

TABLE 201-A: TRAFFICABLE AREAS (TYPE R OR F BACKFILL)

TRENCH ZONE	PREFERRED MATERIALS	PRODUCT SPEC. No.	METHOD OF PLACEMENT	MINIMUM COMPACTION
PAVEMENT ZONE	REFER TO ROAD OWNERS SPECIFICATION			98% R _D TOP 100mm
SUB-BASE ZONE	REFER TO ROAD OWNERS SPECIFICATION			
BACKFILL ZONE	Refer to road owners specification, if not available: comply with MRWA backfill spec - MRWA spec 04.03, summarised as follows: A. For trenches <1.5 m deep in Type R situation: the backfill shall be 20mm Class 3 plant wet mixed crushed rock, for the full depth. B. For trenches > 1.5 m in Type R situation: • 20mm class 3 plant wet mixed crushed rock above the sub-base level. • 20mm class 4 (or better) crushed rock for the remainder. C. In Type F situations: • the backfill shall be 20mm Class 4 (or better) crushed rock.	VIC ROADS SPECS 812 FOR CLASS 3 & 4 FCR. 818 FOR CLASS 4 CRUSHED SCORIA. 820 FOR CLASS 4 CRUSHED CONCRETE.	Backfill material shall be placed and compacted in layers and moisture conditioned as required to achieve the required density. Where hand held or walk behind compaction equipment is used on the backfill zone, avoid compaction within 300mm of top of pipe. Where heavier compaction is used in the backfill zone, avoid compaction within 1200mm of top of pipe.	95% R _D
EMBED-MENT ZONE	• Refer to MRWA-S-202. • All nominated embedment is satisfactory in Type R situations, however, it is critical that embedment have the correct moisture content and be properly placed to achieve adequate compaction. • Selected materials shall be worked around the pipe to ensure all voids at haunches are filled and the pipe is provided with good support along its entire length.	• Embedment to be placed under the haunches by shovel and compacted using hand tampers or vibrating probes or plates. • Risk of pipeline deflection may be further reduced by: • increasing the depth of the overlay (to up to 1m), or • cement stabilising the top surface of the embedment (hand distributed cement at 2 kg per square metre, worked into the top surface by shovel).		70% i _D

TABLE 201-B: NON TRAFFICABLE AREAS

TRENCH ZONE	PREFERRED MATERIALS	METHOD OF PLACEMENT	COMPACTION REQUIRED
BACKFILL ZONE	Refer to Backfill Specification - MRWA specification 04.03. • For backfill < 1.5m deep, selected or ordinary fill. A. Selected Fill. Material that is free from organic or other deleterious material, obtained from excavation or imported, with a particle size of rock not greater than 20mm, or for other than rock not greater than 75mm (refer AS2566.2-2002). B. Ordinary Fill. Material obtained from excavation or imported that contains not more than 20% by mass of rock fragments with size between 75mm and 150mm, with no rock or clay fragments greater than 150mm (refer AS2566.2-2002). • For backfill > 1.5m deep, as per project specific backfill specification.	Refer to Backfill Specification - MRWA specification 04.03. • For backfill < 1.5m deep, selected or ordinary fill placed as required to meet the nominated compaction density. • For backfill > 1.5m deep, place as specified in the project specific backfill specification. Place and compact in layers and moisture condition as required. Where hand held or walk behind compaction equipment is used in the backfill zone, avoid compaction within 300mm of top of pipe. Where heavier compaction is used in the backfill zone, avoid compaction within 500mm from the top of pipe.	95% R _D TOP 600mm 90% R _D
EMBED-MENT ZONE	• Refer to MRWA-S-202. • The embedment proposed is satisfactory in non trafficable situations, however, it is critical the embedment have the correct moisture content and be properly placed to achieve maximum compaction. • Selected materials shall be worked around the pipe to ensure all voids at haunches are filled and the pipe is provided with good support along its entire length. Embedment to be placed under the haunches by shovel or fork and compacted to the required density.		60% i _D

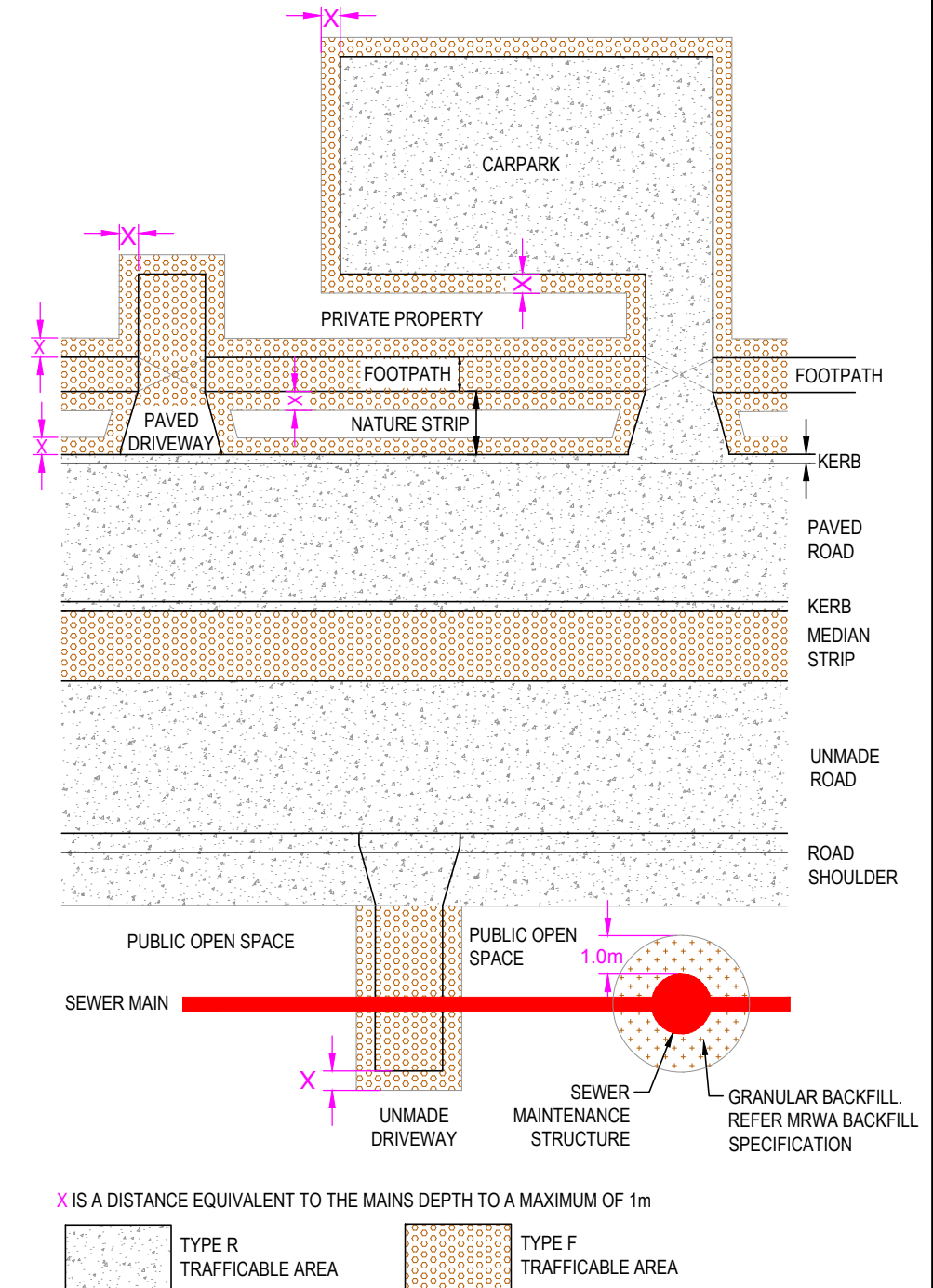


FIGURE 201-B: TYPE R AND TYPE F LOCATIONS

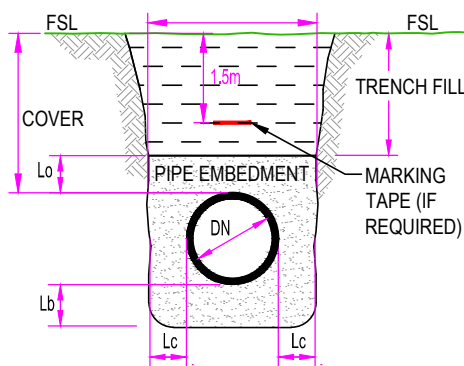
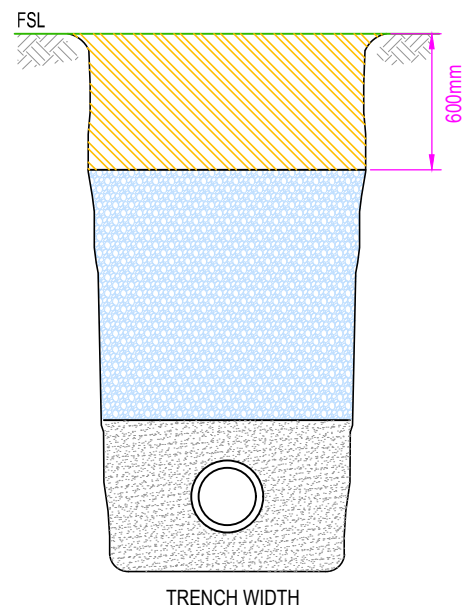
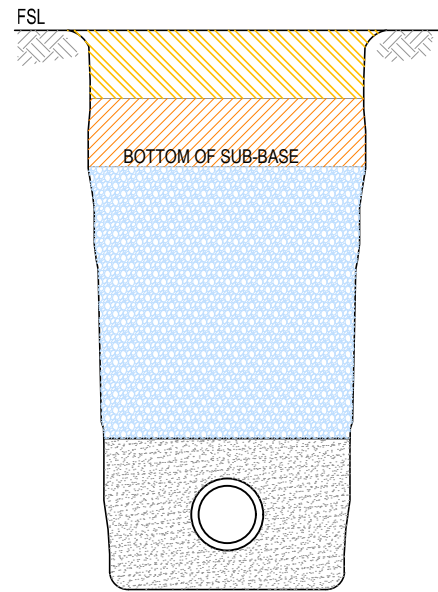


FIGURE 201-A: TRENCH DIMENSIONS

NOTES Regarding Figure 201-A:

- Sides of excavation to be kept vertical to at least 150 above the pipe.
- All rock intrusions out of trench wall must be removed prior to any pipe laying operations.
- Any foreign matter such as vegetation or litter shall be removed from the trench prior to pipe laying and backfill.
- Marker tape is required where the sewer is **not** the deepest service.
- Place marker tape at 1.5m deep or on first backfill layer, whichever is shallower.

TABLE 201-C: MINIMUM COVER

LOCATION	MINIMUM COVER
NON TRAFFICABLE	600
TYPE F TRAFFICABLE	750
TYPE R TRAFFICABLE (LOCAL ROADS)	900
TYPE R TRAFFICABLE (MAJOR & ARTERIAL ROADS)	1200

NOTES Regarding Table 201-C:

- Location definitions are provided in the MRWA backfill spec 04.03.
- Major and arterial roads are viceroads declared main roads.
- All other roads can be considered as local roads.

TABLE 201-D: TRENCH DIMENSIONS

SEWER SIZE (DN)	L _b : BEDDING DEPTH		L _c : OVERLAY		L _s : SIDE SUPPORT	
	MINIMUM	MAXIMUM ¹	(MINIMUM)	MAXIMUM	MINIMUM	MAXIMUM
100 / 150	75	150	100 ² / 300 ³	100	350	
225 / 300	100	200	150 ² / 300 ³	150	400	
375 / 450	100	200	150 ² / 300 ³	200	450	
525 - 900	150	250	150 ² / 300 ³	250	500	
> 900	150	250	200 ² / 300 ³	300	550	

NOTES Regarding Table 201-D:

- If maximum bedding depth is exceeded, fill over excavation with special embedment as per drawing MRWA-S-202.
- The first minimum overlay figure is the minimum overlay required when walk behind trench backfill compaction equipment is to be used.
- The second minimum overlay figure is the minimum overlay required when:
 - Ride on trench backfill compaction equipment is to be used, or
 - The sewerage pipe is in the road carriageway.
 - This assumes that the first trench fill layer will be at least 200 thick (when compacted) so that there is a total cover > 500 during mechanical compaction.

REV	DESCRIPTION	DATE	APPROVED
3	CHANGE TO TYPE R BACKFILL & DRIVEWAYS	01/07/16	RJ / CP / JT
2	PUBLISHED FIRST ISSUE	01/10/15	CP / JT / KD / RJ
1	PRE-PUBLISHED DRAFT	01/03/15	CP / JT / KD / RJ

DESIGNED: R. JAGGER		DATE: 1 JULY 2015	
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MELBOURNE RETAIL WATER AGENCIES

MRWA SEWERAGE STANDARDS

TRENCHING AND TRENCHFILL

NOT TO SCALE

MRWA-S-201

Planning	Design	Construction
	✓	✓✓✓✓