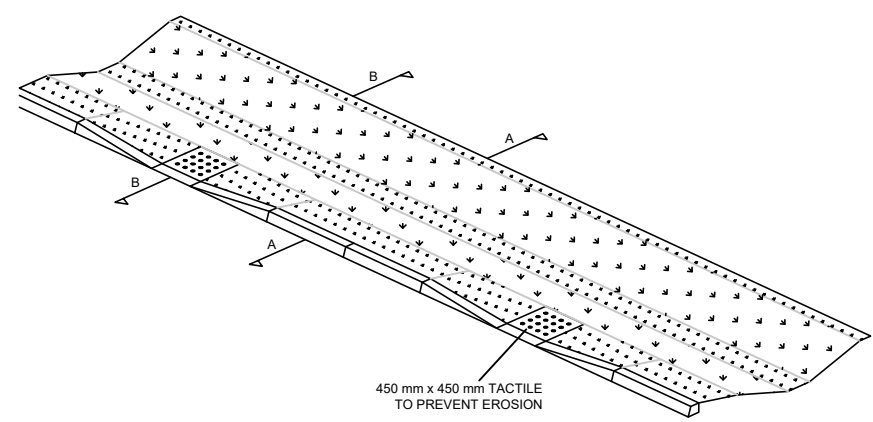
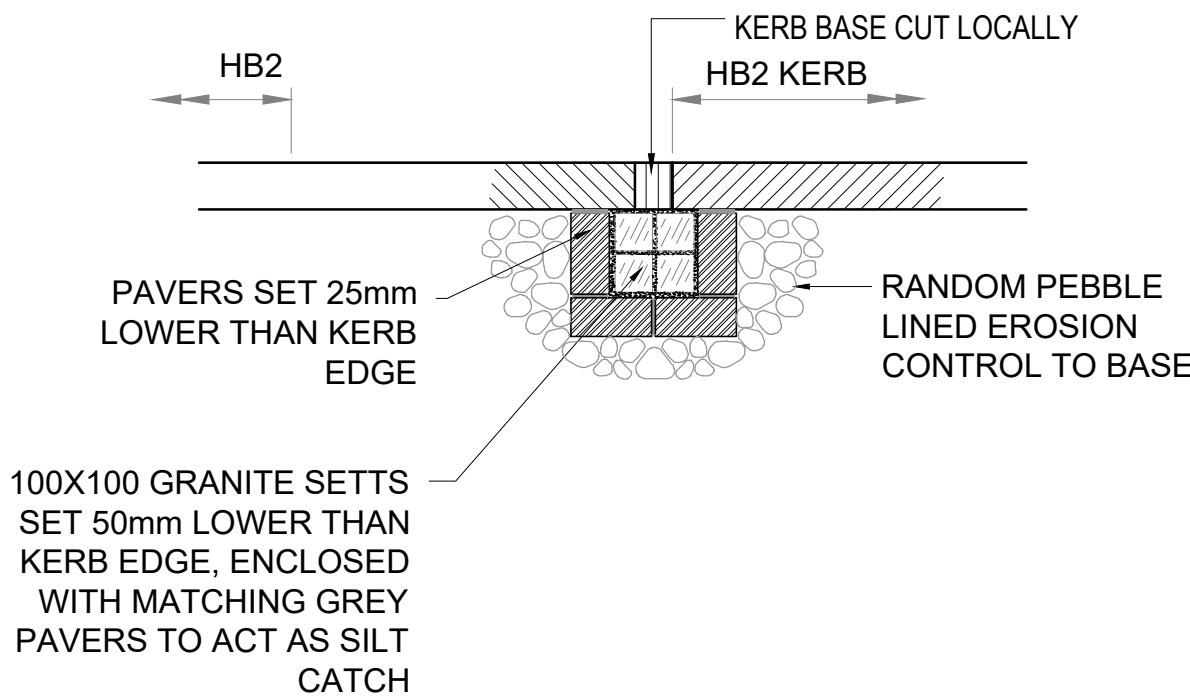




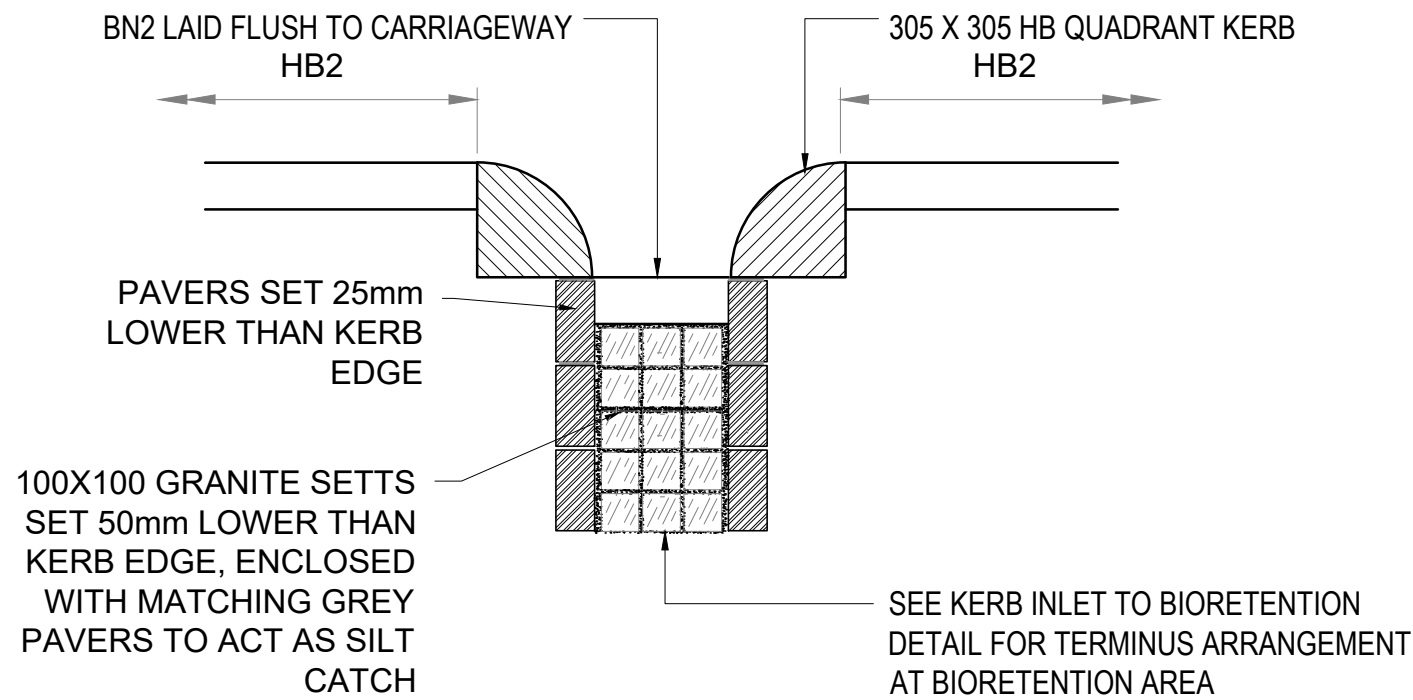
EXAMPLE OF KERB INLET TO BIORETENTION



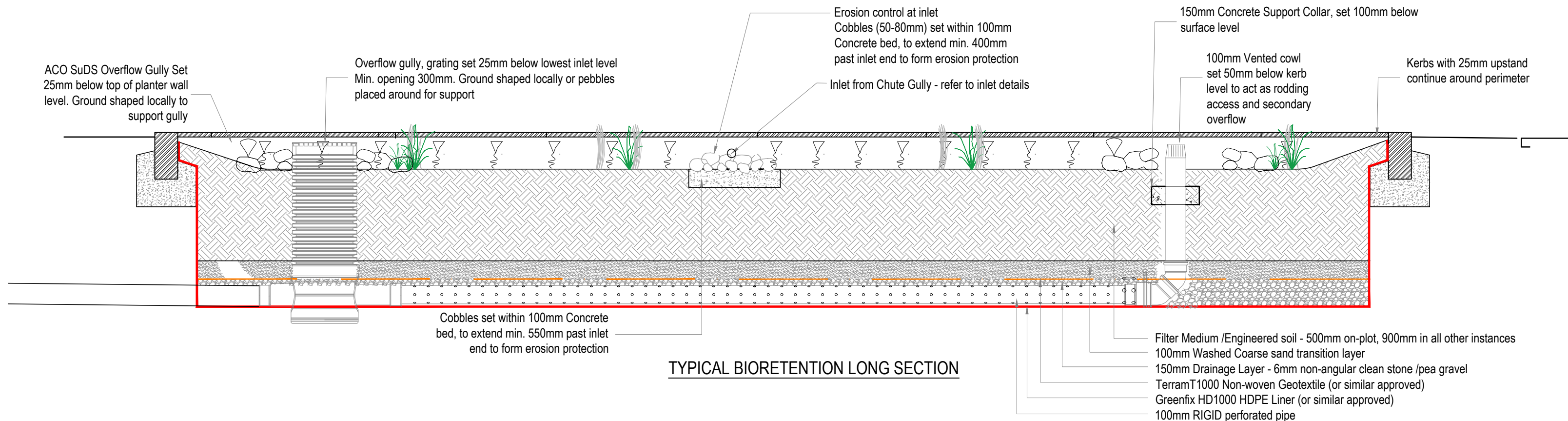
BREAK KERB
STANDARD DRY SWALE/CARRIAGEWAY CONSTRUCTION



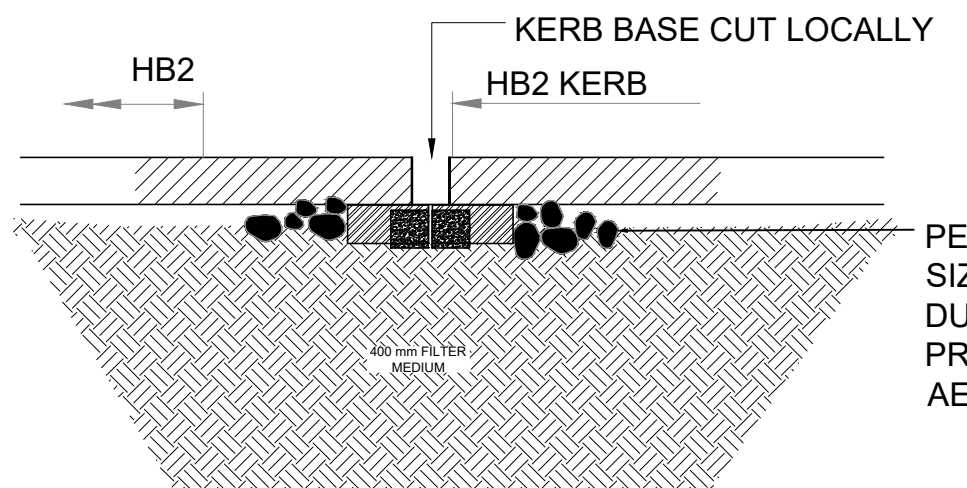
KERB INLET TO BIORETENTION



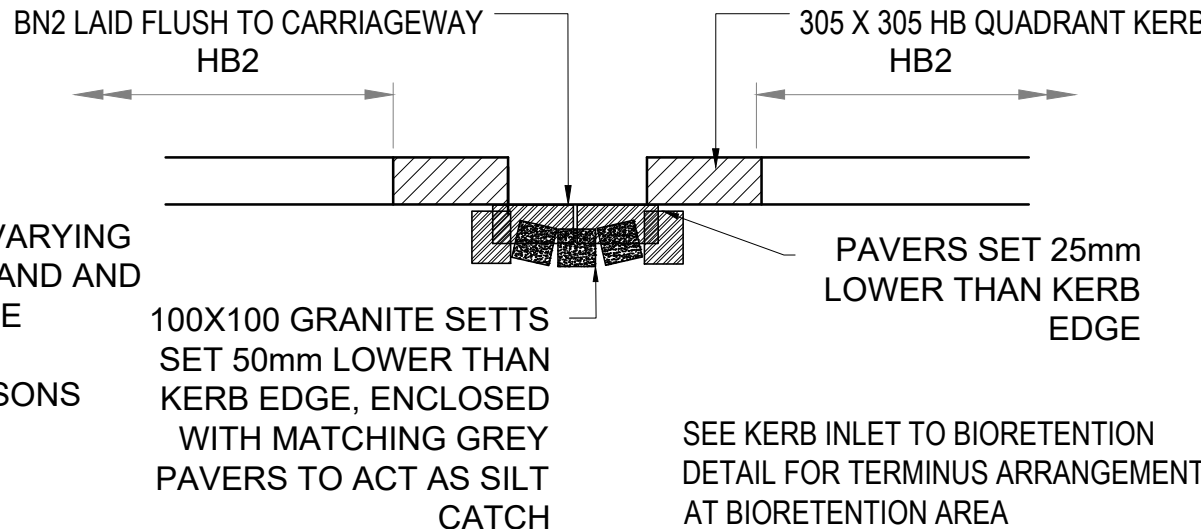
SITE ENTRANCE KERB INLET



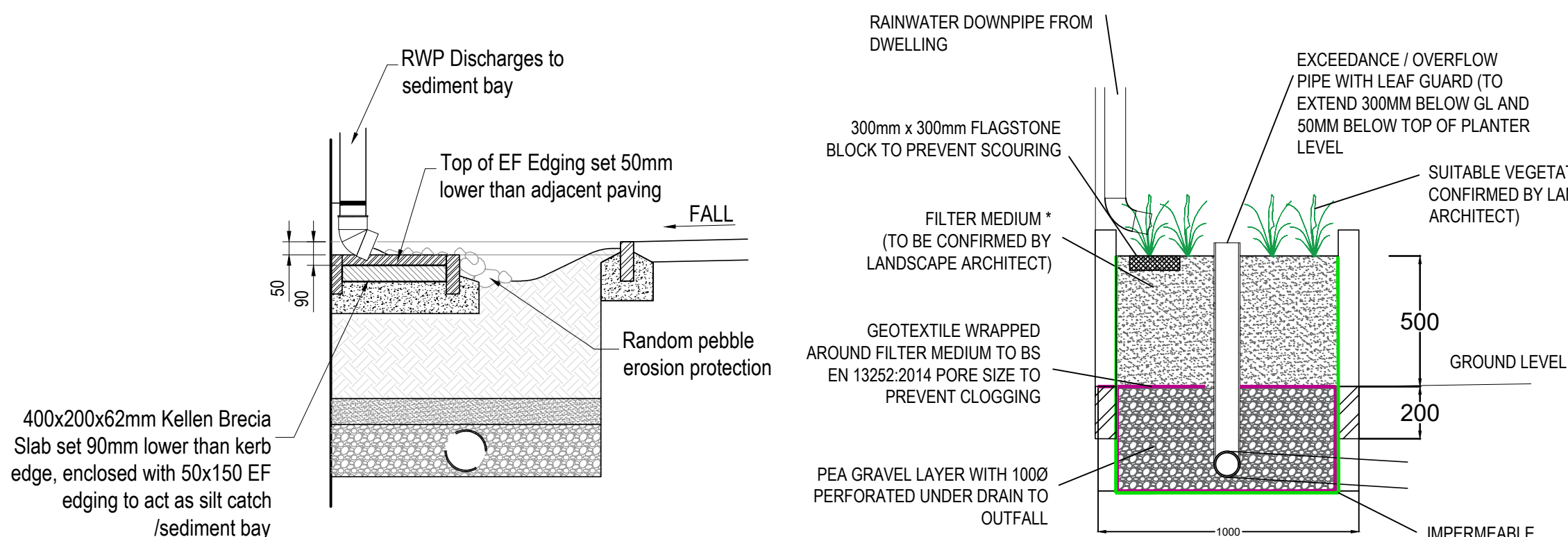
TYPICAL BIORETENTION LONG SECTION



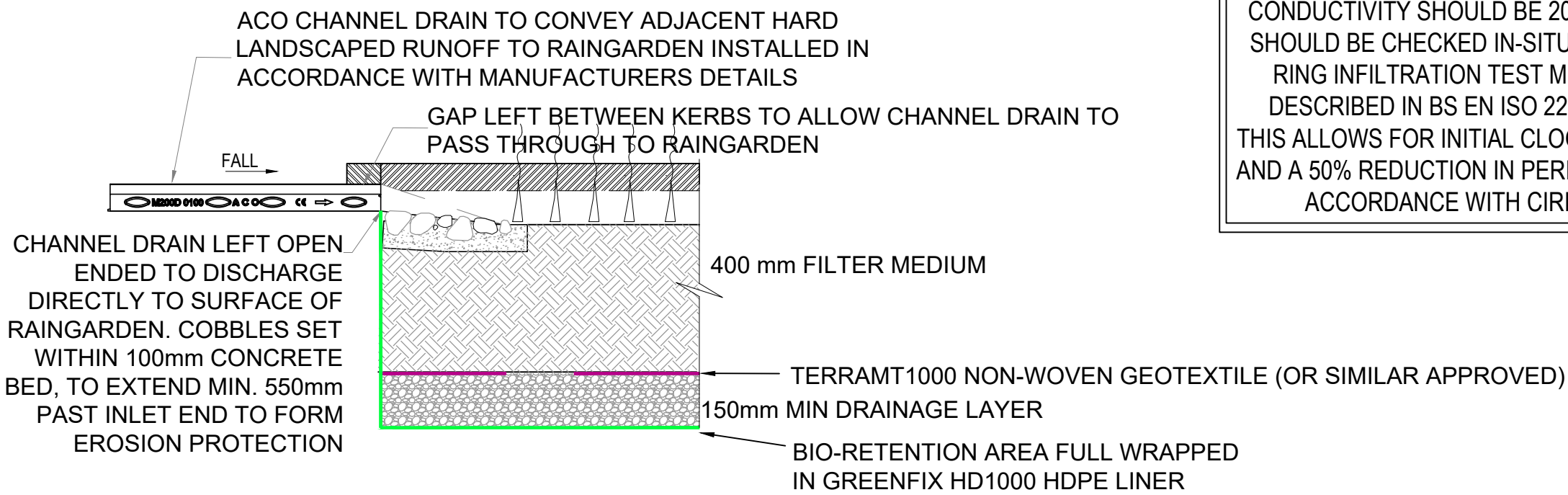
SECTION VIEW OF KERB INLET TO BIORETENTION



SECTION VIEW OF SITE ENTRANCE KERB INLET

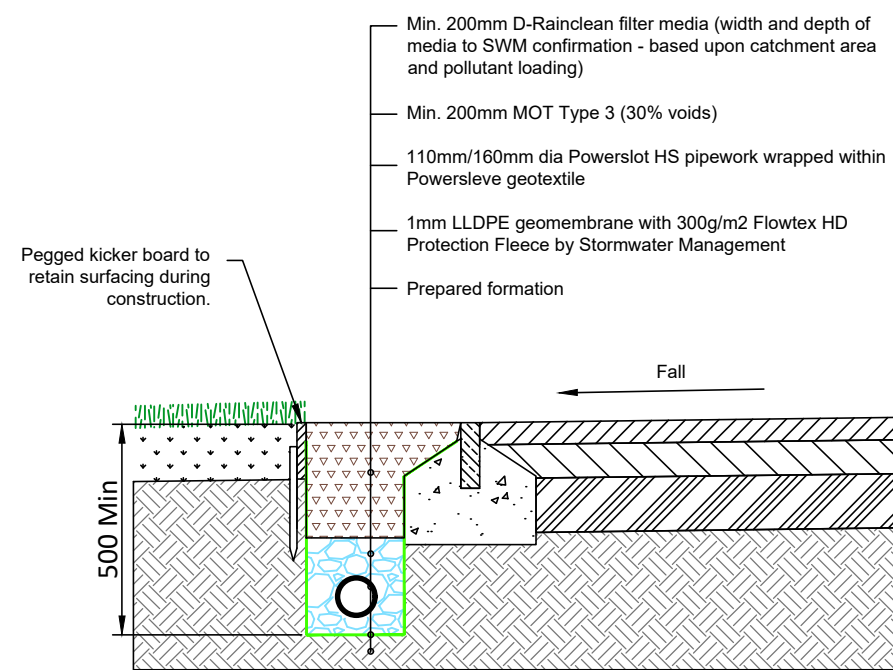


TYPICAL BIORETENTION PLANTER
(PLAN AREA 2m X 1m)



BIORETENTION INLET VIA ACO CHANNEL DRAIN
SCALE 1:20

*1 FILTER MEDIUM FOR BIORETENTION AREAS - MINIMUM SATURATED HYDRAULIC CONDUCTIVITY SHOULD BE 200MM/H. THIS SHOULD BE CHECKED IN-SITU, USING THE RING INFILTRATION TEST METHOD AS DESCRIBED IN BS EN ISO 22282-5:2012. THIS ALLOWS FOR INITIAL CLOGGING RATES AND A 50% REDUCTION IN PERFORMANCE IN ACCORDANCE WITH CIRIA C357.



D-RAINCLEAN FILTER DRAIN
DOMESTIC AND CAR PARK

BIO-RETENTION /RAINGARDEN NOTES

The depth of the raingarden excavation should be as shown. This depth is composed of a "drainage layer", "transition layer", "filter media" and "extended detention area", which are described in more detail below.

LINING

1. Terram 1000 (or similar approved), Non-Woven Geotextile fabric lining must be provided in the base of the bioretention area and all sides, to prevent fines migration from surrounding soil.
2. Drainage Layer to be overlaid in Terram 1000 Non-Woven Geotextile (or similar approved), fabric lining.
3. No Geotextile to be provided between the Soil /Filter Medium & Transition Layer as it increases the risk of clogging, stopping the system from functioning properly.

DRAINAGE

4. A sub-soil drain in the base of the bio-retention areas and one flushing point/rodding access (minimum) must be provided.
5. The sub-soil drain /filter drain size is as specified on drawing. A perforated pipe is preferred as it is easier to clean whilst ribbed pipes retain moisture which may attract plant roots into the pipes.
6. The base of the bio-retention area must fall towards the sub-soil drain.
7. The sub-soil drain must connect to the overflow, positions may be altered to suit site conditions, overflow sizes as shown.
8. The surface level of the overflow should be set min. 25mm below any external surface level to prevent flooding beyond the bio-retention area to allow for extended detention.

DRAINAGE (BOTTOM) LAYER

9. This layer is 100-200mm Deep (minimum). This layer must consist of clean, non-angular clean stone such as a 6mm pea gravel.
10. This layer will provide 50mm of cover over the sub-soil drain.
11. The purpose of this layer is to collect and drain the treated storm water that has passed through the "filter media" and "transition layer".

TRANSITION (MIDDLE) LAYER

12. This layer is 100mm deep (minimum).
13. This layer must be placed on top of the "drainage layer".
14. This layer must consist of clean, well-graded sand/ coarse sand material containing little or no fines.
15. The purpose of the transition layer is to stop the downward migration of smaller particles between the "filter media" and "drainage layer".

FILTER MEDIA (TOP LAYER) - THIS IS NOT TOP-SOIL

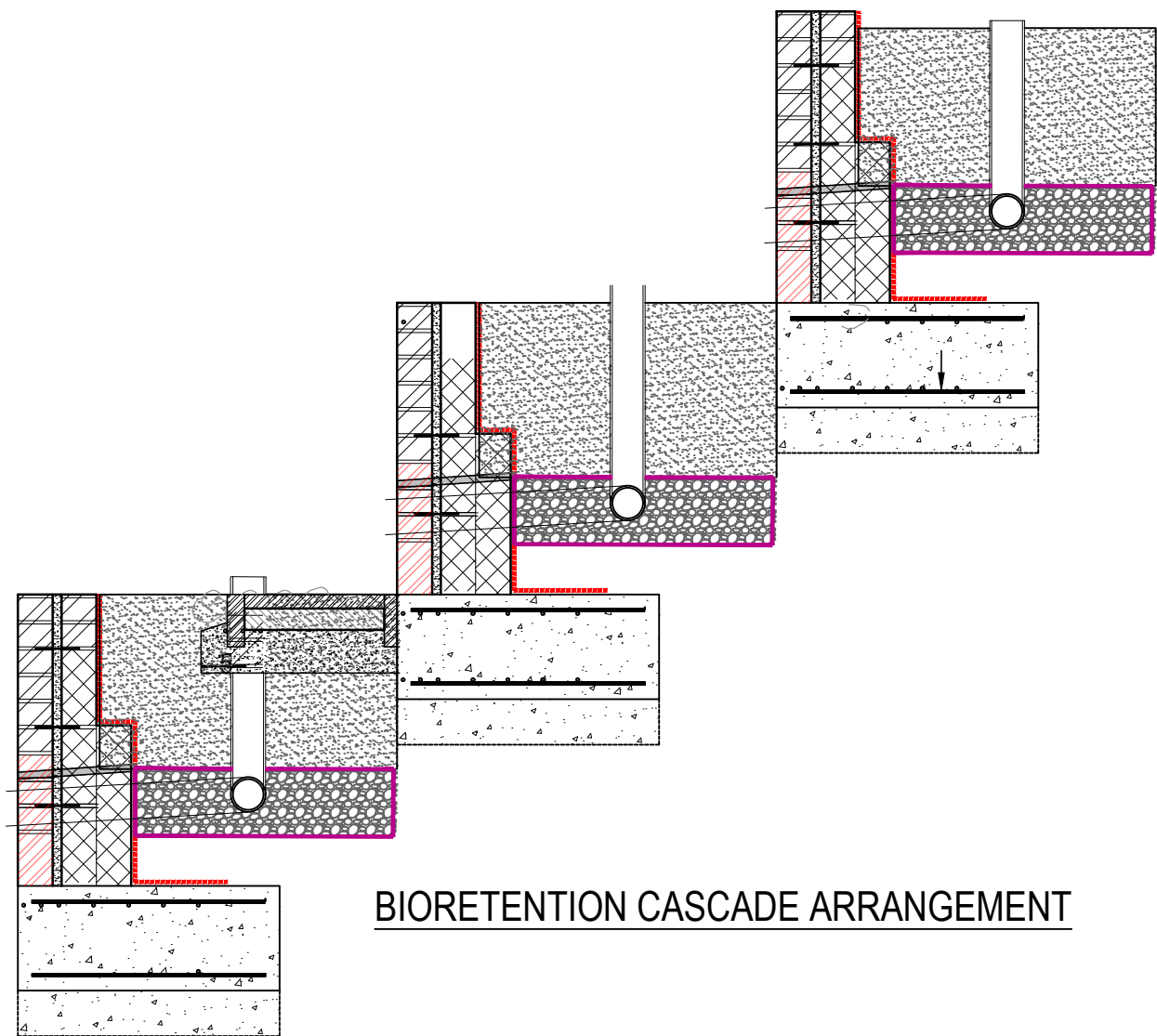
16. This layer is where the majority of the water quality treatment occurs and so the sourcing and placement of this material is critical to the effective operation of the system.
17. This layer is 450mm deep (minimum), up to 900mm where Trees have been specified. This layer must be placed on top of the "transition layer".
18. The material used must comply with the following requirements:
 - This layer must have a loamy sand texture.
 - The filter media must be free of rubbish, deleterious material and toxicants and is not hydrophobic.
 - Saturated hydraulic conductivity (permeability) as detail /area specific.
 - Particle size distribution:
 - Clay and silt (<5%) (<0.063mm)
 - Fine sand (<20%) (0.063mm to 0.2mm)
 - Medium sand (35% to 65%) (0.2mm to 0.6mm)
 - Coarse sand (50% to 60%) (0.6mm to 2.0mm)
 - Fine gravel (<10%) (2.0mm to 6mm)
 - The filter medium should be well-graded, and the composition should contain limited particle size range.
 - The organic matter content must be less than 5% (weight to weight).
 - pH as for "natural soils and soil blends" of 5.5 to 8.5 (pH of 1:2.5 soil /water extract).
 - Electrical Conductivity (EC) as for "natural soils and soil blends" < 1.2.5dSm
21. Once placed this layer must be lightly compacted to prevent the migration of fine particles (90% standard compaction).

EARTHWORKS

22. The sides of the basin must be battered at 1(V):3(H), to base levels.
23. Where there is to be a delay between the minimum level of completion (above) and the landscaping (below), an additional layer of geotextile fabric lining must be provided over the rain garden extending to the top of the batter to protect the "filter media" from sediment and gross pollutants.

LANDSCAPING

24. Much reduces weed growth and moisture loss from soils.
 - MULCH USED IN A RAIN GARDEN MUST BE NON-FLOATING
25. Planting within the rain garden must be able to withstand periods of inundation, longer boggy wet periods as well as long dry periods. The free draining nature of rain gardens means that they can dry out quickly.
26. Plant selection is critical for nutrient removal and hydraulic conductivity. Refer to Landscape Architects drawings for planting layouts.
27. Turf **MUST NOT** be used as it requires a thick layer of heavy topsoil to which will stop the rain garden from being free draining. Turf is also incapable of withstanding periods of inundation or longer boggy wet periods.
28. The bio-retention /rain garden should be separated from any adjacent turfed area by a timber edge strip or similar located at the top of the batter.
29. Intensive initial planting will reduce the establishment period and make maintenance of the bio-retention /rain garden easier by reducing the risk of weed invasion.



BIORETENTION CASCADE ARRANGEMENT

A	17.02.25	UPDATED SAB DETAILS	MP	SJD
-	02.10.24	FIRST ISSUE	MP	SJD

REV.	DATE	DETAILS	BY	CHK.
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AMENDMENTS

CLIENT:



PROJECT:

HAYDN TERRACE

DRAWING TITLE:
BIORETENTION CONSTRUCTION
DETAILS

DRAWN:	CHK:	STATUS:	SCALE:
MP	SJD	APPROVAL	NTS

DATE:	JOB NO.	DRG. NO.	REV.
OCT 2024	2308	113	A