Nashua River
Flood Mitigation Project

Dam Crest Gates - Jackson Falls Dam

Presentation to the Nashua Board of Aldermen
Planning & Economic Development Committee
October 18, 2011

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Introduction/Background

- Introduction/Background
- Flood Causes
- Mitigation Alternatives
- Jackson Falls Crest Gate

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Introduction/Background

Some Nashua River Statistics

- D.A. = 532 sq.mi.

(sq. mi. controlled by Wachusett Res.)

- Historic Floods

Date	Q
1936	20,900 cfs
1938	10,200 cfs
Mar 1987	11,200 cfs
Mar 2010	10,100 cfs

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Introduction/Background

Some Nashua River Statistics

- D.A. = 532 sq.mi.

(sq. mi. controlled by Wachusett Res.)

- Estimated Flood Flow Frequency

10 YR (10%) = 8,550 cfs

50 YR (5%) = 15,750 cfs

100 YR (1%) = 20,180 cfs

500 YR (0.2%) = 34,500 cfs

- Downtown Flooding Starts

Q ≈ > 10,500 cfs

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Introduction/Background

- FEMA Flood Maps

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Building Req’ts

- Flood Impacted Areas

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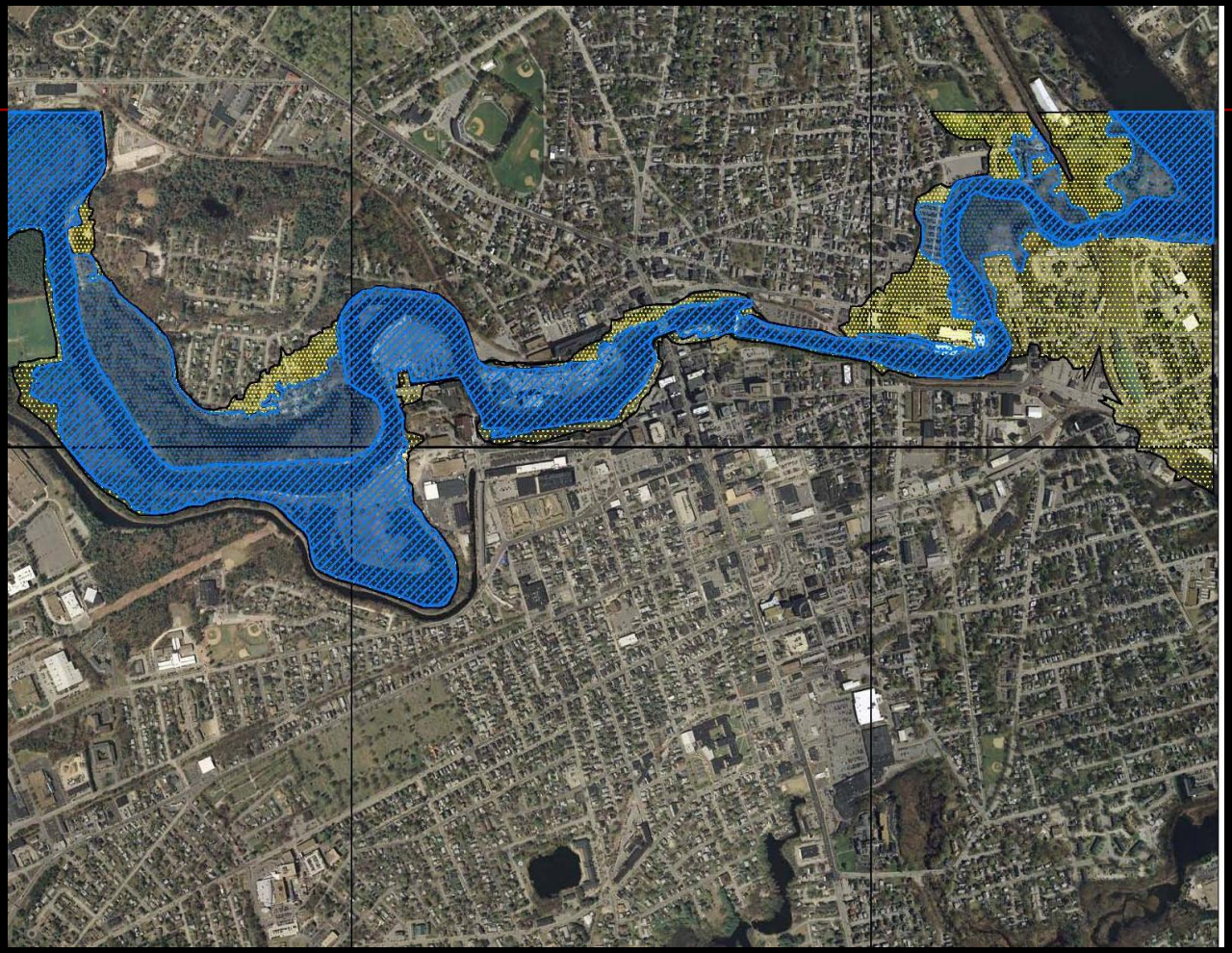
Introduction/Background



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Flood Causes

- Floodplain Restrictions
  - *Downtown Developments*
- *Bridges/River Crossings*

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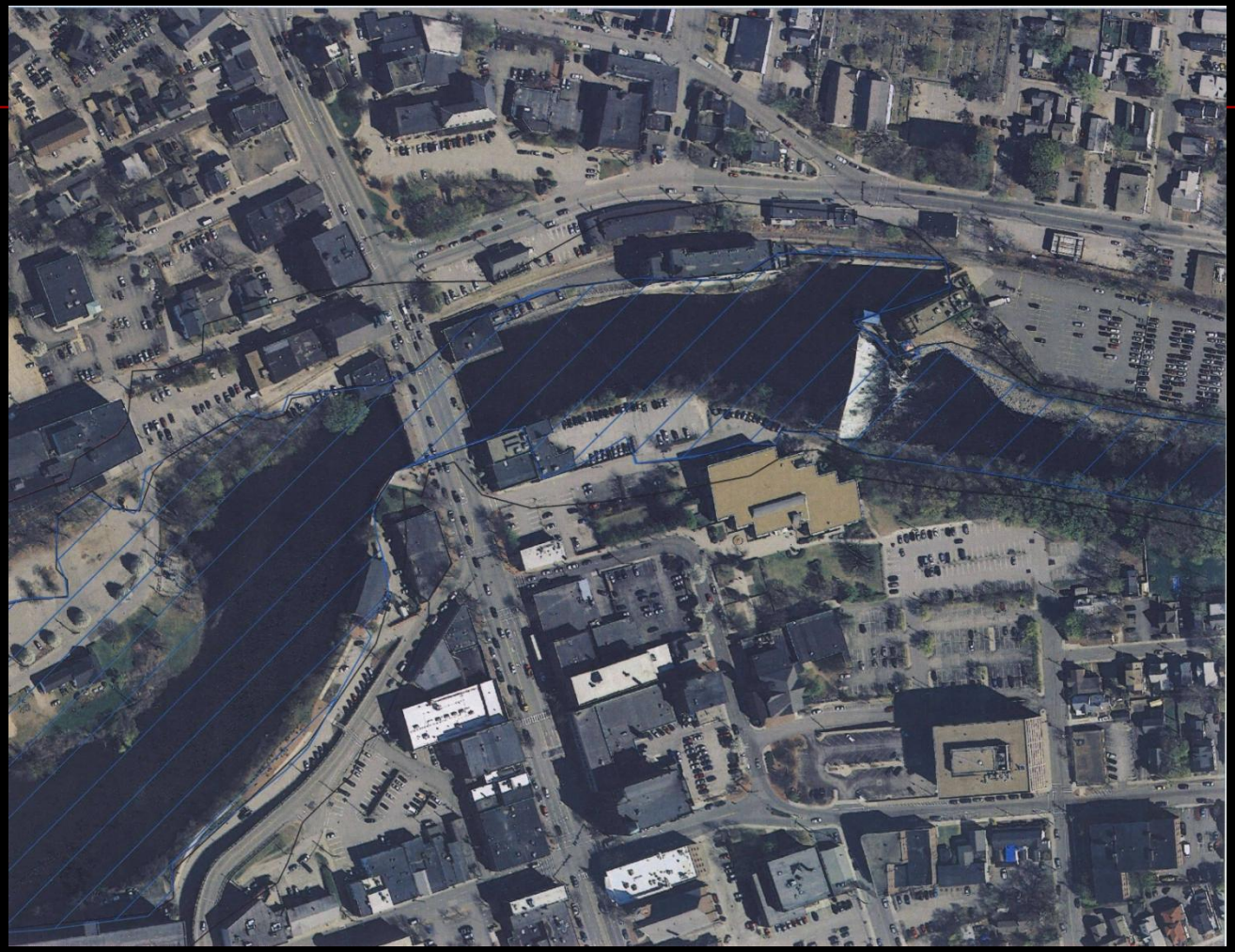
Flood Causes



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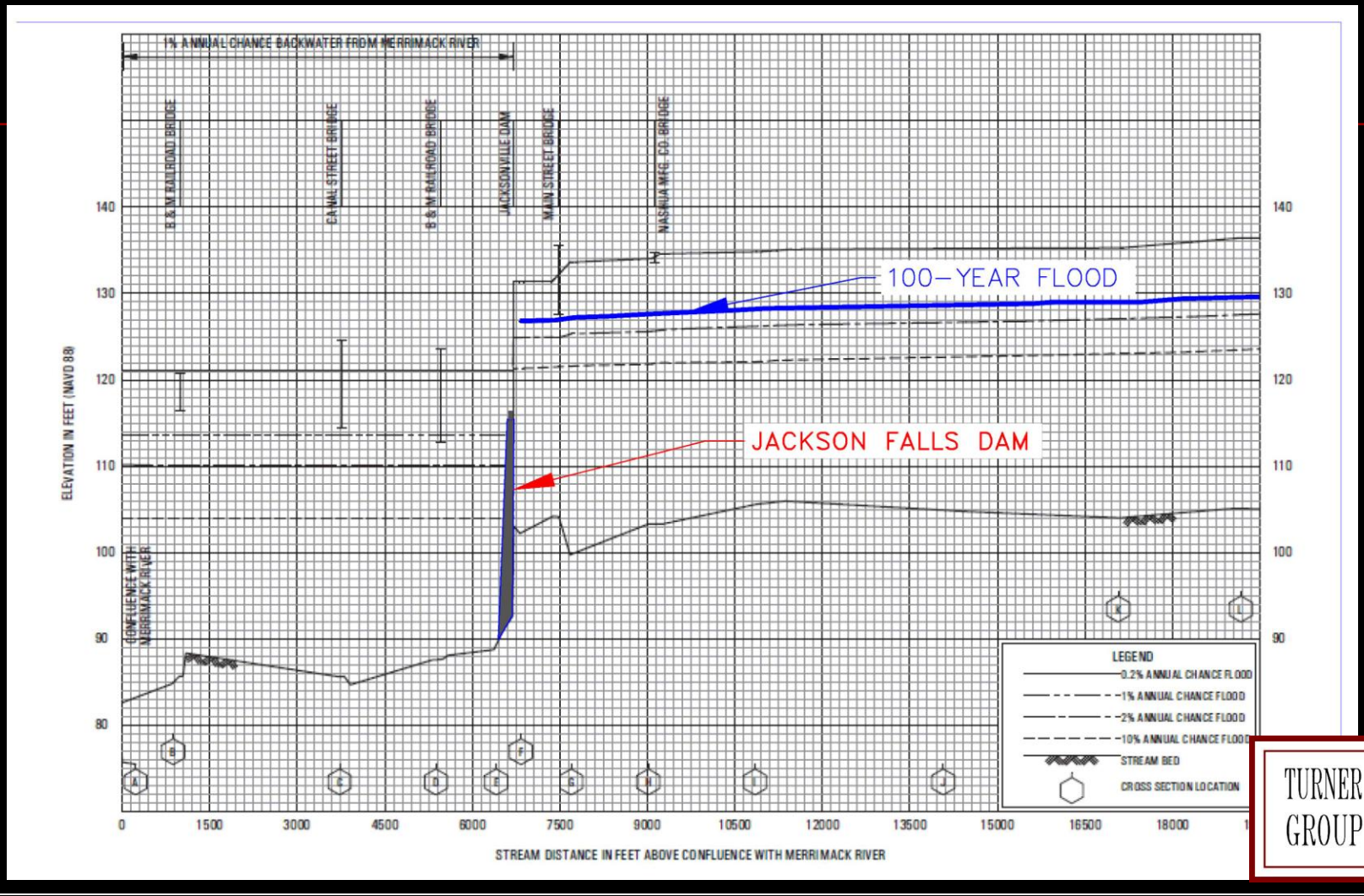
Flood Causes



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Flood Mitigation Alternatives

- Floodproof Existing Buildings
  - *Construction Limited*
  - *Not all Buildings are Feasible*
- Make Building Structures “Flow Thru”
  - *Requires Extra Structural Components*
  - *Expensive Retrofit*
- Remove/Enlarge River Restrictions
  - *Bridges Limited by Land and Building Encroachments*
  - *Lower the Jackson Falls Dam*

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Jackson Falls Dam

- Owned by City
- Leased to Private Hydropower Company Until 2014
- “Run of River”; Not a “Store and Release” Dam
- No Existing Gates to Pass Flood Flows

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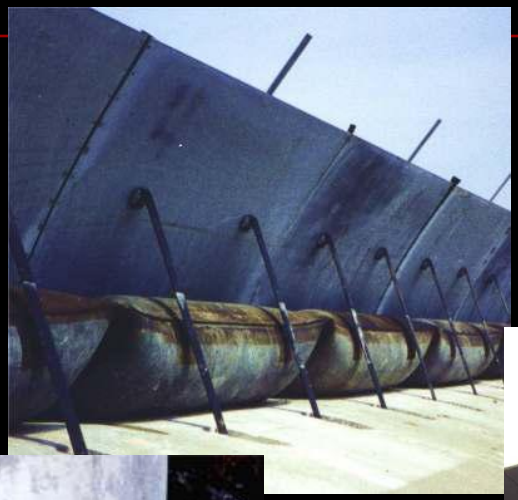
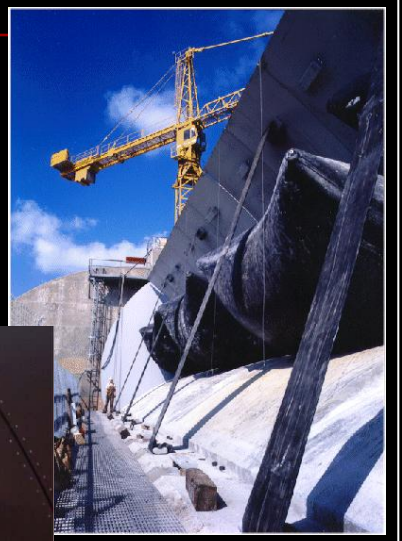
Adjustable Dam Crest Gate





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Example

Essex Dam

Merrimack River

Lawrence, MA

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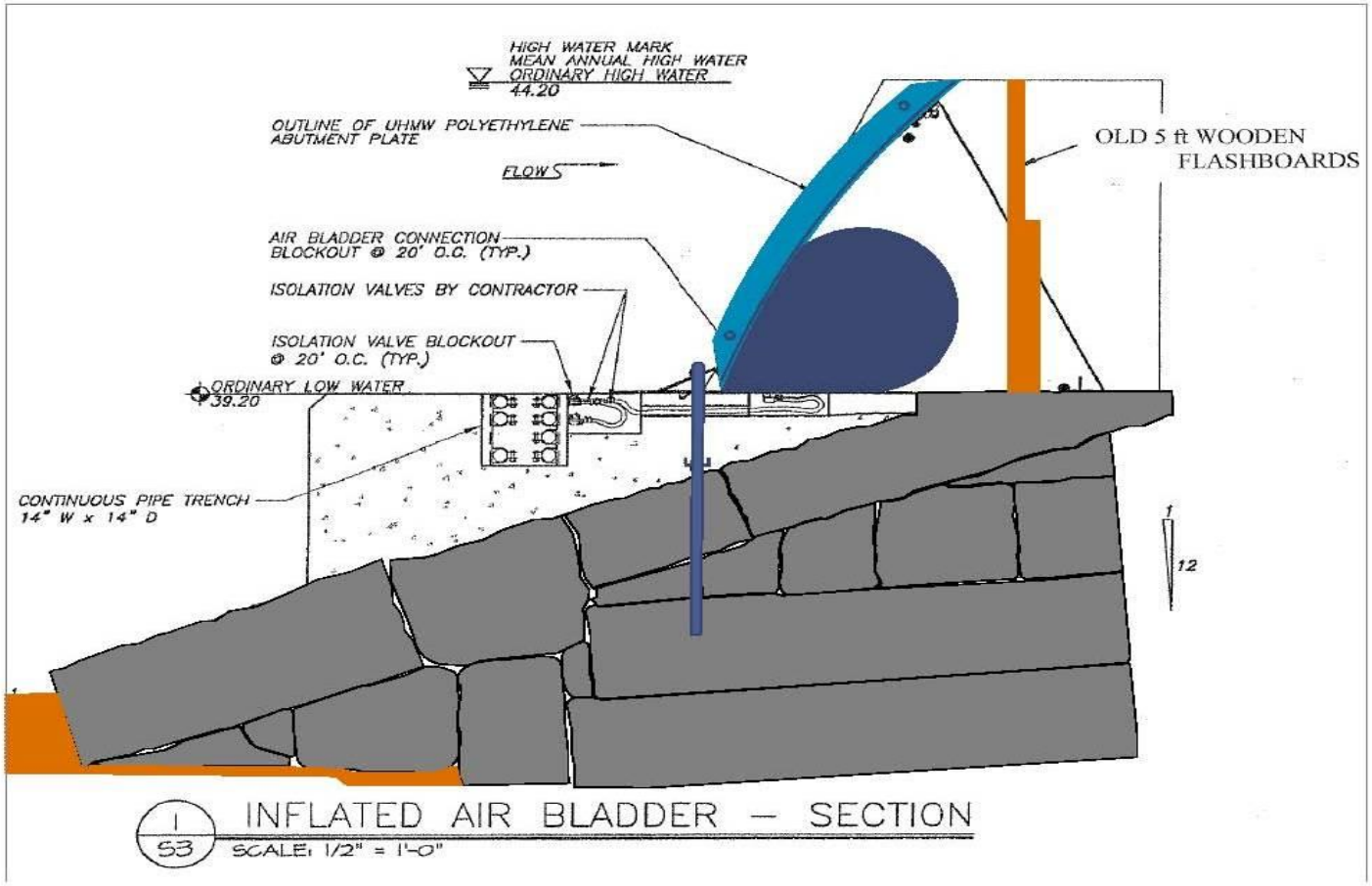
Crest Gate Installation
Jackson Falls Dam



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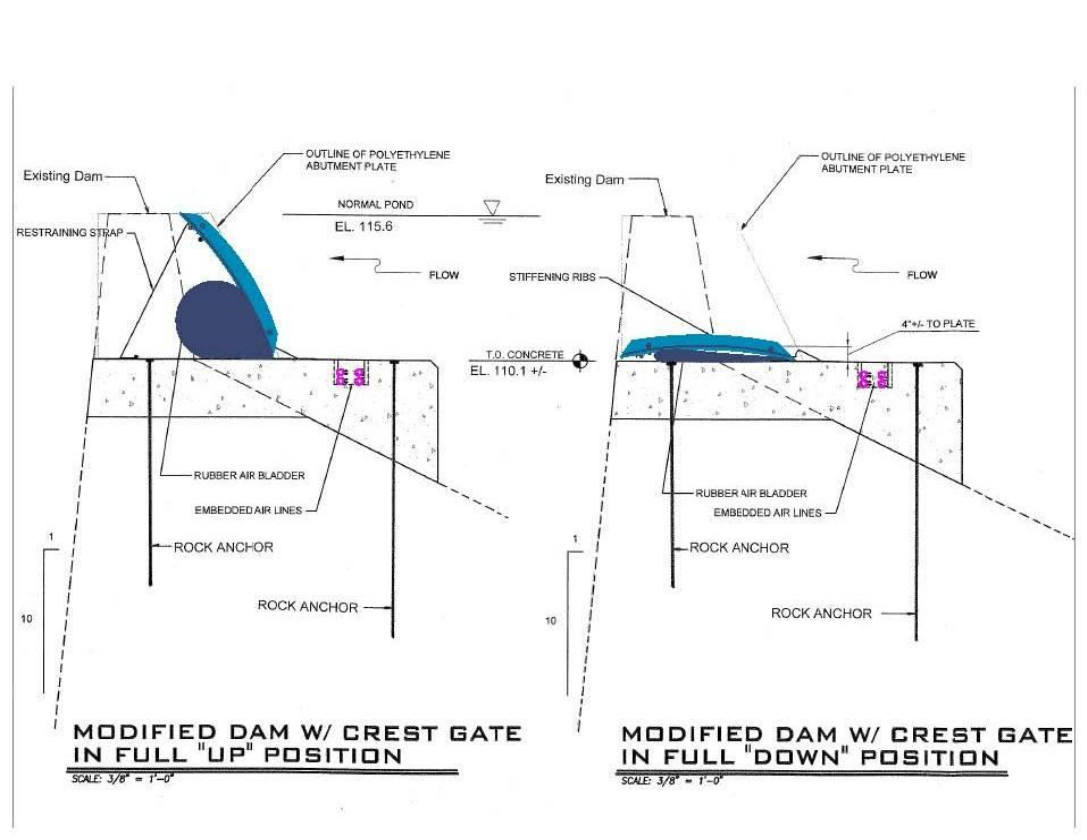
Crest Gate Installation
Jackson Falls Dam



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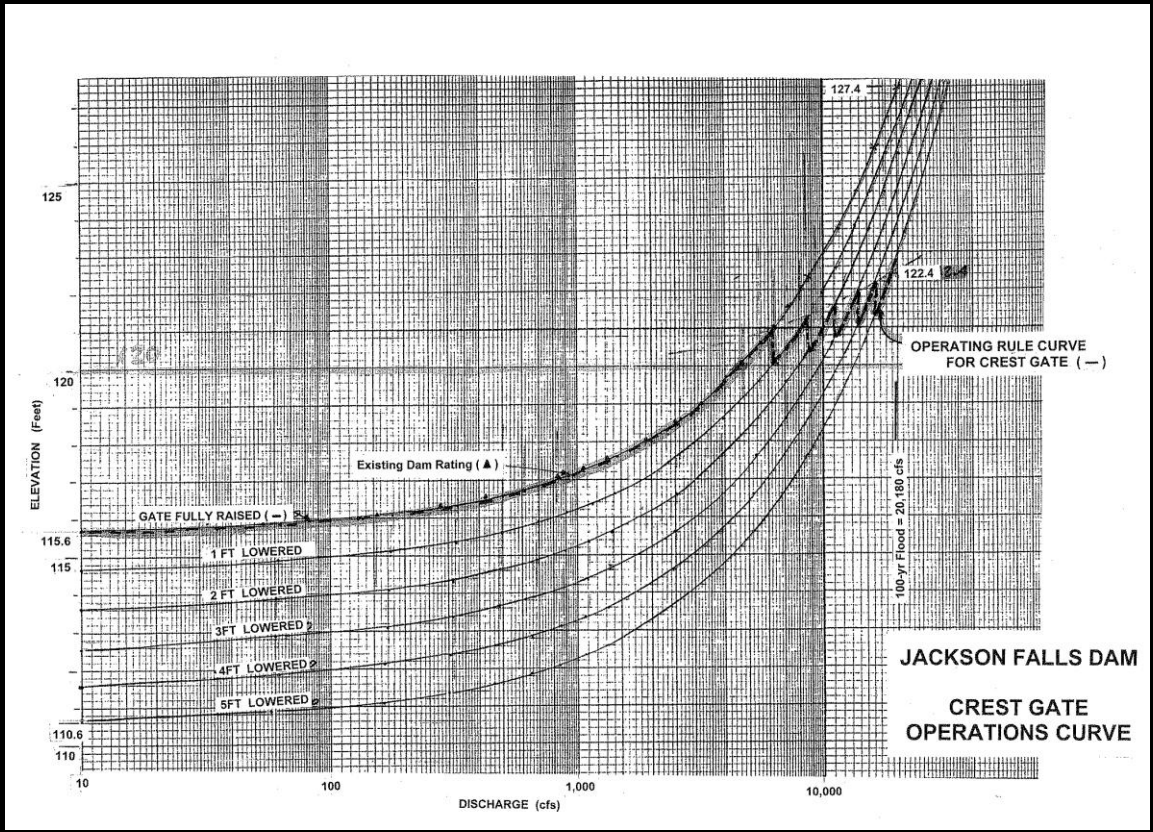
Gate Operation



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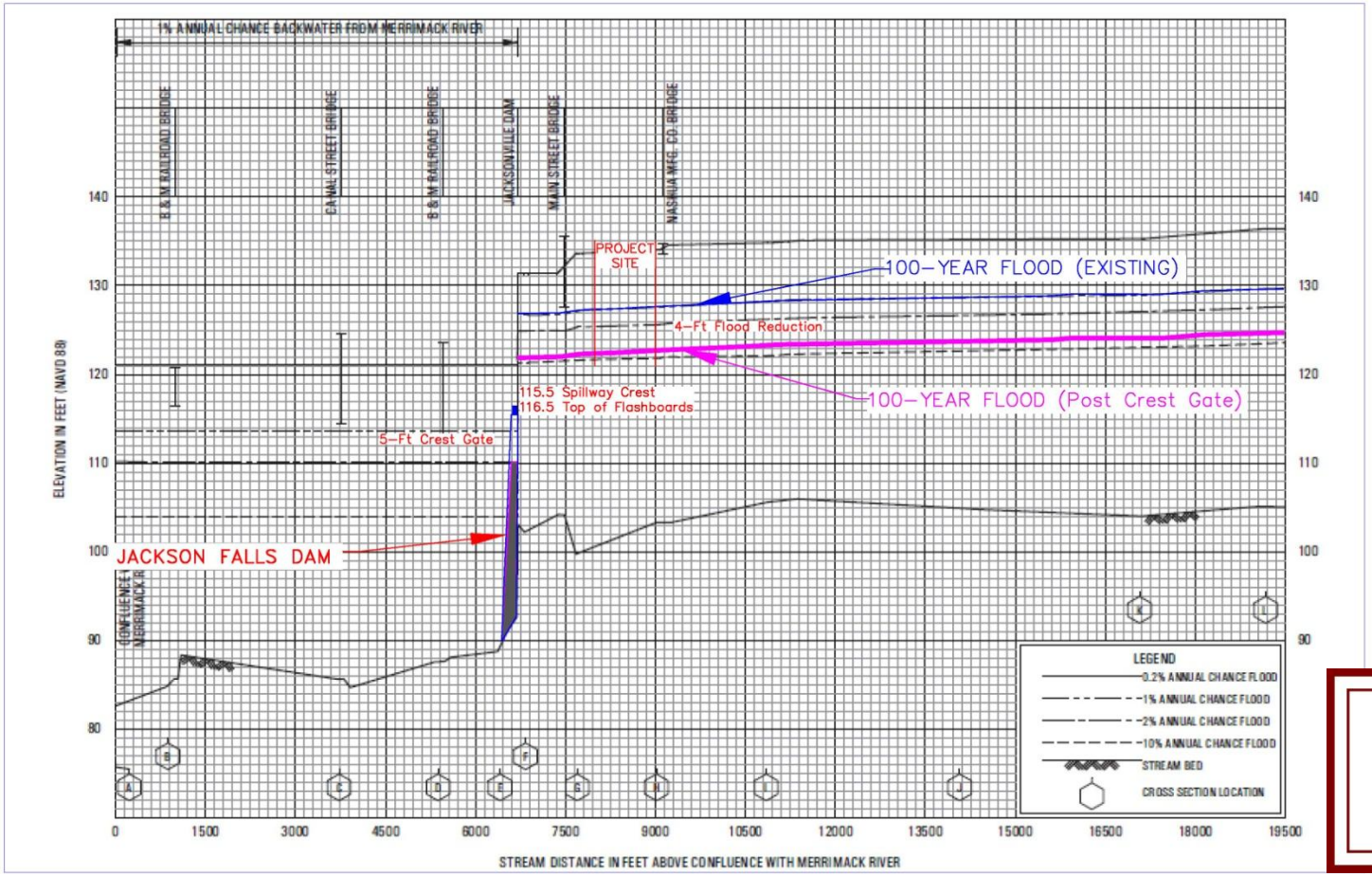
Flood Reduction with Crest Gate



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