December 26, 2012

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Federal Highway Administration
585 Shepherd Way
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Subject: Finding of Public Interest
Hydrodynamic Separator

Pursuant to 23 CFR 635.411, we are requesting the Federal Highways Administration's Findings of Public Interest approval to allow the Montana Department of Transportation to specify the use of an in-line hydrodynamic separator manufactured by Hydro International to Remove sediment and debris from storm water runoff on the following project.

Sheridan-Southeast
STPP 29-1(46)32
UPN 5111000

Background Information

The Sheridan-Southeast project includes major rehabilitation of the roadway through the Town of Sheridan. The improvements include the installation of new storm water collection systems. A portion of the surface runoff in Sheridan is currently carried into Mill Creek. Due to the significant amount of gravel surfaced side streets, the intercepted storm water contains a large amount of sediment and mud, creating an environmental concern for the creek. It will be necessary to perpetuate the runoff patterns to the north of Mill Creek under the new improvements project. In order to capture sediment and debris, a new hydrodynamic separator structure is proposed to be installed in-line with the new buried storm drain piping prior to release of flows to Mill Creek.

Justification

There are several known manufacturers for hydrodynamic separators. Based on our research, there is a specific structure that we believe to be the most well-suited for the situation in Sheridan. The proposed structure consists of a 72-inch diameter precast concrete manhole with special interior components that trap sediment and floatable material. The unit information is as follows:

Manufacturer: Hydro International
Unit Name: Downstream Defender®

The benefits of the recommended structure include the following:

1. Ease of Installation: This structure can be installed in-line with the new storm drain piping. Other models require a separate diversion structure, which requires the hydrodynamic separator be installed off-line. The in-line orientation of the Downstream

Defender would simplify the installation and piping configuration and would result in lower construction costs due to elimination of a separate diversion structure.

2. Treatment Efficiency: The Downstream Defender unit is capable of achieving the desired level of treatment of storm water and can accommodate a large range of flow rates. The other separators can only provide treatment of lower flow rates. The larger flow rates would bypass the treatment structure and be routed directly to Mill Creek.

3. Traffic Load-Rated Structures: The separator structure for the Sheridan project needs to be installed below the roadway, due to limited right-of-way on either side. Other in-line hydrodynamic separators are constructed with HDPE or fiberglass rather than concrete. These types of structures require the design of concrete slabs above the structures to accommodate traffic loading. This would result in increased costs. The recommended Downstream Defender product utilizes a standard precast concrete manhole which is rated for H-20 traffic loading without any special design.

4. Variability in Design: There are various designs for hydrodynamic separators. The materials, required piping configuration, storm water treatment efficiencies, and installation varies by manufacturer. Therefore, it becomes problematic to include specific details and design requirements within the Plans and Special Provisions unless a structure can be specified. The type of structure can ultimately affect the layout of the storm drain system. If the structure type is not known until after bidding, storm drain revisions may be necessary prior to actual construction. This would result in a change order and could result in increased costs.

Conclusion

We believe that the use of the Downstream Defender hydrodynamic separator described above should be conferred proprietary item status. Its use will result in reduced costs, reduced installation time, reduced right-of-way impacts and improved quality of the storm water runoff entering Mill Creek. Consequently, we believe a “finding of public interest” is justified for this product.

We will not extend the proprietary item status of this system to subsequent projects without initiating a separate evaluation.

Paul Ferry, P.E.
Highways Engineer

FHWA Concurrence _____signed by Jeff Patten _____Date __January 7, 2013_____

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