Washington Park Condominiums
Flood Preparation and Prevention

Informational Owner's Meeting

February 23, 2011 at 6:30 PM

St. Augustine's Parish Hall

Essex Street – Andover

Agenda

1. Introductions
2. FEOP Flood Emergency Operation Plan
3. Weston & Sampson Engineers, Inc. Report
4. Noblin Engineer's Report
5. Cost of Flood Mitigation Options
6. Q/A
7. Adjourn

Introductions

- Board of Trustees
  - Barry Mahoney , President
  - Libby Shea, Vice President
  - Lisa Arsenault, Secretary
  - Ed Medeiros, Treasurer
  - Mary O'Dea, Trustee
  - Barry Kaplan, Trustee

- Greater Boston Properties
  - Scott Wolf
  - Rob Kovalko

Introductions

- Contractors
  - Mark Mitsch, Weston & Sampson Engineers, Inc.
  - Peter Czepiel, Noblin Engineering
  - Tom Osborn, Architecture Metals
  - David Shaw, Wildwood Nurseries
  - Doug Chirichiello, Crack-X

FEOP

Shawsheen River Gage at Balmoral

- Formed consortium to raise funds :
  Washington Park, Balmoral, Powder Mill, Tactician, Town of Andover, Conservation Commission and Friends of the Shawsheen River.
  $7,500 for the next 2 years

- USGA will fund other half at $7,500

FEOP

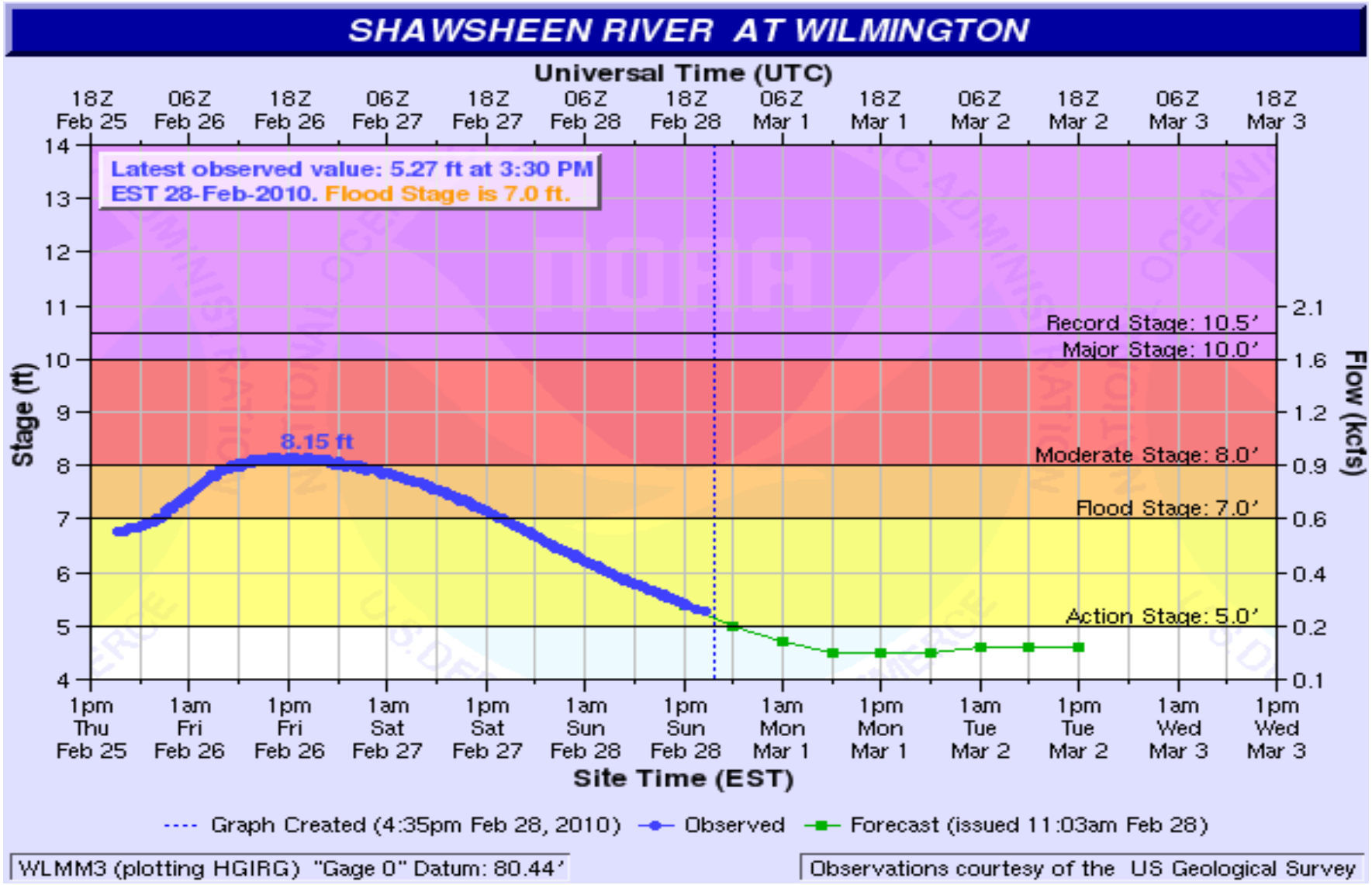
Flood Forecasting

- Nicole Belk - a Sr. Hydrologist at NOAA analyzed historical data from the Shawsheen River gage at Wilmington, Balmoral and the Merrimack River at Lawrence.

FEOP

Gauge	Andover	Wilmington	Lowell	Lawrence
Flood Stage	34	7	52	20
2/27/2010	31.49	8.15	51.49	20.2
4/18/2007	34.15	7.75	58.09	27.2
4/1/2010	33.98	9.42	54.64	24.3
3/15/2010	36.16	10.59	53.63	23.4
5/15/2006	37.45	8.94	58.84	28.8

Shawsheen Gage in Wilmington



Shawsheen River Flood Plan

for

Washington Park Condominiums.

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Flood Terms

- **Flood Alert –** heavy rains are expected and rivers will rise. Management and BOT meet to review all procedures and confirm all contacts.

- **Flood Watch** – Flooding is possible. Residents are notified of possible flooding. Cars are moved to higher ground and evacuation plans made.

- **Flood Emergency**– flooding will occur soon. All residents evacuated and flood prevention measures implemented.

Flood Prevention for 2011

- Sump pumps installed where feasible
- Electricity generators/lines installed
- Buildings will be sealed using plastic and sand bags
- Order of protection prioritized based upon building elevations

Mark Mitsch, Weston & Sampson

- Flood Mitigation Approaches:
  - Property Scale (Physical Barrier around Property)
  - Building Scale (Physical Barrier around Building)
  - Individual Openings (Doors and Windows)
- Need to Address:
  - Surface Water
  - Groundwater

Site Survey Plan

- Document existing conditions and ground surface elevations as a basis for evaluating alternatives.
- Can be used for design and permitting proposed mitigation measures.

Property Scale

- **Permanent or temporary wall around property to prevent flooding on the property from surface water.**
- Not practicable and very expensive due to compensatory flood storage (you cannot eliminate existing flood storage unless you find another location of equal volume elsewhere)
- Groundwater and surface water infiltration into building envelope not addressed.

Property/Building Scale

- **Jack and Raise individual buildings so lowest floor is above the 100-year (or other) flood level.**
- Minimal, if any, compensatory flood storage issue.
- No groundwater infiltration either.
- Very expensive and disruptive.

Building Scale

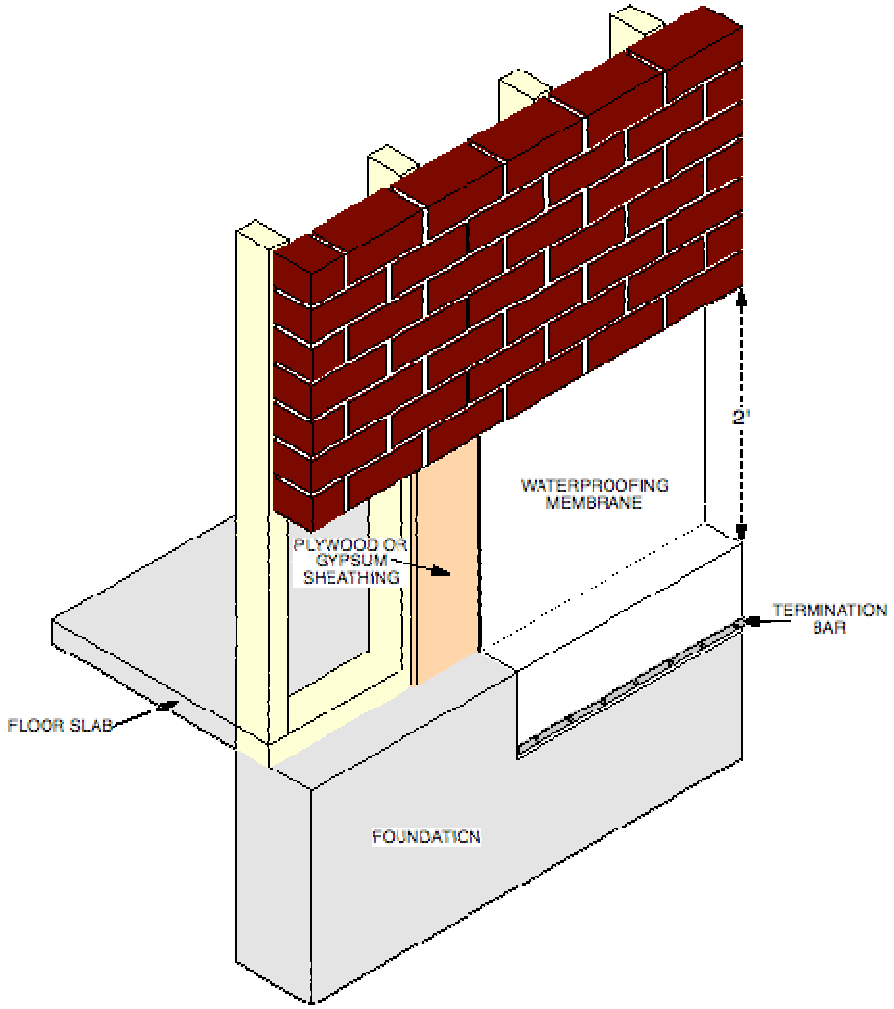
- **Permanent or temporary walls around individual buildings to prevent flooding from surface water.**
- Same (but less severe) compensatory flood storage issue.
- Groundwater and surface water infiltration into building envelope not addressed.

Window/Door Scale

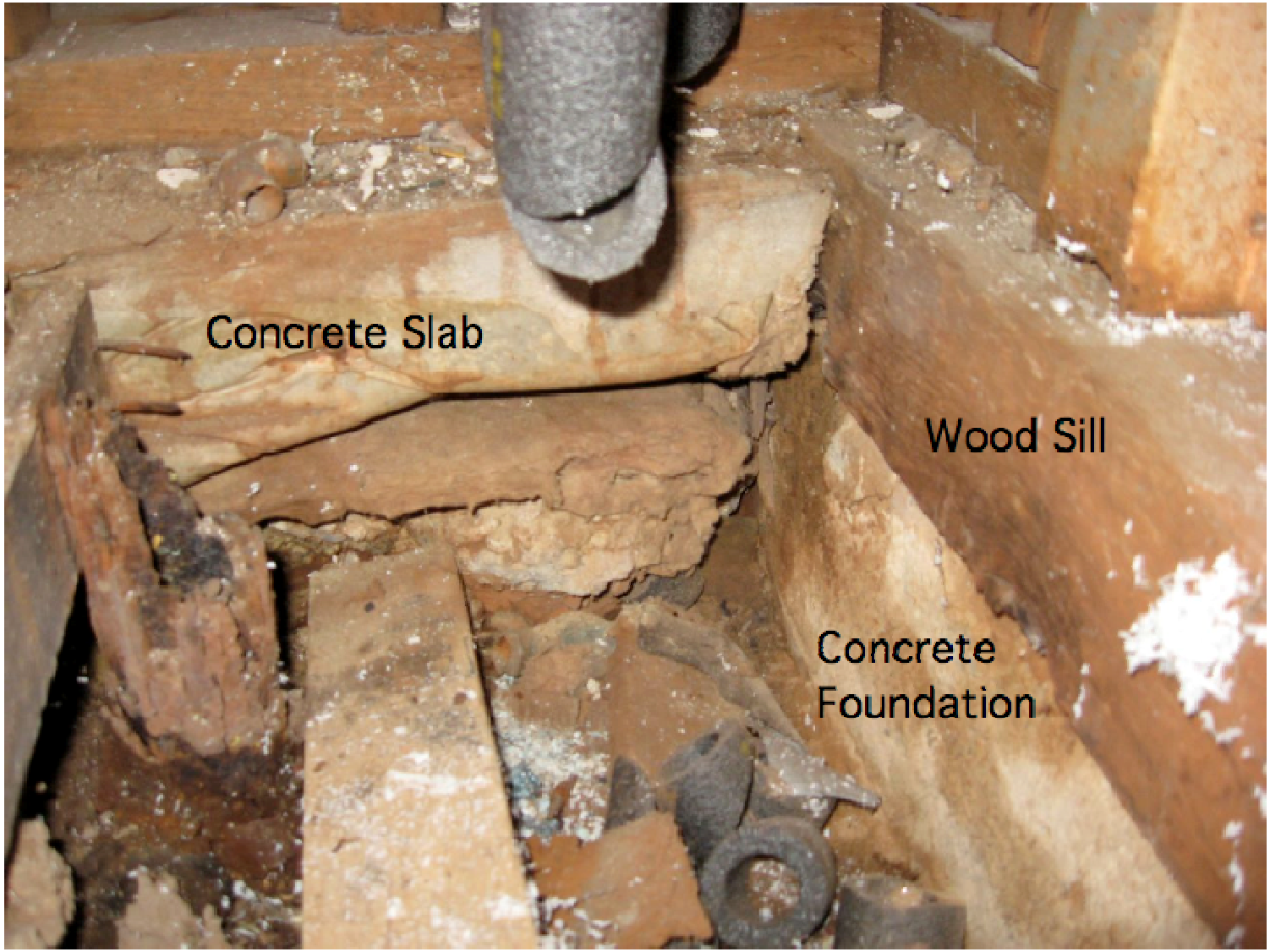
- **“Door Dams” across impacted door and window openings.**
- Eliminates compensatory storage issue.
- Requires space to store Door Dams.
- Time and effort required to install properly.
- Possible ingress/egress issues.
- Groundwater and surface water infiltration into building envelope not addressed.

Building Envelope Infiltration

- Noblin & Associates, Consulting Engineers



NOBLIN & ASSOCIATES, L.L.C. **CONSULTING ENGINEERS** **DOVER, NEW HAMPSHIRE**	**WASHINGTON PARK CONDOMINIUM** **ANDOVER, MASSACHUSETTS**	**WALL FLASHING DETAIL**	**SK-01**
	DRAWN: PVC	**SCALE:** NTS	
	CHKD TDL	**DATE:** 2-11	


Concrete Slab
Wood Sill
Concrete
Foundation

Cost of Flood Mitigation

- FLOOD JAMS FOR DOORS:
  - ESTIMATE COST PER BUILDING, $30,000: $300,000
- WATER PROOFING OF BUILDINGS:
  - ESTIMATE COST PER BUILDING, $70,000: $700,000
- TOTAL COST OF PROJECTS: $1,000,000

Average Cost per Unit Owner

- JAMS FOR DOORS: $1,950
- WATER PROOFING OF BUILDINGS: $4,500
- TOTAL COST OF PROJECTS : $6,450

Financing Options

- Straight Bank Loan — Monthly Debt
  - $1,000,000 @ 5.67% FOR 5 YEARS — $19,216
  - $1,000,000 @ 5.67% FOR 10 YEARS — $10,976
  - $750,000 @ 5.67% FOR 5 YEARS — $14,412
  - $750,000 @ 5.67% FOR 10 YEARS — $8,232

- SBA Loan:
  - $250,000 @ 3% FOR 3 YEARS — $8,222

Financing Options

- Straight Bank Loan — Avg cost per unit
  - $1,000,000 @ 5.67% FOR 5 YEARS — $123
  - $1,000,000 @ 5.67% FOR 10 YEARS — $ 70
  - $750,000 @ 5.67% FOR 5 YEARS — $ 92
  - $750,000 @ 5.67% FOR 10 YEARS — $ 53

- SBA Loan:
  - $250,000 @ 3% FOR 3 YEARS — $53

FINANCING COMPARISONS PER UNIT OWNER

- COMBINATIONS:
  - $750,000 5 YR LOAN YEARS 1-3 $145
  - AND SBA LOAN YEARS 4-5 $53
    - Total Payment = $7,428
  - $750,000 10 YR LOAN YEARS 1-3 $106
  - AND SBA LOAN YEARS 4-10 $53
    - Total Payment = $8,268
- UNIT OWNER ASSESSMENT WITHOUT LOAN DEBT SERVICE $6,450

Q/A