Appendix C

Certified Development Check Lists

Subdivision Monitoring Schedule - Design Phase Schedule X

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:			
Design Monitoring Phase	**Site Inspections Required**	**Standard**	**Additional Information Supplied by Developer**	**Council Reps Responsibility**			**Notes**
				Verify /NA	Pass/Fair (P/F)	Ref	
1.	**SCHEME PLAN CONDITIONS**							Obtain copy
2.	**ROADING**							
	• Pavement design	Yes	NZS 4404, Austroads Pavement and Rehabilitation Design Manual or equivalent	Calculations / Tests	V			
	• Road cross section			"	V			
	- typical cross section			"	V			
	- cross sections (20 m intervals)			"	V			
	• Road long section			"	V			
	• Road widths			"	V			
	• Kerb and Channel			"	V			
	• Footpath			"	V			
	• Signage			"	V			
	• Road Marking			"	V			
	• Contour Plan			"	V			
	• Cesspits			"	V			
	• Road opening consent applied for				V			
3.	**STORMWATER (NZS 4452, NZS 3109/3103, NZS 7643)**							
	• Reticulation Design		NZS 4404	Including catchment analysis	V			
	• Pipe layout conformity				V			
	• Manhole detail				V			
	• Bedding and/or Backfill detail				V			
	• Pipe type / diameter class				V			
	• Connection for each Lot				V			

Subdivision Monitoring Schedule - Design Phase Schedule X

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:			
Design Monitoring Phase	**Site Inspections Required**	**Standard**	**Additional Information Supplied by Developer**	**Council Reps Responsibility**			**Notes**
				Verify /NA	Pass/Fair (P/F)	Ref	
4.	**SEWER**							
	• Reticulation Design		NZS 4404	No. of houses in catchment	V			
	• Pipe layout conformity				V			
	• Bedding and/or Backfill detail				V			
	• Connection for each Lot				V			
	• Pipe size / type				V			
	• Manhole detail				V			
5.	**WATER (NZS 4404)**							
	• Mains							
	- bedding and/or backfill Detail		NZS 4404		V			
	- hydrant capacity				V			
	- pipe sizes / type / class				V			
	- pressure test / chlorination details			No. of potential users	V			
	• Valves							
	- correct location		NZS 4404		V			
	- correct type				V			
	• Connection for each Lot available				V			
6.	**BERMS**							
	• Footpath / Pram Crossing							
	- structure		NZS 4404		V			
	- location		FDC Development Code		V			
	• Topsoiling		NZS 4404		V			

Subdivision Monitoring Schedule - Design Phase Schedule X

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:			
Design Monitoring Phase	Site Inspections Required	Standard	Additional Information Supplied by Developer	Council Reps Responsibility			Notes
				Verify /NA	Pass/Fair (P/F)	Ref	
	• Gardens							
	- Reserves Officer approval							
	• Location of Buried Services		NZS 4404		V			
7.	OTHER SERVICES							
	• Power Reticulation Design		Supply Authority standard	Provide Plans	V			
	• Telecom Reticulation Design				V			
	• Street Lighting Plan				V			
	• Ducts				V			
8.	RIGHT OF WAY							
	• Dimensions		FDC District Plan		V			
	• Location		Per Scheme Plan		V			
	• Pavement Design		To Condition		V			
	• Cross Section detail				V			
	• Long section gradient		Flatter than 1:8		V			
	• Drainage control / disposal		Via soakpits to stormwater system if available		V			
9.	CONTRACT DOCUMENTS		Covering supply of above items		V			

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	Site Inspections Required	Quality Control			Developers Engineers Responsibility				Council Reps Responsibility			Notes
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
1. DESIGN PLANS / DOCUMENTS APPROVED					Y				V			
▪ Provide Health & Safety Policy	N				Y				V			
▪ Safe Working on Roads Policy	N				Y				V			
▪ Public Liability Insurance	N				Y				V			
▪ Road Opening Consent	N											
2. ROADING												
▪ Subgrade												
- shape	Y	To Design	± 5 mm	20 m CRS	Y				NA			
- strength	Y	To Design	To Design	1/10m^2	Y				V			
- finish	Y		Visual	100%	Y				V			
▪ Subbase												
- material specification	N	- Sand equivalent	28%	1 per 750m^3	Y				V			
	N	- Bearing strength NZS 4407 test 18A	CBR > 30	1 per 750m^3	Y				V			
	N	- Grading Limits NZS 4407 Pt1 test 9(B)	Within envelope	1 per 750m^3	Y				V			
	N	- Weathering resistance NZS 4407 Test 3.11	AA/AB /AC/BA /BB/BC/CB	1 per 750m^3	Y				V			
- layer thickness	Y	To Design	± 5 mm	20 m	Y				V			

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	Site Inspections Required	Quality Control			Developers Engineers Responsibility				Council Reps Responsibility			Notes
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
	- compaction	Y	To Design	TNZ B/2 Section 7.6 > 92% Dry Density	1/10m^2 5/1000m^2	Y				V			
	- surface finish/shape	Y	TNZ B/2	Visual	100%	Y				V			
	▪ Basecourse												
	- material specification	N	TNZ M/4	TNZ M/4	1 per 750m^3	Y				V			
	- layer thickness	Y	To Design	± 5 mm	20 m CRS	Y				V			
	- compaction	Y	TNZ B/2 Section 7.6	> 95% Dry Density	5/1000m^2	Y				V			
	- surface finish	Y	TNZ B/2	Visual Section 7.8	100%	Y				V			
	- shape	Y			100%	Y				V			
	▪ Kerb & Channel												
	- alignment	Y	To Design	± 10 mm	100%	Y				NA			
	- finish	Y	Visual		100%	Y				V			
	▪ Preseal												
	- surface finish/shape	Y	NZS P/3	Section 7	100%	Y				NA			
	- deflection	Y	1.5 mm maximum	Benkelman Beam	1/5m grid	Y				V			
	▪ Seal												
	- design	N	TNZ P/3	Supply design		Y				V			
	- laying inspection	Y	TNZ P/9	TNZ P/3 TNZ P/9		Y				NA			
	- post seal inspection	Y	Visual			Y				V			

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	Site Inspections Required	Quality Control			Developers Engineers Responsibility				Council Reps Responsibility			Notes
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
3.	STORMWATER (NZS 4452, NZS 3109/3103, NZS 7643)											
	▪ Pipework											
	- bedding type	N	NZS 4451	NZS 4451	100%	Y			N			
	- pipe haunching	Y	Continuous contact	Visual	100%	Y			NA			
	- pipe line	Y	Laser or mirror		100%	Y			V			
	- pipe covering	Y	NZS 4404		100%	Y			NA			
	- trench backfilling	Y	Development code		100%	Y			NA			
	- Pipe type/diameter/class	Y	To design		100%	Y			NA			
	▪ Manhole											
	- infiltration leakage	Y	Visual	No leaks	100%	Y			V			
	- haunching	Y		Smooth	100%	Y			V			
4.	SEWER											
	▪ Pipework											
	- bedding type		NZS 4452		100%	Y			V			
	- pipe haunching	Y	Continuous contact	Visual	100%	Y			NA			
	- pipe line & grade	Y	Lazer /mirror		100%	Y			NA			
	- pipe type/diameter/class	Y	To design		100%	Y			NA			
	- pipe covering	Y	NZS 4452	NZS 4452	100%	Y			NA			
	- trench backfilling	Y	Development code		100%	Y			NA			
	▪ Manhole											

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	Site Inspections Required	Quality Control			Developers Engineers Responsibility				Council Reps Responsibility			Notes
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
	- finish	Y		Visual	100%	Y				V			
	▪ Testing												
	- air test pipe line	Y	No pressure loss in 10 minute test	NZS 4452	100%	Y				V			
	- inspect manhole for leeks	Y	Visual	Visual	100%	Y				V			
	- water test manholes	Y	?	?	100%	Y				V			
5.	**WATER**												
	▪ Mains												
	- bedding	Y	AS/NZS 2033	AS/NZS 2033	100%	Y				V			
	- pipe alignment	Y	Visual	Straight /grade	100%	Y				NA			
	- pipe cover	Y	Development Code	Development Code	100%	Y				NA			
	- trench backfill	Y	NZS 4402 Development code	Sound ground	100%	Y				NA			
	- thrust blocks	Y	Visual	Visual	100%	Y				NA			
	- type/diameter/class	Y	To design		100%	Y				V			
	▪ Valves												
	- position	Y	To design	Visual	100%	Y				NA			
	- type	Y	To design		100%	Y				NA			
	▪ Testing												
	- pressure	Y	NZS 4404	NZS 4404	100%	Y				V			
	- chlorination	Y	NZS 4404	FDC requirements	100%	Y				V			

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	Site Inspections Required	Quality Control			Developers Engineers Responsibility				Council Reps Responsibility			Notes
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
6. BERMS												
▪ Footpath												
- thickness	Y	Development Code	Measurement	1/20m CRS	Y				NA			
- concrete strength	Y	(From supplier)	17.5 kPa	1/day	Y				NA			
- position	Y	To design	Measurement									
▪ Topsoil												
- thickness	Y	Visual	100 mm	1/100 m^2	Y				NA			
- surface finish	Y		Appearance	100%	Y				NA			
- grass seed	Y		Is it planted?		Y				NA			
▪ Gardens												
- shrubs planted	Y	Visual	To plan	100%	Y				NA			
- surfacing	Y				Y				NA			
7. OTHER SERVICES												
▪ Power installed	N	Counties Power	Confirmation	100%	Y				V			
▪ Telephone installed	N	Telecom			Y				V			
▪ Berms restored	Y	Visual	Appearance		Y				V			
▪ Street Lights Plan	N	NZS 1158 and NZS 6701	Good lighting		Y				V			Council rep to advise electricity supplier of acceptance.
▪ Street Lights Installed	Y	Visual	Installed		Y				V			
▪ Right of Way	Y		To plan		Y							

Subdivision Monitoring Schedule - Construction Phase Schedule Y

Consent No.		Applicant's Name:							Applicant's Engineer/Surveyor:			
Construction Monitoring Phase	**Site Inspections Required**	**Quality Control**			**Developers Engineers Responsibility**				**Council Reps Responsibility**			**Notes**
		Standard of Material or Construction	Result to be achieved	Frequency of test	Yes/No	Date	Pass/ Fail (P/F)	Ref	Verify/ NA	Pass/Fail (P/F)	Ref	
8.	**FINAL INSPECTION**												
	▪ Completed Works											
	- Roading	Usually carried out as one inspection	Visual	All work finished to high standard	100%	Y				V		
	- Stormwater					Y				V		
	- Sewer					Y				V		
	- Water					Y				V		
	- Berms					Y				V		
	- Reserves					Y				V		
	- Other Services					Y				V		
	▪ Outstanding works list	-	-	-		Y				V		
	▪ Sign Off appropriate conditions	-	-	-						V		
	▪ Engineers Certificate	-	-	-		Y				V		

I hereby approve the above information has been completed in terms of the resource consent issued for this development.

Applicant's Engineer:..... Date:..... FDC Resource Consent Engineer:..... Date:.....

Subdivision Monitoring Schedule – As-Built Plan Schedule Z

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:		
As-Built Plans	**Site Inspections Required**	**Quality Control (To FDC Policy Manual)**				**Notes**
		Developers Engineers Responsibility Checklist	Council Engineers Verification Pass/Fail (P/F)	Date	Ref	

1.	**TITLE PLAN**						
	▪ Boundaries						
	▪ Lot Numbers						
2.	**ROADING**						
	▪ Kerblines						
	▪ Typical cross section (Full road reserve)						
	- Seal						
	- thickness						
	- material type						
	- Basecourse						
	- thickness						
	- material type						
	- Subgrade						
	- Underground Services						
	▪ Vehicle Entrances provided						
	- Completed Vehicle Entrances Form						
	▪ RAMM Update info.						(To be provided by certified person)
3.	**SEWER (RED)**						
	▪ Manhole number and diameter						
	▪ Direction of flow						
	▪ Internal pipe diameter						
	▪ Pipe material						

Subdivision Monitoring Schedule – As-Built Plan Schedule Z

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:		
As-Built Plans	Site Inspections Required	Quality Control (To FDC Policy Manual)				Notes
		Developers Engineers Responsibility Checklist	Council Engineers Verification Pass/Fail (P/F)	Date	Ref	

	▪ Manhole						
	- Lid level - to approved L&S Datum						
	- Invert level to approved L&S Datum						
	- Offset to two nearest boundaries						
	▪ Service connection measured from downstream manhole.						
4.	**STORMWATER (BLUE)**						
	▪ Manhole number and diameter						
	▪ Direction of flow						
	▪ Internal pipe diameter						
	▪ Pipe material						
	▪ Manhole						
	- Lid level - to approved L&S Datum						
	- Offset to two nearest boundaries						
	▪ Service connection measured from downstream manhole.						
	▪ Overland flow paths						
	- easements						
	▪ -Open Waterways						
5.	**WATER SUPPLY**						
	▪ Internal pipe diameter (mm)						
	▪ Pipe material/class/type						
	▪ Type and diameter of valves						

Subdivision Monitoring Schedule – As-Built Plan Schedule Z

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:		
As-Built Plans	Site Inspections Required	Quality Control (To FDC Policy Manual)				Notes
		Developers Engineers Responsibility Checklist	Council Engineers Verification Pass/Fail (P/F)	Date	Ref	

	▪ Fire hydrants						
	- type						
	▪ Offset distances from boundaries						
	▪ Plan forwarded to FDC for connecting		N/A				
6.	OTHER						
	▪ Ducts						
	▪ Power						
	- number						
	- diameter						
	- type						
	▪ Telecom						
	- number						
	- diameter						
	- type						
	▪ Right-of-way constructed						
	▪ Reserves						
7.	SERVICES SCHEDULE						
	▪ Sewer						
	- manholes in terms of geodetic datum 1949						
	- diameter & location of connection						
	▪ Stormwater						
	- manholes in terms of geodetic datum 1949						
	- diameter & location of connection						

Subdivision Monitoring Schedule – As-Built Plan Schedule Z

Consent No.	Applicant's Name:			Applicant's Engineer/Surveyor:		
As-Built Plans	**Site Inspections Required**	**Quality Control (To FDC Policy Manual)**				**Notes**
		Developers Engineers Responsibility Checklist	Council Engineers Verification Pass/Fail (P/F)	Date	Ref	
8. FINAL CHECK OF WORKS	Yes					
9 AS-BUILT PLANS FORWARDED TO FDC						

Applicant's Engineer:..... Date:..... FDC Resource Consent Engineer:..... Date:.....