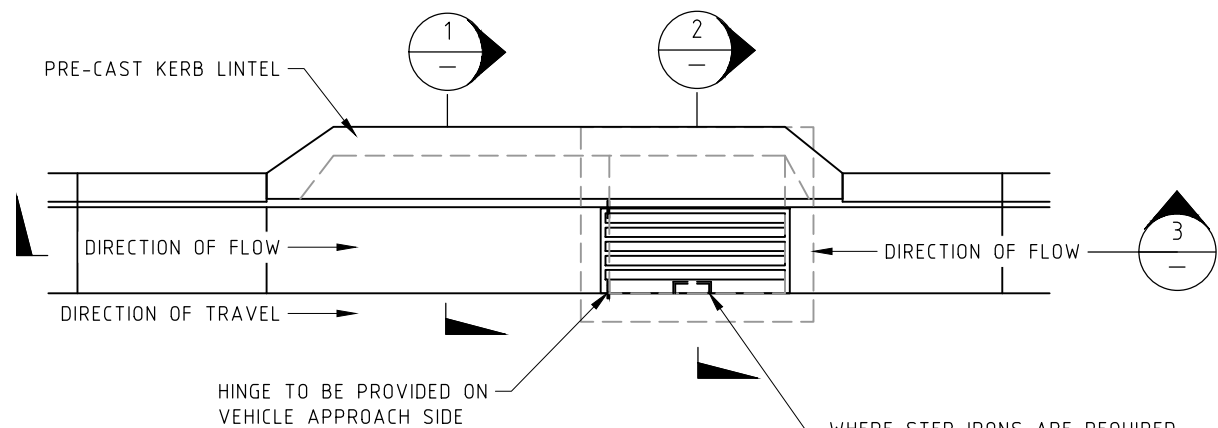


# TAMWORTH REGIONAL COUNCIL STANDARD DRAWINGS STORMWATER INDEX



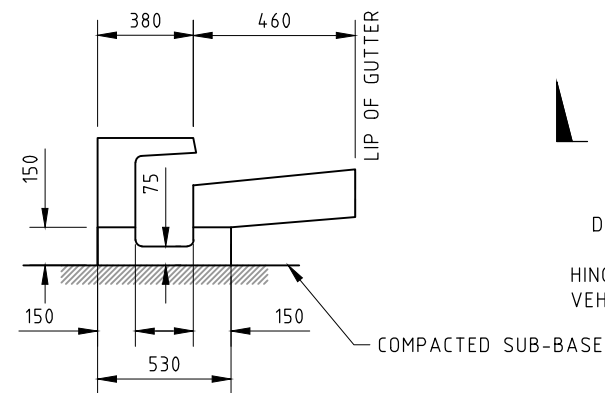
STORMWATER		
SW001	SAG PIT WITH LINTEL AND GRATE - PIPE UNDER KERB	2
SW002	DROP PIT WITH LINTEL AND GRATE - PIPE UNDER KERB	2
SW003	ON GRADE KERB INLET PIT WITH LINTEL AND GRATE - PIPE UNDER KERB	2
SW004	ON GRADE KERB INLET PIT WITH LINTEL AND GRATE - PIPE BEHIND KERB	2
SW005	ON GRADE KERB INLET PIT WITH LINTEL AND GRATE - PIPE UNDER CARRIAGEWAY	2
SW006	ON GRADE KERB INLET PIT WITH LINTEL AND GRATE - ROLL TYPE KERB	2
SW007	JUNCTION PIT AND GRATED INLET PIT	2
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SW009	INTER ALLOTMENT DRAINAGE PIT SHEET 1 OF 2	2
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SW011	SUBSOIL DRAINAGE	2
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SW015	STORMWATER PIPE BULKHEAD AND CONCRETE PIPE EXTENSION	2
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SW017	REINFORCED CONCRETE BOX CULVERT BASE SLAB DETAILS	2
SW018	REINFORCED CONCRETE BOX CULVERT BITUTHENE TAPE DETAILS	2



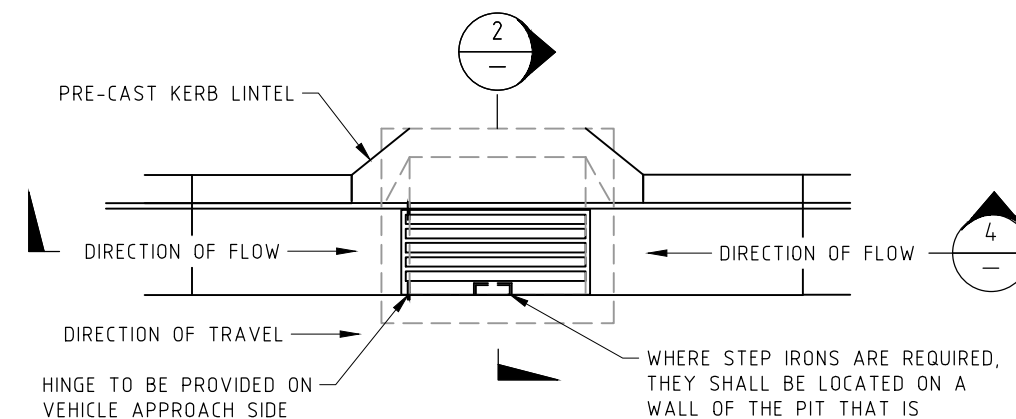
**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)

HINGE TO BE PROVIDED ON VEHICLE APPROACH SIDE

WHERE STEP IRONS ARE REQUIRED, THEY SHALL BE LOCATED ON A WALL OF THE PIT THAT IS ACCESSIBLE AND SAFE TO CLIMB FOR THE FULL HEIGHT OF THE PIT

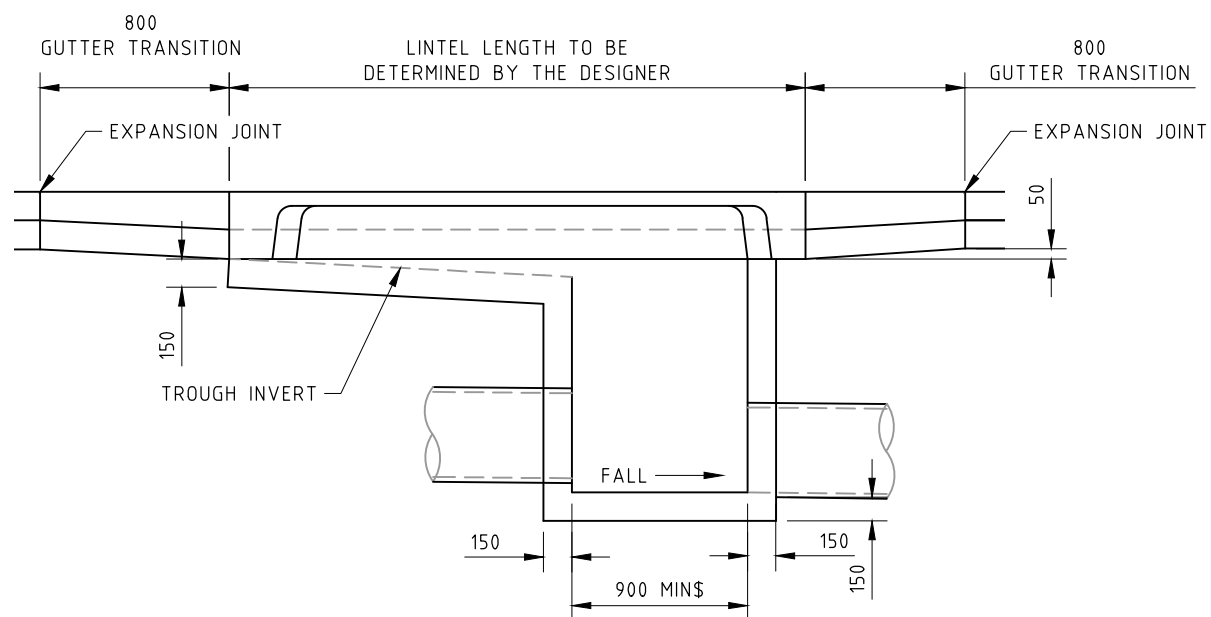


**SECTION 1**

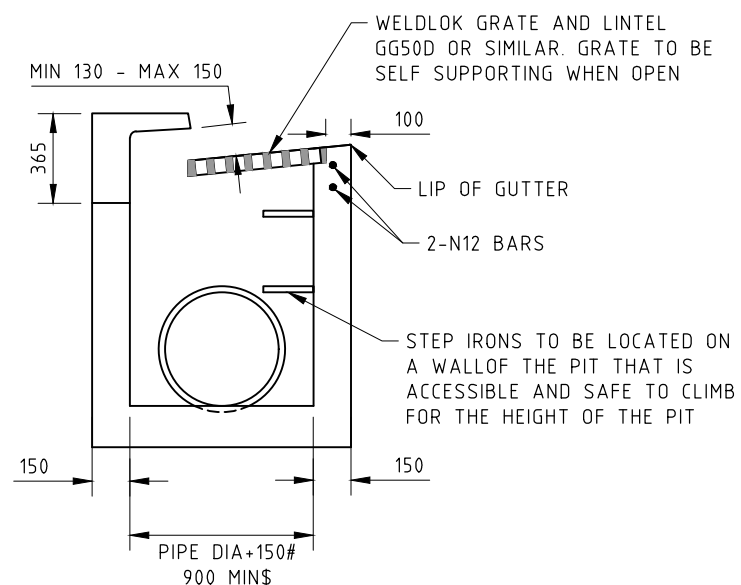


**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)

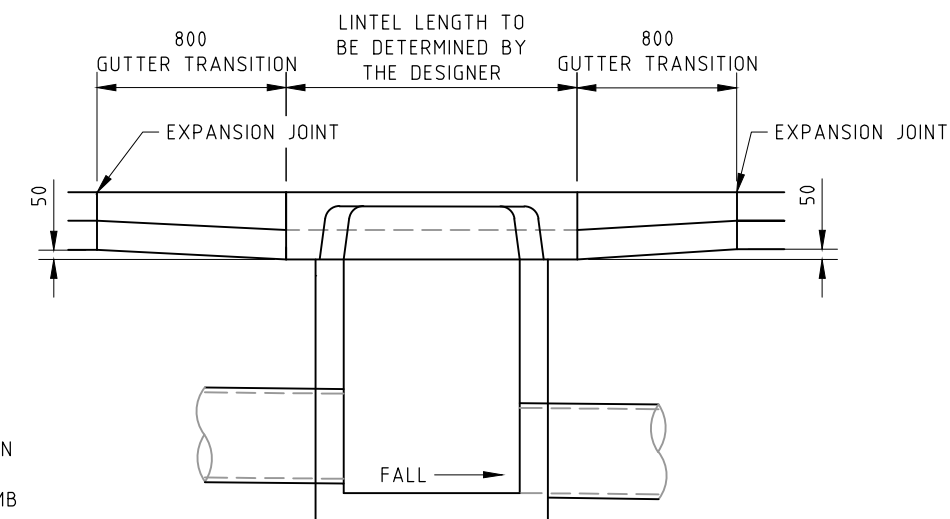
WHERE STEP IRONS ARE REQUIRED, THEY SHALL BE LOCATED ON A WALL OF THE PIT THAT IS ACCESSIBLE AND SAFE TO CLIMB FOR THE FULL HEIGHT OF THE PIT



**SECTION 3**



**SECTION 2**



**SECTION 4**

**NOTES:**

1. ALL DIMENSIONS IN MILLIMETRES
2. DO NOT SCALE
3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600.
4. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 @ 200 CENTRES EACH WAY OR SL82 MESH PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE, PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
5. FOR SAG GULLY, POSITION GRATE CENTRALLY IN LINTEL
6. BRAND NAMES AND CATALOGUE NUMBERS WHERE SHOWN ARE INDICATIVE OR THE MINIMUM ACCEPTABLE STANDARDS ONLY. HOWEVER COUNCILS PREFERENCE IS TO THOSE STATED AND ANY ALTERNATIVE SHALL BE SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL
7. GRATE LOAD CAPACITY TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996.
8. GRATE PATTERN INSTALLED TO PREVENT BICYCLE TYRE CAPTURE (INSTALL IN DIRECTION OF TRAFFIC)
9. PIT DEPTH SHALL NOT EXCEED 3500
10. STEP IRONS SHALL BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
11. WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- # PROVIDE MIN 75 CLEARANCE BETWEEN THE INSIDE EDGE OF PIPE AND THE AND THE INTERNAL EDGE OF PIT
- \$ WHERE THERE ARE NO STEP IRONS, THE MIN PIT DIMENSION SHALL BE 750

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

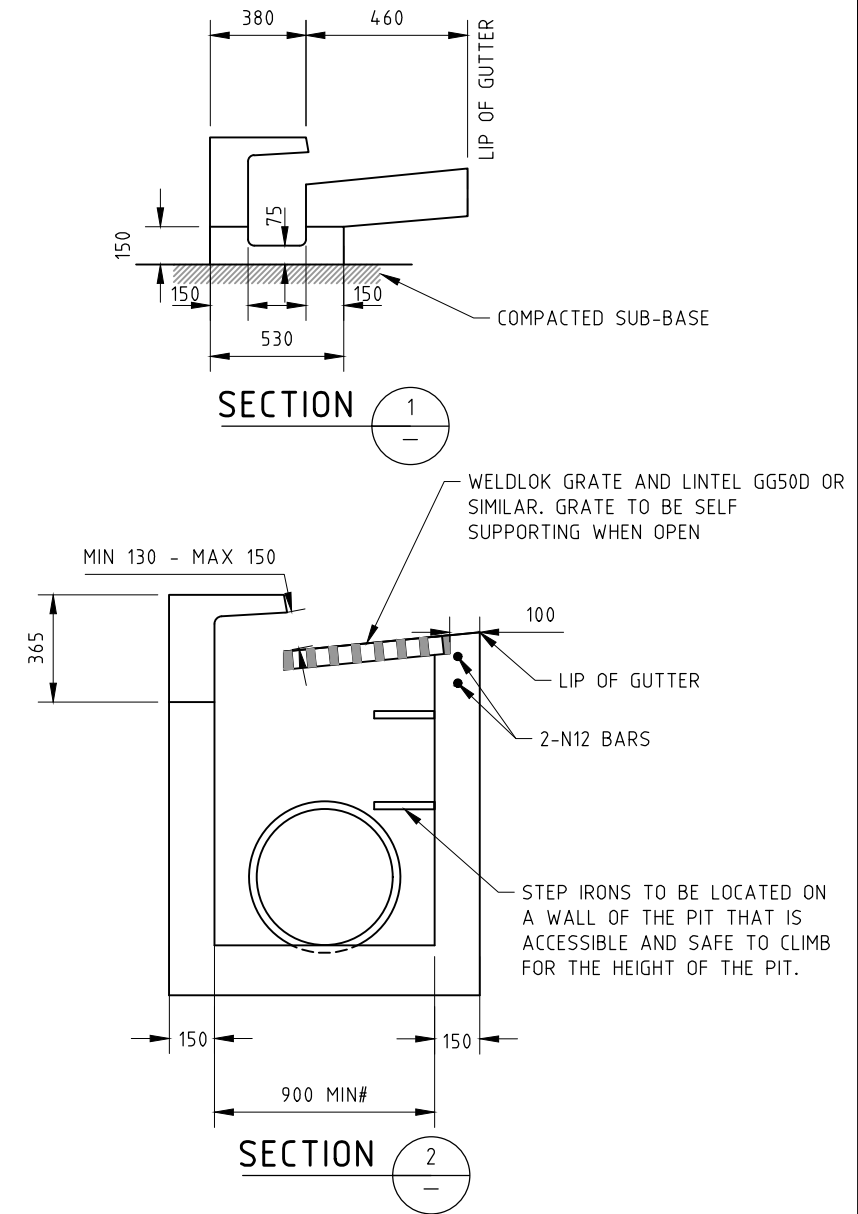
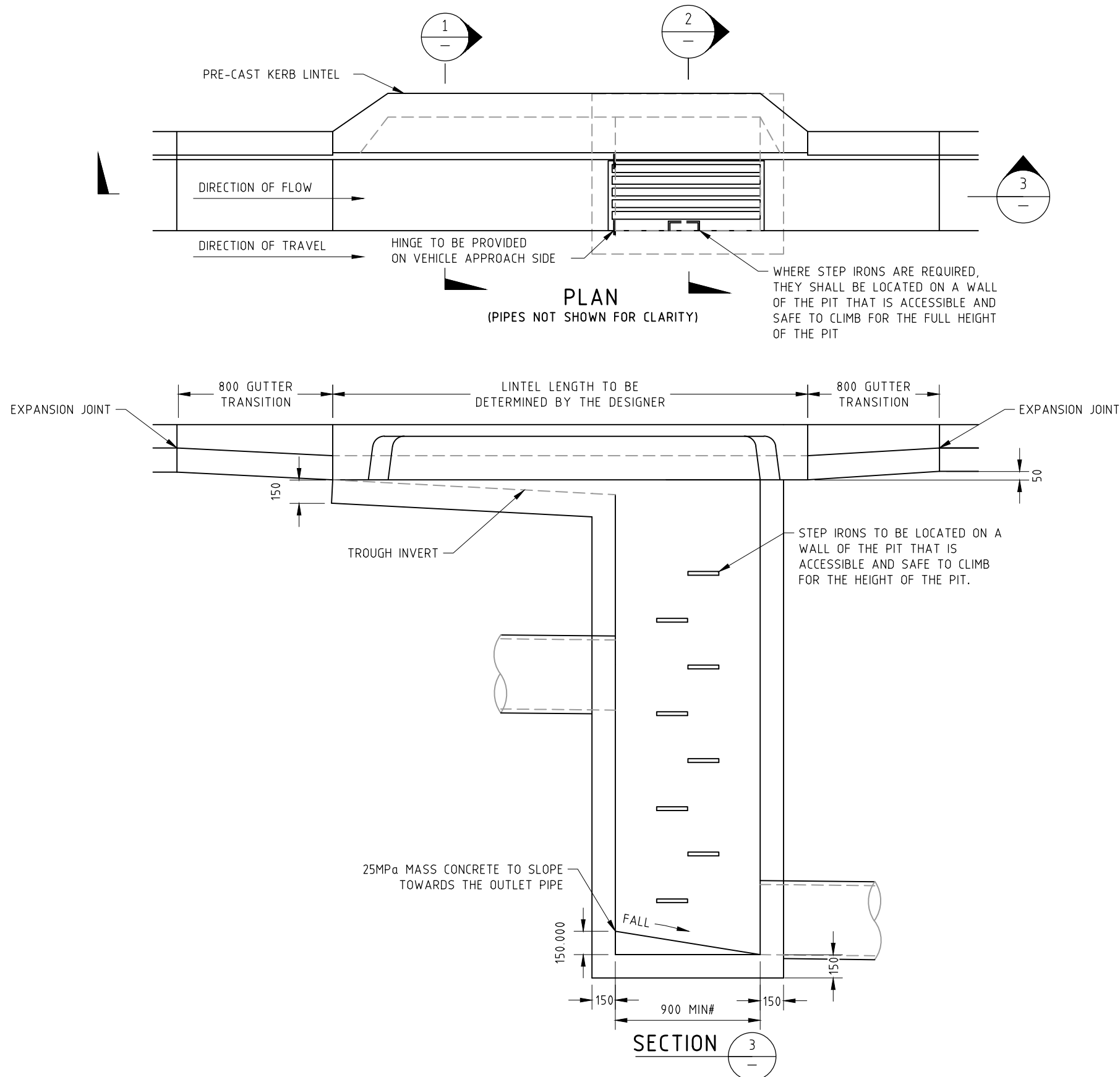
SAG PIT  
WITH LINTEL & GRATE -  
PIPE UNDER KERB

REVISION: 2


ISSUE DATE: MAY 2023

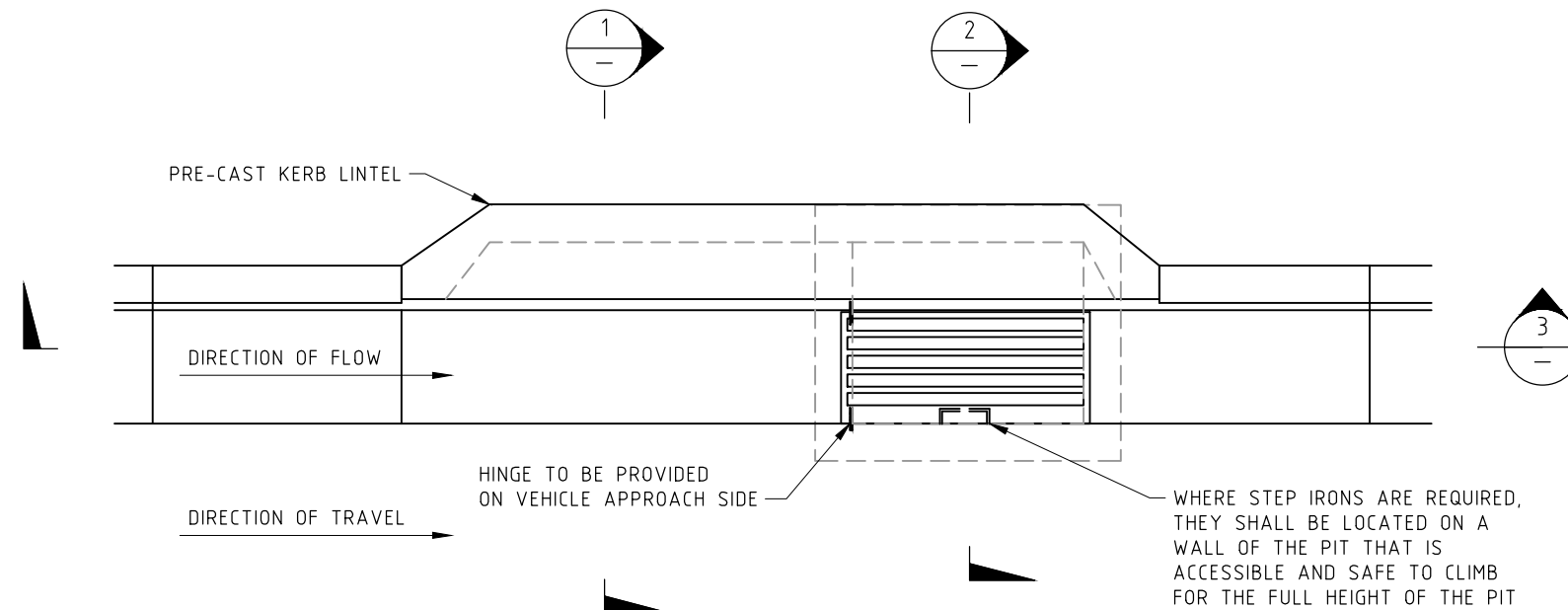
DRAWING NUMBER: SW001



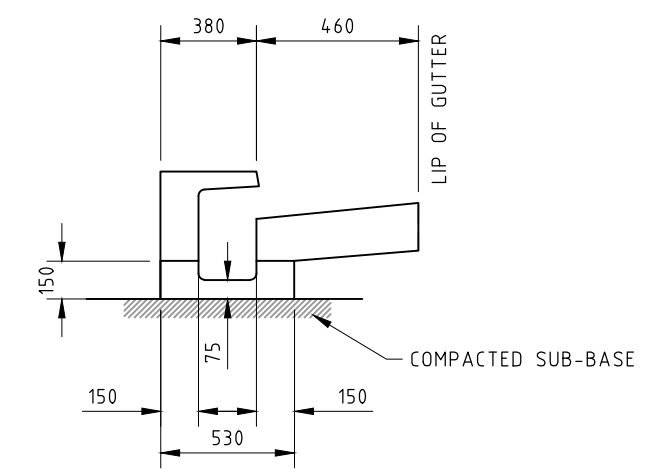


- NOTES:**
1. ALL DIMENSIONS IN MILLIMETRES
  2. DO NOT SCALE
  3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MP<sub>a</sub> IN ACCORDANCE WITH AS1379 AND AS3600
  4. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 AT 200 CENTRES EACH WAY OR SL82 MESH PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE, PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
  5. FOR SAG GULLY, POSITION GRATE CENTRALLY IN LINTEL
  6. BRAND NAMES AND CATALOGUE NUMBERS WHERE SHOWN ARE INDICATIVE OR THE MINIMUM ACCEPTABLE STANDARDS ONLY. HOWEVER COUNCILS PREFERENCE IS TO THOSE STATED AND ANY ALTERNATIVE SHALL BE SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL.
  7. GRATE LOAD CAPACITY TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996.
  8. GRATE PATTERN INSTALLED TO PREVENT BICYCLE TYRE CAPTURE (INSTALL IN DIRECTION OF TRAFFIC)
  9. PIT DEPTH SHALL NOT EXCEED 3500
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  11. WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- # PROVIDE MIN 75 CLEARANCE FROM THE INSIDE EDGE OF PIPE TO THE INTERNAL EDGE OF PIT

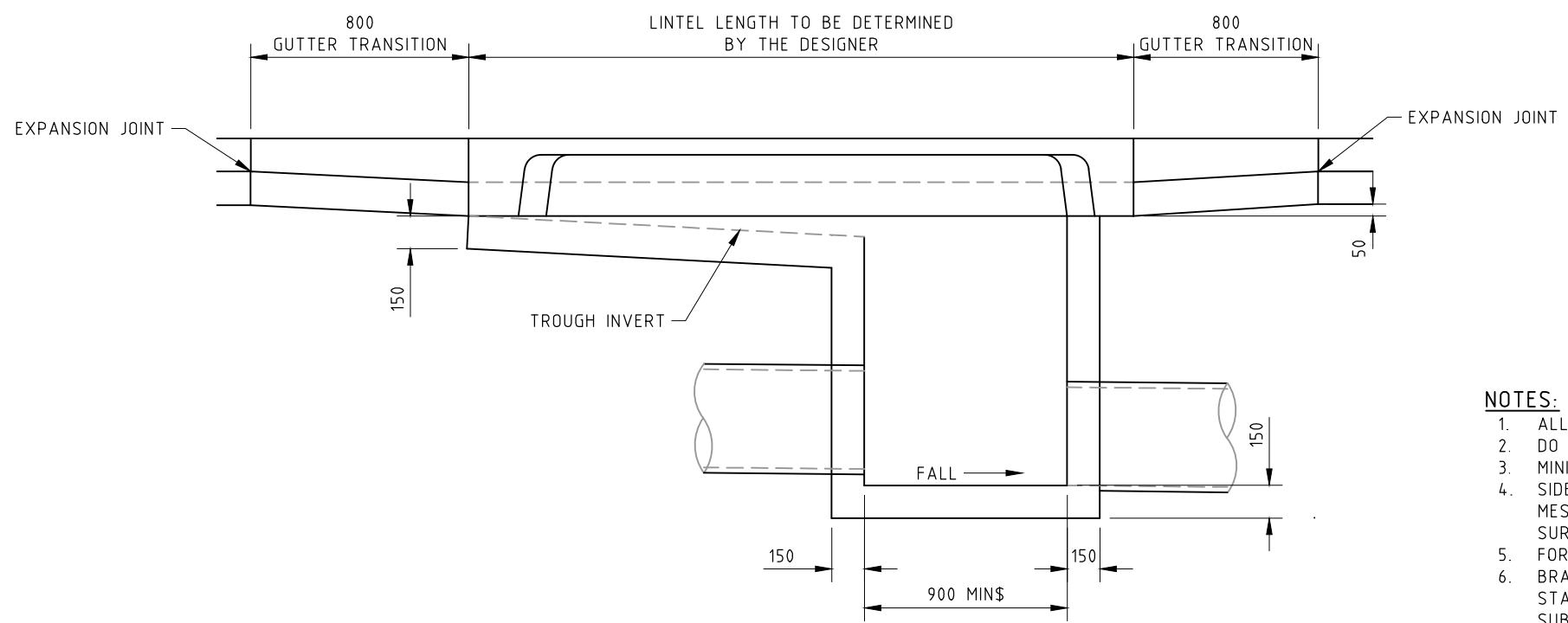
STANDARD DRAWINGS	<b>DROP PIT</b> <b>WITH LINTEL &amp; GRATE -</b> <b>PIPE UNDER KERB</b>	REVISION: 2	
<b>TAMWORTH REGIONAL COUNCIL</b> <b>REGIONAL SERVICES DIRECTORATE</b>		ISSUE DATE: MAY 2023	
	DRAWING NUMBER: <b>SW002</b>		



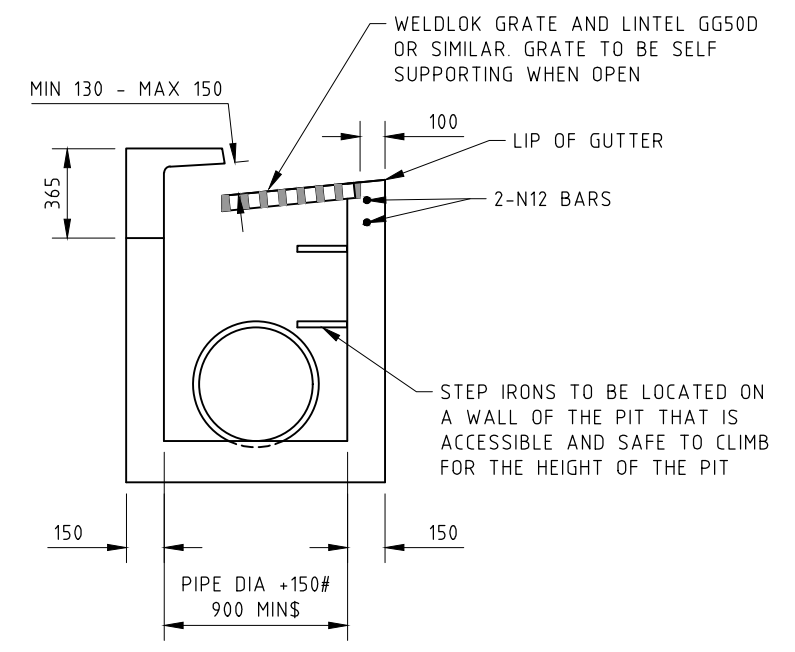
**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)



**SECTION 1**



**SECTION 3**



**SECTION 2**

**NOTES:**

1. ALL DIMENSIONS IN MILLIMETRES
  2. DO NOT SCALE
  3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600.
  4. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 @ 200 CENTRES EACH WAY OR SL82 MESH PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE, PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
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  11. WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- # PROVIDE MIN 75 CLEARANCE FROM THE INSIDE EDGE OF PIPE TO THE INTERNAL EDGE OF PIT
- \$ WHERE THERE ARE NO STEP IRONS, THE MIN PIT DIMENSIONS SHALL BE 750

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

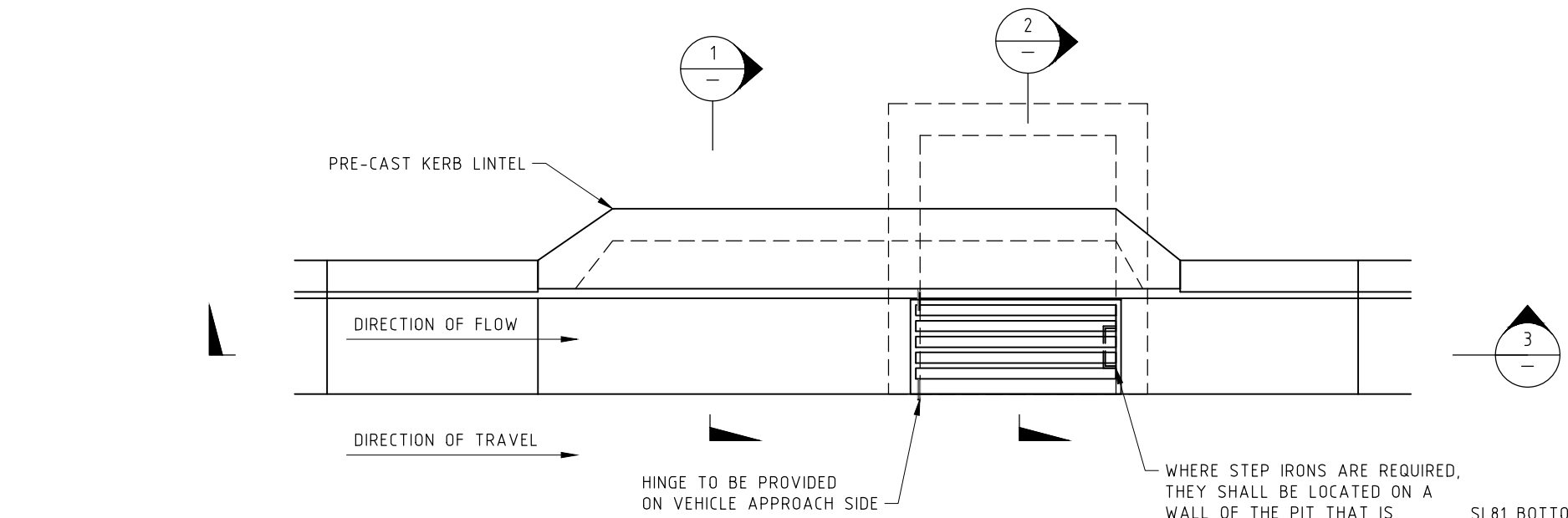
ON GRADE KERB INLET PIT  
WITH LINTEL & GRATE -  
PIPE UNDER KERB

REVISION: 2

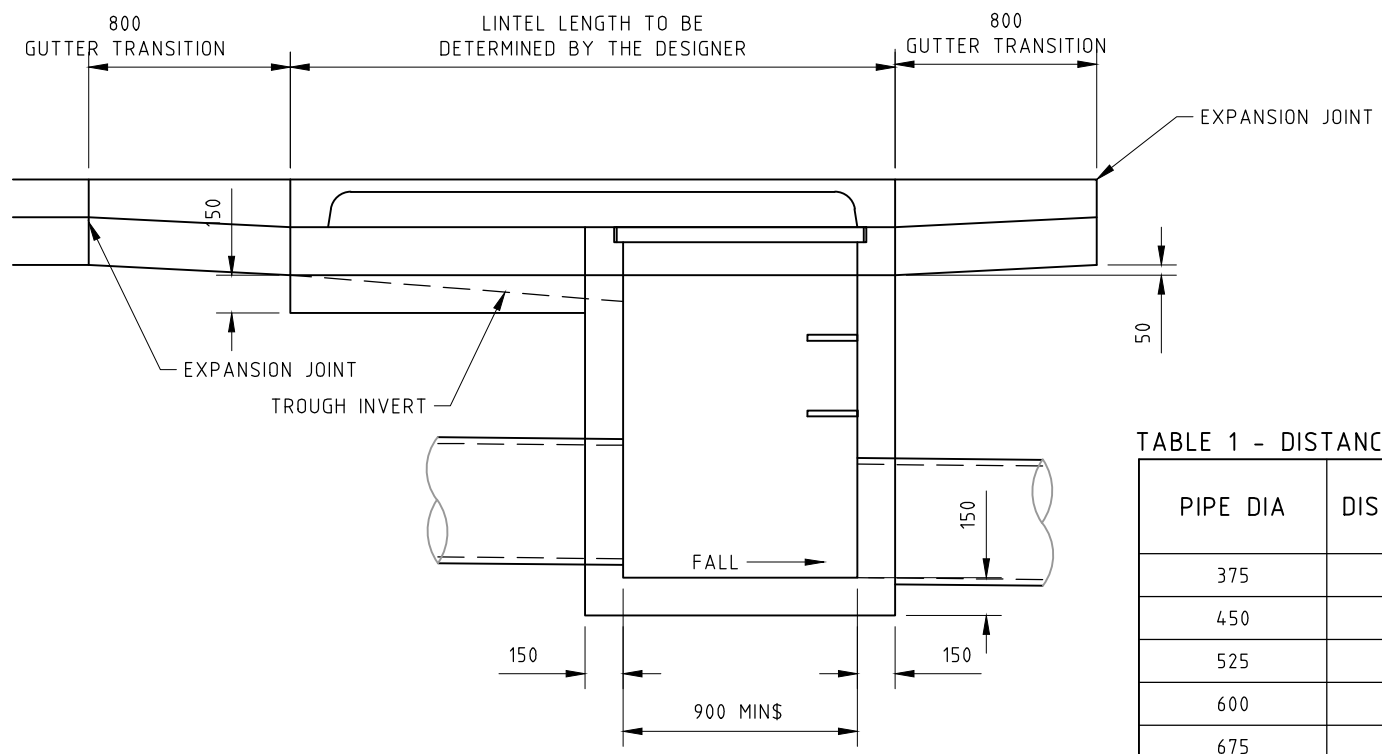
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW003

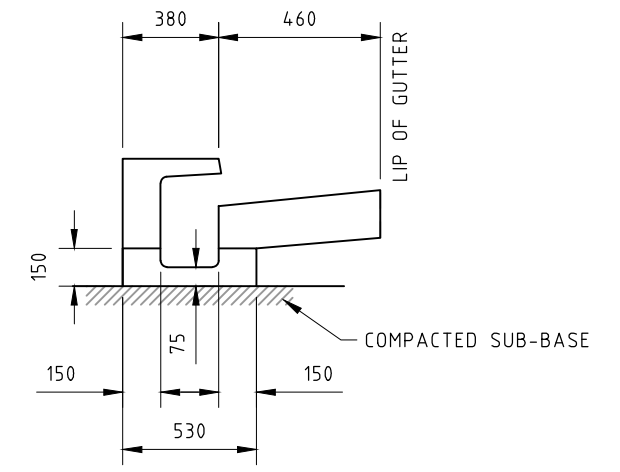




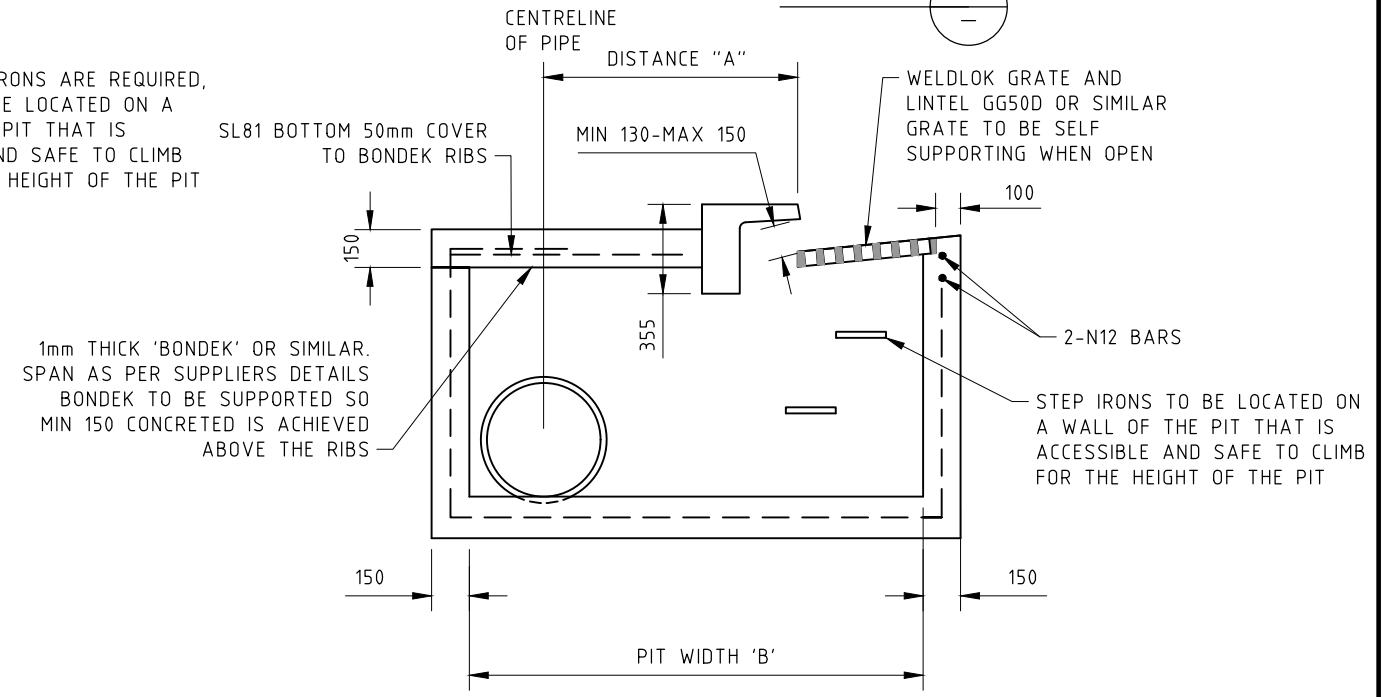
**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)



**SECTION 3**



**SECTION 1**



**SECTION 2**

**TABLE 1 - DISTANCE "A"**

PIPE DIA	DISTANCE "A" (mm)	PIT WIDTH "B" (mm)
375	500	1800
450	500	1800
525	500	1800
600	500	1800
675	600	1900
750	600	1900
825	700	2050
900	700	2050
1050	800	2250
1200	900	2450

**NOTES:**

- ALL DIMENSIONS IN MILLIMETRES
- DO NOT SCALE
- MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600
- SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 AT 200 CENTRES EACH WAY OR SL82 MESH PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE. PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
- FOR SAG GULLY, POSITION GRATE CENTRALLY IN LINTEL
- BRAND NAMES AND CATALOGUE NUMBERS WHERE SHOWN ARE INDICATIVE OR THE MINIMUM ACCEPTABLE STANDARDS ONLY. HOWEVER COUNCILS PREFERENCE IS TO THOSE STATED AND ANY ALTERNATIVE SHALL BE SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL
- GRATE LOAD CAPACITY TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996.
- GRATE PATTERN INSTALLED TO PREVENT BICYCLE TYRE CAPTURE (INSTALL IN DIRECTION OF TRAFFIC)
- PIT DEPTH SHALL NOT EXCEED 3500
- STEP IRONS SHALL BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
- WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- WHERE THERE ARE NO STEP IRONS, THE MIN PIT DIMENSIONS SHALL BE 750

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

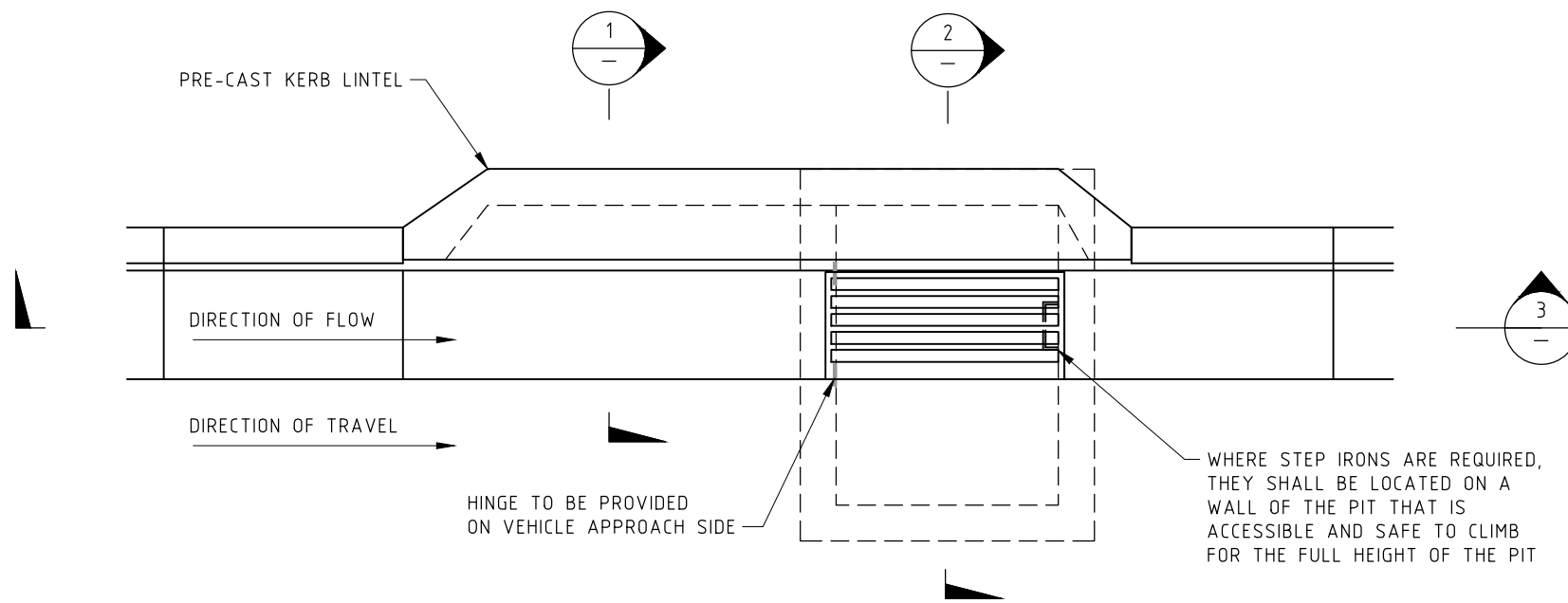
ON GRADE KERB INLET PIT  
WITH LINTEL & GRATE -  
PIPE BEHIND KERB

REVISION: 2

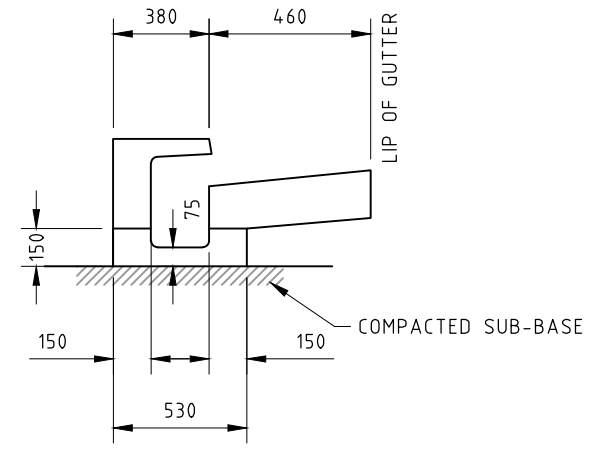
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW004

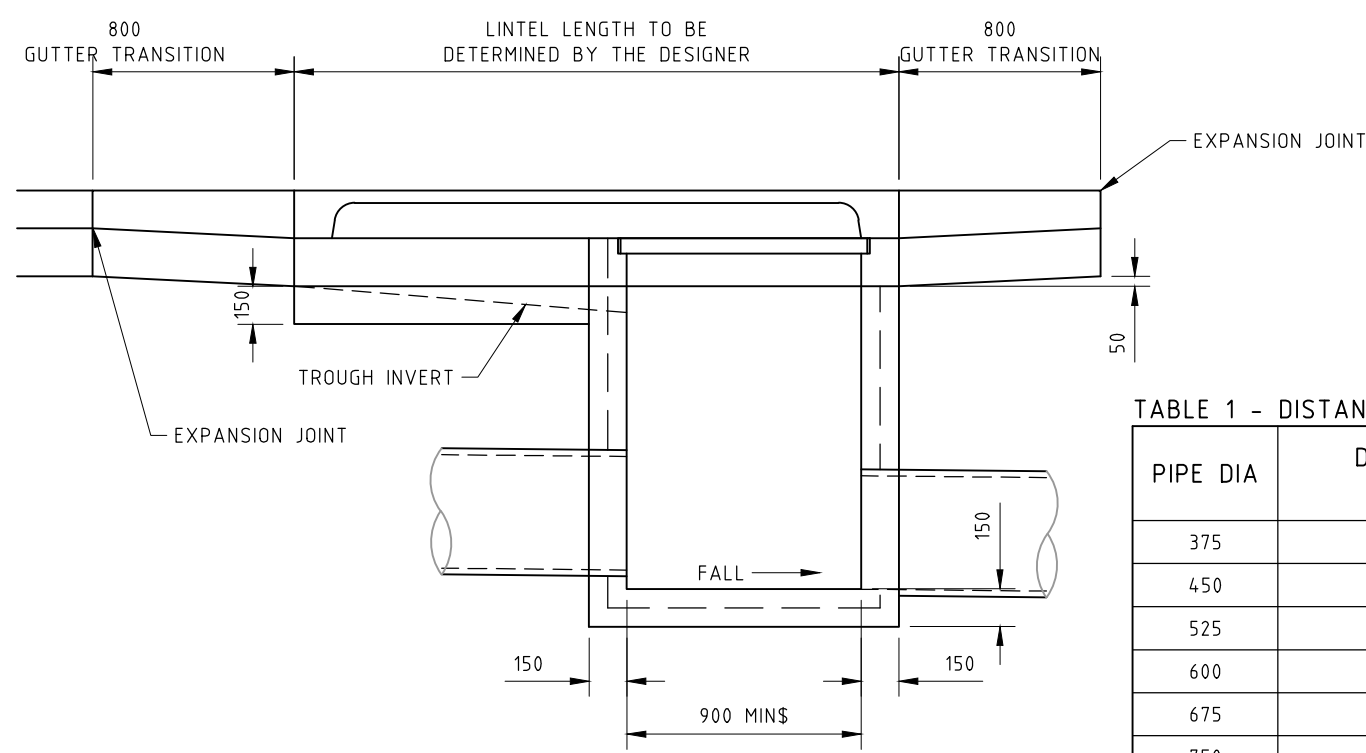




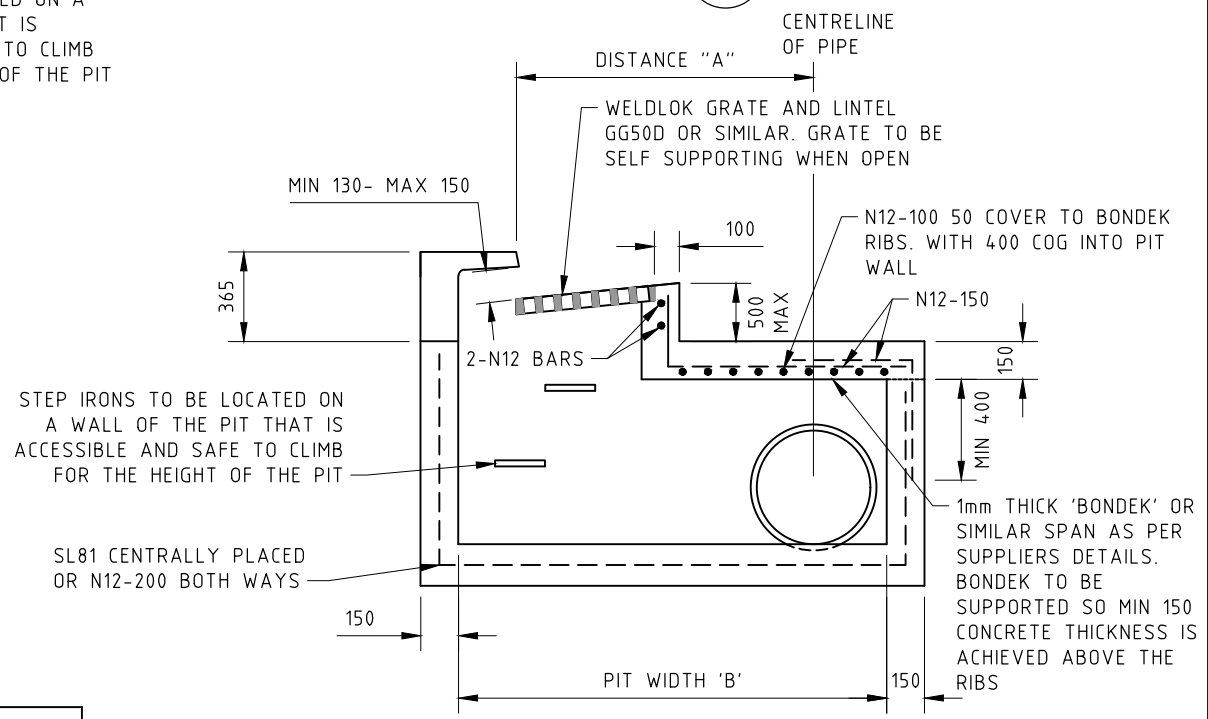
**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)



**SECTION 1**



**SECTION 3**



**SECTION 2**

**TABLE 1 - DISTANCE "A"**

PIPE DIA	DISTANCE "A" (mm)	PIT WIDTH "B" (mm)
375	1070	1750
450	1120	1850
525	1150	1900
600	1200	2000
675	1230	2050
750	1280	2150
825	1310	2250
900	1360	2350
1050	1435	2450
1200	1515	2650

**NOTES:**

- ALL DIMENSIONS IN MILLIMETRES
- DO NOT SCALE
- MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 32MPa IN ACCORDANCE WITH AS1379 AND AS3600
- PIT ROOF REINFORCEMENT ALLOWS FOR W80 WHEEL LOAD WITH DLA=0.4 AND MAX 500mm FILL ABOVE THE ROOF. THE REINFORCEMENT IN THE SHORT DIRECTION SHALL LAP WITH THE WALL REINFORCEMENT TO ALLOW MOMENT TRANSFER
- FOR SAG GULLY, POSITION GRATE CENTRALLY IN LINTEL
- BRAND NAMES AND CATALOGUE NUMBERS WHERE SHOWN ARE INDICATIVE OR THE MINIMUM ACCEPTABLE STANDARDS ONLY. HOWEVER COUNCILS PREFERENCE IS TO THOSE STATED AND ANY ALTERNATIVE SHALL BE SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL.
- GRATE LOAD CAPACITY TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996.
- GRATE PATTERN INSTALLED TO PREVENT BICYCLE TYRE CAPTURE (INSTALL IN DIRECTION OF TRAFFIC)
- PIT DEPTH SHALL NOT EXCEED 3500
- STEP IRONS SHALL BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
- WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- WHERE THERE ARE NO STEP IRONS, THE MIN PIT DIMENSION SHALL BE 750

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

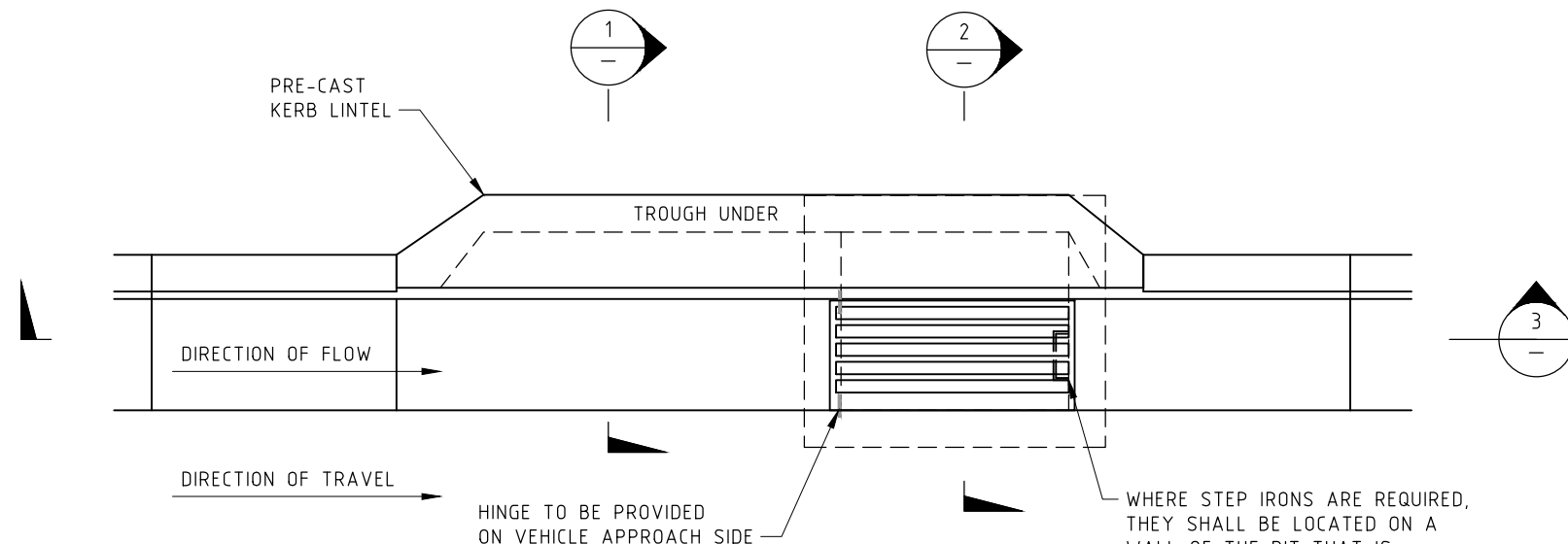
ON GRADE INLET PIT  
WITH LINTEL & GRATE -  
PIPE UNDER CARRIAGEWAY

REVISION: 2

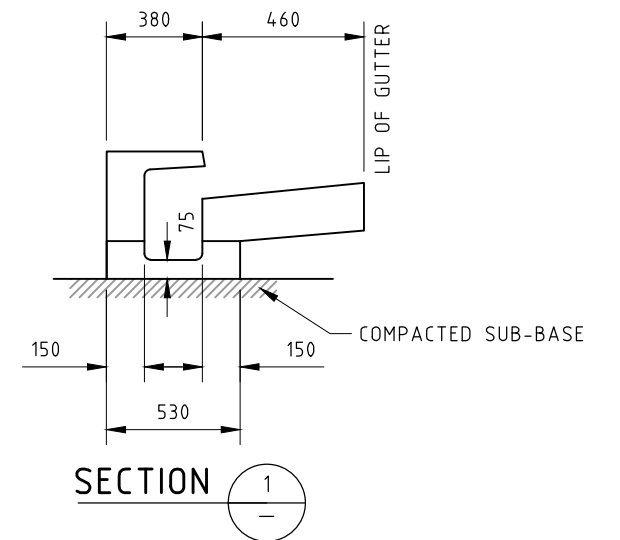
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW005

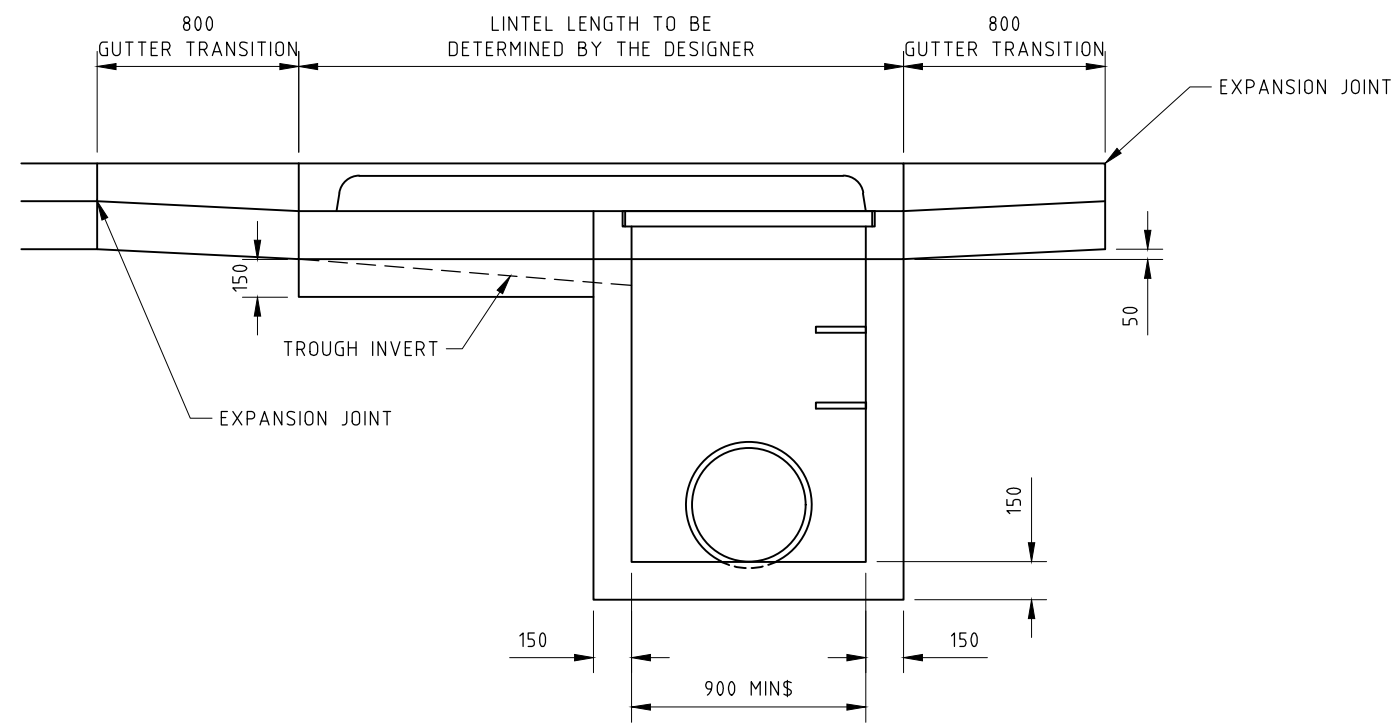




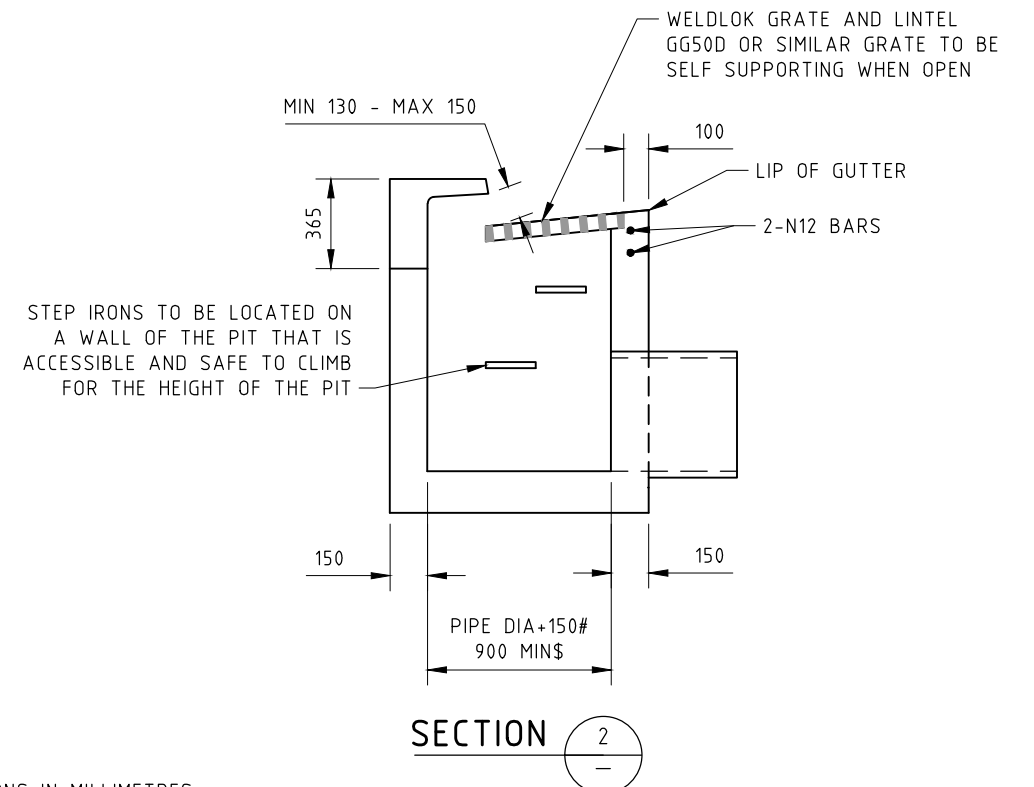
**PLAN**  
(PIPES NOT SHOWN FOR CLARITY)



**SECTION 1-1**



**SECTION 3-3**



**SECTION 2-2**

**NOTES:**

1. ALL DIMENSIONS IN MILLIMETRES
  2. DO NOT SCALE
  3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600
  4. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 AT 200 CENTRES EACH WAY OR SL82 MESH PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE, PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
  5. FOR SAG GULLY, POSITION GRATE CENTRALLY IN LINTEL
  6. BRAND NAMES AND CATALOGUE NUMBERS WHERE SHOWN ARE INDICATIVE OR THE MINIMUM ACCEPTABLE STANDARDS ONLY. HOWEVER COUNCILS PREFERENCE IS TO THOSE STATED AND ANY ALTERNATIVE SHALL BE SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL.
  7. GRATE LOAD CAPACITY TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996
  8. GRATE PATTERN INSTALLED TO PREVENT BICYCLE TYRE CAPTURE (INSTALL IN DIRECTION OF TRAFFIC)
  9. PIT DEPTH SHALL NOT EXCEED 3500
  10. STEP IRONS SHALL BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
  11. WHERE THE SHORT SPAN DIRECTION OF THE PIT EXCEEDS 900mm, A PROJECT SPECIFIC DESIGN IS REQUIRED
- # PROVIDE MIN 75 CLEARANCE FROM THE INSIDE EDGE OF PIPE TO INTERNAL EDGE OF PIT
- \$ WHERE THERE ARE NO STEP IRONS, THE MIN PIT DIMENSIONS SHALL BE 750

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

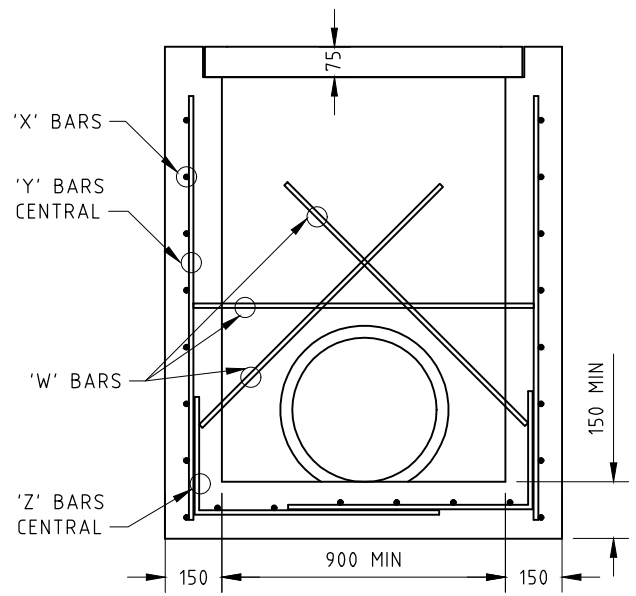
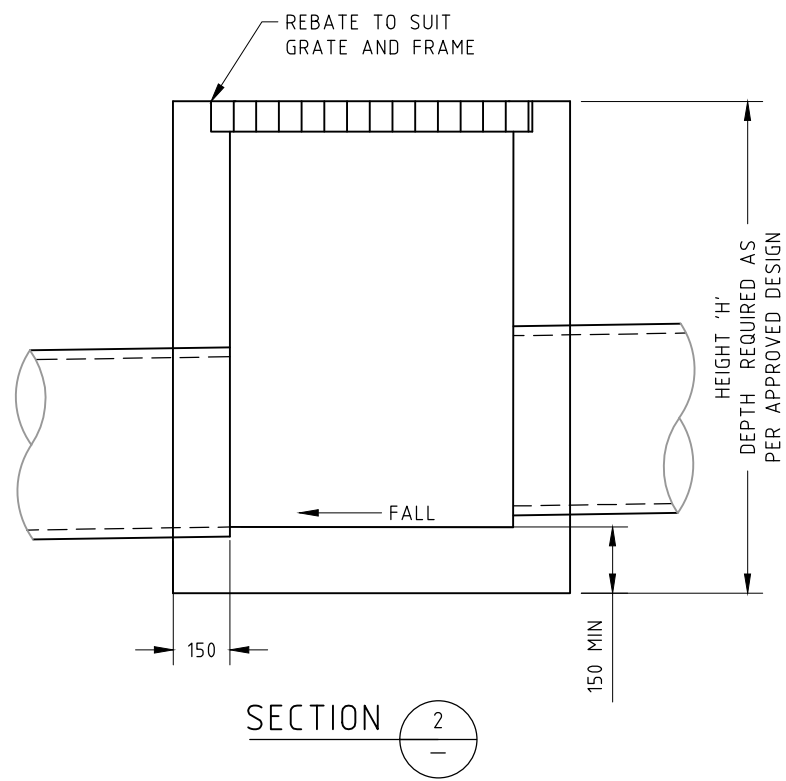
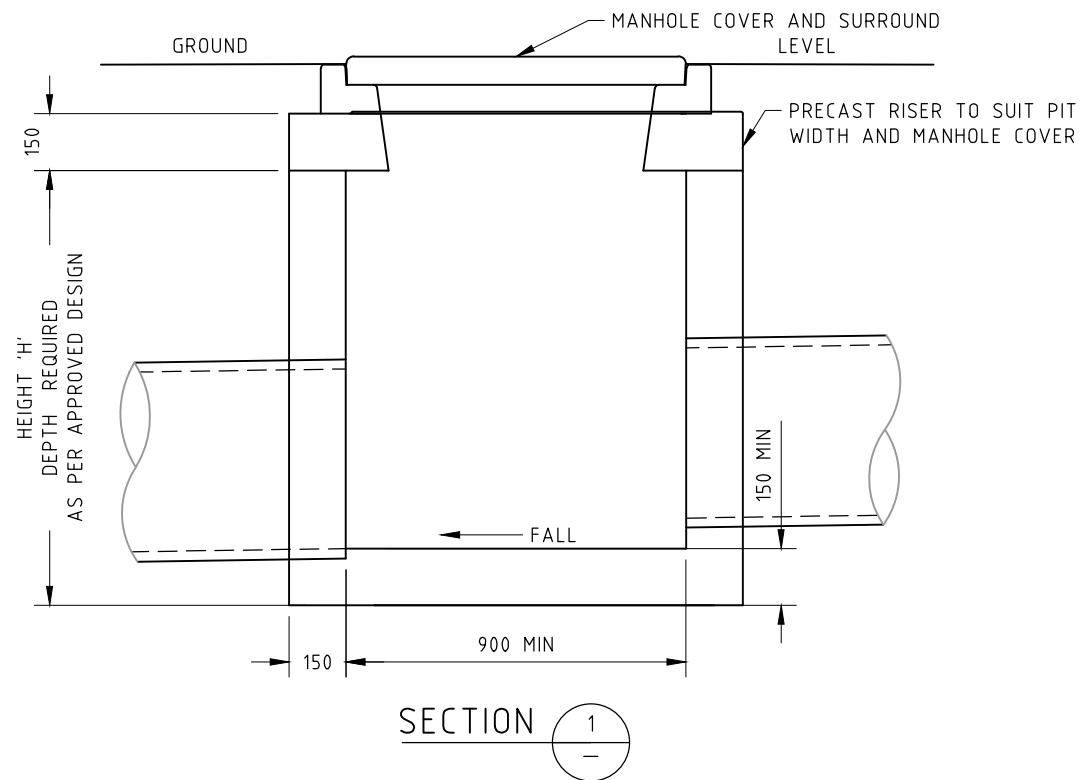
ON GRADE KERB INLET PIT  
WITH LINTEL & GRATE -  
ROLL TYPE KERB

REVISION: 2

ISSUE DATE: MAY 2023

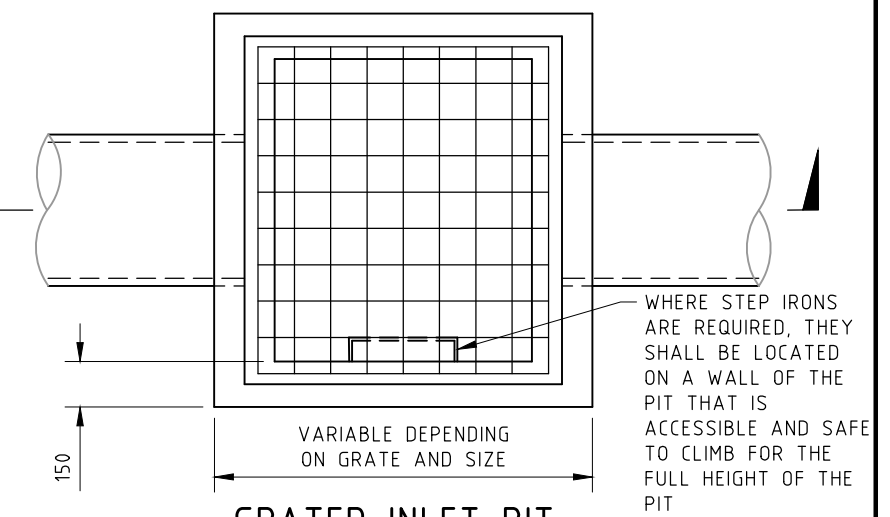
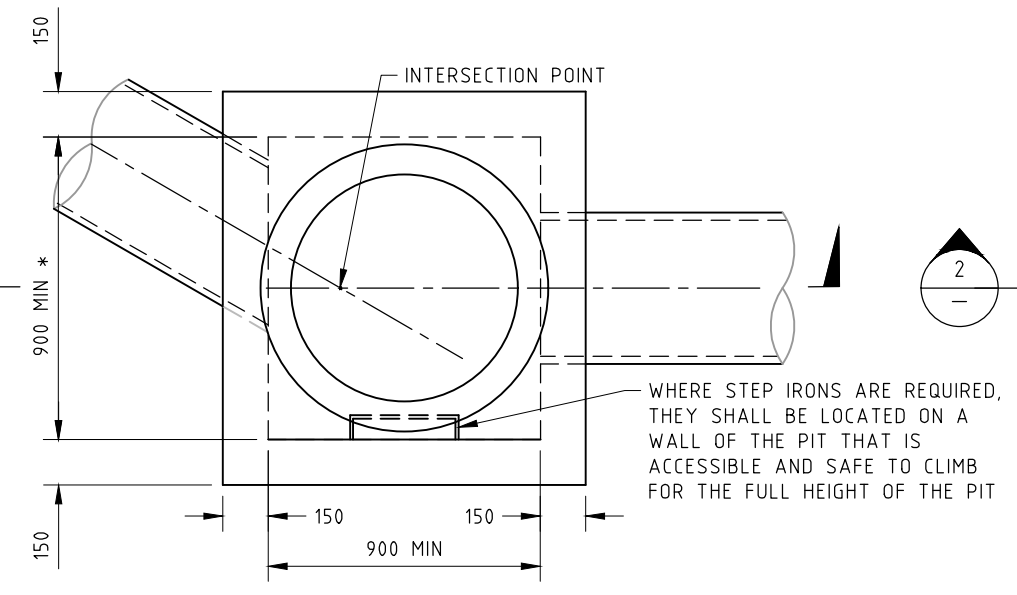
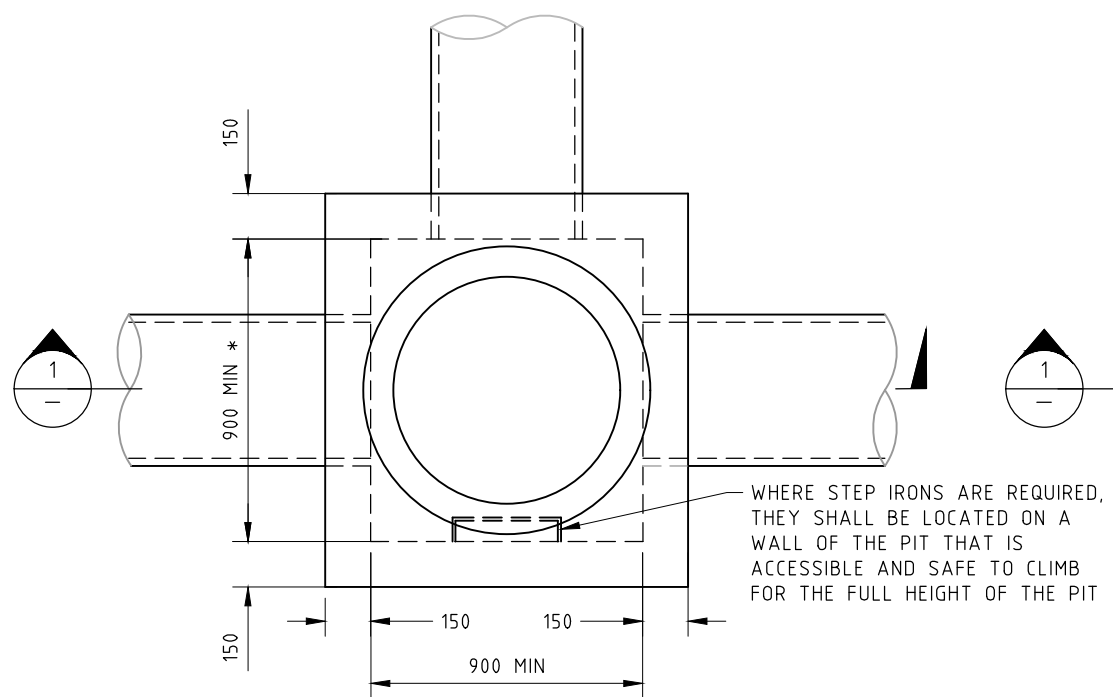
DRAWING NUMBER: SW006





TYPICAL UNREINFORCED PIT SECTION

TYPICAL REINFORCED PIT SECTION



JUNCTION PIT

ANGLE PIT

GRATED INLET PIT

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES
  2. DO NOT SCALE
  3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600
  4. STEPS IRONS TO BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
  5. CLASS OF LIP/COVER/GRATE TO BE CLASS D OR GREATER IN ACCORDANCE WITH AS3996
  6. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED AS PER TABLE 1 REQUIREMENTS
  7. PLACED CENTRALLY AND RETURNED 300 INTO PIT BASE, SINGLE N12 'U' BAR IN GRATE SURROUND
  8. CAST IN-SITU PIT DEPTH SHALL NOT EXCEED 6000
- \* FOR PIPES GREATER THAN  $\phi 600$ , INCREASE PIT WIDTH IN INCREMENTS OF 150mm TO SUIT PIPE SIZE

TABLE 1 - REINFORCEMENT FOR NON TRAFFICABLE PITS

'H' (MAX)	'W' BARS	'X' BARS	'Y' BARS	'Z' BARS
< 3500	2-N12	N12-200	N12-200	N12-200
3500 - 6000	2-N12	N12-150	N12-150	N12-150

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

JUNCTION PIT AND  
GRATED INLET PIT

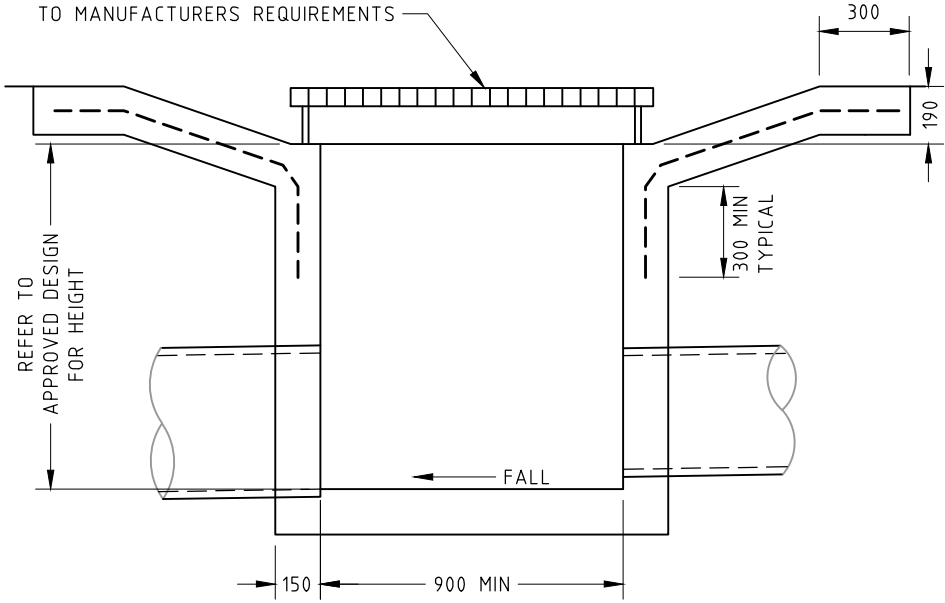
REVISION: 2

ISSUE DATE: MAY 2023

DRAWING NUMBER: SW007

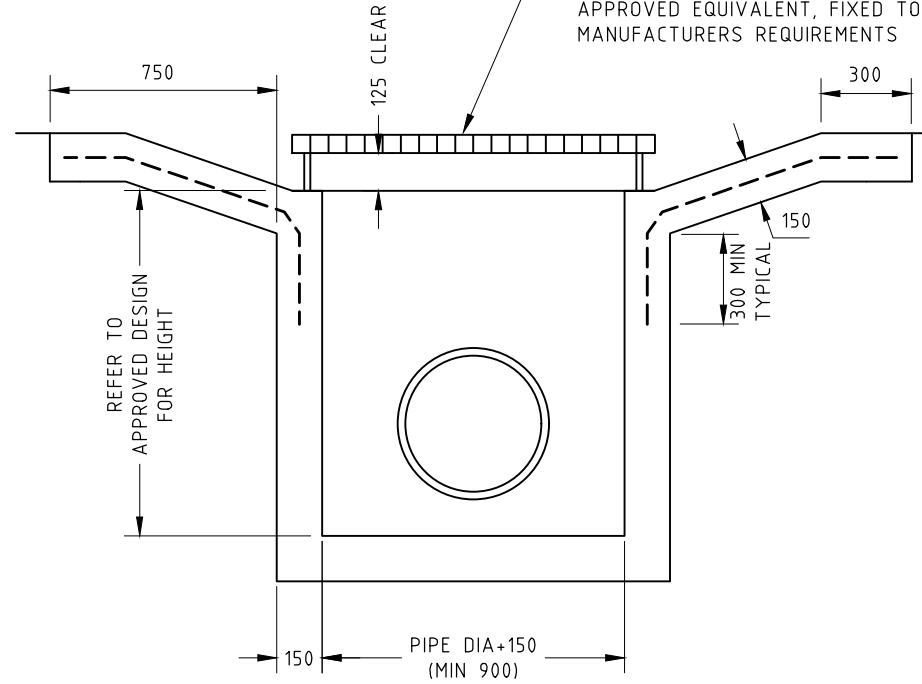


WELDLOK PREFABRICATED HINGED SURCHARGE PIT COVER OR APPROVED EQUIVALENT, FIXED TO MANUFACTURERS REQUIREMENTS



SURCHARGE PIT 1

WELDLOK PREFABRICATED HINGED SURCHARGE PIT COVER OR APPROVED EQUIVALENT, FIXED TO MANUFACTURERS REQUIREMENTS



SURCHARGE PIT 2

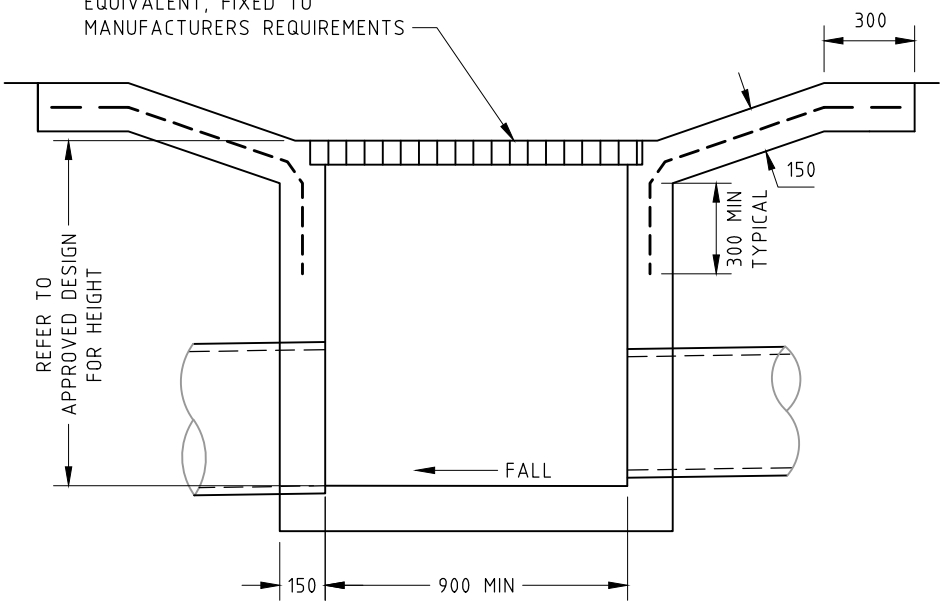
LEGEND:

- > DENOTES DIRECTION OF FALL
- - - DENOTES ADDITIONAL SL82 MESH

NOTES:

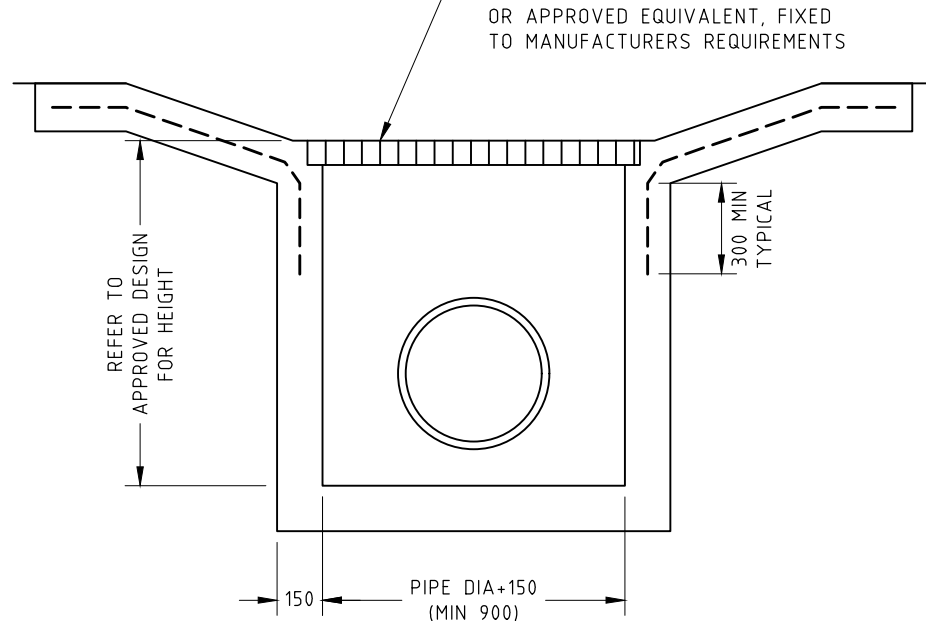
1. ALL DIMENSIONS IN MILLIMETRES
2. DO NOT SCALE
3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600
4. SIDE WALLS OF PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH N12 AT 200 CENTRES EACH WAY OR SL82 MESH CENTRALLY PLACED AND RETURNED 300 INTO BASE OF THE PIT. PROVIDE A SINGLE N12 'U' BAR IN GRATE SURROUND
5. STEP IRONS TO BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
6. DEPTH SHALL NOT EXCEED 3500mm

WELDLOK PREFABRICATED HINGED SURFACE INLET GRATE AND FRAME OR APPROVED EQUIVALENT, FIXED TO MANUFACTURERS REQUIREMENTS

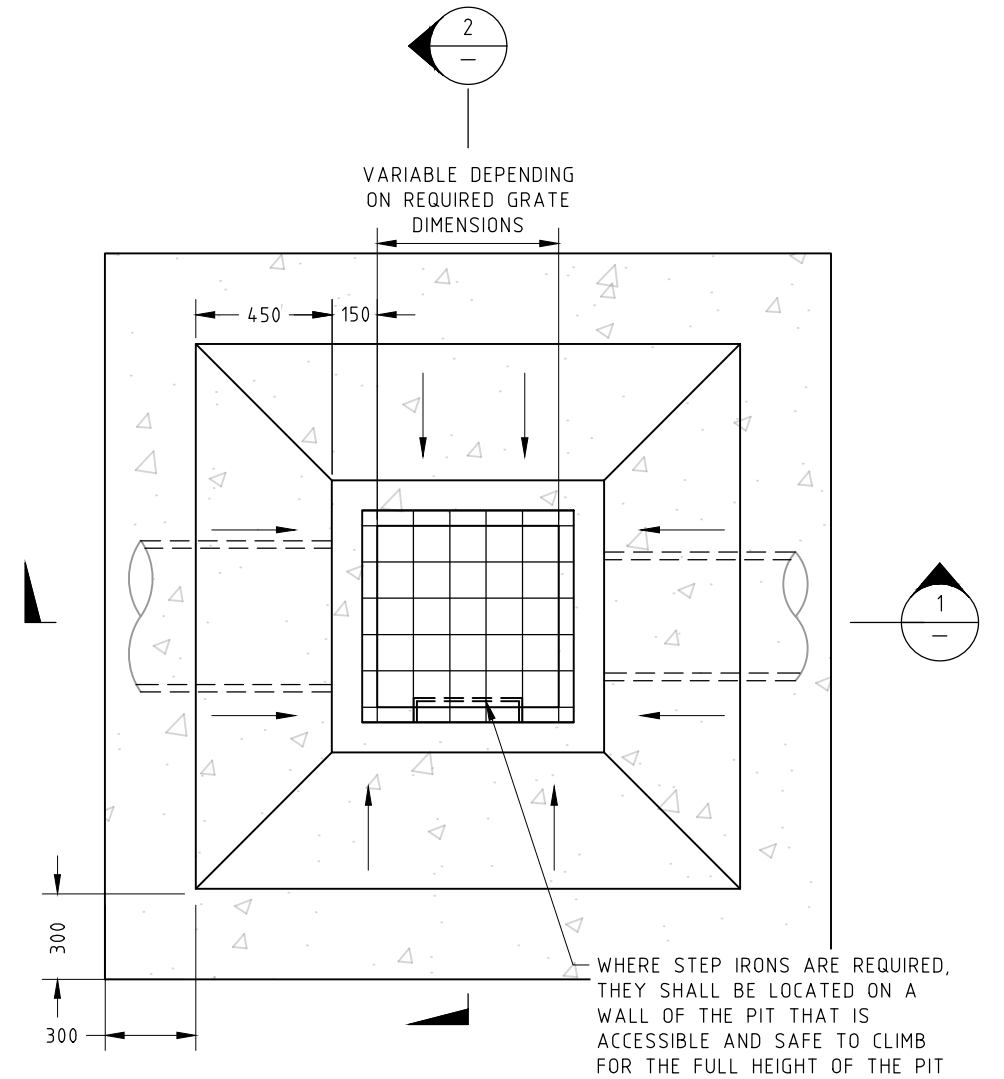


SURFACE INLET PIT 1

WELDLOK PREFABRICATED HINGED SURFACE INLET GRATE AND FRAME OR APPROVED EQUIVALENT, FIXED TO MANUFACTURERS REQUIREMENTS



SURFACE INLET PIT 2



INLET PIT

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

SURFACE INLET PIT AND  
SURCHARGE PIT

REVISION: 2

ISSUE DATE: MAY 2023

DRAWING NUMBER: SW008



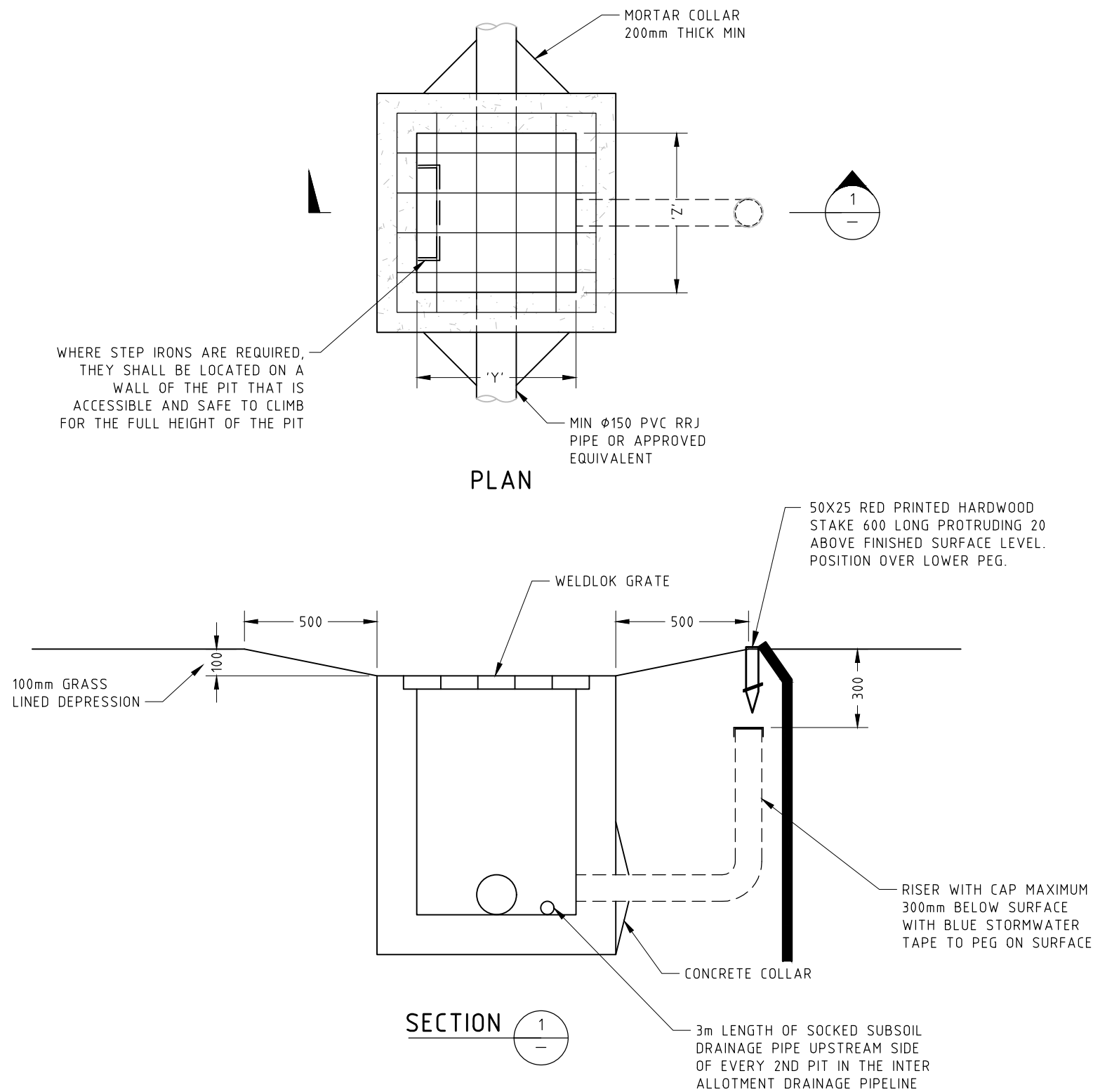


TABLE 1 - MINIMUM PIT DIMENSIONS

PIT PLAN DIMENSION	DEPTH LESS THAN 900	DEPTH 900-1200	DEPTH GREATER THAN 1200
'Y'	300 OR 450	600	600
'Z'	300 OR 450	600	900

**NOTES:**

1. INTER-ALLOTMENT DRAINAGE PITS SHALL BE PROVIDED TO THE LOW CORNER OF EACH LOT UNLESS OTHERWISE APPROVED
2. PITS WILL ALSO BE PROVIDED AT CHANGES OF PIPE SIZE, CHANGES IN GRADE, CHANGE IN PIPE TYPE OR CLASS AND CHANGES IN DIRECTION OF 45° OR GREATER. SUCH PITS ARE TO BE A MINIMUM INTERNAL SIZE OF 450 x 450 APPROVED PRECAST OR CAST INSITU.
3. PITS SHALL BE COVERED BY A GRATE AND IS SUBJECT TO APPROVAL BY TAMWORTH REGIONAL COUNCIL. ALL GRATES ARE TO BE PROVIDED WITH EITHER 'J' BOLTS OR PINS TO PREVENT REMOVAL. PIT SURROUNDS SHALL BE GRASS LINED AND PEGGED OR NETTED TO A MINIMUM WIDTH OF 500mm
4. PIT INLET GRATES SHALL BE DEPRESSED 100mm BELLOW SURROUNDING GROUND LEVEL TO ASSIST SURFACE WATER COLLECTION.
5. STEP IRONS SHALL BE PROVIDED AT 300 CENTRES IN PITS DEEPER THAN 1200mm IN ACCORDANCE WITH AS1657 AND TRC STANDARD DRAWING SW016
6. SEE TABLE 1 FOR THE MINIMUM INTERNAL PIT SIZE
7. CONNECTION FOR ROOF WATER FOR SINGLE RESIDENTIAL DWELLINGS SHALL BE PROVIDED VIA A 150mm DIA STUB INTO THE SIDE OF THE PIT.
8. PIPE CONNECTION TO PIT TO BE SEALED WITH MINIMUM 100mm MORTAR COLLAR FOR SEAL SUPPORT.

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

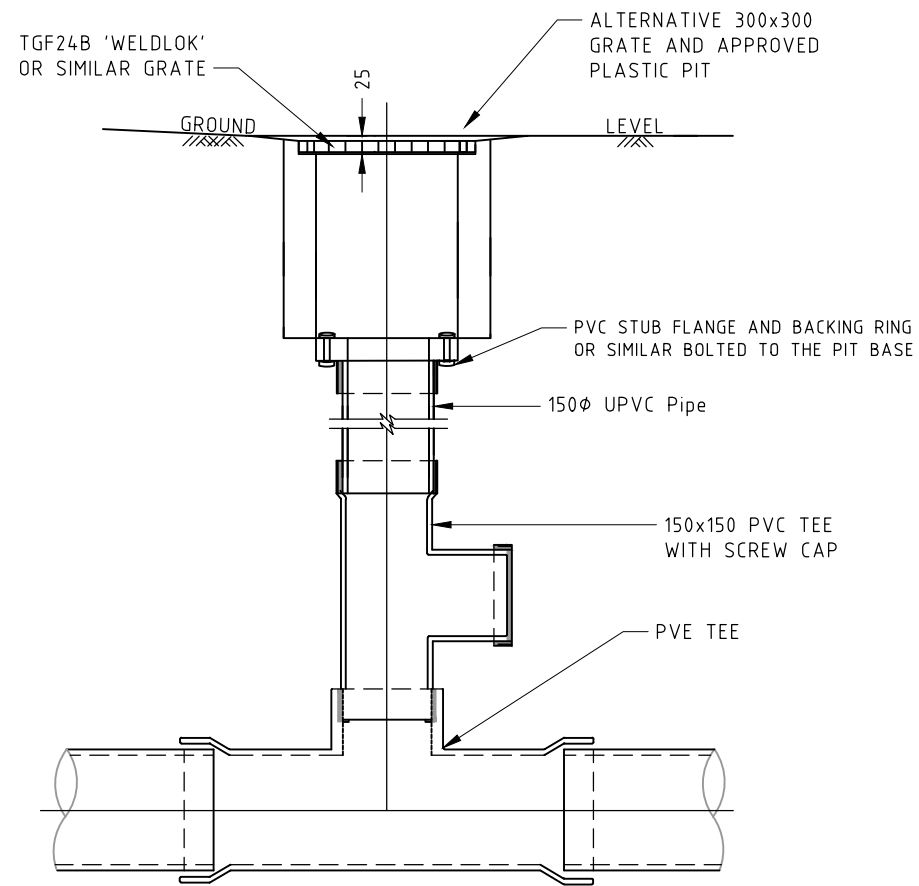
INTER ALLOTMENT DRAINAGE PIT  
SHEET 1 OF 2

REVISION: 2

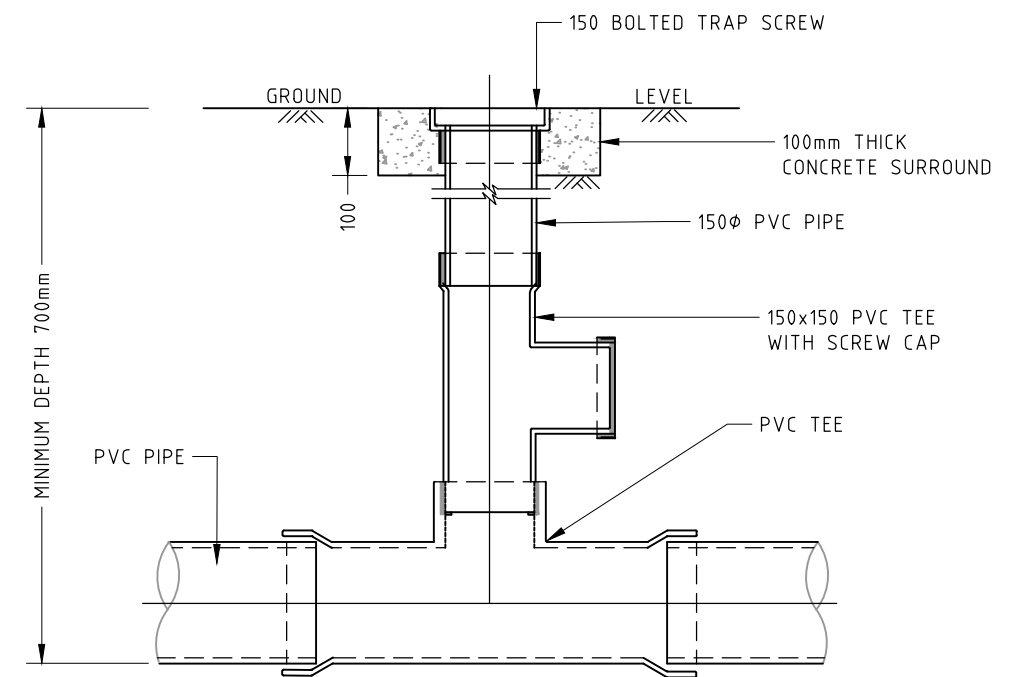
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW009





PVC PIPE AND GRATE DETAIL



PVC PIPE DETAIL

STANDARD DRAWINGS

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REGIONAL SERVICES DIRECTORATE

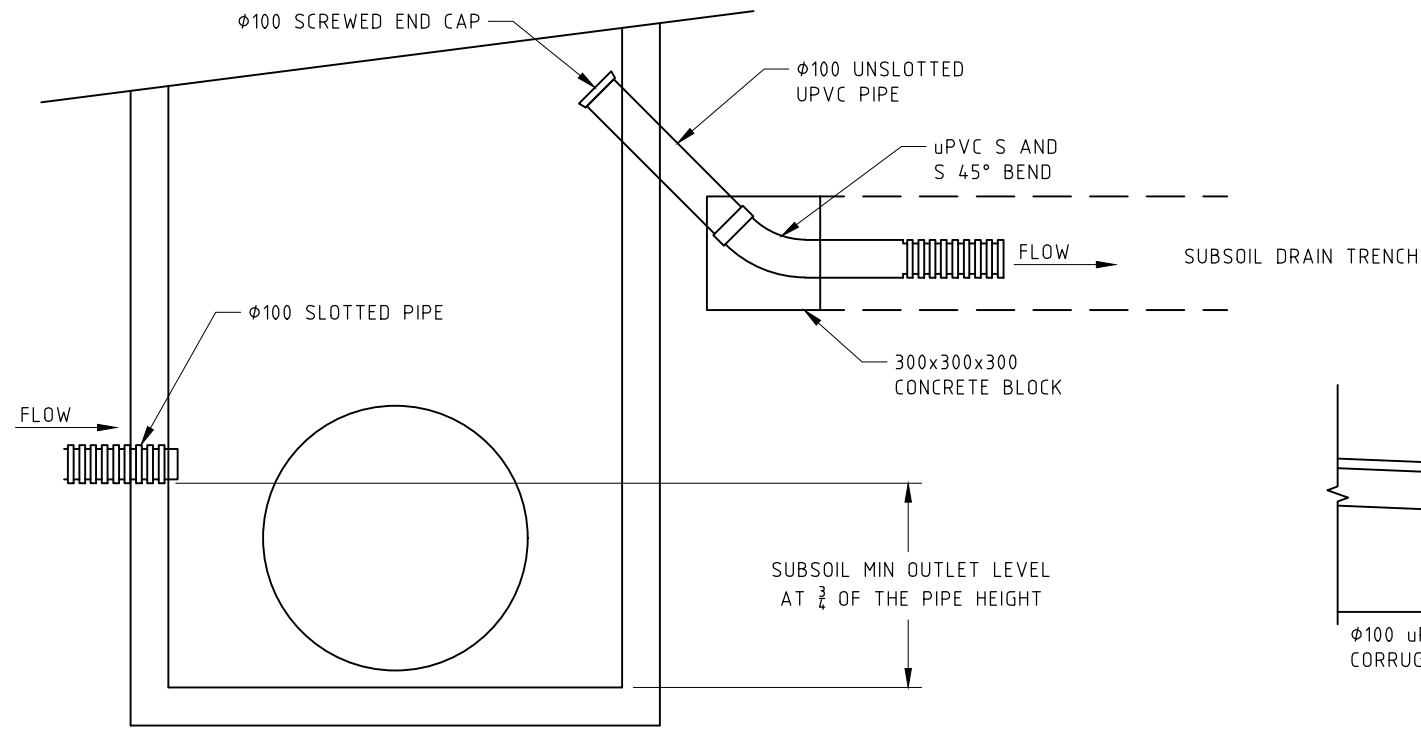
INTER ALLOTMENT DRAINAGE PIT  
SHEET 2 OF 2

REVISION: 2

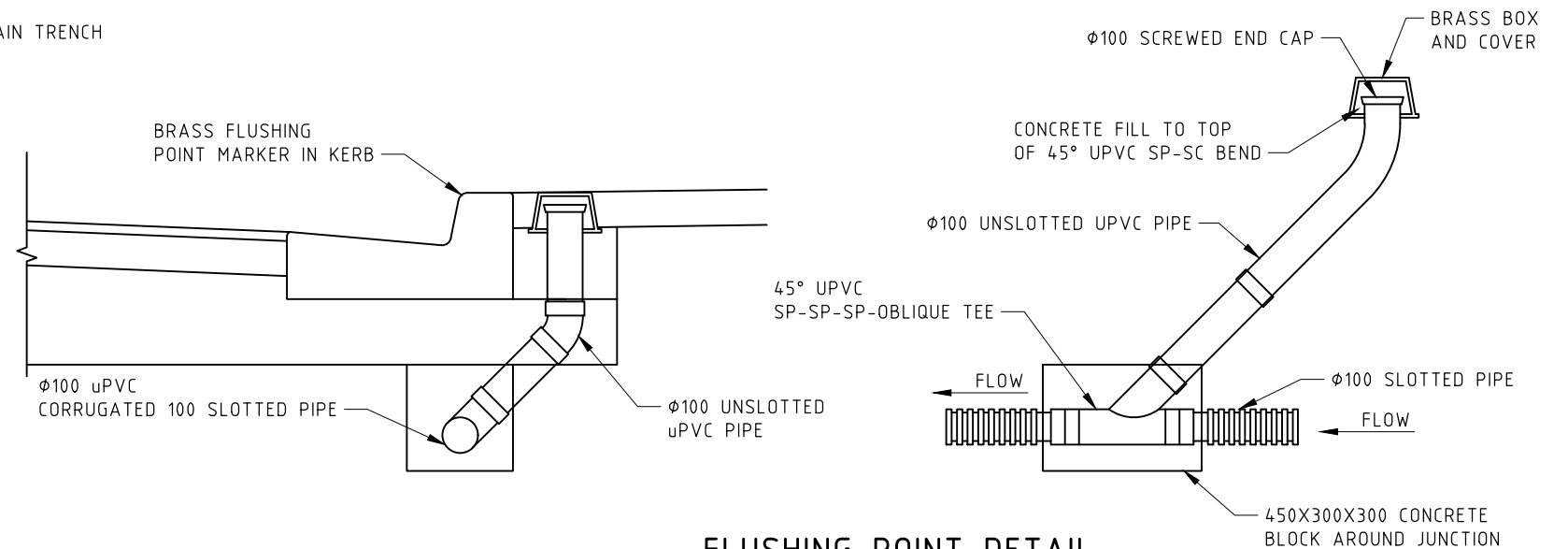
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW010

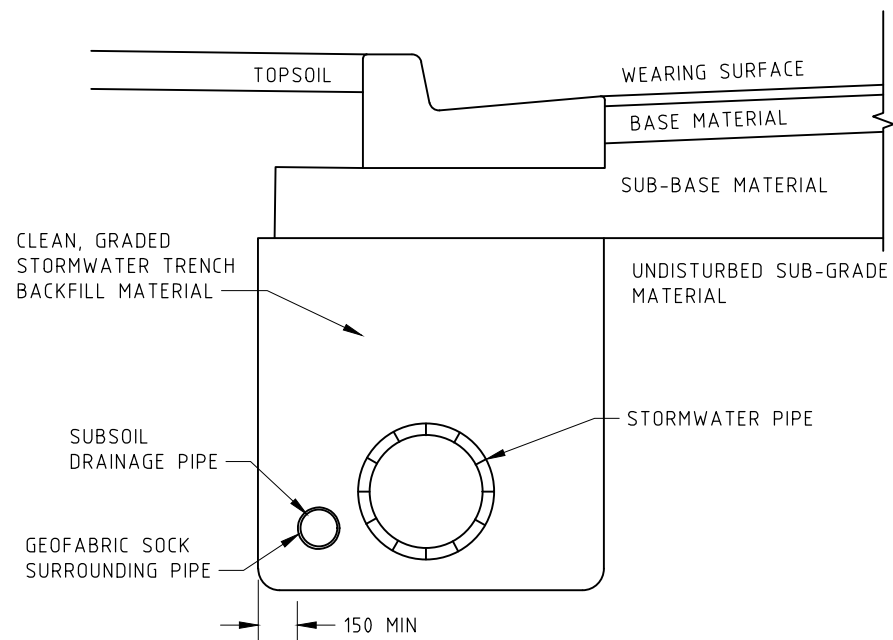




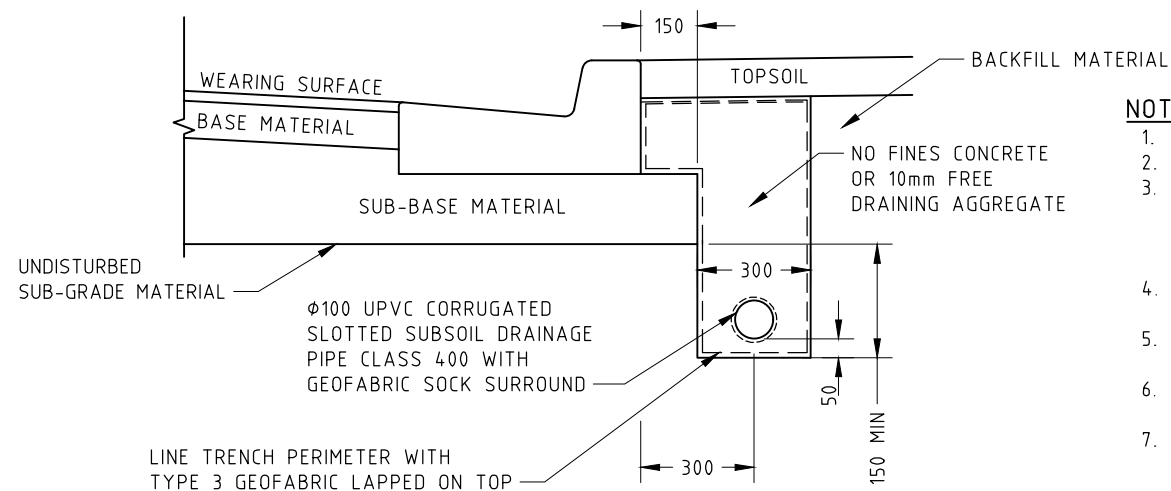
FLUSH POINT DETAIL AT STORMWATER PIT



FLUSHING POINT DETAIL



SUBSOIL PIPE IN STORMWATER DRAINAGE TRENCH



SUBSOIL DRAIN DETAIL

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES
2. DO NOT SCALE
3. THE SIDE DRAIN DEPTH SHALL BE A MINIMUM 150mm BELOW THE UNDISTURBED SUB-GRADE. WHERE A HIGH WATER TABLE IS PRESENT DEEPER SIDE DRAINS, POSSIBLY IN COMBINATION WITH MITRE DRAINS, MAY BE SPECIFIED BY TAMWORTH REGIONAL COUNCILS AUTHORISED REPRESENTATIVE.
4. UNSLOTTED UPVC 100DIA. DRAIN PIPES AND FITTINGS AT INLETS AND OUTLETS TO BE SEWER CLASS 400 TO AS1254
5. UPVC 100DIA. CORRUGATED SLOTTED PIPES AND FITTINGS TO BE SEWER CLASS 400 TO AS2439
6. ALL CONNECTIONS INCLUDING THE JOINING OF LENGTHS OF CORRUGATED PIPE TO BE MADE USING STANDARD FITTINGS
7. DRAIN PIPES TO BE LAID TO A MIN GRADE 1 IN 250 WITH 100mm FALL REQUIRED OVER A 500mm LENGTH AT INLETS AND OUTLETS TO ENSURE DRAINAGE TO FULL DEPTH OF SIDE DRAIN TRENCH
8. ALL INLETS TO BE CAPPED AND ALL OUTLETS RENDERED VERMIN PROOF BY INSERTION OF A PLUG OF CRUSHED WIRE MESH (NOT REQUIRED WHEN THE OUTLET IS INSIDE A PIT WALL)
9. WHERE A STORMWATER PIT, PIPE OR MANHOLE IS NOT PRESENT FOR SIDE DRAIN OUTLET. THE SIDE DRAIN IS TO BE GRADED VIA REAR OF KERB AND OUTLET INTO THE KERB AND GUTTER WITH A FULL HEIGHT UPVC KERB ADAPTOR
10. OUTLETS INTO PITS OR MANHOLES ARE TO BE ABOVE THE  $\frac{3}{4}$  HEIGHT OF THE PIPE. BRASS MARKERS BEARING A LETTERS 'SD' TO BE SECURED TO KERB FACE AT 20m INTERVALS ALONG THE SIDE DRAIN ALIGNMENT, AT ALL INLETS, OUTLETS AND MITRE DRAINS, AND MARKING MAJOR CHANGE IN DIRECTION

NOTE: EACH STORMWATER PIT SHALL HAVE A MINIMUM LENGTH OF 3m SUBSOIL DRAINAGE PIPE UPSTREAM OF THE PIT AND DISCHARGING INTO THE PIT

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

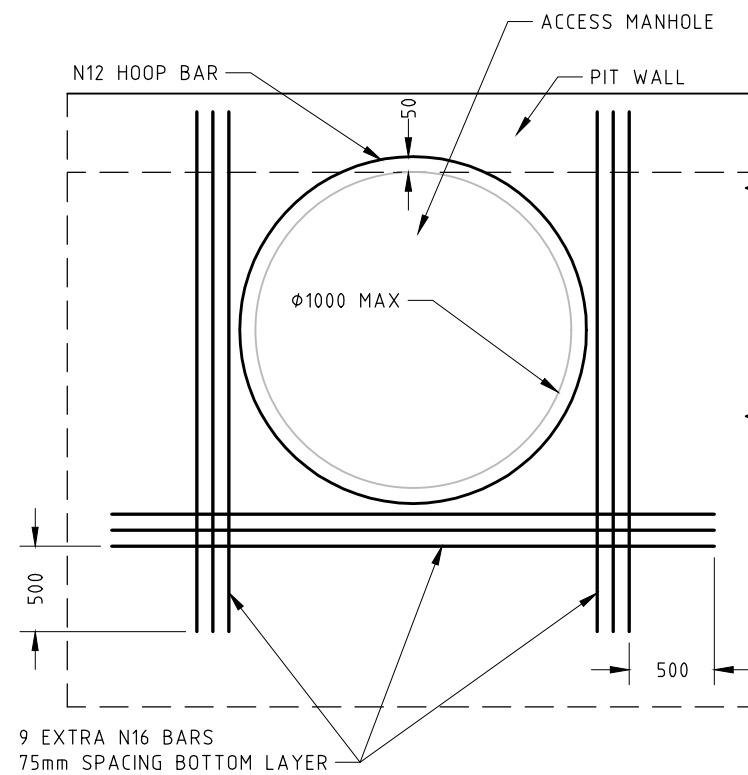
SUBSOIL DRAINAGE

REVISION: 2

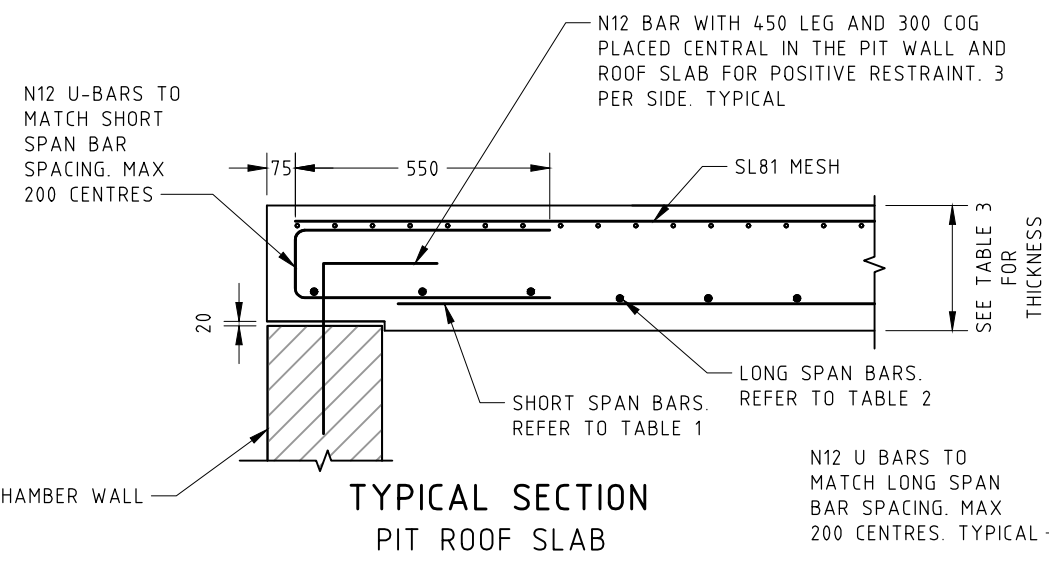
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW011

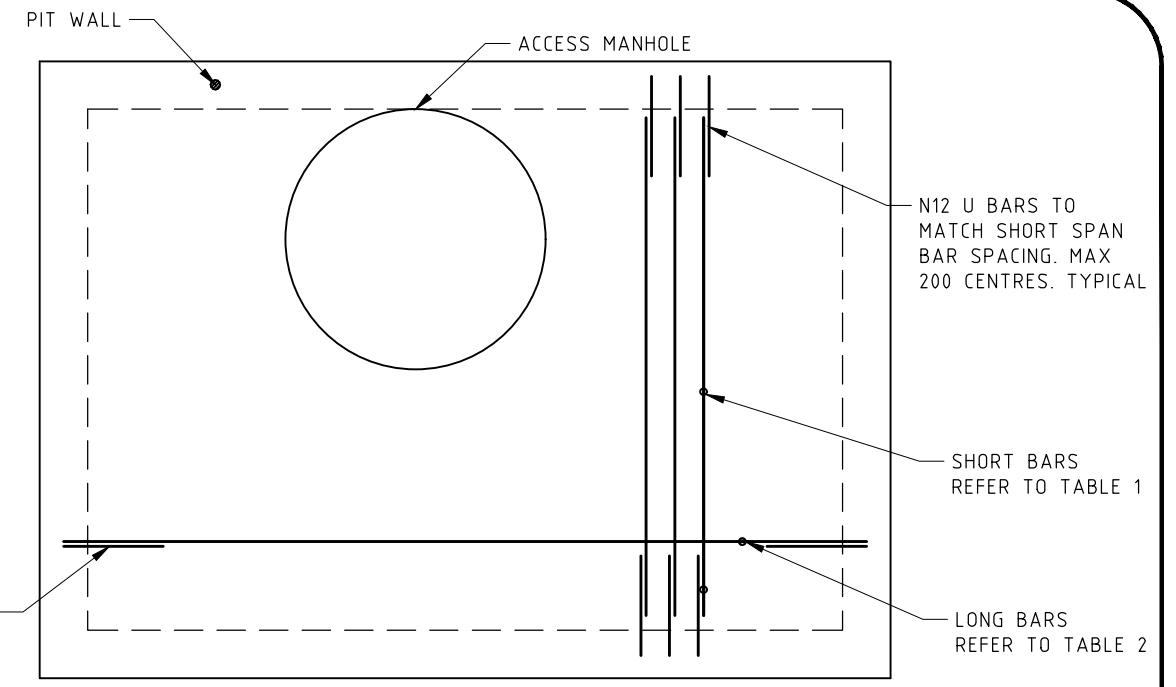




SLAB REINFORCEMENT AROUND ACCESS MANHOLE



TYPICAL SECTION PIT ROOF SLAB



TYPICAL SLAB REINFORCEMENT  
POSITIVE RESTRAINT BARS IN PIT WALLS NOT SHOWN FOR CLARITY

TABLE 3 - CONCRETE ROOF SLAB THICKNESS

SHORT SPAN	SLAB THICKNESS 'T'
>1200 SHORT SPAN <=1400	225
>1400 SHORT SPAN <=2400	250
>2400 SHORT SPAN <=3000	300

TABLE 1 - REINFORCEMENT FOR SHORTER SPAN DIRECTION

SHORT SPAN DIMENSIONS	LONG SPAN DIMENSION										SLAB DEPTH
	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	
1200	N12-150	N16-200	N16-200	N16-200	N16-150	N16-150	N16-150	N16-125	N16-125	N16-125	225
1400		N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	N16-125	N16-125	225
1600			N16-200	N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	250
1800				N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	250
2000					N12-150	N16-150	N16-150	N16-150	N16-150	N16-125	250
2200						N16-150	N16-150	N16-150	N16-125	N16-125	250
2400							N16-150	N16-150	N16-125	N16-125	250
2600								N16-200	N16-150	N16-150	300
2800									N16-150	N16-150	300
3000										N16-150	300

TABLE 2 - REINFORCEMENT FOR LONGER SPAN DIRECTION

SHORT SPAN DIMENSIONS	LONG SPAN DIMENSION										SLAB DEPTH
	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	
1200	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	225
1400		N16-200	N16-200	N16-200	N16-200	N12-150	N12-150	N12-150	N12-150	N12-150	225
1600			N16-200	N16-200	N16-200	N12-150	N12-150	N12-150	N12-150	N12-150	250
1800				N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	250
2000					N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	250
2200						N16-150	N16-150	N16-150	N16-150	N16-150	250
2400							N16-150	N16-150	N16-150	N16-150	250
2600								N16-200	N16-200	N16-200	300
2800									N16-150	N16-150	300
3000										N16-150	300

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES
2. DO NOT SCALE
3. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 32MPa IN ACCORDANCE WITH AS1379 AND AS3600
4. NOMINAL COVER TO REINFORCEMENT SHALL BE 45mm
5. REINFORCEMENT - MESH TO AS1304, REINFORCEMENT BARS GRADE 500 TO AS1302
6. ALL LAPS IN REINFORCEMENT SHALL BE:
  - N12 - 375
  - N16 - 500
  - MESH - 300
7. FORMWORK IN ACCORDANCE WITH AS3610
8. THE PIT ROOF SLAB REINFORCEMENT HAS BEEN DESIGNED FOR A W80 WHEEL LOAD WITH DYNAMIC LOAD ALLOWANCE OF 0.4 AND CONCRETE SELF WEIGHT IN ACCORDANCE WITH AS5100.2. NO ALLOWANCE HAS BEEN MADE FOR SOIL DEAD LOAD ON TOP OF THE ROOF SLAB.
9. ACCESS MANHOLE TO BE MIN 600 DIAMETER AND SHALL BE SIZED BASED ON THE HEIGHT OF THE PIT TO ALLOW SAFE ACCESS IF STEP IRONS ARE PRESENT
10. REFER TO THE APPROVED PROJECT DRAWINGS FOR DETAILS OF CHAMBER WALLS AND FLOORS

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

JUNCTION PIT

ROOF SLAB REINFORCEMENT  
DETAILS

REVISION: 2

ISSUE DATE: MAY 2023

DRAWING NUMBER: SW012



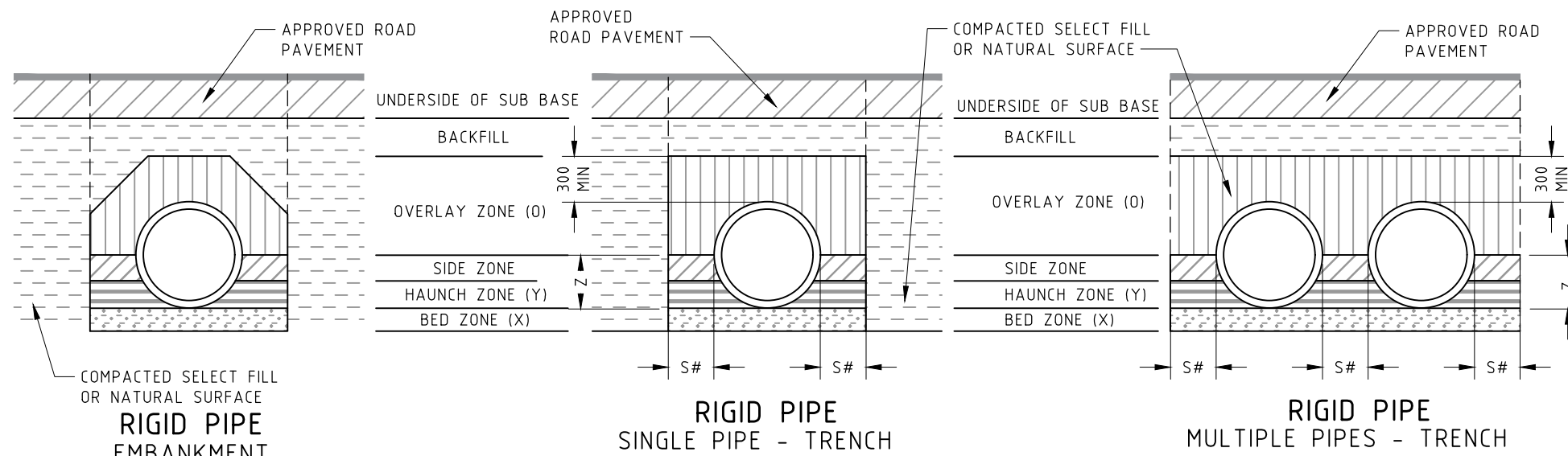


TABLE 1 - BEDDING MATERIAL GRADING (%WEIGHT PASSING)

SIEVE SIZE	BED AND HAUNCH ZONES	SIDE ZONES
75.000	-	100
19.000	100	-
9.500	-	50-100
2.360	50-100	30-100
0.600	20-90	15-50
0.300	10-60	-
0.150	0-25	-
0.075	0-10	0-25

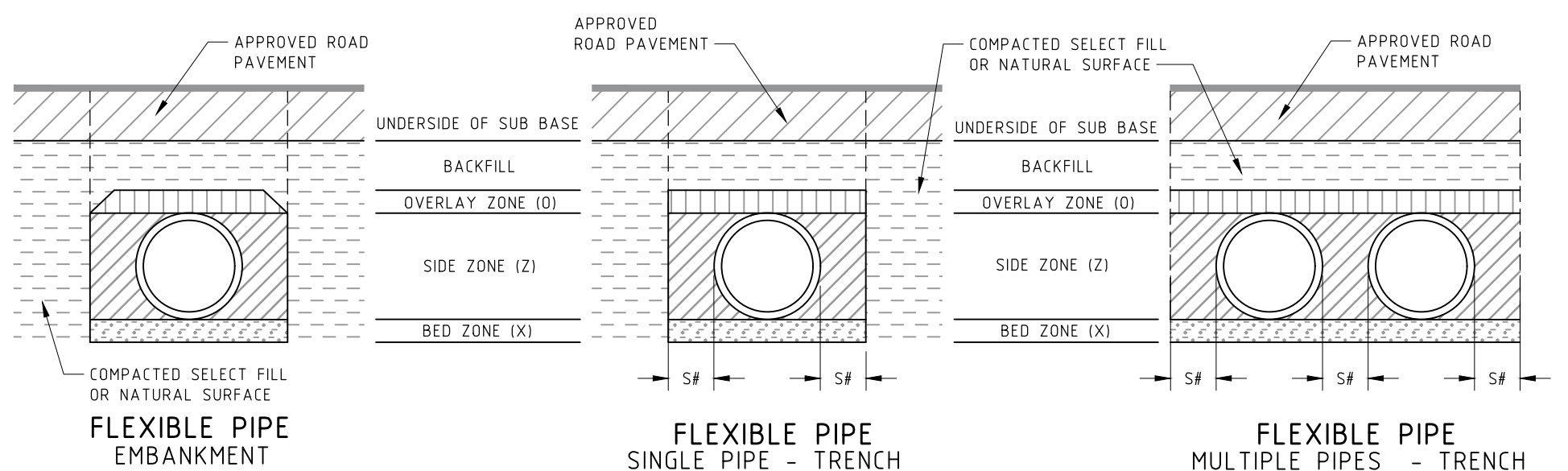
THE USE OF CONTROLLED LOW STRENGTH MATERIAL (CLSM) IN LIEU OF THE MATERIAL IN TABLE 1 IS TO BE APPROVED BY TAMWORTH REGIONAL COUNCILS AUTHORISED REPRESENTATIVE

NOTES:

- DO NOT SCALE
- ALL MEASUREMENTS IN MILLIMETRES
- PIPE SUPPORT TYPE - UNLESS SHOWN OTHERWISE ON THE APPROVED PROJECT DRAWINGS, THE PIPE SUPPORT SHALL BE H3 WITHIN THE ROAD RESERVE AND H2 ELSEWHERE. COMPACTION SHALL BE IN ACCORDANCE WITH TRC SPECIFICATION C221 - PIPE DRAINAGE.
- BEDDING MATERIAL SHALL COMPLY WITH TABLE 1 AND HAVE A PLASTICITY INDEX OF LESS THAN 6
- MINIMUM DEPTH OF OVERLAY ZONE ABOVE PIPES/CULVERTS AS SHOWN MAY INCLUDE PAVEMENT. PAVEMENT WITHIN THIS AREA TO BE COMPACTED BY HAND OR ALTERNATIVELY A LEAN MIX CONCRETE PAVEMENT LAYER MAY BE USED
- BACKFILL MATERIAL SHALL BE SELECT BACKFILL COMPLYING WITH THE REQUIREMENTS OF TRC SPECIFICATION C221 - PIPE DRAINAGE
- WORKING LOADS ARE THOSE DUE TO FILL MATERIAL AND STANDARD HIGHWAY VEHICLES AS PER AS3725. ALLOWANCE FOR CONSTRUCTION LOADS SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS
- ROAD OPENING AND RESTORATION - APPROVED REPLACEMENT PAVEMENT MATERIAL SHALL EXTEND A MINIMUM OF 300mm (SUBJECT TO DEPTH OF PAVEMENT) BEYOND THE PERIMETER OF ANY TRENCH EXCAVATION. THE ROAD SURFACING SHALL EXTEND A MINIMUM OF 100mm BEYOND THE PERIMETER OF ANY PAVEMENT REPLACEMENT
- WINGWALLS FILL/BACKFILL MATERIAL SHALL BE PLACED 300mm THICK BEHIND WINGWALLS FOR THE LENGTH AND HEIGHT OF THE WINGS
- INCREASE EXCAVATION LOCALLY AT SPIGOT AND SOCKET JOINTS (RIGID PIPES) TO ENSURE MINIMUM COVER AS SHOWN
- UNLESS DIRECTED OTHERWISE BY COUNCIL'S AUTHORISED REPRESENTATIVE, PROVIDE PIPE STUB TO DE-WATER DRAINAGE TRENCH. STUB TO BE 3000mm LONG x 100mm DIA. CORRUGATED POLYETHYLENE PIPE CLASS 400 TO AS2439 (WITH AN END CAP) INSTALLED ON UPSTREAM FACE OF MANHOLES AND PITS

REFERENCED DOCUMENTS

- AUSTRALIAN STANDARDS
- AS 3725 LOADS ON BURIED CONCRETE PIPES
- AS 4139 FIBRE REINFORCED CONCRETE PIPES AND FITTINGS
- AS/NZS 2566.1 BURIED FLEXIBLE PIPELINES - STRUCTURAL DESIGN
- AS/NZS 2566.2 BURIED FLEXIBLE PIPELINES - INSTALLATION



S# - WHERE THE USE OF CONTROLLED LOW STRENGTH MATERIAL (CLSM) HAS BEEN APPROVED, THE SPACE BETWEEN MULTIPLE PIPES AND THE SIDES OF THE TRENCH CAN BE REDUCED IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUSTRALIAN STANDARDS

TABLE 2 - PIPE INSTALLATION DIMENSIONS

INTERNAL DIAMETER	RIGID PIPE				FLEXIBLE PIPE			
	X	Y	Z	S#	X	Z	O	S#
>300 ≤450	100	0.3D	0.5D	450	100	PIPE DIA.	150	450
>450 ≤600	100	0.3D	0.5D	450	150	PIPE DIA.	150	450
>600 ≤900	100	0.3D	0.5D	600	150	PIPE DIA.	200	600
>900 ≤1200	100	0.3D	0.5D	600	150	PIPE DIA.	200	600
>1200 ≤1500	100	0.3D	0.5D	600	150	PIPE DIA.	200	600
>1500	100	0.3D	0.7D	900	150	PIPE DIA.	0.25D	900

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

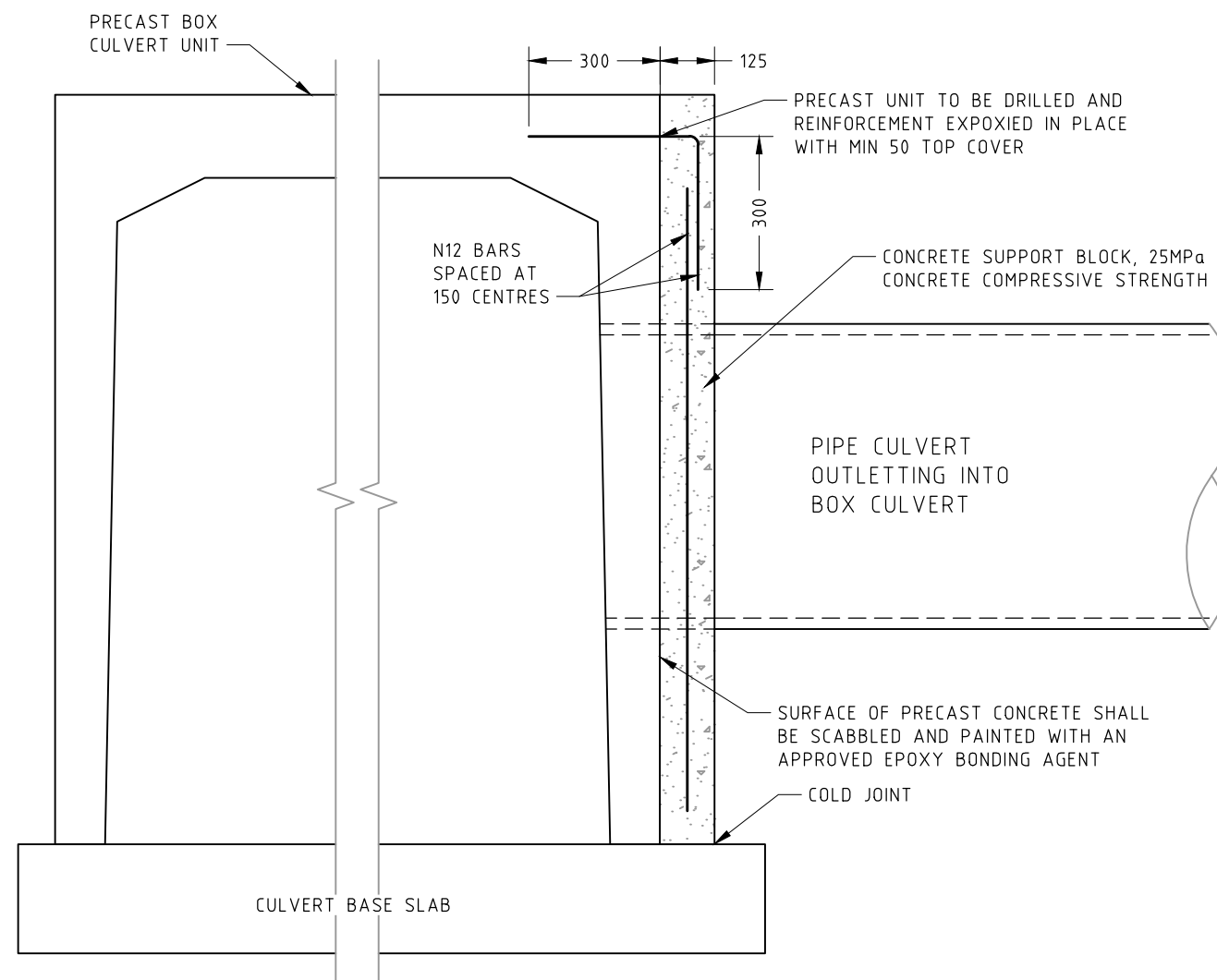
STORMWATER PIPE BEDDING

REVISION: 2

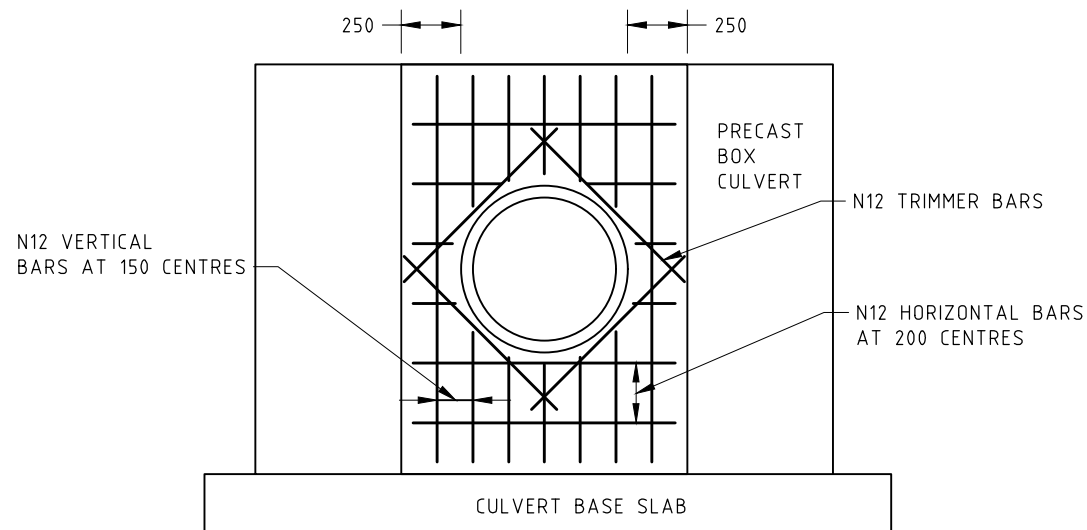
ISSUE DATE: MAY 2023

DRAWING NUMBER: SW013





**ELEVATION**  
PIPE CONNECTION TO PRECAST BOX CULVERT



**SIDE ELEVATION**  
PIPE CONNECTION TO PRECAST BOX CULVERT

**NOTES:**

1. DO NOT SCALE
2. ALL MEASUREMENTS IN MILLIMETRES
3. FOUNDATION AND TRENCH BASES MUST COMPLY WITH TRC SPECIFICATION CC221 - PIPE DRAINAGE
4. NOMINAL COVER TO REINFORCEMENT SHALL BE 45mm

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

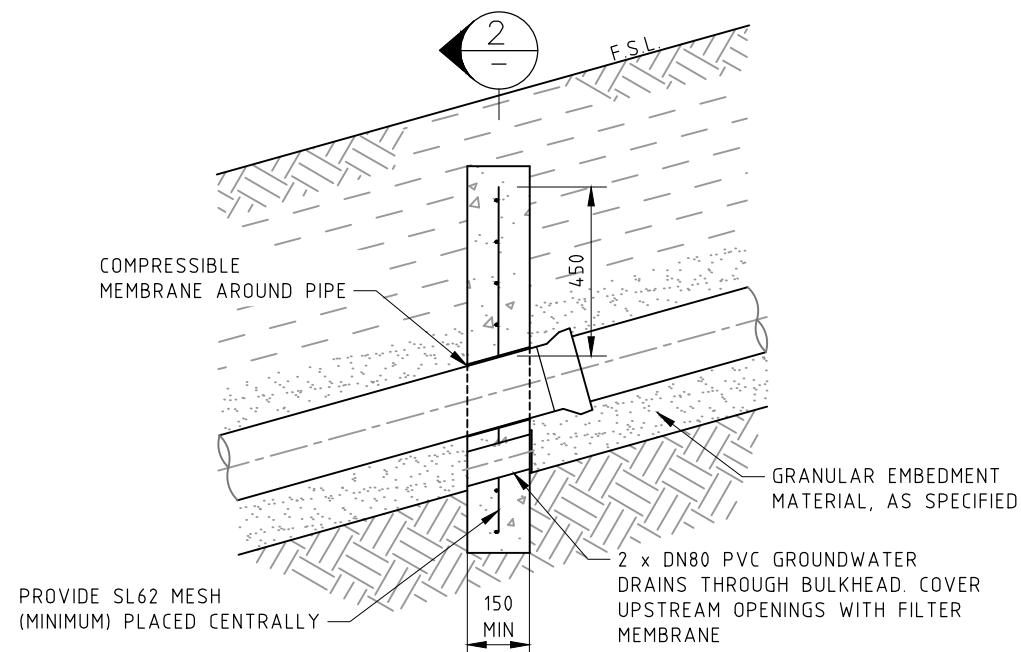
**PIPE TO BOX CULVERT  
CONNECTION**

REVISION: 2

ISSUE DATE: MAY 2023

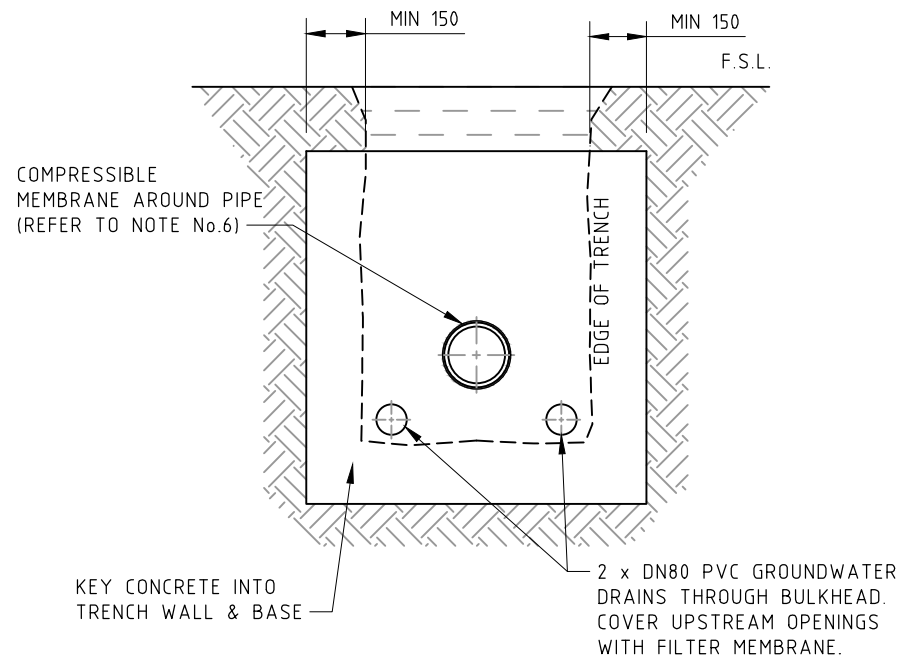
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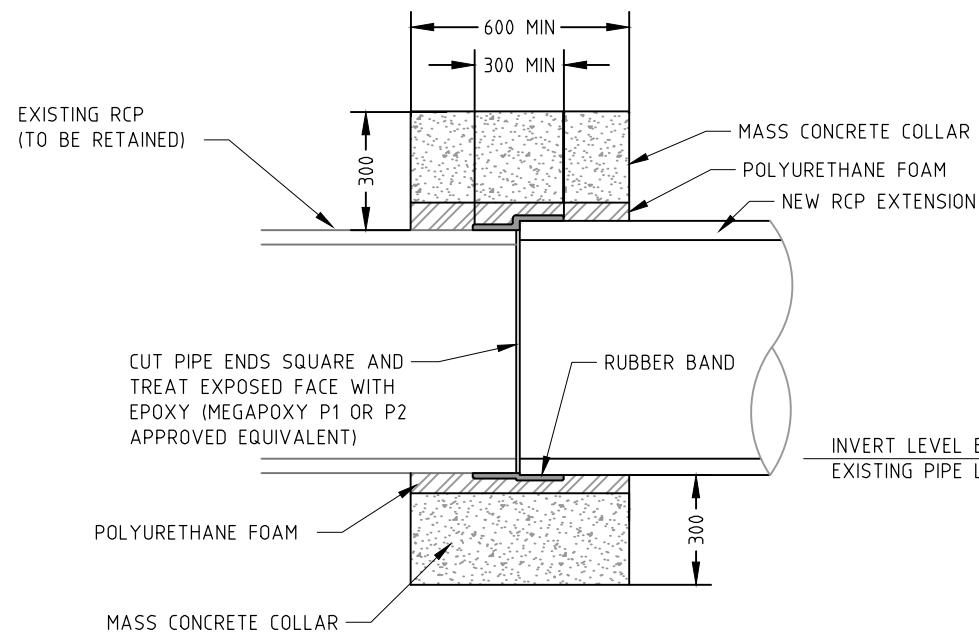


**DETAIL**  
CONCRETE BULKHEAD

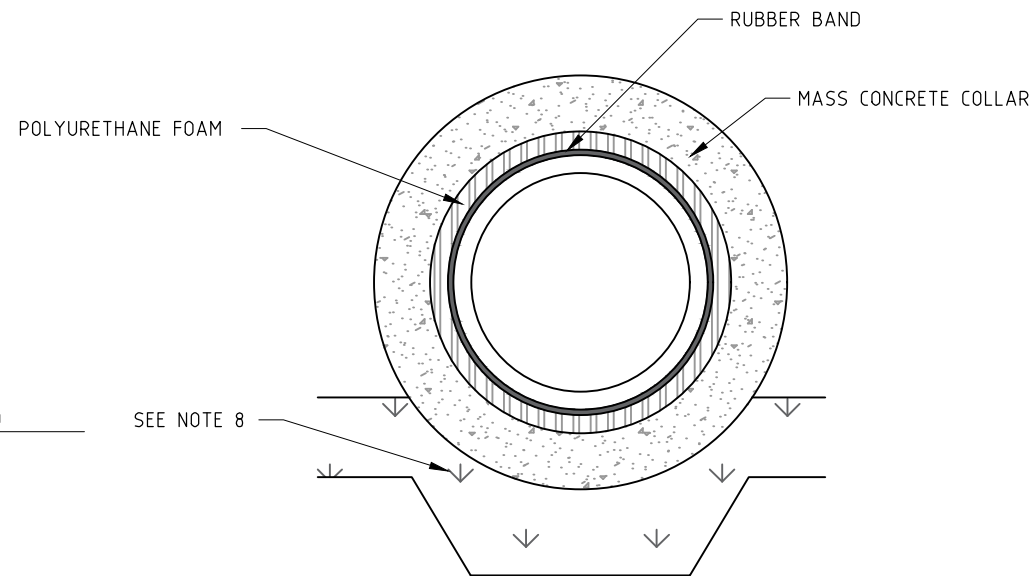
**NOTE:**  
BULKHEAD TO BE ADOPTED FOR STORMWATER PIPE GRADES  
GREATER THAN 6% AT INTERVALS NOT EXCEEDING 15m



**SECTION** 2



**PIPE LONG SECTION**  
CONCRETE PIPE EXTENSION



**PIPE CROSS SECTION**  
CONCRETE PIPE EXTENSION

**NOTES:**

1. ALL DIMENSIONS IN MILLIMETERS.
2. CONSTRUCT CONCRETE BULKHEADS STOPS AT LOCATIONS SPECIFIED IN THE DESIGN DRAWINGS.
3. KEY CONCRETE BULKHEADS INTO SIDES & BOTTOM OF TRENCH AGAINST A BEARING SURFACE OF UNDISTURBED SOIL.
4. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 25MPa IN ACCORDANCE WITH AS1379 AND AS3600
5. DO NOT DEFORM PIPES DURING PLACEMENT OF CONCRETE.
6. COMPRESSIBLE MEMBRANE AROUND PIPE TO BE 3mm THICK RUBBER FOR BULKHEADS ON SLOPES.
7. DO NOT SCALE
8. FOUNDATION AND TRENCH BASES MUST COMPLY WITH TRC SPECIFICATION CC221 - PIPE DRAINAGE
9. RUBBER BAND MUST COMPLY WITH AS1645
10. NEW EXTENSION PIPE DIAMETER MUST BE EQUAL TO OR LARGER THAN THE EXISTING PIPE DIAMETER
11. CONCRETE COLLAR MUST BE SIZED TO ENSURE A SEAL BETWEEN THE COLLAR AND THE PIPE TO BE EXTENDED, ALLOWING FOR THE POLYSTYRENE FOAM AND RUBBER BAND
12. BACKFILL MATERIAL TO BE AS SPECIFIED IN TRC SPECIFICATION C221 - PIPE DRAINAGE AND IN ACCORDANCE WITH STANDARD DRAWING SW013
13. FLOWABLE FILL IN ACCORDANCE WITH AS3725 MUST BE USED TO BACKFILL THE VOID UNDER THE COLLAR TO THE TOP OF THE HAUNCH ZONE
14. NOMINAL COVER TO REINFORCEMENT SHALL BE 45mm

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

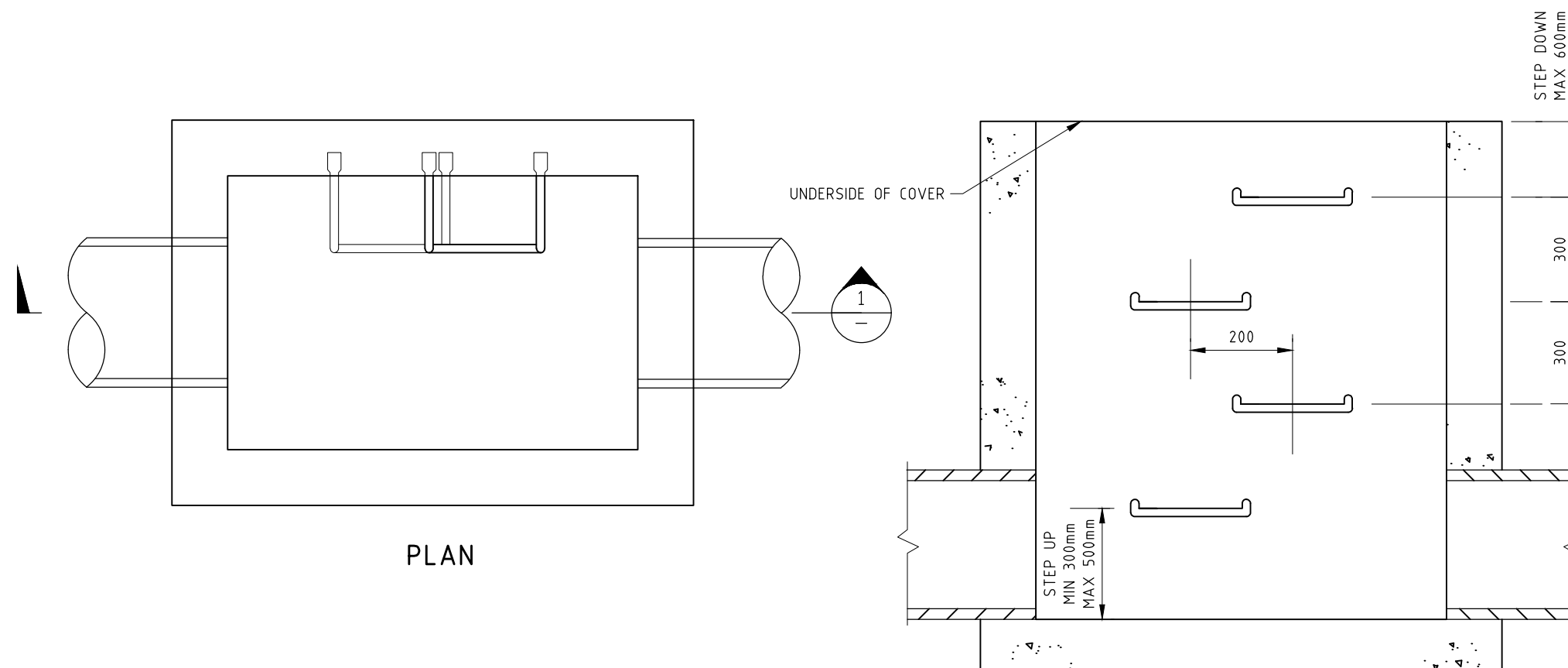
STORMWATER PIPE BULKHEAD AND  
CONCRETE PIPE EXTENSION

REVISION: 2

ISSUE DATE: MAY 2023

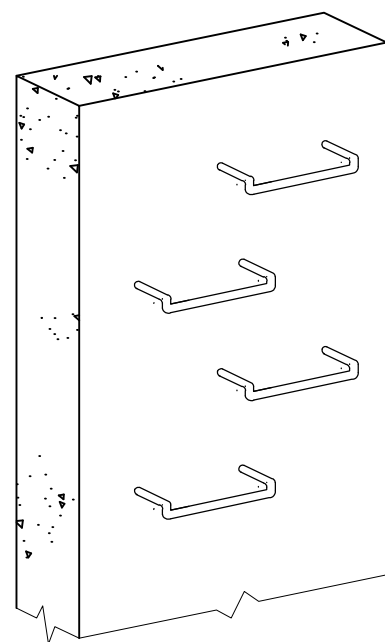
DRAWING NUMBER: SW015



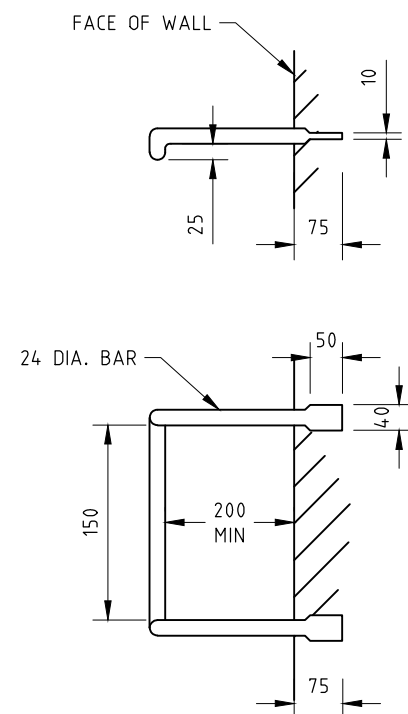


PLAN

SECTION 1  
NTS



STEP IRON DETAILS



**NOTES:**

1. PITS DEEPER THAN 1200mm MUST BE FITTED WITH INDIVIDUAL RUNG LADDERS.
2. INDIVIDUAL RUNG LADDERS MUST BE LOCATED:
  - DIRECTLY BELOW THE OPENING OF THE COVER
  - DESIRABLY ON A WALL WITHOUT PIPE OPENINGS.
  - DESIRABLY ON ONE OF THE LONG SIDES OF THE PIT
3. INDIVIDUAL RUNG LADDERS MUST COMPLY WITH AS1657
4. INDIVIDUAL RUNG LADDERS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

STORMWATER PIT  
STEP IRON  
LADDER DETAILS

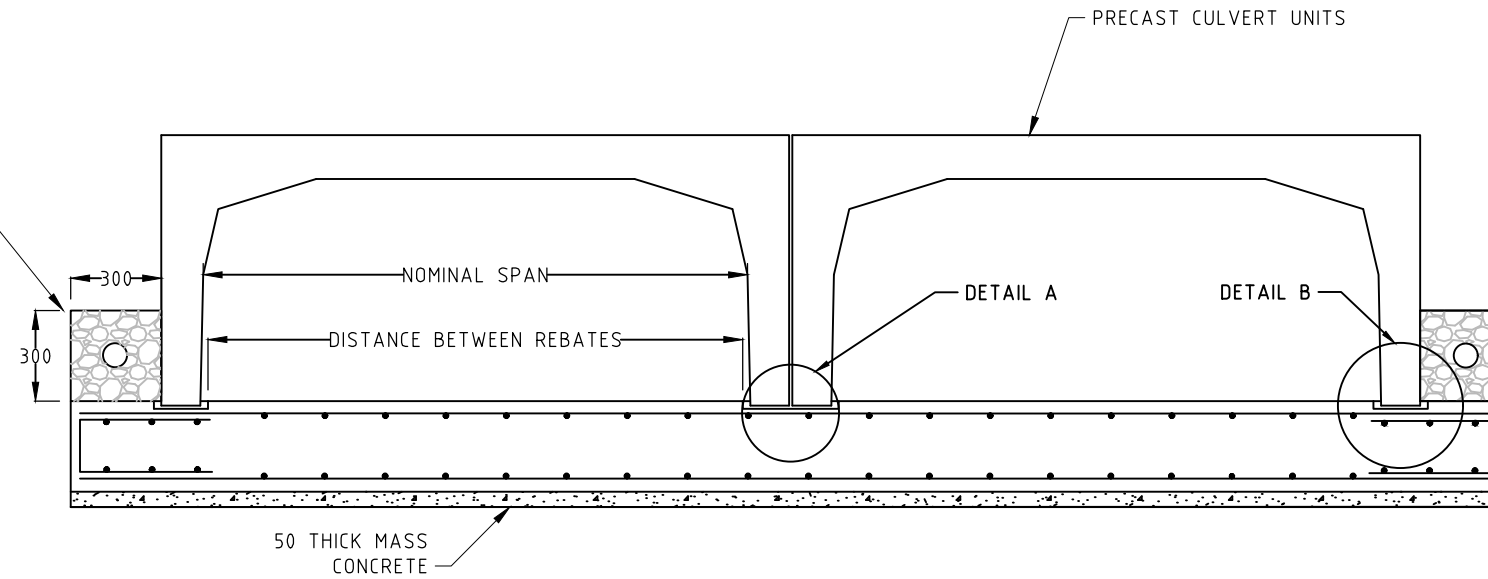
REVISION: 2

ISSUE DATE: MAY 2023

DRAWING NUMBER: SW016

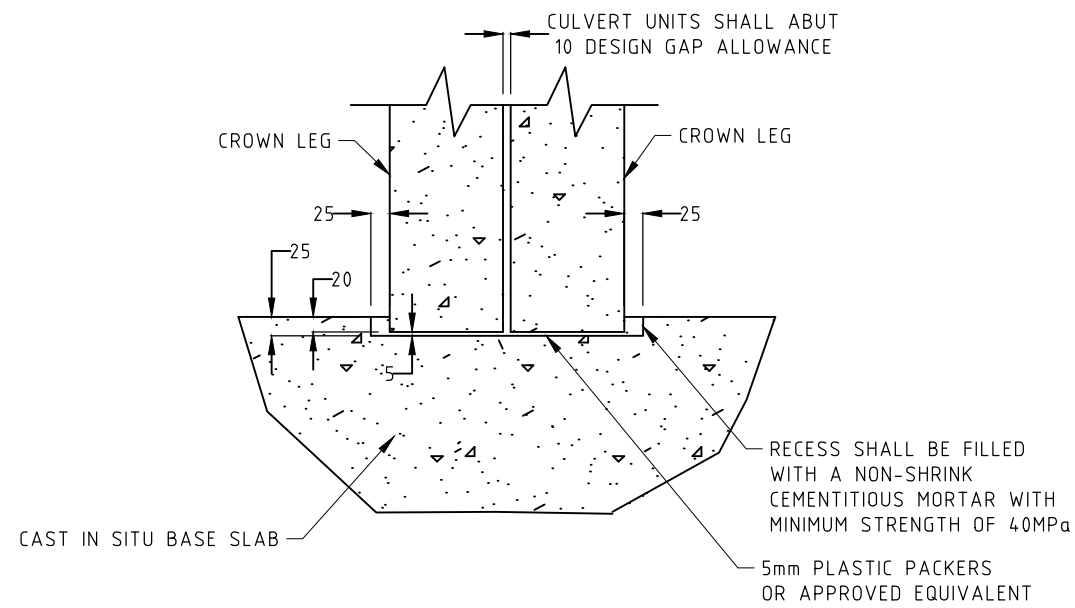


300 WIDE x 300 HIGH SUBSOIL DRAINAGE  
 20 DIAMETER AGGREGATE FILTER MATERIAL  
 WITH 100 DIAMETER AG LINE.  
 FILTER MATERIAL TO BE WRAPPED IN  
 GEOFABRIC. SUBSOIL PIPE TO DISCHARGE AT  
 THE END OF THE DOWNSTREAM WINGWALL

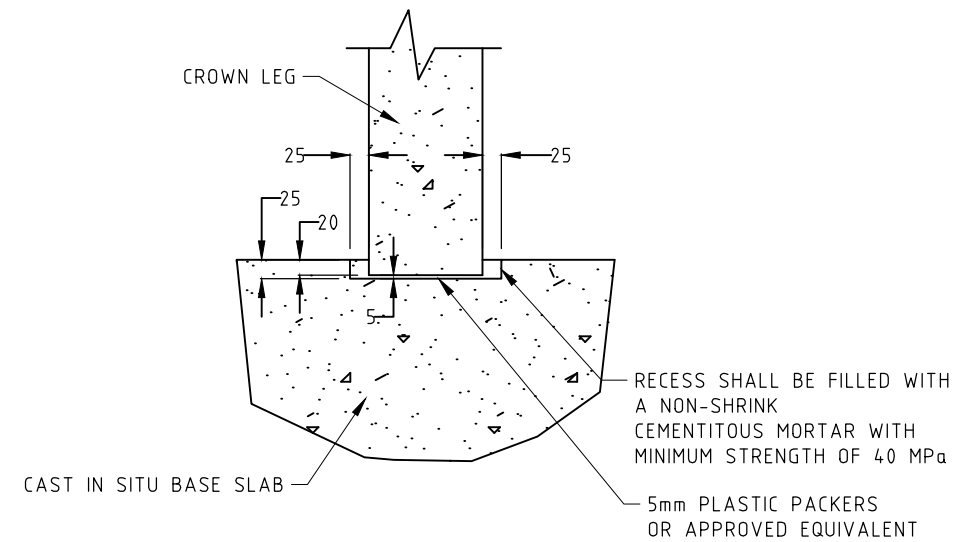


**CULVERT CROSS SECTION**

THE CULVERT BASE SLAB DIMENSIONS, WINGWALL AND HEADWALL  
 DETAILS, REINFORCEMENT DETAILS AND ALLOWABLE BEARING CAPACITY OF  
 THE FOUNDING MATERIAL SHALL BE DETERMINED BY THE DESIGNER



**DETAIL A**  
 CULVERT BASE SLAB REBATE (TWIN LEGS)



**DETAIL B**  
 CULVERT BASE SLAB REBATE (SINGLE LEG)

STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
 REGIONAL SERVICES DIRECTORATE

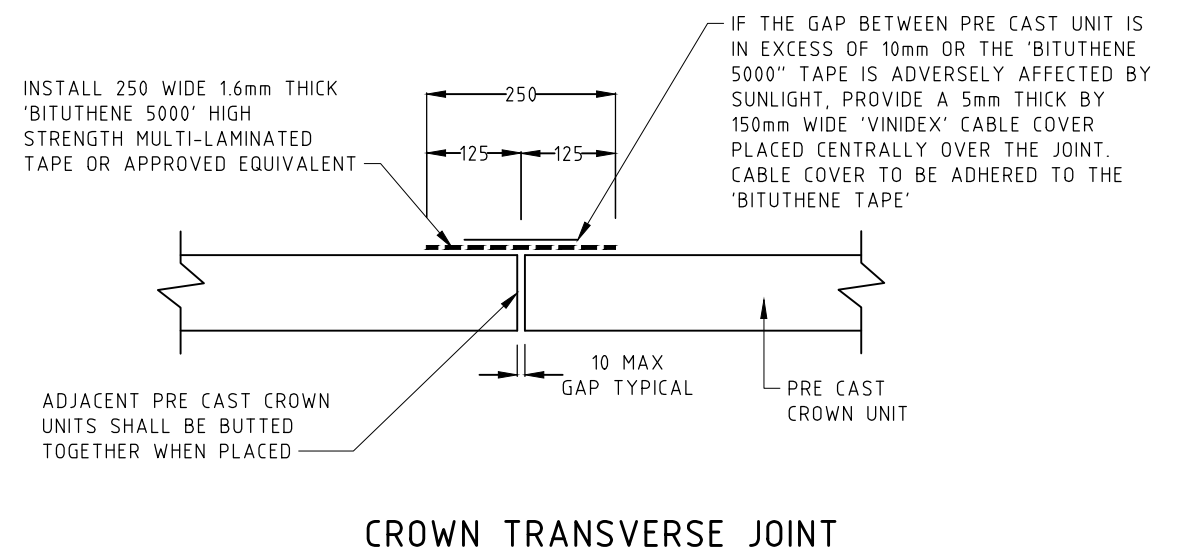
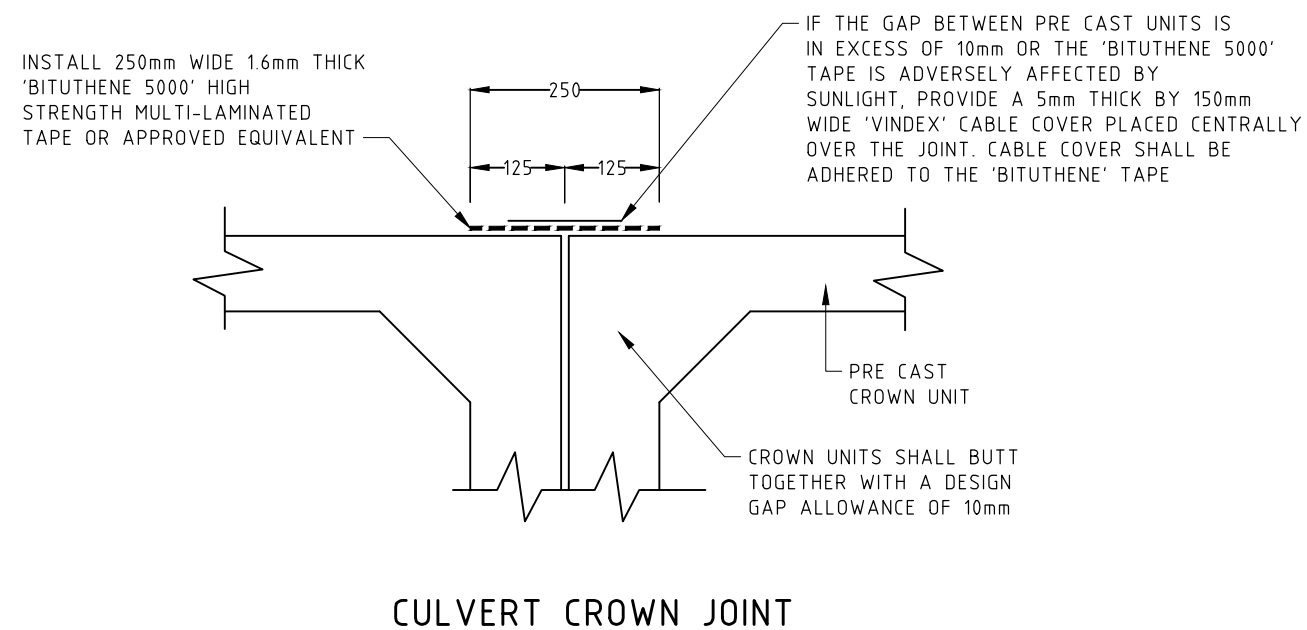
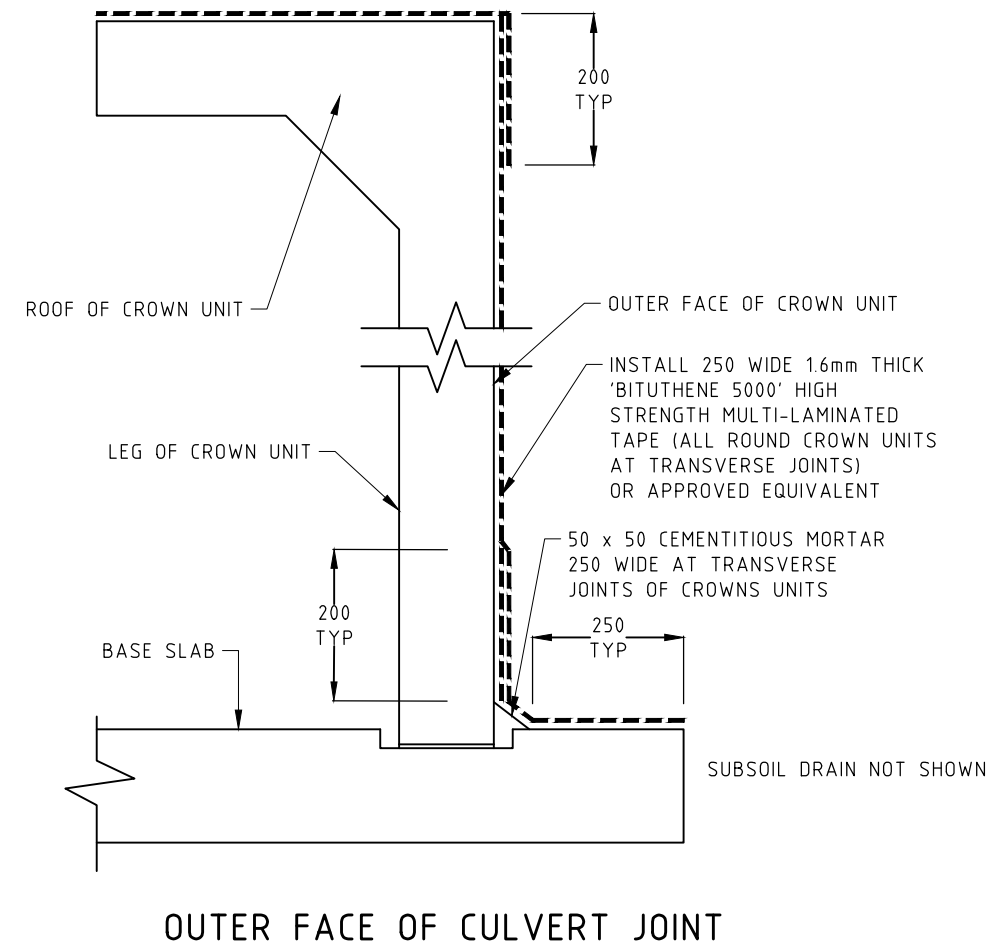
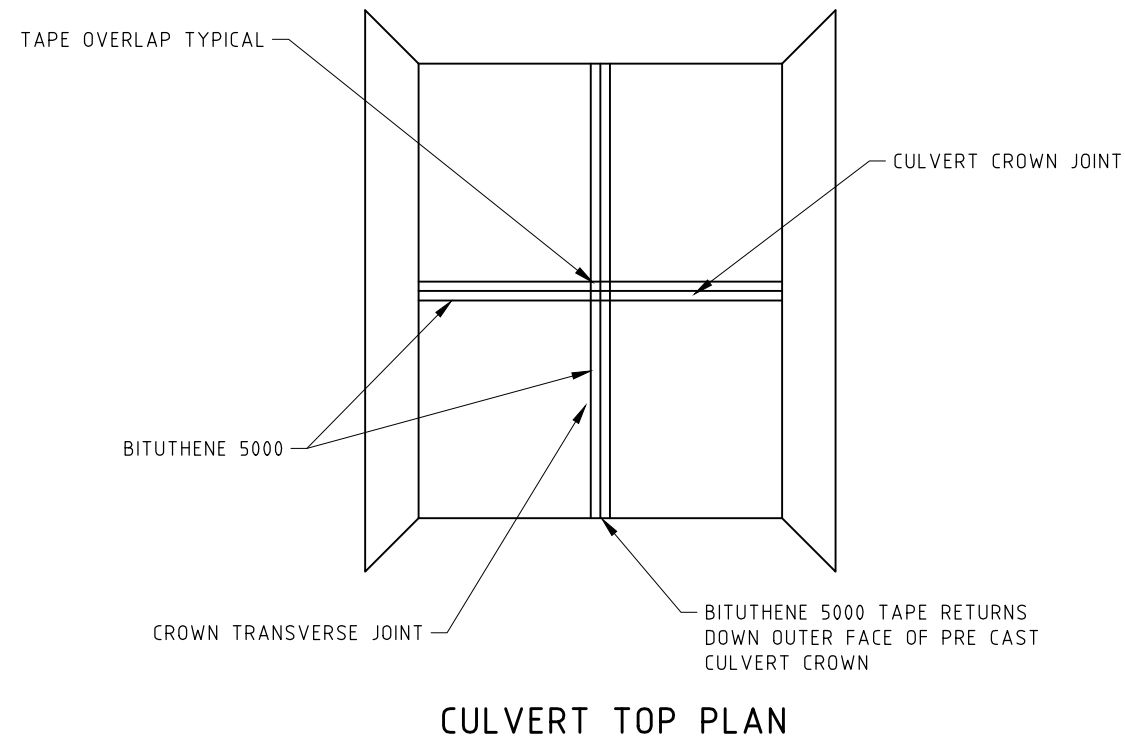
REINFORCED CONCRETE BOX CULVERT  
 BASE SLAB DETAILS

REVISION: 2

ISSUE DATE: MAY 2023

DRAWING NUMBER: SW017





STANDARD DRAWINGS

TAMWORTH REGIONAL COUNCIL  
REGIONAL SERVICES DIRECTORATE

REINFORCED CONCRETE BOX CULVERT  
BITUTHENE TAPE DETAILS

REVISION: 2

ISSUE DATE: MAY 2023

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