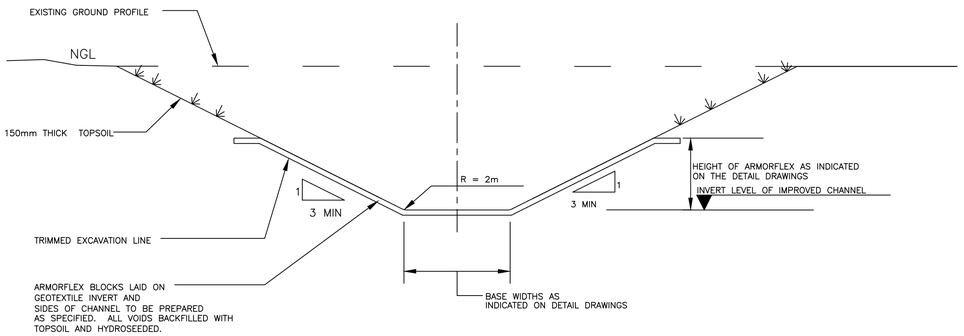
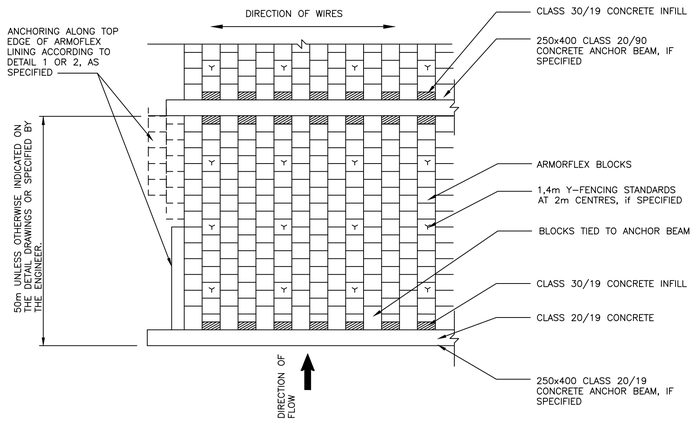
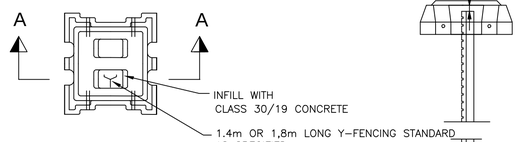


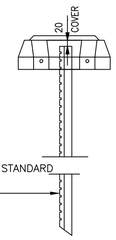
CHANNEL WITH ARMOFLEX LINING



TYPICAL PLAN

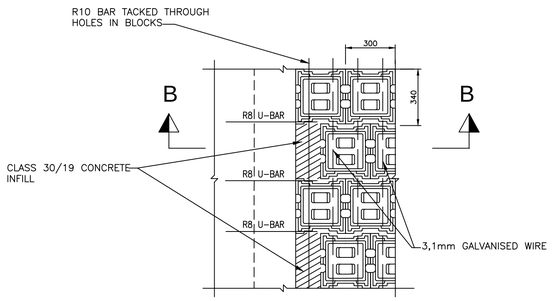


PLAN

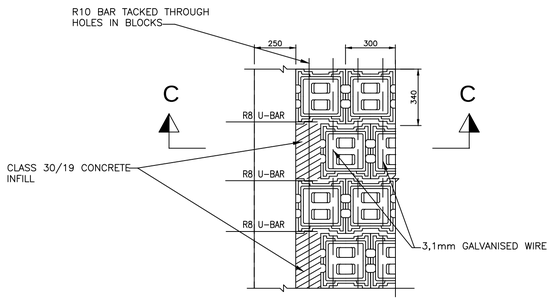


SECTION A-A

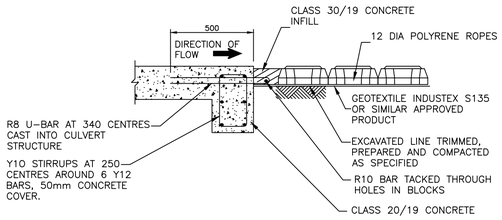
INTERMEDIATE ANCHORS



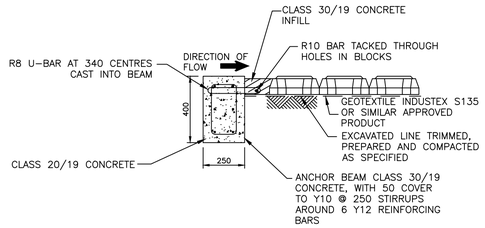
DETAIL FOR CONNECTION TO CULVERT OUTLET STRUCTURE



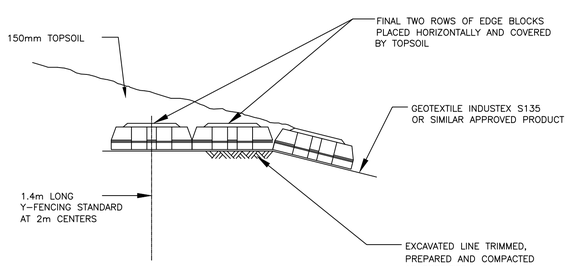
DETAIL FOR CONNECTION TO ANCHOR BEAM



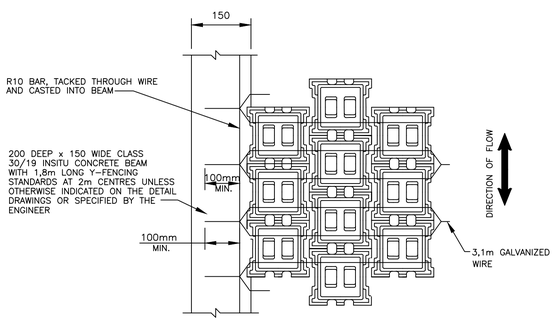
SECTION B-B



SECTION C-C



DETAIL 1 FOR ANCHORING ALONG TOP EDGE OF ARMOFLEX LINING: Y- FENCING STANDARDS



DETAIL 2 FOR ANCHORING ALONG TOP EDGE OF ARMOFLEX LINING: CONCRETE BEAM AND Y- FENCING STANDARDS

NOTES AND SPECIFICATIONS

NOTES FOR THE INSTALLATION OF ARMORFLEX BLOCKS

1.INTRODUCTION

1.1 ARMORFLEX BLOCKS 180 OR SIMILAR WILL BE LAID IN ACCORDANCE WITH THIS SPECIFICATION. EACH BLOCK SHALL BE FACTORY PRODUCED, FROM COMPRESSED CONCRETE, WITH VERTICAL HOLES AND TWO HORIZONTAL CABLE DUCTS. CONCRETE USED IN THE MANUFACTURE OF THE BLOCKS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 30MPA. OUTSIDE DIMENSIONS IN MILLIMETERS SHALL BE 340 x 300 x 110. EACH BLOCK SHALL HAVE A MASS OF APPROXIMATELY 17.1KG. THE INTERLOCKED BLOCKS SHALL HAVE A UNIT MASS OF 180kg/m ^{2}

1.2 ARMORFLEX BLOCKS TO BE LAID BY HAND UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

1.3 3.1mm GALVANIZED WIRE SHALL BE USED. THE WIRES ARE TO RUN AT RIGHT ANGLES TO THE DIRECTION OF FLOW.

2.PREPARATION OF EXPOSED SURFACES OF CANAL

2.1 THE BASE OF THE CANAL WILL BE PREPARED IN ACCORDANCE WITH THE LINES INDICATED ON THE DETAIL DRAWINGS. THE FINISHED LEVEL SHALL NOT DEVIATE MORE THAN 25mm ON A 3m STRAIGHT EDGE. IN CUT THE TRIMMED EXCAVATION MUST BE TO LINE AND LEVEL, FILL MUST BE COMPACTED TO 90% MOD AASTHO DENSITY BEFORE BEING TRIMMED TO LINE AND LEVEL. THE SURFACE SHOULD BE LIKE A GRADER TYPE FINISH FREE FROM PROTUDING ROOTS, TREE STUMPS, ROCKS, ETC.

3.GEOTEXTILE

3.1 A GEOTEXTILE SIMILAR TO INDUSTEX S135 SHALL BE PLACED ON THE PREPARED SURFACE TO THE LINES SHOWN ON THE DRAWINGS. OVERLAPS MUST AT LEAST BE 250mm.

4.LAYING OF INTERLOCKING BLOCKS

4.1 AFTER THE GEOTEXTILE HAS BEEN APPROVED AND LAID, THE ARMORFLEX BLOCKS SHALL BE LAID BY A HALF BOND INTERLOCKING PATTERN. THE CABLE DUCTS WILL BE AT RIGHT ANGLES TO THE DIRECTION OF WATER FLOW OF THE CANAL AND THE SHORTER DIMENSION OF THE BLOCKS SHALL BE IN THE DIRECTION OF FLOW. THE MINIMUM AMOUNT OF BLOCKS SHOULD BE CUT ALONG CORNERS AND BENDS. LAYING SHALL ALWAYS COMMENCE ON THE FLOOR OF THE CANAL. ONCE A GRID OF BLOCKS HAS BEEN LAID, THE WIRES SHALL BE FED THROUGH THE CABLE DUCTS. THE WIRES SHALL BE OF 3.1mm DIAMETER HOT DIPPED GALVANIZED FENCING WIRE. THE LENGTH OF THE WIRES SHALL BE SUFFICIENT TO ALLOW THEEXPOSED ENDS TO BE EFFECTIVELY JOINTED. THE WIRES MUST BE JOINTED BY TWISTING THE ENDS NEATLY FOR A TWISTED STRETCH OF MINIMUM 100mm. THE FINISHED LEVEL OF THE ARMORFLEX BLOCKS MAY NOT DEVIATE MORE THAN 25mm ON A 3m STRAIGHT EDGE. NO INDIVIDUAL BLOCK MAY PROTRUDE MORE THAN 10mm PROUD OF ANY ADJACENT BLOCKS

5. ANCHORING

5.1 ANCHORING BY MEANS OF Y-FENCING STANDARDS
THE BLOCKS WILL BE ANCHORED IN A 2m GRID WITH 1.4m LONG Y-FENCING STANDARDS DRIVEN INTO THE GROUND IF SO INDICATED ON THE DETAIL DRAWINGS OR SPECIFIED BY THE ENGINEER.

5.2 ANCHORING WITH ANCHOR BEAM
SPECIFIED BY THE ENGINEER ALONG A STRAIGHT SECTION OF THE CANAL. THE CONCRETE SHALL 400mm DEEP AND THE BEAM SHALL BE AT LEAST 400mm DEEP AND 250mm WIDE. THE CONCRETE SHALL HAVE A 28 DAY STRENGHT OF ATLEAST 20MPa. R8 U-BARS AT 340 CENTRES SHALL BE CAST INTO THE BEAM.

5.3 ANCHORING ALONG THE SIDES OF THE CANAL
ANCHORING ALONG THE TOP EDGE OF THE ARMOFLEX LINING SHALL BE ACCORDING TO DETAIL 1 OR 2, AS SPECIFIED.

DETAIL 1: THE UPPER TWO ROWS OF EDGE BLOCKS SHALL BE PLACED HORIZONTALLY AND COVERED BY TOPSOIL AS SHOWN ON THE DRAWINGS. THE LAST LINE OF BLOCKS SHALL BE ANCHORED BY MEANS OF Y-FENCING STANDARDS DRIVEN INTO THE GROUND EVERY 2m ALONG THE EDGE OF THE CANAL.

DETAIL 2: A 200 DEEP x 150 WIDE CLASS 20/19 INSITU CONCRETE BEAM. STANDARDS AT 2m CENTRES. ANCHORED WITH 1,8m LONG Y-FENCING SHALL R10 BAR, TACKED THROUGH THE WIRE, SHALL BE CASTED INTO THE BEAM.

5.4 CONSTRUCTION JOINTS SHALL BE PROVIDED AT 5m CENTRES ALONG ANCHOR AND OTHER CONCRETE BEAMS.

6.BACKFILLING AND GRASSING

AS SOON AS THE BLOCKS HAVE BEEN LAID, WIRED UP AND THE ANCHORS PROVIDED TO THE SATISFACTION OF THE ENGINEER, THE OPEN CELLS AND JOINT AREAS SHALL BE FILLED WITH TOPSOIL AND THE AREA

HYDROSEEDED ACCORDING TO THE SPECIFICATION. FERTILIZER AS APPROVED BY THE ENGINEER SHALL BE MIXED INTO THE SOIL BEFORE BACKFILLING. IMMEDIATELY AFTER HYDROSEEDING THE HYDROSEEDED AREA SHALL BE WATERED.

7.MAINTENANCE

THE GRASS SHALL BE MAINTAINED DURING THE DURATION OF THE CONTRACT BY WATERING. DAMAGED AREAS SHALL BE REPAIRED.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

DESIGNED **J.P. GROBLER Pr.Eng.** SIGNATURE: DATE:	DRAWN **S. AUDIE**
DESIGN CHECKED BY **P. A. ODENDAAL Pr.Eng.** SIGNATURE: DATE:	INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT **D.J. CHALMERS** SIGNATURE: DATE:

CITY OF TSHWANE
ROADS AND TRANSPORT DEPARTMENT

GROUP HEAD
Mr Letlonkane P. (Pheko)
P.O. BOX 1409
PRETORIA
0001

ACTING DIVISIONAL HEAD
Mr Lebepe M.T. (Thabo)
P.O. BOX 1409
PRETORIA
0001

DRAWING APPROVED BY ACTING EXECUTIVE DIRECTOR
Mr Lebepe M.T. (Thabo)
SIGNATURE: DATE:

LOCATION OF PROJECT:

TYPICAL STANDARD DETAILS

DESCRIPTION OF PROJECT

EROSION PROTECTION MEASURES

ARMOFLEX LINING DETAILS

CONTRACT No. :	PROJECT No. :	
DATE : **FEBRUARY 2017**	SCALE : **AS SHOWN**	ORIGINAL PAPER SIZE: **A1**
0 10 20 40 60 80m SCALE 1:1000	DRAWING NO. STD012	SHEET NO: 1 OF 1

REVISION