







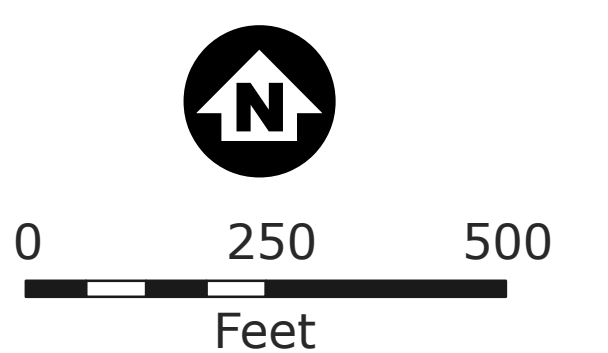


-  Drainage Area (70 acres)
-  Cherokee Heights Ravine Stabilization (2018-2019)
-  Ravine/Stream Channel
-  Storm Sewer Pipes
-  New Water Quality Hydrodynamic Separators (Completed 2018)
-  Water Fall
-  2 Foot Contour
-  Municipal Boundary



CHEROKEE HEIGHTS RAVINE IMPROVEMENTS

HYDRODYNAMIC SEPARATOR PROJECT

Where This Is Happening



Why Use a Hydrodynamic Separator?

In 2018, using grant funding from the State of Minnesota's Clean Water Fund, the cities of Saint Paul, West St. Paul, and Mendota Heights, in collaboration with the Lower Mississippi Watershed Management Organization, installed two hydrodynamic separators (Contech CDS units) on existing storm sewer lines in Cherokee Heights Park to remove pollutants in stormwater from a 70-acre watershed. Urban stormwater contains oils, trash, sediment, and nutrients that are harmful to our surface water bodies. The purpose of this project is to prevent these pollutants from entering Pickerel Lake and the Mississippi River. The cities will annually maintain the hydrodynamic structures to remove and properly dispose of any pollutants captured.

Contech's Continuous Deflective Separation (CDS)

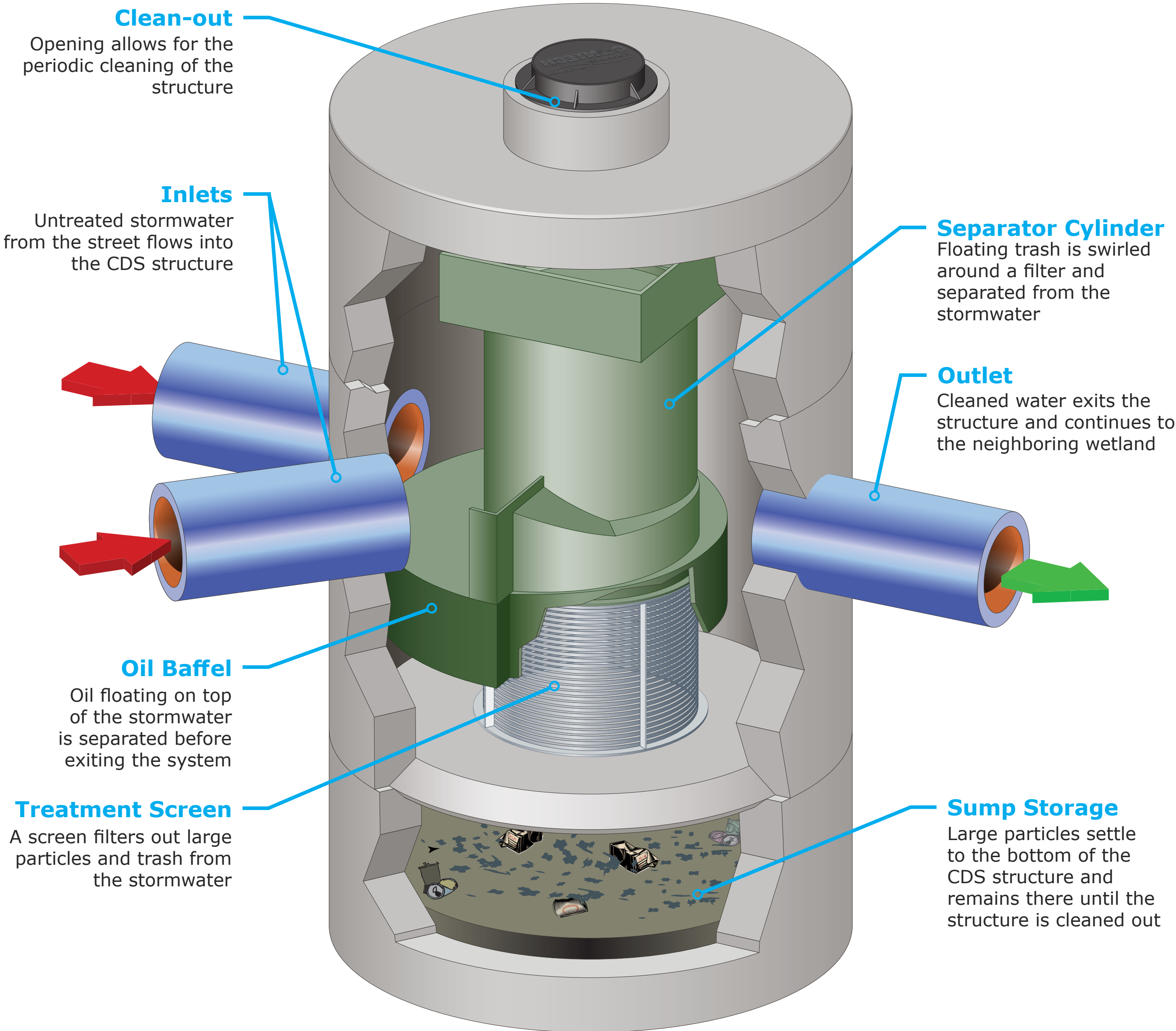
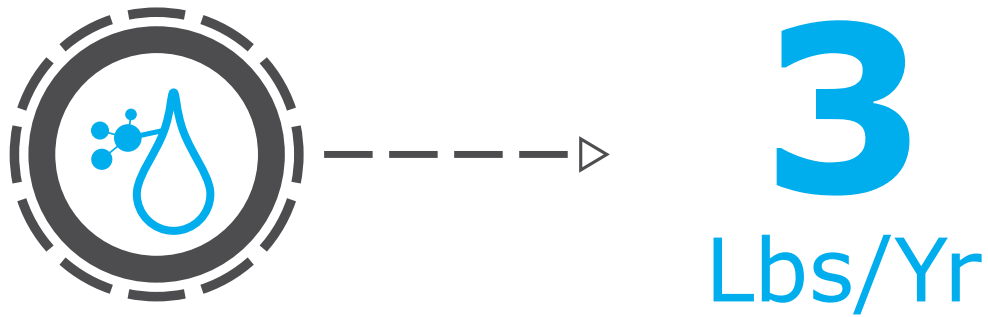


Image Source: Contech Engineered Solutions

Stormwater Benefits

Phosphorus Reduction:

Each year 3 pounds of phosphorus is prevented from entering Pickerel Lake and the Mississippi River



Sediment Removal:

Each year 1.3 tons of sediment is captured in the structures and prevented from entering Pickerel Lake and the Mississippi River



RAVINE STABILIZATION PROJECT



Construction Activities



Slumping slopes & downed trees along ravine



Example of riprap armored ravine bed



Some clearing will be necessary to access site



All disturbed soil will be seeded & blanketed



Native shrubs & trees are to be planted on site

Project Goals

The ravine, leading from the culvert at Cherokee Heights Boulevard down to the East Clay Pit Falls, has become eroded due to steep slopes, sandy soils, and fast moving water. The project goals are to stabilize the existing channel and prevent further slope erosion. Using a light touch, steep slopes will be graded back and stabilized using riprap stone. The surrounding areas will be replanted to hold the soil in place. A small area upstream (east) of Cherokee Heights Boulevard will also be stabilized with riprap.

Armoring and Buttressing

To prevent further erosion and washout during large storm events limestone boulders will be installed along the bottom of the ravine channel. Limestone will armor the base of the channel and serve to buttress, or support, the steep slopes on either side of the channel.

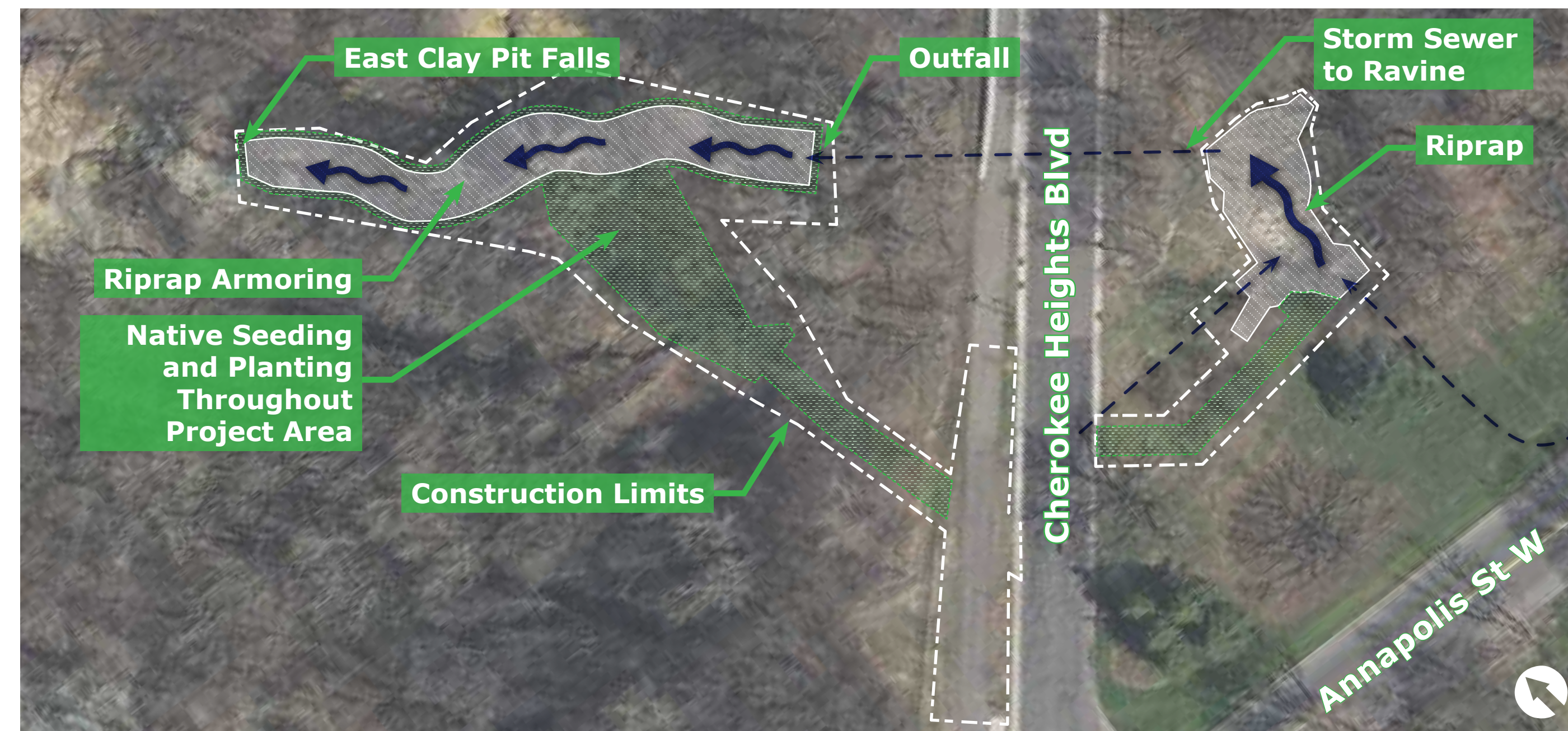
Site Access & Selective Clearing

In order to reach the ravine channel an access trail will be cleared through the existing forest up to Cherokee Heights Boulevard. The City of Saint Paul worked with engineers, foresters, and landscape architects to minimize tree removal and damage to the existing canopy trees. Seed, trees and shrubs will be planted to replace the disturbed vegetation.

Native Plantings and Slope Seeding

In addition to the hard armoring and buttressing of the ravine channel native shrubs, trees, grasses and wildflowers will be used to stabilize slopes. Native plants not only create beneficial habitat but the roots of grasses, sedges, shrubs and trees also play a vital role in stabilizing soils on steep slopes. Plant roots provide tensile strength and increase friction to help hold soil back. Roots of perennial plants help grip the upper soil layer while woody plants, like trees and shrubs, help hold deeper layers of the soil back.

Where This Is Happening



Stormwater Benefits

Phosphorus Reduction:

Each year 16 pounds of phosphorus is prevented from entering Pickerel Lake and the Mississippi River



16
Lbs/Yr

Sediment Removal:

Each year 16 tons of sediment will be prevented from entering Pickerel Lake and the Mississippi River



16
Tons/Yr