



Sean Reich, PE
 City Engineer
 City of Boerne
 Public Works Department
 402 E. Blanco Road
 Boerne, Texas 78006

October 12, 2018

Subject: Cascade drainage Impervious Cover Calculation Drainage Report Assessment.

In reviewing the comments made by Dr. Lauren Ross, PE in her memo and Regent Park Subdivision Drainage Report and the Southglen Drainage Report we find the following regarding impervious cover calculations:

The Ross Memo only focuses on areas of most concern and does not provide overall calculations for Regent Park. The Following direct comparisons can be made based on our findings.

Overall Impervious Cover for the Cascade Caverns Drainage Area

Cude (Southglen) 27%	Cude (Regent Park) 18%	Ross 12%	M & A 18%
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Regent Park

Regent Park Particular Drainage Areas (Percent impervious Cover)

	Cude	Ross	M&A
7	4.94	0.0	0.57
8A	9.22	0.0	0.00
9A	0.17	N/A	0.00
9B	15.12	N/A	20.54

Overall for Regent Park

8.2%	N/A	5.3%
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Our assessment is that determination of drainage areas by aerial photos has limitations in the accuracy that can be attained. We find the Ross memo pointing out impervious cover numbers for DA 7 and 8A very close to our independently calculated numbers, but the Ross Memo shows the areas of proposed impervious cover for the development versus the existing impervious covers based on existing drainage areas. We find that the Cude Drainage Report only varied 3 % from our independent estimate, given



the accuracy of aerials it is within reasonable variation done by different engineers to proper standard of care.

Southglen

The Southglen Subdivision offsite areas and impervious cover differed materially from our independent assessment where 27% was calculated in the Cude Drainage Report and 18% was calculated in our independent assessment.

Southglen is made slightly more complicated by Cude using two different methods for 2 different purposes.

First, Southglen Subdivision was developed using the rational method for onsite existing and proposed conditions. These rational methods were used for a drainage area less than 200 acres in contributing area. It is within reasonable standard of care to use the runoff coefficient and assumed impervious cover provided in the City of Boerne Subdivision Ordinance Table 6-1. Table 6-1 appropriate Zoning District for existing conditions would be Zone RA with assumed 10% impervious cover and assigned 0.4 runoff coefficient.

Second, For the downstream assessment where the contributing area was greater than 200 acres Cude used TR55 consistent with City of Boerne Subdivision Ordinance. This methodology was appropriate, however, in using TR55 existing impervious cover should not be done using land use techniques. Cude assumed 10% impervious cover for undeveloped areas. We believe that impervious cover should have been based on aerial photography, which would have corresponded with 0% impervious cover for undeveloped areas.

Our independent calculations for Southglen using the aerial photo method ranged from 2.7% to 5.5% for the subject areas with a 4.05 average for the full subdivision. The Ross Memo states the runoff is from 0.6 to less than 5%. The use of TR-55 and aerial photography results in a lower impervious cover as used by Ross and M & A.

Conclusions related to both Subdivisions

We find that the offsite drainage area and impervious cover calculations for Southglen Subdivision to be outside of reasonable care. The same outlet point was calculated in the Cude Regent Subdivision calculation, Ross Calculation and M & A calculation. The three comparison studies found values of 18%, 12% and 18% respectively compared to the 27% impervious cover shown in the Southglen Cude Drainage Report. The Cude downstream assessment used higher values of Impervious cover than M&A calculated and appeared to use assumed Impervious Cover from the rational method for the onsite elements of the downstream assessment. This does not directly imply a negative impact, but M & A recommends that the calculation be corrected, and re-assessment of the impacts should be done.

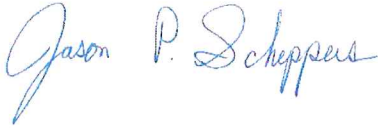
We find that Regents Park was done to a reasonable standard of care by Cude Engineering. Additionally, we find the impervious calculation done by Dr. Ross, PE was done to reasonable standard of care in so far as the specifics were provided.

As noted we found many areas virtually identical to the Ross Memo in our independent assessment, however the overall varied by 6% between Ross and M & A. Variations between 0% and 5% in impervious cover calculations are common using the same methods. Using differing methods may find 0% to 10% variations. We don't find any areas exceeding these reasonable variances on Regent Park.

With limited information provide by the Ross Memo all onsite drainage area cannot be compared.

Attached please find the details tables and exhibits. If you have any questions, please feel free to call and discuss.

Sincerely,

A handwritten signature in blue ink that reads "Jason P. Scheppers". The signature is written in a cursive style with a large initial 'J'.

Jason Scheppers, PE, CFM
Maestas & Associates, LLC
Project Manager

TCEQ Web Access to Complaint Information

Your search returned 13 records. You may also view and save this list with additional fields (county, region) as an [Excel spreadsheet](#).

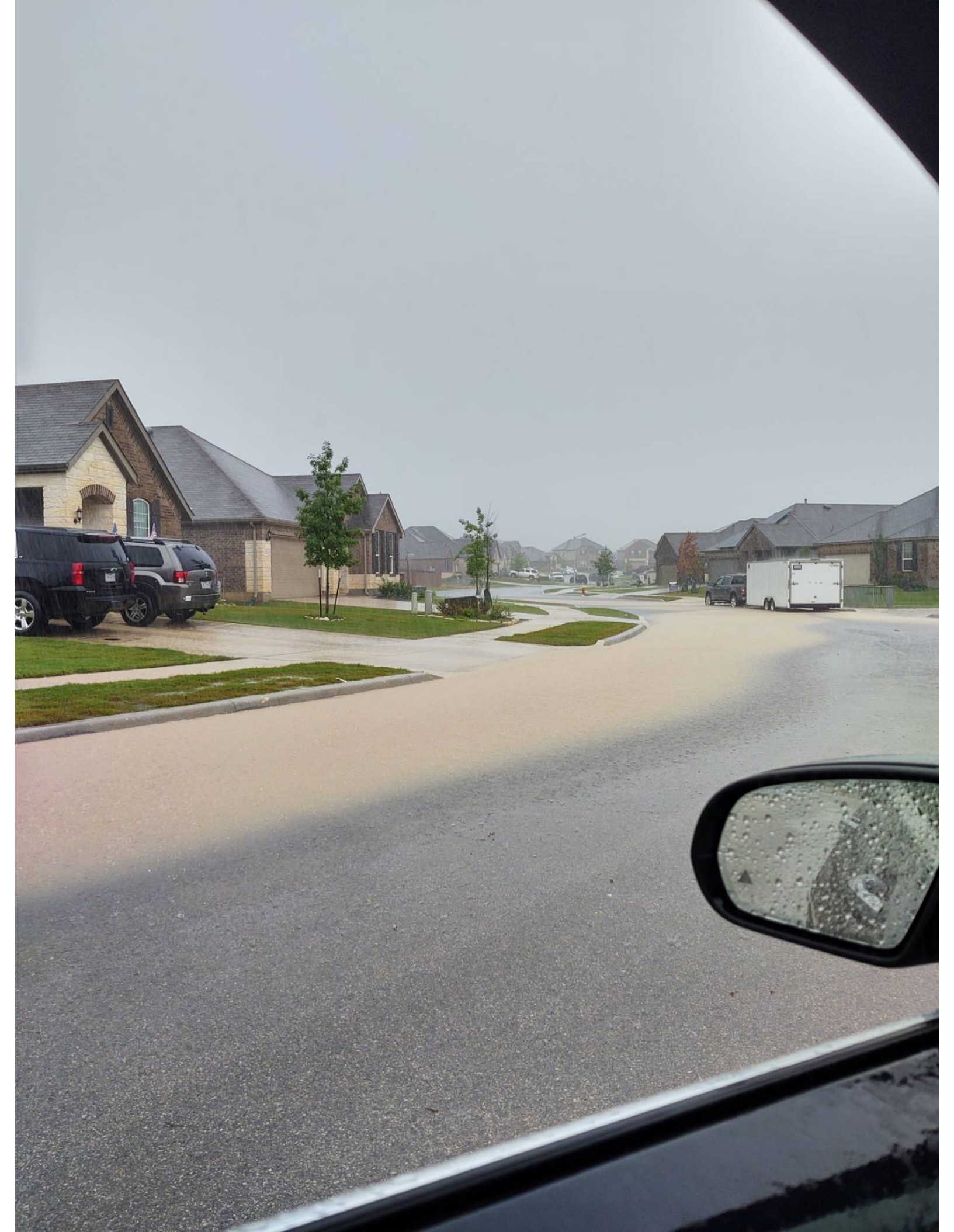
1-13 of 13 Records

Complaint Tracking # ▼	RN	RE Name	Associated Customer	Status ⓘ	County	Received Date
361625	RN110887619	SOUTHGLE N	CN604150524 ASHTON SAN ANTONIO RESIDENTIAL LLC	CLOSED	KENDALL	07/06/2021
358865	RN110887619	SOUTHGLE N	CN604150524 ASHTON SAN ANTONIO RESIDENTIAL LLC	CLOSED	KENDALL	05/24/2021
283991	RN109993055	SOUTHGLE N UNIT 9	CN600525653 V K KNOWLTON CONSTRUCTION AND UTILITIE...	CLOSED	KENDALL	04/05/2018
283956	RN109993055	SOUTHGLE N UNIT 9	CN600525653 V K KNOWLTON CONSTRUCTION AND UTILITIE...	CLOSED	KENDALL	04/05/2018
282921	RN109993055	SOUTHGLE N UNIT 9	CN600525653 V K KNOWLTON CONSTRUCTION AND UTILITIE...	CLOSED	KENDALL	04/30/2018
281597	RN109993055	SOUTHGLE N UNIT 9	CN600525653 V K KNOWLTON CONSTRUCTION AND UTILITIE...	CLOSED	KENDALL	04/05/2018
281592	RN109993055	SOUTHGLE N UNIT 9	CN600525653 V K	CLOSED	KENDALL	04/05/2018

Complaint Tracking # ▼	RN	RE Name	Associated Customer	Status ?	County	Received Date
			KNOWLTON CONSTRUCTION AND UTILITIE...			
277346	RN109141226	SOUTHGLENN SUBDIVISION	CN601723844 SACC INC CN605114818 LANDQUEST ACQUISITIONS LLC	CLOSED	KENDALL	01/29/2018
251072	RN109141226	SOUTHGLENN SUBDIVISION	CN601723844 SACC INC	CLOSED	KENDALL	01/24/2017
246375	RN109141226	SOUTHGLENN SUBDIVISION	CN601723844 SACC INC CN602295370 GENERIC INCIDENT PRINCIPAL	CLOSED	KENDALL	07/26/2016
243560	RN109141226	SOUTHGLENN SUBDIVISION	CN602295370 GENERIC INCIDENT PRINCIPAL	CLOSED	KENDALL	09/08/2016
241900	RN109141226	SOUTHGLENN SUBDIVISION		CLOSED	KENDALL	08/19/2016
240007	RN109141226	SOUTHGLENN SUBDIVISION	CN602295370 GENERIC INCIDENT PRINCIPAL	CLOSED	KENDALL	07/26/2016

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