



Standard Technical Specifications - Part 4: Stormwater and Wastewater



Table of Contents

Section A: Construction Specification	4
1.0 General.....	4
2.0 Materials.....	4
2.1 Standards	4
2.2 Pipes.....	4
2.3 Concrete	4
2.4 Roding materials.....	4
3.0 Storage of pipes, material and plant.....	4
4.0 Street openings	4
5.0 Existing utility services	5
6.0 Excavation	5
6.1 General.....	5
6.2 Trench Outlines	5
6.3 Trench Protection	5
6.4 Subsoil Water	5
6.5 Trench Excavation.....	6
6.6 Extra Excavation.....	6
6.7 Excavated Material Unsuitable for Backfill	6
6.8 Excavated Wet Material.....	7
7.0 Disposal of excavated material	7
8.0 Licensed drainlayers	7
9.0 Bedding, pipelaying and jointing.....	7
9.1 Bedding	7
9.2 Pipe laying and Tolerances	8
9.2.1 General.....	8
9.2.2 Grade Control	8
9.2.3 Service Connections.....	8
9.3 Jointing	8
9.3.1 Rubber Ring Joints	9
10.0 Backfilling	9
10.1 General	9
10.2 Pipe Surround Material.....	9
10.3 Bulk Backfill Material Outside of Carriageway Areas	9
10.4 Bulk Backfill Material in Carriageway Areas	10
11.0 Manholes.....	10
11.1 Types.....	10
11.2 Channels and Benching	10
11.3 Flexible Joints.....	11
11.4 Drop Connections.....	11
11.5 Manhole Steps.....	11
11.6 Manhole Tops.....	11
12.0 Site mortar jointing of pipes in to manholes or pipelines or catchpits.....	12
13.0 Field concrete bandage.....	12
14.0 Culvert inlet and outlet structures.....	12
15.0 Pavement surface conditions	12
16.0 Soakholes.....	12
17.0 Stormwater pipes to kerb and channel.....	13
18.0 Testing.....	13
18.1 RCRRJ Pipes 600mm Diameter and Above.....	13
18.2 RRJ Pipes Below 600mm Diameter	13
18.3 Infiltration Test.....	15
19.0 Cleaning pipelines	15

20.0	Reinstatement	15
21.0	As built records.....	15
22.0	Work on in-service storm and wastewater sewers and manholes.....	16
Section B: Acceptable fittings and materials		18
1.0	Scope	18

Section A: Construction Specification

1.0 General

Work shall be carried out in strict accordance with the Standard Technical Specification outlined in this document.

2.0 Materials

2.1 Standards

All materials used shall conform to Section B of this Standard Technical Specification.

The material or product is required to conform to an Australian or New Zealand Standard and also be licensed to that Standard. Where there is no standard, the specification of the material or product must be provided in detail for acceptance.

2.2 Pipes

Pipes shall be of the type and class shown on the Drawings.

2.3 Concrete

All materials, manufacture and concreting procedures shall conform to NZS 3109:1997 - Concrete Construction.

All concrete shall have a minimum crushing strength of 20.0 MPa at 28 days unless otherwise specified or detailed.

2.4 Roding materials

Roding materials, chips, sealers etc shall comply with the MPDC Standard Technical Specifications for Roding.

3.0 Storage of pipes, material and plant

Materials shall be stored in such a manner that will ensure the preservation of the quality and fitness for the work. They shall be so located and disposed that prompt and proper inspection thereof may be made.

4.0 Street openings

For any work located in a designated road reserve, a corridor access permit will be required.

All excavations in road reserves shall comply with the requirements of the MPDC Standard Technical Specifications for Roading.

All work within the road reserve shall comply with the National Code of Practice for Utilities Access to the Transport Corridors.

5.0 Existing utility services

Before commencing any excavation, all service utility providers will be contacted and any approvals necessary for excavating in the region of their services will be obtained. Any special restraints imposed by the utility provider in regards to working in the vicinity of their service must be adhered to.

6.0 Excavation

6.1 General

Pipe laying shall be carried out in open cut except where permission has been obtained from Council for alternative methods.

6.2 Trench Outlines

The purpose of trench outlines is to avoid over-break or lifting of sealed surfaces or stabilised sub-base material where trenches are located in sealed pavement. Outlines are to be cut using an abrasive type cutting wheel or other approved means.

6.3 Trench Protection

All working methods adopted shall be subject to the conditions of the "Health & Safety in Employment Act 1992" and any amendments and regulations in force.

Where required by the Act, the Occupational Safety & Health Inspector of the Department of Labour shall be notified and any work required by the Inspector undertaken.

All work shall be undertaken in such a manner that the safety of all existing buildings, structures, services and property is not compromised. Particular attention shall be paid to the maintenance of access for pedestrian and vehicular traffic.

Where these provisions would be jeopardised by battering the trench to a "safe slope", in compliance with the regulations, then timbering or other approved shoring system shall be used.

All timber used in trenching shall be removed before backfilling.

6.4 Subsoil Water

Water in the excavation shall be controlled so that the level of any such water shall be kept below the level of the underside of the bedding and/or concrete work until the work has been accepted and backfilling completed.

Groundwater seepages through the trench sides shall be prevented to aid both the stability of the excavation and the achievement of suitable backfill densities.

The drainage of the ground shall not be permanently altered so as to create further or future ground instability. No material or fines shall be removed from the groundwater during the dewatering process.

Under no circumstances shall water from any source be permitted to drain into any existing wastewater sewer. No nuisance shall be allowed to be caused by the discharging of the groundwater.

6.5 Trench Excavation

All excavation shall be carried out to the grades and levels shown on the drawings. The width of the trench shall be no greater than is essential to permit all operations necessary for the jointing of pipes, placing of concrete, compaction of backfill and inspection to be carried out efficiently.

The width of the trench measured at the elevation of the top of the pipe shall not exceed the minimum for H2 bedding as defined in AS/NZS 3725:2007.

Excavation for manholes shall be of sufficient size to leave adequate space for construction. The length of trench or area of opening to be made shall be kept to a minimum which recognizes the reasonable requirements of pedestrians and wheeled traffic.

Excavated materials shall not be stockpiled in such a location, to such heights or in any such way as to cause any damage to or instability of the trench or any blocking of roads, footpaths or accessways.

6.6 Extra Excavation

Where, in the opinion of the Engineer, the ground below the specified bedding level is not suitable, it shall be excavated to a depth directed by the Engineer and backfilled with the crushed metal mix specified in Clause 9.1 of this Specification, or approved free draining granular material as specified by the Engineer and compacted in layers not exceeding 300mm using mechanical tampers or vibrating plate compactors as is appropriate to the material type being compacted.

Any excavation made deeper than the minimum required for bedding shall be backfilled and compacted to the required level at the Contractor's own cost.

6.7 Excavated Material Unsuitable for Backfill

Where, in the opinion of the Engineer, the excavated material is not suitable for use in backfilling, this material shall be carted away and disposed of and shall be

replaced with suitable bulk backfill material compacted in layers by mechanical tampers or vibrating plate compactors as is appropriate to the material type.

6.8 Excavated Wet Material

Where, in the opinion of the Engineer, excavated material is too wet for immediate re-use as backfill, but will be suitable if allowed to dry, such material shall be stockpiled at any site that may be agreed and, when ready, replaced in the trench as backfill in accordance with Clause 10.3 of this Specification.

7.0 Disposal of excavated material

All excavated material which is not required for backfilling, or which has been deemed unsuitable for backfilling under Clause 10.3 of this Specification, shall be removed from site and disposed of at the Contractor's own expense and the rates tendered in the Schedule of Prices shall be deemed to have allowed for this.

The Contractor's site or sites used for disposal of 'surplus' excavated material shall be subject to the approval of Council and the Engineer before any material is deposited there. The material shall be spread and the disposal sites left in a tidy condition.

It shall be the Contractor's responsibility to arrange all necessary consents.

8.0 Licensed drainlayers

In participating districts all services are to be installed under the supervision of a registered drainlayer or a suitable reticulation service person approved by Council

9.0 Bedding, pipelaying and jointing

9.1 Bedding

Bedding of pipes shall be "Type H2" Bedding in accordance with AS/NZS 3725:2007 – Concrete pipes, or AS/NZS 2032:2006 – Installation of PVC Pipe systems, unless specifically modified by the Engineer and the modification is approved by MPDC

No bedding shall be placed or pipes laid before the trench bottom has been inspected and accepted by the Engineer.

An evenly compacted bed of a minimum depth of free draining granular material in accordance with AS/NZS 3725 shall be laid on the bottom across the full width of the trench, to give continuous full support to the barrel of the pipes. In order to ensure no extra loading is placed on the pipe socket bellholes shall be excavated in the trench bottom under the sockets.

Where the bottom of the trench will not provide adequate support for the pipe, the Engineer shall order the use of additional granular bedding material as specified in

AS/NZS 3725:2007 – Concrete Pipes, or AS/NZS 2032:2006 – Installation of PVC Pipe systems, for such depths as are necessary.

For pipes 300mm diameter and smaller the surface of the granular bedding material shall be blinded with sand to provide a smooth bedding for the pipe.

Every pipe shall be examined immediately prior to being laid and the interior and jointing surfaces cleared of all rough projections and debris.

9.2 Pipe laying and Tolerances

9.2.1 General

Pipes made of plastic materials shall be laid with product labelling uppermost in the trench.

The “swift lift” system shall be used for pipes 750mm diameter and over.

9.2.2 Grade Control

Pipes shall be accurately laid to the lines, levels and gradients shown on the Drawings using pipe-laying laser equipment.

The variation between specified invert level and invert level as laid shall not exceed 5mm.

The variation from grade of one pipe to the next shall not exceed 3mm.

Where the variation exceeds the tolerance the Engineer may order the removal and relaying of the pipes affected.

9.2.3 Service Connections

The minimum acceptable grade for 100NB wastewater service connection pipelines is 1:80 (the preferred grade is 1:60).

The maximum depth at the end of the service connection pipe shall be 1.5 metres. Exceptions to this specification require specific approval of Council (Circumstances include large lots where this maximum depth is inadequate for draining the entire lot area, and when lots slope away from the direction of drainage).

Up until a service connection is utilised (i.e. connected to private drains) it shall be indicated on site as shown in Drawing TS404.

9.3 Jointing

9.3.1 Rubber Ring Joints

Rubber ring joints shall be installed strictly in accordance with the manufacturer's instruction. Care should be taken to ensure that the rubber rings are located evenly around the joint with no twists in them. The pipe shall be pushed up firm and tight to the joints.

10.0 Backfilling

10.1 General

Backfilling shall keep pace with the excavation and laying of pipes so that not more than 15m of pipes shall be left exposed in open trench where this could represent a danger to road users.

10.2 Pipe Surround Material

Approved free draining granular material such as detritus free 'run of pit' sand shall be used between the top of the pipe bedding material and to a level 300mm above the crown of the pipe for the full width of the trench. This pipe surround backfill material shall be thoroughly compacted using mechanical tampers or vibrating plate compactors as is appropriate to the material type in layers not exceeding 300mm.

Care shall be taken during compaction operations to prevent displacement of any laid pipes. The degree of compaction shall be such as to produce an insitu density which shall, at a minimum, be equal to 95% of the maximum dry density as determined by the Standard Compaction Test.

10.3 Bulk Backfill Material Outside of Carriageway Areas

Bulk backfill shall be placed in layers and mechanically compacted as for 'pipe surround material'.

Subject to the approval of the Engineer, previously excavated material shall, be used as 'bulk backfill material' above the 'pipe surround material'. Where previously excavated material is found to be unsatisfactory for bulk backfilling purposes, 'pipe surround material' (Clause 10.2 of this Specification) shall be used.

The degree of compaction shall be such as to produce an insitu density which shall not be less than that of the material prior to excavation. To establish the criteria for compliance, scala penetrometer tests shall be carried out along the line of the trench prior to excavation. There shall be not less than 1 test per 50 m of trench length.

Compaction tests (or substituted scala penetrometer tests) shall be carried out for the full depth of the trench to within 300mm of the pipeline (subsequently referred to as the 'test area'). There shall be at least one test area per 50 metres of trench length, or, at least one test area per 50 cubic metres of trench backfill whichever method returns the greater number of test areas.

Compaction test results (or substituted scala penetrometer tests) shall be submitted to Council for approval by appending test results to the QA form Checklist 4.1.

If necessary, the Engineer shall determine a minimum CBR required for backfill.

10.4 Bulk Backfill Material in Carriageway Areas

For backfilling and trench reinstatement in carriageways, see the MPDC Standard Technical Specifications for Roading.

Compaction test results (or substituted scala penetrometer tests) shall be submitted to Council for approval by appending test results to the QA form Checklist 4.3.

11.0 Manholes

11.1 Types

Manholes shall be constructed in the position and to the details as shown on the Drawings.

Precast concrete manhole components may be used for the works subject to them complying in all respects to details specified hereafter and the details for finished manholes shown on Drawing No. TS400.1 - 6.

Where precast manhole units are used, the joints of all abutting units shall be sealed against ingress of water by the use of Expandite BM100 'Sealastrip' or an approved equivalent.

11.2 Channels and Benching

A semi-circular channel shall be formed in the concrete floor of the manhole. The benching shall rise vertically from the horizontal diameter of the pipe to the height of the soffit and then be sloped back at a gradient specified on the drawings upwards to the Manhole wall.

The flow channel shall be formed so that it presents an evenly curved flow path through the manhole. The cross section of the flow channel shall be uniform.

In wastewater pipelines the channel shall be lined with ceramic half pipes, or alternative channel forms listed in Section A. Ceramic half pipes shall be saw-cut to form mitred joints around bends if necessary.

Benching shall be floated to a dense, smooth hard surface using 3:1 sand cement mortar and a steel float. Side branches shall be similarly formed with a smooth bend into the main channel.

The benching shall have step recesses as shown on drawing TS400.1 – 6. A U3 standard of finish as specified in NZS 3114:1987 shall be achieved.

The construction tolerance for drop through the manhole shall be:

- no less than the Manhole Drop as shown on drawings, or
- no more than 5 mm more than the Manhole Drop as shown on drawings.

11.3 Flexible Joints

All pipe lines shall have a flexible joint adjacent to the manhole on all incoming and outgoing pipes as shown on Drawing No. TS400.1 - 6. The base of the manhole shall extend up to these flexible joints. The upper part of the pipe inside the manhole shall be cut back to the wall, the reinforcement cut out and the ends plastered with a cement mortar to a neat finish. Manholes not located at changes of line or gradient or at junctions with existing or proposed pipeline may, be moved sufficiently to utilise existing pipe joints

11.4 Drop Connections

Drop connections at manholes shall be designed as external connections in a manner similar to the illustrations in Drawing TS400.1 - 6. Internal drops shall only be used where manhole diameters are 1200 mm or greater

11.5 Manhole Steps

11.5.1 Manhole Step Location

Manhole steps shall be provided at 300mm centres vertically (refer Drawing TS400). The top step shall not be more than 300mm below the top of the top slab, and the lowest step shall be not more than 375mm above the bench, or such lower level if detailed on other than standard manholes.

11.5.2 Bolt-Through Type Manhole Steps

The steps shall be bolted through the walls using properly formed and recessed bolt holes. The step shall have a washer welded to it on the appropriate angle to seat flush against the inside of the manhole chamber.

Prior to tightening, BM100 shall be placed around the stainless steel shank both inside and outside the manhole riser. After the steps have been tightened in place the outside recess which houses the nut shall be sealed with Expocrete "UA" or acceptable equivalent in accordance with the manufacturer's directions. Plastering of the recess will not be accepted.

The sealant is to be applied at least 48 hours before the manhole risers are required for construction.

11.6 Manhole Tops

Manhole tops shall be constructed as detailed on Drawing No. TS400.1 - 6 The manhole frames and covers shall be to Drawing No. TS407 The frame shall be set over the openings and adjusted to the correct height and slope using adjustment rings and mortar so as to conform with the surrounding surface – refer TS406. They shall be held in place with a bold fillet of concrete, the top of which shall be 40mm below the top edge of the frame.

12.0 Site mortar jointing of pipes in to manholes or pipelines or catchpits

Where it is necessary to form site mortared joints between drainage components, the following methods apply:-

All screeded concrete surfaces to accept mortar shall be thoroughly scrubbed clean.

All contact surfaces to accept mortar showing signs of contamination with oil, grease or any other non-water soluble agent shall be cleaned with "Expandite Mystic Acid" or an acceptable equivalent, applied and neutralized in accordance with the manufacturers directions.

All mortar used for the 'on-site' jointing of drainage components shall be Expocrete "UA" or an approved equivalent. The surface priming, mixing of components, applications and cure period to be in accordance with the manufacturer's directions.

13.0 Field concrete bandage

A field concrete bandage shall be applied to all field joints as required. Bandages shall be 485 mm wide by 150 mm thick 20 MPa concrete reinforced with a strip of HRC M338 mesh 385 mm wide cut to the outside of two parallel bars. The reinforcing shall have a cover of 50 mm in all directions. Lap splices of the mesh shall not be less than 150 mm.

14.0 Culvert inlet and outlet structures

Culvert inlet and outlets shall be constructed as shown in Drawing TS409 (Alternative proprietary structures are permissible subject to site specific approval by Council.)

15.0 Pavement surface conditions

Pavement surface cleaning and tidy up shall progress as rapidly as the work does. Upon completion of construction activity, the site shall be left in an acceptable tidy condition.

Where vehicular or pedestrian numbers are high or where weather conditions may result in a reduced level of safety, special precautions shall be taken to reduce the potential hazard levels, such as use of temporary surface seals.

No spillage of excavated or construction materials on any road, footpath or verge shall be permitted. Where "clean- up" work is not completed in 48 hours or is not satisfactory, the Engineer may arrange "clean-up" work to be undertaken and all costs incurred will be recovered from the offending party.

16.0 Soakholes

Stormwater soakage holes shall be sized and constructed as shown in the NZ Building Code – Document E1 “Surface Water” published by Building Industry Authority; or the MPDC “Soakage Design Procedures & Guidelines” for larger developments (see also Standard Drawings SK01 – SK05).

17.0 Stormwater pipes to kerb and channel

Note: Connection directly to Kerb and Channel will not generally be permitted and require specific approval.

A nominal 100mm diameter PVC pipe shall be used for stormwater connections to the kerb and channel. Acceptable products are set out in Section A. The pipe shall be connected to an adaptor as shown on Drawing TS322. This connection and the one at the boundary shall be watertight to a head of 10 metres.

If a pipe to kerb & channel is the allowable but it is not possible to gravitate to the kerb, then a bubble up pit is acceptable. See Drawing TS408 for construction details.

A maximum of 3 kerb & channel connections side by side in the kerb is acceptable, although multiple kerb & channel connections from a single lot are not permitted.

18.0 Testing

18.1 RCRRJ Pipes 600mm Diameter and Above

Leakage occurring in the pipelines during construction shall be immediately rectified.

Before a Certificate of Practical Completion is issued, Council will carry out an audit of the pipelines to ensure there is no leakage into the line and any leakage caused by faulty materials or workmanship shall be immediately repaired.

A further inspection will be made before final approval of the work is given at the end of the maintenance period.

18.2 RRJ Pipes Below 600mm Diameter

Each section of wastewater sewer constructed as part of the works shall pass one of the three leakage tests set down in the BIA Verification Method E1/VM1 Section 8.0 (as quoted below):

Drain Leakage Tests

The materials and workmanship used in surface water drains shall pass one of the following tests:

Water test (preferred for plastic pipe materials. Not recommended for concrete pipe due to water absorption into the pipe wall.)

Low pressure air test (preferred for concrete pipes)

High pressure air test (considered too hazardous for general use)

All test require the pipeline to be sealed with suitably restrained plugs at both ends and at branch connections. Because porous pipes such as those of ceramic or concrete materials absorb water and can transmit air through their walls, they would have the void filled by soaking prior to testing.

Water Test

Fill the pipe with water, ensuring all air is expelled.
If pipe materials absorb water, leave for 24 hours.

Top up water to test head level. The minimum head shall be 1.5m above the top of the pipe or ground water level whichever is the higher. The maximum head at the lower end of the pipeline should not exceed 6.0m.

Leave for 30 minutes then measure water loss.

The pipeline is acceptable if water loss does not exceed 2 ml per hour, per mm of internal diameter, per m of pipeline length.

Comment:

Care should be taken when conducting water testing of pipes on steep gradients, to ensure that excessive hydraulic pressures are not applied.

Low Pressure Air Test

Introduce air to the pipeline till a pressure of 300mm of water is reached. (This may be measured by a manometer such as a 'U' tube, connected to the system).

Wait until the air temperature is uniform (indicated by the pressure remaining steady).

Disconnect the air supply.

Measure pressure drop after 5 minutes.

The pipeline is acceptable if the pressure drop does not exceed 50mm.

Comment:

1. The low pressure air test is highly susceptible to temperature fluctuations during the test period. A 1°C change during the 5 minute test period will cause a pressure change of 30mm water gauge or 60% of the permitted change.
2. Failure to soak ceramic and concrete pipes can cause highly variable results.

High Pressure Air Test

Pressure pipelines to 25 kPa.

Wait at least 2 minutes to ensure temperature stabilisation.

Disconnect air supply.

Measure the time taken (minutes) for the pressure to drop to 17 kPa.

The pipeline is acceptable if the time does not exceed that given for the appropriate pipe size in Table 5 following.

Internal pipe diameter (mm)	Time for permissible pressure drop (minutes)
90	3
100	3
150	4
225	6

18.3 Infiltration Test

The pipeline shall be observed for infiltration over a 24 hour period. For wastewater pipelines where infiltration is observed, the source shall be investigated (CCTV inspection) and any leak detected shall be repaired.

Where infiltration is observed into stormwater pipelines the following test shall apply.

A vee notch weir shall be installed at the downstream manhole and the water level behind the weir given sufficient time to reach equilibrium level. The flow will then be measured and this flow shall not exceed 1.25 litres per 10mm diameter per 100m pipeline tested per hour. Should the infiltration rate exceed this figure, the installer shall discover the cause and rectify it after which a further test shall be applied.

19.0 Cleaning pipelines

Before acceptance of the works all pipelines shall be thoroughly cleaned of silt and any other debris

20.0 Reinstatement

All surfaces shall be reinstated as nearly as possible to their original condition and sealing shall be carried out wherever an original sealed surface has been removed or damaged.

All drains, fences and other structures shall be put back in their original place. In the case of damage, replacement shall be made using similar new items.

The Contractor shall be solely responsible for all damages that may result from their operations, and shall satisfy the Engineer that they have made proper reinstatement. Should no satisfactory efforts be made by the Contractor within a reasonable period of time, the Engineer may seek another Contractor to carry out the reinstatement to the full requirements of the Engineer. All costs resulting from the work will be deducted from any monies due, or which may become due, to the Contractor.

21.0 As built records

The minimum requirements for reporting data that is entered into the Utilities asset management program BizeAsset is as following:

Service Plans for sewer, stormwater and water are to be on separate sheets; however for simple subdivision combining the services onto one plan is acceptable.

Existing services prior to development must be identified on the “as-built” and clearly identified as “existing”.

Measured positions in both x and y directions of all manholes, catchpits, valves, tobies etc must be related to legal boundaries.

Co-ordinate Information:

All spatial information provided must be supplied in terms of:
NZGD2000 (New Zealand Geodetic Datum 2000)

Projection co-ordinates must be in terms of:
NZTM (New Zealand Transverse Mercator)

Invert and lid levels must be in terms of:
Moturiki Datum

Asset details to be completed on the GST/Asset Register form must include:

Material type and diameter for all pipes including service connections.

Diameters for all point features e.g. manholes, valves, hydrants, tobies etc.

All costs to be broken down into the groupings as set out on the form and not supplied as a lump sum for each utility.

“As built” information and costs for utility assets must be supplied and approved by Council before the 224 Certificate can be issued.

Utility asset and co-ordinate details may be submitted electronically as an excel spreadsheet (as per the example below) along side a hard copy “as built” plan.

	A	B	C	D	E
1	Asset	Easting_X	Northing_Y	RL_Z	Depth
2	SSMH A	1844968.97	5801846.62	60.90	1.39
3	SWMH 1	1844938.94	5810872.30	61.20	1.47
4	Catchpit	1844975.53	5810860.30	61.00	

22.0 Work on in-service storm and wastewater sewers and manholes

Where connections are required to an operating storm or wastewater sewer, the following requirements shall apply:

Before any person enters any operating manhole or pipeline, they shall comply with the requirements for Confined Space Entry.

Before making any connection, the new line to be brought into use shall be properly cleaned out and approved by Council as complying with all specifications.

As soon as possible after the connection has been made and flow has been diverted the benching shall be finished off to its new form.

No concrete or any other debris shall be permitted to enter the sewer at any stage during connection or diversion.

Section B: Acceptable fittings and materials

1.0 Scope

This specification covers the list of materials acceptable for use within the Matamata Piako District Council stormwater and wastewater network, and covers materials (up to the boundary) which Council has, or will, assume responsibility for.

Fittings not in accordance with this list will be rejected unless written approval from Council is obtained prior to installation. Rejected products and materials will be subject to removal at the Contractor or Subdivider's cost.

This list of Acceptable Fittings and Materials will be updated as required

All applications to the Acceptable Fittings and Materials list must be accompanied by the pro-forma Quality Checklists & the Application for Acceptance of Water or Drainage Product for Use in the Matamata Piako District Water Supply Area or Drainage District.

Requirements for acceptance of materials are as follows:

- Conforms to appropriate New Zealand, Australian or British standards with evidence of the licence number issued;
- Manufacturer operates to an acceptable quality assurance standard;
- Details of composition, dimensions, specific use and design life are supplied by the manufacturer;
- Details of acceptance by other New Zealand local authorities
- Details are supplied by the manufacturer on how the product should be installed;
- The product is acceptable to MPDC (taking into account such factors as compatibility with other approved products, ease of use, availability of supply, etc.)

Where there is no standard, the manufacturer will be required to supply copies of their quality assurance procedures and producer statements to support their performance and composition claims for the products concerned.

Completed applications and supporting information should be addressed to:

Planning Administrator
Planning Department
Matamata-Piako District Council
P.O. Box 266
Te Aroha 3320

Council reserves the right to refuse any material or fitting from the Acceptable Fittings and Materials list for any reason and at any time. In such circumstances, Council will provide written notification, stating reasons why the material or fitting has been refused or removed from the Acceptable Fittings and Materials list.

	PRODUCT	MANUFACTURERS	DESCRIPTION
PIPES	UPVC	MARLEY	Sewer Grade Or
		IPLEX PIPELINES	Stormwater Grade

		THOR PLASTICS	
	VITRIFIED CLAY	NAYLOR	Sewer Grade
	EARTHENWARE		Sewer Grade
	CONCRETE	HUMES	Class X, Y, Z
		HYNDS	Class X, Y, Z
FITTINGS	UPVC	MARLEY	Sewer Grade Or
		IPLX PIPELINES	Stormwater Grade
		THOR PLASTICS	
	RUBBER ADAPTERS	FERNCO	PVC Wye Connection To 150mm PVC Sewer
		QUICK PLUMB	PVC Wye Connection To 150mm PVC Sewer
	VITRIFIED CLAY	NAYLOR	Sewer Grade
	EARTHENWARE		Sewer Grade
	CONCRETE	HUMES	Class X, Y, Z
		HYNDS	Class X, Y, Z
MANHOLES & DRY CHAMBERS	HEAVY DUTY FRAME & COVER	HUMES	
		SURECAST	
	LIGHT DUTY FRAME & COVER	HUMES	
		SURECAST	
	1050 CONCRETE BASE	HUMES	
		HYNDS	
	600 CONCRETE RISER	HUMES	
		HYNDS	
	1050 CONCRETE RISER	HUME	
		HYNDS	
	1050 CONCRETE LID	HUMES	
		HYNDS	
	STAINLESS STEEL STEPS	HUMES	

Checklist 4.1

STORMWATER & WASTEWATER PIPE LAYING CHECKLIST

Location:	to	to	to	to	to
Pipe Laying Checks	Pipe length (MH To MH)				
Trench Safety					
a) Shield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Batter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipe size, quality, approved materials confirmed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surveyors name _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set out checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control points identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foundation support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- penetrometer results available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- if under cutting required, note chainage and CBR results.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Record daily level check and confirm on grade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bedding type and surround material _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bulk Backfill material _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bulk backfill compaction (CBR results from pipe to ground level attached)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment – control points identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Service connections					
All service connections in place, taped and staked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connections correctly located horizontally and vertically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connections to main correctly formed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As-built measurements taken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CCTV pipe inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Contractor

Date

Checklist 4.2

MANHOLE CHECKLIST

Location:					
-----------	--	--	--	--	--

MH number

Manhole Construction Checklist

Manhole size, quality, approved materials checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set out /orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sealing strip between risers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Benching					
Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
alignment and cross section	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
half pipe lining (wastewater only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step recesses (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexible joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cutting and plastering of connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access details per drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step irons including epoxy to outside recesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bedding type and surround	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bulk backfill compaction (CBR results attached)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No debris in pipelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invert of pipes in and out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Contractor

Date

Checklist 4.3

TRENCH BACKFILL COMPACTION TEST SUMMARY (attach individual test reports)

Location:

Plan No. : _____

From MH _____ to MH _____

Acceptance Criteria:

.....

Tests by: (attached)

Analysis of Results

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

- Trench backfill completed satisfactorily
- Trench backfill requires remedial work

.....
Signature of Engineer

.....
Date

Checklist 4.4

CATCHPIT CHECKLIST

Location:					
-----------	--	--	--	--	--

Catchpit number

Catchpit Construction Checklist

Catchpit , type, size, quality, approved material checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set out /orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depth of sump below outlet correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cutting and plastering of outlet connection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floating debris baffle installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Backfill compaction around pit checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seating and plastering of surround and grate to sump barrel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All silt and debris removed from sump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Contractor

Date

Checklist 4.5

FINAL INSPECTION FOR STORMWATER AND WASTEWATER DRAINAGE

Location: _____ Plan No: _____

Pre-Meeting Tasks

Developer to verify prior to meeting:	Developer Checklist		MPDC Rep Pass
	SW	WW	
1) Checklists 4.1, 4.2 ,4.3, 4.4 completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) All lines flushed out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) All required CCTV inspections carried out, reviewed and any re-work completed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) All manholes checked (eg infiltration, plastering)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Catchpits checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) All backfilling complete and tidied up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Pressure test completed and witnessed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Final as-built plans attached for approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Inspection arranged with Council	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Meeting			
1) Inspect all lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Inspect all manholes and catchpits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) All manholes and catchpits set to level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Inspect SW inlet and outlet structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Secondary flowpaths and detention ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Works on third party land completed to satisfaction of owner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wastewater pumping station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overland flow from adjoining properties not effected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) All works satisfactorily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Remedial work required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Developer

Signature of MPDC Rep

Date

Date

CHECKLIST 4.6

LANDSCAPE ENGINEERING STORMWATER DEVICE INSPECTION/SIGNOFF CHECKLIST

For completion by Developer prior to requesting:

- 224c approval
- First defects liability inspection
- Final defects liability inspection
- Remedial works completion inspection

Location: _____ Plan No. _____

	Date	Date	Date
Type of Inspection (record 1,2,3 or 4)			
	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Pre-inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1) Final as-built plans sent to HCC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Checklists 4.4 completed for all pipelines and manholes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Planting Plan approved by HCC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Meeting			
1) Forebay accessible and has all weather access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Forebay clear of sludge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Boundary pegs sighted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Works align with as built plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Spillway/s clear of obstruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Erosion and soil stability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Inlet and outlet has structural integrity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Plants at least 2m clear of inlet and outlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Planting done to approved planting plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Plant density (approx 1 per m2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Plants in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) No plant pests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Weed (%) compliant with HCC DM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) No notifiable weeds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) Plants sourced from Waikato Ecological District	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All works satisfactory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remedial work required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
Signature of Developers Rep

Date.....

.....
Signature of MPDC Rep

Date.....

CHECKLIST 4.7

LANDSCAPE ENGINEERING STORMWATER DEVICE MANAGEMENT MANUAL CHECKLIST

Location:

Manual includes the following information

	Developer	MPDC Rep	Comments
	Tick if correct	Tick if correct	
Administration Details			
Developer name and contact details	<input type="checkbox"/>	<input type="checkbox"/>	
Detention facility location – street address	<input type="checkbox"/>	<input type="checkbox"/>	
Detention facility type (wet pond, dry, wetland)			
NZ map reference	<input type="checkbox"/>	<input type="checkbox"/>	
Site plan No	<input type="checkbox"/>	<input type="checkbox"/>	
Resource consent number	<input type="checkbox"/>	<input type="checkbox"/>	
Catchment name	<input type="checkbox"/>	<input type="checkbox"/>	
Contributing catchment area	<input type="checkbox"/>	<input type="checkbox"/>	
Coordinates for detention facility centre	<input type="checkbox"/>	<input type="checkbox"/>	
Levels			
Levels to LINZ datum	<input type="checkbox"/>	<input type="checkbox"/>	
Top of dam (RL)	<input type="checkbox"/>	<input type="checkbox"/>	
Top of spillway (RL)	<input type="checkbox"/>	<input type="checkbox"/>	
Toe of dam (RL)	<input type="checkbox"/>	<input type="checkbox"/>	
2 yr ARI water level	<input type="checkbox"/>	<input type="checkbox"/>	
Dimensions			
Max pond length	<input type="checkbox"/>	<input type="checkbox"/>	
Max pond width	<input type="checkbox"/>	<input type="checkbox"/>	
Height of dam in metres to 0.1m	<input type="checkbox"/>	<input type="checkbox"/>	
Approx max water depth to 0.1m	<input type="checkbox"/>	<input type="checkbox"/>	
Normal water depth to 0.1m	<input type="checkbox"/>	<input type="checkbox"/>	
Operating surface area (m ²)	<input type="checkbox"/>	<input type="checkbox"/>	
Normal storage volume (m ³)	<input type="checkbox"/>	<input type="checkbox"/>	
Spillway details			
Type	<input type="checkbox"/>	<input type="checkbox"/>	
Width or diameter			
Inlet details			
Type	<input type="checkbox"/>	<input type="checkbox"/>	
Width or diameter			
Outlet details			
Type	<input type="checkbox"/>	<input type="checkbox"/>	
Width or diameter			
Flow Design			
2 yr return period design m ³ /s	<input type="checkbox"/>	<input type="checkbox"/>	
10 yr storm controlled at high level weir (m ³ /s)	<input type="checkbox"/>	<input type="checkbox"/>	
50 yr storm at spillway (m ³ /s)	<input type="checkbox"/>	<input type="checkbox"/>	
Sediment Treatment			

Estimated suspended solids removal %	<input type="checkbox"/>	<input type="checkbox"/>	
Estimated sediment accumulation rate in tonnes/year	<input type="checkbox"/>	<input type="checkbox"/>	
Planting details			
Date of planting	<input type="checkbox"/>	<input type="checkbox"/>	
Plants source	<input type="checkbox"/>	<input type="checkbox"/>	
Maintenance Requirements			
Methodology for the on-going and long-term maintenance	<input type="checkbox"/>	<input type="checkbox"/>	
Estimated cleaning frequency in years Forebay Main pond	<input type="checkbox"/>	<input type="checkbox"/>	
Details for permanently wet areas	<input type="checkbox"/>	<input type="checkbox"/>	
Details for surrounding areas	<input type="checkbox"/>	<input type="checkbox"/>	
How facility should be dewatered and desilted	<input type="checkbox"/>	<input type="checkbox"/>	
Attachments			
Location map	<input type="checkbox"/>	<input type="checkbox"/>	
Legal description of site	<input type="checkbox"/>	<input type="checkbox"/>	
Detailed scale plan of total contributing catchment	<input type="checkbox"/>	<input type="checkbox"/>	
Construction detail plans of the pond including all structures	<input type="checkbox"/>	<input type="checkbox"/>	
Approved As built plan showing truck maintenance access, working and storage areas	<input type="checkbox"/>	<input type="checkbox"/>	
WRC resource consent	<input type="checkbox"/>	<input type="checkbox"/>	
Geotechnical report if applicable	<input type="checkbox"/>	<input type="checkbox"/>	
Design calculations	<input type="checkbox"/>	<input type="checkbox"/>	
Asbuilt Planting plan	<input type="checkbox"/>	<input type="checkbox"/>	
Consent compliance reports from WRC	<input type="checkbox"/>	<input type="checkbox"/>	

All information included in required format

Further information required

.....
Signature of person reviewing the manual

.....
Signature of MPDC Rep

.....
Date

.....
Date