

EARTHWORKS

1. THE CONTRACTOR SHALL INSTALL EFFECTIVE EROSION AND SEDIMENTATION CONTROL MEASURES TO THE SATISFACTION OF THE SUPERINTENDANT PRIOR TO COMMENCING EARTHWORKS. THESE MEASURES SHALL BE MAINTAINED FOR THE DURATION OF THE CONTRACT.
2. ADEQUATE DRAINAGE OF ALL WORKING AREAS SHALL BE MAINTAINED THROUGHOUT THE PERIOD OF CONSTRUCTION TO ENSURE RUN-OFF OF WATER WITHOUT PONDING, EXCEPT WHERE PONDING FORMS PART OF AN APPROVED EROSION AND AND SEDIMENTATION CONTROL SYSTEM.
3. THE CONTRACTOR SHALL OBTAIN THE WRITTEN CONSENT OF THE SUPERINTENDANT OR THE USE OF ANY STOCKPILE WITE WHICH IS NOT SHOWN ON THE DRAWINGS. PROPOSAL IN THIS REGARD SHALL BE SUBMITTED AT LEAST THREE WORKING DAYS BEFORE STOCKPILING IS DUE TO COMMENCE AND SHALL SPECIFY THE MAXIMUM DIMENSIONS OF THE PROPOSAL.
4. COMPACTION OF ALL MATERIALS INCLUDING ROAD SURFACES SHALL BE AS SPECIFIED BY THE GEOTECHNICAL ENGINEER.

STORMWATER DRAINAGE

1. ALL STORMWATER WORKS ARE TO BE UNDERTAKEN GENERALLY IN ACCORDANCE WITH AS/NZS 3500.3-2021 STORMWATER DRAINAGE.
2. PIPES OF 300mm DIA. AND UNDER SHALL BE UPVC TO AS/NZS 1254-2010.
3. PIPES OF 375mm DIA. AND LARGER SHALL BE FRC OR CONCRETE CLASS 2 TO AS/NZS 4058-2007, RUBBER RING JOINTED U.N.O.
4. PIPES UP TO 150mm DIA. SHALL BE LAID AT A MINIMUM GRADE OF 1.0%. PIPES 225mm DIA. AND OVER TO BE LAID AT A MINIMUM GRADE OF 0.5%. UNO. BEDDING MATERIAL TO AS/NZS 2032-2006 OR AS/NZS 3725-2007 AS APPROPRIATE.
5. MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 450mm IN CARPARK & ROADWAY AREAS UN.O.
6. UNLESS NOTED OTHERWISE, ALL CONCRETE PIPE ARE TO BE CLASS 2 AND RUBBER RING JOINTED. RUBBER RINGS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH AS 1646-2007. THE EXCAVATED TRENCH WIDTH FOR PIPE LAYING MUST BE AT LEAST 400mm WIDER THAN THE OUTER DIAMETER OF THE PIPE. PIPES ARE TO BE LAID CENTRALLY WITHIN THE EXCAVATED TRENCH.
7. ALL PIPEWORK SHALL BE BEDDED ON A CONTINUOUS UNDERLAY OF SAND, NOT LESS THAN 75mm THK. IN OTHER THAN ROCK AND 200mm THK. IN ROCK AFTER COMPACTION. THE SAND SHALL BE GRADED IN ACCORDANCE WITH AS/NZS 3500.3-2021 AND COMPACTED TO AT LEAST 90% OF THE MAXIMUM DRY DENSITY AND SHALL BE GRADED EVENLY WITH THE ADDITIONAL BEDDING.
8. THE BED AND HAUNCH MATERIAL SHALL BE COMPACTED FOR THE FULL WIDTH OF THE TRENCH BY A MINIMUM OF TWO PASSES OF A VIBRATING PLATE OR HAND TAMPING METHODS TO THE SATISFACTION OF THE SUPERINTENDENT.
9. CHASES SHALL BE FORMED WHERE NECESSARY TO PREVENT SOCKETS, FLANGES OR THE LIKE FROM BEARING ON THE BOTTOM OF THE TRENCH.
10. THE CONTRACTOR MUST LEAVE ALL STORMWATER DRAINAGE WORKS UNCOVERED UNTIL ANY TESTING DEEMED NECESSARY BY THE SUPERINTENDENT HAS BEEN PERFORMED.
11. THE CONTRACTOR SHALL ENSURE THAT ANY EXISTING STRUCTURES LOCATED ADJACENT TO EXCAVATED TRENCHES ARE SUPPORTED OR PROTECTED TO PREVENT DAMAGE TO OR MOVEMENT TO THESE STRUCTURES.
12. PIPE LAYING SHALL BEGIN AT THE DOWNSTREAM END OF THE LINE WITH THE SOCKET ENDS OF THE PIPE FACING UPSTREAM. THE BARREL OF EACH PIPE SHALL BE IN CONTACT WITH THE BEDDING MATERIAL THROUGHOUT ITS FULL LENGTH.
13. FOR RUBBER RING JOINTS THE PIPE ENDS SHALL BE TIGHTLY JOINED WITH THEIR INNER SURFACES AT THE MANUFACTURES NOMINATED LAYING GAP.
14. LIFTING HOLES IN PIPES SHALL BE PLUGGED WITH MORTAR, PRECAST TAPERED PLUGS, OR TAPE SURROUNDINGS OR OTHER APPROVED MEANS PRIOR TO BACKFILL MATERIAL BEING PLACED.
15. CUTTING OPERATIONS FOR CONCRETE PIPES SHALL PROVIDE NEAT END SURFACES. THE CUT SURFACES SHALL BE GIVEN TWO COATS OF A APPROVED EPOXY PAINT.
16. COMPLETED CEMENT MORTAR JOINTS SHALL BE KEPT DAMP AND PROTECTED FROM THE DIRECT RAYS OF THE SUN UNTIL BACKFILLED.
17. DRAINAGE LINES SHALL BE CONSTRUCTED TO THE TOLERANCES IN ACCORDANCE WITH THE RELIANT AUSTRALIAN STANDARDS, SUPERINTENDENTS SPECIFICATIONS AND THE MANUFACTURES SPECIFICATIONS.
18. BACKFILL MATERIAL SHALL BE INSPECTED AND APPROVED BY THE SUPERINTENDENT PRIOR TO PLACING AND COMPACTION.
19. ALL BACKFILL FOR STORMWATER DRAINAGE WORKS IS TO BE COMPACTED IN LAYERS NOT EXCEEDING 30mm LOOSE THICKNESS AND COMPACTED WITHOUT DAMAGING OR DISPLACING THE PIPEWORK.
20. STEP IRONS AT SPACINGS OF 300m ARE TO BE PROVIDED IN DRAINAGE PITS MORE THAN 0.9m DEEP U.N.O.
21. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK AT UPSTREAM END OF EACH PIT.
22. UNLESS OTHERWISE SPECIFIED, ALL DRAINAGE GRATES TO BE CLASS "C" GALVANISED MILD STEEL TO AS 3996-2019.
23. UPVC PIPES SHALL BE TRANSPORTED, HANDLED, AND STORED IN ACCORDANCE WITH THE MANUFACTURES SPECIFICATIONS.
24. UPVC PIPE LAYING SHALL BEGIN AT THE DOWNSTREAM END OF THE LINE WITH THE SOCKET END OF THE PIPE FACING UPSTREAM. WHEN THE PIPES ARE LAID, THE BARREL OF EACH PIPE SHALL BE IN CONTACT WIT THE BEDDING MATERIAL THROUGHOUT ITS FULL LENGTH.
25. THE UPVC PIPE ENDS SHALL BE THOROUGHLY CLEANED BEFORE THE JOINT IS MADE. JOINTING SHALL BE IN ACCORDANCE WIT THE MANUFACTURES SPECIFICATIONS WITH JOINTING SOLVENT AND PRIMER.

RAINWATER TANK

1. PUMP FOR RAINWATER TANK TO BE CONNECTED TO TOILETS, LAUNDRY AND GARDEN TAP FOR IRRIGATION.
2. PUMP MUST HAVE MAINS WATER BACKUP WITH AN APPROVED BACKFLOW PREVENTION DEVICE. DEVICE TO BE ACCESSIBLE FOR TESTING.
3. A FIRST FLUSH DEVICE OR FILTER BAG IS TO BE INSTALLED.
4. RAINWATER TANK MUST NOT BE CONNECTED TO THE MAIN DRINKING WATER SUPPLY.
5. RAINWATER TANK MUST CONTAIN A BYPASS OF THE PUMP IN THE EVENT OF A POWER FAILURE.
6. RAINWATER TANK MUST BE CONSTRUCTED IN ACCORDANCE WITH AUSTRALIAN STANDARD. AS/NZS 3500.1-2021: NATIONAL PLUMBING AND DRAINAGE – WATER SUPPLY – ACCEPTABLE SOLUTIONS, WHICH PROVIDES GUIDANCE ON THE DESIGN OF STORMWATER AND RAINWATER REUSE SYSTEMS.
7. RAINWATER TANK MUST BE PROVIDED WITH AN AIR GAP (SEE AS/NZS 3500.1-2021 AND AS 2845.2-2010)
8. RAINWATER TANK MUST BE KEPT WELL MAINTAINED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURING REQUIREMENTS AND THE REQUIREMENTS OF SYDNEY WATER.

EROSION, SEDIMENT AND SITE MANAGEMENT

- EC01 ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS. THE LOCATION OF SUCH DEVICES (SHOWN ON THIS DRAWINGS) IS INDICATIVE ONLY AND FINAL POSITION SHOULD BE DETERMINED ON SITE.
- EC02 SURPLUS TOPSOIL SHALL BE STOCKPILED WHERE DIRECTED. DIVERSION BANKS ARE TO BE PLACED UPSTREAM AND SHALL DISCHARGE TO SEDIMENT BARRIERS. ALL STOCKPILES ARE TO BE VEGETATED WITHIN 14 DAYS OF FORMATION. SILT FENCES ARE TO BE PLACED ON THE DOWNSTREAM FACE.
- EC03 DURING TRENCH EXCAVATION ALL SPOIL SHALL BE MOUNDED ON THE UPHILL SIDE OF TRENCHES AND PLACEMENT IS TO COMPLY WITH THE SUPERINTENDENTS REQUIREMENTS.
- EC04 PROVIDE SEDIMENT TRAPS TO ALL INLET PITS.
- EC05 ALL TURF SODS AND SEEDED AREAS ARE TO BE WATERED AND FERTILISED AS DIRECTED.
- EC06 ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE CLEARED OF DEPOSITED SILT AND MAINTAINED TO THE SATISFACTION OF THE SUPERINTENDENT.
- EC07 GENERALLY BARRIERS SHOULD BE PLACED APPROXIMATELY 5.0 METRES OUTSIDE POTENTIAL DISTURBED AREAS.
- EC09 A LOG BOOK OR OTHER SUITABLE RECORDS MUST BE KEPT BY THE SITE SUPERVISOR IN ACCORDANCE WITH THE EPA'S REQUIREMENTS.
- EC08 CONTRACTOR TO FOLLOW THE RECOMMENDED SEQUENCE OF OPERATIONS AS SPECIFIED BY THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT IN THE BROCHURE "PREPARING SOIL AND WATER MANAGEMENT PLANS".
- EC10 BUILDER IS TO CONDUCT WORKS IN ACCORDANCE WITH COUNCILS CONDITION TO DUST SUPPRESSION AND SEDIMENT REMOVAL MEASURES.
- EC11 BUILDER TO CONFIRM LOCATION OF STOCKPILES, FENCING, STABILISED ACCESS ETC. ON COMMENCEMENT OF WORK. ENGINEER TO BE NOTIFIED.
- EC12 WASTE MATERIALS ARE TO BE STOCKPILED OR LOADED INTO SKIP-BINS LOCATED AS SHOWN ON PLAN.
- EC13 STOCKPILES OF LOOSE MATERIALS SUCH AS SAND, SOIL, GRAVEL MUST BE COVERED WITH GEOTEXTILE SILT FENCE MATERIAL. PLASTIC SHEETING OR MEMBRANE MUST NOT BE USED. SAFETY BARRICADING SHOULD BE USED TO ISOLATE STOCKPILES OF SOLID MATERIALS SUCH AS STEEL REINFORCING, FORMWORK, SCAFFOLDING.
- EC14 TRUCKS REMOVING EXCAVATED / DEMOLISHED MATERIAL SHOULD TRAVEL ON STABILISED CONSTRUCTION PATHS. MATERIAL TO BE TAKEN TO THE TRUCK TO REDUCE TRUCK MOVEMENT ON SITE. TRUCKS TO BE LIMITED TO SINGLE UNIT HEAVY RIGID VEHICLES. (NO SEMITRAILERS)
- EC15 ANY SEDIMENT DEPOSITED ON THE PUBLIC WAY, INCLUDING FOOTPATH RESERVE AND ROAD SURFACE, IS TO BE REMOVED IMMEDIATELY.
- EC16 PROVIDE BARRIERS AROUND ALL CONSTRUCTION WORKS WITHIN THE FOOTPATH AREA TO PROVIDE SAFE ACCESS FOR PEDESTRIANS.
- EC17 CONCRETE PUMPS AND CRANES ARE TO OPERATE FROM WITHIN THE BALLAST ENTRY DRIVEWAY AREA AND ARE NOT TO OPERATE FROM THE PUBLIC ROADWAY UNLESS SPECIFIC COUNCIL PERMISSION IS OBTAINED.
- EC18 DELIVERY VEHICLES MUST NOT STAND WITHIN THE PUBLIC ROADWAY FOR MORE THAN 20 MINUTES AT A TIME.
- EC19 ANY EXCAVATION WORK ADJACENT TO ADJOINING PROPERTIES OR THE PUBLIC ROADWAY IS NOT TO BE COMMENCED UNTIL THE STRUCTURAL ENGINEER IS CONSULTED AND SPECIFIC INSTRUCTIONS RECEIVED FROM THE ENGINEER.
- EC20 TOILET FACILITIES MUST BE EITHER A FLUSHING TYPE OR APPROVED PORTABLE CHEMICAL CLOSET. CHEMICAL CLOSETS ARE TO BE MAINTAINED & SERVICED ON A REGULAR BASIS SO THAT OFFENSIVE ODOUR IS NOT EMITTED.
- EC21 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH LOCAL CITY COUNCIL ENVIRONMENTAL SITE MANAGEMENT DEVELOPMENT CONTROL PLAN DOCUMENTS, CURRENT EDITION.
- EC23 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MEASURES ARE TAKEN DURING THE COURSE OF THE CONSTRUCTION TO PREVENT SEDIMENT EROSION AND POLLUTION OF THE DOWNSTREAM SYSTEM. SUPERVISING ENGINEER SHOULD BE CONTACTED IF IN DOUBT. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED SOIL STOCKPILE SITE.
- EC22 PROVIDE BARRIERS AROUND ALL CONSTRUCTION WORKS WITHIN THE FOOT PATH AREA TO PROVIDE SAFE ACCESS FOR PEDESTRIANS.

ROCK WORKS

1. ROCK SIZES ARE SPECIFIED ACCORDING TO THEIR POSITION AND RESISTANCE TO HYDRAULIC FORCES. THE ROCK HAS BEEN SHOWN SCHEMATICALLY IN THE DRAWINGS AND SHALL BE 100mm NOMINAL SIZE.
2. ROCK SUPPLIED FOR THE WORKS MUST BE HARD, DURABLE, AND LOCALLY SOURCED.
3. ROCK IN THE FORM OF BLOCKS WITH ANGULAR EDGES IS REQUIRED TO ENSURE CONSISTENT INTERLOCKING DURING PLACEMENT.
4. ROCK IS TO BE IN THE NATURAL FORM AND NOT CUT OF SHAPED.
5. ALL GAPS WITHIN ROCK TO BE FILLED WITH COARSE GRAVEL TO THE TOP AND THEN FILLED WITH A FILTER MEDIA. THIS GRADED ROCK IS TO BE OVERLAID ON A COARSE GRAVEL BEDDING WITH A MIN. 20mm THICKNESS. PROVIDE A GEOTEXTILE FABRIC BDM A64 OR APPROVED EQUIVALENT.

SEQUENCE OF OPERATIONS

1. PROVIDE SHAKE DOWN PAD AT ENTRY OF SITE.
2. CONSTRUCT SEDIMENT FENCING (REFER DETAILS)
3. CONSTRUCT DRAINAGE & CIVIL WORKS (MODIFY SEDIMENT CONTROL DRAINS TO SUIT CONSTRUCTION.
4. PITS & PIPES TO BE PROTECTED WITH FILTER BARRIERS REFER DETAILS
5. AT COMPLETION OF ALL WORKS REVEGETATE BATTERS WITHIN 14 DAYS
6. AFTER COMPLETION OF BUILDING WORKS, ALL CONTROL MEASURES CAN BE REMOVED.

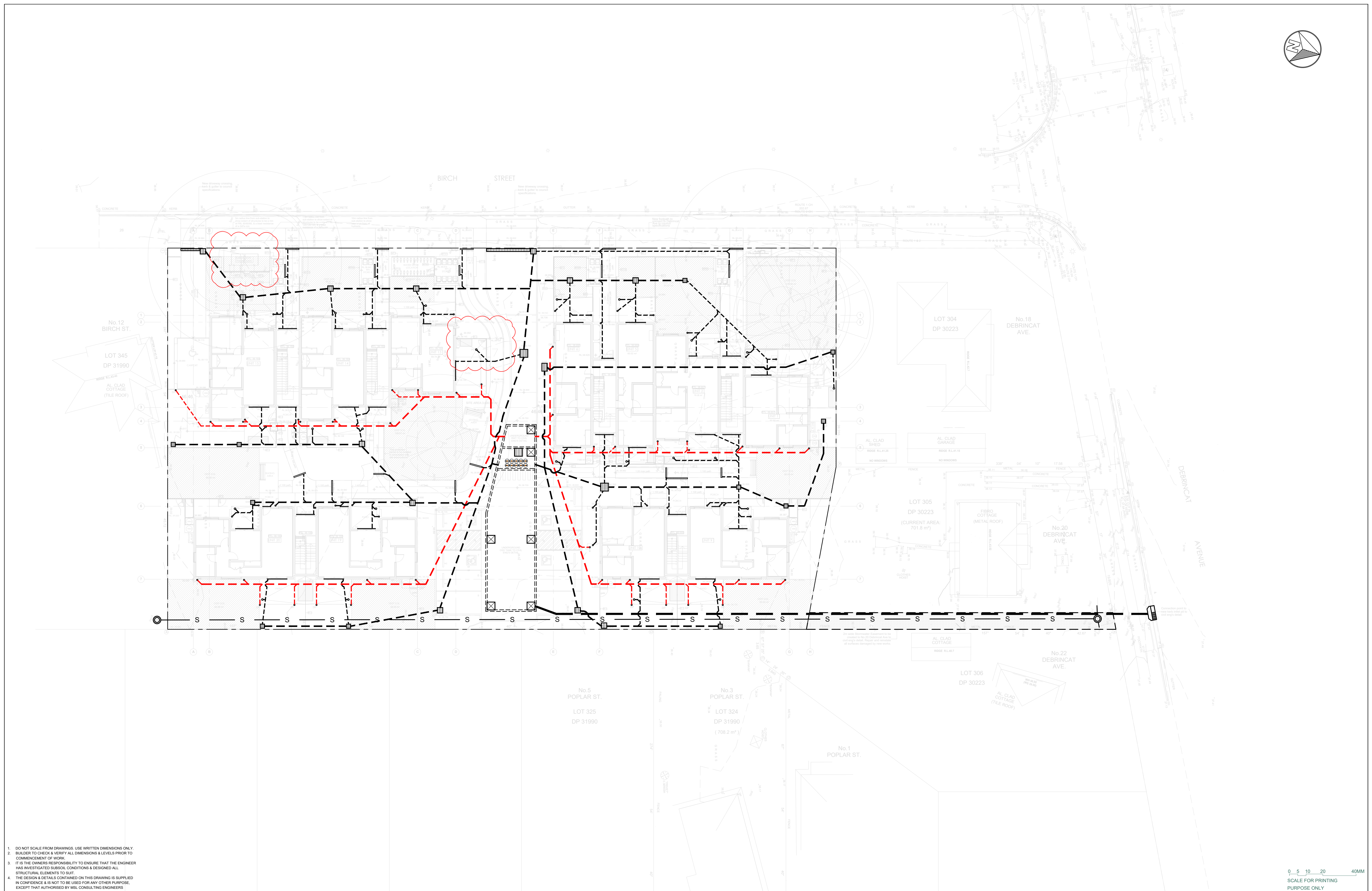
MAINTENANCE PROCEDURES DURING CONSTRUCTION

1. ALL EROSION CONTROL MEASURES ARE TO BE MAINTAINED AT ALL TIMES SO THAT THOSE MEASURES ARE FULLY FUNCTIONAL/OPERATIONAL DURING THE CURRENCY OR WORKS. ALL SUCH CONTROLS MUST ALSO BE FULLY FUNCTIONAL/OPERATIONAL. SHOULD WORK OPERATIONS CEASE TEMPORARILY, (e.g. WEEKENDS, ROSTERED DAYS OFF, etc.)
2. RESPREAD MATERIAL GAINED DURING MAINTENANCE OPERATION OR ALTERNATIVELY PLACE STOCKPILES
3. NON-COMPLIANCE WITH AGREED PERFORMANCE CRITERIA WILL BE IDENTIFIED BY: VISUAL INSPECTIONS IDENTIFYING
 - BUILD-UP OF SEDIMENT OFF THE SITE
 - EXCESSIVE SEDIMENT BUILD-UP ON THE SITE
 - EXCESSIVE EROSION ON THE SITE
 - RELEASE OF CONSTRUCTION MATERIAL FROM THE SITE
 - POOR VEGETATION ESTABLISHMENT
 - POORLY MAINTAINED, DAMAGED OR FAILED ESC DEVICES.
 - DETERIORATED WATER QUALITY IDENTIFIED BY THE ENVIRONMENTAL CONSULTANT AS BEING ATTRIBUTABLE TO THE CONSTRUCTION ACTIVITIES.
4. BUILD-UP OF SEDIMENT OFF THE SITE – THE MATERIAL MUST BE COLLECTED AND DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ONGOING ENVIRONMENTAL NUISANCE OR HARM; THEN ON-SITE ESC MEASURES AMENDED, WHERE APPROPRIATE, TO REDUCE THE RISK OF FURTHER SEDIMENTATION.
5. EXCESSIVE SEDIMENT BUILD-UP ON THE SITE – COLLECT AND DISPOSE OF MATERIAL, THEN AMEND UP-SLOPE DRAINAGE AND/OR EROSION CONTROL MEASURES AS APPROPRIATE TO REDUCE FURTHER OCCURRENCE.
6. SEDIMENT FENCE FAILURE – REPLACE AND MONITOR MORE FREQUENTLY. REGULAR FAILURES MAY MEAN THAT THE SEDIMENT FENCE LOCATION, ALIGNMENT OR INSTALLATION MAY NEED TO BE AMENDED.
7. IF THE RELEASE OF EXCESSIVE SEDIMENT AND/OR OTHER MATERIALS OFF THE SITE OCCURS, OR WATER QUALITY MONITORING INDICATES LEVELS ARE NOT WITHIN THE WQOS, CLEAN UP DEPOSITION, AND INSPECT ALL CONTROL MEASURES.

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 <div>LEVEL 4, 12 DARCY STREET PARRAMATTA NSW 2150 PHONE No (02) 9354 1836</div>	 <div>MSL Consulting Engineers Pty Limited ABN 72 903 080 591 ACN 142 291 160 Suite 102 - 62 Harbour St. Wollongong NSW PO Box 567 Dapto NSW p: 02 4226 5247 e: info@mslengineers.com.au w: www.mslengineers.com.au</div>	<table><tr><td>F</td><td>27.11.2024</td><td>ISSUED FOR D.A.</td></tr><tr><td>E</td><td>29.11.2023</td><td>ISSUED FOR D.A.</td></tr><tr><td>D</td><td>19.06.2023</td><td>ISSUED FOR D.A.</td></tr><tr><td>C</td><td>10.05.2023</td><td>ISSUED FOR D.A.</td></tr><tr><td>B</td><td>17.04.2023</td><td>ISSUED FOR D.A.</td></tr><tr><td>REV</td><td>DATE</td><td>NOTATION/AMENDMENT</td></tr><tr><td colspan="3">DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.</td></tr></table>	F	27.11.2024	ISSUED FOR D.A.	E	29.11.2023	ISSUED FOR D.A.	D	19.06.2023	ISSUED FOR D.A.	C	10.05.2023	ISSUED FOR D.A.	B	17.04.2023	ISSUED FOR D.A.	REV	DATE	NOTATION/AMENDMENT	DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.			<table><tr><td colspan="2">PROJECT MANAGER HOMES NSW PH (02) 9354 1836</td></tr><tr><td>ARCHITECT DTA Architects Pty Ltd PH (02) 9601 1011</td><td>ELECTRICAL / BASIX CONSULTANT GREENVIEW CONSULTING PTY LTD PH (02) 8544 1683</td></tr></table>	PROJECT MANAGER HOMES NSW PH (02) 9354 1836		ARCHITECT DTA Architects Pty Ltd PH (02) 9601 1011	ELECTRICAL / BASIX CONSULTANT GREENVIEW CONSULTING PTY LTD PH (02) 8544 1683	<table><tr><td colspan="2">STRUCTURAL / STORMWATER / CIVIL CONSULTANT MSL CONSULTING ENGINEERS PTY LTD PH (02) 4226 5247</td></tr><tr><td>HYDRAULIC CONSULTANT ABEL & BROWN PTY LTD PH (02) 9709 5705</td><td>LANDSCAPE CONSULTANT RAY FUGGLE & ASSOCIATED PTY LTD PH 0412 294 712</td></tr></table>	STRUCTURAL / STORMWATER / CIVIL CONSULTANT MSL CONSULTING ENGINEERS PTY LTD PH (02) 4226 5247		HYDRAULIC CONSULTANT ABEL & BROWN PTY LTD PH (02) 9709 5705	LANDSCAPE CONSULTANT RAY FUGGLE & ASSOCIATED PTY LTD PH 0412 294 712	<table><tr><td colspan="2">BUSINESS PARTNER: </td></tr><tr><td colspan="2"></td></tr></table>	BUSINESS PARTNER: 				PROJECT: SENIORS HOUSING DEVELOPMENT at Lots 346-350 in DP31990 & Lot 305 in DP30223 2-10 BIRCH STREET & 20 DEBRINCAT AVE NORTH ST MARYS NSW 2760	<table><tr><td colspan="2">TITLE: SPECIFICATION SHEET</td></tr><tr><td>FILE:</td><td>PLOTTED: 27/11/2024</td></tr><tr><td>TYPE: SW</td><td>SHEET: 1 of 8</td></tr><tr><td>STATUS: DA ISSUE</td><td>REV: F</td></tr></table>	TITLE: SPECIFICATION SHEET		FILE:	PLOTTED: 27/11/2024	TYPE: SW	SHEET: 1 of 8	STATUS: DA ISSUE	REV: F	<table><tr><td>DATE: 27/11/24</td><td>SCALE: NTS @ A1</td><td>PROJ: BGVYZ</td><td>JOB: 22084</td></tr><tr><td>STAGE: B</td><td>DRAWN: TP/WT</td><td>CHECKED: MP</td><td>CERTIFIED: MP</td></tr></table>	DATE: 27/11/24	SCALE: NTS @ A1	PROJ: BGVYZ	JOB: 22084	STAGE: B	DRAWN: TP/WT	CHECKED: MP	CERTIFIED: MP
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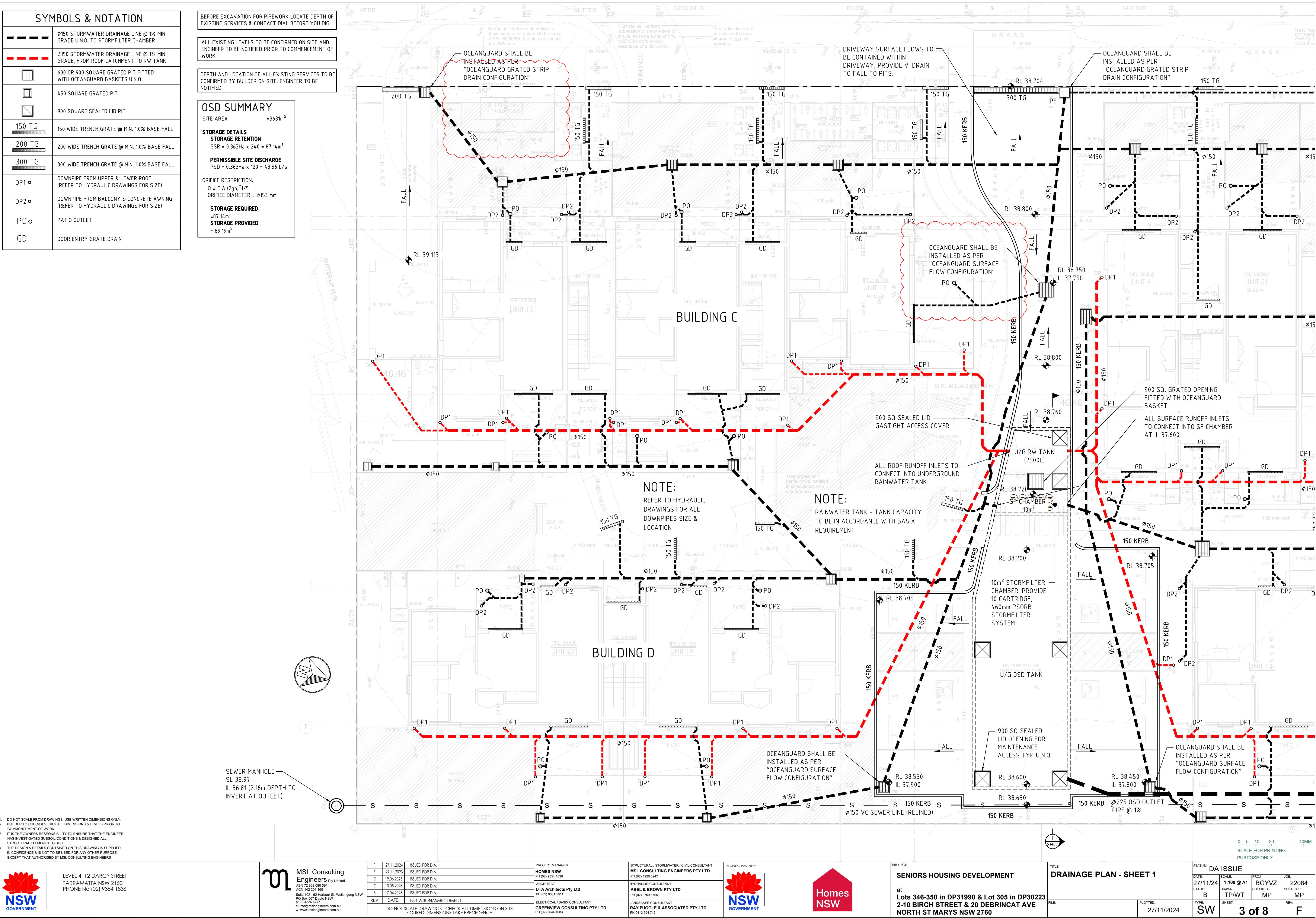


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SYMBOLS & NOTATION	
	Ø150 STORMWATER DRAINAGE LINE @ 1% MIN GRADE U.N.O. TO STORMFILTER CHAMBER
	Ø150 STORMWATER DRAINAGE LINE @ 1% MIN GRADE, FROM ROOF CATCHMENT TO RW TANK
	600 OR 900 SQUARE GRATED PIT FITTED WITH OCEANGUARD BASKETS U.N.O.
	450 SQUARE GRATED PIT
	900 SQUARE SEALED LID PIT
	150 Trench Grate @ MIN. 1.0% BASE FALL
	200 Trench Grate @ MIN. 1.0% BASE FALL
	300 Trench Grate @ MIN. 1.0% BASE FALL
	DOWNPIPE FROM UPPER & LOWER ROOF (REFER TO HYDRAULIC DRAWINGS FOR SIZE)
	DOWNPIPE FROM BALCONY & CONCRETE AWNING (REFER TO HYDRAULIC DRAWINGS FOR SIZE)
	PATIO OUTLET
	DOOR ENTRY GRATE DRAIN

BEFORE EXCAVATION FOR PIPEWORK LOCATE DEPTH OF EXISTING SERVICES & CONTACT DIAL BEFORE YOU DIG	
ALL EXISTING LEVELS TO BE CONFIRMED ON SITE AND ENGINEER TO BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK.	
DEPTH AND LOCATION OF ALL EXISTING SERVICES TO BE CONFIRMED BY BUILDER ON SITE. ENGINEER TO BE NOTIFIED.	
OSD SUMMARY	
SITE AREA	=3631m ²
STORAGE DETAILS	
STORAGE RETENTION	SSR = 0.363Ha x 24.0 = 87.14m ³
PERMISSIBLE SITE DISCHARGE	
PSD = 0.363Ha x 120 = 43.56 L/s	
ORIFICE RESTRICTION:	
Q = C A (2gh) ^{1/2}	
ORIFICE DIAMETER = Ø153 mm	
STORAGE REQUIRED	
=87.14m ³	
STORAGE PROVIDED	
= 89.19m ³	



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F	27.11.2024	ISSUED FOR D.A.
E	29.11.2023	ISSUED FOR D.A.
D	19.06.2023	ISSUED FOR D.A.
C	10.05.2023	ISSUED FOR D.A.
B	17.04.2023	ISSUED FOR D.A.
REV	DATE	NOTATION/AMENDMENT
DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.		

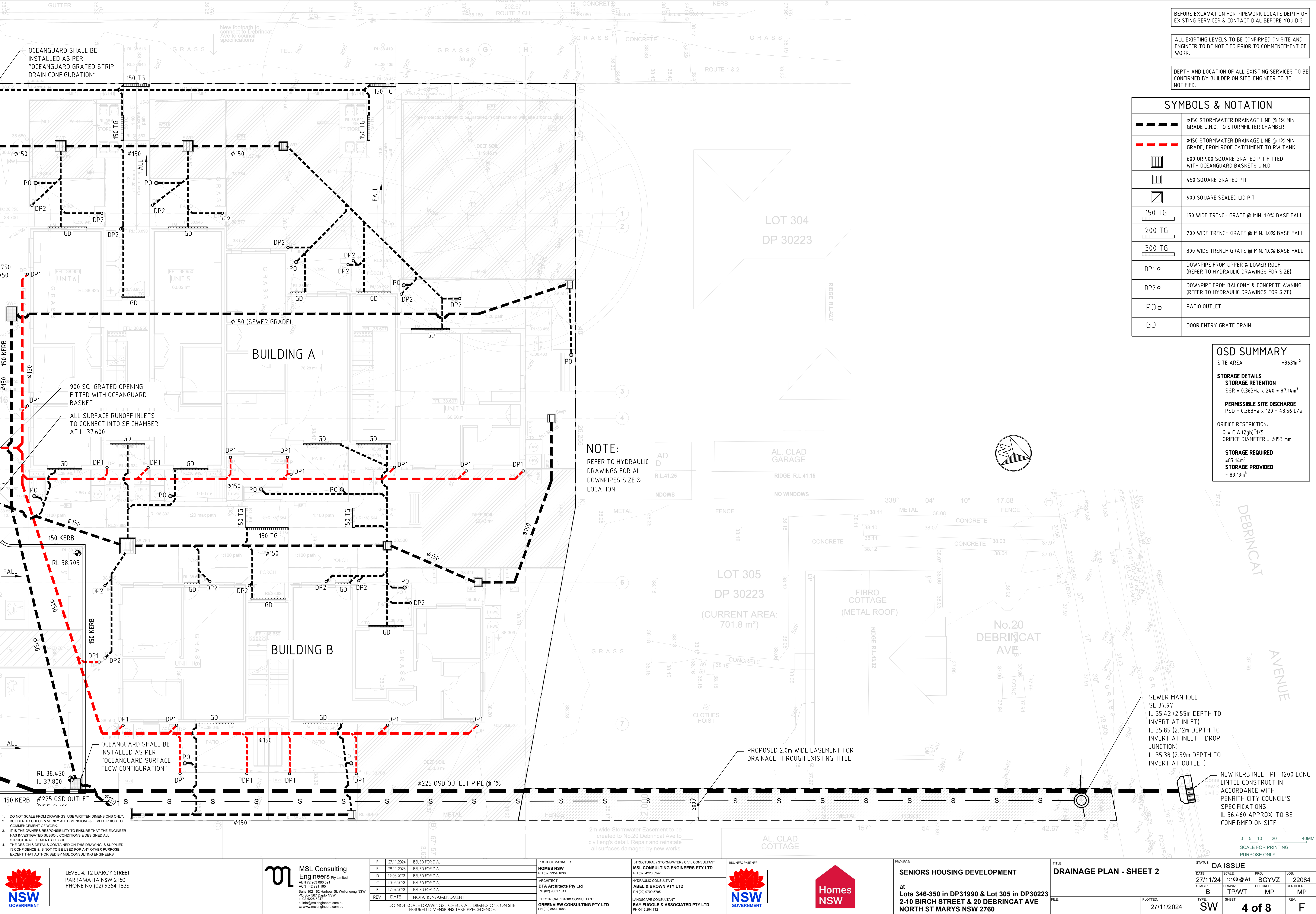
PROJECT MANAGER	
HOMES NSW	
PH (02) 9354 1836	
ARCHITECT	
DTA Architects Pty Ltd	
ACN 142 291 195	
Suite 102 - 62 Harbour St, Wollongong NSW	
PO Box 567, Dapto NSW	
p 02 4220 5247	
e info@mslengineers.com.au	
w www.mslengineers.com.au	
ELECTRICAL / BASIX CONSULTANT	
GREENVIEW CONSULTING PTY LTD	
PH (02) 8544 1883	

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PH (02) 4226 5247	
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ABEL & BROWN PTY LTD	
PH (02) 9709 2016	
LANDSCAPE CONSULTANT	
RAY FUGGLE & ASSOCIATED PTY LTD	
PH 0412 294 712	

PROJECT:	
SENIORS HOUSING DEVELOPMENT	
at Lots 346-350 in DP31990 & Lot 305 in DP30223 2-10 BIRCH STREET & 20 DEBRINCAT AVE NORTH ST MARYS NSW 2760	

TITLE:	
DRAINAGE PLAN - SHEET 1	
FILE:	
PLOTTED:	
27/11/2024	

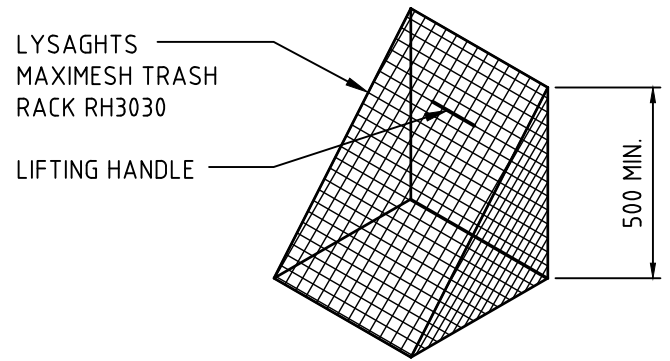
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JOB:	22084
STAGE:	B
DRAWN:	TP/W/T
CHECKED:	MP
CERTIFIED:	MP
REV:	F
TYPE:	
SW	
SHEET:	
3 of 8	
PURPOSE ONLY	



THE ON-SITE FACILITY HAS BEEN DESIGNED TO WITHSTAND MAXIMUM LOADING (W80) WHICH IS LIKELY TO BE USE THE ACCESSWAY. THE DESIGN WAS APPLIED IN ACCORDANCE WITH AS/NZS 1170.1-2002 STRUCTURAL DESIGN ACTIONS.

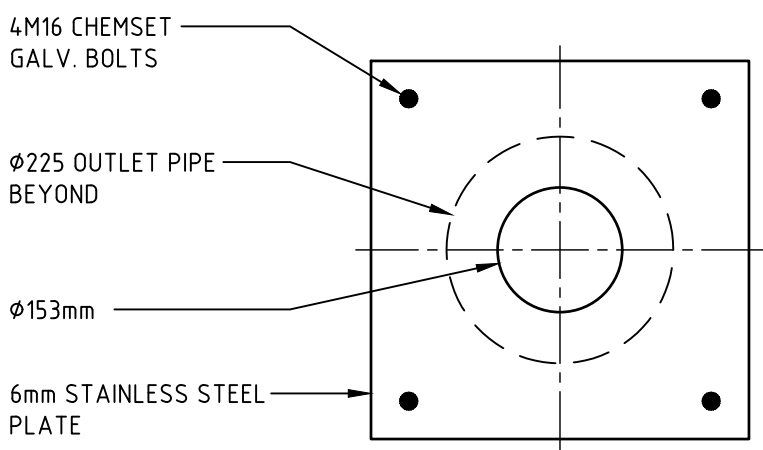
PROVIDE CORROSION RESISTANT IDENTIFICATION PLAQUE AT OSD LOCATION STATING THE FOLLOWING:

"THIS STRUCTURE IS AN OSD FACILITY, FORMING PART OF THE STORMWATER DRAINAGE NETWORK AND IS NOT TO BE TAMPERED WITH. IDENTIFICATION NUMBER: BGYVZ -22/12/2023. MAINTENANCE TO BE CARRIED IN ACCORDANCE WITH THE MAINTENANCE SCHEDULE FOR THIS SITE"



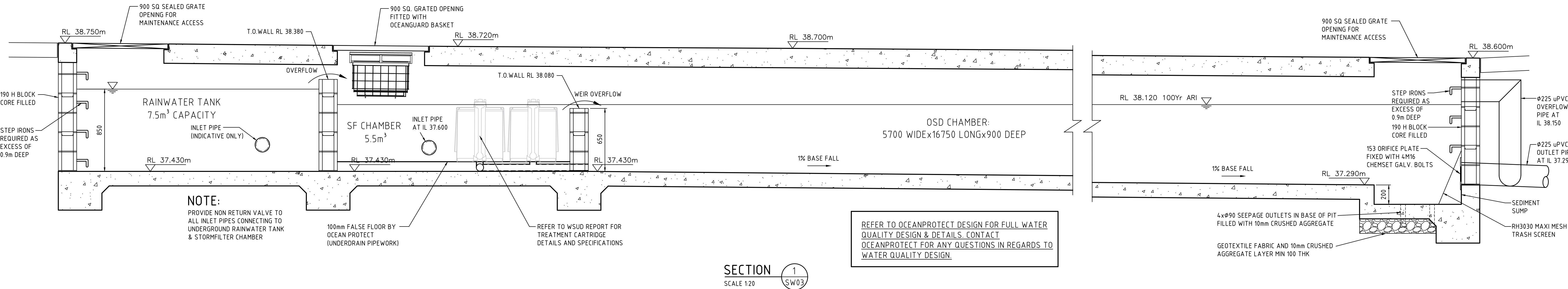
MESH SCREEN DETAIL

NOT TO SCALE
GALVANISED LYSAGHT RH3030MAXI MESH
SCREEN IN GALVANISED STEL FRAME WITH
LIFTING HANDLES



ORIFICE PLATE DETAIL

NOT TO SCALE



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0 5 10 20 40MM
SCALE FOR PRINTING
PURPOSE ONLY



LEVEL 4, 1/2 DARCY STREET
PARRAMATTA NSW 2150
PHONE No (02) 9354 1836



REV	DATE	NOTATION/AMENDMENT
F	27.11.2024	ISSUED FOR D.A.
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PROJECT MANAGER HOMES NSW PH (02) 9354 1836	STRUCTURAL / STORMWATER / CIVIL CONSULTANT MSL CONSULTING ENGINEERS PTY LTD PH (02) 4226 5247
ARCHITECT DTA Architects Pty Ltd PH (02) 9601 1011	HYDRAULIC CONSULTANT ABEL & BROWN PTY LTD PH (02) 9709 9705
ELECTRICAL / BASIC CONSULTANT GREENVIEW CONSULTING PTY LTD PH (02) 8544 1683	LANDSCAPE CONSULTANT RAY FUGGLE & ASSOCIATED PTY LTD PH 0412 294 712



PROJECT:
SENIORS HOUSING DEVELOPMENT

at
Lots 346-350 in DP31990 & Lot 305 in DP30223
2-10 BIRCH STREET & 20 DEBRINCAT AVE
NORTH ST MARYS NSW 2760

TITLE:
OSD SECTION AND STORMWATER DETAILS

STATUS:	DA ISSUE
DATE: 27/11/24	SCALE: NTS @ A1
STAGE: B	PROJ: BGYVZ
DRAWN: TP/WT	CHECKED: MP
TYPIC: SW	SHEET: 5 of 8
PLOTTED: 27/11/2024	REV: F



NOTES :

ALTERNATIVE PIT CONSTRUCTION MAY BE USED, SUBJECT TO THE ENGINEERS APPROVAL

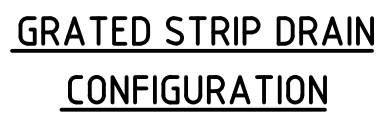
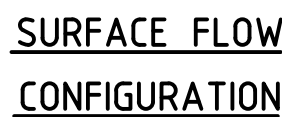
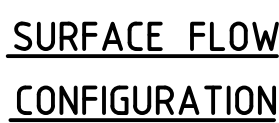
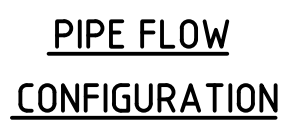
- | Depth to Invert | Pit Internal Dimensions |
|-----------------|-------------------------|
| <600 | 450x450 |
| >600 <900 | 600x600 |
| >900 <1200 | 600x900 |
| >1200 | 900x900 |
- PROVIDE STEP IRONS UNDER LID AT 300 CTS. TO COUNCIL SPECIFICATIONS WHERE PIT DEPTH IS DEEPER THAN 900mm.
 - REINFORCEMENT NOTED IS ONLY REQUIRED FOR PITS EXCEEDING 900 DEEP. SUBJECT TO COUNCIL REQUIREMENTS. PITS GREATER THAN 2500 mm DEEP WILL REQUIRE STRUCTURAL ENGINEER'S DESIGN.
 - PROVIDE $\phi 90 \times 3000$ LONG THICKNESS DRAINAGE STUB PIPE SURROUND WITH 100mm SUBSOIL OF NOMINAL 20mm COARSE FILTER MATERIAL WRAPPED IN GEOTEXTILE FILTER FABRIC (BIDIM AZ18 APPROXIMALLY), TO BE PARALLEL TO UPSTREAM SIDE OF EACH INLET PIPE.
 - ALTERNATIVE PIT CONSTRUCTION MAY BE USED SUBJECT TO THE ENGINEERS APPROVAL.
 - CONCRETE STRENGTH $f'c = 32 \text{ MPa}$



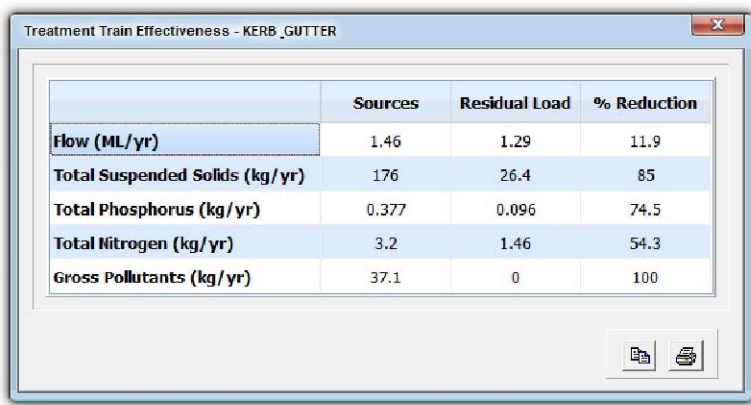
NOTES :

ALTERNATIVE PIT CONSTRUCTION MAY BE USED, SUBJECT TO THE ENGINEERS APPROVAL

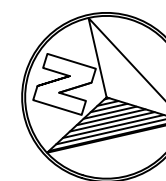
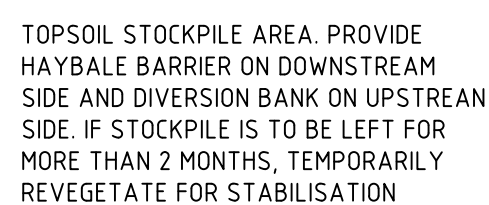
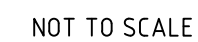
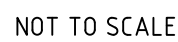
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REFER TO OCEANPROTECT DESIGN FOR FULL WATER QUALITY DESIGN & DETAILS. CONTACT OCEANPROTECT FOR ANY QUESTIONS IN REGARDS TO WATER QUALITY DESIGN.



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PROJECT MANAGER
HOMES NSW
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ARCHITECT
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BH (02) 9501 1011

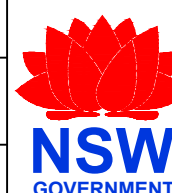
ELECTRICAL / BASIX CONSULTANT
GREENVIEW CONSULTING PTY LTD
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PH (02) 4228 5247

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111-121/123-125/127-129/131-133/135-137/139-141/143-145/147-149/151-153/155-157/159-161/163-165/167-169/171-173/175-177/179-181/183-185/187-189/191-193/195-197/199-201/203-205/207-209/211-213/215-217/219-221/223-225/227-229/231-233/235-237/239-241/243-245/247-249/251-253/255-257/259-261/263-265/267-269/271-273/275-277/279-281/283-285/287-289/291-293/295-297/299-301/303-305/307-309/311-313/315-317/319-321/323-325/327-329/331-333/335-337/339-341/343-345/347-349/351-353/355-357/359-361/363-365/367-369/371-373/375-377/379-381/383-385/387-389/391-393/395-397/399-401/403-405/407-409/411-413/415-417/419-421/423-425/427-429/431-433/435-437/439-441/443-445/447-449/451-453/455-457/459-461/463-465/467-469/471-473/475-477/479-481/483-485/487-489/491-493/495-497/499-501/503-505/507-509/511-513/515-517/519-521/523-525/527-529/531-533/535-537/539-541/543-545/547-549/551-553/555-557/559-561/563-565/567-569/571-573/575-577/579-581/583-585/587-589/591-593/595-597/599-601/603-605/607-609/611-613/615-617/619-621/623-625/627-629/631-633/635-637/639-641/643-645/647-649/651-653/655-657/659-661/663-665/667-669/671-673/675-677/679-681/683-685/687-689/691-693/695-697/699-701/703-705/707-709/711-713/715-717/719-721/723-725/727-729/731-733/735-737/739-741/743-745/747-749/751-753/755-757/759-761/763-765/767-769/771-773/775-777/779-781/783-785/787-789/791-793/795-797/799-801/803-805/807-809/811-813/815-817/819-821/823-825/827-829/831-833/835-837/839-841/843-845/847-849/851-853/855-857/859-861/863-865/867-869/871-873/875-877/879-881/883-885/887-889/891-893/895-897/899-901/903-905/907-909/911-913/915-917/919-921/923-925/927-929/931-933/935-937/939-941/943-945/947-949/951-953/955-957/959-961/963-965/967-969/971-973/975-977/979-981/983-985/987-989/991-993/995-997/999-1001/1003-1005/1007-1009/1011-1013/1015-1017/1019-1021/1023-1025/1027-1029/1031-1033/1035-1037/1039-1041/1043-1045/1047-1049/1051-1053/1055-1057/1059-1061/1063-1065/1067-1069/1071-1073/1075-1077/1079-1081/1083-1085/1087-1089/1091-1093/1095-1097/1099-1101/1103-1105/1107-1109/1111-1113/1115-1117/1119-1121/1123-1125/1127-1129/1131-1133/1135-1137/1139-1141/1143-1145/1147-1149/1151-1153/1155-1157/1159-1161/1163-1165/1167-1169/1171-1173/1175-1177/1179-1181/1183-1185/1187-1189/1191-1193/1195-1197/1199-1201/1203-1205/1207-1209/1211-1213/1215-1217/1219-1221/1223-1225/1227-1229/1231-1233/1235-1237/1239-1241/1243-1245/1247-1249/1251-1253/1255-1257/1259-1261/1263-1265/1267-1269/1271-1273/1275-1277/1279-1281/1283-1285/1287-1289/1291-1293/1295-1297/1299-1301/1303-1305/1307-1309/1311-1313/1315-1317/1319-1321/1323-1325/1327-1329/1331-1333/1335-1337/1339-1341/1343-1345/1347-1349/1351-1353/1355-1357/1359-1361/1363-1365/1367-1369/1371-1373/1375-1377/1379-1381/1383-1385/1387-1389/1391-1393/1395-1397/1399-1401/1403-1405/1407-1409/1411-1413/1415-1417/1419-1421/1423-1425/1427-1429/1431-1433/1435-1437/1439-1441/1443-1445/1447-1449/1451-1453/1455-1457/1459-1461/1463-1465/1467-1469/1471-1473/1475-1477/1479-1481/1483-1485/1487-1489/1491-1493/1495-1497/1499-1501/1503-1505/1507-1509/1511-1513/1515-1517/1519-1521/1523-1525/1527-1529/1531-1533/1535-1537/1539-1541/1543-1545/1547-1549/1551-1553/1555-1557/1559-1561/1563-1565/1567-1569/1571-1573/1575-1577/1579-1581/1583-1585/1587-1589/1591-1593/1595-1597/1599-1601/1603-1605/1607-1609/1611-1613/1615-1617/1619-1621/1623-1625/1627-1629/1631-1633/1635-1637/1639-1641/1643-1645/1647-1649/1651-1653/1655-1657/1659-1661/1663-1665/1667-1669/1671-1673/1675-1677/1679-1681/1683-1685/1687-1689/1691-1693/1695-1697/1699-1701/1703-1705/1707-1709/1711-1713/1715-1717/1719-1721/1723-1725/1727-1729/1731-1733/1735-1737/1739-1741/1743-1745/1747-1749/1751-1753/1755-1757/1759-1761/1763-1765/1767-1769/1771-1773/1775-1777/1779-1781/1783-1785/1787-1789/1791-1793/1795-1797/1799-1801/1803-1805/1807-1809/1811-1813/1815-1817/1819-1821/1823-1825/1827-1829/1831-1833/1835-1837/1839-1841/1843-1845/1847-1849/1851-1853/1855-1857/1859-1861/1863-1865/1867-1869/1871-1873/1875-1877/1879-1881/1883-1885/1887-1889/1891-1893/1895-1897/1899-1901/1903-1905/1907-1909/1911-1913/1915-1917/1919-1921/

LANDSCAPE CONSULTANT
RAY FUGGLE & ASSOCIATED PTY LTD
PH 0412 284 712

	BUSINESS PARTNER
--	------------------



PROJECT:

SENIORS HOUSING DEVELOPMENT

at
Lots 346-350 in DP31990 & Lot 305 in DP30223
2-10 BIRCH STREET & 20 DEBRINCAT AVE
NORTH ST MARYS NSW 2760

TITLE:	
--------	--

SEDIMENT CONTROL PLAN

3	
	FILE:

PLOTTED:

STATUS:	DA ISSUE
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DATE:	SCALE:
07/11/04	1:200 ©

27/11/24	1:200 @ 1
STAGE:	DRAWN:

	B	TP/WT
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TYPE: SW SHEET: 7

SVV	7
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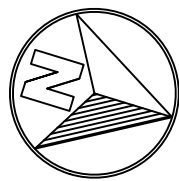
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GVVZ	22084
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ED:	CERTIFIER:
MP	MP

REV:	
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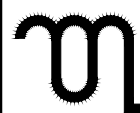
8	F
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PARRAMATTA NSW 2150
PHONE No (02) 9354 1836



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ABN 72 903 080 591
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Suite 102 - 62 Harbour St. Wollongong NSW
PO Box 567 Dapto NSW
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e info@mslengineers.com.au
w www.mslengineers.com.au

REV	DATE	NOTATION/AMENDMENT
F	27/11/2024	ISSUED FOR D.A.
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PROJECT MANAGER
HOMES NSW
PH (02) 8554 1836

ARCHITECT
DTA Architects Pty Ltd
PH (02) 9601 1011

ELECTRICAL / BASIX CONSULTANT
GREENVIEW CONSULTING PTY LTD
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STRUCTURAL / STORMWATER / CIVIL CONSULTANT
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HYDRAULIC CONSULTANT
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PH (02) 8709 5705

LANDSCAPE CONSULTANT
RAY FUGGLE & ASSOCIATED PTY LTD
PH 0412 294 712



PROJECT:
SENIORS HOUSING DEVELOPMENT
at
Lots 346-350 in DP31990 & Lot 305 in DP30223
2-10 BIRCH STREET & 20 DEBRINCAT AVE
NORTH ST MARYS NSW 2760

TITLE:
OSD CATCHMENT AREA

FILE:

STATUS: DA ISSUE			
DATE: 27/11/24	SCALE: 1:200 @ A1	PROJ: BGVZ	JOB: 22084
STAGE: B	DRAWN: TP/WT	CHECKED: MP	CERTIFIED: MP
TYPE: SW	SHEET: 8 of 8	REV: F	

0 5 10 20 40MM
SCALE FOR PRINTING
PURPOSE ONLY