Davidson, Tim

From: Davidson, Tim
Sent: Monday, November 07, 2011 1:04 PM
To: 'Trevor Kurth'
Cc: Strahl, Neil; Lindebak, Scott
Subject: Skyway West 2nd and 3rd comments_drainage
Attachments: Skyway west 2nd & 3rd comments_11_07_2011.pdf

Trevor,

Please consider the attached comments on Skyway West 2nd & 3rd. My apologies in advance if the questions and concerns raised are negligible or already addressed in the report, but I did not perceive the answers, or comprehend it upon the first review.

Thanks,

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Skyway West 3rd Drainage Plan Comments
11/07/2011

1. The CN numbers look disputable:

Table 4-2 Pre- and Post-Development Curve Numbers

Land Use	Hydrologic Soil Group			
	A	B	C	D
Pre-Developed or Undisturbed Pervious	55	71	80	84
Developed or Disturbed Pervious	71	80	84	88
Impervious	98	98	98	98

We would argue that farmland, routinely tilled, is not the same as a mass grading of a subdivision, and would push for a lower CN than 88 for existing conditions.

Table 4-4 Average Imperviousness per Land Use (Source NRCS, TR-55)

Land Use	Average % Impervious
Urban Districts:	
Commercial and business	85%
Industrial	72%
Residential districts by average lot size:	
1/8 acre or less (town house)	65%
1/4 acre	38%
1/3 acre	30%
1/2 acre	25%
1 acre	20%
2 acres	12%

We would also argue the CN for developed should be higher if it will be for industrial use. While the site can change as it is developed, at least for the initial benchmark, we wish for it to meet the guidance provided in the manual.

2. The 2 ponds in Reserve B (basin A) for the 1-yr event may meet the requirements for CPv detention, but do the hydrographs for Basin A necessarily demonstrate the CPv detention requirement is met? I was hoping for more clarification on how the two ponds take post runoff, and effectively detain it 24-48 hours, centroid to centroid. I wasn't quite comfortable with accepting 12 hours for one pond plus 14 hours for the other equals over 24 hours total, but a hydrograph for that system should erase any doubt.
3. What is the combined flood hydrographs for Basins A & B since they combine to leave the site?
4. Is the downstream channel just northeast of the site protected? – It seems like more water from the overall basin will be directed to it.
5. The watershed model schematic and hydrographs do not include the offsite drainage from south of 31st St. Any timing issues with the 190 cfs from offsite with the proposed detention of this site, and potential downstream impacts? Any backwater issues regarding the flood detention ponds on the site from the 190 cfs offsite drainage?
6. What is the size of the downstream structure under Maize Rd?
7. The 2008 LiDAR data indicates offsite runoff from the west concentrates to a point near the NW corner of the development, but the narrative suggests it sheetflows. I do not know if this is an issue.

8. The narrative states a Tc of 15 minutes in the existing conditions (Rational Method?).
9. Water Quality waiver. No water quality waiver will be granted. The airport has been required to address water quality, too. The report needs to specify additional treatment volumes per square feet of disturbance.
10. The ponds only account for 60% of the WQ volume? So, the TSS removal for the overall site would be less than 60%?
11. Drainage plan:
    The Q100 for offsite drainage, west, seems high. It is farmland, 37.3 acres, and 182 cfs? It looks like good reductions in the flood detention, NE pond, but I was curious about it.

Skyway West 2nd:

1. Many similar comments on CN numbers, Tc issues, and WQv.
2. Big concern with the SE corner and discharge onto the residential area. The existing farm field appears to have some inherent detention, judging by the pool of water in the aerial, and the higher elevation of the surrounding hedgerows. Also, the water appears to be effectively dissipated into a sheet flow as it overtops the hedgerows in the area and continues SE, and it is not clear which direction it takes, either, with respect to the residential subdivision, once past the hedgerows. Would half of the offsite runoff go along the north edge, and the other half go along the west edge of Harvest Ridge? Creating a point discharge with overland flow onto the residential units is a problem. Likely needs to tie into the system and be over-detained (which appears to be the case, but would like to see more conservative CN numbers used).
3. In the SE corner of basin 3, it looks like roughly 4 acres are being considered in the existing calculations and are being re-routed to the proposed pond. Not necessarily opposed to taking this area to Reserve C, but the calcs should be more reflective of what actually drains to the respective point and be more conservative, pre- and post-.
4. Offsite drainage agreements?
5. Box under 119th St. What is the size of the box? Although the report anticipates it is only sized for the 5-yr event, our regs require no overtopping of major roads through the 100-yr event, and it seems there is a great deal of current storage available on the US side of this box (Skyway West 2nd), currently, which would prevent overtopping. Does the box under 119th St act as detention, currently? What is the offsite drainage number and pipe size for the water coming from the north, under 31st St, which contributes to this issue? Will filling in Skyway West 2nd create more water to backup on the property north of 31st St?