

VIRGINIA EROSION AND SEDIMENT CONTROL PLAN MINIMUM STANDARDS (MS) CHECKLIST

YES	N/A	4VAC50-30-40 MINIMUM STANDARDS	DESCRIBE HOW MS IS ADDRESSED ON PLAN
X		MS1: Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.	Permanent stabilization shall be applied to all disturbed areas per the specifications listed on the plans. Temporary stabilization is not anticipated due to the short duration of the project. However, if temporary stabilization is required, areas shall be seeded with fast germinating temporary vegetation immediately following grading. The temporary seeding mixture will vary depending on the time of year it is to be applied. Temporary stabilization will be applied to areas that will remain dormant for longer than 14 days.
X		MS2: During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.	A soil stockpile and borrow area are not anticipated for this project. However, if one is needed, an area is designated on Sheets CE-101 and CE-102.
X		MS3: A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.	Permanent vegetative cover shall be provided per the specifications listed on sheet CE-501.
X		MS4: Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upstate land disturbance takes place.	The construction sequence listed on sheet CE-101 calls for erosion control measures to be in place prior to the commencement of site work.
	X	MS5: Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.	The construction sequence listed on sheet CE-101 calls for erosion control measures to be in place prior to the commencement of site work.
	X	MS6: Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin. a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres. b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.	No sediment traps or basins are proposed with this project.
X		MS7: Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.	Due to the flat to moderate slopes in the pre-development and post development condition, erosion from cut and fill slopes is not anticipated. Appropriate stabilization measures will be employed to ensure that excessive eroding does not occur. If erosion does occur, additional appropriate stabilization measures will be employed.
X		MS8: Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.	All concentrated runoff will be directed to erosion and sediment control measures on site.
	X	MS9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.	This is not anticipated for the project, however, if water seepage occurs, appropriate protection measures shall be employed.
X		MS10: All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.	Inlet protection is specified on the proposed inlets. The existing storm sewer inlets will have inlet protection installed prior to the commencement of site work.
	X	MS11: Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.	The proposed storm sewer pipes connect into an existing storm sewer system.
	X	MS12: When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.	No work in a live watercourse is anticipated.
	X	MS13: When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.	No vehicle crossings over a live watercourse are anticipated.
	X	MS14: All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.	No crossings over or work within a live watercourse are anticipated.
	X	MS15: The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.	No work in a live watercourse is anticipated.
X		MS16: Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria: a. No more than 500 linear feet of trench may be opened at one time. b. Excavated material shall be placed on the uphill side of trenches. c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property. d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization. e. Restoration shall be accomplished in accordance with this chapter. f. Applicable safety chapters shall be complied with.	Underground utilities shall be installed in accordance with these requirements.
X		MS17: Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.	A construction entrance is proposed from Thalia Road. Roadway cleaning shall take place as often as necessary to keep existing roads clear.
X		MS18: All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.	Temporary erosion and sediment control measures shall be removed within 30 days after the site has been stabilized and approval from the City of Virginia Beach has been received.

X

MS19: Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:  
a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.  
b. Adequacy of all channels and pipes shall be verified in the following manner:  
1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or  
2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.  
(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and  
(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.  
c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:  
1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion of channel bed or banks; or  
2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;  
3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the predevelopment peak runoff rate from a ten-year storm to increase when runoff outfalls into a manmade channel; or  
4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.  
d. The applicant shall provide evidence of permission to make the improvements.  
e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.  
f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.  
g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.  
h. All on-site channels must be verified to be adequate.  
i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.  
j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.  
k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.  
l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the provisions are designed to:  
i. detain the water quality volume and to release over 48 hours;  
ii. detain and release over a 24-hour period the expected rainfall resulting from the one-year, 24-hour storm; and  
iii. reduce the allowable peak flow rate resulting from the 5-, 2-, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the existing peak flow rate by a reduction factor that is equal to the runoff volume from the site when in a good forested condition divided by the runoff volume from the site in its proposed condition.  
m. For plans approved on or after July 1, 2014, the flow rate capacity and velocity requirements of § 10.1-550.2 of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act, § 10.1-603.2 et seq. of the Code of Virginia and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSM) Permit Regulations.  
n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSM) Permit Regulations shall be deemed to satisfy the requirements of the Act.

Post-development 10-year flows have been reduced below pre-development rates. The existing infiltration basin does not require modification due to the increase of pervious area and decrease in overall CA value to the basin. Flood protection for the remainder of the site is satisfied by achieving runoff reduction from a bioretention filter and using an oversized pipe for detention. Refer to the calculations on sheets CG-201 and CG-202.  
All hydrologic calculations were based on the existing storm sewer system and the ultimate development of the project.  
The outfall from the proposed infiltration basin is discharging into an existing pipe system and therefore energy dissipators will not be required.  
There will be no on-site channels for this project.  
Erosion and sediment control measures will be used to protect adjacent properties.  
No state rivers, streams, or other waterways will be impacted by the site's runoff.  
The plans will not be approved prior to July 1, 2014. The flow rate capacity and velocity requirements will be satisfied by the compliance with water quantity requirements in the Stormwater Management Act and are shown in the design narrative.  
Water quantity requirements are met by the use of the existing infiltration basin, proposed bioretention filter, and proposed detention system which reduces the post development site runoff back to the pre development condition.

Issued:	Date:
A BID SET	08/23/17
B	
C	
D	
Revisions:	Date:
1 ADDRESS CITY COMMENTS	05/11/2017
2 ADDRESS CITY COMMENTS	07/11/2017
3	
4	
5	



Seal  
PROJECT ARCHITECT/ENGINEER DATE

PROJECT LEAD DATE

PROJECT DESIGNER DATE

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ALDI Inc.  
Virginia Beach Blvd &  
Thalia Road  
Virginia Beach, VA  
Project Name & Location:

**EROSION & SEDIMENT CONTROL NOTES**

Drawing Name: Project No.  
Date: 02/08/17 113180024  
Type:  
Drawn By: SMP CE-502  
Scale: As Noted Drawing No.

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