LAHC PAGEWOOD DEVELOPMENT

PART 5 SUBMISSION
CIVIL ENGINEERING PACKAGE

IMAGE SOURCE : NEARMAPS

LOCALITY PLAN

DRAWING LIST	
DRAWING NUMBER	DRAWING TITLE
DA-C01.01	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
DA-C02.01	EROSION AND SEDIMENT CONTROL PLAN
DA-C02.11	EROSION AND SEDIMENT CONTROL DETAILS
DA-C03.01	STORMWATER MANAGEMENT PLAN
DA-C04.01	CIVIL DETAILS

DRAWN: J. KNIGHT DESIGNED: T. VAN KOEVEROEN JOB MANAGER: K.SINCLAIR VERIFIER: K.SINCLAIR

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		TVK	08.12.22
2	ISSUED FOR APPROVAL	JK	KS	TVK	17.01.23

CLIENT: NSW Land and Housing Corporation

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ARCHITECT: CKDS

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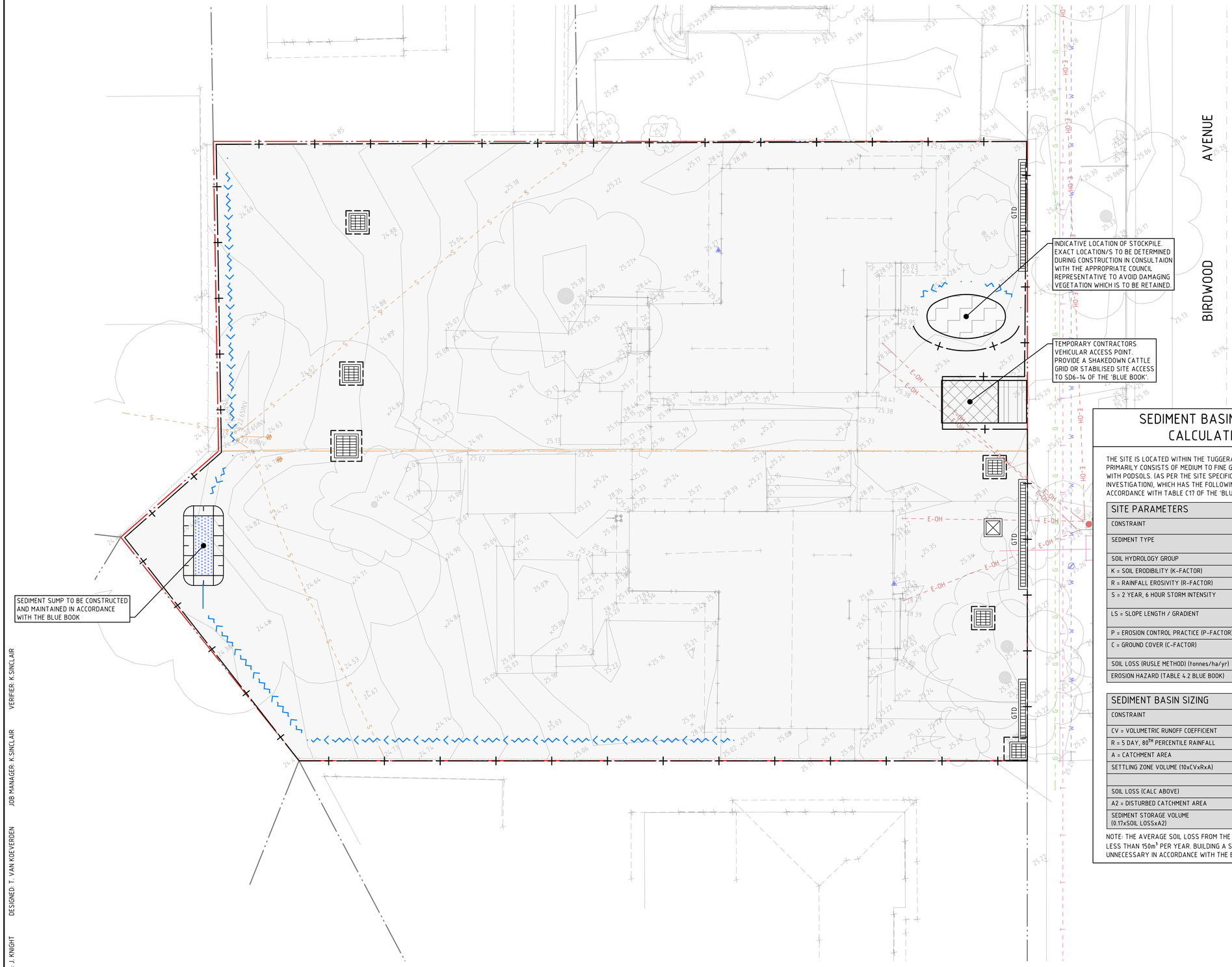
NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: LAHC PAGEWOOD DEVELOPMENT
36 - 38 BIRDWOOD AVENUE
PAGEWOOD
NSW 2035

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
COVER SHEET, DRAWING LIST AND LOCALITY PLAN

JOB NUMBER: NL213392
DRAWING NUMBER: DA-C01.01
REVISION: 2
DRAWING SHEET SIZE = A1

Date : 17.01.2023 5:17 PM Plotted By : JOSH KNIGHT Found : Y:\YEAR 2021 Jobs\NL213392-00 - LAHC 36-38 Birdwood Street Pagewood\5i - Drawings\CIVIL\03-CAD\DA\NL213392-DA 01.01 COVER SHEET.dwg



LEGEND

- SITE BOUNDARY LINE
- SEDIMENT FENCE
- INDICATIVE EXTENT OF PROPOSED WORKS
- DROP INLET SEDIMENT TRAP
- DIVERSION DRAIN (CLEAN)
- STABILISED SITE ACCESS
- STOCKPILES
- SEDIMENT BASIN
- EXISTING CONTOURS

SEDIMENT BASIN SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE TUGGERAH SOIL LANDSCAPE AND PRIMARILY CONSISTS OF MEDIUM TO FINE GRAINED "MARINED" SAND WITH PODSOLS. (AS PER THE SITE SPECIFIC GEOTECHNICAL INVESTIGATION), WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C17 OF THE 'BLUE BOOK'):

SITE PARAMETERS	
CONSTRAINT	VALUE
SEDIMENT TYPE	C
SOIL HYDROLOGY GROUP	B
K = SOIL ERODIBILITY (K-FACTOR)	0.016
R = RAINFALL EROSIVITY (R-FACTOR)	3600
S = 2 YEAR, 6 HOUR STORM INTENSITY	12.90
LS = SLOPE LENGTH / GRADIENT	2125 (33. SLOPE @ 2.50% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	17
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW

SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.25	
R = 5 DAY, 80TH PERCENTILE RAINFALL	29.70	mm
A = CATCHMENT AREA	0.128	ha
SETTLING ZONE VOLUME (10xCVxRxA)	9.504	m^3
SOIL LOSS (CALC ABOVE)	13	m^3/ha/yr
A2 = DISTURBED CATCHMENT AREA	0.128	ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	1.66	m^3

NOTE: THE AVERAGE SOIL LOSS FROM THE AREA OF DISTURBANCE IS LESS THAN 150m^3 PER YEAR. BUILDING A SEDIMENT BASIN IS UNNECESSARY IN ACCORDANCE WITH THE BLUE BOOK SECTION 6.3.2 (d).

NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ON-SITE, IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION. LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION AND SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS AND SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING AND BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
3. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
4. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
5. INSTALL SEDIMENT FENCING, OR OTHER SEDIMENT CONTROL DEVICES, AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT OR APPROPRIATE COUNCIL OFFICER.
6. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
7. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB AND GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION.
8. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
9. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE SPREAD ON-SITE AS DIRECTED BY THE SUPERINTENDENT OR REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
10. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
11. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
12. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
13. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.

NOT FOR CONSTRUCTION

DRAWN: J. KNIGHT
DESIGNED: T. VAN KOEVEROEN
JOB MANAGER: K.SINCLAIR
VERIFIER: K.SINCLAIR

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ARCHITECT
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SCALE 1:100 @ A1
0 1 2 3 4 5m

NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT
LAHC PAGEWOOD DEVELOPMENT

36 - 38 BIRDWOOD AVENUE PAGEWOOD NSW 2035

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

EROSION AND SEDIMENT CONTROL PLAN

JOB NUMBER **NL213392**

DRAWING NUMBER **DA-C02.01**

REVISION **2**

DRAWING SHEET SIZE = A1

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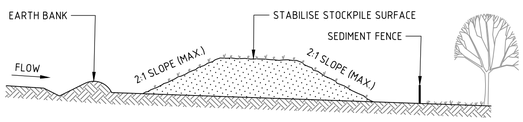
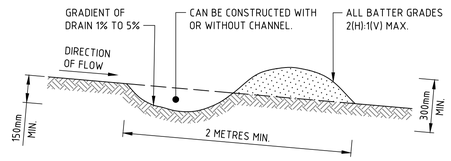


CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILES (SD 4-1)

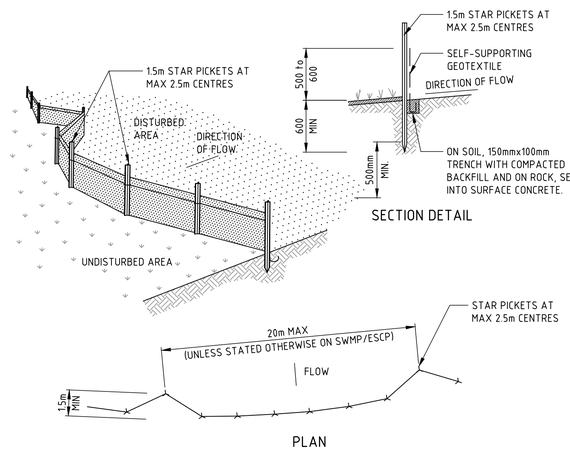


CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

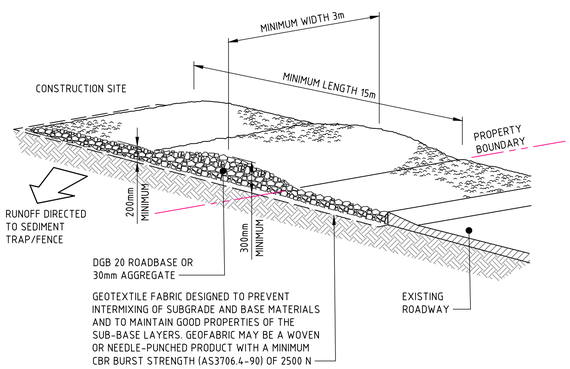
EARTH BANK - LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

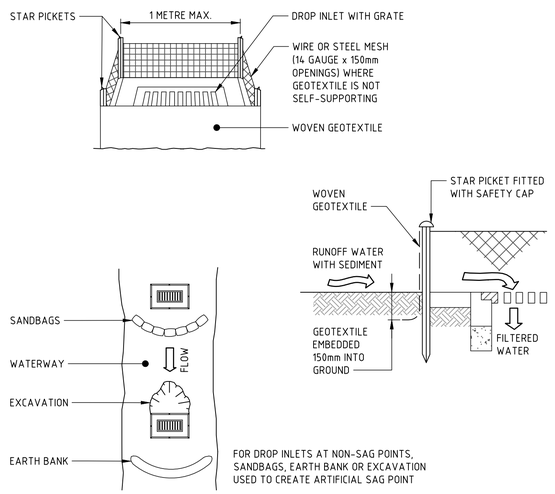
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER (SD 6-12)

NOT FOR CONSTRUCTION

DESIGNED: T. VAN KOEVERDEN
DRAWN: J. KNIGHT
VERIFIER: K.SINCLAIR
JOB MANAGER: K.SINCLAIR

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Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
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36 - 38 BIRDWOOD AVENUE
PAGEWOOD
NSW 2035

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
EROSION AND SEDIMENT CONTROL DETAILS

JOB NUMBER: NL213392
DRAWING NUMBER: DA-C02.11
REVISION: 2
DRAWING SHEET SIZE = A1

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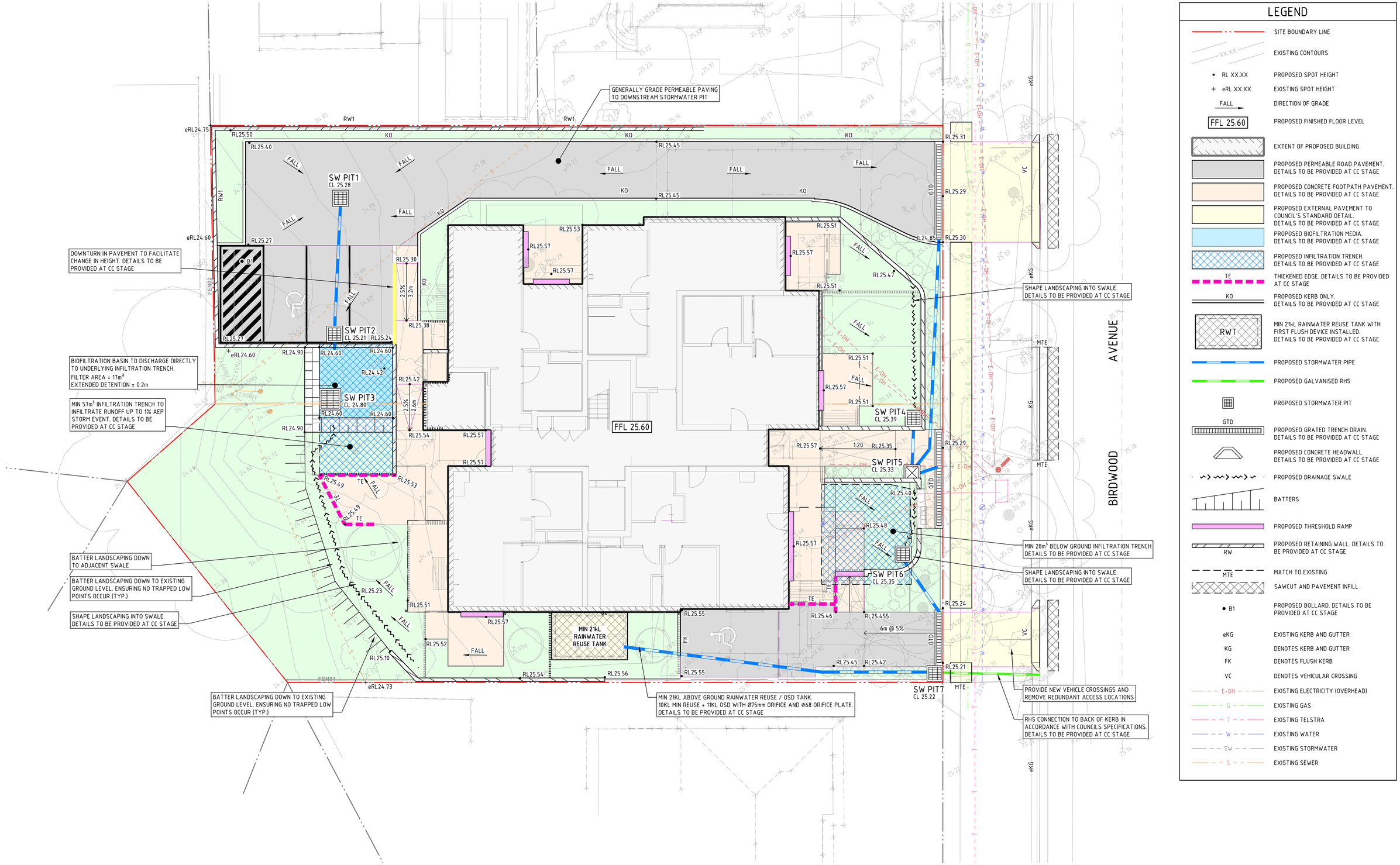

LEGEND

- SITE BOUNDARY LINE
- EXISTING CONTOURS
- RL XX.XX — PROPOSED SPOT HEIGHT
- eRL XX.XX — EXISTING SPOT HEIGHT
- FALL — DIRECTION OF GRADE
- FFL 25.60 — PROPOSED FINISHED FLOOR LEVEL
- EXTENT OF PROPOSED BUILDING
- PROPOSED PERMEABLE ROAD PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED CONCRETE FOOTPATH PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED EXTERNAL PAVEMENT TO COUNCIL'S STANDARD DETAIL. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED BIOFILTRATION MEDIA. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED INFILTRATION TRENCH. DETAILS TO BE PROVIDED AT CC STAGE
- TE — THICKENED EDGE. DETAILS TO BE PROVIDED AT CC STAGE
- KO — PROPOSED KERB ONLY. DETAILS TO BE PROVIDED AT CC STAGE
- RWT — MIN 21kL RAINWATER REUSE TANK WITH FIRST FLUSH DEVICE INSTALLED. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED STORMWATER PIPE
- PROPOSED GALVANISED RHS
- PROPOSED STORMWATER PIT
- GTD — PROPOSED GRATED TRENCH DRAIN. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED CONCRETE HEADWALL. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED DRAINAGE SWALE
- BATTERS
- PROPOSED THRESHOLD RAMP
- RW — PROPOSED RETAINING WALL. DETAILS TO BE PROVIDED AT CC STAGE
- MTE — MATCH TO EXISTING
- SAWCUT AND PAVEMENT INFILL
- B1 — PROPOSED BOLLARD. DETAILS TO BE PROVIDED AT CC STAGE
- eKG — EXISTING KERB AND GUTTER
- KG — DENOTES KERB AND GUTTER
- FK — DENOTES FLUSH KERB
- VC — DENOTES VEHICULAR CROSSING
- E-OH — EXISTING ELECTRICITY (OVERHEAD)
- G — EXISTING GAS
- T — EXISTING TELSTRA
- W — EXISTING WATER
- SW — EXISTING STORMWATER
- S — EXISTING SEWER

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PROJECT
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36 - 38 BIRDWOOD AVENUE PAGEWOOD NSW 2035

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
STORMWATER MANAGEMENT PLAN

JOB NUMBER **NL213392**
DRAWING NUMBER **DA-C03.01**
REVISION **3**
DRAWING SHEET SIZE = A1

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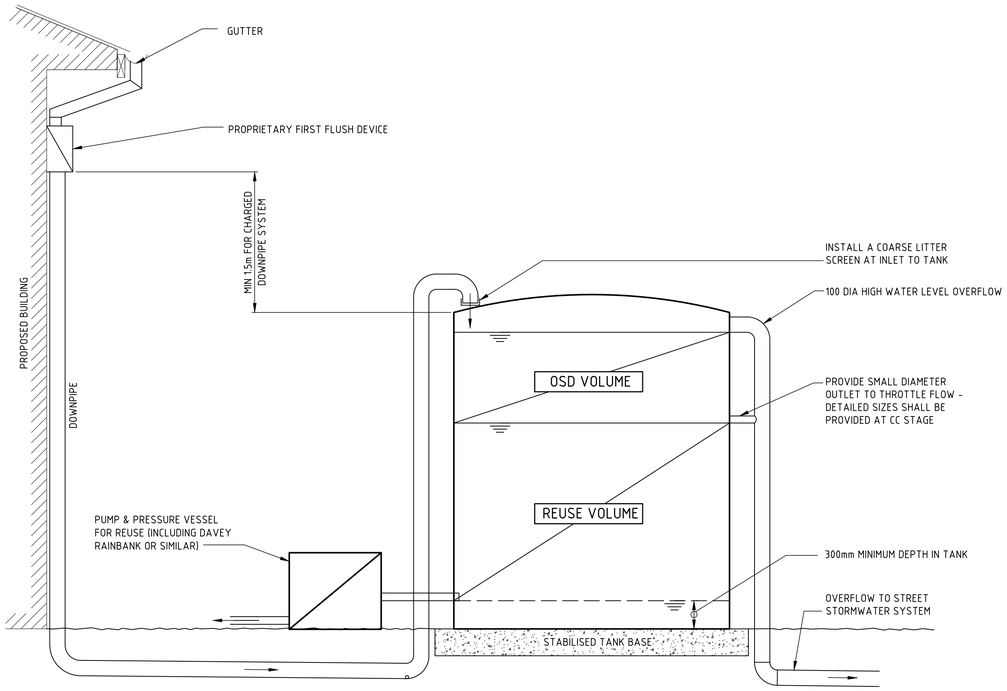

TYPICAL REUSE/OSD ABOVE GROUND TANK DETAIL

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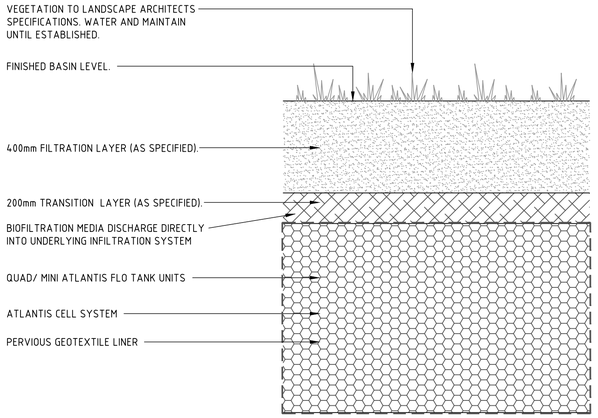

BIOFILTRATION SYSTEM TYPICAL SECTION

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PROPOSED STORMWATER MANAGEMENT SUMMARY

LGA: LAKE MACQUARIE CITY COUNCIL (LMCC)
NORTHROP CONSULTING ENGINEERS HAVE PREPARED A CONCEPT STORMWATER DRAINAGE DESIGN FOR THE PROPOSED DEVELOPMENT AT 36-38 Birdwood Avenue, WHICH INCLUDES THE CONSTRUCTION OF 10 Seniors housing UNITS, ASSOCIATED PERVIOUS VEHICULAR PAVEMENT, STORMWATER INFRASTRUCTURE AND LANDSCAPING. THIS DESIGN HAS BEEN UNDERTAKEN IN ACCORDANCE WITH THE CoBB DEVELOPMENT CONTROL PLAN 2013, CoBB STORMWATER MANAGEMENT TECHNICAL GUIDELINES AND AS3500.3:2015 PLUMBING AND DRAINAGE - STORMWATER DRAINAGE

1. WATER QUANTITY MANAGEMENT

TOTAL SITE AREA	= 1,280m^2/
POST DEVELOPED IMPERVIOUS AREA	= 759.2m^2/
POST DEVELOPED ROOF AREA	= 513m^2/
POST DEVELOPED PAVED AREA	= 520.8m^2/

STORMWATER INFILTRATION AND DETENTION HAVE BEEN PROVIDED IN ORDER TO LIMIT POST DEVELOPED PEAK FLOWS LEAVING THE SITE TO THAT OF THE PRE-DEVELOPED SCENARIO (WHERE THE PRE DEVELOPED CONDITION IS TO BE ASSUMED A 100% PERVIOUS SITE). THE SITE HAS TWO CATCHMENTS WITH THE NORTHERN CATCHMENT DRAINING TO BIRDWOOD AVENUE AND THE SOUTHERN CATCHMENT SHEETING ACROSS THE SITE'S SOUTHERN BOUNDARY INTO THE NEIGHBOURING PROPERTIES. THE NORTHERN CATCHMENT IS MANAGED USING INFILTRATION, ONSITE DETENTION AND THEN A SMALL AREA BYPASSES. THE PROPOSED ROOF CATCHMENT DRAINS TO A 21KL RAINWATER REUSE / OSD TANK WITH 11KL DEDICATED TO OSD STORAGE AND A Ø75MM AND Ø68MM ORIFICE PLATE. THE DRIVEWAY AREA, COURTYARDS AND ENTRY FOOTPATHS GENERALLY DRAIN TO AN INGROUND INFILTRATION TRENCH LOCATED NEAR THE NORTHERN SITE BOUNDARY. THE INFILTRATION TRENCH HAS BEEN SIZED USING ONSITE INFILTRATION RATE OF $6.7X10^{-6}$M/SEC PROVIDED BY STS GEOTECHNICS (REPORT NO. 22/3495A) FOR ALL STORMS UP TO AND INCLUDING THE 1% AEP EVENT IN DRAINS.

THE SOUTHERN CATCHMENT IS MANAGED VIA AN INFILTRATION TRENCH THAT HAS BEEN SIZED USING ONSITE INFILTRATION RATE OF $6.7X10^{-6}$M/SEC PROVIDED BY STS GEOTECHNICS (REPORT NO. 22/3495A) FOR ALL STORMS UP TO AND INCLUDING THE 1% AEP EVENT IN DRAINS. THE REMINING SOUTHERN BYPASS CATCHMENT FOLLOWS THE EXISTING DRAINAGE REGIME AND SHEETS INTO THE NEIGHBOURING PROPERTY.

THE RESULTS OF THE DRAINS MODELLING CAN BE SEEN IN TABLE 1 BELOW

CATCHMENT	EY	PRE-FLOWRATE (m^3/S)	POST-FLOWRATE (m^3/S)
NORTHERN CATCHMENT	0.200	0.090	0.009
	0.100	0.012	0.010
	0.050	0.014	0.013
	0.020	0.015	0.015
	0.010	0.017	0.017
SOUTHERN CATCHMENT	0.200	0.024	0.004
	0.100	0.029	0.005
	0.050	0.034	0.006
	0.020	0.041	0.007
	0.010	0.048	0.008

IT IS NOTED THAT THE 10KL ABOVE GROUND RETENTION VOLUME OF THE ABOVE GROUND RAINWATER REUSE TANK HAS NOT BEEN INCLUDED IN THIS ASSESSMENT, WHICH WOULD FURTHER REDUCE POST DEVELOPED FLOW RATES. THE DRAINS MODEL CAN BE PROVIDED TO COUNCIL UPON REQUEST.

2. WATER QUALITY MANAGEMENT

TO MINIMISE ANY ADVERSE IMPACTS ON THE DOWNSTREAM WATERCOURSES, STORMWATER TREATMENT DEVICES HAVE BEEN INCLUDED IN THE DESIGN FOR THE PROPOSED DEVELOPMENT. A MUSIC MODEL WAS DEVELOPED TO DETERMINE THE EFFECTIVE TREATMENT PROVIDED BY THE PROPOSED STORMWATER TREATMENT DEVICES. COBB'S STORMWATER QUALITY TARGETS ARE PROPOSED TO BE MET BY UTILISING THE FOLLOWING TREATMENT TRAIN:

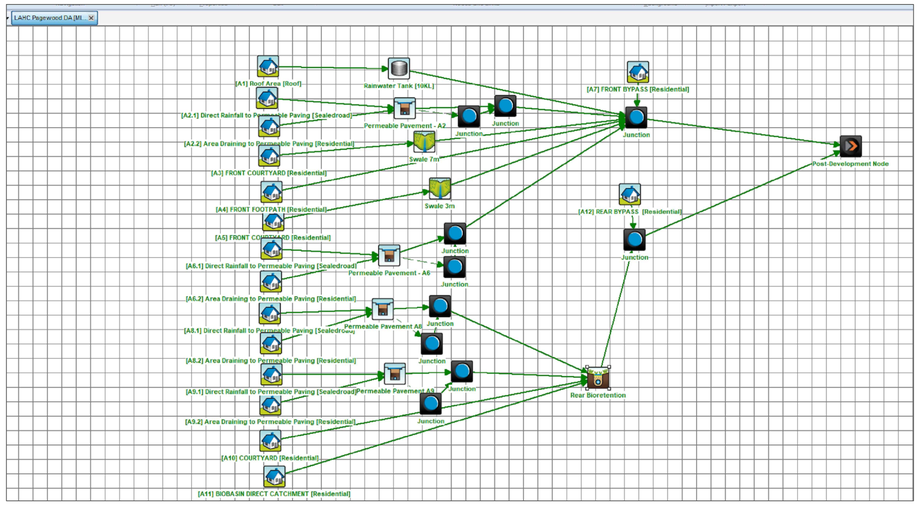
- 10KL RAINWATER REUSE TO HARVEST RUNOFF FROM THE ROOF. WATER TO BE RETICULATED INTERNALLY FOR TOILET FLUSHING AND EXTERNALLY FOR LANDSCAPE IRRIGATION;
- 1 X 7M LANDSCAPED SWALE TO TREAT RUN OFF FROM A FRONT COURTYARD.
- 1 X 3M LANDSCAPED SWALE TO TREAT RUNOFF FROM A FRONT COURTYARD.
- ADBRI PERMEABLE VEHICULAR PAVEMENT TO TREAT RUNOFF FROM DRIVEWAY AND ADJACENT SURFACES BEFORE DISCHARGING INTO THE INFILTRATION TRENCHES.
- 17M^2 BIOFILTRATION BASIN WITH 0.2m EXTENDED DETENTION.

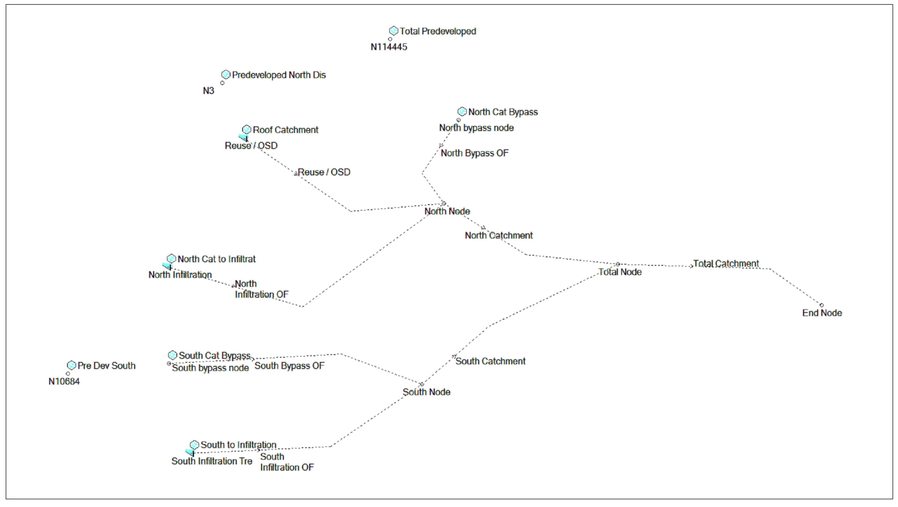
THE PROPOSED TREATMENT TRAIN WAS ASSESSED IN THE CONCEPTUAL SOFTWARE MUSIC (VERSION 6.3) AGAINST COUNCIL'S WATER QUALITY TARGETS. RESULTS ARE SHOWN IN TABLE 2 BELOW.

TABLE 2 - MUSIC MODEL RESULT SUMMARY

POLLUTANT CRITERIA	REDUCTION TARGETS (%)	SOURCE LOAD (kg/YR)	RESIDUAL LOAD (kg/YR)	REDUCTION ACHIEVED (%)
TOTAL SUSPENDED SOLIDS (TSS)	80.00	128.00	22.50	82.50
TOTAL PHOSPHROUS (TP)	55.00	0.284	0.11	62.50
TOTAL NITROGEN (TN)	40.00	2.23	1.27	43.00
TOTAL GROSS POLUTANTS (GP)	90.00	23.60	0.47	98.00

IT CAN BE SEEN IN THE ABOVE TABLE THE PROPOSED TREATMENT TRAIN WHEN MODELLED IN MUSIC USING A COMBINATION OF TREATMENT DEVICES WAS SUFFICIENT IN PROVIDING REMOVAL OF STORMWATER POLLUTANTS TO SUGGESTED REQUIREMENTS FROM COBB. THE MUSIC MODEL CAN BE PROVIDED TO COUNCIL UPON REQUEST.





VERIFIER: K.SINCLAIR
JOB MANAGER: K.SINCLAIR
DESIGNED: T. VAN KOEVEREN
DRAWN: J. KNIGHT

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		TVK	08.12.22
2	ISSUED FOR APPROVAL	JK	KS	TVK	17.01.23

CLIENT: NSW Land and Housing Corporation

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NORTHROP
Newcastle
Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT: LAHC PAGEWOOD DEVELOPMENT
36 - 38 BIRDWOOD AVENUE
PAGEWOOD
NSW 2035

DRAWING TITLE: CIVIL ENGINEERING PACKAGE
CIVIL DETAILS

JOB NUMBER: NL213392
DRAWING NUMBER: DA-C04.01
REVISION: 2
DRAWING SHEET SIZE = A1

Date : 17.01.2023 5:17 PM Plotted By : JOSH KNIGHT Found : Y:\YEAR 2021 Jobs\NL213392-00 - LAHC 36-38 Birdwood Street Pagewood\5 - Drawings\CIVIL\03-CAD\DA\NL213392-DA-C04-01 DETAILS.dwg