

Presentation

**Wyoming Water
Development
Commission**

**Kirby Creek
Watershed Plan
Level I Study**

June 24, 2003



PROJECT TEAM

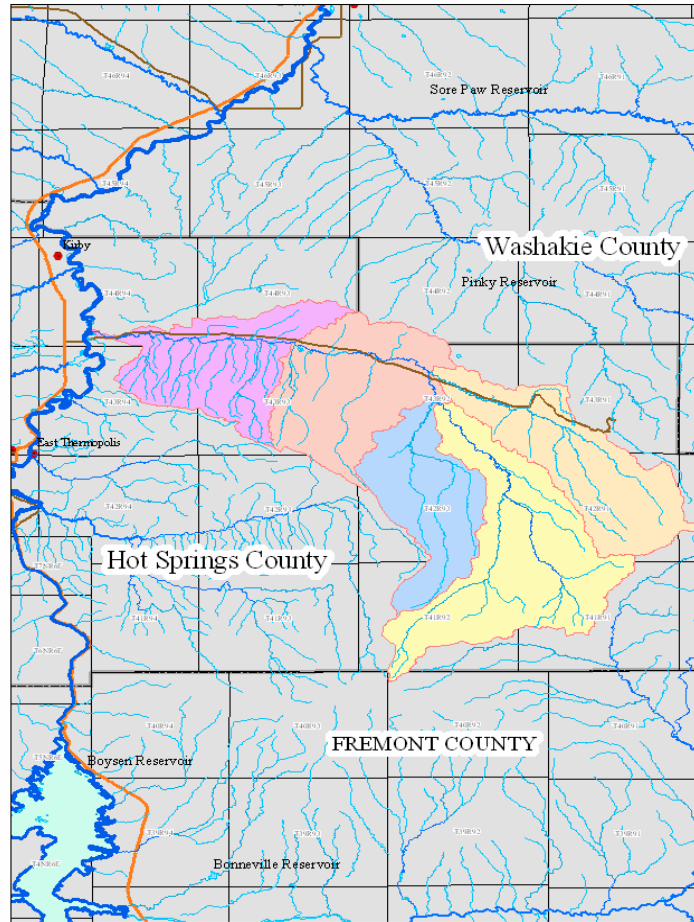
- Wyoming Water Development Commission
- Sunrise Engineering, Inc.
 - North Wind, Inc.
 - ECI, an AECOM Company
 - Donnell & Allred

Introduction to Sunrise Engineering

- ❑ Over 25 years of Experience
- ❑ Large Rocky Mtn. Based Civil Engineering Firm
- ❑ 6 Offices in 4 States
- ❑ Local Afton, WY Office
- ❑ Wide Range of Services
Specializing in Water Resource Projects



Area Overview



Important Issues

1. Thorough Technical Analysis
2. Environmentally Sound
3. Financially Feasible



Major Tasks of the Study

1. Review Previous Studies
2. Basin Description & Inventory
3. Survey
4. Watershed Management Plan
5. Permitting
6. Cost Estimates & Financing Plan

Review Previous Studies

- WWDC
- WY Basin Plan
- NRCS
- Hot Springs County Conservation Service
- WY DEQ
- University of Wyo
- Water Resources Data System
- U.S.F.S.
- State Engineers Office
- U.S. Corps of Eng.
- U.S. Fish & Wildlife
- WY Game & Fish

Basin Description and Inventory

1. Land Uses

- Management Activities
- Grazing
- Mining
- Irrigation Diversions
- Easements & NPDES Permits
- Pipelines & Roads

Basin Description and Inventory

2. Geology & Geotechnical

- Soils
- Climatological Zones
- Major Plant Communities

Basin Description and Inventory

3. Basin Hydrology

- Stream Discharges
- Wet, Normal, & Dry Year



Basin Description and Inventory

4. Stream Channels

- Morphology
 - Level I Characterization
 - Level II for specific reaches
- Structure
- Stability

Basin Description and Inventory

5. Irrigation Systems

- Identify
- Define Challenges
 - Supply Sufficiency
 - Erosion
 - Conveyance Losses
- Rehabilitation Needs

Basin Description and Inventory

6. Water Quality

- Gather Available Data
- Sample as Needed



Basin Description and Inventory

7. Water Storage

- Basin Plan
- Upland & Tributary

Basin Description and Inventory

8. All Inventories Will be GIS Mapped.

Range Management

- Determine causes of degradation – reduces the diversity, values, commodities that rangelands provide.
- Define goals and objectives.
- Prevent irreversibility.
- Monitor and employ adaptive management strategies.

Riparian, Upland Range, and Soils Assessment

- Land uses and management activities will be assessed to determine their effects on surface erosion, sedimentation, and water flow.
- Major plant communities and soil types will be quantified using scientifically defensible, state-of-the-art inventory techniques.

Biological Assessment

- Upland Range

Rangeland Health –

“The degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are balanced and sustained.”

Soil/Site
Stability

Hydrologic
Function

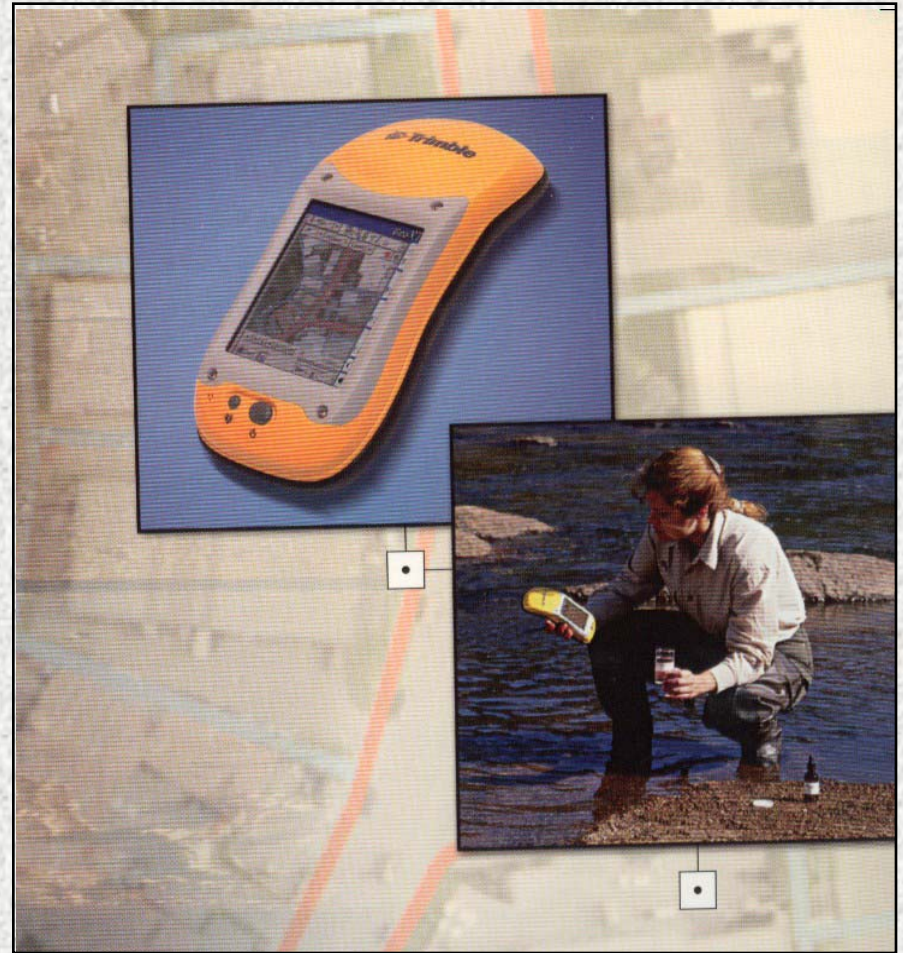
Biotic
Integrity

Biological Assessment

- Riparian – 3 Inventory Techniques
 - 1) Vegetation Cross-Section Composition
 - 2) Greenline Composition
 - 3) Woody Species Regeneration

Survey

- Use Digital USGS Quads
- Field work as necessary by Trimble GPS units for GIS



Watershed Management Plan

☐ Land Management Methods

- Channel Stabilization
- Erosion Control Structures

☐ Water Management Methods

- Irrigation Supply Needs
- Irrigation Structures

☐ Recommendations & Concept Designs

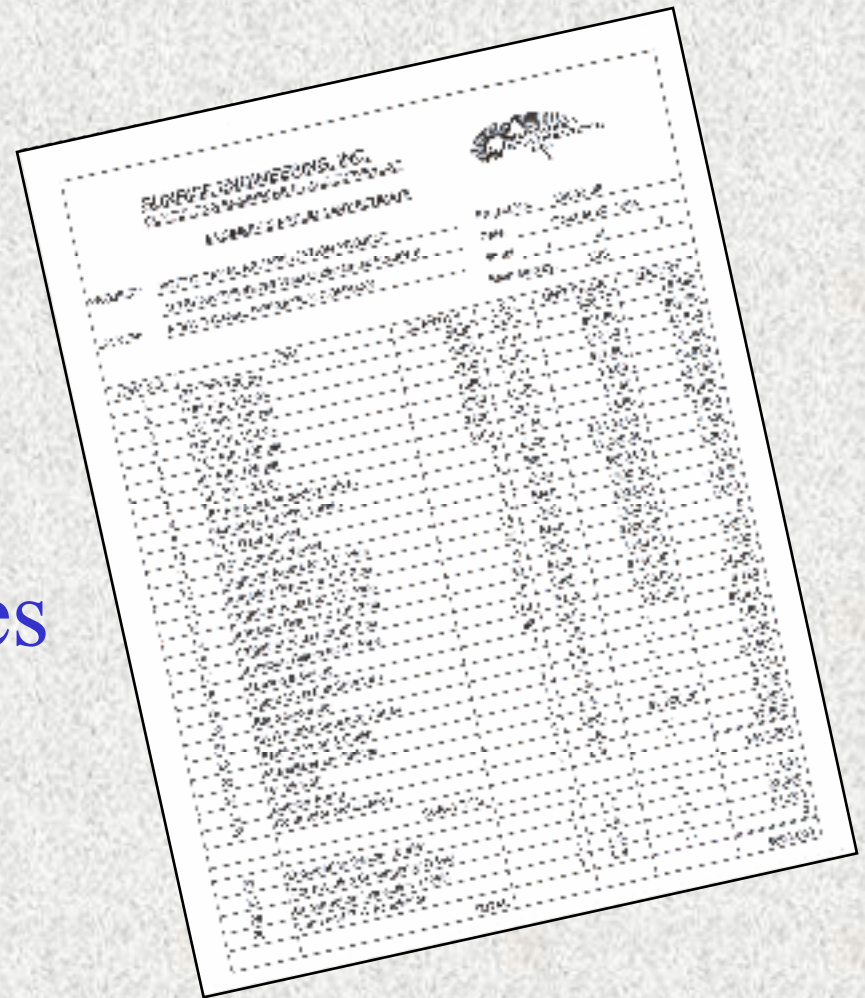


Permitting

- Identification Of:
 - Easements
 - Clearances
 - Permits
 - Environmental Issues
- Government Agency Coordination

Cost Estimates and Financing

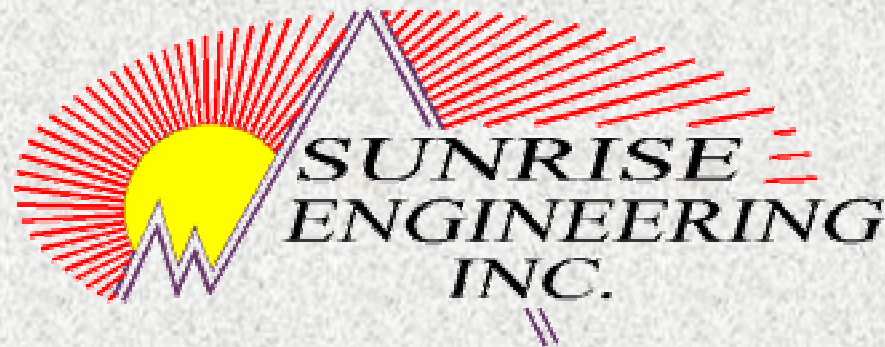
- Assist in Prioritizing All Recommended Improvements and Projects
- Provide Cost Estimates
- Identify Potential Funding Sources



Questions & Input

- Available Resources?
- Important Issues?
- Additional Input?

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