December 20, 2013

Jeremy Ashauer, Project Manager
Wisconsin Department of Transportation
Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

RE: Proprietary Product Approval Request 01
STH 42 Reconstruction Project
Village of Sister Bay
Door County
Project ID: 4610-06-00

Dear Mr. Ashauer:

The Village of Sister Bay requests approval for proprietary products relating to light poles and bases, and luminaries for the continuous lighting system on STH 42 in Sister Bay, Wisconsin.

The village is working with the Department of Transportation on the reconstruction of Bay Shore Drive (STH 42). This area is in the heart of the downtown commercial / tourist district. The reconstruction will essentially include the complete replacement of pavement from building face to building face. Enhancements including pedestrian accommodations, decorative lighting, and colored concrete are being incorporated in the design. As part of our research and planning, it is necessary to specify decorative street lighting as part of this project. The Village:

1. Held numerous redevelopment committee meetings to discuss the style of decorative lighting.
2. Desires to have decorative lights that are similar to the existing fixtures but will take advantage of improved light sources and will be less expensive to replace in the case of damage.
3. Conducted extensive research into different lighting post, fixture, and light source styles.
4. Reviewed numerous lighting samples from several different manufacturers.
5. Chose a street light system will be incorporated throughout the Village.
6. Chose a Sternberg Lighting system following the attached specifications.

Should you have any questions, please feel free to call me at (920) 854.4118

Respectfully,

Zeke Jackson
Village Administrator

copy: Tammy Kuehlmann, PE, Donohue & Associates

attachment: Sternberg Williams Creek lighting specification

2383 Maple drive
PO Box 769
Sister Bay, WI 54234
Tel (920) 854-4118
Fax (920) 854-9637
www.sisterbaywi.gov

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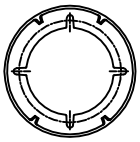
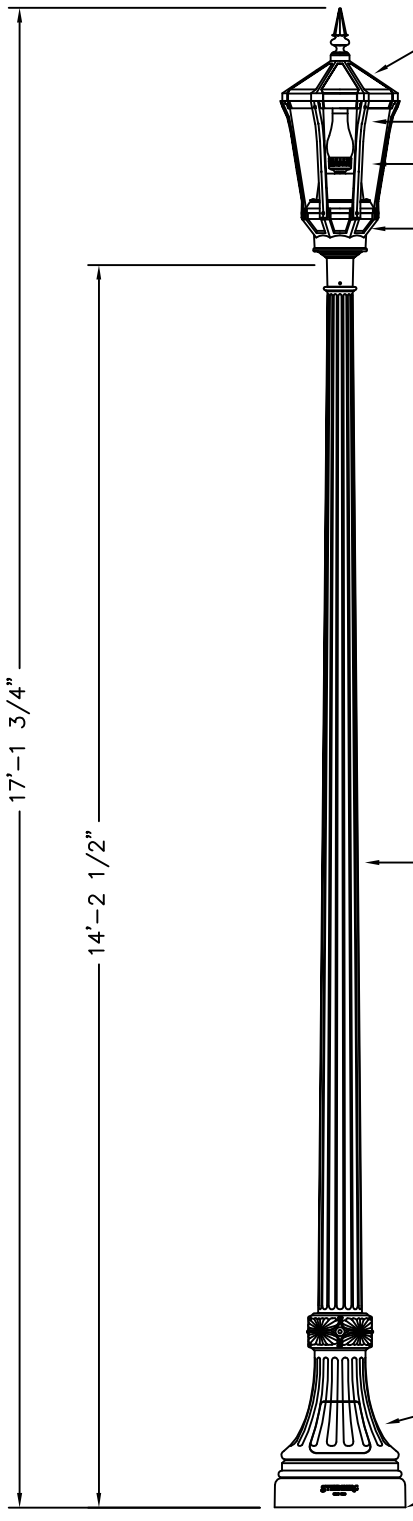
STREET



ACCESS DOOR



4A1R45T3-MDL LED: 94 WATT
4500 COLOR TEMPERATURE,
TYPE 3 DISTRIBUTION, 120-277
VOLT DIMMABLE DRIVER

CLEAR SEEDED ACRYLIC LENS

FROSTED HURRICANE CHIMNEY
WITH SOLID BRASS HOLDER

DRIVER COMPARTMENT

6" TO 3 1/2" DIA. TAPERED
FLUTED CAST ALUMINUM POLE
.250 TO .500 WALL THICKNESS

POLE WELDED FOR SINGLE
UNIT CONSTRUCTION

ACCESS DOOR

16" DIA. BASE, 1" FLOOR THICKNESS
FOUR ANCHOR BOLTS AND ONE GROUND LUG

POLE HEIGHTS HAVE A TOLERANCE OF + OR - 2"	7/25/12	DRAWING NUMBER
WILLIAMS CREEK	MS805BLED / 6214TFP6 DRAWN RB	STERNBERG SINCE 1923

SOCKET TYPE LED
WATTAGE 94
LIGHT SOURCE LED: 4A1R45T3
VOLTAGE 120-277
FUSE
FINISH ADVISE

January 29, 2014

Jeremy Ashauer, Project Manager
Wisconsin Department of Transportation
Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

RE: Proprietary Product Approval Request 02
Hydrodynamic Separator
STH 42 Reconstruction Project
Village of Sister Bay
Door County
Project ID: 4610-06-00

Dear Mr. Ashauer:

The Village of Sister Bay requests approval for proprietary products relating to hydrodynamic stormwater separator on STH 42 in Sister Bay, Wisconsin.

The village is working with the Department of Transportation on the reconstruction of Bay Shore Drive (STH 42). This area is in the heart of the downtown commercial / tourist district and is adjacent to our public beach and parks along Green Bay. Over the past several years, the Village has embarked on a master plan for the redevelopment of the beach and public land. A prime focus has been improving the water quality to reduce the number of beach closures. The first phase of the plan was constructed. It included a hydrodynamic separator to improve the quality of storm water prior to discharge to the bay. As part of our research and planning, it is necessary to specify the hydrodynamic separator that will process storm water from the STH 42 reconstruction project. The Village:

1. Committees worked with several consultants to develop the master redevelopment plan for the beachfront, which includes storm water management.
2. Conducted extensive research into different storm water pretreatment solutions. Give space constraints within the public parks and downtown development, a hydrodynamic separator was an optimal solution.
3. Installed a Contech Vortechs Hydrodynamic Separator in the first phase of the beach restoration project. The separator has performed as designed; removing pollutants, improving storm water quality, and reducing beach closures.
4. Has maintenance staff that are trained and experienced in the inspection, maintenance, and cleaning of the structure including the screening technology and inlet and outlet pollution control system.
5. Has equipment to properly inspect, maintain and clean the separator.
6. Desires to reduce the costs of staff training and equipment maintenance by specifying a consistent product from the same manufacturer.
7. Chose a Contech Hydrodynamic Separator, model Vortechs 7000 following the attached specifications.

Should you have any questions, please feel free to call me at (920) 854.4118

Respectfully,

Zeke Jackson
Village Administrator

copy: Tammy Kuehlmann, PE, Donohue & Associates

attachment: Vortechs specification

2383 Maple drive
PO Box 769
Sister Bay, WI 54234
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Name: n:\pds\projects\door\4610-06-00\design\proprietary product requests\2 - vortechnic unit\012914 hydrodynamic separator letter.docx Created: 1/30/2014 10:27 AM Printed: 10/28/2014 2:17 PM Author: Zeke Jackson Last Saved By: Zeke Jackson Revision: 2

SECTION [_____]

STORMWATER TREATMENT DEVICE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

The Contractor, and/or a manufacturer selected by the Contractor and approved by the Engineer, shall furnish all labor, materials, equipment and incidentals required and install all precast concrete stormwater treatment systems and appurtenances in accordance with the Drawings and these specifications.

1.2 QUALITY CONTROL INSPECTION

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer's acceptance level, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement.

C. Imperfections may be repaired, subject to the acceptance of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi (28 MPa) at the end of 7 days and 5,000 psi (34 MPa) at the end of 28 days when tested in 3 inch (76 mm) diameter by 6 inch (152 mm) long cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs.

1.3 SUBMITTALS

A. Shop Drawings

The Contractor shall be provided with dimensional drawings and, when specified, utilize these drawings as the basis for preparation of shop drawings showing details for construction, reinforcing, joints and any cast-in-place appurtenances. Shop drawings shall be annotated to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Shop drawings shall be prepared at a scale of not less than 3/16-inches per foot (1:75). Six (6) hard copies of said shop drawings shall be submitted to the Engineer for review and approval.

PART 2 – PRODUCTS

2.1 MATERIALS AND DESIGN

A. Concrete for precast stormwater treatment systems shall conform to ASTM C 857 and C 858 and meet the following additional requirements:

1. The wall thickness shall not be less than 6 inches (152 mm) or as shown on the dimensional drawings. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 (MS18) loading requirements as determined by a Licensed Professional Engineer.

2. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.

3. Cement shall be Type II Portland cement conforming to ASTM C 150.

4. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.

5. Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C 595M

B. Internal aluminum plate components shall be aluminum alloy 5052-H32 in accordance with ASTM B 209.

C. Sealant to be utilized at the base of the swirl chamber shall be 60 durometer extruded nitrile butadiene rubber (Buna N) and shall be provided to the concrete precaster for installation.

D. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C 32 or ASTM C 139 and shall be installed in conformance with all local requirements.

E. Casting for manhole frames and covers shall be in accordance with ASTM A48, CL.30B and AASHTO M105. The manhole frame and cover shall be equivalent to Campbell Foundry Pattern #1009A or #1012D custom cast with the Contech Engineered Solutions logo and the words “Vortechs® Stormwater Treatment System”.

F. A bitumen sealant in conformance with ASTM C 990 shall be utilized in the sealing of the joint between the swirl chamber and the vault at the long wall tangent points. The butyl material shall be 3/4-inch thick by 3/4-inch wide.

2.2 PERFORMANCE

A. Each stormwater treatment system shall adhere to the following performance specifications at the design treatment capacities, as listed below:

Table 2.2

Vortechs® Model	**Design Treatment Capacity** (cfs)/(l/s)	**Sediment Storage** (yd^3)/(m^3)
1000	**0 - 1.6 (0 - 45)**	**0.7 (0.54)**
2000	**1.6 - 2.8 (45-80)**	**1.2 (0.91)**
3000	**2.8 - 4.5 (80-125)**	**1.8 (1.38)**
4000	**4.5 - 6.0 (125-175)**	**2.4 (1.84)**
5000	**6.0 - 8.5 (175-240)**	**3.2 (2.45)**
7000	**8.5 - 11.0 (240-315)**	**4.0 (3.06)**
9000	**11.0 - 14.0 (315-400)**	**4.8 (3.67)**
11000	**14.0 - 17.5 (400-495)**	**5.6 (4.28)**
16000	**17.5 - 25.0 (495-710)**	**7.1 (5.43)**

Each stormwater treatment system shall include a circular aluminum “swirl chamber” (or “grit chamber”) with a tangential inlet to induce a swirling flow pattern that will accumulate and store settleable solids in a manner and a location that will prevent re-suspension of previously captured particulates.

Each stormwater treatment system shall be of a hydraulic design that includes flow controls designed and certified by a professional engineer using accepted principles of fluid mechanics that raise the water surface inside the tank to a pre-determined level in order to prevent the re- entrainment of trapped floating contaminants.

Each stormwater treatment system shall be capable of removing 80% of the net annual Total Suspended Solids (TSS) load based on a 50-micron particle size. Annual TSS removal efficiency models shall be based on documented removal efficiency performance from full scale laboratory tests. Annual TSS removal efficiency models shall only be considered valid if they are corroborated by independent third party field testing. Said field testing shall include influent and effluent composite samples from a minimum of ten storms at one location.

Individual stormwater treatment systems shall have the Design Treatment Capacity listed in Table 2.2, and shall not re- suspend trapped sediments or re-entrain floating contaminants at flow rates up to and including the specified Design Treatment Capacity.

Individual stormwater treatment systems shall have usable sediment storage capacity of not less than the corresponding volume listed in Table 2.2. The systems shall be designed such that the pump-out volume is less than ½ of the total system volume. The systems shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

A water-lock feature shall be incorporated into the design of the stormwater treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

Stormwater treatment systems shall be completely housed within one rectangular structure.

2.3 MANUFACTURER

A. Each stormwater treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of stormwater runoff during the aforementioned period.

Each stormwater treatment system is shall be a Vortechs® System protected under U.S. Patent #5,759,415 as manufactured by

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400
West Chester, Ohio 45069
800-338-1122

PART 3 – EXECUTION

3.1 INSTALLATION

A. Each Stormwater Treatment System shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.

B. Place the precast base unit on a granular subbase of minimum thickness of six inches (152 mm) after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all

four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.

C. Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990 along the construction joint in the section that is already in place.

D. After setting the base and wall or riser sections, prepare to install the swirl chamber. Place the 3/4-inch (19 mm) thick by 3/4-inch (19 mm) wide butyl mastic seal vertically on the outside of the swirl chamber starting one inch above the bottom of the swirl chamber and continuing to a height equal to the elevation of the bottom of the upper aperture of the swirl chamber. The butyl mastic seal should abut the downstream side of the pre- drilled mounting holes that attach the swirl chamber to the long walls of the concrete vault. Next, install the extruded Buna N seal on the bottom edge of the 180 degree downstream section of the swirl chamber by first applying a bead of Sikaflex-1a polyurethane elastomeric sealant into the extruded slot then slide the seal onto the swirl chamber. The extruded seal should extend 3-inches (76 mm) upstream of the mounting holes, toward the inlet end of the vault. Set the swirl chamber into position and keep the seal approximately ½-inch (13 mm) above the floor of the concrete vault. Apply a continuous bead of Sikaflex-1a sealant under the cupped bottom of the seal. Set the circular swirl chamber on the floor of the vault and anchor it by bolting the swirl chamber to the side walls of the concrete vault at the three (3) tangent points and at the inlet tab using HILTI brand stainless steel drop-in wedge anchors or equivalent 3/8-inch (10 mm) diameter by 2-3/4 inch (70 mm) minimum length at heights of approximately three inches (3”) (76 mm) off the floor and at fifteen inch (15”) (381 mm) intervals to approximately the same height of the butyl mastic sealant (at locations of pre-drilled holes in aluminum components). Apply a continuous bead of Sikaflex-1a sealant to the intersection of the inside bottom edge of the extruded seal and the vault floor.

E. If the oil baffle wall (Baffle A) and flow control wall (Baffle B) are not integrally cast-in to riser/wall sections then the Baffle wall panels shall be placed in the formed keyways or between bolted-in-place angle flanges as provided by the manufacturer. Apply non-shrink grout or Sikaflex-1a sealant to each end of Baffle A and Baffle B at the upstream intersection with the side walls of the concrete vault.

F. Prior to setting the precast roof section, bitumen sealant equal to ASTM C 990 shall be placed along the top of the oil baffle wall (Baffle A), using more than one layer of mastic if necessary, to a thickness at least 1-inch (25 mm) greater than the nominal gap between the top of the baffle and the roof section. The nominal gap shall be determined either by field measurement or the shop drawings. Do not seal the top of Baffle B unless specified on the shop drawings to do so. After placement of the roof section has compressed the butyl mastic sealant in the gap over Baffle A, finish sealing the gap with an approved non-shrink grout on both sides of the gap using the butyl mastic as a backing material to which to apply the grout. If roof section is “clamshell” or “bathtub” halves, then finish sealing the ends of the Baffle walls by applying non- shrink

grout or Sikaflex-1a sealant to each end of Baffle A at the upstream intersection with the side walls of the concrete vault and to each end of Baffle B at the downstream intersection with the side walls of the concrete vault.

G. After setting the precast roof section of the stormwater treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch (6 mm) maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6- inch (152 mm) lifts on all sides. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Stormwater Treatment Systems shall conform to ASTM specification C 891 “Standard Practice for Installation of Underground Precast Utility Structures”.

H. Holes made in the concrete sections for handling or other purposes shall be plugged with a nonshrink grout or by using grout in combination with concrete plugs.

I. Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

END OF SECTION