STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION
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Concord, N.H. 03301-2429

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August 6, 2009

Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: DW 09-128, Lakeland Management Company, Inc.
Petition for Approval of Financing

Dear Ms. Howland:

On July 13, 2009, Lakeland Management Company (Lakeland) filed a petition with the Commission seeking approval for financing related to proposed improvements in its water system in Belmont. The improvements would be funded by American Recovery and Reinvestment Act monies provided through New Hampshire's State Revolving Loan Fund (SRF), administered by the New Hampshire Department of Environmental Services (NHDES). Additional information related to the filing was provided in response to Staff inquiries, and those responses are attached.

The project consists primarily of installation of two concrete water storage tanks totaling 30,000 gallons, and associated piping and valves. The tanks would supplement an existing 20,000 gallon tank and be installed at the same location. Also included in the project is installation of variable frequency drives (VFD's) to operate two existing booster pumps in the system. The upgraded pumping and additional storage will help the system keep pace with growing system demands, including a 32 unit apartment complex to which service was recently extended. The VFD's offer additional benefits in the form of both electric savings through lowered demand charges, and additional operational flexibility that will allow mixing of wells of varying water chemistry. Such blending is expected to result in chemical cost savings by lessening the need for treatment.

The new tanks are estimated to cost $85,000 and the VFD's an additional $10,000, for a total project cost of $95,000. The system serves 155 customers, one of which is the 32 unit apartment complex.

The project is on the funded portion of the most recent NHDES drinking water economic stimulus priority list (July 22, 2009). Completion is anticipated by year end if funding is approved.

Stimulus funding is expected to treat half of the overall cost of the $95,000 financing as a grant over the life of the loan, in the form of principal and interest forgiveness. Terms would be similar to other recent SRF financings. It is expected that Lakeland's loan will be repaid over a 10 year term, with an interest rate of 2.34%. As with prior SRF loans, DES would make disbursements of funds based on invoices submitted by contractors engaged by Lakeland, and those advances would accrue interest at a rate of 1% until substantial completion of the capital projects. Approximately six months after project completion, monthly payments of principal and interest will begin, with 50% of the principal forgiven.

The company's filing includes a request for authority to file for a step increase once the project financed by this borrowing is completed, and estimates that this step adjustment would increase customer rates by 3.15%. However, the company anticipates filing a full rate case in the near future since it has recently filed a notice of intent to file rate schedules[1]. Staff would support Commission approval of a step adjustment filing such that Lakeland's access to these ARRA funds is not jeopardized. However, Staff believes it is more appropriate for Lakeland to seek recovery of these plant assets in the anticipated rate case, especially as the issue of step adjustments outside a rate case has been before the Commission recently[2].

The ARRA funding is competitive. The funded project will address several important needs in the company's system. As noted above, the benefits of this funding are significant. Staff has reviewed the petition and other information submitted by Lakeland Management in this docket. Staff supports approval of Lakeland's financing request, and recommends the Commission approve it.

If you have any questions regarding this matter, please let me know.

Sincerely,

Mark A. Naylor
Director, Gas & Water Division

Attachment - discovery responses

cc: Service list

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[1] Lakeland's notice of intent to file rate schedules has been assigned docket number DW 09-131.
[2] See Order No. 24,925 (December 30, 2008) in DW 08-070.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-1

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-1
How many of the 32 Maple Hill Acres apartment units are currently being served by the system?

Answer 1-1: All 32 units, contained in 4 buildings.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09 | Date of Response 07/27/09
Request No Staff 1-2 | Witness: Wade Crawshaw

Staff 1-2
Please indicate the total number of water and sewer customers currently served by the company.

Answer 1-2: 154 + Maple Hill = 155 water customers, one of which (Maple Hill) has 4 meters for 4 buildings, serving 32 residential units.
152 + Maple Hill = 153 sewer customers, one of which (Maple Hill) has 4 buildings, serving 32 residential units. 2 laundromats are not on sewer.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09 | Date of Response 07/27/09
Request No Staff 1-3 | Witness: Wade Crawshaw

Staff 1-3
Petition Exhibit 2 (Borrowing Resolution) indicates a 2.44% SRF interest rate, while most or all other portions of the filing indicate a 2.34% rate. Please confirm the latter number is correct.

Answer 1-3: 2.34% is correct.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-4

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-4
Regarding paragraph 8 of Mr. Crawshaw's testimony:

a) Please provide any available correspondence or other documentation from NHDES in support of the statement that NHDES has approved the project.

Answer 1-4(a): Please see letter from James B. Gill, of the Drinking Water and Groundwater Bureau, attached to these answers.

b) Regarding the statement that the additional storage will be "at the same geographic location", please confirm this refers to the location of the existing 20,000 gallon tank and not the location of the Maple Hill Acres apartments.

Answer 1-4(b): This quote is from paragraph 13. The new tanks will be near the existing tank.

c) The paragraph indicates the proposed improvements will increase service reliability under "power failure conditions". Please indicate the extent to which backup generation is either included in the project or has been considered for this system.

Answer 1-4(c): (See also Answer 1-5 regarding paragraph 13) The storage tank ranked # 53 out of 265 in a priority list for ARRA assistance; generators ranked # 135. So, the application was made for the tank, not including backup generation.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Attachment to Answer 1-4(a)

Letter from James B. Gill, of the Drinking Water and Groundwater Bureau to Lewis Engineering, PLLC, dated July 10, 2009.

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

July 10, 2009

LEWIS ENGINEERING PLLC
44 STARK LANE
LITCHFIELD NH 03052

Attn: Bruce W. Lewis, P.E.

Subject: CWS BELMONT; Lakeland Management - EPA # 0202010 - Project # 999219

Dear Mr. Lewis:

Our office has reviewed and hereby approves the plans and specifications, dated June 2009, for the proposed improvements of the 'Lakeland Management' public water supply system located on Plummer Hill Road in the Town of Belmont. The water supply system's existing wells have the following ID # 0202010 001, 0202010 004, 0202010 005; and location/descriptions: Bedrock Well 1, in Upper PH, Gravel Well 1, in Lower PH, and Bedrock Well 4, 890' South of Lower PH.

The permitted production volumes for the wells are 14,400, 56,160, and 31,680 gallons respectively. The total number of bedrooms approved is 388 and the approved design flow for the water supply system at this time is 28,200 gallons per day.

Please be advised that this approval shall lapse four years from the date of this letter, if construction of the improvements to the water supply system has not started. In addition, if construction of the improvements has started at that time, but it has not begun operation; the water system's design will have to meet all then current design criteria prior to its start-up.

All new construction of the water supply system is to be in accordance with NH Administrative Rule Env-Ws 372.21, 372.22, 372.23, 372.24, 372.25, and 372.32 *(Design Standards for Small Community Water Systems)*. This approval is also subject to the following conditions:

1. There were no specifications for the interior coatings of the two proposed concrete water storage tanks. The proposed plastic 'gooseneck' vent pipes should be constructed from a more rugged material such as steel to protect against possible vandalism. Please submit these changes.

2. Fuels and other regulated contaminants shall not be stored, nor shall septic tanks and leach fields, buildings, roadways, parking lots, etc. be located, within the three wells' protective radius areas as shown on the site plans. The top of each well casing must be at least one foot above the final finished grade.

3. A sampling tap shall be installed for each water supply source in order to sample each source's water quality individually. Each sampling tap should be located on each incoming source line prior to its entry to the first on-line storage tank. It should be located at least 12 inches above the floor or finished grade.

4. Each water supply source shall have a water meter installed on the incoming source line prior to its entry to the storage tank(s) which shall be read at least once every 30 days.

5. In accordance with Env-Ws 390.04 *(Water Conservation Rules)* and the water supply system's water conservation plan, each of the water system's residential service connections shall have a water meter installed which shall be read at least once every 90 days.

6. The water supply system shall be capable of an immediate connection of a chemical feed pump for the metered application of a disinfectant. An injection tap shall be installed on the source waterline prior to its entry to the first on-line storage tank and an electrical outlet, interconnected with the electrical circuit for the well pumps, shall be provided.

7. Each well shall have an appropriately sized tube for electronic drawdown probes or alternate provisions permanently installed in the wells which shall allow determination of the static and drawdown water levels.

8. The atmospheric storage tanks shall be equipped with a capped filler pipe (lockable, if on the exterior) to accommodate tank truck water delivery.

9. A certified operator, with the required grade(s), shall be retained in accordance with Env-Ws 367 *(Certification of Water Works Operators)* to be in responsible charge of the water supply system.

10. The water system's sources shall be wired to operate either simultaneously or to automatically alternate between pumping cycles in order to be sampled together as a blended sample.

11. Any in-active or abandoned water supply sources must be physically separated from the water piping system by removing a section of pipe (severing the line). Simply 'valving off' and/or electrical disconnection is not sufficient. Any abandoned wells must be backfilled and sealed in accordance with We-604 to

prevent possible injury or groundwater contamination. All sources not abandoned, or otherwise still physically connected to the water supply system, are required to be sampled and monitored.

12. All new construction of the water distribution system is to be in accordance with Env-Ws 372.32 and the Water Distribution System Construction Guide that is enclosed with this letter. All piping material, valves, etc. shall conform to the most recent revision of the appropriate American Water Works Association (AWWA) Specifications. Where such a specification does not exist for the pipe size being used, the minimum pressure rating for the pipe shall be 200 psi and the pipe shall conform to the requirements of American Society for Testing and Materials (ASTM) 2241.

13. All new tees, bends, hydrants, blow-offs, etc. shall be provided with thrust blocking designed to prevent movement.

14. The separation between new water mains and sewerage pipes shall be in accordance with Env-Ws 372.32.

15. All new water mains installed under culverts shall be covered with sufficient earth or other insulation to prevent freezing.

16. The maximum spacing for gate valves installed on the new water mains shall not exceed 1500 feet. Gate valves shall be provided at all intersecting water mains.

17. Hydrants or other means for flushing the new water mains shall be provided near the ends of all water mains. The sizing of each 'blow-off' shall provide a flushing velocity of at least 2.5 feet per second in the water main.

18. All new water distribution piping shall be installed and pressure tested in accordance with AWWA C-600 or C-900 as applicable to the type of pipe chosen.

19. A set of 'as-built' plans or 'record drawings', in accordance with Env-Ws 372.33, shall be submitted to DES after all new construction has been completed,.

20. Before water service is provided, all new water distribution lines and storage tanks must be flushed, disinfected with chlorine in accordance with AWWA C-651 or C-652, re-flushed, and sampled for acceptable bacteria quality.

21. The design flow for the public water supply system is greater than 20,000 gallons per day. The water system's owner shall be required to register and report its water usage to DES in accordance with Env-Wq 2202 *(Water Use Registration and Water Use Reporting)*.

22. **At such time as the project is constructed and is ready for occupancy, the owner must contact this office (271-2513) to arrange for a system inspection and the system's water sampling schedule in accordance with Env-Ws 372.34.**

If you have any questions concerning this letter, please contact this office at (603) 271-2949 or by e-mail at *james.gill@des.nh.gov*.

Very truly yours,

James B. Gill, P.E.
Small Water Systems Section
Drinking Water and Groundwater Bureau

enclosure

cc: W. Crawshaw
New Hampshire Public Utilities Commission
K. Riel - NHDES
C. Klevens, P.E. – NHDES (via e-mail)

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-5

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-5
Regarding paragraph 13 of Mr. Crawshaw's testimony:

a) The purpose of or need for variable frequency drives is only minimally alluded to in the filing. Please provide further explanation on where they will be located and why they are proposed.
b) Does the company have any estimate of potential electric savings from use of the VFD's?
c) Please clarify how the project will foster blending of wells leading to potential chemical savings, including which wells are involved.
d) Does the company have any estimate of potential chemical cost savings from the project?

Answer 1-5(a-d): The VFD's will be located in the existing pump house to operate the existing booster pumps for the gravel well. EPA # 004. Public Service of NH is encouraging the use of VFD's because the VFD's will reduce the high current surge at start-up. The reduced surge will lower the demand charge for the Company. The submersible pump for the drilled well EPA # 005 already has a VFD to operate the motor. The VFD's will make it possible to regulate the flow of water and run both wells at the same time, thereby balancing the pH of the water and keeping it consistent. If the wells operated alternately, when the drilled well ran, the pH of the water would be 8.2 without any phosphate, and when the gravel well ran the Company would have to add phosphate because of the low pH. The Company would add a caustic to raise the pH to 7.3, the optimum pH of the blended phosphate that the Company uses. That may raise havoc with the water chemistry in the pipes, with the potential of causing more dirty water problems and/or corrosion of pipes. So, a way of solving that problem is to use the high pH of the drilled well to raise the low pH of the dug well thereby using less caustic to get the water to its optimum pH. That way, the distribution system, which includes the transmission line to the storage tank, will not see the fluctuation in water chemistry. As far as the potential electric savings and chemical savings go, all the Company knows is that it'll be less, by how much is yet to be seen.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09 | Date of Response 07/27/09
Request No Staff 1-6 | Witness: Wade Crawshaw

Staff 1-6
Please provide any recommendations related to, or summary of, the project as prepared by Lewis Engineering or others.

Answer 1-6: The Company does not know what the Staff's expectation is with this one. Wade Crawshaw approves of the plan and has been working closely with the Lewis Co. to formulate it.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-6

Date of Response 08/05/09
Witness: Wade Crawshaw

Staff 1-6
Please provide any recommendations related to, or summary of, the project as prepared by Lewis Engineering or others.

Supplemental Answer 1-6: Please see attached June 30, 2009 letter to James Gill from Lewis Engineering, PLLC and accompanying plan.

d/cli/5629intans1

Lewis Engineering, PLLC
Specializing in Water System Designs & Approvals

44 Stark Lane Litchfield, NH 03052

June 30, 2009

Mr. James B. Gill, P.E.
NH Drinking Water and Groundwater Bureau
6 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

Re: Addendum to the Approved Design for the Community Water System Expansion for Briarcrest Estates Work Force Housing, Lakeland Management, Belmont, New Hampshire, EPA # 0202010

Dear Jim:

The original design for the CWS Belmont; Lakeland Management Company, EPA # 0202010, Project 997199 was approved by your office in a letter dated January 17, 2008. As previously discussed, during April 2009 as part of the ARRA / SRF program, Lewis Engineering, PLLC, was retained by Lakeland Management, Mr. Wade Crawshaw, to assist in the layout and design of a revised approach to the project as approved. Submitted with this correspondence please find our plan set that reflects the modified design. Following your review and approval work will be implemented through NHDES and the SRLF/ARRA program.

The Lakeland Management Company's community water system currently serves the greater Briarcrest community with a total of 186 customers. There is an existing approved Gravel Pack (Well # 1) that utilizes two alternating pumps and an approved bedrock well (Well #4). The approved system design is based on 28,200 gallons per day. There is an existing 12' x 20' Pump House with controls and a water treatment room for corrosion control and pH adjustment. The existing pump house and wells are located just west of Route 107 and north of Old Marsh Hill Road in Belmont, NH. The proposed site for the new water storage tanks is directly adjacent to the existing 20,000 gallon atmospheric (gravity feed) buried concrete tank located east of Plummer Hill Road and south of Oak Street in Belmont, NH. There will be two 15,000 gallon pre-cast concrete tanks installed just to the northeast of the existing atmospheric storage tank to facilitate necessary additional water storage for this CWS.

In particular, as a follow up to our discussions, the system will remain as it always has with the water treatment and water supply facilities being located at the Pump House. Water is supplied through two approved water supply wells; one gravel well with two alternating pumps, and one new bedrock well with a submersible pump. Upgrades to the Gravel Well's booster pumps will include VFD's with associated controls, and a 2" magnetic master water meter. This

will then match the master meter, VFD, and control set up associated with the bedrock well. Overall, this will allow the water pumping system to operate with higher energy efficiency.

In addition, NHDES originally had approved of new atmospheric storage. This has been increased to 30,000 gallons. There will be 2 direct bury reinforced pre-cast concrete tanks at 15,000 gallons each installed directly adjacent to the existing 20,000 gallon buried concrete tank. This will provide the system with 50,000 gallons total in atmospheric storage, all located in the same geographic area. The piping and valves has been designed for maximum flexibility, allowing each tank to be taken off line individually for maintenance purposes, as may be necessary from time to time. The additional storage will also allow the system to operate more efficiently relative to time of day pumping, as may be beneficial at some point in time from an energy efficiency standpoint. Finally, it will also provide more available storage for system use, as the calculated design flow is 28,200 gpd for the CWS with the workforce expansion.

This modified plans allows the existing pump house with its water treatment room to essentially remain the same as it currently exists. The only additions will be the new VFD controls for the existing gravel based well's pumps, and a 2" Badger Mag Meter as a master meter for the existing gravel well, with miscellaneous piping and control fit up, as needed.

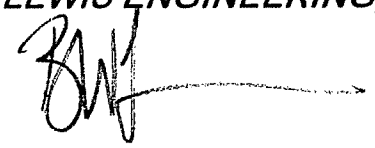
All system components for the proposed modifications are designed and will be installed in accordance with NHDES rules. The water system will continue to be maintained by the owner, Mr. Wade Crawshaw, C & C Water Services, a NH Certified System Operator.

Your timely review and approval of the addendum to the Lakeland Management Company's Community Water System ARRA/SRF expansion would be greatly appreciated.

Please contact the office if there are any questions, or if additional information is required.

Respectfully,

LEWIS ENGINEERING, PLLC



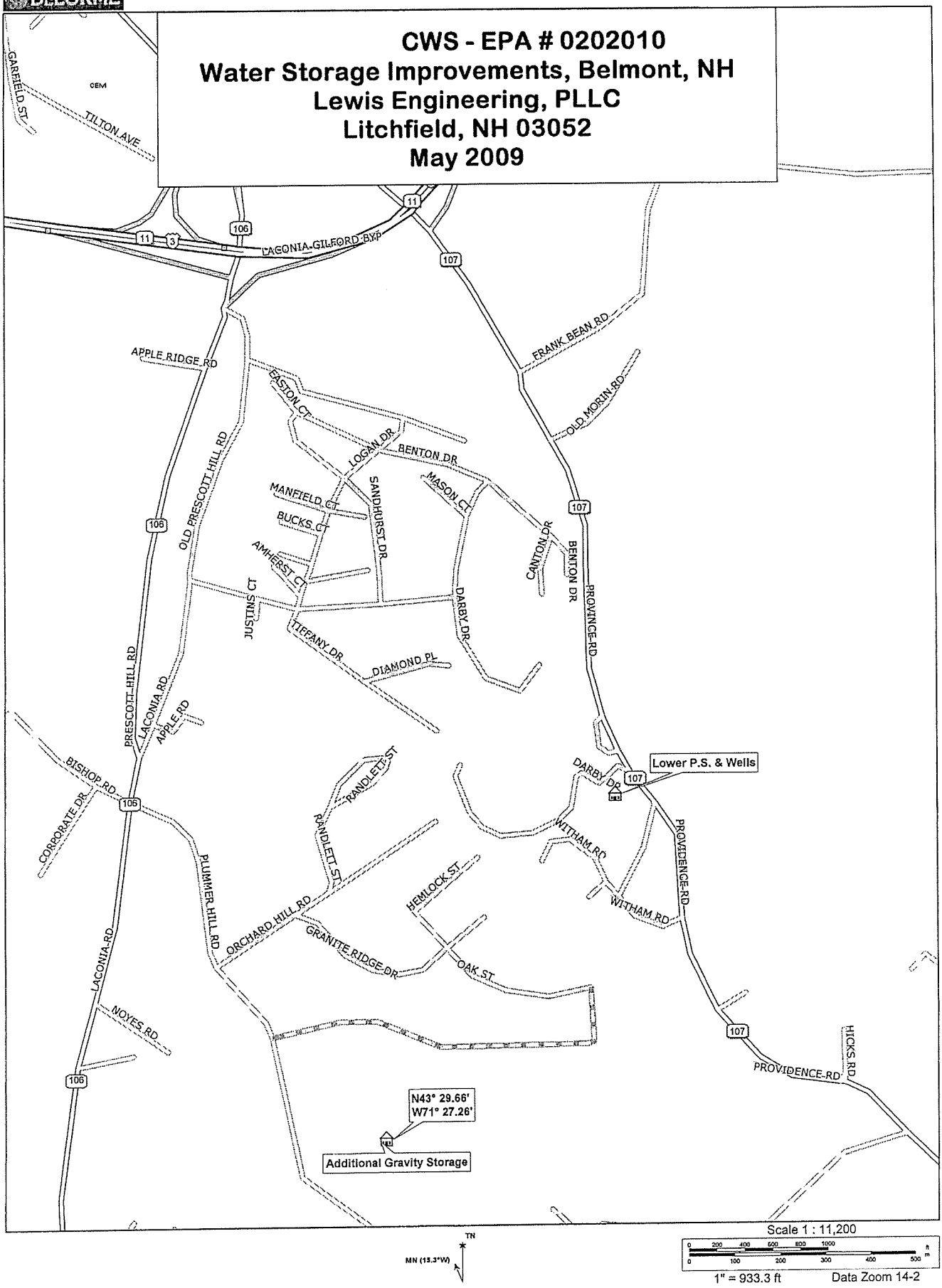
Bruce Lewis, P.E.

Cc: Mr. Wade Crawshaw, Lakeland Management Company

DELORME

Street Atlas USA® 2008

CWS - EPA # 0202010
Water Storage Improvements, Belmont, NH
Lewis Engineering, PLLC
Litchfield, NH 03052
May 2009



Summary of NHDES-WSEB Design Criteria for Lakeland Management Company – CWS Expansion Belmont, NH – PWS # 0202010

NHDES Approved: Jan. 2008
Rev. June 2009

1. Project Name ..... Lakeland Mgt. Co., NHDES ARRA/SRF CWS Expansion
2. Street Location ..... East of Route 106 off Old Prescott Hill Road
3. Existing Number of Units each having 2 Bedrooms & 1 Office / Club House 154
4. Actual Water Use Based of Metered Records (3 yrs.) ..... 16,200 GPD
5. Additional Proposed Units each having 2.5 bedrooms..... 32
6. Total Number of Added Bedrooms 80
7. Ave. Gallons per Day per Bedroom based on NHWSEB Guidelines 150
8. Ave. New GPD to all 32 Homes Based on Bedrooms ..... 12,000 GPD
9. Total Design Flow for Existing plus Expansion Units ..... 28,200 GPD
10. Ave. Gallons per Min. Based on 24 hours ..... 20 gpm
11. Ave. GPM for Homes with a 2.0 S.F. ..... 40 gpm
12. Capacity of Existing GP Well #1 .....40 gpm
13. Capacity of BR #4 Based on 48 hour Testing ..... 20 gpm
14. Peaking Factor for Use in Determining Peak Hour 4.6
15. Peak Hourly Demand Based on Peaking Factor (gpm) 92
16. Existing Capacity of Atmospheric Storage (gallons) (O.F. Elev. of 1010' +/-) 20,000
17. Proposed Additional Atmospheric Capacity (2@ 15,000 ea.) 30,000
18. Number of Bedrock Wells on site 1
19. Number of Gravel Wells on site 1
20. Existing Cap. and TDH of GP Well 1 – Two Pumps (7.5 h.p. ea) .. 40 gpm @ 460' TDH
21. Nominal Capacity and TDH of Well 4 Pump (10 h.p.) ..... 20 gpm @ 890' TDH
22. Supply Capacity with largest well out of service ..... 20 gpm
23. Well Metering Using 2" Badger Magnetic Meters 2
24. Min. and Max. System Press. Based on Elevations and Booster Pumps ..... 40-160[(2)] psi
25. Normal Discharge Pressure.....150 psi
26. Electrical Service to Pump House - 460 Volt Three Phase ..... 100 Amp
27. Heat in Pump House – Two Electric Heaters (Base board) ..... 5KW/ Thermostat
28. Water Mains & (Service Line) to each single unit ..... 6", 4"& (1")
29. Water Treatment for GP Well #1..... pH Adj. / Corrosion Control
30. Controls for Pumps ..... PLC Controls with VFD's for Boosters & W4
31. Pumps start & stop based on tank level in atmos. tanks via telemetry circuit control

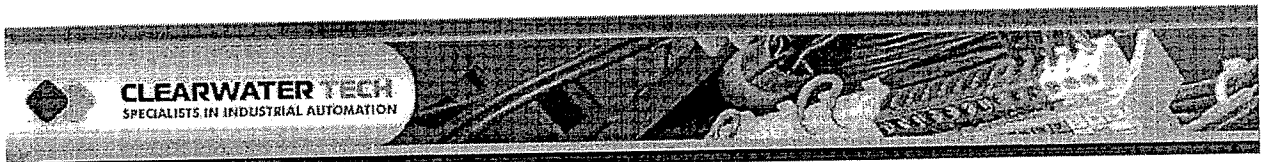
Notes:

1. System works on gravity storage, with booster well and/or bedrock submersible VFD pumps filling the new total of 50,000 gallons of gravity storage.

2. PRV's are installed on house services where incoming pressure exceeds 80+/- psi.

EXHIBIT

NEW STATION COMPONENTS



April 06, 2009

AC Tech Drives

The compact packaging and comprehensive functionality makes the AC Tech SCM Series Sub-Micro drives an ideal inverter to use on equipment requiring variable speed, soft starting or reversing operation. The easy to use SCM series VFD is configured and ready to use right out of the box for most simple applications.
SCM Series Drives

Toshiba Drives

The G9 adjustable speed drive is the most advanced severe duty drive ever offered by Toshiba. It is a blend of a robust power platform and a state-of-the-art control scheme. With its 115% continuous overload rating and its dual 32-bit processor controls,
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YASKAWA

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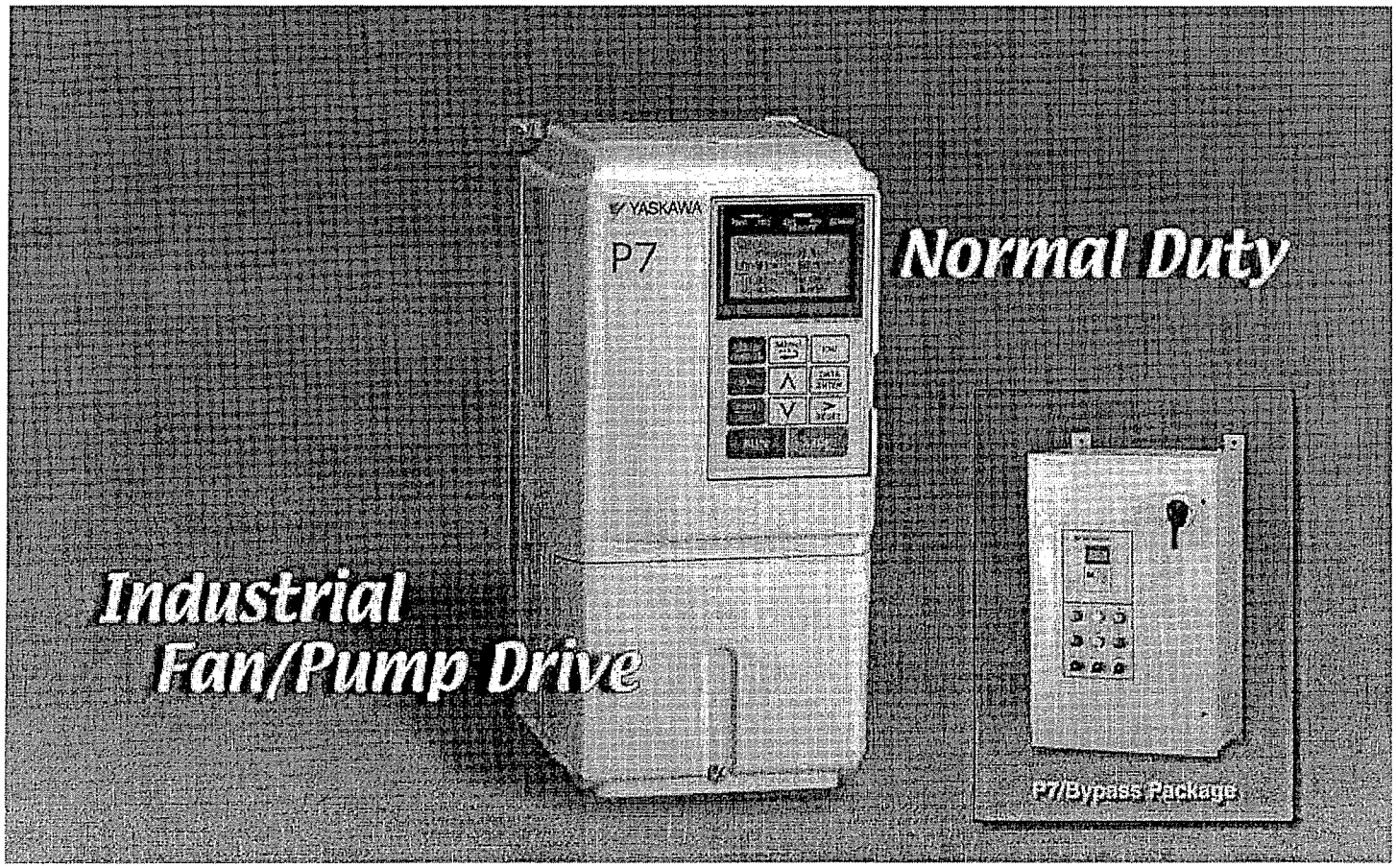
info@clrwtr.com

Yaskawa, a manufacturer of rotary and linear servo control and motion control automation solutions. Yaskawa has locations worldwide including Yaskawa Electric America, Inc. in Waukegan, Illinois. Yaskawa Electric America, Inc. is a U.S. corporation, created to provide automation solutions and support to customers in North America, Central America, and South America. Yaskawa Electric is the world's largest manufacturer of AC inverter drives. Yaskawa Electric products are marketed through direct sales, Yaskawa Drive partners, representatives, dealers, and distributors. Yaskawa Electric America, Inc. is a wholly owned corporation of Yaskawa Electric Corporation of Japan. Since 1915, Yaskawa Drives has served the world needs for products to improve global productivity through automation.

This page consists of some technical datasheets for the Yaskawa Industrial AC Drive product line. please call us on (800) 894 - 0412 or email us at info@clrwtr.com if you cannot find the Yaskawa Industrial AC Drive products technical information (data-sheets) that you are looking for. For more detailed datasheet page, please check out Product Selection Guide page.

Description	File Size
Yaskawa F7 Series Normal & Heavy-Duty Drives	514 KB
Yaskawa G5 Series Constant Torque 600 Volt Drives	118 KB
Yaskawa G7 Series General Purpose Drives	133 KB
Yaskawa J7 Series General Purpose OEM Drives	121 KB
Yaskawa P7 Series Fan / Pump Drives	111 KB
Yaskawa P7 Series Fan / Pump Drives	111 KB
Yaskawa V7 Series Open-Loop Vector Drives	118 KB



P7 Drive, 5 - 500 HP

The P7 Drive: For industrial applications such as centrifugal fans and pumps, the P7 drive is an ideal choice. The drive is provided in Normal Duty ratings with 110% overload capability. V/f control mode, network communication options, and an array of input/output options are available.

The P7 is factory-programmed and ready to run. For operational simplicity and clarity, the LCD operator display has 5 lines x 16 characters. It can be set to any of 6 languages. The keypad is intuitive and includes parameter copying to move a chosen set of parameters from one drive to another. If the application requires programming, the P7 makes it easy. Parameters are grouped in easy to use sets; quick start and advanced. To enhance parameter and data management, DriveWizard software for the PC is available at no charge, for upload/download, trending, and graphing.

This drive is designed for tough industrial environments. It is rugged and reliable, with an MTBF of 28 years. A variety of enclosure options provide the right environmental protection. Providing the right power requirements is also easy with 208/240 and 480 volt ratings, built-in bus choke above 30 HP, common bus capability, and other energy savings options. Other features include motor auto-tuning and configurable options such as circuit breakers and fuses.

The P7 supports the industry's open architecture, open connectivity demands with network communications choices such as DeviceNet, Profibus-DP, and others. Drive coordination with other equipment is simplified with inputs and outputs for 4 to 20 mA, 0-10V, and an assortment of programmable contacts.

With an optional phase-shifting input transformer, the P7 dual-diode bridge can be operated in 12-pulse rectification mode, reducing input current harmonic distortion factor by over 90%. With lower EMI/RFI emission and lower total harmonic distortion contribution, the P7 meets or exceeds the generally accepted power quality standards. Inherent motor protection features resulting from low noise/low carrier technology provides for longer lead lengths without additional motor protection devices.

The optional P7/Bypass package is a 3-contactor style bypass, allowing motor operation from the drive or across the line. This facilitates drive maintenance while the motor continues to operate.

The P7 has been designed to provide the features and options commonly needed for fan and pump applications.

YASKAWA
The Drive for Quality™

P7 - Drives for
7.5 H.P. Pumps Inside
Station (Gravel Well)

P7 Drive

Clearwater Tech - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.clrwtr.com - Email: info@clrwtr.com

Performance Features

- Ratings: 5-150 HP, 208 VAC
  5-150 HP, 230 / 240 VAC
  5-500 HP, 480 VAC
  5-250 HP, Bypass
- Overload capacity: nominal 110% for 60 sec (150% peak)
- Starting torque: 100% at 3 Hz
- DC injection braking: at start or stop, adjustable, current-limited (anti-windmilling)
- Motor preheat function
- Adjustable accel/decel: 0.1 to 6000 sec.
- Controlled speed range: 40:1
- Critical frequency rejection: 3 selectable, adjustable bands
- Torque-limiting: 30 to 180%
- Energy $aving control
- Torque boost: full range, auto
- Power loss ride-thru: 2 sec.
- Inertia ride-thru
- Auto restart after power loss or resettable fault, selectable, programmable
- Feedback signal loss detection
- Serial communications loss detection
- "Up/Down" floating point control capability
- Stationary motor auto-tuning
- Sleep function
- Run-permissive input

Protective Features

- Current-limited stall prevention
- Heat sink over-temperature, speed fold-back
- Bi-directional start into rotating motor
- Current-limiting DC bus fuse
- Optically-Isolated controls
- Short circuit protection: Phase-phase and phase-neutral
- Ground fault protection
- Electronic motor overload: UL
- Current limit
- Fault display: last 10 faults
- Fault circuit: OC, OV, OT
- Over torque and under torque protection
- Reverse prohibit selectability

Service Conditions

- Ambient Temperature: -10°C to 40°C NEMA 1, 45°C protected chassis (14°F to 104°F, 113°F)
- Humidity: 95% RH, non-condensing
- Altitude: 3300 ft; higher by derate
- Input voltage: +10% / -15%
- Input frequency: 50/60 Hz ± 5%
- 3-phase, 3-wire, phase sequence insensitive

Design Features

- LCD keypad display, 5 lines x 16 characters, backlit, 6 languages, copy function
- Multi-step speed settings: 5 available
- Setpoint (PI) control
- 32-bit microprocessor logic
- Non-volatile memory, program retention
- Displacement power factor: 0.98
- Output frequency: 0.1 to 120 Hz
- Frequency resolution: 0.06 Hz
- Frequency regulation: 0.1%
- Control Terminal Board: Quick disconnect
- Carrier frequency: selectable to 15 kHz
- 3% DC bus reactor: 30-150 HP, 208 VAC; 30-150 HP, 240 VAC; 40-500 HP, 480 VAC; optional on lower ratings
- 24 VDC control logic, PNP / NPN selectable
- Transmitter/Option power supply
- Input/output terminal status
- Timer function: Elapsed time, Delay on start, Delay on stop
- RS-422/485 port: Modbus protocol
- Volts/hertz ratio: Preset and programmable V/Hz patterns
- Meter Functions: Volt, amp, kilowatt, elapsed run time, speed command
- NEMA 1 or protected chassis
- UL, cUL listed and CE marked; IEC 146;
- MTBF: exceeds 28 years
- DriveWizard™ upload/download and monitoring/graphing software

Inputs and Outputs

- Output contacts: 1 form C and 2 programmable form A
- Input terminals: 5 programmable multi-function input terminals
- Fault input: Programmable
- Remote speed command: 0 to 10 VDC or 4 to 20 mA, direct or reverse-acting
- Analog outputs: Programmable, two, 0-10 VDC

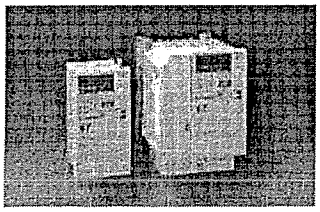
Bypass Features

- Input, output, and bypass contactors
- Circuit breaker disconnect (MCP)
- Thermal motor overload relay, class 20
- 115 VAC control transformer, fused
- Drive/Bypass selector
- Hand/Off/Auto selector
- Normal/Test selector
- Pilot lights
- Selectable auto transfer to bypass on drive fault
- Run mode and Fault contacts
- Safety circuit interlock
- Control and safety circuit terminal strip
- Customer Use, 115V, 100VA

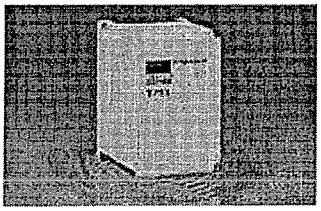
Options

- Remote digital operator kit
- Input CB/disconnect
- Input fuses, I^2t
- Input and/or output reactor
- Twelve-pulse rectification with input transformer: 30 to 150 HP at 240 VAC, 40 to 500 HP at 480 VAC
- Communication Interface: DeviceNet, Profibus, LonWorks, Ethernet and Modbus Plus
- RFI/EMI filter / EMC
- Pressure transducer, 3 to 15 PSI
- Analog outputs: programmable, 2, 4 to 20 mA
- 2-Motor OR/AND capability

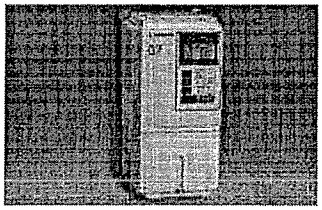
Other Industrial Drives



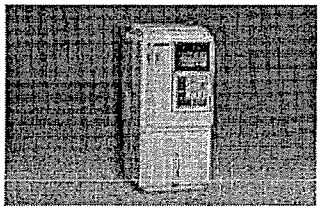
V7 Drive NEMA 1, V/f or open loop vector, 1/8 - 10 HP. *Flyer FL.V7.01*



V74X Drive Integral NEMA 4X/12, V/f or open loop vector, 1/8-15 HP. *Flyer FL.V74X.01*



G7 Drive Ultimate Performance Solution 3-level Inverter, 1/8 - 500 HP. *Flyer FL.G7.01*



F7 Drive Industrial Workhorse, Normal and Heavy Duty, 1/2 - 500 HP. *Flyer FL.F7.01*

YASKAWA
The Drive for Quality™

P7 Drive

Clearwater Tech - Phone: 800.894.0412 - Fax: 208.368.0415 - Web: www.clrwtr.com - Email: info@clrwtr.com

New 2" Master Magnetic Meter

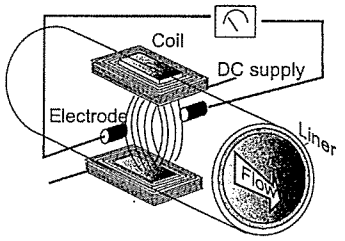
Magnetoflow® Mag Meter	Model Magnetoflow® Wafer	Technical Brief

GENERAL

Badger's Magnetoflow line is the result of 35 years of research and field use in electromagnetic flow meters. Based on Faraday's law of induction, these meters can measure almost any liquid, slurry or paste that has a minimum level of electrical conductivity. Designed, developed and manufactured under the strictest quality standards, the Magnetoflow meter ranks among the best in the market. It's sophisticated, processor based signal conversion represents the state of the art in the industry with accuracies of 0.25% or better. The wide selection of liner and electrode materials insures maximum compatibility and minimum maintenance over a long operating period.

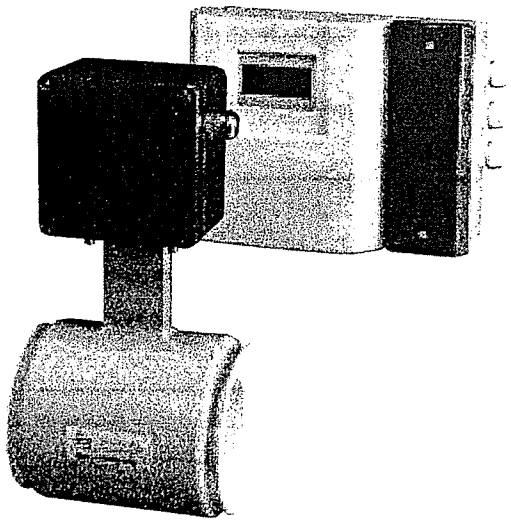
OPERATION

The flow meter is basically a stainless steel tube lined with a non-conductive material. Outside the tube two DC powered electromagnetic coils are positioned diametrically opposing each other. Perpendicular to these coils, two electrodes are inserted into the flow tube. When the coils are energized, a magnetic field is created across the whole diameter of the pipe. When a conductive fluid flows through this magnetic field, a voltage is induced across the electrodes. This voltage is directly proportional to the average flow velocity of the fluid and is picked up by the two electrodes. This induced voltage is then amplified and processed digitally by the converter to produce a very accurate analog or digital signal. The signal can then be used to indicate flow rate, totalization or to communicate to remote sensors and controllers. The main advantages of this technology are that with no parts in the flow stream, there is no pressure loss, the accuracy is not affected by temperature, pressure, viscosity, density or flow profile and with no moving parts, there is practically no maintenance required.



APPLICATION

Because of its inherent advantages over other more conventional technologies, this meter can be used in the majority of industrial flow applications. Whether the fluid is water or something highly corrosive, very viscous, contains a moderate amount of solids or requires special handling, this meter will be able to accurately measure it. Today Magnetoflow meters are successfully being used in most industries including food and beverage, pharmaceutical, water and waste water, and chemical.

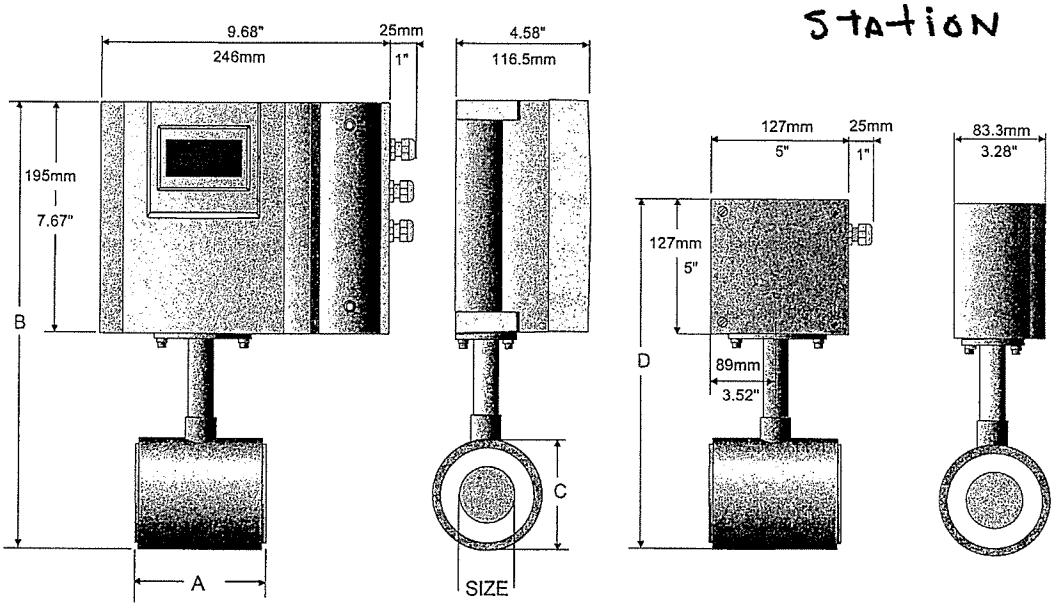


Magnetoflow Wafer

FEATURES

- 0.25% accuracy independent of fluid viscosity, density and temperature
- Unaffected by most solids contained in fluids
- Pulsed DC magnetic field for zero point stability
- No pressure loss for low operational costs
- Long life corrosion resistant liner PTFE
- Calibrated in state of the art facilities
- Integral and remote signal converter availability
- Optional grounding electrode available
- Measurement largely independent of flow profile
- Measures fluids with as low as 0.5 micromhos/cm conductivity

2" METER FOR Gravel Well Inside STATION



Meter with Primo® converter

Meter with junction box for remote Primo® converter

		A		B		C		D		Est. Weight with Primo		Flow Range GPM		Flow Range LPM	
inches	mm	inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg	Min	Max	Min	Max
1"	25	4	100	14	349	3	74	11.2	286	20	9.0	0.24	80	0.92	305
1 1/4"	32	4	100	14.5	360	3.4	85	11.7	297	22	10.0	0.4	126	1.45	477
1 1/2"	40	4	100	14.8	370	3.8	95	12	307	23	10.5	0.6	181	2.1	687
2"	50	4	100	15.4	385	4.4	110	12.6	322	28	12.5	1.0	323	3.7	1223
2 1/2"	65	6	150	16.2	405	5.2	130	13.5	342	54	24.5	1.5	504	5.8	1910
3"	80	6	150	16.6	415	5.6	140	13.8	352	56	25.5	2.2	727	8.3	2751
4"	100	6	150	17.4	435	6.4	160	14.6	372	58	26.5	4.0	1292	14.8	4892

SPECIFICATIONS

Flow Range: 0.1 - 33 fps (0.03-10 m/s)
Sizes: 1" to 4" (25 to 100 mm)
Min. Conductivity: ≥ 0.5 micromhos/cm
Accuracy: ≥ 0.25% accuracy of rate from 1-33 fps.
≥ 0.5% accuracy of rate from .1-1 fps.
Electrode Materials: Standard: Alloy C
Optional: 316 Stainless Steel, Gold/Platinum Plated, Tantalum, Platinum/Rhodium
Liner Material: PTFE
Fluid Temperature: With Remote Converter:
PTFE 311°F, (155°C)
With Meter Mounted Converter: PTFE 212°F, (100°C)

Pressure Limits: 600psi, (40Bar)
Coil Power: Pulsed DC
Ambient Temperature: -4°F to 122°F, (-20°C to 50°C)
Pipe Spool Material: 316 Stainless Steel
Meter Enclosure Material: Carbon Steel welded
Meter Enclosure Classification: Nema 4
Junction Box Enclosure Protection: (For Remote Converter Option) Powder coated die-cast aluminum, Nema 4
Cable Entries: 1/2" NPT Cord Grip

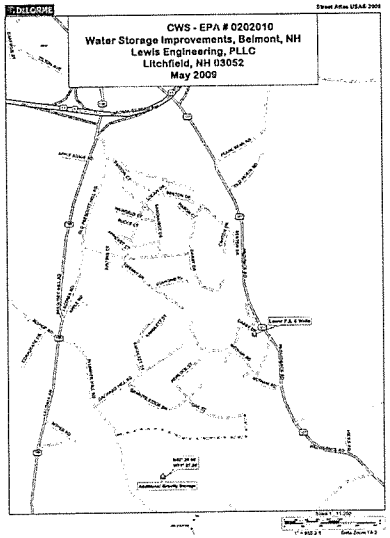
TÜV MANAGEMENT SERVICE ISO 9001

Please see our website at
www.badgermeter.com
for specific regions and contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding bid obligation exists.

BadgerMeter,Inc.
P.O. Box 245036, Milwaukee, WI 53224-9536
Telephone: (414) 355-0400 / (877) 243-1010
Fax: (414) 355-7499 / (866) 613-9305
www.badgermeter.com

LAKELAND MANAGEMENT COMPANY
CWS WATER STORAGE IMPROVEMENTS
BELMONT, NEW HAMPSHIRE
MAY 2009
LEWIS ENGINEERING, PLLC



SITE LOCUS
NTS

N

44 STARK LANE
LITCHFIELD, NH
lewis.h2o@comcast.net

Summary of NHDES-WSEB Design Criteria for
Lakeland Management Company – CWS Expansion
Belmont, NH – PWS # 0202010

NHDES Approved: Jan. 2008
Rev. June 2009

1.	Project Name	Lakeland Mgt. Co., NHDES AIRA/SRF CWS Expansion
2.	Street Location	East of Route 106 off Old Prescott Hill Road
3.	Existing Number of Units each having 2 Bedrooms & 1 Office / Club House	154
4.	Actual Water Use Based of Metered Records (3 yrs.)	16,200 GPD
5.	Additional Proposed Units each having 2.5 bedrooms	32
6.	Total Number of Added Bedrooms	80
7.	Ave. Gallons per Day per Bedroom based on NHWSEB Guidelines	150
8.	Ave. New GPD to all 32 Homes Based on Bedrooms	12,000 GPD
9.	Total Design Flow for Existing plus Expansion Units	28,200 GPD
10.	Ave. Gallons per Min. Based on 24 hours	20 gpm
11.	Ave. GPM for Homes with a 2.0 S.F.	49 gpm
12.	Capacity of Existing GP Well #1	48 gpm
13.	Capacity of BR #4 Based on 48 hour Testing	20 gpm
14.	Peaking Factor for Use in Determining Peak Hour	4.6
15.	Peak Hourly Demand Based on Peaking Factor (gpm)	92
16.	Existing Capacity of Atmospheric Storage (gallons) (O.F. Elev. of 1010' +/-)	20,000
17.	Proposed Additional Atmospheric Capacity (2@ 15,000 ea.)	30,000
18.	Number of Bedrock Wells on site	1
19.	Number of Gravel Wells on site	1
20.	Existing Cap. and TDH of GP Well 1 – Two Pumps (7.5 h.p. ea) –	48 gpm @ 460' TDH
21.	Nominal Capacity and TDH of Well 4 Pump (10 h.p.)	20 gpm @ 899' TDH
22.	Supply Capacity with largest well out of service	28 gpm
23.	Well Metering Using 2" Badger Magnetic Meters	2
24.	Min. and Max. System Press. Based on Elevations and Booster Pumps	40-160[2] psi
25.	Normal Discharge Pressure	150 psi
26.	Electrical Service to Pump House - 460 Volt Three Phase	100 Amp
27.	Heat in Pump House – Two Electric Heaters (Base board)	5KW/ Thermostat
28.	Water Mains & (Service Line) to each single unit	6", 4" & (1")
29.	Water Treatment for GP Well #1	pH Adj. / Corrosion Control
30.	Controls for Pumps	PLC Controls with VFD's for Boosters & Well
31.	Pumps start & stop based on tank level in atmos. tanks via telemetry circuit control	

Notes:

1. System works on gravity storage, with booster well and/or bedrock submersible VFD pumps filling the new total of 50,000 gallons of gravity storage.
2. PRV's are installed on house services where incoming pressure exceeds 80+/- psi.

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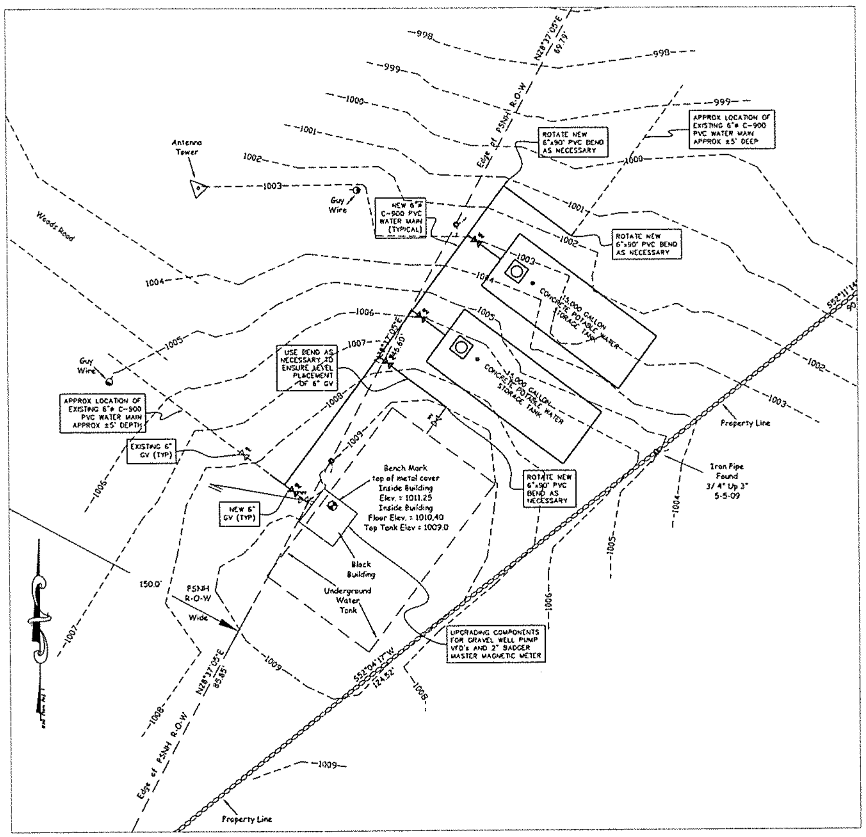
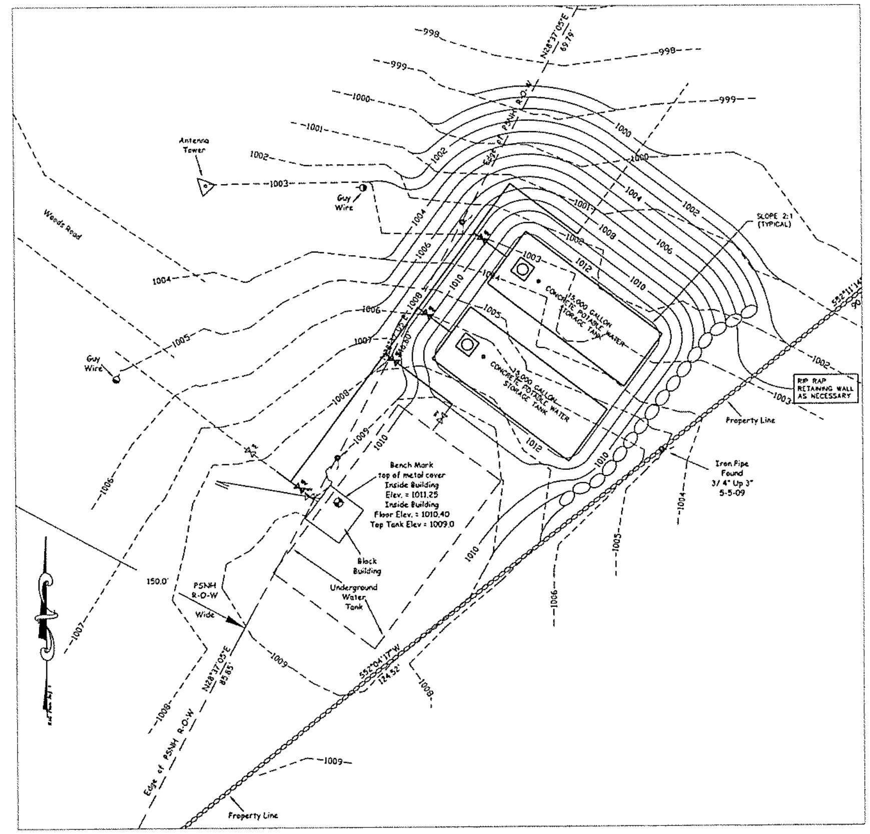


Antenna Tower
Guy Wire
Weeds Road
NEW 6" Ø C-900 PVC WATER MAIN (TYPICAL)
ROTATE NEW 6"x90° PVC BEND AS NECESSARY
APPROX LOCATION OF EXISTING 6" Ø C-900 PVC WATER MAIN APPROX ±5' DEEP
USE BEND AS NECESSARY TO ENSURE LEVEL PLACEMENT OF 6" GV
APPROX LOCATION OF EXISTING 6" Ø C-900 PVC WATER MAIN APPROX ±5' DEPTH
EXISTING 6" GV (TYP)
NEW 6" GV (TYP)
Bench Mark top of metal cover Inside Building Elev. = 1011.25
Inside Building Floor Elev. = 1010.40
Top Tank Elev = 1009.0
Block Building
Underground Water Tank
UPGRADING COMPONENTS FOR GRAVEL WELL PUMP VFD's AND 2" BADGER MASTER MAGNETIC METER
Iron Pipe Found 3/4" Up 3" 5-5-09
Property Line
PSNH R-O-W Wide
150.0'
Edge of PSNH R-O-W

EXISTING GRADE

1"=10'



Antenna Tower
Guy Wire
Weeds Road
SLOPE 2:1 (TYPICAL)
RIP RAP RETAINING WALL AS NECESSARY
Bench Mark top of metal cover Inside Building Elev. = 1011.25
Inside Building Floor Elev. = 1010.40
Top Tank Elev = 1009.0
Block Building
Underground Water Tank
Iron Pipe Found 3/4" Up 3" 5-5-09
Property Line
PSNH R-O-W Wide
150.0'
Edge of PSNH R-O-W

FINISHED GRADE

1"=10'

NOTES

1. SEE OTHER SHEET FOR MECHANICAL WORK DETAILS.
2. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO SPECIFIED INSTALLATION DETAILS.
3. ALL ELECTRICAL WORK TO COMPLY WITH NATIONAL ELECTRICAL CODE AND TOWN OF BELMONT STANDARDS.
4. ALL BACKFILL TO BE PROPERLY COMPACTED, CLEAN BANK RUN GRAVEL ALLOWED NO STONES > 6"

LEWIS ENGINEERING PLLC
44 Stark Lane
Litchfield, NH 03052

SHEET 1 OF 3
GRADING PLAN
CWS - EPA # 0202010
WATER STORAGE IMPROVEMENTS
BELMONT, NEW HAMPSHIRE

DRAWN BY	DRAWING DATE	CONSTRUCTION DATE	INSTALLED BY	
SWIERZ CONSULTING, LLC	MAY 2009	-	-	
ENGINEER	INSPECTOR	ASBUILT NO.	APPROX SCALE	SHEET NO.
B. LEWIS	-	-	1"=10'	1

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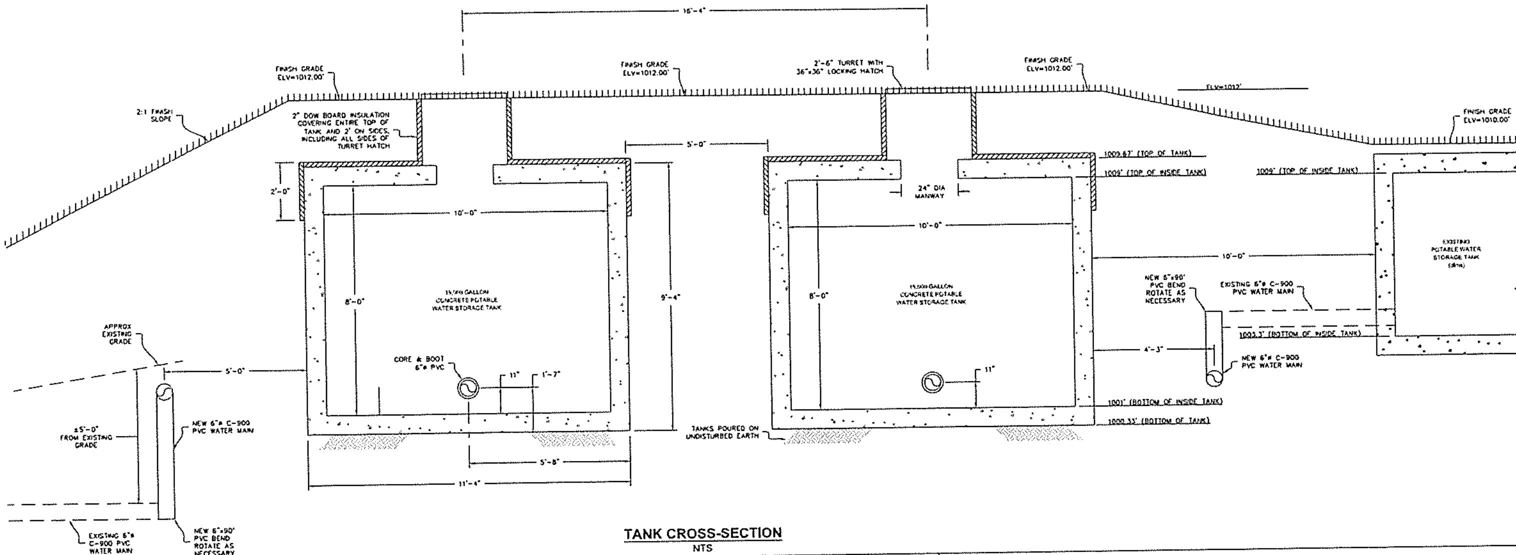
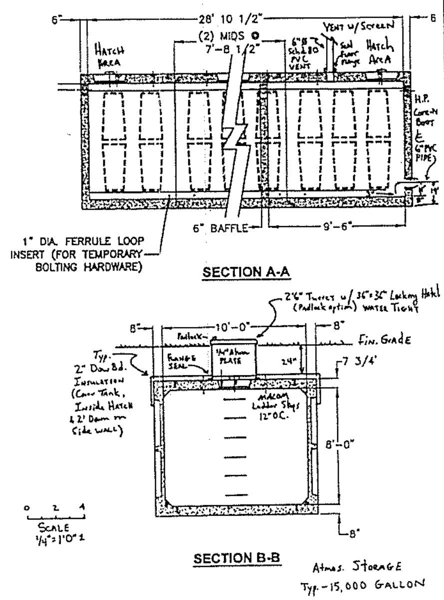
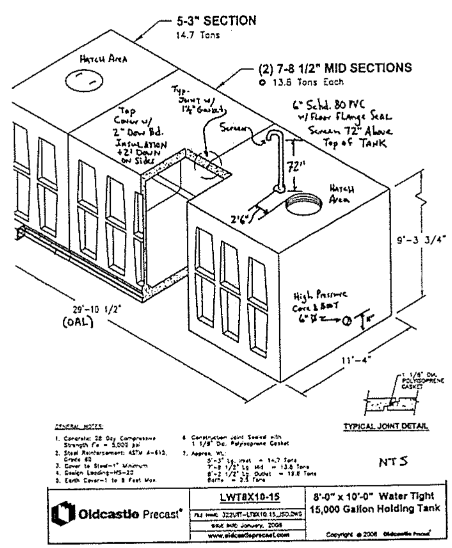
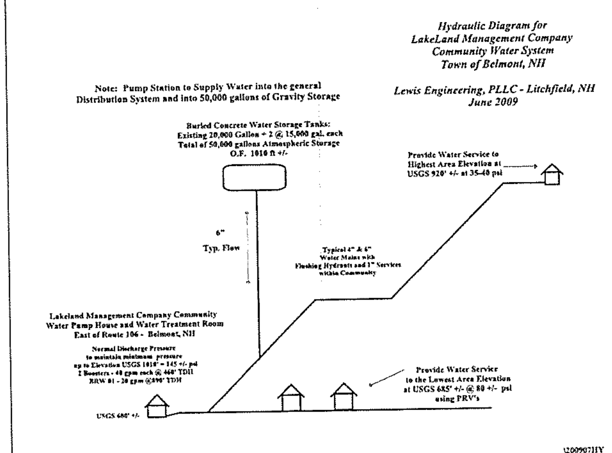

16'-4"
FINISH GRADE ELV=1012.00'
2'-6" TURRET WITH 36"x36" LOCKING HATCH
2:1 FINISH SLOPE
2" DOW BOARD INSULATION COVERING ENTIRE TOP OF TANK AND 2' ON SIDES, INCLUDING ALL SIDES OF TURRET HATCH
5'-0"
24" DIA MANWAY
10'-0"
8'-0"
9'-4"
2'-0"
1009.67' (TOP OF TANK)
1009' (TOP OF INSIDE TANK)
FINISH GRADE ELV=1010.00'
NEW 6"x90° PVC BEND ROTATE AS NECESSARY
EXISTING 6"ø C-900 PVC WATER MAIN
NEW 6"ø C-900 PVC WATER MAIN
1001' (BOTTOM OF INSIDE TANK)
1000.33' (BOTTOM OF TANK)
TANKS POURED ON UNDISTURBED EARTH
CORE & BOOT 6"ø PVC
APPROX EXISTING GRADE
±5'-0" FROM EXISTING GRADE
5'-8"
11'-4"

TANK CROSS-SECTION

NTS




5-3" SECTION
14.7 Tons
(2) 7-8 1/2" MID SECTIONS
13.6 Tons Each
Hatch Area
6" Schd. 80 PVC w/ Floor Flange Seal, Screen 72" Above Top of TANK
72"
2'6"
9'-3 3/4"
29'-10 1/2" (OAL)
11'-4"
High Pressure Core & Boot
TYPICAL JOINT DETAIL
NTS
LWT8X10-15
8'-0" x 10'-0" Water Tight 15,000 Gallon Holding Tank
Oldcastle Precast


Hydraulic Diagram for
LakeLand Management Company
Community Water System
Town of Belmont, NH
Lewis Engineering, PLLC - Litchfield, NH
June 2009
Note: Pump Station to Supply Water into the general Distribution System and into 50,000 gallons of Gravity Storage
Buried Concrete Water Storage Tanks:
Existing 20,000 Gallon + 2 @ 15,000 gal. each
Total of 50,000 gallons Atmospheric Storage
O.F. 1010 ft +/-
Provide Water Service to Highest Area Elevation at USGS 920' +/- at 35-40 psi
6" Typ. Flow
Typical 4" & 6" Water Mains with Flushing Hydrants and 1" Services within Community
Lakeland Management Company Community Water Pump House and Water Treatment Room East of Route 106 - Belmont, NH
Provide Water Service to the Lowest Area Elevation at USGS 685' +/- @ 80 +/- psi using PRV's
USGS 680' +/-
1200907HY

LEWIS ENGINEERING, PLLC

SHEET 2 OF 3 TANK CONSTRUCTION CWS - EPA # 0202010 WATER STORAGE IMPROVEMENTS BELMONT, NEW HAMPSHIRE				
DRAWN BY: SWERZ CONSULTING LLC	DRAWING DATE: MAY 2009	CONSTRUCTION DATE: -	INSTALLED BY: -	
ENGINEER: B. LEWIS	INSPECTOR: -	ASBUILT NO.: -	APPROX SCALE: AS NOTED	SHEET NO.: 2

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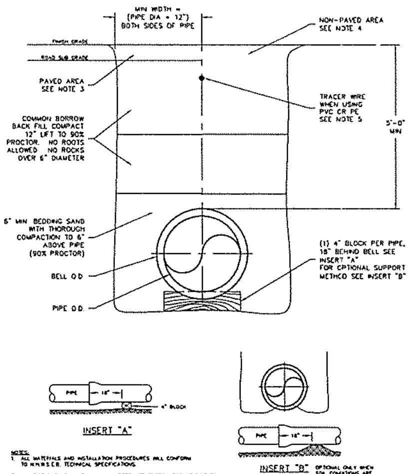
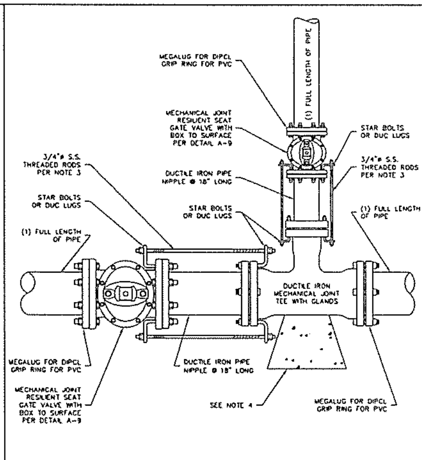
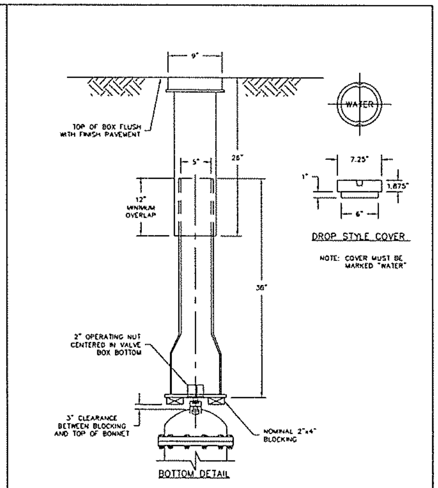


DETAIL A-2
TYPICAL TRENCH DETAIL
LEWIS ENGINEERING, PLLC
REV: 4-04 SCALE: NTS

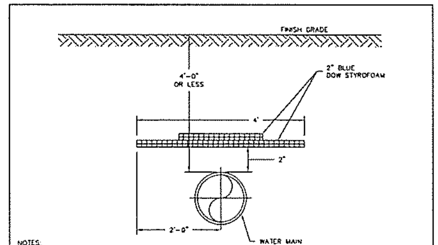


DETAIL A-6
TYPICAL TEE INSTALLATION
LEWIS ENGINEERING, PLLC
REV: 4-04 SCALE: NTS



NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO STATE WATER WORKS REGULATORY AGENCY TECHNICAL SPECIFICATIONS
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.

DETAIL A-9
TYPICAL VALVE BOX DETAIL
LEWIS ENGINEERING, PLLC
REV: 7-08 SCALE: NTS



NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO N.H.W.S.E.B. TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 7' FROM TOP OF PIPE TO FINISH GRADE.
3. N.H.W.S.E.B. RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
4. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH 2" PIECE OF INSULATION CENTERED OVER SEAM.

DETAIL A-31
TYPICAL INSULATION DETAIL FOR LESS THAN 4'-0" OF COVER
LEWIS ENGINEERING, PLLC
REV: 4-06 SCALE: NTS

LAKELAND MGT. CO., COMMUNITY WATER SYSTEM
BELMONT, NEW HAMPSHIRE
PWS# 0202010 - WATER STORAGE SYSTEM NOTES
Current Revision: June 2009

1. All distribution material including; mains, fittings, and valves to meet applicable New Hampshire Department of Environmental Services – Drinking Water and Groundwater Bureau, (NHDES-DWGB) and American Water Works Association (AWWA) standards. All materials used on this project shall be American Made from an approved U.S. manufacturer.
2. All installation of material to conform to applicable NHDES-DWGS and AWWA standards and specifications for public water supply systems.
3. All valves, tees, bends, and their related joints and fittings are to be epoxy coated and properly restrained using approved PVC "Mega-Lug", or equal, retainer kits.
4. All water main and appurtenances shall be manufactured and supplied in accordance with the most current applicable AWWA standards. All water main and appurtenances shall be an approved AWWA C-900, 150 psi (min.) PVC water main. Pipe sizing shall be 6" as shown on plans approved by the NHDES-DWGB. All water main shall be installed with a minimum of 66" of cover, and shall be properly sand bedded and backfilled with suitable material.
5. Gate valves shall be installed at locations shown on the Water Storage Utility Plans. All gate valves shall be AWWA approved, epoxy coated, resilient wedge type, being OPEN LEFT (counter clockwise). Valve boxes shall be AWWA approved, slip type with 36" base, 36" top, and cover shall be a one-piece cast cover labeled "WATER".
6. Prior to final acceptance, all water main shall be pressure tested in accordance with the latest provisions of AWWA C-600.
7. All water main and the new water storage facilities shall be flushed and disinfected in accordance with AWWA C-651. Written certification of testing and bacteriological test results shall be provided through a State Certified laboratory.
8. A Record Drawing shall be provided following installation, in accordance with NHDWGB standards.

SERIES F1R ACCESS DOOR

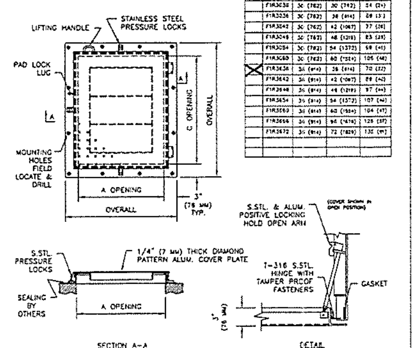
HALLIDAY PRODUCTS
www.HallidayProducts.com
Phone 800-298-1027
Fax 407-298-4534
Sales@HallidayProducts.com

STANDARD FEATURES:
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- TYPE-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- STAINLESS STEEL PRESSURE LOCKS
- 1/4" (7 MM) NEOPRENE GASKET
- PADLOCK LUG
- SINGLE LEAF CONSTRUCTION
- 625 LBS. PER SQ. FT. LOAD RATING (28 KG. PER SQ. MTER LOAD RATING)
- EXTRUDED ALUMINUM FRAME
- LIFETIME GUARANTEE

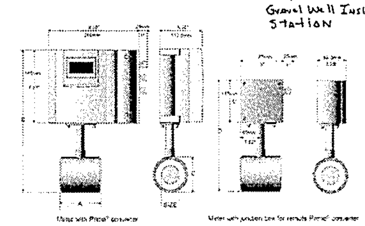
2 REQ'D per Tank

STANDARD SIZES

QTY	MODEL NO.	A DIM. INCHES (MM)	C DIM. INCHES (MM)	UNIT WT. LBS. (KG.)
	F1R2424	24 (610)	24 (610)	46 (21)
	F1R2430	24 (610)	30 (762)	51 (23)
	F1R2436	24 (610)	36 (914)	61 (28)
	F1R2442	24 (610)	42 (1067)	77 (35)
	F1R2448	24 (610)	48 (1219)	83 (38)
	F1R3030	30 (762)	30 (762)	54 (24)
	F1R3036	30 (762)	36 (914)	69 (31)
	F1R3042	30 (762)	42 (1067)	77 (35)
	F1R3048	30 (762)	48 (1219)	83 (38)
	F1R3054	30 (762)	54 (1372)	98 (45)
	F1R3060	30 (762)	60 (1524)	106 (48)
X	F1R3636	36 (914)	36 (914)	70 (32)
	F1R3642	36 (914)	42 (1067)	89 (40)
	F1R3648	36 (914)	48 (1219)	97 (44)
	F1R3654	36 (914)	54 (1372)	107 (49)
	F1R3660	36 (914)	60 (1524)	104 (47)
	F1R3666	36 (914)	66 (1676)	128 (58)
	F1R3672	36 (914)	72 (1829)	135 (61)



2" METER FOR Gravel Well Inside Station



inches	mm	A inch	A mm	B inch	B mm	C inch	C mm	D inch	D mm	Est. Weight with Primo Lbs	Est. Weight with Primo Kg	Flow Range GPM Min	Flow Range GPM Max	Flow Range LPM Min	Flow Range LPM Max
1"	25	4	100	14	343	3	74	11.2	286	20	9.0	0.24	53	0.92	305
1 1/4"	32	4	100	14.5	369	3.4	85	11.7	297	22	10.0	0.4	126	1.45	477
1 1/2"	40	4	100	14.8	373	3.8	96	12	307	23	10.5	0.6	181	2.1	687
2"	50	4	100	15.4	385	4.4	110	12.6	322	28	12.5	1.0	323	3.7	1223
2 1/2"	65	6	150	16.2	405	5.2	130	13.5	342	54	24.5	1.5	504	5.8	1910
3"	80	6	150	16.6	415	5.5	140	13.8	352	56	25.5	2.2	727	8.3	2751
4"	100	6	150	17.4	435	6.4	160	14.4	372	58	26.5	4.0	1297	14.6	4902

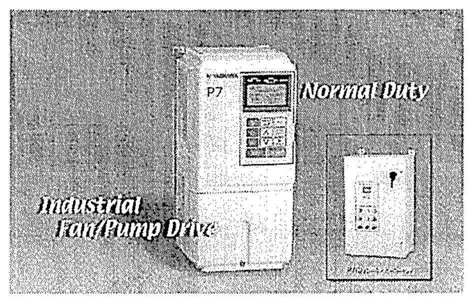
★

SPECIFICATIONS

Flow Range: 0.1 - 33 fps (0.03-10 m/s)
Sizes: 1" to 4" (25 to 100 mm)
Min. Conductivity: ≥ 0.5 micromhos/cm
Accuracy: ± 0.25% accuracy of rate from 1-33 fps; ± 0.5% accuracy of rate from .1-1 fps
Electrode Materials: Standard: Alloy C; Optional: 316 Stainless Steel, Gold/Platinum Plated, Tantalum, Platinum/Rhodium
Liner Material: PTFE
Fluid Temperature: With Remote Converter: PTFE 311°F (155°C); With Meter Mounted Converter: PTFE 212°F (100°C)
Pressure Limits: 580 psi (40 bar)
Coil Power: Pulsed DC
Ambient Temperature: -4°F to 122°F (-20°C to 50°C)
Pipe Spool Material: 316 Stainless Steel
Meter Enclosure Material: Carbon Steel welded
Meter Enclosure Classification: Nema 4
Junction Box Enclosure Protection: (For Remote Converter Option) Powder coated die-cast aluminum: Nema 4
Cable Entries: 1/2" NPT Cord Grip

Please see our website at www.badgermeter.com for specific regions and contacts

BadgerMeter, Inc.



P7 Drive, 5 - 500 HP

P7 - Drives for 7.5 H.P. Pumps Inside Station (Gravel Well)

YASKAWA
P7 Drive

<table>
<tr><td colspan="2">LEWIS ENGINEERING PLLC
44 Stark Lane
Litchfield, NH 03052</td><td colspan="3">SHEET 3 OF 3
CONSTRUCTION DETAILS
CWS - EPA # 0202010
WATER STORAGE IMPROVEMENTS
BELMONT, NEW HAMPSHIRE</td></tr>
<tr><td>DRAWN BY
SWIERZ CONSULTING, LLC</td><td>DRAWING DATE
MAY 2009</td><td>CONSTRUCTION DATE
-</td><td colspan="2">INSTALLED BY
-</td></tr>
<tr><td>ENGINEER
B. LEWIS</td><td>INSPECTOR
-</td><td>ASBUILT NO.
-</td><td>APPROX. SCALE
AS NOTED</td><td>SHEET NO.
3</td></tr>
</table>

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DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-7

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-7
Please indicate why the company believes two precast tanks are the preferred alternative for the proposed storage.

Answer 1-7: When looking at the plan view of the existing and proposed tanks on Lewis Co's plans, 2 precast tanks just fit between the property line and PSNH's easement. At that location, they maintain an elevation that the existing tank has. The Company is assuming that a precast tank costs less money than a poured-in-place tank, but that option may be considered.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-8

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-8
Does the company either own the land or have an adequate easement where the additional storage is proposed?

Answer 1-8: Adequate easement.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-9

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-9
Do any remote alarms exist in the current system? Are any anticipated as part of the proposed improvements? Please explain.

Answer 1-9: There is an existing alarm on the existing tank consisting of a low water float attached to a dialer. No other remote alarms are being considered at this time.

DW 09-128
Lakeland Management Company, Inc.
Staff Data Requests – Set 1

Date Request Received 07/20/09
Request No Staff 1-10

Date of Response 07/27/09
Witness: Wade Crawshaw

Staff 1-10
Does the company anticipate putting the project out to bid? If not, please explain.

Answer 1-10: The Company would like to bid major equipment components: tanks, pipes, valves, VFD's, meter and earth materials. The Company has already arranged for heavy equipment work (except for a crane). Buy American, Davis Bacon, WEBE, rules apply because the funding is federal government money (ARRA).

d/cli/5629intans

DAVID W JORDON
JORDON GFROERER & WEDDLETON
4 PARK STREET
CONCORD NH 03301-6329

Docket #: 09-128 Printed: August 06, 2009

FILING INSTRUCTIONS: PURSUANT TO N.H. ADMIN RULE PUC 203.02(a),

WITH THE EXCEPTION OF DISCOVERY, FILE 7 COPIES (INCLUDING COVER LETTER) TO:

DEBRA A HOWLAND
EXEC DIRECTOR & SECRETARY
NHPUC
21 SOUTH FRUIT STREET, SUITE 10
CONCORD NH 03301-2429

PURSUANT TO N.H. ADMIN RULE 203.09 (d), FILE DISCOVERY

DIRECTLY WITH THE FOLLOWING STAFF

RATHER THAN WITH THE EXECUTIVE DIRECTOR

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CONCORD NH 03301-2429

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CONCORD NH 03301-2429

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Upon request, Staff may waive receipt of some of its multiple copies of bulk materials filed as data responses. Staff cannot waive other parties' right to receive bulk materials.

Docket #: Printed: August 06, 2009

DISCOVERY