United States Department of Agriculture

Natural Resources Conservation Service
210 Walnut Street
693 Federal Building
Des Moines, IA 50309-2180

May 7, 2003

NATIONAL ENGINEERING MANUAL
210-V-AMENDMENT IA32 – PART 501

SUBJECT: DELEGATED ENGINEERING JOB APPROVAL AUTHORITY

Purpose: This notice transmits pages IA501-12(1) through (10).

Effective Date: This amendment is effective upon receipt.

Explanation of changes: This Amendment updates Iowa's delegated engineering job approval authority policy. Forms IA-ENG-6 and IA-ENG-7 have been revised to reflect the addition of a few practices and some changes in the criteria for various job classes. A copy of these forms is attached.

Filing Instructions:

Remove Pages	Insert Pages
IA501-12(1) through (10) Dated May 1993	IA501-12(1) through (10) Dated May 2003

This amendment should be noted on the Iowa Supplement Tabulation Sheet.

/s/Leroy Brown
State Conservationist

Attachments

F
EN2
RC&D
Midwest Regional Office
SCE – Midwest Region
Ron Marlow, Director, Conservation Engineering Division

An Equal Opportunity Provider and Employer

§IA501.01(b) Scope

(3) Non-NRCS employees who are not federal employees and are not licensed to practice engineering in the state will be limited to the following job approval authority:

(i) Design job approval authority will be job class I or II.

(ii) I&E and construction job approval authority will be job class I or II except that a higher job class may be assigned when the employee is directly supervised by an NRCS employee with the appropriate job approval authority.

§IA501.03(c) Compliance of engineering work with laws and regulations

(1) All engineering work designed by NRCS shall, before being furnished to the owner or sponsor, be approved by the qualified person closest to the job, whether an NRCS employee or other person with the appropriate delegated engineering job approval authority.

(2) All plans for projects requiring a permit from the Iowa Department of Natural Resources shall be approved by an NRCS engineer with proper approval authority.

(3) When a cooperator, a soil and water conservation district, a drainage board, a regulatory agency, or other governmental agency requires that engineering plans prepared by NRCS be sealed by a licensed professional engineer, the NRCS engineer who prepared or approved the plans may seal the plans if licensed in the State of Iowa. If the NRCS engineer is not licensed in Iowa, the plans shall be sent to the state conservation engineer for sealing.

§IA501.04 Engineering job approval authority

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

(2)(i) All engineering work by NRCS in Iowa shall be reviewed and approved by the qualified person closest to the job, whether an NRCS employee or other employee who is under direct NRCS technical supervision. All individuals having inventory and evaluation (I&E), design, or construction responsibility for engineering work will be assigned a job approval authority. Authority limitations will be based upon the individual's training, experience, and demonstrated competence.

(5)(i) The state conservation engineer will determine job approval authority for GS-11 and GS-12 engineers. An engineer on the assistant state conservationist's (field operations) staff will make determinations for all other personnel doing engineering work in their respective area. The employee's supervisor must concur in the delegation of the engineering job approval authority.

(5)(ii) Jobs falling in Classes III, IV, and V are usually costly. Layout and design are often difficult and time consuming. Therefore, care should be taken in rating persons to approve these job classes. Class IV approval for I&E and design will generally be made by GS-11 or higher engineers. Field engineers with Class V authority in any category may not delegate that authority to others without the concurrence of the state conservation engineer.

(5)(iii) Forms IA-ENG-6 and IA-ENG-7 have been developed for recording the maximum approval authority assigned to an individual. IA-ENG-6 contains all the engineering practices normally installed in the state and will be used for all engineers. IA-ENG-7 is a shorter form which contains the most common practices. IA-ENG-7 may be used for all field office and area personnel except engineers. On either form, the maximum approval authority assigned to an individual will be entered for each category.

(5)(iv) Three copies of IA-ENG-6/7 will ordinarily be prepared. One copy will be furnished to the individual concerned, one to the engineer who made the determination, and one to the area office file. A fourth copy will be sent to the state conservation engineer if any class V authority has been delegated.

(5)(v) Engineering job approval for a project will be made by a person with the proper delegated approval authority. This will be done by placing signature, title, and date on NRCS copies of the designs, drawings, construction records, or other supporting documents. Initials are not acceptable. Persons must not commit NRCS on the feasibility of projects that exceed their approval authority.

(5)(vi) A person with the delegated approval authority is not required to perform all the steps leading to a complete project. It is expected that employees who do not have adequate approval authority for a project will perform functions such as surveys, design, drafting, etc., as far as their knowledge and abilities permit.

(5)(vii) Major changes are often proposed in an approved project during or preceding construction. These changes must be approved in the same manner as the originally approved project. When the changes must be approved by a person not readily available, verbal approval may be obtained to expedite the work. However, the completed records must include correct written approval.

(5)(viii) The review of engineering jobs ensures that jobs comply with current criteria and policies, fulfill project requirements, and are adapted to site conditions. Jobs must also conform with local, state, and federal laws.

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

(3)(i) Designs or preliminary designs for Class V, VI, and VII jobs will be developed by the area engineering staff insofar as their capabilities permit. Complete or partial design files will be submitted to the state conservation engineer when approval, review, or preparation of final design is requested. The state conservation engineer will assign design engineers and other staff specialists to review complete designs for his or her approval or co-approval. Field engineers should consult with the state conservation engineer or his or her staff as needed to reach agreement on design approaches, criteria, procedures, or related matters prior to design of Class V or higher jobs.

§IA501.05 Engineering job review

(b) Post reviews

(1)(i) Quality assurance reviews will be made in accordance with requirements in General Manual §450-407.

U. S. Department of Agriculture
Natural Resources Conservation Service

IOWA ENGINEERING JOB APPROVAL AUTHORITY

Name	Title	Grade
Determined By	Title	Date
Concurrence By	Title	Date

Code	Job Type	Controlling Factors		Units	Job Class I	Job Class II	Job Class III	Job Class IV	Job Class V	Maximum Approval Limits I&E	Maximum Approval Limits Design	Maximum Approval Limits Constr.
378 402 410 587	Pond Dam Grade Stabilization Structure Structure for Water Control	Requires permit from IDNR or other regulatory agency 2/		------	No	No	No	Yes	Yes			
		Effective Height 1/ 2/		Feet	8	10	25	30	35			
	All with relatively impervious cutoff, simple foundation needs, and standard or proven designs.	Conduit Spillway - Inside Diameter		Inches	10	18	36	42	All			
		Drainage Area 2/		Acres	20	80	250	640	12,800			
	Structure is classified as "Low Hazard Class" or class "a" and the product of storage times effective height equals 3,000 or less.	Drop Spillway 3/	Net Drop	Feet	2*	4*	4*	6*	All			
			Weir Depth	Feet	2*	2*	3*	4*	All			
			Weir Capacity	cfs	50	150	300	400	All			
	Notes: 1/ The effective height of the dam is the difference in elevation in feet between the auxiliary spillway crest and the lowest point in the cross section taken along the centerline of the dam.	Toe Wall	Net Drop	Feet	2*	3*	4*	4*	All			
			Weir Capacity	cfs	50	150	300	300	All			
		Rock Chute	Net Drop	Feet	0	4*	6*	8	All			
			Weir Capacity	cfs	0	50	150	300	All			
		Gabion Chute	Net Drop	Feet	0	4	6	8	All			
			Capacity	cfs	0	50	200	300	All			
	2/ These limits apply to all practices which store water including terraces, water and sediment control basins, diversions, and waste storage facilities.	Concrete Block Chute	Net Drop	Feet	0	4*	6*	10*	All			
			Capacity	cfs	0	50	150	300	All			
		Reinforced Concrete Chute	Net Drop	Feet	0	0	0	8*	All			
			Weir Depth	Feet	0	0	0	3	All			
	3/ These limits also apply to gabion drop spillways except that standard designs and drawings are not required.		Weir Capacity	cfs	0	0	0	300	All			
		Vegetated Chute Spillway	Net Drop	Feet	0	2	3	5	All			
			Capacity	cfs	0	50	100	100	All			
	* Standard designs and standard detail drawings. These include all designs and drawings that have been approved for use in Iowa by the State Conservation Engineer.	Inlet Drop Spillway	Net Drop	Feet	0	0	0	0	All			
			Weir Capacity	cfs	0	0	0	0	All			
		Box Inlet to Existing Culvert	Net Drop	Feet	0	3*	4*	6*	All			
			Weir Capacity	cfs	0	100	200	400	All			
			Culvert Area	Sq. Ft.	0	16	36	50	All			
		Low Head Dry Dam - Conduit Diameter (Drop through conduit equal to or less than 15 ft.)		Inches	12	24	36	60	All			

Code	Job Type	Controlling Factors		Units	Job Class I	Job Class II	Job Class III	Job Class IV	Job Class V	Maximum Approval Limits I&E	Maximum Approval Limits Design	Maximum Approval Limits Constr.
560	Access Road	Length		Miles	0	0.5	1	2	All			
		Circular Culvert	Inside Diameter	Inches	24	36	48	60	All			
		Monolithic Concrete Culvert	Area of Opening	Sq. Ft.	0	0	0	0	All			
		Bridge	Span	Feet	0	0	0	0	All			
310	Bedding	Area Treated		Acres	40	160	320	480	All			
326	Clearing and Snagging	Drainage Area		Sq. Mi.	0	0	1	4	All			
317	Composting Facility	IDNR Permit Required for Livestock Operation			0	0	0	No	Yes			
348	Dam, Diversion	Streamflow		cfs	0	0	100	500	2,000			
		Flow Diverted		cfs	0	0	10	50	200			
		Height of Drop		Feet	0	0	4*	6*	8			
356	Dike	Water Height		Feet	0	0	4	10	All			
		Class		------	0	0	III	III	III			
362	Diversion	Design Capacity		cfs	40	100	200	500	All			
393 635	Filter Strip Wastewater Treatment Strip	Nature of Runoff		-----	Sediment Laden	Sediment Laden	Sediment Laden	Manure Laden	All			
412	Grassed Waterway	Drainage Area		Acres	80	250	500	2,000	All			
561	Heavy Use Area Protection	Surface Protection Method		Type	0	Vegetative	Gravel	Asphalt	All			
442 443	Irrigation System, Sprinkler Irrigation System, Surface and Subsurface	Area Irrigated		Acres	0	0	80	160	All			
430	Irrigation Water Conveyance	Pipeline Capacity	Greater than 50 psi	gpm	0	0	1,000	2,000	3,500			
			Less than 50 psi	gpm	0	0	1,000	3,500	5,000			
460	Land Clearing	Area Cleared		Acres	5	10	20	All	All			
466	Land Smoothing	Urban Land	Area Treated	Acres	1	5	10	40	All			
			Maximum Cut	Feet	1	2	3	5	All			
		Other Land	Area Treated	Acres	20	80	200	400	All			
			Maximum Cut	Feet	1	2	3	5	All			
468	Lined Waterway or Outlet	Drainage Area		Acres	0	20	100	1,000	All			
634	Manure Transfer (Interim)	Gravity Flow - Diameter		Inches	0	0	24	30	All			
		Pressurized System - Diameter		Inches	0	0	6	10	All			
500	Obstruction Removal	No Public Safety Hazard During Removal		Each	0	0	0	All	All			
582 584 608	Open Channel Channel Stabilization Surface Drain, Main or Lateral	Design Capacity Design Velocity		cfs fps	0	25 8	50 10	250 10	1000 10			
516	Pipeline	Length		Feet	500	1,500	2,500	5,000	All			
		Diameter		Inches	1.5	2	4	6	All			
		Pressure		psi	20	50	100	150	300			

Code	Job Type	Controlling Factors		Units	Job Class I	II	III	IV	V	Maximum Approval Limits I&E	Design	Constr.
521-A 521-B 521-C	Pond Sealing or Lining - Flexible Membrane Pond Sealing or Lining - Soil Dispersant Pond Sealing or Lining - Bentonite Sealant	Surface Area		Acres	0	0	0	10	All			
462 464	Precision Land Forming Irrigation Land Leveling	Area Treated Maximum Cut		Acres Feet	20 1	80 2	160 3	320 5	All All			
533	Pumping Plant for Water Control	Propeller Pump	Design Capacity Static Head	gpm Feet	0 0	0 0	450 8	1,000 10	All All			
		Centrifugal Pump	Design Capacity Static Head	gpm Feet	0 0	0 0	0 0	500 50	3,500 350			
		Turbine Pump	Design Capacity Static Head	gpm Feet	0 0	0 0	0 0	500 50	3,500 500			
566	Recreation Land Grading and Shaping	Area Treated		Acres	0	5	20	40	All			
568	Recreation Trail and Walkway	Length		Miles	0	1	3	5	All			
555	Rock Barrier	Height Length		Feet Feet	2 200	3 500	4 1,000	All All	All All			
558	Roof Runoff Management	Area of Roof		Sq. Ft.	0	0	0	All	All			
350	Sediment Basin * Standard Designs and Drawings	Part of Animal Waste Management System Effective Height of Dam Concrete Basin Design Capacity - 1,000 lb. Animal Live Weight Others Refer to Controlling Factors for Ponds		 Feet ---- No.	 8 No 20	 10 No 50	 15 Yes* 100	 30 Yes* 500	 35 Yes All			
574	Spring Development	Discharge		gpm	1	5	10	All	All			
580	Streambank and Shoreline Protection	Vegetative Protection Mechanical Protection	 Bankfull Capacity Water Height above Shoreline Design Velocity Drainage Area Channel Depth - Low Bank	---- cfs Feet fps Sq. Mi. Feet	0 0 0 0 0 0	0 250 0 6 0.5 2	All 500 0 8 1 4	All 1,000 3 10 10 8	All 5,000 3 10 All All			
606 620 980	Subsurface Drain Underground Outlet Tile Intake Replacement (Interim)	Inside Diameter		Inches	8	15	24	30	All			
607	Surface Drainage, Field Ditch	Design Capacity Drainage Area Circular Culvert, Inside Diameter		cfs Acres Inches	10 60 24	20 120 36	50 320 48	80 640 60	All All 72			
600 638	Terrace Water and Sediment Control Basin (Also refer to Controlling Factors for Ponds)	Fill Height - Distance from top of ridge to ground surface at ridge line		Feet	8	10	15	All	All			

Code	Job Type	Controlling Factors	Units	Job Class I	Job Class II	Job Class III	Job Class IV	Job Class V	Maximum Approval Limits I&E	Maximum Approval Limits Design	Maximum Approval Limits Constr.
313	Waste Storage Facility	Design Capacity - 1,000 lb. Animal Live Weight	No.	0	0	300	1,000	All			
		IDNR or EPA Permit Required		0	0	No	Yes	Yes			
		Storage Capacity	Cu. Ft.	0	0	500,000	1,000,000	2,000,000			
		Earthen Waste Storage Structure									
		(Controlling Factors for Ponds also apply)									
		Effective Height of Dam	Feet	0	0	20	30	35			
		Other Structures									
		* standard designs and standard detail drawings									
		Below Ground - Wall Height	Feet	0	0	8*	14*	All			
		Span	Feet	0	0	6*	12*	All			
		Above Ground - Wall Height	Feet	0	0	8*	14*	All			
		Span	Feet	0	0	40*	60*	All			
		Round Structures - Diameter	Feet	0	0	0	120*	All			
359	Waste Treatment Lagoon	Anerobic - Volume	Cu. Ft.	0	0	250,000	500,000	2,000,000			
	(Controlling Factors for Ponds also apply)	Aerobic - Surface Area	Acres	0	0	1	5	25			
		Effective Height of Dam	Feet	0	0	25	30	35			
642	Water Well	Design and Construction to be completed by a well driller certified in Iowa		0	0	0	All	All			
614	Watering Facility			All	All	All	All	All			
981	Wellhead Protection (Interim)	CMP casing		0	0	All	All	All			
		All other casing materials		0	0	0	All	All			
658	Wetland Creation	Riverine/Floodplain									
659	Wetland Enhancement	Levied System - Wetland Area	Acres	0	10	50	500	All			
657	Wetland Restoration	Dike Height on Field Side	Feet	0	3	4	10	All			
		Class		0	III	III	III	III			
		Non Levied System - Wetland Area	Acres	5	10	50	200	All			
		Potholes - Wetland Area	Acres	5	10	50	100	All			
		(Also refer to other applicable standards)									

DEFINITIONS OF MAXIMUM APPROVAL LIMITS COLUMNS

Inventory and Evaluation (I&E) - On-site observations of an exploratory nature and preparation of sound alternative solutions of sufficient intensity for the cooperator to make treatment decisions.

Design - Designing and checking all aspects of the supporting data, drawings, and specifications to insure that the planned practice will meet the purpose for which it is installed.

Construction - Surveys, layout, staking, inspection of materials and work, and making tests to determine that the job meets specifications.

U. S. Department of Agriculture
Natural Resources Conservation Service

IA-ENG-7
Rev. 5-03
Page 1 of 2

IOWA ENGINEERING JOB APPROVAL AUTHORITY

Name	**Title**	**Grade**
Determined By	**Title**	**Date**
Concurrence By	**Title**	**Date**

Code	Job Type	Controlling Factors		Units	Job Class I	Job Class II	Job Class III	Job Class IV	Job Class V	Maximum Approval Limits I&E	Maximum Approval Limits Design	Maximum Approval Limits Constr.
378 402 410 587	Pond Dam Grade Stabilization Structure Structure for Water Control	Requires permit from IDNR or other regulatory agency 2/		------	No	No	No	Yes	Yes			
		Effective Height 1/ 2/		Feet	8	10	25	30	35			
	All with relatively impervious cutoff, simple foundation needs, and standard or proven designs.	Conduit Spillway - Inside Diameter		Inches	10	18	36	42	All			
		Drainage Area 2/		Acres	20	80	250	640	12,800			
	Structure is classified as "Low Hazard Class" or class "a" and the product of storage times effective height equals 3,000 or less.	Drop Spillway 3/	Net Drop Weir Depth Weir Capacity	Feet Feet cfs	2* 2* 50	4* 2* 150	4* 3* 300	6* 4* 400	All All All			
	Notes: 1/ The effective height of the dam is the difference in elevation in feet between the auxiliary spillway crest and the lowest point in the cross section taken along the centerline of the dam.	Toe Wall	Net Drop Weir Capacity	Feet cfs	2* 50	3* 150	4* 300	4* 300	All All			
		Rock Chute	Net Drop Weir Capacity	Feet cfs	0 0	4* 50	6* 150	8 300	All All			
		Gabion Chute	Net Drop Capacity	Feet cfs	0 0	4 50	6 200	8 300	All All			
	2/ These limits apply to all practices which store water including terraces, water and sediment control basins, diversions, and waste storage facilities.	Concrete Block Chute	Net Drop Capacity	Feet cfs	0 0	4* 50	6* 150	10* 300	All All			
		Vegetated Chute Spillway	Net Drop Capacity	Feet cfs	0 0	2 50	3 100	5 100	All All			
	3/ These limits also apply to gabion drop spillways except that standard designs and drawings are not required.	Box Inlet to Existing Culvert	Net Drop Weir Capacity Culvert Area	Feet cfs Sq. Ft.	0 0 0	3* 100 16	4* 200 36	6* 400 50	All All All			
	* Standard designs and standard detail drawings. These include all designs and drawings that have been approved for use in Iowa by the State Conservation Engineer.	Low Head Dry Dam - Conduit Diameter (Drop through conduit equal to or less than 15 ft.)		Inches	12	24	36	60	All			
348	Dam, Diversion	Streamflow Flow Diverted Height of Drop		cfs cfs Feet	0 0 0	0 0 0	100 10 4*	500 50 6*	2,000 200 8			
356	Dike	Water Height Class		Feet ------	0 0	0 0	4 III	10 III	All III			
362	Diversion	Design Capacity		cfs	40	100	200	500	All			
393 635	Filter Strip Wastewater Treatment Strip	Nature of Runoff		-----	Sediment Laden	Sediment Laden	Sediment Laden	Manure Laden	All			

Code	Job Type	Controlling Factors	Units	Job Class I	Job Class II	Job Class III	Job Class IV	Job Class V	Maximum Approval Limits I&E	Maximum Approval Limits Design	Maximum Approval Limits Constr.
412	Grassed Waterway	Drainage Area	Acres	80	250	500	2,000	All			
582	Open Channel	Design Capacity	cfs	0	25	50	250	1000			
584	Channel Stabilization	Design Velocity	fps		8	10	10	10			
608	Surface Drain, Main or Lateral										
516	Pipeline	Length	Feet	500	1,500	2,500	5,000	All			
		Diameter	Inches	1.5	2	4	6	All			
		Pressure	psi	20	50	100	150	300			
350	Sediment Basin	Part of Animal Waste Management System									
	* Standard designs and drawings	Effective Height of Dam	Feet	8	10	15	30	35			
		Concrete Basin	-----	No	No	Yes*	Yes*	Yes			
		Design Capacity - 1,000 lb. Animal Live Weight	No.	20	50	100	500	All			
		Others									
		Refer to Controlling Factors for Ponds									
574	Spring Development	Discharge	gpm	1	5	10	All	All			
580	Streambank and Shoreline Protection	Vegetative Protection	-----	0	0	All	All	All			
		Mechanical Protection — Bankfull Capacity	cfs	0	250	500	1,000	5,000			
		Water Height above Shoreline	Feet	0	0	0	3	3			
		Design Velocity	fps	0	6	8	10	10			
		Drainage Area	Sq. Mi.	0	0.5	1	10	All			
		Channel Depth - Low Bank	Feet	0	2	4	8	All			
606	Subsurface Drain	Inside Diameter	Inches	8	15	24	30	All			
620	Underground Outlet										
980	Tile Intake Replacement (Interim)										
607	Surface Drainage, Field Ditch	Design Capacity	cfs	10	20	50	80	All			
		Drainage Area	Acres	60	120	320	640	All			
		Circular Culvert, Inside Diameter	Inches	24	36	48	60	72			
600	Terrace	Fill Height - Distance from top of ridge to ground surface at ridge line	Feet	8	10	15	All	All			
638	Water and Sediment Control Basin (Also refer to Controlling Factors for Ponds)										
614	Watering Facility			All	All	All	All	All			
981	Wellhead Protection (Interim)	CMP casing		0	0	All	All	All			
		All other casing materials		0	0	0	All	All			
658	Wetland Creation	Riverine/Floodplain									
659	Wetland Enhancement	Levied System - Wetland Area	Acres	0	10	50	500	All			
657	Wetland Restoration	Dike Height on Field Side	Feet	0	3	4	10	All			
		Class		0	III	III	III	III			
		Non Levied System - Wetland Area	Acres	5	10	50	200	All			
		Potholes - Wetland Area	Acres	5	10	50	100	All			
		(Also refer to other applicable standards)									

DEFINITIONS OF MAXIMUM APPROVAL LIMITS COLUMNS

Inventory and Evaluation (I&E) - On-site observations of an exploratory nature and preparation of sound alternative solutions of sufficient intensity for the cooperator to make treatment decisions.

Desig[illegible] [illegible]ning and checking all aspects of the supporting data, drawings, and specifications to insure that the planned pr[illegible] [illegible] will meet the purpose for which it is installed.

Con[illegible] [illegible]urveys, layout, staking, inspection of materials and work, and making tests to determine that the job meets s[illegible] [illegible]s.