

On-Site Wastewater Disposal Site Assessment, Subsoil Investigation and Site Evaluation Checklist

1. Site Evaluator

1.1	Name:	Registration Number:
	Company:	Address:
	Phone: Fax:	Mobile:

2. Site Information

2.1	Location Address:		
	Owner:	Address:	
	Phone:	Fax:	Mobile:
2.2	Legal Description	Lot No: DP:	Valuation No:
	Area of Site: m ²	Ha:	
2.3	Shape/Layout of site - plans attached?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.4	Photographs of site attached?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.5	Percolation Test Results Attached?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.6	Illustration of Soil Structure Attached?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.7	Photograph of Soil Structure Attached?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

3. Hydraulic Loading Information

3.1	Number of Bedrooms	Number of Persons	Design Loading Rate Per Person (1/day)
3.2	Waste Disposal Unit Installed?		Yes <input type="checkbox"/> No <input type="checkbox"/>
3.3	Water Saving Devices Fitted?		Yes <input type="checkbox"/> No <input type="checkbox"/>
3.4	Water Supply / Rain Water / Bore/Well / Reticulated (cross out those not applicable)		

4. Site Assessment

4.1	Have Plans / Photographs of the Site been supplied? Yes <input type="checkbox"/> No <input type="checkbox"/> If not, why not
4.2	Topography of Site – Flat (<10%) / Rolling (10-20%) / Sloping (20-30%)/ Steep (>30%) (cross out those not applicable)
4.3	Give details if different from 4.2
4.4	Does the site contain fill? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>
4.5	Does the site Contain Drainage Flow Paths? Yes <input type="checkbox"/> No <input type="checkbox"/>
4.6	Any Visible or Known Stormwater Problems? Yes <input type="checkbox"/> No <input type="checkbox"/>
4.7	Need for Ground Water/Surface Water “Cut-Off / Collector Drains” Yes <input type="checkbox"/> No <input type="checkbox"/>

4.8	Is the winter High Water table known? If known comments please:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4.9	Proposed Disposal and Reserve area, Distance from: Boundaries / Waterway / Well/Bore / Buildings.....				
4.10	Local Experience – (Existing on-site Systems) (Either Comment or tick which is applicable) Is performance Satisfactory? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> N/A <input type="checkbox"/> If answer is No - Comments please				

5. Sub Soil Investigation

5.1	How was Soil Profile Determined? Bore Holes / Dig Test Holes / Earlier Site Excavations / Other – (Please specify)				
5.2	Have the soils been assessed by an Independent Party? If so please specify	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5.3	Has the soil structure Profile been completed? Have photographs been supplied?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5.4	Has Percolation Testing been carried out? If YES specify method	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5.5	Are Percolation test results attached?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5.6	Soil Category - show the estimated soil category from the descriptions below: Tick applicable box				
	1. Gravel, coarse sand, rapid draining, structureless		<input type="checkbox"/>		
	2. Sandy Loams – weakly structured		<input type="checkbox"/>		
	3. Loams – moderate to weak structure		<input type="checkbox"/>		
	4. Clay Loams – weak to massive		<input type="checkbox"/>		
	5. Light Clays - Strong / Moderate / Weak		<input type="checkbox"/>		
	6. Medium to Heavy Clays - Strong / Moderate / Weak		<input type="checkbox"/>		

6. Site Evaluation

6.1	Design Considerations:				
	Any environmental constraints? If yes please specify	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	Any soil constraints?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

	If yes please specify (see 5.6)				
	Any site constraints?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	If yes please specify (see 2.2, 4.2, 5.6)				
	Any Hawke's Bay Regional Council (HBRC) constraints?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	If yes please specify – Rule: 35 / 36 / 37 (Please circle which rule applies)				
6.2	Type of Sewer Treatment System considered best suited for the site				
6.3	Type of Disposal System considered best suited for the site				
6.4	Minimum disposal area recommended (for trenches / beds / irrigation systems - see 6.2 and 6.3 attached and 6.8 below)				
6.5	Minimum size of reserve area (See HBRC & HDC Requirements)				
6.6	Are sewer treatment system and disposal system calculations and design plans attached?				
		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	If not why not				
6.7	Other comments:				
6.8	Trench and bed calculation from AS/NZS 1547 2012				

Calculations:

Length of drain = $Q \div (\text{sum of DLR} \times W)$

Example:

$Q = \text{Litre/day used} = 3 \text{ bedroom, } 6 \text{ people} \times 180 \text{ L/D/person}$

$Q = 1080 \div \text{DLR from Table 4.2A1} \div \text{trench width}$

$= 1080 \div (15 \times .600)$ (see 6.3)

$= 1080 \div 9$

$= 120\text{m of drain required (see 10b)}$

Or

Length of drain = $Q \times 1 \div \text{DLR} = \text{m}^2$

$= \text{m}^2 \div \text{trench width} = \text{length of drain}$

Example: $= 1080 \times 1 \div 15 = 72 \text{ m}^2$

$= 72 \div .600 = 120\text{m of drain (see 6.3.2b)}$

7. General Comments

7.1	AS/NZS 1547:2012 "On-site domestic wastewater management" can be used for guidance in On-site evaluation and soil assessment. This Standard can provide options for on-site wastewater treatment and land application systems.
7.2	AS/NZS 1546.1:2008 "Septic tanks" has been adopted by the Hastings District Council. Unless a manufacturer has built his tanks to comply with this Standard and had an engineer

	verify that the tanks comply with the Standard, that particular make of tank is not permitted to be installed within the Hastings District.
7.3	Where it is necessary to contact the Hawke's Bay Regional Council in relation to On-site Waste Water Disposal, Charlotte Drury Principal Consents Officer (06) 833 8058 is the person to contact.
	Name:
	Signature:
	Date:

8. Design Flow Allowances for Sewage Systems

Source	Minimum wastewater flow allowance in L/person/day	
	On-site roof water tank supply	Reticulated community/bore water supply
Households	180	200
Households (blackwater only)	60	60
Households (greywater only)	90	120
Motels/hotels		
- Guests, resident staff	220	220
- Non-resident staff	30	30
- Reception rooms	20-30	20-30
- Bar trade (per customer)	20	20
- Restaurant (per diner)	25-30	25-30
Community halls		
- Banqueting	20	30
- Meetings	10	15
Tea rooms (per customer)		
- Without restroom facilities	10	15
- With restroom facilities	15	25
School (pupils plus staff)	15-30	15-30
Rural factories, shopping centres	30	50
Camping grounds		
- fully serviced	100	130
- recreation areas	50	65

NOTE: For the purposes of determining building occupancy, Hawke's Bay Regional Council adopts an occupancy of 2 people per room, excluding bathrooms, kitchens, laundries and any other room that cannot feasibly be used as a bedroom

9. Trenches / Beds / Mounds

Maximum design loading rates for trenches, beds and mounds

Soil category	Soil texture	Structure	Design loading rate			
			Primary treated effluent		Secondary treated effluent (mm/d)	Mounds Specific design (mm/d)
			Conservative rate (mm/d)	Maximum rate (mm/d)		
1	Gravels and sands	Structureless	20 (see note 1)	35 (see note 1)	50 (see note 1)	32
2	Sandy loams	Weakly structured	20	35	50	24
		Massive	15	25	50	24
3	Loams	High/mod structure	15	25	50	24
		Weakly structure / massive	10	15	30	16
4	Clay loams	High/mod structure	10	15	30	16
		Weakly structured	6	10	20	8
		Massive	4	5	10	5
5	Light clays	Strongly structured Mod structure / massive	HBRC consent required – see Rule 37(nA)	HBRC consent required – see Rule 37(nA)	HBRC consent required – see Rule 37(nA)	8 Specialist soil advice & design techniques required
6	Medium to heavy clays	Strongly structured Mod structured / massive	HBRC consent required – see Rule 37(nA)	HBRC consent required – see Rule 37(nA)	HBRC consent required – see Rule 37(nA)	Specialist soil advice & design techniques required

Note 1: The treatment capacity of the soil and not the hydraulic capacity of the soil or the growth of the clogging layer govern the effluent loading rate of category 1 soils. Category 1 soils require special design.

10. Design Specifications for Trenches / Beds / Mounds

- a) Trenches must be at least 400mm deep and 300mm wide and have a depth of aggregate of 200mm to 400mm.
- b) They shall be limited to around 25m long, and there must be a spacing of at least 1000mm between adjacent trench walls.
- c) Beds must be at least 1000mm wide, with a minimum spacing of 1000mm between adjacent bed walls and within 1.00m from distribution lines to wall of bed.
- d) Multiple distribution lines to be included where beds are more than 1.5 metres in width.
- e) Both trenches and beds must be backfilled with distribution media and covered with a minimum of 150mm of topsoil.
- f) The discharge shall be pumped, or dosed in fixed quantities so that the wastewater is applied evenly across the entire land treatment field.
- g) Gravity drainage to trench and beds is not permitted unless a specifically designed system is used to provide dose loading and distribution over the entire trench or bed area at any one time.
- h) Trenches or beds shall not be constructed on slopes of greater than 15 degrees (approximately 27% slope).

11. Irrigation Systems

Maximum design irrigation rates for irrigation systems

Soil Category	Soil texture	Design irrigation rate DRIP (mm/day)	Design irrigation rate LPED (mm/day)
1	Gravels and sands	5	Not advisable
2	Sandy loams	5	4
3	Loams	4	3.5
4	Clay loams	3.5	3
5	Light clays	3	2.5
6	Medium to heavy clays	2	Not advisable

Design specifications for Irrigation Systems

- a) Irrigation lines placed on the surface shall be pinned to the surface and covered with at least 100mm of media after the surface has been scarified.
- b) Subsurface irrigation lines shall be installed at a maximum depth of 200mm below ground level and covered with at least 100mm depth of cover.
- c) Maximum spacing of 600mm in Category 1 and 2 soils and 1000mm in all other soil categories, as defined by AS/NZS 1547:2012.

- d) Secondary treated wastewater shall be applied evenly across the entire land treatment field.
- e) On sloping ground the design irrigation rate (DIR) shall be decreased to ensure that effluent migration down slope is taken up adequately with the top soil and plant root system. Required reductions according to slope are as follows:
 - i. Flat slopes and up to 10% - no reduction;
 - ii. 10% to 20% - reduction in DIR value of 20%;
 - iii. 20% to 30% - reduction in DIR value of 50%; and
 - iv. >30% - specialist advice required.
- f) Appropriate plant species are advised to be planted to assist with evapotranspiration.

12. Conversion of per cent grade, slope and gradient

Slope conversion table

Per cent grade (%)	Slope angle Degrees (°)	Slope ratio (V:H) Approximate gradient
5	2.8	1:20.0
10	5.7	1:10.0
15	8.5	1:6.7
20	11.3	1:5.0
25	14.0	1:4.0
30	16.7	1:3.3
35	19.3	1:2.9
40	21.8	1:2.5