


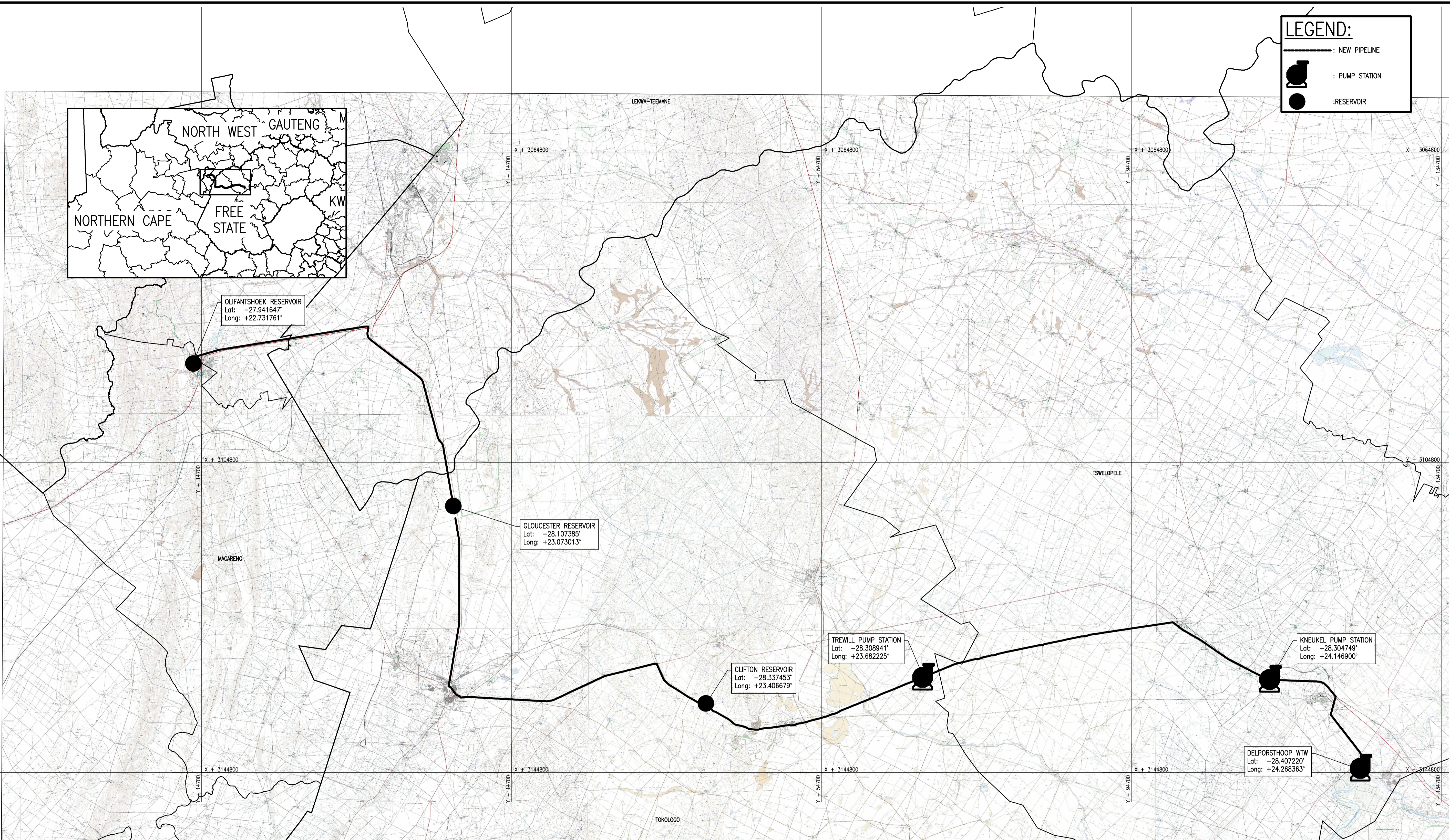
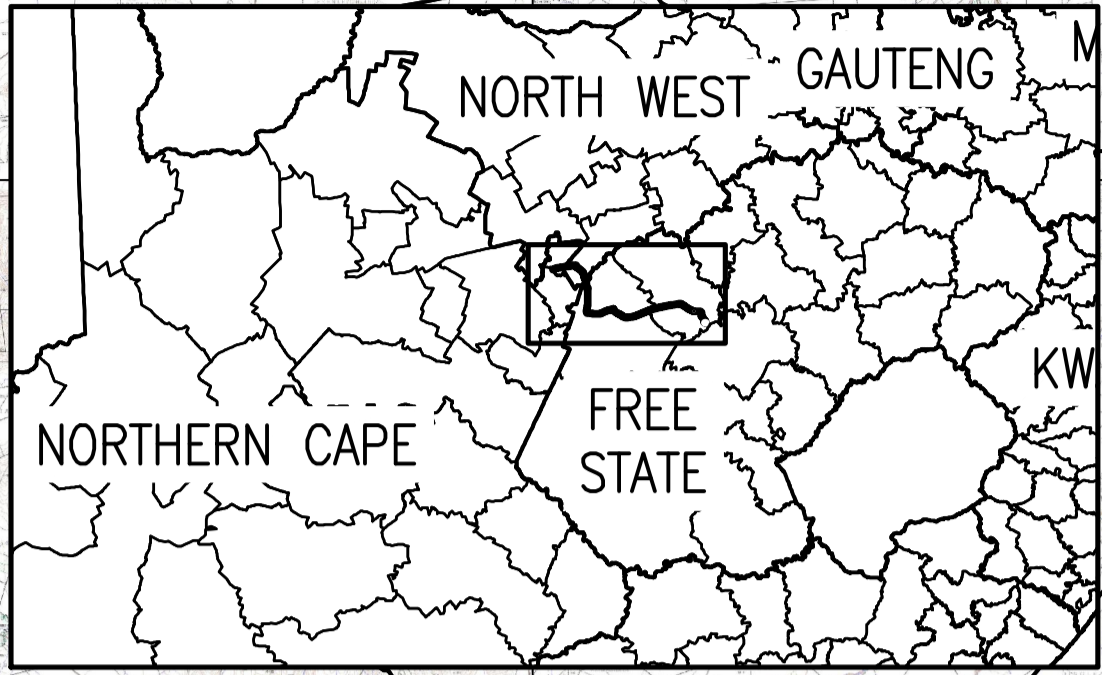
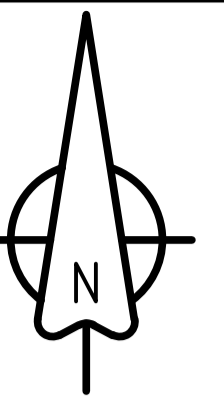


APPENDIX C

TECHNICAL DRAWINGS

LEGEND:

-  : NEW PIPELINE
-  : PUMP STATION
-  : RESERVOIR



OLIFANTSHOEK RESERVOIR
 Lat: -27.941647
 Long: +22.731761

GLOUCESTER RESERVOIR
 Lat: -28.107385
 Long: +23.073013

CLIFTON RESERVOIR
 Lat: -28.337453
 Long: +23.406679

TREWILL PUMP STATION
 Lat: -28.308941
 Long: +23.682225

KNEUKEL PUMP STATION
 Lat: -28.304749
 Long: +24.146900

DELPORSHOOP WTW
 Lat: -28.407220
 Long: +24.268363

LOCALITY PLAN

COORDINATE SYSTEM: WGS 84 LO 29
 SCALE 1: 250 000

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PRO-PLAN REVISION NO: P00



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REFERENCE DRAWINGS			
REF. NO.	DESCRIPTION	DRAWING NO.	REVISION

REVISION			
REV. NO.	DESCRIPTION	DATE	INT.


APPROVAL		
DESIGN BY:	SIGNATURE	DATE
J. BOTHA		
DRAWN BY:	J. du TOIT	
CHECKED BY:		
APPROVED BY:		
DESIGN ENGINEER APPROVAL		
DESIGN ENGINEER		
PROJECT ENGINEER APPROVAL		
PROJECT ENGINEER		
CLIENT APPROVAL		
CLIENT APPROVAL		

VAAL GAMAGARA- NORTHERN CAPE

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PROJECT NAME

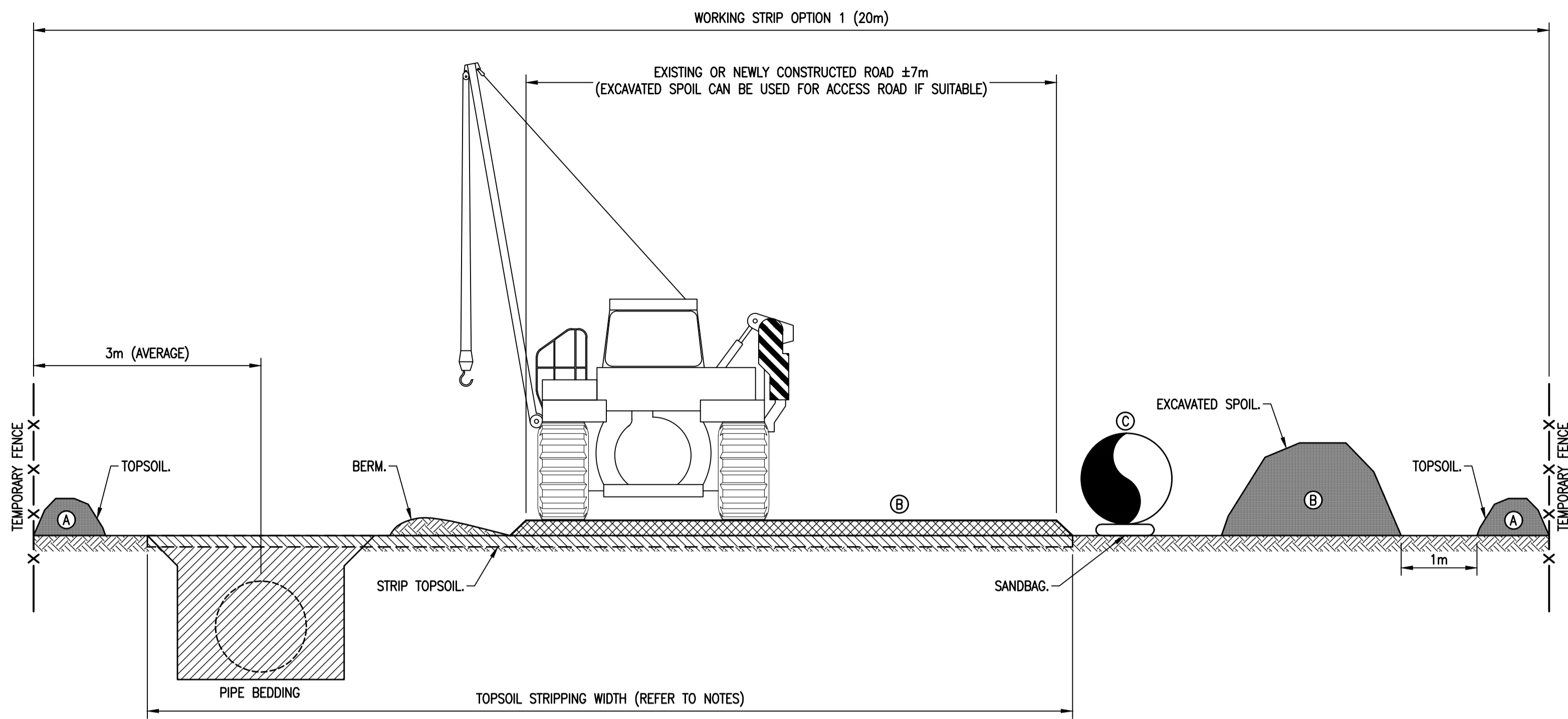
VAAL GAMAGARA REGIONAL WATER SCHEME: PHASE 2

DRAWING NAME

**GENERAL DRAWINGS:
 VAAL GAMAGARA LOCALITY PLAN**

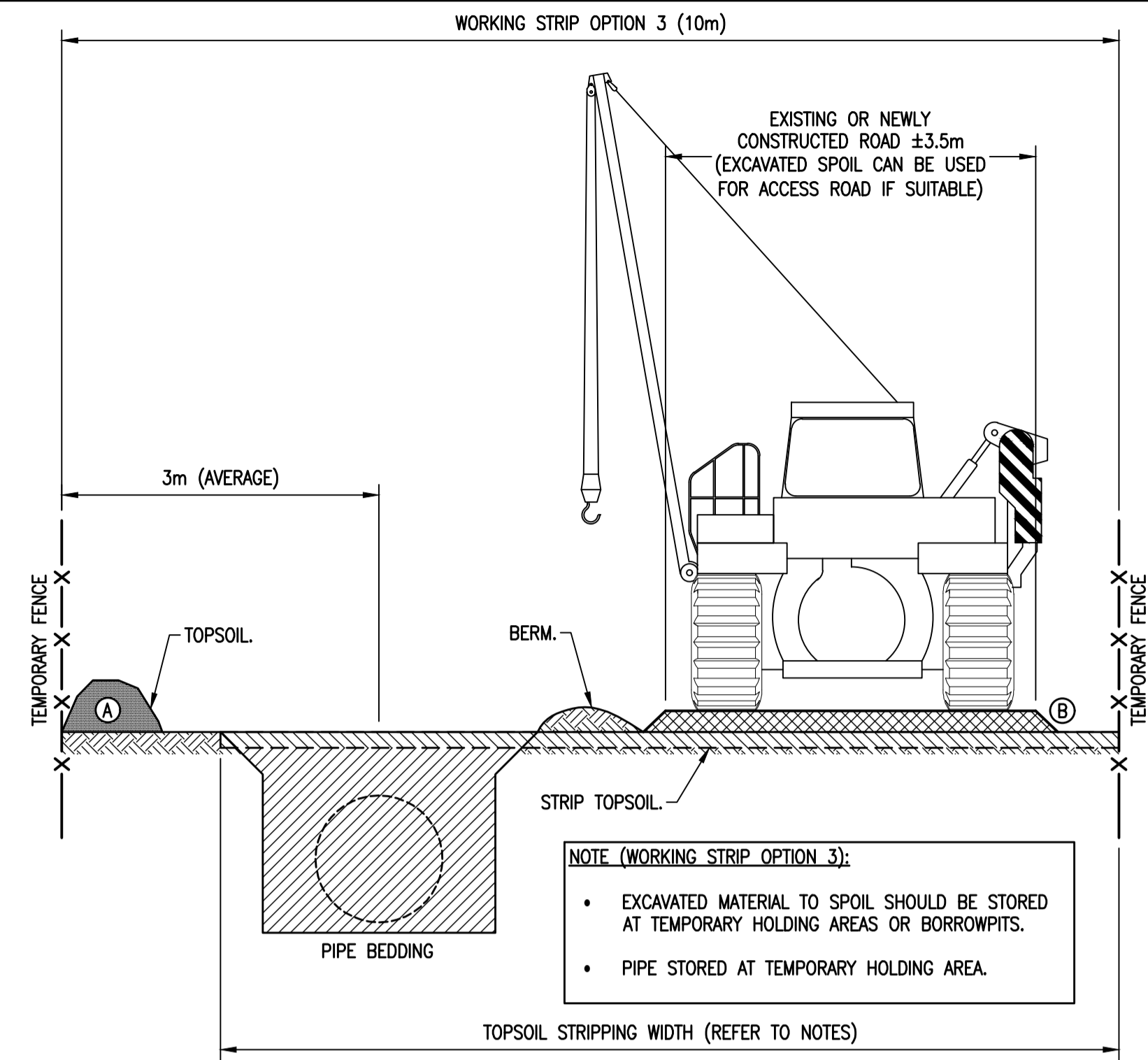
CONTRACT NO RFP/VWSS/201883		
PROJECT NO P0386A00		
PROVINCE NORTHERN CAPE	DISTRICT JOHN TAOLO	
DATE 2019-02-28	SCALE AS SHOWN	SHEET NO 1 OF 1
DRAWING NO P0386A00-A1-0020-01		REV NO 00

\CHAN DU TOIT\2019\03\14\FE_0351\0386A00\03 Drawings\0386A00-A1-0020-01.dwg



WORKING STRIP OPTION 1 (20m)

N.T.S

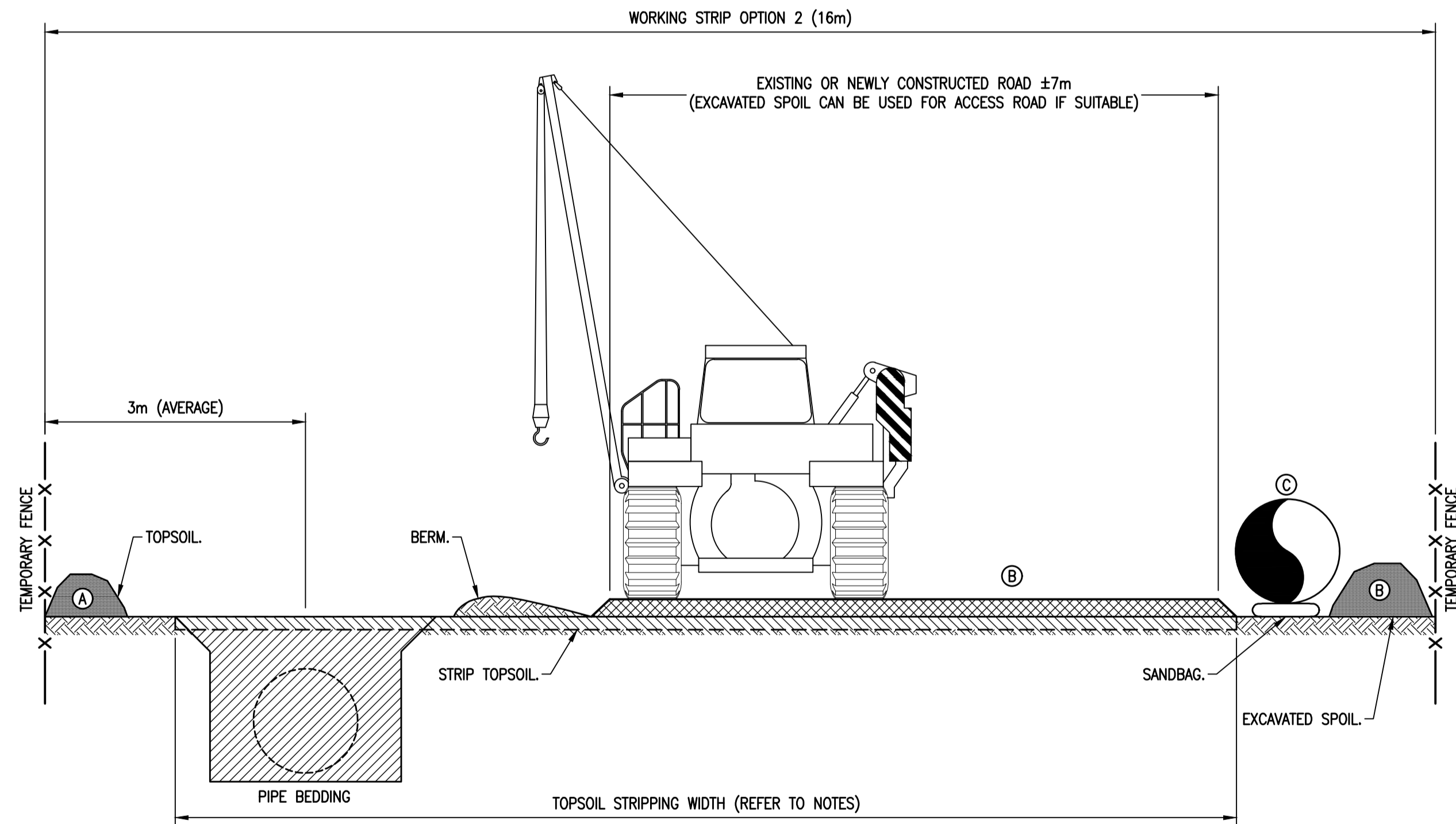


WORKING STRIP OPTION 3 (10m)

N.T.S

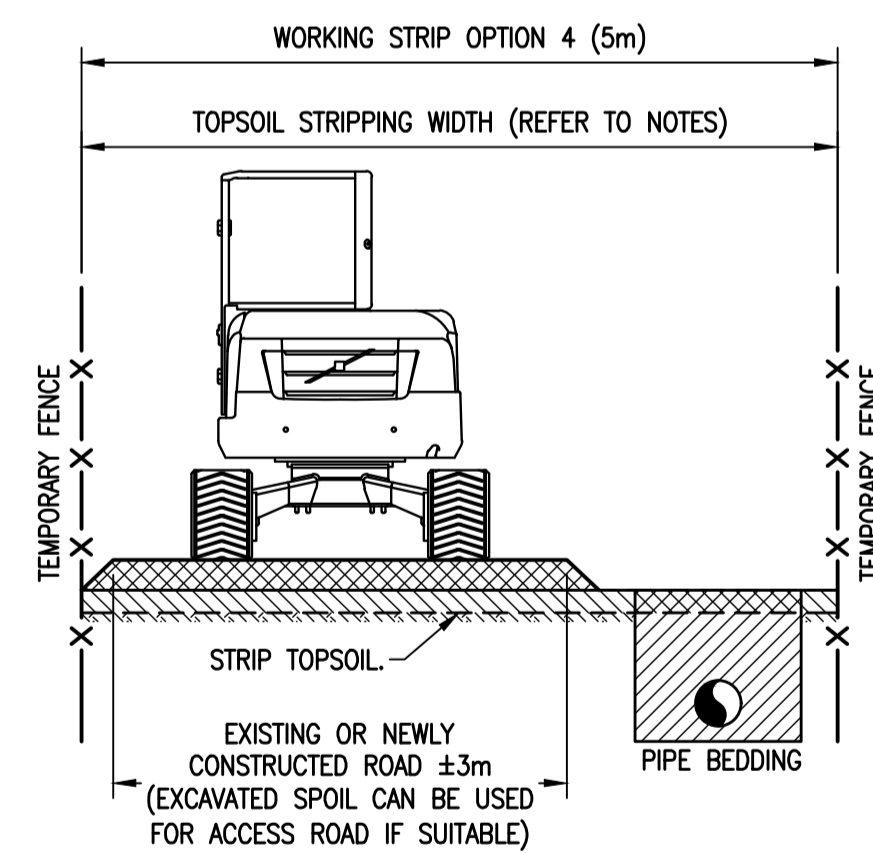
NOTE (WORKING STRIP OPTION 3):

- EXCAVATED MATERIAL TO SPOIL SHOULD BE STORED AT TEMPORARY HOLDING AREAS OR BORROWPITS.
- PIPE STORED AT TEMPORARY HOLDING AREA.



WORKING STRIP OPTION 2 (16m)

N.T.S



WORKING STRIP OPTION 4 (5m)

N.T.S

NOTE (WORKING STRIP OPTION 4):

- EXCAVATED MATERIAL TO SPOIL SHOULD BE STORED AT TEMPORARY HOLDING AREAS OR BORROWPITS.
- PIPE STORED AT TEMPORARY HOLDING AREA.

NOTE:

- WIDTH OF PIPELINE SERVITUDE WILL BE ACCORDING TO DWS STANDARDS AND DECIDED WITH RELEVANT STAKEHOLDERS.
- TOPSOIL TO BE HANDLED OR STORED SEPARATELY FROM SUBSOIL.
- MAXIMUM GRADIENT OF SUBSOIL AND SPOIL MATERIAL SHAPED TO NOT EXCEED 1:3.
- STRIPPING OF ROAD WIDTH AREA NOT APPLICABLE TO EXISTING ROADS.

(A) ALTERNATIVE TOPSOIL PLACEMENT LOCATIONS.
 (B) ALTERNATIVE PLACEMENT FOR SPOIL MATERIAL.
 (C) TEMPORARY STORAGE POSITION OF PIPE.

HULDA GOUWS/2019/03/12/PROJ/P0386A00-03 Drawings/P0386A00-C1-2260-01.dwg

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REVISION	DESCRIPTION	DATE	INT.

DESIGN BY:	SIGNATURE	DATE
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CHECKED BY:		
APPROVED BY:		
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PROJECT ENGINEER		
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PROJECT NAME

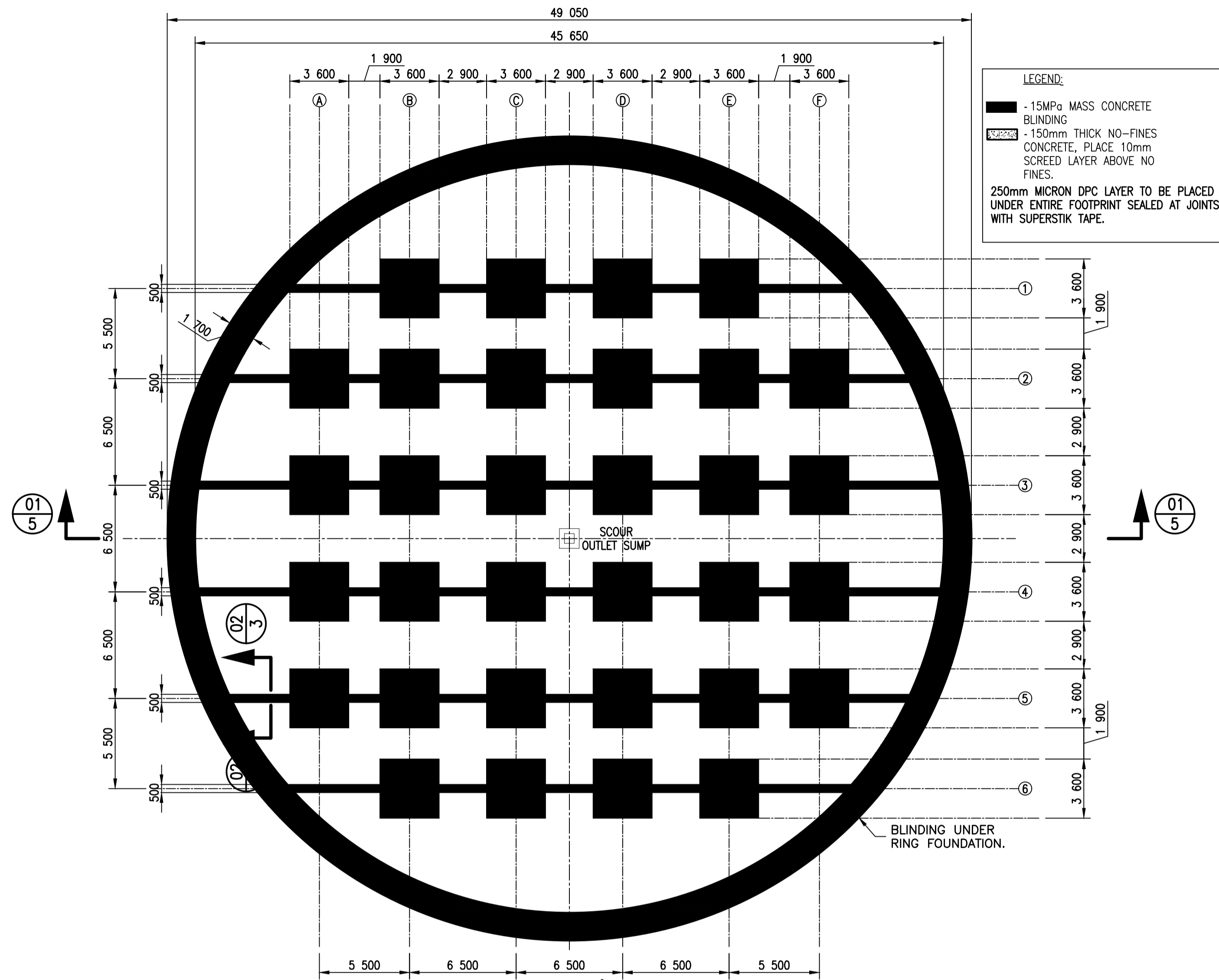
VAAL GAMAGARA REGIONAL WATER SCHEME: PHASE 2

DRAWING NAME

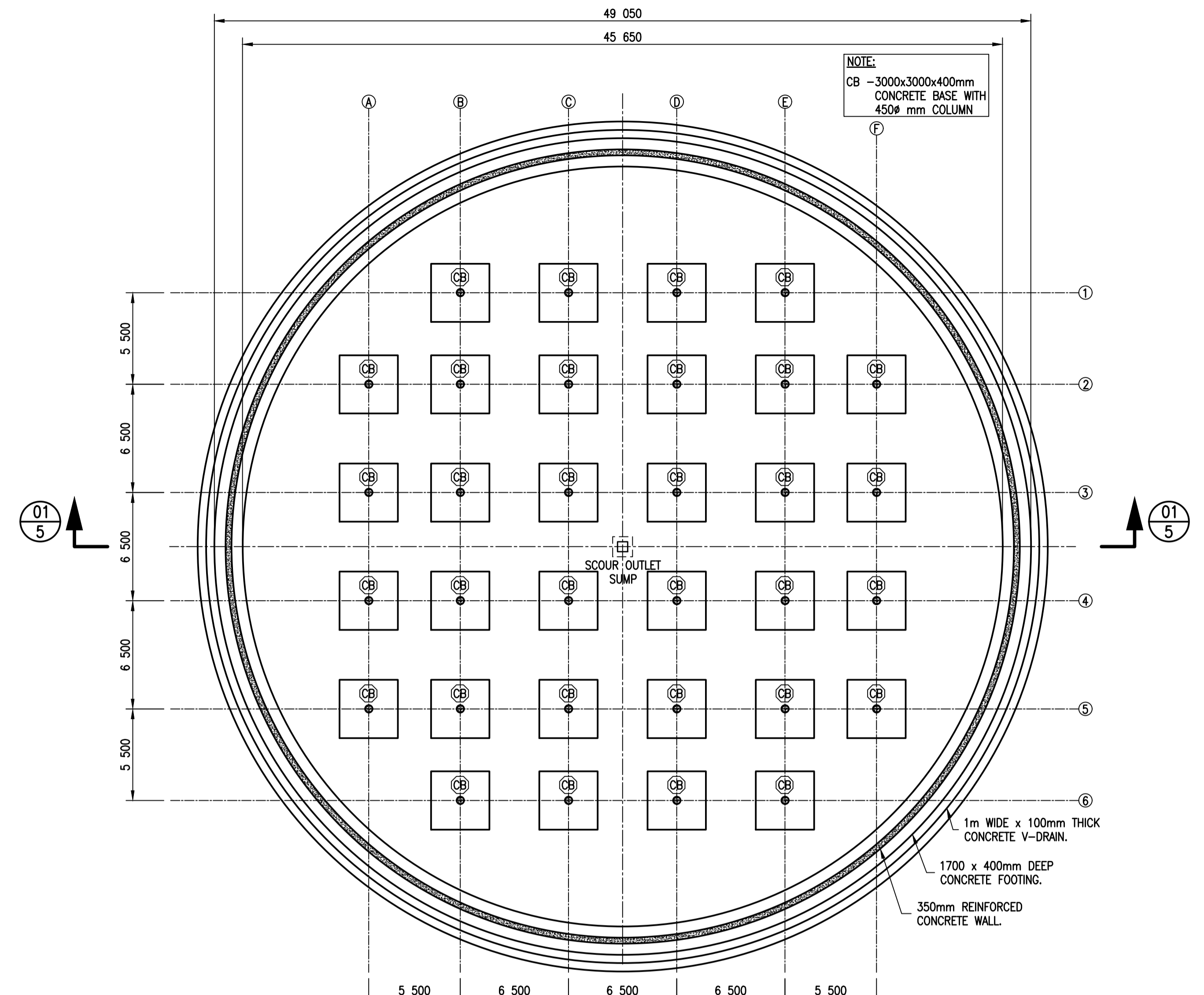
GENERAL CIVIL DETAILS - WATER: WATER SERVITUDE STRIP CROSS SECTIONS

CONTRACT NO		
RFP/VWSS/201883		
PROJECT NO		
P0386A00		
PROVINCE	DISTRICT	
NORTHERN CAPE	JOHN TAOLO	
DATE	SCALE	SHEET NO
2019-02-28	AS SHOWN	1 OF 1
DRAWING NO	REV NO	
P0386A00-C1-2260-01	00	

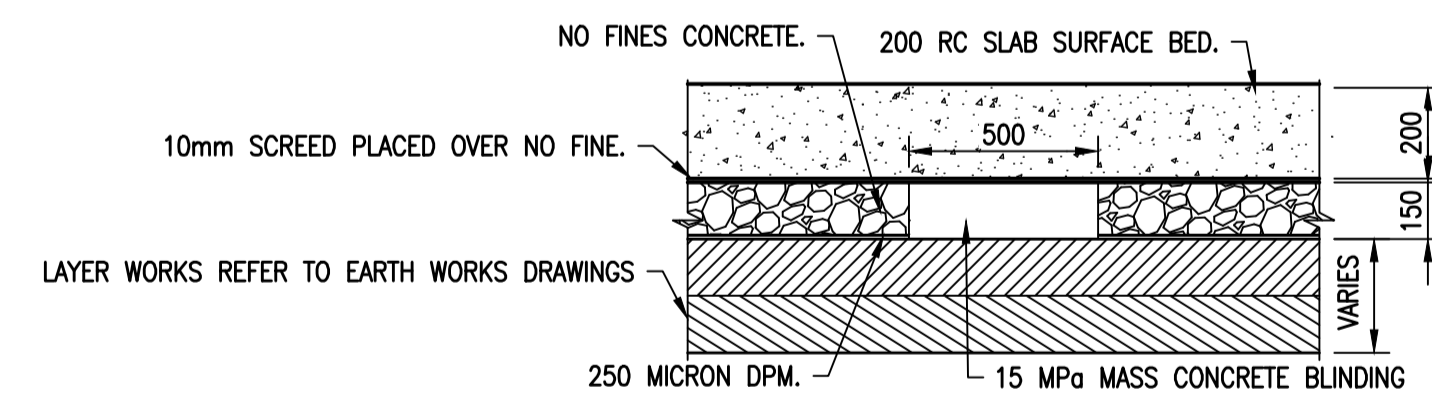
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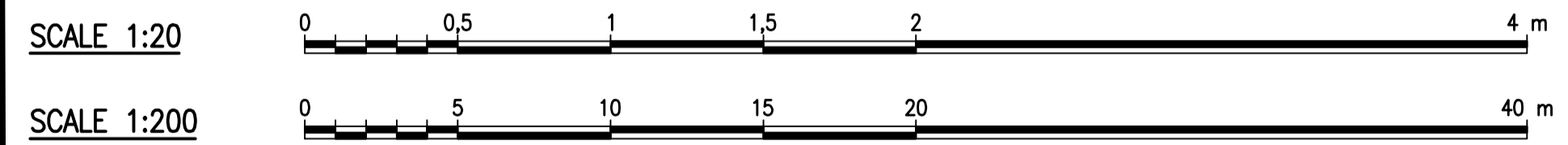
PLAN VIEW: BLINDING/NO FINES LAYOUT
SCALE 1:200



PLAN VIEW: FOUNDATION LAYOUT
SCALE 1:200



SECTION 2-2: WATER BARRIER DETAIL
SCALE 1:20



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REF. NO.	DESCRIPTION	DRAWING NO.

REV. NO.	DESCRIPTION	DATE	INT.

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DESIGN BY:	SIGNATURE	DATE
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PROJECT NAME

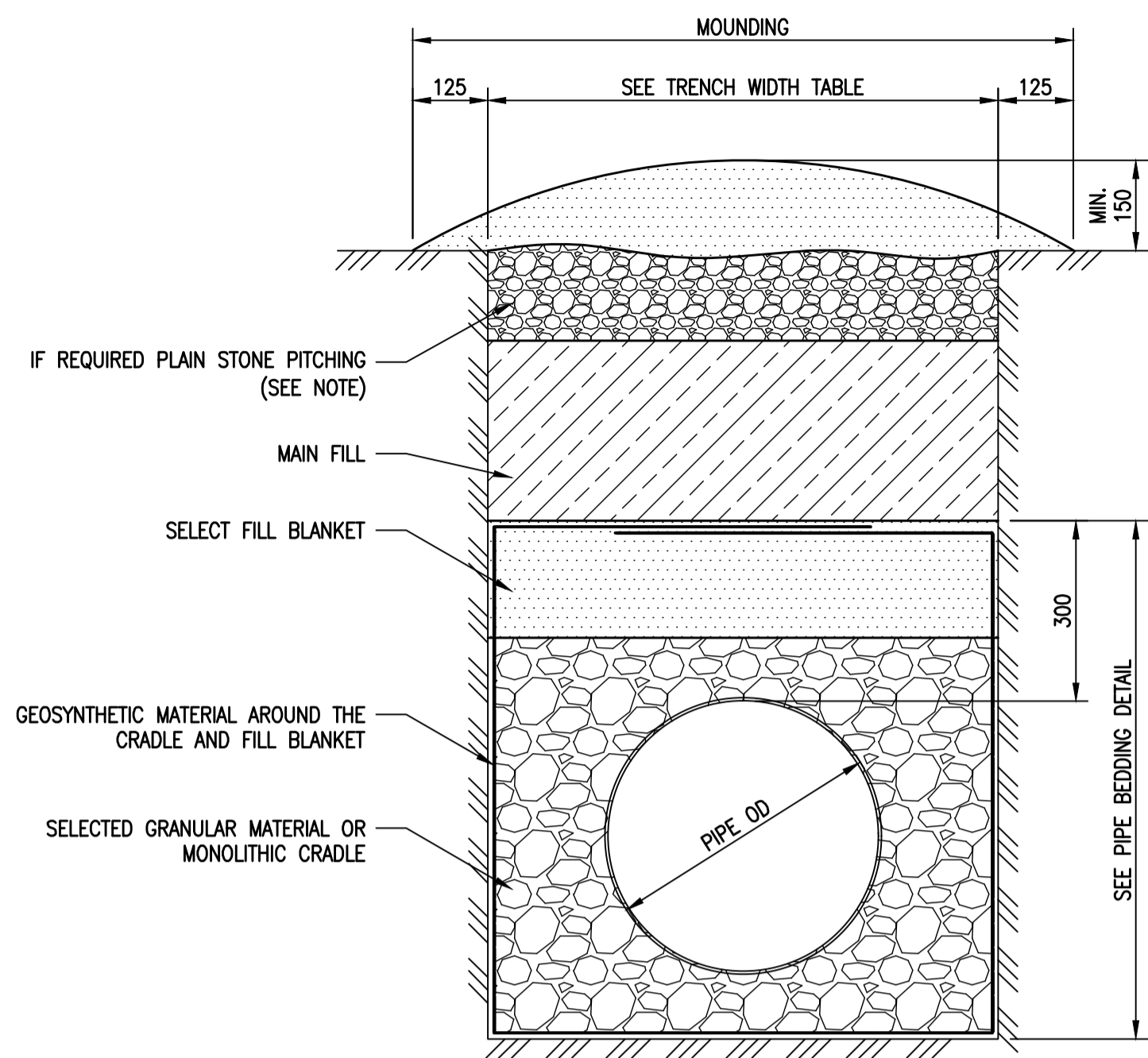
VAAL GAMAGARA REGIONAL WATER SCHEME: PHASE 2

DRAWING NAME

STANDARD STRUCTURAL BUILDING SECTION: GLOUCESTER RESERVOIR - FOUNDATION / NO FINES LAYOUT & DETAILS

CONTRACT NO RFP/VWSS/201883		
PROJECT NO P0386A00		
PROVINCE NORTHERN CAPE	DISTRICT JOHN TAOLO	
DATE 2019-02-28	SCALE AS SHOWN	SHEET NO 1 OF 1
DRAWING NO P0386A00-J11-3100-01		REV NO 00

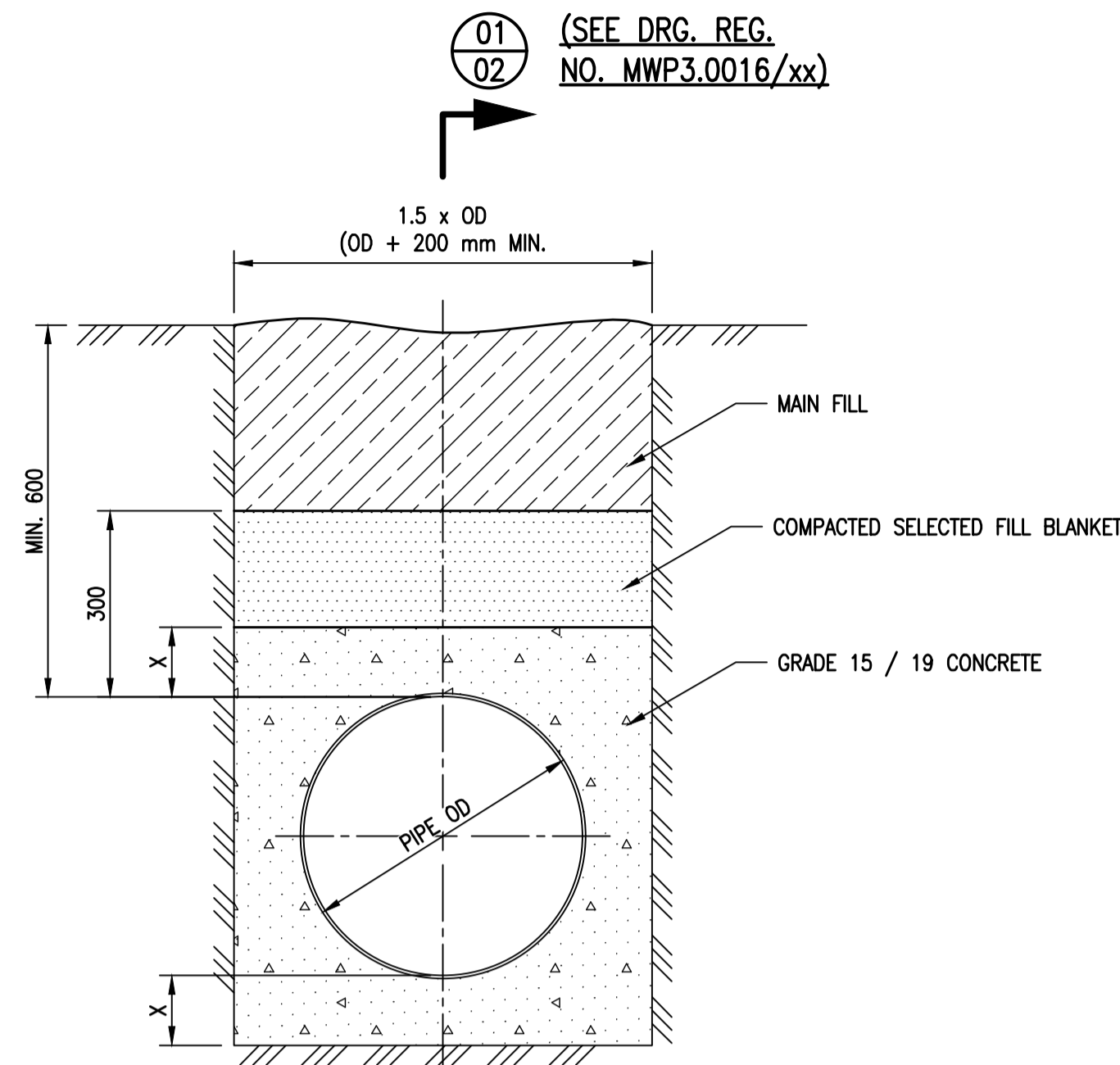
HULDA GOUWS/2019/03/13/FP:\0351\PO386A00\03 Drawings\PO386A00-J11-3100-01.dwg



NOTES:
 TO BE USED ONLY ON WRITTEN APPROVAL FROM THE ENGINEER IN CASES OF SHALLOW PIPES OR WHERE DEPTH FROM EXISTING GROUND LEVEL TO TOP OF PIPE IS 600 mm OR LESS. IN SITU MEASURES TO BE TAKEN TO ALLOW FOR CROSS DRAINAGE AS REQUIRED AT EXISTING GROUND LEVEL. IN THAT CASE TOP LAYER OF THE TRENCH TO BE REPLACED TO 200 mm DEPTH WITH STONE PLAIN PITCHING TO SABS 1200 DK.

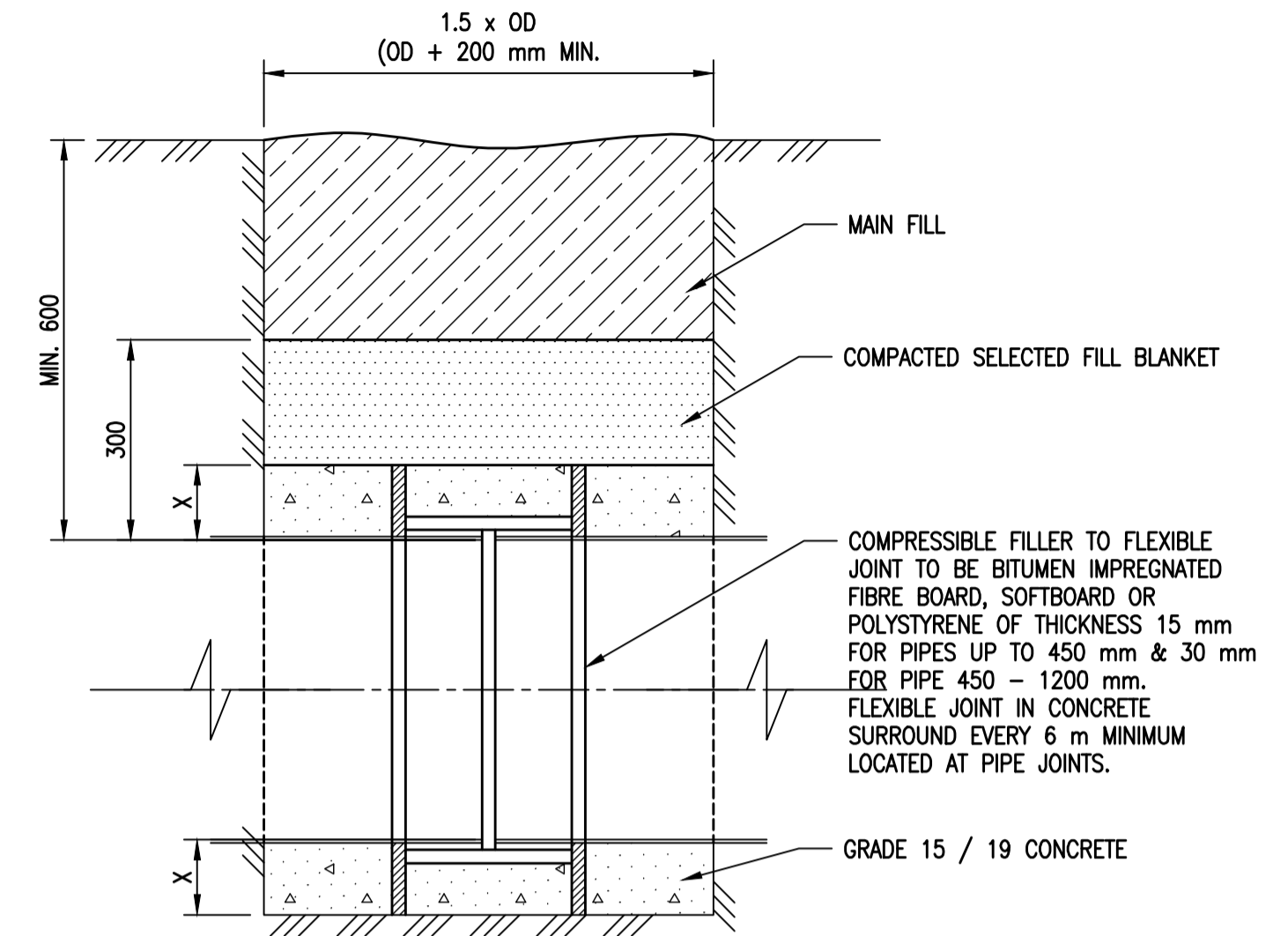
BACKFILLING OVER FLEXIBLE PIPE

RIGID PIPE BEDDING
 SCALE 1:10



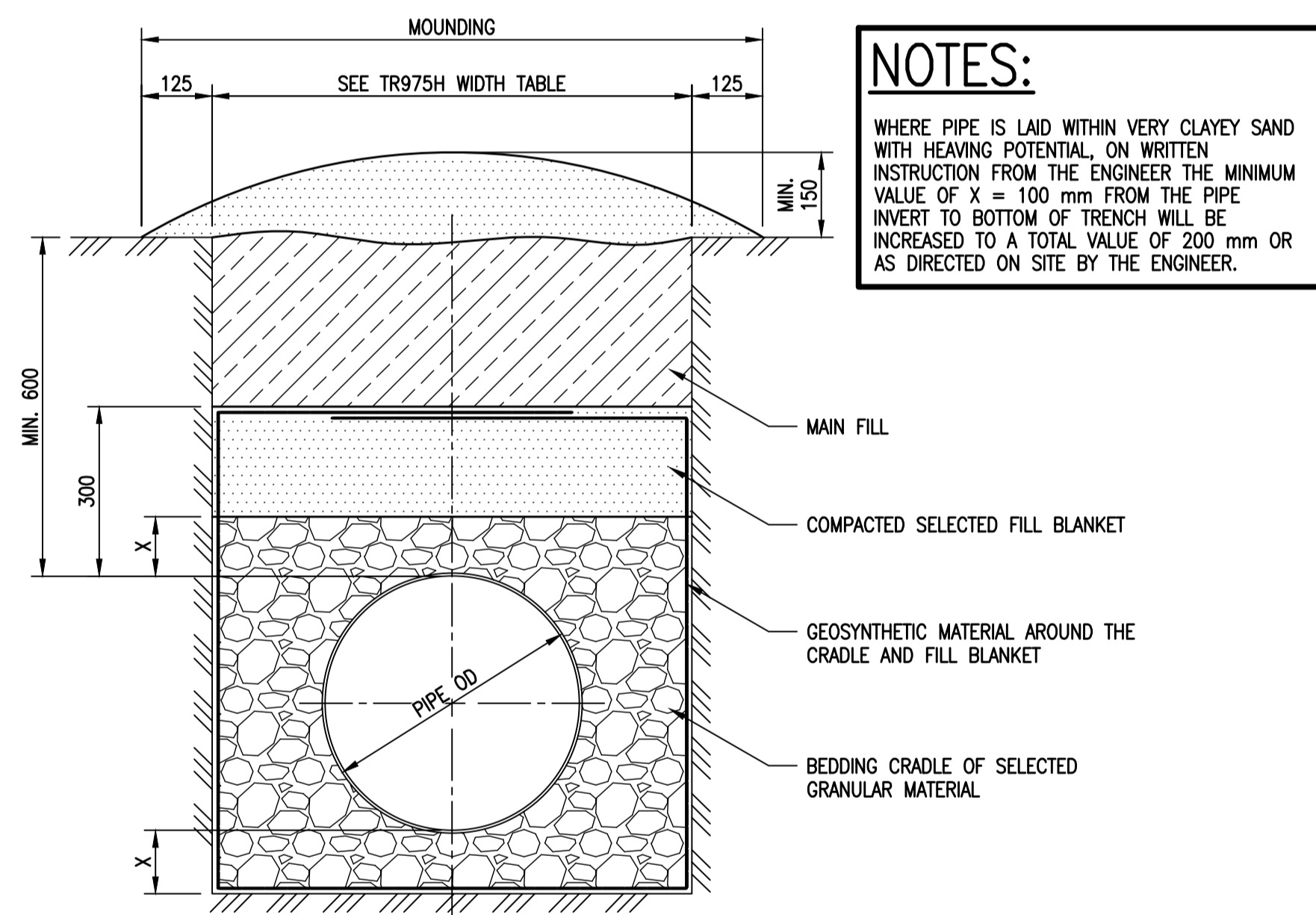
CONCRETE ENCASEMENT

RIGID PIPE BEDDING
 SCALE 1:10



SECTION 01-01

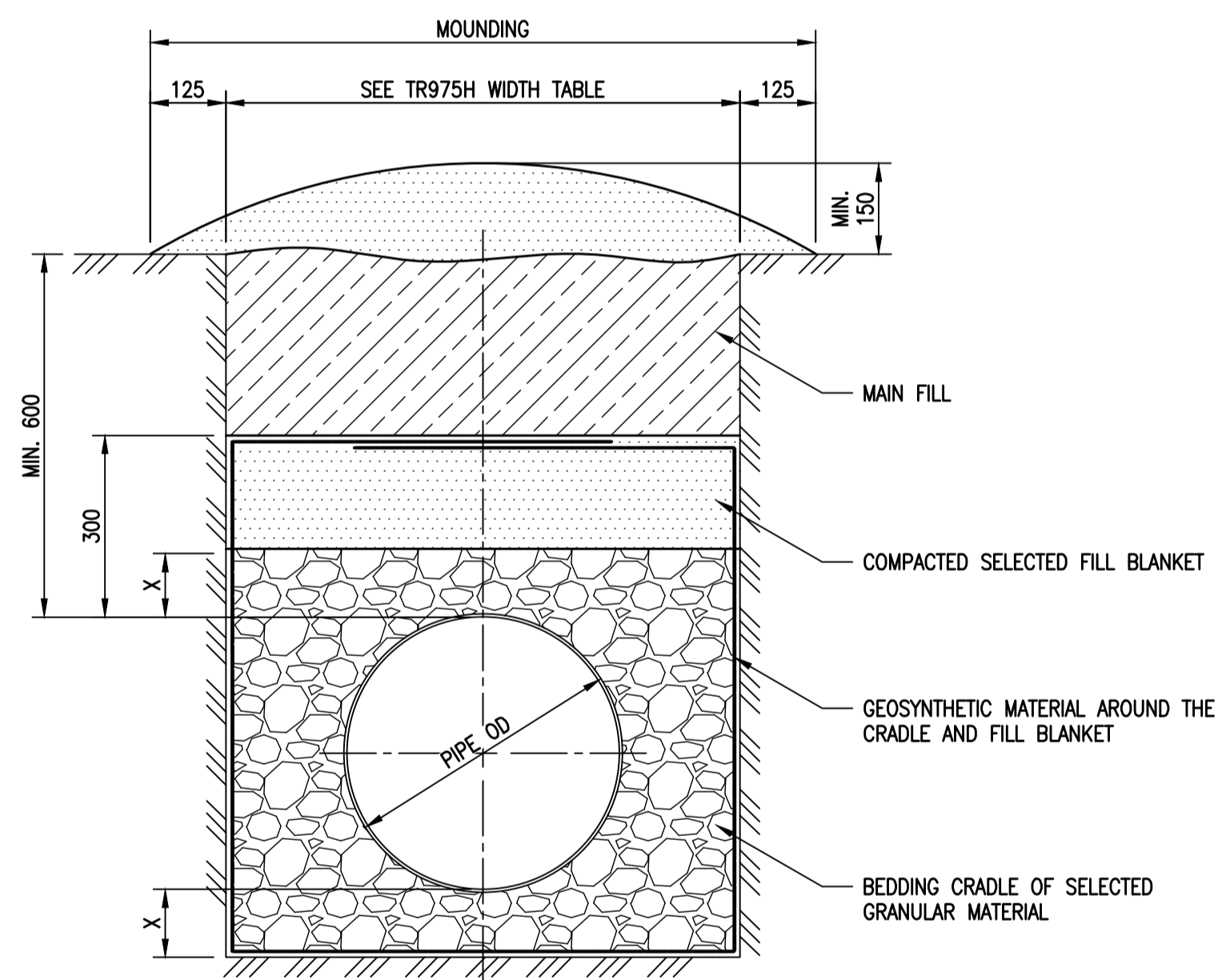
RIGID PIPE BEDDING
 SCALE 1:10



NOTES:
 WHERE PIPE IS LAID WITHIN VERY CLAYEY SAND WITH HEAVING POTENTIAL, ON WRITTEN INSTRUCTION FROM THE ENGINEER THE MINIMUM VALUE OF X = 100 mm FROM THE PIPE INVERT TO BOTTOM OF TRENCH WILL BE INCREASED TO A TOTAL VALUE OF 200 mm OR AS DIRECTED ON SITE BY THE ENGINEER.

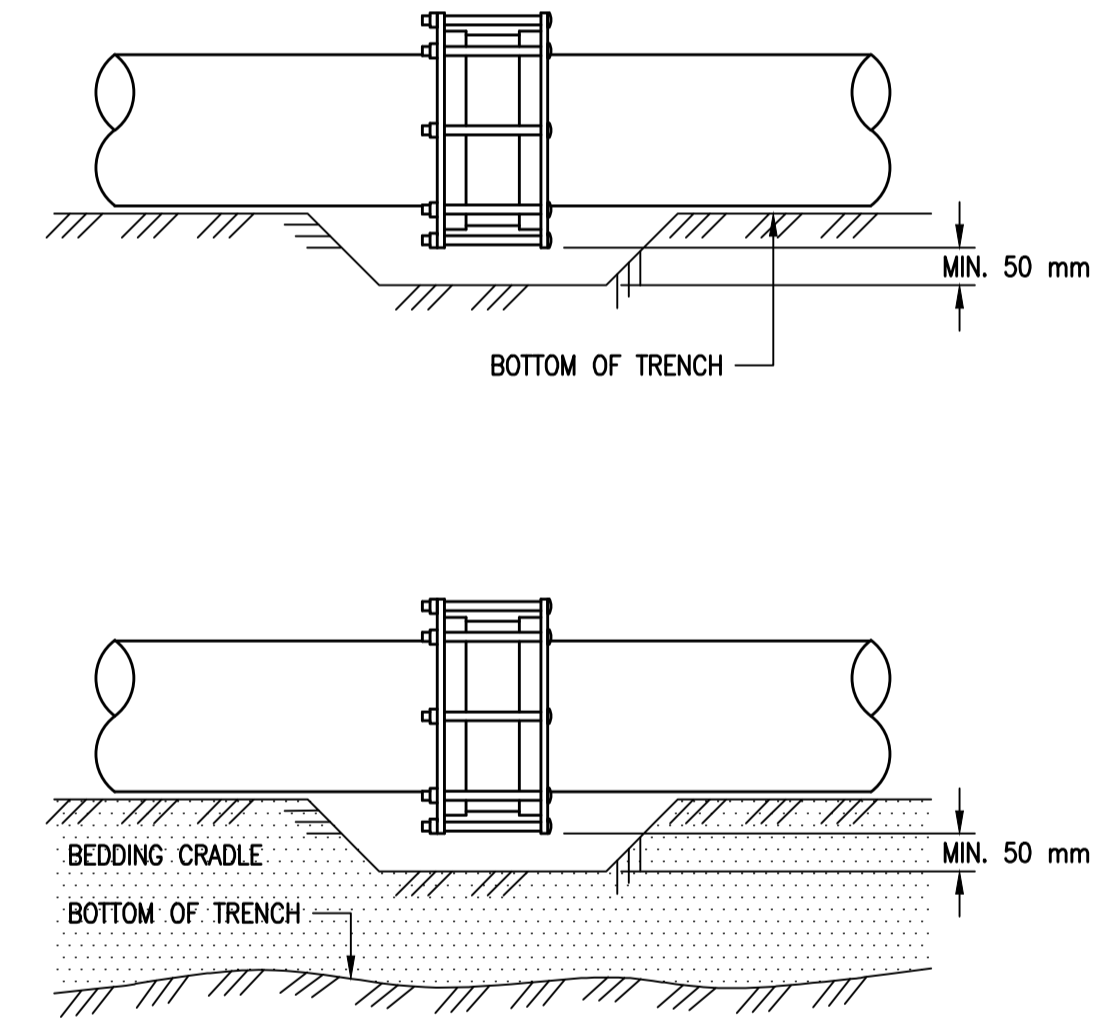
FLEXIBLE PIPE BEDDING

RIGID PIPE BEDDING
 SCALE 1:10



STONE BEDDING

RIGID PIPE BEDDING
 SCALE 1:10



JOINT POCKETS

RIGID PIPE BEDDING
 SCALE 1:10

SCALE 1:10 0 0.1 0.2 0.3 0.4 0.5 1 2 m

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REF. NO.	DESCRIPTION	DRAWING NO.

REV. NO.	DESCRIPTION	DATE	INT.

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APPROVED BY:		
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PROJECT NAME
VAAL GAMAGARA REGIONAL WATER SCHEME: PHASE 2

DRAWING NAME
GENERAL CIVIL DETAILS: PIPE BEDDINGS - 0 - 1,5 m DEEP

CONTRACT NO RFP/VWSS/201883		
PROJECT NO P0386A00		
PROVINCE NORTHERN CAPE	DISTRICT JOHN TAOLO	
DATE 2019-02-28	SCALE AS SHOWN	SHEET NO 2 OF 2
DRAWING NO P0386A00-B1-2090-02		REV NO 01

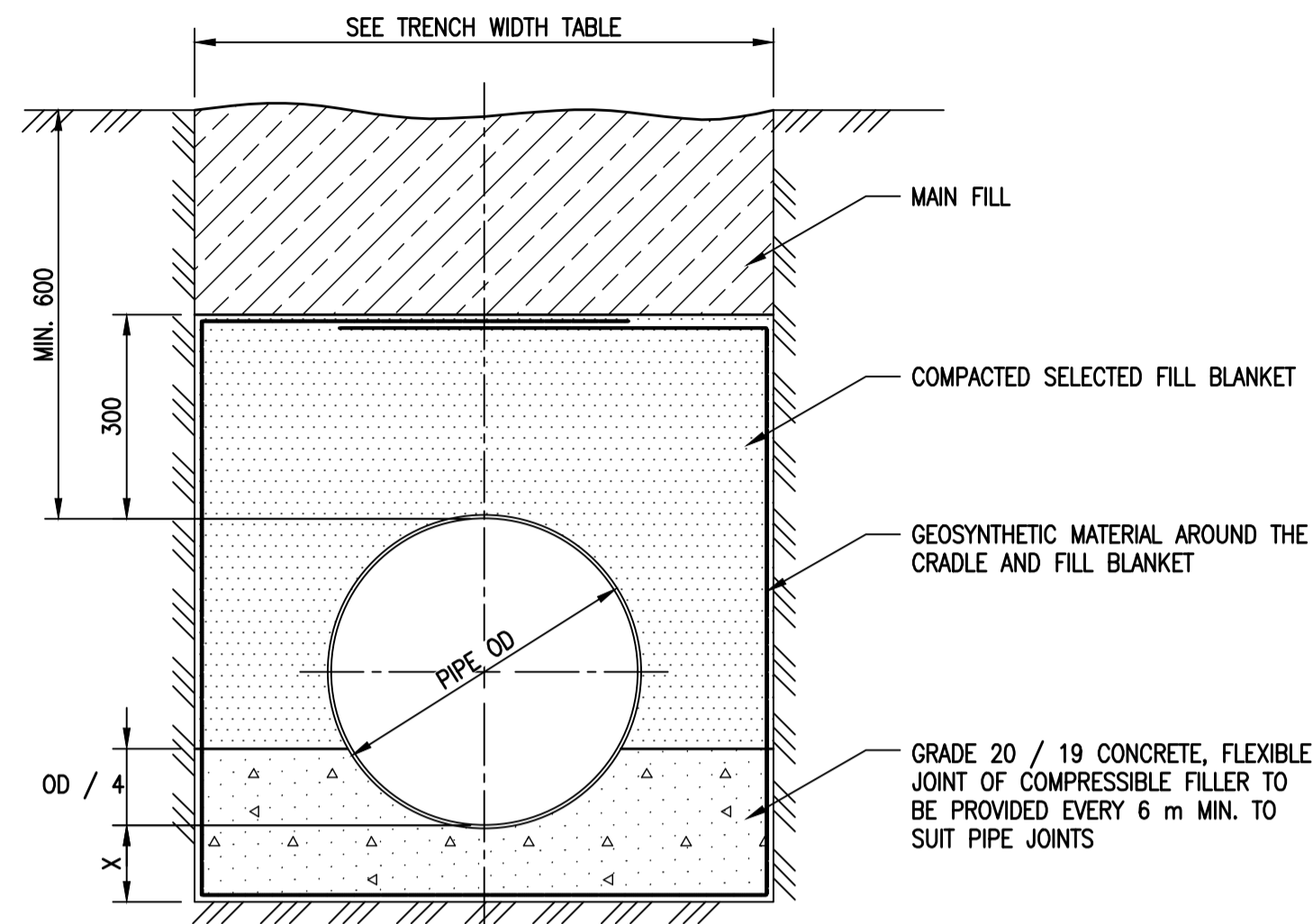
HULDA GOUWS/2019/03/14/FP:\0386A00\03 Drawings\PO386A00-B1-2090-02.dwg

CLASSIFICATION	
RIGID PIPE	FLEXIBLE PIPE
CASTIRON	STEEL
CONCRETE	uPVC
FIBRE CEMENT	HDPE
	mPVC

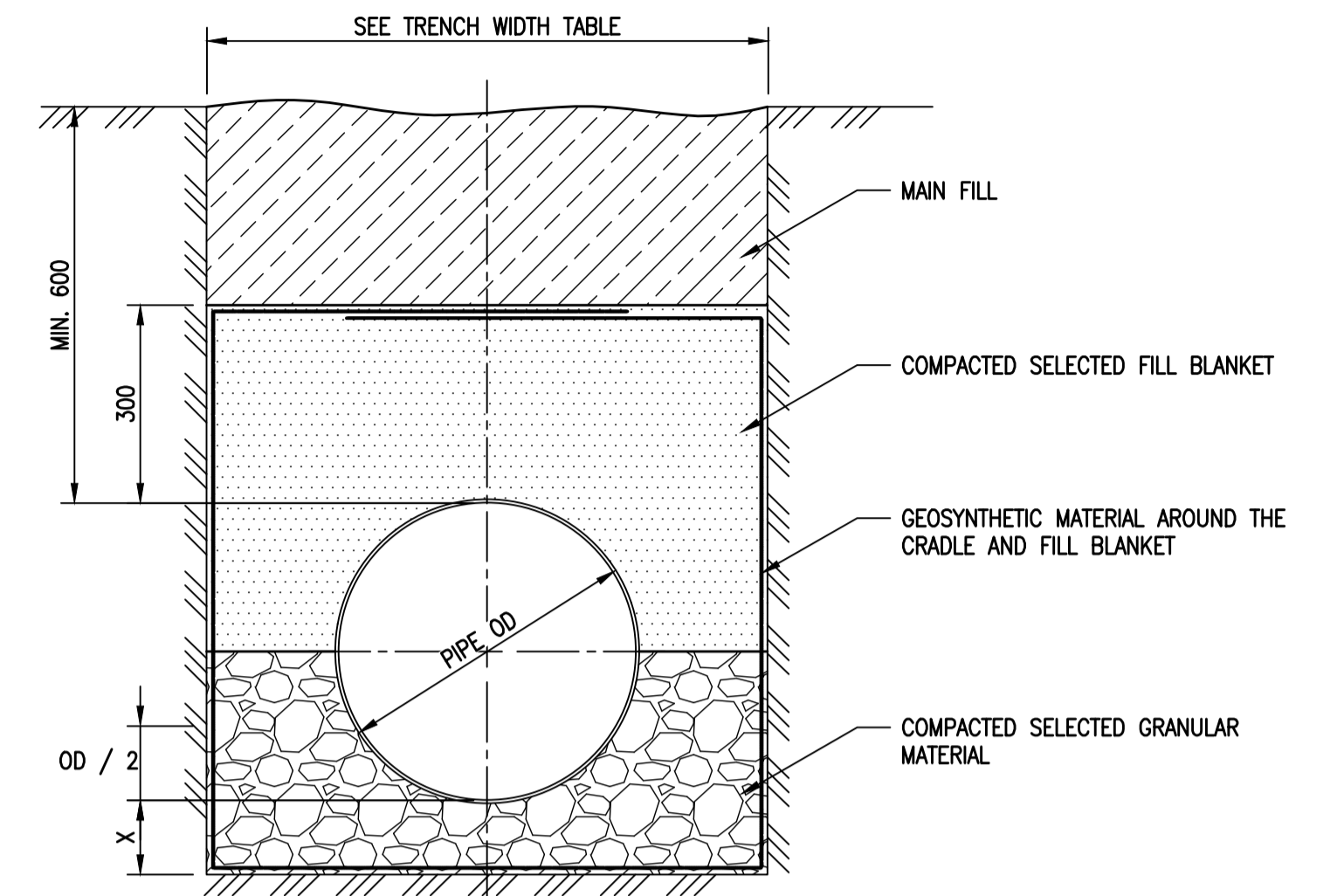
TRENCH WIDTH TABLE	
PIPE SIZES	TRENCH WIDTH (MIN.)
PIPE OD LESS THAN OR EQUAL TO 450 mm	= PIPE OD + 400 mm
PIPE OD ABOVE 450 mm UP TO 900 mm	= PIPE OD + 600 mm
PIPE OD ABOVE 900 mm UP TO 1500 mm	= PIPE OD + 700 mm
PIPE OD GREATER THAN 1500 mm	= 1.5 x PIPE OD

NOTES:

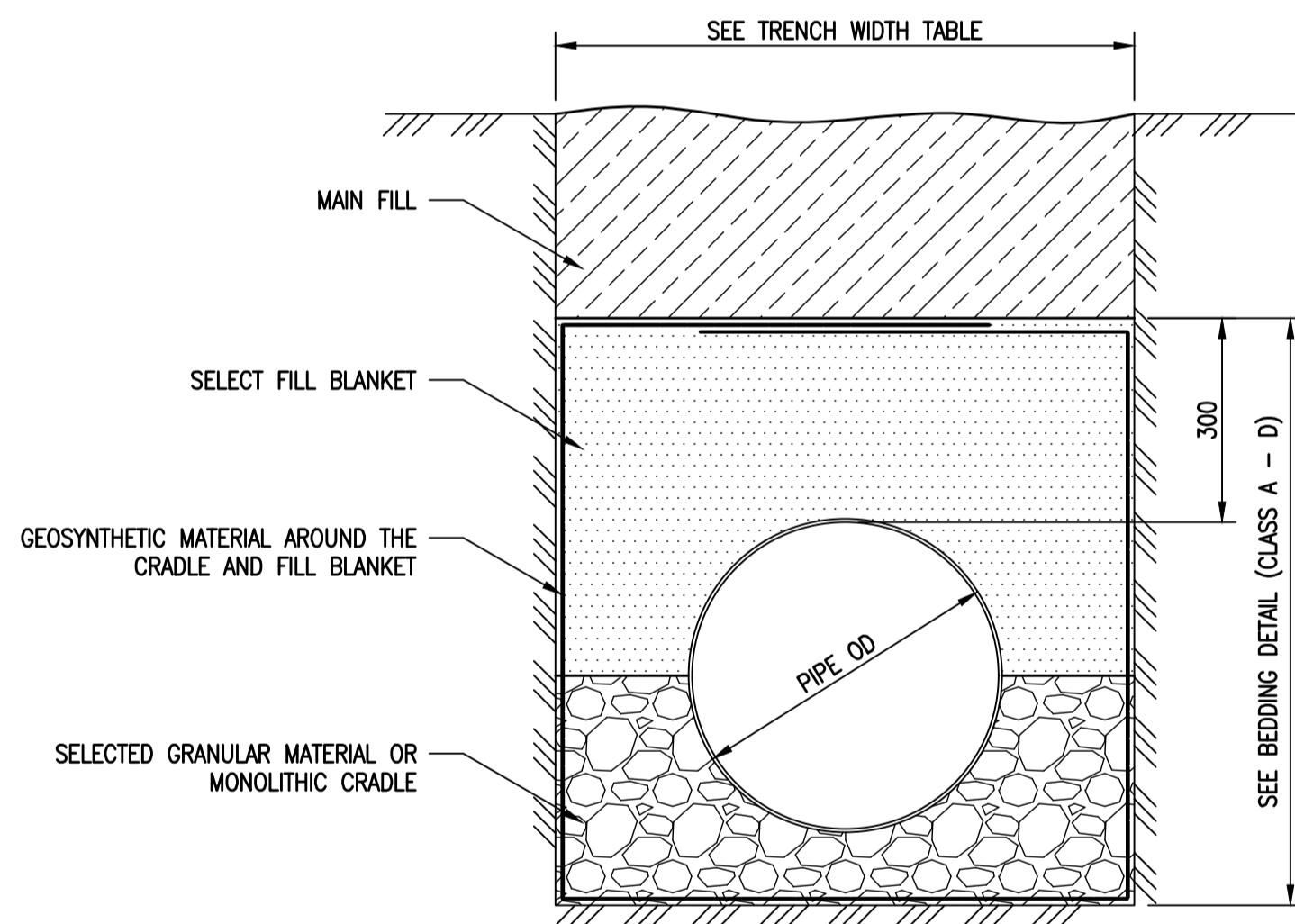
- DIMENSION X = OD/4, BUT MIN 100 mm IN SOIL OR 50 mm IN ROCK AND MAX OF 300 mm FOR CLASS A & CONCRETE ENCASED BEDDING.
- SELECTED FILL MATERIAL SHALL BE MATERIAL THAT HAS A PI NOT EXCEEDING 6 AND IS FREE FROM VEGETATION, CLAY LUMPS AND STONES OF DIAMETER EXCEEDING 30 mm.
- SELECTED GRANULAR MATERIAL SHALL BE MATERIAL OF A GRANULAR NON-COHESIVE NATURE THAT IS SEPARATELY GRADED BETWEEN 0.8 & 18 mm, IS FREE DRAINING AND HAS A COMPATIBILITY FACTOR NOT EXCEEDING 0.4 AS DETERMINED BY TEST SPECIFIED IN SABS 0120: PART 3, SECTION LB 4.2.
- SELECTED FILL AND GRANULAR MATERIAL TO BE COMPACTED IN LAYERS NOT EXCEEDING 150 mm, EXCEPT FOR FLEXIBLE PIPES WHERE LAYERS NOT EXCEEDING 100 mm ARE REQUIRED.
- STONE BEDDING TO BE CLEAN CRUSHED ROCK, SIZE GRADING MIN 13 - 19 mm MAX.
- OD STANDS FOR OUTSIDE DIAMETER OF PIPE.



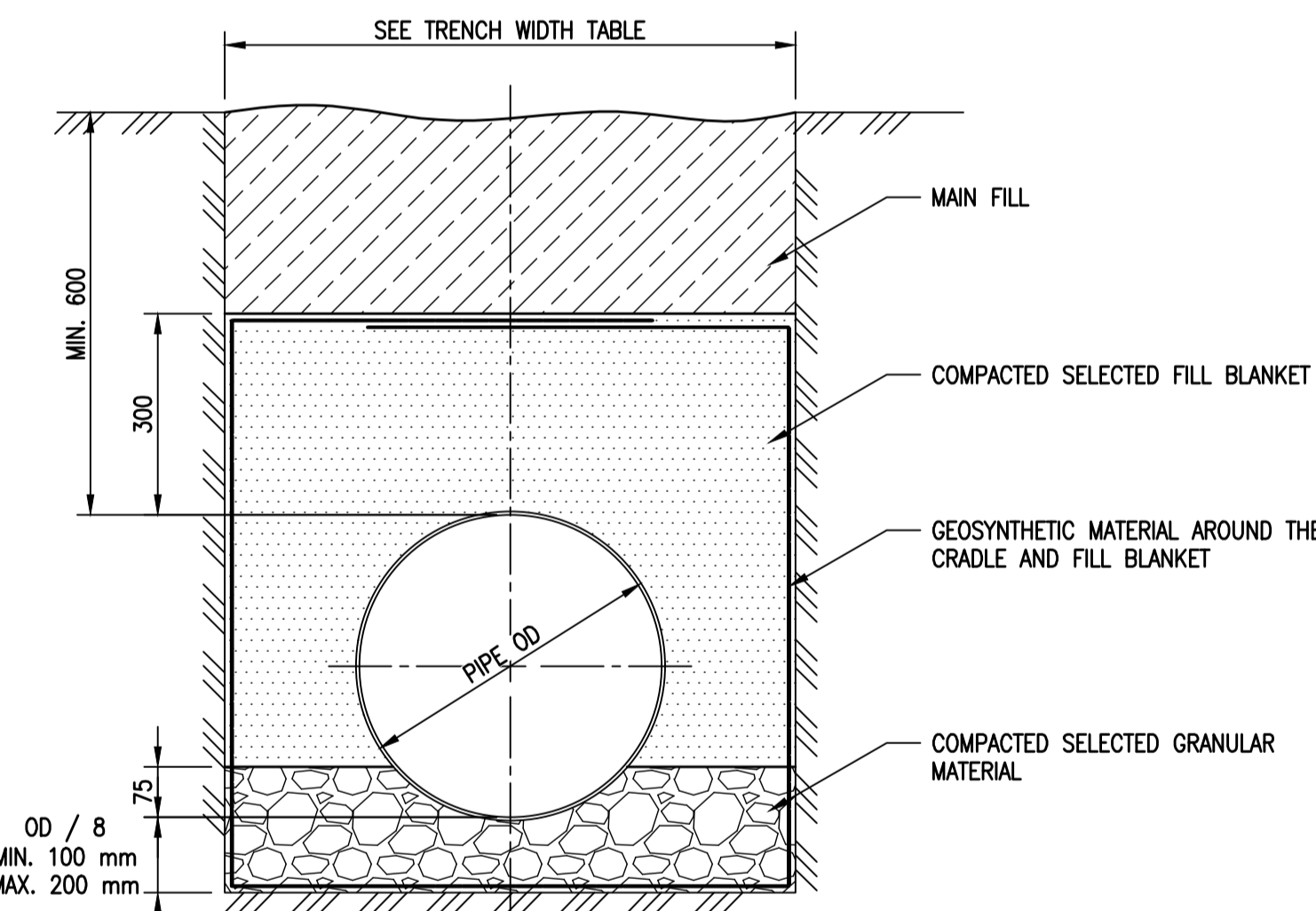
CLASS A
RIGID PIPE BEDDING
SCALE 1:10



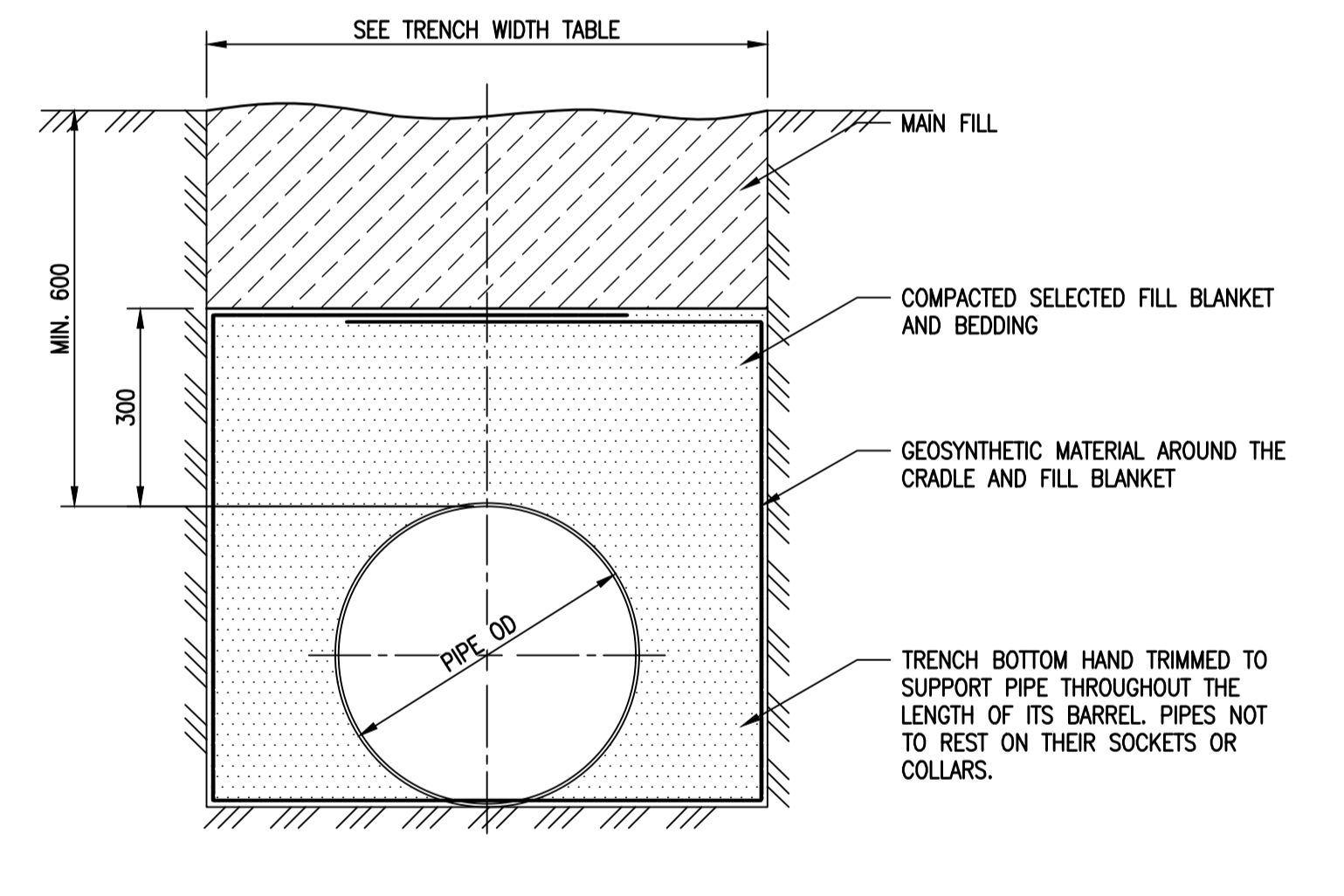
CLASS B
RIGID PIPE BEDDING
SCALE 1:10



BACKFILLING OVER RIGID PIPE
RIGID PIPE BEDDING
SCALE 1:10



CLASS C
RIGID PIPE BEDDING
SCALE 1:10



CLASS D
RIGID PIPE BEDDING
SCALE 1:10

SCALE 1:10



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PROJECT NAME

VAAL GAMAGARA REGIONAL WATER SCHEME: PHASE 2

DRAWING NAME

**GENERAL CIVIL DETAILS:
PIPE BEDDINGS - 0 - 1,5 m DEEP**

CONTRACT NO		
RFP/VWSS/201883		
PROJECT NO		
P0386A00		
PROVINCE	DISTRICT	
NORTHERN CAPE	JOHN TAOLO	
DATE	SCALE	SHEET NO
2019-02-28	AS SHOWN	1 OF 2
DRAWING NO	REV NO	
P0386A00-B1-2090-01	01	

HULDA GOUWS/2019/03/14/PRO-PLAN/0386A00/03 Drawings/P0386A00-B1-2090-01.dwg