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*Cocoa Beach*  
*Report 4*

*Report Release Date:*

*May 15, 2000*

*Stormwater Filtration Systems*



## Cocoa Beach Report 4

**Release Date: May 15, 2000 – Service Date: April 17 & 25, 2000**

**Tom Happel**

On April 17 & 25, 2000 servicing of the Great Inlet Skimmer Boxes and the Curb Protector was performed. On April 17th, 10 *Great Inlet Skimmer Boxes* and 1 Curb Protector was serviced, and On April 25th, 7 more *Great Inlet Skimmer Boxes* were serviced. Servicing the 18 units was performed in 6.5 man hours.

The planned service for the units was as follows:

- ◆ Empty the debris collected in the units.
- ◆ Measure the volume and weight of the debris collected in each unit.
- ◆ Make visual observations as to what kind of debris was collected in each unit.
- ◆ Estimate the weight of the sediment and foliage collected in each unit.
- ◆ Take photos of the inlets, *Grate Inlet Skimmer Boxes*, and debris.
- ◆ Analyze how the filter screens of each unit were performing for possible alterations.

It was not part of the plan to replace the hydrocarbon absorption booms at this time. It has been approximately 6 months since the *Storm Booms* were first introduced into the environment. It was observed that the booms have begun to biodegrade and have lost some of their mass.

Although 6 man hours were required to service the units, it is estimated that approximately 20 minutes was taken up with talking to people interested in the stormwater filters.

In order to measure the collected debris, the debris was placed in a clear plastic rectangular 18 quart tub. The volume was estimated by visually observing how full the tub was, and referencing that a full tub would be 18 quarts. To weigh the debris, it was put the plastic tub, then placed on a scale and the measurement read. The scale was calibrated to show 0 pounds with an empty tub.

The procedure for emptying the units was as follows:

- \* Place safety cones.
- \* Remove the grate
- \* Remove the skimmer tray and empty its contents into a plastic tub.
- \* Remove the collection box and empty the contents into the plastic tub.
- \* Place the tub filled with the collected debris on the scale and record a measurement of weight, volume, and visual description.
- \* Empty the tub into a large trash can for transportation.
- \* Place the complete **Grate Inlet Skimmer Box** back into the inlet.
- \* Replace the grate.
- \* Remove the safety cones.

17 inlets were serviced during two time frames for a total of approximately 6.5 hours. 16 inlets were fitted with <b>Grate Inlet Skimmer Boxes</b> and 1 inlet was fitted with a <b>Curb Inlet Protector</b> .	
Total volume of collected debris	587 quarts
Average volume of collected debris	32.6 quarts per unit
Total weight of collected debris	1115.9 pounds
Approximate total weight of sediment collected	990 pounds
Approximate total weight of foliage collected	123.9 pounds
Average weight of collected debris	62 pounds per unit

The Storm Booms were left in place, attached to the skimmer trays. All the booms had collected a significant amount of sediment within covering of the boom.

All of the filter screens in each of the Grate Inlet Skimmer Boxes appear to be functioning ideally. The adjustments made to the filter screens during the first couple of months have been successful in optimizing the units.



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**Debris captured by a *Grate Inlet Skimmer Box* located on the NE Corner of 1st ST North and Cedar.  
Monday April 17, 2000 in Cocoa Beach, FL**



**Left:** View of inlet prior to any service work. It is a standard “C” type inlet.

**Below:** Immediately after the grate is removed, it can be observed that the *Grate Inlet Skimmer Box* is nearly full with sediment and foliage.



**Skimmer Tray**

**Left:** The lower filtration chamber is filled up to within approximately 3” of the bottom of the skimmer tray. A man’s hand can easily fit between the skimmer tray and the sediment collected within the lower filtration chamber.



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**Debris captured by a *Grate Inlet Skimmer Box* located on  
the NE Corner of 1st ST North and Cedar.  
Monday April 17, 2000 in Cocoa Beach, FL**

**Right:** Immediately after the skimmer tray and deflection shield assembly was removed. Prior to removal, some of the sediment in the lower filtration chamber had to be removed in order to free up the deflection shield.



**Left:** A standard square shovel was used to remove most of the sediment and foliage from the lower filtration chamber.

The weight of the debris collected from this inlet was 481 pounds with a volume of 163 quarts. It is estimated that the weight is composed of approximately 5% foliage and 95% sediment.

**Right:** The *Grate Inlet Skimmer Box* has been emptied. The skimmer tray and deflection shield assembly is ready to be re-installed, and the grate placed back over the inlet.





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**Debris captured by a *Grate Inlet Skimmer Box* located on  
the SE Corner of 1st ST North and Cedar.  
Monday April 17, 2000 in Cocoa Beach, FL**



**Left:** View before any service work was done. This is a standard “C” type Inlet.

**Below:** Immediately after the grate was removed.



**Left:** The sediment collected in the skimmer tray solidified with the consistency of hardened mortar.

The weight of the debris collected from this inlet was 179 pounds, with a volume of 89 quarts. It is estimated that the weight is composed of approximately 5% foliage and 95% sediment.



**Left:** Much of the sediment in the lower filtration chamber was a coarse shell type material.



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**Debris captured by a *Grate Inlet Skimmer Box* located on  
the SW Corner of 1st ST North and Cedar.  
Monday April 17, 2000 in Cocoa Beach, FL**

This is a grated curb inlet, adjacent to a sidewalk in a residential neighborhood. The road was resurfaced a few days before. Much of the collected sediment was ground up asphalt from the recent road work.

The weight of the debris collected from this inlet was 72 pounds, with a volume of 23 quarts. It is estimated that the weight is composed of approximately 5% foliage and 95% sediment.



**Above:** View of inlet prior to any service work.



**Above:** Inlet immediately after the grate was removed.  
This *Grate Inlet Skimmer Box* measures only 11"



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**Debris captured by a *Grate Inlet Skimmer Box* located  
Along the East side of Brevard Ave. in front of Harbor Isles  
Monday April 17, 2000 in Cocoa Beach, FL**



**Left:** View of grated curb inlet prior to any service work.

**Below:** Immediately after the



This grated curb inlet is located along the East side of Brevard Ave., and is adjacent to a very large townhouse complex. The townhouse complex has very little pervious ground, and it is approximately 518 feet to the next stormwater inlet along the East Side of Brevard Ave. It is estimated that the watershed entering this inlet is above average for the area.

The weight of the debris collected from this inlet was 42 pounds, with a volume of 19 quarts. It is estimated that the weight is composed of approximately 5% foliage and 94% sediment.



**View Inside Lower Filtration Chamber**



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**Debris captured by a *Curb Protector* located at the  
NE corner of Brevard Ave. and 6th ST South  
Monday April 17, 2000 in Cocoa Beach, FL**

This inlet is located at the end of a short flume. The weight of the debris collected from this inlet was 17 pounds, with a volume of 18 quarts. It is estimated that the weight is composed of approximately 60% foliage and 40% sediment.



**Above:** A close-up of the collected debris, all of which would have washed into the storm drain if the Curb Protector had not been in place.

**Right:** The inlet has been cleaned and is ready for the next storm event.





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**Debris captured by a *Grate Inlet Skimmer Box* located at the  
SE Corner of 2nd ST South and Brevard  
Monday April 17, 2000 in Cocoa Beach, FL**



This is a standard “C” type inlet. The weight of the debris collected from this inlet was 18 pounds with a volume of 33 quarts. It is estimated that the weight is composed of approximately 70% foliage and 30% sediment. This *Grate Inlet Skimmer Box* measures only 12 inches deep, demonstrating the effectiveness in shallow applications.



**Above:** The *Grate Inlet Skimmer Box* has been cleaned and the inlet is ready for the next storm event.



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**Debris captured by a *Grate Inlet Skimmer Box* located at the  
SW Corner of 1st ST North and Brevard  
Tuesday April 25, 2000 in Cocoa Beach, FL**

**Right:** View of inlet prior to any service. This is a standard “C” type inlet.



**Below:** Immediately after the grate was removed.



**Below:** Debris collected inside lower filtration chamber.



The weight of the debris collected from this inlet was 26 pounds with a volume of 33 quarts. It is estimated that the weight is composed of approximately 60% foliage and 40% sediment.