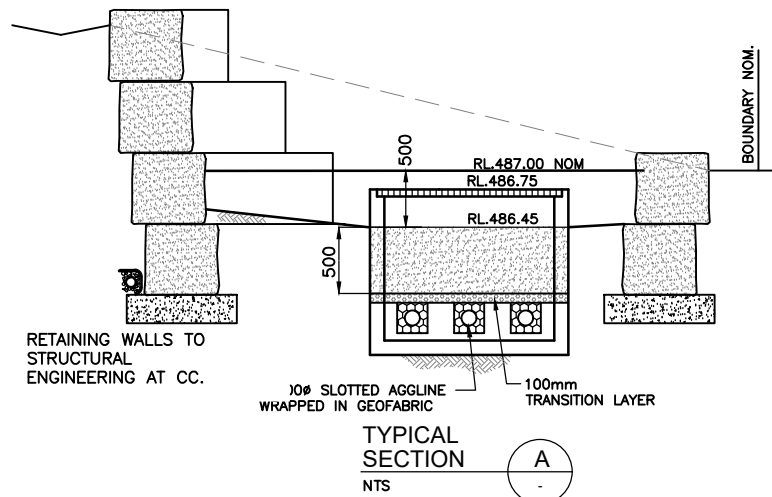


TYPICAL BIO-RETENTION FILTER DETAIL - RAINGARDEN
NTS

LAYER	SOIL TYPE	PARTICLE SIZE	SATURATED HYDRAULIC CONDUCTIVITY (mm/hr)
1	FILTER MEDIA	0.45	180
2	TRANSITION LAYER	1	3600
3	DRAINAGE LAYER	2	36000



BIO-RETENTION FILTER (BF):

BF1. FILTERS, SWALES AND BASINS TO BE CONSTRUCTED IN LOCATIONS AS LOCATED UPON THE DRAWINGS AND IN ACCORDANCE WITH THE DETAILS ON THE CIVIL DRAWING SET.

BF2. FILTER MEDIA AS SPECIFIED IS TO BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

FILTER MEDIA TYPE	MEDIAN PARTICLE SIZE (mm)	MAX SATURATED HYDRAULIC CONDUCTIVITY (mm/hr)
GRAVEL	2	36000
COARSE SAND	1	3600
SAND	0.7	360
SANDY LOAM	0.45	180

BF3. CONTRACTOR IS TO PROVIDE RELEVANT TESTING CERTIFICATION FROM THE MEDIA SUPPLIER SHOWING CONFORMANCE WITH THE ABOVE TABLE WITH RESPECT TO PARTICLE SIZE.

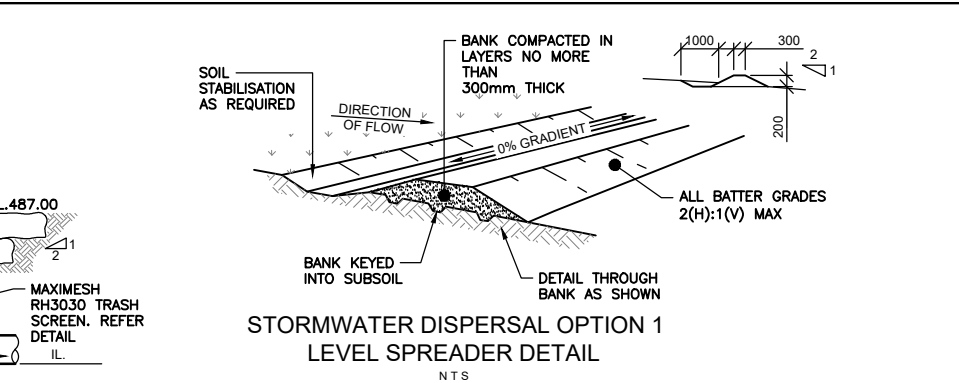
BF4. SUBSOIL DRAINS ARE TO BE INSTALLED UPON A 100mm LAYER OF THE FILTER MEDIA, WITHIN 300mm OF THE FILTER PIT EXCAVATION PERIMETER, AND AT A MAXIMUM 5 METRE SPACING-GRID THROUGHOUT THE FILTER AREA.

BF5. FILTERS OF LESS THAN OR EQUAL TO 2m WIDTH, I.E. FILTER TRENCHES MAY HAVE A SINGLE SUBSOIL DRAIN LOCATED CENTRALLY TO THE FILTER TRENCH AND IS TO EXTEND FOR THE FULL EXTENT OF THE FILTER TRENCH.

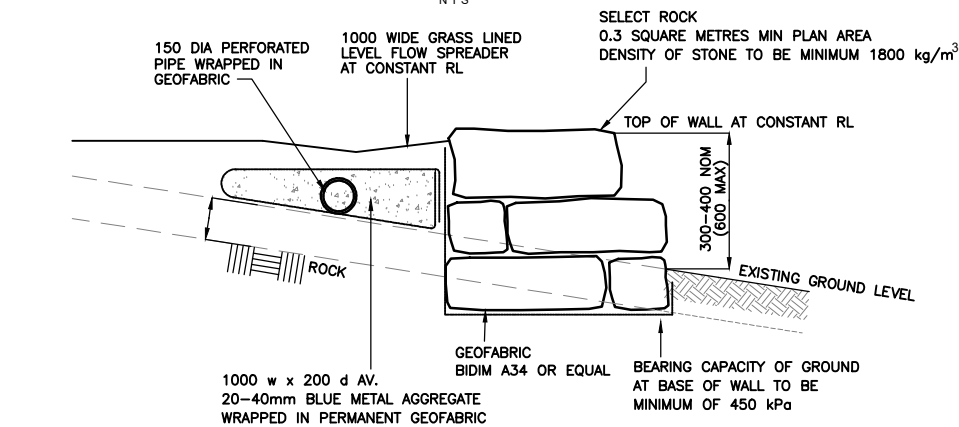
BF6. OUTLET LINES TO BE CONNECTED TO APPROVED FITTINGS AND TO FALL AT A MINIMUM OF 1% GRADIENT TO POINT OF OUTLET.

BF7. PERFORATED SUBSOIL uPVC CONDUITS ARE NOT TO BE USED THROUGH EARTHEN BASIN WALLS WITHOUT APPROVAL.

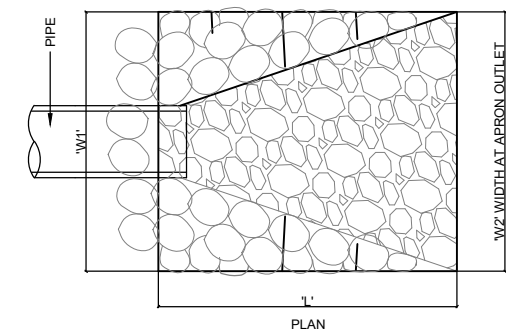
BF8. FILTER AREA PLANTING TO BE AS SPECIFIED ON THE DRAWINGS AND SHOULD BE OF A GRASS OR SHRUB OF TYPE CAREX, JUNCUS, GOODENIA OR FICINIA UNLESS NOTED OTHERWISE, AND AT A DENSITY AS SPECIFIED ON THE DRAWINGS OR AS SPECIFIED BY A QUALIFIED LANDSCAPE/HORTICULTURE CONSULTANT.



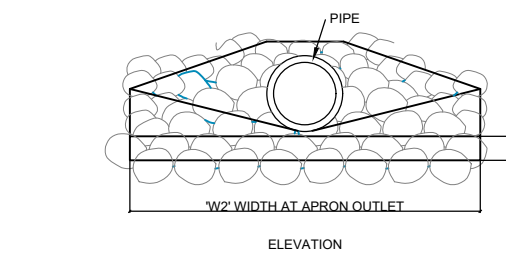
STORMWATER DISPERSAL OPTION 1
LEVEL SPREADER DETAIL
NTS



STORMWATER DISPERSAL OPTION 2
LEVEL SPREADER DETAIL
NTS



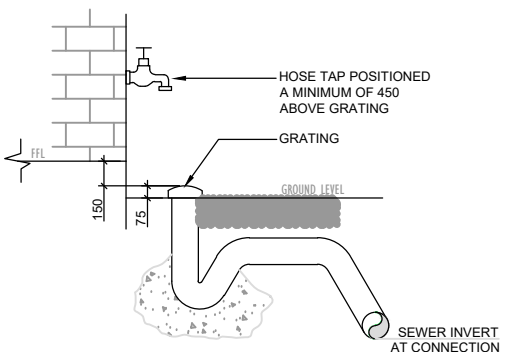
PLAN
NTS



ELEVATION
NTS

OUTLET ROCK SCOUR PROTECTION DETAIL
N.T.S.

DESCRIPTION	ROCK SIZES		L	W1	W2	T=TOE
	D ₅₀	D ₁₀				
OUTLET	300	100	3000	2000	3000	300



TYPICAL POSITIONING OF UNIT
OVERFLOW RELIEF GULLY
N.T.S.

CONSTRUCTION NOTES:

1. COMPACT THE SUBGRADE FILL TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL.
2. PREPARE A SMOOTH, EVEN FOUNDATION FOR THE STRUCTURE THAT WILL ENSURE THAT THE NEEDLE-PUNCHED GEOTEXTILE DOES NOT SUSTAINING SERIOUS DAMAGE WHEN COVERED WITH ROCK.
3. SHOULD ANY MINOR DAMAGE TO THE GEOTEXTILE OCCUR, REPAIR IT BEFORE SPREADING ANY AGGREGATE. FOR REPAIRS, PATCH ONE PIECE OF FABRIC OVER THE DAMAGE, MAKING SURE THAT ALL JOINTS AND PATCHES OVERLAP MORE THAN 300mm.
4. LAY ROCK FOLLOWING THE DRAWING, ACCORDING TO TABLE 5.2 OF LANDCOM (2004) AND WITH A MINIMUM DIAMETER OF 75mm.
5. ENSURE THAT ANY CONCRETE OR RIPRAP USED FOR THE ENERGY DISSIPATER OR THE OUTLET PROTECTION CONFORMS TO THE GRADING LIMITS SPECIFIED ON THE SWMP.



SAFETY SIGNS MUST BE FIXED AT ALL GREYWATER OUTLETS. SIGNS AND WARNING NOTICES MUST COMPLY WITH THE REQUIREMENTS OF AUSTRALIAN STANDARD AS1319 AND BE DISPLAYED AS SHOWN OPPOSITE (WITH VANDAL PROOF HEAD & LILAC)

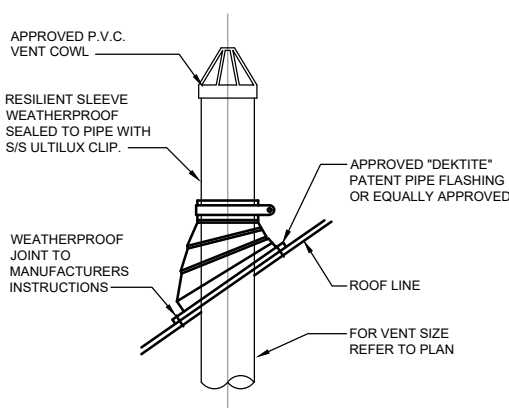
RECYCLED HOSE TAP DETAIL
N.T.S.

EARTHWORKS (EW):

- EW1. WITHIN EXTENTS OF WORK AREA, STRIP ALL TOPSOIL & STOCKPILE FOR LATER RE-USE (OR DISPOSE), REMOVE ALL STRUCTURES & DEBRIS. EXCAVATE, STOCKPILE OR DISPOSE OF MATERIAL TO EXPOSE SUB-GRADE AS SPECIFIED IN CUT AREAS.
- EW2. FOLLOWING STRIPPING THE EXPOSED SUB-GRADE MATERIALS ARE TO BE INSPECTED TO IDENTIFY ANY UNSOUND AREAS AND WHICH ARE TO BE REMOVED AND REINSTATED TO SPECIFICATION. BENCH & PROOF ROLL IN ACCORDANCE WITH AS3798 & PRESENT TO SUPERINTENDENT FOR APPROVAL.
- EW3. COMPACT SUB-GRADE TO 100% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT $\pm 2\%$ IN ACCORDANCE WITH AS 3798. SAND SUB-GRADES COMPACT TO DENSITY INDEX AS SPECIFIED IN THE CIVIL SPECIFICATION, REPORTS OR SUPERINTENDENTS INSTRUCTION.
- EW4. TESTING OF ALL COMPACTED FILL, SUB-GRADES AND PAVEMENTS, TO BE ALLOWED FOR BY THE CONTRACTOR AND BY NATA GEOTECHNICAL LABORATORY. TEST RESULTS TO BE SUPPLIED TO THE CERTIFYING ENGINEER.
- EW5. ALL PAVEMENTS OR BUILDING PADS TO BE COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT OR AS SPECIFIED ON THE DRAWINGS. THE CONSULTING ENGINEER IS TO INSPECT THE WORKS FOLLOWING COMPLETION OF BULK EARTHWORKS AND PRIOR TO COMMENCEMENT OF DETAILED EARTHWORKS.
- EW6. WHERE FILL IS PROPOSED ON NATURAL SURFACE SLOPES EXCEEDING 1V:4H GRADIENT, BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF FILL AND AS REQUIRED BY THE PCA'S INSPECTOR OF WORKS.
- EW7. ALL BATTERS ARE TO BE SCARIFIED TO ASSIST WITH ADHESION OF TOPSOIL TO THE BATTER FACE.
- EW8. ANY WORKS REQUIRING INTERFERENCE WITH ADJOINING LOTS ARE TO BE CONSENTED IN WRITING, PRIOR TO THE COMMENCEMENT OF WORKS.
- EW9. THE CONTRACTOR IS RESPONSIBLE FOR SET-OUT AND LEVEL CONTROL. ANY DISCREPANCIES BETWEEN DESIGN AND SITE CONDITIONS TO BE RESOLVED BY THE PCA'S INSPECTOR OF WORKS PRIOR TO PROCEEDING.
- EW10. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH AS3798. THE GEOTECHNICAL ENGINEER IS TO HAVE CLASS 2 RESPONSIBILITY PER AS3798 APP B, AND SHALL CERTIFY COMPLIANCE OF THE EARTHWORKS WITH DRAWINGS AND SPECIFICATIONS AT COMPLETION OF THE WORKS.
- EW11. UPON COMPLETION OF WORKS ALL SPOIL, CONSTRUCTION MATERIAL, FENCES ETC ARE TO BE REMOVED FROM SITE BY CONTRACTOR.

SUBGRADE PREPARATION (SP):

- SP1. SUB-GRADE PREPATION MAY CONSIST OF SUBGRADE REPLACEMENT. CRUSHED SANDSTONE ORSIMILAR CAN BE USED AS REPLACEMENT SUB-GRADE MATERIAL.
- SP2. SUBGRADE PREPARATION SHOULD CONSIST OF THE FOLLOWING:
- (a) STRIP EXISTING SUB-GRADE MATERIALS TO A DEPTH OF 0.5m BELOW DESIGN SUB-GRADE LEVELS.
 - (b) PROOF ROLL EXPOSED SURFACES WITH AT LEAST 8 PASSES, USING A MEDIUM SIZED STEEL DRUM FLAT ROLLER OF APPROX 8 TONNE STATIC CAPACITY, FOR DETECTION OF SOFT OR COMPRESSIBLE ZONES.
 - (c) EXCAVATE ANY SOFT AND/OR COMPRESSIBLE ZONES A FURTHER 300mm AND REPLACE WITH CRUSHED SANDSTONE IN LAYERS NOT EXCEEDING 250mm LOOSE THICKNESS, COMPACTED TO A MINIMUM DRY DENSITY RATIO OF AT LEAST 100% STANDARD.
 - (d) REPLACEMENT SUBGRADE MATERIALS, COMPRISING CRUSHED SANDSTONE OR SIMILAR, CAN BE REPLACED IN LAYERS NOT EXCEEDING 250mm LOOSE THICKNESS, COMPACTED TO A MINIMUM DRY DENSITY RATIO OF AT LEAST 100% STANDARD AT WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
- SP3. THE GEOTECHNICAL ENGINEER SHALL VERIFY THE SUITABILITY OF THE EXISTING PAVEMENT PRIOR TO WORKS. CBR SAMPLES TO BE TAKEN. PAVEMENT DESIGN TO BE FORWARDED TO COUNCIL FOR APPROVAL.



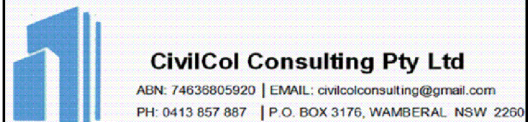
TYPICAL VENT TERMINATION DETAIL
N.T.S.

MINIMUM PIPE COVER-AS/NZS 3500.3			
LOCATION	Cast iron, ductile iron, galvanised steel	Other authorised products*	
	MINIMUM DEPTH OF COVER		
1. Not subject to vehicle loadings			
a) Without pavement - (i) For single dwellings (ii) For other then item (i)	NIL NIL	100 300	
b) With pavement of brick or unreinforced concrete	NIL#	50#	
2. Subject to vehicular loadings			
a) Other then roads - (i) Without pavement (ii) with pavement of - (A) Reinforced concrete for heavy vehicle loading (B) Brick or unreinforced concrete for light vehicular loading	300 NIL# Δ NIL# Δ	450 100# Δ 75# Δ	
b) Roads - (i) Sealed (ii) Unsealed	300 300	500 Δ 500 Δ	
3. Subject to construction equipment or embankment conditions	300	500 Δ	
* Indicates overlay above top of pipe of not less than 50mm thick # Below underside of pavement Δ Subject to compliance with AS1762, AS2033, AS/NZS2566.1, AS3725, AS4060.			
MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS - AS/NZS 3500.3:			
DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSION (mm)		
	RECTANGULAR		CIRCULAR
	WIDTH	LENGTH	DIAMETER
≤ 600	450	450	600
$> 600 \leq 900$	600	600	900
$> 900 \leq 1200$	600	900	1000
> 1200	900	900	1000

24.7.23	04 - BASIN REV, NoBE NOTES
29.5.23	03 - S34 REVISION
20.5.23	02 - S34 SUBMISSION
27.1.22	01 - CONCEPT ISSUE
DATE:	DRAWING ISSUE:

CLIENT:
TODERELLO

PROJECT:
PROPOSED ADDITION & ANCILLIARY DEPARTMENT
731 GREAT WESTERN HIGHWAY
FALCONBRIDGE, NSW



DRAWN: JF	APPROVED:	
CHECKED: CF		
DATE: 27.1.22		
JOB: 2021_246	C.FISHER, BE, MIEAust, CPEng, NER 719120, (CIVIL AND STRUCTURAL)	
DRG: C 07	REV: 04	SH: 7 of 8