



GRAFTON COUNTY CONSERVATION DISTRICT

<http://graftonccd.org>

Orford Ridge Business Park

Mon Tue Thu Fri
19 Archertown Road, Suite 1
Orford, NH 03777
(603) 353-4652, 103

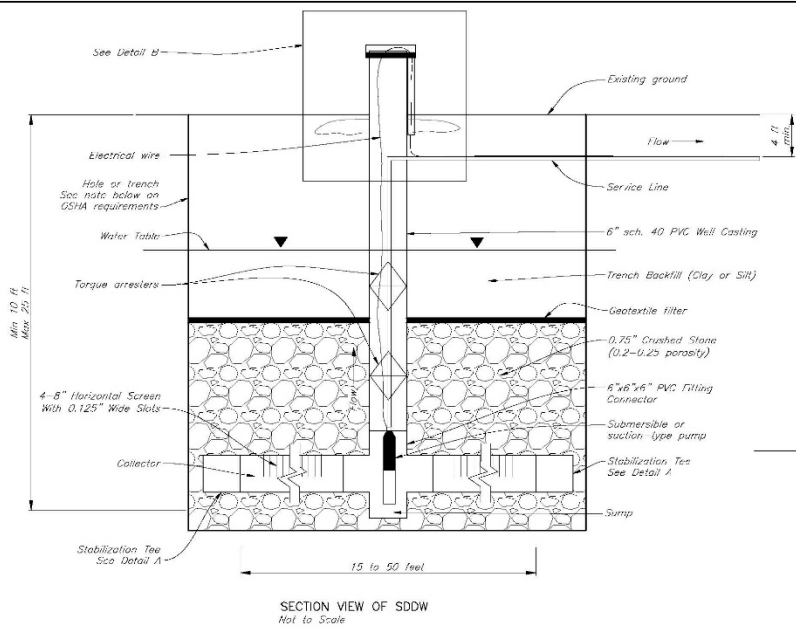
Grafton County Complex

Wed or by appointment
3855 DCH
North Haverhill, NH 03774
(603) 787-6973

July 18, 2019
For immediate release

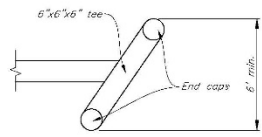
Funding Available for Shallow Well Demonstration Projects

As part of a multi-agency partnership with: Natural Resources Conservation Service (NRCS), NH Association of Conservation Districts (NHACD), United States Geological Survey (USGS) and the Northeast Climate Hubs, we are working to help farmers solve on-farm water needs by providing grant funding to demonstrate a newly developed shallow well design. Specifically, these are dug wells, up-to 20 feet in depth and backfilled with crushed stone and capped with native soil to develop various sized underground reservoirs. USGS developed this design for residential use to help homeowners find an alternate water source to deep wells contaminated with arsenic or MTBE. This demonstration project will look at how these shallow wells function in various agricultural settings with higher water demands. The three agricultural settings we are interested in testing these wells in are: 1) high tunnels and/or vegetable production, 2) orchard and small fruits, and 3) pasture based grazing systems. We are also exploring using solar pumps as well as traditional hard-wired electric pumps. Landowners will be selected by a competitive ranking process and will agree to participate in monitoring and provide feedback on problems and successes. Interested EQIP eligible landowners should contact their local NRCS field office or Conservation District for more details. Visit the NH Association of Conservation Districts at: www.nhacd.net or NH NRCS at: www.nrcs.usda.gov/wps/portal/nrcs/site/nh/home.

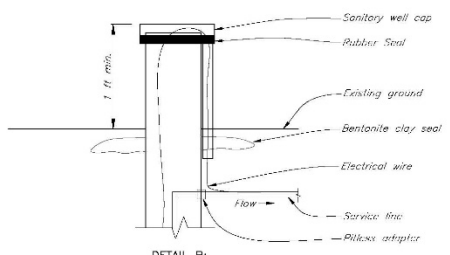


SECTION VIEW OF SDDW
Not To Scale

- Notes:
- Dig pit with excavator or backhoe perpendicular to groundwater flow
 - Optimize length of collector to desired yield
 - Connect collectors and well casing to fitting connector with glue or fasten with screws or bolts
 - Typical pump is about 0.5 hp and may not need water-flow cooling
 - Periodically clean sump with suction pump or compressed air line
 - Place geotextile filter, collectors, sump, crushed stone fill, and pump below water table
 - Install collectors perpendicular to groundwater flow
 - Collector can be linear, S-shaped, or arced to optimize flow or fit landscape characteristics
 - Follow OSHA requirements for trenching and excavation safety (29 CFR 1926.651 and 1926.652)
 - Design trench systems under authority of Professional Engineer



DETAIL A:
ISOMETRIC VIEW OF STABILIZATION TEE
Not To Scale



DETAIL B:
SANITARY WELL CAP
Not To Scale

- Notes:
- Do not locate well near overhead or underground utility lines
 - Conform to CPS 642, Water Well
 - Comply with government regulations, laws, permits, licenses, and registrations
 - Comply with ANSI/AWWA American National Standard A116-06, 2007 for domestic wells
 - Comply with ANSI/ASAE American National Standard EP 400.3, 2007 for irrigation well
 - Refer to United States Patent No.: US 9,689,235, D1 for more information

***NOT FOR CONSTRUCTION:
INFORMATION ONLY UNTIL SIGNED***

STANDARD DWG. NO.	NI1642-1
DATE	S-EE 02

United States Patent No.: US 9,689,235 B1

Designed: _____ Drawn: S. Stevens Checked: _____ Approved: _____	Date: 2-2012 County: _____
CPS 642: WATER WELL SAFE, DIRECTIONAL DROUGHT-RESISTANT DUG WELL (SDDW) SECTION VIEWS AND DETAILS	
United States Department of Agriculture USDA Natural Resources Conservation Service	
File No.	
Drawing No.	NI1642-1
Sheet	of

Livestock

DRAFT Shallow Well Budget **Cash (Demo)** **Match** **Notes**
 total budget (\$6,667) \$ 5,000.00 \$ 1,667.00

Excavator (Cat 315) 1 day	\$ 1,500.00		
Crushed Stone \$16.75 CuY delivered	\$ 250.00		livestock scenario 15 CuY
Piping	\$ 500.00		
Farmer Time Pipe Assembly		\$ 200.00	
Pump Test/Monitoring/Well Cert	\$ 1,000.00		
Dig Safe		\$ 50.00	Landowner Time
Livestock pipeline/Watering Facility		\$ 1,000.00	
Solar Pump (1800) 1/4 hp	\$ 1,800.00		Livestock Demo
Solar Pump Set Up		\$ 500.00	
Totals	\$ 5,050.00	\$ 1,750.00	

Livestock Scenario - 25 beef cows on summer pasture, 20 gal/day/cow =500 gal/day

Veggie Scenario- up to three high tunnels or 1/3 acre of veggies
 assume 1.5 acre inches of water per week for veggies= 37,500 gal/week
 assume 80 gal of water storage per 1CuY 3 inch crushed stone
 assume well recharges 50% per day

Vegetable

DRAFT Shallow Well Budget **Cash (Demo)** **Match** **Notes**
 total budget (\$6,667) \$ 5,000.00 \$ 1,667.00

Excavator (Cat 315) 1 day	\$ 1,500.00		
Crushed Stone \$16.75 CuY delivered	\$ 2,500.00		veggie scenario 150 CuY
Piping	\$ 500.00		
Farmer Time Pipe Assembly		\$ 200.00	
Pump Test/Monitoring/Well Cert.	\$ 1,000.00		
Dig Safe		\$ 50.00	Landowner Time
Drip Tape		\$ 250.00	(high tunnel demo)
Moisture Sensors/Monitoring		\$ 500.00	
Hard Wiring		\$ 750.00	
Totals	\$ 5,500.00	\$ 1,750.00	