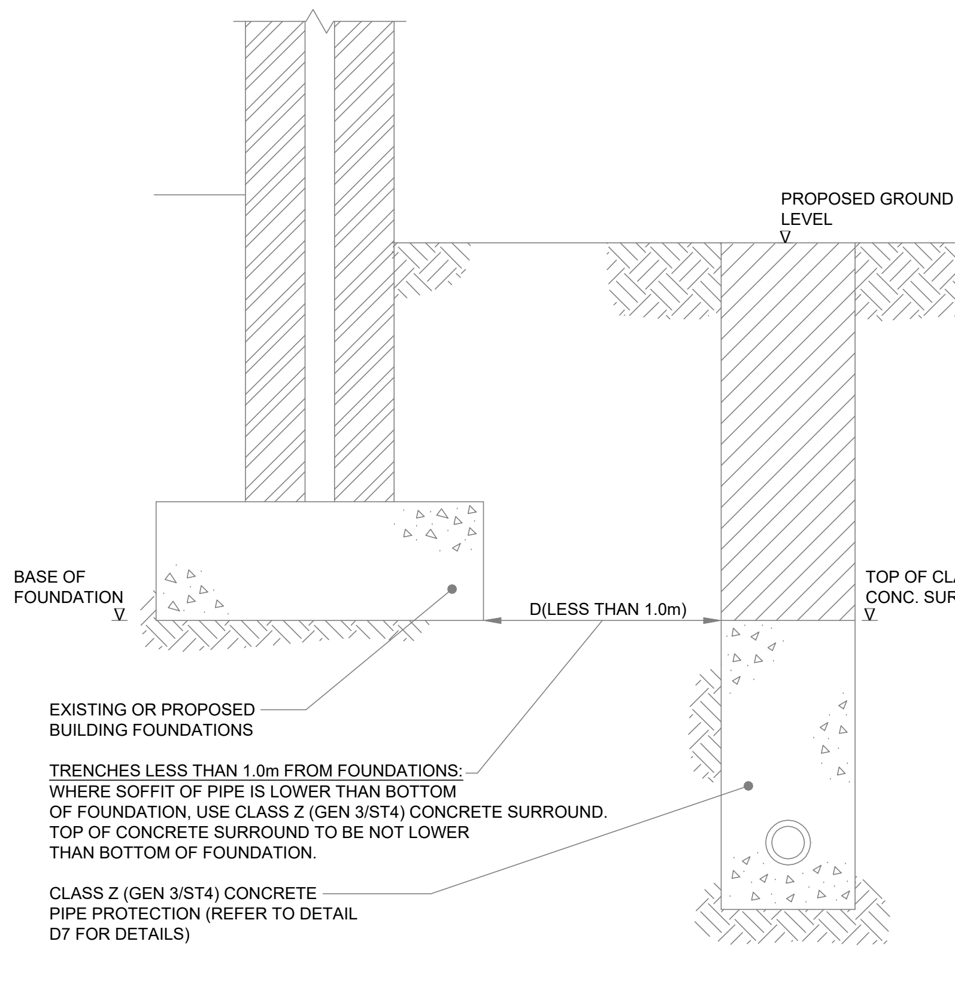
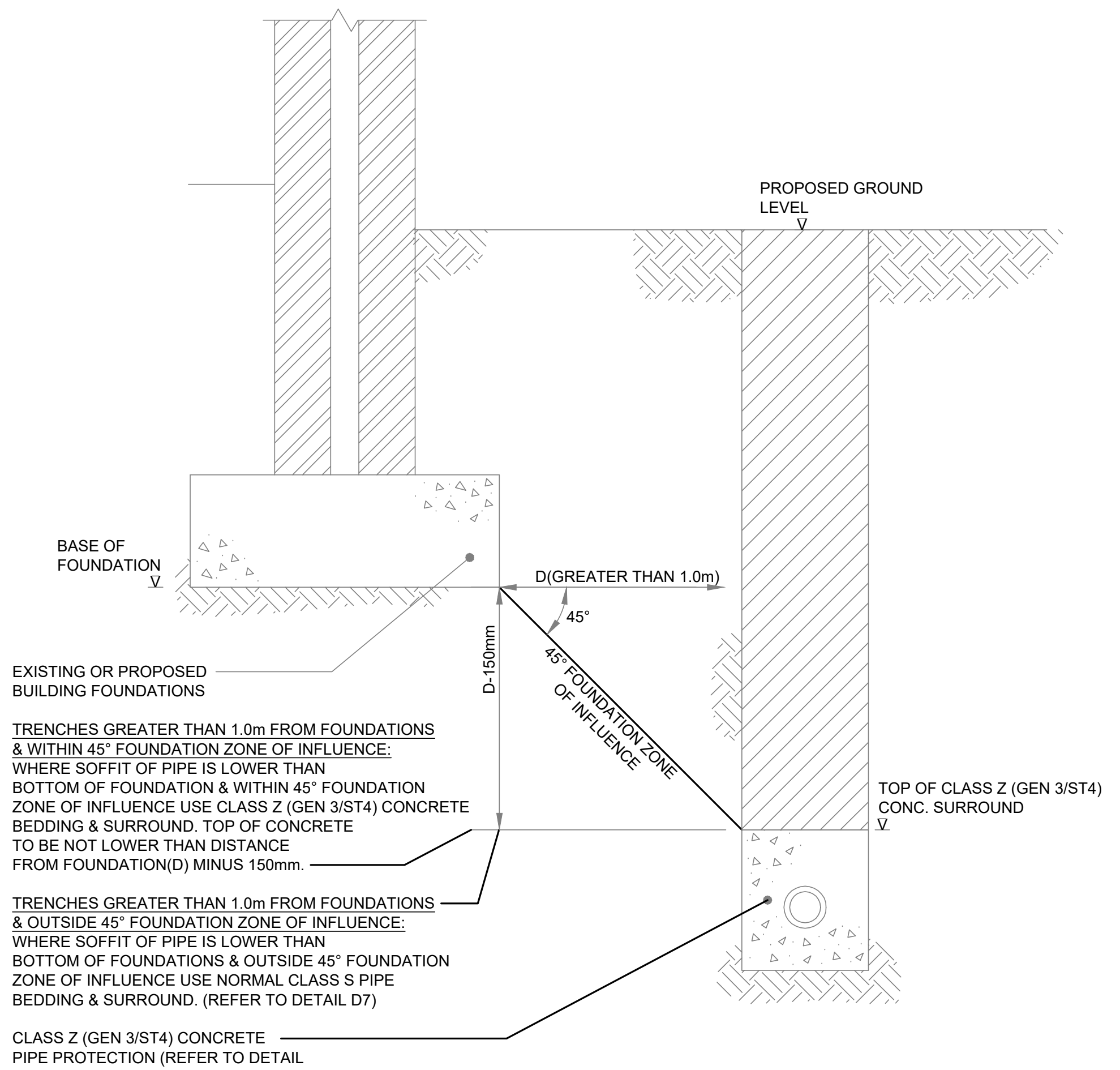
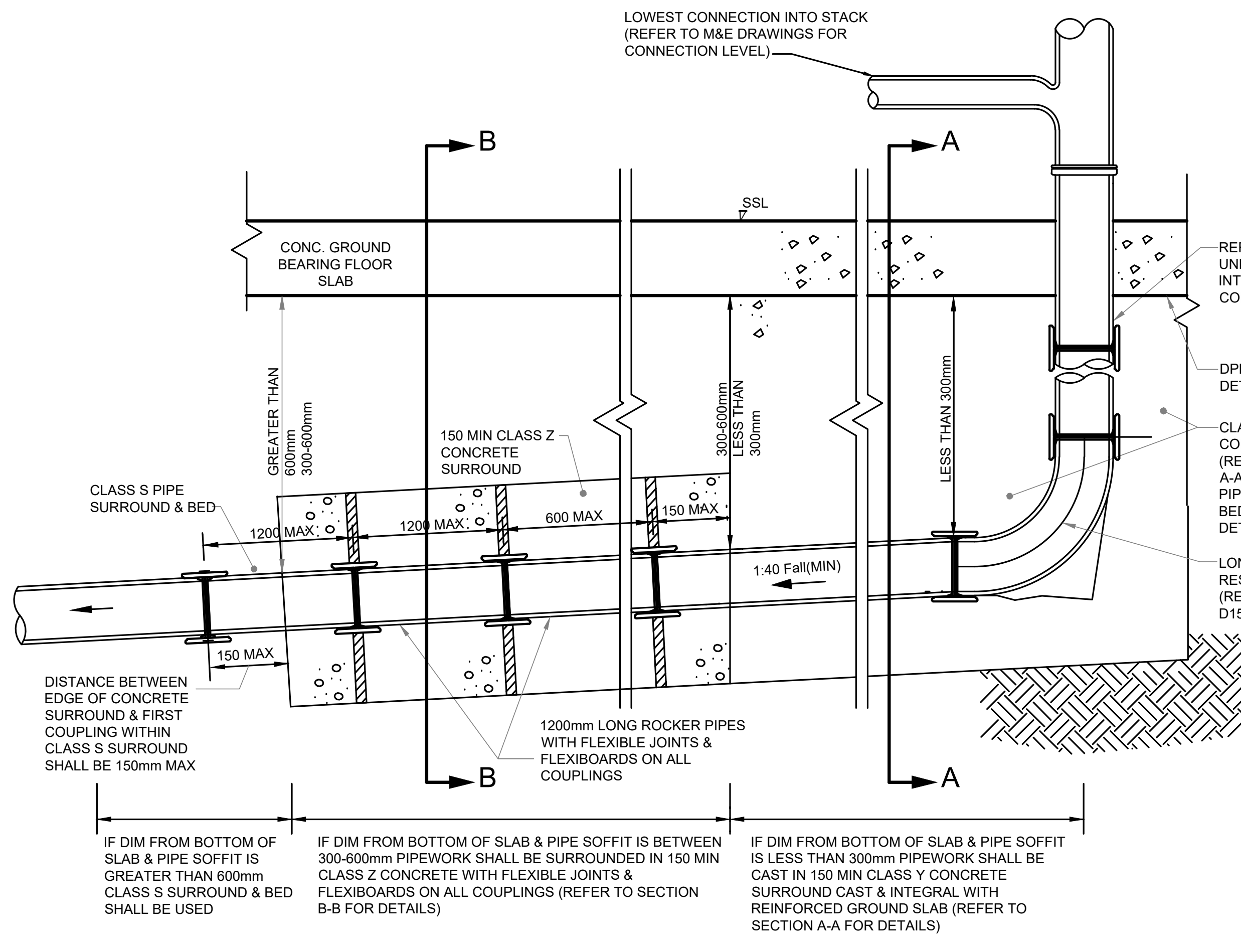

PROPOSED GROUND LEVEL
BASE OF FOUNDATION
D(LESS THAN 1.0m)
TOP OF CLASS Z CONC. SURROUND
EXISTING OR PROPOSED BUILDING FOUNDATIONS
TRENCHES LESS THAN 1.0m FROM FOUNDATIONS:
WHERE SOFFIT OF PIPE IS LOWER THAN BOTTOM OF FOUNDATION, USE CLASS Z (GEN 3/ST4) CONCRETE SURROUND. TOP OF CONCRETE SURROUND TO BE NOT LOWER THAN BOTTOM OF FOUNDATION.
CLASS Z (GEN 3/ST4) CONCRETE PIPE PROTECTION (REFER TO DETAIL D7 FOR DETAILS)

DRAINAGE TRENCH LESS THAN 1.0m FROM EXISTING/PROPOSED FOUNDATIONS


PROPOSED GROUND LEVEL
BASE OF FOUNDATION
D(GREATER THAN 1.0m)
45°
D-150mm
45° FOUNDATION ZONE OF INFLUENCE
TOP OF CLASS Z (GEN 3/ST4) CONC. SURROUND
EXISTING OR PROPOSED BUILDING FOUNDATIONS
TRENCHES GREATER THAN 1.0m FROM FOUNDATIONS & WITHIN 45° FOUNDATION ZONE OF INFLUENCE:
WHERE SOFFIT OF PIPE IS LOWER THAN BOTTOM OF FOUNDATION & WITHIN 45° FOUNDATION ZONE OF INFLUENCE USE CLASS Z (GEN 3/ST4) CONCRETE BEDDING & SURROUND. TOP OF CONCRETE TO BE NOT LOWER THAN DISTANCE FROM FOUNDATION(D) MINUS 150mm.
TRENCHES GREATER THAN 1.0m FROM FOUNDATIONS & OUTSIDE 45° FOUNDATION ZONE OF INFLUENCE:
WHERE SOFFIT OF PIPE IS LOWER THAN BOTTOM OF FOUNDATIONS & OUTSIDE 45° FOUNDATION ZONE OF INFLUENCE USE NORMAL CLASS S PIPE BEDDING & SURROUND. (REFER TO DETAIL D7)
CLASS Z (GEN 3/ST4) CONCRETE PIPE PROTECTION (REFER TO DETAIL D7 FOR DETAILS).

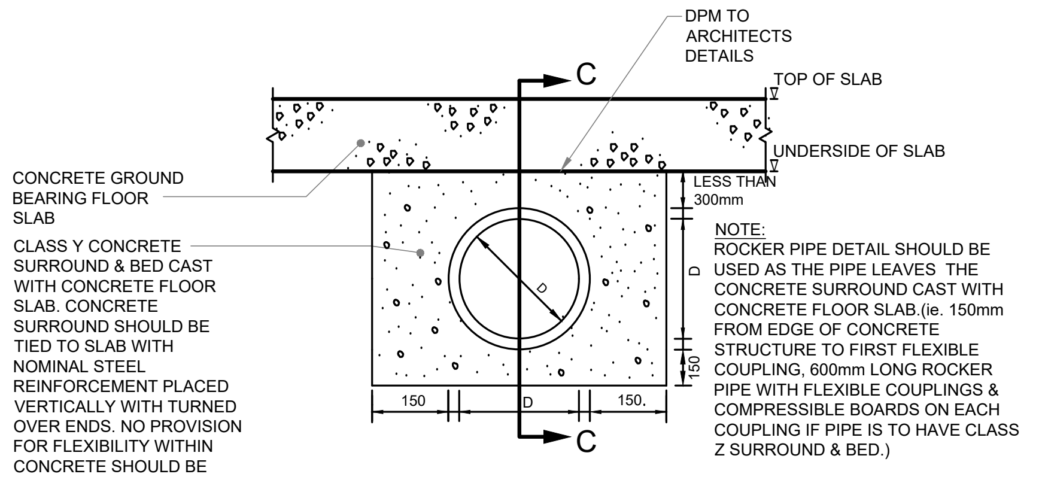
DRAINAGE TRENCH GREATER THAN 1.0m FROM EXISTING/PROPOSED FOUNDATIONS

PIPE PROTECTION ADJACENT TO EXISTING/PROPOSED FOUNDATIONS


LOWEST CONNECTION INTO STACK (REFER TO M&E DRAWINGS FOR CONNECTION LEVEL)
B
A
SSL
CONC. GROUND BEARING FLOOR SLAB
REFER TO DETAIL D15 FOR UNDERSLAB FOUL STACK & INTERNAL RWP CONNECTION DETAILS
DPM TO ARCHITECTS DETAILS
CLASS Y INTEGRAL CONCRETE SURROUND (REFER TO SECTION A-A FOR UNDERSLAB PIPE BEDDING/SURROUND DETAIL/EXTENTS)
LONG RADIUS REST BEND (REFER TO DETAIL D15 FOR DETAILS)
GREATER THAN 600mm
300-600mm
150 MIN CLASS Z CONCRETE SURROUND
300-600mm
LESS THAN 300mm
LESS THAN 300mm
CLASS S PIPE SURROUND & BED
1200 MAX
1200 MAX
600 MAX
150 MAX
1:40 Fall(MIN)
150 MAX
DISTANCE BETWEEN EDGE OF CONCRETE SURROUND & FIRST COUPLING WITHIN CLASS S SURROUND SHALL BE 150mm MAX
1200mm LONG ROCKER PIPES WITH FLEXIBLE JOINTS & FLEXIBOARDS ON ALL COUPLINGS
IF DIM FROM BOTTOM OF SLAB & PIPE SOFFIT IS GREATER THAN 600mm CLASS S SURROUND & BED SHALL BE USED
IF DIM FROM BOTTOM OF SLAB & PIPE SOFFIT IS BETWEEN 300-600mm PIPEWORK SHALL BE SURROUNDED IN 150 MIN CLASS Z CONCRETE WITH FLEXIBLE JOINTS & FLEXIBOARDS ON ALL COUPLINGS (REFER TO SECTION B-B FOR DETAILS)
IF DIM FROM BOTTOM OF SLAB & PIPE SOFFIT IS LESS THAN 300mm PIPEWORK SHALL BE CAST IN 150 MIN CLASS Y CONCRETE SURROUND CAST & INTEGRAL WITH REINFORCED GROUND SLAB (REFER TO SECTION A-A FOR DETAILS)

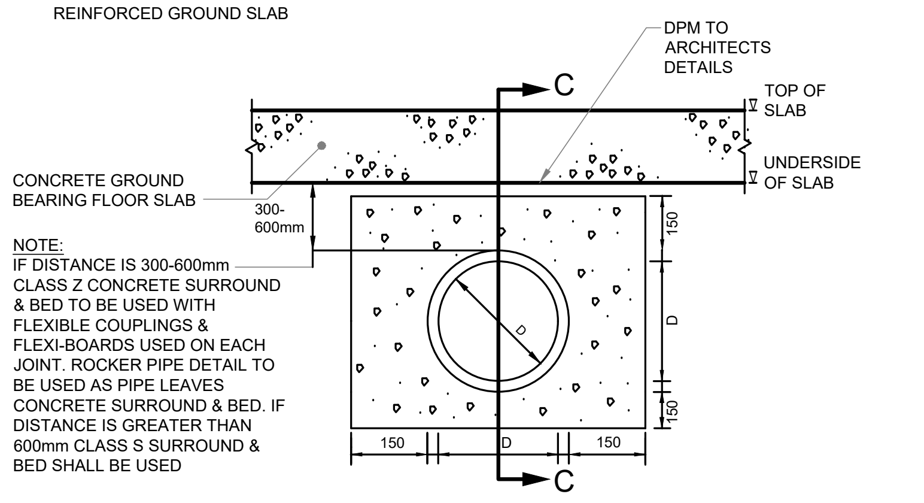
SECTION C-C

NOTES:
1. THIS DETAIL SHALL ONLY BE USED UNDER AREAS OF GROUND BEARING SLAB WHERE UNDER SLAB PIPEWORK CAN BE SUPPORTED BY UNDER SLAB FILL MATERIAL.
2. CONNECTION INTO INTERNAL MANHOLE OR MAIN UNDER SLAB RUN OR EXIT THROUGH FOUNDATION EDGE DETAIL AS PER DETAIL D (REFER TO DRAINAGE PLAN)


DPM TO ARCHITECTS DETAILS
C
TOP OF SLAB
UNDERSIDE OF SLAB
LESS THAN 300mm
CONCRETE GROUND BEARING FLOOR SLAB
CLASS Y CONCRETE SURROUND & BED CAST WITH CONCRETE FLOOR SLAB. CONCRETE SURROUND SHOULD BE TIED TO SLAB WITH NOMINAL STEEL REINFORCEMENT PLACED VERTICALLY WITH TURNED OVER ENDS. NO PROVISION FOR FLEXIBILITY WITHIN CONCRETE SHOULD BE MADE.
D
150
150
150
NOTE:
ROCKER PIPE DETAIL SHOULD BE USED AS THE PIPE LEAVES THE CONCRETE SURROUND CAST WITH CONCRETE FLOOR SLAB.(ie. 150mm FROM EDGE OF CONCRETE STRUCTURE TO FIRST FLEXIBLE COUPLING, 600mm LONG ROCKER PIPE WITH FLEXIBLE COUPLINGS & COMPRESSIBLE BOARDS ON EACH COUPLING IF PIPE IS TO HAVE CLASS Z SURROUND & BED.)

SECTION A-A
WHERE DISTANCE BETWEEN PIPE SOFFIT & UNDERSIDE OF CONCRETE GROUND BEARING FLOOR SLAB/GROUND BEAM IS LESS THAN 300mm

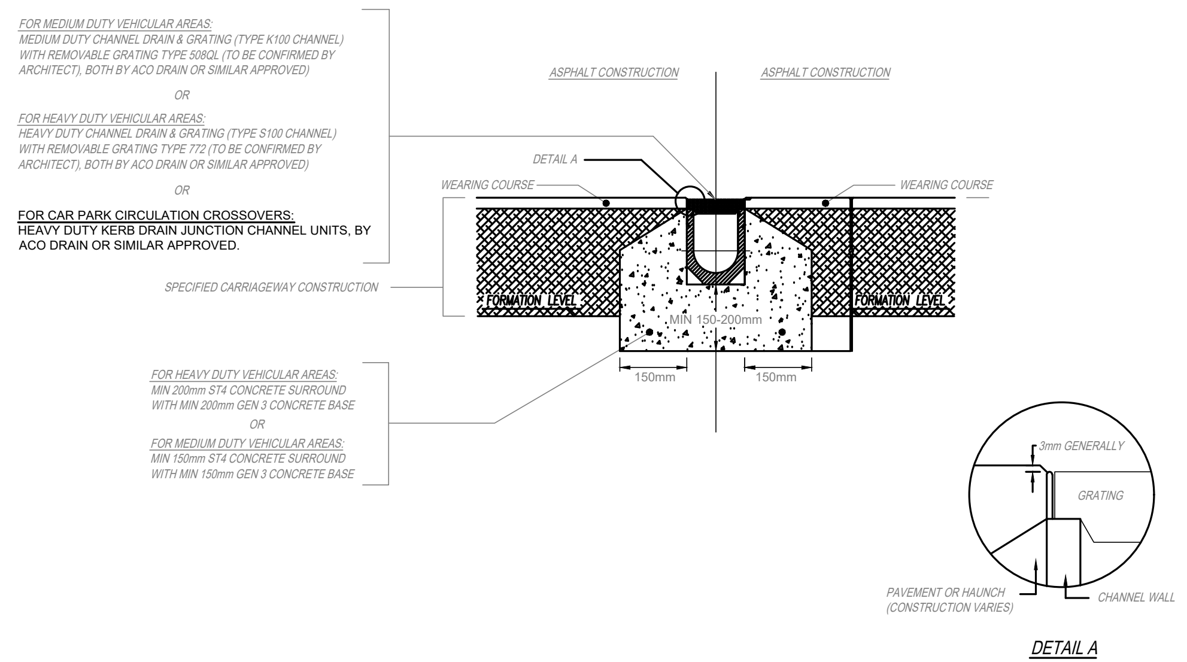
WHERE SOFFIT OF PIPE IS WITHIN 300mm OF UNDERSIDE OF CONCRETE FLOOR SLAB, THE PIPE SHALL BE SURROUNDED & BEDDED INTEGRAL WITH REINFORCED GROUND SLAB


DPM TO ARCHITECTS DETAILS
C
TOP OF SLAB
UNDERSIDE OF SLAB
CONCRETE GROUND BEARING FLOOR SLAB
300-600mm
NOTE:
IF DISTANCE IS 300-600mm CLASS Z CONCRETE SURROUND & BED TO BE USED WITH FLEXIBLE COUPLINGS & FLEXI-BOARDS USED ON EACH JOINT. ROCKER PIPE DETAIL TO BE USED AS PIPE LEAVES CONCRETE SURROUND & BED. IF DISTANCE IS GREATER THAN 600mm CLASS S SURROUND & BED SHALL BE USED
150
D
150
150
150

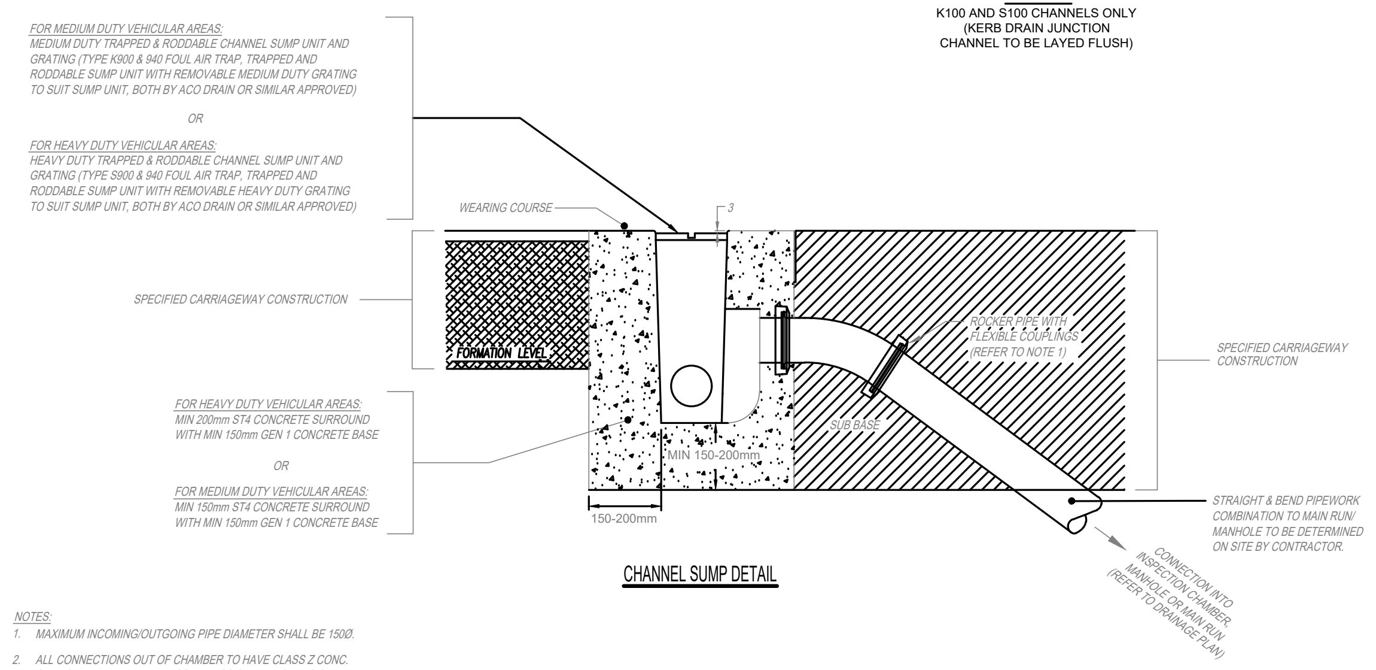
WHERE SOFFIT OF PIPE IS BETWEEN 300 & 600mm FROM UNDERSIDE OF CONCRETE FLOOR SLAB, THE PIPE SHALL BE SURROUNDED & BEDDED IN ST4 CONCRETE. WHERE THIS DISTANCE EXCEEDS 600mm THE PIPE SHALL BE SURROUNDED & BEDDED IN GRANULAR MATERIAL

SECTION B-B
WHERE DISTANCE BETWEEN PIPE SOFFIT & UNDERSIDE OF CONCRETE GROUND BEARING FLOOR SLAB/GROUND BEAM IS GREATER THAN 300mm

TYPICAL UNDERSLAB PIPE BEDDING DETAILS FOR PIPEWORK UNDER GROUND BEARING SLAB (FOR ALL UNDER SLAB PIPE DEPTHS)


FOR MEDIUM DUTY VEHICULAR AREAS:
MEDIUM DUTY CHANNEL DRAIN & GRATING (TYPE K100 CHANNEL) WITH REMOVABLE GRATING TYPE 508QL (TO BE CONFIRMED BY ARCHITECT), BOTH BY ACO DRAIN OR SIMILAR APPROVED)
OR
FOR HEAVY DUTY VEHICULAR AREAS:
HEAVY DUTY CHANNEL DRAIN & GRATING (TYPE S100 CHANNEL) WITH REMOVABLE GRATING TYPE 772 (TO BE CONFIRMED BY ARCHITECT), BOTH BY ACO DRAIN OR SIMILAR APPROVED)
OR
FOR CAR PARK CIRCULATION CROSSOVERS:
HEAVY DUTY KERB DRAIN JUNCTION CHANNEL UNITS, BY ACO DRAIN OR SIMILAR APPROVED.
ASPHALT CONSTRUCTION
ASPHALT CONSTRUCTION
DETAIL A
WEARING COURSE
WEARING COURSE
SPECIFIED CARRIAGEWAY CONSTRUCTION
FORMATION LEVEL
FORMATION LEVEL
MIN 150-200mm
150mm
150mm
FOR HEAVY DUTY VEHICULAR AREAS:
MIN 200mm ST4 CONCRETE SURROUND WITH MIN 200mm GEN 3 CONCRETE BASE
OR
FOR MEDIUM DUTY VEHICULAR AREAS:
MIN 150mm ST4 CONCRETE SURROUND WITH MIN 150mm GEN 3 CONCRETE BASE
3mm GENERALLY
GRATING
PAVEMENT OR HAUNCH (CONSTRUCTION VARIES)
CHANNEL WALL

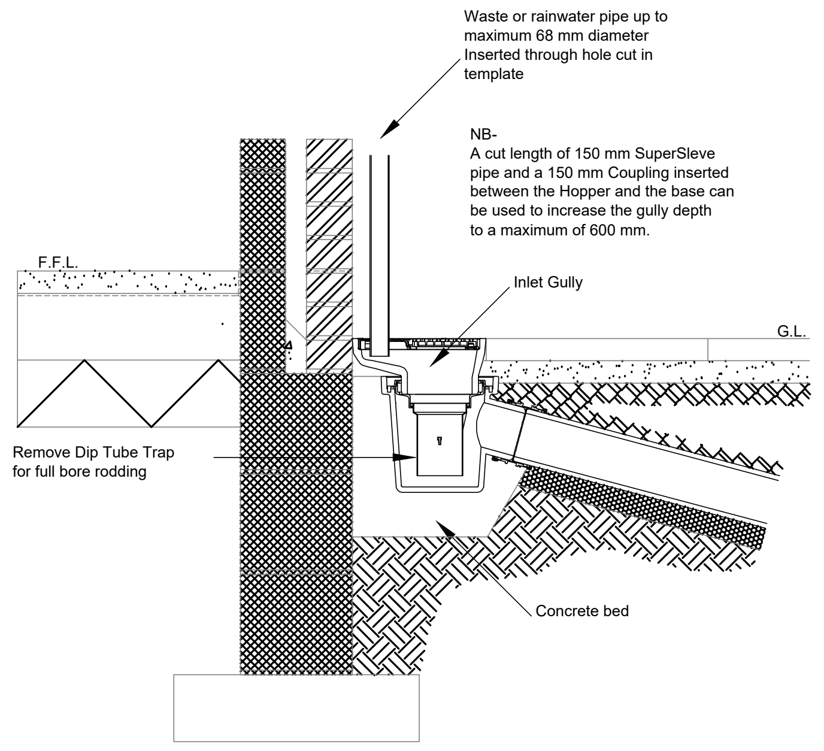
DETAIL A
K100 AND S100 CHANNELS ONLY
(KERB DRAIN JUNCTION CHANNEL TO BE LAYED FLUSH)


FOR MEDIUM DUTY VEHICULAR AREAS:
MEDIUM DUTY TRAPPED & RODDABLE CHANNEL SUMP UNIT AND GRATING (TYPE K900 & 940 FOUL AIR TRAP, TRAPPED AND RODDABLE SUMP UNIT WITH REMOVABLE MEDIUM DUTY GRATING TO SUIT SUMP UNIT, BOTH BY ACO DRAIN OR SIMILAR APPROVED)
OR
FOR HEAVY DUTY VEHICULAR AREAS:
HEAVY DUTY TRAPPED & RODDABLE CHANNEL SUMP UNIT AND GRATING (TYPE S900 & 940 FOUL AIR TRAP, TRAPPED AND RODDABLE SUMP UNIT WITH REMOVABLE HEAVY DUTY GRATING TO SUIT SUMP UNIT, BOTH BY ACO DRAIN OR SIMILAR APPROVED)
WEARING COURSE
3
SPECIFIED CARRIAGEWAY CONSTRUCTION
FORMATION LEVEL
ROCKER PIPE WITH FLEXIBLE COUPLINGS (REFER TO NOTE 1)
SUB BASE
SPECIFIED CARRIAGEWAY CONSTRUCTION
FOR HEAVY DUTY VEHICULAR AREAS:
MIN 200mm ST4 CONCRETE SURROUND WITH MIN 150mm GEN 1 CONCRETE BASE
OR
FOR MEDIUM DUTY VEHICULAR AREAS:
MIN 150mm ST4 CONCRETE SURROUND WITH MIN 150mm GEN 1 CONCRETE BASE
MIN 150-200mm
150-200mm
STRAIGHT & BEND PIPEWORK COMBINATION TO MAIN RUN/ MANHOLE TO BE DETERMINED ON SITE BY CONTRACTOR.
CONNECTION INTO INSPECTION CHAMBER, MANHOLE OR MAIN RUN (REFER TO DRAINAGE PLAN)

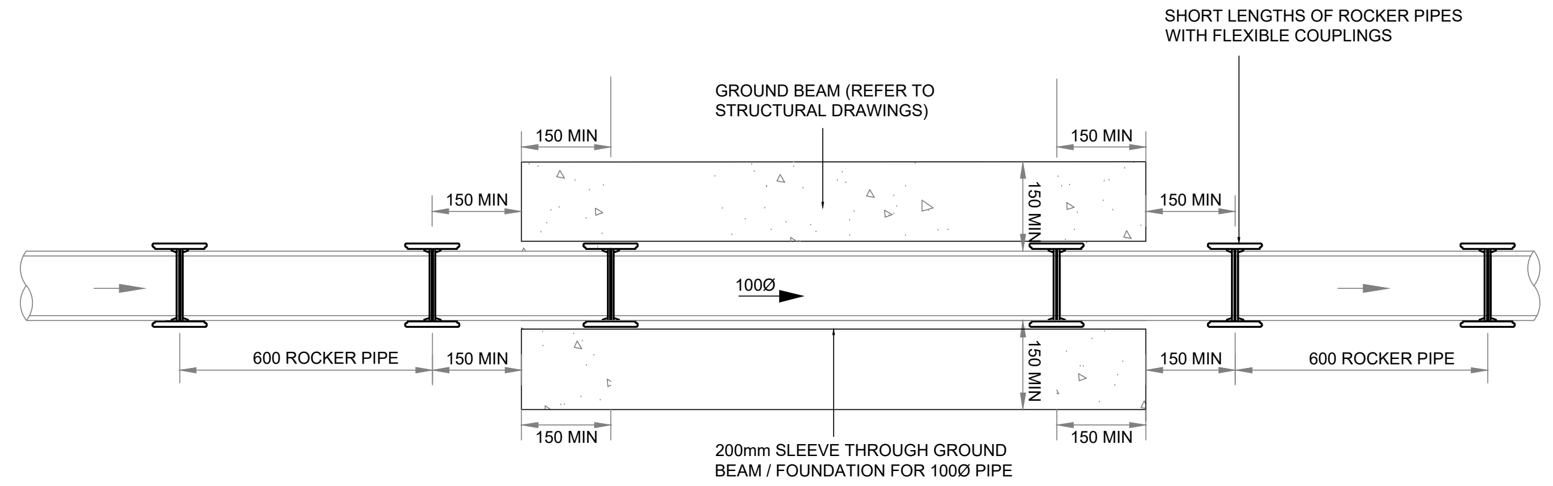
CHANNEL SUMP DETAIL

NOTES:
1. MAXIMUM INCOMING/OUTGOING PIPE DIAMETER SHALL BE 150Ø.
2. ALL CONNECTIONS OUT OF CHAMBER TO HAVE CLASS Z CONC. SURROUND WITH FLEXIBLE COUPLINGS & FLEXIBOARDS ON ALL COUPLINGS WHERE COVER TO PIPE SOFFIT IS EQUAL TO OR LESS THAN 1200mm UNDER HEAVY VEHICULAR AREAS, EQUAL TO OR LESS THAN 900mm UNDER MEDIUM/LIGHT VEHICULAR AREAS & EQUAL TO OR LESS THAN 600mm UNDER NON-VEHICULAR AREAS.
3. JOINT SEALANT - ALL DRAIN CHANNEL JOINTS AND FITTINGS ARE TO BE SEALED WITH SIKAFLEX PRO 3WF BY SIKA OR SIMILAR APPROVED.

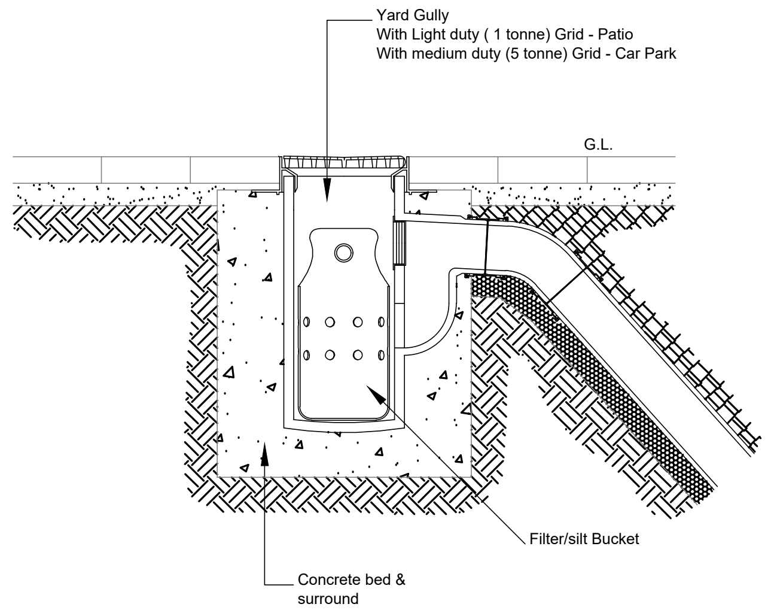
TYPICAL EXTERNAL CHANNEL DRAIN & TRAPPED/ RODDABLE SUMP UNIT DETAILS


Waste or rainwater pipe up to maximum 68 mm diameter Inserted through hole cut in template
NB-
A cut length of 150 mm SuperSleve pipe and a 150 mm Coupling inserted between the Hopper and the base can be used to increase the gully depth to a maximum of 600 mm.
F.F.L.
Inlet Gully
G.L.
Remove Dip Tube Trap for full bore rodding
Concrete bed

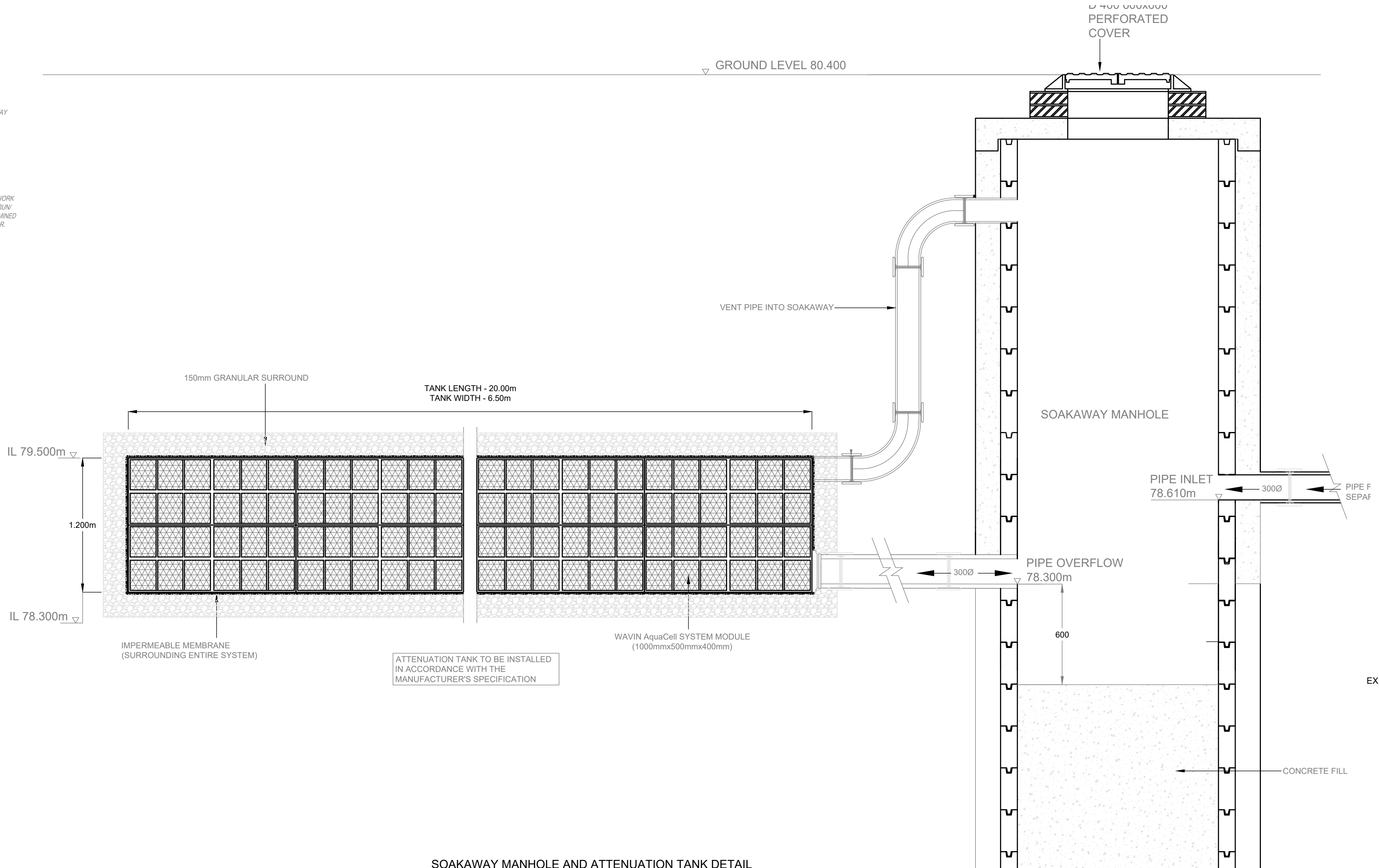
TYPICAL RAINWATER PIPE AND BACK INLET GULLY DETAIL


SHORT LENGTHS OF ROCKER PIPES WITH FLEXIBLE COUPLINGS
GROUND BEAM (REFER TO STRUCTURAL DRAWINGS)
150 MIN
150 MIN
150 MIN
150 MIN
150 MIN
100Ø
600 ROCKER PIPE
150 MIN
150 MIN
150 MIN
600 ROCKER PIPE
150 MIN
150 MIN
200mm SLEEVE THROUGH GROUND BEAM / FOUNDATION FOR 100Ø PIPE

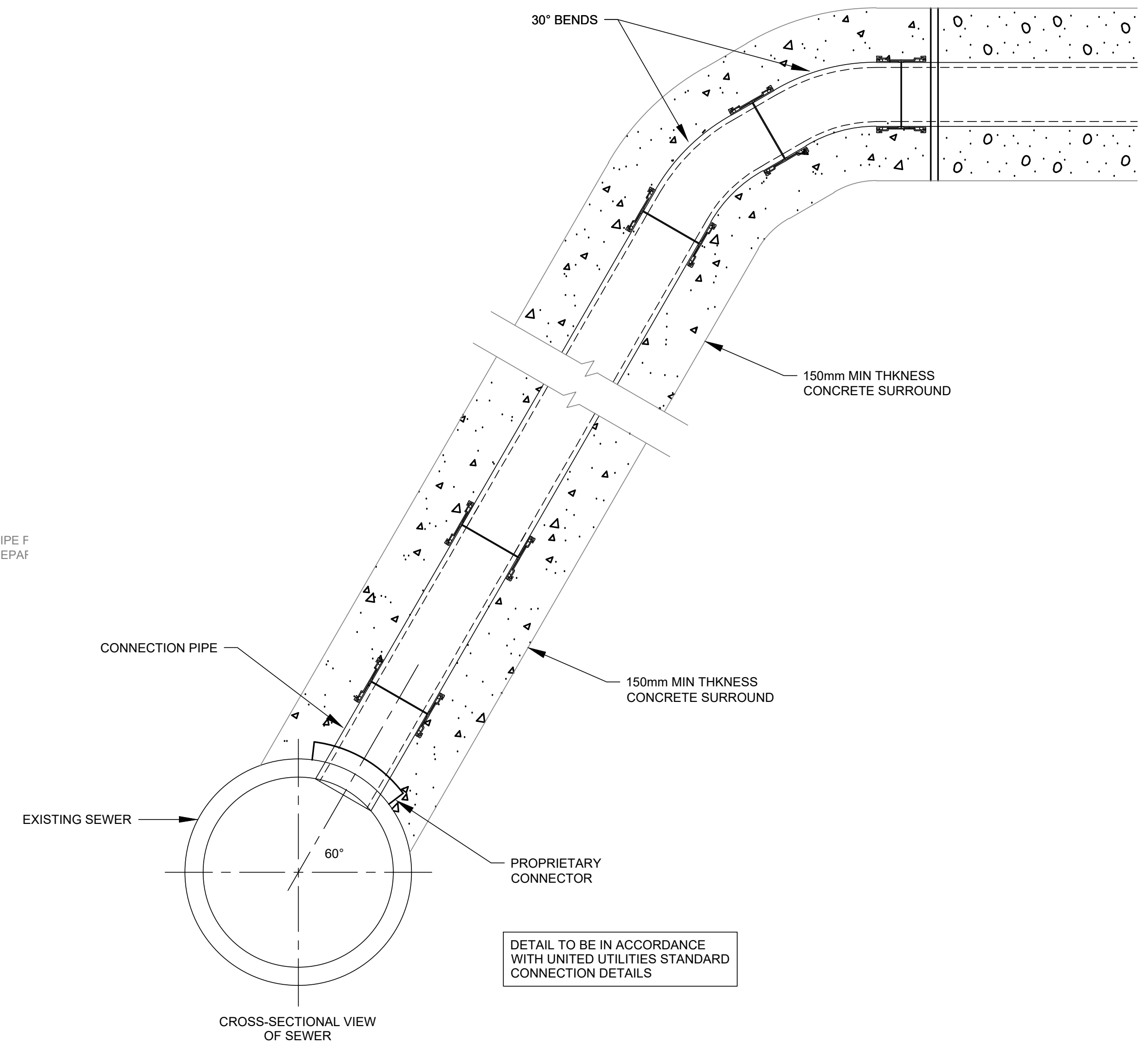
TYPICAL PIPE THROUGH GROUND BEAM / FOUNDATION DETAIL


Yard Gully
With Light duty (1 tonne) Grid - Patio
With medium duty (5 tonne) Grid - Car Park
G.L.
Filter/silt Bucket
Concrete bed & surround

EXTERNAL SW GULLY DETAIL


D 400 600x600 PERFORATED COVER
GROUND LEVEL 80.400
VENT PIPE INTO SOAKAWAY
150mm GRANULAR SURROUND
TANK LENGTH - 20.00m
TANK WIDTH - 6.50m
IL 79.500m
1.200m
IL 78.300m
SOAKAWAY MANHOLE
PIPE INLET 78.610m
300Ø
PIPE OVERFLOW 78.300m
300Ø
600
IMPERMEABLE MEMBRANE (SURROUNDING ENTIRE SYSTEM)
ATTENUATION TANK TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION
WAVIN AquaCell SYSTEM MODULE (1000mmx500mmx400mm)
CONCRETE FILL

SOAKAWAY MANHOLE AND ATTENUATION TANK DETAIL


30° BENDS
150mm MIN THKNESS CONCRETE SURROUND
CONNECTION PIPE
150mm MIN THKNESS CONCRETE SURROUND
EXISTING SEWER
60°
PROPRIETARY CONNECTOR
DETAIL TO BE IN ACCORDANCE WITH UNITED UTILITIES STANDARD CONNECTION DETAILS
CROSS-SECTIONAL VIEW OF SEWER

CONNECTION TO EXISTING TO SEWER

status
FINAL ISSUE

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Hazard Identification ⚠

ref	hazard	date

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ref	revision	by	date
C3	FINAL ISSUE – AS CONSTRUCTED	HM	23.10.25
C2	SOAKAWAY MANHOLE AMENDED	MH	07.04.25
C1	CONSTRUCTION ISSUE	HM	04.03.25

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Bradshaw Gass & Hope LLP

client
ROBERTSON CONSTRUCTION LTD

project
BLACKLEY FIRE STATION

drawing
DRAINAGE DETAILS
SHEET 2

drawn by	DMC	date	MARCH 2025
checked by		date	
scale	N.T.S		A1
dwg no	BFS-BGH-XX-XX-DR-C-0154	rev	C3