

**Operations and Maintenance Manual
For
Water Quality Basin (Extended Detention Basin)
Meadowbrook Crossing
El Paso County, Colorado**

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Kiowa Project No. 16039

August 22, 2017

Water Quality Basin (Extended Detention Basin)

Maintenance Recommendations

An Extended Detention Basin (EDB) is a sedimentation basin designed to totally empty out sometime after stormwater runoff ends. Compared to a flood control detention basin, the extended basin uses a much smaller outlet that extends the emptying time for the more frequently occurring runoff events to facilitate pollutant removal. The basins are considered to be “dry” because they are designed not to have a significant permanent pool of water remaining between storm runoff events. However, EDBs may develop wetland vegetation and sometimes shallow pools in the bottom portions of the facilities.

Extended detention basins have low to moderate maintenance requirements. Routine and nonroutine maintenance is necessary to assure performance, enhance aesthetics, and protect structural integrity. The dry basins can result in nuisance complaints if not properly designed or maintained. Bio-degradable pesticides may be required to limit insect problems. Frequent debris removal and grass-mowing can reduce aesthetic complaints. If a shallow wetland or marshy area is included, mosquito breeding and nuisance odors could occur if the water becomes stagnant. Access to critical elements of the pond (inlet, outlet, spillway, and sediment collection areas) must be provided. The basic elements of the maintenance requirements are presented in Table EDB-1.

Table EDB-1
Extended Detention Basin Maintenance Considerations

Required Action	Maintenance Objective	Frequency of Action
Mowing	Occasional mowing to limit unwanted Vegetation. Maintain irrigated turf grass As 2 to 4 inches tall and nonirrigated native Turf grasses at 4 to 6 inches.	Routine – Depending on aesthetic requirements.
Debris and litter removal	Remove debris and litter from the entire Pond to minimize outlet clogging and And improve aesthetics. Outlet structure Trash racks should be clear of any blockage.	Routine – including just before annual storm seasons (that is, April and May) and Following significant rainfall Events.
Erosion and sediment control	Repair and revegetate eroded areas on slopes.	Nonroutine – Periodic and Repair as necessary based on Inspection.
Structural	Repair pond inlets, outlets, forebays, Low flow channel liners, and energy Dissipators whenever damage is discovered.	Nonroutine- Repair as needed based on regular inspections.
Inspections	Inspect basins to insure that the basin Continues to function as initially intended. Examine the outlet for clogging, erosion, Slumping, excessive sedimentation Levels, overgrowth, embankment and Spillway integrity, and damage to any Structural element.	Routine – Annual inspection Hydraulic and structural facilities. Also check for obvious problems during routine maintenance visits, especially for plugging of Outlets.
Nuisance control	Address odor, insects, and overgrowth Issues associated with stagnant or Standing water in the bottom zone.	Nonroutine- Handle as necessary per inspection Or local complaints.

Exhibit A: Tract E Legal Description

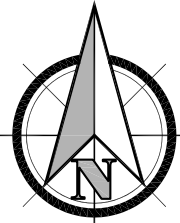
Meadowbrook Crossing Water Quality Area

****To be completed when water quality area design is approved. Refer to Plat for Tract E location.**

Bearing	Distance	Type	Radius	Arc Len	Delta	Tangent Description
N 51°18'59" E	308.12	LINE				
N 52°03'57" E	86.1	LINE				
S 89°43'13" W	139.71	LINE				
S 47°31'14" W	429.11	LINE				
S 89°43'03" W	527.46	LINE				
S 34°05'07" W	260.71	LINE				
S 47°03'27" W	156.94	LINE				
S 34°25'30" W	141.17	LINE				
S 03°59'21" W	120.73	LINE				
N 89°43'03" E	173.37	LINE				
N 00°16'57" W	48.08	LINE				
N 61°06'10" E	141.61	LINE				
N 28°06'57" W	40	CURVE R 60	40.78	38°56'46"	21.22	
		Rad-In: N 42°24'40" E		Rad-Out: N 81°21'26" E		
S 61°06'10" W	120.34	LINE				
N 00°16'57" W	179.41	LINE				
N 47°03'26" E	14.13	LINE				
N 89°43'03" E	104.61	LINE				
N 00°16'57" W	44.2	LINE				
N 44°43'03" E	117.61	CURVE R 60	164.53	157°06'53"	296.43	
		Rad-In: N 56°09'37" E		Rad-Out: S 33°16'30" W		
N 89°43'03" E	5.5	LINE				
N 00°16'57" W	118	LINE				
N 89°43'03" E	556.71	LINE				
N 51°18'59" E	89.24	LINE				
S 38°41'42" E	118	LINE				
N 51°18'59" E	30.26	LINE				
N 38°41'42" W	118	LINE				

Ending Coordinates: Northing 20272.15, Easting -279.76

Area: 118194.63 S.F., 2.7134 Acres
Total Perimeter Distance> 4236.82



0 150'
SCALE: 1"=150'

EAST FORK SAND CREEK

MEADOWBROOK CROSSING

WATER
QUALITY
AREA

PREBLE DRIVE

NEWT DRIVE

BOREAL DRIVE

MEADOWBROOK PKWY

MEADOWBROOK PKWY

Celebrating 30 years
Kiowa
Engineering Corporation
7175 West Jefferson Avenue, Suite 1300
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EXHIBIT B
PERMANENT BMP SITE MAP
MEADOWBROOK CROSSING