

# ***GALLIPOLIS LOCKS AND DAM***

**OHIO RIVER BASIN**

**MASON COUNTY, WV**



**FOUNDATION REPORT**

**VOLUME 4 PHOTOGRAPHS**

**CONSTRUCTION OF TWO PARALLEL LOCKS AND CANAL**

**CONTRACT DACW-69-88-C-0001**

**23 JANUARY 1993**

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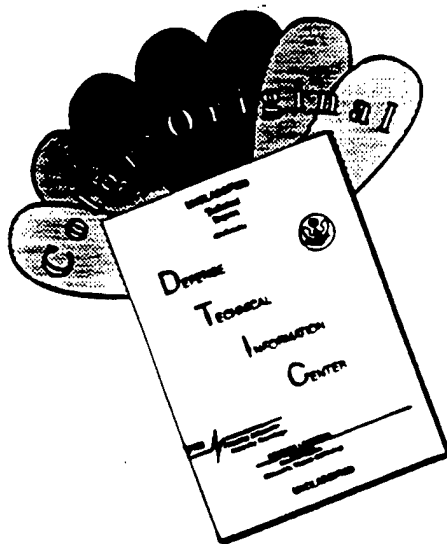


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**U.S. ARMY CORPS OF ENGINEERS**

**HUNTINGTON DISTRICT**

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# Gallipolis Locks

## Replacement

Ohio River Basin

Mason County West Virginia

## Foundation Report

Volume IV

Photographs

Construction of Two Parallel Locks and Canal

Contract No. DACW69-88-C-0001

Huntington District

U.S. Army Corps of Engineers

Huntington West Virginia

March 1992

DTIC QUALITY INSPECTED 3

# Gallipolis Lock Replacement

Ohio River Basin

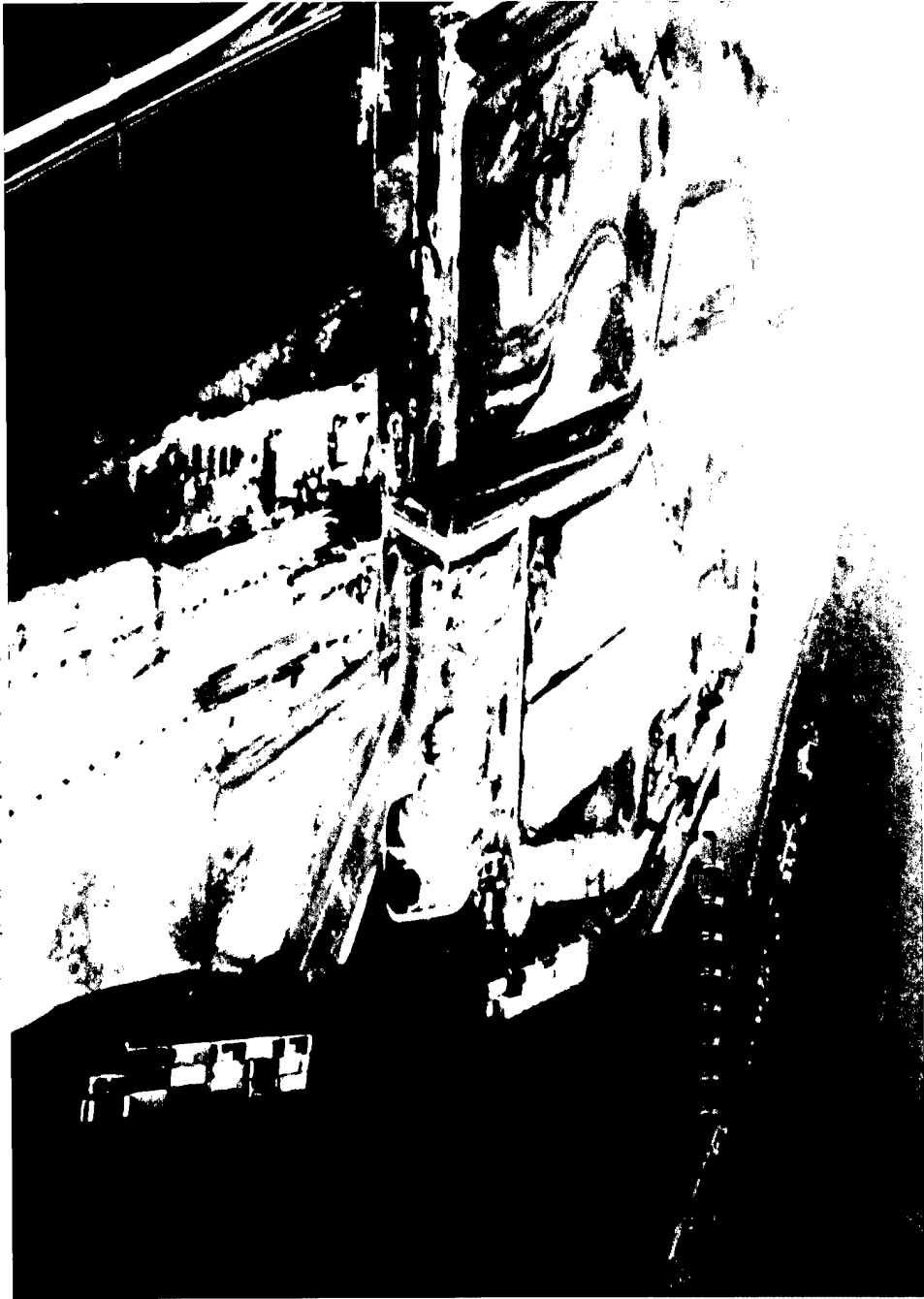
Mason County W.V.

Foundation Report  
Volume 4 Photographs

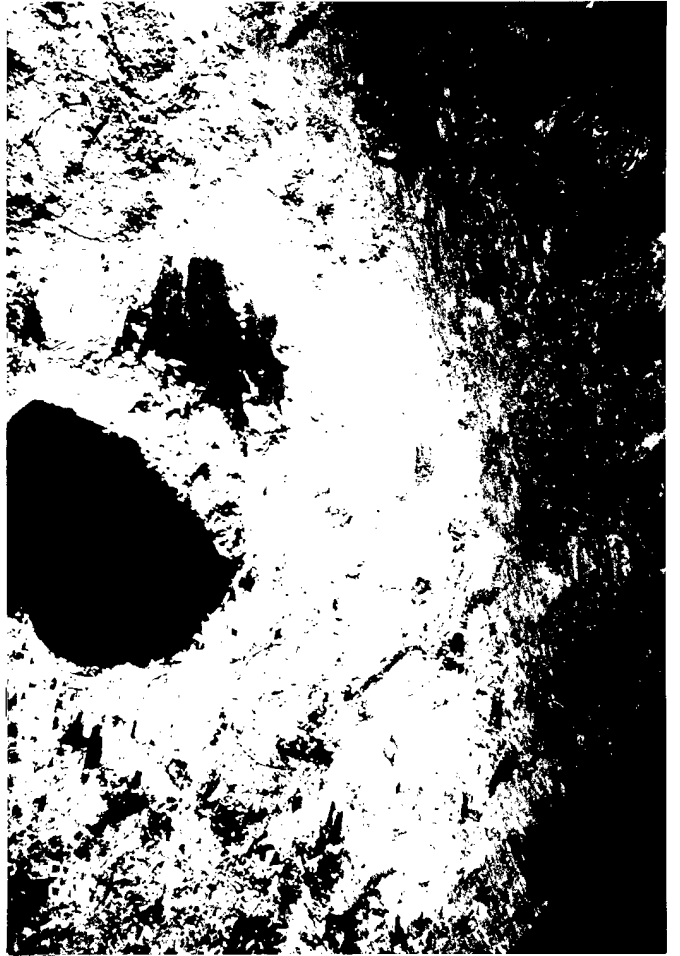
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(1) February 5 1988 Aerial view of work site from Southwest





(2) September 1 1988 Aerial view of work site from Northeast



(3) 6 Inch Drill hole for Predrainage Well



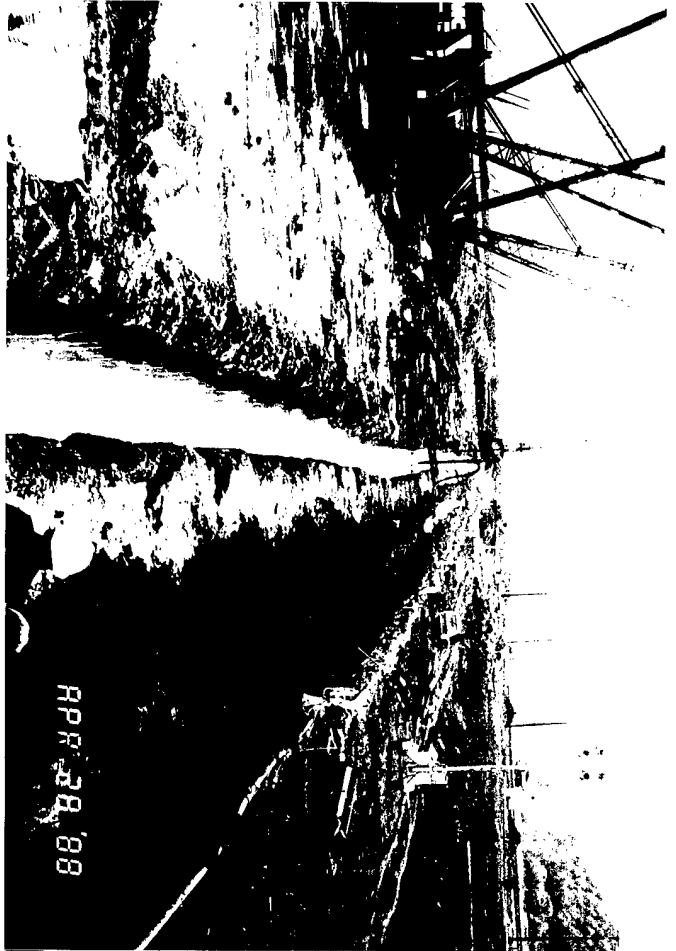
(5) Slurry trench excavation



(4) A in place piezometer

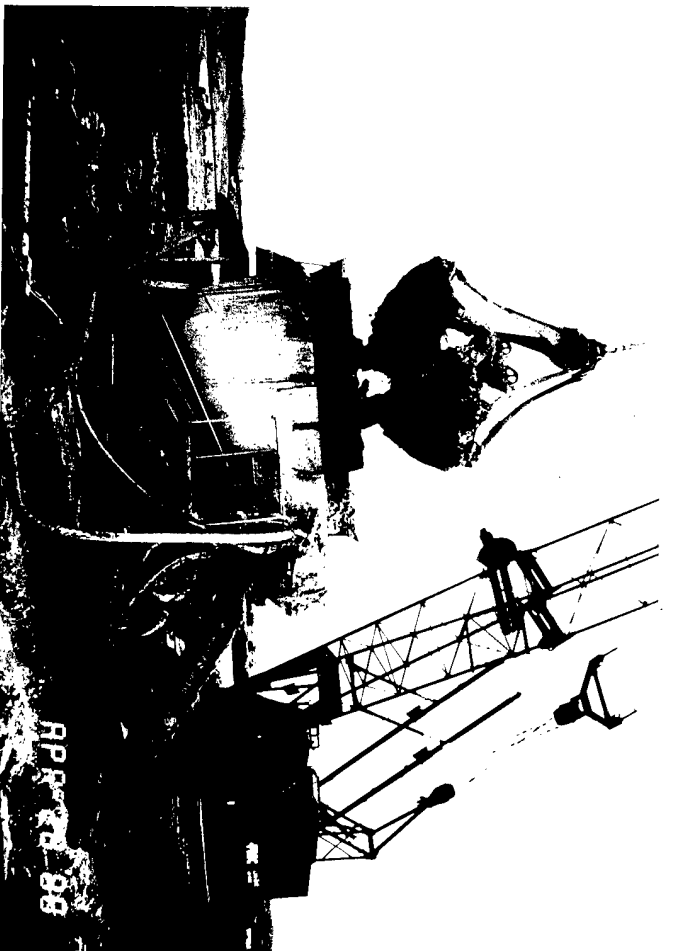


(6) Open slurry trench



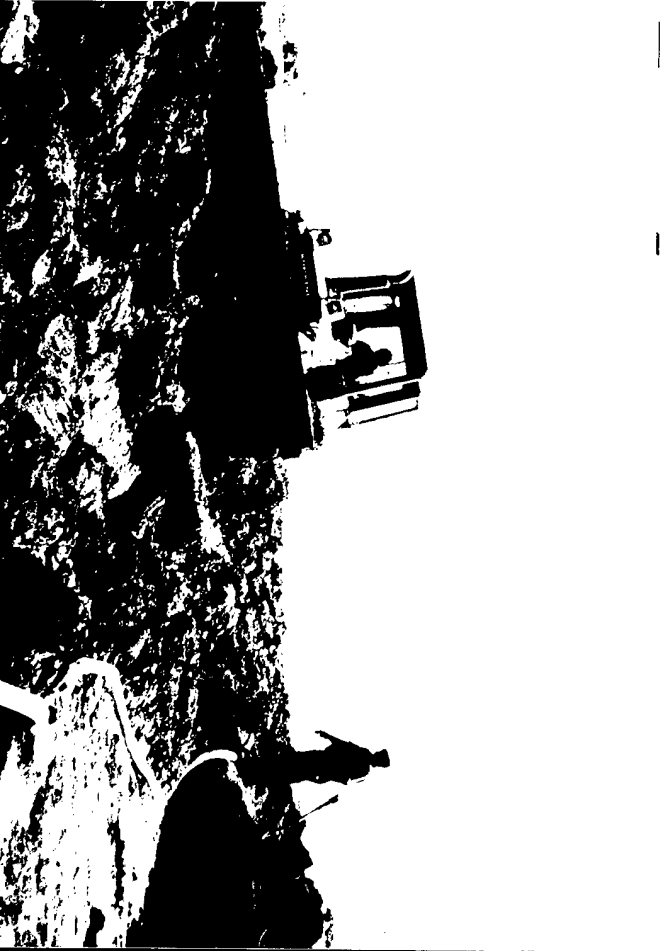
(7) Slurry cutoff with bentonite backfill

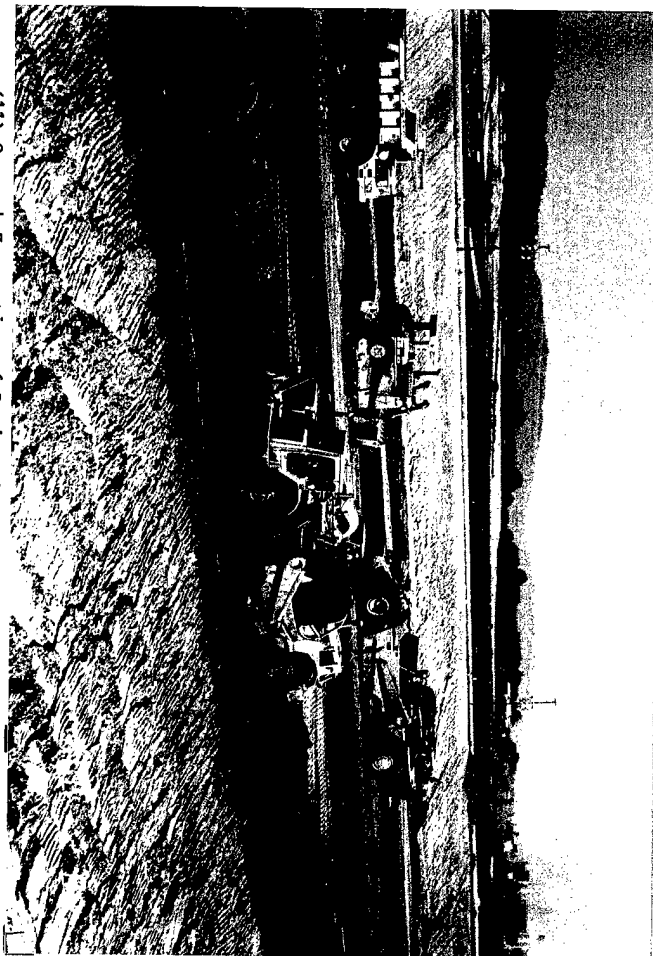
(9) Mixer depositing Slurry/Bentonite



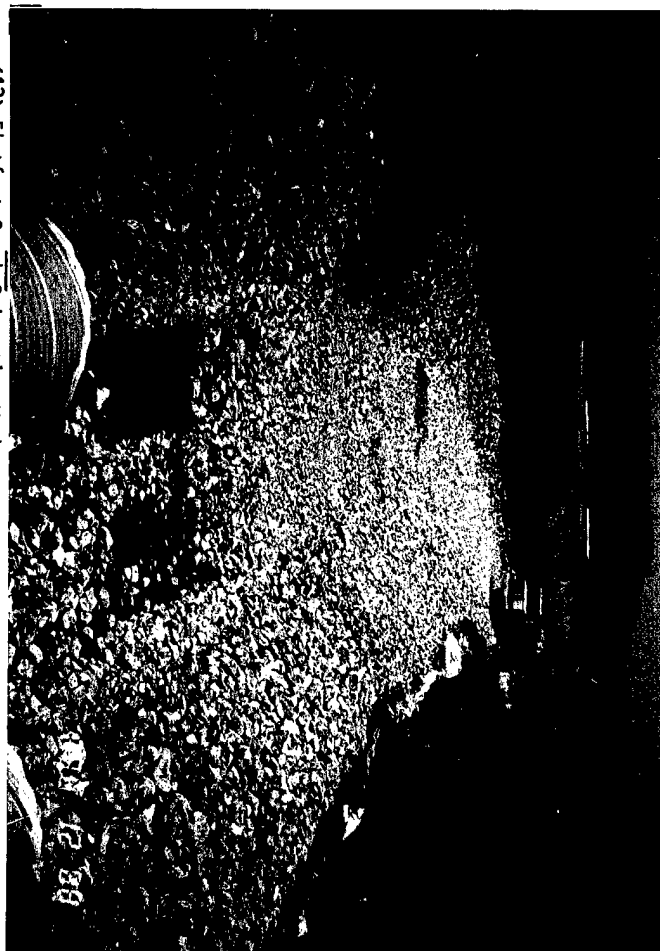
(8) Loading slurry mixer

(10) Mixing cap for slurry trench

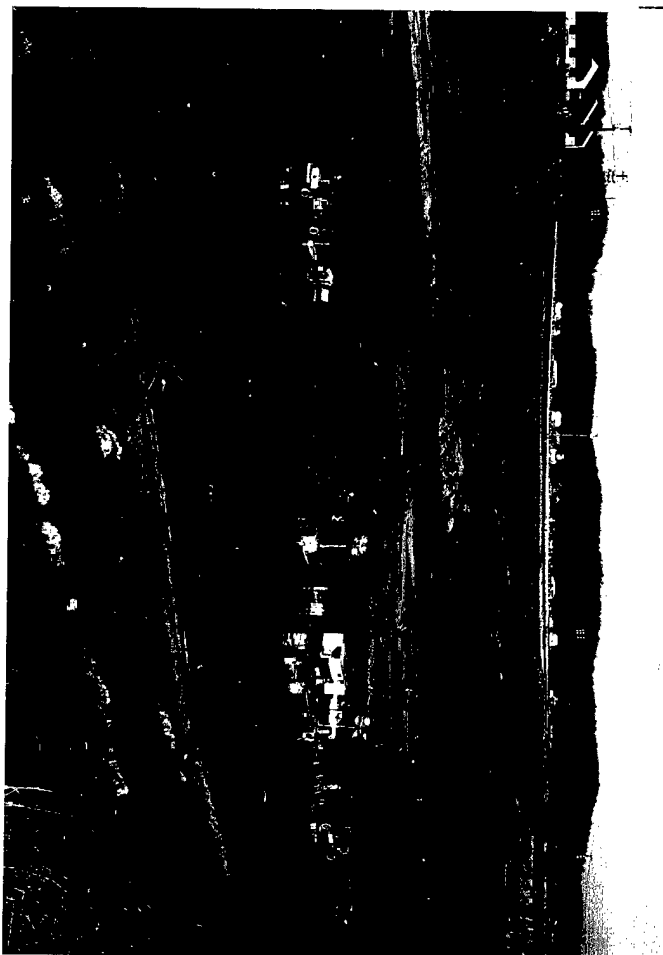


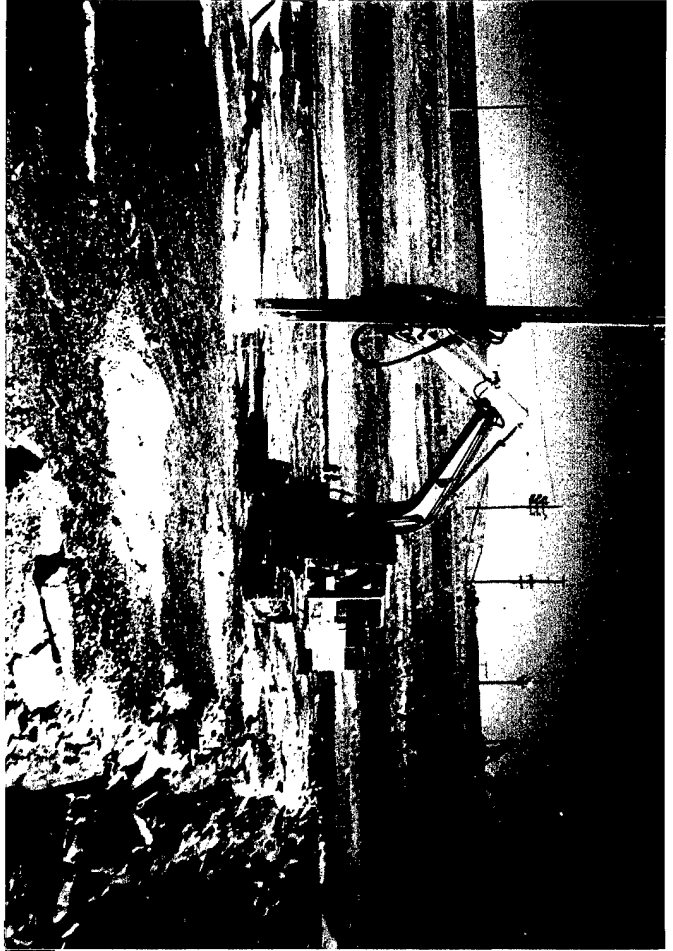


(11) General Excavation of Project Area  
 (13) Cofferdam with Overflow Section

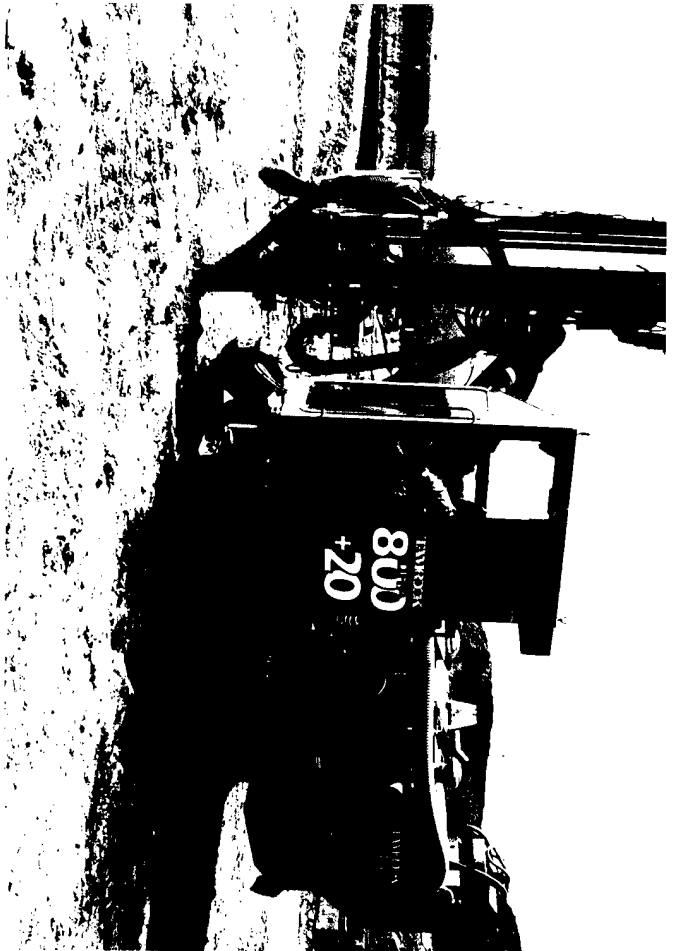
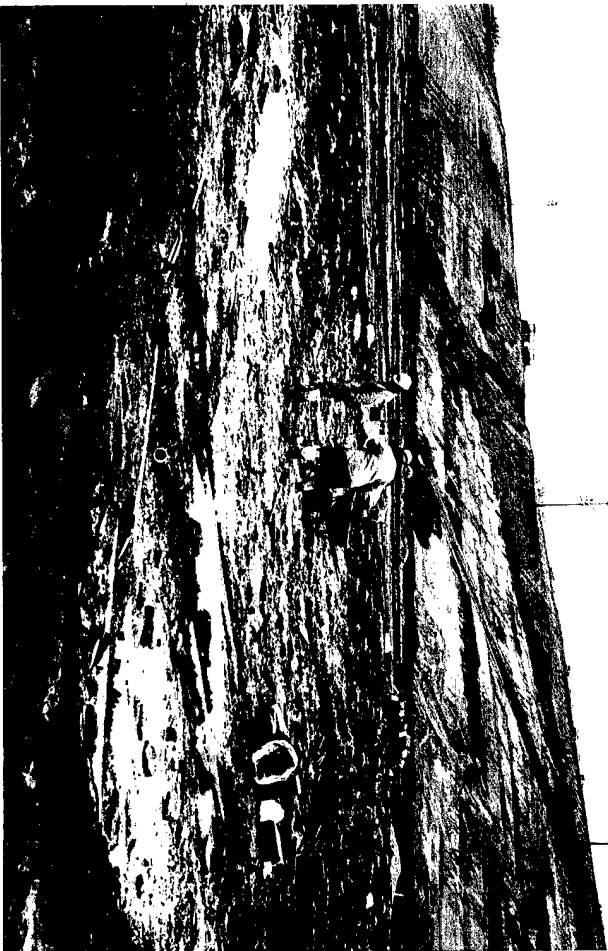


(12) Flatfoot Creek Relocation Work  
 (14) Exploratory Drilling Program





(15) Drill used in blast hole drilling  
(17) Placing blasting material by holes



(16) Drill used to drill blast holes  
(18) Loading production blast holes





(19) Blasting upstream Guide Wall

(21) Rock excavation downstream area



(20) Blast #27 surface heave

(22) Removal of large fragments





(23) Equipment used in foundation cleanup  
(25) Vector Truck used to remove water/mud



(24) Cleanup using hand tools, air, water  
(25) Applying Aerospray 70 to the walls





(27) R-19 Invert downstream facing North  
(29) R-21 Invert view Northeast corner



(28) R-20 Diagonal view Northwest corner  
(30) R-22 Diagonal view Northeast corner





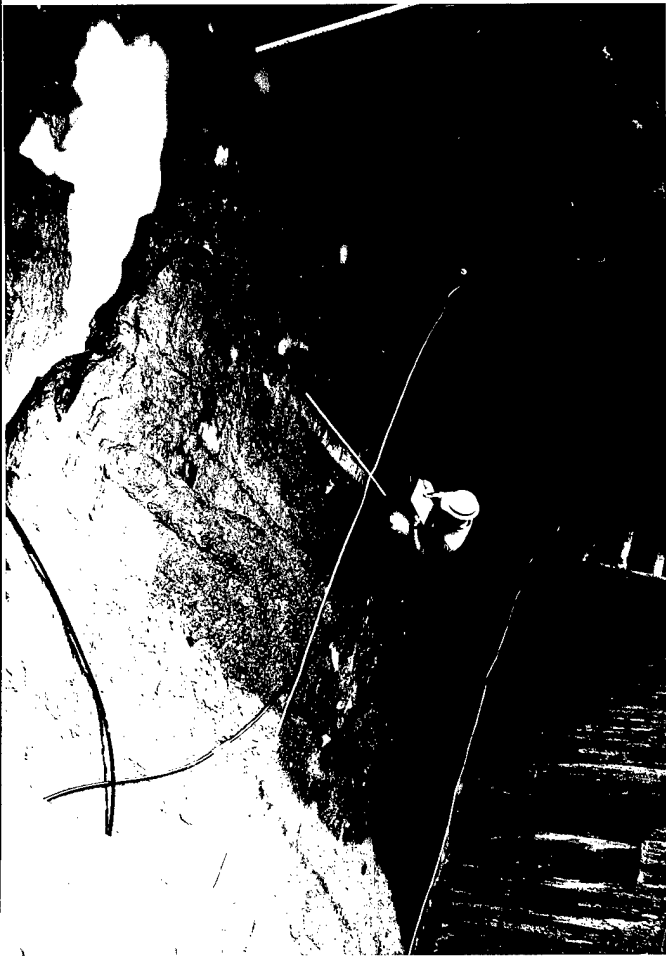
(31) R-23 Diagonal view Northwest corner

(33) R-25 Diagonal view Northeast corner



(32) R-24 Land wall view facing Northeast

(34) R-26 View of downstream East corner





(35) R-27 Invert view Southwest corner

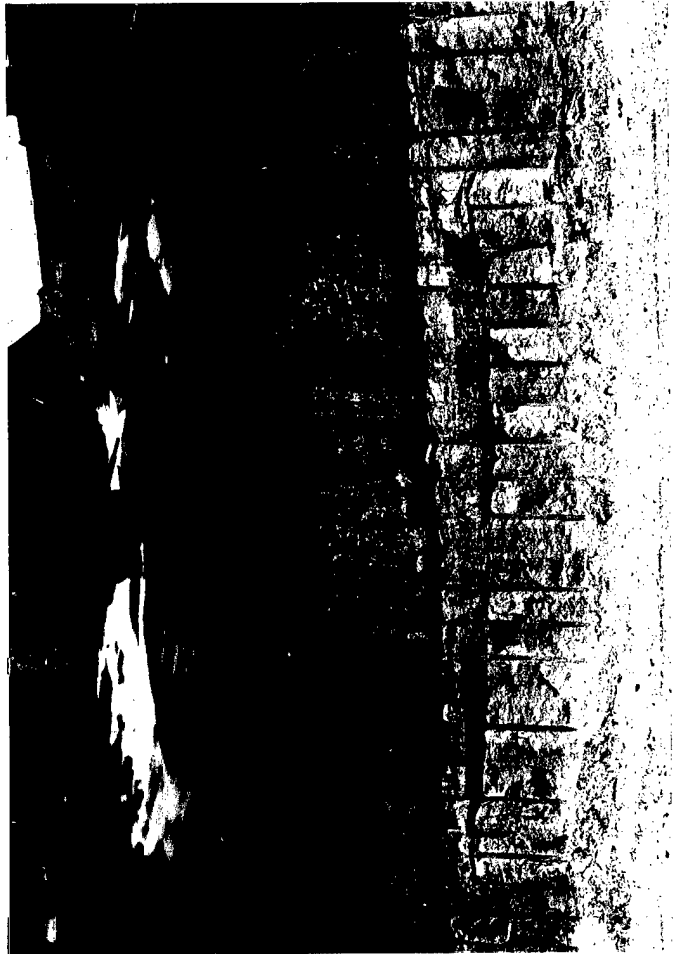
(37) R-29 Diagonal view Southeast corner



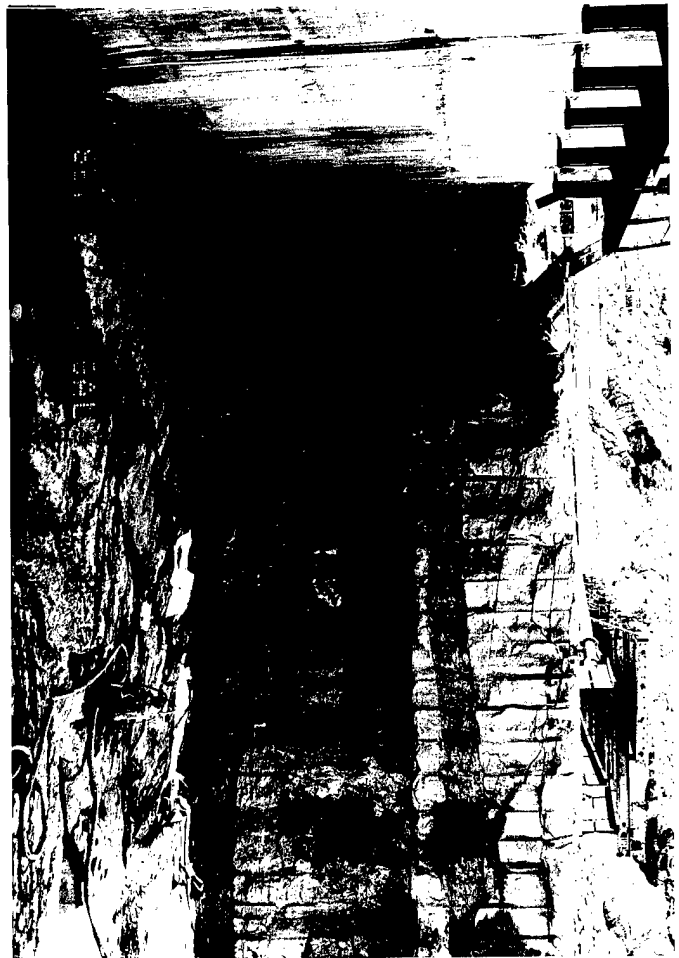
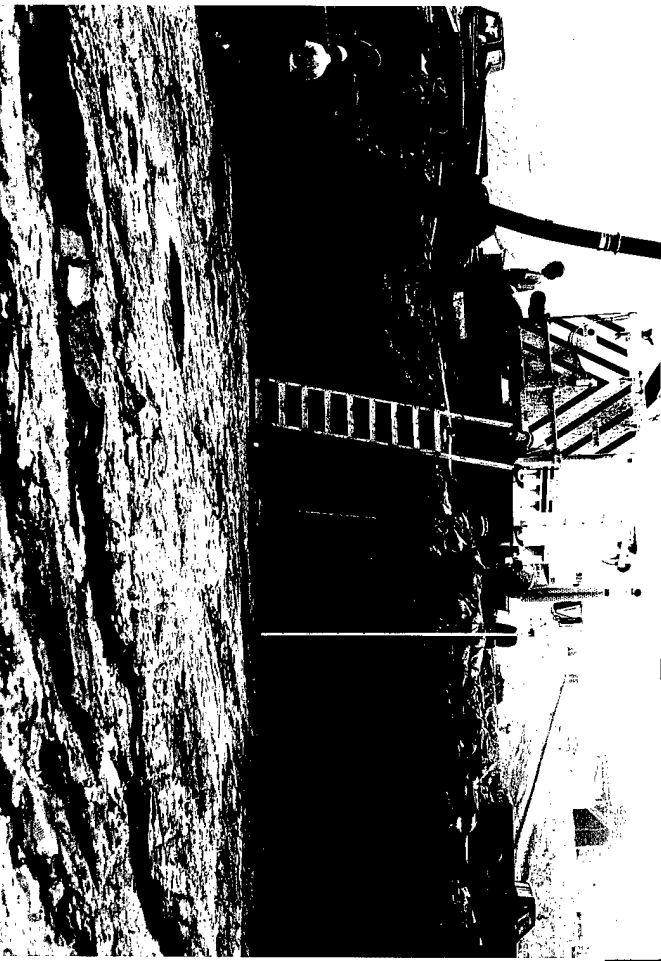
(36) R-28 Invert view Southwest corner

(38) R-30 View of downstream River wall West half





(39) R-31 View of River wall West upstream half  
(41) R-33 Upstream Land wall looking Southeast

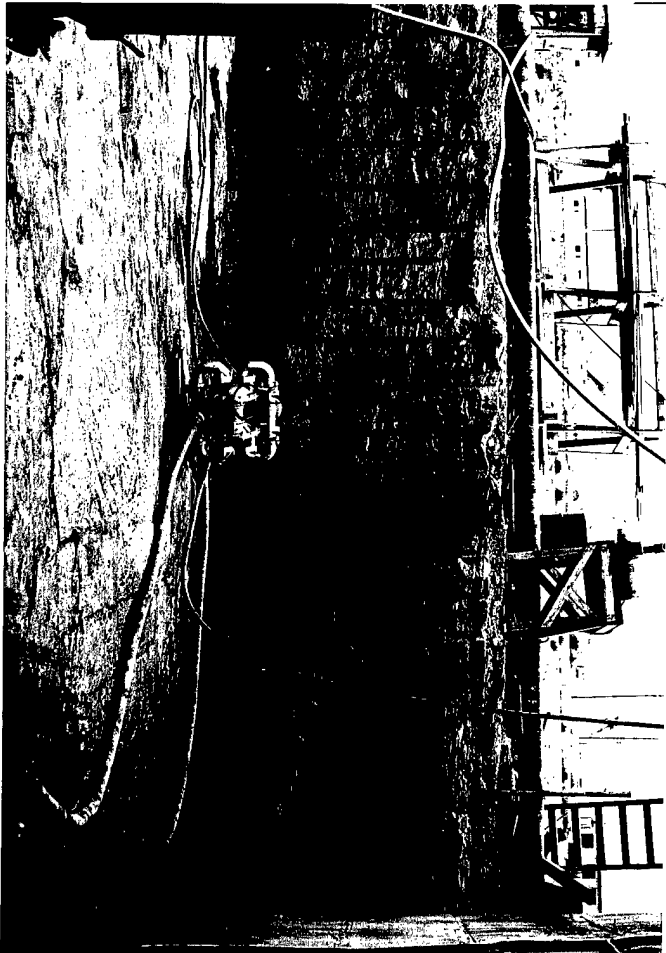


(40) R-32 Land wall Southern half  
(42) R-34 Diagonal view Southwest corner





(43) R-35 Diagonal view looking Southwest  
(45) R-37 Invert view looking Southwest



(44) R-36 Invert view Southeast corner  
(46) R-38 Land wall Southern half





(47) R-39 Invert view looking Northeast

(49) R-41 Diagonal view Northeast corner



(48) R-40 Land wall downstream half

(50) R-42 Invert view Southwest corner





(51) R-43 Diagonal view Northwest corner  
(53) R-45 Diagonal view Southeast corner

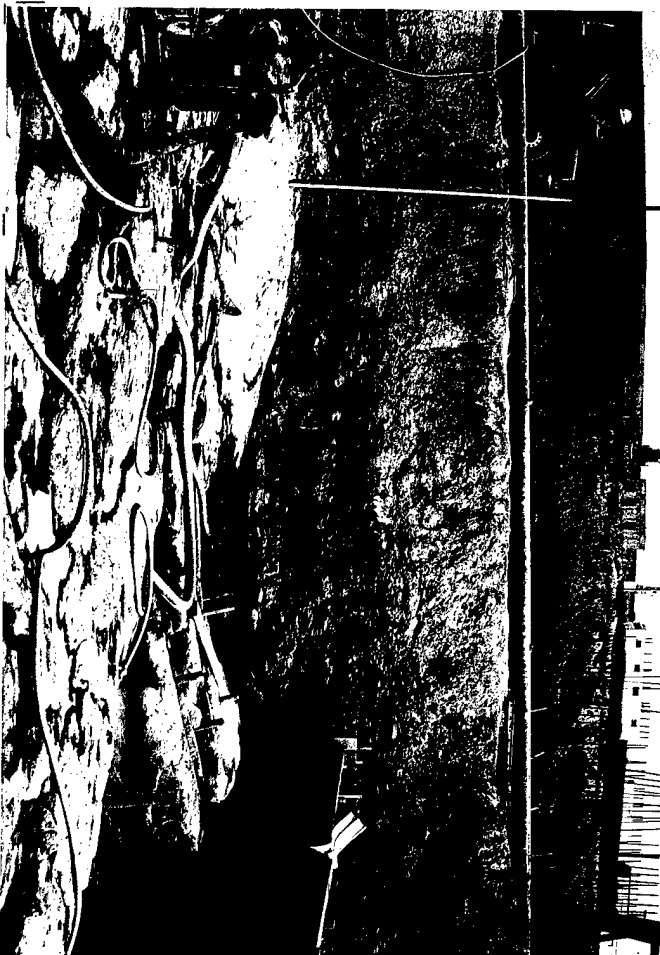


(52) R-44 Land wall Northern half  
(54) R-46 Invert view Northeast corner





(55) R-47 Invert view Northeast corner  
(57) R-49 Land wall Southeast corner



(56) R-48 Land wall Southeast corner  
(58) R-50 Land wall Northern half





(59) R-51 Land wall Northern half  
(61) R-53 West wall Southern half



(60) R-52 Invert view of Northeast corner  
(62) R-54 Invert view of Southwest corner





(65) R-57 Invert view of Southeast corner



(64) R-56 Invert view of Southeast corner



(66) R-58 Invert view of Southwest corner



(67) R-59 Invert view Southwest corner  
(69) R-61 Invert view of Northwest corner



(68) R-60 West wall Northern half  
(70) R-62 East wall Northern half





(71) R-65 View of Invert Southeast corner

(73) R-65 Invert view of Northwest corner



(72) R-64 Invert view of Northeast corner

(74) R-66 Invert view of Northwest corner



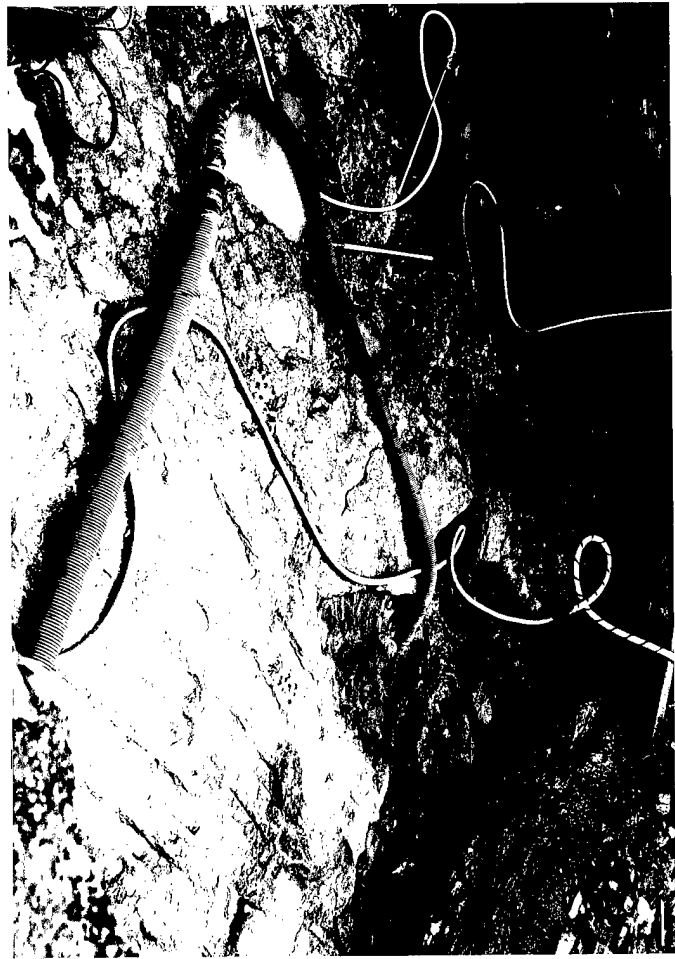


(75) R-67 Invert view of Southeast corner  
(77) R-69 Invert view of Southwest corner



(76) R-68 Invert view of Northeast corner  
(78) R-70 Invert view of Northeast corner





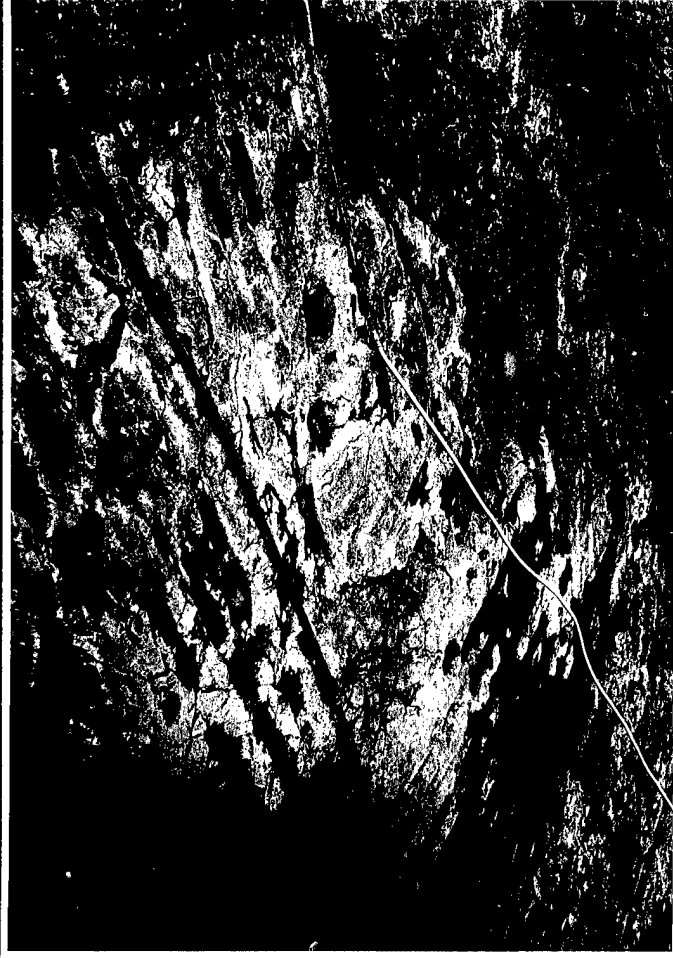
(79) R-71 Invert view of Northeast corner



(80) R-72 Invert view of Southwest corner



(81) R-73 East wall Northern half



(82) R-74 Invert view of Northwest corner



(83) R-75 West Wall Southern half



(85) R-77 Invert view of Northwest half



(84) R-76 Invert view of Southeast corner



(86) R-78 View of Southern half of West wall



(89) R-81 Invert View of Northeast corner



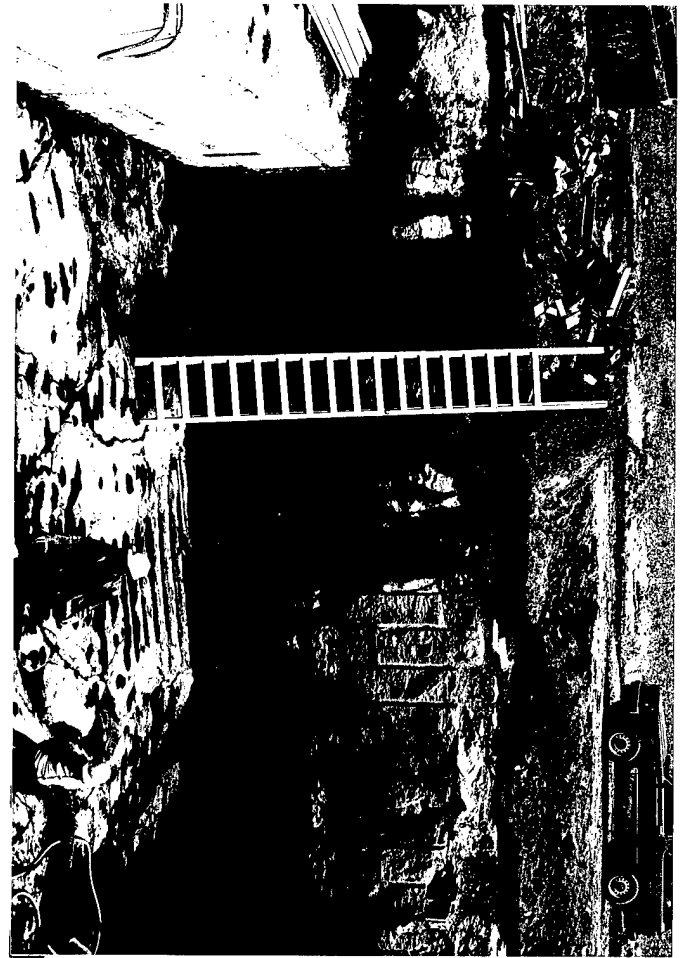
(87) R-79 East wall Northern half



(90) R-82 Invert View of Northwest corner



(88) R-80 Invert View of Northwest corner



(91) R-83 East Wall Northern half



(93) R-85 Invert View of Northeast corner



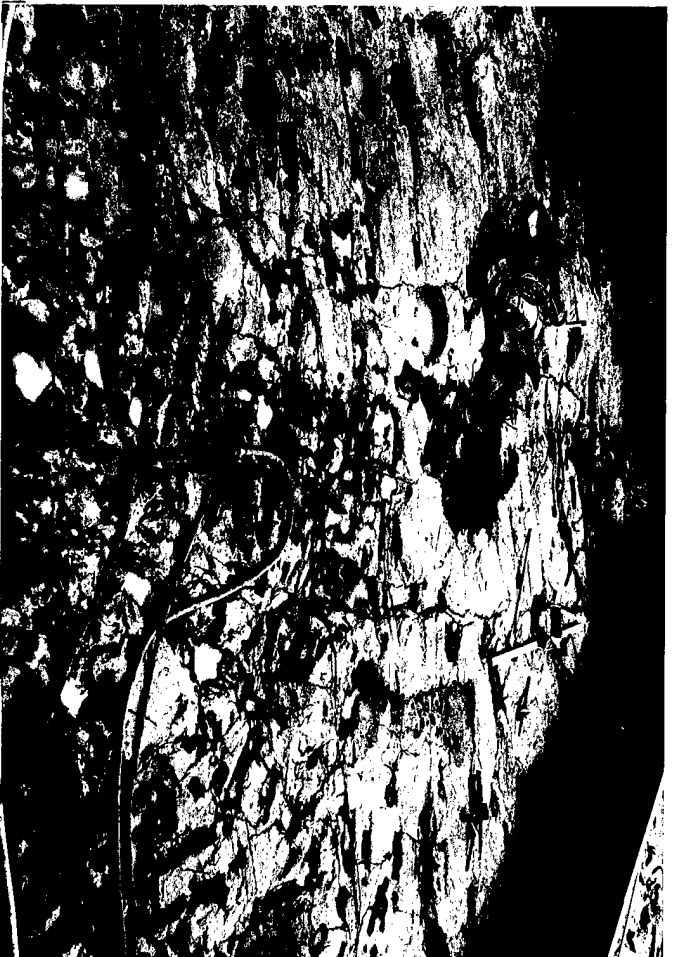
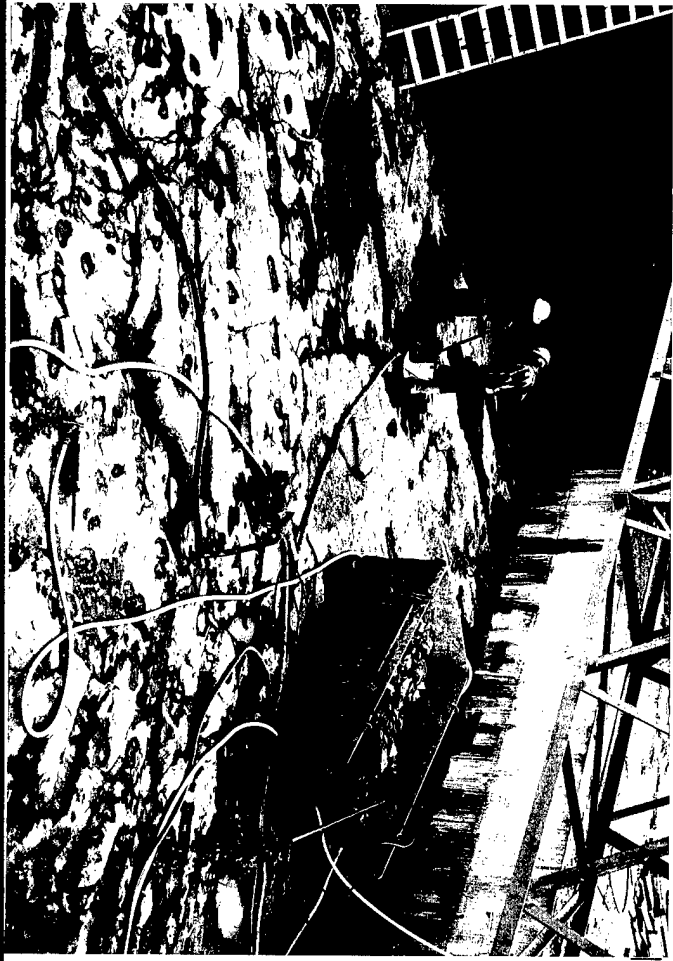
(92) R-84 View of Southern half West wall



(94) R-86 View of West wall Northern half



(95) R-87 Invert view of Southeast corner  
(97) R-89 Invert view of Southeast corner



(96) R-88 Invert view of Southeast corner  
(98) R-90 View of West wall Northern half





(99) R-91 Invert view of Northwest corner  
(100) R-93 Invert view of Northwest corner



(100) R-92 Invert view of Southeast corner  
(102) R-94 View of East wall Northern half





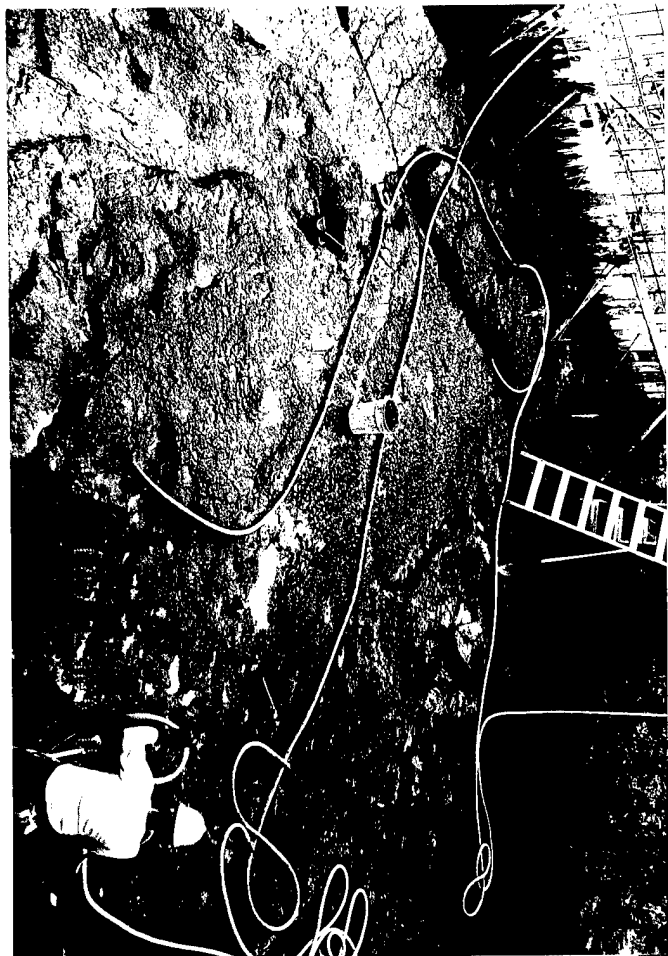
(103) R-95 Invert view of Northwest corner



(104) November 3 1988 Aerial view of Project site from Northwest



(105) April 5 1989 Aerial view of Project site from Northeast



(106) M-1 View of Southern Half West wall  
(108) M-3 Invert view of Northeast corner



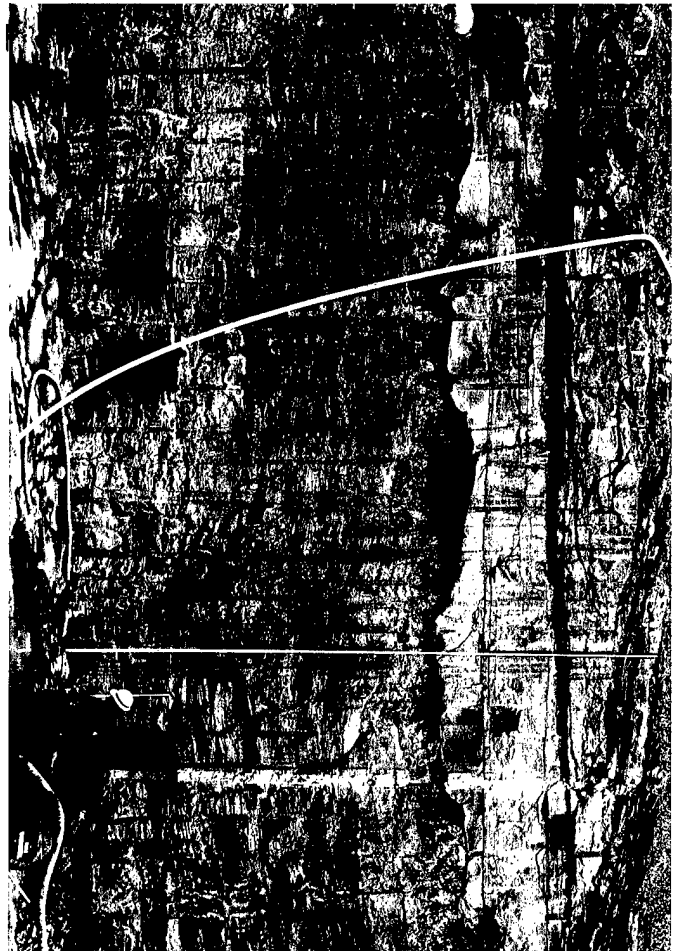
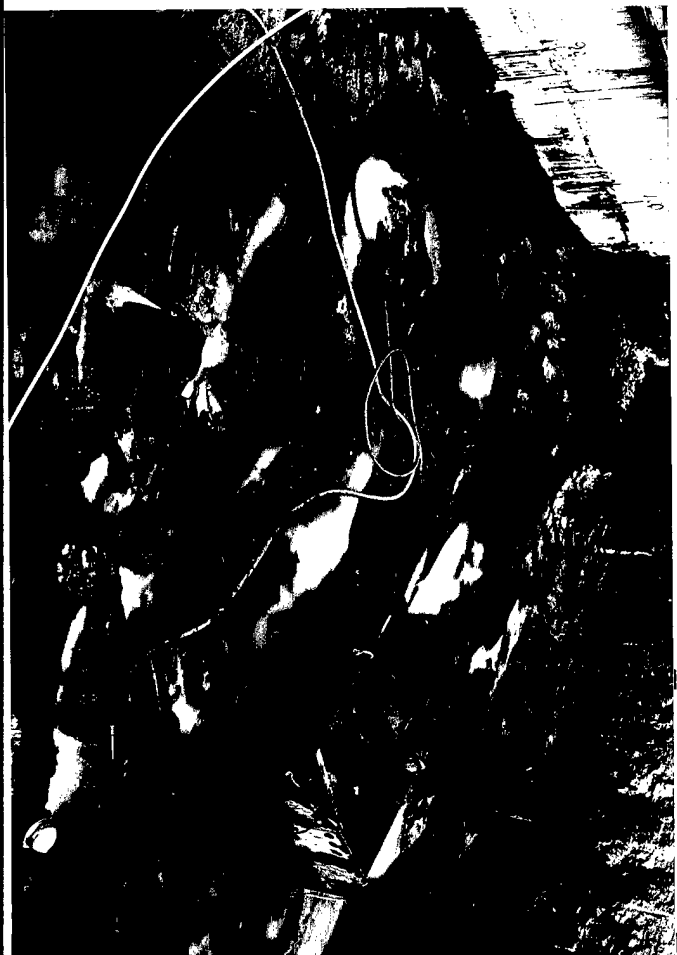
(107) M-2 View of Southern half West wall  
(109) M-4 Invert view of Southwest corner





(110) M-5 Invert view of Northeast corner

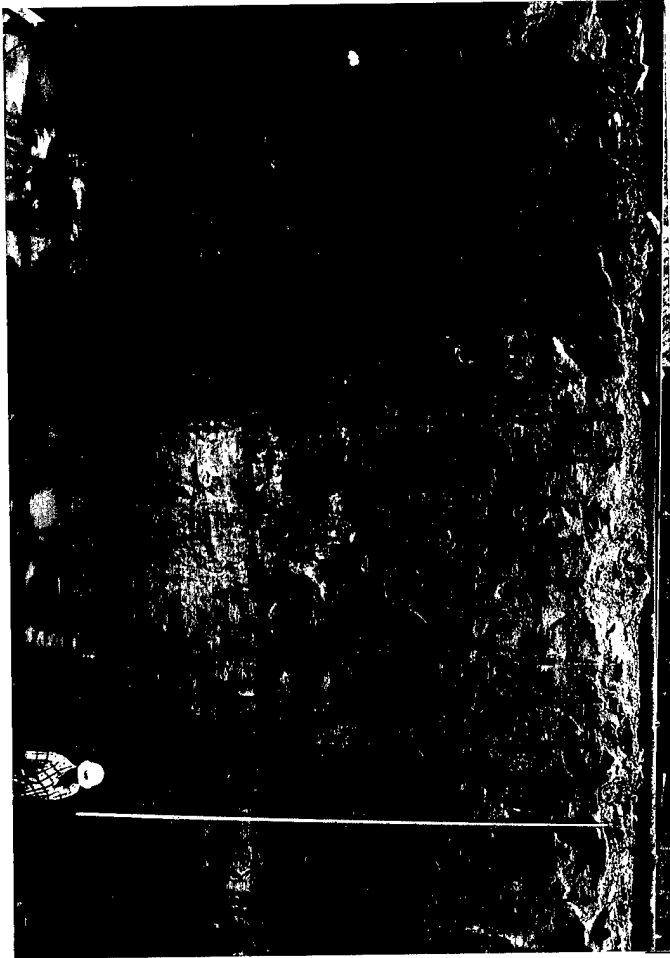
(112) M-7 Invert view of Northeast corner



(111) M-6 View of East wall Southern half

(113) M-8 View of West wall Southern half

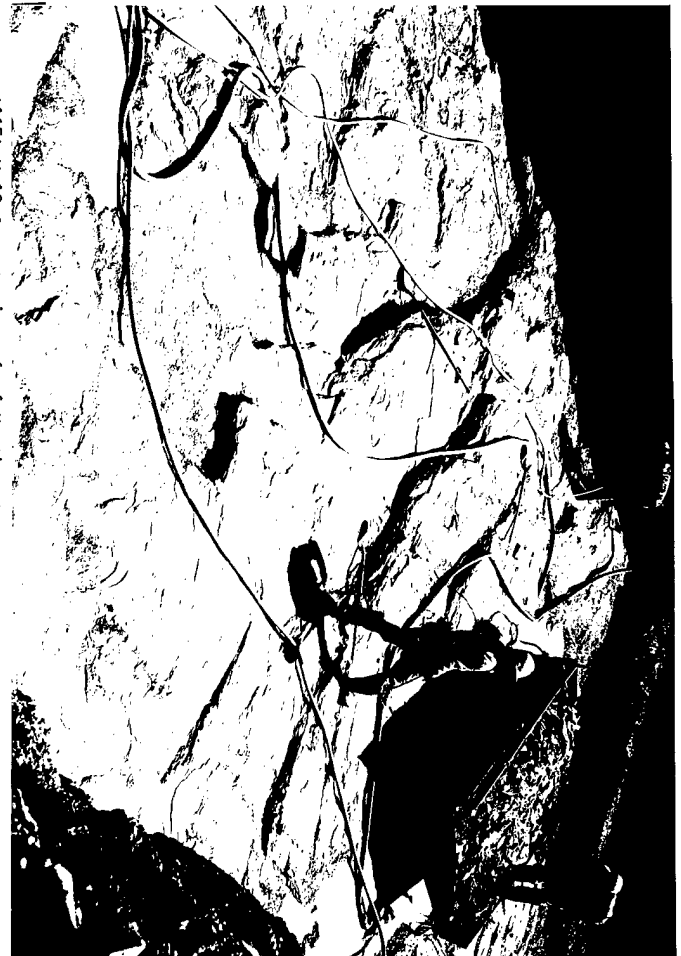




(114) M-9 Invert view of Northeast corner  
(116) M-11 View of East wall Southern half

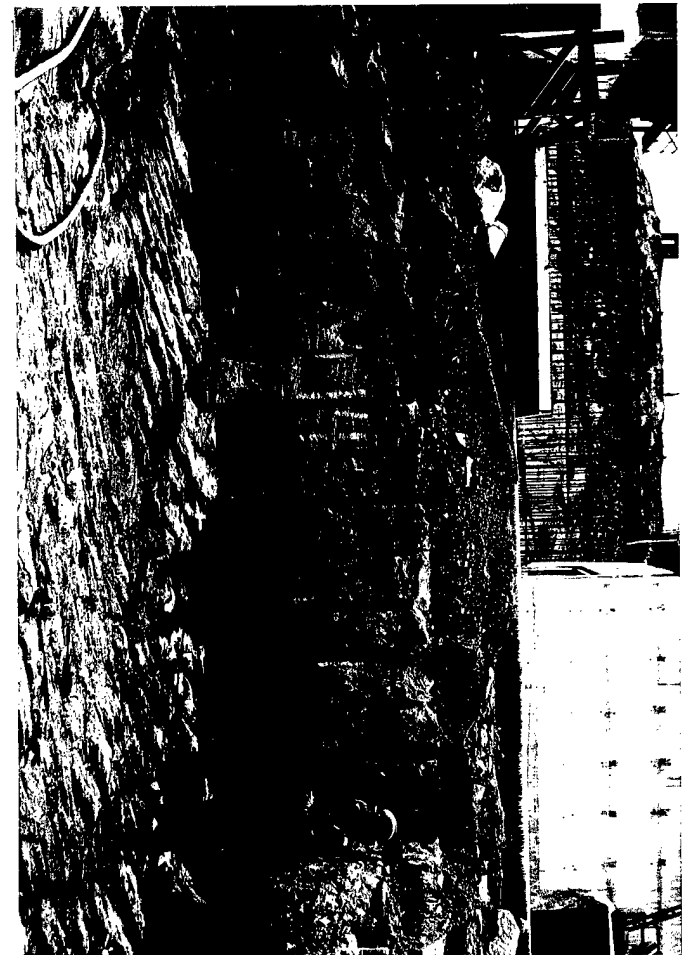
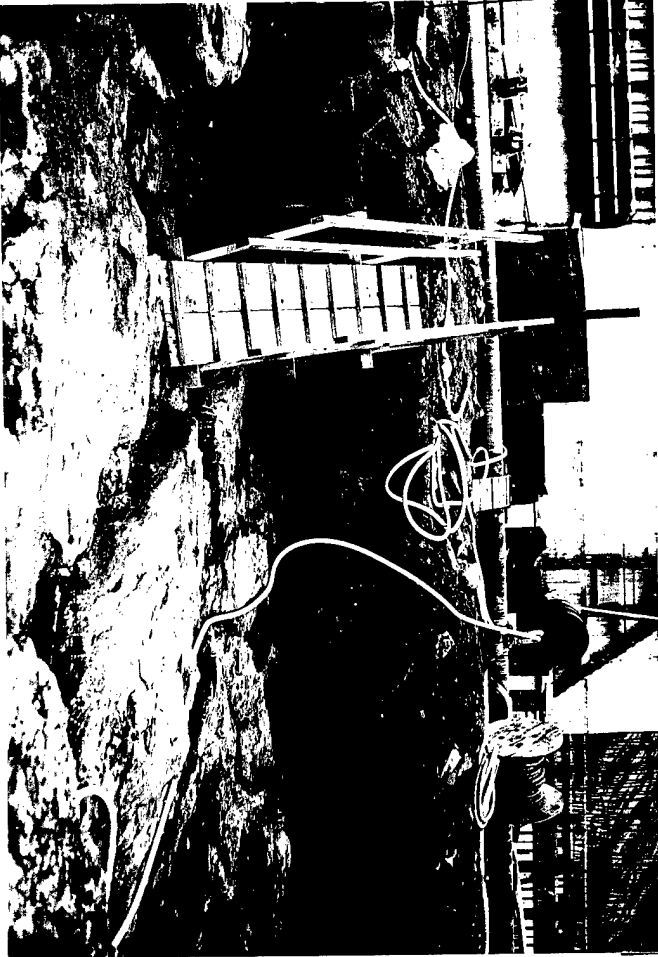


(115) M-10 Invert view of Northwest corner  
(117) M-12 Invert view of Northeast corner

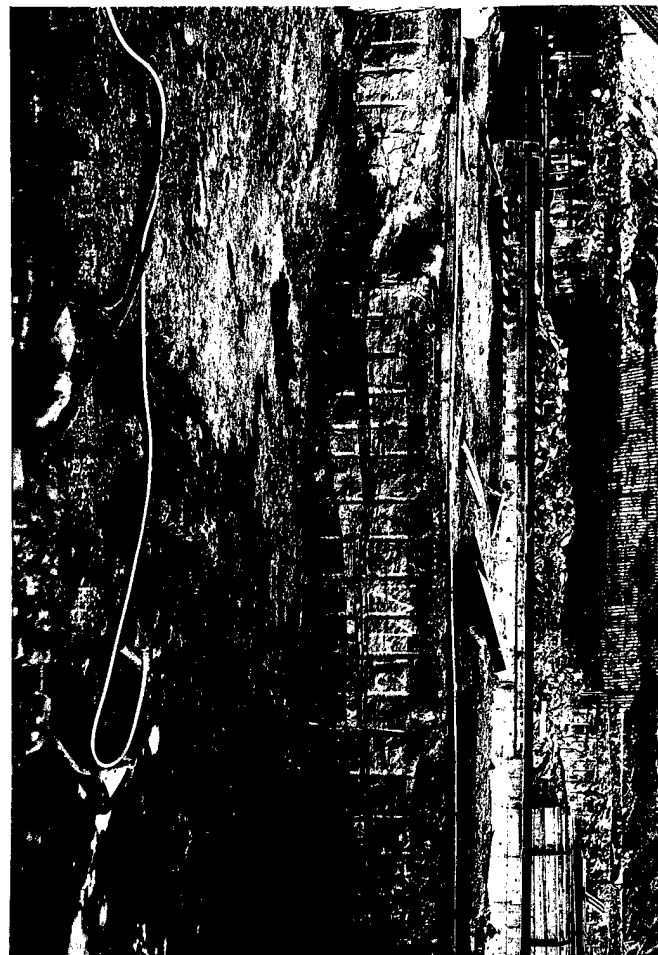




(118) M-13 Invert view of Northeast corner  
(120) M-15 View of West wall Southeast half



(119) M-14 View of East wall Northern half  
(121) M-16 Invert view Looking East

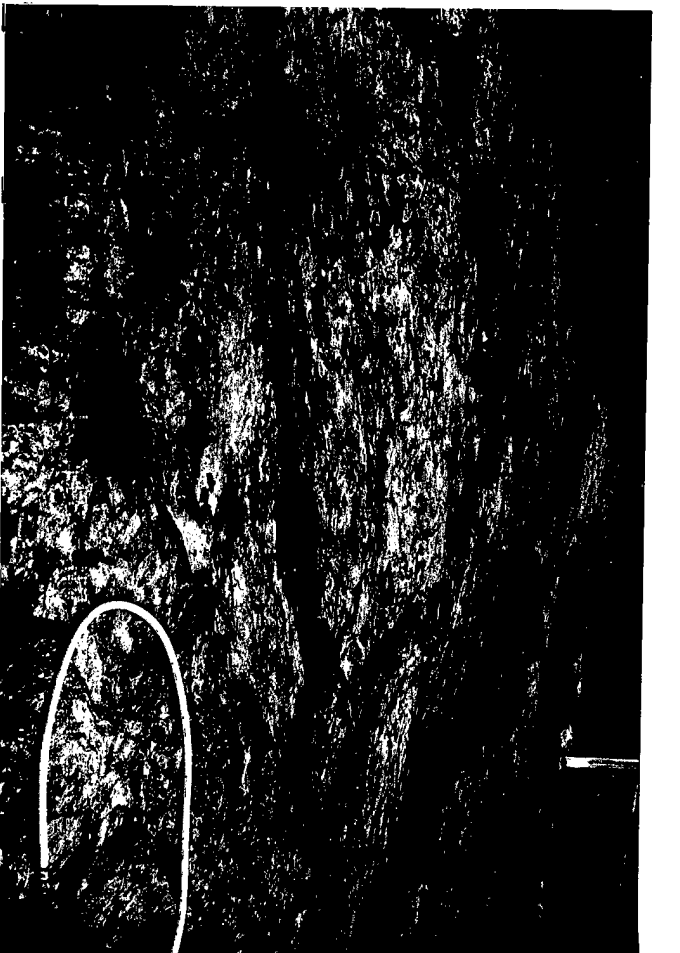


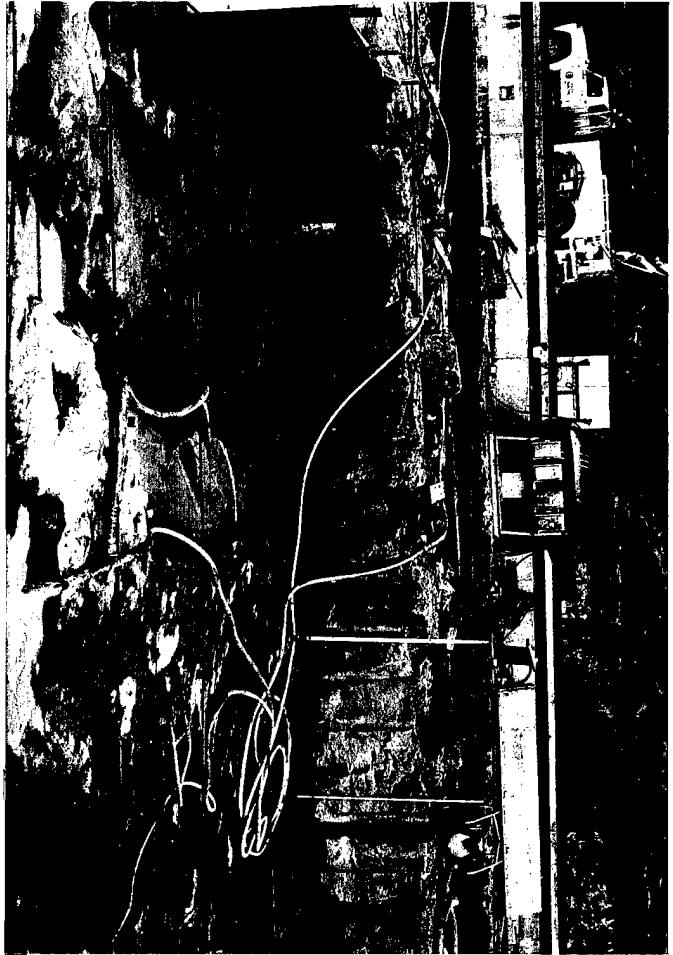


(122) M-17 View of East wall Northern half  
(124) M-19 Invert view of Northeast corner

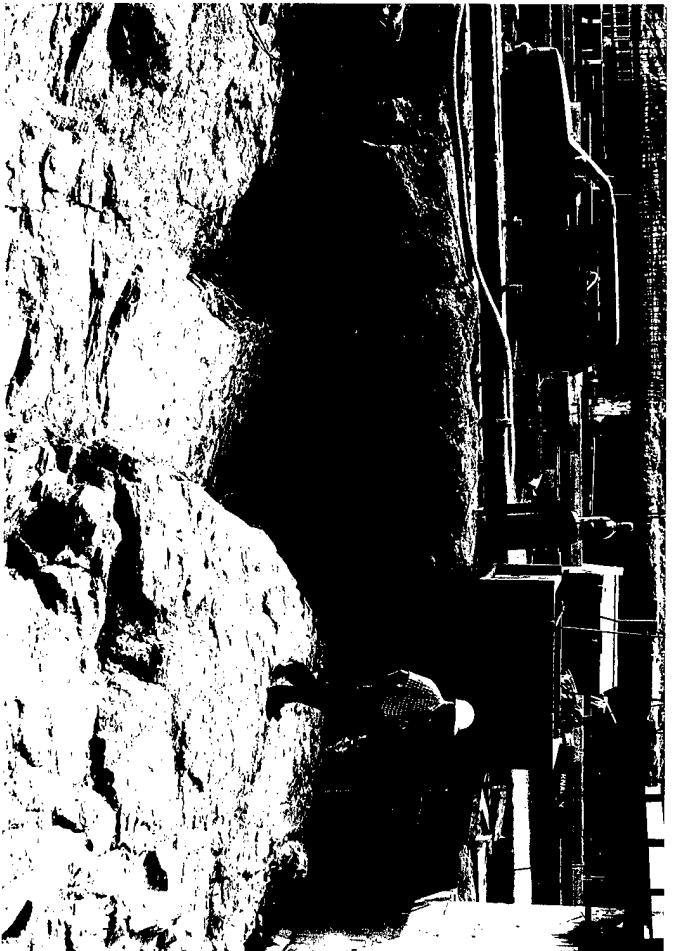


(123) M-18 Invert view of Northwest corner  
(125) M-20 Invert view of Northeast corner





(126) M-21 View of West wall Southern half  
(128) M-23 Invert view of Northern half



(127) M-22 View of West wall Northern half  
(129) M-24 Invert view of Northeast half





(130) M-25 View of East wall Northern half  
(132) M-27 Invert view of Southeast corner



(131) M-26 Invert view Southwest corner  
(133) M-28 View of West wall Southern half





(134) M-29 Invert view of Northeast corner



(136) M-31 Invert view of Southeast corner



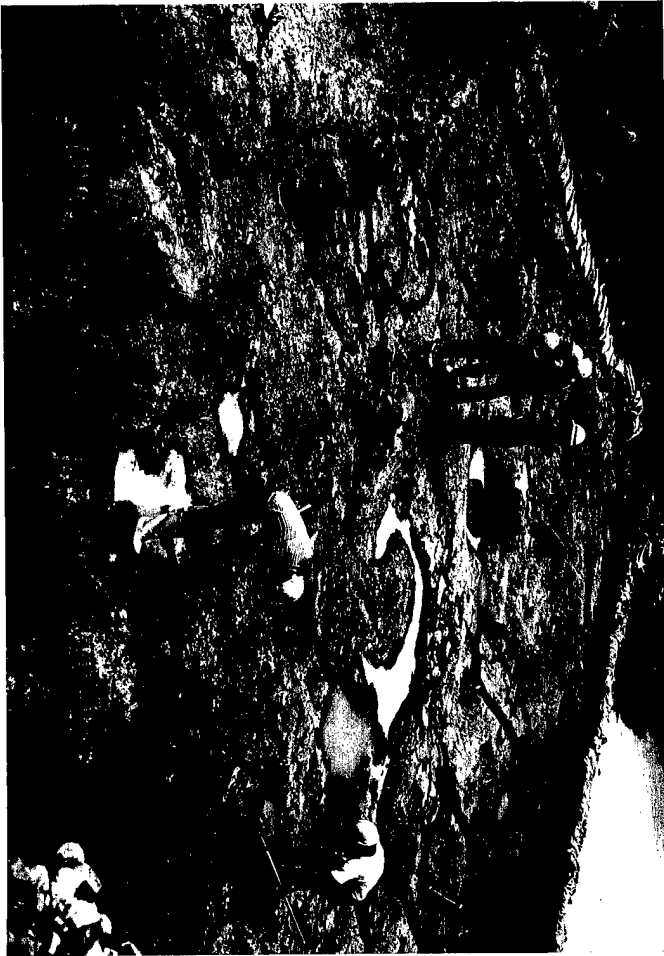
(135) M-30 Invert view Southeast corner



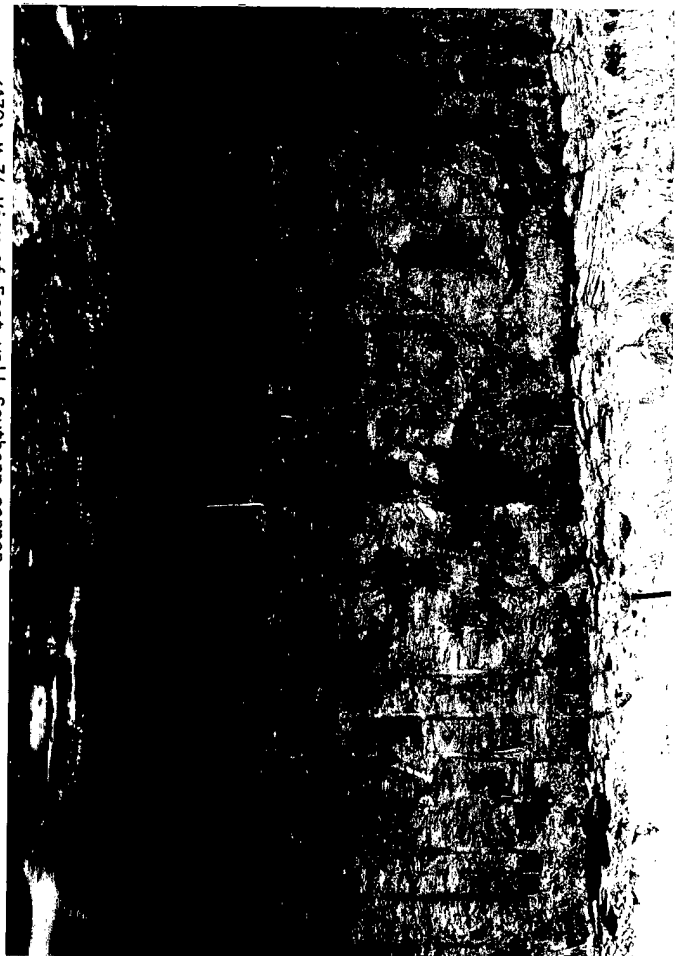
(137) M-32 Invert view of Northwest corner



(138) M-33 Invert view of Southwest corner



(140) M-35 Invert view of Northwest corner



(139) M-34 View of East Wall Southern corner

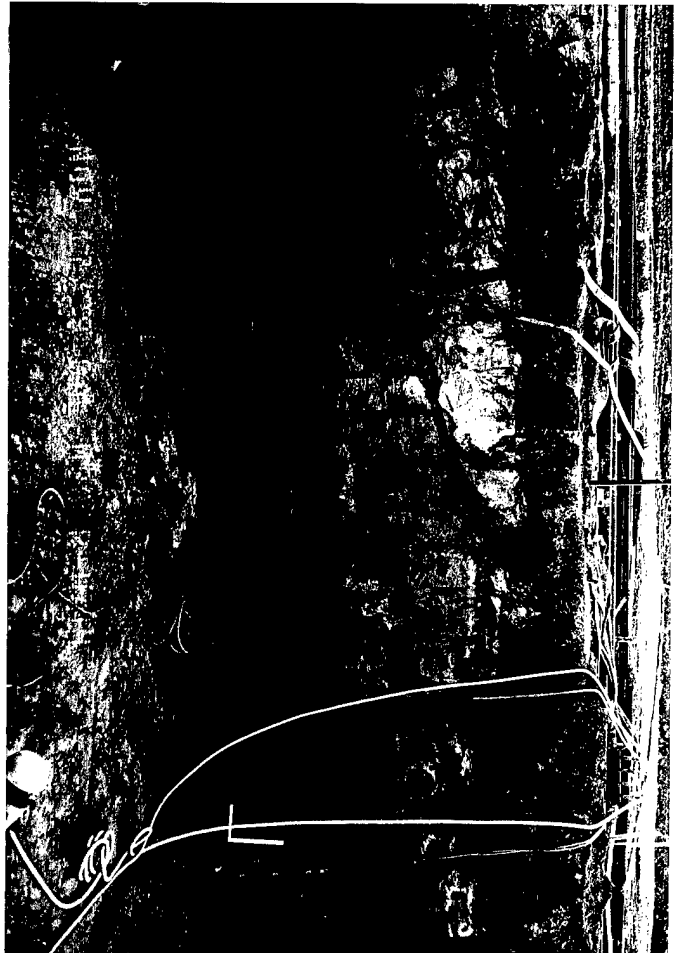


(141) M-36 Invert view of Southeast corner



(142) M-37 Invert view of Southeast corner

(144) M-39 Invert view of Southeast corner



(143) M-38 View of West wall Northern half

(145) M-40 Invert view of Northwest corner





(146) M-41 Invert view of Northeast corner



(147) M-42 Invert view of Southeast corner



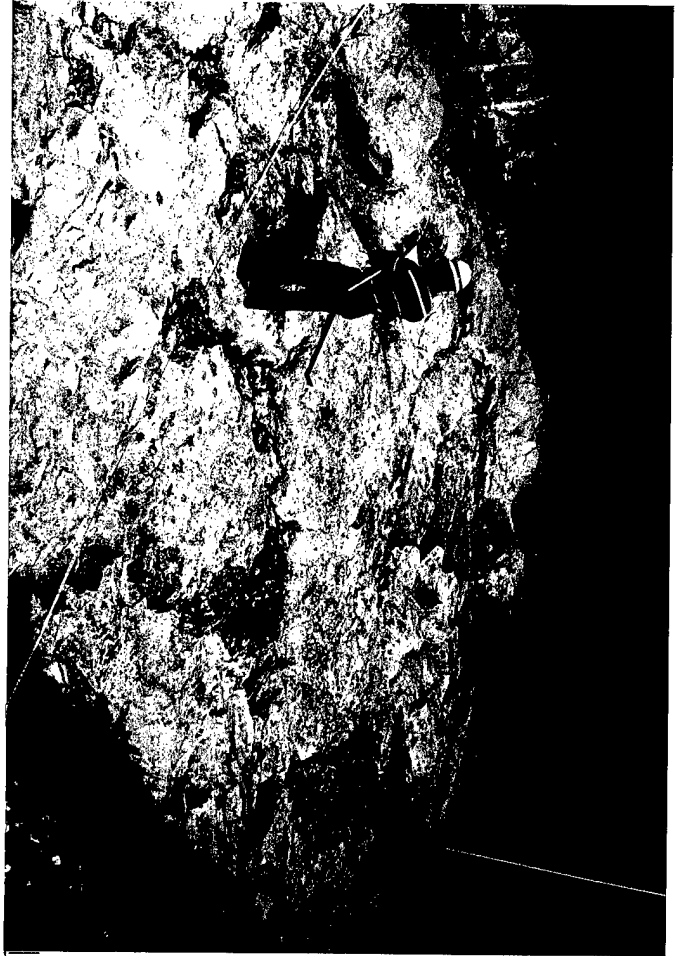
(148) M-43 Invert view of Northeast corner



(149) October 7 1989 Aerial view of Project site from Northwest



(150) February 1 1990 Aerial view of work site from Northwest



(151) L-1 Diagonal view of Southeast corner

(153) L-3 Diagonal view of Northeast corner



(152) L-2 Invert view of Northeast corner

(154) L-4 Invert view of Southeast corner





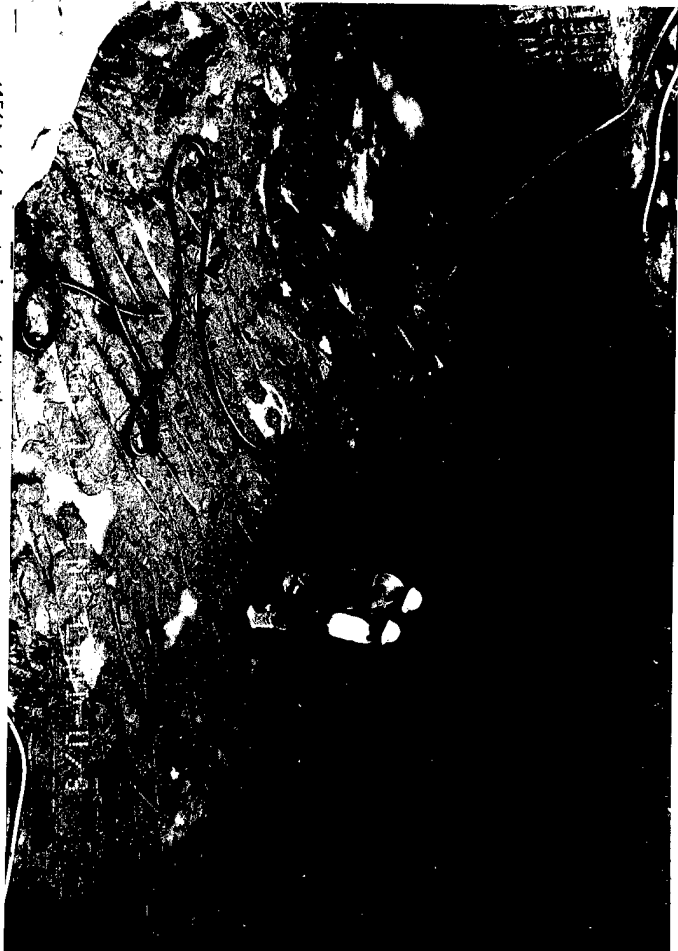
(157) L-7 Invert view of Northeast corner



(155) L-5 View of East Wall



(158) L-8 Invert view of Northeast corner



(156) L-6 Invert view of Northeast corner



(159) L-9 Invert view of Southern half  
(161) L-11 View of East wall Southern half



(160) L-10 View of East wall Southern half  
(162) L-12 Invert view of Northeast corner





(165) L-15 Invert view of Southwest corner



(163) L-13 View of West Wall



(166) L-16 Invert view of Northeast corner



(164) L-14 Invert view of Northwest corner



(167) L-17 View of West wall Southern half

(169) L-19 Invert view of Southwest corner



(168) L-18 Invert view of Northeast corner

(170) L-20 Invert view of Northeast corner



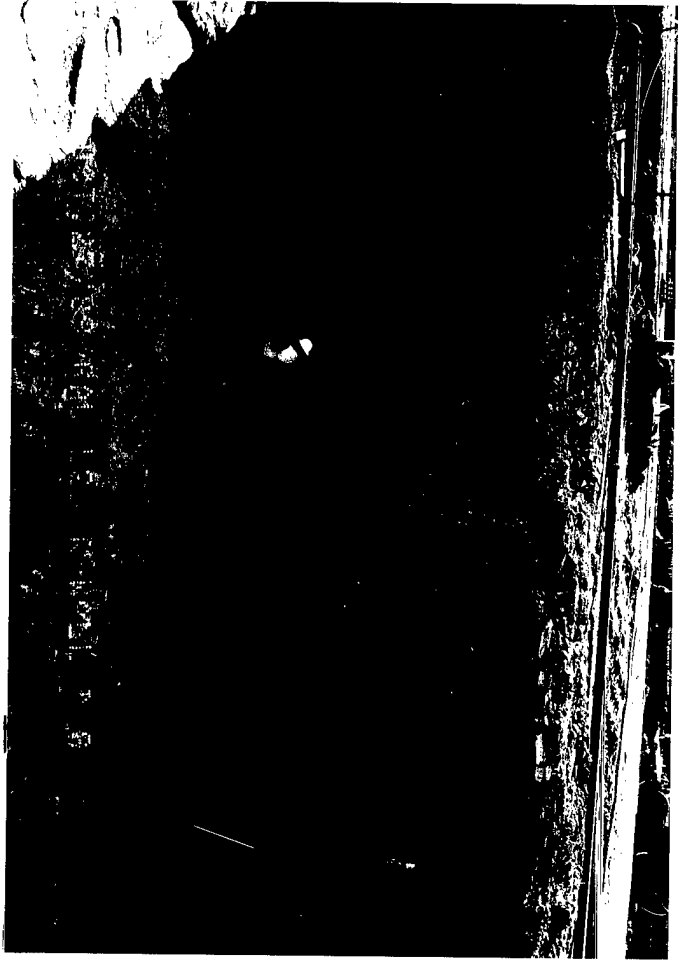


(171) L-21 View of East wall Southern half  
(173) L-23 Invert view of Northeast corner



(172) L-22 Invert Diagonal view East to West  
(174) L-24 Invert view of Northwest corner





(175) L-25 View of West wall Southern half

(177) L-27 Invert view West corner



(176) L-26 View of East wall Northern half

(178) L-28 Invert view of Southwest corner



(179) L-29 Invert view of Northeast corner





(180) June 1 1990 Aerial view of Project site from Northwest



(181) December 1 1990 Aerial view of work site from Southwest



(182) DSMBS-2 Invert view of Northern half  
(184) USMBS-9 Invert view looking West



(183) DSABS-4 View of Northern wall  
(185) USABS-12 Invert view from top of Land Wall





(188) USMGS-9 Invert view looking East



(186) DSMGS-2 Invert view of Northern corner



(189) USAMGS-10 Invert view of Southwest corner

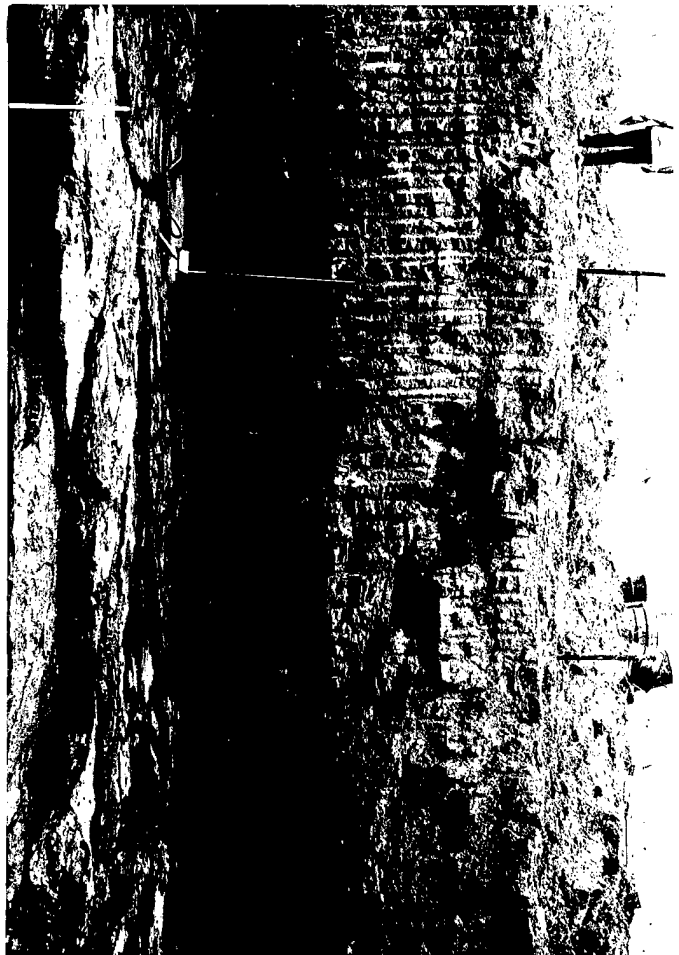


(187) DSAMGS-4 Invert view of Northwest corner



(190) USMEGS-5 Invert view of East half

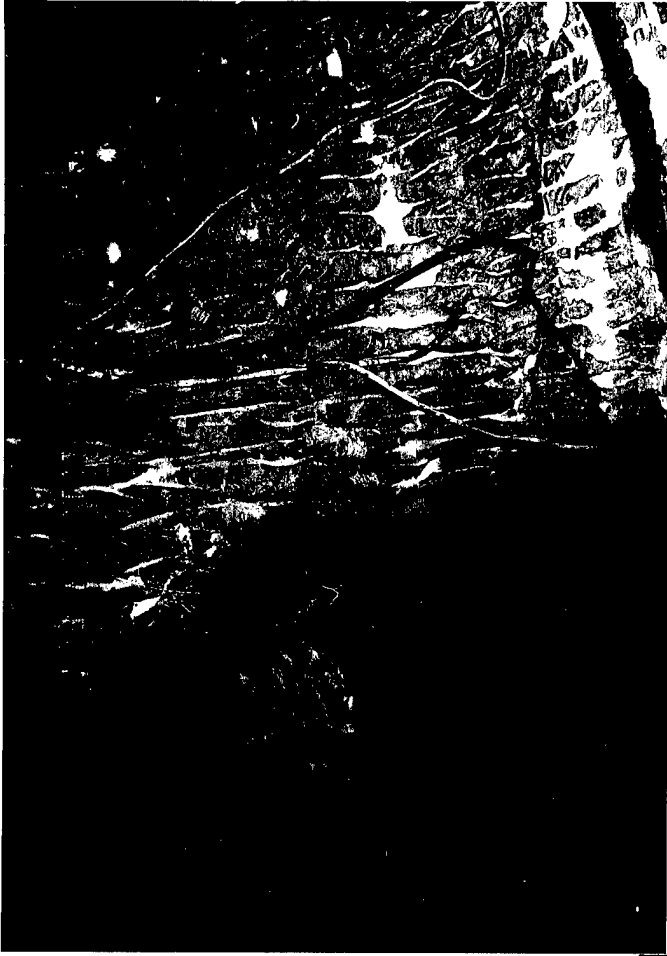
(192) RC-10 Invert view looking West



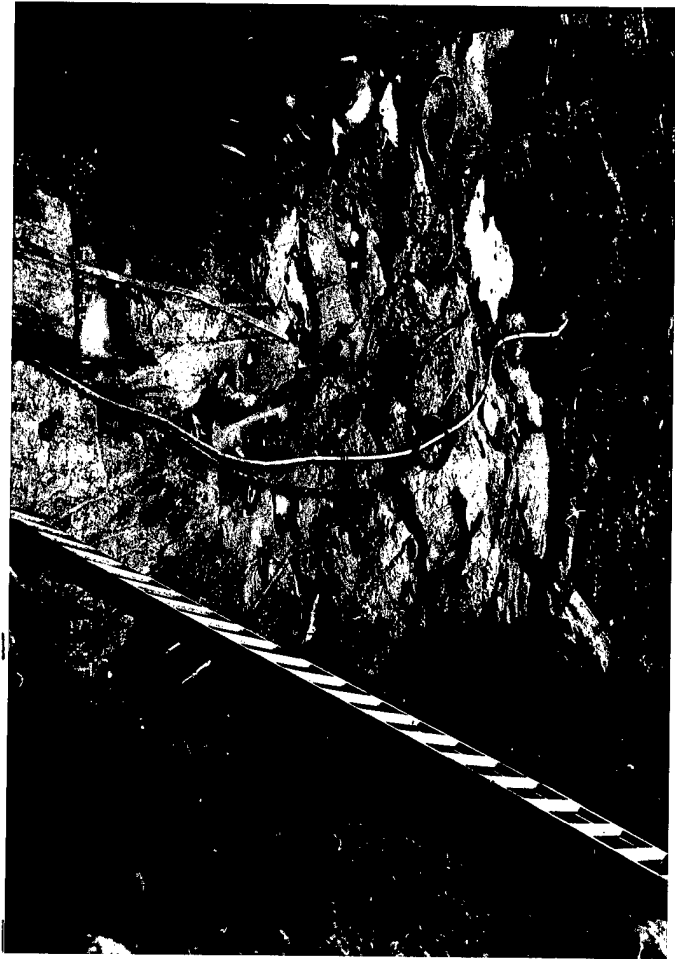
(191) USAEGS-6 View of Northern wall

(193) RC-16 View of Western wall





(194) MC-12 Invert view looking West  
(196) LC-10 Invert view looking East



(195) MC-19 Invert view of of Southeast corner  
(197) LC-56 Invert view of looking East





(198) LC-57 Invert view looking West



(199) RI-1 Invert view looking East



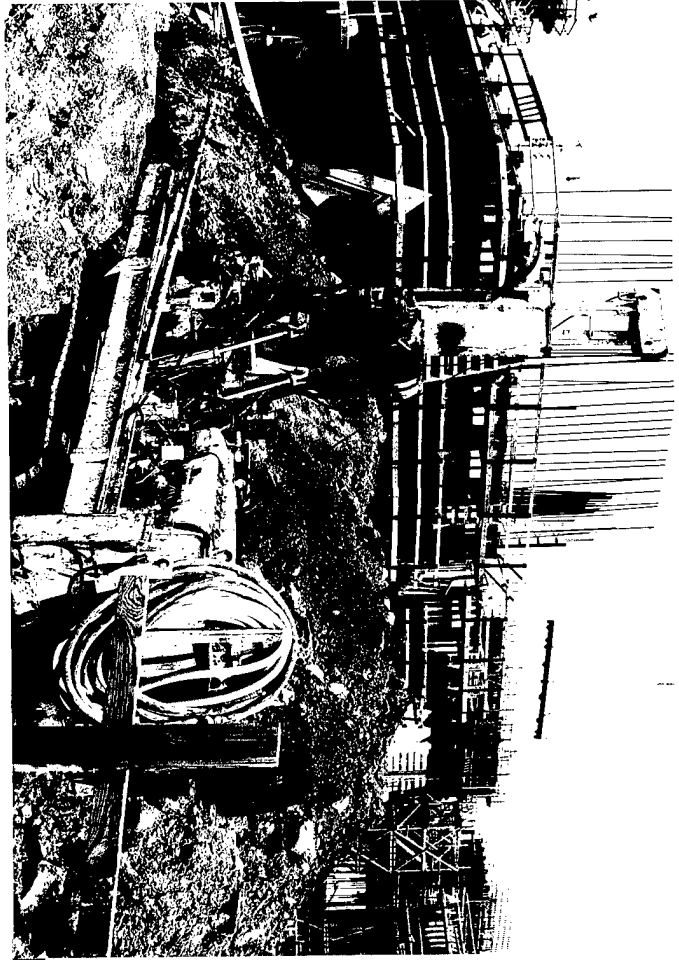
(200) RI-2 View looking West at Invert and End Wall



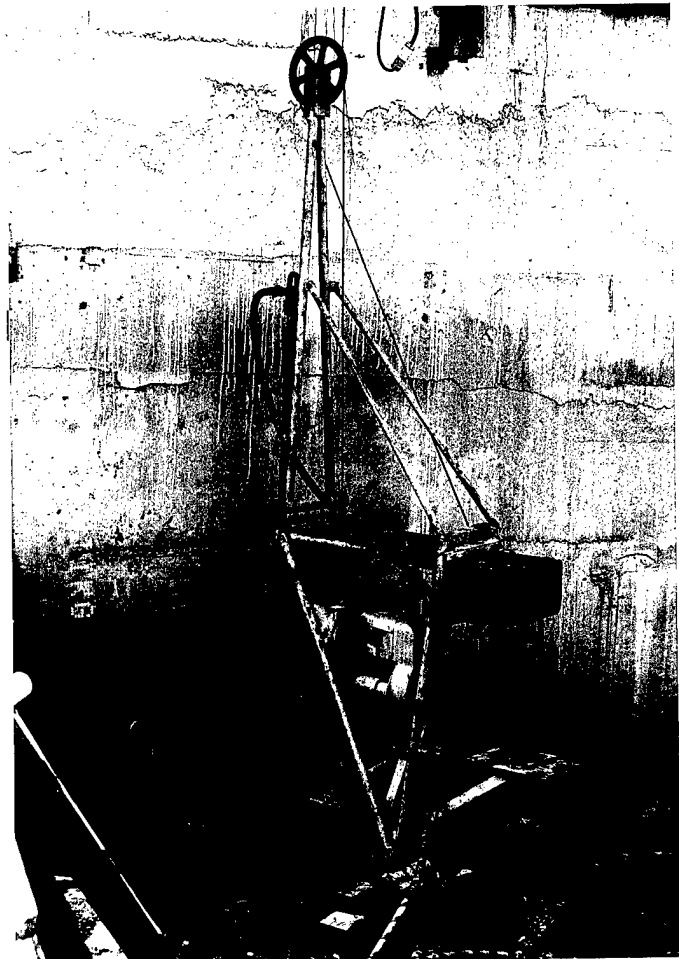
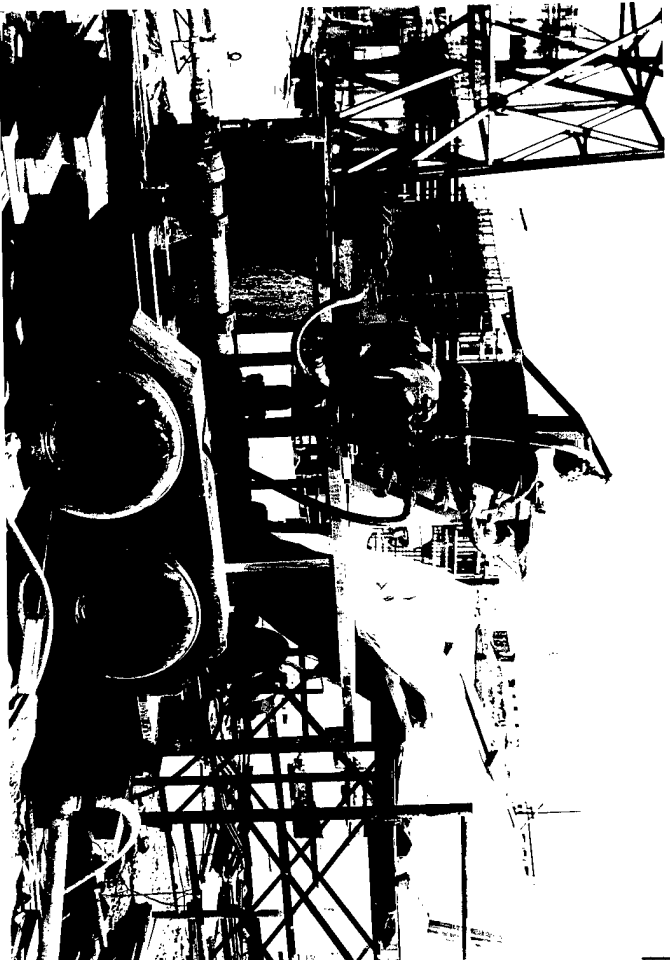
(201) Outlet Structure General view looking Southeast



(202) January 1 1991 Aerial View of work site from Southeast



(203) Grouting Equipment, Semico Drill  
(205) Grouting Equipment, Grout Mixer

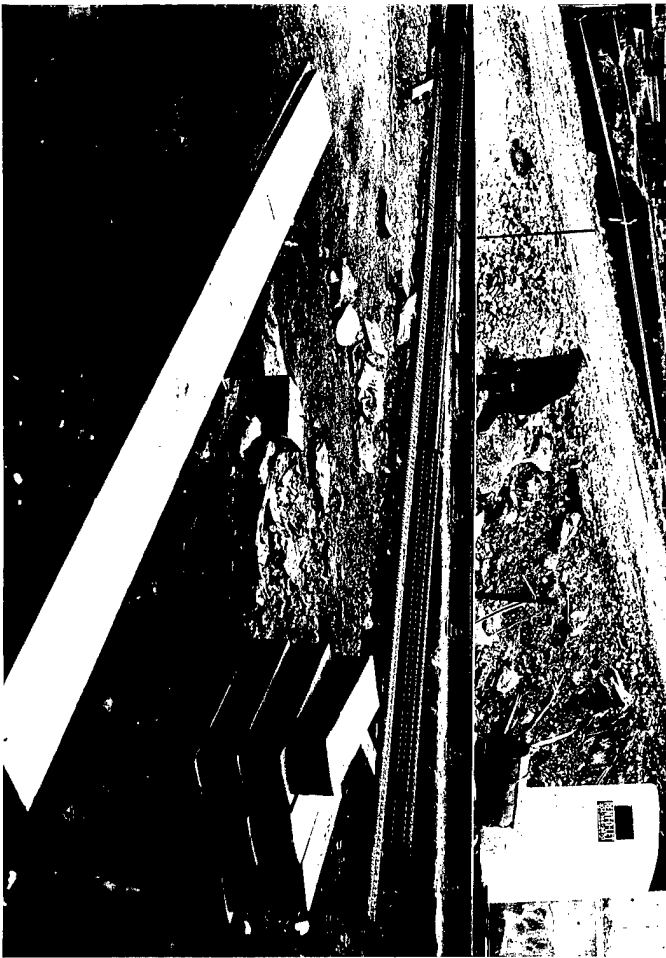


(204) Grouting Equipment, Long Year Drill  
(206) Grouting Equipment, Header



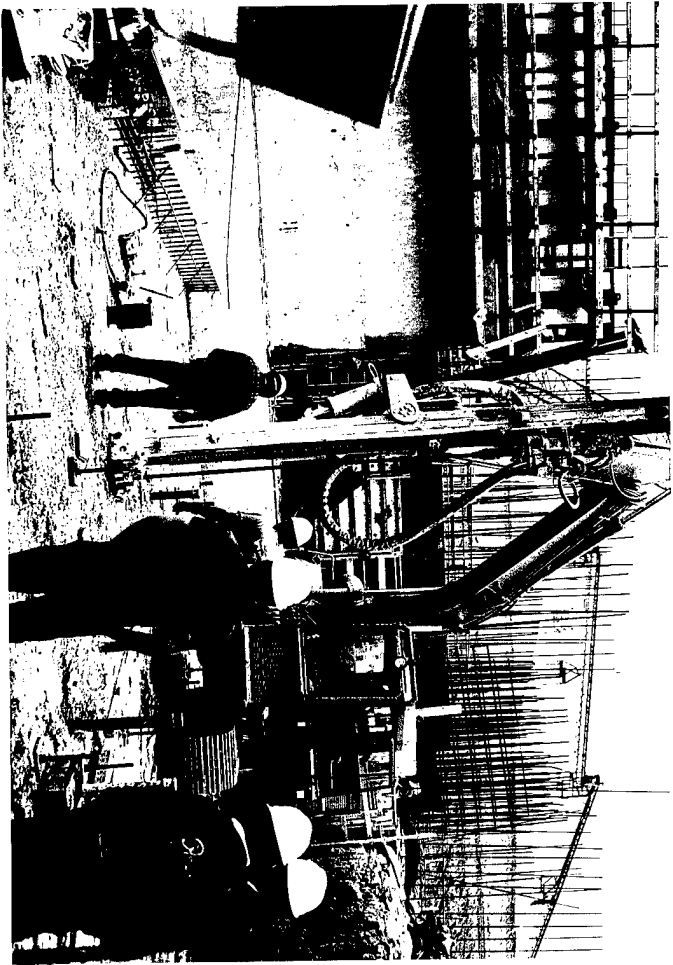


(207) Fastloc Resin used to set Rock Anchors  
(209) Rods used Rock Anchors

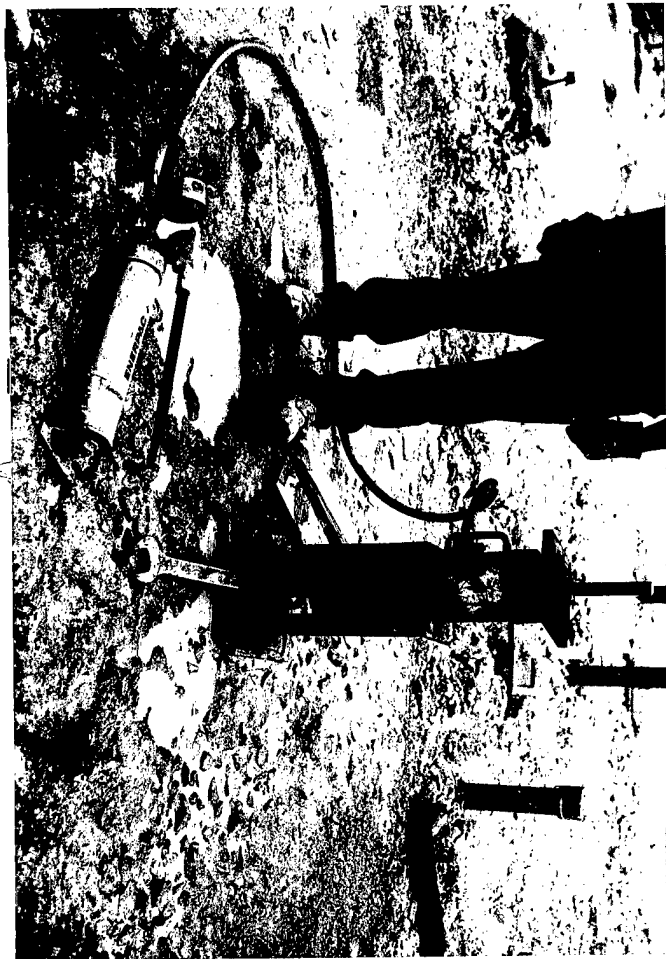


(208) Inserting Fastloc Resin  
(210) Inserting Rods into Hole





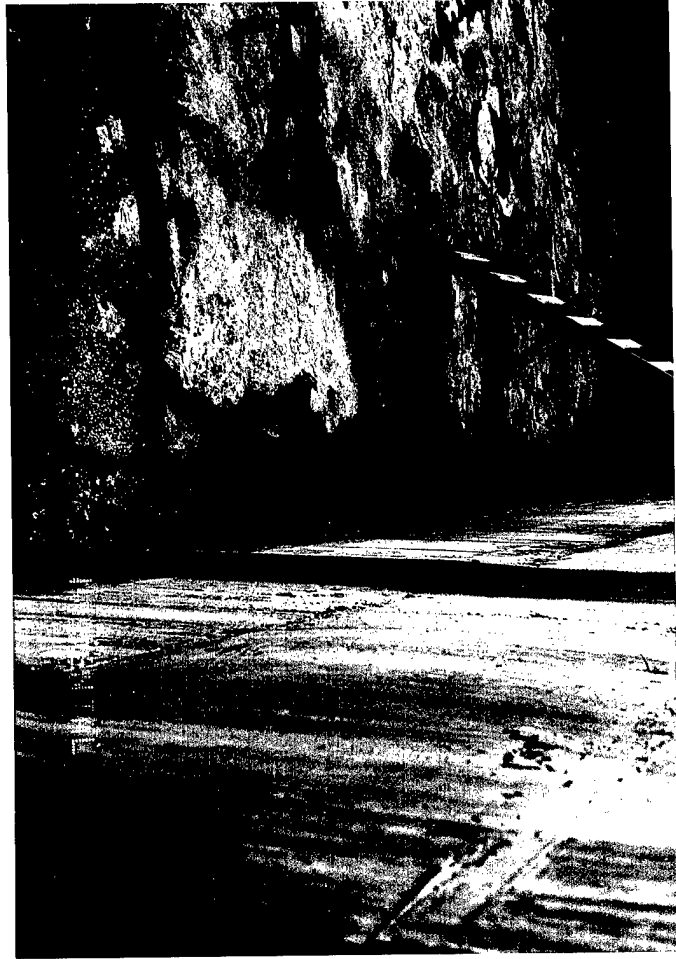
(211) Using Air Track to rotate Rock Anchors



(212) Equipment to Tension Anchor Rods



(213) April 1 1991 Aerial view of work site from Northwest



(214) R-38 Invert view looking East after repair



(215) R-46 Invert view looking West



(216) R-51 Invert view looking East



(217) R-82 Invert view looking North



(218) R-82 Invert view looking Northwest  
(220) M-22 Invert view looking West



(219) R-82 Invert view Looking Southeast after repair  
(221) M-28 Invert view looking Southeast





(222) M-30 Invert view looking North



(223) M-30 Invert view at monolith joint



(224) M-31 Invert view



(225) M-37 Invert view of Slickenside



(228) L-13 Invert view looking East



(229) L-11 Invert view looking Southwest



(227) L-11 Invert view looking Southwest after repair





(230) L-14 Invert View looking East



(231) L-14 Invert View looking East after repair



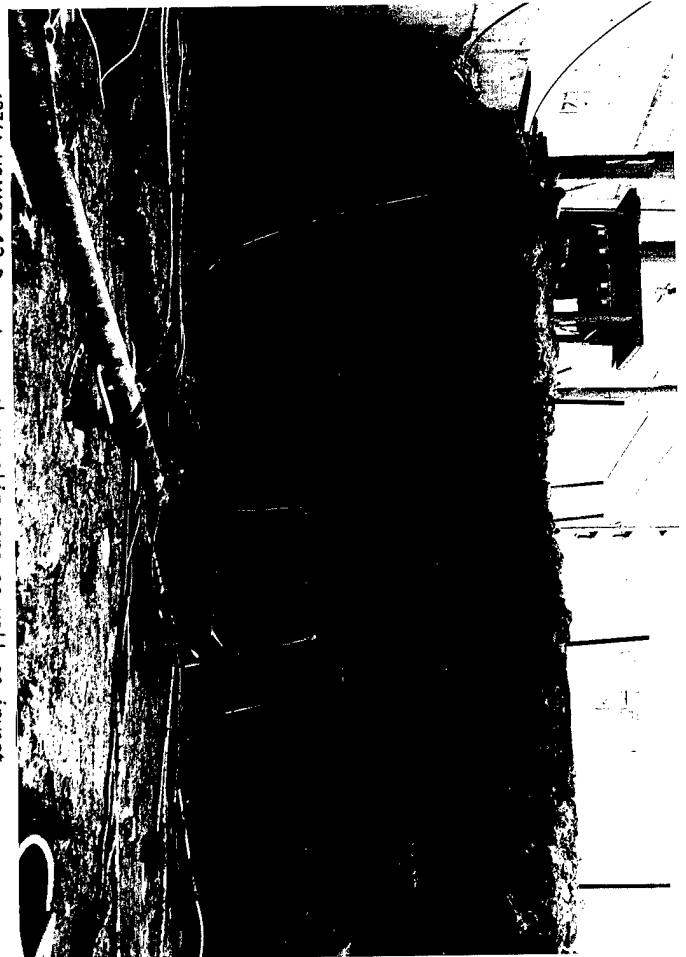
(232) L-23 Invert view looking Northeast



(233) USABS-10 Invert view looking North



(234) USAMGS-12 Downstream shows slip zone as well as invert  
(236) USAEGS-4 Invert view looking North



(235) USMEGS-1 Invert view looking Southeast  
(237) LC-33 Invert view looking Southeast





(238) LC-48/49 Invert view looking South

(240) MC-20 Invert view of North corner



(239) LC-52/53 Invert view looking West

(241) MC-20 Invert view of Northwest corner after repair





(244) Outlet Structure Invert view looking East



(242) MC-22 Invert view looking East



(245) Outlet Structure invert view looking East after repair



(243) MC-22 Invert view looking East after repair



(246) Baffle Area Invert view looking Southwest



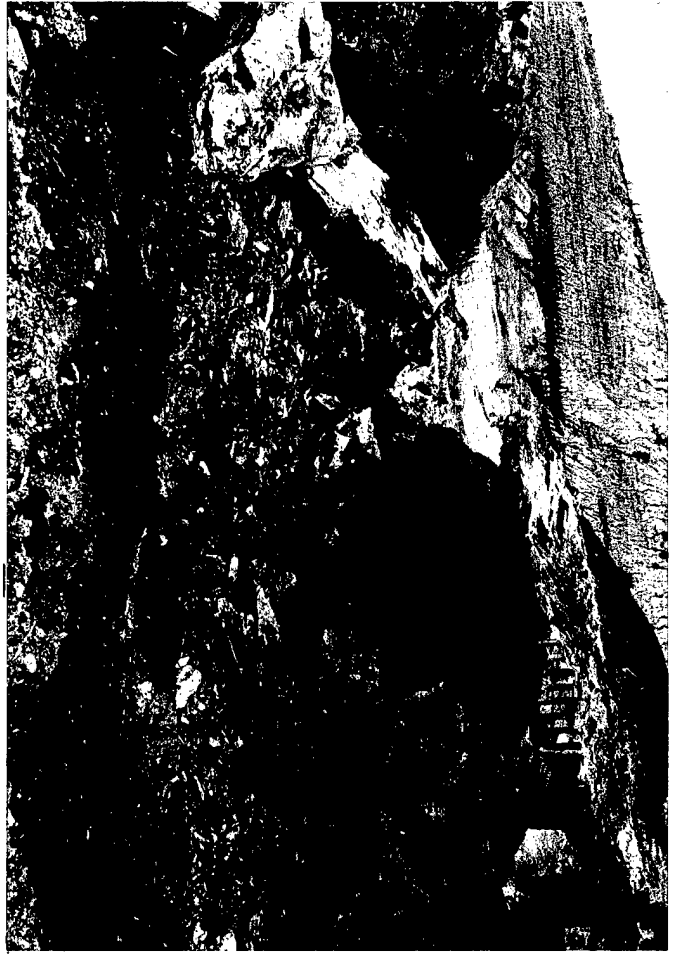
(247) L-13 Neat gROUT in an open joint



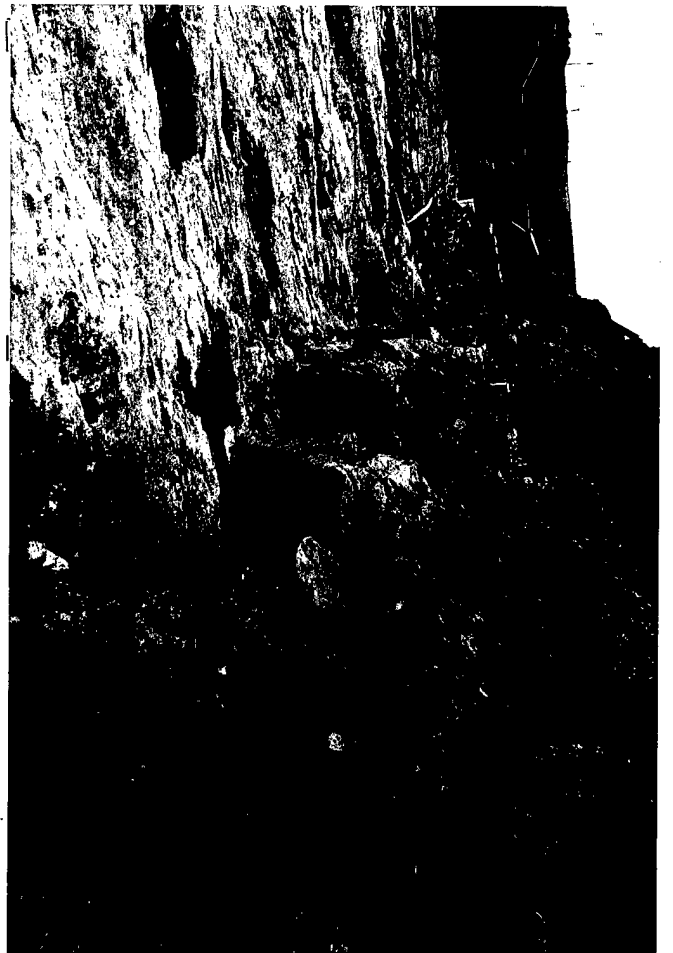
(248) L-13 Neat gROUT in an open joint

(249) November 1 1991 Aerial View of work site from the Northeast

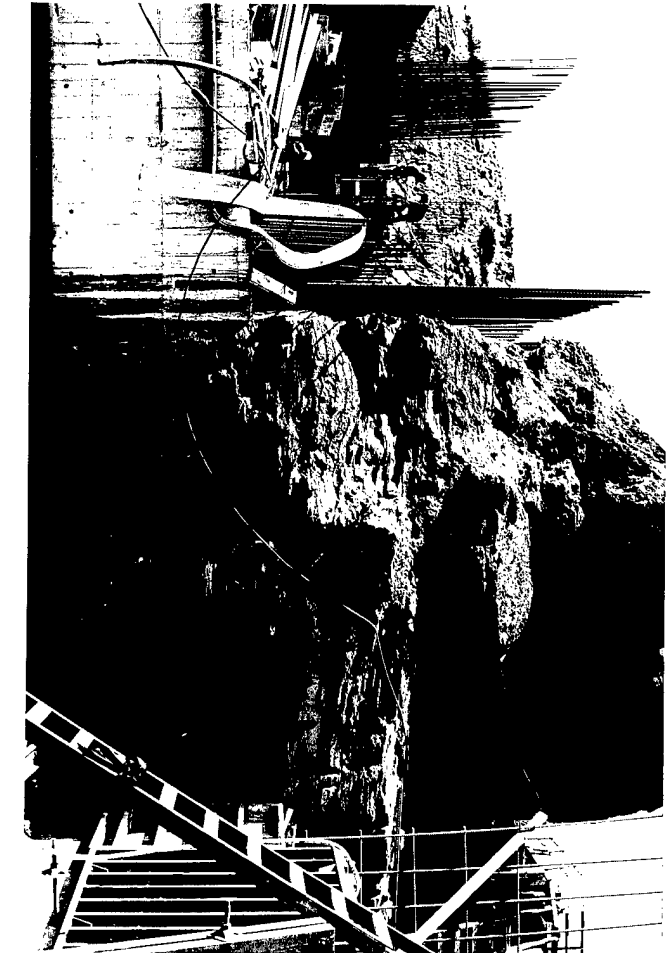




(250) R-29/MC-14 View of corner looking Southwest  
(252) R-47 View of slip in West wall



(251) R-37 View along East wall looking South  
(253) M-5 View of West Wall Northern half





(256) MC-15 View of Southern Wall looking Southwest



(254) M-12/13 View of East wall looking Northeast



(257) LC-18 View of West Wall looking Northwest



(255) MC-15 View of North Wall looking Northwest

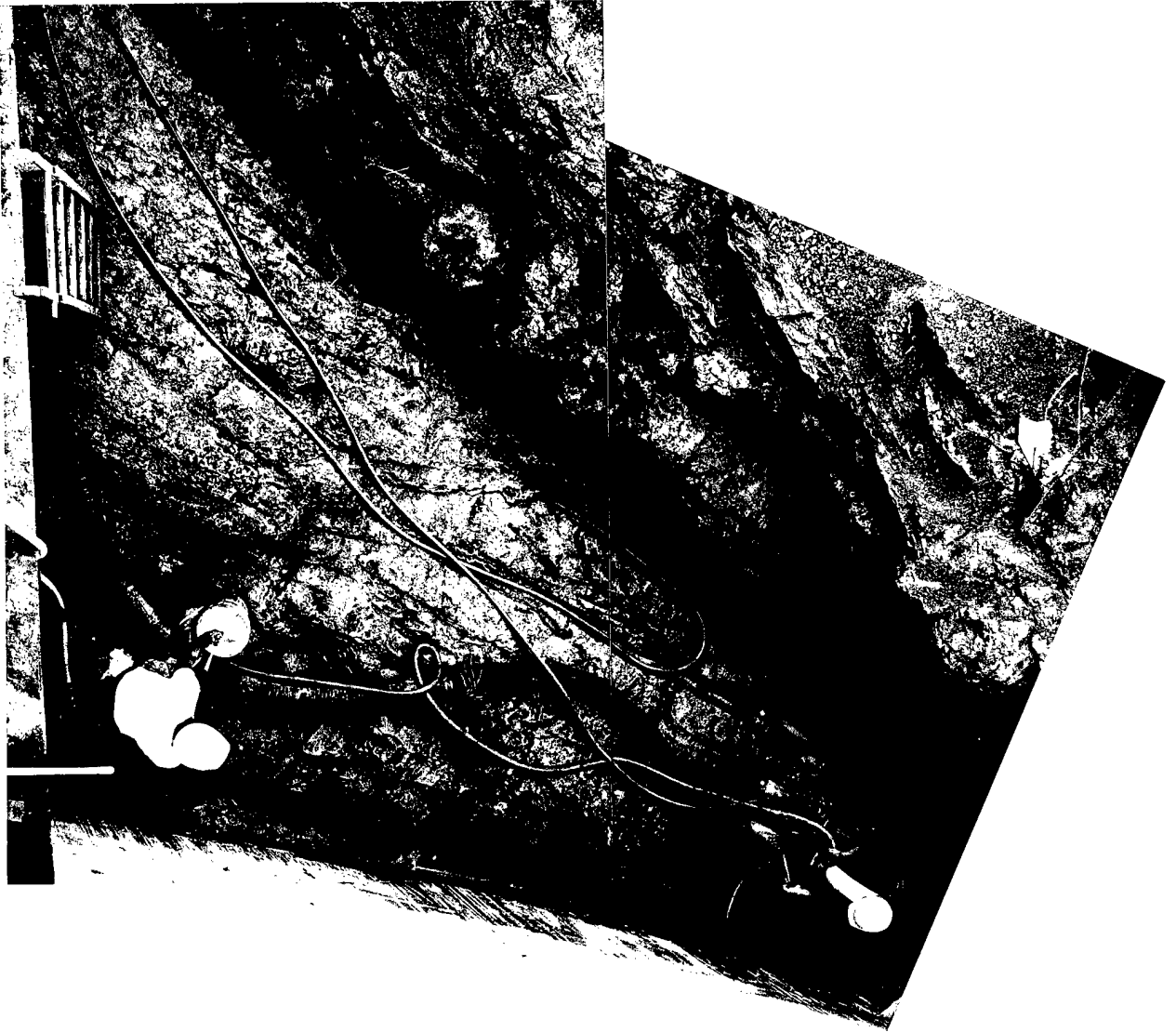


(258) DSMBS-1/R-30 View of corner looking South  
(260) USMEGS-3/M-38 View of corner looking Northeast



(259) DSMBS-3/M-6 View of corner looking South  
(261) LC-21/22 View along East Wall looking North





(262) USAMGS-10 View of slip looking Southwest



(263) December 1 1992  
Final aerial view of Gallipolis Locks and Dam, taken from Northwest