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**Hunt Brothers Pizza / Seedtime &  
Harvest**  
**2018 New Facility**

***Watershed A***  
***Proposed Conditions***

John W. Hunt, PE, PLS

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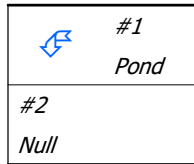
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	10 yr - 1 hr
Rainfall Depth:	2.000 inches

### Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Watershed A-1
Null	#2	==>	End	0.000	0.000	Watershed A-2



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			8.95	0.30
	Out	9.710	9.710	0.40	0.30
#2		15.420	25.130	3.92	0.47

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### *Watershed A-1*

Pond Inputs:

Initial Pool Elev:	876.01 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	29.00	1.72	0.0120	876.01	0.50	0.00

#### Drop Inlet

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
18.00	4.24	15.00	29.00	1.72	0.0120	880.25

Pond Results:

Peak Elevation:	878.13 ft
Dewater Time:	0.51 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
876.00	0.000	0.000	0.000	
876.01	0.000	0.000	0.000	Spillway #1
876.25	0.009	0.001	0.088	0.35
876.50	0.032	0.006	0.135	0.55
876.75	0.068	0.018	0.176	0.95
877.00	0.117	0.041	0.217	1.40
877.25	0.153	0.075	0.257	1.70
877.50	0.194	0.118	0.298	1.90
877.75	0.240	0.172	0.339	2.10
878.00	0.291	0.238	0.380	2.20
878.13	0.296	0.277	0.401	1.20 Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
878.25	0.314	0.314	0.420	
878.50	0.338	0.395	0.461	
878.75	0.362	0.483	0.502	
879.00	0.388	0.577	0.543	
879.25	0.400	0.675	0.583	
879.50	0.413	0.777	0.609	
879.51	0.414	0.781	0.609	
879.75	0.426	0.882	0.624	
880.00	0.439	0.990	0.639	
880.25	0.450	1.101	0.653	Spillway #2
880.50	0.462	1.215	2.494	
880.75	0.473	1.332	5.848	
881.00	0.485	1.452	8.067	
881.25	0.498	1.575	9.222	
881.50	0.512	1.701	10.241	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
876.00	0.000	0.000	0.000
876.01	0.000	0.000	0.000
876.25	(3)>0.088	0.000	0.088
876.50	(3)>0.135	0.000	0.135
876.75	(3)>0.176	0.000	0.176
877.00	(4)>0.217	0.000	0.217
877.25	(4)>0.257	0.000	0.257
877.50	(4)>0.298	0.000	0.298
877.75	(4)>0.339	0.000	0.339
878.00	(5)>0.380	0.000	0.380
878.25	(5)>0.420	0.000	0.420
878.50	(5)>0.461	0.000	0.461
878.75	(5)>0.502	0.000	0.502
879.00	(6)>0.543	0.000	0.543
879.25	(6)>0.583	0.000	0.583
879.50	(6)>0.609	0.000	0.609
879.51	(6)>0.609	0.000	0.609
879.75	(6)>0.624	0.000	0.624
880.00	(6)>0.639	0.000	0.639
880.25	(6)>0.653	0.000	0.653

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
880.50	(6)>0.668	1.826	2.494
880.75	(6)>0.683	5.165	5.848
881.00	(6)>0.698	7.369	8.067
881.25	(6)>0.713	8.509	9.222
881.50	(6)>0.728	9.513	10.241

Structure #2 (Null)

Watershed A-2

### ***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.750	0.090	0.000	0.000	98.000	M	2.51	0.109
	2	1.140	0.090	0.000	0.000	74.000	M	1.41	0.032
	3	6.970	0.090	0.000	0.000	61.000	M	2.19	0.039
	4	0.850	0.090	0.000	0.000	98.000	M	2.84	0.123
	<b>Σ</b>	<b>9.710</b>						<b>8.95</b>	<b>0.303</b>
#2	1	0.459	0.162	0.000	0.000	98.000	M	1.12	0.055
	2	2.091	0.162	0.000	0.000	74.000	M	1.27	0.049
	3	12.870	0.162	0.000	0.000	61.000	M	1.33	0.064
	<b>Σ</b>	<b>25.130</b>						<b>3.92</b>	<b>0.472</b>



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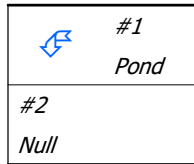
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.000 inches

### Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Watershed A-1
Null	#2	==>	End	0.000	0.000	Watershed A-2



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			19.97	1.65
	Out	9.710	9.710	0.64	1.65
#2		15.420	25.130	17.86	3.32

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### *Watershed A-1*

Pond Inputs:

Initial Pool Elev:	876.01 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	29.00	1.72	0.0120	876.01	0.50	0.00

#### Drop Inlet

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
18.00	4.24	15.00	29.00	1.72	0.0120	880.25

Pond Results:

Peak Elevation:	880.05 ft
Dewater Time:	1.37 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
876.00	0.000	0.000	0.000	
876.01	0.000	0.000	0.000	Spillway #1
876.25	0.009	0.001	0.088	0.13*
876.50	0.032	0.006	0.135	0.44*
876.75	0.068	0.018	0.176	0.95
877.00	0.117	0.041	0.217	1.45
877.25	0.153	0.075	0.257	1.70
877.50	0.194	0.118	0.298	1.90
877.75	0.240	0.172	0.339	2.05
878.00	0.291	0.238	0.380	2.25
878.25	0.314	0.314	0.420	2.30

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
878.50	0.338	0.395	0.461	2.20
878.75	0.362	0.483	0.502	2.20
879.00	0.388	0.577	0.543	2.20
879.25	0.400	0.675	0.583	2.10
879.50	0.413	0.777	0.609	2.05
879.51	0.414	0.781	0.609	0.10
879.75	0.426	0.882	0.624	2.00
880.00	0.439	0.990	0.639	4.80
880.05	0.440	1.012	0.641	2.15 Peak Stage
880.25	0.450	1.101	0.653	Spillway #2
880.50	0.462	1.215	2.494	
880.75	0.473	1.332	5.848	
881.00	0.485	1.452	8.067	
881.25	0.498	1.575	9.222	
881.50	0.512	1.701	10.241	

*\*Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
876.00	0.000	0.000	0.000
876.01	0.000	0.000	0.000
876.25	(3)>0.088	0.000	0.088
876.50	(3)>0.135	0.000	0.135
876.75	(3)>0.176	0.000	0.176
877.00	(4)>0.217	0.000	0.217
877.25	(4)>0.257	0.000	0.257
877.50	(4)>0.298	0.000	0.298
877.75	(4)>0.339	0.000	0.339
878.00	(5)>0.380	0.000	0.380
878.25	(5)>0.420	0.000	0.420
878.50	(5)>0.461	0.000	0.461
878.75	(5)>0.502	0.000	0.502
879.00	(6)>0.543	0.000	0.543
879.25	(6)>0.583	0.000	0.583
879.50	(6)>0.609	0.000	0.609
879.51	(6)>0.609	0.000	0.609
879.75	(6)>0.624	0.000	0.624
880.00	(6)>0.639	0.000	0.639

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
880.25	(6)>0.653	0.000	0.653
880.50	(6)>0.668	1.826	2.494
880.75	(6)>0.683	5.165	5.848
881.00	(6)>0.698	7.369	8.067
881.25	(6)>0.713	8.509	9.222
881.50	(6)>0.728	9.513	10.241

Structure #2 (Null)

*Watershed A-2*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.750	0.090	0.000	0.000	98.000	M	2.86	0.297
	2	1.140	0.090	0.000	0.000	74.000	M	2.88	0.224
	3	6.970	0.090	0.000	0.000	61.000	M	10.99	0.794
	4	0.850	0.090	0.000	0.000	98.000	M	3.24	0.337
	<b>Σ</b>	<b>9.710</b>						<b>19.97</b>	<b>1.652</b>
#2	1	0.459	0.162	0.000	0.000	98.000	M	1.33	0.147
	2	2.091	0.162	0.000	0.000	74.000	M	3.56	0.335
	3	12.870	0.162	0.000	0.000	61.000	M	12.42	1.193
	<b>Σ</b>	<b>25.130</b>						<b>17.86</b>	<b>3.322</b>



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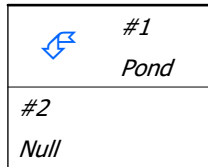
***General Information***

***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	100 yr - 1 hr
Rainfall Depth:	2.800 inches

***Structure Networking:***

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Watershed A-1
Null	#2	==>	End	0.000	0.000	Watershed A-2



***Structure Summary:***

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1 In	9.710	9.710	18.38	0.57
Out			0.53	0.57
#2	15.420	25.130	11.06	1.02

### ***Structure Detail:***

**Structure #1 (Pond)**

***Watershed A-1***

**Pond Inputs:**

Initial Pool Elev:	876.01 ft
Initial Pool:	0.00 ac-ft

**Straight Pipe**

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	29.00	1.72	0.0120	876.01	0.50	0.00

**Drop Inlet**

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
18.00	4.24	15.00	29.00	1.72	0.0120	880.25

**Pond Results:**

Peak Elevation:	878.89 ft
Dewater Time:	0.80 days

*Dewatering time is calculated from peak stage to lowest spillway*

**Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
876.00	0.000	0.000	0.000	
876.01	0.000	0.000	0.000	Spillway #1
876.25	0.009	0.001	0.088	0.35
876.50	0.032	0.006	0.135	0.55
876.75	0.068	0.018	0.176	0.95
877.00	0.117	0.041	0.217	1.40
877.25	0.153	0.075	0.257	1.75
877.50	0.194	0.118	0.298	1.85
877.75	0.240	0.172	0.339	2.10

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
878.00	0.291	0.238	0.380	2.20
878.25	0.314	0.314	0.420	2.30
878.50	0.338	0.395	0.461	2.25
878.75	0.362	0.483	0.502	2.20
878.89	0.377	0.537	0.525	1.25 Peak Stage
879.00	0.388	0.577	0.543	
879.25	0.400	0.675	0.583	
879.50	0.413	0.777	0.609	
879.51	0.414	0.781	0.609	
879.75	0.426	0.882	0.624	
880.00	0.439	0.990	0.639	
880.25	0.450	1.101	0.653	Spillway #2
880.50	0.462	1.215	2.494	
880.75	0.473	1.332	5.848	
881.00	0.485	1.452	8.067	
881.25	0.498	1.575	9.222	
881.50	0.512	1.701	10.241	

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
876.00	0.000	0.000	0.000
876.01	0.000	0.000	0.000
876.25	(3)>0.088	0.000	0.088
876.50	(3)>0.135	0.000	0.135
876.75	(3)>0.176	0.000	0.176
877.00	(4)>0.217	0.000	0.217
877.25	(4)>0.257	0.000	0.257
877.50	(4)>0.298	0.000	0.298
877.75	(4)>0.339	0.000	0.339
878.00	(5)>0.380	0.000	0.380
878.25	(5)>0.420	0.000	0.420
878.50	(5)>0.461	0.000	0.461
878.75	(5)>0.502	0.000	0.502
879.00	(6)>0.543	0.000	0.543
879.25	(6)>0.583	0.000	0.583
879.50	(6)>0.609	0.000	0.609
879.51	(6)>0.609	0.000	0.609

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
879.75	(6)>0.624	0.000	0.624
880.00	(6)>0.639	0.000	0.639
880.25	(6)>0.653	0.000	0.653
880.50	(6)>0.668	1.826	2.494
880.75	(6)>0.683	5.165	5.848
881.00	(6)>0.698	7.369	8.067
881.25	(6)>0.713	8.509	9.222
881.50	(6)>0.728	9.513	10.241

Structure #2 (Null)

*Watershed A-2*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.750	0.090	0.000	0.000	98.000	M	3.53	0.158
	2	1.140	0.090	0.000	0.000	74.000	M	2.79	0.072
	3	6.970	0.090	0.000	0.000	61.000	M	8.05	0.161
	4	0.850	0.090	0.000	0.000	98.000	M	4.01	0.179
	<b>Σ</b>	<b>9.710</b>						<b>18.38</b>	<b>0.569</b>
#2	1	0.459	0.162	0.000	0.000	98.000	M	1.59	0.080
	2	2.091	0.162	0.000	0.000	74.000	M	2.80	0.111
	3	12.870	0.162	0.000	0.000	61.000	M	6.52	0.255
	<b>Σ</b>	<b>25.130</b>						<b>11.06</b>	<b>1.015</b>



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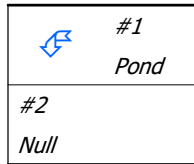
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	6.000 inches

### ***Structure Networking:***

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Watershed A-1
Null	#2	==>	End	0.000	0.000	Watershed A-2



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			26.91	2.23
	Out	9.710	9.710	2.23	2.18
#2		15.420	25.130	25.48	4.56

## ***Structure Detail:***

### ***Structure #1 (Pond)***

#### *Watershed A-1*

Pond Inputs:

Initial Pool Elev:	876.01 ft
Initial Pool:	0.00 ac-ft

#### Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
4.00	29.00	1.72	0.0120	876.01	0.50	0.00

#### Drop Inlet

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
18.00	4.24	15.00	29.00	1.72	0.0120	880.25

Pond Results:

Peak Elevation:	880.46 ft
Dewater Time:	1.66 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
876.00	0.000	0.000	0.000	
876.01	0.000	0.000	0.000	Spillway #1
876.25	0.009	0.001	0.088	0.13*
876.50	0.032	0.006	0.135	0.44*
876.75	0.068	0.018	0.176	0.84*
877.00	0.117	0.041	0.217	1.27*
877.25	0.153	0.075	0.257	1.58*
877.50	0.194	0.118	0.298	1.90
877.75	0.240	0.172	0.339	2.05
878.00	0.291	0.238	0.380	2.25
878.25	0.314	0.314	0.420	2.25

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
878.50	0.338	0.395	0.461	2.25	
878.75	0.362	0.483	0.502	2.20	
879.00	0.388	0.577	0.543	2.20	
879.25	0.400	0.675	0.583	2.10	
879.50	0.413	0.777	0.609	2.05	
879.51	0.414	0.781	0.609	0.10	
879.75	0.426	0.882	0.624	2.00	
880.00	0.439	0.990	0.639	2.05	
880.25	0.450	1.101	0.653	5.60	Spillway #2
880.46	0.460	1.199	2.235	6.55	Peak Stage
880.50	0.462	1.215	2.494		
880.75	0.473	1.332	5.848		
881.00	0.485	1.452	8.067		
881.25	0.498	1.575	9.222		
881.50	0.512	1.701	10.241		

*\*Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
876.00	0.000	0.000	0.000
876.01	0.000	0.000	0.000
876.25	(3)>0.088	0.000	0.088
876.50	(3)>0.135	0.000	0.135
876.75	(3)>0.176	0.000	0.176
877.00	(4)>0.217	0.000	0.217
877.25	(4)>0.257	0.000	0.257
877.50	(4)>0.298	0.000	0.298
877.75	(4)>0.339	0.000	0.339
878.00	(5)>0.380	0.000	0.380
878.25	(5)>0.420	0.000	0.420
878.50	(5)>0.461	0.000	0.461
878.75	(5)>0.502	0.000	0.502
879.00	(6)>0.543	0.000	0.543
879.25	(6)>0.583	0.000	0.583
879.50	(6)>0.609	0.000	0.609
879.51	(6)>0.609	0.000	0.609
879.75	(6)>0.624	0.000	0.624
880.00	(6)>0.639	0.000	0.639

Elevation (ft)	Straight Pipe (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
880.25	(6)>0.653	0.000	0.653
880.50	(6)>0.668	1.826	2.494
880.75	(6)>0.683	5.165	5.848
881.00	(6)>0.698	7.369	8.067
881.25	(6)>0.713	8.509	9.222
881.50	(6)>0.728	9.513	10.241

Structure #2 (Null)

*Watershed A-2*

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.750	0.090	0.000	0.000	98.000	M	3.44	0.360
	2	1.140	0.090	0.000	0.000	74.000	M	3.79	0.302
	3	6.970	0.090	0.000	0.000	61.000	M	15.79	1.163
	4	0.850	0.090	0.000	0.000	98.000	M	3.90	0.408
	<b>Σ</b>	<b>9.710</b>						<b>26.91</b>	<b>2.233</b>
#2	1	0.459	0.162	0.000	0.000	98.000	M	1.60	0.179
	2	2.091	0.162	0.000	0.000	74.000	M	4.76	0.451
	3	12.870	0.162	0.000	0.000	61.000	M	18.53	1.748
	<b>Σ</b>	<b>25.130</b>						<b>25.48</b>	<b>4.562</b>