Regulated Design Record				
Project Address:				
Project Title:				
Consent No:		Body Corporate Reg No:		
Drawing Title:				
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No

PROPOSED RESIDENTIAL FLAT BUILDING AT 14-16 MARSHALL AVENUE, 2-10 BERRY RD, ST LEONARDS

DETAILED CIVIL DESIGN

TABLE OF SCHEDULES

SHEET #	DRAWING NAME	REV	DATE
SW100	COVER PAGE	02	28.05.2025
SW101	DESIGN NOTES 1 OF 2	01	28/05/2025
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SW200	BASEMENT PLAN	01	28/05/2025
SW201	GROUND FLOOR	01	28/05/2025
SW202	LEVEL 01	01	28/05/2025
SW203	LEVEL 02	01	28/05/2025
SW204	CATCHMENT PLAN	01	28/05/2025
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SW400	EROSION AND SEDIMENT CONTROL	01	28/05/2025

Notes:

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NOTES:

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REV:	DESCRIPTION:	DRAFT	DESIGN	CHECK	DATE:
02	s4.55	CS	MS	SCH	12-May-25
01	s4.55	CS	MS	SCH	28-May-25

STATUS:
DEVELOPMENT APPLICATION (DA)

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A - SUITE 04, LEVEL 03, 180-186 BURWOOD ROAD, BURWOOD.

CLIENT: DASCO

ARCHITECT: PTW

SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
COVER SHEET

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
AS	28-May-25	GS	SCH
PROJECT NO:	DRAWING NO.		REVISION:
CSW2025.40	SW100		01

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, SERVICES AND OTHER CONSULTANTS DRAWINGS THE SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE TENDER AND CONTRACT.
2. IF ANY DISCREPANCY OCCURS ON THE DRAWINGS OR BETWEEN DRAWINGS AND SPECIFICATION,THE CONTRACTOR SHALL REFER THE DISCREPANCY TO MEINHARDT INFRASTRUCTURE & ENVIRONMENT PTY LTD FOR WRITTEN CLARIFICATION BEFORE PROCEEDING WITH THE WORK
3. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH COUNCIL'S SPECIFICATION & POLICY, AUS-SPEC, THE BUILDING CODE OF AUSTRALIA AND THE RELEVANT CURRENT AUSTRALIAN STANDARDS AS APPROPRIATE.
4. ALL DIMENSIONS SHOWN SHALL BE VERIFIED ON SITE. DRAWINGS MUST NOT BE SCALED.
5. ONLY SUBSTITUTIONS APPROVED IN WRITING BY MEINHARDT INFRASTRUCTURE & ENVIRONMENT PTY LTD SHALL BE ACCEPTED.
6. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL STRUCTURES AND WORKS IN A STABLE CONDITION AND SHALL ENSURE NO PART SHALL BE OVER STRESSED DURING CONSTRUCTION ACTIVITIES.

PRELIMINARY WORKS NOTES

1. THE CONTRACTOR SHALL ALLOW FOR PROVIDING MATERIALS AND WORK WHICH IS INCIDENTAL TO THE ITEMS SPECIFIED AND WHICH WOULD BE NECESSARY TO ACHIEVE THE RESULTS REQUIRED BY THE DRAWINGS.
2. THE CONTRACTOR WILL BE DEEMED TO HAVE INSPECTED THE SITE OF THE WORKS, ASSESSED AVAILABLE ACCESS,INQUIRED INTO THE LOCATION OF AUTHORITIES UNDERGROUND ASSETS, EXAMINED THE GEOTECHNICAL REPORT AND THE NATURE OF THE GROUND AND OBTAINED THE LOCAL CLIMATE AND RAINFALL INFORMATION.
3. SAFETY REQUIREMENTS. THE CONTRACTOR SHALL ENSURE THAT ALL TIMES, THE MEANS AND METHODS OF CARRYING OUT THE WORK TO BE UNDERTAKEN CONFORM WITH THE STANDARDS AND REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND ANY OTHER APPLICABLE LEGISLATION, CODES OF PRACTICE AND STANDARDS.

   ALL PERSONNEL WORKING ADJACENT TO A TRAFFICABLE ROAD OR FORMATION SHALL WEAR RED SAFETY VESTS. THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM DANGERS INHERENT IN EXCAVATIONS, OBSTRUCTIONS, WORKING PLANT AND FALLING OBJECTS. SUCH MEASURES THAT ARE TAKEN SHALL BE ADEQUATE TO MAINTAIN THE SAFETY OF THE PUBLIC DURING PERIODS OUTSIDE NORMAL WORKING HOURS ON SITE.

   THE CONTRACTOR SHALL ENSURE THAT ALL TRENCH EXCAVATION FOR INSTALLATION OF PIPEWORKS (OR OTHER WORKS) OF DEPTHS GREATER THAN 1.5 METRES MUST BE CONTINUOUSLY SUPERVISED AND AT ALL TIMES BE ADEQUATELY SUPPORTED.
4. ALL WORK WITHIN ROAD RESERVES, PUBLIC PROPERTY OR PRIVATE PROPERTY - SHALL BE EXECUTED STRICTLY IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY OR LAND OWNER.
5. CONTRACTOR SHALL OBTAIN FROM THE RELEVANT AUTHORITIES DETAILS OF ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND SHALL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGE CAUSED TO EXISTING SERVICES DURING THE EXECUTION OF THE WORKS.
6. THE CONTRACTOR SHALL COMPLY WITH AND GIVE NOTICES REQUIRED BY ANY ACT OF PARLIAMENT, ORDINANCE REGULATION OR BY-LAW OF ANY AUTHORITY HAVING JURISDICTION OVER THE WORKS AND SHALL PAY ALL FEES OR CHARGES LEGALLY DEMANDABLE UNDER ANY SUCH ACT OF PARLIAMENT, ORDINANCE, REGULATION OR BY-LAW.
7. PRIOR TO WORKS, THE CONTRACTOR SHALL UNDERTAKE AN EXISTING DEFECTS INSPECTION AND REPORT TO LIST ANY EXISTING DAMAGE TO ROADS, FOOTPATHS, KERBS CROSSINGS CHANNELS NATURE STRIPS, ETC. SUCH LISTS SHALL BE PREPARED IN DUPLICATE BY THE CONTRACTOR AND A COPY SENT TO THE SUPERINTENDENT.

TRAFFIC PROVISION NOTES

1. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL MAKE PROVISION FOR TRAFFIC, IN ACCORDANCE WITH THE RELEVANT AUS-SPEC OR AUSTRALIAN STANDARD AS1742 "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
2. THE CONTRACTOR SHALL ASCERTAIN AND COMPLY WITH THE REQUIREMENTS OF THE AUTHORITY RESPONSIBLE FOR PUBLIC ROADS.
3. THE CONTRACTOR SHALL SO CONDUCT THE OPERATIONS AS TO MINIMISE OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC, AND SHALL NOT HAVE UNDER CONSTRUCTION AN GREATER LENGTH OR AMOUNT OF WORK THAN CAN BE MANAGED PROPERLY WITH DUE REGARD TO THE CONVENIENCE OF THE PUBLIC.

SUBSOIL DRAINAGE NOTES

1. WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC DWV GRADE CLASS SN8 PIPE SHALL BE USED.
2. PROVIDE SUBSOIL DRAINAGE IN ACCORDANCE WITH COUNCIL SPECIFICATIONS WITH CONTINUOUS FALL TO DOWNSTREAM PITS

   LOCATED AS SHOWN ON PLAN AND AS MAYBE DIRECTED BY COUNCIL / SUPERINTENDENT.
3. ALL SUBSOIL DRAINAGE PIPES SHALL BE Ø100mm CLASS 400 PERFORATED DRAINAGE PIPE LAID AT 1.0%MIN GRADE WRAPPED IN GEOFABRIC (UNO) AND BE LAID AT A MIN DEPTH OF 400mm BELOW PAVEMENT SUB-BASE COURSE.

EXISTING SERVICES NOTES

1. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA 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.
2. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL IF REQUIRED OF ALL REDUNDANT EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA, AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
3. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
4. IF REQUIRED, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS 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 AND THE RELEVANT SERVICE AUTHORITY.
5. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. THE CONTRACTOR IS TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION - THE CONTRACTOR IS RESPONSIBLE FOR ALL LIAISON.
6. ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN 80mm DIA uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND THE EDGE OF PAVING.
7. CLEARANCE AND COVER REQUIREMENTS SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY BEFORE COMMENCEMENT OF WORKS AND SHALL BE ADHERED TO AT ALL TIMES.
8. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER TELECOM OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS ONLY

KERB AND GUTTER

1. ALL KERB AND GUTTER SHALL COMPLY WITH AS2876-2000:'CONCRETE KERBS AND CHANNELS-MANUALLY OR MACHINE PLACED'.
2. CONCRETE CHARACTERISTICS SHALL BE IN ACCORDANCE WITH THE CONCRETE NOTES.
3. THE CONTRACTOR SHALL LIAISE WITH RELEVANT AUTHORITIES TO DETERMINE THEIR REQUIREMENTS FOR THE KERBS AND GUTTERS.
4. ALL KERB & GUTTER IS TO BE MACHINE LAID UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT

EARTHWORKS NOTES

1. THE CONTRACTOR SHALL COMPLY WITH THE CURRENT EDITIONS OF THE AUSTRALIAN STANDARDS.

   AS 1289 TESTING SOILS FOR ENGINEERING PURPOSES

   AS 3798 GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS
2. ALL WORK SHALL COMPLY WITH THE PROJECT GEOTECHNICAL REPORT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT ALL CONTROL AND COMPLIANCE EXAMINATION AND TESTING OF MATERIALS AND WORK.

   UNLESS OTHERWISE SPECIFIED, ALL TESTS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE APPROPRIATE AUSTRALIAN STANDARD TEST METHOD. WHERE THERE IS NO RELEVANT AUSTRALIAN STANDARD TEST METHOD THEN THE CURRENT APPROPRIATE RTA TEST METHOD OR OTHER SPECIFIED TEST METHOD SHALL BE USED. ALL TESTS SHALL BE CONDUCTED BY EXPERIENCED TESTING OFFICERS IN A LABORATORY ACCREDITED BY THE NATIONAL ASSOCIATION OF TESTING AUTHORITIES-NATA.
4. DETERMINATION OF THE NATURE AND QUANTITY(IES) OF THE EXISTING SITE MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHERE INCLUDED IN THE DOCUMENTS, GEOTECHNICAL REPORTS ARE INCLUDED FOR INFORMATION ONLY. INTERPRETATION OF THE REPORT/S SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

   USE OF ON-SITE MATERIAL WITHIN THE WORKS SHALL ONLY BE PERMITTED WHERE THE MATERIAL EITHER:

   I. IS SPECIALLY STATED WITHIN THE DOCUMENTS AS BEING USED IN THE WORKS, OR

   II. IS PERMITTED BY THE SUPERINTENDENT & GEOTECHNICAL TESTING / ENGINEER

   ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING -

   a) FREE FROM ORGANIC AND PERISHABLE MATTER;

   b) MAXIMUM PARTICLE SIZE 75mm; AND

   c) PLASTICITY INDEX - BETWEEN 2% AND 15%.
5. WHEN A SURFACE IS UNABLE TO SUPPORT CONSTRUCTION EQUIPMENT OR IT IS NOT POSSIBLE TO COMPACT THE OVERLYING MATERIALS BECAUSE OF HIGH MOISTURE CONTENT, THEN ONE OR MORE OF THE FOLLOWING ALTERNATIVE ACTIONS MAY BE TAKEN

   (I) ALLOW THE MATERIAL TO DRY TO A MOISTURE CONTENT WHICH ALLOW IT TO BE COMPACTED AND ALLOW THE PLACEMENT AND COMPACTION OF OVERLYING MATERIAL

   (II) SCARIFY THE MATERIAL TO A DEPTH OF 200MM AND WORK AS NECESSARY TO ACCELERATE DRYING. RECOMPACT AS SPECIFIED WHEN MOISTURE CONTENT APPROXIMATES OPTIMUM

   (III) EXCAVATE AND REPLACE THE SOFT MATERIAL.

   THE ACTION TO BE ADOPTED SHALL BE AT THE CONTRACTOR'S DISCRETION AND EXPENSE, BUT SHALL BE ADVISED TO THE SUPERINTENDENT BEFORE ACTION COMMENCES.

   IF THE CONTRACTOR ELECTS PURSUANT TO (I) ABOVE TO ALLOW THE MATERIAL TO DRY, RESULTING DELAYS, IF ANY, SHALL NOT CONSTITUTE GROUNDS FOR AN EXTENSION OF CONTRACT PERIOD OR DATE OF PRACTICAL COMPLETION.
6. THE FINISHED SUBGRADE SHALL NOT BE DISTURBED BY TRAFFIC OR OTHER OPERATIONS, AND SHALL BE PROTECTED AND MAINTAINED BY THE CONTRACTOR UNTIL THE FIRST LAYER OF FILL OR SUB-BASE IS PLACED THEREON. THE SUBGRADE SHALL BE KEPT DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES.

   THE CONTRACTOR SHALL PLAN AND CARRY OUT THE WHOLE OF THE WORKS TO MINIMISE THE EFFECTS OF RUN-OFF AND EROSION ON THE SITE AND ON DOWNSTREAM AREAS. HE SHALL AVOID UNNECESSARY GROUND DISTURBANCE AND PROVIDE AS NECESSARY FOR THE PROPER CONTROL OF STORMWATER RUN-OFF AT EVERY STAGE OF THE WORKS ALL IN ACCORDANCE WITH "MANAGING URBAN STORMWATER / SOIL AND CONSTRUCTION" (LANDCOM "BLUE BOOK")
7. PRIOR TO THE COMMENCEMENT OF EARTHWORKS TOPSOIL IS TO BE STRIPPED WITHIN THE LIMITS OF THE EARTHWORKS AND FROM ANY AREAS TO BE COVERED BY PAVING, STRUCTURES OR FILL, AND ALL AREAS WHICH ARE TO SUPPORT PAVEMENTS, EMBANKMENTS, STRUCTURES AND THE LIKE OR FILLING UNDER SUCH WORKS, SHALL BE STRIPPED CLEAR OF ALL TREES, LOGS, STUMPS, SCRUB, GRASS, ROOT GROWTH, CULTIVATED SOIL, WET OR SPONGY NATURAL SOIL, DECAYED VEGETABLE MATTER AND ANY OTHER DELETERIOUS SUBSTANCE. THE CONTRACTOR SHALL BREAK UP AND REMOVE ALL ASPHALT AND CONCRETE MATERIAL UPON WHICH FILL OR PAVEMENT SHALL BE PLACED.

   ALL MATERIAL WITHIN THE LIMIT OF THE EARTHWORKS SHALL BE WHOLLY REMOVED.
8. FILL ALL HOLES WITH APPROVED MATERIAL IN MAXIMUM 150MM COMPACTED THICKNESS LAYERS COMPACTED TO THE DENSITY TO THE ADJOINING UNDISTURBED SOIL AND TO THE APPROVAL OF THE SUPERINTENDENT.
9. EXCAVATION TO THE LINES, LEVELS AND GRADES AS REQUIRED FOR UNDERGROUND SERVICES SPECIFIED IN THE RELEVANT SERVICES SECTIONS, INCLUDING DRAINAGE, HYDRAULIC, ELECTRICAL AND THE LIKE. UNLESS OTHERWISE SPECIFIED MAKE THE TRENCHES STRAIGHT BETWEEN MANHOLES, INSPECTION POINTS, JUNCTIONS AND THE LIKE, WITH VERTICAL SIDES AND UNIFORM GRADES.

   DEPTH SHALL BE AS REQUIRED BY THE RELEVANT SERVICES AND ITS BEDDING.

   CUT BACK ROOTS ENCOUNTERED IN TRENCHES TO LESS THAN 600mm CLEAR OF THE RELEVANT SERVICE. REMOVE SUCH OTHER OBSTRUCTIONS INCLUDING ROOTS, STUMPS, BOULDERS AND THE LIKE WHICH MAY, IN THE OPINION OF THE SUPERINTENDENT, INTERFERE WITH THE PROPER FUNCTIONING OF THE SERVICE. LAY AND BED SERVICES IN ACCORDANCE WITH THE RELEVANT SERVICES SPECIFICATION SECTION.
10. BACKFILL AND COMPACT SERVICE TRENCHES AS SOON AS POSSIBLE AFTER APPROVAL OF LAID AND BEDDED SERVICE.

    COMPACT BACKFILL IN PIPE TRENCHES SO THAT THE PIPE IS BUTTRESSED BY THE WALLS OF THE TRENCH.
11. WHERE FILLING IS DESIGNATED BY THE CONTRACT OR IS SHOWN ON THE DRAWINGS AS STRUCTURAL OR CONTROLLED FILL THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT GEOTECHNICAL TESTING AUTHORITY TO SUPERVISE SUBGRADE PREPARATION, FILL PLACEMENT, COMPACTION AND TO UNDERTAKE SAMPLING AND TESTING AND REPORTING TO SATISFY THE REQUIREMENTS OF THIS SPECIFICATION AND THOSE OF AS 2870 AND AS 3798, FOR CONTROLLED FILL.
12. NO FILL SHALL BE PLACED OVER LAYERS NOT TESTED AND HAVING SATISFACTORY RESULTS.

    WHERE EXCAVATED MATERIAL IS NOT SUITABLE FOR FILLING, FILL MATERIAL, AS SPECIFIED IN THIS SPECIFICATION SECTION, "IMPORTED FILL" SHALL BE USED.

    ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289.5.1.1-2003-METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY -

LOCATION	STANDARD
DRY DENSITY	
UNDER BUILDING SLABS	98%
VEHICULAR PAVED AREAS	98%
NON-VEHICULAR PAVED AREAS	95%
LANDSCAPED AREAS	95%

13. UNLESS OTHERWISE PERMITTED, NO FILLING SHALL BE PLACED AGAINST ANY STRUCTURES, WING WALLS OR RETAINING WALLS WITHIN FOURTEEN DAYS OF CASTING. STRUT WALLS AS NECESSARY TO PREVENT MOVEMENT DURING PLACING AND COMPACTION.

    PLACE AND COMPACT FILLING OVER AND AROUND PIPES, CULVERTS, BRIDGES AND OTHER STRUCTURES SO AS TO AVOID UNBALANCED LOADING OR MOVEMENT.

    UNLESS OTHERWISE DETAILED BACKFILL AT STRUCTURES SHALL BE FILLED AS FOLLOWS:

    WHERE THE GAP BETWEEN THE STRUCTURE AND UNDISTURBED GROUND EXCEEDS 2m, BACKFILL THE ZONE WITHIN 2m OF THE STRUCTURE WITH DGS20 SUBBASE FINE CRUSHED ROCK AND BACKFILL IN THE ZONE BEYOND 2m OF THE STRUCTURE WITH SELECT FILL TO THE APPROVAL OF THE SUPERINTENDENT OR DGS20 SUBBASE FINE CRUSHED ROCK.

    UNLESS OTHERWISE DETAILED, MATERIAL WITHIN 300mm OF WEEPHOLES SHALL BE AN APPROVED GRANULAR FILTER MEDIUM OF COARSE SAND OR CRUSHED STONE WRAPPED AND SURROUNDED WITH AN APPROVED GEOTEXTILE SEPARATION LAYER.
14. HORIZONTAL:

    NO POINT SHALL BE GREATER THAN + OR - 100mm FROM THE DESIGN LOCATION.

    VERTICAL:

    SUBGRADE LEVEL: +0, -25mm

    PAVEMENT DESIGN SUBGRADE:

    LEVEL: +0, -25mm

    OTHER: +50, -50mm

    STRAIGHTNESS (EXCLUDES ROCK): MAXIMUM 20MM DEPARTURE FROM 3M STRAIGHT EDGE LAID:

    - PARALLEL TO ROAD CENTER LINE

MISCELLANEOUS

1. GEOTEXTILE FABRIC MATERIAL TO BE BIDIM A24 OR APPROVED EQUIVALENT AND SHALL COMPLY WITH AS3705-2012:'GEOTEXTILES - IDENTIFICATION, MARKING AND GENERAL DATA'.

EARTHWORKS NOTES CONT.

- NORMAL TO INTENDED CONTOURS

15. AREAS UPON WHICH FILLS ARE TO BE CONSTRUCTED, ALL LAYERS OF FILLING, AND MATERIALS LESS THAN 150mm BELOW PERMANENT SUBGRADE LEVEL IN CUTTINGS, SHALL BE COMPACTED SO AS TO BE CAPABLE OF WITHSTANDING TEST ROLLING, WITHOUT VISIBLE DEFORMATION OR SPRINGING, WITH A PNEUMATIC TYRED ROLLER OR HIGHWAY TRUCK BALLASTED TO COMPLY WITH THE FOLLOWING:

    PNEUMATIC TYRED - NOT LESS THAN 3 T PER TYRE WITH TYRES INFLATED TO 550 KPa.

    HIGHWAY TRUCK - WITH REAR AXLE OR AXLES LOADED TO NOT LESS THAN 8 T EACH WITH TYRES INFLATED TO 550KPa

    TEST ROLLING SHALL BE CARRIED OUT IMMEDIATELY BEFORE OVERLYING LAYERS ARE PLACED.

    WHERE TEST ROLLING IS REQUIRED AT SOME LATER DATE, THE SURFACE SHALL BE MOISTURE CONDITIONED AS AND GIVEN NOT LESS THAN FOUR COVERAGES OF THE TEST ROLLER BEFORE TEST ROLLING COMMENCES.
16. THE WORK SHALL NOT BE ACCEPTED AS COMPLETE UNLESS ALL TEST RESULTS ARE PROVIDED TO THE SUPERINTENDENT.

    THE CONTRACTOR SHALL PROVIDE ALL MATERIAL PROPERTY AND QUALITY TEST RESULTS TO THE SUPERINTENDENT.
17. THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
18. TESTING OF THE FILL MATERIAL SHALL BE CARRIED OUT BY AN APPROVED NATA REGISTERED LABORATORY AT THE CONTRACTORS EXPENSE.

STORMWATER NOTES

1. ALL DRAINAGE PIPES Ø300mm AND ABOVE SHALL BE SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO).
2. ALL DRAINAGE PIPES LESS THAN OR EQUAL TO Ø225mm SHALL BE uPVC DWV GRADE CLASS SN8 IN ACCORDANCE WITH AS/NZS1260:2009-PVC-U PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATION WITH SOLVENT WELDED JOINTS (UNO).
3. ALL PIPE JUNCTIONS UP TO AND INCLUDING Ø450mm AND TAPERS, SHALL BE VIA PURPOSE MADE FITTINGS (UNO).
4. MINIMUM GRADE TO STORMWATER LINES TO BE 1%(UNO).
5. EQUIVALENT STRENGTH FIBROUS REINFORCED CONCRETE AND/OR VITRIFIED CLAY PIPE MAY BE USED SUBJECT TO APPROVAL BY THE SUPERINTENDENT AND CONSENT AUTHORITY.
6. TRENCHES MUST BE KEPT CLEAR OF WATER AT ALL TIMES AND TIMBERED WHERE NECESSARY TO PREVENT COLLAPSE.
7. PIPES SHALL BEAR EVENLY ON THE BED PREPARED AS SPECIFIED ABOVE AND LAID WITH THE SOCKETS POINTED UPGRADE. ALL PIPES SHALL BE LAID IN STRAIGHT LINES, TO TRUE INVERT LEVELS AND GRADES AS SHOWN ON PLANS. EACH PIPE SHALL BE SEPARATELY BONED BETWEEN ACCURATELY ESTABLISHED GRADE POINTS. THE CONTRACTOR SHALL ADHERE SUPERINTENDENT'S WRITTEN APPROVAL.
8. UNLESS NOTED OTHERWISE, BEDDING SHALL BE TYPE H2 FOR PIPES NOT UNDER PAVEMENTS AND TYPE HS3 FOR PIPES UNDER PAVEMENTS IN ACCORDANCE WITH AS/NZS3725 (2007) - DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES.
9. BACKFILL TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL TO 300mm (MIN) ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO PAVEMENT SUBGRADE WITH SAND OR APPROVED GRAVEL SUB-BASE COMPACTED IN 150mm LAYERS TO 98% STANDARD MAXIMUM DRY DENSITY. THE CONTRACTOR IS TO ENSURE COMPACTION EQUIPMENT IS APPROPRIATE FOR THE PIPE CLASS USED.
10. ALL PIPE JOINTING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS FOR THE TYPE OF PIPE BEING USED.
11. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
12. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH WITH NO PROTRUSION.
13. WHERE ANY PIPE IS CUT INTO A LARGER PIPE, SUCH CONNECTION SHALL BE NEATLY MADE AND NO PART OF THE PIPE OR DOWNPIPE SHALL BE ALLOWED TO PROJECT. ANY CUT-IN JUNCTION SHALL BE MADE IN THE TOP HALF OF THE LARGER PIPE. SUCH JUNCTION TO CONCRETE PIPES SHALL BE SURROUNDED WITH A NEAT COLLAR OF CEMENT MORTAR AS DIRECTED OR AS DETAILED ON THE DRAWINGS. JUNCTIONS BETWEEN PVC PIPES SHALL USE PROPRIETY FITTINGS INTENDED FOR THE PURPOSE.
14. THE ENDS OF PIPES WHICH CONNECT WITH SIDE ENTRY, JUNCTION OR OTHER PITS SHALL BE NEATLY CUT TO FIT THE INNER FACE OF THE CONCRETE. WHERE UPVC PIPES ENTER/LEAVE PITS A RUBBER RING JOINT MANHOLE COUPLING SHALL BE CAST INTO THE PIT WALL.

    BEDDING, HAUNCH AND OVERLAY MATERIALS SHALL CONFORM TO THE DETAILS SHOWN ON THE DRAWINGS.
15. ALL PITS AND ENDWALLS SHALL BE CONSTRUCTED IN THE POSITIONS AND TO THE LEVELS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE SUPERINTENDENT. LOCATION OF ALL IAD PITS TO BE CONFIRMED WITH SUPERINTENDED & LANDSCAPE ARCHITECT BEFORE CONSTRUCTION

    COUNCIL'S CONSTRUCTION PIT DETAILS TO TAKE PRECEDENCE TO THE CONSTRUCTION DETAILS SHOWN IN THIS DOCUMENTATION. PRECAST PITS OR ALTERNATIVE DESIGN TYPES CAN BE USED SUBJECT TO COUNCIL / PCA APPROVAL. (IAD ONLY)

    PIT COVERS SHALL BE PLACED IN ACCORDANCE WITH THE DETAIL SITE PLANS AND PIT SCHEDULE (IF PROVIDED) IN REGARD TOTYPE, SIZE, LOCATION AND LEVEL.

    THE BASE OF EACH PIT SHALL BE INFILLED AND SHAPED WITH CONCRETE OR CEMENT MORTAR TO PROVIDE A SMOOTH FLOW PATH.
16. PITS DEEPER THAN 1000mm SHALL HAVE STEP IRONS INSTALLED IN ACCORDANCE WITH THE LOCAL OR STATUTORY AUTHORITY REQUIREMENTS.
17. SUPPLY APPARATUS AND MATERIALS NECESSARY FOR, AND CARRY OUT THE TESTS REQUIRED BY THE SPECIFICATION OR REGULATORY AUTHORITIES, IN THE PRESENCE OF THE SUPERINTENDENT AND THE RELEVANT AUTHORITY. LEAVE PIPE JOINTS EXPOSED TO ENABLE OBSERVATION DURING THE TESTS.

    ENSURE PVC SOLVENT CEMENT JOINTS HAVE BEEN CURED FOR AT LEAST 24 HOURS BEFORE TESTING.
18. THE CONTRACTOR SHALL PRESSURE TEST WITH WATER, ALL STORMWATER PIPEWORK IN OR UNDER ANY STRUCTURES, IN ACCORDANCE WITH AS 3500.3.
19. ALL PIPEWORK TO BE SUPPORTED IN ACCORDANCE WITH AS3500.3-2003.
20. ALL PIPEWORK IS TO BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS AS SET DOWN IN AS3500.3-2003. ALL IN-GROUND PIPEWORK TO BE INSPECTED BY THE SUPERINTENDENT UNDER TEST CONDITIONS PRIOR TO BACKFILLING. BACKFILLING AND BEDDING TO AS3500.3-2003.
21. PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRE OF THE INLET PIPE INTERSECTS WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.
22. BED ALL PIPES FIRMLY AND EVENLY WITH IMPORTED FILL ONLY. THICKNESS OF BEDDING LAYER SHALL BE 75MM IN SOIL AND 200MM IN ROCK.
23. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS3725-2007:'DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES'.
24. ALLOW TO TEST ALL PIPES AND PITS TO LOCAL AUTHORITY'S REQUIREMENTS.
25. EXCAVATE TRENCHES AND STOCKPILE ALL MATERIAL FOR INSPECTION WITH REGARD TO REUSE FOR TRENCH BACKFILL. REMAINING MATERIAL TO BE REMOVED FROM SITE.
26. BACKFILL PIPES WITH IMPORTED FILL. PROVIDE 200MM SIDE SUPPORT AND 150MM OVERLAY ABOVE PIPE CROWN. TRENCH FILL ABOVE THE EMBEDMENT ZONE TO THE UNDERSIDE OF THE ROAD PAVEMENT OR THE FOOTWAY SHALL BE AS FOLLOW:-

UNDER ROADWAY

TRENCH FILL MATERIAL SHALL CONSIST OF IMPORTED FILL AS SPECIFIED HEREIN OF EITHER HIGH GRADE COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RMS QA SPECIFICATION 3051 OR SIMILAR.

OTHER THAN ROADWAY

27. TRENCH MATERIAL EXCAVATED SHALL CONSIST OF SELECT FILL AS SPECIFIED HEREIN AND SHALL NOT CONTAIN MORE THAN 20% OF STONES OF SIZE BETWEEN 25MM AND 75MM AND NONE LARGER THAN 75MM. PRIOR TO USE OF THE EXCAVATED MATERIAL IT SHALL BE INSPECTED AND APPROVED BY THE ENGINEER.

RESTORATION

RESTORE ALL TRAFFIC AREAS TO PRE-EXISTING CONDITIONS. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.

SITEWORKS NOTES

1. THE CONTRACTOR SHALL LIAISE DIRECTLY WITH ALL SERVICE AUTHORITIES INVOLVED AND SHALL COMPLY WITH ALL THEIR REGULATIONS AND REQUIREMENTS
2. ALL LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM, UNLESS STATED OTHERWISE. ALL COORDINATES SHOWN ARE TO AUSTRALIAN MAP GRID, UNLESS STATED OTHERWISE. BASE SURVEY & SETOUT HAS BEEN SUPPLIED BY OTHERS & SHALL BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION
3. SERVICE INFORMATION SHOWN IS BASED ON PLANS SUPPLIED AND IS APPROXIMATE ONLY. ACTUAL LOCATION CAN ONLY BE DETERMINED BY EXCAVATION. THE CONTRACTOR SHALL LIAISE WITH SERVICE AUTHORITIES FOR SERVICE LOCATIONS. THE CONTRACTOR SHALL PROTECT ALL SERVICES AND SHALL RECTIFY ANY DAMAGE AT HIS EXPENSE
4. ALL WORKS IN PUBLIC LANDS SHALL BE TO THE APPROVAL AND SATISFACTION OF THE RELEVANT AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND OBTAINING RELEVANT AUTHORITY WRITTEN APPROVAL OF THE WORKS.
5. EXISTING SURFACE CONTOURS SHOWN ARE INTERPOLATED FROM SPOT HEIGHTS AND ARE APPROXIMATE ONLY
6. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK, AND REPORT ANY DISCREPANCIES TO THE SUPERINTENDENT.
7. ALL EXISTING SERVICES (INCLUDING ANY NOT SHOWN ON THE PLANS) MUST BE ACCURATELY LOCATED IN POSITION AND LEVEL PRIOR TO ANY EXCAVATION. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. MINIMUM SERVICE CLEARANCES SHALL BE MAINTAINED FROM THE RELEVANT SERVICE AUTHORITY.
8. ALL DIMENSIONS AND SET OUTS SHOWN ARE EITHER TO FACE OF BUILDING, GRID LINES OR FACE OF KERB INVERT (LINE OF KERB), UNLESS SHOWN OTHERWISE.
9. CONTRACTOR SHALL BE ISSUED AN ELECTRONIC COPY OF THE CIVIL DETAIL PLANS IN AUTOCAD DWG FORMAT FOR SET OUT PURPOSES. ALL DIMENSIONS SHOWN ON PLAN SHALL OVER RIDE SETOUT POINTS SELECTED FROM ELECTRONIC FILE PROVIDED.
10. THE CONTRACTOR SHALL ARRANGE FOR ALL SETTING OUT BY A REGISTERED SURVEYOR.
11. THE CONTRACTOR SHALL OBTAIN ALL REGULATORY AUTHORITY APPROVALS
12. WHERE NEW WORKS ABUT EXISTING, THE CONTRACTOR MUST ENSURE THAT A SMOOTH AND EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
13. SAWCUT EXISTING KERB/KERB & CHANNEL AND PAVING WHERE NEW WORKS ARE TO MATCH EXISTING WORKS
14. BUILDING AND SITE MAINTENANCE PROGRAM IS TO INCORPORATE REGULAR FLUSHING OF ALL STORMWATER PITS, PIPES, DOWNPIPES, SUB-SOIL DRAINS AND ASSOCIATED FITTINGS TO AVOID BLOCKAGES WITHIN THE SYSTEM.
15. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS SPECIFIED OTHERWISE.
16. EXCAVATED TRENCHES SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT NATURAL MATERIAL. ANY SUBSIDENCES DURING THE PERIOD TO BE RECTIFIED AS DIRECTED BY THE SUPERINTENDENT.
17. THE CONTRACTOR SHALL KEEP THE SITE WELL DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES.
18. GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. (FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY ONLY.) WHERE FINISHED SURFACE SPOT LEVELS ARE NOT SHOWN THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN FREELY, AND TO MATCH THE LEVELS OF ADJACENT SURFACES OR STRUCTURES.
19. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE LANDSCAPE ARCHITECT'S DETAILS AND/OR BY :

    a) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE,

    b) ENSURING THAT NOTHING IS NAILED TO THEM,

    c) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT AS ADVISED BY A QUALIFIED ARBORIST.
20. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SUPERINTENDENT OR AS SPECIFIED IN THE WASTE MANAGEMENT PLAN.

STORMWATER NOTES

1. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS.
2. THE CONTRACTOR SHALL ENSURE THAT SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED AT ALL TIMES. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING WHERE REQUIRED. ONCE THE WORKS ARE COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD ALL DISTURBED AREAS.
3. EXISTING PIPES WHICH FORM NO PART OF THE DRAINAGE SYSTEM SHALL BE REMOVED OR SEALED AS INDICATED ON THE PLANS. PIPES UP TO 300MM DIAMETER SHALL BE SEWER GRADE UPVC WITH SOLVENT WELDED JOINTS (U.N.O.). ALL PIPE JUNCTIONS AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
4. WHERE DOWNPIPES PASS UNDER FLOOR SLABS, SEWER GRADE UPVC WITH RUBBER RING JOINTS ARE TO BE USED.
5. MINIMUM GRADE TO DRAINAGE PIPES TO BE 1% (U.N.O.), MIN. SIZE 100MM DIAMETER (U.N.O.).
6. PIPES LARGER THAN OR EQUAL TO 300MM DIAMETER TO BE REINFORCED CONCRETE RUBBER RING JOINTED TYPE (CLASS 2) MANUFACTURED TO AS4058 (U.N.O.).
7. PIPE INSTALLATION UNDER TRAFFICABLE AREAS SHALL BE IN ACCORDANCE WITH CONCRETE PIPE ASSOCIATION OF AUSTRALIA PUBLICATION "CONCRETE PIPE SELECTION & INSTALLATION" TYPE HS3 SUPPORT.
8. EQUIVALENT STRENGTH FRC PIPES MAY BE USED SUBJECT TO AUTHORITY APPROVAL.
9. MINIMUM PIPE COVER TO BE 600MM UNDER TRAFFICABLE AREAS AND 300MM ELSEWHERE (U.N.O.).
10. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
11. PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS.
12. STORMWATER DRAINAGE CONNECTIONS TO COUNCIL'S SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL.
13. PITS DEEPER THAN 1200MM TO BE FITTED WITH STEP IRONS AT 300 CENTRES TO AS1657-2013:'FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS - DESIGN, CONSTRUCTION AND INSTALLATION'.
14. ALL EXPOSED EDGES TO BE ROUNDED WITH 20MM RADIUS, OR CHAMFERED 20MM X 20MM.
15. PIT REINFORCEMENT - MESH SL82 LAP TO BE 400MM MIN. CLEAR COVER 40 MIN. CAST AGAINST BLINDING OR FORMWORK. CORNER RETURNS MAY BE FABRIC OR EQUIVALENT BARS.

WARNING

PROPOSED SERVICES

THE LOCATION AND EXTENT OF PROPOSED SERVICES IS INDICATIVE ONLY AND ARE NOT TO BE USED FOR CONSTRUCTION. REFER TO AUTHORISED DOCUMENTATION BY RELEVANT AUTHORITY FOR CONSTRUCTION DETAILS

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.

CONCRETE

ALL WORKMANSHIP AND CONCRETE MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING AUSTRALIAN STANDARDS AS APPLICABLE, THE SPECIFICATION AND DETAILS ON THE DRAWINGS UNLESS INSTRUCTED OTHERWISE BY THE ENGINEER:
AS 1012 METHODS OF TESTING CONCRETE
AS 2758.1 DENSE NATURAL AGGREGATES
AS 1478 CHEMICAL ADMIXTURES FOR USE IN CONCRETE
AS 1379 READY MIXED CONCRETE
AS 3972 PORTLAND AND BLENDED CEMENTS
AS 1302 STEEL REINFORCING BARS FOR CONCRETE
AS 1303 HARD DRAWN STEEL REINFORCING WIRE FOR CONCRETE
AS 1304 HARD DRAWN STEEL WIRE REINFORCING FABRIC FOR CONCRETE
AS 3600 CONCRETE STRUCTURES
AS 3610 FORMWORK FOR CONCRETE
THE WATER USED SHALL BE FREE OF ALL SUBSTANCES HARMFUL TO CONCRETE AND ITS
REINFORCEMENT. ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE
SUPERINTENDENT. ALL CONCRETE SHALL BE READY MIXED CONCRETE.

UNLESS OTHERWISE SPECIFIED, SHOWN ON THE DRAWINGS, OR DIRECTED BY THE SUPERINTENDENT, REINFORCEMENT FOR CONCRETE SHALL BE FREE FROM ANY COATING WHICH WILL REDUCE, OR PREVENT BONDING OF THE CONCRETE TO THE STEEL.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS, THE MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 1.5 TIMES THE DIAMETER OF THE BARS OR 40mm, WHICHEVER IS GREATER.

ALL KERBS, KERB & CHANNEL, SPOON DRAINS ETC. SHALL BE LAID OVER 75MM MINIMUM DEPTH OF COMPACTED CLASS 2 CRUSHED ROCK, UNLESS SHOWN OTHERWISE ON THE DETAIL DRAWINGS.

WHERE REQUIRED MATCH ALL NEW KERBS TO EXISTING LEVEL NEATLY, ENSURING MINIMUM 1 IN 200 GRADE, SAW CUTTING AND REINSTATING PAVEMENT IN FRONT OF KERB TO FALL TOWARDS OR AWAY FROM NEW KERB LEVEL.

SCHEDULE OF CONCRETE PROPERTIES TO BE USED FOR THE PARTICULAR SECTION OF WORK SHALL BE AS FOLLOWS UNLESS OTHERWISE INSTRUCTED OR SHOWN ON THE DRAWINGS: (MIX DESIGNS SHALL BE SUBMITTED BY THE SUBCONTRACTOR TO THE ENGINEER FOR INSPECTION 28 DAYS PRIOR TO POUR).

LOCATION	GRADE (MPa)	MAX. AGGREGATE (mm)	SLUMP (mm)
KERBS, PITS, HEADWALLS	N25	20	80 ±15
FOOTPATHS, RETAINING WALLS	N32	20	80 ±15
VEHICULAR PAVEMENT N32	TYPE 1	20	80 ±15

TYPE 1 CONCRETE SHALL HAVE THE PROPERTIES OF NORMAL N32 CONCRETE WITH A FLEXURAL STRENGTH OF F't=4.4MPa

ALL REINFORCEMENT IN SLABS AND BEAMS SHALL BE SUPPORTED ON CHAIRS TO GIVE THE REQUIRED COVER. SPACING OF REINFORCEMENT CHAIRS SHALL NOT EXCEED 800mm IN ANY DIRECTION.

MINIMUM LAPS FOR REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

FABRIC	2 CROSS WIRES + 25mm.		
N12:	400mm.	N24:	1100mm
N16:	600mm.	N28:	1350mm
N20:	800mm.	N32:	1500mm

COG AND HOOK PIN DIAMETERS AND OVERALL DIMENSIONS SHALL BE AS PER THE REQUIREMENTS OF AS 3600 UNLESS NOTED OTHERWISE.

ALL BAR CRANKS SHALL BE NO GREATER THAN 1 IN 6, UNLESS NOTED OTHERWISE. REINFORCEMENT GRADES SHALL BE AS FOLLOWS:
BARS: GRADE 500N TO AS/NZS 4671.
FABRIC: HARD DRAWN WIRE FABRIC TO AS/NZS 4671.
LIGS & TIES: HARD DRAWN WIRE, GRADE 450W, TO AS/NZS 4671.
ANY STEELWORK SOURCED FROM MILLS LOCATED OUTSIDE AUSTRALIA ARE TO BE PROVIDED WITH CERTIFICATES PROVING ABOVE REQUIREMENTS VERIFIED BY NATA REGISTERED ORGANISATIONS.

CONSTRUCTION JOINTS, WHERE NOT SHOWN ON THE DRAWINGS, SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

THE MINIMUM CLEAR SPACING BETWEEN CONDUITS, CABLES, PIPES AND BARS SHALL BE AS REQUIRED BY AS 3600 BUT NOT LESS THAN THREE DIAMETERS HORIZONTALLY FOR HORIZONTAL CONDUITS, ETC. IN SLABS, WALLS AND FOOTINGS AND NOT LESS THAN ONE DIAMETER FOR ALL OTHER CONDUITS, ETC.

ALL PRIMARY REINFORCEMENT SHALL BE PLACED OUTERMOST.

CONCRETE SHALL NOT BE PLACED UNTIL THE SUPERINTENDENT HAS EXAMINED BOTH FORMWORK AND REINFORCEMENT IN PLACE AND GIVEN THEIR CONSENT TO PROCEED. 48 HOURS NOTICE SHALL BE
GIVEN TO THE SUPERINTENDENT BEFORE PLACEMENT OF ANY CONCRETE HAS COMMENCED.
CONCRETE SHALL NOT BE PLACED UNDER WATER OR DROPPED THROUGH A DISTANCE GREATER THAN 1.5M WITHOUT THE CONSENT OF THE SUPERINTENDENT.
DURING AND IMMEDIATELY AFTER THE PLACING OPERATION CONCRETE SHALL BE THOROUGHLY COMPACTED BY TAMPING, VIBRATION OR OTHER MEANS APPROVED BY THE SUPERINTENDENT.
THE CONCRETE SHALL BE SPRAYED WITH AN APPROVED CURING MEMBRANE SUCH AS CONCURE WB, IN STRICT ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION.

APPROVALS

1. THE ASBUILT WORKS SHALL BE INSPECTED BY THE ENGINEER. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.
2. THE DESIGN PLANS HEREIN ARE SUBJECT TO LOCAL COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT SUPERINDENDENT PRIOR TO COMMENCEMENT.
3. SUBMIT WORK-AS-EXECUTED DRAWINGS IN DWG FORMAT AND HARD COPY FORMAT UNDERTAKEN BY A REGISTERED SURVEYOR. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.
4. CERTIFY THAT THE ASBUILT SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.
5. ALLOW FOR SUBGRADE AND PAVEMENT THICKNESS TO BE VERIFIED BY THE GEOTECHNICAL ENGINEER AFTER INSPECTION OF PRELIMINARY BOXING.
6. ALLOW FOR ANY SUBGRADE REPLACEMENT WORK TO BE DETERMINED AS REQUIRED BY GEOTECHNICAL ENGINEER AT THE TIME OF PAVEMENT CONSTRUCTION.

CONCRETE JOINTING

THE JOINTS IN THE NEW WORK SHALL COINCIDE WITH THOSE IN ABUTTING CONCRETE PAVING, OR OTHER JOINTED WORK, WHICH IS EITHER EXISTING OR PROPOSED. IF THE SPACING OF THE JOINTS IN EXISTING OR PROPOSED WORK IS VERY MUCH GREATER THAN THAT SPECIFIED FOR THE NEW WORK THEN ONE OR MORE EQUALLY SPACED JOINTS SHALL BE MADE IN THE NEW WORK BETWEEN EXISTING OR PROPOSED JOINTS SUCH THAT THE SPECIFIED SPACING WILL BE RETAINED AS NEARLY AS POSSIBLE.

N12 DIAGONAL CORNER BARS 1200 LONG ARE REQUIRED AT ALL RE-ENTRANT CORNERS OF OPENINGS IN FOOTPATHS.

EDGINGS
WHEN USING AN EXTRUSION MACHINE THE JOINTS SHALL BE MADE BY A METHOD APPROVED BY THE SUPERINTENDENT.
WHEN USING FORMWORK, THEY SHALL CONSIST OF 3mm THICK STEEL PLATE PROFILED TO MATCH THE ITEM BEING CONSTRUCTED AND SHALL HAVE AN AREA NOT LESS THAN 75% OF THE SECTION BEING CONSTRUCTED. AS SOON AS IT IS PRACTICABLE AFTER THE FINISHING OF ANY WORK, THE TEMPLATES SHALL BE REMOVED AND THE RESULTANT GAP FINISHED WITH A GROOVING TOOL TO A DEPTH OF NOT LESS THAN 25MM TO PRODUCE A NEAT GROOVE WITH ROUNDED ARISES. JOINTS SHALL BE AT REGULAR INTERVALS AND THE SPACING BETWEEN JOINTS SHALL NOT EXCEED 3 METRES WITHOUT THE APPROVAL OF THE SUPERINTENDENT.

PROVIDE EXPANSION JOINTS AT 30 METRE MAXIMUM CENTRES AND OR COINCIDE WITH THE JOINT SPACING IN THE ADJACENT ROADS OR FOOTPATHS. EXPANSION JOINTS SHALL ALSO BE PLACED AT EACH TANGENT POINT (START AND END OF HORIZONTAL CURVES) AND EACH SIDE OF LAYBACKS OR THE LIKE. THE EXPANSION JOINTS SHALL CONSIST OF 15mm THICK PREFORMED CORK OF THE FULL
SHAPE OF THE ABUTTING KERB OR KERB AND CHANNEL ETC.
NO EXPANSION OR OTHER CONSTRUCTION JOINT SHALL BE MADE WITHIN A DISTANCE OF 3 METRES OF ANY RETURN IN THE KERBS OR FINISHING POINT OF THE CHANNEL.

FOOTPATHS AND SURFACING
EXPANSION JOINTS SHALL BE PLACED AT INTERVALS NOT EXCEEDING 15M, ON EITHER SIDE OF VEHICLE CROSSINGS, AT CHANGES IN DIRECTION, AND AT JUNCTIONS WITH BRIDGES.
THEY SHALL BE 15mm WIDE AND FILLED WITH AN APPROVED CORK FILLER EXTENDING FOR THE FULL WIDTH AND FULL DEPTH OF THE PAVING. THE FILLER SHALL BE PLACED IN POSITION BEFORE
CONCRETE IS PLACED, AND SHALL BE HELD FIRMLY IN POSITION DURING THE PLACING OF THE CONCRETE. WHERE POSSIBLE IT SHALL BE GLUED WITH AN APPROVED WATERPROOF GLUE TO THE EXISTING FACE OF THE JOINT.
TOOLED OR SAWCUT JOINTS AT LEAST 20MM DEEP AND 5MM WIDE SHALL BE FORMED WITH A CUTTING TOOL AT INTERVALS NOT EXCEEDING 2.5M OR AS DIRECTED BY THE SUPERINTENDENT.

JOINTS BETWEEN EDGINGS/FOOTPATHS/SURFACING/STRUCTURES
EXCEPT ON NARROW MEDIANS (LESS THAN 0.6M WIDE) SURFACED FULL WIDTH, BOND BETWEEN THE CONCRETE ELEMENT AND OTHER STRUCTURE SHALL BE PREVENTED BY USING A STRIP OF 12MM
PREFORMED CORK FILLER OR OTHER APPROVED MATERIAL BETWEEN THEM.

VEHICULAR PAVEMENT JOINTS
VEHICULAR PAVEMENT JOINTING SHALL BE SHOWN ON THE DRAWINGS AT TENDER OR CONSTRUCTION PHASE, AND JOINTING SHALL BE CONSTRUCTED AS DOCUMENTED. WHERE AN ALTERNATIVE JOINTING SOLUTION HAS BEEN ADOPTED WITHOUT THE ENGINEERS' APPROVAL, MEINHARDT GROUP DISCLAIMS ANY LIABILITY ARISING FROM THE PERFORMANCE OF THE PAVEMENTS.

DOWELLED SAWCUT, EXPANSION AND CONSTRUCTION JOINTS SHALL BE PROVIDED AS SPECIFIED TO ALL VEHICULAR PAVEMENTS NOT EXCEEDING 6.0m INTERVALS. JOINT SPACING SHALL ENSURE SLAB LENGTH IS NO GREATER THAN 1.5 TIMES SLAB WIDTH. EXPANSION JOINTS SHALL BE NO GREATER THAN 25m INTERVALS.

ALTERNATIVE DOWEL SYSTEMS MUST NOT BE USED WITHOUT THE PRIOR CONSENT OF THE ENGINEER. THE SUBCONTRACTOR SHALL SUBMIT A MANUFACTURER SPECIFICATION AND TESTING DATA OF THE PROPOSED SAMPLE FOR APPROVAL.

EXPOSED SURFACES
ALL EDGINGS SHALL BE RENDERED WITH A STEEL TROWEL FINISH UNLESS SPECIFIED OTHERWISE BY THE LANDSCAPE ARCHITECT. FRESH FOOTPATH AND SURFACING CONCRETE SHALL BE COMPACTED AND WORKED UNTIL ALL OF THE COARSE AGGREGATE IS BELOW THE SURFACE THE MORTAR COMES TO THE TOP. IT SHALL THEN BE STRUCK OFF AND FINISHED WITH A WOODEN FLOAT. AS SOON AS THE CONCRETE HAS SET SUFFICIENTLY, SUITABLE FILLING SHALL BE PLACED AND THOROUGHLY COMPACTED BEHIND AND UP TO THE LEVEL OF THE TOP OF THE KERB.

PAVEMENTS

ALL PAVEMENT MATERIALS SHALL COMPLY WITH TfNSW STANDARD SPECIFICATIONS AND BE OF CONSISTENT QUALITY.

ALL BASE COURSE AND SUB-BASE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL UNLESS SPECIFIED OTHERWISE AND COMPLY WITH TfNSW STANDARD SPECIFICATIONS.

AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL, A CERTIFIED RECYCLED CRUSHED CONCRETE MATERIAL COMPLYING WITH TfNSW STANDARDS WILL BE CONSIDERED SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF MEINHARDT GROUP.

CONCRETE PAVEMENT
N16 DIAGONAL CORNER BARS 1200 LONG ARE REQUIRED AT ALL RE-ENTRANT CORNERS OF OPENINGS IN PAVEMENT SLABS.

ALL EXISTING PAVEMENT ADJACENT TO THE PROPOSED KERB OR PROPOSED JOINTS SHALL BE SAWCUT IN A NEAT LINE TO THE SATISFACTION OF THE SUPERINTENDENT AND HAVE 300mm OVERLAP.

ALL TRENCHING WORKS IN EXISTING PAVEMENTS SHALL BE NEATLY SAWCUT, NEW PAVEMENT REINSTATED WITH DOWELS AND TO NEATLY MATCH EXISTING LEVELS.

ASPHALT PAVEMENT
ASPHALT LAYERS UP TO 50mm THICKNESS SHALL BE COMPACTED TO 94% CHARACTERISTIC VALUE OF DENSITY RATIO
ASPHALT LAYERS GREATER THAN 50mm THICKNESS SHALL BE COMPACTED TO 96% CHARACTERISTIC VALUE OF DENSITY RATIO

THE SURFACE FINISH OF THE ASPHALT LAYERS SHALL BE OF UNIFORM COMPOSITION AND OF CONSISTENT DENSITY. ANY 'BONEY' OR UNEVEN AREAS THAT ARE EVIDENT SHALL BE FULLY REWORKED TO THE ENGINEER'S SATISFACTION.

GEOTECHNICAL DESIGN COMPLIANCE AND SITE INSPECTION ATTENDANCE

ALL COMPACTION REQUIREMENT RESULTS SHALL BE CARRIED OUT IN ACCORDANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS.

LATENT CONDITIONS (SUBGRADE IMPROVEMENTS)

ANY ADDITIONAL WORKS WHICH MAY LEAD TO A VARIATION SHALL BE APPROVED PRIOR TO THE COMMENCEMENT OF ANY WORKS AND INCLUDE THE FOLLOWING PROVISIONS:

a) NOTIFICATIONS FOR INSPECTIONS TO SUPPORT POTENTIAL VARIATION CLAIMS REQUIRE MINIMUM 48 HR NOTICE PERIODS. (SITE REPRESENTATION WILL BE AT THE DISCRETION OF THE CIVIL ENGINEER)
b) SUBGRADE IMPROVEMENTS ARE TO BE MANAGED BY THE PROJECT GEOTECHNICAL ENGINEER WITH INPUT FROM THE CIVIL ENGINEER
c) CONSULTANT COSTS FOR GEOTECHNICAL REPRESENTATION AND REPORTING TO BE BORNE BY THE CONTRACTOR
d) ADDITIONAL INSPECTIONS BY THE CIVIL ENGINEER TO SUPPORT VARIATION CLAIMS FOR LATENT CONDITIONS SHALL BE BORNE BY CONTRACTOR

Notes:

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NOTES
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3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, SERVICE ENGINEER'S AND CSEG PTY LTD DRAWINGS AND SPECIFICATIONS.

REV:	DESCRIPTION:	DRAFT	DESIGN	CHECK	DATE:
02	s4.55	CS	MS	SCH	12-May-25
01	s4.55	CS	MS	SCH	28-May-25

STATUS:
DEVELOPMENT APPLICATION (DA)

APEX CIVIL ENGINEERS
P - 1300 APEXCE
@ - ADMIN@APEXCE.COM.AU
W - WWW.APEXCIVILENGINEERS.COM.AU
A - SUITE 04, LEVEL 03, 180-186 BURWOOD ROAD, BURWOOD.

CLIENT: DASCO

ARCHITECT: PTW

SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
DESIGN NOTES 1 OF 2

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
DESCRIPTION	28-May-25	GS	SCH
PROJECT NO:	DRAWING NO:		REVISION:
CSW2025.40	SW101		01

1:200

STORMWATER NOTES

BENCHING TO BE HALF OUTGOING PIPE DEPTH. CONCRETE FOR BENCHING TO BE 20MPa MASS CONCRETE.

APPROVED PRECAST PITS MAY BE USED.

100mm DIAMETER HOLE FOR SUBSOIL DRAINAGE OUTLET TO BE LOCATED 100mm ABOVE INVERT OF ALL INLET PIPES. SUBSOIL DRAINAGE TO EXTEND FOR A DISTANCE OF 3m UPSTREAM OF PIT (AT EACH INLET TRENCH) WITH THE UPSTREAM END SEALED.

ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.

PIT GRATE, FRAMES AND SOLID COVERS SHALL BE CLASS B IN NON TRAFFIC AREAS AND CLASS D IN TRAFFICABLE AREAS IN ACCORDANCE WITH AS3996.

ALL GRATES SHALL BE PROVIDED WITH A LOCKING CLIP.

MAXIMUM FRONT ENTRY PIPE:-
STRAIGHT ENTRY - Ø750
SKEW ENTRY 45° - Ø525

PIT GRATING TO BE GALVANISED STEEL TYPE 'WELDLOK' OR APPROVED EQUIVALENT.

SUBSOIL DRAINAGE
SUBSOIL PIPES SHALL BE LAID AT A MIN GRADE OF 0.5% (U.N.O.).

ADDITIONAL SUBSOIL DRAINAGE SHALL BE LAID TO SUIT SITE CONDITIONS AND GROUNDWATER PRESENCE AS DIRECTED.

SUBSOIL PIPES SHALL BE LAID BEHIND KERBS IN CUT AREAS OF THE SITE.

SUBSOIL DRAINAGE SHALL CONSIST OF A SLOTTED 100mm DIAMETER PLASTIC PIPE WRAPPED IN GEOTEXTILE AND PLACED A MINIMUM OF 650mm BELOW THE FINISHED SURFACE LEVEL AND COVERED WITH 500mm OF 20mm GRAVEL. PROVIDE A MINIMUM OF 150mm GRAVEL AROUND SUBSOIL PIPE. TRENCH TO BE LINED WITH GEOTEXTILE FABRIC TYPE BIDIM A24

GRATES TO PITS IN FOOTPATH AREAS SHALL BE HEEL SAFE COMPLYING WITH THE DISABLED ACCESS CODE

AUTHORITY STORMWATER NOTES

IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL SET OUT AND LEVELS PRIOR TO COMMENCEMENT OF WORKS AND TO REPORT ANY DISCREPANCIES FOUND TO THE SUPERINTENDANT.

ALL SET OUT DIMENSIONS ARE TO FACE OF KERB, CENTERLINE OF FENCE/BOLARD/PIPE.

SMOOTH ALL TRANSITIONS BETWEEN NEW AND EXISTING WORK IN BOTH LEVEL AND ALIGNMENT.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING SIGNS, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION. ALL WORKS TO COMPLY WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS AND OTHER RELEVANT AUTHORITY SAFETY REQUIREMENTS.

NO TREES SHALL BE REMOVED, CUTBACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION AND PAVEMENT THICKNESS FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS

PIPE BACKFILL	DENSITY INDEX 75
SELECT FILL	95% STANDARD
SELECT FILL (LESS THAN 300mm BELOW BASE COURSE)	98% MODIFIED
BASE COURSE	100% MODIFIED

THE AUSPEC SPECIFICATION SHALL BE THE SPECIFICATION FOR THESE WORKS.

STANDARD PUMP OUT NOTES

THE PUMP OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED IN THE FOLLOWING MANNER: -

I). THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.

II). A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON THE WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300MM ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.

III). A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.

IV). AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBELIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.

V). A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK IN ACCORDANCE WITH THE UPPER PARRAMATTA RIVER CATCHMENT TRUST OSD HANDBOOK.

EROSION CONTROL

BEFORE EARTHWORKS CAN COMMENCE THE EROSION & SEDIMENT CONTROL MEASURES MUST BE IN PLACE.

DURING THE CONSTRUCTION PERIOD, THESE CONTROL MEASURES WILL NEED TO BE INSPECTED & MAINTAINED REGULARLY, ESPECIALLY AFTER STORM EVENTS, BY THE CONTRACTOR.

ALL WORK IS TO BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION & SEDIMENTATION OF THE STORAGE SITE, SURROUNDING AREAS & DRAINAGE SYSTEMS.

MINIMIZE DISTURBED AREA COVERED WITH NATURAL VEGETATION. ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.

INSTALL EROSION/SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION OR EXCAVATION OPERATIONS.

PROVIDE SILT FENCE/STRAW BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300MM ABOVE GROUND & EXTENDING 150MM BELOW GROUND.

ISOLATE EXISTING STORMWATER PITS WITH STRAW BALES OR SILT TRAPS TO FILTER ALL INCOMING FLOWS.

DO NOT STOCKPILE EXCAVATED MATERIAL ON THE ROAD WAY.

DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.

CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL

ADOPT TEMPORARY MEASURES AS MAY BE NECCESSARY FOR EROSION & SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: -
- DRAINS: TEMPORARY DRAINS AND CATCH DRAINS.
- SPREADER BANKS OR OTHER STRUCTURES: TO DISPERSE CONCENTRATED RUNOFF.
- SILT TRAPS: CONSTRUCTION AND MAINTENANCE OF SILT TRAPS TO PREVENT DISCHARGE OF SCOURED MATERIAL TO DOWNSTREAM AREAS.

AFTER RAIN, INSPECT, CLEAN, AND REPAIR IF REQUIRED, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.

REMOVE TEMPORARY EROSION &SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED.

COMPLY WITH THE REQUIREMENTS OF LANDCOM'S MANAGING URBAN STORMWATER - SOIL AND CONSTRUCTION 'THE BLUE BOOK' LATEST EDITION

THE EROSION & SEDIMENT CONTROL PLAN PROVIDED IS ONLY INDICATIVE. THE CONTRACTOR SHOULD PREPARE A DETAILED ESCP SUITABLE FOR THE SPECIFIC SITE CONDITIONS

FOOTPATH REINSTATEMENT NOTES

REMOVE ALL SAND FILL WITHIN THE FOOTPATH AREA TO THE EXISTING SUBGRADE.

SUPPORT ALL AUTHORITY SERVICES TO STRUCTURAL ENGINEERS DETAILS DURING EXCAVATION.

REINSTATE FOOTPATH SUBGRADE.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS:

SELECT FILL	95% MODIFIED
SELECT FILL (LESS THAN 300MM BELOW BASE COURSE)	98% MODIFIED
BASE COURSE	100% MODIFIED

ASPHALT

GENERAL
ALL ASPHALTIC CONCRETE WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH GOOD ASPHALT PAVING PRACTICE AS DESCRIBED IN AS2150-2005:'HOT MIX ASPHALT - A GUIDE TO GOOD PRACTICE'.

MATERIALS
ALL MATERIALS AND PROCEDURES SHALL BE TO A STANDARD TO ACHIEVE A HIGH QUALITY PRODUCT AND FINISH. FINISHED SURFACES SHALL BE OF GOOD APPEARANCE HAVING A UNIFORM TEXTURE FREE OF DEFECTS.

MINERAL AGGREGATES TO COMPLY WITH AS2758.5-1996:'ASPHALT AGGREGATES'
MINERAL FILLER CHARACTERISTICS TO AS1141.17-1995:'VOIS IN DRY COMPACTED FILLER'.
BITUMEN BINDER SHALL COMPLY WITH AS2008-1997:'RESIDUAL BITUMEN FOR PAVEMENTS'.

MIX PROPORTIONS
AC MIX SHALL BE AS NOMINATED ON DRAWINGS. MIX DESIGN TO BE SUBMITTED FOR WRITTEN APPROVAL OF SUPERINTENDENT PRIOR TO PLACEMENT.

AIR VOIDS IN COMPACTED MIX BETWEEN 4% AND 7% OF THE VOLUME OF THE MIX.

VOIDS FILLED IN BINDER 65-80% OF AIR VOIDS IN THE TOTAL MINERAL AGGREGATE FILLED BY BINDER IN ACCORDANCE WITH AS2150-2005:'HOT MIX ASPHALT - A GUIDE TO GOOD PRACTICE'.

PAVEMENT PREPARATION
THE EXISTING SURFACE TO BE SEALED SHALL BE DRY AND BROOMED BEFORE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFICIAL FOREIGN MATTER.

ALL DEPRESSIONS OR UNEVEN AREAS ARE TO BE TACK-COATED AND BROUGHT UP TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE LAYING OF MAIN COURSE.

ALL DEFECTS IN THE BASE COURSE INCLUDING CRACKS, SURFACE DEFORMATION AND THE LIKE SHALL BE REPAIRED AS DIRECTED BY THE SUPERINTENDENT PRIOR TO PLACEMENT OF TACK COAT AND/OR AC COURSES.

TACK COAT
THE WHOLE OF THE AREA TO BE SHEETED WITH ASPHALTIC CONCRETE SHALL BE LIGHTLY AND EVENLY COATED WITH RAPID SETTING BITUMEN TO AS2157-1997:'CUTBACK BITUMEN'. APPLICATION RATE FOR RESIDUAL BITUMEN SHALL BE 0.30 LITRES/SQUARE METER. APPLICATION SHALL BE BY MEANS OF A MECHANICAL SPRAYER WITH A SPRAY BAR.

CONCRETE

AGGREGATES
CONCRETE AGGREGATES SHALL COMPLY WITH AS2758.1-1998:'CONCRETE AGGREGATES'.

CEMENT
CEMENT TO BE TYPE SL U.N.O. TO AS3972-1997:'PORTLAND AND BLENDED CEMENTS'. MAXIMUM 56 DAYS SHRINKAGE TO BE 600 MICROSTRAIN TO AS2350.13-2006:'DETERMINATION OF DRYING SHRINKAGE OF CEMENT MORTARS' AND MAXIMUM WATER/CEMENT RATIO OF 0.40.

NO ADMIXTURES ARE TO BE USED WITHOUT THE APPROVAL OF THE ENGINEER.

A VIBRATOR IS TO BE USED FOR THE COMPACTION OF ALL CONCRETE.

THE CONTRACTOR MAY ADD AN APPROVED SUPERPLASTICISING ADMIXTURE TO INCREASE SLUMP OF PAVEMENT CONCRETE TO NOT MORE THAN 100MM. QUALITY AND MIXING PROCEDURE TO BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND TO COMPLY WITH AS1478.1-2000:'ADMIXTURES FOR CONCRETE'.

SUPPLY
CONCRETE SUPPLY SHALL BE IN ACCORDANCE WITH AS1379-2007:'SPECIFICATION AND SUPPLY OF CONCRETE'.

CONCRETE SHALL BE DELIVERED IN AGITATOR TRUCKS AND SHALL BE DEPOSITED UNIFORMLY WITHOUT SEGREGATION.

CONCRETE CURING
CURING SHALL COMMENCE WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.

CONCRETE TO BE COVERED BY ASPHALT SHALL BE CURED BY THE USE OF ONE OF THE FOLLOWING:-
- BITUMEN EMULSION GRADE CRS/170 COMPLYING WITH AS1160-1996:'BITUMINOUS EMULSIONS FOR THE CONSTRUCTION AND MAINTENANCE OF PAVEMENTS' FOR ASPHALT WEARING SURFACE
- CHLORINATED RUBBER CURING COMPOUND COMPLYING WITH AS3799-1998:'LIQUID MEMBRANE-FORMING CURING COMPOUND FOR CONCRETE' CLASS C TYPE 1D OR RESIN-BASED CURING COMPOUND COMPLYING WITH AS3799-1998 CLASS B, TYPE 1D OR TYPE 2.

JOINTS
CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED BY THE ENGINEER.

WHERE NOT SHOWN CONSTRUCTION JOINTS SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

FINISH
FOOTWAY - CONCRETE SHALL BE FINISHED WITH A STEEL TROWEL TO PRODUCE A SMOOTH UNIFORM FINISH, FREE OF IRREGULARITIES AND THEN BROOM FINISH APPLIED.

ROAD - CONCRETE SHALL BE COMPACTED AND FINISHED TO PRODUCE A LEVEL UNIFORM SURFACE FREE OF IMPERFECTIONS WHICH WILL IMPACT ON THE FINISHED SURFACE.

THE CONCRETE SHALL BE SCREEDED TO THE REQUIRED CROSS SECTION PROFILE FREE OF DEPRESSIONS AND HIGH AREAS TO SATISFY THE REQUIREMENTS OF AN INITIAL FINISH.

STEEL REINFORCEMENT
REINFORCEMENT IS PRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICES. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL LENGTH OF THE REINFORCEMENT, AS NOMINATED IN AS/NZS4671-2001:'STEEL REINFORCING MATERIALS'.

HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600-2001 U.N.O.

WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.

REINFORCEMENT SYMBOLS (TO AS/NZ4671-2001:'STEEL REINFORCING MATERIALS'):
N - DENOTES GRADE 500N HOT ROLLED HIGH STRENGTH BARS
SL - DENOTES SQUARE WITH EDGE SIDE-LAPPING BARS
TM - DENOTES TRENCH MECH

STEEL GALVANISING SHALL COMPLY WITH AS/NZS4680-2006:'HOT-DIP GALVANIZED COATINGS ON FABRICATED FERROUS ARTICLES'.

TESTING
CONCRETE TESTING SHALL COMPLY WITH AS1012:'METHODS OF TESTING CONCRETE' AS AMENDED.

FORMWORK
FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610-1995:'FORMWORK FOR CONCRETE'. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

ASPHALT

SPREADING
ALL ASPHALTIC CONCRETE SHALL BE SPREAD WITH AN APPROVED SELF PROPELLED PAVING MACHINE WITH THE EXCEPTION OF AREAS WHERE SUCH PLANT CANNOT ACCESS OR WHERE SUCH PLANT COULD INTERFERE WITH ADJACENT ELEMENTS.

ASPHALTIC CONCRETE MAY ONLY BE HAND PLACED AT THE APPROVAL OF THE SUPERINTENDENT.

WHERE ASPHALTIC CONCRETE IS PLACED BY HAND EXTREME CARE SHALL BE TAKEN TO MINIMIZE THE TEXTURE DIFFERENTIAL BETWEEN THE MACHINE AND THE HAND PLACED AREAS.

THE ASPHALTIC CONCRETE SHALL BE LAID AT A MIX TEMPERATURE AS SHOWN BELOW

ROAD SURFACE TEMPERATURE IN SHADE (°C)	MIX TEMPERATURES (°C)
5-10	NOT PERMITTED
10-15	150
15-25	145
OVER 25	140

ASPHALTIC CONCRETE SHALL NOT BE LAID WHEN THE ROAD SURFACE IS WET OR WHEN COLD WINDS CHILL THE MIX TO ADVERSELY AFFECT SPREADING AND COMPACTION.

JOINTS
THE NUMBER OF JOINTS BOTH LONGITUDINAL AND TRANSVERSE SHALL BE KEPT TO A MINIMUM.

THE DENSITY AND SURFACE FINISH AT JOINTS SHALL BE SIMILAR TO THOSE OF THE REMAINDER OF THE LAYER.

COMPACTION
ALL COMPACTION SHALL BE UNDERTAKEN USING SELF PROPELLED ROLLERS.

INITIAL ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 105°C.

SECONDARY ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 80°C.

TOLERANCES
FINISHED SURFACES SHALL BE SMOOTH, DENSE AND TRUE TO SHAPE AND SHALL NOT VARY MORE THAN:-
- 3MM FROM THE SPECIFIED PLAN LEVEL AT ANY POINT.
- 3MM FROM THE BOTTOM OF A 3M STRAIGHT EDGE LAID TRANSVERSELY.
- 5MM FROM THE BOTTOM OF A 3M STRAIGHT EDGE LAID LONGITUDINALLY.
- MINUS 0 TO PLUS 2MM ADJACENT TO OTHER ELEMENTS SUCH AS KEBS, GRANITE TRIM AND THE LIKE TO AVOID POOLING OF SURFACE WATER.

TESTING
ASPHALT TESTING SHALL COMPLY WITH AS/NZS2891. BITUMEN TESTING SHALL COMPLY WITH AS/NZS2341:'METHODS OF TESTING BITUMEN AND RELATED ROADMAKING PRODUCTS'.

DEMOLITION

DEMOLITION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS2601-2001:'DEMOLITION OF STRUCTURES'.

BEFORE COMMENCING DEMOLITION, SUBMIT EVIDENCE THAT:-
- REQUIREMENTS OF AUTHORITIES RELATING TO THE WORK UNDER THE CONTRACT HAVE BEEN ASCERTAINED;
- A PERMIT TO DEMOLISH HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY;
- A SCAFFOLD PERMIT HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY (IF SCAFFOLDING IS PROPOSED TO BE USED);
- PRECAUTIONS NECESSARY FOR PROTECTION OF PERSONS AND PROPERTY HAVE BEEN TAKEN AND SUITABLE PROTECTIVE AND SAFETY DEVICES PROVIDED TO THE APPROVAL OF THE RELEVANT AUTHORITY
TREATMENT FOR RODENT INFESTATION HAS BEEN CARRIED OUT AND A CERTIFICATE HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY;
- AND FEES AND OTHER COSTS HAVE BEEN PAID.

SUBMIT THE WORK PLAN BEFORE DEMOLITION OR STRIPPING WORK. INCLUDE THE FOLLOWING INFORMATION:-
- THE METHOD OF PROTECTION AND SUPPORT FOR ADJACENT PROPERTY.
- LOCATIONS AND DETAILS OF NECESSARY SERVICE DEVIATIONS AND TERMINATIONS.
- IF REMOVAL OF ASBESTOS OR MATERIAL CONTAINING ASBESTOS IS REQUIRED, THE INFORMATION SPECIFIED IN NOHSC:2002 (2005) CODE OF PRACTICE FOR THE SAFE REMOVAL OF ASBESTOS (2ND EDITION).

REMOVE FROM THE SITE DEMOLISHED MATERIALS. PREVENT SPILLAGE OF DEMOLISHED MATERIALS IN TRANSIT.

PROVIDE SUPPORTS TO ADJACENT STRUCTURES WHERE NECESSARY, SUFFICIENT TO PREVENT DAMAGE RESULTING FROM THE WORKS.

GIVE AT LEAST 7 WORKING DAYS NOTICE OF COMPLETION OF DEMOLITION SO THAT ADJACENT STRUCTURES MAY BE INSPECTED FOLLOWING COMPLETION OF DEMOLITION.

DO NOT USE EXPLOSIVES.

GRASSING

REFER TO SUBGRADE PREPARATION NOTES FOR THE PREPARATION OF THE SURFACE RECEIVING THE GRASSING.

TOPSOILING, FERTILISING, SOWING OF SEED OR TURFING SHALL COMPLY WITH AS4419-2003:'SOILS FOR LANDSCAPING AND GARDEN USE' AND AS4454-2003:'COMPOSTS, SOIL CONDITIONERS AND MULCHES'.

RIP OFF THE AREAS TO BE GRASSED UP TO 200MM DEPTH PRIOR TO TOPSOILING.

COMPACT TOPSOIL WITH A LIGHT ROLLER.

THE FERTILISER SHALL BE AN APPROVED NITROGEN, PHOSPHATE POTASSIUM (K) STARTER FERTILISER & SPREAD EVENLY AT A RATE OF 0.02KG/M^2, LIGHTLY RAKED & RE-WATERED.

THE TURF SHALL BE KIKUYU GRASS UNLESS OTHERWISE SPECIFIED &/OR APPROVED.

THE TURFED AREAS SHALL BE REGULARLY MAINTAINED THROUGHOUT THE ESTABLISHMENT PERIOD.

ABBREVIATION

Ø OR DIA	DIAMETER
CBR	CALIFORNIA BEARING RATIO
CH	CHAINAGE
CL	CENTER LINE
CO	CLEAR OUT
DD	DISH DRAIN
DDO	DISH DRAIN OUTLET
DEJ	DOWELLED EXPANSION JOINT
DGB	DENSE GRADED BASECOURSE
DGS	DENSE GRADED SUB-BASE
DP	DOWNPIPE
E	EXISTING
FFL	FINISHED FLOOR LEVEL
GTD	GRATED TRENCH DRAIN
GSIP	GRATED SURFACE INLET PIT
HYD	HYDRANT
IJ	ISOLATING JOINT
IK	INTEGRAL KERB
IL	INVERT LEVEL
IP	INTERSECTION POINT
KIP	KERB INLET PIT
KO	KERB ONLY
K&G	KERB & GUTTER
KR	KERB RETURN
LS	LONGITUDINAL SECTION
NGL	NATURAL GROUND LEVEL
OFP	OVERLAND FLOW PATH
OSD	ON-SITE DETENTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RK	ROLL KERB & GUTTER
RL	REDUCED LEVEL
RW	RETAINING WALL
RWT	RAINWATER TANK
SJ	SAWN CONTROL JOINT
SMH	SEWER MAN HOLE
SW	STORMWATER
SWP	STORMWATER PIT
SWRM	STORMWATER RISING MAIN
SWS	STORMWATER SUMP
SV	STOP VALVE
TOK	TOP OF KERB
TOW	TOP OF WALL
TWL	TOP WATER LEVEL
TP	TANGENT POINT
UPVC	UNPLASTICISED POLYVINYL CHLORIDE
UNO	UNLESS NOTED OTHERWISE
WPJ	WEAKENED PLANE JOINT
FF	FIRST FLUSH DEVICE
TYP	TYPICAL

Notes:

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N W E S

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REV:	DESCRIPTION:	DRAFT	DESIGN	CHECK	DATE:
02	s4.55	CS	MS	SCH	12-May-25
01	s4.55	CS	MS	SCH	28-May-25

STATUS:
DEVELOPMENT APPLICATION (DA)

APEX CIVIL ENGINEERS
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W - WWW.APEXCIVILENGINEERS.COM.AU
A - SUITE 04, LEVEL 03, 180-186 BURWOOD ROAD, BURWOOD.

CLIENT:
DASCO

ARCHITECT:
PTW

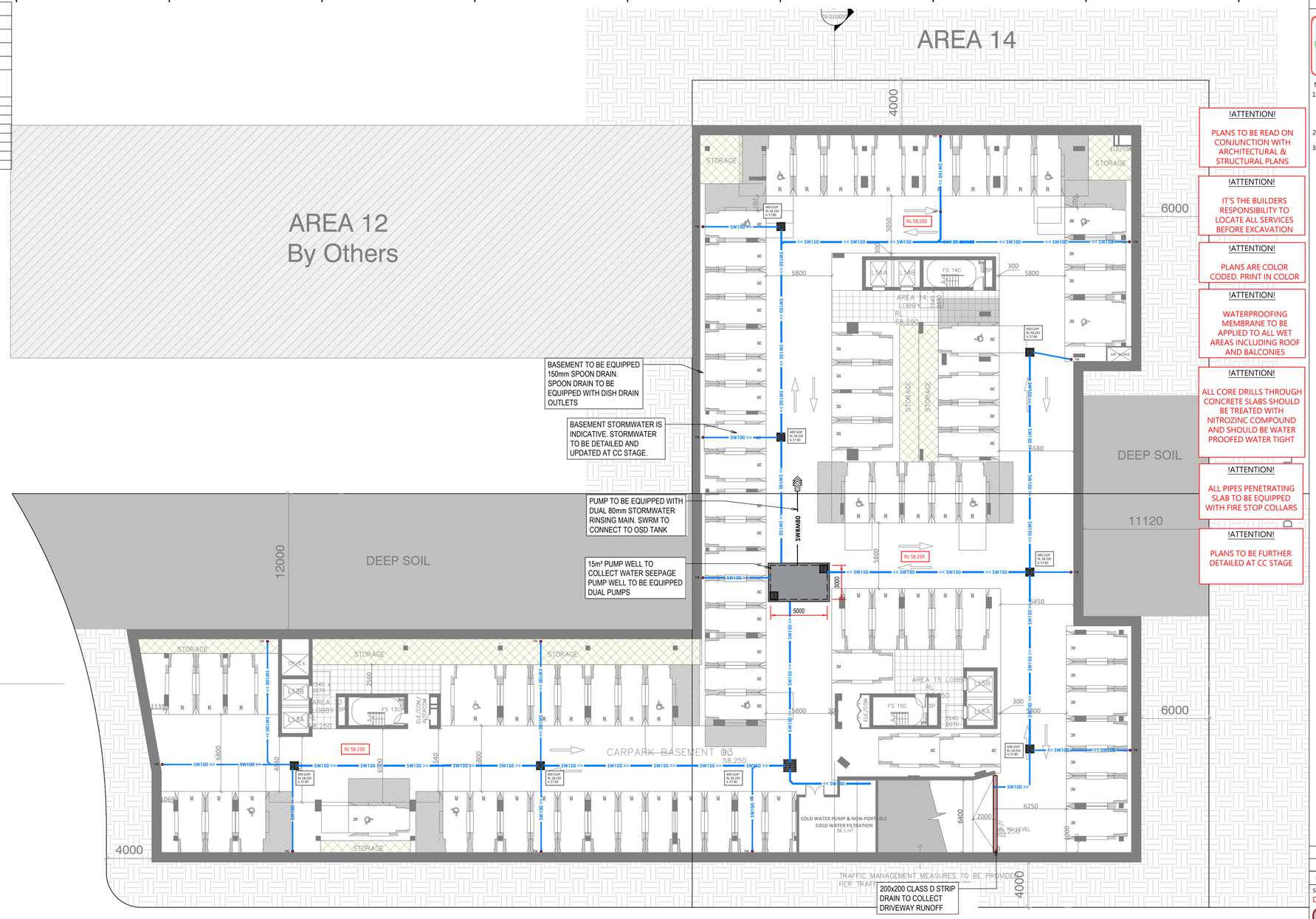
SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
DESIGN NOTES 2 OF 2

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
DESCRIPTION	28-May-25	GS	SCH

PROJECT NO:	DRAWING NO:	REVISION:
CSW2025.40	SW102	01

Regulated Design Record				
Project Address:				
Project Title:				
Consent No:		Body Corporate Reg No:		
Drawing Title:				
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No



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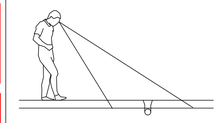


!ATTENTION!
PLANS TO BE READ ON CONJUNCTION WITH ARCHITECTURAL & STRUCTURAL PLANS

!ATTENTION!
IT'S THE BUILDERS RESPONSIBILITY TO LOCATE ALL SERVICES BEFORE EXCAVATION

!ATTENTION!
PLANS ARE COLOR CODED. PRINT IN COLOR

!ATTENTION!
WATERPROOFING MEMBRANE TO BE APPLIED TO ALL WET AREAS INCLUDING ROOF AND BALCONIES

!ATTENTION!
ALL CORE DRILLS THROUGH CONCRETE SLABS SHOULD BE TREATED WITH NITROZINC COMPOUND AND SHOULD BE WATER PROOFED WATER TIGHT

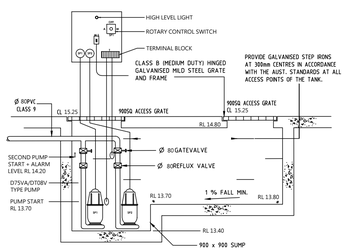
!ATTENTION!
ALL PIPES PENETRATING SLAB TO BE EQUIPPED WITH FIRE STOP COLLARS

!ATTENTION!
PLANS TO BE FURTHER DETAILED AT CC STAGE

MINIMUM PIPE COVER - FINISHED SURFACE TO TOP OF PIPE AS3500

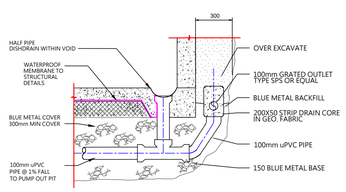
LOCATION	DUCTILE IRON/GALVANIZED STEEL	PLASTICS
NOT SUBJECT TO VEHICULAR LOADING FOR SINGLE DWELLINGS	100mm	100mm
NOT SUBJECT TO VEHICULAR LOADING FOR OTHER THAN SINGLE DWELLINGS	100mm	300mm
NOT SUBJECT TO VEHICULAR LOADING WITH PAVEMENT OF PLAIN OR REINFORCED CONCRETE	100mm	100mm
SUBJECT TO VEHICULAR LOADING WITHOUT PAVEMENT	300mm	450mm
SUBJECT TO VEHICULAR LOADING WITH PAVEMENT (CONCRETE)	NIL*	100*
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (BRICK)	NIL*	75*
SEALED ROADS	600mm	600mm
UNSEALED ROADS	600mm	750mm
SUBJECT TO CONSTRUCTION LOADING	600mm	750mm

* BELOW THE UNDERSIDE OF THE PAVEMENT

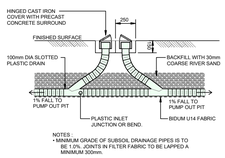


BASEMENT PUMPING WELL DETAIL N.T.S.

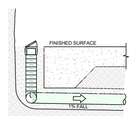
PROVIDE AT ACCESS CONFINED SPACE WARNING SIGN AS PER COUNCIL REQUIREMENT. PROVIDE CHILD PROOF LOCKS ON ALL TANK LIDS. INSTALL TANK TO STRUCTURAL ENGINEERING DETAILS.



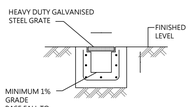
TYPICAL DETAIL 1 – PERIMETER WALL SUBSOIL DRAINAGE SCALE 1:NTS



SUBSOIL PIPE FLUSHING POINT DETAIL 3



TYPICAL SUBSOIL DRAINAGE DETAIL 4



DETAIL 1 – GRATED TRENCH DRAIN SCALE 1:20

REV:	DESCRIPTION:	DRAFT	DESIGN	CHECK	DATE:
02	s4.55	CS	MS	SCH	12-May-25
01	s4.55	CS	MS	SCH	28-May-25

STATUS: DEVELOPMENT APPLICATION (DA)

NOT FOR CONSTRUCTION

APEX CIVIL ENGINEERS
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CLIENT: DASCO

ARCHITECT: PTW

SITE: MULTI RESIDENTIAL FLAT BUILDING

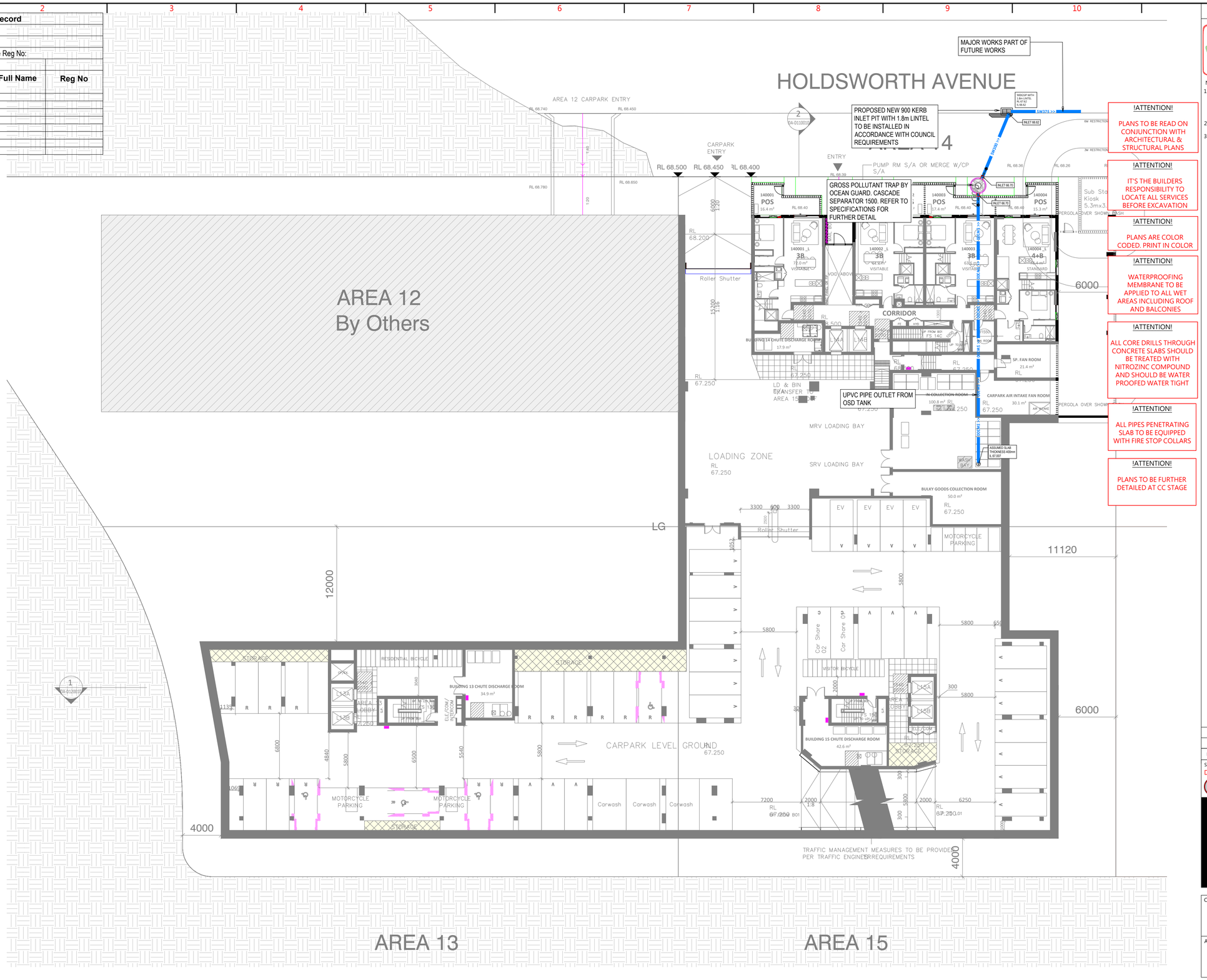
TITLE: BASEMENT 03

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
200	28-May-25	GS	SCH
PROJECT NO: CSW2025.40	DRAWING NO: SW200		REVISION: 01

Regulated Design Record

Project Address:
Project Title:
Consent No: | Body Corporate Reg No:
Drawing Title:

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No



MINIMUM PIPE COVER - FINISHED SURFACE TO TOP OF PIPE AS3500		
LOCATION	DUCTILE IRON/GALVANIZED STEEL	PLASTICS
NOT SUBJECT TO VEHICULAR LOADING FOR SINGLE DWELLINGS	100mm	100mm
NOT SUBJECT TO VEHICULAR LOADING FOR OTHER THAN SINGLE DWELLINGS	100mm	300mm
NOT SUBJECT TO VEHICULAR LOADING WITH PAVEMENT OF MESH OR UNREINFORCED CONCRETE	100mm	100mm
SUBJECT TO VEHICULAR LOADING WITHOUT PAVEMENT	300mm	450mm
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (CONCRETE)	NIL*	100*
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (BRICK)	NIL*	70*
SEALED ROADS	400mm	400mm
UNSEALED ROADS	450mm	750mm
SUBJECT TO CONSTRUCTION LOADING	450mm	750mm

* BELOW THE UNDERSIDE OF THE PAVEMENT

Notes:

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!ATTENTION!
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!ATTENTION!
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!ATTENTION!
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!ATTENTION!
ALL PIPES PENETRATING SLAB TO BE EQUIPPED WITH FIRE STOP COLLARS

!ATTENTION!
PLANS TO BE FURTHER DETAILED AT CC STAGE

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ARCHITECT: PTW

SITE: MULTI RESIDENTIAL FLAT BUILDING

TITLE: LEVEL 01

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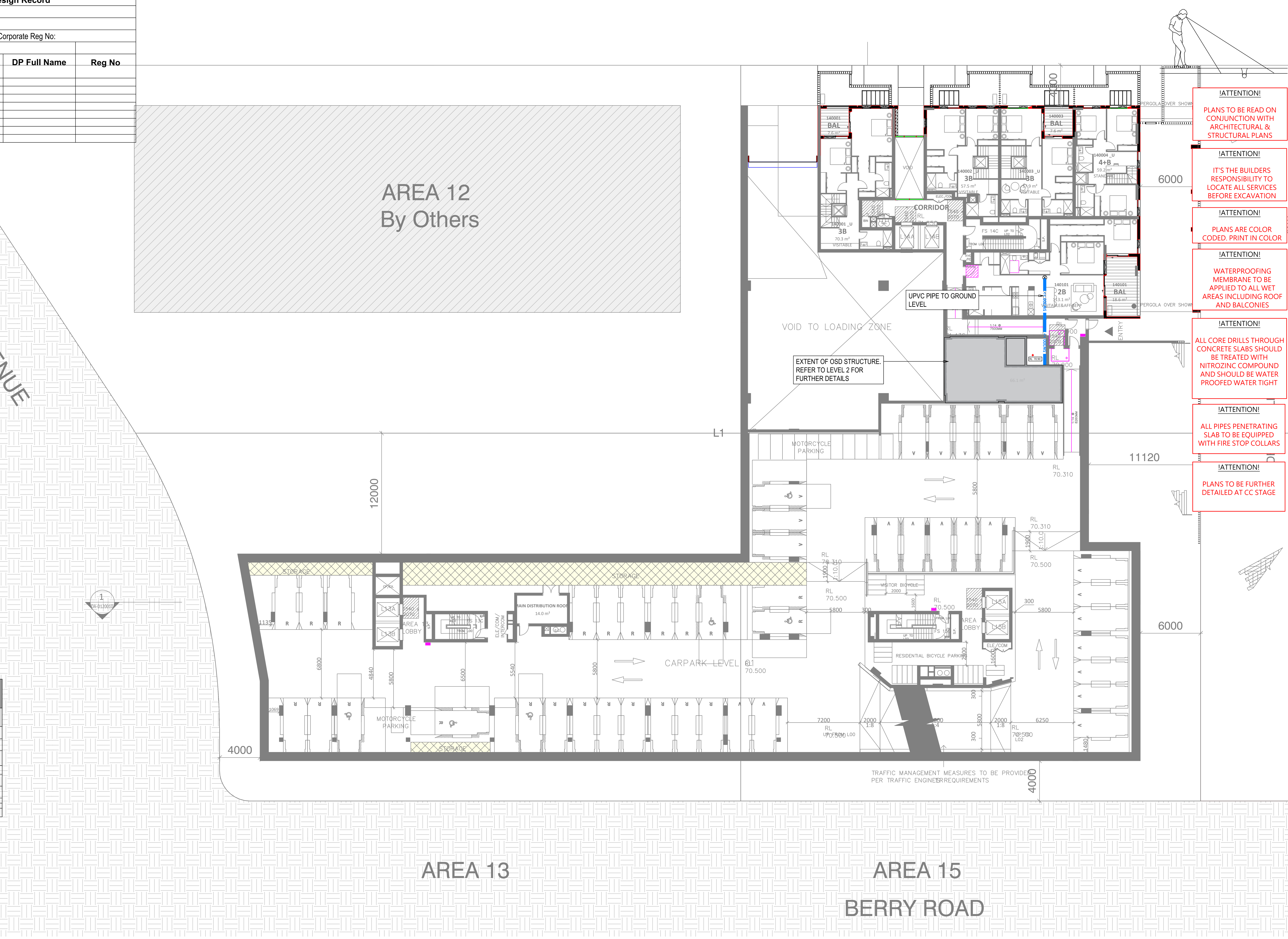
PROJECT NO:	DRAWING NO:	REVISION:
CSW2025.40	SW201	01

Regulated Design Record

Project Address:
Project Title:
Consent No: Body Corporate Reg No:
Drawing Title:

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No



MINIMUM PIPE COVER - FINISHED SURFACE TO TOP OF PIPE AS3500

LOCATION	DUCTILE IRON/GALVANIZED STEEL	PLASTICS
NOT SUBJECT TO VEHICULAR LOADING FOR SINGLE DWELLINGS	100mm	100mm
NOT SUBJECT TO VEHICULAR LOADING FOR OTHER THAN SINGLE DWELLINGS	100mm	300mm
NOT SUBJECT TO VEHICULAR LOADING WITH PAVEMENT OF BRICK OR UNREINFORCED CONCRETE	100mm	100mm
SUBJECT TO VEHICULAR LOADING WITHOUT PAVEMENT	300mm	450mm
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (CONCRETE)	NIL*	100*
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (BRICK)	NIL*	78*
SEALED ROADS	600mm	600mm
UNSEALED ROADS	600mm	750mm
SUBJECT TO CONSTRUCTION LOADING	600mm	750mm

* BELOW THE UNDERSIDE OF THE PAVEMENT

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ARCHITECT: PTW

SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
LEVEL 01

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200	28-May-25	GS	SCH
PROJECT NO:	DRAWING NO:		REVISION:
CSW2025.40	SW202		01

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Regulated Design Record				
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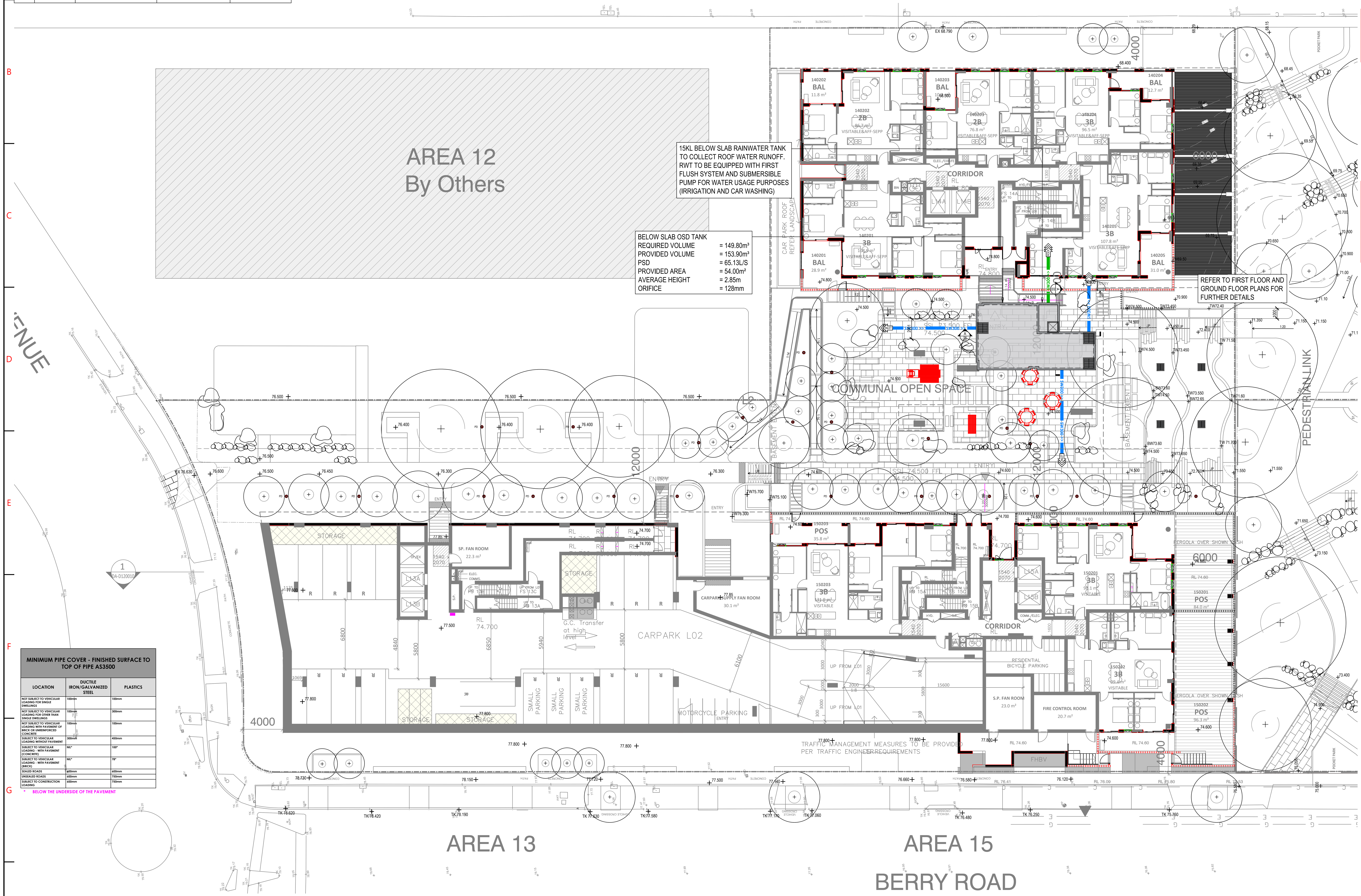
Project Title:				
Consent No:		Body Corporate Reg No:		
Drawing Title:				
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No



MINIMUM PIPE COVER - FINISHED SURFACE TO TOP OF PIPE AS3500		
LOCATION	DUCTILE IRON/GALVANIZED STEEL	PLASTICS
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NOT SUBJECT TO VEHICULAR LOADING FOR OTHER THAN SINGLE DWELLINGS	100mm	300mm
NOT SUBJECT TO VEHICULAR LOADING WITH PAVEMENT OF BRICK OR UNREINFORCED CONCRETE	100mm	100mm
SUBJECT TO VEHICULAR LOADING WITHOUT PAVEMENT	300mm	450mm
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (CONCRETE)	NIL*	100*
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (BRICK)	NIL*	78*
SEALED ROADS	600mm	600mm
UNSEALED ROADS	600mm	750mm
SUBJECT TO CONSTRUCTION LOADING	600mm	750mm

* BELOW THE UNDERSIDE OF THE PAVEMENT

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ARCHITECT: PTW

SITE: MULTI RESIDENTIAL FLAT BUILDING

TITLE: LEVEL 02

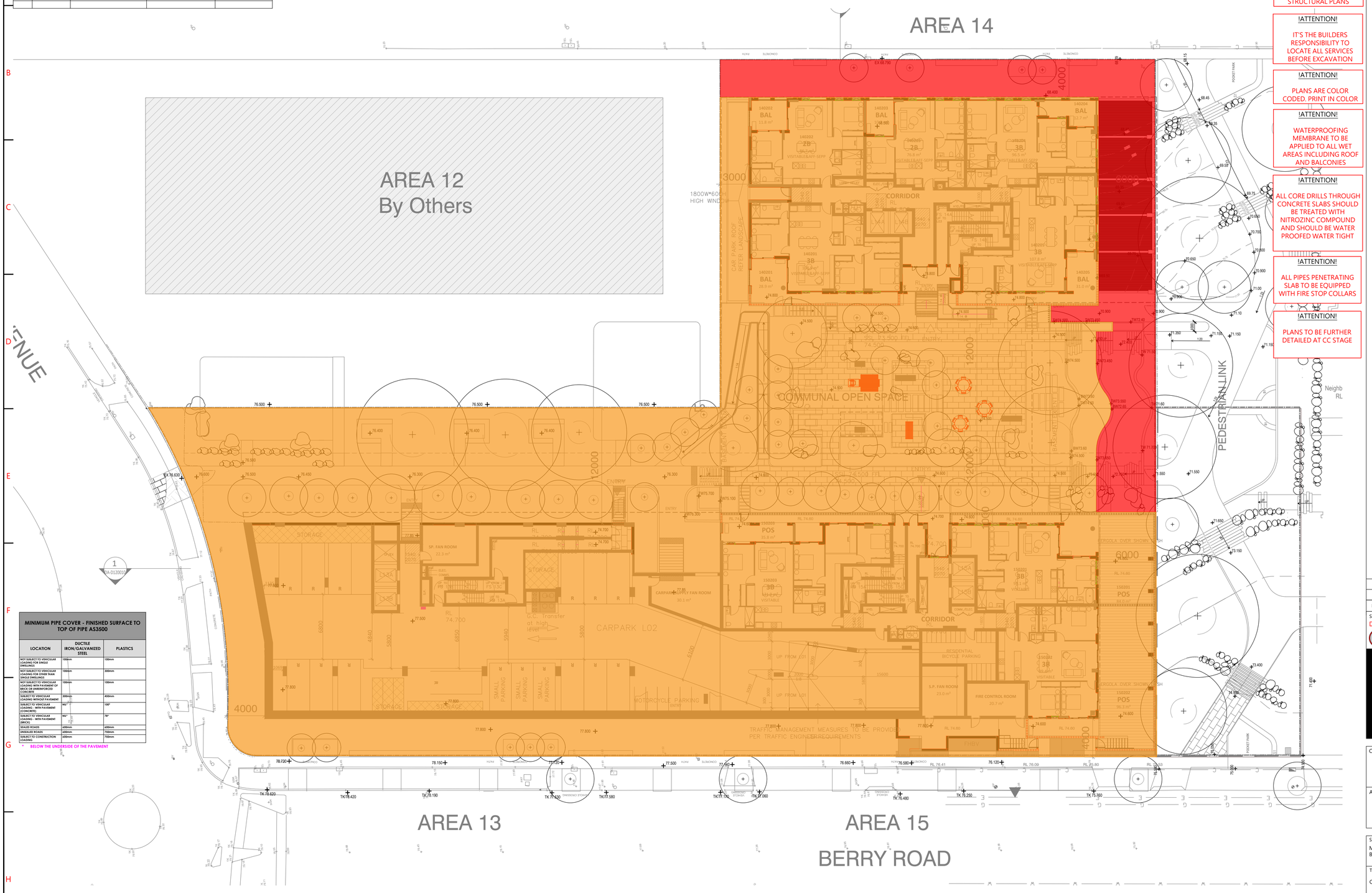
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
200	28-May-25	GS	SCH
PROJECT NO:	DRAWING NO:		REVISION:
CSW2025.40	SW203		01

1:200

Regulated Design Record				
Project Address:				
Project Title:				
Consent No:		Body Corporate Reg No:		
Drawing Title:				
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No

AREA TO OSD SYSTEM = 4864.20m²

AREA BYPASS OSD = 444.78m²



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LOCATION	DUCTILE IRON/GALVANIZED STEEL	PLASTICS
NOT SUBJECT TO VEHICULAR LOADING FOR SINGLE DWELLINGS	100mm	100mm
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NOT SUBJECT TO VEHICULAR LOADING WITH PAVEMENT OF MESH OR UNREINFORCED CONCRETE	100mm	100mm
SUBJECT TO VEHICULAR LOADING WITHOUT PAVEMENT	300mm	450mm
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (CONCRETE)	NIL*	100*
SUBJECT TO VEHICULAR LOADING - WITH PAVEMENT (BRICK)	NIL*	75*
SEALED ROADS	400mm	400mm
UNSEALED ROADS	450mm	750mm
SUBJECT TO CONSTRUCTION LOADING	450mm	750mm

* BELOW THE UNDERSIDE OF THE PAVEMENT

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CLIENT: DASCO

ARCHITECT: PTW

SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
CATCHMENT PLAN

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
200	28-May-25	GS	SCH
PROJECT NO:	DRAWING NO:		REVISION:
CSW2025.40	SW204		01

Regulated Design Record

Project Address:				
Project Title:				
Consent No:		Body Corporate Reg No:		
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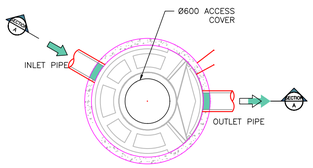
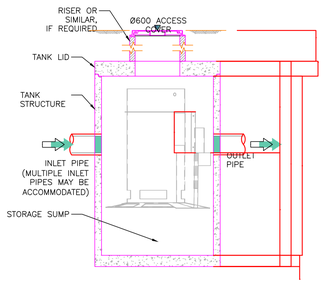
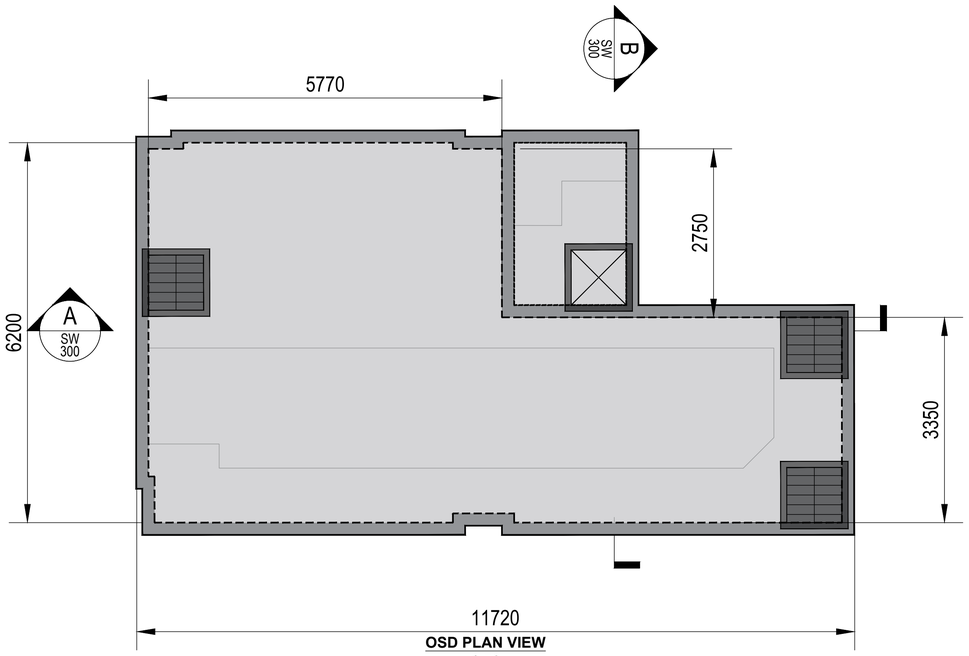


PLAN LAYOUT



SECTION A

GPT



OSD PLAN VIEW
1:50

PART O - STORMWATER MANAGEMENT

Appendix 14 – OSD Calculation Sheet

ON-SITE DETENTION CALCULATION SHEET

DEVELOPMENT TYPE: Multi Residential Flat Building
ADDRESS: 14-16 Marshall Avenue, 2-10 Berry Road, 5-9 Holdsworth

Site Area (m²)	5874	(A)
Total Impervious Area (roofs, driveways, hardstand etc) (m²)	3638.75	(B)
Total Area draining to the Storage Facility (m²) (impervious and pervious areas)	5348	(C)
New Impervious Area bypassing the Storage Facility	526.00	(D)
$\frac{(B)+(D)}{(B)} =$	1.14 (cannot be greater than 1.25.)	(E)

Permitted Site Discharge (PSD) rate per m²

If (D) = 0 then PSD = 0.014 l/sec/m²
If (D) ≠ 0 then PSD = $0.014 \times (E)^{-1.37}$ l/sec/m² — 0.01218 (F)

PERMITTED SITE DISCHARGE (l/s) (C) x (F) — 65.13 l/s

Storage Volume per m²
(G) = 0.0255 m³/m² for all Catchments — *0.0255* (G)

SITE STORAGE REQUIREMENT (m³) ((C) + (D)) x (G) — 149.8 m³

OUTLET CONTROL - using a Sharp Edged Orifice Plate

Height Difference between top water level and Centre of Orifice (m) 3.32 (H)

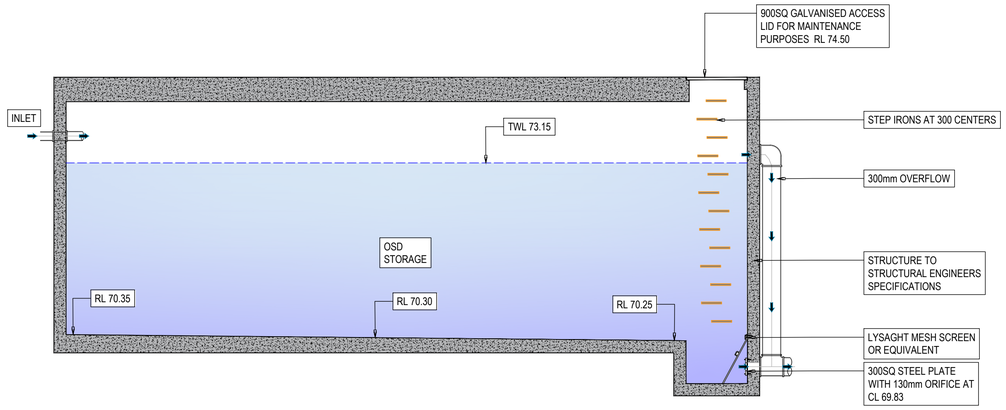
ORIFICE DIAMETER (mm)

128 mm $= 21.9 \sqrt{\frac{PSD}{\sqrt{(H)}}}$

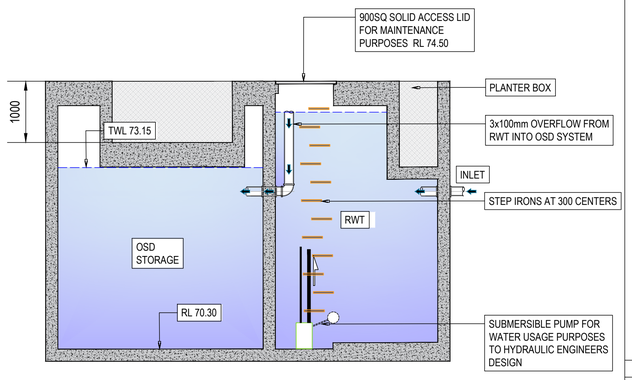
Should pipe and pit losses be used to control outflow, the calculations are to be attached.

Lane Cove Development Control Plan — Part O – Stormwater Management
Adopted on 22 February 2010 — Amendment – 28 September 2023 — Page 61

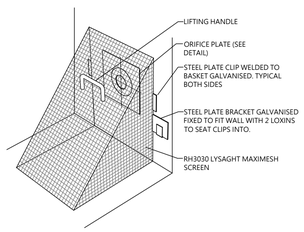
PART O: STORMWATER MANAGEMENT



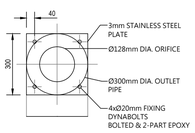
SECTION A-A
1:50



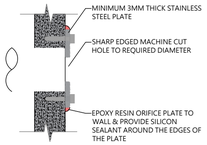
SECTION B-B
1:50



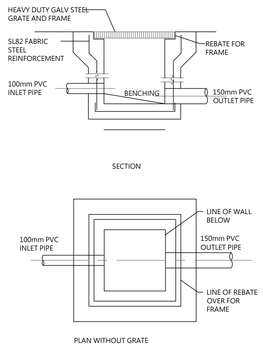
DETAIL 1 – DEBRIS SCREEN NOT TO SCALE



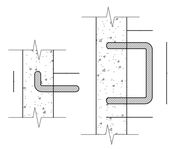
DETAIL 1 – ORIFICE PLATE SCALE 1:20



DETAIL 2 – ORIFICE SCALE NTS



DETAIL 1 – STORMWATER PIT SCALE 1:20



DETAIL 1 – STEP IRON SCALE 1:10

DETAIL 1 – OSD SIGN SCALE 1:10

DETAIL 1 – CONFINED SPACE SIGN SCALE 1:10

LEGEND:
BACKGROUND IS YELLOW
TEXT IS WHITE ON BLACK BACKGROUND

DETAIL 1 – RAINWATER SIGN SCALE 1:10

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CLIENT: DASCO

ARCHITECT: PTW

SITE: MULTI RESIDENTIAL FLAT BUILDING

TITLE: OSD DETAILED SECTIONS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
200	28-May-25	GS	SCH
PROJECT NO: CSW2025.40	DRAWING NO: SW300		REVISION: 01

Regulated Design Record

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Project Title:				
Consent No:	Body Corporate Reg No:			
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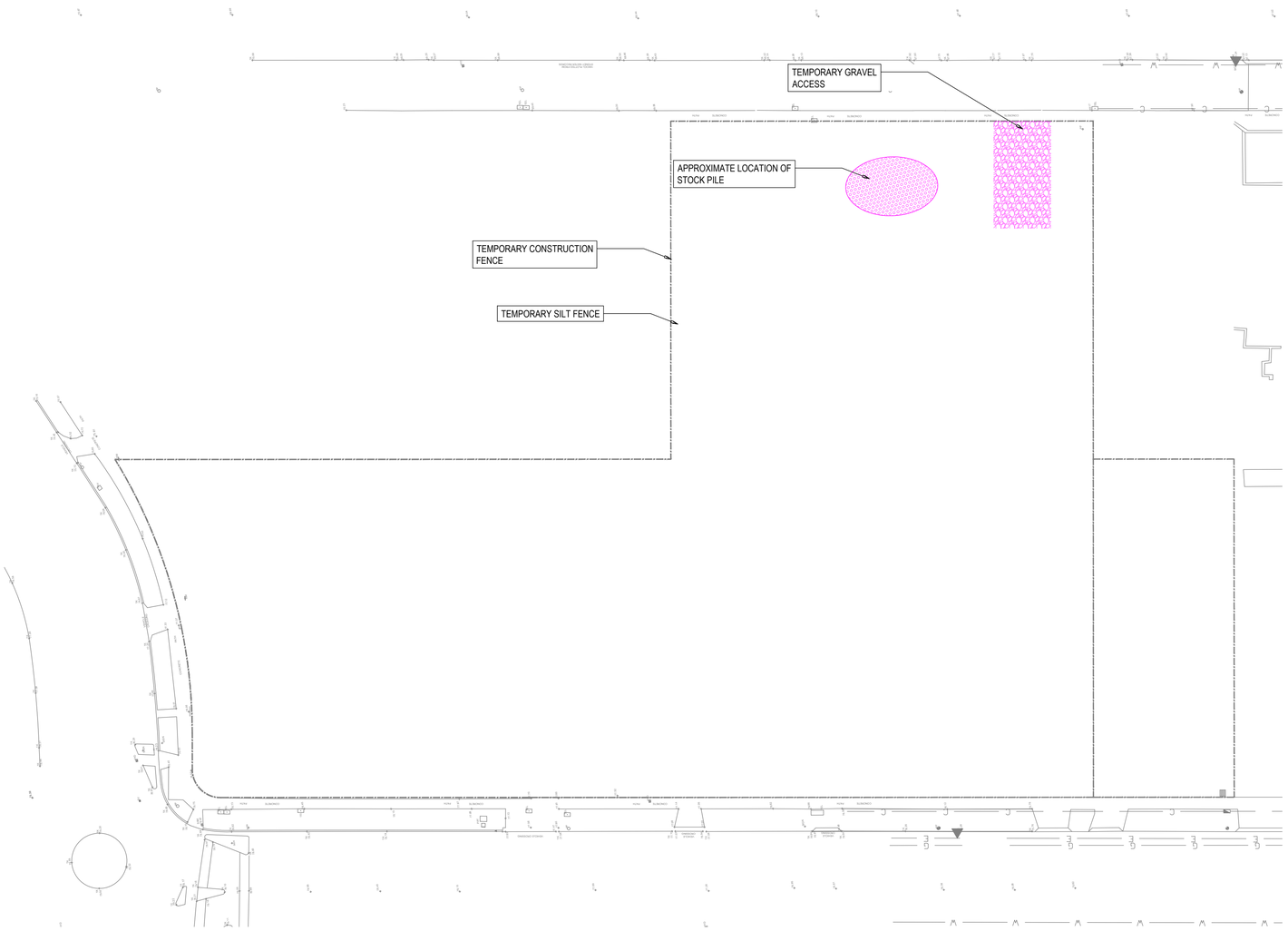

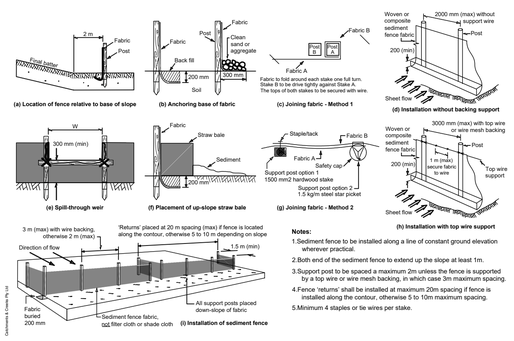

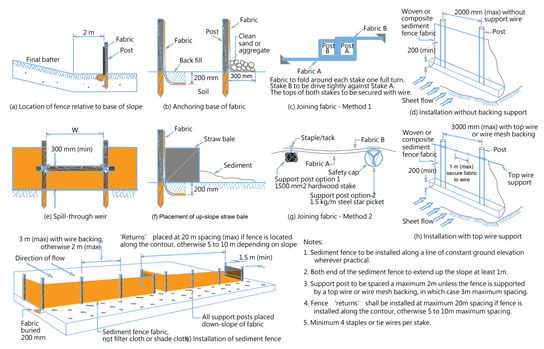

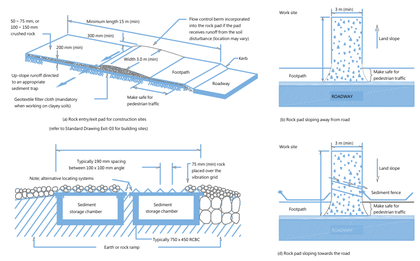

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CLIENT:
DASCO

ARCHITECT:
PTW

SITE:
MULTI RESIDENTIAL FLAT BUILDING

TITLE:
EROSION AND SEDIMENT CONTROL

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
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PROJECT NO:	DRAWING NO:		REVISION:
CSW2025.40	SW400		01