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11 July 2023

Hannas Property Group
Suite 23.02 Governor Phillip Tower
1 Farrer Place
SYDNEY NSW 2000

Attention: Mr. Joe Quarello

Dear Joe,

RE: INDUSTRIAL UNITS AND STORAGE FACILITY
101-105 OLD PITTWATER ROAD, BROOKVALE
CIVIL ENGINEERING SUMMARY LETTER – S4.55

PROJECT OVERVIEW

It is proposed to construct a multi-level storage facility at the above-mentioned address. The existing site is approximately 4200m² and is a mixture of existing concrete hardstand and industrial style buildings and is located within the Northern Beaches Council local government area. The site area generally falls in an easterly direction and is set lower than Old Pittwater Road, which is the site's primary access point. Figure 1 shows the site location.

Figure 1: Location of site

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SURROUNDING ROADS AND STORMWATER INFRASTRUCTURE

As mentioned above, the site area generally falls in an easterly direction. Old Pittwater Road falls in a southerly direction. Due to the falls of the site, it is reasonable to conclude that it would form part of the greater catchment that drains to Brookvale Creek.

There is an existing Council drainage easement running along the eastern side of the site and existing inlet pits and a 750mm diameter stormwater line located along this easement. The legal point of connection for this site is to an existing pit in this easement and is shown on our detail plan drawing C102.

In a previous development application for the site directly to the north, Council required the upgrade of the pipework and pits within the stormwater easement which has been completed. The point of connection for this development at 101-105 Old Pittwater Road is into this easement line. The flows that will be discharged to this line are detailed in the stormwater strategy section of this report, however it should be noted that there will be no flows over and above what has been previously allowed for into the Council stormwater easement.

STORMWATER STRATEGY

As discussed earlier, the site has an area of approximately 0.42 hectares and currently drains in an easterly direction and ultimately to Brookvale Creek. The Northern Beaches council policy for this site is that all post development flows up to and including the 1%AEP (100ARI) rainfall event must be controlled to a greenfield/state of nature condition.

Our stormwater strategy plans C101 to C103 show how the developed state stormwater will be conveyed through the site. The ground level and upper level 1 will drain in an easterly direction via a piped gravity system. The lower basement level will incorporate a pump out pit. The entire site catchment areas will be directed to a proposed On-Site Detention (OSD) tank located below the ground level. In order to control the post development flows to the required rates, approximately 90m^3 of storage will be required in the tank. A combined internal discharge arrangement of an orifice and high-level overflow weir has been designed. Details of the tank, including assumed downstream tailwater levels are detailed on the drawing C201.

The connection point for the site is to the existing drainage easement at the east. The previous development directly to the north was required by Council to upgrade this stormwater line to accommodate a maximum of 310L/s. This flow was designed to be accommodated at the connection pit in the easement as shown on our C102 drawing. For reference, the previous engineering plans that were approved by Council for the northern development are included to this report as an attachment. It should be noted that the maximum discharge from the site is only 204 L/s in the 100ARI, which is less than half of what was allowed for. This is due to the Northern Beaches Council post development controls that are being followed for this development.

Drawing C250 shows the break-up of the post development catchment areas. Since the level 1 area is what is exposed, it is only this floor and associated roof/mezzanine areas that have been used for the piped drainage assessment. Detailed design of the pump out pit and lower-level drainage lines will be carried out at the CC stage.

The design of the OSD tank and level 1 piped system has been modelled using the DRAINS software. The DRAINS model prepared and submitted for the site stormwater system is;

- *21W12 – Drains[03].drn*

DRAINS MODELLING DATA

For the above-mentioned model, the DRAINS modelling software using. These data files are provided as an attachment to this report. the ARR 2016 procedures for rainfall and storm generation was used. The rainfall depths and temporal patterns are generated using the Bureau of Meteorology (BOM) and *ARR Data hub* websites respectively.

The site location and co-ordinates used for the data generation is;

Site: Brookvale, NSW
Co-ordinates: Latitude: 33.7625(S)
Longitude: 151.2625(E)

Table 1 below shows how the proposed OSD tank is effective in controlling the post development flows to pre-development/existing rates for a range of storm events from the 50% AEP(2ARI) to the 1% AEP(100ARI).

Table 1 – Pre and Post development flows

ARI	Pre (L/s)	Post (L/s)
2	55	55
5	90	69
10	117	77
20	142	85
100	204	204

WATER QUALITY STRATEGY

Council's water quality policy for this site is that is must be effective in reducing pollutant loads for the following;

Total Phosphorous – 65% reduction
Total Nitrogen – 45% reduction
Total Suspended Solids – 85% reduction
Gross Pollutants – 90% reduction

In order to achieve these targets, we have proposed a strategy that will pre-treat the stormwater runoff with 4 x OceanGuard pit baskets, followed by 4 x Psorb Stormfilter cartridges. These

devices will be located in the end of line On Site Detention (OSD) Tank. Refer to our plan C201 for the details of this tank and treatment and C251 for the water quality/MUSIC catchment plan and treatment results/reductions achieved.

MUSIC modelling was carried out to determine the treatment strategy. The model presented for review is;

- *21W12 – MUSIC[02].SQZ*

FLOODING

A flood information request was submitted with Northern Beaches Council for the development site at 101-105 Old Pittwater Road. On the 21st March 2021, we received the flood information certificate and advice from Council's Project Engineer, Ghazal Hosseini. The provided information showed that there is no Flood Planning Level (FPL) for the site, however there are 100ARI overland flows that currently impact the site. As can be seen on figure 2, the "purple" shaded areas are the 100ARI flow extents that enter the site. The existing site levels are lower than the Old Pittwater Road kerb. This means that when the flood levels overtop the kerb, they flow down and into the site as there is reverse cross fall from the kerb. The existing site levels and buildings/structures are such that these flows would be trapped and not be able to pass through and out of the eastern boundary of the site.

The provided flood information shows points around the site with nominated PMF and 100ARI flood levels. It should be noted that the provided flood information did not include any flow values for any storm event. Refer to figure 3 for the flood information table. Points 1, 2 and 3 are of most relevance to the proposed development. Because the development incorporates both a ground floor and basement floor that are below street level, there will need to be protection of all driveway and pedestrian entrances that are below the 100ARI overland flow level. The proposed strategy is to install a combination of water proof concrete hobs and flood gate systems across the frontage of the site that is potentially impacted. We have used the 100ARI flood levels along the kerb to determine what height the protective hobs and flood gates should be set to. A 300mm freeboard has been applied to these levels. Refer to drawing C102 for the location of the proposed protective measures. It should be noted that the 300mm freeboard is only applied to the 100ARI levels and not to the PMF. We are only ensuring that the protection is at or above the PMF which is line with best practice for flood protection.

No floodgate system is proposed across the southern most driveway. This is because this driveways grades directly upwards from the boundary (RL15.73) to Level 1 (RL20.52). The driveway ramp itself will act as the barrier in this location.

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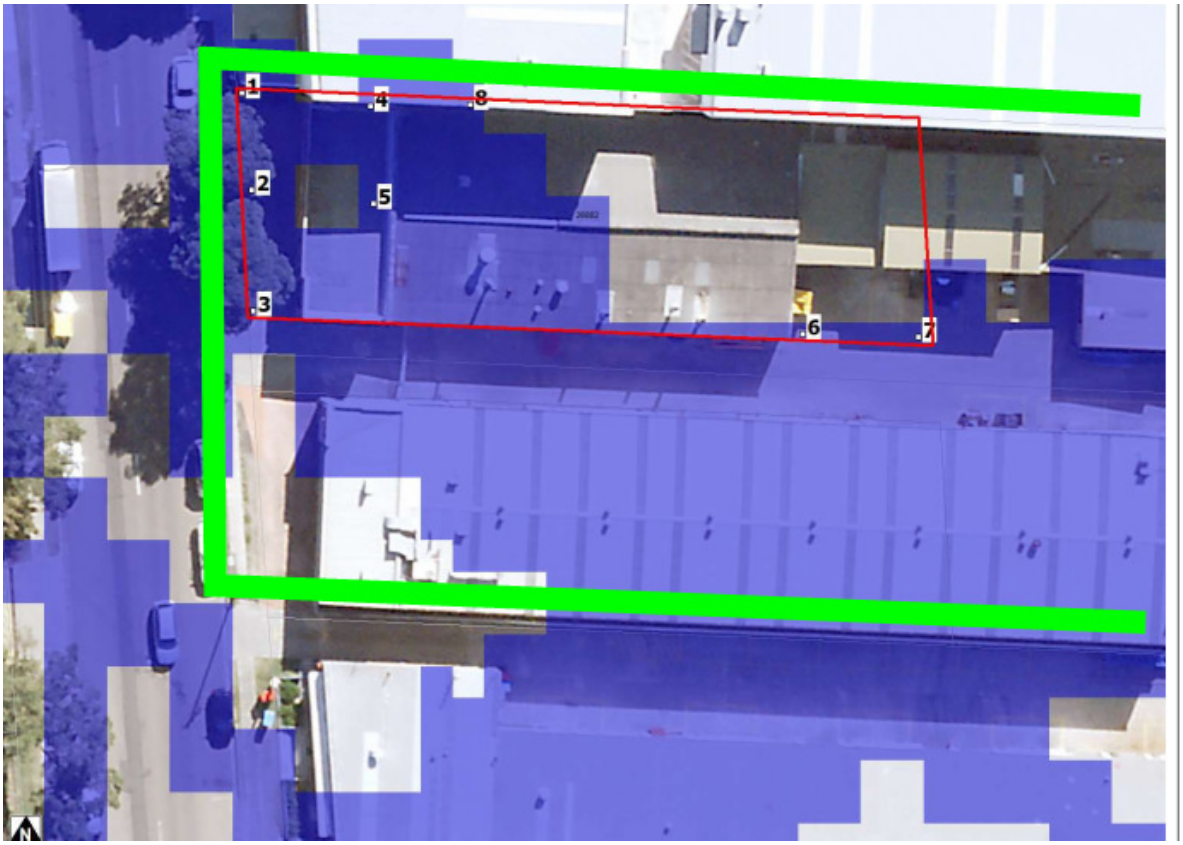

Figure 2: Overland flows impacting site area.

Flood Levels

ID	5% AEP Max WL (m AHD)	5% AEP Max Depth (m)	1% AEP Max WL (m AHD)	1% AEP Max Depth (m)	1% AEP Max Velocity (m/s)	Flood Planning Level (m)	PMF Max WL (m AHD)	PMF Max Depth (m)	PMF Max Velocity (m/s)
1	N/A	N/A	16.10	0.07	0.95	N/A	16.20	0.16	1.76
2	15.95	0.03	15.97	0.05	0.67	N/A	16.13	0.21	1.49
3	15.85	0.06	15.87	0.08	0.03	N/A	15.99	0.20	1.68
4	15.43	0.24	15.49	0.31	0.33	N/A	15.77	0.59	0.42
5	15.20	0.18	15.27	0.25	0.25	N/A	15.66	0.64	0.50
6	14.62	0.08	14.64	0.11	1.13	N/A	14.82	0.29	1.26
7	14.51	0.09	14.53	0.10	1.02	N/A	14.81	0.38	1.18
8	15.20	0.31	15.33	0.45	0.35	N/A	15.72	0.83	0.17

Figure 3: Flood levels from Flood information request.

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Floodgate System

The proposed flood gate system is a self-closing *HyfloSCFB* flood barrier. The gate is activated when an adjacent sump is filled with flood waters. When not in operation, the flood gate is concealed below the slab level within a cast-in slab sleeve. Refer to figure 4 that shows an example of the SCFB system during an activated scenario

Figure 4: Example of proposed automated flood gate system.

We believe that given the nature of the current flooding across the site, the proposed flood gate and concrete hob/barrier is an appropriate form of mitigation that adequately protects the development floor levels.

EROSION AND SEDIMENT CONTROL

During construction, appropriate sediment and erosion control measures need to be implemented to ensure that downstream receiving water are not adversely impacted. Our drawings SE01 and SE02 have detailed the required measures. These have been designed in accordance with the requirements of the *Landcom – Managing Urban Stormwater - Soils and Construction, Volume 1, 4th Edition March 2004*.

RAMP GRADES AND OVERFLOW GRADING

All internal ramp grades have been carried out by the Traffic Engineer. Please refer to CBRK plans for this detail. In terms of the hardstand/slab level grading, our detail plans C101-C103 show that the overflow routes for stormwater in an emergency blockage to the system is to the east and to

the drainage easement for the ground floor and to Old Pittwater Road (via the access ramp) for the upper level 1 area.

DRAWING LIST

The Civil S4.55 drawings provided for submission and to be read in conjunction with this report are;

DRAWING SCHEDULE	
21W12_S4.55_C000	COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH
21W12_S4.55_C101	BASEMENT DETAIL PLAN
21W12_S4.55_C102	GROUND FLOOR DETAIL PLAN
21W12_S4.55_C103	LEVEL 1 DETAIL PLAN
21W12_S4.55_C200	STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE
21W12_S4.55_C201	OSD PLAN, SECTIONS AND DETAILS
21W12_S4.55_C250	DRAINS CATCHMENT PLAN
21W12_S4.55_C251	MUSIC CATCHMENT PLAN
21W12_S4.55_SE01	SEDIMENT AND EROSION CONTROL PLAN
21W12_S4.55_SE02	SEDIMENT AND EROSION CONTROL TYPICAL SECTIONS & DETAILS

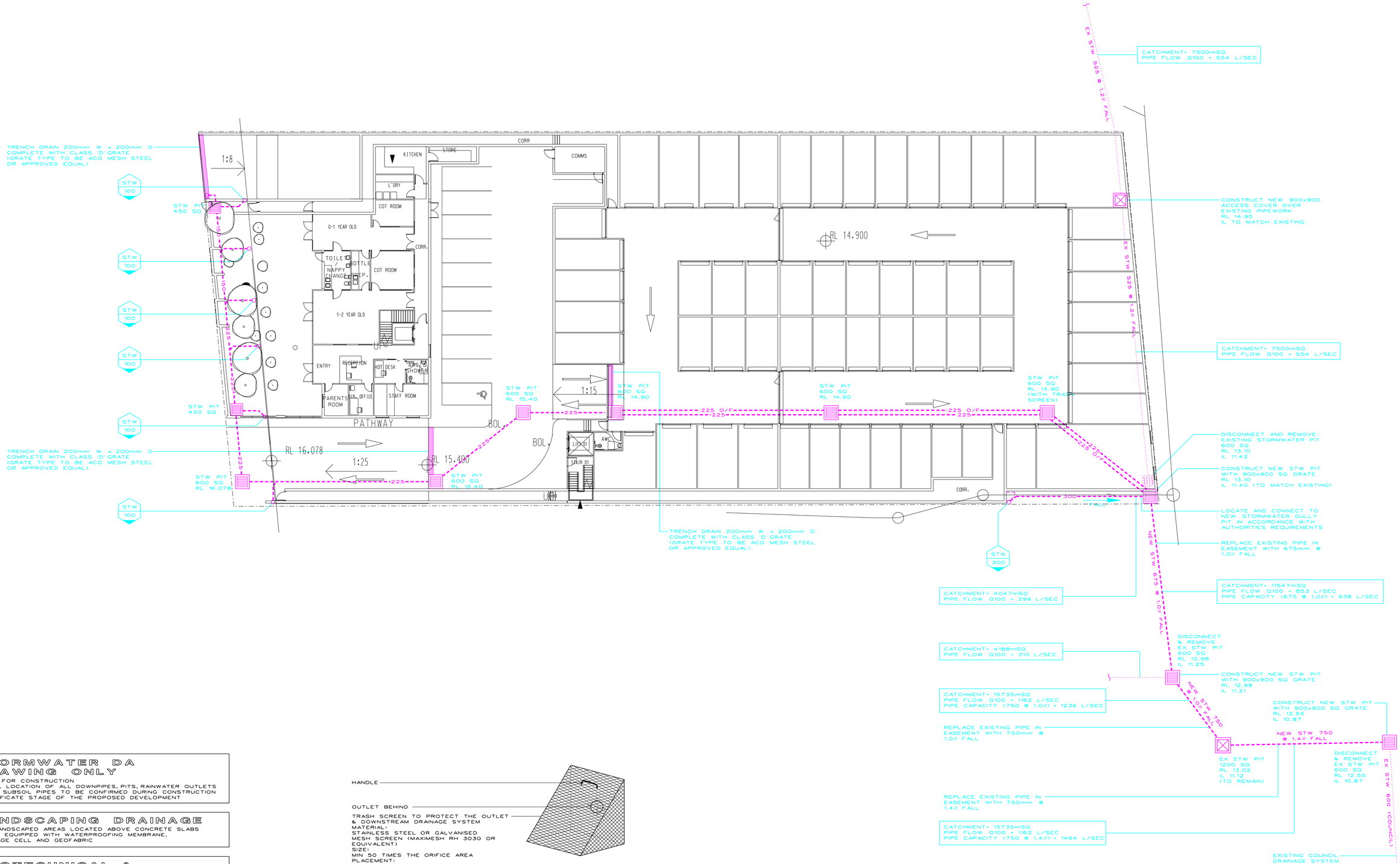
We trust this serves as an adequate summary and explanation for the nature of the storm water and grading issues related to this site.

Yours faithfully,

TOM DEMPSEY (Senior Civil Engineer)
For, and on behalf of,
H & H Consulting Engineers Pty Ltd

henry&hymas

ATTACHMENT A – PREVIOUS STORMWATER DESIGN FOR NORTHERN PROPERTY



STORMWATER DA DRAWING ONLY

- NOT FOR CONSTRUCTION
- FINAL LOCATION OF ALL DOWNPIPES, PITS, RAINWATER OUTLETS AND SUBSOIL PIPES TO BE CONFIRMED DURING CONSTRUCTION CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

LANDSCAPING DRAINAGE

ALL LANDSCAPED AREAS LOCATED ABOVE CONCRETE SLABS TO BE EQUIPPED WITH WATERPROOFING MEMBRANE, DRAINAGE CELL AND GEOFABRIC

GEOTECHNICAL & STRUCTURAL ADVICE

CARPARK, SUBSOIL, UPLIFT PRESSURE, VERTICAL WALL DRAINAGE AND PIT CONSTRUCTION DETAILS TO BE CONFIRMED / CO - ORDINATED WITH STRUCTURAL AND GEOTECHNICAL ENGINEERS DURING CONSTRUCTION CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

CATCHMENT AREAS

ALL CATCHMENT AREAS NOMINATED ON PLAN ARE APPROXIMATE ONLY AND BASE ON INFORMATION AVAILABLE AT TIME OF PRINTING.

DETAIL 1:
TRASH SCREEN
NTS

APPROVAL

REV	DESCRIPTION	DATE
C	RE-ISSUED FOR DA	08.04.15
B	RE-ISSUED FOR DA	09.03.15
A	ISSUED FOR DA	15.12.14

LIST OF REFERENCE DRAWINGS USED AS BACKGROUND

DISCIPLINE	COMPANY	DRAWING No	DRAWING REVISION
ARCH	R . L	TP1.01	3
ARCH	R . L		
SURVEY	WATSON BUCHAN	14/457	A
STRUCT			
MECH			
ELEC			
FIRE			

CLIENT
BRICKTOP TRUMEN

ARCHITECT
ROTHE LOWMAN ARCHITECTS

itmdesign pty ltd
consulting hydraulic engineers
unit 6 / 3 apollo st, warriewood nsw 2102
po box 1438 mona vale nsw 1660
tel (02) 9997 1566 fax (02) 9997 3266
email markus@itmdesign.com.au

PROJECT
97-99 OLD PITTWATER ROAD
BROOKVALE NSW 2100

DRAWING TITLE
GROUND FLOOR STORMWATER DRAINAGE

SCALE 1:200 at A1
JOB No 14/139
DISCIPLINE HYD
DRAWING No H-DA-01
REVISION C

STW DRAWING DA

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW
CIVIL ENGINEERING WORKS

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL SPECIFICATION. CONTRACTOR TO OBTAIN AND RETAIN A COPY ON SITE DURING THE COURSE OF THE WORKS.
2. ALL NEW WORKS ARE TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS AND MARRY IN A 'WORKMANLIKE' MANNER.
3. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY OR AS DETERMINED FROM SERVICE DIAGRAMS. H & H CONSULTING ENGINEERS PTY. LTD CANNOT GUARANTEE THE INFORMATION SHOWN NOR ACCEPT ANY RESPONSIBILITY FOR INACCURACIES OR INCOMPLETE DATA.
4. SERVICES & ACCESSES TO THE EXISTING PROPERTIES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES DURING CONSTRUCTION.
5. ADJUST EXISTING SERVICE COVERS TO SUIT NEW FINISHED LEVELS TO RELEVANT AUTHORITY REQUIREMENTS WHERE NECESSARY.
6. REINSTATE AND STABILISE ALL DISTURBED LANDSCAPED AREAS.
7. MINIMUM GRADE OF SUBSOIL SHALL BE 0.5% (1:200) FALL TO OUTLETS.
8. ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS, EROSION AND SEDIMENTATION CONTROL PLAN AND NORTHERN BEACHES COUNCIL REQUIREMENTS WHERE APPLICABLE.
9. CONTRACTOR TO CHECK AND CONFIRM SITE DRAINAGE CONNECTIONS ACROSS THE VERGE PRIOR TO COMMENCEMENT OF SITE DRAINAGE WORKS.
10. PROPERTIES AFFECTED BY THE WORKS ARE TO BE NOTIFIED IN ADVANCE WHERE DISRUPTION TO EXISTING ACCESS IS LIKELY.

EXISTING SERVICES & FEATURES

- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF HIS PROGRAM FOR THE RELOCATION/ CONSTRUCTION OF TEMPORARY SERVICES.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDING REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
- INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
- EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
- EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.

LOCALITY SKETCH

SCALE: N.T.S.

DRAWING SCHEDULE	
21W12_S4.55_C000	COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH
21W12_S4.55_C101	BASEMENT DETAIL PLAN
21W12_S4.55_C102	GROUND FLOOR DETAIL PLAN
21W12_S4.55_C103	LEVEL 1 DETAIL PLAN
21W12_S4.55_C200	STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE
21W12_S4.55_C201	OSD PLAN, SECTIONS AND DETAILS
21W12_S4.55_C250	DRAINS CATCHMENT PLAN
21W12_S4.55_C251	MUSIC CATCHMENT PLAN
21W12_S4.55_SE01	SEDIMENT AND EROSION CONTROL PLAN
21W12_S4.55_SE02	SEDIMENT AND EROSION CONTROL TYPICAL SECTIONS & DETAILS

SITEWORKS NOTES

- DATUM : A.H.D.
- ORIGIN OF LEVELS : REFER TO BENCH OR STATE SURVEY MARKS WHERE SHOWN ON PLAN.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
- ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS & THE DIRECTIONS OF THE SUPERINTENDENT.
- EXISTING SERVICES UNLESS SHOWN ON THE SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS ACHIEVED.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATION IS TO BE UNDERTAKEN OVER TELSTRA OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.
- CONTRACTOR TO OBTAIN AUTHORITY APPROVALS WHERE APPLICABLE.
- MAKE SMOOTH TRANSITION TO EXISTING SURFACES AND MAKE GOOD.
- THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED LANDSCAPE, ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT AT THE SITE.
- TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MINIMUM OF 50mm IN BITUMINOUS PAVING.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.
- GRADES TO PAVEMENTS TO BE AS IMPLIED BY RL'S ON PLAN . GRADE EVENLY BETWEEN NOMINATED RL'S. AREAS EXHIBITING PONDING GREATER THAN 5mm DEPTH WILL NOT BE ACCEPTED UNLESS IN A DESIGNATED SAG POINT.
- ALL COVERS AND GRATES ETC TO EXISTING SERVICE UTILITIES ARE TO BE ADJUSTED TO SUIT NEW FINISHED SURFACE LEVELS WHERE APPLICABLE.

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN THE TITLE BLOCK.
THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. HENRY AND HYMAS PTY. LTD. DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT HENRY AND HYMAS PTY. LTD. THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD
Architect: Rothelowman

Suite 2.01
828 Pacific Highway
Gordon NSW 2072

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Web www.henryandhymas.com.au

henry&hymas

Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

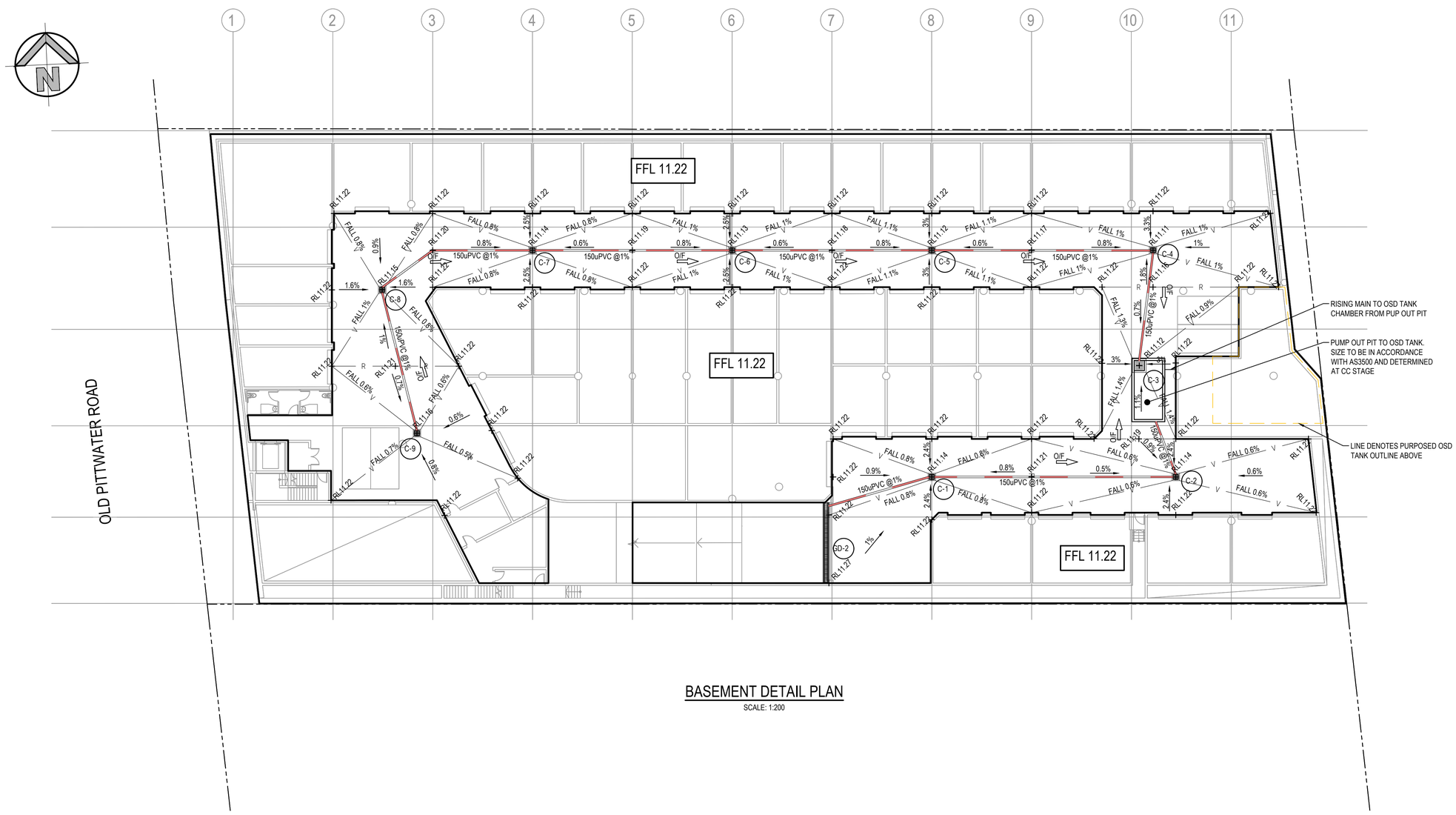
Title: COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	NTS

Drawing number: 21W12_S4.55_C000
Revision: 01

LEGEND

- EXISTING BOUNDARY
- PROPOSED SURFACE INLET PITS
- PROPOSED GRATED DRAIN
- PROPOSED STORMWATER PIPE
- PROPOSED RIDGE LINE
- PROPOSED VALLEY LINE
- RL5.60 PROPOSED SPOT LEVEL



BASEMENT DETAIL PLAN

SCALE: 1:200

NOTE:

DRIVEWAY/RAMP GRADES ARE NOT SHOWN ON THE CIVIL ENGINEERING PLANS. REFER TO ARCHITECTURAL AND TRAFFIC ENGINEER PLANS FOR DETAILS.

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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henry&hymas

Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

Title: BASEMENT DETAIL PLAN

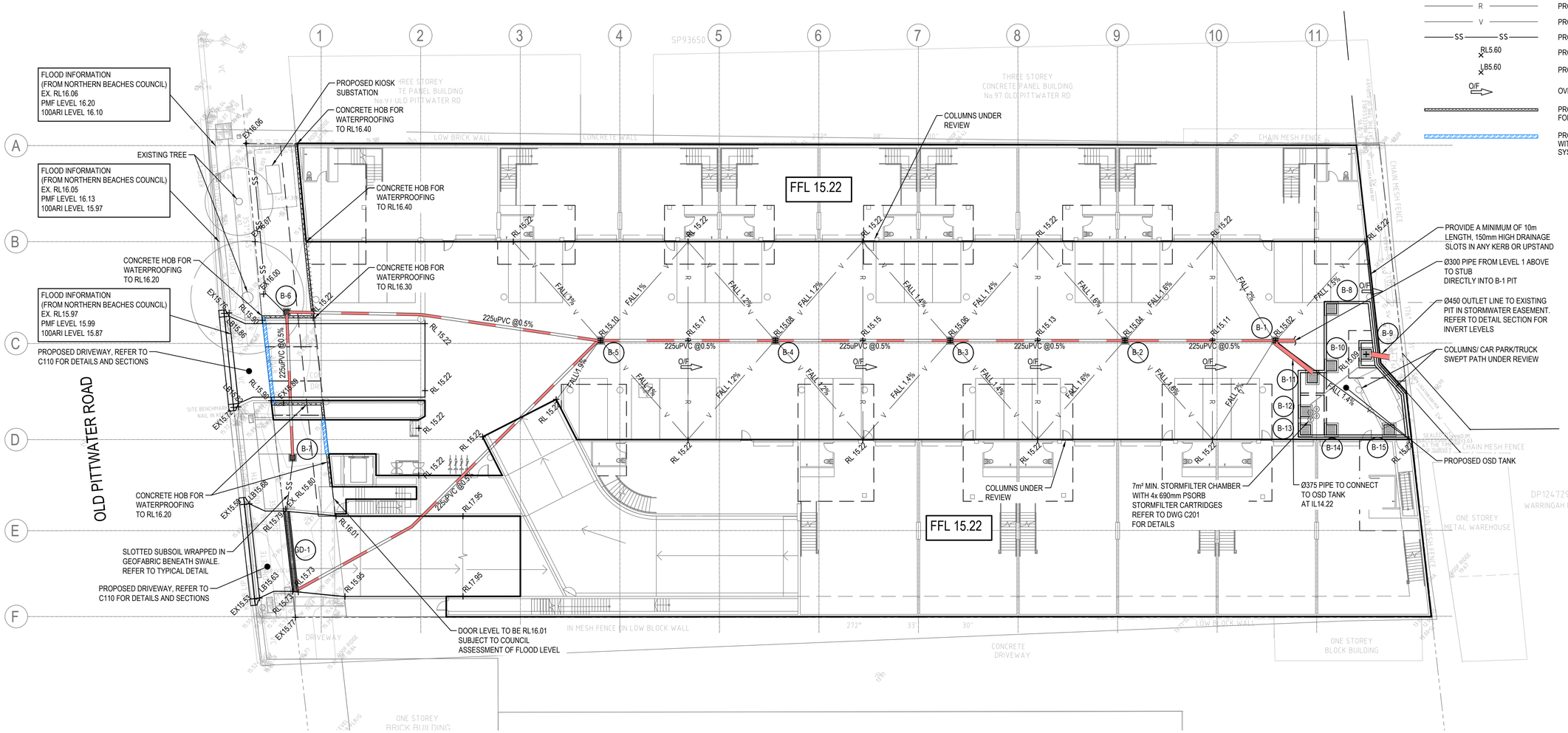
Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	1:200

Drawing number: 21W12_S4.55_C101

Revision: 01

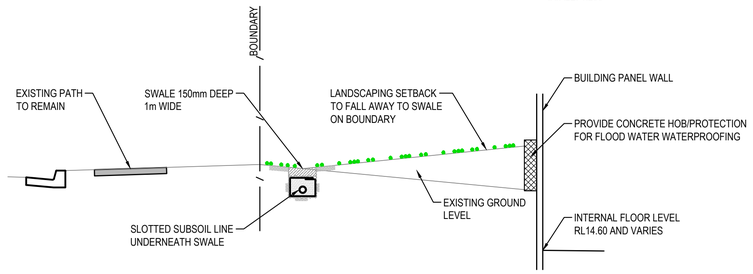
LEGEND

- EXISTING BOUNDARY
- PROPOSED SURFACE INLET PITS
- A-1 — LINE LETTER / PIT NUMBER — PROPOSED PIT TAG
- PROPOSED GRATED DRAIN
- PROPOSED STORMWATER PIPE
- 4.60 — EXISTING CONTOURS
- R — PROPOSED RIDGE LINE
- V — PROPOSED VALLEY LINE
- SS — PROPOSED SUBSOIL LINE
- RL5.60 — PROPOSED SPOT LEVEL
- LB5.60 — PROPOSED BACK OF LAYBACK
- O/F — OVERLAND FLOW PATH
- PROPOSED CONCRETE HOB FOR WATERPROOFING
- PROPOSED 300mm HIGH HYFLO SCFB WITH INSPECTION PIT ACTIVATION SYSTEM RISE TO RL16.20 (MIN.)



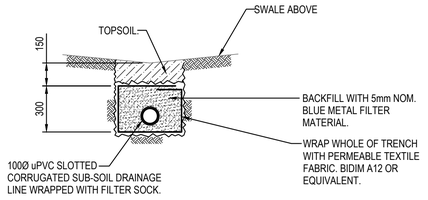
GROUND FLOOR DETAIL PLAN

SCALE: 1:200



TYPICAL SECTION THROUGH LANDSCAPE FRONTAGE

SCALE: 1:50



SUB-SOIL DRAIN DETAIL

SCALE 1:20

NOTE:

DRIVEWAY/RAMP GRADES ARE NOT SHOWN ON THE CIVIL ENGINEERING PLANS. REFER TO ARCHITECTURAL AND TRAFFIC ENGINEER PLANS FOR DETAILS.

0 400 800 1200 1600 2000mm — 400 200 — SCALE 1:20

0 1000 2000 3000 4000 5000mm — 1000 600 200 — SCALE 1:50

0 4 8 12 16 20m — 4 3 2 1 — SCALE 1:200

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD

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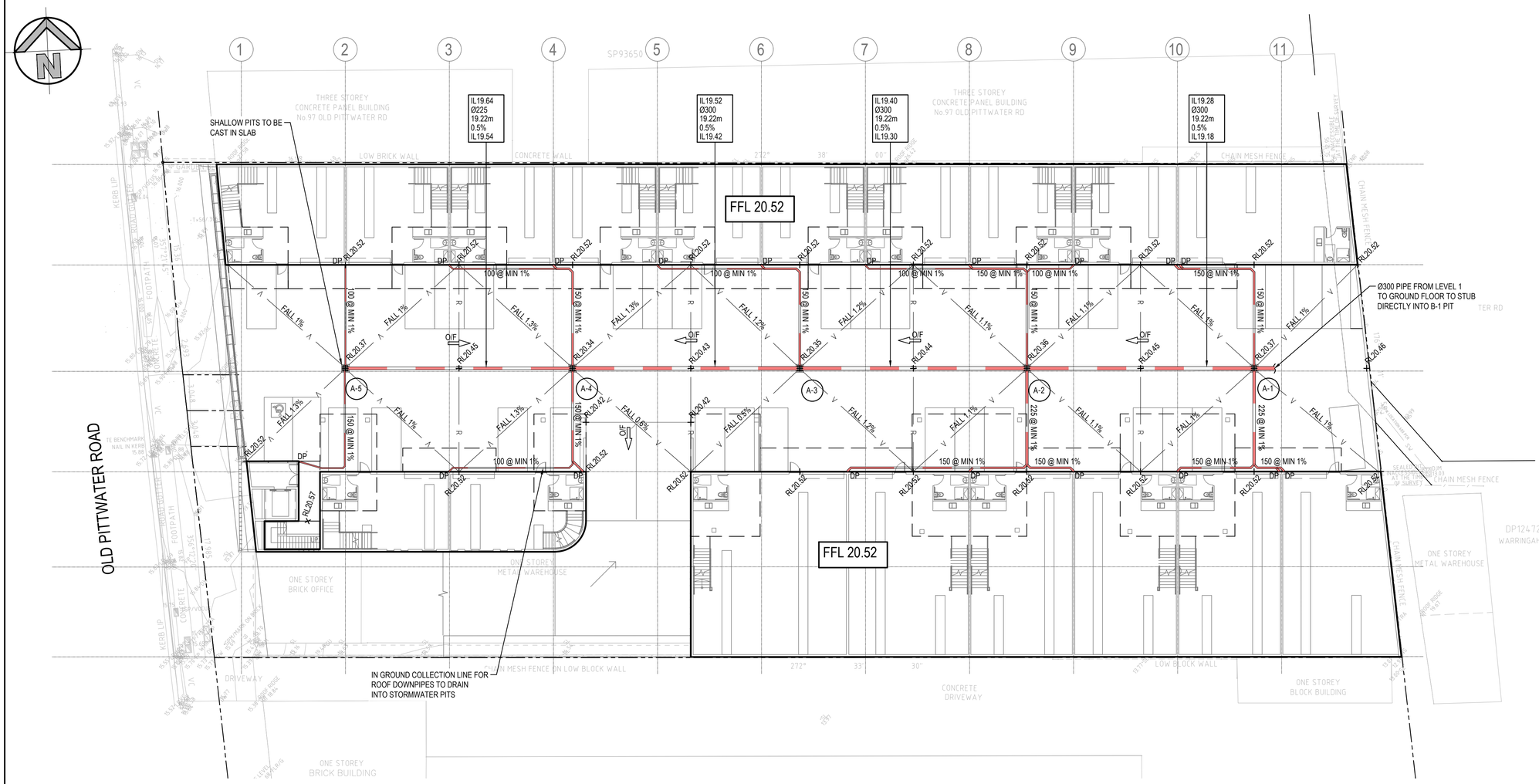
Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

Title: GROUND FLOOR DETAIL PLAN

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	AS NOTED

Drawing number: 21W12_S4.55_C102
Revision: 01

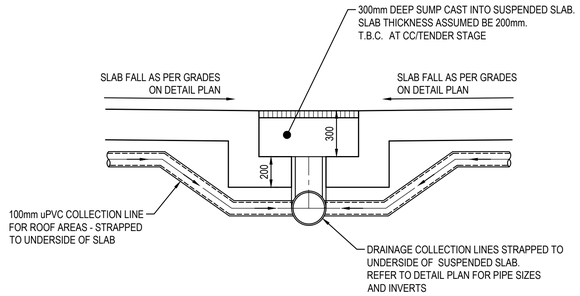


LEGEND

- EXISTING BOUNDARY
- PROPOSED SURFACE INLET PITS
- PROPOSED PIT TAG (A-1 LINE LETTER / PIT NUMBER)
- STORMWATER UPSTREAM INVERT RL. (40.125)
- STORMWATER PIPE DIAMETER & CLASS (Ø425RCP)
- STORMWATER PIPE LENGTH (20.450m)
- STORMWATER PIPE GRADE (1.5%)
- STORMWATER DOWNSTREAM INVERT RL. (39.818)
- PROPOSED STORMWATER PIPE
- EXISTING CONTOURS (4.60)
- PROPOSED RIDGE LINE (R)
- PROPOSED VALLEY LINE (V)
- PROPOSED SUBSOIL LINE (SS)
- PROPOSED SPOT LEVEL (RL5.60)
- PROPOSED DOWNPIPE LOCATION (DP)
- OVERLAND FLOW PATH (O/F)

LEVEL 1 DETAIL PLAN

SCALE: 1:200



TYPICAL SUMP DETAIL IN SUSPENDED SLAB

SCALE 1:10

0 200 400 600 800 1000mm
200 100
SCALE 1:10

0 4 8 12 16 20m
4 3 2 1
SCALE 1:200

NOTE:

DRIVEWAY/RAMP GRADES ARE NOT SHOWN ON THE CIVIL ENGINEERING PLANS. REFER TO ARCHITECTURAL AND TRAFFIC ENGINEER PLANS FOR DETAILS.

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD
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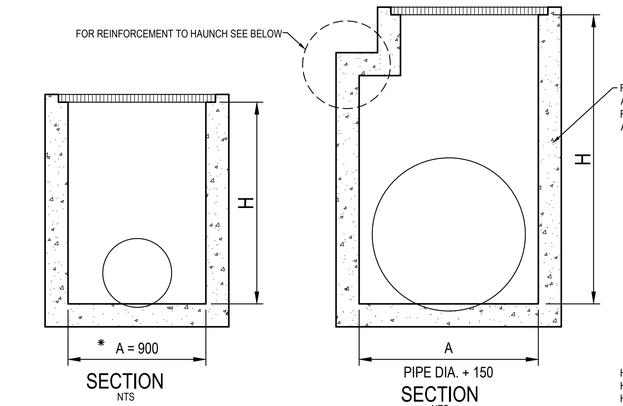
Project: PROPOSED INDUSTRIAL DEVELOPMENT 101-105 OLD PITTWATER ROAD, BROOKVALE NSW	Drawn: M.Pereira	Designed: M.Mishevski	Date: March 2022
	Checked: T.Dempsey	Approved: A.Francis	Scale @A1: AS NOTED
Title: LEVEL 1 DETAIL PLAN	Drawing number: 21W12_S4.55_C103		Revision: 01

TYPICAL PIT CHAMBER SIZES

IT IS THE CONTRACTORS RESPONSIBILITY TO SELECT PIT CHAMBER SIZE WITH REGARDS TO PIPE SIZE, DEPTH TO INVERT AND SKEW ANGLE. REFER SKETCHES BELOW.

1. SELECT PIT CHAMBER USING THE STEPS BELOW:
2. SELECT PIT CHAMBER SIZE DEPENDING ON THE PIPE DIAMETERS.
3. CHECK PIT CHAMBER SIZE TO SATISFY DEPTH TO INVERT REQUIREMENTS.
   CHECK PIT CHAMBER DIMENSIONS TO SATISFY THE SKEW ANGLE IN THE TABLE.



SECTION
NTS

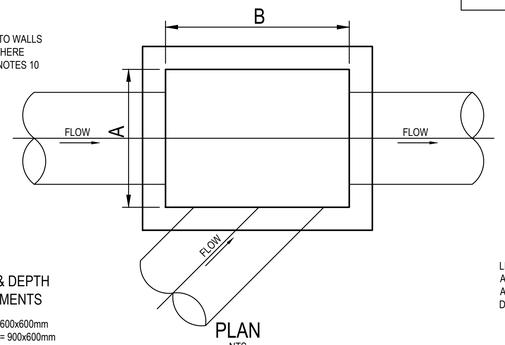
*A = 600 FOR PIPES UP TO 375 DIA.

1 PIT CHAMBER DIMENSIONS FOR PIPES UP TO 600 DIA.

SECTION
NTS

1 PIT CHAMBER FOR PIPES GREATER THAN 600 DIA.

FOR B = 600mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 225mm
FOR B = 900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 375mm
FOR B = 1200mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 600mm
FOR B = 1500mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 825mm
FOR B = 1900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 1050mm



PLAN
NTS

2 PIT SIZE & DEPTH REQUIREMENTS

H = 0-900mm - AxB = 600x600mm
H = 900-1200mm - AxB = 900x600mm
H = >1200mm - AxB = 900x900mm

3 PIT CHAMBER FOR SIDE ENTRY ON SKEW

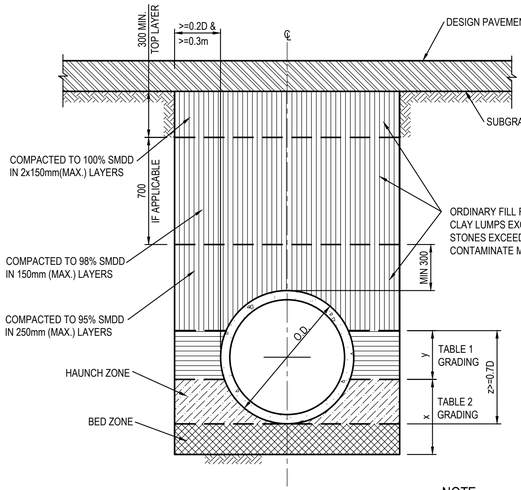
TABLE 1	
SIEVE SIZE (MM)	WEIGHT PASISNG (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0

TABLE 2	
SIEVE SIZE (MM)	WEIGHT PASISNG (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

TABLE 3				
SUPPORT TYPE	BED ZONE X	HAUNCH ZONE Y	BED AND HAUNCH ZONES COMPACTION	MAX BEDDING FACTOR
HS1	100 IF D<=1500, OR 150 IF D>=1500	0.1D	50	2.0
HS2		0.3D	60	2.5
HS3		0.3D	70	4.0

PIT LID SCHEDULE

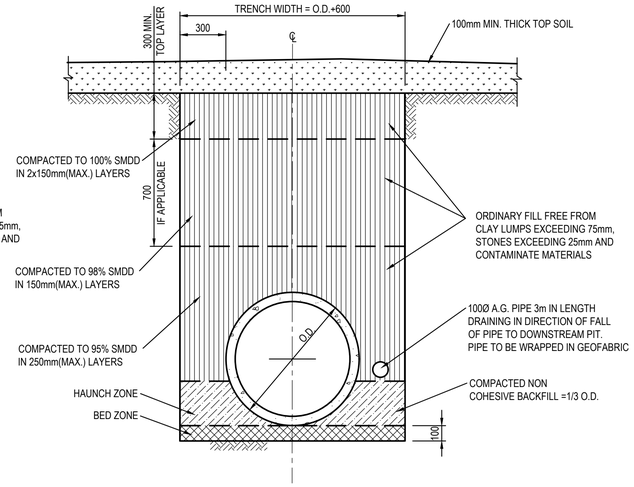
PIT/STRUCTURE NUMBER	DESCRIPTION
A-1, A-2, A-3, A-4, A-5, B-1, B-2, B-3, B-4, B-5	PROPOSED INLET PIT WITH 450x450 HINGED HEAVY DUTY GRATED CLASS "D" IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL REQUIREMENTS.
B-6, B-7	PROPOSED INLET PIT WITH 600x600 SURCHARGE TYPE GRATE, MEDIUM DUTY CLASS "C" IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL REQUIREMENTS.
C-1, C-2, C-4, C-5, C-6, C-7, C-8, C-9	PROPOSED 300x300 SQ. FLOOR DRAIN WITH HEAVY DUTY GRATE CLASS "D" IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL REQUIREMENTS.
B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, C-3	PROPOSED INLET PIT WITH 900x900 HINGED HEAVY DUTY GRATE CLASS "D" IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL REQUIREMENTS.
SD-1, SD-2	PROPOSED 300mm WIDE GRATED DRAIN WITH HEAVY DUTY CLASS "D" IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL REQUIREMENTS.



PIPE TRENCH INSTALLATION BENEATH PAVEMENT

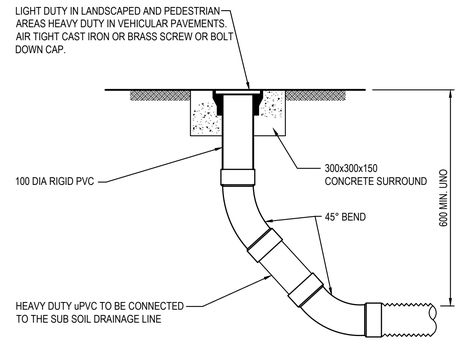
(HS SUPPORT TO BE USED UNDER ROADWAY)
SCALE 1:20

NOTE:
TYPE HS2 TO BE USED AS A TYPICAL SUPPORT FOR TRENCHES UNDER ROADWAY UNLESS SPECIFIED SEPERATELY



PIPE TRENCH INSTALLATION IN LANDSCAPE AREAS

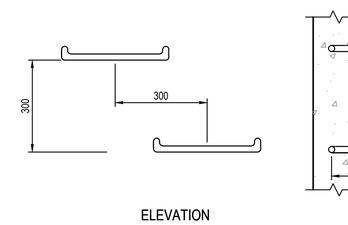
(H1 & H2 SUPPORT)
SCALE 1:20



NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED

FLUSHING POINT (FP)

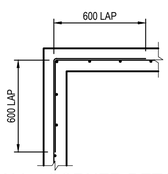
SCALE 1:10



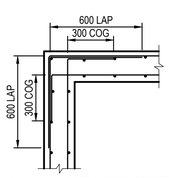
ELEVATION PLAN SECTION

TYPICAL STEP IRON DETAIL

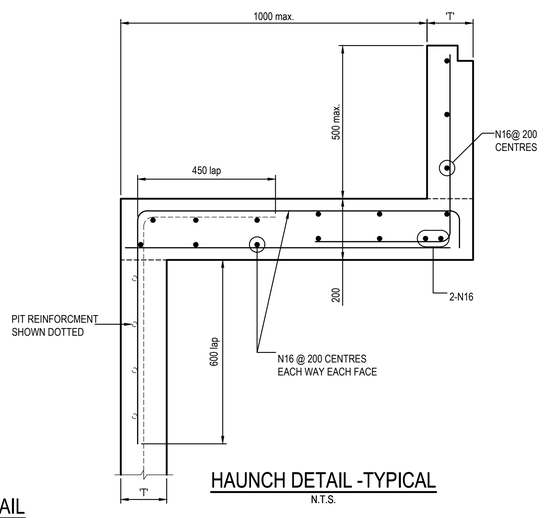
SCALE 1:10



150 WALL - CORNER DETAIL



200 WALL - CORNER DETAIL



HAUNCH DETAIL -TYPICAL

N.T.S.

DRAINAGE NOTES:

1. ALL STORMWATER WORK TO COMPLY WITH AS 3500 PART 3.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MINIMUM COVER OF 600mm ON ALL PIPES.

3. PROTECTION OF PIPES DUE TO LOADS EXCEEDING W7 WHEEL LOAD SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

4. BEDDING TYPE SHALL BE TYPE H2 FOR RCP. WHERE NECESSARY THE OVERLAY ZONE SHALL BE REDUCED TO ACCOMMODATE PAVEMENT REQUIREMENTS. REFER TO THIS DRAWING FOR DETAILS.

5. MINIMUM COVER OVER EXISTING PIPES FOR PROTECTION DURING CONSTRUCTION SHALL BE 800mm.

6. NO CONSTRUCTION LOADS SHALL BE APPLIED TO PLASTIC PIPES.

7. FINISHED SURFACE LEVELS SHOWN ON LAYOUT PLAN DRGS TAKE PRECEDENCE OVER DESIGN DRAINAGE SURFACE LEVELS.

8. ALL PIPES UP TO AND INCLUDING 300 DIA. SHALL BE SOLVENT OR RUBBER RING JOINTED PVC CLASS SH PIPE TO AS1260. ALL OTHER PIPES TO BE RCP USING CLASS 2 RUBBER RING JOINTED PIPE. HARDIES FRC PIPE MAY BE USED IN LIEU OF RCP IF DESIRED IN GROUND. ALL AERIAL PIPES TO BE PVC CLASS SH.

9. ALL PITS IN NON TRAFFICABLE AREAS TO BE PREFABRICATED POLYESTER CONCRETE "POLYCRETE" WITH "LIGHT DUTY" CLASS B GALV. MILD STEEL GRATING AND FRAME.
ALL PITS IN TRAFFICABLE AREAS (CLASS "D" LOADING MAX) TO HAVE 150mm THICK CONCRETE WALLS AND BASE CAST IN-SITU f'c=32 MPa, REINFORCED WITH N12-200 BOTH LOADING WAYS CENTRALLY PLACE .U.N.O. ON SEPARATE DESIGN DRAWINGS IN THIS SET. GALV.MILD STEEL GRATING AND FRAME TO SUIT DESIGN LOADING. PRECAST PITS, RECTANGULAR OR CIRCULAR IN SHAPE, MAY BE USED IN LIEU AND SHALL COMPLY WITH RELEVANT AUSTRALIAN STANDARDS.

10. ALL PITS, GRATINGS AND FRAMES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION AND TO BE IN ACCORDANCE WITH AS3500.3 AND AS3996.

11. PIT CHAMBER DIMENSIONS ARE TO BE SELECTED TO SATISFY THE FOLLOWING:
- PIPE SIZE
- DEPTH TO INVERT
- SKEW ANGLE
  REFER TYPICAL PIT CHAMBER DETAILS BELOW
IF PIT LID SIZE IS SMALLER THAN THE PIT CHAMBER SIZE THEN THE PIT LID IS TO BE CONSTRUCTED ON THE CORNER OF THE PIT CHAMBER WITH THE STEP IRONS DIRECTLY BELOW. ALTERNATIVELY THE PIT LID TO BE USED, IS TO BE THE SAME SIZE AS THE PIT CHAMBER.

12. FOR PIPE SIZES GREATER THAN Ø300mm, PIT FLOOR IS TO BE BENCHED TO FACILITATE FLOW.

13. GALVANISED STEP IRONS SHALL BE PROVIDED AT 300 CTS FOR PITS HAVING A DEPTH EXCEEDING 1200mm. SUBSOIL DRAINAGE PIPE SHALL BE PROVIDED IN PIPE TRENCHES ADJACENT TO INLET PIPES. (MINIMUM LENGTH 3m).

14. ALL SUBSOIL PIPES SHALL BE 100mm SLOTTED PVC IN A FILTER SOCK, UNO, WITH 3m INSTALLED UPSTREAM OF ALL PITS.

15. ALL PIPEWORK SHALL HAVE MINIMUM DIAMETER 100.

16. MINIMUM GRADE FOR ROOFWATER DRAINAGE LINES SHALL BE 1%.

17. ALL PIPE JUNCTIONS AND TAPER UP TO AND INCLUDING 300 DIA. SHALL BE VIA PURPOSE MADE FITTINGS.

18. ALL ROOF DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH AS3500, PART 3. TESTING TO BE UNDERTAKEN AND REPORTS PROVIDED TO THE SUPERINTENDENT.

19. LOCATION OF THE DIRECT DOWN PIPE CONNECTIONS MAY VARY ON SITE TO SUIT SITE CONDITIONS, WHERE CONNECTION SHOWN ON LONG SECTIONS CHAINAGES ARE INDICATIVE ONLY.

20. PITS IN EXCESS OF 1.5 m DEEP TO HAVE WALL AND FLOOR THICKNESS INCREASED TO 200mm. REINFORCED WITH N12@200 CTS CENTRALLY PLACED BOTH WAYS THROUGHOUT U.N.O.ON SEPARATE DESIGN DRAWINGS IN THIS SET. IF DEPTH EXCEEDS 5m CONTACT ENGINEER.

21. SUBSOIL DRAINAGE LINES FOR LANDSCAPE AREA NOT SHOWN ON THESE DRAWINGS. REFER TO LANDSCAPING PLANS FOR DETAILS.

22. ALL STORMWATER PITS TO HAVE Ø100 uPVC SLOTTED SUBSOIL PIPES CONNECTED TO THEM. THESE SUBSOILS TO EXTEND 3m UPSTREAM OF THE PIT AT A MINIMUM GRADE.

0 400 800 1200 1600 2000mm
400 200
SCALE 1:20

0 200 400 600 800 1000mm
200 100
SCALE 1:10

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

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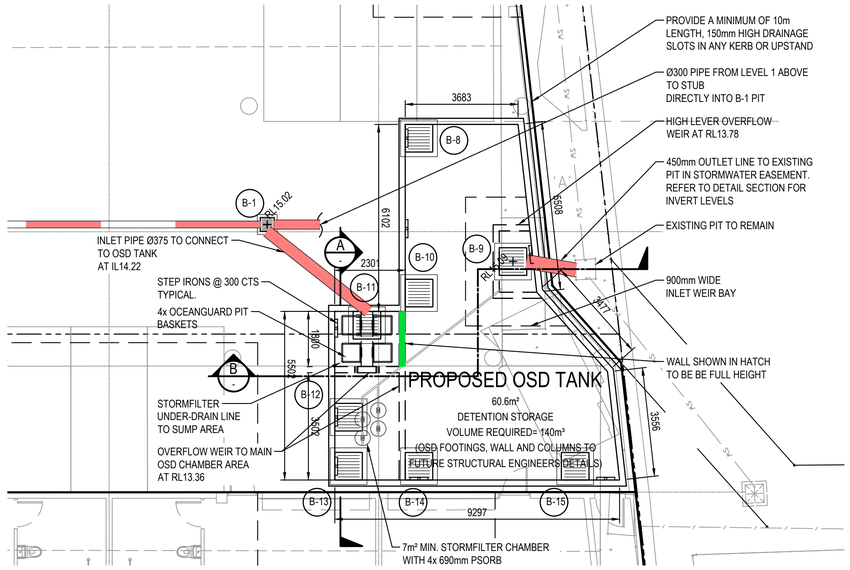
Project
PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

Title
STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE

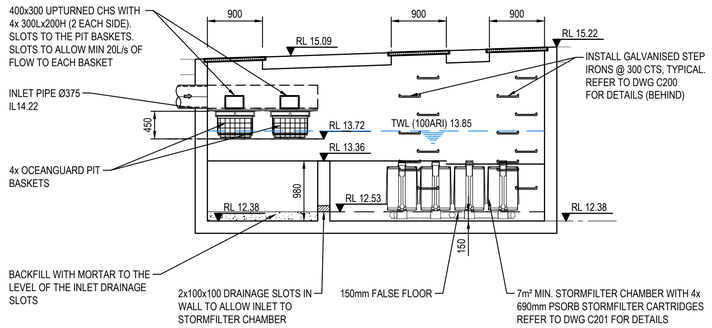
Drawn	Designed	Date
M.Pereira	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	AS NOTED

Drawing number: 21W12_S4.55_C200
Revision: 01



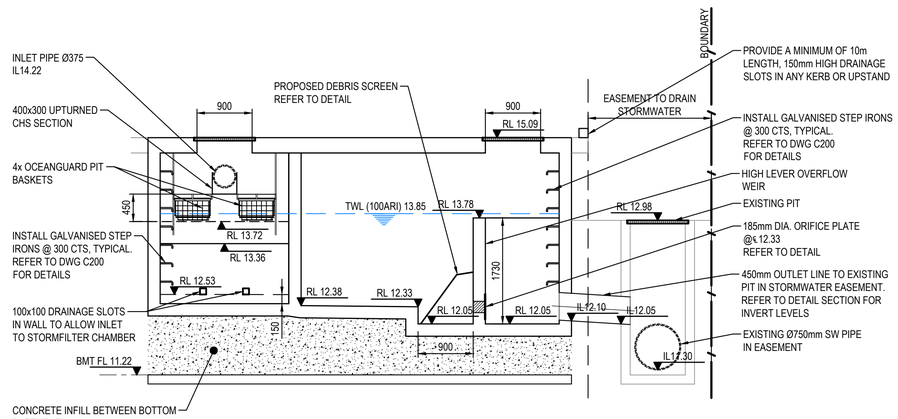
OSD TANK PLAN

SCALE: 1:100



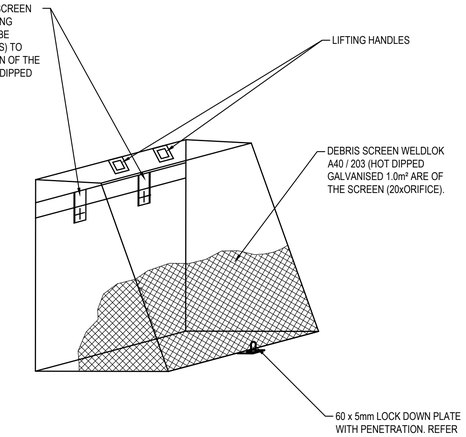
SECTION A

SCALE: 1:50



SECTION B

SCALE: 1:50



DEBRIS SCREEN DETAIL

NOT TO SCALE
ALL STEEL TO BE HOT DIPPED GALVANISED

DANGER

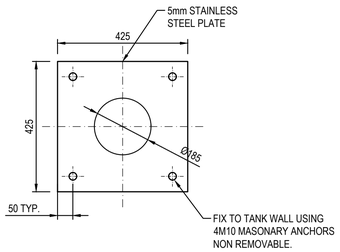
CONFINED SPACE
NO ENTRY WITHOUT CONFINED SPACE TRAINING

A) A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/ CONFINED SPACE AT ALL ACCESS POINTS OF THE TANK/ CONFINED SPACE.

B) SIGN TO BE MINIMUM DIMENSIONS: 250mm x 180mm ENTRIES I.E.. GRATES, MANHOLES

C) SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED METAL OR POLYPROPYLENE

D) SIGN SHALL BE AFFIXED TO A SURFACE WITH SCREWS AT EACH CORNER.



ORIFICE PLATE DETAIL

SCALE 1:10

OSD FLOWS TABLE					
ARI	PRE DEV FLOW (L/S)	POST DEV FLOW (L/S)	WATER LEVEL (RL)	VOL. REQD. (M³)	TAILWATER LEVEL
2	55	55	12.82	24	11.41
5	90	69	13.14	41	11.43
10	117	77	13.35	52	12.05
20	142	85	13.61	67	12.05
100	204	204	13.85	80	12.68

0 2 4 6 8 10m
2 1
SCALE 1:100

0 1000 2000 3000 4000 5000mm
1000 600 200
SCALE 1:50

0 200 400 600 800 1000mm
200 100
SCALE 1:10

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
02	ISSUED FOR S4.55 APPROVAL	MB	MM	12.07.2023
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD
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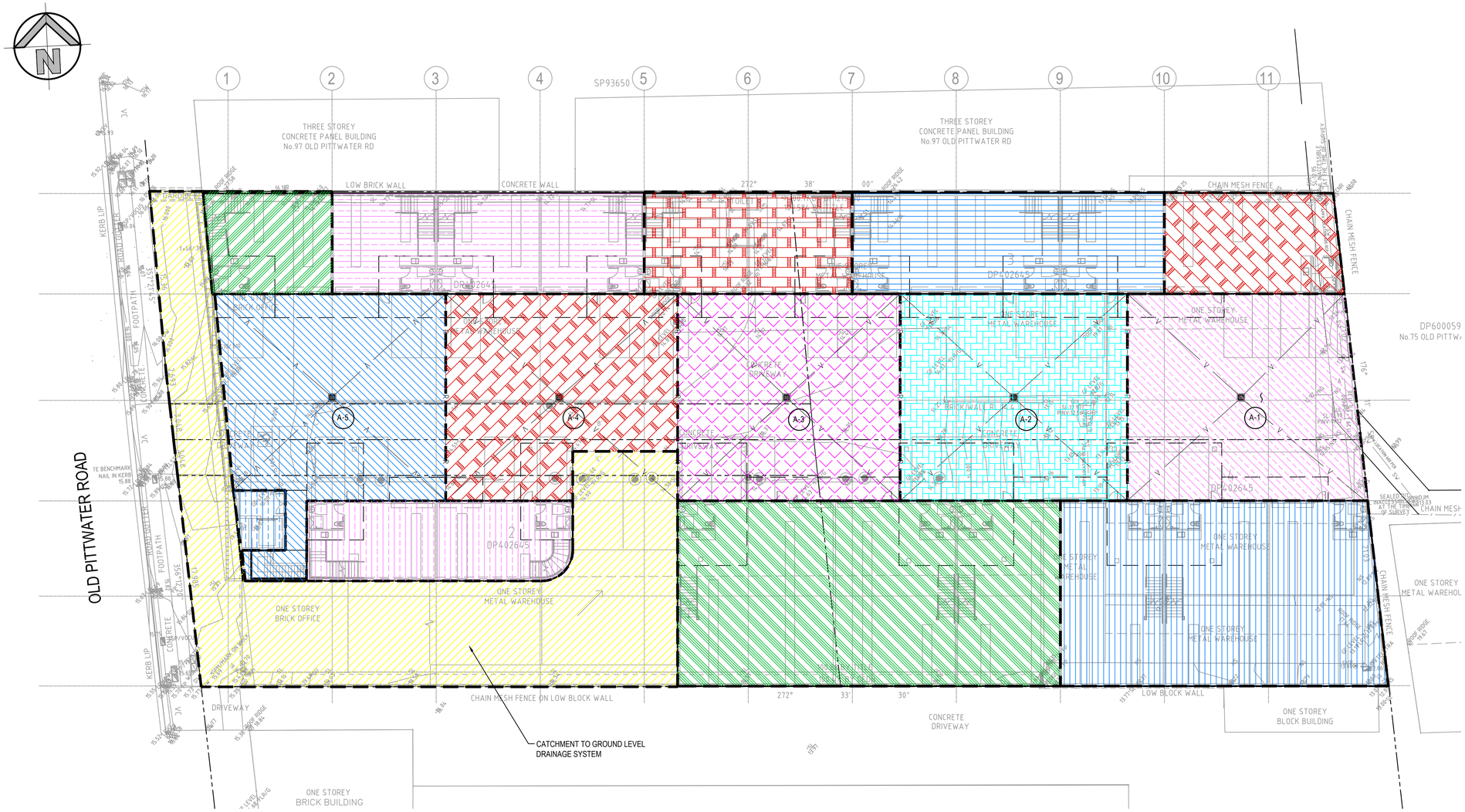
Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW
Title: OSD TANK PLAN, SECTION AND DETAILS

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	AS NOTED

Drawing number: 21W12_S4.55_C201
Revision: 02



DRAINS CATCHMENT PLAN

SCALE: 1:200

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200

DRAINS CATCHMENT LEGEND = 4200m²

- HARDSTAND TO PIT "A1" - AREA =348m²
- HARDSTAND TO PIT "A2" - AREA =358m²
- HARDSTAND TO PIT "A3" - AREA =339m²
- HARDSTAND TO PIT "A4" - AREA =310m²
- HARDSTAND TO PIT "A5" - AREA =348m²
- RAMP AND SITE FRONTAGE TO GROUND LEVEL DRAINAGE LINE - AREA = 625m²
- ROOF TO PIT "A1" - AREA =415m²
- ROOF TO PIT "A1" - AREA =122m²
- ROOF TO PIT "A2" - AREA =495m²
- ROOF TO PIT "A2" - AREA =214m²
- ROOF TO PIT "A3" - AREA =144m²
- ROOF TO PIT "A4" - AREA =151m²
- ROOF TO PIT "A4" - AREA =220m²
- ROOF TO PIT "A5" - AREA =89m²
- ROOF TO PIT "A5" - AREA =22m²

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD

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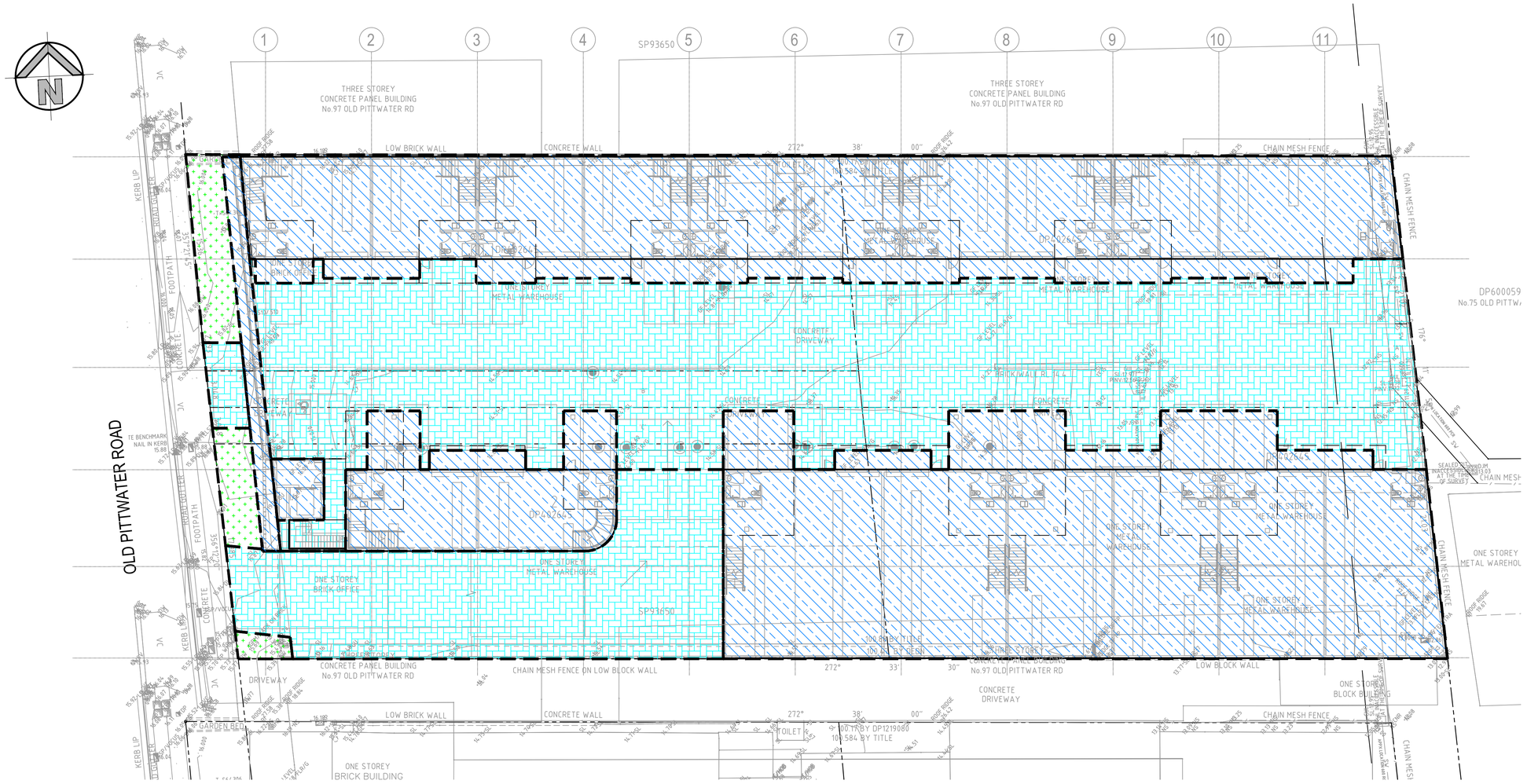
Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

Title: DRAINS CATCHMENT PLAN

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	1:200

Drawing number: 21W12_S4.55_C250

Revision: 01



MUSIC - CATCHMENT PLAN

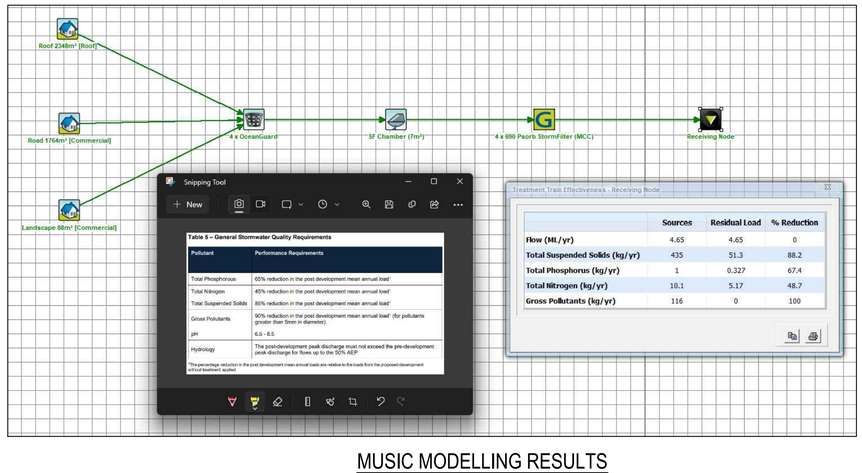
SCALE 1:200

MUSIC CATCHMENT LEGEND = 4200m²

DRIVEWAY AREA
AREA =1764 m² 100% IMPERVIOUS

ROOF AREA
AREA =2348 m² 100% IMPERVIOUS

LANDSCAPE AREA
AREA =88 m² 100% PERVIOUS



MUSIC MODELLING RESULTS

N.T.S.

0 4 8 12 16 20m
4 3 2 1
SCALE 1:200

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR S4.55 APPROVAL	SC	MM	26.04.2023

Client: HANNAS CONTRACTING SERVICES PTY LTD
Architect: Rothelowman

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Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

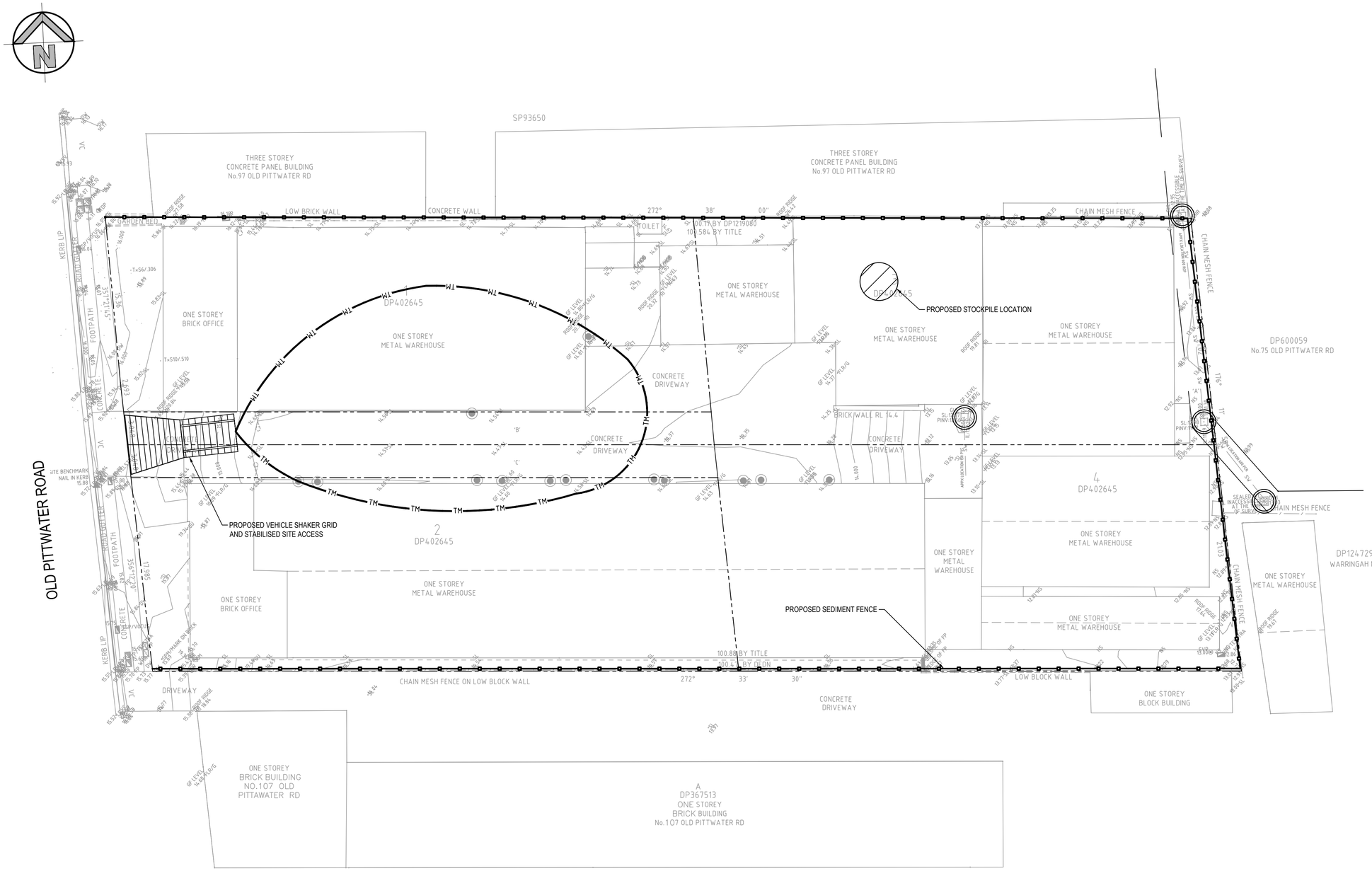
Title: MUSIC CATCHMENT PLAN

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	1:200

Drawing number: 21W12_S4.55_C251
Revision: 01

LEGEND

- TRAFFIC MANOEUVRING
- PROPOSED SEDIMENTATION FENCE
- PROPOSED VEHICLE SHAKER GRID
- PROPOSED STABILISED SITE ACCESS
- PROPOSED STOCKPILE LOCATION
- GEOTEXTILE INLET FILTER



SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL SPECIFICATIONS AND LANDCOM'S "SOIL AND CONSTRUCTION" MANUAL.
- ALL PERIMETER & SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN EARTH WORKS AND/OR CLEARING.
- THE SEDIMENT & EROSION CONTROL PLAN MAY REQUIRE FUTURE ADJUSTMENT TO REFLECT CONSTRUCTION STAGING. IT IS ALSO THE CONTRACTORS RESPONSIBILTY TO PREPARE THEIR OWN SEDIMENT AND EROSION CONTROL PLAN WHICH SUITS THE DESIGNED CONSTRUCTION STAGING.
- FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS PROHIBITED TO ALL PLANT AND MACHINERY.
- ALL TEMPORARY EARTH BERMS, DIVERSIONS & SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED & MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
- ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING. TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE LOCATION.
- ALL TOPSOIL IS TO BE STOCKPILED ON SITE FOR REUSE (AWAY FROM TREES AND DRAINAGE LINES). MEASURES SHALL BE APPLIED TO PREVENT EROSION OF THE STOCKPILES.
- ALL EARTHWORK AREAS SHALL BE ROLLED EACH EVENING TO SEAL THE EARTHWORKS.
- ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND STRAW MULCHED WITHIN 14 DAYS OF COMPLETION OF FORMATION U.N.O. BY LANDSCAPE ARCHITECTS.
- UPON COMPLETION OF ALL EARTHWORKS OR AS DIRECTED BY COUNCIL SOIL CONSERVATION TREATMENTS SHALL BE APPLIED SO AS TO RENDER AREAS THAT HAVE BEEN DISTURBED, EROSION PROOF WITHIN 14 DAYS.
- EROSION AND SILT PROTECTION MEASURES ARE TO BE MAINTAINED AT ALL TIMES.

SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1:200

0 4 8 12 16 20m
4 3 2 1
SCALE 1:200

ISSUED FOR S4.55 APPROVAL

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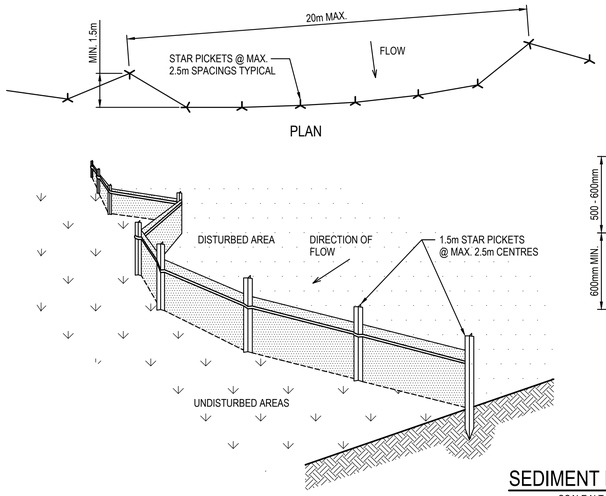
Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW
Title: SEDIMENT AND EROSION CONTROL PLAN

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	1:200

Drawing number: 21W12_S4.55_SE01
Revision: 01

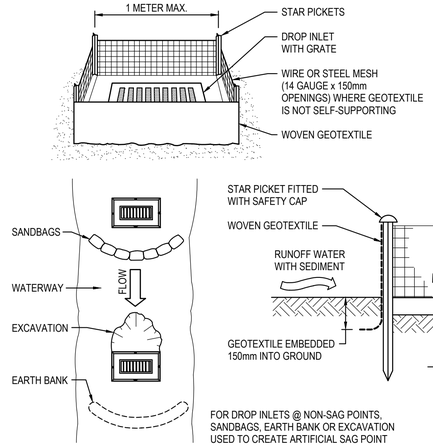


SEDIMENT FENCE

SCALE N.T.S.

SEDIMENT FENCE 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. 3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. 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. 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.

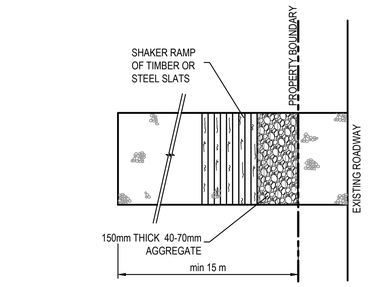


GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE.
2. PICKET SPACING TO BE MAXIMUM 1.0m.
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 GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

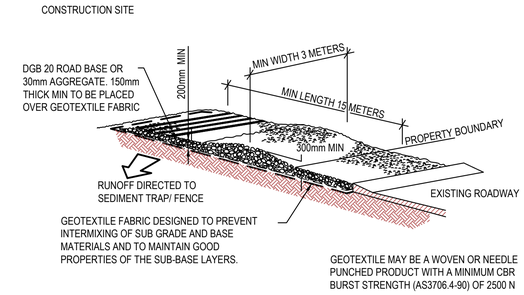
GEOTEXTILE INLET FILTER

SCALE N.T.S.



PLAN
STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

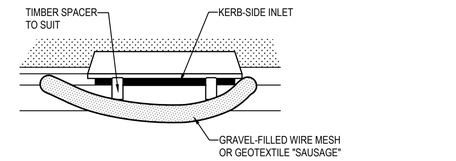


STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

NOTES:

1. THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.
2. THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.
3. ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.
4. ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY "HUMES CONCRETE MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.

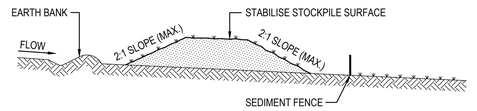


MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET FILTER

SCALE N.T.S.



STOCKPILE CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES 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 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

STOCKPILES

SCALE N.T.S.

ISSUED FOR S4.55 APPROVAL

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
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ORIGIN OF LEVELS: SSM19744 RL15.53

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Project: PROPOSED INDUSTRIAL DEVELOPMENT
101-105 OLD PITTWATER ROAD, BROOKVALE NSW

Title: SEDIMENT AND EROSION CONTROL TYPICAL SECTIONS AND DETAILS

Drawn	Designed	Date
S.Chen	M.Mishevski	March 2022
Checked	Approved	Scale @A1
T.Dempsey	A.Francis	NTS

Drawing number: 21W12_S4.55_SE02

Revision: 01

henry&hymas

21W12 PROPOSED INDUSTRIAL DEVELOPMENT
101-105 PITTWATER ROAD BROOKVALE NSW

DOCUMENT REGISTER / TRANSMITTAL

DAY	26	12												
MONTH	04	07												
YEAR	23	23												

'P' = PRELIMINARY; 'X' = INFORMATION; 'A' = APPROVAL; 'T' = T
CC' = CONSTRUCTION CERTIFICATE

PURPOSE OF ISSUE	A	A												

DISTRIBUTION	NO. OF PRINTS; 'E' = ACAD FILE; 'D' = PDF; 'P' = PLOT FILE; 'CD'													
ROTHELOWMAN	D	D												
HANNAS														

NO.	DOCUMENT TITLE													
21W12_S4.55_C000	COVER SHEET, DRAWING SCHEDULE, NOTES AND LOCALITY SKETCH	01												
21W12_S4.55_C101	BASEMENT FLOOR DETAIL PLAN	01												
21W12_S4.55_C102	GROUND FLOOR DETAIL PLAN	01												
21W12_S4.55_C103	LEVEL 1 DETAIL PLAN	01												
21W12_S4.55_C200	STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE	01												
21W12_S4.55_C201	OSD PLAN, SECTIONS AND DETAILS	01	02											
21W12_S4.55_C250	DRAIN CATCHMENT PLAN	01												
21W12_S4.55_C251	MUSIC CATCHMENT PLAN	01												
21W12_S4.55_SE01	SEDIMENT AND EROSION CONTROL PLAN	01												
21W12_S4.55_SE02	SEDIMENT AND EROSION CONTROL TYPICAL SECTIONS & DETAILS	01												

H&H QA REQUIREMENT TO ISO9001:
THE ABOVE LIST OF DOCUMENTS AND/OR REVISIONS HAVE BEEN:

DESIGNED AND CHECKED BY:

APPROVED BY:

DATE: 12/07/2023