

APPENDIX A. GENERAL SUBDIVISION PRACTICE

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Table A/1 SUMMARY OF ENGINEERING APPROVALS AND NOTIFICATIONS

Stage	Council Representative for:		
	Roads and Earthworks	Drainage	Water
Water right consent application		Approv.	
Proposed construction details	Approv.	Approv.	Approv.
Drainage permit		Approv.	
Initial commencement	Notify	Notify	Notify
Re-commencement (after a 6 month lapse of work)	Notify	Notify	Notify
Commencing Silt retention structures	Notify		
Commencing Subsoil Drainage	Notify		
Commencing earthworks	Notify		
Obtain "Street Opening Notice" for trenching in existing road land	Notify		
Completion of drains and water mains (prior to backfill)		Notify	Approv.
Completion of road subgrade	Notify		
Completion of kerb and channel subgrade	Notify		
Testing of drains/water mains		Approv.	Approv.
Connection to existing drains/water mains		Notify	Notify
Benkelman beam testing of basecourse	Approv.		
Completion of footpath subgrade	Notify		
Road surface preparation for sealing	Notify		
Berm areas prior to soil and sowing	Notify		
As Built Plans	Approv.	Approv.	Approv.
Final completion of subdivision	Approv.	Approv.	Approv.

Note Approv = Approval required for next stage to proceed.

Notify = Council Representative to be notified and allowed time to inspect.

Refer to Section A.4.

BASIC CONSTRUCTION PLAN STANDARDS AND DETAILS

1. DRAUGHTING STANDARDS

The sheet size shall be A1, except a smaller size may be used for small jobs that fit on a single smaller size at the scales in the table below.

SCALES TO BE USED IN PLANS

PLAN TYPE	PLAN	LONG SECTION:		CROSS SECTION
		HORIZONTAL	VERTICAL	
Proposed construction: Earthworks	1:500 or 1:200 or 1:100			
Roading	1:200 or 1:100	1:200 or 1:100	1:50 or 1:20	1:200 or 1:100
Drainage	1:500 1:200 or 1:100	1:500 1:200 or 1:100	1:200 1:100 or 1:50	
Water	1:200 or 1:100			
As Built: Earthworks	1:500			
Roading	1:500			
Drainage	1:500	1:500	1:500	
Water	1:500			

Types of lines/and colour of shading to be used are shown in the following table.

LINE SIZES AND COLOUR OF SHADING

FEATURE	TYPE OF LINE	COLOUR OF SHADING
Existing boundaries	Medium broken	
Proposed boundaries of new lots	Heavy continuous	
Existing 10m contour	Medium-fine continuous	
Existing 2m contour	Fine continuous	
Proposed 2m & 10m contours where formation is cut	Medium continuous	
Proposed 2m & 10m contour where formation is filled	Medium broken	
Perimeter of cut area	Fine dotted	Pale pink
Perimeter of filled area	Fine dotted	Pale blue

Plans shall be numbered and dated.

Amendments shall be numbered, dated and detailed.

Plans shall be clearly legible. Traditionally with hand drafting the minimum line/lettering thickness was 0.18 mm and the minimum height of lettering was 2.0 mm. Good modern printing systems can be legible with finer lines and lettering.

2. PLAN INFORMATION

The following information is required on all plans

- a) A North point.
- b) Existing and proposed boundaries.
- c) Positions and levels of control points or survey marks used in surveys shall be shown.

d) Contours clearly showing the land formation. The contours shall be at appropriate vertical intervals (preferably not more than 2 m) covering all the land affected by the proposed subdivision. On small proposals, which do not involve earthworks, lesser topographic detail is acceptable.

3. LEVELS

Levels shall be used in terms of the “New City Datum” (Mean Sea Level).

The origin level shall be approved by Council’s Drainage Engineer. Care shall be taken to ensure the origin level used is accurate. This can be critical in terms of water supply pressures and drainage pipe levels.

A description of the origin used and it’s level shall be given.

Many older level records are in terms of the “Old City Datum”. The conversion from “Old City Datum” to “New City Datum” is as follows:

$$\text{NCD} = (\text{OCD in feet} - 37.96 \text{ feet}) \times 0.3048 \text{ metres above mean sea level.}$$

SPECIFICATIONS FOR INSTALLATION OF NEW BENCHMARKS

Situating of new benchmarks is to be dictated by the Drainage Engineer, taking into account factors including:

- likelihood for future disturbance, - stability, permanence
- existing services,
- survey visibility, line of site
- accessibility, clear of traffic
- on going development, construction areas
- within road reserve, council right of way or easement

There may be circumstances where a benchmark may be able to be attached to a suitable existing or proposed structure (steps, ramps)

Before any digging the developer will be responsible for checking with other service utility providers to ensure that there is no conflict with the proposed benchmark location and existing or proposed services.

A standard WCC Benchmark pyramid will be issued upon application from Drainage Engineer.

The type of ground conditions will influence the method used to install the new benchmark. Ground conditions fall into one of two categories-

- Good ground consists of weathered greywacke parent material and soils less than 300m deep.
- Adverse ground consists of soft colluviums, deep soils and/or sand.

Refer to figures **X and Y below**.

In good conditions (Fig. x), a 0.35 x 0.35 by 0.5 metre deep hole is to be dug. A standard WCC benchmark pyramid is to be set, base of the pyramid flush with the surface, within a block of concrete.

In adverse conditions (Fig. y) for added stability the base of the hole may increase to 0.55 m², and re-bars or warratahs maybe set into the concrete block, angling into the surrounding strata.

Upon completion of the work the site is to be left in compliance with Section A.15 of this Code of Practice.

BENCHMARK CERTIFICATE

ISSUED BY: _____
(Surveyor)

TO: _____
(Developer)

IN RESPECT OF: _____
(Description of benchmark)

AT: _____

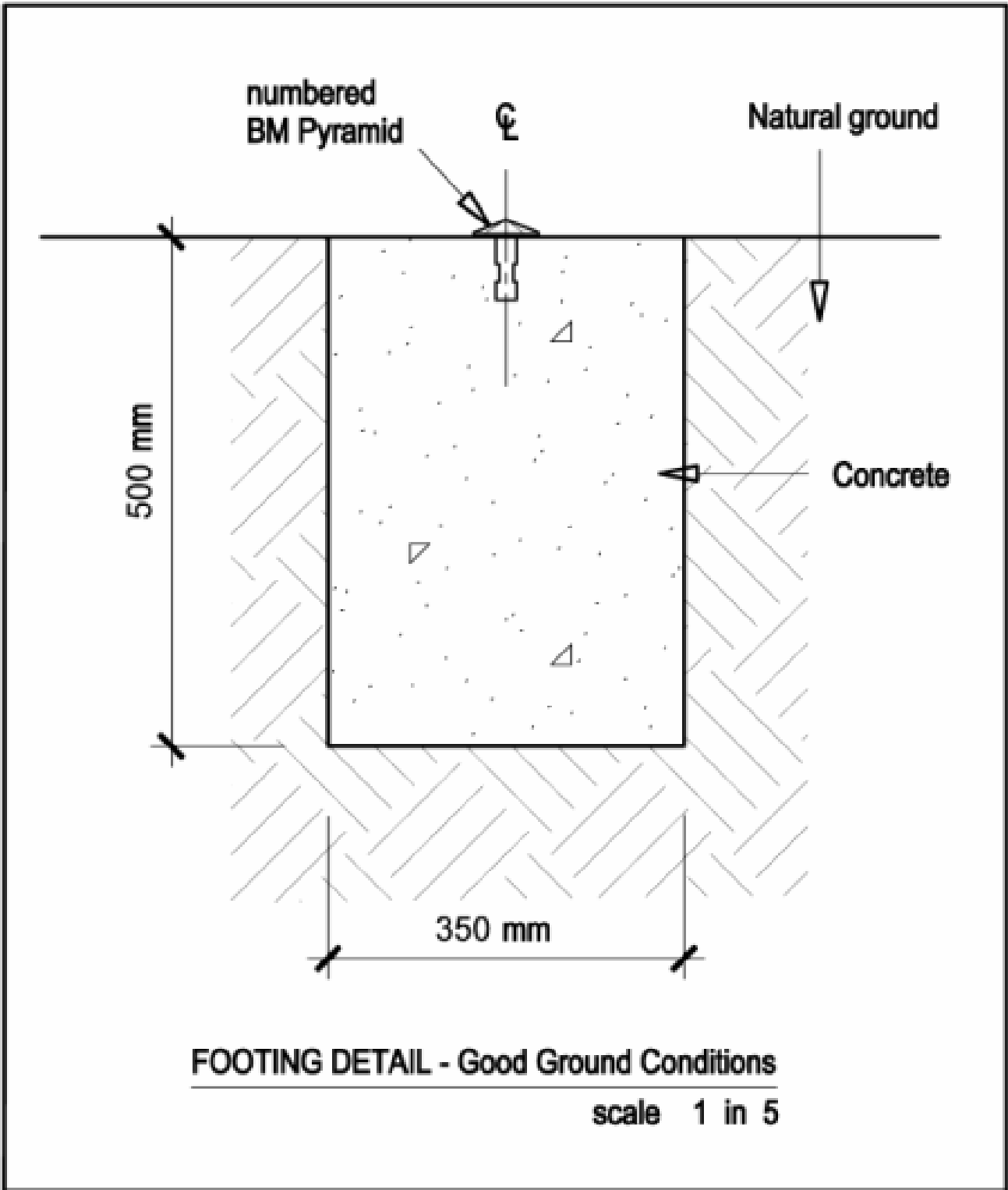
(Address)


I, _____ a Licensed Cadastral/ Registered Professional Surveyor
(Surveyor) (delete one)

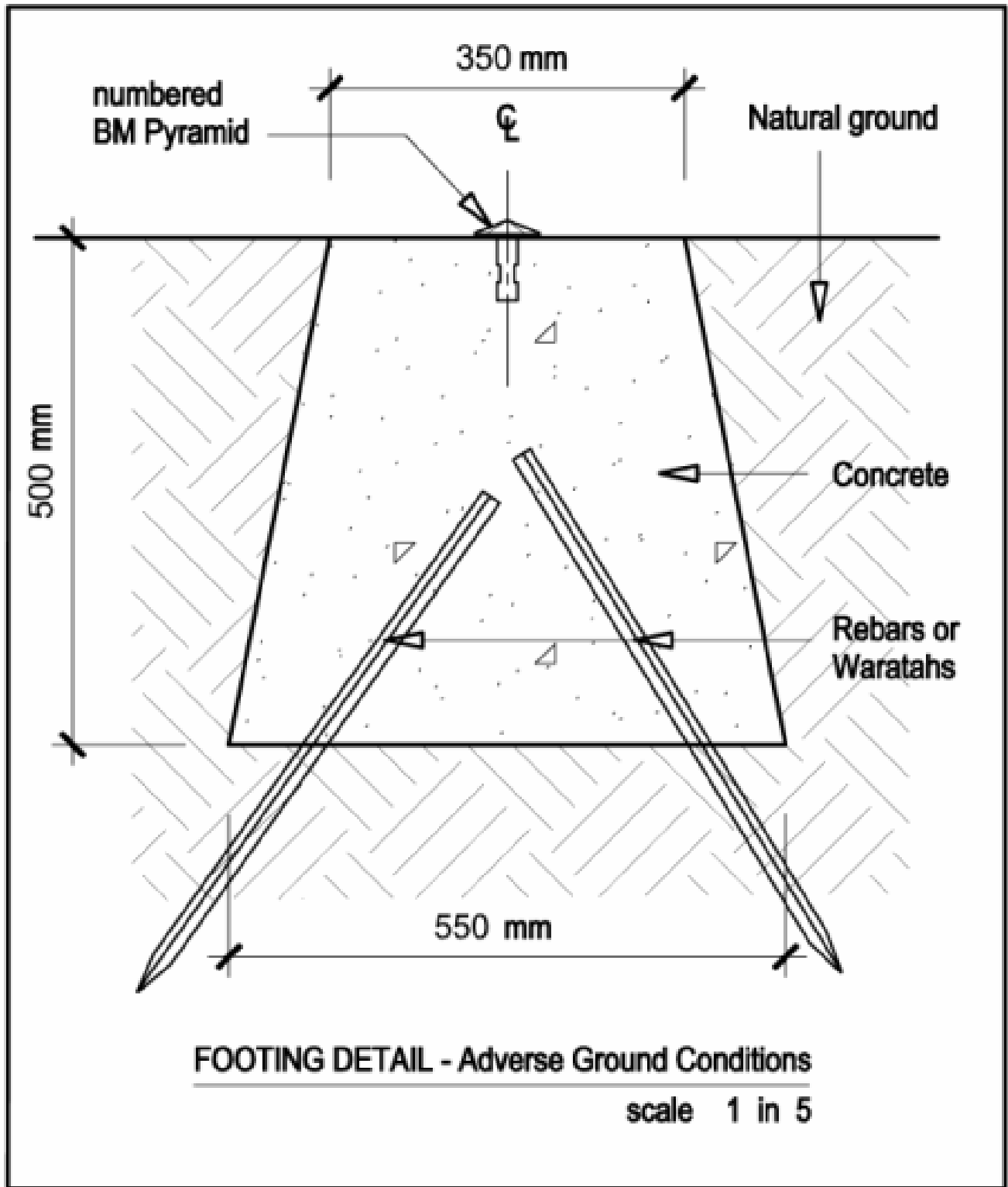
hereby certify that the benchmark shown on finder diagram _____
has been installed in accordance with the requirements of Wellington City Council's
Code of Practice for Land Development and good survey practice, using
_____ methodology.

(Signature of Surveyor) Date _____

(surveyor) _____
(Address)



 <p style="text-align: center;">General Subdivision Practise</p> <p style="text-align: center;">INSTALLATION OF NEW BENCHMARKS - GOOD GROUND CONDITIONS</p>	PLAN No. S / A001	AMENDMENT nov.08
	REFERENCE No. FILE No.	
	APPROVED BY: DATE: SCALE: AS SHOWN	



<p>General Subdivision Practise INSTALLATION OF NEW BENCHMARKS - ADVERSE GROUND CONDITIONS</p>	PLAN No. S / A002	AMENDMENT nov.08
	REFERENCE No.	FILE No.
	APPROVED BY:	
DATE:	SCALE:	AS SHOWN

STANDARD FORM A/1

To: The Manager
Wellington City Council

CERTIFICATE OF SUITABILITY OF EARTH FILL FOR RESIDENTIAL DEVELOPMENT

Subdivision.....
Subdivider.....(Owner/Developer)
Location
I..... (full name)
..... (name and address of firm)

Hereby confirm that:

1. I am a Registered Engineer suitably experienced in the field of soils engineering and was retained by the Subdivider to supervise the earthworks on the above subdivision.
2. The attached plan Nos:..... shows the extent of the fill and shows the Lot Nos:.....affected by the fill.
3. The earth fills shown have been placed in accordance with the Wellington City Council "Code of Practice for Land Development" including the NZS 4431:1989. The extent of my inspections during construction, and the results of all tests carried out are described in my report dated..... , copy attached.
4. The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604 and NZS 4229 providing that:
 - 1)
 - 2)
 - 3)

This certification does not remove the necessity for the normal inspection and design of foundations as would be made in natural ground.

Signed Date

As-Built Requirements

EARTHWORKS AS-BUILT REQUIREMENTS

1. Extent and depth of fill in the form of lines joining all points of equal depth of fill at appropriate vertical intervals of 1 metre or as appropriate.
2. Plans shall also show the type of fill material and any areas where buildings or foundations will require specific design together with any fill areas of low density not complying with this Code.
3. The position, type and size of all subsoil drains and their outlets shall also be shown.
4. Where earthworks have been carried out a certificate of land suitability for residential development shall be supplied along with a report of the inspections and testing carried out. A recommended form of the certificate, Standard Form A/1, is in Appendix A. The type of residential development that earth fills shall be capable of properly supporting are residential buildings of timber or concrete blockwork conforming with the requirements of NZS 3604 or NZS 4229.

ROADING AS-BUILT REQUIREMENTS

1. Benkelman Beam test report prior to sealing the road pavement, refer to clause C.2.7.
2. Road pavement Sealing report, refer to clause C.2.8.
3. Certificates of the concrete strength of all concrete used in the footpaths.

Council requires the following information concerning new road construction.

Dimensions and other information relating to Transportation shall be provided for all assets within the road reserve, accessway or service lane.

Assets that are required on as built plans but do not require extra information are; road reserves, grass berms, mowing strips and Trenching/Services.

4. Length, width and number of lanes within the carriageway section
5. Total area of parking bays and bus bays within the carriageway to the nearest 0.1m².

6. The total area at intersections less the area associated with length x width, to the nearest 0.1m^2 .
7. The total area associated with the traffic islands within the carriageway section, to the nearest 0.1m^2 .
8. Road names - of the road constructed and any other roads intersecting
9. Designated public transport stops, including location, bus routes, shelters, seats, bins, pads, timetables, signs, sign mounting, road marking, bus lanes, park and ride sites, and any pedestrian through paths leading to railway stations.
10. Pedestrian and cycle movements related to key features such as bus stops, schools and shopping areas. Road crossing locations should be identified in the plan including any median islands.
11. Traffic calming measures; showing street design and layout including; bends, vertical curves, junctions and the control of vehicle speeds both laterally (slow points, roundabouts, street narrowing, median islands), vertically (humps, platform intersections, platform pedestrian crossings, school crossings, and bicycle crossings), signposting (including the negotiation speed), and lane marking.
12. All vehicle crossings
13. Footpaths, accessways, amenity tracks, kerb ramps for prams and disabled people, vehicle crossings, lighting, steps, safety rails,
14. All signage
15. Street furniture, including litter bins, bollards, sign posts, pedestrian and cycle movements, designated public transport stops and other lane markings, street and/or path lights, trees, signal areas paved area
16. Details of kerb and channel, subsoil drains, intakes, sumps (including capacity) and leads.
17. Gradients on the inside kerb, horizontal curves, vertical curves, and super-elevation

WATER AS-BUILT REQUIREMENTS

1. That all water supply services are contained entirely within the Lot being serviced.
2. As-built plans shall capture all water mains and services, including all associated system components and facilities such as valves, hydrants, pump stations, PRV's, water meters, tobies and manifolds, pipe specials, bends, blank caps, anchor and thrust blocks reservoirs, etc. The plans shall show all kerbs and street sumps and other pertinent items of roadside furniture as appropriate.
3. A minimum of two measurements is required to locate the water main, service pipe and fittings. These shall be measured from existing permanent features such as boundary pegs, kerbs, fire hydrants, manholes, sluice valves, sumps, survey marks. (Note: fences and power poles are not to be used).
4. The placing of permanent co-ordinated marks in the kerb is required to facilitate the survey and provide reference points.
5. Watermain alignment, layout of specials used, outside diameter and nominal pipe size, pipe class and pipe ratings e.g. PN and SDR ratings, pipe material, pipe wall thickness and type of internal lining and external corrosion protection for metallic pipes, including sleeving material with ductile iron pipes, pipe purpose e.g. fire service, pumping main, scour pipe etc., position of fittings on the main or service pipe, location of tapping bands on the main for service connections, pipe and fitting manufacturer/brand, pipe cover and cover of other services crossed, full details of all branches and fittings, fitting type, material, size, and ratings e.g. tall, or squat pattern fire hydrant
6. Levels shall be taken from an approved benchmark, unless written dispensation is granted by the Water Engineer.

The accuracy of any level origin used under dispensation must be established before use.
7. For PRV's the As-built drawing shall provide the following additional information chamber/MH lid reduce level, Chamber/MH depth, PRV size, PRV upstream setting, PRV down stream setting and pressure relief setting.
8. Pump station drawings shall have horizontal alignment referenced to NZGD2000 co-ordinates, or, where this is not possible, to local property boundaries. Levels shall be referenced to City Datum.

DRAINAGE AS-BUILT REQUIREMENTS

1. On greenfield subdivisions, as-builts shall have co-ordinates and levels on all surface openings.
2. A small scale plan showing the catchment area of the drain.
3. Details of all unusual structures including stream intakes and exits, secondary intakes and energy dissipation structures.

4. Where the drain is not laid in a subdivision, surface openings shall have co-ordinates and levels. Where this is unreasonable (e.g. small jobs) the Drainage Engineer may allow sufficient measurements to existing surface features already shown in the WCC GIS or to boundary pegs, instead, to enable the surface openings to be accurately plotted. All measurements shall be to +/-50mm.
5. Where there is a change of direction between manholes, sufficient measurements of the drain shall be supplied to enable the entire position of the drain to be determined to +/-50mm.
6. The co-ordinates or measurements shall be to the intersection point of the drains. This is not necessarily the centre of the manhole cover or manhole.
7. If the manhole cover is not over the intersection point of the drains or if the manhole is offset, then details of these offsets shall be given.
8. There shall be levels on the drain at all changes of grade. Where there is drop in the manhole, then there shall be levels on both drains. The level of the drain is the level at the centre of the surface opening based on the grade of the pipe projected from the manhole wall through to the centre. The level is **not** the level at the manhole wall nor necessarily the level the actual level of the bottom of the manhole. These levels will often have to be calculated.
9. Invert levels shall given to at least two decimal places and shall be accurate to +/-20mm.
10. The depth to invert at all surface openings shall be shown. These shall be given to at least one decimal place and shall be accurate to +/-50mm.
Alternatively, the surface level accurate to +/- 50mm may be given.
11. Where there is a long section, this shall show the approximate actual ground level between manholes. This may require additional levels to be taken though the actual levels need not be supplied.
12. Levels shall be taken from an approved benchmark, unless written dispensation is granted by the Drainage Engineer. With written dispensation levels may be taken from an invert of an existing drain, provided there is no significant drop in the manhole.
The accuracy of any invert used under dispensation must be established before use. The accuracy is expected to be established using Good survey Practice.
13. The origin of the levels shall be stated on the asbuilt plan as follows
Level Datum = BM124, 36.253m NCD or MH P21012, Invert 36.25m NCD.
14. There shall be a plan of the drain. With sufficient detail for the location of the drain to be obvious.
15. The horizontal scale of a longitudinal section shall match the plan scale. The vertical scale may be exaggerated
16. The distance between surface openings shall be shown to at least one decimal place and shall be accurate to +/-100mm. Distances shall be the horizontal distance.
17. Where the drain is laid in an area which has address (i.e. all except new subdivisions), then the nearest address to the surface openings shall be shown.

18. The riser diameter of all manholes shall be shown.
19. If a manhole has a precast base set below pipe invert level (which is a requirement in the central city), then the invert level of the precast base shall be shown.
20. If the surface openings have node numbers, then these shall be shown.
21. The as-built shall show the following details of **all** drains:
 - Diameter, material type, jointing method and class of pipe (e.g., 375mm RRJ RC class Y, or 320OD HDPE SDR 17.6, butt welded joints).
 - Bedding material (e.g. Drainage Bedding 5-14mm, 5mm chips, NRB M4 AP20).
 - Water level in the trench if pumping or dewatering was required. (This and the previous requirement will give data for future construction).
22. The location of all connections installed shall be shown either on the plan or a table. The plan or table shall show the type of connection (e.g. junction, saddle), size of connection, material of the lead, location of the connection (measured from a manhole to the nearest 100mm) and the side of the pipe the connection is on (if “left” is used, “left” means left looking downstream). The house served by the connection should be identified if known.
23. For private leads, the as-built plans shall show:
 - The location and depth of all leads at the kerb
 - The location and depth of all leads at the boundary
 - The location of the end of all extended laterals
 - Where the end of the extended lateral is deeper than 1m, the depth of the end of the lateral.
24. Calculations for stormwater drains and culverts are to include the return period, time of concentration and rainfall intensity. Calculations for culverts and entries to a stormwater drain must consider entrance and exit conditions.
25. Calculations for sanitary sewers are to show the immediate and ultimate design populations and, where applicable, the number of lots, number of people per lot or population density assumed, together with non residential contribution
26. Structural calculations will be required whenever the cover exceeds 5m, for all pipes listed as “S” in clause , for all cast-in-situ concrete drains and when the cover exceeds 4m for HDPE pipes.

NOTE: The level of the drain is the level projected to the centre of the manhole.