

Engineering Job Classification Example

- A conservation plan details the need for a livestock watering system.
- The livestock watering system consists of an 8" diameter well, 950 ft of 1 ½ " PVC pipe and two 750 gallon troughs. The water is pumped from the well up a hill to the two troughs. The maximum pressure in the pipeline is 47 psi.

What is the Engineering Job Class for this project?

- What Conservation Practice Standards will be used?
 - CPS 516 Pipeline
 - CPS 533 Pumping Plant
 - CPS 614 Watering Facility
 - CPS 642 Water Well

VIRGINIA ENGINEERING JOB APPROVAL AUTHORITY

NAME _____ TITLE _____ GRADE _____ LOCATION _____

DELEGATED BY _____ TITLE _____ DATE _____ STATE Virginia
(Responsible Engineer)

CONCURRED _____ TITLE _____ DATE _____
(Line Supervisor/SWCD Chairperson for SWCD employee)

REVIEWED AND CONCURRED _____ DATE _____
(NRCS District Conservationist if SWCD employee)

NOTES

1. Authority is issued based on the individual's training, experience and demonstrated competence.
2. Employees shall not approve designs or certify construction for practices that exceed their maximum approval limit.
3. The Responsible Engineer may recommend approval authority only up to the approval authority held by that engineer.
4. The controlling factor that results in the highest classification determines the Job Class. For example, a waste storage facility (pond) with a storage capacity of 100,000 ft³ (Class II) and a fill height of 15 ft. (Class III) would be a Job Class III.
5. Engineering approval applies to new construction only. Refer to NEM 501.20-501.24 for repair and rehabilitation.
6. Engineering practices not listed or more complex than those listed shall be sent with documentation to the state office for review and approval by the State Conservation Engineer.
7. All jobs to be constructed under formal contract must be approved by the State Conservation Engineer.
8. The State Conservation Engineer must approve all jobs requiring the signing and sealing of construction plans by a licensed professional engineer.
9. Job Class I-V for all practices is limited to low hazard potential as defined in NEM 503.

DEFINITIONS OF MAXIMUM APPROVAL LIMITS

Inventory and Evaluation (I&E) - On-site observations of an exploratory nature for planning and preparation of sound alternative solutions of sufficient intensity for the cooperator to make treatment decisions. May require assistance from higher levels for large or complex jobs. (See NEM 501 and 510.)

Design - Designing and checking all aspects of the supporting data, drawings and specifications to ensure that the planned practice will meet the purpose for which it is installed. Also includes setting any specific inspection requirements. Approval signature is required. (See NEM 501 and 511.)

Construction (Const.) - Surveys, layout, staking, inspection of materials and work, and making tests to determine that the job meets specifications. Approval signature is required. Jobs where inspection staffing plans are issued are not included on this chart. (See NEM 501 and 512.)

ANNUAL REVIEW The form will be reviewed with the employee annually and revised as needed. If no significant changes are made, the following table will be used to indicate that the review has been made by the appropriate engineering personnel.

Reviewed By	Title	Comments	Date

Unit Abbreviations

- A.U. - Animal Units, equivalent to 1,000 pounds live weight
- Veg. - Vegetated
- Mech. - Mechanical or structural
- Land Appl. - Land Application
- Grav. - Gravity
- Sed. - Sediment

VIRGINIA ENGINEERING JOB APPROVAL AUTHORITY

Code	Practice Name	Controlling Factors	Units	Job Class					Maximum Approval Limits		
				I	II	III	IV	V	I&E	Design	Const.
466	Land Smoothing	Area Treated	ac.	10	20	40	100	All			
468	Lined Waterway or Outlet	Design Capacity	cfs	-	50	100	200	All			
500	Obstruction Removal	Area (w/ onsite disposal)	ac.	.5	1	2	3	All			
582	Open Channel	Design capacity (subcritical flow only)	cfs	-	50	150	300	1,000			
		Bankfull velocity	fps	-	4	6	8	10			
516	Pipeline	Pressure	psi	50	100	200	250	300			
		Diameter	in.	1.5	2	3	5	All			
		Length (longest run)	ft.	1,000	2,500	5,000	10,000	All			
378	Pond (Excavated)	Surface Area at Design High Water	ac.	0.2	0.5	1	2	All			
521 - C	Pond Sealing or Lining - Bentonite Sealant	Surface Area at Design Depth	ac.	-	0.2	0.5	1.5	All			
		Design Depth	ft.	-	8	10	15	All			
521 - A	Pond Sealing or Lining - Flexible Membrane	Surface Area at Design Depth	ac.	-	0.2	0.5	1.5	All			
		Design Depth	ft.	-	8	10	15	All			
521 - B	Pond Sealing or Lining, Soil Dispersant	Surface Area at Design Depth	ac.	-	0.2	0.5	1.5	All			
		Design Depth	ft.	-	8	10	15	All			
533	Pumping Plant	Axial flow pump capacity	gpm	-	-	-	25,000	50,000			
		Centrifugal and turbine pump capacity	gpm	-	-	-	1,500	3,500			
		Centrifugal pump head	ft.	-	-	-	150	350			
		Turbine pump head	ft.	-	-	-	250	500			
558	Roof Runoff Structure	Roof Area	sq.ft.	-	2,400	4,800	7,200	All			
574	Spring Development	Capacity (flow)	gpm	All	All	All	All	All			

VIRGINIA ENGINEERING JOB APPROVAL AUTHORITY

Code	Practice Name	Controlling Factors	Units	Job Class					Maximum Approval Limits		
				I	II	III	IV	V	I&E	Design	Const.
620	Underground Outlet	Inside Diameter	in.	6	12	18	24	All			
633	Waste Utilization	Animal Units (1,000 lb. animal live weight)	no.	-	100	200	400	All			
313	Waste Storage Facility	Storage Capacity (1,000 ft ³)	ft ³	-	100	500	1,000	2,000			
359	Waste Treatment Lagoon	Fill Height (Pond)	ft.	-	10	15	20	All			
316	Animal Mortality Facility	Aerobic Surface Area (for 359 only)	Acres	5	10	15	20	25			
317	Composting Facility	Structure									
360	Closure of Waste Impoundments	- Wall Height ^{2/4/}	ft.	4	6	8	12	All			
634	Manure Transfer	- Tank Span (Beam span; with slats or solid cover) ^{2/}	ft.	-	-	4	8	All			
		Roof – clear span (Structure)	ft.	-	-	-	40	All			
638	Water and Sediment Control Basin	Area Controlled (Total system)	ac.	10	20	50	100	All			
		Fill Height	ft.	3	4	5	6	All			
642	Water Well (Require Well Driller Certification)	Diameter	in.	6	8	10	12	All			
351	Well Decommissioning	Well Type ^{2/}	type	-	Dug	Dug or Driven	All	All			

What is the Engineering Job Class for this project?

- CPS 516 Pipeline – Class I
- CPS 533 Pumping Plant – Class IV
- CPS 614 Watering Facility – Class IV
- CPS 642 Water Well – Class II

What is the Engineering Job Class for this project?

- The controlling factor that results in the highest classification determines the Engineering Job Class.
- Project is Engineering Job Class IV