THE COUNCIL ACCEPTS RESPONSIBILITY FOR ANY SEWER LINE MORE THAN 15m FROM THE BOUNDARY OF THE LAST PROPERTY SERVED (CROSS LEASED UNITS ARE CONSIDERED ONE PROPERTY)

PUBLIC SEWER

PRIVATE SEWER

LHCE INSPECTION ‘T’

(100mm ‘T’ JUNCTION VERTICAL INSPECTION PIPE. SEE NCC STD DWG 21/205 SHEET 4.)

NELSON CITY COUNCIL

DEFINITION OF PUBLIC SEWER

SD 601

INFRASTRUCTURAL ASSETS

APPROVED

SENIOR EXECUTIVE INFRASTRUCTURE DATE

29/07/2010
**NOTES**

1. ALL "IN SITU" CONCRETE TO BE VIBRATED
2. CONCRETE CRUSHING STRENGTH TO BE 20 MPa AFTER 28 DAYS
3. MAX. SIZE OF PIPE TO BE 450 mm DIA FOR 1050mm MANHOLE
4. PRECAST CONCRETE MANHOLE RISERS SHALL COMPLY WITH THE REQUIREMENTS FOR CLASS 2 PRECAST CONCRETE PIPES TO AS/NZS 4058, 2007
5. MAXIMUM GRADIENT FOR HAUNCHING THROUGH MANHOLES SHALL BE 1 in 3
6. HYDROPHILIC SEALANT SHALL BE USED WHERE THERE IS A HIGH GROUNDWATER LEVEL OR WHERE DRAINAGE OF THE TRENCH IS NOT POSIBLE, THIS SHALL BE USED FOR ALL WASTEWATER MANHOLES, AS PER 21/204 Sh6 (UNLESS APPROVED OTHERWISE BY COUNCIL).
   SEALANT TO BE ADEKA ULTRASEAL P-201, (or similar) WATER SWELLING ELASTIC SEALANT 10mm Min. THICKNESS AROUND THE PIPE AT PUDDLE FLANGE CURED BEFORE PLACING EPOXY MORTAR IN LINEAR JOINT MIN. COVER TO SEALANT FROM FREE EDGE OF INSITU CONCRETE IS 75mm
CASE OF DROP OF 400-600 mm

CASE OF DROP OF 300-400 mm

NOTES
1. HYDROPHILIC SEALANT as per NCC STANDARD DRAWING 21/204-1

DROP MANHOLE DETAIL PVC 150 Ø
(FOR DROPS MORE THAN 600mm SEE 21/204 SHEET 1)
INTERNAL DROP MANHOLE DETAIL PVC 150 Ø
TO BE USED IN SPECIAL CASES AT ENGINEERS DIRECTION
FOR EXISTING MANHOLES ONLY

IN CASES WHERE TURN OUT IS RESTRICTED A 45° BEND MAY BE SUBSTITUTED
BREAK OUT EXISTING HAUNCHING BED NEW INLET IN EPOXY MORTAR AND RENSTATE FORMING SMOOTH CHANNEL AT EXISTING INVERT LEVEL

VARY LENGTH TO SUIT DROP

90° PVC BEND ORIENTATE TO DISCHARGE WITH MAIN FLOW

(INTERMEDIATE SUPPORT REG. 900 CRS)

50x15x550mm S.STEEL STRAP FIXED WITH 6mm DYNABOLT BOTH SIDES

SHORT LINK TO GIVE 100 INSIDE AT CAP

45° PVC JUNCTION

45° PVC BEND

(EPOXY MORTAR)

Screw cap and base

HYDROPHILIC SEALANT (CONTINUOUS)

FORMED CONCRETE ANCHOR BLOCK 150mm MIN COVER TO HYDROPHILIC SEALANT

GENERAL APPROACH POSITION RELATED TO MANHOLE -1 ONLY

NOTES
1. HYDROPHILIC SEALANT as per NZ STANDARD DRAWING 21/204-1
1. APPROVED PRE-FORMED PLASTIC INSPECTION CHAMBERS MAY BE USED AS MINI-MANHOLES FOR PIPE SIZES 100mm Ø & 150mm Ø SUITABLE FOR SEWER & STORMWATER SEWERS

2. MINI-MANHOLES ARE NOT TO BE ASSUMED TO REPLACE THE STANDARD MANHOLE

3. MINI-MANHOLES SHALL NOT BE USED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, EXCEPT IN FORMED RESIDENTIAL DRIVEWAYS OR RIGHTS OF WAYS FOR LIGHT DOMESTIC VEHICLES

4. THE USE OF MINI-MANHOLES IS TO BE LIMITED, AND AT THE DISCRETION OF COUNCIL:
   A) MANHOLES LESS THAN 1M DEEP
   B) THE MAXIMUM PIPE SIZES OF 150mm Ø FOR SEWERS & 225mm Ø FOR STORMWATER DRAINS
   C) MANHOLES AT THE HEAD OF A LINE
   D) STRAIGHT THROUGH MANHOLES
   E) CHANGES OF GRADE

5. CONCRETE MINI-MANHOLES AS DETAILED ARE NOT TO BE USED IN SEWERS AT:
   A) JUNCTIONS
   B) DEFLECTIONS GREATER THAN 45 DEGREES.

6. COVER & FRAME SHALL BE CAST IRON OR DUCTILE IRON TO CLASS C STRENGTH TO AS3996 (CLASS & STANDARD TO BE STAMPED ON FRAME & LID)

7. COVER MUST HAVE 2 SEPARATE RECESSED SLOTS TO FACILITATE LIFTING & REMOVAL OF COVER, AND MUST BE WATER TIGHT TO PREVENT SW INGRESS

8. COVERS MUST HAVE ANTI-SKID PATTERN EMBOSSED ON TOP WITH THE WORDS WASTEWATER OR STORMWATER. ALL FONT TO BE GOTHIC, 15mm HEIGHT RAISED 2.5mm

9. ANY OTHER WORDING, SUCH AS THE SUPPLIERS & MANUFACTURERS NAME, SHALL BE PLACED ON THE UNDERSIDE OF THE COVER (NOT ON THE TOP)
NOTES:

1. HYDROPHILIC SEALANT TO BE ADEKA ULTRASEAL P-201 (OR SIMILAR) WATER SWELLING ELASTIC SEALANT 10mm MIN. THICKNESS AROUND THE PIPE CURED BEFORE PLACING IN-SITU CONCRETE.

2. DETAIL APPLIES TO ALL WASTEWATER MANHOLES WHERE THE WASTEWATER PIPELINE MAY BE DEEPER THAN THE WATER TABLE &/OR WHERE TRENCH DRAINAGE (NCC 21/212) IS NOT POSSIBLE

3. WRAP EACH INCOMING & OUTGOING PIPE WITH HYDROPHILIC SEALANT PRIOR TO CONCRETE POUR

4. HYDROSTATIC WATER TEST EACH SEALED MANHOLE PRIOR TO BACKFILLING MANHOLES

5. ALL WORKS TO BE INSPECTED BY NCC PRIOR TO PLACING OF IN-SITU CONCRETE
NOTE:
ALL WORKS TO BE INSPECTED BY NCC BEFORE CONCRETE ANCHOR BLOCK HAS BEEN Poured
PLAN – COVER + FRAME  
(PATTERN OMITTED)

PLAN – COVER  
(WITH PATTERN SHOWN)

NOTES:
1. TO BE USED ON ALL STANDARD 1050# MANHOLES OR LARGER
2. MATERIAL DUCTILE IRON TO AS1831:2007
3. ALL DIMENSIONS ARE IN mm
4. FRAME AND COVER SHALL BE CERTIFIED TO MEET CLASS D STRENGTH CLASSIFICATION TO AS 3996 (THE CLASS STRENGTH AND STANDARD MUST BE STAMPED ON UNDERSIDE OF THE COVER)
5. COVER TO HAVE AT LEAST 2 SEPARATE RECESSED SLOTS TO FACILITATE LIFTING AND REMOVAL OF COVER
6. THE LIFTING HOLES FOR THE WASTEWATER COVER MUST BE SEALED TO PREVENT STORMWATER INGRESS
7. SEATS OF COVER AND FRAME TO BE FINISHED BY MACHINING OR OTHERWISE, SO THAT THE CENTRE SEATS EVENLY AND COMPLETELY COVER THE FULL CIRCUMFERENCE IN ANY POSITION IN THE FRAME
8. COVERS MUST HAVE NCC PATTERN FORMED INTO TOP OF COVER AS 5mm DEPTH RAISED LINWORK
9. ALL FONT TO BE CENTURY GOTIC, 15mm HEIGHT RAISED 2.5mm
10. THE FOLLOWING INFORMATION SHALL BE PLACED ON THE UNDERSIDE OF THE COVER:  
SUPPLIERS NAME & PRODUCT CODE  
BATCH NUMBER, DATE OF MANUFACTURE

NELSON CITY COUNCIL

NCC STANDARD PATTERN for 600mmØ  
(NOMINAL) D.I. FRAME AND COVER

INFRASTRUCTURAL ASSETS

APPROVED  

SD 608

29/07/2010  

SENIOR EXECUTIVE INFRASTRUCTURE  

DATE
3 x D10 Studs into Predrilled holes at 120° around Perimeter of Lid Frame

CENTRALLY LOCATED D10 HOOP Min. 50mm COVER.

27.5 MPa CONCRETE SURROUND

100mm MIN

FRAME

PRECAST MH COVER SLAB

STANDARD MANHOLE RISER

STANDARD PRECAST LID RINGS

PREFORMED HOLE AT D10 STUD LOCATED AT 120° AROUND PERIMETER 50mm COVER

NELSON CITY COUNCIL

MANHOLE FRAME & COVER FIXING

INFRASTRUCTURAL ASSETS

APPROVED 29/07/2010

SENIOR EXECUTIVE INFRASTRUCTURE DATE

SD 609
1. Roding points may be used in lieu of manholes in any or all of the following circumstances:
   A) At change of direction or grade. (Buried, pre-formed bends may be used in lieu of roding point where the change on direction or grade is closer than 20m from a roding point or manhole.
   B) At the head of a wastewater system.
   C) At the top of steep banks where a standard manhole would be impractical.

For traffic loaded roding points refer to standard drawing 21/205 sheet 2.

Notes

PUSH ON CAP

Hydrant box embossed with "wastewater" or "stormwater" on cover. Cover and frame to class D strength to AS3996. Covers must be anti-rocking.

125mm thick conc collar

45° bend

Bedding

PVC pipe

Y junction

Varies
RODING POINTS MAY BE USED IN LIEU OF MANHOLES IN ANY OR ALL OF THE FOLLOWING CIRCUMSTANCES:
A) AT CHANGE OF DIRECTION or GRADE. (BURIED, PRE-FORMED BENDS MAY BE USED IN LIEU OF RODING POINT WHERE THE CHANGE ON DIRECTION or GRADE IS CLOSER THAN 20m FROM A RODING POINT or MANHOLE)
B) AT THE HEAD OF A WASTEWATER SYSTEM
C) AT THE TOP OF STEEP BANKS WHERE A STANDARD MANHOLE WOULD BE IMPRACTICAL

NOTES

1. RODING POINTS MAY BE USED IN LIEU OF MANHOLES IN ANY OR ALL OF THE FOLLOWING CIRCUMSTANCES:
A) AT CHANGE OF DIRECTION or GRADE. (BURIED, PRE-FORMED BENDS MAY BE USED IN LIEU OF RODING POINT WHERE THE CHANGE ON DIRECTION or GRADE IS CLOSER THAN 20m FROM A RODING POINT or MANHOLE)
B) AT THE HEAD OF A WASTEWATER SYSTEM
C) AT THE TOP OF STEEP BANKS WHERE A STANDARD MANHOLE WOULD BE IMPRACTICAL
NOTES

1. IF USED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, THEN USE A TRAFFIC LOADED LID DESIGN, AS PER 21/205 SHEET 2

2. INSPECTION T‘s SHALL BE POSITIONED 150mm ON THE ROAD RESERVE SIDE OF THE BOUNDARY
NOTES:
1. SEE SD 617 & SD 523 FOR TRENCH WIDTHS

2. THE TRENCH WIDTH SHALL BE THE MINIMUM NECESSARY TO ADEQUATELY AND SAFELY LAY THE PIPE AND TO COMPACT THE SIDE SUPPORT ZONE

3. A MINIMUM HORIZONTAL SEPARATION OF 300mm MAY BE USED WHERE 500mm IS NOT PRACTICAL
NOTE:
1. SIMILAR PROVISION FOR DRAINAGE OF CABLE AND WATER TRENCHES MAY BE REQUIRED.
2. STORMWATER TRENCHES TO BE LAID SLIGHTLY DEEPER THAN SEWER TRENCHES WHERE POSSIBLE.
3. WHERE DRAINAGE OF THE WASTEWATER IS NOT POSSIBLE, ADDITIONAL WATERTIGHT CONSTRUCTION AS PER 21/204 SHEET 6 WILL BE REQUIRED. ALTERNATELY, AN APPROVED THERMOPLASTIC MANHOLE MAY BE PERMITTED.
PVC pipe shall be protected with 6mm thickness of Denso tape or 250 microns polyethylene film or equivalent where it passes through the water stop.

NOTES:

1. Water stops shall generally be at the following spacings:

<table>
<thead>
<tr>
<th>Pipe Gradient</th>
<th>Maximum Spacing (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:10 or steeper</td>
<td>10</td>
</tr>
<tr>
<td>1:20</td>
<td>15</td>
</tr>
<tr>
<td>1:50</td>
<td>30</td>
</tr>
<tr>
<td>1:100</td>
<td>60</td>
</tr>
</tbody>
</table>

Provided:

a. Intermediate grades are determined by interpolation.
b. Manholes poured against a trimmed excavation may be reckoned as water stops.
c. Where a flatter grade occurs below a steeper grade, at least one further water stop shall be located on the upper section of the flatter grade at a distance from the change in grade equal to the above table spacing for the steeper grade.
ELEVATION ALTERNATIVE CONNECTION METHOD

SCHEMATIC OF ELEMENTS USED IN PVC DRAIN CONSTRUCTION

PREFERRED CONNECTION METHOD

SIMILAR SYSTEM TO BE USED CONNECTING INTO EXISTING PVC PIPELINES. PVC CONNECTIONS AS DETAILED TO BE USED IN NEW PVC DRAINS.

NELSON CITY COUNCIL

STANDARD PVC PIPE DETAILS

INFRASTRUCTURAL ASSETS

APPROVED 29/07/2010

SD 616
THE TRENCH WIDTH SHALL BE THE MINIMUM NECESSARY TO ADEQUATELY AND SAFELY LAY THE PIPE AND TO COMPACT THE SIDE SUPPORT ZONE.
REINFORCED CONCRETE SURROUND
D=150Ø to 450Ø
TYPE A

REINFORCED CONCRETE SURROUND
D=100Ø
TYPE C

PLAIN CONCRETE SURROUND
D=150Ø to 450Ø
TYPE B

CONCRETE COVER
D=100Ø
TYPE D

CONCRETE COVER SLAB
MAXIMUM PIPE SIZE 375Ø
TYPE E

NOTES:
1. FOR DIAMETERS GREATER THAN 450MM SPECIAL DESIGN APPLIES.
2. CONCRETE SHALL BE 20 MPa 100 SLUMP WITH A TOLERANCE OF +0,-20mm.
3. TYPE OF SURROUND SHALL BE SPECIFIED.
4. CONCRETE SURROUND SHALL TERMINATE AT A PIPE JOINT.
5. CONTRACTION JOINTS SHALL BE FORMED AT PIPE JOINTS BY INTERRUPTING CONCRETE WITH 12mm SOFTBOARD OR EQUIVALENT AND APPLYING APPROVED SEALANT TO THE PIPE JOINT TO PREVENT ENTRY OF CONCRETE. ANY REINFORCING STEEL SHALL BE STOPPED UNHOOKED 50mm FROM JOINT.
6. CONTRACTION JOINT SPACING - MAXIMUM:
   R.C.R.R.
   TYPE A  10m
   TYPE B  5m
   TYPE C  } Engineer to
   TYPE D  } Specify
7. WITH PVC PIPE TYPE E PROTECTION TO BE USED UNLESS OTHERWISE SPECIFIED.