



Y SWYDDFA GYMREIG
Adran y Cyfarwyddwr Priffyrdd

WELSH OFFICE
Highways Directorate

A55 LLANDYGÂI I GAERGYBI A55 LLANDEGAI TO HOLYHEAD

PROJECT DYLUNIO ADEILADU CYLLIDO A GWEITHREDU DESIGN BUILD FINANCE AND OPERATE PROJECT

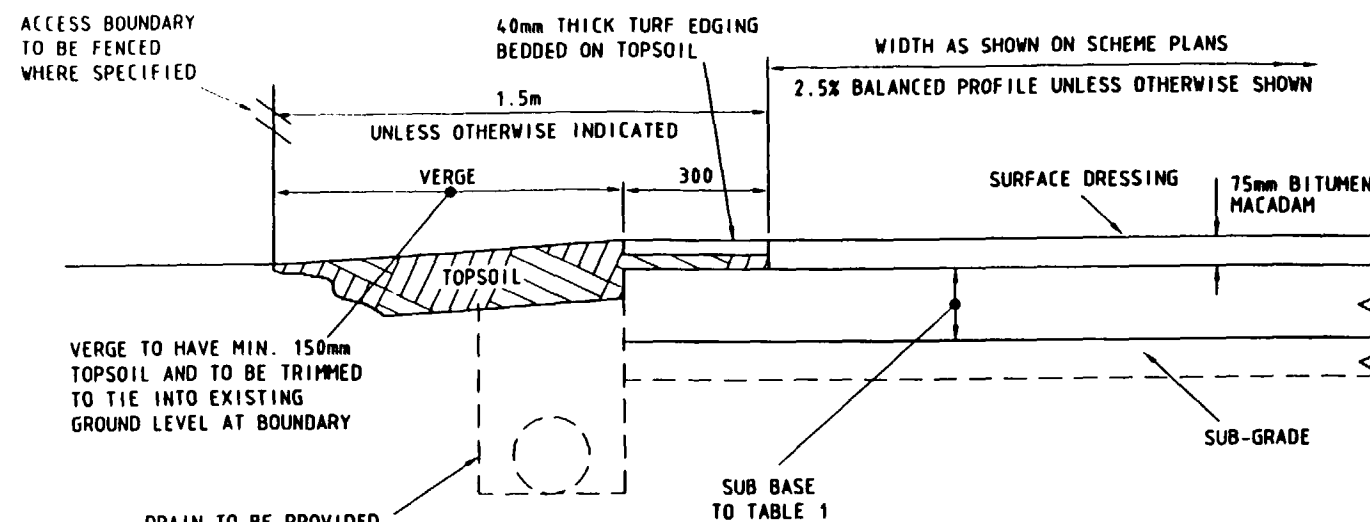
Atodlen 4 Gofynion Adeiladu
a Dychwelyd
Schedule 4 Construction and
Handback Requirements

Rhan 5 Lluniadau Ffolio 2 o 6
Part 5 Drawings Folio 2 of 6

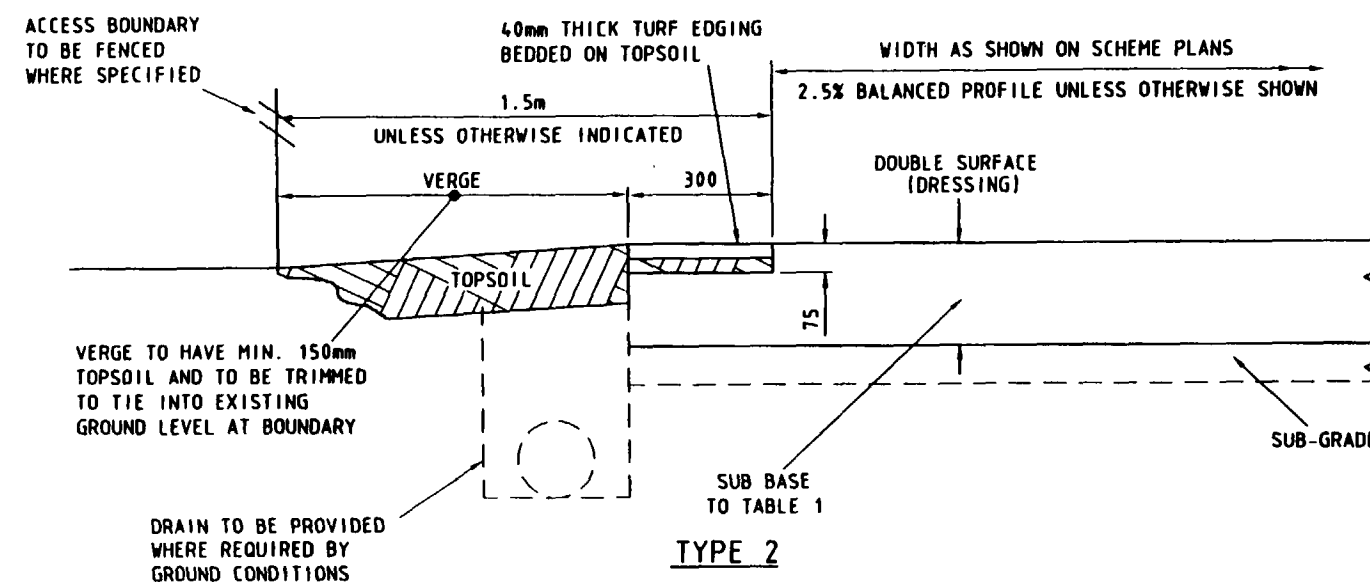
Adran 1.2
Section 1.2

Rhagfyr 1998
December 1998

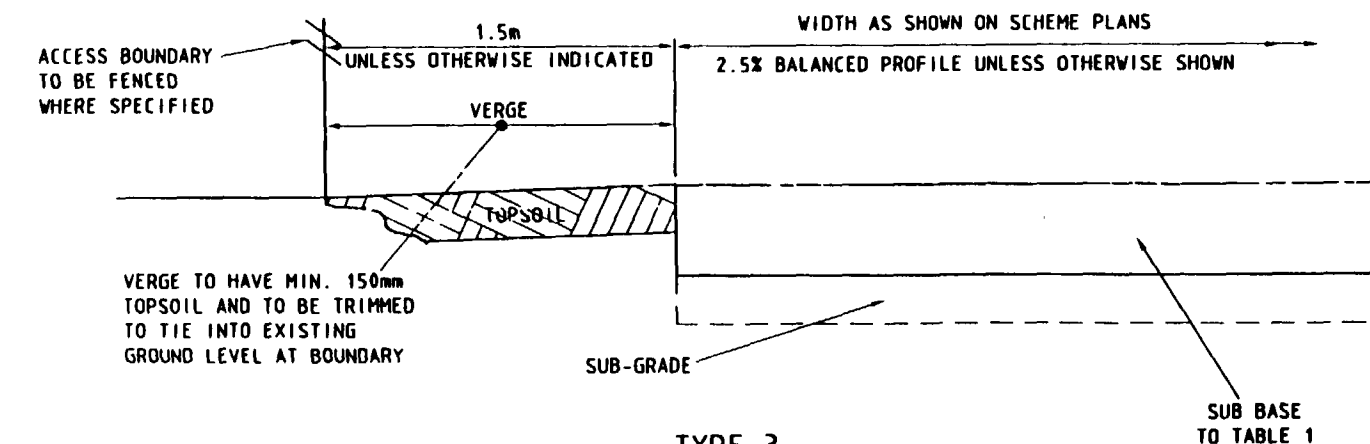
Section 1.2



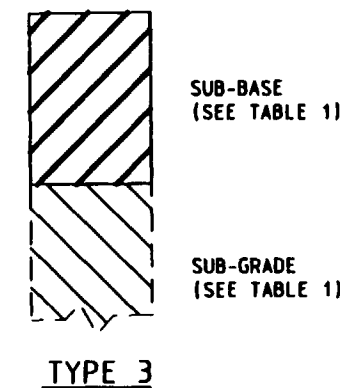
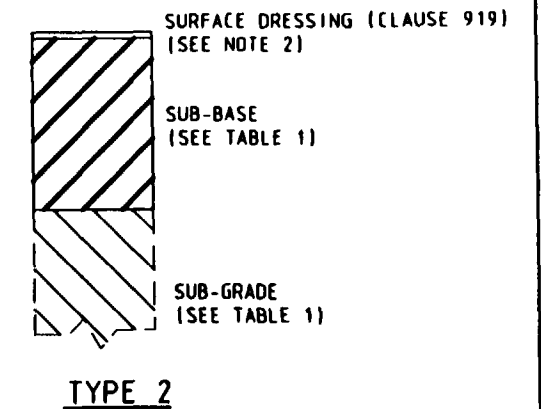
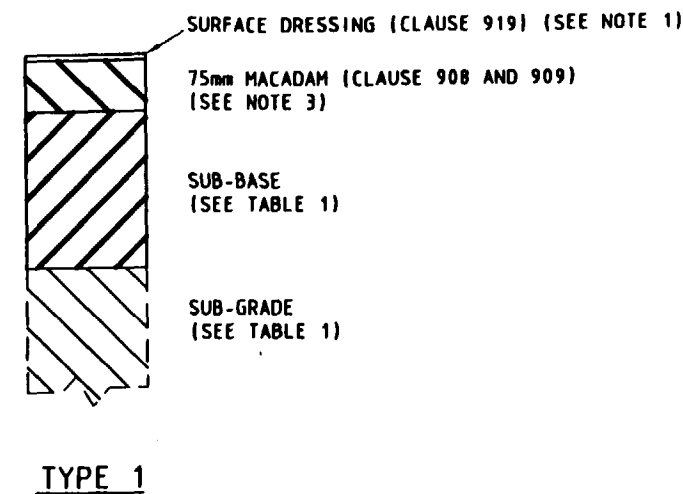
TYPE 1



TYPE 2



TYPE 3



SUB-BASE CONSTRUCTION THICKNESS FOR TYPES 1, 2 AND 3	
SUB-GRADE CBR RANGE (%)	SUB-BASE THICKNESS (mm)
>15	150
>5-15	230
2.5-5	350
<2.5	SUB-GRADE TO BE STABILISED TO GIVE A CBR >2.5%

TABLE 1

NOTES:

1. SURFACE DRESSING (CLAUSE 919)-(TYPE 1)
SURFACE DRESSING SHALL BE IN ACCORDANCE WITH ROAD NOTE 39, THE BINDER SHALL BE ROAD TAR TO BS 76 OR CUT-BACK BITUMEN TO BS 3690. THE RATE OF SPREAD BINDER SHALL BE IN ACCORDANCE WITH ROAD NOTE 39 WITH 6mm NOMINAL SIZE CHIPPINGS SPREAD AT A RATE OF 6-8kg/m² APPLIED IMMEDIATELY AND LIGHTLY ROLLED.
2. SURFACE DRESSING (CLAUSE 919)-(TYPES 2 AND 3)
SURFACE DRESSING SHALL BE IN ACCORDANCE WITH ROAD NOTE 39, THE BINDER SHALL BE ROAD TAR TO BS 76 OR CUT-BACK BITUMEN TO BS 3690. THE BINDER SHALL BE APPLIED IN TWO COATS, THE RATES OF SPREAD BEING IN ACCORDANCE WITH ROAD NOTE 39. THE FIRST COAT SHALL BE BLINDED WITH 3mm NOMINAL SIZE CHIPPINGS AND LIGHTLY ROLLED. THE SECOND COAT, APPLIED AS SOON AS POSSIBLE, SHALL BE COVERED WITH 6mm NOMINAL SIZE CHIPPINGS SPREAD AT A RATE OF 6-8kg/m² APPLIED IMMEDIATELY AND LIGHTLY ROLLED.
3. 40mm NOMINAL SIZE SINGLE COURSE MACADAM TO BS 4987 TABLES 8-10 CAT B TRAFFIC.
4. THE SUB-BASE SHALL BE IN ACCORDANCE WITH CLAUSES 801 & 802, THE MATERIAL COMPLYING WITH CLAUSE 803 (TYPE 1 SUB-BASE) OR CLAUSE 1038 (CBM 3)
5. DRAINAGE ARRANGEMENTS TO BE PROVIDED WHERE REQUIRED OR AS SHOWN ON SCHEME PLANS.



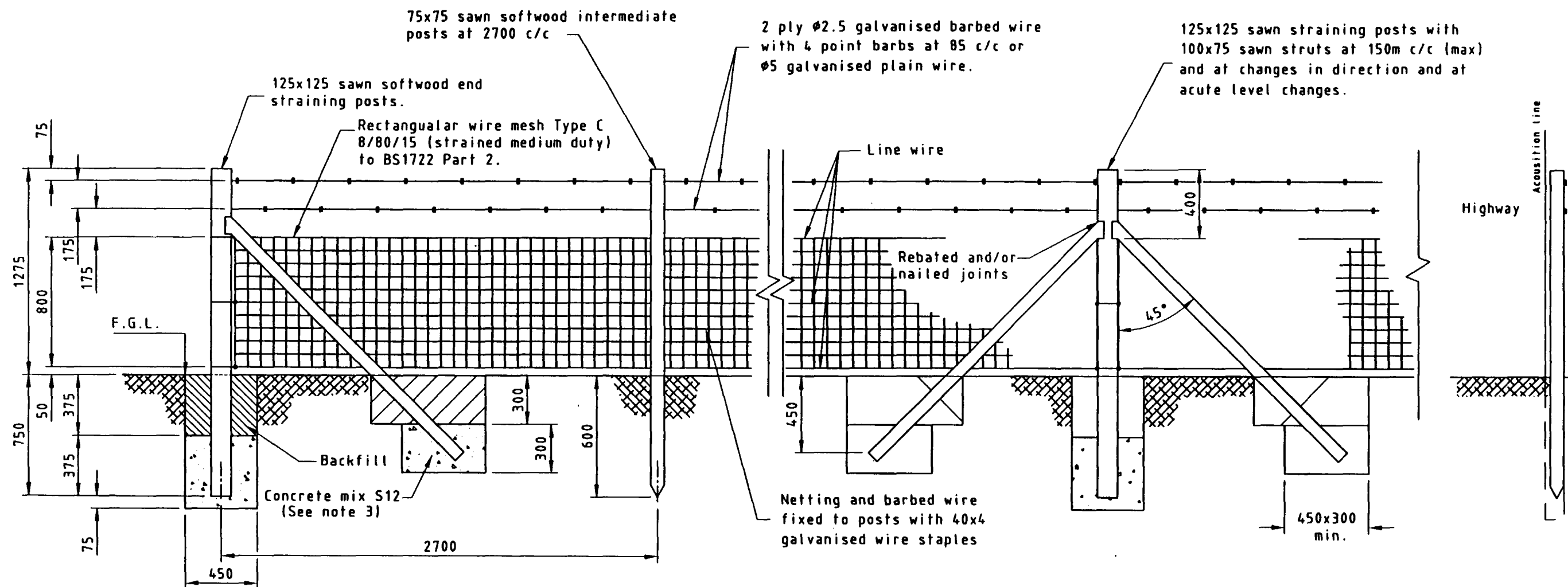
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Highways Directorate

No.	AMENDMENT DETAILS	BY	DATE
D	TABLE 1 ADDED, VERGE DETAIL CHANGED	CJH	JUN 98
C	FENCE ADDED	CJH	DEC 97
B	REF TO DESIGNER ADDED	SH	OCT 97
A	INITIAL ISSUE	CJH	AUG 97

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
ACCESS AND ACCOMMODATION TRACKS
TYPES 1, 2 & 3

DRAWN	DATE	SCALE	DRAWING No.	REV
CJH	JUN 98	Not To Scale		
CHECKED	DATE		964057/SD/101	D
APPROVED	DATE			

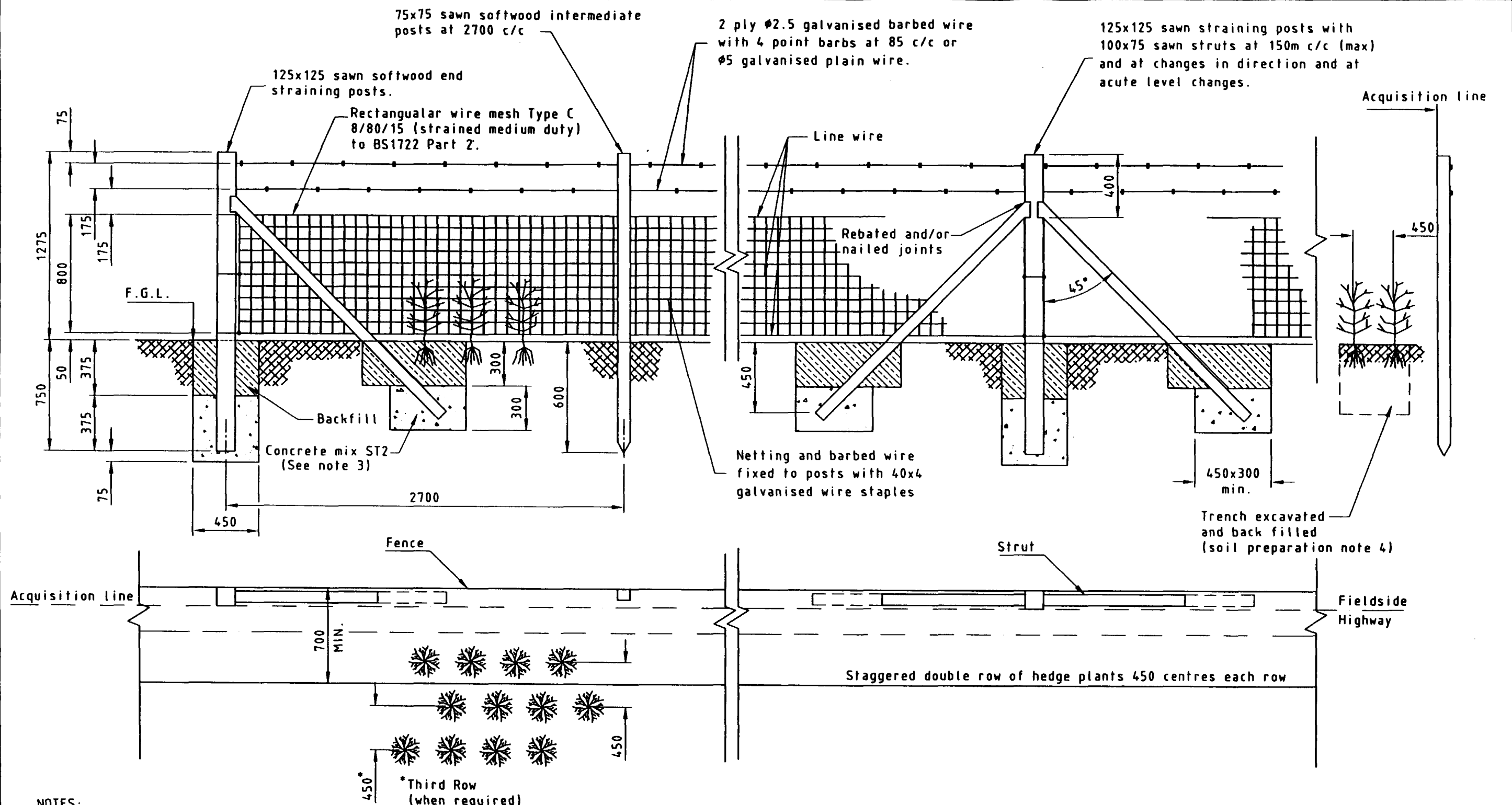


NOTES:

1. All workmanship & materials shall comply with BS 1722 Part 2, 1989.
2. All timber to be treated in accordance with Clause 311 of the Specification for highway works.
3. Concrete footings may be omitted where excavated material is suitable for ramming.
4. All dimensions in millimetres except where stated.
5. Fence to become the responsibility of landowner on completion of the Works.

MWB

 Y Swyddfa Gymreig Welsh Office Highways Directorate					A55 LLANDEGAI TO HOLYHEAD DBFO	STANDARD DETAILS: WOODEN POST AND WOVEN WIRE FENCE FENCE TYPE H12	DRAWN SJF	DATE NOV 97	SCALE Not To Scale	
	B	MINOR TEXT MODIFICATIONS	S.J.F	NOV 97			CHECKED JH	DATE 7/98	DRAWING No.	REV
	A	ORIGINAL ISSUE	C.J.H	OCT 97					964057/SD/102	B
	No.	AMENDMENT DETAILS	BY	DATE			APPROVED SJA	DATE 7/98		



NOTES:

1. All workmanship & materials shall comply with BS 1722 Part 2, 1989.
2. All timber to be treated in accordance with clause 311 of the Specification for highway works.
3. Concrete footings may be omitted where excavated material is suitable for ramming.
4. On undisturbed ground - top soil at least 600 wide and 225 deep cultivated to produce well broken soil. On disturbed ground and when top soil is less than 225 deep remove soil from trench 600 wide x 450 deep and dispose. Break up trench bottom and backfill with lightly compacted top soil.
5. The protective fence will be maintained by the DBFO Co. for a period of 2 years after the end of the season in which the hedge is planted. Thereafter the fence will be the responsibility of the landowner.
6. HEDGEROW MIX:- *Corylus avellana* (Hazel), *Crataegus manogyna* (Hawthorn), *Ilex aquifolium* (Holly), *Prunus padus* (Bird Cherry), *Prunus spinosa* (Blackthorn), *Rosa canina* (Dog Rose). Mix to vary to suit local ecological conditions and farming practice.
7. All dimensions in millimetres except where stated.



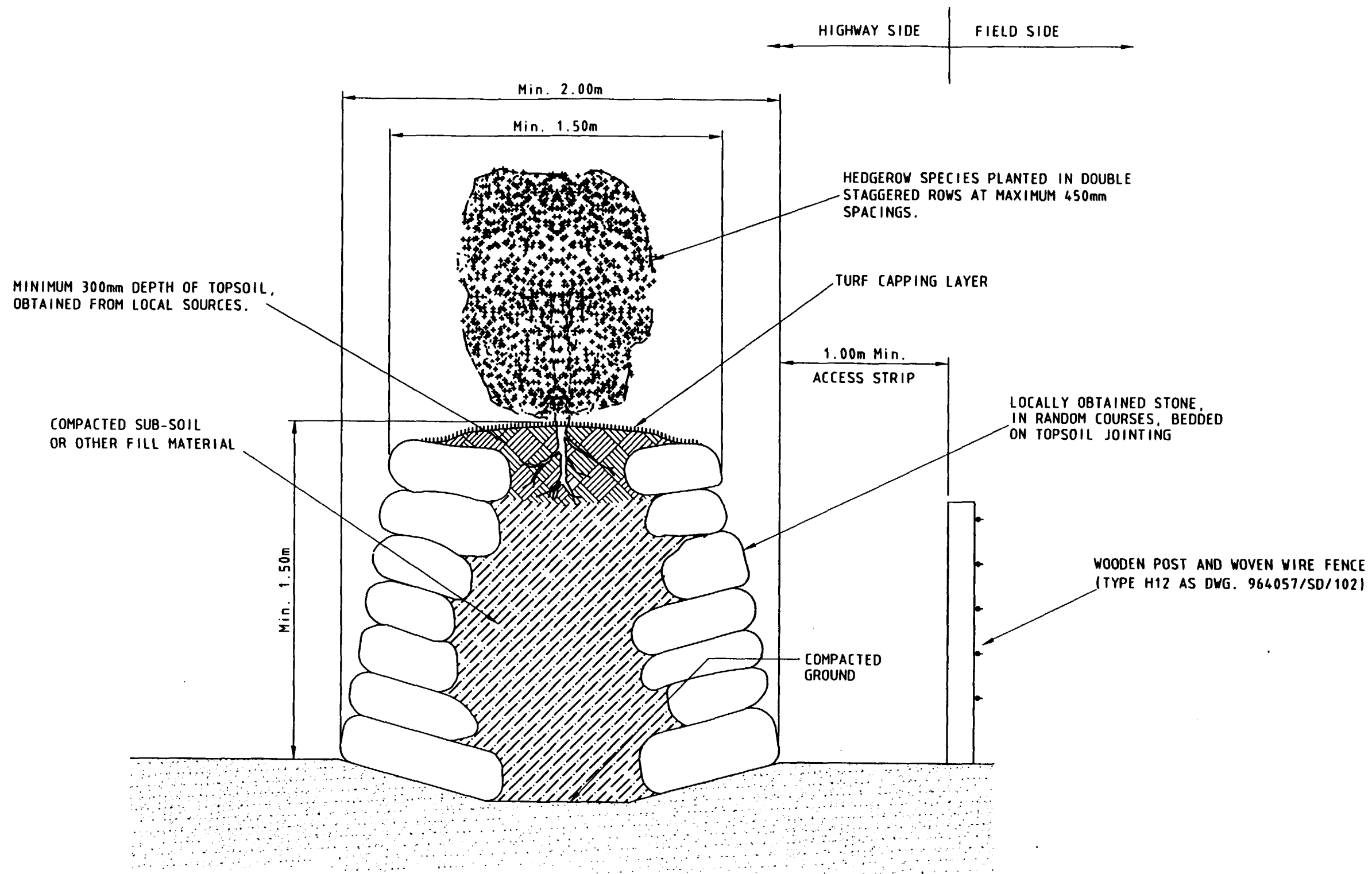
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No.	AMENDMENT DETAILS	BY	DATE
C	THIRD HEDGE ROW ADDED, TITLE AMENDED	CJH	APR 98
B	ACQUISITION LINE MOVED	CJH	DEC 97
A	INITIAL ISSUE	CJH	AUG 97

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
HEDGE WITH PROTECTIVE FENCE
TYPE H12

DRAWN CJH	DATE APR 98	SCALE Not To Scale	REV
CHECKED JH	DATE 7/98	DRAWING No. 964057/SD/104	C
APPROVED JH	DATE 7/98		



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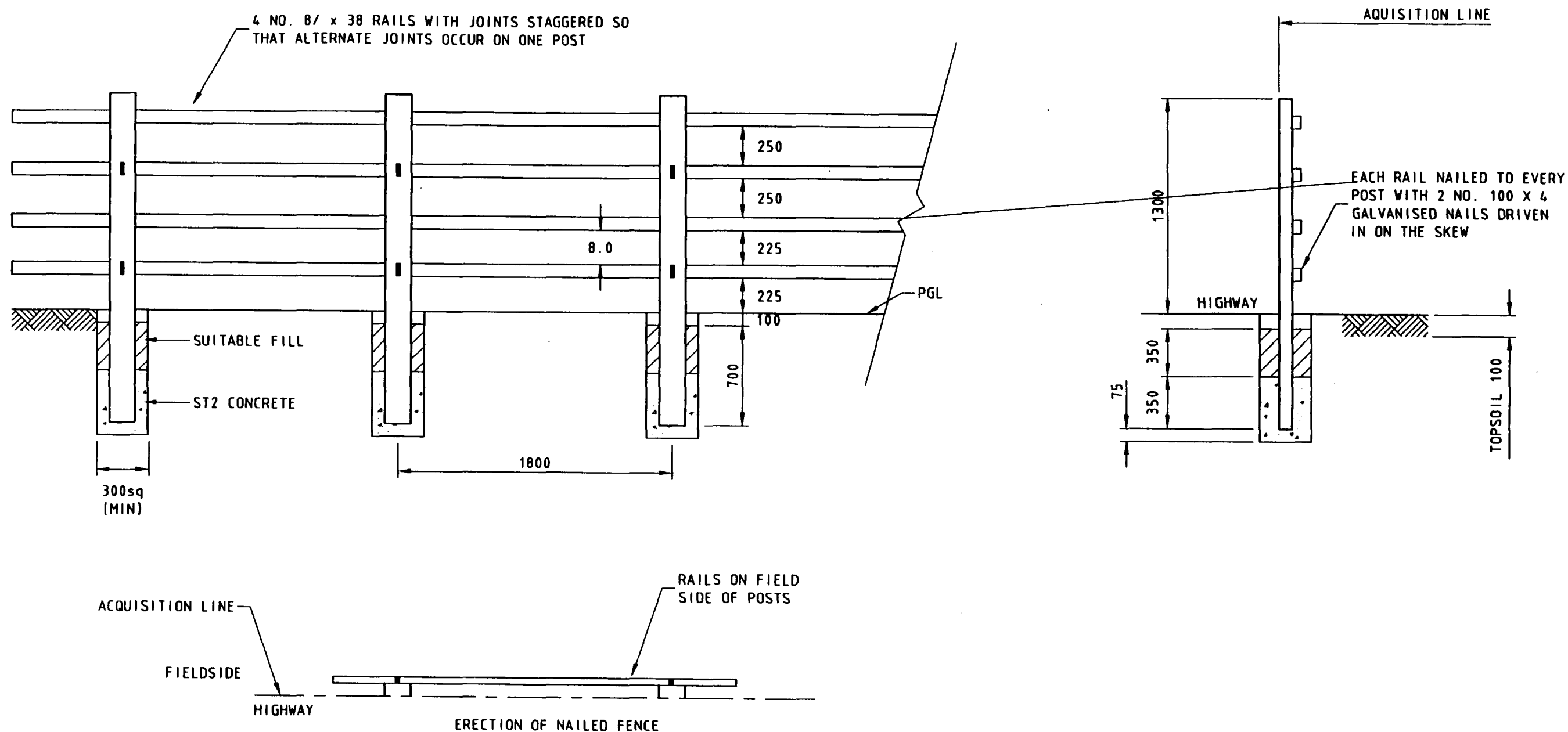
D	VIRE MOVED TO FIELD SIDE OF FENCE	CJH	MAR 98
C	MINOR AMENDMENT	CJH	DEC 97
B	TEMPORARY FENCE DELETED	CJH	NOV 97
A	ORIGINAL ISSUE	CJH	AUG 97
No.	AMENDMENT DETAILS	BY	DATE

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
TYPICAL CROSS SECTION THROUGH CLAWDD

DRAWN CJH	DATE MAR 98	SCALE Not To Scale	REV
CHECKED 24	DATE MAR 98	DRAWING No. 964057/SD/105	D
APPROVED [Signature]	DATE 3/98		

MWB



NOTES:

1. ALL WORKMANSHIP & MATERIALS SHALL COMPLY WITH BS 1722. PART 7. 1986.
2. ALL TIMBER TO BE TREATED IN ACCORDANCE WITH CLAUSE 311 OF THE SPECIFICATION FOR HIGHWAY WORKS.
3. ALL DIMENSIONS IN MILLIMETRES EXCEPT WHERE STATED.
4. FENCE TO BECOME THE RESPONSIBILITY OF LANDOWNER ON COMPLETION OF WORKS.
5. WHERE SPECIFIED POST BASES TO BE PRECAST INSITU WITH ST2 CONCRETE WITH SLOT OF SUITABLE SIZE TO ENABLE POSTS TO BE INSERTED AND SECURED.



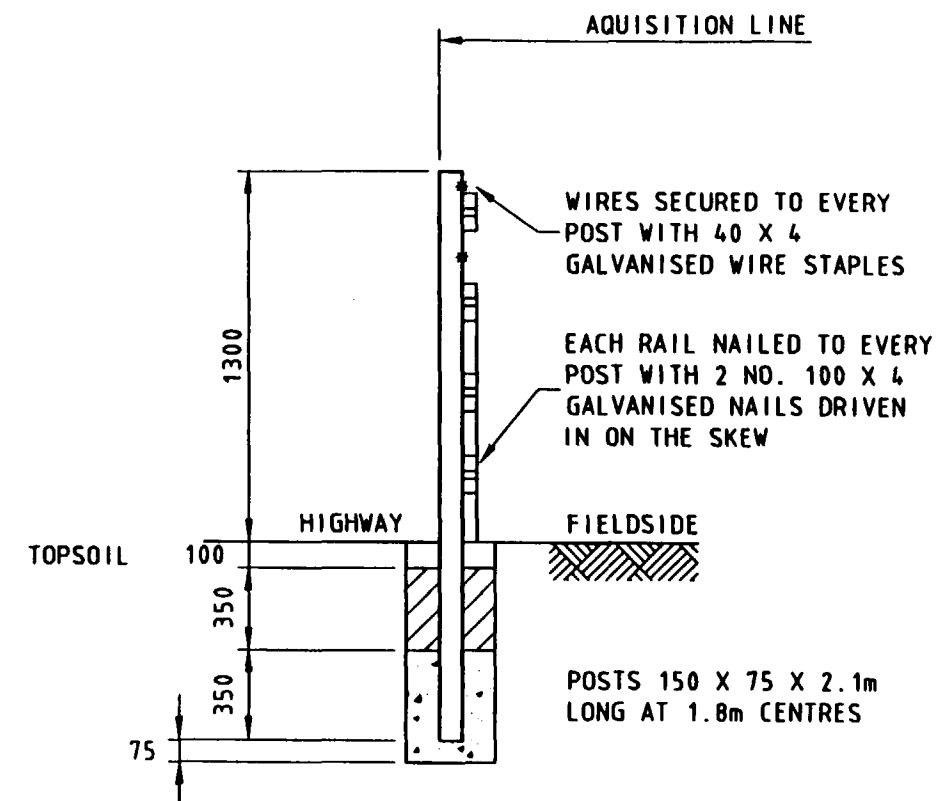
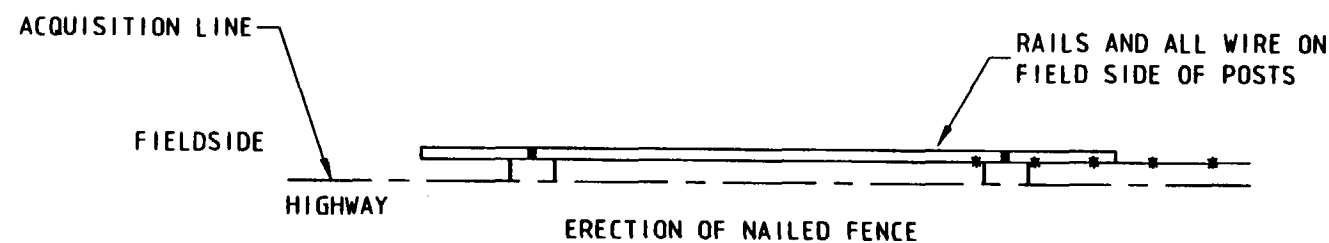
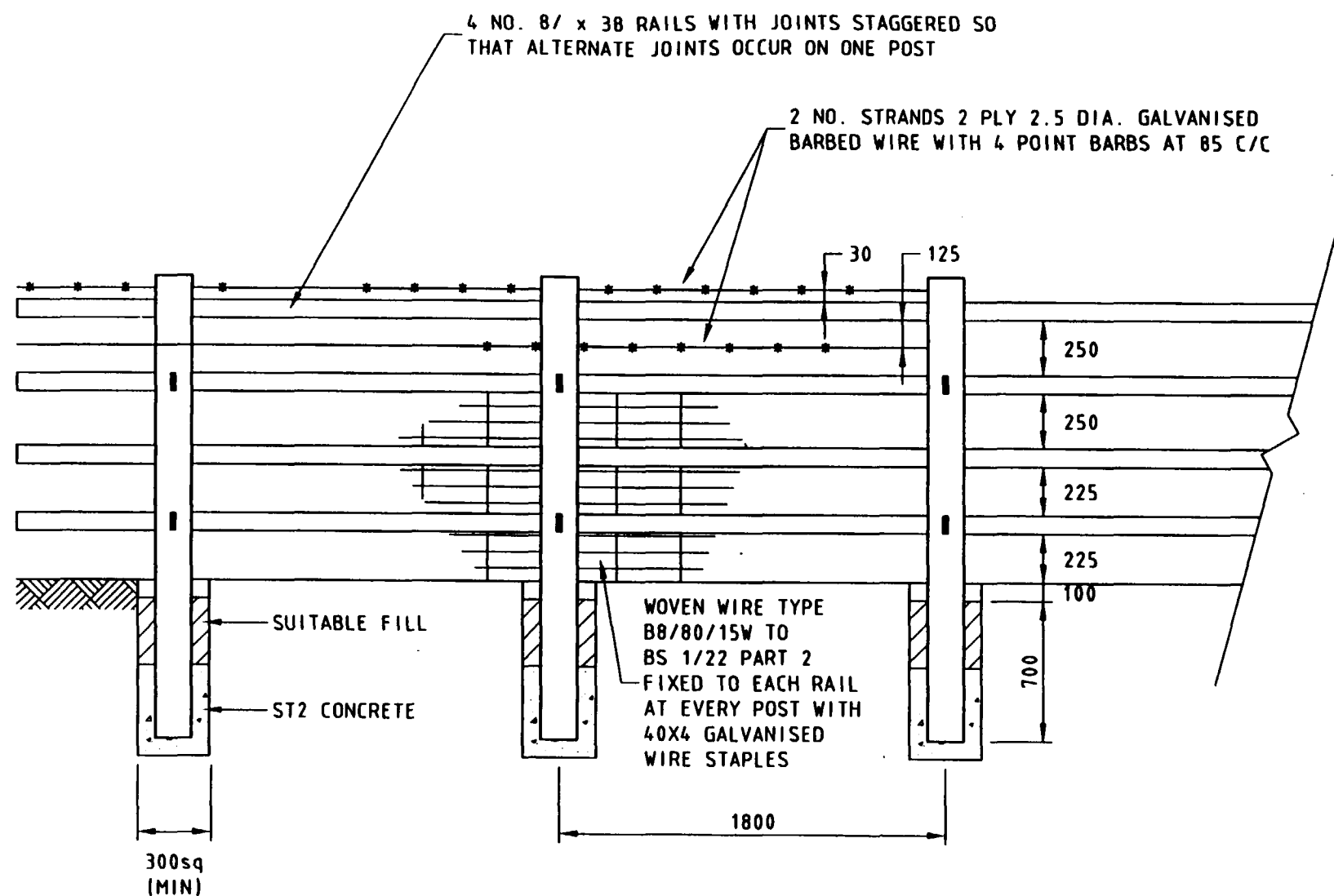
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No.	AMENDMENT DETAILS	BY	DATE
B	MINOR MODIFICATIONS		
A	ORIGINAL ISSUE		

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
WOODEN POST AND FOUR RAIL FENCE NAILED
FENCE TYPE

DRAWN SH	DATE NOV 97	SCALE Not To Scale	REV
CHECKED JP	DATE 4.98	DRAWING No. 964057/SD/106	B
APPROVED MVB	DATE 4/98		



NOTES

1. ALL WORKMANSHIP & MATERIALS SHALL COMPLY WITH BS 1722. PART 2. 1989. AND PART 7. 1986.
2. ALL TIMBER TO BE TREATED IN ACCORDANCE WITH CLAUSE 311 OF THE SPECIFICATION FOR HIGHWAY WORKS.
3. ALL DIMENSIONS IN MILLIMETRES EXCEPT WHERE STATED.
4. FENCE TO BECOME THE RESPONSIBILITY OF LANDOWNER ON COMPLETION OF WORKS.



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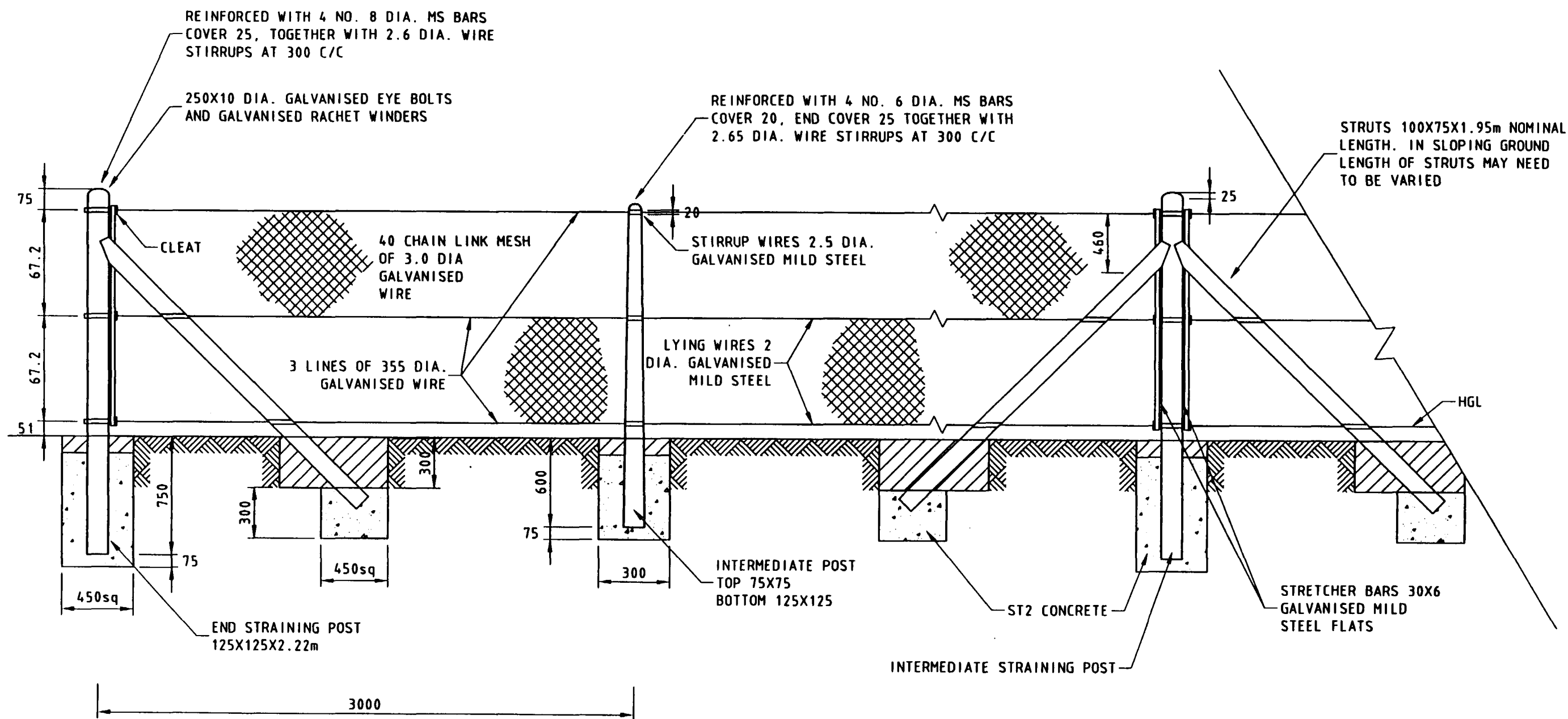
No.	AMENDMENT DETAILS	BY	DATE
B	MINOR MODIFICATIONS		
A	ORIGINAL ISSUE		

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
WOODEN POST AND FOUR RAIL FENCE NAILED
(STOCK PROOF)
FENCE TYPE 1A

MWB

DRAWN	DATE	SCALE	REV
SH	OCT 97	Not To Scale	
CHECKED	DATE	DRAWING No.	
APPROVED	DATE	964057/SD/107	B



NOTES

1. ALL WORKMANSHIP & MATERIALS SHALL COMPLY WITH BS 1722. PART 2. 1989. AND PART 7. 1986.
2. WHERE THE FENCE FORMS A BOUNDARY BETWEEN A HIGHWAY AND PRIVATE PROPERTY, THE CHAIN LINK MESH IS TO BE FIXED TO THE HIGHWAY SIDE.
3. ALL DIMENSIONS IN MILLIMETRES EXCEPT WHERE STATED.
4. FENCE TO BECOME THE RESPONSIBILITY OF LANDOWNER ON COMPLETION OF WORKS.
5. WIRE MESH TO BE PVC COATED. COLOUR TO BE SPECIFIED.



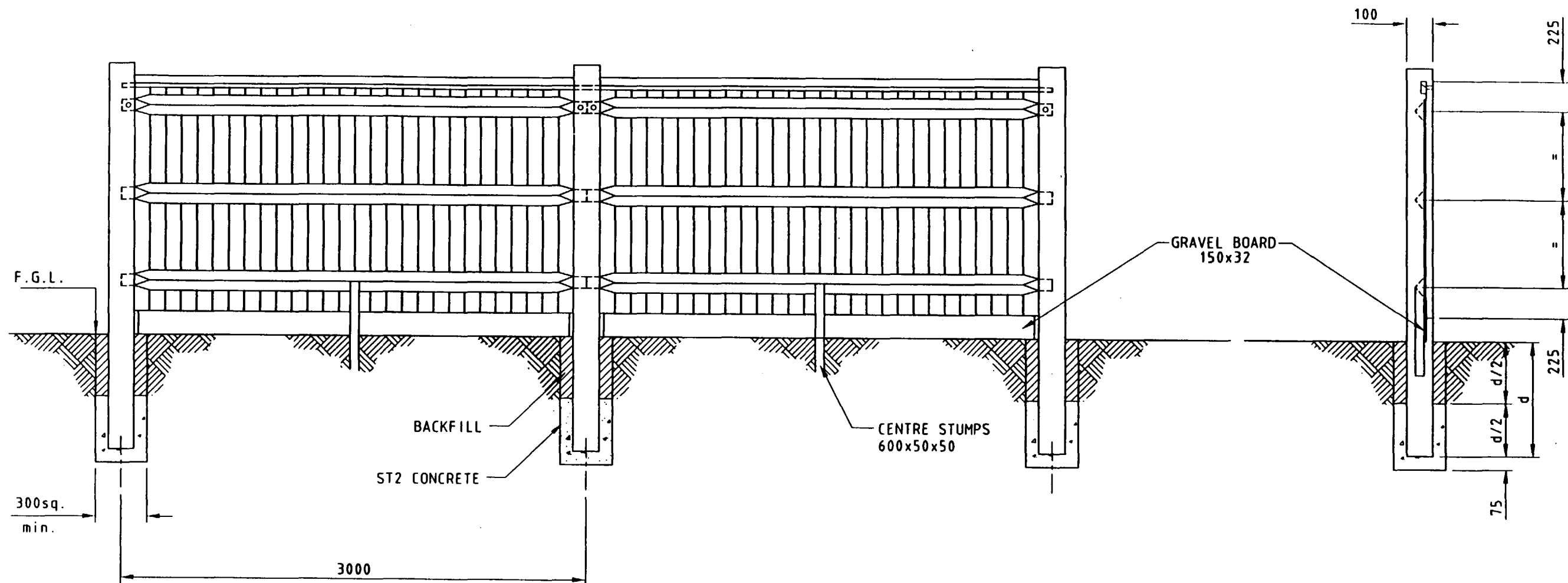
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No.	AMENDMENT DETAILS	BY	DATE
C	PVC COATING NOTE ADDED	CJH	DEC 97
B	MINOR MODIFICATIONS		
A	ORIGINAL ISSUE	SH	DEC 97

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
CONCRETE POST AND CHAIN LINK FENCE

DRAWN CJH	DATE APR 98	SCALE Not To Scale	REV
CHECKED JH	DATE 4.98	DRAWING No. 964057/SD/109	C
APPROVED SB	DATE 4/98		



FENCE - WOODEN POSTS

NOTES

1 GENERAL

1.1 BS 1722 Part 5 1986 applies unless stated otherwise.

1.2 Attention is drawn to the schedule on this drawing giving variations of post and height appropriate for this type of fence

1.3 All dimensions in millimeters except where stated.

1.4 Fence to become the responsibility of landowner on completion of Works.

2 MATERIALS

2.1 Concrete for post footings to be ST2 (Clause 2602).

3 ERECTION

3.1 Where the fence forms a boundary between a Highway and private property, the boards are to be fixed to the Highway side.

3.2 All post holes to be back-filled to at least half depth with concrete.

WOODEN POSTS

Height of top of fence panel	BS Reference	No. of Main Rails	Length	Section	Depth of Post in ground (d)
1050	BW 105	2	1.65m	100x100	600
1200	BW 120	2	1.8m	100x125	600
1500	BW 150	3	2.35m	100x125	600
1800	BW 180 A	3	2.56m	100x125	750



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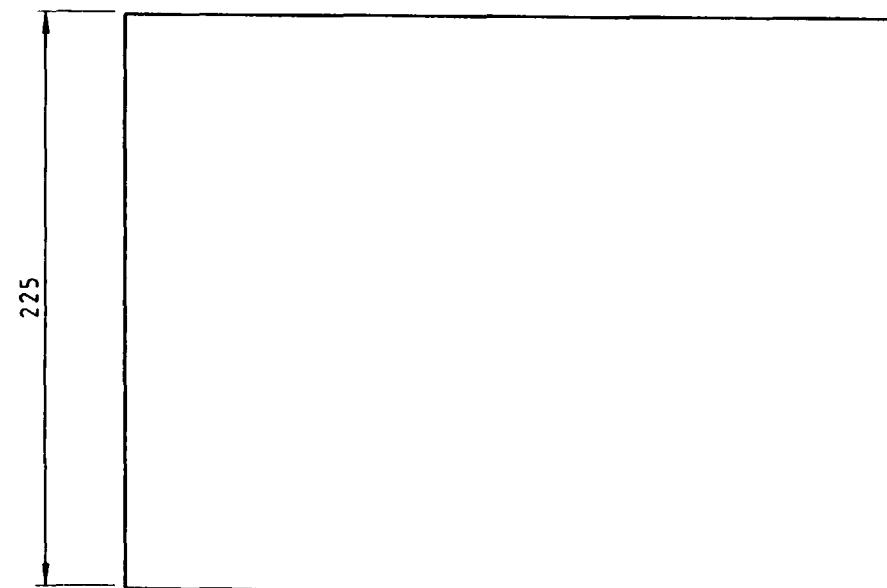
B	MINOR MODIFICATIONS		
A	ORIGINAL ISSUE		
No.	AMENDMENT DETAILS	BY	DATE

A55 LLANDEGAI TO HOLYHEAD DBFD

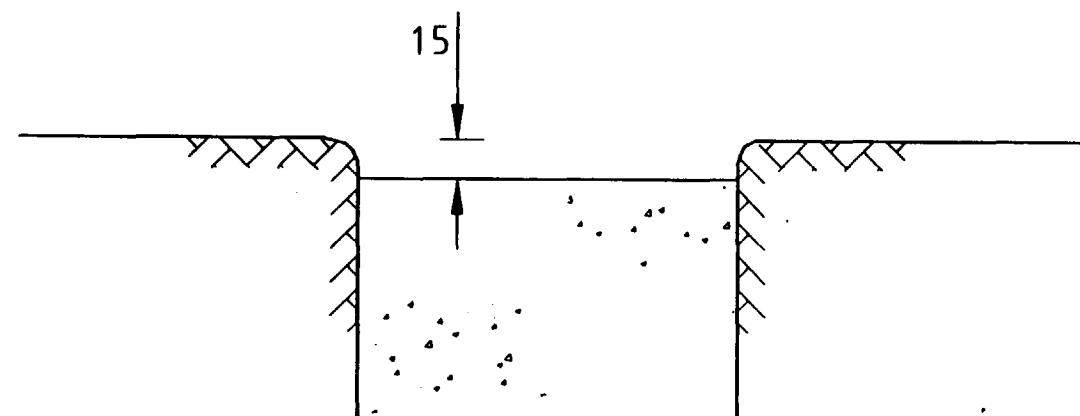
STANDARD DETAILS:
CLOSE BOARDED FENCE

AWB

DRAWN CJH	DATE OCT 97	SCALE Not To Scale	
CHECKED [Signature]	DATE Nov 97	DRAWING No. 964057/SD/110	REV B
APPROVED [Signature]	DATE Nov 97		



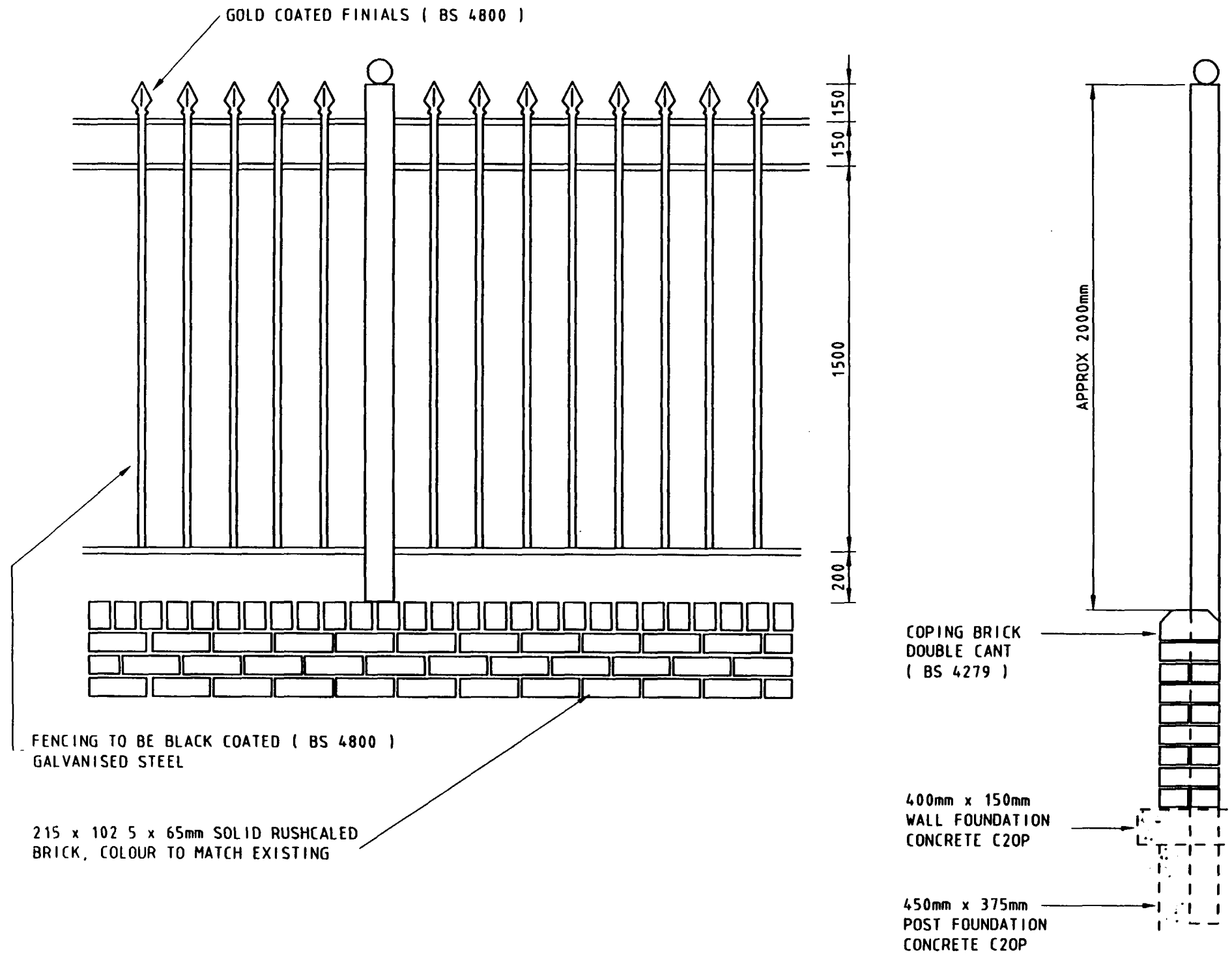
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. LETTERS TO BE CUT INTO GRADE C25P CONCRETE BLOCK TO A DEPTH OF 10 ALL LETTERS TO COMPLY WITH THE TRANSPORT MEDIUM ALPHABET G2.5 x HEIGHT.
3. MARKER BLOCKS TO BE SET 15 BELOW FINISHED GROUND LEVEL.
4. BOUNDARY MARKERS TO BE INSTALLED AT CHANGES IN BOUNDARY DIRECTION, OTHERWISE AT 15m INTERVALS.



SECTION

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. DETAIL TO MATCH EXISTING



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MINOR MODIFICATIONS		BY	DATE
B	ORIGINAL ISSUE		
A	AMENDMENT DETAILS		
No.			

A55 HOLYHEAD TO HOLYHEAD DBFO

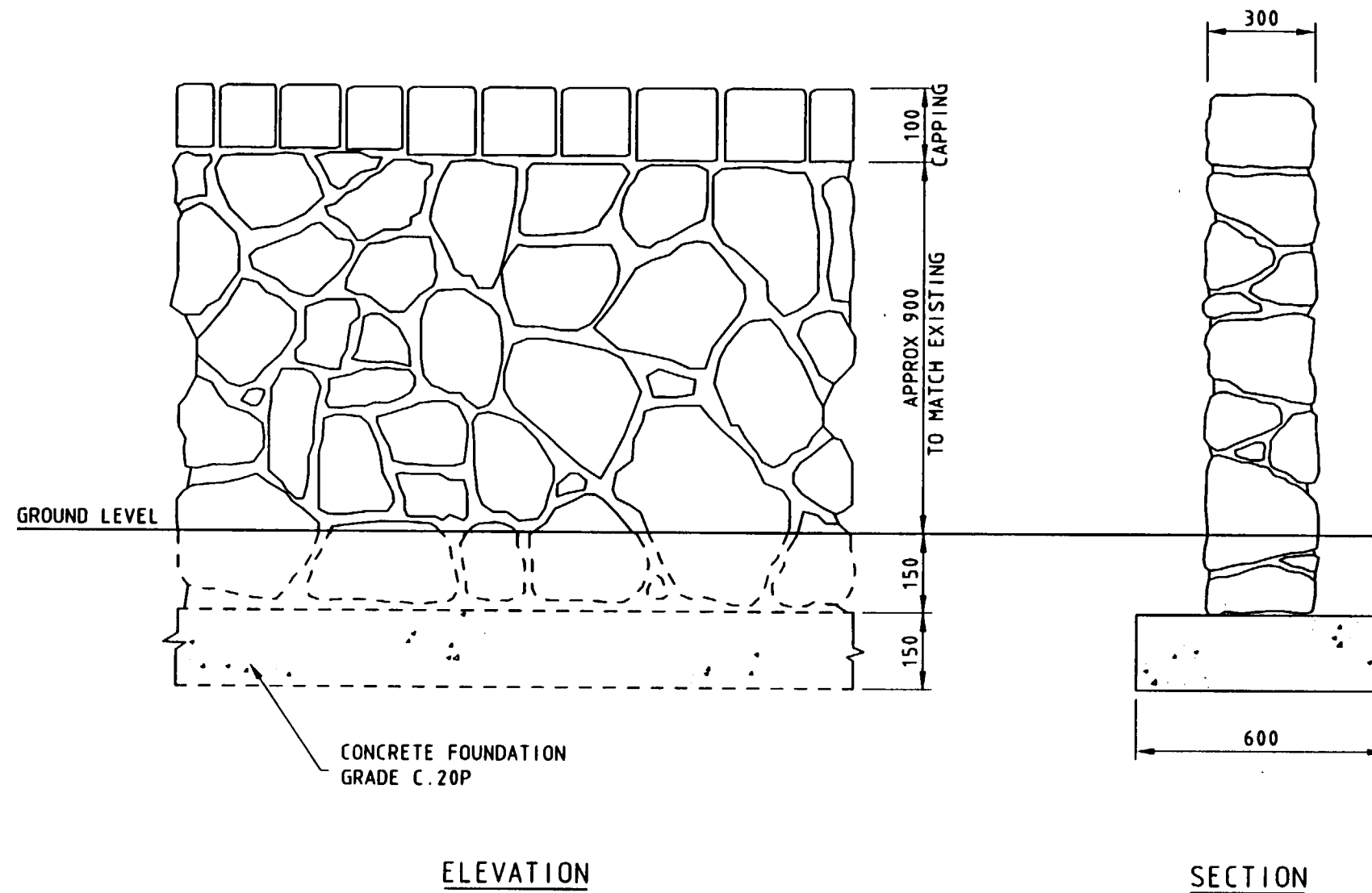
STANDARD DETAILS:
RAILWAY BOUNDARY WALL
BLACKBRIDGE

DRAWN SJF	DATE OCT 97	SCALE Not To Scale	REV B
CHECKED [Signature]	DATE Nov 97	DRAWING No. 964057/SD/112	
APPROVED [Signature]	DATE Nov 97		

NOTES

1. ALL DIMENSIONS GIVEN IN MILLIMETRES.
2. POLYGONAL WALLING TO MATCH EXISTING BETWEEN FIRE STATION AND VETERINARY'S ON KINGSLAND ROAD.

- NOTES
1. ALL DIMENSIONS GIVEN IN MILLIMETRES.
 2. POLYGONAL WALLING TO MATCH EXISTING BETWEEN FIRE STATION AND VETERINARY'S ON KINGSLAND ROAD.



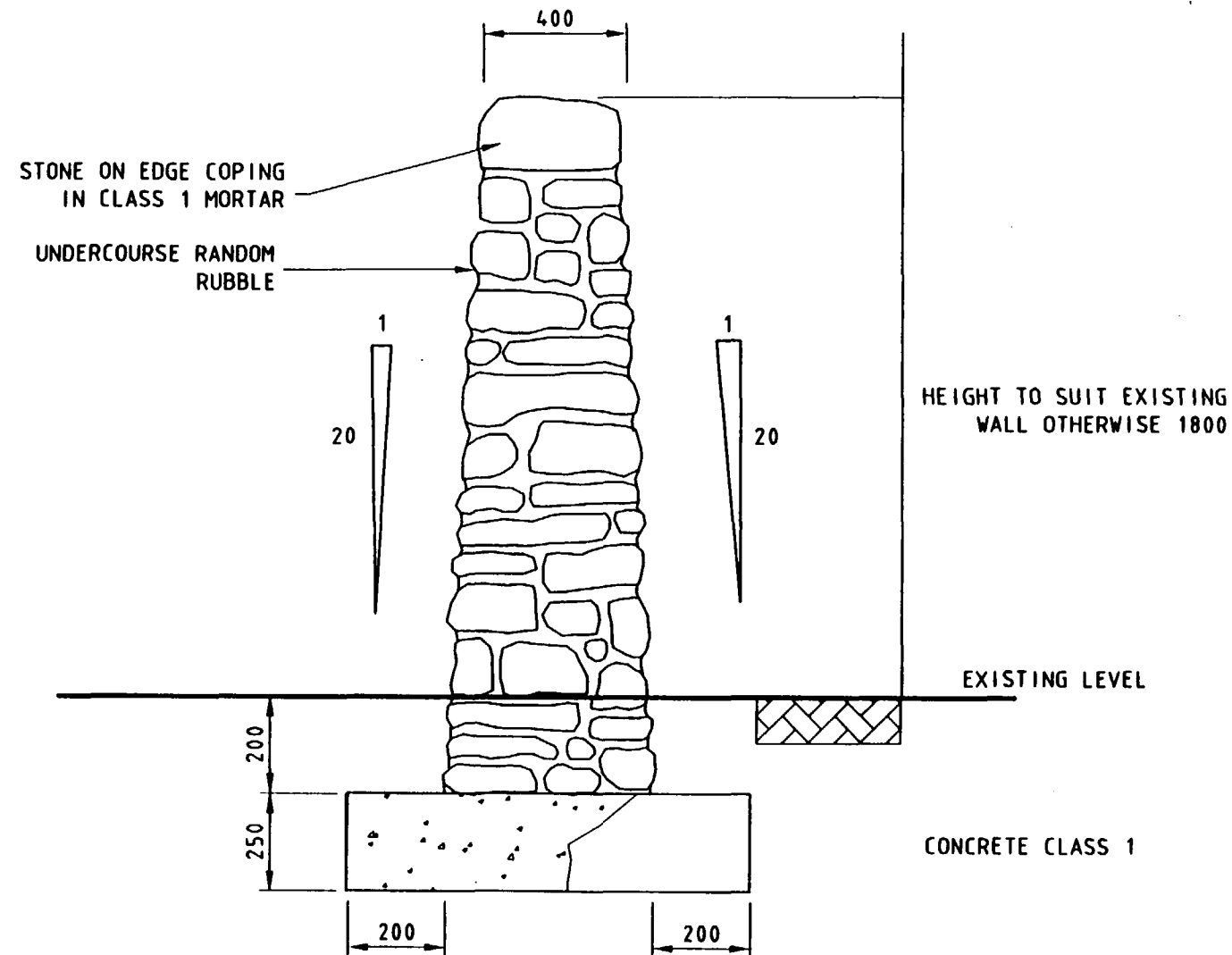
POLYGONAL WALLING

11/11/93

 Y Swyddfa Gymreig Adran y Cyfarwyddwr Prifffyrdd Welsh Office Highways Directorate					A55 LLANDEGAI TO HOLYHEAD DBFO	STANDARD DETAILS: RANDOM MASONRY BOUNDARY WALL		DRAWN SJF	DATE OCT 97	SCALE Not To Scale		
								CHECKED <i>[Signature]</i>	DATE <i>July 98</i>	DRAWING No. 964057/SD/113		REV A
								APPROVED	DATE			
	No.	AMENDMENT DETAILS		BY	DATE							

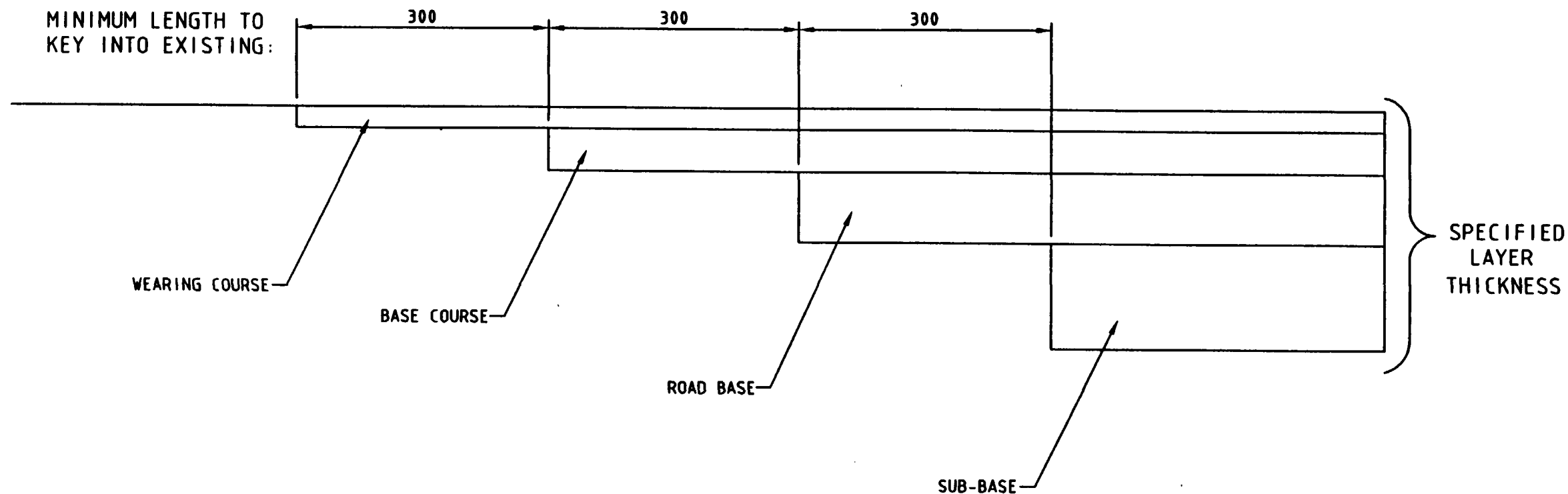
NOTES

1. UNDER COURSED RANDOM RUBBLE TO CL 2413.09 DESIGNATION (iii)
2. 20mm EXPANSION JOINT OF 6000 C/C OF COMPRESSIBLE MATERIAL.
3. STONE TO MATCH EXISTING WALLS IN RELATION TO TYPE, NATURE OF FACE BONDING, BEDDING AND SIZE DISTRIBUTION.



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PAVED AREA CONSTRUCTION	WEARING COURSE		BASE COURSE		ROAD COURSE		SUB-BASE	
	SPECIFICATION	THICKNESS	SPECIFICATION	THICKNESS	SPECIFICATION	THICKNESS	SPECIFICATION	THICKNESS
TYPE 1	6mm DENSE TO BS 4987 Pt1 CL 7.5	30	TO BS 4987 Pt1 CL 6.5	60	TO BS 4987 Pt1 CL 5.2	100	DOT TYPE 1 TO CL 803 SHW	150
TYPE 2	ROLLED ASPHALT WEARING COURSE, 14mm AGGREGATE WITH 20mm COATED CHIPPINGS TO BS 594 Pt.1 CL 3.2	40	TO BS 4987 Pt1 CL 6.5	60	TO BS 4987 Pt1 CL 5.2	120	DOT TYPE 1 TO CL 803 SHW	225



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Welsh Office
Highways Directorate

C	TABLE ADDED	CJH	1998 90
B	MINOR MODIFICATIONS	CJH	NOV 97
A	ORIGINAL ISSUE	SJF	NOV 97
No.	AMENDMENT DETAILS	BY	DATE

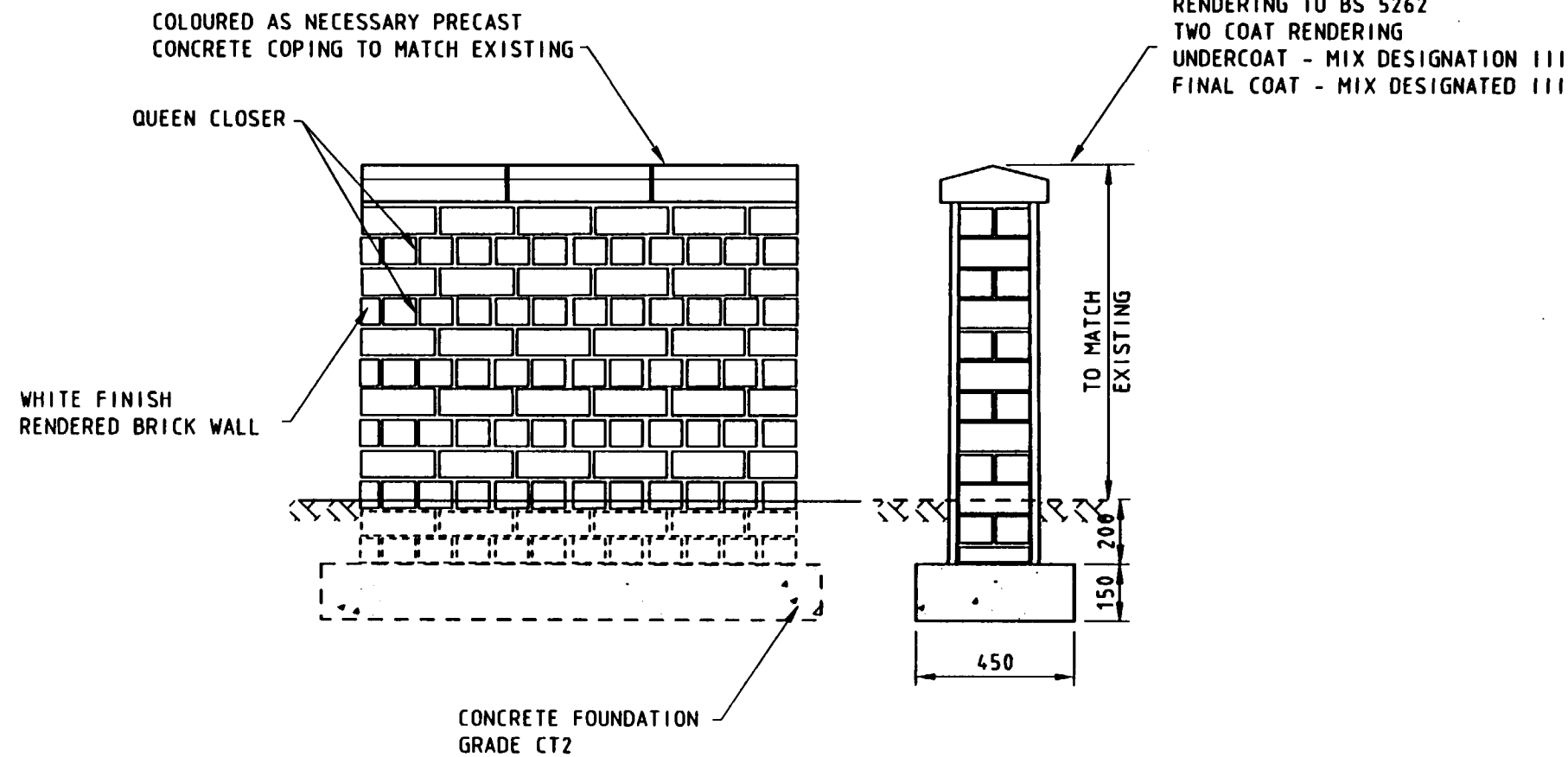
A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
PAVED AREA CONSTRUCTION DETAIL
TYPES 1 and 2

DRAWN CJH	DATE MAR 98	SCALE Not To Scale	REV
CHECKED JH	DATE 4.98	DRAWING No. 964057/SD/115	C
APPROVED JH	DATE 4/98		

NOTES

1. ALL DIMENSIONS GIVEN IN MILLIMETRES.
2. MIX DESIGNATION II MORTAR TO CLAUSE 2404 SHALL BE USED.
3. ALL BRICKS TO BE AT LEAST GRADE 'B' ENGINEERING BRICKS.



ONE BRICK FREE STANDING
BOUNDARY WALL
IN ENGLISH BOND
TO MATCH EXISTING



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No.	AMENDMENT DETAILS	BY	DATE
C	DEPTH DIM ADDED TO FOUNDATION	CJH	JUL 98
B	CONCRETE COPING MODIFIED	CJH	APR 98
A	ORIGIANL ISSUE	SJF	OCT 97

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
BRICK BOUNDARY WALLS

MWB

DRAWN	DATE	SCALE	REV
CJH	JUL 98	Not To Scale	
CHECKED	DATE	DRAWING No.	
APPROVED	DATE	964057/SD/116	C

NOTES

1. THE ACCESS TRACK SHALL EXTEND TO THE HIGHWAY BOUNDARY AS SHOWN.
2. WHERE IT IS NECESSARY TO CONTINUE THE ACCESS TRACK PROFILE BEYOND THE HIGHWAY BOUNDARY IN ORDER TO MAINTAIN A SLOPE NOT EXCEEDING 1:10 THE ADDITIONAL CONSTRUCTION BEYOND THE HIGHWAY BOUNDARY SHALL BE GRAVEL TRACK AS DETAILED.
3. ACCESS TRACK SHALL BE RIGID CONSTRUCTION AS DETAILED OPPOSITE OR FLEXIBLE CONSTRUCTION. TYPE A.
4. TRACK WIDTH.W. SHALL BE 200mm NARROWER THAN THE GATE SIZE SPECIFIED
5. WHERE A FIELD ACCESS IS REQUIRED FROM AN EXISTING OR NEW ACCESS TRACK, THEN THE FIELD ACCESS SHALL BE OF THE SAME CONSTRUCTION TYPE AS THE ACCESS TRACK.

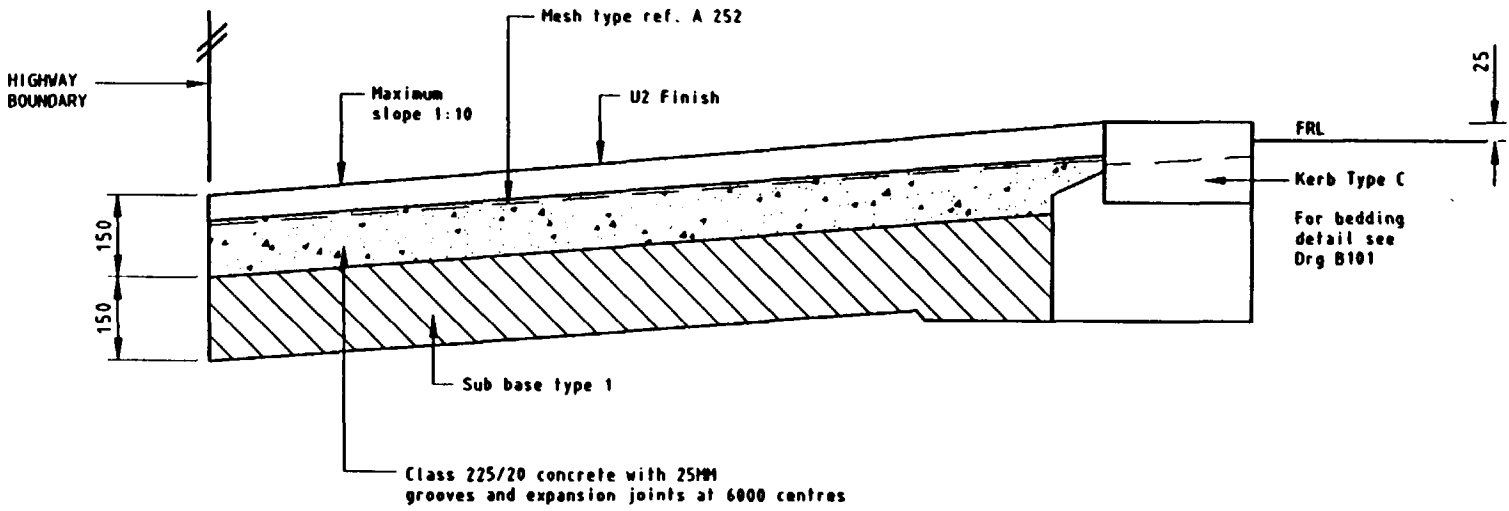
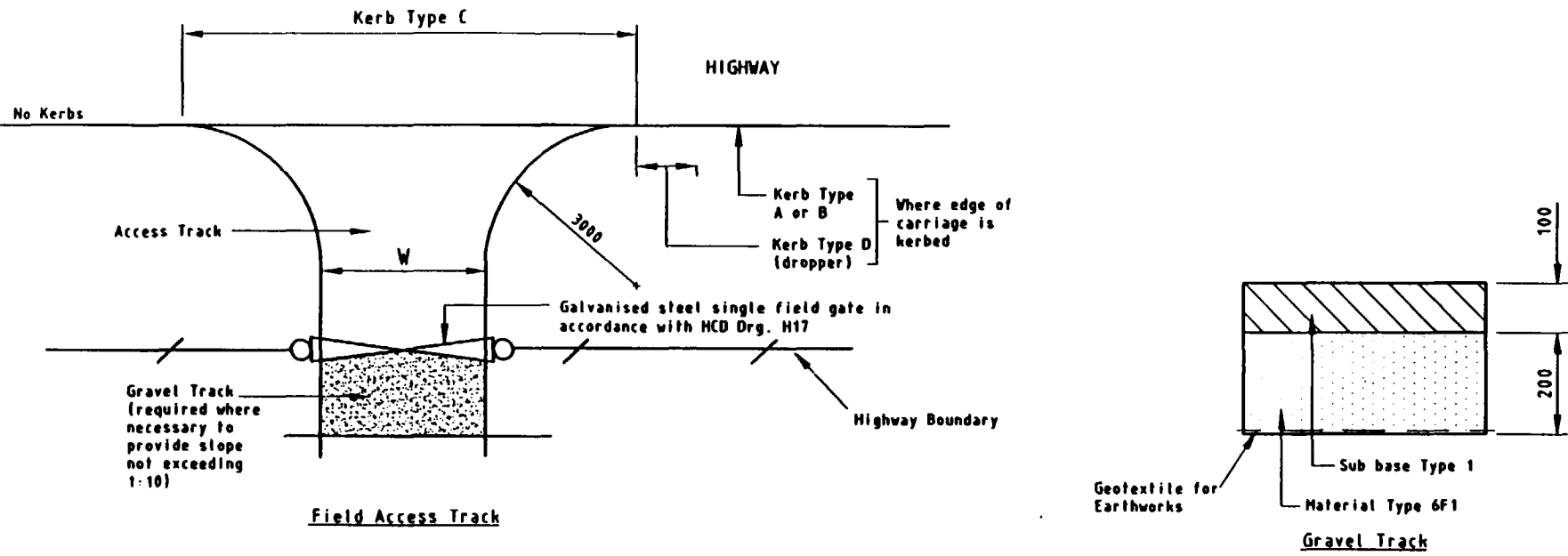
FLEXIBLE CONSTRUCTION TYPE A.

30mm WEARING COURSE TO BS 4987 CLAUSE 7.6

60mm BASE-COURSE TO BS 4987 CLAUSE 6.1

150mm ROAD-BASE CBM3 CLAUSE 1038

150mm SUB-BASE TYPE 2 CLAUSE 804



Access Track-Rigid Construction



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Highways Directorate

No.	AMENDMENT DETAILS	DATE
D	NOTES & DETAIL AMENDED	C.J.H. JUL 98
C	GATE WIDTH DELETED, TITLE AMENDED	C.J.H. APR 96
B	NOTE 5 ADDED	C.J.H. FEB 96
A	INITIAL ISSUE	S.F. OCT 92

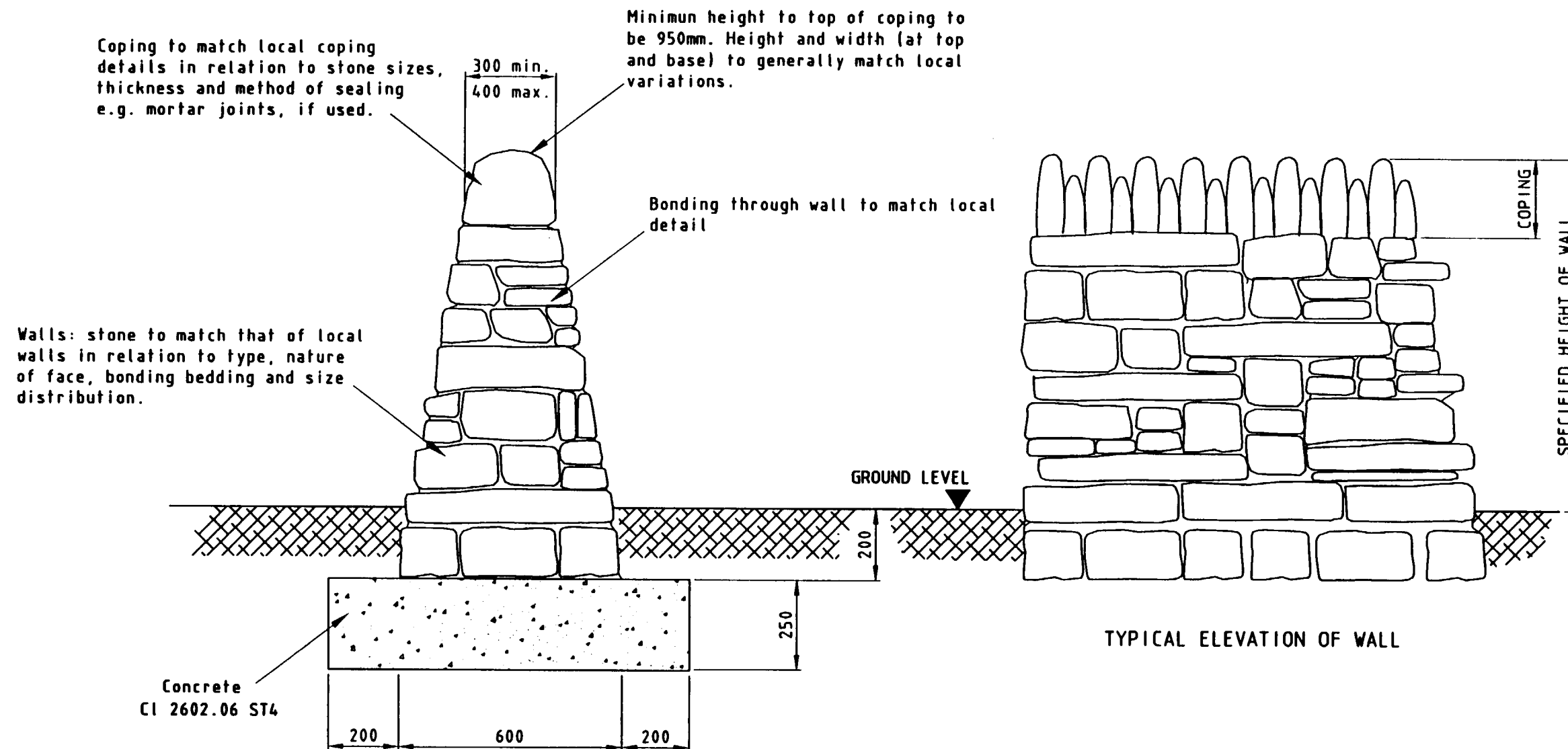
A55 LLANDEGAI TO HOLYHEAD DBFD

STANDARD DETAILS:
ACCESS TRACK OFF HIGHWAY

MVB

DRAWN	DATE	SCALE	DRAWING No.	REV
C.J.H.	JUL 98	Not To Scale	964057/SD/117	D
CHECKED	DATE			
APPROVED	DATE			

NOTE:
All dimensions are in millimeters



MMB

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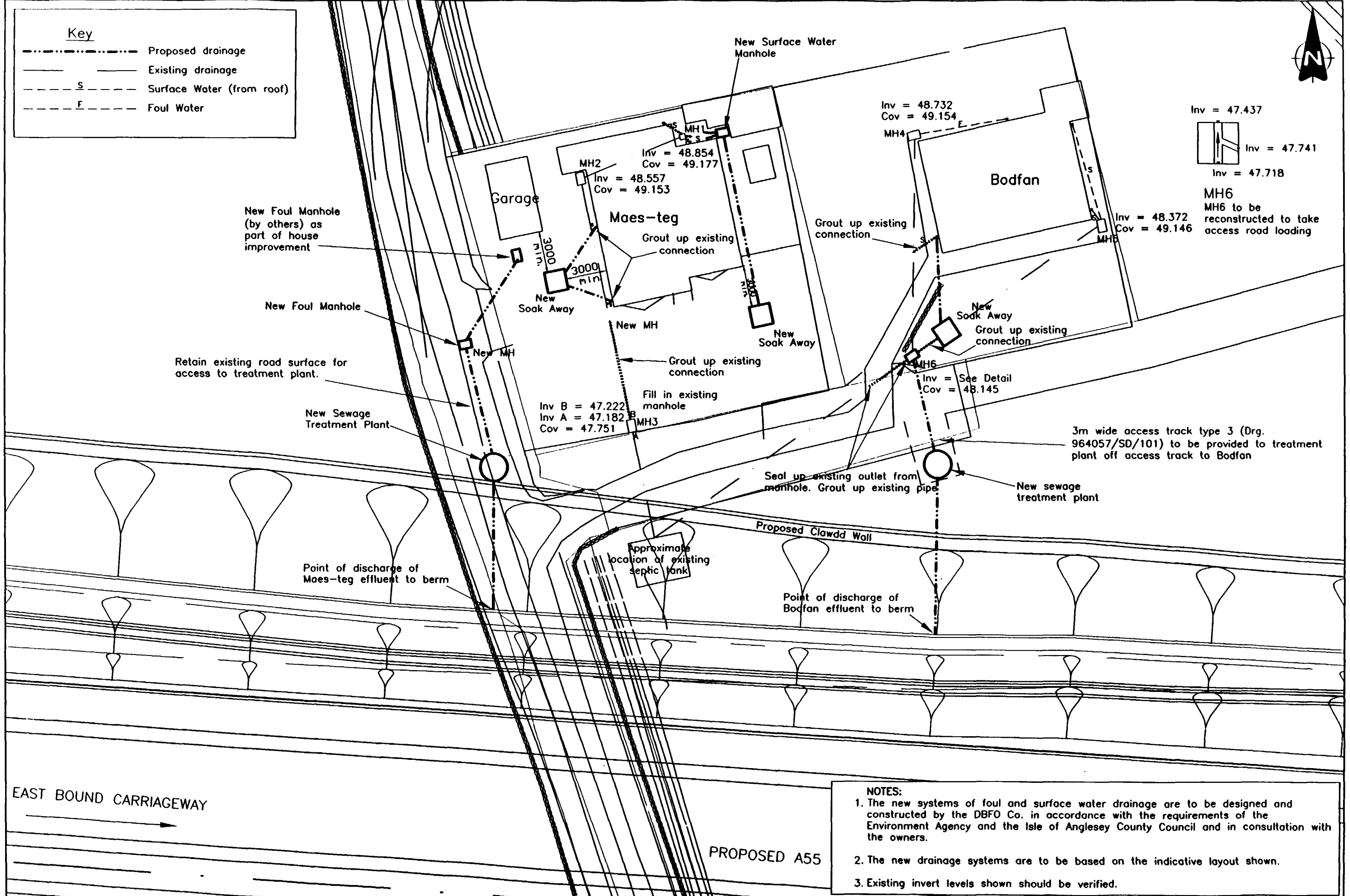
Key

----- Proposed drainage

----- Existing drainage

----- S ----- Surface Water (from roof)

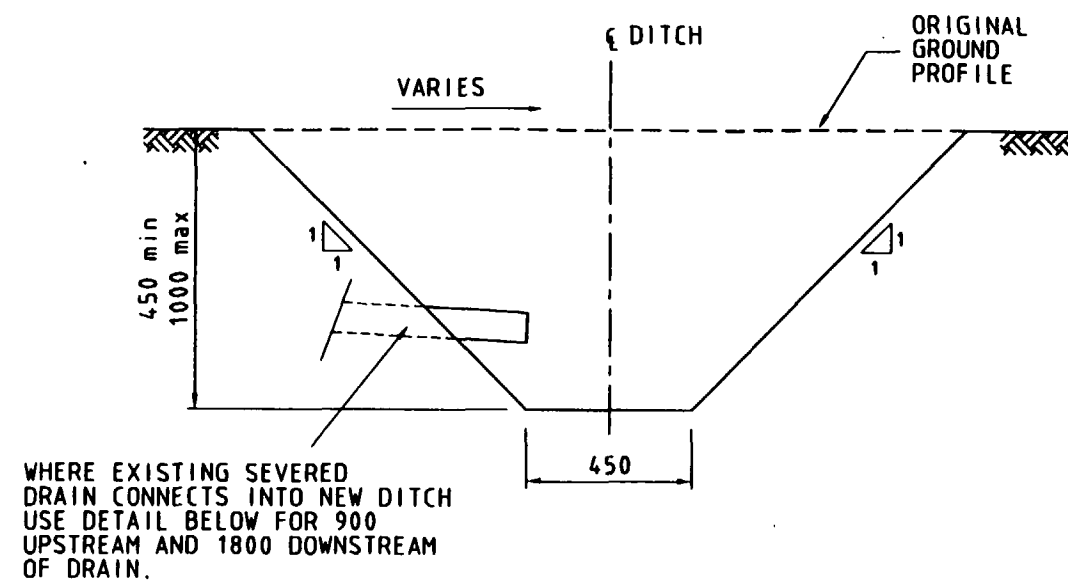
----- F ----- Foul Water



NOTES:

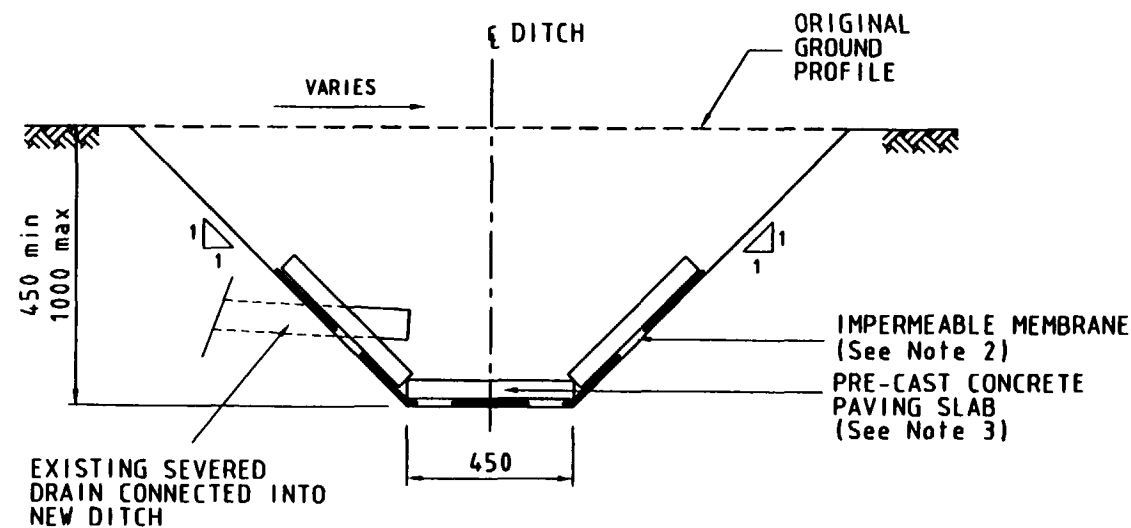
1. The new systems of foul and surface water drainage are to be designed and constructed by the DBFO Co. in accordance with the requirements of the Environment Agency and the Isle of Anglesey County Council and in consultation with the owners.
2. The new drainage systems are to be based on the indicative layout shown.
3. Existing invert levels shown should be verified.

Y Swyddfa Gymreig Adran y Cyfarwyddwr Prifffyrdd Welsh Office Highways Directorate			A55 LLANDEGAI TO HOLYHEAD DBFO		Foul & Surface Water Drainage AT BODFAN AND MAES-TEG		DRAWN C.J.H. CHECKED APPROVED DATE JUL 98 DATE JUL 98 DATE 1/98	SCALE 1: 250 DRAWING No. 960457/SD/119	REV B
	B	ACCESS TO TREATMENT PLANT ADDED	C.J.H.	JUL 98					
	A	INITIAL ISSUE	S.J.F.	OCT 97					
	No.	AMENDMENT DETAILS	BY	DATE					



UNLINED DITCH

SCALE 1:20



LINED DITCH

SCALE 1:20

NOTES:

1. All dimensions in millimetres unless otherwise stated
2. Impervious membrane (IM) to be medium impervious membrane 1 (m) to be medium density polyethylene (MDPE) or Butyl' sheeting 500um thick. IM to have continuous seam welding longitudinal joints. Non welded transverse lap joints to be 300 (laid upstream lap over downstream sheet) with a minimum spacing of 20 metres. IM should be terminated within intermediate or terminal headwalls.
3. 50 thick precast concrete paving slabs hydraulically pressed and complying with BS 368 to be laid with staggered dry joints. The slabs should be of a uniform width of 450 and be 450 long minimum to 900 long maximum unless cutting is required.



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No.	AMENDMENT DETAILS	BY	DATE

A55 LLANDEGAI TO HOLYHEAD DBFO

DRAINAGE DITCH DETAILS

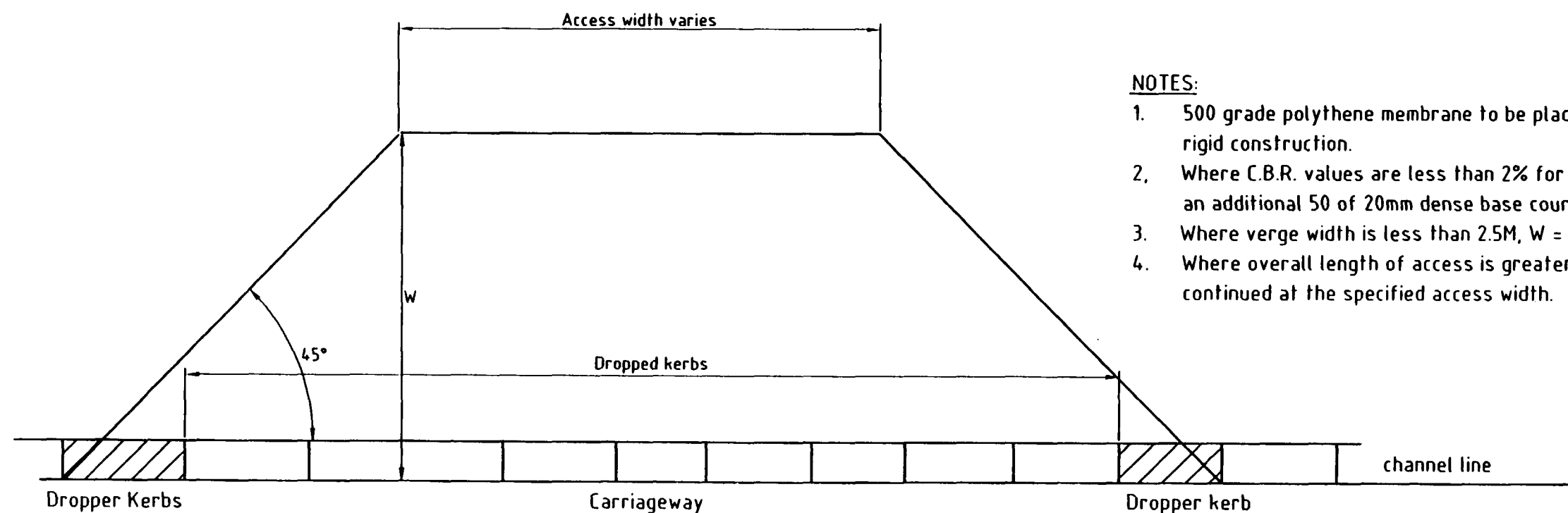
DRAWN SF	DATE OCT 97	SCALE AS SHOWN	REV
CHECKED JL	DATE Nov 97	DRAWING No. 964057/SD/120	A
APPROVED DJK	DATE Nov 97		

NOTES:

1. All dimensions in millimetres unless otherwise stated

Design group access type	access width	Flexible construction			rigid construction		Type of Access	W
		Sub-Base Type 1 (Clause 803)	Dense Basecourse (Clause 906)	Wearing Course (Clause 910 or 912)	sub-base Type 1 (Clause 803)	concrete (cl. 1701)		
V1	UP TO 2500	200	50mm of 20mm N.S.	25 of 6mm N.S.	75	150 of 30/20	Domestic	2.5
V2	4000	200	150mm of 20mm N.S.	25 of 6mm N.S.	150	225 of 40/20	Light Industrial	3.5
V3	5000	200	50mm of 20mm N.S.	NOT REQUIRED	75	150 of 30/20	Field-very infrequent	3.5
V4	6000 or Wider	300	200mm of 20mm N.S.	40mm of HRA W.C.	300	225 of 40/20	Heavy Industrial	x

x Each individual access of this type will have a kerbed radius access, as detailed on the scheme plan.



NOTES:

- 500 grade polythene membrane to be placed on top of the sub-base for rigid construction.
- Where C.B.R. values are less than 2% for flexible construction, an additional 50 of 20mm dense base course must be used.
- Where verge width is less than 2.5M, W = Verge Width.
- Where overall length of access is greater than 2.5m access is to be continued at the specified access width.



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Highways Directorate

No.	AMENDMENT DETAILS	BY	DATE
C	NOTE 5 & KERB Drg No.s DELETED	C.M	JUL 98
B	NOTE 4 ADDED	C.M	DEC 97
A	INITIAL ISSUE	C.M	NOV 97

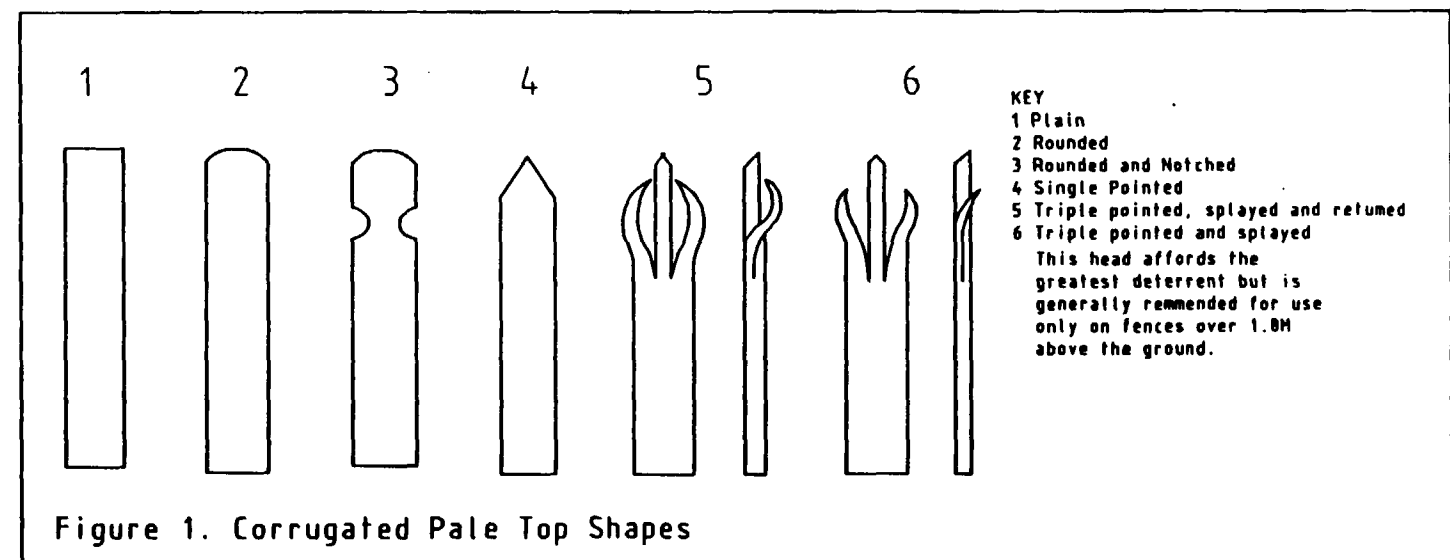
A55 LLANDEGAI TO HOLYHEAD DBFO

PRIVATE ACCESS

DRAWN C.M	DATE JUL 98	SCALE NOT TO SCALE	REV
CHECKED J.H	DATE JUL 98	DRAWING No. 964057/SD/121	C
APPROVED J.H	DATE 1/98		

Table 2. BASIC DIMENSIONS FOR GENERAL PALISADE FENCES WITH POSTS AT 2.75m CENTRES												
BS type Reference	Force height ¹⁾ above ground	Basic dimensions										
		Posts			Rails (horizontal)		Pales				Corrugated (Minimum face to view 65mm)	
		Rolled steel joist section		Embedded Length ³⁾	Rolled steel angle section	Connector bolt ϕ	Rolled steel angle section	Overall		Nomial Thickness	Overall	
								top	bottom ⁵⁾		top	bottom ⁵⁾
GP 15	m 1.50	mm 102x44	kg/m 7.44	mm 425	mm 40x40x6 ³⁾	mm 10	mm 30x30x5	mm 225	mm 150	see table 1.	mm 225	mm 150
GP 18	1.80	102x44	7.44	525	40x40x6 ³⁾	10	40x40x5	225	150		225	150
GP 21	2.10	102x44	7.44	625	45x45x6 ⁴⁾	10	40x40x5	275	200		275	200
GP 24	2.40	102x44	7.44	725	45x45x6 ⁴⁾	12	40x40x5	300	210		300	210

- 1) For other heights of fence, unless stated the specification for the nearest higher fence given in the table should be used
2) The embedded length shall be derived from the formula: embedded length = fence height - 75 (all dimensions in millimeters)
3) One intermediate support shall be provided where these sections of rail are used
4) Two intermediate supports shall be provided where these sections of rail are used-
5) This dimension is for pales with a ground clearance of 50 mm



- NOTES:
1. PALISADE FENCE TO BE PROVIDED IN ACCORDANCE WITH BS 1722 PART 12:1990
2. Site Conditions
(a) Line of fence- as shown on drawings
(b) High and type of fence: General purpose palisade fence GP21, above ground height 2.1 metres. (shown on attached table 2).
(c) Site preparation to be part of highway works
(d) No specific requirements for non standard post lengths
(e) No specific requirements for site gradients
(f) Gates as shown on drawings
3. Construction of fence
(a) Pales:
(1) corrugated
(2) Triple pointed and splayed
(3) bolted
(4) 2.5mm thick
(b) Posts
(1) Rolled Steel Joist sections; 102 x 44 x 7.44 kg/m To be painted as pales. (Shown on attached table 2)
(2) Post spacing to be 2.75 metres where possible.
(3) Posts not to be removable. Holes for fence post foundations to be square hole 300x300x700 deep. Posts to be cast in ST2 concrete.
(c) Protective treatment to be hot dip galvanized in accordance with BS729.
(d) Gates (where specified)
(1) 3.5m wide
(2) Type of post to be RSJ 203 x 203 x 60 kg/m (shown on attached table 6)
(3) Sliding horizontal locking bar secured to locking plate welded to gate frame approximately - mid gate. Locking bars, holed to receive padlock.
(4) 50mm gap between road level and bottom of pales.
(5) No additional security.

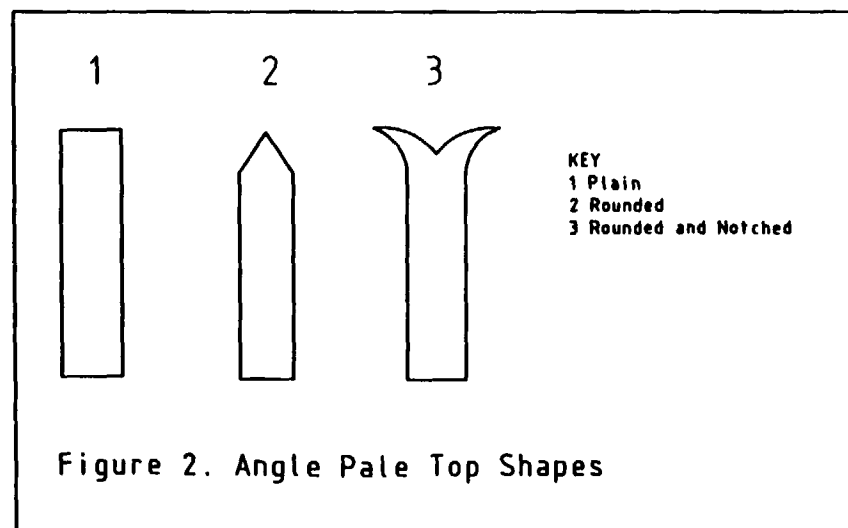
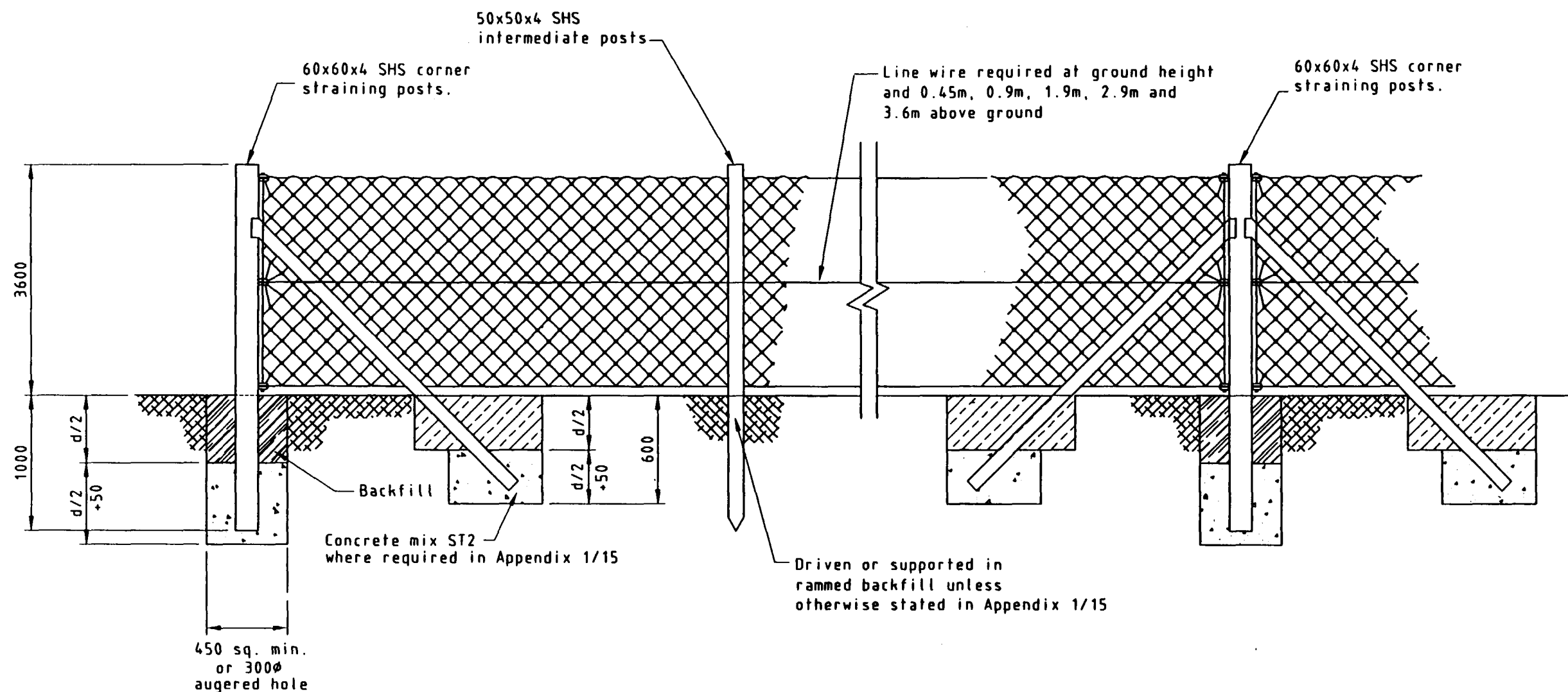


Table 1. Typical Pale Thickness		
Typical profile	General purpose	Security
	mm 5	mm -
	2.5	3.0
	3.0	3.5

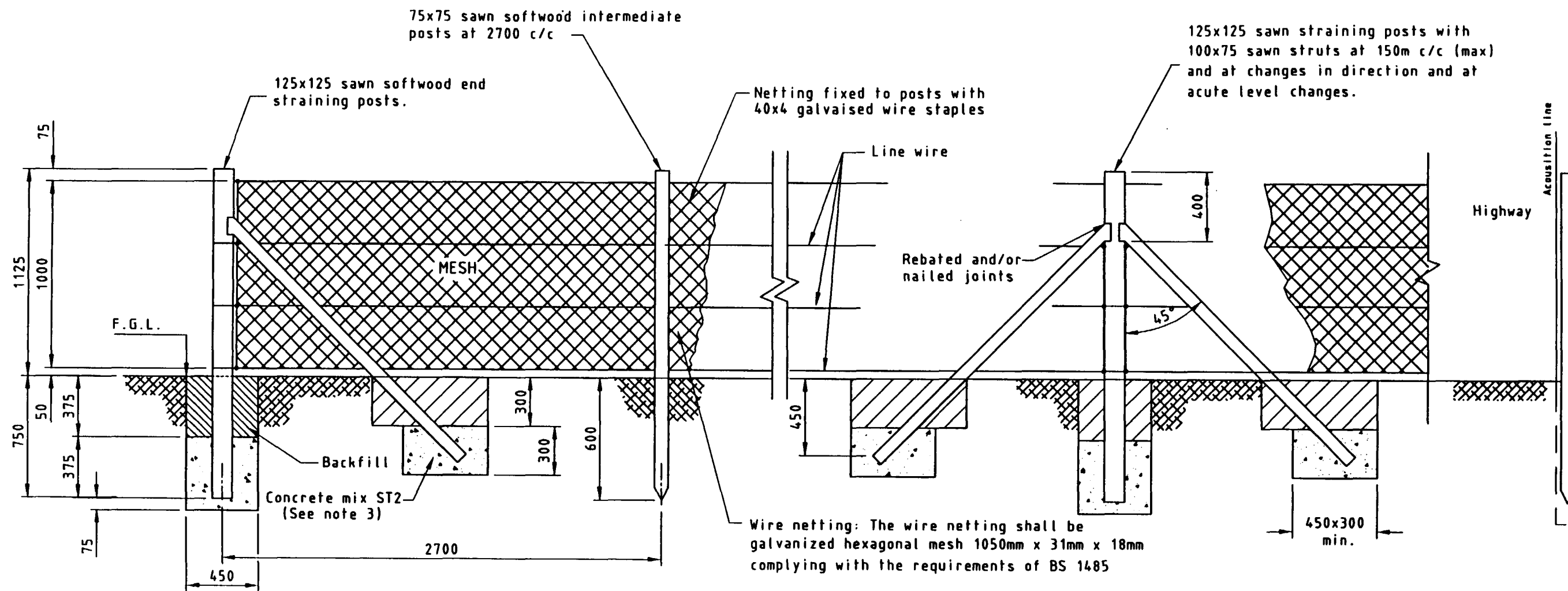
	Y Swyddfa Gymreig					A55 LLANDEGAI TO HOLYHEAD DBFO	STANDARD DETAILS: PALISADE FENCING		DRAWN CJH	DATE MAR 98	SCALE Not To Scale	REV A
	Adran y Cyfarwyddwr Prifffyrdd								CHECKED 	DATE Jul 98	DRAWING No.	
	Welsh Office								APPROVED 	DATE 7/98	964057/SD/122	
	Highways Directorate											



NOTES:

1. BS 1722 Part 13 applies unless otherwise stated.
2. Black plastic coating when required in Appendix 1/15 shall comply with Specification Clauses 2604 and 2605.
3. Plastic coating material will not be acceptable where damage has occurred to the coating before or during erection unless the engineer agrees that minor defects can be sprayed with an approved plastic paint within 24 hours of erection.
4. All materials shall comply with Specification Clause 1801 unless otherwise stated in Appendix 1/15.
5. Where a fence forms a boundary between the highway and private property the wire shall be fixed to the highway side unless otherwise stated in Appendix 1/15.
6. All posts to be grade 43 steel.
7. All dimensions are in millimetres.
8. Fence to become responsibility of landowner on completion of works.

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NOTES:

1. All workmanship & materials shall comply with BS 1722 Part 2, 1989.
2. All timber to be treated in accordance with Clause 311 of the Specification for Highway Works.
3. Concrete footings may be omitted where excavated material is suitable for ramming.
4. All dimensions in millimetres except where stated.
5. Fence to become the responsibility of landowner on completion of the Works.



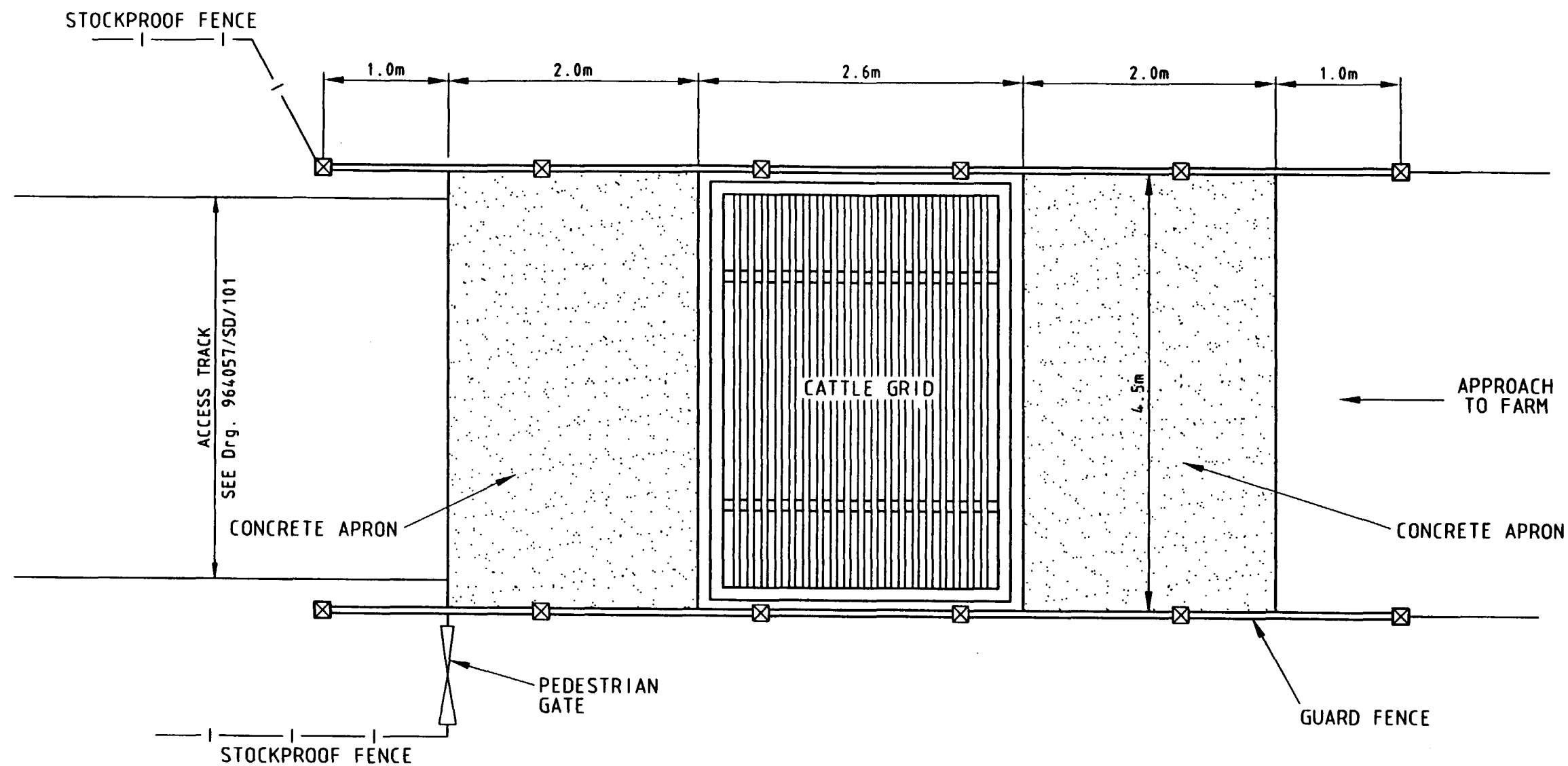
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Highways Directorate

A	ORIGINAL ISSUE	CJH	MAR 98
No.	AMENDMENT DETAILS	BY	DATE

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
WOODEN POST AND WIRE MESH FENCE

DRAWN CJH	DATE MAR 98	SCALE Not To Scale	
CHECKED JH	DATE 4.9.98	DRAWING No. 964057/SD/125	REV A
APPROVED [Signature]	DATE 4/98		



NOTES

1. Cattle Grid to be constructed in accordance with BS. 4008 1991, and is to be capable of taking full HA loading in accordance with BD 37/88.
2. Concrete apron to be rigid construction in accordance with standard detail 964057/SD/117.
3. Guard fence to be wooden post and four rail fence, stockproof in accordance with standard detail 964057/SD/107 wire netting on cattle grid side of fence. (unless specified otherwise)
4. Pedestrian gate to be timber wicket gate to HCD H23.



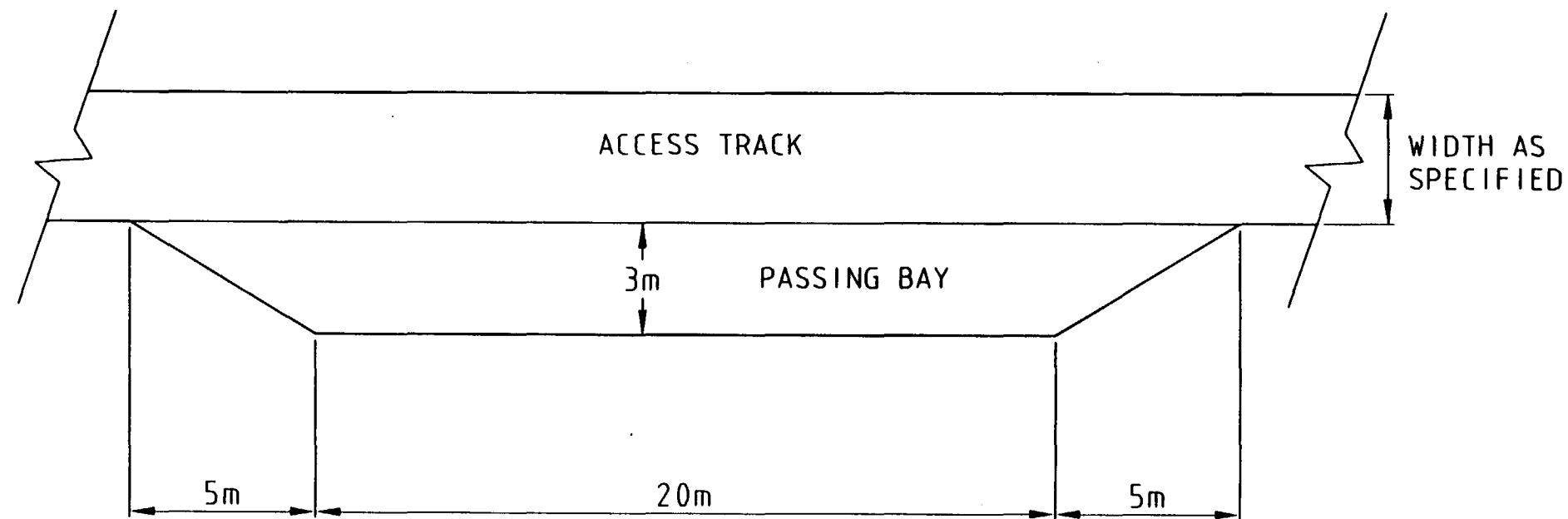
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No.	AMENDMENT DETAILS	BY	DATE
B	LOADING DESIGN, WIDTH	CJH	JUN 98
A	ORIGINAL ISSUE	CJH	MAR 98

ASS LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
CATTLE GRID

DRAWN CJH	DATE JUN 98	SCALE Not To Scale	REV
CHECKED [Signature]	DATE July 98	DRAWING No. 964057/SD/126	B
APPROVED [Signature]	DATE 7/98		



NOTES:

1. PASSING BAY CONSTRUCTION DETAILS IN ACCORDANCE WITH SPECIFICATION FOR ACCESS TRACK AS SHOWN ON Drg. 964057/SD/101
2. PASSING BAY TO CROSSFALL AWAY FROM MAIN ACCESS TRACK AT 2.5%

11/11/13



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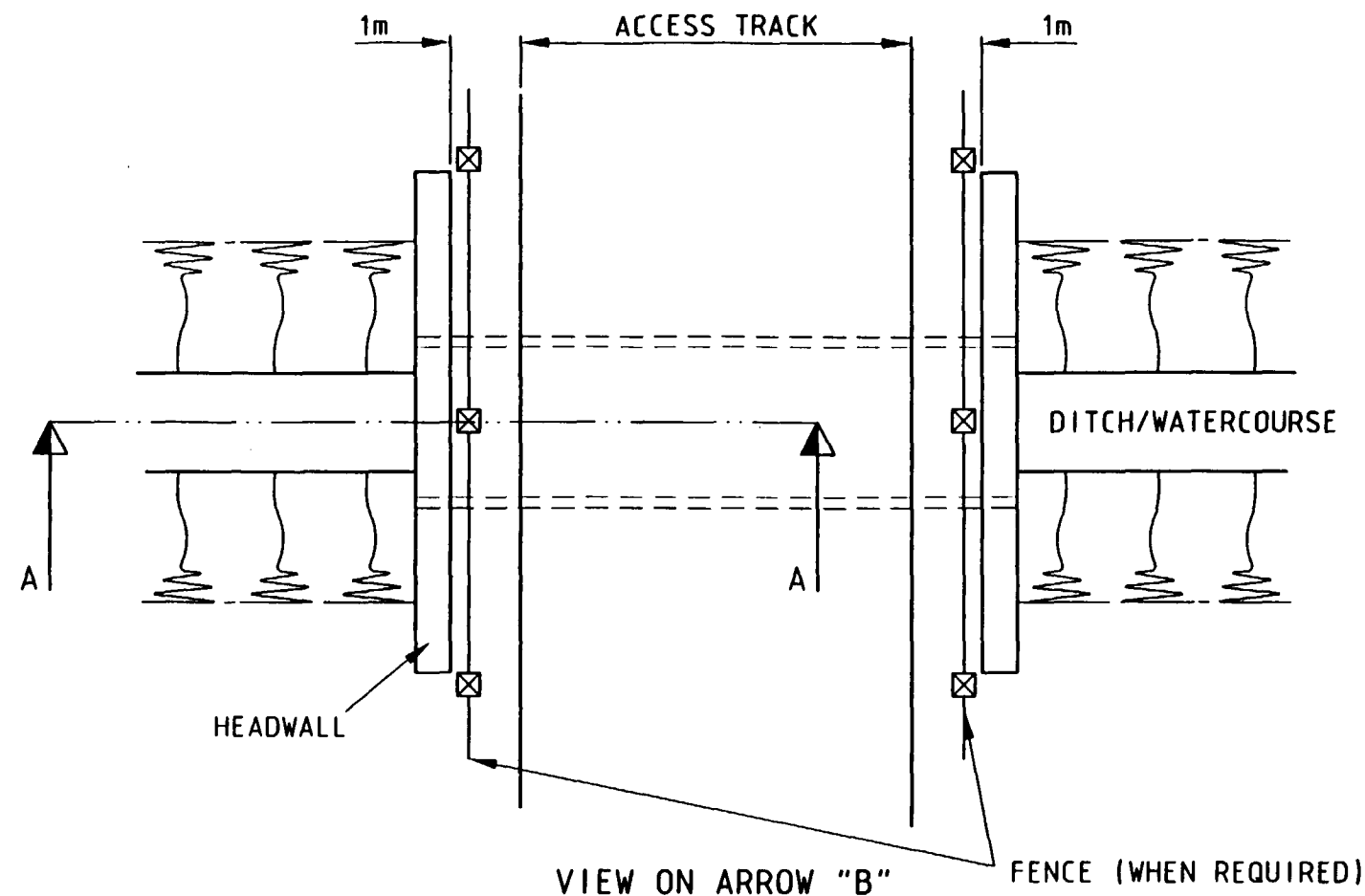
A	INITIAL ISSUE	CJH	MAR 98		
No.	AMENDMENT DETAILS	BY	DATE		

ASS LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
PASSING BAY ON ACCESS TRACKS

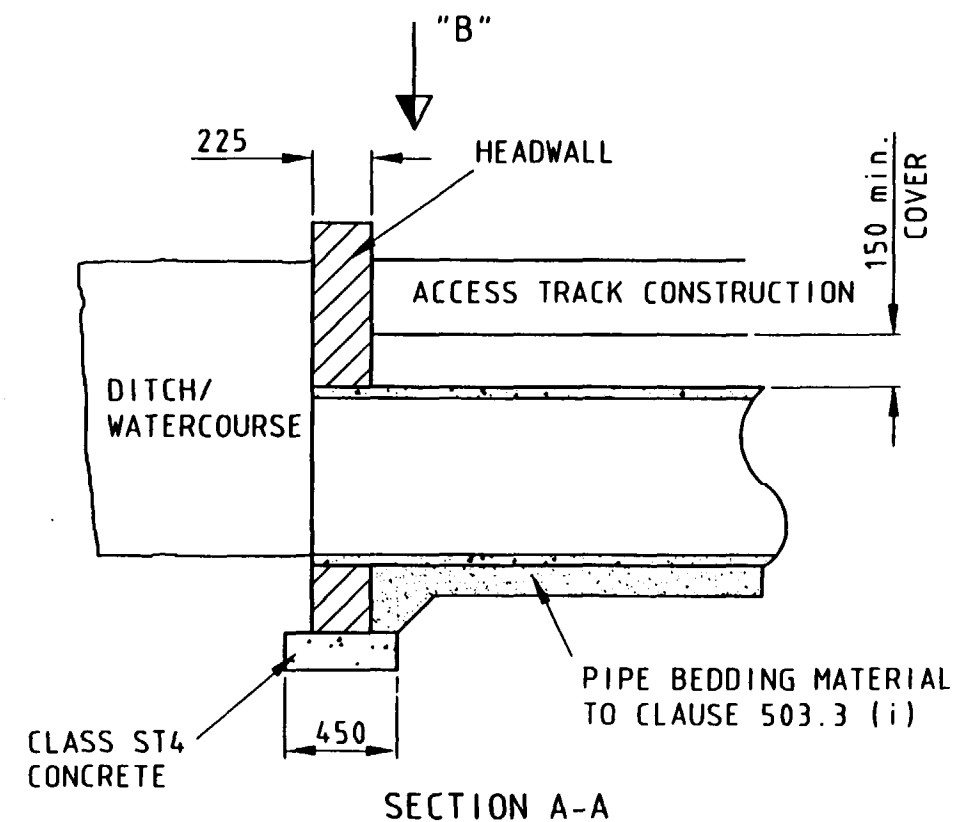
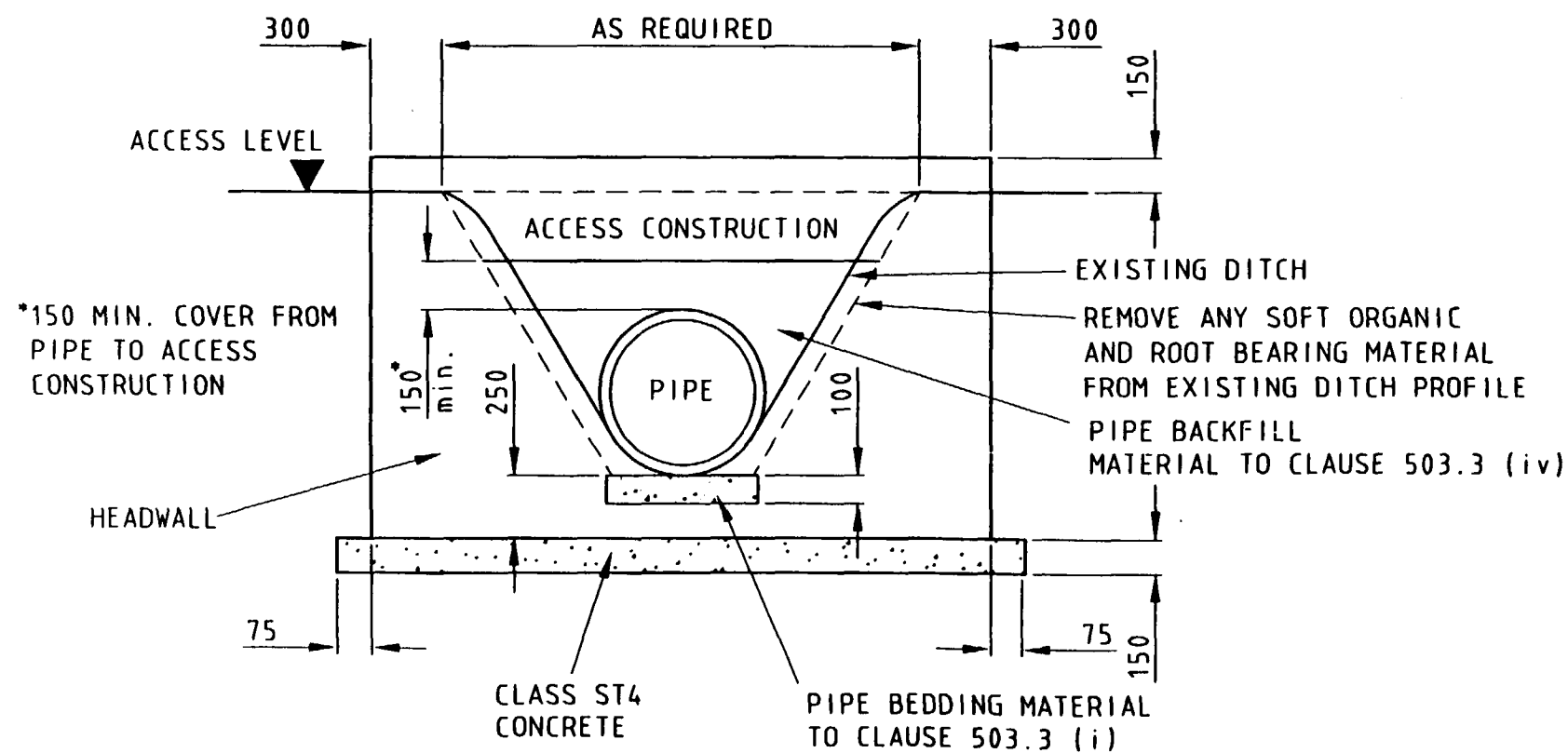
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DRAWN CJH	DATE MAR 98	SCALE Not To Scale	
CHECKED CJH	DATE MAR 98	DRAWING No. 964057/SD/127	REV A
APPROVED CJH	DATE 3/98		



NOTES:

1. PIPE TO BE SET 50mm BELOW EXISTING DITCH INVERT.
2. ANY VOIDS BELOW PIPE BED TO BE FILLED WITH PIPE BEDDING MATERIAL.
3. HEADWALL TO BE CONSTRUCTED IN EITHER CLASS ST4 CONCRETE OR CLASS B ENGINEERING BRICKWORK ENGLISH BOND WITH CLASS 1 MORTAR WITH BRICK ON EDGE COPING.
4. REQUIREMENTS FOR DETERMINING PIPE DIAMETER TO BE AGREED WITH THE ENVIRONMENT AGENCY.
5. PIPE STRENGTHS TO BE APPROPRIATE TO VEHICULAR USE OF ACCESS TRACK.



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Welsh Office
Highways Directorate

No.	INITIAL ISSUE	BY	DATE
A		CJH	MAR 98
	AMENDMENT DETAILS		

A55 LLANDEGAI TO HOLYHEAD DBFO

STANDARD DETAILS:
PIPED ACCESS CROSSING TO MINOR
WATERCOURSE

DRAWN	DATE	SCALE	REV
CJH	MAR 98	Not To Scale	
APPROVED	DATE	DRAWING No.	
JH	MAR 98	964057/SD/128	A