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INTEGRATED WATER CYCLE MANAGEMENT PLAN

PROJECT PLUTO

132 McCredie Road,
Guildford West NSW 2161

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EXECUTIVE SUMMARY

This Integrated Water Cycle Management Plan (IWCMP) has been prepared by van der Meer Consulting to accompany a State Significant Development Application (SSDA) for the construction and ongoing operation of a data centre facility at 132 McCredie Road, Guildford West NSW 2161, in the Cumberland Council Local Government Area (**LGA**). The site is legally described as Lot 1 in DP596315. This report has been prepared to address the Secretary's Environmental Assessment Requirements (**SEARs**) issued for the Project Pluto Data Centre (SSD-69223466) dated 4 April 2024.

This report concludes that the proposed data centre is suitable and warrants approval subject to the implementation of the following mitigation measures.

- Stormwater drainage

Following the implementation of the above mitigation measures, the remaining impacts are appropriate.



1. Introduction

A State Significant Development Application (**SSDA**) has been prepared in support of a proposed data centre at 132 McCredie Road, Guildford West NSW 2161. The site is zoned E4 General Industrial and has a road frontage to McCredie Road. The developable site area is approximately 71,710 sqm.

The proposed development comprises:

- Site preparation works including bulk excavation and removal of existing hard standing and structures on the site, tree and vegetation clearing, and bulk earthworks;
- Construction, fit out and operation of a data centre with an approximate building height of 25.77m and total gross floor area of approximately 29,444 m² comprising:
 - At-grade parking for 53 car parking spaces and 2 accessible car parking spaces
 - Two (2) loading dock spaces.
 - Two (2) levels of technical data hall floor space with incorporating a total of nine (9) data halls
 - Ancillary office space
- Provision of required utilities, including:
 - Fuel storage
 - Two (2) Switch-rooms
 - Four (4) industrial water storage tanks
- Vehicle entry and egress driveways located along McCredie Road
- Internal access road
- Associated landscaping and site servicing
- Installation of services and drainage infrastructure.



This report has been prepared to address the Secretary's Environmental Assessment Requirements (**SEARs**) and accompanying cover letter issued for the Project Pluto Data Centre (SSD-69223466) dated 4 April 2024.

Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Table 1 : SEARs for civil engineering

Item	Description of Requirement	Section reference
14	Water Management Provide an Integrated Water Management Plan for the development that:	
	Is prepared in consultation with the local council and any other relevant drainage authority.	ALL
	Outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provision).	Section 4
	Details the proposed drainage design for the site including on-site detention facilities, water quality measures and the nominated discharge points, on-site sewage management, and measures to treat, reuse or dispose of water.	Section 2 & 3
	Details the proposed drainage design (stormwater and wastewater) for the site including any on-site treatment, reuse and detention facilities, water quality management measures, and nominated discharge points.	Section 2, 3 & 5
	Demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.	Section 2, 3 & 4
	Where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards, the local council or other drainage or water authority.	ALL

1.1 The Site

The site is located on Gandangara Land and is in the Smithfield Industrial Area within the Cumberland Local Government Area (LGA). It is bounded by McCredie Road to the north.

The front part of the site adjoins the Guildford Transmission Substation, which is located immediately to the east and fronts onto McCredie Road. Other industrial uses are located further east, with residential properties beyond.

The Guildford West Sports Ground, which comprises several playing fields, is located to the south of the Guildford Transmission Substation. The playing fields bound the southern part of the site to the east. The playing fields / public recreation area also about the southern boundary of the site.

Prospect Creek is located to the south of the public recreation area and is zoned C2 Environmental Protection. The area to the south of Prospect Creek is predominately characterised by low density single storey residential housing.

The site is located in the south eastern corner of the Smithfield Industrial Estate and is within close proximity of the Cumberland Highway (A28) and M4 and M7 motorways, which provide access to Sydney CBD, western Sydney and the south. A range of large format industrial uses are located to the west and north west of the site. The Smithfield Industrial Estate extends across the A28 to Gipps Road (approximately 3km west of the site). It forms part of the broader Smithfield Wetherill Park industrial area, which is one of the largest of its kind in the Southern Hemisphere and makes a significant contribution to the New South Wales and Australian economies.

The site has a net developable area of 71,710 sqm and is currently vacant. It previously operated as a Castrol Lubricants facility. However, the majority of the site has now been cleared and subject to category 1 remediation works. A single storey office building is located on the northern portion of the site fronting McCredie Road. The building is vacant.

1.2 Staging

The proposal seeks consent for development to be constructed and operated in two phases to reflect the staged availability power supply. The proposed stages involve the following:

Stage 1: Construction of the main data centre building as well as the car park, perimeter access road, site access/exit driveways and landscaping. Stage one will involve the fit-out and operation of five of the 9 proposed data halls at levels 1 and 2 as well as the associated electrical rooms, generators, storage and office rooms.

Stage 2: Completion of the ultimate development scheme involving the extension of the building to the south with an additional four data halls, associated electrical rooms and generators, and associated landscaping and external works. The electrical substations will also be constructed in the north of the site during this phase.





Figure 1: Site Aerial

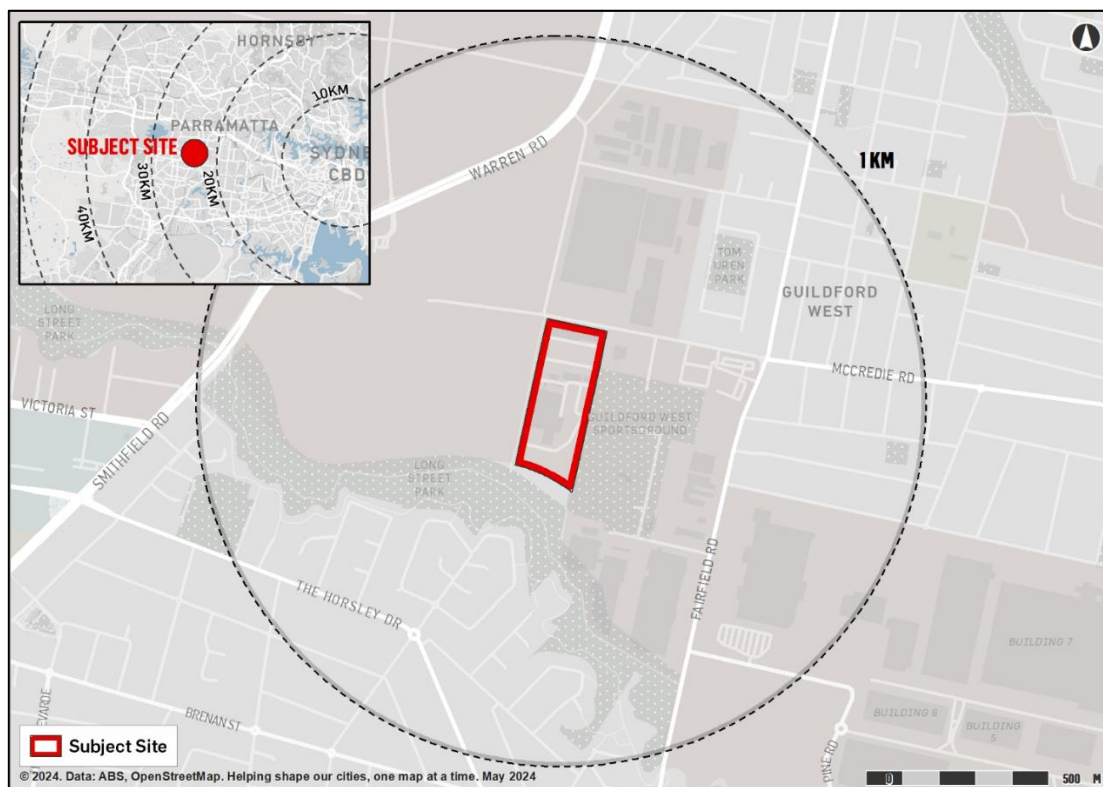


Figure 2: Local Context, Source: Urbis, 2024



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2. Stormwater Quantity Control

2.1 Objectives and Control

Cumberland City Council has a stormwater disposal policy and engineering design guideline to all developments within the Cumberland City Council Local Government Area.

The following guidelines were informed in the stormwater design:

- Cumberland City Council DCP Part G - provides guidelines - objectives and controls for people who wish to carry out Miscellaneous Development within Cumberland City Council. Controls
- Cumberland City Council Local Environmental Plan 2021
- Upper Parramatta River Catchment Trust (UPRCT) 4th Edition - drainage system to comply with UPRCT as required by Cumberland City Council DCP Part G, Section 2.4
- Australian Rainfall and Runoff (2019) - Engineers Australia (EA) published the Australian Rainfall and Runoff – A Guide to Flood Estimation which provided the information and approach for hydrology and stormwater management. It contains information to estimate the stormwater runoff, design storm events, and design method for the urban stormwater drainage systems.

2.2 Existing Drainage System

Information regarding existing stormwater assets was available from the Utilities Survey, Site Survey and Satellite imagery. The existing stormwater drainage pipework within the site is being removed. There is a council stormwater line running along the eastern and southeast border of the site. The survey completed including as listed below

- Existing 1350mm diameter existing stormwater pipe in approximately 470m length
- Existing stormwater grated and junction pits
- Approximate 2.5m width of easement above the existing and along the eastern boundary

Refer to the drainage survey for further details about the existing pipe routes levels, length, and pipes sizes (LTS Survey plans ref num. 51810 005DT, dated 2024.02.13)

2.3 Proposed Drainage System

The site generally grades from northwest to southeast and west to east. The proposed drainage design will be divided into two sub-catchments (Northern & Southern sub catchments) and two discharge points to the existing stormwater easement along the eastern boundary.

The proposed stormwater management system for the development will include:

- A pit and pipe network to collect minor storm runoff from areas
- Overland flow paths to carry major storms through the site
- Above ground On-site detention (OSD) tank with orifice and weir control for northern catchment

- Underground On-site detention (OSD) tank with orifice and weir control for southern catchment
- Water quality devices to provide treatment to stormwater runoff from the site and achieve council treatment efficiency targets
- 2x 75 KL rainwater tank and stormwater treatment system
- Overflow path to carry flow if there is any blockage within the OSD.

The stormwater pipes are designed for flows up to the 5% AEP event and site grading is designed to accommodate the overland flow of stormwater in 1% AEP.

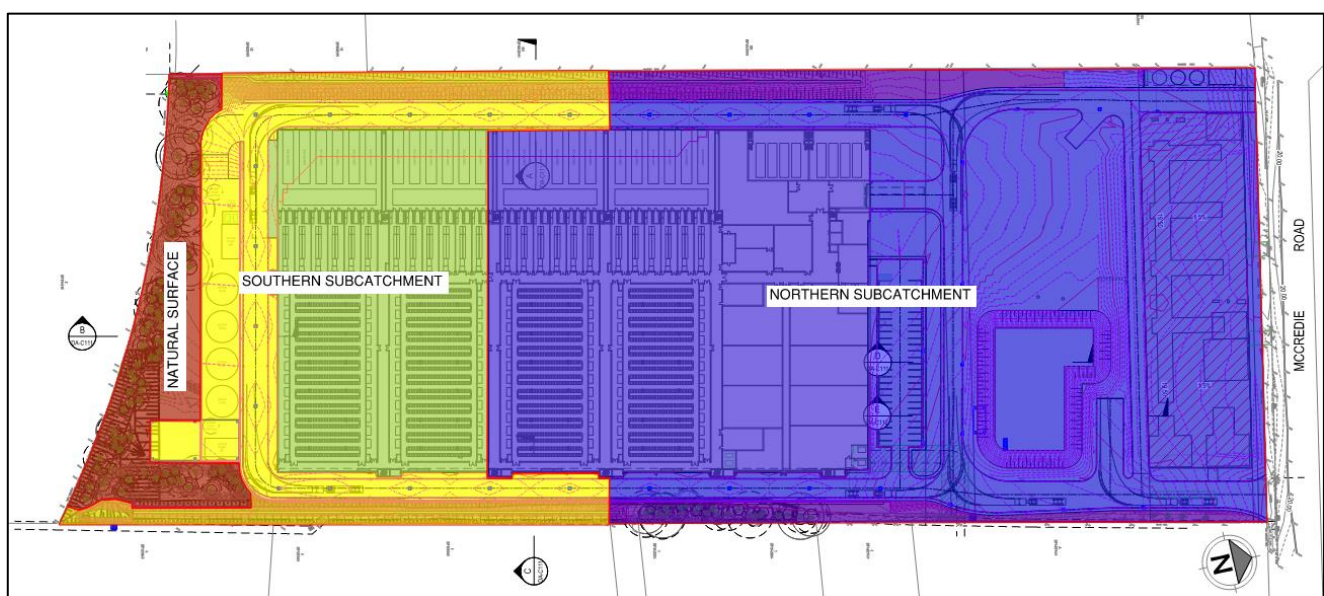


Figure 3 stormwater sub catchment plan

The site is divided into northern and southern sub-catchments. The northern catchment, including the surface area on the north side of the site and northern roof drainage, will drain into the above-ground OSD. The controlled discharge will be connected to the existing stormwater easement pipeline along the eastern boundary. Surface overland flow will drain toward the sag point at the middle of the eastern boundary and spill into the existing natural surface area, flowing southeast of the site towards Prospect Creek.

The southern catchment, including the surface and southern roof area, will drain into the underground OSD tank located at the southeastern corner of the site. The controlled discharge will flow into the existing Council pipeline adjacent to the southeastern boundary. Overland flow will drain southeast towards Prospect Creek.

The southern natural surface of the site is significantly lower than the development area. As directing surface runoff toward the OSD is not feasible due to the presence of existing trees, this area is excluded from the OSD drainage catchment.

Refer to the Appendix A & C for further details.

A roof drainage system will be used to drain the building roof. The box gutter system will be sized for a 1:100yr ARI storm event. In the southern area, southern roof drainage is connected to an underground rainwater tank. This tank will overflow into the underground pipeline routes and drain into the WSUD chamber for water treatment and Civil stormwater system respectively.

Also, in the northern area, the northern roof drainage is connected to an underground rainwater tank. This tank will overflow into the underground pipeline routes and drain into the WSUD chamber for water treatment and Civil stormwater system respectively.

2.4 On-Site Stormwater Detention (OSD)

OSD main objective is attenuate peak flows from the development due to increasing impervious area to make sure there will be no increase on peak flow on the downstream end.

The OSD is Designed based on standards of Upper Parramatta River catchment Trust Handbook (UPRCT) 4th edition December 2005. Therefore, two OSD systems are proposed to capture the site northern and southern sub-catchments and discharge into the council easement along the eastern boundary.

As the external work will be completed during Stage 1 of the construction, both OSD systems will be constructed in Stage 1.

The Stage 2 stormwater connection to the southern OSD system can be sealed during Stage 1 and connected upon the completion of Stage 2.

Refer to Appendix A for further information regarding OSD sizing and details.

3. Stormwater Quality Control

3.1 Objective and Control

According to Cumberland City Council DCP Part G, the stormwater quality requirements are as follows:

- *85% reduction in the mean annual load of Total Suspended Solids (TSS)*
- *60% reduction in the mean annual load of Total Phosphorus (TP)*
- *60% reduction in the mean annual load of Total Nitrogen (TN)*
- *90% reduction in the mean annual load of gross pollutants*
- *90% reduction in the mean annual load of hydrocarbons*

3.2 Proposed Stormwater Quality Treatment Measures

Stormwater generated by building roof, paved surface area and landscape area will be conveyed via road pits and pipes drainage around the building to stormwater treatments devices. The treatment train proposed for the development are summarised below:

Refer to Appendix A for further details regarding water quality and rainwater tank locations for each sub catchment.

- **ATLAN Vortceptor**
The Atlan Vortceptor Gross Pollutant Trap (GPT) is a non-blocking hydrodynamic separator that has a unique screen and treatment action producing low vortex conditions resulting in excellent pollution removal performance and resulting high water quality outcomes. It separates and captures gross pollutants, sediments, silt, total suspended solids, some nutrients and oil and grease. 4x Atlan Vortceptor GPTs are to be provided treat incoming stormwater to the OSD systems.
- **ATLAN Stormsack**
Atlan Stormsack is one of the stormwater treatment devices designed to capture stormwater pollutants. It is effective in removing gross pollutants and suspended solids. 6x Atlan Stormsack are to be provided treat incoming stormwater to the OSD systems.
- **ATLAN Filters**
Atlan Filters are to be provided as the tertiary stormwater treatment for the subject site. 15x Atlan Filters are to be placed inside the water quality tank for northern catchment and 15x Atlan Filters are to be placed inside the proposed OSD tank for southern catchment. Atlan Filters are effective in reducing a high level of stormwater pollutants including total suspended solids, phosphorus, and nitrogen. There will be a total of 30x ATLAN Filter cartridges within the water quality treatment tanks associated with two OSD treatment systems as detailed in the engineering drawings. Refer to Appendix A for further details

- Rainwater Tanks**
 2x 75 KL rainwater tank will be placed at proposed location and will be reused for the building cooling tower system, flushing and irrigation. Refer to Appendix A for further details
- Erosion and Sediment Control**
 During construction, water quality control is achieved by deposition and trapping of silts and clays which often have nutrients such as phosphorus and nitrogen attached to their surfaces. Silt fences will be erected prior to construction to control sediment runoff. This will reduce and isolate sediments and particulate matter. An Erosion and Sediment Control Plan has been provided in accordance with Landcoms "Managing Urban Stormwater – Soils and Construction (2004)". This will ensure that a significant portion of sediments and attached nutrients can be contained on site during construction. Erosion and Sediment control plan is contained within the Civil Engineering Plans shown in Appendix A.

3.3 MUSIC Results

The MUSIC model layout and results is shown on Figure 4 & Table 2 below. The values summarise the stormwater pollutant reduction for the entire treatment train. The MUSIC analysis results indicate that the proposed stormwater treatment devices are able to satisfy the Cumberland City Council stormwater quality reduction objectives for TSS, TP, TN, gross pollutants and hydrocarbons.

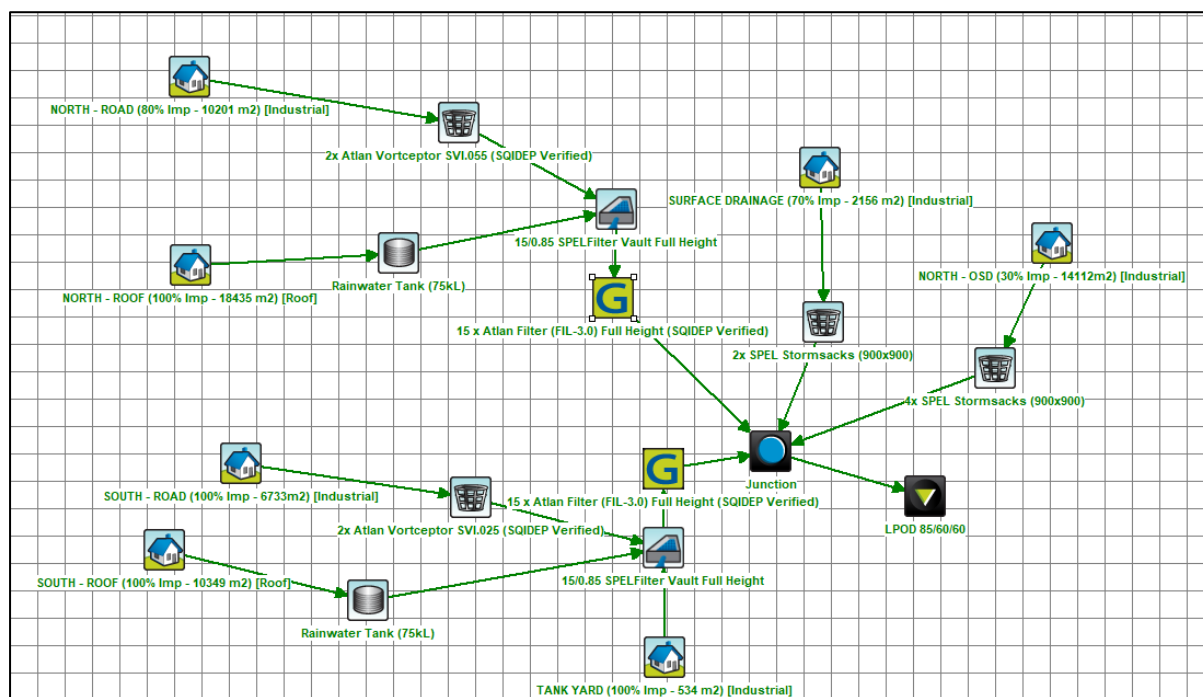


Figure 4 MUSIC model

Table 2: MUSIC Results

	Sources	Residual Load	%Reduction	DCP %Reduction Targets
Flow (ML/year)	42.6	38.2	10.4	-
Total Suspended Soils (kg/year)	3900	553	85.8	85
Total Phosphorus (kg/year)	9.04	2.4	73.4	60
Total Nitrogen (kg/year)	92.6	23.3	65.1	60
Gross Pollutant (kg/year)	1180	0.994	99.9	90

Hydrocarbons targets are address by installing Atlan Vortceptor GPT, according to Fairfield Council requirements. Refer to Appendix B for further details and manufacturers documents.

3.4 Stormwater Drainage Maintenance

Monitoring and maintenance are required to ensure the stormwater system works as intended for the life of the development. Any unusual event regarding stormwater system should be investigated and mitigated as soon as possible such as localised flooding. However, stormwater treatment devices are designed to allow for overflow if it get blocked. So, even when the devices stop working, it can go unnoticed. Therefore, regular inspections are required for each treatment device. These are to be scheduled to ensure devices are cleaned as necessary and any defects discovered rectified. Inspections are also to be performed after any large rainfall event.

Refer to Appendix B for complete maintenance schedule for stormwater system/devices proposed for the development.

4. Water

According to the hydraulic information provided by the hydraulic consultant for this development, the water supply and demand details are outlined in the sections below.

4.1 Recycled Water

Cooling towers will be provided with a concurrently maintainable critical water supply and 24 hours water storage in the event of water mains failure. The 24 hours water storage requirement being a total of 4,713 kL which broken up into 9x 563kL water storage tanks located on the southern side of the site.

According to the hydraulic consultants, water supply and demand for stage 1 and 2 is listed below, as shown in figures below. The values below assume that the mechanical evaporative cooling profile for an operational facility utilises heat rejection continuously year-round with the annual variance of 1.05% across seasons and would represent a flat line across a usage profile. Refer to ARUP cooling towers calculation sheet in hydraulic doementation for further details.

Stage 1 – 50MVA		
Description	Quantity	UOM
Evaporative Cooling cycles of concentration	6	16% of inflow to waste
Average Potable Water Supply	14	KL/day (@ 80% peak)
Peak Potable Water Supply	18	kL/day
Average Recycled Water Supply	1,670	KL/day (@ 80% peak)
Peak Recycled Water Supply	2,087	kL/day
Average Sewer Discharge	287.6	ML/day (@ 80% peak)
Peak Sewer Discharge	360	kL/day
Fire Water Supply	76.5	Aggregate L/s fire scenario only
Hydrants	30	L/s fire scenario only
Sprinklers	46.5	L/s fire scenario only
Landscaping Water Supply	14	kL/day (Add to RW peak)

Figure 5: Stage 1 Water Supply, ARUP hydraulic calculations

Stage 2 – 100MVA		
Description	Quantity	UOM
Evaporative Cooling cycles of concentration	6	16% of inflow to waste
Average Potable Water Supply	0	KL/day (@ 80% peak) As per stage 1
Peak Potable Water Supply	0	kL/day As per stage 1
Average Recycled Water Supply	2087.2	ML/day (@ 80% peak)
Peak Recycled Water Supply	2,609	kL/day
Average Sewer Discharge	347.52	ML/day (@ 80% peak)
Peak Sewer Discharge	434.4	kL/day
Fire Water Supply	0	As per stage 1
Hydrants	0	As per stage 1
Sprinklers	0	As per stage 1
Landscaping Water Supply	16	kL/day (Add to RW peak)

Figure 6: Stage 2 Water Supply, ARUP hydraulic calculations

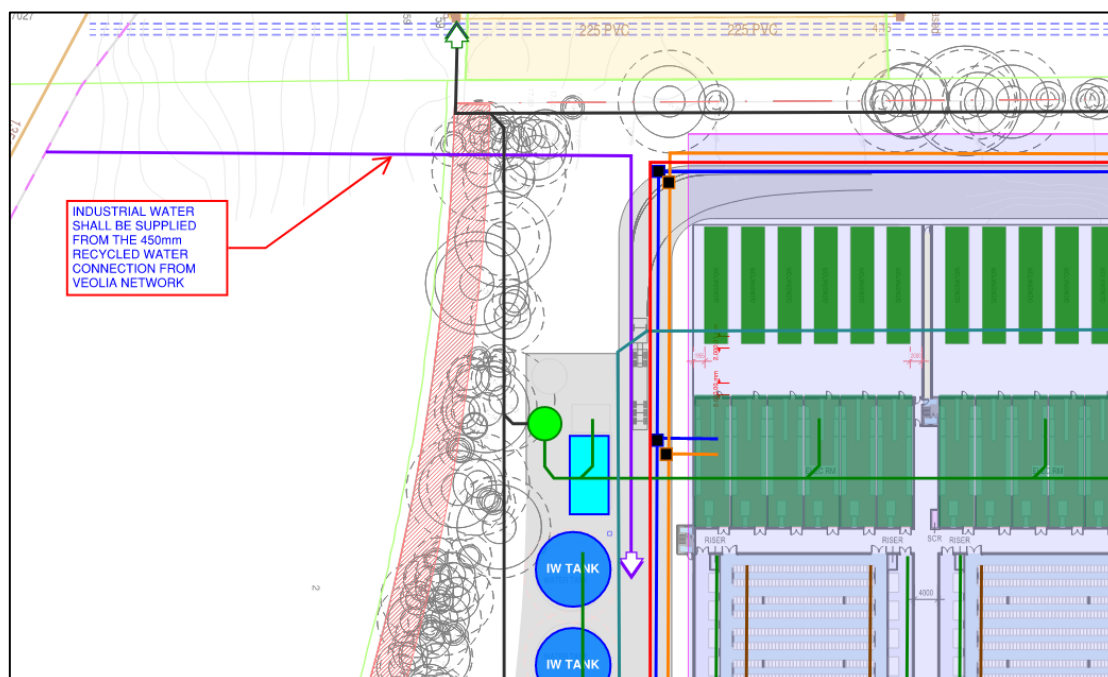


Figure 8 Conceptual recycled water connection strategy on southwest corner

5. Sewer

According to the hydraulic information provided by the hydraulic consultant for this development, the sewer hydraulic details are outlined in the sections below.

5.1 Fire Water

In the unlikely event of a fire where the sprinklers are discharged, the fire water from battery room will be contained in the fire water containment tank. Refer to hydraulic consultants reports for further information.

The inground fire water containment tank will have a capacity of 30 KL. The containment tank will have an overflow into OSD tank. OSD tank will have a site isolation valve fitted for site isolation in fire event.

5.2 Sewer Connection Strategy

Existing 225mm sewer main is located along on the southwestern border of the property. There is an existing sewer line within neighbouring property. Due to lengths of sewer runs prior to new sewer junction works in the south/western corner, 2x sewer pump stations at the southern end of site are proposed and will discharge via pumped rising mains. Location of the sewer pump station is to be confirmed by hydraulic consultants.

The conceptual sewer servicing strategy is shown in Figure 9 and Figure 10 below.

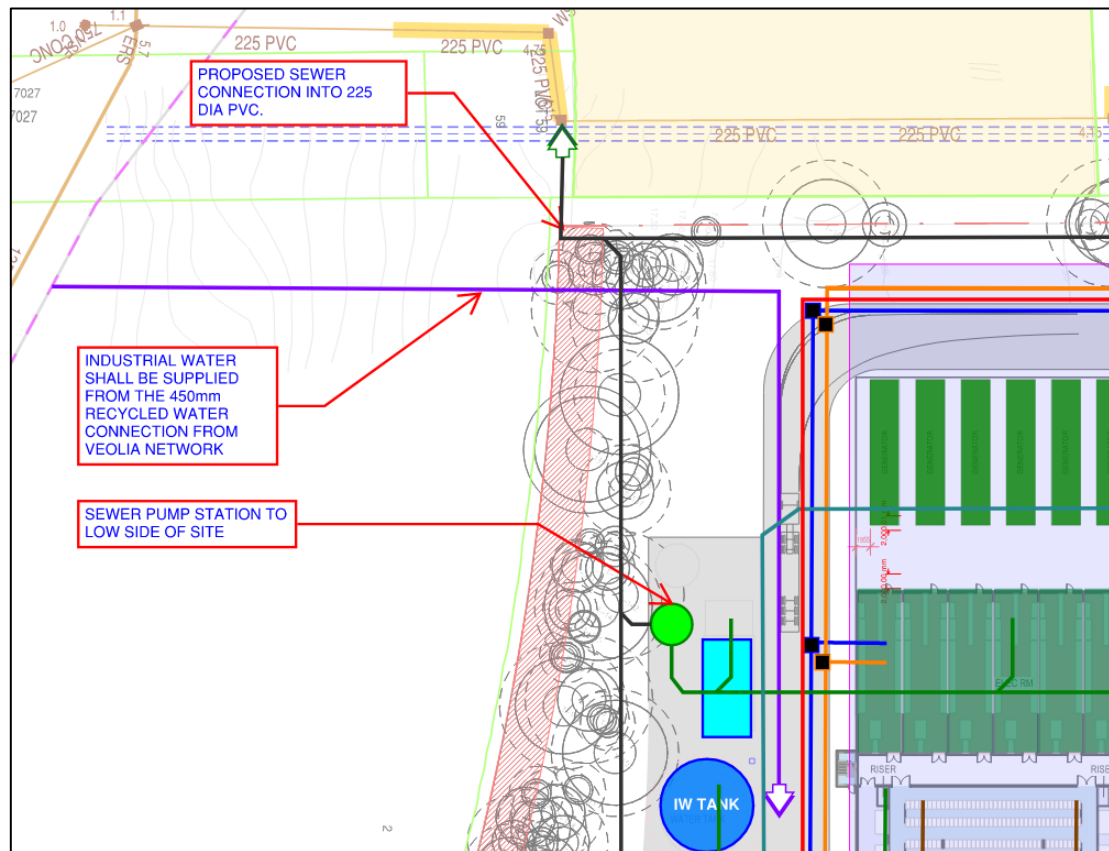


Figure 9 Conceptual sewer connection strategy and 1x sewer pump location

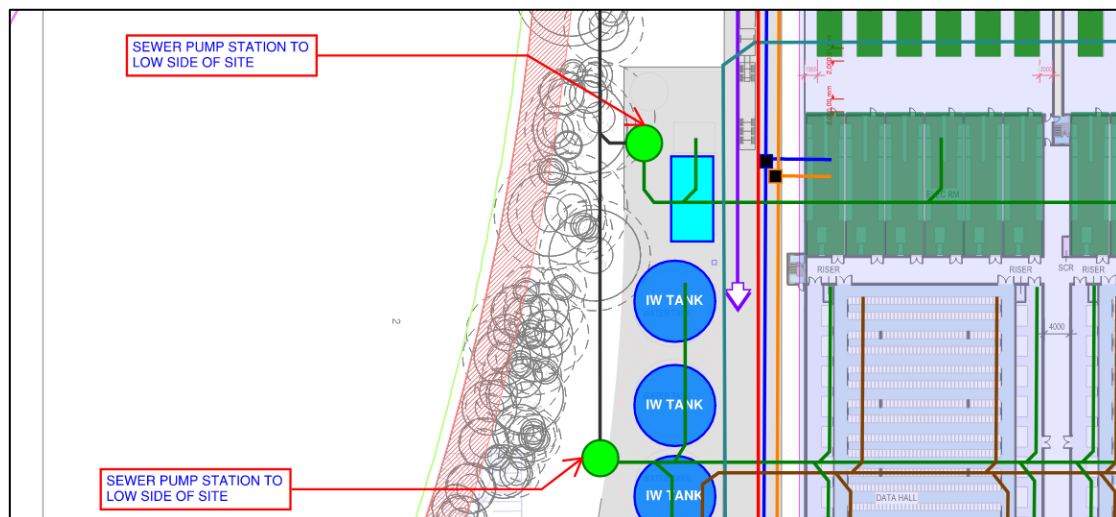


Figure 10 1x sewer pump location and fire water containment tank

6. Water Balance

6.1 Water Supply

Potable water

The Potable water will be used to supply staff amenities and general site demands. will be used to supply general site demands. In final configuration, the estimated average annual potable water supply is 5.1 ML/year, equating to a peak daily water supply of 18 kL/day.

Recycled Water

The recycled water is available, to be used to supply some of the non-potable uses such as cooling towers. The estimated average annual recycled water supply is 1,371 ML/year, equating to a peak daily water supply of 4,696 kL/day.

Rainwater tanks

Rainwater from building roof to be collected, stored, and reused. 2 x 75 KL inground water tanks are proposed for the development, as listed below.

- 1 x tank to supply mechanical cooling only when available - RWT meets 0.2% NPCW demand
- 1 x tank to supply toilet flushing / irrigation supplemented by recycled water - RWT meets 20% NPCW flushing (365 kL/year) / irrigation demand (10.9 ML/year)

A roof drainage system with a catchment area of approximately 23,000 m² can supply an average of 19.93 ML of rainwater per year, based on BOM climate data.

6.2 Water Demand

Potable Water

The potable water demand for staff facilities such as bathrooms, kitchens and cleaning are 1.2ML/yr.

Process Water

The operations consist of an evaporative cooling system with a variable process demand. The daily water demand will vary depending on temperature. In final configuration, the estimated average annual recycle water demand is 1,376 ML/year, equating to a peak daily water demand of 4,713 kL/day. This water will be supplied by harvested rainwater, Aquanet recycled water or potable water when harvested rainwater and recycled water is unavailable.

6.3 Water Discharge

Sewer

Minimal water used on the site will be discharged to the sewer. In final configuration, the estimated average annual sewer discharge is 231 ML/year, equating to a peak daily sewer discharge of 794 kL/day.

Site stormwater runoff

The site stormwater runoff will be conveyed to the outlet connection points noted previously. This will include overflow from the rainwater tanks when they are full. Based on Sydney annual rainfall of 877mm per year, the estimated annual site stormwater discharge from rainfall on site is 63ML/yr.

6.4 Water Balance Summary

A summary of the results of the site water balance in the final configuration is included in Table 3 below for stage 1 and 2.

Table 3 Water balance summary

Water Source	Annual Average Total (ML)	
	Inflow	Outflow
Rainfall	63	
Rainwater Reuse		19.9
Stormwater Discharge		41.1
Potable Water Supply	5.1	
Non-Potable Water Supply	1371	
Water Usage for Irrigation		10.9
Water Usage for Toilets		0.37
Potable Water Usage		1.2
Non-Potable Water Usage		1,376
Sewer Discharge		231
Total	1,439.1	1,680.47

To validate these results, the estimated annual reuse was verified using the MUSIC water quality model. Average estimates from each method are within 20% of each other, which is considered acceptable.

7. Conclusion

The proposed development will involve civil engineering activities such as earthworks, pavement, and drainage work.

The results from the investigations and assessment for this project summarised in this report. The results indicate the development with the proposed stormwater and utilities strategy and management can meet council's stormwater objectives for the site and satisfy SEARs conditions.



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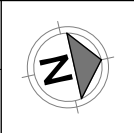


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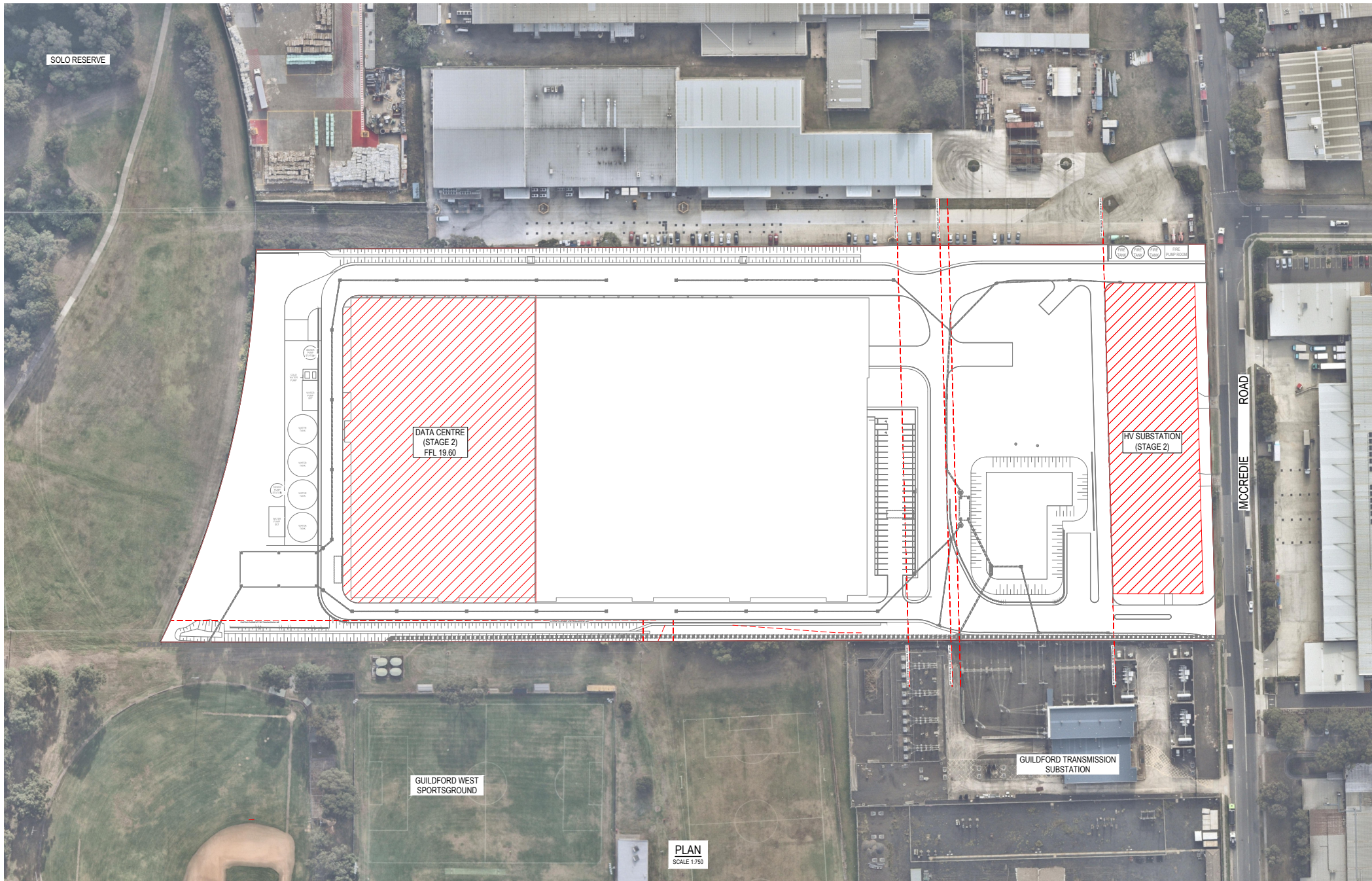
GOODMAN PROPERTY SERVICES (AUST) PTY LTD
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

DRAWING TITLE
SITE PLAN - STAGE 1

APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE
DRAFTSPERSON HB/VB	SCALE 1:750	DATE DATE DRAWN
JOB NO. SY242-012	DRAWING NO. SSDA-C101	SHEET SIZE A1
	REVISION	REVISION



REVISIONS:			
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SCALE BAR			
			
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CLIENT
GOODMAN PROPERTY SERVICES (AUST) PTY LTD

ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILD FORD WEST NSW 2161

DRAWING TITLE
SITE PLAN - STAGE 2

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER
AW

DESIGNER
HB/VB

DRAFTSPERSON
HB/VB

JOB NO.
SY242-012

SIGNATURE

SCALE
1:750

DATE
DATE DRAWN

DRAWING NO.
SSDA-C102

SHEET SIZE
A1

REVISION
REVISION

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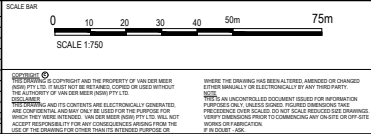
LEGEND

- STORMWATER SEDIMENT TRAPS
AT ALL PROPOSED PIT INLETS
- TEMPORARY CONSTRUCTION VEHICLE EXIT
- SEDIMENT CONTROL FENCE
- STOCKPILE AREA
- SANDBAG KERB INLET SEDIMENT TRAP
- TEMPORARY SEDIMENT BASIN
- PROPOSED TREE
REFER TO LANDSCAPE ARCHITECT'S PLAN
- EXISTING TREE TO BE RETAINED
REFER TO LANDSCAPE ARCHITECT'S PLAN
- EXISTING TREE TO BE DEMOLISHED
REFER TO LANDSCAPE ARCHITECT'S PLAN



PLAN
SCALE 1:750

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ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

DRAWING STATUS			
APPROVAL ISSUE			
NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER	DESIGNER	SIGNATURE	
AW	HB/VB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
HB/VB	1:750	DATE DRAWN	A1
JOB No.	DRAWING No.	REVISION	
SY242-012	SSDA-C121	B	

B1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS SHOWN

82. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT COUNCIL'S APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS'.

B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL IS TO BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY, (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.

B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM DEVICES SUCH THAT NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL.

B5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.

B6. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.

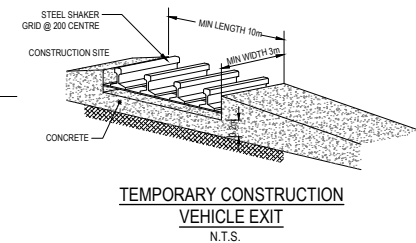
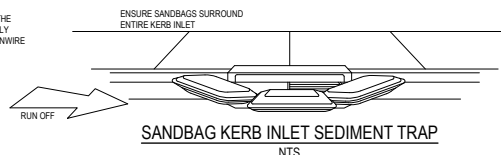
B7. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENTS ARE REVEGETATED OR PAVED.

B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.

B9. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL :
A) DOWNPIPES CONNECTED
B) PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER

B10. SILT FENCE MAINTENANCE INSPECTION TO BE CARRIED OUT EVERY 3 MONTHS AND AFTER EACH RAINFALL EVENT.

B11. EROSION & SEDIMENT CONTROL SIGNAGE AVAILABLE FROM COUNCIL MUST BE ATTACHED TO THE MOST PROMINENT AVAILABLE STRUCTURE AND BE VISIBLE AT ALL TIMES WHEN ENTERING THE SITE FOR THE DURATION OF CONSTRUCTION.



REVISIONS:					
B	SSDA				
A	SSDA		VB	VB	15.04.2022 12.03.2022
	REVISION DESCRIPTION		PREPARED BY	CHECKED BY	DATE

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DESIGNER: AIR



ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

DRAWING TITLE:
EROSION AND SEDIMENT CONTROL
DETAILS

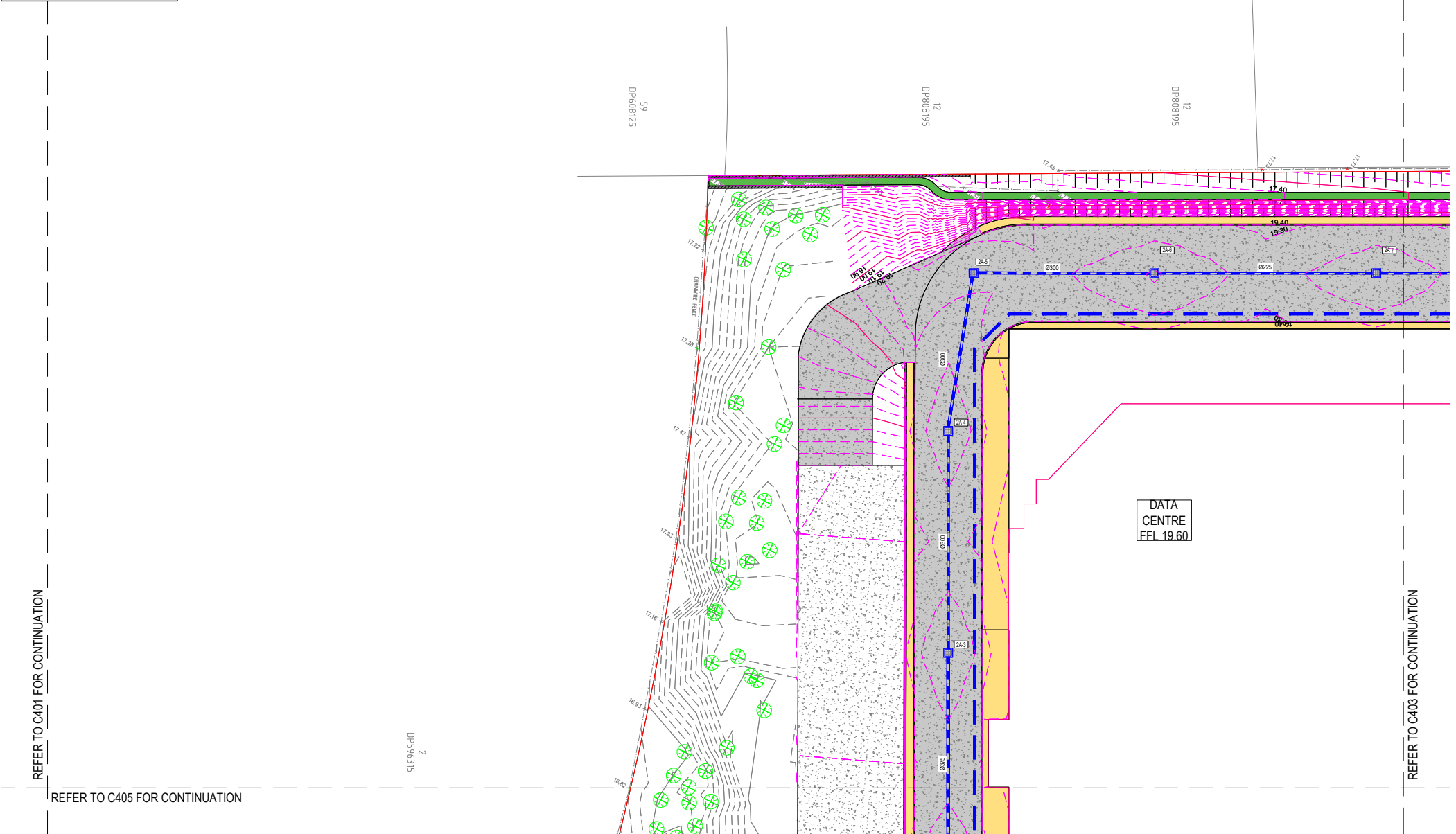
DRAWING STATUS			
APPROVAL ISSUE NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE	
DRAFTSPERSON HB/VB	SCALE AS SHOWN	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012		DRAWING No. SSDA-C151	REVISION B

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE
APPROXIMATE ONLY AND THEIR EXACT POSITION
SHOULD BE PROVEN ON SITE. NO GUARANTEE IS
GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

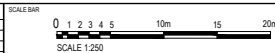
WARNING
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REFER TO C401 FOR CONTINUATION

REFER TO C405 FOR CONTINUATION



REFER TO C403 FOR CONTINUATION

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IF IN DOUBT - ASK



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ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

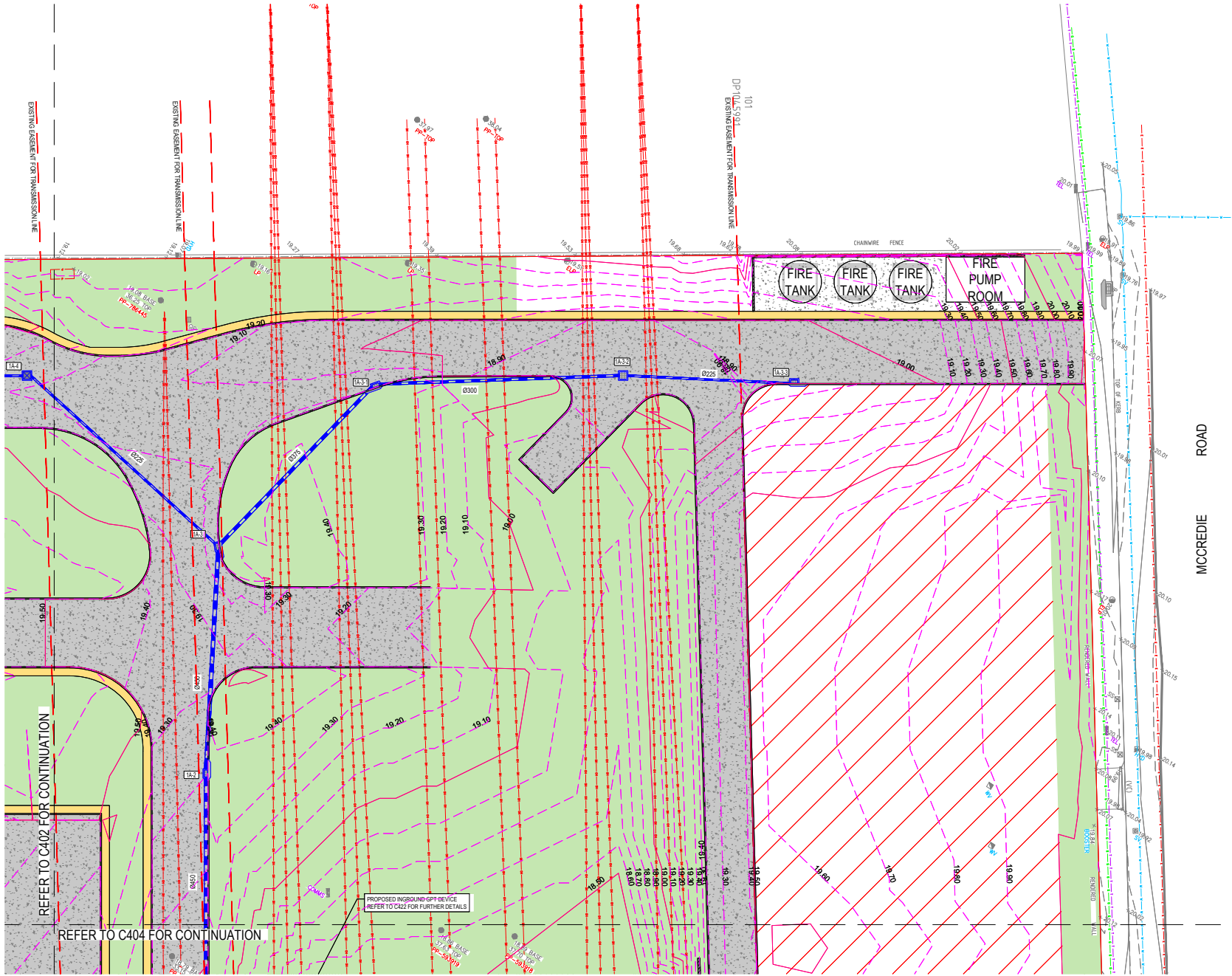
DRAINAGE PLAN - SHEET 1

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DRAFTSPERSON HB/VB	SCALE 1:250	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012		DRAWING No. SSDA-C401	REVISION C

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DRAFTSPERSON HB/VB	SCALE 1:250	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012		DRAWING No. SSDA-C402	REVISION C



REFER TO C402 FOR CONTINUATION

REFER TO C404 FOR CONTINUATION

PROPOSED INGROUND GPT SERVICE
REFER TO C422 FOR FURTHER DETAILS

PLAN
SCALE 1:250

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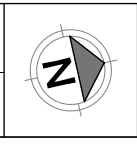
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WARNING
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SCALE 1:250

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ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

DRAWING TITLE
DRAINAGE PLAN - SHEET 3

DRAWING STATUS			
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NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE	
DRAFTSPERSON HB/VB	SCALE 1:250	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012	DRAWING No. SSDA-C403	REVISION	C

REFER TO C405 FOR CONTINUATION

DATA
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FFL 19.60

OSD-2 (REFER TO C-453 FOR DETAILS)
 OSD MAX DISCHARGE = 197 L/s
 INVERT LEVEL = IL 16.00
 AVERAGE DEPTH = 2.60 m
 AREA = 430 m²
 OSD STORAGE REQUIRED = 916 m³
 OSD STORAGE PROVIDED = 1,120 m³

PROPOSED INGROUND GPT DEVICE
REFER TO C422 FOR FURTHER DETAILS

PROPOSED INGROUND GPT DEVICE
REFER TO C422 FOR FURTHER DETAILS

PROPOSED 1200x1200 SEALED JUNCTION
PIT TO CONNECT TO EXISTING COUNCIL
STORMWATER PIPE

DP123063

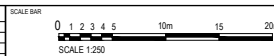
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PLAN
SCALE 1:250

WARNING

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REVISIONS:					
C	RTS			HB	03.07.2022
B	SSDA			VB	15.04.2022
A	SSDA			VB	12.03.2022
	REVISION DESCRIPTION			DRAWN	DATE



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GOODMAN PROPERTY SERVICES
(AUST) PTY LTD

ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE	PROJECT PLUTO 132 MCCREDIE ROAD GUILDFORD WEST NSW 2161
DRAWING TITLE	DRAINAGE PLAN - SH

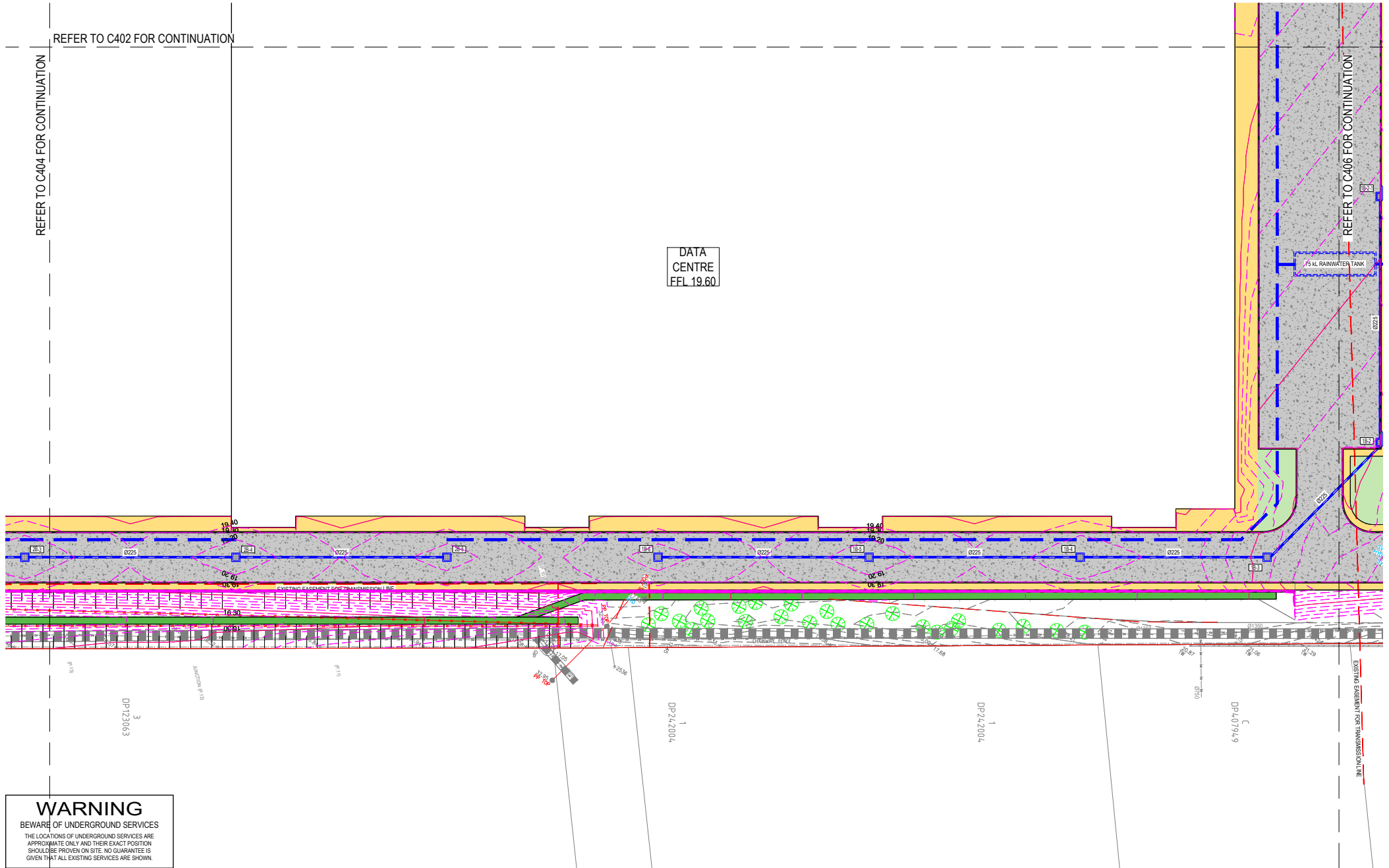
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APPROVAL ISSUE NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE	
DRAFTSPERSON HB/VB	SCALE 1:250	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012		DRAWING No. SSDA-C404	REVISION C

REFER TO C402 FOR CONTINUATION

REFER TO C404 FOR CONTINUATION

DATA
CENTRE
FEL 19.60

REFER TO C406 FOR CONTINUATION



WARNING

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PLAN
SCALE 1:250

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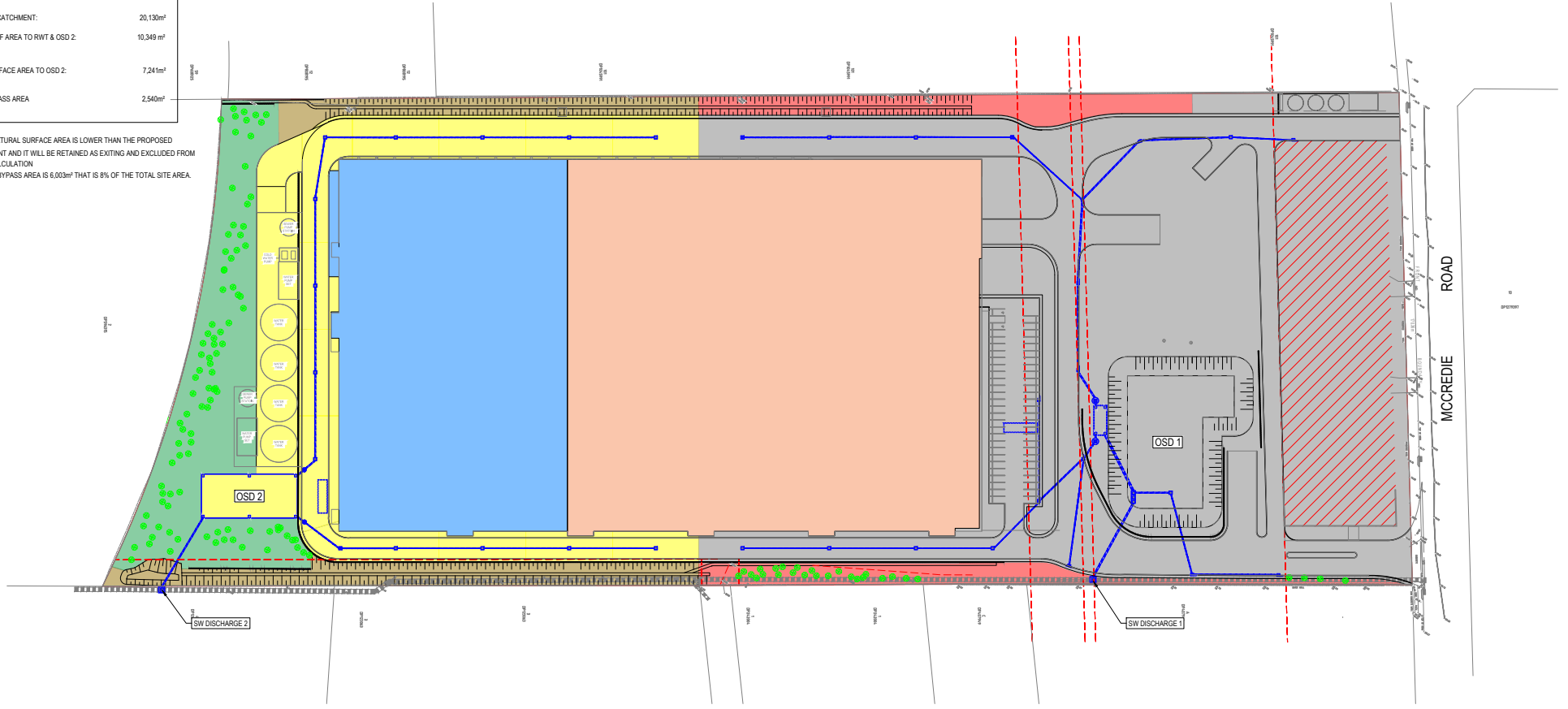
van der Meer Consulting
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ST LEONARDS NSW 2065
Telephone 61-2-9436 0433 Fax 61-2-9436 1370
www.vandermeer.com.au
van der Meer (NSW) Pty Ltd
A.B.N. 56 158 266 301

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GOODMAN PROPERTY SERVICES (AUST) PTY LTD
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT

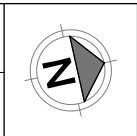
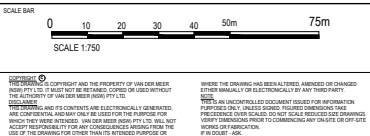
LEGEND		
SITE AREA: 71,700 m ²		
	* EXISTING NATURAL SURFACE (0% IMPERVIOUSNESS)	4,168 m ²
NORTHERN OSD SUBCATCHMENT:		
	ROOF AREA RWT & OSD 1:	47,402 m ²
	SURFACE AREA TO OSD 1:	18,435m ²
	BYPASS AREA	26,495 m ²
	BYPASS AREA	2,472 m ²
SOUTHERN OSD SUBCATCHMENT:		
	ROOF AREA TO RWT & OSD 2:	20,130m ²
	SURFACE AREA TO OSD 2:	10,349 m ²
	SURFACE AREA TO OSD 2:	7,241m ²
	BYPASS AREA	2,540m ²

* NOTE: EXISTING NATURAL SURFACE AREA IS LOWER THAN THE PROPOSED DEVELOPMENT AND IT WILL BE RETAINED AS EXISTING AND EXCLUDED FROM THE OSD CALCULATION
TOTAL SITE BYPASS AREA IS 6,003m² THAT IS 8% OF THE TOTAL SITE AREA.



PLAN
SCALE 1:750

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GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

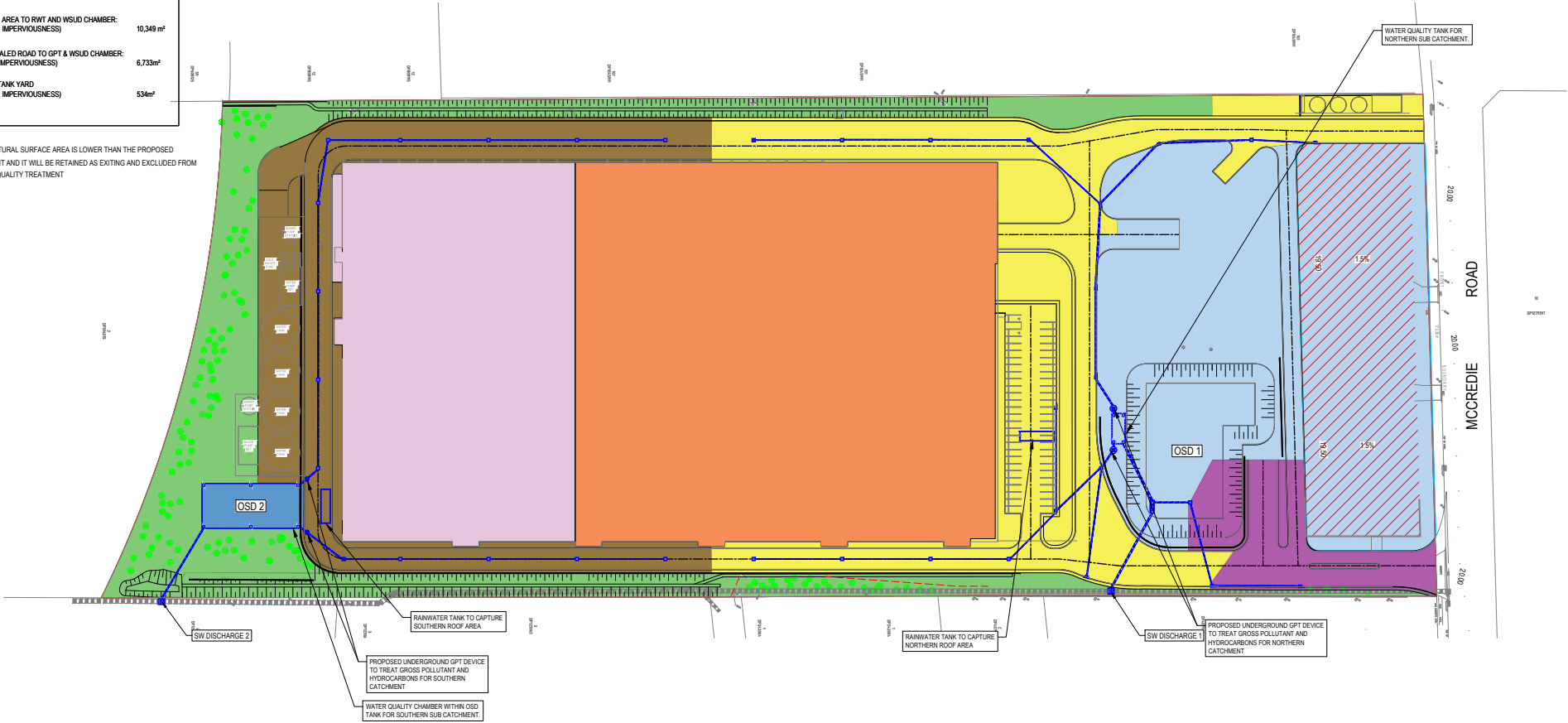
PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

DRAWING TITLE
DRAINS CATCHMENT PLAN

APPROVAL ISSUE			
NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE	
DRAFTSPERSON HB/VB	SCALE 1:750	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012	DRAWING No. SSDA-C421	REVISION	C

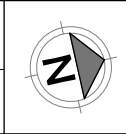
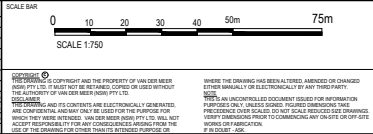
LEGEND		
SITE AREA: 71,700 m ²		
	* EXISTING NATURAL SURFACE (0% IMPERVIOUSNESS)	9,180m ²
	ROOF AREA TO RWT AND WSUD CHAMBER: (100% IMPERVIOUSNESS)	18,435m ²
	SURFACE AREA TO STORMSACKS (70% IMPERVIOUSNESS)	2,156m ²
	SEALED ROADS TO GPT & WSUD CHAMBER: (80% IMPERVIOUSNESS)	10,201 m ²
	SURFACE AREA TO OSD 1 (30% IMPERVIOUSNESS)	14,112m ²
	ROOF AREA TO RWT AND WSUD CHAMBER: (100% IMPERVIOUSNESS)	10,349 m ²
	UNSEALED ROAD TO GPT & WSUD CHAMBER: (80% IMPERVIOUSNESS)	6,733m ²
	OSD TANK YARD (100% IMPERVIOUSNESS)	534m ²

* NOTE: EXISTING NATURAL SURFACE AREA IS LOWER THAN THE PROPOSED DEVELOPMENT AND IT WILL BE RETAINED AS EXITING AND EXCLUDED FROM THE WATER QUALITY TREATMENT



PLAN
SCALE 1:750

REVISIONS:			
No.	REVISION DESCRIPTION	DATE	BY
1	SSDA	15.04.2023	VB
2	SSDA	15.04.2023	VB
3	SSDA	15.04.2023	VB
4	SSDA	15.04.2023	VB
5	SSDA	15.04.2023	VB
6	SSDA	15.04.2023	VB
7	SSDA	15.04.2023	VB
8	SSDA	15.04.2023	VB
9	SSDA	15.04.2023	VB
10	SSDA	15.04.2023	VB





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ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22, 68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
PROJECT PLUTO
132 MCCREDIE ROAD
GUILDFORD WEST NSW 2161

DRAWING TITLE
MUSIC CATCHMENT PLAN

DRAWING STATUS			
APPROVAL ISSUE			
NOT TO BE USED FOR CONSTRUCTION			
PROJECT LEADER AW	DESIGNER HB/VB	SIGNATURE	
DRAFTSPERSON HB/VB	SCALE 1:750	DATE DATE DRAWN	SHEET SIZE A1
JOB No. SY242-012	DRAWING No. SSDA-C422	REVISION C	

APPENDIX B- WATER QUALITY DEVICE DETAILS



AUCKLAND
L8, 139 Quay St
Auckland NZ

BRISBANE
L3, 51 Alfred St
Fortitude Valley

CANBERRA
L9, 2 Phillip Law St
Canberra

MELBOURNE
L6, 379 Collins St
Melbourne

NEWCASTLE
L1, 17 Bolton St
Newcastle

SYDNEY
L6, 39 Chandos St
St Leonards



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3rd March 25

Van Der Meer Consulting
39 Chandos St, St Leonards NSW 2065

Attention:

Re: Vortceptor Hydrocarbon Removal

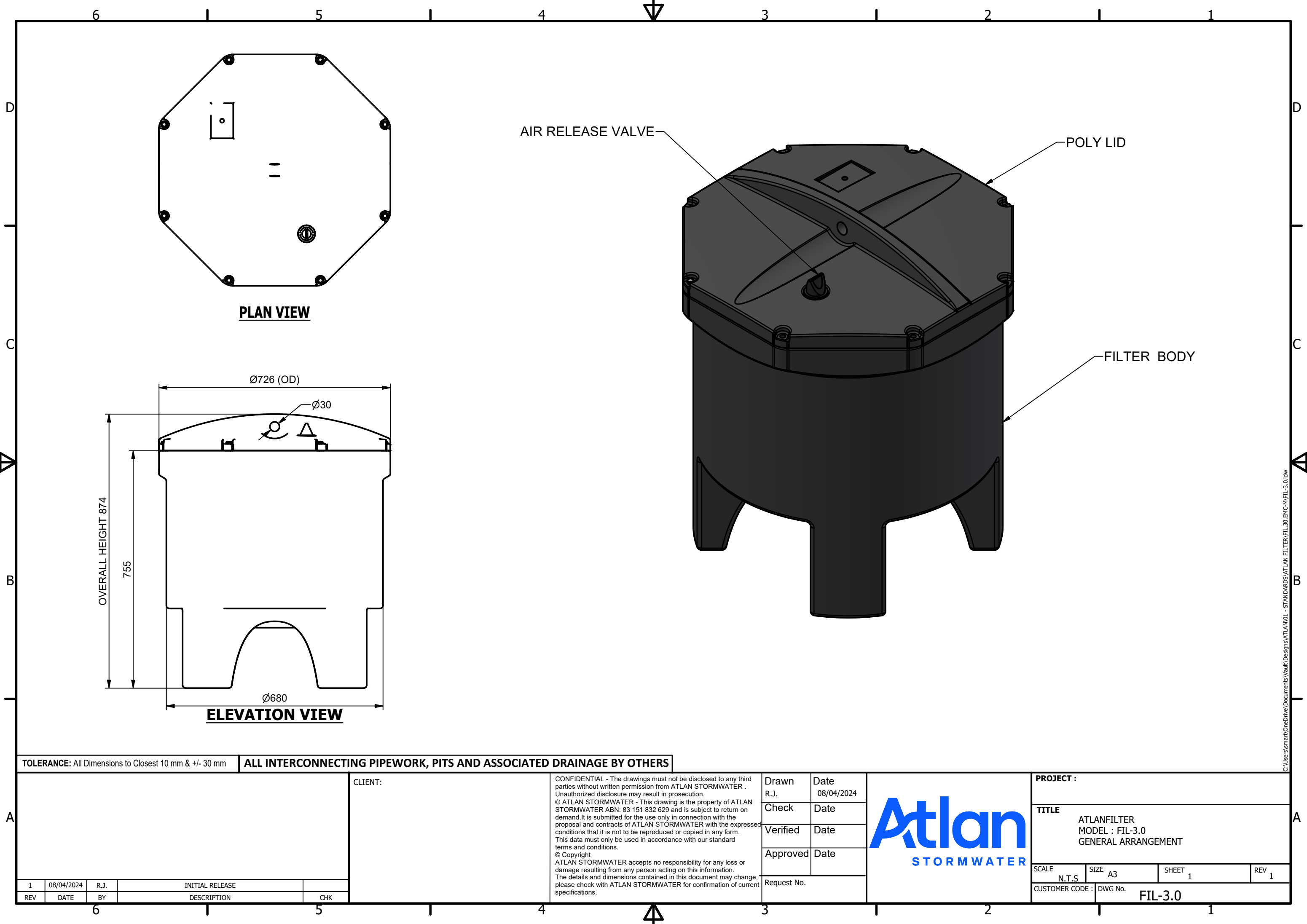
Dear Vahid,

This letter confirms the total petroleum hydrocarbon and free oil reduction performance of the Vortceptor GPT. The Vortceptor Gross Pollutant Trap (GPT) is a non-blocking vortex style separator with a unique screen and treatment action that produces low vortex conditions, resulting in excellent pollution removal performance and high water quality outcomes.

The stated petroleum hydrocarbon removal for the Vortceptor is 94%, which is inline with the testing completed – refer to *The CDS Unit for Removal of Oil and Grease (2012)*. Free oil removal is expected to be higher than petroleum hydrocarbon due to its non-dissolved nature.



Oscar Bentham
Civil & Environmental Engineer
for and on behalf of
Atan Stormwater



PLAN VIEW

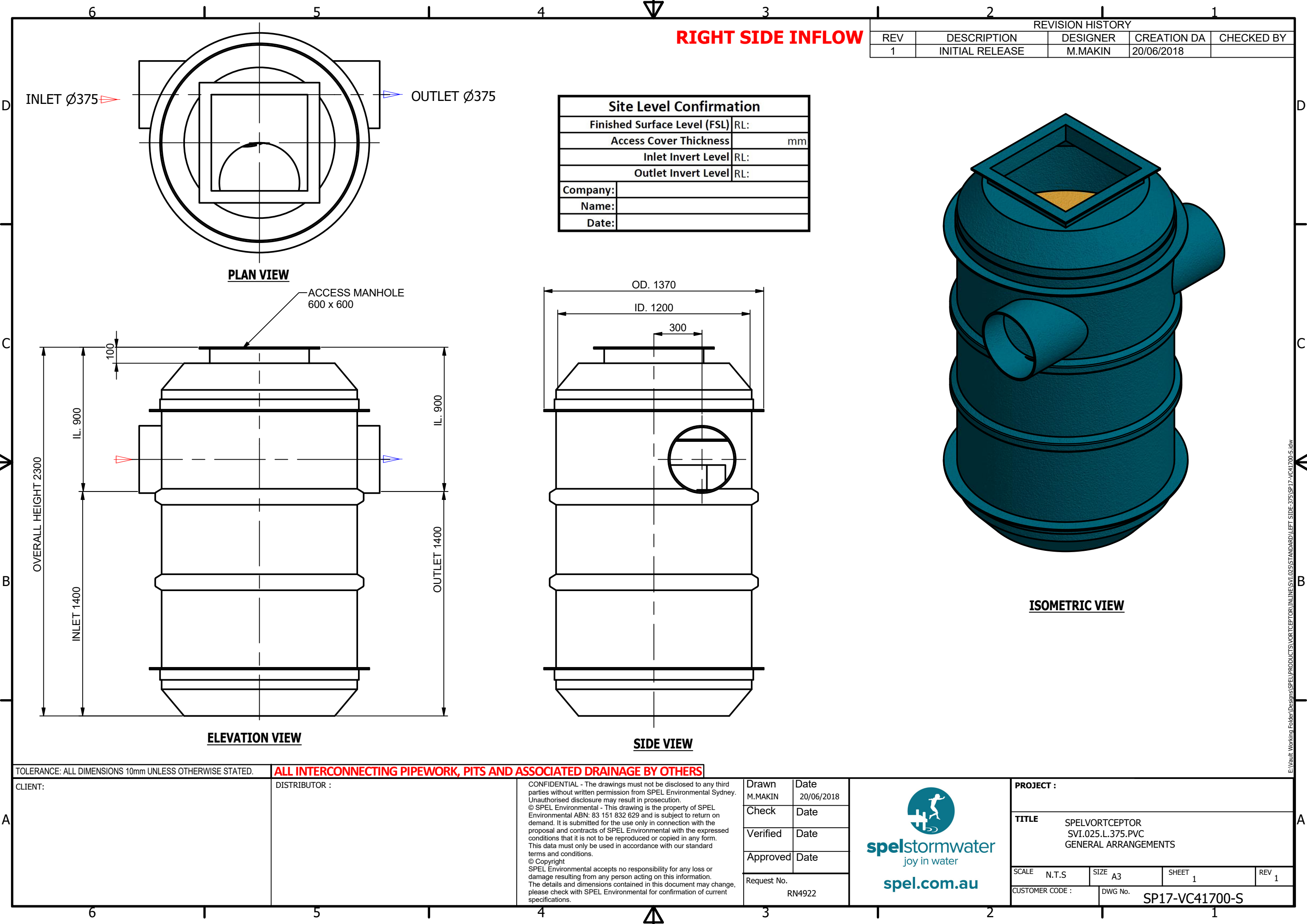
ELEVATION VIEW

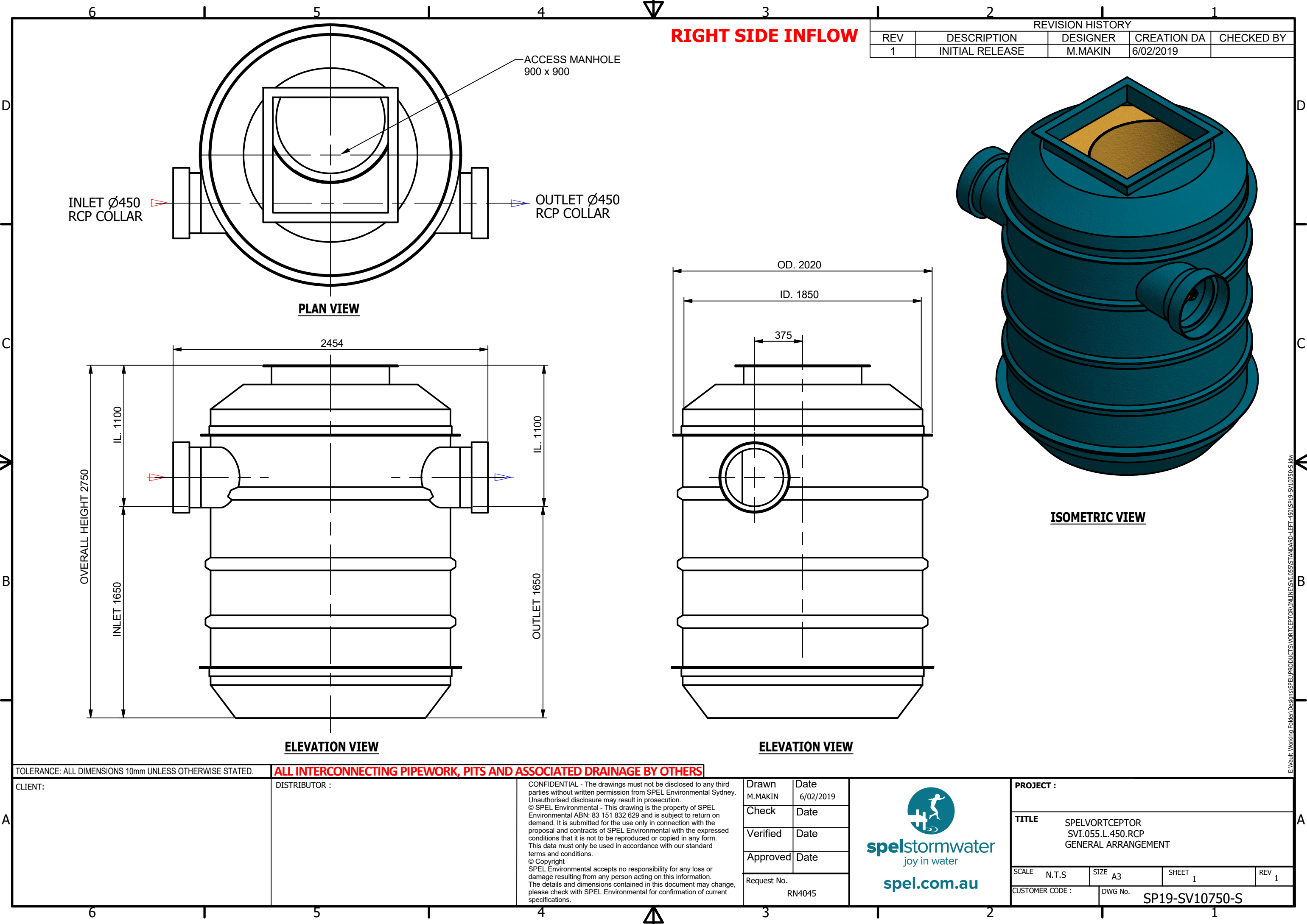
TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm

ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

1	08/04/2024	R.J.	INITIAL RELEASE	
REV	DATE	BY	DESCRIPTION	CHK

PROJECT :			
TITLE			
ATLANFILTRER MODEL : FIL-3.0 GENERAL ARRANGEMENT			
SCALE	SIZE	SHEET	REV
N.T.S	A3	1	1
CUSTOMER CODE :		DWG No.	
		FIL-3.0	





REVISION HISTORY				
REV	DESCRIPTION	DESIGNER	CREATION DA	CHECKED BY
1	INITIAL RELEASE	M.MAKIN	6/02/2019	

TOLERANCE: ALL DIMENSIONS 10mm UNLESS OTHERWISE STATED.

ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

CLIENT:

DISTRIBUTOR :

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Drawn	Date
M.MAKIN	6/02/2019
Check	Date
Verified	Date
Approved	Date
Request No.	
RN4045	



spelstormwater
joy in water
spel.com.au

PROJECT :			
TITLE			
SPELVORTCEPTOR SV1.055.L.450.RCP GENERAL ARRANGEMENT			
SCALE	N.T.S	SIZE	A3
SHEET	1	REV	1
CUSTOMER CODE :		DWG No.	
		SP19-SV10750-S	

APPENDIX C- UPRCT Calculation Sheet



AUCKLAND
L8, 139 Quay St
Auckland NZ

BRISBANE
L3, 51 Alfred St
Fortitude Valley

CANBERRA
L9, 2 Phillip Law St
Canberra

MELBOURNE
L6, 379 Collins St
Melbourne

NEWCASTLE
L1, 17 Bolton St
Newcastle

SYDNEY
L6, 39 Chandos St
St Leonards



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On-Site Detention Calculation Sheet for Upper Parramatta River Catchment HED Secondary Outlet

Project:	UPRCT Handbook Demonstration Example				
Site Address	132 McCredie Rd, Guildford - Southern Catchment				
Job No:	SY242012				
Designer:	VB				
Telephone:	.				

Site Data					
OSD Area:	Upper Parramatta River Catchment				
L.G.A	Holroyd City Council				
Site Area	2.013	ha	20,130	m ²	
Total Roof Area	1.0349	ha	10,349	m ²	
Area of Site draining to OSD Storage	1.759	ha	17,590	m ²	Satisfactory
Residual Site Area (Lot Area - Roof Area)	0.978	ha			
Area Bypassing Storage	0.254	ha			
Area Bypassing / Residual Site Area	26.0%				Satisfactory 30% Max
No. of Dwellings on Site	1				Satisfactory
Site Area per Dwelling	2.013	ha			
Roof Area per Dwelling	1.035	ha			

Basic OSD Parameters					
		Extended Detention		Detention	
Basic SSR Vols	Ext Detention Storage	300	m ³ /ha	Total Storage	455 m ³ /ha
Basic SRDs	Primary Outlet	40	L/s/ha	Secondary Outlet	150 L/s/ha

OSD Tank Bypass					
Residual Lot Capture in OSD Tank	74%				
Adjusted SRDs	32	L/s/ha		98	L/s/ha

OSD Calculations					
		Extended Detention		Detention	
Basic SSR Volume	Ext Detention Storage	603.90	m ³	Total Storage	915.92 m ³
Total Rainwater Tank Credits		0.00	m ³		0.00 m ³
Storage Volume				Total	915.91 m ³
Storage Volume	Ext Detention Storage	603.90	m ³	Flood Detention Storage	312.02 m ³
OSD Discharges	Primary Outlet	64.84	L/s	Secondary Outlet	197.40 L/s
RL of Top Water Level of Storage	17.400	m		18.120	m
RL of Orifice Centre-line	16.700	m		16.670	m
Number of Orifices	1			1	
Estimated Downstream Flood Level	9.00	1.5 yr ARI		9.00	100 yr ARI
Downstream FL - RL of Orifice Centre-line	-7.70	Satisfactory		Satisfactory	-7.67 m
Design Head to Orifice Centre	0.700	m		TWL Ext Detn Storage - RL Orifice	0.730 m
Calculated Orifice Diameter	193	mm	Satisfactory	Satisfactory	333 mm

Overflow Weir & Freeboard Calculation					
RL of Minimum Habitable Floor Level		10.600	m		
RL of Minimum Garage Floor Level		10.500	m		
Length of Overflow Weir		2.00	m		
Site Runoff Coefficient	Holroyd City Council	0.75			
Storm Intensity (5 min 100 yr ARI)		206	mm/h		
Peak Flow over Weir		754.9	L/s		
Depth of Flow over Weir		378	mm		
Freeboard to Habitable Floor		Unacceptable - Min Freeboard = 200 mm	-7898	mm	
Freeboard to Garage Floor		Unacceptable - Min Freeboard = 100 mm	-7998	mm	

On-Site Detention Calculation Sheet for Upper Parramatta River Catchment HED Secondary Outlet

Project:	UPRCT Handbook Demonstration Example					
Site Address	132 McCredie Rd, Guildford - Northern Catchment					
Job No:	SY242012					
Designer:	VB					
Telephone:	.					

Site Data						
OSD Area:	Upper Parramatta River Catchment					
L.G.A	Holroyd City Council					
Site Area	4.7402	ha	47,402	m ²		
Total Roof Area	1.8435	ha	18,435	m ²		
Area of Site draining to OSD Storage	4.493	ha	44,930	m ²	Satisfactory	
Residual Site Area (Lot Area - Roof Area)	2.897	ha				
Area Bypassing Storage	0.2472	ha				
Area Bypassing / Residual Site Area	8.5%		Satisfactory		30% Max	
No. of Dwellings on Site	1		Satisfactory			
Site Area per Dwelling	4.740	ha				
Roof Area per Dwelling	1.844	ha				

Basic OSD Parameters						
			Extended Detention		Detention	
Basic SSR Vols	Ext Detention Storage	300	m ³ /ha	Total Storage	455	m ³ /ha
Basic SRDs	Primary Outlet	40	L/s/ha	Secondary Outlet	150	L/s/ha

OSD Tank Bypass						
Residual Lot Capture in OSD Tank	91%					
Adjusted SRDs	37	L/s/ha	133		L/s/ha	

OSD Calculations						
			Extended Detention		Detention	
Basic SSR Volume	Ext Detention Storage	1422.06	m ³	Total Storage	2156.79	m ³
Total Rainwater Tank Credits		0.00	m ³		0.00	m ³
Storage Volume				Total	2156.79	m ³
Storage Volume	Ext Detention Storage	1422.06	m ³	Flood Detention Storage	734.73	m ³
OSD Discharges	Primary Outlet	177.47	L/s	Secondary Outlet	630.13	L/s
RL of Top Water Level of Storage	18.230	m		18.520	m	
RL of Orifice Centre-line	16.600	m		16.560	m	
Number of Orifices	1			1		
Estimated Downstream Flood Level	16.48	1.5 yr ARI		16.48	100 yr ARI	
Downstream FL - RL of Orifice Centre-line	-0.12	Satisfactory		-0.08	m	
Design Head to Orifice Centre	1.630	m		1.670	m	
Calculated Orifice Diameter	258	mm	Satisfactory	483	mm	