

Water & Wastewater Engineering and Construction

Agenda

- Engineer Flow Chart
- Interagency Facility Plan template
- Selecting an Engineer
- Owner-Engineer Agreement (EJCDC 2014)
- Open & Free Competition
- Equipment pre-selection
- Construction Contract Documents (front-end, EJCDC 2013)
- Getting from Bid Opening to Notice to Proceed
- Construction Inspections, monthly meetings, pay applications and Change Orders
- Originals Policy
- Q&A Panel



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Engineer Flow Chart (RD)

- Provides a roadmap for Engineers working on RD projects in Idaho
- Covers general process with key milestones that must be met from beginning to end
- Available on the RD Website



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Engineering Document Names, cont'd

- Rural Development and DEQ assign different meanings to these documents:
 - RD's Environmental Report = DEQ's Environmental Information Document
 - RD doesn't have anything that = DEQ's PER (RD may request a copy of the DEQ PER)
- The Facility Study should follow the "Idaho Interagency Facility Plan" (IIFP) format and is acceptable to both DEQ and Rural Development



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DEQ Planning Process

- DEQ Loan/Grant Programs use the term planning document to cover grant eligible reports such as Facility Plans (including IIFPs) and Engineering Reports
- Technical approval of the planning document is followed by public comment, evaluation of an Environmental Information Document (EID) and eventual final environmental determination
- Final approval of the planning document after environmental determination completes planning process



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DEQ Planning Process, cont'd

- SRF loan generally starts after planning process complete
- Loans can also cover planning or EID with prior approval
- Preliminary Engineering Report (PER) is a basis-of-design report based on an approved system-wide Facility Planning document and is only required for certain parts of the system prior to submittal of plans and specifications.



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Idaho Interagency Facility Plan (DEQ)

- The Idaho-specific version of memo developed by EPA, USDA, HUD and HHS (RUS Bulletin 1780-2)
- Intended to reduce duplication of effort and, to the extent practicable, harmonize agency requirements
- Provides common outline for facility plan
- Replaces former RD Bulletins
 - 1780-2 for Water
 - 1780-3 for Wastewater
 - Available on the RD & DEQ Websites
- Prepare in accordance with DEQ & SRF Rules
 - IDAPA 58.01.08.502 & DW SRF Loan Checklist 5-A
 - IDAPA 58.01.16.410 & WW SRF Loan Checklist 5-A



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Facility Plan (FP)

Items typically missing or incomplete

- Environmental resources in the area not identified
- Existing O&M not identified
- Excessive population projections or development related growth
- Design/Planning data not clearly identified (ADD, MDD, PHD, existing & proposed source capacity, etc.)
- All reasonable alternatives are not analyzed, include “No Action” alternative
- Proposed O&M not identified
- Short-lived assets not identified
- Recommended project scope and cost does not match application for funding
- Excessive and unnecessary phases are proposed
 - SRF may not fund non-water supply or non-wastewater related improvements, such as park restrooms, park facilities, fire stations, etc.
 - SRF and RD may not completely finance projects which include excessive fire flow or growth



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Facility Plan (FP)

Items typically missing or incomplete

- Recommended project is limited and does not cover other needs that could be funded with excess project budget
- Recommended project in the FP does not match ER/EID
- Present worth evaluation incorporating the EPA discount rate is not included
- The available alternative cost analyses requires updating or does not incorporate Davis Bacon wage rates
- Report narrative fails to overview the subjects of cross-connections, system classification, existing and future operator certification requirements; available and proposed contact time and an overview of sanitary survey or NPDES inspection deficiencies not yet corrected
- Report fails to adequately evaluate existing and future peak hour and maximum day plus fire conditions and affirm compliance with minimum pressure requirements.
- A tentative design, bid and construction schedule for the selected alternative is not available.



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Facility Plan (FP) Items typically missing or incomplete

- Various calculations, e.g., for lift stations
- Purchase or securing of property
- Components of Finished Water Storage cannot overlap:

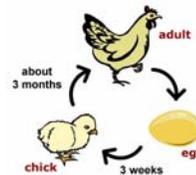
Dead Storage. (Above the overflow)	
<p>Operational Storage. Operational storage supplies water when, under normal conditions, the sources are off. This is generally the volume between the pump on and pump off levels.</p>	<p>Effective Storage. Effective storage is all storage other than dead storage.</p>
<p>Equalization Storage. Storage of finished water in sufficient quantity to compensate for the difference between a water system's maximum pumping capacity (with largest pump out of service) and peak hour demand.</p>	
<p>Fire Suppression Storage. The water needed to support fire flow in those systems that provide it.</p>	
<p>Standby Storage. Standby storage provides a measure of reliability or safety factor should sources fail or when unusual conditions impose higher than anticipated demands. Normally used for emergency operation, i.e. 8 hours of average day demand if standby power is not provided.</p>	
Dead Storage. (Below outlet or substandard flow and pressure)	



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Land Purchases, Leases and Easements

- One of the more difficult parts of a project
- Project sequence is difficult, and may involve:
 - Local P&Z
 - Facility Plan
 - Financing Sources and Methodology
 - Environmental Assessment (NEPA)
 - Negotiation with owner, lender, etc.: contract language is important!
 - Down payment/earnest money
 - Eminent domain (hopefully not!)
- Reimbursable costs (purchase price, amount of land, legal, surveying, Phase I, etc.) depend on the funding program.
Consult with your funding agency early!



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“Environmental Assessments” for Property Transfers

Phase I ESA ≠ NEPA Environmental Assessment

- Phase I Environmental Site Assessment is for ‘Innocent Landowner Defense’ against liability for hazardous substance contamination (required by private lenders but not *normally* by DEQ, CDBG or RD)
- NEPA Environmental Assessment addresses multiple environmental issues and “cross-cutter” regulations for the project, not just land acquisition
- If the property has not been identified, the detailed NEPA assessment has to be done on all candidate properties and areas, which is usually not desirable



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Fire Flow



- In Idaho, public water systems that provide fire flow shall be designed to provide maximum day demand plus fire flow.
- Fire flow requirements should be determined by the local fire authority and a written statement from the local fire authority should be provided to the Engineer during development of the facility planning study.
- The local fire authority can reduce the fire flow requirements for small communities where development of full fire flow requirements is impractical (IFC Section B103).
- If a written statement that includes specific fire flow and duration numbers cannot be obtained from the local fire authority; the Engineer can establish required fire flows in accordance with the International Fire Code as adopted by the State Fire Marshal.
- Rural Development's focus is on providing safe drinking water for rural Idaho. As part of upgrading a water system to meet drinking water demands RD can fund system improvements for reasonable fire flow. RD cannot participate in funding a project or any portion thereof for which the agency determines fire flow requirements are unreasonable.



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Selecting an Engineer



Procurement Process

- The funding agencies require that state law be followed when hiring a Design Professional. (Engineer, Architect, Construction Manager)
- Estimated fees more than \$25,000
 - Qualification Based Selection (QBS) process required



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QBS Procurement Steps

- Prepare a Request for Proposals (RFP)
 - RFP should identify need and solicit proposals from design professionals to assess and solve need
 - RFP required to indicate proposal will be evaluated on:
 - Capability to Perform Project
 - Relevant Project Experience
 - Qualification of Project Team
 - Project Approach and Schedule
 - Selection Committee Interview (highly recommended)



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QBS Procurement Steps continued...

- RFP should outline the Scope of Work
 - Include Studies, surveying, design services, construction services, avoids duplication of effort down the road.
 - Include in the scope of work preparation of the EID/ER
- RFP should indicate solicitation scenario
 - Facilities plan or engineering report, with option, if determined to expand services to design and construction services
 - Specific Project – i.e. – design of water reservoir
 - Pool of Qualified Firms (RFQ)



QBS Procurement Steps continued...

- Advertise the RFP
 - Publish in newspaper of general circulation at least twice not less than one week apart
 - First publication at least two weeks before proposal submission due date
- Selection Committee (at least 3 people) evaluate based on RFP criteria
- Total scores, identify the highest ranked firm
- Document individual and aggregate scores





QBS Procurement Steps continued...

- Negotiate with highest ranking firm detailed scope of work, schedule, and fees.
- If unable to reach agreement can then negotiate with 2nd highest ranking firm.
- Executing the Design Professional Agreement
 - Local gov't , EJCDC, or AIA forms
 - Must use EJCDC's if RD is funding
 - If CDBG paying for a portion of the services, the agreement must include CDBG Supplemental Agreement



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Owner-Engineer Agreement (RD)

- Must use EJCDC E-500 (2014) with RD Idaho Attachment 1
 - RD Attachment 1 modifies the standard agreement
 - Listing of additional insured in Exhibit G under the Owner's policy is not allowed per ICRMP
 - Exhibit I is deleted, no limitation of liability is allowed. Limitations of liability will be governed by the Idaho Constitution. Not allowed by Rural Development nationwide.



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Owner-Engineer Agreement, continued

- RD Idaho Attachment 1 is available on the RD Idaho website
- Download RD Idaho Attachment before each project to ensure you have the most recent version, attachment will be updated periodically
- The standard language of the agreement should be used with minimal modifications.
- The Facility Plan must be referenced on page 1 of the Agreement. Do not add additional breakdown of engineering tasks in Exhibit A. The Facility Plan is the Scope of Work, while the agreement describes the services being provided.
- Provide breakdown of Additional Services with line item costs.
- Must certify no other modifications to the documents, other than those identified have been made. Certification is part of RD attachment.



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Open & Free Competition (RD)



- Rural Development issued updated Open & Free Competition unnumbered letter in May 2012.
- Engineer must evaluate “or equals” submitted by bidders and contractors, but not subcontractors, suppliers or other third parties. Substitutes do not have to be considered.
- Must allow “or equals” during bidding and after award. Bidder or Contractor must certify there will be no increase to the owner in cost or contract time.
- Only need to list one brand name and include the “or equal” statement in specification.
- No geographic preference, must consider all suitable materials, can't ask contractor to list brand names intended to use, owners can't make up difference to get more expensive design, materials or technology
- Certain equipment can be pre-selected through a competitive RFP process.



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Equipment Pre-Selection

- Necessary when pre-selection of major equipment must be predetermined to facilitate design, for example:
 - Membrane treatment systems, oxidation ditch's, SBR, etc.
- There are two processes that meet RD regulations
 - Assignment of Contract (Preferred)
 - RD must now approve contract for equipment procurement
 - List specific line items, locked –in Price and Brand Name in Bid Schedule
 - Owner Supplied
 - RD must approve contract and must include federal language
 - Owner must maintain insurance and properly store equipment
 - DEQ generally requires an attorney opinion affirming compliance with procurement requirements if materials or equipment are not formally procured
- Equipment can only be sole-sourced with a detailed justification from the engineer supported by written documentation. Reasons for sole-sourcing could be the equipment, process or material is only available from one source, certain equipment is required for interchangeability of parts or the material/equipment is the only technically feasible option.



RD's Original Signatures Policy

- RD only requires Original Signatures on the following documents:
 - Owner-Engineer Agreement (original for Owner)
 - Owner-Contractor Agreement (original for Owner)
- RD does not require Original Signatures on the following documents:
 - Owner-Engineer Agreement Amendments
 - Change Orders
 - Pay Applications



DEQ's Original Signatures Policy

- DEQ normally requests one copy bearing Original Signatures on the following documents:
 - SRF Loan Award Document
 - Owner-Engineer Agreement, Including Amendment
 - Owner-Contractor Agreement
 - SRF Loan Outlay Request Form
 - Change Orders
- DEQ does not need Original Signatures on the following documents:
 - Contractor Pay Applications and Engineering Invoices
 - Planning and Design Documents including Addendums



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Construction Contract Documents

- Also known as “Front-End” documents
- Construction Document list is provided as an outline of documents required
- Must use new 2013 EJCDC with RD Idaho Attachments 2, 3 & 4
- Documents are available on the RD Idaho website
- Download RD Idaho Attachments before each project to ensure you have the most recent version, attachments will be updated periodically
- RD strongly encourages the use of the ISPWC specifications
- RD must review and approve the construction documents prior to advertising for bids. Some regional DEQ offices also require construction documents be approved prior to advertising. The offices which don't, highly recommend this practice so that the best contract price possible be obtained and to ensure construction documents meet minimum state requirements.
- DEQ must review public water supply and wastewater facility construction design documents prior to construction regardless of the anticipated funding plan.



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Construction Contract Documents (RD) Format

- RD Idaho Attachments are provided in Word format 
- The Attachments are password protected with track changes turned on .
- All modifications to the EJCDC's and RD Attachments must be done through track changes, so modifications, additions and deletions are clearly identified.
- Engineer must sign the certification in RD Supplementary Conditions that no other changes have been made to the EJCDC or RD Attachments, other than those clearly identified by "track changes".
- IDOC requires CDBG supplement conditions and federal labor standards with applicable D-B wage rate decision. 

Getting from Bid Opening to Notice to Proceed

AWARDING the construction contract



- After bids have been opened the Engineer should submit the following documents to the RD Specialist and DEQ Regional Office:
 - Bid Tabulation (include Engineers estimate)
 - Proposal from the low bidder along with bid bond, acknowledgement of addenda and signed certifications
 - Engineer's analysis and recommendation for award
 - Owner's recommendation for award
 - RD Specialist will establish a revised budget & summary of cost
 - DEQ also requires proof of advertisement and certification procurement laws have been followed
- Upon satisfactory review of the AWARD package RD or DEQ will provide the Owner with written concurrence to award the construction contract. **Do Not issue Award without RD's or DEQ's Concurrence.** 

Getting from Bid Opening to Notice to Proceed, continued

EXECUTION of construction contract



- Upon receipt of RD's concurrence to award the Engineer should compile and submit at least one (1) original and two (2) copies of the bound project manuals to the RD AREA office including the following:
 - Successful Bidders Bid Form, Bid Bond and Notice of Award.
 - EJCDC Construction contracts, executed by the City and Contractor
 - Performance bond, Payment bond and Power-of-Attorney (matching dates)
 - Certificate of Insurance showing the coverage as required by RD's supplementary conditions
 - Executed Certificate of Owner's Attorney
 - EJCDC GC's, RD Supplementary Conditions and technical specifications
- Upon satisfactory review of the contracts RD will sign for concurrence and notify the Engineer and City they can issue Notice to Proceed.



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Getting from Bid Opening to Notice to Proceed, continued

EXECUTION of construction contract



- Upon receipt of DEQ's Authorization to award, the Engineer should compile and submit at least one (1) original submittal package to the regional office and (1) original package to the owner including the following:
 - Successful Bidders Bid Form, Bid Bond and Notice of Award.
 - EJCDC Construction contracts, executed by the City and Contractor
 - Performance bond, Payment bond and Certificate of Insurance
 - Executed Certificate of Owner's Attorney or Supportive Opinion
 - SRF Loan Requested Prior Notice to Proceed Documents, including Form 6-D, 6-G, 6-H, 6-J, 6-L, 6-M, 6-N, 6-O, 6-P, 6-Q, 6-R, 6-S, 6-U, and 6-V
 - Some Regions may also require that Excluded Parties List System (EPLS) debarment statements be provided for the prime contractor, sub-contractors, suppliers and supporting contracts exceeding \$25,000
- Upon satisfactory review of the requested information DEQ will notify the Engineer and the City that Notice to Proceed may be issued.



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Liquidated Damages (RD)

- An amount, specified in the construction contract to cover damages incurred by the Owner as a result of the contractor's failure to complete the work within construction duration established in the contract (e.g., engineering, inspection and owner time).
- LD's must be enforced. Not an Owner or Engineer option.
- Contract time can only be extended for non-contractor caused delays.



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The Pre-Construction Meeting

- Purpose and intent
- Who attends
- Roles and responsibilities
- Review of RD Pre-Con forms



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Pre-Construction Meeting: Purpose

- Discussion of project
 - Who, what, when & where
 - Roles and Responsibilities during construction
 - Contract document requirements (C/O, LD's, Time)
 - Discuss payment procedures
 - ROW and Easements
 - Construction staging areas
 - Safety
 - Labor requirements
 - Final Payment and closeout



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The Pre-Construction Meeting: Who Attends

- Owner
- Contractor
- Consulting Engineer
- Funding Agenc(ies)
- Utility Companies
- Permitting Agencies
- Others



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Roles & Responsibilities at the meeting

- Engineer
 - Lead meeting and discuss project details
- Agency
 - State Engineer and Specialist should attend to ensure all important information is discussed
 - Review Preconstruction forms
- Owner and Contractor(s)
 - Ask questions
- Utilities
 - Communicate requirements to prevent problems



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Pre-Construction Meeting Forms

- Idaho RD Form “Record of Preconstruction Conference” should be used by the applicant. Available on the RD website.
- DEQ Form 9-A, “Preconstruction Checklist”
- DEQ Form 9-B, “Preconstruction Meeting Suggested Agenda”



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Construction Inspections, Monthly Meetings, Pay Applications and Change Orders



- Construction Inspections should be combined with monthly meetings and processing of pay applications.
- SRF and USACE require that the Owner include a current Davis Bacon prevailing wage list in contract documents; interview contractor employees pursuant to Department of Labor (DOL) instructions during construction and request wage classification checks from the DOL when needed.
- DEQ only needs one copy of the pay application
- Change orders must be fully executed before they are included on a pay applications to avoid delays.
- Engineers are welcome to contact RD and DEQ if there is concern over whether RD or DEQ will sign/accept the change order as eligible for respective RD or SRF funding.
- USACE funds are typically in the form of reimbursements
 - SF 270, Proof of Payment and Invoice Copy



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Clean Water SRF Changes

Water Resources Reform and Development Act of 2014

- “Final” EPA guidance Jan. 6, 2015



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Green Project Reserve (DEQ)

Federal law requires part of SRF funds to be spent on:

- Water efficiency
- Energy efficiency
- Green infrastructure (for stormwater management)
- “Environmentally innovative” activities

Applicants committed to include GPR on their projects get extra points when DEQ ranks their Letters of Interest



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Green Project Reserve, cont'd (DEQ)

GPR projects must be documented, typically with a succinct business case demonstrating energy or water efficiency or financial return.

Business cases since FY2011 are archived at www.deq.idaho.gov/water-quality/grants-loans/green-project-reserve.aspx



Idaho's is #1 in the nation for GPR as a fraction of total CWSRF grant, and #5 for DWSRF

contact: Kevin Mcneil 373-0452 kevin.mcneil@deq.idaho.gov



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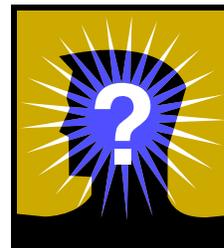
American Iron & Steel Requirement (DEQ)

- Must use iron & steel products produced in U.S.
- Congressional requirement for all DWSRF & WWSRF projects, starting January 17, 2014
- Projects with plans & specs approved before January 17, 2014 are exempted
- EPA can issue waivers if:
 1. Application would be inconsistent with public interest
 2. Products not produced in U.S. in sufficient reasonably available quantities and of satisfactory quality; or
 3. U.S. products would increase *overall* project cost >25%
- EPA guidance and waiver decisions at water.epa.gov/grants_funding/aisrequirement.cfm



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Q&A Panel



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Feedback & Suggestions

