MINUTES
Key Largo Wastewater Treatment District (KLWTD)
Board of Commissioners Meeting

February 1, 2006
98880 OVERSEAS HYW, KEY LARGO, FL 33037

The Key Largo Wastewater Treatment District Board of Commissioners met for a regular meeting on February 1, 2006 at 4:00 PM. Present were Chairrman Glenn Patton, Commissioners Gary Bauman, Claude Bullock and Charles Brooks. Also present were General Manager Charles Fishburn, District Counsel Thomas Dillon, Board Clerk Carol Walker, and all other appropriate District Staff.

The Pledge of Allegiance was led by Chairman Patton.

Approval of the Agenda

The agenda was approved with the following changes; Ed Castle requested that item F 2 be moved to the front of the agenda. Commissioner Brooks requested that the January 18 minutes and the General Manger's contract be removed from Bulk; Tom Dillon requested addition of a new item, Resolution No. 07-02-06. Chairman Patton added a briefing about the BOCC upcoming meeting. Commissioner Bullock added a discussion on putting in laterals before a sewer line is in place.

MOTION: Commissioner Bullock made a motion to approve the agenda as amended. Commissioner Bauman seconded the motion.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent
Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman	X		
Chairman Patton	X		

Motion passed 4 to 0

Public Comment
The following persons addressed the Commission: None

Engineer's Report
Arcadis/MWH representative Patrick Mullen gave a power point presentation on the Key Largo Treatment District Expansion of Dsitrict Facilities Concept Design Report. (See Attachement "A"). It was explained that all of the costs that are presented are intended for comparision purposes only: They are not absolute costs, per se.

Staff and Arcadis/MWH recommended the following:

- Five Stage Bardenpho
- Hypochlorite Disinfection
- Biosolids
  - Phase 1 Mobile Dewatering/Cake Haul
  - Phase 2 Regional Class A Sludge production
- Reuse Truck Filling Station
- Effluent Disposal
  - One Deep Injection Well
  - Back up Shallow Injection Wells

Commissioner Brooks complimented Staff and Arcadis/MWH on the presentation.

Commissioner Bauman asked if the recommendations fit into the District's budget. Mr. Fishburn explained that everything except going to Class A residuals fits the Budget.

Commissioner Bullock asked if the plant wind load was the standard 155 MPH. It will be looked into.

MOTION: Commissioner Brooks made a motion to accept the Staff and Arcadis/MWH's recommendation

Commissioner Brooks clarified that his motion was to proceed with Phase 1 with bio-solids but with the understanding that during the design process trying to secure additional monies and do the Class A.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent
Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman	X		
Chairman Patton	X		

Motion passed 4 to 0

Monthly Status Report
Margaret Blank, Staff Engineer, reported that ADB expects to be finished with Key Largo Park by the end of February and the paving is underway in Sunset Waterways. Fluidyne is in town for the plant testing and the chemical and feed pumps were demonstrated on February 1, 2006.

Status of Plant Site Expansion
Charles Fishburn reported that there is a meeting on February 3rd with FDEP and things are going well.

Commissioner Items
Army Corp Status Report
Mr. Fishburn reported that the Army Corp. is very satisfied with what the District has submitted.

Contract Plant Operator vs. District Employees
Commissioner Brooks stated that he had been requesting that the Board be given the cost of in-house plant personnel as opposed to outsourcing but the District has moved into just hiring an operator. The Board was not given the matrix and cost analysis that he was looking for. He feels that the Board should look at the options and make a determination.

Mr. Fishburn explained that the Plant Operator will be working 8 hours a day and will be doing inspections and over seeing the construction in the future. The budget included a plant operator as of October 1, 2005. Mr. Fishburn does not feel that it is a cost decision, the employee will be a District employee learning how to run the Fluidyne Plant and a Vacuum System and the knowledge will be staying with the District.

Commissioner Bauman felt that it was a moot point; no matrixes need to be put together; the Board should move on.

Commissioner Bullock concurs with developing in-house staff; it is an advantage to the District.

Lateral Connection Status
Margaret Blank reviewed the report on the number of permits pulled in the Key Largo Trailer Village.

Commissioner Brooks requested a report on actual EDU's instead of parcels.

Construction of a lateral before sewer line is installed
Staff explained that the lateral requirements can not be determined until the sewer line is installed in front of a property owner's lot.

Report on BOCC Agenda
Chairman Patton reported that in the February 15 BOCC meeting the $100,000 Loan to the District, the Permitting Fee Exemption, and a presentation to the Board by the District will be on the agenda.

The County and the FKAA are going to Washington D.C. to lobby for monies and the District needs to consider if it needs representation also.

Commissioner Brooks is inclined to have someone from the Board or the Manager go to Washington also if for nothing else but the experience and to say we are alive and need money.

Bulk Items
Minutes of December 21, 2005

RESOLUTION NO. 04-02-06
A RESOLUTION OF THE BOARD OF COMMISSIONERS APPROVING THE REQUEST OF CAROL NELSON FOR DESIGNATION OF A TAX PARCEL AS A PARCEL EXCLUDED FROM THE 2005 NON-AD VALOREM ASSESSMENT; AND PROVIDING FOR APPLICABILITY AND AN EFFECTIVE DATE.

RESOLUTION NO. 06-02-06
A RESOLUTION OF THE BOARD OF COMMISSIONERS APPROVING THE REQUEST OF MICHELE CARNOHAN FOR DESIGNATION OF A TAX PARCEL AS A PARCEL EXCLUDED FROM THE 2005 NON-AD VALOREM ASSESSMENT; AND PROVIDING FOR APPLICABILITY AND AN EFFECTIVE DATE.

Pending Payments List for February 1, 2006

MOTION: Commissioner Bauman made a motion to approve the Bulk Items. The motion was seconded by Commissioner Brooks.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent
Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman	X		
Chairman Patton	X		

Motion passed 4 to 0

Financial Officer's Report
None

Legal Report
RESOLUTION NUMBER NO. 05-02-06
A RESOLUTION OF THE KEY LARGO WASTEWATER TREATMENT DISTRICT ESTABLISHING INITIAL MONTHLY RATES AND CHARGES FOR WASTEWATER COLLECTION, TRANSMISSION, TREATMENT, AND DISPOSAL; AND PROVIDING AN EFFECTIVE DATE.

Staff was directed to bring this item back on February 15, 2006.

RESOLUTION NUMBER 07-02-06
A RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE KEY LARGO WASTEWATER TREATMENT DISTRICT RELATING TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) STATE REVOLVING FUND (SRF), ADOPTION OF THE WASTEWATER FACILITY PLAN FOR THE IMPLEMENTATION OF WASTEWATER COLLECTION, TREATMENT AND DISPOSAL IMPROVEMENTS, EFFECTIVE THIS DATE

MOTION: Commissioner Brooks made a motion to approve Resolution No. 07-02-06. The motion was seconded by Commissioner Bullock.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent
Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman	X		
Chairman Patton	X		

Motion passed 4 to 0

Area of Critical State Concern
Mr. Dillon reported that the Legislature can enact legislation as a general law, provided it has a primary purpose of statewide importance and impact, such as tourism and seafood. The legislation to remove the designation should include legislative findings that the law will have such a primary purpose.

Commissioner Bauman expressed concern over the Chairman directing District Counsel to look into this matter without the direction of the entire Board.

Mr. Dillon asked for clarification on the authority of the Chairman to give him direction.

Commissioner Brooks stated that he recalls that when he was Chairman the Board decided that when an action needed to take place between meetings that the Chairman would be free to give some direction even at some cost. He thinks that the Chairman has to have some discretion as to whether it is timely or not or he has to call a special call meeting.

Chairman Patton stated that he feels that he needs some discretion since there can be no communication between Commissioners between meetings.

Lien Legislation
Mr. Dillon reported that there was a public hearing held and no one attended it. Representative Sorenson signed off on the hearing documentation.

Critters of the Keys, Inc.
Mr. Dillon discussed the matter of Critters of the Keys, Inc. assessment with the Board.

Passive Park
Mr. Dillon had a request from Howard Gelbman concerning a passive park at MM 100.5 site. He told Mr. Gelbman that he recommends that the District Board oppose any use of the site until the plant expansion issues have been resolved.

MOTION: Commissioner Brooks made a motion to follow Mr. Dillon's recommendation to not entertain any action regarding a passive park with the easement property. The motion was seconded by Commissioner Bullock.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent
Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman		X	
Chairman Patton	X		

Motion passed 3 to 1

Manager's Report
Letter to Calusa
General Manager Charles F. Fishburn stated that he and Staff Engineer Margaret Blank will be attending Calusa Campground's meeting on February 26 at which they will have three engineering firms presenting.

Chairman Patton requested that Mr. Fishburn send out a letter stating that they will be attending the meeting.

Re-Inspection Fee
Mr. Fishburn requested that the Board set a re-inspection fee for the camera inspection.

Commissioner Brooks is against charging the homeowner a re-inspection fee.

Commissioner Bullock is against charging a re-inspection fee on the homeowner but not the contractor.

Chairman Patton is against charging the re-inspection fee.

MOTION: Commissioner Brooks made a motion deny the requested for a re-inspection fee. Commissioner Bullock seconded the motion.

Vote on motion

MEMBER	YES	NO	OTHER
Commissioner Tobin			Absent

Commissioner Brooks	X		
Commissioner Bullock	X		
Commissioner Bauman	X		
Chairman Patton	X		

Motion passed 4 to 0

Staff suggested that the re-inspections be done only after first inspections are completed.

Letter to Federation of Homeowners Association
The Board approved the letter to the Federation of Homeowners Association by consensus.

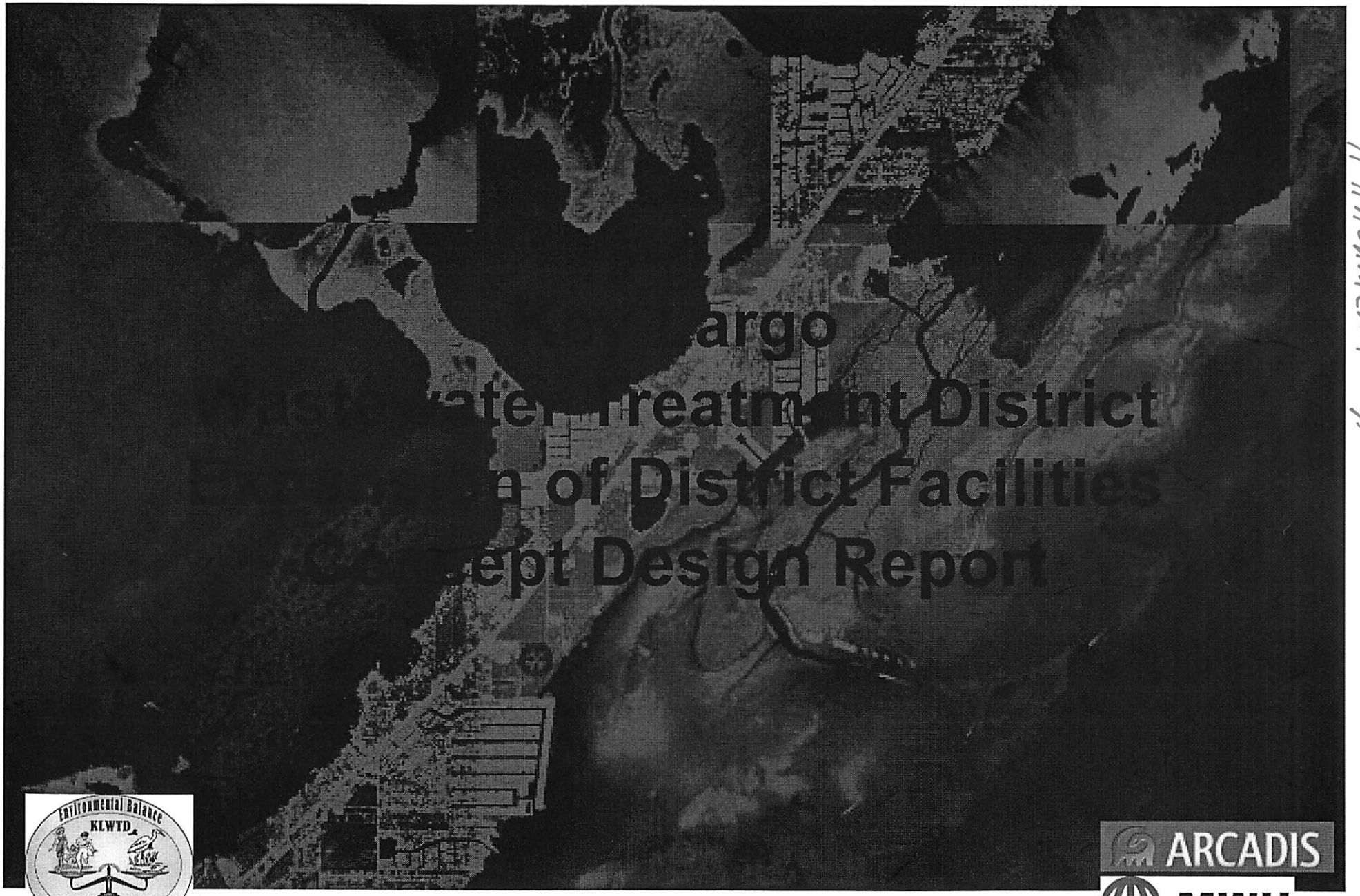
Commissioner's Items
Commission Bauman requested that an item dealing with health benefits for full time employees be placed on the next agenda.

Adjournment
The KLWTD Board adjourned the meeting at 6:53 PM.

The KLWTD meeting minutes of February 1, 2006 were approved on February 15, 2006.

Chairman Glenn Patton

Carol Walker, CMC
Board Clerk



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A Attachment "A"

Presentation Outline

- Basis
  - Flows
  - Effluent Requirements/Design Criteria
- Treatment Alternatives
  - Liquids Treatment
  - Disinfection Treatment
  - Solids (Sludge) Treatment
  - Buildings
  - Disposal
  - Effluent Reuse
  - Injection Wells
- Conclusions/Recommendations
  - Costs/Technical Evaluation
  - Recommendations
  - Phasing Issues
- Steps Forward

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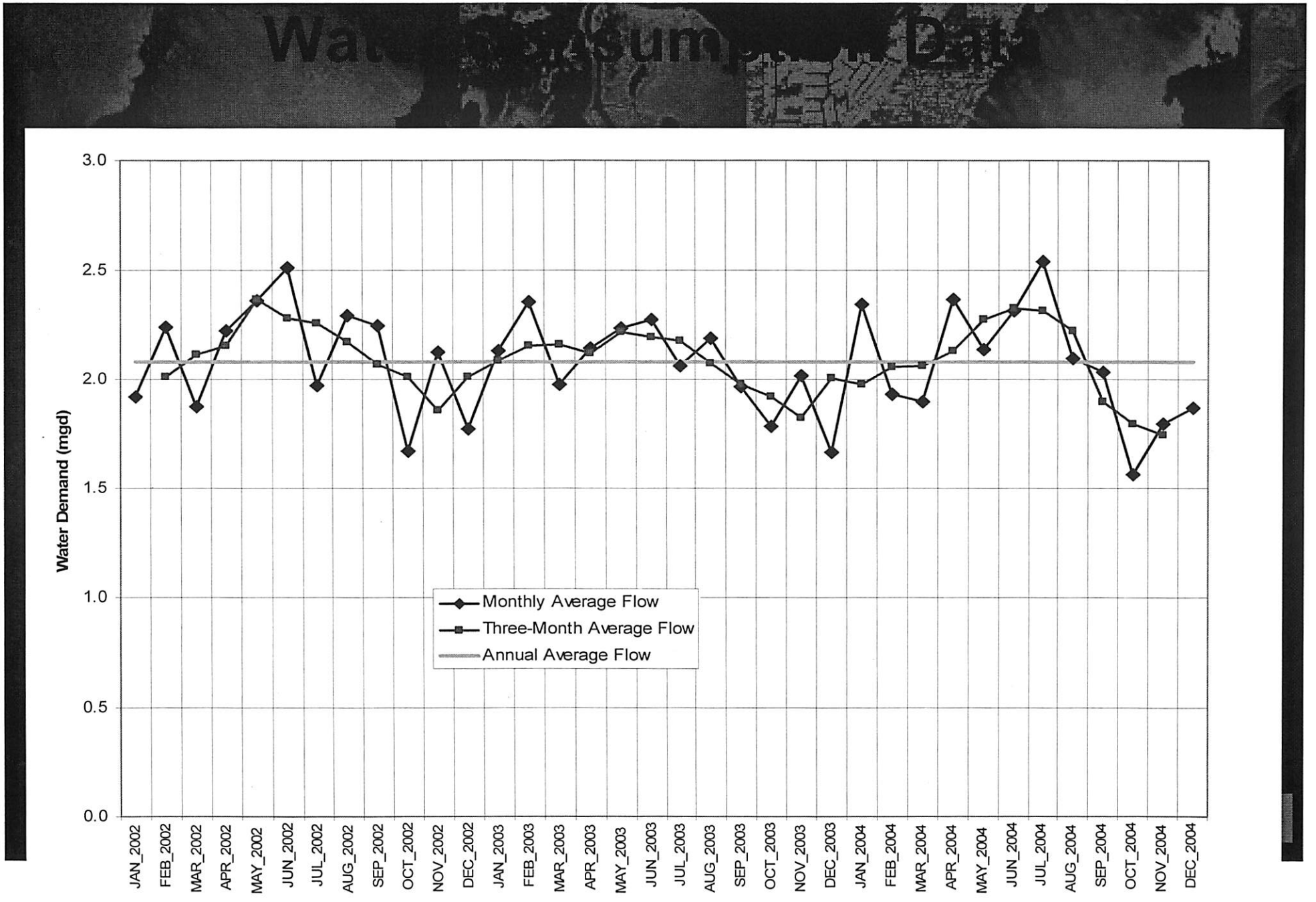
Water Demand (mgd)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Monthly Average Flow
Three-Month Average Flow
Annual Average Flow
JAN_2002
FEB_2002
MAR_2002
APR_2002
MAY_2002
JUN_2002
JUL_2002
AUG_2002
SEP_2002
OCT_2002
NOV_2002
DEC_2002
JAN_2003
FEB_2003
MAR_2003
APR_2003
MAY_2003
JUN_2003
JUL_2003
AUG_2003
SEP_2003
OCT_2003
NOV_2003
DEC_2003
JAN_2004
FEB_2004
MAR_2004
APR_2004
MAY_2004
JUN_2004
JUL_2004
AUG_2004
SEP_2004
OCT_2004
NOV_2004
DEC_2004

Basis of Design Flows

Item	Abbrev.	Units	Key Largo	Islamorada	Total
			WTD	Plantation Key	
Equivalent Flow Units	EFU	ea	15,389	4,737	20,126
Population per EFU	P_t/EFU		2.44	2.41	2.43
Resident Population	P_r	ea	19,192	5,897	25,089
Seasonal Population	P_s	ea	18,388	5,514	23,902
Total Population (Peak Season)	P_t	ea	37,580	11,411	48,991
Annual Average Daily Flow	AADF	mgd	2.30	0.75	3.05
AADF per EFU		gpd	149	158	152
Max Month Peak Factor			1.25	1.25	1.25
Max Month Average Daily Flow	MMADF	mgd	2.88	0.94	3.81
Max 3 Month Peak Factor			1.15	1.15	1.15
Max 3-Month Average Daily Flow	M3MADF	mgd	2.65	0.86	3.51
Peak Hour Factor			2.50	3.00	2.25
Peak Hour Flow	PHF	mgd	5.75	2.25	6.86

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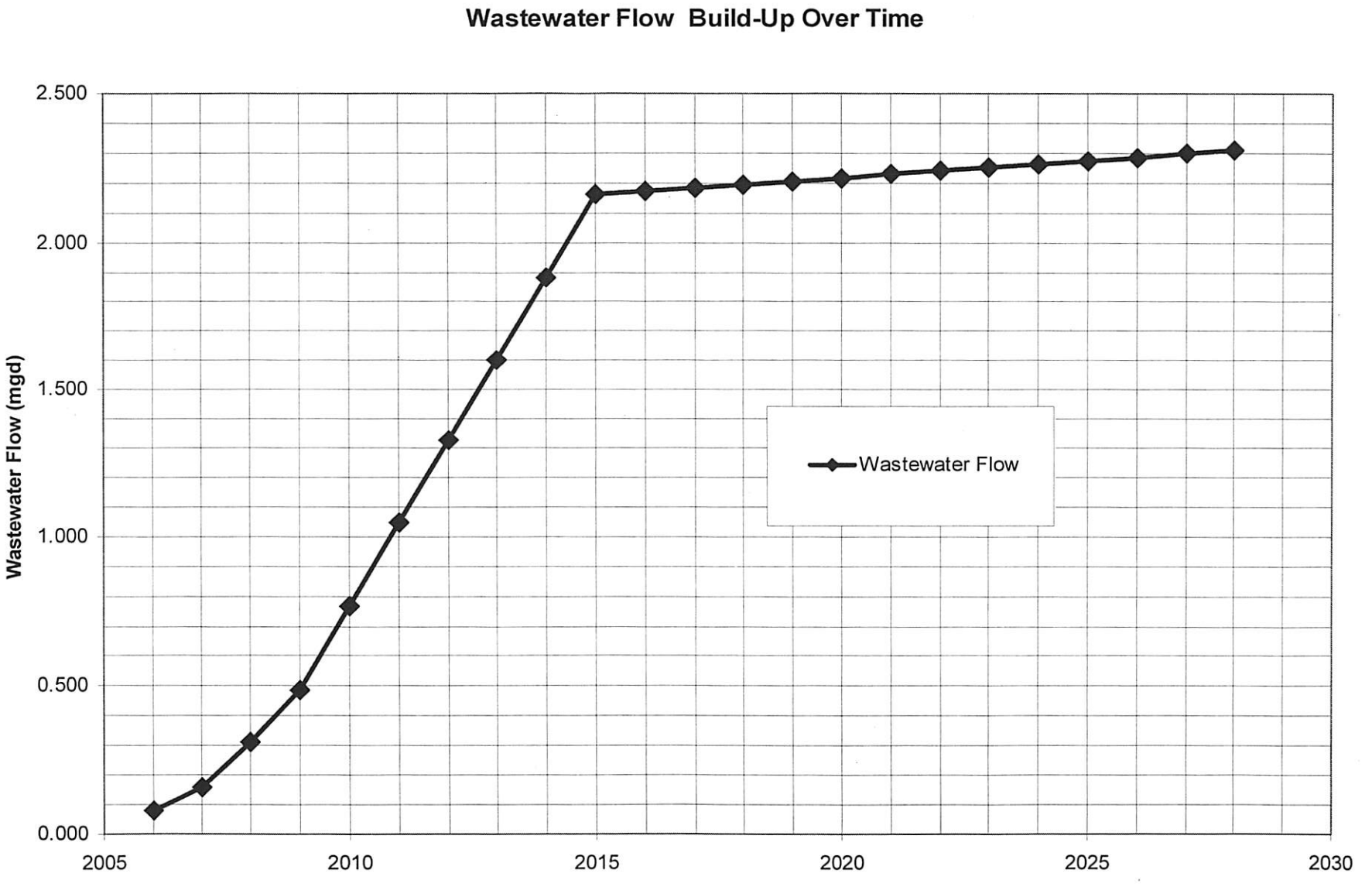
KLWTP Wastewater Flows



Influent characteristics

Parameter	Influent Flow		Influent	Influent load	
	AADF	MMADF	Concentration	AADF	MMADF
	mgd	mgd	mg/l	lbs/day	lbs/day
Key Largo Only					
Biological Oxygen Demand (BOD_5)	2.30	2.88	250	4,796	5,994
Total Suspended Solids (TSS)	2.30	2.88	250	4,796	5,994
Total Nitrogen (TN)	2.30	2.88	40	767	959
Total Phosphorus (TP)	2.30	2.88	8	153	192
Total Alkalinity (as $CaCO_3$)	2.30	2.88	150	2,877	3,597

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Effluent Requirements

Effluent Parameter	Units	Annual Average	Monthly Average	Weekly Average	Single Sample
$CBOD_5$	mg/l	5.00	6.25	7.50	10.00
TSS	mg/l	5.00	6.25	7.50	10.00
TN	mg/l	3.00	3.75	4.50	6.00
TP	mg/l	1.00	1.25	1.50	2.00
Residual Cl_2	mg/l				>1.0
pH	units				6.5 - 8.5

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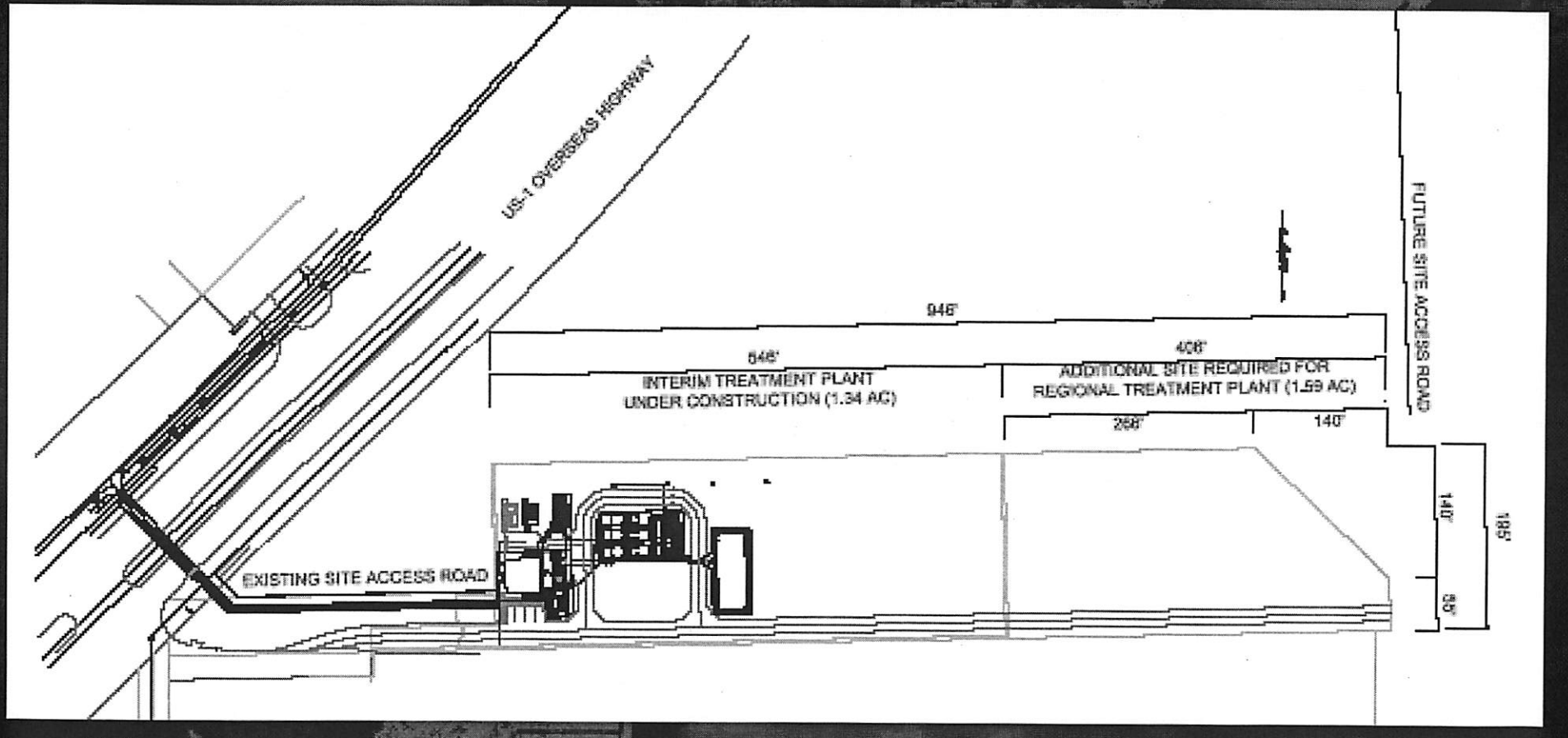
Existing WTP Site Layout



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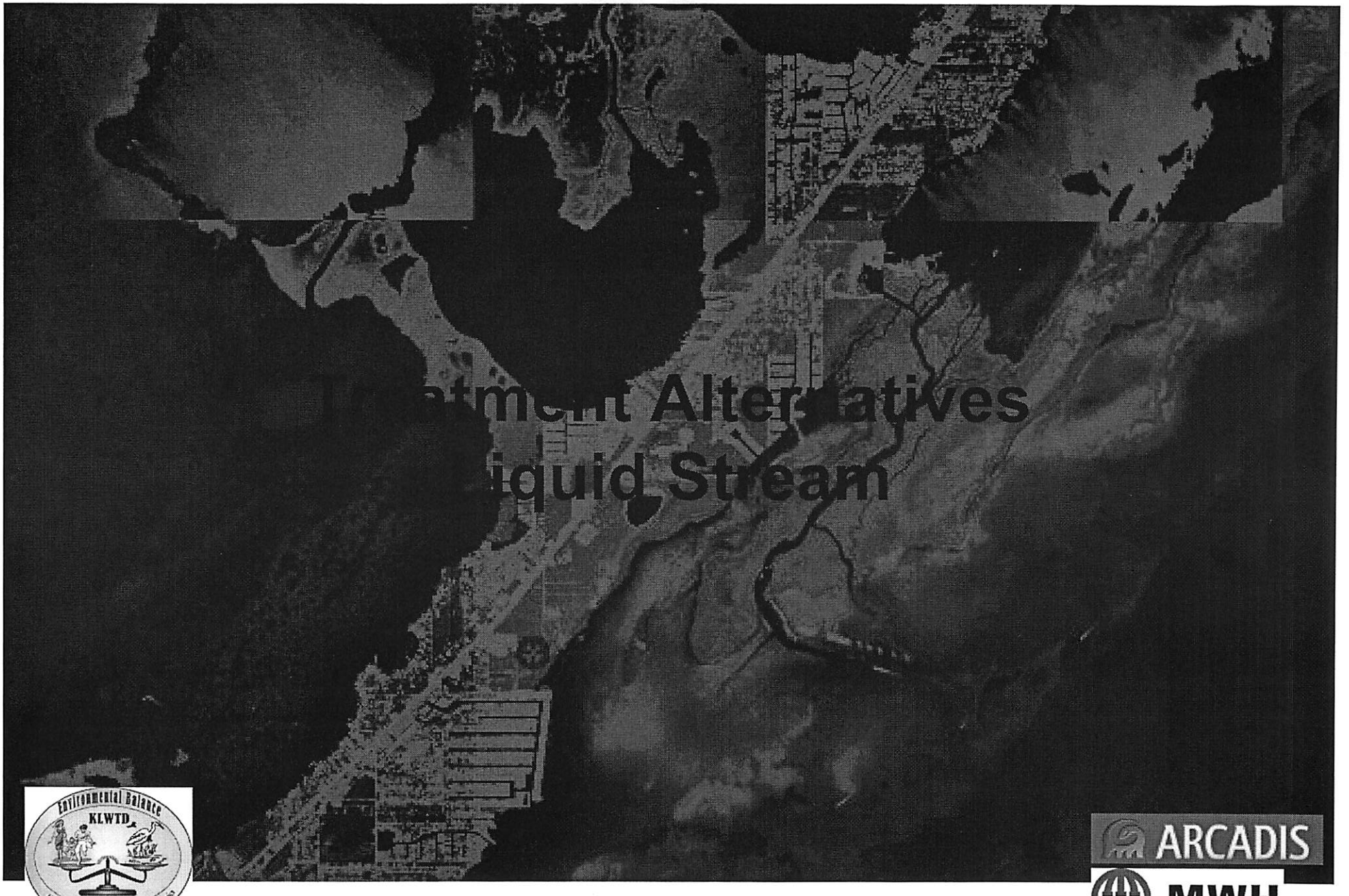

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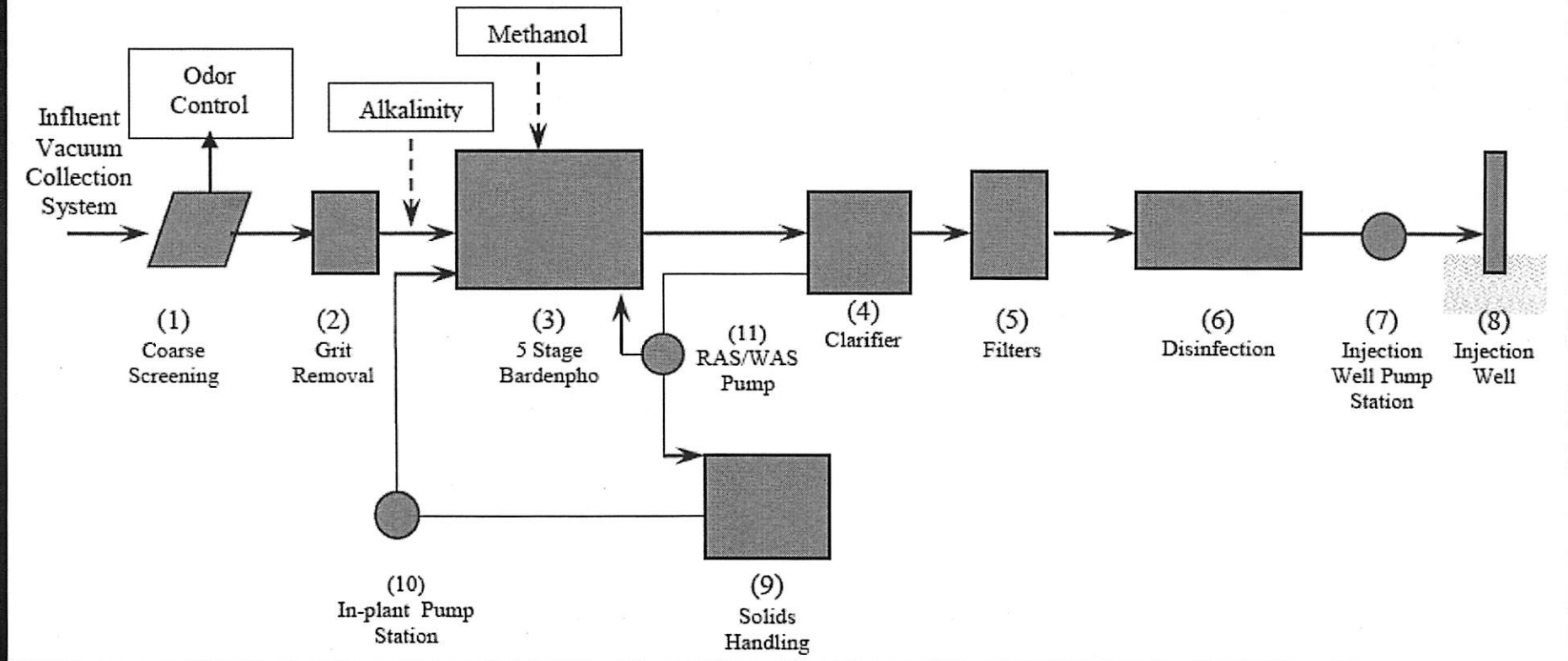
Bardenpho - Process Flow



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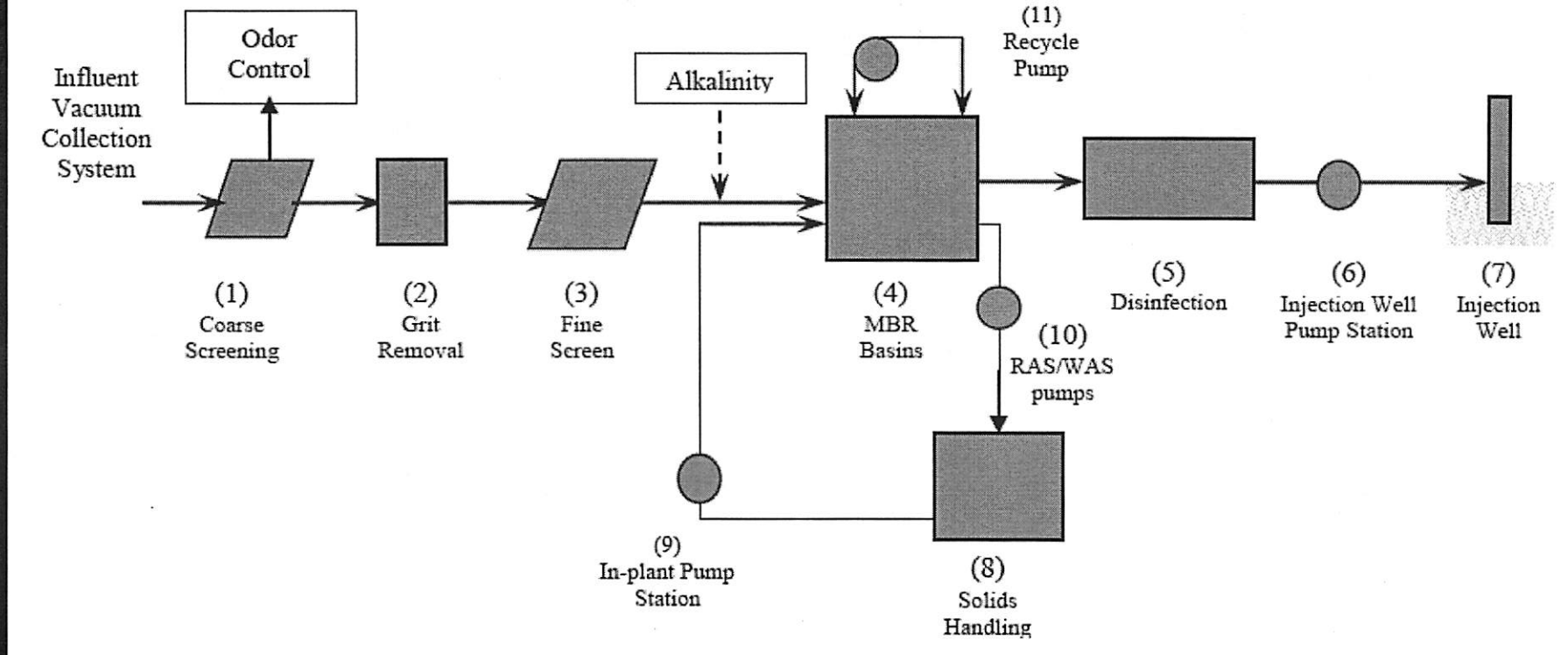
MBR Process Flow



Liquid Stream Comparative Costs

	Bardenpho	SBR	MBR
Headworks	$2,340,000	$2,340,000	$2,340,000
Liquid Process	$3,480,000	$4,660,000	$8,220,000
Equalization	$0	$450,000	$0
Clarification	$2,440,000	$0	$0
Filtration	$810,000	$2,150,000	$0
Chemicals	$340,000	$340,000	$340,000
In Plant Pump Station	$190,000	$190,000	$190,000
Capital Cost Subtotal	**$9,600,000**	**$10,130,000**	**$11,090,000**
Net Present Worth of O&M Costs	**$13,360,000**	**$14,740,000**	**$14,890,000**
TOTAL NET PRESENT WORTH	**$22,960,000**	**$24,870,000**	**$25,980,000**

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Liquid Stream - Evaluation

	Criteria	Weighting Factor**	Score (1 - 10)* Bardenpho	SBR	MBR
1	Capital Cost	10	10	10	9
2	Total Present Worth O&M	15	10	8	8
3	Proven Track Record	20	10	7	8
4	Effluent Quality Reliability	20	9	7	10
5	Operational Phasing	10	8	9	10
6	Mechanical Reliability	10	10	8	8
7	Health & Safety	10	10	8	10
8	Use of Available Land	5	5	4	10
9	Permitability	5	10	7	7
10	Construction Phasing	5	6	8	10
11	Odor Potential	5	9	9	9
12	Impact to Existing Facilities	5	8	6	10
13	Complexity of Operation	5	10	9	8
	MAXIMUM SCORE POSSIBLE	1250			
	Total (weighting factor * score)		**1150**	**965**	**1120**

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Treatment Alternatives
Disinfection

Disi[illegible]tion Alternatives

Chlorine [illegible]orite) Disin[illegible]tion

[illegible]let[illegible]sinfection

Cost Item	Hypochlorite	Ultraviolet (UV)
Capital Costs	$590,000	$1,950,000
Net Present Value O&M Costs	$2,060,000	$1,220,000
Total Net Present Value	**$2,650,000**	**$3,170,000**

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tment Alternatives
(Sludge) Treatment

Biosolids Treatment
• Option 1
Ha
Liquid Sludge
(Un
Solids)
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olids)
Op
1B
aul Sludge Cake
Dewatering
Dewatering
2 - Class B Stabilization
icken, Digest, Dewater, Haul
tion 3 -
lass A Stabilization
Thicken
ater, Thermal Dr
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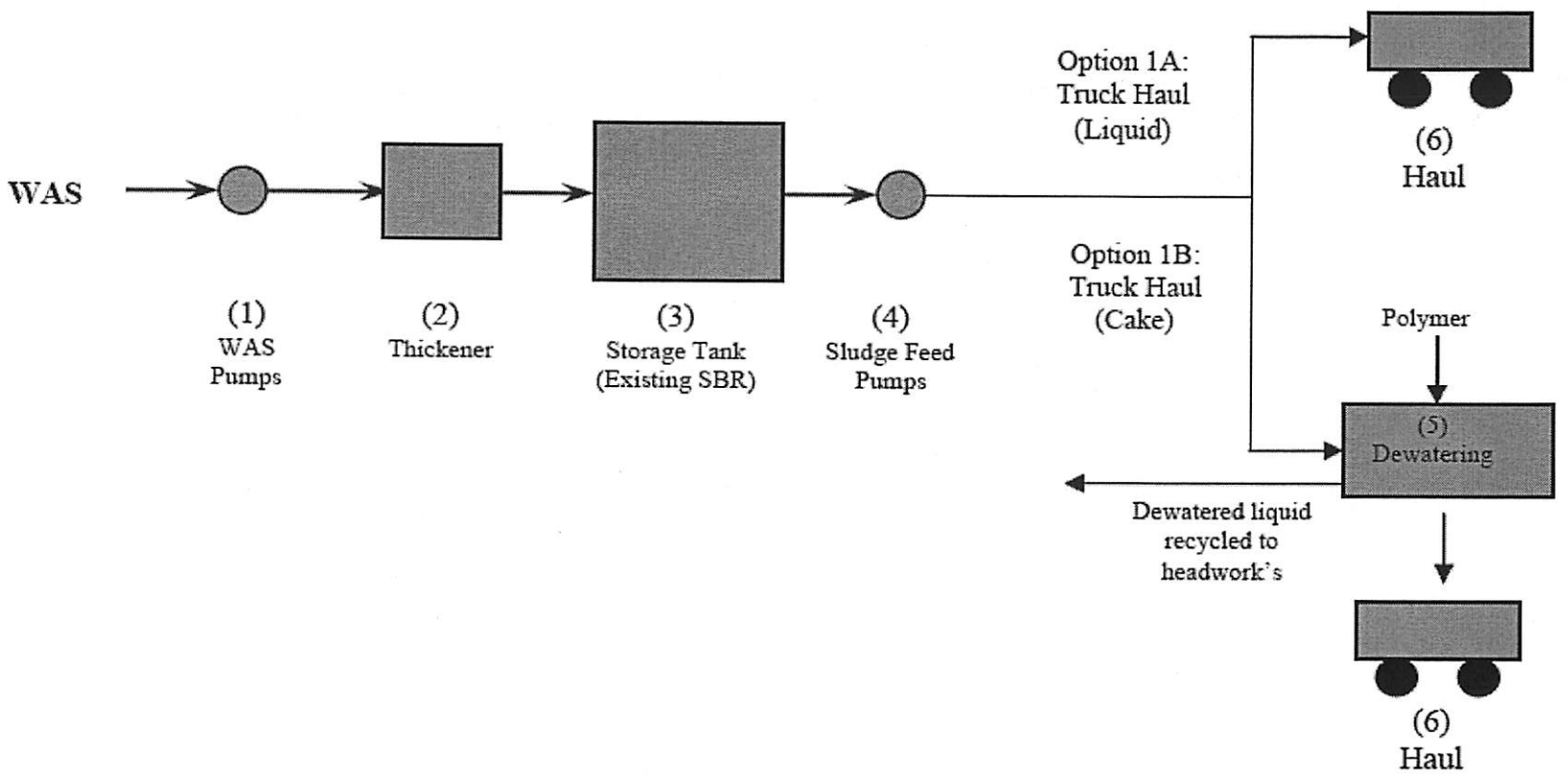
Biosolids Option 1 - Process Flow



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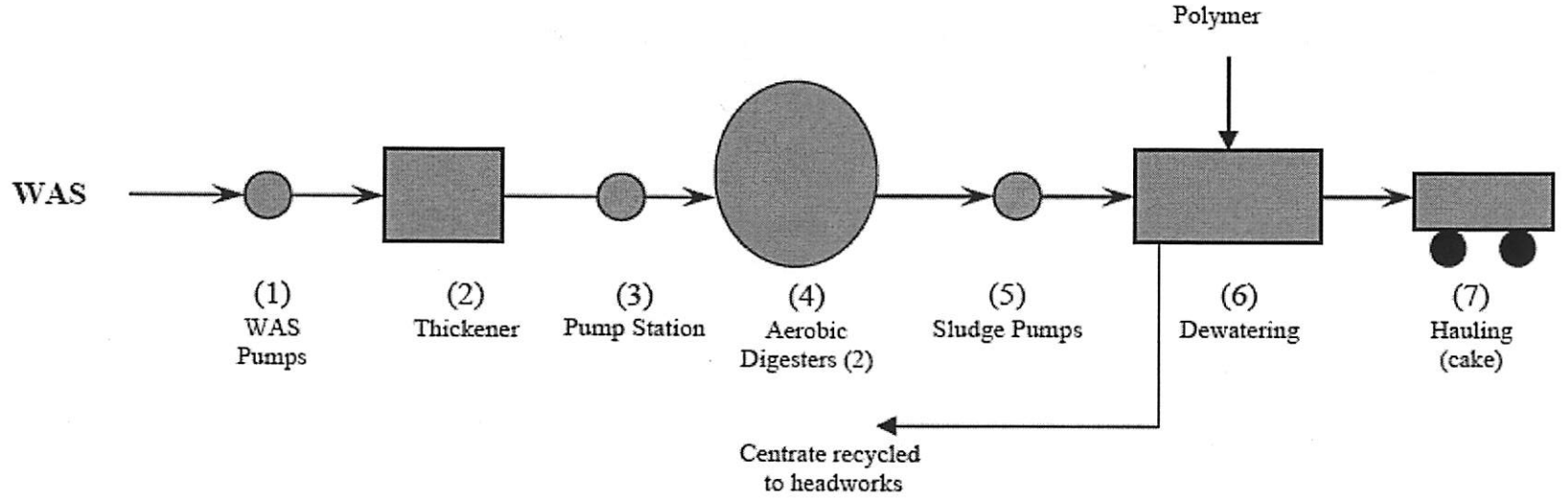
Biosolids Option 2 - Process Flow



Operation: 7 days/week ⇨ Operation: 1-2 days/week

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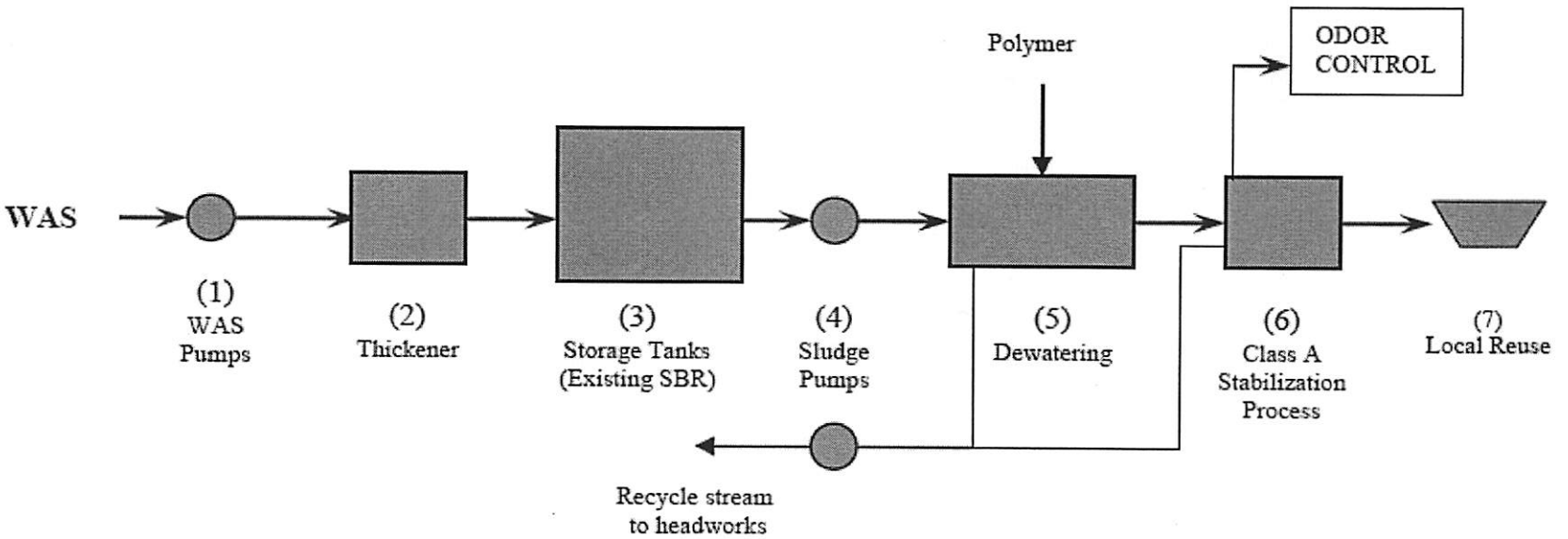
Biosolids Option 3 - Process Flow



Operation: 7 days/week ⇨ **Operation: 2-4 days/week**

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Biosolids Costs – Option 1

	Option 1A – Haul Liquid		Option 1B – Haul Cake	
	Unthickened (1% Solids)	Thickened (3% Solids)	Mobile Dewatering (20% Solids)	On-site Dewatering (20% Solids)
RAS/WAS Pumps	$90,000	$0	$0	$0
Thickener	$0	$730,000	$730,000	$730,000
Storage Tanks	$40,000	$40,000	$40,000	$40,000
Aerobic Digester - Class B	$0	$0	$0	$0
Sludge/Digester Pumps	$180,000	$180,000	$180,000	$180,000
Dewatering	$0	$0	$0	$640,000
Thermal Drying - Class A	$0	$0	$0	$0
Capital Cost Subtotal	**$310,000**	**$950,000**	**$950,000**	**$1,590,000**
Net Present Worth of O&M Costs	**$46,310,000**	**$17,160,000**	**$11,110,000**	**$11,540,000**
TOTAL NET PRESENT WORTH	**$46,620,000**	**$18,110,000**	**$12,060,000**	**$13,130,000**

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Biosolids Alternatives - Options 2 & 3

	Option 2 – Class B Stabilization	Option 3 – Class A Stabilization
RAS/WAS Pumps	$0	$0
Thickener	$730,000	$730,000
Storage Tanks	$40,000	$40,000
Aerobic Digester - Class B	$1,660,000	$0
Sludge/Digester Pumps	$350,000	$0
Dewatering	$640,000	$640,000
Thermal Drying - Class A	$0	$5,100,000
Capital Cost Subtotal	$3,420,000	$6,510,000
Net Present Worth of O&M Costs	$11,480,000	$9,070,000
TOTAL NET PRESENT WORTH	**$14,900,000**	**$15,580,000**

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Biosolids Evaluation

	Criteria	Weighting Factor**	Score (1 - 10)* Unthickened (1%)	Thickened (3%)	Mobile Dewatering	On-site Dewatering	Class B Stabilization	Class A Stabilization
1	Capital Cost	20	10	9	9	8	6	5
2	Total Present Worth O&M	20	2	3	8	8	8	10
3	Permitability (present & future)	10	2	2	5	5	2	10
4	Proven Track Record	10	10	10	10	10	8	8
5	Phasing	10	10	10	8	10	6	10
6	Reliabilty (Owner Control)	10	5	6	3	7	7	10
7	Health and Safety	10	8	8	8	8	7	6
8	Odor Potential	10	8	8	7	7	4	7
9	Use of Available Land	5	10	10	9	9	4	7
10	Mechanical Reliability	5	10	10	9	8	7	7
11	End-product Reuse Potential	5	0	0	0	0	5	10
12	Complexity of Operation	5	10	10	10	9	9	8
	MAXIMUM POSSIBLE SCORE	1200						
	Total (weighting factor * score)		**820**	**830**	**890**	**920**	**745**	**970**

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Site Buildings
Environmental Balance
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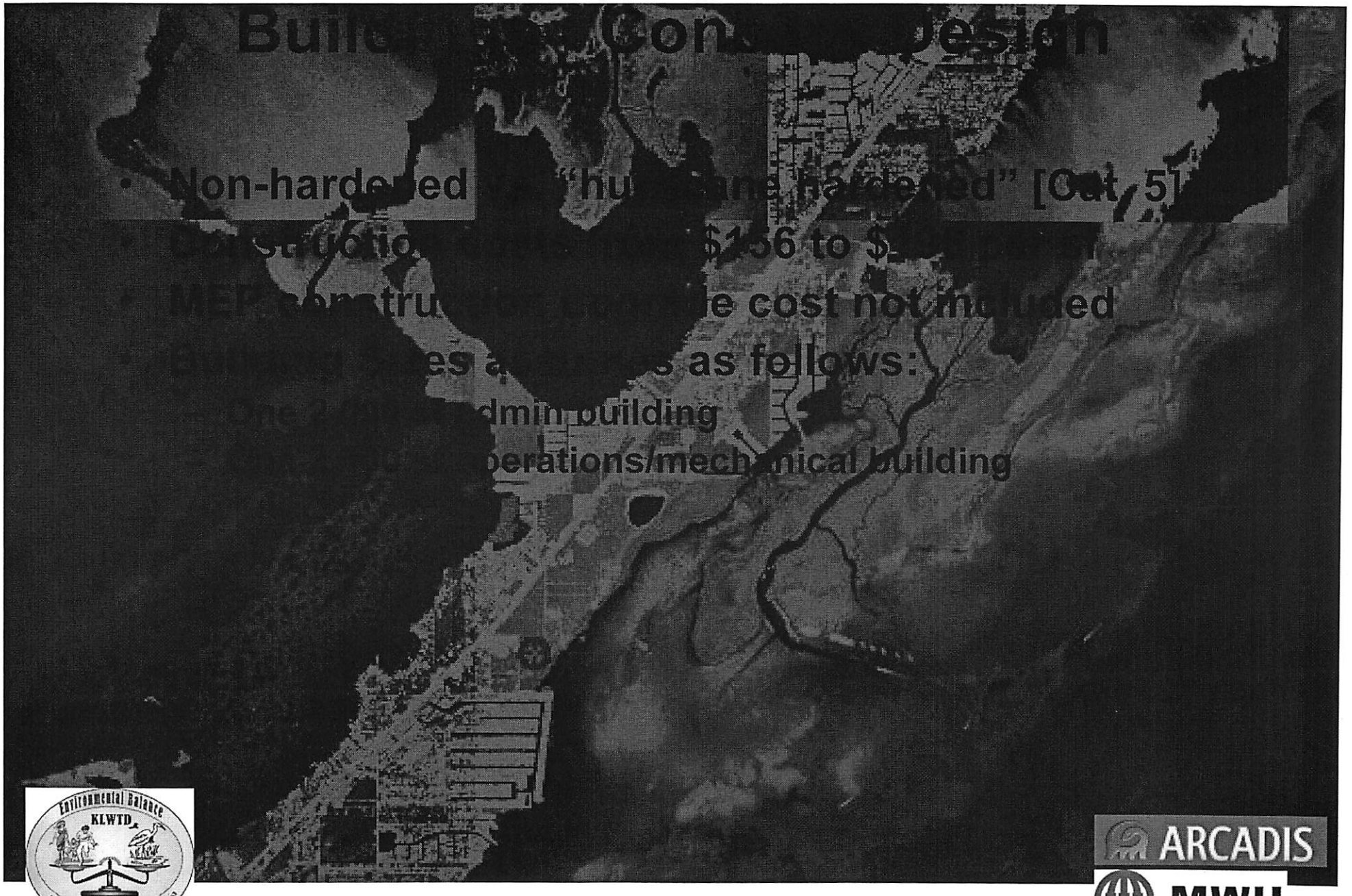

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Building Component Relative Cost

TABLE 6-1

Conceptual Building Installation Costs

		Unit Cost/square foot		
Building Type	**Facilities**	**Non-Hardened**	**Hardened**	**MEP**
Administration Building	Offices (3) Reception Conference Room Rest Rooms	$150	$196	na
Operations Building	Laboratory Offices (2) Break Room Rest Rooms	$155	$195	na
Building Type	**Facilities**	**Conceptual Total Costs for 2,000 square feet**		
Administration Building	Offices (3) Reception Conference Room Rest Rooms	$300,000	$392,000	na
Operations Building	Laboratory Offices (2) Break Room Rest Rooms	$310,000	$390,000	na

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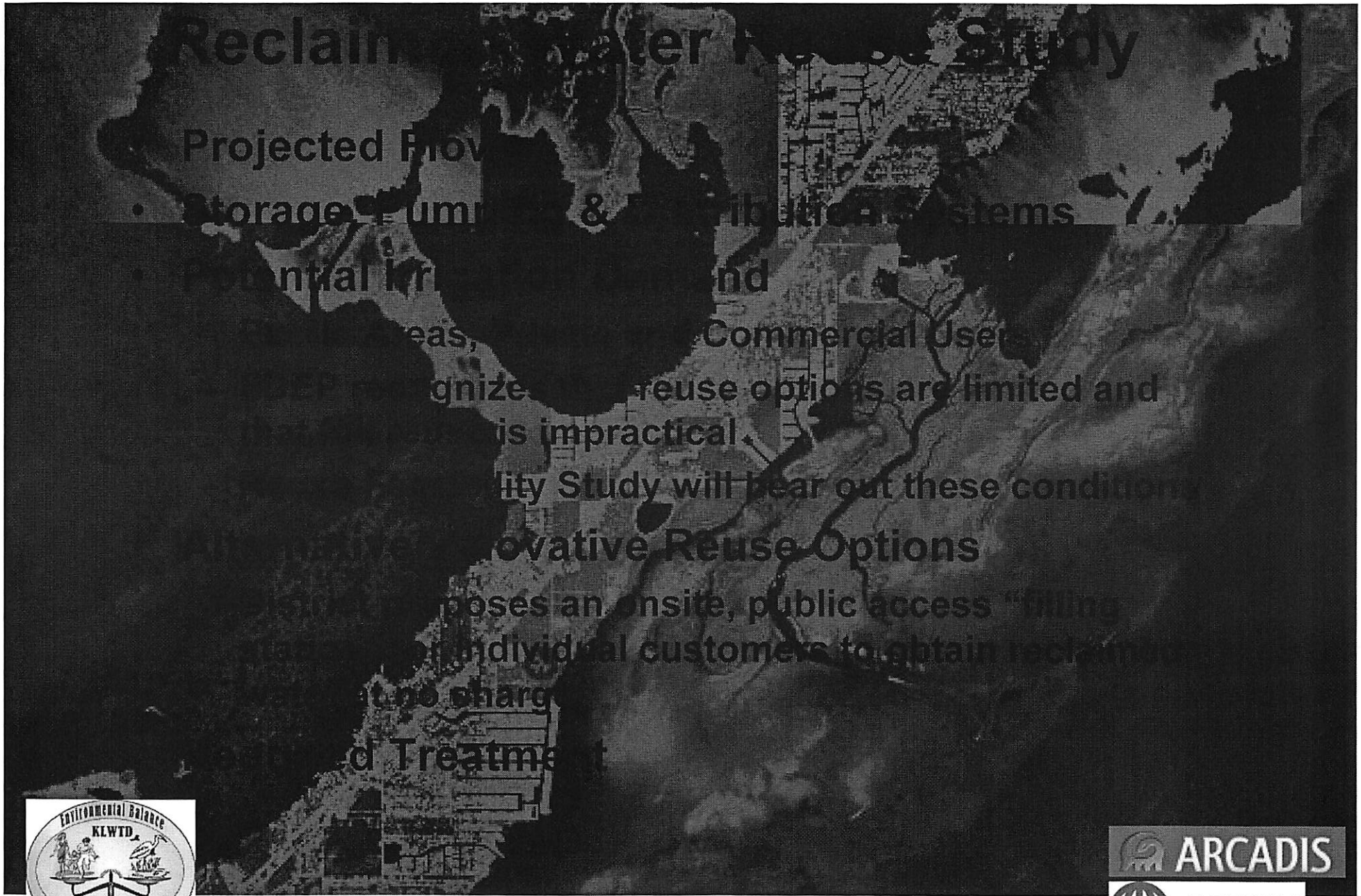
Effluent Disposal
Reuse



Reclaim[illegible]ater R[illegible] Study

- Projected Flow[illegible]
- Storage, Pump[illegible] & [illegible]ribution Systems
- Potential Kr[illegible]nd
  - [illegible]eas, [illegible] Commercial Users
  - [illegible]gnize[illegible] reuse options are limited and [illegible] is impractical.
  - [illegible]lity Study will bear out these conditions
- [illegible]ovative Reuse Options
  - [illegible]poses an onsite, public access "filling [illegible] individual customers to obtain reclaim[illegible] [illegible]t no charg[illegible]
- [illegible]d Treatment

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Key Largo Wastewater Treatment District

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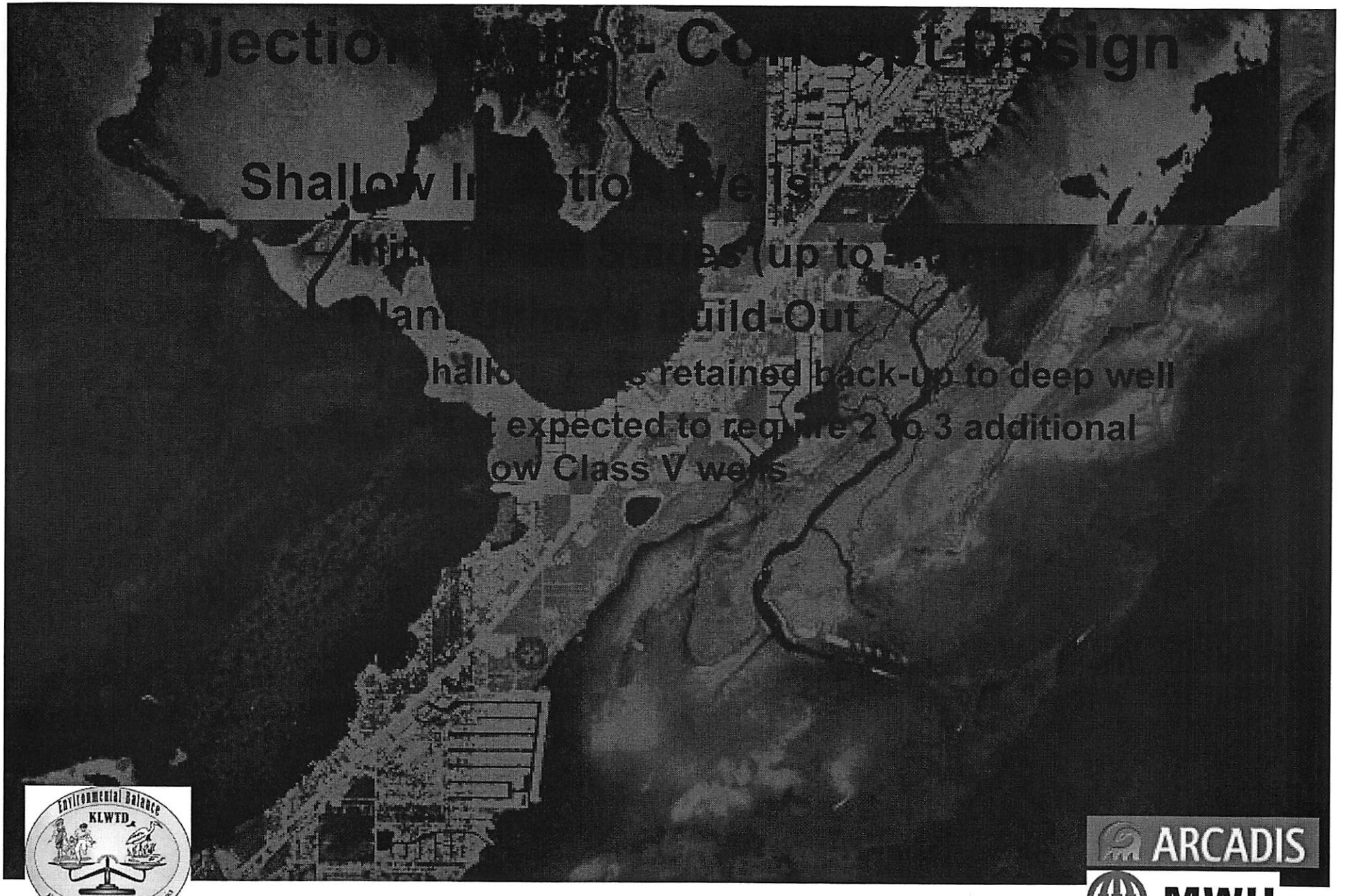
Effluent Disposal
Injection

Injection Wells - Concept Design

Shallow Injection Wells

- Initial [illegible] (up to [illegible]
- Plan[illegible] Build-Out
  - Shallo[illegible] retained back-up to deep well
  - [illegible] expected to require 2 to 3 additional [illegible]ow Class V wells



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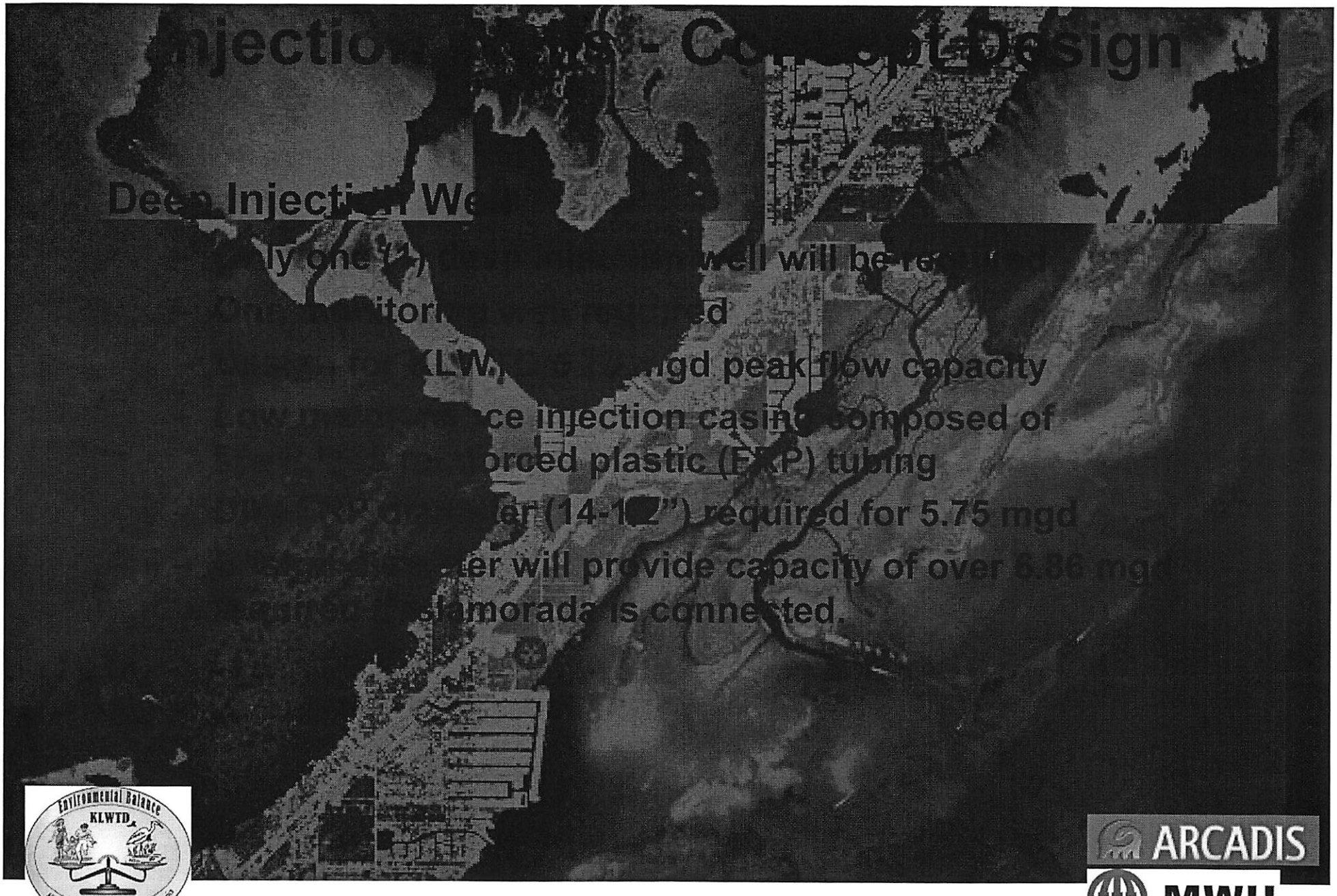
Injection Wells - Conceptual Design
Deep Injection We
ly one (1)
well will be re
itori
ed
KLW
mgd peak flow capacity
ce injection casing composed of
orced plastic (FRP) tubing
er (14-1 2") required for 5.75 mgd
er will provide capacity of over 6.86 mgd
amorada is connected.

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Total Comparative Cost

	Bardenpho	SBR	MBR
Headworks	$2,340,000	$2,340,000	$2,340,000
Liquid Process	$3,480,000	$4,660,000	$8,220,000
Equalization	$0	$450,000	$0
Clarification	$2,440,000	$0	$0
Filtration	$810,000	$2,150,000	$0
Chemicals	$340,000	$340,000	$340,000
In Plant Pump Station	$190,000	$190,000	$190,000
Solids Handling*	$950,000	$950,000	$950,000
Disinfection*	$590,000	$590,000	$590,000
Effluent Disposal/Injection Facilities	$5,170,000	$4,685,000	$5,140,000
Sitework	$680,000	$680,000	$680,000
Administration & Operations Buildings	$785,000	$785,000	$785,000
Capital Cost Subtotal	**$17,775,000**	**$17,820,000**	**$19,235,000**
Net Present Worth of WWTP Equipment O&M Costs	**$26,530,000**	**$27,910,000**	**$28,060,000**
TOTAL NET PRESENT WORTH	**$44,305,000**	**$45,730,000**	**$47,295,000**

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Recommendations

- Five-Stage Bardenpho
- Hypochlorite Disinfection
- Biosolids
  - Phase 1 Mobile Dewatering/Cake Haul
  - Phase 2 Regional Class A Sludge
- Reuse - Truck Filling Station
- Effluent Disposal
  - One Deep Injection Well
  - Back-Up Shallow Injection Wells

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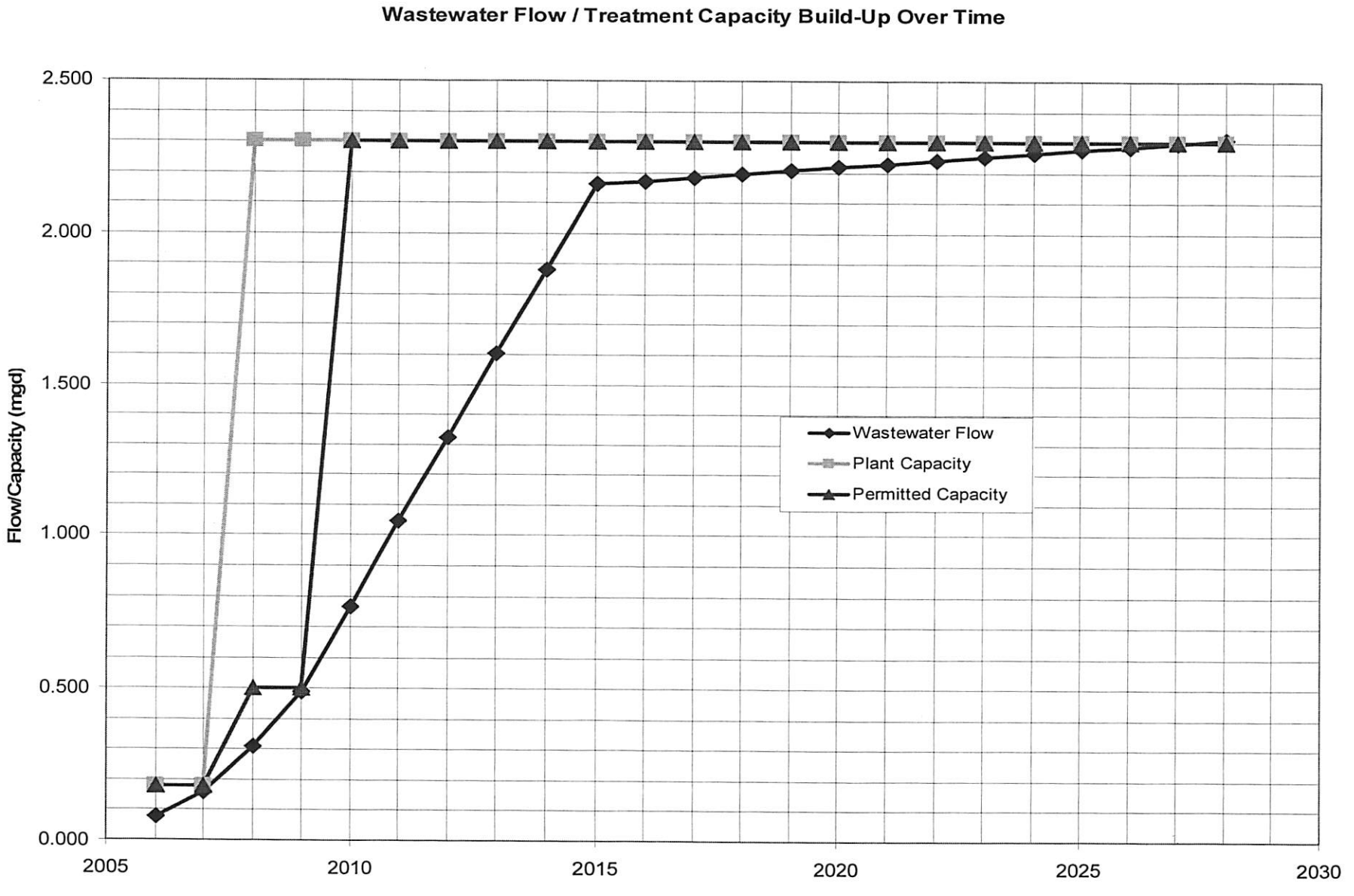
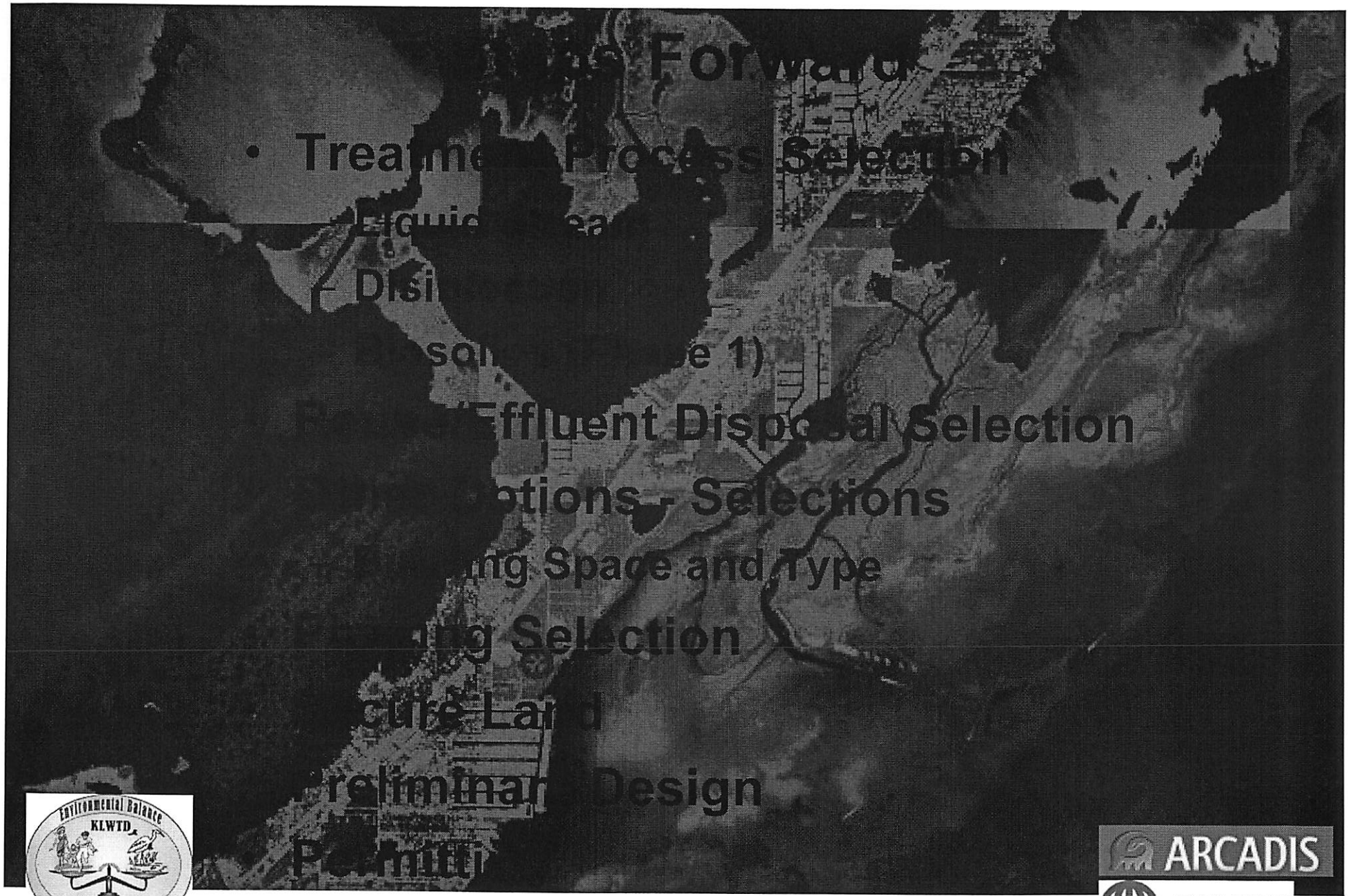
Plant Phasing





...s Forward

- Treatment Process Selection
  - Liquid Treat...
  - Disi...
  - ...son... ...e 1)
- ...Effluent Disposal Selection
- ...ptions - Selections
- ...ing Space and Type
- ...ing Selection
- ...cure Land
- Preliminary Design
- Permitti...

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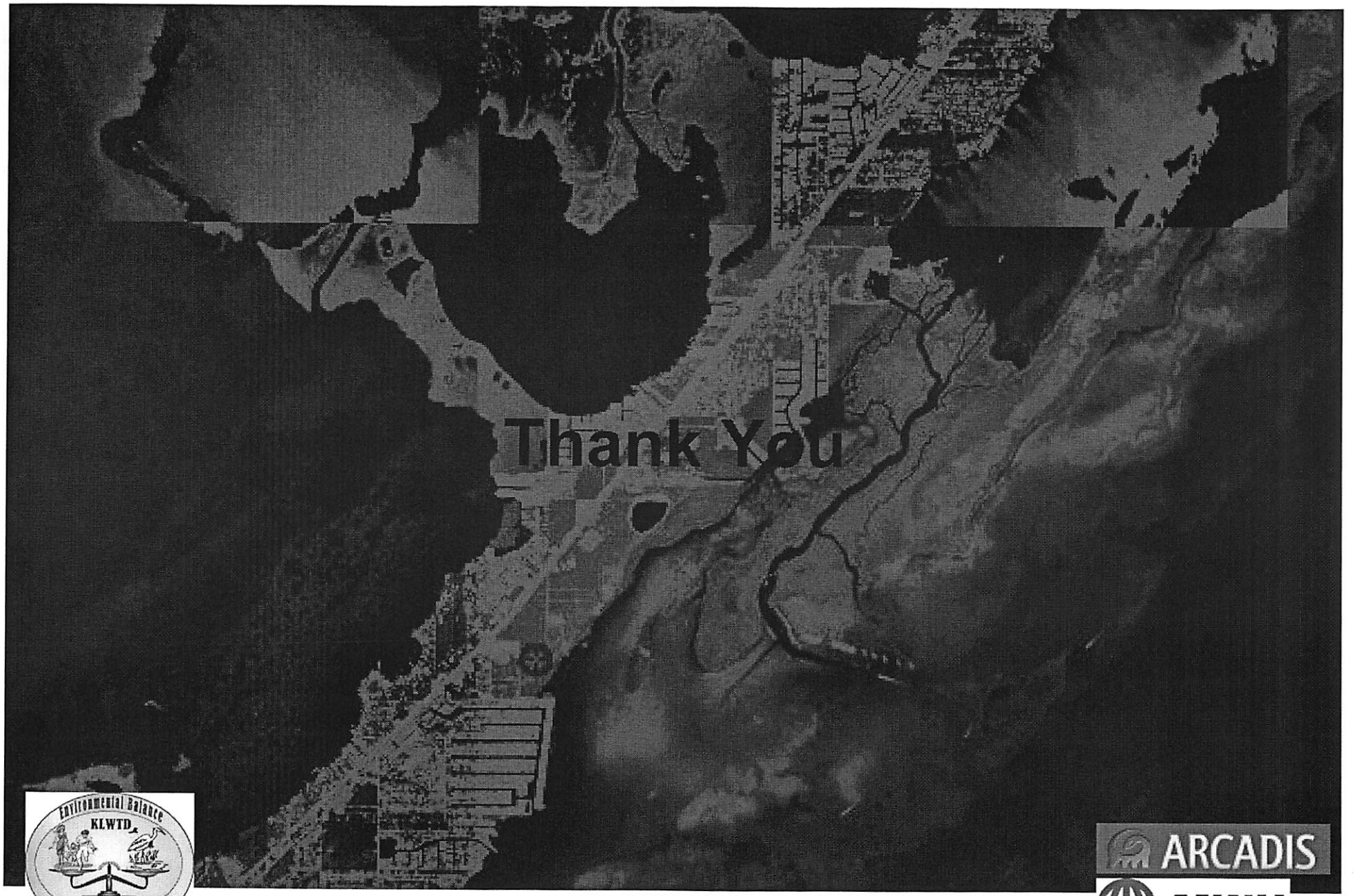
Thank You