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June 1, 2026

El Paso County Planning and Community Development Department
2880 International Circle
Colorado Springs, CO 80910

**SUBJECT: Settlers Ranch Filing No. 3 (SF-249)
Detention Basin Certification Letter**

Ladies and Gentlemen:

Drainage improvements for this project include one on-site private Detention Basin (Detention Pond #5). Based upon information gathered from periodic site visits to the project, JPS Engineering, Inc. is of the opinion that the Detention Basin has been constructed in general compliance with the approved design plans as filed with El Paso County. The As-Built drawings accurately depict the final installation of the Detention Basin improvements and verify the detention volume provided.

The site and adjacent properties (as affected by work performed under the County permit) appear to be stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and the improvements (public improvements, common development improvements, site grading and paving) meet or exceed the minimum design requirements.

Sincerely,
JPS Engineering, Inc.

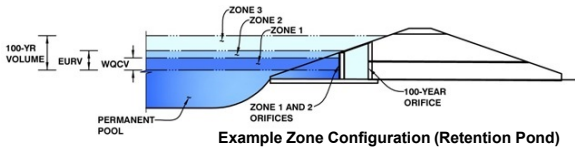
John P. Schwab, P.E.
Colorado P.E. No. 29891



DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: Settlers Ranch Filing No. 3
Basin ID: Detention Pond #5 - As-Built



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.69	0.114	Orifice Plate
Zone 2 (EURV)	2.28	0.083	Orifice Plate
Zone 3 (100-year)	4.78	0.533	Weir&Pipe (Restrict)
Total (all zones)		0.730	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft ²
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft ²
Depth at top of Zone using Orifice Plate =	2.28	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	0.73	1.41					
Orifice Area (sq. inches)	0.79	0.79	0.79					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected			Calculated Parameters for Vertical Orifice
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	Not Selected
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A
Vertical Orifice Diameter =	N/A	N/A	inches		N/A

User Input: Overflow Weir (Dropbox with Flat or Sloped Gate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected			Calculated Parameters for Overflow Weir
Overflow Weir Front Edge Height, Ho =	2.08	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Gate Upper Edge, H _g =	2.08
Overflow Weir Front Edge Length =	4.00	N/A	feet	Overflow Weir Slope Length =	4.00
Overflow Weir Gate Slope =	0.00	N/A	H:V	Gate Open Area / 100-yr Orifice Area =	5.19
Horiz. Length of Weir Sides =	4.00	N/A	feet	Overflow Gate Open Area w/o Debris =	11.14
Overflow Gate Type =	Type C Grate	N/A		Overflow Gate Open Area w/ Debris =	5.57
Debris Clogging % =	50%	N/A	%		N/A

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected			Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate
Depth to Invert of Outlet Pipe =	0.46	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	2.15
Outlet Pipe Diameter =	24.00	N/A	inches	Outlet Orifice Centroid =	0.73
Restrictor Plate Height Above Pipe Invert =	15.50	N/A	inches	Half-Central Angle of Restrictor Plate on Pipe =	1.87

User Input: Emergency Spillway (Rectangular or Trapezoidal)

					Calculated Parameters for Spillway
Spillway Invert Stage =	5.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth =	0.80	feet
Spillway Crest Length =	8.00	feet	Stage at Top of Freeboard =	6.80	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	0.34	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	1.35	acre-ft

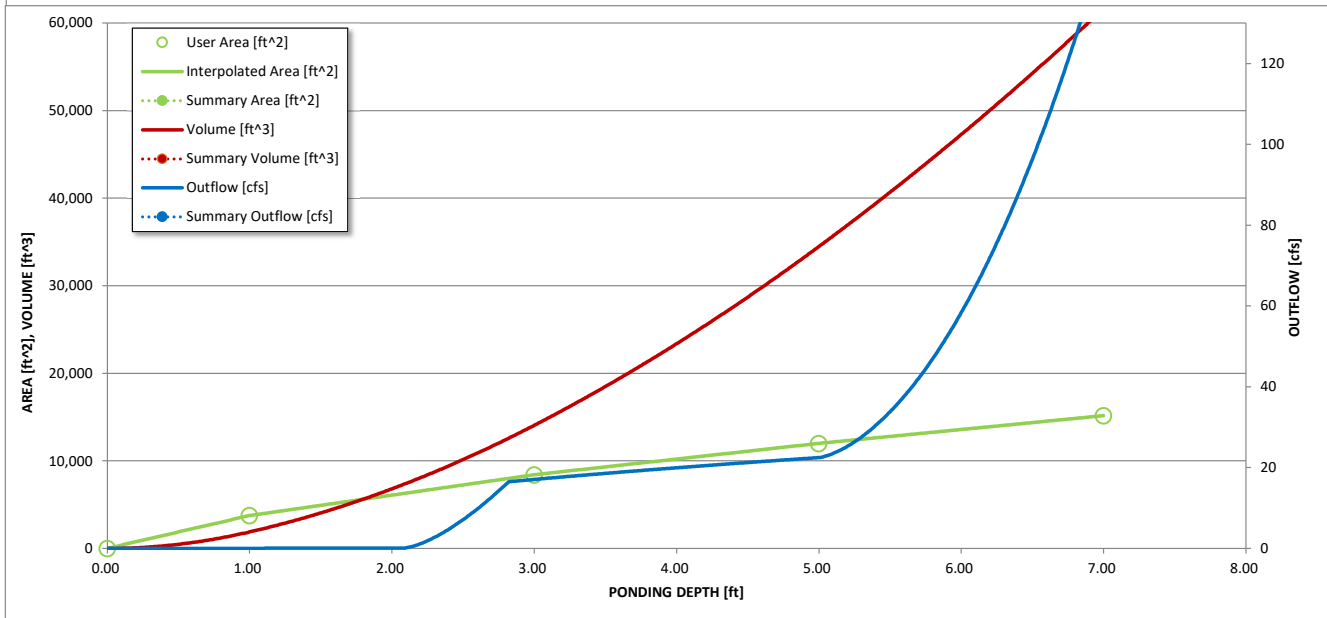
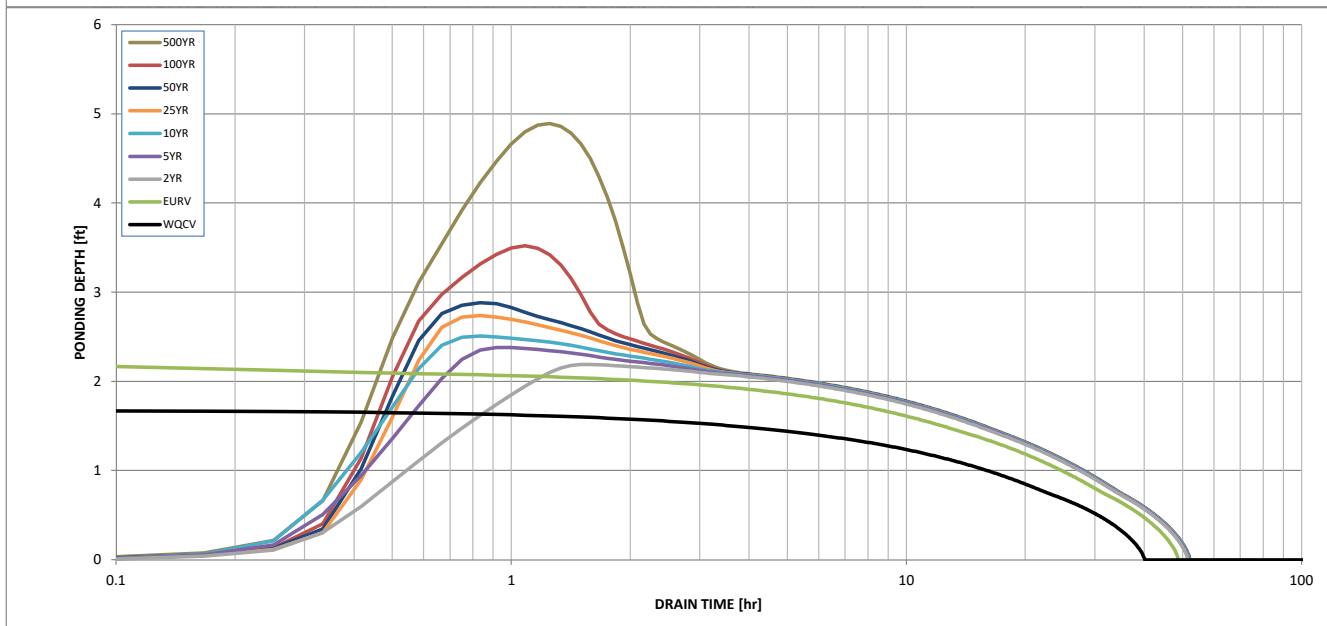
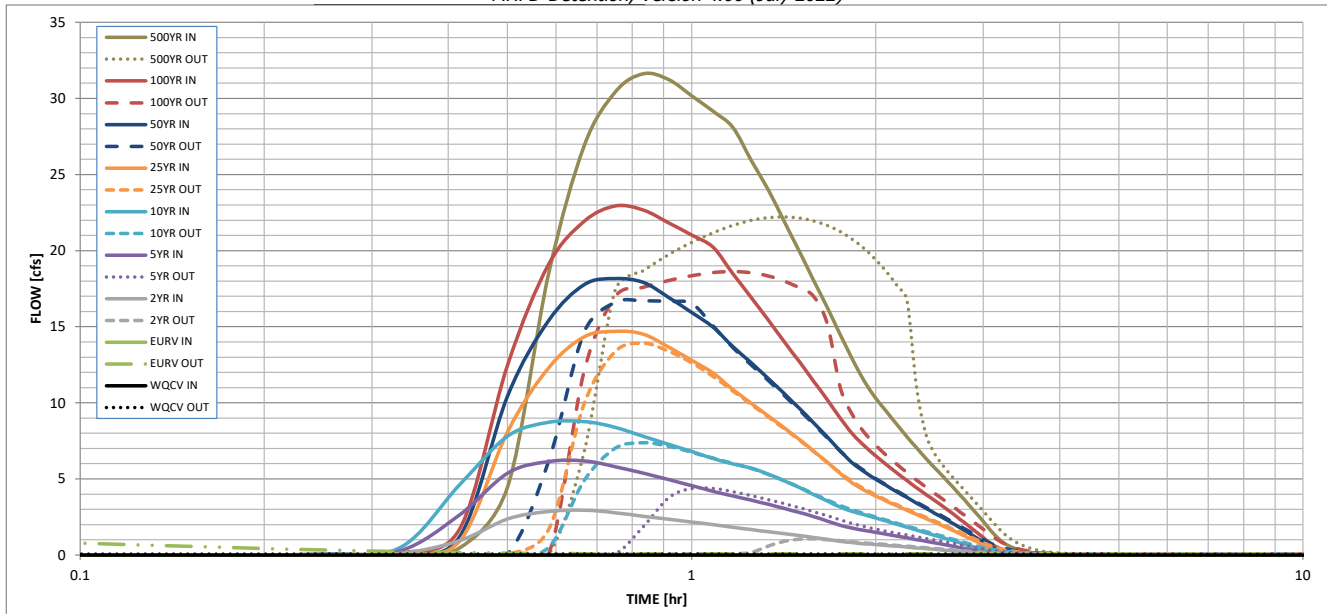
Routed Hydrograph Results

The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.14
One-Hour Rainfall Depth (in) =	N/A	N/A	0.268	0.576	0.882	1.422	1.793	2.324	3.295
CUHP Runoff Volume (acre-ft) =	0.114	0.197	0.268	0.576	0.882	1.422	1.793	2.324	3.295
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.268	0.576	0.882	1.422	1.793	2.324	3.295
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	1.7	4.9	7.4	13.3	16.8	21.4	30.0
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.09	0.26	0.39	0.71	0.89	1.13	1.59
Peak Inflow Q (cfs) =	N/A	N/A	3.0	6.2	8.8	14.7	18.2	23.0	31.6
Peak Outflow Q (cfs) =	0.1	1.7	1.1	4.4	7.4	13.9	16.7	18.6	22.2
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.9	1.0	1.0	1.0	0.9	0.7
Structure Controlling Flow =	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Gate 1 (fps) =	N/A	0.21	0.08	0.4	0.7	1.2	1.5	1.7	2.0
Max Velocity through Gate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	36	43	44	38	34	28	25	21	15
Time to Drain 99% of Inflow Volume (hours) =	38	46	48	46	44	40	38	35	32
Maximum Ponding Depth (ft) =	1.68	2.28	2.19	2.38	2.51	2.74	2.88	3.52	4.89
Area at Maximum Ponding Depth (acres) =	0.12	0.15	0.15	0.16	0.17	0.18	0.19	0.21	0.27
Maximum Volume Stored (acre-ft) =	0.114	0.198	0.184	0.213	0.235	0.273	0.300	0.429	0.761

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename: _____

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

Time Interval	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	0:15:00	0.00	0.00	0.03	0.05	0.06	0.04	0.05	0.05	0.07
	0:20:00	0.00	0.00	0.11	0.29	0.49	0.11	0.14	0.16	0.47
	0:25:00	0.00	0.00	0.96	2.64	4.62	0.91	1.19	1.70	4.51
	0:30:00	0.00	0.00	2.37	5.38	7.82	8.13	10.47	12.51	18.51
	0:35:00	0.00	0.00	2.87	6.15	8.73	12.31	15.41	19.12	26.89
	0:40:00	0.00	0.00	2.96	6.19	8.78	14.35	17.77	21.93	30.43
	0:45:00	0.00	0.00	2.79	5.81	8.40	14.71	18.18	22.95	31.64
	0:50:00	0.00	0.00	2.56	5.38	7.80	14.52	17.92	22.67	31.25
	0:55:00	0.00	0.00	2.35	4.96	7.29	13.66	16.93	21.83	30.19
	1:00:00	0.00	0.00	2.18	4.58	6.81	12.80	15.95	21.04	29.16
	1:05:00	0.00	0.00	2.01	4.20	6.35	11.97	14.99	20.24	28.12
	1:10:00	0.00	0.00	1.83	3.89	6.00	10.89	13.71	18.52	25.96
	1:15:00	0.00	0.00	1.68	3.61	5.73	10.00	12.66	16.95	24.01
	1:20:00	0.00	0.00	1.55	3.34	5.33	9.16	11.61	15.45	21.94
	1:25:00	0.00	0.00	1.41	3.07	4.89	8.37	10.62	14.03	19.93
	1:30:00	0.00	0.00	1.28	2.80	4.43	7.59	9.64	12.70	18.05
	1:35:00	0.00	0.00	1.16	2.53	3.99	6.84	8.69	11.43	16.25
	1:40:00	0.00	0.00	1.03	2.24	3.55	6.10	7.76	10.20	14.50
	1:45:00	0.00	0.00	0.91	1.97	3.16	5.37	6.85	9.01	12.84
	1:50:00	0.00	0.00	0.82	1.77	2.87	4.72	6.04	7.95	11.40
	1:55:00	0.00	0.00	0.75	1.62	2.65	4.26	5.46	7.17	10.32
	2:00:00	0.00	0.00	0.70	1.50	2.44	3.88	5.00	6.53	9.42
	2:05:00	0.00	0.00	0.64	1.38	2.23	3.55	4.56	5.94	8.56
	2:10:00	0.00	0.00	0.58	1.25	2.03	3.23	4.15	5.40	7.77
	2:15:00	0.00	0.00	0.53	1.14	1.83	2.95	3.78	4.89	7.04
	2:20:00	0.00	0.00	0.48	1.02	1.65	2.67	3.42	4.42	6.36
	2:25:00	0.00	0.00	0.43	0.91	1.47	2.40	3.08	3.99	5.72
	2:30:00	0.00	0.00	0.38	0.80	1.29	2.15	2.75	3.57	5.11
	2:35:00	0.00	0.00	0.33	0.70	1.13	1.90	2.43	3.16	4.52
	2:40:00	0.00	0.00	0.28	0.59	0.97	1.64	2.11	2.76	3.94
	2:45:00	0.00	0.00	0.23	0.49	0.81	1.40	1.79	2.35	3.36
	2:50:00	0.00	0.00	0.19	0.39	0.65	1.15	1.48	1.94	2.78
	2:55:00	0.00	0.00	0.14	0.29	0.49	0.90	1.17	1.54	2.20
	3:00:00	0.00	0.00	0.09	0.19	0.35	0.66	0.86	1.14	1.63
	3:05:00	0.00	0.00	0.06	0.12	0.24	0.42	0.56	0.76	1.11
	3:10:00	0.00	0.00	0.04	0.08	0.18	0.27	0.37	0.50	0.77
	3:15:00	0.00	0.00	0.03	0.07	0.14	0.17	0.25	0.34	0.54
	3:20:00	0.00	0.00	0.02	0.05	0.12	0.12	0.17	0.23	0.38
	3:25:00	0.00	0.00	0.02	0.04	0.09	0.08	0.12	0.15	0.26
	3:30:00	0.00	0.00	0.01	0.03	0.07	0.05	0.09	0.10	0.17
	3:35:00	0.00	0.00	0.01	0.03	0.06	0.04	0.06	0.06	0.11
	3:40:00	0.00	0.00	0.01	0.02	0.04	0.03	0.04	0.03	0.07
	3:45:00	0.00	0.00	0.01	0.01	0.03	0.02	0.03	0.02	0.05
	3:50:00	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.02	0.04
	3:55:00	0.00	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.03
	4:00:00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02
	4:05:00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02
	4:10:00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	