GOYDER INSTITUTE FOR WATER RESEARCH MODEL METADATA TEMPLATE

METADATA REQUIRED	DETAILS
Model Name and version	The Frederick Street Stormwater Runoff Model *Filename: Frederick-Street-1993-cal-FINAL.inp* The model was built for US EPA SWMM Version 5.0.022 USEPA Storm Water Management Model (SWMM) http://www2.epa.gov/water-research/storm-water-management-model-swmm PCSWMM http://www.chiwater.com/Software/PCSWMM/ Please note that the model was developed using the commercially available PCSWMM model, but is capable of running in the open source US EPA SWMM model (which does not have support for geographical information system tools for model development nor tools for complex post processing of model output)
Date of lodgement of Metadata Template. Name of Metadata Provider	September 2015 Baden Myers Research Engineer Centre for Water Management and Reuse University of South Australia, Mawson Lakes campus, Room H3.19C Mobile: 0409 986 042 (Int: +61 409 986 042) Office: 08 8302 6760 (Int: +61 8 8302 6760) Email: baden.myers@unisa.edu.au
Goyder Institute Project Number and Name	**GOYDER INSTITUTE FOR WATER RESEARCH** Project No. U.1.2 Water Sensitive Urban Design Impediments and Potential: Contributions to the SA Urban Water Blueprint
Project Team	Ashok Sharma, formerly CSIRO David Pezzaniti, david.pezzaniti@unisa.edu.au Rosemary Leonard, rosemary.leonard@csiro.au Melissa Green, melissa.green@csiro.au Anneliesse Spinks, anneliesse.spinks@csiro.au Stephen Cook, Stephen.cook@csiro.au Priya Chacko, Priya.chacko@csiro.au Grace Tjandraatmadja, formerly CSIRO Andrea Walton, andrea.walton@csiro.au Aditi Mankad, Aditi.mankad@csiro.au Baden Myers, baden.myers@unisa.edu.au Guna Hewa, guna.hewa@unisa.edu.au David Kemp, david.kemp@unisa.edu.au Sattar Chavoshi, sattar.chavoshi@unisa.edu.au

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Creator/Developer	Baden Myers, David Pezzaniti, David Kemp
Owner/Contact Person and contact details	Baden Myers Details under 'Provider' Email: baden.myers@unisa.edu.au
Model Location	*Where is the model archived?* The model is archived on the Job register of the University of South Australia's Australian Irrigation and Hydraulics Technology Facility. Information is archived under Job# A1208002 at the following drive location at the University of South Australia School of Natural and Built Environments: S:\AITC\Jobs\2012 *Provide contact details of individual and unit/group within designated organisation* Baden Myers Research Engineer Centre for Water Management and Reuse University of South Australia, Mawson Lakes campus, Room H3.19C Mobile: 0409 986 042 (Int: +61 409 986 042) Office: 08 8302 6760 (Int: +61 8 8302 6760) Email: baden.myers@unisa.edu.au The manager of the AIHTF/AFL is as follows: David Pezzaniti ph 8302 3652 fx 8302 3386 Mb 0417 830 018 David.Pezzaniti@unisa.edu.au *Is there a version of the model in active further development? Where is this active version located?* A new version of this model is being developed. This is located with Baden Myers, and is being developed to explore further WSUD options. It will be stored on a local hard drive and also available as a Job on the AIHTC server when completed. *Provide contact details of individual and unit/group within designated organisation* Baden Myers Email: baden.myers@unisa.edu.au (Details under 'Provider')

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IP or other permission requirements	**** REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT ***** *Are there any IP issues associated with the model and/or the dependencies that future users need to be aware of?* Yes. Rainfall data is required which is available from the Australian Bureau of Meteorology (BOM) and/or the South Australian Department of Environment, Water and Natural Resources (DEWNR). Several data sets were used. Details in Technical Report 14/19 available from http://goyderinstitute.org/index.php?id=8 Please note that the BOM data is available for purchase from BOM Climate Data Services and the DEWNR sourced data is currently available on request from DEWNR Science Knowledge Management Unit. The PCSWMM version of the model requests input from providers which is not shared with the model. These are not required to run the model, but assist with model development. It includes: - A digital elevation model of the Frederick Street catchment (provided by City of Marion, Senior Engineering Services Officer) - Aerial photography of the catchment area (2013) (provided by City of Marion, Senior Engineering Services Officer) - Location of pits, pipes and their level data (provided by City of Marion, Senior Engineering Services Officer and the SA Department of Environment, Water and Natural Resources, Science Knowledge management Unit)
Licences associated with model and/or dependencies	*****REFER TO GOYDER INSTITUTE FOR WATER RESEARCH AGREEMENT***** *Are there any licenses associated with the model and/or the dependencies that future users need to be aware of?* The model was developed in PCSWMM, a commercial variant of the US EPA SWMM model. PCSWMM is available from CHI software here: http://www.chiwater.com/Software/PCSWMM/ The model may also be run in US EPA SWMM Version 5.0.022 9or later versions where supported, but results may vary slightly due to model engine updates. See here: http://www2.epa.gov/water-research/storm-water-management-model-swmm
Confidentiality agreements associated with model and/or dependencies	*Are there any confidentiality agreements associated with the model and/or the dependencies that future users need to be aware of?* Yes, data agreements for aerial photography and digital elevation model were signed with the City of Marion. However, this data is not made available with the model - it was used for determining model parameters.

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Brief outline of model	The model is a stormwater runoff model to simulate flow rates resulting from the Frederick Street catchment in Glengowrie, South Australia. It was created to determine the impact of infill development on measured flow rates, and to determine the impact that WSUD implementation may have on flow management in the catchment. The model assembly, calibration and application is detailed in Goyder Institute Technical Report 14/19.
Area/region covered	Glengowrie, Adelaide, South Australia (detailed catchment area maps are provided in Goyder Institute Technical Report 14/19) available at http://goyderinstitute.org/index.php?id=8
Platform and language and version	SWMM is a fixed platform for this model and the source code is available here: http://www2.epa.gov/water-research/storm-water-management-model-swmm
Dependencies upon: i) other models and/or platforms (including version) and location ii) essential data and data sources and location	Rainfall data and evaporation data are the only external inputs for the model. These were sourced from both the BOM Climate Data Services and DEWNR Information Management Unit. Full details are provided in Goyder Institute Technical Report 14/19 available at http://goyderinstitute.org/index.php?id=8

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How was model used	○ *Parameterisation/Validation (if applicable; provide a brief summary and include time period of calibration/simulation)* The model was calibrated to observed flows between 1992 and 1995. Details in Goyder Institute Technical Report 14/19. Observed flows were collected for a previous project (the Q/Q project in the early 1990s). ○ *Scenarios and outputs from various runs (provide a brief summary and indicate where these are stored)* There is a calibration scenario (1993), a redeveloped scenario (2013) and a further redeveloped scenario (2040). There are also over 100 water sensitive urban design scenarios. Model results files were reported but not kept due to the large data pool they present. ○ *Assumptions behind model (provide a brief summary and indicate where these are stored)* Full details reported in Goyder Institute Technical Report 14/19 ○ *Limitations of model(provide a brief summary)* Full details reported in Goyder Institute Technical Report 14/19 ○ *Peer review process (if applicable)* The model was peer reviewed by David Pezzaniti and David Kemp. Outputs were reported in Goyder Institute Technical Report 14/19. Reviewed by the project steering committee. ○ *Extensibility of model (can it be run for different time periods)* Yes, it can be run at whatever time period (with adjustments to reflect development assumptions at the time you run it). Goyder Institute Technical Reports are available at http://goyderinstitute.org/index.php?id=8
Specificity of data	*Was data sourced from local field sites or literature* Field investigation was undertaken to verify location and condition of stormwater pits.
Datasets/data products produced	*Include details of where datasets/products are located and contact details in the storage location* Model files and supporting information including rainfall data for model runs and flow data for calibration were stored as noted previously – at the University of South Australia's Australian Irrigation and Hydraulics Technology Facility. Information is archived under Job# A1208002 at the following drive location at the University of South Australia School of Natural and Built Environments: S:\AITC\Jobs\2012 Model run files were discarded as they amounted to a large amount of data that can be easily obtained by re-running the model.

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Other Information	
Publications (papers and technical reports)	Goyder Institute for Water Research Technical Reports: Myers B, Pezzaniti D, Kemp D, Chavoshi S, Montazeri M, Sharma A, Chacko P, Hewa GA, Tjandraatmadja G and Cook S (2014) Water Sensitive Urban Design Impediments and Potential: Contributions to the Urban Water Blueprint (Phase 1) Task 3: The Potential Role of WSUD in Urban Service Provision. Goyder Institute for Water Research Technical Report Series No. 14/19, Adelaide, South Australia. ISSN: 1839-2725 (PDF 7.27 MB) Conference Proceedings Sharma, AK, Pezzaniti, D, Myers, B, Chacko, P, Tjandraatmadja, G, Cook, S, Chavoshi, S, Kemp, D, Leonard, R & Koth, B 2013, 'The Role of Water Sensitive Urban Design in Supplementing Urban Water Services', *International Water Week Conference*, Amsterdam, Netherlands, 4-8 November 2014 Kemp, DJ & Myers, BR 2015, 'A Verification of the Hydrological Impact of 20 Years of Infill Development in an Urban Catchment', *36th Hydrology and Water Resources Symposium*, Hobart, Tasmania, 7-10 December 2015 Goyder Institute Technical Reports are available at http://goyderinstitute.org/index.php?id=8
Collaborations and acknowledgements	City of Marion, City of Holdfast Bay, Adelaide and Mount Lofty Ranges Natural Resource Management Board, South Australian Department for Environment, Water and Natural Resources
Keywords	Frederick Street, Water sensitive urban design, WSUD, flow, peak flow, runoff, runoff volume, infrastructure capacity, infill development, SWMM, PCSWMM, EPA SWMM.