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City of Dania Beach

Chapter 4

SANITARY SEWER, SOLID WASTE, DRAINAGE, POTABLE WATER, NATURAL GROUNDWATER AQUIFER RECHARGE

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Adopted by the Dania Beach City Commission

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**SANITARY SEWER, SOLID WASTE, DRAINAGE, POTABLE WATER,
NATURAL GROUNDWATER AQUIFER RECHARGE**

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I. SANITARY SEWER SUB-ELEMENT

A. Introduction

The City of Dania Beach Charter establishes Departments of Public Works and Utilities whose responsibility is to oversee the operation, maintenance and construction of the City wastewater system. The area west of Ravenswood Road is served by Broward County Utilities. Dania Beach originally operated its own treatment facility but it was abandoned in 1974 and the City entered into a large user agreement with the City of Hollywood to provide for wastewater treatment. The City presently operates and maintains its own sanitary sewage collection system and sewage lift station.

B. Existing Conditions

The City sewage collection and transmission system consists of approximately thirty-three (33) miles of gravity sewer lines ranging from eight (8) inches in diameter to twenty-four (24) inches in diameter. There are eleven (11) sewage pump stations and approximately six (6) miles of sewage force mains with diameters of up to eighteen (18) inches.

Approximately ninety (90) percent of the City is served by the sanitary sewer system with an area of single family homes located north and east of the Dania Cut-Off Canal and west of U.S. 1 presently being served by septic tank.

The City still services about ninety (90) percent of developed areas within a sanitary sewer system. The area served by septic tanks in the City of Dania Beach is known as Melaleuca Isles which encompasses approximately 102 acres and 367 dwelling units which translates to a density of less than four (4) dwelling units per acre. This density does not exceed the maximum density for septic tanks as specified by State regulations. In addition, the area is fully developed at this time and no additional septic tanks are anticipated.

The Broward County Health Unit is responsible for permitting septic tanks. At this time, representatives of the Broward County Health Unit are not aware of any problems related to the existence of septic tanks in the City. Specifically, no ground

water problems linked to the existence of septic tanks are known to exist.

As indicated on Map 4, Soils Map, of the Comprehensive Plan Map Atlas, the soils in the area served by septic tanks are the Hallandale-Margate Association. According to the USDA Soil Survey of Broward County, these soils are described as follows:

- Hallandale soils are poorly drained and nearly level. Typically they have a thin surface layer of black fine sand, and subsurface layer of light brownish gray fine sand, and a subsoil of brown and yellowish brown fine sand that has slightly more clay than the subsurface layer. Beneath the subsoil is hard limestone. Depth to hard limestone ranges from 7 to 20 inches but is typically 16 inches.
- Margate soils are poorly drained and nearly level. Typically they have a surface layer of very dark gray fine sand and a subsurface layer of light brownish gray fine sand. The subsoil is brown fine sand that is slightly more clayey than the subsurface layer. It has a layer, about 4 inches thick, of brown fine sandy loam mixed with fragments of limestone. Hard limestone is at a depth of about 32 inches. Depth to hard limestone ranges from 20 to 40 inches.

These soils are poorly suited to cultivate crops. For urban development, fill material must be added to the surface for building site.

The area west of Ravenswood Road is served by Broward County. Broward County is currently preparing a master plan for their entire system. When available in early 1999, the data section will be updated.

The remainder of the City's commercial, industrial, multi-family and single family areas are served by sanitary sewer facilities. The area served by septic tank is of a relatively high elevation and has soils consisting of the Lauderdale-Dania Association. The septic tank area is essentially built out but any future septic tanks would be permitted on a case by case basis by the Broward County Public Health Unit. Septic tanks are permitted if existing sewers are more than 100 feet from a single family residence. The level of service for a septic tank maximum discharge as established by the Broward County Public Health

Unit is as follows:

Residential	2,500 gallons/acre/day
Commercial	1,500 gallons/acre/day

with the following utilized as a design criteria for septic tank:

Residential served by potable water gallons/day/s.f.	.0574
Commercial gallons/day/s.f.	.0034

The entire area served by septic tank has potable water service to the vicinity.

The Broward County 201 facilities plan, as approved by the State, provided for the wastewater from the City of Dania Beach to be treated by the City of Hollywood Wastewater Treatment Facility. The Hollywood plant is located on a 32 acre site in the eastern portion of that City. The plant has a design capacity of thirty-eight (38) million gallons per day and currently treats approximately thirty-three (33) million gallons per day on an average day. The treatment is secondary and the disposal is via an ocean outfall.

The City of Dania Beach utilizes the design flows established by the Broward County Department of Planning and Environmental Protection for determining the adequacy of wastewater service during the development review process. These flow items have adopted in Dania Beach Ordinance 4 1-86 with the following flows being used to establish a level of service and an equivalent residential connection (ERC) being defined as the flow generated by a standard single family dwelling which shall represent three hundred (300) gallons per day of wastewater generated. The City has also adopted an individual person level of service standard of one hundred (100) gallons per day.

1. Dwellings:
Each Single Family Unit =1 ERC
2. Condominium:
3 bedroom 300 gpd 1 ERC

- 1 & 2 bedroom 250 gpd
0.71 ERC
- 3. Motel/Hotel:
150 gpd per room
200 gpd per pool
350 gpd per mgr. apt.
- 4. Mobile Home:
100 gpd per space
- 5. Office
0.2 gpd per square feet
- 6. Retail:
0.1 gpd per square foot
- 7. Laundries:
400 gpd per machine
- 8. Bar (no food service):
20 gpd per seat
- 9. Restaurants:
24 hour - 50 gpd per seat (Including bar)
Less than 24 hours -30 gpd per (Including bar)
- 10. Theaters:
5 gpd per seat
- 11. Assembly Hall:
2 gpd per seat
- 12. Park:
10 gpd per person
- 13. Factories:
15 gpd per person per shift
- 14. Institutions:
100 gpd per person
- 15. Church:
7 gpd per seat

16. Service Station:
Full Service Station
First Two Bays - 750 gpd
Each Additional Bay - 300 gpd
Per Fuel Pump - 100 gpd

Self Service Station
Per Fuel Pump 50 gpd
17. Elementary School:
10 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil
18. High School:
15 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil
19. Hospital and Nursing Home:
200 gpd per bed
100 gpd per staff
20. Warehouse:
0.1 gpd per square foot

C. Analysis Of Existing System

The present wastewater and future flows generated by the City of Dania Beach are tabulated as follows:

Year	Average	Peak
1995	2.6 MGD	3.6 MGD
2000	3.0 MGD	4.2 MGD
2005	3.5 MGD	4.9 MGD
2010	4.0 MGD	5.2 MGD

The City of Dania Beach presently contracts with the City of Hollywood for wastewater treatment. The contract, known as a "Large User Agreement", is being updated to the following flows for the City of Dania Beach:

<u>Table 2</u> <u>Contract Flows – Dania Beach</u>				
Year	Average	Surplus/ Deficit	Peak	Peak Surplus/ Deficit
1995	3.80 MGD	1.2 MGD	5.32 MGD	1.72 MGD
2000	4.68 MGD	1.68 MGD	6.58 MGD	2.38 MGD
2005	3.5 MGD	0.0 MGD	4.9 MGD	0.0 MGD
2010	4.0 MGD	0.0 MGD	5.2 MGD	0.0 MGD

The City of Hollywood has prepared design reports for the expansion of the treatment facility from 38 million gallons per day to 58–50 million gallons per day which includes the anticipated flows from Dania Beach.

The sewage lift stations and force main systems were analyzed in 1986 for the ultimate flow projections. Certain deficiencies were identified, such as undersized stretches of force main, undersized master meters and upgrading of pumps. These deficiencies were addressed by the City and the improvements have been completed. The remaining improvements to the system that would need to be addressed is the installation of a pump station and force main to service the north end of the Dania Cut-Off Canal, should the septic tank system fail.

The gravity sewer collection system was installed by the City in the early 1960's and the installations are of vitrified clay pipe in organic soil areas. Some settlement has occurred, particularly in the eastern area of the City and infiltration is occurring. Inflow is also occurring due to flooding of streets in extremely low areas. The City performed an Inflow and Infiltration Study in 1984 with repairs being made in 1985 that accomplished a reduction in sewer flow of approximately 500,000 gallons per day. The City has undertaken a program whereby the gravity sewage collection system will be divided into three geographic sections, with each section being examined yearly for leaks and therefore the necessary repairs accomplished. This will

result in the entire sewer system being examined every three years. It is estimated that this program will result in a savings of 500,000 gallons per day or approximately \$250/day.

The level of service standard for the City's sanitary sewer facilities shall be 300 gallons per day per residence which shall equal one ERC. The level of service standards as approved by the Broward County Department of Planning and Environmental Protection and the City Ordinance establishing design sewer flows shall continue to be utilized.

D. Economic Assumptions

The City of Dania Beach has two primary sources of income for wastewater expenditures. The first is rates for use which can be adjusted as needed and the second is unit and acreage charges or connection charges. Connection charges are established in Ordinance 4 1-86 and are based on the estimated flow as determined in the level of service charts. They are collected from all new construction and are utilized only for capital expenditures and not operating. Any new wastewater infrastructure will be funded from the connection charges as will the ongoing Inflow and Infiltration Study. The inflow and infiltration examination is estimated to cost \$35,000 per year.

E. Goal, Objectives And Policies

The goal of the Sanitary Sewer Element will be to provide wastewater customers, both new and existing, within the City of Dania Beach adequate sewerage facilities meeting all local, state and federal criteria.

Objective I

Continue to contract with the City of Hollywood to provide wastewater treatment.

Policy 1.1 Negotiate a new Large User Agreement with the City of Hollywood to facilitate the treatment needs of Dania Beach.

Objective II

Meet the wastewater service demands of the City of Dania Beach.

Policy 2.1 The level of service standard of 300 gallons per day per equivalent residential unit shall be utilized to assess the adequacy of service as well as the standards set forth by the Broward County Department of Planning and Environmental Protection and Ordinance 4 1-86 of the City of Dania Beach as follows:

1. Dwellings:
Each Single Family Unit = 1 ERC
2. Condominium:
3 bedroom 300 gpd 1 ERC
1 & 2 bedroom 250 gpd
0.71 ERC
3. Motel/Hotel:
150 gpd per room
200 gpd per pool
350 gpd per mgr. apt.
4. Mobile Home:
100 gpd per space
5. Office
0.2 gpd per square feet
6. Retail:
0.1 gpd per square foot
7. Laundries:
400 gpd per machine
8. Bar (no food service):
20 gpd per seat
9. Restaurants:
24 hour - 50 gpd per seat (Including bar)
Less than 24 hours -30 gpd per (Including bar)
10. Theaters:
5 gpd per seat

11. Assembly Hall:
2 gpd per seat
12. Park:
10 gpd per person
13. Factories:
15 gpd per person per shift
14. Institutions:
100 gpd per person
15. Church:
7 gpd per seat
16. Service Station:
Full Service Station
First Two Bays - 750 gpd
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Per Fuel Pump - 100 gpd

Self Service Station
Per Fuel Pump 50 gpd
17. Elementary School:
10 gpd per pupil
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5 gpd per cafeteria per pupil
18. High School:
15 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil
19. Hospital and Nursing Home:
200 gpd per bed
100 gpd per staff
20. Warehouse:
0.1 gpd per square foot

Policy 2.2 The Department of Public Works shall continue to assess the needs of the sanitary sewer system and institute whatever improvements become apparent.

Policy 2.3 The City shall continue with an ongoing infiltration and inflow study to correct leaks in wastewater pipes and make repairs as necessary.

Policy 2.4 The City shall pledge approximately \$30,000 per year to implement the inflow and infiltration study.

Policy 2.5 The City shall continue to collect unit and acreage charges as a mechanism to provide for new wastewater capital expenditures.

Objective III

Provide sanitary sewer for the entire City.

Policy 3.1 The City shall coordinate with Broward County in the planning process underway to replace the existing septic tanks in the area north of the Dania Cut-Off Canal and to determine a funding mechanism and timetable for the installation of the sanitary sewers.

Objective IV

Continue to require the use of sanitary sewer facilities by all new development so as to discourage urban sprawl.

Policy 4.1 The City will discourage urban sprawl by requiring all new development to provide sanitary sewer facilities.

Policy 4.2 The City will discourage urban sprawl by requiring single family residences to hook up to sanitary sewer facilities if they are within 100 feet of a sewer line.

F. Plan Implementation And Monitoring Procedures

The City of Dania Beach Growth Management Department shall prepare a list of goals, objectives and policies and distribute these to all affected City departments for their implementation. The Growth Management Department shall be responsible for monitoring these goals, objectives and policies and determining their compliance with the plan. The Growth Management Department will review yearly status reports from the Public Works and Utilities Department as to the achievements of the

goals, objectives and policies and shall ensure that adequate funding is budgeted to meet the same. The Growth Management Department shall immediately notify the City Manager and the City Commission of any unaddressed deficiencies so that they may be addressed.

II. SOLID WASTE ELEMENT

A. Introduction

The City Charter of the City of Dania Beach establishes a Department of Public Works which has the responsibility of providing for lawn trash and brush pick up and administering the private contractor that picks up garbage.

B. Existing Conditions

The City of Dania Beach Public Works crews pick up lawn trash and brush on a continuous basis and haul the refuse to the National Resource Recovery site located at the Turnpike and S.R. 84 in Davie.

The solid waste generated by other sources is hauled to the Reuter Recycling facility in Western Pembroke Pines. The facility has a design capacity of 660 tons/day. The current demand is 550 tons/day. The City of Dania Beach's portion of the demand is 10,000 tons/year or 27 tons/day.

C. Analysis

The City of Dania Beach entered into a disposal contract with Reuter Recycling of Florida Inc. for disposal of its processable waste. The contract, which was executed in 1988, provides for disposal of waste from the Cities of Pompano Beach, Hallandale, Pembroke Pines and Dania Beach. The amounts of each City contract for are as follows:

Table 3	
Average Annual Tonnage by City	
City	Average Annual Tonnage
Dania Beach	10,000 tons
Hallandale	30,000 tons
Pembroke Pines	48,000 tons
Pompano Beach	65,000 tons
TOTAL	153,000 tons

The contract calls for an increase in each city's tonnage of 10% per year. The plan is scheduled to go into production in July 1990 and will have a capacity of 200,000 tons per year. The contract allows that when a capacity of 175,000 tons per year is reached then the plant capacity will be increased by 100,000 tons per year to 300,000 tons per year. When a capacity of 275,000 tons per year is reached then the plant will be expanded to 400,000 tons per year. If a plant breakdown should occur then Reuter is responsible for providing an alternate means of disposal. The agreement is valid for 20 years after completion of the plant or until the year 2010. The plant is being designed to handle processable waste and to compost the product for ultimate sale. The contract calls for the following minimum waste stream for the City of Dania Beach.

Table 4			
Waste Stream – Dania Beach			
Year	Average Annual Tonnage	Contractual Capacity	Surplus/ Deficit
1995	12,910	19,487	6,577
2000	14,201	31,384	17,183
2005	15,621	50,545	34,924
2010	17,183	81,403	64,220

The City of Dania Beach now contracts with Southern Sanitation, a private contractor, to collect the solid waste within the City and deliver the waste to the Reuter Recycling facility in western Pembroke Pines. This facility has a design capacity of 660 tons per day. The current demand at the facility is 550 tons per day. The City of Dania Beach's portion of this demand is established at 29.5 tons per day. The City no longer hauls to the Central Disposal Land Fill facility.

The City of Dania Beach will adopt as the level of service standards those used by Broward County and the South Florida Regional Planning Council as follows:

Residential	8.9 lbs/unit/day
Industrial/Commercial	
Factory/Warehouse	2 lbs/100 sq. ft./day
Office	1 lb/100 sq. ft./day
Department Store	4 lbs/100 sq. ft./day
Supermarket	9 lbs/100 sq. ft./day
Restaurant	2 lbs/meal/day
Drug Store	5 lbs/100 sq. ft./day
School	
Grade	10 lbs/room & ¼ lb/pupil/day
High School	8 lbs/room & ¼ lb/pupil/day
Institution	
Hospital	8 lbs/bed/day
Nursing Home	3 lbs/bed/day
Home for Aged	3 lbs/person/day
Rest Homes	3 lbs/person/day

D. Economic Assumptions

The Contract with Reuter Recycling of Florida, Inc. calls for a base tipping fee of \$48.00 per ton at the facility. This shall be adjusted yearly by the average of the increase of the sum of the Producer Wholesale Price Index for Durable Goods and the Consumer Price Index. The fee shall be increased by “pass through costs” consisting of:

- a. \$3.00/ton host fee for the City of Pembroke Pines;
- b. Any governmental taxes;
- c. The amount of land acquisition cost in excess of \$2,400,000 subject to a maximum of \$300,000 and the amount of earth removal and site development in excess of \$2,000,000 subject to a maximum of \$350,000;
- d. Any tipping fees or landfill surcharges in excess of \$30.00 per ton for non-processable waste. The charges shall be prorated to the respective cities. The City of Dania Beach will charge its residents and customers a fee that will cover the expense incurred to Reuter Recycling of Florida, Inc.

E. Goal, Objectives And Policies

To provide a solid waste disposal means to the residents of the City of Dania Beach that is efficient, economical and environmentally sound.

Objective I

Meet the contractual obligations of the Reuter Recycling of Florida, Inc. contract.

Policy 1.1 Encourage environmental awareness through composting and recycling.

Policy 1.2 Attain the goals of an estimated 10,000 tons per year waste stream and 10 % per year increases.

Objective II

Adopt the standards of level of service as established by Broward County and the South Florida Regional Planning Council.

Policy 1.2 The following be adopted:

Residential	8.9 lbs/unit/day
Industrial/Commercial	
Factory/Warehouse	2 lbs/100 sq. ft./day
Office	1 lb/100 sq. ft./day
Department Store	4 lbs/100 sq. ft./day
Supermarket	9 lbs/100 sq. ft./day
Restaurant	2 lbs/meal/day
Drug Store	5 lbs/100 sq. ft./day
School	
Grade	10 lbs/room & ¼ lb/pupil/day
High School	8 lbs/room & ¼ lb/pupil/day
Institution	
Hospital	8 lbs/bed/day
Nursing Home	3 lbs/bed/day
Home for Aged	3 lbs/person/day
Rest Homes	3 lbs/person/day

Objective III

Discourage urban sprawl through a solid waste policy.

Policy 3.1 Prohibit urban sprawl by requiring all residents and business to require solid waste pick up through the City of Dania Beach/Reuter contract.

F. Plan Implementation

The Growth Management Department of the City of Dania Beach shall prepare a list of goals, objectives and policies and distribute them to the Public Works Department to determine the compliance with the contract with Reuter Recycling of Florida, Inc. The City Manager and the City Commission shall also be provided the goals, objectives and policies.

G. Monitoring And Evaluation Procedures

The City Manager and Growth Management Department shall require an annual report from the Department of Public Works as to the actual tonnage of solid waste produced as well as the conformance to the level of service requirements. The City Manager and the Growth Management Department shall notify the Public Works Department of any deficiencies so corrective action can occur.

III. DRAINAGE AND NATURAL GROUNDWATER RECHARGE

A. Introduction

The City of Dania Beach Growth Management Department is responsible for assuring proper drainage is installed on all new projects as per Section 4605 of the South Florida Building Code and the Public Works Department is responsible for existing systems and their extensions. This process is as per the City Charter and the Code of ordinances. Dania Beach also requires that projects obtain approval from the Broward County Water Management Division which follows the criteria as set forth in the "Grading and Drainage Regulations and Standards" Manual. The City also requires adherence to the "South Florida Water Management District Basis of Review" and the rules and regulations of the Broward County Department of Planning and

Environmental Protection. Any dredge and fill projects within the City require prior review of the U.S. Army Corps of Engineers and the State of Florida Department of Environmental Regulation.

Due to the nature of the geography of the City and its drainage patterns it was chosen to combine the drainage element and the natural groundwater recharge into one element.

B. Existing Conditions

The primary drainage system of the City of Dania Beach, as well as Broward County, is controlled by the canal and pump system of the South Florida Water Management District (SFWMD). The SFWMD maintains a canal and pump systems and controls discharge based on the capacity of the system to remove storm water. Drainage systems primarily consist of storm sewers, exfiltration trench systems and onsite retention/detention systems. Retention/detention systems consists of Wet which retains or detains storm water in lakes and Dry which retains or detains storm water in areas that are normally dry. Both of these methods provide for storm water storage and aquifer recharge, however, dry retention systems provide for the added benefit of improving water quality due to the filtration action of the soils.

The area is underlain by two aquifers, the Floridian and the Biscayne. The Floridian is confined and approximately 1,000 feet below the surface and is quite high in chlorides. The Biscayne Aquifer is essentially on the surface as is approximately 300 feet in depth. The Biscayne Aquifer is the primary source of drinking water.

The western portion of Broward County through the 790 square mile conservation area is the primary aquifer recharge area. These areas are maintained by the South Florida Water District. Other aquifer recharge occurs through the Dania Cut Off Canal, exfiltration trench systems and onsite retention/detention areas.

The southeast area of the City is quite low in elevation, having an average elevation of 4.0 to + 5.0 N.G.V.D. This area is drained by a series of storm sewers connecting to a 3-acre lake with a 15,000 gallon per minute pump system that discharges through a series of ditches to the Dania Cut-off Canal. The pump system is automatically operated and regularly maintained by

the Public Works Department. The antecedent stage of the lake can be regulated to prevent flooding. Other areas of the City are provided drainage either through natural percolation or exfiltration trench systems.

The City adheres to the minimum standards of Broward County and the South Florida Water Management District and establishes the following levels of service.

Road Protection

Residential and primary streets crown elevation meet the minimum elevations as published on the Broward County 10 year Flood Criteria Map.

Buildings

The lowest floor elevation shall not be lower than the elevation published on the Broward County 100 year flood elevation map or 18 inches above the adjacent crown of road for residential and 6 inches above the adjacent crown of road for commercial/industrial.

Storm Sewers

Shall be designed using the Florida Department of Transportation Zone 10 rainfall curves.

Flood Plain Routing

Modified SCS routing method as established by the SFWMD "Basis of Review".

Best Management Practice

Efforts shall be utilized to use best management practice to reduce pollutants entering the groundwater.

C. Analysis Of Existing System

The drainage system of the City functions adequately and is able to meet the area wide level of service standards.

The review process of new developments ensures that SFWMD, Broward County and City drainage and recharge criteria are met. This review is conducted based on the following criteria:

- Public road elevation: 10 year, one-day storm event.
- Floor elevation: 100 year. Three day-storm event.

The following level of service standards are utilized by the City:

Road Protection

Residential and primary streets crown elevation meet the minimum elevations as published on the Broward County 10 year Flood Criteria Map.

Buildings

The lowest floor elevation shall not be lower than the elevation published on the Broward County 100 year flood elevation map or 18 inches above the adjacent crown of road for residential and 6 inches above the adjacent crown of road for commercial/industrial.

Storm Sewers

Shall be designed using the Florida Department of Transportation Zone 10 rainfall curves.

Flood Plain Routing

Modified SCS routing method as established by the SFWMD "Basis of Review".

Best Management Practice

Efforts shall be utilized to use best management practice to reduce pollutants entering the groundwater.

The southeast area of the City located east of U.S. 1 and south of Dania Beach Boulevard perhaps has the most severe drainage problems. The area is quite low with elevations as low as +3.0 N.G.V.D. and the soils have poor percolation. The existing system consists of storm sewers and swale drainage being collected and discharged into a three acre lake. When the stage of the lake reaches elevation +4.0, the 151,000 gallon per minute pump is started that discharges through a series of ditches to the Dania Cut Off Canal.

The City has installed \$200,000 worth of drainage improvements to the southeastern portion of the City. This included upgrading the pump system.

The southwest and northwest area of the City is of a higher

elevation and soil permeability is greater. This area has utilized natural ground percolation and exfiltration trenches and the system functions to meet the level of service.

The northeast area of the City is essentially undeveloped and any new development will meet the criteria of SFWMD, Broward County and the City as far as attaining the specified level of service.

Aquifer recharge occurs through the recently adopted Broward County Wellfield protection ordinance and Broward County Environmental Quality Standards as well as SFWMD standards. The western portion of Broward County through the 790 square mile conservation area is the primary aquifer recharge area for the City of Dania Beach and Broward County and these areas are maintained by the South Florida Water Management District. Other aquifer recharge occurs within the City limits through the Dania Cut Off canal, exfiltration systems and on-site retention/detention areas. However, it is important to note that most of the entire limits of the City of Dania Beach are impacted by salt water intrusion due to its close proximity to the coastal areas of eastern Florida.

Water quality is improved in the City through the encouragement of the use of swales and water detention/retention systems. The ratio of pervious area to impervious area is also utilized to encourage water quality.

D. Economic Assumptions

The indicated drainage improvements and system maintenance will be financed through general fund revenues, special assessments and developer contributions.

E. Goal, Objectives And Policies

Provide for storm water protection for the residents of the City of Dania Beach that assures flooding protection while encouraging water quality and aquifer recharge.

Objective I Ensure flood protection.

Policy 1.1 The following design storms are established for

drainage facility capacity:

- Public road elevation: 10 year, one-day storm event.
- Floor elevation: 100 year. Three day-storm event.

Policy 1.2 Adopt the level of service standards as established by Broward County and the South Florida Water Management District as follows:

Road Protection

Residential and primary streets crown elevation meet the minimum elevations as published on the Broward County 10 year Flood Criteria Map.

Buildings

The lowest floor elevation shall not be lower than the elevation published on the Broward County 100 year flood elevation map or 18 inches above the adjacent crown of road for residential and 6 inches above the adjacent crown of road for commercial/industrial.

Storm Sewers

Shall be designed using the Florida Department of Transportation Zone 10 rainfall curves.

Flood Plain Routing

Modified SCS routing method as established by the SFWMD "Basis of Review".

Best Management Practice

Efforts shall be utilized to use best management practice to reduce pollutants entering the groundwater.

Policy 1.3 Work with Broward County and the SFWMD to encourage proper discharges and drainage practice.

Policy 1.4 The City adopts the surface water standards of Chapter 27 Pollution Control of the Broward County Code of Ordinances (27-195) as the standards for stormwater discharge in the City. These standards

are consistent with Chapter 17-25 F.A.C. standards for water quality.

Objective II

Encourage use of Best Management Practice for all drainage systems.

Policy 2.1 Follow the regulations of Broward County and SFWMD to encourage Best Management Practice.

Objective III

Continue to implement drainage improvements in the southeast area of the city.

Policy 3.1 Provide for necessary funds for southeast drainage improvements through the general fund, special assessments or developer contributions.

Policy 3.2 In conjunction with linear park development on Southeast 5th Avenue, develop enhancements to drainage for the area.

Objective V

Work with Broward County and SFWMD to implement drainage rules and criteria.

Policy 4.1 Establish staff communication and encourage utilization of Broward County and SFWMD criteria.

Objective V

Maximize water management systems, rules and regulations to discourage urban sprawl.

Policy 5.1 The City Growth Management Department will ensure that water management criteria are utilized that discourage urban sprawl.

Objective VI

The City shall try to discourage the further spread of salt water intrusion.

Policy 6.1 The City shall work with Broward County and SFWMD to ensure aquifer recharge.

F. Implementation Procedures

The Growth Management Department shall monitor the goals, objectives and policies continuously to assure their accomplishment. A yearly report shall be published to measure the achievements attained and to identify deficiencies. Adequate measures will be taken to assure in correction of identified deficiencies.

IV. POTABLE WATER SUB-ELEMENT (WATER SUPPLY PLAN)

A. Introduction

The Charter of the City of Dania Beach provides for a Department of Public Works and Utilities which is responsible for the potable water treatment system and distribution system. The department's task is to assure the residents of the City with a safe, quality drinking water to half of the current corporate limits, east of Ravenswood Road. The areas west of Ravenswood Road are served by Broward County

Withdrawal of raw water from the aquifer is governed by the South Florida Water Management District. The Broward County Public Health Unit is charged with the responsibility of approving distribution systems and overseeing the operation of treatment facilities. The Broward County ~~Water Resource Management Division~~Environmental Protection Department is responsible for ~~ensuring~~implementing wellfield protection protocols to protect wellfields throughout the county.

B. Existing Conditions City Water System

The City's initial wells were installed near the current water plant along the Florida East Coast railroad. Use of these wells has been discontinued due to high levels of chlorides in the water, and formally abandoned in 2007. In 1985, two new wells were installed on the west side of the City near Ravenswood Road west. These wells are currently in use (referenced as Wells G and H). These wells are restricted due to saltwater intrusion although it appears that the chloride content of the raw water is diminishing slightly with time and responds to rainfall. The City has been testing for salt water intrusion for the past five years on a monthly basis in both the production wells and adjacent monitoring wells.

The capacity of the two 65-foot deep wells is 1400 gpm each. The wells were rehabilitated in 2003 (H) and 2005 (G), which reduced capacity a minor amount in each. The City's hydrogeological consultant suggested that the City might be able to recapture firm capacity by drilling a third well southwest of the existing wells on Stirling Road. Investigation was initiated during the 2007 budget year.

While the City's water use permit allows for the majority of withdrawals from the City's wells, supplemental sources from Broward County. The County commissioned a study for the implementation of a regional wellfield facility in the late 1980s. This report indicated that the Dania Beach wells were at their peak capacity and that a regional wellfield would provide the long-term permanent solution. The Broward County raw water agreement was executed in June 1990 between the City of Dania Beach and the County. An addendum was issued in 1994 because no water had been delivered by that date. See Appendix A: Broward County Raw Water Agreements. The concept was to permit several eastern communities, Dania Beach, Hallandale and Hollywood among them, to draw raw water from a new western wellfield to replace lost capacity in the eastern wellfields. The agreement has the following provisions:

- Defined the service area – limiting Dania Beach to the then-City limits.
- Created a Large User Advisory Board that was to meet regularly
- Determined that the County would construct the wellfield and all appurtenances
- Defined a rate methodology for the raw water
- Defined meter locations, readings, meter inaccuracies and a dispute resolution
- Requires a 10% renewal surcharge for wellfield maintenance
- Reserves certain flows for each user

The County used Certificates of Participation, paid off via General Fund revenues, to construct the regional 21 MGD wellfield. The wellfield came on line in 1994 with an installed capacity of 21 MGD. The South Florida Water Management District permitted the wellfield at 14.9 MGD average daily flow and 21 MGD maximum daily flow. The City's agreement with Broward County permits it to withdraw up to 1.1 MGD of raw water from the southern regional wellfield (Brian Piccolo Park wellfield). The intent has been for the wellfield to be incrementally increased in flow until fully allocated. The City has planned on the BPP supply as its long-term raw water solution which is a situation that may be changing due to the SFWMD's rules.

~~The City of Dania Beach's water distribution system consists of~~

~~approximately thirty (30) miles of pipe with diameters varying from six (6) inches in diameter to twelve (12) inches in diameter. The City has a lime softening treatment plant with a nominal capacity of three (3) million gallons per day. The City has approximately four hundred (400) gallons of storage, two hundred thousand of which is elevated. The water treatment plant is supplied with raw water via a sixteen (16) inch diameter raw water line. The treatment plant was built in 1952 and renovated in 1991. The plant operates adequately and is in good condition. It is expected that the plant will operate satisfactorily for approximately twenty years without major replacements. The City of Dania Beach Water Treatment Plant has the following characteristics for 2008:~~

<u>Average Daily flow</u>	<u>2.1 million gallons / day</u>
<u>Peak flow</u>	<u>2.5 million gallons / day</u>
<u>Design flow (ADF)</u>	<u>3.0 million gallons / day</u>
<u>Estimated Remaining Life</u>	<u>20 years</u>

~~The City has 384,000 gallons of storage in its clear wells. A new 2 million gallon ground storage tank was completed September 2008. The plant operates twenty-four hours per day.~~

~~A new 2 MGD nanofiltration water plant is in design at the present time. It is expected to be on line by 2010. It will improve water quality while allowing the City to treat more of the County water supply. The cost of this facility is \$7.5 million. The project is expected to be completed by January, 2010, and will be funded with State Revolving Funds.~~

~~Current average daily flows are 2.1 MGD. This is lower than 2004-2006 (ADF of 2.7 MGD, with a peak of 3.2 MGD), but has been impacted by drought restrictions that may provide a low reflection of actual demands. The City's base water usage is expected to grow minimally over the foreseeable future as there are no areas the City can extend service to that are not already served. Hence any increase flows will be generated in the current service area. However, the City is poised for major redevelopment in the coming years as a result of the City's Local Activity Center (LAC) (2004) and Community Redevelopment Agency (CRA) districts which are newly established. Currently developers are interested in a series of properties in the corridor and development could come on line after 2010. The LAC will permit 2,456 new units in the City, most of which will be along~~

Dania Beach Blvd and US 1. The water use of these units is expected to average 250 gallons per day per unit as a result of the construction being primarily multi-family with limited irrigatable area. Between now and 2028, the City's water usage is expected to increase by only 0.6 MGD as a result of the LAC. This has been included in the population projections.

There are two issues regarding water supplies for the future growth in the City as a result of the LAC. The first is the quantity of water available for treatment. Because people in urbanized South Florida use groundwater supplies that are replenished directly by summer rainfall, the quantity of water available is finite and the quality must be protected for the end users - the public and the ecosystem. Water supplies in South Florida are regulated by the South Florida Water Management District. The District issues water use permits based upon availability of the resource. These withdrawals limit both annual average and maximum daily withdrawals from the aquifer by the utility. Periodic renewal of the water use permits allows the water systems to adjust the quantities for withdrawal based on growth and/or prior experience.

The City's current water use permit No. 060410-9 allows for 2.0 MGD to be withdrawn from the City's two wells. The South Florida Water Management District indicates that under their Water Resource Availability Rule approved in 2007, this amount may be reduced to 1.8 MGD, which is the highest 12 month withdrawal period between 2000 and 2005. Between the City's 1.8 MGD and the 1.1 MGD in the County contract, the withdrawal amount is adequate to meet the City's current and short-term average daily demands through 2019. Based on permit discussions, the City will attempt to skim additional water from its coastal wellfield to regain lost capacity (0.2 MGD) which will solve the water supply issues through 2019. The City is among the limited number of utilities that is positioned to take advantage of direct rainfall harvesting. The City is located east of the salinity structures and as a result all shallow groundwater is rainfall. The canal system is very effective at draining the sands above the Biscayne aquifer effectively.

As the City reads the Regional Water Availability Rule, the intent is to reduce demands on the Everglades recharge area for the Biscayne aquifer and to reduce saltwater intrusion, so harvesting direct rainfall that would otherwise be lost to tide would qualify

as long as it does not encourage saltwater intrusion.

The solution the City is investigating is a Ranney® collector well. Ranney® wells comprise a central concrete caisson—typically 16 feet in diameter—excavated to a target depth at which well screens project laterally outward in a radial pattern. In a practice referred to as riverbank filtration, the wells are designed to induce infiltration from a nearby surface water source, combining the desirable features of groundwater and surface water supplies (see Figure 1).

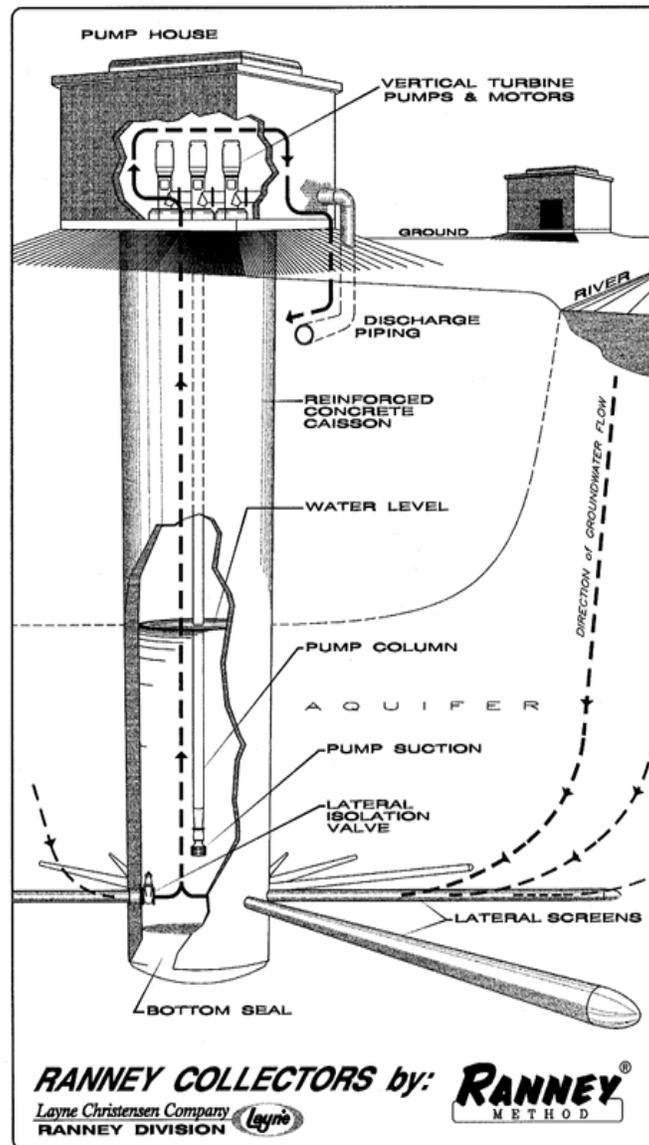


Figure 1 – Ranney Collector Well

The concept for the radial collector well was originally used for development of oil using first a horizontally-drilled borehole into an oil-producing formation, followed by development of a vertical shaft with multiple horizontal boreholes drilled out laterally into the oil shales. The inventor, a petroleum engineer named Leo Ranney, first drilled horizontally for oil in the early 1920's in Texas, and then later in Ohio and Pennsylvania. The theory is that a horizontal borehole could expose more of the borehole to the producing formation, and thus develop higher quantities of oil for a given well site. As oil prices in the United States dropped in the 1930's, Mr. Ranney applied this concept to developing water supplies from alluvial aquifers.

The first Ranney[®] water collector well was constructed for the London Water Board in London, England in about 1933. Mr. Ranney then took this technology to Europe before returning to the United States in 1936 and installing the first water collector well in the country in Canton, Ohio. Since then hundreds of Ranney[®] collector wells have been constructed all over the world. These high-capacity wells offer an alternative to fields with many vertical wells. USEPA even denotes their place in surface water filtration.

The result is an abundant, dependable supply of high-quality water with a constant temperature, low turbidity, and low levels of undesirable constituents such as viruses and bacteria. Riverbank filtration also provides an additional barrier to reduce precursors that might form disinfection byproducts during treatment. In the past, Ranney[®] wells have been categorized by some state agencies as surface water sources because of their proximity to rivers and reliance on induced infiltration. Municipal water supplies that use Ranney[®] wells designated as groundwater under the direct influence of surface water must decommission the wells, or upgrade treatment facilities and operator certifications to meet surface water treatment requirements. In most cases, upgrading a well presents operational and/or financial limitations the purveyor cannot overcome. The Surface Water Treatment Rule has a specific section dedicated to Ranney[®] wells.

The City is in discussions with the Layne, who acquired the Ranney Collector Well group to evaluate the ability of a Ranney[®] wells to skim water off of the sands above the Biscayne aquifer,

while creating minimal drawdown that will prevent saltwater intrusion and upconing (which is an issue for the City), and shallow enough that the Biscayne Aquifer/ Everglades is not affected. Compare Figures 2 and 3 and the potential drawdown. The Ranney[®] well has over 10 times the screening that a vertical well has, which directly translates to lower drawdowns, and for Dania Beach, less potential for upconing. Ongoing research at FAU will provide preliminary modeling results.

The City plans to complete the Ranney[®] well investigation and modeling by 2011 which will provide sufficient time to evaluate the ultimate potential capacity of such a system.

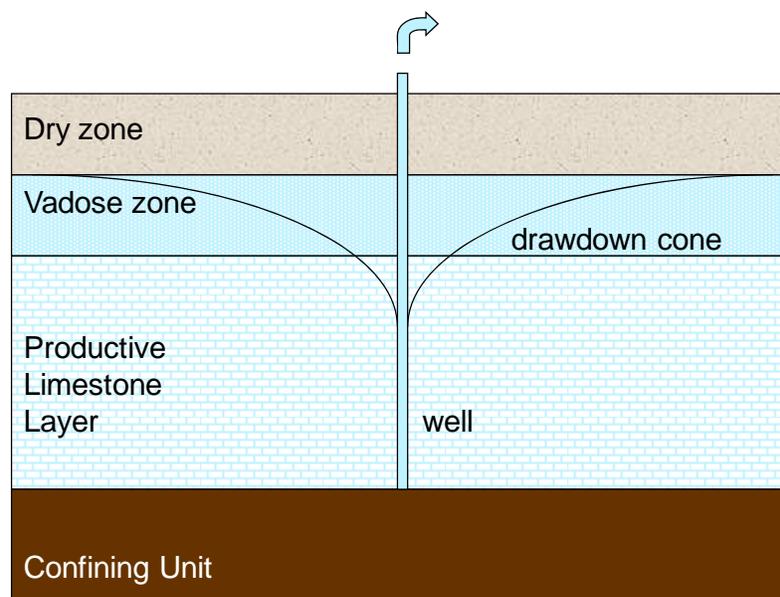
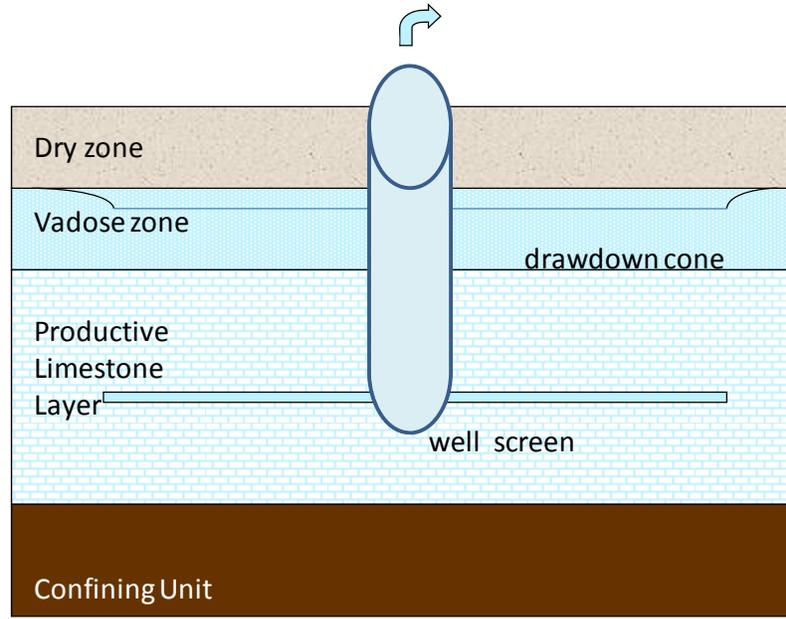


Figure 2 – Normal drawdown for vertical well



[Figure 3 – much smaller drawdown with horizontal wells](#)

[Water supplies beyond those deliverable by a Ranney® well would require the City to consider acquisition of water from Hollywood, or participate in a yet-to-be-identified regional solution. It should be noted that the City of Dania Beach has taken the lead in discussing the potential need to create a regional solution for the County wellfield. However, actions are beyond the City's control.](#)

[The following outlines the current and potential water supplies per the City's water use permit application \(note this does not assume restrictions in place\):](#)

Table 5
Current and Potential Water Supplies

<u>Year</u>	<u>Population</u>	<u>Available ADF Water Supply (City)</u>	<u>Available ADF (County) BPP</u>	<u>Total Water Supply ADF Available</u>	<u>M Actual Delivered DF Water (ADF) (City)</u>	<u>MDF (County)</u>	<u>Total MDF Net Difference</u>
<u>2008</u>	<u>16317</u>	<u>1.8</u>	<u>1.10.6</u>	<u>2.94</u>	<u>2.4</u>	<u>0.9</u>	<u>2.9+ .5</u>
<u>2010</u>	<u>16568</u>	<u>1.8</u>	<u>1.10.6</u>	<u>2.94</u>	<u>2.4</u>	<u>0.9</u>	<u>2.9+ .5</u>
<u>2015</u>	<u>20054</u>	<u>2</u>	<u>1.10.8</u>	<u>2.93.18</u>	<u>2.8</u>	<u>1.4</u>	<u>3.4+ .13</u>
<u>2020</u>	<u>22869</u>	<u>2</u>	<u>1.11.2</u>	<u>3.2.93.1</u>	<u>23.1</u>	<u>1.9</u>	<u>3.9- .20</u>
<u>2025</u>	<u>24192</u>	<u>23</u>	<u>1.11.4</u>	<u>3.4.1</u>	<u>23.4</u>	<u>2.1</u>	<u>4.1+ .7</u>
<u>2028</u>	<u>24601</u>	<u>23</u>	<u>1.11.6</u>	<u>3.64.1</u>	<u>23.6</u>	<u>2.3</u>	<u>4.3+ .5</u>

The City appears to have no issues with water supplies until 2019. However, 2019 is after a point in time in which there is an assumption of significant downtown growth occurring. If this is not the case, the issue will be delayed. This will also be at a point when the City starts to evaluate treatment needs and regulatory requirements of its existing lime softening system.

It should be noted that there are three issues associated with this projection:

First, the City has objected to the projections of the South Florida Water Management District (4.05 MGD) which are substantially higher than the City and County projections (which match at 3.6 MGD based on TAZ data from the County Planning Department). In part the City believes that the District cannot separate the County's service area from the City's. The County service area has potential for more growth. Second, the expanded use of the County's wells is an issue between the County and the SFWMD at this time as a part of their water use permit renewal.

For water supply beyond 2019, the City will implement the following to secure additional raw water:

- A. Investigate additional well locations in the City's current wellfield. This will require drilling of test wells, additional monitoring wells (completed 2007) and modeling of proposed locations to determine if additional raw water is available in Dania Beach. It is expected that this investigation will be complete in 2012.
- Assuming direct rainfall harvesting is demonstrated with the Ranney Well concept, the City will proceed with permitting and construction by 2015.
- Participate with the County of efforts to recharge the County wellfield on a utilization basis. This may include additional wells, storm water recharge or reuse recharge. At this time the appropriate solution cannot be determined, since the solution is within the County's purview. The City has neither effluent nor a wastewater treatment plant to address the water supply issue. The City does not need additional water supplies until 2019. As a result, the City is

in the process of working with Broward County and internally on creative solutions to resolve any future shortfalls. Alternative water sources are to be pursued, but the City has no ability to pursue desalination or reuse (no injection well and no wastewater treatment plant).

~~Raw water is provided by two - twenty (20) inch diameter wells with a nominal capacity of three (3) million gallons per day. The wells are located approximately 1/4 mile west of the western city limits and feed the plant with a sixteen (16) inch diameter raw water line. The entire City is served by potable water with the exception of a warehouse complex in the southwest corner of the City. The City also has in place five-four (54) interconnects with adjacent utilities as follows:~~

City of Fort Lauderdale	1 - 12 inches
City of Hollywood	2- 6 inches
	1 - 8 inches
Broward County	1 - 12 inches

A new 12 inch interconnect with the City of Hollywood is planned by 2010.

The City of Dania Beach follows the standards established by the Broward County Public Health Unit and the City to determine the adequacy of potable water services.

1. Dwellings:
Each Single Family Unit = 1 ERC
2. Condominium:
3 bedroom 300 gpd 1 ERC
1&2 bedroom 250 gpd 0.71 ERC
3. Motel/Hotel:
150 gpd per room/200 gpd per pool
350 gpd per mgr. apt.
4. Mobile Home:
100 gpd per space
5. Office
0.2 gpd per square feet

6. Retail:
0.1 gpd per square foot
7. Laundries:
400 gpd per machine
8. Bar (no food service):
20 gpd per seat
9. Restaurants:
24 hour - 50 gpd per seat (Including bar)
Less than 24 hours -30 gpd per seat (Including bar)
10. Theaters:
5 gpd per scat
11. Assembly Hall:
2 gpd per seat
12. Park
10 gpd per person
13. Factories:
15 gpd per person per shift
14. Institutions:
100 gpd per person
15. Church:
7 gpd per seat
16. Service Station:
Full Service Station
 First Two Bays - 750 gpd
 Each Additional Bay - 300 gpd
 Per Fuel Pump - 100 gpd

Self Service Station
 Per Fuel Pump 50 gpd
17. Elementary School:
10 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil

18. High School:
15 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil
19. Hospital and Nursing Home:
200 gpd per bed
100 gpd per staff
20. Warehouse:
0.1 gpd per square foot

C. Existing Conditions County Water System

The City of Dania Beach does not control the water system in the western part of the City. This service area is known as the Broward County 3A service area. The area is served by Broward County. The area was annexed into Dania Beach and Hollywood in the early 1990s. At this time, the majority of the service area lies within the City of Dania Beach. The rest is in Hollywood. The County has no plans for changing their current service area as debt on the system is tied to customers.

Broward County abandoned their water treatment plant for the 3A service area in 1998 after they entered into an agreement for bulk water purchase with the City of Hollywood. The County has retained a 2 MG tank and high service pumping equipment at the old 3A water plant site. The tank is expected to be upgraded in the future to accommodate increased demands. The average daily demands for water service in the 3A service area at the time of the agreement were 2.6 MGD, with moderate growth expected over the ensuing period. There is a significant potential for growth as under utilized properties are converted to more intense uses. Conversion of mobile home parks to condominiums is one example that is occurring in this corridor along Griffin Road.

The City of Hollywood has a 37.5 MGD facility. The City of Hollywood treats Biscayne water from their new wells, the County's Brian Piccolo wells and their own Floridan wells. The Floridan wells are considered an alternative water supply and are not affected by the water use permit restrictions. As a result, the

City of Hollywood is pursuing additional Floridan water supplies to meet the demands of their customers, including their obligations to serve the 3A service area. The City expects to be fully compliant with water use needs for the 2025 horizon in the next 10 years (see Table 5.3 of the City of Hollywood’s approved water supply plan which shows additional Floridan wells as their water supply solution). At present the South Florida Water Management District is reviewing their water use permit application as well. The existing water supply agreement between the City of Hollywood and County for customers within the City of Dania Beach (but served by the County) indicates that the City must make the plans and provisions to secure the 3A demands. The City of Hollywood is planning to address the future demands with Floridan wells which are being drilled at this time. This area of the City is served through the Broward County 3A facilities by the City of Hollywood. Agreements are attached as Appendix B: Hollywood Water Supply Agreements, and reflect the service that the City of Hollywood provides to Dania Beach.

The City of Hollywood’s Water supply Plan was adopted by Ordinance # 0-2008-27 on November 5, 2008 and the plan was found in compliance by FDCA on January 2, 2009. Attached as Appendix C: Hollywood Water Supply Plan – Floridan Well Commitment, is an excerpt from the City of Hollywood’s plan reflecting the Floridan well commitment.

From the County’s December draft of its 10 year facility plan, the following is proposed at this time

<u>Year</u>	<u>Population</u>	<u>ADF (County)</u>	<u>MDF (County)</u>
<u>2010</u>	<u>15712</u>	<u>3.9</u>	<u>5.1</u>
<u>2015</u>	<u>16992</u>	<u>4.4</u>	<u>5.8</u>
<u>2020</u>	<u>18173</u>	<u>4.7</u>	<u>6.2</u>
<u>2025</u>	<u>18959</u>	<u>5.0</u>	<u>6.6</u>
<u>2028</u>	<u>19403</u>	<u>5.2</u>	<u>6.9</u>

The City of Dania Beach Water Treatment Plant has the following characteristics (1995):-

Average Daily flow — 25 million gallons / day

Peak flow—10 million gallons / day
 Design flow (ADF)——3.0 million 1 gallons / day
 Estimated Remaining Life——20 years
 The plant operates twenty-four hours per day.

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D. Analysis of Existing Conditions

The following chart gives the demands for the City of Dania Beach:

<u>Table 6</u> <u>Dania Beach Water Demand v. Supply</u>						
	<u>City Service Area Demand vs Supply</u>			<u>County Service Area Demand vs Supply</u>		
<u>Year</u>	<u>Population</u>	<u>Avg Flow MGD</u>	<u>Total Water Supply Available</u>	<u>Population</u>	<u>Avg Flow MGD</u>	<u>Total Water Supply Available from Hollywood</u>
<u>2008</u>	<u>16317</u>	<u>2.4</u>	<u>2.9</u>	<u>15247</u>	<u>3.8</u>	<u>3.8</u>
<u>2010</u>	<u>16568</u>	<u>2.4</u>	<u>2.9</u>	<u>15712</u>	<u>3.9</u>	<u>3.9</u>
<u>2015</u>	<u>20054</u>	<u>2.8</u>	<u>3.1</u>	<u>16992</u>	<u>4.4</u>	<u>4.4</u>
<u>2020</u>	<u>22869</u>	<u>3.1</u>	<u>3.1</u>	<u>18173</u>	<u>4.7</u>	<u>4.7</u>
<u>2025</u>	<u>24192</u>	<u>3.4</u>	<u>4.1</u>	<u>18959</u>	<u>5</u>	<u>5</u>
<u>2028</u>	<u>24601</u>	<u>3.6</u>	<u>4.1</u>	<u>19403</u>	<u>5.2</u>	<u>5.2</u>

*Note County service area flow projections per capita are substantially higher than the City service area as a result of the County providing service estimated to exceed 1.5 MGD to the Fort Lauderdale-Hollywood International Airport and ancillary commercial and industrial complexes associated with the airport.

E. Water Distribution

	<u>Average</u>	<u>PEAK</u>
<u>1995</u>	<u>2.8MGD</u>	<u>42 MGD</u>
<u>2000</u>	<u>2.8MGD</u>	<u>42 MGD</u>
<u>2005</u>	<u>3.0MGD</u>	<u>3.5 MGD</u>
<u>2010</u>	<u>3.5MGD</u>	<u>4.0 MGD</u>

The City of Dania Beach's water distribution system consists of approximately sixty (60) miles of pipe with diameters varying from six (6) inches in diameter to twenty (20) inches in diameter. The distribution system of the City has been analyzed by hydraulic analysis and three areas of the City were

determined to have weakness, the extreme southeast area, the area north of the Dania Cut-Off Canal known as Melaluca ~~isles~~ Isles and the area north and south of the Dania Cut-Off Canal in the extreme eastern ~~part~~ part of the City. This analysis was performed both for present demands and build out demands utilizing an average per capita consumption of 100 gallons per day; a maximum day factor of 1.6 and a peak hour factor of 3.2. Fire flow was established at 1,500 gallons per minute. The distribution system weaknesses in the extreme southeast area of the City have already been corrected. ~~The necessary corrections in the other two areas of the City have been identified and are scheduled to be addressed. These~~ Other improvements would involve an additional subaqueous crossing of the Dania Cut-Off Canal to strengthen the system in the Melaluca Isles area and replacement of mains in the extreme eastern area. The estimated cost of these improvements ~~are \$200,000.~~ is estimated at \$0.5 million. The City has completed two water main projects to deal with low pressure and flow volume problems in the northeast section at a cost of \$2.6 million. These pipes were designed to accommodate future growth. ~~The treatment plant was renovated in 1991.~~

~~The plant operates adequately and is in reasonably good shape. It is expected that the plant will operate satisfactorily for approximately twenty years without major replacements.~~

~~The storage capabilities of the City are intended to be improved as 400,000 gallons of storage is available with 200,000 gallons being elevated. Planning is underway for an additional ground storage facility in the northeast area of the City with a volume of 500,000 gallons to 1,000,000 gallons considered, with high service pumps. The estimated cost of this facility is \$200,000 to \$400,000.~~

~~The City of Dania Beach, being a coastal community, has historically had difficulties with its raw water wells. The wells in the eastern portion of the City have been discontinued in use due to high levels of chlorides in the water. In the early 1980s, two new wells were installed west of the city limits and these wells are currently in use. The County commissioned a study for the implementation of a regional wellfield facility and this report indicated that the Dania Beach wells may become contaminated with salt during a major drought. The City has been testing for salt water intrusion for the past five years on a monthly basis in~~

~~both the production wells and adjacent monitoring wells. The City also has been performing frequent tests for volatile organic contaminants in both the raw water and finished water with some traces occurring in the raw water.~~

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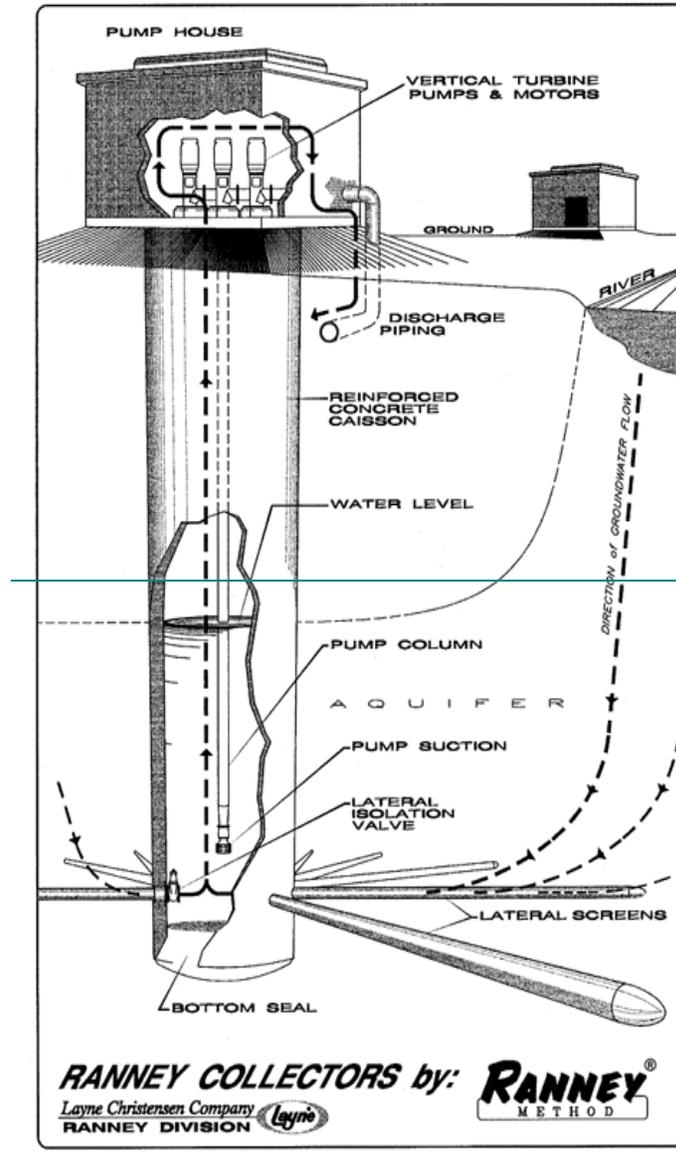
~~The following table gives the anticipated daily flow demand for the City~~

City	1995		Average		Surplus/ Peak
	Water	Plant	1989	1995	
Capacity	Peak	Deficit	Average	Average	Peak
1995	3.0 MGD	2.8 MOD	2.8 MGD	4.2 MGD	4.2 MGD
3.0 MGD	3.5 MOD	2.8 MGD	5.3 MGD	4.2 MGD	2 MGD
3.0 MOD	3.0 MOD	3.5 MOD	0 MGD		
3.0 MGD	3.5 MGD	4 MGD	1.5 MGD		

~~The difference in the year 2000 projection is a reflection of the airport expansion into the area east of Federal Highway and the loss of development anticipated to take place.~~

F. Future Water Supplies

The City is among the limited number of utilities that is positioned to take advantage of direct rainfall harvesting. The City is located east of the salinity structures and as a result all shallow groundwater is rainfall. The canal system is very effective at draining the sands above the Biscayne aquifer effectively. As a result the City has begun investigation of the installation of a Ranney® collector well that would harvest direct rainfall. As the City reads the Regional Water Availability Rule, the intent is to reduce demands on the Everglades recharge area for the Biscayne aquifer and to reduce saltwater intrusion, so harvesting direct rainfall that would otherwise be lost to tide would qualify.



The City plans to complete the Ranney[®] well investigation and modeling by 2011 which will provide sufficient time to evaluate the ultimate potential capacity of such a system. Assuming direct rainfall harvesting is demonstrated with the Ranney[®] Well concept, the City will proceed with permitting and construction by 2015.

If the Ranney[®] well is not successful, the City will participate with the County of efforts to recharge the County wellfield on a utilization basis. This may include additional wells, storm water recharge or reuse recharge. At this time the appropriate solution cannot be determined, since the solution is within the County's

purview. The City has neither effluent nor a wastewater treatment plant to address the water supply issue. The City does not need additional water supplies until 2019. As a result, the City is in the process of working with Broward County and internally on creative solutions to resolve any future shortfalls. Alternative water sources are to be pursued, but the City has no ability to pursue desalination or reuse (no injection well and no wastewater treatment plant).

G. Future Water Quality

~~The water treatment plant went through a complete renovation in 1991 and now is considered to be in excellent condition and is expected to operate for an additional 20 years without major improvements~~

The City has studied various options as to the future potable water sources-quality for the City of Dania Beach. As a part of their Water, Sewer and Stormwater Facilities Plan approved in 2003 and reviewed via the State Clearinghouse process in anticipation of securing State Revolving Fund loan monies. The alternatives evaluated included the following (taken directly from the facilities plan – please note this plan was approved in 2003 and costs may change with time):

5.1.1.2 Problems with the present situation

The plant is over 40 years old and has lived its useful life. Its operation is familiar to the operations staff and it treats the City's current water supply wells adequately. However, the plant cannot treat the County's Brian Piccolo Park (BPP) water supplies adequately and the South Florida Water Management District's latest permit indicates more water must be taken from the BPP supply.

5.1.1.3 Alternatives

There are six alternatives to resolve the problem: build a new lime softening water treatment plant, build a membrane water treatment plant, refurbish the old water treatment plant, some combination of the above, buy bulk water, or do nothing. The do nothing alternative does not comply with the City's comprehensive planning effort to provide adequate service to its residents so this option will

be discarded. Refurbishing the current water treatment plant is an option, but despite substantial investments, the current facility cannot be made to treat the County water supply.

5.1.1.3.1 Alternative 1

Description: A new lime softening facility could be built.

Feasibility: A new lime softening plant will bring the same technology and operations as the current system. It will also suffer the same treatment limitations as the current facility, meaning it likely will not treat the County water source adequately.

Cost Analysis: The cost of a new facility was \$4.5 million. This option would require removal of the existing treatment system, which would not only cost about \$500,000 to accomplish, but would require the City to purchase water from Hollywood for at least a year. Once complete, the new treatment plant operating costs will increase due to increases in lime for treatment and additional sludge generated from that treatment. Other operations and maintenance costs will be similar to the current facility. It is assumed that salvage will be negligible.

Discussion: A totally new facility would require demolition of the current plant and construction of a building for housing the plant. Lime softening will be familiar to the operations staff. However, it will suffer the same issue as the current water plant – the County water supply will be difficult to treat, although with a larger reactor and added lime addition (enhanced coagulation), the color may bleach out. Enhanced coagulation is inherently less stable than the current operations, which may challenge the operations staff. Bleaching with chlorine is an option, but that would require the addition of ammonia to stop trihalomethane formation, an added cost. While technically feasible, the option has limited potential so will not be evaluated further.

5.1.1.3.2 Alternative 2

Description: To treat the County water supply, a nanofiltration water treatment facility could be constructed to meet the City's demands.

Feasibility: Nanofiltration will resolve the treatment concerns and provide high quality water that will meet all existing and contemplated water quality standards.

Cost Analysis: The cost for a new 3 MGD facility is \$5 million. Disposal of concentrate from the facility will be a challenge – sewers ... " is the "only option that is reasonable. Said costs could add up to \$1 million to the cost; an assumed cost of \$500,000 is included in the cost estimate. Operations costs would increase from current costs due to electrical increases albeit they would partially be offset by a decrease in chemical costs for treatment. Post-chemical costs are a potentially large cost - \$50,000 per year or more. This option would require removal of the existing treatment system, which would not only cost about \$500,000 to accomplish, but would require the City to purchase water from Hollywood for at least a year. Piping is located on site to facilitate the project, but a new building would need to be constructed to house the membrane system – estimated cost for a steel structure to house two or more skids is \$100,000. Piping, given the existing site configuration, would likely be about \$50,000 for the connections to the raw water line, finished water lines and a concentrate connection. A new generator would be required as the current generator is not adequate to handle the electrical load from the membrane system. This cost is assumed to be \$250,000, which covers the generator and minor switchgear modifications. The power issue will need to be reviewed in more detail.

Discussion: While this option would solve the treatment issues, its flexibility with regard to operations and demands is limited. Problems with this scenario are that the fluctuation in flows may create operational difficulties and peak demands likely would require an even larger system. However, because this alternative offers the best option to resolve the water quality issue, can be accomplished quickly and is the course being pursued by other southeast Florida utilities, it will be evaluated further.

5.1.1.3.3 Alternative 3

Description: A hybrid system – keeping the current water plant, but reducing the flow volumes, and supplementing with a 2 MGD nanofiltration skid with recirculation of the concentrate and reduced disposal costs, is a third option.

Feasibility: This option would permit treatment of the County water source while limiting post-treatment chemical costs. This option has been successfully employed in Hollywood.

Cost Analysis: Between refurbishment of the current plant, and the new skid, the cost would be \$4.4 million. The skid is estimated to cost \$3 million. Disposal is estimated at \$500,000 as noted in section 5.1.1.3.2. This estimate assumes that the lime softening system can be used to deal with the concentrate or the City can pursue one of two other cost effective solutions:

- Discharge to the sewer system (at reduced flows), which would require an industrial use permit under the City of Hollywood's pre-treatment program
- Discharge directly to the C-10 Canal, which has a remote potential if proposed concentrate disposal rules are modified (this is by far the least costly alternative).

To accomplish this option, some refurbishment of the existing system is required. ... (T)he aluminum aerators... have been in service for some time and wear is present in the aerator trays. The cost to complete the replacement of both aerators and fix the aerator tray problems is \$100,000. (T)he cost to replace the cat-walks with aluminum and fiberglass is \$100,000. The sludge collection system shows metal deterioration that must be repaired in-situ. Based on engineering judgment from other projects, the cost to make these repairs is \$150,000. Miscellaneous repairs throughout the plant may be needed. These costs will be based on field inspection, but may include base work, weir repairs and cone repairs in the accelators. While in fair shape, the corrosive environment of the accelators and the presence of groundwater bacteria, encourages deterioration. The filters have

neither situation, which is why repairs to the filters will be minimal. Based on similar projects, the engineer's estimate for metal repairs is \$250,000

Despite the modifications ongoing in the rehabilitation of the existing facility, this alternative would not require the City to purchase water from Hollywood for any extended periods. The skid could be located in an existing bay in the water plant building. Piping is located on site to facilitate the project. Given the existing site configuration, would likely be about \$50,000 for the connections to the raw water line, finished water lines and a concentrate connection. A new generator would be required if the City wanted to have full back-up power, as the current generator is not adequate to handle the electrical load from the membrane system. This cost is assumed to be \$250,000, which covers the generator and minor switchgear modifications. The power issue will need to be reviewed in more detail, but would not be a required improvement as the lime system is fully operational under the current generator system.

Discussion: The benefit is reduced operating costs from the membrane option since post chemical stabilization would not be required. The piping for this option is available and the skid could be constructed using performance specifications and installed in the current building. The option meets both flexibility and treatment needs. Mixed operations may challenge operators initially but this can be resolved with time. The hybrid system would require that some facets of the current system be refurbished, but the amount of refurbishment would be lessened because dependence on the system is less because redundancy is created. The hybrid operation has the benefit of simple tie-ins to the raw and finished water lines, an existing site for placement of the skid indoors, and ease of site access. Limited site impact would be expected with this option as it is not disruptive.

5.1.1.3.4 Alternative 4

Description: Refurbishing the existing water plant could be pursued.

Feasibility: A major refurbishment would be in order if the plant were to continue with the current operations for the next 30 years, and redundancy should be created. However after 50 years, the plant is beyond its useful life, has been refurbished once (early 1990s) and cannot treat the County water supply adequately. As a result this option is not feasible and will not be considered further.

5.1.1.3.5 Alternative 5

Description: The City currently has an agreement for bulk service with Hollywood. The agreement could be used for the City to purchase water from Hollywood and abandon its current treatment facilities.

Feasibility: Hollywood has expressed an interest in providing this service. Pipelines are needed, as is storage.

Cost Analysis: The agreement is one-sided toward the City of Dania Beach with one exception – the cost, which is much higher than the City of Hollywood's other bulk customers based on a cost allocation developed based on the contract by the City of Hollywood's rate consultant. The City of Hollywood has indicated revising the agreement would permit them to lower the cost to \$1.29/1000 gallons (current cost). The major improvements required for this option include a storage tank – most likely a ground storage tank with a pumping system (see section 5.1.3.3.2) and a pipeline from Hollywood's system to that storage tank in order to properly serve the City of Dania Beach. The pipeline cost is \$750,000 based on recent construction estimates. Post-chemical costs of \$20,000 or more may be required. If Hollywood wants the City to pay for a new 2 MGD skid, that cost is \$3 million. This issue has been discussed.

This option would require removal of the existing treatment system, which would cost about \$500,000 to accomplish. New high service pumps may be required. The cost to supply a new high service pumping system and variable speed drives is \$500,000. The existing generator appears to be adequate to handle the electrical load from the high service center proposed. The power issue will need to be reviewed in more detail.

Discussion: Buying bulk water from Hollywood would solve the treatment and capacity issues for the City of Dania Beach. The City of Hollywood would then have their pumps and storage facilities providing same to Dania Beach, although in-City storage and re-pumping would still be required. A loss of direct control over the treatment of the water supply is a concern with this option, but the City of Hollywood's record with water quality, as a result of their membrane treatment system, surpasses the other surrounding communities. As a larger facility, adequate capacity may be available from the City of Hollywood. One unknown is the cost Hollywood might want for construction of an additional skid. If this cost is factored in (\$3 million), this project becomes less viable.

In reviewing water treatment alternatives, the Water, Sewer and Stormwater Facilities plan determined that three real options exist, albeit with major differences: a new membrane softening system, a hybrid membrane system with the existing plant refurbished and the purchase of bulk purchase from Hollywood. A cost benefit analysis was performed in accordance with FDEP protocol.

From this analysis, the hybrid option was the least costly and was therefore the recommended option. The options studied are listed below:

~~1. Bulk purchase of finished water from the City of Fort Lauderdale.~~

~~2. Bulk purchase of finished water from the City of Hollywood.~~

~~3. Bulk purchase of finished water from Broward County.~~

~~4. Bulk purchase of finished water from a combination of the above municipalities.~~

~~5. Bulk purchase of raw water from Broward County and expansion of the existing water treatment plant.~~

~~6... Abandonment of existing wells, install new onsite~~

~~wells, and expansion of the treatment with desalinization.~~

~~The various alternatives were studied and necessary capital expenditures for distribution treatment were examined for each option. The options were also examined as to operational and maintenance costs as well as bulk purchase costs. The various analysis are as follows:-~~

~~1. Bulk Purchase of Finished of Finished Water from the City of Fort Lauderdale~~

~~— A 12 inch interconnect exists at Eller Drive and US 1, which may provide up to approximately 2 MGD. The price of bulk water purchase is \$1.27/1000 gallons.~~

~~— The City has demands of more than 2 MGD thus, additional mains will be needed to supply the City, making this a viable option.~~

~~2. Bulk Purchase of Finished Water from the City of Hollywood~~

~~23~~

~~Hollywood provides three interconnects with the City; an 8 inch at Sheridan and S.W 2nd Ave, a 6 inch at the water plant, and an 8 inch at Stirling Road and 29th Ave.~~

~~These three interconnects in conjunction may yield approximately 3.5 MGD at a decent pressure. This may serve the City's needs to approximately 1991 with the existing transmission system.~~

~~To fulfill the ultimate demand, consideration of a large interconnect at S W. 2nd Ave. off of Hollywood's 24 inch line would be mandatory. This connection, in conjunction with the existing interconnect at Stirling Road and N. 29th Ave., could fulfill the City's supply. Additions of larger diameter transmission mains to create a backbone system will be required in this scenario. Additions of 20 inch main along S.W. 2nd Ave. and Stirling Road, additions of 12 inch main along Gulfstream Road and Bryan Road would be required.~~

~~The facilities and their approximate capital costs in 1989 dollars are:-~~

ITEM UNITS COST EXTENDED

~~20" Interconnect with
Hollywood (SW 2nd) _____ Lump Sum \$50,000~~

~~20" Water main (SW 2nd,
Stirling Road) _____ 9,000 LF _____ \$60.00/L.F. \$540,000~~

~~12" Water Main (Bryan
Rd, Gulfstream Rd) _____ 10,000 LF _____ \$40.00/LF _____ \$400,000
_____ \$990,000~~

~~In this scenario, the water plant is assumed to be shut down,
and bulk water purchased. The current purchase price of water
from Hollywood is \$0.87 per 1,000 gallons.~~

~~3. _____ Bulk Purchase of Finished Water from Broward County~~

~~An interconnect to the County's 16 inch line is proposed at the
northeast corner of I 95 and Griffin Road in front of the Hilton
Hotel. Due to the distance to the County 3A plant, however, the
interconnect may supply only approximately 3.0 MGD at a
decent pressure. This is again less than the City's existing
maximum demand, therefore bulk purchase only from the
County is not viable.~~

~~Bulk Purchase of Finished Water from a Combination of Fort
Lauderdale, Hollywood and Broward County.~~

~~Given the above interconnects, the City's ultimate demand may
be met.~~

~~The transmission system would require some upgrades in the
form of a large Hollywood interconnect, new mains and new
mains paralleling existing mains. A larger interconnect with
Hollywood at S.W. 2 Ave. to provide more flow, and 8 inch main
paralleling the~~

~~24~~

~~existing 8 inch main from Fort Lauderdale and looping of the
system along Old Griffin Road and Bryan Road would be
required.~~

~~The facilities and their approximate capital costs in 1999 dollars are:~~

~~————— ITEM UNIT COST EXTENDED~~

~~Interconnect with Hollywood
(SW 2 Aye) Lump Sum \$50,000~~

~~12-inch Water Main
(Bryan Rd., Old Giffin and
Gulfstream Rd) 10,000 LF \$40.00/LF \$400,000~~

~~8-inch Water Main
(from Ft Lauderdale) 5,300 LF \$30.00/LF \$159,000~~

~~TOTAL: \$609,000~~

~~In this scenario, the water plant is assumed to be shut down and bulk water purchased. The average purchase price of the water from the three municipalities is approximately \$0.93 per 1,000 gallons.~~

~~5. Bulk Purchase of Raw Water from Broward County and Expansion of the Water Plant~~

~~The County will continue to attempt to include the City in its regional wellfield program. A 24-inch transmission main from the County's s 3A plant to the water plant would be required to transmit ultimate flows.~~

~~The water plant would then have to be upgraded to a treatment capacity of 7.5 MOD from its existing 3.0 MGD capacity. The 3.0 plant, as it is, would require rehabilitation. The 4.3 MOD addition may be made in one or two phases as required. The type of treatment anticipated is as existing, which includes lime softening (Accelerator) treatment, filtration and disinfection which lends to phasing additions.~~

~~Additions to the transmission system would also be needed along Stirling Road, Bryan Road and Gulfstream Road.~~

~~25~~

~~The facilities and their approximate capital costs in 1989 dollars are:~~

<u>ITEM</u>	<u>UNITS</u>	<u>COST</u>
<u>EXTENDED</u>		
24" Raw water Transmission (from County)	23,000/LF	\$75.00/LF
		\$1,725,000
2-2.5 MGD Water Plat Upgrades	2 each	\$3,000,000
		\$6,000,000
20" Water Main	\$3,200/LF	\$60.00/LF
192,000		\$
12" Water Main	\$10,000/LF	\$40.00/LF
400,000		\$
TOTAL		
		\$8,317,000

The purchase price of raw water from the County is assumed to be 0.50/1,000 gallons, while the O & M cost of the plant is currently \$0.56 per 1,000 gallons.

6. Abandonment of Existing Wells, New On-Site Wells and Expansion of Treatment with Desalinization

When drilling new wells on the plant site, it is expected that brackish water will ultimately be produced from each well given the extent of salt water intrusion. Brackish water has been desalinated by membrane processes, specifically reverse osmosis (RO). Side benefits of RO may possibly be reduction of THM precursors which may lower THM forming potentials.

In short, RO would need to be field verified to determine accurate design parameters. For the sake of discussion, an assumption made is that RO would be used to simultaneously remove chlorides and hardness to acceptable levels.

Additions of RO treating units may be made similar to softening unit additions. It is anticipated that chloride levels in the new wells would increase with usage, starting low (approximately 500 ppm) and increasing to approximately 5,000 ppm.

~~In the early stages, RO waters may be blended with lime softened waters. As demand and as the salinity of the ground water increases, additional RO capacity would required. Ultimately, the lime softening process would be shut down and treatment would be with RO only.~~

~~26~~

~~The facilities and their approximate capital costs in 1989 dollars are:~~

ITEM	UNITS	COST
EXTENDED		
7.5 MGD Wellfield	Lump Sum	\$ 350,000
2.0 MGD RO Plants	4 phases	\$3,000,000 \$12,000,000
20" Water Main	\$3,200/LF \$60.00/LF	\$ 192,000
12" Water Main	\$10,000/LF \$40.00/LF	\$ 400,000
TOTAL		
		\$12,942,000

~~The assumed O & M costs for this facility is \$1.00/\$1,000 gallons.~~

~~27~~

~~The following Table 2 summarizes the various alternatives available to the City with an indication of both present and future costs. The City has existing agreements with the city of Hollywood, and the City of Fort Lauderdale which do not limit the number of gallons of bulk water that can be purchased. The agreement with the City of Hollywood was recently renewed for a ten (10) year period extending through the year 2008 and is renewable for an additional ten (10) year period. These agreements and existing interconnects are adequate to serve the projected water demands of the City through the current planning period. An agreement with Broward County for purchase of bulk water is pending.~~

~~This system is currently in design and expected to come on line by 2010.~~

									2,837,000
Finished Water Broward County									
Finished Water Combination	609,000	62,000	---	---	1,775,000	3,620,000			
Raw Water County, Expanded WTP	6,592,000	837,000	1,067,000	2,196,000	1,012,000	2,072,000		2,926,000	
New Wells & Treatment	12,942,000	1,079,000	1,911,000	3,911,000	---	---		2,990,000	

30

H. Economic Assumptions

The City of Dania Beach's primary sources of revenue for the potable water system is through rates charges to users and connection charges on unit and acreage charges as set forth in Ordinance 41-86 of the City, which are charges to new users. Other capital expenditures will utilize bond issues supported by utility revenues or low interest bank loans. The City upgraded is

[impact fee ordinance and policies in 2007. No level of service improvements are needed until 2019.](#)

I. Goals, Objectives ~~And~~ and Policies

Provide to the users of the ~~City~~ City of Dania Beach a safe reliable and adequate potable water system.

Objective I

Meet the service demands of the City as follows:

<u>Table 6</u> <u>Dania Beach Water Demand v. Supply</u>						
	<u>City Service Area Demand vs Supply</u>			<u>County Service Area Demand vs Supply</u>		
<u>Year</u>	<u>Population</u>	<u>Avg Flow MGD</u>	<u>Total Water Supply Available</u>	<u>Population</u>	<u>Avg Flow MGD</u>	<u>Total Water Supply Available from Hollywood</u>
<u>2008</u>	<u>16317</u>	<u>2.4</u>	<u>2.9</u>	<u>15247</u>	<u>3.8</u>	<u>3.8</u>
<u>2010</u>	<u>16568</u>	<u>2.4</u>	<u>2.9</u>	<u>15712</u>	<u>3.9</u>	<u>3.9</u>
<u>2015</u>	<u>20054</u>	<u>2.8</u>	<u>3.1</u>	<u>16992</u>	<u>4.4</u>	<u>4.4</u>
<u>2020</u>	<u>22869</u>	<u>3.1</u>	<u>3.1</u>	<u>18173</u>	<u>4.7</u>	<u>4.7</u>
<u>2025</u>	<u>24192</u>	<u>3.4</u>	<u>4.1</u>	<u>18959</u>	<u>5</u>	<u>5</u>
<u>2028</u>	<u>24601</u>	<u>3.6</u>	<u>4.1</u>	<u>19403</u>	<u>5.2</u>	<u>5.2</u>

[*Note County service area flow projections per capita are substantially higher than the City service area as a result of the County providing service estimated to exceed 1.5 MGD to the Fort Lauderdale-Hollywood International Airport and ancillary commercial and industrial complexes associated with the airport.](#)

	<u>AVERAGE</u>	<u>PEAK</u>
1995	<u>2.8 MGD</u>	<u>4.2 MGD</u>
2000	<u>2.8 MGD</u>	<u>4.2 MGD</u>
2005	<u>3.0 MGD</u>	<u>3.5 MGD</u>
2010	<u>3.5 MGD</u>	<u>4.0 MGD</u>

Policy 1.1

~~Review the analysis of the six options for providing potable water service to the City of Dania Beach and choose the most viable and economical[y] feasible alternative~~[Complete the nanofiltration plant by 2010.](#)

Policy 1.2

Establish as a level of service standard a consumption of 350 gallons per day for an equivalent residential connection

Policy 1.3

Augment the potable water distribution system to provide fire protection of 3,000 gallons per minute with 20 psi residual pressure

Policy 1.4

Adopt as the level of service standard the following design flows as established in Ordinance 4146:

1. Dwellings:

Each Single Family Unit = 1 ERC

2. Condominium:

3 bedroom 300 gpd 1 ERC

1&2 bedroom 250 gpd 0.71 ERC

3. Motel/Hotel:

150 gpd per room/200 gpd per pool

350 gpd per mgr. apt.

4. Mobile Home:

100 gpd per space

5. Office

0.2 gpd per square feet

6. Retail:

0.1 gpd per square foot

7. Laundries:

400 gpd per machine

8. Bar (no food service):

20 gpd per seat

9. Restaurants:

24 hour - 50 gpd per seat (Including bar)

Less than 24 hours -30 gpd per seat (Including bar)

10. Theaters:

5 gpd per scat

11. Assembly Hall:
2 gpd per seat

12. Park
10 gpd per person

13. Factories:
15 gpd per person per shift

14. Institutions:
100 gpd per person

15. Church:
7 gpd per seat

16. Service Station:
Full Service Station
First Two Bays - 750 gpd
Each Additional Bay - 300 gpd
Per Fuel Pump - 100 gpd

Self Service Station
Per Fuel Pump 50 gpd

17. Elementary School:
10 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil

18. High School:
15 gpd per pupil
5 gpd per shower per pupil
5 gpd per cafeteria per pupil

19. Hospital and Nursing Home:
200 gpd per bed
100 gpd per staff

20. Warehouse:
0.1 gpd per square foot

1) ————— Dwellings-
Each Single Family Unit + ERC

- 2) Condominium:
3 bedroom 300 gpd 1 ERG
1 & 2 bedroom 250 gpd
0.71 ERG
- 3) Motel/Hotel:
150 gpd per room
200 gpd per pool
350 gpd per mgr. apt.
- 4) Mobile Home:
100 gpd per space
- 5) Office
0.2 gpd per square feet
- 6) Retail:
0.1 gpd per square foot
- 7) Laundries:
400 gpd per machine
- 8) Bar (no food service)
20 gpd per seat
- 9) Restaurants:
24 hour - 50 gpd per seat (Including bar)
Less than 24 hours - 30 gpd per seat
(Including bar)
- 10) Theaters:
5 gpd per seat
- 11) Assembly Hall:
2 gpd per seat
- 12) Park:
10 gpd per person
- 13) Factories:
15 gpd per person per shift
- 14) Institutions
100 gpd per person
- 15) Church:
7 gpd per seat
- 16) Service Station
Full Service Station
- 32
First Two Bays - 750 gpd
Each Additional Bay - 300 gpd
Per Fuel Pump - 100 gpd
Self-Service Station

_____	Per Fuel ?ump 50 gpd
17) Elementary School:	
_____	10 gpd per pupil
_____	5 gpd per shower per pupil
_____	5 gpd per cafeteria per pupil
18) High School:	
_____	15 gpd per pupil
_____	5 gpd per shower per pupil
_____	5 gpd per cafeteria per pupil
19) Hospital and Nursing Home:	
_____	200 gpd per bed
_____	100 gpd per staff
20) Warehouse:	
_____	0.1 _____ gpd per square foot

Policy 1.5 The City shall continue to implement landscaping regulations addressing the planting of native and site adaptive exotic species that are suited to the normal hydrological cycle of South Florida and support the xeriscape concept.

Policy 1.6 ~~Provide for the additional storage needs of the City in the northeast area~~Complete the new 2 million gallon ground storage tank by 2008.

Policy 1.7 Maintain interlocal agreement and interconnects to accommodate future water demands at the adopted level of service.

Policy 1.8 Prior to approval to any building permit of development, the City will consult with the appropriate water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of the certificate of occupancy.

Objective II
Maintain the treatment distribution and storage facilities.

Policy 2.1 Examine rates necessary to support bond issues for the necessary improvements.

Policy 2.2 Continue to utilize the connection charges as indicated in Ordinance 41-86 for new capital

expenditures.

Objective III

33

The City shall discourage urban sprawl by requiring connection to potable water system within 1/4 mile of a subdivision or within 250 feet of a residence

Policy 3.1 New users shall be required to participate in the necessary expansion of the potable water system and existing, unconnected areas, shall be required to make the necessary connections.

Objective IV

Explore additional fresh raw water supplies

Policy 4.1 Investigate additional well locations in the City's current wellfield. This will require drilling of test wells, additional monitoring wells (completed 2007) and modeling of proposed locations to determine if additional raw water is available in Dania Beach.

Policy 4.2 Investigate Ranney well. Pursue by 2015 if found to be viable.

Policy 4.3 Participate with the County of efforts to recharge the County wellfield on a utilization basis. This may include additional wells, storm water recharge or reuse recharge.

Policy 4.4 The City shall continue the process to evaluate the ability of horizontal wells to skim water off of the sands above the Biscayne aquifer, while creating minimal drawdown that will prevent saltwater intrusion and upconing, and shallow enough that the Biscayne aquifer/Everglades is not affected. While this solution may be tantamount to a surface system with regard to treatment, but the extensive loss of water to tide would be only partially curtained as a result of the proposed horizontal well project. A protocol for development for this type of supply will result from ongoing modeling and investigations funded in 2008-2011.

Objective V

The City shall implement water conservation

Policy 5.1 Develop/maintain an accurate database of water consumption to reduce municipal water waste – all services in the City are metered, including all irrigation services.

Policy 5.2 Remodeling of buildings requires that new fixtures meet the Florida Building Code – Plumbing requirements which require low flow fixtures.

Policy 5.3 The City will amend its land development regulations to promote Florida friendly landscaping.

Policy 5.4 The City will continue its public information and education programs – the City has SFWMD brochures on water conservation and Florida Friendly Landscaping available for the public (on display).

Policy 5.5 The City will continue its water conservation rate structure that penalizes residents using in excess of 10,000 gallons per month. The typical single family use in Dania Beach is 8,000 gallons per month, or 267 gpd/ERU.

Policy 5.6 The City requires the installation of low flow plumbing fixtures in accordance with the Florida Building Code.

Policy 5.7 The City will provide educational literature for the public.

Policy 5.8 The City will amend its Land Development Code to provide for Florida Conserve Guidelines as a part of its long-range water conservation plan.

Policy 5.9 The City will amend its Land Development Code to provide for the use of rain sensors for new and retrofit of irrigation systems.

Policy 5.10 The City will develop a program to recalibrate large meters every two years and plant meters annually. The City changes out a number of older meters each

year, depending on the age (prior change outs were not recorded).

Objective VI

To support the on-going and quantifiable communication program ensuring public water supply facilities and services, at the adopted level of service, are planned for and available concurrent with development.

Policy 6.1 Ensure and identify the consistency of local level of service standards by annually contacting all service providers to obtain current information, including: populations, level of services, service areas, and water supply facilities, and evaluate if future modification to either the service agreement or level of service standards should be include in subsequent Comprehensive Plan Amendments.

Policy 6.2 Ensure and identify the consistency of local level of service standards by annually contacting all local governments in which water service is provided and provide current information, including: populations, level of services, service areas, and water supply facilities, and evaluate if future modification to either the service agreement or level of service standards should be include in subsequent Comprehensive Plan Amendments.

Policy 6.3 Negotiate or renew interlocal agreements with water supply providers, or with local governments in which water is supplied, ensuring contractual agreement of the adopted level of service standards, service area, populations and time periods for service provided.

Policy 6.4 In areas served or to be served where no interlocal agreements exist, provide a written summary of the adopted level of service standards, service area, populations and time periods for services to be provided and verify agreement with all providers or local governments to be served.

Policy 6.5 With respect to adjacent jurisdictional Comprehensive Plans that are service providers to the City, review the level of service standards subsequently adopted

in those amendments.

Policy 6.7 Review the level of service standards adopted or amended by all adjacent local governments that are service providers to the County or receive water from the County.

Policy 6.8 The City shall update its comprehensive plan and work plan within 18 months of LEC Water Supply Plan updates as approved by SFWMD.

J. F. Plan Implementation And Monitoring Procedures

The City of Dania Beach Growth Management Department shall prepare a list of goals, objectives and policies and distribute these to all affected City departments for their implementation. The Growth Management Department shall be responsible for monitoring these goals, objectives and policies and determining their compliance with the plan. The Growth Management Department will review yearly status reports from the Utilities and Public Works Department as to the achievements of the goals, objectives and policies and shall ensure that adequate funding is budgeted to meet the same. The Growth Management Department shall immediately notify the City Manager and the City Commission of any unaddressed deficiencies so that they may be corrected

K. 10 year Capital Plan

The below table reflects improvements for water quality not water supply. No water supply improvements are needed within this time frame. As noted previously, the City has adequate water supply until 2019.

Table 7 – Water Quality Improvements

Department	Projects	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Total
Water Utilities	Water Plant Upgrade						
	<u>Design Services (not SRF Fundable)</u>	<u>520,000</u>					<u>520,000</u>
	<u>Construction Services (SRF fundable)</u>		<u>6,500,000</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6,500,000</u>
	Refurbish Existing Water Treatment Plant	<u>1,050,000</u>			<u>0</u>	<u>0</u>	<u>1,050,000</u>
	<u>Design Services (not SRF Fundable)</u>	<u>50,000</u>					<u>50,000</u>
	<u>Construction Services (SRF fundable)</u>						<u>0</u>
	Construction of Well "I"	<u>0</u>		<u>550,000</u>		<u>0</u>	<u>550,000</u>
	<u>Design Services (not SRF Fundable)</u>		<u>50,000</u>				<u>50,000</u>
	<u>Construction Services (SRF fundable)</u>			<u>50,000</u>			<u>50,000</u>
	Water Tank Removal	<u>220,000</u>	<u>0</u>	<u>0</u>		<u>0</u>	<u>220,000</u>
TOTAL		<u>1,840,000</u>	<u>6,550,000</u>	<u>600,000</u>	<u>0</u>	<u>0</u>	<u>8,990,000</u>

L. ~~I~~-Water Conservation ~~(added)~~

The City of Dania Beach ~~has recently~~ approved a formal water conservation program ~~in October of 2005 along with a revision to its and it's~~ water use ordinance. This ordinance adopts the Districts criteria for restrictions, that note that a *Water shortage* "means a period of time specified by the district when sufficient water is not available to meet present or anticipated needs of persons using the water resource, or when conditions are such as to require temporary reduction in total water usage within a particular area to protect the water resource from serious harm. A water shortage usually occurs due to drought."

The ordinance also specifies that a *Water shortage emergency* "means that situation determined by the district when the powers which can be exercised under part II of Chapter 40E-21, Florida Administrative Code, are not sufficient to protect the public health, safety, or welfare, or the health of animals, fish or aquatic life, or public water supply, or commercial, industrial, agricultural, recreational or other reasonable uses."

The ordinance also adopts by reference the *District's Water shortage plan* "that the District will utilize in declaring a water shortage, describing the procedures for declaring and implementing a water shortage emergency and establishing water use restrictions, describing enforcement procedures, and establishing specific water use restrictions and a classification system."

The declaration of a water shortage or water shortage emergency within all or any part of Dania Beach by the governing board or the executive director of the district shall operate to invoke the provisions of this article. Upon such declaration, all water use restrictions or other measures adopted by the district applicable to Dania Beach, or any portion thereof, shall be subject to enforcement action pursuant to this article. The City's law enforcement personnel will enforce the ordinance. Penalties are as follows: (1) First violation: Twenty-five dollars (\$25.00). ((2) Second and subsequent violations: Fine not to exceed five hundred dollars (\$500.00), or imprisonment in the county jail not to exceed sixty (60) days, or both.

Beyond water restrictions, a typical water conservation program is composed of the following elements: develop/maintain an accurate database of water consumption to reduce municipal water waste; a retrofit program; the modification of relevant City Codes (plumbing, irrigation, landscaping, the promotion of xeriscaping; and public information and education programs. The City implements these measures in the following manner:

1.1) Develop/maintain an accurate database of water consumption to reduce municipal water waste – all services in the City are metered, including all irrigation services. The City also recalibrates large meters every two years and plant meters annually. The City changes out a number of older meters each year, depending on the age – prior change-outs were not recorded).

1.2) A retrofit program – is not pursued in the City at this time since unaccounted-for water is below 15%. However, remodeling of buildings requires that new fixtures meet the Florida Building Code – Plumbing requirements which require low flow fixtures. Therefore, while the City does not have an active retrofit program (or the funds and personnel to implement same), the building code is accomplishing this purpose.

1.3) As noted above, the Florida Building Code addresses the plumbing aspects requiring low flow plumbing fixtures. As the majority of homeowners in Dania Beach use wells for irrigation, not potable water the benefits to the utility from a water savings potential from xeriscaping, rain sensors and landscaping is minimal and the City has limited capability to impose restrictions on well use. A water conservation policy is in the process of being developed at this time for landscaping and the promotion of xeriscaping. The policies may help with these issues.

1.4) Public information and education programs – the City has District brochures on water conservation and xeriscaping available for the public (on display).

5) Water conservation rate structure – The City has long had in place, a water conservation rate structure that penalized residents using in excess of 10,000 gallons per

month. The typical single family use in Dania Beach is less than 8,000 gallon per month, or 267 gpd/ERU.

In addition the City has looked at two other issues associated with water conservation – reclaimed water and ASR. Both were rejected as discussed in the following paragraphs.

Effluent reuse is of substantial benefit to the area for a number of reasons, the most important of which is the reduction of competing water withdrawals from the surficial aquifer system by the application of the reclaimed water. The drainage system has lowered the water table, causing saltwater intrusion to occur. Carefully designed applications of effluent to critical areas of the surficial aquifer could protect and maintain freshwater sources. However, the City must rely on the City of Hollywood for reclaimed water, as the City has no treatment plant of its own. To date, the City of Hollywood has not had facilities or water quantity to extend reclaimed water to the City of Dania Beach. This situation could change if the City of Hollywood extends reclaimed water to Port Everglades.

ASR Wells are a water supply management option some utilities have pursued in south Florida. Unfortunately there is only one successfully operated ASR well in Southeast Florida – Boynton Beach. The water required to supply and ASR well would be a minimum of 1-2 MGD, which is a sizeable portion of the City's demands. Investment in additional water treatment plant capacity and a well for this purpose does not seem reasonable.

Figure 4 – Water Service Area

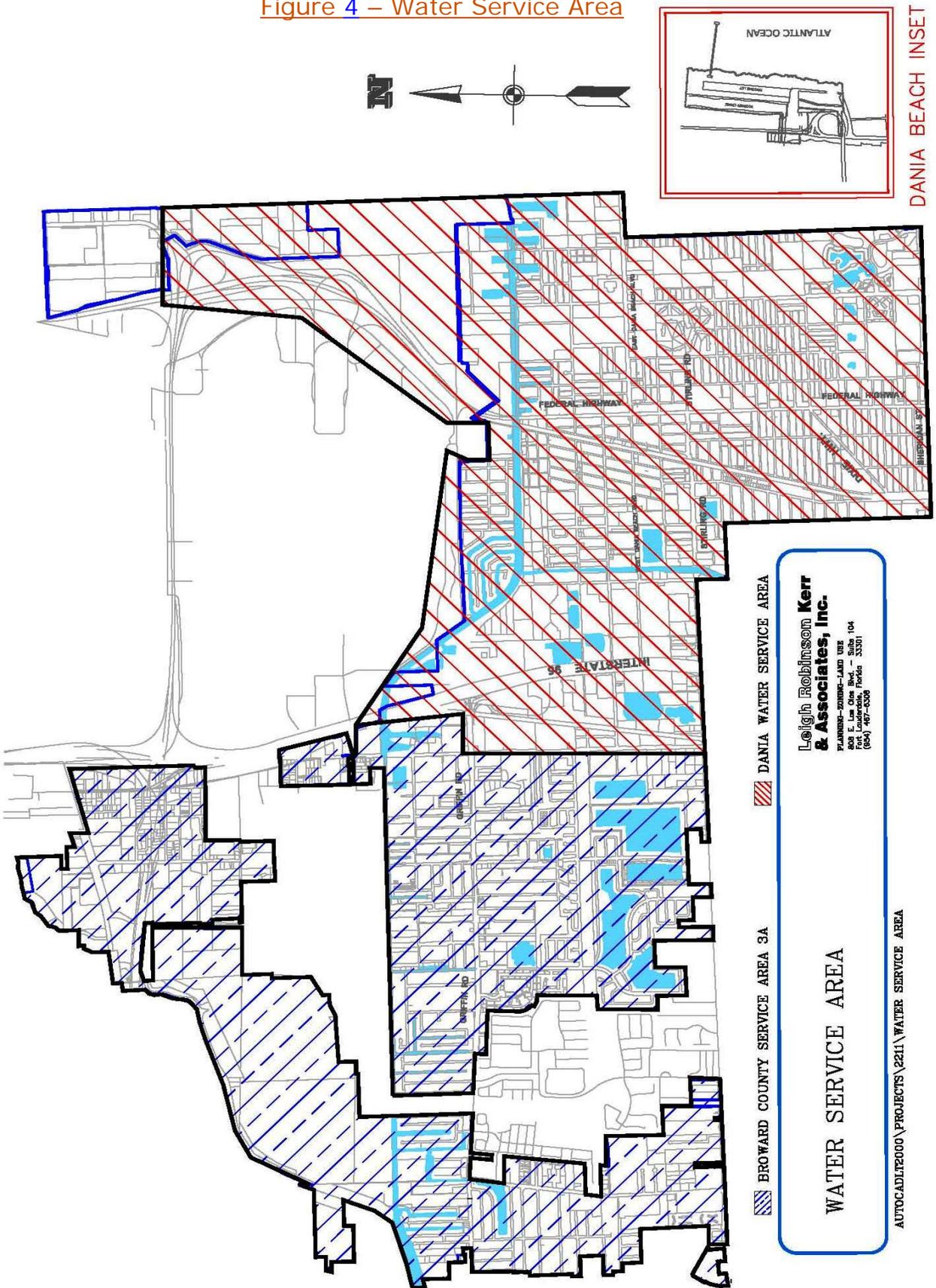
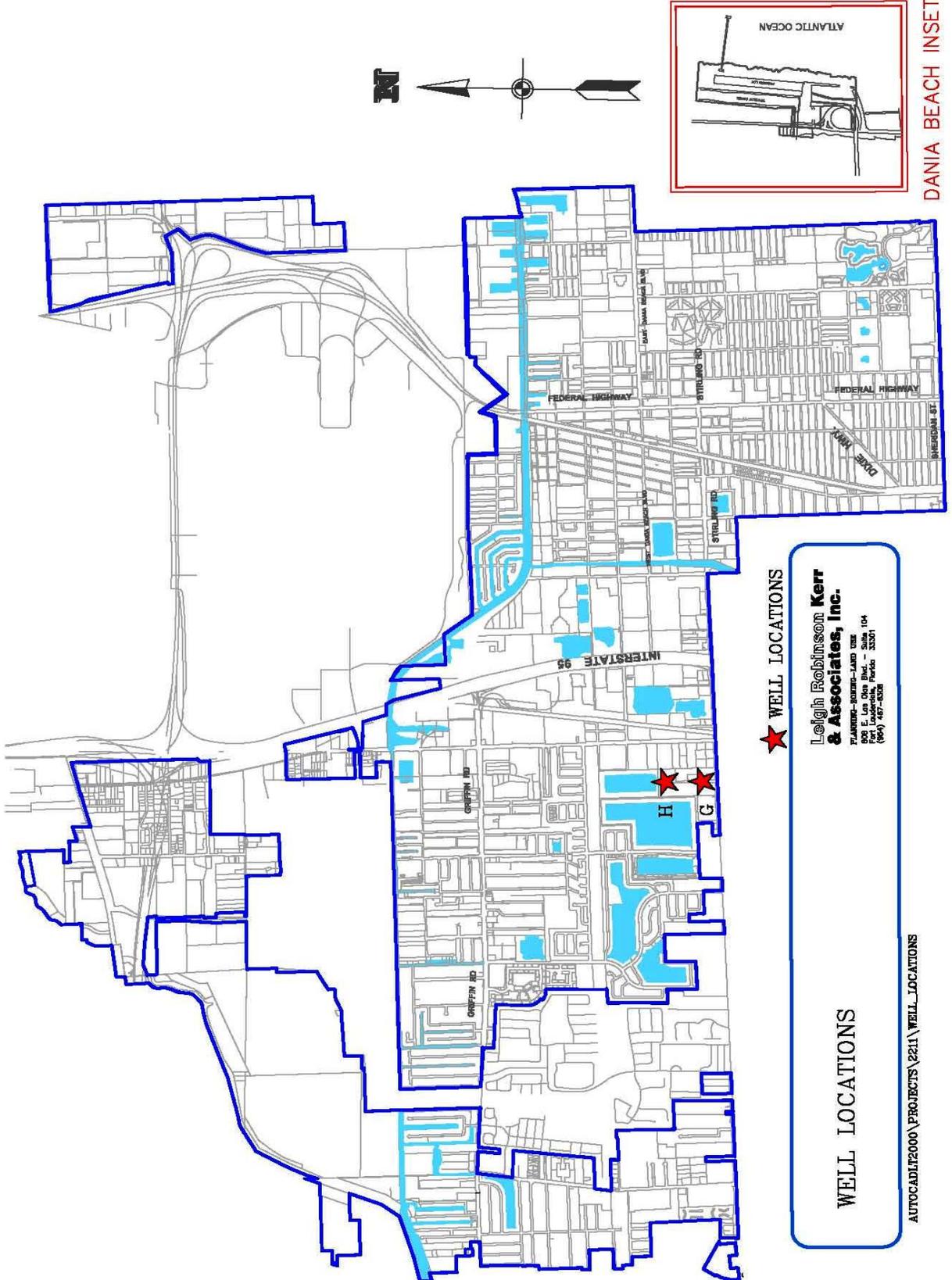


Figure 5 – Well Locations



Appendix A

LARGE USER

RAW WATER

AGREEMENT

BETWEEN

BROWARD COUNTY

AND

CITY OF DANIA

DATE: January 31, 1990

**LARGE USER
RAW WATER
AGREEMENT
BETWEEN
BROWARD COUNTY
AND
CITY OF DANIA**

KNOW ALL MEN BY THESE PRESENTS: This Agreement is made and entered into in Broward County, Florida, between **BROWARD COUNTY**, a Political Subdivision of the State of Florida, hereinafter referred to as **COUNTY**, through its Board of County Commissioners, which term shall include its successors and assigns,

AND

CITY OF DANIA, hereinafter referred to as **CUSTOMER** which term shall include its successors and assigns.

WITNESSETH, that for and in consideration of the mutual terms and conditions, promises, covenants and payments hereinafter set forth, **COUNTY** and **CUSTOMER** hereby agree as follows:

ARTICLE I
PREAMBLE

In order to establish the background, context, and frame of reference for this Agreement and to generally express the objectives and intentions of the respective parties herein, the following statements, representations, and explanations shall be accepted as predicates for the undertakings and commitments included within the provisions which follow and may be relied upon by the parties as essential elements of the mutual considerations upon which this Agreement is based.

- 1.1 The Board of County Commissioners through the enactment of Broward County Ordinance Number 84-40, have created a Water Supply Advisory Board, hereinafter referred to as WSAB, in November 1984. The purpose of WSAB is to assist in the development of a county-wide Water Supply Plan to assure future water supply needs.
- 1.2 COUNTY engaged the firm of James M. Montgomery, Consulting Engineers, Inc. (JMM) as the consultant to prepare the Water Supply Plan known as the Study of Water Supply and the Selection of Future Wellfield Sites in Broward County, Florida, hereinafter referred to as the STUDY, which was intended to satisfy the goals established by the COUNTY and WSAB.
- 1.3 The recommendations of the consulting engineer, JMM, were establishment of raw water delivery systems by the COUNTY to deliver raw water from centralized wellfields to the LARGE USERS, and related actions necessary for protection of the wellfields. The capital funding, as approved and defined by the Board of County Commissioners, for the Water Supply Program will be by the COUNTY. The OPERATION AND MAINTENANCE CHARGES and other necessary non-capital charges (renewal and replacement and administrative costs) associated with the system will be borne by the LARGE USERS.
- 1.4 The recommendations of the consulting engineer, JMM, were adopted by the Broward County Board of County Commissioners on December 9, 1986.
- 1.5 To the best of its ability, the COUNTY will have sufficient raw water transmission and

well capacity from the PROGRAM to furnish the projected raw water needs of CUSTOMER during the entire term of this Agreement, based upon the projected raw water flow schedules as provided by CUSTOMER.

- 1.6 CUSTOMER agrees to purchase raw water from COUNTY in accordance with the terms and conditions set forth in this Agreement.
- 1.7 The authority of this Agreement is by action of the Broward County Board of County Commissioners.
- 1.8 Broward County's Water Supply Program, hereinafter referred to as the PROGRAM, is the future water supply plan for Broward County as defined in The Study of Water Supply and The Selection of Future Wellfield Sites in Broward County, June 1986, as approved by the County Commission, including any and all approved amendments. Amendments must be approved by the WSAB and the County Commission in the same manner as initial approval of the Program.
- 1.9 It is recognized that any existing public water utility, by showing a demonstrated need to join the raw water supply system, may make application to the Water Supply Advisory Board (WSAB) for inclusion in the system.
- 1.10 Based on expected needs the PROGRAM has been phased. Phase I includes anticipated Customers as follows: City of Dania, City of Hallandale, Broward County System 3A, City of Deerfield Beach (East) and Broward County System 2A and possibly a portion of the City of Hollywood. Phase II includes anticipated Customers as follows: City of Hollywood, City of Hillsboro Beach, and additional wells and/or pipelines to meet any additional needs of Phase I Customers.

ARTICLE 2
DEFINITIONS

Unless the context specifically indicates otherwise, the following words and phrases used in this Agreement shall have the following meanings:

2.1 Words and terms related to water and wastewater shall have the definitions listed in the "Glossary - Water and Wastewater Control Engineering, 1981", published by AWWA.

a. "COUNTY"

When used herein shall mean Broward County, a political subdivision of the State of Florida as represented by the Broward County Board of County Commissioners.

b. "COUNTY FACILITIES"

This term shall mean those facilities owned or operated, or both, by COUNTY and approved by Water Supply Advisory Board as a part of the PROGRAM and ratified by COUNTY for the purpose of providing for raw water from the Biscayne Aquifer (wells) and transmitting raw water from these wells through the POINT OF CONNECTION to CUSTOMER as shown on Exhibit "A" attached hereto.

c. "CUSTOMER'S SERVICE AREA"

This term shall mean the geographic boundaries for which the COUNTY'S RAW WATER is ultimately supplied by CUSTOMER as potable water as shown on Exhibit "B".

d. "CUSTOMER'S SYSTEM"

This term shall mean the entire water supply system of CUSTOMER including wells, raw water mains, treatment facilities, storage, transmission and distribution mains, services, and all appurtenances thereto downstream of the POINT OF CONNECTION to the COUNTY FACILITIES.

e. "LARGE USER"

This term shall include all users including Broward County's Office of Environmental Services, any municipality or other public entity which operates

water treatment and distribution facilities which connect into COUNTY FACILITIES for the purpose of receiving RAW WATER and who have entered into a LARGE USER AGREEMENT (LUA) with the COUNTY and for the purposes of each LARGE USER AGREEMENT an individual LARGE USER shall be designated as CUSTOMER.

f. "LARGE USER'S ADVISORY BOARD" (LUAB)

The term Large User Advisory Board shall mean the Board that is established and composed of representatives of LARGE USERS receiving raw water from COUNTY FACILITIES, and whose function is to serve in any advisory capacity to the Office of Environmental Services regarding rates, modification to the COUNTY FACILITIES and to perform other advisory tasks related to the use of COUNTY FACILITIES. Each LARGE USER shall be entitled to one representative on said Board.

g. "BCOES"

This term shall mean the Broward County Office of Environmental Services located at 2401 North Powerline Road, Pompano Beach, Florida 33069.

h. "OPERATION AND MAINTENANCE CHARGES"

Operation and Maintenance charges shall mean the COUNTY'S reasonable and necessary expenses of maintenance, repair, and operation of the COUNTY FACILITIES, and shall include, without limiting the generality of the foregoing, all ordinary and usual expenses of maintenance and repair, which may include expenses not annually recurring, COUNTY administrative expenses properly charged to the raw water system, and any reasonable charges for pension or retirement funds properly chargeable to the raw water systems, insurance premiums; engineering expenses relating to maintenance, repair and operation; raw water sampling cost; legal expenses, any taxes which may be lawfully imposed on the income or operations and reserves for such taxes, and any other expenses required to be paid by the COUNTY, all in accordance with the accrual method of accounting, but shall not include any deposits or transfers to renewal or replacement funds, except as provided for herein, or any deposits or transfers to the credit of the Sinking Fund, Loan Repayment Fund, and the General Reserve

Fund. Each CUSTOMER shall pay a percentage of the expenses proportional to the consumption divided by the total consumption of the COUNTY FACILITIES as defined herein.

i. "POINT OF CONNECTION"

This term shall mean the point where the CUSTOMER'S system connects to the COUNTY FACILITIES for the purpose of receiving raw water from the COUNTY FACILITIES; said POINT OF CONNECTION is described and set forth in Article 3.1 below and shown in Exhibit "A".

j. "PROGRAM"

This term shall mean the implemented recommendations for supply of raw water from COUNTY to LARGE USERS in the STUDY including amendments approved by the Water Supply Advisory Board and approved by the COUNTY.

k. "PROGRAM CUSTOMER CAPACITY"

This term shall refer to the Maximum Daily Raw Water Demand in million of gallons per day (MGD) in the year 2020 as shown in Table 3-9 of the STUDY or the modification thereof or such other flow demand substantiated by records from the CUSTOMER'S water treatment plant and operations or substantiated by growth pattern projections approved by the WSAB and approved by the COUNTY; less the permitted or desired maximum daily raw water demand supplied by the CUSTOMER'S own existing wells and shown in the year 2020 of the CUSTOMER'S initial raw water flow projections provided in Section 3.5 hereof. Said year 2020 projection should indicate CUSTOMER'S expected ultimate raw water flow needs from the PROGRAM at build-out of CUSTOMER'S SERVICE AREA.

l. "RAW WATER"

This term shall mean the untreated water extracted from the Biscayne Aquifer.

m. "RENEWAL AND REPLACEMENT FUND"

The Renewal and Replacement Fund shall be used, when necessary, for the purpose of paying the cost of upgrading or improvements to, or the significant

replacement or renewal of capital assets of the COUNTY FACILITIES, or the extraordinary repairs of said COUNTY FACILITIES. Except as provided below any amounts collected by COUNTY shall be used only for upgrading, repair, renewal, and replacements to COUNTY FACILITIES. In the event that the amount of the Renewal and Replacement Fund exceeds the amount necessary for the purposes of the Renewal and Replacement Fund as certified by a Consulting Engineer, or as provided in Section 5.1.2. such amount in excess thereof shall be used to offset OPERATION AND MAINTENANCE CHARGES.

n. "RESERVED CAPACITY"

This term shall refer to the Annual Maximum Daily Flow projection of Raw Water in MGD of the CUSTOMER'S Raw Water Flow Projections provided in Section 3.5 hereof. Such flow projection shall be as identified for year 1 of the then current CUSTOMER'S PROGRAM RAW WATER FLOW PROJECTIONS table in Section 3.5; provided, however, that flow projection must be (with the exception of the first three (3) years of projections) less than or equal to the volume shown in the fourth year projection three (3) years prior to the current table. This shall provide COUNTY a period of three (3) years to supply any increase in demand projections submitted by CUSTOMER as a revision in the raw water flow projections.

o. "STUDY"

"The Study of Water Supply and the Selection of Future Wellfield Sites in Broward County, Florida", and approved amendments thereto.

p. "TECHNICAL ADVISORY COMMITTEE"

The Water Supply Advisory Board (WSAB) may establish a "Technical Advisory Committee" consisting of members with technical and operation expertise. Each LARGE USER would have one person to serve on the Technical Advisory Committee (TAC). Such TAC member would typically be a City Engineer, Utilities Director, Public Works Director, or of similar level and background. The WSAB may also add other public agency representatives to the TAC as may be prudent and beneficial. Such members could be from South Florida Water Management District (SFWMD), United States Geologic Service

(USGS), Florida Department of Environmental Regulation (FDER) or of similar regulatory or public agency.

q. "WATER SUPPLY ADVISORY BOARD" (WSAB)

As defined in Broward County's Ordinance 84-40.

r. "WATER SUPPLY PROGRAM"

See PROGRAM

ARTICLE 3
PROVISIONS PERTAINING TO CONNECTION
TO THE COUNTY RAW WATER TRANSMISSION SYSTEM

3.1 "POINT OF CONNECTION"

Both parties agree that the POINT OF CONNECTION and meter location shall be as indicated in the attached Exhibit "A".

3.2 "TRANSFER OF LAND AT POINT OF CONNECTION"

COUNTY may locate the POINT OF CONNECTION and meter location and necessary transmission facilities on property now being used by CUSTOMER for raw water transmission or treatment facilities. CUSTOMER will convey at no cost to COUNTY either the fee simple title or appropriate easement to the property needed by COUNTY for the POINT OF CONNECTION, meter location, pump stations, transmission facilities, and such interest in property as is necessary to provide ingress and egress to COUNTY to said POINT OF CONNECTION. Such property shall be of sufficient magnitude to allow for future projected expansion. Such POINT OF CONNECTION location shall be mutually acceptable and be provided by acceptable legal instrument in a form approved by both COUNTY and CUSTOMER.

3.3 "MAINTENANCE OF CUSTOMER'S SYSTEM"

Except as provided elsewhere herein, CUSTOMER agrees to construct where necessary, and to operate and properly maintain at its own cost and expense, all water mains, treatment facilities and other required appurtenances related and directly attributable to the acceptance of COUNTY-delivered RAW WATER downstream of the POINT OF CONNECTION that are necessary to properly accept raw water from the POINT OF CONNECTION to the CUSTOMER'S SYSTEM at such elevation, pressure, and not-to-exceed flow rates as described in Sections 3.5, 3.6, and 3.7 herein.

3.4 "CUSTOMER'S SERVICE AREA"

CUSTOMER agrees that it will not provide potable water outside its CUSTOMER SERVICE AREA, (Exhibit "B"), except in the case of public health, safety, welfare or emergency, (and as provided in interlocal Agreements) unless CUSTOMER receives prior approval by the COUNTY, with such approval being the subject of a written

supplemental agreement attached hereto and made a part hereof. It is agreed that such approval will not be unreasonably withheld and it is further agreed that disclosure of all contract obligations has been made by the CUSTOMER.

3.5 "CUSTOMER'S FUTURE FLOW PROJECTION"

CUSTOMER agrees that it shall annually review its needs for raw water supply and transmission service, and, with the advice and counsel of a professional engineer, project its future needs to the best of its knowledge and ability, in the format shown below.

PROGRAM RAW WATER FLOW PROJECTIONS****

Year	Annual Avg. Daily Flow (mgd)	Max. Month Avg. Daily Flow (mgd)	Annual Max. Day Daily Flow (mgd)	Peak Hourly Flow (mgd)
1*	1.0	1.0	1.0**	1.0
2	1.0	1.0	1.0	1.0
3	1.0	1.0	1.0	1.0
4	2.8	3.2	3.9**	4.7
5	2.9	3.3	4.1	4.9
10	3.5	4.0	4.9	5.9
15	4.3	4.9	5.8	7.0
20	4.3	4.9	5.8	7.0
2020	4.3	4.9	5.8***	7.0

* October 1, 1990 through September 30, 1991

** RESERVED CAPACITY

*** PROGRAM CUSTOMER CAPACITY

**** SEE ATTACHMENT 1

These projections shall serve as a reasonable estimate of the future needs of CUSTOMER and shall be used by COUNTY for the purpose of planning expansion, construction, modification, or alteration of said COUNTY FACILITIES and shall be so used by COUNTY in determining transmission and well capacity requirements attributable to CUSTOMER in COUNTY FACILITIES. In determining when to expand or modify its

facilities, COUNTY will consider recommendations of the individual CUSTOMERS, the LARGE USER'S ADVISORY BOARD, and the TECHNICAL ADVISORY COMMITTEE. COUNTY is obligated to furnish service to CUSTOMER under this Agreement which shall be limited to a PROGRAM CUSTOMER CAPACITY as established in Table 3-9 of the STUDY or the modification thereof, as substantiated either by records from the CUSTOMER'S water treatment plant operations or substantiated by growth pattern projections approved by the WSAB and approved by the COUNTY; less the permitted or desired maximum daily raw water demand supplied by CUSTOMER'S own existing wells. Said PROGRAM CUSTOMER CAPACITY shall be that shown on the CUSTOMER'S initial "Raw Water Flow Projections" as provided in Section 3.5. With the single exception of the capital funding referenced in Section 1.3, all obligations referred to as COUNTY obligations shall mean obligations fulfilled by COUNTY with the cost borne by the LARGE USERS through charges accrued by the PROGRAM. COUNTY shall have all right and power by suit or other such proceedings at law or in equity to enforce the limitation of its obligations hereunder and to prohibit CUSTOMER or its officers, agents or employees from extracting RAW WATER from COUNTY FACILITIES which exceeds the amount of demand projections indicated in the above table. CUSTOMER agrees to furnish this projection to BCOES at the time of contract execution and thereafter no later than the first day of January of each year.

3.6 "RESERVED CAPACITY"

COUNTY'S annual obligation to furnish service to CUSTOMER under this Agreement shall be limited to the RESERVED CAPACITY as established in the table in Section 3.5 hereof. COUNTY is obligated to implement PROGRAM to provide CUSTOMER with approved RESERVED CAPACITY. This term shall refer to the Annual Maximum Daily Flow Projection of RAW WATER in MGD of the CUSTOMER'S Raw Water Flow Projections provided in Section 3.5 hereof. Such flow projection shall be as identified for year 1 of the then current CUSTOMER'S RAW WATER FLOW PROJECTIONS table in Section 3.5; provided, however, that flow projection must be (with the exception of the first three (3) years of projections) less than or equal to the volume shown in the fourth year projection three (3) years prior to the current table. This shall provide COUNTY a period of three years to supply any increase in demand projection submitted by CUSTOMER as a revision in the raw water flow projections in accordance with Section 3.5

3.7 "PRESSURES AT POINT OF CONNECTION"

COUNTY agrees that, under all operating conditions, except as provided in Article 7.6 of this Agreement, the minimum pressure in COUNTY transmission main at the POINT OF CONNECTION shall be adequate to provide the RESERVED CAPACITY to the CUSTOMER'S POINT OF CONNECTION; however, such pressure shall not exceed 30 pounds per square inch. The pressure shall be agreed to by CUSTOMER and COUNTY to fit the technical situation that exists at and downstream of the POINT OF CONNECTION.

3.8 "EQUALIZATION OF DEMAND"

CUSTOMER agrees, through the use of generally acceptable utility methods, to receive a raw water flow from the COUNTY FACILITIES through the POINT OF CONNECTION, not to exceed the RESERVED CAPACITY. In the event the CUSTOMER exceeds the RESERVED CAPACITY or Peak Hourly Flow set forth in Section 3.5, then COUNTY may impose a compensatory charge to the monthly billing to CUSTOMER as provided in Section 5.2.

3.9 "COUNTY TO INSTALL METERS"

COUNTY agrees to furnish and install a raw water metering device, housing, accessories and appurtenances of a type and design selected by COUNTY sufficient to meet the CUSTOMER'S needs and to be located at the site or sites as defined in Exhibit "A" attached hereto. COUNTY shall retain ownership of the metering device, together with the housing, accessories and appurtenances thereto. In the event the capacity of the metering device becomes inadequate for the amount of flow delivered, COUNTY shall replace the meter or install such additional metering device or devices as may be necessary.

3.9.1. "COUNTY TO MAINTAIN METER"

COUNTY agrees to have an annual inspection and report prepared regarding the condition and accuracy of the metering device performed by a representative of the manufacturer or other competent entity. A copy of the annual report on meter inspection shall be furnished to CUSTOMER. CUSTOMER shall have the right to make its own meter inspection, or to have an independent meter manufacturer authorized company check the metering equipment at any time during normal business hours provided,

however, no such inspection shall be made unless CUSTOMER shall first give COUNTY written notice of its intent to have the inspection made nor shall any such inspection be made prior to forty-eight (48) hours, excluding Saturdays, Sundays, and holidays, subsequent to the receipt of said notice by COUNTY. All cost and expense of CUSTOMER'S interim inspection shall be borne by CUSTOMER unless the meter is found to be inaccurate beyond the manufacturer's guaranteed range of accuracy, in which case the cost and expense of such interim inspection shall be borne out of OPERATION AND MAINTENANCE CHARGES. Normal maintenance of the metering device shall be performed by COUNTY. All results of interim meter inspections shall be provided to the COUNTY.

3.9.2 "PAYMENT IN CASE OF METER INACCURACY"

Both parties agree that, should the metering equipment be found to be inaccurate beyond the manufacturer's range of accuracy, the meter will be assumed to be inaccurate since midway between the previous meter check and the discovered inaccuracy or for a period of three months, whichever time should be less, and that the following month's billing will be adjusted to show a credit or additional charge to CUSTOMER for that period based on the average daily flow of the thirty (30) day period prior to the previous meter check. An additional adjustment shall be made after the meter inaccuracy has been corrected. Said additional adjustment shall show a credit or additional charge to CUSTOMER for that period based on the average daily flow of the thirty (30) day periods prior to the previous meter check and immediately after the period of inaccurate operation.

3.9.3 "PAYMENT IN CASE OF METER FAILURE"

Both parties agree that, if at any time the metering system shall be inoperative or in any way fails to provide information with respect to the quantity of flow from the COUNTY'S FACILITIES, CUSTOMER shall pay to COUNTY a per day amount using the average flow of the thirty (30) day period immediately prior to the period the meter was inoperative.

ARTICLE 4
PROVISIONS RELATING TO RAW WATER QUALITY

4.1 "RAW WATER QUALITY"

The COUNTY does not guarantee the quality of RAW WATER supplies, but agrees to supply RAW WATER of reasonable treatable quality. If through changing finished water quality standards, decreasing RAW WATER quality, or other causes, the RAW WATER is no longer or may no longer be reasonably treatable, an engineering study may be commissioned by the WSAB, and approved by the COUNTY, as a cost to the system, to determine the most economical method of achieving finished water quality standards.

The CUSTOMER shall have the right to terminate this Agreement, at no penalty to the CUSTOMER, if the quality of the raw water supplied to the CUSTOMER by the COUNTY is such that either of the following conditions are met and "confirmed". "Confirmed" shall mean an independent evaluation of the situations (a) and/or (b) below by a consulting engineer or public agency acceptable to COUNTY and CUSTOMER, approved by the WSAB and approved by the COUNTY. All confirmation costs to be borne by CUSTOMER.

- a. The CUSTOMER can purchase treated potable water meeting all standards imposed by local, state and federal authorities at 30 percent less cost than the total cost to the CUSTOMER to purchase raw water from the COUNTY under this Agreement and to treat said raw water in the CUSTOMER'S water treatment plant to meet the current standards of water quality required by local, state and federal authorities.
- b. The CUSTOMER can supply or have supplied raw water from another permitted source and can treat said raw water at such cost that the combined cost of raw water supply and treatment to meet all then current required water quality standards of local, state and federal authorities is 30 percent less than the combined cost of raw water purchase and treatment of COUNTY supplied raw

water to meet all current required water quality standards of local, state and federal authorities.

4.2 "RAW WATER SAMPLING"

The COUNTY shall be entirely responsible for having all raw water sampling tests required by statutory authorities performed at the well sites and in the transmission mains up to the POINT OF CONNECTION. CUSTOMER and COUNTY shall establish a sampling point at a mutually agreeable location at or near the POINT OF CONNECTION so that both parties may obtain samples of the RAW WATER delivered by the COUNTY to the CUSTOMER.

COUNTY agrees to provide for such right-of-way or privilege upon properties within its control as may be necessary to allow CUSTOMER access to the sampling point. CUSTOMER shall have the right to obtain raw water samples during normal business hours provided, however, no such inspection shall be made until CUSTOMER shall first give COUNTY written notice of its intent to obtain samples and type of analysis or test proposed, nor shall any such samples be obtained within forty eight (48) hours, excluding Saturdays, Sundays, and holidays, subsequent to the receipt of said notice by COUNTY. All costs of collecting and testing CUSTOMER requested samples shall be borne by the CUSTOMER. The COUNTY reserves the right to collect duplicate samples with the CUSTOMER. The costs of said duplicate samples shall be part of the OPERATION AND MAINTENANCE CHARGES.

ARTICLE 5
PROVISIONS PERTAINING TO CHARGES

5.1 "BASIS OF CHARGES"

Both parties agree that COUNTY shall provide raw water supply services to CUSTOMER at fees, rates and charges constituting the full cost, not to include capital cost, of such services, which shall include OPERATION AND MAINTENANCE CHARGES. Such fees, rates and charges shall be just and equitable, and COUNTY shall set the same fees, rates and charges for all LARGE USERS that are within the PROGRAM. Such fees, rates and charges shall be adopted by the COUNTY, and it shall consider recommendations of the individual CUSTOMERS and the LARGE USER ADVISORY BOARD. The COUNTY shall hold public hearings on adjustments to the rates and charges in the manner provided by law and after thirty (30) days written notice to CUSTOMER of such public hearing.

The CUSTOMER shall pay a monthly charge to COUNTY for raw water supply services provided by the COUNTY. Such charges shall include the items provided in Section 5.1.1 and 5.1.2.

5.1.1 "OPERATION AND MAINTENANCE CHARGES"

OPERATION AND MAINTENANCE CHARGES are applicable to the raw water transmission mains and well operations and facilities and appurtenances thereto. The portion of the CUSTOMER'S monthly charge attributable to such OPERATION AND MAINTENANCE CHARGE shall be based upon the actual flow used by the CUSTOMER during the billing period. Such monthly charge shall be computed as a charge per 1000 gallons passing through the meter or meters serving CUSTOMER. The rate for such per 1000 gallons charge shall be computed by dividing the budgeted annual total OPERATION AND MAINTENANCE CHARGES for each of the COUNTY'S ensuing fiscal years ending September 30 by the number of thousands of gallons of raw water which is estimated to be delivered to all the LARGE USERS of the system for that year. After the close of the fiscal year, an annual adjustment will be computed which will be based upon the actual OPERATION AND MAINTENANCE CHARGES recorded for the COUNTY FACILITIES for that fiscal year divided by the actual number of thousands of

gallons of RAW WATER provided through the system for that fiscal year. Such adjustment will be made subject to final verification of OPERATIONS AND MAINTENANCE CHARGES by annual audit performed by a Certified Public Accountant. If the annual adjustment shows that an underpayment was made by CUSTOMER, the amount due and owing shall be paid by CUSTOMER in twelve (12) equal monthly payments and shown as a separate item on the monthly bills during the next twelve (12) months after the adjustment has been made. If the annual adjustment shows that an overpayment was made by CUSTOMER, the amount due and owing CUSTOMER shall be credited to CUSTOMER in twelve (12) equal monthly installments and shown separately on the monthly bills during the next twelve (12) months after the adjustment has been determined.

5.1.2 "RENEWAL AND REPLACEMENT FUND" (R&R FUND)

A charge representing a contribution to the RENEWAL AND REPLACEMENT FUND (R&R FUND) maintained by the COUNTY shall be a surcharge of up to ten percent (10%) on each monthly bill, with such sum being deposited in the R&R Fund, with the surcharge such that the R&R Fund will be maintained at a level not to exceed five percent (5%) of the replacement cost of the COUNTY FACILITIES based upon the annual engineering report. Any amounts collected by COUNTY shall be used only for upgrading, repair, renewal and replacements to the COUNTY'S FACILITIES (as defined in Section 2.1.m). Interest accruing and any gains realized from investment of R&R FUND shall be credited to the R&R FUND.

5.2 "CHARGE FOR EXCESSIVE FLOW"

In the event that a CUSTOMER'S peak daily flow for any month exceeds the CUSTOMER'S RESERVED CAPACITY as shown in year 1 in the table in Section 3.5 for two (2) successive days then the monthly charge to the CUSTOMER shall be increased by twice (2X) the percentage that the CUSTOMER exceeds its commitment for each day thereafter that its flow exceeds RESERVED CAPACITY as shown in the table in Section 3.5. Nothing in this section shall be construed to waive or rescind any rights that COUNTY shall have pursuant to Section 3.6 relating to the limitation of COUNTY'S

obligation to provide RESERVED CAPACITY to CUSTOMER only up to the amount CUSTOMER has reserved.

In the event that CUSTOMER'S peak hourly flow for any day of the month exceeds the CUSTOMER'S projected Peak Hourly Flow as shown in year 1 in the table in Section 3.5 for two (2) successive days then the monthly charge to the CUSTOMER shall be increased by twice (2X) the percentage that the CUSTOMER exceeds its peak hourly flow commitment for each day thereafter that its flow exceeds CUSTOMERS projected Peak Hourly Flow as shown in the table in Section 3.5. If both peak hourly flow and maximum daily flow are violated within the same month only the higher penalty of the two shall apply. Nothing in this section shall be construed to waive or rescind any rights that COUNTY shall have pursuant to Sections 3.5 and 3.6 relating to the limitation of COUNTY'S obligation to provide raw water RESERVED CAPACITY to CUSTOMER only up to the amount CUSTOMER has reserved.

5.3 "REVIEWS"

COUNTY agrees that reviews of the cost of providing raw water supply services shall be made annually, based on the COUNTY'S fiscal year. The fees, rates, and charges which will be effective during the succeeding fiscal year for all LARGE USERS will be developed by the COUNTY following such annual review. In developing such fees, rates, and charges for the succeeding fiscal year, the cost of providing raw water supply services during the current fiscal year, the audited costs for the preceding fiscal year, and the anticipated changes in costs in the succeeding fiscal year, will be the preliminary basis for establishing the fees, rates and charges for the succeeding fiscal year.

5.4 "PAYMENT AND PENALTIES FOR NONPAYMENT"

Both parties agree that COUNTY shall bill CUSTOMER for raw water supply services on a monthly basis in accordance with its standard billing procedures, CUSTOMER shall pay such billings within forty-five (45) days of the date of mailing the monthly bill. Should CUSTOMER not pay within the forty-five (45) day period, CUSTOMER shall pay an interest penalty on the unpaid balance at the maximum rate allowed by State statute. Should a billing or a portion of a billing be outstanding for a period of more than sixty (60) days from the date of the original billing, then the CUSTOMER shall be considered

in default and the COUNTY, in addition to all other rights and remedies, shall have the right and power, by suit, action, mandamus or other such proceedings at law or in equity, to protect, enforce, and compel performance by the CUSTOMER and any of the officers, officials, agents, or employees of said CUSTOMER to perform and carry out its and their duties and obligations under this Agreement or applicable law.

5.5 "CUSTOMER ACCESS TO COUNTY RECORDS"

COUNTY agrees to maintain accounting records for COUNTY FACILITIES, and to have said records audited annually. COUNTY will furnish to CUSTOMER a copy of the COUNTY'S annual audit, and the most recently adopted annual budget for review. COUNTY agrees to maintain information in sufficient detail to permit CUSTOMER to ascertain the cost, as defined in Section 5.7 of raw water supply services, separate and apart from the cost of other services of COUNTY. Upon reasonable notice given by CUSTOMER, COUNTY will make available to CUSTOMER, at COUNTY'S offices, its books and records regarding operation of the raw water facilities.

5.6 "COUNTY TO HAVE JURISDICTION"

Both parties agree that COUNTY has sole and exclusive authority and jurisdiction as to administration, operation, and maintenance of COUNTY FACILITIES; establishing the annual budget, establishing and amending service fees, rates, and other charges as provided in the Broward County Code; for efficient operation and maintenance of COUNTY FACILITIES. However, with the exception of challenges to charges, COUNTY agrees to evaluate and consider implementation of the recommendations that it receives from the LUAB and TAC before making decisions in areas in which the LARGE USERS and the LUAB have an interest.

Both CUSTOMER and COUNTY agree that any LARGE USER or the LUAB may challenge the propriety of expenses charged to the operation and maintenance of the COUNTY FACILITIES through normal COUNTY budget process. However, if unsatisfied with results via the normal budget process, the LUAB may present their challenge to the Water Supply Advisory Board for their action at a public meeting and their (WSAB) recommendation to the COUNTY.

5.7

"ANNUAL AUDIT AND ENGINEERING ESTIMATES"

COUNTY shall provide raw water service to CUSTOMER at fees, rates and charges constituting the full cost, set forth herein, direct or indirect, of such services. Such cost shall include, but not be limited to, labor, material, equipment, fuel, utilities, chemicals, transportation and travel expenses, administrative expenses (including interdepartmental service costs, such as amounts attributable to services of the Finance Division, Purchasing Division, County Attorney, etc.), billing expenses, supplies, rent, insurance, employee benefits, liability and workers compensation, outside services, and any other costs of operation, maintenance, and repair to said COUNTY FACILITIES. Such fees, rates and charges shall be adopted or amended by the COUNTY only after public hearing in the manner provided by law. It is intended that fees, rates and charges to the CUSTOMER shall be based on the most recent actual or anticipated costs; however, from time to time as costs change, and as actual costs replace estimated costs, the COUNTY intends to annually review the basis upon which the prevailing fees, rates and charges have been determined.

Subsequent reviews of the cost of providing raw water supply services shall be made annually, not later than ninety (90) days prior to the end of the current fiscal year. The fees, rates and charges which will be effective during the succeeding fiscal year to the CUSTOMER, and LARGE USERS will be developed by the COUNTY following such annual review. In developing such fees, rates and charges for the succeeding fiscal year, the costs, as defined herein, during the current fiscal year, and the anticipated changes in costs in the succeeding fiscal year, will be the preliminary basis for establishing the fees, rates and charges for the succeeding fiscal year. The COUNTY shall give the CUSTOMER at least thirty (30) days notice prior to the effective date of any changes in such fees, rates or other charges. COUNTY agrees to provide the CUSTOMER with a copy of the annual audit, the annual engineering report and estimates, and the most recently approved annual budget for the COUNTY FACILITIES for review as soon as possible after completion. Upon reasonable notice given by CUSTOMER, COUNTY will make available to CUSTOMER at COUNTY'S offices, its books and records regarding operation of the COUNTY FACILITIES.

ARTICLE 6
PROVISIONS PERTAINING TO ADDITIONAL OBLIGATIONS
OF BOTH PARTIES UNDER THIS AGREEMENT

6.1 "COUNTY TO EXPAND RAW WATER CAPACITY"

COUNTY agrees to provide whatever expansion to COUNTY'S FACILITIES as may be reasonably necessary to provide for CUSTOMER'S future projected demand, as established herein in Section 3.5 and 3.6, provided that upon the COUNTY'S review, a facilities expansion is determined to be appropriate. Toward this objective COUNTY will make application where feasible for appropriate financial assistance from federal, state, and local programs under which said facilities and the project may be eligible. Further, COUNTY agrees to apply applicable portions of any such assistance which may be received to offset capital costs of the COUNTY system.

6.2 "CUSTOMER TO RECEIVE RAW WATER RESERVED"

CUSTOMER agrees, during the term of this Agreement, to receive up to the raw water demand projected in Section 3.5 first, prior to utilizing any other sources, with the exception of the regulatory permitted withdrawal volume from the CUSTOMER'S own wellfield(s) existing at the effective date of this Agreement. Raw water flow demands shall not exceed amounts set forth herein in Section 3.5 and 3.6, as existing or as hereafter amended, for the length of this Agreement; and COUNTY agrees to deliver such raw water demand not exceeding amounts set forth herein in Section 3.5 and 3.6, as existing or as hereafter amended, for the length of this Agreement in accordance with PROGRAM and subsequent amendments thereto, approved by the WSAB and approved by the COUNTY. It shall be incumbent upon CUSTOMER to utilize the COUNTY FACILITIES to accept raw water. CUSTOMER shall accept a minimum flow on an annual average basis of twenty (20) percent of the PROGRAM CUSTOMER CAPACITY; however such minimum flow requirement shall not exceed 2.0 MGD nor be less than 0.5 MGD on an annual average basis. Should CUSTOMER'S annual usage be less than twenty (20) percent of PROGRAM CUSTOMER CAPACITY or 0.5 MGD, whichever is greater, CUSTOMER shall be obligated to pay charges and fees as though the RAW WATER was actually provided; however, such payment shall be limited to a maximum of 2.0 MGD on an annual basis. Said payment for minimum flow be considered as an

underpayment and shall be paid by CUSTOMER as provided in Section 5.1.1.

6.3 "CHANGES IN RESERVED CAPACITY AND PROGRAM CUSTOMER CAPACITY"

If proposed flows in the table in Section 3.5 exceed the Maximum Daily Raw Water Demand as depicted in Table 3-9 of the Study said increases in RESERVED CAPACITY and PROGRAM CUSTOMER CAPACITY must have prior approval of the WATER SUPPLY ADVISORY BOARD and of the COUNTY.

6.3.1 "CHANGES BY OUTSIDE AGENCIES"

COUNTY may revise the PROGRAM RAW WATER FLOW PROJECTIONS shown in Section 3.5 if any federal, state, or local agency promulgates regulations that require a change in scheduling or flows as defined in 3.5. If there is a determination by either party that regulations requiring change in scheduling or flows are unreasonable, either party reserves the right to challenge said regulations in court.

6.3.2 "CHANGES BEYOND COUNTY'S CONTROL"

COUNTY may revise the flow schedule for such periods as are reasonable and necessary if anticipated construction is delayed for any reason beyond the control of COUNTY. The reasons for delay may be, but are not limited to, contractor delays beyond completion date or lack of acceptance or approval by regulatory agencies.

6.4 "CUSTOMER AGREES TO PAY"

CUSTOMER agrees to establish and maintain service charges or other means of obtaining funds within its CUSTOMER'S SERVICE AREA sufficient to provide monthly payments to COUNTY for raw water supply services, and that such means shall be revised as may be required from time to time to provide sufficient funds to pay any sums due COUNTY under the terms of this Agreement.

6.5 "GRANT INFORMATION"

CUSTOMER and COUNTY agree to provide each other with all necessary information pertinent to CUSTOMER'S SYSTEM and CUSTOMER'S SERVICE AREA or COUNTY'S FACILITIES which any federal, state, or local agencies shall require in an application for financial assistance in the construction of COUNTY'S FACILITIES or CUSTOMER'S SYSTEM. Further, CUSTOMER and COUNTY agree to adopt such

regulations, execute such Agreements and do such work as said federal, state, or local agencies may require as part of COUNTY'S or CUSTOMER'S application for funds.

ARTICLE 7

PROVISIONS PERTAINING TO VIOLATIONS AND
EXCEPTIONS TO THE TERMS OF THIS AGREEMENT

7.1 "AGREEMENT NOT TO BE CANCELLED"

Both parties agree that each is undertaking a major obligation in that the COUNTY is providing a portion of CUSTOMER'S existing and future raw water flow requirements, and therefore each agrees with the other that this Agreement will not be cancelled on any conditions except as provided for herein in Section 4.1 or by a mutual cancellation agreement between the parties hereto, which will be a written document executed with the same formality and of equal dignity herewith.

7.2 "NOTICE OF VIOLATION"

COUNTY shall serve CUSTOMER with written notice stating the nature of any violation of this Agreement by CUSTOMER. Except as otherwise provided, said notice shall provide a reasonable time for the satisfactory correction thereof. CUSTOMER shall, within the period of time stated in such notice, permanently cease or correct all violations. CUSTOMER shall take necessary corrective action in accordance with the provisions of this Agreement and standard operating and administrative procedures. CUSTOMER shall serve COUNTY with written notice of any violation of this Agreement by COUNTY. Except as otherwise provided, said notice shall provide a reasonable time for the satisfactory correction thereof. COUNTY shall, within the period of time stated in such notice, permanently cease or correct all violations. COUNTY shall take necessary corrective action in accordance with the provisions of this Agreement and standard operating procedures.

If at any time CUSTOMER shall create any condition which COUNTY should determine destructive or damaging to any part of the COUNTY'S FACILITIES, COUNTY shall give ten (10) days written notice to CUSTOMER to discontinue such harmful operation or practice, within which period CUSTOMER agrees to comply. If any damages result to COUNTY FACILITIES the entire cost of such damages, judgments or both, resulting

therefrom shall be paid by CUSTOMER. In any event, proper, thorough, demonstrable proof of condition and damage must be provided by COUNTY to CUSTOMER in said written notice.

If at any time COUNTY shall create any condition which CUSTOMER should determine destructive or damaging to any part of CUSTOMER SYSTEM, CUSTOMER shall give ten (10) days written notice to COUNTY to discontinue such harmful operation or practice, within which period COUNTY agrees to comply. If any damages result to CUSTOMER SYSTEM, the entire cost of such damages, judgments or both, resulting therefrom shall be paid by COUNTY. In any event: proper, thorough, demonstrable proof of condition and damage must be provided by CUSTOMER to COUNTY in said written notice.

Both parties agree that no provisions contained herein shall be construed as preventing any agreement or arrangement between COUNTY and CUSTOMER whereby an unusual or uncharacteristic situation may be addressed by CUSTOMER and COUNTY.

7.3 "DISPUTE OVER CHARGES"

CUSTOMER agrees that, in the event of any continuing violations or disputes, or if the parties do not agree within thirty (30) days from the billing date upon the amount invoiced, or if the matter or a dispute continues unresolved for thirty (30) days from the billing date, the CUSTOMER shall automatically deliver to the COUNTY the amount billed. However, the amount of the bill that is legitimately in dispute shall be deposited for the payment of the invoice or invoices in escrow in an interest-bearing bank account in a banking institution designated by the COUNTY during such continuing claimed violation or dispute.

7.4 "FORCE MAJEURE"

Both parties agree that any restriction of raw water supply services, including COUNTY ability to supply and the ability of CUSTOMER to accept, resulting from an Act of God, fire, strikes, accidents, casualty, breakdown of or injury to machinery, pumps or pipe lines, insurrection or riot, or civil or military authority, shall not constitute a breach of

this Agreement on the part of the COUNTY or CUSTOMER and neither COUNTY nor CUSTOMER shall be liable to the other for any damages resulting from such restriction.

COUNTY agrees to provide maintenance such that the COUNTY FACILITIES are kept in reasonable operating condition. Until a written notice to the contrary may be received from federal, state, or local agencies, both parties agree to keep this Agreement in effect to the degree physically possible for the COUNTY to supply and the CUSTOMER to accept necessary quantities of RAW WATER regardless of pressure or quality.

Both parties agree that any increase in CUSTOMER demand for raw water supply services resulting from an Act of God, fire, strikes, casualty, breakdown of or injury to machinery, pumps or pipe lines, insurrection or riot, or civil or military authority, shall not constitute a breach of this Agreement on the part of the COUNTY or CUSTOMER and neither COUNTY nor CUSTOMER shall be liable to the other for any penalties or damage resulting from such demand increase until a written notice to the contrary may be received from federal, state, or local agencies.

7.5 "JURISDICTION OF OTHER AGENCIES"

Both parties agree that certain federal, state, and local agencies have some jurisdiction and control over water supply matters and should any such agency, excluding the Board of County Commissioners of Broward County, Florida, issue legally enforceable laws, regulations, mandates, or orders that may alter any of the terms and conditions of this Agreement, there shall be no liability on either party because of such action, provided that COUNTY shall not be precluded from making a necessary adjustment to the fees, rates and charges. It is further agreed that if any such agency shall request a change in the provisions of this Agreement that both parties will, by mutual agreement, make every effort to comply with such request. However, the terms of this section shall not preclude administrative or judicial challenge, or both, of such order by either or both parties hereto. This provision shall not be construed so as to permit CUSTOMER to terminate this Agreement.

7.6 "CUSTOMER WATER CONSERVATION PROGRAM"

CUSTOMER agrees to participate in any regulation by the Water Supply Advisory Board and approved by the COUNTY or any governmental agency including but not limited to South Florida Water Management District (SFWMD) as deemed necessary for the conservation of water.

Should COUNTY be requested or mandated to reduce volume and/or pressure of raw water supply in response to official regulatory requests or mandates, COUNTY may do so without constituting a violation of this Agreement. Also, no surcharging of fees as provided in Section 5.2 nor payment of fees for failure to accept minimum flows shall apply to CUSTOMER as a result of said regulatory requests or mandates. Each CUSTOMER shall respond to said official regulatory requests and mandates in proportion to the flow volumes prevailing at the time of said request or mandate.

Should CUSTOMER not respond to mandated reduction in flows per official regulatory requirements, COUNTY shall charge said CUSTOMER a surcharge to the entire flow volume. Said flow volume will be evaluated on a weekly basis and said charges shall be applied on a weekly basis. Said surcharge shall be triple (3) the degree to which CUSTOMER fails to adhere to the mandated cutback. For example, if a 15 percent cutback is mandated by the SFWMD and CUSTOMER'S demand is reduced by only 5 percent, a surcharge of $(15\% - 5\%) \times 3 = 30$ percent would be applied to the entire flow volume taken by the CUSTOMER.

The disposition of such surcharge revenue shall be: first, to offset operation and maintenance charges to those CUSTOMERS who have met said mandated reduction in flows; second, only in the case where no LARGE USER meets said mandated reduction in flows, said surcharge funds shall go to offset operation and maintenance costs of BCOES.

ARTICLE 8
PROVISIONS PERTAINING TO THE
ADMINISTRATION OF THIS AGREEMENT

8.1 "DATE OF BEGINNING"

Both parties agree to be bound by this Agreement as of the date of its execution. COUNTY agrees that the COUNTY FACILITIES from which CUSTOMER will receive raw water pursuant to this Agreement shall be operational within a reasonable period of time. Should CUSTOMER, through no fault of COUNTY, not avail itself of the COUNTY facilities when such facilities are available, it shall pay the applicable standby charges, as defined and described in Article 8.1.2 below.

8.1.1 "DATE OF CUSTOMER CONNECTING TO COUNTY FACILITIES"

COUNTY will keep CUSTOMER informed as to the construction schedules of those facilities necessary to serve CUSTOMER. The COUNTY shall give CUSTOMER notice of the completion date as certified by its Engineer of the construction of all COUNTY FACILITIES necessary to serve CUSTOMER and CUSTOMER shall be prepared to connect CUSTOMER system to the POINT OF CONNECTION on this completion date or within sixty (60) days of the date of this notice, whichever date is later. If construction is completed at the time of execution of this Agreement, COUNTY shall give written notice thereof to CUSTOMER who shall connect to the system within thirty (30) days of receipt of written notice. Notwithstanding whether CUSTOMER accepts its allotment of RAW WATER, it shall pay standby charges which shall commence no later than 60 days from the date of notice that RAW WATER is available to the CUSTOMER.

8.1.2 "BASIS OF STANDBY CHARGES"

Should CUSTOMER fail to accept its allotment of RAW WATER on the date above agreed upon, then COUNTY will bill and CUSTOMER will pay the monthly charges set forth in Article 5 hereof as if CUSTOMER was receiving 75 percent of its Annual Average Daily Flow as projected in Article 3.5. These revenues will remain in the appropriate Fund.

8.2 "TERMINATION AND EXTENSION OF AGREEMENT"

Both parties agree that this Agreement shall begin and bind the parties as set forth in Article 8.1 hereof and shall terminate and extend as provided for in Article 7.1.

8.3 "INVALIDITY OF AGREEMENT"

Both parties agree that the invalidity of any section, clause, sentence, or provision of this Agreement shall not affect the validity of any other part of this Agreement which can be given effect without such invalid part or parts.

8.4 "BINDING ON SUCCESSORS"

Both parties agree that this Agreement shall be binding upon the successors and assigns of the parties hereto and may be enforced by appropriate action in court, or courts, of competent jurisdiction.

8.5 "LEGAL REQUIREMENTS"

Both parties agree that all legal requirements for execution of this Agreement have been performed, and each party hereto agrees to exchange with the other certified copies of the official records of its governing body which authorize the execution of this Agreement.

8.6 "GIVING OF NOTICE"

Any notice required to be given hereunder shall be considered to have been properly given if the same has been set in writing by certified or registered mail to the following:

COUNTY:

Board of County Commissioners
C/O County Administrator
4th Floor, Broward County
Governmental Center
115 South Andrews Avenue
Fort Lauderdale, Florida 33301

BCOES:

Office of Environmental Services
2401 North Powerline Road
Pompano Beach, Florida 33069

CUSTOMER:

8.7 "ALL PRIOR AGREEMENTS SUPERSEDED"

This document supersedes all prior negotiations, correspondence, conversations, agreements, or understandings applicable to the matters contained herein and the parties agreed that there are no commitments, agreements, or understanding concerning the subject matter of this Agreement that are not contained in this document. Accordingly, it is agreed that no deviation from the terms hereof shall be predicated upon any prior representations or agreements, whether oral or written. It is further agreed that no modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document executed with the same formality and of equal dignity.

8.8 "EXECUTION"

This Agreement shall be executed in five (5) copies, each of which shall be deemed an original. CUSTOMER shall provide COUNTY with a copy of CUSTOMER'S Resolution or evidence of other action authorizing CUSTOMER to execute this Agreement, which Resolution or other document shall be attached hereto as Exhibit "C" and made a part hereof.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Chairman, authorized to execute same by Board action on the ____ day of _____, 19 __, and signing by and through _____
duly authorized to execute same.

COUNTY

BROWARD COUNTY, through its
BOARD OF COUNTY COMMISSIONERS

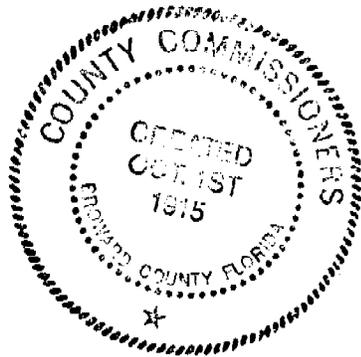
ATTEST:

Celene Bruce
County Administrator and Ex-
Officio Clerk of the Board
of County Commissioners of
Broward County, Florida

By: Scott I. Cowan
Scott I. Cowan, Chairman

5 day of June, 1990

Approved as to form by Office
of County Attorney, Broward
County, Florida
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (305) 357-7600



By: Michael J. Kern
Assistant County Attorney

CITY OF DANIA, a municipal
corporation of the State of
Florida

By: Charles K. McElyea
Charles K. McElyea,
Mayor - Commissioner

By: Robert F. Flatley
Robert F. Flatley
City Manager

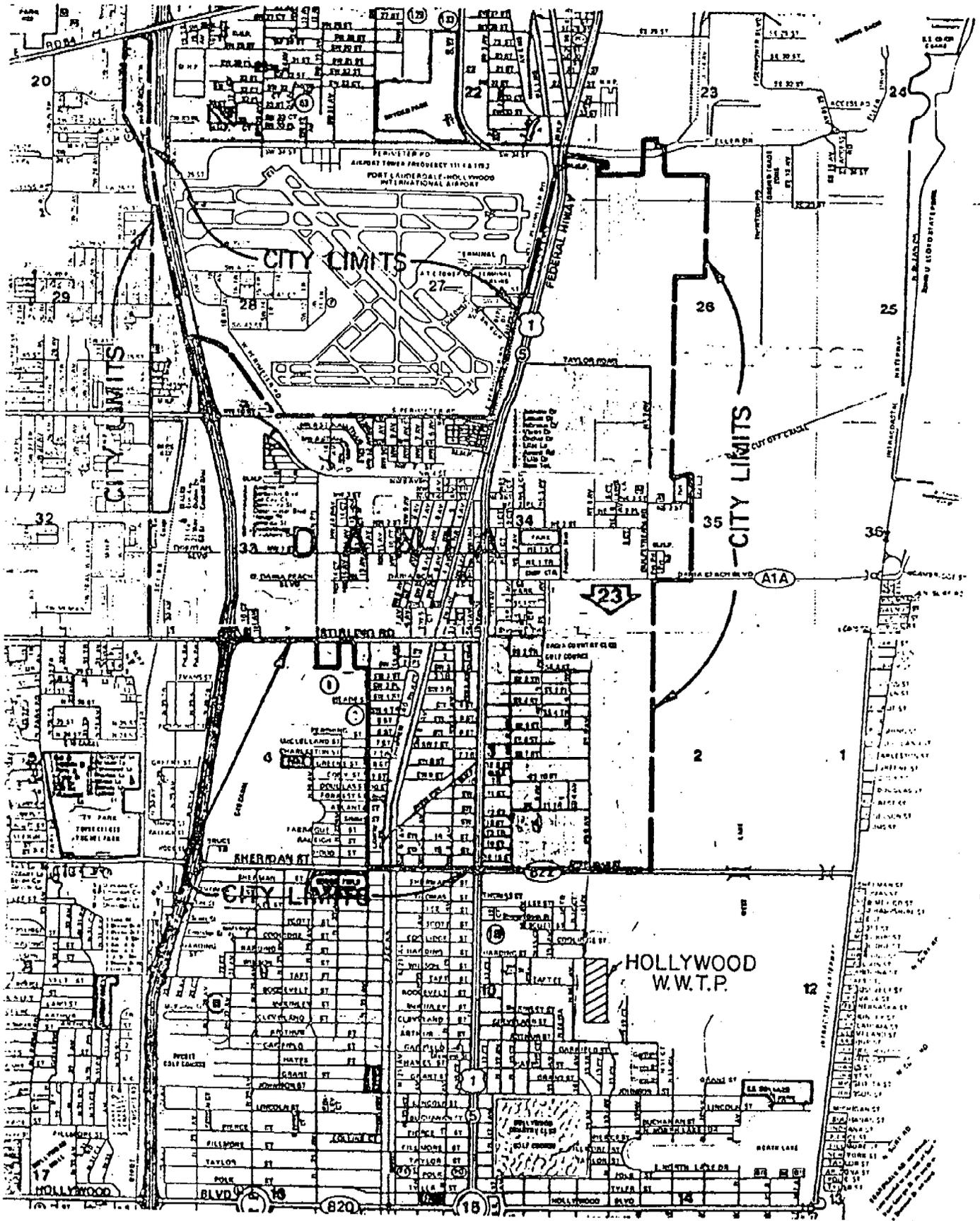
30th day of April, 1990

ATTEST:

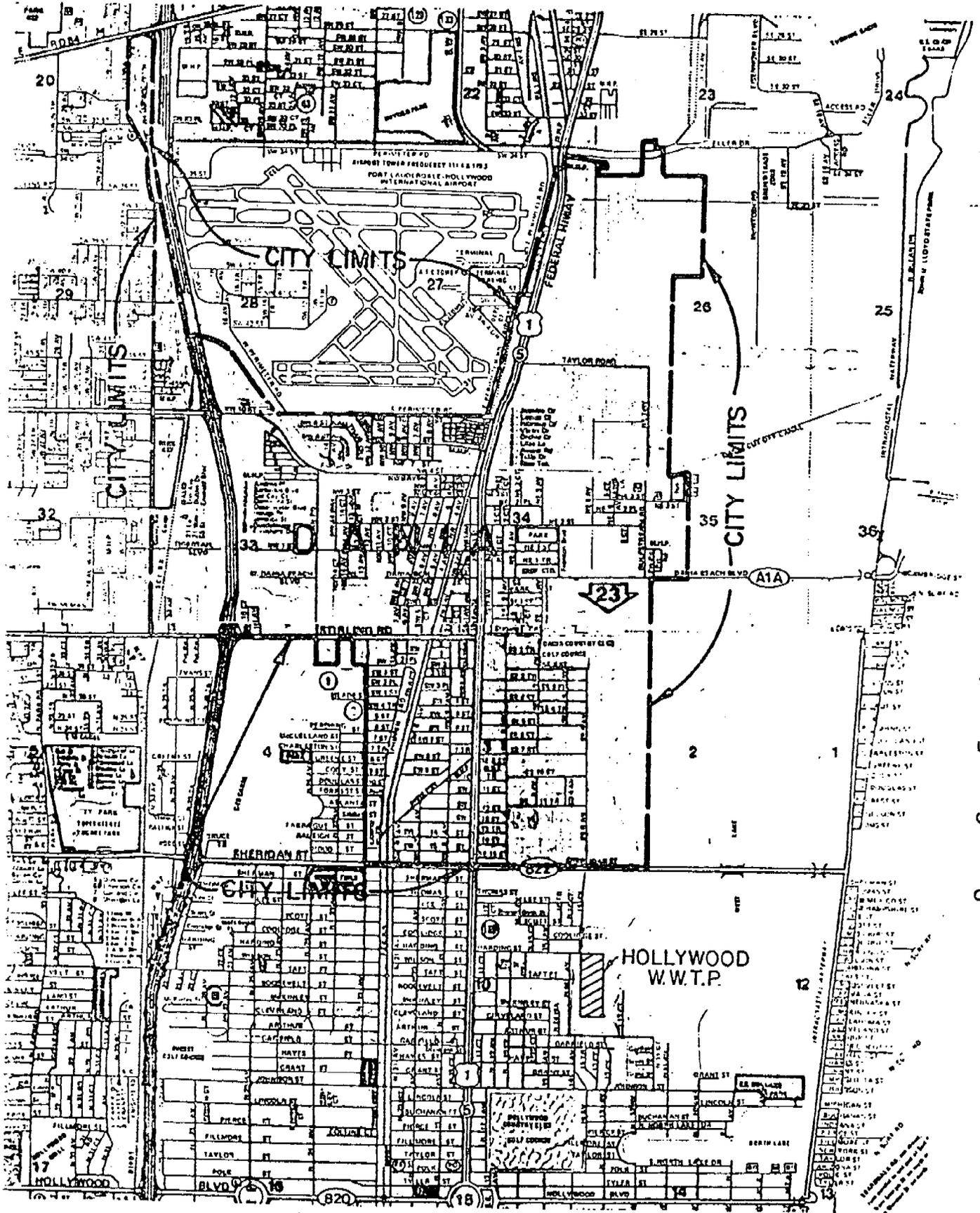
Wanda Mullikin
Wanda Mullikin
City Clerk-Auditor

APPROVED AS TO FORM AND CORRECTNESS

By: Frank C. Adler
Frank C. Adler, City Attorney



**CITY OF DANIA
EXHIBIT "B"**



**CITY OF DANIA
EXHIBIT "B"**

RESOLUTION NO. 102-89

A RESOLUTION OF THE CITY OF DANIA, FLORIDA, APPROVING THE LARGE USER RAW WATER AGREEMENT BETWEEN BROWARD COUNTY AND CITY OF DANIA; AND AUTHORIZING THE APPROPRIATE CITY OFFICIALS TO EXECUTE SAID AGREEMENT; AND PROVIDING FOR AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF DANIA, FLORIDA:

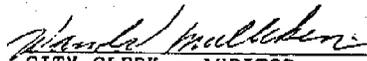
Section 1. That that certain Large User Raw Water Agreement between Broward County and the City of Dania, a copy of which is annexed hereto and made a part hereof as Exhibit "A", be and the same is hereby approved and the appropriate city officials are directed to execute same.

Section 2. That this resolution shall be in force and take effect immediately upon its passage and adoption.

PASSED and ADOPTED this 26th day of September 1989.


MAYOR - COMMISSIONER

ATTEST:


CITY CLERK - AUDITOR

APPROVED AS TO FORM AND CORRECTNESS

By: 
FRANK C. ADLER, City Attorney

EXHIBIT "C"

Resolution No. 102-89

FIRST AMENDMENT TO
ADDENDUM TO
LARGE USER RAW WATER AGREEMENT

Between

BROWARD COUNTY

and

CITY OF DANIA

FIRST AMENDMENT TO
ADDENDUM TO
LARGE USER RAW WATER AGREEMENT

Between

BROWARD COUNTY

and

CITY OF DANIA

This is a First Amendment to Addendum to Large User Raw Water Agreement made and entered into by and between: BROWARD COUNTY, a political subdivision of the state of Florida, hereinafter referred to as "COUNTY,"

AND

CITY OF DANIA, hereinafter referred to as "CITY."

WHEREAS, COUNTY and CITY previously entered into a Large User Raw Water Agreement ("Agreement") and an Addendum to Large User Raw Water Agreement ("Addendum"); and

WHEREAS, Section 1.3 of the Addendum included a provision that obligated CITY to reimburse COUNTY for 1/3 (one-third) of the cost of construction of wells 5 and 6, payable upon completion of said construction, to cover the expense of oversizing the wells to meet CITY's needs; and

WHEREAS, the completion of the pipeline connecting wells 5 and 6 to CITY's water treatment plant was not completed as originally scheduled due to factors beyond both parties' control; and

WHEREAS, CITY is now receiving raw water from wells 5 and 6; and

WHEREAS, CITY did not have access to water from wells 5 and 6 for the length of time anticipated when the Agreement and Addendum were executed;

NOW, THEREFORE, in consideration of the mutual terms and conditions, promises, covenants and payments hereinafter set forth, COUNTY and CITY agree as follows:

1. Section 1.3 of the Addendum is hereby stricken in its entirety, and replaced with the following language:

~~1.3 CITY shall reimburse COUNTY 1/3 (one third) of the cost of construction of wells 5 and 6, payable upon completion of said construction, to cover the expense of oversizing the wells to meet the city's needs. COUNTY shall be responsible for the remaining 2/3 (two thirds) of the cost.~~

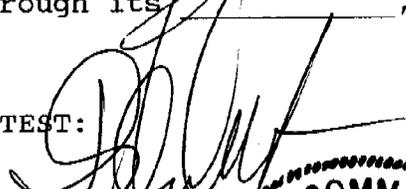
CITY shall reimburse COUNTY FORTY-FOUR THOUSAND SIX HUNDRED EIGHTY-SIX DOLLARS AND TEN CENTS (\$44,686.10) representing 1/6 (one-sixth) of the cost of construction of wells 5 and 6. CITY shall make payment within thirty (30) days after approval and execution of this Amendment.

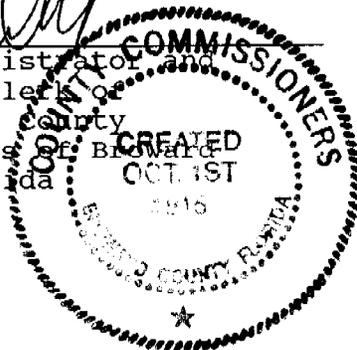
2. Except as modified herein, the Agreement and the Addendum shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have made and executed this First Amendment to Addendum to Large User Raw Water Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Chair or Vice Chair, authorized to execute same by Board action on the 14th day of June, 1994, and CITY OF DANIA, signing by and through its _____, duly authorized to execute same.

COUNTY

ATTEST:


County Administrator and
Ex-Officio Clerk of
the Board of County
Commissioners of Broward
County, Florida



BROWARD COUNTY, through its
BOARD OF COUNTY COMMISSIONERS

By Sylvia Raiter
Chair

14th day of June, 1994.

Approved as to form by
Office of County Attorney
Broward County, Florida
JOHN J. COPELAN, JR., County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (305) 357-7600
Telecopier: (305) 357-7641

By Michael J. Kerr
MICHAEL J. KERR
Assistant County Attorney

FIRST AMENDMENT TO ADDENDUM TO LARGE USER RAW WATER AGREEMENT
BETWEEN BROWARD COUNTY AND CITY OF DANIA

CITY

WITNESSES:

Rhona Lipman
Charles Saltamocchie

ATTEST:

Wanda Mulliken
City Clerk

(CORPORATE SEAL)

CITY OF DANIA

By Robert Mikes
Mayor-Commissioner

17 day of May, 1994.

By Robert F. Platt
City Manager

17 day of May, 1994.

APPROVED AS TO FORM:

By Frank C. Adler
City Attorney

MJK/eb
DANIA.A01
04/08/94
#90-170.03

RESOLUTION NO. 81-94

A RESOLUTION OF THE CITY OF DANIA, FLORIDA, APPROVING FIRST AMENDMENT TO ADDENDUM TO LARGE USER RAW WATER AGREEMENT BETWEEN BROWARD COUNTY AND CITY OF DANIA; AND PROVIDING FOR AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF DANIA, FLORIDA:

Section 1. That the City Commission of the City of Dania, Florida, hereby approves First Amendment to Addendum to Large User Raw Water Agreement Between Broward County and City of Dania, copy of which is attached hereto as Exhibit "A".

Section 2. That this resolution shall be in force and take effect immediately upon its passage and adoption.

PASSED and ADOPTED this 10th day of May, 1994.

ATTEST:

Wanda Mullikin
CITY CLERK - AUDITOR

Robert Miles
MAYOR - COMMISSIONER

APPROVED AS TO FORM AND CORRECTNESS:

By: Frank C. Adler
Frank C. Adler, City Attorney

Resolution No. 81-94

ADDENDUM TO LARGE USER RAW WATER AGREEMENT BETWEEN BROWARD COUNTY AND THE CITY OF DANIA

WHEREAS the City of Dania is in immediate need of raw water to supplement its own resources; and

WHEREAS the addition of water wells 5 and 6 to the Broward County 3-A wellfield will enable Broward County to satisfy this need until such time that the Centralized Wellfield is in place;

WHEREAS the Broward County Water Supply Board and the Broward County Board of County Commissioners have approved the concept of an interim arrangement to supply the City of Dania with raw water, which includes the construction of a pipeline that will become a part of the raw water supply pipeline from the southern wellfield to the City of Dania, but in the interim will convey raw water from the County's 3A wellfield to the City of Dania.

NOW, THEREFORE, in consideration of mutual terms and conditions, and until such time as raw water from the Centralized Wellfield is available to the City of Dania, each party agrees as follows:

ADDENDUM PROVISIONS

1.1 It shall be the obligation of the COUNTY to design, construct, and install raw water service lines and metered connection at the COUNTY's expense, in accordance with plans, specifications, and engineering data as submitted by a Florida registered engineer, said plans and specifications to be approved by all applicable regulatory agencies. Said raw water service lines shall be connected with said meter connection by COUNTY to COUNTY's existing raw water service lines.

1.2 CITY will convey at no cost to the COUNTY the fee simple title or appropriate easement to the property needed by COUNTY for POINT OF CONNECTION, meter location, pump stations, transmission facilities, and such interest in property as is necessary to provide ingress or egress by COUNTY to said POINT OF CONNECTION.

1.3 CITY shall reimburse COUNTY 1/3 (one-third) of the cost of construction of wells 5 and 6, payable upon completion of said construction, to cover the expense of oversizing the wells to meet the city's needs. COUNTY shall be responsible for the remaining 2/3 (two-thirds) of the cost.

1.4 Upon completion of the necessary raw water service lines and metered connection, the COUNTY shall commence to provide

a quantity of raw water to supply CITY, said quantity not to exceed one million gallons per day.

1.5 COUNTY shall provide raw water transmission service to CITY at fees, rates, and charges constituting the full cost of such service, per EXHIBIT 1.

1.6 In the event that water wells designated for the purpose of providing water to the CITY do not, for any reason, provide adequate raw water to supply CITY with its one-million-gallon-per-day allocation in addition to providing COUNTY's two-million-gallon-per-day allocation, the available raw water will be divided proportionately, 1/3 (one-third) to CITY and 2/3 (two-thirds) to COUNTY.

1.7 COUNTY shall give 60 (sixty) days' notice of date of completion of transmission lines and metered connection. CITY shall connect its system to the point of connection, and begin accepting raw water within 90 (ninety) days of the postmarked date of said notice.

1.8 This Addendum is an interim measure and shall not be construed to conflict with any provision in the Large User Raw Water Agreement to which it is attached.

1.9 This Addendum is valid only until raw water from the Centralized Wellfield is available to the CITY under the conditions specified in this Agreement, at which time this Addendum becomes null and void.

1.9 This Addendum is valid only if executed in conjunction with the LARGE USER RAW WATER AGREEMENT BETWEEN BROWARD COUNTY AND THE CITY OF DANIA.

IN WITNESS WHEREOF, the parties hereto have made and executed this Addendum on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Chairman, authorized to execute same by Board Action on the _____ day of _____, 19____, and the City of Dania, signing by and through the Commission of the City of Dania, duly authorized to execute same.

COUNTY

BROWARD COUNTY, through its
BOARD OF COUNTY COMMISSIONERS

ATTEST:

Allen Bruce

County Administrator and Ex-
Officio Clerk of the Board
of County Commissioners of
Broward County, Florida

By: Scott I. Cowan
Scott I. Cowan, Chairman

5 day of June, 1990

Approved as to form by Office
of County Attorney, Broward
County, Florida
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (305) 357-7600



By: Michael J. Khan
Assistant County Attorney

CITY OF DANIA, a municipal
corporation of the State of
Florida

By: Charles K. McElyea
Charles K. McElyea,
Mayor - Commissioner

By: Robert F. Flatley
Robert F. Flatley
City Manager

ATTEST:

Wanda Mullikin
Wanda Mullikin
City Clerk-Auditor

30th day of April, 1990

APPROVED AS TO FORM AND CORRECTNESS

By: Frank C. Adler
Frank C. Adler, City Attorney

RESOLUTION PRESCRIBING RATE SCHEDULE
FOR WITHDRAWAL AND TRANSMISSION FOR RAW WATER SERVICE
BY LARGE USERS OF BROWARD COUNTY'S
REGIONAL RAW WATER SUPPLY SYSTEM
AND PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, Broward County owns and operates the Regional Raw Water Supply System facilities; and

WHEREAS, the Board of County Commissioners has received evidence which effects the required recovery of Large User service costs and determined that a rate is necessary: NOW THEREFORE,

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF BROWARD COUNTY, FLORIDA:

That the following rate schedule for withdrawal and transmission for raw water service by Large Users of Broward County's Regional Raw Water Supply System is hereby adopted, effective for bills rendered on or after August 1, 1993:

1993 O&M Charges
per 1,000 Gallons

\$.053

This Resolution shall take effect immediately.

ADOPTED this 13th day of July, 1993.

Appendix B

AGREEMENT

THIS AGREEMENT made and entered into this 17th day of May 1968, by and between the CITY OF HOLLYWOOD, FLORIDA a Municipal corporation (hereinafter referred to as "Hollywood", party of the first part), and the CITY OF DANIA, FLORIDA, a municipal corporation (hereinafter referred to as "Dania", party of the second part);

WITNESSETH:

WHEREAS, Hollywood owns, maintains and operates a water production and distribution plant, and,

WHEREAS, Dania requires the use of Hollywood's water for consumption by its residents, and

WHEREAS, engineers representing both parties have determined that it is feasible for Hollywood to furnish water to Dania,

NOW, THEREFORE, for and in consideration of the covenants and undertakings of each party for and with the other, and the Agreement herein contained, the parties do hereby agree as follows:

1. Hollywood shall sell and deliver to Dania all water that Dania may need from time to time and at all times during the effective period of this Agreement for services by Dania to the residents within its corporate limits. Hollywood shall have such water available for delivery to Dania as Dania may need at all times subject only to its inability from doing so due to event or over which it has no control, including but not limited to fire, storm, flood, explosion, civil commotion or riot, acts of the public enemy, sabotage strikes, walk outs, labor disputes, or acts of God.

2. All water delivered by Hollywood hereunder shall be of good and potable quality satisfactory for domestic use and shall have received the same treatment and be of the same quality as that furnished by Hollywood to the individual customers from Hollywood's Water Department. Hollywood shall maintain adequate water pressure; similar to the water pressure being maintained throughout Hollywood's water system.

3. The water furnished **hereunder will** be **delivered** by **Hollywood** and **will** be accepted and received by **Dania** from **Hollywood's** meter at 20th Avenue, and **Sheridan Street**, **which** is **hereby** declared to be the point of **delivery**. Additional points of **delivery may** be established at such **times** and **places** as shall be mutually agreed upon by the **parties** hereto. **Dania** shall bear the entire cost and expense of extending at least an eight **inch** water line to each point of delivery **and connecting** same to the connecting piping which shall be **provided** for this purpose at each point of **delivery**. Hollywood shall **install** at **Dania's** expense at each point of delivery such water meters, valves or meter structures as may be necessary to comply with the terms hereof. The water meter will become the property of the City of Dania, however, the maintenance of said water meter will be undertaken by the City of Hollywood. 4.. **Dania** shall install whatever water distribution system extensions may be necessary and required on its side of the meter to connect to its **existing** water **distribution** system at Its own cost and expense.

5. It shall be the sole duty and **obligation** of Hollywood to read, **maintain** and test the water meter or **meters** to be installed. However, **Dania** shall, from **time** to time, and at reasonable times, have the privilege of **reading** said meter or meters, inspecting same **and** causing same to be tested by **its employees** or appointees; but under the supervision and control of Hollywood.

6. In order to remain current under the terms hereof, **Dania** agrees to pay to Hollywood a **minimum** sum of \$1.50 per month, as and when **Dania** is billed by Hollywood for same. **Dania** shall pay to Hollywood and Hollywood shall accept from **Dania**, as **compensation for all** water **delivered** to **Dania** hereunder, **during** each month of the effective period hereof, **such amounts** as shall be **determined in accordance with** the following rates:

The **minimum** charge, as set forth above, in the amount of **\$1.50** shall cover all water used up to 3,000 gallons..

Any water used in excess of 3,000 gallons and not more than 100,000 gallons shall be at the rate of \$0.40 per each 1,000 gallons.

All water used in excess of 100,000 gallons shall be at the rate of \$0.2250 per 1,000 gallons'.

The ~~rates~~ may be increased by Hollywood and Dania agrees to pay ~~such increased~~ rates, at such ~~time~~ or ~~times~~ as the rates charged to the consumers ~~of Hollywood's Water Department~~ is increased by Hollywood or by ~~any~~ rate making regulatory agency that ~~has jurisdiction~~ at such time, ~~and such increase in Dania rates shall not exceed the~~ percentage of increase ~~as is made~~ in the rates of the individual consumers of Hollywood's ~~Water~~ Department.

7. Matters of ~~billing, payment of bills, delinquent payments, meter~~ maintenance and the ~~like~~ shall be ~~governed~~ by the following provisions of the City Code of the City of Hollywood, ~~by which provisions Dania~~ agrees to abide and ~~which are~~ incorporated herein by reference:

63.18 (7) and (0); 63.34; 63.27; 63.28; 63.31;
~~63.35~~; 63.36; 63.37; 63.38; 63.39 and 63.41

8. This Agreement shall become effective on July 1, 1968 and shall continue until ~~June 30,~~ 1998.

~~This~~ Agreement ~~shall,~~ at the option of Dania, be renewable for ~~ten-~~year periods, provided ~~notice in writing is~~ given by Dania to Hollywood by Certified Mail not later than six (6) months prior to the ~~expiration~~ date of the original term or any extension thereof.

9. Hollywood recognizes, covenants and ~~agrees~~ that in ~~anticipation~~ of the use by Dania of Hollywood's facilities as ~~outlined~~ above, Dania is ~~expending~~ large sums of money in consequence of ~~which~~ Hollywood cannot cancel ~~this~~ Agreement on any ~~condition~~ save ~~and~~ except non-payment of the sums as above ~~outlined~~.

10. ~~This~~ Agreement shall bind the ~~parties~~ hereto and their successors and assigns.

IN WITNESS WHEREOF, the ~~parties~~ hereto have caused ~~these~~ presents to be duly executed by their ~~authorized officers~~ for and

on behalf of the said parties the day and year first above written.

Signed, sealed and delivered
in the presence of:

Edna M. Gallagher
Marion H. Treasick
As to City of Hollywood

CITY OF HOLLYWOOD, a municipal
corporation ..

BY: Maya Ours
MAYOR

ATTEST: June D. Hall
CITY CLERK

Stacy Gilbert
Edward A. Charles
As to City of Danja

CITY OF DANIA, a municipal corporation

BY: Paul B. Kelly
MAYOR

ATTEST: James D. Houghton
CITY CLERK

APPROVED AS TO FORM:

Donald J. ...
City Attorney, City of Hollywood

Clark ...
City Attorney, City of Dania

R-2004-08

FIRST AMENDMENT TO INTERLOCAL AGREEMENT

FOR THE BULK SALE OF POTABLE WATER

BETWEEN

BROWARD COUNTY, FLORIDA

AND

THE CITY OF HOLLYWOOD, FLORIDA

FIRST AMENDMENT TO INTERLOCAL AGREEMENT
FOR THE BULK SALE OF POTABLE WATER BETWEEN
BROWARD COUNTY, FLORIDA AND
THE CITY OF HOLLYWOOD, FLORIDA

This is a First Amendment to the Interlocal Agreement for the Bulk Sale of Potable Water between BROWARD COUNTY, a political subdivision of the state of Florida, its successors and assigns, hereinafter referred to as "COUNTY," through its Board of County Commissioners,

AND

CITY OF HOLLYWOOD, a municipal corporation located in Broward County, Florida, and organized and existing under the laws of the state of Florida, its successors and assigns, hereinafter referred to as "CITY";

WHEREAS, COUNTY and CITY entered into an Interlocal Agreement for the Bulk Sale of Potable Water, dated October 15, 1996, for the Bulk Sale of Potable Water; and

WHEREAS, the Agreement provided for the purchase of water at different price levels which were to begin at the occurrence of certain events. Many of the events did not occur at the times originally contemplated by the parties. In addition, the Agreement specified amounts of water to be purchased by COUNTY through the year 2000 but not beyond. All of which has caused administrative disagreements as to the rights and obligations of the parties under the original terms of the Agreement; and

WHEREAS, the Parties have engaged in negotiations and discussions in an effort to resolve all claims and matters which have arisen since the inception of this Agreement and have agreed to release the other from any and all claims, demands, damages, causes of action, actions and losses of every kind and nature; NOW THEREFORE

IN CONSIDERATION of the mutual terms and conditions, promises, covenants and payments hereinafter set forth, COUNTY and CITY agree as follows:

1. Each and every Whereas clause set forth above is a true and correct recital and representation and is incorporated herein as if set forth fully.
2. Section 2, OBLIGATIONS OF CITY/COUNTY FOR CONNECTIONS, is hereby amended to read as follows:
 - a. It shall be the City's obligation at its sole cost and expense, to design and construct facilities to the 3A plant site Point of Connection (~~Exhibit Consolidated Water and Wastewater System~~ "C-1"). It shall be the obligation of County, at its

sole cost and expense, to design, construct and install connection, appurtenances and master meters to physically connect County's system to City's regional water transmissions system at locations shown on Exhibit G "C-1", attached hereto and made a part hereof, in accordance with plans, specifications and engineering data as prepared, certified and submitted by a registered professional engineer in the State of Florida, and as approved by the appropriate regulatory agencies and the City's Public Utilities Director or authorized representative. As used in this Agreement, the term "Point of Connection" means any location(s) shown on Exhibit G "C-1" where County's system is physically connected to the City's system by a master meter(s).

b. County shall at its expense retain the services of the same registered professional engineer who prepared the plans and specifications during construction for the purpose of providing the necessary inspections and supervision of the construction work, hereinafter referred to as "Work" for those facilities described in Exhibit G "C-1".

. . .

3. Section 4, CITY OBLIGATIONS TO MAINTAIN APPURTENANCES, is hereby amended as follows:

4. CITY OBLIGATIONS TO MAINTAIN APPURTENANCES: Upon completion of the Work by County or County's contractor, and acceptance of the Work by City, City shall thereafter, at its expense, own, operate, and maintain all facilities on the City's side of the Point of Connection (s) as shown on Exhibit G "C-1", which includes but is not limited to the master meter(s), connection piping and appurtenances within those easements granted to City for such purposes.

4. Section 9, COUNTY TO PAY FOR COST OF WATER SUPPLIED, is hereby amended as follows:

9. COUNTY TO PAY FOR COST OF WATER SUPPLIED:

a. County shall pay City the prevailing City rate for bulk water service, as set from time to time by the City Commission after an appropriate public hearing, and after written notice to County of any proposed changes. Said water rate shall be based on the volume of water passing through the meter locations described in Exhibit C. The initial rate for bulk service shall be as follows:

1. Until October 1, 1996, the rate shall be \$0.78 per one thousand gallons of water delivered through the meter locations indicated on Exhibit C.

2. Until April 1, 1997, or such time as the District 3A water treatment plant no longer treats water for potable purposes, whichever occurs last, the rate shall be \$0.84 per one thousand gallons of water delivered through the meter locations indicated on Exhibit C.

3. At such time as the District 3A water treatment plant no longer treats water for potable purposes, or April 1, 1997 whichever occurs last, the rate shall be \$0.92 per one thousand gallons of water delivered through the meter locations indicated on Exhibit C (except as provided in (2) above).

4. From January 1, 2003 through December 31, 2003, the rate shall be \$0.97 per one thousand gallons of water delivered through the meter locations indicated on Exhibit "C-1".

b. Thereafter, beginning after December 31, 2003, the rate payable by COUNTY, per one thousand (1,000) gallons of potable water delivered through the meters located in Exhibit "C-1", shall be based upon a formula of a Base Rate plus the Rate charged for Large Users of the County's Regional Raw Water System (including the Improvement, Repair and Replacement surcharge), and any Annual Adjustment subsequently attributed to the Regional Raw Water Rate. The Base Rate shall be set and shall only be adjusted as follows:

1. Upon the execution of this Agreement by County, the Base Rate shall be Zero and 99/100 Dollars (\$0.99).

2. On October 1, 2004, the Base Rate shall be One and 01/100 Dollars (\$1.01).

3. Beginning on October 1, 2005, and annually thereafter, City may increase the Base Rate by an amount not to exceed the percentage of increase enacted for City's retail customers, which increase shall be deemed appropriate by a competent rate consulting professional. The "percentage of increase enacted for City's retail customers," phrase shall be determined by the percentage difference found from a comparison of the total of all retail water revenues, projected over all retail water user classes, when identical volumetric, unit and meter bases are used. All such increases enacted by City under this paragraph shall not be approved by City unless Forty-five (45) days written notice of such proposed change has been provided to County.

~~No Increase beyond \$0.92 per one thousand gallons shall occur Prior to October 15, 1997. Any increase in the usage rate charged to County thereafter shall not exceed the percentage of increase enacted for City's retail customers, and as~~

~~deemed appropriate by a rate study conducted by a competent rate consulting professional. "The percentage of increase enacted for City's retail customers," as used to define any rate increases contemplated under this Agreement, shall be determined by the percentage difference found from a comparison of the total of all retail water revenues, projected over all retail water user classes, when identical volumetric, unit and meter bases are used. No increase shall be approved by City without 45 days' written notice to County of said proposed increase.~~

~~bc.~~ All said bulk water rates shall be nondiscriminatory and shall be the same for all like users on the system.

~~ed.~~ City shall bill County on a monthly basis for the amount of water used on the meters. The bill shall be considered delinquent if unpaid within 45 days after rendering to County by City.

~~de.~~ The sale of water by City to County shall occur on County's side of the meters, at the Points of Connection, to be located as shown in Exhibit C.

5. Section 10, CITY TO HAVE EXCLUSIVE RIGHT TO PROVIDE SERVICE, is hereby amended as follows:

10. CITY TO HAVE EXCLUSIVE RIGHT TO PROVIDE SERVICE: City shall have the exclusive right to furnish water service to County customers within the areas covered by this Agreement (see Exhibits A "A-1," and B "B-1"). However, City's exclusive right to furnish water to District 3 customers shall not include customers at the North Perry Airport. From time to time County and City may modify the exclusive right to serve certain customers through the mutual agreement of the City's and County's contract administrators. Notification as set forth in Section 26 "NOTICES" will be given by either party to initiate modification, and if no exception is taken within 30 days, the noted exceptions shall become permanent. County shall have the right to sell any portion of District 3, but only to the municipality within which the portion exists. Consummation of such a sale shall terminate this Agreement for the area purchased only, provided that the parties hereto agree to review and amend this Agreement to reflect the revised service area and flow projections.

6. Section 18, COUNTY FLOWS, is hereby amended as follows:

18. COUNTY FLOWS: Until December 31, 2003, County expects water demands for District 3 to be as shown on Exhibits D and "D-1", attached hereto and made a part hereof. Thereafter, as of January 1, 2004, COUNTY shall annually review its needs for potable water demands and project its future needs expressed in both average daily flow and maximum daily flow, to the best of its knowledge and ability.

The projections shall be made on an annual basis. These projections shall serve as a reasonable estimate of the future needs of the COUNTY. CITY shall use these annual projections for purposes of this Agreement and for planning, expansion, construction, modification, or alteration of CITY facilities. COUNTY will furnish each annual projection to CITY no later than the first day of June each year.

City agrees to provide water in such quantities to meet these demands at a more or less constant rate of flow. County agrees to maintain adequate storage facilities to meet peak demands for District 3. Maximum daily demands on the system shall not exceed 1.34 times the maximum daily demands shown on Exhibit D, "D-1" and thereafter as projected by County as specified above, without permission of City. Should County consistently exceed these amounts, City may impose a surcharge of up to twenty-five (25) percent on the excess water utilized, if directed by the City Commission.

7. Section 22, CITY TO SUPPLY WATER TO COUNTY, is hereby amended as follows:

22. CITY TO SUPPLY WATER TO COUNTY: City agrees to make every effort to provide water to County in the quantities specified in Exhibit D and "D-1", and as thereafter projected by County as specified in Section 18, in a manner similar to that of its retail customers.

8. Section 23, EMERGENCY INTERCONNECTS, is hereby amended as follows:

23. EMERGENCY INTERCONNECTS: No water from CITY's water system is to be used or disbursed by COUNTY or its agents outside the indicated service area to be served as shown in EXHIBITS "A" "A-1 and "B-1", attached hereto and made a part hereof except as provided by emergency interconnects with neighboring public systems not to be activated without the prior concurrence of CITY. CITY shall not be responsible for providing adequate pressure or flow through COUNTY's emergency interconnects to other public systems. From time to time, through County's and City's contract administrator, either may initiate modification of the emergency interconnects by providing written notification as set forth in Section 26 "NOTICES" and if no exception is taken within 30 days the noted modification shall become permanent.

9. The Parties do respectively release each other from all claims, demands, damages, causes of action, actions and losses of every kind and nature, whether known or unknown arising out of or related to this Agreement from the inception of this Agreement until the date of execution of this First Amendment. Further, the Parties mutually release and forever discharge each other and acknowledge, agree, and covenant for each of themselves and their respective successors and assigns, and irrevocably bind themselves

IN WITNESS WHEREOF, the parties hereto have made and executed this First Amendment to Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Mayor or Vice Mayor, authorized to execute same and CITY OF HOLLYWOOD, signing by and through its Mayor, duly authorized to execute same.

COUNTY

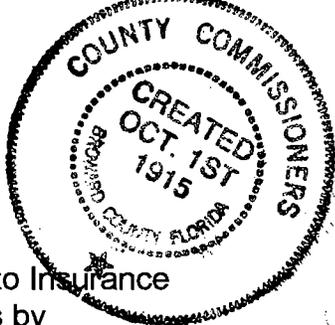
ATTEST:

BROWARD COUNTY, by and through its BOARD OF COUNTY COMMISSIONERS

BR AK
Broward County Administrator, as
Ex-officio Clerk of the Broward
County Board of County Commissioners

By *Gene Feberman*
Mayor

3rd day of February, 2004.



Approved as to Insurance
Requirements by
RISK MANAGEMENT DIVISION

Approved as to form by
Office of County Attorney
Broward County, Florida
Edward A. Dion, County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Telecopier: (954) 357-7641

By *Mary M. Meister* by
D. Blunge Director 1/21/04

By *P. Kane* 1-15-104
Pamela M. Kane
Assistant County Attorney

FIRST AMENDMENT TO INTERLOCAL AGREEMENT FOR THE BULK SALE OF POTABLE WATER BETWEEN BROWARD COUNTY, FLORIDA AND THE CITY OF HOLLYWOOD, FLORIDA

WITNESSES:

Art D'Andrea

Marion Brinke

ATTEST:

By Patricia Aleny
City Clerk

(CORPORATE SEAL)

CITY OF HOLLYWOOD

By Mara Guhanti
Mayor

9 day of January, 2004.

[Signature]
City Manager

14 day of January, 2004.

APPROVED AS TO FORM:

By _____
City Attorney

APPROVED AS TO FORM AND LEGALITY FOR THE USE AND RELIANCE OF THE CITY OF HOLLYWOOD, FLORIDA, ONLY.

BY: [Signature]
DANIEL L. ABBOTT
CITY ATTORNEY

PMK

December 15, 2003

G:\DIV2\PMK\PMK03\AGREEMEN\HLWDPot.am1.WPD

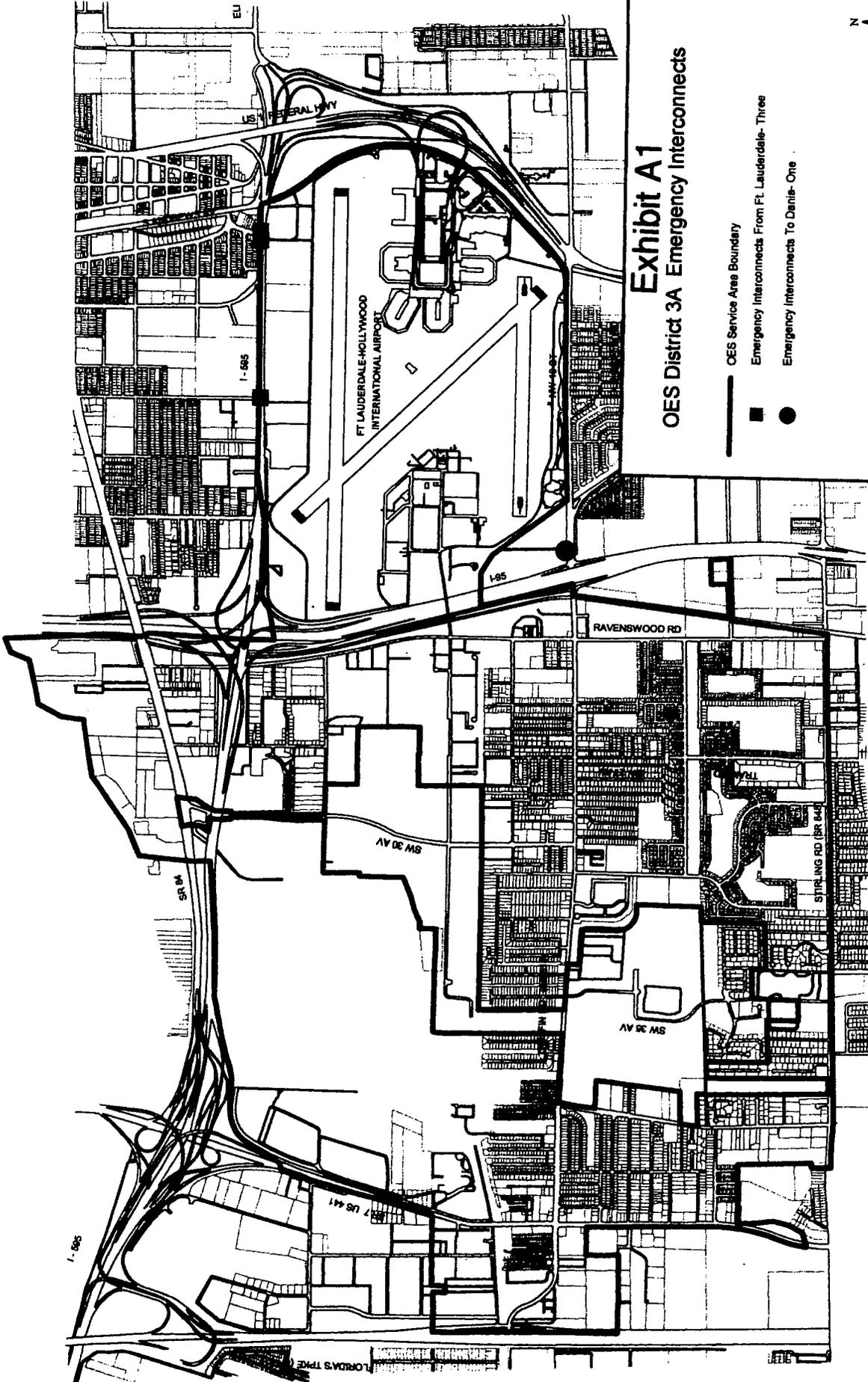


Exhibit A1

OES District 3A Emergency Interconnects

- OES Service Area Boundary
- Emergency Interconnects From Ft. Lauderdale-Three
- Emergency Interconnects To Dennis-One



Scale 2000 0 2000 4000 Feet
 Prepared By OES - December, 2003
 PH031008

Exhibit B1 (pg 1)

OES District 3BC Water Service Area Map and Points of Connection

OES Service Area Boundary

Primary Points of Connection From Hollywood - Two

Proposed Additional Primary Point of Connection From Hollywood - One

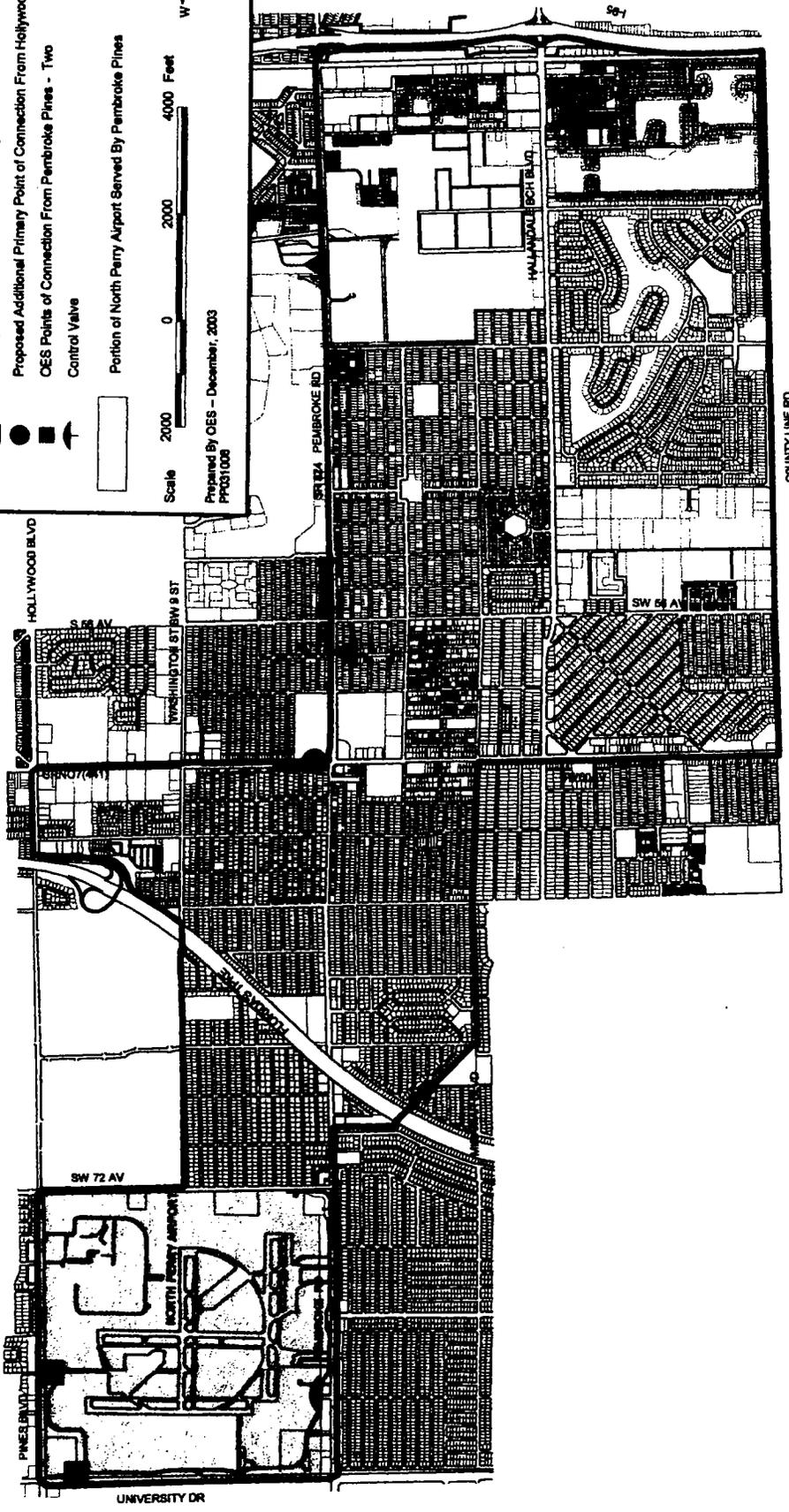
OES Points of Connection From Pembroke Pines - Two

Control Valve

Portion of North Perry Airport Served By Pembroke Pines



Prepared By OES - December, 2003
PP031000



COUNTY LINE RD

Exhibit B1 (pg 2)

OES District 3BC Emergency Interconnects

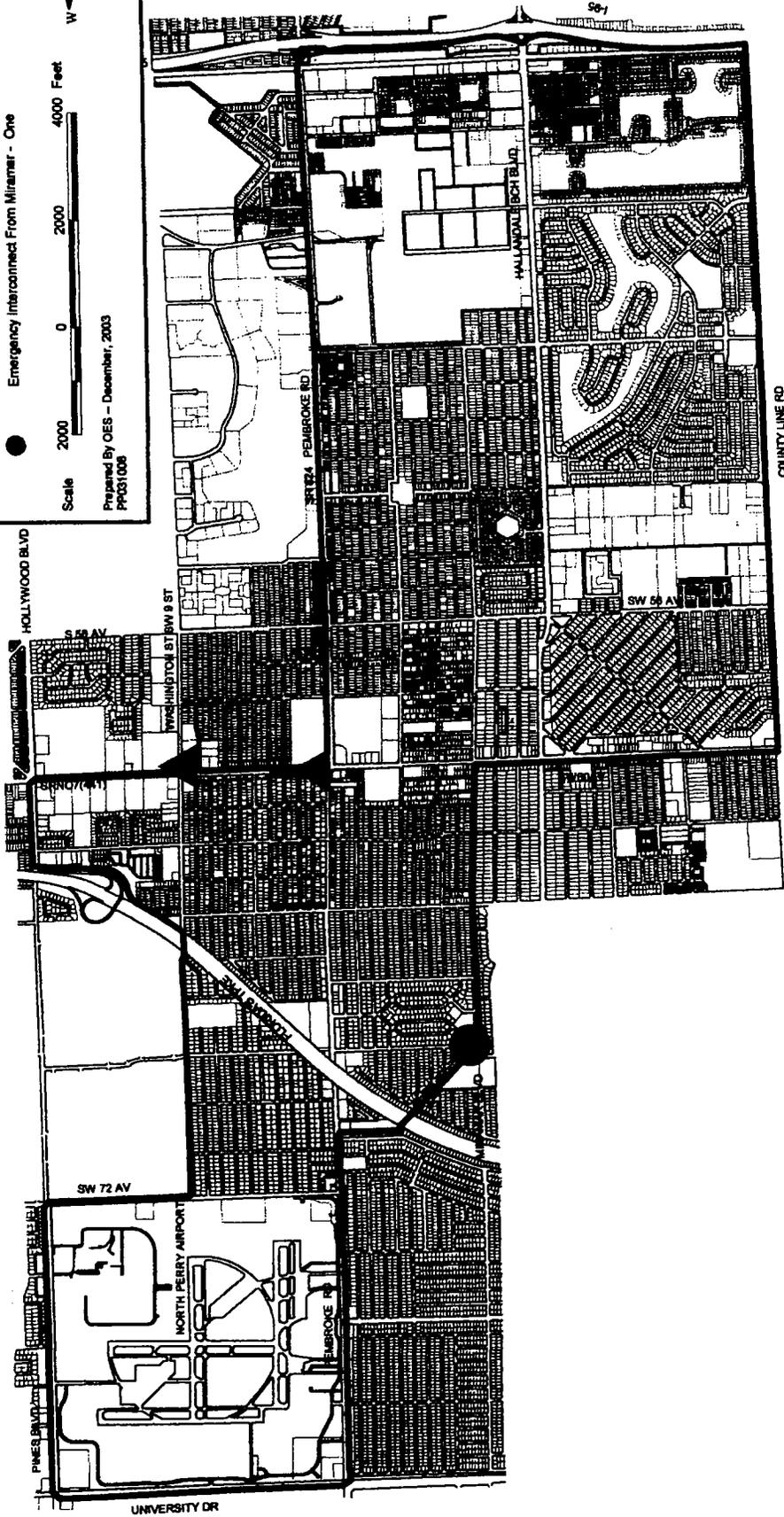
— OES Service Area Boundary

▲ Emergency Interconnects From Hollywood - Two

● Emergency Interconnect From Miramar - One



Prepared By OES - December, 2003
PP031008



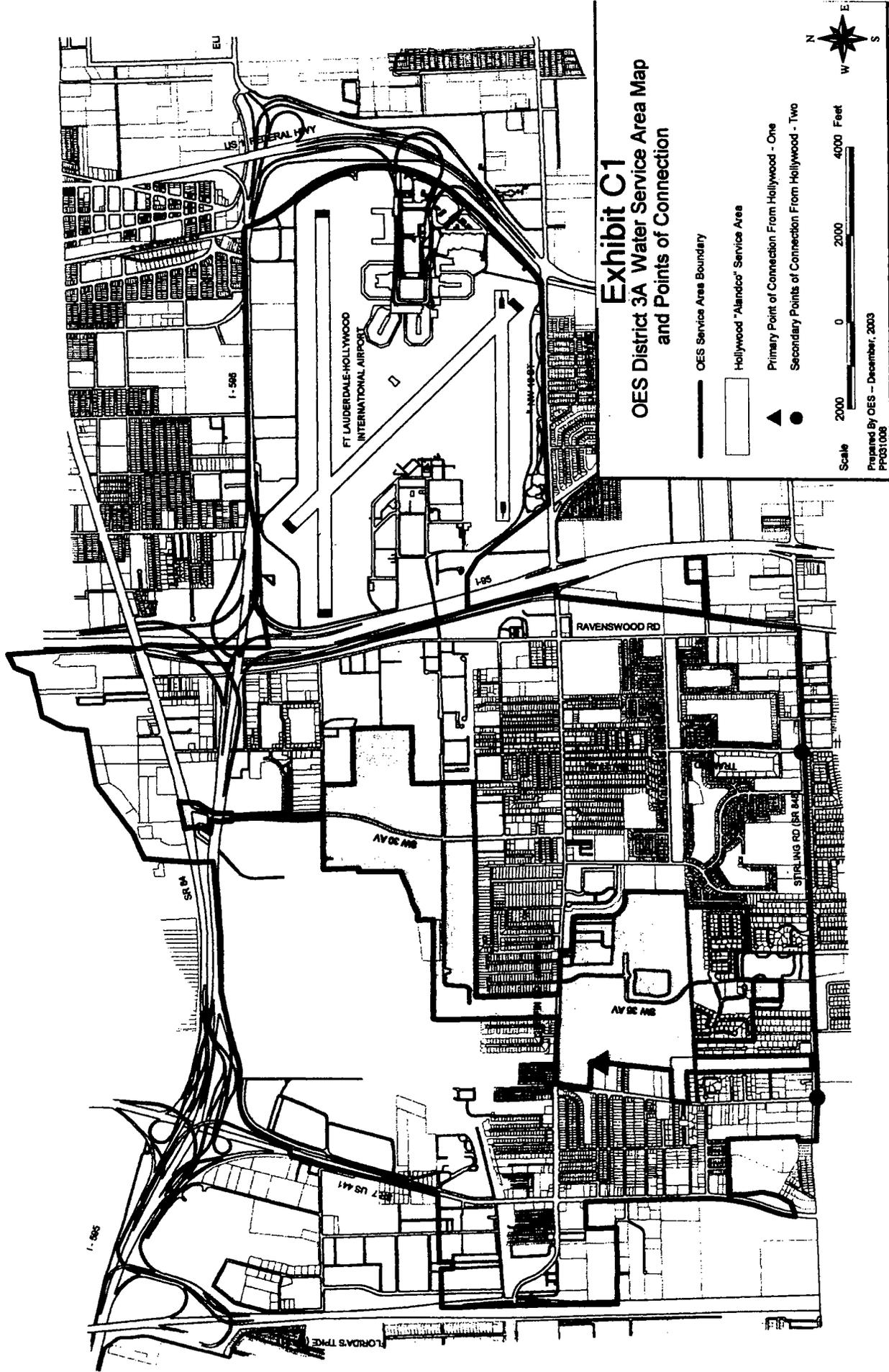


Exhibit C1

OES District 3A Water Service Area Map and Points of Connection

-  OES Service Area Boundary
-  Hollywood "Alandco" Service Area
-  Primary Point of Connection From Hollywood - One
-  Secondary Points of Connection From Hollywood - Two



Prepared By OES - December, 2003
 PPC31.008

Exhibit D-1

FUTURE FLOWS

Year	District 3A		District 3BC		Total	
	ADF	MDF	ADF	MDF	ADF	MDF
2005	3.6	4.8	3.9	5.6	7.5	10.4
2010	4.1	5.4	4.1	5.9	8.2	11.3
2015	4.7	6.2	4.6	6.6	9.3	12.8
2020	5.6	7.4	5.0	7.2	10.6	14.6
2025	6.6	8.7	5.3	7.6	11.9	16.3

ADF is average day flow in million gallons per day

MDF is maximum day flow in million gallons per day

District 3A does not include flow for Alandco.

2-9-33-
Fo

INTERLOCAL AGREEMENT FOR THE BULK SALE
OF POTABLE WATER BETWEEN
BROWARD COUNTY, FLORIDA AND
THE CITY OF HOLLYWOOD, FLORIDA

This Agreement is made and entered into this 15th day of Oct, 1996, by and between the Board of County Commissioners, as the governing board of Broward County, a political subdivision of the State of Florida with its principal place of business at 115 South Andrews Avenue, Ft. Lauderdale, Florida 33301 (hereinafter referred to as "County"), and the City of Hollywood, a municipal corporation of the State of Florida, with its principal place of business at 2600 Hollywood Blvd., Hollywood, Florida 33020 (hereinafter referred to as "City").

RECITALS

WHEREAS, County is the owner and operator of a 6.2 million gallons per day (MGD) water treatment plant located at the intersection of Griffin Road and 40th Avenue; and

WHEREAS, the average daily demand for water service at this facility is 2.6 MGD; and

WHEREAS, unless County finds another source of potable water, County anticipates the need to invest monies to upgrade this facility to continue providing quality service to residents in the service area denoted as Broward County Service Area 3A, more particularly described herein in Exhibit A, attached hereto and made a part hereof; and

WHEREAS, instead of investing monies to upgrade its facility, County is desirous of purchasing potable water from City to serve Broward County Service Area 3A; and,

WHEREAS, City is the owner and operator of a 37.5 MGD water treatment plant located at the intersection of Hollywood Boulevard and 35th Avenue; and

WHEREAS, City is currently upgrading its water treatment plant through the addition of membrane softening units and reverse osmosis units that will allow City to treat multiple sources of water; and

WHEREAS, the City and County have entered into an Agreement entitled "Large User Raw Water Agreement Between Broward County, Florida and City of Hollywood, Florida" which requires the County to deliver raw water from the County's South Regional Raw Water System to the City in accordance with the terms and conditions of said agreement; and

WHEREAS, the quality of water that will be produced by City's facility will be of a quality meeting all State and Federal regulatory standards; and

WHEREAS, the demand for service on City's facility by current City of Hollywood customers averages 18.5 MGD, with a peak demand of 25.4 MGD; and

WHEREAS, City has surplus capacity in its facility to provide bulk water to other area entities; and

WHEREAS, City is currently under contract with County to provide water service to areas known as Broward County Service Area 3B and 3C, more particularly described in Exhibit B, attached hereto and made a part hereof; and

WHEREAS, the Board of County Commissioners finds that the purchase of water from City is consistent with and furthers the goals of providing potable water service to the customers of Broward County Service Area 3A, (Exhibit A) along with the continuing provision of potable water service to Broward County Service Areas 3B and 3C, all three of which are hereinafter referred to collectively as "District 3"; and

WHEREAS, City is willing to provide potable water service to all of District 3; and

WHEREAS, the City Commission finds that the sale of potable water to County is of benefit to the citizens of City, as well as to the customers of District 3; and

WHEREAS, the parties hereto desire to enter into this agreement setting forth the mutual understandings, terms and conditions of the sale of bulk water by City to County; and

WHEREAS, City and County pledge their mutual cooperation towards the provision of cost effective and efficient potable water to those persons residing or working in District 3; and

WHEREAS, this Agreement and all the stipulations and covenants contained herein are subject to the approval of all the appropriate regulatory agencies,

including the South Florida Water Management District.

NOW THEREFORE, in consideration of the covenants contained in this Agreement, it is mutually agreed between the parties as follows:

1. RECITALS: The above recitals are true and correct, and are incorporated herein. Time is of the essence for all provisions herein.

2. OBLIGATIONS OF CITY/COUNTY FOR CONNECTIONS:

a. It shall be the City's obligation at its' sole cost and expense, to design and construct facilities to the 3A plant site Point of Connections (Exhibit Consolidated Water and Wastewater System). It shall be the obligation of County, at its sole cost and expense, to design, construct and install connections, appurtenances and master meters to physically connect County's system to City's regional water transmission system at locations shown on Exhibit C, attached hereto and made a part hereof, in accordance with plans, specifications and engineering data as prepared, certified and submitted by a registered professional engineer in the State of Florida, and as approved by the appropriate regulatory agencies and City's Public Utilities Director or authorized representative. As used in this Agreement, the term "Point of Connection" means any location(s) shown on Exhibit C where County's system is physically connected to the City's system by a master meter(s).

b. County shall, at its expense, retain the services of the same registered professional engineer who prepared the plans and specifications during construction for the purpose of providing the necessary inspections and supervision of the construction work, herein after referred to as "Work", for those facilities described in Exhibit C.

c. County agrees to require its engineer to provide shop drawings and catalog information of the materials and equipment to be installed as part of the connection to City's system, for City approval. No Work shall commence until the shop drawings, plans and specifications are approved in writing by City's Public Utilities Director or authorized representative. Review by the City shall be done within ten (10) working days.

d. A preconstruction meeting with City's Public Utilities Director or his authorized representative, County, County's engineer and contractor shall be held prior to commencement of the Work.

e. County agrees to grant City free access to the materials and the work site at all times for the purpose of inspecting same and to notify City before any

Work is begun or inspections made. Said notification shall be made in writing and shall be received by City at least forty-eight (48) hours in advance of the time Work will begin or inspections will be made.

f. At the time when periodic inspections are made, City's authorized representative, together with County's engineer, will be present to observe and jointly witness tests for determination of conformance to approved plans and specifications.

g. County shall require its contractor, during the warranty period, to promptly correct defective Work upon notification by City. Should County's contractor or the County fail to correct defects of the Work within ten (10) working days after written notification by the City, City may correct and remedy any such deficiency. All direct and indirect costs of City shall be charged to County.

h. County's obligation to perform and complete the Work in accordance with this Agreement shall be absolute. Neither any act of acceptance by City nor any failure to do so will constitute a release of County's obligation to comply with all requirements set forth in this Agreement.

i. City shall not be required to provide water service, except for construction water, unless installation of the Work has been completed, tested, certified, approved and accepted by City, and County's engineer has provided record drawings and related documentation. Should construction water be required, County shall pay at the established rate. All construction water shall be metered.

3. OBLIGATIONS OF COUNTY FOR CONVEYANCE OF NECESSARY APPURTENANCES: Upon completion, approval and acceptance of the Work required to be done on the City's side of the Point(s) of Connection shown on Exhibit C, County shall without cost to City:

a. Convey to City and its successors and assigns by good and sufficient easement deed, in a form satisfactory to City, a perpetual right, easement and privilege to operate, maintain, repair and replace all water mains, pipes, connections, pumps and meters within granted easements, in connection with supplying water service, and secure from each mortgagee and lienor a release of the interest of said mortgagee and lienor in the easement property and fixtures thereon for so long as the easement property is used for the operation, maintenance, repair or replacement of water mains, pipes, connections, pumps and meters within the easements.

b. Transfer to City by Bill of Sale Absolute all right, title and interest in and to all of the water mains, pumps, connection, pipes, valves, meters and equipment

installed within granted easements and rights-of-way as provided for in the plans and specifications to be prepared pursuant to Paragraph (2) above for the purpose of supplying water service. Said Bill of Sale Absolute shall be written in such a form as approved and accepted by City.

c. Furnish City with an affidavit that all persons, firms or corporations who furnished labor or material used directly or indirectly in the prosecution of the Work required to be performed by this Agreement have been paid. Said affidavit shall be written in such form as approved and accepted by City.

d. Furnish City with Releases Of Lien from all contractors and suppliers of materials and/or labor who might have acquired an interest in the installations through the supplying of materials and/or labor or otherwise.

e. Furnish City with all manufacturers' warranties which County might have received or is due to receive on any part of the Work.

f. Furnish City with a summary of the unit costs for the installations based on the invoices submitted by County's contractor as verified by County's engineer of record.

g. Provide record drawings of all installations and appurtenances on the Work. Said record drawings shall be of the completed works, on transparent mylar film, along with five sets of record prints made from the record film. Said record drawings shall be sealed by a professional engineer registered to do business in the State of Florida, and must show all pertinent information thereon, including but not limited to: current location of water mains, taps, meters valves, grade lines, and water main profiles. Said record drawing elevations shall be sealed by a registered land surveyor authorized to do business in the State of Florida.

4. CITY OBLIGATIONS TO MAINTAIN APPURTENANCES: Upon completion of the Work by County or County's/City's contractor, and acceptance of the Work by City, City shall thereafter, at its expense, own, operate, and maintain all facilities on the City's side of the Point of Connection(s) as shown on Exhibit C, which includes but is not limited to the master meter(s), connection piping and appurtenances within those easements granted to City for such purposes.

5. RETENTION OF RECORDED ENGINEERING INFORMATION: County shall require its engineer to keep all supporting documentation which reflects materials costs and all costs of construction (complete installation) of the Work. This documentation shall be available upon request at no charge to City's Public Utilities Director or authorized representative, for audit, inspection or copying for a minimum of five (5) years from City's formal acceptance of the Work.

6. RESERVE CAPACITY CHARGES DUE FROM ALL NEW COUNTY CUSTOMERS: All persons connecting to City's potable water system are required to pay the appropriate reserve capacity charges to City. The County is required to pay the appropriate reserve capacity charges for water treatment and transmission costs for all customers within District 3 who connect after the date of this agreement. These reserve capacity charges shall become payable by County at the time of application for a meter by those connecting to the potable water system in District 3. Said reserve capacity charges shall be remitted to City by County on a monthly basis. County will provide monthly a report of all reserve capacity charges due and payable.

The City Commission shall, from time to time, review the basis for said reserve capacity charges and adjust said reserve capacity charges when necessary as a result of a rate analysis conducted by a competent professional, after an appropriate public hearing, and after notice to County of any proposed changes. City shall provide the results of such rate analysis to County if requested. City shall maintain a separate accounting for the reserve capacity charges between water and wastewater.

7. COUNTY TO REQUIRE CONNECTION TO PUBLIC WATER SUPPLIES: County agrees to require all persons to whom potable water service is available to connect to the public potable water system in accordance with Chapter 34 of the Code of Broward County, as amended from time to time.

8. WATER QUALITY AND QUANTITY PROVIDED BY CITY: City shall make its best efforts to furnish water of the quantity and purity meeting the standards required by the Florida Department of Health and Rehabilitative Services, the Broward County Public Health Unit and any other regulatory agency having jurisdiction. City shall further make its best effort to supply, for the use of County at the Points of Connection to its water system, at all times, and at a more or less constant flow, quality of water at or above the pressure 60 psi, except at the 3A plant Point of Connection where 40 psi (at a more or less constant flow of 2800 gpm) will be satisfactory to provide service for domestic use on County's side of the meter.

9. COUNTY TO PAY FOR COST OF WATER SUPPLIED:

a. County shall pay City the prevailing City rate for bulk water service, as set from time to time by the City Commission after an appropriate public hearing, and after written notice to County of any proposed changes. Said water rate shall be based on the volume of water passing through the meter locations described in Exhibit C. The initial rate for bulk service shall be as follows:

1. Until October 1, 1996, the rate shall be \$0.78 per one thousand gallons of water delivered through the meter locations indicated on Exhibit C.

2. Until April 1, 1997, or such time as the District 3A water treatment plant no longer treats water for potable purposes, whichever occurs last, the rate shall be \$0.84 per one thousand gallons of water delivered through the meter locations indicated on Exhibit C.

3. At such time as the District 3A water treatment plant no longer treats water for potable purposes, or April 1, 1997 whichever occurs last, the rate shall be \$0.92 per one thousand gallons of water delivered through the meter locations indicated on Exhibit ~~Consolidated Water and Wastewater System~~ (except as provided in (2) above). *ZUF*

No increase beyond \$0.92 per one thousand gallons shall occur prior to October 15, 1997. Any increase in the usage rate charged to County thereafter shall not exceed the percentage of increase enacted for City's retail customers, and as deemed appropriate by a rate study conducted by a competent rate consulting professional. "The percentage of increase enacted for City's retail customers," as used to define any rate increases contemplated under this Agreement, shall be determined by the percentage difference found from a comparison of the total of all retail water revenues, projected over all retail water user classes, when identical volumetric, unit and meter bases are used. No increase shall be approved by City without 45 days' written notice to County of said proposed increase.

b. All said bulk water rates shall be nondiscriminatory and shall be the same for all like users on the system.

c. City shall bill County on a monthly basis for the amount of water used on the meters. The bill shall be considered delinquent if unpaid within 45 days after rendering to County by City.

d. The sale of water by City to County shall occur on County's side of the meters, at the Points of Connection, to be located as shown in Exhibit C.

10. CITY TO HAVE EXCLUSIVE RIGHT TO PROVIDE SERVICE: City shall have the exclusive right to furnish water service to county customers within the areas covered by this Agreement (see Exhibits A and B). County shall have the right to sell any portion of District 3, but only to the municipality within which the portion exists. Consummation of such a sale shall terminate this Agreement for the area purchased only, provided that the parties hereto agree to review and amend this Agreement to reflect the revised service area and flow projections.

11. COUNTY TO MAINTAIN SYSTEM CONDITION: County shall maintain its water distribution facilities and appurtenances in District 3 in accordance with standard utility practice.

12. CITY NOT LIABLE FOR COUNTY PIPELINES: City shall not be liable or responsible for maintenance or operation of any pipes, pipelines, valves, fixtures or equipment on any of the properties of the customers or users in District 3 downstream from the Points of Connection.

13. ALANDCO WATER SERVICE: City and County agree that City will continue to provide water service to the Alandco properties, more particularly described in Exhibit E, which is attached hereto and made apart hereof, via County's transmission lines. Given that the water metered at the Alandco properties will be from City's potable water system, City shall deduct from any bill to County, the amount of water usage indicated on the Alandco meter or meters.

City and County agree to a \$0.04 per 1000 gallons charge for transmission system usage to be paid by City to County to serve the Alandco area. City shall deduct the transmission system user charge from the bill to be rendered to County. Any increase in costs of transmission charged to City shall not exceed the percentage of increase enacted for County's retail customers. "The percentage of increase enacted for County's retail customers," as used to define any rate increases contemplated under this Agreement, shall be determined by the percentage difference found from a comparison of the total of all retail water revenues, projected over all retail water user classes, when identical volumetric, unit and meter bases are used.

City and County further agree that the previous agreements entitled "Large User Wastewater Transmission Agreement and Finished Water For Resale Agreement" (collectively known as the "Alandco Agreements"), dated May 16, 1989, as amended from time to time, are hereby superseded in their entirety by this Agreement, and the prior Agreements are hereby deemed null and void.

14. TRANSFER OF SERVICE AREAS: City and County agree that if in the future, through an exchange of service areas, certain properties in District 3 that are currently retail customers of County become retail customers of City, or certain properties that are currently retail customers of City become retail customers of County, those properties currently receiving water service shall not be charged a reserve capacity charge or impact fee by City or County, whichever receives the customers, due to the transfer.

15. WATER QUALITY TESTING: City and County shall make their best efforts to cooperate jointly in complying with federal, state and local water quality monitoring evaluations. District 3 shall be deemed a consecutive system under the Florida Administrative Code. This designation encourages consolidation of water

quality analysis requirements. Specifically Chapter 62-551, Florida Administrative Code, denotes requirements for lead and copper sampling, testing, monitoring, treatment and reporting requirements. These requirements shall be performed by City in lieu of County additionally testing the same water. To this end, and to monitor water quality to the residents of District 3, each party agrees to provide the other with copies of any water quality analyses it performs to assist each other with information to improve service. Each party shall advise the other of any water quality problems it encounters in the water distribution system in District 3. County shall retain responsibility for the quality of water from the Points of Connection.

16. METER TESTING: City shall maintain and test all meters semiannually and shall have a test conducted by a representative of the manufacturer or other competent entity. A copy of the semiannual report on meter inspections shall be furnished to County. County may from time to time request permission to have a meter test conducted. County shall submit such requests at least forty-eight (48) hours in advance of the test, not including any weekends or holidays. In the event that any meter tested is not accurate within the manufacturer's recommended range, City shall pay the costs of the test and make appropriate adjustments or repairs to the meter to bring it within the manufacturer's recommended range. County may be present to observe any meter test conducted by City.

Should the metering equipment be found to be inaccurate beyond the manufacturer's range of accuracy, the meter will be assumed to be inaccurate since midway between the previous meter check and the discovered inaccuracy or for a period of three months, whichever time should be less, and the following month's billing will be adjusted to show a credit or additional charge to County for that period based on the average daily flow of the thirty (30) day period prior to the previous meter check. An additional adjustment shall be made after the meter inaccuracy has been corrected. Said additional adjustment shall show a credit or additional charge to County for that period based on the average daily flow of the thirty (30) day period prior to the previous meter check and immediately after the period of inaccurate operation.

17. METER FAILURE: County agrees that if at any time the metering system shall be inoperative or in any way fails to provide information with respect to the quantity of flow into County's water system, County shall pay City a daily amount equal to the average daily flow of the monthly billing period immediately prior to the date the meter became inoperative, prorated over the number of days the meter was inoperative. City shall promptly repair or replace said defective or inoperative meter.

18. COUNTY FLOWS: County expects water demands for District 3 to be as shown on Exhibit D, attached hereto and made a part hereof. City agrees

to provide water in such quantities to meet these demands at a more or less constant rate of flow. County agrees to maintain adequate storage facilities to meet peak demands for District 3. Maximum daily demands on the system shall not exceed 1.34 times the maximum daily demands shown on Exhibit D, without permission of City. Should County consistently exceed these amounts, City may impose a surcharge of up to twenty-five (25) percent on the excess water utilized, if directed by the City Commission.

19. WATER CONSERVATION: City and County acknowledge that from time to time there will be water resource restrictions imposed by regulatory agencies. County agrees to conform with any water conservation efforts or mandates imposed by regulatory agencies, including but not limited to use restrictions and reductions of water distribution system pressures imposed by the South Florida Water Management District. In the event of a water resource restriction due to failure of City's facilities, County agrees to conform with necessary water conservation efforts, including a reduction of water distribution system pressures, to prevent further damage to City's or County's water system and to prevent the creation of a hardship for any other party. City and County agree that no reductions in service that will provide insufficient service or insufficient fire service will be required of either party by the other.

20. TERMINATION OF AGREEMENT: Except as provided in paragraph (10), City and County agree that this Agreement shall not be terminated on any condition other than City's purchase of the entire District 3 water and sewer service area, or by a mutual cancellation agreement between the parties hereto, which shall be a written document executed with the same formality and of equal dignity herewith.

21. COOPERATION BETWEEN CITY AND COUNTY: City and County agree to cooperate toward the development of a computer model of City's water distribution system and the District 3 water distribution system, to cooperate on engineering and field work to facilitate a beneficial and amicable working relationship, and to expedite those matters that may impact each other's service areas or distribution facilities.

22. CITY TO SUPPLY WATER TO COUNTY: City agrees to make every effort to provide water to County in the quantities specified in Exhibit D and in a manner similar to that of its retail customers.

23. EMERGENCY INTERCONNECTS: No water from CITY's water system is to be used or disbursed by COUNTY or its agents outside the indicated service area to be served as shown in EXHIBIT "A", attached hereto and made a part hereof except as provided by emergency interconnects with neighboring public

systems not to be activated without the prior concurrence of CITY. CITY shall not be responsible for providing adequate pressure or flow through COUNTY's emergency interconnects to other public systems.

24. FORCE MAJEURE: Any temporary cessation or interruption of the furnishing of water services provided in this Agreement, at any time caused by an act of God, fire, strike, casualty, accident, power failure, necessary maintenance work, breakdown, damage to equipment or mains, civil or military authority, riot or other cause beyond the control of City or County shall not constitute a breach of the provisions contained herein or impose liability upon City or County, its successors and assigns.

25. JURISDICTION OF OTHER AGENCIES: Both parties agree that certain federal, state, and local agencies have some jurisdiction and control over water supply matters and should any such agency, excluding the Board of County Commissioners of Broward County, Florida, issue legally enforceable laws, regulations, mandates, or orders that may alter any of the terms and conditions of this Agreement, there shall be no liability on either party because of such action, provided that City shall not be precluded from making necessary adjustment to the fees, rates, and charges. It is further agreed that if any such agency shall request a change in the provisions of this Agreement that both parties will, by mutual agreement, make every effort to comply with such request. However, the terms of this Section shall not preclude administrative or judicial challenge, or both, of such order by either or both parties hereto. This provision shall not be construed so as to permit County to terminate this Agreement.

26. NOTICES: Whenever either party desires to give notice unto the other, it must be given by written notice, sent by certified United States mail, with return receipt requested, addressed to the party for whom it is intended, at the place specified as the place for giving of notice; the place for giving of notice shall remain as such until it shall have been changed by written notice in compliance with the provisions of this paragraph. For the present, the parties designate the following as the respective places for the giving of notice, to wit:

FOR CITY:

Utilities Director
Public Utilities Department
City of Hollywood
P.O. Box 229045
Hollywood, Florida 33022-9045

with copy to:

City Attorney's Office
2600 Hollywood Boulevard
Hollywood, FL 33022

FOR COUNTY:

Director
Broward County Office of Environmental Services
2555 West Copans Road
Pompano Beach, FL 33069

with copy to:

County Attorney's Office
115 South Andrews Avenue
Ft. Lauderdale, FL 33301

Notice so addressed and sent by certified mail, with return receipt requested, shall be deemed given when it is received by the other party.

26. **AGREEMENT SUPERSEDES ALL PRIOR AGREEMENTS:** This Agreement shall supersede all previous agreements for potable water service, including, but not limited to, the agreements for potable water service to Broward County Service areas 3B and 3C, and the Alandco agreement.

27. **MODIFICATIONS TO THIS AGREEMENT:** This Agreement shall be modified or amended only by written amendment approved and executed in the same manner as this Agreement.

28. **ASSIGNMENT OF THIS AGREEMENT:** This Agreement shall not be assigned in whole or in part by either party, and any attempt by either party to assign shall be void ad initio.

29. **RECORDATION OF THIS AGREEMENT:** This Agreement shall be recorded in the Official Records of Broward County, Florida within fourteen (14) days after execution of this Agreement by both parties.

30. **INJUNCTIVE RELIEF:** Any party to this Agreement shall have the ability to file an action for injunctive relief in the Circuit Court of Broward County to enforce the terms of this Agreement, said remedy being cumulative with any and all remedies available to the parties for enforcement of this Agreement.

31. TERM: The term of this Agreement shall be twenty five (25) years. This Agreement may be renewed thereafter for ten (10) year intervals no less than five (5) years in advance of the end of the next term, via mutual agreement between the parties hereto, which shall be a written document executed with the same formality and of equal dignity herewith.

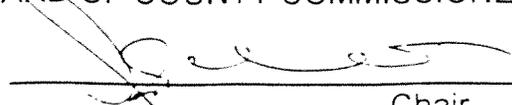
32. AGREEMENT SUBJECT TO THE LAWS OF THE STATE OF FLORIDA: This Agreement shall be controlled by the laws of the State of Florida.

IN WITNESS WHEREOF, the parties have made and executed this Agreement on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Chair or Vice Chair, authorized to execute same by Board action on the 15th day of Oct., 1996, and signing by and the City of Hollywood, Florida, signing by and through Mara Giulant duly authorized to execute same.

ATTEST: 

County Administrator and Ex-officio Clerk of the Board of County Commissioners of Broward County, Florida

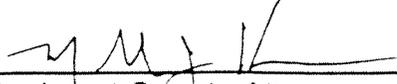
COUNTY:
BROWARD COUNTY, through its BOARD OF COUNTY COMMISSIONERS

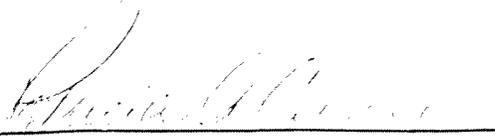
By:  _____, Chair

15th day of October, 1996

Approved as to form by
Office of County Attorney
Broward County, Florida
John J. Copelan, Jr., County Attorney
Government Center, Suite 423
115 South Andrews Avenue
Ft. Lauderdale, Florida 33301
Telephone (305) 357-7600
Telecopier (305) 357-7641



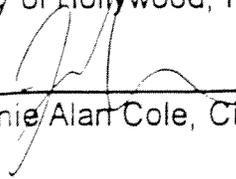
By:  _____
Assistant County Attorney

ATTEST:

Patricia A. Cerny
City Clerk

THE CITY OF HOLLYWOOD, A MUNICIPAL CORPORATION OF THE STATE OF FLORIDA

By:  _____
Mara Giulant, Mayor

Approved as to form and legality for the use and reliance of the City of Hollywood, Florida only:


Jamie Alan Cole, City Attorney

RESOLUTION NO. R-93-294

RESOLUTION TO AUTHORIZE EXECUTION OF AGREEMENT WITH BROWARD COUNTY TO PURCHASE WATER FROM BRIAN PICCOLO WELLFIELD, TO SECURE WATER FROM THIS SOURCE FOR THE CITY OF HOLLYWOOD'S USE.

WHEREAS, due to possible salt water intrusion, the South Florida Water Management District has limited the amount of water that can be withdrawn from the Hollywood Wellfield to 22.47 million gallons a day; and

WHEREAS, it is estimated that in the next five years additional sources of water will be necessary to supplement the City's own sources and provide for the needs of the residents of the City of Hollywood; and

WHEREAS, Broward County has developed a Regional Water Supply Strategy and a South Regional Wellfield is to be developed at Brian Piccolo Park; and

WHEREAS, the City of Hollywood's Plan for Water Management includes obtaining water from the Biscayne Aquifer, the Floridan Aquifer and the Brian Piccolo Wellfield; and

WHEREAS, raw water from this wellfield could be purchased from the County to supplement the City's supply; and

WHEREAS, the Brian Piccolo Wellfield has water available to provide to the City an additional six million gallons a day annual average daily flow and eight million gallons a day peak daily flow; and

WHEREAS, the current water quality will be maintained while being supplemented by the Floridan Aquifer and the Brian Piccolo Wellfield water; and

WHEREAS, the Director of Utilities with Utilities Department input has negotiated a Large User Agreement with Broward County; and

CERTIFICATION

I certify this to be a true and correct copy of the record in my office.

WITNESSETH my hand and official seal of the City of Hollywood, Florida, this the

26th day of January 1994
William J. Lowland City Clerk.

WHEREAS, the Hollywood City Commission requested staff to renegotiate with Broward County; and

WHEREAS, as a result of renegotiations with Broward County, modifications will be included; and

WHEREAS, the following modifications to be included in the final Agreement:

1. In lieu of placing a "cap" on the agreement, since actual costs are unknown at present, language will be added to allow the City to determine whether or not to remain party to the Agreement in three to five year intervals. Should the City decide it is in its' best interest to withdraw from the Agreement, a 180 day notice would be required.
2. Item 2.1 a of the Agreement will be amended to define the actual location and scope of the County Facilities being funded for purposes of extracting water from the Brian Piccolo Wellfield. Once defined, operation and maintenance costs will be limited to this location and facility.
3. Additionally, an addendum will be included in reference to defining estimated cost for operation and maintenance of the Brian Piccolo Wellfield, without pretreatment (to be in the range of \$0.10 \$/Kgals to \$0.14 \$/Kgals).

and

WHEREAS, the Utilities staff has received from Broward County a final draft and is working with the Acting City Attorney to finalize this Agreement as to form and legality; and

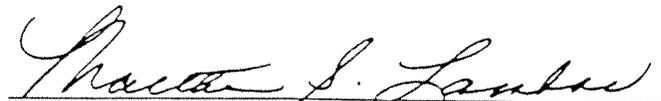
WHEREAS, the City Attorney and the Utilities Director recommend approval of this agreement with Broward County; and

NOW, THEREFORE, Be It Resolved By The Hollywood City Commission to authorize entering into An Agreement With Broward County, authorizing staff to prepare a final Agreement to purchase water from the Brian Piccolo Wellfield.

PASSED AND ADOPTED THIS 1st DAY OF September 1993.


MARA GIULIANTI, MAYOR

ATTESTED:


MARTHA S. LAMBOS, CITY CLERK

ENDORSED AS TO FORM AND LEGALITY:

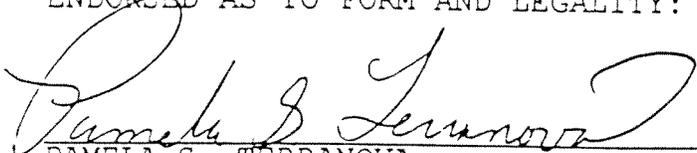

PAMELA S. TERRANOVA
ACTING CITY ATTORNEY

EXHIBIT C

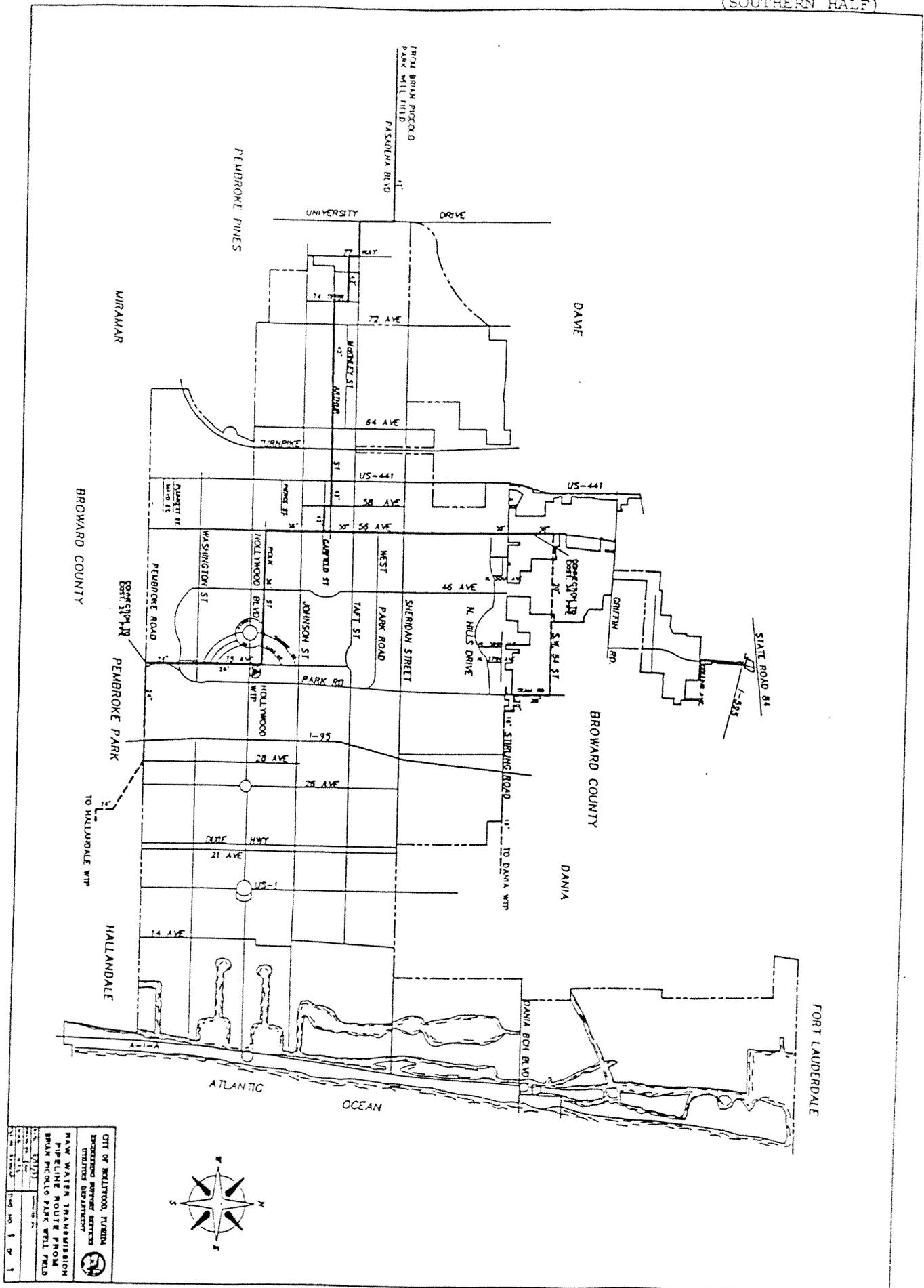
RAW WATER AGREEMENT - HOLLYWOOD

The City of Hollywood understands that although the cost of raw water from the Brian Piccolo wellfield can not be determined at this time, the cost is anticipated to be between the present cost of treating Biscayne Aquifer water and the cost of treating Floridan Aquifer water by reverse osmosis.

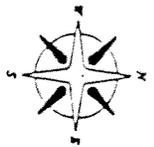
Summary Operation and Maintenance Cost

<u>Source</u>	<u>Estimated Cost</u>
Biscayne Aquifer	\$0.38/1000 gals (present cost)
Brian Piccolo	Greater than \$0.38/1000 gallons but less than \$0.80/1000 gallons (Based on \$0.10 to \$0.14/1000 gallons County O/M plus present cost plus pretreatment costs).
Floridan Aquifer	\$0.80/1,000 (future R.O.)

COUNTY FACILITIES FOR PROVIDING RAW WATER (SOUTHERN HALF)



CITY OF HALLANDALE, FLORIDA
 ENGINEERING SERVICE CENTER
 UTILITIES DEPARTMENT
 RAW WATER TRANSMISSION
 PIPELINE ROUTE FROM
 BRIAN PICCOLO PARK MILL FIELD



Scale: 1" = 100'
 Date: 1/1/77
 Sheet No. 1 of 1

SECTION 1

SUMMARY

James M. Montgomery, Consulting Engineers, Inc. was authorized in January 1992 to commence design of wellfields and raw water transmission mains for the Broward County Regional Water Supply Project. The purpose of this report is to update and finalize design criteria and component sizing established in the Preliminary Design Report (PDR) completed in March 1990 for the raw water system facilities. System components include raw water wells, transmission pipelines, collection pipelines, power supply and SCADA system.

One of the initial steps for the design of the wellfields and transmission mains include a hydraulic analysis which was performed for both the North System and South System to determine and select pipeline sizes for projected buildout demands. Recommended transmission pipeline sizes based on the results from the hydraulic analysis for both the North and South Systems are shown in Figures 2-1 and 3-1 respectively, and are summarized as follows:

	<u>Pipeline Reach</u>	<u>Recommended Pipe Size (in)</u>
North System	1	48
	2	42
	3	54 (Existing pipeline)
	4	20 (Future pipeline)
	5	24
	6	48
	7	42
South System	1	42
	2	36
	3	24
	4	24 (Existing pipeline)
	5	30
	6	16 (Existing pipeline)
	7	20
	8	16 (Existing pipeline)

The pipelines were conservatively sized with a design velocity of five to six feet per second. Analysis has shown that these design velocities optimize the capital and operating costs over the design life of the system. If in the future the County desires to increase the capacity of the pipelines, the flow velocity may be increased seven to ten feet per second by utilizing a booster pump station to increase the pipeline capacity approximately 50 percent. At the higher velocities, the operating efficiency of the system will decrease. Another option for increasing system capacity is to upsize the transmission mains from the recommended pipe sizes. The additional capital cost to upsize the transmission mains by one pipe size was determined to be approximately 20 percent.

Summary

Design standards and criteria are established for the transmission pipelines, collection pipelines, wells, power supply and flow control and metering structures in the report. Significant design changes from the PDR besides pipeline sizing, rerouting, and an overall reduction in the capacity of the system include the following:

- Prestressed concrete cylinder pipe (PCCP) is not recommended as a pipe alternative for this project.
- Utilizing submersible pumps mounted in a below grade vault due to the Florida Department of Environmental Regulation (FDER) requirements.

Estimated probable construction costs for the North and South System bid packages are summarized as follows:

<u>Bid Package</u>	<u>Project</u>	<u>Probable Construction Cost (\$)</u>
3	South System Transmission Main-A	9,155,000
4	South System Transmission Main-B	3,160,000
5	South System Regional Wellfield	3,371,000
6	SCADA System	1,126,000
7	North System Transmission Main - A	4,642,000
8	North System Transmission Main - B	2,920,500
9	North System Transmission Main - C	1,475,500
10	North System Transmission Main - D	913,000
11	North East Regional Wellfield	3,195,000
	Total (3rd Quarter, 1992 Dollars)	\$29,958,000

The project implementation schedule for the South System assumes a six month design period for the major components of the project, a six month period for permitting, bidding and award, and an eight month construction period. Based on these assumptions, the project should be ready to deliver new water in late 1993 or early 1994. The project implementation schedule for the North System assumes a six month design period for the major components of the project, a five month period for permitting, bidding and award, and a seven month construction period. Based on these assumptions, the project should be ready to deliver new water following construction of the North East Regional Wellfield and the North System Transmission Main - A by early 1994.

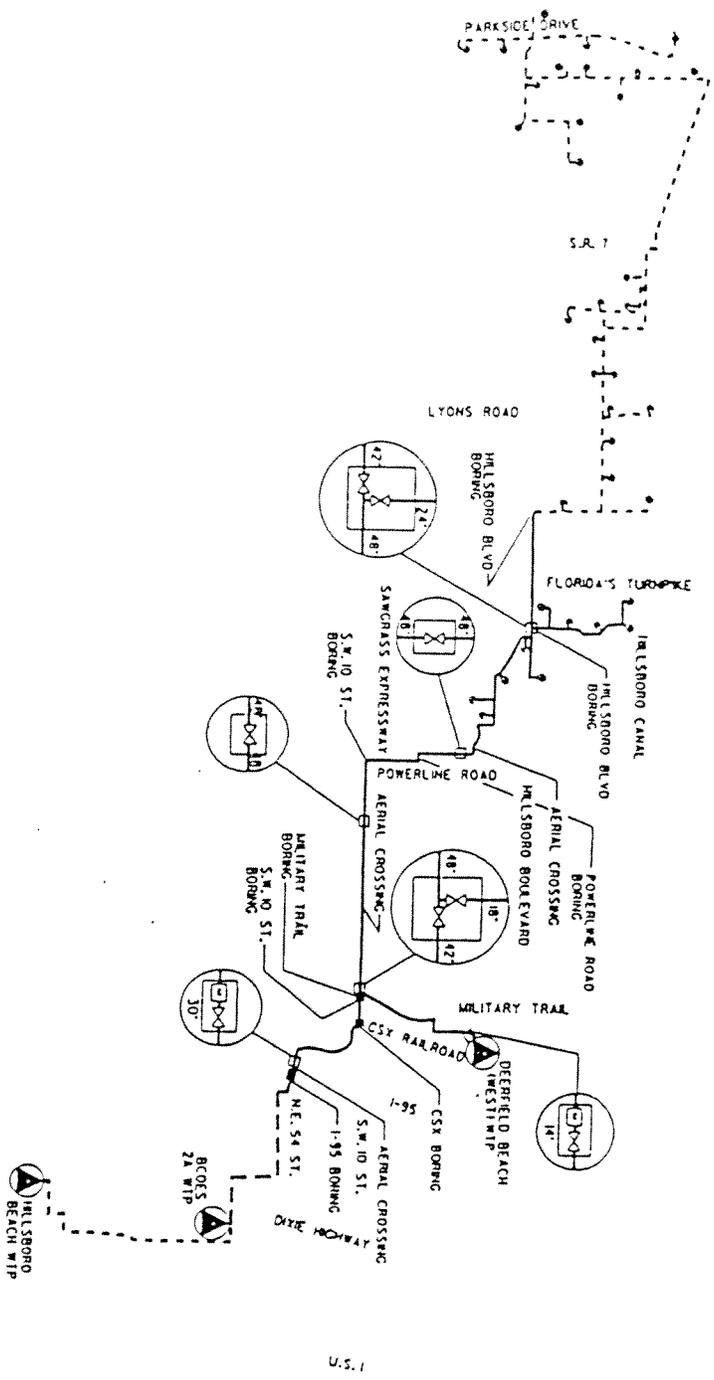
Items which may potentially delay the project schedule include: upconing study results requiring reconfiguration of the wellsites, Large User coordination, easement and well site acquisition, bid protests, permitting delays, and delivery of long lead project materials.

A preliminary design report (PDR) was completed in March 1990 for all Regional Water Supply system facilities. The report analyzed design criteria, various transmission pipeline corridors, pipeline sizes, various pumping schematics, system capacity, system reliability, power supply, project costs and project implementation. Recommendations were made to the County with regard to the final design criteria in the PDR.

Summary

Since completion of the PDR some factors have changed which will impact final design criteria and implementation of the project. These factors include Consumptive Use Permit restrictions, Large User Agreements differing from those anticipated in the PDR, and project delays.

The purpose of this report is to update design criteria and component sizing based on recent restrictions and changes to the project. The report also includes a list of major equipment manufacturers, permits and approvals required, technical specifications necessary for the project, estimated project costs, and a project implementation schedule.

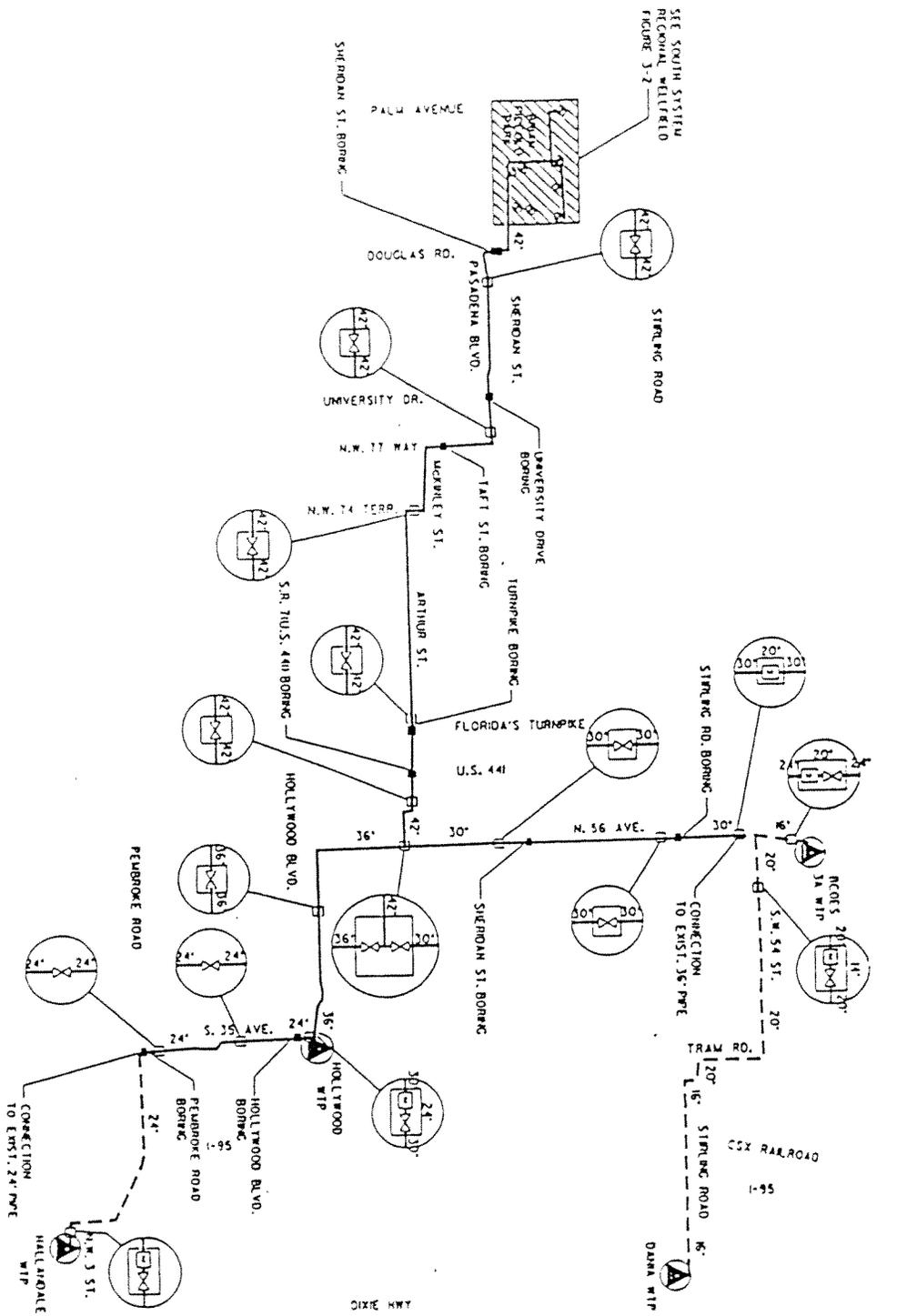


LEGEND

- PROPOSED NEW TRANSMISSION PIPELINE
- - - EXISTING TRANSMISSION PIPELINE
- - - PROPOSED FUTURE TRANSMISSION PIPELINE
- JACK AND BORE CROSSING
- ⊗ WELLFIELD
- STRUCTURE
- ∩ VALVE
- ⊠ METER
- ⊕ WATER TREATMENT PLANT (WTP)



PRELIMINARY DESIGN PLAN
FOR
RAW WATER
TRANSMISSION PIPELINE
NORTH SYSTEM
FIGURE 2-1



LEGEND

- PROPOSED RAW WATER TRANSMISSION PIPELINE
- - - EXISTING TRANSMISSION PIPELINE
- JACK AND BORE CROSSING
- ⊗ WELLFIELD
- STRUCTURE
- ⊓ VALVE
- ⊕ METER
- ⊕ WATER TREATMENT PLANT (WTP)



PRELIMINARY DESIGN PLAN
FOR
RAW WATER
TRANSMISSION PIPELINE
SOUTH SYSTEM
FIGURE 3-1

**ATTACHMENT TO BRIAN PICCOLO AGREEMENT
EXAMPLE CALCULATION OF EXCESSIVE FLOW CHARGES**

Date	Flow (1,000 gal)	% Over AMDF	2x% Over AMDF	Charge (\$0.10/1000 gal)	Notes: (AMDF = Annual Maximum Daily Flow) (AMDF = 8,000,000 gal/day)
1	6,000	0.00%	0%	\$600	
2	9,000	12.50%	25%	\$900	
3	6,000	0.00%	0%	\$600	First day over AMDF **
4	9,000	12.50%	25%	\$900	
5	10,000	25.00%	50%	\$1,000	Second successive day over AMDF **
6	12,000	50.00%	100%	\$1,200	First day of penalty
7	11,000	37.50%	75%	\$1,100	
8	10,000	25.00%	50%	\$1,000	
9	9,000	12.50%	25%	\$900	
10	7,000	0.00%	0%	\$700	Last day of overage
11	6,000	0.00%	0%	\$600	
12	5,000	0.00%	0%	\$500	
13	5,000	0.00%	0%	\$500	
14	5,000	0.00%	0%	\$500	
15	5,000	0.00%	0%	\$500	
16	5,000	0.00%	0%	\$500	
17	5,000	0.00%	0%	\$500	
18	5,000	0.00%	0%	\$500	
19	5,000	0.00%	0%	\$500	
20	5,000	0.00%	0%	\$500	
21	5,000	0.00%	0%	\$500	
22	5,000	0.00%	0%	\$500	
23	5,000	0.00%	0%	\$500	
24	5,000	0.00%	0%	\$500	
25	5,000	0.00%	0%	\$500	
26	5,000	0.00%	0%	\$500	
27	6,000	0.00%	0%	\$600	
28	8,000	0.00%	0%	\$800	
29	8,000	0.00%	0%	\$800	
30	8,000	0.00%	0%	\$800	
1	7,000	0.00%	0%	\$700	\$20,000 Monthly charge
2	7,000	0.00%	0%	\$700	10% Average 2 x Overage **
3	8,000	0.00%	0%	\$800	\$2,000 Penalty **
4	8,000	0.00%	0%	\$800	\$22,000 Monthly charge with penalty
5	8,000	0.00%	0%	\$800	
6	8,000	0.00%	0%	\$800	** Excludes first two days.
7	8,000	0.00%	0%	\$800	
8	8,000	0.00%	0%	\$800	
9	8,000	0.00%	0%	\$800	
10	8,000	0.00%	0%	\$800	30 consecutive days without overage
11	10,000	25.00%	50%	\$1,000	
12	8,000	0.00%	0%	\$800	First day over AMDF
13	10,000	25.00%	50%	\$1,000	
14	9,000	12.50%	25%	\$900	Second successive day over AMDF
15	9,000	12.50%	25%	\$900	First day of penalty

ACKNOWLEDGMENT

STATE OF FLORIDA)
COUNTY OF BROWARD)

The foregoing instrument was acknowledged before me this _____ day of _____, 199____, by _____, Chair of the Board of County Commissioners of Broward County, a political subdivision of the State of Florida, on behalf of the County. He/she is personally known to me or who has produced _____ as identification.

Notary Public

Name Typed, Printed or Stamped
Commission No. _____
My Commission Expires:

STATE OF FLORIDA)
COUNTY OF BROWARD)

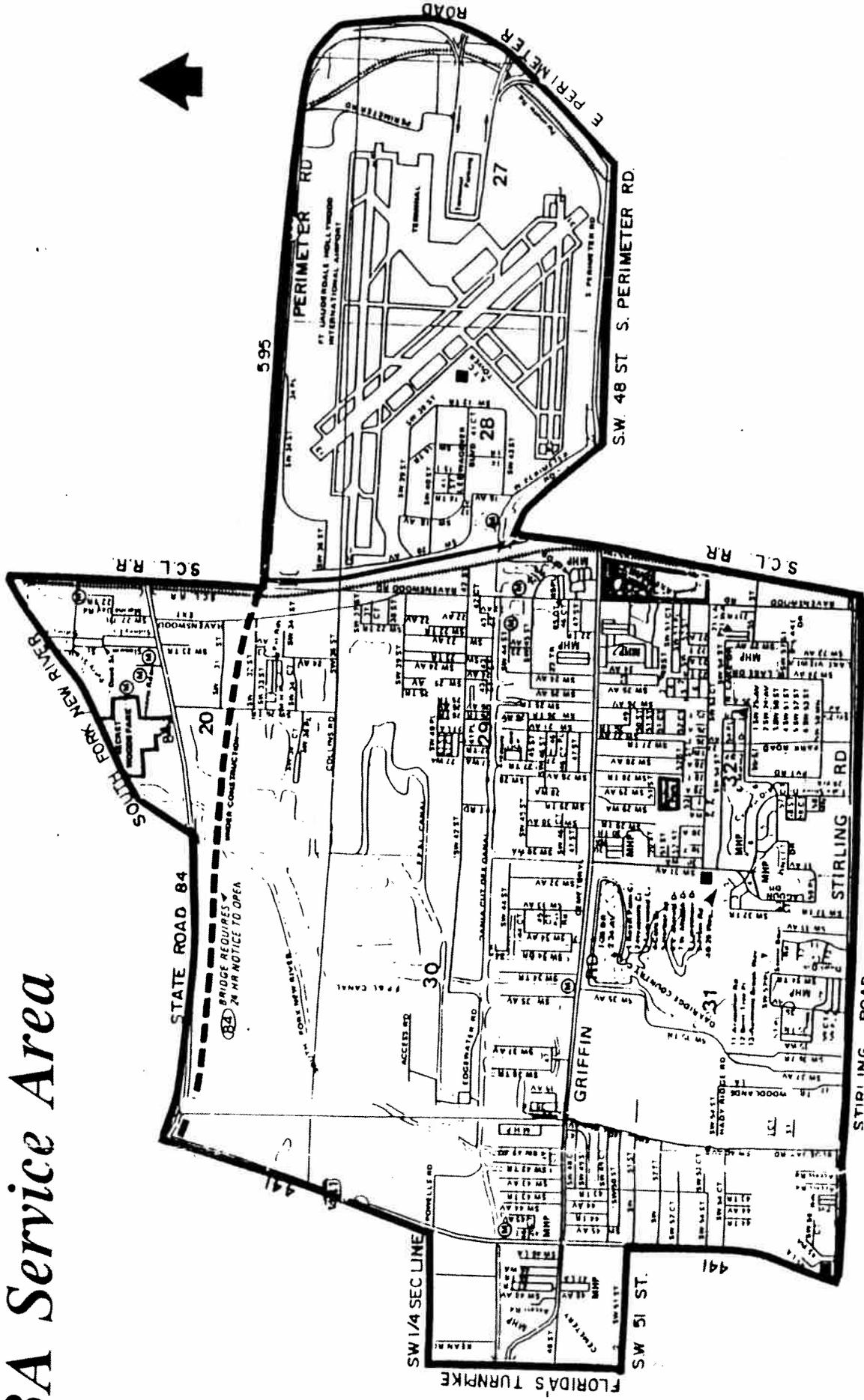
The foregoing instrument was acknowledged before me this _____ day of _____, 199____, by Mara Giuliani, Mayor of the City of Hollywood, a municipal corporation of the State of Florida, on behalf of the corporation. He/she is personally known to me or who has produced _____ as identification.

Notary Public

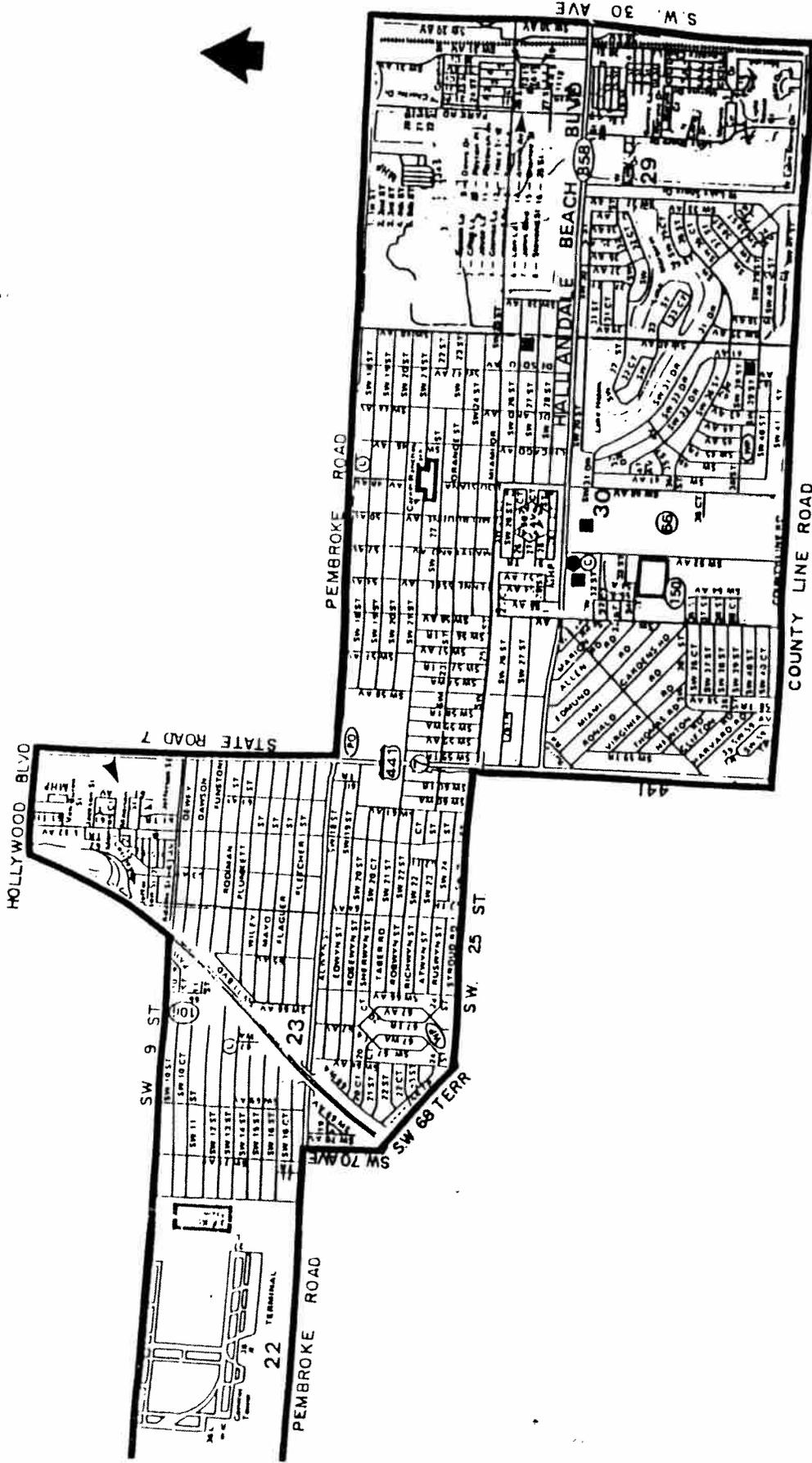
Name Typed, Printed or Stamped
Commission No. _____
My Commission Expires:

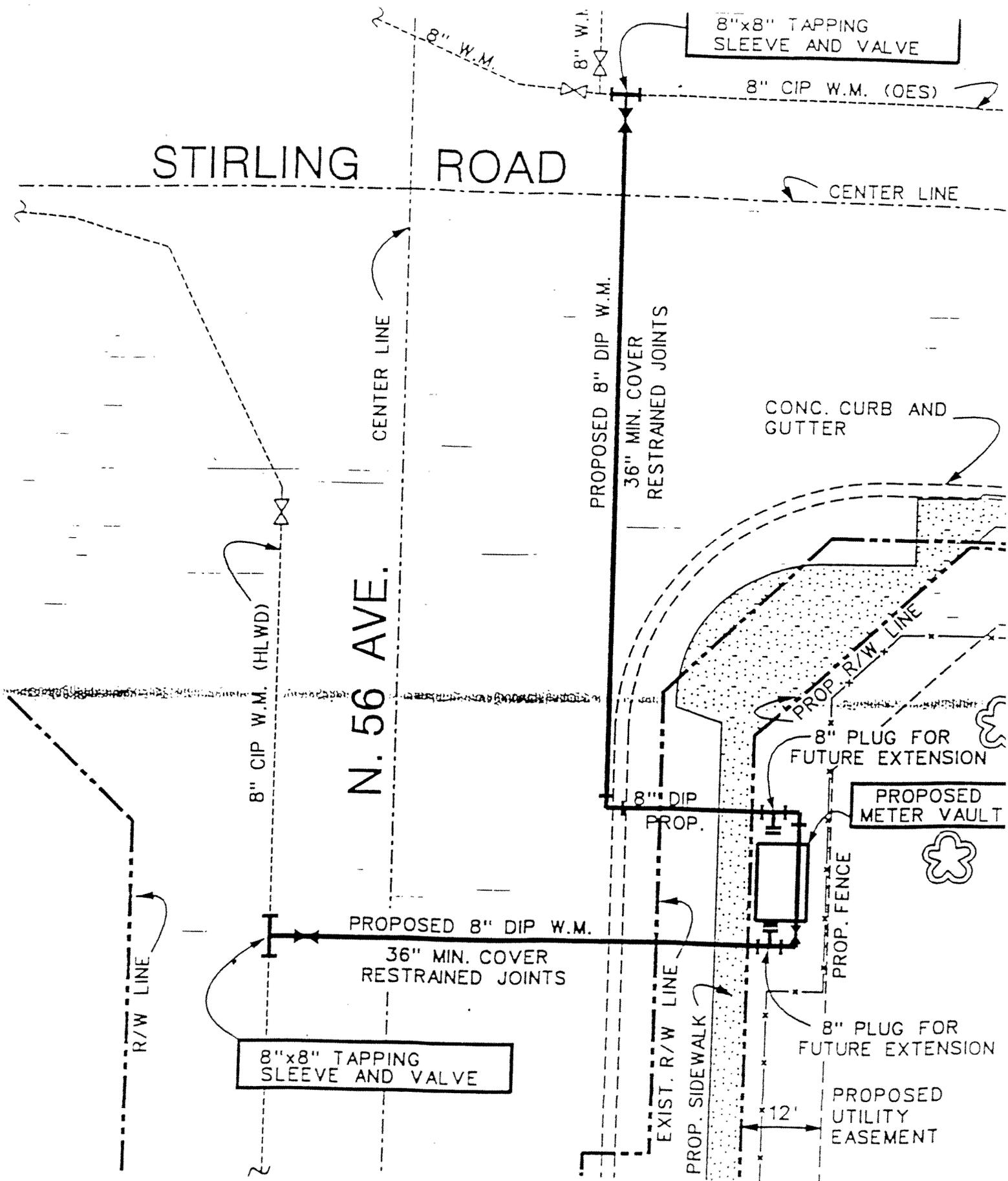
EXHIBIT A

3A Service Area



3B/3C Service Area





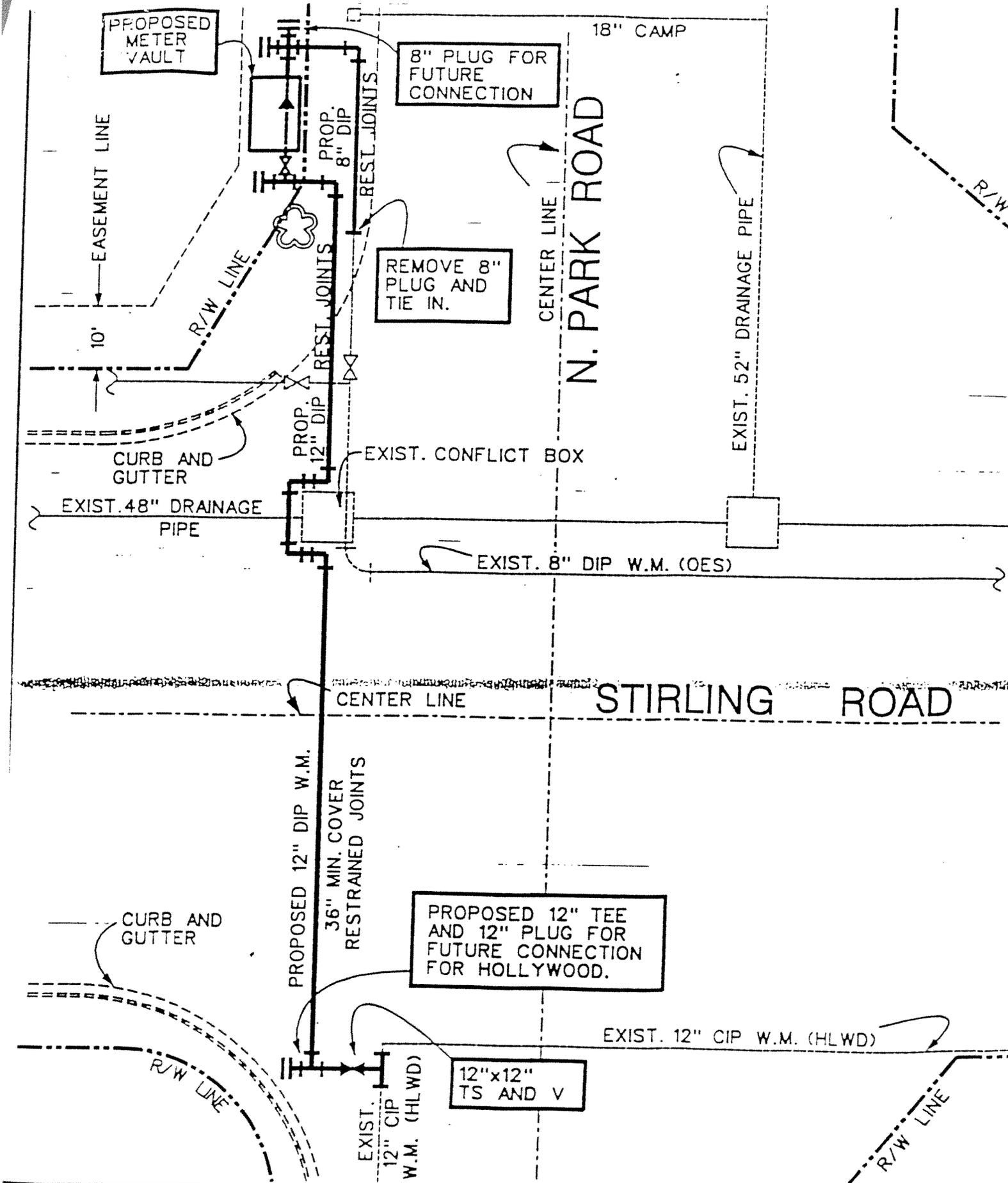
Date: Jul. 11, 1995

Scale: 1" = 20'

Drawn By: E.A. Jackson

EXHIBIT C 1 of 2

WATER MASTER METER LOCATION NO.1
 (EAST SIDE OF N. 56 AVE.
 AND STIRLING ROAD)



Date: Jul. 11, 1995

Scale: 1" = 20'

Drawn By: E.A. Jackson

BROWARD COUNTY

EXHIBIT C 2 of 2

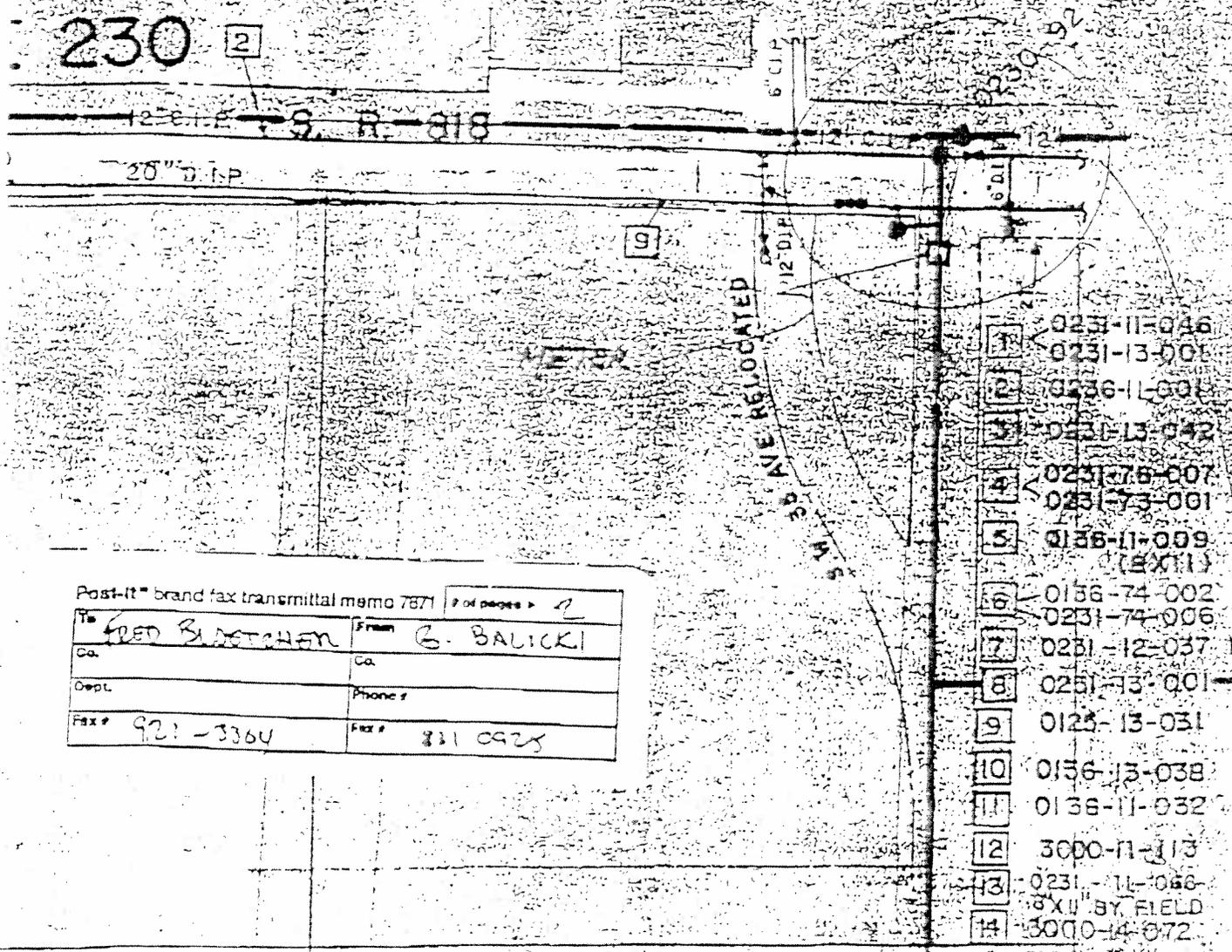
WATER MASTER METER LOCATION NO. 2
 (WEST SIDE OF N. PARK ROAD
 AND STIRLING ROAD)

T. 50 S. - R. 42 E.



94-01

230 [2]



Post-it[®] brand fax transmittal memo 7871 # of pages > 2

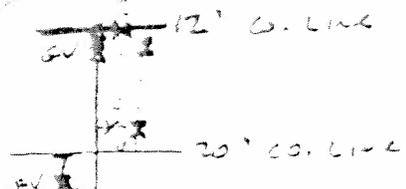
To: FRED BLASTCHEN	From: G. BALICKI
Co.	Co.
Dept.	Phone #
Fax # 921-3364	Fax # 831 0925

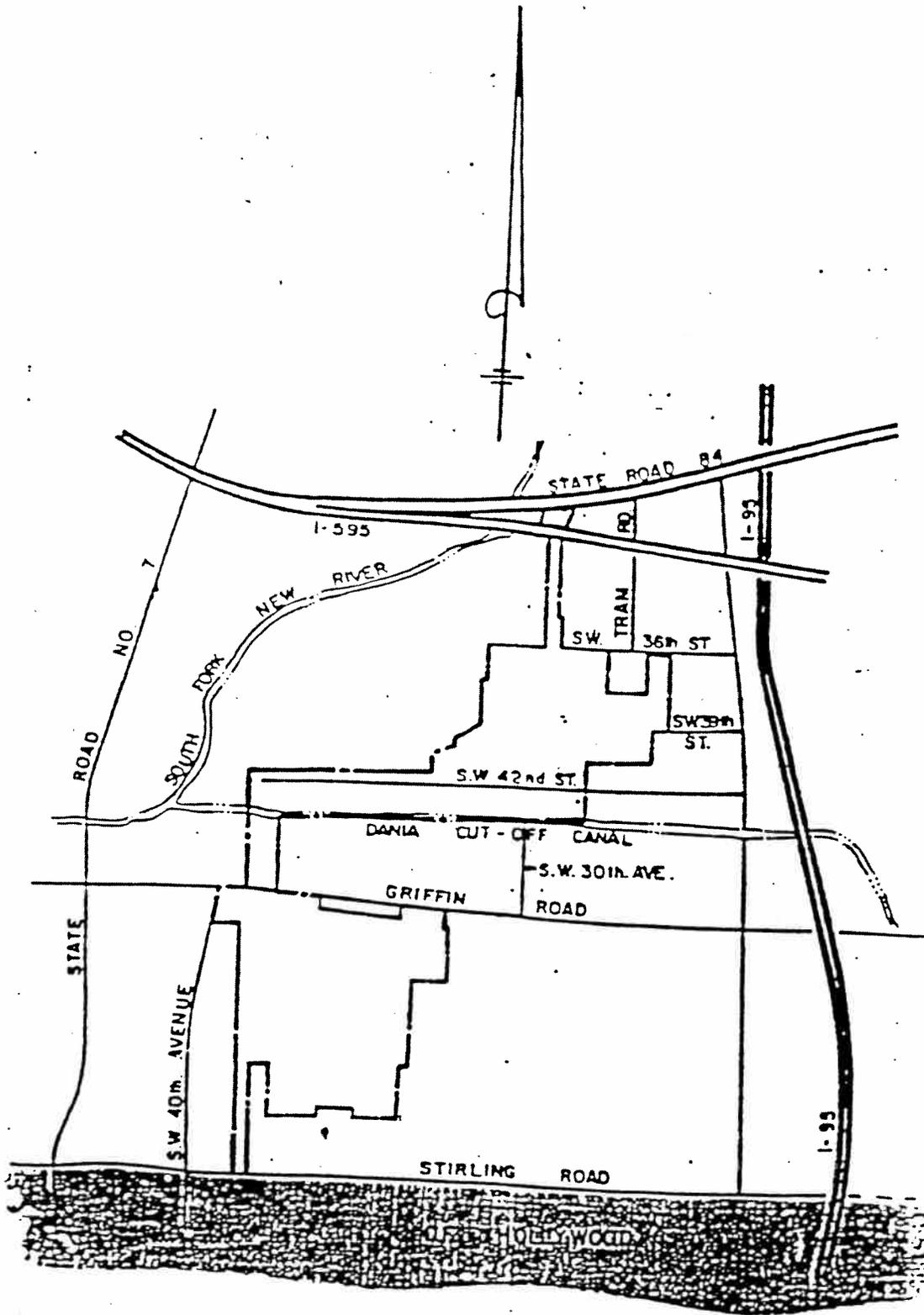
- [1] 0231-11-046
- [2] 0231-13-001
- [3] 0236-11-001
- [4] 0231-13-042
- [5] 0231-78-007
- [6] 0231-73-001
- [7] 0136-11-009 (EX 11)
- [8] 0136-74-002
- [9] 0231-74-006
- [10] 0231-12-037 L
- [11] 0251-73-001
- [12] 0125-13-031
- [13] 0136-13-038
- [14] 0136-11-032
- [15] 3000-11-113
- [16] 0231-11-046
- [17] 3000-14-072

NT

Griffin Road Connection
City water main to be

35 AVE
CITY WATER MAIN





Water

2

3 All of Lots 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16, less the North 253.0 feet
4 of Lots 4, 5, 6, 7, 8 and 9, of Block 1; the Southeast quarter of Block 2; all of Lots
5 3, 4, 5 and 6, of Block 3; all of Lots 6, 7, 8 and 9, together with Lot 10, less the
6 South four acres thereof, Block 4, Section 31, Township 50 South, Range 42 East,
7 according to the Plat thereof, recorded in Plat Book 2, Page 32, of the Public
8 Records of Dade County, Florida.

9
10 TOGETHER WITH lots 3, 4, 5, 6, 7, 8 and the N. 809.9' feet of lot 9, lots 13, 14 of
11 Block 2, lots 8 and 13, Block 3, Section 31, Township 50 south Range 42 East,
12 according to the plat thereof, recorded in Plat Book 2, page 32 of the public records
13 of Dade County, Florida.

14
15 TOGETHER WITH all of Block 1; Block 2, less the West 454 feet thereof, of DONNA
16 SUBDIVISION, according to the Plat thereof, recorded in Plat Book 55, Page 24, of
17 the Public Records of Broward County, Florida.

18 TOGETHER WITH:

19 A parcel of land situate, lying and being in the Southwest quarter (S. W. 1/4) of
20 Section 30, Township 50 South, Range 42 East. And more particularly described

1 as follows: Beginning at a point on the South line of said Section 30, 3018.11 feet
 2 Westerly of the SE corner of said Section 30; thence Northerly along the West
 3 boundary of Davis Isles, a subdivision recorded in the Public Records of Broward
 4 County in Plat Book 29, Page 19, to the South boundary of the Dania out-off Canal;
 5 thence Westerly along the South bank of the Dania out-off Canal for a distance of
 6 505 feet to a point; thence Southerly along a line 505 feet West of and parallel to the
 7 West boundary of said Davis Isles to a point on the South line of said Section 30;
 8 thence Easterly along the South line of said Section 30 to the point of beginning.
 9

10 TOGETHER WITH the East 800.00 feet of Northeast one-quarter (N.E. 1/4) of the
 11 Southwest one-quarter (S.W. 1/4) of Section 30, Township 50, south Range 42
 12 East lying north of the south right-of-way line of the Dania out-off Canal.
 13

4 TOGETHER WITH a portion of Section 20, Township 50 South, Range 42 East, and
 5 a portion of Section 29, of the Plat of Sections 28, 29, 31 and 32, Township 50
 6 South, Range 42 East, according to the Plat thereof, as recorded in Plat Book 2,
 7 Page 32 of the Public records of Dade County, Florida, and also being a portion of
 8 Section 30, Township 50 South, Range 42 East, According to the Plat thereof, as
 9 recorded in Plat Book 14, Page 37 of the Public Records of Broward County, Florida
 0 and being more particularly described as follows:
 1

2 Commencing at the Southwest corner of the Northwest one-quarter (N.W. 1/4) of
 3 said Section 20; thence north $03^{\circ}32'19''$ west, along the west line of the Northwest
 4 one-quarter (N.W. 1/4) of said Section 20, a distance of 44.64 feet to a point on the
 5 south right-of-way line of State Road No. 34 as shown on the Florida Department
 6 of Transportation Right-Of-Way Map, Section 86095-2404, Sheet 3 of 8 Sheets;
 7 thence North $82^{\circ}29'59''$ East, a distance of 1143.12 feet to the POINT OF
 8 BEGINNING of this description, thence continue North $82^{\circ}29'59''$ East, a distance
 9 of 229.91 feet to the point of curvature of a circular curve, concave Northwestwardly;
 0 thence Northeastwardly along the arc of said curve, having a radius of 5329.65 feet,
 1 a central angle of $03^{\circ}23'07''$ and an arc distance of 344.44 feet, the last three

1 described courses being along the said south right-of-way line of State Road No.
 2 84; thence South $01^{\circ}54'32''$ East, along a line not radial to the last described curve,
 3 a distance of 180.18 feet; thence South $32^{\circ}58'54''$ West, a distance of 420.07 feet
 4 to a point on the north right-of-way line of I-595 as shown on the aforesaid Florida
 5 Department of Transportation Right-Of-Way Map; thence North $83^{\circ}30'21''$ West, a
 6 distance of 50.00 feet to a point, said point hereinafter to be known as Point "A";
 7 thence continue North $83^{\circ}30'21''$ West, a distance of 102.53 feet; thence North
 8 $84^{\circ}13'41''$ West, a distance of 294.84 feet to a point, said point bearing North
 9 $06^{\circ}10'39''$ East from the radius point of the next described curve; thence
 10 northwesterly along the arc of said curve, having a radius of 11587.68 feet, a central
 11 angle of $00^{\circ}18'13''$ and an arc distance of 61.31 feet, the last four described courses
 12 being along the said North right-of-way line of I-595; thence North $42^{\circ}50'02''$ East,
 13 along a line not radial to the last described curve, a distance of 92.08 feet to the
 14 point of curvature of a circular curve, concave Northwestery; thence Northeastery
 15 and Northery along the arc of said curve, having a radius of 520.50 feet, a central
 16 angle of $44^{\circ}41'09''$ and an arc distance of 405.84 feet to the point of beginning.

7
 3 TOGETHER WITH:

3
)
) Commencing at the aforesaid point "A"; thence South $01^{\circ}51'24''$ East, a distance of
 228.01 feet to the point of beginning of this description, said point being on the
 South right-of-way line of said I-595; thence continue South $01^{\circ}51'24''$ East, a
 distance of 6.53 feet; thence South $08^{\circ}24'101''$ East, a distance of 179.38 feet to a
 point on the North line of the South three-quarters (S. 3/4) of the Southwest one-
 quarter (S.W. 1/4) of said Section 20; thence South $89^{\circ}20'02''$ West, along the said
 North line of the South three-quarter (S. 3/4) of the Southwest one-quarter (S.W.
 1/4) of Section 20, a distance of 44.20 feet; thence South $02^{\circ}51'05''$ East, a
 distance of 15.01 feet; thence South $00^{\circ}58'17''$ East, a distance of 388.12 feet;
 thence South $02^{\circ}43'26''$ East, along a line parallel with and 40.00 feet East of as
 measured at right angles to the West line of the East one-half (E. 1/2) of the said
 Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 679.30 feet; thence

1 South 89°34'05" West, along a line parallel with and 60.00 feet South as measured
2 at right angles to the North line of the South one-half (S. 1/2) of the North one-half
3 (N. 1/2) of the Southeast one-quarter (S.E. 1/4) of the said Southwest one-quarter
4 (S.W. 1/4) of Section 20, a distance of 40.03 feet to a point on the said West line
5 of the East one-half (E. 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20;
6 thence South 02°43'26" East, along the said West line of the East one-half (E. 1/2)
7 of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 280.77 feet to
8 a point on the North line of the South one-half (S. 1/2) of the South one-half (S.
9 1/2) of said Southwest one-quarter (S.W. 1/4) of Section 20; thence North
0 89°38'51" East, along the said North line of the South one-half (S. 1/2) of the South
1 one-half (S. 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance
2 of 100.09 feet; thence South 02°43'26" East, along a line parallel with and 100.00
3 feet East of as measured at right angles to the said West line of the East one-half
4 (E. 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 648.89
5 feet; thence South 89°48'27" West, along a line parallel with and 35.00 feet North
6 of as measured at right angles to the South line of the said Southwest one-quarter
7 (S.W. 1/4) of Section 20, a distance of 100.10 feet to a point on said West line of
8 the East one-half (E. 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20;
9 thence South 02°43'26" East, along the said West line of the East one-half (E. 1/2)
0 of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 33.03 feet to
1 the Southwest corner of the Southeast one-quarter (S.E. 1/4) of the said Southwest
2 one-quarter (S.W. 1/4) of Section 20; thence North 89°48'27" East, along the said
3 South line of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of
4 965.65 feet to the northwest corner of the West one-half (W. 1/2) of Lot 4, Block 2,
5 of said Plat of Section 29; thence South 01°29'09" East, along the East line of the
6 said West one-half (W. 1/2) of Lot 4 and a portion of the East line of the West one-
7 half (W. 1/2) of lot 3, both of said block 2, a distance of 742.81 feet to a point on
8 the top of bank of that certain lake lying in said Lots 3 and 4, and also lying in Lots
9 8 and 10, block 1, of said Plat of Section 29; thence South 54°37'54" West, a
0 distance of 7.21 feet; thence South 45°20'04" West, a distance of 17.63 feet, thence
1 South 37°47'08" West, a distance of 18.19 feet; thence South 31°04'38" East, a

1 distance of 12.50 feet; thence South $15^{\circ}47'42''$ West a distance of 43.97 feet the last
2 five (5) courses and distances being along the meandering westerly top of bank of
3 said lake; thence South $75^{\circ}44'01''$ East, a distance of 24.52 feet; thence South 88°
4 $58'16''$ East, a distance of 268.69 feet, the last two (2) courses and distances being
5 along the wandering southerly top of bank of said lake; thence North $32^{\circ}17'02''$
6 East, a distance of 30.80 feet; thence North $54^{\circ}38'05''$ East, a distance of 27.21 feet;
7 thence North $81^{\circ}38'15''$ East, a distance of 44.28 feet; thence North $72^{\circ}24'51''$ East,
8 distance of 24.08 feet; thence North $84^{\circ}42'20''$ East, a distance of 44.10 feet to a
9 point, said point being 100.00 feet South of as measured at right angles to the North
10 line of said Lot 10; thence North $88^{\circ}25'05''$ East, along a line parallel with and
11 100.00 feet South of as measured at right angles to the said North line of Lot 10, a
12 distance of 577.84 feet to a point on the West line of Lot 8, of said Block 1; thence
13 North $01^{\circ}26'55''$ West, along a portion of the said West line of Lot 8, a distance of
14 767.08 feet to the North line of the Northeast one-quarter (N.E. 1/4) of said Section
15 29; thence North $88^{\circ}18'55''$ East, along a portion of the said North line of the
16 Northeast one-quarter (N.E. 1/4) of Section 29, also being the North line of said Lot
17 8, a distance of 329.14 feet to the Northeast corner of said Lot 8; thence South 01°
18 $27'09''$ East, along the East line of Lot 8, a distance of 1335.34 feet to the Southeast
19 corner of said Lot 8; thence South $88^{\circ}30'48''$ West, along the South line of said Lot
20 8, a distance of 329.03 feet to the Northeast corner of Lot 11, of said Block 1;
21 thence South $01^{\circ}27'29''$ East, along the East line of said Lot 11, a distance of
22 667.14 feet to the Southeast corner of said Lot 11; thence South $88^{\circ}36'56''$ West,
23 along the South line of said Lot 11, a distance of 657.97 feet to the Southwest
24 corner of said Lot 11; thence South $88^{\circ}59'26''$ West, along the South line of Lot 2,
25 of said Block 2, a distance of 542.02 feet to the Southwest corner of said Lot 2;
26 thence South $01^{\circ}31'25''$ East, along the West line of Lot 1, of said Block 2, a
27 distance of 669.03 feet to the Southwest corner of said Lot 1; thence South along
28 a portion of the West line of Lot 4, Block 3, of said Plat of Section 29, to the south
29 right-of-way line of the Dania cut-off Canal, thence westerly along said South right-
30 of-way line to a point on the west line of the Southeast one-quarter S.E. (1/4) of
31 said Section 30, thence North $01^{\circ}41'18''$ West, along a portion of the said West line

1 of the Southeast one-quarter (S.E. 1/4) of Section 30, to a point of the South line
2 of that certain 100 foot by 200 foot parcel as described in a Deed recorded in Deed
3 Book 548, Page 259 of the Public Records of Broward County, Florida; thence
4 North 89°09'16" East, along the said South line of that certain 100 foot by 200 foot
5 parcel, a distance of 100.01 feet; thence North 01°41'18" West, along a portion of
6 the East line of said 100 foot by 200 foot parcel, a distance of 50.01 feet to a point,
7 said point being on the southerly line of that certain 100 foot canal easement as
8 recorded in Deed Book 534, Page 64 of the Public Records of Broward County,
9 Florida; thence North 89°09'16" East, along a portion of the said southerly line of
10 that certain 100 foot canal easement, a distance of 138.70 feet to a point, said point
11 being 40.00 feet North of as measured at right angles to the North line of the said
12 Southeast one-quarter (S.E. 1/4) of Section 30; thence South 88°12'52" East, along
13 a line parallel with 40.00 feet North of as measured at right angles to the said North
14 line of the Southeast one-quarter (S.E. 1/4) of Section 30, a distance of 1137.74
15 feet; thence North 01°41'18" West, along a line parallel with and 1374.33 feet East
16 of as measured at right angles to the west line of the Northeast one-quarter (N.E.
17 1/4) of said Section 30, a distance of 494.15 feet to a point on a Southerly line of
18 that certain tract of land as described in official Records Book 11773, Page 319 of
19 the Public Records of Broward County, Florida, thence North 87°10'50" East, a
20 distance of 148.05 feet to a point on a Northerly line of said 100 foot canal
21 easement; thence north 64°25'31" East, a distance of 250.00 feet to the point of
22 curvature of a circular curve, concave Southeasterly; thence Northeasterly and
23 Easterly along the arc of said curve, having a radius of 300.00 feet, a central angle
24 of 24°35'20" and an arc distance of 128.75 feet to a point of tangency; thence North
25 89°00'51" East, a distance of 150.00 feet, the last three (3) courses and distances
26 being along a portion of the said Northerly line of that certain 100 foot canal
27 easement; thence North 00°59'09" West, a distance of 150.00 feet; thence north
28 58°55'51" East, a distance of 513.52 feet to a point, said point being 100.00 feet
29 West of as measured at right angles to the West line of the Northwest one-quarter
30 (N.W. 1/4) of said Section 29; thence North 01°41'35" West, along a line parallel
31 with 100.00 feet West of as measured at right angles to the said West line of the

1 Northwest one-quarter (N.W. 1/4) of Section 29, a distance of 900.00 feet; thence
2 North $89^{\circ}34'28''$ East, a distance of 100.02 feet to the Southwest corner of lot 9, of
3 said Block 2; thence North $01^{\circ}41'35''$ West along the West line of said Lot 9, a
4 distance of 578.23 feet to the Northwest corner of said Lot 9, said corner also being
5 the Northwest corner of said Section 29, the last nine (9) courses being along the
6 southeasterly line of said Tract of land described in official Records Book 11773,
7 Page 319; thence North $89^{\circ}48'27''$ East, along a portion of the said South line of the
8 Southwest one-quarter (S.W. 1/4) of said Section 20, a distance of 1153.70 feet to
9 a point, said point being 133.72 feet West of as measured at right angles to the said
0 West line of the East one-half (E. 1/2) of the Southwest one-quarter (S.W. 1/4) of
1 Section 20; thence North $02^{\circ}43'26''$ West, along a line parallel with 133.72 feet West
2 of as measured at right angles to the said West line of the East one-half (E. 1/2) of
3 the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 681.27 feet to a
4 point on the said North line of the South one-half (S. 1/2) of the South one-half (S.
5 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20; thence North $89^{\circ}38'50''$
6 East, along the said North line of the South one-half (S. 1/2) of the South one-half
7 (S. 1/2) of the Southwest one-quarter (S.W. 1/4) of Section 20, a distance of 0.48
8 feet; thence North $03^{\circ}59'55''$ East, a distance of 798.52 feet; thence North $02^{\circ}43'26''$
9 West, along a line parallel with and 40.00 feet West of as measured at right angles
0 to the said West line of the East one-half (E. 1/2) of the Southwest one-quarter
1 (S.W. 1/4) of Section 20, a distance of 568.18 feet to a point on the said North line
2 of the South three-quarters (S. 3/4) of the Southwest one-quarter (S.W. 1/4) of
3 Section 20; thence South $89^{\circ}20'02''$ West, along the said North line of the South
4 three-quarters (S. 3/4) of the Southwest one-quarter (S.W. 1/4) of Section 20, a
5 distance of 42.33 feet; thence North $02^{\circ}43'29''$ West, a distance of 209.51 feet to a
6 point on the said South right-of-way line of I-595, said point bearing North $07^{\circ}29'14''$
7 East from the radius point of the next herein described curve; thence Southeasterly,
8 along the arc of said curve, having a radius of 11350.68 feet, a central angle of
9 $0^{\circ}09'09''$ and an arc distance of 30.23 feet to the point of tangency; thence South
0 $82^{\circ}21'36''$ East, a distance of 139.51 feet to the point of beginning, the last two (2)
1 courses being along the said South right-of-way line of I-595.

- 1
- 2 TOGETHER WITH Stirling Road, Griffin Road, and all public rights-of ways adjoining
- 3 or lying between the above described parcels of land.
- 4
- 5
- 6 Said lands situate, lying and being in Broward County, Florida.
- 7 Said lands containing 700 acres more or less.

Appendix C

ID / Computation	Description	2005	2008	2010	2015	2020	2025	2030
(1)	Max-day finished water demand	28.5 mgd	35.0 mgd	35.7 mgd	38.4 mgd	40.6 mgd	43.3 mgd	45.6 mgd
(2)	Maximum-day Biscayne Finished Water Production	34.5 mgd	34.1 mgd	34.1 mgd				
(3) = (1) - (2)	Max-day finished water required from alternative sources	0.0 mgd	0.9 mgd	1.6 mgd	4.3 mgd	6.5 mgd	9.2 mgd	11.5 mgd
(4)	Offset from Reclaimed water (Eq. FW)	0.0 mgd	0.0 mgd					
(5)	Conservation and water loss reduction (Eq. FW)	0.0 mgd	0.0 mgd					
(6) = (3) - (4) - (5)	Total required Floridan water (Max-day Eq. FW)	0.0 mgd	0.9 mgd	1.6 mgd	4.3 mgd	6.5 mgd	9.2 mgd	11.5 mgd
(7) = (6) / 0.80	Total required Floridan water (Max-day, Raw Water)	0.0 mgd	1.1 mgd	1.9 mgd	5.3 mgd	8.2 mgd	11.5 mgd	14.3 mgd
(8) = (1.07 / 1.19) * (7)	Total required Floridan water (Max-Month, Raw Water)	0.0 mgd	1.0 mgd	1.7 mgd	4.8 mgd	7.3 mgd	10.4 mgd	12.9 mgd
(9) = (7) / 1.19	Total required Floridan water (Average daily, Raw Water)	0.0 mgd	0.9 mgd	1.6 mgd	4.5 mgd	6.8 mgd	9.7 mgd	12.0 mgd

Notes for row ...

- (1) The maximum-day forecast is based on a per capita of 122 gpcd and a max-day peaking factor of 1.31 for the City's retail service area. The 2030 forecasted population of the City's retail service area (not including Broward County Districts 3A and 3B/3C) is 188,768. The average-day demands for districts 3A and 3BC (large users) were obtained from the BCWWS' 2008 Water Supply Facilities Work Plan.
- (2) The maximum-daily finished water production capacity is estimated in Section 3. The following are the firm capacities used in the computation of the finished-water maximum-daily finished water production capacity: LS 22.5 mgd, MS 12 mgd, and RO 2 mgd.
- (3) The difference between the maximum-day demand and the maximum-daily finished water production capacity.
- (4) and (5) Reclaimed water offset and water loss reduction.
- (6) The difference between the maximum-day finished water required from alternative sources and the offset from reclaimed water and conservation and water loss reduction.
- (7) The total raw water required from the Floridan Aquifer during Max Day. A recovery efficiency of 80 percent is assumed for RO.
- (8) The total raw water required from the Floridan Aquifer during Max Month. To obtain the maximum month, multiply by 1.07 and divide by 1.19 the maximum day Floridan raw water flow. Note that both peaking factors correspond to the three year historical.
- (9) The total average daily raw water required from the Floridan Aquifer. To obtain the average day, divide by 1.19 the maximum day Floridan raw water flow.



**MALCOLM
PIRNIE**

City of Hollywood/10-Year Water Supply Facilities Work Plan
Estimate of Needed Raw Water from the Floridan Aquifer

Project Number	Description	2008	2009	2010	2011	2012
1	Construction of well head piping, pumps, and vaults for Floridan Wells F6 and F7	\$1,400,000				
2	Construction of two new Floridan wells, F10 and F13	\$1,830,000				
3	Construction of transmission pipelines associated to Well F10 and F13	\$1,628,000				
4	Construction of well head piping, pumps, and vaults for Floridan Wells F10 and F13		\$1,540,000			
5	Construction of Floridan Wells F14 and F15 and associated transmission mains					\$4,000,000
6	Installation of new 2-mgd RO Train D		\$4,000,000			
Total Capital Improvements FY08-FY012		\$4,858,000	\$5,540,000	\$0	\$0	\$4,000,000

Overall Five-Year CIP Total \$14,398,000



City of Hollywood/10-Year Water Supply Facilities Work Plan
Five-Year Capital Improvement Program

Table 6-1

	<u>FY 08</u>	<u>FY 09</u>	<u>FY 10</u>	<u>FY 11</u>	<u>FY 12</u>	<u>Total</u>
Water and Sewer Fund:						
Water Reserve Capacity (WRC) Fees:						
Available Reserves	3,550,000	1,700,000	425,000	175,000	-	5,850,000
Projected Increase	350,000	350,000	350,000	350,000	350,000	1,750,000
Renewal, Repl and Improvement Reserves:						
Uncommitted	-	1,500,000	-	-	-	1,500,000
Projected Increase	1,000,000	2,000,000	3,250,000	3,500,000	3,750,000	13,500,000
Total Reserves Available	4,900,000	5,550,000	4,025,000	4,025,000	4,100,000	22,600,000
Stormwater Funding						
Stormwater Net Assets:						
Unrestricted Net Assets	2,858,800	-	-	-	-	2,858,800
Projected Increase	500,000	500,000	500,000	-	-	1,500,000
Total Unrestricted	3,358,800	500,000	500,000	-	-	4,358,800



City of Hollywood/10-Year Water Supply Facilities Work Plan
Public Utilities Funding over the Next Five Years

Table 6-2