# Floodplain Considerations During Design

#### **Toby Hunemuller, P.E., CFM**

Chief, Hydrologic Engineering Section

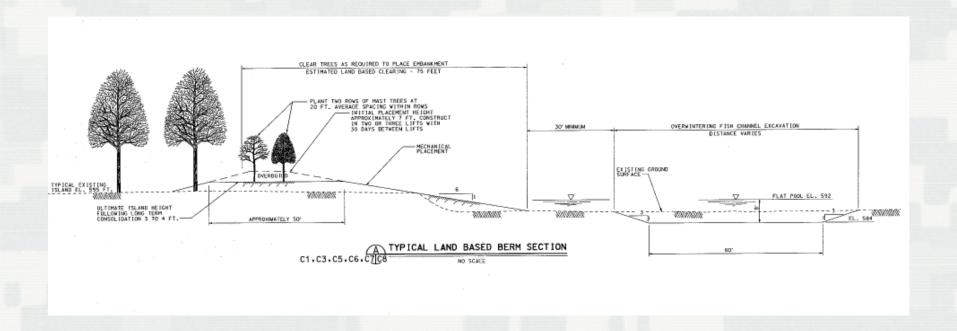
USACE - Rock Island

27 September 2016





## Why do I need a permit?







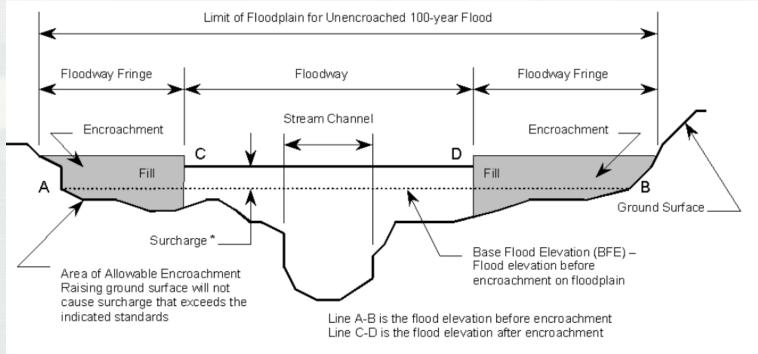
### Terms

- Floodplain
- Floodway
- No-Rise
- Flood Insurance Study (FIS)





### **Floodway**



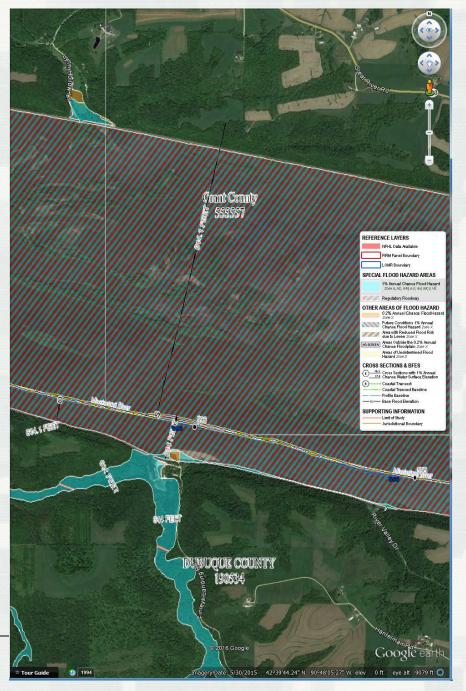
\*Surcharge not to exceed 1.0 ft. (FEMA requirement) or lesser height if specified by community

Floodplain-Encroachment-and-Floodway







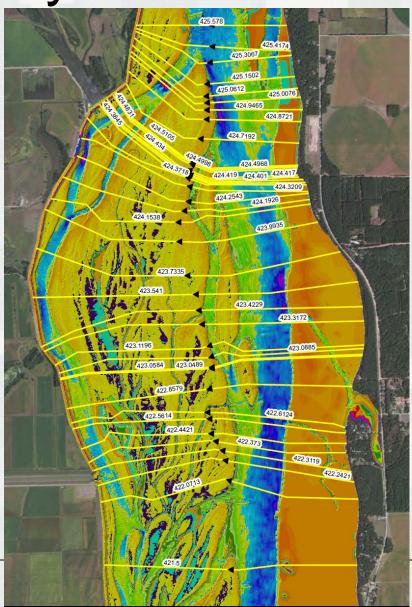


#### Flood Insurance Study (FIS) Report

#### Report that documents the effective:

- Community's flood problems
- Estimates flood flow frequency
- Establishes base flood elevations
- Delineate floodway and floodplain
- Establishes insurance risk zones
- NFIP communities = no rise = 0.00' for 1% annual chance exceedance flow

# Analysis Procedure



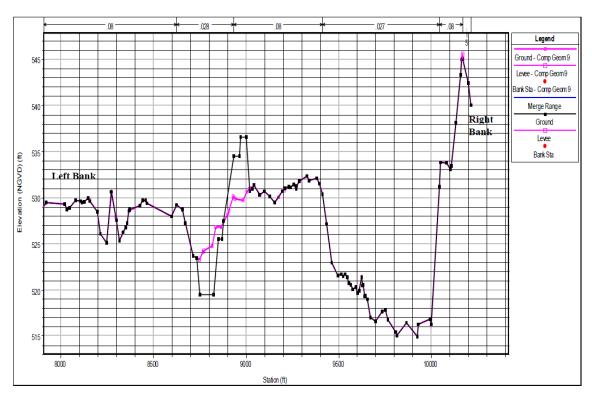


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## Analysis Procedure

#### Mississippi River Mile 422.3119

(With Project and Existing Conditions Cross-sections looking Downstream)





### Application Package

- Joint Application Package
- Exhibits / Tables
  - ▶ Description of project and modeling approach
  - ► HEC-RAS cross section locations
  - ► Existing and Proposed Conditions
  - ➤ Output table
  - ▶ HEC-RAS model
  - **▶** Construction Drawings





#### Internal Transmittal Memo

CEMVR-EC-DN

January 22, 2013

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SUBJECT: Huron Island HREP- Iowa DNR Floodplain Construction Permit

The Rock Island District of the U.S. Army Corps of Engineers has enclosed the Huron Island Habitat Rehabilitation and Enhancement Project (HREP) Iowa DNR Floodplain Permit application package materials for your review.

This Floodplain Permit package includes:

- Iowa DNR Pre-Application Confirmation of Flood Plain Construction Parameters Form with Attachment 1: FIS table showing base flood elevations for project reach
- 2) Exhibit 1: Site Map with HEC-RAS cross-section locations
- Exhibit 2: HEC-RAS output table
- 4) Exhibit 3: HEC-RAS cross-section plots showing existing condition vs. project
- 5) Exhibit 4: HEC-RAS model
- 6) Exhibit 5: 90% Design Drawings showing project location and project features
- 7) Exhibit 6: Copy of Joint Application Form

Enclosed are the final deliverables to IDNR. Documents can be found on ProjectWise at Floodplain Supplemental Information. If you have any questions concerning this matter, please call Kara Mitvalsky of the Environmental Engineering Section, Engineering Division, telephone 309/794-5623.

Heather Anderson, P.E. Chief, Environmental Engineering Section

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### **Keys for Success**

- Incorporate the permit(s) into project schedule
- Identify jurisdiction and regulations
- Consider and assess floodplain impacts during the feasibility study
- Evaluate project as a whole; then scale back to contract packages
- State DNR's moving away from accepting feasibility drawings for permit package submission.





### Keys for Success

- Ensure final design PDT includes H&H member
  - Communicate design changes from Feasibility Study
  - Regulations for NFIP communities vs. rural areas
  - Identify a single POC to coordinate the permit with the state.
- Allow sufficient time to update model and State agency (permit) reviews in the project schedule



#### Questions?

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