

EMERGENCY ACTION PLAN (REVISED 2025)

UPPER GOLF COURSE RESERVOIR DAM STOWE, VERMONT

Prepared for:

Vail Resorts
(dba Stowe Mountain Resort)
Stowe, VT

September, 2025
[Revision 9]

GEODesign, Inc.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

TABLE OF CONTENTS

TOPIC	PAGE
SECTION 1	NOTIFICATION FLOWCHARTS
EVENT LEVEL 3 Notification Flowchart (Figure 1.1)	1
EVENT LEVEL 2 Notification Flowchart (Figure 1.2)	3
EVENT LEVEL 1 Notification Flowchart (Figure 1.3)	5
Reservoir Manager Contact Information	7
Event Location Plan (Figure 1.4)	
SECTION 2	STATEMENT OF PURPOSE & KEY DEFINITIONS
2.1 Purpose	8
2.2 Key Definitions	8
SECTION 3	EVENT DETERMINATION
3.1 Event Location Determination	10
3.2 Event Level Determination	10
3.3 Event Level Definitions	11
3.4 Event Level Determination Guidance	11
Table 3.1: Event Level Determination Guidance	12
SECTION 4	NOTIFICATION & COMMUNICATION PROCEDURES
4.1 Observation & Reporting	17
4.2 Event Level Declaration	17
4.3 Start of Notifications	17
4.4 General Procedures for Notification Flowcharts	17
4.5 Communication Systems	18
4.6 Notification Procedure Responsibilities	18
4.6.1 Reservoir Manager Responsibilities	18
4.6.2 911 Dispatch Responsibilities	19
4.6.3 VT State Police Williston Dispatch Responsibilities	20
4.6.4 VT Emergency Management Responsibilities	21
4.6.5 Local Dispatch Responsibilities	21
4.6.6 Director of Response Operations Responsibilities	21

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 5 GENERAL RESPONSIBILITIES	23
SECTION 6 RESPONSIBILITIES OF STOWE MOUNTAIN RESORT (VAIL)	25
6.1 Organization	25
6.2 Emergency Action	26
6.3 Remedial Action (Table 6.3: Remedial Action Guidance)	27
6.4 Locally Available Equipment, Labor, and Materials	28
6.5 Preparedness\Plan Updates	29
SECTION 7 EVENT TERMINATION AND FOLLOW-UP	30
7.1 Event Termination Responsibilities	30
7.2 Follow-Up	30
7.3 Loss of Life, Injury, or Property Damage	31

OPERATIONAL ATTACHMENTS

ATTACHMENT 1 Project Description

ATTACHMENT 2 Description of Breach Analysis

ATTACHMENT 3 Local Response Procedures, Flood Inundation Maps (C-1, C-2, C-3) Table
C-1: Estimated Water Depths & Peak Flood Wave Arrival

ATTACHMENT 4 Training and Annual Testing

ADMINISTRATIVE ATTACHMENTS

ATTACHMENT 5 Posting of the Plan

ATTACHMENT 6 Documentation

ATTACHMENT 7 Modifications to Plan

ATTACHMENT 8 Event Log

EMERGENCY ACTION PLAN (Revised September 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 1 – NOTIFICATION FLOWCHARTS

EVENT LEVEL 3 –

REFER TO FIGURE 1.1 ON THE FOLLOWING PAGE FOR THE EVENT LEVEL 3 NOTIFICATION FLOW CHART

EVENT LEVEL 3 (RED zone): This level means an emergency condition already exists in the RED zone and dam **failure is imminent or has already occurred**. This event is characterized by (but not limited to): very high volume of seepage through the embankment (>10 gallons per minute); high volume of cloudy seepage through the embankment (>5 gallons per minute); embankment deformation/sagging/sliding/other with visible seepage; overtopping flows and uncontrolled release of water with a loss of crest geometry.

Implementation:

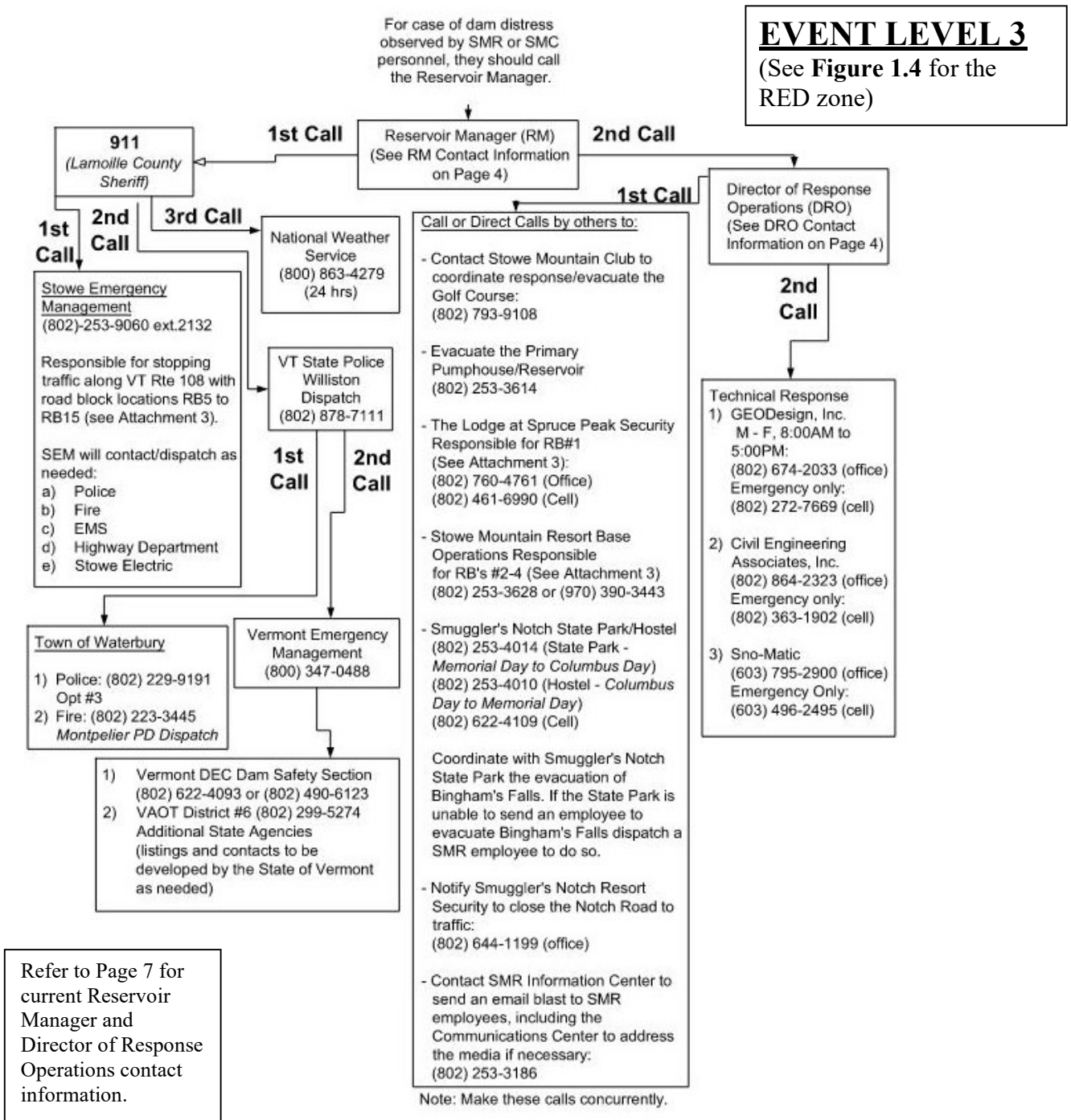
- 1) Immediately issue notifications in order according to numbers.
- 2) If in doubt that other notifications have been made, call 911.
- 3) If a contact in the notification flowchart can't be reached, notify the next contact. Continue to attempt to reach all contacts.

EMERGENCY ACTION PLAN (Revised September 2025)

Upper Golf Course Reservoir Dam

Stowe, Vermont

Figure 1.1 – EVENT LEVEL 3 (Most Critical) Notification Flowchart



EMERGENCY ACTION PLAN (Revised September 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

EVENT LEVEL 2 –

REFER TO FIGURE 1.2 ON THE FOLLOWING PAGE FOR THE EVENT LEVEL 2 NOTIFICATION FLOW CHART

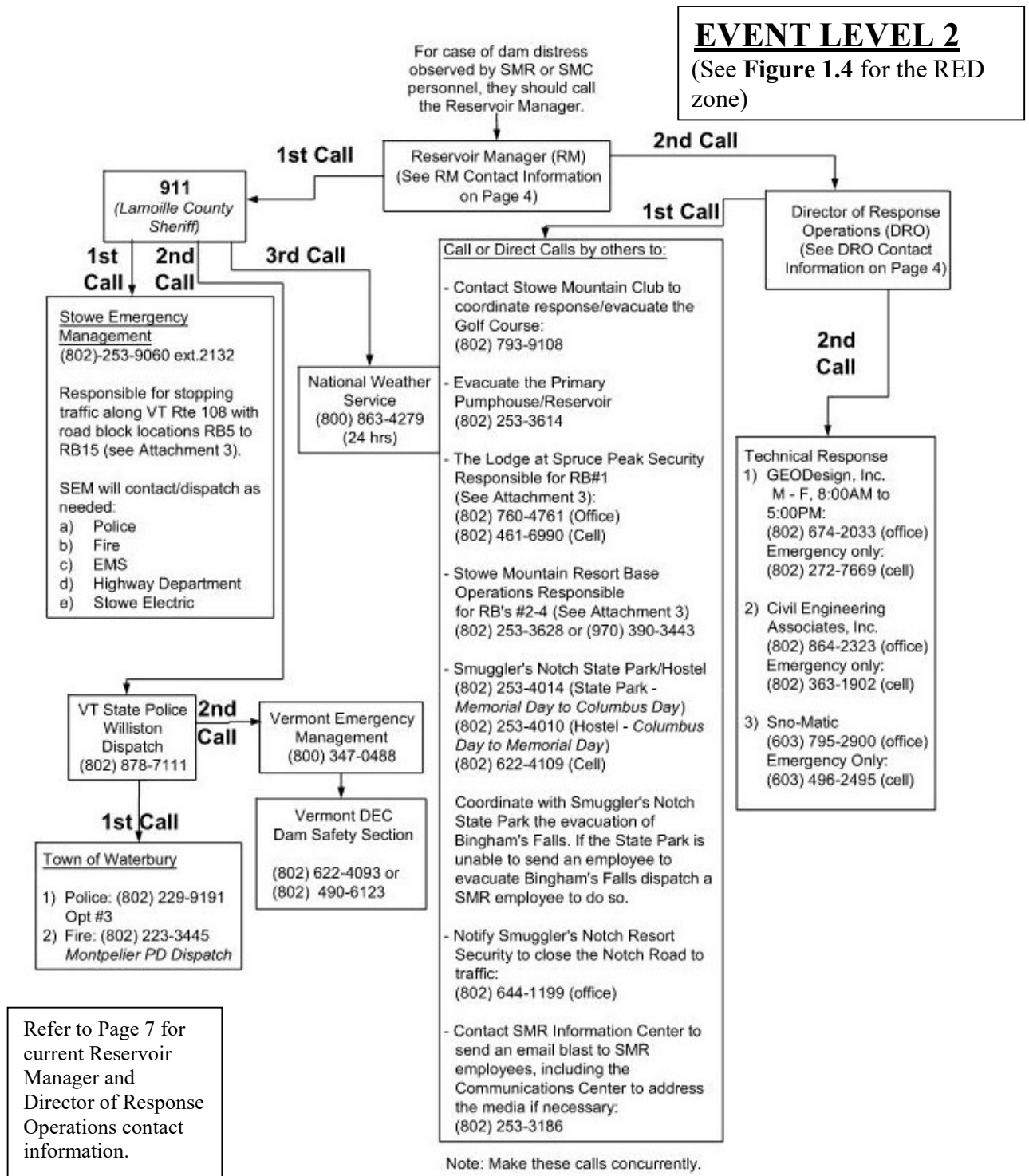
EVENT LEVEL 2 (RED zone): This level means an observation has been made of a **potentially dangerous situation in the RED zone but the certainty of failure is not known**. This event is characterized by (but not limited to): high volume of clear seepage through the embankment (>5 gpm); low volume of cloudy seepage through the embankment (< 5 gallons per minute); embankment deformation/sagging/sliding/other without seepage; overtopping flows and uncontrolled release of water without a loss of crest geometry.

Implementation:

- 1) Immediately issue notifications in order according to numbers.
- 2) If in doubt that other notifications have been made, call 911.
- 3) If a contact in the notification flowchart can't be reached, notify the next contact. Continue to attempt to reach all contacts.

EMERGENCY ACTION PLAN (Revised September 2025)
Upper Golf Course Reservoir Dam
Stowe, Vermont

Figure 1.2 – EVENT LEVEL 2 (Moderate) Notification Flowchart



EMERGENCY ACTION PLAN (Revised September 2025)
Upper Golf Course Reservoir Dam
Stowe, Vermont

EVENT LEVEL 1 –

**REFER TO FIGURE 1.3 ON THE FOLLOWING PAGE FOR THE
EVENT LEVEL 1 NOTIFICATION FLOW CHART**

EVENT LEVEL 1 (RED and/or YELLOW zones): This level means there are conditions in the RED and/or YELLOW zones which are **not normally encountered** in the routine operation of the dam and reservoir, or necessitate variation from the operating procedures. This is the first notification threshold for conditions less severe than EVENT LEVELS 2 and 3. This event is characterized by (but not limited to): water levels above design pool elevation, new seepage areas, developing cracks in the embankment, developing movement of the dam, abnormal instrument readings (compared to historical data maintained by GEODesign), and any other unusual or uncertain condition requiring evaluation.

Note: For conditions limited to the Yellow Zone, notifications are limited to DRO and technical consultants.

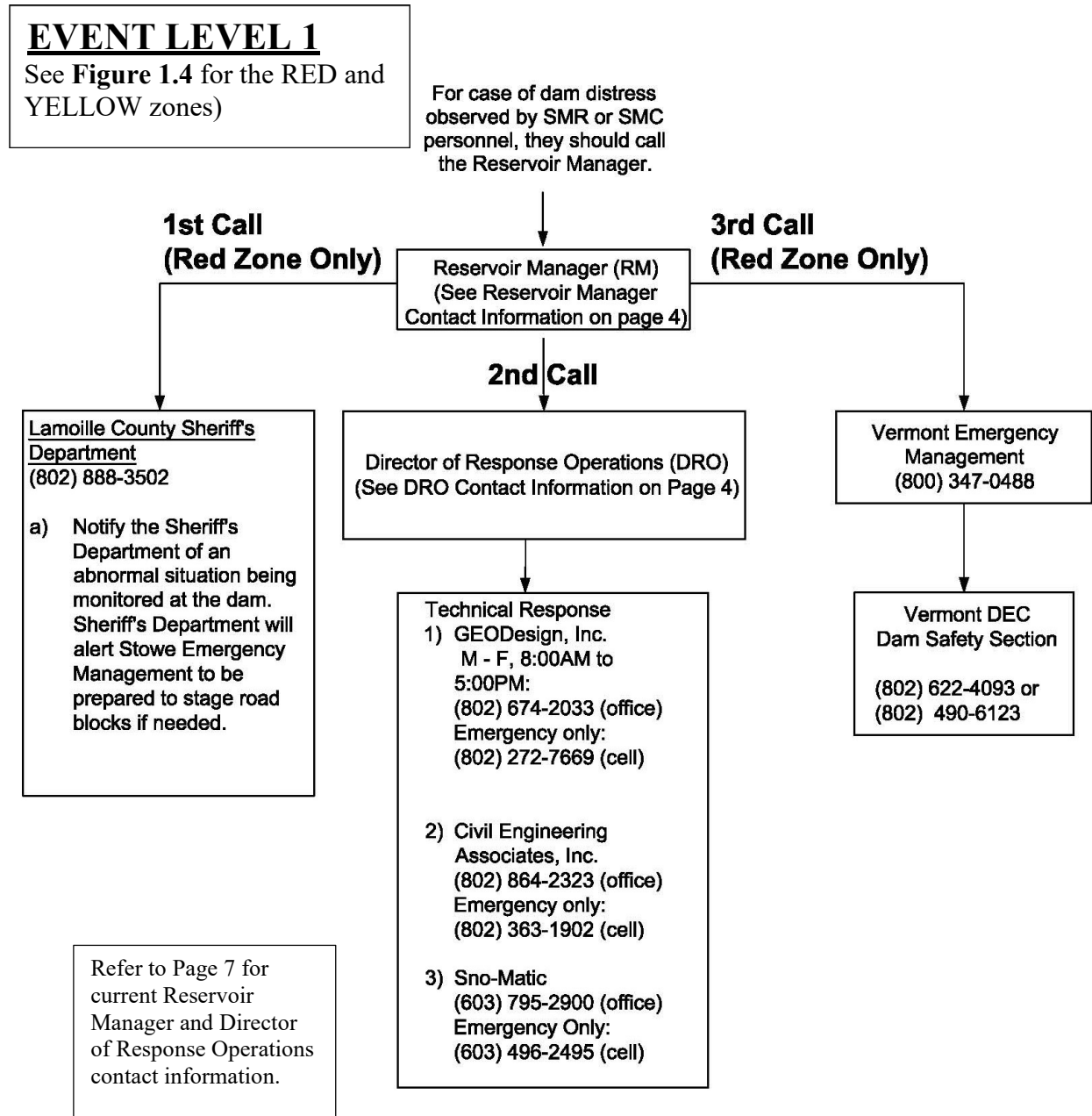
Implementation:

- 1) Immediately issue notifications in order according to numbers.
- 2) If in doubt that other notifications have been made, call 911.
- 3) If a contact in the notification flowchart can't be reached, notify the next contact. Continue to attempt to reach all contacts.

EMERGENCY ACTION PLAN (Revised September 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Figure 1.3 – EVENT LEVEL 1 (Least Critical) Notification Flowchart



EMERGENCY ACTION PLAN (Revised September 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Reservoir Manager (RM) Contact Information

Use the following contact information (in the order listed) if a Reservoir Manager must be contacted. The primary contact is Mr. Scott Reeves.

Contact #1: Ms. Carrie Rice, Administrator, Mountain Operations, Stowe Mountain Resort
Office phone #: (802) 253-3567
Cell phone #: (802) 760-8299

Contact #2: Mr. Patrick German, Snow Surfaces Manager, Stowe Mountain Resort
Office phone #: (802) 253-3533
Cell phone #: (802) 793-0114

Director of Response Operations (DRO) Contact Information

Use the following contact information (in the order listed) if a Director of Response Operations (DRO) must be contacted.

Contact #1: Mr. Scott Reeves, VP, Mountain Operations, Stowe Mountain Resort
Office phone #: (802) 253-3610
Cell phone #: (802) 279-1762

Contact #2: Mr. Matthew Lillis, Director, Base Operations, Stowe Mountain Resort
Office phone #: (802) 253-3629
Cell phone #: (802) 917-4564

Note: A copy of this contact sheet is also provided at the Stowe Mountain Resort Information Center. Contact the Information Center at (802) 253-3000 if the Reservoir Managers or DROs cannot be reached.

**NOTE: ORIGINAL PLAN PRINTED IN COLOR.
REFER TO SECTIONS 2 AND 3 OF THE TEXT FOR
ADDITIONAL INFORMATION ON ZONES.**



EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 2 – STATEMENT OF PURPOSE & KEY DEFINITIONS

2.1 PURPOSE

The *primary* purpose of this Emergency Action Plan (EAP) is to reduce the risk of human life loss and injury during a breach (break in the dam with abrupt release of the pond volume) at the Upper Golf Course Reservoir Dam (URD) in Stowe, Vermont.

The *secondary* purpose of the EAP is to reduce the potential for property damage during a breach. This includes downstream property and the dam.

This Emergency Action Plan gives the following information and guidelines on how to address major and minor dam safety concerns:

- Notification and communication procedures and contact information.
- The responsibilities of Stowe Mountain Resort (SMR) employees and local authorities.
- Actions required by SMR employees, as well as employees on adjoining properties owned by the Stowe Mountain Course (SMC) and The Lodge.

Refer to Attachment 1 for a project description of the URD (including site location plans and design cross section of the embankment) and Attachment 2 for a description of the breach analysis.

2.2 KEY DEFINITIONS AND ACRONYMS

Dam: The structural portion of the reservoir that was engineered to impound the water. The dam is visible at the crest and immediate downstream slopes, but is located below other fill soils placed for the golf course downstream. This defines the RED zone (see Figure 1.4).

DRO: The Director of Response Operations. See Page 7 for contact information.

EAP: Emergency Action Plan.

EAS: Emergency Alert System.

Event: An occurrence at the reservoir that is an emergency or should not normally happen during normal operation of the reservoir. Events can be intrinsic (e.g., soil movement, slides, sloughs, and water seepage) or extrinsic (e.g., earthquakes).

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Event Location: The location of the event at the reservoir with respect to the dam. The event location can be in one of two zones: the RED zone or the YELLOW zone (see Figure 1.4).

Event Level: The level of action and notification required based on the type of event. The event can be LEVEL 3 (highest), LEVEL 2 (second highest), or LEVEL 1 (lowest).

RM: The Reservoir Manager (see Page 7 for contact information).

SEM: Stowe Emergency Management.

SMC: The Stowe Mountain Club (Golf Course).

SMR: Stowe Mountain Resort (Vail).

The Lodge: The Lodge at Spruce Peak.

URD: Upper Reservoir Golf Course Dam.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 3 – EVENT DETERMINATION

3.1 Event Location Determination

In an emergency at the Upper Reservoir Golf Course Dam (URD), the location of the event must first be determined by Stowe Mountain Resort (SMR) staff. The event location will help determine what level of action and notification procedures are needed. SMR staff must locate the event in one of two zones at the reservoir: the RED zone or the YELLOW zone.

Refer to Section 1 (Figure 1.4) for the Event Location Plan. Use the golf course features shown on the plan to locate the event in either the RED or YELLOW zone. Use the RED zone if any doubt exists on where the event occurred.

Events located in the RED zone are directly related to the dam and must be treated with high importance and urgency. Events located in the YELLOW zone may indicate less serious conditions at the dam and must be treated with caution. See event level determination below.

3.2 Event Level Determination

Once the event is located, there are three possible event levels that require different actions to be taken by SMR staff and by the appropriate emergency response personnel. The acting Reservoir Manager (RM-see Section 6.1 for general responsibilities) must determine the appropriate event level and follow one of three notification flowcharts in this Emergency Action Plan (EAP).

Event Level 3 (RED zone): An emergency condition exists in the RED zone and dam failure is imminent or has already occurred. Downstream evacuation procedures must be followed immediately. *Proceed to EVENT LEVEL 3 Notification Flowchart (page 2).*

Event Level 2 (RED zone): A potentially dangerous situation exists in the RED zone that could jeopardize the integrity of the dam. If this situation worsens, evacuation may become necessary. Emergency personnel should be notified to prepare for evacuation and await direction. *Proceed to EVENT LEVEL 2 Notification Flowchart (page 4).*

Event Level 1 (RED or YELLOW zone): Conditions in the RED or YELLOW zones develop that are not normally encountered in the routine operation of the dam and reservoir, or necessitate a variation from the normal operating procedures. Road blocks should be staged and ready to implement. *Proceed to EVENT LEVEL 1 Notification Flowchart (page 6).*

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

3.3 Event Level Definitions

The three event levels possible at the URD are defined as follows:

EVENT LEVEL 3:

An emergency condition exists in the RED zone and dam **failure is imminent or has already occurred**. This event is characterized by (but not limited to): very high volume of seepage through the embankment (>10 gallons per minute); high volume of cloudy seepage through the embankment (>5 gallons per minute); embankment deformation/sagging/sliding with visible seepage; overtopping flows and uncontrolled release of water with a loss of crest geometry.

EVENT LEVEL 2:

An observation has been made of a potentially dangerous situation in the RED zone. This event is characterized by (but not limited to): high volume of clear seepage through the embankment (>5 gpm); low volume of cloudy seepage through the embankment (< 5 gallons per minute); embankment deformation/sagging/sliding/other without seepage; overtopping flows and uncontrolled release of water without a loss of crest geometry.

EVENT LEVEL 1:

Conditions in the RED and/or YELLOW zones develop that are not normally encountered in the routine operation of the dam and reservoir, or necessitates a variation from the operating procedures. This event is characterized by (but not limited to): water levels above design pool elevation, new seepage areas, developing cracks in the embankment, developing movement of the dam, and abnormal instrument readings (compared to historical data maintained by GEODesign), and any other unusual or uncertain condition requiring evaluation.

3.4 Event Level Determination Guidance

Table 3.1 (following page) shall be used as a guide for determining the appropriate event level in the RED zone. In the circumstance of multiple events occurring at the dam at different locations and with different event levels, the higher event level will govern. Events in the table are representative of deteriorating and/or emergency conditions. More than one condition may develop simultaneously. Other conditions that vary in geometry, shape and event may be possible. *If in doubt, contact GEODesign regarding abnormal conditions observed.*

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

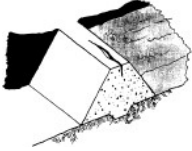
Note: Classify all events in the YELLOW zone as EVENT LEVEL 1 and notify only the DRO and technical personnel initially until the event is further evaluated.

TABLE 3.1: EVENT LEVEL DETERMINATION GUIDANCE (RED ZONE)

Event Type	Observation Made in the Red Zone	Event Level (Red Zone)
1) Flooding 	Reservoir water surface elevation rises to greater than Elevation 1538.3 feet (2 feet below crest).	1
	Reservoir water surface elevation rises to greater than Elevation 1540.3 feet (flowing over crest) <u>without</u> loss of crest geometry.	2
	Reservoir water surface elevation rises to greater than Elevation 1540.3 feet (flowing over crest) <u>with</u> loss of crest geometry.	3
2) Seepage   	Observation of new* seepage areas (during site walkover).	1
	Observation of new seepage areas with cloudy discharge or seepage visibly increasing in flow rate. 	2
	Uncontrolled discharge from seepage areas greater than 10 gpm, or greater than 5 gpm <u>with</u> cloudy discharge. 	3

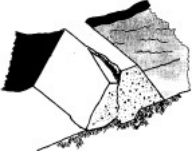
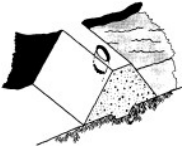
EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Event Type	Observation Made in the Red Zone	Event Level (Red Zone)
3) Erosion / Slope Instability		
3) A. Cracking  	New cracks observed greater than 1-inch wide without seepage. 	1
	New cracks with seepage flowing through the cracks. Reference event 2) Seepage shown above.	2

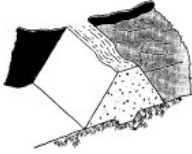
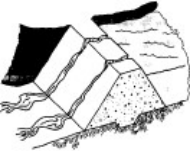
EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Event Type	Observation Made in the Red Zone	Event Level (Red Zone)
3) B. Ground Movement   	Ground movement/settlement/slide < 2 cy of material. 	1
	Ground movement/settlement/slide > 2 cy of material.	2
	Ground movement/settlement/slide > 5 cy of material <u>with</u> seepage. 	3

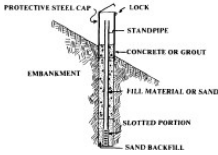
EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Event Type	Observation Made in the Red Zone	Event Level (Red Zone)
3) C. Overtopping  	A loss of freeboard and embankment overtopping <u>without</u> loss of crest geometry.	2
	A loss of freeboard and embankment overtopping <u>with</u> a loss of crest geometry from any cause.	3

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Event Type	Observation Made in the Red Zone	Event Level (Red Zone)
4) Instruments 	Abnormal geotechnical instrumentation reading (as defined in the Instrumentation Monitoring and Maintenance Plan).	1
5) Earthquake 	Earthquake felt or reported at or within 50 miles of the Reservoir.	1
	Earthquake resulting in visible damage to the dam.	2
	Earthquake resulting in uncontrolled water release from the dam.	3
6) Sabotage 	Sabotage or demonstration that does not appear likely to lead to dam failure.	1
	Sabotage, bomb threat, or demonstration that may result in dam failure.	2
	Sabotage that has caused imminent dam failure.	3

*Whenever new seepage areas are identified, contact GEODesign, Inc.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 4 – NOTIFICATION & COMMUNICATION PROCEDURES

4.1 Observation & Reporting

Observers who witness or discover potentially dangerous or unusual conditions at the Upper Golf Course Reservoir Dam (URD) are obligated to report these conditions immediately to the Reservoir Manager (RM).

Observers include managerial, technical, and maintenance personnel of Stowe Mountain Resort (SMR) and the Stowe Mountain Club (SMC). Observers are responsible for making themselves familiar with conditions at the dam during routine site visits and understanding the potentially dangerous conditions presented in Table 3.1 (pages 12 to 16) and discussed in the *First Filling, Instrumentation Monitoring, and Maintenance Plan*.

4.2 Event Level Declaration

The RM is responsible for the determination and classification of an event (see pages 12 to 16). If the RM directly observes or is informed by observers that potentially dangerous or unusual conditions exist at the URD, they shall determine the event level (refer to Section 3).

4.3 Start of Notifications

After the RM has determined the appropriate event level, the RM is responsible for initiating the notification system as described in Section 4.5 and shown on the Notification Flowcharts provided in Section 1.

4.4 General Procedures for Notification Flowcharts

After being notified, all parties shall immediately consult the notification flowcharts for information pertaining to additional notifications to be made according to the event level.

If any contact in the notification flowchart cannot be reached, leave a message and then notify the next listed contact. Continue to attempt to reach all contacts concurrently as needed.

If in doubt that the proper notifications have been made, contact 911.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

4.5 Communication Systems

Notification in winter operations is most likely to come from snowmaking operations and contact to the RM and Director of Response Operations (DRO) will take place by radio during hours of operation, or phone after hours. During the summer, SMC employees will contact the RM by phone. The acting RM will contact **911** (operated by the Lamoille County Sheriff's Department). The RM is one of the persons listed on page 7 and should be contacted in the order listed on that page.

4.6 Notification Procedure Responsibilities

4.6.1 Reservoir Manager (RM) Responsibilities

Based on the information provided from the initial report, the RM shall determine the appropriate event level. If the event is a level 2 or level 3, the RM will contact the following parties in this order (**SEE PAGE 7 for DRO Contact Information**):

1. 911
2. DRO

The following pre-scripted messages may be used as a guide to communicate the status of an event:

EVENT LEVEL 3 Message

"This is (insert RM's name), the Upper Golf Course Reservoir Manager at the Stowe Mountain Resort in Stowe, Vermont. We have discovered an emergency condition at the Upper Golf Course Reservoir Dam and are experiencing an Event Level 3. The failure of the Upper Golf Course Reservoir Dam is imminent and will result in flash flooding along the West Branch of the Little River between The Lodge and the Waterbury Dam. Please immediately evacuate people along the West Branch of the Little River downstream of the Upper Golf Course Reservoir. You should reference your copy of the Upper Golf Course Reservoir Dam Emergency Action Plan for the appropriate actions."

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

EVENT LEVEL 2 Message

“This is (insert RM’s name), the Upper Golf Course Reservoir Manager at the Stowe Mountain Resort in Stowe, Vermont. We have discovered an emergency condition at the Upper Golf Course Reservoir Dam and are experiencing an Event Level 2. Please prepare to evacuate along the West Branch of the Little River between The Lodge and the Waterbury Dam. You should reference your copy of the Upper Golf Course Reservoir Dam Emergency Action Plan for the appropriate actions. We will advise you as soon as the situation is resolved or if the situation worsens and evacuation must begin.”

4.6.2 911 Dispatch Responsibilities

If 911 (Lamoille County Sheriff’s Department) dispatch receives a call regarding a possible dam failure, they will contact the following in this order:

1) Stowe Emergency Management

Stowe Emergency Management (SEM) will dispatch the following parties on an as needed basis:

- a. Stowe Police Department
- b. Stowe Fire Department
- c. Stowe Emergency Medical Service
- d. Stowe Highway Department
- e. Stowe Electric

2) Vermont State Police Williston Dispatch (802) 878-7111 (24 hour line)

3) National Weather Service in Burlington, VT (800) 863-4279 (24 hour line)

EVENT LEVEL 3 Notification to Vermont State Police Williston Dispatch

In the event of an Event Level 3 declaration, the 911 dispatcher will tell the Vermont State Police Williston Dispatch to issue the following warning:

“This is the Vermont State Police. We have an emergency situation at the Upper Golf Course Reservoir Dam in Stowe, Vermont. Implement your Upper Golf Course Reservoir Dam Emergency Action Plan for Event Level 3 immediately.”

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

EVENT LEVEL 3 Notification to National Weather Service

The 911 dispatcher will tell the National Weather Service to issue the following warning:

“This is an urgent message for all individuals downstream of the Upper Golf Course Reservoir Dam at Stowe Mountain Resort in Stowe, Vermont, including residents in the flood plain of the West Branch of the Little River along the entire length of Route 108 between the Stowe Mountain Resort and Stowe Village, Route 100 and RiverRoad between Stowe Village and Moscow, and Moscow Road. Local officials have determined that there is a serious problem with the Upper Golf Course Reservoir Dam warranting immediate evacuation to higher ground.

State and local officials direct all individuals downstream of the Upper Golf Course Reservoir Dam, in the flood plain of the West Branch of the Little River along State Route 108 and State Route 100 to move to higher ground immediately. Go to the nearest higher ground beside your property at once.”

EVENT LEVEL 2 Notification to Vermont State Police and National Weather Service

“This is the Lamoille County Sheriff’s Department. This is an emergency notification for an Event Level 2 at the Upper Golf Course Reservoir Dam in Stowe, Vermont. A potentially dangerous situation exists at the Stowe Upper Golf Course Reservoir Dam that could jeopardize the integrity of the dam. If the dangerous situation worsens, evacuation will become necessary. Implement your Upper Golf Course Reservoir Dam Emergency Action Plan for Event Level 2 immediately.”

4.6.3 Vermont State Police Williston Dispatch Responsibilities

If the Vermont State Police Williston Dispatch receives a call from the Lamoille County Sheriff’s Department regarding a possible dam failure, they will contact the following in this order:

- 1) Town of Waterbury
 - a. Police Department (802) 229-9191 Opt#3
 - b. Fire Department (802) 244-8856
- 2) Vermont Emergency Management Duty Officer (800) 347-0488

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

4.6.4 Vermont Emergency Management Responsibilities

After receiving a call from Vermont State Police Waterbury Dispatch, the Vermont Emergency Management Duty Officer will contact the following:

- 1) Vermont DEC Dam Safety
 - a. Benjamin Green, P.E. (802) 622-4093, or
 - b. Steve Hanna (802) 490-6123
- 2) Vermont Agency of Transportation (VAOT) District #6 office (802) 299-5274 or Kevin Gadapee (802) 461-8764
- 3) Additional State Agencies (to be determined by State of Vermont as needed)

The Vermont Emergency Management Duty Officer is also responsible for activating the local Emergency Alert System (EAS) for Event Level 3 and Event Level 2.

4.6.5 Local Fire, Police, EMS, and Highway Department Responsibilities

After receiving a call from the Lamoille County Sheriff's Department or the Vermont State Police Dispatch, the local Fire, Police, Emergency Medical Services and Highway Departments will take appropriate action to address public safety. This will include road closures (with command posts) and evacuation of residents in the inundated areas.

4.6.6 Director of Response Operations (DRO) Responsibilities

After receiving notification from the Reservoir Manager, the Director of Response Operations (DRO) will take appropriate action to ensure the safety of visitors and staff near the URD. This will include calling or directing concurrent calls by other SMR and SMC staff to:

- Contact SMC to evacuate the Golf Course (802) 793-9108
- Evacuate the primary pumphouse / reservoir (802) 253-3614
- Notify The Lodge security at (802) 760-4761
 - Stop traffic from leaving the Resort and heading south on VT Rte 108 South of Mt. Mansfield exit / The Lodge entrance.
- Contact Stowe Mountain Resort Base Operations (802) 253-3628 or (970) 390-3443 to stop traffic from leaving the Resort and heading south on VT Rte 108:
 - At the top of the pump house hill
 - At the Facilities Cross-Country Center Egress (top of Harlow Hill)

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

- Contact Smuggler's Notch State Park Campground at (802) 253-4014 (Memorial Indigenous Peoples Day) and Mt. Mansfield Ski Dorm at (802) 253-4010 (Indigenous Peoples Daythrough Memorial Day) to evacuate the hostel and hold guests at the Smugglers Notch State Park Campground until the all clear is given by the DRO.
- Coordinate evacuation of the Bingham's Falls Recreational Area with Smugglers Notch State Park staff. If Smugglers Notch State Park staff unavailable to perform evacuation, SMR to dispatch employee to the Bingham's Falls recreation Area.
- Contact the Info Center at (802) 253-3186 to send an email blast to SMR employees, to include the Communications Center, which will address the media, if that becomes necessary.
- Contact the consulting engineers and technical staff needed to assess and mitigate the situation. Following the notifications, the DRO will contact:

- 1) GEODesign, Inc. (802) 674-2033 (Mon to Fri, 8AM to 5PM)

After Hours and Emergency:

Mr. Jacob Wimett, P.E. Cell: (802) 272-7669

- 2) Civil Engineering Associates, Inc. (802) 864-2323 (Mon to Fri, 8AM to 5PM)

After Hours and Emergency:

Mr. Dave Marshall, P.E. Cell: (802) 363-1902

- 3) Sno-Matic (603) 795-2900 (Mon to Fri, 8AM to 5PM)

After Hours and Emergency:

Mr. Scott Barthold, P.E. Cell: (603) 496-2495

Additional information concerning the responsibilities and recommended actions of the DRO is provided in Section 6.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 5

GENERAL RESPONSIBILITIES

The Upper Reservoir Golf Course Reservoir (URD) in Stowe, Vermont is owned and operated by Vail Resorts, dba Stowe Mountain Resort (SMR). As owner of the dam, SMR is responsible for its safe operation and maintenance. If SMR or Stowe Mountain Club (SMC) employees, or other observers notice a potentially dangerous situation or an actual failure of the dam, they should begin notification as outlined on the flowcharts in Section 1 of this Emergency Action Plan (EAP).

Local and state emergency response personnel will take appropriate action to ensure public safety as outlined in the “Local Response Procedures” in Attachment 3.

When the EAP is activated and during testing of the plan at least every 2 years, each person responsible for notification is requested to fill out, date, and sign the Event Log included in Attachment 8. Refer to Attachment 4 and Section 6.5 for more information on regular testing, training, and updating the EAP. Additional copies of the Event Log are available by contacting SMR.

Any questions concerning actions to be taken or notifications to be made should be discussed with the Director of Response Operations (DRO) at SMR.

Stowe Emergency Management and associated entities (i.e. Stowe Police, Fire, Emergency Medical Services, Highway Department), should be familiar with this EAP and perform the necessary evacuations and road closures in response to the Lamoille County Sheriff’s department notification of a potentially dangerous situation or an actual dam failure.

The Lodge Security staff should be familiar with this EAP. If notified of a Level 2 or Level 3 event by the DRO, The Lodge security staff will perform the road closure of Route 108 by setting Road Block RB#1 (see Attachment 3) and hold resort guests and all traffic from above both SMR’s and The Lodge’s main exits until given the all clear by the DRO.

SMC staff should be familiar with this EAP and the events listed on Pages 12 through 16. If during routine golf course maintenance or other daily activities, SMC employees note abnormal conditions at the URD, they should contact the RM immediately. If notified of a Level 2 or Level 3 event by the DRO, SMC will be responsible for the evacuation of the golf course.

Smugglers Notch State Park employees should be made familiar with this EAP. If notified of a Level 2 or Level 3 event by the DRO, Smugglers Notch State Park will be responsible for

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

holding guests at the Smugglers Notch State Park Campground until given the all clear, and evacuation of the hostel. Smugglers Notch State Park staff will also coordinate the evacuation of Bingham Falls with SMR if possible (otherwise SMR will evacuate Bingham Falls).

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 6

RESPONSIBILITIES OF VAIL RESORTS, (dba STOWE MOUNTAIN RESORT)

6.1 Organization

The following positions should be created and defined within Stowe Mountain Resort (SMR) as follows for the execution of the Emergency Action Plan (EAP):

Reservoir Manager (RM): This person must be intimately familiar with the day-to-day operations of the Upper Golf Course Reservoir Dam (URD). Responsibilities will include maintenance and regular inspections of the dam embankment, inlets and outlets, and reading of instrumentation on a regular basis. A communication system should be developed such that relevant SMR personnel have been trained and are able to contact the acting RM with little delay in the event that unusual or emergency conditions are noticed at the URD.

The RM is responsible for maintenance of the EAP (see Attachments 7 and 8) and for termination procedures (see Section 7) following a test or actual event. Refer to page 7 for contact information.

Director of Response Operations (DRO): This person must be familiar with the organizational structure of SMR and available staffing and physical resources. In the event of an unusual or emergency condition at the URD, the DRO is responsible for coordinating the response of SMR. Refer to page 7 for contact information.

Reliable communication procedures and systems should be established between the RM and the DRO. The DRO should stay in contact with the RM during any event since the RM is the SMR staff member who is most familiar with the dam operations and is in contact with authorities.

SMR and The Lodge employees are responsible for creating and staffing roadblocks on Route 108 and connecting side roads. These roadblocks are shown as RB1 to RB4 on the Flood Inundation Maps (Sheets C-1, C-2, and C-3) in Attachment 5. Stowe Emergency Management personnel are responsible for creating and staffing road blocks RB5 to RB15.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

6.2 Emergency Action

In the event of an unusual or emergency event at the URD, the following are the responsibilities within SMR:

Reservoir Manager: The RM will serve as the communication center for the Mt. Mansfield Company during an unusual or emergency event. Following the event level determination and the appropriate notifications according to Sections 2 and 3 of this EAP, the RM will await information from the Director of Response Operations.

Director of Response Operations: After being notified of an unusual or emergency event at the URD, the DRO will be responsible for coordinating the SMR response as follows:

- 1) Notification to SMC to evacuate people on the Golf Course.
- 2) Evacuation of people at the Primary Pump House/Lower Reservoir.
- 3) Coordinating roadblocks 1-4 to stop traffic heading south along Rte 108.
- 4) Coordinating appropriate response actions according to Section 6.3 of this EAP.
- 5) Contacting GEODesign, Civil Engineering Associates, and Sno-Matic.
- 6) Directing appropriate SMR personnel to provide a media notification.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

6.3 Remedial Action

After the RM has determined the event level (see pages 12 through 16) and has contacted the DRO, the DRO shall take action using Table 6.3 (shown below) as a guide. Consult Table 3.1 for a detailed description of events.

TABLE 6.3: REMEDIAL ACTION GUIDANCE

Event	Action by DRO	Timeline
1) Flooding	1) Consult GEODesign's First Filling, Instrumentation Monitoring, and Maintenance Plan for instructions on outlet operations and Sno-Matic on pump operations.	Immediately
	2) Perform visual reconnaissance of embankment.	Immediately
	3) Contact GEODesign, CEA, and Sno-Matic.	Immediately
2) Seepage	1) Contact GEODesign.	Immediately
3) Erosion/slope instability in embankment and downstream (i.e. at Golf Course)		
	1) Contact GEODesign.	Immediately
	2) Perform visual reconnaissance of embankment	Immediately
4) Instrument readings (in compared to historical data maintained by GeoDesign)	1) Contact GEODesign.	Immediately
5) Earthquake	1) Perform visual reconnaissance of embankment.	Immediately
	2) Read instruments.	Immediately
	3) Contact GEODesign (if needed due to embankment damage or abnormal instrument readings).	Immediately

Actions listed above should be in accordance with the response measures described in the First Filling, Instrumentation Monitoring, and Maintenance Plan and should not interfere with nor supersede the notification procedures outlined in Sections 2 and 3.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

6.4 Locally Available Equipment, Labor, and Materials

The DRO has the following locally available resources that can be utilized in the event of an emergency:

Heavy Equipment Service and Rental; Sand and Gravel Supply:

Dale E. Percy Excavating, Inc.
269 Weeks Hill Road
Stowe, VT 05672
(802) 253-8503

G. W. Tatro
P.O. Box 339, 5195 VT Rte 15
Jeffersonville, VT 05464
(802) 644-8875

Diving Contractor:
Johnson Fire Dept. / EMS
Johnson, VT 05656
Dispatch (802) 888-3502

Pumping Contractor:
N.A. Manosh
120 Northgate Plaza
Morrisville, VT 05661
(802) 888-5722

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

6.5

Preparedness\Plan Updates

All parties in receipt of this EAP should review the contents thoroughly and notify the RM of any inconsistencies or questions regarding the implementation of this plan.

- SMR staff (as deemed appropriate by the DRO) should be familiar with this EAP and its implementation including contact information and procedures for emergency situations. Review of this plan should be conducted as part of the select new personnel on-boarding, and personnel should be required to review this document after revisions to procedures are made. Staff members should be aware that an emergency situation may require multiple phone calls to contact the RM, as listed on page 7.
- This EAP and its implementation should be discussed with the staff of Smuggler's Notch State Park (particularly campground and hostel personnel).
- SMR should prepare evacuation procedures for all property that is included under the RM's and DRO's jurisdiction. This includes coordination with appropriate staff for The Lodge and SMC affected properties. These procedures should be included in new personnel orientation and should be reviewed regularly for applicability.
- SMR, The Lodge and SMC should all develop and regularly test the internal and external communication systems and procedures that would be used during an emergency situation.
- The RM or DRO should regularly survey the areas of potential inundation outlined in this EAP. New construction, remedial construction (e.g. changes to bridge or culverts), or changes in landforms should be reported to Civil Engineering Associates and GEODesign for review and modifications to the EAP and inundation analyses.
- Maintenance of the EAP is the responsibility of the RM and DRO.
- The EAP should be reviewed at least annually in consultation with GEODesign

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

SECTION 7 – EVENT TERMINATION & FOLLOW UP

Emergency Action Plan (EAP) operations that have begun under Event Levels 1, 2, or 3, must eventually be terminated and follow-up procedures completed.

Event Level 2 operations that have been declared must be reduced to Event Level 1 by the appropriate personnel (e.g. the Reservoir Manager in consultation with GEODesign and Civil Engineering Associates) before terminating the event or elevating the status to Event Level 3 with appropriate actions and notifications.

Termination activities for Level 3 events will be conducted once the emergency situation has ended.

7.1 Event Termination Responsibilities

The Reservoir Manager (RM) is responsible for terminating EAP operations and relaying this decision to the appropriate contacts according to the notification procedures. It is then the responsibility of each person to notify the same group of contacts that he or she notified during the original event notification process to inform them that the event has been terminated.

Prior to termination of any Level 3 event that has not caused actual dam failure, the Director of Response Operations (DRO) or RM must contact GEODesign and Civil Engineering Associates (CEA) to inspect the dam to determine whether damage has occurred. Once the RM, the DRO, GEODesign, and CEA have determined that no conditions exist that pose a threat to persons or property, the RM will terminate EAP operations as described above.

7.2 Follow-up

After the RM has terminated EAP operations, the RM shall schedule a conference call with the DRO, GEODesign Inc., CEA, key SMR personnel or other staff members involved in the situation, and local authorities (as deemed appropriate by the RM).

The conference call should be scheduled and completed within 48 hours of the date that the event was terminated. The objective of the conference call is to review the EAP and the Event Logs (Attachment 8) submitted from all contacted parties to identify effective EAP procedures that were followed and potential areas where the EAP could be improved.

EMERGENCY ACTION PLAN (Revised 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

The RM and DRO will follow up with a summary memorandum of the conference call that may include suggested improvements to the EAP. The follow-up memorandum should be completed within two weeks of the conference call and inserted into Attachment 6 - Documentation. The RM and DRO will consider revisions to the EAP document if appropriate.

7.3 Loss of Life, Injury, or Property Damage

The RM and DRO will organize and supervise an immediate assessment of loss after an event that has caused loss of life, injury or property damage.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 1

PROJECT DESCRIPTION

The Upper Golf Course Reservoir Dam (URD) is located on the West Branch of the Little River, approximately 7 miles northwest of the intersection of Vermont Routes 100 and 108 near the base of Mount Mansfield in the town of Stowe in Lamoille County, Vermont.

The Upper Golf Course Reservoir is an earthen dam storage reservoir to hold water for use in snowmaking activities at the Stowe Ski Resort on Mount Mansfield. The dam is owned and operated by Vail Resorts (dba Stowe Mountain Resort).

The dam consists of a compacted earth embankment with a design depth of about 57 feet and a storage capacity of approximately 100 million gallons of water. Emergency overflow is performed by means of a 36-inch diameter gravity drain with a rim elevation of 1537.3 feet flowing into the Lower Reservoir, which outflows into the West Branch of the Little River.

Upper Golf Course Reservoir Dam **Basic Data**

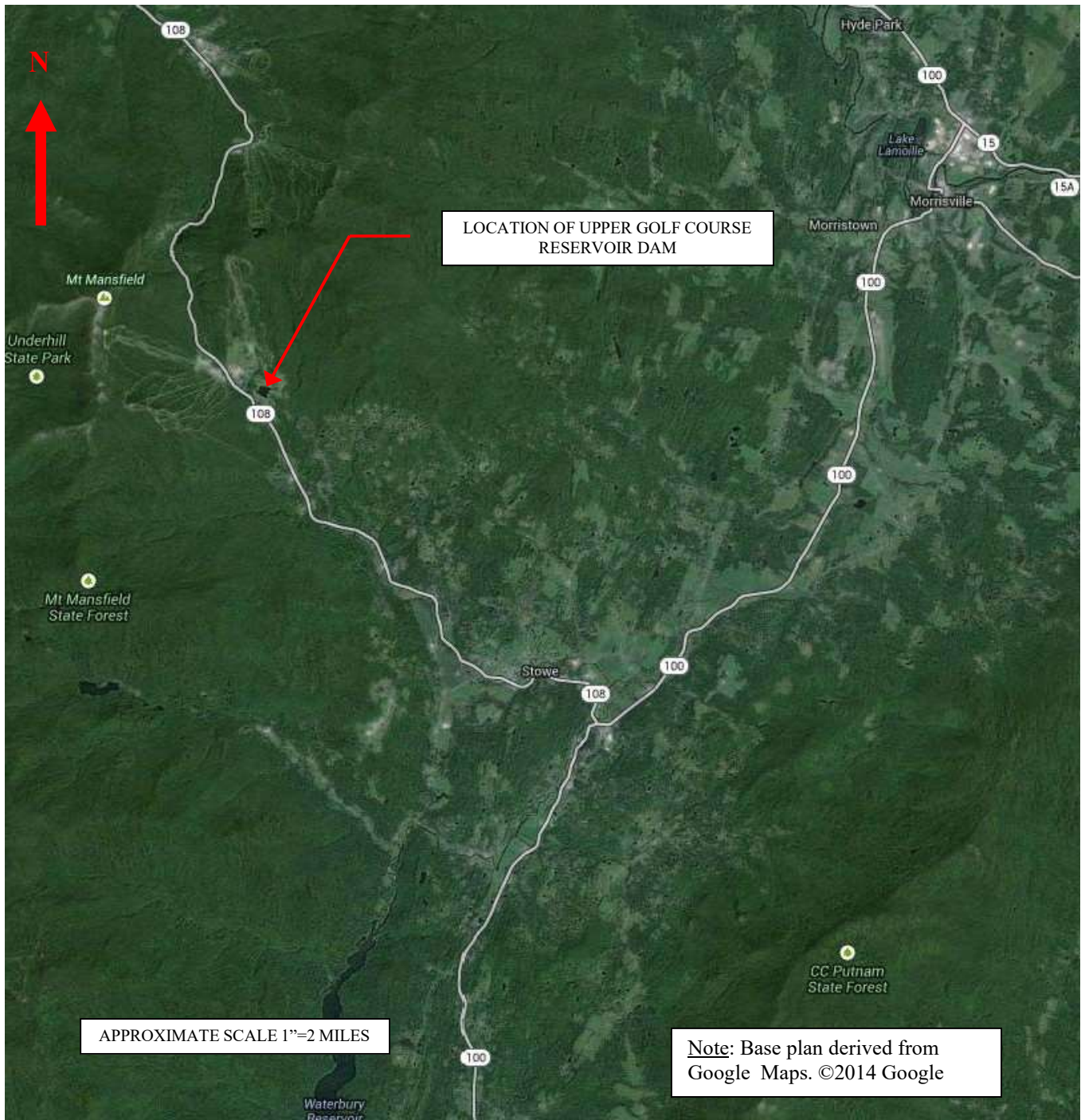
Description	Data*
Drainage Area	46.3 acres
Full Pond Surface Area	8.45 acres
Normal Maximum Operating Water Elevation	1537.3 feet
Top of Embankment elevation (ft)	1540.3 feet

* Data obtained from Revised Hydrology & Hydraulics Study Dam Breach and Inundation Analysis for Upper Golf Course Reservoir, Stowe Mountain Resort, SMR 2000 Project, Stowe, Vermont (dated November 2004) submitted by Civil Engineering Associates, Inc.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

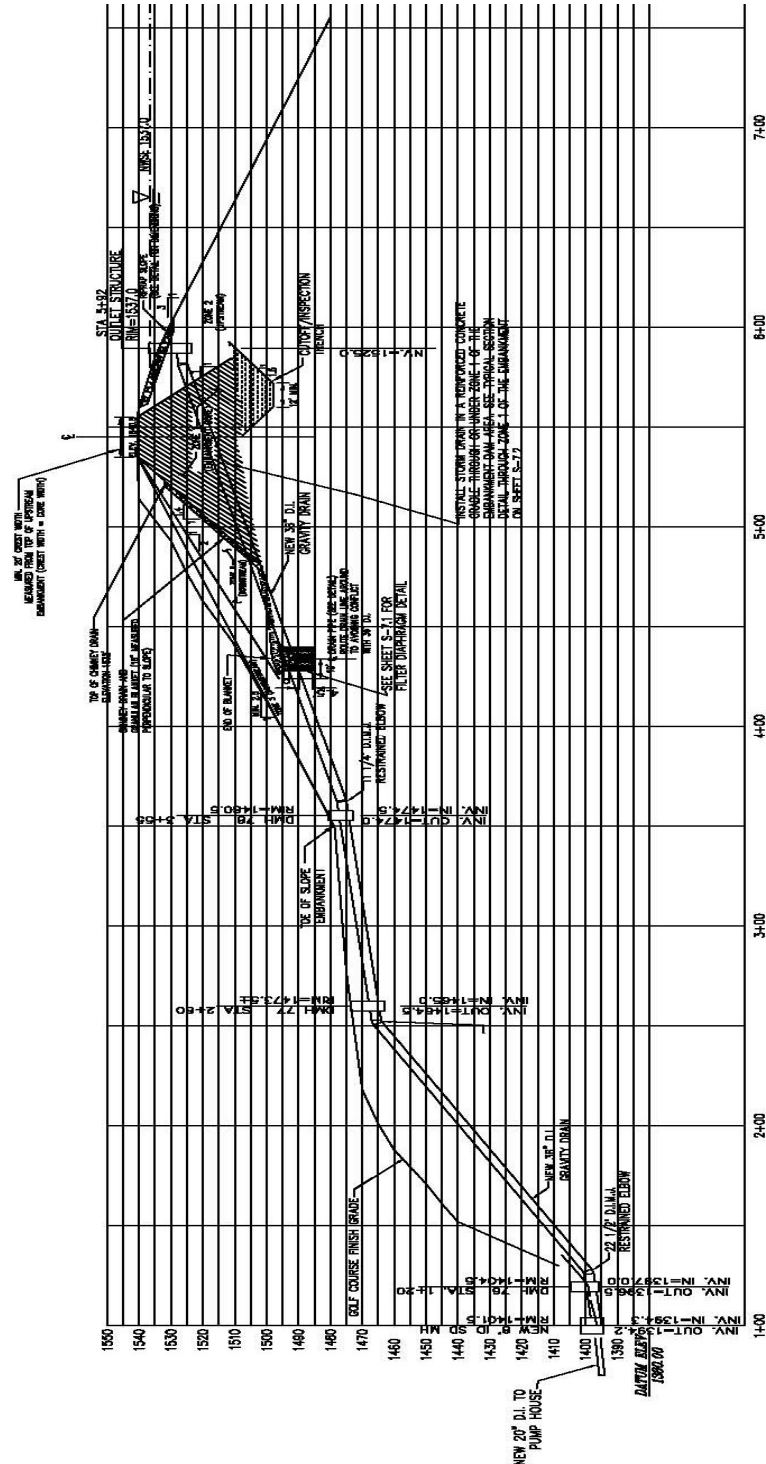
Figure 1: Site Location Plan



Upper Golf Course Reservoir Dam

Stowe, Vermont

Figure A-2: Design Cross Section of Embankment



EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 2

DESCRIPTION OF BREACH ANALYSIS

Overview

Excerpts in this Attachment are provided from the *Hydrology & Hydraulics Study – Dam Breach and Inundation Analysis* (dated June 2003) and the *Revised Hydrology & Hydraulics Study – Dam Breach and Inundation Analysis* (dated November 2004) prepared by Civil Engineering Associates, Inc. (CEA) for the Mt. Mansfield Company. Results from the November 2004 study supersede the June 2003 study and were used as a basis for the Local Response Procedures in Attachment 3.

Description of Studies

In their June 2003 study “CEA ... utilized software (BREACH and DAMBRK) developed by Boss International and based upon the National Weather Service (NWS) model.” In their November 2004 study CEA “re-evaluated the dam breach and inundation analysis utilizing spread sheet software developed for the State of Washington Dam Safety Division. This methodology is less sensitive to low flow conditions and steep river channel gradients than the breach and inundation package previously used. The use of this methodology resulted in less manipulation of the input and yielded more accurate results.”

“The combined outflows of the dam breach and existing stream flows were routed through the West Branch valley. The analysis took into account the effects of downstream bridges, tributaries, off-channel storage areas and river sinuosity, and assumed a level pool condition in the reservoir... The base flows in the receiving stream were assumed to be equivalent to: a) the stream flows during a 100-year storm event when modeling of the receiving stream characteristics, and b) flows during a typical summer day.”

Results

“Results of the (November 2004) analysis include the high water profile through the valley, flood wave arrival times, and flow/stage hydrographs.”

“The results indicate that when coupled with the 100-year flood event, a substantial number of buildings will become inundated within the portions of the over-bank area beginning at Stowe Fork and extending down to the (Covered) Bridge Road Bridge... Based on the peak flows from the breach compared to the 100-year flood level, the inundation limits were not significantly less for a breach occurring on a sunny day.”

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 3

LOCAL RESPONSE PROCEDURES

EMERGENCY RESPONDERS SHOULD USE THE FOLLOWING GUIDELINES FOR PLANNING AND PRIORITIZING EVACUATION PROCEDURES:

- REFER TO THE **FLOOD WAVE ARRIVAL TIMES** IN TABLE C-1 IN THIS ATTACHMENT.
- REFER TO THE **FLOOD INUNDATION MAPS** ON SHEETS C-1, C-2, AND C-3 IN THIS ATTACHMENT.
- **SET UP ROAD BLOCKS (RB1 TO RB15)** AND COMMAND POSTS WHERE APPROPRIATE SHOWN ON SHEETS C-1, C-2, C-3 IN THIS ATTACHMENT.
- THE LODGE TO CREATE AND STAFF ROADBLOCK **RB1**. NOTE: HAVE ROADBLOCK STAGED AND READY FOR EVENT LEVEL 1, AND INITIATE ROADBLOCK FOR EVENT LEVELS 2 AND 3.
- STOWE MOUNTAIN RESORT TO CREATE AND STAFF ROADBLOCKS **RB2 TO RB4**. NOTE: HAVE ROADBLOCKS STAGED AND READY FOR EVENT LEVEL 1, AND INITIATE ROADBLOCKS FOR EVENT LEVELS 2 AND 3.
- STOWE EMERGENCY MANAGEMENT TO CREATE AND STAFF ROADBLOCKS **RB5 TO RB15**. NOTE: HAVE ROADBLOCKS STAGED AND READY FOR EVENT LEVEL 1, AND INITIATE ROADBLOCKS FOR EVENT LEVELS 2 AND 3.
- **EVACUATE RESIDENTS** WITHIN INUNDATION LIMITS SHOWN ON SHEETS C-1, C-2, AND C-3 TO AREAS OF HIGHER GROUND.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

TABLE C-1: Estimated Water Depths and Peak Flood Wave Arrival Times

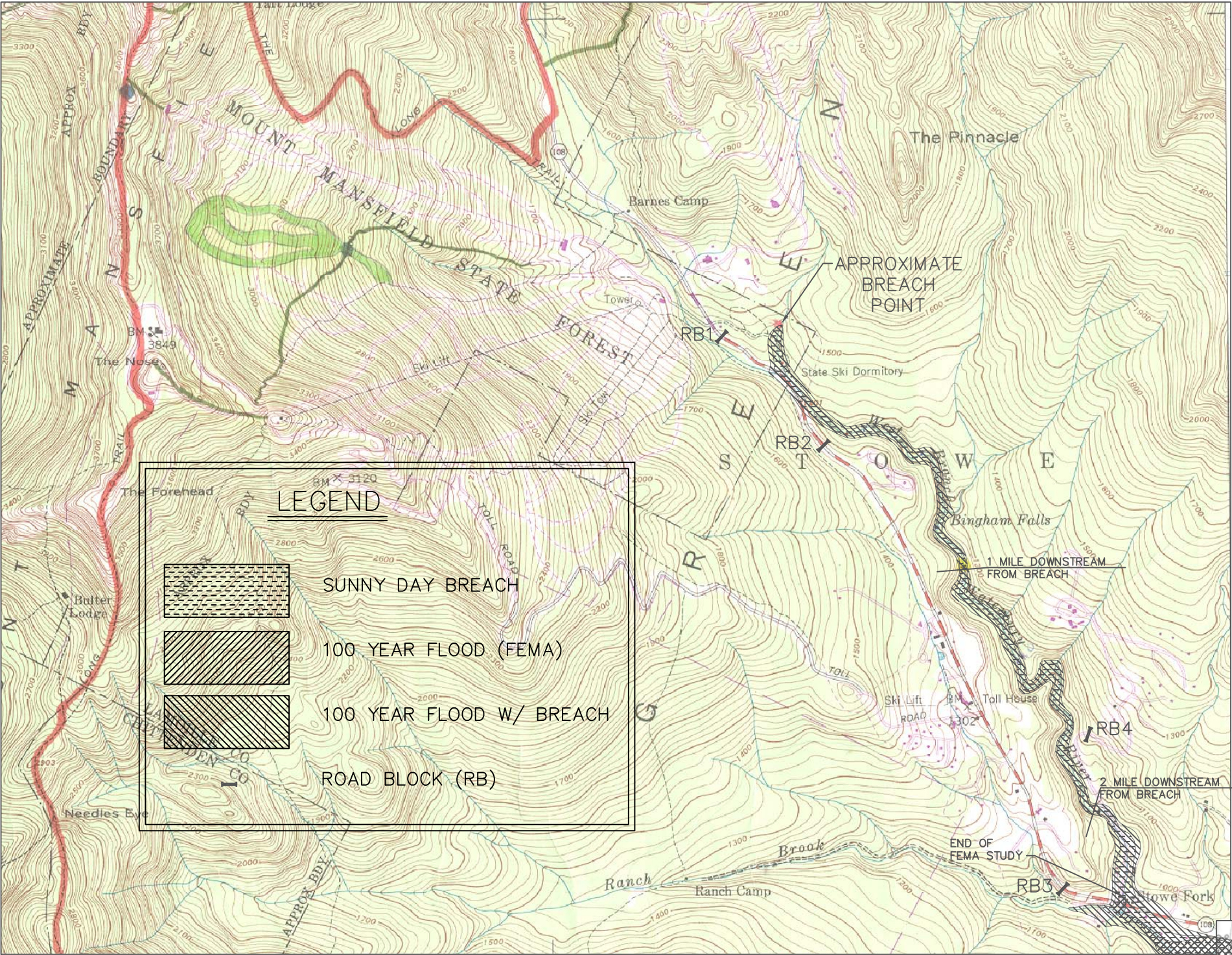
Distance downstream from dam ¹ (miles)	River bottom elevation ¹ (ft)	100-YEAR FLOOD + DAM BREACH						SUNNY DAY DAM BREACH					
		Normal water surface elevation ¹ (ft)	Peak water surface elevation ¹ (ft)	Peak water depth above normal ² (ft)	Peak water depth above road ³ (ft)	Peak flow rate ¹ (cfs)	Elapsed time to peak ¹ (hrs)	Normal water surface elevation ¹ (ft)	Peak water surface elevation ¹ (ft)	Peak water depth above normal ² (ft)	Peak Water depth above road ³ (ft)	Peak flow rate ¹ (cfs)	Elapsed time to peak ¹ (hrs)
1.0	1200.0	1200.5	1217.9	17.4	-167	8627	0.11	1200.5	1213.3	12.8	-172	4735	0.11
2.0	990.0	990.4	1001.5	11.1	-161	8009	0.22	990.4	998.1	7.7	-165	4013	0.22
2.5	932.0	932.4	955.2	22.8	9.2	n/a	n/a	932.4	950.8	18.4	4.8	n/a	n/a
2.75	912.0	912.5	932.0	19.5	-4.0	n/a	n/a	912.5	927.1	14.6	-8.9	n/a	n/a
3.0	896.0	896.5	908.8	12.3	-11.2	10341	0.39	896.5	903.4	6.9	-16.6	3464	0.39
4.0	832.0	832.5	844.8	12.3	-25.2	10823	0.60	832.5	838.8	6.3	-31.2	3077	0.60
4.75	794.0	794.4	805.7	11.3	-8.3	n/a	n/a	794.4	799.9	5.5	-14.1	n/a	n/a
5.0	783.0	783.4	792.6	9.2	0.6	15355	0.83	783.4	786.9	3.5	-5.1	2535	0.83
5.25	778.0	778.4	790.3	11.9	0.3	n/a	n/a	778.4	784.0	5.6	-6.0	n/a	n/a
5.5	754.0	754.4	768.0	13.6	-6.0	n/a	n/a	754.4	763.2	8.8	-10.8	n/a	n/a
5.75	747.0	747.3	755.6	8.3	-16.4	n/a	n/a	747.3	751.4	4.1	-20.6	n/a	n/a
6.0	737.0	737.3	743.3	6.0	-12.7	15071	1.07	737.3	739.5	2.2	-16.5	2257	1.07
6.25	731.0	731.4	738.2	6.8	-9.8	n/a	n/a	731.4	733.5	2.1	-14.5	n/a	n/a
6.5	722.0	722.4	733.0	10.6	-3	n/a	n/a	722.4	727.7	5.3	-8.3	n/a	n/a
7.0	712.0	712.5	722.7	10.2	-2.3	15137	1.39	712.5	715.9	3.4	-9.1	1979	1.39
8.0	695.0	695.6	708.1	12.5	-1.9	15004	1.78	695.6	699.4	3.8	-10.6	1702	1.78
9.0	655.0	655.8	671.6	15.8	-18.4	14419	2.04	655.8	660.2	4.4	-29.8	1423	2.04
10.0	640.0	641.7	674.7	33.0	-15.3	14419	2.45	641.7	650.2	8.5	-39.8	1257	2.45
11.0	630.0	631.0	651.1	20.1	11.1	16952	2.96	631.0	635.2	4.2	-4.8	1041	2.96
12.0	610.0	611.2	633.5	22.3	14	16818	3.32	611.2	615.5	4.3	-4.0	930	3.32
13.0	590.0	592.0	611.1	19.1	-34	21001	3.69	592.0	594.3	2.3	-51	886	3.69

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Notes:

- 1) Information provided by Civil Engineering Associates, Inc. based on November, 2004 *Hydrology & Hydraulics Study – Dam Breach and Inundation Analysis*.
- 2) *Peak water depth above normal* calculated based on CEA's November, 2004 study (noted above) as provided in the table.
- 3) *Peak water depth above road* estimated by CEA above a fixed roadway elevation estimated from the topographic plans along Rte 108, Rte 100, Moscow Road, or closest access road near the intersection with the mile marker cross section. Negative values indicate a distance below the road.
- 4) Data at miles 2.5, 2.75, 4.75, 5.0, 5.25, 5.5, 5.75, 6.0, 6.25, and 6.5 provided by CEA on 3/30/05 based on Washington State Study output and revised contour information received from Mr. Cliff Johnson, Town of Stowe.
- 5) n/a = Peak Flow Rate and Elapsed Time to Peak values not computed.



SUNNY DAY BREACH

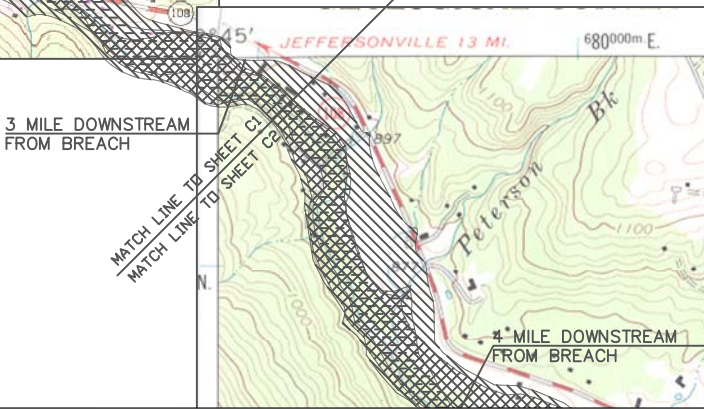
100 YEAR FLOOD (FEMA)

100 YEAR FLOOD W/ BREACH

ROAD BLOCK (RB)



GRAPHIC SCALE
1" = 2000'



PLANS PREPARED BY:



CIVIL ENGINEERING ASSOCIATES, INC.
P.O. BOX 485 SHELBURNE, VT 05482
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

DRAWN
JSO
CHECKED
DSM
APPROVED
DSM

OWNER:

SPRUCE PEAK
REALTY, LLC

PROJECT CONSULTANTS:

SITE PLANNER
PERKINS DESIGN ASSOCIATES
PT. RICHMOND, CA.
ARCHITECT
GRAHAM GUND
CAMBRIDGE, MASS.
CIVIL ENGINEER
CIVIL ENGINEERING ASSOCIATES
SHELBURNE, VT.
TRAFFIC ENGINEER
RESOURCE SYSTEMS GROUP
NORWICH, VT.
LANDSCAPE ARCHITECT
LAND-WORKS
MIDDLEBURY, VT.
ELECTRICAL ENGINEER
PEARSON ASSOCIATES
STOWE, VT.
UPPER MOUNTAIN PLANNER
SE GROUP
BURLINGTON, VT.

PROJECT TITLE:

SPRUCE PEAK
AT

EMERGENCY
ACTION PLAN
(January 2009)

UPPER GOLF
COURSE
RESERVOIR DAM

STOWE VERMONT

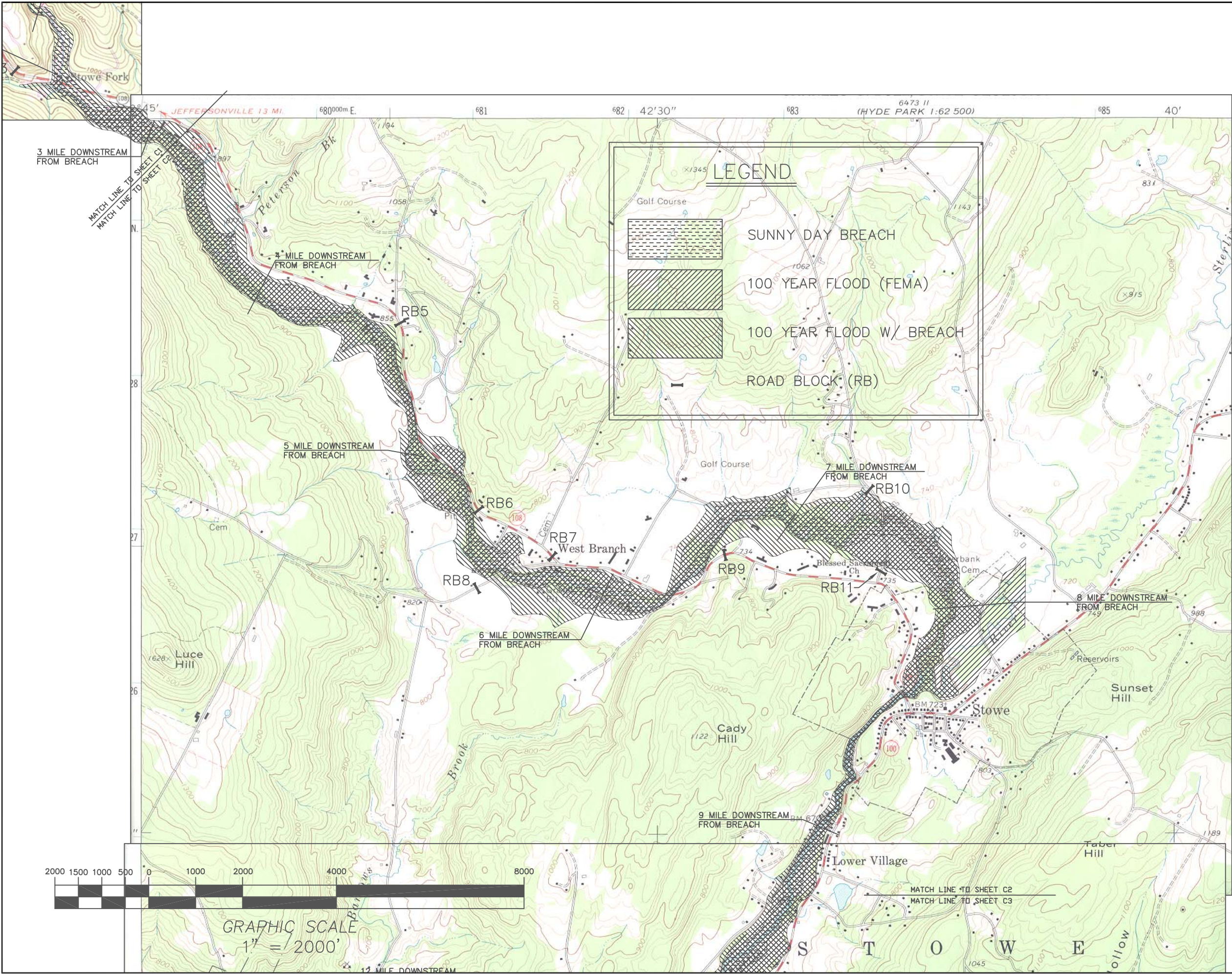
DATE	CHECKED	REVISION
4/5/05	JSO	REVISED INUNDATION LIMITS
4/30/05	JSO	ADDED ROAD BLOCKS
1/9/09	JSO	REVISED TITLE BLOCK

FLOOD
INUNDATION
AREA

DATE
NOV 2004
SCALE
1" = 2000'
PROJ. NO.
02142

DRAWING NUMBER

C-1



PLANS PREPARED BY:



CIVIL ENGINEERING ASSOCIATES, INC.
P.O. BOX 485 SHELBURNE, VT 05482
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

DRAWN
JSO
CHECKED
DSM
APPROVED
DSM

OWNER:

SPRUCE PEAK
REALTY, LLC

PROJECT CONSULTANTS:

SITE PLANNER
PERKINS DESIGN ASSOCIATES
PT. RICHMOND, CA.
ARCHITECT
GRAHAM GUND
CAMBRIDGE, MASS.
CIVIL ENGINEER
CIVIL ENGINEERING ASSOCIATES
SHELBURNE, VT.
TRAFFIC ENGINEER
RESOURCE SYSTEMS GROUP
NORWICH, VT.
LANDSCAPE ARCHITECT
LAND-WORKS
MIDDLEBURY, VT.
ELECTRICAL ENGINEER
PEARSON ASSOCIATES
STOWE, VT.
UPPER MOUNTAIN PLANNER
SE GROUP
BURLINGTON, VT.

PROJECT TITLE:

SPRUCE PEAK
AT

EMERGENCY
ACTION PLAN
(January 2009)

UPPER GOLF
COURSE
RESERVOIR DAM

STOWE VERMONT

DATE	CHECKED	REVISION
4/5/05	JSO	REVISED INUNDATION LIMITS
4/30/05	JSO	ADDED ROAD BLOCKS
1/8/09	JSO	REVISED TITLE BLOCK

FLOOD
INUNDATION
AREA

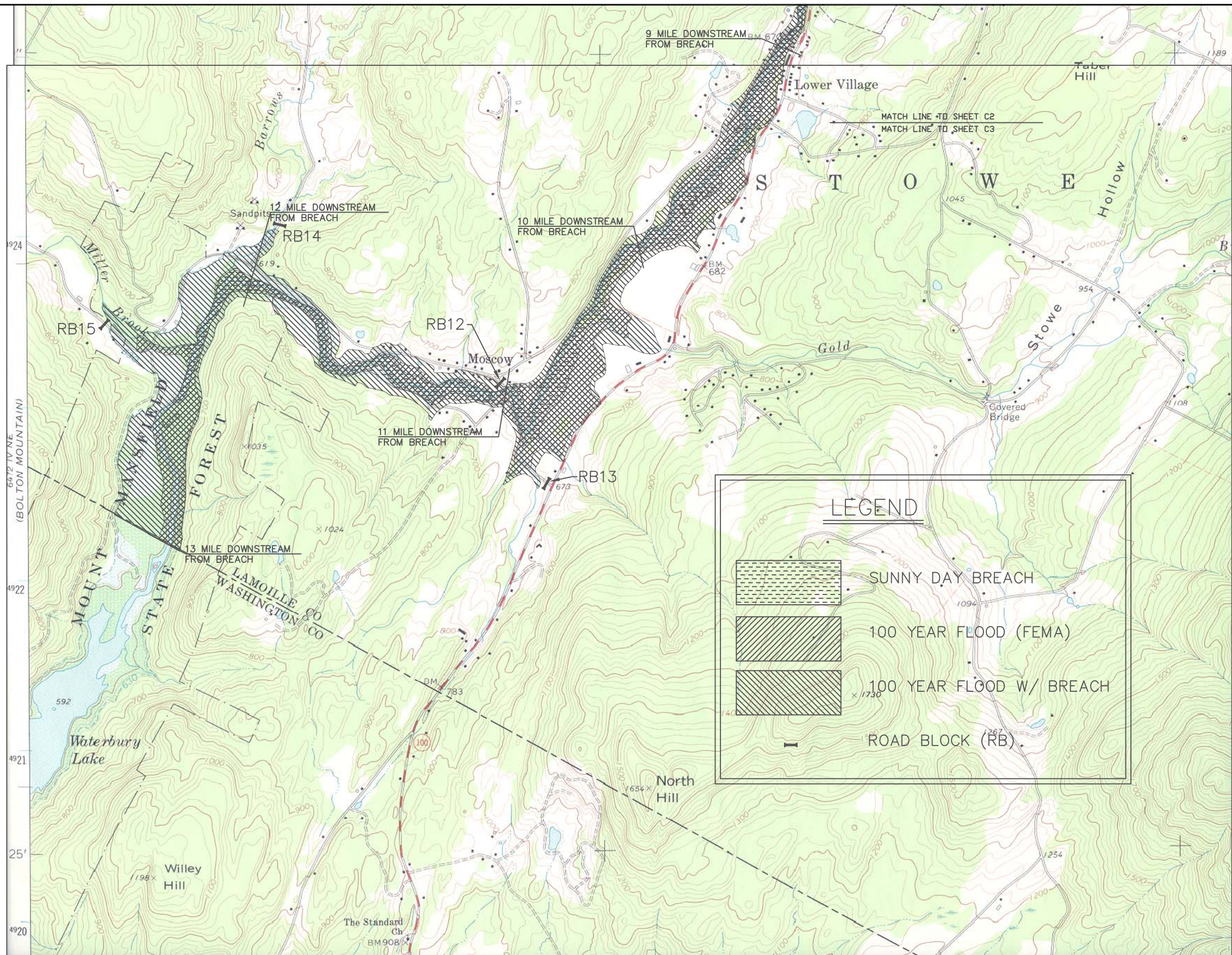
DATE
NOV 2004

SCALE
1" = 2000'

PROJ. NO.
02142

DRAWING NUMBER

C-2



GRAPHIC SCALE
1" = 2000'

PLANS PREPARED BY:



CIVIL ENGINEERING ASSOCIATES, INC.

P.O. BOX 485 SHELBURNE, VT 05482
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

DRAWN

JSO

CHECKED

DSM

APPROVED

DSM

OWNER:

**SPRUCE PEAK
REALTY, LLC**

PROJECT CONSULTANTS:

SITE PLANNER

PERKINS DESIGN ASSOCIATES
PT. RICHMOND, CA.

ARCHITECT

GRAHAM GUND
CAMBRIDGE, MASS.

CIVIL ENGINEER

CIVIL ENGINEERING ASSOCIATES
SHELBURNE, VT.

TRAFFIC ENGINEER

RESOURCE SYSTEMS GROUP
NORWICH, VT.

LANDSCAPE ARCHITECT

LAND-WORKS
MIDDLEBURY, VT.

ELECTRICAL ENGINEER

PEARSON ASSOCIATES
STOWE, VT.

UPPER MOUNTAIN PLANNER

SE GROUP
BURLINGTON, VT.

PROJECT TITLE:

**SPRUCE PEAK
AT**



**EMERGENCY
ACTION PLAN**
(January 2009)

**UPPER GOLF
COURSE
RESERVOIR DAM**

STOWE VERMONT

DATE	CHECKED	REVISION
4/5/05	JSO	REVISED INUNDATION LIMITS
4/30/05	JSO	ADDED ROAD BLOCKS
1/8/09	JSO	REVISED TITLE BLOCK

**FLOOD
INUNDATION
AREA**

DATE

NOV 2004

SCALE

1" = 2000'

PROJ. NO.

02142

DRAWING NUMBER

C-3

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 4

TRAINING AND REGULAR TESTING

Training

Stowe Mountain Resort (SMR) shall provide annual training on the Emergency Action Plan (EAP) and Upper Golf Course Reservoir Dam (URD) inspection and monitoring procedures to the assigned monitors and other relevant personnel.

Regular Testing

SMR shall conduct or arrange to have conducted a test of the emergency notification procedures outlined in this EAP. The test and notification procedure shall be initiated by the Reservoir Manager (RM). SMR shall monitor the test and collect a copy of the Event Logs (see Attachment 8) for review of large discrepancies in the times calls were received by the different organizations/agencies. SMR shall discuss the test with all notified parties to ensure the success of the test and develop actions for improvement in the notification procedures, if necessary.

Copies of the Event Logs shall be sent to:

Reservoir Manager
Stowe Mountain Resort
5781 Mountain Road
Stowe, VT 05672
crice@vailresorts.com

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 5

LOCATIONS OF THE PLAN

A complete and up-to-date copy of this Emergency Action Plan (EAP) shall be located at the Stowe Mountain Resort (SMR) office at 5781 Mountain Road at all times. In addition, all persons and agencies listed below have been issued an electronic copy of the EAP, and shall be provided with an up-to-date copy of the plan.

Entity/Contact name

Reservoir Manager
Stowe Mountain Resort
5781 Mountain Road
Stowe, VT 05672
(802) 253-3567
crice@vailresorts.com

Info Center
Stowe Mountain Resort
5781 Mountain Road
Stowe, VT 05672
(802) 253-3186
StoweInfo@vailresorts.com

Vermont Emergency Management
45 State Drive
Waterbury, VT 05671-1300
(800) 347-0488
c/o: Susan Plant
susan.plant@vermont.gov

911 Dispatch
Lamoille County Sheriff's Department
P.O. Box 96
Hyde Park, VT 05655-0096
(802) 888-3502
c/o: Sheriff Marcoux
Darren.severance@lamoillesheriff.org

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

National Weather Service - Burlington
Burlington International Airport
1200 Airport Drive
South Burlington, VT 05403
(802) 862-2475
c/o: John Goff
John.Goff@NOAA.gov

Town Clerk – Town of Stowe
67 Main Street (PO Box 730)
Stowe, VT 05672
(802) 253-6133
c/o: Lisa Walker
Townclerk@StoweVT.gov

Town Clerk – Town of Waterbury
28 North Main Street Suite 1
Waterbury, VT 05676
(802) 244-8447
c/o: Karen Petrovic
karen@WaterburyVT.com
or Tom Leitz
(802) 999-6450
tleitz@WaterburyVT.com

Stowe Electric
PO Box 190
Stowe, VT 05672
(802) 253-7215 or (774) 275-1914
c/o: Jackie Pratt
jpratt@StoweElectric.com

Vermont Agency of Transportation
District #6 Transportation Administrator
2178 Airport Road, Unit A
Berlin, VT 05641
(802) 299-5274
Greg Smith
gregory.a.smith@vermont.gov

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

GEODesign, Inc.
85 Granite Shed Lane
Unit #1
Montpelier, VT 05602
(802) 674-2033
Cell: 802-272-7669
c/o: Jacob Wimett, P.E.
jwimett@geocompanies.com

Civil Engineering Associates, Inc.
10 Mansfield View Lane
S. Burlington, VT 05403
(802) 864-2323
c/o: Dave Marshall, P.E.
dmarshall@CEA-VT.com

Sno-Matic Corporation
4 Britton Lane
Lyme, NH 03768
(603) 795-2900-office
(603) 496-2495-cell-emergency only
c/o: Scott Barthold, P.E.
scott@snomatic.com

Vermont DEC – Dam Safety Program
Agency of Natural Resources
Water Investment Division
National Life Building
1 National Life Dr., Davis 3
Montpelier VT, 05620-3520
(802) 622-4093
c/o: Benjamin Green, P.E.
Benjamin.green@vermont.gov

Smuggler's Notch State Park
6443 Mountain Road
Stowe, VT 05672
(802) 253-4014
c/o: Aaron Jacobs, Park Ranger
aaron.jacobs@vermont.gov

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Stowe Emergency Management
350 S. Main St.
P.O. Box 730
Stowe, Vermont 05672
(802) 253-9060 ext. 2132
Tim Lambert
tlambert@stowevt.gov

Lamoille County Planning Commission
52 Portland St., 2nd Floor
Morrisville, VT 05661
(802) 730-6231 or (802) 851-6347
Melissa Manka
Melissa@LCPCVT.org

Vermont Dept. of Forests, Parks, & Recreation
5 Perry Street, Suite 20
Barre, VT 05641
(802) 479-8587
c/o: Dominic Caputo, Parks Regional Manager
Nick.caputo@vermont.gov

Stowe Country Club, The Mountain Course
7412 Mountain Road
Stowe, VT 05672
(802) 793-9108
c/o Kevin Komer
kevin.komer@destinationhotels.com

The Lodge
7412 Mountain Road
Stowe, VT 05672
(802) 760-4771 or (802) 760-9848
c/o Dan Rich
Daniel.rich@destinationhotels.com

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 6

DOCUMENTATION

This Attachment will include documents such as signed Acknowledgement Forms and any letters relative to implementation or acceptance of this Emergency Action Plan (EAP). A sample Acknowledgment Form is attached.

This Attachment will also include any follow-up memorandums relating to the Termination and Follow-Up of an actual event (refer to Section 7).

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Acknowledgement Form

This is to acknowledge the receipt of the September 2025 Emergency Action Plan (Revision 9) prepared by GEODesign, Inc. and Updated by Stowe Mountain Resort for the Upper Golf Course Reservoir Dam in Stowe, Vermont.

Please reply back by email to Stowe Mountain Resort and indicate receipt.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 7

MODIFICATIONS TO PLAN

The following chart documents updates and/or additions from the original draft Emergency Action Plan (EAP) submitted November 1, 2004. Vail Resorts (dba Stowe Mountain Resort) is responsible for maintenance of this document (see Sections 6.5 and 7.2).

RECORD OF CHANGES AND ADDITIONS

Revision No.	Date of Revision	Changes
0	11/1/04	Original draft submitted to VT DEC - Dam Safety Section for EAP approval
1	11/17/04	Submitted with revised (November 2004) inundation mapping provided by CEA and GeoDesign edits to Appendices B, C, and D
2	3/28/05	Submitted with revised (March 2005) inundation mapping provided by CEA and GeoDesign edits to Notification Flowcharts and Attachments
3	5/26/05	Submitted with revised (May 2005) Table C-1 and inundation mapping provided by CEA
4	12/20/06	Submitted with revised (December 2006) contact information, Event Location Plan (Figure 1.4 in Section 1), and notification procedures.
5	January 2009	Submitted with revised (January 2009) contact information, MMC contact insert sheet, and emergency “hot” tabs.
6	January 2014	Submitted with revised (January 2014) contact information, MMC additions to flow chart contacts, GeoDesign edits to Event Level descriptions, GeoDesign updates to Event Location Plan (Figure 1.4 in Section 1), and GeoDesign edits to Site Location Plan (Figure 1 in Attachment 1).

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

Revision No.	Date of Revision	Changes
7	November 2019	Submitted with revised (November 2019) contact information resulting from the changes in ownership and responsibilities arising from the Vail Resorts purchase of the Stowe Mountain Resort and changes in personnel or contact information for parties to be contacted in the event of an emergency situation. Delineation of emergency action responsibilities have been updated accordingly.
8	August 2022	Update to Reservoir Manager's name and Base Ops contact information Update of Name of The Lodge at Spruce Peak to "The Lodge" Update contact list to include email lists Update to allow for emailing updated copies of the plan rather than postal mailing Changing frequency of dam exercise from yearly to a minimum of 2 year cadence, giving flexibility to frequency.
9	September 2025	Updated with current 2025 contact information.

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

ATTACHMENT 8

EVENT LOG

The form provided on the following page should be filled out by all parties involved in the notification or remedial action procedures following any event or test of the Emergency Action Plan (EAP).

Completed Event Logs should be e-mailed immediately following the event or test to the Reservoir Manager:

CRice@vailresorts.com

Reservoir Manager
Stowe Mountain Resort
5781 Mountain Road
Stowe, VT 05672

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

UNUSUAL OR EMERGENCY EVENT LOG

Agency/Organization: _____

_____: Notification Test

_____: Event Level 3

_____: Event Level 2

_____: Event Level 1 (applicable to SMR personnel only)

Name: _____

Date: _____ Time: _____

Call Received From: _____

Notification Log

Party Contacted	Time	Person Contacted

Events Log

Date	Time	Action/Event Progression	Taken By

Signature: _____

EMERGENCY ACTION PLAN (REVISED 2025)

Upper Golf Course Reservoir Dam
Stowe, Vermont

EXAMPLE – NOT AN ACTUAL EVENT LOG

UNUSUAL OR EMERGENCY EVENT LOG

Agency/Organization: Stowe Mountain Resort

 : Notification Test

 : Event Level 3

 X : Event Level 2

 : Event Level 1 (applicable to SMR personnel only)

Name: John Doe (Reservoir Manager)

Date: 01/01/20 Time: 1545 hrs

Call Received From: Jane Doe (SMR staff member)

Notification Log

Party Contacted	Time	Person Contacted
911	1550	Dispatcher
DRO	1555	Mr. Mount Mansfield
911	1630	Dispatcher

Events Log

Date	Time	Action/Event Progression	Taken By
1/1/04	1545	Received call from Jane Doe regarding observation of new seepage areas with cloudy discharge	-
1/1/04	1550	Called 911 to inform of Event Level 2 condition	John Doe
1/1/04	1555	Called DRO to inform of Event Level 2 condition	John Doe
1/1/04	1620	Received call from RM recommending that event be downgraded to Event Level 1 condition	John Doe
1/1/04	1630	Called 911 to inform that even has been downgraded to Event Level 1 condition	John Doe
1/3/04	1430	Scheduled conference call as outlined in EAP section 7.2 to discuss events and response	John Doe

Signature: John Doe