



Nillumbik Shire Council

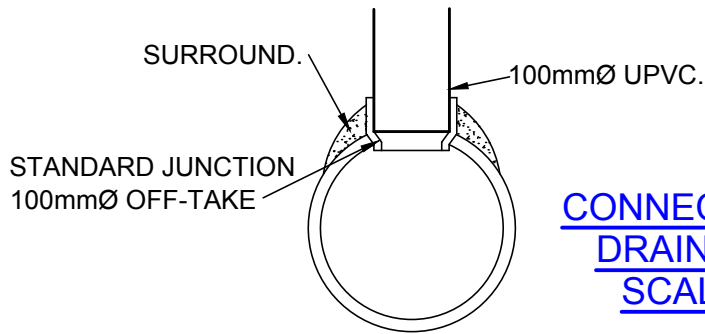
STANDARD DRAWING INDEX

NOTE: PLEASE NOTE THAT THESE STANDARD DRAWINGS WERE LAST UPDATED ON 24 DECEMBER 2015. THESE DRAWINGS WILL BE REVIEWED AND UPDATED ON A SIX MONTHLY BASIS.

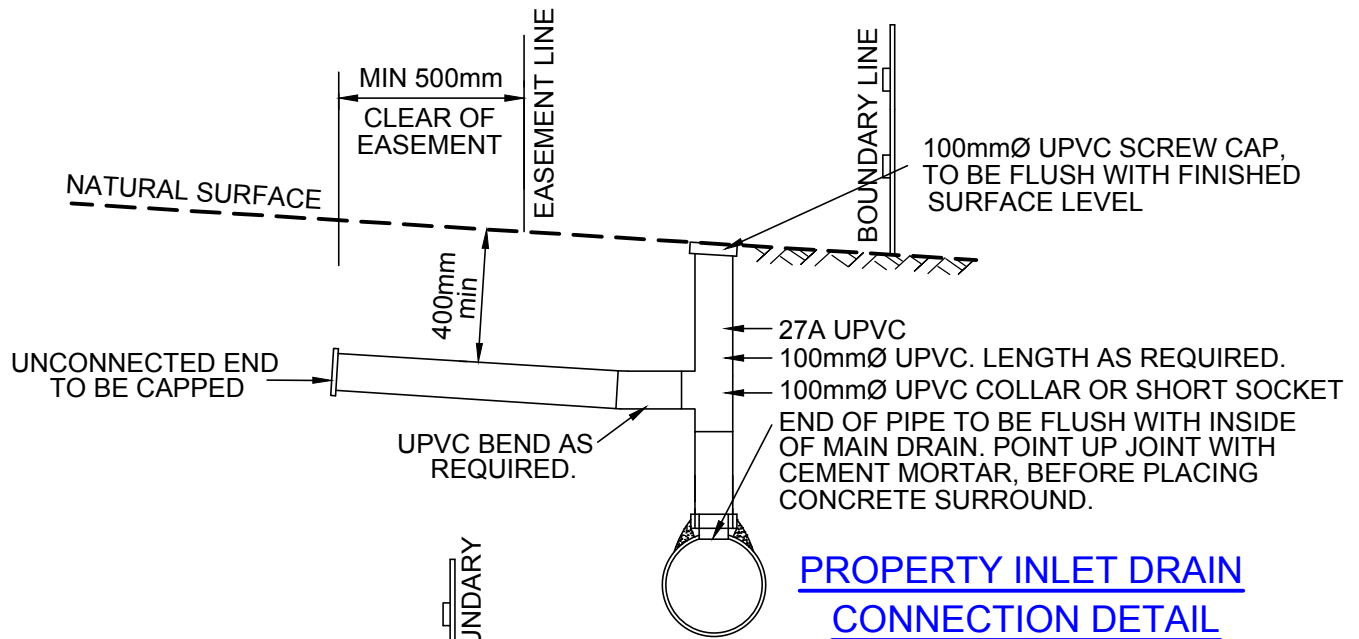
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NS3080	3	PRAM CROSSING
NS3090	2	CONCRETE FOOTPATH STANDARD CROSS SECTIONS
NS3091	3	ASPHALT FOOTPATH STANDARD CROSS SECTIONS
NS4000	3	CONCRETE CRICKET PITCH
NS4010	1	SHARED HORSE TRAIL WITH CAVALETTI
NS4020		RETAINING WALLS UP TO 1M IN HEIGHT

NOTE:- SEWER QUALITY UPVC OR SIMILAR APPROVED MATERIALS

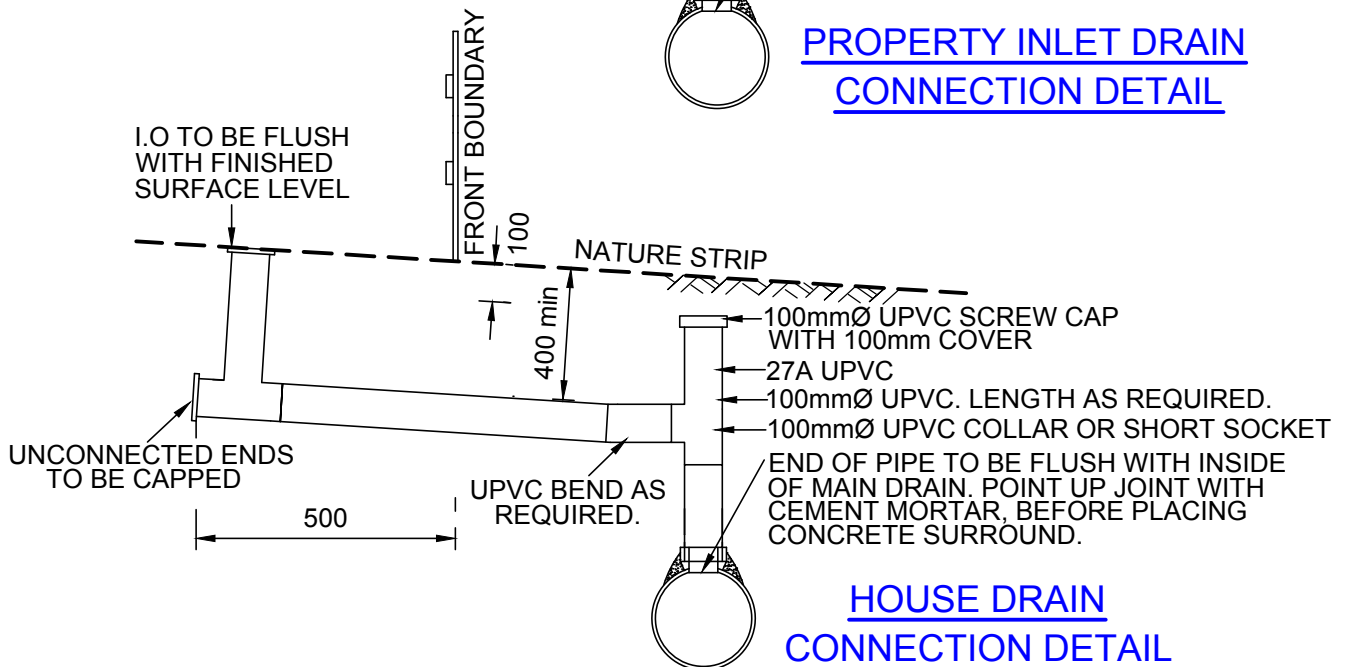
75mm WIDE SYNTHETIC CEMENT OR CONCRETE SURROUND. BEND MAIN DRAIN REINFORCEMENT BACK INTO CONCRETE



CONNECTION TO DRAIN DETAIL
SCALE 1:10



PROPERTY INLET DRAIN CONNECTION DETAIL



HOUSE DRAIN CONNECTION DETAIL

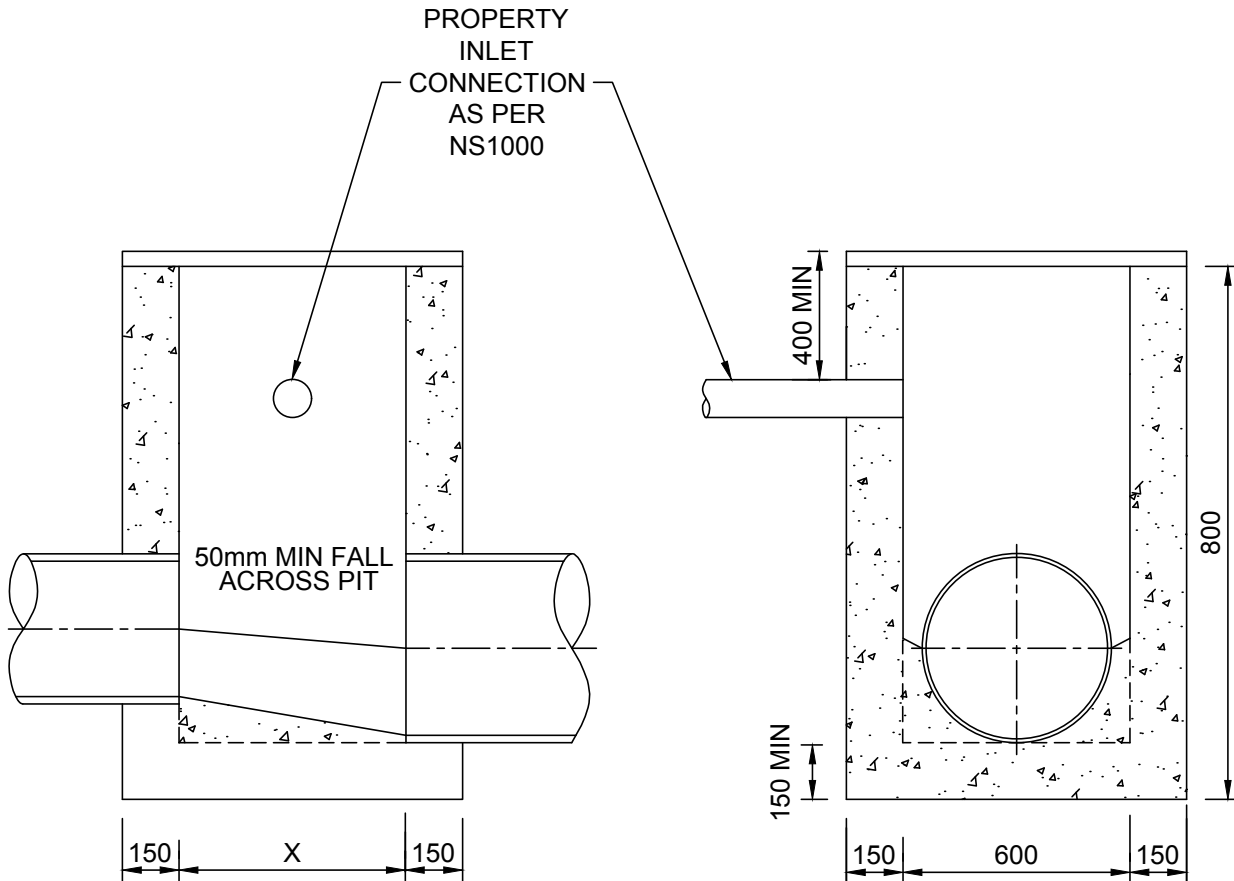
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:20
DESIGNED	
DRAWN	J.H.
REVISION	3

Nilumbik Shire Council
HOUSE DRAIN AND PROPERTY INLET CONNECTIONS

m. Deugh
Manager
Infrastructure
Development
Date 01./12./2015

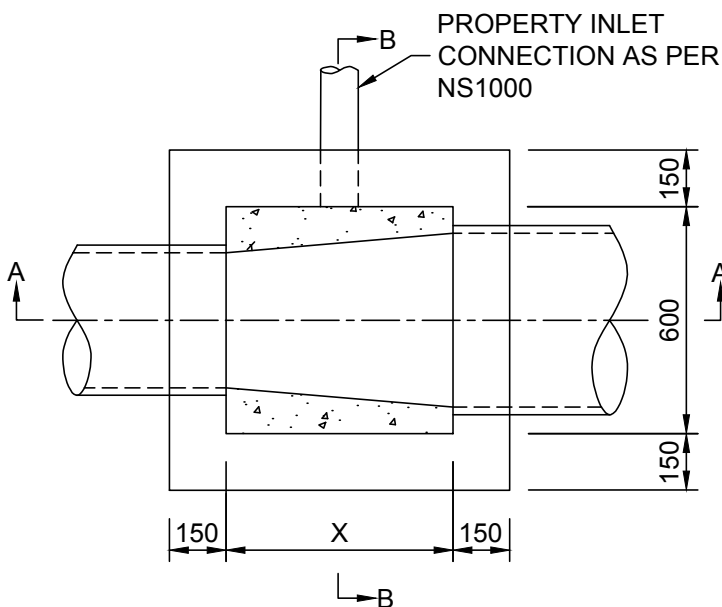
Drawing No.
NS1000



SECTION A-A

FLOOR TO BE FORMED UP
IN CONCRETE AS SHOWN

SECTION B-B



PLAN
(LID REMOVED)

NOTES:


1. THE 600x600 PIT MAY ONLY BE USED UP TO 800mm IN DEPTH.
2. PITS 800mm OR DEEPER MUST BE 900x600mm
3. SHAPE PIT BASE IN DIRECTION OF WATER FLOW.
4. STEP IRONS MUST BE CONSTRUCTED WHERE PIT DEPTH IS 900mm OR DEEPER (REFER TO NS1070).
5. PITS ARE TO BE PLACED ON 75mm DEPTH, 20mm NOMINAL SIZE CLASS 2 FCR BASE
6. 100mm DIAMETER WEEP HOLE TO BE PROVIDED, AS CLOSE AS POSSIBLE TO THE PIT BASE, ON THE UPSTREAM FACE OF THE PIT.
7. IN 50mm IN HEIGHT TEXT, THE WORDS **'NOT TO BE COVERED OR BUILT OVER'** ARE TO BE STAMPED ON THE PIT LID.

PIT LID - FIBRE REINFORCED AS PER NS1110

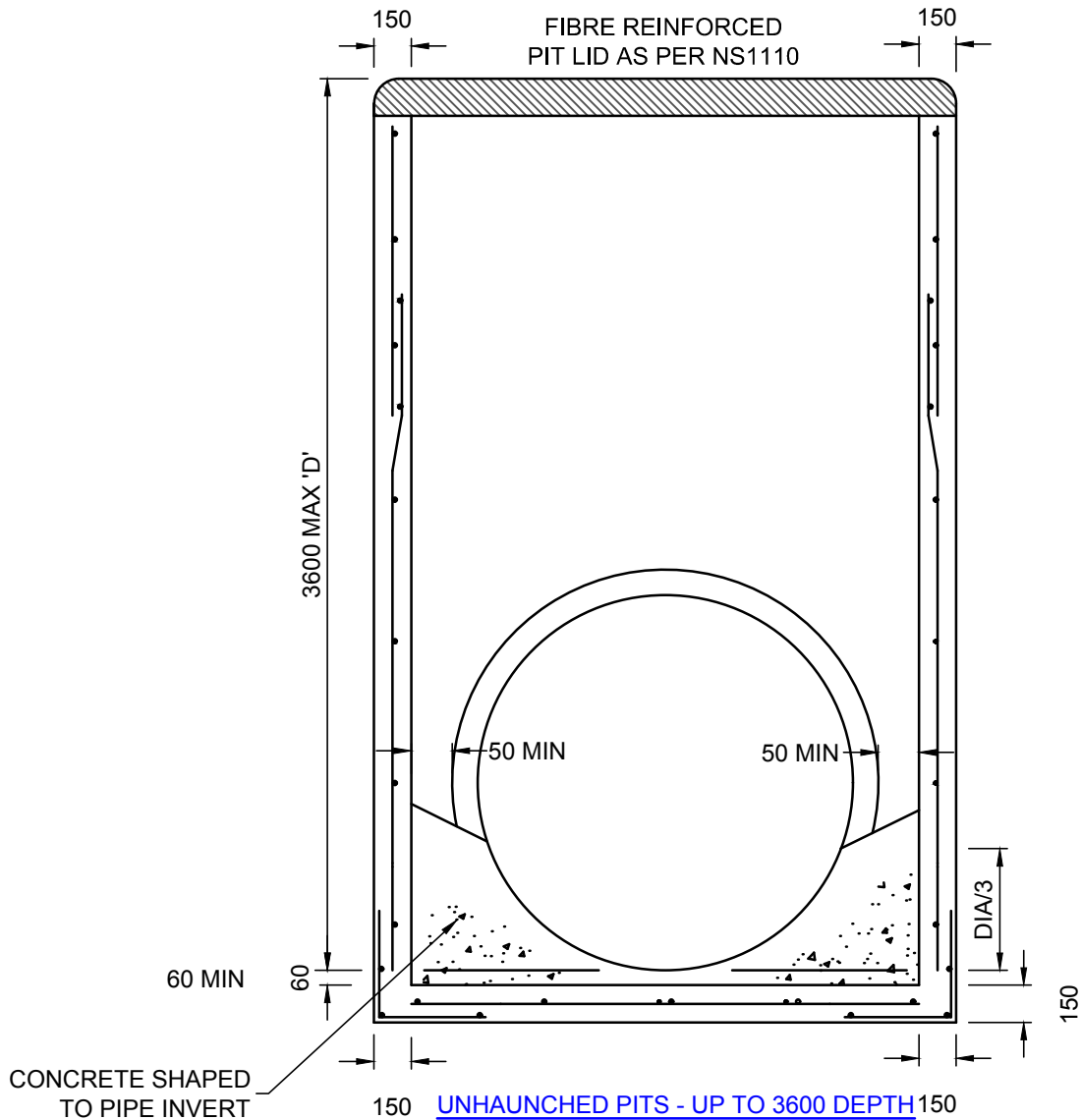
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:20
DESIGNED	
DRAWN	J.H.
REVISION	4

Nillumbik Shire Council
EASEMENT JUNCTION
PIT


 Manager
 Infrastructure
 Development
 Date 01/12/2015

Drawing No.
NS1010



150 UNHAUNCHED PITS - UP TO 3600 DEPTH 150

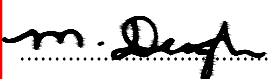
NOTES:

1. PIT DEPTHS LESS THAN 2000mm DO NOT REQUIRE REINFORCEMENT.
2. USE FIBRE REINFORCED PIT LIDS AS PER NS1110.
3. LOCATED WITHIN 300mm OF BACK OF KERB. PITS IN TRAFFIC LANES REQUIRE HEAVY DUTY COVERS.
4. HAUNCHING MAY BE REQUIRED FOR PIPES OVER 450 DIAMETER REFER TO PIT SCHEDULE FOR SIZES OF SPECIFIC PITS. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN.
5. USE SL92 REINFORCEMENT FOR ALL PITS > 2m IN DEPTH. FABRIC IN SHAFT SHALL HAVE THE MAIN BARS POSITIONED HORIZONTALLY. LAPS TO BE 300mm. CLEAR COVER TO BE 50 MIN. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE TO BE 500N. CONCRETE SHALL BE 32 MPa OR HIGHER.
6. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS. REFER TO NS1070
7. PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURERS DETAILS WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE LIMIT STATE SHALL NOT BE LESS THAN 25 kPa.
 - ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210 kN APPLIED ANYWHERE ON PIT.
 - MINIMUM REINFORCEMENT AREA SHALL BE 150 mm²/m
 - CONCRETE AGGREGATES SHALL COMPLY WITH AUSTRALIAN STANDARDS AS PER VIC ROADS SPECIFICATIONS SECTION 701.02
8. CONCRETE FRAMES TO BE SET ON 5mm OF MORTAR.
9. SHAPE PIT BASE IN DIRECTION OF WATERFLOW.
10. PITS ARE TO HAVE A 75mm DEPTH, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
11. 100mm DIAMETER WEEP HOLE TO BE PROVIDED, AS CLOSE AS POSSIBLE TO THE PIT BASE, ON THE UPSTREAM FACE OF THE PIT.

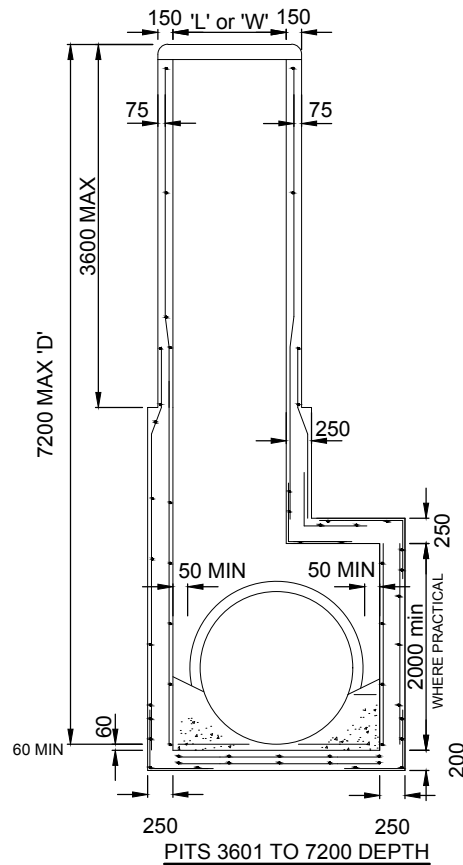
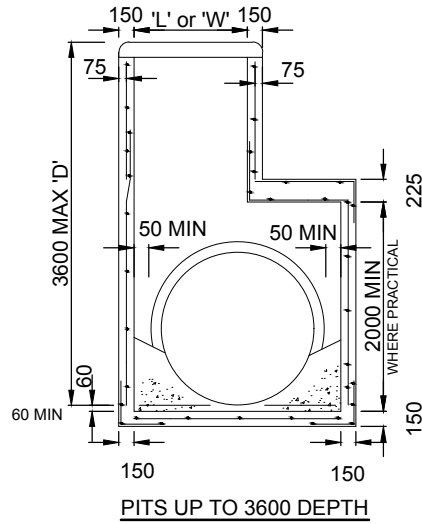
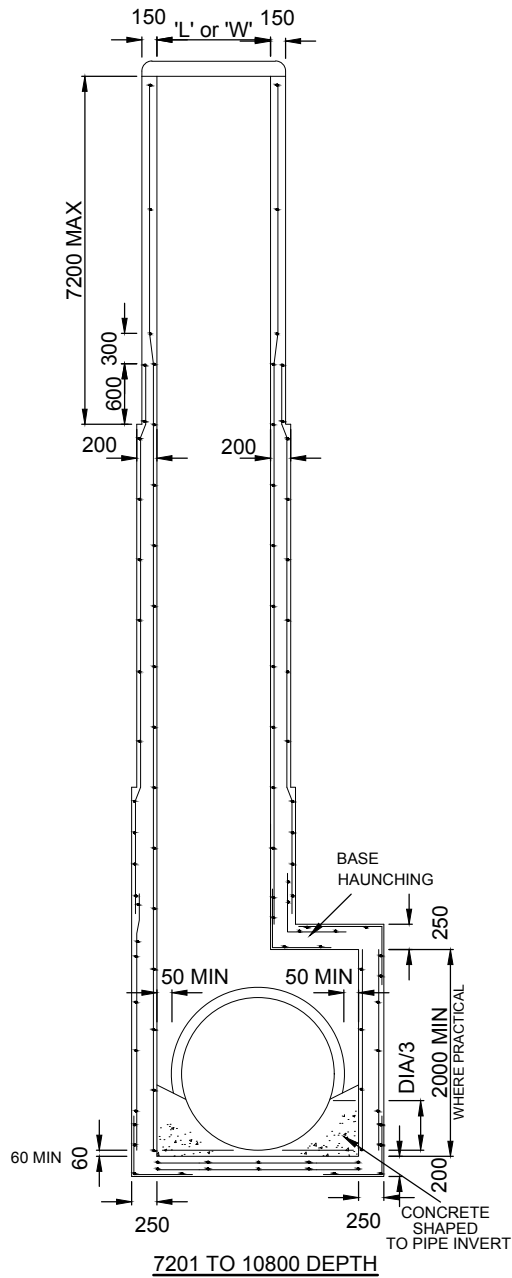
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:30
DESIGNED	P.A.
DRAWN	J.H.
REVISION	4

Nillumbik Shire Council
STANDARD
JUNCTION PIT


 Manager
 Infrastructure
 Development
 Date 01 / 12 / 2015

Drawing No.
NS1020



FURTHER DETAIL
SEE NS1030b

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

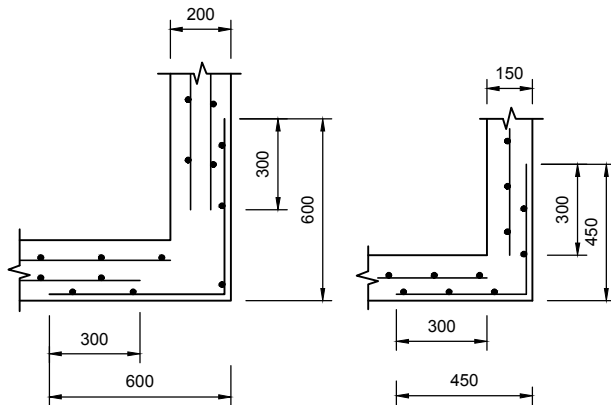
SCALE	1:75
DESIGNED	
DRAWN	J.H.
REVISION	3

Nilumbik Shire Council
HAUNCHED PITS
ADOPTED FROM VICROADS SD 1021

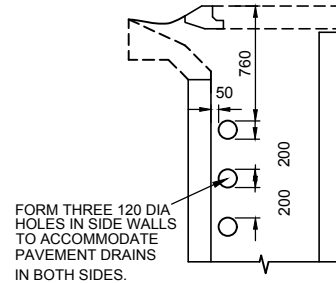
m. Duff
Manager
Infrastructure
Development
Date 01/12/2015

Drawing No.
NS1030a

FURTHER DETAIL
SEE NS1030a



CORNER DETAILS
PLAN VIEW
SCALE 1:25



FORM THREE 120 DIA HOLES IN SIDE WALLS TO ACCOMMODATE PAVEMENT DRAINS IN BOTH SIDES.

PRECAST PIT
SCALE 1:50

NOTES:-

1. MINIMUM PIT SIZES:

DEPTH	INTERNAL DIMENSIONS	
	PITS IN TRAFFIC LANES	PITS IN OTHER LOCATIONS
0-1200 1201 UPWARDS	750 x 750 750 x 750	750 x 750 750 x 1000

PIT LENGTH "L"	REINFORCEMENT
UP TO 1200	F92
1201 TO 1800	F918
1801 TO 2400	F1218


REINFORCEMENT DETAILS

2. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN. THE STANDARD DETAILS DO NOT APPLY.
3. FOR DETAILS OF SPECIFIC PITS, REFER TO PIT SCHEDULE.
4. PIT REINFORCEMENT DETAILS ARE SHOWN IN TABLE. FABRIC IN SHAFT SHALL HAVE THE MAIN BARS POSITIONED HORIZONTALLY. LAPS TO BE 300 MIN. CLEAR COVER TO BE 50 MIN. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE 500N. FABRICS TO AS1304/1991. CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
5. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS, REFER NS 1070.
6. FOR TOP OF PIT DETAILS. REFER TO PIT SCHEDULE AND RELEVANT STANDARD DRAWINGS.
7. PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURER'S DETAILS. THE DESIGN SHALL COMPLY WITH THE AUSTRROADS BRIDGE DESIGN CODE 1992 AND THE FOLLOWING ADDITIONAL REQUIREMENTS:
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE LIMIT STATE SHALL BE NOT LESS THAN 25 kPa.
 - ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210kN APPLIED ANYWHERE ON PIT.
 - MINIMUM REINFORCEMENT AREA SHALL BE 150mm² pm.
8. SUBSURFACE DRAIN HOLES TO BE SEALED IF NOT USED.
9. SHAPE PIT BASE IN DIRECTION OR WATERFLOW.
10. PITS ARE TO HAVE A FIBRE REINFORCED PIT LID AS PER NS1110.
11. PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
12. 100mm DIAMETER WEEP HOLE TO BE PROVIDED, AS CLOSE AS POSSIBLE TO THE PIT BASE, ON THE UPSTREAM FACE OF THE PIT.

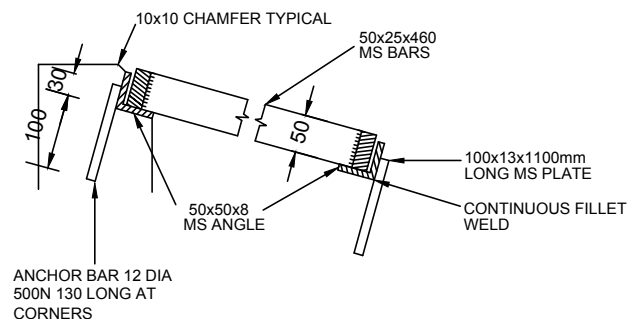
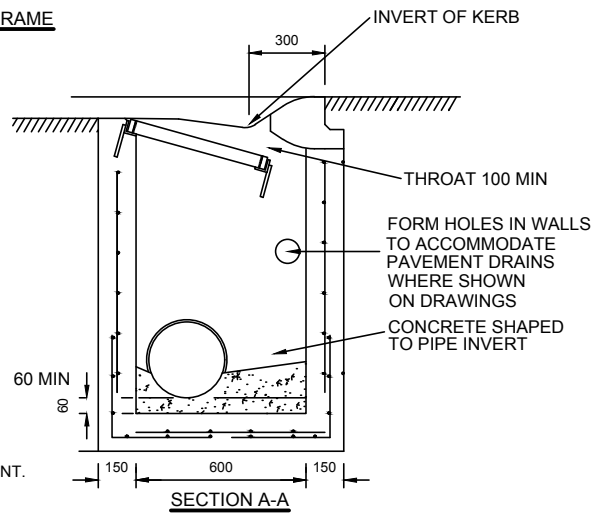
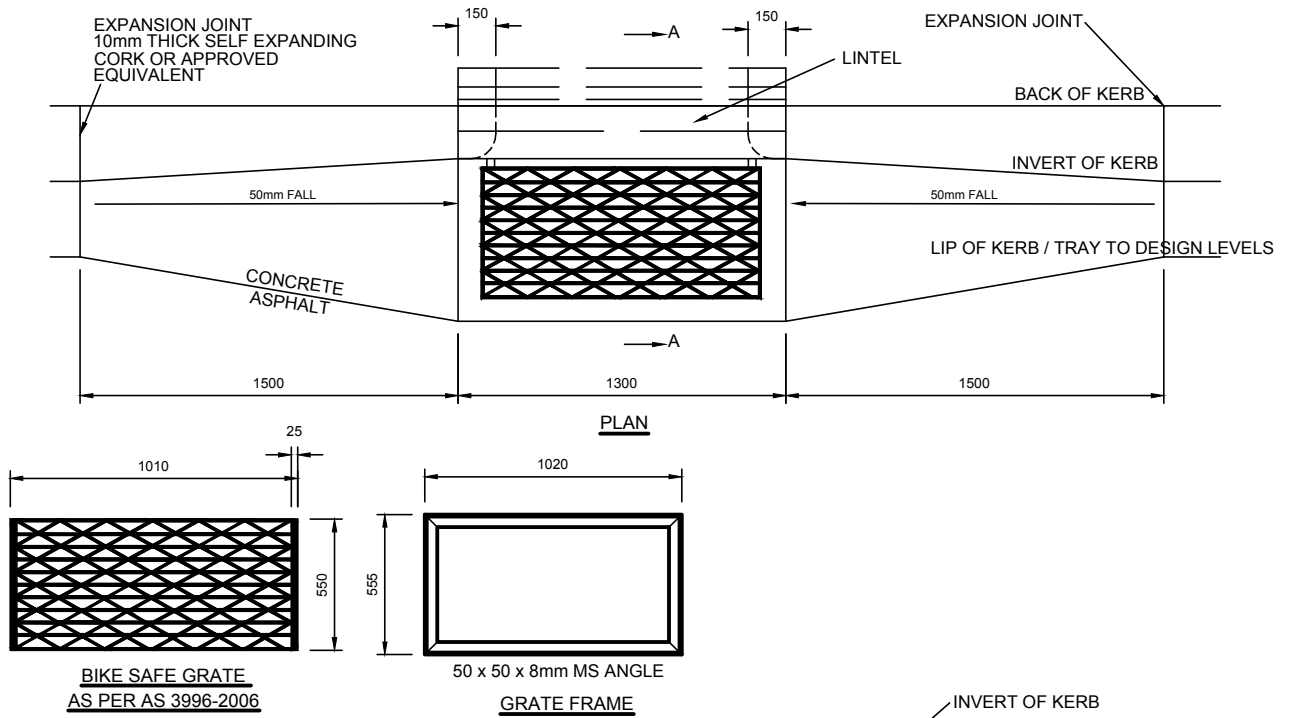
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN
DESIGNED	
DRAWN	J.H.
REVISION	3

Nilumbik Shire Council
HAUNCHED PITS
 ADOPTED FROM VICROADS SD 1021


 Manager
 Infrastructure
 Development
 Date 01/12/2015

Drawing No.
NS1030b



SECTION THROUGH GRATE
SCALE 1:10

NOTES:

- HAUNCHING MAY BE REQUIRED FOR PIPES OVER 450 DIA, REFER TO PIT SCHEDULE FOR SIZES OF SPECIFIC PITS. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN.
- PIT REINFORCEMENT - SL92. LAPS TO BE 300MM MINIMUM DEPTH FOR REINFORCEMENT. CLEAR COVER TO BE 50 MINIMUM. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE 500N. FABRICS TO AS1304/1991 CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
- PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS. REF. NS 1070.
- CONCRETE LINTEL IS REQUIRED TO SUPPORT A TEST LOAD OF 100kN IN ACCORDANCE WITH VICROADS' "INTERIM TEST METHOD FOR TEST LOADING PIT COVERS, LINTELS AND LIDS."
- PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURER'S DETAILS. THE DESIGN SHALL COMPLY WITH THE AUSTRROADS BRIDGE DESIGN CODE 1992 AND THE FOLLOWING ADDITIONAL REQUIREMENTS :
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE LIMIT STATE SHALL NOT BE LESS THAN 25 kPa.
 - ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210 kN APPLIED ANYWHERE ON PIT.
 - MINIMUM REINFORCEMENT AREA SHALL BE 150 mm²/m.
- GRATE FRAME SHALL BE CONSTRUCTED FROM 50x50x8 MS ANGLE. EACH CORNER SHALL BE CHAMFERED ON UNDERSIDE OF HORIZONTAL LEG AND ON INSIDE OF VERTICAL LEG BEFORE WELDING WITH SINGLE V BUTT WELD.
- GRATE UNITS SHALL BE MADE FROM 50x25x460 MS BARS. TOP AND BOTTOM EDGES OF THE BAR ENDS SHALL BE CHAMFERED 5mmx5mm BEFORE CONTINUOUSLY WELDING ALL ROUND AND GROUND FLUSH BEFORE GALVANISING.
- BOTH GRATE AND GRATE FRAME SHALL BE HOT DIP GALVANISED TO AS 1650/1989 UNLESS SPECIFIED OTHERWISE.
- SHAPE PIT BASE IN DIRECTION OF WATERFLOW.
- PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
- 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

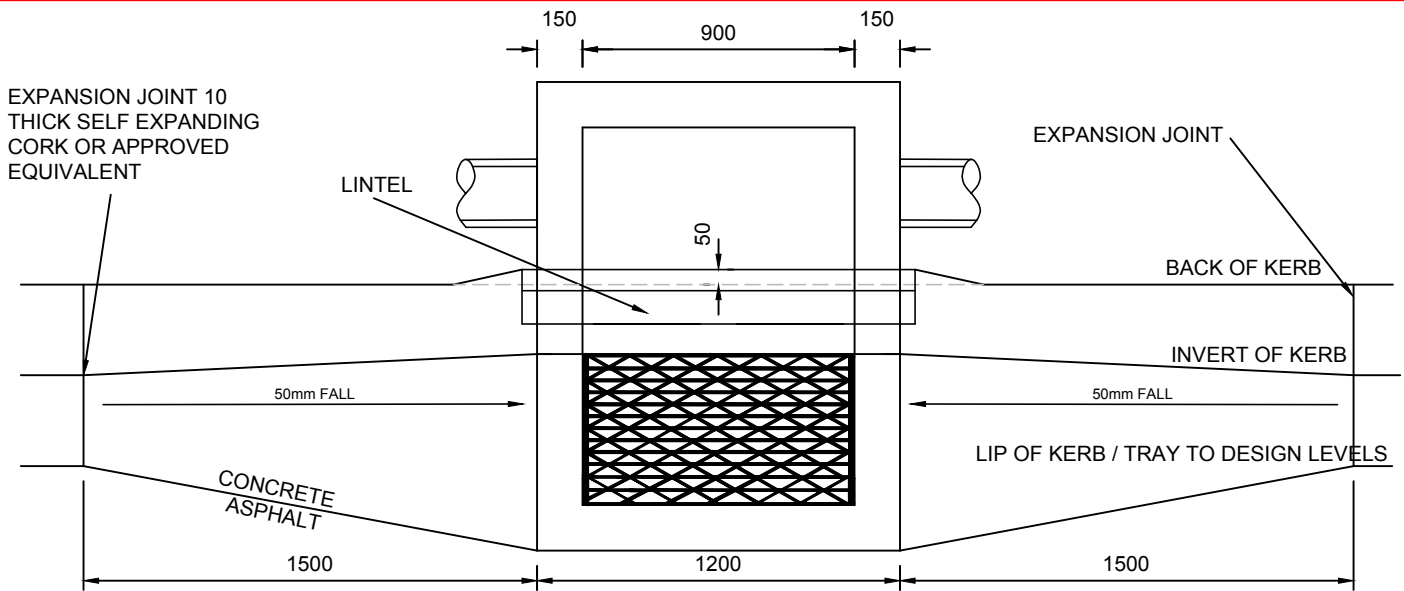
SCALE	1:30
DESIGNED	
DRAWN	J.H.
REVISION	3

Nillumbik Shire Council
GRATED SIDE ENTRY PIT
TYPE A

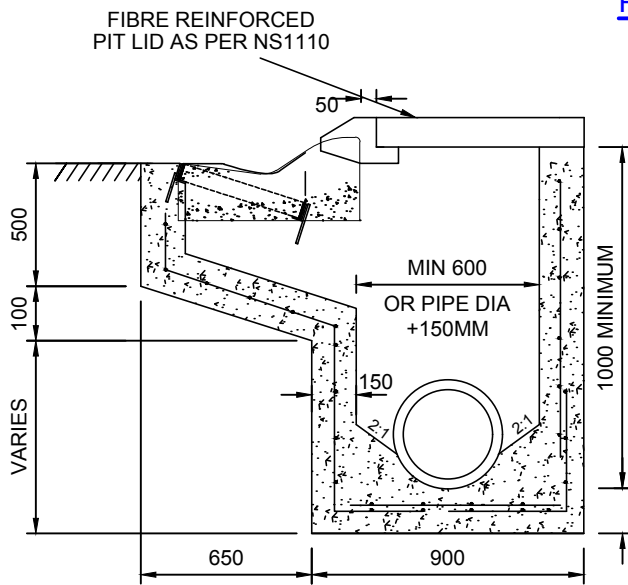
m. Deugh
Manager
Infrastructure
Development
Date ..01../12../2015

Drawing No.

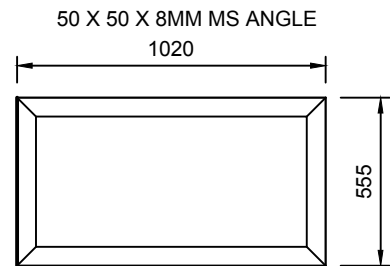
NS1040



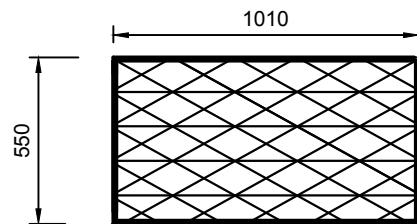
PLAN VIEW



SECTION A-A



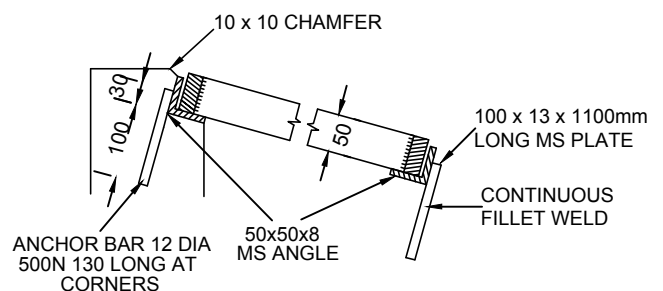
GRATE FRAME



**BIKE GRATE
AS PER AS 3996-2006**

NOTES:

1. HAUNCHING MAY BE REQUIRED FOR PIPES OVER 450 DIA, REFER TO PIT SCHEDULE FOR SIZES OF SPECIFIC PITS. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN.
2. PIT REINFORCEMENT - SL92. LAPS TO BE 300MM MINIMUM DEPTH FOR REINFORCEMENT. CLEAR COVER TO BE 50 MINIMUM. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE 500N. FABRICS TO AS1304/1991 CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
3. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS. REF. NS 1070.
4. CONCRETE LINTEL IS REQUIRED TO SUPPORT A TEST LOAD OF 100kN IN ACCORDANCE WITH VICROADS' "INTERIM TEST METHOD FOR TEST LOADING PIT COVERS, LINTELS AND LIDS."
5. PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURER'S DETAILS. THE DESIGN SHALL COMPLY WITH THE AUSTRROADS BRIDGE DESIGN CODE 1992 AND THE FOLLOWING ADDITIONAL REQUIREMENTS :
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE LIMIT STATE SHALL NOT BE LESS THAN 25 kPa.
 - ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210 kN APPLIED ANYWHERE ON PIT.
 - MINIMUM REINFORCEMENT AREA SHALL BE 150 mm/m.
6. GRATE FRAME SHALL BE CONSTRUCTED FROM 50x50x8 MS ANGLE. EACH CORNER SHALL BE CHAMFERED ON UNDERSIDE OF HORIZONTAL LEG AND ON INSIDE OF VERTICAL LEG BEFORE WELDING WITH SINGLE V BUTT WELD.
7. GRATE UNITS SHALL BE MADE FROM 50x25x460 MS BARS. TOP AND BOTTOM EDGES OF THE BAR ENDS SHALL BE CHAMFERED 5mmx5mm BEFORE CONTINUOUSLY WELDING ALL ROUND AND GROUND FLUSH BEFORE GALVANISING.



**SECTION THROUGH GRATE
AND FRAME
SCALE 1:10**

8. BOTH GRATE AND GRATE FRAME SHALL BE HOT DIP GALVANISED TO AS 1650/1989 UNLESS SPECIFIED OTHERWISE.
9. SHAPE PIT BASE IN DIRECTION OF WATERFLOW.
10. PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
11. 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:25
DESIGNED	
DRAWN	J.H.
REVISION	3

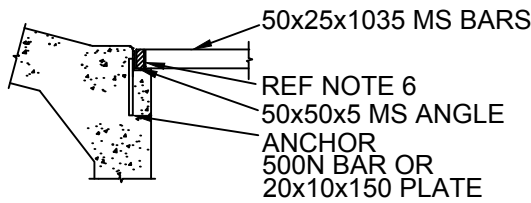
Nilumbik Shire Council
GRATED SIDE ENTRY PIT
TYPE B

m. Deugh

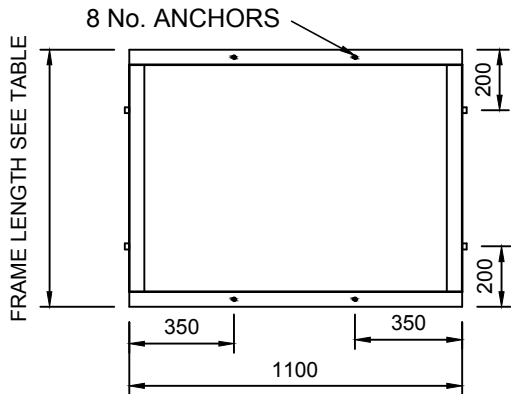
Manager
Infrastructure
Development
Date 01/12/2015

Drawing No.

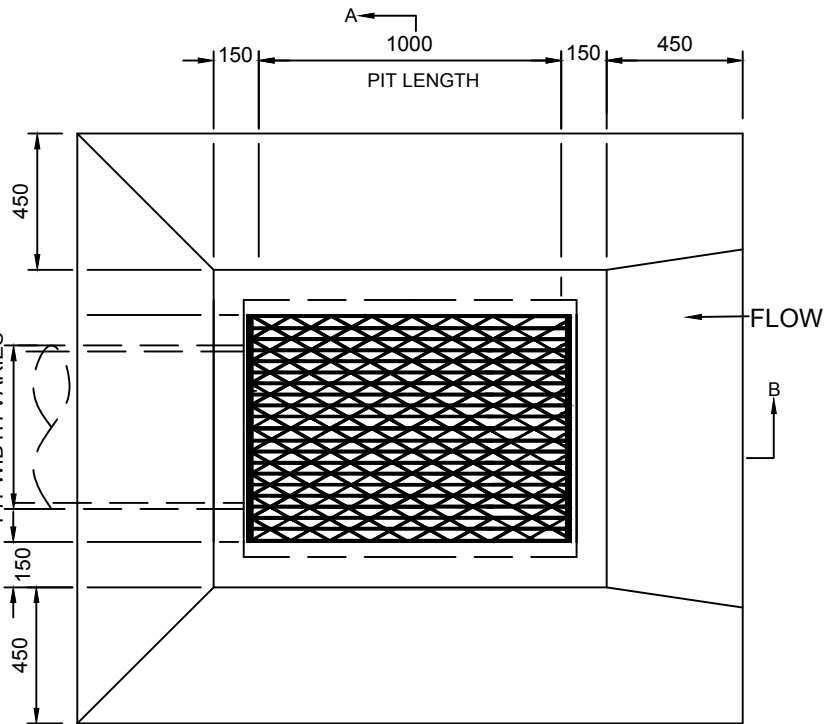
NS1050



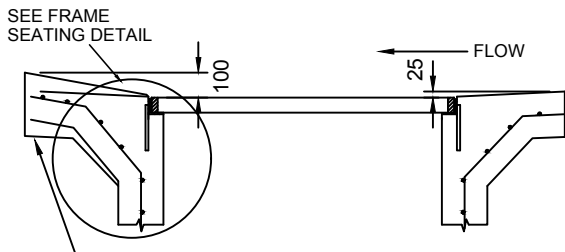
FRAME SEATING DETAIL
SCALE 1:20



GRATE FRAME

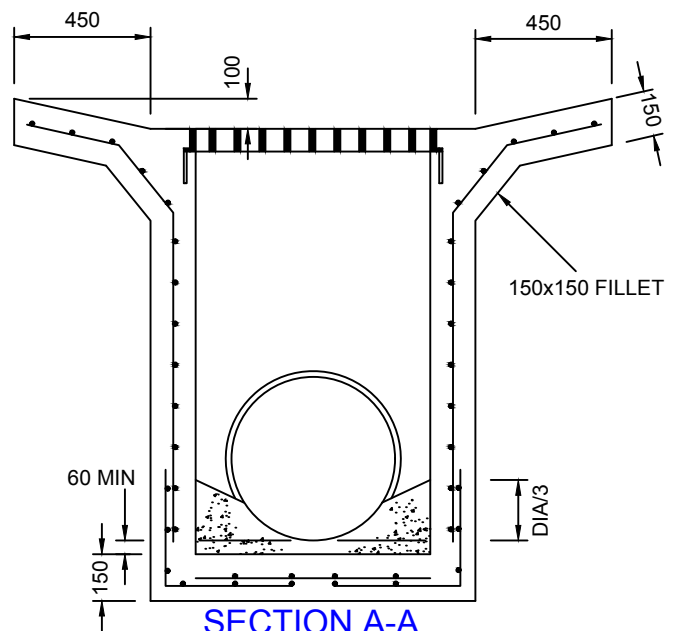


PLAN



ALTERNATIVE PROVIDING FOR FLOWS IN BOTH DIRECTIONS

PART SECTION B-B



SECTION A-A

NOTES:

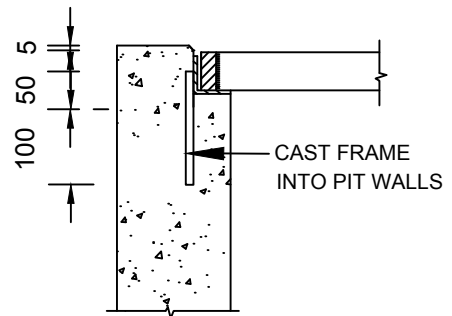
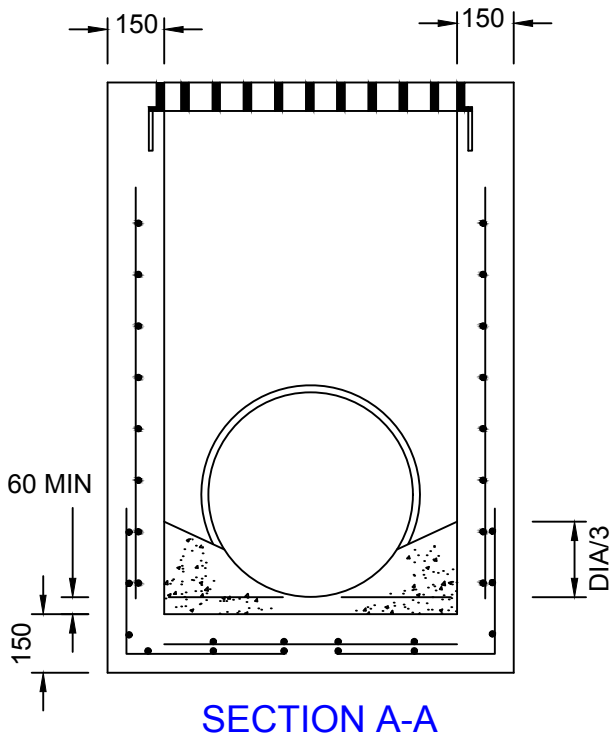
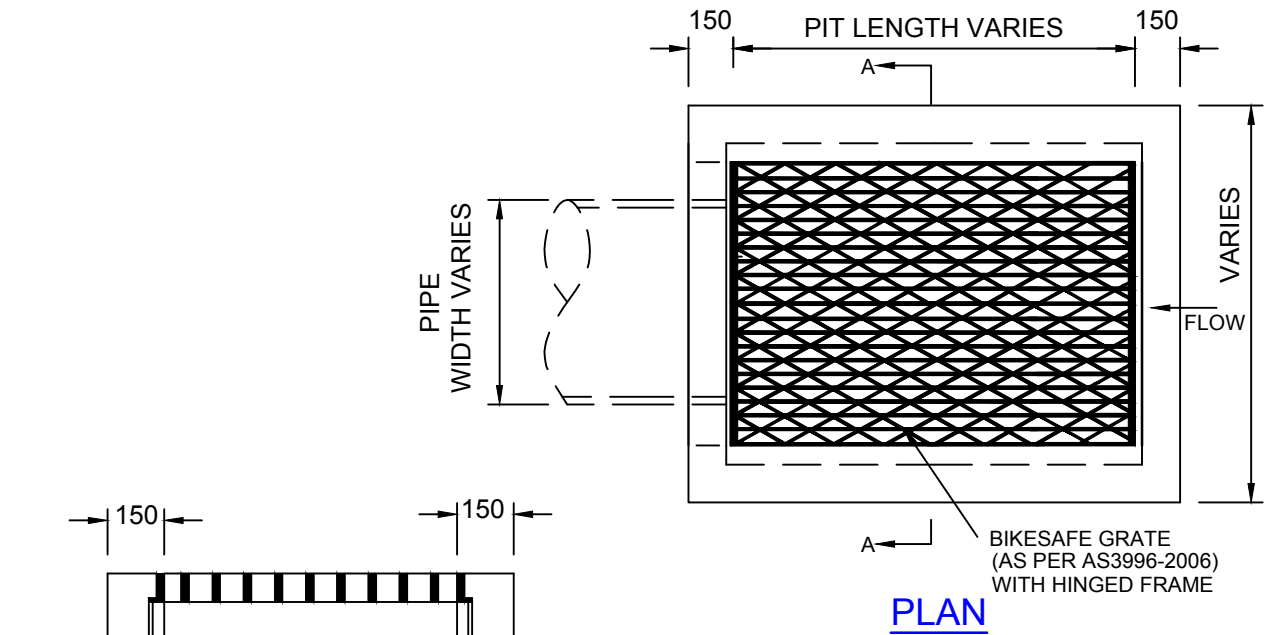
1. THIS PIT IS FOR USE IN MEDIANS AND TABLE DRAINS. IT IS NOT SUITABLE FOR USE IN ROADWAYS, FOOTPATHS, BICYCLE PATHS OR AREAS ACCESSIBLE BY PEDESTRIANS.
2. MAX.LOADING - EACH GRATE UNIT WILL SUPPORT A 150 KN LOAD.
3. GRATE FRAME SHALL BE CONSTRUCTED FROM 50x50x8 MS ANGLE. CORNER JOINTS SHALL BE WELDED ON UNDERSIDE OF HORIZONTAL LEG AND ON THE INSIDE OF THE VERTICAL LEG WITH SIZE 5 FILLET WELDS.
4. ANCHOR SPACING SHALL NOT EXCEED 400mm.
5. EXPOSED CONCRETE EDGES SHALL HAVE 10mm x 10mm CHAMFERS.
6. THE TOP AND BOTTOM EDGES OF THE BAR ENDS SHALL BE CHAMFERED 5mm x 5mm BEFORE CONTINUOUSLY WELDING ALL AROUND AND GROUND FLUSH BEFORE GALVANISING.
7. BOTH GRATE AND GRATE FRAME SHALL BE HOT DIP GALVANISED TO AS/NZS 4680 UNLESS SPECIFIED OTHERWISE.
8. PIT REINFORCEMENT - SL92. LAPS TO BE 300mm MINIMUM. REINFORCEMENT DEPTH OF PIT >2M CLEAR COVER TO BE 50 MINIMUM. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE 500N. FABRICS TO AS 1304/1991. CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS 1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
9. SHAPE BASE IN DIRECTION OF WATERFLOW.
10. GRATE IS TO BE A BIKE SAFE GRATE AS PER AS 3996-2006.
11. PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
12. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS REFER NS1070.
13. 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.

PIT TYPE	PIT TOP INTERNAL DIM		FRAME LENGTH	NUMBER OF GRATE UNITS
	LENGTH	WIDTH		
1	750	1000	750	3
2	1000	1000	1000	4
3	1500	1000	1500	6
4	2000	1000	2000	8
5	2500	1000	2500	10

PIT, FRAME AND GRATE DETAILS

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:25	<p>Nilumbik Shire Council</p> <p>GRATED PIT WITH FLANGE</p>	 Manager Infrastructure Development Date ..01../12../2015	Drawing No.
DESIGNED			<p>NS1060</p>
DRAWN J.H.			
REVISION 3			



SECTION A-A

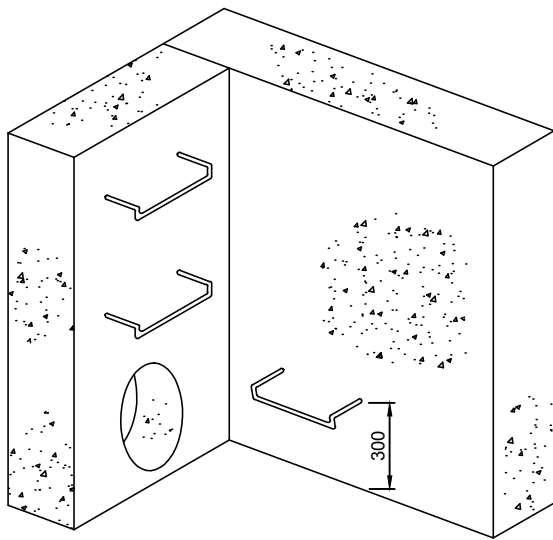
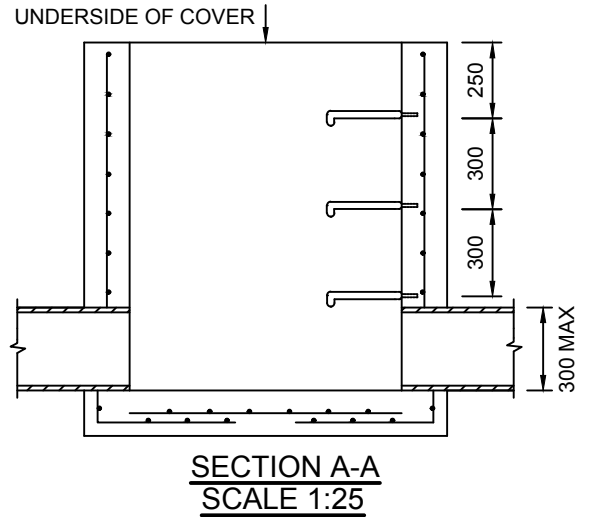
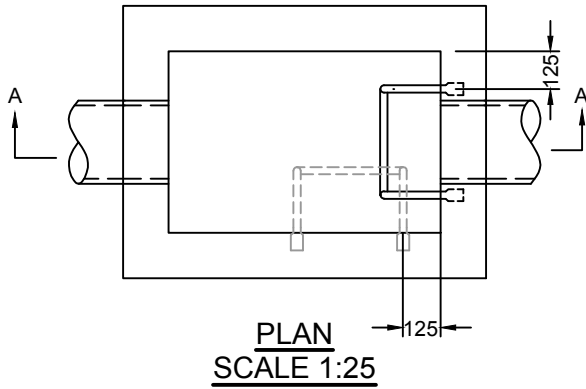
FRAME SEATING DETAIL
SCALE 1:10

NOTES:-

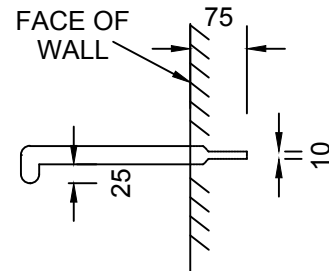
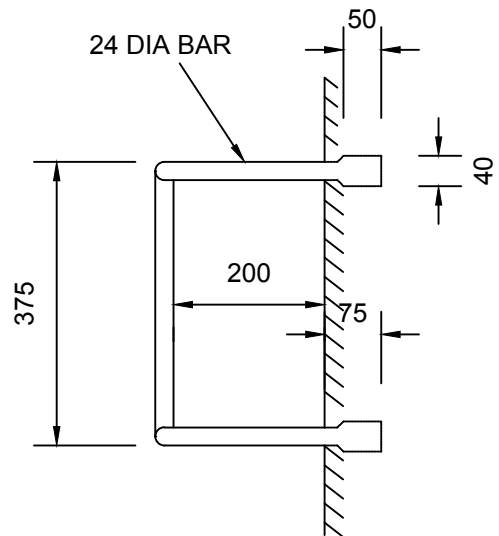
1. ANCHOR SPACING SHALL NOT EXCEED 400mm.
2. BOTH GRATE AND GRATE FRAME SHALL BE HOT DIP GALVANISED TO AS/NZS 4680 UNLESS SPECIFIED OTHERWISE.
3. SURFACE OF GRATE TO BE FREE OF SHARP EDGES.
4. PIT REINFORCEMENT - SL92. LAPS TO BE 300mm MINIMUM. DEPTH OF PIT FOR REINFORCEMENT > 2m. CLEAR COVER TO BE 50 MINIMUM. CORNER RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS. BARS GRADE 500N. FABRICS TO AS1304/1991. CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
5. SHAPE PIT BASE IN DIRECTION OF WATERFLOW.
6. PITS ARE TO HAVE A 75mm DEPTH, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
7. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS, REFER TO NS1070.
8. 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:20	<p>Nilumbik Shire Council</p> <p>STANDARD</p> <p>GRATED PIT</p> <p>ADOPTED FROM VICROADS SD 1411</p>	 <p>Manager Infrastructure Development Date ..01../..12../2015</p>	Drawing No.
DESIGNED				<p>NS1061</p>
DRAWN	J.H.			
REVISION	2			



FOR PIPES GREATER THAN 300mm Ø
NTS



STEP IRON DETAILS
SCALE 1:10

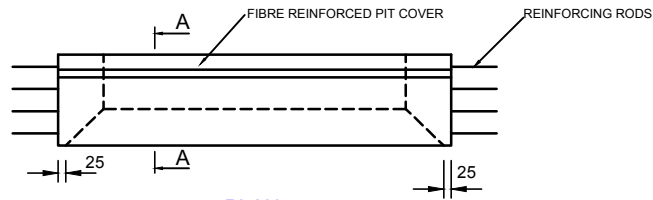
NOTES:-

1. PITS 900mm OR DEEPER MUST BE FITTED WITH STEP IRONS.
2. STEP IRONS SHALL BE LOCATED:
 - DIRECTLY BELOW THE OPENING IN THE COVER.
 - DESIRABLY ON ONE OF THE NARROW SIDES OF THE PIT.
3. STEEL FOR STEP IRONS SHALL BE STRUCTURAL GRADE 250 TO AS3679/1990 PART 1.
4. STEP IRONS SHALL HAVE ROUNDED EDGES AND HOT DIP GALVANISED AFTER FABRICATION TO AS/NZS 4680
5. PROPRIETARY STEPS SUCH AS THE GATIC 373 PM POLYPROPYLENE STEPS (OR APPROVED ALTERNATIVE) MAY BE USED. THESE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.
6. FOR PRECAST PITS, STEP IRONS SHALL BE LOAD TESTED TO AS4198/1994.

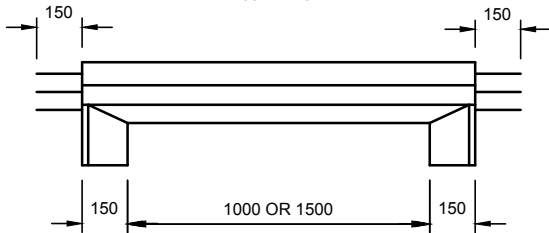
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE AS SHOWN	<p>Nilumbik Shire Council</p> <p>STEP IRON</p> <p>ADOPTED FROM VICROADS SD 1041</p>	<p><i>m. Deugh</i></p> <p>Manager Infrastructure Development Date 01./12./2015</p>	Drawing No.
DESIGNED			<p>NS1070</p>
DRAWN J.H.			
REVISION 3			

SM TYPE LINTELS

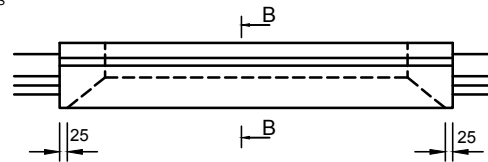


PLAN
SCALE 1:25

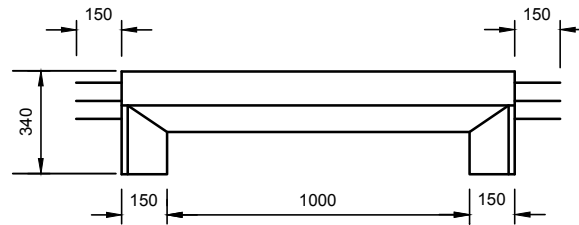


ELEVATION
SCALE 1:25

B TYPE LINTELS

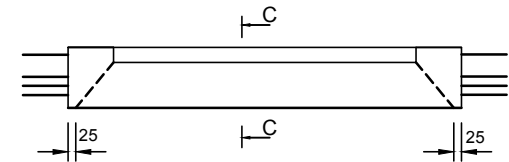


PLAN
SCALE 1:25

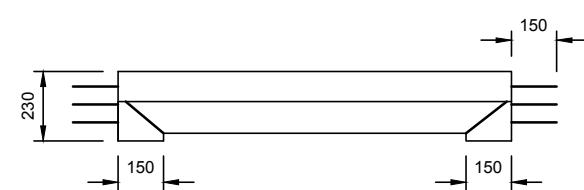


ELEVATION
SCALE 1:25

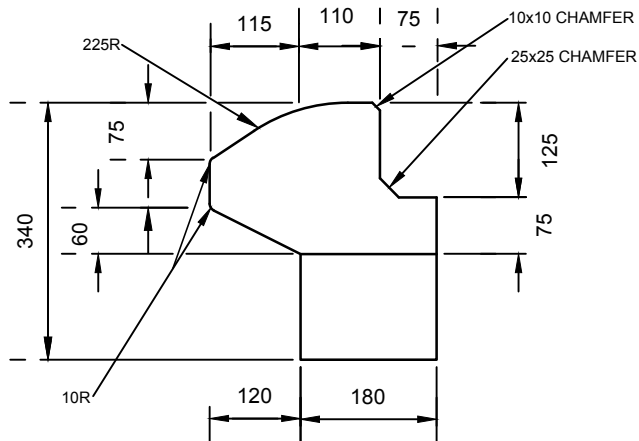
1350 K/LINTEL-ELTHAM



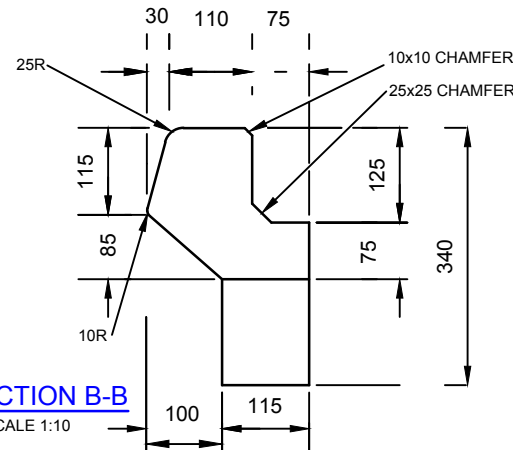
PLAN
SCALE 1:25



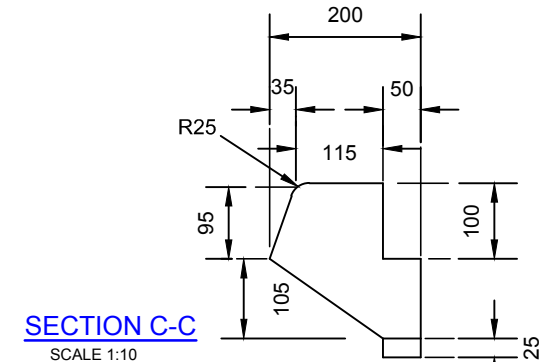
ELEVATION
SCALE 1:25



SECTION A-A
SCALE 1:10



SECTION B-B
SCALE 1:10



SECTION C-C
SCALE 1:10

NOTES

- STANDARD LINTELS ARE REQUIRED TO SUPPORT A TEST LOAD OF 100KN IN ACCORDANCE WITH VICROADS "INTERIM TEST METHOD FOR TEST LOADING PIT COVERS, LINTELS AND LIDS".
- STEEL REINFORCEMENT SHALL COMPLY WITH SECTION 611 OF VICROADS SPECIFICATION.
- CONCRETE SHALL BE CONCRETE GRADE N40 COMPLYING WITH SECTION 610 OF VICROADS SPECIFICATION, EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
- MINIMUM CLEAR COVER TO REINFORCEMENT 25mm FOR PRECAST CONCRETE UNITS.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN
DESIGNED	
DRAWN	J.H.
REVISION	3

Nillumbik Shire Council
PIT LINTELS (PRECAST)

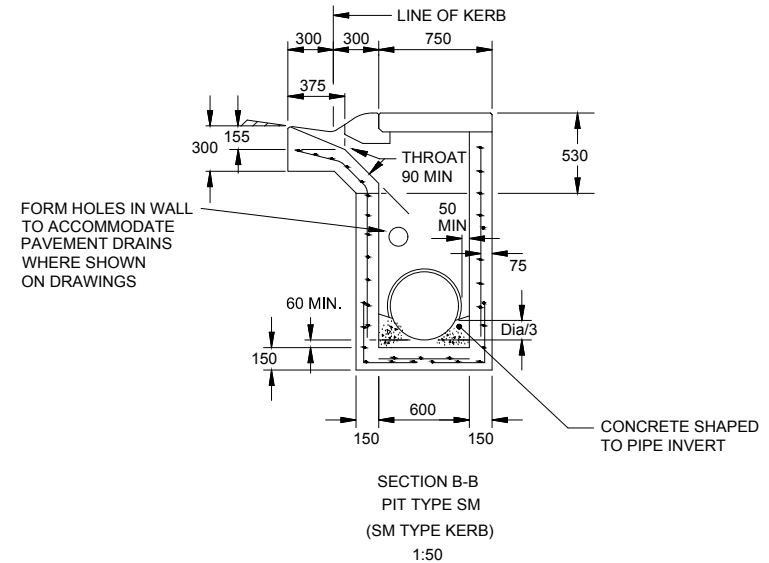
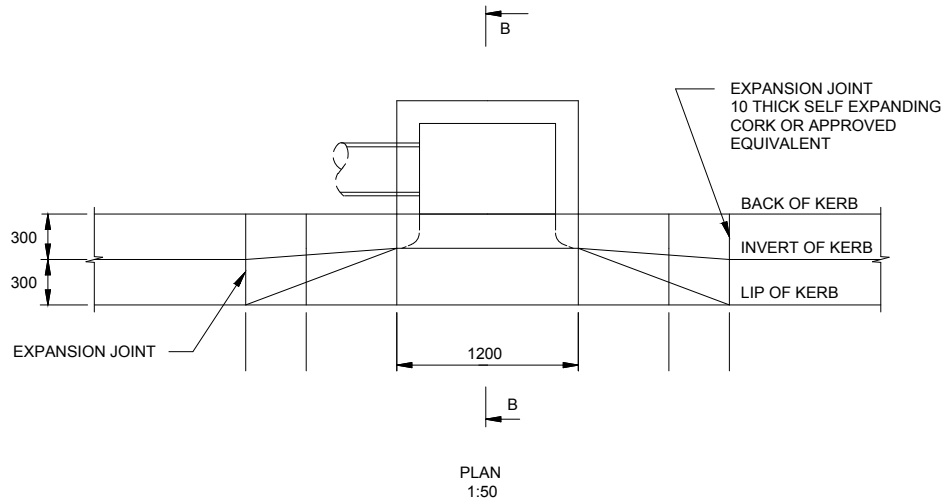
ADOPTED FROM VICROADS SD 1061

M. Deigh

Manager
Infrastructure
Development
Date ..01../12../2015

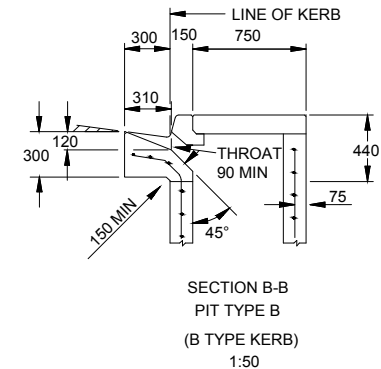
Drawing No.

NS1080



NOTES:

1. HAUNCHING MAY BE REQUIRED FOR PIPES OVER 450 DIA, REFER TO PIT SCHEDULE FOR SIZES OF SPECIFIC PITS. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN.
2. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS. REFER NS1070.
3. PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURER'S DETAILS. THE DESIGN SHALL COMPLY WITH THE AS 5100 BRIDGE DESIGN AND THE FOLLOWING ADDITIONAL REQUIREMENTS :
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE LIMIT STATE SHALL BE NOT LESS THAN 25 kPa.
 - ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210 kN APPLIED ANYWHERE ON PIT.
 - MINIMUM REINFORCEMENT AREA SHALL BE 150 mm²/m.
 - CONCRETE SHALL BE NORMAL-CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS 1379. EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
4. IN AREAS SUBJECT TO TRUCK LOADING, USE HEAVY DUTY COVER IN DRAWINGS NO. SD 1271 OR SD 1272 AS APPROPRIATE.
5. PITS SHALL HAVE A LIGHT WEIGHT FIBRE REINFORCED LID AS PER NS1110.
6. PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
7. 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.



ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:50
DESIGNED	
DRAWN	J.H.
REVISION	2

Nillumbik Shire Council
SM & B TYPE SIDE ENTRY PITS
 ONE METRE INLET

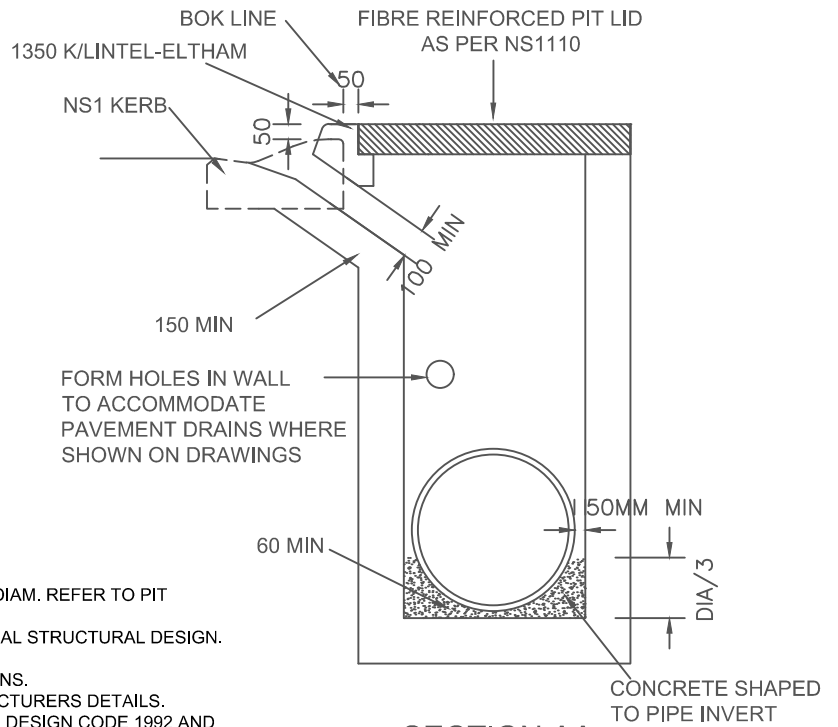
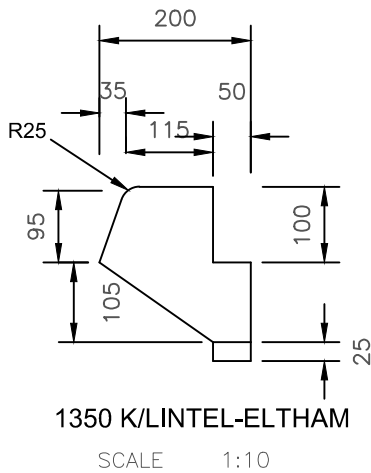
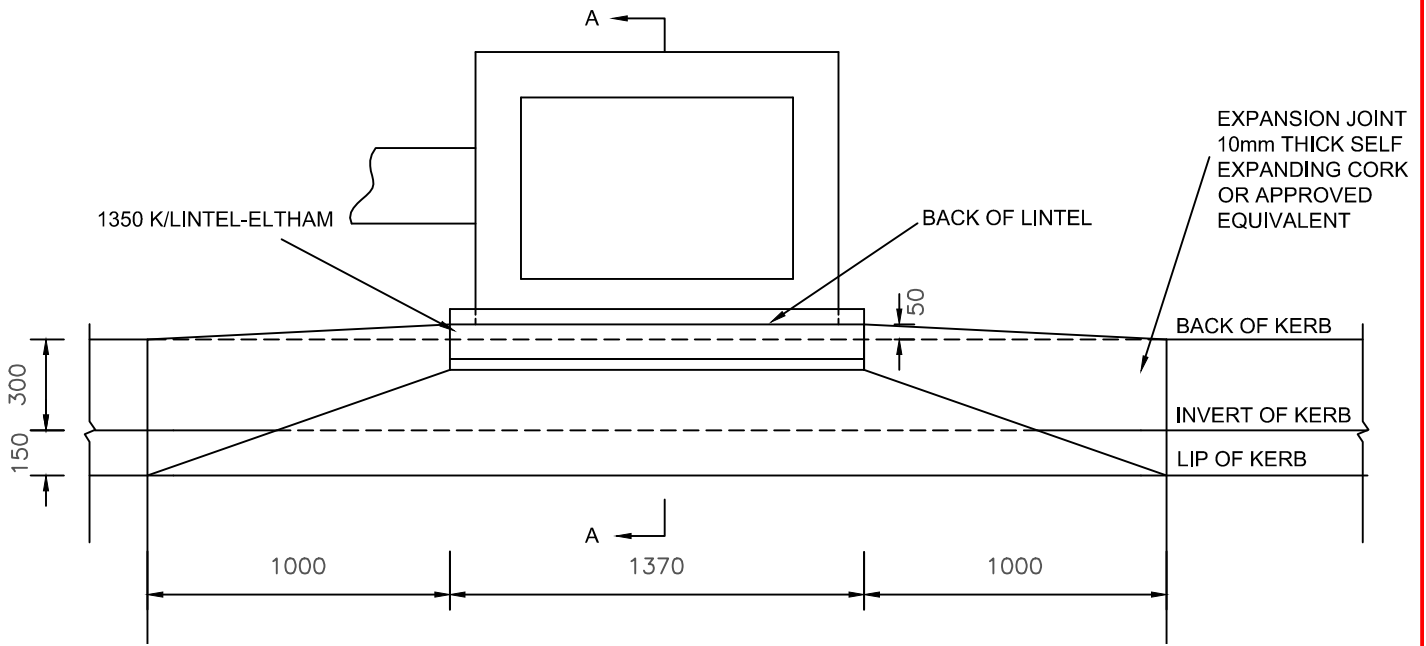
ADOPTED FROM VICROADS SD 1301

m. Deugh

Manager
 Infrastructure
 Development
 Date 01/12/2015

Drawing No.

NS1081



**SECTION AA
SEP TYPE NS1**

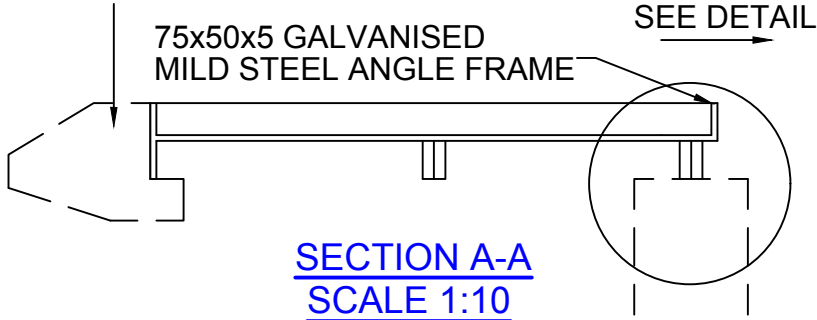
NOTES:

1. HAUNCHING MAY BE REQUIRED FOR PIPES OVER 450mm DIAM. REFER TO PIT SCHEDULE FOR SIZES OF SPECIFIC PITS. PITS WITH HAUNCHING IN TWO DIRECTIONS REQUIRE SPECIAL STRUCTURAL DESIGN.
2. PIT REINFORCEMENT - REFER TO NS 1020
3. PITS 900mm OR DEEPER SHALL BE FITTED WITH STEP IRONS.
4. PRECAST UNITS MAY BE CONSTRUCTED TO THE MANUFACTURERS DETAILS. THE DESIGN SHALL COMPLY WITH THE AUSTRROADS BRIDGE DESIGN CODE 1992 AND THE FOLLOWING ADDITIONAL REQUIREMENTS :
 - COMBINED FACTORED LATERAL PRESSURE AT ANY POINT AT THE ULTIMATE ADEQUATE DRAINAGE SHALL BE PROVIDED TO PIT WALLS TO AVOID HYDROSTATIC PRESSURE.
 - VERTICAL LOAD 210 KN APPLIED ANYWHERE ON PIT.
 - CONCRETE SHALL BE NORMAL CLASS N32 STANDARD STRENGTH GRADE OR HIGHER COMPLYING WITH THE REQUIREMENTS OF AS 1379 EXPOSURE CLASSIFICATIONS UP TO AND INCLUDING B1.
5. IN AREAS SUBJECT TO TRUCK LOADING USE HEAVY DUTY COVER AS PER VIC ROADS SD 1272 AS APPROPRIATE. (FIBRE REINFORCED)
6. PITS ARE TO HAVE A 75mm THICK, 20mm NOMINAL SIZE CLASS 2 FCR BASE.
7. 100mm WEEP HOLE TO BE PROVIDED, AS CLOSE TO PIT BASE AS POSSIBLE, ON THE UPSTREAM FACE OF THE PIT.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

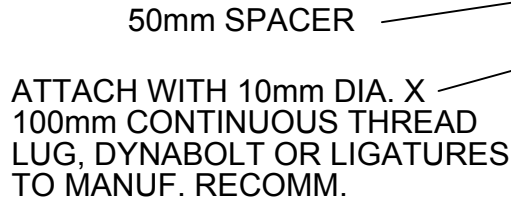
SCALE	1:25	<p>Nillumbik Shire Council</p> <p><u>NILLUMBIK NS1 SIDE ENTRY PITS</u></p>	<p><i>m. Deugh</i></p> <p>Manager Infrastructure Development</p> <p>Date ..01../..12../..2015..</p>	Drawing No.
DESIGNED				NS1101
DRAWN	J.H.			
REVISION	2			

100mm PLATE TO SIT ON LINTEL REBATE.



SECTION A-A
SCALE 1:10

GROUT TO FILL 50mm GAP BETWEEN PIT WALL & FRAME.

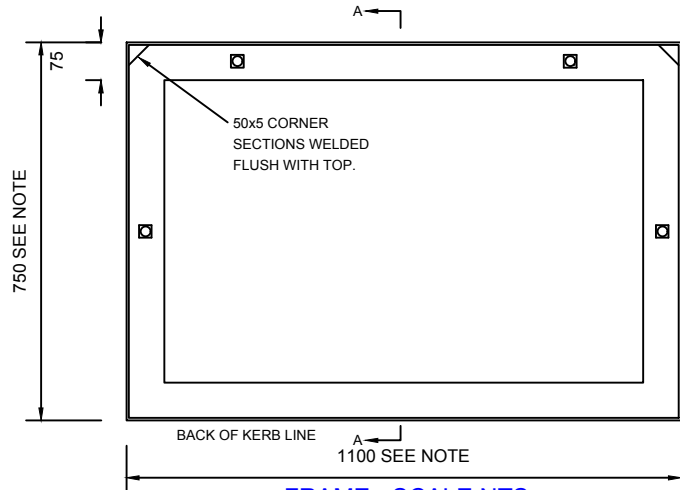


ATTACH WITH 10mm DIA. X 100mm CONTINUOUS THREAD LUG, DYNABOLT OR LIGATURES TO MANUF. RECOMM.
FIXING TO BE MIN. 50mm FROM EACH PIT WALL FACE.

SECTION A-A
SCALE 1:10

COVERS AND GRATES ARE TO BE AS PER AS3996.

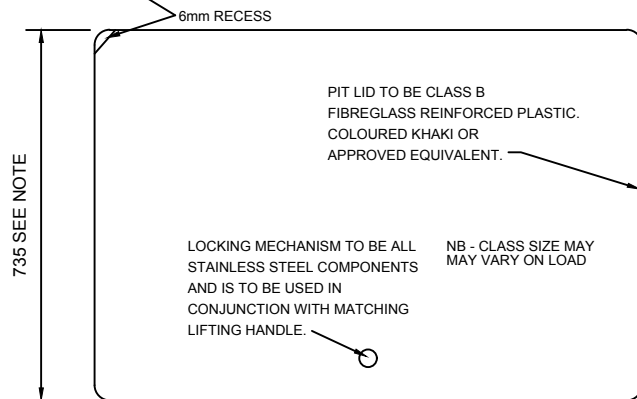
CLASS	TYPICAL USE
A	EXTRA LIGHT DUTY areas accessible only by pedestrians and cyclists
B	LIGHT DUTY areas (including footways/light tractor paths) accessible to vehicles (excluding commercial vehicles) or live stock
C	MEDIUM DUTY malls and areas open to slow moving commercial vehicles
D	HEAVY DUTY carriageways of roads and areas open to commercial vehicles



FRAME - SCALE NTS

NOTE:

DIMENSIONS GIVEN ARE FOR 900mm x 600mm PITS WITH 150mm WALLS AND INTERNAL FACE OF FRONT PIT WALL SET 40mm BEHIND BACK OF KERB (BOK). FOR PITS WITH DIFFERENT DIMENSIONS OR WITH DIFFERENT SET BACKS FROM BOK FRAME SIZE WILL REQUIRE MODIFYING TO ENSURE THAT FIXING BOLTS ARE LOCATED A MINIMUM OF 50mm FROM THE FACE (INTERIOR OR EXTERIOR) OF THE PIT WALL.




LID - SCALE NTS

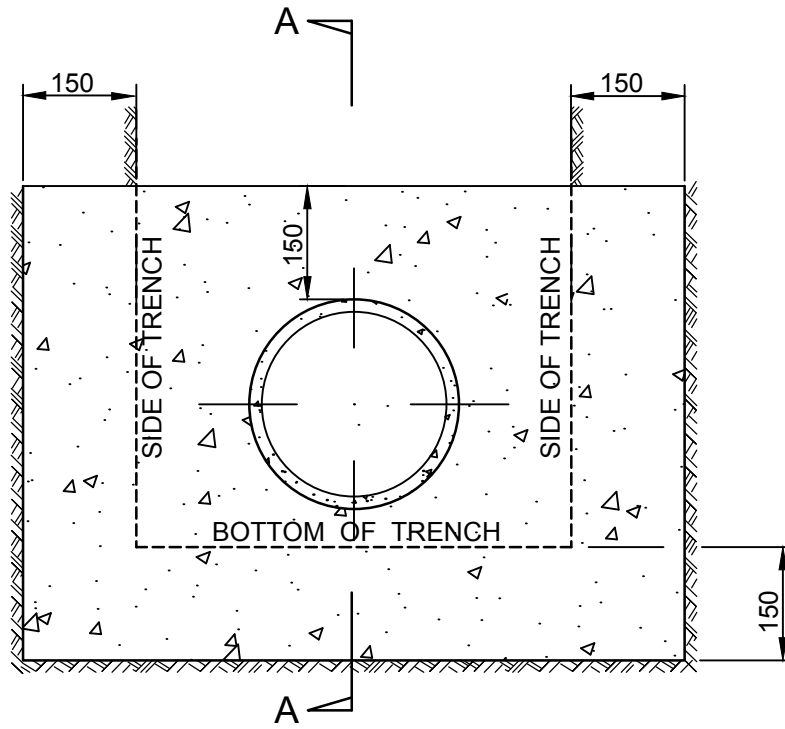
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:15
DESIGNED	
DRAWN	J.H.
REVISION	3

Nilumbik Shire Council
LIGHT WEIGHT
FIBRE REINFORCED
PIT LID & FRAME


 Manager
 Infrastructure
 Development
 Date ..01../12../2015

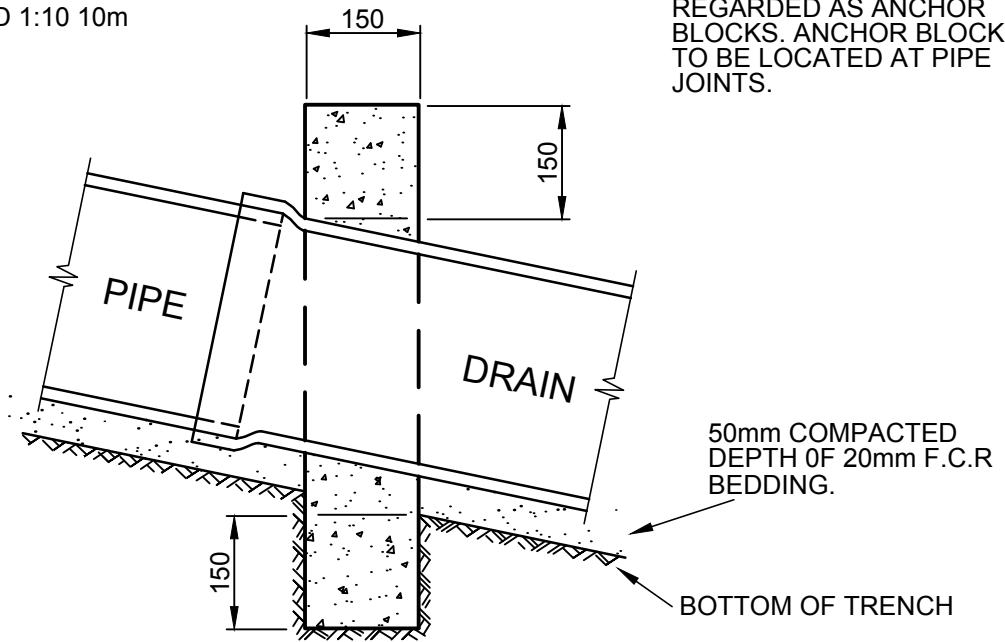
Drawing No.
NS1110



END VIEW

NOTES - FOR GRADES 1:7 OR
STEEPER 5m SPACING.
BETWEEN 1:7 AND 1:10 10m
SPACING

NOTES:- PITS ARE TO BE
REGARDED AS ANCHOR
BLOCKS. ANCHOR BLOCKS
TO BE LOCATED AT PIPE
JOINTS.



SECTION A-A

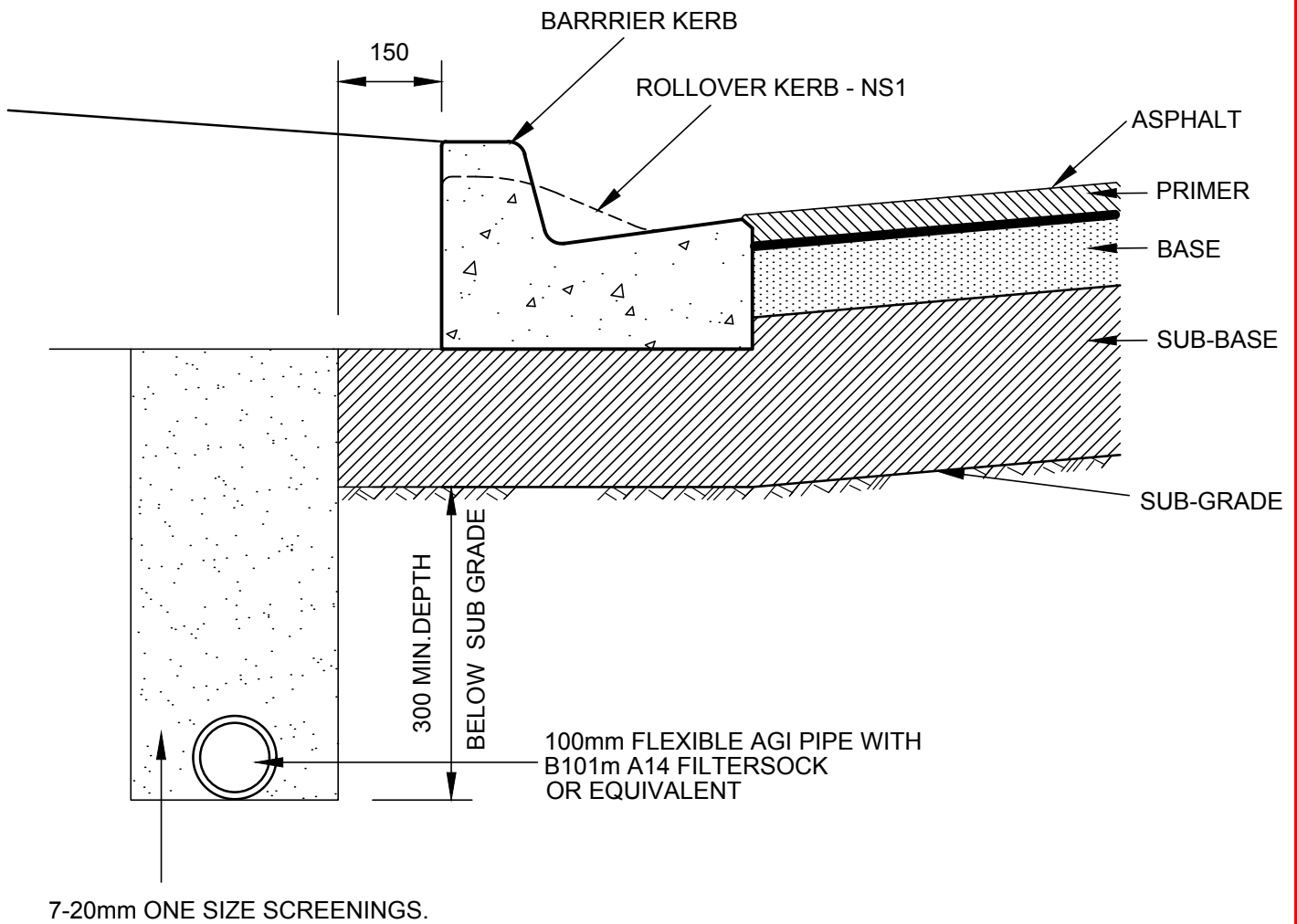
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:10
DESIGNED	
DRAWN	MC
REVISION	2

Nilumbik Shire Council
ANCHOR BLOCK

m. Deugh
.....
Manager
Infrastructure
Development
Date1./12./2015

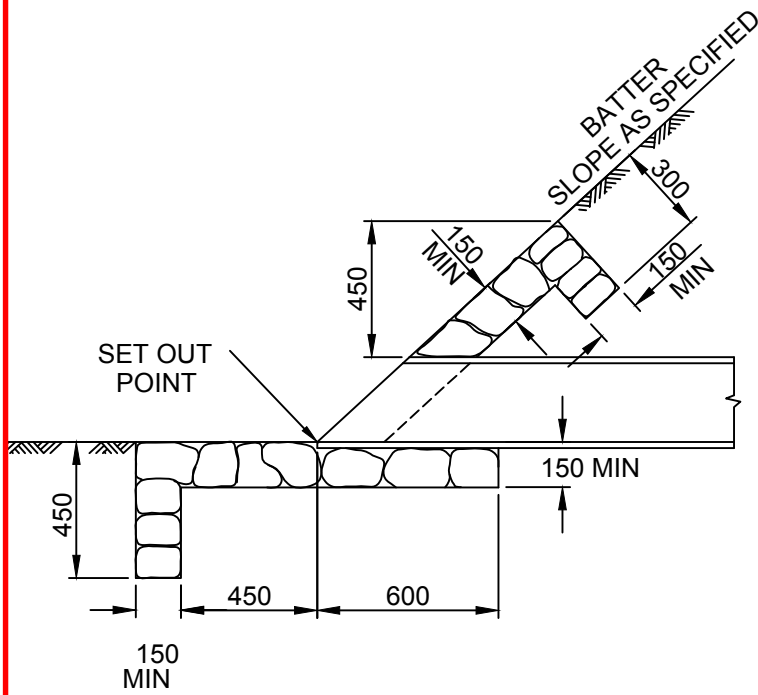
Drawing No.
NS1120



SUB-SOIL DRAIN DETAIL

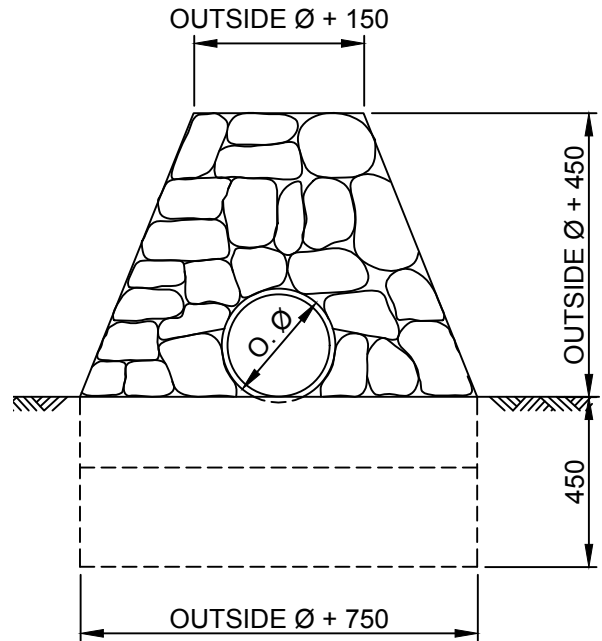
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:10	<p>Nilumbik Shire Council <u>A.G. SUBSOIL DRAIN</u></p>	<p><i>m. Deugh</i> Manager Infrastructure Development</p>	Drawing No.
DESIGNED			<p>NS1130</p>
DRAWN MC			
REVISION 2			



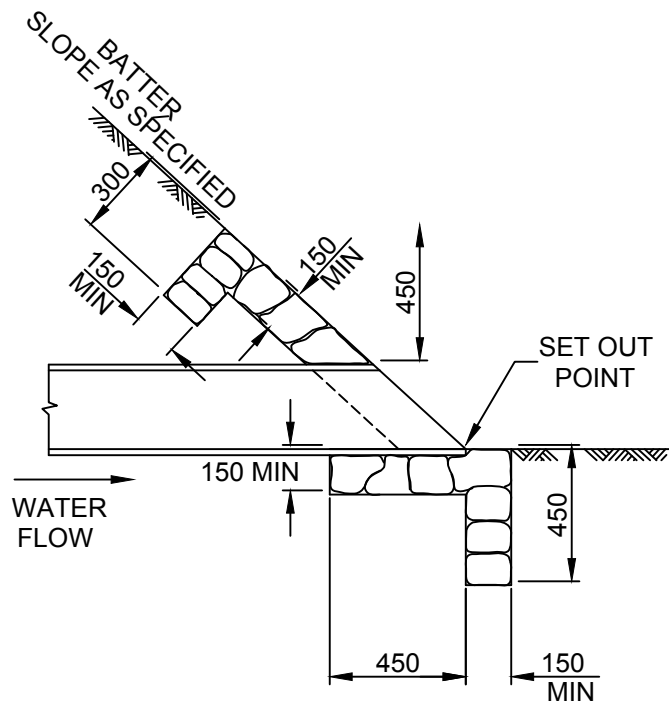
SECTION OUTLET

SCALE 1:25



**END ELEVATION
INLET AND OUTLET**

SCALE 1:20



SECTION INLET

SCALE 1:25


NOTES:-

1. ROCKS SHALL BE SOUND, DENSE AND RESISTANT TO WEATHERING. ROCK TYPE AND COLOUR IS TO BE APPROVED BY COUNCIL.
2. ROCKS SHALL WEIGH BETWEEN 10 AND 40 kg WITH 60% WEIGHING AT LEAST 25 kg. THE ROCKS SHALL BE REASONABLY UNIFORM IN COLOUR. UNLESS USED FOR FILLING IN.
3. INFILL ALL VOIDS WITH GROUT 6:1
4. CUT PIPE TO MATCH ROCK WALL

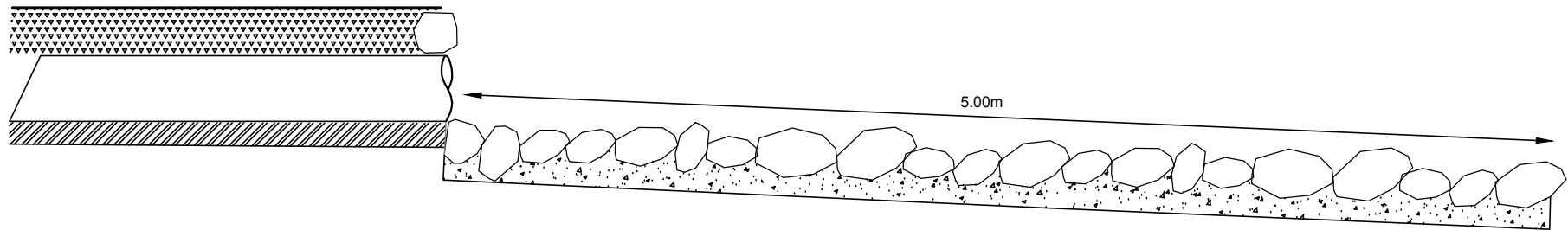
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN
DESIGNED	
DRAWN	J.H.
REVISION	3

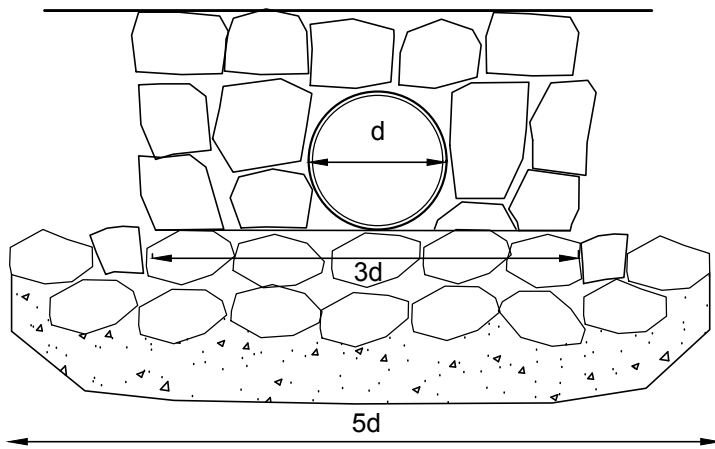
Nillumbik Shire Council
GROUTED ROCK ENDWALL
 ADOPTED FROM VICROADS SD 1801


 Manager
 Infrastructure
 Development
 Date 01./12./2015

Drawing No.
NS1140



SIDE VIEW
1:30



FRONT VIEW
1:20

NOTES:

1. INSITU ROCK BEACHING USING COUNCIL APPROVED SOURCE OF ROCK.
2. ROCK SIZE TO BE 150-300mm, WITH MAX MORTAR GAP OF 50mm.
3. MORTAR COLOUR IS TO MATCH ROCK COLOUR.
4. ROCKS ARE TO BE BEDDED HALF DEPTH INTO A 150mm CONCRETE BASE.
5. ROCK BEACHING AREA IS TO BE 5m IN LENGTH.
6. THE ROCK BEACHING WIDTH IS TO BE 3 TIMES THE PIPE DIAMETER AT THE PIPE AND 5 TIMES THE PIPE DIAMETER AT THE END OF THE ROCK BEACHING (5m FROM THE PIPE).

SCALE AS SHOWN

DESIGNED

DRAWN J.H.

REVISION 3

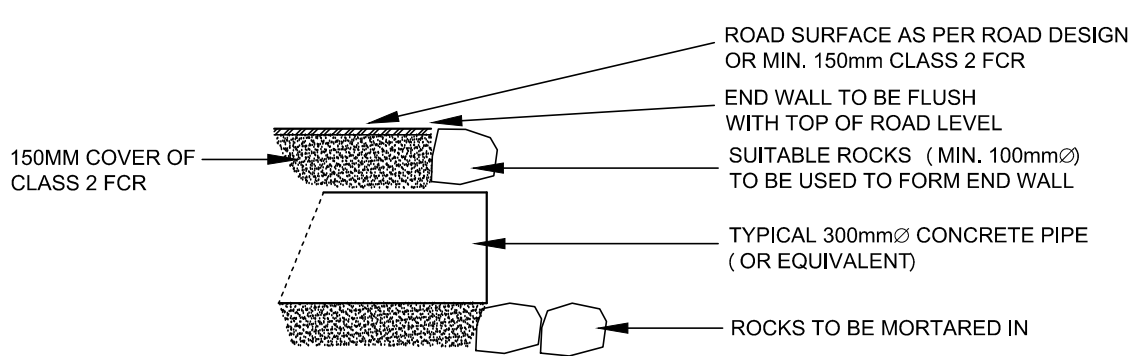
Nillumbik Shire Council
ROCK BEACHING

m. Deugh

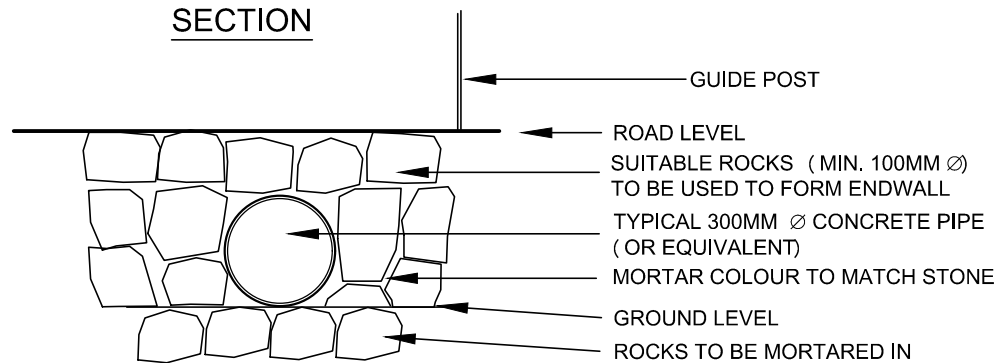
Manager
Infrastructure
Development
Date 01./12./2015

Drawing No.

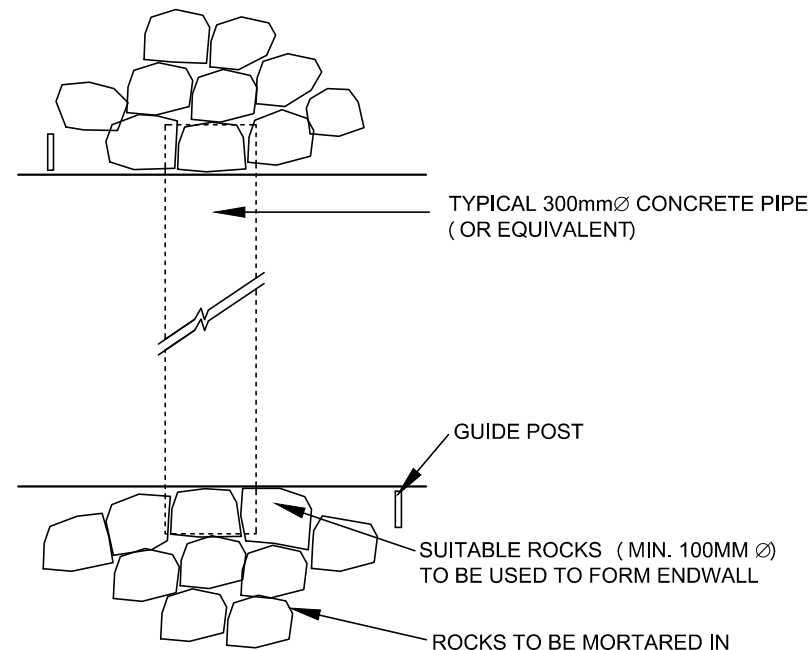
NS1150



SECTION



ELEVATION



PLAN

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:25

DESIGNED

DRAWN J.H.

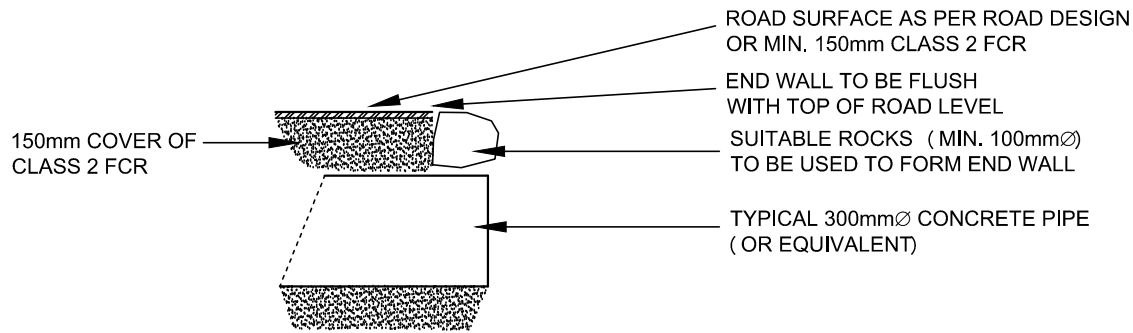
REVISION 2

Nillumbik Shire Council
ROAD CULVERT CROSSING

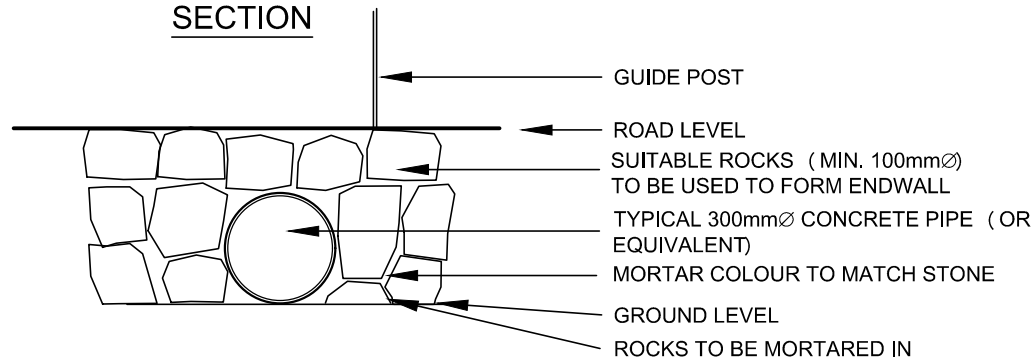
m. Deugh
 Manager
 Infrastructure
 Development
 Date 01./12./2014

Drawing No.

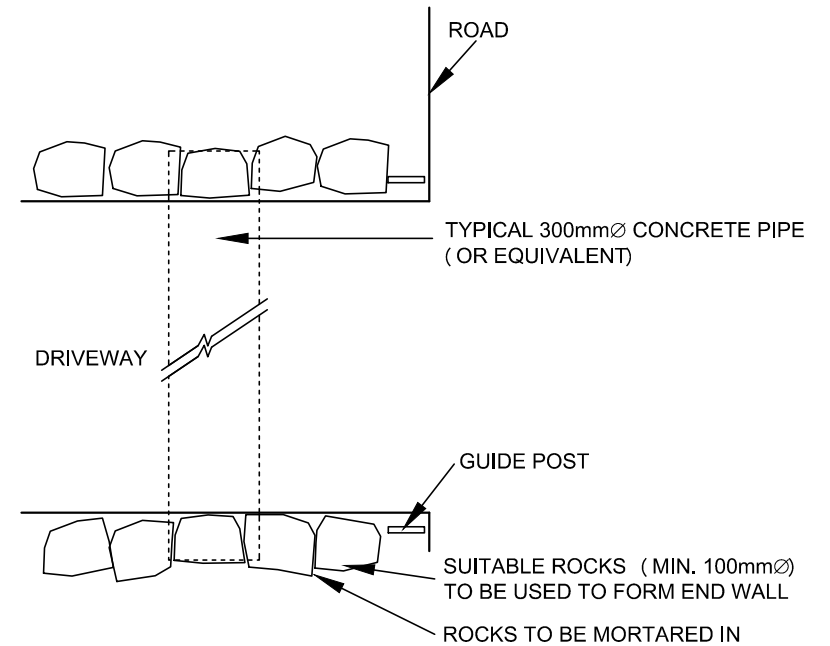
NS1160



SECTION



ELEVATION



PLAN

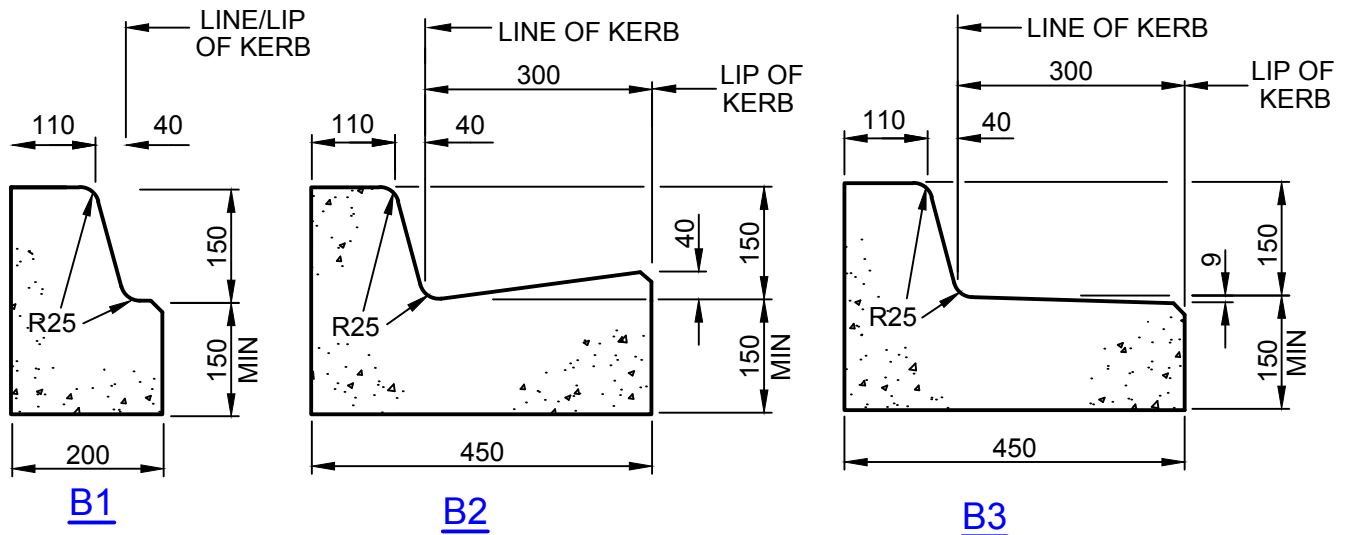
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:25
DESIGNED	
DRAWN	J.H.
REVISION	2

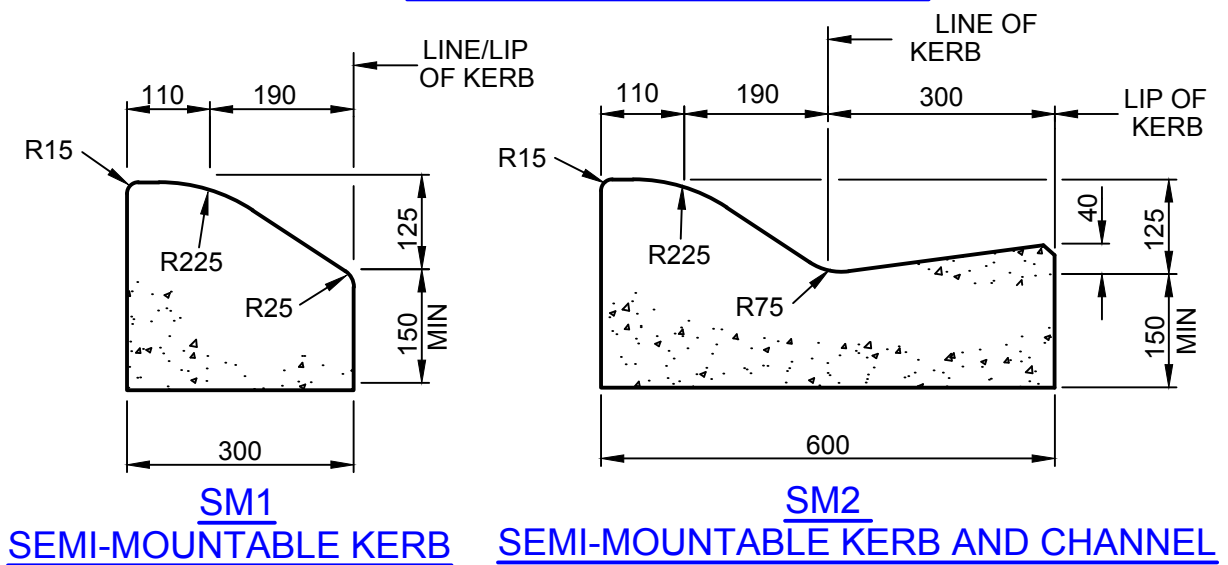
Nillumbik Shire Council
DRIVEWAY CULVERT CROSSING

m. Deugh
.....
Manager
Infrastructure
Development
Date ..01../..12../..2015

Drawing No.
NS1165

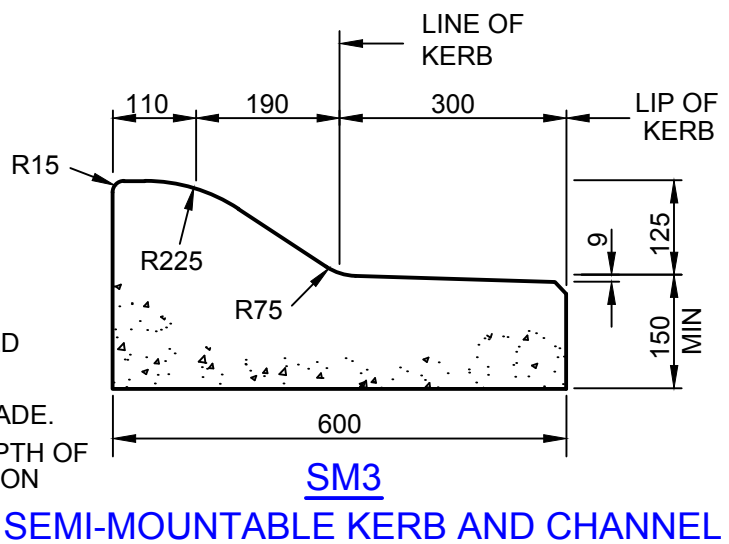


BARRIER KERBS & CHANNEL



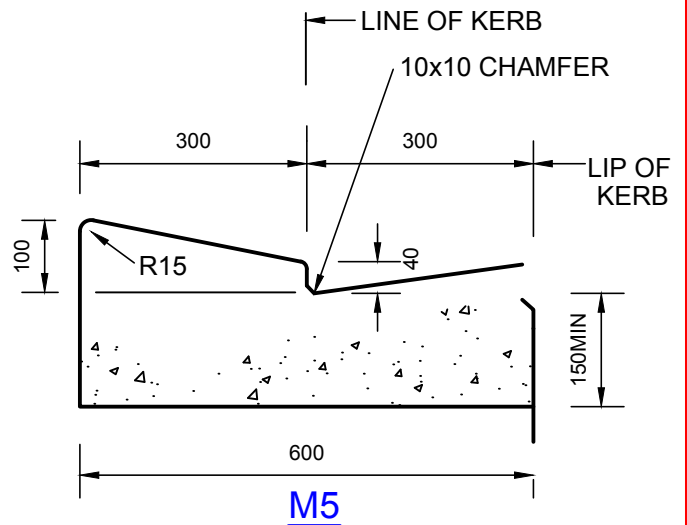
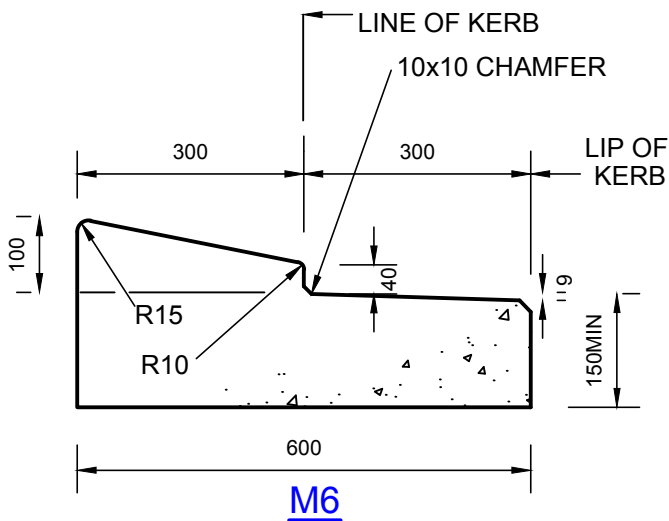
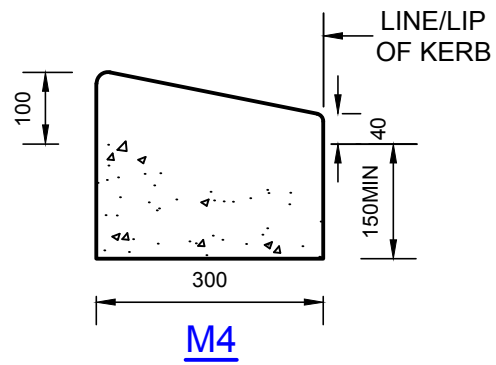
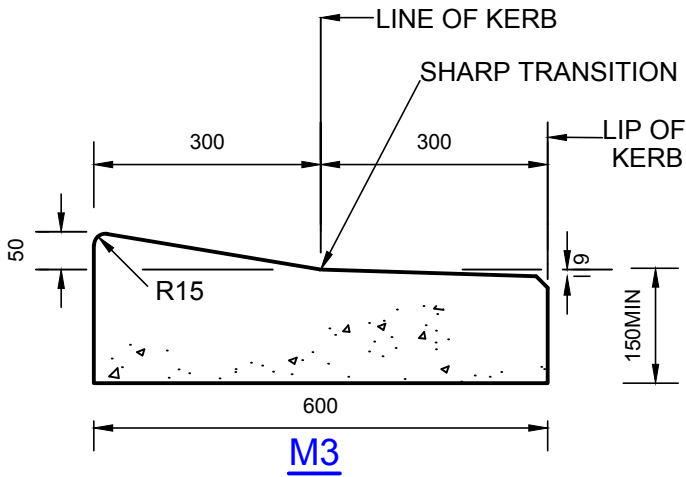
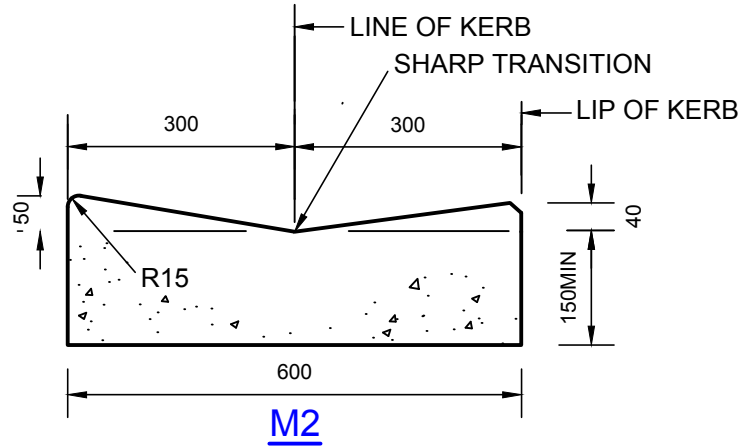
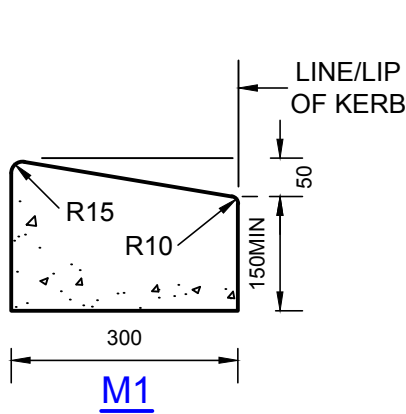
NOTES:-

1. CHAMFERS ARE 15x15 UNLESS SHOWN OTHERWISE
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. TRANSITIONS BETWEEN KERB TYPES SHOULD BE DEVELOPED OVER 5 METRES.
4. CONCRETE SHALL BE 25 MPa STRENGTH GRADE.
5. ALL KERBS TO BE ON 75mm COMPACTED DEPTH OF CLASS 2 FCR AND 150mm SUB BASE EXTENSION (UNLESS OTHERWISE SPECIFIED)



ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:10	Nillumbik Shire Council <u>KERBS</u> ADOPTED FROM VICROADS SD 2001	 Manager Infrastructure Development Date1./12./2015	Drawing No.
DESIGNED				NS2000
DRAWN	MC			
REVISION	2			



NOTES:-

1. CHAMFERS ARE 15x15 UNLESS SHOWN OTHERWISE
2. MOUNTABLE KERBS M4, M5 & M6 ARE DESIGNED TO DISCOURAGE MOST TRAFFIC FROM MOUNTING A TRAFFIC ISLAND OR MEDIAN EXCEPT FOR LONG OR OVER-DIMENSIONAL VEHICLES, EG THE KERBS ON THE OUTER EDGE OF THE MOUNTABLE APRON OF A ROUNDABOUT'S CENTRAL ISLAND. THESE KERBS SHALL NOT BE USED WHERE THERE IS A LIKELIHOOD THAT CYCLISTS, PEDESTRIANS OR PRAMS WILL HAVE TO CROSS THE KERB.
3. CONCRETE SHALL BE 25 MPa STRENGTH GRADE
4. ALL KERBS TO BE ON 75mm COMPACTED DEPTH OF CLASS 2 FCR AND 150mm SUB BASE EXTENSION (UNLESS OTHERWISE SPECIFIED)

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:10

DESIGNED

DRAWN MC

REVISION 2

Nillumbik Shire Council

MOUNTABLE KERBS

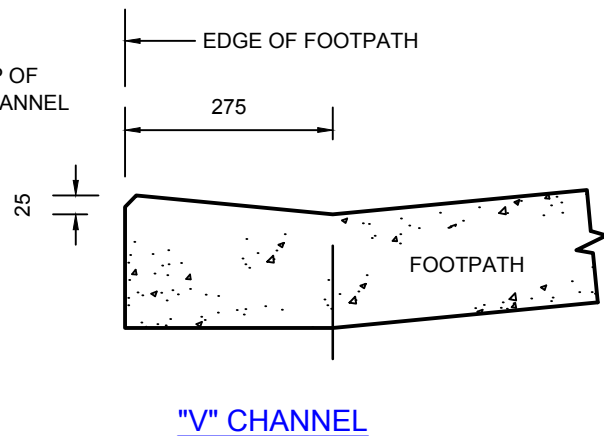
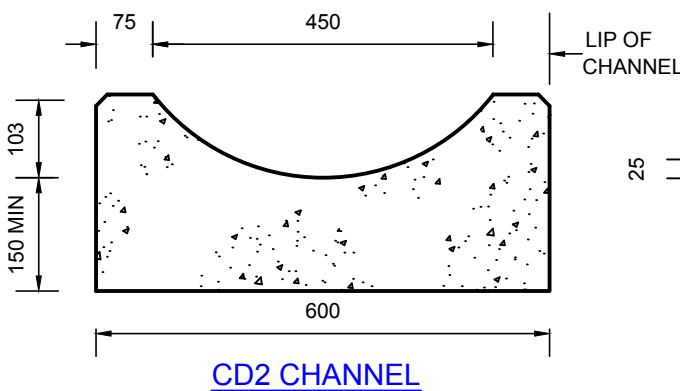
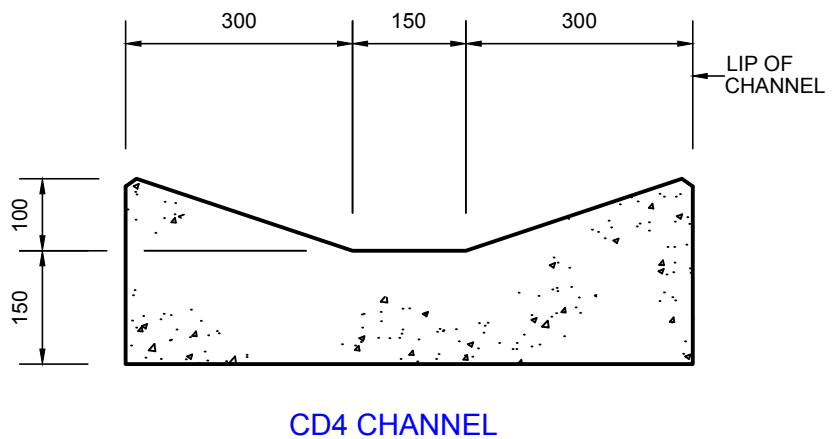
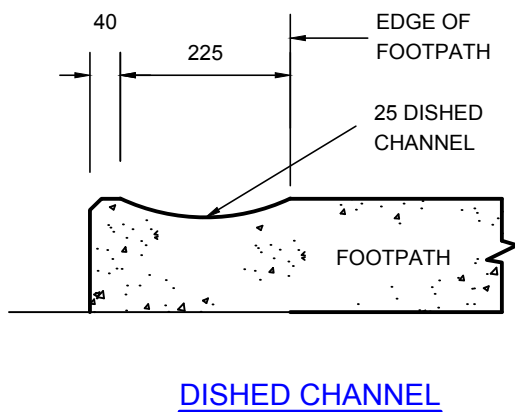
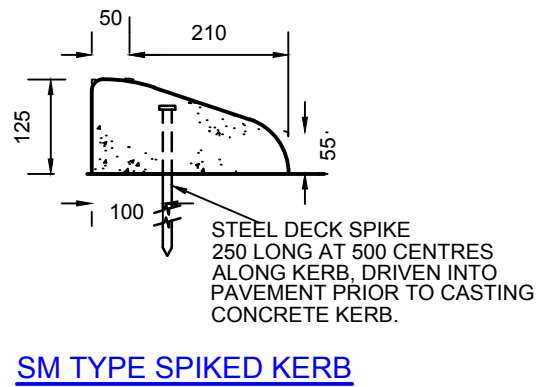
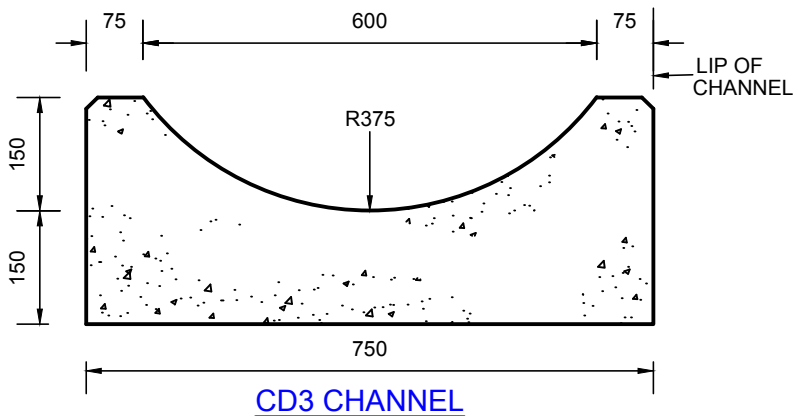
ADOPTED FROM VICROADS SD 2001

Manager
Infrastructure
Development

Date 1/12/2015

Drawing No.

NS2010

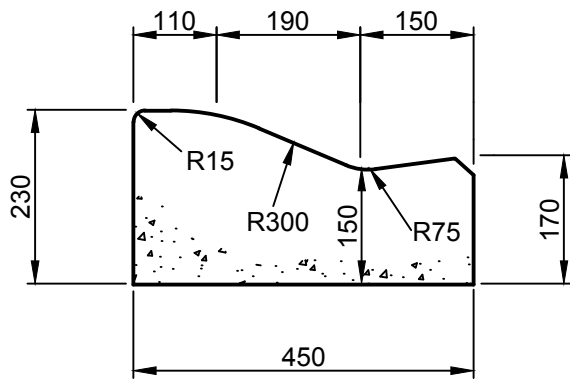


NOTES:

1. CHAMFERS ARE 15x15.
2. CD2 TO CD4 ARE NOT TO BE USED AT THE EDGE OF TRAFFIC LANES.
3. CONCRETE SHALL BE 25MPa STRENGTH GRADE
4. ALL KERBS TO BE ON 75mm COMPACTED DEPTH OF CLASS 2 FCR AND 150mm SUB BASE EXTENSION (UNLESS OTHERWISE SPECIFIED)

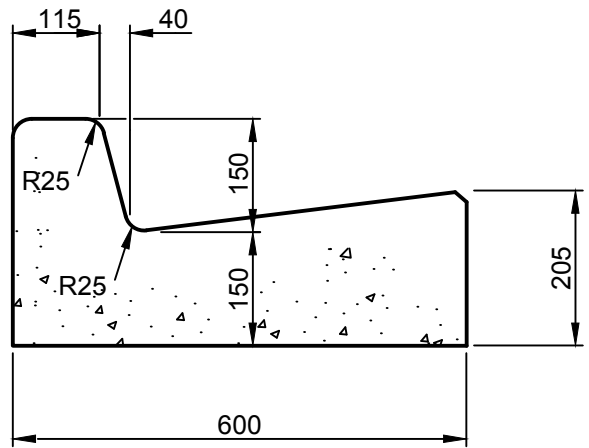
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:10	<p>Nillumbik Shire Council</p> <p><u>CHANNELS AND SPIKED KERB</u></p> <p>ADOPTED FROM VICROADS SD 2002</p>	 Manager Infrastructure Development Date ..01 / 12 / 2015	Drawing No.
DESIGNED			NS2020
DRAWN J.H.			
REVISION 3			



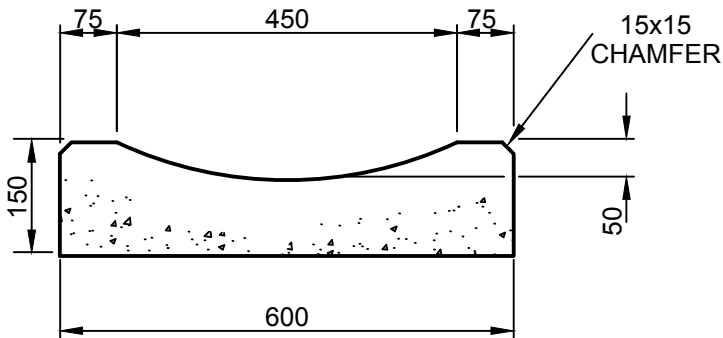
NS1

SEMI-MOUNTABLE KERB



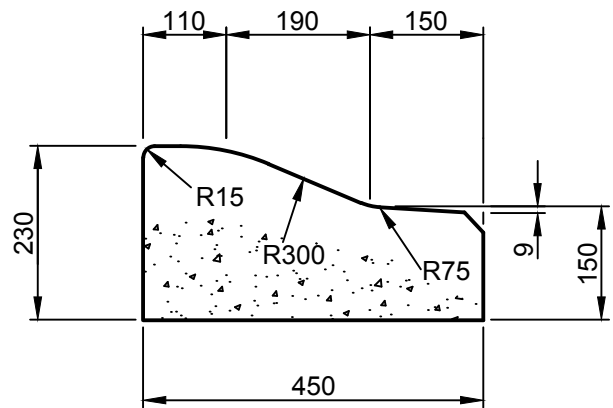
NS2

BARRIER KERB



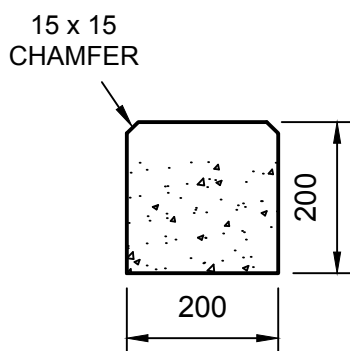
NS3

CHANNEL



NS4

SEMI-MOUNTABLE KERB



NS5

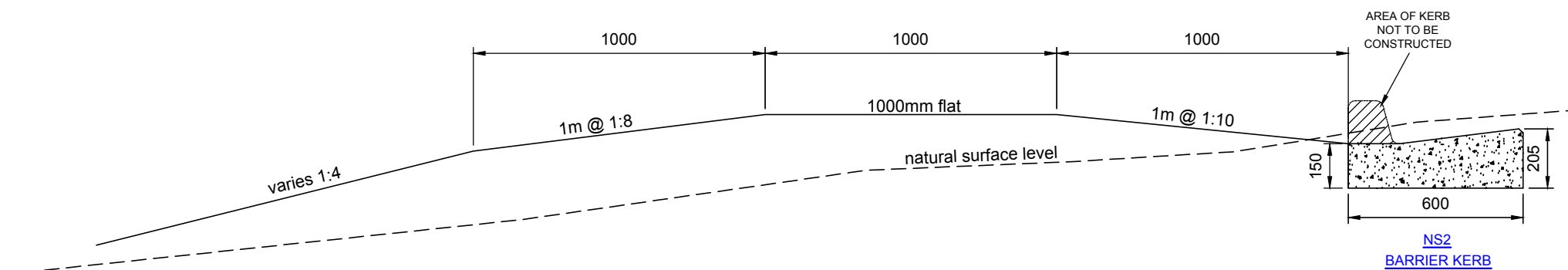
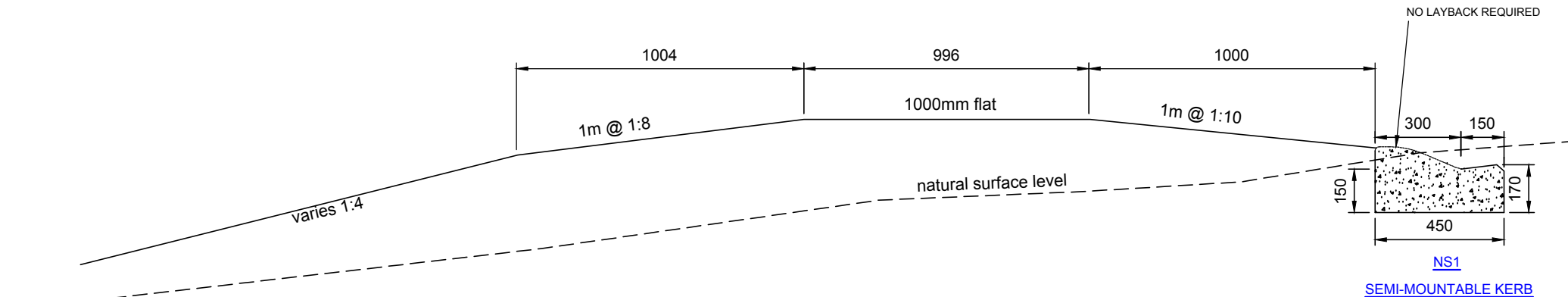
CONCRETE EDGE STRIP

NOTES:-

1. CHAMFERS ARE 15x15 UNLESS SHOWN OTHERWISE
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. CONCRETE SHALL BE 25 MPa STRENGTH GRADE.
4. ALL KERBS TO BE ON 75mm COMPACTED DEPTH OF CLASS 2 FCR AND 150mm SUB BASE EXTENSION (UNLESS OTHERWISE SPECIFIED).

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:10	<p>Nillumbik Shire Council <u>NILLUMBIK SHIRE KERBS</u></p>	<p><i>m. Deugh</i> Manager Infrastructure Development Date ..01../12../2015</p>	Drawing No.
DESIGNED				<p>NS2030</p>
DRAWN	J.H.			
REVISION	4			




NOTE: ALL DRIVEWAYS PROFILES MUST MEET THE REQUIREMENTS OF AS2890.1 GROUND CLEARANCE TEMPLATES

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:20
DESIGNED	
DRAWN	J.H.
REVISION	4

Nilumbik Shire Council
TYPICAL DRIVEWAY PROFILES


 Manager
 Infrastructure
 Development
 Date ..01../..12../2015

Drawing No.
NS2030a

CONCRETE

RESIDENTIAL AREAS

150mm (25 MPa) concrete reinforced with SL82 mesh, on 75mm compacted depth bedding of class 2 fine crushed rock.

COMMERCIAL/INDUSTRIAL AREAS

175mm (25 MPa) concrete reinforced with SL82 mesh, on 75mm compacted depth bedding of class 2 fine crushed rock.

ASPHALT

RESIDENTIAL AREAS

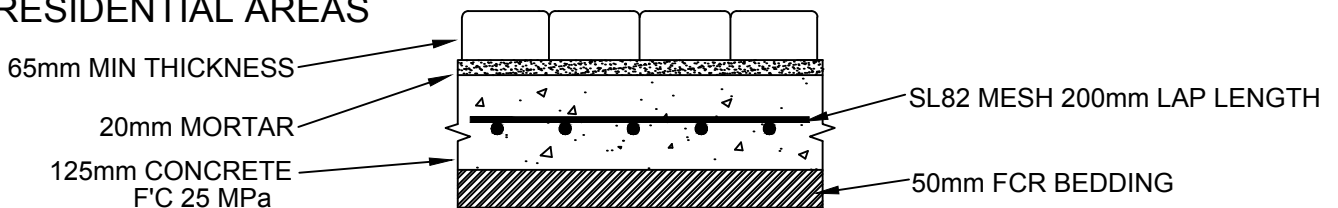
50mm depth asphalt using 7mm (2 layers) or 10mm on a 100mm compacted depth bedding of fine crushed rock.

COMMERCIAL/INDUSTRIAL AREAS

Pavement composition to be the subject of a detailed design prepared by the applicant and submitted to Infrastructure Development for approval.

PAVERS

RESIDENTIAL AREAS



COMMERCIAL/INDUSTRIAL AREAS

Pavement composition to be the subject of a detailed design prepared by the applicant and submitted to Infrastructure Development for approval.

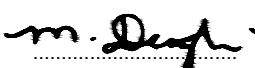
WORKS & ROAD OPENING PERMIT

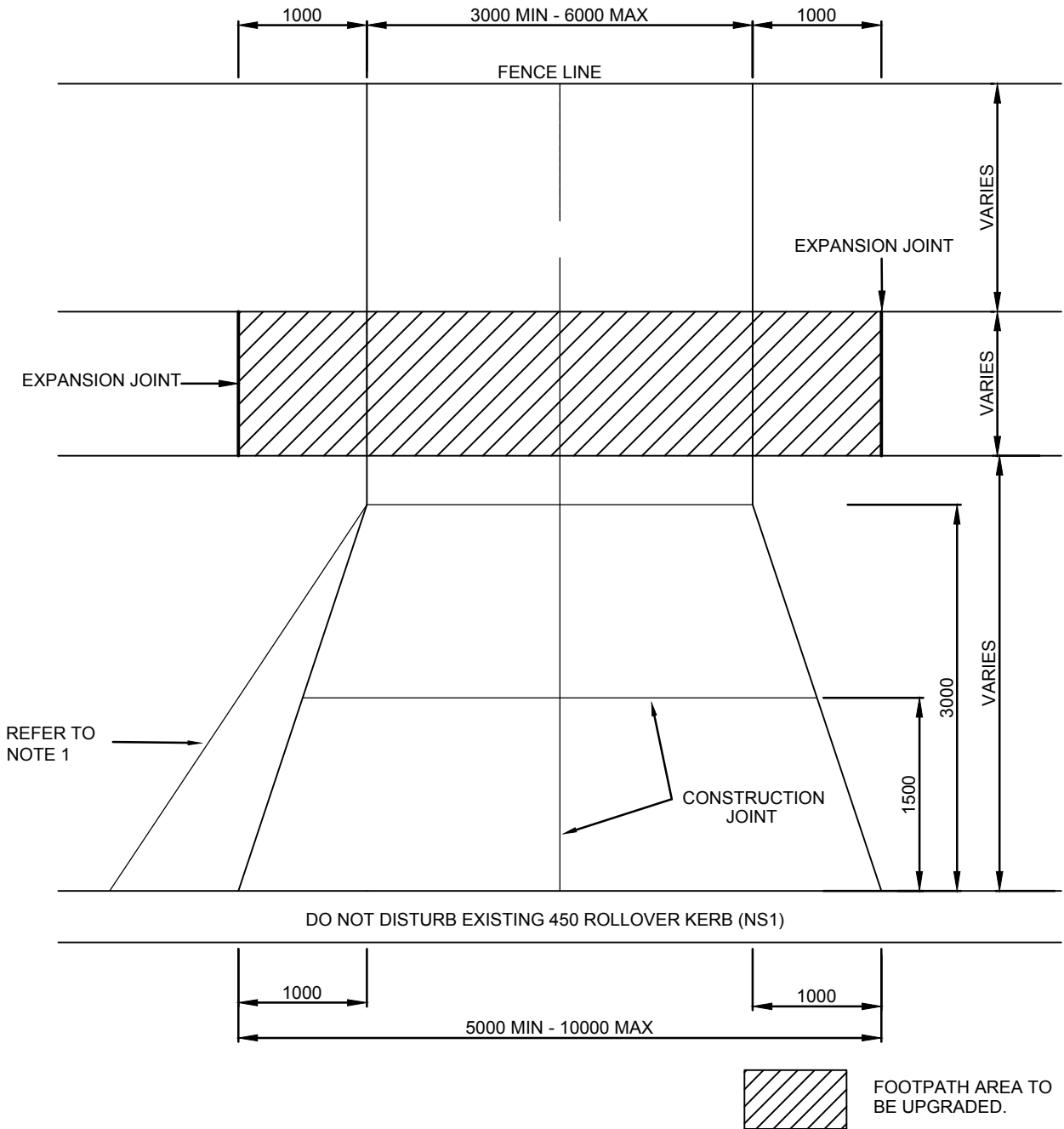
A Works and Road Opening Permit must be obtained from Council prior to the commencement of works at a nominal fee to cover the inspection of the foundation/formwork prior to any permanent material being placed. Permit is valid for six weeks. 24 hours notice is required for this inspection. Standard drawings are available from Infrastructure Development to ensure that construction meets Council requirements.

UNCONSTRUCTED STREETS

When constructing a driveway in a street with table drains, you may be required to provide culvert pipe crossing as per council's standard drawings.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:10	Nillumbik Shire Council <u>STANDARD SPECIFICATIONS FOR</u> <u>DRIVEWAY CROSSING WORKS</u>	 Manager Infrastructure Development Date ..01../12../2015	Drawing No.
DESIGNED			NS3000
DRAWN J.H.			
REVISION 3			



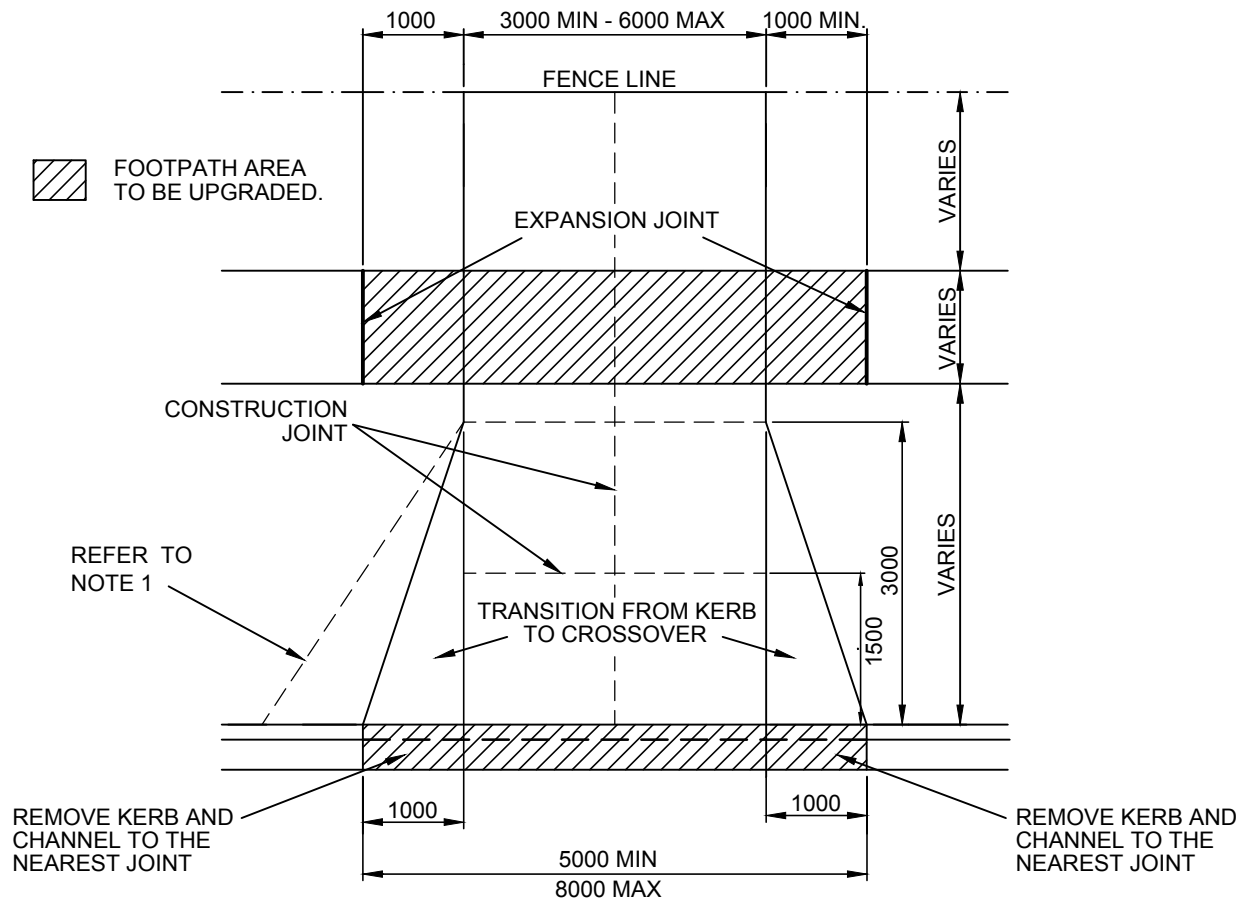
STANDARD VEHICULAR CROSSING

NOTES:-

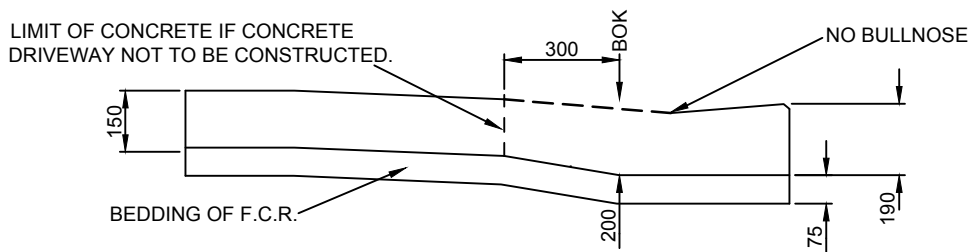
1. 3000mm x 2000mm SPLAY MAY BE USED WHERE DIRECTED BY COUNCIL.
2. FOOTPATH MUST BE THICKENED TO 150mm AND REINFORCED WITH SL82 MESH AT CROSSOVER AND 1000mm BOTH SIDES OF CROSSOVER.
3. EXPANSION JOINTS TO BE PROVIDED ADJACENT TO ALL CROSSINGS, OR AT 1500mm INTERVALS AS SPECIFIED.
4. 25MPa 150mm THICK CONCRETE MUST BE LAID ON 75mm THICK COMPACTED CRUSHED ROCK (CLASS 2). REINFORCED WITH SL82 MESH, WITH 50mm MINIMUM COVER IN ALL DIRECTIONS.
5. CONCRETE COMMERCIAL CROSSINGS MUST BE 175mm THICK REINFORCED WITH SL82 MESH, WITH 50mm MINIMUM COVER IN ALL DIRECTIONS.
6. FOR CORNER PROPERTIES, CROSSINGS ARE NOT PERMITTED WITHIN 9000mm OF THE ROAD RESERVE TITLE BOUNDARY.
7. 12mm DOWEL BARS MUST BE INSTALLED AT 400mm CENTRES, CAST 150mm INTO EXISTING CONCRETE STRUCTURES (ie. FOOTPATH & KERB) ADJOINING THE VEHICLE CROSSING.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE 1:50	<p style="font-size: 1.2em; color: blue;">Nilumbik Shire Council</p> <p style="font-size: 1.2em; color: blue;"><u>VEHICULAR CROSSING FOR</u></p> <p style="font-size: 1.2em; color: blue;"><u>NS1 KERB</u></p>	<p style="font-size: 0.8em;">Manager Infrastructure Development</p> <p style="font-size: 0.8em;">Date ..01../.12../2015..</p>	Drawing No. NS3010
DESIGNED			
DRAWN J.H.			
REVISION 4			



PLAN VIEW
1:75



STANDARD VEHICULAR CROSSING
1:20

NOTES:-

1. 3000mm x 2000mm SPLAY MAY BE USED WHERE DIRECTED BY COUNCIL
2. FOOTPATH MUST BE THICKENED AND REINFORCED WITH SL82 MESH AT CROSSOVER AND 1000 BOTH SIDES OF CROSSOVER.
3. EXPANSION JOINTS TO BE PROVIDED ADJACENT TO ALL CROSSINGS, OR AT 1500mm INTERVALS AS SPECIFIED.
4. 25MPa 150mm THICK CONCRETE MUST BE LAID ON 75mm THICK COMPACTED CRUSHED ROCK (CLASS 2). WITH SL82 MESH, WITH 50mm MINIMUM COVER IN ALL DIRECTIONS.
5. FOR COMMERCIAL CROSSINGS, CONCRETE IS TO BE 175mm THICK REINFORCED WITH SL82 MESH, WITH 50mm MINIMUM COVER IN ALL DIRECTIONS.
6. FOR CORNER PROPERTIES, CROSSINGS ARE NOT PERMITTED WITHIN 9000mm OF THE ROAD RESERVE TITLE BOUNDARY.
7. 12mm DOWLE BARS MUST BE INSTALLED AT 400mm CENTRES CAST 150mm INTO EXISTING CONCRETE STRUCTURES (IE. FOOTPATH & KERB) ADJOINING THE VEHICLE CROSSING

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN
DESIGNED	
DRAWN	J.H.
REVISION	4

Nilumbik Shire Council

VEHICULAR CROSSING FOR USE

WITH BARRIER & SM2 KERB

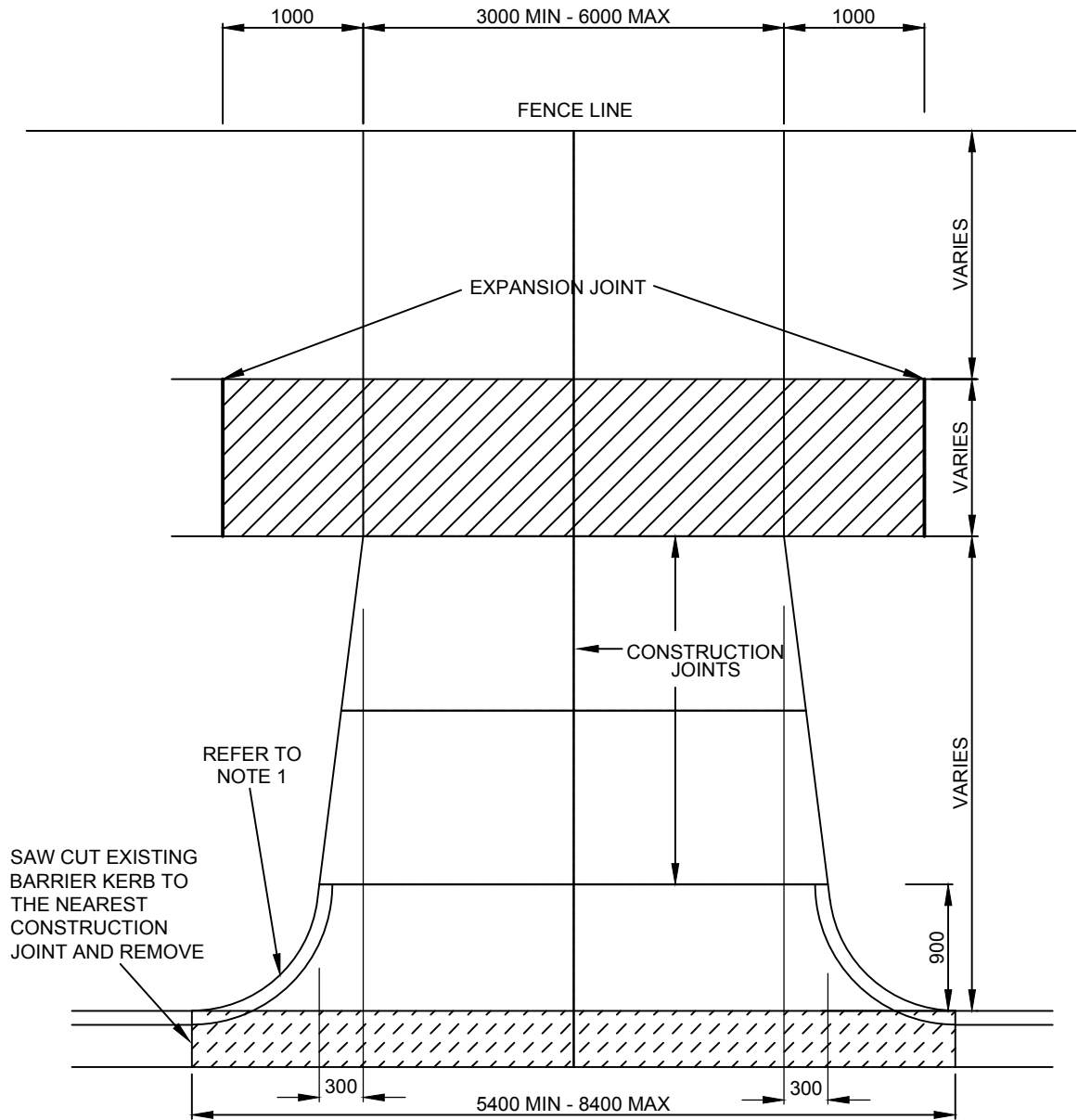
m. Deugh

Manager
Infrastructure
Development

Date ...01./...12./...2015

Drawing No.

NS3020



MODIFIED VEHICULAR CROSSING

NOTES:-

1. KERB TO BE ROLLED BACK FROM T.P TO REAR EDGE OF MODIFIED KERB SECTION MAINTAINING THE HEIGHT OF THE KERB. RADIUS MUST BE AT 900 mm
2. FOOTPATH MUST BE THICKENED AND REINFORCED WITH SL82 MESH AT CROSSOVER AND 1000 BOTH SIDES OF CROSSOVER.
3. EXPANSION JOINTS TO BE PROVIDED ADJACENT TO ALL CROSSINGS, OR AT 15000mm INTERVALS AS SPECIFIED.
4. 25MPa 150mm THICK CONCRETE MUST BE LAID ON 75mm THICK COMPACTED CRUSHED ROCK (CLASS 2) REINFORCED WITH SL82 MESH, WITH 50mm MINIMUM COVER IN ALL DIRECTIONS.
5. CONCRETE COMMERCIAL CROSSINGS MUST BE 175mm THICK REINFORCED WITH SL 82 MESH PLACED CENTRALLY.
6. ON CORNER PROPERTIES CROSSINGS ARE NOT PERMITTED WITHIN 9m FROM THE ROAD INTERSECTION.
7. ALL DIMENSIONS ARE IN MILLEMETRES UNLESS OTHERWISE STATED.
8. SAWCUT THE FOOTPATH 1000mm (MINIMUM) OR TO THE NEAREST CONSTRUCTION JOINT EITHER SIDE OF THE CROSSING.
9. SAW CUT EXISTING KERB TO THE THE NEAREST CONSTRUCTION JOINT.
10. 12mm DOWEL BARS AT 400mm CENTRES CAST 150mm INTO EXISTING CONCRETE STRUCTURES.



FOOTPATH AREA TO BE UPGRADED.



KERB AREA TO BE REMOVED.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:50
DESIGNED	
DRAWN	J.H.
REVISION	2

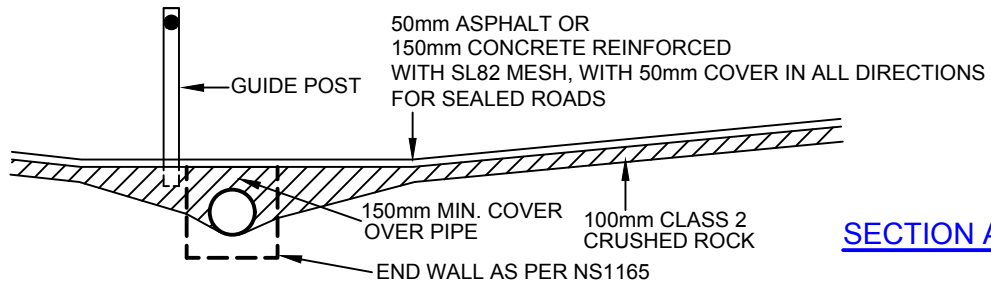
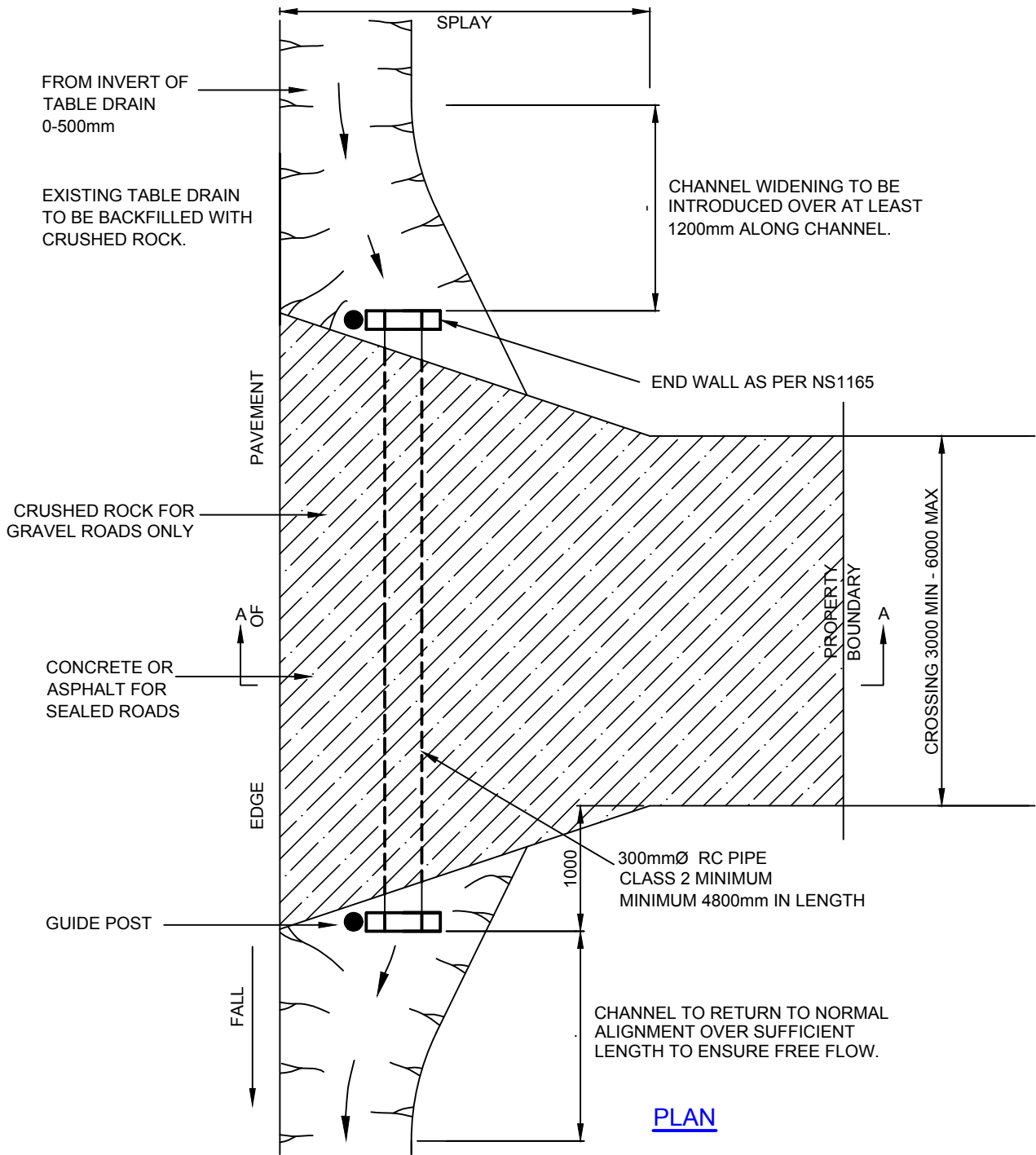
Nillumbik Shire Council
MODIFIED
VEHICULAR CROSSING FOR USE
WITH BARRIER KERB

m. Deugh

Manager
 Infrastructure
 Development
 Date ..01./..12./2015

Drawing No.

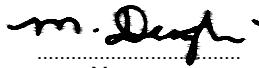
NS3021



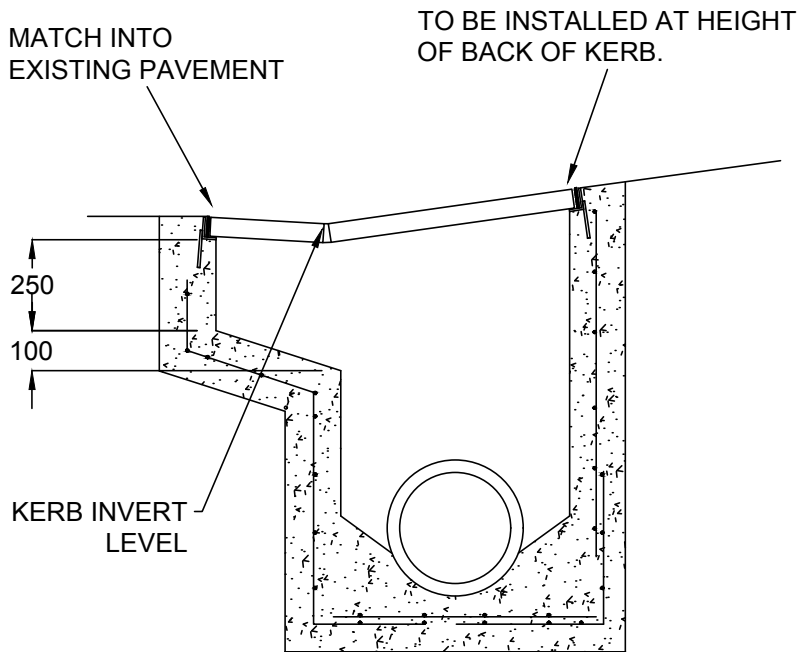
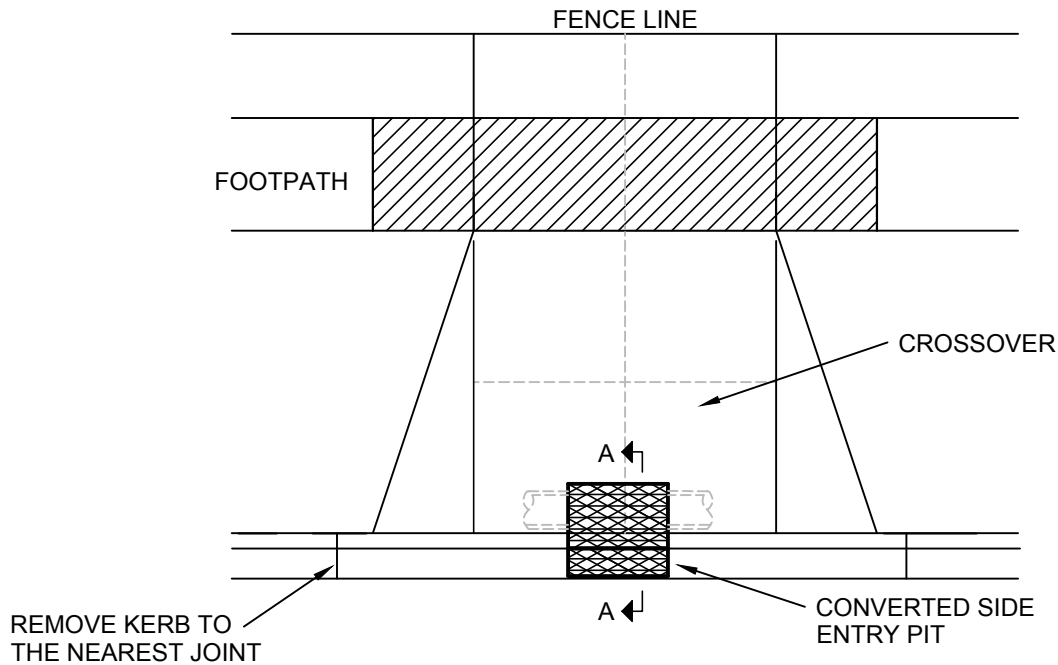
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:50
DESIGNED	
DRAWN	J.H.
REVISION	4

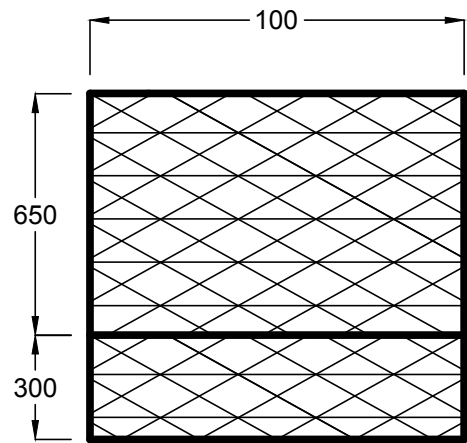
Nillumbik Shire Council
VEHICULAR CROSSING FOR
TABLE DRAIN


 Manager
 Infrastructure
 Development
 Date ..01./12../2015.

Drawing No.
NS3030



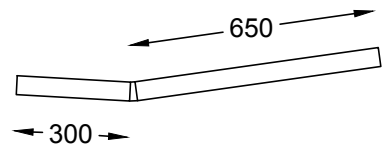
SECTION A-A
SCALE 1:20



BIKE GRATE
AS PER AS 3996-2006
SCALE 1:20

NOTES:

1. FOR PIT SPECIFICATIONS REFER TO NS1020.
2. GRATE FRAMES SHALL BE CONSTRUCTED FROM 50x50x8 MS ANGLE. EACH CORNER SHALL BE CHAMFERED ON UNDERSIDE OF HORIZONTAL LEG AND ON INSIDE OF VERTICAL LEG BEFORE WELDING WITH SINGLE V BUTT WELD.
3. GRATE UNITS SHALL BE MADE FROM 50x25x460 MS BARS. TOP AND BOTTOM EDGES OF THE BAR ENDS SHALL BE CHAMFERED 5mmx5mm BEFORE CONTINUOUSLY WELDING ALL ROUND AND GROUND FLUSH BEFORE GALVANISING.
4. BOTH GRATE AND GRATE FRAME SHALL BE HOT DIP GALVANISED TO AS 1650/1989 UNLESS SPECIFIED OTHERWISE.



GRATE DIMENSIONS
SCALE 1:20

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:75
DESIGNED	
DRAWN	J.H.
REVISION	1

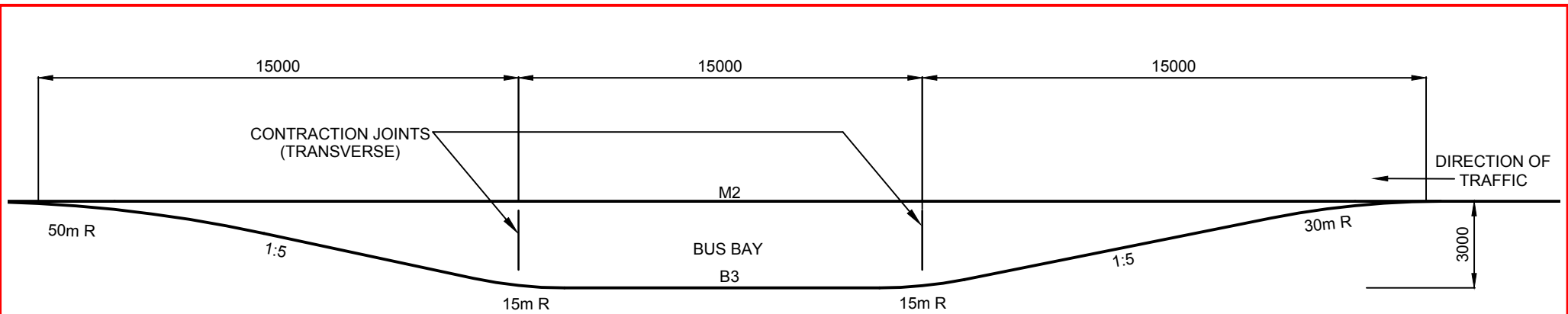
Nillumbik Shire Council
CONVERTED SIDE ENTRY PIT
(PIT WITHIN A CROSSOVER)

m. Deugh

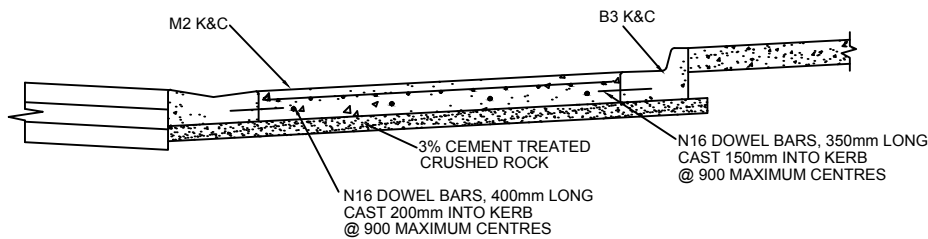
Manager
Infrastructure
Development
Date 01/12/2015

Drawing No.

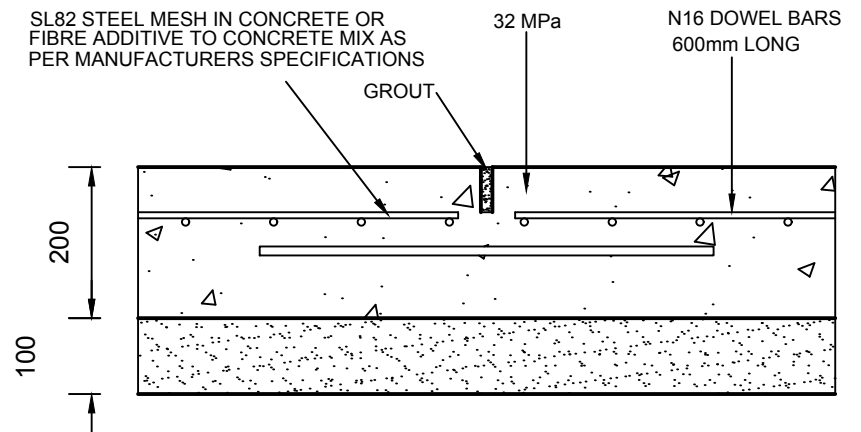
NS3031



PLAN
SCALE 1:200



TYPICAL CROSS SECTION
SCALE 1:50



TRANSVERSE CONTRACTION JOINT
SCALE 1:10

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE AS SHOWN
DESIGNED
DRAWN J.H.
REVISION 3

Nillumbik Shire Council
STANDARD BUS BAY
LAYOUT

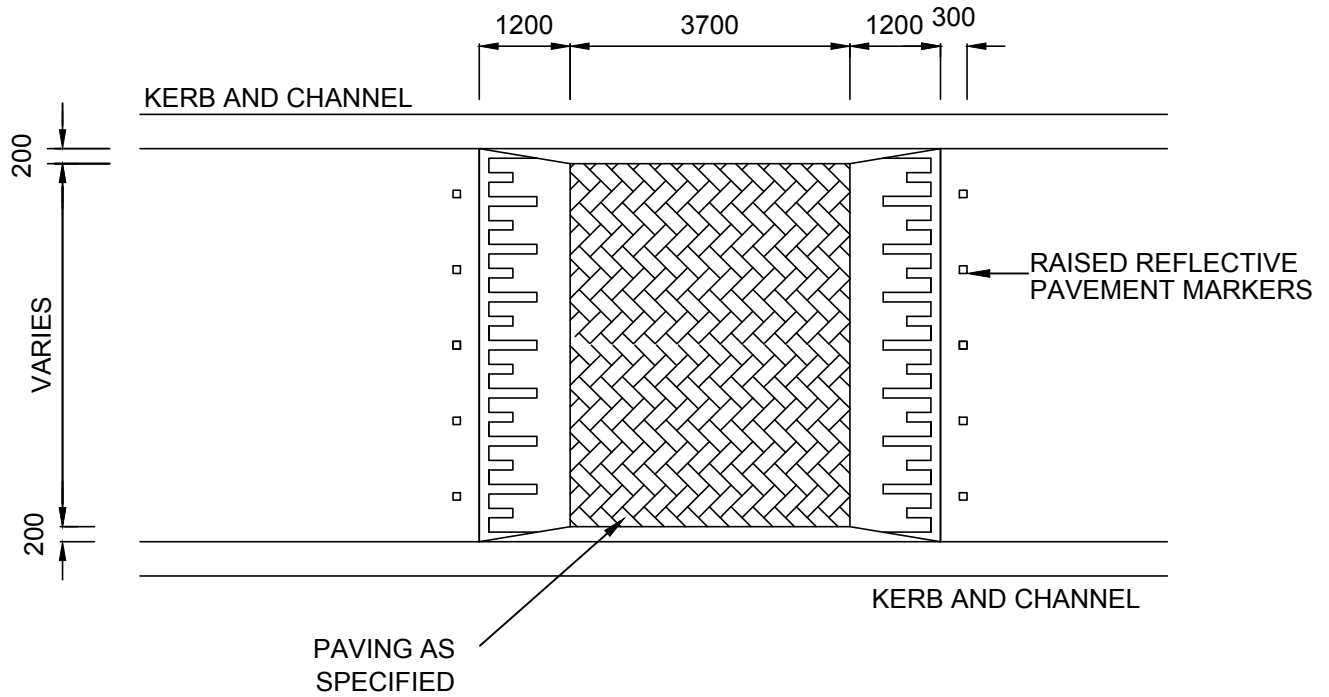
ADOPTED FROM VICROADS SD 2071

m. Deugh

Manager
Infrastructure
Development
Date ..01../..12../2015

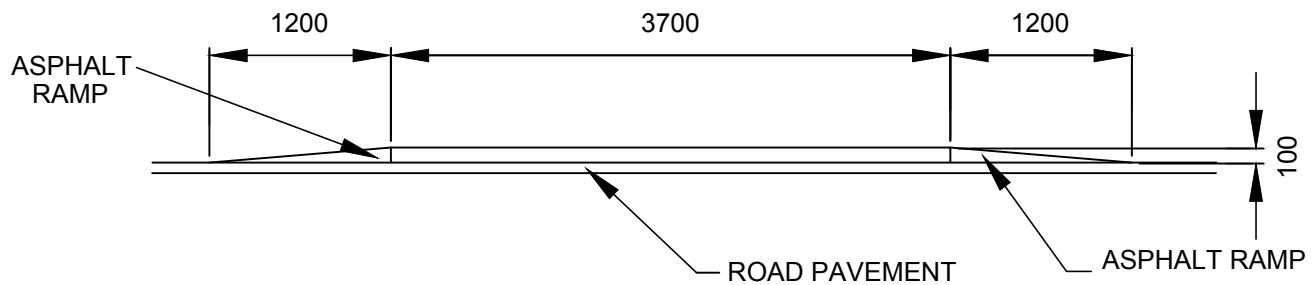
Drawing No.

NS3040



ROAD HUMP LAYOUT

SCALE 1:100



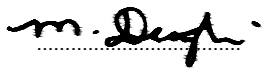
ROAD HUMP DETAIL

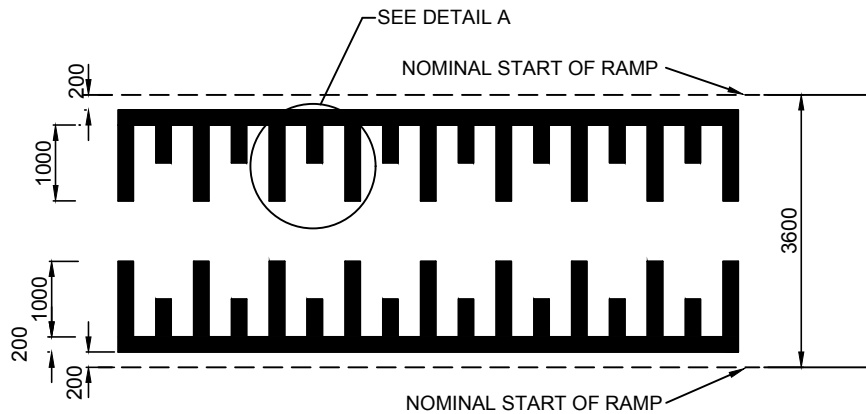
SCALE 1:50

PATTERN PAVING- 175mm THICK CONCRETE F'c=25 MPa
 SL82 MESH 200mm LAP LENGTH
 50mm COVER FROM TOP
 50mm FCR BEDDING
 SAWCUT 3mm WIDE x 30mm DEEP
 FILLED WITH APPROVED SEALANT

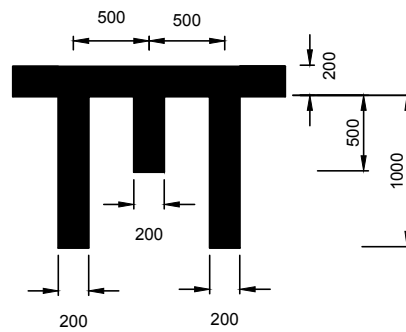
STAMPED ASPHALT- TERRACOTTA HERRING BONE PATTERN

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

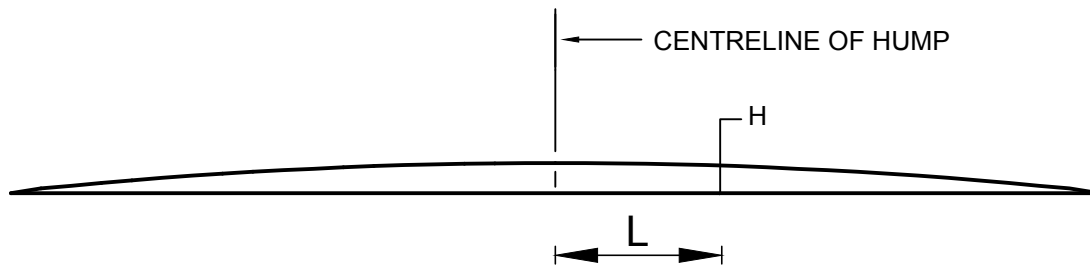
SCALE	AS SHOWN	Nillumbik Shire Council <u>FLAT TOP PROFILE</u> <u>ROAD HUMP</u>	 Manager Infrastructure Development Date1./12./2015	Drawing No.
DESIGNED				NS3050
DRAWN	MC			
REVISION	2			



PAVEMENT MARKING FOR ROAD HUMPS
SCALE 1:100



DETAIL A
SCALE 1:50

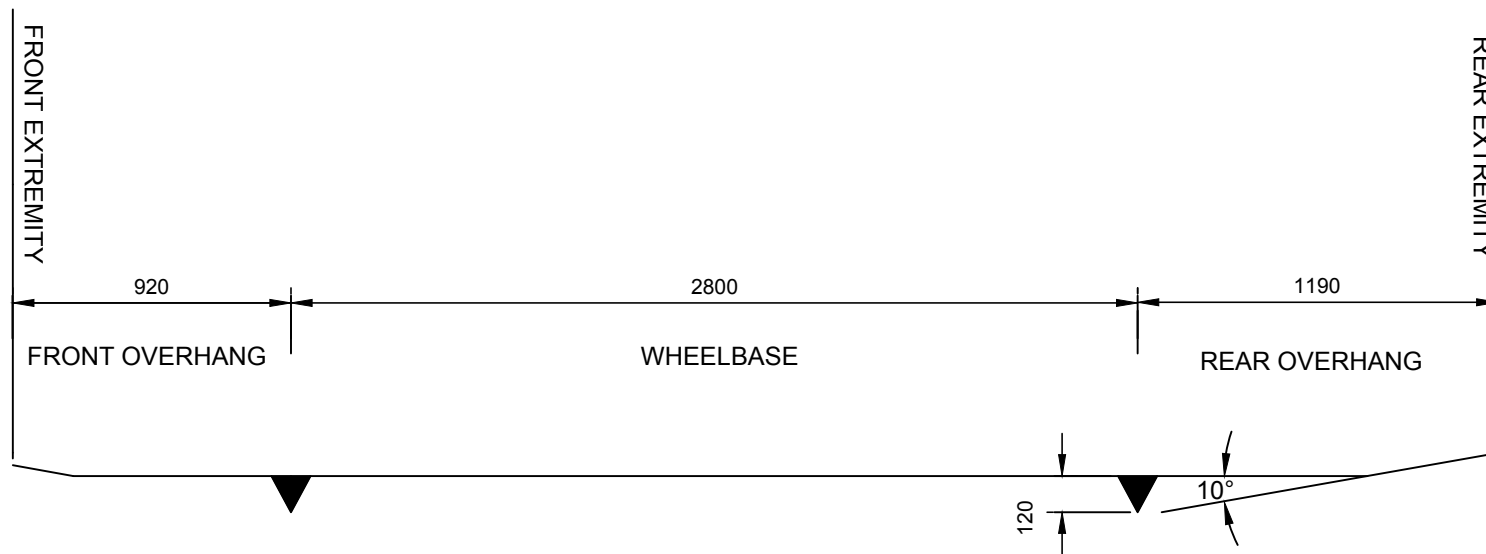


L	(m)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
H	(mm)	100	100	99	97	95	93	90	86	81	76	71	65	58	51	43	34	25	16	5

WATTS PROFILE HUMP
SCALE 1:25

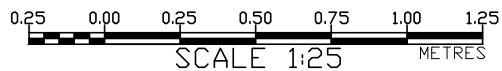
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE AS SHOWN	Nilumbik Shire Council WATTS PROFILE ROAD HUMP ADOPTED FROM AUSTRALIAN STANDARDS	 Manager Infrastructure Development Date <u>1/12/2015</u>	Drawing No.
DESIGNED			NS3060
DRAWN MC			
REVISION 2			



GROUND CLEARANCE TEMPLATE

B85 VEHICLE - FOR DOMESTIC DRIVEWAYS ONLY (AS2890.1)



ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE AS SHOWN

DESIGNED

DRAWN J.H.

REVISION 4

Nillumbik Shire Council GROUND CLEARANCE TEMPLATE FOR DOMESTIC DRIVEWAYS

ADOPTED FROM AUSTRALIAN STANDARDS

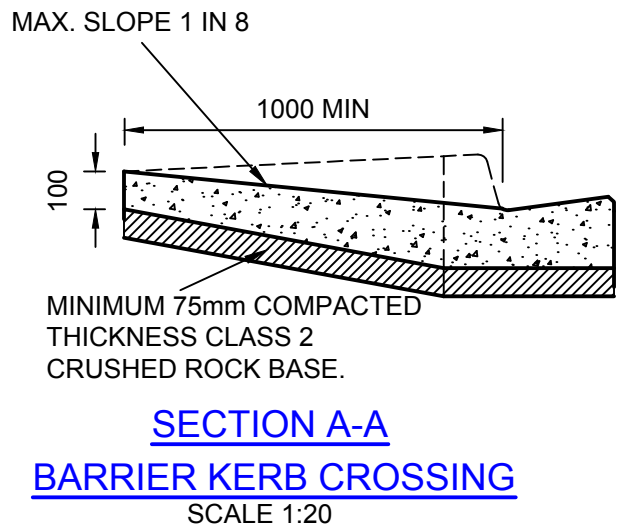
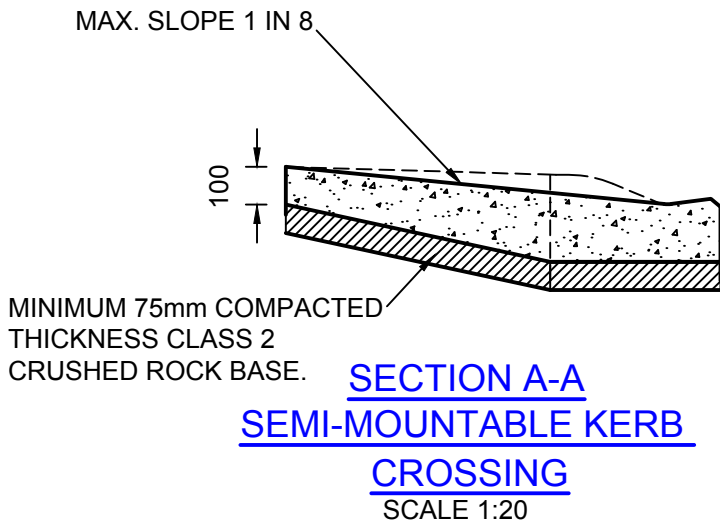
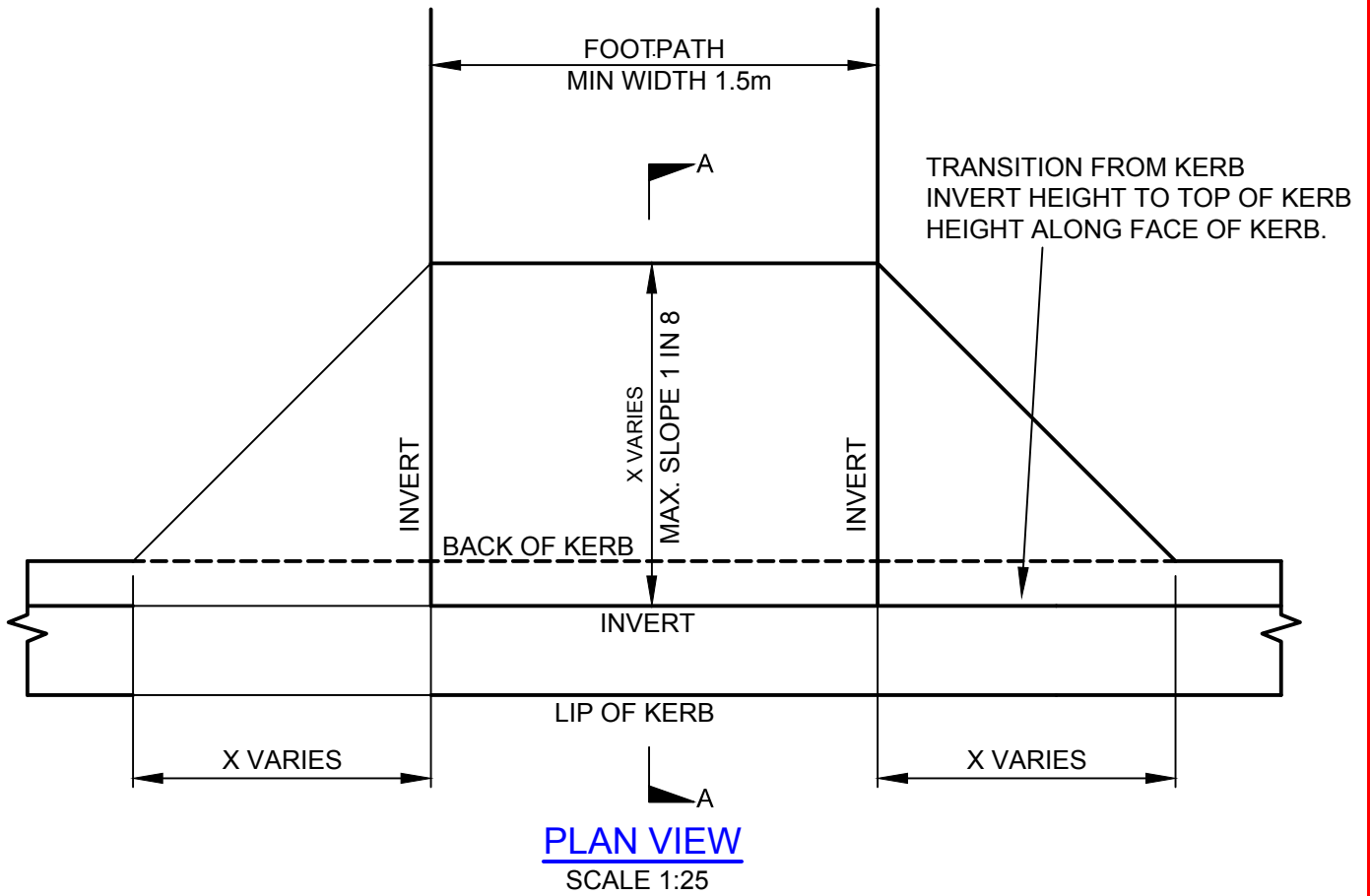
m. Deugh

Manager
Infrastructure
Development

Date 01/12/2015

Drawing No.

NS3070



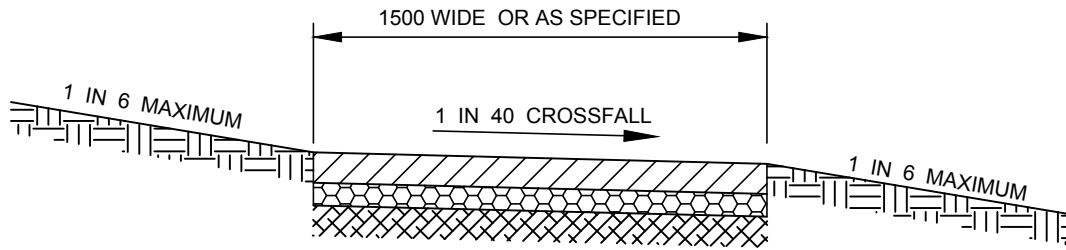
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN
DESIGNED	
DRAWN	J.H.
REVISION	3

Nilumbik Shire Council
PRAM CROSSING

m. Deugh
Manager
Infrastructure
Development
Date ..01../12../2015

Drawing No.
NS3080



CONCRETE



100mm DEEP CONCRETE 25MPa STRENGTH (150mm DEEP REINFORCED WITH SL82 MESH WHERE VEHICLE LOADING EXPECTED).



75mm COMPACTED F.C.R. BEDDING



EXISTING SUBGRADE

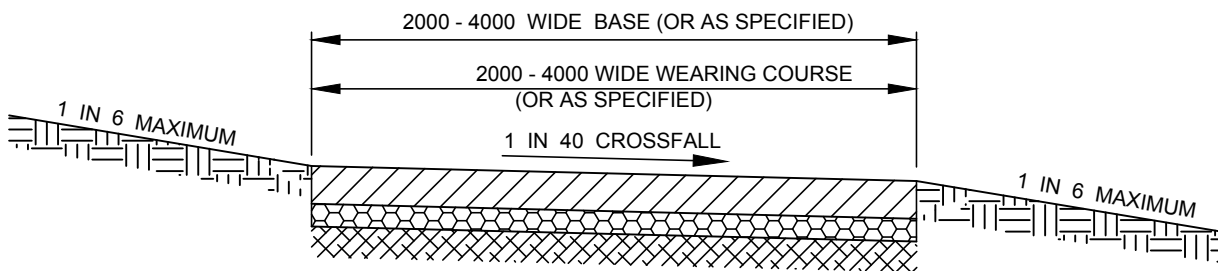


TOPSOIL AND SEED

CONSTRUCTION JOINT SPACINGS TO MATCH FOOTPATH WIDTH

EXPANSION JOINTS MAX. 15m SPACINGS

STANDARD FOOTPATH



CONCRETE



125mm DEEP CONCRETE 25MPa STRENGTH REINFORCED WITH SL82 STEEL MESH WITH 50mm COVER IN ALL DIRECTIONS.



75mm COMPACTED F.C.R. BEDDING



EXISTING SUBGRADE



TOPSOIL AND SEED

CONSTRUCTION JOINT SPACINGS TO MATCH FOOTPATH WIDTH

EXPANSION JOINTS MAX. 15m SPACINGS

SHARED FOOTPATH

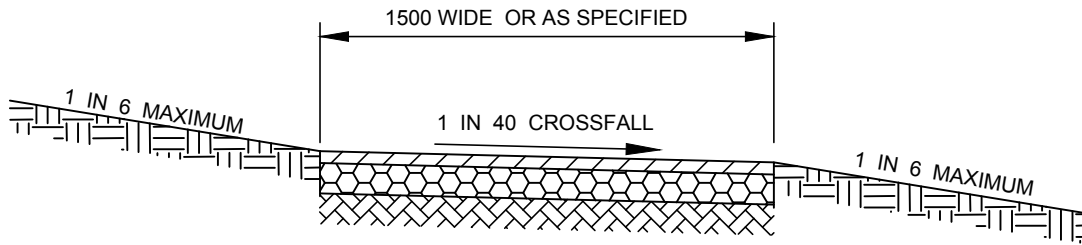
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:25
DESIGNED	
DRAWN	J.H.
REVISION	2

Nilumbik Shire Council
CONCRETE FOOTPATH STANDARD
CROSS SECTIONS

Manager
 Infrastructure
 Development
 Date 01/12/2015

Drawing No.
NS3090



ASPHALT



40mm COMPACTED DEPTH SIZE 7
TYPE N ASPHALT



100mm COMPACTED DEPTH
CLASS 2 CRUSHED ROCK
(200mm DEEP WHERE VEHICLE
LOADING EXPECTED)

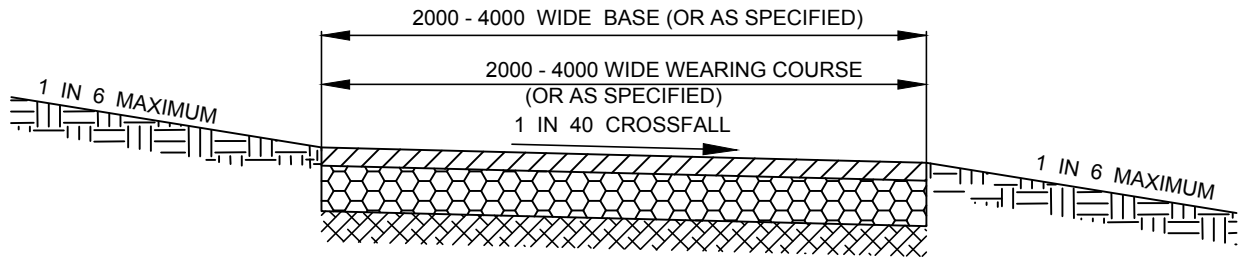


EXISTING SUBGRADE



TOPSOIL AND SEED

STANDARD FOOTPATH



ASPHALT



60mm COMPACTED DEPTH SIZE 7
TYPE N ASPHALT



150mm COMPACTED DEPTH
CLASS 2 CRUSHED ROCK



EXISTING SUBGRADE



TOPSOIL AND SEED

SHARED FOOTPATH

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

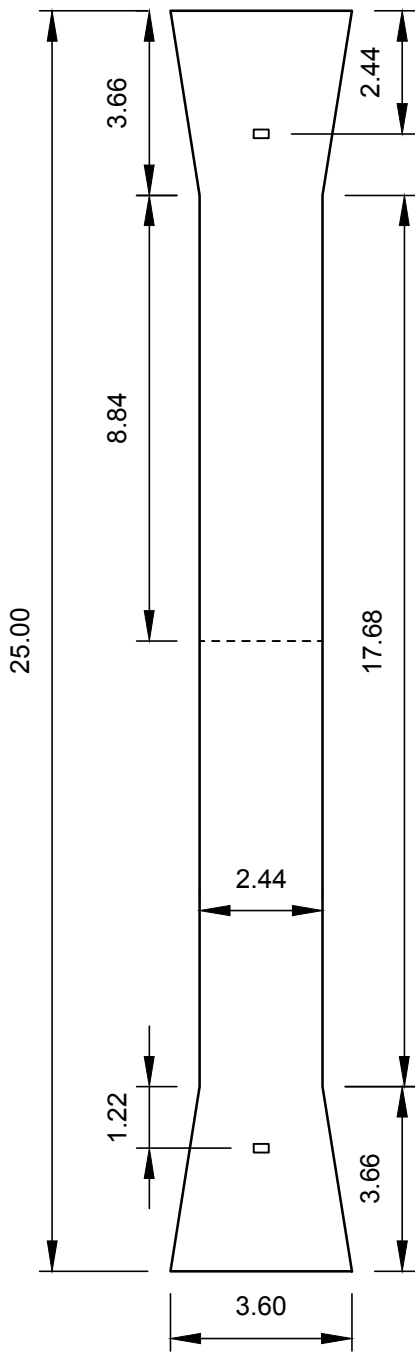
SCALE	1:25
DESIGNED	
DRAWN	J.H.
REVISION	3

Nillumbik Shire Council
ASPHALT FOOTPATH STANDARD
CROSS SECTIONS

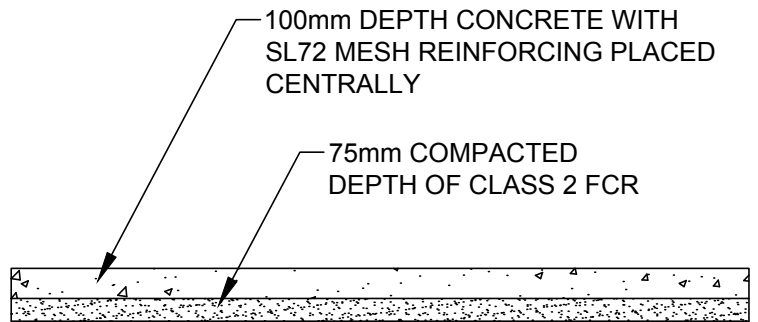
Manager
 Infrastructure
 Development
 Date 01 / 12 / 2015

Drawing No.

NS3091



PLAN
SCALE 1:150



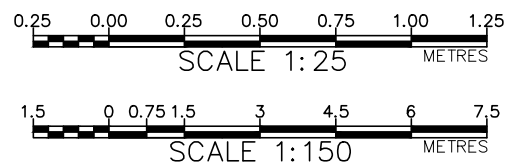
CROSS SECTION
SCALE 1:25

NOTES:

1. FULL CONSTRUCTION JOINT IN CONCRETE IN CENTRE OF PITCH.
2. STUMP BOXES 300mm x 175mm LEFT IN CONCRETE AND FILLED WITH SUITABLE MATERIAL.
3. CONCRETE FINISH TO BE STEEL TROWELLED HAND SMOOTH.

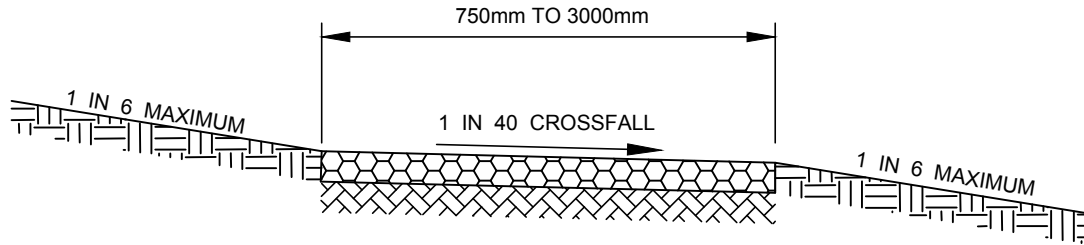
LEGEND:

- CONSTRUCTION JOINT
- STUMP BOX



ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	AS SHOWN	<p>Nillumbik Shire Council CONCRETE CRICKET PITCH</p>	 Manager Infrastructure Development Date ..01../12../2015	Drawing No.
DESIGNED				NS4000
DRAWN	J.H.			
REVISION	3			



100mm COMPACTED DEPTH
DONNY BROOK, SIZE 10mm,
TOPPINGS



EXISTING SUBGRADE



NATURAL SURFACE

NOTES:

1. LONGITUDINAL GRADES ARE TO FOLLOW THE NATURAL GRADES OF THE LAND.
2. THE CONTRACTOR AND SUPERVISING COUNCIL OFFICER, IS TO VERIFY ONSITE, THE LOCATION AND WIDTHS OF THE HORSE TRAIL , PRIOR TO THE COMMENCEMENT OF WORKS.

TYPICAL HORSE TRAIL SECTION

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

SCALE	1:25
DESIGNED	
DRAWN	J.H.
REVISION	1

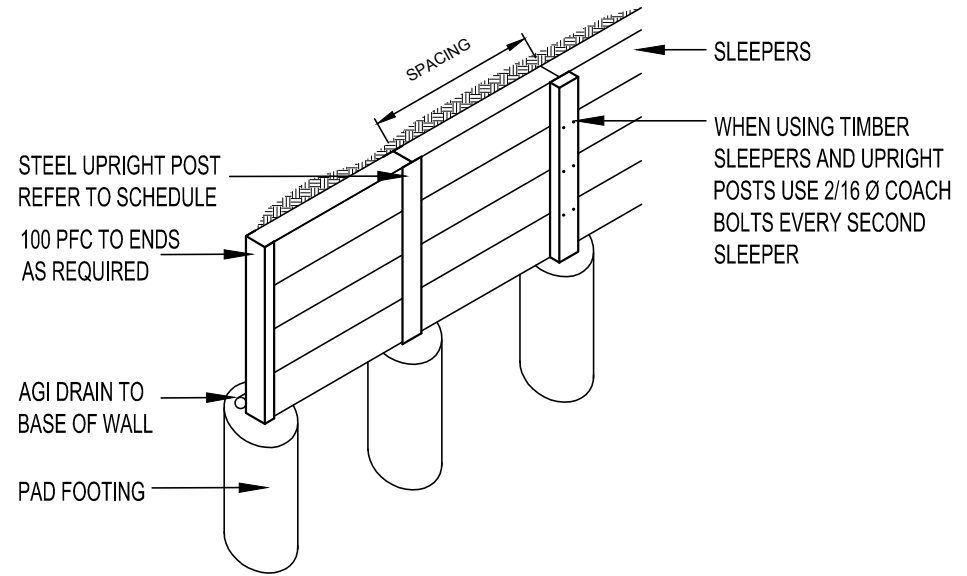
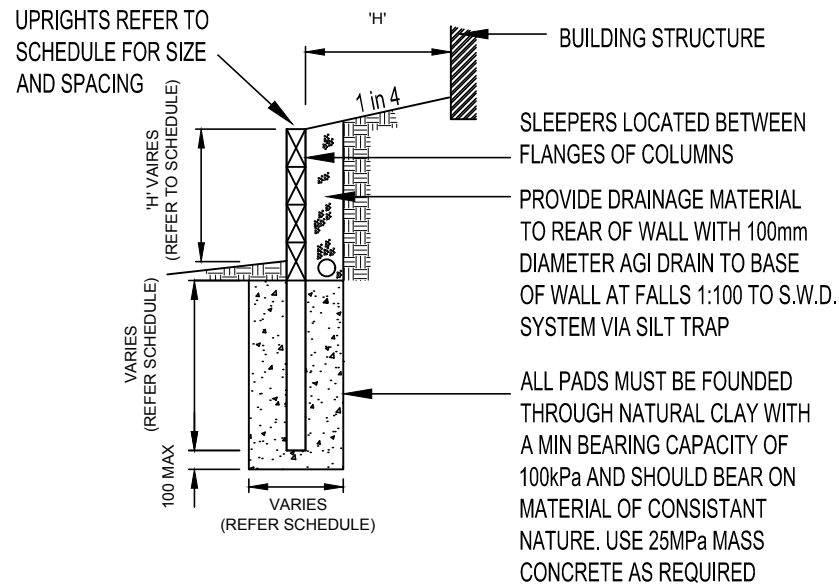
Nillumbik Shire Council
SHARED HORSE TRAIL
WITH CVALETTI

Manager
Infrastructure
Development

Date 01 / 12 / 2015

Drawing No.

NS4010



SLEEPER RETAINING WALL ELEVATION

SLEEPER RETAINING WALL 'RW'

WALL HEIGHT 'H'	UPRIGHT SIZE	UPRIGHT SPACING	SLEEPER	FOOTING DIA	FOOTING DEPTH
0-200	100 UC 14 OR 100 X 200 F11	2400	75 X 200	300	400
200-400	100 UC 14 OR 100 X 200 F11	2400	75 X 200	300	600
400-600	100 UC 14	2400	75 X 200	450	700
600-800	100 UC 14	1200	75 X 200	450	700
800-1000	100 UC 14	1200	75 X 200	450	1000

ALL TIMBERS TO BE TREATED FOR EXTERNAL WEATHER USE. SLEEPERS TO BE MIN F7 SEASONED TREATED PINE TO CLASS H14 TREATMENT LEVEL FOR INGROUND CONTACT OR APPROVED CONCRETE SLEEPERS. ALL STEEL TO BE GALVANISED. CONCRETE STRENGTH $f_c = 25MPa$ MASS CONCRETE USE 100 PFC AT ENDS

NILLUMBIK RETAINING WALL

LOADS:

- *ANY STRUCTURE MUST BE AT LEAST THE WALL HEIGHT BACK FROM THE BACK OF THE WALL
- *DOMESTIC DRIVEWAYS CAN BE LOCATED UP TO 300mm FROM THE REAR TO THE WALL
- *LARGE TREES SHOULD NOT BE CLOSE TO THE WALL
- *AGI DRAINS MUST BE INSTALLED FOR RETAINING WALLS ABOVE 500mm

SCALE **NTS**

DESIGNED

DRAWN **M.C.**

REVISION

Nillumbik Shire Council

RETAINING WALLS UP TO 1M IN HEIGHT

Manager
Infrastructure
Development
Date **1./12./2015**

Drawing No.

NS4020