



EarthLite™ Stormwater Project

Stormwater and Soil Biological Restoration
February 2010 – June 2016



Project Info:

A large industrial steel manufacturer needed a cost effective solution for unfiltered stormwater that was flushing directly into the nearby waterway in February 2010. This stormwater discharge contained heavy metals and phosphorous, and if left unmanaged would lead to continued flooding, high turbidity, and heavy pollution into the nearby Columbia Slough. The total area for disturbance was 8000 square feet and included 2400 cubic yards of soil movement.

Challenges:

Excavation for the stormwater swale showed a wide variation of soils. Heavy, rocky clay and gravel were exposed, screened, and then reused to make grade. Do to its location, the site was not allowed to infiltrate any of its stormwater adding to the challenge of finding the right solution.

Media:

EarthLite™ Stormwater Filter Media with Biochar solves stormwater issues naturally. Without the use of synthetic chemicals or electricity, it reduces and filters harmful pollutants out of stormwater runoff before it joins local waterways. No major facility upgrades are required for the use of EarthLite™ Stormwater Filter Media, making it affordable, versatile, and easy to add to existing or new stormwater systems.

Sunmark Environmental Services
PO Box 1210, Fairview OR 97024
503-241-7333 PH 888-214-7333
<http://www.earth-lite.com/rain>





Engineer, Architect, Contractor, Landscaper

The City of Portland Environmental Services permitted this job, and required that vegetation be established to reduce the turbidity of discharge levels. BioMimicry Design provided the design drawings, while CSI Geosynthetics provided the necessary liners and fabrics. Sunmark Seeds designed the native seed mix, and Northwest Hydromulchers installed PermaMatrix® in addition to the native seed.

Environmental Follow Up

After five years of treatment, the media is still achieving a removal rate of over 70% of pollutants in the stormwater discharge. This success rate has been achieved without any maintenance or additional media costs. PermaMatrix® BSA helped to establish the native plant species that continue to thrive today. Media was replaced after Six Years for the first time in June 2016.

2015	Pre Treatment Result mg/L	Post Treatment Result mg/L	Removal Efficiency
Total Phosphorus	1.13	0.282	75%
Aluminum	16	4.52	72%
Chromium	0.0628	0.013	79%
Copper	0.0387	0.0119	69%
Iron	22.2	6.26	72%
Lead	0.0158	ND	99%
Zinc	0.95	0.263	72%

2016	Pre Treatment Result mg/L	Post Treatment Result mg/L	Removal Efficiency
Total Phosphorus	0.594	0.342	42%
Aluminum	4.56	6.24	-37%
Chromium	0.0171	0.0204	-19%
Copper	0.0199	0.0149	25%
Iron	6.92	7.62	-10%
Lead	ND	ND	
Zinc	0.436	0.292	33%

Cost Advantage

EarthLite™ Stormwater Filter Media has an extreme cost advantage over other methods and continues to perform with no outside inputs. By using EarthLite™ and PermaMatrix® BSA, the client saved over \$50,000 in maintenance and media costs over the last six years.



Sunmark Environmental Services
 PO Box 1210, Fairview OR 97024
 503-241-7333 PH 888-214-7333
<http://www.earth-lite.com/rain>

