Planning, Design, & Construction

Of Watershed Sites, Channels, & Related Measures

Planning

- NRCS reacts to an initial request from the sponsor to assist with a resource problem, typically flooding, but may also include issues such as water for irrigation or municipal and industrial purposes.
- After the resource concern has been reviewed, a plan of work is developed to guide the planning effort.

Planning

- Authorization must be granted by the Chief to proceed with the planning process.
- Plan is developed looking at a variety of alternatives including land treatment, benefit/cost ratio, compliance with NEPA, and management of flood plains.
- The watershed plan is similar to a set of plans for a house. It provides the basic outline for construction of the sites, but minor changes may be needed.

Planning

- Sites are typically located off the main channel on the tributaries.
- Where flooding and/or sedimentation was identified as a major concern, typically sites were planned to achieve a 25% reduction in the flood's peak flow in the main channel.

Obtaining Property Rights

- The sponsoring organization is responsible for obtaining all necessary land rights (including ingress/egress), and at least one sponsor must have the right of eminent domain. Also, they are responsible for obtaining any water rights in accordance with state law. (Many sites have been designed with an inlet elevation to pond slightly less than 200 acre-feet of water as the state does not require these NRCS assisted structures to file for such water rights).

Property Rights

- 1. Block easements – Many of the original easements were based upon a block of land – example SW ¼ of NE ½ of Smith property. Pending court issue – How far does the easement extend for a completed structure? Is only the land within the fence and flood pool part of the easement, or does that extend to top of dam?

Property Rights

- 2. Flood Pool – By NRCS policy, the minimum requirement for land rights upstream is the higher of the elevation of the auxiliary (emergency) spillway + 2 feet or the elevation of the 100-year, 24 hour storm flow.
- Note: If development occurs around the pool area, you may want to consider requiring that slab elevations be placed at top of dam elevation or higher.

Property Rights

- Metes and Bounds Survey – Preferred option of defining the easement area. NRCS will provide a copy of the Land rights Work Map which will show the area to be surveyed.

Property Rights

- Subordinate agreements – The landowner may have previously granted easement to utilities or leased the property for oil/gas exploration. When such work comes up, please alert us and we will provide assistance on what should or should not be done. For example, we don't want a utility company to cut through the dam to install a pipeline unless special care is taken.

Design

- A watershed or subwatershed area is not to exceed 250,000 acres.
- No structure can provide more than 12,500 acre-feet of floodwater detention capacity or more than 25,000 acre-feet of total capacity.
- The original design is based upon the hazard classification of that time.

Design

- Dams are currently classified as low hazard, significant hazard, or high hazard.
- Low hazard dams will typically have a 1 in 25 chance, significant have a 1 in 50, and high hazard dams will have a 1 in 100 chance of having auxiliary spillway flow in any given year.
- The elevation of the top of dam, auxiliary spillway elevation, and elevation of the inlet are all inter-related.

Design

- The typical NRCS assisted watershed dam in Texas is about 35 feet tall.
- NRCS will need to concur in any design changes as the agency is noted as the engineer of record for almost all such dams in Texas.
- We routinely supply information to TXDOT and their designers about these dams.

Contracting

- Federal Contracts – NRCS has traditionally used federal contracting methods to install watershed measures. A project agreement is signed between the sponsors and NRCS which spells out detailed working agreements for installation of structural, vegetative, or land treatment measures. In this situation, NRCS takes the lead for contracting issues.

Contracting

- NRCS contracting authorities differ according to the size of the job. Most watershed related jobs will require approximately 90 days to advertise on FedBizOps, receive bids, and award to the successful low bidder. Vegetative measures may be by purchase order, so the process may be sped up greatly.

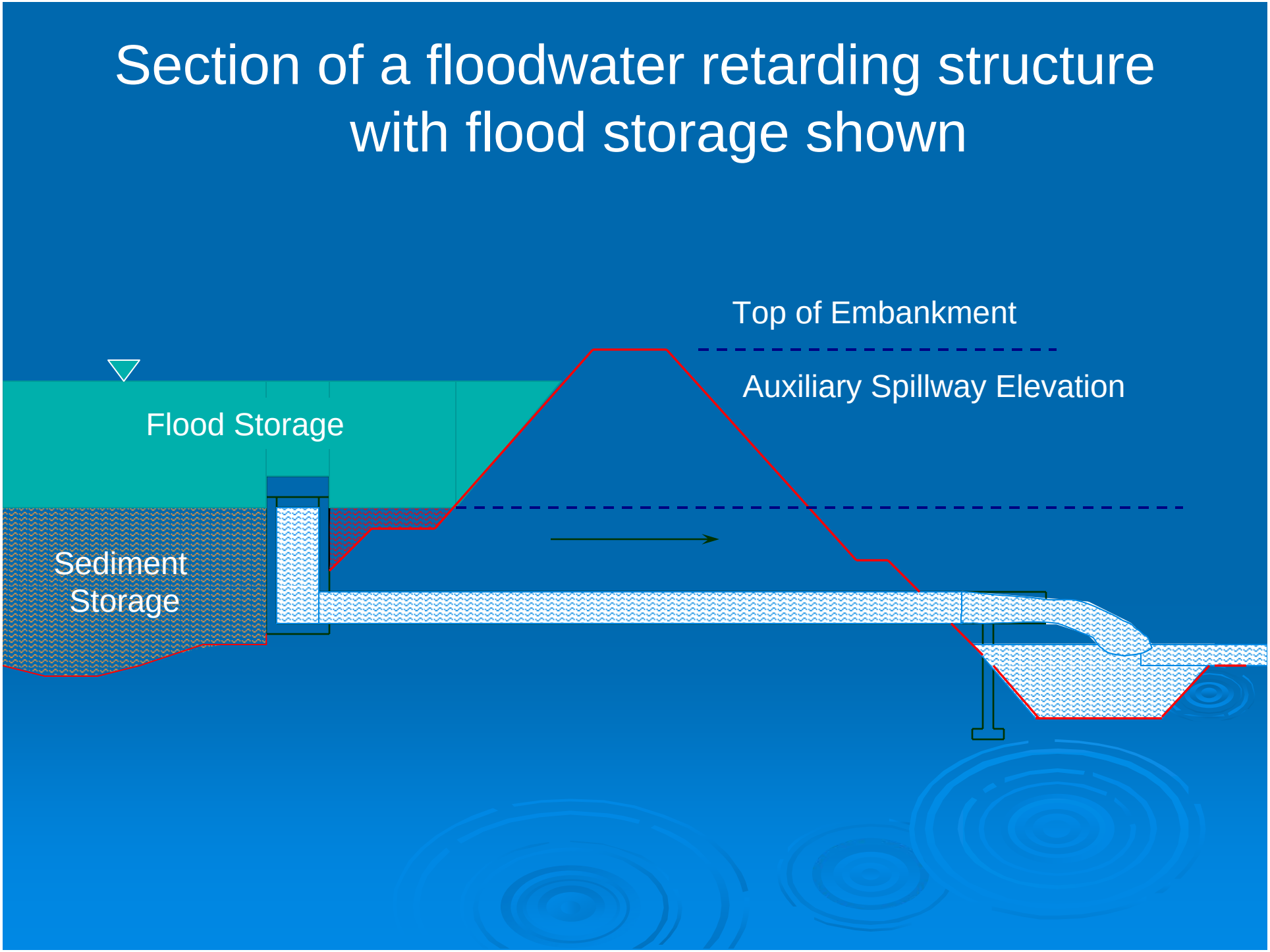
Contracting

- CLO (Contracting Local Officer) – In this situation, the local sponsor is responsible for contract administration. The sponsor is also responsible for the administrative costs incurred. This option is normally pursued when time constraints require a project agreement to be signed to utilize funds, but time is not sufficient to use federal contracting methods.

Construction

- NRCS has a trained construction staff of engineers, inspectors, and technicians to assist with the construction of the sites.

Section of a floodwater retarding structure with flood storage shown



Salado 10R near San Antonio

Dam Safety
Hazard Classes

- As discussed, dams are classified as low, significant, or high hazard. The majority are low hazard with approximately 10% high hazard.
- NRCS is currently working with sponsors to determine the proper hazard class of structures in response to a national directive.

Dam Safety
Emergency Action Plans

- Identify local contacts and who is responsible for what actions. For example, who is responsible for emergency management in the county?
- Who would be impacted?
- Content includes potential failure, vandalism and/or sabotage
- Distribute to the right people and get their input.

Dam Safety Inspections

- May include monitoring after construction of special issues
- Special conditions – for example, after a hurricane
- Annual – A basic review of the site, vegetation, and general operation
- Formal – Review of site, typically on 5 year rotation, by engineer

Dam Safety Status

- Approximately 1,400 of 2,000 assisted dams have current hazard classifications.
- Should have all structures current by end of next fiscal year.
- Will require verification of hazard class for about 400 structures per year (5 year rotation)

Dam Safety
Other

- In the event of heavy rains or other issue where the integrity of the dam may be compromised, it is highly recommended that you do NOT make a statement about whether the dam is safe or unsafe. That call needs to be made by an engineer trained in that area, so do not expose yourself to that liability! Just take actions in the EAP and describe them as "Prudent" for the situation.

Remedial Repairs

- Remedial work is that needed to correct a mistake or misjudgment by NRCS.
- Examples include: structural components or hardware that doesn't perform as expected due to unusual conditions.
- A site failure, or failure of one aspect
- There is currently a list; however, funds need to be authorized for this purpose

Emergency Watershed Program

- This program is subject to specific funding by Congress to address natural disasters.
- The funding can only address watershed impairments.
- If such a situation impacts a structure, funds may be available for repair at 75% cost share.
- Sponsors need to submit request less than 60 days after the event to be considered.