Root Zone Water Balance Working Model

Project Name: Hollister - Airport Reuse Site
Project Number: 344738

Designer: Smesrud, Modified by Isbell
Crop: Turf - warm season grasses

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	Days/Month	31	28	31	30	31	30	31	31	30	31	30	31	365
Water Supply														
Average Precipitation	[in]	2.74	2.79	2.12	0.88	0.34	0.06	0.04	0.05	0.31	0.65	1.65	2.06	13.69
% Effective Precipitation	[%]	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Surface Runoff	[in]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Effective Rainfall	[in]	2.74	2.79	2.12	0.88	0.34	0.06	0.04	0.05	0.31	0.65	1.65	2.06	13.69
Available Water	[in]	0.00	0.00	1.00	3.74	5.85	6.86	7.27	6.64	4.82	3.01	0.00	0.00	39.21
	[MG]	0.0	0.0	2.5	9.2	14.3	16.8	17.8	16.2	11.8	7.4	0.0	0.0	95.8
	[mgd]	0.0	0.0	0.1	0.3	0.5	0.6	0.6	0.5	0.4	0.2	0.0	0.0	
	[ac-ft]	0.0	0.0	7.5	28.1	43.9	51.5	54.5	49.8	36.1	22.6	0.0	0.0	294.1
Available Water Flow to Irrigation/Storage?	(Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Irrigation Requirements and Management														
Potential Crop Evapotranspiration	[in]	1.22	1.58	2.92	3.88	5.02	5.55	5.86	5.36	4.17	3.06	1.58	1.16	41.36
Actual Crop Evapotranspiration	[in]	1.22	1.58	2.92	3.88	5.02	5.55	5.86	5.34	3.98	2.90	1.53	1.16	40.94
Net Irrigation Requirement	[in]	0.00	0.00	0.80	3.00	4.68	5.49	5.82	5.31	3.86	2.41	0.00	0.00	31.37
Gross Irrigation Requirement	[in]	0.00	0.00	1.01	3.75	5.85	6.86	7.27	6.64	4.82	3.01	0.00	0.00	39.21
	[MG]	0.0	0.0	2.5	9.2	14.3	16.8	17.8	16.2	11.8	7.4	0.0	0.0	95.8
	[ac-ft]	0.0	0.0	7.5	28.1	43.9	51.5	54.5	49.8	36.1	22.6	0.0	0.0	294.1
Total Irrigation Applied	[in]	0.00	0.00	1.01	3.75	5.85	6.86	7.27	6.64	4.82	3.01	0.00	0.00	39.21
	[MG]	0.0	0.0	2.5	9.2	14.3	16.8	17.8	16.2	11.8	7.4	0.0	0.0	95.8
	[ac-ft]	0.0	0.0	7.5	28.1	43.9	51.5	54.5	49.8	36.1	22.6	0.0	0.0	294.1
Irrigation Losses	[in]	0.00	0.00	0.20	0.75	1.17	1.37	1.45	1.33	0.96	0.60	0.00	0.00	7.84
Soil Profile Water Balance														
Beginning Soil Moisture	[in]	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	
Ending Soil Moisture	[in]	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	
Deep Percolation	[in]	1.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.9	4.1
Soil Profile Salt Balance														
Beginning Soil Salinity, ECe	[dS/m]	3.3	0.7	0.2	0.4	1.3	2.7	4.3	6.0	7.5	7.8	7.7	7.1	
Ending Soil Salinity, ECe	[dS/m]	0.7	0.2	0.4	1.3	2.7	4.3	6.0	7.5	7.8	7.7	7.1	3.3	

Irrigated Land = 90.0 acres

Soil Water Storage at Field Capacity =	3.60	inches
Soil Water Storage at Permanent Wilting Point =	0.90	inches
Available Water Holding Capacity =	2.70	inches
Soil Water Storage at Minimum Management Allowed Soil Moisture =	2.52	inches

General Design Parameters

Crop Parameters			**Notes:**
Depletion Fraction	[-]	0.40	*Depletion Fraction - Average fraction of total available soil water that can be depleted from the root zone before moisture stress resulting in ET reduction occurs. Yield Response Factor - A slope factor describing the reduction in relative yield according to the reduction in ETc caused by soil water shortage. Salinity Induced Yield Reduction - A slope factor describing the reduction in relative yield according to an incremental increase in ECe for values above the threshold ECe. Threshold ECe - Electrical conductivity of the saturation extract at the threshold of ECe when crop yield first reduces below the maximum yield potential. See " Ref-Yield Response Factors" for typical values of this parameter. See "Ref-Crop Water Parameters" for typical values of the depletion fraction and maximum rooting depth. See "Ref-Crop Salt Tolerance for typical values of the salinity induced yield reduction factor and the threshold ECe.*
Rooting Depth	[ft]	1.5	
Yield Response Factor	[-]	1.00	
Salinity Induced Yield Reduction	[%/(dS/m)]	6.0	
Threshold ECe	[dS/m]	6.9	
Soil Parameters			
Field Capacity	[in/in]	0.20	*Field Capacity - Defined as the water held at a tension of 0.33 Bar. Permanent Wilting Point - Defined as the water held at a tension of 15 Bar. All water content measurements expressed in inches of water per inch of rooting depth. See " Ref-Soil Properties" for typical values of field capacity and permanent wilting point for USDA soil textures.*
Permanent Wilting Point	[in/in]	0.05	
Irrigation System Parameters			
Combined Irrigation Application Efficiency	[-]	0.80	*Combined Irrigation Application Efficiency* - (average depth of water infiltrated and retained in the root zone following irrigation) / (average depth of water applied). *See "Calc-Irrig Applic Efficiency" for guidelines on estimating.*

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