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Information Package for July 20, 2006 Meeting with County
Beach Drive Marsh

This Information Package includes several documents intended to assist the County with understanding and evaluating the Beach Drive Marsh Proposal by the local homeowners.

Introduction

- Introduction, Problem Statement, Short-Term Action Plan

History

- Aerial photographs from 1950, 1980 and 2002 (11x17)
- Flap gate and concrete field photographs

Recent conditions

- Profile of marsh channels
- Suspended sediment concentration data from 2005-2006 winter
- Current marsh field photographs
- Parcel map
- Map of contributing watershed

Solutions

- Flap gate operations schematic
- Flap gate manufacturers product sheet



Beach Drive Marsh Improvement Proposal

Introduction and Problem Statement

Since the 1950s the watershed surrounding Beach Drive Marsh (the Marsh) has gone from a largely undeveloped, rural area to a suburban landscape. This increase in development has lead to increased amounts of stormwater runoff with a high suspended sediment concentration. The runoff from a large portion of the watershed is discharged to San Pablo Bay via a culvert located approximately 200 yards northwest of the Marsh. It is believed that these changes in the watershed have had an adverse effect on the Marsh. The increased amount of suspended sediments in the water have apparently lead to increased deposition in the marsh, leading to partial infilling of several tidal circulation channels. This sedimentation has caused areas of the marsh to become isolated from regular tidal exchange, thus leading to poor water quality and odor problems. If left unaddressed, these problems are expected to worsen.

When Beach Drive was constructed at some point prior to 1950, a 24-inch culvert was installed beneath the road to allow tidal exchange between the marsh and Bay. The Bay side of the culvert was outfitted with a flap gate constructed within a concrete structure. The precise design of that original system is not available.

Solutions

A long term solution to the issues plaguing the Marsh cannot be attained until the amount of sediment coming from the watershed is controlled. Potential methods to reduce the influx of sediment from the watershed include creating sedimentation basins or filtration systems, stabilizing eroding hillslopes in the upper watershed, and compliance with existing RWQCB regulations on sediment control in construction/landscaping activities. Once this issue has been dealt with, replacing the existing undersized culvert to the marsh with a box culvert or bridge under Beach Drive would allow improved tidal exchange between the Marsh and the bay, and hence improved ecosystem function. Until these steps are taken, an inexpensive short-term solution to the sedimentation problems is proposed.

Action Plan for Short-Term Solution

The short-term solution will minimize the siltation problems and improve the water quality in the Marsh until a long term solution can be implemented. This solution involves the following three actions, which are depicted on the attached map:

1. Replace existing inflow-outflow structure

This step will involve the restoring the flap gate and water control structure on the bayward side of the existing culvert. The gate will be open during most conditions, but can be closed during storm events. A riser will be installed on top of the culvert so that during these storm events the only water that will enter the Marsh will be from the top of the water column. This action will reduce the amount of sediment entering the Marsh.

2. Hand-remove channel sills

There are several sills present in the Marsh channels which impede the flow of water, especially near the outlet to the bay. These sills are small enough that they can be removed with hand shovels, which can be done by members of the community. Removing these drainage impedances will allow better circulation within the marsh. and will reduce the potential for flooding the surrounding area.

3. Clear existing remnant channels to ponded areas

There are several existing channels within the marsh that have been silted in over the years. These areas would be cleared with a small machine used for dredging marsh channels. Re-opening these channels will allow improved circulation of ponded areas, leading to increased water quality and reduced odor problems. We propose enlisting participation of the Marin/Sonoma Mosquito Abatement District as they own and operate the necessary equipment.



Tax parcels



BEACH DRIVE MARSH DESIGN FEATURES

July 2006

Project No. 1104

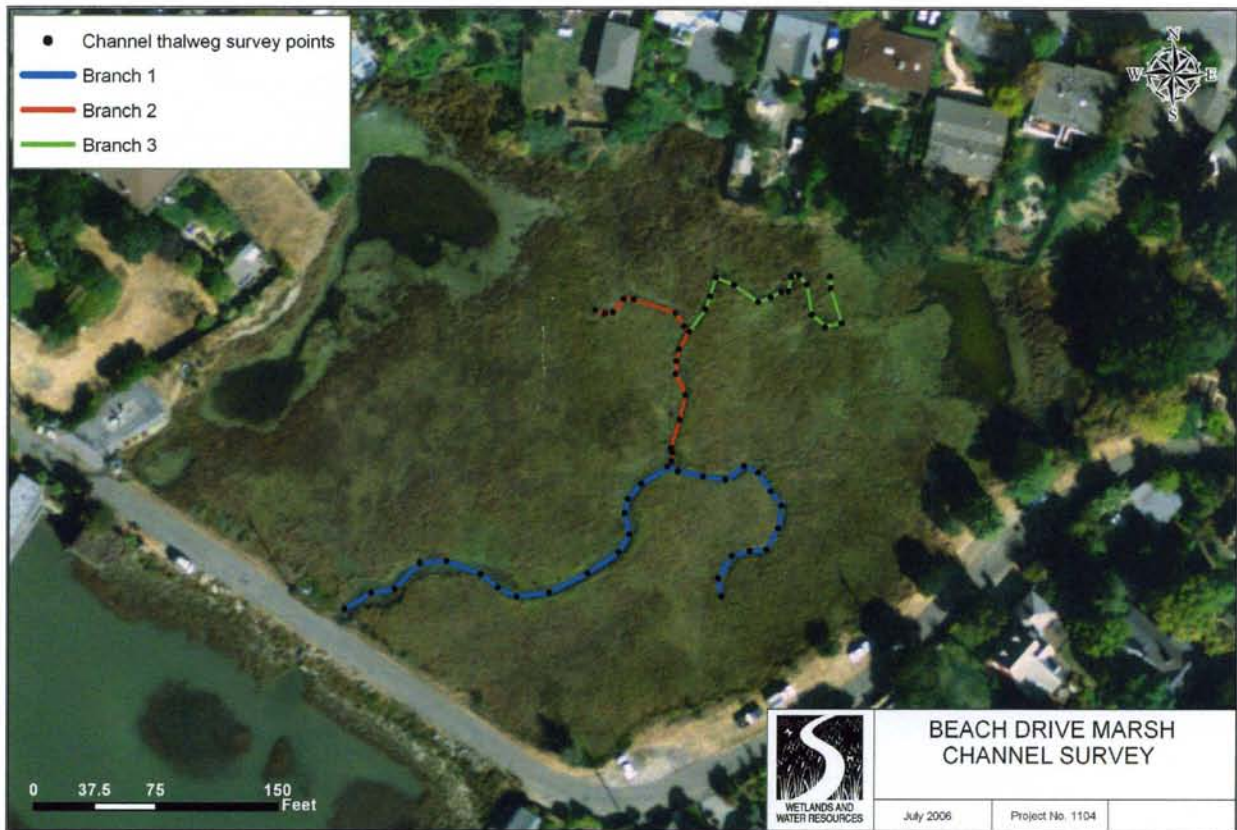




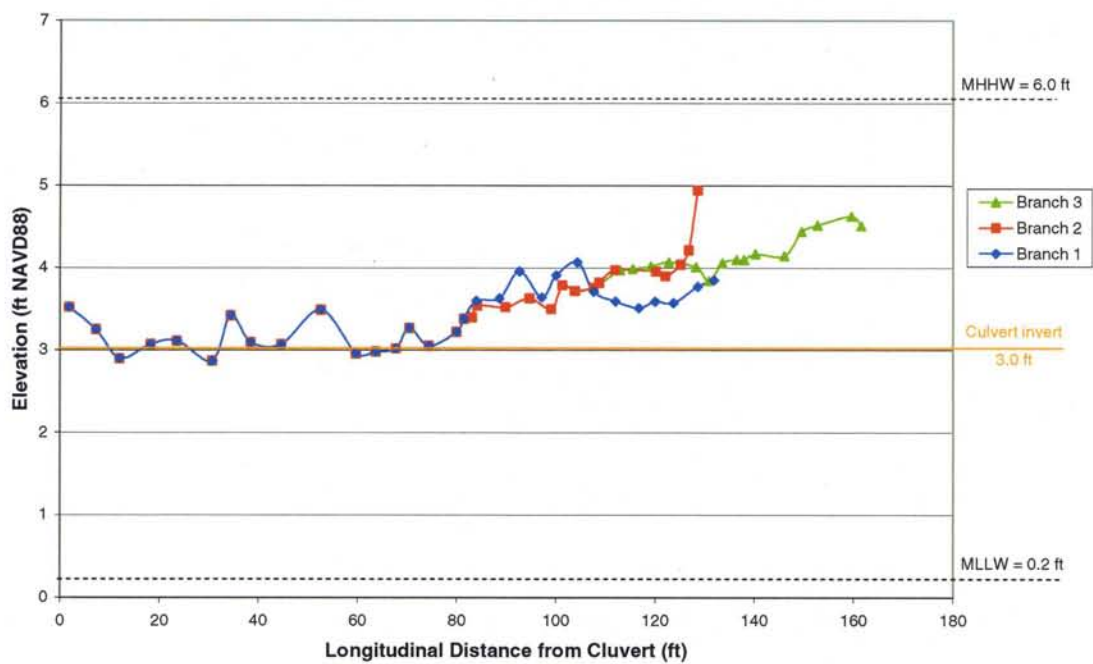
2002



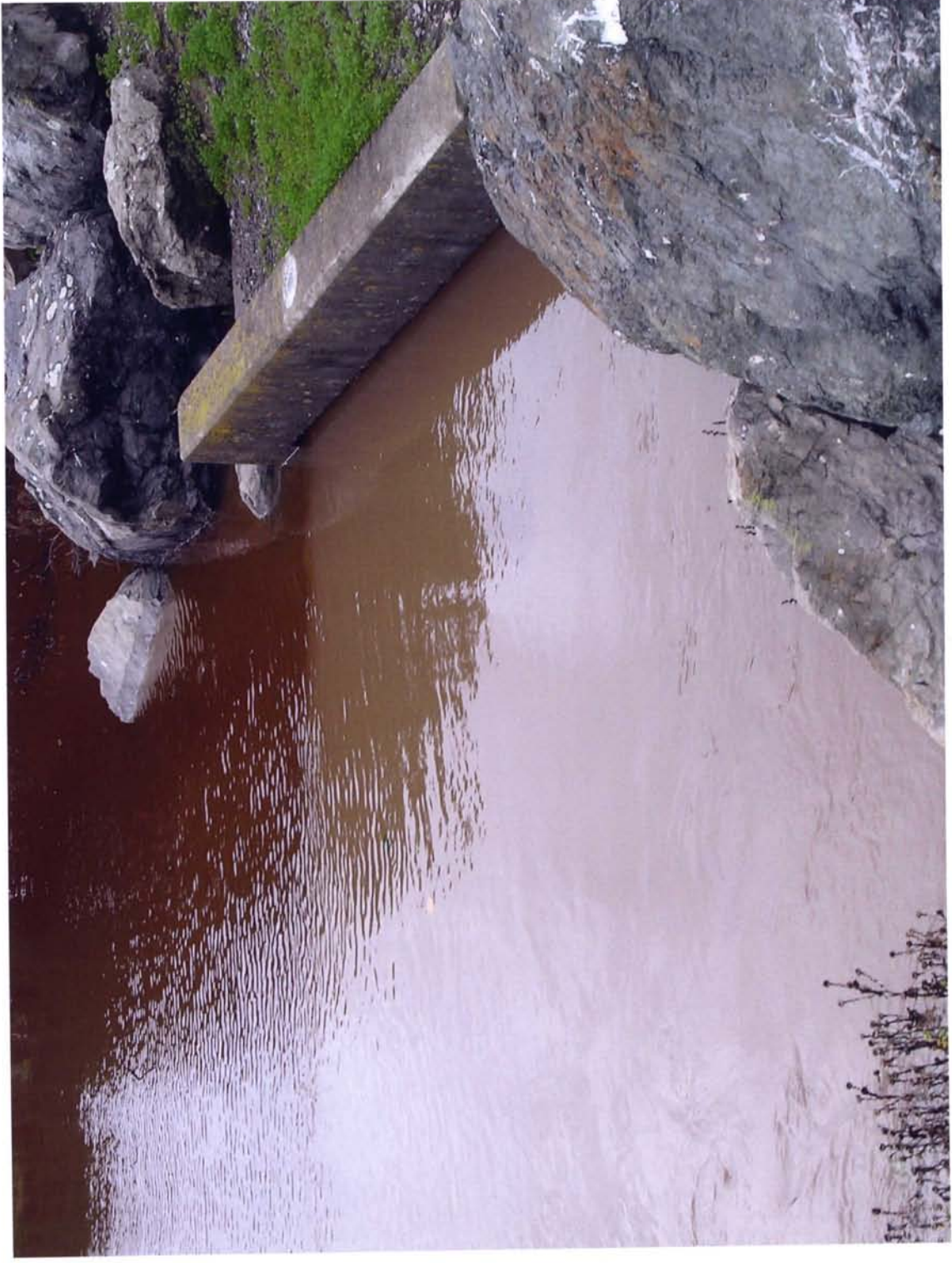




Channel Profiles

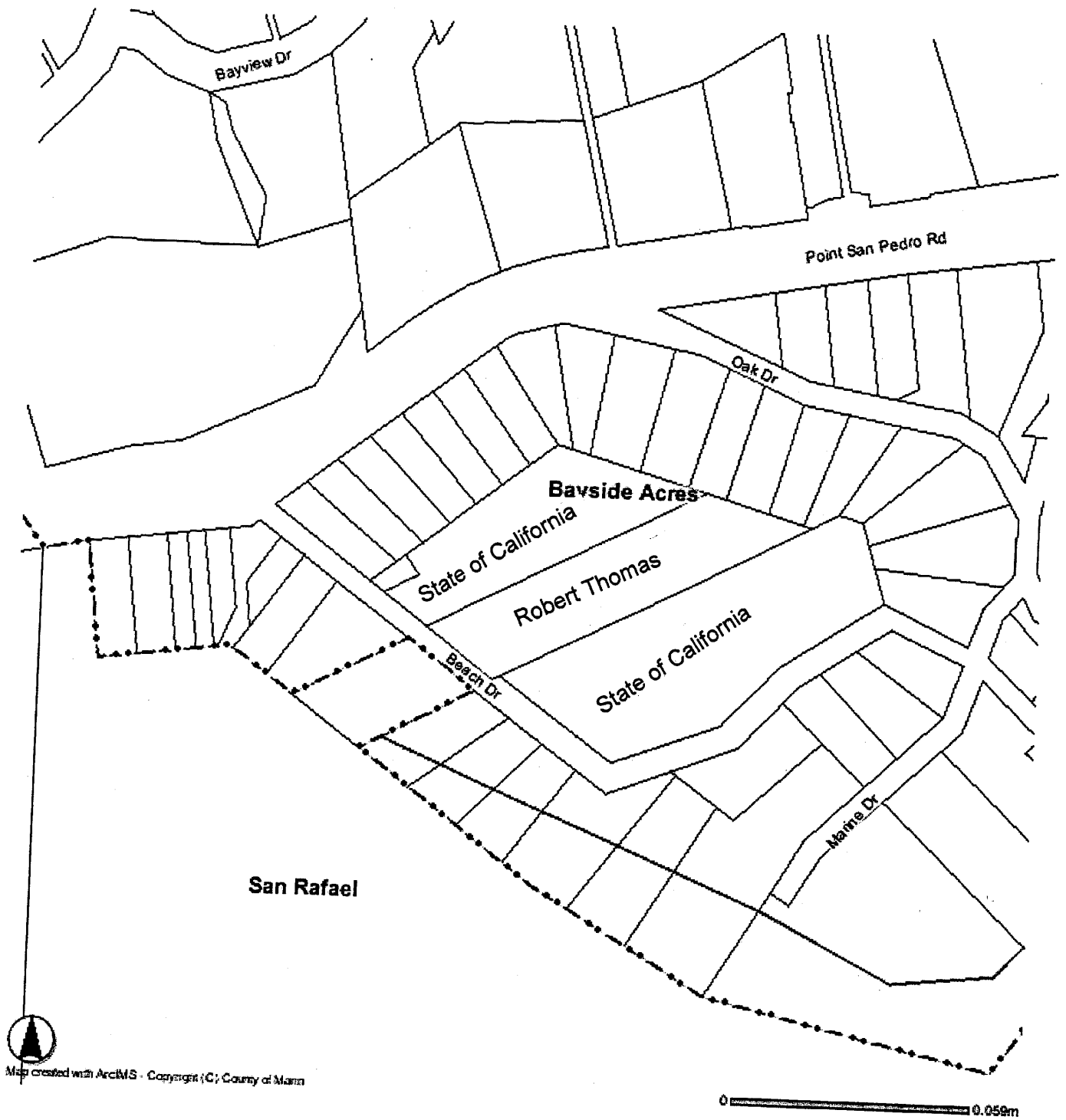


In addition to this culvert, three 24" pipes pass under Pt. San Pedro Rd. into the inlet.



TOTAL SUSPENDED SOLIDS DATA
BEACH DRIVE MARSH

Condition	Storm				Dry			
Date	4/7/2006		4/11/2006		4/25/2006		5/25/2006	
Location	Marsh	Bay	Marsh	Bay	Marsh	Bay	Marsh	Bay
TSS(mg/l)	188	190	210	210	43	50	28	38





Beach Drive Marsh

Storm Sewer Outfalls



BEACH DRIVE MARSH DRAINAGE AREA

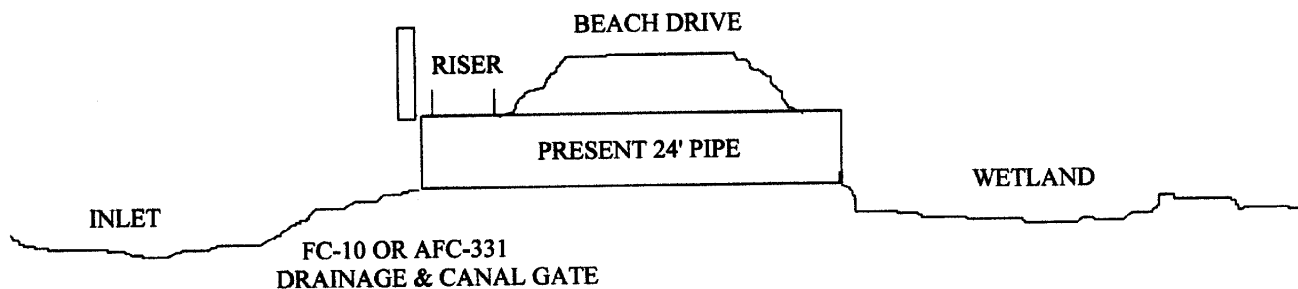
Area draining to marsh vicinity



July 2006

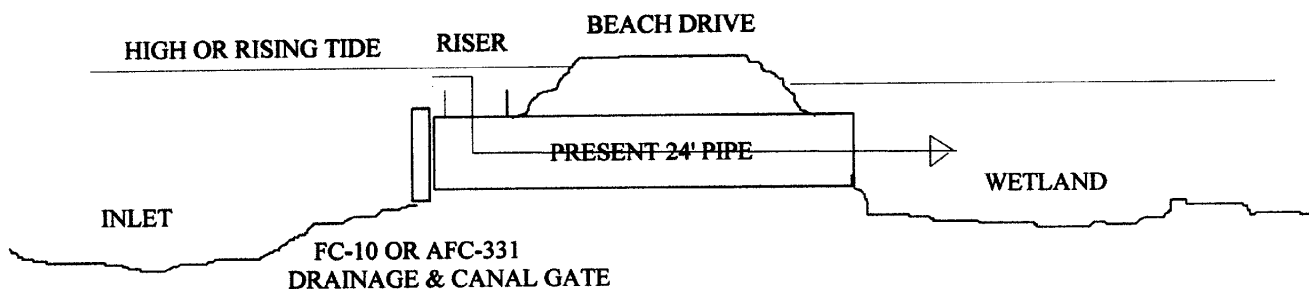
Project No. 1104

NORMAL OPERATION



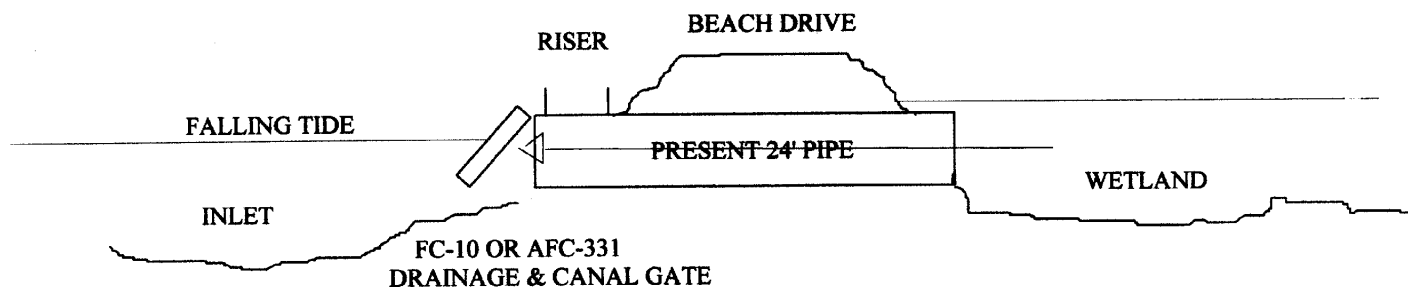
The gate is raised above the present pipe. Tidal flows are unchanged from present conditions.

OPERATION TO REDUCE SILT PASSING INTO THE WETLAND DURING HEAVY RAINFALL EVENTS



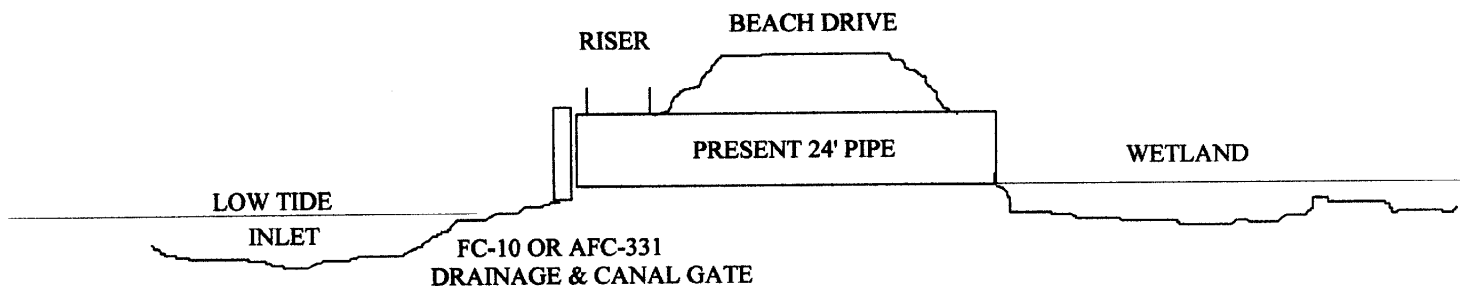
HIGH TIDE

The water level in the inlet is higher than the level in the wetland so the flap-gate is held closed by the water pressure. When the tide rises above the riser "clean" water flows over the top of the riser into the wetland. Most of the silt is left in the inlet.



FALLING TIDE

The water level in the inlet is now lower than the level in the wetland, so the flap-gate opens and the wetland empties.



LOW TIDE

The bottom of the 24" pipe is the lowest level to which the wetland can fall. There is no flow, in or out, until the tide rises above the top of the riser

AF-41 ALUMINUM DRAINAGE (FLAP) GATES

- LIGHTER WEIGHT REDUCES INSTALLATION COSTS
- SIZES 12" - 84" (CUSTOM SPIGOT SIZES AVAILABLE)
- SEATING HEADS TO 40 FEET.

A CORROSION-RESISTANT RUST-PROOF AUTOMATIC DRAINAGE GATE DESIGNED FOR USE WITH ALUMINUM CORRUGATED PIPE, OR FOR FLANGE MOUNTING OR USE WITH HDPE

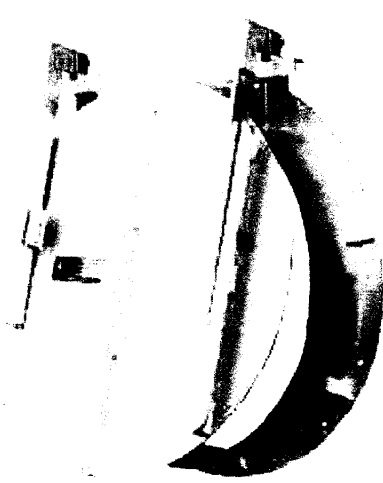
PREVENTS ELECTROLYSIS ASSOCIATED WITH CAST IRON GATES TO ALUMINUM PIPE CONNECTIONS.

J-BULB NEOPRENE ADJUSTABLE SEATS PROVIDE EXCELLENT SEALING AGAINST RETURN FLOW.

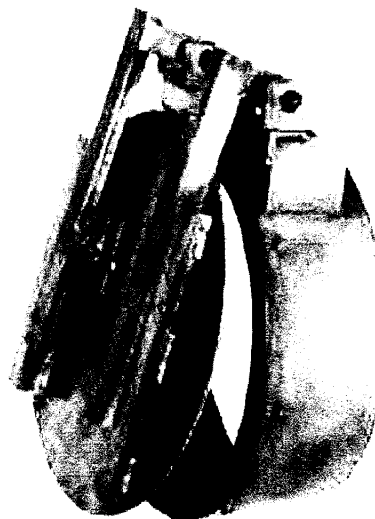
FRAME, COVER, RETAINER RING, HINGE ARM, AND PIVOT LUG ARE OF ALUMINUM ALLOY 6061-T6. GATE HARDWARE IS STAINLESS STEEL.

- SPECIFY:

- AF-41sb... for corrugated pipe
- AF-41f... for wall mounting
- AF-41ff... for flange mounting
- AF-41-4... for plastic pipe
- AF-41-6... for HDPE

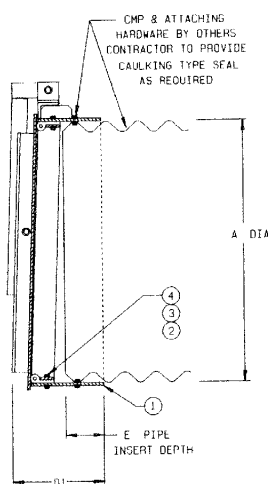
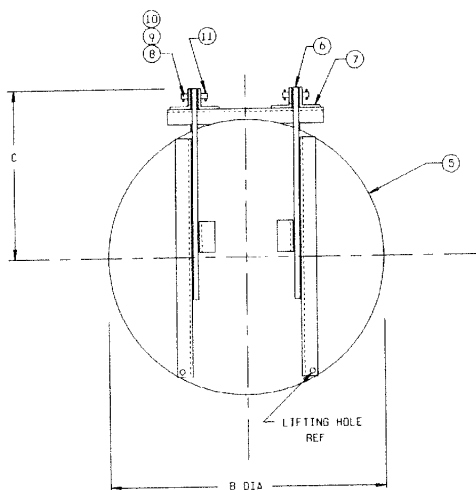


AF-41 FLATBACK

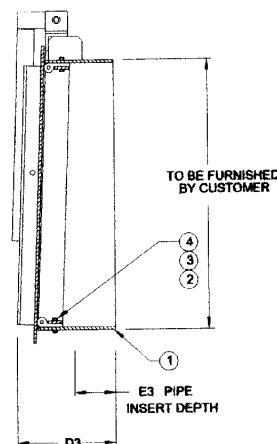


AF-41 SPIGOTBACK

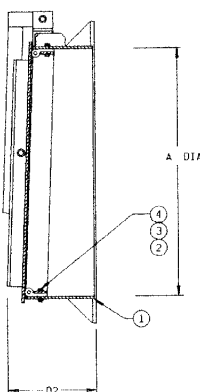
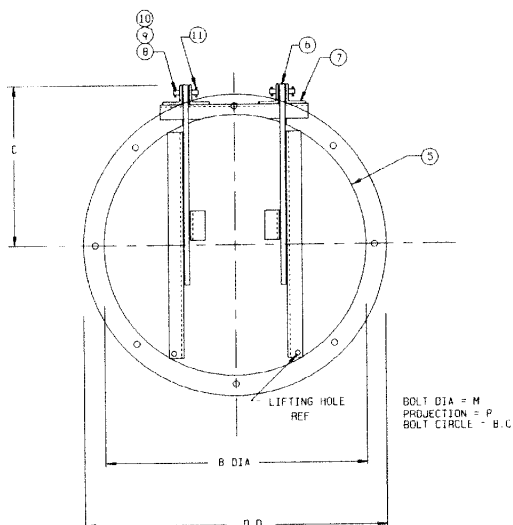
AF-41 SPIGOTBACK



AF-41 TYPE 6 SPIGOT FOR HDPE PIPE



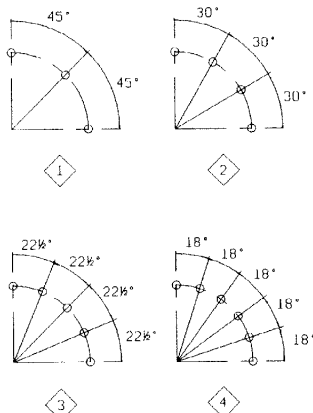
AF-41 FLATBACK (FLANGEBACK SIMILAR BUT WITH ASA STANDARD FLANGE DIMENSIONS)



3

PARTS LIST	
No.	Name
1	Frame
2	Seat
3	Retainer Ring
4	Hex Hd. Bolt/Nut
5	Cover
6	Hinge Arm
7	Pivot Lug
8	Hex Hd. Bolt/Nut
9	Hinge Pin
10	Bushing
11	Washer
12	Spring Pin

1. Add grout pad thickness to anchor bolt projection.
2. Also available with flange and drilling to attach to a 125# standard pipe flange.
3. If grout pad mounting is used add grout thickness to dimension.



DIMENSIONS IN INCHES

GATE SIZE	A	B	C	D1	D2	D3	E	E3	O.D.	B.C.	M	P	1	◇
12	13 1/4	13 1/4	10 1/4	8 1/4	8 1/4	11 1/2	4	7	17 1/2	15 1/4	1/2	1	1	
15	16 1/4	17	12 1/4	8 1/4	8 1/4	11 1/2	4	7	20 1/2	18 1/4	1/2	1	2	
18	19 1/4	20	14 1/4	8 1/4	8 1/4	11 1/2	4	7	23 1/2	21 1/4	1/2	1	2	
24	25 1/4	26 1/4	16 1/4	8 1/4	8 1/4	11 1/2	4	7	30 1/2	28 1/4	1/2	1 1/2	2	
30	31 1/4	32 1/4	19 1/4	10 1/4	10 1/4	12	4 1/2	7	36 1/2	34 1/4	1/2	1 1/2	3	
36	37 1/4	38 1/4	24	10 1/4	10 1/4	12	4 1/2	7 1/2	42 1/2	40 1/4	1/2	1 1/2	3	
42	43 1/4	46	28	13	13 1/4	-	5 1/2	-	48 1/2	46 1/4	1/2	1 1/2	3	
48	49 1/4	52	31	13 1/4	13 1/4	-	5 1/2	-	54 1/2	52 1/4	1/2	1 1/2	4	
54	55 1/4	58	35	13 1/4	13 1/4	-	6 1/2	-	60 1/2	58 1/4	1/2	2	4	
60	61 1/4	64	38	15 1/4	15 1/4	-	6 1/2	-	66 1/2	64 1/4	1/2	2	4	
72	73 1/4	76	44 1/4	17 1/4	17 1/4	-	7 1/4	-	78 1/2	76 1/4	1/2	2	4	
84	DIMENSIONS ON APPLICATION													

Rodney Ruskin

From: Bernie Howell [Bernie.Howell@watermanusa.com]
Sent: Wednesday, July 05, 2006 4:50 PM
To: Rodney Ruskin
Subject: RE: FC-10 and AFC-331

Rodney,

You will need to contact one of the following dealers when you are ready to purchase the canal gates. We have several dealers in your area. They are Groeniger, Contech, Water Componets, Ferguson Poly Riser and Davis Machine Shop.

24" FC-10F with 6' galvanized frame wall mounted \$ 3079.00 estimated delivery 1-2 weeks
AFC-10F with 6' aluminum frame wall mounted \$ 6354.00 estimated deliver 6-8 weeks

Bernie

-----Original Message-----

From: Rodney Ruskin [mailto:rr@geoflow.com]
Sent: Wednesday, July 05, 2006 3:44 PM
To: SalesRequest
Subject: FC-10 and AFC-331

FC-10 and AFC-331

Dear Sir,

We are specifying a 24" valve, either FC-10 or AFC-331. The project is for the DPW, Marin County, CA. We urgently need list prices to include with the proposal.

Will you supply Geoflow? If not, please advise your dealers in the San Francisco Bay area.

Thank you,

Regards,

Rodney

*Rodney Ruskin
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Direct: 415 785 4570
Fax: 415 785 4572*