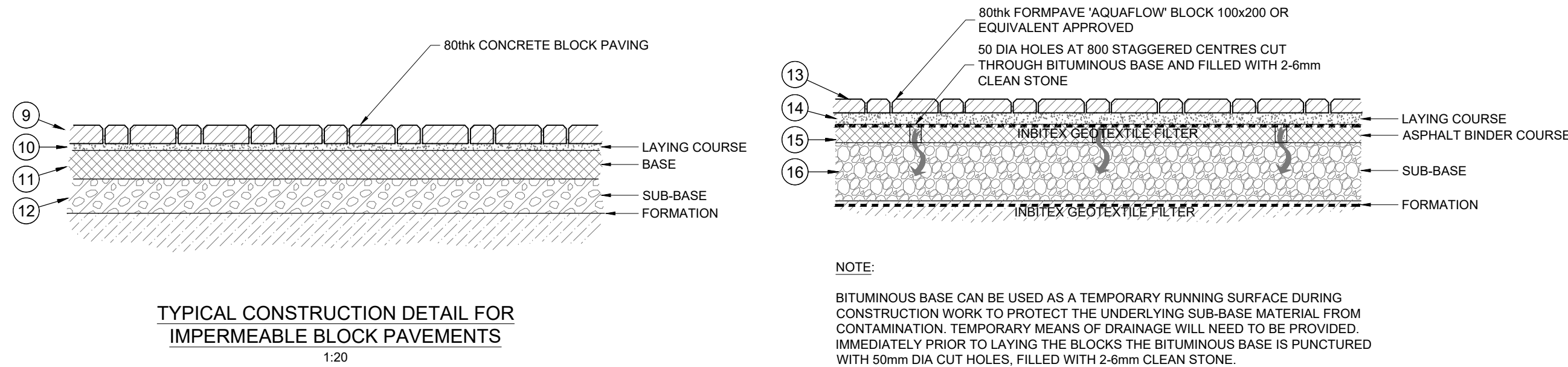
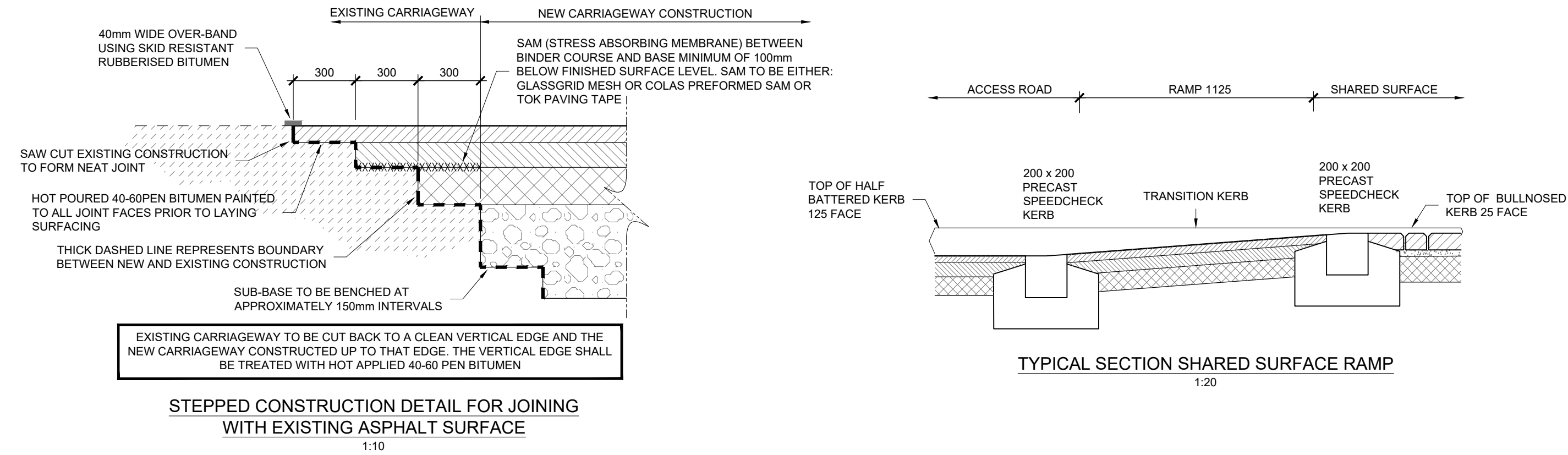


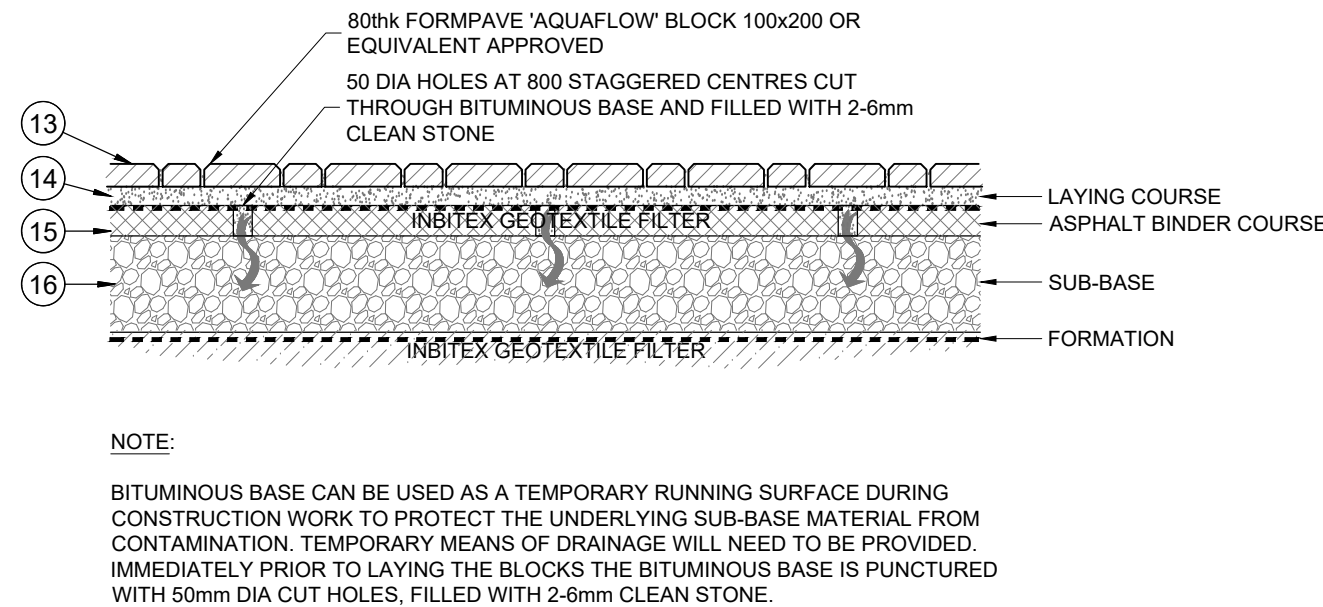
ROAD CONSTRUCTION SPECIFICATION			
	LAYER	SPECIFICATION	COMPACTED THICKNESS (mm)
CARRIAGEWAY	1	HRA 55/10 F SURF 40/60 HOT ROLLED ASPHALT SURFACE COURSE TO PD6691:2015 (TABLE C2A, COL 12) AND BSEN13108-4, TYPE F DESIGN MIX CONTAINING 55% COARSE AGGREGATE OF CRUSHED ROCK WITH A MAXIMUM AGGREGATE SIZE OF 10mm, A TYPE F FINE AGGREGATE OF CRUSHED ROCK AND A 40/60 PENETRATION GRADE BITUMEN BINDER.	40
	2	AC 20 DENSE BIN 40/60 DENSE ASPHALT CONCRETE BINDER COURSE TO BS EN 13108, BS594987 & PD6691. MAXIMUM AGGREGATE SIZE OF 20mm AND 40/60 PENETRATION GRADE BITUMEN BINDER.	60
	3	AC 32 DENSE BASE 40/60 DENSE ASPHALT CONCRETE BINDER COURSE TO PD6691:2015 (TABLE B11) AND BSEN13108-1. MAXIMUM AGGREGATE SIZE OF 32mm AND 40/60 PENETRATION GRADE BITUMEN BINDER.	90
	4	GRANULAR SUB-BASE TYPE 1 TO CLAUSE 803 ⁽¹⁾ CERTIFIED AS NON-FROST SUSCEPTIBLE. SPREAD EVENLY ON THE FORMATION IN LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. COMPACTION TO CLAUSE 802 ⁽¹⁾ TO ACHIEVE A MINIMUM CBR VALUE OF 20%.	CBR ⁽²⁾⁽³⁾⁽⁴⁾ 5% (ASSUMED)
FOOTWAY	5	AC 6 DENSE SURF 100/150 ASPHALT CONCRETE SURFACE COURSE AC6 DENSE SURF 100/150 TO BS EN 13108, BS594987 & PD6691, PSV TO BE 45 MIN	20 THICKENED TO 30mm AT VEHICULAR CROSSEOVERS
	6	AC 20 DENSE BIN 40/60 DENSE ASPHALT CONCRETE BINDER COURSE TO BS EN 13108, BS594987 & PD6691. MAXIMUM AGGREGATE SIZE OF 20mm AND 40/60 PENETRATION GRADE BITUMEN BINDER.	60 THICKENED TO 80mm AT VEHICULAR CROSSEOVERS
	7	GRANULAR SUB-BASE TYPE 1 TO CLAUSE 803 ⁽¹⁾ CERTIFIED AS NON-FROST SUSCEPTIBLE. SPREAD EVENLY ON THE FORMATION THAT HAS BEEN SHAPED AND PREPARED TO CLAUSE 616 ⁽¹⁾ SUB-BASE TO BE COMPACTED TO CLAUSE 802 ⁽¹⁾ .	150 THICKENED TO 220mm AT VEHICULAR CROSSEOVERS
VERGE	8	GRASSED AREAS SHALL BE GRADED TO THE APPROVED LEVEL, SPREAD WITH A MINIMUM DEPTH OF 150mm OF TOPSOIL AND CULTIVATED AND SOWN BETWEEN AUGUST-SEPTEMBER OR MARCH-APRIL ACCORDING TO GROUND CONDITIONS. THE APPROPRIATE SEASON WITH APPROVED GRASS SEED AT A MIN. RATE OF 0.020kg/m ² . SEED MIX TO BE HERTFORDSHIRE COUNTY COUNCIL TYPE A, SURFACE TO BE ROLLED AFTER SEEDING. THE FINISHED VERGE SHALL BE LEVEL WITH THE ADJACENT FOOTWAY AND KERBS AND SHALL HAVE A MINIMUM WIDTH OF NOT LESS THAN 1m.	MIN 150
GENERAL FILL		CLASS 1 GRANULAR FILL MATERIAL TO TABLE 614 ⁽¹⁾ AND CLAUSE 613 ⁽¹⁾ COMPACTED IN LAYERS IN ACCORDANCE WITH TABLE 614 ⁽¹⁾ .	AS REQUIRED

- NOTES:
- SPECIFICATION FOR HIGHWAY WORKS PUBLISHED BY THE DEPARTMENT FOR TRANSPORT.
 - CONSTRUCTION THICKNESS FOR PROVEN ALTERNATIVE SUB-GRADE CBR VALUES.
 - WHERE CBR VALUE IS LESS THAN 2.5% SPECIAL ENGINEERING CONSIDERATIONS WILL BE REQUIRED.
 - SUB-BASE TO BE THICKENED OR CAPPING LAYER TO BE USED TO GIVE A TOTAL CONSTRUCTION DEPTH OF CARRIAGEWAY OF 450mm WHERE SUB-GRADE IS FROST SUSCEPTIBLE.
 - SUB-GRADE TO BE THICKENED TO 150mm UNDER VEHICULAR CROSSINGS.
 - BITUMEN GRADES TO COMPLY WITH EN12591 WHICH REPLACES BS3690. NEW GRADES OF 40/60, 100/150 AND 160/220 PEN REPLACES THE FORMER BS GRADES OF 50, 100 AND 200 PEN.
 - CAPPING TO BE USED WHERE CBR IS LESS THAN 2.5% OR A TENSAR TRIAX[®] GEOGRID TO BE USED (SUBJECT TO APPROVED DESIGN).
 - APPLY BOND COAT TO BS594987 TO ALL BOUND LAYERS.
 - THE SUB BASE DESIGN FOR THIS PROJECT IS BASED ON A CBR VALUE OF 5% - REFER TO SITE INVESTIGATION BY JPP GEOTECHNICAL & ENVIRONMENTAL LTD. DATED SEPT 2023. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR DEViate FROM THIS DESIGN UNLESS APPROVED BY THE ENGINEER.



IMPERMEABLE BLOCK PAVEMENT CONSTRUCTION SPECIFICATION			
	LAYER	SPECIFICATION	COMPACTED THICKNESS (mm)
IMPERMEABLE BLOCK PAVEMENT FOR SHARED SURFACE ACCESS	9	BLOCKS SHALL BE PRECAST CONCRETE RECTANGULAR BLOCKS OF DIMENSIONS 200x100mm (MARSHALL'S OR SIMILAR) COMPLYING WITH BSEN1338:2003 AND LAID IN A 90° HERRINGBONE PATTERN ON A LAYING COURSE OF SHARP SAND. BLOCKS SHALL BE LAID IN ACCORDANCE WITH BS7533-3. COLOURS TO BE AGREED WITH THE ARCHITECT.	80
	10	CLEAN SHARP SAND GRADED TO CATEGORY (II) COMPLYING WITH TABLES D1 AND D2 OF BS7533-3.	30
	11	AC 20 DENSE BIN 40/60 DENSE ASPHALT BINDER COURSE TO PD6691:2015 (TABLE B11) AND BSEN13108-1 LAID IN TWO LAYERS. NOMINAL MAX. AGGREGATE SIZE OF 20mm AND 40/60 PENETRATION GRADE BITUMEN BINDER.	100
	12	GRANULAR SUB-BASE TYPE 1 MATERIAL COMPACTED IN ACCORDANCE WITH CLAUSE 803 IN LAYERS NOT EXCEEDING 150mm THICKNESS.	250
GENERAL FILL		CLASS 1 GRANULAR FILL MATERIAL TO TABLE 614 ⁽¹⁾ AND CLAUSE 613 ⁽¹⁾ COMPACTED IN LAYERS IN ACCORDANCE WITH TABLE 614 ⁽¹⁾ .	AS REQUIRED

- NOTES:
- SPECIFICATION FOR HIGHWAY WORKS PUBLISHED BY THE DEPARTMENT FOR TRANSPORT.



PERMEABLE BLOCK PAVEMENT CONSTRUCTION SPECIFICATION			
	LAYER	SPECIFICATION	COMPACTED THICKNESS (mm)
PERMEABLE BLOCK PAVEMENT FOR SHARED SURFACE ACCESS	13	'FORMPAVE AQUAFLOW' (OR EQUIVALENT) BLOCK 100x200 TO BE LAID IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. LAYING PATTERN TO BE 90° HERRINGBONE. COLOUR TO BE AGREED WITH THE ARCHITECT.	80
	14	2-6mm SIZE CLEAN CRUSHED STONE TO BSEN13242 LAID OVER AN INBITEX NON WOVEN GEOTEXTILE FILTER MEMBRANE.	50
	15	AC 20 DENSE BIN 40/60 DENSE ASPHALT BINDER COURSE TO PD6691:2015 (TABLE B11) AND BSEN13108-1 LAID IN TWO LAYERS. NOMINAL MAX. AGGREGATE SIZE OF 20mm AND 40/60 PENETRATION GRADE BITUMEN BINDER. ASPHALT CONCRETE TO BE PUNCTURED WITH CUT HOLES ON 800MM GRID THROUGHOUT AND FILLED WITH 2-6mm CLEAN STONE.	100
	16	SUB-BASE LOWER SUB-BASE OF 10-63mm GRADED STONE (SEE SPECIFICATION), LAID AND COMPACTED OVER AN INBITEX NON WOVEN GEO-TEXTILE FILTER MEMBRANE ON TRIMMED FORMATION.	600
GENERAL FILL		CLASS 1 GRANULAR FILL MATERIAL TO TABLE 614 ⁽¹⁾ AND CLAUSE 613 ⁽¹⁾ COMPACTED IN LAYERS IN ACCORDANCE WITH TABLE 614 ⁽¹⁾ .	AS REQUIRED

- NOTES:
- SPECIFICATION FOR HIGHWAY WORKS PUBLISHED BY THE DEPARTMENT FOR TRANSPORT.

PERMEABLE BLOCK PAVEMENT CONSTRUCTION SPECIFICATION			
	LAYER	SPECIFICATION	COMPACTED THICKNESS (mm)
PERMEABLE BLOCK PAVEMENT FOR PRIVATE DRIVEWAYS	13	'FORMPAVE AQUAFLOW' (OR EQUIVALENT) BLOCK 100x200 TO BE LAID IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. LAYING PATTERN TO BE 90° HERRINGBONE. COLOUR TO BE AGREED WITH THE ARCHITECT.	60
	14	2-6mm SIZE CLEAN CRUSHED STONE TO BSEN13242 LAID OVER AN INBITEX NON WOVEN GEOTEXTILE FILTER MEMBRANE.	50
	15	AC 20 DENSE BIN 40/60 DENSE ASPHALT BINDER COURSE TO PD6691:2015 (TABLE B11) AND BSEN13108-1. NOMINAL MAX. AGGREGATE SIZE OF 20mm AND 40/60 PENETRATION GRADE BITUMEN BINDER. ASPHALT CONCRETE TO BE PUNCTURED WITH CUT HOLES ON 800mm GRID THROUGHOUT AND FILLED WITH 2-6mm CLEAN STONE.	60
	16	SUB-BASE LOWER SUB-BASE OF 10-63mm GRADED STONE (SEE SPECIFICATION), LAID AND COMPACTED OVER AN INBITEX NON WOVEN GEO-TEXTILE FILTER MEMBRANE ON TRIMMED FORMATION.	600
GENERAL FILL		CLASS 1 GRANULAR FILL MATERIAL TO TABLE 614 ⁽¹⁾ AND CLAUSE 613 ⁽¹⁾ COMPACTED IN LAYERS IN ACCORDANCE WITH TABLE 614 ⁽¹⁾ .	AS REQUIRED

- NOTES:
- SPECIFICATION FOR HIGHWAY WORKS PUBLISHED BY THE DEPARTMENT FOR TRANSPORT.

SPECIFICATION FOR FORMPAVE PERMEABLE PAVEMENT CONSTRUCTION

SUBGRADE/FORMATION PREPARATION:

THE SUBGRADE SHALL BE COMPACTED WITH A VIBRATING PLATE OR ROLLER TO THE REQUIREMENTS OF CLAUSE 613 OF THE SPECIFICATION FOR HIGHWAY WORKS (SHW). PRIOR TO COMPACTION ALL SOFT AREAS SHALL BE REMOVED AND FILLED WITH A GRANULAR REPLACEMENT MATERIAL. TO PROVIDE A STABLE SUBGRADE. WHERE PAVEMENTS ARE TO BE OVERRUN BY HEAVY VEHICLES THE SUBGRADE SHOULD HAVE, OR BE IMPROVED TO HAVE, A CBR OF AT LEAST 15%.

SUB-BASE GENERALLY:

THE SUB-BASE MATERIAL SHALL BE TO BS7533-13 AND CONSIST OF ROUGH ANGULAR PARTICLES TO GIVE GOOD INTERLOCK. CLEAN CRUSHED ROCK (EG GRANITE, BASALT, GABBRO ETC) OR CONCRETE WITH GREATER THAN 90% FRACTURE FACES OR BLAST FURNACE SLAG IS REQUIRED TO ACHIEVE THIS. **SAND AND GRAVEL WITH ROUNDED PARTICLES SHALL NOT BE USED IN PERMEABLE PAVEMENT SUB-BASE CONSTRUCTION.** SUB-BASE MATERIAL MUST BE SOUND, NON-FRIABLE AND FREE FROM CLAY OR OTHER DELETERIOUS MATTER. THERE MUST BE A MINIMUM 10% FINES VALUE OF 150µ WHEN TESTED IN ACCORDANCE WITH BSEN1097-2 (PREVIOUSLY BS812 PART 11). THE SUB-BASE SHALL BE PLACED IN TWO SEPARATE LAYERS (LOWER SUB-BASE AND UPPER SUB-BASE), EACH BEING COMPACTED WITH A VIBRATING ROLLER OR HEAVY DUTY VIBRATING PLATE TO THE REQUIREMENTS OF CLAUSE 802 OF 'SHW'. THE FINAL PASS SHOULD BE UNDERTAKEN WITH NO VIBRATION. COMPACTION SHALL CONTINUE UNTIL 97% OF THE COMPACTED BULK DENSITY IS ACHIEVABLE UNDER LABORATORY CONDITIONS HAS BEEN REACHED. THIS CAN BE MEASURED WITH A NUCLEAR DENSITY GAUGE.

LOWER SUB-BASE:

CLEAN CRUSHED STONE OF 10-63mm NOMINAL SIZE COMPLYING WITH BSEN13242:2002 AND CONFORMING TO THE FOLLOWING SIEVE ANALYSIS:-

BSEN SIEVE SIZE	% PASSING
100mm	100
63mm	90-100
40mm	60-80
20mm	15-30
10mm	0-5

UPPER SUB-BASE:

CLEAN CRUSHED STONE OF 5-20mm NOMINAL SIZE COMPLYING WITH BSEN13242:2002 AND CONFORMING TO THE FOLLOWING SIEVE ANALYSIS:-

BSEN SIEVE SIZE	% PASSING
40mm	100
20mm	90-100
10mm	25-70
4mm	0-15
2mm	0-5

LAYING COURSE:

CLEAN CRUSHED STONE OF 2-6mm NOMINAL SIZE COMPLYING WITH BSEN13242:2002 AND CONFORMING TO THE FOLLOWING SIEVE ANALYSIS:-

BSEN SIEVE SIZE	% PASSING
10mm	98-100
6.3mm	90-100
2mm	0-20
1mm	0-5

SURFACE DRESSING:

CLEAN QUARTZITE/GRITSTONE OF 2-4mm NOMINAL SIZE COMPLYING WITH BSEN1097-2:1998 AND BSEN1091-8:2000-Annex A, AND CONFORMING TO THE FOLLOWING SIEVE ANALYSIS:-

BSEN SIEVE SIZE	% PASSING
6.3mm	100
5mm	95-100
3.35mm	66-90
1.18mm	0-20
µ600	0-8
µ63	0-1.5

AGGREGATE GENERALLY:

AGGREGATE SHALL HAVE A LOS ANGELES COEFFICIENT (LA), DETERMINATION OF RESISTANCE TO FRAGMENTATION, OF 20 (BSEN1097-2:1998), AND HAVE AN AGGREGATE ABRASION VALUE (AAV) OF 5 (BSEN1091-8:2000-Annex A). LOWER VALUES THAN THOSE SPECIFIED SIGNIFY BETTER RESISTANCE TO FRAGMENTATION AND ABRASION AND ARE THEREFORE ACCEPTABLE.

WHERE POSSIBLE SUPPLIERS OF AGGREGATE SHOULD BE REGISTERED TO BSEN ISO 9000, FOR A LIST OF SUPPLIERS CONTACT HASON FORMPAVE.

BLOCK LAYING

IT IS RECOMMENDED TO PRE-SET THE BLOCK LEVEL BY 6mm TO ALLOW FOR THE EFFECTS OF SETTLEMENT WHEN LAID AGAINST FIXED EDGINGS. THE BLOCKS MUST BE TIGHTLY BUTT JOINTED TO ENSURE THAT A TIGHT FIT IS ACHIEVED. A SINGLE OR DOUBLE STRETCHER COURSE OF 'AQUAFLOW' BLOCKS MUST BE USED AROUND THE PERIPHERY OF THE PAVED AREAS AND ALSO AT THE EDGES OF ANY SEPARATELY RESTRAINED AREAS, SUCH AS TREE PITS, WHERE BLOCKS NEED CUTTING. THEY SHALL BE CUT TO A TIGHT FIT AND NONE ARE TO BE SMALLER THAN 30% OF THE UNIT BLOCK SIZE. WHERE 'AQUAFLOW' BLOCKS ARE CUT THEY MUST BE CUT ACROSS THE 100mm AND NOT THE 200mm DIMENSION. BLOCKS SHOULD BE CUT VERTICALLY AND NOT UNDERScoreD. ALL BLOCK CUTTING SHALL BE CARRIED OUT WITH A DISC CUTTER.

SURFACE FINISH:

THE BLOCKS SHALL BE VIBRATED WITH A VIBRATING PLATE TYPE DVP75/22 OR SIMILAR, FOLLOWING THE FIRST PASS WITH A VIBRATING PLATE CLEAN QUARTZITE/GRITSTONE SHALL BE APPLIED TO THE SURFACE AND BRUSHED IN. BLOCKS SHOULD AGAIN BE VIBRATED AND ANY DEBRIS BRUSHED OFF.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
NOTES: THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RISK REGISTER PRODUCED FOR INCLUSION IN THE HEALTH AND SAFETY PLAN. THE HAZARDS NOTED ARE IN ADDITION TO THE NORMAL HAZARDS AND RISKS FACED BY A COMPETENT CONTRACTOR WHEN DEALING WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING.

CONSTRUCTION RISKS:

- DEEP EXCAVATIONS.
- BURIED SERVICES.

MAINTENANCE/CLEANING/IN USE RISKS:

- NO SIGNIFICANT RISKS.

DEMOLITION RISKS:

- EXISTING LIVE SERVICES.
- POSSIBLE ASBESTOS CONTAMINATION.

NOTE:

- DO NOT SCALE, IF IN DOUBT ASK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL ENGINEER'S DRAWINGS AND DETAILS, THE SPECIFICATION FOR THE WORKS, THE RELEVANT ARCHITECT'S DRAWINGS AND ANY OTHER SPECIALISTS' DRAWINGS.
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