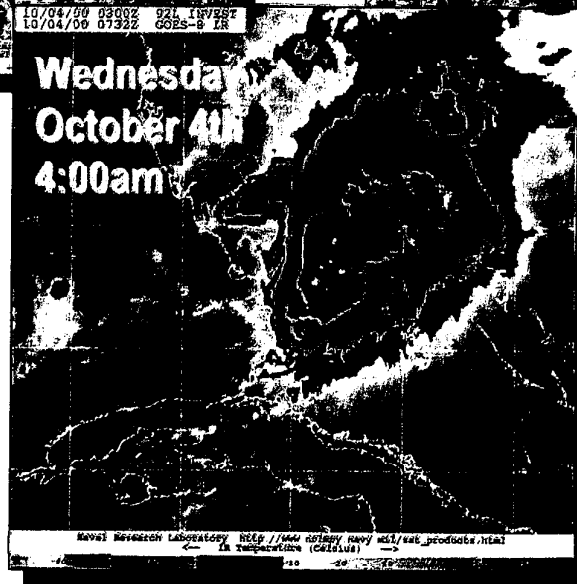
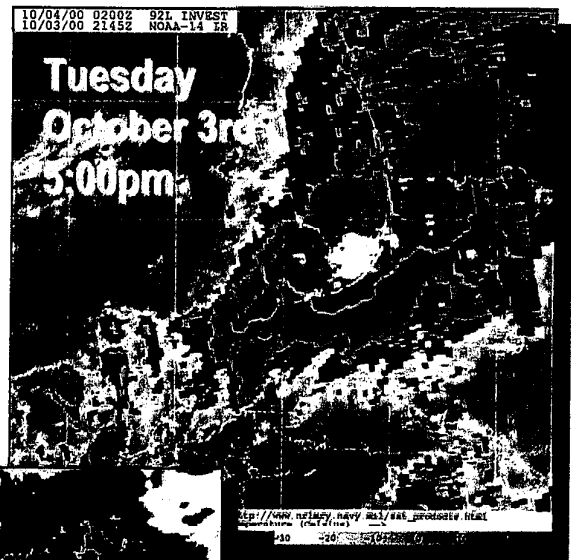


MIAMI-DADE COUNTY FLOOD

MANAGEMENT TASK FORCE

REPORT ON FLOOD OF OCTOBER 3rd, 2000



Images courtesy of the South Florida Water Management District





MEMORANDUM

TO: Honorable Chairperson and Members
Board of County Commissioners

DATE: March 21, 2001

SUBJECT: Report on Flood of October 3, 2000

FROM: Thomas K. MacVicar, Chairman
Miami-Dade County Flood Management Task Force

In compliance with Resolution No. R-1101-00, adopted on October 5, 2000, the Miami-Dade County Flood Management Task Force was re-instituted. The Task Force has held four public meetings, received detailed reports from the South Florida Water Management District, County staff and numerous local government officials regarding the events of last October. Task Force findings, meeting minutes, and other information are summarized below.

BACKGROUND

On October 15, 1999, Hurricane Irene struck Miami-Dade County. Flooding associated with this storm caused extensive damage, and in response, the Board of County Commissioners created the Miami-Dade County Flood Management Task Force (Task Force). This Task Force was charged with analyzing the current flood management system and its performance during Irene, and recommending solutions to protect residents from future flood impacts.

The Task Force met over a period of eight months, and received presentations from residents, businesses, municipal governments, and federal, state and local agencies. Actual impacts and potential solutions were discussed, and the Task Force issued its Final Report on June 6, 1999. Included in this Report were eighteen recommendations the Task Force determined could reduce future flood impacts for County residents. County staff was charged with monitoring progress of those recommendations.

EVALUATION OF THE OCTOBER 3rd, 2000 FLOOD

On October 3, 2000, a tropical weather system originating near Cuba passed through Miami-Dade County. Although water managers prepared for the storm, rainfall exceeded weather forecasts, and many of the same areas impacted by Irene again suffered heavy losses. In many areas the rainfall amount associated with this event exceeded that recorded with Hurricane Irene.

At the first meeting subsequent to the October, 2000 flood, the Task Force received a detailed briefing on the operation of every significant water control structure in the County for the hours before, during, and after the storm. After careful review, the Task Force concluded that the control structures were operated appropriately and none of the flooding could be traced to errors by the operators or a failure to follow established operating guidelines.

Two significant differences were noted between this storm and Hurricane Irene. The first was the absence of a storm surge with the most recent flood. With Hurricane Irene, abnormally high tides reduced flow through the coastal floodgates for critical periods during the storm. For this reason the Task Force recommended the evaluation of installing supplemental pumps on some of the key coastal structures. During the October 2000 flood, the limited conveyance capacity of the primary east-west canals stood out as a major factor in both the severity and duration of flooding.

The second were the wet-season operational practices for the south Miami-Dade Canals. Canal levels prior to Irene were abnormally high and there was some indication that this contributed to the severity of the flooding in some of the worst hit areas in the agricultural and rural residential areas south and west of Miami. Two key recommendations in the Hurricane Irene report related to wet season operations. The first was that the canals not be operated in the same manner as they were in the summer of 1999. The SFWMD and the Corps acted quickly to adopt an interim set of operating policies that prevented a recurrence of the high canal levels seen prior to Irene. The Task Force also suggested that the DERM Water Management Division establish a routine interaction with the SFWMD to improve communications during the wet season. This was done by DERM and was an important factor in the improved state of readiness seen prior to the October 2000 storm.

MULTI-AGENCY RESPONSE

After Hurricane Irene the Miami-Dade Office of Emergency Management put together a Project Impact and Local Mitigation Strategy effort to coordinate work with the Federal Office of Emergency Management in order to obtain as much federal financial support as possible. The October, 2000 flood, coming on the heels of the damage caused by Hurricane Irene, served to energize participation by all levels of government in the mitigation process. The concerted effort by all participants, and the leadership shown by County staff, have resulted in the likely commitment of tens of millions of dollars of federal money to correct some of the County's flood control deficiencies.

NEW RECOMMENDATIONS

The review of conditions caused by the October 2000 flood served to reinforce the recommendations contained in the Hurricane Irene Report. The emphasis on conveyance improvement rather than forward pumping reflects the differences in the two weather events. Other previous recommendations, such as the need for County staff participation in wet-season operational decisions, the need for changed operating levels in South Miami-Dade, and the need to complete the Modified Water Delivery and C-111 Projects remain just as valid in 2001 as they were in 1999.

In assessing the impacts to the western communities such as Sweetwater, Hialeah, Virginia Gardens and West Kendall, it has become clear that the most effective solutions will require reducing excessive groundwater and surface water flow from west to east. The Task Force reviewed two projects that could address this need.

WCA-3B Seepage Barrier. This project was originally considered by the Corps of Engineers as a Critical Project in the Everglades Restoration Program and is contained in the Report approved by Congress last fall. The project consists of constructing a below ground seepage barrier below the L-30 levee between the S-334 and S-335 water control structures. This is just west of the intersection of Krome Avenue and US 41. Previous studies have shown this section of levee to have the highest rate of seepage from the Everglades into the South Miami-Dade canal system. A barrier here would help keep Everglades water in the Everglades and eliminate a source of unwanted flow into the L-31N Canal. The project would also provide the opportunity to test one of the key technologies recommended in the Comprehensive Everglades Restoration Plan. The Task Force recommends an expedited evaluation and implementation of this project by the U.S. Army Corp of Engineers and the South Florida Water Management District. The County should explore the possibility of becoming a Co-Local Sponsor of this project with the SFWMD.

Temporary Lake Belt Reservoirs. The Task Force received a presentation from Paul Larsen, a member of the Task Force, on the possibility of constructing temporary flood storage impoundments on private property in the Lake Belt Area. Several of the mining companies who own the land have expressed a willingness to allow use of their property to temporarily store flood water during major storm events. This could allow the installation of temporary pumps and small scale levees to permit floodwater to be pumped to the west and held for a few days until flooding to the east had receded sufficiently to accommodate the flow from the west. Because of the presence of the County's Northwest Wellfield, water quality review is essential. This concept has the potential to provide significant benefits to the communities affected by the slow recession rates of the western reaches of the Miami and Tamiami Canals. If the concept can be applied in a way that is compatible with wellfield protection and other water quality concerns, it could be the most effective near-term strategy for reducing flood damage in some of the most susceptible areas.

Ownership and Management of the Secondary Canal System. The Task Force discussed the need to integrate the operation and maintenance of the primary and secondary canal systems: The SFWMD and Miami-Dade County should evaluate the feasibility and advisability of combining oversight of the operation and maintenance of the primary and secondary canal systems under the auspices of the SFWMD. The evaluation should include an assessment of the entire canal system to specify the primary, secondary and tertiary systems; to identify conflicts due to diverse ownership; and make recommendations for resolving conflicts. This effort should culminate in a joint, comprehensive report, including appropriate recommendations, submitted to the governing bodies of each agency by January 1, 2002.

FEC Borrow Canal. Recommendation number 18 from the May 16, 2000 report of the Task Force identified problems with the FEC Canal. The effort to insure proper maintenance of the FEC canal has not progressed sufficiently. The Task Force recommends that DERM take all necessary actions to ensure compliance by FEC, including enforcement if necessary. A report by DERM with regard to progress on this issue should be submitted to the County Manager each month until the problems are resolved.

Appendix

The attached Appendix includes the following:
Meeting Agendas,
Meeting Minutes, and
Presentations submitted to the Task Force during the meetings.

APPENDIX

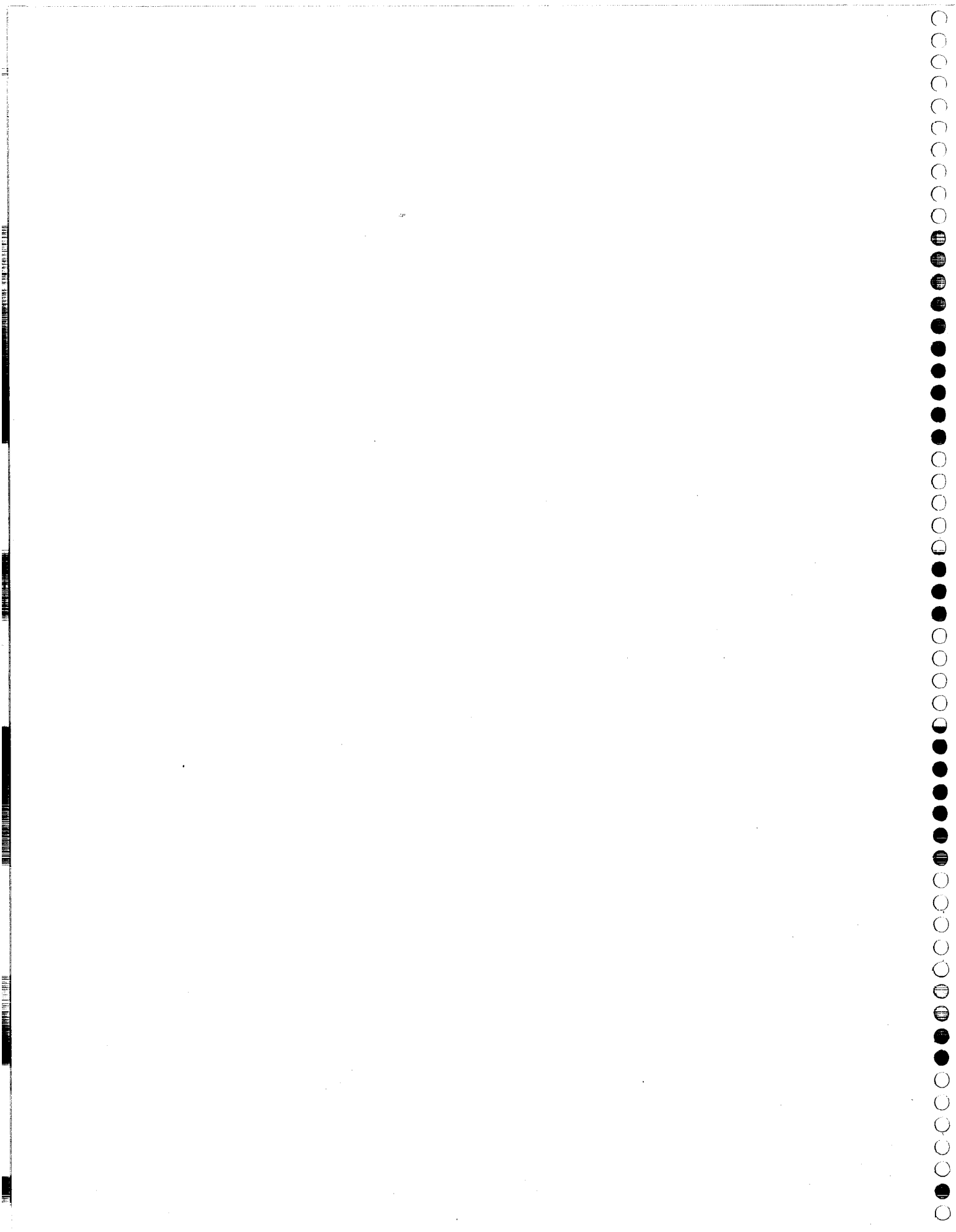


MIAMI DADE COUNTY FLOOD MANAGEMENT TASK FORCE
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MIAMI, FLORIDA 33130-1540
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MIAMI DADE COUNTY FLOOD MANAGEMENT TASK FORCE
Friday November 3, 2000
9:00am –3:00pm
SFWMD MIAMI FIELD STATION
9001 NW 58th Street

AGENDA

1. Opening Comments from the Chair
2. Presentation by the SFWMD on How Primary Flood Control System Operated During the October storm event
3. Public Comment
4. Additional comments by Task Force Members





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**MIAMI-DADE COUNTY FLOOD MANAGEMENT TASK FORCE
MINUTES OF NOVEMBER 3, 2000 MEETING
SFWMD MIAMI FIELD STATION
9001 NW 58TH STREET
9:00 AM – 3:00 PM**

MEMBERS PRESENT:

Anthony Clemente
Paul Larsen
Terry Rice
Joseph Schweigart
Bradley G. Waller

Carlos Espinosa
Thomas MacVicar
Rafael Robayna
Plinio Villanueva
Gary Winston

MEMBERS NOT PRESENT:

Don Chinquina
Stuart Strahl

The Chair called the meeting to order at 9:11 AM.

The Chairman inquired about the new member of the Task Force, Mr. Gary Winston of the State Attorney's office. He's not yet present. Chair recognized Commissioner Reboredo.

Commissioner Reboredo thanked the Task Force for reconvening and their efforts to find a resolution to the flooding problems of Miami-Dade County.

Chair asked Carlos Espinosa, the County appointee, to summarize how the Task Force got called to meet again.

Mr. Espinosa:

The recent storm event that hit Miami-Dade County was addressed at a Commission meeting and Commissioner Reboredo requested the Task Force be reinstated. The Manager's intent was that this committee convene for at least 2 meetings due to the fact that the Governor's office has assembled a Task Force and that this Task Force is to meet within 45 days to try and submit suggestions. However, if the Miami-Dade County Task Force needs to meet more than twice, it is up to the discretion of the Task Force.

Paul Larsen: Wanted to find out about the make up and purpose of the Governor's Task Force.

Roman Gastesi, SFWMD Regional Director: It is a working group put together to review what has already been done. The County Task Force's report from last year, the South Florida Water Management District's (SFWMD) report and to implement those suggestions. The Federal Emergency Management Agency

(FEMA) has put down \$30 million on the table to help prevent this from happening again. We are trying to prioritize which projects need to be done and that is difficult. There are over 600 projects that need funding, however everyone agrees that we can get more bang for the buck in the C-4 basin.

There have been core meetings of the County, District and the Corps of Engineers. We've had two meetings on the 16th and the 27th October. The Chair of the committee is the Secretary of the DCA who was appointed by the Governor. What has been accomplished is that this Task Force has made good suggestions and what is needed is money to implement them and let's try to find the funding for these projects instead of reviewing what has already been done.

B. Waller: How many counties are covered?

C. Espinosa: South Broward and Miami-Dade County based on the President's disaster declaration.

Tom Stroud, Director of Operations Control Division of the SFWMD gave presentation on the basin by basin structure operation and conditions before, during and after the October 3-4 rain event.

PUBLIC COMMENTS:

MAYOR PAUL BITHORNE, VIRGINIA GARDENS:

As seen in the presentation, we are in Phase 2 for forward pumping. When will Phase 2 be implemented? We've had 3 major floods in the past 3 years and my residents are threatening to sell their homes. We are going to have a slum community if we don't do something. When are the flood maps going to be updated so that my citizens will be forced to purchase flood insurance?

Chair: This Task Force is asking the same questions and there is no one here accountable to answer that.

Mayor: Will you then recommend that we be put in phase 1.

COMMISSIONER PEDRO REBOREDO:

I have seen this too often and the District gave a great presentation. But I feel that operations were not done with sufficient time. Although there were instances that were discussed having gates open that there would have been more flow. My concern is that we are talking about small differentials to operate the gates and are walking a tight rope. They have so many criteria such as the criteria for the Sparrows. I understand that there is an expense to have an operator at each gate during each potential event, but common sense tells me that if an emergency situation arises, then why close a gate if there is flow going out and there is enough water pushing it out that we let the computer close the gate for twelve hours. We lose a flow of water that backs up to peoples' homes. If we have all this technology and we see that it's raining 20 miles away, we are eventually going to get that water. Why not leave the gate open in anticipation of that water for 50% reduction in canal volume or make room for the 50% of water to keep that head of water going out. The seepage from conservation areas also needs to be addressed. I suggest that we do whatever is necessary to change the criteria and put peoples' lives at a higher level of importance as opposed to others. If we keep raising canal and storage levels, where is our water going to go? Water in a flat area goes everywhere. We need to put flood control where it belongs, ahead of everything else.

MADELINE FORTIN - BOARD MEMBER OF THE 8½ SQUARE MILE HOMEOWNERS ASSOCIATION:

One of the Flood Task Force's recommendations in June was to expedite the Modified Water Deliveries project. The District is to work with the Corps to expedite completion. But when talking to County staff, they say that the District is going along with the Corps option 6D, which will slow the project by 6 years. I want to know what exactly are you doing to expedite the project? Even when the Corps has given approval. Why are you not doing that? My second point is to the other recommendation of the Task Force, which is that our roads be raised and that the secondary drainage system be opened so that we would not flood.

R. Gastesi: The Governing Board passed the resolution supporting 6D as a recommendation to the Corps. As we speak, we are waiting for a record of decision to be signed by the Corps.

JOETTE LORION, MICCOSUKEE TRIBE OF INDIANS:

We know the Everglades has floods and droughts, but what's been going on for over 4 years now is an emergency situation due to the Sparrow and there are impacts on the Miccosukee tribe. The system is being operated on an emergency basis for the last 4 years now. This Task Force needs to look at this because they are talking about raising the water in conservation area. Speed up Mod Waters and C-111.

INGRID ANLLO, J.G.HEADS FARMS HOMEOWNERS ASSOCIATION:

I wanted to hear what was the plan for the secondary system and it has been answered.

CONCEPCION RIVAS, BILTMORE WAY:

I am a citizen who lives in Coral Gables. My building is in a critical situation because the level of the river is so high that it is like a fountain in my underground garage. It flooded more than 1 foot. My question is, is this project going to alleviate this situation, bringing the river lower? Or is it hurting river level so badly that's why we have so much water? My point is can we bring the water level of the river down so that when it floods it won't go up in my garage? The person sitting next to Ms. Rivas explained that when Ms. Rivas says river, she means the aquifer. Ms. Rivas agreed.

ANDY AUSTIN, CITY OF HIALEAH:

We have a few concerns over forward pumping into the C-6 canal. We need to look at the conveyance capacity of the secondary canal system and also I would like to see more input of known elevations in our communities that may provide more information to the District, which is looking at things in a regional way.

LUIS GOMEZ:

My question has been addressed.

MIKE BLACK:

Canal L-30 in Area B for the last 3 years has been running at 5½ feet. The levee is seeping ½ million acre-feet a year and I believe the canal is being kept high for that reason. If you keep ground water at 6 feet that will eventually translate into flooding in western Miami-Dade County. Ground water spreads out in west Miami-Dade. The water seeps under the levee so why not let some of it go?

MAYOR PAUL BITHORNE, VIRGINIA GARDENS:

When are FEMA maps going to be updated?

TASK FORCE DISCUSSION:

T. MacVicar: I have a couple of issues 1 is funding. The Governor's Working Group has FEMA money, but flood protection costs money. As the Legislature did for Everglades restoration, have them dedicate a 10th of a mill of the District's funding as a reliable source of money for flood protection. Two, is the County organized for flood protection? Elevate this function within the County's organization with a direct link to the County Manager. Federal projects are a continuing problem, changes are being made to projects on the fly that may weaken flood protection in Miami-Dade County.

T. Rice: We need to find out where we are as far as the recommendations that were made last year. Now that we are on another level as opposed to last year, we can get some good ideas on benefits you can get with forward pumping, etc. with a letter of report back to the Commission.

T. Clemente: Would like to clarify for Mayor Bithorne that the projects on the list shown to us by the District were prioritized based on the biggest bang for the buck. His project was in phase 2 not based on need but based on the time it would take to complete and the area it would affect. Would also add that if the CERP projects provided both flood protection and water supply benefits they should be given a higher priority. Would we have better flood protection by integrating the primary system and the secondary canal system.

C. Espinosa: Going back to the operation of structures, is there a possibility to work with the Corps to look at a major storm operational procedure? To see under the current conditions if there is some refinement that can be done. Need to have a subset for a major storm type of situation to have more flexibility during that time.

R. Robayna: A concern is the conveyance system. How do you get the water to the pumps for forward pumping. Analysis needs to be done for that. Maybe installing some intermediate pumping system along the way to improve capacity. Another thing is data on the total volume in the different basins compared to last year's storm

J. Schweigart: Would like to make clear that any additional millage would be an additional tax on top of funding for the Everglades.

T. MacVicar: We need a dedicated funding source and the Corps needs to look at a pilot project on seepage barriers.

P.Larsen: Would like to present a plan, which would use a portion of the Lake Belt as a detention area for floodwaters.

Next meeting is Nov. 29th at 9:00 AM -the County will give us an update on the status of the 18 recommendations.

Meeting adjourned at 1:10 PM.



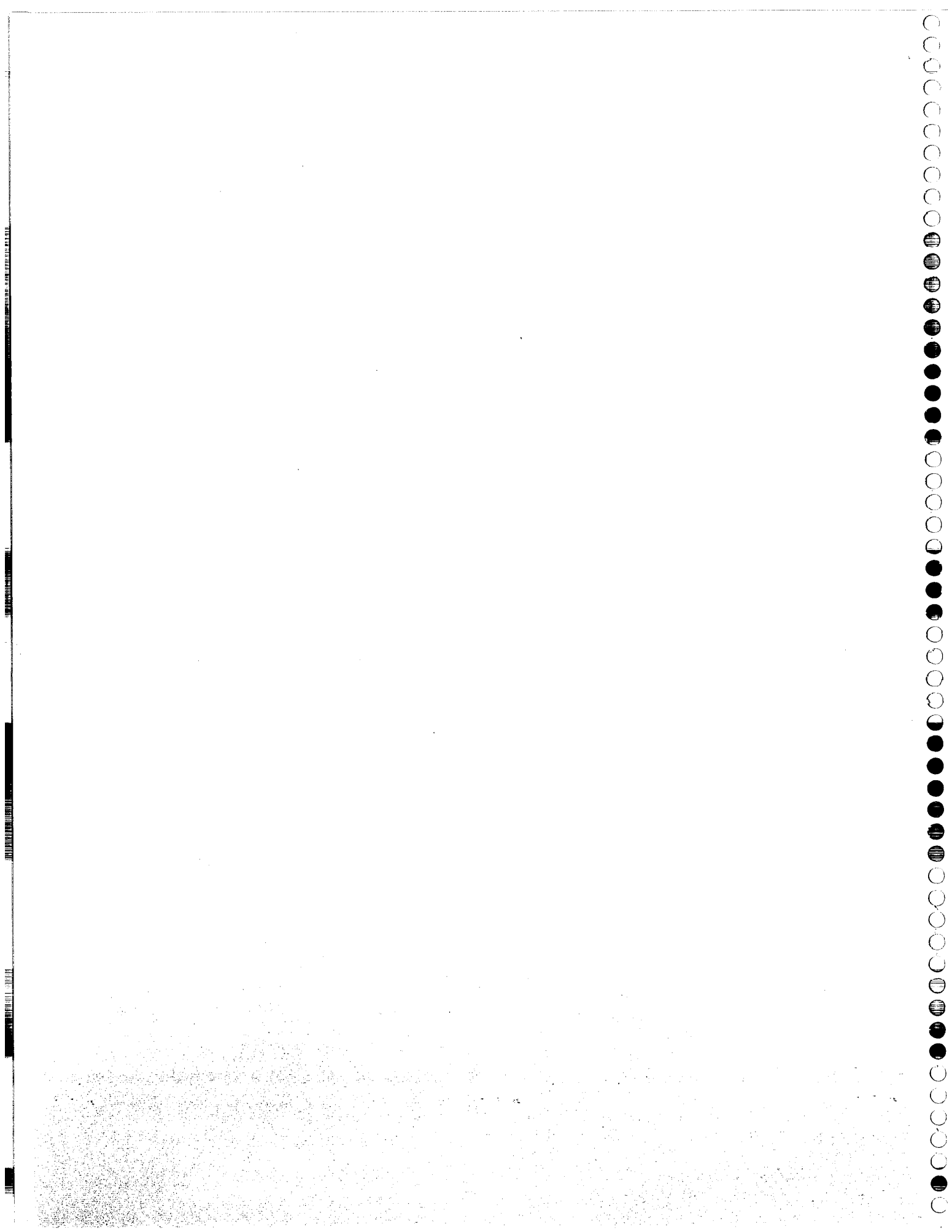


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MIAMI DADE COUNTY FLOOD MANAGEMENT TASK FORCE
Friday November 29, 2000
9:00am -3:00pm
SFWMD MIAMI FIELD STATION
9001 NW 58th Street

AGENDA

1. Opening Comments from the Chair and approval of previous meeting minutes
2. Update by Miami-Dade County on the Task Force Recommendations
3. Discussion of Secondary Canal
4. Public Comment
5. Additional comments by Task Force Members





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**MIAMI-DADE COUNTY FLOOD MANAGEMENT TASK FORCE
MINUTES OF NOVEMBER 29, 2000 MEETING
SFWMD MIAMI FIELD STATION
9001 NW 58TH STREET
9:00 AM – 3:00 PM**

MEMBERS PRESENT:

Don Chinquina	Anthony Clemente
Carlos Espinosa	Paul Larsen
Thomas MacVicar	Terry Rice
Rafael Robayna	Joseph Schweigart
Stuart Strahl	Plinio Villanueva
Bradley G. Waller	Gary Winston

MEMBERS NOT PRESENT:

The Chair called the meeting to order at 9:12 AM.

Three items added to the agenda by the Chair. Wanted to hear from the Governors group with an update on what's going on. Then wanted to discuss two letters from Gary Winston one of which was addressed by staff and the other the SFWMD (the District) responded to in writing. Also, wanted to discuss a seepage barrier pilot project proposal. Need CD's of the District's presentation to be given to each member.

S. Strahl – There was confusion concerning the canals and who is responsible for cleaning them, which was a big contributing factor to the flooding. Would like a status update from the County or District regarding which canals are critical and which are the responsibility of the District and the County.

The Task Force will get an update on the 18 recommendations from County staff, which will address that concern.

Frank Reddish – Office of Emergency Management

The Governors Task Force will be transformed into the Local Mitigation Strategy Working Group comprising all the Miami-Dade municipalities, the District, County Departments and local non-profit groups to come up with mitigation projects and compile a list to have them funded. The Governor's Task Force was brought about to accomplish this. We sat down using a matrix developed to prioritize these projects. The County and municipalities were divided by canal basins then projects were prioritized based on the number of roads damaged by this event, the population and those who made claims with FEMA and SBA. It turns out that the C-4 basin comes before everything else and FEMA has agreed to pay for a 600-

800 cubic foot per second pump at the C-4. Structure 25B is on a schedule for the design to be completed in early January. FEMA also agreed to fund \$14 million for dredging portions of the C-4 canal. This week we have \$50,000 for the City of West Miami and Sweetwater. FEMA will fund drainage systems in the Flagami area, West Miami and Sweetwater as well as the unincorporated area.

Frank will provide the Task Force with the matrix showing the prioritized projects.

There is \$40 million committed from FEMA and another \$20 million from other agencies to complete these projects as well as to address the 18 recommendations from this Task Force. The project impact committee will be established to continue the Governor's Flood Task work. They will get the projects funded and completed. The goal is to make this a disaster free community. FEMA engineers oversee the projects to make sure they run on track and for their completeness.

S. Strahl – Wanted water quality issues to be addressed with all these projects. Since the forward pumping and other drainage projects that are being suggested will be flowing into Outstanding Florida Waters and it's not just a national process, but the state water quality process as well. For all the projects recommended by this Task Force each projects water quality issue should be addressed at the appropriate level.

C. Espinosa – Any money provided by FEMA has to go through the NEPA process. These issues have come up and there are studies that have to be done to make sure that no harm is done, environmental assessments and the like. It also needs to go through the permitting process.

D. Valdes – Presented on the update of the Flood Task Force recommendations. Read from the status update report passed out to the Task Force on the 18 recommendations. Discussion followed on each item by the Task Force members.

G. Winston – I would like to analyze the performance of the system during the last flood or the one preceding it. Did the system work the way it was supposed to and if it did, did we provide the citizens of Dade County the best we can. The system is old and we have out grown it, but I don't hear anyone addressing that issue. What can we do to help the process and to help save people. Things like when the weather forecast was made and when it was communicated to the staff and how the staff carried out their responsibilities. There is little about analyzing the performance of the system, which is what the Commission has asked this committee to do.

Discussion followed by the Task Force to address Mr. Winston's concerns.

S. Strahl – Wanted some discussion on growth management – land usage, which causes these flooding problems and water quality issues.

D. Valdes continued presentation.

Comm. Reboredo – The operation of opening the gates, does the operator have the power to open the gates or does he have to wait for instructions. How can we open the gates quicker?

J. Schweigart – Those gates can be opened by the Command Center in West Palm Beach. They are open well in advance of the storm arriving and we try to draw down the canal before hand. The direction is from the Operating Director to the operator in the control room to open the gate.

P. Larsen – The rock mining industry or the government owns the area surrounding the wellfield. The industry is suggesting that they can work with the County to achieve a 12-mile area to address the quality issue and provide a service to the community in regards to the flooding.

Andy Austin representing the City of Hialeah – The City is not ready to take a stand for this plan without C-4 and C-6 being brought into the picture.

The Task Force decided to spend a little more time looking at it in detail and see if we can break it down to phases and get into what might be feasible and try to forward that for evaluation since this is something that we would like to potentially recommend to the County Board as an interim project. One suggestion was if we go forward with this, we should put it into two recommendations, one for seepage and one for evaluation.

The Task Force wants input on this idea from staff as to wetlands issues.

Comm. Reboredo commended the Task Force for being here and will pass on to the Board the suggestion that this group be made a permanent one as suggested earlier. We need to keep working together. DERM and Public Works will continue to work with you. What I'm afraid of is what I saw yesterday in the paper, the budget of a possible \$29 million spent in West Miami, which is fine if it solves the problem. But what seems to be the problem is at the gates. We need to solve the problem at the conveyance level. Keep working together and I will do whatever is necessary to facilitate your efforts.

C. Espinosa – In conjunction with that, I have a proposal which I will pass out, which states the County will request that the District and the US Corps review and update the storm operating criteria for the various canal structures within Miami-Dade County. Specifically the goal would be to increase to the greatest extent possible, the ability of the structure to pass flows before, during and after a storm event. As well as Miami-Dade County Commission and the District's Board should hold a joint meeting annually in Miami-Dade County. The joint meeting should take place every year just prior to the start of the hurricane season.

D. Valdes returned to the update of the Task Force recommendations. Discussion followed on each item.

T. Clemente asked to defer item 3 (secondary canal) to the next meeting. I would like to have the County, Public Works and the District provide us with the pros and cons of having the secondary canal system remain as a secondary canal system under the operation and maintenance of the County as opposed to having it as an integrated system.

Next item added to the agenda was the letter from Mr. Winston. Discussion followed on Mr. Winston's letters to staff and the District.

PUBLIC COMMENTS:

Mike Black – Miami-Dade County pays \$60 million a year in ad valorem taxes. C-102 and C-103 are maintained twice a year. Right before the storm hit they needed to be cleaned. Maybe the cleaning of the canal should be done more often and they should be cleaned before October when we normally flood. There should be a more active maintenance program from the District.

Bill Dobson – Asked for a recommendation to provide flood map modeling showing areas that will be impacted by flooding to the Department of Planning and Zoning for use at Zoning hearings.

Jack Morrow, Mayor Town of Medley endorsed Paul Larsen's plan.

Task Force Member Comments:

Changes on the minutes on page 4. T. Clemente wanted to clarify for Mayor Bithorne that the projects on the list shown to us by the District were prioritized based on the biggest bang for the buck. His project was in phase 2 not based on need but based on the time it would take to complete and the area it would affect. Would also add that if the CERP projects provided both flood protection and water supply benefits they should be given a higher priority. Would we have better flood protection by integrating the primary system and the secondary canal system.

Paul Larsen wanted the minutes to reflect that he brought up the concept of the rock mining storage of water at the November 3rd meeting.

Motion from the Chair to approve the corrected November 3rd minutes moved and accepted.

Discussion started on the County's management structure to balance water supply, flood protection and ecology issues. Since C. Espinosa the County's representative was not present the discussion was curtailed until next time.

The District will take a look at the rock mining conceptual plan.

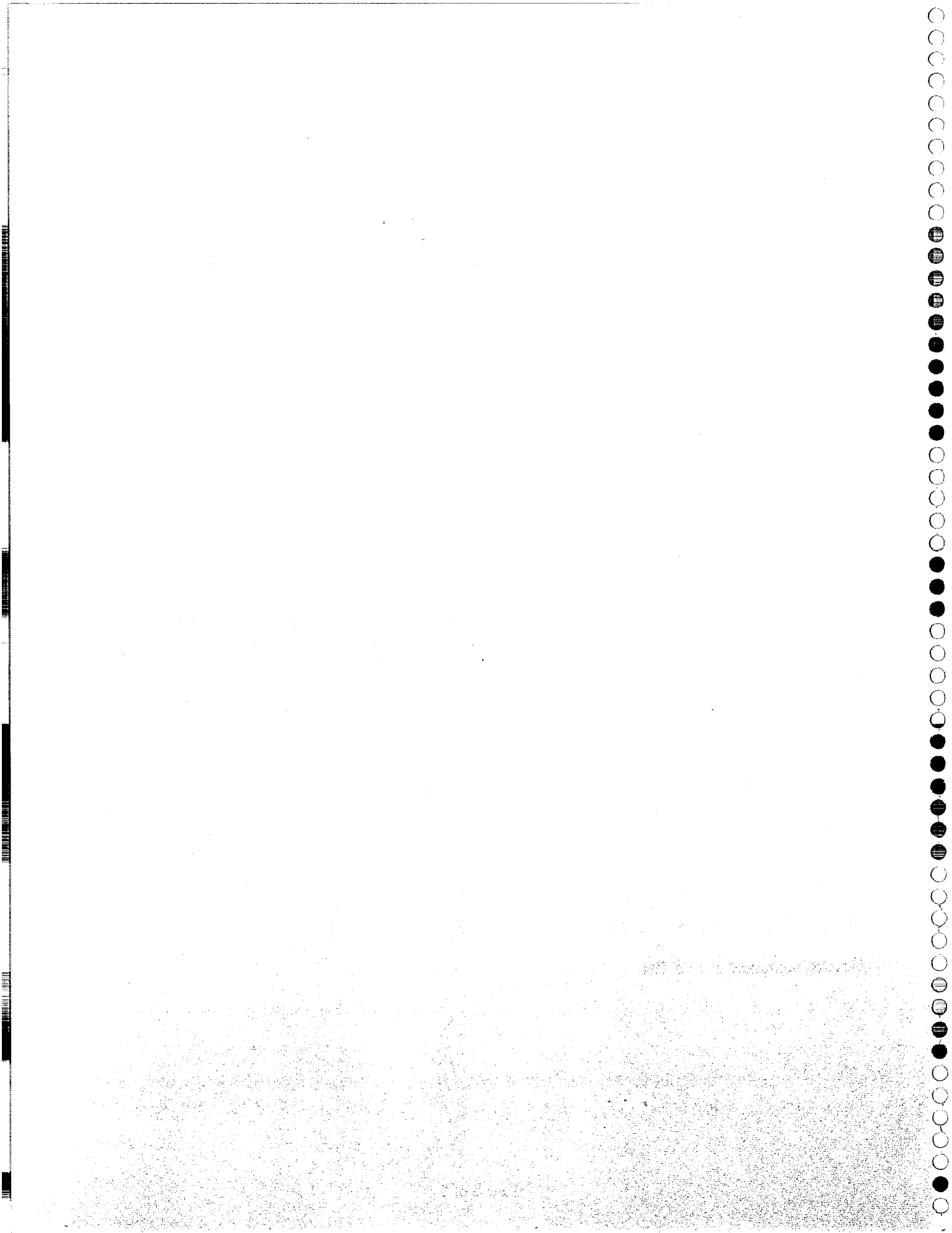
P. Villanueva – wants the County to continue monitoring the 18 recommendations submitted previously by the Task Force.

B. Waller asked for a copy of the organizational charts for DERM, Public Works Department and the Water and Sewer Department to aid the Task Force in seeing the County's management structure when the discussion comes up at the next meeting.

The suggestion was made that an item should be put on the agenda of the joint meeting of the County Commission and the District's Board to talk about what the Task Force has done so far.

Task Force agreed that the next meeting will be on January 16th at 9:00 AM.

Meeting adjourned at 1:05 PM.



you don't have a representative for each as equally as important as the other, you will have a skewed understanding of the issue. Before this meeting, I never knew that DERM had flood protection.

The Chair responded that it was his understanding that it was an invisible assignment previously. It's not so much an organizational issue as much as getting the attention of the right organization. I don't think we are going to redesign the organization of the County. We weren't impaneled to come up with a new work chart. What we were to do was to point out who is in charge.

PUBLIC COMMENTS:

PAUL BITHORNE, MAYOR OF VIRGINIA GARDENS – I wanted to thank the Task Force for the work that has been done. We are happy to say that some of the recommendations that have been implemented have affected us positively. I also gave you a letter that I wrote to Jack Morrow and copied mayors and members of the Board endorsing the flood reservoir plan once the environmental issues are addressed. I think it's the only hope that the Village of Virginia Gardens may have in having any meaningful flood mitigation. I also think it outweighs the negative impact of all the sewage that ends up in our canal systems and eventually into the Bay. I hope that the Task Force endorses the proposed seepage plan with EIS built into it.

MIKE BLACK, COMMISSIONER REBOREDO'S AIDE – I just want to remind you of the seepage barrier that is a CERP project that is not funded. Whoever is going to represent the Task Force at the Board meeting that you put forward that recommendation to seek funding for the CERP component. Try not to miss the opportunity to present that.

KEVIN KOTUN, EVERGLADES NATIONAL PARK – we provided comments to Dorian last week concerning the seepage barrier plan. It focused on what precisely are the objectives of that effort.

The Chair thanked Mr. Kotun and ENP for having him attend the meeting.

MADLINE FORTIN – BOARD MEMBER OF THE 8½ SQUARE MILE HOMEOWNERS ASSOCIATION – in all the years that these issues have been debated back and forth, it doesn't appear that either the County or the District has done a very good job. A 298 taxing district or basin can take care of its own canal without having to go through the County. That would solve the orphan canal problem. As far as management, the people who would be managing that canal system would be those being affected by the canal.

The Chair continued - my sense is that we were asked to reconvene and we've debated the issues and we should provide a memorandum to the Commission with a list of recommendations focusing on the key points we've spent discussing since October, and I don't really see any reason to meet again unless asked by the Commission.

Mayor Bithorne – is the Task Force endorsing the seepage plan?

The Chair – I feel that is the consensus, but we will have to put language before this Committee.

Paul Larsen has put some language together and after discussion this is the language that was endorsed by the Task Force:

The Flood Management Task Force recognizes the potential flood control benefits of an emergency flood reservoir proposed for the Lake Belt. The Task Force understands that the Local Mitigation Strategy Group, including FEMA, is funding an Environmental Impact Statement which will address many alternatives, including the Emergency Flood Reservoir, to improve flood control in Miami-Dade County. The Task Force recommends that a full evaluation be made of all aspects of these various alternatives, including wellfield protection, water quality and wetlands impacts.

Staff will generate a first draft to be discussed at the next meeting. It should include a history of the Task Force to date, why we're here and what we did previously, also a follow-up on Irene which should impact what happened prior to the October event. We should recommend 2 issues with reservations – seepage barrier concept and the Lakebelt detention area. It should outline discussion items that were not taken to formal recommendation - the County organization with respect to flood control and whether or not the District should take over the secondary canal system. Highlight these as issues that did not come to a conclusion and summarize the debate. Dorian Valdes to have to Tom MacVicar by the 9th of February.

The Chairman asked whether there were any objections to him presenting to the combined Board meeting. Since the Task Force has not come up with consensus as yet on some issues, his comments will be similar to the brief comments at this meeting.

Next meeting will be on Tuesday February 20, 2001 from 9 AM – 3 PM.

Don Chinquina – While we were meeting, the White House initiated a conference call and announced their decision on HAFB. My initial understanding is the County will have the property within 60 days but will not have any commercial aviation. If the County rejects the proposal, it goes to the Department of the Interior.

Meeting adjourned at 11:40 AM.

Eddy Laraque requested that one of the recommendations be to centralize maintenance of the secondary canal system under one body as discussed at the previous meeting. Terry Rice provided some language as a basis for discussion.

Discussion followed on canals that are privately owned which need to be maintained and the joint County-District report on the canal system. On the private canals, ownership is an issue that needs to be considered along with the maintenance issue. Also, should these private canals be publicly maintained or regulated so that the owners are held responsible for their maintenance.

The issue was brought up that the County is responsible for the secondary canal system and if this function were transferred to the District, how would it be funded. There was discussion of what constituted primary, secondary and tertiary or local canals. The County and District needed to be clear on this when they evaluated the canal system.

It was decided that one of the recommendations should be that all the canals in the county be evaluated by the District and the County to determine whether they are primary or secondary and then operational and maintenance oversight of the secondary canal system be centralized under the District. This should be helpful in the efficient operation of the canal system. It was also decided to change the due date of the joint County-District report to January 1, 2002.

Discussion moved to the Lakebelt reservoir proposal.

There was concern expressed about the issue of water quality, wellfield protection and back pumping into the Pennsuco wetlands. It was pointed out that the area now being modeled no longer includes the wellfield protection area. There was discussion of inter-basin transfers and whether this concern should be included in the memo.

Discussion moved to whether the paragraph titled "discussed but not decided" should be removed from the memo. It was decided to remove this paragraph since discussion of those items would be shown in the minutes of the meetings to be attached to the memo. Terry Rice objected.

The Chair would like to take a final look at the memo after the changes discussed today are made, prior to him signing it.

PUBLIC COMMENTS:

PAUL BITHORNE, MAYOR OF VIRGINIA GARDENS – One of the problems coming down the pike is new development. That is killing us. The canal system design is based on an urban development boundary line at 87th Avenue. They keep building to the west and Broward County seems to be forward thinking on that issue. Can you include something in the draft that any new developments include mitigation areas?

Ray Robayna informed the Mayor that all new developments in Miami-Dade County need to have a 100-year retention; so basically, new developments are subject to the District's and DERM's requirements, which does address that.

the C-100a extension, C-102n and spur canals off the C-100b. They are depicted on the map as primary canals but are operated and maintained by the County.

Although there are legal problems in taking over the secondary canals, we should recommend that the agencies continue their dialogue and consider what should be primary and secondary. For closure on this issue there should be some report published by the 2 agencies, also there should be some funding mechanism identified because the District is in the process of budget cuts and hiring freezes.

Next item on the agenda: Discussion of the County's organizational structure for flood protection.

Carlos Espinosa began the discussion – First, you need to understand that DERM has countywide authority while most of the other agencies in the county do not. DERM has authority over municipalities. The County's Public Works Department's authority is limited to the unincorporated area. They serve as the representative of the unincorporated area. Over the years, drainage has been dealt with by DERM looking at the regional issues and problems, Public Works Department concentrates on the maintenance aspect and localized problems including evaluation and design. DERM deals with larger projects and Public Works Department with the localized smaller drainage projects. To coordinate the 2 agencies, DERM and Public Works have a monthly meeting where process and projects are discussed. There has been a construction initiative that was created by a bond program developed providing more funding called QNIP. That is coordinated through the Manager's Office and there is a weekly meeting. The way the County has arranged the approach to drainage and water management, the way the Corps and the District handles it, each entity has a maintenance, regulatory, planning and evaluation component. The County is arranged no different than those entities. The County has authority for regulatory delegation from the District for permitting throughout the county. DERM is the regional agency, but there is significant close coordination with Public Works. We have always been involved in the CERP issues and site issues related to that. I agree on that particular issue that in the past we have not participated as we should, but that's not the case anymore. We follow what's going on and we have resolved that. On the overall drainage issue, there has always been coordination. In the past we have not been involved in the ISOP issue. We have evaluated that issue since then and have made our position known.

Terry Rice responded - that was the issue that there was no one from DERM there.

What I am trying to point out is that just because you don't see us there, doesn't mean that we are not addressing the issue. Sometimes it's best to talk directly to the decision-makers.

How do you get fair advocacy into this process when you have conflicting goals in the same organization?

The County operates the same way that the Corps does. We sit down with the concerned parties and discuss the issue. It may be a legitimate concern on your part that DERM may be biased to environmental concerns, but I don't feel that way. If it's a significant position, the Manager's Office gets involved.

Terry Rice responded - the classical competition in water resources is flood protection, water supply and the environment. Which are always competing for space, water or whatever. I need somebody to come to me to be an advocate independently for each. What I see in the table of organization is that DERM has environmental and flood protection. It's not at the top, it's under you. When you go to John for a recommendation, you go with your idea and then John goes to the Manager with that recommendation, if



MIAMI-DADE COUNTY, FLORIDA

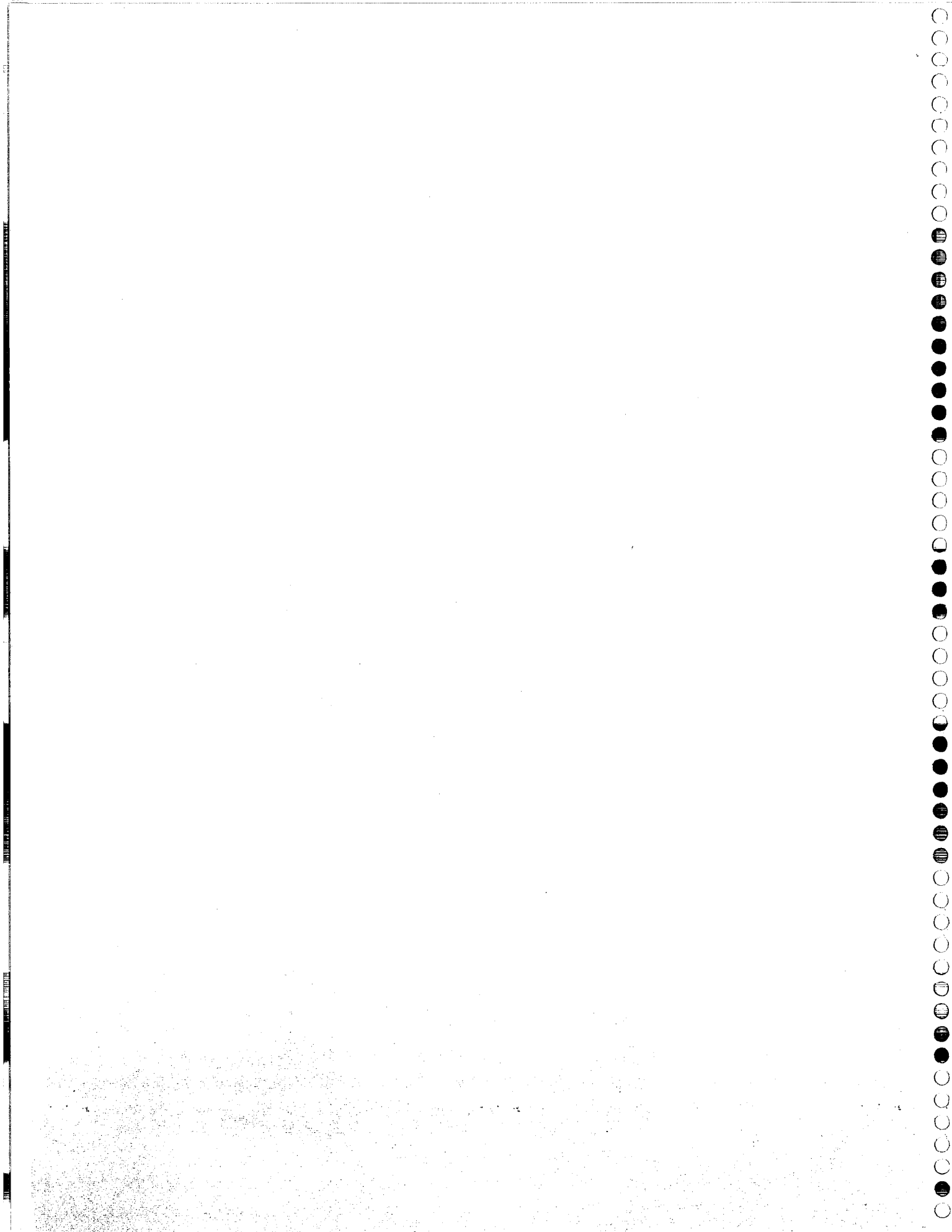


MIAMI DADE COUNTY FLOOD MANAGEMENT TASK FORCE
33 S.W. 2ND AVENUE
MIAMI, FLORIDA 33130-1540
(305) 372-6796
FAX (305) 372-6759

**MIAMI DADE COUNTY FLOOD MANAGEMENT TASK FORCE
TUESDAY, JANUARY 16, 2001
9:00 am-3: 00 pm
SFWMD MIAMI FIELD STATION
9001 NW 58th Street**

AGENDA

- I. Approval of Minutes from Previous Meeting
- II. Potential for Stormwater Diversion into the Lake Belt Area
- III. Pros and Cons of Turning Over Ownership of County's Secondary Canal System to the South Florida Water Management District
- IV. Discussion of the County's Organizational Structure for Flood Protection.
- V. Public Comments
- VI. Task Force Letter to the County Commission
- VII. Adjournment





MIAMI-DADE COUNTY FLOOD MANAGEMENT TASK FORCE
33 S.W. 2nd AVENUE
MIAMI, FLORIDA 33130-1501
(305) 372-6796
FAX (305) 372-6759

**MIAMI-DADE COUNTY FLOOD MANAGEMENT TASK FORCE
MINUTES OF FEBRUARY 20, 2001 MEETING
SFWMD MIAMI FIELD STATION
9001 NW 58TH STREET
9:00 AM – 3:00 PM**

MEMBERS PRESENT:

Don Chinquina	Anthony Clemente
Carlos Espinosa	Eddy Laraque
Thomas MacVicar	Terry Rice
Rafael Robayna	Joseph Schweigart
Stuart Strahl	Plinio Villanueva
Bradley G. Waller	

MEMBERS NOT PRESENT:

Paul Larsen
Gary Winston

Since there has not been another Flood Management Task Force meeting to date, the Task Force has not approved these minutes.

The Chair called the meeting to order at 9:13 AM.

Chair addressed approval of the minutes from the last meeting. Approval of minutes moved and accepted.

Next item was the draft memorandum to the Board of County Commissioners (BCC). A rough draft of the Task Force memo has been created and time was taken to review it.

Chair then opened discussion on the draft ordinance extending the life of the Task Force. County Attorney, Peter Tell informed the members that the first reading of the ordinance creating the Task Force on a permanent basis passed and the 2nd reading is scheduled for March. The 2nd reading is a public hearing and if passed, will be in effect 10 days after, unless vetoed by the Mayor.

Open discussion of the draft memorandum from the Task Force to the BCC resumed.

In the background section of the memo it was decided to add wording to highlight that in the October 2000 storm there was more rainfall in a shorter period of time than in Hurricane Irene. Stuart Strahl wanted the actual data comparing the two storms attached to the memo.

Paul Larsen and DERM and get down to the specifics. We can't tell the size of the actual project, because we are not at that point yet.

We also need to address the owners of these quarries first.

We have tentative permission from the owners of the properties to do this. That's what sets this plan apart. They understand that they are members of this community. They have incurred some negative press in the past and they are looking for positive now. They believe that they can make a contribution to the community by helping with flooding.

We need to move forward in a way that is environmentally sensitive and yet still provide flood protection.

The role of this committee is to come up with some kind of language on this issue to present to the Board.

Discussion moved to the next item on the agenda. The Pros and Cons of turning over ownership of the County's secondary canal system to the District.

Joe Schweigart began the discussion by pointing out that there has been some message traffic between the District and the County looking at pros and cons. I think the cons are pretty heavy compared to the pros. I believe the 2 agencies should continue their dialogue, but at this time, there are just too many negatives.

John Taylor from the District continued - Our primary mission is the operation of the southern flood control system. There is no process in place from a budgetary and legal stand point to take over the secondary system. This would be a multi-year process. The District doesn't see the secondary system as part of its mission.

Terry Rice said, I heard you tell us why it's hard to do. The question is, is there benefit in doing it?

Joe Schweigart responded that it has been his experience that the closer you can keep operations and maintenance to the local area that is affected, the better.

Ray Robaina had a question for both DERM and the District. Are there any canals now, which should be primary canals because of their function and are maintained by the County or vice versa? Maybe there should be a study on that and any other questionable canals.

Joe Schweigart - There may be a few gray areas, but for the most part, each system is defined.

Terry Rice - Is there any way that the operation of both the primary and secondary system could be optimized especially during high water periods?

Joe Schweigart - There is always an opportunity to expand your communications and control area to pick up pinch points in the secondary system during high water periods in terms of making decisions to move water.

Dorian Valdes - to get back to Mr. Robaina's question, there are some canals that are maintained by the County that can be moved over to the District. They are extension canals of the primary canals. They are

MAYOR BITHORNE – The FEC canal; the airport owns the canal south to the FEC canal. We know that there is a hypochlorite plume. They budgeted 300 million to clean up that plume. I can remember black goop in that canal. That entire canal is draining into the FEC, which is still under private ownership. Can you please include private canals in your plan?

The Chair would like to list the canal in the memo. Since the canal is privately owned by the FEC and there has not been much movement on getting the canal cleaned the County may have to move to enforcement, which would make it a legal issue. Plinio Villanueva suggested that perhaps the Task Force should make a recommendation that the County or the District take control of that canal.

JIM BORGMAN, ASSISTANT CITY MANAGER, CITY OF MIAMI SPRINGS – At the meeting with the FEC a suggestion was made that one application be made on the hydrilla as a good faith effort to start cleaning that issue up. They say they don't have the \$17,000 budgeted that it would cost to do that one time application.

The Task Force decided that it should go on record supporting compliance and a decision to bring enforcement action against the FEC. Also that DERM should submit a monthly report to the County Manager to keep this issue on the radar screen.

There was discussion on who owns the FEC. The thinking is that St. Joe owns the FEC. Tony Clemente said that if St. Joe owns the FEC, he would recuse himself from the issue because he owns shares of St. Joe.

MADLINE FORTIN – BOARD MEMBER OF THE 8½ SQUARE MILE HOMEOWNERS ASSOCIATION – You all recommended that our secondary drainage canal be connected to the L-31. I understand DERM is applying for a permit to connect the canal to the L-31. Is there some way we could include that in the funding for the project to be put in? That would help our community. State statute is very clear that when there is a big canal that the smaller one has to be connected.

Staff stated that as a result of the Task Force recommendations, they had sent a letter to the District requesting that the ditch be allowed to drain to the L-31. Roman Gastesi responded that the District had received that letter and now that there is a firm ROD from the Corps, the District would now be able to evaluate that request and give DERM an answer. The Chair then asked what does DERM plan to do if the District agrees to the connection? Carlos Espinosa responded that DERM would then look at the requirements from the District and then determine where in the budget the money would come from.

MIKE BLACK, COMMISSIONER REBOREDO'S AIDE – The 3B seepage project; to expedite our appropriation request if the County would put up 12.5% and become a local sponsor, it would guarantee that it would go through the State Legislature. Could this Task Force make a recommendation to the BCC to give it a push?

Carlos Espinosa responded that the County needs to match nearly 300 million that will come from FEMA to dredge the secondary canal system and the infrastructure retrofits in the county. We don't have enough money to do that and we are going to have to go to bonds in order to stretch that money out. If you take that million off the projects in the neighborhoods, there is the view in the neighborhoods that their projects need to get done. We have to mortgage the money that we have in order to accomplish what we have to do in the neighborhoods and county canals.

The Chair wants to include a sentence stating that the County should consider exploring the possibility of becoming co-local sponsors for the seepage barrier project.

If the BCC keeps the Task Force as a standing committee, then the Chair requested for the next agenda he would like an update on the S-380 operating conditions, since the operational criteria for the new structure may worsen flooding. He would also like an update on the L-31N seepage pilot and the Lakebelt Reservoir projects.

BILL DOBSON, MIAMI-DADE WATER AND SEWER – The scoping, footprints and modeling in the CERP projects have begun. Communication between this Task Force and the teams would be a good idea.

The next Task Force meeting is tentatively scheduled for Wednesday, May 16th at 9:00 AM.

The meeting adjourned at 11:34 AM.



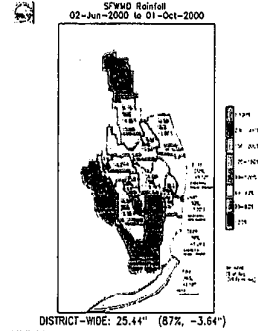


October 3 & 4, 2000 Storm Event Water Conditions Summary

Operations Control Division
Water Resource Operations

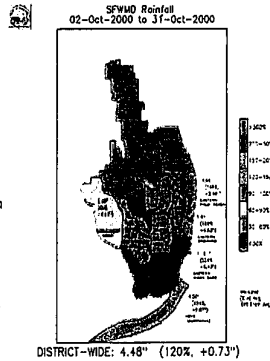
Miami-Dade Flood Management Task Force Presentation
November 3, 2000

- Below average rainfall fell from June through September across most of the District.
- Average rainfall during this period is relatively high (~30 in.)
- District wide average was 25.44 inches (87% of avg.)



Miami-Dade Flood Management
Task Force - November 3, 2000

- Well above average rainfall fell in October across the southern portion of the District.
 - Excessive rain fell in portions of Miami-Dade, Broward and western Palm Beach counties as a result of the October storm event
- Rainfall in coastal Miami-Dade County totaled about 11.61 inches in October
- This was about 6.43 inches above average (224% of avg.)



Miami-Dade Flood Management
Task Force - November 3, 2000

2000 Hurricane Season Status

Category	Predicted	Average	To Date
Named Storms	11	9	14
Hurricanes	7	6	8
Major Hurricanes	3	2	3

Miami-Dade Flood Management
Task Force - November 3, 2000

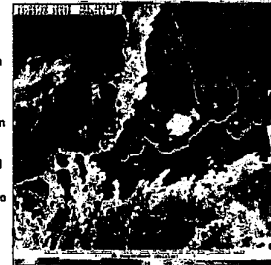
Pre-Storm Actions October 2, 1999

- Flood control system was at normal operating levels through the wet season
- Meteorological forecast projected heavy rains
- Initiated pre-storm draw-down of the coastal canal network, and EAA
- Opened structures located on the coastal ridge in south Miami-Dade County
- Staffed all pumping stations on a 24-hr basis in preparation for the storm

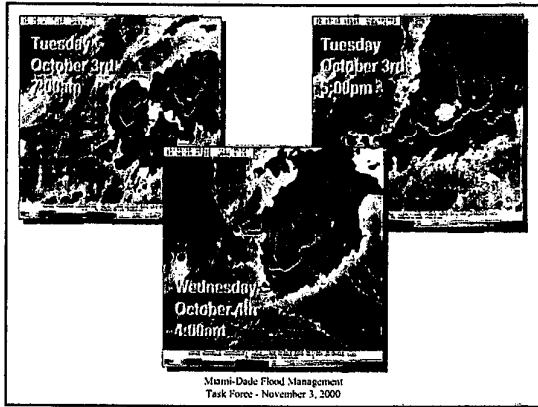
Miami-Dade Flood Management
Task Force - November 3, 2000

October 3rd & 4th Storm

- Low pressure moved through south Florida in late September, early October
- Stalled front began moving north and bring tropical moisture toward south Florida on October 2, 2000
- Sub-tropical low pressure system formed off the Dry Tortugas on Oct 3rd, was expected to move north and bring moderate rainfall
- As the Low pressure system moved north, it trained a long line of thunderstorms with excessive rainfall across Miami-Dade and southern Broward counties on Oct 4th.



Miami-Dade Flood Management
Task Force - November 3, 2000

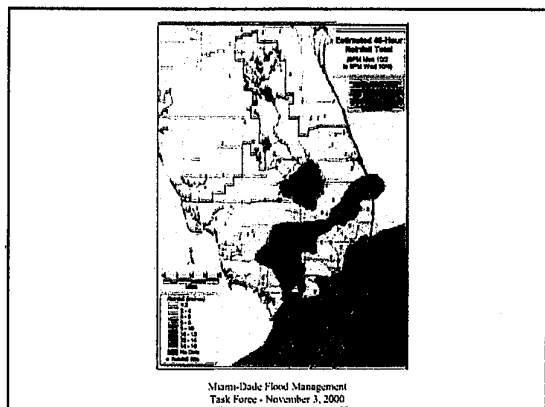


October SFWMD Storm Forecasts Summary

DAYS	FORECAST			
10/2	1.0"	2"	---	Heavy rain beginning late Monday
10/3	1.35"	4"	---	Heavy - Focused Southeast
10/4	3.89"	10.10"	16"	(Miami-Dade)
10/5	1.5"	5"	5"	Heavy South
10/6	1.7"	6"	10"	Heavy to Intensive Southeast
10/7	3.50"	8.52"	13.5"	---
10/8	0.83"	2"	5"	Heaviest around late 0.
10/9	0.56"	2.36"	4.25"	---
		(West F.A.A.)		

Miami-Dade Flood Management Task Force - November 3, 2000

- ### Meteorological Conditions
- The sub-tropical low pressure system struck south Florida on October 3rd, dropping over 15 inches of rainfall on portions of Miami-Dade County in a 36 hour period.
 - On average, precipitation from the storm totaled approximately 10 inches over Miami-Dade County.
 - Western Palm Beach and eastern Hendry counties observed average rainfall of almost 6 inches on October 4th.
- Miami-Dade Flood Management Task Force - November 3, 2000



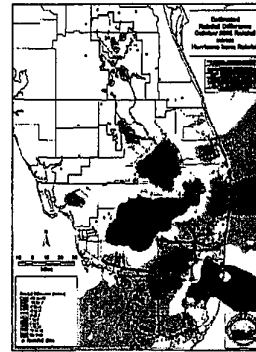
- ### Preliminary Rainfall Totals
- Miami-Dade County
 - Miami International 15.30 in.
 - Miami F.S.: 15.32 in.
 - Opa Loca: 13.87 in.
 - Miami (S-26): 15.32 in.
 - North Miami (S-27) 15.06 in.
 - Homestead AFB: 11.80 in.
- Miami-Dade Flood Management Task Force - November 3, 2000

- ### Preliminary Rainfall Totals
- Broward County
 - Hollywood: 15.26 in.
 - (G-57) 9.65 in.
 - Fort Lauderdale F.S.: 9.76 in.
 - Fort Lauderdale: 10.07 in.
 - West Miramar: 4.81 in.
- Miami-Dade Flood Management Task Force - November 3, 2000

Preliminary Rainfall Totals

- Western Palm Beach and Eastern Hendry Counties
 - STA-6: 10.33 in.
 - Big Cypress Reservation 10.45 in.
 - EAA (S-5A) 8.67 in.
 - EAA (S-8) 7.99 in.
 - EAA (S-6) 3.92 in.

Miami-Dade Flood Management
Task Force - November 3, 2000



Miami-Dade Flood Management
Task Force - November 3, 2000

During the Event October 4, 2000

- Coastal water control structures remained configured to make maximum discharges
 - S-197 was operated pursuant to the USACE criteria
 - Opened 3 gates at on October 3, 2000 at 9:00 am
 - Opened all 13 gates on October 3, 2000 at 4:00 pm
- Pumping stations were operated on a 24 hour per day basis at maximum practicable discharge.
 - S-331 was constrained from pumping due to the potential for downstream flooding
 - S-332D experienced mechanical problems with 2 units

Miami-Dade Flood Management
Task Force - November 3, 2000

Flooded Areas

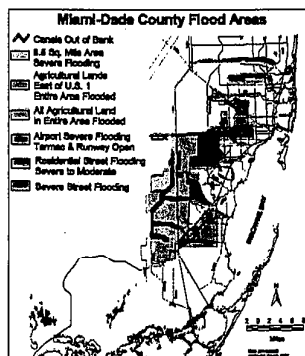
• **Wide spread street flooding occurred across most of Miami-Dade, and portions of Broward and Hendry counties**

• **Several major canals were reported out-of-bank**

- **Miami-Dade**
 - Opa Loca
 - Hialeah
 - Sweetwater
 - West Miami
 - Kendal

- A large area of south Miami-Dade county agricultural land was inundated for an extended period of time.
- **Broward**
 - Hollywood
 - Pembroke
- **Palm Beach / Hendry**
 - Everglades Agricultural Area
 - C-139 Basin
 - U.S. Sugar Unit # 1
 - Big Cypress Reservation

Miami-Dade Flood Management
Task Force - November 3, 2000



Miami-Dade Flood Management
Task Force - November 3, 2000



Post Storm Summary

- Advanced warning from meteorological forecasts allowed adequate time to initiate storm preparations
- Coordination with local communities and drainage districts during the event improved overall response to the event
- The water control system was operated in an effective and responsible manner to deal with the projected rainfall

Miami-Dade Flood Management
Task Force - November 3, 2000

Stormwater Management

Miami-Dade Flood Management
Task Force - November 3, 2000

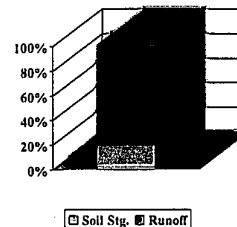
Basin Structure Capacities

Basin	Basin Area (Acres)	Structure Capacity (cfs)	Removal Rate (in/day)
C-9	62,720	4,780	0.5
C-8	20,160	3,220	1.0
C-7	22,400	2,800	0.8
C-6	44,160	3,470	0.5
C-5	1,472	260	1.1
C-4	38,976	2,000	0.3
C-3	11,520	640	0.3
C-2	33,920	1,915	0.3
C-1	36,416	2,560	0.4

Miami-Dade Flood Management
Task Force - November 3, 2000

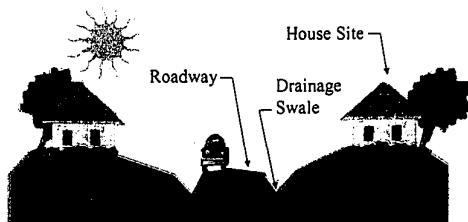
Stormwater Budget

- Soil Storage
 - 1 in. of rain ~ 5 in. of soil storage
- Surface Storage / Runoff
 - Remainder of rainfall must either be stored or conveyed to tide in order to avoid flooding
 - Primary conveyance system can remove ~.25 to 1 in / day of runoff



Miami-Dade Flood Management
Task Force - November 3, 2000

Stormwater Management System Typical Design Frequency Criteria



Typical Residential Cross-Section

Miami-Dade Flood Management
Task Force - November 3, 2000

Stormwater Management System Typical Design Frequency Criteria



Normal Rainfall Events

Miami-Dade Flood Management
Task Force - November 3, 2000

Stormwater Management System Typical Design Frequency Criteria

Storms with rainfall greater than a 1 in 3yr to 1 in 10 yr return frequency typically cause ponding in urban streets

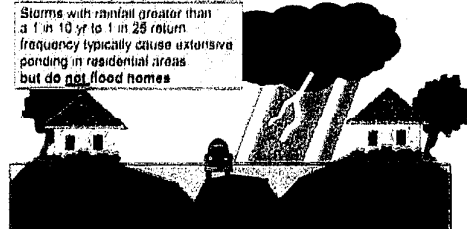


Rainfall Events Which Exceed Roadway Criteria

Miami-Dade Flood Management
Task Force - November 3, 2000

Stormwater Management System Typical Design Frequency Criteria

Storms with rainfall greater than a 1 in 10 yr to 1 in 25 return frequency typically cause extensive ponding in residential areas but do not flood homes



Rainfall Events Which Exceed Development Criteria

Miami-Dade Flood Management
Task Force - November 3, 2000

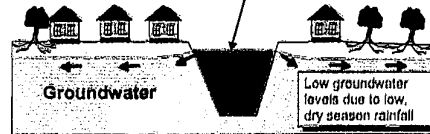
Primary Canal Operations

Miami-Dade Flood Management
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Canal / Groundwater Interaction Normal Dry Season Operations

Canals serve two primary purposes....
1. Flood Control
2. Water Supply

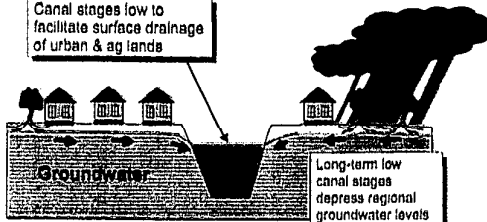
Canal stages held high to facilitate groundwater recharge and assist supplemental irrigation



Miami-Dade Flood Management
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Canal / Groundwater Interaction Normal Wet Season Operations

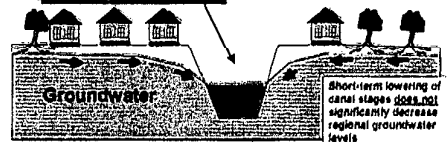
Canal stages low to facilitate surface drainage of urban & ag lands



Miami-Dade Flood Management
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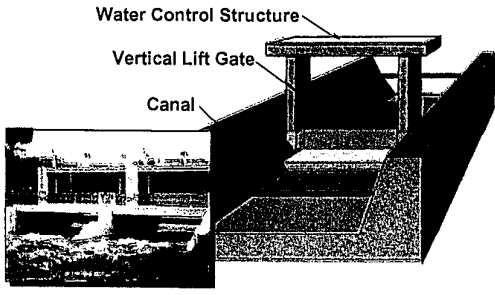
Canal / Groundwater Interaction Pre-Storm Drawdown Operations

Canal stages lowered an additional ~1 foot to increase surface drainage of urban & ag lands prior forecasts storms

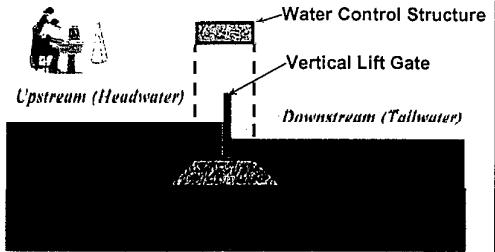


Miami-Dade Flood Management
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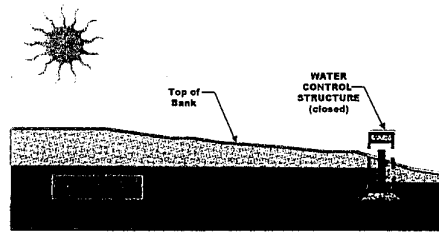
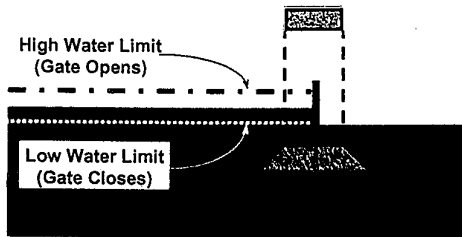
Gate Operations



Gate Operations *Gate Closed*



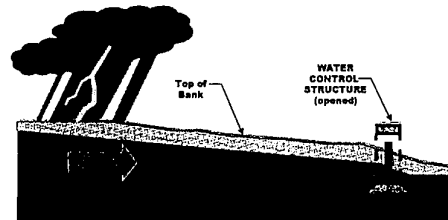
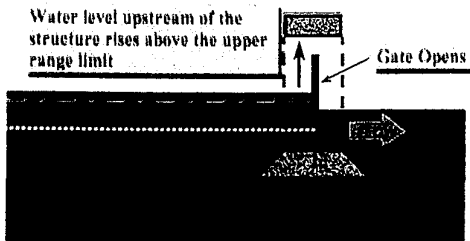
Gate Operations *Gate Limits*



TYPICAL CANAL PROFILE

Miami-Dade Flood Management
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Gate Operations *Gate Opens*

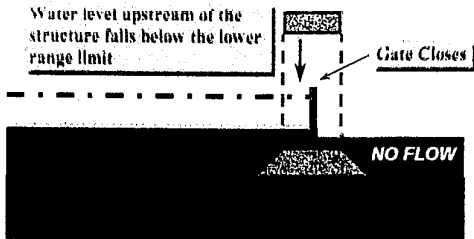


TYPICAL CANAL PROFILE

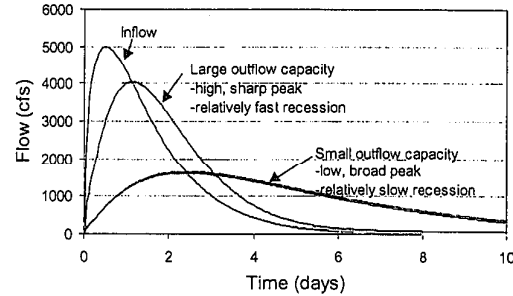
Miami-Dade Flood Management
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Gate Operations Gate Closes

Water level upstream of the structure falls below the lower range limit



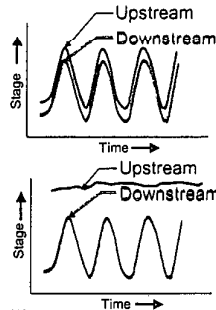
Example Discharge Hydrographs



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Conveyance Limitations

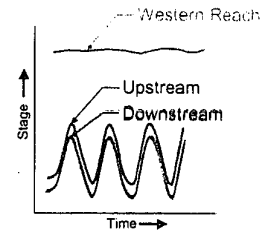
- When Upstream and Downstream stages are close
 - Structure is not limiting flow
- When Upstream and Downstream stages depart significantly
 - Structure is limiting flow



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Conveyance Limitations

- When Upstream and Downstream stages are close, and
- When Upstream and Western reach stages depart significantly
 - Canal is limiting flow



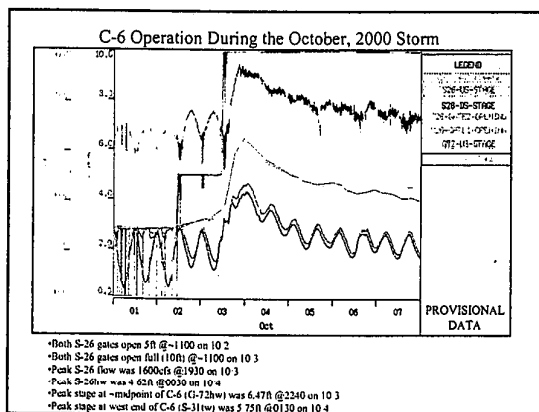
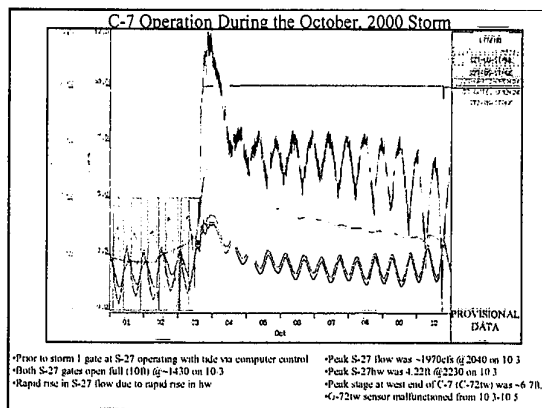
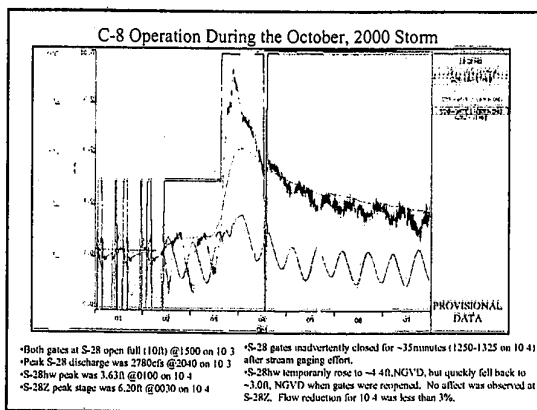
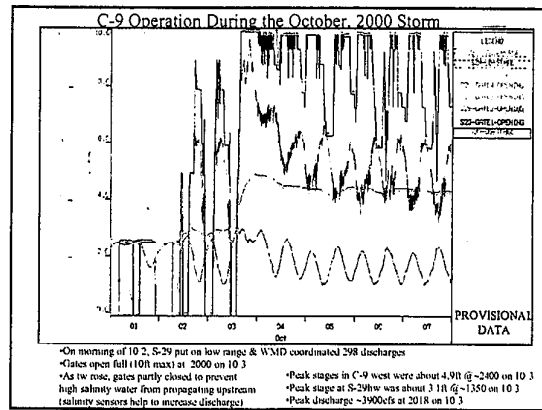
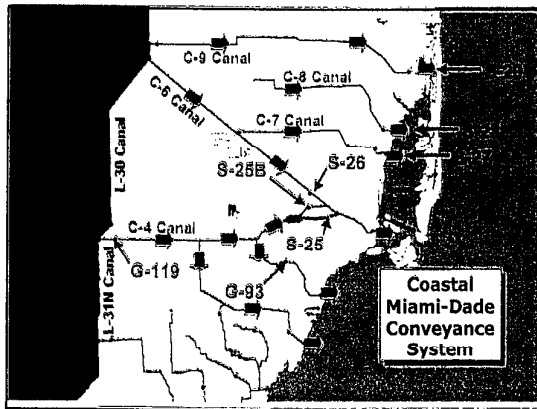
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Storm Operations

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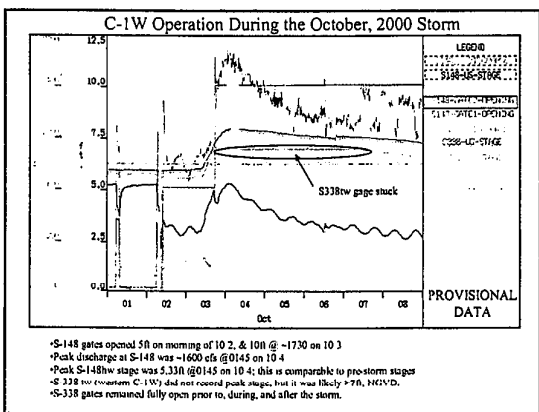
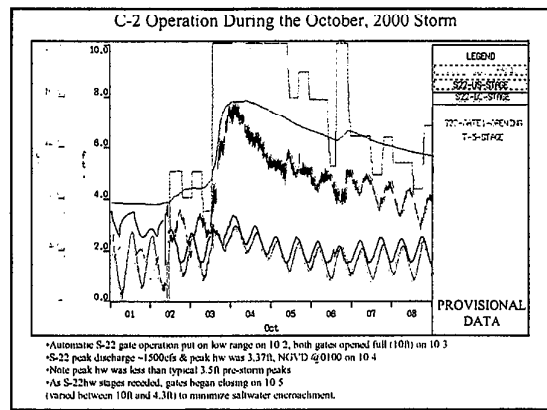
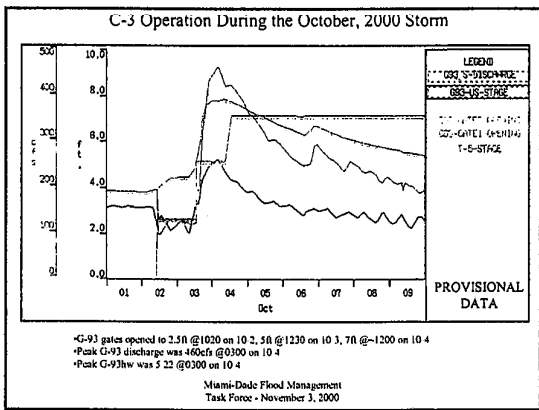
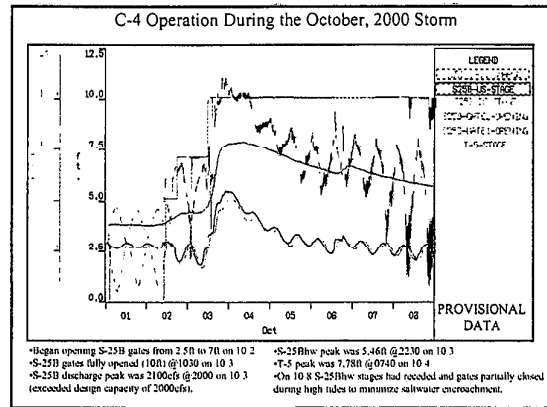
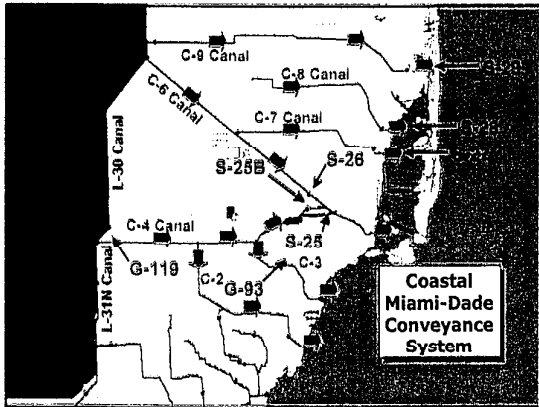
C-9 / C-8 / C-7 & C-6 Basins

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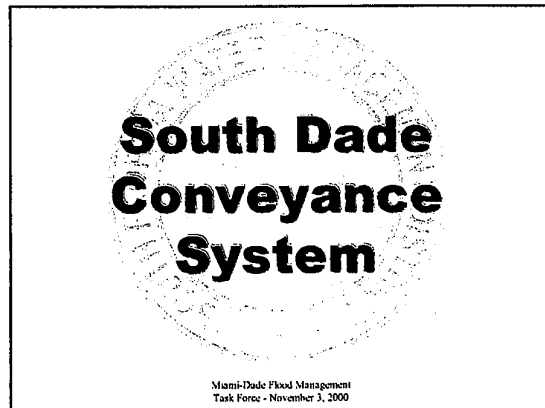
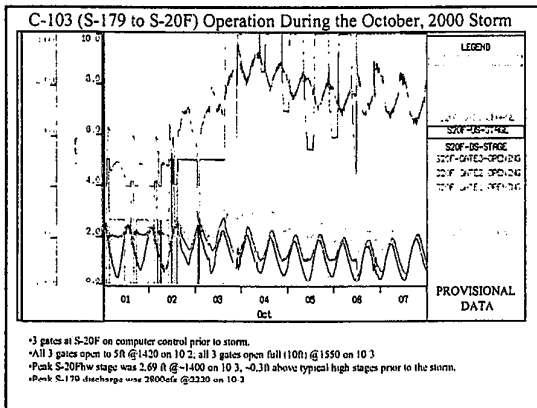
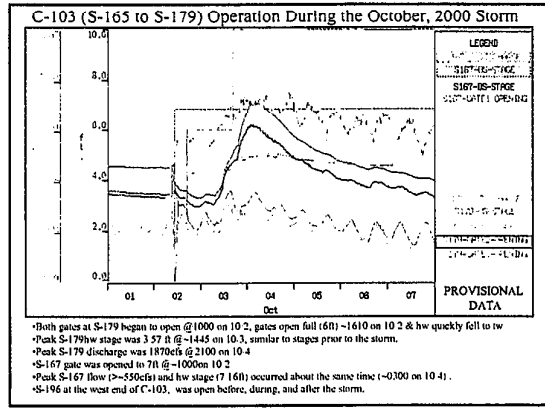
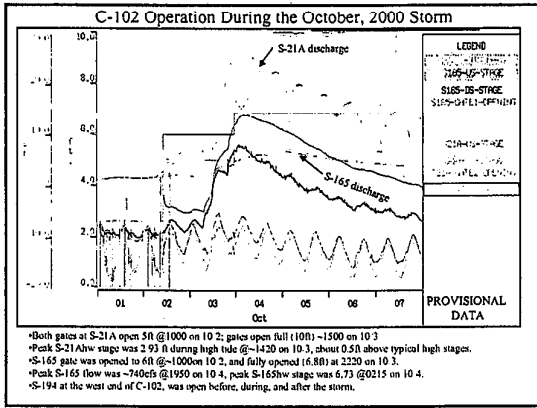
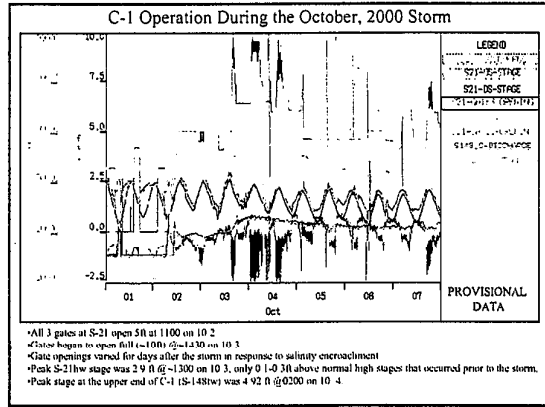
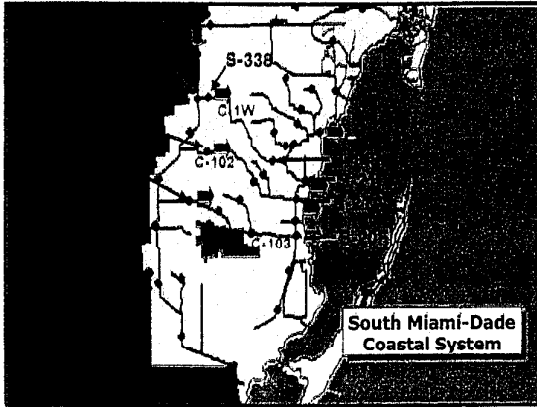
**C-4 / C-3
& C-2 Basins**

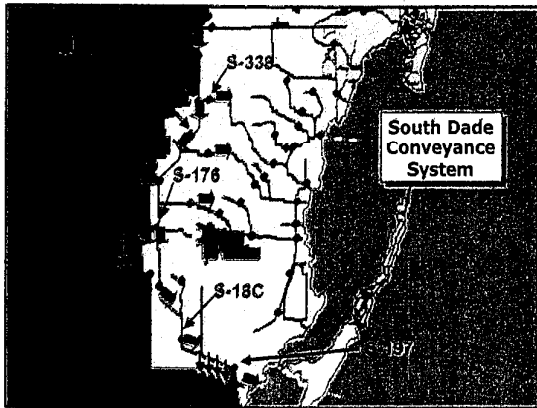
Miami-Dade Flood Management
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C-1 / C-102 & C-103 Basins

Miami-Dade Flood Management Task Force - November 3, 2000





Interim Structural and Operational Plan December 1999

- As presented in the Cape Sable Seaside Sparrow (CSSS) Biological Opinion dated February 19, 1999, changes from the existing rules of operations for the southern portion of the Central and Southern Florida (C&SF) project were required to avoid jeopardizing the CSSS. A reasonable and prudent alternative to achieve the goals of the BO was presented along with specific terms and conditions needed for compliance.
- In general, the RPA requires that: (1) By March 1, 1999, a minimum amount of sparrow habitat be protected from unusually high or low water levels; (2) By May 1, 1999, a fire management strategy be initiated; (3) Between March 1, 2000, and 2003, incrementally increase protections from unusually high or low water levels; and (4) Annual reports must be submitted to the Service detailing progress implementing the reasonable and prudent alternative.

Miami-Dade Flood Management
Task Force - November 3, 2000

Interim Structural and Operational Plan December 1999

• Modified Water Conservation Area Regulation Schedules

- Temporary deviation for the WCA 2A regulation schedule was approved to prevent large releases from entering WCA 3A via the S-11 structures.
- Temporary deviation to the WCA-3A regulation schedule was approved in order to achieve dry conditions for sub-population A.
 - Early closure of the S343's, S-344 and S-12 A & B.
 - By continuing the operation of S-12 C and D and S-333, additional storage is gained in WCA 3A to help offset the reduction in outflow capacity during the nesting season.

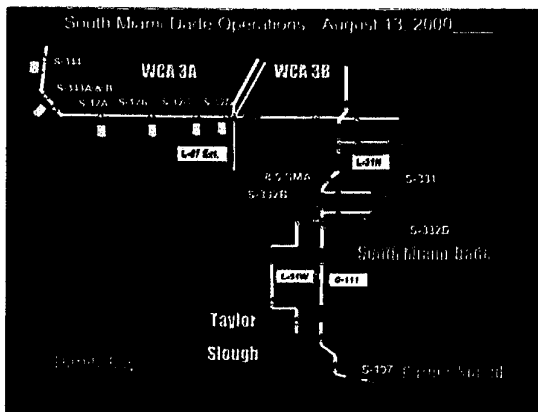
Miami-Dade Flood Management
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Interim Structural and Operational Plan December 1999

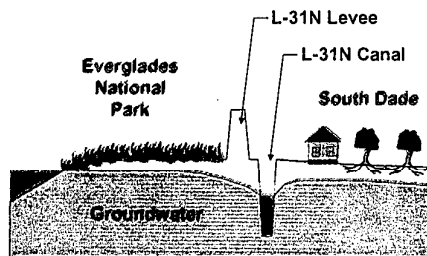
• Modified South Dade Conveyance System Operations

- Water was released from WCA 3A via S-151 to the south Dade Conveyance system via L-30 and L-31N.
- S-332B, the new temporary pump, and buffer area allows increased operation of the S-333 structure to bring more water into the south Dade system from WCA-3A.
 - Allows operation of SIDCS at generally lower levels.
 - Specific components include modifying the trigger at G-3273
 - When G-3273 is below 6.8 flows would be passed into NESRS.
 - When G-3273 is at or above 6.8, flows from S-333 would be passed through S-334, G211, and S-331 and removed via either S-332B and/or S-332D.
 - S-197 operations allowed limited discharges from C-111.

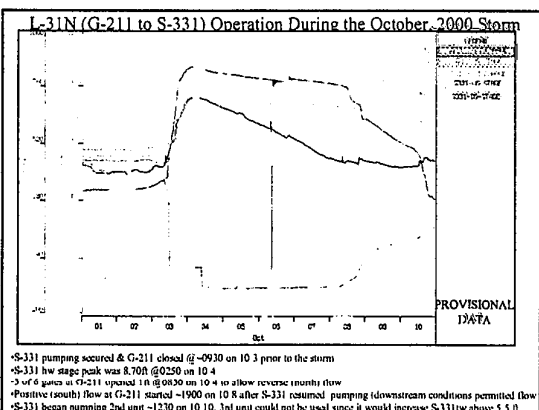
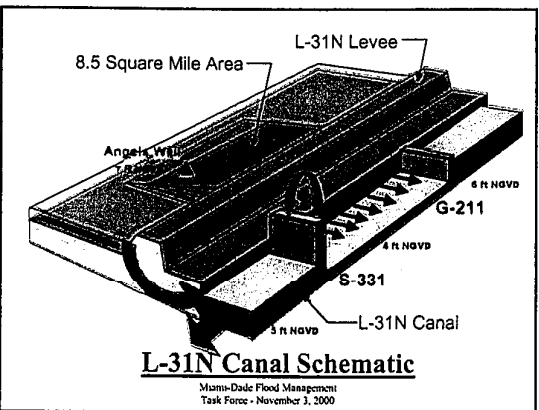
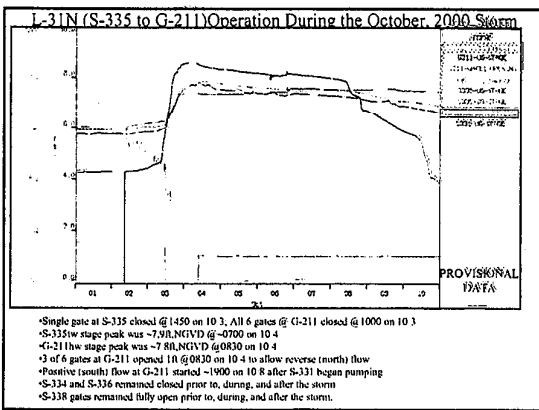
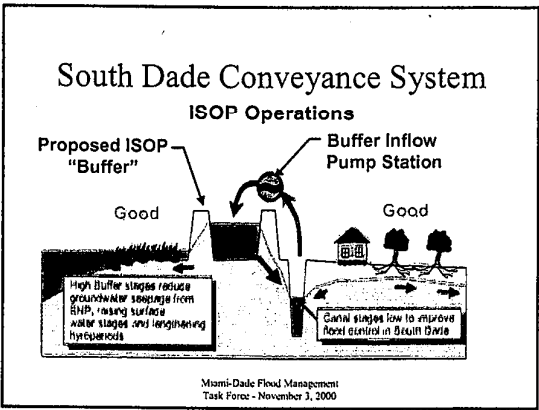
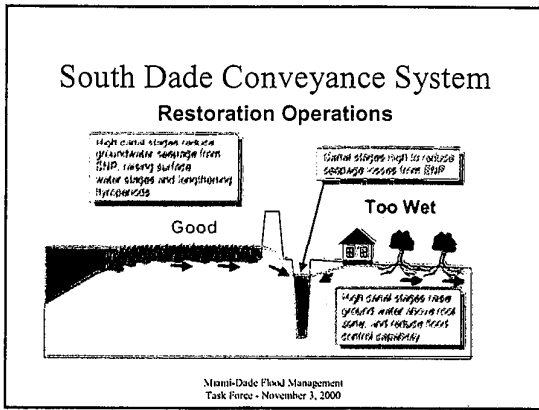
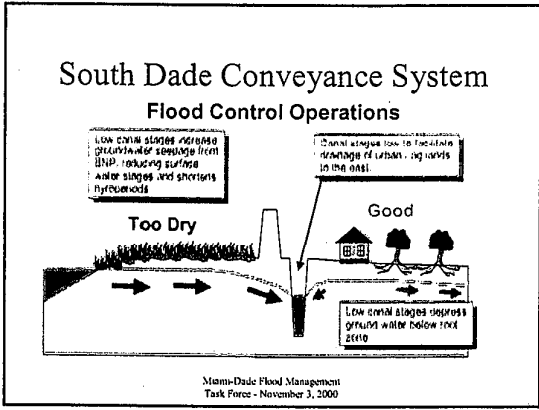
Miami-Dade Flood Management
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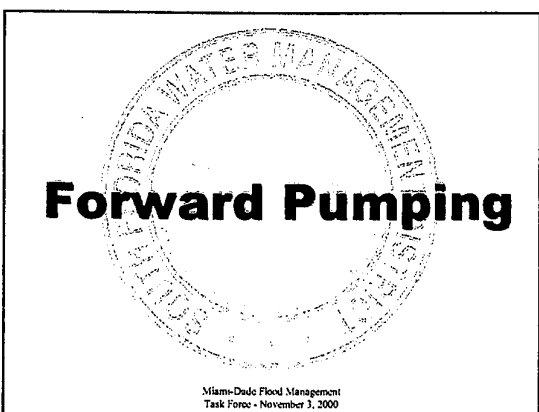
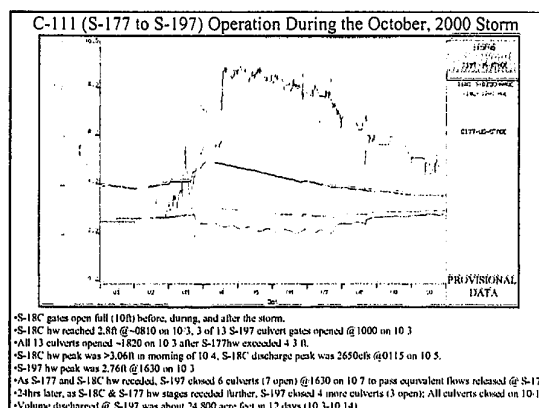
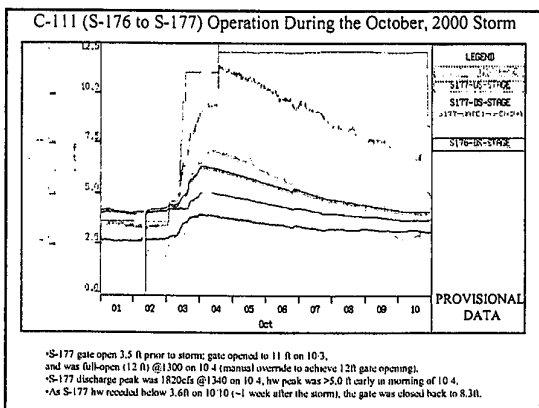
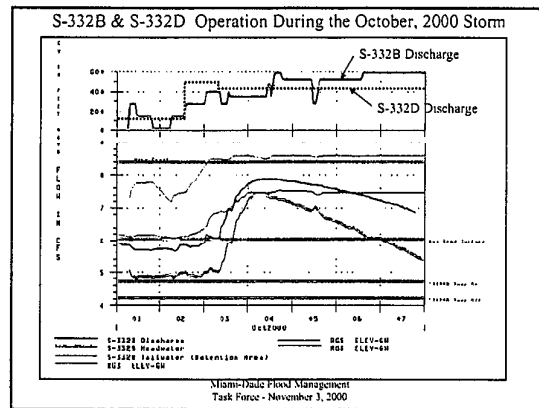
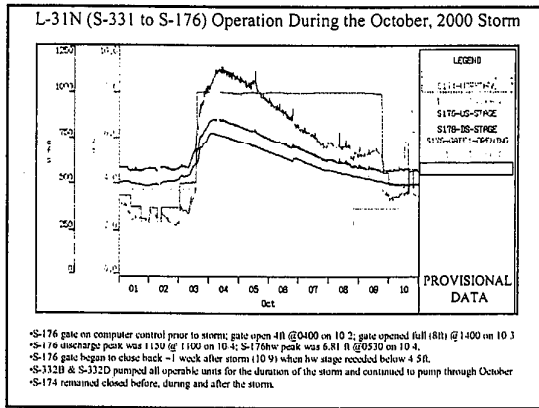


South Dade Conveyance System



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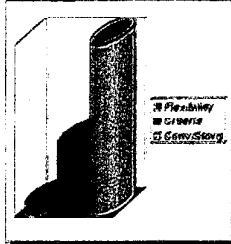
Governing Board Actions

- On October 13th, SFWMD Governing Board passed resolution committing the agency to take a leadership role in the improvement and enhancement of the flood control systems of south Florida
 - Maximize flood preparation and response coordination with Miami-Dade County and municipalities within the county
 - Aggressively pursue new funding sources
 - Request State and Federal agencies use the District's Hurricane Irene After Action Assessment and the Miami-Dade County Flood Management Task Force Report to determine project priorities
- Executive Director established internal Recovery Task Force to prepare conceptual plan and cost summary

Miami-Dade Flood Management Task Force - November 3, 2000

Effectiveness of Stormwater Management Elements

- Operational Flexibility
 - Minimal benefit within existing criteria
- Operational Criteria
 - Moderate improvement during significant storms
- Conveyance / Storage
 - Improvement proportional to cost



Miami-Dade Flood Management Task Force - November 3, 2000

SFWMD Recovery Task Force

- The District's Recovery Task Force reviewed project concepts previously identified
 - Hurricane Irene After Action Assessment (SFWMD)
 - Miami-Dade Flood Management Task Force (Miami-Dade)
- The Task Force focused primarily on conveyance improvement as the most effective means to mitigate flooding impacts
 - Forward Pumping
 - Canal Conveyance Improvement
 - Secondary System Improvement
 - Local Community Drainage Improvement

Miami-Dade Flood Management Task Force - November 3, 2000

Forward Pumping

- Considered most feasible physical facility option
 - Proven technology
 - S-13 in Broward Co.
- Will assist gravity discharge during normal high tide and storm enhanced tides



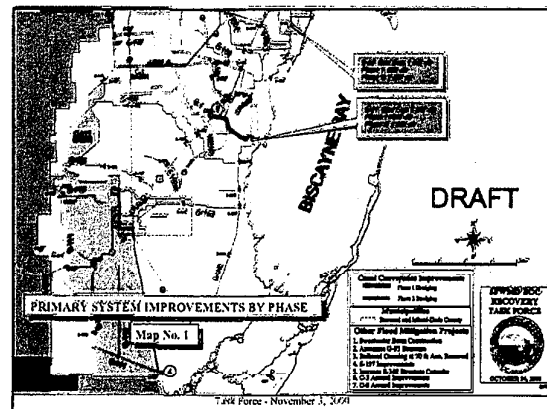
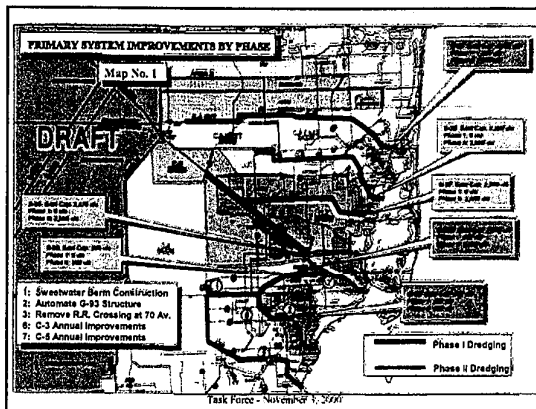
Miami-Dade Flood Management Task Force - November 3, 2000

Forward Pumping

- Canal conveyance improvements required to optimize performance of the Forward Pumping Concept
 - Phase I: 30%
 - Phase II: 50 to 70%



Miami-Dade Flood Management Task Force - November 3, 2000



Preliminary Prioritization

Tier 1	\$39.6 million
Phase I conveyance in C-4, 3, 2, 5 & Arch Creek:	\$38.5 million
Miscellaneous conveyance improvements:	\$1.1 million
Tier 2	\$311.5 million
Phase I conveyance in C-6, 1, 7, 8 and 9:	\$68.0 million
Phase II conveyance in C-4, 3, 5 and 2:	\$243.5 million
Tier 3	\$607.5 million
Phase II conveyance in C-6, 7, 8, 9 and 1:	\$604.5 million
Increase S-148 capacity:	\$3.0 million

Miami-Dade Flood Management
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Status

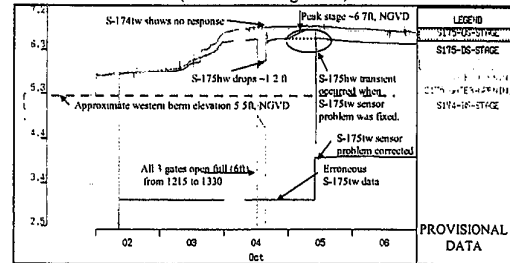
- SFWMD Flood Mitigation Projects Report Completed
- Hazard Mitigation Application under preparation
- Continued coordination
 - FEMA
 - Miami-Dade County
 - Other affected communities

Miami-Dade Flood Management
Task Force - November 3, 2000



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L-31W Canal Operation During the October, 2000 Storm (S-175 Discharge Test)



*As a test, 3 gates at S-175 were opened for 3hrs from 1215 to 1330 to see if S-174 tailwater responded.
 *Results showed about 1.2 foot drop in S-175w stage, but no change in S-174 stage.
 *Conclusions were that the L-31W canal stage -6.7 ft) was directly connected with the western marsh.
 *Thus opening S-175 had no effect on L-31W stages since the source of inflow in L-31W was predominantly the marsh.
 *S-175 discharge would not help lower L-31W canal stages until stages receded below about 5.5 feet, NGVD, which is the elevation of the top of the western berm.
 Miami-Dade Flood Management
Task Force - November 3, 2000

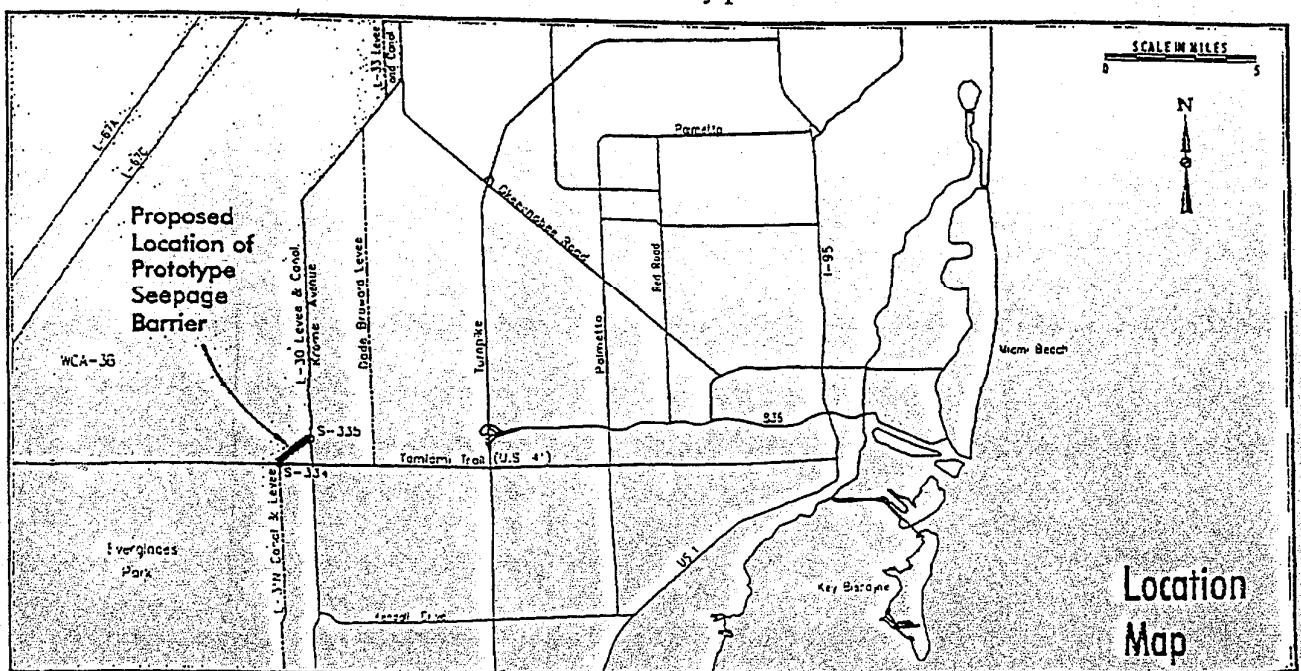


Nomination for Critical Restoration Project Pursuant to Section 528 of WRDA 1996
December 6, 1996

Title: Seepage Barrier Demonstration Project
Type: Infrastructure
Lead Agency: USACE/SFWMD
Others: Governor's Commission Technical Advisory Committee Seepage Barrier Analysis Group
Requirement: \$8,000,000 for 8,000 feet of barrier, 100 feet deep at \$10/sq ft.
Funding Source: National Park Service, SFWMD and USACOE Matching funds
Time Frame: 1997 - 2010
Contact: Paul Larsen, Larsen and Associates, Suite 4970, First Union Financial Ctr, Miami, FL 33131
Phone: 305-358-0361, FAX 305-371-5234

DESCRIPTION: The SFWMM model has shown that easterly seepage out of the WCAs and ENP to Lower East Coast urban areas totals 1,000,000 acre feet per year. Retaining a fraction of this water in the natural system would substantially improve Everglades hydropattterns. Physical underground barriers to seepage could be a critical component of an overall seepage management strategy. However, there has been concern whether they would work, how much they would cost, and whether there would be unintended and unanticipated consequences. A demonstration project located between two control structures (S-334 and S-335) in this area of extremely steep ground water gradients would address these concerns. See the map below. The preliminary cost estimate has been provided by the Hayward Baker Corporation, which has extensive experience building these facilities.

RESTORATION BENEFITS: The suggested site is in an area where there are large documented seepage losses out of WCA-3B into the South Dade Canal System. The project could be justified on a stand-alone basis. However, an additional important benefit would be in gaining knowledge about the construction and efficacy of seepage barriers in a time frame that would allow feedback into the Restudy process.





increase the ability to move water away from the affected flood prone areas by a significant factor. An increase of ten times is conceivable.

2. The existing flooding problem is exacerbated by seepage. While water is being discharged to the east to Biscayne Bay, it is simultaneously seeping in from the west. Preliminary calculations indicate that during a storm, seepage-in from the west, may be 25% or more, of flow-out to the east. A temporary halt of seepage would therefore further improve the ability to lower water levels in the flood prone western urban areas.

Figure 3 is a schematic diagram showing the reservoir, pumps and structures. A foot of water would be added to the emergency reservoir during the rainfall event. When the flood threat had passed, this excess water would be slowly discharged to the Coast through existing canals. The reservoir could coexist with rock mining, and when mining was done, the miners could turn the land over to government ownership. This could be accomplished as part of the overall Lake Belt Plan.

Questions will be raised about the relationship between this rarely used reservoir and the quality of water at the NW Wellfield. For that reason we have also shown a proposed wellfield protection area where the mining industry has proposed a half mile setback from the wells for new unpermitted mining, and total protection of the lakes which would make up the remainder of the 12 square mile protection area. The mining industry owns a significant portion of this land also. See Figure 2. The possibility of the emergency flood reservoir having an effect on water quality at the wellfield needs to be studied. However, during a flood event, the water which needs to be moved just fell out of the sky where it is presumed to be clean. The volume of clean water is vastly greater than possible contaminated water.

Also, the Comprehensive Environmental Restoration Plan (CERP) to restore the Everglades seems to have other ideas for this land. But as presently understood, these ideas would increase, not decrease, flooding in flood prone areas. We believe that CERP needs to reduce, not increase, urban flooding. At present CERP is just a "paper" plan and there is time to adjust it to meet the needs of the urban population.

In the future, when the entire Pennsuco area is owned by the government, the efficacy of the reservoir system could be greatly increased by westerly pumping from the reservoir to the Pennsuco. Please see Figure 4.

Date: November 27, 2000

Page 1 of 6

To: Flooding Task Force Meeting on November 29, 2000

From: Paul Larsen Phone: 305-358-0361

Subject: **Emergency Flood Reservoir in the Lake Belt Area**

The enclosed drawings show a schematic diagram of a possible emergency flood reservoir that could be located on certain rock mining lands in and near the FPL Strip. This reservoir would only be used for extreme rainfall events that threaten flooding and serious damage of homes in nearby suburbs as happened in Hurricane Irene in 1999 and again in the unnamed storm in 2000. Figure 1 shows the location of the 19 square mile reservoir and an associated 12 square mile wellfield protection area.

The primary factor that makes this plan possible, is that most of the land is owned by the mining industry or by government agencies. The industry can enter into agreements with the SFWMD to allow temporary flooding of its land and with the County to allow wellfield protection. Please see Figure 2 which shows that essentially all 31 square miles is owned by either the mining industry or the government.

Conceptually, the reservoir would be used to retain a foot of water above ambient. The 19 square miles would therefore hold $(19 \times 640 = 12,160)$ 12,160 acre-feet of water. This is 530 million cubic feet of water. Pumps sized to move a total of 4,087 cubic feet per second, located on the Miami and Tamiami Canals, could move this volume of water in 36 hours. The levee surrounding the reservoir would need to stand at least five feet above grade.

This facility would be used rarely, only for emergencies, perhaps for five days every five years on average. It would have two significant positive effects to reduce flooding:

1. Water could be quickly removed from the western portion of the urban areas where flooding has caused the most damage. At present, storm water must flow, by gravity, about 15 miles through a canal system not designed to rapidly move large volumes of water to the Coast. There is very little prospect of alleviating flooding unless there is a way to move water away from the flood prone areas. Recent discussions by the flooding task force have indicated that forward pumping at the Coast will be of only limited value in moving enough water to reduce flooding. Westerly pumping may be the only alternative. The FPL Strip reservoir would allow approximately 4,000 cubic feet per second to be moved in the 36 hours during and immediately after the storm. This rate would probably

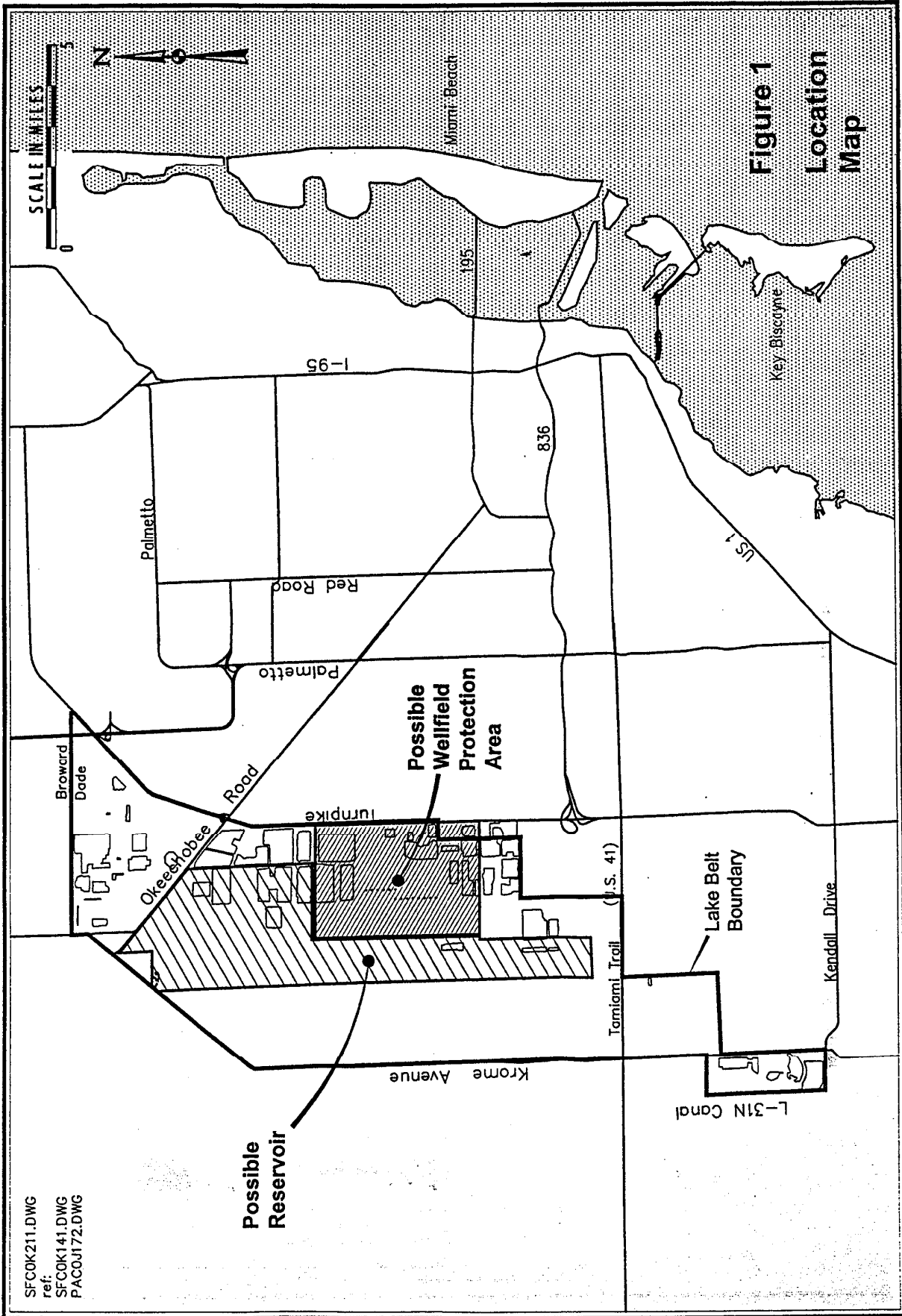
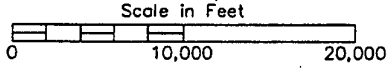


Figure 1
Location
Map

SFC0K211.DWG
ref:
SFC0K141.DWG
PAC0J172.DWG

SFCOK212.DWG
 SFCOK131.DWG
 SFCOJ301.DWG
 REF:
 SFCOJ271.DWG



Possible Reservoir

Possible Wellfield Protection Area

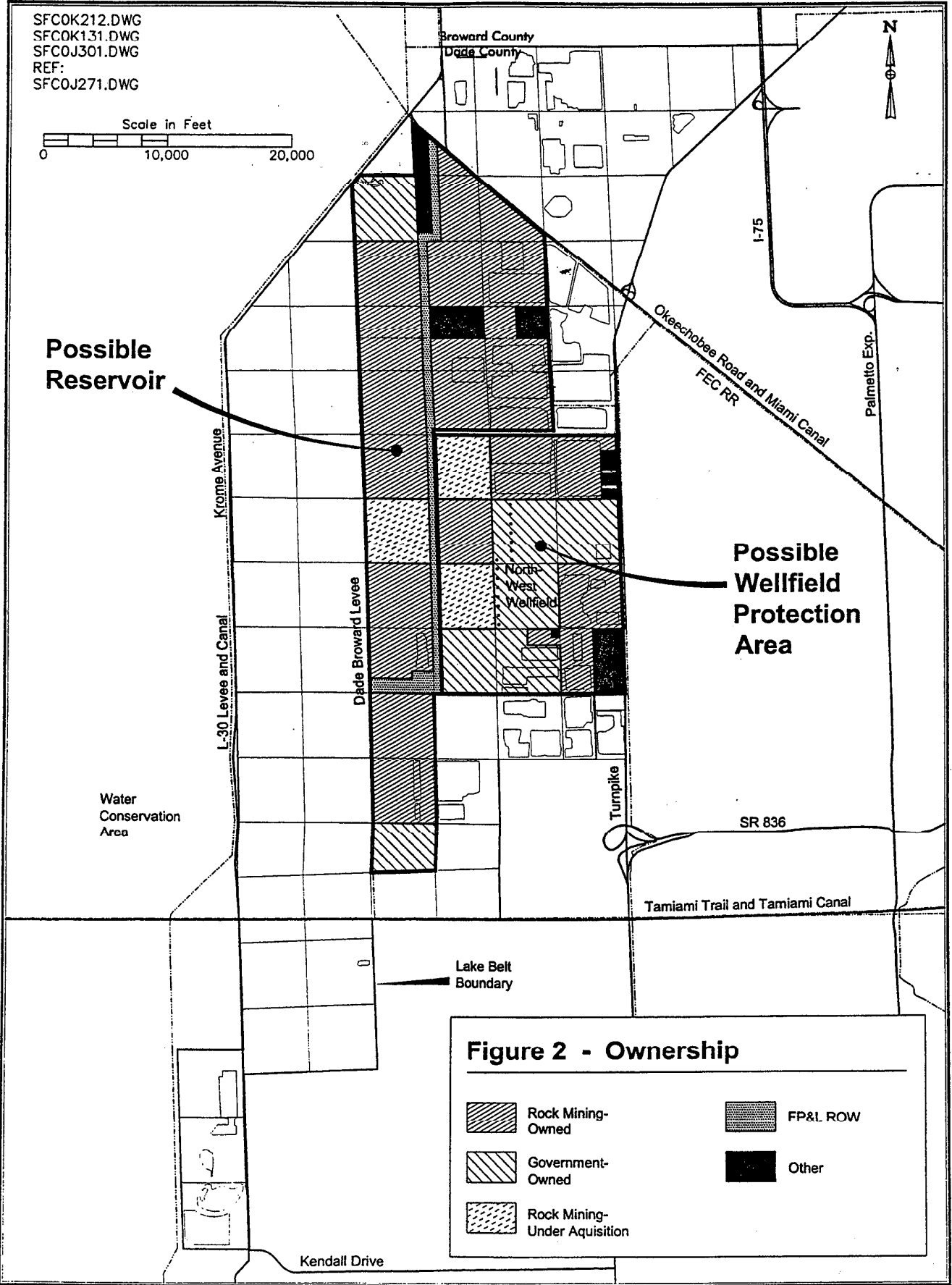







Figure 2 - Ownership

- | | | | |
|---|----------------------------------|---|----------|
|  | Rock Mining-
Owned |  | FP&L ROW |
|  | Government-
Owned |  | Other |
|  | Rock Mining-
Under Aquisition | | |

SFC0K213.DWG
 SFC0K142.DWG
 SFC0J301.DWG
 REF:
 SFC0J271.DWG

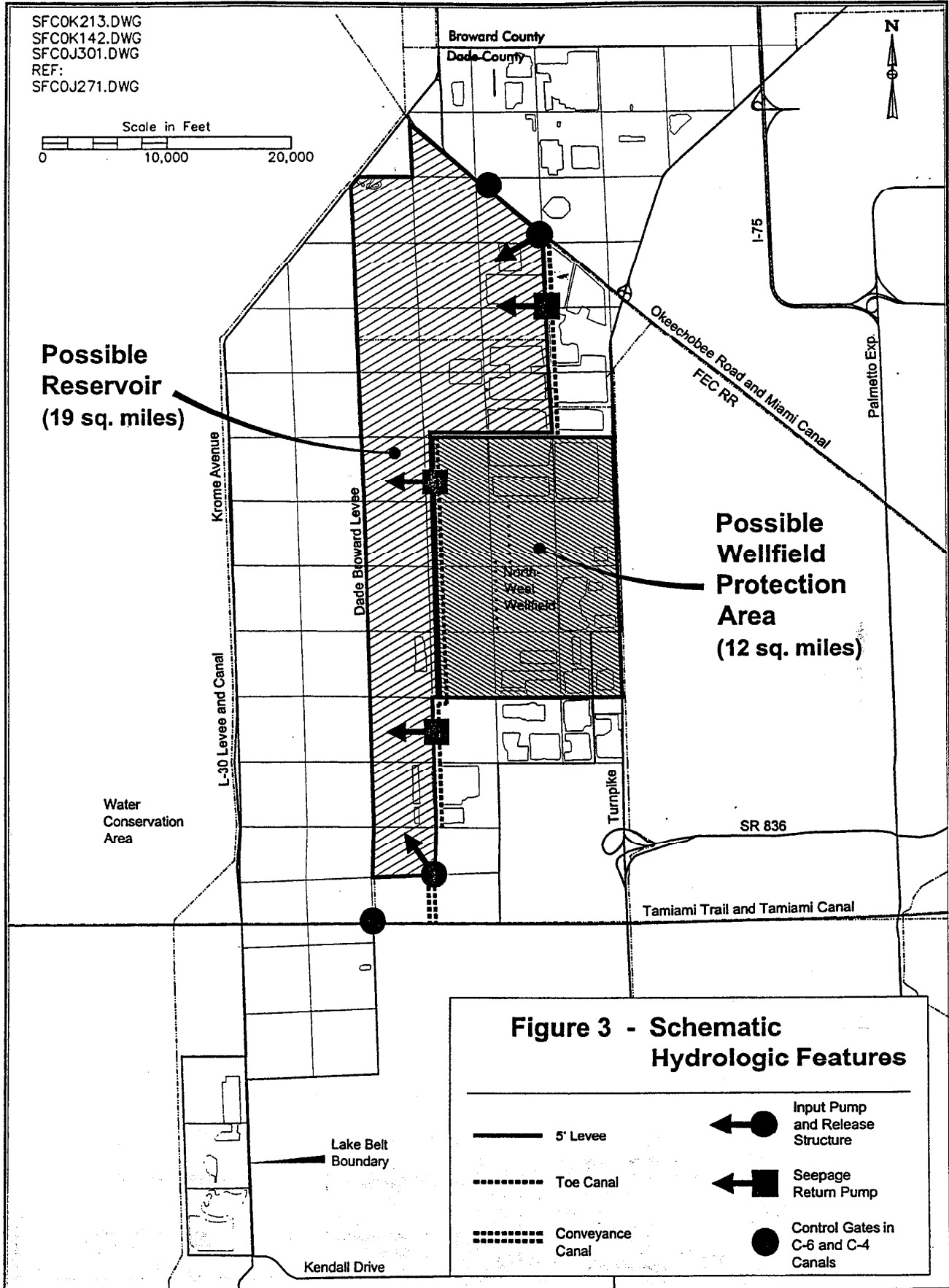
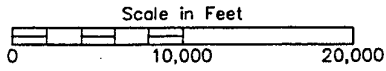
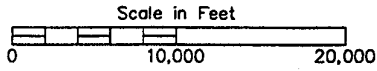


Figure 3 - Schematic Hydrologic Features

SFCOK213.DWG
 SFCOK142.DWG
 SFCOJ301.DWG
 REF:
 SFCOJ271.DWG



Possible Reservoir
 (19 sq. miles)

Possible Wellfield Protection Area
 (12 sq. miles)

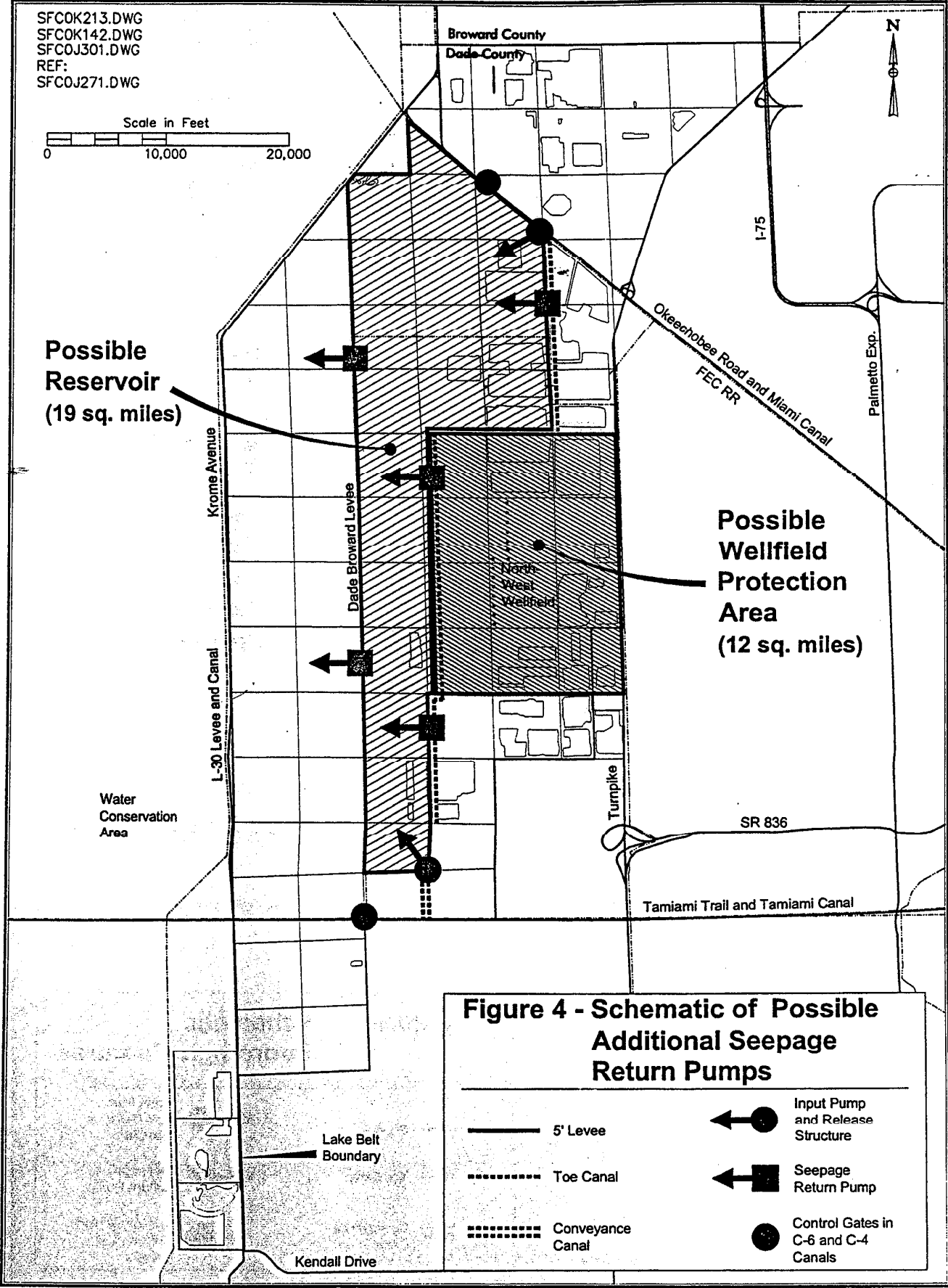








Figure 4 - Schematic of Possible Additional Seepage Return Pumps

-  5' Levee
-  Toe Canal
-  Conveyance Canal
-  Input Pump and Release Structure
-  Seepage Return Pump
-  Control Gates in C-6 and C-4 Canals



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**STATUS UPDATE ON PROGRESS MADE TOWARD THE EIGHTEEN
RECOMMENDATIONS OF THE TASK FORCE**

DRAFT DATE: November 28, 2000

As you are aware, the Department of Environmental Resources Management (DERM) was designated as staff to the Flood Management Task Force. An update on activities conducted in response to the eighteen recommendations in the Task Force's Final Report is included below.

1. Proactive Approach to Flood Protection.

- DERM staff has met with staff from the South Florida Water Management District (District) and the Army Corps of Engineers (Corps) on a regularly scheduled monthly basis. Meetings started in June 2000, and the most recent was held on November 21, 2000. Results of this meeting are included in items below.
- A technical meeting was held in the Jacksonville offices of the Corps on October 25, 2000, with all agencies described above.

2. Wet Season Procedures.

- As stated above, meetings between DERM, the District and the Corps are ongoing to resolve the management of canal water levels.
- It has been agreed that pre-storm levels will be set at the low wet seasonal stages for any storm with the potential of affecting south Florida.
- At the November meeting, initial discussion with the Department of Interior stated that, as a result of analyzing historical rainfall data, the Department is considering setting pre-storm protocol for going to wet seasonal stages for all storms with an anticipated 4" of rainfall or greater.

3. Flood Control Pumping to the East.

- The monthly meetings described in Number One above have resulted in the initial planning for this recommendation.
- The District has stated that dredging on the C-4 will begin in early spring, 2001, and the pump with a rated capacity of 800 CFS should be operational before the 2001 hurricane season.
- This recommendation will be followed through the Districts' budget process, as well as the recently created Governor's Task Force on flooding in South Florida. The Governor's Task Force will be seeking funding sources for drainage mitigation projects in Miami-Dade County.
- On October 3, 2000, the Board of County Commissioners passed a resolution requesting that this recommendation be expedited.
- As a preliminary step, the District will be automating G-93 at the C-3 control structure (Coral Gables Canal), and is under construction for this fiscal year.
- Another preliminary evaluation will include reducing restrictions at the Snapper Creek and the railroad crossing, on the C-2 Canal. This also is being scheduled for completion in this fiscal year.
- The Corp is presently evaluating the C-7 with forward pumping being considered as an alternative.

4. Back-Pumping and New Structures for the Tamiami Canal.

- There are two flood control structures to be constructed in the Tamiami Canal; one located at SW 157 Avenue and another at SW 117 Avenue. The Corps will start construction of the SW 157 Ave (S-380) structure before the end of the year, and they have contacted the County for a pre-work conference. DERM staff has been assisting the Corps and District staff with the environmental requirements associated with its construction. The new structure S-380 will be constructed as a first step in this process.
- A second structure continues to be evaluated by the Corps for construction at approximately Tamiami Canal and SW 117 Avenue, as requested by the District and the County.
- The Corps is also evaluating a structure at the L-31-N intersection with the Tamiami Canal for purposes of backpumping (S-356). Modified Waters Deliveries contemplates pumping from this structure into Water Conservation Area 3B for purposes of seepage control.

- As stated in Recommendation Number 3, on October 3rd the Board of County Commissioners passed a resolution requesting that this recommendation be expedited.

5. Miami-Dade County Stormwater Management Master Plan.

- DERM is dedicated to completing this Plan, and work will be expedited as much as possible with staff and funding levels.
- DERM staff has obtained additional surveying contracts that will greatly enhance base data for the development of the Master Plan.
- DERM is also in the process of requesting engineering services to expedite the modeling activities so that its present staff can focus on gathering technical data for the model associated with the Master Plan.

6. Experimental Water Deliveries to Everglades National Park.

- The District has started a series of meetings with the Corps. The District will request local involvement with these meetings.
- The Interim Structural and Operational Plan (ISOP 2001) is now being established.
- An internal meeting between the Corps, US Fish and Wildlife, and Everglades National Park will be held on December 20, 2000 to discuss the ISOP. The meeting is expected to produce a draft Environmental Impact Statement for public review.

7. Modified Water Deliveries and C-111 Projects.

- The District has made progress on the interim plan and completion of the entire project is planned for 2003.
- A temporary pump is in place and functional along the C-111.
- The District's governing board has recommended Alternative 6d (enhanced flood protection) for the 81/2 square mile area, and the Record of Decision (ROD) is expected in November, 2000.
- On October 3rd the Board of County commissioners passed a resolution requesting that this recommendation also be expedited.

8. Sparrow Emergency Operations.

- Monthly meetings described in Number One above and meetings described in Number Six will include developing flexible flood control criteria. The County has contacted the Corps to discuss this issue, and will continue to be involved with this issue.

9. Increase Flood Protection in the CERP.

- The current Federal bill regarding the CERP has eliminated any reference to the objectionable language in the Chief of Engineers' Report. Currently, the bill states that flood protection will be maintained [Section 528(h)(5)(c)],
- The County and District will mutually generate an authorization letter for the Corps to request studies for flood protection consistent with the CERP. The letter will ask for studies of impacts to the urban area from CERP projects.

10. 8.5 Square Mile Area.

- A meeting was held on June 16th with representatives of the Office of Emergency Management (OEM) to discuss emergency procedures during flood events. Once these procedures are finalized, the OEM will hold meetings with affected residents to discuss those procedures.
- Information about special taxing districts has been collected, and was forwarded to residents' representatives.
- Correspondence has been initiated between DERM and the District to evaluate connecting the roadside ditch at SW 168 Street with the L-31-N.

11. Municipal Improvement Initiatives.

- DERM staff met on July 17th with most of the municipalities and reviewed stormwater management issues. At that meeting, the need for communities to coordinate drainage activities was stressed.
- The District met with the cities of Sweetwater, West Miami and Florida City to discuss funding possibilities for those cities' drainage infrastructure needs.
- The County has also met with the above cities to discuss their stormwater management plans, and approved Sweetwater's initial phase of their project, which is currently estimated as 80% complete. The County has also met with West Miami to coordinate their stormwater management programs.

12. Cut and Fill Criteria.

- As discussed in Recommendation Number 5 above, the County is in the process of generating a countywide Stormwater Management Master Plan. This Plan will more specifically evaluate the extent of the Cut and Fill Criteria policies in Miami-Dade County.
- DERM staff has drafted a proposed plan for expanding the cut and fill criteria, and will schedule a meeting with all affected parties to discuss feasibility.

13. FEMA Insurance Maps.

- Correspondence has been sent to the Federal Emergency Management Agency (FEMA) requesting a flood insurance re-study.
- As a result of the no-named Storm of October 3rd, federal disaster funding is being considered for re-mapping the County, and preliminary elevations for the storm are being collected and documented by FEMA contractors.

14. Operation of S-197

- The monthly meetings described in Number One above will address operational flexibility of this structure. The District has re-allotted for this year's budget \$265,000 to automate all screw gates for this structure.

15. Florida City and North Canals.

- The County has prepared a set of ownership plans that determine ownership and maintenance responsibilities for these canals.
- The County and District met with Homestead and Florida City, where maintenance issues and responsibilities were discussed. Further meetings will be held to discuss these issues.
- Because of the above discussions, and to provide short-term relief for the area, both the District and County performed a one-time maintenance of the Florida City Canal.
- In October 2000, County staff met with the Assistant County Attorney and concluded that the land remained in ownership of the original land development company. Further investigation will occur, using complete title searches for properties abutting the canals in both municipalities and the unincorporated area.

- During conversations between the Corps and DERM, the Corps indicated the possibility of designating the two canals as C-Canals, thereby placing them under District maintenance and operational jurisdiction.

16. Identify Flood-prone Areas in the Unincorporated County.

- Through DERM's Stormwater Utility, a tracking system is in place to identify these areas, and capital improvement projects are planned that will address these areas.
- The Quality Neighborhood Improvement Program (QNIP) addresses local flooding conditions as reported by residents in flood-prone areas.
- The County has contracted with a topographical services company, which will provide needed elevations to enhance the identified flood-prone areas.
- District has completed a report identifying twenty-six (26) projects to mitigate flooding.
- Due to the no-name Storm of October 3rd, mitigation funds will be available, and are expected to be used to fund drainage projects in the C-4 Basin. Cities expected to benefit from these projects include Sweetwater, West Miami, the City of Miami and the unincorporated areas of Miami-Dade County.

17. Seepage Management.

- The District has conducted a conceptual study, including modeling, and has included potential impacts to urban and agricultural areas. The study will be among the first pilot studies conducted. The CERP and Water Preserve Feasibility Study will also discuss this issue.
- A meeting has been scheduled for January 30, 2001, to discuss seepage management issues, and the Corps will host.

18. FEC/Borrow Canal.

- DERM has placed a staff gauge in the Canal so that the Village of Virginia Gardens can monitor canal elevations.
- DERM has investigated and will replace the culvert connection between the FEC Borrow Canal and the Miami River Canal.
- DERM staff is discussing the maintenance of the Canal with the Florida East Coast Railways, the owner of the canal, along with adjoining stakeholders.

- On November 16th, a meeting was held between the Florida East Coast Railways, DERM, Miami-Dade County's Public Works and Miami International Airport, and the cities of Virginia Gardens and Miami Springs, to discuss maintenance and stakeholder issues. As a result of that meeting, FEC will evaluate their budget to provide funding for the canal. Further discussions will occur in December 2000.

Should you have any questions regarding the above status update, please contact Mr. Dorian K. Valdes, P.E., of the Water Management Division, at 305.372.6886.

