

SLAIDBURN BRIDGE PBI

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2.0 BRIDGE ELEVATIONS



2.1 NORTH ELEVATION



2.2 SOUTH ELEVATION

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3.0 BRIDGE APPROACHES



3.1 EASTBOUND APPROACH



3.2 WESTBOUND APPROACH

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4.0 INSPECTION PROCEDURE

4.1 Inspection

Lancashire County Council's Highway Consultancy undertook the Principal Inspection of Slaidburn Bridge, L.C.C. No. 4263, on 9 October 1996. The weather during the inspection was dry.

Due to the dimensions and levels of the bridge it was possible to inspect all visible parts of the structure without the use of any extra access equipment.

The condition of the arch barrels, spandrel walls, abutments and parapets were all inspected for signs of cracking, spalling, weathering, joint condition and other defects. The carriageway surfacing above the barrel was also inspected for signs of cracking or other deterioration.

4.2 Components not inspected

The foundations were not exposed for the purposes of a visual inspection but some indication of their performance and integrity was gained from inspection of other components of the structure.

5.0 INSPECTION RESULTS

COMPONENTS	INSPECTION RESULTS	PHOTO (P) No & SKETCH (S) No	PAGE No	RECOMMENDATIONS/ACTION	TIMESCALE
1. Foundations	Not inspected				
2. Inverts	On the day of inspection the river was not flowing under the western arch due to silting.				
4. Piers					
South (i) Central	Leached deposits, dampness and moss.	P1 S3	10	Monitor.	
(ii) East	Spalled masonry.	P2 S3	10	Repair spalled masonry.	M
	Leached deposits.	P3 S3	11	Monitor.	
	Damp areas with lichen growth.	P3 S3	11	Monitor.	
North (i) West	Cracked pointing between masonry.	P4 S4	11	Repoint masonry.	M
(ii) Central	Spalled and weathered block at base of pier.	P5 S4	12	Repair spalled block.	M
	Active wet areas and moss.	P6 S4	12	Monitor.	
	Spalled and weathered blocks.	P7 S4	13	Monitor.	
5. Abutments					
Eastern Arch					
(i) Eastern Abutment	Open joints.	P8 S1, P9 S1	13	Repoint joints.	M
	Spalled and weathered blocks.		14		
(ii) Western Abutment	Leached deposits.	P8 S1, P9 S1	13	Monitor.	

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COMPONENTS	INSPECTION RESULTS	PHOTO (P) No & SKETCH (S) No	PAGE No	RECOMMENDATIONS/ACTION	TIMESCALE
Western Arch (1) Eastern abutment	Cracked pointing and open joints.	P10 S2	14	Repoint joints.	M
	Weathered and spalled blocks.	P11 S2	15	Monitor.	
6. Wingwalls South East	Leached deposits, cracked mortar and open joints.	P12 S3	15	Repoint and monitor.	M
	Active water seepage from joints at base of wall.	P13 S3	16	Monitor.	
South West	No significant defects				
North West	Open joints to pointing in random masonry wall.	P14 S4 P16 S4	16 17	Monitor.	
	Vertical crack to pointing between masonry.	P15 S4	17	Monitor.	
	Water seepage and leached deposits.	P4 S4	11	Monitor.	
North East	Small areas of leached deposits	S4		Monitor.	
16. Arch Ring Eastern	Leached deposits to outer ring on southern side.	P17 S3	18	Monitor.	
	Water seepage and surface deposits to outer ring on northern side.	P18 S4	18	Monitor.	
	Weathered blocks, poor joint condition and cracked blocks to outer ring on northern side.	P19 S1, P20 S1	19	Monitor.	

COMPONENTS	INSPECTION RESULTS	PHOTO (P) No & SKETCH (S) No	PAGE No	RECOMMENDATIONS/ACTION	TIMESCALE
Western	Wet and damp areas with lichen growth.	P21 S1, P22 S1	20	Monitor.	
	Active water seepage.	P21 S1	20	Monitor.	
	Leached deposits.	P21 S1, P23 S1	21	Monitor.	
	Cracked blocks.	P24 S1	21		
	Spalled blocks.	P25 S1	22		
	The outer face of many blocks are weathered. The extent varies and the worst areas have been highlighted.	P26 S1, P25 S1	22	Replace spalled blocks.	M
	There is a variable gap of approximately 0 - 60 mm between adjacent arch rings.	P22 S1, P24 S1	20		
		P25 S1, P22 S1	22	Monitor.	
		P27	23	Monitor.	
	Damage to outer blocks caused by gate on southern side.	P28 S3	23	Monitor.	
	Water seepage at crown and leached deposits to outer blocks on southern side.	P29 S3	24	Monitor.	
	Weathered blocks and leached deposits to outer blocks on northern side.	P30 S4, P31 S5	24 25	Monitor.	
	Missing masonry.	P32 S2, P33 S2	25	Replace missing masonry shown in P32	M
	Leached deposits.	P34 S2, P35 S2	26	Monitor.	
	Spalled blocks.	P35 S2	27	Monitor.	

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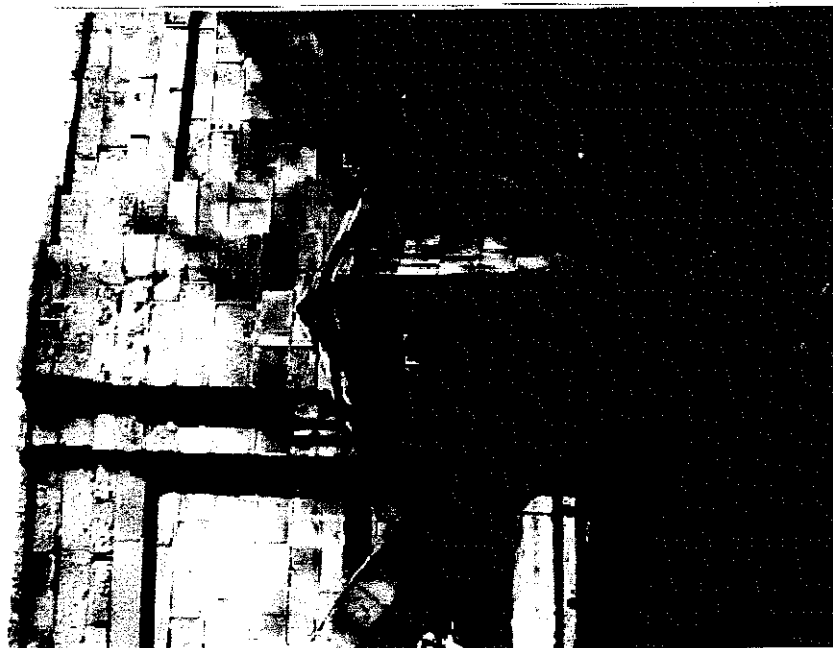
COMPONENTS	INSPECTION RESULTS	PHOTO (P) No & SKETCH (S) No	PAGE No	RECOMMENDATIONS/ACTION	TIMESCALE
17. Spandrels South East North West	Active water seepage.	P34 S2, P36 S2	27	Monitor.	M
	Open joints.	P35 S2, P36 S2	27	Monitor.	
	Cracked blocks.	P32 S2	25	Replace cracked blocks.	
	Cracking to pointing between blocks.	P37 S2	28	Monitor.	
	A gap varying between approximately 0 - 60 mm exists between the adjacent arch rings.	P33	25	Monitor.	
19. Drainage systems	Leached deposits.	P3 S3	11	Monitor.	M
	Cracking to pointing between masonry blocks extending from arch ring through parapet.	P38 S4	28	Repoint.	
20. Waterproofing	Leached deposits.	P39 S4	29	Monitor.	
21. Surfacing	No drainage system was visible and was therefore not inspected.				
	No waterproofing was visible and was therefore not inspected.				
	The surfacing is of a poor standard but this is not related to any structural defects.				

COMPONENTS	INSPECTION RESULTS	PHOTO (P) No & SKETCH (S) No	PAGE No	RECOMMENDATIONS/ACTION	TIMESCALE
24. Parapets Northern	Crack to masonry pointing.	P40 S5	29	Repoint masonry.	M
	Generally poor quality of pointing to masonry, loose and missing pointing and open joints.	P41 S5, P42 S5 P43 S5	30 31	Repoint masonry.	M
	Deviation in line of parapet.	P44 S5	31	Monitor.	
	Worn kerb stones, cracked mortar, open joints and impact damage on inside corner of bend.	P45 S5	32	Replace spalled masonry kerbs on corner and repoint remaining cracks.	M
Southern					

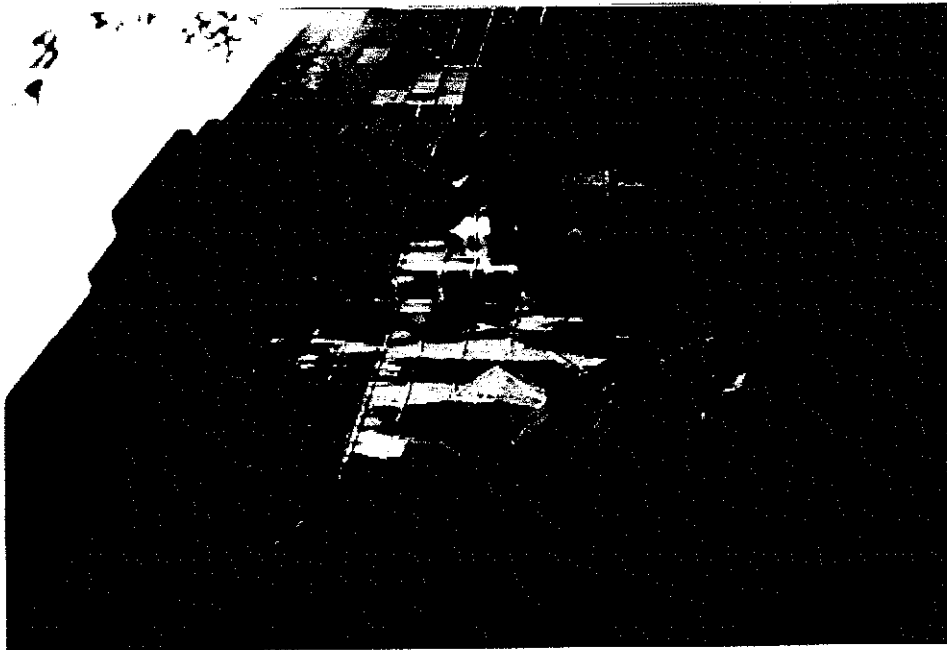
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2. Spalled masonry



1. Leached deposits, dampness and moss

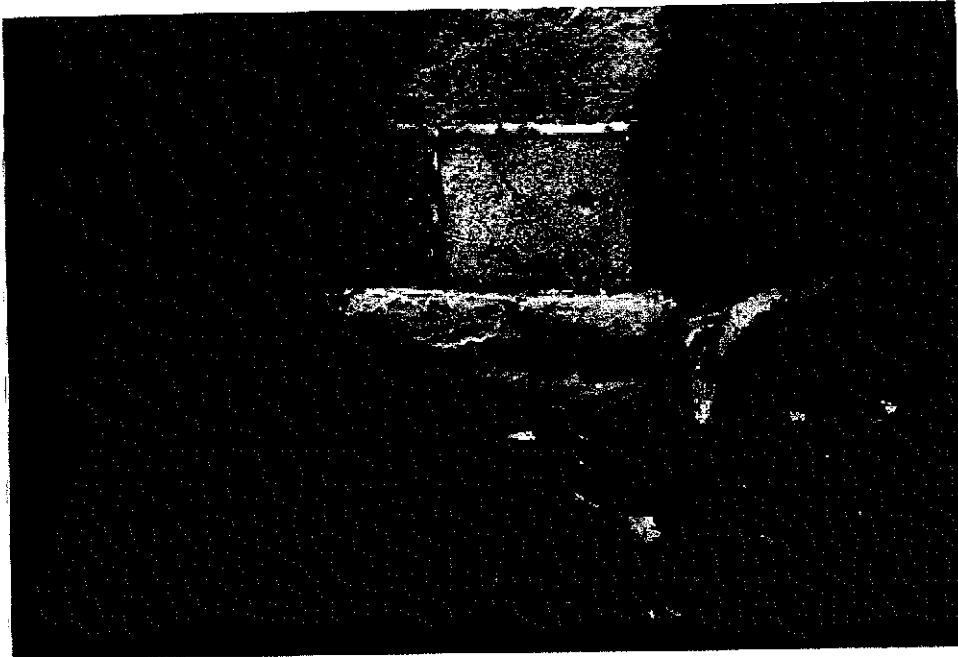


3. Leached deposits, lichen and damp areas



4. Cracked pointing to pier, active water seepage and leached deposits to wingwalls

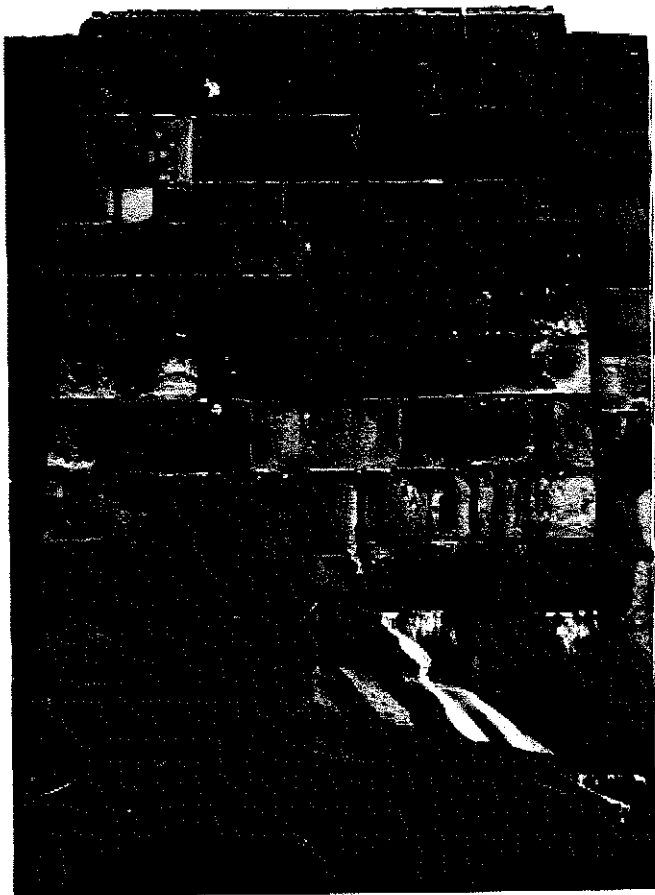
320111065P



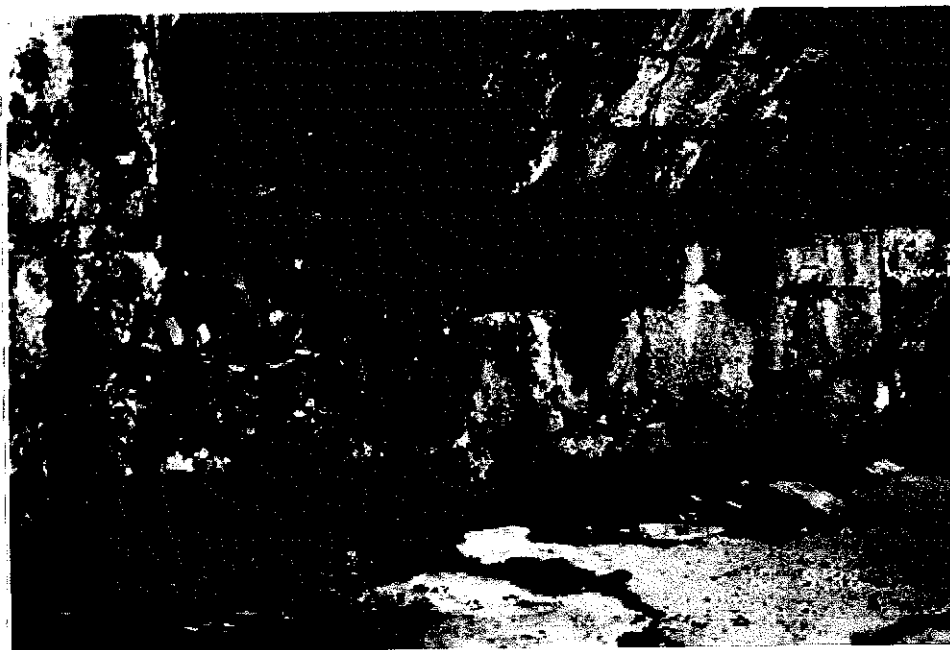
5.. Spalled and weathered block



6.. Active water
seepage and moss



7. Spalled and weathered blocks

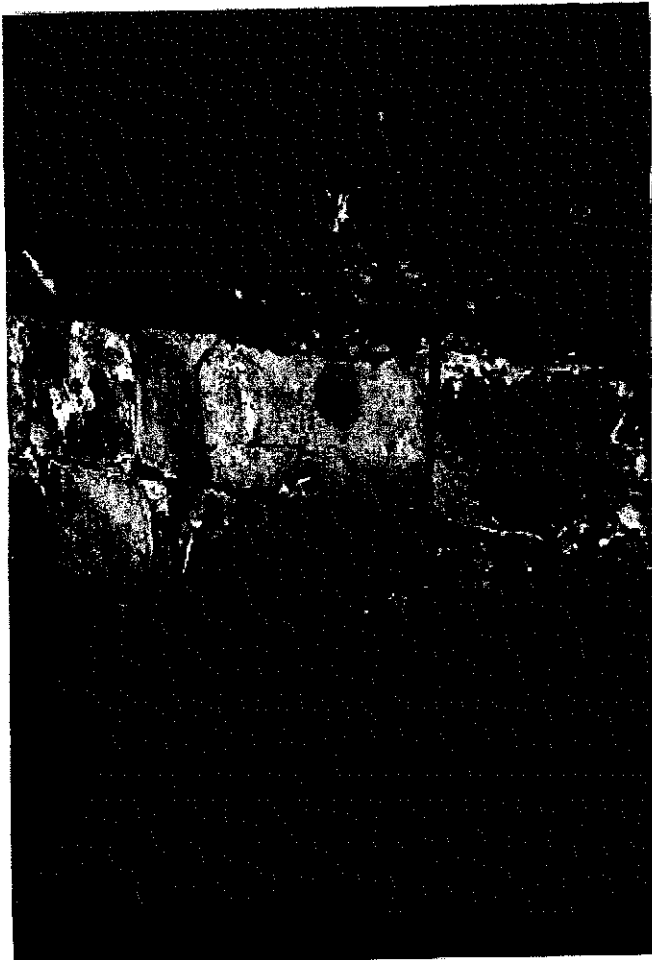


8. Open joints and spalled and weathered blocks

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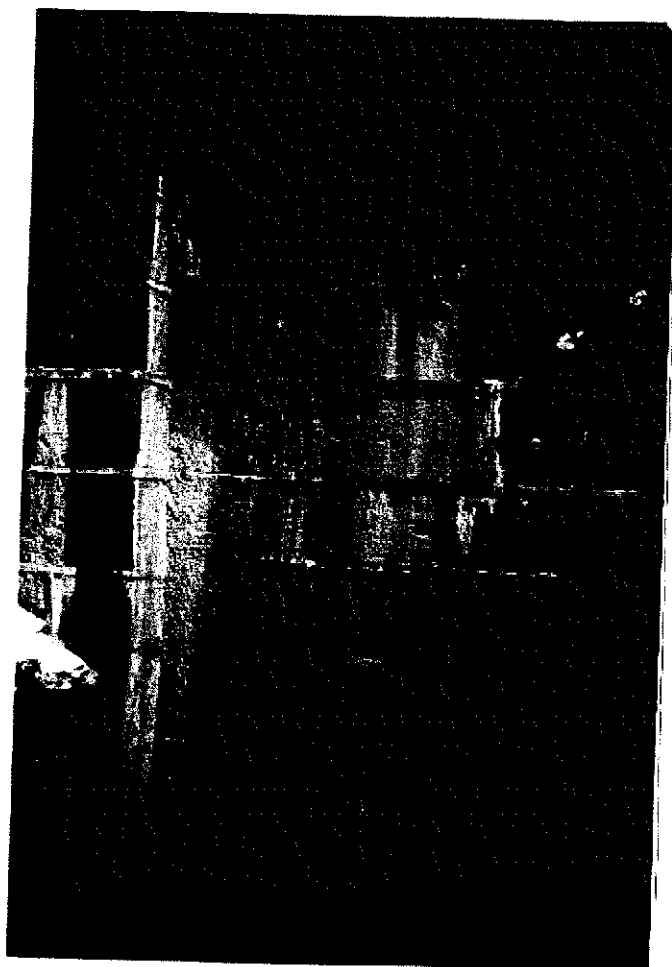
9. Badly weathered and spalled masonry with open joints.



10. Cracked pointing and open joints

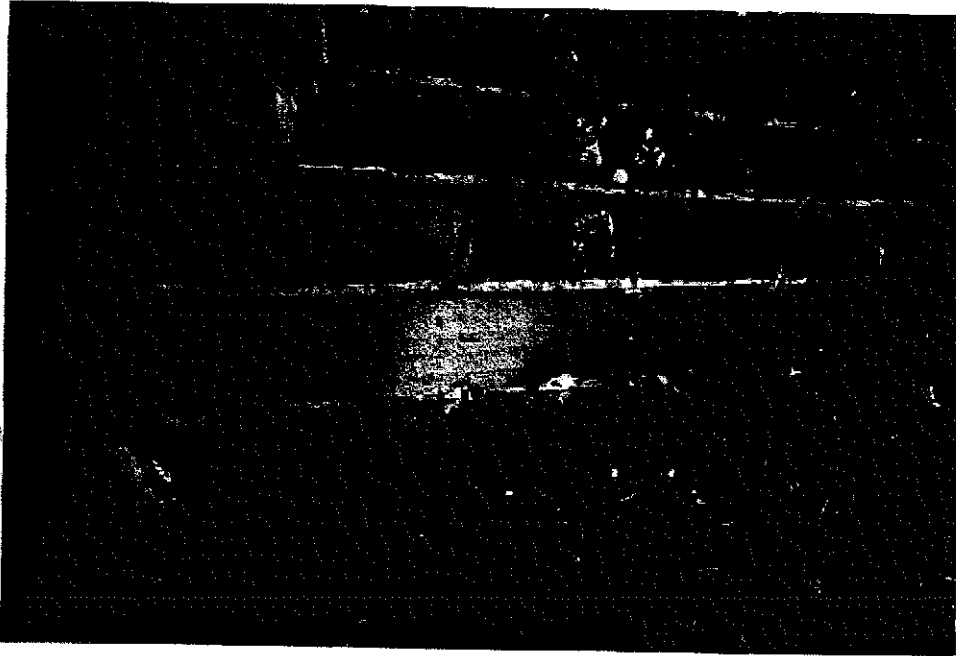


11. Weathered and spalled blocks

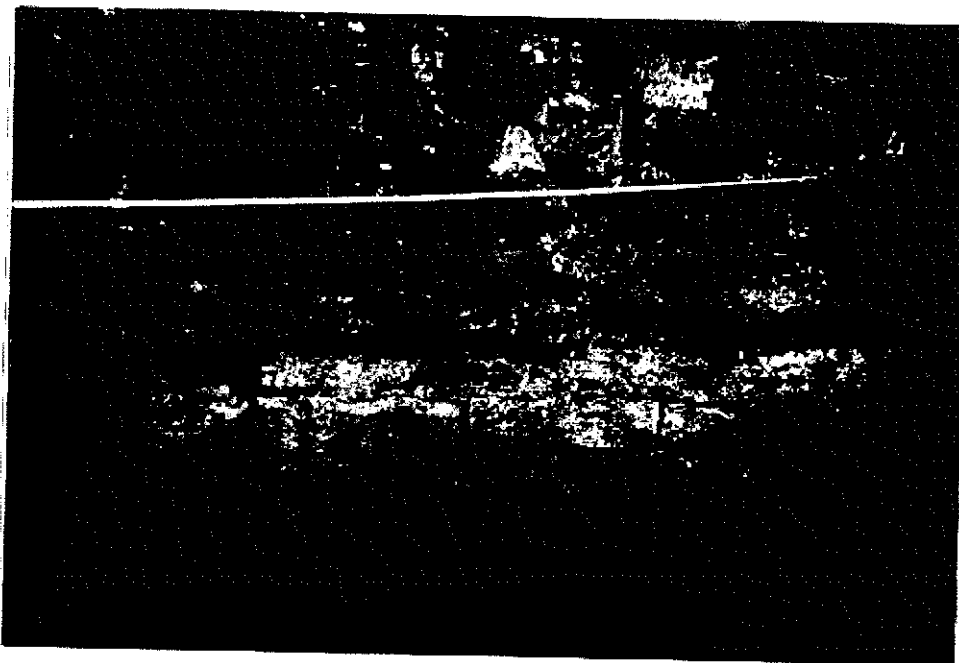


12. Leached deposits
cracked mortar
and open joints

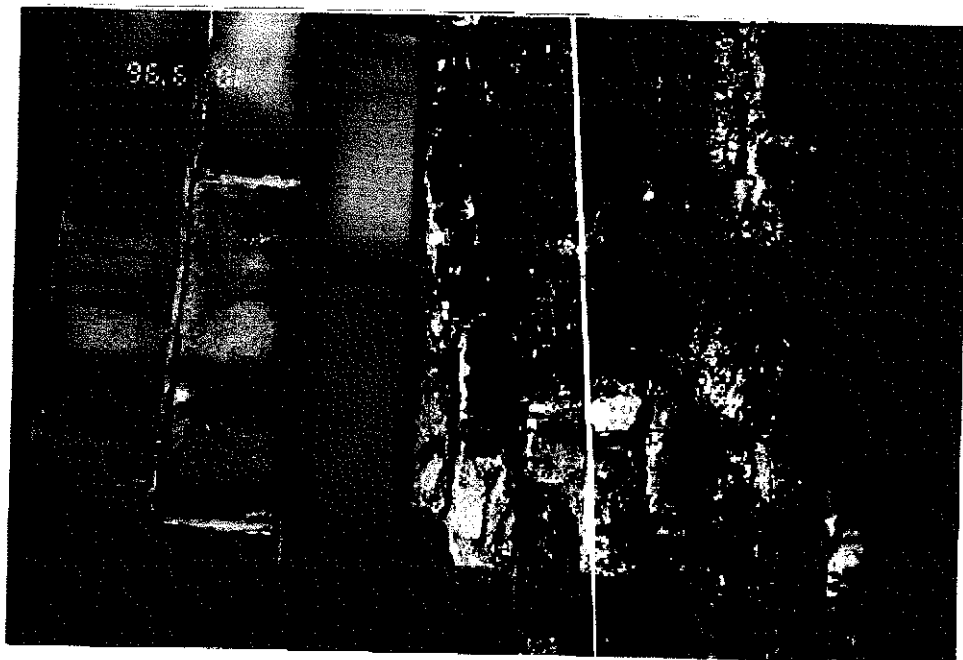
320111065P



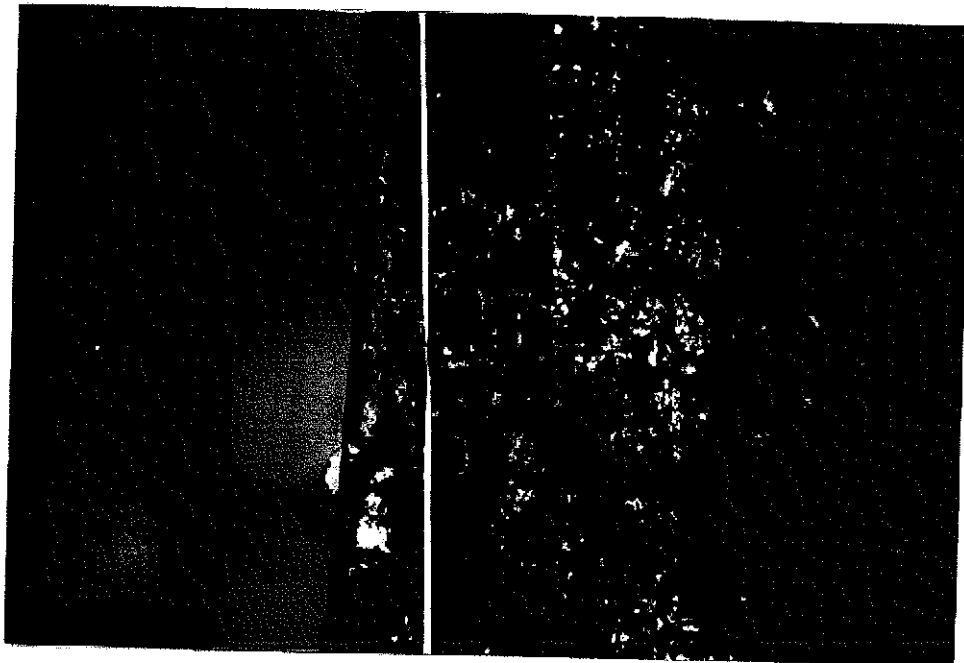
13. Active water seepage at base of wall



14. Open joints at base of random masonry wall

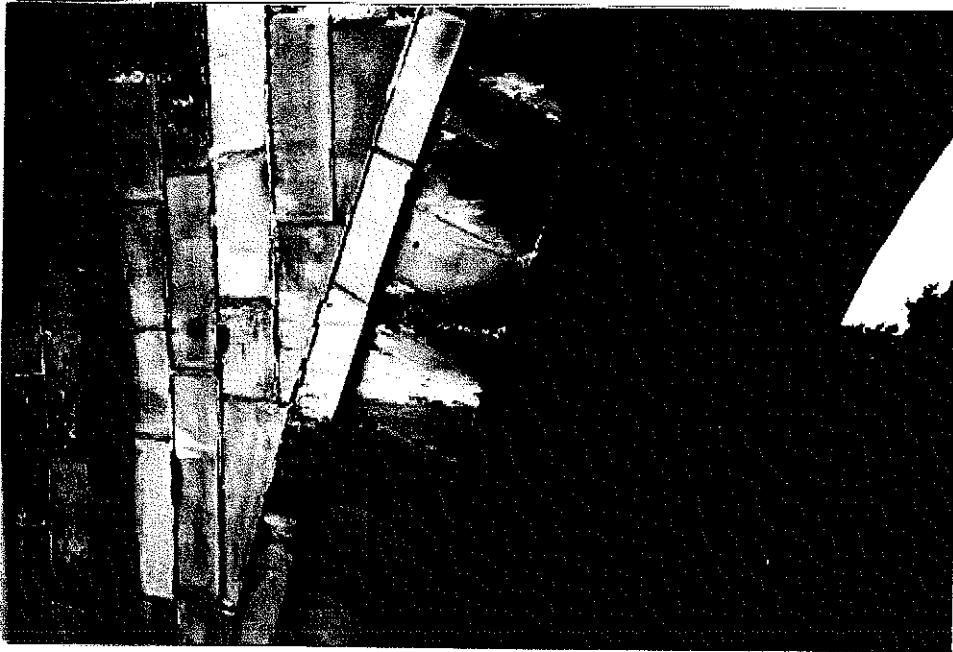


15. Cracking to pointing in random masonry wall

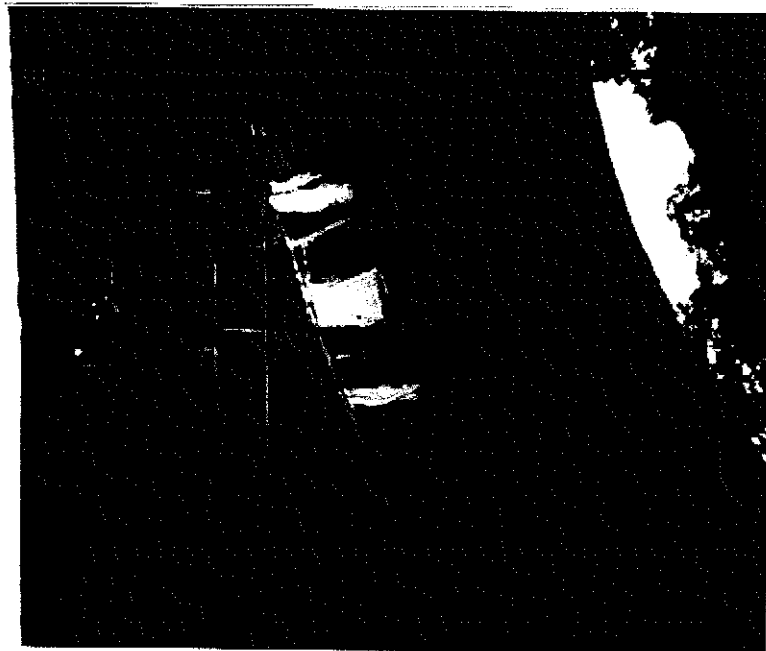


16. Open joints in random masonry wall

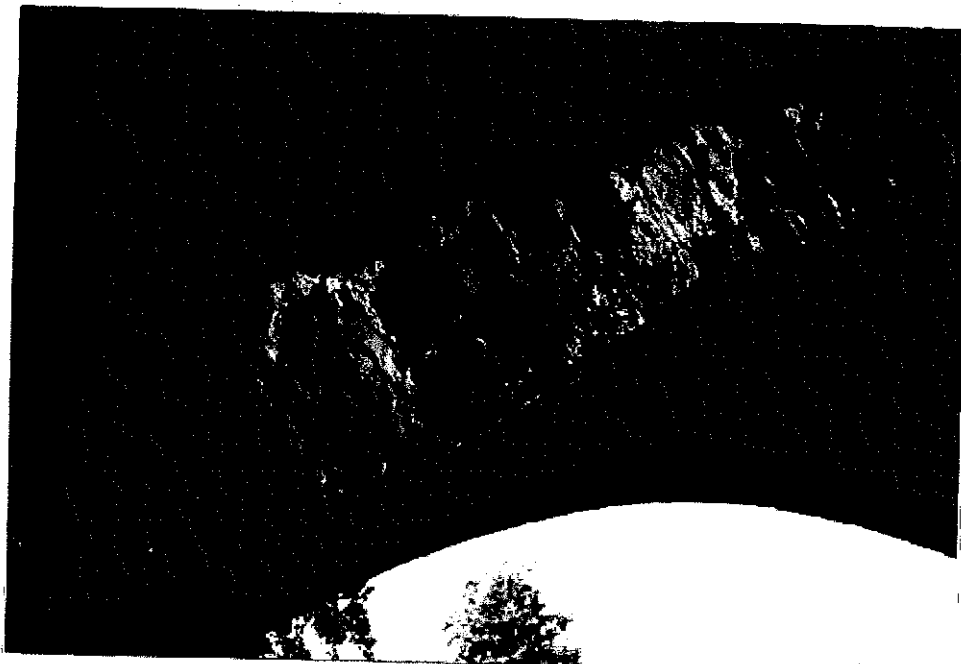
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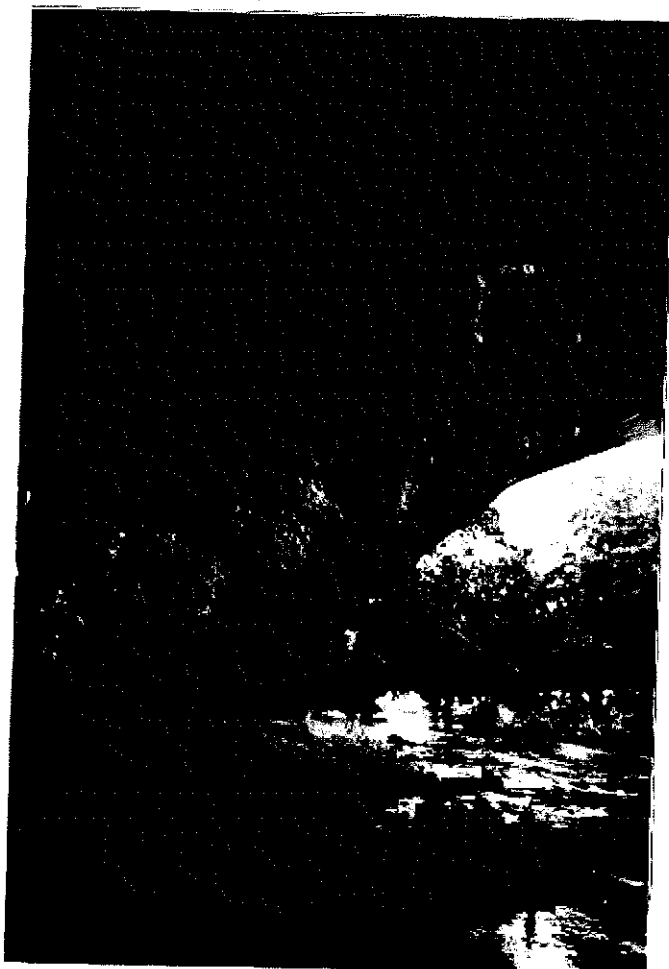
18. Water seepage and surface deposits



17. Leached deposits



19. Weathered and cracked blocks with poor joint condition

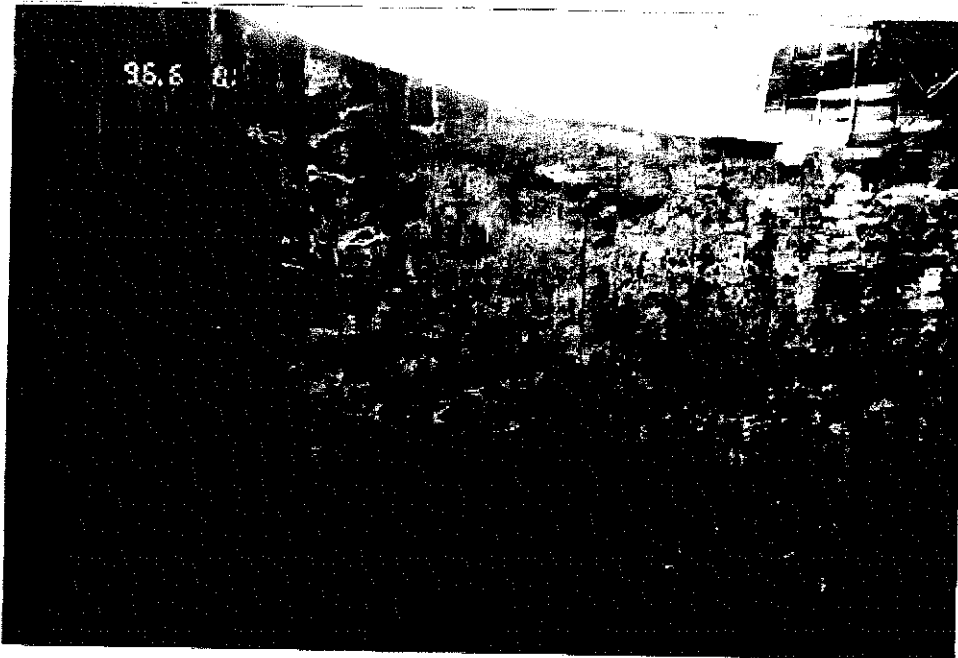


20. Weathered and cracked blocks

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24. Leached deposits and spalled blocks



23. Leached deposits



25. Weathering with cracked and spalled blocks



26. Spalled blocks

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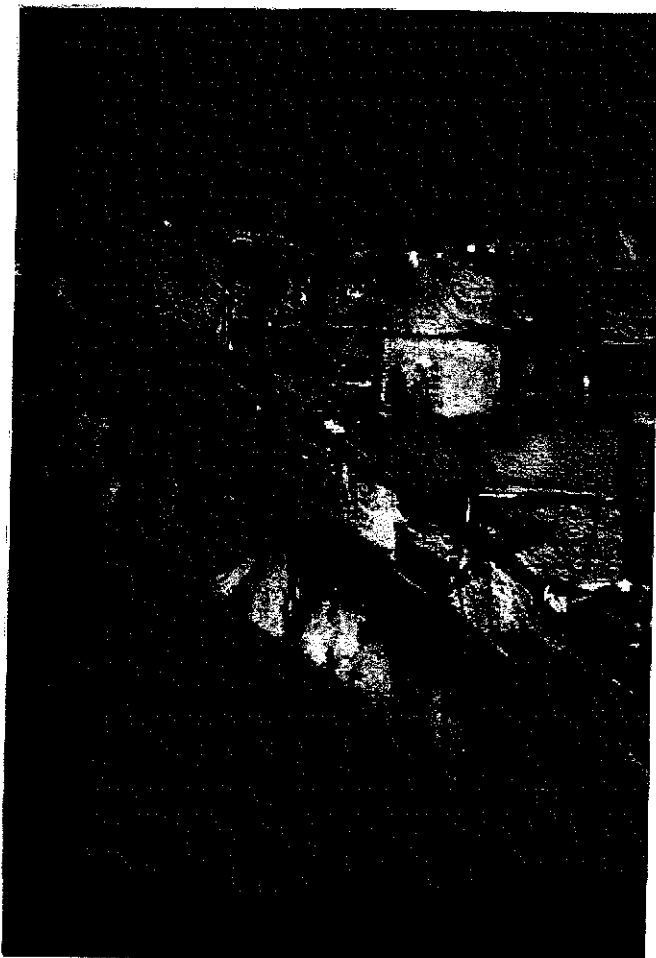
28. Damage to outer blocks



27. Gap between adjacent arch rings



29. Water seepage at crown and leached deposits



30. Weathered
blocks and
leached deposits

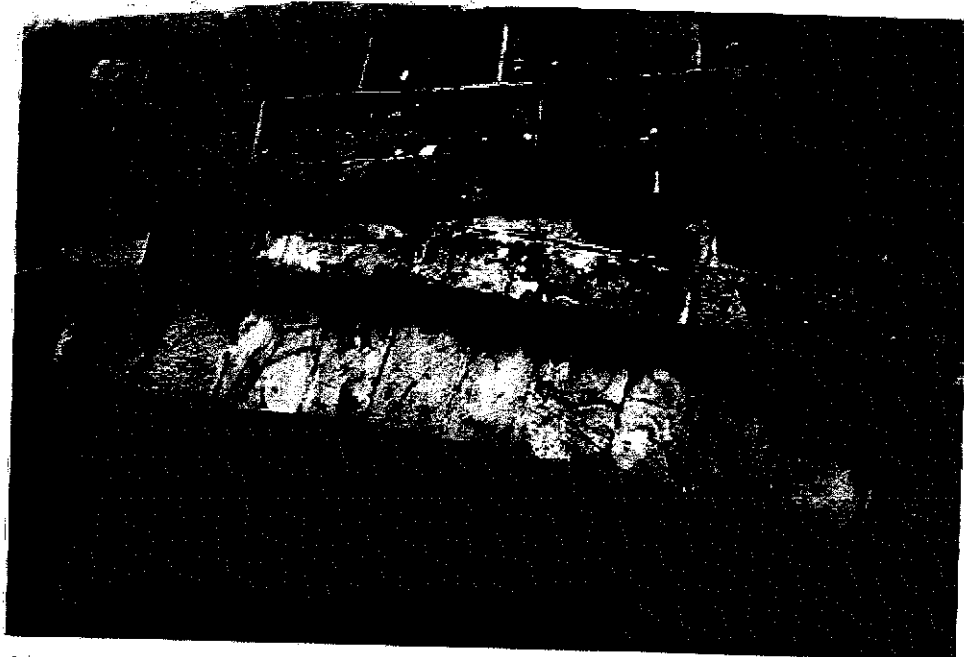
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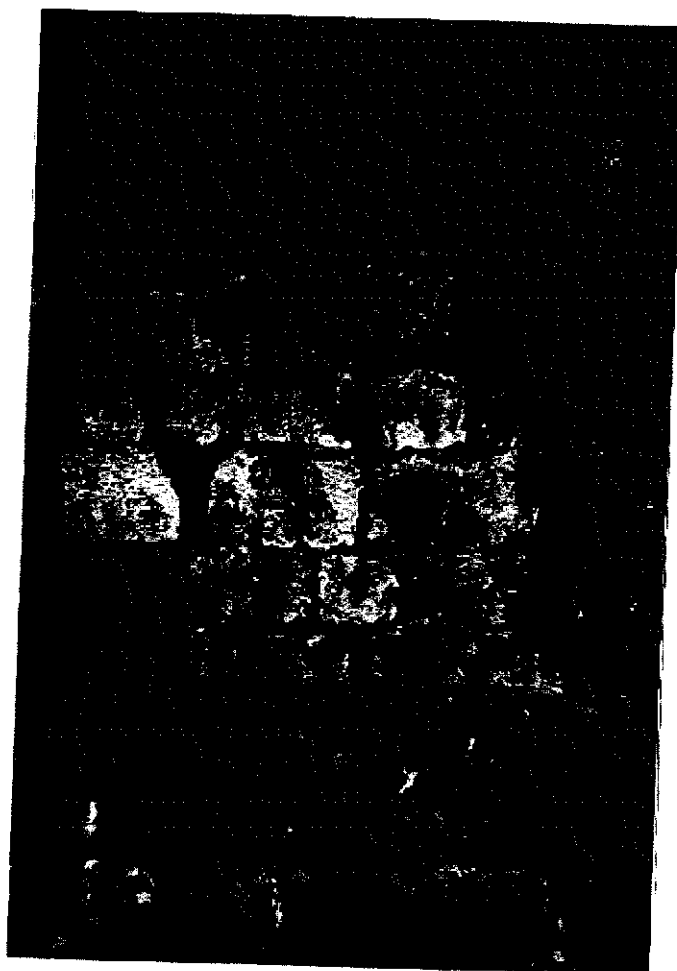
22. Dampness, lichen and spalled blocks



21. Dampness, water seepage, lichen and leached deposits

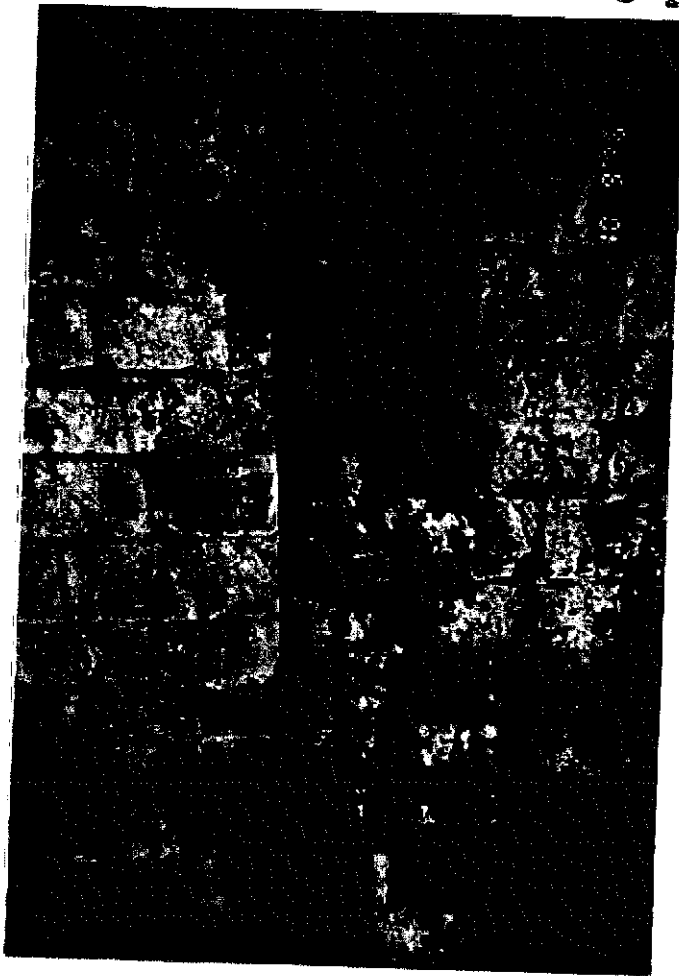


31. Weathered blocks and leached deposits

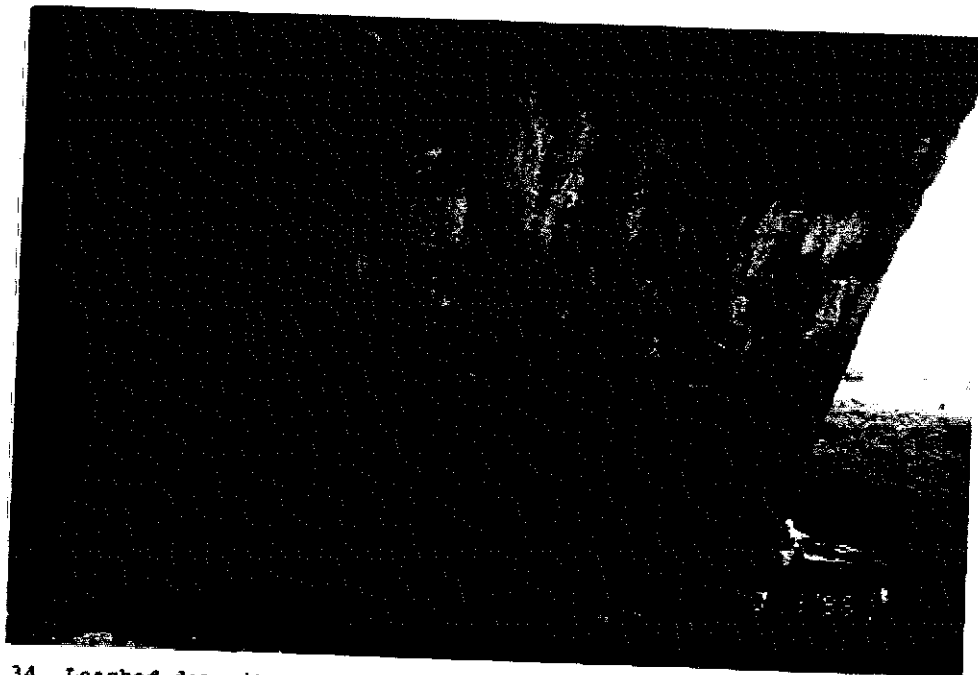


32. Missing
masonry

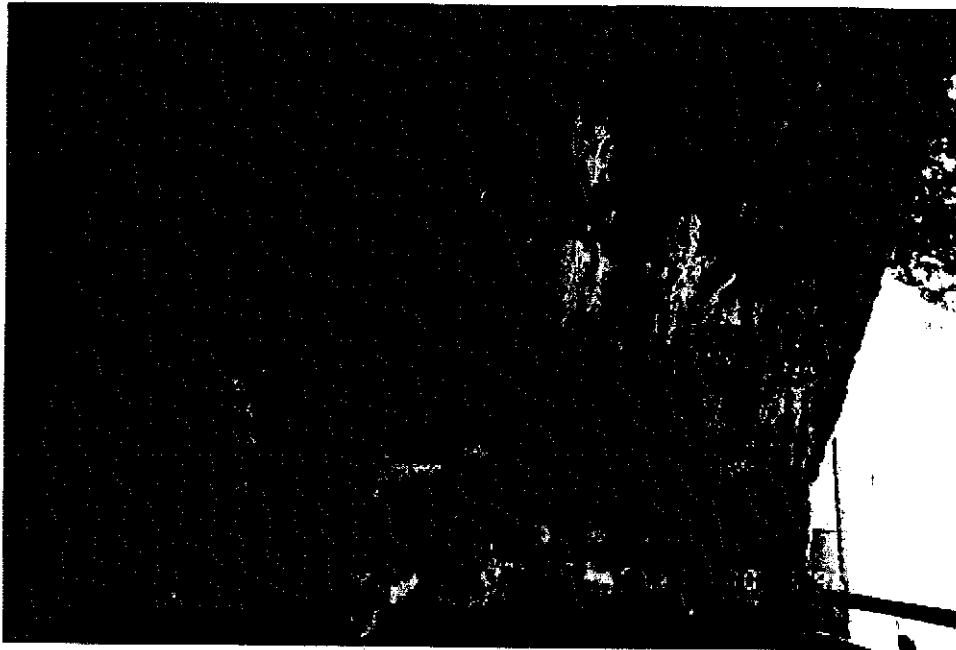
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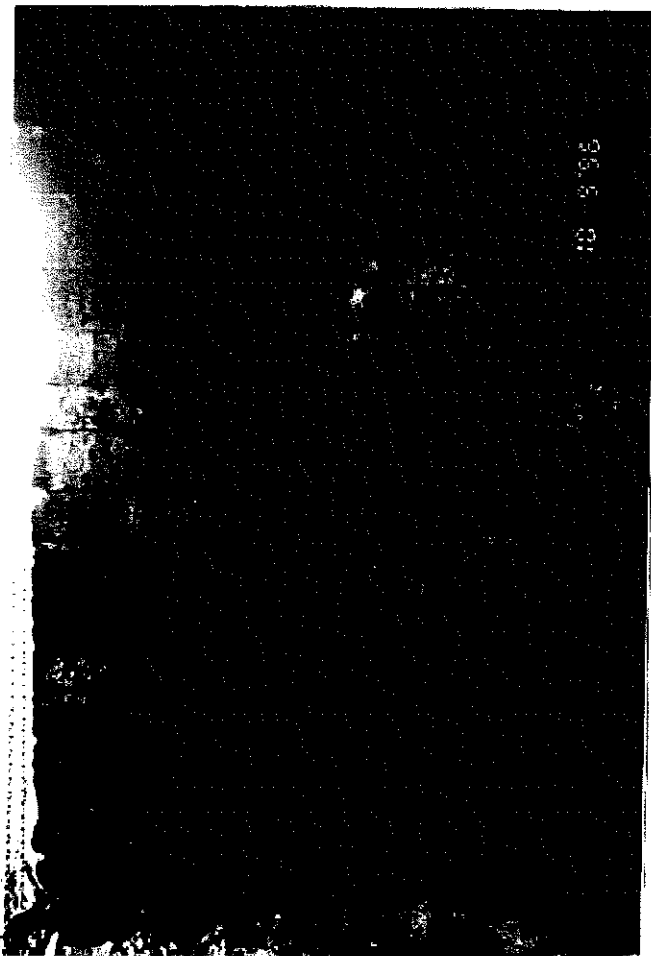
33. Gap between arches
and missing
masonry



34. Leached deposits

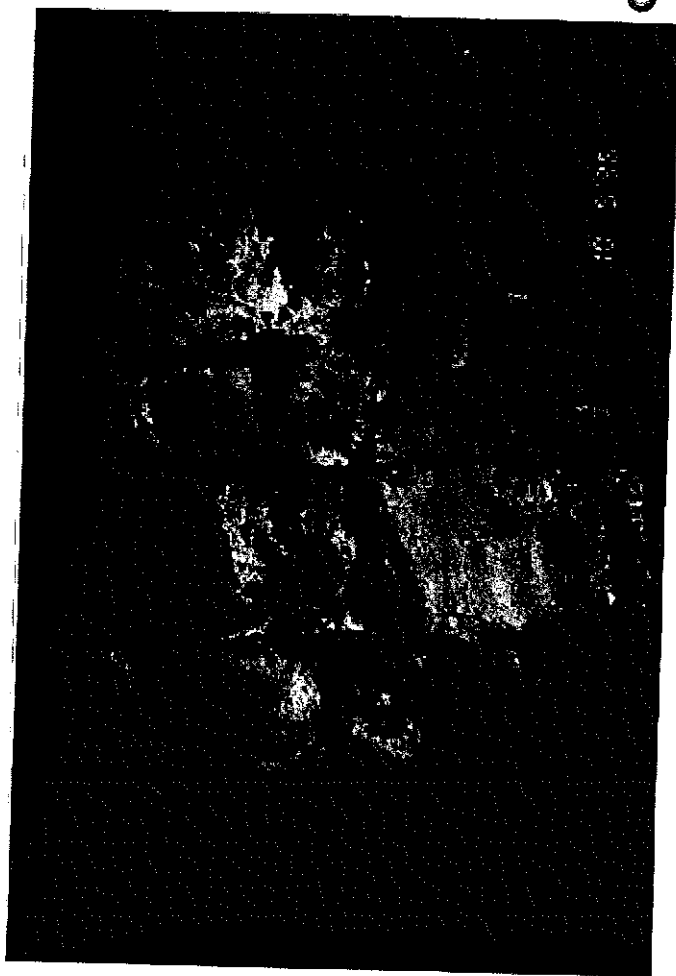


35. Leached deposits, spalled blocks and open joints

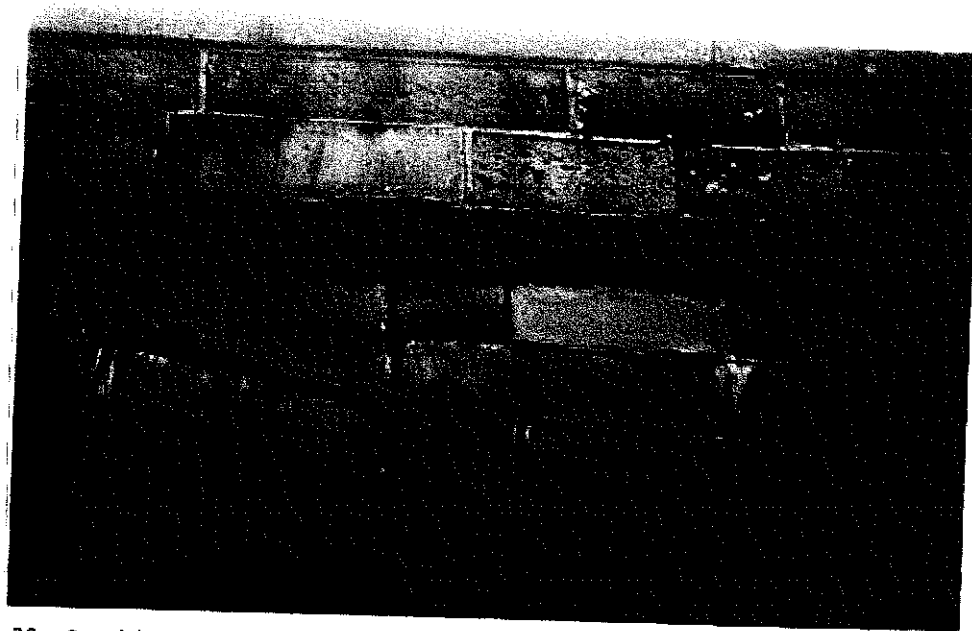


36. Water seepage
and open joints

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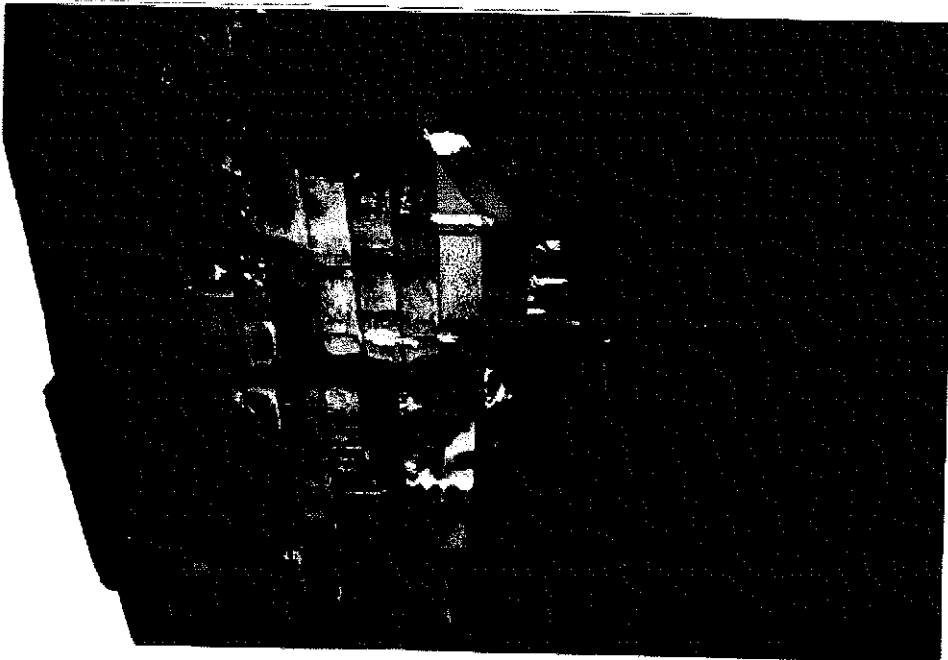
37. Cracking to
pointing



38. Cracking to pointing

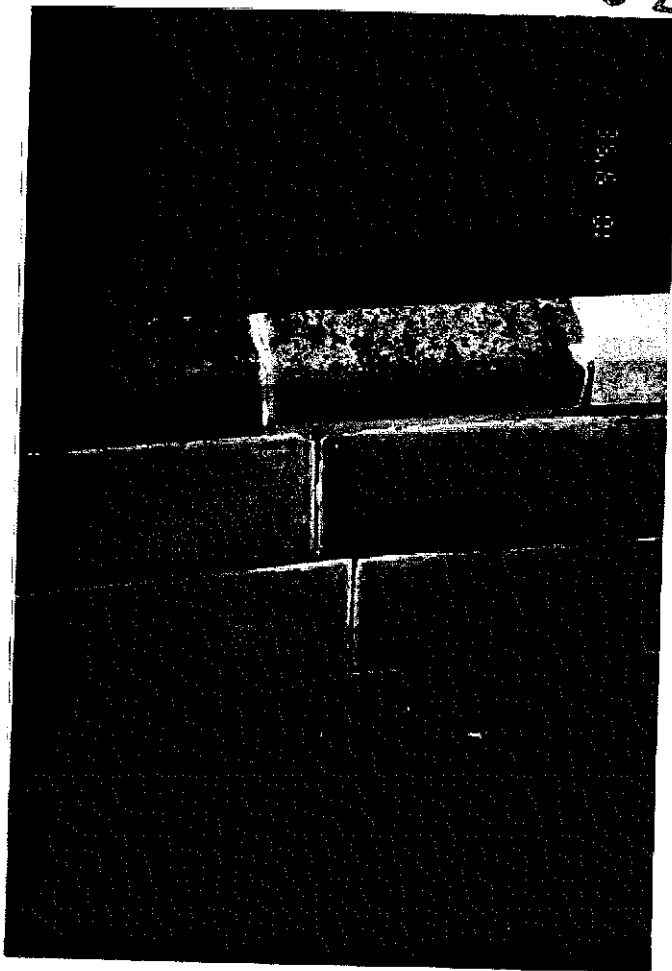


40. Crack to masonry pointing

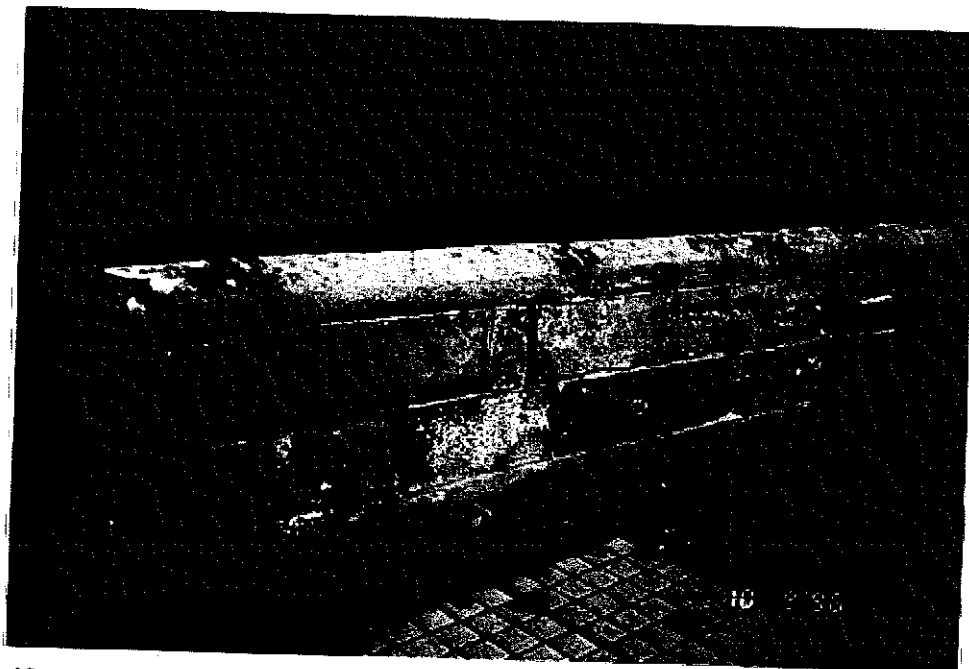


39. Leached deposits

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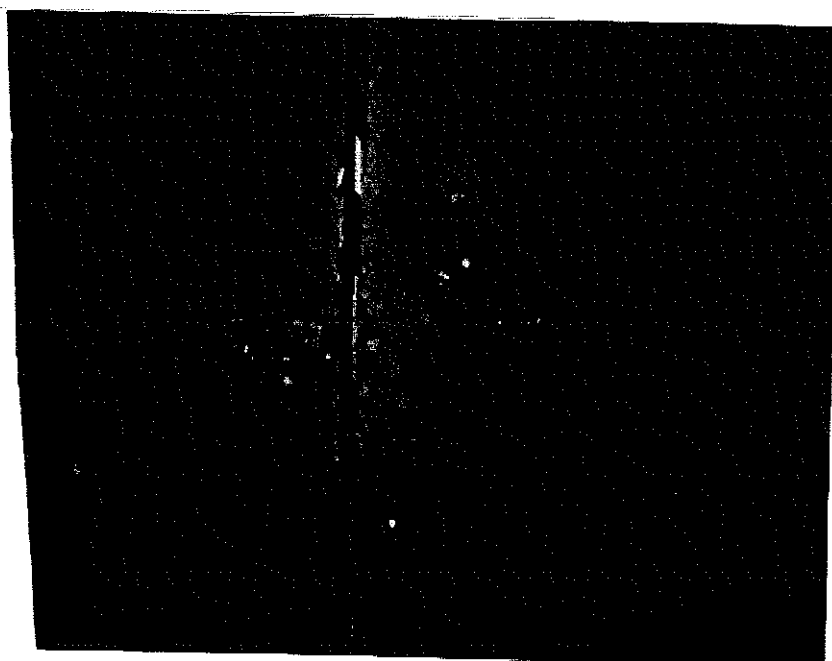
41. Missing
pointing



42. Cracked and missing pointing

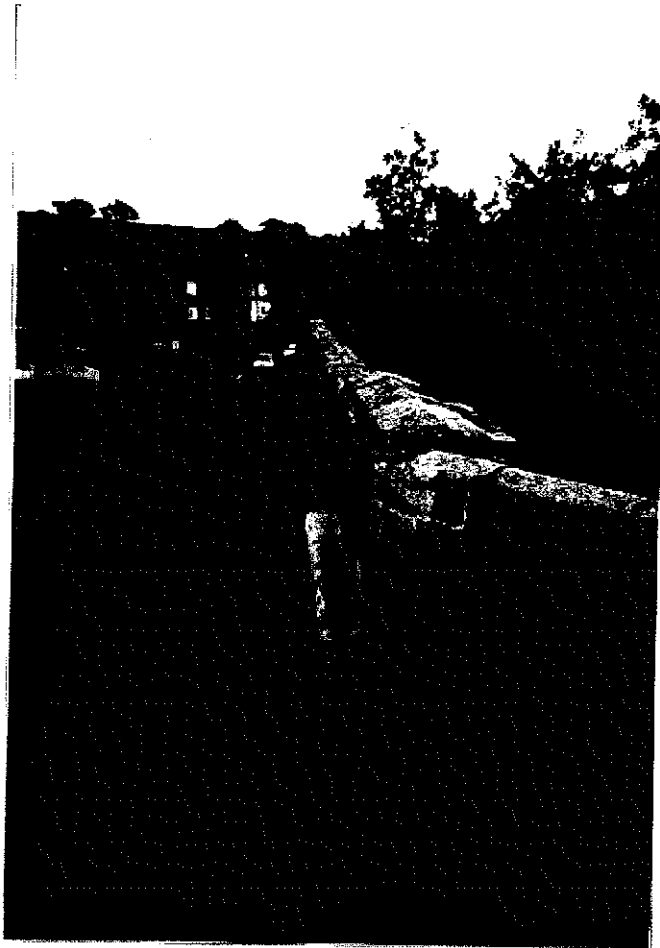


44. Deviation in line of parapet



43. Cracks to pointing

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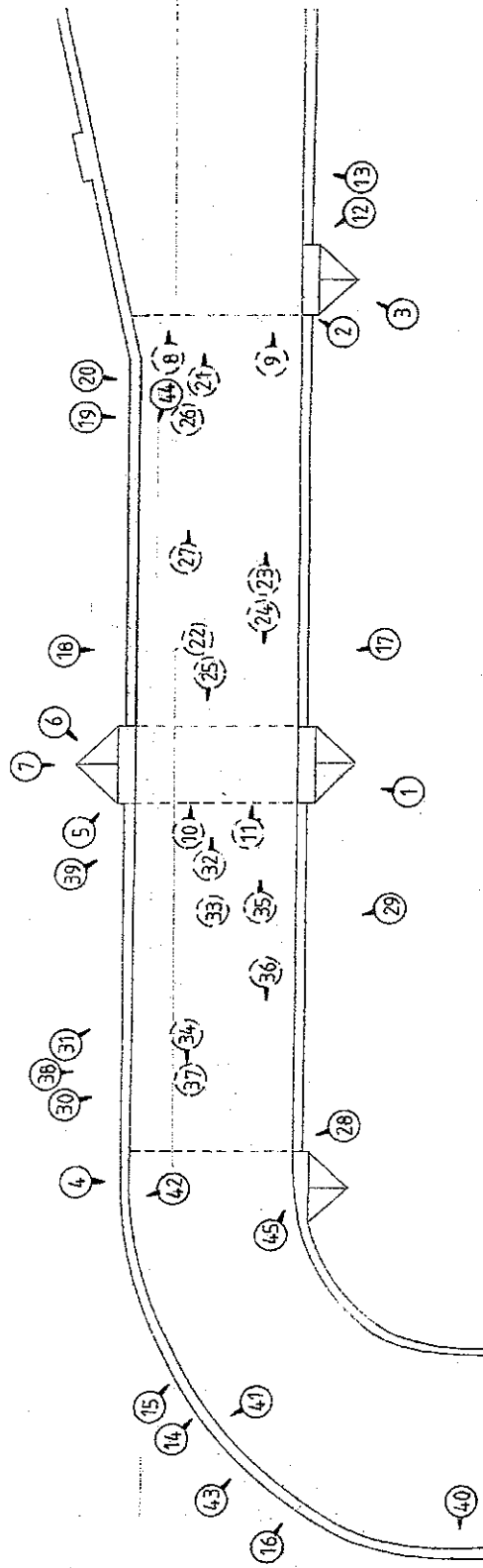
45. Damaged parapet,
kerb and open
joints

KEY

(16) Indicates location of photograph and direction of view

(27) View under arch, direction as shown

(22) View under arch, direction upwards

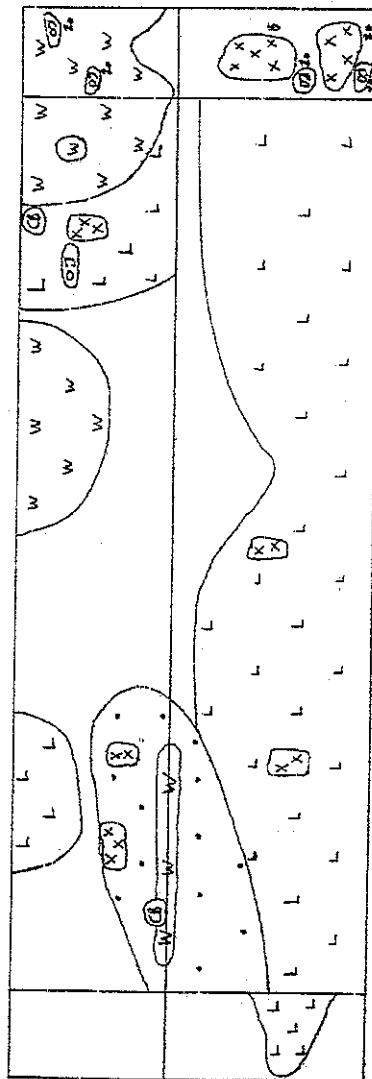


PHOTOGRAPH LOCATIONS

SLAIDBURN BRIDGE
L.C.C. No. 4263

Not to Scale

320111065 P



LOOKING DOWN

DETECTS SKETCH No. 1

SLAIDBURN BRIDGE

L.C.C. No 4263

EASTERN BARREL

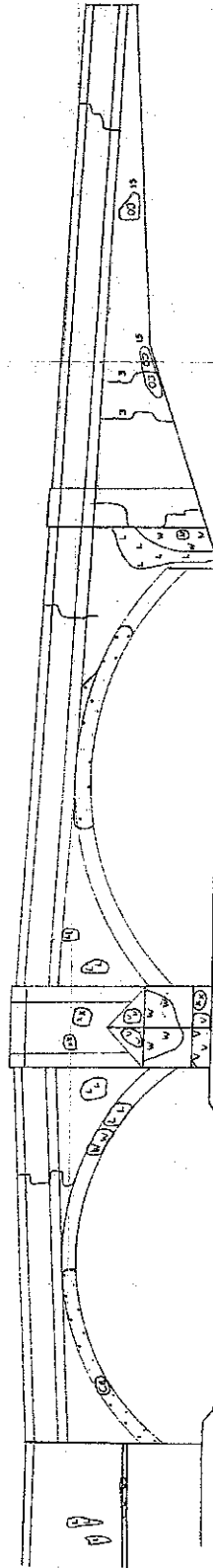
Not to Scale

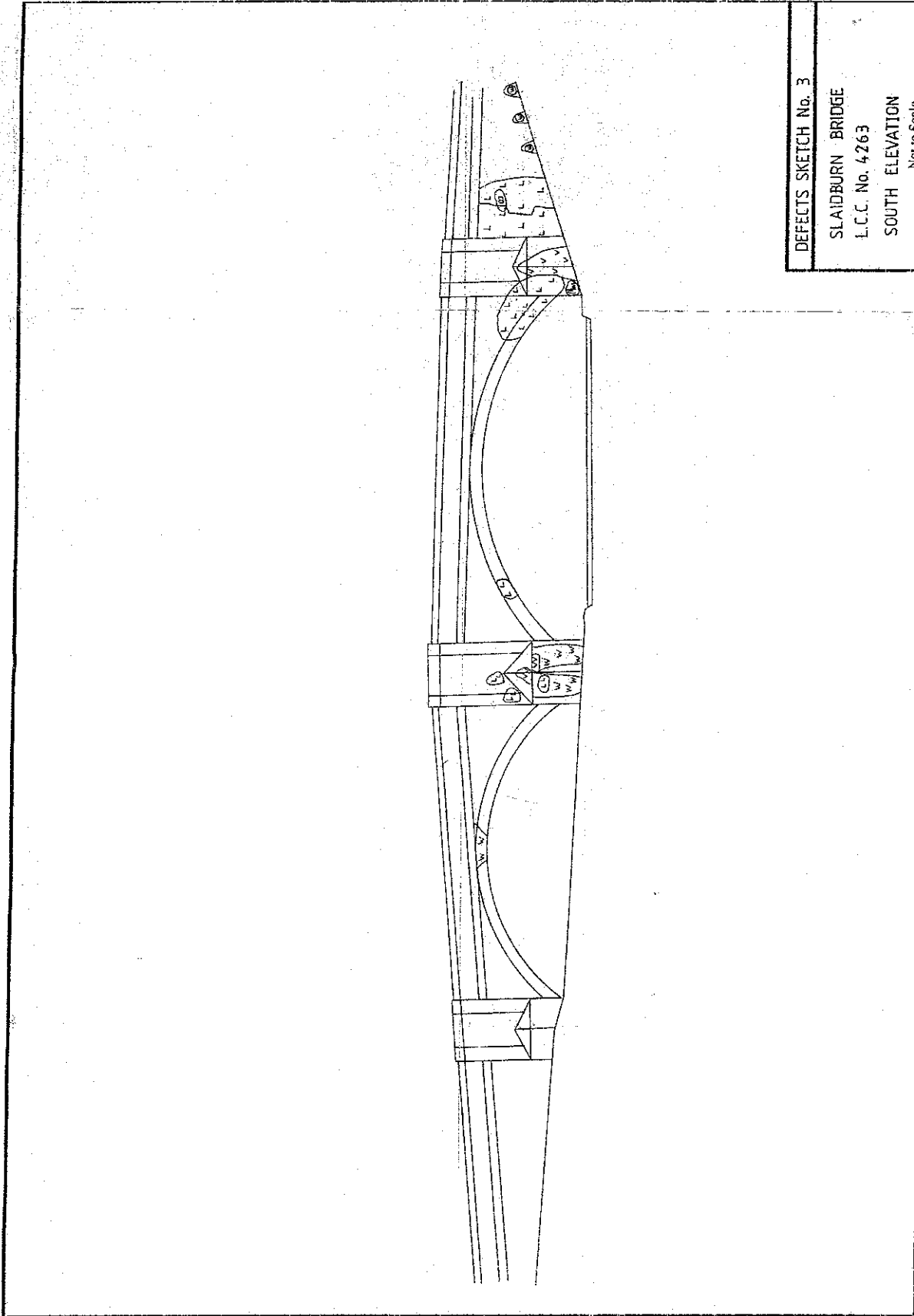
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DEFECTS SKETCH No. 4

SLAIDBURN BRIDGE
L.C.C. No. 4263

NORTH ELEVATION
Not to Scale





DEFECTS SKETCH No. 3

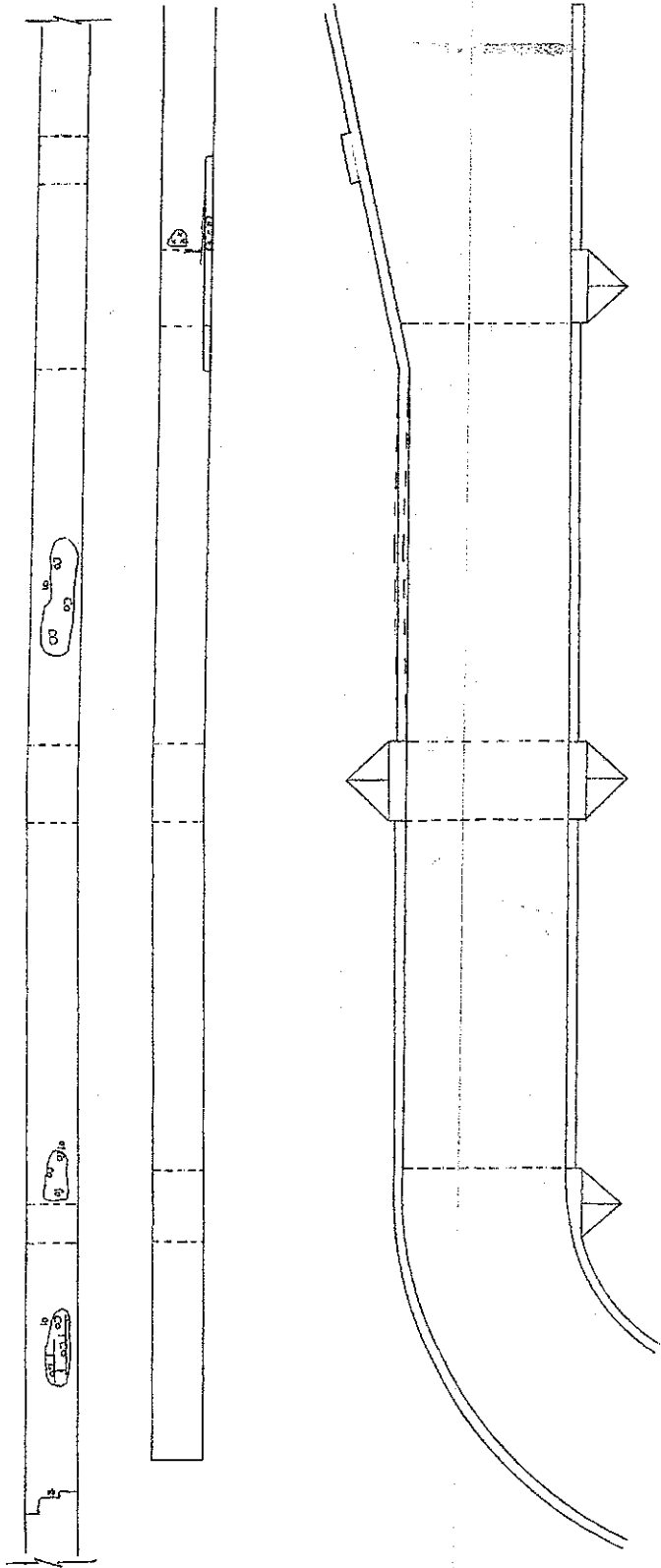
SLAIDBURN BRIDGE

L.C.C. No. 4263

SOUTH ELEVATION

Not to Scale

320111065 P



DEFECTS SKETCH No. 5

SLAIDURN BRIDGE
L.C.C. No. 4263

PLAN

Not to Scale

	Bulging
	Drumming
	Efflorescence
	Erosion: depth of erosion (mm)
	Fractures and cracks: hairline or dimension (mm) step between planes of fracture (mm)
	Joint loss (mortar): depth (mm), friable (f)
	Leached deposits: calcium carbonate, silicates and gels st denotes stalactites
	Missing brickwork
	Missing masonry
	Repairs
	Spalling and depth (mm)
	Surface deposits (dirt, soot etc.)
	Vegetation
	Active water seepage
	Wet and damp areas
	Open joints: depth (mm)
	Cracked block
	Weathering

STANDARD DEFECT NOTATION

Brick and Masonry Structures
and Structural Units

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**SLAIDBURN BRIDGE L.C.C. No. 4263
SPECIAL INSPECTION REPORT
INSPECTION FOR ASSESSMENT
APPENDIX A**

1. INTRODUCTION

The inspection of Slaidburn Bridge was undertaken on 9 October 1996.
The bridge is a two span masonry arch.

2. METHOD OF INSPECTION

A visual inspection of the structure was carried out for signs of defects. In addition the accuracy of existing record drawings was checked for the purposes of the assessment.

3. FINDINGS OF THE INSPECTION

The following information is based on the inspection of the structure carried out on 9 October 1996.

i) General Arrangement Drawing No 4263/4

The above drawing was produced following the inspection.

ii) Foundations

The foundations were not exposed for the purposes of a visual inspection but some indication of their integrity was obtained by checking the alignment and plumb of other components of the structure.

iii) Arch Barrels

Both arches were found to have a good overall shape. There were found to be large areas of weathered blocks and leached deposits. Several individual blocks were spalled or cracked. The overall condition of joints, pointing and mortar was good. The average thickness of joints was found to be 6-12 mm.

iv) Spandrel Walls

The spandrel walls were found to have no defects that would affect the load carrying capacity of the structure.

v) Abutments

Abutments were found to have areas of spalled and weathered masonry, open joints and water seepage. None of the defects found would affect the load carrying capacity of the structure.

vi) **Wingwalls**

Wingwalls were found to have areas of leached deposits, cracked pointing, open joints and water seepage. None of these defects would affect the load carrying capacity of the structure.

4. CONCLUSIONS

Based on the results of the inspection described above, an overall Condition Factor of 0.80 has been assumed for the structure.

In addition, for the purposes of a MEXE Arch Assessment, the following additional factors have been assumed:

Fb (arch barrel)	= 0.9
Ff (filling)	= 0.9
Fw (width of joint)	= 0.9
Fd (depth of joint)	= 1.0
Fmo (condition of joint)	= 0.95