



# SWPPP Cut Sheet

Last Updated: 1-1-08

## Section 1: Erosion and Sediment Control – Construction Activities

### 1.3 Filtrex DitchChexx™ *Sediment & Perimeter Control Technology*

#### PURPOSE & DESCRIPTION

Filtrex DitchChexx™ are a 3-D tubular **check dam** device used in storm water drainage ditches/small channels on/near land disturbing activities to:

- slow concentrated directional flow velocity of storm runoff,
- reduce gully erosion in ditch bottoms,
- remove sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) present in storm water runoff

Filtrex DitchChexx™ provide a porous physical barrier perpendicular to concentrated storm water flow designed to reduce and disperse runoff energy.

They reduce erosion by slowing runoff velocity and dissipating concentrated storm runoff flow. They trap sediment and soluble pollutants by *filtering* storm water as it passes through the DitchChexx™ and by water temporarily ponding behind the DitchChexx™, allowing *deposition* of suspended solids.

#### APPLICATION

DitchChexx™ are used in drainage ditches and small channels on and around land disturbing activities until final stabilization is complete. DitchChexx™ should be installed prior to excavating, filling, or grading of uphill areas. DitchChexx™ are only used in ditch grades equal to or less than 10% (grades greater than 10% should employ structural stabilization practices). Check dams should not be used in areas where the contributing drainage area is greater than 2 to 10 acres (0.8 ha to 4 ha), and should be placed in a manner to prevent sediment from entering receiving streams, rivers, lakes, or wetlands. DitchChexx™ should never be used in ephemeral, perennial, or intermittent streams.

#### INSTALLATION

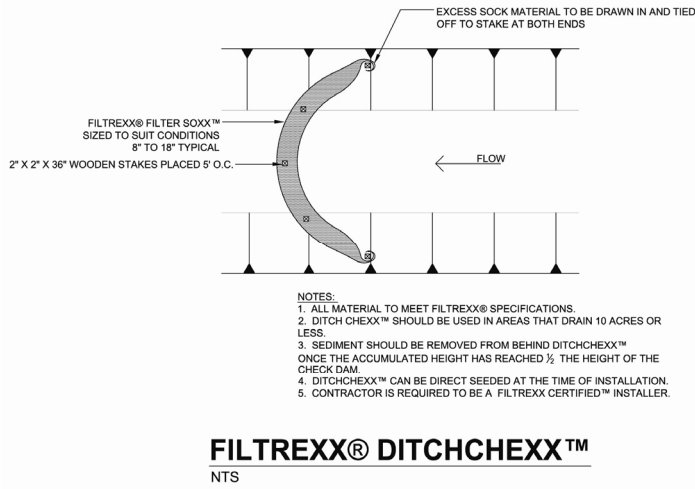
1. DitchChexx™ used for slowing runoff velocity in storm ditches and channels and used to reduce sediment and soluble pollutant loads leaving ditches and channels shall meet Filtrex FilterSoxx™ Material Specifications and use Certified Filtrex FilterMedia™.
2. Contractor is required to be a Filtrex Certified™ Installer as determined by Filtrex International, LLC (440-926-2607 or visit website at Filtrex.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current list can be found at www.filtrex.com). Look for the Filtrex Certified™ Installer Seal.
3. Filtrex DitchChexx™ shall be placed at locations indicated on plans as directed/specified by the Engineer. DitchChexx™ should be installed in a pattern that reduces runoff velocity and ditch erosion, and allows for deposition of sediment and filtration of pollutants.
4. DitchChexx™ may be manufactured on-site at time of application or pre-manufactured and delivered to site for installation.
5. Installation of Filtrex DitchChexx™ will ensure that the DitchChexx™ exceed the width of the normal ditch/channel flow line by at least 4 ft (1.2m) on both banks to ensure water flows through and over the device and not around it.
6. Center of DitchChexx™ check dams shall be at least 6 in. (150mm) lower than the sides of the ditch/channel.
7. Standard diameter size of DitchChexx™ for normal protection is 12 in (300mm). In high flow ditches/channels, the Engineer may specify larger DitchChexx™ of 18 in (450mm) or 24 in (600mm) diameter.
8. DitchChexx™ may be stacked on top of each other, if additional height is required.
9. 8 in (200mm) diameter DitchChexx™ may be placed closer together to act as ‘speed bumps’ to slow flow velocity and reduce ditch/channel bed erosion.
10. If DitchChexx™ are specified as a “Λ” construction design, the angle of the DitchChexx™ must be configured to a 90 degree angle with the apex of the device in the center of the ditch/channel bed with the open end facing down-channel. Ends of DitchChexx™ shall extend to the bed and bank interface or to the maximum flow line of the ditch/channel. Stakes shall be used to stabilize the ends of the DitchChexx™
11. Stakes shall be installed through the middle of the DitchChexx™ on 5 ft (1.5m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes.
12. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
13. Vegetated DitchChexx™ may be seeded at the time of manufacture and installation to create a contained ‘green or living bio-filter/vegetated filter’. These may be left intact once construction phase is complete. The appropriate seed mix shall be specified by the Engineer.
14. DitchChexx™ may be installed on top of rolled erosion control blankets and turf reinforcement mats.

#### INSPECTION and MAINTENANCE

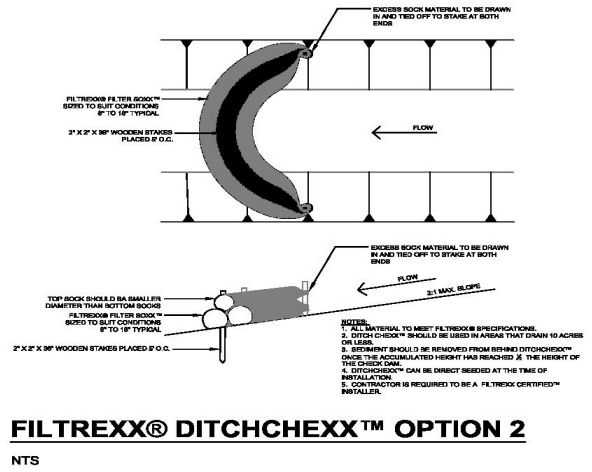
Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. DitchChexx™ should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through, ditch/channel erosion control, and sediment removal. If ponding becomes excessive, additional DitchChexx™ or sediment removal may be required. Sediment accumulation should be removed once it reaches ½ the height of the check dam. Alternatively, another DitchChexx™ may be installed slightly upslope, on top of the existing one. This process is not considered a soil disturbing activity. Storm debris accumulation behind DitchChexx™ should never be higher than the sides of the check dam. Storm runoff overflow is acceptable during large events. DitchChexx™ shall be inspected until drainage area above and around receiving ditch/channel has been permanently stabilized and construction activity has ceased.

1. The Contractor shall maintain the DitchChexx™ in a functional condition at all times and it shall be routinely inspected.
2. If the DitchChexx™ has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the DitchChexx™ when accumulation has reached 1/2 of the effective height of the DitchChexx™, or as directed by the Engineer. As an alternative, another DitchChexx™ may be installed adjacent and parallel to the upslope side of the original to increase sediment storage capacity. DitchChexx™ and sediment backup in center of the ditch/channel shall remain lower than the sides.
4. If DitchChexx™ become clogged with debris and sediment, immediate removal of debris and sediment should be conducted to assure proper drainage and water flow through the ditch or channel. Storm runoff overflow of the DitchChexx™ is acceptable.
5. DitchChexx™ shall be maintained until disturbed area around the device has been permanently stabilized and construction activity has ceased.
6. The FilterMedia™ may be dispersed on site once disturbed area has permanently stabilized, construction activity ceased, or determined by the Engineer.
7. Permanent vegetated filter strips will be left intact.

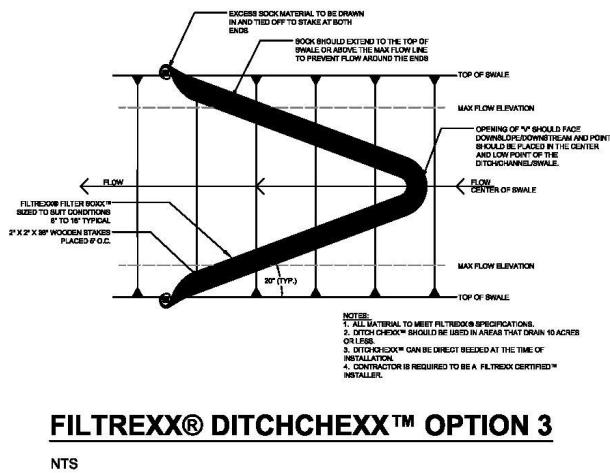
**Figure 3.1. Engineering Design Drawing for DitchChexx™**



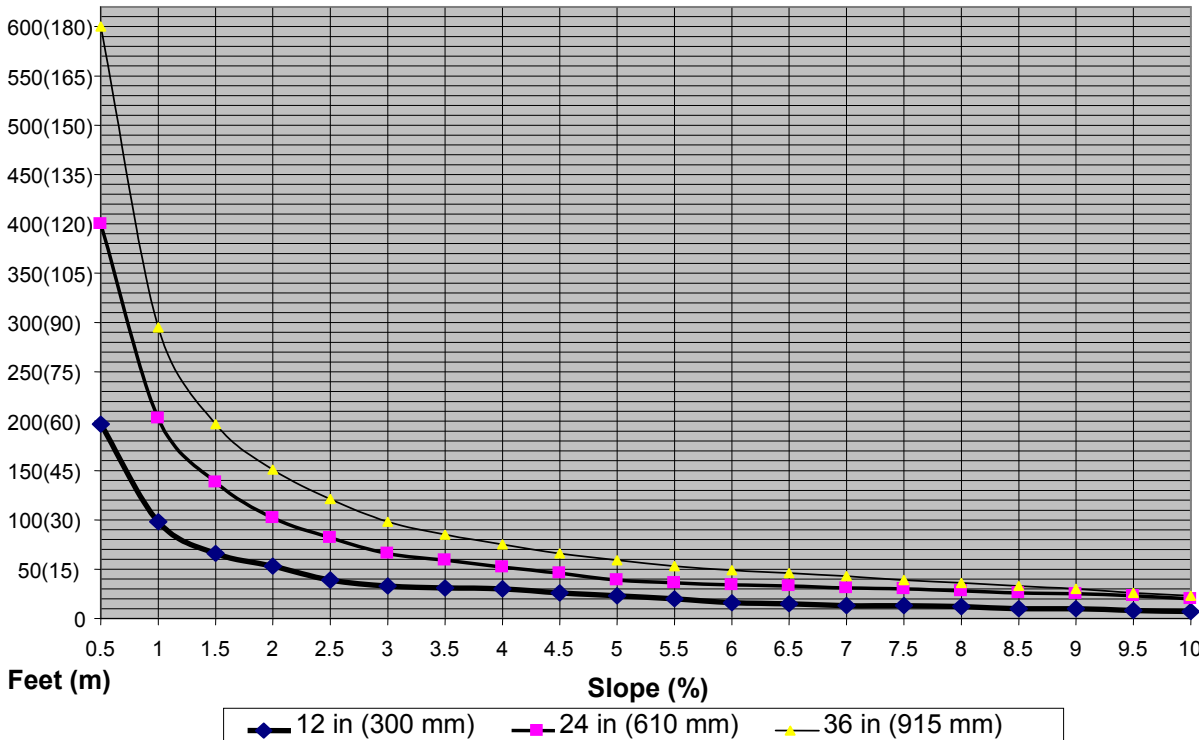
**Figure 3.2. Engineering Design Drawing for Stacking DitchChexx™ to Increase Design Height.**



**Figure 3.3. Engineering Design Drawing for Inverted DitchChexx™ used for Storm Flow Energy Dissipation.**



**Figure 3.4. Spacing and Height for Check Dam Structures in Drainage Ditches and Channels.**



Source: Fifield, 2001; and KY TC, 2006