

El Paso County MS4 Post Construction Detention / Water Quality Facility Documentation Form

This document **must be completed and submitted** with required attachments to the County for projects requiring a detention and/or a water quality facility. A separate completed form must be submitted for each facility.

Project name: Waterbury Filing No. 1 & 2
Owner name: 4-Way Ranch Joint Ventures
Owner name:
Stapleton Drive and Bandernero Drive Intersection Falcon, CO
Latitude and Longitude:
Lat: 38.969011, Long: -104.570362
Assessor's Parcel #: 4200000417 Section: 28 Township: 12 Range: 64
Expected Completion date: Winter 2022
Project acreage: 61.88 Design Ponding Acres: 0.99 Design Storm: 100-Y
Design Engineer Email Address: quentin.armijo@tnesinc.com
To ensure compliance with C.R.S. 37-92-602(8), the completed Stormwater Detention and Infiltration Design Data Sheet must be attached . The form can be found here: <u>https://maperture.digitaldataservices.com/gvh/?viewer=cswdif#</u> (click on Download SDI Design Data Sheet)
List all permanent water quality control measure(s) (EDBs, rain gardens, etc):
EDB POND 1
For all projects for which the constrained redevelopment sites standard is applied, provide an explanation of why it is not practicable to meet the full design standards.
Attach Operations and Maintenance (O&M) Plan describing the operation and maintenance procedures that ensure the
long-term observation, maintenance, and operation of control measure(s), including routine inspection frequencies and
maintenance activities. If multiple, different water quality control measures are used at the same location, a separate (
& M Plan must be provided for each facility.
Attach Private Detention Basin / Stormwater Quality Best Management Practice Maintenance Agreement and
Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the permanent BMPs.
Attachments: Review Engineer

Stormwater Detention and Infiltration Design Data Sheet O & M Plan Maintenance and Access Agreement Review Engineer
EPC Project File No.

Workbook Protecte

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Worksheet Protected

User Defined User Defined User Defined User Defined

Stormwater Facility Name: Waterbury Filing No. 1 & 2 EDB Pond 1 D8 8

Facility Location & Jurisdiction: Stapleton Dr. & Bandernero Dr Intersection

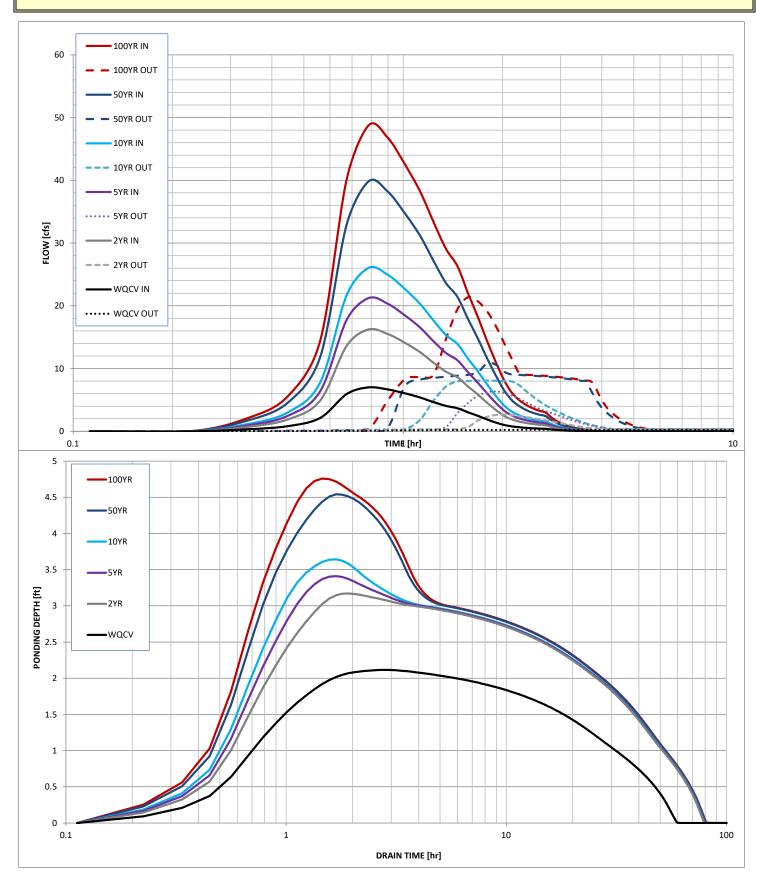
User Input: Watershed Characteristics 0.019 ft/ft Watershed Slope = Watershed Length = 1250 ft 22.34 Watershed Area = acres Watershed Imperviousness = 51.9% percent Percentage Hydrologic Soil Group A = 100.0% percent Percentage Hydrologic Soil Group B = 0.0% percent Percentage Hydrologic Soil Groups C/D = 0.0% percent Location for 1-hr Rainfall Depths (use dropdown): User Input •

WQCV Treatment Method = Extended Detention

User Defined	User Defined	User Defined	User Defined
Stage [ft]	Area [ft^2]	Stage [ft]	Discharge [cfs]
0.00	100	0.00	0.00
0.25	3,176	0.25	0.04
0.50	6,253	0.50	0.06
0.75	8,372	0.75	0.07
1.00	10,492	1.00	0.09
1.25	12,612	1.25	0.14
1.50	14,732	1.50	0.17
1.75	16,852	1.75	0.19
2.00	18,972	2.00	0.21
2.25	21,092	2.25	0.27
2.50	23,212	2.50	0.30
2.75	25,435	2.75	0.33
3.00	27,658	3.00	0.36
3.25	29,881	3.25	3.70
3.50	32,105	3.50	7.91
3.75	34,328	3.75	8.21
4.00	36,551	4.00	8.50
4.25	38,744	4.25	8.78
4.50	40,997	4.50	9.06
4.75	43,176	4.75	20.80
5.00	45,355	5.00	42.67
5.25	47,534	5.25	71.79
5.50	49,712	5.50	107.27
5.75	51,891	5.75	148.67
6.00	54,070	6.00	195.73
6.25	56,249	6.25	248.30
6.50	58,428	6.50	306.29

After completing and printing this worksheet to a pdf, go to: https://maperture.digitaldataservices.com/gvh/?viewer=cswdif create a new stormwater facility, and attach the pdf of this worksheet to that record.

Routed Hydrograph Results						_	
Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.19	1.50	1.75	2.25	2.52	in
Calculated Runoff Volume =	0.394	0.923	1.212	1.490	2.292	2.813	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =	0.564	1.322	1.737	2.136	3.285	4.033	acre-ft
Time to Drain 97% of Inflow Volume =	51.7	66.5	64.4	62.4	57.5	54.4	hours
Time to Drain 99% of Inflow Volume =	55.2	72.6	71.7	70.9	69.3	68.0	hours
Maximum Ponding Depth =	2.11	3.17	3.41	3.64	4.54	4.76	ft
Maximum Ponded Area =	0.46	0.67	0.72	0.76	0.95	0.99	acres
Maximum Volume Stored =	0.520	1.112	1.281	1.450	2.219	2.434	acre-ft





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Owner name: 4-Way Ranch Joint Ventures	
Location Address:	
Stapleton Drive and Bandernero Drive Intersection Falcon, CO	
Latitude and Longitude:	
Lat: 38.971229, Long: -104.563163	
Assessor's Parcel #: 4200000417 Section: 28 Township: 12 Ra	ange: 64
Expected Completion date: Winter 2022	
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Design Engineer Email Address: quentin.armijo@tnesinc.com	
To ensure compliance with C.R.S. 37-92-602(8), the completed Stormwater Detention and Infiltration Design Data Sheet must be attached . The form can be found here: <u>https://maperture.digitaldataservices.com/gvh/?viewer=cswdif#</u> (click on Download SDI Design Data Sheet and SDI	ata Sheet)
EDB POND 2	
For all projects for which the constrained redevelopment sites standard is applied, provide an explanation of practicable to meet the full design standards.	anation of why it is
Attach Operations and Maintenance (ORM) Plan describing the operation and maintenance proce	adures that oncure the
Attach Operations and Maintenance (O&M) Plan describing the operation and maintenance proceed long-term observation, maintenance, and operation of control measure(s), including routine inspection maintenance activities. If multiple, different water quality control measures are used at the same law M Plan must be provided for each facility.	ction frequencies and
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Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the p	-
Attachments: Review Engineer	

Stormwater Detention and Infiltration Design Data Sheet O & M Plan Maintenance and Access Agreement Review Engineer
EPC Project File No.

Workbook Protecte

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Worksheet Protected

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Stormwater Facility Name: Waterbury Filing No. 1 & 2 EDB Pond 2 DP 18

Facility Location & Jurisdiction: Stapleton Dr. & Bandernero Dr Intersection

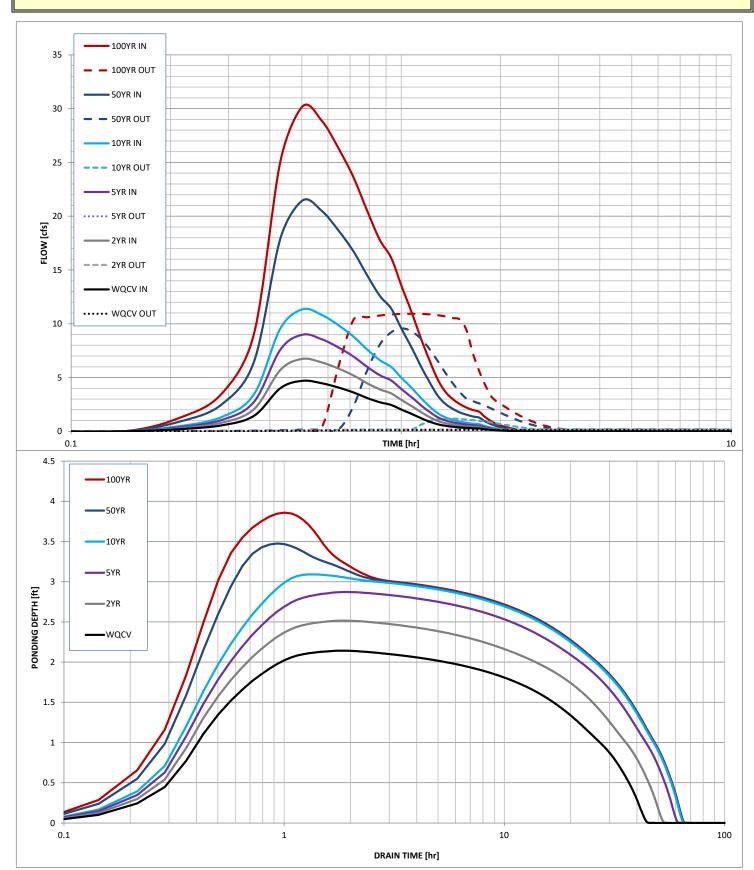
User Input: Watershed Characteristics 0.019 ft/ft Watershed Slope = Watershed Length = 1050 ft 21.06 Watershed Area = acres Watershed Imperviousness = 25.8% percent Percentage Hydrologic Soil Group A = 100.0% percent Percentage Hydrologic Soil Group B = 0.0% percent Percentage Hydrologic Soil Groups C/D = 0.0% percent Location for 1-hr Rainfall Depths (use dropdown): User Input •

WQCV Treatment Method = Extended Detention

User Defined	User Defined	User Defined	User Defined
Stage [ft]	Area [ft^2]	Stage [ft]	Discharge [cfs]
0.00	100	0.00	0.00
0.25	942	0.25	0.02
0.50	1,784	0.50	0.03
0.75	2,626	0.75	0.04
1.00	3,468	1.00	0.04
1.25	5,034	1.25	0.07
1.50	6,600	1.50	0.09
1.75	8,166	1.75	0.10
2.00	9,732	2.00	0.11
2.25	11,297	2.25	0.14
2.50	12,863	2.50	0.16
2.75	14,429	2.75	0.17
3.00	15,995	3.00	0.18
3.25	19,602	3.25	3.05
3.50	23,209	3.50	10.28
3.75	26,815	3.75	10.76
4.00	30,422	4.00	11.17
4.25	34,029	4.25	11.57
4.50	37,636	4.50	11.96
4.75	41,243	4.75	12.33
5.00	44,850	5.00	12.70
5.25	48,650	5.25	20.77
5.50	52,450	5.50	35.88
5.75	56,251	5.75	56.20
6.00	60,051	6.00	81.25
6.25	63,851	6.25	110.80
6.50	67,652	6.50	144.75
6.75	71,452	6.75	183.06
7.00	75,252	7.00	225.73

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	Routed Hydro	ograph Results					_
Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.19	1.50	1.75	2.25	2.52	in
Calculated Runoff Volume =	0.241	0.347	0.464	0.589	1.120	1.583	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =	0.241	0.346	0.464	0.588	1.120	1.583	acre-ft
Time to Drain 97% of Inflow Volume =	38.4	45.5	52.4	54.7	50.2	46.4	hours
Time to Drain 99% of Inflow Volume =	41.0	48.8	56.5	59.5	57.5	56.0	hours
Maximum Ponding Depth =	2.14	2.52	2.87	3.09	3.48	3.86	ft
Maximum Ponded Area =	0.24	0.30	0.35	0.39	0.52	0.65	acres
Maximum Volume Stored =	0.224	0.326	0.439	0.520	0.695	0.923	acre-ft





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Lat:38.972831, Long:-104.566933
Assessor's Parcel #: 4200000417 Section: 28 Township: 12 Range: 64
Expected Completion date: Winter 2022
Project acreage: 61.88 Design Ponding Acres: 1.89 Design Storm: 100-Y
Design Engineer Email Address: quentin.armijo@tnesinc.com
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List all permanent water quality control measure(s) (EDBs, rain gardens, etc):
EDB POND 3
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Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the permanent BMPs.
Attachments: Review Engineer

Stormwater Detention and Infiltration Design Data Sheet O & M Plan Maintenance and Access Agreement EPC Project File No.

Workbook Protecte

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Worksheet Protected

Stormwater Facility Name: Waterbury Filing No. 1 & 2 EDB Pond 3 DP 29

Facility Location & Jurisdiction: Stapleton Dr. & Bandernero Dr Intersection

User Input: Watershed Characteristics 0.022 Watershed Slope = ft/ft Watershed Length = 1900 ft 82.44 Watershed Area = acres Watershed Imperviousness = 49.0% percent Percentage Hydrologic Soil Group A = 100.0% percent Percentage Hydrologic Soil Group B = 0.0% percent Percentage Hydrologic Soil Groups C/D = 0.0% percent Location for 1-hr Rainfall Depths (use dropdown): User Input ▼

WQCV Treatment Method = Extended Detention

User Defined	User Defined	User Defined	User Defined	
Stage [ft]	Area [ft^2]	Stage [ft]	Discharge [cfs]	
0.00	100	0.00	0.00	
0.25	2,785	0.25	0.10	
0.50	5,470	0.50	0.14	
0.75	8,155	0.75	0.18	
1.00	10,840	1.00	0.20	
1.25	13,525	1.25	0.23	
1.50	16,210	1.50	0.25	
1.75	18,895	1.75	0.37	
2.00	21,580	2.00	0.43	
2.25	26,334	2.25	0.48	
2.50	31,088	2.50	0.53	
2.75	35,842	2.75	0.57	
3.00	40,596	3.00	0.60	
3.25	45,530	3.25	0.73	
3.50	50,105	3.50	0.81	
3.75	54,895	3.75	0.87	
4.00	59,613	4.00	0.93	
4.25	62,301	4.25	0.98	
4.50	64,989	4.50	1.03	
4.75	67,677	4.75	4.39	
5.00	70,365	5.00	14.71	
5.25	73,504	5.25	28.91	
5.50	75,742	5.50	46.13	
5.75	78,430	5.75	60.71	
6.00	81,118	6.00	62.35	
6.25	82,113	6.25	74.47	
6.50	83,503	6.50	111.77	
6.75	84,696	6.75	163.81	
7.00	85,888	7.00	227.74	
7.25	87,081	7.25	302.17	
7.50	88,274	7.50	386.27	
7.75	89,466	7.75	479.48	
8.00	90,659	8.00	581.41	

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Routed Hydrograph Results						_	
Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	0.53	1.19	1.50	1.75	2.25	2.52	in
Calculated Runoff Volume =	1.398	3.156	4.151	5.117	8.003	9.913	acre-ft
OPTIONAL Override Runoff Volume =							acre-ft
Inflow Hydrograph Volume =	1.397	3.155	4.151	5.111	7.999	9.910	acre-ft
Time to Drain 97% of Inflow Volume =	41.7	61.8	62.5	61.0	56.7	54.1	hours
Time to Drain 99% of Inflow Volume =	44.2	66.4	68.1	67.6	65.8	64.7	hours
Maximum Ponding Depth =	3.12	4.47	4.88	5.15	5.77	6.26	ft
Maximum Ponded Area =	0.98	1.48	1.58	1.66	1.80	1.89	acres
Maximum Volume Stored =	1.316	3.019	3.647	4.089	5.164	6.075	acre-ft

