PART 501 - AUTHORIZATIONS

SUBPART A - REVIEW AND APPROVAL

501.00 General.

(a) Conservation engineering practices have the potential, upon failure or malfunction, to affect public health and safety, cause loss of life, and/or cause significant property damage, depending on the size, location, and complexity of work. For this reason the practice of engineering is regulated by individual states through professional engineering certification as described in the General Manual 210-402.

(b) The development of engineering plans or engineering aspects of practices requires that the approving engineer be responsible for obtaining and integrating the needed assistance from an interdisciplinary team under the rules of professional conduct.

(c) Engineering job approval authority is the quality assurance process that ensures adequate considerations by competent NRCS employees to plan, design, and install conservation practices that, with proper operation and maintenance, will perform the intended functions for the planned life of the practices. The purposes of engineering job approval authority are: to maintain the accountability required by state certification of professional engineers; to provide competent and functional engineering in planning, design, and construction of conservation practices; and to maintain the credibility and public trust of NRCS engineering.

(d) All conservation engineering practice designs will be approved by a qualified person who has appropriate engineering job approval authority. Others may do some or all of the work under the direction of the qualified person. A conservation engineering practice is a conservation practice included in the National Handbook of Conservation Practices with engineering listed as the lead discipline.

501.01 Scope.

(a) Each NRCS employee providing engineering services is to be evaluated and assigned an appropriate engineering job approval authority based upon training, experience, and demonstrated competence. No more than one level of review is required.

(b) Non-NRCS employees operating under the technical supervision of an NRCS employee and providing engineering services are to be evaluated and assigned an appropriate engineering job approval authority based upon training, experience, and demonstrated competence. The engineering job

approval authority assigned, in addition to being based on technical competence, is dependent upon employment status as described in the following paragraphs.

(1) Non-NRCS employees who are federal employees may be assigned engineering job approval authority on the same basis as NRCS employees.

(2) Non-NRCS employees who are licensed to practice engineering in the same state in which the engineering services are offered may be assigned engineering job approval authority on the same basis as for NRCS employees.

(3) Non-NRCS employees who are not federal employees and are not licensed to practice engineering in the state in which the engineering services are offered may be assigned engineering job approval authority when such authority does not conflict with state law.

These employees include volunteers, employees of cooperative organizations or units of government, and other partners performing public services similarly to NRCS employees and therefore appearing to the public as NRCS employees.

Policy on the use of non-NRCS engineering services is contained in 505.

501.02 Technical Quality.

Engineering designs and installation assistance are to provide for engineering conservation practices that:

(a) Function as planned;

(b) Exhibit sound engineering principles;

(c) Perform safely;

(d) Are cost effective installations for which initial, operation, maintenance, and removal or replacement costs are considered;

(e) Meet the requirements of site specific conditions within an ecosystem;

(f) Comply with NRCS and industry established practice standards, technical criteria, and policies

501.03 Compliance of engineering work with laws and regulations.

(a) Engineering work is to meet applicable requirements of federal, state, and local laws, regulations, and codes. This is for all work that involves engineering activities during planning, design, construction, operations, maintenance, modification, rehabilitation, and removal or replacement.

(b) Registered professional engineers are encouraged to seal designs, construction plans, reports, and other engineering documents.

(c) The State Conservation Engineer is to develop policy and procedures for approving and sealing engineering plans:

(1) For works designed by NRCS and by non-NRCS employees working as partners with NRCS;

(2) Which are required to be sent to regulatory agencies for review, approval, or the granting of permits; and

(3) In states that have laws requiring the cooperating local organization to have plans for public works prepared under the direct supervision of a registered professional engineer.

501.04 Engineering job approval authority.

(a) The State Conservation Engineer is delegated the engineering job approval authority for all engineering jobs. Engineering jobs are classified with respect to hazard potential, complexity, and size, as shown in Exhibit 1 (501.08). The hazard potential is defined in 503. The type of review required varies by engineering job class as shown in 501.05.

(b) In-state engineering job approval authority (Classes I through V).

(1) Conservation engineering practices that are classified as Classes I through V jobs must be low hazard potential (such as class A dams or class III dikes) as defined in §503. For the practices with the potential for higher risk, limitations on selected controlling factors and hazard potential are to be used to further define the engineering jobs by higher classes.

(2) Each State Conservation Engineer is to develop policy and procedures for approval of engineering work carried out in the state. These are to apply to every individual providing

engineering services, both NRCS employees and non-NRCS employees operating under NRCS technical supervision. The procedure used to assign engineering job approval authority for non-NRCS employees is to be the same as that used for NRCS employees, except as noted in 501.01(b).

(3) Engineering job approval authority is to be delegated within a state according to the classes of jobs established in the state engineering job approval authority chart. Assigned individual engineering job approval authority is to be developed considering the employee's training, experience, and demonstrated competence. The practices applicable to the location are to be considered in assigning engineering job approval authority. Exhibit 2 (501.09) is a guide for developing engineering job approval authority charts. The practices listed are examples only. The State Conservation Engineer is to select, from Class V jobs, job type, controlling factors, units, and engineering job approval authority breakdowns appropriate for the conditions in the state. For the practices noted in Exhibit 1 (501.08), the same controlling factors should be use(d) Additional factors may be selected if needed.

(4) It is recommended that Professional Engineers registered in the state and working under NRCS technical supervision be routinely delegated either Class IV or V engineering job approval authority.

(5) The engineer technically responsible for engineering work (e.g., field or area engineer) is to delegate the engineering job approval authority for those working in her or his assigned are(a) The individual’s supervisor is to concur in the delegation of the engineering job approval authority. The engineering job approval authority delegation is not to be greater than that held by the delegating engineer. Individual engineering job approval authority is to be reviewed annually for those in their present position for less than three years and updated as necessary, but at least every three years for all others.

(6) The state engineering job approval authority chart is to be reviewed and concurred in by the Director of the Conservation Engineering Division.

(c) State Conservation Engineer's engineering job approval authority (Classes VI through VIII).

(1) The design review and, for Class VIII jobs, concurrence will be accomplished prior to engineering job approval by the State Conservation Engineer in accordance with 501.05. Design review encompasses the job design documentation, to include the design folder, construction

drawings, specifications, design report, quality assurance plan, operation and maintenance plan, and, when applicable, the instrumentation plan and contract provisions. See 511 for documentation requirements. Review also applies to all significant changes required during construction.

(2) Class VI engineering job approval authority may be delegated to NRCS Professional Engineers registered in the state if they have demonstrated competence for a particular practice and if the Director of the Conservation Engineering Division has determined that the state staff has the review capability for the job.

(3) Each State Conservation Engineer is to develop procedures for the design, review, and processing of Class VI through VIII jobs. This procedure is to indicate the staff specialists who are to participate in the design.

(d) Engineering job approval authority for additional work.

The engineering job approval authority for work to be done on an existing practice or structure is to be classified in accordance with procedures for classifying that practice or structure as listed in 501.07. This determination of engineering job approval authority applies to any additional work such as repair, modification, rehabilitation, or removal. The classification is determined by the highest category of any single most-limiting factor for the job.

(e) Documentation of design review and engineering job approval.

Review and approval of an engineering job, comprising the design, drawings, and specifications, is to be accomplished in one of the following ways:

(1) Signatures are to be placed on the design documentation/report and the cover or first sheet of the construction drawings, or

(2) Signatures are to be placed on an accompanying memorandum that describes the specific job and scope (including design documentation/report and plans).

(f) Associated plans and specifications.

Interdisciplinary design may produce associated drawings and specifications for erosion control, vegetative planting, final grading, and other components. All associated plans and specifications that may affect the performance of an engineering job are subject to the engineering job approval process.

501.05 Engineering job review.

(a) Design reviews.

(1) Classes I through V - No more than one level of design review of jobs in engineering job classes I through V is required to assure technical quality during design, as determined by the State Conservation Engineer.

(2) Classes VI through VIII - One level of design review of jobs in engineering job classes VI through VIII is require(d) The Director of the Conservation Engineering Division will determine the design review capability of the engineering staffs based on the demonstrated competence in these jobs and the sustained workload to maintain that proficiency. When a State Conservation Engineer or other key individual responsible for design is replaced, or when other conditions warrant, review capability is to be reviewed. The Director of the Conservation Engineering Division will initiate the review, will establish the level of review capability, and will notify the State Conservation Engineer in writing.

(3) Design reviews will be performed as follows:

Classes I - V:	As determined by the State Conservation
Class VI:	In-state staff review (if review capability established by the Director of the Conservation Engineering Division)
Class VII:	Independent staff review
Class VIII:	Director of Conservation Engineering Division review and concurrence

An independent staff review is a review conducted by a staff that is not supervised by the State Conservation Engineer and that did not participate in the design. The Director of the Conservation Engineering Division will concur in the selection of an independent reviewer if outside the NRCS.

(4) The policy on checking and reviewing engineering work is contained in 511.05.

(b) Post Reviews.

Post reviews are independent reviews made after installation of the practice or structure. Spot checks, as required by General Manual 450-407, are examples of post reviews. They are valuable for quality assurance,

determination of technical competence and experience, determination of the need for additional training, and determination of the need for revision of engineering procedures and criteria. Supporting data, drawings, and specifications for the jobs selected for post review are to be examined. The materials will be reviewed for conformance to national policy, standards, criteria, and sound engineering practice. Onsite reviews may be necessary, depending on the job's complexity, safety and health risks, or environmental risks. After each job is reviewed, the post reviewer is to make a written report to the State Conservation Engineer. A copy will be sent to the Director of the Conservation Engineering Division for class I through V jobs only if the findings impact changes in national policy or standards and for all class VI through VIII jobs.

(1) Classes I through V - The State Conservation Engineer will develop the procedure for post review of representative engineering jobs classes I through V to assure technical quality in conformance with General Manual 450-407.

(2) Classes VI-VIII - The Director of Conservation Engineering will determine the need for post reviews of engineering job classes VI through VIII.

501.06 Engineering work reviewed for other agencies.

(a) Engineering work reviewed for regulatory agencies.

(1) Approval procedures must also contain provisions for reviewing the engineering design parts of plans for cooperating regulatory agencies and determining if the plans comply with NRCS technical standards. The approval authority for this type of review is to be the same as assigned for engineering job approval authority.

(2) NRCS employees are not to review designs that are outside NRCS's area of technical expertise. For example, NRCS is not to review the structural strength of a building with rooftop storage used for runoff management. For this design, the review should be for the functional aspects of the plan, including storage and release rates. Any apparent deficiencies in specific designs noted during the review should be called to the attention of the responsible agency, even though they are outside the scope of the review.

(3) Review responses are to be expressed in terms of compliance or non-compliance of identified items and not in terms of approval or disapproval. Response comments are to indicate the extent or nature of the review, such as: "Review was conducted in accordance with practice standard ___ and the

following was determined. Review has been limited to the functional layout and size in accordance with the requirements of Regulation ___ ."

(4) In all cases, applicable requirements of federal, state, and local laws, regulations, and codes are to be met.

(b) Engineering work reviewed for state and other federal agencies.

If engineering work is reviewed for other federal or state agencies, the work is to be checked against NRCS criteria (practice standards) and sound engineering practices appropriate for the size and type of job. The report back to the agency is to indicate compliance or non-compliance to NRCS standards and criteria. The approval of the review report is to be at the same level as engineering job approval for similar NRCS designs.

501.07 Classification of engineering jobs.

(a) The engineering job classifications that utilize controlling factors are displayed by conservation engineering practice in Exhibit 1 (501.08). If the value of any one of the controlling factors is exceeded, the job becomes the next higher class.

(b) Approval authority for all of the conservation engineering practices listed as Class V may be delegated as Classes I through V and those listed as class VI may be delegated as Class VI by State Conservation Engineers. The listed values of the controlling factors are maximums; therefore, State Conservation Engineers may specify lower values of the controlling factors than those listed.

(c) Approval authority for those conservation engineering practices that are not listed in Exhibit 1 also may be delegated as Classes I through V by State Conservation Engineers unless the hazard classification is significant or high or unless classified differently by the Director of the Conservation Engineering Division.

(d) Those jobs covered by interim standards will be classified by the Director of the Conservation Engineering Division when the interim standards are approved.

(e) Exhibit 1 (501.08) is in the form that can be used for documenting the design review capability of engineers by the Director of the Conservation Engineering Division.

(f) Exhibit 2 (501.09) is a guide for a state engineering job approval authority chart. The practices listed are examples only. 501.04 describes the process by which the State Conservation Engineer is to delegate engineering job approval authority.

501.08 Exhibit 1 – Engineering job classifications that utilize controlling factors.

Review Capability Determination

Name _____ Title _____Grade_____Location_____
Determined by _____ Title Director, Conservation Engineering Division Date _____
Concurred _____Title_____Date_____
(Supervisor)

Practice Code	Practice Name	Controlling Factor	Units	Class V	Class VI	Class VII	Maximum Review Capability
	Any practice	Hazard potential as defined in §503	class	Low	Signif-icant	High	
	Any practice	Alters the visual resources of beaches and shorelines on oceans and the Great Lakes		None	All	All	
348	Dam, Diversion	Streamflow (25-yr) Flow diverted Height of drop	cfs cfs feet	2000 200 8	3000 500 15	All All All	
Dams and Structures							
402	Dam, Floodwater Retarding	Drainage area Effective height Embankment over active fault	sq. mi. feet	20 35 None	40 50 None	50 75 None	
349	Dam, Multiple-Purpose						
410	Grade Stabilization Structure						
436	Irrigation Storage Reservoir						
350	Sediment Basin						
587	Structure for Water Control						
400	Floodwater Diversion	Design capacity	cfs	500	All	All	
404	Floodway	Design capacity	cfs	1000	2000	All	
320	Irrigation Canal or Lateral	Capacity	cfs	500	1000	All	
430	Irrigation Water Conveyance	Pipeline capacity 50 psi < 50 psi	gpm gpm	3500 5000	All All	All All	
Land Reclamation							
451	Fire Control	Area	acres	1	All	All	
456	Highwall Treatment	Height with seepage Height without seepage	feet feet	35 50	75 100	All All	
453	Landslide Treatment	Area Depth Slope	acres feet percent	1 10 50	5 20 All	All All All	
452	Shaft and Adit Closing	Shaft depth Shaft span Adit barrier, permeable Adit barrier, impermeable	feet feet	50 16 All None	All All All None	All All All All	

501.08 Exhibit 1 – Engineering job classifications that utilize controlling factors (continued).

Practice Code	Practice Name	Controlling Factor	Units	Class V	Class VI	Class VII	Maximum Review Capability
454	Subsidence Treatment	Fill height	feet	20	All	All	
455	Toxic Discharge Control	Flow	cfs	100	1000	All	
582	Open Channel	Design capacity Design velocity	cfs fps	1000 10	2000 12	All All	
516	Pipeline	Pressure	psi	300	All	All	
533	Pumping Plant for Water Control	Axial flow pump capacity Centrifugal & turbine pump capacity Centrifical pump static head Turbine pump statichead	gpm gpm ft ft	50,000 3500 350 500	100,000 5000 500 1000	All All All All	
	Recreation facilities	Water supply or sewage treatment Onsite Offsite public	daily design capacity (people)	200 400	400 800	All All	
584	Stream Channel Stabilization	Design capacity Design velocity	cfs fps	1000 10	2000 12	All All	
580	Streambank and Shoreline Protection	Bankfull capacity Bankfull velocity Water height above shoreline	cfs fps feet	5000 10 3	20,000 12 5	All All All	
608	Surface Drain, Main or Lateral	Design capacity Design velocity	cfs fps	1000 10	2000 12	All All	
313	Waste Storage Facility	Storage capacity	cu. ft. (thous.)	2000	5000	All	
359	Waste Treatment Lagoon	Aerobic surface area Anaerobic volume	acres cu. ft. (thous.)	25 2000	50 5000	All All	

501.08 Exhibit 2 – Engineering job approval authority.

Name_____Title_____Grade_____Location_____
Delegated by_____Title_____Date_____
(Responsible Engineer)
Concurred _____Title_____Date_____
(Supervisor)

Practice Code	Practice Name	Controlling Factor	Units	Class I	Class II	Class III	Class IV	Class V	Class VI	Maximum Approval Authority
	Any practice	Hazard potential as defined in §503	class	Low	Low	Low	Low	Low	Signif-icant	
	Any practice	Alter the visual resources of beaches and shoreline on oceans and the Great Lakes		None	None	None	None	None	All	
560	Access Road	Surface Treatment	Kind	Soil	Gravel	Asphalt	Concrete	All	All	
		Length	feet	2000	5000	10,000	20,000	All	All	
		Maximum Grade	percent	8	10	15	20	All	All	
		Culvert Pipe	inches	18	24	48	50	72	84	
323	Agri-Chemical Handling Facility	Tank Storage Volume	gallons	250	500	1000	2500	5000	All	
310	Bedding	Area	acres	40	100	320	640	All	All	
317	Composting Facility	Capacity dead animals	cu. ft.	none	1250	2500	5000	All	All	
		Litter/Manure	cu. ft.	none	10,000	20,000	50,000	All	All	
326	Clearing & Snagging	Length of Reach	feet	1000	2500	5000	15,000	All	All	
397	Commercial Fishponds	Hazard class	class	A	A	A	A	A	B	
		Effective height	feet	15	20	25	30	35	50	
		Conduit	inches	12	24	36	42	48	60	
		Storage X height	ac. ft.	500	1000	2000	3000	All	All	
335	Controlled Drainage	Area Controlled	acres	5	10	50	160	All	All	
348	Dam, Diversion	Streamflow (25-yr)	cfs	100	500	1000	1500	2000	3000	
		Flow diverted	cfs	25	50	100	150	200	500	
		Height of drop	feet	3	3	5	7	8	15	
Dams and Structures										
402	Dam, Floodwater Retarding	Drainage area	acres	20	99	320	640	12,800	25,600	
		Effective height	feet	15	20	25	30	35	50	
349	Dam, Multiple-Purpose	Conduit	inches	12	24	36	42	48	60	
		Storage X height	ac. ft.	500	1000	2000	3000	All	All	
410	Grade Stabilization Structure	Embankment over active fault		None	None	None	None	None	All	
436	Irrigation Storage Reservoir									
350	Sediment Basin									
587	Structure for Water Control									

SUBPART B - REPAIR AND REHABILITATION

501.20 General.

Many engineering practices require repair or rehabilitation because of changing Technology and deterioration from age. A rehabilitated structure should be safe and functional for an extended period of time with normal maintenance. The application of sound engineering principles in the design of the repair or rehabilitation will result in continued satisfactory performance.

501.21 Scope.

Repair or rehabilitation of all engineering practices, whether originally installed with SCS assistance or not, is to be carried out in accordance with provisions of this subpart. These instructions do not apply to operation and maintenance activities.

501.22 Applicable standards.

(a) When it has been determined that assistance is to be provided for the repair or rehabilitation of a practice that was originally installed with SCS assistance, the applicable standards must be determined. Normally, these are the standards that were used in preparing the original design; however, the individual(s) with job approval authority (see 501.04) must determine whether the original standards are still acceptable in light of new engineering knowledge and current State and national criteria. If the original standards are unacceptable, current standards are to be used.

(b) If SCS assistance is provided for the repair or rehabilitation of a practice that was originally installed without SCS assistance, the practice or part of a system is to conform to current engineering standards when completed (see 501.23). This insures a durable, functional practice that justifies the use of SCS resources.

(c) If the practice is an interdependent part of a system or if an element of a practice is to be repaired or rehabilitated, the entire system or practice is to be carefully evaluated. The system must be sufficiently sound to permit the practice being repaired or rebuilt to function as designed.

501.23 Dams installed without SCS assistance.

(a) Because of the hazards associated with dams, a special approach is necessary when assistance is requested for the repair or rehabilitation of a dam that was built without SCS assistance. Before any commitment for assistance is made, the condition of the dam is to be analyzed and a comprehensive engineering report prepared. This report is to describe

the current physical condition of the dam, specify the repairs needed to meet SCS standards, and include an estimate of the costs for repair or rehabilitation. The report will be the basis for the decision to commit resources.

(b) If the dam exceeds Class V (see 501.04), the report is to be prepared by a non-SCS registered professional engineer who is experienced in the design and construction of dams. The report is to be reviewed by the state conservation engineer and the head of the TSC engineering Staff. Their technical acceptance of the report is necessary before resources can be committed.

(c) If the dam is of a size normally approved by the state conservation engineer or other employees within the state, the report may be prepared by the owner or sponsor or by SCS engineers. The report must be accepted or approved by an engineer with appropriate job approval authority before resources can be committed.

501.24 Special conditions.

(a) If urgent action is necessary to safeguard life and property against flood damage, structure failure, etc., SCS may provide technical assistance for temporary measures to lessen the immediate threat. If SCS subsequently makes permanent repairs, they are to be in conformance with 501.22.

(b) Repairs or rehabilitations under the Emergency Conservation Measures Program are to be carried out as specified by the Agricultural Stabilization and Conservation Service. The practices not restored to original or current criteria must be functional, but if the repaired or replaced practices would create a safety hazard, they are to be restored to meet standards.

(c) Repairs or rehabilitations under the Emergency Watershed Protection Program or any other emergency assistance program are to be carried out as specified for that program; but if the repaired or replaced practice would create a safety hazard, it is to be restored to meet SCS standards.

SUBPART C - VARIANCE AND CHANGE

501.30 General

Improvement in construction methods, equipment, and material, as well as findings of research and experience, makes occasional revision of standards necessary and desirable. However, because practice standards reflect minimum requirements, plans and designs must be site specific and provide for a structure that will safely and economically accomplish its intended purpose for the duration of its assumed economic life with reasonable maintenance. Frequently, site conditions require additional features or precautions. Less frequently, compensating conditions justify a request for a variance from a standard.

501.31 National Handbook of Conservation Practices (NHCP).

Variances from the requirements of the conservation practice standards in the NHCP are to be handled according to 450-401.14 (GM).

501.32 Channel Stability Criteria.

(a) The analysis of channel stability requires sound judgment. The best known design techniques and criteria are available in Technical Release No. 25, and Practice Standard 582, Open Channel (NHCP). However, there are situations in which channel and site conditions in association with the methods of construction and maintenance indicate that variations from minimum stability criteria are warranted.

(b) If the state conservation engineer determines that a variation from stability criteria is warranted, the results of the analysis and the proposed approach are to be submitted to the head of the NTC engineering staff. The NTC and the state will jointly study the data and proposal. The head of the NTC engineering staff can then approve, require adjustment before approval, or disapprove the variation. The head of the NTC engineering staff is to report variations approved to the Director, Engineering Division.

SUBPART D - ENGINEERING WORK ON NATIONAL FORESTS

501.40 General.

(a) The Forest Service (FS) has the responsibility for establishing the standards and criteria used for engineering works installed on national forests. SCS often assists in engineering works on these lands.

(b) Coordination of engineering criteria and procedures is necessary so that the completed practice will meet the requirements of both agencies and will function for its intended life with normal operation and maintenance.

501.41 Scope.

Engineering coordination for planning, designing, constructing, repairing, or rehabilitating water storage or transmission structures on or affecting lands administered by the FS is established by the Memorandum of Understanding between FS and SCS (see 501.70).

501.42 Water storage or transmission structures built on national forests.

(a) The FS has full authority and responsibility for establishing the standards for water storage or transmission structures to be built on national forests. "Title 7500 - Water Storage and Transmission" of the Forest Service Manual describes the responsibilities of the various levels of FS, its administrative procedures, and its basic criteria for design and construction. Structures on or affecting FS-administered lands are to be designed to meet or exceed FS criteria.

(b) FS procedures and criteria are found in the FS Manual, Title 7500. State conservation engineers who may have work on national forests should maintain a current copy of this manual.

SUBPART E - ASSISTANCE ON SHORE EROSION CONTROL

501.50 General.

(a) Because shoreline erosion is complex, erosion control measures for stabilization differ greatly from those used for upland erosion control and can be very costly.

(b) Effective installation of erosion control measures can be achieved by proper coordination with other Federal and State agencies. This coordination eliminates duplication of services and provides for sharing knowledge in a rapidly changing Technology.

501.51 Scope.

(a) SCS can provide assistance in controlling shoreline erosion if all the following conditions are met:

(1) The problem is not created by wave action on the open and unprotected shores of the ocean fronts or the Great Lakes.

(2) The problem can be solved with vegetation, normal upland erosion control practices, or minor structural measures such as gabions or riprap revetment, masonry or timber bulkheads, or rock or timber groins. All revetments, bulkheads, or groins are to be no higher than 3 feet above mean high tide or, in nontidal areas, no higher than 3 feet above mean high water. As used here, bulkheads are designed primarily to resist earth pressures; revetments are not. Bulkheads and revetments are generally placed parallel to the shore; groins are generally perpendicular to the shore.

(3) Failure of structural measures because of high intensity storms will not create an immediate hazard to life or result in serious damage to buildings, residences, roads, or other high-value property.

(4) Installation of the recommended measures will have no significant adverse effects on the environment or on adjacent lands, waters, or installations.

(5) Sponsors and cooperators understand the level of protection being provided and their responsibility for maintenance and repair.

(6) Plans and schedules for installing structures and establishing vegetation are acceptable to local, State, and Federal agencies that have jurisdiction.

(b) SCS is not to provide design or construction assistance to solve erosion problems created by wave action on the open and unprotected shores of major ocean fronts or the Great Lakes. Advice and counsel can

be provided on complementary erosion control practices used in conjunction with complex or expensive installations built by others at these locations. Assistance can be provided for normal erosion control on lands adjacent to these shorelines but only at elevations not affected by wave action.

501.52 Coordination with Corps of Engineers.

(a) The Corps of Engineers has responsibility for beach erosion control and shore protection on certain public lands and navigable waters. They have authority to provide technical and engineering assistance to nonfederal public interests for shore and streambank erosion. (See 501.72.) This may include assistance to soil conservation districts. The Corps of Engineers has defined "shore and streambank erosion" to apply to shorelines of oceans, bluffs, bays, estuaries, the Great Lakes, inland lakes and reservoirs, and along banks of navigable rivers and their tributaries. They also have responsibility for issuing permits for structures and work in or affecting navigable waters.

(b) The following kinds of work are to coordinated with the appropriate Corps of Engineers district engineer:

(1) Any work that will have offsite effects, such as entrapment or diversion of littoral drift;

(2) Any work that affects Corps of engineers jurisdictional waters;

(3) Any work that requires permits; or

(4) Any work that may be a duplication of effort.

501.53 Requirements for assistance.

(a) Assistance on shore erosion problems for individual landowners or groups of landowners is to be subject to the cooperator assistance priority controls established by the conservation district.

(b) Technical assistance is to be coordinated with the agencies issuing permits to insure conformance with their criteria. Sponsors and cooperators must obtain any required permits. Data that SCS has collected in the course of making an investigation can be used by cooperators in preparing their requests for permits.

(c) Special authorization will be considered for providing assistance during emergencies or for meeting the requirements of special legislation.

SUBPART F - SNOW SURVEYS AND WATER SUPPLY FORECASTING

501.60 General.

The National Resources Inventory And Snow Survey and Water Supply Forecasting Manual (RISS) presents SCS policies for carrying out snow survey and water supply forecast responsibilities.

501.61 SCS Responsibilities.

The Snow Survey and Water Supply Forecasting program is directed by the Deputy Chief For Technology. Program guidance is furnished by the Director of the Resources Inventory Division (RID) and the RID staff. Technical guidance for data collection facilities and hydrologic aspects are furnished by the Director, Engineering Division, and the Engineering Division staff. This responsibility and other SCS responsibilities are described in RISS, Part 501.

(THE NEXT PAGE IS 501-25)

501.70 SCS-FS Memorandum of Understanding.

UNITED STATES DEPARTMENT OF AGRICULTURE
MEMORANDUM OF UNDERSTANDING
between
FOREST SERVICE
and
SOIL CONSERVATION SERVICE

1. PURPOSE

The purpose of this agreement is to provided for coordination between the Soil Conservation Service (SCS) and the Forest Service (FS) when the SCS is involved in the planning, design, construction, repair, or rehabilitation of water storage or transmission structures on or affecting lands; administered by the FS. As an interdepartmental agency agreement, nothing in this document is meant to change delegations of authority or agency practice in regard to issuing permits and external relations.

2. SCOPE

This agreement applies to work under the following acts and subsequent amendments: PL 74-46, Soil Conservation Act; PL 78-534, Flood Control Act of 1944; PL 83-566, Watershed Protection and Flood Prevention Act; PL 89-90, Water Resources Planning Act (River Basins Program); and PL 87-703, Food and Agriculture Act of 1962 (RC&D Program).

Structures as used herein refers to facilities used for water storage, water transmission, and related improvements such as access roads, boat launching ramps and campgrounds.

3. RESPONSIBILITIES

A. Forest Service. The FS has responsibility for management of National Forest Land and will:

--approve the location of all water storage or transmission proposed thereon.

--assure projects are planned and designed to minimize adverse impacts on resource values and the environment, including coordination with State and local resource agencies.

--establish specific criteria covering the design of structures.

--authorize land use by the project proponent through issuance of an authorizing instrument in accordance with agency criteria and requirements.

--review individual water storage or transmission plans to assure environmental and forest resource values are adequately protected (FS engineering certification of design is not required for designs approved by the SCS State Conservation Engineer).

--assist SCS with the preparation of environmental assessments or impact statements when needed for structure construction involving RC&D, PL 566, and PL 534 structures.

--meet requirements of NEPA, the Endangered Species Act of 1973, cultural resource legislation and related Executive Orders for PL 46 projects.

--incorporate in the authorizing document suitable criteria to make the proponent responsible for property and GLO corner preservation and remonumentation.

--make periodic inspections of structure maintenance and safety.

B. Soil Conservation Service. The SCS has technical responsibility for the planning, design, and construction of certain water storage and transmission structures on or affecting National Forest lands. In carrying out this responsibility, the SCS will:

--obtain FS authorization prior to conducting any on-site surveys and investigations within the National Forest. Such authorization does not guarantee issuance of a Special Use Permit for construction. Issuance of such a permit is contingent on a favorable environmental assessment, compliance with PL 89-665, PL 93-291, E.O. 11593 and other cultural resource legislation, and the Endangered Species Act.

--design water storage and transmission structures in accord with FS criteria, whenever it is the most restrictive, and with other requirements needed to minimize the project's impact on forest resource values and the environment. Each design shall be approved by the SCS State Conservation Engineer.

--verify that the proponent has obtained required Federal, State or local water rights, permits or certifications. Verify that the proponent has a FS Special Use Permit or easement before proceeding with construction.

--meet requirements of NEPA, provisions of the Endangered Species Act of 1973, cultural resource legislation and related Executive Orders for RC&D, PL 566, and PL 534 structures.

--assure that construction drawings are provided for permanent access roads.

--assist the applicant to locate and protect during construction all existing General Land Office corner monumentation plus all boundary corners between FS and private land that may be disturbed. Notify the FS and proponent of those corners that need to be remonumented because of inundation or unavoidable disturbance.

-provide certification by an SCS engineer that the project has been constructed in accordance with the approved drawings and specifications and furnish "as built" drawings to the FS.

--develop with the proponent and furnish the FS an operation and maintenance plan for the completed project works. This plan should be discussed with the proponent at a meeting attended by a representative of the FS.

--provide FS a copy of all maintenance and safety inspection reports.

C. Joint Responsibilities.

In all programs of both Services which involve mutual interests, it is imperative that each agency inform the other at the first inception of a potential structure construction or rehabilitation so that on-going cooperation can be maintained.

In those programs where one agency has leadership, the other Service will be kept informed and invited to participate in (1) public information meetings, (2) meetings with proponents, (3) environmental meetings, (4) investigations, and (5) planning of the project.

The FS and SCS jointly will determine the project's hazard classification. However, final approval of hazard classification rests with FS.

The SCS will participate with FS in making periodic maintenance and safety inspections of RC&D, PL 566, and PL 534 structures.

The SCS and FS mutually will agree on location and design standards for work roads and temporary access roads.

SUPPLEMENTATION

As needed to cover local conditions, this agreement may be supplemented at the State level, by agreement between State Conservationists and Regional Foresters.

Local agreements may be desirable to cover individual situations involving recreation development and operation and other special needs and requirements.

DURATION

The working agreement shall become effective upon the date of the last affixed signature and shall continue in effect until terminated in writing: by either party upon giving 60 days' notice to the other.

/S/	/S/
R. M. DAVIS, Administrator	JOHN R. McGUIRE, Chief
Soil Conservation Service	Forest Service, USDA
4/6/77	1/24/77
Date	Date

Attachment:

Exhibit A
Exhibit B

501.71. Flow chart for engineering activities between SCS and FS.

EXHIBIT A

RECOMMENDED FLOW CHART
for
ENGINEERING ACTIVITIES
between
SOIL CONSERVATION SERVICE & FOREST SERVICE
PL-46

SOIL CONSERVATION SERVICE	JOINT ACTION	FOREST SERVICE
(1) Notify FS of any potential new projects or projects involving rehabilitation measures.		(1) Notify SCS of any potential new projects or projects involving rehabilitation measures that NRCS is likely to be involved in.
	(2) Make joint field inspection and discuss needs related to the project. The preliminary hazard classification, hydrologic and basic design criteria, and/or rehabilitation needs are determined	(3) Issue letter of authorization to SCS for site investigations and preliminary surveys.
(4) Make preliminary surveys and site investigations to determine feasibility.		(4) Make preliminary archeological and historic examination and provide SCS with preliminary information.
(5) Prepare preliminary investigation report.	(6) Meet with proponent to present preliminary investigation report.	(7) Proponent applies for and is issued a special use permit conditioned on final approval construction plans and favorable project assessment. Give SCS authorization to proceed with final survey and design.
	(8) Determine hazard classification and establish final design criteria for the structure. Agree on location and design standards for work roads and access roads.	
(9) Prepare final plans and specifications for the project, including plans for work roads and access roads.		(9) Complete archeological and historic examinations and prepares an environmental impact assessment or EIS (if needed). Based on environmental assessment of EIS, advises SCS of special provisions that must be included in the plans and specs, including protection and preservation of cultural properties.
(10) Develop an O&M plan with the proponent and discuss it at a meeting attended by the FS.	(10) Jointly agree on an inspection frequency of each structure.	
(12) State Conservation Engineer approves plans and specifications and furnishes copies to FS.	(11) Make on-site review of the completed plans and specifications.	(12) Approve O&M plan and construction plans or advise SCS of additional measures needed to protect Forest resources or environmental values.
(13) Verify that the proponent has obtained any required State permits or certifications and advises FS.		(14) Authorizes permittee to proceed with construction and notify SCS (the permittee is responsible for construction).
(15) Provide for engineering inspection services.	(16) Make a semi-final inspection.	(15) Provide resource protection inspection services.
(17) Make final inspections and certify that the project was built in accordance with the approved plans and specs. Furnish "as-built" plans to the FS.		(18) Authorize the operation of the completed works.
(19) On request by the FS, the SCS will provide technical advice and assistance to the permittee on maintenance.		(19) Make periodic maintenance and safety inspection.

EXHIBIT B

RECOMMENDED FLOW CHART
for
ENGINEERING ACTIVITIES
between
SOIL CONSERVATION SERVICE & FOREST SERVICE
PL-566, PL-534, and RC&D

SOIL CONSERVATION SERVICE	JOINT ACTION	FOREST SERVICE
	(1) Preliminary discussion with prospective proponents on possible projects and alternatives.	
(2) After proponent makes a request for planning assistance, the responsible State agency assigns a priority. SCS notifies the FS of the planning priority and the legal sponsor.	(3) Field examination based on existing information.	(4) Issue letter of authorization to SCS for site investigation and preliminary surveys.
(5) Make additional field evaluations and prepare preliminary investigation report.	(5) Determine preliminary hazard class for individual structures.	(5) Provide input to SCS on the preliminary investigation report.
(6) Prepare watershed or measure plan according to Principals and Standards for Water Resource Projects. Prepares environmental assessment and EIS (if needed) and make archeological and historic examinations. (Note: many approved and active work plans predate NEPA. Where this is the case, an environmental assessment must be prepared for remaining structures prior to their construction.	(6) Determine final hazard class and establish design criteria for the individual structure. Agree on location and design standards for work roads and access roads	(6) Provide input to SCS on preparation of watershed and measure plans. Provide input to SCS on preparation of environmental assessment, EIS and on making archeological and historic examinations.
	(7) Prepare plan for survey recovery protection and preservation of cultural properties.	(8) Sponsor applies for and FS issues a special use permit for construction, operation and maintenance of the individual structure.
(9) Prepare plans and specifications for all project work including work roads and access roads. State Conservation Engineer approves plans and specifications and furnishes copies to FS.		(9) Provide assistance on the final location and on the design of the work roads and access roads.
	(10) Make on-site review of the final plans and specifications.	
(11) Verify that the proponent has obtained any required State permits or certifications and advises FS.		(11) Review and approve plans or advise SCS of additional measures needed to protect Forest environmental values and report results of cultural resource actions.
(13) Develop an O&M plan with the project and discuss it at a meeting attended by the FS.	(13) Jointly agree on an inspection frequency of each structure.	(13) Approve O&M plan.
		(14) Authorize construction.
(15) Provide for project construction and inspection services, including special features for environmental protection and preservation of cultural resources.		(15) Provide assistance to SCS on meeting resource protection needs during construction.
	(16) Make semi-final inspection.	
(17) Make final inspection.		
(18) Certify that the project was constructed in accordance with the approved drawings and specifications. Furnish "as-built" plans to FS.		(19) Authorizes permittee to commence operations.
	(20) Make joint or individual periodic maintenance and safety inspection.	
	(21) Follow up to see that the permittee performs the needed maintenance.	

501.72 Corps of Engineers Regulation 1110-2.

(To be supplied later.)