

## Section [ ] Storm Water Inlet Automatic Retractable Screen

### PART 1 – GENERAL

#### 01.01.00 Purpose

The purpose of this specification is to establish generally acceptable criteria for Automatic Retractable Screens (ARS) using flow control blades that prevent trash and debris from entering catch basins and other storm water drainage infrastructure. It is intended to serve as a guide to promote understanding regarding materials, manufacture and installation; and to identify devices complying with this specification.

#### 01.02.00 Description

The ARS using flow control blades is used for screening stormwater runoff including dry weather flows. The ARS is a pre-engineered automatic retractable water screening system designed to stop larger trash and debris from entering catch basins during low to moderate flows by staying closed. During higher flows water pressure force the flow control blades to open only where flow is present and only to a distance needed to pass the flow into the catch basin thus continuing to block trash and debris at all flow rates.

#### 01.03.00 Manufacturer

The manufacturer of the ARS shall be one that is regularly engaged in the engineering design and production of systems developed for the treatment of stormwater runoff for at least (10) years, and which has a history of successful production that is acceptable to the engineer of work. In accordance with the drawings, the ARS(s) shall be a device manufactured by Bio Clean Environmental Services, Inc., or assigned distributors or licensees. Bio Clean Environmental Services, Inc. can be reached at:

Bio Clean Environmental Services, Inc  
Corporate Headquarters:  
398 Via El Centro  
Oceanside, CA 92058  
Phone: (760) 433-7640  
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[www.biocleanenvironmental.com](http://www.biocleanenvironmental.com)

#### 01.04.00 Submittals

- 01.04.01 Submittal drawings are to be provided with each order.
- 01.04.02 Submittal drawings are to detail the ARS and all components required and the sequence for installation, including:
  - System configuration with primary dimensions
- 01.04.03 Inspection and maintenance documentation submitted upon request.

#### 01.05.00 Work Included

- 01.05.01 Specification requirements for installation of ARS.
- 01.05.02 Manufacturer to supply components of the ARS(s):
  - Flow Control Blade Assembly
  - Mounting hardware

## **PART 2 – COMPONENTS**

The Automatic Retractable Screen (ARS) and all of its components shall be made of 304 and 316 stainless steel. The Flow Control Blades shall be fabricated out of structural polymer with an ultraviolet inhibitor to withstand environmental conditions.

### **02.01.00 Screening System/Flow Control Blades**

- 02.01.01 Pivot Support Rod shall be manufactured of stainless steel grade 304 or 316, round bar. Length of bar will be per submittal drawings. All joints and seams are to be welded or fastened together with stainless steel hardware.
- 02.01.02 Flow Control Blades shall be fabricated out of structural polymer with an ultraviolet inhibitor to withstand environmental conditions. The blades shall assembled end to end to provide full coverage of the basin and move independently pivoting from the support rod.
- 02.01.03 Spring Tensioner shall be manufactured of stainless steel grade 304 or 316 and shall be field-adjustable to return screens to their closed position. The spring tensioner shall interconnect all the blades with a 316 stainless steel, 19 strand cable. No single/one movable screen or blade is allowed.
- 02.01.04 Mounting Bracket shall be manufactured of stainless steel grade 304 or 316. The mounting bracket shall be secured to the concrete structure per section 02.01.05. Side brackets shall be hinged and adjustable for recessed mounting. Center mount shall be a pressure plate that is adjustable.
- 02.01.05 Mounting Hardware shall consist of 1/4" diameter Type 316L stainless steel mushroom head spike anchors or wedge anchors. The anchors shall secure the mounting brackets to the curb. The spike anchors shall not protrude from the face of the mounting bracket more than 7/64". Mounting hardware shall be installed per section 04.02.00

## **PART 3 – PERFORMANCE**

The inlet screen shall meet performance specifications listed on the submittal drawings.

### **03.01.00 General**

- 03.01.01 Function – The ARS is used for screening stormwater runoff including dry weather flows. The ARS is a water screening system designed to separate solid debris typically found in runoff.
- 03.01.02 Automatic Retractable Screen - The ARS is composed of a series of flow control blades extending downward from the pivot support rod which extends across the top portion of the curb opening. The blades pivot independently of one another yet are interconnected by a connection cable or spring. The connection cable attaches to each blade via an aperture that is mounted to the back of the blade in a slide groove so it can move up and down. The blades work together like baleen to allow runoff to pass into the basin where needed while staying closed and preventing trash and debris from passing through.
- 03.01.03 Removal Efficiencies - The ARS's screening system must be capable of capturing 93% of all materials (trash and debris) during rain events based on independent field analysis performed by a municipality. In the closed position it should be cable of capturing 100% of all materials greater than the size of the screen openings.
- 03.01.04

## **PART 4 - EXECUTION**

### **04.01.00 General**

The installation of the ARS shall conform to all applicable national, state, state highway, municipal and local specifications.

### **04.02.00 Installation**

The contractor shall furnish all labor, equipment, materials and incidentals required to install the (ARS) device(s) and appurtenances in accordance with the drawings, installation manual, and these specifications. Any damage to catch basin and surrounding infrastructure caused by the installation of the ARS is the responsibility of the installation contractor.

- 04.02.01 Assembly - ARS shall be fully assembled prior to installation. To assemble ARS, attach screen section to side plates and mounting brackets with supplied hardware.
- 04.02.02 Mounting Anchors - After ARS is completely assembled per section 04.02.01 attach mounting brackets to inside of curb inlet using mounting hardware supplied by manufacturer per section 02.01.05. To install mounting anchors, a pilot hole must be drilled into curb face a minimum 1-3/4" to a maximum of 2". The anchor shall then be inserted into pilot hole and properly set using a hammer or specially designed driver.

### **04.03.00 Shipping, Storage and Handling**

- 04.03.01 Shipping – The ARS unit(s) shall be shipped to the contractor’s address or job site. The contractor is responsible for off-loading and placing the units(s) in the exact site of installation.
- 04.03.02 Storage and Handling – The contractor shall exercise care in the storage and handling of the ARS and all components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be born by the contractor. The ARS(s) and all components shall always be stored indoors and transported inside the original shipping container until the unit(s) are ready to be installed. The ARS shall always be handled with caution according to contractor’s workplace safety professional recommendations.

### **04.04.00 Maintenance and Inspection**

- 04.04.01 Inspection – After installation, the contractor shall demonstrate that the ARS has been properly installed at the correct location(s), elevations, and with appropriate components. All components associated with the ARS and its installation shall be subject to inspection by the engineer at the place of installation. In addition, the contractor shall demonstrate that the ARS has been installed per the manufacturer’s specifications and recommendations. All components shall be inspected by a qualified professional at least once a year and results of inspection shall be kept in an inspection log.
- 04.04.02 Maintenance – The manufacturer recommends cleaning and debris removal as needed. The maintenance shall be performed by a qualified professional. A maintenance manual is available upon request from the manufacturer. The manual has detailed information regarding the maintenance of the ARS. A maintenance/inspection record shall be kept by the maintenance operator.

- 04.04.03 The record shall include any maintenance activities performed, amount and description of debris collected, and the condition of the ARS.  
Material Disposal – All debris, trash, organics, and sediments captured by the ARS shall be transported and disposed of at an approved facility for disposal site in accordance with local and state requirements. Please refer to state and local regulations for the proper disposal of toxic and non-toxic materials.

## **PART 5 – QUALITY ASSURANCE**

### **05.01.00 Warranty**

The manufacturer shall guarantee the ARS against all manufacturing defects in materials and workmanship for a period of (1) year from the date of delivery to the customer. The manufacturer shall be notified of repair or replacement issues in writing within the warranty period. The ARS is limited to the recommended application for which it was designed.

### **05.02.00 Performance Certification**

The ARS manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certificate” certifying the ARS is capable of achieving the specified flow rate. Devices without these performance certifications will not be accepted.

**END OF SECTION**