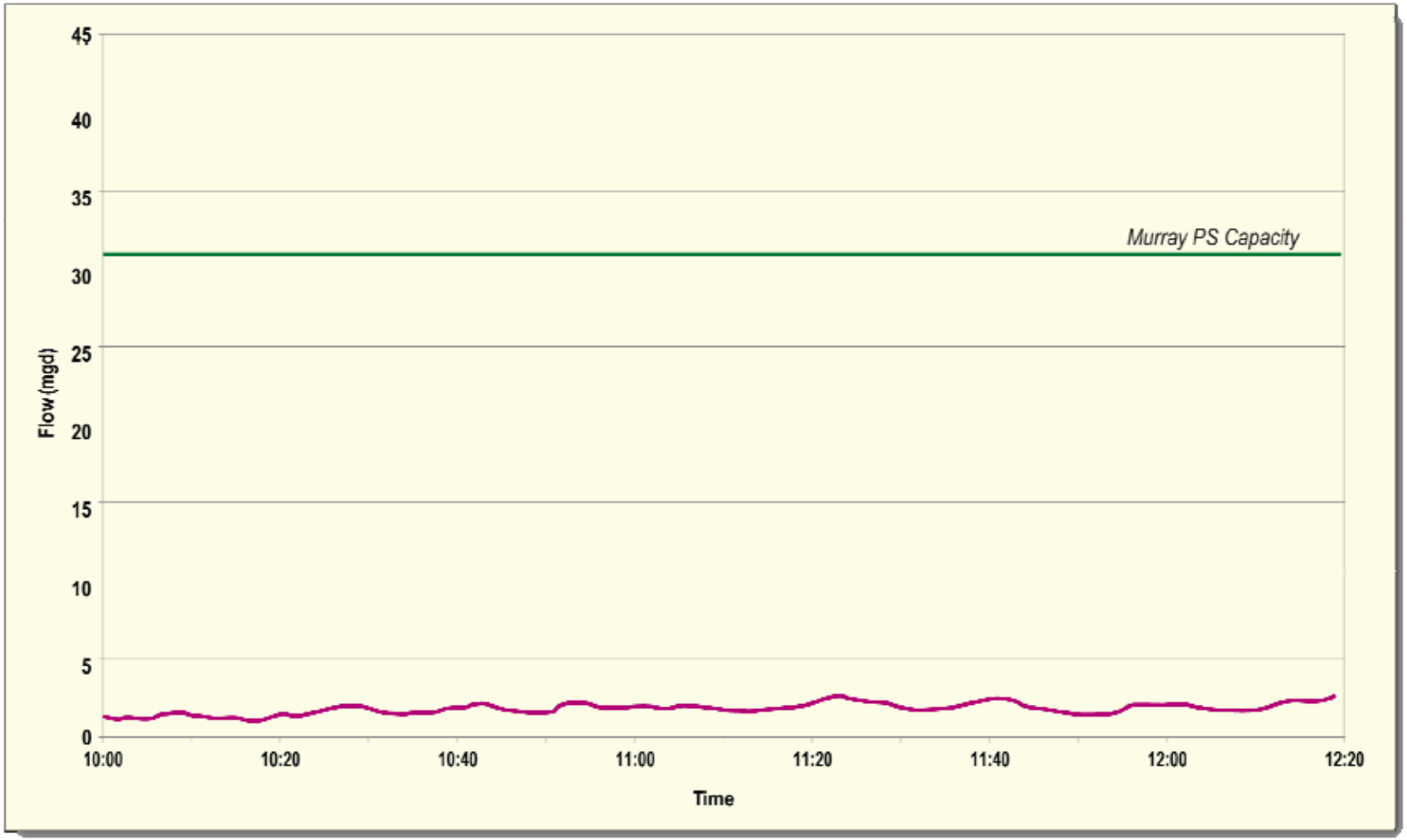
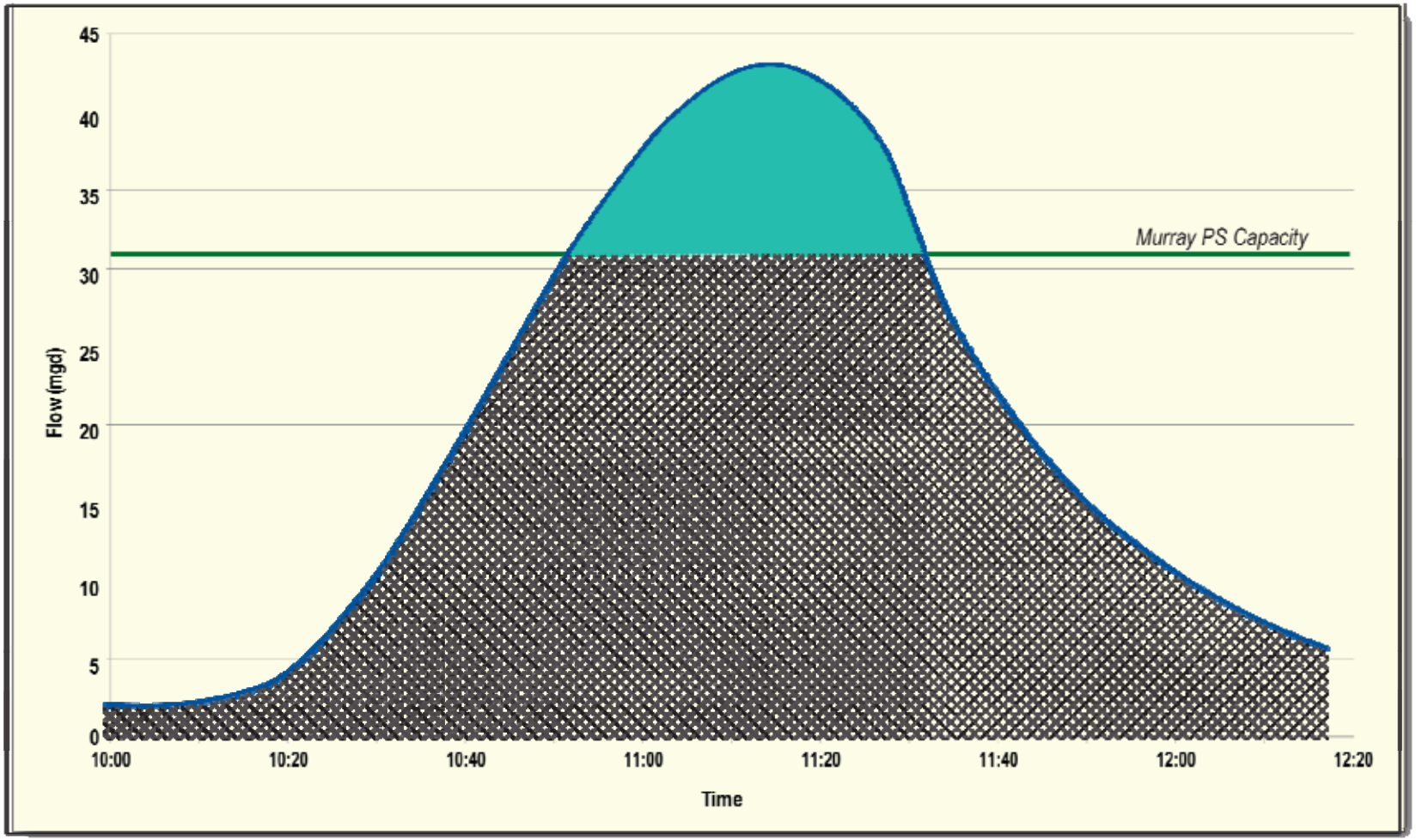
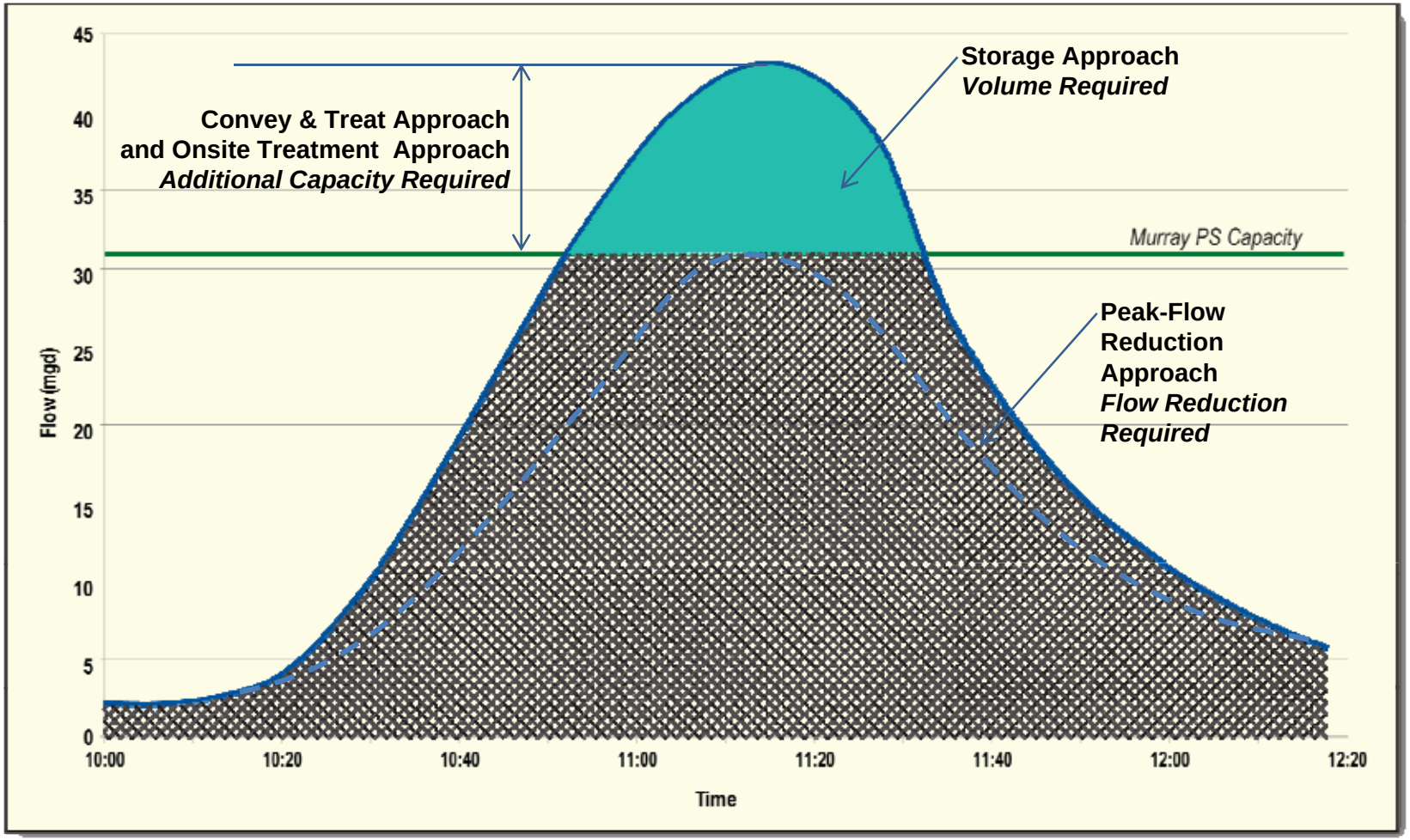
“Typical” Murray Basin Dry Weather Hydrograph



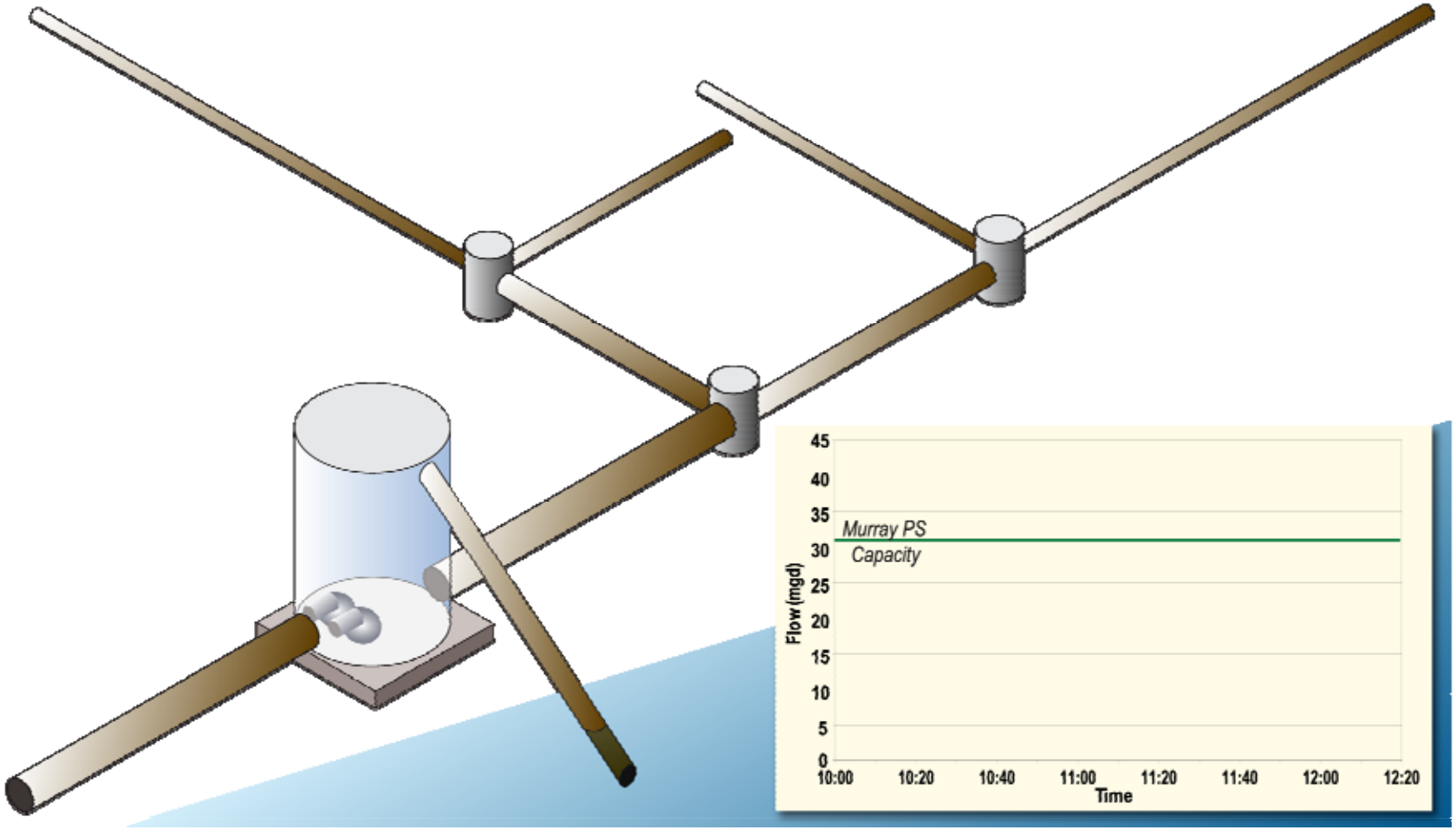
Murray Basin Hydrograph During a CSO Event

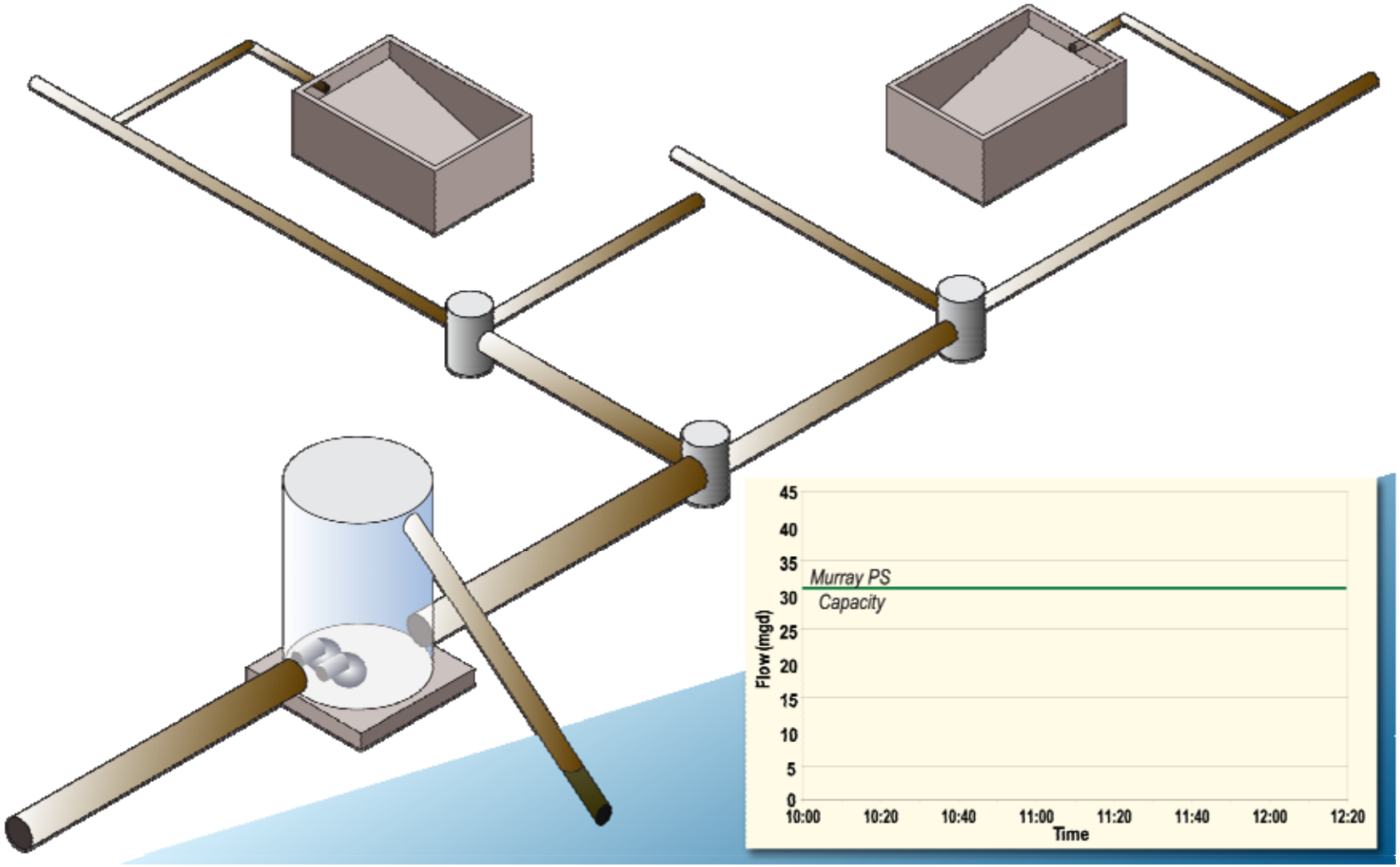


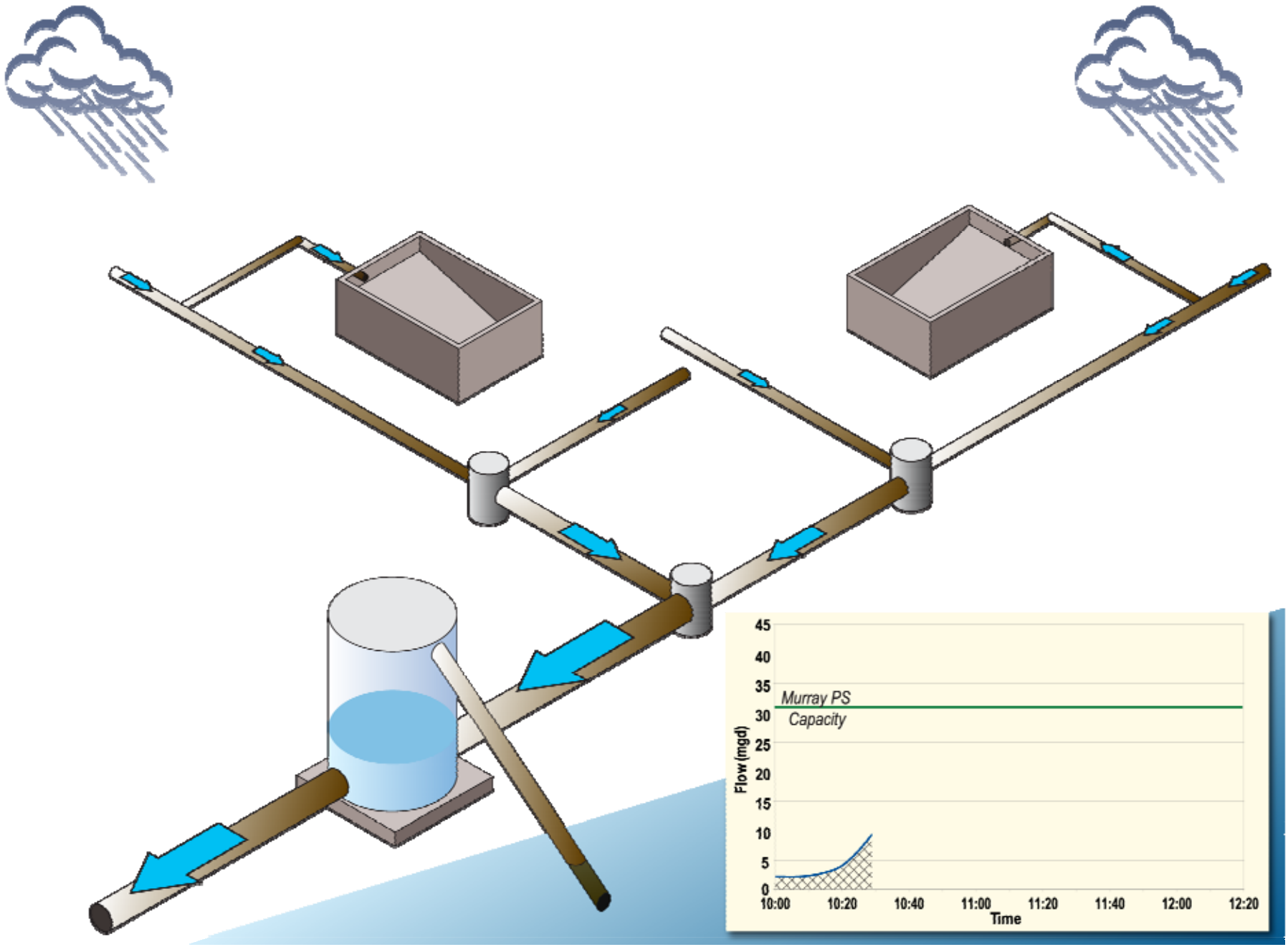
CSO Control Needs Determined From Hydrograph

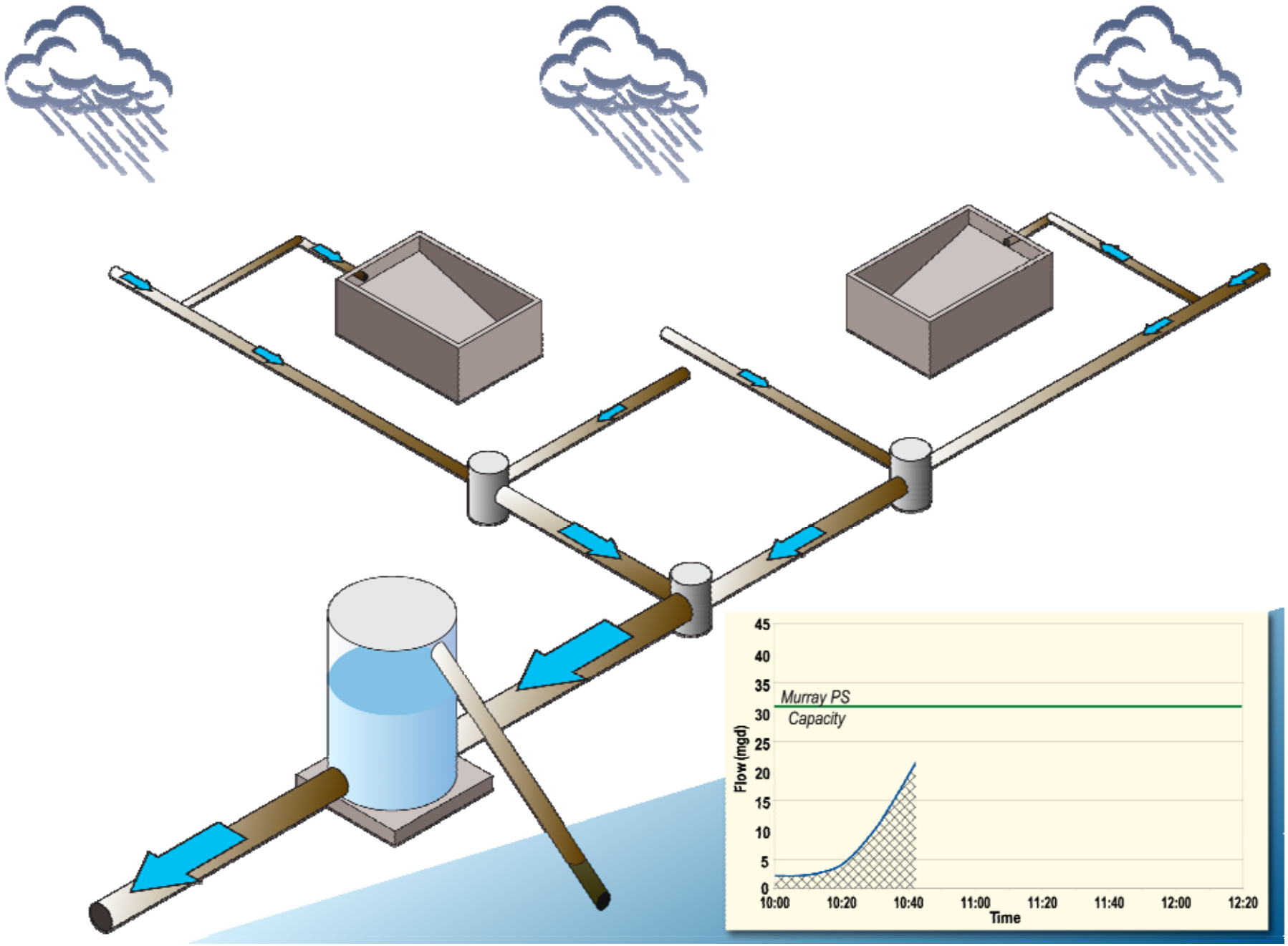


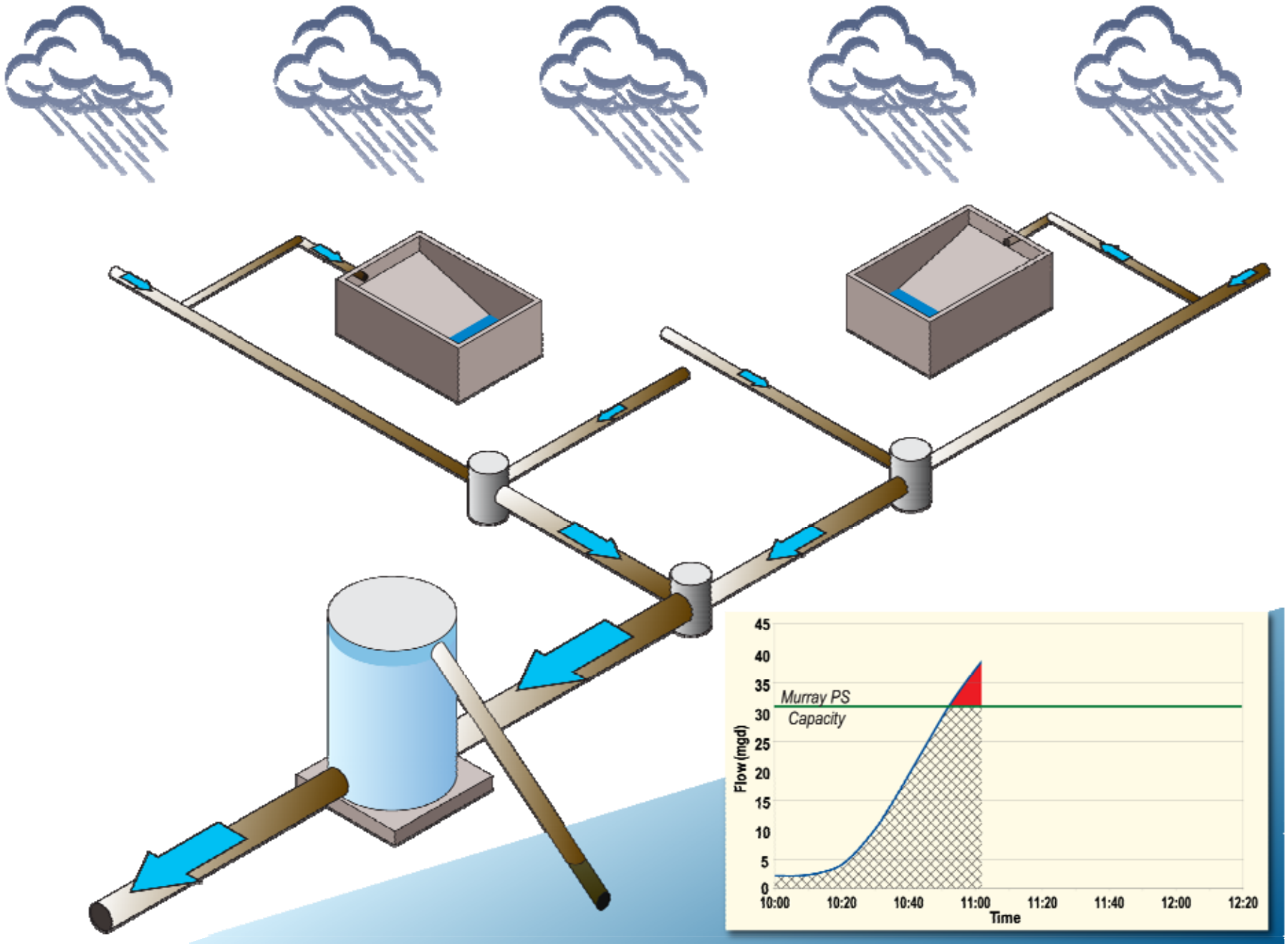
Upland Storage Example in Murray Basin

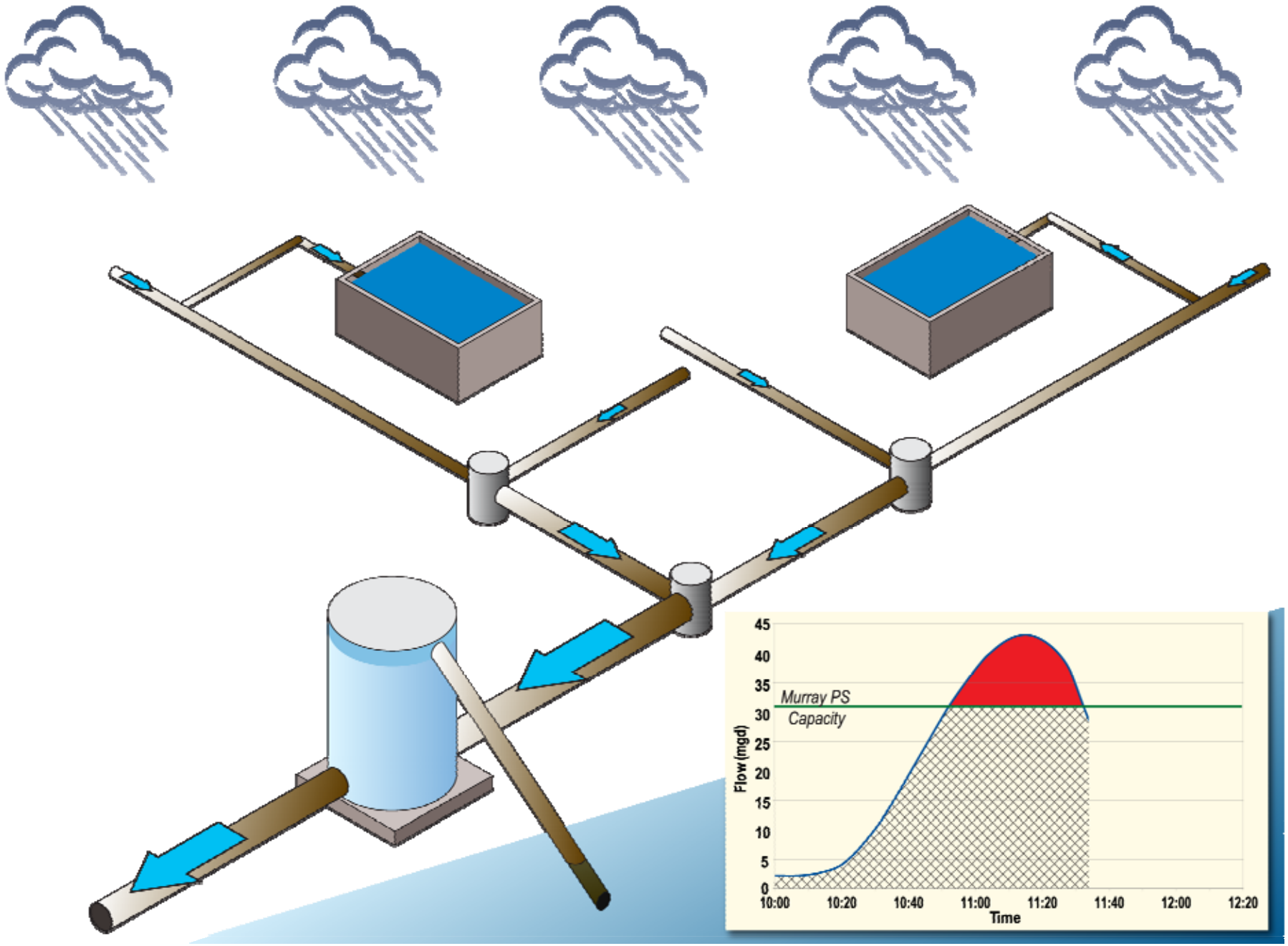


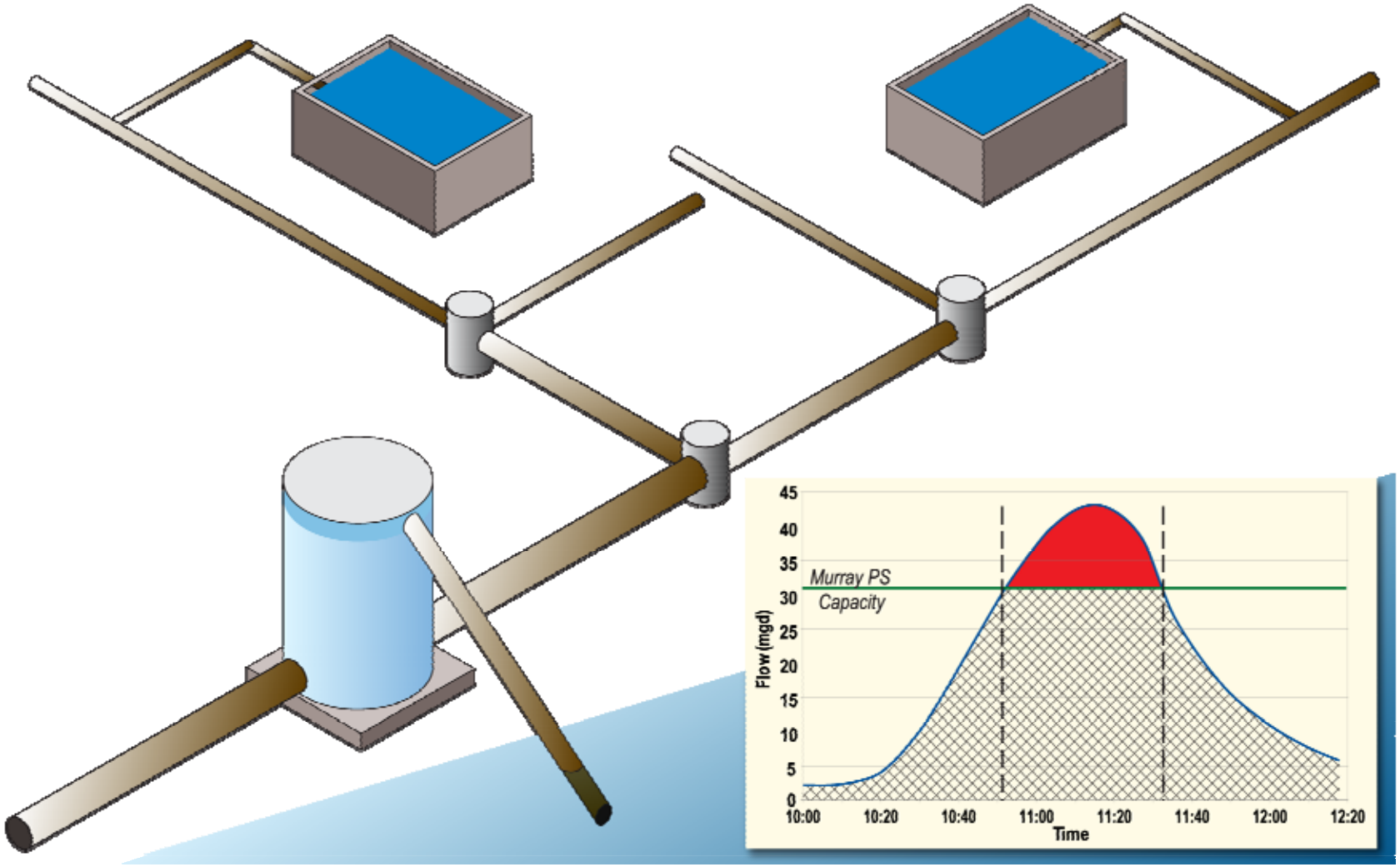

45
40
35
30
25
20
15
10
5
0
Flow (mgd)
Murray PS
Capacity
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

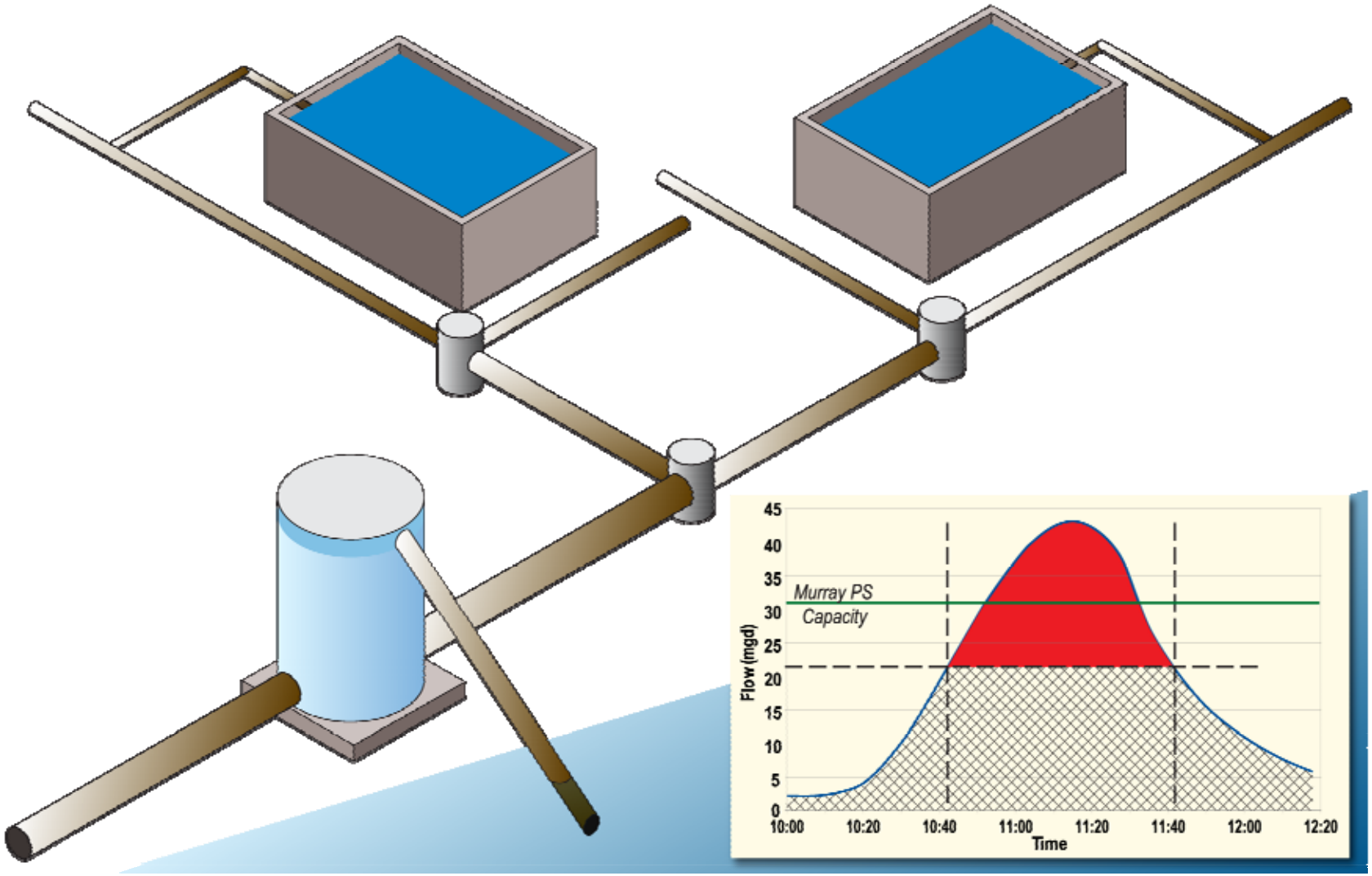

Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

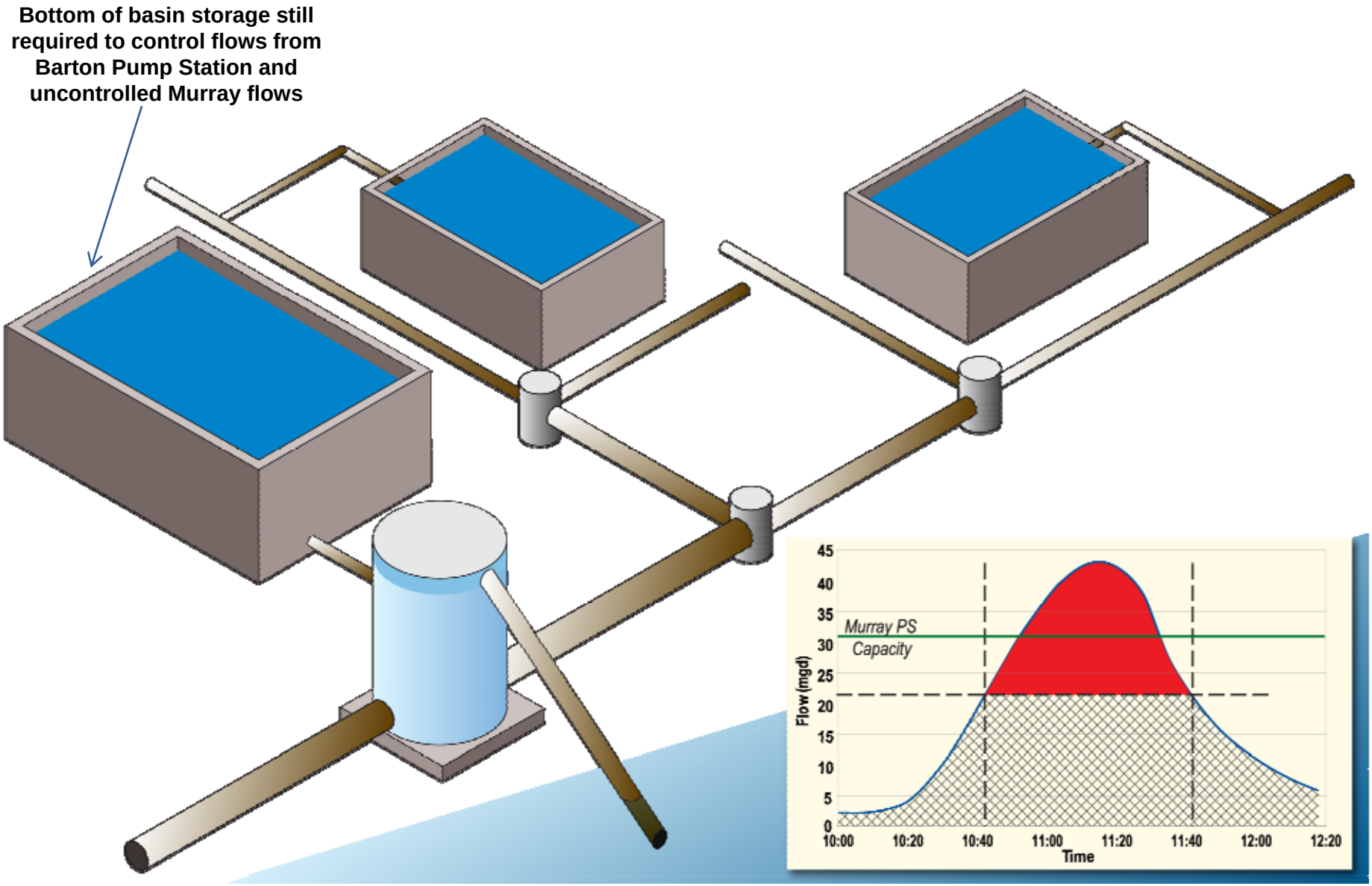

Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time


Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

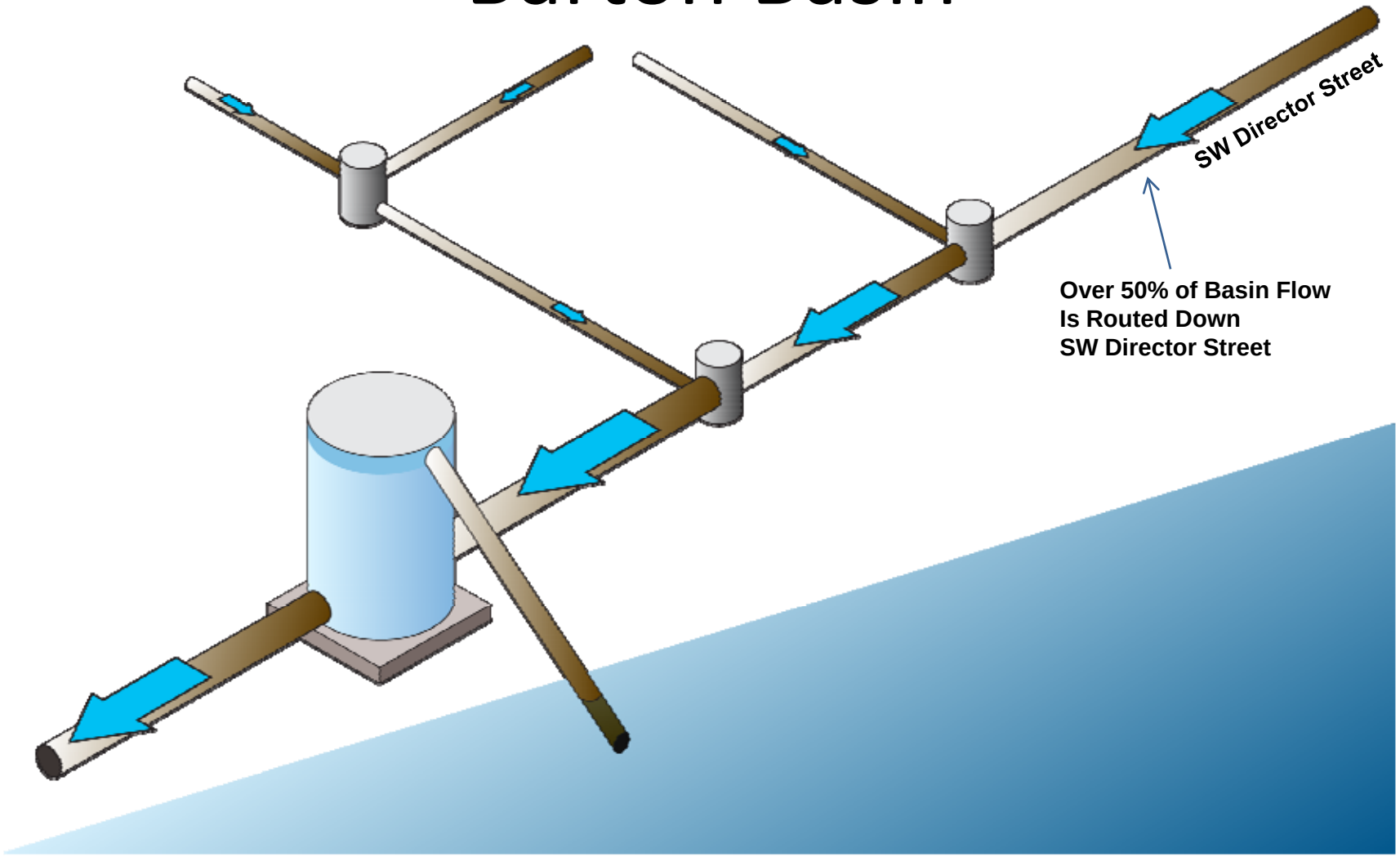

Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

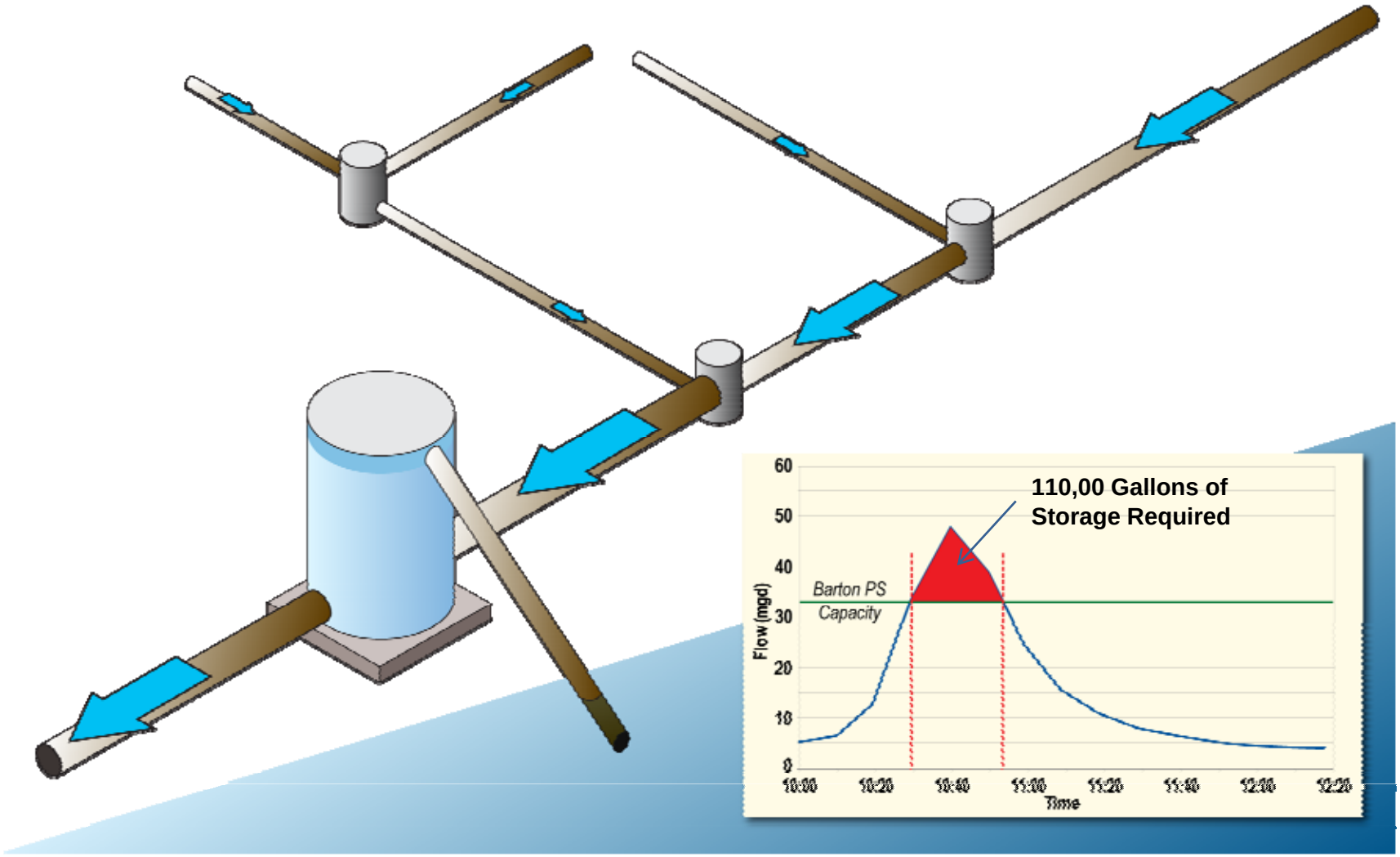

Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

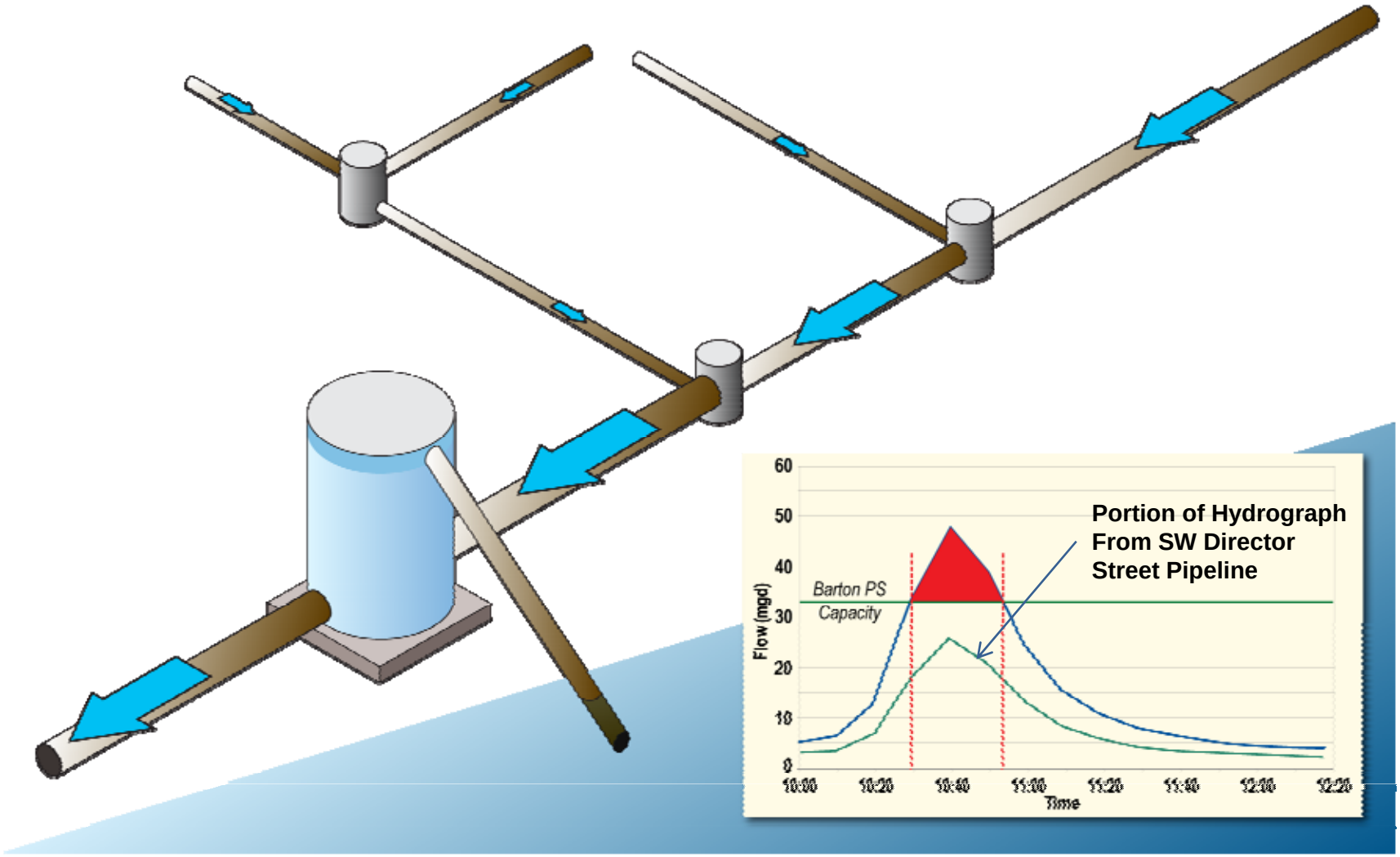

Murray PS
Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

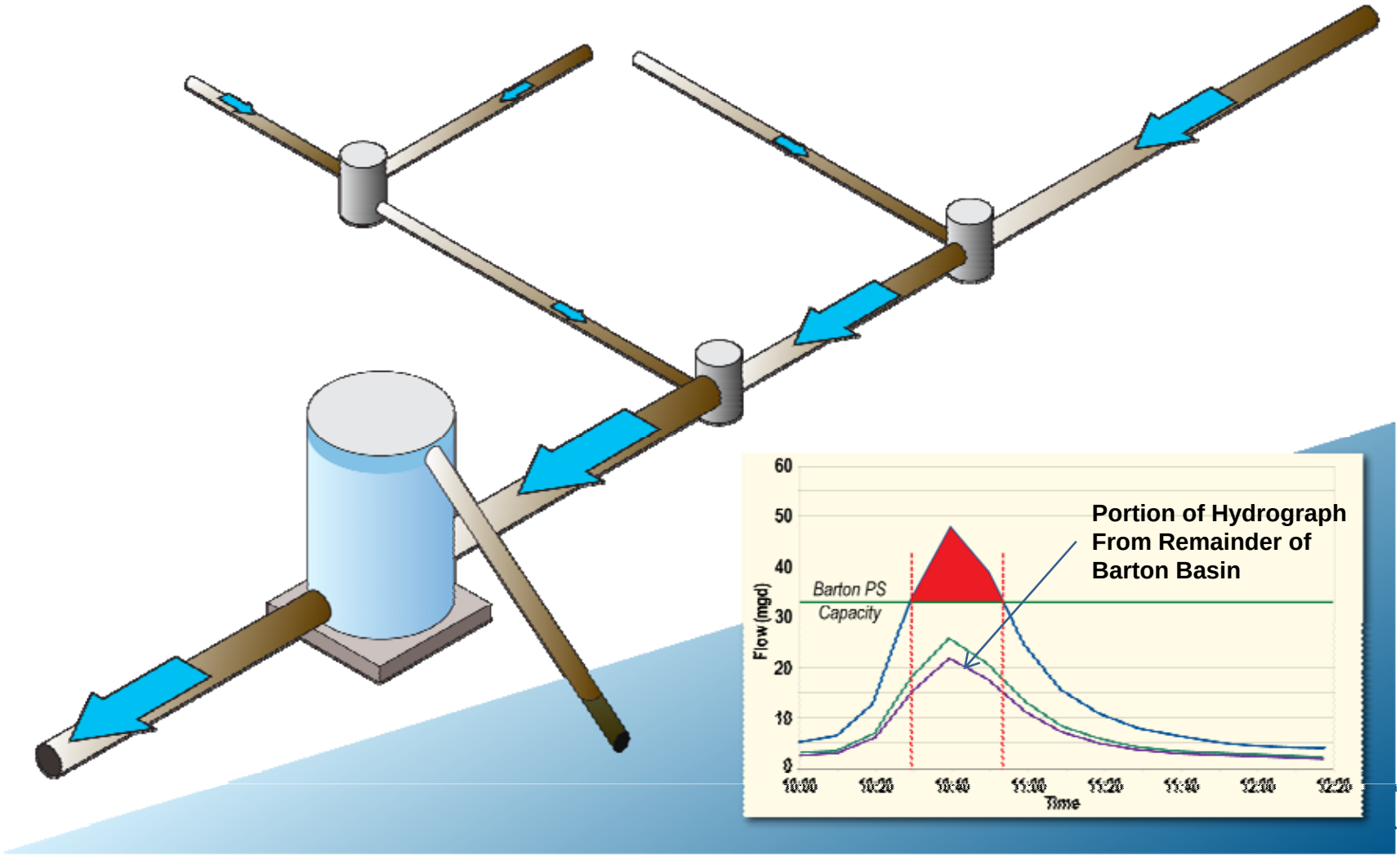

Bottom of basin storage still required to control flows from Barton Pump Station and uncontrolled Murray flows
Murray PS Capacity
Flow (mgd)
45
40
35
30
25
20
15
10
5
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

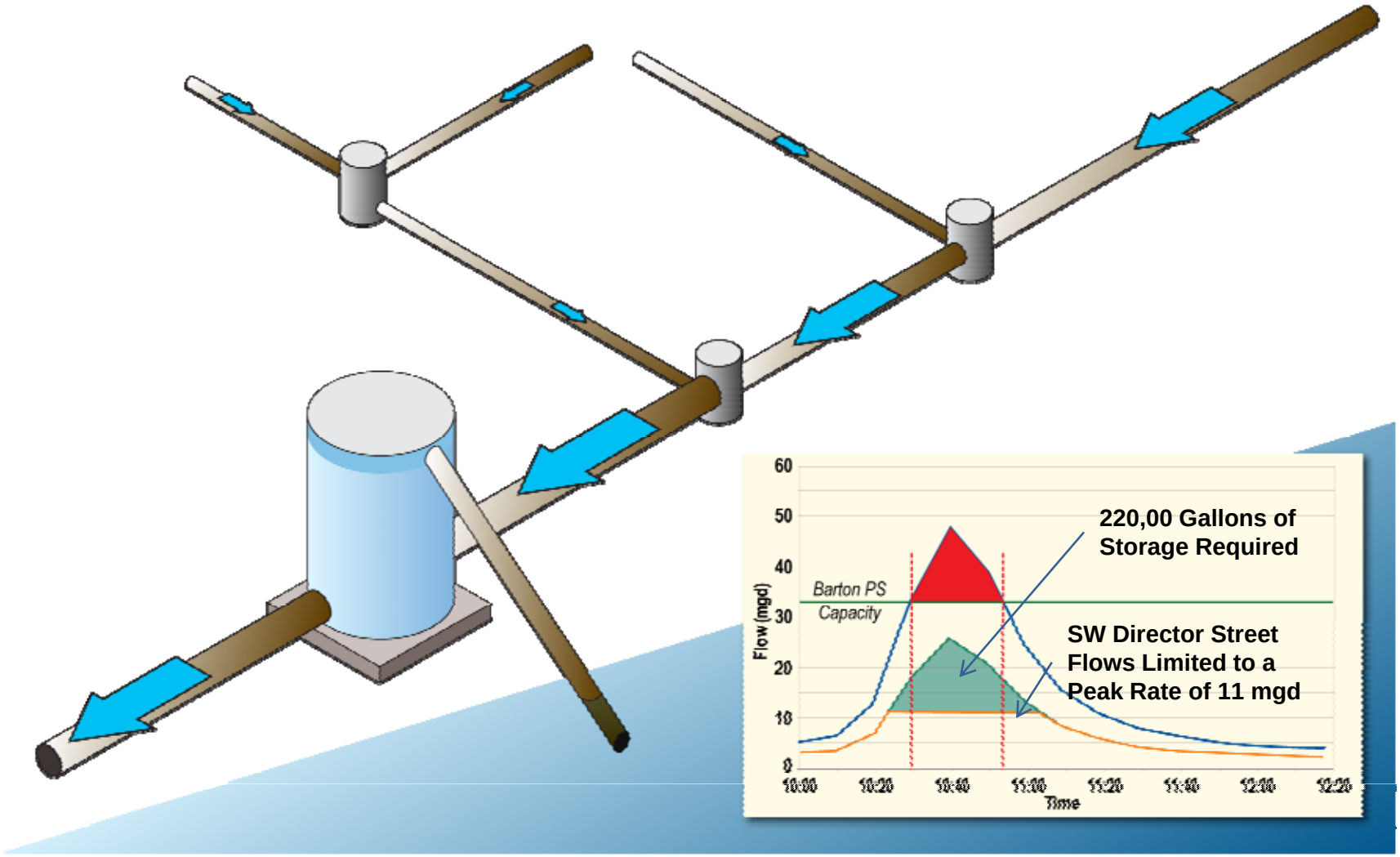
Upland Storage Alternative in Barton Basin

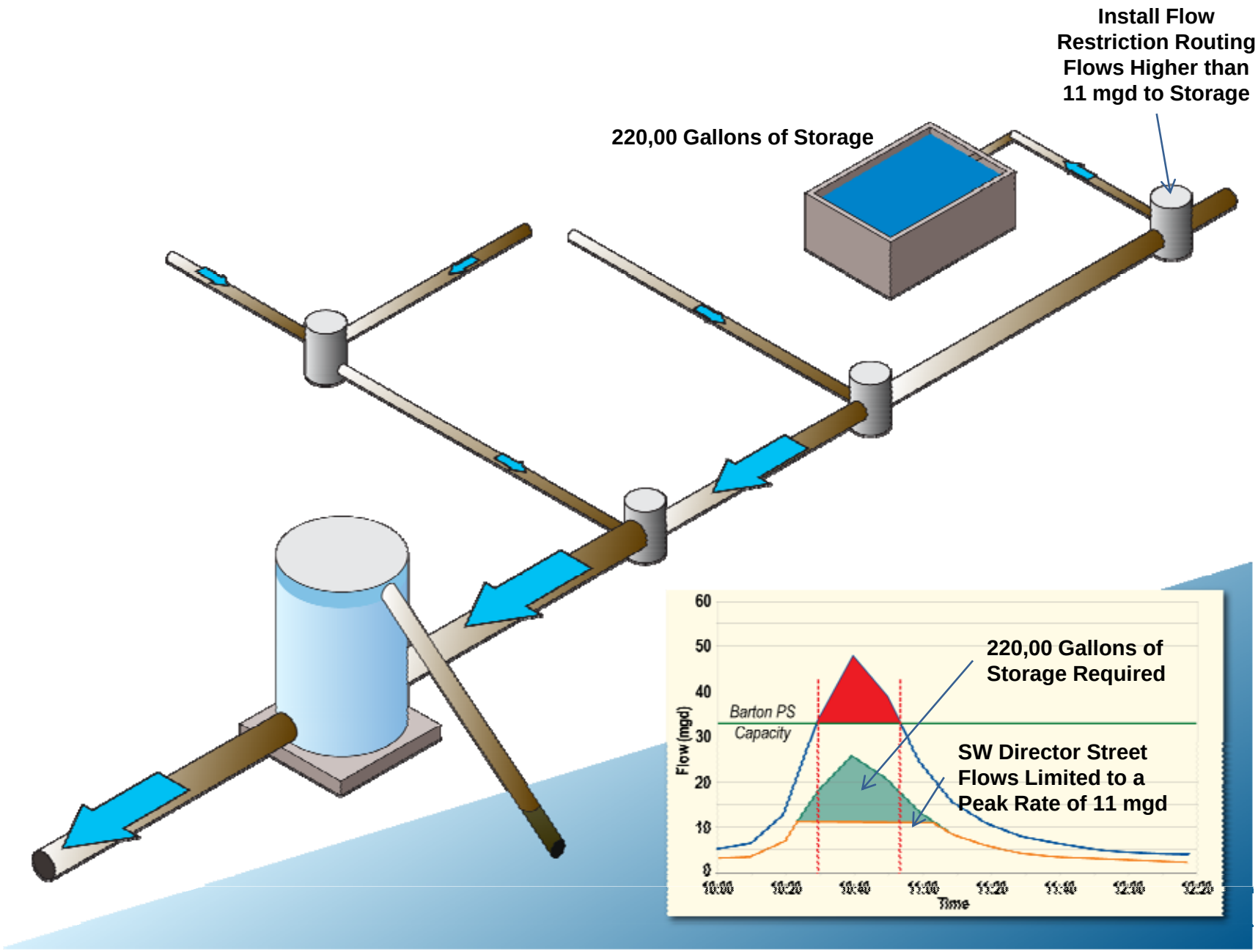



110,00 Gallons of
Storage Required
Barton PS
Capacity
Flow (mgd)
60
50
40
30
20
10
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

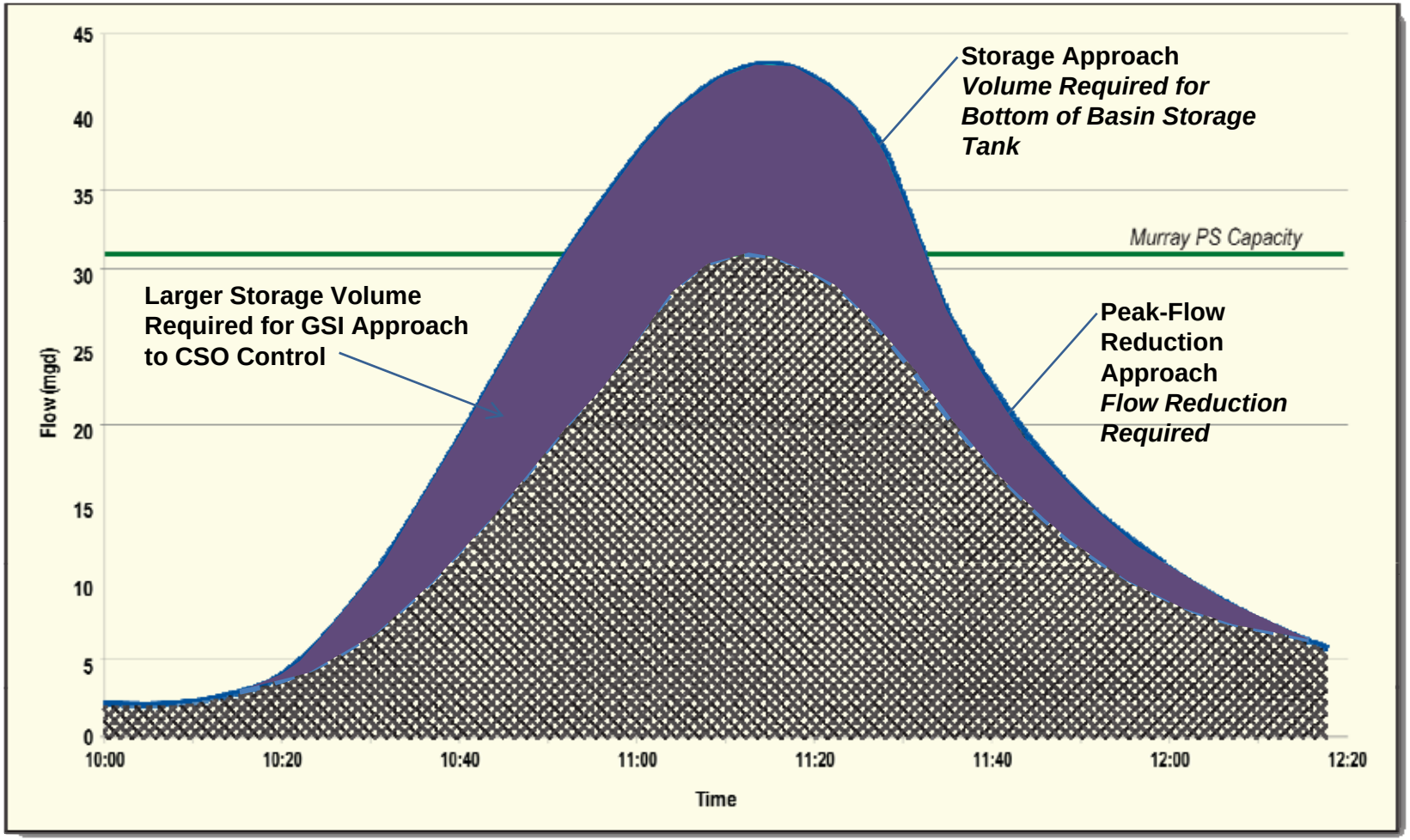

Portion of Hydrograph
From SW Director
Street Pipeline
Barton PS
Capacity
Flow (mgd)
60
50
40
30
20
10
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time


Portion of Hydrograph From Remainder of Barton Basin
Barton PS Capacity
Flow (mgd)
60
50
40
30
20
10
0
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time

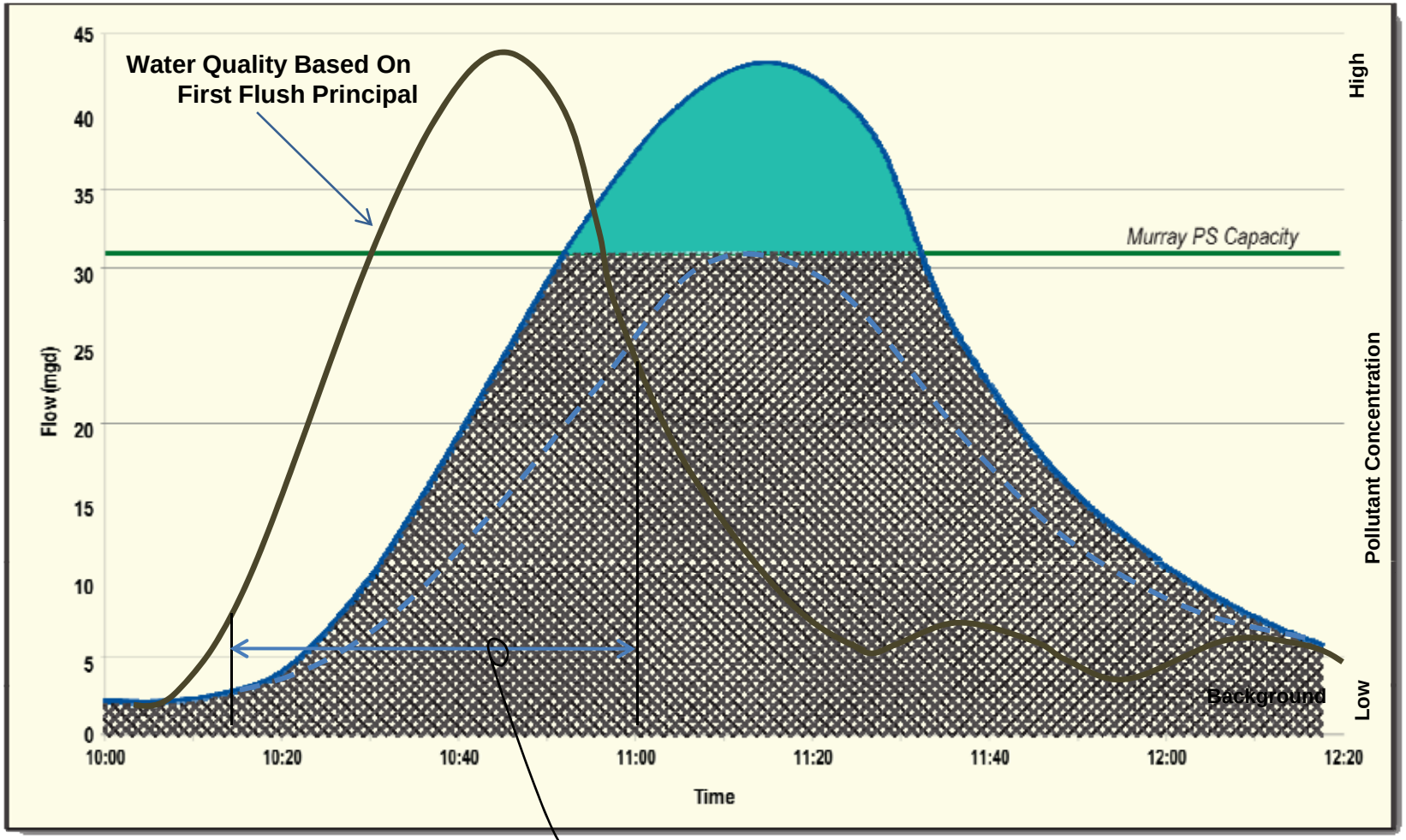

60
50
40
30
20
10
0
Flow (mgd)
Barton PS
Capacity
220,00 Gallons of
Storage Required
SW Director Street
Flows Limited to a
Peak Rate of 11 mgd
10:00
10:20
10:40
11:00
11:20
11:40
12:00
12:20
Time


Install Flow Restriction Routing Flows Higher than 11 mgd to Storage
220,00 Gallons of Storage
220,00 Gallons of Storage Required
SW Director Street Flows Limited to a Peak Rate of 11 mgd
Barton PS Capacity
Flow (mgd)
Time
60
50
40
30
20
10
0

GSI Needs For CSO Control

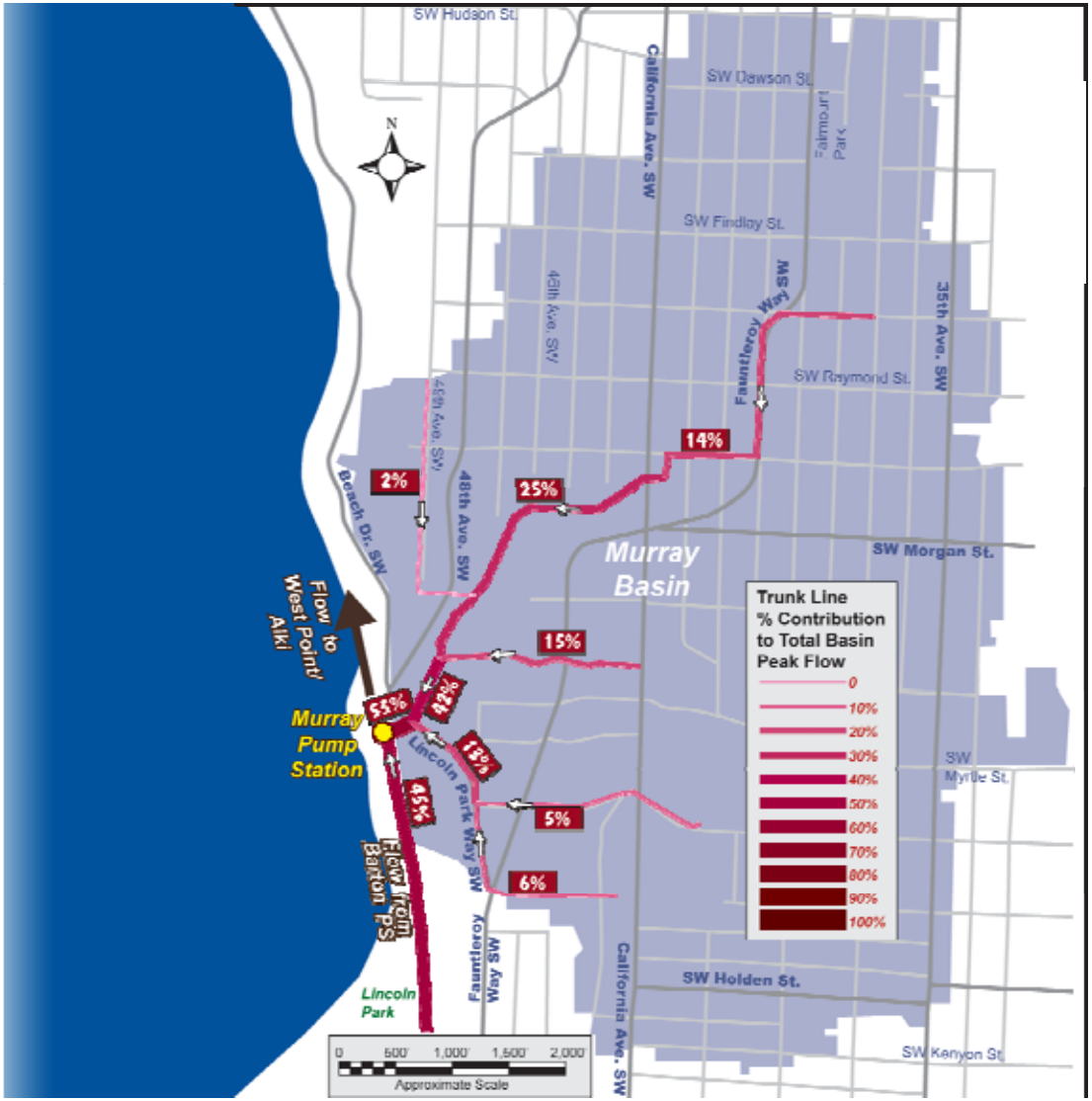


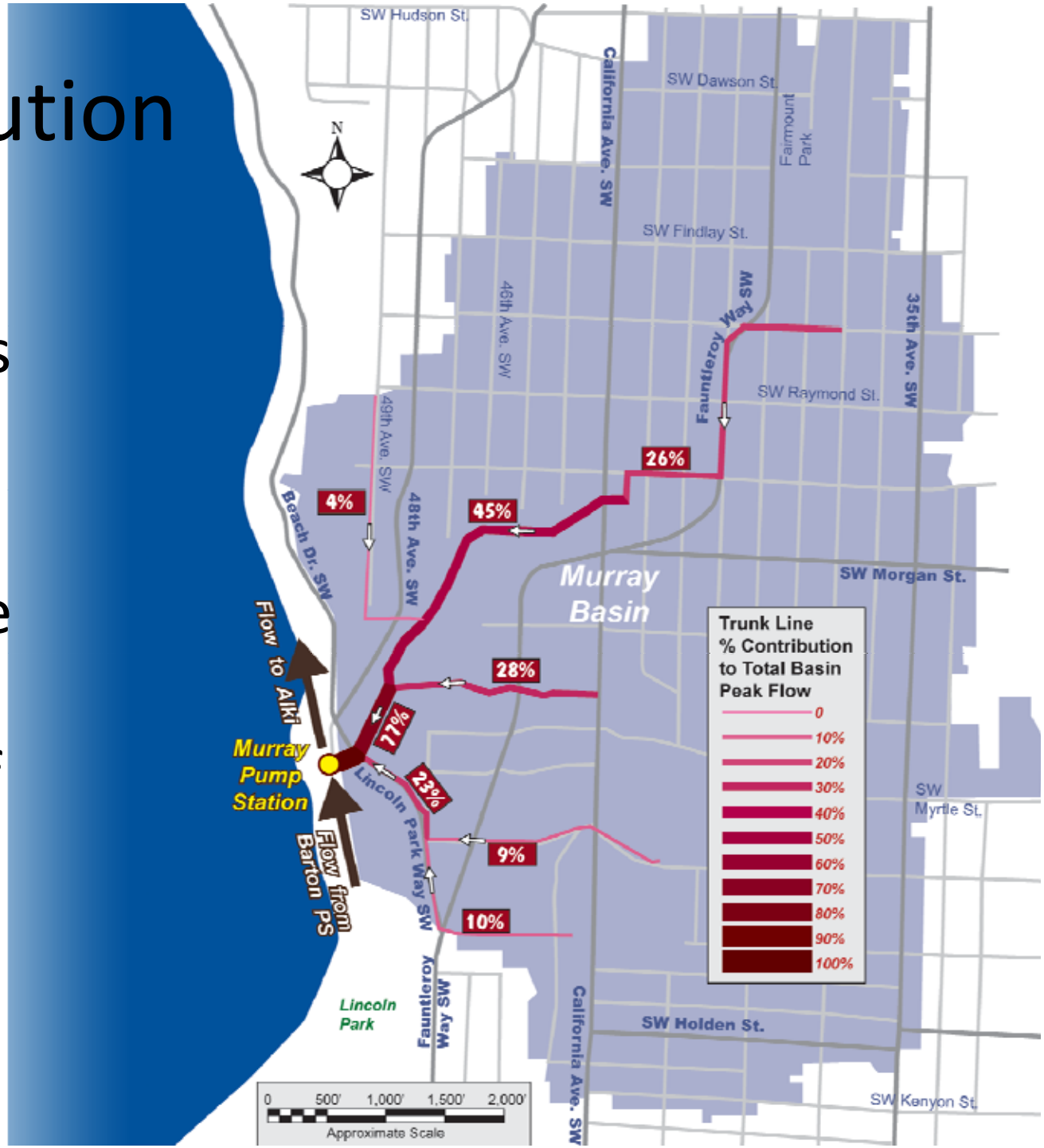
GSI Needs For Stormwater



For stormwater control, focus of GSI is on beginning of storm when pollutant concentrations are highest

Flow Measurements and Analysis Determined Basin Flow Distribution



Flow Distribution in Basin

- Flow converges at Murray Pump Station
- Murray Avenue trunk carries roughly 75% of basin flow