COLORADO DEPARTMENT OF TRANSPORTATION

PRE-APPROVED PRODUCT EVALUATION REQUEST & SUMMARY

APL Reference No. 3038-10

Product Evaluation Coordinator
Colorado Department of Transportation
4670 North Holly Street, Unit A
Denver, Colorado 80216

Material code: 604.04.04.01

FOR INTERNAL CDOT USE

Material code description full name: Storm Water Separator, Regular Flow

PART 1

Product name: First Defense, 4-ft Diameter

Product category: Drainage\Storm Water Separator\Regular Flow Hydrodynamic

Product representative (name & address):
Attn: John MacKinnon
Hydro International
94 Hutchins Drive
Portland, ME 04102
Phone: (207) 756-6200 FAX: (207) 756-6212

Manufacturer (name & address):
Attn: John MacKinnon
Hydro International
94 Hutchins Drive
Portland, ME 04102
Phone: (207) 756-6200 FAX: (207) 756-6212

Web-site address: www.hydro-international.biz

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Description of the product: (Include specific quantifiable details from tech data sheet. Advertising generalities are not appropriate.)
The 4-foot diameter First Defense is a simple hydrodynamic separator designed for the removal of sediment, oil, and floatables from stormwater runoff. Independently-verified laboratory testing demonstrated greater than 90% removal of TSS from a feed material with 125-micron mean particle size at a treatment flow rate of 320 gpm (0.71 cfs). Because of the configuration of internal components which isolate the treatment chamber from turbulent bypass flow, it can operate at 6 CFS without suspension of stored sediment or washout of stored floatables. The headloss is about 2 inches at 0.71 cfs and about 7 inches at 6 cfs. The integral bypass eliminates the need for an additional flow diversion structure, allowing the unit to be installed within the existing drainage network as an in-line system. The inlet and outlet chutes have similar geometric arrangements, which make for easy and quick installation. The inlet and outlet pipes are flexible in their orientation. The device can receive multiple inlets and can be used as a change in direction manhole.

Restrictions, (installation and/or use):

Use of the product, (be specific to CDOT highway activities only):
Highway sites where pollutant loading in stormwater runoff is expected to be high. Suitable where a pretreatment device is needed to reduce sediment.

Benefits to CDOT, (how will your product enhance quality, improve safety, save money, be a better value then other manufacturer's products):
By removing pollutants from stormwater runoff, CDOT will protect water resources located adjacent to highway facilities and meet standards contained in stormwater permits issued by regulatory agencies. There are no moving parts, no consumables, and no external power requirements. It consists of a concrete cylindrical vessel that can be used as a header manhole with an overhead grate. The manhole contains polypropylene internal components that are relatively easy to install and the materials are long-lasting. The access port at the top of the manhole provides unobstructed access for inspection and maintenance. Confined space entry is not required when performing inspection and main

Specifications, (listing those applicable is required) **& Certificate of Compliance** (required to certify compliance with listed specifications):

- ☐ CDOT :
- ☐ ASTM :
- ☐ AASHTO :
- ☐ FHWA :
- ☐ other :

Product testing, (from national/independent laboratories or universities) **& Certified Test Report** (CTR required to validate all claims):

- ☐ NTPEP-AASHTO :
- ☐ FHWA :
- ☒ other : Hydro International First Defense OK-110 Sand SSC (TSS) Removal Confirmation Test (November 12, 2004)
- ☐ other :

State DOT Approvals, (current documentation required):
Ohio

Sample submitted: ☐ yes ☒ no ☐ n/a | Materials Safety Data Sheets (MSDS): ☐ yes ☐ no ☒ n/a

Notes/Additional Comments
There is one other size of First Defense available for treating higher flow rates. The 6-foot diameter unit treats up to 2.2 cfs. Both models arrive on site assembled and ready for installation.