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Snell Building & Law School Parking Lot

Flood Prevention

The Team

Team Leader – Brandon Decker

Hydrologist – Danny Brown

BIM/Design – Andrew Van Every

Communications – Tommy Scherbel

WMS – Yub Giri

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Problem

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Observations

- Bad placement of storm drains
- Hill on North side of the Snell, directing any extra water toward the front of the building
- Minimal drainage in front of the Snell
- Lots of water heading straight to the Snell
- Drains that have a hole just stabbed into the tops of the pipes

Constraints

- No Specific Cost Set
- Accessible to Cleaning
- Minimal Construction
- Existing System
- Fit in the Contours of the Already Present Elevations
- Pipes account for all drainage – No surface runoff (street gutters)

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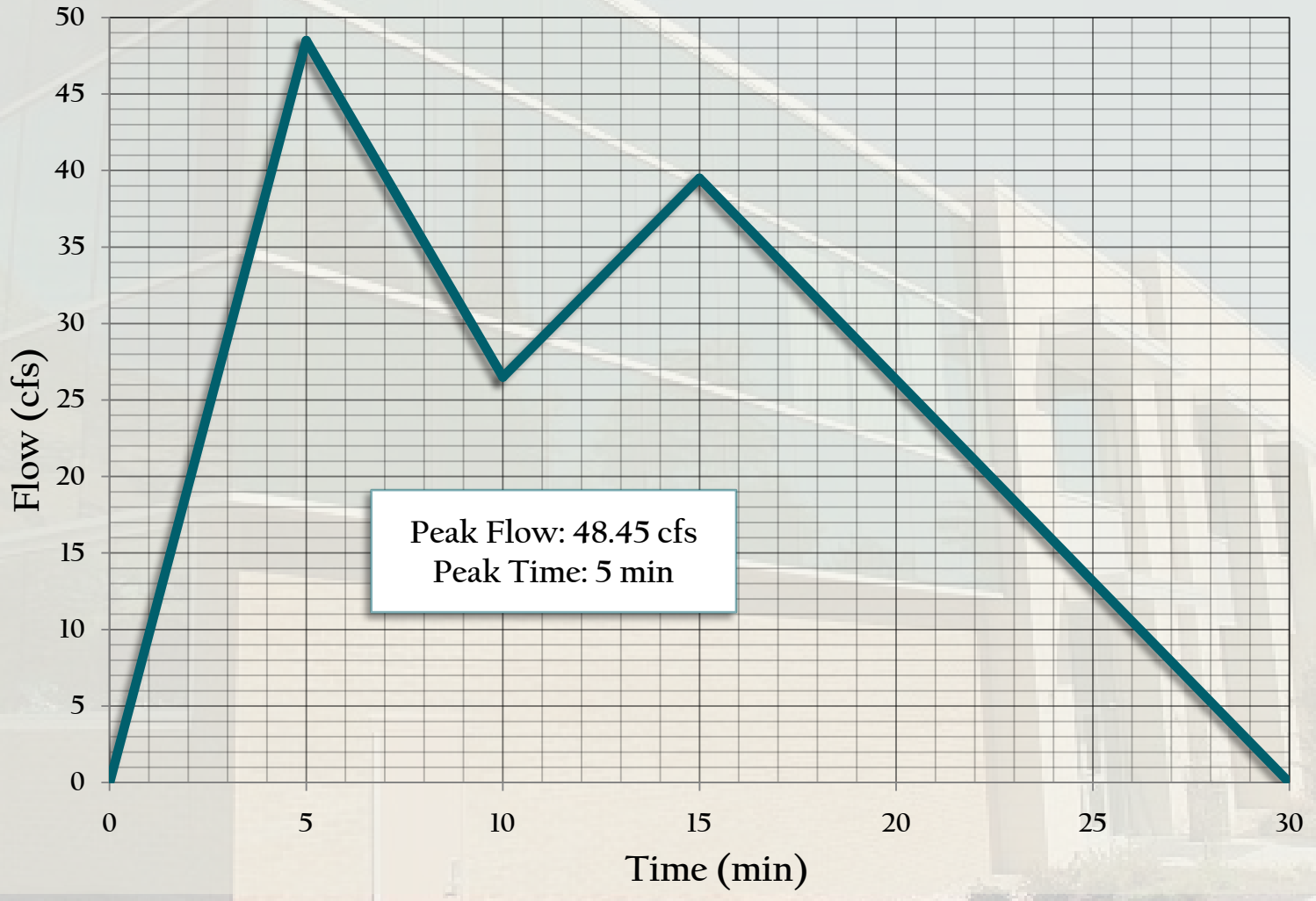
Procedure

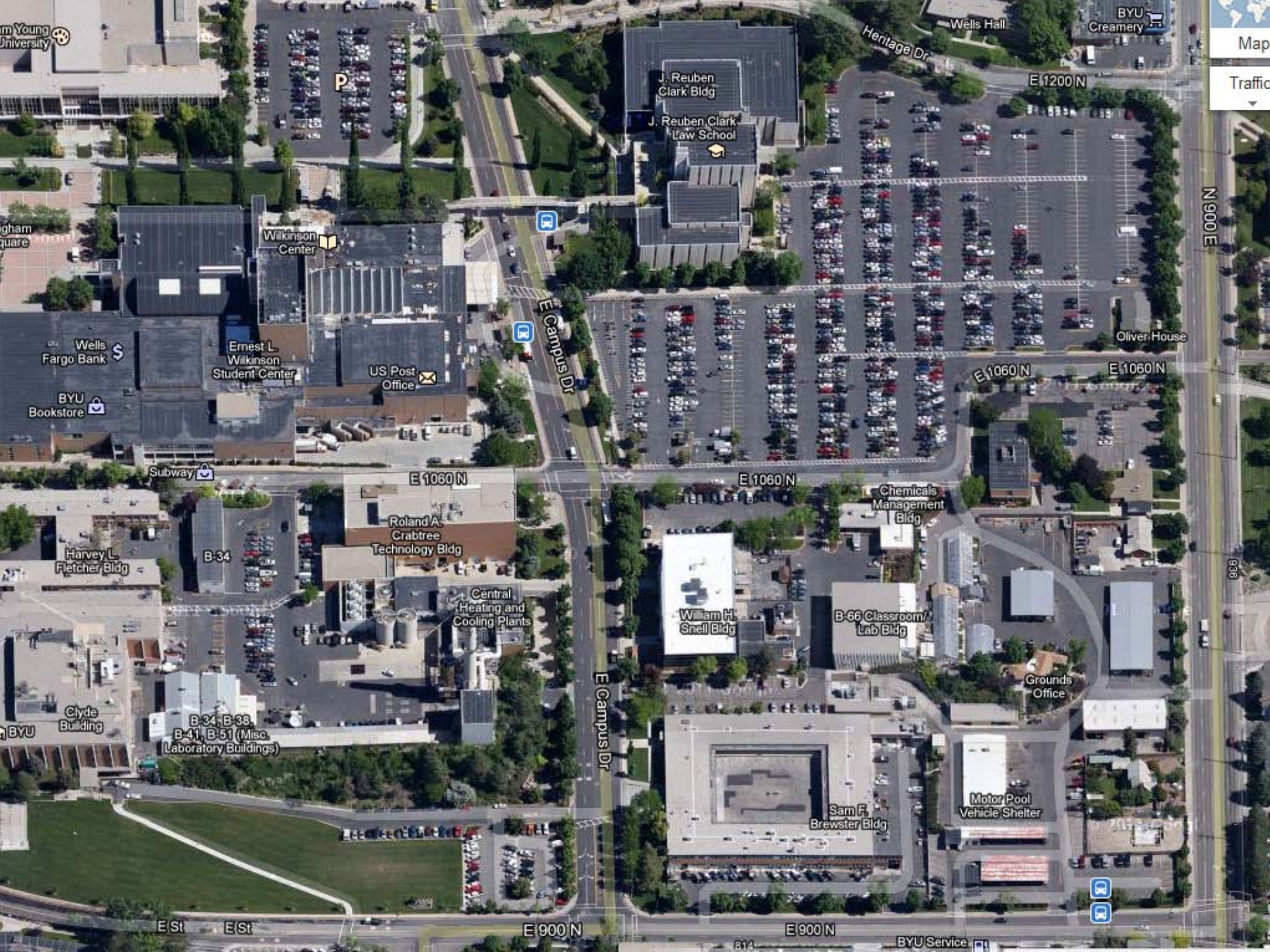
- Surveyed each storm drain in the area to find the location and elevation
- Calculated the 25 and 50 year flood possibilities
- Calculated pipe capabilities
- Came up with three preliminary solutions
- Developed final design consisting of three phases

Hydrograph


Flow (cfs)
50
45
40
35
30
25
20
15
10
5
0
0
5
10
15
20
25
30
Time (min)
Peak Flow: 48.45 cfs
Peak Time: 5 min

Technical Problems

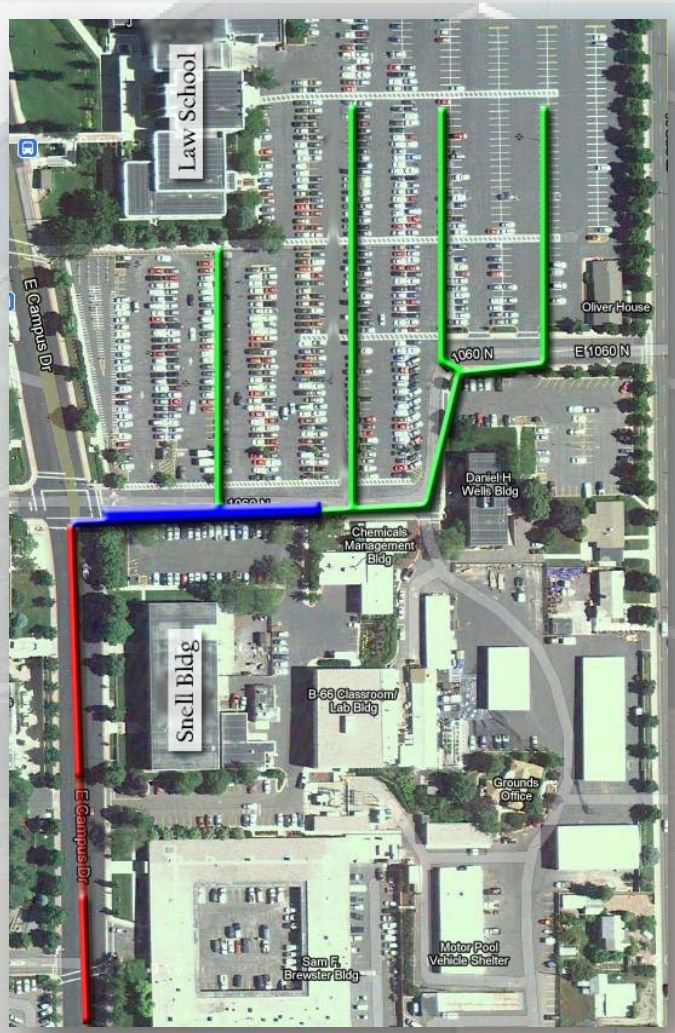
- 48.45 cfs coming from the parking lot toward the Snell
- Connector Pipe at East Campus Drive not large enough
- The Pipe at 1060 N. is too small
- No pipe system throughout the parking lot itself


Wells Hall
BYU Creamery
Heritage Dr
J. Reuben Clark Bldg
J. Reuben Clark Law School
E 1200 N
N 900 E
Wilkinson Center
E Campus Dr
Wells Fargo Bank
Ernest L. Wilkinson Student Center
US Post Office
Oliver House
E 1060 N
BYU Bookstore
Subway
Roland A. Crabtree Technology Bldg
Chemicals Management Bldg
Harvey L. Fletcher Bldg
B-34
Central Heating and Cooling Plants
William H. Snell Bldg
B-66 Classroom/ Lab Bldg
Grounds Office
Clyde Building
B-34, B-38, B-41, B-51 (Misc. Laboratory Buildings)
Sam F. Brewster Bldg
Motor Pool Vehicle Shelter
E St
E 900 N
BYU Service
Map
Traffic

Preliminary Plans

- Larger pipes on 1060 N. and at intersection
- Large tank to catch excess water, regulate flow out
- Intricate system of pipes throughout the parking lot

Proposed Design



Phase 1 – Replace the existing pipe that runs down East Campus Drive with a 28" pipe

Phase 2 – Replace existing 8" pipe on the South side of 1060 N. with 140 ft curb-inlet storm drain

Phase 3 – Construct a system of pipes and storm drains throughout the Law School parking lot

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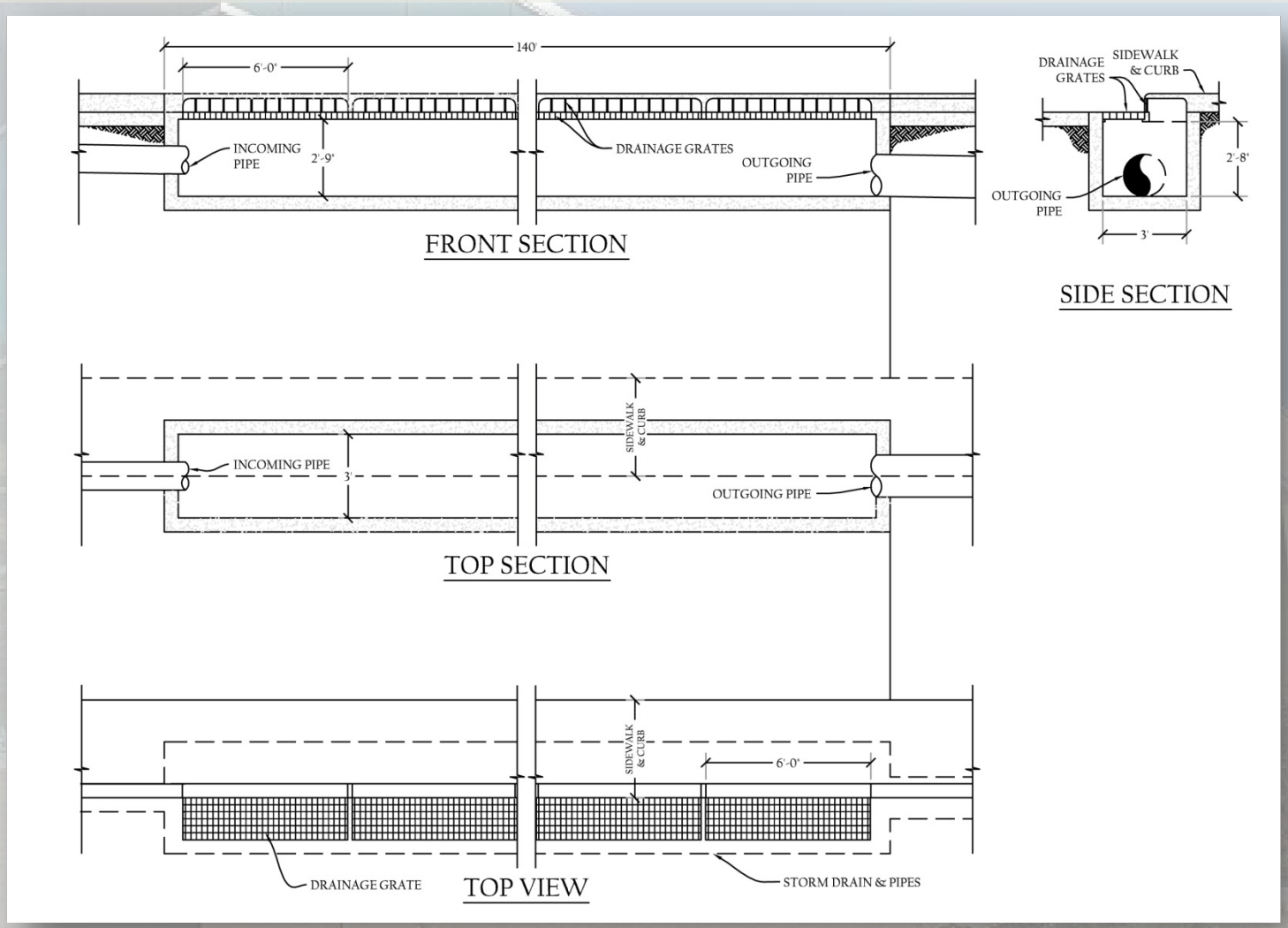
Curb-Inlet Storm Drain



Costs

- Phase 1 Cost $76,750.00
- Phase 2 Cost $39,850.00
- Phase 3 Cost $136,000.00
- Engineering Cost $40,000.00

Total

$292,600.00

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