

Inundation Modeling and Mapping, Emergency Action Plan (EAP) Dam Failure Map Supplement Report for Shadow Run Dam at Lake Grady, Riverview, Hillsborough County, Florida

Prepared for

**Florida Department of Environmental Protection, Florida Dam Safety
Program, Division of Water Resource Management**

NID ID: FL00176 Shadow Run Dam, Riverview, Hillsborough County, Florida



Professional Services Contract No. BS135

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Prepared by COMAK Group, Inc

in association with

Mott MacDonald Florida, LLC

REVISED FINAL

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1.0 LOCATION INFORMATION

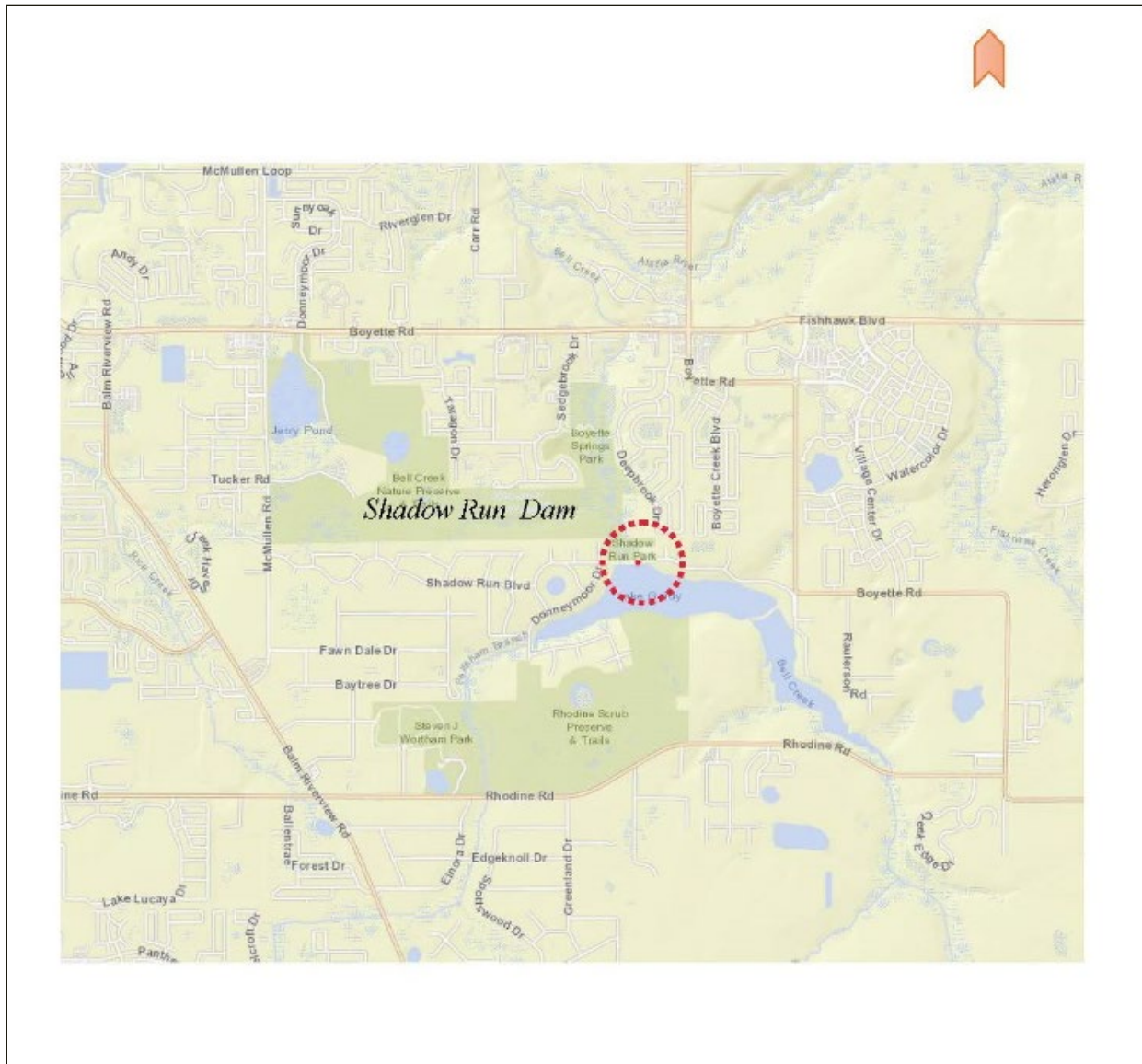


Figure 1. Project Vicinity Map – Shadow Run Dam, Riverview, Hillsborough County, FL

2.0 Emergency Action Plan (EAP) Dam Failure Map

An EAP Dam Failure Inundation Map is developed for Shadow Run Dam as a supplement to the Inundation Modeling and Mapping as part of the project scope. The purpose of the EAP Dam Failure Inundation Map is to assist the dam owner and emergency management authorities with identifying critical infrastructure and population at risk locations that may require protective measures and early warning and evacuation planning. The EAP Dam Failure inundation map for Shadow Lake Dam at Lake Grady is included in Appendix A1 using indexed panels -A1 and -A2.

The EAP Dam Failure Inundation map is intended to be a companion document to the EAP, which is the formal document that identifies potential emergency conditions at the dam and will specify preplanned actions to be followed to minimize property damage and loss of life during extreme events. FEMA guidance recommends the use of the worst-case scenarios in the preparation of the EAP inundation map and plan. Consequently, the Shadow Run Dam EAP inundation map was prepared to show the flood extents for:

- the Sunny Day dam failure
- the 100-year storm dam failure
- the ½ PMP storm dam failure
- the PMP storm dam failure

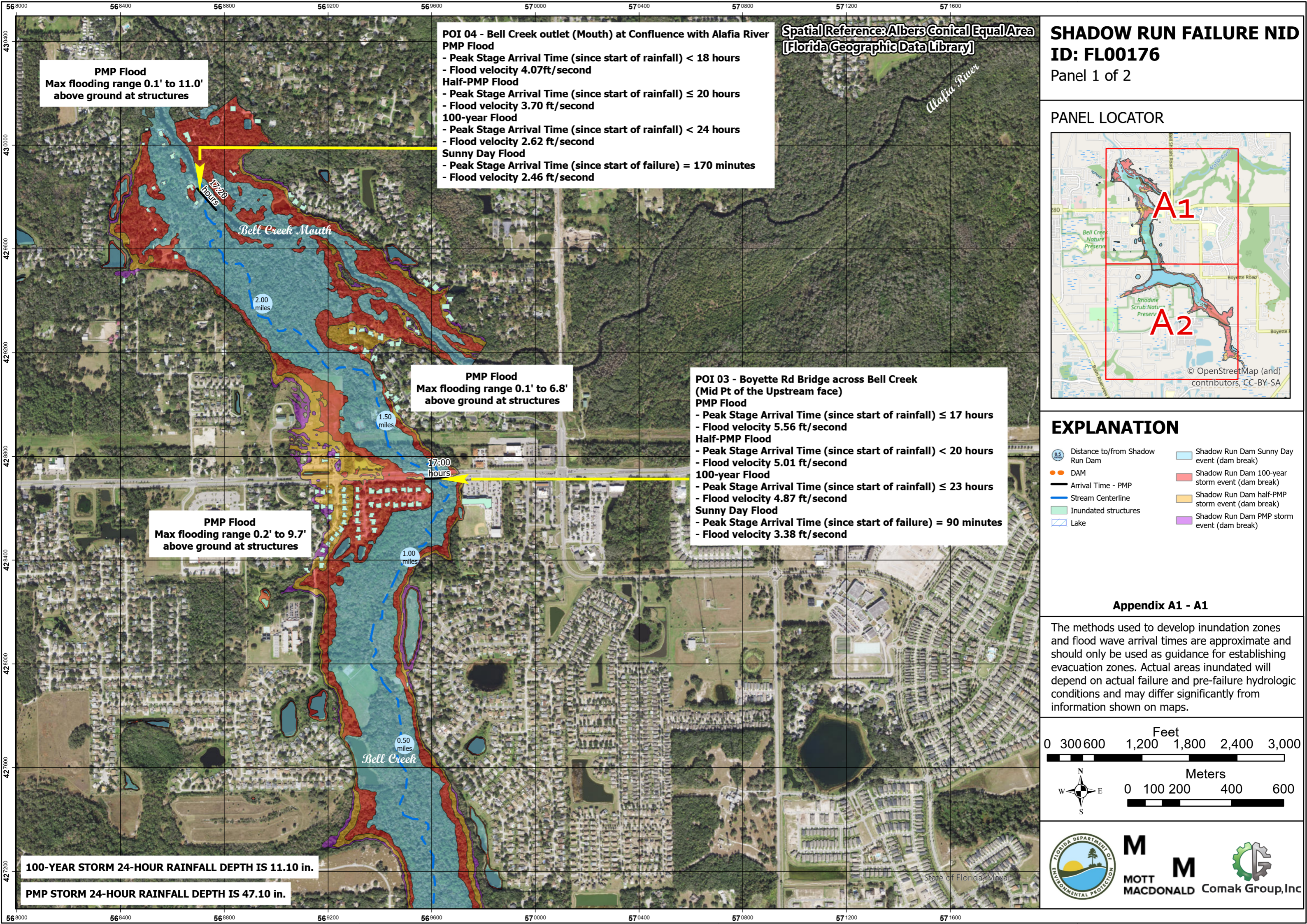
The indexed EAP Inundated maps are annotated and lists/depicts:

- the time of flood wave arrival at selected Points of Interest (POI)
- the flood wave velocity for dam failure for Sunny Day, 100-year and PMP storms
- impacted homes/structures with light blue color highlight code as per FEMA guidance
- PMP storm sequential dam failure maximum flooding depth above ground at the structures
- stream distance in miles from Shadow Run Dam

3.0 APPENDIX A1

EAP Dam Failure Map Panel A1-A1

EAP Dam Failure Map Panel A1-A2



PMP Flood
Max flooding range 0.1' to 11.0'
above ground at structures

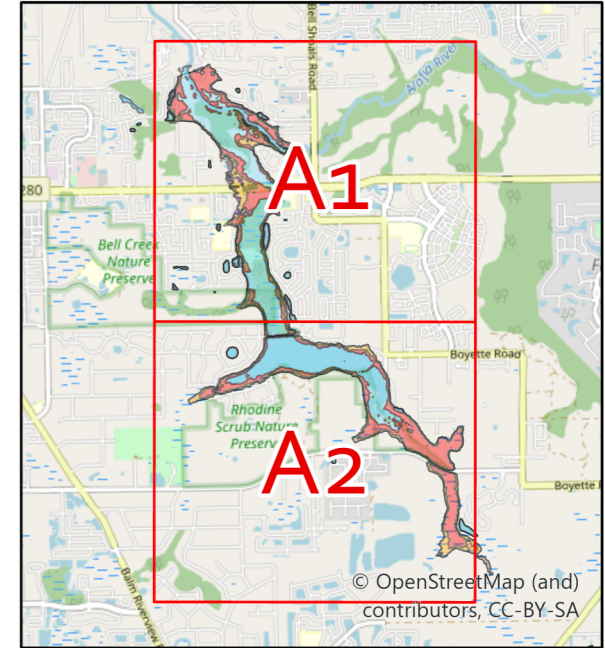
POI 04 - Bell Creek outlet (Mouth) at Confluence with Alafia River
PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 18 hours
- Flood velocity 4.07ft/second
Half-PMP Flood
- Peak Stage Arrival Time (since start of rainfall) ≤ 20 hours
- Flood velocity 3.70 ft/second
100-year Flood
- Peak Stage Arrival Time (since start of rainfall) < 24 hours
- Flood velocity 2.62 ft/second
Sunny Day Flood
- Peak Stage Arrival Time (since start of failure) = 170 minutes
- Flood velocity 2.46 ft/second

Spatial Reference: Albers Conical Equal Area
[Florida Geographic Data Library]

SHADOW RUN FAILURE NID
ID: FL00176

Panel 1 of 2

PANEL LOCATOR



PMP Flood
Max flooding range 0.1' to 6.8'
above ground at structures

POI 03 - Boyette Rd Bridge across Bell Creek
(Mid Pt of the Upstream face)
PMP Flood
- Peak Stage Arrival Time (since start of rainfall) ≤ 17 hours
- Flood velocity 5.56 ft/second
Half-PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 20 hours
- Flood velocity 5.01 ft/second
100-year Flood
- Peak Stage Arrival Time (since start of rainfall) ≤ 23 hours
- Flood velocity 4.87 ft/second
Sunny Day Flood
- Peak Stage Arrival Time (since start of failure) = 90 minutes
- Flood velocity 3.38 ft/second

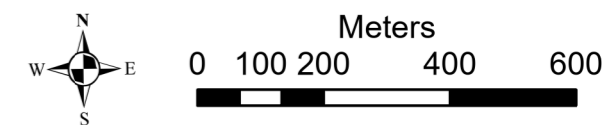
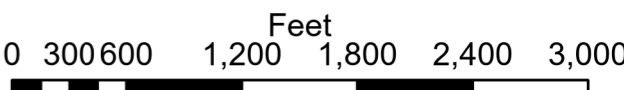
PMP Flood
Max flooding range 0.2' to 9.7'
above ground at structures

EXPLANATION

- Distance to/from Shadow Run Dam
- DAM
- Arrival Time - PMP
- Stream Centerline
- Inundated structures
- Lake
- Shadow Run Dam Sunny Day event (dam break)
- Shadow Run Dam 100-year storm event (dam break)
- Shadow Run Dam half-PMP storm event (dam break)
- Shadow Run Dam PMP storm event (dam break)

Appendix A1 - A1

The methods used to develop inundation zones and flood wave arrival times are approximate and should only be used as guidance for establishing evacuation zones. Actual areas inundated will depend on actual failure and pre-failure hydrologic conditions and may differ significantly from information shown on maps.



100-YEAR STORM 24-HOUR RAINFALL DEPTH IS 11.10 in.

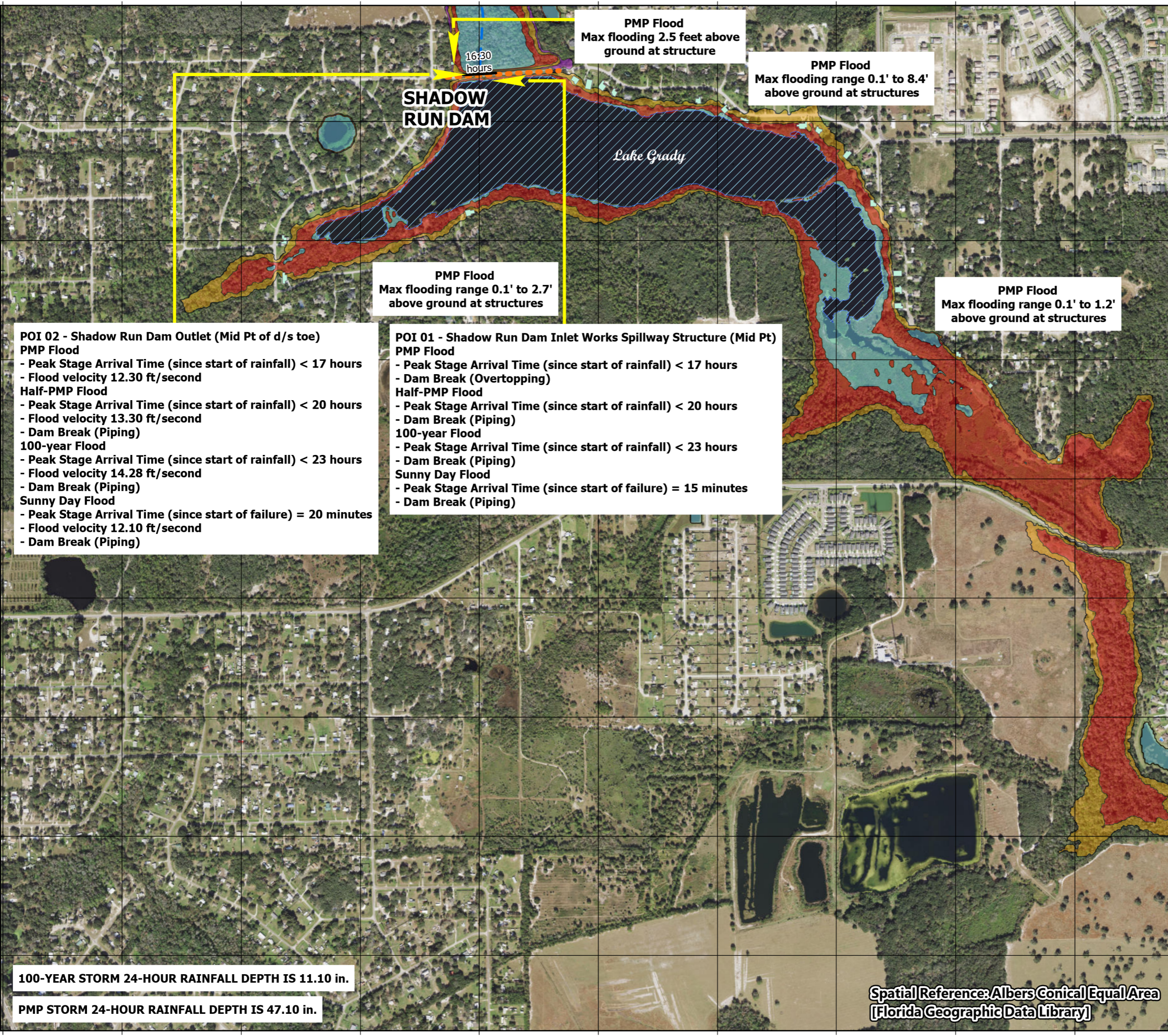
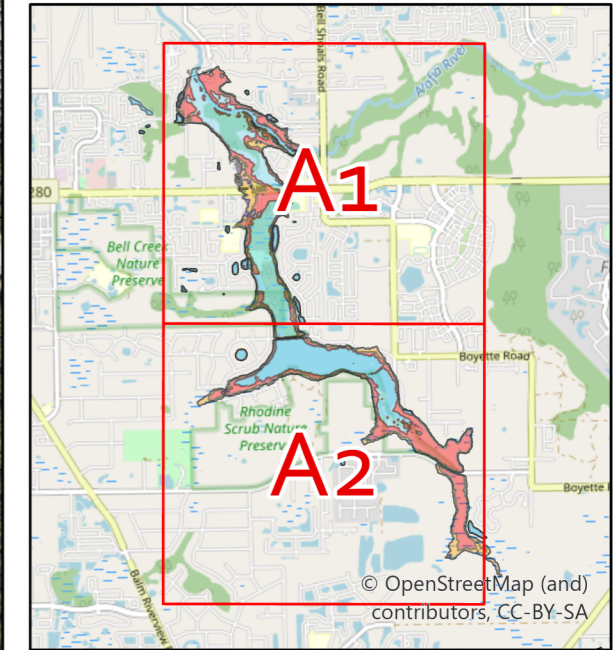
PMP STORM 24-HOUR RAINFALL DEPTH IS 47.10 in.

State of Florida, Mexico

SHADOW RUN DAM FAILURE NID ID: FL00176

Panel 2 of 2
PMP, 100-year and Sunny Day Dam Breaks

PANEL LOCATOR



PMP Flood
Max flooding 2.5 feet above ground at structure

PMP Flood
Max flooding range 0.1' to 8.4' above ground at structures

SHADOW RUN DAM

Lake Grady

PMP Flood
Max flooding range 0.1' to 2.7' above ground at structures

PMP Flood
Max flooding range 0.1' to 1.2' above ground at structures

POI 02 - Shadow Run Dam Outlet (Mid Pt of d/s toe)
PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 17 hours
- Flood velocity 12.30 ft/second
Half-PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 20 hours
- Flood velocity 13.30 ft/second
- Dam Break (Piping)
100-year Flood
- Peak Stage Arrival Time (since start of rainfall) < 23 hours
- Flood velocity 14.28 ft/second
- Dam Break (Piping)
Sunny Day Flood
- Peak Stage Arrival Time (since start of failure) = 20 minutes
- Flood velocity 12.10 ft/second
- Dam Break (Piping)

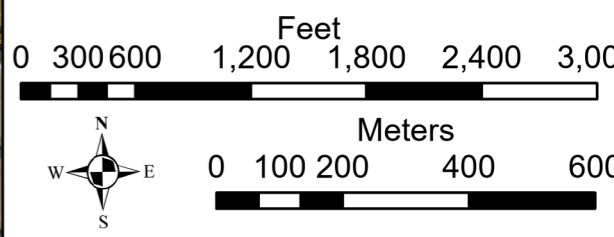
POI 01 - Shadow Run Dam Inlet Works Spillway Structure (Mid Pt)
PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 17 hours
- Dam Break (Overtopping)
Half-PMP Flood
- Peak Stage Arrival Time (since start of rainfall) < 20 hours
- Dam Break (Piping)
100-year Flood
- Peak Stage Arrival Time (since start of rainfall) < 23 hours
- Dam Break (Piping)
Sunny Day Flood
- Peak Stage Arrival Time (since start of failure) = 15 minutes
- Dam Break (Piping)

EXPLANATION

- Distance to/from Shadow Run Dam
- Dotted line
- Arrival Time - PMP
- Stream Centerline
- Inundated structures
- Lake
- Shadow Run Dam Sunny Day event (dam break)
- Shadow Run Dam 100-year storm event (dam break)
- Shadow Run Dam half-PMP storm event (dam break)
- Shadow Run Dam PMP storm event (dam break)

Appendix A1 - A2

The methods used to develop inundation zones and flood wave arrival times are approximate and should only be used as guidance for establishing evacuation zones. Actual areas inundated will depend on actual failure and pre-failure hydrologic conditions and may differ significantly from information shown on maps.



100-YEAR STORM 24-HOUR RAINFALL DEPTH IS 11.10 in.

PMP STORM 24-HOUR RAINFALL DEPTH IS 47.10 in.

Spatial Reference: Albers Conical Equal Area
[Florida Geographic Data Library]

