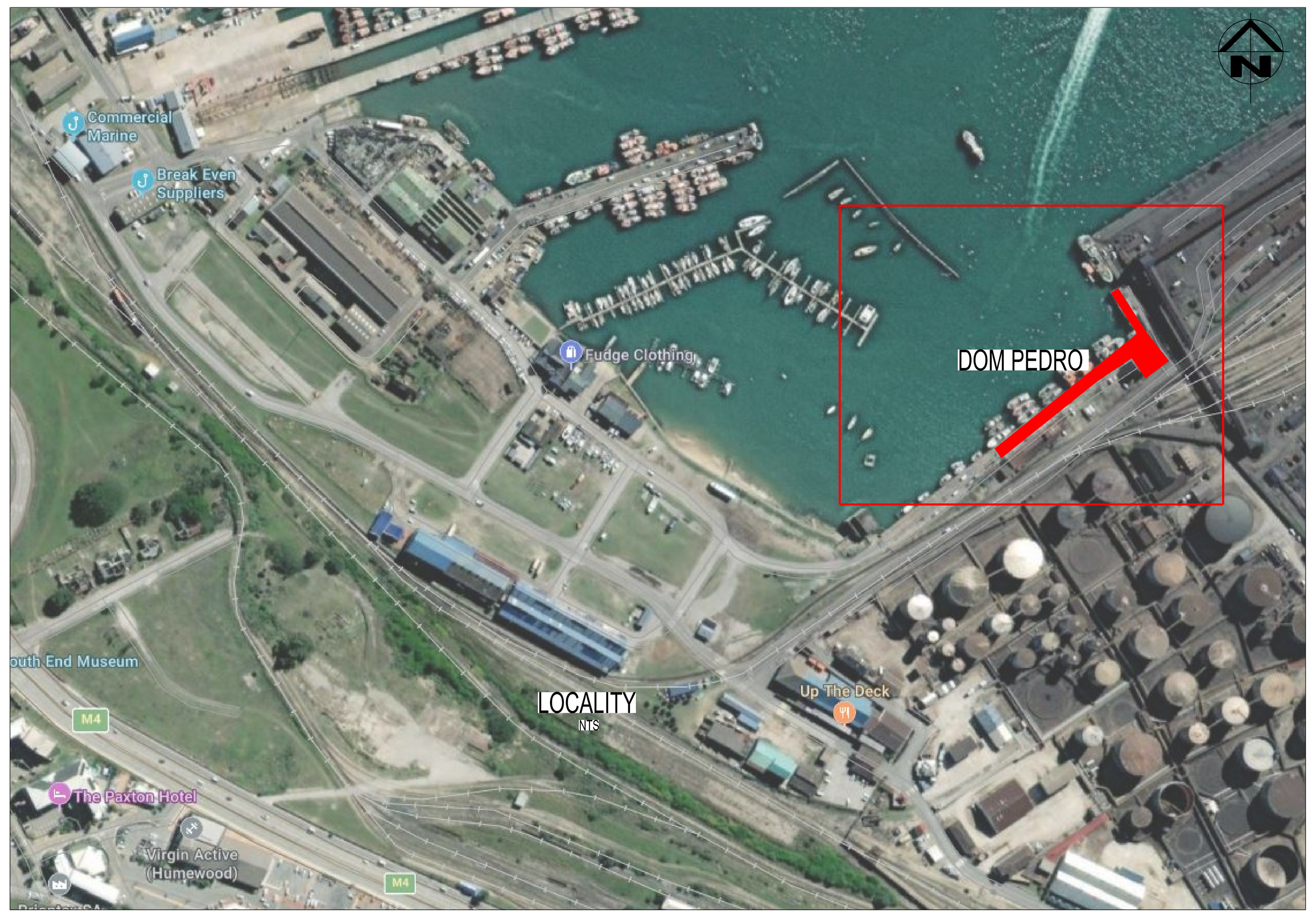


STORMWATER SETTING OUT: CO-ORDINATE SYSTEM: WGS84 Lo25°				
POINT NAME	X-COORD	Y-COORD	INVERT LEVEL (Z-COORD)	COMMENTS
P1	3760286.837	-58886.940	2.139	PLACE NEW CONCRETE GRID COVER
P2	3760286.294	-58887.650	2.130	PLACE NEW CONCRETE GRID COVER
P3	3760282.615	-58892.467	2.146	PLACE NEW CONCRETE GRID COVER
P4	3760250.760	-58934.169	2.282	PLACE NEW CONCRETE GRID COVER
P5	3760213.677	-58979.777	2.562	PLACE NEW CONCRETE GRID COVER
T1	3760225.634	-58967.063	2.384	PLACE NEW CONCRETE GRID COVER
T2	3760223.391	-58971.649	2.397	PLACE NEW CONCRETE GRID COVER
T3	3760221.229	-58974.479	2.406	PLACE NEW CONCRETE GRID COVER
T4	3760217.396	-58977.849	2.419	PLACE NEW CONCRETE GRID COVER
P6	3760215.102	-58980.852	2.429	NEW U-DRAIN CHANNEL & CONCRETE GRID COVER
P7	3760220.406	-58984.852	2.436	NEW U-DRAIN CHANNEL & CONCRETE GRID COVER
P8	3760212.360	-59010.070	3.159	NEW OUTLET PIPE CONNECTING INTO TANK
P9	3760198.487	-58999.246	3.335	NEW OUTLET PIPE CONNECTING FROM CHANNEL
P11	3760139.875	-58962.945	4.224	PLACE NEW CONCRETE GRID COVER
P12	3760188.249	-58992.909	3.935	PLACE NEW CONCRETE GRID COVER

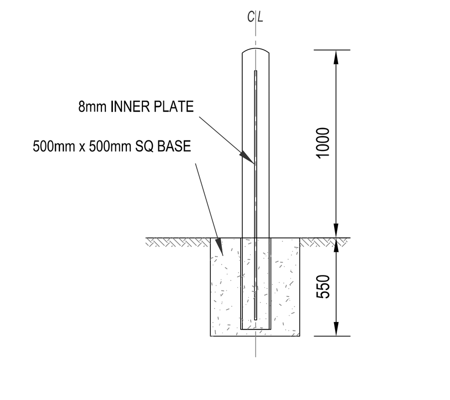
MANHOLE SETTING OUT: CO-ORDINATE SYSTEM: WGS84 Lo25°			
POINT NAME	X-COORD	Y-COORD	COMMENTS
NMH01	3760290.489	-58890.768	TYPE SD2 MANHOLE
NMH02	3760211.143	-59009.068	TYPE SD2 MANHOLE

BOLLARDS SETTING OUT: CO-ORDINATE SYSTEM: WGS84 Lo25°			
POINT NAME	X-COORD	Y-COORD	COMMENTS
B1	3760217.199	-59011.680	NEW BOLLARDS
B2	3760212.467	-59008.066	NEW BOLLARDS
B3	3760210.448	-59010.862	NEW BOLLARDS

BENCHMARKS: CO-ORDINATE SYSTEM: WGS84 Lo25°				
POINT NAME	X-COORD	Y-COORD	Z-COORD	COMMENTS
BM1	3760283.908	-58899.020	2.757	CL MANHOLE BENCHMARK
BM2	3760213.440	-58982.308	2.936	20MM RIP IN CONCRETE

BOLLARD NOTES:

1. THE CONTRACTOR SHALL ENGAGE AN ACCREDITED AND REPUTABLE BOLLARD MANUFACTURER TO DESIGN, SUPPLY AND DELIVER THE BOLLARDS THAT FULLY COMPLY WITH SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE CRASH-TESTED VEHICLE PROTECTION BOLLARDS COMPLYING WITH ISO 22343-1:2023 OR AN EQUIVALENT RECOGNISED VEHICLE IMPACT TESTING STANDARD (E.G. ASTM F2656/F2656M). THE PROPOSED BOLLARD SHALL HAVE A DOCUMENTED IMPACT-TEST CLASSIFICATION APPROPRIATE TO THE SPECIFIED DESIGN VEHICLE AND IMPACT CONDITIONS. THE CONTRACTOR SHALL SUBMIT THE APPLICABLE INDEPENDENT TEST CERTIFICATE AND MANUFACTURER'S TECHNICAL DOCUMENTATION FOR ENGINEER'S APPROVAL PRIOR TO PROCUREMENT AND INSTALLATION. CERTIFICATION SHALL RELATE TO THE PROPOSED BOLLARD TYPE, CONFIGURATION AND INSTALLATION ARRANGEMENT.
3. THE CONTRACTOR SHALL VERIFY THAT THE MOUNTING SYSTEM IS ROBUST ENOUGH TO WITHSTAND VEHICLE LOADS, AND COROSSIVE HARSH MARINE ENVIROMENTS.
4. THE CONTRACTOR SHALL ASSESS THE GROUND CONDITIONS BELOW BOLLARD FOUNDATION TO VERIFY AND CONFRIM THAT GROUND CONDITIONS CAN SUPPORT HIGH IMPACT LOAD AND ENVIRONMENTAL FACTORS. IF THE GROUND REQUIRES MODIFICATIONS, THE CONSTRACTOR SHALL OBTAIN APPROVAL FROM EMPLOYER BEFORE PROCEEDING WORKS.
5. DRAWING IS FOR ILLUSTRATIVE PURPOSES. THE CONTRACTOR SHALL DESIGN, SUPPLY AND ERECT BOLLARDS ACCORDING TO SPECIFICATIONS.



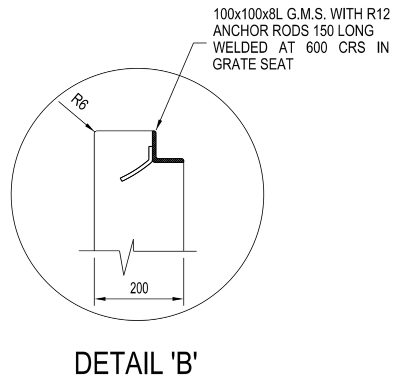
HIGH IMPACT BOLLARD

SCALE 1 : 25

PLAN LEGEND

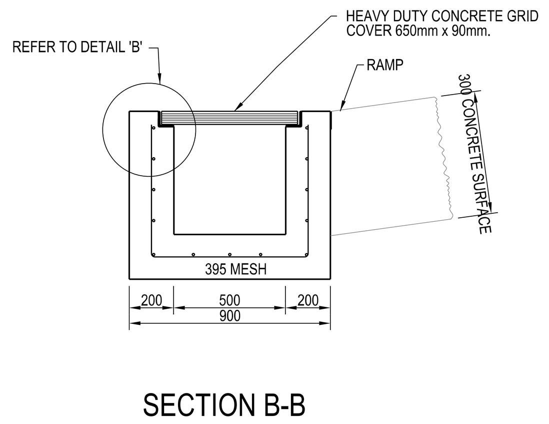
CIVIL:

- NEW GRID COVER ON EXISTING U-CHANNEL
- NEW U-CHANNEL
- WATER FLOW DIRECTION
- BENCHMARKS
- NEW HIGH IMPACT BOLLARDS
- NEW STORMWATER MANHOLE



DETAIL 'B'

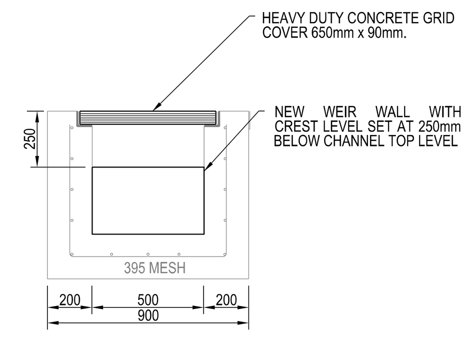
SCALE 1 : 20



SECTION B-B

TYPICAL SECTION

SCALE 1 : 50



SECTION C-C

SCALE 1 : 50

CHANNEL NOTES:

1. ALL CAST IN SITU CONCRETE IS TO BE GRADE 40/13
2. THE SURFACES OF THE CAST IN SITU CHANNEL/FILLET ARE TO HAVE A STEEL FLOAT FINISH.
3. CONTRACTION JOINTS TO BE FORMED THROUGH THE CHANNEL /FILLET AT 6.0m INTERVALS.
4. THE CONCRETE IS TO HAVE A CUBE STRENGTH OF 20 MPa AT 28 DAYS.
5. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY THE ENGINEER.
6. CONCRETE GRID COVER AND FRAME: MINIMUM LOAD CLASS D400 IN ACCORDANCE WITH SANS 50124. GRID AND FRAME TO COMPLY WITH SANS 50124-1:2025 AND SANS 50124-4:2025. PRODUCT CERTIFICATION AND TEST CERTIFICATES TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR INSTALLATION.
7. EXISTING CHANNELS: CONTRACTOR TO INSPECT AND VERIFY EXISTING CHANNELS, REMOVE ALL DEBRIS AND MATERIAL, AND CONFIRM THAT THE CHANNELS COMPLY WITH THE DESIGN PRIOR TO INSTALLATION OF COVERS. WHERE COMPLIANT AND IN SATISFACTORY CONDITION, CHANNELS SHALL BE COVERED WITH THE SPECIFIED CONCRETE GRID COVERS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY RECTIFICATION.
8. ANY DAMAGE TO THE EXISTING CHANNELS OR ASSOCIATED INFRASTRUCTURE ARISING FROM DEBRIS REMOVAL, OR ANY OTHER CONSTRUCTION ACTIVITY SHALL BE MADE GOOD BY THE CONTRACTOR AT THEIR OWN COST.

GENERAL NOTES:

1. THE CONTRACTOR WILL BE DEEMED TO HAVE INSPECTED THE SITE AND BE IN AGREEMENT WITH THE WORKS REQUIRED AS PER THE TENDER DOCUMENTS, UNLESS ALTERNATIVE PROPOSALS WITH COST IMPLICATIONS ARE RECEIVED TOGETHER WITH THE TENDER DOCUMENTS. ALTERNATIVE PROPOSALS SUBMITTED DURING CONSTRUCTION SHALL BE ON A DESIGN AND CONSTRUCT BASIS, WITH THE DESIGN AT CONTRACTOR'S EXPENSE.

2. VARIATIONS DEEMED NECESSARY BY THE CONTRACTOR SHALL BE FORWARDED TO THE PROJECT MANAGER IN WRITING FOR APPROVAL BEFORE ANY CONSTRUCTION BASED ON THE VARIATION COMMENCES.

3. SERVICES SHOWN ON DRAWING ARE KNOWN OR SOURCED FROM EXISTING DRAWINGS. THE CONTRACTOR MUST ENSURE THAT ALL SERVICES THAT INTERSECT OR RUN ALONGSIDE THE PROPOSED WORKS ARE LOCATED BEFORE CONSTRUCTION COMMENCES. ANY CLASHES SHALL BE REPORTED TO THE PROJECT MANAGER IN WRITING. THE CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGES TO EXISTING SERVICES DUE TO NEGLIGENCE.

4. ALL EXISTING PIPES AND MANHOLES INCORPORATED INTO THE NEW SYSTEM SHALL HAVE DEFECTS RECTIFIED TO COMPLY TO STANDARDS FOR NEW WORKS.

5. DIMENSIONS SHOWN ON DRAWINGS SHALL TAKE PREFERENCE OVER DIMENSIONS SCALED.

6. ALL LEVELS AND DIMENSIONS SHALL BE CHECKED BEFORE ANY WORK COMMENCES. FAILURE TO DO SO SHALL DEEM THE CONTRACTOR LIABLE FOR ANY WORK REQUIRED TO RECTIFY ERRORS AS A RESULT OF THE FAILURE TO CHECK THE LEVELS AND DIMENSIONS.

7. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS, UNLESS OTHERWISE INDICATED

8. THE LATEST REVISION OF SANS SPECIFICATIONS SHALL APPLY. ALL WORK SHALL BE DONE IN ACCORDANCE WITH RELEVANT SANS SPECIFICATIONS, UNLESS OTHERWISE INDICATED.

9. ALL LENGTHS SHOWN ARE APPROXIMATE AND SHALL BE CONFIRMED ON SITE BY CONTRACTOR.

EARTHWORK NOTES:

1. ANY DISCREPANCIES IN LEVELS AND SETTING OUT DATA TO BE QUERIED WITH THE ENGINEER PRIOR TO COMMENCEMENT OF ANY WORK.

2. ALL WORKMANSHIP TO BE IN ACCORDANCE WITH SANS 1200 PART D : EARTHWORKS AND THE RELEVANT PROJECT SPECIFICATIONS AS INCLUDED IN THE CONTRACT.

3. BEFORE PLACING ANY FILL MATERIAL, THE EXISTING GROUND SURFACE MUST BE CLEARED AND GRUBBED OF ALL VEGETATION AND ORGANIC MATTER.

4. TOPSOIL 200mm MUST BE STRIPPED AND STOCKPILED.

5. WHERE THE MATERIAL GROUND LINE IS STEEPER THAN 1:6, BENCHING MUST BE EXCAVATED INTO EXISTING SURFACE PRIOR TO RECEIVING FILL.

6. UNLESS OTHERWISE INDICATED, ALL BANK BATTERS TO BE : 1:1.5 CUT AND 1:2 FILL.

7. THE COMPACTED THICKNESS OF FILL LAYERS SHALL NOT EXCEED 300mm.

8. LOCATE ALL EXISTING SERVICES PRIOR TO ANY CONSTRUCTION TAKING PLACE.

STORMWATER NOTES:

1. TRENCHES FOR PIPES TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THE REQUIREMENT OF SANS 1200 DB - PIPE TRENCHES.

2. ALL RC PIPES SHALL HAVE CLASS C BEDDING AND uPVC PIPES SHALL HAVE BEDDING FOR FLEXIBLE PIPES IN ACCORDANCE WITH SANS 1200LB BEDDING.

3. uPVC PIPES SHALL BE CLASS 34 TO SANS 791

4. NB. ALL MANHOLE COVERS TO SUIT CROSSFALL OF FINISHED CONCRETE SURFACE.

5. VERIFY ALL EXISTING WORKS AGAINST THE CONTRACT DRAWINGS AND SPECIFICATIONS BEFORE COMMENCING SUBSEQUENT WORKS. EXISTING WORKS COMPLYING WITH THE CONTRACT DOCUMENTS SHALL REMAIN UNDISTURBED. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY RECTIFICATION.

ADDITIONAL NOTES:

NOTE 1 : ALL MANHOLE COVERS AFFECTED TO BE ADJUSTED/ UPLIFTED TO SUIT NEW FINISHED PAVING LEVEL

NOTE 2 : ALL SERVICES TO BE VERIFIED ON SITE PRIOR TO ANY CONSTRUCTION

EXISTING SERVICES NOTES:

1. ALL KNOWN SERVICES ARE PROVIDED ON THE DRAWING, HOWEVER, DUE TO THE LACK OF ADEQUATE AS-BUILT RECORDS, THE CONTRACTOR WILL BE REQUIRED TO PROVE SERVICES PRIOR TO REMOVAL.

2. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO ENSURE THAT THE SERVICES ARE NOT DAMAGED. AS SOON AS ANY UNDERGROUND SERVICE NOT SHOWN ON THE DRAWINGS IS DISCOVERED, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR MUST IN COLLABORATION WITH THE CONSTRUCTION MANAGER, ASCERTAIN WHETHER OR NOT THE SERVICE IS LIVE. THE CONTRACTOR SHALL NOT UPLIFT ANY SUCH SERVICE UNLESS HE IS INSTRUCTED TO DO SO.

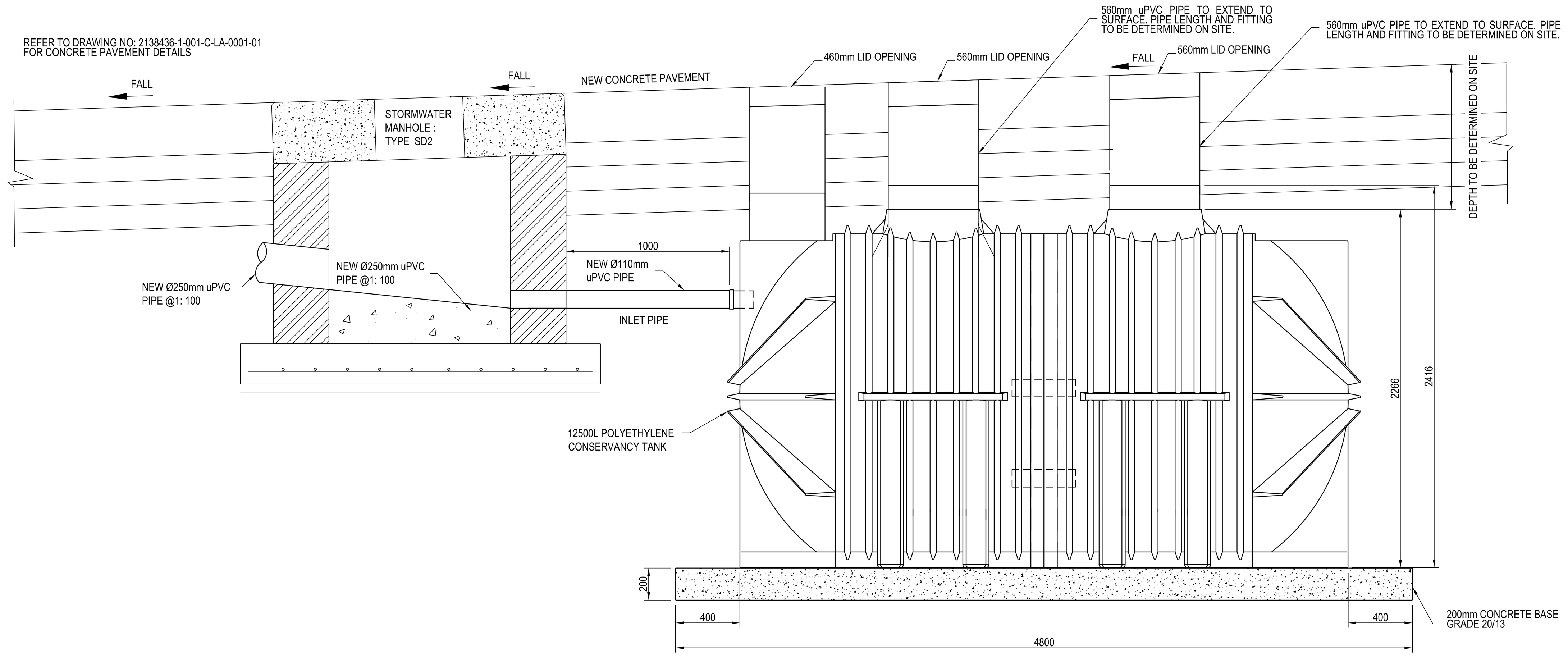
3. ALL EXISTING MANHOLE COVERS TO BE UPLIFTED WHERE NECESSARY. COVER LEVEL AND FALL TO SUIT FINISHED ROAD LEVEL.

4. ALL EXISTING UNDERGROUND SERVICES TO BE PROTECTED.

CONSERVANCY TANK NOTES:

1. THE CONSERVANCY TANK IS A FREE-ISSUE ITEM SUPPLIED BY THE EMPLOYER. THE CONTRACTOR SHALL VERIFY THAT ALL COMPONENTS REQUIRED FOR THE COMPLETE INSTALLATION AND OPERATION OF THE TANK ARE PROVIDED. ANY DISCREPANCIES OR MISSING ITEMS SHALL BE REPORTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

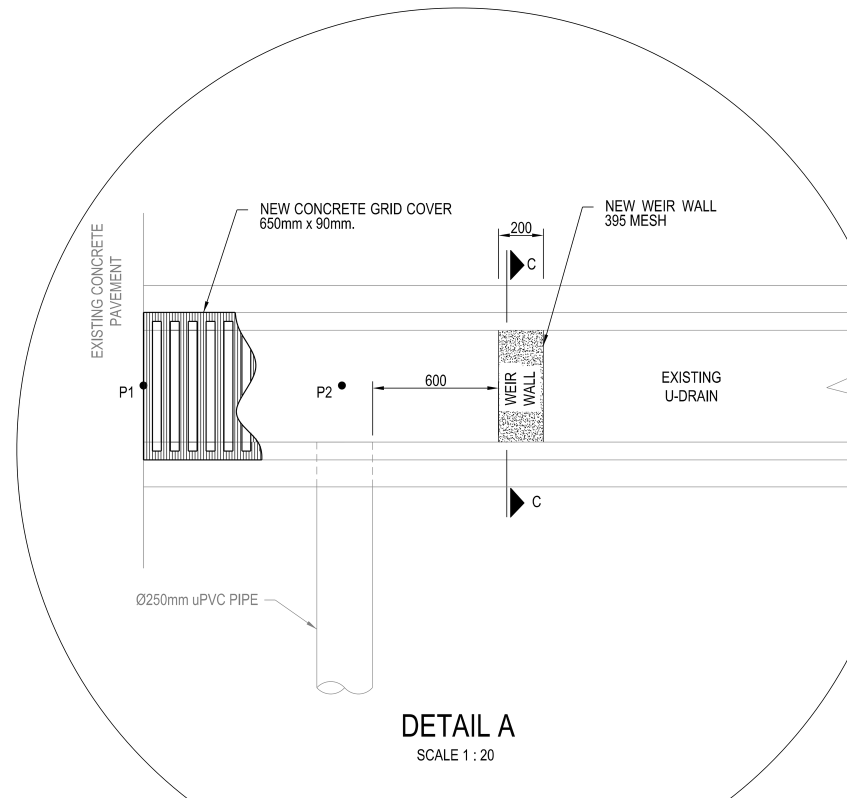
2. A CEMENT-STABILIZED BACKFILL MIX OF 5% CEMENT AND 95% INERT GRANULAR MATERIAL MUST BE COMPACTED IN 250mm LAYERS TO 90% MOD AASHTO DUE TO WATER TABLE.



SECTION A-A

TYPICAL SECTION

SCALE 1 : 20



DETAIL A

SCALE 1 : 20



PLAN LAYOUT

SCALE 1 : 200

DRAWING NO.	REFERENCE
2138436-1-001-C-DE-0001-01-00	TYPICAL HEAVY DUTY MANHOLE
2138436-1-001-C-LA-0001-01-00	SETTING OUT

REFERENCE DRAWINGS

GENERAL NOTES

1. THIS DRAWING IS THE PROPERTY OF TRANSNET. COPY, PATENTS AND ALL INDUSTRIAL PROPERTY RIGHTS RESERVED.
2. MEASUREMENTS ARE BASED ON METRIC SYSTEM.
3. ALL LEVELS ARE IN METRES TO MEAN SEA LEVEL (MSL).
4. DO NOT SCALE DRAWING - ONLY DIMENSIONS SHOWN TO BE USED.
5. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS ON THE SITE AND NOTIFY THE ENGINEER OF ANY VARIATIONS FROM DIMENSIONS BEFORE CONSTRUCTION.
6. ALL CO-ORDINATES ARE BASED ON THE SOUTH AFRICAN CO-ORDINATE SYSTEM WGS 84 Lo 25°
7. RELOCATION OF EXISTING SERVICES ARE ONLY TO BE DONE AT THE DISCRETION OF THE ENGINEER ON SITE.

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
00	ISSUED FOR TENDER	SM	BE	MM	23-09-2026

REVISIONS

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CONTRACTOR / CONSULTANT

TITLE	NAME	SIGN	DATE

OPERATING DIVISIONS

TITLE	NAME	SIGN	DATE

TNPA

TITLE	NAME	SIGN	DATE
DRAWN	SM	[signature]	23 09 26
CHECKED	BE	[signature]	23 09 26
DESIGNED	SM	[signature]	23 09 26
CHECKED	MM	[signature]	23 09 26

PR.ENG. / PR.TECH./PR. ARCH

NAME	Motebang Malapane	DATE
SIGNATURE	[signature]	23 09 26
REG. NUMBER	20150383	
SCALE	AS SHOWN	A0

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TRANSNET

PORT OF PORT OF ELIZABETH

CIVIL & PERWAY INFRASTRUCTURE DOM PEDRO QUAY REFURBISHMENT STORMWATER PLAN LAYOUT

PROJECT NUMBER	OD	FBS	DIS	TYPE	DRAWING NO.	SHEET	REV	ID
2138436	1	001	C	LA	0002	01	00	TD