Reconstruction of Deteriorated Concrete Lock Walls After Blasting and Other Demolition Removal Techniques

by

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St. Louis District

LOCK and DAM 24

One Corps Serving the Armed Forces and the Nation
LOCK and DAM 24
- approximately 40 miles north of St. Louis, MO.

CONTRACT WAS A BEST VALUE
- type of work
- experience of contractor

CONTRACT RESTRICTIONS
- 3 lock closures: 1@ 60 days and 2 @ 90 days
- river side of the intermediate wall
- chamber side of the intermediate wall
- chamber side of the land wall

PARTNERING CONFERENCE
CONCRETE REMOVAL

- BLASTING
- MECHANICAL METHODS
  - GRINDERS
  - HYDRAULIC BREAKERS
- DIAMOND WIRE SAW
- CHEMICAL GROUTING
- HAND TOOLS
  - SAW
  - SMALL JACK HAMMERS
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PRE-BLAST PREPARATION

MONITORING EQUIPMENT

JOINT BOLTS READINGS BEFORE and AFTER BLASTING

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PRE-BLAST DRILLING

CHAMBER SIDE I-WALL

CHAMBER SIDE LAND WALL

RIVER SIDE I-WALL

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PLACEMENT OF EXPLOSIVES
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BLASTING

SAFETY
BLASTING MATS
CATCH BARGE

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BLASTING PATTERNS

LINE BREAKAGE
EMBEDDED ITEMS
SURFACE REMOVAL

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BLAST DAMAGE

LEDGE DAMAGE

CONTROL HOUSE

COMPLETED SURFACES

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MECHANICAL REMOVAL—GRINDER

GENESIS CYCLONE GC 950

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MECHANICAL REMOVAL-GRINDER

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DUST CONTROL

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MECHANICAL REMOVAL-GRINDER

LOCK FLOOR-SHALE REMOVAL

NEW FLOOR-SUMP AREA

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MECHANICAL REMOVAL—HYDRAULIC BREAKERS

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DIAMOND WIRE SAW

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CHEMICAL GROUTING

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HAND TOOLS–SAW

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OH NO!!!

EXISTING CRACK-LOCK HOUSE BASEMENT WALL (ADDITIONAL DAMAGE?)

BLAST DAMAGE

GRINDER

GRINDER
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CLEAN UP

9 Dec 02

LOCK FLOOR—EACH CLOSURE PERIOD

RIVER SIDE—INTERMEDIATE WALL

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CLEAN UP

MATERIAL HAULED OFF SITE FOR DISPOSAL

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QUANTITIES of CONCRETE REMOVAL

BLASTING: 2,900 CY
MECHANICAL: 2,600 CY
TOTAL: 5,500 CY
SAW CUTTING: 4,700 LF
DIAMOND WIRE SAWING: 3 LOCATIONS
CHEMICAL GROUTING: 3 LOCATIONS
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QUANTITIES of CONCRETE RECONSTRUCTION

CAST IN PLACE CONCRETE: 8,850 CY
INFILL CONCRETE (BEHIND PANELS): 270 CY
TOTAL CONCRETE: 9,120 CY
PRE CAST CONCRETE PANELS: 29,960 SF
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