Tropical Stream Channel Relocation
Design to Achieve RCRA and Section 404 Clean Water Act Objectives
Agenda

1. Introduction of Guam
2. History of Dump Site
3. Existing Site Conditions and Constraints
4. Proposed Channel Relocation Plan
5. Construction To-Date
6. Monitoring
7. Questions
Guam
Where is Guam?
Size 212 sq. mi. (30 miles long/4-12 miles wide)
Latitude 13° 26’ 19.53” N
Longitude 144° 45’ 0.57” E
A U.S. Territory

Population 165,000
Precipitation 80-110 inches annually (3 to 14.5 inches per month)
Rainy Season July to November
Dry Season December to June
Dump Site History
History of Dump Site (part 1)

- Exact start of dump operation is unknown
- Used by Japanese during WWII (1941 to 1944)
- U.S. Navy after retaking Guam (1944)
- Government of Guam under Organic Act (1950)
- National Priorities List (1983)
History of Dump Site (part 2)

1986: EPA issued CWA NOV to Government of Guam

1990: EPA issued Administrative Order to cease leachate discharge

2004: Government of Guam entered into a Consent Decree

2008: Receiver appointed

2011: Dump ceased operations
Team Awarded Project in 2011

Provided Graphic Support for Proposal & Presentation

Identified as Stream Restoration Specialist
Existing Site Conditions & Constraints
Stable Bed and Banks
(looking south)
Stable Bed and Banks with Exposed Bedrock
(looking north)
~30 Waterfall
(looking north)
Vertical Eroding Banks
(looking south)
Existing Leachate Drainage
(looking east)
Existing Leachate Drainage
(looking east)
Trash and Debris in Channel
(looking north)
Existing Bedrock/Falls
(looking east)
Project Constraints

- No bedrock information
- No detailed survey typically needed
- No access to stable stream sites
- UXO’s along channel
- Wild pigs
Proposed Channel Relocation Plan
Why Realign Existing Channel?

**GOALS**
- Eliminate Leachate Seep to Channel
- Minimize Loss of Channel Length
- Minimize Wetland Impacts
- Design for Stability During Large/Flashy Storm Events in Rainy Season
Proposed Relocation Plan

Phase I

Phase II
Cross Sections
Construction To-Date
Tie-in to Existing Channel
(looking north)
Exposing Bedrock
(looking northwest)
Design Revisions During Construction
Cutting Proposed Channel
(looking southeast)
Progressing Up Channel (looking southeast)
Phase 1 – Substantial Completion
(looking north)
July 21, 2014
4.7” Rain Event
(looking north)
July 21, 2014
4.7” Rain Event
(looking south)
Monitoring
Monitoring

- 5-year Monitoring of Channel
- Vegetation Assessment
- Channel Bank and Channel Stability Assessment
- Water Quality
Questions?