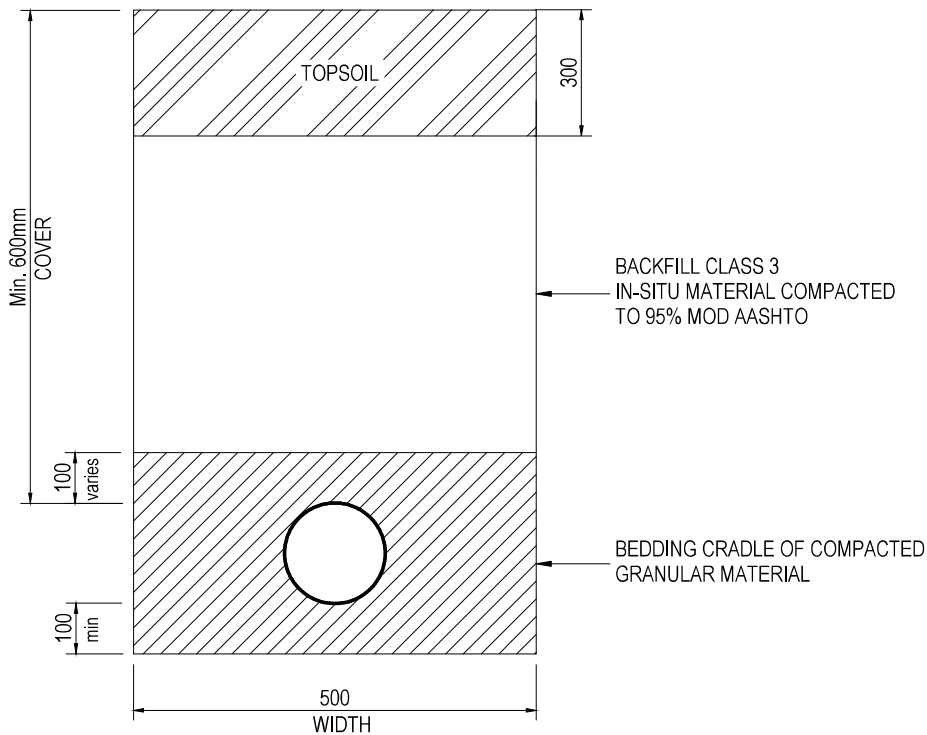


PIPE BEDDING AND BACKFILL UNDER ROADS
SCALE 1 : 15



PIPE BEDDING AND BACKFILL UNDER ACCESS DRIVEWAYS
SCALE 1 : 15

1. THE CONTRACTOR MUST AT ALL TIMES COMPLY WITH THE SAFETY REGULATIONS IMPOSED IN CLAUSE 5.1.1.2 OF SANS 1200D WHICH STIPULATES THE PRECAUTIONS TO BE TAKEN IN ALL TRENCH EXCAVATIONS.

2. BEDDING MATERIAL
THE BEDDING MATERIAL MUST BE SELECTED GRANULAR MATERIAL WITH PI < 6 AND MUST BE WITHOUT STONE > 20mm, ORGANIC MATTER OR LUMPS OF CLAY.

THE BEDDING MATERIAL MUST BE COMPACTED UNDERNEATH, ON BOTH SIDES AND ABOVE THE WATER PIPE TO 93% MOD. AASHTO DENSITY.

IN EXCESSIVE WATER CONDITIONS, A 150mm BEDDING LAYER OF 19mm SINGLE DIAMETER STONE MAY BE USED. (BY WRITTEN INSTRUCTION OF THE ENGINEER ONLY)

3. BACKFILLING CLASS 2
SELECTED BACKFILLING MATERIAL WITH CBR > 7 AT 97% OF MOD. AASHTO DENSITY.
MAX. PI < 12.
MAX. LAYER THICKNESS OF 100mm.
G7 MATERIAL.

4. BACKFILLING CLASS 3
MATERIAL FROM TRENCH EXCAVATIONS COMPACTED TO 95% MOD. AASHTO DENSITY.

5. SANS 1200 AND IN PARTICULAR THE REQUIREMENTS OF SANS 1200 LB (BEDDING) SANS 1200 DB (TRENCH EXCAVATION) AND SANS1200L (MEDIUM PRESSURE PIPELINES) AS WELL AS THE PROJECT SPECIFICATION (INCLUDING VO'S) SHALL OVERRIDE ANY CONFLICTING SPECIFICATIONS SHOWN ON THIS DRAWING UNLESS OTHERWISE ORDERED BY THE ENGINEER.

6. FREEHAUL DISTANCE FOR BEDDING FROM TRENCH EXCAVATION IN 5 km

7. FREEHAUL DISTANCE FOR DISPOSAL OF SURPLUS EXCAVATION is 5 km FOR MACHINES AND 500m FOR WHEELBARROWS (PSDAI)

8. PIPES UNDERNEATH ROADS AND ACCESS ROADS SHALL HAVE 1,0m COVER. ALL OTHER PIPES SHALL HAVE 600mm COVER EXCEPT WHERE ORDERED OTHERWISE BY THE ENGINEER.

9. LABOUR INTENSIVE EXCAVATION

(i) SOFT EXCATATION

SOFT EXCAVATION SHALL BE THAT EXCAVATION IN MATERIAL, WHICH IN THE OPINION OF THE ENGINEER, CAN BE EFFICIENTLY EXCAVATED AND LOADED BY MEANS OF HAND-HELD TOOLS EXCLUDING PNEUMATIC OR HYDRAULIC BREAKING TOOLS. SOFT EXCAVATION SHALL INCLUDE ALL BOULDER WITH A VOLUME OF LESS THEN 0.125m³ AND A MAXIMUM DIMESION OF 500mm, WHICH CAN STILL BE REMOVED BY HAND METHODS.

(ii) HARD EXCAVATION/HARD ROCK

HARD EXCAVATION SHALL BE EXCAVATION IN MATERIAL, WHICH IN THE OPINION OF THE ENGINEER, CAN ONLY BE REMOVED EFFICIENTLY WITH MECHANICAL EQUIPMENT SUCH AS JACKHAMMERS, DRILLING AND BLASTING etc. HARD EXCAVATION SHALL ALSO INCLUDE BOULDERS WITH A VOLUME EXCEEDING 0.125 m³ AND THE MAXIMUM DIMENSION EXCEEDING 500mm, WHICH CANNOT BE BROKEN DOWN AND REMOVED BY HAND METHODS.

(iii) MACHINE BASED EXCAVATION

IN CASES WHERE HEAVY EXCAVATION EQUIPMENT IS PERMITTED, ONLY TWO CLASSES OF EXCAVATION SHALL BE APPLICABLE, i.e. HARD ROCK EXCAVATION AND SOFT EXCAVATION.

HARD ROCK EXCAVATION SHALL BE AS SPECIFIED IN SUBCLAUSE 3.1.2 (c) OF SANS 1200 D, WHILE EXCAVATION IN ALL OTHER MATERIALS SHALL BE CLASSIFIED AS SOFT EXCAVATION.

BOULDERS WHICH REQUIRE INDIVIDUAL DRILLING AND BLASTING IN ORDER TO BE LOADED BY A FRONT END LOADER OR BACK ACTING EXCAVATOR, SHALL BE CLASSIFIED AS HARD ROCK AND WILL BE MEASURED INDIVIDUALLY AS THEY ARE REMOVED.

NOTES:

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| A | 24/05/2023 | NJ | FOR TENDER |
| No. | Date | By | Description |

REVISIONS

AS BUILT DRAWINGS

| | |
|------------------------|------------|
| TECHNICAL CO-ORDINATOR | ENGINEER |
| DATE:..... | DATE:..... |

CLIENT



CLIENT APPROVAL

Project leader: --- Signature: ---

Date: ---

CLIENT DRAWING NUMBER:

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|---|-------|------------|
| Designed: N. Naumann | Date: | Signature: |
| Drawn: N. Barnard | Date: | Signature: |
| Checked: N. Naumann | Date: | Signature: |
| Approved: C. Claassens Pr. Reg No.: 800450 | Date: | Signature: |

PROJECT TITLE
FOSKOR - RELINING OF STORMWATER DAMS

PROJECT DESCRIPTION
TECHNICAL DESIGN OF STORMWATER DAMS

DRAWING TITLE
TYPICAL DETAIL: PIPE TRENCHES

| | | | |
|----------------|-----------------|-----------|------------------|
| DATE: MAY 2023 | SCALE: AS SHOWN | A3 | SHEET NO: 1 OF 1 |
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|--|--|--|----------|
| PLAN No. | | | Rev |
| CONSULTING ENGINEER'S NO: R21-097-00-350 | | | A |