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STORMWATER SERVICES

19 WEST ST, BALGOWLAH NSW 2093

DRAWING SCHEDULE

DRG No.	DRAWING TITLE	SCALE
S-001	COVER SHEET, GENERAL NOTES & LEGEND	NTS
S-002	STORMWATER MANAGEMENT PLAN	1:100
S-003	DETAIL SHEET	AS SHOWN

GENERAL NOTES

STANDARD COUNCIL DESIGNS
DESIGN AND CONSTRUCTION DETAILS NOT SHOWN ON THESE DRAWINGS ARE AVAILABLE FROM NORTHERN BEACHES COUNCIL WEBSITE

1.

GENERAL
OTHER NOTES RELATING TO CIVIL ENGINEERING FOR THIS PROJECT
 - PRELIMINARIES
 - CIVIL WORKS – GENERAL
 - STORMWATER DRAINAGE
 - UNBOUND PAVING MATERIALS
 - ASPHALT PAVING WORKS
2.

TRAFFIC MANAGEMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE ROAD AND TRAFFIC AUTHORITY AND LOCAL GOVERNMENT REQUIREMENTS

PRELIMINARIES

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.

THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED IN HIS CONTRACT SUM FOR EXCAVATION IN ALL MATERIALS.
4.

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 APPLICABLE AT THE DATE OF EXECUTION OF THE WORK, AND ANY OTHER APPLICABLE LEGISLATION, CODES OF PRACTICE AND STANDARDS.
5.

ALL PERSONNEL WORKING ADJACENT TO A TRAFFICABLE ROAD OR FORMATION SHALL WEAR RED SAFETY VESTS.
6.

THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM DANGERS INHERENT IN EXCAVATIONS, OBSTRUCTIONS, WORKINGPLANT 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.
7.

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 BY A MINE MANAGER AND AT ALL TIMES BE ADEQUATELY SUPPORTED.
8.

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
9.

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.
10.

THE CONTRACTOR SHALL COMPLY WITH AND GIVE NOTICES REQUIRED BY ANY ACTS OF PARLIAMENT, ORDNANCE, REGULATION OR BY–LAW OF ANY AUTHORITY HAVING JURISDICTION OVER THE WORKS AND SHALL PAY ALL FEES OR CHARGES LEGALLY DEMANDED UNDER ANY SUCH ACT OF PARLIAMENT, ORDNANCE, REGULATION OR BYLAW
11.

PRIOR TO WORKS, THE CONTRACTOR SHALL UNDERTAKE A DILAPIDATION SURVEY, TO REPORT EXISTING DEFECTS IN ROADS, FOOT PATHS, KERB CROSSINGS, CHANNELS, NATURE STRIPS, ETC. THE REPORT SHALL BE PREPARED IN DUPLICATE BY THE CONTRACTOR AND A COPY SENT TO THE SUPERINTENDENT

STORMWATER DRAINAGE

1.

ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING AUSTRALIAN STANDARDS.
 - AS 1260 UNPLASTICISED PVC (UPVC) PIPES AND FITTINGS FOR SEWERAGE APPLICATIONS.
 - AS 1597 PRECAST REINFORCED CONCRETE BOX CULVERTS
 - PART 1 – SMALL CULVERTS (NOT EXCEEDING 1200mm WIDTH AND 900mm DEPTH).
 - AS 1631 CAST IRON NON–PRESSURE PIPES AND PIPE FITTINGS
 - AS 1650 GALVANISED COATINGS
 - A51657 SAA CODE FOR FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS
 - A52032 CODEOFPRACTICE FOR INSTALLATION OF UPVC PIPE SYSTEMS
 - AS 2439 PERFORATED PLASTICS DRAINAGE AND EFFLUENT PIPE FITTINGS
 - PART 1 – PERFORATED DRAINAGE PIPE AND ASSOCIATED FITTINGS
 - A53500–3 NATIONAL PLUMBING AND DRAINAGE CODE, PART 3 STORMWATER DRAINAGE
 - AS 3725 LOADS, ON BURIED CONCRETE PIPES
 - AS 3996 METAL ACCESS COVERS, ROAD GRATES AND FRAMES
 - AS 4058 PRECAST CONCRETE PIPES (PRESSUREAND NONPRESSURE)
 - AS 4139 FIBRE REINFORCED CONCRETE PIPES AND FITTINGS
2.

THE CONTRACTOR SHALL COMPLY WITH THE 'MINES (TRENCHES) REGULATIONS 1987 FOR ALL SHORING, SUPPORT OFTRENCHES, QUALIFICATIONS OF PERSONNEL AND NOTIFICATION TO THE RESPONSIBLE AUTHORITY.
3.

TRENCHES MUST BE KEPT CLEAR OF WATER AT ALL TIMES AND TIMBERED WHERE NECESSARY TO PREVENT COLLAPSE.
4.

SUITABLE SAFETY BARRIERS SHALL BE PROVIDED AROUND THE EXCAVATION AT ALL TIMES. THE BARRIERS SHALL BE SUITABLY DEFINED BY APPROVED LIGHTING DURING THE APPROPRIATE LIGHT UP TIME FOR THE AREA
5.

PIPES SHALL BEAR EVENLY ON THE BED PREPARED AS SPECIFIED ABOVE AND LAID WITH THE SOCKETSPOINTED 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 TOTHE DRAWINGS AND SHALL NOT BEPERMITTEDTO VARY THE LINE, LEVELS OR LOCATION OF THE DRAIN WITHOUT THE SUPERINTENDENTS WRITTEN APPROVAL
6.

ALL PIPE JOINTING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN SPECIFICATIONS FOR THE TYPE OF PIPE BEING USED.
7.

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 TO 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.
8.

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 OR LEAVE PITS, 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.
9.

ALL PITS AND ENDWALLS SHALL BE CONSTRUCTED IN THE POSITIONS AND TO THE LEVELS SHOWN ON THE DRAWINGS OR AS DIRECTED BYTHE SUPERINTENDENT.
10.

PIT COVERS SHALL BE PLACED INACCORDANCE WITH THE DETAIL SITE PLANS AND PIT SCHEDULE (IF PROVIDED) IN REGARD TO TYPE, 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.
11.

ALL DOWNPIPES SHALL BE CONNECTED TO AT THE END OF A PIPE OR ELBOW AND WHICH THEY SHALL ENTER CENTRALLY. WHERE PVC DOWNPIPES AND UNDERGROUND DRAINAGE ARE USED, THE DOWNPIPES SHALL BE CONNECTED TO THE UNDERGROUND DRAINS WITH SUITABLE STANDARD FITTINGS, BENDS ETC AND WITH SOLVENT JOINTS. THE CONTRACTOR SHALL LAY AND GRADE DRAINS FROM DOWNPIPES TO COMPLY WITH THE REQUIREMENTS FOR PIPE MATERIAL AND COVER REQUIRED BYAS3500.3. WHERE THE REQUIREMENTS OFAS3500.3 CANNOT BE MET THE CONTRACTOR SHALL REFER THE MATTER TOTHE SUPERINTENDENT
12.

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 24HOURS BEFORE TESTING.
13.

THE CONTRACTOR SHALL PRESSURE TEST WITH WATER, ALL STORMWATER PIPEWORK UNDER THE STRUCTURE, IN ACCORDANCE WITH AS 3500.3.

UNBOUND PAVING MATERIALS (BASE AND SUBBASE-CRUSHED ROCK)

1.

ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING RTA AND AUSTRALIAN STANDARDS.
 - AUSTRALIAN STANDARDS
 - AS 1141 METHODS OF SAMPLING AND TESTING AGGREGATES
 - AS 1289 TESTING OF SOILS FOR ENGINEERING PURPOSES
 - RTA
 - QA SPECIFICATIONS R71–R84
 - GA SPECIFICATIONS 3051–3151
2.

THE SOURCE QUARRY SHALL BE AN APPROVED SUPPLIER TO THE RTA. THE CRUSHED ROCK SHALL COMPLY WITH THE RELEVANT RTA SPECIFICATIONS. THE RTA PROVISIONS FOR SOUNDNESS AND ABRASION REQUIREMENTS SHALL APPLY. THE GRADING OF THE CRUSHED ROCK BY MASS SHALL COMPLY WITH THE RELEVANT RTA SPECIFICATION.
3.

WHERE IT IS SPECIFIED THAT WATER SHALL BE ADDED TO THE CRUSHED ROCK PRIOR TO DELIVERY, SUCH WATER SHALL BE CLEAR AND SUBSTANTIALLY FREE FROM DETRIMENTAL IMPURITIES SUCH AS SOILS, SALTS ,ACIDS, ALKALIS AND VEGETABLE SUBSTANCES.
4.

WHERE SPECIFIED CEMENT SHALL COMPLY WITH THE REQUIREMENTS OF EITHER AUSTRALIAN STANDARD SPECIFICATION AS1315–PORTLAND CEMENT OR AS1317–BLENDEDCEMENT.
5.

THE SUBGRADE, OR PREVIOUS PAVEMENT COURSE, SHALL HAVE BEEN TESTED AND ACCEPTANCE CRITERIA MET BEFORE THE PLACING OF THE NEXT COURSE WILL BE PERMITTED. CRUSHED ROCK MATERIAL SHALL NOT BE PLACED ON A WATERLOGGED SUBGRADE OR LOWER COURSE.

CIVIL WORKS - GENERAL

1.

THE CONTRACTOR SHALL LIAISE DIRECTLY WITH ALL SERVICE AUTHORITIES INVOLVED AND SHALL COMPLY WITH ALL THEIR REGLLATIONS 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.
3.

SERVICE INFORMATION SHOWN IS BASED ONPLANS SUPPLIED AND ISAPPROXIMATE 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.

UNLESS OTHERWISE NOTED ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PAVEMENT AND BUILDING AREAS.
7.

PRIOR TO PLACEMENT OF ANY FILLS, PAVEMENT OR BUILDINGS, THE EXPOSED SUB–GRADE SHALL BE COMPACTED TO THE SPECIFIED STANDARD MAXIMUM DRY DENSITY FOR THE DEPTH SPECIFIED, ANY SOFT SPOTS SMALL BE REMOVED AND REPLACED WITH APPROVED FILL AND COMPACTED AS SPECIFIED. SUBGRADE SHALL BE PROOF ROLLED, AS SPECIFIED.
8.

ALL FILL REQUIRED SHALL BE APPROVED FILL MATERIAL AND SHALL BE COMPACTED IN 150MM MAXIMUM COMPACTED THICKNESS LAYERS TOTHE DENSITIES SPECIFIED, UNLESS SHOWN OTHERWISEON THE DRAWINGS.
9.

THE CONTRACTOR SHALL KEEP THE SITE WELL DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES.
10.

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.
11.

ALL CONCRETE STORMWATER PIPES SHALL BE CLASS 4 (UNO) WITH RUBBER RING JOINTS IN ACCORDANCE WITH AS4058 OR AS4139 AND ALL PVC STORMWATER PIPES SHALL BE SEWER GRADE IN ACCORDANCE WITH AS 1260.
12.

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.
13.

ALL SURFACE DAMAGED DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE SUPERINTENDENT.
14.

SAWOUT EXISTING KERB & CUTTER AND PAVING WHERE NEW WORKS ARE TO MATCH EXISTING WORKS.
15.

A DETAIL LEVEL AND FEATURE SURVEY HAS BEEN UNDERTAKEN FOR THIS SITE.

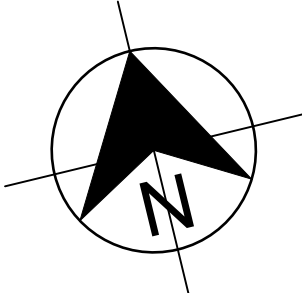
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P1	ISSUED FOR DA SUBMISSION	17.11.21						Project No:	N/A	Designed:	BP
								Drg No:	S-001	Verified:	TL
								NOT FOR CONSTRUCTION		Revision:	P1
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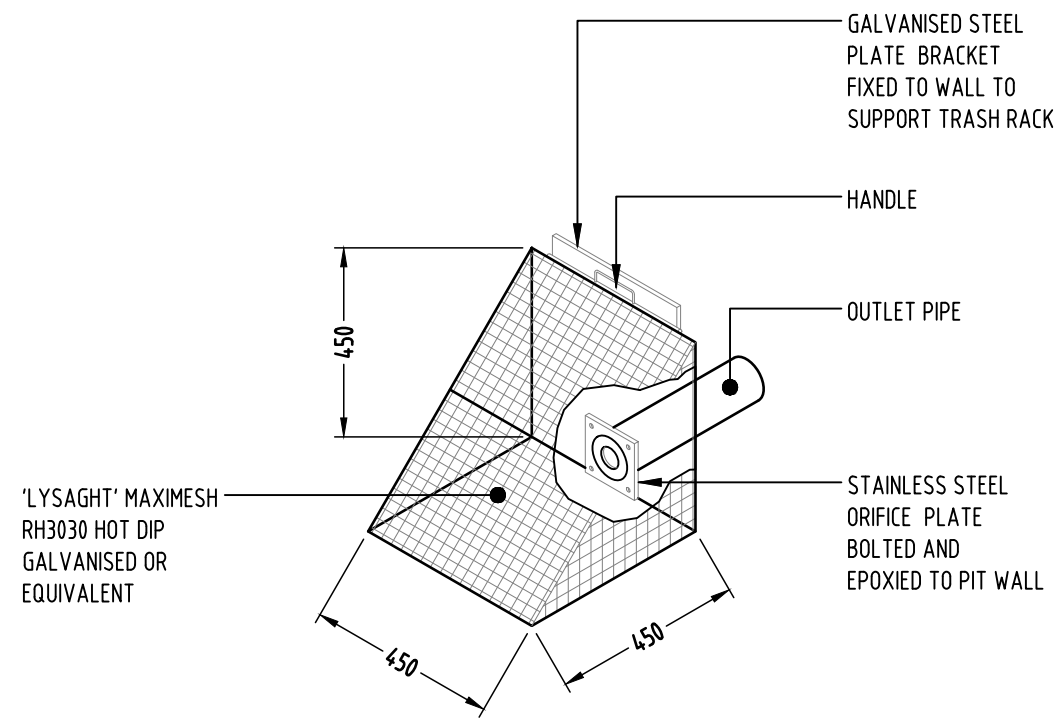
ENGINEERING
CONSULTING PTY LTD

60/14 Narabang Way, Belrose, NSW 2085
Telephone : +61 2 9986 1355
Email : office@tdlengineering.com.au

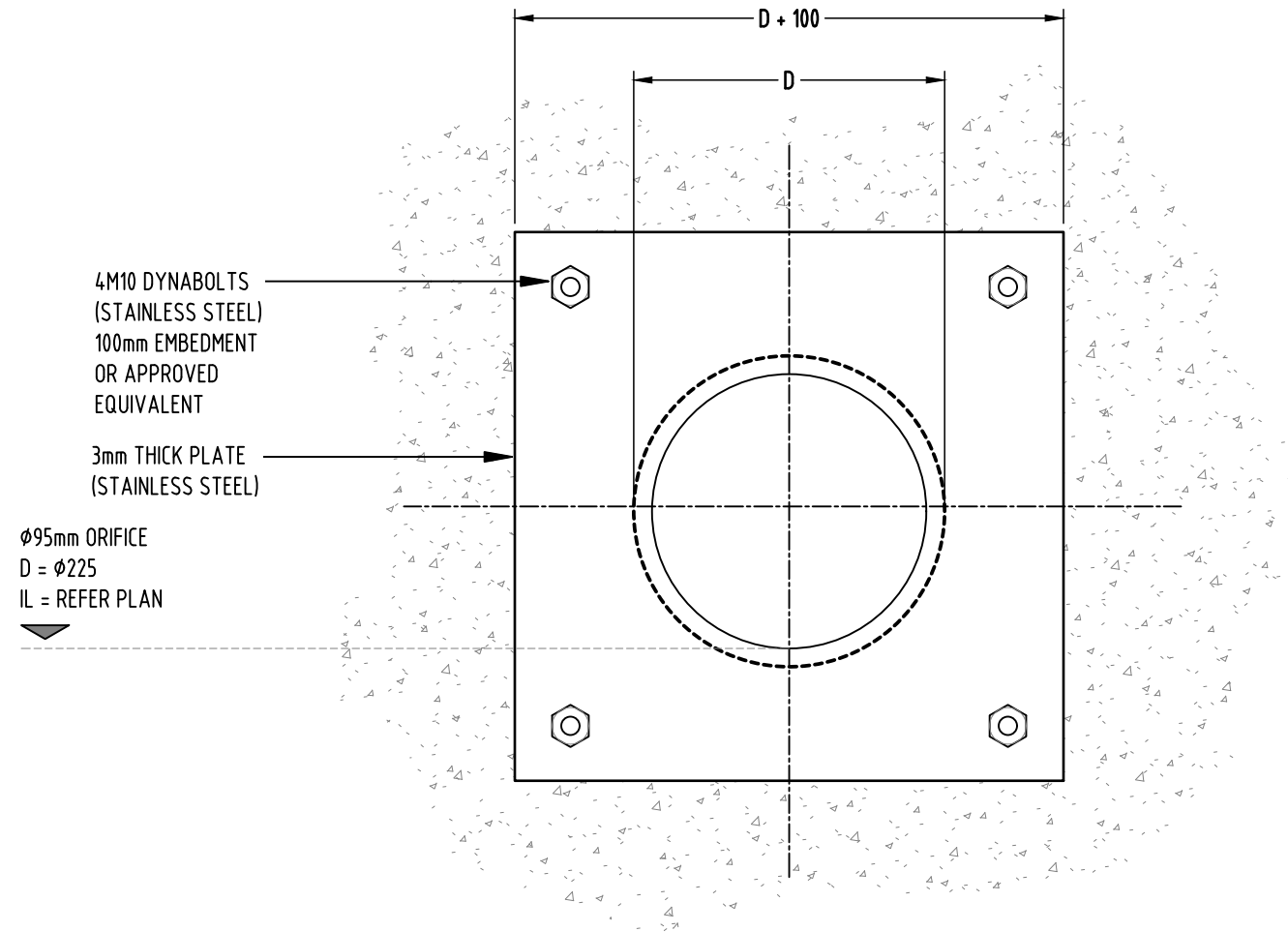


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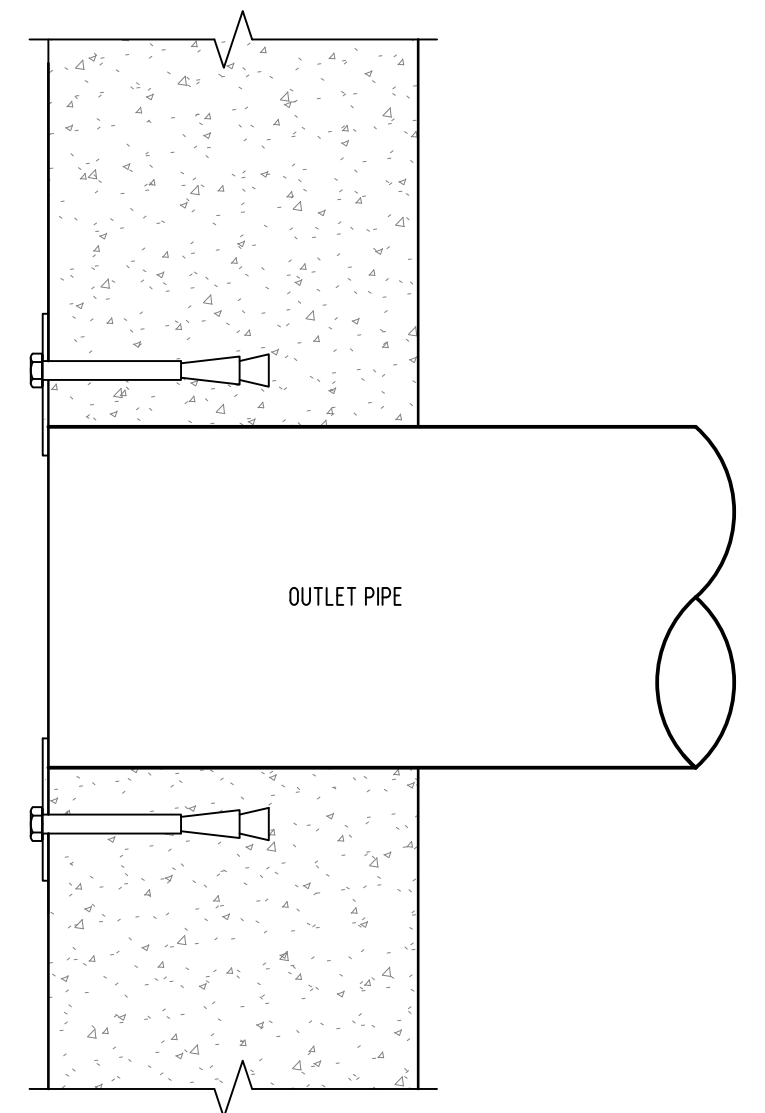
STORMWATER SERVICES
COVER SHEET, LEGEND,
GENERAL NOTES &
DRAWING SCHEDULE



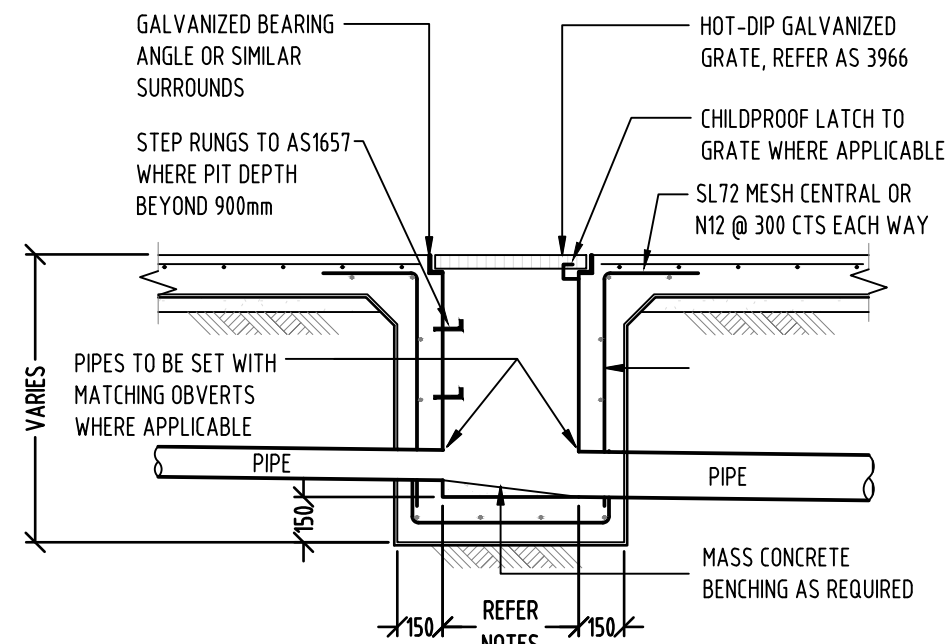
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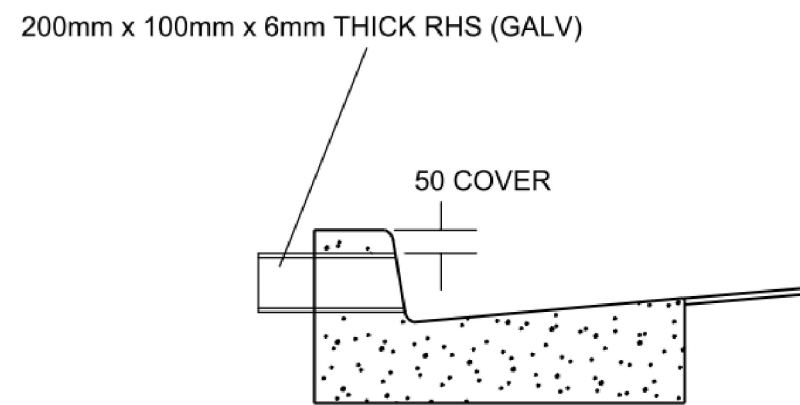


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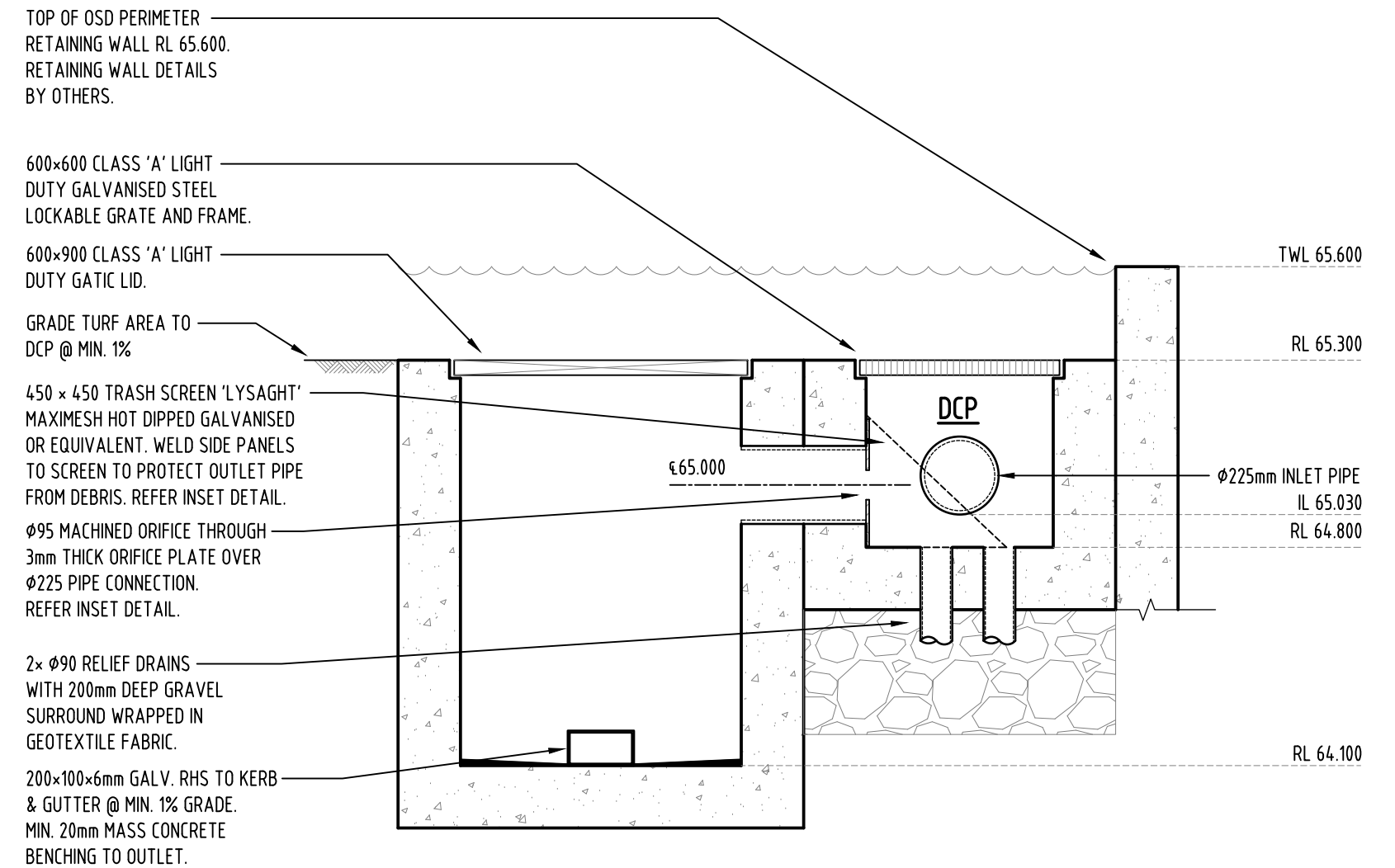


- NOTES:**
- DEPTHS OF 450 SQUARE PITS NOT TO EXCEED 600 DEEP
DEPTHS OF 600 SQUARE PITS NOT TO EXCEED 900 DEEP
OTHERWISE INCREASE ONE DIRECTION BY 300. (ie : 600 x 900 EXCEEDS 1200.)
 - CLIMB IRONS SHALL BE PROVIDED UNDER LID AT 300 CTS. IN ACCORDANCE WITH AS1657
 - ALTERNATIVE PIT CONSTRUCTION MAY BE USED, SUBJECT TO THE ENGINEERS APPROVAL.
 - CONCRETE STRENGTH F'c = 32 MPa

TYPICAL CAST IN-SITU STORMWATER PIT DETAIL
NTS



CONNECTION TO KERB DETAIL
N.T.S.



A
S-002
DISCHARGE CONTROL PIT SECTION
1:20

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P1	ISSUED FOR DA SUBMISSION	17.11.21	JO & JEAN OLIVIER	TDL ENGINEERING CONSULTING PTY LTD 60/14 Narabang Way, Belrose, NSW 2085 Telephone : +61 2 9986 1355 Email : office@tdlengineering.com.au	19 WEST ST, BALGOWLAH NSW 2093	STORMWATER SERVICES DETAIL SHEET	Project No:	N/A	Designed:	BP
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