



March 16, 2020

**Attn: Tucker Weight**

**RE: Monastery Cover Phase 2**

We have addressed the plan review comments dated March 3, 2020 as follows:

1. A note will need to be added to the plat stating: "Due to the topography and the location of this subdivision all owners will accept responsibility for any storm water runoff from the road adjacent to this property until curb and gutter is installed."

Note has been added to plat as requested.

2. Because soil conditions vary throughout the county, it is necessary to provide an engineered pavement design from a geotechnical engineer showing required sub-base, road-base, fabric, and asphalt thickness as needed for soil type. Asphalt thickness shall not be less than 3 inches (PG64-34). The county engineer is requiring a minimum of 8" of 4" minus sub-base and 6" road-base. Compaction tests on both will be required.

Updated sheet CE2-01 with pavement section described above.

3. Please show storm water calculations using a 100 year storm with an allowable Runoff rate of 0.1 cfs.

No discharge will be used on this site. The 100 year – 24 hour storm will be retained on the individual adjacent lots. See added sheet CE1-02 showing overall retention pond volumes provided. Also see added sheet CE3-01 and CE3-02 with entire site calculations and individual lot retention pond calculations.

4. Please give details of the detention pond.

Updated sheet CE2-04 with retention pond and cross section. Retention pond on Lot 202 has an emergency overflow spillway that would drain where water has left this site historically.

5. Where will the water be discharging once it leaves the property? We may require you to do full retention if there is no place to take the water.

Water will discharge where it has historically gone (to the north). The water drains along the gravel road where there is existing trees receiving the water runoff. Full retention is being provided. See sheet CE1-02.



6. We will need an easement for the detention pond.

See added easement line for retention ponds.

7. We will also want an easement for the drainage swale going down to the detention pond.

See added 20' easement for drainage swale going down to retention pond and ultimate site overflow.

8. All improvements need to be either installed or escrowed for prior to recording of the subdivision.

Noted. Also added note 13. stating this under General Notes on the cover sheet.

9. We will want to see drainage swales on both sides of the road.

Noted. drainage swales have been added to both sides of the road (as requested).

10. Did you decide if you will be doing wells or Huntsville water for culinary water?

(Developer to provide response).

11. In the quote for the mailbox. It calls for an 8 tenant box. There are 9 lots with potential for more. We will need enough boxes for the all the homes.

(Developer to provide response).

12. You will need to adjust the bid to include the road cross section. Either the county minimums or if the geotechnical report calls out a stronger cross section.

(Developer to provide response).

13. At the end of the cul-de-sacs we will want to see a 20x20 easement for snow removal

Noted. 20'x20' easement added at end of cul-de-sac for snow removal.



14. A Storm Water Pollution Prevention Plan (SWPPP) is required to be submitted for all new development where construction is required. The State now requires that a Utah Discharge Pollution Elimination Systems (UPDES) permit be acquired for all new development. A copy of the permit needs to be submitted to the county before final approval. Permits can now be obtained online thru the Utah State Department of Environmental Quality at the following web site: <https://secure.utah.gov/swp/client>.

Noted. See provided Storm Water Pollution Prevention Plan.

15. A Storm Water Construction Activity Permit is required for any construction.

Noted. Developer to obtain prior to construction.

16. Please see attached document for additional comments.

CE2-01

We have revised the cross section to have the swales on both sides of the road (as requested), and updated the pavement section with added note regarding geotech requirements (as applicable).

For the size determination of 24" RCP, we initially looked at the cross section area of the ditch where the road was crossing. We have also looked at the down stream ditch cross sectional area at contour 5066. The cross-sectional area from the top of ditch is measured with a 6.57' width with a depth of 0.75 feet for a cross sectional area of the "V-ditch" of 2.48 SF. The pipe cross section area for the 24" RCP is 3.14 SF. We have increased the pipe size to be a 30-inch RCP to better match the existing flows calculated with manning's trapezoidal channel flow (14.22 CFS at the existing ditch slope), and 14.22 CFS for the flow of a 30" RCP pipe with a 1.6% slope. See provided calculations.



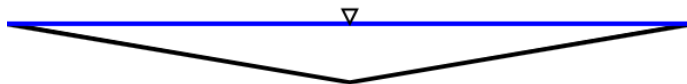
## Manning Formula Uniform Trapezoidal Channel Flow at Given Slope and Depth

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Printable Title

Printable Subtitle

Set units: <input type="checkbox"/> m <input type="checkbox"/> mm <input type="checkbox"/> ft <input type="checkbox"/> in			Results	
Bottom width	0	ft ▾	Flow area	3.29 ft <sup>2</sup> ▾
Side slope 1 (horiz./vert.)	5.84		Wetted perimeter	8.89 ft ▾
Side slope 2 (horiz./vert.)	5.84		Hydraulic radius	0.37 ft ▾
Manning roughness, n ?	0.025		Velocity, v	4.33 ft/sec ▾
Channel slope	.02	rise/run ▾	Flow, Q	14.22 cfs ▾
Flow depth	.75	ft ▾	Velocity head, h <sub>v</sub>	0.29 ft ▾
Bend Angle? (for riprap sizing)	0		Top width, T	8.76 ft ▾
Stone specific gravity (2.65)	2.65		Froude number, F	1.25
			Shear stress (tractive force), tau	0.46 psf ▾
			Implied design ? riprap size based on n	0.07 ft ▾
			Required bottom angular riprap size, D50, Maricopa County	0.11 ft ▾
			Required side slope 1 angular riprap size, D50, Maricopa County	0.11 ft ▾
			Required side slope 2 angular riprap size, D50, Maricopa County	0.11 ft ▾
			Required angular riprap size, D50, per Maynard, Ruff, and Abt (1989)	0.26 ft ▾
			Required angular riprap size, D50, per Searcy (1967)	0.13 ft ▾



## Manning Formula Uniform Pipe Flow at Given Slope and Depth

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Set units: <input type="checkbox"/> m <input type="checkbox"/> mm <input type="checkbox"/> ft <input type="checkbox"/> in			Results	
Pipe diameter, d <sub>0</sub>	2.5	ft ▾	Flow, Q	14.2183 cfs ▾
Manning roughness, n ?	.015		Velocity, v	2.8966 ft/sec ▾
Pressure slope (possibly ? equal to pipe slope), S <sub>0</sub>	.0016	rise/run ▾	Velocity head, h <sub>v</sub>	0.1304 ft ▾
Percent of (or ratio to) full depth (100% or 1 if flowing full)	1	fraction ▾	Flow area	4.9089 ft <sup>2</sup> ▾
			Wetted perimeter	7.8540 ft ▾
			Hydraulic radius	0.6250 ft ▾
			Top width, T	0.0000 ft ▾
			Froude number, F	0.00
			Shear stress (tractive force), tau	0.0624 psf ▾



CE2-02

Existing swale is to be used to allow what has historically run off to have a defined route for any unexpected excess storm drain flows. We have added 100 year retention for the roadway and future home improvements for lot 205 and lot 207. The drainage ditch will convey any excess runoff beyond the 100 year retained flows to the existing drainage swale.

We have revised the cross section to have the swales on both sides of the road (as requested), and updated the pavement section with added note regarding geotech requirements (as applicable).