Table 1
Stage-Storage - DRY POND
6171 Hazeldean Road

Description	Elev	Incr. Elev	End Area	Average Area	Volume	Cumulative Volume
	(m)	(m)	(m2)	(m2)	(m3)	(m3)
Active Storage						
Top of Pond Elev	116.20	0.30	2811.80	2715	814	5287
Emergency Spill Elev	115.90	2.20	2617.52	2033	4472	4472
Bottom of Drypond	113.70	0.00	1448.18	0	0	0
Permanent Pool - Main Cell						
Normal Water Level (NWL)	113.70	0.00	0	0	0	0
Slope change (5:1)	113.70	0.00	0	0	0	0
Bottom of Main Cell	113.70	0.00	0	0	0	0
Sediment Forebay						
Normal Water Level (NWL)	113.70	0.00	0	0	0	0
Top of forebay berm	113.70	0.00	0	0	0	0
Slope change	113.70	0.00	0.0	0	0	0
Bottom of sediment forebay	113.70	0.00	0.0	0	0	0

Maximum Active Storage =	5,287
Permanent Storage (Below NWL) =	0
Total Pond Storage (Active and Permanent) =	5,287

Stage-Storage Curve of SWM Facility - DRY POND

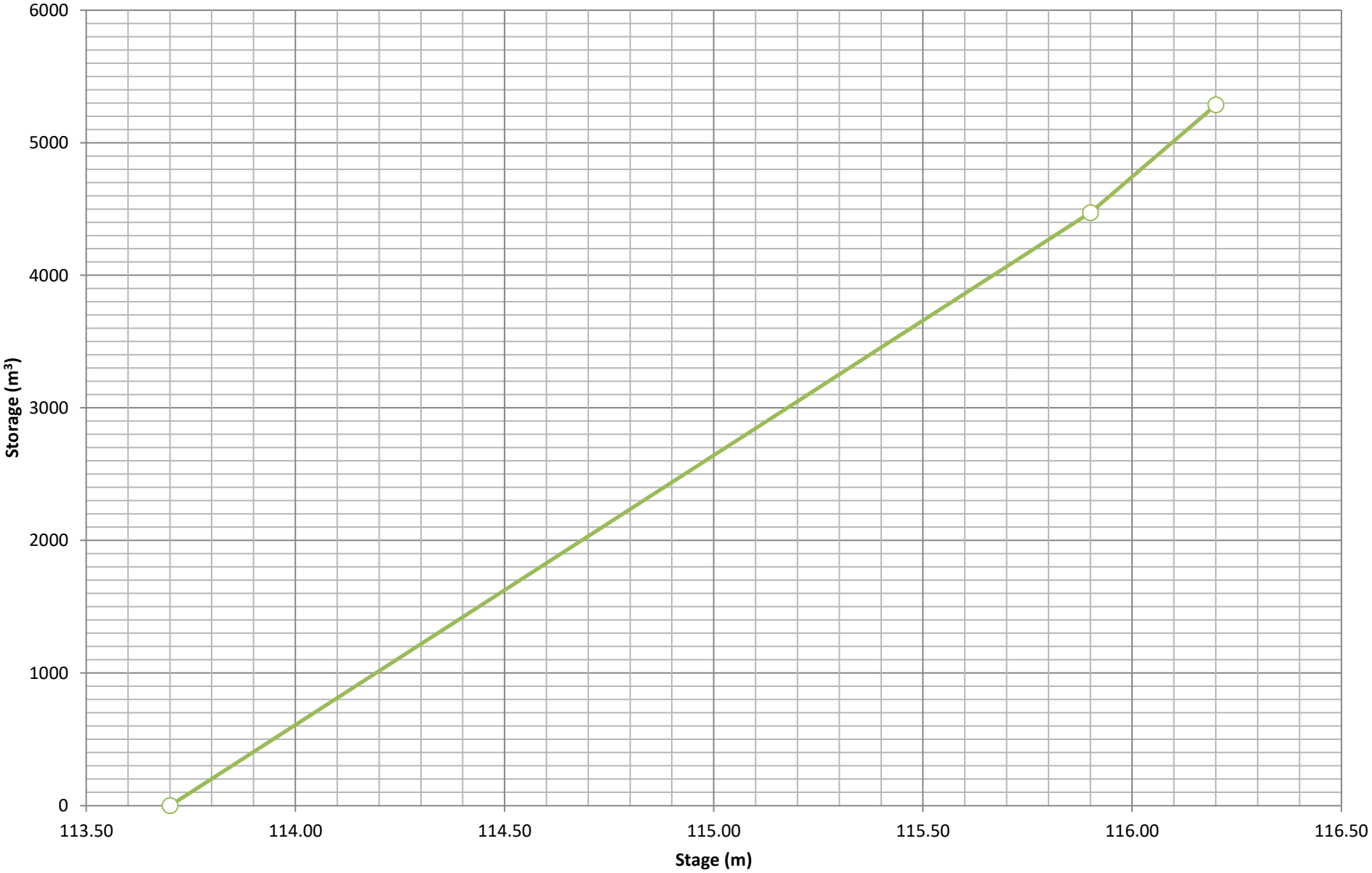

Table 2
Storage-Outflow Data for SWM Facility - DRY POND

6014	100-year Storm Volume (12-hr SCS Storm)
113.70	100-year Storm Elev. (12hr SCS Strom)
5320	100-year Storm Volume (6hr Chicago Storm)
113.70	100-year Storm Elev. (6hr Chicago Storm)
3195	5 -year Storm Volume
115.27	5-year Storm Elev.
2,172	2 -year Storm Volume
114.77	2-year Storm Elev.
693	15mm EXT DET Storm Volume (3hr Chicago)
114.04	15mm EXT Storm Elev.

Quality Control 1		Quantity Control 1		Emergency Overflow	
Vertical Circular Orifice		Vertical Circular Orifice		Broad-Crested Weir (Rect)	
Dia (mm):	80	Dia (mm):	150	Length (m)	3.0
				Height (m)	0.30
Area (mm2):	5,027	Area (mm2):	17,671		
Coeff, C:	0.257	Coeff, C:	0.61	Coeff, C:	1.837
Orifice Inv:	113.70 m	Orifice Inv:	114.00 m	Weir Inv:	115.90 m
Orifice Cen:	113.74 m	Orifice Cen:	114.075 m		

WSE Elev	Comments	Quantity Volume (Note 1)	Head	Orifice 1 Flow	Head	Orifice 2 Flow	Head, H	Outflow	Total Flow	Storage
(m)		(m3)	(m)	(m3/sec)	(m)	(m3/sec)	(m)	(m3/sec)	(m3/sec)	(ha.m)
116.20	Top - Pond	5287	2.50	0.009	2.20	0.071	0.30	0.906	0.9854	0.529
116.10		5015	2.40	0.009	2.10	0.069	0.20	0.493	0.5710	0.502
116.00		4744	2.30	0.009	2.00	0.068	0.10	0.174	0.2505	0.474
115.90	Emerg Spill	4472	2.20	0.008	1.90	0.066			0.0743	0.447
115.80		4269	2.10	0.008	1.80	0.064			0.0724	0.427
115.70		4066	2.00	0.008	1.70	0.062			0.0703	0.407
115.60		3862	1.90	0.008	1.60	0.060			0.0683	0.386
115.50		3659	1.80	0.008	1.50	0.058			0.0662	0.366
115.40		3456	1.70	0.007	1.40	0.056			0.0640	0.346
115.30		3253	1.60	0.007	1.30	0.054			0.0617	0.325
115.20		3049	1.50	0.007	1.20	0.052			0.0593	0.305
115.10		2846	1.40	0.007	1.10	0.050			0.0568	0.285
115.00		2643	1.30	0.007	1.00	0.048			0.0543	0.264
114.90		2439	1.20	0.006	0.90	0.045			0.0516	0.244
114.80		2236	1.10	0.006	0.80	0.043			0.0487	0.224
114.70		2033	1.00	0.006	0.70	0.040			0.0457	0.203
114.60		1830	0.90	0.005	0.60	0.037			0.0424	0.183
114.50		1626	0.80	0.005	0.50	0.034			0.0389	0.163
114.40		1423	0.70	0.005	0.40	0.030			0.0350	0.142
114.30		1220	0.60	0.004	0.30	0.026			0.0306	0.122
114.20		1016	0.50	0.004	0.20	0.021			0.0254	0.102
114.10		813	0.40	0.004	0.10	0.015			0.0187	0.081
114.00		610	0.30	0.003					0.0031	0.061
113.90		407	0.20	0.003					0.0026	0.041
113.80		203	0.10	0.002					0.0018	0.020
113.70	Bottom of Dry Pond									

NOTES:
1) Quantity Storage values based on pond geometry and stage-storage data at 0.10m increments
2) Top of Pond = 116.20 m
3) WSE Interval = 0.10 m

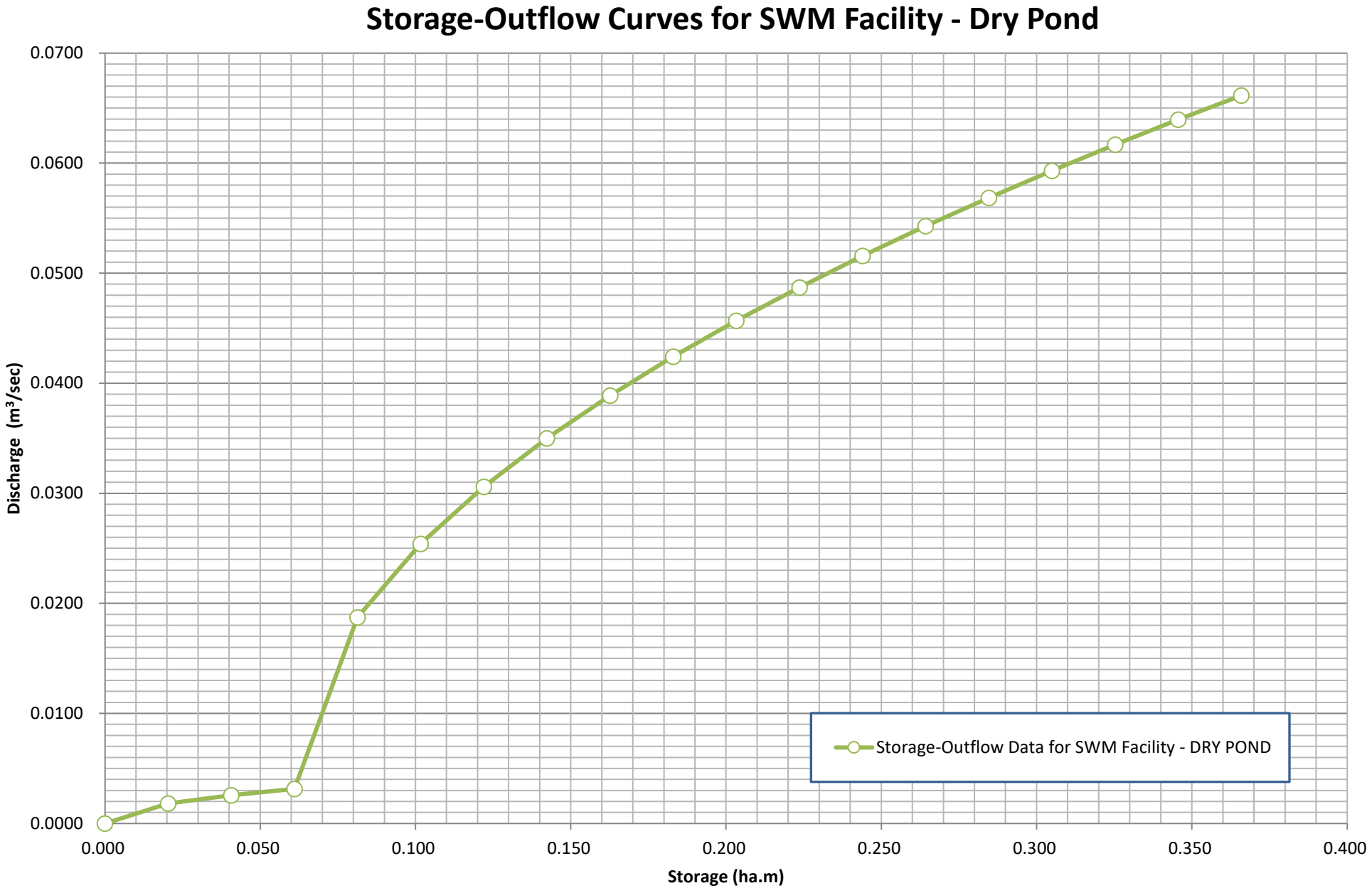
Storage-Outflow Curves for SWM Facility - Dry Pond
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
Discharge (m³/sec)
0.000
0.050
0.100
0.150
0.200
0.250
0.300
0.350
0.400
Storage (ha.m)
Storage-Outflow Data for SWM Facility - DRY POND

Table 3

Area-Depth Info for DRY POND

Elev (m)	Depth Above NWL (m)	End Area (m^2)	Comments
116.20	2.50	2,812	Top of Pond Elev
115.90	2.20	2,618	Emergency Spill Elev
113.70		1,448	Bottom of Drypond

Slope coefficient from the area-depth linear regression, C2 =	540.2
Intercept from the area-depth linear regression, C3 =	1446.1

Notes

C2, C3 based on area, depth ordinates from NWL (bottom) to Top of Pond

Table 4
Storage-Outflow Data for SWM Facility - DRYPOND

Permanent Pool Elev (NWL) =	113.70	No Permanet Pool. This is the bottom of the Dry Pond
Pond Area at NWL (m2) =	1,448	
Volume at NWL (m3) =		
ED Control Orifice Dia (mm) =	80	
ED Control Orifice Area (m2) =	0.005027	
ED Control Orifice Invert Elev (m) =	113.70	
ED Control Centroid Elev (m) =	113.74	
ED Orifice Discharge Coefficeint =	0.257	Discharge Coeff for IPEX LMF-80
C2 =	540	Slope coefficient from the area-depth linear regression
C3 =	1,446	Intercept from the area-depth linear regression

	Active Storage Above NWL			Drawdown Time (hours)		Outflow	
WSE Elev (m)	VOLUME (m3)	AREA (m2)	DEPTH (m)	HOURS	DAYS	(m3/sec)	Comments
116.20	5,287	2,812	2.50	120.22	5.01	0.985	Top - Pond
116.10	5,015	2,747	2.40	116.68	4.86	0.571	
116.00	4,744	2,682	2.30	113.14	4.71	0.250	
115.90	4,472	2,618	2.20	109.59	4.57	0.074	Emerg Spill
115.80	4,269	2,564	2.10	106.03	4.42	0.072	
115.70	4,066	2,511	2.00	102.46	4.27	0.070	
115.60	3,862	2,458	1.90	98.88	4.12	0.068	
115.50	3,659	2,405	1.80	95.28	3.97	0.066	
115.40	3,456	2,352	1.70	91.66	3.82	0.064	
115.30	3,253	2,299	1.60	88.02	3.67	0.062	
115.20	3,049	2,245	1.50	84.35	3.51	0.059	
115.10	2,846	2,192	1.40	80.64	3.36	0.057	
115.00	2,643	2,139	1.30	76.89	3.20	0.054	
114.90	2,439	2,086	1.20	73.09	3.05	0.052	
114.80	2,236	2,033	1.10	69.22	2.88	0.049	
114.70	2,033	1,980	1.00	65.29	2.72	0.046	
114.60	1,830	1,927	0.90	61.26	2.55	0.042	
114.50	1,626	1,873	0.80	57.11	2.38	0.039	
114.40	1,423	1,820	0.70	52.82	2.20	0.035	
114.30	1,220	1,767	0.60	48.35	2.01	0.031	
114.20	1,016	1,714	0.50	43.63	1.82	0.025	
114.10	813	1,661	0.40	38.57	1.61	0.019	
114.00	610	1,608	0.30	33.01	1.38	0.003	
113.90	407	1,554	0.20	26.63	1.11	0.003	
113.80	203	1,501	0.10	18.61	0.78	0.002	
113.70		1,448					Bottom of Dry Pond

NOTES:

2) Top of Pond = 116.20 m
3) WSE Interval = 0.10 m

$$t = \frac{0.66\ C_2 h^{1.5} + 2\ C_3 h^{0.5}}{2.75\ A_o}$$

Equation 4.11 Drawdown Time.
(Page 4-58 MOE Stormwater Management Planning and Design Manual)

where:

t = Drawdown time (seconds)
C2 = Slope coefficient from the area-depth linear regression
C3 = Intercept fronm the area-depth linear regression
Ao = Cross-sectional area of the orifice (m2)
h = Maximium water Elevation above the orifice