



## Town of Hopkinton, NH

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### **Article 4 – Bond for Community Well**

#### **Background:**

For many years the Town has been working with the NH Department of Environmental Service (DES) and the neighbors around the closed landfill on East Penacook Road concerning the contamination of private wells. The Town has tried several solutions including treating water at individual homes, and presently provides bottled water for drinking to affected homes. After a long history with DES, the Town is under a “Notice of Violation” and is required to find a permanent solution or the Town will be subject to court action where the situation will be solved at a cost to the Town with no input from the Town. Several options have been reviewed as you will see below, with the Community Well being the recommended option. DES and the Town have agreed and this bond is being proposed as the best option to remedy the situation.

#### **Contaminants:**

Many contaminants can be eliminated by treating the water at each home. However, 1,4-Dioxane cannot be removed at the home level. This compound has primarily been used in solvent applications for the manufacturing sector, but can also be found in fumigants and automotive coolant. 1,4-Dioxane is also used as a foaming agent and appears as an accidental byproduct in cosmetic manufacturing. It may contaminate cosmetics and personal care products such as deodorants, shampoos, toothpastes and mouthwashes. Research is presently taking place and it is thought that this compound could be removed from water at the Community Well site if this ever became necessary.

#### **Options Considered:**

**POINT-OF-ENTRY TREATMENT SYSTEMS** – This would require treatment at each home to assure that the water coming from the individual wells meets all requirements for safe drinking water. The cost for this alternative rose as the number of residences affected increased, and technology does not exist at this time allowing the treatment to provide safe drinking water. When these obstacles arose it was decided not to pursue this option.

**EXTENSION OF THE WATER LINE FROM THE CONTOOCOOK VILLAGE PRECINCT** – This option would extend the water line from the existing Hopkinton Village Precinct. The distance is approximately 2 miles and there are several water crossings making this project fairly challenging. Due to a number of technical issues and the estimated \$1.355 million cost, this option was deemed to not be the best solution.

**EXTENSION OF EXISTING DEER MEADOW MOBILE HOME PARK’S WATER SUPPLY WELL** – This option would connect the impacted residences to the existing Deer Meadow Mobile Home Park well. The well is nearby and the water quality from the well is known. The long-term cost of this alternative, including access agreements and purchase obligations was estimated to be comparable or even in excess of the original \$658,000 cost for the Community Well project that is being recommended.

#### **Recommended Option:**

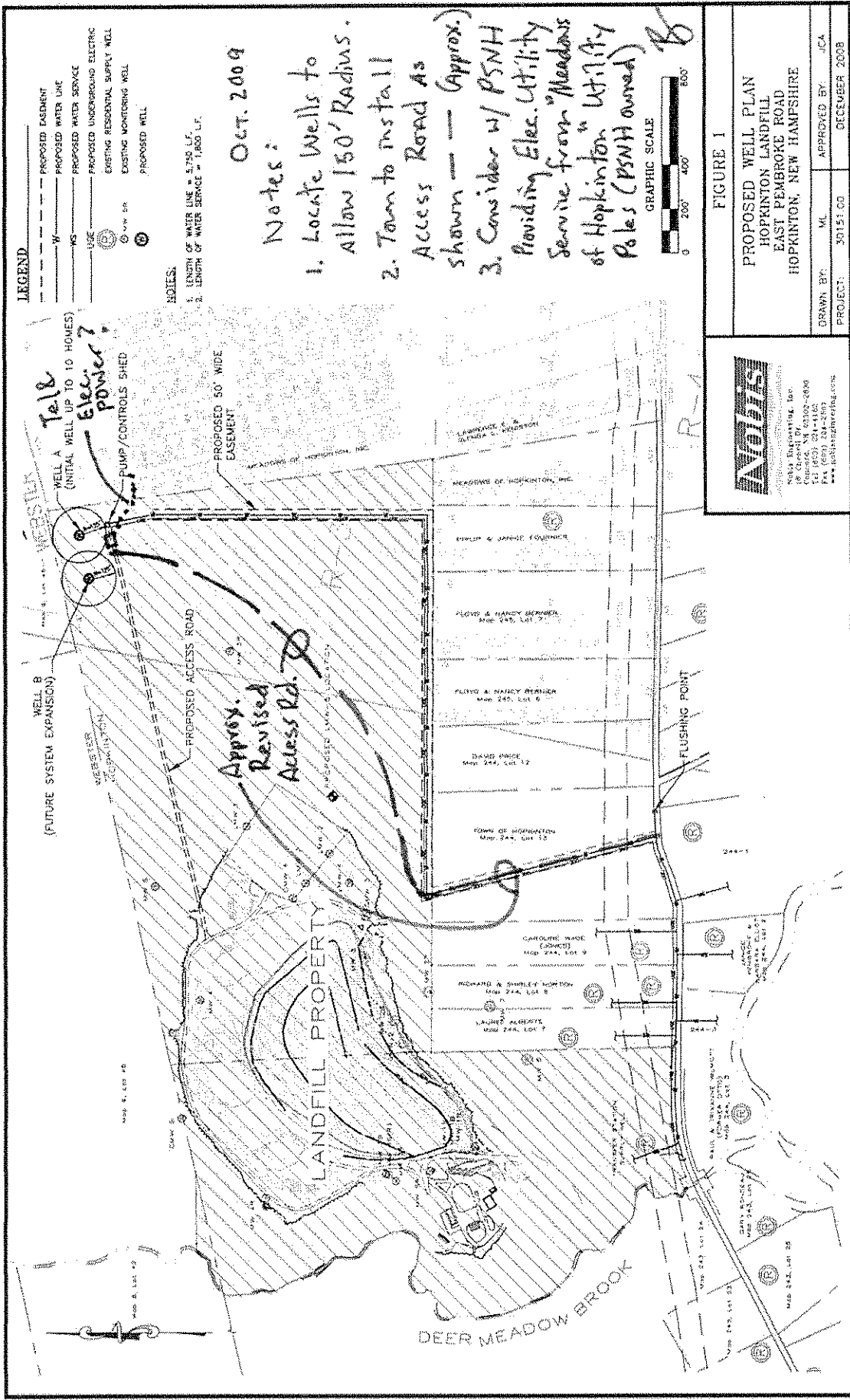
**SITING A NEW BEDROCK WATER SUPPLY WELL (Community Well)** – Nobis Engineering was contracted by the Town in December 2008 to evaluate potential locations for a new water supply well that meets Safe Drinking Water Act (SDWA) requirements utilizing currently available data. The engineers determined that a well could be constructed on town owned land northeast of the landfill. Based on the data, a supply well could be located on that property if an access road is constructed, adequate yield and storage can be obtained, a minimum of treatment could be done, and water lines could be extended to each residence. The preliminary cost for this project was approximately \$658,000. Using Town labor this figure has been lowered to \$350,000.

**Time Frame: (if approved by Town Meeting)**

Bedrock Water Supply Contractor Bid Specifications	April/May 2010
Construct Access Road to Well Location	May/June 2010
Bedrock Supply Well Installation- Testing	June/July 2010
Water Engineering/Final Pump House Design	July/August 2010
Construct Pump House/System Infrastructure/piping	August/September 2010
Connection of Residences to System	October/November 2010

**Estimated Bond Payments: (\$350,000 for 10 years at 3.9990% interest)**

<u>Year</u>	<u>Principle and Interest</u>	<u>Hopkinton Share (76%)</u>	<u>Tax Impact</u>	<u>Webster Share (24%)</u>
2011	\$49,933.33	\$37,949.08	.06	\$11,984.25
2012	47,600.00	36,176.00	.06	11,424.00
2013	46,200.00	35,112.00	.05	11,088.00
2014	44,800.00	34,048.00	.05	10,752.00
2015	43,400.00	32,984.00	.05	10,416.00
2016	42,000.00	31,920.00	.05	10,080.00
2017	40,600.00	30,856.00	.05	9,744.00
2018	39,200.00	29,792.00	.05	9,408.00
2019	37,800.00	28,728.00	.04	9,072.00
2020	<u>36,400.00</u>	<u>27,664.00</u>	.04	<u>8,736.00</u>
<b>TOTAL</b>	<b>\$427,933.33</b>	<b>\$325,229.08</b>		<b>\$102,704.25</b>



**LEGEND**

- PROPOSED EASEMENT
- PROPOSED WATER LINE
- PROPOSED UNDERGROUND ELECTRIC
- USE
- ⊙ W/ 50' EXISTING RESIDENTIAL SUPPLY WELL
- ⊙ W/ 50' EXISTING MONITORING WELL
- ⊙ PROPOSED WELL

**NOTES:**

1. LENGTH OF WATER LINE = 5,750 LF.
2. LENGTH OF WATER SERVICE = 1,800 LF.

Oct. 2009

**Notes:**

1. Locate Wells to allow 150' Radius.
2. Town to install Access Road as shown — (Approx.)
3. Consider w/ PSNH providing Elec. Utility Service from "Meadows of Hopkinton" Utility Poles (PSNH owned)

GRAPHIC SCALE



FIGURE 1

PROPOSED WELL PLAN  
 HOPKINTON LANDFILL  
 EAST PEMBROKE ROAD  
 HOPKINTON, NEW HAMPSHIRE

DRAWN BY:	ML	APPROVED BY:	JCA
PROJECT:	30151.00		DECEMBER 2008



NOBIS Engineering, Inc.  
 18 Church St., Hopkinton, NH 03044  
 Tel: (603) 231-4100  
 Fax: (603) 234-2807  
 www.nobisengineering.com

WELL A  
 (INITIAL WELL UP TO 10 HOMES)  
 PUMP/CONTROLS SHED

WELL B  
 (FUTURE SYSTEM EXPANSION)

Approx.  
 Revised  
 Access Rd.

LANDFILL PROPERTY

DEER MEADOW BROOK

FLUSHING POINT

Lewis Engineering, PLLC  
 44 Stark Lane  
 Litchfield, NH 03062  
 tel. 603-886-4985, fax 6149

Proprietary Information:  
 Nobis Engineering - Concord, NH  
 Hopkinton Landfill  
 Proposed Potable Water Supply Improvements

Current Revision Date: 10/22/2009

Item #	Description	Qty	\$/Qty	Est. \$	Notes
1	Public Works Equipment Rental	1	\$ 15,000.00	\$ 15,000.00	Equipment Rental for work on site as required.
2	Clearing Site and Access to Same	1	\$ 2,000.00	\$ 2,000.00	Clearing and grubbing access road and well / pump building site.
3	Pavement Restoration for Water	1	\$ 5,000.00	\$ 5,000.00	Pavement restoration associated with installation of main and water services to homes along the roadway
4	Water Main & Related Materials	1	\$ 30,000.00	\$ 30,000.00	Materials for installation including water main, flushing hydrants, service lines and related brass materials.
5	Water Main & Parts Installation	1	\$ 15,000.00	\$ 15,000.00	Contracted services for assistance in installation of main & services as needed.
6	Pressure Testing, Disinfection (3rd Party)	1	\$ 5,000.00	\$ 5,000.00	Third party certified pressure testing, disinfection & BT testing.
7	Materials - Gravel, stone, loam	1	\$ 5,000.00	\$ 5,000.00	Aggregate materials provided from sources other than on site.
8	Security Gates and Fencing	1	\$ 13,000.00	\$ 13,000.00	Security gate and fencing for new facilities.
9	Misc. Extras	1	\$ 1,000.00	\$ 1,000.00	Miscellaneous parts and items as required.
Water Engineering Services Well Siting, Well specifications & Well Drilling Tech. Support					
10	Well Drilling Turn Key Casing & Drilling	1	\$ 8,500.00	\$ 8,500.00	Coordinating water and well drilling efforts for overall project. Specifications & bidding for well drilling of private well - Min. 10 gpm.
11	Short Duration Pumping Test	1	\$ 15,000.00	\$ 15,000.00	Based on 200' of casing and up to 300' of drilling - 6" Bedrock - 10 gpm (min.)
12	SDWA & Standard Water Analysis	1	\$ 2,500.00	\$ 2,500.00	Pump test 6 hours, plus recovery readings, also obtain samples for analysis.
13	Water Engineering Services Final Pump House Basis of Design	1	\$ 2,700.00	\$ 2,700.00	SDWA Water Quality & Basic Water Quality obtained near end of test. Includes 1,4-dioxane.
14	Well Pump Installation of permanent pump	1	\$ 13,500.00	\$ 13,500.00	Final Station design layout and engineering design book.
15	Pump House Structure (12' x 32')	1	\$ 5,000.00	\$ 5,000.00	Based on setting a 1 h.p. single phase pump to a depth of 450'.
16	Pumps & Inside Mechanical Work & Metering including up to a \$25K allowance for Water Treatment Equipment & Installation.	354	\$ 90.00	\$ 34,560.00	Station to be insulated split faced block with common roof, per approved plans with frost wall foundation and floor slab - 9'6" inside ceiling height with an inside standby propane generator set & ATS. Site related work by Public Works.
17	Electrical Service & Inside Wiring w/ Alarms	1	\$ 45,000.00	\$ 45,000.00	Provide for 2 Booster pumps, piping, valves, metering and fittings to include water treatment allowance of \$25K, water storage, pressure storage with all related piping, valves and fittings installed including automatic controls.
18	Automatic Tel. Based Alarm Equipment	1	\$ 12,000.00	\$ 12,000.00	Electrical work inside station for pumps, controls, lighting, Generator ATS, alarms contacts, etc. with 240 - 120V/1 Ph./100A Electrical Service Entrance.
19	Standby 35 KW LP Gas Generator Set & ATS	1	\$ 6,500.00	\$ 6,500.00	Install alarm equipment to communicate with Town Public Works.
20	HVAC Equipment for inside Station	1	\$ 24,000.00	\$ 24,000.00	Provide, install and start-up 35 KW - 100 A Propane Standby Generator Set w/ 100 Amp ATS. ATS to be mounted inside station as part of electrical work. Propane tank will be outside, direct bury 500 gallon model.
21	Water Engineering Services for Project Coordination, Mgt. and Start-up	1	\$ 6,500.00	\$ 6,500.00	HVAC station equip. LPG Furnace & Back up Elec. heater and controls for vents, fan, generator set.
22	Nobis Coordination - Waste Management Div.	1	\$ 18,000.00	\$ 18,000.00	Work with public works to obtain quotes from qualified contractors, Proj. Mgt. during construction, plus start up and operator training and start up.
23	Survey	1	\$ 5,000.00	\$ 5,000.00	Coordinate communication of supply well issues with NHDES WMD including landfill groundwater and residential properties issues during construction
24	Welland Investigation Services	1	\$ 5,000.00	\$ 5,000.00	Survey assistance during construction/potential as-built work
25	Construction Inspection & On Site Meetings	1	\$ 1,000.00	\$ 1,000.00	Site walk to assure wetlands do not exist or will not be impacted during construction
26	Contingency Estimate at 10%	1	\$ 10,000.00	\$ 10,000.00	Part time on site inspector for an estimated 8-weeks and on site meetings with Town as may be required from time to time.
27	subtotal		\$ 305,760.00	\$ 305,760.00	Hard costs based on items outlined in estimate.
28	Total Cost Estimate with Contingency		\$ 336,336.00	\$ 336,336.00	Contingency line item based on 10% of hard cost estimate.