Creating Value …

… Delivering Solutions

Meeting the Stormwater Challenges for the 15R/33L Runway Safety Area Program at BWI Marshall Airport

October 25, 2012

BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT

Baker

WR&A

What is a RSA?

Runway Safety Areas (RSAs), as defined by the FAA (FAA AC 150/5300-13, Change 17, *Airport Design* [September 2011]), shall be:

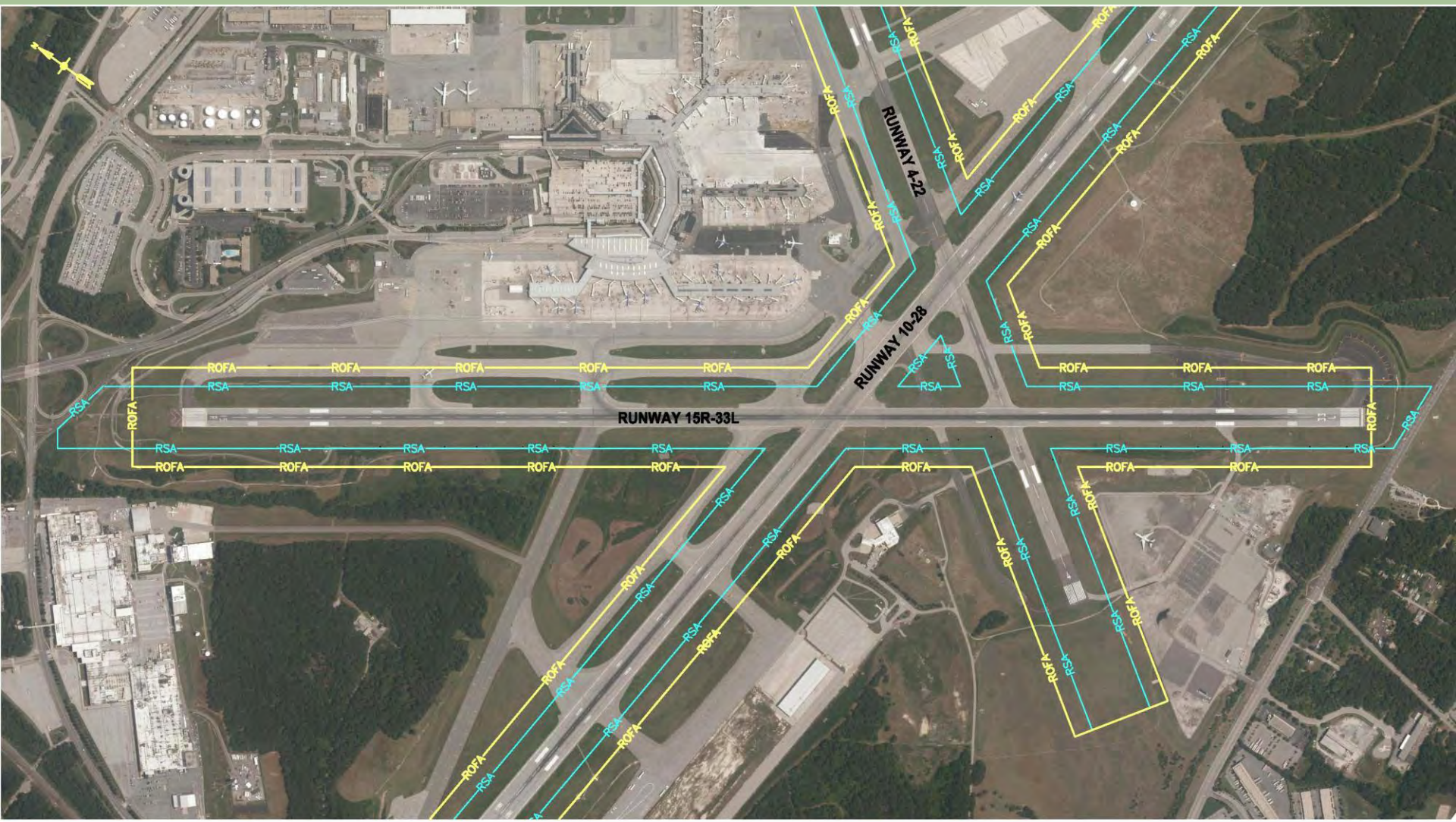
- "cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;
- drained by grading or storm sewers to prevent water accumulation;
- capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and
- free of objects, except for objects that need to be located in the runway safety area because of their function."

Congressionally Mandated

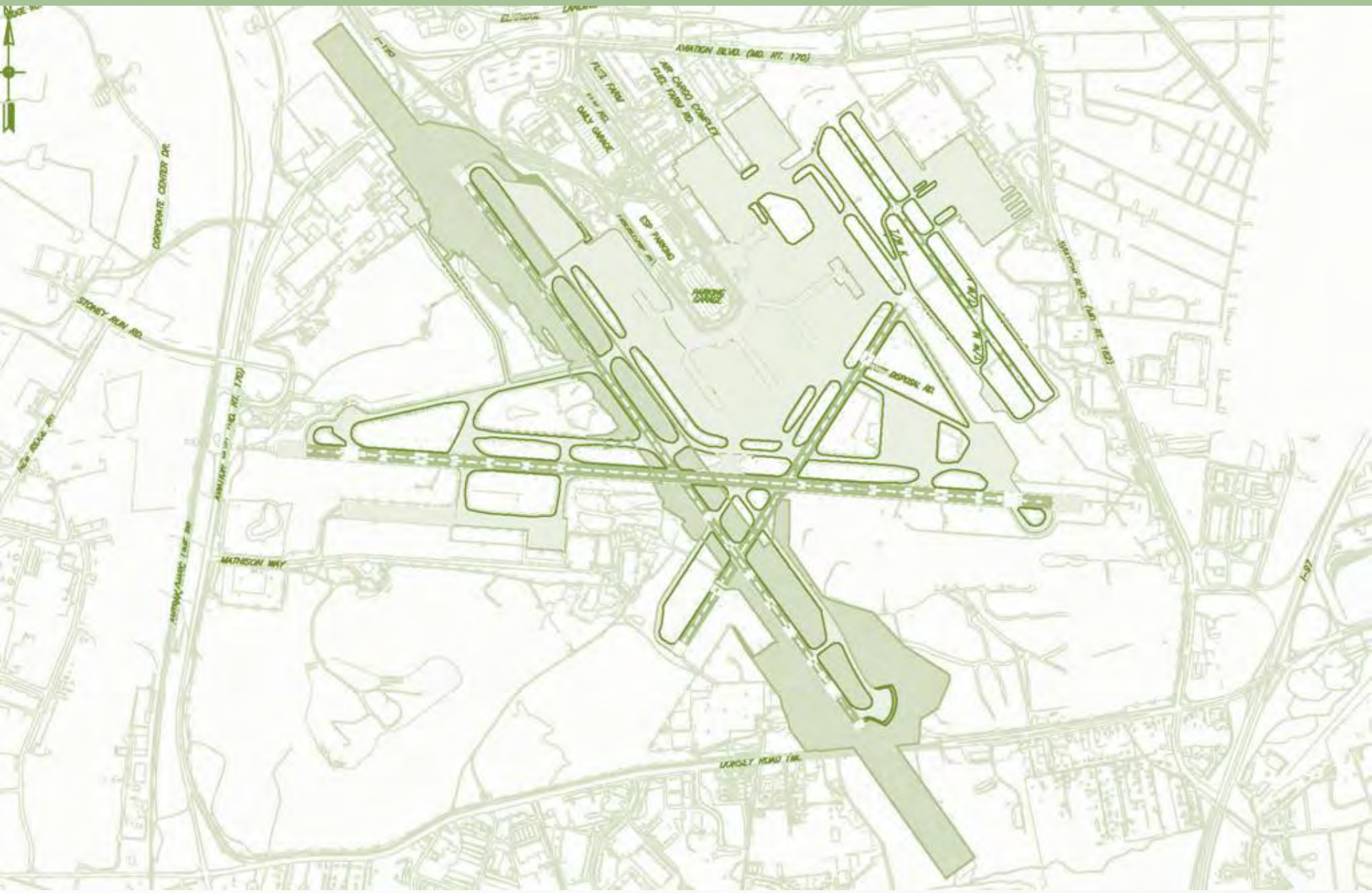
Congress has set a deadline of December 31, 2015 for all commercial airports to have compliant RSAs


15L – 33R
15R – 33L
4 - 22
10 - 28

RSA Limits



15R – 33L RSA Project Limits



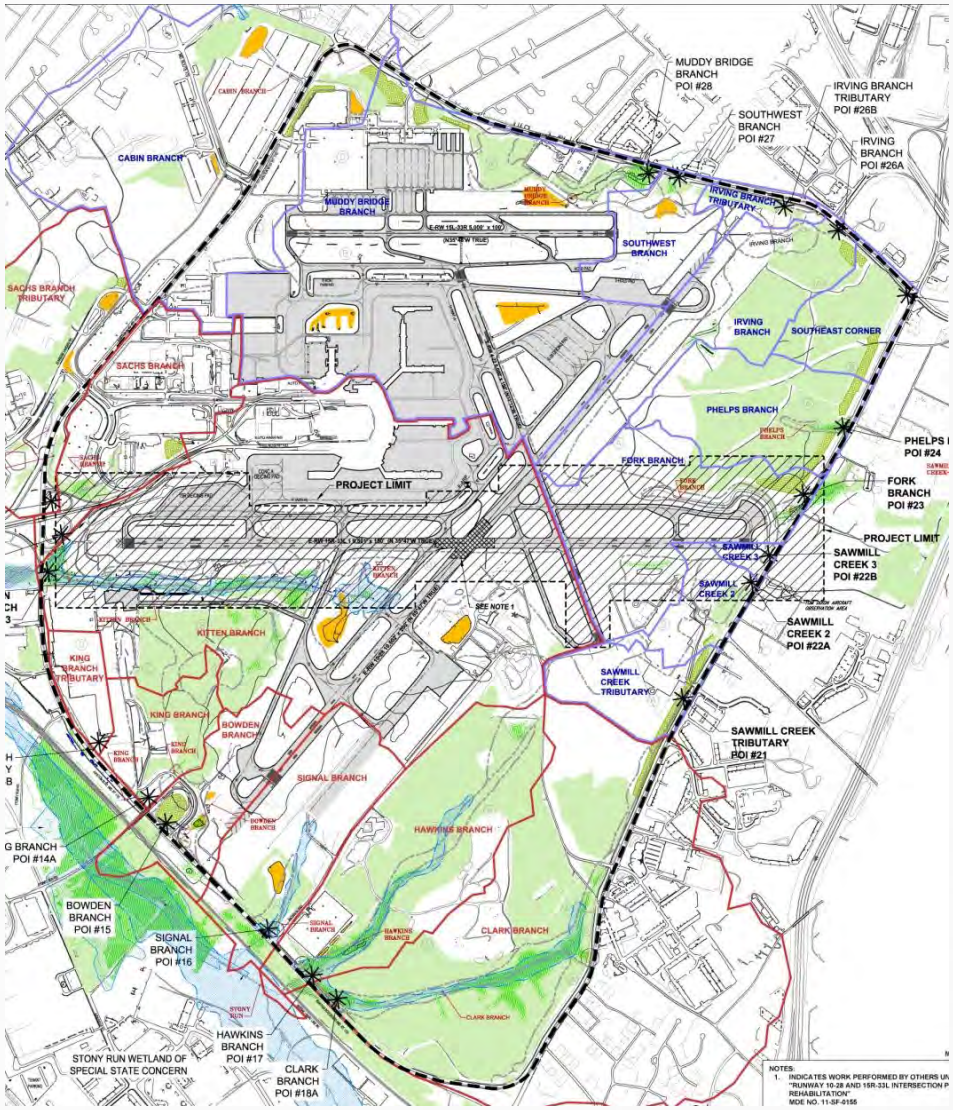
Project Order of Magnitude

- Asphalt – 230,000 Tons
- Concrete – 31,000 SY
- Total Conduit – 104,000 LF
- Lights – 1,700
- Earthwork – 650,000 CY (350 cut)
- Trench Drain – 2,400 LF
- Box Culvert – 2,400 LF
- Pavement Marking – 400,000 SF
- Disturbed Area – 230 acres

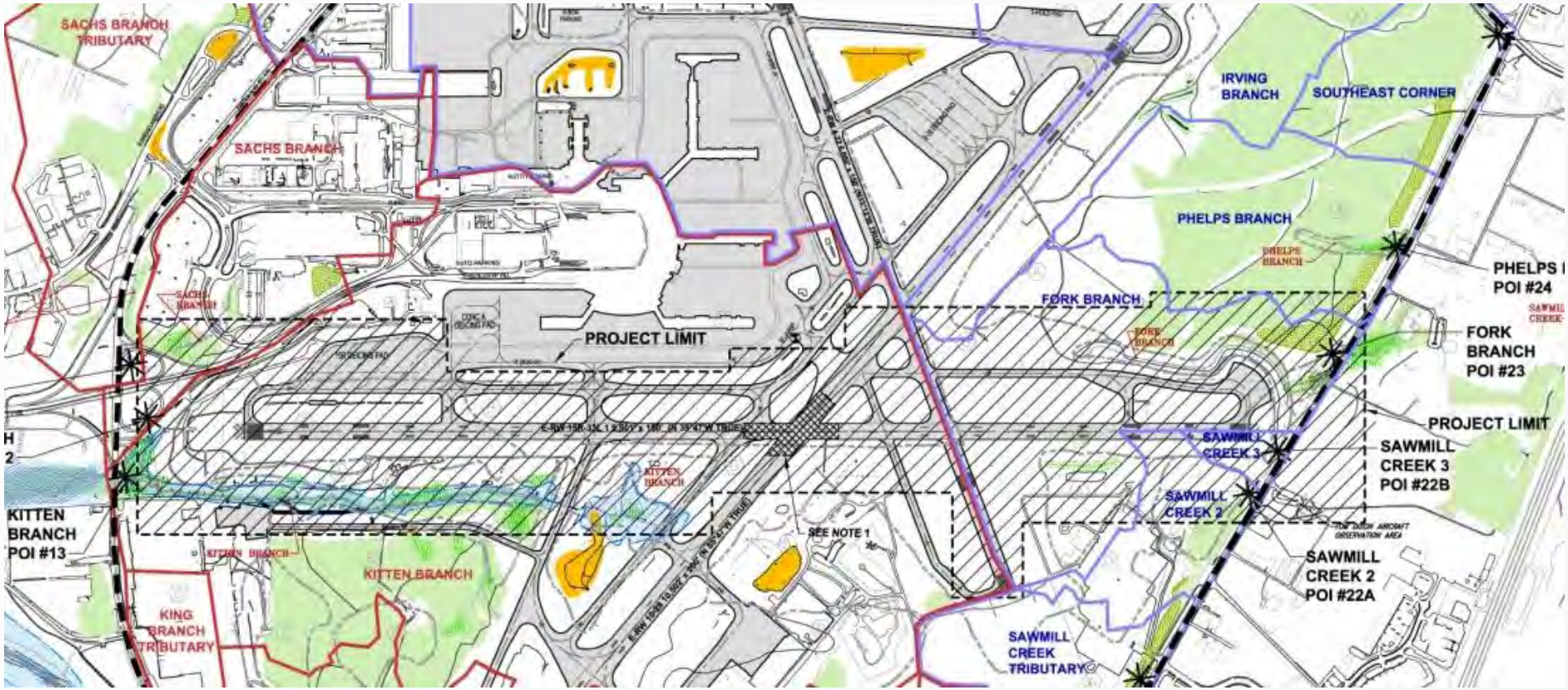
Construction Packages

- Stream Diversion – July/August 2012
- Earthwork – March/April 2013
- 15R Deicing Pad – March/April 2013
- Runway 15R-33L & Taxiway Delta – October 2013
- NAVAIDs – October 2013

Environmental Features



Watersheds Impacted

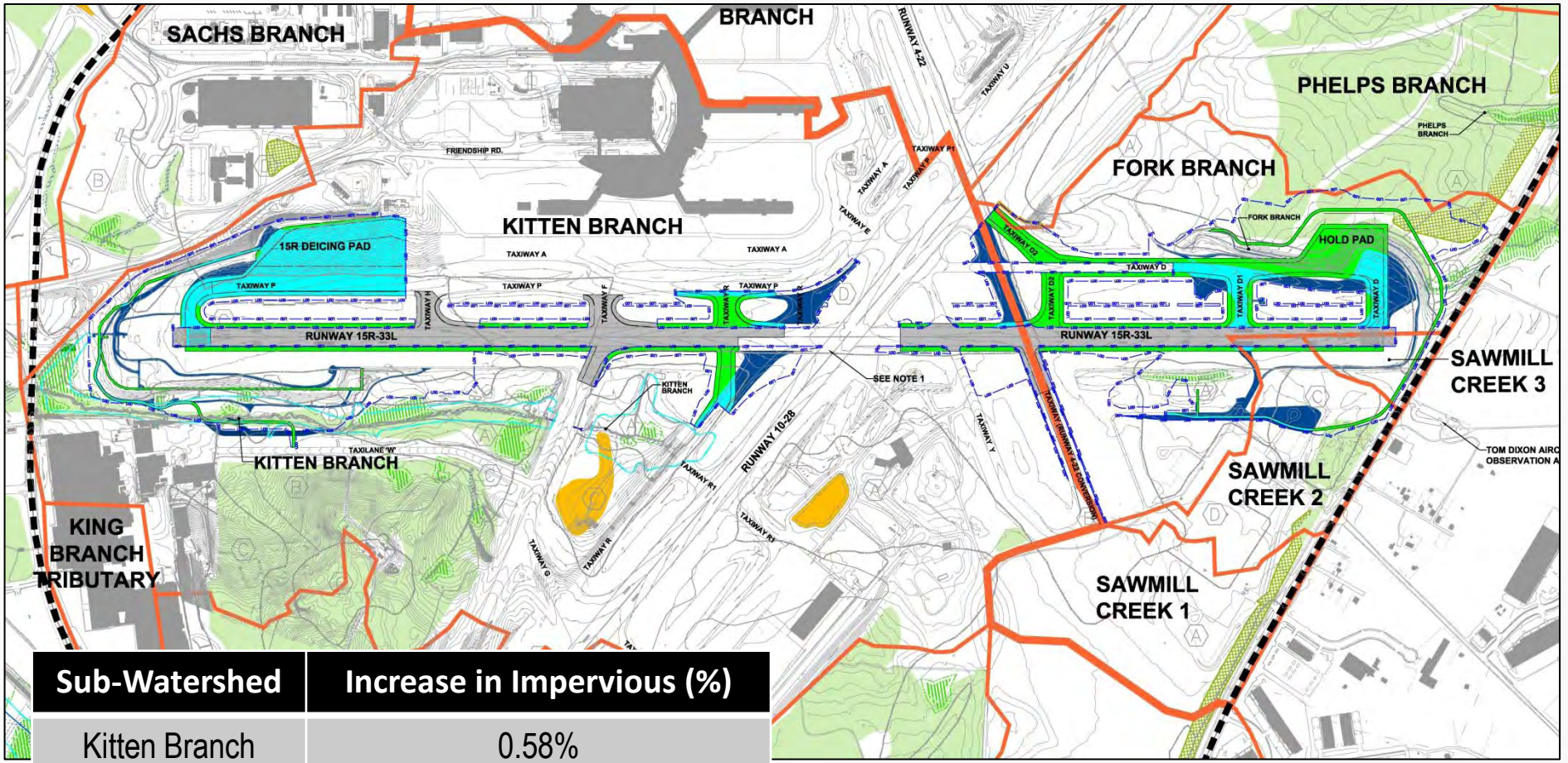


Major Watershed	Sub-Watershed
Patapsco River Lower North Branch	Kitten Branch
Baltimore Harbor	Fork Branch Sawmill Creek 2 and 3 Irving Branch

MAA's Criteria for SWM Facilities

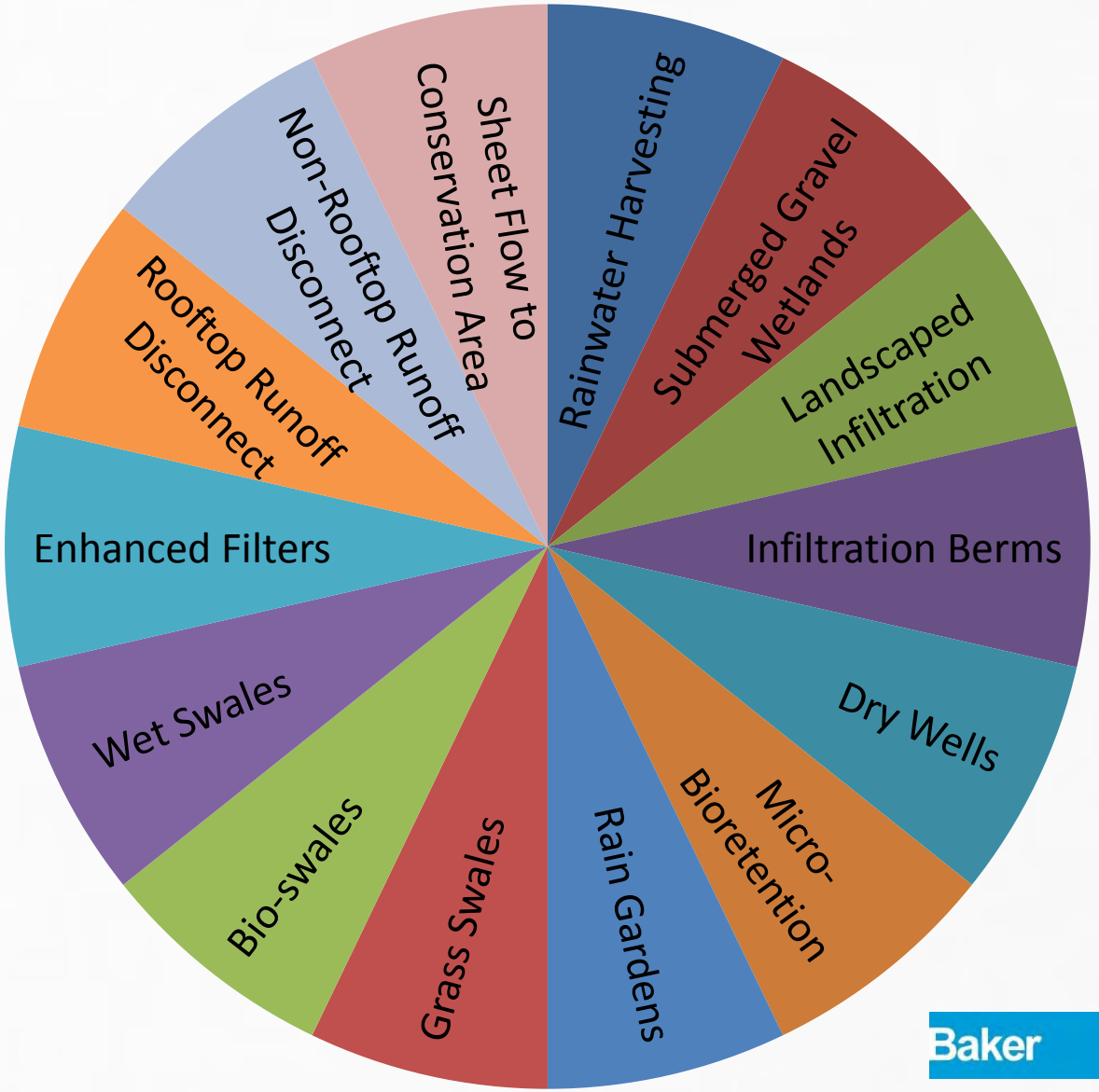
Facility	MDE Regulation	FAA Guidance	MAA Design Criteria
SWM Pond	Permanent Pools	No permanent pools	No permanent pools
SW Wetlands	Used to treat and store water quality volume	No wetlands constructed within 5 miles of an approach/departure surface	No wetlands constructed within 5 miles of an approach /departure surface
Filtering Systems	Sand filters drain within 40 hrs.; bioretention BMPs within 48 hrs. and replace when water remains for more than 72 hrs.	Standing water to drain within 24 hrs. after 1- or 2-yr event, and within 48 hrs. after 10-yr event	All filtration system to follow FAA guidance; replace filter material when water remains for more than allowed time for drainage
Infiltration Systems	Must dewater entire water quality volume within 48 hrs. of storm event	Standing water to drain within 24 hrs. after 1- or 2-yr event, and within 48 hrs. after 10-yr event	All infiltration systems must dewater the entire water quality volume within the FAA guidance limits
Open Channel	Max allowable ponding time less than 48 hrs. and provide underdrain to ensure ponding time is met	Standing water to drain within 24 hrs. after 1- or 2-yr event, and within 48 hrs. after 10-yr event	Meet FAA guidance on time for standing water to drain; provide underdrain per MDE; provide vegetation to mask ponded water

Stormwater Management: What's Needed?

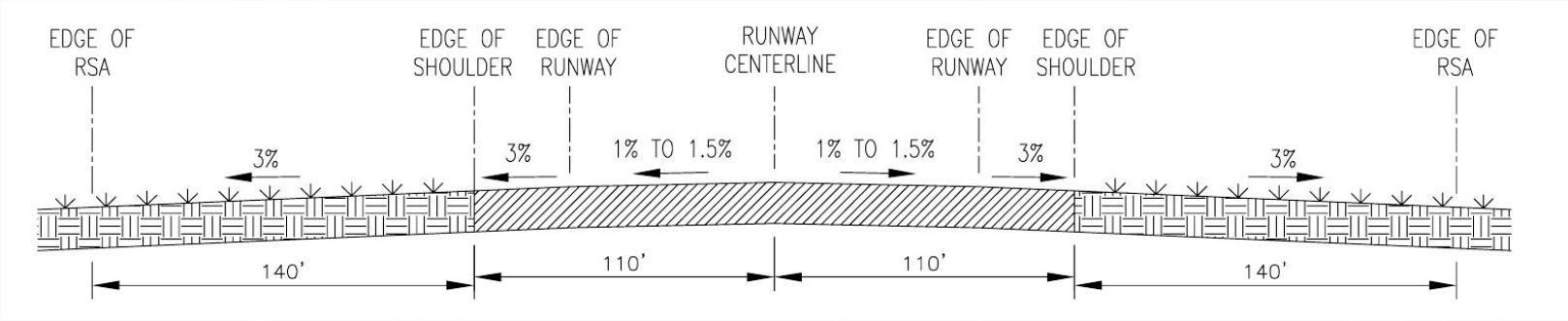


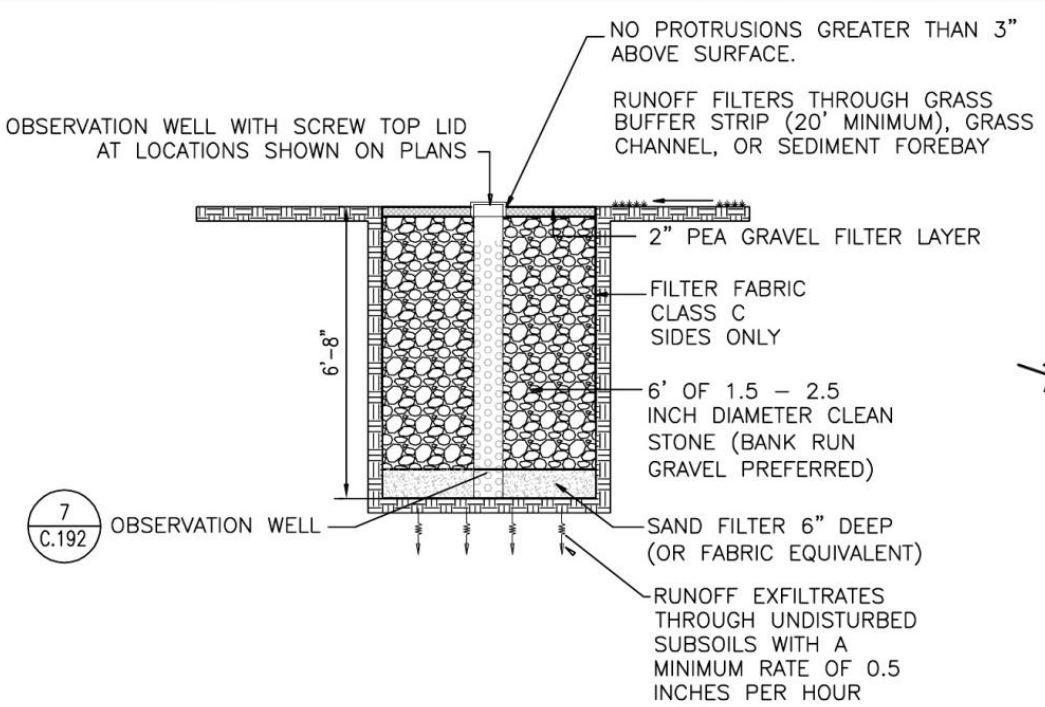
Sub-Watershed	Increase in Impervious (%)
Kitten Branch	0.58%
Fork Branch	6.23%
Sawmill Creek 2	-2.84%
Sawmill Creek 3	5.87%

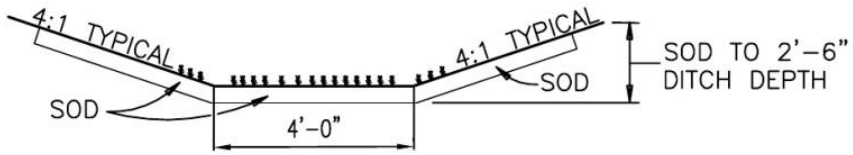
ESD on the airfield: Is it possible?



ESD Approach

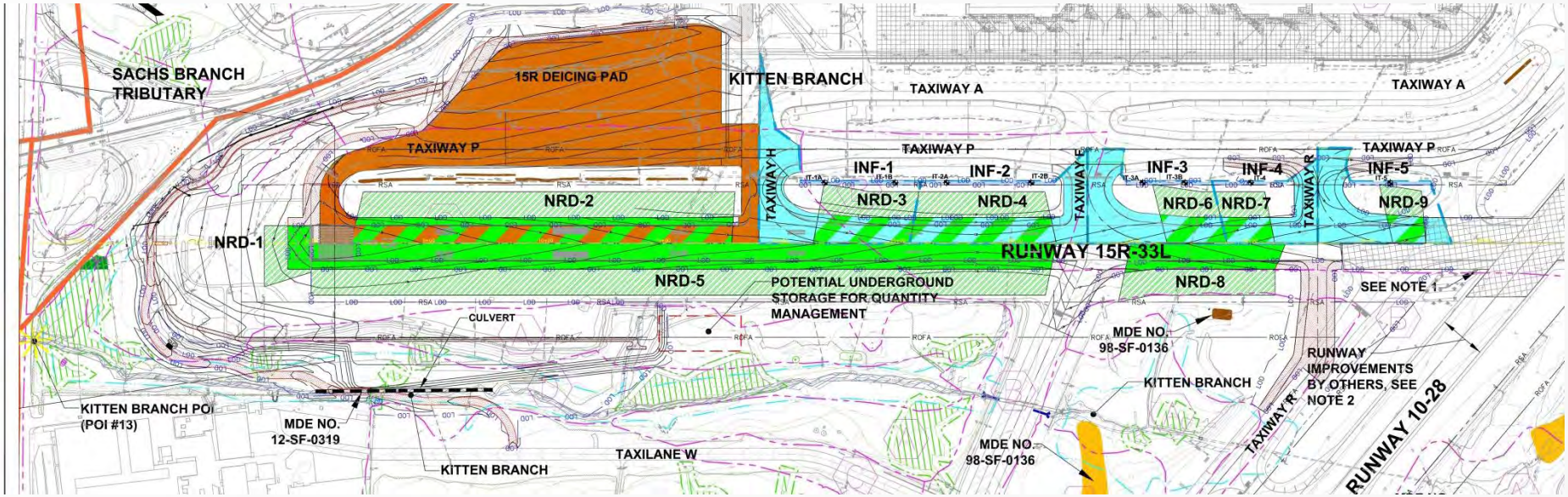




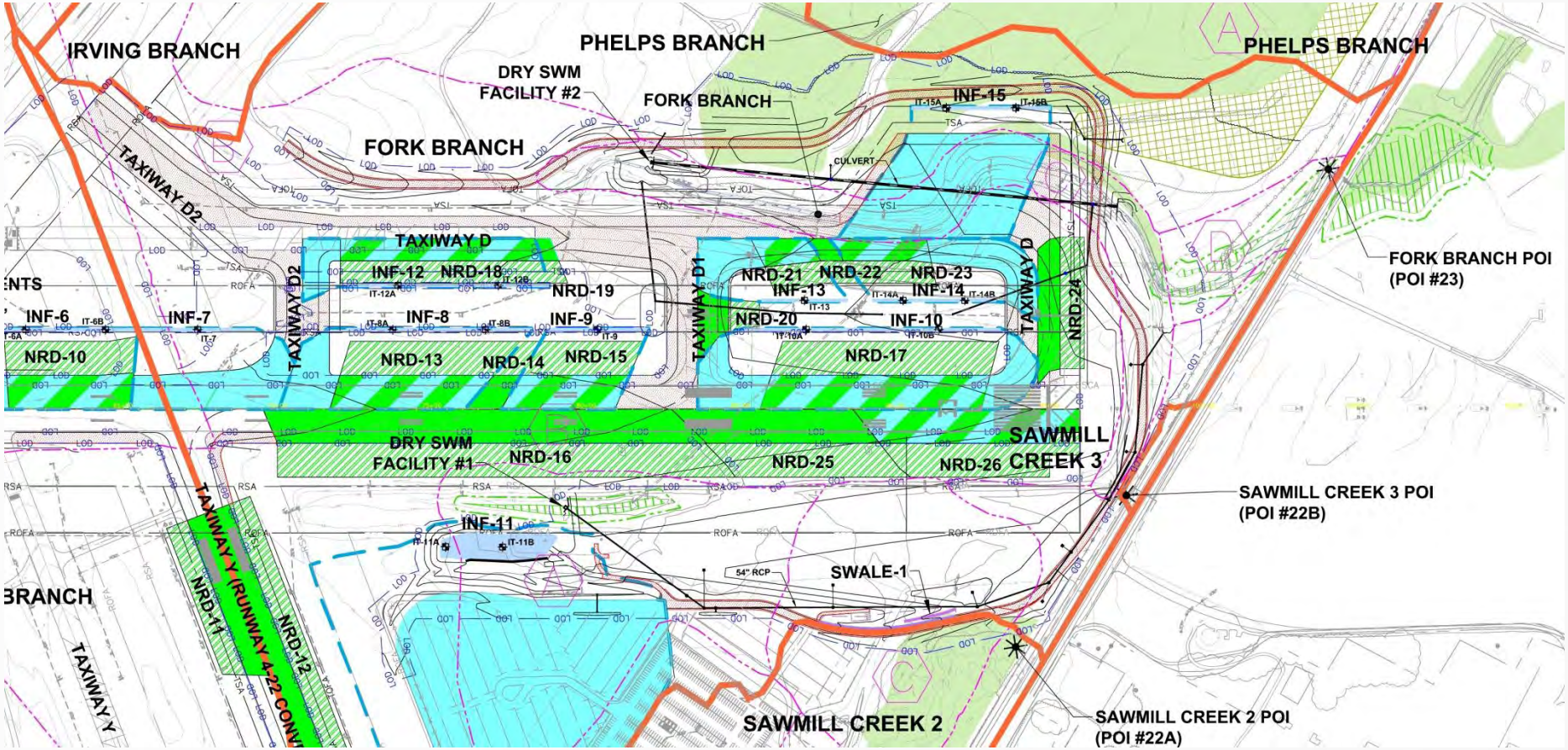


SLOPE = 2.5% TO 4.0%

Kitten Branch SWM Concept



Fork Branch SWM Concept



SWM Summary

Total Impervious Area	45 acres
Total Impervious Area Treated	47.8 acres
Number of Non-Rooftop Disconnect Treatment Areas	24
Impervious Area Treated by Non-Rooftop Disconnect	33.3 acres
Number of Infiltration Trenches	15
Impervious Area Treated by Infiltration Trenches	14.5 acres
Number of Dry Storage Facilities	2
Impervious Area Managed by Storage Facilities	40 acres

Project Status

- SWM Concept Plan Approved
- Wetlands permit and FCP Approved
- 1st Construction Package- Kitten Branch Diversion under construction
- 2nd and 3rd Construction Packages- Earthwork to be bid late 2012/early 2013
- Ongoing design for remainder of construction packages
- All construction to be completed by 2015

Questions / Comments