matamata piako district council






MPDC Stormwater Requirements

March 2016

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(Note that this is a summary of requirements and does not imply there are no other considerations in specific cases.)

1. District Plan:

The District Plan provides for the sustainable management of the natural and physical resources of the district to ensure it is protected for future generations.

(Note these extracts are from the latest version of the District Plan dated 21 October 2015)

1.2.2 Development suitability

On-site stormwater treatment and disposal - See Section 5.9: Infrastructure and Servicing and the Development Manual.

5.9.1 Performance standards

(i) Stormwater

The subdivision and development of land shall be carried out so as to provide for effective stormwater management, in compliance with the Development Manual.

5.9.2 Non-Compliance with performance standards

(i) Stormwater

Provision for stormwater disposal that fails to meet the performance standards in Section 5.9.1 above shall be considered a restricted-discretionary activity. Council has restricted its discretion to the matters outlined in Section 5.9.3(i). If consent is granted Council may impose conditions to avoid, remedy, or mitigate adverse effects relating to any of these matters.

5.9.3 Matters of discretion

(i) Stormwater

The design, construction and operation of the stormwater systems should be such as to satisfy the following:

(a) Be adequate to meet the maximum potential demand on site arising from the development and use of the land as permitted under the District Plan and taking into account the actual and potential land uses up-gradient of the site.

(b) In the first instance be managed and disposed of on-site. Only where on-site disposal is unable to be achieved will Council consider new connections to public drainage, where available.

(c) The design capacity of any piped stormwater facilities should be sufficient to accommodate the surface water flows resulting from a 10-year storm event in the case of Residential, Industrial and Business zones, and to avoid flood damage to the existing or potential principal buildings on the site, resulting from a 100-year storm event.

(d) Overland flow paths must be able to cater for a minimum of a 1 in 100 year return period storm. Flood paths within the subject site must be protected by an easement registered against the titles affected throughout their length.

Where flood paths are not feasible, the piped system must cater for a minimum of a 1 in 100 year return period storm.

Where disposal is to ground soakage with no flood path, the soakage must cater for a 1 in 100 year return period storm.

(e) Secondary flows exiting the subject site following development must not exceed pre-development overland flows.

(f) Stormwater proposals must take into account the requirements of the Council's current stormwater discharge consents from the WRC. All proposals must be consistent with the conditions of this consent including requirements for low impact design principles, stormwater management devices and best practicable options as set out in the consent.

(g) Stormwater works should be provided in a manner which avoids excessive modification of natural drainage systems and minimises any detriment to the environment particularly through potential contamination of natural water.

(h) The integrity of the stormwater system should be maintained and its safe and efficient operation facilitated, while ensuring an adequate level of safety to the public and those operating and maintaining the facilities.

(i) Any detriment to the enjoyment and development of individual allotments arising from the provision and operation of the stormwater system needs to be minimised.

(j) The known or predicted effects of climate change on a proposal, based on best available scientific knowledge, shall be taken into account.

(k) In terms of operation and maintenance, the stormwater system shall be in line with community expectations regarding anticipated performance.

(l) The lifecycle and maintenance costs meet community expectations.

(m) Any disposal or treatment areas located off-site, other than to Council owned systems, shall be protected by easements as appropriate.

(n) Council may require a detailed stormwater plan to ensure that there are no adverse stormwater effects off-site.

(o) Any necessary consent shall be obtained from the WRC

11. Natural Hazards

11.4 Flooding

11.4.1 Design floor levels

In ponding areas within the Waihou River flood plains, at least 80% of the area of the property shall have ground levels 200 mm above the design flood level and the building floor levels must be 500 mm above the design flood level, i.e. 300 mm above ground level. Design flood levels are usually based on the risk factor of 1% annual return period flood event.

11.4.2 Design standards for buildings subject to overland flow paths

Buildings subject to overland flow from tributary streams shall meet the following standards:

(i) Exterior walls should be waterproofed;

(ii) Large openings to the building should be located away from flowpaths;

(iii) Minimum floor levels of habitable rooms shall be 500 mm above general ground level or above stopbank crest levels or road formation levels.

11.4.3 Stormwater flows

Where activities involve the development of large impermeable surfaces including buildings, structures and paved surfaces (exceeding a combined site coverage of 1,000 m2), Council will require technical evaluations of the existing and anticipated stormwater flows and the necessity or otherwise of retention ponds or other stormwater control and/or mitigation devices.

11.4.4 Stormwater design

Detailed stormwater design shall be in accordance with the Development Manual.

13.1 Statutory provisions

In undertaking any activity, regard shall be had to the provisions and requirements of statutes regulation or Policy Statements other than the Resource Management Act as they affect the avoidance, remediation or mitigation of any adverse effects on the environment.

Such statutes include, but are not necessarily limited to: only included are those likely to apply to stormwater)

- Local Government Act;
- Building Act;
- Building Code;
- National Policy Statements;

13.2 Regional Council

In undertaking any activity, regard shall be had to the provisions and requirements of any Policy Statements and Regional Plans prepared by the Regional Council relating to but not necessarily limited to:

- Earthworks;
- Water and soil conservation;
- Discharge of contaminants;
- Water permits;
- Damming, flooding or otherwise altering any natural catchment;
- Removal of vegetation;
- Hazardous facility management;
- Structures on, under or over the beds or rivers.

2. Development Manual:

- The MPDC Development Manual sets out the processes and standards that are expected to be followed and met whenever any development project is undertaken in accordance with Matamata-Piako District Plan. It particularly applies where the assets are taken over by Council as noted in the Introduction.

- It represents the “preferred means of compliance” with the District Plan requirements – however it should be noted the Development Manual is not the only method that may be adopted to comply with the requirements of the District Plan.

- The Developer may produce an alternative design, however in that case must clearly demonstrate that the design meets the relevant District Plan requirements. The procedure for alternative solutions is set out in section 1.6 of the Development Manual.

- The section relating to Stormwater Drainage is Part 4 and the general requirement is that all lots shall be provided with a means of stormwater drainage at or within the lot boundary.

<u>The following only lists key points and are not an inclusive listing of the Development Manual requirements</u>

- The discharge through any existing connection shall be limited to the discharge rates from the pre-developed site and any excess discharge rate (e.g. overland flow) created shall be dealt with by the development to the pre-development disposal rates.

- Where a stormwater system is proposed for the collection and discharge of stormwater within the land being developed, it shall also have capacity to deal with drainage from the entire catchment upstream of the development site.

- Stormwater proposals must take into account the requirements of Council's current stormwater discharge consents from the Regional Council. All proposals must be consistent with the conditions of these consents including requirements for low impact design principles, stormwater management devices and best practicable options.

- Secondary flow paths shall be provided and must be able to cater for a minimum of a 1 in 100 year return period storm. Secondary flow paths within the development must be protected by an easement registered against the titles affected.

- Where secondary flow paths are not feasible the piped system must cater for a minimum of a 1 in 100 year return period storm. This shall also ensure that the peak flow rate from the developed site does not exceed the 100 year pre-development peak flow rate.

- Where disposal is to ground soakage with no available secondary flow path, the soakage system must cater for a 1 in 100 year return period storm.

- The Developer shall be responsible for ensuring that mechanisms exist to prevent water-borne litter, such as paper and plastics, and gross sediments from entering the system. Proposed design plans shall demonstrate how this is to be achieved.

- In new developments the stormwater disposal design shall adopt stormwater control measures that retain the secondary overland flow run-off for the particular development to pre-development conditions

- Stormwater secondary flow paths shall be identified for the following situations:
  - Catchpit blockage.
  - Culvert blockage (or alternatively provide an unobstructed waterway capable of passing the once in 100 year return period rainfall event while maintaining at least 0. 5 m freeboard to building floor levels on upstream property).
  - Rainfall in excess of design levels of service as outlined in section 4.8.1.1.

- Stormwater secondary flow paths, including peak flow depths, velocities and flow rates, shall be shown on design plans for pre and post development of the site for a once in 100 years return period.

- All stormwater secondary flow paths across private land shall be protected by an easement. The easement shall cover the full extent of the secondary flow path and shall not be less than 3 m wide. The easement shall have the effect of preventing alteration of the ground surface and prohibit location of structures that might impede the flow of water across the land. The easement shall be in favour of the Council. The easement shall be duly granted, reserved and shown on the survey plan.

- To ensure that the critical duration storm is utilised for each site (including upstream) the 24 hour duration nested storms with a minimum of 10 minutes duration should be used for the proposed development.

3. Infrastructure Code of Practice:

- These set out the standards for materials and construction that are required in the MPDC district. Compliance with the Code of Practice is required for all works that are for Council whether by direct contract to Council or as part of a development where the infrastructural assets will become part of the Council network following completion.

- Part 1 contains “General” requirement and Part 4 contains “Stormwater and Wastewater” requirements. In Part 4, Section A is the “Construction Specifications” and Section B the “Acceptable fittings and materials”.

4. Stormwater Bylaw

- The Stormwater Management Bylaw provides for the management of stormwater within the MPDC district so as to protect people, property and the environment by minimising the impact of flooding erosion and environmental pollution. It applies in both the urban and rural areas.

- In general the requirements are similar to those imposed under the Resource Management Act 1991, the Building Act 2004, or other Acts or Regulations.

- Those designing stormwater systems should be familiar with the Bylaws including the requirement to ensure water does not run across footpaths from driveways; and that the runoff from developments does not run onto to adjacent properties.

5. Comprehensive SW Consents

- Stormwater proposals must take into account the requirements of Council’s current stormwater discharge consents from Environment Waikato and all proposals must comply with the requirements with low impact design principles, stormwater management devices and best practicable options as set out in the extracts below.

These consents apply to the urban areas of Matamata, Morrinsville, Te Aroha and Waharoa.

- Where the new stormwater will discharge to other than an existing Council pipe network, the sub-divider is required to obtain a Discharge Consent, and a Resource Consent for the work within the watercourse, from EW in their own name. Proof of this is required before the any work on the subdivision can commence. As Council will need to add the discharge to its own consent at the time of transfer, the consent must specifically state that the work will comply with the requirements for a new municipal discharge as set out in the extracts below.
- Where the discharge is to an existing Council pipe network, acceptance will be subject to compliance with the requirements for connections to the municipal stormwater system as set out in the relevant extracts below.

Relevant extracts of Council's Stormwater Discharge Consents are: (our underlining)

- ***New municipal stormwater diversion or discharge activities***
  Any new municipal stormwater system diversion or discharge activity commenced after the granting of this consent shall be authorised by this consent when the consent holder is notified in writing by the Waikato Regional Council to this effect. Such notification shall be provided on receipt of information showing to the satisfaction of the Waikato Regional Council acting in a technical certification capacity, that:

  a) The new diversion or discharge is consistent with the conditions of this consent; and

  b) The new diversion or discharge does not increase peak discharge rates to, or flow volumes in, receiving waters above that which would occur at the time of the application for this consent, unless it is demonstrated that there shall be no adverse effects on the environment or downstream properties as a result of such increase

- ***Changes in municipal stormwater system diversion and discharge activities***
  The consent holder shall not undertake any changes to the municipal stormwater system diversion and discharge activities which would increase the scale or intensity of actual or potential adverse effects of those activities on the receiving environment

- ***Connections to the municipal stormwater system***
  The consent holder shall be responsible for accepting new connections to the municipal stormwater system, -----, for ensuring that all new such connections incorporate appropriate stormwater management systems that are capable of:

  a) Minimising all contaminants such that water quality conditions of this consent are complied with.

  b) Preventing accidental release of any hazardous substances to the stormwater system, or

  c) Reducing all such hazardous substances in stormwater , prior to discharge to receiving waters, to concentrations that will not result in contamination of either water or sediments to such a degree that it is likely to result in adverse effects on aquatic life or on the suitability of water for human consumption after treatment.

- ***Low Impact Design principles***
  The consent holder shall ensure that for all proposed "greenfield" site developments, consideration is given to the application of Low Impact Design principles as contained in the Auckland Regional Council Technical Publication No 124 "Low Impact Design Manual for the Auckland Region" (ARC, 2000), or any other technical publication

approved in advance by the Waikato Regional Council acting in a technical certification capacity.

- ***Stormwater management devices***

  The consent holder shall ensure that for all proposed urban development sites ("brownfield" and "greenfield" sites), consideration is given to the application of stormwater management devices. Where applicable, these shall be constructed and maintained in accordance with the Auckland Regional Council Technical Publication No 10 "Stormwater Management Devices: Design Guidelines Manual"" (ARC, 2003), or any other technical publication approved in advance by the Waikato Regional Council acting in a technical certification capacity.

- ***Best Practicable Options***

  At all times, the consent holder shall seek to implement Best Practical Options for minimising actual and potential adverse effects on the receiving environment that result from the municipal stormwater system diversion and discharge activities and associated land use.

Interpretations:

- **Question:** Your Regional Plan requires that to be a permitted activity soakage systems must cater for the 10 year design storm or higher with any exceedence going into a designated flow path. We have assumed that if there is no designated flow path then the soakage must cater for the 100 year storm and felt that we cannot require for a greater storm than this. However would such a policy fit with the EW rules? Or do all soakage systems without a designated flow path require EW consent?

  Answer: *You are correct in that in order to fall under the permitted activity rule for stormwater discharge to ground the soakage area must cater for the 10 year storm event. Storm events greater than the 10 yr shall flow overland through a designated flowpath. The Regional Plan does not specifically define a designated flowpath as such. Generally this can been interpreted for example as a manmade/natural swale, roadway, drain, or natural lay of the land where the pre-existing stormwater flowed. The purpose of the 'designated' flowpath is to ensure that the overland flows do not create adverse effects such as flooding and scour/erosion.*

- **Question:** How should the requirement for EW approval for new stormwater discharges in our Comprehensive consents be applied?

  Answer: *There is a little interpretation required in this requirement. If a new subdivision discharges into the MPDC stormwater infrastructure it is not considered a new activity as there is no new discharge occurring. The existing discharge remains the same and is authorised by the current consent. It is therefore up to MPDC to ensure compliance that the increase in flows meets the condition of consent. If it is a new activity (new discharge) that is when the requirements for a new municipal stormwater diversion or discharge activities are activated and then EW would provide written approval of the discharge".*

Comment - note that in general MPDC discharge consents are into watercourses running through urban areas and the watercourses themselves are not part of the urban drainage system. It is also considered that the requirements of the Comprehensive SW Consents are generally no more onerous than established Common Law.

6. Building Act

- It should be noted the Acceptable Solutions in E1 are subject to very significant restraints as follows: have an upstream catchment of less than 0.25 ha; be free from a history of flooding; not adjacent to a watercourse; not located in a low lying area; and not located in a secondary flow path.

- While the Building Code only requires floor levels to be above the 50 year AEP storm, where Section 71 & 72 of the Building Act applies, no frequency is stated but it has been determined by the Building and Housing Determination Tribunal that a minimum of 1 in 100 years is appropriate. It is also likely that the Building Act will be amended in due to course to the 1 in 100 year storm so it is recommended as good engineering practice that the 1 in 100 year storm be adopted in all situations.

- E1 is intended for individual building projects and is not to be used for the design of a subdivision stormwater system or for major building projects with a total impervious surface in excess of 1000 m^2 (including car parks etc).
- Likewise the method of calculating soakage rates in E1 is open to interpretation and Council requires the use of the procedure in the Soakage Design Procedures and Guidelines for subdivisions and major building projects.

7. Common Law

- Landowners including local authorities must comply with established common law as well as the direct provisions of legislation in respect of stormwater.

- Common law is law developed by judges, courts, and similar tribunals, stated in decisions that nominally decide individual cases but that in addition has precedential effect on future cases.

- One important aspect is the common law rights of "natural servitude" relating to stormwater runoff which in essence is a duty on the lower landowner to accept the natural flow of water (including rainfall) from higher land as long as it would normally fall there from the ordinary and natural use of the land. What constitutes "ordinary and natural use" is a question of fact in each case but it is clear the higher landowner is not entitled to discharge "foreign" water onto lower land, in other words water from a different water source.

- Strictly speaking the immediate discharge of water from a property where the land use is not natural and ordinary comprises a trespass whereas the discharge onto an immediate property which flows onto another person's land is a nuisance. The escape of water from one property to another can clearly constitute a nuisance, be it via a continuing escape or a one-off flooding.

- Negligence involves the breach of a duty of care owed to another as a result of which that other suffers loss. It allows a plaintiff to recover damages for losses which were reasonably foreseeable by the defendant when the wrong was committed. The outcome can either be an injunction to prevent the nuisance from continuing or the payment of damages.

- It seems clear that a council permitting a stormwater discharge onto private land from a subdivision outside of the requirements of its discharge consents or common law), be it directly across a neighbouring property or via a discharge onto land it owns, will be liable for the outcome.

- Attached to this document is an article on the effect of both common law and legislation on the escape of water onto private land.

8. Miscellaneous Information:

- **Soakage Calculator** – this calculator is available on Council's website and is intended for residential and other projects with an impervious area of under 1000 m^2. It provides a means of compliance for the Building Code and Waikato Regional Council soakage requirements provided minimum soakage (i.e. in excess of 0.5 litres/min/m^2) is available.

  Provided there is "*known reasonable soakage*" e.g. water does not pond on the surface or a hole filled with water empties overnight, and the impervious area is less than 250 m^2, then no soakage test will be required – as per the limited option on the Flow Chart.

- **Soakage Design Procedures & Guidelines** – this document is available on Council's website and was prepared to provide a standard method of ascertaining the design soakage rate and provides some generic solutions for the provision of soakage. It is particularly relevant to subdivisions and larger projects containing over 1000 m^2 of impervious surfaces.

  It should be noted that the number and location of soakage tests is specified in 5.2 of the Soakage Procedures and Guidelines as follows:

  "Due to the variability in soakage, even within local areas, a sufficient number of tests must be undertaken and located so as to be representative of the site. The minimum number of tests required is shown in Table 1 below. The development type is divided into Brownfield (sites in existing built up areas including infill subdivisions) and Greenfield (new undeveloped areas including multiple lot subdivision).

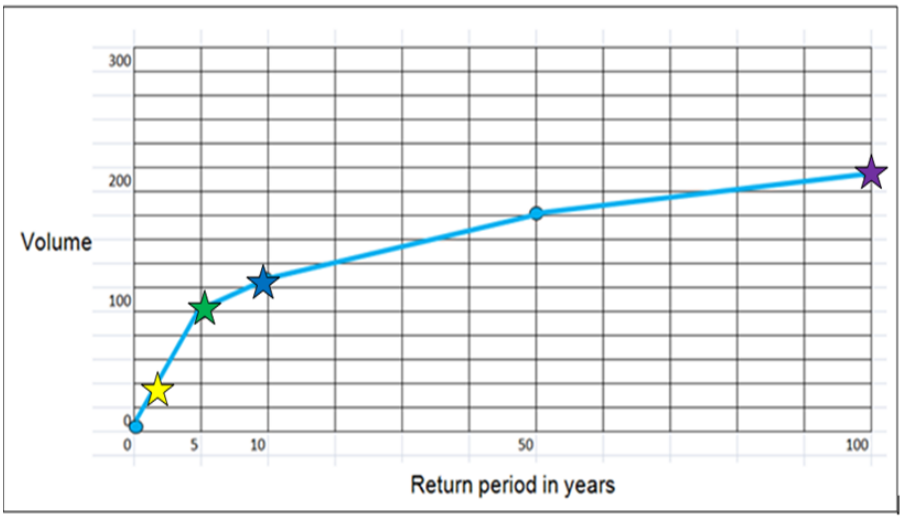
Table 1 – Minimum number of test locations

Development type	Proposed Lot / Site size	Number of tests required
Brownfield	< 400 m^2	1
Brownfield	400 – 1000 m^2	2
Brownfield	> 1000 m^2	2 per 1000 m^2
Greenfield	< 1000 m^2	1 per 4 lots, 2 minimum
Greenfield	> 1000 m^2	1 per 4000 m^2, 2 minimum

*If test results show a variability in design soakage rate of >2 litres / min / m2 then the number of tests must be increased to twice the number shown above".

- **The difference in the total runoff** in differing AEP storms is approximately as follows (this also approximately equates to the rate of runoff):

2 year storm	- historical design standard including much of our township's systems
5 year storm	- general standard 1990 - 2010
10 year storm	- current standard for primary systems
100 year storm	- current standard total runoff including secondary systems



Increase from:

2 yr to 5 yr = 2.5 times

2 yr to 10 yr = 3 times

2 yr to 100 yr = 5.4 times

10 yr to 100 yr = 1.8 times

50 yr to 100 yr = 1.15 times

Note:

2 yr generally road only

Later standards generally complete catchment

- **Runoff Coefficients** – there are no runoff coefficients stated in Council documentation (or in NZS 4404:2010) and the runoff coefficients in E1 (VM1 - Table 1) should be used.

- **Freeboard** – this is generally specified in Council documentation as the height above peak water level to floor level. It is recommended as good engineering practice that this be as required in NZS 4404:2010 and be measured from the top water level to the underside of the floor slab or the underside of the floor joists, whichever is applicable.

- **Storage on roads** – roads may be used as storage for the exceedence flows (i.e. over the 1 in 10 year AEP event) to a maximum of 400 mm over the centre line of the road. Where the road is not a dead-end then consideration can be given to a greater depth of ponding. The safe velocity of the flow should also be considered.

- **Discharge to/from roads** – prior to 2002 local authorities had the right under provisions in the Local Government Act 1974 (and its predecessors) to discharge stormwater from roads into watercourses. This legislation was cancelled in 2002 as the provisions were overridden by the Resource Management Act 1991 pertaining to the need for comprehensive stormwater discharge consents. It is also covered by established Common Law.

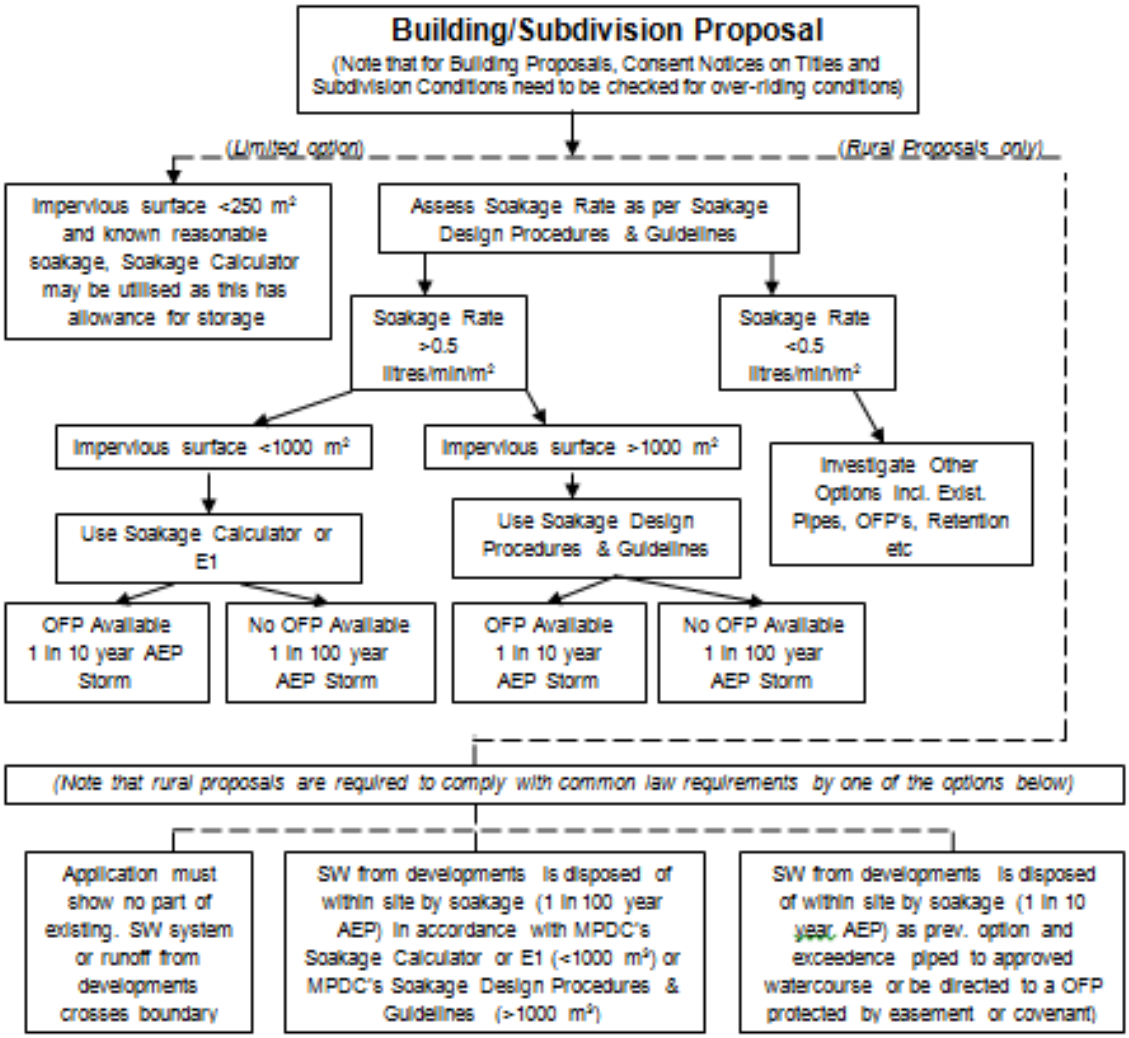
  Thus any new (or additional) discharge from roads to watercourses is now covered by Councils Comprehensive Stormwater Consents in urban areas and in particular to there being no downstream effects from increased flows. The established principals of Common Law also apply. These particularly apply when these flows are across land not owned by Council.

- **Consent Notices** – some land is subject to consent notices registered against the title that include stormwater disposal requirement. The existence of such notices need to be researched and taken into account when considering building proposals in particular.

- **Overland Flow Paths** — Council has carried out a high-level investigation into possible OFP's in its urban areas which appeared to indicate that all possible locations traversed private land before entering significant waterways. It has undertaken to carry out further investigations especifically in locations where there are indications that developments are proposed. This will include consideration of land purchase where this could facilitate the formation of OFP's.

9. Flow Chart **(see over page)**

Flow Chart for Stormwater Disposal



Notes:

1. A 1 in 10 year storm is one that has a 10% chance of occurring in any one year and a 1 in 100 year storm is one that has a 1% chance of occurring in any one year – a more accurate description is a 10% AEP or a 1 % AEP storm (AEP is "Annual Exceedence Probability"). The difference is design runoff is about 70%.
2. The design of soakage systems which will vest in Council for future maintenance will require designs that minimise the cost of future maintenance. Where significant road or car parks are involved a suitable silt and oil interceptor will be required able to handle the full runoff rate.
3. The use of existing pipe systems requires a consideration of pipe capacity and overflow points in particular.
4. A consent notice on both titles will be acceptable in rural areas where the exceedence flows cross the new boundary.
5. Overland flow paths can be across private property provided agreement is reached with the affected property owner and is protected by an easement.
6. Overland flow paths can be along roads provided they do not cause an overflow across private property unless agreement is reached with the affected property owner and is protected by an easement.
7. Overland flow paths cannot end at the 100 year flood level of adjacent rivers as in general the river levels are the result of storms upstream rather than in or near the catchment being reviewed.
8. Soakage rates may require the design of storage into the soakage system or upstream.
9. "*Known reasonable soakage*" for the purpose of this chart is for instance where water does not pond on the surface or a hole filled with water empties overnight.
10. In the case of subdivisions the proposals shall show that no part of any existing stormwater system crosses the new boundary unless covered by an easement or covenant.
11. Flows to be allowed for from brownfield sites are the additional stormwater runoff generated by the proposed developments.
12. Existing runoff must be shown to have actually left the site in the predevelopment condition and not be the theoretical runoff from the site.
13. Unless specifically approved the runoff coefficients used must be those from E1 for the appropriate site conditions as of the date of application for the Comprehensive Discharge Consents – March 2001.