

MUNICIPAL STORM WATER GROUP (SMS4)



2021-22 ANNUAL MEETING

**San Diego County Office of Education
30 September 2021**

WELCOME!

Please Sign In!



Annika Dorman, CPSWQ, QISPToR

Jamie Richards, CPSWQ

Ashlee Cadwell



AGENDA

- ☐ Storm Water 101
- ☐ Current Events
- ☐ BMP Highlights
- ☐ Structural BMPs
- ☐ County of San Diego perspective

STORM WATER 101

Storm Water and Sewer System difference





STORM WATER 101

Why is this important?

- Storm water collects pollutants in its path and deposits them in local waterways
- Sewage treatment plant removes pollutants prior to discharge offshore
- Rain entering sewer drains can cause sewage overflows
 - This is why only very small outdoor areas are permitted to connect to sewer



STORM WATER 101

Result: pollutants reaching waterways





STORM WATER 101

Waterways have specific beneficial uses, like:

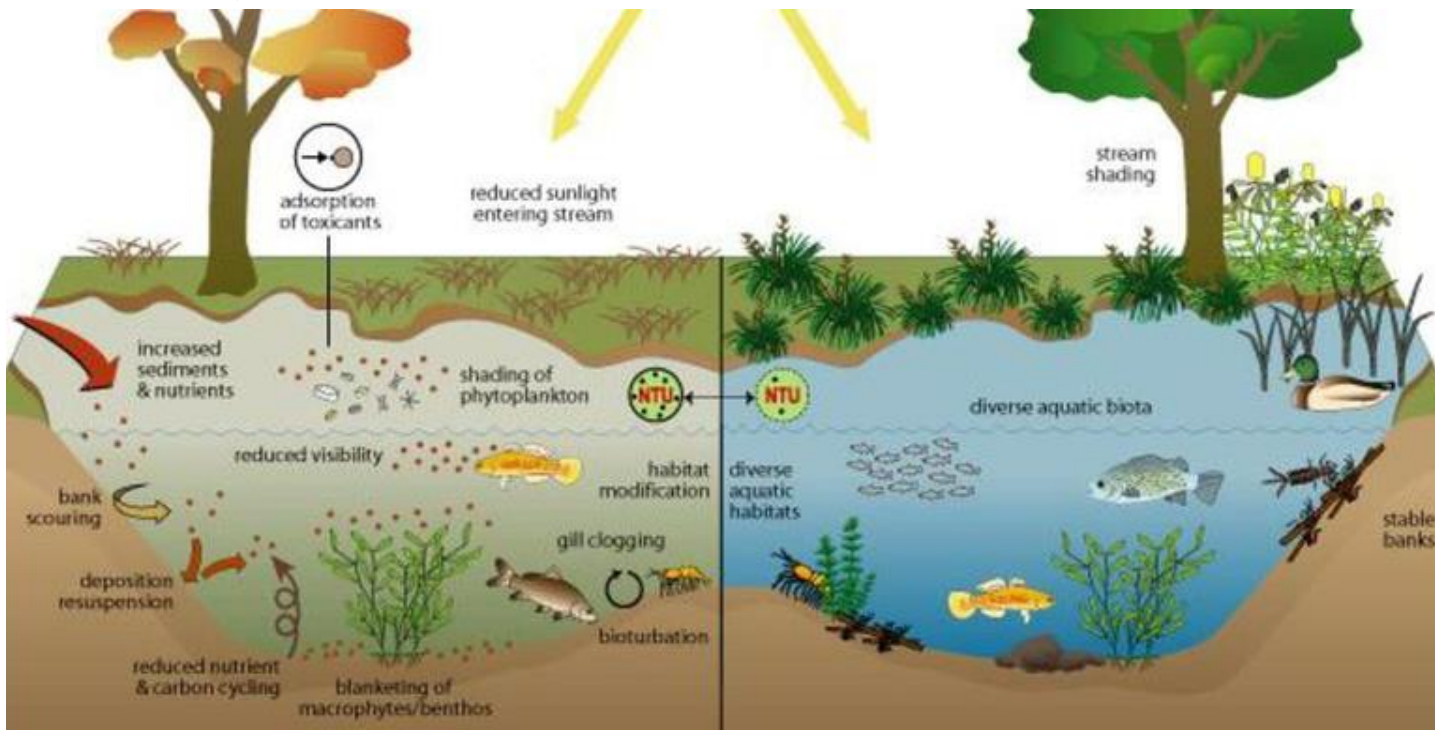
- Contact or Non-contact Recreation
- Municipal, Agricultural, Industrial Supply
- Habitat (Marine, estuarine, endangered species, wildlife, etc.)
- Migration
- Spawning
- Navigation
- Hydropower
- Commercial and Sport Fishing
- Aquaculture, Shellfish Harvesting

Water quality standards are developed to support those beneficial uses

STORM WATER 101

Pollutant levels affect beneficial uses

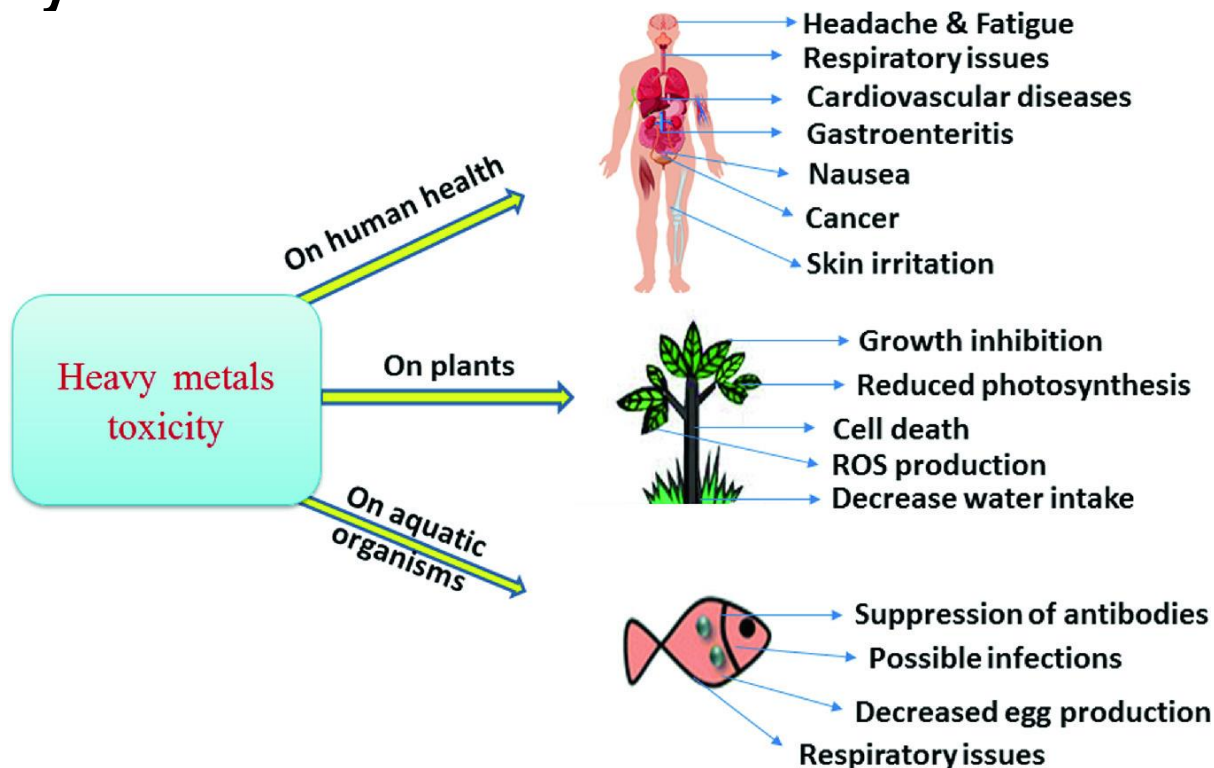
- Dirt: clogs storm drains, clouds water leading to aquatic plant and animal death, and loss of habitat



STORM WATER 101

Pollutant levels affect beneficial uses

- Heavy metals: Toxic



STORM WATER 101

Pollutant levels affect beneficial uses

- Leaves/grass: decomposition reduces oxygen



STORM WATER 101

Pollutant levels affect beneficial uses

- Oils, soaps: coats gills, kills aquatic life



STORM WATER 101

Pollutant levels affect beneficial uses

- Bacteria: makes people and animals sick



STORM WATER 101

Pollutant levels affect beneficial uses

- Trash: **all of the above!**





STORM WATER 101

Goal: Reduce pollutant exposure and transport
to mitigate the impacts of human activity on
waterbodies

And so we have... *Storm Water Permits!*



CURRENT EVENTS

How do these permits support waterbody beneficial uses?

- Minimum BMPs
- Regular audits & monitoring
- Discharge prohibitions
- Pollutant limits
- Trash control
- Watershed-wide collaboration

CURRENT EVENTS



DESIGNATION

- Phase II Municipal Permit – designation likely
- No draft language yet, expected spring 2022
- Discussions ongoing



CURRENT EVENTS

DRAFT CONSTRUCTION GENERAL PERMIT (CGP)

- 1 acre + disturbance
- Coming soon! Be on the lookout.
- Draft language provided, comments submitted
 - Increased inspections
 - More work by QSD, QSP
 - Demolition requirements for older buildings
 - Preserving topsoil



BMP HIGHLIGHTS

Contractors
Volunteers

- Include contract language
- Discuss plans
- Require drain protection & recollection



BMP HIGHLIGHTS

Uncontained Wash Water

- Identify when/where this happens.
- Establish Wash – Collect – Dispose protocol.
- Train staff and provide resources.

Lunch Areas!



BMP HIGHLIGHTS



Stockpiling

- Set routine purge events
- Provide convenient disposal/storage options

BMP HIGHLIGHTS

Dumpsters

- Know how the dumpster will be covered before it arrives.
- Establish routine to ensure covers are replaced.



BMP HIGHLIGHTS

Special Programs

- Involve instructors
- Monitor and retrain
- Provide convenient solutions.



BMP HIGHLIGHTS

Dry Weather Flow Checks

- Routinely check for connections to the MS4 (leaks, misdirection)
- Establish protocol for fixes



STRUCTURAL BMPs

- Identify goals
- Identify upstream issues
 - Sediment sources
 - Flow concentration
- Prepare for future maintenance needs
 - Funding
 - Personnel
 - Machinery



<https://youtube/IQw1chQjslE?t=19>



STRUCTURAL BMPs

- **Vegetated BMPs**
 - BMPs that use vegetation as a primary treatment mechanism or vegetation serves a critical function
- **Non-Vegetated BMPs**
 - BMPs that do not require vegetation as part of treatment
- **Filtration Systems**
 - BMPs that employ a specific filtration mechanism



STRUCTURAL BMPS

Function of Inspections

- Confirm will receive runoff
- Identify any egregious design issues
- Confirm will properly treat runoff



STRUCTURAL BMPs

General Maintenance Threshold

- ☐ Accessible for inspection
- ☐ Free of damage
- ☐ Free of significant trash and debris accumulation
- ☐ Free of other visual pollutants
- ☐ Free of unpleasant odors
- ☐ Free of standing water
- ☐ Inlets/outlets free of obstruction
- ☐ Filter media in working condition
- ☐ Free of other deficiencies



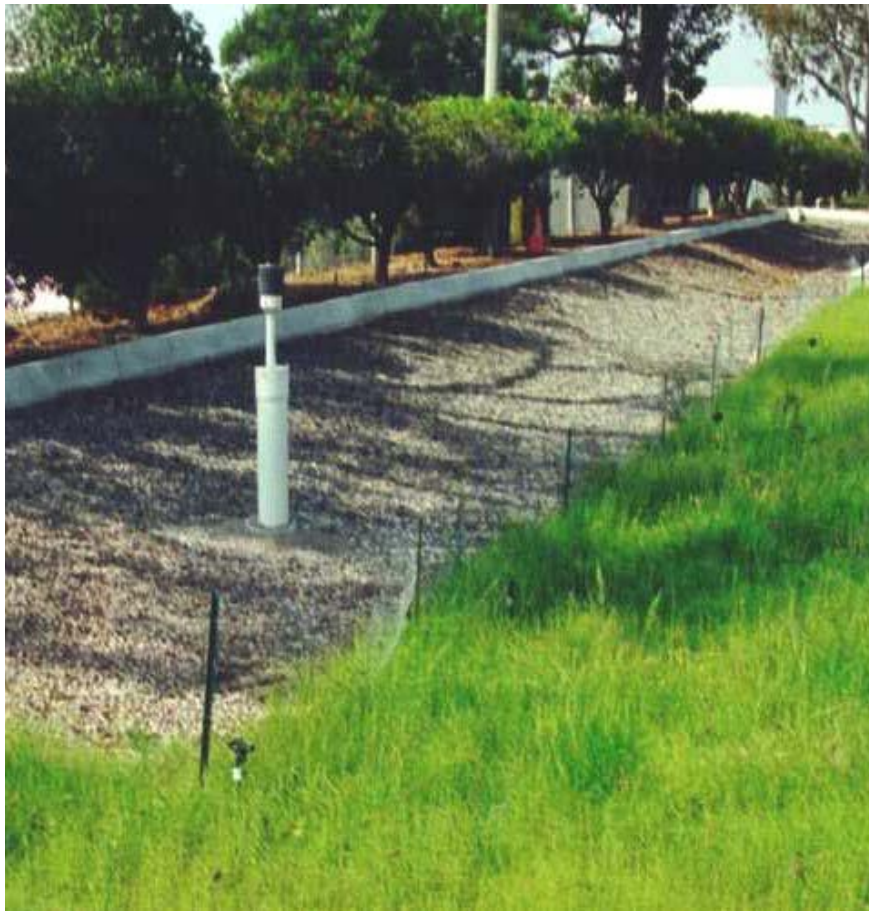
STRUCTURAL BMPs

General Maintenance Threshold

Vegetated

- ☐ Irrigation system working properly
- ☐ Free of erosion/scouring
- ☐ Well vegetated
- ☐ Free of excessive vegetation
- ☐ Rip-rap in adequate condition

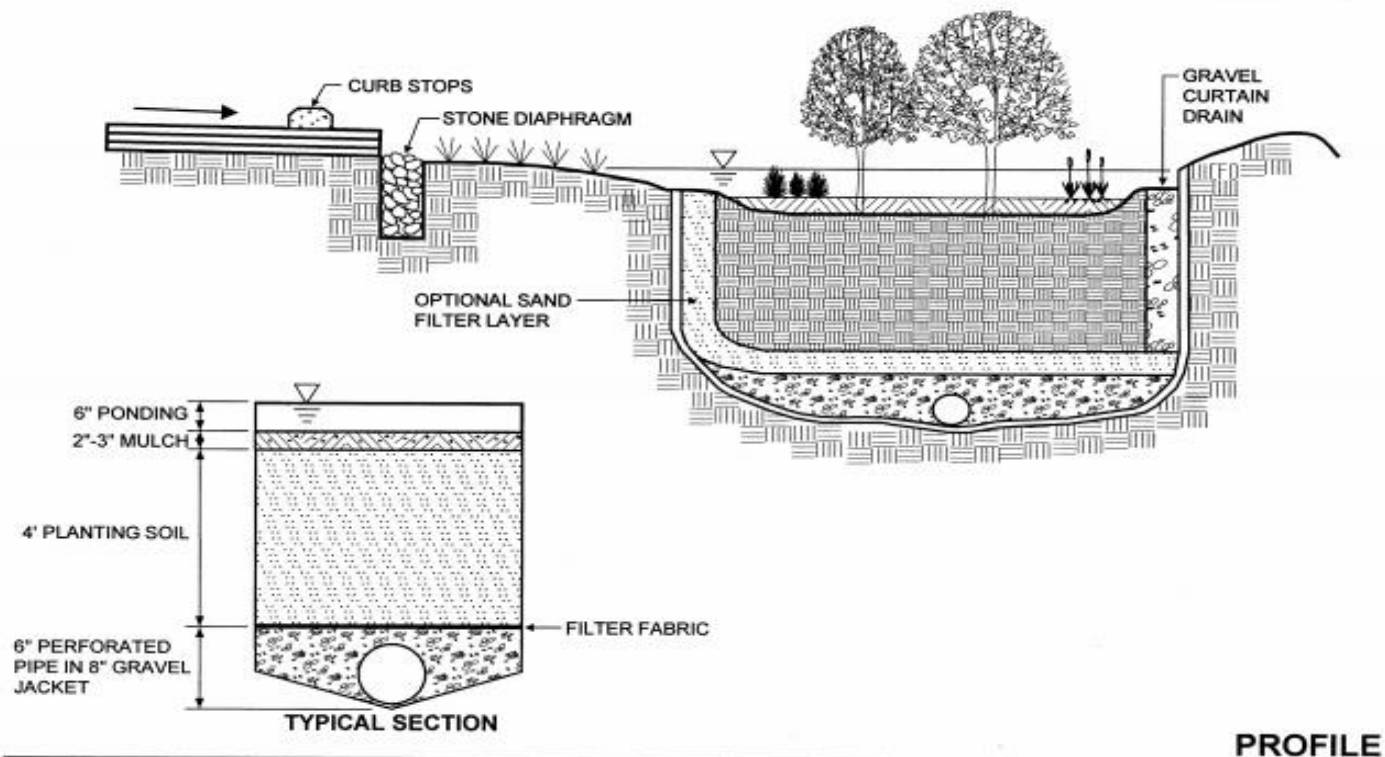
STRUCTURAL BMPs



Vegetated BMPs

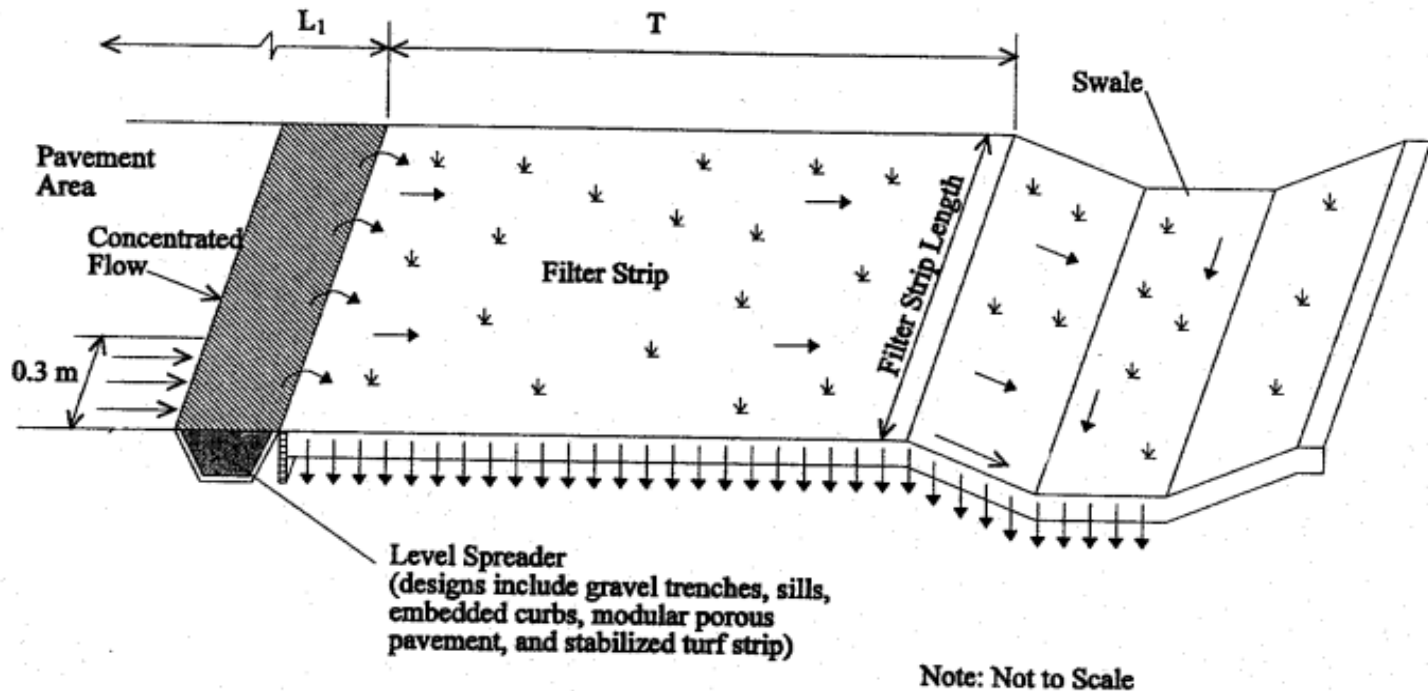
STRUCTURAL BMPs

Example: Bioretention



Schematic of a Bioretention Facility (MDE, 2000)

STRUCTURAL BMPs



Example: Swale

STRUCTURAL BMPs



Example: Swale

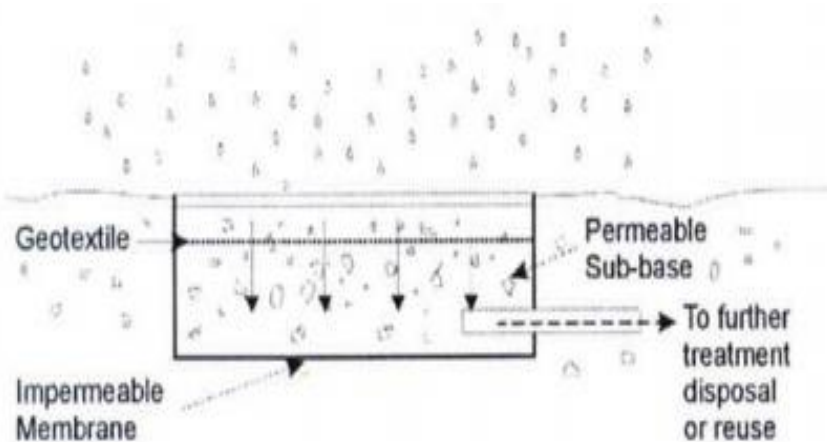
STRUCTURAL BMPs



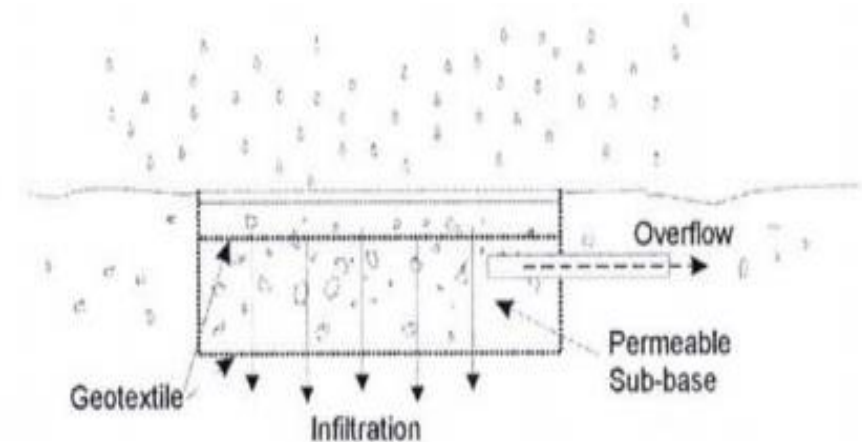
Non Vegetated BMPs

STRUCTURAL BMPs

Example: Pervious Pavement



(a) Pervious pavement used for attenuation



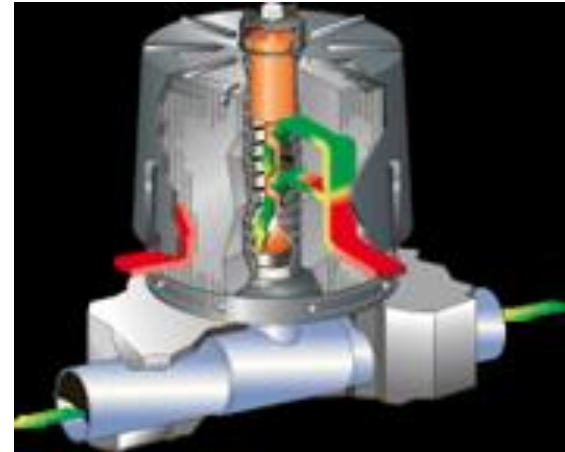
(b) Pervious pavement used for infiltration

STRUCTURAL BMPs

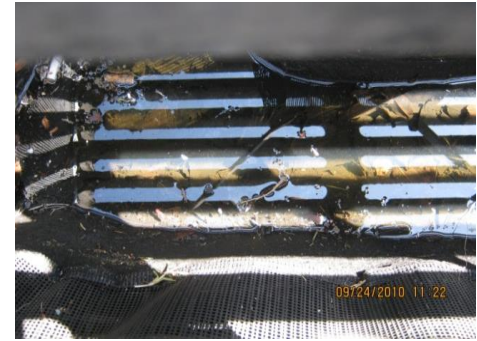


Example: Pervious Pavement

STRUCTURAL BMPs

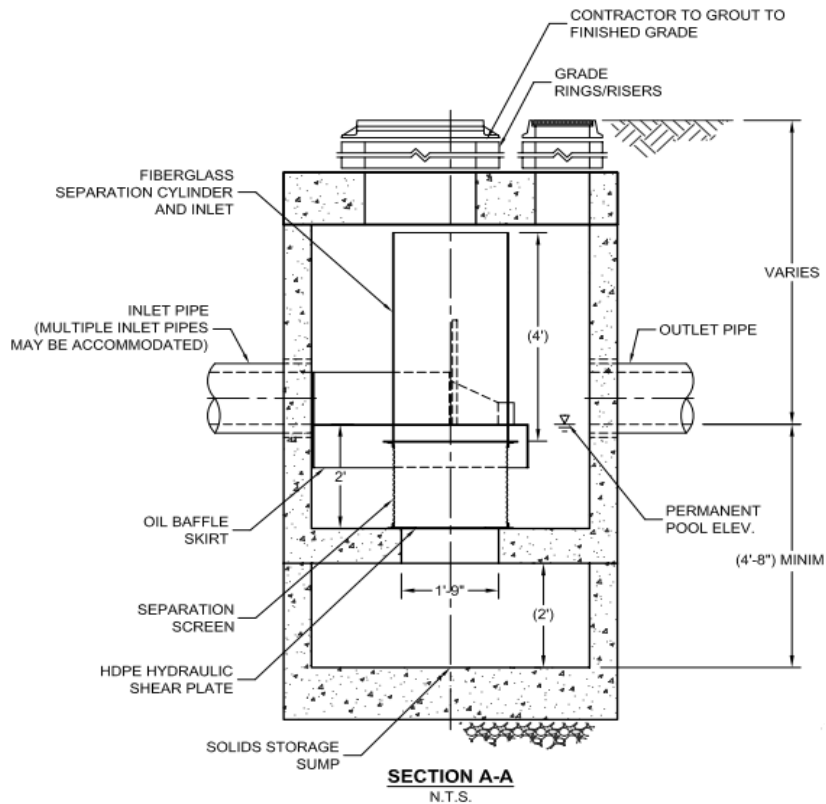


Filtration Systems



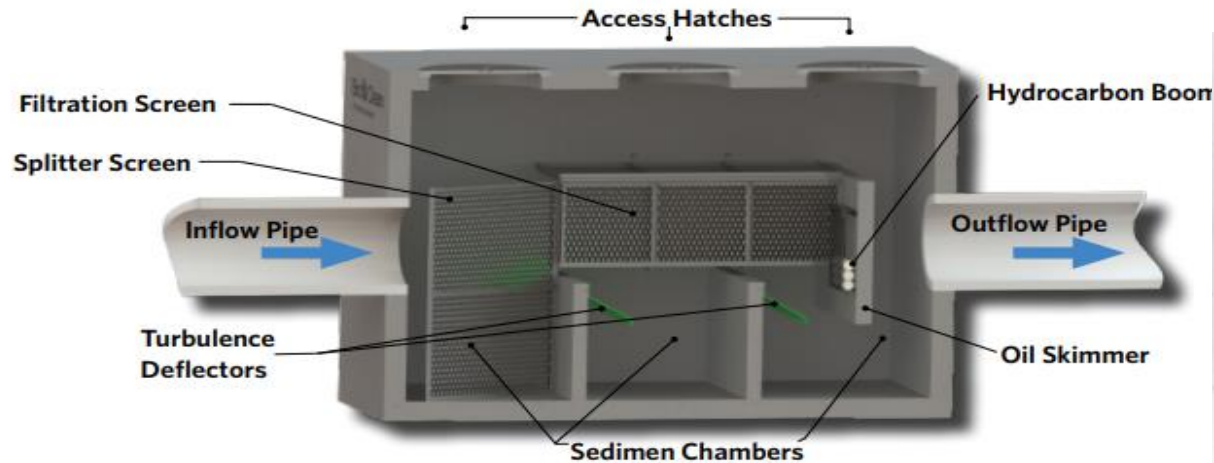
Example: Drainage Insert

STRUCTURAL BMPs



Example: Hydrodynamic Separator

STRUCTURAL BMPs



- **Splitter Screen** - Directs flows to the filtration screens and provides additional screen flow capacity. Non-clogging for continuous maintenance-free treatment.
- **Filtration Screen** - Collects and stores trash, debris, organics, and oxygen demanding substances above standing water in a dry state.
- **Turbulence Deflectors** - Prevent resuspension of captured pollutants.
- **Sediment Chambers** - Maximizes TSS removal and eliminates scouring during extreme flow rates.
- **Skimmer and Boom** - Collects hydrocarbons and controls flow velocity which improves removal efficiency.

Example: Baffle Box

STRUCTURAL BMPs

Take-home Message

- Work closely with construction teams
 - Ensure proper installation
 - Ensure condition maintained until completion
 - Ensure function of the device is understood
 - Ensure inspection and maintenance frequency and indicators clearly understood and transferred to facilities/grounds crew, entered into regular schedules/work order systems





CONTACTS

Annika Dorman (D-Max)
adorman@dmmaxinc.com
(858) 224-3267

Jamie Richards (D-Max)
jrichards@dmmaxinc.com
(858) 922-8983

Ashlee Cadwell (SDCOE)
Ashlee.Cadwell@sdcoe.net
(858)-292-3735