Off-site Storm Water Quality Facility in North Pino

- Based on physical model study at UNM -

Prepared for
Albuquerque Metropolitan Arroyo Flood Control Authority

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Objectives
Maximum intake of storm water debris into the detention pond pipe. Safe storm water drainage through channel.

Location
North Pino, Albuquerque, New Mexico

Proceeding
1:8 scale physical experiments with three scenarios

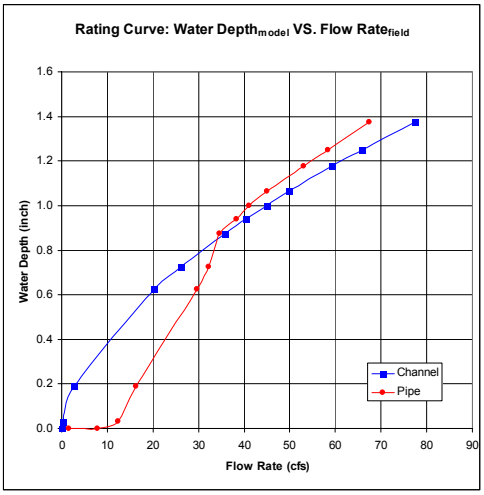
- As-Design Weir Model
- Sloped Side Wall Model
- Sloped Side Wall with Step Model

Solutions
High intake of storm water first flush with floating debris. Streamlined and no splash channel design.

Recommended Model Designs:
As-Design Weir Model
Performance: Floating debris are just washed away along the channel not inflowing to the culvert. Drains more along the channel than the culvert connected to the detention pond. Water splash might be at the weir in low flow rate. Hydraulic jump is occurred different location for each flow rate. Weir structure safety problem due to heavy storm water waste.

Culvert entrance at the channel bottom

Debris removing experiment

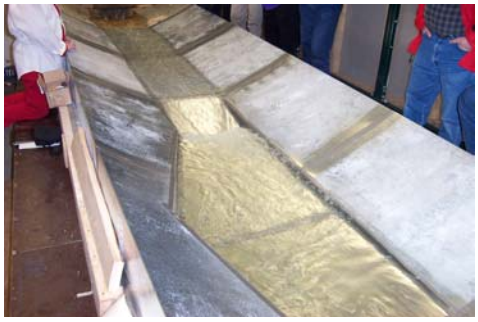


Rating curves of channel and culvert

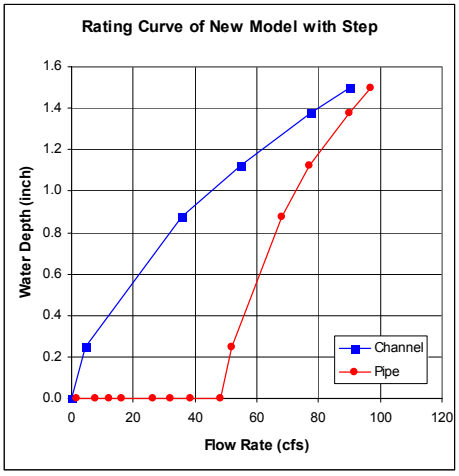

Hydraulic jump location at 2.0 cfs

Sloped Side Wall with Step Model

Performance: Maximum debris removing capacity among three models. Drains more along the culvert than the channel. No significant water splash and hydraulic jump.


SSWS model at 133 cfs discharge


Experiment with AMAFCA Engineers



Rating curves of SSWS model