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March 6, 2018

Jennifer Irvine
El Paso County Development of Public Works
3275 Akers Drive
Colorado Springs, CO 80922

Re: **Meridian Ranch Sketch Plan Amendment (SKP171)**
Master Development Drainage Plan (MDDP)

Ms Irvine,

This letter is in response to our phone call on February 28, 2018, regarding the County's concerns related to the discharge of detained flow from the Meridian Ranch Pond E southerly outlet (DP-H09) and the request found in the MDDP to allow for the 100% of historic flow rates to be released from Meridian Ranch detention ponds. The County has expressed concerns relayed to them from homeowners of ongoing erosion on the property downstream of the detention pond.

The Meridian Ranch Pond E is located along the westerly side of Eastonville Road, south of Londonderry Drive and has been in operation since 2014 when it was constructed as a part of the grading operations associated with Meridian Ranch Filing 11. At the time of construction the pond outlets (DP-H08 & DP-H09) were outfitted with temporary CMP riser structures. The pond outlets were located upstream of the existing culverts under Eastonville Road at the historic discharge points for that portion of Meridian Ranch. The temporary structures are to be replaced with permanent concrete structures when the developed release rate approached the historic flow rate. The Pond E outlet structures are to be replaced with the permanent concrete structures as part of the WindingWalk grading plans currently awaiting final approval.

The home located on lot 41 of 4-Way Ranch downstream of DP-H09 was constructed in 2017 and at that time the home builder filled in some of the existing natural swale, blocking the historic overland route of the surface discharge. The 4-Way Ranch Final plat was recorded with a drainage easement in this location with an analyzed FEMA Floodplain shown on the final plat. The original developer did not construct an improved ditch for the historic flow entering the property and only anticipated the continued use of the natural swale located within the mapped FEMA floodplain. The home builder later re-graded the area, however the natural shape of the swale and native vegetation protecting the drainage way has been removed altering the original drainage course. The drainage swale is now experiencing erosion and side slope erosive cutting as a result of the fill, grading and alteration to the original natural drainage (see attached pictures). The area downstream of the erosion has remained stable with no signs of erosion or degradation to the natural drainage course.

The developer is currently processing a Sketch Plan Amendment for Meridian Ranch and has requested relief from the original condition to release developed flows from the property across Eastonville Road to approximately 80% of the historic flow rates. The reduced discharge rate was a result of the 2000 Meridian Ranch Sketch Plan approval to address concerns over flooding of undeveloped areas downstream of the Meridian Ranch. Since then, the development of 4-Way Ranch has constructed drainage facilities designed to capture 100% historic flow rates from Meridian Ranch and release from 4-

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Way Ranch at the 100% historic flow rates. It is the development of the downstream property that should allow for the relief from the earlier imposed condition of approval.

We recognized the difficulties present downstream of DP-H09 during the development of the design of the permanent outlet structures for Pond E and sought to alleviate the potential future problems on the property immediately downstream of the Eastonville culvert. The outlet structure was designed to reduce the release rates to less than the earlier agreed upon 80% historic rate (see table below).

MERIDIAN RANCH POND E DISCHARGE DESIGN POINTS						
		PEAK DISCHARGE Q ₁₀₀ (CFS)	PEAK DISCHARGE Q ₅₀ (CFS)	PEAK DISCHARGE Q ₂₅ (CFS)	PEAK DISCHARGE Q ₁₀ (CFS)	PEAK DISCHARGE Q ₅ (CFS)
H08 - EASTONVILLE ROAD	Historic	227	149	89	35	13
	Developed	194	130	70	24	12
	% of Historic	86%	87%	79%	69%	91%
H09 - EASTONVILLE ROAD	Historic	80	53	31	13	5
	Developed	61	27	16	7	5
	% of Historic	76%	51%	52%	57%	100%

The original Letter of Map Revision prepared by Kiowa Engineering shows the 100-year historic peak flow rate at DP-H09 to be 90 CFS, the design release rate at this design point for the permanent concrete control structure is calculated to be 61 CFS or 68% of the Kiowa calculated historic flow rate. Taking a look at the other full spectrum of design storms for this particular design point; the developed release rates for this point are significantly below the historic release rates in most cases. These reduced flow rates are lower than the current interim flow rates generated by the temporary outlet structures.

The request for relief from the 80% condition of approval is intended to be for all release points from Meridian Ranch, but Meridian recognizes the difficulties with the property downstream of DP-H09 and will further restrict the flow in order to reduce the chances of adversely impacting this property. The intent of the request is to allow more flexibility in the design of future detention ponds located within Meridian Ranch and bring the condition of detention pond release rates in line with other developments within the El Paso County. Future pond design will take into account the appropriate care and engineering judgment necessary to analyze the impacts to downstream properties and size the outlets appropriately.

If you should have any questions or require any additional information, please do not hesitate to call me at 495-7444.

Sincerely,
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Thomas A. Kerby, PE



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Figure 1 Lot 41 Sept 2011



Figure 2 Lot 41 2017

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Figure 3 Lot 41 2017

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