Anonymous Reviewer #3

The authors thank Anonymous Reviewer #3 for valuable comments, suggestions and corrections on the manuscript. We agree with most of the points of view which were expressed and we explain how we will modify the manuscript to account for the comments.

In the abstract it should be more clearly stated what is the overall question. There are three subgoals and I wonder, if there is a ranking. If the overall objective is the feasibility of infiltration wells for the flood peak reduction (as stated in the title), I would state this and call the other points as the steps toward this.

The overall objective is the impact of land use change on flood peaks and contribution of infiltration wells in reducing the effect. Specifically, the objectives of this study are to define design rainfall intensity, predict the impact of land use changes on flood peaks, and predict the contribution of infiltration wells on flood peak reduction.

Page 5489 line 4: I would point out that especially a combination of these factors may lead to extreme high flood events. Flooding is a natural process, but destructive effects of flooding and peak discharges are increased due to anthropogenic impacts such as land use changes. Also references may help the reader to get more general information on these impacts.

The authors agree with the Reviewer and will include that explanation in revised manuscript. While references on these impacts have already been included in the next paragraph.

Page 5489 line 18: Give examples of how land use change may have an impact on groundwater?

Land use change may effect groundwater recharge.

Page 5489 line 18: The content of the current article should be combined in the end of the introduction.

The content of the current article has already been combined in the end of the introduction.

Page 5489 line 25: design of what?

Design of hydraulic structures. This will be included in revised manuscript.

Page 5490 line 16: Please provide the reader with reference for this.

The reference will be included in revised manuscript.

Page 5490 line 15 and Fig 1: More different infiltration wells and infiltration techniques seem suitable depending on climate conditions, objective of recharge, water convey infrastructure and sealed surface distribution, for example infiltration via basins, trenches and deeper wells (see e.g. Bouwer 2002). The authors state this in the end at page 5500 line 13.

The authors agree with the Reviewer and will include the explanation in the paragraph.

Page 5490 line 26: Please explain rational method or give a reference to literature or other section of the manuscript.

References about rational method will be included in revised manuscript.

"Young, C.B., McEnroe, B.M., and Rome, A.C., 2009, Empirical Determination of Rational Method Runoff Coefficients, J. Hydrol. Eng., 14(12), 1283–1289."

"Viessman, Jr., W. and Lewis, G. L., 2002, Introduction to Hydrology, Fifth Edition, Prentice Hall"

Page 5491 line 11: Reference for Quantum GIS?

Quantum GIS citation will be included in text citation and reference in revised manuscript.

"Ramadana, A.L. and Kusnanto, H., 2010, Open Source GIS: Quantum GIS Application for Environment Information System, PSLH-UGM Press, Yogyakarta."

Page 5491 line 18: How the validity of the method was proven in the study. The authors investigated the effect coming from land use change but will the method provide valuable insights if not applicable? In equation 1 and section 2.1.2 it is obvious that a single averaged coefficient is used to account for all impacts of surface on the runoff which seems not appropriate for a large catchment of some kilometers. Interaction between the flows at the surface is somehow mixed and only a summed influence is investigated which may not allow delineation of practicable measures. Beside this in page 10 all results are given in a resolution of 2 decimal digits which may lead somebody to believe in a high certainty which is not supported by the method used.

The method cannot be validated due to lack of appropriate data. However, the authors still consider that the method provide valuable insights on how land use change will increase flood peak and hence will improve awareness of people of the impact of land use change. As a matter of fact, some areas which are not used to flooding have experienced flooding recently. And the areas which usually experience flooding the magnitude of flood peak increases.

Page 5493 line 20 to 22: Is this scenario sustainable for the region?

This scenario is likely to occur in this city.

Page 5494 equation 2: Add V in the list of symbols.

The authors made a mistake, symbol V should be k, land permeability coefficient.

Page 5495 line 12 and figure 4: I doubt that a decreasing trend can be seen from this data. Changing slightly a point may reverse trend easily.

Based on rainfall data in this region it shows that shorter rainfall duration tends to have higher rainfall intensity, and hence higher maximum rainfall.

Page 5495 line 18: Refers that to the storm depth of a single event, despite the duration?

Yes, it refers to storm depth of a single event.

Page 5495 line 20 to 23: When storm duration events less than 3 hours duration are neglected, are these included into the next longer storm event? Summing the percentages in figure 4 leads to 100 %, but I am not sure this small events may have an effect on flood evolvement when temporarily close to larger rain events? For the other event duration it looks like storm depth is most in the beginning, so maybe short events are important with high storm depths.

For storm duration events less than 3 hours duration, these may be included in the next longer storm event if the interstorm period is short, e.g. 1 to 3 hours. Short rainfall events with high storm depths may be important, but usually flooding in this region are caused by rainfalls with longer durations.

Page 5496 line 26: How it was decided which area of the catchment changes to trading area in scenarios 3 and 4? Figure 7 shows the areal distribution of the land uses but spatial distribution will not affect flood peaks, but only the percentage of land use area.

Area of the catchment changes to trading area in scenarios 3 and 4 was decided by considering possible development of the city. It is true that only the percentage of land use area affect flood peaks.

Page 5498 line 7 and figure 10: This is only the suitable area for based on permeability, slope and groundwater level. However, land use may also lead to limitations for suitable positioning of wells. Next to this, at sealed area a lot of water has to be infiltrated on a small area and an even distribution cannot be applied since water has than conveyed to the infiltration wells.

The authors agree with the Reviewer and suggest a further study on suitable positioning of wells based on land use that needs to be carried out before implementation.

Page 5498 line 25: 4000 m2 should be 500 m^2.

This correction will be included in revised manuscript.

Specific Comments:

Title: please check, if it should be called infiltration wells (plural) since the article deals with multiple wells 1st affiliation "engineerring" should be "engineering"

Page 5488:
Abstract: line 6 impact should be replaced by a more appropriate word such as "contribution" of infiltration wells for flood peak reduction line 13 depending
Introduction: line 22 Sumatra line 23 delete approximately or use an approximate number line 26 Is this a relevant information?

Page 5489:
Line 3 "some" sounds strange Line 13 models instead of model Line 19 contribute "to" Line 19 space after sentence Line 25 delete "to"

Page 5490:

Line 9: Indonesia Line 20: Idriatmoko, 2010? Line 22 "it“ has

Page 5491 line 11 "it“ replace by "to”

5493 line 3: Triatmodjo, 2008?

Page 5495 line 25 “trends” and “durations” plural?

Page 5498 line 12: “Figure 10” Page 5498 line 24 space is missing

The authors are very thankful for these corrections and will include them in revised manuscript.