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July 27, 2026

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

**SUBJECT: New Breed Ranch Filing Three (SF247)
Engineer's Certification Letter – Permanent Control Measures**

Ladies and Gentlemen:

Drainage Permanent Control Measures (PCM's) for this project include one private Rain Garden (RG-I-9.1). The PCM(s) provide the required storage volume and meet the required release rates, storage areas, elevations, and outlet dimensions, as documented by the attached revised MHFD-Detention spreadsheet that shows the as-built conditions. The As-Built drawings accurately depict the installation of the PCM improvements and verify that adequate detention volume has been provided.

Based upon information gathered from periodic site visits to the project, JPS Engineering, Inc. is of the opinion that the Permanent Control Measures have been constructed in general compliance with the approved design plans as filed with El Paso County.

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.

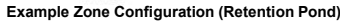
Sincerely,
JPS Engineering, Inc.

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



MHFD-Detention, Version 4.06 (July 2022)

Basin ID: Rain Garden I-9.1 - As-Built

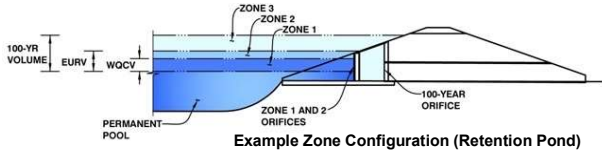


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DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **New Breed Ranch Filing Three**
Basin ID: **Rain Garden I-9.1 - As-Built**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.92	0.045	Filtration Media
Zone 2 (User)	0.92	0.000	Weir&Pipe (Restrict)
Zone 3			
Total (all zones)		0.045	

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

Underdrain Orifice Invert Depth =	2.00	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	1.05	inches

Calculated Parameters for Underdrain		
Underdrain Orifice Area =	0.0	ft ²
Underdrain Orifice Centroid =	0.04	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 =	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	N/A	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	sq. inches

on BMP)		Calculated Parameters for Plate
WQ Orifice Area per Row =	N/A	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

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

	Row 1 (optional)	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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	2.00		ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	3.00		ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	18.00		inches

	Not Selected	Not Selected	
Vertical Orifice Area =	1.77		ft ²
Vertical Orifice Centroid =	0.75		feet

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

	Zone 2 Weir	Not Selected	
Overflow Weir Front Edge Height, H _o =	1.00		ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	4.00		feet
Overflow Weir Grate Slope =	0.00		H:V
Horiz. Length of Weir Sides =	2.50		feet
Overflow Grate Type =	Type C Grate		
Debris Clogging % =	50%		%

	Zone 2 Weir	Not Selected	
Height of Grate Upper Edge, H _u =	1.00		feet
Overflow Weir Slope Length =	2.50		feet
Grate Open Area / 100-yr Orifice Area =	23.80		
Overflow Grate Open Area w/o Debris =	6.96		ft ²
Overflow Grate Open Area w/ Debris =	3.48		ft ²

revise per as-built
redlines on plans

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

	Zone 2 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.00		ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	18.00		inches
Restrictor Plate Height Above Pipe Invert =	4.00		inches

	Zone 2 Restrictor	Not Selected	
Outlet Orifice Area =	0.29		ft ²
Outlet Orifice Centroid =	0.20		feet
Half-Central Angle of Restrictor Plate on Pipe =	0.98	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	1.10	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	5.00	feet
Spillway End Slopes =	4.00	H:V
Freeboard above Max Water Surface =	0.00	feet

Calculated Parameters for Spillway		
Spillway Design Flow Depth=	0.86	feet
Stage at Top of Freeboard =	1.96	feet
Basin Area at Top of Freeboard =	0.08	acres
Basin Volume at Top of Freeboard =	0.12	acre-ft

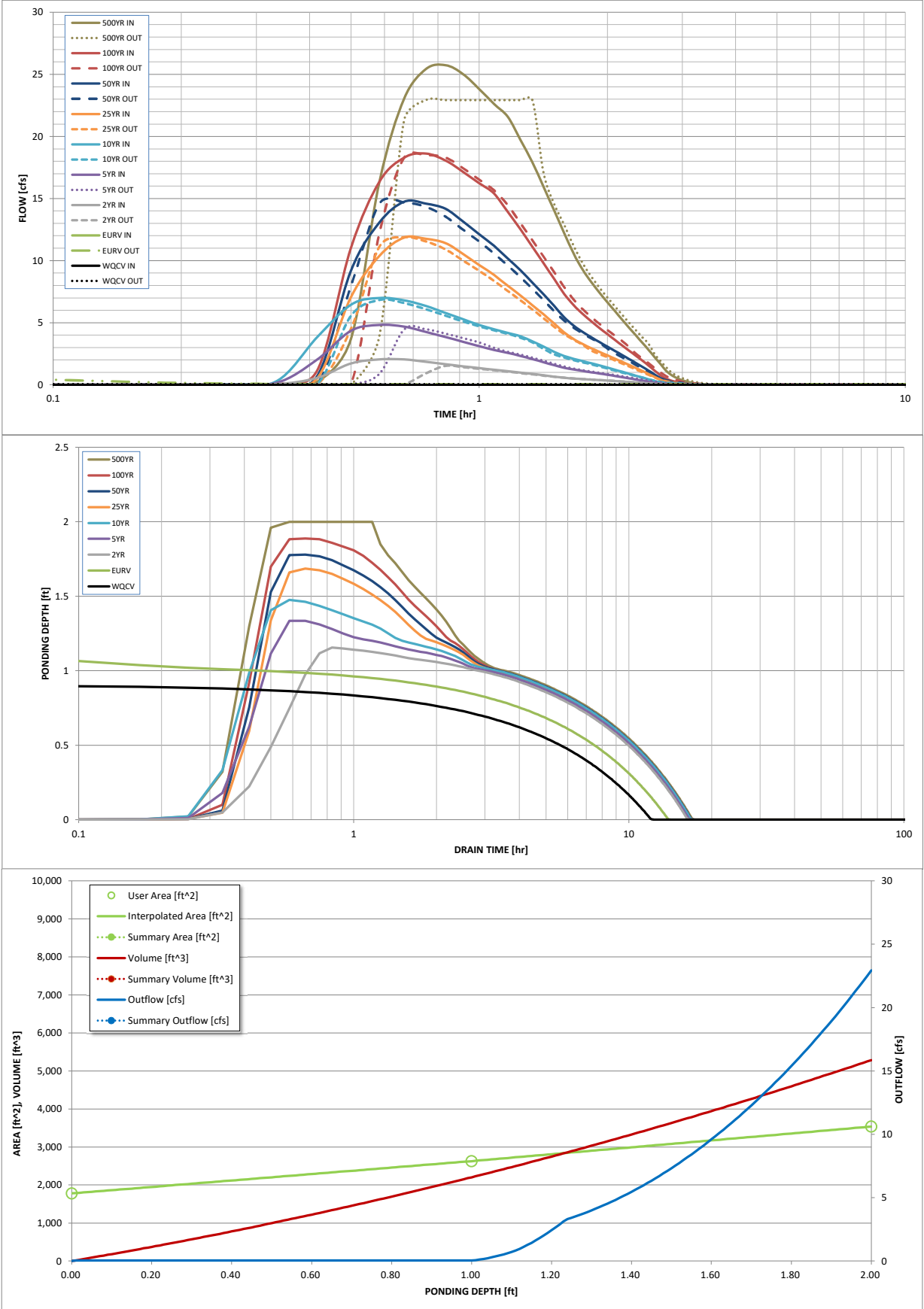
Routed Hydrograph Results

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	0.154	0.369	0.588	0.991	1.260	1.653	2.361
CUHP Runoff Volume (acre-ft) =	N/A	N/A	0.154	0.369	0.588	0.991	1.260	1.653	2.361
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	1.5	4.2	6.3	11.2	14.1	18.0	25.1
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.11	0.30	0.46	0.81	1.01	1.30	1.81
Peak Inflow Q (cfs) =	N/A	N/A	2.0	4.8	7.0	11.9	14.7	18.6	25.7
Peak Outflow Q (cfs) =	0.0	4.7	1.5	4.5	6.8	11.9	14.7	18.5	22.9
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.1	1.1	1.1	1.0	1.0	0.9
Structure Controlling Flow =	Filtration Media	Spillway	Spillway	Spillway	Spillway	Spillway	Spillway	Spillway	N/A
Max Velocity through Grate 1 (fps) =	N/A	0.36	0.17	0.4	0.4	0.4	0.4	0.4	0.4
Max Velocity through Grate 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) =	12	13	15	13	12	9	7	4	2
Time to Drain 99% of Inflow Volume (hours) =	12	14	16	16	15	14	13	12	10
Maximum Ponding Depth (ft) =	0.91	1.58	1.15	1.34	1.48	1.69	1.78	1.89	2.00
Area at Maximum Ponding Depth (acres) =	0.06	0.07	0.06	0.07	0.07	0.07	0.08	0.08	0.08
Maximum Volume Stored (acre-ft) =	0.045	0.089	0.060	0.072	0.081	0.096	0.103	0.112	0.121

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.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	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	0.00
	0:15:00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.03
	0:20:00	0.00	0.00	0.04	0.14	0.26	0.04	0.05	0.06	0.25
	0:25:00	0.00	0.00	0.56	2.03	3.83	0.52	0.69	1.14	3.70
	0:30:00	0.00	0.00	1.72	4.36	6.45	7.07	9.20	11.04	16.36
	0:35:00	0.00	0.00	2.04	4.81	6.98	10.38	13.07	16.35	23.06
	0:40:00	0.00	0.00	2.04	4.69	6.80	11.85	14.75	18.30	25.43
	0:45:00	0.00	0.00	1.85	4.25	6.34	11.75	14.60	18.61	25.74
	0:50:00	0.00	0.00	1.66	3.85	5.78	11.42	14.17	18.06	25.02
	0:55:00	0.00	0.00	1.49	3.46	5.27	10.53	13.15	17.15	23.82
	1:00:00	0.00	0.00	1.34	3.10	4.82	9.64	12.12	16.23	22.62
	1:05:00	0.00	0.00	1.22	2.81	4.47	8.84	11.19	15.41	21.58
	1:10:00	0.00	0.00	1.10	2.57	4.18	7.98	10.16	13.93	19.71
	1:15:00	0.00	0.00	0.98	2.33	3.90	7.19	9.22	12.52	17.92
	1:20:00	0.00	0.00	0.87	2.07	3.51	6.41	8.23	11.11	15.93
	1:25:00	0.00	0.00	0.76	1.82	3.08	5.67	7.28	9.79	14.03
	1:30:00	0.00	0.00	0.66	1.57	2.65	4.93	6.34	8.52	12.22
	1:35:00	0.00	0.00	0.56	1.37	2.32	4.22	5.43	7.32	10.55
	1:40:00	0.00	0.00	0.50	1.23	2.09	3.68	4.76	6.41	9.27
	1:45:00	0.00	0.00	0.46	1.11	1.90	3.28	4.25	5.71	8.28
	1:50:00	0.00	0.00	0.42	1.01	1.73	2.94	3.82	5.11	7.42
	1:55:00	0.00	0.00	0.38	0.91	1.56	2.64	3.43	4.57	6.64
	2:00:00	0.00	0.00	0.34	0.81	1.39	2.37	3.08	4.08	5.93
	2:05:00	0.00	0.00	0.30	0.71	1.22	2.10	2.73	3.61	5.24
	2:10:00	0.00	0.00	0.26	0.61	1.05	1.84	2.40	3.16	4.59
	2:15:00	0.00	0.00	0.22	0.52	0.89	1.60	2.07	2.75	3.98
	2:20:00	0.00	0.00	0.18	0.42	0.73	1.35	1.76	2.34	3.39
	2:25:00	0.00	0.00	0.14	0.33	0.59	1.11	1.45	1.94	2.80
	2:30:00	0.00	0.00	0.11	0.24	0.44	0.87	1.14	1.54	2.23
	2:35:00	0.00	0.00	0.07	0.15	0.30	0.63	0.83	1.14	1.65
	2:40:00	0.00	0.00	0.04	0.09	0.20	0.40	0.53	0.75	1.12
	2:45:00	0.00	0.00	0.02	0.05	0.14	0.24	0.34	0.49	0.76
	2:50:00	0.00	0.00	0.01	0.04	0.11	0.15	0.22	0.32	0.53
	2:55:00	0.00	0.00	0.01	0.03	0.09	0.09	0.15	0.21	0.36
	3:00:00	0.00	0.00	0.01	0.02	0.07	0.06	0.10	0.13	0.24
	3:05:00	0.00	0.00	0.01	0.02	0.05	0.04	0.07	0.08	0.15
	3:10:00	0.00	0.00	0.00	0.01	0.04	0.02	0.04	0.04	0.09
	3:15:00	0.00	0.00	0.00	0.01	0.03	0.01	0.03	0.02	0.05
	3:20:00	0.00	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.03
	3:25:00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02
	3:30:00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02
	3:35:00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	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