CMP	
		2.59-	44.902	TP1	
95 ~~45.980~~				TP1	
		3.83-	42.122	TP2	
52 ~~45.52~~				TP2	
		5.19	33 ~~40.17~~	TB West side of Ditch S1	
		6.39	39.13 ~~38.93~~	CL Ditch S2	
		5.90	62 ~~39.42~~	TB E.S. Ditch S3	
~~47.72~~		3.56-	41.94	TP3	
47.17			~~47.17~~ 46.97	TP3	
				~~TP4~~ ~~TP4~~	
		5.58	41.59 ~~38.34~~	TB S.S. ~~TP4~~ (S4)	
		8.61	56 ~~38.74~~	CL (S5)	
		5.72	45 ~~41.26~~	TB N.S. (S6)	
		4.82-	35 ~~42.75~~	TP4	
45.62				TP4	
		4.23-	41.39	TP5	
47.42				TP5	
		6.26	41.16	TB W.S (S7)	
		7.65	39.77	CL (S8)	
		6.56	40.86	TB E.S (S9)	
		8.04	39.38	~~TP6~~ TB E.S (S10)	
		9.51	37.91	~~TB~~ ~~CL~~ CL (S11)	
		7.90	39.52	TB W.S. (S12)	
		8.05 -	39.37	TP6 Water Level @ E. Pond	
46.96		~~7.59~~		TP6 "	"
		6.98	39.98	TB N.S.	S13
		10.80	36.16	CL	
		6.88	40.08	TP7 ~~TB S.S~~	Water Level @ Canal

SURVEY LOCATION 5



* WHERE ARE THESE SURVEY POINTS LOCATED?

Aloma Woods Drainage Study 1/1

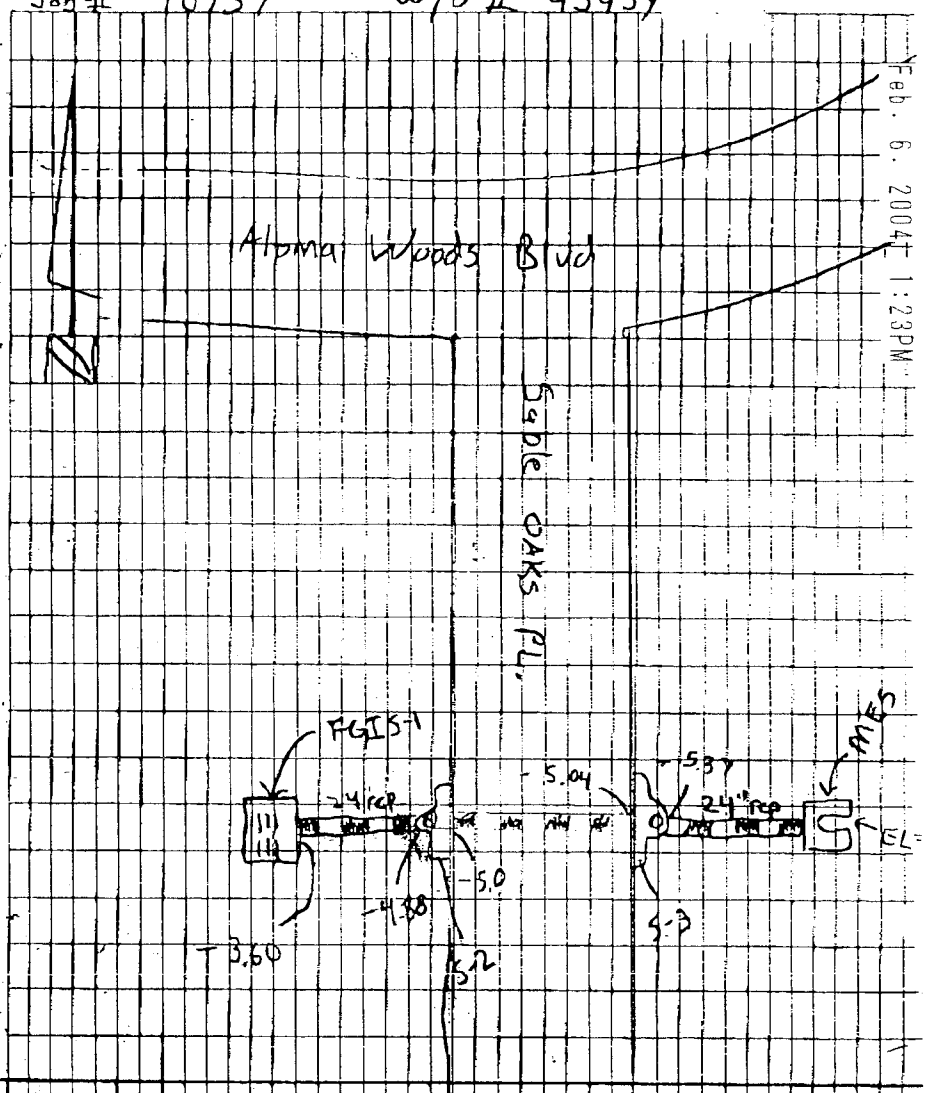
Survey Location #6

M. Luckey
S. Johnson

+	HI	−	ELEV	Desc
10.97	57.35		46.38	inv @ mes
		5.69	51.66 ✓	Top S-1
		4.84	52.51	Top S-2
		5.04	5231	Top S-3
556	5722	5.69	51.66	Top S-1
		10.35	46.37	inv @ MES
			Error = 0.01	

SURVEY LOCATION 6

Job # 48937 w/O # 45439



Struct S-1	Struct S-2	Struct S-3
E inv	E inv	E inv
Plan 47.86	Plan 47.36	Plan 46.78
Meas 48.96	Meas 47.51	Meas 44.94
	W inv	W inv
	Plan 47.47	Plan 47.07
	Meas 47.63	Meas 47.27

PEC Professional Engineering Consultants
engineers planners surveyors

TAB A.2

SURVEY NOTES FOR FLOOD PRONE GARAGES AND STRUCTURES

(Prepared By Southeastern Surveying)

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, INC.

April 16, 2004

SC-084
1-1.0

Mr. James L. Petersen, P.S.M.
Vice President/Project Manager
Southeastern Surveying & Mapping Corp.
6500 All American Boulevard
Orlando, Florida 32810

Subj: **Aloma Woods Drainage Basin Study**
Seminole County, Florida

Re: **Notice To Proceed for Surveying Services**
Survey Request #2

Dear Jim:

In an effort to better define the existing level of flood protection within the watershed, this survey request embodies an elevation survey of finished floors for several structures as illustrated on the following location maps.

In consideration of the above, we are hereby issuing this Notice To Proceed to commence the surveying services embodied within this request. The following issues should be noted with respect to these surveying services, and should serve to answer any questions that you may have prior to initiating the work.

1. PEC's approved work order with Seminole County includes a lump sum survey budget of $5,000. PEC's records indicate that approximately $2,030 of the original budget remains to accomplish this finish floor elevation survey. If you cannot complete the requested surveying services within this assumed budget, please notify us in writing as soon as possible.

2. An aerial based location map is enclosed with this Notice To Proceed that illustrates the surveying services embodied within this request. If necessary, PEC can also meet with you in the field to further define the survey request.

3. In terms of survey deliverables, reduced field notes will be sufficient to adequately summarize the surveyed information.

4. PEC anticipates that a previously prepared topographic survey of the Church Street ditch (SSMC project number 47409001) should provide all of the necessary vertical control for completion of the finished floor elevation survey. However, please insure that the finished floor elevations are based upon the NGVD29 datum regardless of what vertical control is used.

5. In most cases, the elevation of the finished floor is critical with regard to flood protection. However, please also survey the elevation of any carports and/or garages unless the elevation is obviously higher than the structure of interest.

6. All invoices for full or partial payment should be sent to the offices of PEC, to my attention, with PEC's Project No. **SC-084** clearly identified.

If you should have any questions or need any additional information, please do not hesitate to contact me directly at 422-8062, Extension 193 or by e-mail: gat@peconline.com.

Very truly yours,

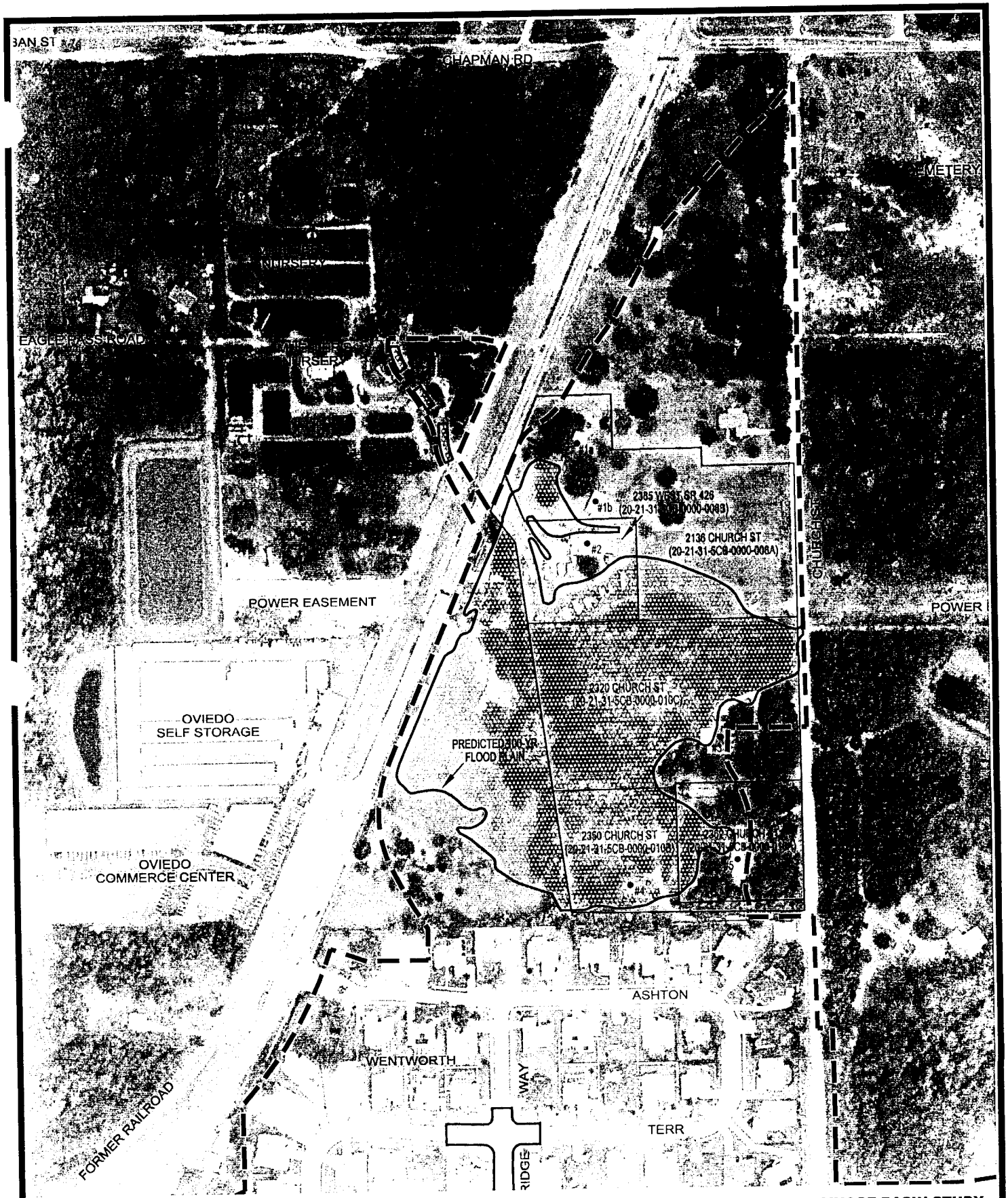
PROFESSIONAL ENGINEERING CONSULTANTS, INC.

Greg A. Teague

Greg A. Teague, P.E.
Associate Principal / Senior Project Engineer

sc-084.southeastern ntp #3.doc

cc: Tom Radzai, Seminole County
David Hamstra, PEC

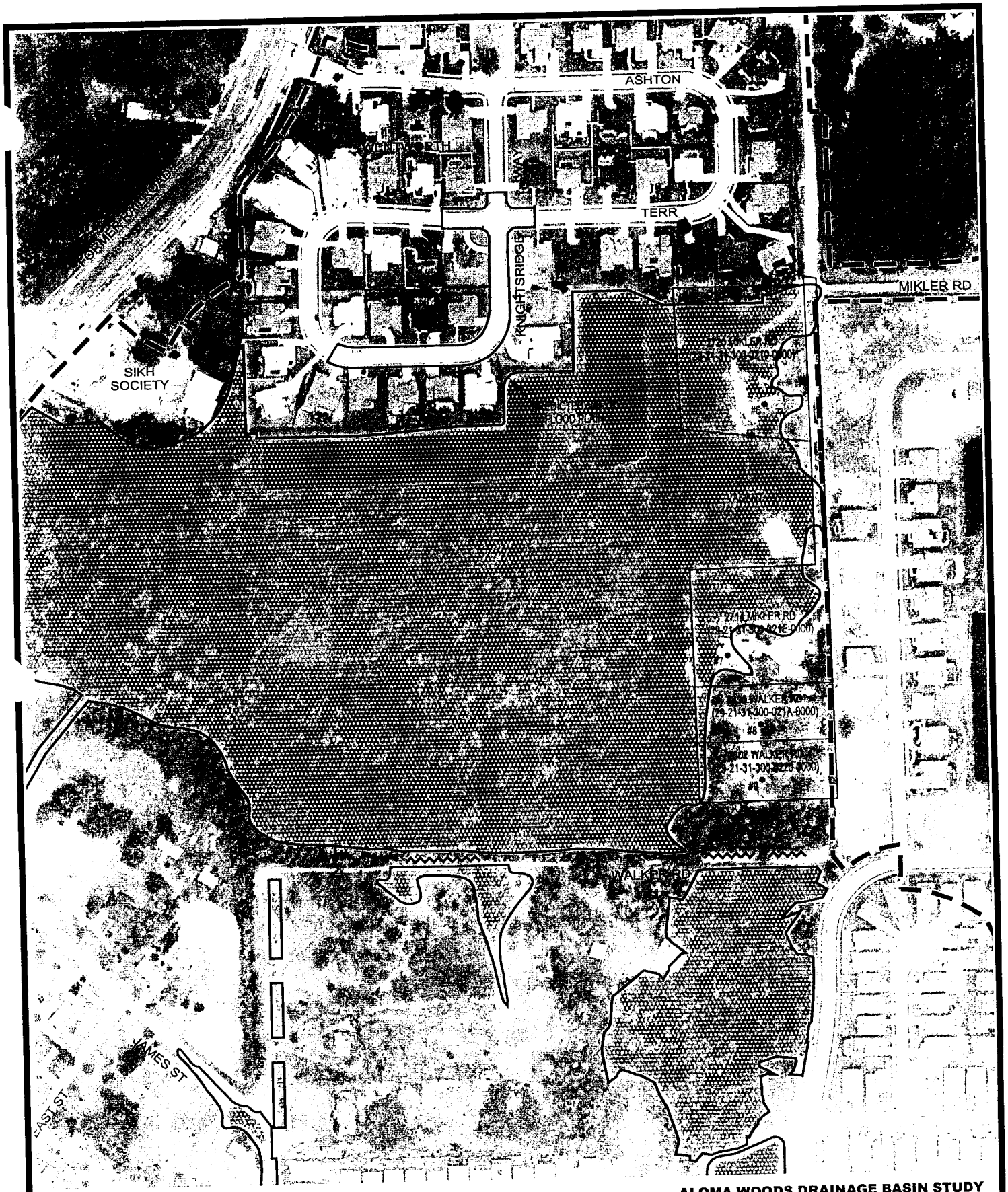


ALOMA WOODS DRAINAGE BASIN STUDY
SEMINOLE COUNTY, FLORIDA

PEC Professional Engineering Consultants
engineers planners surveyors

1" = 300'

SURVEY REQUEST #2
LOCATION MAP



ALOMA WOODS DRAINAGE BASIN STUDY
SEMINOLE COUNTY, FLORIDA

PEC Professional Engineering Consultants
engineers planners surveyors

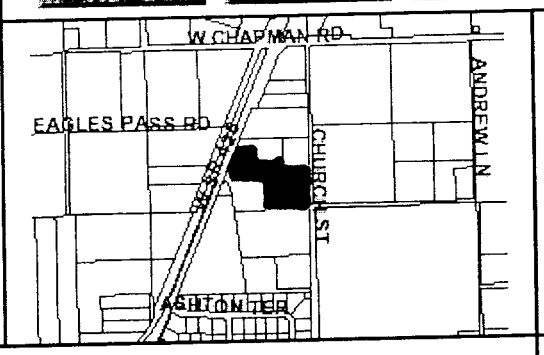
1" = 300'

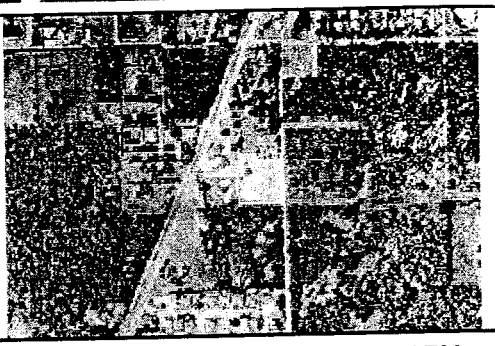
SURVEY REQUEST #2
LOCATION MAP

PARCEL DETAIL

REAL ESTATE | PERSONAL PROP | TAX ROLL | SALES SEARCH | Back

Seminole County
Property Appraiser Services
1101 E. First St.
Sanford FL 32771
407-665-7506





GENERAL

Parcel Id:	20-21-31-5CB-0000-008A	**Tax District:**	01-TX DIST 1 - COUNTY
Owner:	TESINSKY JOHN P & TESINSKY	**Exemptions:**	
Own/Addr:	MICHAEL & WEISENBARGER MARY A		
Address:	2136 CHURCH ST		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2377 426 SR W		
Subdivision Name:	SLAVIA FARMS		
Dor:	01-SINGLE FAMILY		

#1

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$50,164
Depreciated EXFT Value:	$4,666
Land Value (Market):	$128,262
Land Value Ag:	$0
Just/Market Value:	$183,092
Assessed Value (SOH):	$183,092
Exempt Value:	$0
Taxable Value:	$183,092

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
PROBATE RECORDS	05/2001	04120	1800	$100	Improved

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

2003 Tax Bill Amount:	$3,093
2003 Taxable Value:	$180,397

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	3.770	34,000.00	$128,180
ACREAGE	0	0	.820	100.00	$82

LEGAL DESCRIPTION PLAT

LEG LOT 8 (LESS BEG INT S LI & CANAL RUN E 253.5 FT N 245 FT W 249.45 FT N 26 DEG 50 MIN W

118.72 FT S 22 DEG 39 MIN W 84.84 FT SELY ON CANAL TO BEG & BEG NW COR RUN E TO NE COR S 284 FT W 210

FT N 35 FT W 210 FT N 125 FT W TO CANAL NELY ON CANAL TO BEG) SLAVIA FARMS

PB 6 PG 97

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1950	3	1,141	2,245	1,141	CONC BLOCK	$50,164	$77,176

Appendage / Sqft	GARAGE UNFINISHED / 338
Appendage / Sqft	OPEN PORCH FINISHED / 56
Appendage / Sqft	ENCLOSED PORCH FINISHED / 210
Appendage / Sqft	CARPORT UNFINISHED / 140
Appendage / Sqft	DETACHED GARAGE UNFINISHED / 360

EXTRA FEATURE

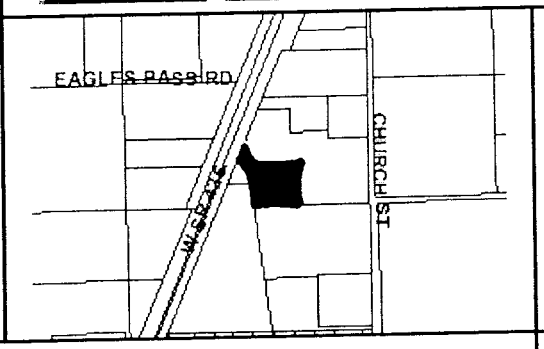
Description	Year Blt	Units	EXFT Value	Est. Cost New
ALUM CARPORT W/SLAB	1996	456	$2,174	$2,964
ALUM CARPORT W/SLAB	1997	500	$2,492	$3,250

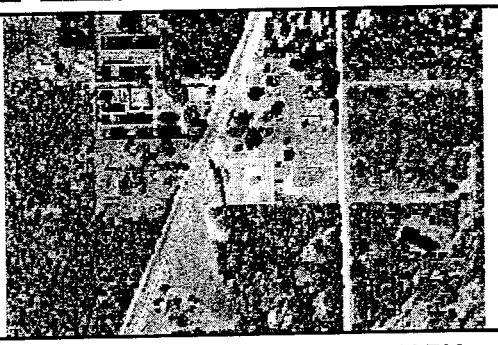
NOTE: *Assessed values shown are NOT certified values and therefore are subject to change before being finalized for ad valorem tax purposes.*
**** If you recently purchased a homesteaded property your next year's property tax will be based on Just/Market value.*

Personal Property | Please Select Account

PARCEL DETAIL | REAL ESTATE | PERSONAL PROP | TAX ROLL | SALES SEARCH | Back

Seminole County
Property Appraiser Services
1101 E. First St.
Sanford FL 32771
407-665-7506





GENERAL

Parcel Id:	20-21-31-5CB-0000-008B	Tax District:	01-TX DIST 1 - COUNTY
Owner:	TESINSKY MICHAEL A & JOHN P	Exemptions:	
Address:	2385 W STATE ROAD 426		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2385 426 SR W		
Facility Name:			
Dor:	27-AUTO SALE AND SERVIC		

#2

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$43,131
Depreciated EXFT Value:	$8,068
Land Value (Market):	$69,696
Land Value Ag:	$0
Just/Market Value:	$120,895
Assessed Value (SOH):	$120,895
Exempt Value:	$0
Taxable Value:	$120,895

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	01/1975	01046	0679	$1,500	Vacant

Find Comparable Sales within this DOR Code

2003 VALUE SUMMARY

2003 Tax Bill Amount:	$2,096
2003 Taxable Value:	$122,285

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
SQUARE FEET	0	0	69,696	2.00	$69,696

LEGAL DESCRIPTION PLAT

LEG BEG INT S LI LOT 8 & CANAL RUN E 253.5 FT N 245 FT W 249.45 FT N 26 DEG 50 MIN W 118.72 FT S 22

DEG 39 MIN W 84.84 FT SELY ON CANAL TO BEG SLAVIA FARMS

PB 6 PG 97

BUILDING INFORMATION

Bld Num	Bld Class	Year Blt	Fixtures	Gross SF	Stories	Ext Wall	Bld Value	Est. Cost New
1	STEEL/PRE ENG	1975	4	3,000	1	METAL PREFINISHED	$43,131	$70,131

Subsection / Sqft: CANOPY / 960

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
8' CHAIN LINK FENCE	1999	756	$5,041	$6,048
COMMERCIAL ASPHALT DR 2 IN	1986	6,630	$3,027	$5,503

NOTE: *Assessed values shown are NOT certified values and therefore are subject to change before being finalized for ad valorem tax purposes.*
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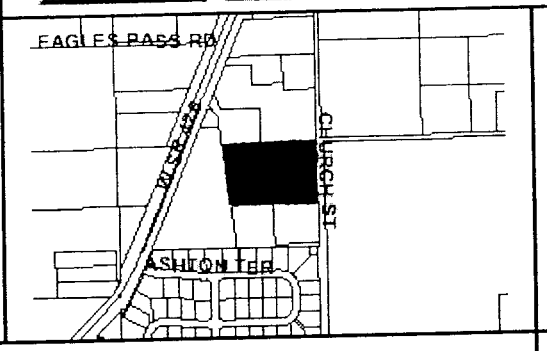

GENERAL

Parcel Id:	20-21-31-5CB-0000-010C	**Tax District:**	01-TX DIST 1 - COUNTY
Owner:	PERRY DALE S & CATHY	**Exemptions:**	00-HOMESTEAD
Address:	2320 CHURCH ST		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2320 CHURCH ST OVIEDO 32765		
Subdivision Name:	SLAVIA FARMS		
Dor:	01-SINGLE FAMILY		

#3

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$135,648
Depreciated EXFT Value:	$7,488
Land Value (Market):	$19,286
Land Value Ag:	$0
Just/Market Value:	$162,422
Assessed Value (SOH):	$134,906
Exempt Value:	$25,000
Taxable Value:	$109,906

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	07/1984	01568	1234	$122,300	Improved
WARRANTY DEED	02/1984	01525	1023	$35,000	Vacant

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$2,110
2003 Tax Bill Amount:	$1,841
Savings Due To SOH:	$269
2003 Taxable Value:	$107,391

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	1.130	17,000.00	$19,210
ACREAGE	0	0	3.790	20.00	$76

LEGAL DESCRIPTION PLAT

LEG LOT 10 (LESS BEG SW COR RUN E 532.4 FT N 299 FT W 282.48 FT S 6.91 FT W TO W LI SELY TO BEG)

SLAVIA FARMS PB 6 PG 97

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1984	6	2,009	3,372	2,009	SIDING AVG	$135,648	$146,646
	Appendage / Sqft		OPEN PORCH FINISHED / 310						
	Appendage / Sqft		GARAGE FINISHED / 1053						

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
POOL GUNITE	1984	512	$5,120	$10,240
FIREPLACE	1984	1	$750	$1,500
COOL DECK PATIO	1984	600	$1,050	$2,100
SOLAR HEATER	1990	1	$440	$1,100
ALUM UTILITY BLDG NO FLOOR	1984	80	$128	$320

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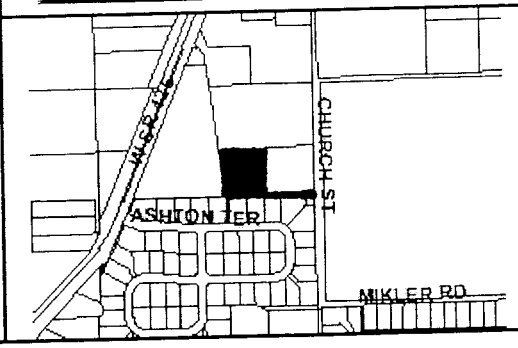

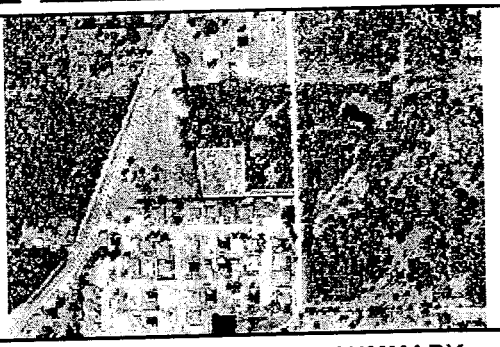

GENERAL

Parcel Id:	20-21-31-5CB-0000-010B	Tax District:	01-TX DIST 1 - COUNTY
Owner:	MANCO RONALD I & MY N	Exemptions:	00-HOMESTEAD
Address:	2350 CHURCH ST		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2350 CHURCH ST OVIEDO 32765		
Subdivision Name:	SLAVIA FARMS		
Dor:	01-SINGLE FAMILY		

#4

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	2
Depreciated Bldg Value:	$331,003
Depreciated EXFT Value:	$1,823
Land Value (Market):	$20,077
Land Value Ag:	$0
Just/Market Value:	$352,903
Assessed Value (SOH):	$266,028
Exempt Value:	$25,000
Taxable Value:	$241,028

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	05/1981	01338	0921	$13,700	Vacant

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$5,122
2003 Tax Bill Amount:	$4,047
Savings Due To SOH:	$1,075
2003 Taxable Value:	$236,068

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	1.180	17,000.00	$20,060
ACREAGE	0	0	.830	20.00	$17

LEGAL DESCRIPTION PLAT

LEG S 292.09 FT OFLOT 10 (LESS N 272.09 FT OF E 282.48 FT) SLAVIA FARMS

PB 6 PG 97 (2.01 AC)

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1981	3	576	1,739	776	CONC BLOCK	$55,541	$61,034
	Appendage / Sqft		OPEN PORCH FINISHED / 187						
	Appendage / Sqft		BASE / 200						
	Appendage / Sqft		CARPORT UNFINISHED / 200						
	Appendage / Sqft		GARAGE FINISHED / 576						
2	SINGLE FAMILY	1989	13	2,175	4,787	3,329	SIDING AVG	$275,462	$290,725
	Appendage / Sqft		ENCLOSED PORCH FINISHED / 462						
	Appendage / Sqft		OPEN PORCH UNFINISHED / 156						
	Appendage / Sqft		UTILITY FINISHED / 96						
	Appendage / Sqft		GARAGE FINISHED / 654						
	Appendage / Sqft		OPEN PORCH FINISHED / 90						
	Appendage / Sqft		BASE / 593						
	Appendage / Sqft		UPPER STORY FINISHED / 561						

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
WOOD DECK	1981	130	$260	$650

Personal Property [Please Select Account]

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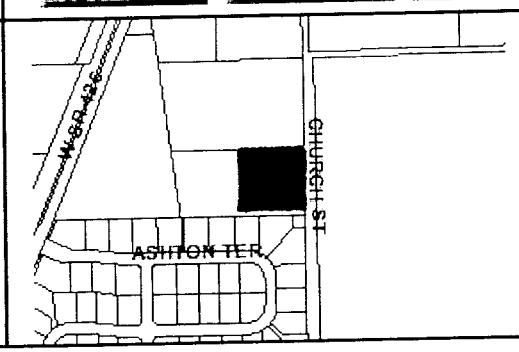

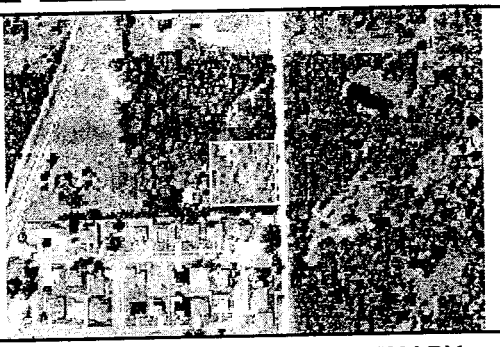

GENERAL

Parcel Id:	20-21-31-5CB-0000-010A	Tax District:	01-TX DIST 1 - COUNTY
Owner:	FAULK WILLIAM H & BLONDELL S	Exemptions:	00-HOMESTEAD
Address:	2362 CHURCH ST		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2362 CHURCH ST OVIEDO 32765		
Subdivision Name:	SLAVIA FARMS		
Dor:	01-SINGLE FAMILY		

#5

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	2
Depreciated Bldg Value:	$105,688
Depreciated EXFT Value:	$819
Land Value (Market):	$26,355
Land Value Ag:	$0
Just/Market Value:	$132,862
Assessed Value (SOH):	$100,389
Exempt Value:	$25,000
Taxable Value:	$75,389

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	02/1981	01322	1583	$14,200	Vacant

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$1,608
2003 Tax Bill Amount:	$1,260
Savings Due To SOH:	$348
2003 Taxable Value:	$73,517

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	1.550	17,000.00	$26,350
ACREAGE	0	0	.250	20.00	$5

LEGAL DESCRIPTION PLAT

LEG N 279 FT OF S 299 FT OF E 282.48 FT OF LOT 10 SLAVIA FARMS

PB 6 PG 97 (1.80 AC)

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1983	7	1,508	2,652	1,508	SIDING AVG	$103,717	$112,736
	Appendage / Sqft		OPEN PORCH FINISHED / 222						
	Appendage / Sqft		SCREEN PORCH FINISHED / 288						
	Appendage / Sqft		GARAGE FINISHED / 634						
2	BARNS/SHEDS	1985	0	256	512	256	SIDING AVG	$1,971	$3,623
	Appendage / Sqft		OVERHANG / 128						
	Appendage / Sqft		OVERHANG / 128						

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
FIREPLACE	1983	1	$713	$1,500
BRICK WALKWAY	1983	56	$106	$224

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PARCEL DETAIL

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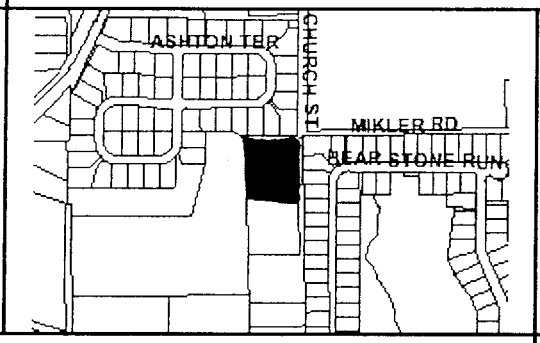

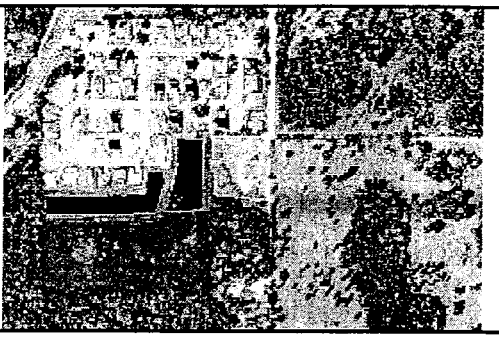

GENERAL

Parcel Id:	29-21-31-300-0210-0000	**Tax District:**	01-TX DIST 1 - COUNTY
Owner:	CASAVANT ROBERT SR & MARCIA	**Exemptions:**	00-HOMESTEAD
Address:	2720 MIKLER RD		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2720 MIKLER RD OVIEDO 32765		
Subdivision Name:			
Dor:	01-SINGLE FAMILY		

#6

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$175,764
Depreciated EXFT Value:	$1,391
Land Value (Market):	$39,950
Land Value Ag:	$0
Just/Market Value:	$217,105
Assessed Value (SOH):	$155,728
Exempt Value:	$25,000
Taxable Value:	$130,728

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	09/1991	02347	1588	$100	Improved
WARRANTY DEED	06/1986	01777	0232	$23,500	Vacant

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$2,893
2003 Tax Bill Amount:	$2,191
Savings Due To SOH:	$701
2003 Taxable Value:	$127,824

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	2.350	17,000.00	$39,950

LEGAL DESCRIPTION

SEC 29 TWP 21S RGE 31E BEG 20 FT N 88 DEG 10 MIN 24 SEC W OF NE COR OF NW 1/4 OF SE 1/4 RUN S

372.32 FT N 80 DEG 37 MIN 10 SEC W 325.54 FT N TO A PT W OF BEG E TO BEG

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1988	10	1,136	4,470	2,768	SIDING AVG	$175,764	$185,994

Appendage / Sqft	OPEN PORCH UNFINISHED / 30
Appendage / Sqft	GARAGE FINISHED / 440
Appendage / Sqft	OPEN PORCH UNFINISHED / 609
Appendage / Sqft	OPEN PORCH FINISHED / 623
Appendage / Sqft	UPPER STORY FINISHED / 1632

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
WOOD DECK	1988	393	$786	$1,965
WOOD UTILITY BLDG	1988	252	$605	$1,512

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PARCEL DETAIL

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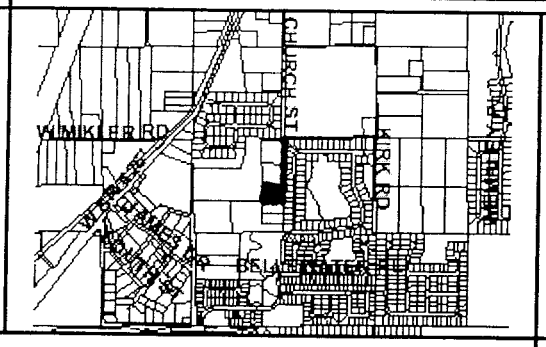

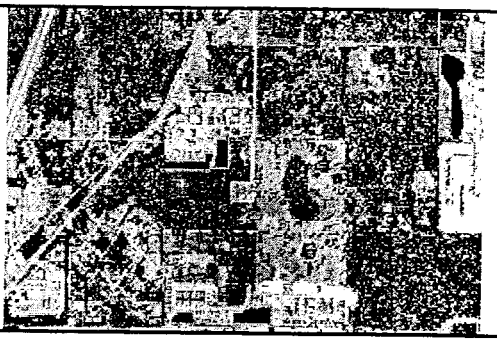

GENERAL

Parcel Id:	29-21-31-300-021E-0000	**Tax District:**	01-TX DIST 1 - COUNTY
Owner:	DOLLARD ROBERT L III & DOLLEEN	**Exemptions:**	00-HOMESTEAD
Address:	2714 MIKLER RD		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2714 MIKLER RD OVIEDO 32765		
Subdivision Name:			
Dor:	01-SINGLE FAMILY		

#7

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	2
Depreciated Bldg Value:	$252,993
Depreciated EXFT Value:	$8,583
Land Value (Market):	$34,370
Land Value Ag:	$0
Just/Market Value:	$295,946
Assessed Value (SOH):	$192,965
Exempt Value:	$25,000
Taxable Value:	$167,965

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
WARRANTY DEED	07/1996	03125	0410	$35,000	Vacant
WARRANTY DEED	10/1991	02347	1861	$30,000	Vacant
WARRANTY DEED	06/1991	02311	1840	$100	Vacant
WARRANTY DEED	02/1987	01818	0578	$12,500	Vacant

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$4,197
2003 Tax Bill Amount:	$2,818
Savings Due To SOH:	$1,379
2003 Taxable Value:	$164,367

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	2.020	17,000.00	$34,340
ACREAGE	0	0	.300	100.00	$30

LEGAL DESCRIPTION

LEG SEC 29 TWP 21S RGE 31E BEG NE COR OF NW 1/4 OF SE 1/4 RUN S 1 DEG 11 MIN 29 SEC W 924.04 FT

N 87 DEG 57 MIN 26 SEC W 330.04 FT N 1 DEG 11 MIN 29 SEC E 43.96 FT N 87 DEG 57 MIN 26 SEC W 9.35 FT

N 1 DEG 11 MIN 16 SEC E 223.04 FT S 87 DEG 57 MIN 26 SEC E 324.40 FT N 657.05 FT S 88 DEG 10 MIN 24 SEC

E 20 FT TO BEG

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1997	13	2,762	4,458	2,762	CB/STUCCO FINISH	$242,767	$250,922
	Appendage / Sqft		GARAGE FINISHED / 500						
	Appendage / Sqft		OPEN PORCH FINISHED / 96						
	Appendage / Sqft		DETACHED GARAGE FINISHED / 1100						
2	BARNS/SHEDS	1997	0	594	1,166	594	CB/STUCCO FINISH	$10,226	$11,891
	Appendage / Sqft		BASE SEMI FINISHED / 572						

EXTRA FEATURE

Description	Year Blt	Units	EXFT Value	Est. Cost New
FIREPLACE	1997	1	$1,238	$1,500
POOL VINYL LINER	1997	288	$4,752	$5,760

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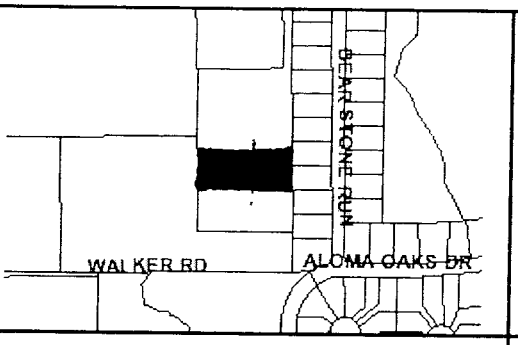

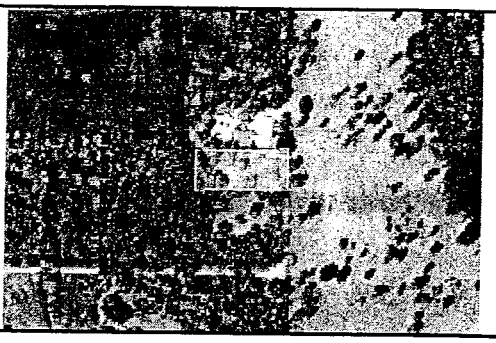

GENERAL

Parcel Id: 29-21-31-300-021A-0000 Tax District: 01-TX DIST 1 - COUNTY
Owner: MIMS MINNIE LEE Exemptions:
Address: 129 ADMIRAL CIR
City,State,ZipCode: SEBASTIAN FL 32958
Property Address: 2830 WALKER RD
Subdivision Name:
Dor: 01-SINGLE FAMILY

#8

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$36,056
Depreciated EXFT Value:	$0
Land Value (Market):	$12,500
Land Value Ag:	$0
Just/Market Value:	$48,556
Assessed Value (SOH):	$48,556
Exempt Value:	$0
Taxable Value:	$48,556

SALES

Deed Date Book Page Amount Vac/Imp

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

2003 Tax Bill Amount:	$792
2003 Taxable Value:	$46,206

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	1.000	12,500.00	$12,500

LEGAL DESCRIPTION

LEG SEC 29 TWP 21S RGE 31E N 132 FT OF S 396 FT OF E 330 FT OF NW 1/4 OF SE 1/4

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1964	3	864	1,224	864	SIDING AVG	$36,056	$45,070
	Appendage / Sqft		UTILITY UNFINISHED / 72						
	Appendage / Sqft		SCREEN PORCH UNFINISHED / 96						
	Appendage / Sqft		CARPORT UNFINISHED / 192						

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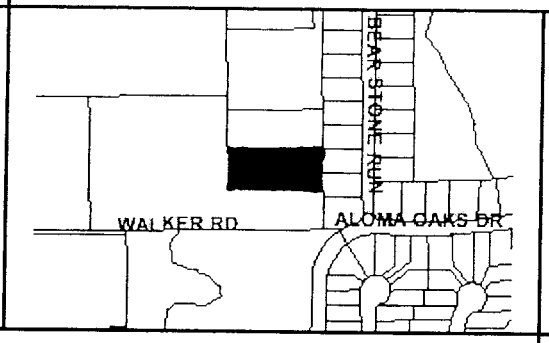

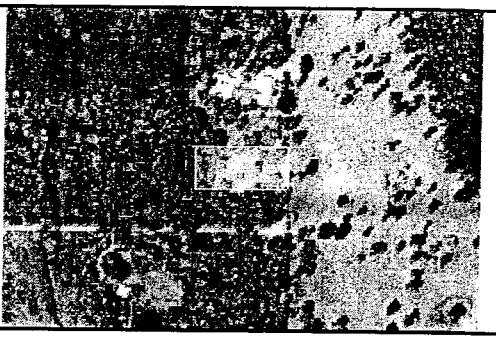

GENERAL

Parcel Id:	29-21-31-300-0220-0000	**Tax District:**	01-TX DIST 1 - COUNTY
Owner:	FERGUSON RUTHA M OR	**Exemptions:**	00-HOMESTEAD
Own/Addr:	SMITH STEPHANIE		
Address:	2802 WALKER RD		
City,State,ZipCode:	OVIEDO FL 32765		
Property Address:	2802 WALKER RD OVIEDO 32765		
Subdivision Name:			
Dor:	01-SINGLE FAMILY		

#9

2004 WORKING VALUE SUMMARY

Value Method:	Market
Number of Buildings:	1
Depreciated Bldg Value:	$36,342
Depreciated EXFT Value:	$0
Land Value (Market):	$17,000
Land Value Ag:	$0
Just/Market Value:	$53,342
Assessed Value (SOH):	$40,231
Exempt Value:	$25,500
Taxable Value:	$14,731

SALES

Deed	Date	Book	Page	Amount	Vac/Imp
QUIT CLAIM DEED	09/1998	03494	0466	$100	Improved
QUIT CLAIM DEED	04/1981	01331	1432	$100	Improved

Find Comparable Sales within this Subdivision

2003 VALUE SUMMARY

Tax Value(without SOH):	$256
2003 Tax Bill Amount:	$170
Savings Due To SOH:	$86
2003 Taxable Value:	$13,981

DOES NOT INCLUDE NON-AD VALOREM ASSESSMENTS

LAND

Land Assess Method	Frontage	Depth	Land Units	Unit Price	Land Value
ACREAGE	0	0	1.000	17,000.00	$17,000

LEGAL DESCRIPTION

LEG SEC 29 TWP 21S RGE 31E N 132 FT OF S 264 FT OF E 330 FT OF NW 1/4 OF SE 1/4

BUILDING INFORMATION

Bld Num	Bld Type	Year Blt	Fixtures	Base SF	Gross SF	Heated SF	Ext Wall	Bld Value	Est. Cost New
1	SINGLE FAMILY	1960	3	916	1,006	916	SIDING AVG	$36,342	$47,819
	Appendage / Sqft		ENCLOSED PORCH FINISHED / 90						

NOTE: *Assessed values shown are NOT certified values and therefore are subject to change before being finalized for ad valorem tax purposes.*
**** If you recently purchased a homesteaded property your next year's property tax will be based on Just/Market value.*

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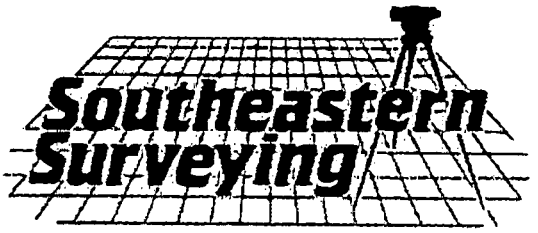


Southeastern Surveying and Mapping Corporation
6500 All American Boulevard
Orlando, Florida 32810-4350
Phone (407) 292-8580
Fax (407) 292-0141
e-mail: info@southeasternsurveying.com

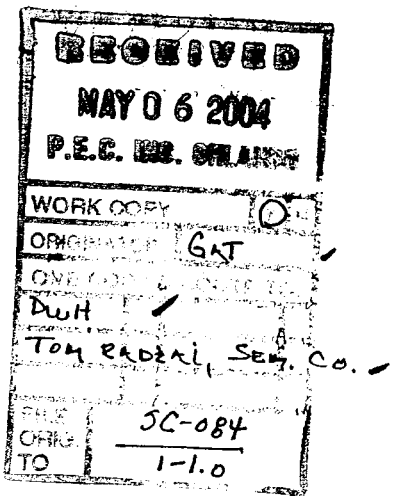
Fax

To:	Greg Teague	**From:**	Jim Petersen
Fax:	407-849-9402	**Pages:**	10
Phone:	407-422-8062	**Date:**	May 6, 2004
Re:	Aloma Woods	**CC:**	

☐ **Urgent** X **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Message:** Greg... Here are the Finished Floor Elevations that you requested.

James L. Petersen, P.S.M.
Phone (407) 292-8580 ext. 215
Fax: (407) 292-0141
e-mail: jpetersen@southeasternsurveying.com



Job No. 48937 Work order No. 45439 Proj. Manager. JLP Date 4-28-2004

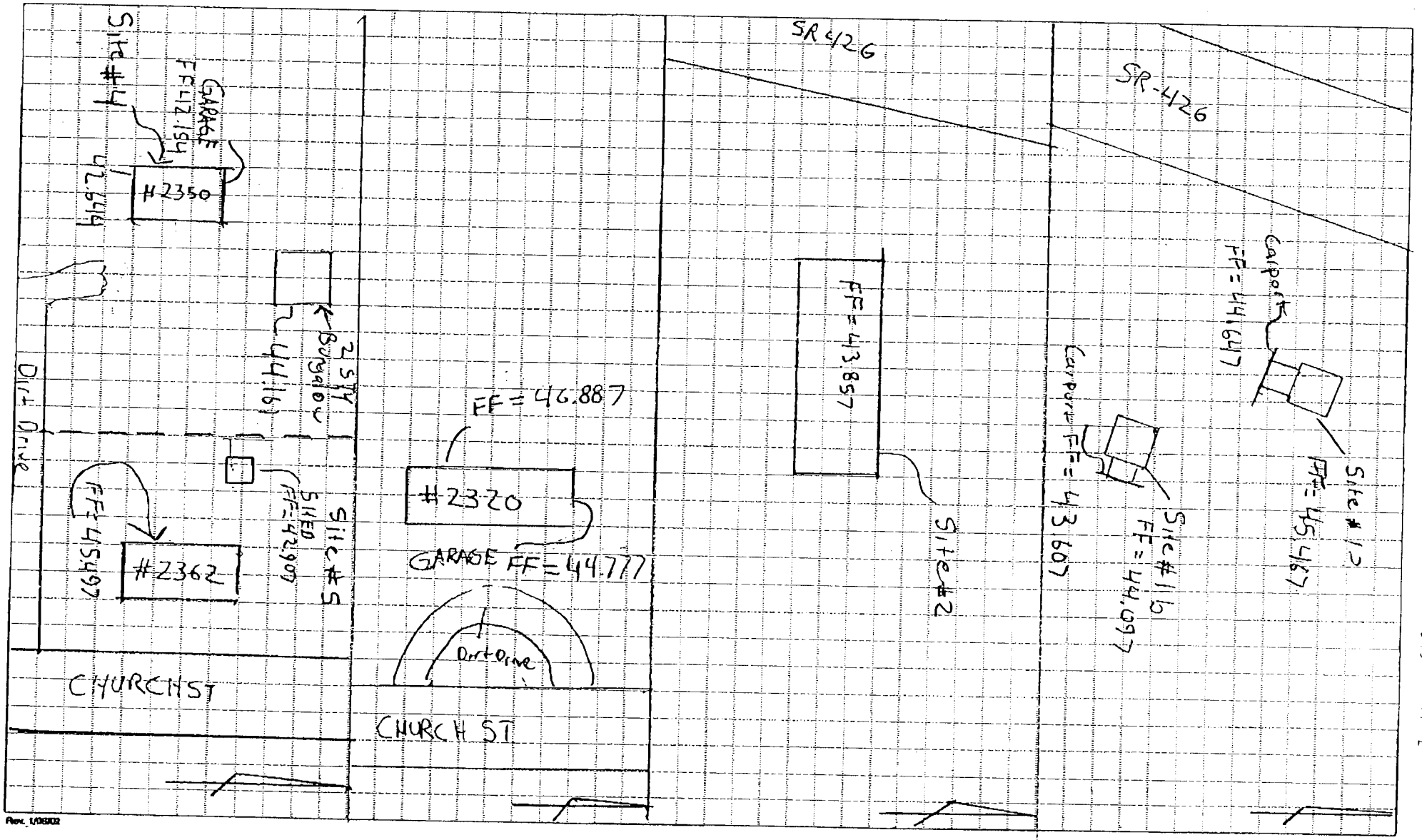
Task Description Aloma Basin Drainage Study

Approx. Sketch of Survey Locations

Team MilU/TadT

Page 1 of 2

Southeastern Surveying



Rev. 1/03/02

Job No. 48937 Work order No. 45439 Proj. Manager. JLP Date 4-28-2004

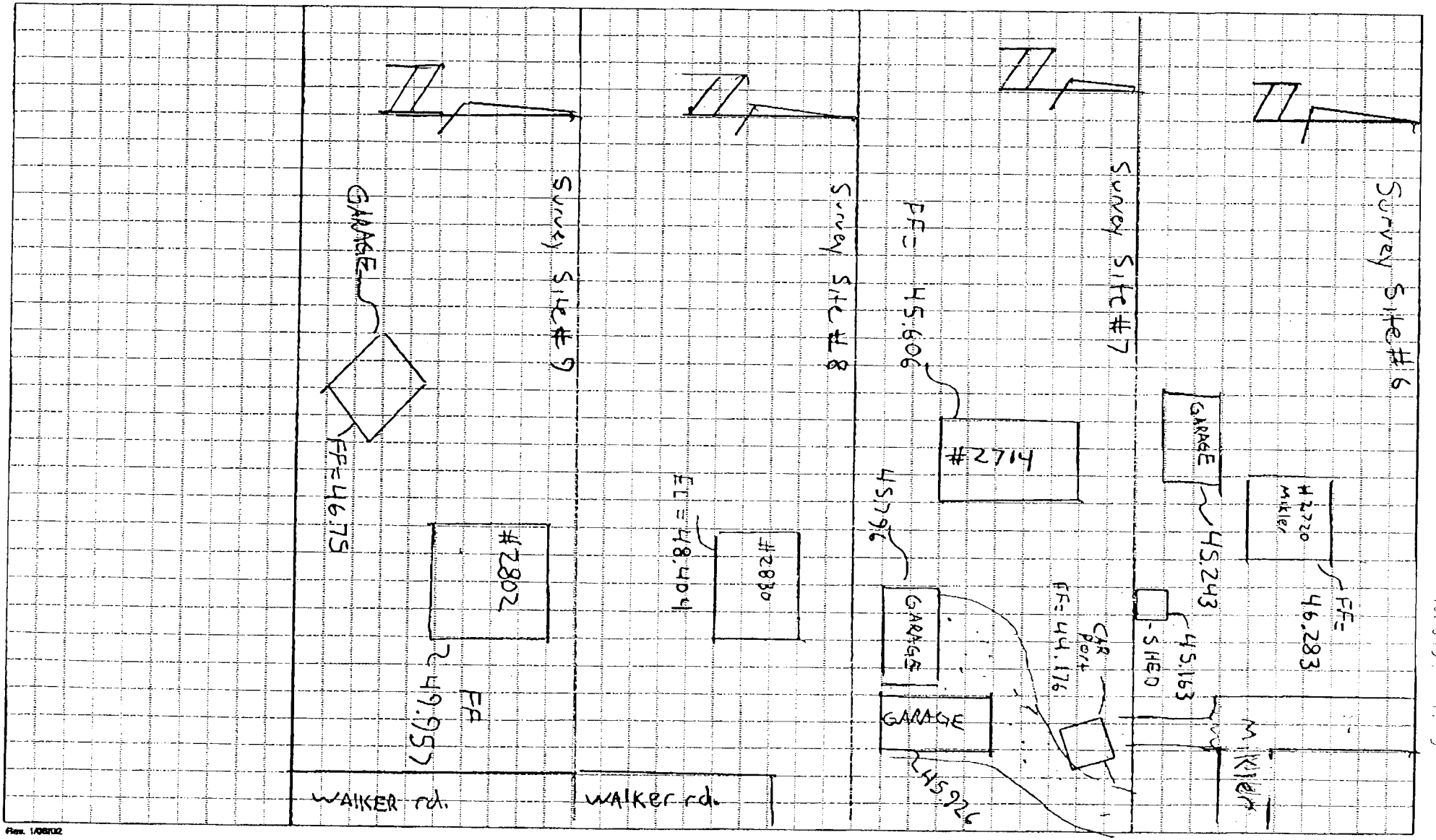
Task Description Aloma Basin Drainage Study

Approx Sketch of Survey locations

Team MLV/TadJ

Page 2 of 2

Southeastern Surveying



Rev. 1/08/02

Alcoma Woods Drainage Study 4/28/2004

M. Luckey
T. Thompson

Sumter County, FL

+	+M	HI	−	−M		ELEV.
.31						
5.55	5.553	45.714				40.161
.80						
1.27			2.04			
5.62	5.62	50.084	1.25	1.25		44.464
3.97			.46			
6.69			8.14			
5.68	5.68	49.234	6.53	6.53		43.554
4.67			4.92			
2.17			6.05			
5.68	5.68	50.404	4.51	4.51		44.724
4.19			2.97			
6.27			5.52			
5.56	5.56	51.724	4.24	4.24		46.164
4.85			2.96			
			6.14			
			5.25	5.25		46.474
			4.36			

WO # 45451 Job # 20757

Description

Found 4x4 Conc. Monument w/ PK Nail & Disk Stamped SES Turn pt +/- 250' west of P.I. of SR 426 & Eagle pass rd. (for Detail of Area see sheet 6 of Sumter County Sumter Drainage District topo survey)

Top of SSMK Turn pt N/O @ EP of SR 426 & Eagle pass Dr. (Turn pt #1)

Top of SSMK Turn pt N/C in grass Field SW West of 16' Tank (Turn pt #2) parcel ID # 20-21-23-5C0-0000-0030

Top of SSMK Turn pt N/C on E Side of Church St Across from Fire Dept residence (Turn pt #3)

Top of SSMK Turn pt N/C on E Side of Church St 2.5' S of EP & 7' +/- off 4" Hon FNR, Across from corner of Ashton Terrace Sub Division, (Turn pt #4)

Top of SSMK Turn N/C @ PC of Dirt Drive 2350 Church St. (Turn pt #5)

May. 6. 2004 8:53AM

Alom Woods Drainage Study · 4-28-2004 WO# [illegible] Job# [illegible]

M. Livekey / T. Thompson — Seminole County, Fl

BS	+M	HI	FS	-M	ELEV	Description
1.65						
1.28	1.28	47.754			46.474	TA of turn pt # 5 (continued)
.91						
			5.39			
			5.11	5.11	42.644	FF @ Residence # 2350 church st, Split level wood Frame home
			4.83			
			5.90			
			5.60	5.60	42.154	FF @ Garage of res. # 2350
			8.30			
			4.23			
			3.59	3.593	44.161	FF @ 2 story 2 car garage/Bungalow
			2.96			
6.69			6.23			
6.14	6.143	48.037	5.86	5.86	41.894	Set SSMC Trav pt @ PI of Dirt Drive & Bungalow Drive @ Res # 2350 Turn pt # 6
5.60			5.49			
			5.27			
			5.13	5.13	42.907	FF @ 1 sty wood Shed # 2362
			4.99			
			2.84			
			2.54	2.54	45.497	FF @ 1 sty wood Frame Residence
			2.24			
			4.17			
			2.92	2.92	45.117	SSMC Trav pt @ Dirt Dr Res # 2362 Turn pt # 7
			1.67			

Alo Woods Drainage Study 4-28-2004
Seminole County, FL

M. Luckey
T. Thompson

Job # 45439 Job # 48937

+	+M	HI	-	-M	ELEV.	Description
6.24						
4.56	4.56	49.677			45.117	Top of SS Mk Thru rd (Turn pt #7)
2.88						
			3.91			
			2.79	2.79	46.887	FF of 1 sty wood Frame Dwelling # 2320 Shivan St
			1.67			
			5.97			
			4.90	4.90	44.777	FF @ Garage of 1 sty wood Frame Dwelling # 2320
			3.83			
6.26			7.11			
4.81	4.81	48.967	5.52	5.52	44.157	Set SS Mk Thru rd @ W. EP of Shivan St
3.36			3.93			Turn pt #8
			4.68			
			3.50	3.50	45.467	FF @ 1 sty conc block Residence (Site # 1a)
			2.32			
			5.46			
			4.32	4.32	44.647	EP of Conc Carport @ (Site 1a)
			3.18			
			5.70			
			4.87	4.87	44.097	FF @ 1 sty Wood & Metal Dwelling (Site 1b)
			4.04			

Alamo Woods Drainage Study 4-29-04 NO# 45439 Job# 48937

Seminole County FL

M. Luckey

Tod Thompson

+	I.M.	HI	-	-M	Elev.	Description
		48.967				
			6.17			
			5.36	5.36	43.607	Conc carport @ Site 10
			4.55			
			6.3			
			5.38	5.38	43.587	FF of 1st Metal Bldg (Survey Point #8)
			4.46			
			6.54			
3.49	3.493	47.86	4.60	4.60	44.367	Set 60d Nail in conc Split Along SR 426, W of Survey Location 16 (Turn Pt #9)
1.93			2.66			
			7.06			
4.63	4.63	46.05	6.44	6.44	41.42	Set SSMC Tag pt in conc on S. side of Eagle Pass Dr 1/4 105' west of S bound 426
4.42			5.82			
			6.68			
			5.92	5.923	40.127	Next BM recorded Elev = 40.161
			5.17			

Error = 0.034

P. 7

No. 6154

May. 6. 2004 8:55AM

Alomar Woods Drainage Study 4.29.2004 — Job # 45439 — Job # 48937

M. Luckey
T. Thompson
Seminole County, FL

+	+M	HI	−	−M	ELEV	Description
5.3						
4.55	9.55	52.63			43.08	S. inv of 24" CMP @ 100' East of Lot 1, Phase 1 of Alomar Woods subdivision, recorded per Madden Engineering Drawing Plans ph. 6, 7 & 8, Sheet 9 of 35
4.57						
.85			5.60			
5.42	5.42	52.92	5.13	5.13	47.50	Set SSMC Turn Pt on E side of 9th Dr. 100' North of Northerly Bend of Walker rd. (Turn Pt #1)
4.99			4.66			
			3.99			
			2.96	3.963	49.957	FF of 1 sty wood dwelling @ 2802 Walker rd (Survey site #9)
			2.74			
			6.90			
			6.17	6.17	46.75	FF of 1 sty wood Garage @ Survey site 9
			5.44			
			5.09			
			4.52	4.516	48.404	FF of 1 sty wood Dwelling # 2830 Walker rd (Survey site #8)
			3.94			
6.23			2.37			
5.45	5.45	56.45	1.92	1.92	51.00	N/O in top of Bunn Fence post Turn pt #2
X			1.47			
4.71			7.23			
2.76	2.756	52.453	6.75	6.753	49.697	Turn pt # 3 on N Rim Sun MH Alomar Woods Ph. 7
.80			6.28			
			7.21			
			5.16	5.16	47.293	Turn pt #4 on N Rim Sun MH
			3.11			

May. 6. 2004 8:56AM No. 6154

Alomy Woods Drainage
Seminole County, FL
4-29-2004

M. Luckey
T. Thompson

Job 48937

P.M.	+M	#1	=	-M	ELEV.	Description
.98						
6.57	6.523	53.866			47.293	Turn pt #4
.17						
S6			4.87			
144	1.44	51.066	4.24	4.24	49.626	Turn pt #5 60d Nail in N. Face PP
131			X			= #602949
			5.21			
			4.78	4.783	46.283	FF @ 2 sty wood Dwelling
			4.36			Survey site # 6
			6.46			
			5.82	5.823	45.243	FF @ 2 sty 2 car garage @ Survey site # 6
			5.19			
			6.38			
			5.90	5.903	45.163	FF @ wood Shed, Survey site 6
			5.43			
S38			8.65			
S05	S05	49.456	6.66	6.66	44.406	Turn pt #5 60d Nail w/ square Top Disk
472			4.67			@ corner of Conc. DW
			5.50			
			5.28	5.28	44.176	FF of Covered Car Port @ site # 7
			5.06			
			3.95			
			3.53	3.53	45.926	FF of Masonry 3 car garage @ Site 11
			3.14			

wo # 454 59 Job # 48937

1. Luckey
. Thompson

Seminole County, Fl

	+M	HI	-	-M	EL.
			4.80		
		49.456	3.85	3.86	45.606
			2.90		
			4.39		
			3.66	3.66	45.796
			2.93		
9.0			3.67		
8.51	8.51	54.443	3.52	3.523	45.933
			3.38		
			7.04		
7.65	7.65	55.277	6.82	6.816	47.622
4.24			6.59		
4.75			10.02		
4.41	4.41	50.50	9.17	9.17	46.107
4.07			8.32		
			7.78		
			7.39	7.39	43.127
			7.00		

Desc

FF @ 1 sty wood frame Dwelling @ Site #7

FF ~~@~~ 1 sty Masonry Garage @ Site #7
office FF is .85 higher than garage FF

Turn pt # 6 "X" cut in conc Dr @ Site #7

Turn pt #7 paint Dot on conc walk

Turn pt #8 on SSMK Trav pt irc

NM @ S end of 24" cmp El = 43.08

Error = 0.047