



July 30, 2026

Glenn Reese, P.E.  
El Paso County Department of Public Works  
2880 International Circle  
Colorado Springs, CO 80910

**RE: My Garage at Northcrest  
Permanent Control Measure (PCM) and Public Improvements Final Letter  
Kiowa Project Number 23049**

Dear Glenn:

On behalf of Owner of the My Garage at Northcrest development, Kiowa Engineering hereby requests the Permanent Control Measures (PCM) and public improvements, constructed as a part of the My Garage at Northcrest development, be preliminary accepted by the County for the warranty period to begin.

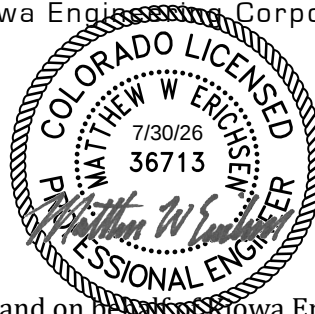
The Permanent Control Measures (PCM) for My Garage at Northcrest consist of a Full Spectrum Detention basin to provide stormwater quality treatment and detention of stormwater runoff from the site. The PCM is located at the southeast corner of the property. Kiowa Engineering Corp has reviewed the as-built survey completed by Land Development Consultants, Inc (dated March 23, 2026) and completed a site visit to review the constructed improvements. The PCM provides the required storage volume and meets the required release rates, as documented by the attached as-built MHFD -Detention design form.

The public improvements for the project include the public sidewalks and curb ramps along Bismark Road, Canada Drive and Constitution Avenue along with two curb cuts along Canada Drive into the site and the 18-inch storm sewer pipe outfall from the outlet structure to the existing curb inlet. Kiowa Engineering has completed a site visit to review the constructed improvements.

Based upon this information, Kiowa Engineering Corporation is of the opinion the improvements associated with the Permanent Control Measures and public improvements have been constructed in substantial conformance with the approved construction plans as filed with the County titled "My Garage @ Northcrest, Commercial Construction Drawings" prepared by Kiowa Engineering Corp, dated August 2, 2024. The site and adjacent properties (as affected by work performed under the County permit) are stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover and that the proposed improvements are in substantial conformance with the design requirements. These statements are based on a final site investigation and a review of the field survey data.

Please feel free to contact me if there are any questions or if I may be of further assistance.

Sincerely,  
Kiowa Engineering Corporation

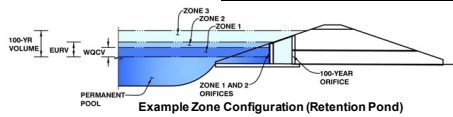


For and on behalf of Kiowa Engineering Corporation  
Matthew W. Erichsen  
Senior Project Manager

Attachment: As-built MHFD-Detention spreadsheet

*MHFD-Detention, Version 4.06 (July 2022)*

**Basin ID: EDB - NW Corner Constitution Blvd & Canada Drive - Pond A - AS-BUILT**



|                                                |            |         |
|------------------------------------------------|------------|---------|
| Selected BMP Type =                            | <b>EDB</b> |         |
| Watershed Area =                               | 3.17       | acres   |
| Watershed Length =                             | 400        | ft      |
| Watershed Length to Centroid =                 | 175        | ft      |
| Watershed Slope =                              | 0.050      | ft/ft   |
| Watershed Imperviousness =                     | 71.70%     | percent |
| Percentage Hydrologic Soil Group A =           | 100.0%     | percent |
| Percentage Hydrologic Soil Group B =           | 0.0%       | percent |
| Percentage Hydrologic Soil Groups C/D =        | 0.0%       | percent |
| Target WQCV Drain Time =                       | 40.0       | hours   |
| Location for 1-hr Rainfall Depths = User Input |            |         |

### Optional User Overrides

|                                           |       |           |
|-------------------------------------------|-------|-----------|
| Water Quality Capture Volume (WQCV) =     | 0.075 | acre-feet |
| Excess Urban Runoff Volume (EURV) =       | 0.290 | acre-feet |
| 2-yr Runoff Volume ( $P1 = 1.19$ in.) =   | 0.188 | acre-feet |
| 5-yr Runoff Volume ( $P1 = 1.5$ in.) =    | 0.245 | acre-feet |
| 10-yr Runoff Volume ( $P1 = 1.75$ in.) =  | 0.291 | acre-feet |
| 25-yr Runoff Volume ( $P1 = 2.1$ in.) =   | 0.347 | acre-feet |
| 50-yr Runoff Volume ( $P1 = 2.25$ in.) =  | 0.403 | acre-feet |
| 100-yr Runoff Volume ( $P1 = 2.52$ in.) = | 0.469 | acre-feet |
| 500-yr Runoff Volume ( $P1 = 3.48$ in.) = | 0.686 | acre-feet |
| Approximate 2-yr Detention Volume =       | 0.189 | acre-feet |
| Approximate 5-yr Detention Volume =       | 0.247 | acre-feet |
| Approximate 10-yr Detention Volume =      | 0.296 | acre-feet |
| Approximate 25-yr Detention Volume =      | 0.354 | acre-feet |
| Approximate 50-yr Detention Volume =      | 0.389 | acre-feet |
| Approximate 100-yr Detention Volume =     | 0.423 | acre-feet |

|      |           |
|------|-----------|
|      | acre-feet |
|      | acre-feet |
| 1.19 | inches    |
| 1.50 | inches    |
| 1.75 | inches    |
| 2.00 | inches    |
| 2.25 | inches    |
| 2.52 | inches    |
| 3.48 | inches    |

|                                                   |       |                 |
|---------------------------------------------------|-------|-----------------|
| Zone 1 Volume ( $WQV_C$ ) =                       | 0.075 | acre-feet       |
| Zone 2 Volume ( $EURV - Z_1$ ) =                  | 0.215 | acre-feet       |
| Zone 3 ( $100yr + 1 / 2 WQV_C - Zones 1 \& 2$ ) = | 0.170 | acre-feet       |
| Total Detention Basin Volume =                    | 0.460 | acre-feet       |
| Initial Surcharge Volume ( $ISV$ ) =              | user  | ft <sup>3</sup> |
| Initial Surcharge Depth ( $ISD$ ) =               | user  | ft              |
| Total Available Detention Depth ( $H_{DAV}$ ) =   | user  | ft              |
| Depth of Trickle Channel ( $H_{TC}$ ) =           | user  | ft              |
| Slope of Trickle Channel ( $S_{TC}$ ) =           | user  | ft/ft           |
| Slopes of Main Basin Sides ( $S_{main}$ ) =       | user  | H:V             |
| Basin Length-to-Width Ratio ( $R_{L/W}$ ) =       | user  |                 |

|                                               |   |      |                 |
|-----------------------------------------------|---|------|-----------------|
| Initial Surcharge Area ( $A_{ISV}$ )          | = | user | ft <sup>2</sup> |
| Surcharge Volume Length ( $L_{SV}$ )          | = | user | ft              |
| Surcharge Volume Width ( $W_{SV}$ )           | = | user | ft              |
| Depth of Basin Floor ( $H_{LFLOOR}$ )         | = | user | ft              |
| Length of Basin Floor ( $L_{LFLOOR}$ )        | = | user | ft              |
| Width of Basin Floor ( $W_{LFLOOR}$ )         | = | user | ft              |
| Area of Basin Floor ( $A_{LFLOOR}$ )          | = | user | ft <sup>2</sup> |
| Volume of Basin Floor ( $V_{LFLOOR}$ )        | = | user | ft <sup>3</sup> |
| Depth of Main Basin ( $H_{MAIN}$ )            | = | user | ft              |
| Length of Main Basin ( $L_{MAIN}$ )           | = | user | ft              |
| Width of Main Basin ( $W_{MAIN}$ )            | = | user | ft              |
| Area of Main Basin ( $A_{MAIN}$ )             | = | user | ft <sup>2</sup> |
| Volume of Main Basin ( $V_{MAIN}$ )           | = | user | ft <sup>3</sup> |
| Calculated Total Basin Volume ( $V_{TOTAL}$ ) | = | user | acre-feet       |

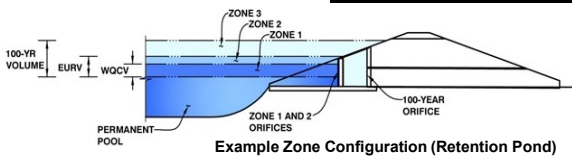
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# DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: My Garage @ Northcrest Center

Basin ID: EDB - NW Corner Constitution Blvd & Canada Drive - Pond A - AS-BUILT



Example Zone Configuration (Retention Pond)

|                      | Estimated Stage (ft) | Estimated Volume (ac-ft) | Outlet Type          |
|----------------------|----------------------|--------------------------|----------------------|
| Zone 1 (WQCV)        | 2.57                 | 0.075                    | Orifice Plate        |
| Zone 2 (EURV)        | 4.61                 | 0.215                    | Circular Orifice     |
| Zone 3 (100+1/2WQCV) | 6.13                 | 0.170                    | Weir&Pipe (Restrict) |
| Total (all zones)    |                      | 0.460                    |                      |

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

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

Calculated Parameters for Underdrain

Underdrain Orifice Area =  ft<sup>2</sup>  
Underdrain Orifice Centroid =  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)

Calculated Parameters for Plate

Centroid of Lowest Orifice =  0.00 ft (relative to basin bottom at Stage = 0 ft)  
Depth at top of Zone using Orifice Plate =  3.73 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

WQ Orifice Area per Row =  N/A ft<sup>2</sup>  
Elliptical Half-Width =  N/A feet  
Elliptical Slot Centroid =  N/A feet  
Elliptical Slot Area =  N/A ft<sup>2</sup>

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             |                  |                  | 1.80             |                  |                  |                  |                  |
| Orifice Area (sq. inches)      | 0.37             |                  |                  | 0.65             |                  |                  |                  |                  |

|                                | 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)

Calculated Parameters for Vertical Orifice

Invert of Vertical Orifice =  3.00  Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Depth at top of Zone using Vertical Orifice =  3.73  Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Vertical Orifice Diameter =  2.45  Not Selected inches

Vertical Orifice Area =  0.03  Not Selected ft<sup>2</sup>  
Vertical Orifice Centroid =  0.10  Not Selected feet

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

Calculated Parameters for Overflow Weir

Overflow Weir Front Edge Height, H<sub>o</sub> =  4.55  Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Overflow Weir Front Edge Length =  5.00  Not Selected feet  
Overflow Weir Gate Slope =  3.40  Not Selected H:V  
Horiz. Length of Weir Sides =  5.00  Not Selected feet  
Overflow Gate Type =  Close Mesh Gate  Not Selected  
Debris Clogging % =  50%  Not Selected %

Height of Gate Upper Edge, H<sub>t</sub> =  6.02  Not Selected feet  
Overflow Weir Slope Length =  5.21  Not Selected feet  
Gate Open Area / 100-yr Orifice Area =  78.78  Not Selected  
Overflow Gate Open Area w/o Debris =  20.61  Not Selected ft<sup>2</sup>  
Overflow Gate Open Area w/ Debris =  10.31  Not Selected ft<sup>2</sup>

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

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

Depth to Invert of Outlet Pipe =  0.08  Not Selected ft (distance below basin bottom at Stage = 0 ft)  
Outlet Pipe Diameter =  18.00  Not Selected inches  
Restrictor Plate Height Above Pipe Invert =  3.70  Not Selected inches

Outlet Orifice Area =  0.26  Not Selected ft<sup>2</sup>  
Outlet Orifice Centroid =  0.18  Not Selected feet  
Half-Central Angle of Restrictor Plate on Pipe =  0.94  Not Selected radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Calculated Parameters for Spillway

Spillway Invert Stage =  5.55  Not Selected ft (relative to basin bottom at Stage = 0 ft)  
Spillway Crest Length =  48.00  Not Selected feet  
Spillway End Slopes =  4.00  Not Selected H:V  
Freeboard above Max Water Surface =  1.00  Not Selected feet

Spillway Design Flow Depth =  0.18  Not Selected feet  
Stage at Top of Freeboard =  6.73  Not Selected feet  
Basin Area at Top of Freeboard =  0.12  Not Selected acres  
Basin Volume at Top of Freeboard =  0.53  Not Selected 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            | 3.48     |
| One-Hour Rainfall Depth (in)                  | N/A   | N/A             | 0.075              | 0.290              | 0.188              | 0.245           | 0.291           | 0.347           | 0.403    |
| CUHP Runoff Volume (acre-ft)                  | N/A   | N/A             | 0.188              | 0.245              | 0.291              | 0.347           | 0.403           | 0.469           | 0.696    |
| Inflow Hydrograph Volume (acre-ft)            | N/A   | N/A             | 0.0                | 0.1                | 0.1                | 1.0             | 1.8             | 3.0             | 6.7      |
| CUHP Predevelopment Peak Q (cfs)              | N/A   | N/A             | 0.01               | 0.02               | 0.03               | 0.30            | 0.58            | 0.94            | 2.10     |
| OPTIONAL Override Predevelopment Peak Q (cfs) | N/A   | N/A             | 0.01               | 0.02               | 0.03               | 0.30            | 0.58            | 0.94            | 2.10     |
| Predevelopment Unit Peak Flow, q (cfs/acre)   | N/A   | N/A             | 4.4                | 5.8                | 6.9                | 8.5             | 10.1            | 11.4            | 17.2     |
| Peak Inflow Q (cfs)                           | N/A   | N/A             | 0.2                | 0.2                | 0.2                | 0.6             | 1.2             | 2.5             | 8.9      |
| Peak Outflow Q (cfs)                          | N/A   | N/A             | N/A                | 2.6                | 2.2                | 0.6             | 0.6             | 0.8             | 1.3      |
| Ratio Peak Outflow to Predevelopment Q        | N/A   | N/A             | N/A                | 2.6                | 2.2                | 0.6             | 0.6             | 0.8             | 1.3      |
| Structure Controlling Flow                    | Plate | Overflow Weir 1 | Vertical Orifice 1 | Vertical Orifice 1 | Vertical Orifice 1 | Overflow Weir 1 | Overflow Weir 1 | Overflow Weir 1 | Spillway |
| Max Velocity through Gate 1 (fps)             | N/A   | 0.00            | N/A                | N/A                | N/A                | 0.0             | 0.0             | 0.1             | 0.1      |
| 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    | 57              | 55                 | 57                 | 58                 | 58              | 57              | 55              | 50       |
| Time to Drain 99% of Inflow Volume (hours)    | 37    | 62              | 58                 | 61                 | 63                 | 64              | 64              | 63              | 61       |
| Maximum Ponding Depth (ft)                    | 2.57  | 4.61            | 3.51               | 3.97               | 4.35               | 4.69            | 4.83            | 5.02            | 5.67     |
| Area at Maximum Ponding Depth (acres)         | 0.09  | 0.11            | 0.11               | 0.11               | 0.11               | 0.11            | 0.11            | 0.11            | 0.11     |
| Maximum Volume Stored (acre-ft)               | 0.076 | 0.291           | 0.172              | 0.220              | 0.261              | 0.300           | 0.314           | 0.336           | 0.407    |

Please briefly discuss this exceedance in the PCM Cert Letter. This was 1.7 in the previously approved calcs. But the change in Peak Outflow cfs between the two calcs is only 0.1cfs, so just state in the letter.

# DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

