CHAIRMAN Martin P. Honigberg

COMMISSIONERS Robert R. Scott Kathryn M. Bailey

EXECUTIVE DIRECTOR Debra A. Howland

THE STATE OF NEW HAMPSHIRE



PUBLIC UTILITIES COMMISSION 21 S. Fruit Street, Suite 10 Concord, N.H. 03301-2429

DW 16-220

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HPUC 25MAR'16AH11:07

March 25, 2016

Debra A. Howland Executive Director New Hampshire Public Utilities Commission 21 S. Fruit St., Suite 10 Concord, New Hampshire 03301

Re: DW 16-220, Pennichuck Water Works, Inc.
 Water Infrastructure and Conservation Adjustment (WICA)
 2016 Surcharge and 2016-18 Capital Projects
 Recommendation for Approval

Dear Ms. Howland:

On February 2, 2016, Pennichuck Water Works, Inc. (PWW), filed a petition for certain approvals under its current WICA tariff provision. PWW's WICA is a pilot program originally authorized by Order 25,230 (June 9, 2011), in Docket No. DW 10-091. PWW's petition seeks: (1) approval of a WICA surcharge of 3.04%, based on completed, in-service, 2013, 2014, and 2015 projects; (2) approval of its proposed 2016 WICA projects; and (3) preliminary approval of PWW's 2017 WICA projects. A WICA project list for construction in 2018 was also provided for informational purposes. Accompanying the petition was the testimony of Donald L. Ware, Chief Operating Officer of PWW. After review of the petition and discovery, Staff recommends approval of a 2016 surcharge of 3.03%, and a 2016 project list totaling an estimated \$5.02 million. Staff also recommends preliminary approval of the 2017 project list estimated to total \$5.31 million.

Following the company's filing, Staff proposed an informal procedural schedule for review of the filing. The Office of the Consumer Advocate did not participate in this docket. Staff submitted discovery requests to PWW as necessary, and the responses are attached. Staff also engaged the services of Douglas W. Brogan, an engineering consultant, to review the technical and engineering aspects of the filing. Mr. Brogan asserts that the 2015 projects were completed in a prudent manner, and that PWW's proposed 2016-2018 WICA projects appear reasonable. Mr. Brogan's memorandum summarizing his review and findings is attached to this letter. DW 16-220 Pennichuck Water Works, Inc. WICA Staff Recommendation for Approval Page 2 of 2

In addition, the Commission Audit Staff audited the actual costs of the completed 2015 projects, and that report is attached. Mr. Jayson Laflamme, Senior Analyst in the Commission's Gas and Water Division reviewed the financial aspects of the filing, including the calculation of the proposed 2016 surcharge, and the bill impacts of the proposed WICA surcharge. He points out that the small difference in the recommended WICA surcharge from that requested in the filing results from certain corrections that were required as a result of Staff's discovery. In addition, Mr. Laflamme explains that inclusion of the completed 2015 WICA projects into the surcharge represents an increase of about \$0.57 per month to an average residential customer. Mr. Laflamme's memorandum, summarizing his review and providing explanation of the recommended 2016 surcharge of 3.03%, is attached to this letter.

Consistent with its tariff and the Commission's approval in Docket No. DW 15-043, PWW requests the 2016 WICA surcharge be effective on a bills-rendered basis as of June 1, 2016. This billing format eliminates the need for proration of the WICA surcharge.

In summary, Staff recommends that the Commission approve a WICA surcharge of 3.03%, to be applied to all customer bills on a bills-rendered basis as of June 1, 2016, representing recovery of 2013, 2014, and 2015 WICA projects. Staff also recommends approval of the 2016 WICA project list and preliminary approval of the 2017 projects.

If the Commission requires additional information, please so advise.

Sincerely,

Marg G. Deylon

Mark A. Naylor Director, Gas & Water Division

Attachments:

February 9, 2016 Revised Attachments to Ware Testimony PWW Responses to Staff Discovery, Sets 1 and 2 March 21, 2016 Memo from D. Brogan March 22, 2016 Memo from J. Laflamme March 9, 2016 Audit Report of B. Nelson

cc: Docket-Related Service List

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

Executive.Director@puc.nh.gov amanda.noonan@puc.nh.gov carolann.howe@pennichuck.com donald.ware@pennichuck.com james.brennan@oca.nh.gov jay.kerrigan@pennichuck.com jayson.laflamme@puc.nh.gov larry.goodhue@pennichuck.com mark.naylor@puc.nh.gov ocalitigation@oca.nh.gov robyn.descoteau@puc.nh.gov rorie.patterson@puc.nh.gov steve.frink@puc.nh.gov

Docket #: 16-220-1 Printed: March 25, 2016

FILING INSTRUCTIONS:

a) Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with: DEBRA A HOWLAND

DEBRA A HOWLAND EXECUTIVE DIRECTOR NHPUC 21 S. FRUIT ST, SUITE 10 CONCORD NH 03301-2429

- b) Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.
- c) Serve a written copy on each person on the service list not able to receive electronic mail.



THOMAS B. GETZ Direct Dial: 603.230.4403 Email: thomas.gct/@mclane.com Admitted in NH 11 South Main Street, Suite 500 Concord, NH 03301 T 603.226.0400 F 603.230.4448

NHPUC 10FEB'16AM9:48

February 9, 2016

VIA ELECTRONIC MAIL AND HAND DELIVERY

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

Re: DW 16-220; Pennichuck Water Works, Inc. – Petition for Approval of Water Infrastructure and Conservation Adjustment (WICA) Proposed Projects

Dear Ms. Howland:

Enclosed for filing pursuant to Puc 203.02 (a) (1) please find an original and six copies of substitute versions of Attachment A and Attachment B to the testimony of Donald L. Ware in the above-captioned proceeding. The Attachments were revised to label schedules more clearly and re-number pages accordingly. In addition, a column deleted in one schedule during production was re-inserted. An electronic copy has also been filed with the Commission and the Office of Consumer Advocate as required by Puc 203.02 (a) (2) and (4).

Sincerely,

Thomas B. Getz

TBG:slb

Enclosures

cc: Office of Consumer Advocate

Attachment A Schedule 1

								Page 1 of 7
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11	2013 ¹		Actual	Investment (DW	13-358)		Depreciatio	on Expense
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14		Gross	Cost of			Net	Depreciation	Description
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16		Investment	Removal	(2) - (3)	Retirement	Investment (4) - (5)	Kale	Expense (6) x (7)
17	Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278
18	Contingency		- (,,	- (-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1.60%	
19	Paving	28,395	(2,839)	25,556	-	25,556	1.57%	401
20	Hydrants	59,164	(5,063)	54,101	(2,293)	51,808	2.24%	1,160
21	Services	241,199	(22,980)	218,219	(6,924)	211,295	2.34%	4,944
22	Valves	69,084	(6,908)	62,176	(2,174)	60,002	1.60%	960
23	Total	\$ 1,960,879	\$ (194,024)	\$ 1,766,855	\$ (25,813)	\$ 1,741,042		\$ 29,744
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30 31		Gross	Cost of			Net	Depreciation	Depreciation
30 31 32		Gross Investment	Cost of Removal ⁸	Book Cost	Retirement	Net Investment	Depreciation Rate ⁷	Depreciation Expense
30 31 32 33				(2) - (3)	Retirement			
30 31 32 33	Mains				Retirement	Investment	Rate ⁷	Expense
30 31 32 33 34 35	Contingency	Investment	Removal ⁸	(2) - (3)		Investment (4) - (5)	Rate 7	Expense (6) x (7)
30 31 32 33 34 35 36	Contingency Paving	Investment \$ 2,744,191	Removal ⁸ (273,203)	(2) - (3) \$ 2,470,988 -	\$ -	Investment (4) - (5) \$ 2,470,988 - -	Rate ⁷ 1.60% 1.60% 1.57%	Expense (6) x (7) \$ 39,536
30 31 32 33 34 35 36 37	Contingency Paving Hydrants	Investment \$ 2,744,191 35,249	Removal ⁸ (273,203) - (3,525)	(2) - (3) \$ 2,470,988 - 31,724	\$ - - (215)	Investment (4) - (5) \$ 2,470,988 - - 31,509	Rate ⁷ 1.60% 1.60% 1.57% 2.24%	Expense (6) x (7) \$ 39,536 - 706
30 31 32 33 34 35 36 37 38	Contingency Paving Hydrants Services	Investment \$ 2,744,191 - 35,249 82,444	Removal ⁸ (273,203) - (3,525) (8,244)	(2) - (3) \$ 2,470,988 - 31,724 74,200	\$ - (215) (1)	Investment (4) - (5) \$ 2,470,988 - - 31,509 74,199	Rate ⁷ 1.60% 1.60% 1.57% 2.24% 2.34%	Expense (6) x (7) \$ 39,536 - 706 1,736
30 31 32 33 34 35 36 37	Contingency Paving Hydrants	Investment \$ 2,744,191 35,249	Removal ⁸ (273,203) - (3,525)	(2) - (3) \$ 2,470,988 - 31,724	\$ - - (215)	Investment (4) - (5) \$ 2,470,988 - - 31,509	Rate ⁷ 1.60% 1.60% 1.57% 2.24%	Expense (6) x (7) \$ 39,536 - 706
30 31 32 33 34 35 36 37 38 39	Contingency Paving Hydrants Services Valves	Investment \$ 2,744,191 35,249 82,444 10,031	Removal ⁸ (273,203) - (3,525) (8,244) (1,003)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028	\$ - (215) (1) (538)	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490	Rate ⁷ 1.60% 1.60% 1.57% 2.24% 2.34%	Expense (6) x (7) \$ 39,536 - 706 1,736 136
30 31 32 33 34 35 36 37 38 39 40 41 42	Contingency Paving Hydrants Services Valves	Investment \$ 2,744,191 35,249 82,444 10,031	Removal ⁸ (273,203) - (3,525) (8,244) (1,003)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028	\$ - (215) (1) (538)	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490	Rate ⁷ 1.60% 1.60% 1.57% 2.24% 2.34%	Expense (6) x (7) \$ 39,536 - 706 1,736 136
30 31 32 33 34 35 36 37 38 39 40 41 42 43	Contingency Paving Hydrants Services Valves	Investment \$ 2,744,191 35,249 82,444 10,031	Removal ⁸ (273,203) - (3,525) (8,244) (1,003)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028	\$ - (215) (1) (538)	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490	Rate ⁷ 1.60% 1.60% 1.57% 2.24% 2.34%	Expense (6) x (7) \$ 39,536 - 706 1,736 136
30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	Contingency Paving Hydrants Services Valves Total	Investment \$ 2,744,191 35,249 82,444 10,031	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940	\$ (215) (1) (538) \$ (754)	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490	Rate 7 1.60% 1.60% 1.57% 2.24% 2.34% 1.60%	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114
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30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	Contingency Paving Hydrants Services Valves Total	Investment \$ 2,744,191 35,249 82,444 10,031 \$ 2,871,915	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940	\$ (215) (1) (538) \$ (754)	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490 \$ 2,585,186	Rate 7 1.60% 1.50% 2.24% 2.34% 1.60% Depreciation	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114 on Expense
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30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	Contingency Paving Hydrants Services Valves Total 2015 ³ Mains	Investment \$ 2,744,191 35,249 82,444 10,031 \$ 2,871,915 Gross Investment	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975) \$ (285,975)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940 Actual Investment (2) - (3) \$ 2,780,473	\$ - (215) (1) (538) \$ (754) t	Investment (4) - (5) \$ 2,470,988 - 31,509 74,199 8,490 \$ 2,585,186 \$ 2,585,186 \$ 2,585,186	Rate 7 1.60% 1.57% 2.24% 2.34% 1.60% Depreciation Rate 7 1.60%	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114 on Expense Depreciation Expense (6) x (7)
30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54	Contingency Paving Hydrants Services Valves Total 2015 ³ Mains Contingency	Investment \$ 2,744,191 \$ 35,249 \$ 82,444 10,031 \$ 2,871,915 \$ 2,871,915 Gross Investment \$ 3,089,415	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975) \$ (285,975) Cost of Removal ⁸ \$ (308,941)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940 Actual Investment (2) - (3) \$ 2,780,473 \$ -	\$	Investment (4) - (5) \$ 2,470,988 - - - - - - - - - - - - -	Rate 7 1.60% 1.57% 2.24% 2.34% 1.60% Depreciation Rate 7 1.60% 1.60%	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114 on Expense Depreciation Expense (6) x (7) \$ 45,098 \$ -
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30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 50 51 52 53 54 55 56	Contingency Paving Hydrants Services Valves Total 2015 ³ 2015 ³ Mains Contingency Paving Hydrants Services Valves	Investment \$ 2,744,191 35,249 82,444 10,031 \$ 2,871,915 Gross Investment \$ 3,089,415 44,436 76,976 76,496 10,558	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975) (285,975) (285,975) (285,975) (285,975) (285,975) (285,975) (308,941) (4,444) (7,698) (7,650) (1,056)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940 Actual Investment (2) - (3) \$ 2,780,473 \$ - \$ 39,993 \$ 69,278 \$ 68,846 \$ 9,502	\$ 	Investment (4) - (5) \$ 2,470,988 - - 31,509 74,199 8,490 \$ 2,585,186 Net Investment (4) - (5) \$ 2,818,594 - 39,993 78,795 71,473 12,497	Rate 7 1.60% 1.50% 2.24% 2.34% 1.60% Depreciation Rate 7 1.60% 1.60% 1.57% 2.24%	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114 on Expense (6) x (7) \$ 45,098 \$ - \$ 628 \$ 1,765 \$ 1,672 \$ 200
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30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 50 51 52 53 54 55 56 57	Contingency Paving Hydrants Services Valves Total 2015 ³ 2015 ³ Mains Contingency Paving Hydrants Services Valves	Investment \$ 2,744,191 35,249 82,444 10,031 \$ 2,871,915 Gross Investment \$ 3,089,415 44,436 76,976 76,496 10,558	Removal ⁸ (273,203) (3,525) (8,244) (1,003) \$ (285,975) (285,975) (285,975) (285,975) (285,975) (285,975) (285,975) (308,941) (4,444) (7,698) (7,650) (1,056)	(2) - (3) \$ 2,470,988 31,724 74,200 9,028 \$ 2,585,940 Actual Investment (2) - (3) \$ 2,780,473 \$ - \$ 39,993 \$ 69,278 \$ 68,846 \$ 9,502	\$ 	Investment (4) - (5) \$ 2,470,988 - - 31,509 74,199 8,490 \$ 2,585,186 Net Investment (4) - (5) \$ 2,818,594 - 39,993 78,795 71,473 12,497	Rate 7 1.60% 1.57% 2.24% 2.34% 1.60% Depreciation Rate 7 1.60% 1.57% 2.24% 2.34%	Expense (6) x (7) \$ 39,536 - 706 1,736 136 \$ 42,114 on Expense (6) x (7) \$ 45,098 \$ - \$ 628 \$ 1,765 \$ 1,672 \$ 200

Attachment A Schedule 1 Page 2 of 7

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6								
1	(1)	(2)	(7)	<i>(</i> n)			-	
8	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2								
01							:	
62	2016 4		P	Projected Investme	nt		Depreciati	on Expense
63								
64 65								
65		Gross	Cost of			Net	Depreciation	Depreciation
66		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
67				(2) - (3)		(4) - (5)		(6) x (7)
68	Mains	\$ 4,188,000	\$ (418,800)	\$ 3,769,200	\$ -	\$ 3,769,200	1.60%	\$ 60,307
69	Contingency	418,800	(41,880)	376,920	-	376,920	1.60%	6,031
70	Paving	292,330	(29,233)	263,097	-	263,097	1.57%	4,131
71	Hydrants	40,752	(4,075)	36,677	=	36,677	2.24%	822
72 73	Services	64,077	(6,408)	57,669	-	57,669	2.34%	1,349
73	Valves Total	\$ 5,018,743	<u>(1,478)</u> \$ (501,874)	13,306		13,306 \$ 4,516,869	1.60%	\$ 72,852
74	TUR	J,010,743	a (JU1,0/4)	9 4,510,809		J 4,J10,009	ł	J 12,0J2
75		<u></u>	··· ··		The same of the		- <u></u>	
77								
78				· · · · · · · · · · · · · · · · · · ·				
79	2017 ⁵		T	Projected Investme	-*		Depresiati	on Expense
80	2017		r	Tojecteu Investine	ш		Depreciau	on Expense
81								
82		Gross	Cost of			Net	Depreciation	Depreciation
83		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
84		Investment	Removal	(2) - (3)	Reurement	(4) - (5)	Kate	(6) x (7)
85	Mains	\$ 4,493,000	\$ (449,300)	\$ 4,043,700	<u>s</u> -	\$ 4,043,700	1.60%	\$ 64,699
86	Contingency	449,300	(44,930)	404,370		404,370	1.60%	\$ 6,470
87	Paving	250,000	(25,000)	225,000	_	225,000	1.57%	\$ 3,533
88	Hydrants	40,752	(4,075)	36,677	_	36,677	2.24%	\$ 822
	Services	10,102	(1,075)	•				
89	JCI VICES	64.077	(6.408)	57.669	-	57,669	2.34%	3 1.3491
89 90	Valves	64,077 14,784	(6,408) (1,478)	57,669 13,306	-	57,669 13,306	2.34%	\$ 1,349 \$ 213
90		14,784	(1,478)	13,306		13,306	2.34% 1.60%	\$ 213
90 91	Valves		(1,478)	13,306	<u>-</u>		1	\$ 213
90 91 92	Valves	14,784	(1,478)	13,306	<u>-</u> <u>-</u>	13,306	1	\$ 213
90 91	Valves	14,784	(1,478)	13,306	<u>-</u>	13,306	1	\$ 213
90 91 92 93 94 95	Valves Total	14,784	(1,478)	13,306	<u>-</u>	13,306	1	\$ 213
90 91 92 93 94 95	Valves Total	14,784	(1,478) \$ (531,191)	<u>13,306</u> <u>\$ 4,780,722</u>		13,306	1.60%	\$ 213 \$ 77,086
90 91 92 93 94 95 96 97	Valves	14,784	(1,478) \$ (531,191)	13,306		13,306	1.60%	\$ 213
90 91 92 93 94 95 96 97	Valves Total	14,784	(1,478) \$ (531,191)	<u>13,306</u> <u>\$ 4,780,722</u>		13,306	1.60%	\$ 213 \$ 77,086
90 91 92 93 94 95	Valves Total	14,784	(1,478) \$ (531,191)	<u>13,306</u> <u>\$ 4,780,722</u>		13,306	1.60%	\$ 213 \$ 77,086
90 91 92 93 94 95 96 97 98 99	Valves Total	<u>14,784</u> <u>\$5,311,913</u>	(1,478) \$ (531,191) F	<u>13,306</u> <u>\$ 4,780,722</u>		<u>13,306</u> <u>\$ 4,780,722</u>	1.60%	\$ 213 \$ 77,086
90 91 92 93 94 95 96 97 98 99 100 101	Valves Total	<u>14,784</u> <u>\$5,311,913</u> Gross	(1,478) \$ (531,191) F Cost of	13,306 \$ 4,780,722 Projected Investme	nt	13,306 \$ 4,780,722 Net	Depreciation	\$ 213 \$ 77,086
90 91 92 93 94 95 96 97 98 99 100 101 102	Valves Total	<u>14,784</u> <u>\$5,311,913</u> Gross	(1,478) \$ (531,191) F Cost of	13,306 \$ 4,780,722 Projected Investme Book Cost	nt	13,306 \$ 4,780,722 Net Investment	Depreciation	\$ 213 \$ 77,086 ton Expense Depreciation Expense
90 91 92 93 94 95 96 97 98 99 100 101 102 103	Valves Totai 2018 ⁶	14,784 \$ 5,311,913 Gross Investment	(1,478) \$ (531,191) F Cost of Removal ⁸	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3)	nt Retirement	13,306 \$ 4,780,722 Net Investment (4) - (5)	Depreciation Rate ⁷	\$ 213 \$ 77,086 ton Expense Depreciation Expense (6) x (7)
90 91 92 93 94 95 96 97 98 99 100 101 102 103	Valves Total 2018 ⁶ Mains	Gross Investment \$ 5,490,000	(1,478) \$ (531,191) F Cost of Removal ⁸ \$ (549,000)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000	nt Retirement	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000	Depreciation Rate 7	\$ 213 \$ 77,086 ton Expense Depreciation Expense (6) x (7) \$ 79,056
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants	Gross Investment \$ 5,490,000 549,000	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (54,900) (25,000) (4,075)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677	nt Retirement	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677	Depreciation Rate 7 1.60% 1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 40,752 64,077	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (54,900) (25,000) (4,075) (6,408)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669	nt Retirement	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 250,000 40,752 64,077 14,784	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 40,752 64,077	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (54,900) (25,000) (4,075) (6,408)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669	nt Retirement	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 250,000 40,752 64,077 14,784	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 250,000 40,752 64,077 14,784	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 250,000 40,752 64,077 14,784	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes:	Id,784 \$ 5,311,913 Gross Investment \$ 5,490,000 549,000 250,000 40,752 64,077 14,784 \$ 6,408,613	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (54,900) (25,000) (4,075) (640,861) (1,478) (640,861)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total <u>Notes:</u> ¹ Based on PW	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 5,490,000 \$ 5,490,000 \$ 5,490,000 \$ 5,490,000 \$ 5,490,000 \$ 6,400,613 W's WICA Filing in	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (54,900) (25,000) (4,075) (6,408) (1,478) (640,861) DW 13-358.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total <u>Notes:</u> ¹ Based on PW	Id,784 \$ 5,311,913 Gross Investment \$ 5,490,000 549,000 250,000 40,752 64,077 14,784 \$ 6,408,613	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (54,900) (25,000) (4,075) (6,408) (1,478) (640,861) DW 13-358.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 \$ 40,752 \$ 64,077 \$ 14,784 \$ 6,408,613 W's WICA Filing in W's WICA Filing in	(1,478) \$ (531,191) Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) \$ (640,861) \$ (640,861) DW 13-358. DW 15-043.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 \$ 40,752 \$ 64,077 \$ 14,784 \$ 6,408,613	(1,478) \$ (531,191) \$ (531,191) F Cost of Removal ⁸ \$ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) \$ (640,861) \$ (640,861) \$ 0W 13-358. h DW 13-358. h DW 15-043. of 4.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116	Valves Total 2018 ⁶ 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta ⁴ Based on Atta	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 5,490,000 \$ 549,000 \$ 5,490,000 \$ 5,490,000 \$ 549,000 \$ 5,490,000 \$ 64,077 14,784 \$ 6,408,613 W's WICA Filing in w's WICA Filing in achment B, Page 1 c achment B, Page 2 c	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (640,861) DW 13-358. a DW 13-358. a DW 15-043. of 4.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117	Valves Total 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta ⁴ Based on Atta ⁵ Based on Atta	Gross Investment \$ 5,490,000 \$49,000 \$49,000 \$250,000 \$49,000 \$250,000 \$49,000 \$250,000 \$40,752 \$64,077 \$14,784 \$ 6,408,613 W's WICA Filing in w's WICA Filing in achment B, Page 1 of achment B, Page 2 of achment B, Page 3 of	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (640,861) DW 13-358. a DW 15-043. of 4. of 4. of 4.	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	nt Retirement \$ - - - -	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 111 112 113 114 115 116 117 118	Valves Total 2018 ⁶ 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta ⁵ Based on Atta ⁶ Based on Atta ⁶ Based on Atta	I4,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 \$ 40,752 \$ 64,077 \$ 14,784 \$ 6,408,613	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (1,478)	13,306 \$ 4,780,722 Projected Investme (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	nt Retirement S	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 111 112 113 114 115 116 117 118 119 119	Valves Total 2018 ⁶ 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta ⁵ Based on Atta ⁵ Based on Atta ⁶ Based on Atta ⁷ The Deprecia	I4,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 \$ 40,752 \$ 64,077 \$ 14,784 \$ 6,408,613	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (1,478)	13,306 \$ 4,780,722 Projected Investme (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	nt Retirement \$	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	Depreciation Rate 7 1.60% 1.60% 1.57% 2.24% 2.34% 1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213 \$ 92,878
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120	Valves Total 2018 ⁶ 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on PW ³ Based on Atta ⁵ Based on Atta ⁵ Based on Atta ⁶ Based on Atta ⁷ The Deprecia	I4,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 549,000 \$ 250,000 \$ 40,752 \$ 64,077 \$ 14,784 \$ 6,408,613	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (1,478)	13,306 \$ 4,780,722 Projected Investme (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	nt Retirement \$	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213 \$ 92,878
90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	Valves Total 2018 ⁶ 2018 ⁶ Mains Contingency Paving Hydrants Services Valves Total Notes: ¹ Based on PW ² Based on Atta ⁵ Based on Atta ⁵ Based on Atta ⁶ Based on Atta ⁷ The Deprecia ⁸ The Cost of I	14,784 \$ 5,311,913 Gross Investment \$ 5,490,000 \$ 5,490,000 \$ 549,000 \$ 549,000 \$ 5,490,000 \$ 64,077 14,784 \$ 6,408,613 W's WICA Filing in w's WICA Filing in achment B, Page 1 c achment B, Page 2 c achment B, Page 3 c achment B, Page 4 c tion Rates are based Removal for 2014 f 014 - 2018 are base	(1,478) (1,478) (531,191) (531,191) F Cost of Removal ⁸ (549,000) (54,900) (25,000) (4,075) (6,408) (1,478) (1,478)	13,306 \$ 4,780,722 Projected Investme Book Cost (2) - (3) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	nt Retirement \$	13,306 \$ 4,780,722 Net Investment (4) - (5) \$ 4,941,000 494,100 225,000 36,677 57,669 13,306 \$ 5,767,752	Depreciation Rate 7 1.60% 1.60% 1.57% 2.24% 2.34% 1.60%	\$ 213 \$ 77,086 Son Expense Depreciation Expense (6) x (7) \$ 79,056 \$ 7,906 \$ 3,533 \$ 822 \$ 1,349 \$ 213 \$ 92,878

	AB	С		E I		G		I
1	DW 1							
2	PENNICHUCK WA							
3	PROJECTED CALCULATION FOR COMPLETED CONSTR				C			
5	FOR COMPLETED CONSTR	UCTION YE	AKO	2013 - 2015				
6								
7								
8			_	Actual	_			
9 10		0010						
	Plant in Service:	2013		2014	-	2015		Total
	Gross Plant Investment (Att A; Sch 1; Col (2)) \$	1,960,879	S	2,871,915	\$	3,297,881	\$	8,130,675
13	Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	Č.	(285,975)		(329,788)		(809,788)
	Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)		(754)		53,259		26,692
15 16	Net Plant Investment	1,741,042		2,585,186	_	3,021,352		7,347,580
	Accumulated Depreciation:							
_	Depreciation Expense ¹ (Att A; Sch 1; Col (8)):							
	2013 Net Plant Investment	14,872		29,744		29,744		74,360
	2014 Net Plant Investment	-		21,057		42,114		63,171
	2015 Net Plant Investment					24,681		24,681
	Total Depreciation Expense Less: Cost of Removal (Att A; Sch 1; Col (3))	14,872 (194,024)		50,801		96,539 (320,788)		162,212
	Less: Cost of Removal (Att A; Sch 1; Col (3)) Less: Plant Retirements (Att A; Sch 1; Col (5))	(194,024) (25,813)		(285,975) (754)		(329,788) 53,259		(809,788) 26,692
_	Net Accumulated Depreciation	(204,965)		(235,928)		(179,989)		(620,883)
26								
	Net Plant in Service \$	1,946,007		2,821,114	\$	3,201,342	\$	7,968,463
	Pre-tax Rate of Return ²					7	x	6.17%
29 30	Return on Investment						\$	491,518
	Property Tax Expense ³ @	\$28.59		1 000				227,818
32	Property Tax Expense ' @	\$20.39	per .	\$1,000				227,010
	Annual Depreciation Expense (Att A; Sch 1; Col (8)):							
-	2013 Net Plant Investment							29,744
-	2014 Net Plant Investment							42,114
_	2015 Net Plant Investment Total Annual Depreciation Expense						_	49,363 121,221
38	Total Annual Depresation Expense							121,221
	2016 Cumulative Revenue Requirement						\$	840,557
	Less: 2015 Cumulative Revenue Requirement ⁴							(500,198)
	2016 Revenue Requirement						\$	340,358
42								
	Water Revenues per DW 13-130 ⁵						\$	27,689,214
44 45								
	2016 Revenue Surcharge %							1.23%
_	2016 Cumulative Revenue Surcharge %							3.04%
48							<u></u>	
49								1
_	Customer Impact:						c	20.24
	5/8 Inch Meter Monthly Charge Volumetric Charge						<u>\$</u>	20.34
	Average Single Family Residential Usage (CCF)						÷	7.88
54	Average Monthly Usage Charge						\$	26.00
	Total Average Monthly Charge						\$	46.34
56							•	0.55
	Average Monthly \$ Impact per Customer of 2016 Surcharge Average Monthly \$ Impact per Customer of 2016 Cumulative Surchar	rge.					<u>\$</u> \$	0.57
59	a composition of 2010 Cumulative Sulfilla	- B~					-	1.41
	Notes:							
61	¹ The half-year convention for depreciation expense is employed when	eby one-half o	of the	annual depre	ciatio	n		
62	expense is recorded in the first and last year of an asset's service life			-				
63	² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Filing							
64		eighted Cost	Ta	x Multiplier	P	re Tax Cost		
_	Debt Equity	5.59% 0.35%		1.000 1.656		5.59% 0.58%		
67		5.94%		1.050		6.17%		
68	³ City of Nashua 2015 Mill Rate of \$21.99 and State Utility Property		.60					
69	⁴ Attachment A; Schedule 2a							
70	⁵ Base rate revenue requirement approved in DW 13-130 by Commiss	sion Order No.	25.6	93 (7/15/14)				
L''	Date the revenue requirement approved in DW 15-150 by Commiss			(I I J I I -).				

Α	в	C I		E	R -	G	H	I.	J	к
1		DW 16-xx							-	
		CK WATER		100 Sec. 100						
3 PROJECTED										
4 FOR COMP		CONSTRUC'				D15				
4 FOR COMP 5 and PR 6 7 8 9	OJECTE	D CONSTRI	JCTI	ON YEAR 2	016					
7										
8				Actual			Pr	ojected		
9										
10		2013		2014		2015		2016		Total
11 Plant in Service:		1 0/0 070		0.071.016		0.000.001		5 010 T/2		12 140 410
12 Gross Plant Investment (Att A; Sch 1; Col (2)) 13 Less: Cost of Removal (Att A; Sch 1; Col (3))	\$	1,960,879 (194,024)	\$	2,871,915 (285,975)	\$	3,297,881 (329,788)	\$	5,018,743 (501,874)	3	13,149,418 (1,311,662)
14 Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		53,259		(501,674)		26,692
15 Net Plant Investment		1,741,042		2,585,186		3,021,352		4,516,869		11,864,449
16										
17 Accumulated Depreciation										
18 Depreciation Expense ¹ (Att A; Sch 1; Col (8)):										
19 2013 Net Plant Investment 20 2014 Net Plant Investment		14,872		29,744		29,744		29,744		104,104
21 2015 Net Plant Investment		-		21,057		42,114 24,681		42,114 49,363		105,284 74,044
22 2016 Net Plant Investment		-		-				36,426		36,426
23 Total Depreciation Expense		14,872		50,801		96,539		157,647	-	319,859
24 Less: Cost of Removal (Att A; Sch 1; Col (3))		(194,024)		(285,975)		(329,788)		(501,874)		(1,311,662)
25 Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		53,259		-		26,692
26 Net Accumulated Depreciation 27		(204,965)		(235,928)		(179,989)		(344,228)		(965,110)
27 28 Net Plant in Service	\$	1,946,007	\$	2,821,114	\$	3,201,342	\$	4,861,096	\$	12,829,559
29 Pre-tax Rate of Return ²	Ě	1,5 10,007	-	2,021,111	<u> </u>	5,501,512	-	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, T	6.17%
30 Return on Investment									^ <u>s</u>	791,365
31										
32 Property Tax Expense 3	a	\$28.59	per \$	1,000						366,797
33										
34 Annual Depreciation Expense(Att A; Sch 1; Col (8)):										
35 2013 Net Plant Investment										29,744
36 2014 Net Plant Investment 37 2015 Net Plant Investment										42,114 49,363
38 2016 Net Plant Investment										72,852
39 Total Annual Depreciation Expense										194,073
40										
41 2017 Cumulative Revenue Requirement									\$	1,352,235
42 Less: 2016 Cumulative Revenue Requirement ⁴										(840,557)
43 2017 Revenue Requirement										511,678
44 45 Water Revenues per DW 13-130 ⁵									c	27 690 214
45 Water Revenues per DW 15-150									-	27,689,214
40										
48 2017 Revenue Surcharge %										1.85%
49 2017 Cumulative Revenue Surcharge %										4.88%
50										
51										
52 Customer Impact									c	20.24
53 5/8 Inch Meter Monthly Charge 54 Volumetric Charge									5	20.34
55 Average Single Family Residential Usage (CCF)									4	7.88
56 Average Monthly Usage Charge									\$	26.00
57 Total Average Monthly Charge									\$	46.34
58										
59 Average Monthly \$ Impact per Customer of 2017 Surcharge									\$	0.86
60 Average Monthly \$ Impact per Customer of 2017 Cumulativ	e Surcharg	ge							\$	2.26
61 62 Notes:										
63 ¹ The half-year convention for depreciation expense is emplo	oved where	by one-half	fthe	annual denred	iatio	,				
64 expense is recorded in the first and last year of an asset's so		of one-mail 0	1 116	andar acpict		•				
65 ² Calculation of Pre-Tax Rate of Return (Based on PWW's R		in DW 13-13	0)							
66		eighted Cost		x Multiplier	P	e Tax Cost				
67 Debt		5.59%		1.000		5.59%				
68 Equity		0.35%		1.656		0.58%				
69	D	5.94%	(0)			6.17%				1
70 3 City of Nashua 2015 Mill Rate of \$21.99 and State Utility	Property T	ax Rate of \$6	.00.			54				
71 [•] Attachment A; Schedule 2b										
72 ³ Base rate revenue requirement approved in DW 13-130 by	Commissi	on Order No.	25,69	3 (7/15/14).						

	A B		с	d	E	F	G	H	I	J	ĸ	им
1				W 16						1-1		
2					ER WORKS							
3	PROJECTEI							0				
4					UCTION YE							
4 5 6	and PROJ	JEC.	ED CONS	IKU	CTION YEA	RS 2	2016 - 2017					
7												
7					Actual				Pro	ojecte	d	
9	-											
10			2013		2014		2015		2016		2017	Total
_	Plant Investment: Gross Plant Investment (Att A; Sch 1; Col (2))		1,960,879	s	2,871,915	s	3,297,881	s	5,018,743	s	5,311,913	\$ 18,461,331
_	Less: Cost of Removal (Att A; Sch 1; Col (2))		(194,024)		(285,975)		(329,788)		(501,874)	-	(531,191)	(1,842,853)
14	Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		53,259				-	26,692
	Net Plant Investment		1,741,042	_	2,585,186		3,021,352		4,516,869		4,780,722	16,645,170
16												
_	Accumulated Depreciation:											
	Depreciation Expense ¹ (Att A; Sch 1; Col (8)): 2013 Net Plant Investment		14,872		29,744		29,744		29,744		29,744	133,849
-	2014 Net Plant Investment		14,072		29,744		42,114		42,114		42,114	147,398
_	2015 Net Plant Investment		-		-		24,681		49,363		49,363	123,407
22	2016 Net Plant Investment		-				-		36,426		72,852	109,279
	2017 Net Plant Investment	_		_			-		-		38,543	38,543
	Total Depreciation Expense		14,872		50,801		96,539		157,647		232,616	552,475
	Less: Cost of Removal (Att A; Sch 1; Col (3)) Less: Plant Retirements (Att A; Sch 1; Col (5))		(194,024) (25,813)		(285,975) (754)		(329,788) 53,259		(501,874)	,	(531,191)	(1,842,853) 26,692
_	Net Accumulated Depreciation		(204,965)		(235,928)		(179,989)		(344,227	5 —	(298,575)	(1,263,686)
28			(_								
29	Net Plant in Service	\$	1,946,007	\$	2,821,114	S	3,201,342	5	4,861,096	5	5,079,297	\$ 17,908,856
30	Pre-tax Rate of Return ²											x 6.17%
-	Return on Investment											\$ 1,104,671
32												
	Property Tax Expense ¹ @		\$28.59	per !	\$1,000							512,014
34	Annual Depreciation Expense (Att A; Sch 1; Col (8)):											
	2013 Net Plant Investment											29,744
_	2014 Net Plant Investment											42,114
	2015 Net Plant Investment											49,363
_	2016 Net Plant Investment											72,852
_	2017 Net Plant Investment					2						77,086
41 42	Total Annual Depreciation Expense											271,159
	2018 Cumulative Revenue Requirement											\$ 1,887,843
_	Less: 2017 Cumulative Revenue Requirement *											(1,352,235)
	2018 Revenue Requirement											\$ 535,608
46												
	Water Revenues per DW 13-130 ⁵											\$ 27,689,214
48												
49												
	2018 Revenue Surcharge % 2018 Cumulative Revenue Surcharge %											1.93%
51	2010 Camulative Revenue Surcharge 70											0.82 76
53												
	Customer Impact:											
	5/8 Inch Meter Monthly Charge											\$ 20.34
	Volumetric Charge											\$ 3.30
	Average Single Family Residential Usage (CCF)											7.88
	Average Monthly Usage Charge Total Average Monthly Charge											\$ 26.00 \$ 46.34
60												4 10.54
	Average Monthly \$ Impact per Customer of 2018 Surcharge											\$ 0.90
62	Average Monthly \$ Impact per Customer of 2018 Cumulative Surcha	arge										\$ 3.16
63												
	Notes:	1000				134						
65	¹ The half-year convention for depreciation expense is employed whe	-	one-half of	the a	annual depreci	ation	ı					
66	expense is recorded in the first and last year of an asset's service lif		DW 14 144									
67 68	² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Film		DW 13-130 ghted Cost		ax Multiplier	p	re Tax Cost	1				
	Debt	CI	5.59%		1.000	_ <u>_</u>	5.59%					
	Equity	_	0.35%		1.656		0.58%					
71			5.94%				6.17%					
72	3 City of Nashua 2015 Mill Rate of \$21.99 and State Utility Property	y Tax	Rate of \$6	60.								
73	Attachment A; Schedule 2c											
74	⁵ Base rate revenue requirement approved in DW 13-130 by Commis	ssion	Order No. 2	5,69	3 (7/15/14).							

Attachment A Schedule 2d Page 6 of 7

							_	_				Page 6 o
A	В	С	D	E DW 16-xxx	F	G	H	1	1	K	<u>4 M</u>	0
1 2 3 4 5 6 7 8 9		PENNIC	CHU	CK WATER		RKS, INC.						
3	PROJE			ATION OF 2			HA	RGE				
4	FOR	COMPLET	ED C	ONSTRUCT	ION	YEARS 201	3 - 2(015				
5	and	PROJECTE	D CC	DNSTRUCTI	ON Y	YEARS 2016	- 201	18				
7												
8				Actual					P	rojected		
9			-				_					
10		2013		2014	2	2015		2016		2017	2018	Total
 Plant Investment: Gross Plant Investment (Att A; Sch 1; Col (2)) 	S	1,960,879	\$	2.871.915	s	3,297,881	S	5,018,743	s	5,311,913	\$ 6,408,613	\$ 24,869,944
13 Less: Cost of Removal (Att A; Sch 1; Col (3))	3	(194,024)		(285,975)	Þ	(329,788)	Ф	(501,874)	3	(531,191)	(640,861)	\$ 24,009,944 (2,483,714)
14 Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		53,259		-		-	(0.0,001)	26,692
15 Net Plant Investment		1,741,042		2,585,186		3,021,352	_	4,516,869		4,780,722	5,767,752	22,412,922
16 17 Accumulated Depreciation:												
18 Depreciation Expense ¹ (Att A; Sch 1; Col (8)):												
19 2013 Net Plant Investment		14,872		29,744		29,744		29,744		29,744	29,744	163,593
20 2014 Net Plant Investment				21,057		42,114		42,114		42,114	42,114	189,512
21 2015 Net Plant Investment		7		-		24,681		49,363		49,363	49,363	172,770
22 2016 Net Plant Investment 23 2017 Net Plant Investment		-		-		-		36,426		72,852	72,852	182,131
24 2018 Net Plant Investment		-		-		-		-		38,543	77,086 46,439	115,628 46,439
25 Total Depreciation Expense		14,872		50,801		96,539		157,647		232,616	271,159	823,634
26 Less: Cost of Removal (Att A; Sch 1; Col (3))		(194,024)		(285,975)		(329,788)		(501,874)		(531,191)	(640,861)	(2,483,714)
27 Less: Plant Retirements (Att A, Sch 1; Col (5))		(25,813)		(754)		53,259		-		-		26,692
28 Net Accumulated Depreciation 29		(204,965)		(235,928)		(179,989)		(344,227)		(298,575)	(369,703)	(1,633,388)
30 Net Plant in Service	\$	1,946,007	\$	2,821,114	\$	3,201,342	\$	4,861,096	S	5,079,297	\$ 6,137,454	\$ 24,046,310
31 Pre-tax Rate of Return ²							-					x 6.17%
32 Return on Investment												\$ 1,483,247
33												
34 Property Tax Expense ³	@	\$28.59	per 1	\$1,000								687,484
35 36 Annual Depreciation Expense (Att A; Sch 1; Col (8)):												
37 2013 Net Plant Investment												29,744
38 2014 Net Plant Investment												42,114
39 2015 Net Plant Investment												49,363
40 2016 Net Plant Investment												72,852
41 2017 Net Plant Investment												77,086
 42 2018 Net Plant Investment 43 Total Annual Depreciation Expense 												92,878
44												2/1,139
45 2018 Cumulative Revenue Requirement												\$ 2,441,889
46 Less: 2017 Cumulative Revenue Requirement 4												(1,887,843)
47 2018 Revenue Requirement												\$ 554,046
48												
49 Water Revenues per DW 13-130 ⁵												\$ 27,689,214
<u>50</u> 51												
52 2018 Revenue Surcharge %												2.00%
53 2018 Cumulative Revenue Surcharge %												8.82%
54												
55												
56 Customer Impact: 57 5/8 Inch Meter Monthly Charge												\$ 20.34
58 Volumetric Charge												<u>\$ 20.34</u> <u>\$ 3.30</u>
59 Average Single Family Residential Usage (CCF)												7.88
60 Average Monthly Usage Charge												\$ 26.00
61 Total Average Monthly Charge												\$ 46.34
62												
63 Average Monthly \$ Impact per Customer of 2018 Surcharge 64 Average Monthly \$ Impact per Customer of 2018 Cumulative	Surcharme											\$ 0.93 \$ 4.09
65												
65 66 Notes:												
	ed whereb	y one-half of	the an	nnual deprecia	tion							
66 Notes:		y one-half of	the a	nnual deprecia	tion							
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's se 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate)	rvice life. te Filing in	DW 13-130)									
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's se 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Ra 70 70	rvice life. te Filing in	DW 13-130 eighted Cost)	x Multiplier		re Tax Cost						
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's see 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Ra 70 71 71 Debt	rvice life. te Filing in	n DW 13-130 eighted Cost 5.59%)	<u>ix Multiplier</u> 1.000		5.59%						
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's se 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Ra 70 70	rvice life. te Filing in	DW 13-130 eighted Cost)	x Multiplier								
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's see 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Ra 70 71 71 Debt 72 Equity	rvice life. te Filing ir W	n DW 13-130 eighted Cost 5.59% 0.35% 5.94%) <u> </u>	<u>ix Multiplier</u> 1.000		5.59% 0.58%						
66 Notes: 67 ¹ The half-year convention for depreciation expense is employ 68 expense is recorded in the first and last year of an asset's se 69 ² Calculation of Pre-Tax Rate of Return (Based on PWW's Ra 70 71 71 Debt 72 Equity 73 73	rvice life. te Filing ir W	n DW 13-130 eighted Cost 5.59% 0.35% 5.94%) <u> </u>	<u>ix Multiplier</u> 1.000		5.59% 0.58%						

													Page 7 of 7
	E		D	E	F	G	H	I.		K	4	М	N
1		DW 16-xx											
		CK WATEI											1
3 SUMMARY O	F WIC	A SURCHA	RGE	CALCULA	TION	IS							
4 FOR APPROVED 2015 WICA		34 PM (1997)				A SURCHA	RGE						
3 SUMMARY 0 4 FOR APPROVED 2015 WICA 5 and PROJEC 6 7 8 9 10	TED	2017 - 2018	WICA	A SURCHAR	GES								1
		4 - 4 1		A				D 1					
	-	Actual		Actual			_	Proj	ected		_		
10		2014		2015		2016		2017		2018		2019	
11		2014	-	2015		2010		2017		2018		2019	
12 SUMMARY OF CALCULATIONS (Att A; Sch's 2):													
13													
14 Annual Revenue Requirement	\$	181,151	\$	319,047	\$	340,358	\$	511,678	\$	535,608	\$	554,046	
15 Cumulative Revenue Requirement	\$	181,151	\$	500,198	\$	840,557	\$	1,352,235	\$	1,887,843	\$	2,441,889	
16													
17													
18 Annual Revenue Surcharge %	-	0.67%	_	1.15%		1.23%		1.85%		1.93%		2.00%	
19 Cumulative Revenue Surcharge %		0.67%		1.81%		3.04%		4.88%		6.82%		8.82%	
20													
21													
22 Annual Average Monthly \$ Impact per Customer	\$	0.31	\$	0.53	S	0.57	5	0.86	\$	0.90	\$	0.93	
23 Cumulative Average Monthly \$ Impact per Customer	_\$	0.31	S	0.84	S	1.41	\$	2.26	S	3.16	\$	4.09	
24													
25 26													
27 PER MOST RECENT APPROVED RATE FILING DW15-0	143												
29 Annual Revenue Requirement	s	181,151	\$	319,047	S	529,073	\$	543,192	S	444,906			
30 Cumulative Revenue Requirement	ŝ	181,151	s	500,198		1,029,270	\$	1,572,463	ŝ	2,017,369			
31			-			1,012,9210	-		-	4017005	_		
32													1
33 Annual Revenue Surcharge %		0.67%		1.15%		1.91%		1.96%		1.61%			
34 Cumulative Revenue Surcharge %		0.67%		1.81%		3.72%		5.68%		7.29%		· · · · · · · · · · · · · · · · · · ·	
35											_		
36													
37 Annual Average Monthly \$ Impact per Customer	\$	0.31	\$	0.53	\$	0.89	S	0.91	\$	0.74			
38 Cumulative Average Monthly \$ Impact per Customer	\$	0.31	\$	0.84	\$	1.72	\$	2.63	\$	3.38			
39	-												

Attachment A Schedule 3

	T					Estimated LENGTH as of		Estimated LENGTH as of	EXISTING PIPE	PROPOSED NEW					END OF YEAR 2015 COSTS	ANTICIPATED FINAL PAVING COST IN 2016				1
PIPE SEGEMENT OR PROJECT NAME	CITY/TONIN	WORE ORDER	MATERIAL	Shag LEVERTH	3/30/2015 (PEET)	6/30/2013 (PEET)	\$/30/2015 (FUET)	12/21/2015 (FEET)	(INCHES)	DIPE DUAMETER	COST	STIMATED COST AS OF 3/31/2015	OF 6/30/2015	CATIMATED COST AS OF 9/90/2015	(color coded for same prejects)	FOR 2013 USED AND USEFUL PROJECTS	AGE OF POPE	PIPE AGE	FULLY	EXPLANATION
Chestrul Street (Lake to Lovel)	NASHUA	1502509	CAST INDIN UNLINED	735	735	735	7.15	706	6	15	5 314,000		5 114,000	5 297,375	\$ 236,617	\$\$3,000	1918-1924	70	753	Completed, Final Paving in 2015 est - \$53,000.00
Chestrut Street (Lovel to End)	NASHUA	1502509	CAST IRON UNLINED	263	263	161	263	197	6	12	\$ 105,000		\$ 105,000	\$ 139,300		\$30,000	1918-1925	70	YES	Completed, First Paving in 2016 est - \$30,000.00
Lovel Street (Chesnut to Aeh) * Lovell Street (Ash to Pine)	NASHUA NASHUA	1502510	CAST IRON UNUNID	420	420	420	420 750	400		12	\$ 185,000 \$ 269,000	\$ 1#5,000 \$ 761,000	\$ 185,000 \$ 269,000	\$ 141,150 \$ 197,500	\$ 193,776	\$31,000 \$62,000	1892-1898 1924 1934	70	YES	Completed, Final Paving in 2016 est - \$31,000.00 Completed, Final Paving in 2016 est - \$62,000.00
Lovel Street (Easterly of Chestrul to end)	NASHUA	1502510	GAVAJAZED SILE	187	187	187	117	303	1 1/4	-	\$ 48,000		5 48,000			\$23,000	1955	40	YES	Completed, Final Paving in 2016 est - \$23,000.00
Auto Simuel (Lowell to End)	MASHUA	1502514	CAST IRON UNLINED	190	190	190	190	342	4 8 1-1/2	ĩ	\$ 62,000		\$ 62,000	\$ 96,000	\$ 61,576	\$27,000	1921	40	YES	Due to conflict with get and sewer water was changed DtP 6the cost of small diameter main was more than as Completed, Final saving in 2016 est \$27,000,00
Rochelle Average (Chestrul easierly)	MASHELA	1502516	CEMENT LINED STEEL	163	163	163	163	175	2	4	5 46,000	\$ 46,000	\$ 45,000	\$ \$1,000	\$ 30,758	\$13,500	1952-1956	40	YES	Completed, Final Paving in 2016 ant - \$13,500.00
Marqués Avenue (Lovell southerly)	NASHUA	1502517	CEMENT LINED STEEL	125	125	125	125	128	1 1/3	4	\$ 19,000	19,000	\$ 39,000	\$ 40,000	\$ 19,177	\$10,000	1945	40	VES	Completed, Fins Paving in 2016 eat - \$10,000.00
Harbor Avenue (Alds northerly)	NASHUA	1500314	CAST INON UNUNIO	480	410	480	480	\$72	6	12	5 229,000						1888	70	YES	Complete
Foundry Street	AMHERST	1500270	TRANSITE	1,465	1,465	1,465	1,465	1,199	•	•	\$ 209,000	\$ 209,000			\$ 213,372		1950	40	YES	Complete
School Street Manchester Road (Bridge Crossing)	AMHERST	1500270	TRANSITE	240 300	240 300	240 830	240	280	1	6 12	\$ 40,000 \$ 176,000				\$ 317,850		1950	40	VES	Complete Constlete
Manchesiar Road (Bridge Crossing)	AMHERST	1501462	TRANSITE	300	200	edU	6.0	15		10		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			·		1950	40	YES	Complete Complete
Manchester Road (Bridge Crossing)	AMHERST	1501462	MANSITE					44	6								1950	40	YES	Complete
Milanti Street	NASHUA		GAVANIZED STEEL	417	427	100			2		\$ 148,000	148,000	and have		5 E		1927	40	YES	Deferred until 2018 by PWW
Brook Street (Ash to Futton) Hemilton Street (Leke to Brook)	NASHUA		CAST INCH UNLINED	1,141 411	411	1,143	L141	1		:	\$ 397,000 \$ 130,000	110,000	\$ 197,000	5	5		1417 - 1924 1910 - 1941	70	TES	Deferred until 2018 by PWW Deferred until 2018 by PWW
Survit Street (Lake to Brook)	NASHUA		CAST INCH UNLINED	424	424			2	ř.	ĩ	\$ 155,000						1897 - 1921	70	YES	Deferred until 2016 by PWW
Burritt Street (Brook St. southerly)	NASHLIA			342	182	182	182		4	4	\$ 43,000	43,000	\$ 43,000	\$	5 B		1941	40	YES	Deferred until 2018 by PWW
Ash Street (Late to Loveli) Lake Street (Pine St. escierty)	NASHUA		CAST INCH UNLINED	\$17	517	154			2	12	\$ 166,000 \$ 113,000	166,000	\$ 111,000		s ()		1888	70	YES	Deferred until 2018 by PWW Deferred until 2018 by PWW
Malberry Sirest	NASHUA	1500775	CAST INON UNLIKED	50	50	54	54	42			5 46,500	46,500		5 46,500	5 55,341		1932	70	YES	Complete
Ninth Sinual	NASHUA	1500276	GAVANGED STEEL	627	627	627	627	637	3	4	\$ 102,000	102,000	\$ 302,000				1952-1957	40	785	Complete
Ekistige Street ⁴	NASHLIA	1506269	CAST INON UNLINED				40	37	4	E	3			32,000			1952-1957	40	YES	Completz
Temple Street (Amory to E. Holes 51)	MASHUA	1502506	CAST INON UNLINED	1,010	1,030	945	945	990	10	10	\$ 278,100	378,100	\$ 185,000	\$ 327,800	\$ 347,045		1908	70	YES	Complete City of Nashua extended the project to Commarcial St b
Tampia Sinai (Amory io Commarc al Si)	NASHUA		CAST (RON UNLINED	17.1		•	300		*	6	2						1905	71	YES	pospaned the work we extended the project ecross th anticipation of the contensation in 2016
Fairmount Street Alde Street (Main to Harbor), persitais 16" Cl *	NASHUA	1500445	CAST INON UNLINED	215	215	715	115	211	•	Abandoe	\$ \$7,000 · \$ 123,000 ·	57,000					1887	70	YES	Complete
Street (Main in Harbor, suchasive of bridge crossin		1501835	TRANSITE	962	962	962	962	634	12	16	\$ 324,000		\$ 124,000				1961	85	NO	Complete
s Street (Main to Harbor, exclusive of bridge crossin	NASHUA	1501836	TRANSITE					59	12	12	5 - 1		5	s -			1961	85	NO	Complete
Alds Street - Salmon Brook Crossing	MASHRIA	1501436	TRANSITE	750	760	760	760	554	12	20	\$ 425,000 :		\$ 425,000	\$ 425,000			1961	#5	NO	20" HDPE - Complete
Alds Street - Salmon Brook Crossing Kineley Street	NASHUA	1501836	TRANSITE CAST INON UNLINED			42	42	51 47	12	15	5		\$ 80,000	S 346,250	\$ 101,174	\$2,000	1961 1992	85	NO YES	16" DIPCL - Complete Conseived, Final Paving in 2016 est - \$2000.00
Howard Avenue (Emergency)	NASHUA	1504064	CAST MON UNLINED				455	432	FAT		\$		5	3 144,790	157,071	\$31,936	1888	79	YES	Completed, Final personnent in 2016 ast - \$23,930.00
Howard Avenue (Emergency)	NASHUA	1504064	CAST ROR UNUMED				110	107	1 1/2	2	i		5	\$ 217,600		\$1,900	1435	70	YES	Completed, Hinal pavement in 2016 est - \$1900.00
Coburn Woods	NASHLA		POLYBUTYLENE	700	750			8	2	4	\$ 274,000 1	274,000		\$ 40,700			1968	60		Owner paved all streets - project die fatted 5+ years
Alida States at Main St	NASHUA		CEMENT LINED STEE	-		44			2	4	5	8	\$ 105,000	5-				70		City delayed to 2016
Field St at Main St Foste Ave at Main St	NASHUA		CAST IRON UNLINED							1	5 - 1		\$ 65,000 \$ 65,000	5 C				70	YES	CRy delayed to 2016 Oty delayed to 2015
Ravers St at Main Si	NASHUA		CAST IRON UNLINED							12	. 11		\$ 90,000	5				70		City delayed to 2016
Pratt St at Mars SI	NASILIA		CAST IRON UNLINED			34		1		4	5 - 1		\$ 45,000	5				70	YES	City delayed to 2016
Fowell Ave at Math St	NASHUA		CAST IRON UNLINED			36			5	•	s • 1		\$ 65,000	5-				סל		City delayed to 2016
Elsowers St at Main St	NASHUA		CAST IRON UNLINED			13	-	*	5	1				-				70		City delayed to 2016 City delayed to 2016
Finan St el Mers St Buchester St el Mers St	NASHUA		CAST IRON UNLINED			15		5	6	2								70		City delayed to 2016 City delayed to 2016
Lincoln SL at Main St	NASHUA		CAST INCH LINUNED			15			6	6				5-				70		City delayed to 2015
Russell Ave at Main St	NASHUA		CAST IRON UNUNED		3	15	14						5 72,000	5				70	YES	City delayed to 2016
Taylor St at Main St	MASHUA		CAST ILON LINUNED		. *	15			6					5				70		City deleyed to 2016
Dickerman St at Main R	NASHUA		CAST IRON UNLINED			15	1	1	4 16	Abandon 16		1	and the second second	5				70	1222	City delayed to 2016
Dickeman St at Man Bi Orchard Ave at Main St	NASHUA NASHUA		CAST WON UNLINED			26			10	Abandon				5				70		City delayed to 2016 City delayed to 2016
Main St	NASHUA		CAST BON UNLINED			2,600				Abandon			5 43,000	\$				70	YES	City delayed to 2016
falles Street	NASHUA		CAST INCH UNLINED	R	410	14		19				139,500	<u> </u>	5				70	YES	City delayed to 2016
			Tatal LF -	14,640	15,070	13,729	13,493	11,565	-	Total - 1 from 2014 projects - 1	6 4,501,600 (6 77,522 (4,543,100	\$ 4,746,500 (\$ 77,322 (1 8,093,451 44,435	245.330				
								Valve		S S S S S S S S S S S S S S S S S S S	11,050 1	18,050			10,558					
					(40)			Service		37	6 65,368 (85,388	6 85,886 1		76,496					
								Hydrant		17 1	21,874 1		21,374		75,875					
										wing Contingency ¹ +	<u>430,990</u>	310,898	207,460	<u>144,110</u>	· · · · ·					
									Tatel Estimate	id WICA \$\$ in 2015 - :	5,162,294 1	5,162,294	5 5,162,294 (\$ 4,477,627 (3,301,817					

20 5 Projects-Altach B

							ichuck Water Work 1016 WICA Water M 1/11/2016				910 - Y.L.									evised Attachment B Page 2 of 4
MARE SECTIMENT ON PROJE	ICT NAME	611/10ww	MATELIA	LENGTH (HET)	EXESTING POPE DAMAGETER (PRCHES)	PEOPOLID NEW PHP DAMETTR JMCHES	ESTEMATED COST	MPE INSTALLATION DATE	PIPE ASE		BREAK	REY CLETOMERS	WATEN	Fild PROTECTION	West anardisption with Gos, Source or Storm Drain Restaurant	Justitutal prior to Grographical Area Palata	Goographic Points	TOTAL	Funding Searce	Included in 2015 2017 WICk projects filed in Ansamy 2013
Funda Are of yor No		HADMA	CAST MON LINEAR D	8	1	4	1 55,000	1038	70		_			1			3	11		Yen 3016
Buchar to he of th		AUNTAR	EAST NOW UMINIA	45	-	1	5 53,000	184	70	111						1 - 1	1	1 10		Yan 2006
institution Aust the week Line		MAUNUA	CATT INCH UNLINED				1 5,000	1993	10								1	1		Per - 2015
Page of Are of any the		MALINIA	CAST INCH UNLINED	- 10			3 5,000	1926	10	- 773 - 175					:			11		Yes - 2015
Entun fit bet mitt Man		MARINE/A	CASE BORE UNE PER D				5 45,000 5 15,000	1905	70	111								11	Ş.	Yes - 2016
Alline 14 ton over Marr		MAINUA	CAST MON UNLINED		-		1 90,000	1963	70	1 13								- 11	11/2014 Band	Yes - 2016
Alfde jir tytt with Mars St /		ACREA	CAST MON UNLINED	50	,		1 15,000	1994	10	773					-	-		14		Yes 2013
Eald \$1 be onto Mar		NASPRIA	CAST MON UNLINED	42			\$	1922	10	1 10						1		- 14		
Renew St. Mt. Water Man		MASHUA	CAST WOM UNLINED	34			\$ 65,000	1921	m	1 113				1				- 11		
Part is to oth Man		BAUMUA	CAST INCH UNLINED	23		-	5 90.000	1304	1 70	113				1				1		Tr: 2016
Fatel Stic at Stor		Mauffald	CAST LICH UNUMED	17			5 55.000	1919	10	TEL				1 1						Ben - 2016
Slovens & int with Mel		MASHELA	CAST IRON UNLINED	15			54,000	1910	70	765				1 1	,					Ves - 2016
Forms Server (Canal to By		MASHREA	CAST MON UNLINED	4/0			5 344,000	1080	70	125				1	SAP	11	1	И		
Tarrants Edward planary to Cum		MASHUA	CAST IRON URLINI D)and			5 91000	Link	70	TES		1			IAGEP	11				Ten - 2834
Water News		Hatella	CAUT INON UNLINE D	75	4	D	3 ML/000	1.894	10	773		1		,		8		11	12/7014 Bood	
Chapter on PL () and be		MASHLA	CAST (NOH LINILINED	130	11/4		5 34,000	1948	/0	715			1		,	1	0	1		
Methods in Livingent to Stat	Li Metters)	ALDUAN	CAST PROM LINUMED	970	6		\$ 127,000	LEBO	10	YES		1		1	,		1	11		Yes - 7017
Andrew Street		MADHUA	CAST HON UNLINED	1150			\$ 1,071,000	THIS-FORD	20	7/5		1		2	P		1	12		Lin,
Terrer libert		MASHEM	CAST INON UNLINED	200	44.1	4	\$ 75.000	1925, 1948	70	VIS		1	1		•	1		10		
Protes Firmed		MASHEM	CAST HACH UNUNE D	740	6		1 72,000	1908-1926	70	713			1					11		No.
Barkabira Street		MALIANA	CAST FROM UNUMED	675	6		\$ 154,000	1913 1915	70	171			1	1				11		bie -
Norceste Steel (Sulpture 1		MASPILIA	CAST MON UNLINED	210			§ 143.500	1154 1224	19	111		1		3	18.08.0	U.		15	57 T	Brs 2017
Berighen Breen (Lampia to V		HASTAN	CINERT LANCE STELL	41.0			5 141.000	1924	10	121				1	18087	11		5		Pers . 2011
Shedra Averag (Horphas to)		MACABIA	CIMENT UNIC TRAL	271	1		\$ 200,000	1000	10	गा	1	- L	1		56 Q & F	14	1	17	12/3014 Bend	Pos 3017
Hards Lit. (Browners In P.		MALANA	CAST DIDR UNRINED	630		4	\$ \$7,000	1927	10	101	-		-		JAGAT	NO.		22		an .
Ocase Ave (Temple &)	(MAL)	MALINEA	CEMERT LINED STEEL	412	1.10	4	1 30,000	1940	40	WI .			1		SAGA?	u	4	14		Ar
Oliving Silver		RASHEM	CAST IRON UNLINED	140	64.0	-	1 41100	1900-1124	70	M2						7	1			M
Ende Pall		ALMONN	CAST SHOW UNLINED			184	1 23.000	1930	10	113						1		- 1	11/1014 Bend	-
Characterial Expensi (Ministry in W.		MASHUA	CAST MON UNLINED	545			5 171.000	1847-1931	70	YES						12	4			Ha .
Theopen 24 Contraction on the startic Integrity - Rating of 1 point for Fire Staffing - A rating of 2 point for Fire Staffing - A rating of 2 point for		ANOTHIN 1	Section on one and	12144		Total-		1774-14-8	1 14	1 113							-			He
			Long Co +		Paster 1	- chaine and a chain -														
	Value	Restaurants".	,		\$ 2,113	-	5 14,784													
	Service	Regiscoments".	**		\$ 2,067		\$ 64.07													
	Hydroet	Replacements' .			\$ 4,528		\$ 40,753													
						the Contingency -	\$ 414,000													
					Tatal Estimated	WICA \$5 In 2015	\$ 5,014,743													
eres margery - nating or 1 point for	on and brail in the just	AU years	is loss then the SU sector i	-																8
taker of Service, Votes and budgerd	of septements is the see	rate of the ant 3	mere star and all required in	state.	ent have a the pe	erner cast for 2014														
W must complete replacement of	the mains when the City	replaces its severer	mains																	1
City operates on a Flocal year basi	ois botware July 1 and in	ine 10 of the follow	deg Calendar your		A contingently of	5 d	30%	is carried to account for i												
3 Proc Ballags - A retrog of 2 for each 3 minute of Service, Video tool bydreed WP workst exceptions represented by the service of the service replacement related to a 1 Writer replacement related to 0.10° paring threat neuron and the service related to 1 Writer replacement related to 0.10° paring threat neuron and the service related to 1 Writer replacement related to 1 Writer replacement related to 0.10° paring threat neuron and writer related to 1 Writer replacement related to 1	act in street affected by	City Parrie Program	a, G - Project in street where	Ges Compos	y matter plas call	I for gas reason regular	amount, 8 - Propect in stre	nt where sewer end/or so	torm dram reg	lacement it actur										
jocts that are highlighted in same of GLP - Water restancement related t	to senter and say realise	come gragesplace	t that is a more is no highlight	of the project	It are not incoded	in processity to say	other prospect WICA proje	a												I
P - Woler replacement related to s	sever replacement with	1/2 test sharing a	f portreport, must many weigh	the to could	iet with newer - 9	reints														
			h 1/1 con sharing of present																	

2014-2015 Presizite Atlack B

						Proposad 7	017 WICA Water Ma 1/11/2016	linc. Na Projects												rvised Attachment Page 3 of
	HING SECTION ON PROVINCE NAMES	017/10WS	MATIBIAL	LINGTH OFLITE		PROPOSITO NEW PRI DIAMETER (INCMIS)	#1944120 CD51	AGL 04 791		HULLY DUPING	MEAR	KIT DA IONUS	WATER	FIRE PROTECTION	Work coordination with Gos, Sever or Since Droin Replacement ⁴³	Salatoial prior ia Boagraphical Acos Polatis	Gregosphit Paints	TOTAL	Funding Loosts	incoded in 2015-201 WICh projects field in Jacquery 2015
	Dridge Bit (Amery in E Sil)	MADAUA	CAST INCH UNKINED	1300	1	L L	\$ 447 000	187-1996	173	115		1	1	1	740	11	1	14		1
	Sanders (4 (Brdge is and)	MASHINA	CAUT MON UNLING	525	1 1	0	\$ 30,000	1942	10	10		I			PAG		1	11		Mo
- 11	Q 31 (Melaige in F Halfin)	MASHEM	CAST MON UN.INCO	500	1 4		5 118-000	1.090	70	115				1	P.5.0	10		0		
	E Bi (Bridge to F. Halie)	HASHEM	CAST MON UNK, NED	10		8	1 128 000	1906	20	YEL	8	1		1	PAG	12	3	15	1	Na
100	Hittidas Awy (If Hutter to Commit	MASHELA	CAST INDIA . M. MID	685		11	\$ 161,000	1901	10	YES				2	FAG	19	1	12		He .
	Chese St El Holle In Crawn)	ALCON DA	CAST MON UNLINED	416			5 314 000	1902	10	YEs					780		1	10		300
	Creen #1 (Denier to Artingian)	MASHELA	CAST INCHI LINKINED	230	5	12	\$ 75,000	1301-1906	70	YUS		1		1	PAG	U.		15		No
10.00	Brank Berges (Ant) to Fution)	Martin	CAST INON UNIUNE P	114	i.		5 182 000	1813-1924	1 71			1								Ven-3011
	Chanters Street for Otherson in Nerveds	MASHNA	CAST MON UNRINED	345	684	H	1 175,000	1647	70	113				1		1	1	1 1		gia .
	Late Street (Ples St assisting)	MASHUA	CAST MON UNLINE?	154		4	52 000	ja Mil	70	113							1			Ye: 2015
	Verseg Street (Revenue in Marketer)	RADENA	CAST FROM UNLINED	694			5 375,000	1913-1915	10	715	1			1		1	1		1	Yes - 2036
-	Renated American (Pline in Uprova)	NASHUA	CAST MON UNLINED		1		5 100,000	1826-1943	70	115				1		1	1		1	Yes - 2016
	Ham Non Street (Lake to Street)	MASIBLE	CAST BON UNLINED	411			\$ 111,000	1909-1941	70	155		1		1		1	1	1 1	To Be Detertrated	Yes - 2015
	Burrit's Street (Late to (Inset.)	MASHIN	CAST MON UNLINED	434	6		117,000	1017-1121	70	113		1		1			1		Camblestien of Arises	Teg - 2015
	Burt B. Dirent (Broak SI southers)	RUCHLIA	CAST INCH UNLINED	10	4	4	1 107,000	1943	40	115							1		Boord and Intere Shi	Yes - 2015
	Ann Blevel (Labor to Laved)	NASHINA	CAST WOR UNLINED	517	6	6	\$ 130.000	1892	70	TLS				1		1	1	1	Pursible	Yes-2015
	Estine Avenue (Marto In 1976)	RAPHIN	CAST MORE UNK INCO	2462	6		\$ \$25,000	1829	70	YES	E S					4	,	1 1	3	Yet-3015
	discours Direct Origin to Lamondaria	HAIHLA	CAST WON UNLINED	980	644	6	170,000	1496 - 1965	1 20	YES	1.	1	1000	1		1	2	4]	Yes - 3016
	Former American Conten IN. In sends	BASHAIA	CENTRE LINED STEEL	195	2	4	1 H,000	1940		15	1					1	1 1	1	1	Yes - 2025
	Maria Rimoni (l'aman ke Lânavân)	MADELA	CAST RON UNLINED	430	4		\$ \$7,600	1410	40	TES	1		1	1		1	1 1			Per - 20164
1.41.1	Buchenen Bred Man-ja HLED	MASHEIA	CAST BON UNUNTO	540	4	4	\$ 78,000	1909	1	MES				1		1	1 1			Per - 2016
1	Lincole dropping Oligin in Filippin	MASHBAA	CAST INCH UNUNCO	423	6	4	111,000	100-1912	1 19	10	1		22	1			1]	Wes . 1936
10-00	Parcel Sites Chiefe in Print-R	BASHMA	GAST MOM UNLINED	9.65	4		\$ 167,000	1906 - 1913	-	YA				1		1	1 1			West - 2016
- 10	Circle Armen Multis and	MAGELL	CEMENT LINE & STELL	364	1	4	1 17:00	1719		13		1.27	2000			1. A.	1	1	1	Fos- 30226
1	Taylor Direct (Main in Lyron)	MACHEM	CALT MON LINEHED	1615		17	\$ 340,000	1001-1960	70	7/5		1		1		\$	1			Ves - 2018
	Highmand 21 (1'demand in Authors)	MANAN	CAST HON UNLINED	1.00	184		171,000	3842 1913		TIS				1	_C		8			***
	Adam Bi (Antient in Charter)	MATHER	CAST INON UNLATE	1275	44.8		1 49,000	148/		With .				1	.0	1		7		Re .
· · · ·	Speed Sc of Inigram as Automat	ALIMAN	CAST BON UNLINED	150	4		\$ 139,000	1540	70	YLS					4	A.	0	1		He
			Total U	16,350		Total	\$ 4,491,000													
						wave 2015 projects														
		"sive Replacements" -	,		\$ 2,112		8 14,764													
		vice Replocuments" -	31		\$ 2,067		\$ 64,877													
	*****	reat Beplacements"-	,		\$ 4,528	•	\$ 40,752													
						ting Contingency	\$ 449,300													
					Total Estimated	WICA \$5 to 2017 -	\$ \$,311,919													
	Integily - Reting of 1 point for each break in the																			
	Ratings - A rating of L for each 500 gas Itel the																			
	af Sandco, Volvo and hydrant replocments is the ust complete replacement of its resins when the			rack replacent	ent types is the se	Frage Cast for 2014														
	use complete replacement of its mains when the aparates on a fiscal year basis between July 1 o				A combiner of		10%	carried to account for	-											
Work Co	perdination Legand - P - Project in struct effects	a by City Paving Progr	set. G - Project in street who		ny master plan coll	for ges main replac	mant, 5 - Project in stree	where sewer and/or a		at amount is excurr	re .									
Prejects .	that are highlighted in some color are larshed a	the same prographic	al area. If there is an highligh	ting the proje	th are not located	in presidently to Arm o					-									
SG&P -	- Water replacement related to sever used gas re	piscensest with 1/3 o	est charing of pavement, mus	t mave webr	fue to conflict with	erwer - 20 pairs														
EP - W	rater replacement related to server replacement reter replacement related in gen replacement on	with 1/7 cost sharing.	of persistent, must mave us	art due to cort	Set alth seven \$	petiets	2. 2. 1.2.													

2016-2018 Projects Attach B

LINETH PPE GALAGETER PPE GALAGET								ickuck Water World 018 WICA Water Mi 1/11/2016												R	evised Attackmen Page 4 d
$ \frac{1}{10} $		PLPE SEGEMENT OR PROJECT NAME	GT7/10404	MATERIAL			PIPE DAARETER		ACL OF PPE		FULLY DEPART		ELY CLE TOMEES			with Gas, Sewer or Sione Drain	Geographical Area		1014	Funding Searce	Wickuded in 2015-20 WICA projects filed Januatry 2015
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THOMAS B. GETZ Direct Dial: 603.230.4403 Email: thomas.getz@mclane.com Admitted in NH 11 South Main Street, Suite 500 Concord, NH 03301 T 603.226.0400 F 603.230.4448

February 29, 2016

Via Electronic Mail

Rorie E. Patterson, Esq. Staff Attorney New Hampshire Public Utilities Commission 21 South Fruit Street Concord, NH 03301-2429

Re: DW 16 -220; Pennichuck Water Works, Inc. Responses to Staff's First Set of Data Requests

Dear Rorie:

In connection with the above-referenced matter, I enclose Pennichuck Water Works, Inc.'s responses to Staff's First Set of Data Requests.

The Revised Attachments A and B also reflect changes in Attachment B "End of Year 2015 Costs (Column P)" resulting from errors identified subsequent to the original filing, which are separate from those identified in the Data Requests. The revised amounts are highlighted in yellow and include footnotes detailing each change. There are three projects with revised End of Year 2015 Costs. The changes in Attachment B will also flow through to Attachment A – Investment Summary and Surcharge Worksheets.

Please call me with any questions or concerns.

Sincerely,

Thomas B. Getz

TBG:slb

Enclosures

cc: Discovery List

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McLane.com

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-1 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 1; Page 1 of 7 (Substitute); Lines 51-L through 57-L; Net Investment – 2015 (Column 6): It would appear that the amounts reported in this column should be the result of subtracting Retirements (Column 5) from Book Cost (Column 4) instead of adding them as is presently indicated. Therefore, should not the amounts reported for Net Investment – 2015 (Column 6) be as follows:

	Net Investment
Mains	\$2,742,352
Contingency	-
Paving	39,993
Hydrants	59,762
Services	66,219
Valves	6,507
Total	\$2,914,833

Please confirm. If yes, it would appear that this would impact Depreciation Expense -2015 (Column 8) as well as all other subsequent schedules in Attachment A (Substitute). Please confirm.

RESPONSE:

We agree. The Retirements in Column 5 were added instead of subtracted from Book Cost in Column 4. See Revised Attachment A included with this response.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-2 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 1; Page 2 of 7 (Substitute); Footnote 8: Should not this footnote read, "The Cost of Removal for 2014 Mains is from Page 4 of the Final Audit Report in DW 15-043 dated 3/19/15. All other Cost of Removal amounts in <u>2015</u> – 2018 are based upon 10.00% of the Gross Investment." (Please note emphasis) If no, please explain.

RESPONSE:

We agree and have changed Footnote 8. See Revised Attachment A.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-3 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2a; Page 3 of 7 (Substitute); Line 15-G; Net Plant Investment – 2015: It would appear that this amount should be derived by subtracting Plant Retirements (Line 14-G) from Gross Plant Investment (Line 12-G) rather than adding it to such. Please confirm. If yes, it would appear that this would also impact all other subsequent schedules in Attachment A (Substitute). Please confirm.

RESPONSE:

We agree. The Plant Retirements should have been subtracted from Gross Plant Investment rather than added. The change has been made in Revised Attachment A. The 2015 Net Plant Investment amount has been revised to \$2,918,465 from the original incorrect amount of \$3,021,352. This change will also flow through to other areas of Schedule A on each of the subsequent Surcharge worksheets.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-4 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2a; Page 3 of 7 (Substitute); Line 25-G; Net Accumulated Depreciation – 2015: It would appear that this amount should be derived by subtracting Plant Retirements (Line 24-G) from Total Depreciation Expense (Line 22-G) rather than adding it to such. Please confirm. If yes, it would appear that this would also impact all other subsequent schedules in Attachment A (Substitute). Please confirm.

RESPONSE:

We agree. The Plant Retirements should have been subtracted from Total Depreciation Expense rather than added to it. The change has been made in Revised Attachment A. The Net Accumulated Depreciation amount has been revised to \$287,815 from the original incorrect amount of \$179,989. This change will also flow through to other areas of Schedule A on each of the subsequent Surcharge worksheets.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-5 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2a; Page 3 of 7 (Substitute); Footnote 4: Staff suggests the following for Footnote 4 in place of what is indicated: "WICA Revenue Requirement approved in DW 15-043 by Commission Order No. 25,784 (4/30/15)." Does the Company concur?

RESPONSE:

We agree with the change and have replaced the previously stated information with that indicated in the Request. See Revised Attachment A; Schedule 2a, Page 3 of 7.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-6 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2b; Page 4 of 7 (Substitute); Footnote 4: Staff believes that the reference indicated in Footnote 4 should be as follows: "Attachment A; Schedule <u>2a</u>". (Please note emphasis) Does the Company concur?

RESPONSE:

We agree with the change and have replaced the previously stated information with that indicated in the Request. See Revised Attachment A; Schedule 2b, Page 4 of 7.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-7 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2c; Page 5 of 7 (Substitute); Footnote 4: Staff believes that the reference indicated in Footnote 4 should be as follows: "Attachment A; Schedule <u>2b</u>". (Please note emphasis) Does the Company concur?

RESPONSE:

We agree with the change and have replaced the previously stated information with that indicated in the Request. See Revised Attachment A; Schedule 2c, Page 5 of 7.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-8 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 2d; Page 6 of 7 (Substitute); Line 25-M; Total Depreciation Expense – 2018: It appears that this total amount does not include the depreciation expense on the 2018 Net Plant Investment (Line 24-M). This also appears to be the case regarding Total Depreciation Expense – Total (Line 25-O) as well as Total Annual Depreciation Expense (Line 43-O). Please confirm. If yes, it would appear that this would also impact Attachment A; Schedule 3; Page 7 of 7 (Substitute). Please confirm.

RESPONSE:

We agree. The depreciation expense for each of the items indicated was incorrectly excluded from the totals. This has been adjusted on Revised Attachment A; Schedule 2d; Page 6 of 7, Lines 25-M, 25-O and 43-O, and reflected as well as on Schedule 3; Page 7 of 7. The Annual Revenue Requirement and Cumulative Revenue Requirements for years 2016 through 2019 have been impacted based on previously requested and implemented changes.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-9 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 3; Page 7 of 7 (Substitute); Lines 4-5; Heading: Staff suggests the following for lines 4 and 5 of the heading: "FOR APPROVED 2014 and 2015 WICA SURCHARGES, PROPOSED 2016 WICA SURCHARGE and PROJECTED 2017 – 2019 WICA SURCHARGES". (Please note emphases) Does the Company concur?

RESPONSE:

We agree. See Revised Attachment A; Schedule 3; Page 7 of 7 lines 4 and 5.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-10 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment A; Schedule 3; Page 7 of 7 (Substitute); Lines 27 – 38:

- a) Please explain the purpose of this portion of the schedule indicated as, "Per Most Recent Approved Rate Filing DW 15-043".
- b) Please explain how the amounts reported in this portion of the schedule were derived.

RESPONSE:

- a) This data shows the annual and cumulative revenue requirements for the Projected Years 2016 2019, as presented in DW 15-043, in comparison to the impact of the changes on the Projected Years 2016 2019 amounts in this year's filing.
- b) The amounts reported in this portion of the schedule were taken from the April 17, 2015 Staff Recommendation in DW 15-043.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-11 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 3 of 4 (Substitute); Line 93-D; Total LF: It appears that this column totals to 16,350 LF rather than the 12,528 LF that is reported. Please confirm.

RESPONSE:

We agree. The formula used to capture the total LF incorrectly excluded a range of rows. The formula has been corrected and a Revised Attachment B included with this response now indicates 16,350 LF.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-12 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Testimony of Mr. Ware; page 4, lines 12-14: How many of the WICA services replaced in 2015 were steel?

RESPONSE: Fourteen of the WICA services replaced in 2015 were steel.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-13 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Testimony of Mr. Ware in DW 15-043, page 8, lines 4-5; and in current docket, page 9, lines 7-9:

Only about 1/3 of the 2015 projects proposed in DW 15-043 were associated with municipal projects, whereas all but one of the 2016 projects as currently proposed are so associated. Please comment on any reasons for the increase in municipal project coordination since DW 15-043.

RESPONSE: When DW 15-043 was filed, the planned PWW-City project coordination was only with City/Town sewer and storm water projects. No coordination with City paving projects was anticipated, given the speed at which paving projects occur. The limited time to plan, design, bid and construct a water main replacement project in coordination with paving projects was not considered viable. In 2015, the City, the Gas Company and PWW worked together to coordinate work associated with sewer, storm drain and paving projects that were 12 months out. The key to coordinating with the paving projects was the City's willingness and ability to project actual paving projects for 2016 and their willingness to delay paving on streets where water main would be deferred from the summer/fall of 2016 until the spring of 2017, thus allowing PWW the time to design and construct water main projects in conjunction with City paving projects. Where possible, PWW hopes to be able to coordinate water replacement work with City paving work, provided the City can defer their planned paving work into the second half of their fiscal planning year.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-14 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Testimony of Mr. Ware; page 9, lines 12-19, and page 14, line 20:

- a) Please elaborate on the extent to which SRF funding was sought, or is anticipated, for the 2016 projects.
- b) To what extent do you anticipate funding limitations imposing restrictions on WICA budgets in future years?

RESPONSE:

- a) A total of \$1.4 million in SRF funds is being sought to help fund the 2016 WICA projects. PWW has submitted a financing petition seeking approval of those SRF funds in Docket DW 16-236.
- b) PWW plans to seek a combination of SRF and Bond funding to complete future WICA projects, consistent with past practice. PWW does not anticipate limitations on funding at levels necessary to complete appropriate levels of capital expenditures, inclusive of WICA projects, based on its recent experience.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-15 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 1 of 4 (2015 Projects):

Do the respective single entries in the "END OF YEAR 2015 COSTS" column include the costs of:

- a) Both Chestnut Street projects?
- b) All three Lovell Street projects?
- c) All three Manchester Road (Bridge Crossing) listings?
- d) All five Alds Street listings?
- e) Both Howard Street projects?

RESPONSE:

- a) Yes. Please note that both projects are listed under a single work order number on Attachment B, Page 1 of 4.
- b) Yes. Please note that all three projects are listed under a single work order number on Attachment B, Page 1 of 4.
- c) Yes. Please note that all three projects are listed under a single work order number on Attachment B, Page 1 of 4.
- d) Yes. Please note that all five projects are listed under a single work order number on Attachment B, Page 1 of 4.
- e) Yes. Please note that both projects are listed under a single work order number on Attachment B, Page 1 of 4.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-16 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 1 of 4 (2015 Projects): Please explain the absence of an entry in the "END OF YEAR 2015 COSTS" column for School Street.

RESPONSE: The School Street project was completed as part of the Foundry Street project. Please note that both projects are listed under a single work order number on Attachment B, Page 1 of 4.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-17 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 1 of 4 (2015 Projects):

Please comment on the relatively high cost per foot of the following projects:

- a) Kinsley Street (\$2,195/foot, including estimated 2016 paving cost)
- b) Mulberry Street (\$1,318/foot)
- c) Eldridge Street (\$757/foot)

RESPONSE: All three of the projects listed above were replacements of the sections of each street's water main within the limits of Main Street. Work in Main Street is required to be performed at night (premium rate on labor hours), hours of work were limited (start after 12 AM, midnight, and must be off the street before 5 AM), required the use of two police details for traffic control, involved major shutdowns (due to need to isolate sections of the 24" water main in Main Street), and required the placement of temporary pavement followed by the removal of temporary pavement and addition of permanent pavement (all done at night). The high costs are the result of work restrictions and the application of these costs against a small length of water main. These projects were part of larger competitively bid projects.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-18 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 1 of 4 (2015 Projects):

Please elaborate on the outcome of the "Temple Street (Amory to E. Hollis St)" project, in which the cost estimate was initially reduced due to an anticipated cleaning and lining effort (July 14 quarterly update), then increased as a result of "additional work for City of Nashua sewer emergency" (October 15 quarterly update).

RESPONSE: The Temple Street (Amory to E. Hollis St) limits were increased by an expansion of the City sewer project along Temple in the late summer of 2015. An additional 300 lineal feet of pipeline was added to this project along Temple Street from Amory to Commercial Street (See 9/30/2015 quarterly update for this addition) in response to the City's project change. The Temple Street project was completed by cleaning and lining, and resulted in the cleaning and lining of 1,290 LF of water main. The Company's original estimate, for the entire project, cleaned and lined was \$339,700 (\$185,000 for Temple from Amory to E. Hollis and \$154,700 for Temple from Amory to Commercial). For this project, the low bid came in at \$254,252 (based on original scope of cleaning and lining Temple from Amory to E. Hollis) versus PWW's estimate of \$185,000. The additional 300 LF of water main cleaning and lining work on Temple (Amory to Commercial) was a handled as a change order to the original contract and resulted in the final cumulative price of \$387,045.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-19 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Testimony of Mr. Ware, page 8, lines 1-11:

Please elaborate on the extent to which cleaning and lining or other rehabilitation methods:

- a) Were considered for any of the 2015 projects;
- b) Are under consideration for any of the 2016 projects.

RESPONSE:

- a) Cleaning and lining was considered for every project. Cleaning and lining can only be used where:
 - 1. The condition of the existing pipe is good (limited graphitization of the existing pipe wall).
 - 2. There is no conflict, either existing or projected in the future, with any required rebuild of the sewer or storm drain systems.
 - 3. The existing water main is adequately sized to provide the required domestic and fire flows.
 - 4. The length of water main to be cleaned and lined is sufficiently long to result in a project that produces favorable pricing versus a water main replacement. The Company's experience is that a minimum of at least 500 LF to 750 LF of water main cleaning and lining is necessary to garner a cost savings over replacing a water main.

Based on the considerations noted above, only Temple Street met the criteria to be cleaned and lined.

b) Based on the criteria detailed above, none of the proposed 2016 WICA projects meets the criteria for cleaning and lining. All the planned 2016 projects are planned as water main replacement projects.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

Date Request Received: February 17, 2016 Request No. Staff 1-20 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 2 of 4 (2016 Projects); Main Street projects (see also testimony of Mr. Ware, page 10, lines 32-38, and July 14, 2015 quarterly update);

- a) Please comment on the status of Dickerman Street and Orchard Avenue (both were included in the 2015 quarterly updates but neither is included in the proposed 2016 projects).
- b) Please comment on the omission of Montgomery Avenue and Park Avenue from these lists.
- c) It appears some, if not all, of the proposed side street mains will be transferred from an existing 6-inch unlined cast iron main (to be abandoned) to an existing 16-inch ductile iron main. Please provide additional comment on the age and condition of these two mains.

RESPONSE:

- a) The 2015 update included the replacement of the lead into Dickerman Street, and Orchard Avenue off of Main Street, in response to the proposed City paving plan for Main Street. As detailed engineering has begun on the Main Street connections to each side street, it was determined that:
 - 1. The 6" water main on Dickerman Street does not need to be reconnected as it is a high pressure main and, while connected to the 6" water main in Main Street that will be abandoned, it is isolated from the 6" water main via a closed 6" gate valve. There is no need to reconnect Dickerman Street to the 16" water main in Main Street so the existing 6" water main on Dickerman Street will be cut-capped on Dickerman Street and the section of water main from Dickerman on Main Street will be abandoned in place.
 - 2. The 10" water main on Orchard Avenue does not need to be reconnected as it is a high pressure main and, while connected to the 6" water main in Main Street that will be abandoned, it is isolated from the 6" water main via a closed 10" gate valve. There is no need to reconnect Orchard Avenue to the 16" water main in Main Street so the existing 10" water main on Orchard Avenue will be cut-capped on Orchard Avenue and the section of water main from Orchard Avenue on Main Street will be abandoned in place.

1

DW 16-220 PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

- b) Montgomery Avenue and Park Avenue were not on the 2015 quarterly update associated with the addition of the Main Street project for the following reason:
 - The 6" water main on Montgomery Avenue is currently connected to the 16" on Main Street and is a high pressure main and, while connected to the 16" water main in Main Street, it is isolated from the 16" water main via a closed 6" gate valve. The gate valve in Main Street will remained closed and the existing 6" water main leading into Montgomery Avenue will be cut-capped on Montgomery Avenue as opposed to replacing this section of water main.
 - 4. There is no connection from Main Street to Park Street so there is no water main to replace or abandon.
- c) The 6" unlined cast iron on Main Street was installed between 1887 and 1892 and is heavily tuberculated on the inside of the water main.

The 16" on Main Street in this area is not Ductile iron, it is unlined cast iron pipe that was installed in 1906. The exterior of the 16" water main is lightly corroded. The pipe wall of the existing 16" water main is over 1" thick and the interior of the water main (based on observations made at several locations along the water main where it has been cut into over the past twenty years) has a minimal amount of tuberculation and there is little graphitization of the pipe wall. The size of the pipe will allow bridging of any undercutting of this pipe in future sewer or storm drain replacement projects. The 16" water main in this section of Main Street is an excellent candidate for cleaning and lining at some point in the future. This is the type of water main that will last over 300 years in service.

DW 16-220 PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to Staff Data Requests – Set 1 Water Infrastructure and Conservation Adjustment

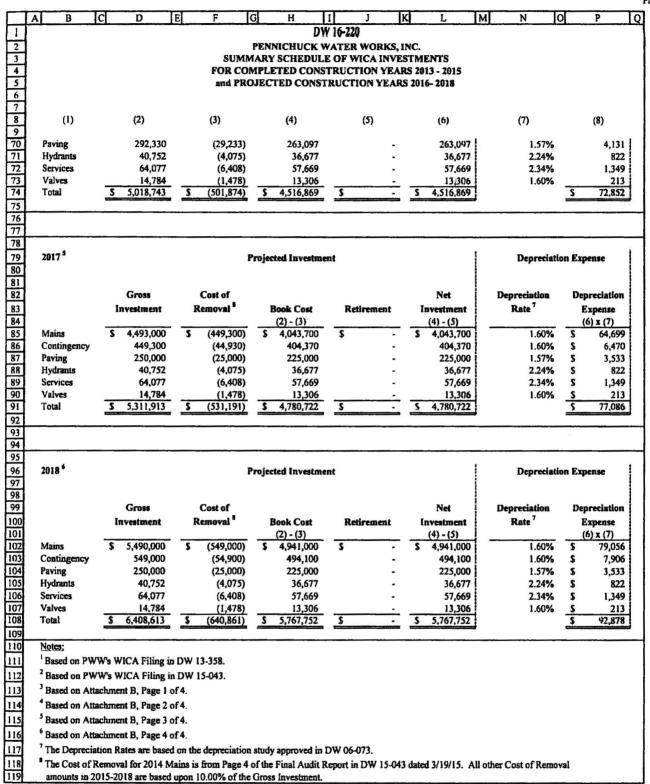
Date Request Received: February 17, 2016 Request No. Staff 1-21 Date of Response: March 2, 2016 Witness: Donald L. Ware

REQUEST: Re: Attachment B; Page 2 of 4 (2016 Projects): Please comment on the reason for the relatively high estimated cost per foot (\$885) of the "Gorman Ave (Temple to Hoyts)" project.

RESPONSE: Gorman Avenue is only 8' to 10' wide and will require the use of small excavation equipment. The Street is so narrow that dump trucks cannot travel on this street, which necessitates the movement of excavated materials from, and fill materials into, this street via a small backhoe loader that will have to move all materials to the end of the street where they can be loaded or unloaded. Water main installation on this street will be very slow because of the limitations described above; the result is a high cost per foot. Engineering is investigating other options to replacing this pipe in hopes of identifying a more cost effective solution to replacing the water main in Gorman Avenue.

Revised Attachment A Schedule 1 Page 1 of 7

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	A B	C D I	E F	G H		K L	M N	0 P Q
1					16-220			
23					ATER WORKS, I			
3			10 0.000 E200		E OF WICA INVE			
4 5 6 7 8 9					FRUCTION YEAR			
HH			and PKC	JECTED CONST	RUCTION YEAR	5 2010- 2018		
-								
6	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
8	(1)	(-)	(5)	(1)	(5)	(0)	(1)	(0)
10	······································			······································				
	2013 ¹		Actua	Investment (DW)	13-358)		Deprecia	tion Expense
11 12 13 14 15 16 17				(
13								
14		Gross	Cost of			Net	Depreciation	Depreciation
15		Investment	Removal	Book Cost	Retirement	Investment	Rate 7	Expense
16				(2) - (3)		(4) - (5)		(6) x (7)
17	Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278
18	Contingency		-	-	. €3	-	1.60%	-
19	Paving	28,395	(2,839)	25,556	-	25,556		401
20	Hydrants Services	59,164	(5,063)	54,101	(2,293)	51,808		1,160 4,944
27	Valves	241,199 69,084	(22,980) (6,908)	218,219 62,176	(6,924) (2,174)	211,295 60,002	20 PC 2000 CT	960
23	Total	\$ 1,960,879	\$ (194,024)	\$ 1,766,855	\$ (25,813)	\$ 1,741,042		\$ 29,744
24							-	(CTROSE OF THE OWNER OF
18 19 20 21 22 23 24 25				······································				
26								
27 28 29 30 31 32 33 34 35 36								
28	2014 2		Actua	I Investment (DW	15-043)		Deprecia	tion Expense
29								
30		100						
31		Gross	Cost of			Net	Depreciation	Depreciation
32		Investment	Removal [#]	Book Cost	Retirement	Investment	Rate ⁷	Expense
33				(2) - (3)		(4) - (5)		<u>(6) x (7)</u>
34	Mains	\$ 2,744,191	(273,203)	\$ 2,470,988	s -	\$ 2,470,988		\$ 39,536
35	Contingency	•	-	•	-	•	1.60% 1.57%	•
37	Paving Hydrants	35,249	(3,525)	31,724	(215)	31,509	1	· · · · · · · · · · · · · · · · · · ·
38	Services	82,444	(8,244)	74,200	(215)	74,199		1,736
39	Valves	10,031	(1,003)	9,028	(538)	8,490		136
40	Total	\$ 2,871,915	\$ (285,975)	\$ 2,585,940	\$ (754)	\$ 2,585,186		\$ 42,114
41								
42	1							
43								
44								
45	2015 ³			Actual Investment	t		Depreciat	tion Expense
46							1	
47		C				31.4		Description
48		Gross	Cost of Removal ⁸	De la Cart	Det	Net	Depreciation Rate ⁷	Depreciation
49 50		Investment	Kemoval -	(2) - (3)	Retirement	Investment	Kate	Expense
50	Mains	\$ 3,093,451	\$ (309,345)	<u>(2) - (3)</u> S 2,784,106	S (38,121)	<u>(4) - (5)</u> \$ 2,745,985	1.60%	(6) x (7) \$ 43,936
51	Contingency	J J,073,431	a (JC+C,C) a	\$ 2,784,100 \$ -	J (30,121)	J 2,/43,783	1.60%	\$ 43,930 \$ -
53	Paving	44,436	(4,444)	\$ 39,993		39,993		
54	Hydrants	76,976	(7,698)	\$ 69,278	(9,516)	59,762		The second secon
55	Services	76,496	(7,650)	\$ 68,846	(2,627)	66,219		
56	Valves	10,558	(1,056)	\$ 9,502	(2,995)	6,507	1.60%	\$ 104
57	Total	\$ 3,301,917	\$ (330,192)	\$ 2,971,726	\$ (53,259)	\$ 2,918,465		\$ 47,556
58								
59								
60						<u></u>		
61	4							
62 63	2016 4		P	rojected Investme	nt		Depreciat	ion Expense
63							1	
64		0	0			N 7_4		Deservision
64 65 66		Gross	Cost of		T	Net	Depreciation	Depreciation
66 67		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
67 68	Mains	\$ 4,188,000	\$ (418,800)	(2) - (3) \$ 3,769,200	<u>s</u> -	(4) - (5) \$ 3,769,200	1.60%	(6) x (7) \$ 60,307
	Contingency	\$ 4,188,000 418,800	5 (418,800) (41,880)	3 3,769,200 376,920	J -	\$ 3,769,200 376,920		6,031
69							1.0070	



	AB	С	Ы	E	F	G	H	1
Π	DW	16-110						
2	PENNICHUCK W							
3	PROJECTED CALCULATIO							
4	FOR COMPLETED CONST	RUCTION	YEAI	RS 2013 - 20	15			
5								
7								
8				Actual				
9	-					V	-	
10	-	2013		2014		2015		Total
_	Plant in Service:							
-		\$ 1,960,8		\$ 2,871,91			\$	
	Less: Cost of Removal (Att A; Sch 1; Col (3)) Less: Plant Retirements (Att A; Sch 1; Col (5))	(194,0) (25,8	-	(285,97 (75		(330,192) (53,259)		(810,191) (79,826)
_	Net Plant Investment	1,741,04		2,585,18		2,918,466		7,244,694
16					<u> </u>			
17	Accumulated Depreciation:							
18	Depreciation Expense (Att A; Sch 1; Col (8)):							
_	2013 Net Plant Investment	14,8	72	29,74	4	29,744		74,360
	2014 Net Plant Investment		-	21,05	7	42,114		63,171
_	2015 Net Plant Investment				<u>-</u>	23,778		23,778
	Total Depreciation Expense Less: Cost of Removal (Att A; Sch 1; Col (3))	14,8 (194,0		50,80 (285,97		95,636		161,309
_	Less: Plant Retirements (Att A; Sch 1; Col (5))	(194,0		(285,97		(330,192) (53,259)		(810,191) (79,826)
	Net Accumulated Depreciation	(204,9		(235,92		(287,815)		(728,709)
26	-			<u>, , , , , , , , , , , , , , , , , , , </u>	<u> </u>		-	
27	Net Plant in Service	\$ 1,946,0)7	\$ 2,821,11	<u>4</u> 5	3,206,281	\$	7,973,403
28	Pre-tax Rate of Return ²						x	6.17%
29	Return on Investment						S	491,823
30								
	Property Tax Expense ³ @	\$28.:	59 pe	r \$1,000			_	227,960
32								
_	Annual Depreciation Expense (Att A; Sch 1; Col (8)): 2013 Net Plant Investment							29,744
_	2013 Net Plant Investment							42,114
-	2015 Net Plant Investment							47,556
	Total Annual Depreciation Expense							119,414
38								
	2016 Cumulative Revenue Requirement						\$	839,196
	Less: 2015 Cumulative Revenue Requirement 4							(500,198)
	2016 Revenue Requirement							338,998
42								
-	Water Revenues per DW 13-130 5						5	27,689,214
44								
	2016 Revenue Surcharge %							1.22%
47	2016 Cumulative Revenue Surcharge %							3.03%
48								
49								
_	Customer Impact:							
_	5/8 Inch Meter Monthly Charge						5	20.34
the second se	Volumetric Charge						\$	3.30
	Average Single Family Residential Usage (CCF) Average Monthly Usage Charge						5	7.88
_	Fotal Average Monthly Charge						5	46.34
56							-	
	Average Monthly \$ Impact per Customer of 2016 Surcharge						S	0.57
58	Average Monthly \$ Impact per Customer of 2016 Cumulative Surch	arge					5	1.40
59								
_	Notes:							
61	The half-year convention for depreciation expense is employed wh	2233 C	alfoft	he annual de	preciat	ion		
62	expense is recorded in the first and last year of an asset's service li							
63	Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Filin		- Crath					
64		Weighted C	_	Tax Multipli	_	Pre l'ax Cost		
	Debr Equity	5.5 0.3		1.00		5.59%	2	
67		5.9		1.65	·u	0.58%		
	City of Nashua 2015 Mill Rate of \$21.99 and State Utility Property	The second s		n.		0.17/8		
69	WICA Revenue Requirement approved in DW 15-043 by Commis							
70								
. /() [Base rate revenue requirement approved in DW 13-130 by Commi	ssion Order	No. 25	0,693 (7/15/1	4).			

Revised Attachment A Schedule 2b Page 4 of 7

	Α	B	c h	1	E	If	G		1 1	I	к
1			DW 16-220)		1-1				-1	
2	PENN	сни	CK WATER	wo	RKS, INC.						- 1
3	PROJECTED CA										
4	FOR COMPLET						015				
3 4 5 6	and PROJE	CTE	D CONSTRL	CTI	ON YEAR	2016					
7											
8					Actual			Pr	ojected		1
9											
10			2013		2014	-	2015		2016		Total
	Plant in Service:	-									
	Gross Plant Investment (Att A; Sch 1; Col (2)) Less: Cost of Removal (Att A; Sch 1; Col (3))	S	1,960,879	S	2,871,915	\$	3,301,917	S	5,018,743	S	13,153,454
	Less: Plant Retirements (Att A; Sch 1; Col (5))		(194,024) (25,813)		(285,975) (754)		(330,192) (\$3,259)		(501.874)		(1,312,065) (79,826)
	Net Plant Investment		1,741,042	-	2,585,186		2,918,466		4,516,869		11,761,563
16											
17	Accumulated Depreciation										
	Depreciation Expense 1 (Att A; Sch 1; Col (8)):										
	2013 Net Plant Investment		14,872		29.744		29,744		29,744		104,104
-	2014 Net Plant Investment		•		21.057		42,114		42,114		105,284
	2015 Net Plant Investment 2016 Net Plant Investment		•		•		23,778		47,556 36,426		71,334 36,426
_	Total Depreciation Expense		14,872		50,801		95,636		155,840		317,149
	Less: Cost of Removal (Alt A; Sch 1; Col (3))		(194,024)		(285,975))	(330,192)		(501,874)		(1,312,065)
_	Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		(53,259)		<u> </u>		(79,826)
	Net Accumulated Depreciation		(204,965)		(235,928)	L	(287,815)	-	(346,034)		(1,074,743)
27	Net Plant in Service		1,946,007	c	2 821 114	•	1 7/14 301	e	4 843 003		12,836,306
			1,740,007	<u></u>	2,821,114		3,206,281	S	4,862,903	3	
_	Pre-tax Rate of Return Return on Investment									×	6.17%
31	Return on Investment									- 3	/41./01
_	Property Tax Expense ³	æ	\$28.59	*** \$	1 000						366,990
33			920,9 F		1.000						200,274
	Annual Depreciation Expense(All A; Sch 1; Col (8)):										
	2013 Net Plant Investment										29,744
	2014 Net Plant Investment										42,114
	2015 Net Plant Investment 2016 Net Plant Investment										47,556
	Total Annual Depreciation Expense										72,852
40											1/1.00
41	2017 Cumulative Revenue Requirement									s	1,351,037
42	Less: 2016 Cumulative Revenue Requirement *										(839,196)
	2017 Revenue Requirement									5	511.841
44											
	Water Revenues per DW 13-130 5									5	27,689,214
46											
47	2017 Barris Kumbarra M										1
	2017 Revenue Surcharge % 2017 Cumulative Revenue Surcharge %										1.85%
50										-	
51											
52	Customer Impact										
53	5/8 Inch Meter Monthly Charge									5	20,34
	Volumetric Charge									5	3.30
and the owner of the owner, where the owner	Average Single Family Residential Usage (CCF) Average Monthly Usage Charge									•	7.88
_	Fotal Average Monthly Charge									3	46,34
58										ć	
	Average Monthly \$ Impact per Customer of 2017 Surcharge									\$	0.86
	Average Monthly \$ Impact per Customer of 2017 Cumulative Sur	rchary	¢							\$	2.26
61											
— .	Vites;										
63	The half-year convention for depreciation expense is employed		by one-half of	the	annual depre	ciation	1				
64	expense is recorded in the first and last year of an asset's service										
65	Calculation of Pre-Tax Rate of Return (Based on PWW's Rate F	_		_	14.15		- T- C - 1				
66 67 1	Debt	We	sighted Cost 5.59%	la	x Multiplier 1.000	P	e Tax Cost 5.59%				
the second se	Equity		0.35%		1.656		0.58%				
69	• •		5.94%				6.17%				1
70 3	City of Nashua 2015 Mill Rate of \$21.99 and State Utility Prop	erty T	ax Rate of So.	60.							1
71	Attachment A; Schedule 2a										
72	Base rate revenue requirement approved in DW 13-130 by Com	missic	n Order No. 2	15,69	3 (7/15/14).						

AB	С	P	E	F	G 🖡		I	1	ĸ	Ц М
		DW I								
	PENNICHUCI ED CALCULA				CHARCE					
4 FOR COM	IFLETED CO									
5 and PRO	JECTED COM	STR	UCTION YEA	RS 201	5 - 2017					
6										
8			Actual				Pro	jecte	d	
10 11 Plant Investment:	2013		2014	2	015		2016		2017	<u>latel</u>
12 Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879) S	2,871,915	5 3.	301.917	S	5,018,743	\$	5.311,913	\$ 18,465,367
13 Less: Cost of Removal (Att A, Sch I, Col (3))	(194,024		(285,975)		330,192)		(501,874)		(531,191)	
14 Less: Plant Retirements (Att A, Sch 1; Col (5)) 15 Net Plant Investment	(25,81)		(754) 2,585,186		(53,259)		4.516,869		4,780,722	(79,826)
16		-	2,305,100		710,400		4.310,004		4.761,721	10,342,284
17 Accumulated Depreciation:										
18 Depreciation Expense (Att A; Sch 1; Col (8)):										100.000
19 2013 Net Plant Investment 20 2014 Net Plant Investment	14,87	2	29,744 21,057		29,744 42,114		29,744 42,114		29,744 42,114	133,849
21 2015 Net Plant Investment		2			23,778		47,556		47,556	118,890
22 2016 Net Plant Investment					•		36.426		72,852	109,279
23 2017 Net Plant Investment 24 Total Depreciation Expense	14,87		50,801		95,636	**	155,840	• ••••	38,543 230,809	
25 Less: Cost of Removal (Att A; Sch 1; Cot (3))	(194,024		(285,975)		(330,192)		(501,874)	i.	(\$31,191)	
26 Loss: Plant Retirements (Att A, Sch 1; Col (5))	(25,81		(754)		(51,259)	_			.100.000	(79,826)
27 Net Accumulated Depreciation	(204,96	2	(235,928)		287,815)		(346,034)		(300,382)	(1,375,125)
29 Net Plant in Service	\$ 1,946,007	<u>7</u> 5	2,821,114	5 3	206,281	\$	4,862,903	5	5,081,104	5 17,917,410
30 Pre-tax Rate of Return										x 6.17%
31 Return on Investment										\$ 1,105,198
32 33 Property Tax Expense ³	\$78.40		\$1,000							\$12,259
34		. 1.4	31,000							
35 Annual Depreciation Expanse (Att A; Sch 1; Col (8)):										
36 2013 Net Plant Investment 37 2014 Net Plant Investment										29,744 42,114
38 2015 Net Plant Investment										47,550
39 2016 Net Plant Investment										72,852
40 2017 Net Plant Investment										77,086
41 Total Annual Depreciation Expense										209,152
43 2018 Cumulative Revenue Requirement										\$ 1,886,808
44 Less: 2017 Cumulative Revenue Requirement *										(1,351,037)
45 2018 Revenue Requirement 46										\$ 535.772
47 Water Revenues per DW 13-130										\$ 27.689,214
48										5 21.007,214
49										
50 2018 Revenue Surcharge % 51 2018 Cumulative Revenue Surcharge %										1.93%
51 2018 Cumulative Revenue Surcharge 7										6.81%
53										
54 Customer Impact:										
55 5/8 Inch Meter Monthly Charge 56 Volumetric Charge										<u>\$ 20.14</u> <u>\$ 3,30</u>
57 Average Single Family Residential Usage (CCF)										7.88
58 Average Monthly Usage Charge										\$ 26.00
59 Total Average Monthly Charge 60										\$ 46.34
61 Average Monthly \$ Impact per Customer of 2018 Surcharge										S 0.90
62 Average Monthly 5 Impact per Customer of 2018 Cumulative Surch	arpe -									\$ 3.16
63 64 Notes										
65 ¹ The half-year convention for depreciation expense is employed wi	icichy one-half	of the	annual denorei	intion						1
66 expense is recorded in the first and last year of an asset's service I										
67 Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Fil	the second se									
68 69 Detw	Weighted Con		as Multiplier	Pre I	as Cost					
70 Fquity	5.59		1.000 1.656		5.59%					1
71	5.94	%		-	6.17%					1
72 3 City of Nashua 2015 Mill Rate of \$21,99 and State Utility Proper	ly Tax Rate of S	6.60.								1
73 Attachment A; Schedule 2b										1
74 Base rate revenue requirement approved in DW 13-130 by Comm	issing Order No	. 23,69	13 (//15/14).					_		

Revised Attachment A Schedule 2d Page 6 of 7

	Α	В	С	D	E I		3	1	1 1		ĸ	1	M	0
1					DW 16-220									
2					CK WATER									
3 4 5 0 7					ATION OF 2				5					
4					ONSTRUCT									
0			I NOVECTE	200	///JULAUCIA		10 1010							
8					Actual						Projected			
9 10			2013		2014	201	15	70)16		2017		2018	Total
11	Plant Investment:	-	2013		2014		5		10		2017		2010	
12	Gross Plant Investment (Att A; Sch 1; Col (2))	5	1,960,879	\$	2,871,915	\$ 3,3	01,917	\$ 5,	018,743	S	5,311,913	S	6,408,613	\$ 24,873,980
13	Less: Cost of Removal (Att A; Sch 1; Col (3))		(194,024)		(285,975)		30,192)	(501,874)		(531,191)		(640,861)	(2,484,118)
14	Less: Plant Retirements (Att A; Sch 1; Col (5)) Net Plant Investment		(25,813)		(754)		53,259)		-	_	4,780,722		5,767,752	(79,826) 22,310,036
15	Net Plant Investment	-	1,741,042		2,585,186	2,9	18,466	4,	516,869		4,/80,/22		5,101,152	
17	Accumulated Depreciation:													
18	Depreciation Expense (Att A; Sch 1; Col (8)):													
19	2013 Net Plant Investment		14,872		29,744		29,744		29,744		29,744		29,744	163,593
20	2014 Net Plant Investment		•		21,057		42,114		42,114		42,114		42,114	189,512
21	2015 Net Plant Investment 2016 Net Plant Investment				٠		23,778		47,556 36,426		47,556 72,852		47,556 72,852	166,446 182,131
23	2017 Net Plant Investment						-		50,420		38,543		77,086	115,628
24	2018 Net Plant Investment												46,439	46,439
25	Total Depreciation Expense	_	14,872		50,801		95,636		155,840		230,809		315,791	863,749
26	Less: Cost of Removal (Att A, Sch 1; Col (3))		(194,024)		(285,975)	•	30,192)	(501,874)		(531,191)		(640,861)	(2,484,118)
27	Less: Plant Retirements (Att A; Sch 1; Col (5)) Net Accumulated Depreciation		(25,813) (204,965)	-	(754)		53,259) 87,815)		346.034)		(300,382)	-	(325,071)	(1,700,196)
29	Liter United and the second of the second se		[204,303]		(233,720)	12	01,0137		(PEC0.014)		(300,302)		(11)	
30	Net Plant in Service	5	1,946,007	S	2,821,114	\$ 3,2	06,281	\$ 4,	862,903	\$	5,081,104	S	6,092,822	\$ 24,010,232
31	Pre-tax Rate of Return 2													x 6.17%
12	Return on Investment													\$ 1,481,021
33														
34	Property Tax Expense	@	\$28.59	per !	\$1,000									686,453
35	Annual Depreciation Expense (Att A; Sch 1; Col (8)):													
37	2013 Net Plant Investment													29,744
38	2014 Net Plant Investment													42,114
19	2015 Net Plant Investment													47,556
40	2016 Net Plant Investment													72,852
41	2017 Net Plant Investment 2018 Net Plant Investment													77,086 92,878
42	Total Annual Depreciation Expense													362,230
-14														
45	2018 Cumulative Revenue Requirement													\$ 2,529,703
-16	Less: 2017 Cumulative Revenue Requirement 4													(1.886,808)
.17	2018 Revenue Requirement													5 642,895
48														
49	Water Revenues per DW 13-130 ⁵													\$ 27,689,214
50														
52	2018 Revenue Surcharge %													2.32%
53	2018 Cumulative Revenue Surcharge %													9.14%
54														
55	c													
56	Customer Impact: 5/8 Inch Meter Monthly Charge													\$ 20.34
58	Volumetric Charge													<u>s</u> 3.30
59	Average Single Family Residential Usage (CCF)													7.88
NU	Average Monthly Usage Charge													\$ 26.00
61	Total Average Monthly Charge													<u>\$ 4634</u>
62	Aurona Mosthly & Impart and Customer - 62010 Sectores													5 1.00
63	Average Monthly \$ Impact per Customer of 2018 Surcharge Average Monthly \$ Impact per Customer of 2018 Cumulative S	urchares												<u>\$ 1.08</u> <u>\$ 4.23</u>
65	in the internet of the per outward of 2010 Canadative of		-											Č.
60	Notes													
67	¹ The half-year convention for depreciation expense is employed	d where	oy one-half of	the a	nnual deprecia	tion								
68	expense is recorded in the first and last year of an asset's serv													
69	Calculation of Pre-Tax Rate of Return (Based on PWW's Rate			····										
70		14	eighted Cost		ax Multiplier	Pre Ta	x Cost							
	Debt Equity		5.59% 0.35%		1.000		5.59% 0 58%							
73		-	5.94%		1.000		6.17%							
	3 City of Nashua 2015 Mill Rate of \$21.99 and State Utility Pr	operty T												
75	* Attachment A; Schedule 2c													
76	* Base rate revenue requirement approved in DW 13-130 by Co	mnissio	n Order No. 2	25,69	3 (7/15/14).									
-														

Revised Attachment A Schedule 2d

5

													Page 7 of
	A	U			E	14	G		1	J	K	i T	М
1			DW 16-22	0									
2	PENN	ICHU	CK WATER	wo	RKS, INC.								
3	SUMMARY O												
4	FOR APPROVED 2014 and 2015 W							CHA	RGE				
5	and PROJEC	TED 2	2017 - 2019	WICA	SURCHAI	RGES	6						
6													
8			Actual		Actual				Dent	ected			
9			Actual		Actual				rro	ccieu	1		
10			2014		2015		2016		2017		2018		2019
11													
12	SUMMARY OF CALCULATIONS (Au A; Sch's 2):												
13		•											
14	Annual Revenue Requirement	S	181,151	S	319,047	\$	338,998	S	511,841	S	535,772	S	642,895
15	Cumulative Revenue Requirement	S	181,151	5	500,198	S	839,196	S	1,351,037	S	1,886,808	S	2,529,703
16													
17													
18	Annual Revenue Surcharge %	_	0.67%		1.15%		1.22%		1.85%		1.93%		2.32%
19	Cumulative Revenue Surcharge %		0.67%	-	1.81%	-	3.03%	-	4.88%	-	6.81%		9.14%
20 21													
21	Annual Average Monthly \$ Impact per Customer		0.31		0.53	-	0.57		0.86		0.00		1.08
23	Cumulative Average Monthly S Impact per Customer		0.31	<u>s</u>	0.84	3	0.57	5	2.26	5	0.90	5	1.08
	e unitative reverage monthly e impact per customer		0.01		0.04	_	1.40		2.20	-	5.10	-	
24 25													
26													
27	PER MOST RECENT APPROVED RATE FILING DW15-	043											
28													
29	Annual Revenue Requirement	5	181,151	5	319,047	\$	529,073	\$	543,192	5	444,906		
30	Cumulative Revenue Requirement	S	181,151	S	500,198	\$	1,029,270	5	1,572,463	S	2,017,369		
31										-			
32													
33	Annual Revenue Surcharge %		0.67%		1.15%		1.91%		1.96%		1.61%		
34	Cumulative Revenue Surcharge %	100000-0000	0.67%		1.81%	-	3.72%	and the second second	5.68%	-	7.29%	Enigrand	
35													
36		-											
	Annual Average Monthly \$ Impact per Customer Cumulative Average Monthly \$ Impact per Customer	5	0.31	5	0.53	5	0.89	5	0.91	5	0.74		
10	Cummative Average Monthly 5 Impact per Customer	3	0.51	3	0.64	3	1./2	Э	2.03	3	2.79	_	

			<u> </u>	<u>.L</u>		G Water We			1	I. K		<u> </u>	<u>N.</u>	9		1 <u>\$</u> _]	B		1	<u>I. </u>
				2015 4		Main Proje /11/2016	cts - Final Si	Letus										rvised Attac Pa	ge 1 of	
PIPE SEGEMENT OF PROJECT NAME		WORE ONDER	MATTRIAL	filing LENGTH :	NG1H as of 1 1/30/2015	Latimated ING7H as of 6/36/2013 (PEET)	Estimated LifeSTH us of 9/30/2015 (FETT)	Estimated LENGTH as of 12/21/2015 (76271)	ARISTING PIPE DIAMETER ENOILS)	PROPOSED NEW PIPE DIAMETER BINCHESI	OBGINAL WICA HUNG ISTIMATED C	TIMATED COST AS	CETIMATED COST AS	ESTIMATED COST AS	END OF TEAR 2015 COSTS (online content for some	ANTICIPATED FINAL PAVING COST IN 2018 FOR 2015 LISED AND USEFUE PROMICTS	AGE DE PUR	PHPE AGE	FURLY	EXPLANATION
Chestral Street (Lake to Lovel)	NASHUA	1502509	CAST INDIN UNUMED	735	94.07 7.65	715	735	706	6	1 (147)	5 114,000 1	J14,000	\$ \$14,000			\$52 000	1918-1924	No No	TIS	Completed, Feal Paying in 2016 and \$58,000.00
Chesing Street (Lovel to End)	NASHRIA	1502509	CAST IRON UNUNTO	763	363	263	263	397	•	u	\$ 105.000	105,000	\$ 105,000			\$30,000	1918-1915	70	VIS	Completed, Final Priving in 2016 est - \$30,000 00
Lovell Street (Chestrul & Arh) * Lovel Street (Arh to Pvis)	NASHLA NASHLA	1503510	CAS' MON UNUMED	420 750	430	430	420	400		17	\$ 145,000 1 \$ 269,005 1	1#5,000	\$ 185,000 \$ 265,000		\$ 193,776	\$31,000	1897 1898	40	VES	Completed, Final Paving in 2016; est - \$31,000.00 Completed, Final Paving in 2016; est - \$62,000.00
Loved Street (Easterly of Chustrul to and)	NASHUA	1501510	GAVAMOD SILEL	15/	187	187	117	101	1 1/4		\$ 48,000	48,000	5 46,000	100 C C C C C C C C C C C C C C C C C C		\$25,000	1955	40	185	Completed, Final Paving in 2016. wat - \$23,000.00
Ash Sireel (Lavell is Frid)	NASHLIA	1502514	CAST ILON LINUNED	190	190	190	190	M2	4 8 1-1/2	•	5 62,000 1	61,018	\$ 63,000	5 94,600	\$ 64,596	\$37,000	1831	40	ves	Due to conflict with ges and severes water was changed in Dir Ethe cost of small diameter i main was more than anti Completed, Fush asymptic 2016, and \$27,000.00
Rochelle Avenue (Chesinus easiery)	NASHUA	1502516	CEMENT LINED STELL	163	163	161	163	175	2	•	\$ 44,000	44,000	\$ 46,000	\$ \$1,000	\$ 30,7:8	\$13,500	1952-19-5	40	vts	Compisted, Fine Paving in 2016 and -\$13,500.00
Marquis Avenue (Lovel southerly)	MASHUA	1502517	CEMENT LINED STITL	125	125	125	125	178	1 1/2	•	\$ I9,000 !	11,000	\$ \$9,000	\$ 40,000	\$ 19,127	\$10,000	1945	40	115	Completed, First Paving in 2016 aut - \$10,000.00
Herbor Avenue (Alida vonthely)	NASHLIA	1500114	CAST MON UNLINED	460	480	480	480	\$72	•	u	\$ 2,79,000 ;		•		-		1858	70 40	185	Camplete Constate
Foundry Same	AMMERST	1500270	TRANSITE	1,465	1,445	1,463 240	1,465	1,199		:	\$ 209,000 : \$ 40,000	203.000	5 209,000		\$ 211,327		1950	40	115	Concists
Manchester Road (Endge Crossing)	AMHLRSI	1501462	TAANSITE	200	300	830	100	406		ū.	176,000	176,000			5 317,060		1950	40	-	Comple1e
Manchester Road (Eridge Crossing)	AMHLEST	1101462	TAANSTL					185		19							1950	40	125	Complete .
Manchesler Road (Mridge Crossing)	AMHERSI	1101452	TRANSITE					44		÷ .							1950	40	785	Considere Deferred until 2018 by PAVA
Manya Street Bruck Street (Ash to Feiture)	MASHUA		GAVANIZED STEEL	427 1.141	427	1.141	1,141	1		1	\$ 148.000 1 \$ 197,000 1	148,000	\$ 197,000		i .		1887 - 1924	70	725	Deferred until 2018 by PWW
Hamilton Street (Lake III Brook)	NASHIA		CAST MON UNLINED	411	411	112-121			6	•	\$ 130,000 1 \$ 155,000	110,000			1		1910 - 1941 1497 - 1971	70 70	113	Deferred until 2016 by PAW Deferred until 2016 by PAW
Buritt Street (Leks in Bruck) Buritt Street (Brack St. southerbr)	NASHLA		CAST INON LINE INED	434	424	142	167		1		\$ 155,000 S	41,000	\$ 41,000				1941	40	TES	Deferred with 2018 by PWW
Ash Street (Lake to Lovel)	MASHAM		CAST INON UNLINED	\$17	\$17		*			2	5 166,000 1	166,000		•	5		1892	10	VES	Deferred until 2018 by PWW
Laiss Street (Pine St. aasterby)	MASHLA		CAST INON UNLINED	154	154	154		42		12	\$ 111,000 1 \$ 44,500 1	111,000	\$ 113.000 \$ 46,500	5 45,500	\$ \$ \$5,341		1.888	<i>1</i> 0 70	YES	Deformed wetst 2018 my PWW Consultation
Mathemy Sinet Nation Scient	MASHUA	1500375	GAVANGED STEEL	637	627	<u>,</u>	627	637			5 102,000 1	103,000					1952-195/	40	115	Complete
Extering a Servet 4	NASHUA	1505269	CAST INON UNLINED				40	37						\$1,000			1952-1957	40	-	Complete
Tumple Street (Amory to E Holes SI)	MASHEAM	1502506	CAST NON UNLINED	1,0 40	1,032	965	965	990	14	10	\$ 174,100 1	378,100	\$ 185,000	\$ 327,800	\$ 567,045		1906	70	TES	Convolute City of Mashue estended the groups of to Commercial St. In.
Tample Sinest (Amory Is Commerc at SI)	NASHUA		CAST INCH UNLIKED			٠	300		1	•							1906	21	YTS	porpared the work we extended the project scrass the periodication of the contruction and 2015
Fainscure Street Able Street (Main to Harbor), peralate 16" C1 *	NASHLIA	1507836	CAST INON UNLINED	215	215	715	215 L722	211	1	Abandan	\$ \$7,000 I	\$7,000					1887	70	YES	Conspieto
Alls Simpt (Main to Harbor, exchance of bridge cansung)	NASIRIA	1501836	TRANSITE	961	962	963	163	634	12	16	\$ 124,000		\$ \$14,000		• ••••		1961	#5	ND	Completa
ids Sirect (Main to Harbor, exclusive of bridge crossing)	NARRA	1501816	TRANSITE					19	12	12			i .	\$			1961	85	NO	Complete
Aids Street - Seimon Brook Crossing	NASHUA	1301836	TRANSITE	760	760	760	760	514	12	20	\$ 425,000 5	423,000	\$ 425,000	\$ 425,000			1961	64 15	NO	20"HDPE Complete 16 DPS., Complete
Able Street - Salmon Brook Crossing Kinalay Street	NASHUA	1501836	TRANSITE CAST UPON UNLINED			42	42	51 47	12	16			5 \$5,000	5 146,250	\$ 101.174	\$2,000	1912	10	115	Contained, Final Paving in 2016 ian st \$2000.00
Howard Avanue (Emergency)	MASHUA	1504064	FAST HON UNLINED				455	412	4AT	4			\$		\$ \$12,071	\$33,930	1588	70	YES	Campieted, Iveal poversent in 20 1 6 est \$53,930.00
Howard Avenue (Emergency)	NASHUA	1504064	CAST INON UNLINED	-			110	107	11/7	2	5 6		s -	\$ 247,600		\$3,900	1983	70	122	Completed, Incl povement in 201 16 ast \$3900.00
Cobum Woods	NASHUA		POLYBUTYLENE CEMENT LINED STEEL	700	700			•	2		\$ 174,000	374,000	\$ L05.000	\$ 40,700			1969	60 70	NO YES	Owner paved all streets - project - deferred 5+ years City delayed to 2015
Adda Street at Main St Field St. at Main St	NASHUA		CAST IRON LINEINED										\$ \$5,000	\$				20	YES	Oty delayed to 2016
Fotal Ave at Man St	NASHUA		CAST ILON UNLINED		. *	44			4	4		÷	\$ \$5,000	5				10	YES	City delayed to 2016
Playare St at Main SI	NASHUA		CAST BLON UNLINED		1	36				12	5 - 1		\$ 90,000	5				76	VES	City delayed to 2016 City delayed to 2016
Prait St at Mari St Found Ave at Mari St	NASHIA		CAST IRON UNLINED			м.							\$ 65,000 \$ 65,000	5- L					VES	City delevent to 2016
Fones Ave a Man bi Escara 33 el Men 51	NASHUA		CAST HON UNLINED										\$ 56,000	\$				10	YES	City delayed to 2016
Feron St ai Mern St	NASHUA		CAST ILON UNLINED			15			6		s - 1		\$ 58,000	\$				10	YES	City delayed to 4016
Buchasian 25 at Misn 81	NASHUA		CAST IKON UNLINED			15			6	•		1	•	5				70	YES	City delayed to 2016 City delayed to 2016
Lincoln St al Main Si Russell Ave at Main Si	NASHUA		CAST HON UNUMED			15				-			\$ 54,000 \$ 72,000	5				70	VES	City delayed to 2016
Taylor St at Mars St	NASHUA		CAST BON UNLINED		•	15						<u> </u>	\$ \$5,000	5				70	YES	City selayed to 2016
Dickeman Stat Man \$1	NASHLIA		CAST IRON UNLINED			15				Abandor	• • •		\$ 30,000	5				70	VTS	Ony delayed to 2016
Dickerman SI at Marn SI	NASHLIA		CAST INON UNLINED	8		25			15	16			\$ \$4,000 \$ 40,000	F 5				70	YES	City deleyed to 2016 City deleyed to 2016
Cathard Ave at Man St Main St	NASHLIA		CAST BLOW UNLIKED CAST BLOW UNLIKED			15			6	Abandon Abandon			\$ 40,000 \$ 40,000	+				70	YES	City delayed to 2016
Falles Street	NASHUA		CAST INCH UNLINE?	-	6.10							1 48,500	\$	5				70	YES	City delayed to 7016
			Tetal LF	. 14,440	13,870	15,725	13,483	31,365		Total+	4 4,368,600	4,643,100	\$ 4,746,100 \$ 77,522		1 L003,451 5 44.435	\$ 189,130				
								Value	Pavili Resiscements ¹	g from 2014 projects -	\$ 77,522 (\$ 16,850)	77,512								
					140)				Replacements		6 81,365	65,362	\$ 83,344	\$ 83,160	5 76,496					
								Hydrani			5 29,874	28,814	\$ 29,374		5 76,576					
										anning Contingency ⁴ -	<u>6 430,360</u> (5,162,294	\$ 8,163,294	the second se	s 1,302,917					
										lad WICA \$\$ in 2013 -					·					
2015 year and costs reflect actual \$\$ spent on 5 valve rea	acomenta, 17	service replacem	ents and 17 hydrant ruplac	omenta The averag	e cost for each	ispictment	lypes is the eve	wage cost for 201	S Updated \$\$ to	r Hydrant, Service and V	alua replacements refli	ect 2015 Year to date	work order costa.							
Project contingencies are not included as all pilling for W	ru buelect o	understand in \$2017	neve seen received and in	maged in the with a	-															
			he and of year cost has been																	

2015 Projects-A mach II

	A	I	1 c	- a			6			<u> </u>	r x		1 w	N	0	1 7	1 0	1 1		1 1 1
							ichuck Water Work 016 WICA Water M 1/11/2016							•				•		evised Attachment B Page 2 of 4
Ħ			I	r	I		4142010		Г	<u> </u>		<u></u>		r	Man soutares	<u></u>	11	T		
	PIPE LIGENIAT OF PROJECT NAME			UFNGTH (TBM)	EARTING PAPE DWATETER INCHES	PAGPOLED WIW PAPE CAMAGETER (AND VES)		PIPE HISTALLATION		PURLY DEPLIC	BLAR HISTORY	ILY CLATOMILES	WATER	HIN PROTICTION	MES Ket, Sever ar Starm Drain Replacement M2	Labiatal prior to Geographical Area Parets	Bougraphik Pairts	TOTAL	funding Source	Included in 2015 2017 WICA projects Mod in Jacober 2015
71	Fana Are be pay have \$4	MASHUA	CAST HADN UNLINED	4			1 (1/100	1974	78	VEI				1 2	P	1	1 1			Yes 2014
GT	Bucharges \$1 by with Mary \$1	MASHUA	CAST MON UNLINED	4			1 41.000	1814	78	170				1				20		Para - 2016
11	Linuado Aug ted until Silans. Bt	MAMMUA	CALL BOW DISTING				1. 15.000	Lant	10	. 773		1	1	1				11		Pen JULIS
10	Byssell Are wi page Jian BL	MASHUA	CAST MON UNLINE D	. 18			\$ 65,000	.184	74	- 677				1				11		Tes - 3016
15	Taylor \$1 11 and than \$1	MASHUA	CAST INCOLUMN INGS	. 16		11	1 05,000	1404	70	175				1			1	11		Tes 2016
11	Fibram fit get nich Altern W	MASHUA	CAST MON SHE NED	. 11			\$ \$5,000	1905	70	713				1			1	. 11		Yet - 2016
11	Allen at the well blam in	MASHRIA	CAST MON UNLAND	10	. 14	H	1 80,000	1962)	70	1 11		1						11	L/St 14 Band	We IDIS
14	Anne Si bu wife Mare Bi 10 Antes	MAMMUA	CAST INON LINLINED	50	1	- E	\$ 15,000	100		TT.		1		l			-	. 14		
15	Feglet fit ber unter blann fit	NASHDA	CATT INON UNLINED	4		-	1 15.000		N	TT.					e	· · · · · ·	4	1		
16	Revers & but with Mart M	MALINUA	CAST INON LINE INTO	14	· · ·		1 65.000	1971	10	111				<u> </u>		·		1.11		Teo 2014
E	Presi Si ing unp. Mans St	MALMIA	CAST INCH LINE INCD	11		н	1 10.000	1104	. 79	111					1		<u> </u>	11		Ten - 2015
14	Fanal \$1 ter aim Mar fit	MASHELA	CAST INCH LINE MED	17			\$ 15,000	1915	. 10	111										Nes- AU16
19	Storene & ht with Idale &	MATHEIA	CAST ISON LINLINED	15	6		\$ 56,000	1990	- 14	113					•			. 11		100 - 20146
28					<u> </u>							1	1				-			
1	Trains Stream [Local in Stream] Lashia Calif extra (Local in Stream) S 14 (200) 1688 70 711 1 4 3.8.7 11 3 14 3 14 <th14< th=""> 14 14 <</th14<>																			
17	Torget Benef (Henry Is Generated B) Malikuk (All BOD UNIXII) FOR a a \$ 9100 104 10 11 1 1488.P 11 3 24																			
11	Window Research Haddelan Call and Humanita 71 6 0 \$ 54.000 1986 70 711 1 2 2 2 1 20 1 11 11/7141 Bend Bay																			
1																				
16	Andranyi Kenat	Massala	CAST MON UNLINED	4150	4	- 12	1 Lett and	1949-1312		713	· · · · · · · · · · · · · · · · · · ·	+ · · · · · · · · · · · · · · · · · · ·	1	<u> </u>			1			
	Terrane Parent	MACHEM	CAST MON UNLINED	2100	442		1 71,000 1 72,000	1924 1948	70	783							+ +		100	<u>⊢ ٿ</u> – ſ
Hit	Barbatero Birent	MALVELA	CAST MON UNLINED	175			\$ 154,000	1913-1913	70	- 113 W13			<u>+</u> − +				1			
17	Yors may President in President	Stated as	CAST INON UNLINED	101			6 143,000	1014 1924	1 10	WE1			· · · ·		15457			16		No. 1. 2017
10	Bargate & Bringt (Tempine to Wepperster)	MASING	CEMENT LINKS STEAL	44			5 143-000	1344	10	10		t			54987					Net 2011
11	Einden Angeung (Margulure in Wenreuter)	MAENELA	CENSINT LINED STLES	111			1 1/0.001	1944		100					sagar			17	31/3014 Berni	Vec - 3017
12	Hates 10 (Benginers to Burneter)	MALHELA	CAST MON UN INTO				1 17.00	1992		(1)			1		SAULT			1 11		lin
111	Otoman Ant (Tangla to Payle)	MATHRIA	CEMENT LINED STEEL	111	1 1/2		1 100,000	1940	-	111			1		SAGAP	1	1	u u		Re I
74	Climan Brown	MACHINA	CAST MON UNLINED	100			1 61.000	1908-1924	70	725			<u> </u>	1	1010	1	1 1			-
13	اللدراج والدادل	MATHELA	CAST MON UNUNED	140	\$6114	144	1 (1.700	13.00	10	1 10				1	,		1 7		13/2014 Burnd	He .
14	Chardred Elegat (Finaley in W. Other sam)	I INACOMULA	CAST MON UNLINED	543	1 144	L L	1 199.000	1007-5131	70	115		1		1		19	1	13	12/2014 0444	14
17	ragery & deathour to Warson	ALMIA	CAST MON UNEMED	71.5		1	\$ 234,000	1834 1945	10	YEI				1		1	1 1	1		110
10			Total U -	12164		Total	-													
도 두 두 두 두 목 목 목					Pauling 1	staion 2015 projects	1 21.110													
41	Vel	well uplacements*-	,		\$ 1,113		\$ 14,794													
41	invest.	is a Replacements*-	n		\$ 3,06/		1 64,877													
42	Hydro	at Aspiscoments' -	,		\$ 4.500		\$ 46,713													1
43					Plan	ning Contingency	1 418,800													
					Total Estimate	WICA IS IN 2014	\$ LOLANI													
14	Naterial integity Bailey of 2 point for each break in the lo																			
#;	112 Firs Raings - A relarg of 1 for each 100 gam that the fa	ww in the welsenal	is is less that the SQ remains	6 rating.																
411	Hutubas of Service, Value and bydrand replacements is the a	morage of the past 2	years. The swarage card for	such replacem	and types a the p	retage rest for 2014														
	Philli must complete replacement of its sheles when the C	The replaces its source	a motos																	1
131	The City operation on a Recal year have between July 1 and	Auto 10 of the fulls	nenng Calender yner		A month growty a			is marted to ma mail for I												
HH:	 Work Courdination Lagand - P - Project in street effected i Projects that are inglighted in some color are inceled in th 	in terms array white	and, a - prospect as paraight while	interesting and	ch ate ant involution	to see gat re-per replac	ather singled WEA	na andre 1999 and/or sk stik	erni erne fag											
53 8	SACAP - Weter replacement related to south and gas repl	acoment with 1/3 c	net sharing of personnel, seen		des to conflict wit	in several - 10 permits														
34	S&F Water registement related to sever replacement to	th 1/2 cost thering	of performi, must make us	ter das to cand	BCI with sport 1	paints	enters and the													
1	GBP - Woter replacement related to gas replacement and i P - City poving street over succes stars 1/7 cast sharing of	City Street passing u	nds 1/3 mest sharing of powers	ioni Water da	es not have to be	moved, no candida w	th gat I mette													
18	G - Water replacement efetet is an unferennet with 1/7	sail thereat of home	e rim er earnage til new pave	in he moved	or one water made	a lange replaced with	beauf he short - e herves													

2016-2018 Project Atan B

4													H 1		U U	I P	0	K	1 5	1
			**************************************	A	· · · · · ·					.		A							*	
							chuck Water Works 17 WICA Weter Ma 1/11/2016													evised Attachment B Page 3 of 4
	PIPE SLEEDMENT OR PROJECT NAMES	GTT/10478	MATCHAL	LENGTH (PLLT)		PROPOLI D HAVE PAPE DAMETHE (RECORD)	451 MATES 4081	ALL D. ML	Part Age			ELT CLEIGHURS	WATER CLANUTY	Fill PROTECTION	Work searcheation whit Cost Januar or Maren Drain Ray expressed ⁶⁶⁴	Bablatal prine to Bengenghicol Arro Points	Congraphie Posti	1014	Fending Louise	be used to 2015 Hills WICA projects filed in Arreary 2015
15	Bidge M (Amory In E SI)	NASHUA	CALT DION UNIT ME	1300		12	\$ 443,000	187-1898	70	75		1	1	1 1				1 14	1	
4	Bargins a Bit (Bridge by pro)	MASHUA	CAST WOM UNUNED	176			\$ 39,090	1941	N	783						1	1	12		
	() bi (Bridge to § Hufter)	MASHIJA	CAST HOM UNLINED	109			118.000	1899	19	TIS	-			1	PBG	1	_	12	1	
4	t Bill date to E. Mate	MASHUA	CAST MON UNLINED	10		Н.	5. 121,000	1906	10	. 111		1		. 1	789	· · · · · · · · · · · · · · · · · · ·		16	1	
2	Inter Ang 15 Harden to Crowy)	MASHLIA	CAST MON UN, ALD			. ч.	\$ 144,000	(\$05		Y14		<u> </u>		1	P89		4		4	
1	Chase SI (E Halle to Crown)	MASHUA	CAST MOR UNUMED	415			114 000	1902	10	111			·	 	P&0 P&0			10	4	
7	(Deser B) (Desser to Adaption)			120	1	<u> </u>	10.000	1903-1908	N	115					PAG		+ + +		4	Te: 2015
1	Breck Groot (Ash In Fuljan) Chashrul Strast (w. Otwyne in Novedig)	MASHUA	CAST INDH LINUMED	513	644		\$ 142,000 \$ 175,000	1007-1024	10	114 115		<u> </u>		<u> </u>		t	H	+ *	1	Ves 2015
		MACHUA MACHUA	CAST MOR UNLINED	154			1 173 0000 1	2005	70	10			t					1	1	Yes 2015
	(gite Sereel (Pine 54 easterly) Verand Read (Remarks in Minister)	NASHR/A	CAST MON UNLINED	699			\$ 341,000	1912 - 1923	70	VES			1	+;				1	1	Yes 2020
	Sarassia Avanus (Port in Vyrmo)	MASHUA	CAST INDIA UNLINED	729			\$ 100,000	1926-1949	72	110		+	1			· · · · ·	1 1	1	1	Tes 2018
														+			1		To be Descentioned	Tes 2015
-													+				,	;	Combination of Balans	111-2015
	Dest from Junch Simol, ASMBA OST RDS SURVEY Obs F															141 2013				
	Ant Shrell (Late to Lovel)	MASHELA	CAST MON UNLINED	\$17			\$ 130,000	Lint		713		1	·····	1			1 1	1	Peorling	Ven #15
11	Fores Anoras (Mar in 194)	MAGHELIA	CAST MON UNLINED	140			1 125.008	1929	*	115			1				1	1	1	791-2016
2	Shorters Street Cliger to Landshel	MALHUA	CAST INCIN L'IN, INED	9465	144			1484 - 1544	10	115		1 1		,		,	1	1	1	Yes - 2014
0	Farmer Artemete (Cargos Bt. in sent)	MASHUSA	CENTRY LORD STEEL	195		4	B BL000	1940	40	755	1							1		Yrs 2016
4	Hurt Street (Fernet to Liverin)	MATHLA	CAST BON UNLINED	430	4		\$ \$7,800	1000		714	1.	1		1			1		1	Yes 1015
7	Burghurgen Birred planer in factio	MAIHUA	CAST INCH UNLINED	1 399	6		1 76,000	1300	70	ris .			I					1	1	Yes - 2016
	Linearth Average (Bright to Plight)	MASHUA	CAST MON UNUNED	(13)			1 111100	1999-1012		111	1			1						Yeg - 2415
17	Passad, Etrapi (Might to Pilipid)	MASHEAA	CAST BON UNLINED	- 141			1 157 000	1976 - 1913	42	103				1		10	1			Wet - 2016
P	Ciprate Asymptotic by and	MASHEJA	CEMENT INTER STER	184			1 27 gan	1939	- 44	113					· · · · · · · · · · · · · · · · · · ·		1 1	1 1		Pag - 2020
A	Fayler Breat (Main to Lyres)	MANNAM	CAST ALDER LINUSHED	1 test	64.0	H I		1003-1940		115	_								1	Tel - 2031
	Hard Start It If demand to Automat	NATHONA	CAST HOM UNA WITE	170				1010 1912						J					1	14
	Autom St (Anti-se of in Charles)	MASHEA	CAST HIGH UNLINTS	un	488		5 69,000	147										1 1		No
	Baard Mi ellestior to Autority	MASHRIA	CAST ILON LINLINGD	150				1940	70	YIS		L		L	٥			1 9		-
4			Total LF-	- 14,000		Total-														
-	2012					an Mil proposi-	114,000													
2	the second s	· Popilscoments ·	9.0	-	5 2,113		5 14,784 6 64,877													
2	Sarata	a Replacements" -	. 11		\$ 2,067		6 64,877 1 68,752													
-		e inflairceannach -				ing Contingents'	1 440,000													
						WICA \$5 to 2017-														
					a notes is in model and	WHEN 10 10 1011 -														
Ð																				
	rial integity - Rating of 2 pains for each brack in the last we illutings - A rating of 2 for each \$00 gam that the Ro																			
	but of Service, Valve and Sydrast replaceores a the or				and these as the own	erand could be 2014														
DA PWW	I must camplete replacement of 25 majos when the UR	ereplaces its seve																		
S ReD	Dry operates on a flocal year basis between July 1 and 2	late IS of the late	ming Colombar year		A passingency of			a correct to exceed for 1												
The Bank	. Coordination Legend - P - Project in sirest affected by cits that are highlighted in some mine are localed in the	Cas Print Print	nen, m Prayect at street with	ers Ges Campon	a manhar pina cala	I TOT GAL STARS FRANKL	ameret, 5 - Project in street	n annere sener sudjer so	ative strand, tage	activited in estimat	-									
	LP - Woter replacement rolated to sever and gat rapis																			
SAP-	- Woter replacement related to seven replacement unt	th 1/2 cant shoring	of presidentic, must make up	star due to cond	tt utth sever - B	cimine -														
GAL	- Water replacement related in gat replacement and G by paving slower water water ways. 1/2 cost sharing of p	the Street passing of	All 1/3 cod thang of power	mont Water des	of that have to be a	noved, no conflict of	th gas - 8 paints													
	plar replacement reiptad to gas splacement with 1/2						broad hadary - o beauty													

2016-2018 Projects Allach B

Ľ	A	1. 1		Q I	1	1	1 6 1	1	I T	1 1	4		м.	I	0		1 0	Ix	3	I
							tichuch Water Works, 2018 WICA Water Ma 1/11/2016													whad Attachment & Page 4 of 4
-	PUPE SEGENERT OR PROJECT MAN	GTT/10WN		LENGTH MAATI		PROPOSIDINEW PRE DAMETER INCOME				E FULLY DEPRES	SBLAK HISTORY		WATIN		Work coordination with Gas, Sever or Biorm Droin Replacement ⁶⁶⁰	Suchi stal prim to Geographical Area Patenta	Geographic	TDIAL	Fulling Larris	Included to 2015 JULT WICA projects Med In January 2018
-			CAST INDIA SHE HIP D	1780	100000	12	the state of the s		100	VIS	rearran	- HT CONTRACTOR		1			1		1	10. (1)
	Ande Si (flerber in Platame)	- MASHULA	CAST MON UNLINED	1094			\$ <u>\$400,000</u> \$ 830,000	1974-3920	1 10	113				+	F		+	1 :	-	794 8017
_	Lingburg Street (Lorburg) in Brannes (BAT-BLA	CAST MON UNLING	1096			1 600 0001	1000-1740						+		•	+	10	1	Tes - 10217
-	Process filmed (Ality in Mid-unity)	RATALIA	CAST MON UNLINED	20	+		1 85.000	1979 1940	1 10	1 113				+			1	+ -	1	741-2017
_	Process Read (the second is with	BASHELA		11	1 .		1 17 000	1972 - 1940						+		t	1	1 .	1	Tet - #117
	Malassia Sheet Prater is prill	Matheira	CEMENT LINED STREET	284	1 :		1 67 000	1972-1946						+		<u> </u>	+	+ ;-	1	Yes - 2017
-	Therman /Bread (Trabus in Median)	Resource	CAST MON UNLINED	100	1		1 14.50	1012 1000	20			t		1			+	1-;-	+	Yes - 2017
	Redur Street (A rise in King)	HALVELA	CAST MON UNLINED	607			1 11/00	1997	1 10	vis							+	+ :	-	Tet 2017
	Withoms bisnel (Allina, v. Art galan)	Hatrata .	CAST HOW UNLINED	1495	1 .		3 411,000	1919-1914	1 2	713				+			+	+ ;	To be Detertadeed	Ym 2017
	Middens (street (Alles in Artisgier)	Materia	CAST HOON LINLING D	1714			1	1000		113				1			+	1:	- Combination of fut are	179 2017
	Charry Scrapt (Maliate is and)	MACINIA	CAST BOOK LINE INTO	216	+ +			1926	1 2	715							+	1-1-	Land and Asters 540	Tet - 2017
	Barreen Street (Burke in Spanistry)	MASHILA	LAST MON LINUM D	610	+		5 H44020	1969 - 1630	44	113							1	+	Reading	101 2017
	Artington America (Clube in Spanding)	MALINELA	CAST MON LINKING D	200	1 1		5 61,000	1922		713							+ +	+	1	101-3017
	Vine St (W Hells to Knoley)	MASHESA	CAST MON UNLINED	- m	+		3 211000	1404	70	1 113		-		+				+	4	No
		-	CAST BROW UNLINED	214	+ +		1 794.000	1943-1974	1 10	1 11				+	PAG			+	-1	
_	Warner \$1 3.000 to f aty	BASHELA	CAST INCH UNLINED	1764	· · · · ·	17	1 945 000	1090-1091	1 10			·			***		-	+	1	
	Lake at (From the Aproperty	MALINIA	CAST INCIN LINUMED	1963			1 945 000	1001 1951-1951	10	Verlag				+ ÷ -				1	1	
_							4 115 200	1912-1962		Verlas							+	+	-	
	Eduin (\$1 (Bunchard in Cleanand)		CAST MON LINEARED	445	+		1 19 000	197		701							1	+	1	
	Mant grag marvely in Tatya!	ANSHELD .	GAVANEED STELL		1_4			141		1 11				1			L		d	
			Tuppi LF -	1710	12.0.0	Tatal														
		ten Beplace-monts ¹				inte State of the state	5 254,000													
					\$ 210		\$ 54,077													
		to Replacements"	11		\$ 2,067		5 54,077													
	Hydro	ent Papins ann ents ⁴	,		S 4,535	•	5 60,751 1 Million													
			-				1 LOLUI													1
			7.	nas successions and	WICH SS in MILE -		s retra													
. Ma	includ integrity - Rating of L pount for each break in the L	ant MI years																		
120	Fire Ratings - A rating of 1 for each 500 gam that the f	toos in the water man	- then then the SO requires	d rates																1
	mher of Service, Value and hudsont raplacments is the s W must complete reprintment of its major when the C	everage of the past 5	years The average casi for	sech replaces	nanc types in the su	an age card for 2014														
The	City seereles on a Ricci year best televest Joly 1 and	i have 30 of the follow	what Calendar year		-	,	106	arried to prepart for	INCS											
-	re Coordination Logond - P - Project is street effected	by City Forang Prage	in, 8 - Proyect in sit out who	ers Ges Campo	my master plan call	a lar gas main repie	stement \$. Project in street	I where somer and/or s			-									
Pro	pets that are highlighted in uses color are incored in t	he same stor upbic	sales if there a no legitigt	thing the proj	ath ate set be ated	in preside is any	other plasmed WICA prayer													
584	SEP - Water replacement related to sever and gas rep	learnest = 4x 1/3 c	al sharing of personant, man	of Autors webber	the to condict with	t server - 10 paints														
54	P - Water conferment related to sever replacement of P - Water Conferment related to gas replacement and	The latent starting	or persystemi, musi mout us	ter das la con		parents														
P-1	Day pering threat poor water main. 1/2 cost sharing of	personal Seduce	I this of damage of non party	second by broad	of did weigt main	d not ruplaned ant	t paving proget - 6 pavits													
	Nater replacement related to get replacement with 1/2	tost sharing of pave	mant Water dear net been	to be moved	to conflict with ga	s - 5 paints														

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Juit 2018 Properts Altaub B

MCLANE MIDDLETON

THOMAS B. GETZ Direct Dial: 603 230.4403 Email. thomas.getz@melane.com Admitted in NH 11 South Main Street, Suite 500 Concord, NH 03301 T 603.226.0400 F 603.230.4448

March 18, 2016

VIA ELECTRONIC MAIL

Rorie E. Patterson, Esq. Staff Attorney New Hampshire Public Utilities Commission 21 South Fruit Street Concord, NH 03301-2429

Re: DW 16-220; Pennichuck Water Works, Inc. Water Infrastructure Conservation Adjustment – Response to Staff's Second Set of Data Requests

Dear Attorney Patterson:

In connection with the above-referenced matter, I enclose Pennichuck Water Works, Inc.'s responses to Staff's Second Set of Data Requests.

Please call me with any questions or concerns.

Sincerely,

ť

Thomas B. Getz

TBG:rs3

Enclosures

cc: Discovery List

DW 16-220 PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to Staff Data Requests – Set 2 Water Infrastructure and Conservation Adjustment

Date Request Received: March 11, 2016 Request No. Staff 2-1 Date of Response: March 18, 2015 Witness: Donald L. Ware

1

Staff 2-1

Re: Revised Attachment B; Page 1 of 4; Line 60P and Staff Audit Report Dated 03/09/16; Page13: The Staff Audit Report indicates that 'Paving for 2014 Projects' included in the WICA investment for 2015 has been adjusted to an amount of \$39,808. However, the Company's Revised Attachment B, provided in response to Staff's first round of discovery, still indicates this amount as \$44,436; a difference of \$4,628. This amount is also reflected in the Company's Revised Attachment A. Should not this amount be revised to \$39,808 as indicated in the Staff Audit Report? If yes, please provide updated Attachments A and B to reflect this change. If no, please explain.

RESPONSE:

We agree with the recommendation in the Staff Audit Report indicating that 'Paving for 2014 Projects' included in the WICA investment for 2015 should be adjusted to an amount of \$39,808. We attached revised Attachments A and B to reflect this change. There was no impact on the customer surcharge in any of the years as a result of this change.

	· [· ·]	l ·		•	l · · ·		1 · · · ·	
·				DW	16-220			
			1	PENNICHUCK W	ATER WORKS, I	NC.		
			SUMM	ARY SCHEDULE	OF WICA INVES	STMENTS		
				IPLETED CONST				
			and PRO	JECTED CONST	RUCTION YEAR	5 2016- 2018		
-	(1)	(2)	(7)	(4)	(6)	(6)	(7)	(8)
-	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
\vdash						· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
	2013		Actual	Investment (DW 1	3-358)	1	Depreciatio	n Expense
H					,			
		Gross	Cost of			Net	Depreciation	Depreciation
1.4		Investment	Removal	Book Cost	Retirement	Investment	Rate ⁷	Expense
				(2) - (3)		(4) - (5)		(6) x (7)
	Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278
	Contingency	-	-		-	-	1.60%	-
	Paving	28,395	(2,839)	25,556	-	25,556	1.57%	401
$ \vdash $	Hydrants Services	59,164 241 199	(5,063)	54,101 218,219	(2,293) (6,924)	51,808 211,295	2.24% 2.34%	1,160 4,944
H	Valves	241,199 69,084	(22,980) (6,908)	62,176	(0,924) (2,174)	60,002	1.60%	960
	Total	\$ 1,960,879	\$ (194,024)	\$ 1,766,855	\$ (25,813)	\$ 1,741,042	2.0078	\$ 29,744
\vdash					(10,010)			
	20							
1.1	2014 2		Actual	Investment (DW	15-043)		Depreciation	on Expense
						1		
		Gross	Cost of			Net	Depreciation	Depreciation
Н		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
Н				(2) - (3)		(4) - (5)		(6) x (7)
	Mains	\$ 2,744,191	(273,203)	\$ 2,470,988	s -	\$ 2,470,988	1.60%	\$ 39,536
	Contingency	-		-	-	-	1.60% 1.57%	-
	Paving Hydrants	35,249	(3,525)	31,724	(215)	31,509	2.24%	706
	Services	82,444	(8,244)	74,200	(1)	74,199	2.34%	1,736
1.1	Valves	10,031	(1,003)	9,028	(538)	8,490	1.60%	136
	Total	\$ 2,871,915	\$ (285,975)	\$ 2,585,940	\$ (754)	\$ 2,585,186		\$ 42,114
1.1								
						1		
	2015 3			Actual Investment	t		Depreciati	on Expense
H								
		Gross	Cost of			Net	Depreciation	Depreciation
		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
		investment	VCIII 0 481	(2) - (3)	Nem cment	(4) - (5)	INDIC	(6) x (7)
	Mains	\$ 3,093,451	\$ (309,345)	\$ 2,784,106	\$ (38,121)	\$ 2,745,985	1.60%	\$ 43,936
	Contingency	-	- (505,2.5)	\$	- (,)		1.60%	s -
	Paving	39,808	(3,981)	\$ 35,827	-	35,827	1.57%	S 562
	Hydrants	76,976	(7,698)	\$ 69,278	(9,516)	59,762	2.24%	\$ 1,339
	Services	76,496	(7,650)	\$ 68,846	(2,627)	66,219	2.34%	\$ 1,550
	Valves	10,558	(1,056)	<u>\$ 9,502</u>	(2,995)	6,507	1.60%	<u>\$ 104</u>
	Total	<u>\$ 3,297,289</u>	\$ (329,729)	\$ 2,967,560	\$ (53,259)	\$ 2,914,300		\$ 47,491
—								
 						<u> </u>		
-	2016 4		-	Incident Turneter		1	Dermaint	on Expense
	2010		P	rojected Investme	23 6		Depreciati	nn wyhense
		Gross	Cost of			Net	Depreciation	Depreciation
		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
1.1		***************		(2) - (3)		(4) - (5)		(6) x (7)
		\$ 4,188,000	\$ (418,800)	\$ 3,769,200	<u>s</u> -	\$ 3,769,200	1.60%	\$ 60,307
	Mains	3 4,100,000	\$ (410,000)	5,705,200	- v	a 3,707,200 j		. 00,007
	Mains Contingency	418,800	(41,880)	376,920		376,920	1.60%	6,031

Invstmt summary - Attach A

						·····		
		I I	I I					
				DW	16-220			
				PENNICHUCK W	ATER WORKS, I	NC.		
			SUMM	ARY SCHEDULE	OF WICA INVES	STMENTS		
			FOR COM	IPLETED CONS	FRUCTION YEAR	RS 2013 - 2015		
			and PRO	JECTED CONST	RUCTION YEAR	S 2016- 2018		
L	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	- 1							
70	Paving	292,330	(29,233)	263,097	-	263,097	1.57%	4,131
71	Hydrants	40,752	(4,075)	36,677	-	36,677	2.24%	822
72	Services	64,077	(6,408)	57,669	-	57,669	2.34%	1,349
73 74	Valves	14,784	(1,478) \$ (501,874)	13,306		13,306	1.60%	213
	Total	\$ 5,018,743	\$ (501,874)	\$ 4,516,869	<u>s</u> -	\$ 4,516,869		<u>\$ 72,852</u>
75 76								
77								
78								
78	2017 5		-	instant Variation		I	P	E I
80	2017		r	rojected Investme	BL		Depreciati	on Expense
81								
82		Gross	Cost of			Net	Depreciation	Depreciation
		Investment	Removal	Book Cost	Retirement	Investment	Rate ⁷	Expense
83 84		investment	КСЩОТАІ	(2) - (3)	Renfement	(4) - (5)	Kate	(6) x (7)
85	Mains	\$ 4,493,000	\$ (449,300)	\$ 4,043,700	<u>s</u> -	\$ 4,043,700	1.60%	\$ 64,699
86	Contingency	449,300	(44,930)	404,370	- -	404,370	1.60%	\$ 6,470
87	Paving	250,000	(25,000)	225,000		225,000	1.57%	\$ 3,533
88	Hydrants	40,752	(4,075)	36,677	-	36,677	2.24%	\$ 822
89	Services	64,077	(6,408)	57,669	-	57,669	2.34%	\$ 1,349
90	Valves	14,784	(1,478)	13,306	-	13,306	1.60%	\$ 213
91	Total	\$ 5,311,913	\$ (531,191)	\$ 4,780,722	s -	\$ 4,780,722		\$ 77,086
92		Contraction of the local division of the loc	Contraction of Stationary and	Entrance and and		The state of the second se		
93								
94								
95						1		
96	2018 *		P	rojected Investme	nt		Depreciati	on Expense
97 98								
98								
99		Gross	Cost of			Net	Depreciation	Depreciation
100		Investment	Removal ⁸	Book Cost	Retirement	Investment	Rate ⁷	Expense
101				(2) - (3)		(4) - (5)		(6) x (7)
102	Mains	\$ 5,490,000	\$ (549,000)	\$ 4,941,000	s -	\$ 4,941,000	1.60%	\$ 79,056
103	Contingency	549,000	(54,900)	494,100	-	494,100	1.60%	\$ 7,906
104 105	Paving	250,000	(25,000)	225,000		225,000	1.57%	\$ 3,533 \$ 822
105	Hydrants Services	40,752 64,077	(4,075)	36,677 57,669	-	36,677 57,669	2.24% 2.34%	\$ 822 \$ 1,349
108	Valves	14,784	(6,408) (1,478)	13,306	-	13,306	2.34% 1.60%	\$ 1,349 \$ 213
107	Total	\$ 6,408,613	\$ (640,861)	\$ 5,767,752	<u>s</u>	\$ 5,767,752	1.00%	\$ 92,878
109		,	J (040,001)	5,101,152		5 5,101,152		5 72,010
110	Notes:							
111		W's WICA Filing in	DW 13-358					
		W's WICA Filing in						
112								
113		achment B, Page 1 o						
114		achment B, Page 2 o						
115	⁵ Based on Atta	achment B, Page 3 o	f 4.					
116	⁶ Based on Atta	achment B, Page 4 o	f 4.					
117		tion Rates are based		study approved in 1	DW 06-073			
118						3 dated 3/19/15. All	other Cost of Remo	val
119		015-2018 are based			oport in 2011 10-04.	- and or 19115. All	Sale Cost of Addito	
		and the ballet		c. cos an optimelit.	the Street International Street			

	· · · · · · · · · · · · · · · · · · ·		1		
\square		16-220	11	11	1
	PENNICHUCK W	ATER WORKS	, INC.		
	PROJECTED CALCULATIO	N OF 2016 WIC	CA SURCHARGE		
	FOR COMPLETED CONST	RUCTION YE	ARS 2013 - 2015		
-					
			A street		
	-		Actual		
· · ·		2013	2014	2015	Total
100	Plant in Service:				
	Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879	\$ 2,871,915	\$ 3,297,289	\$ 8,130,083
	Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(329,729)	(809,728)
	Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	(53,259)	(79,826)
	Net Plant Investment	1,741,042	2,585,186	2,914,301	7,240,528
	Accumulated Depreciation:				
	Depreciation Expense ¹ (Att A; Sch 1; Col (8)):				
	2013 Net Plant Investment	14,872	29,744	29,744	74,360
-	2014 Net Plant Investment	-	21,057	42,114	63,171
	2015 Net Plant Investment	-		23,745	23,745
	Total Depreciation Expense	14,872	50,801	95,603	161,276
1.0	Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(329,729)	(809,728)
	Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	(53,259)	(79,826)
-	Net Accumulated Depreciation	(204,965)	(235,928)	(287,385)	(728,278)
-	Net Plant in Service	\$ 1,946,007	\$ 2,821,114	\$ 3,201,686	\$ 7,968,807
	Pre-tax Rate of Return ²	3 1,740,007	5 2,021,114	3 5,201,000	
	Return on Investment			:	\$ 491,539
					3 491,339
	Property Tax Expense 3 @	\$28.59	per \$1,000		227,828
-	" upper of the second	020.07	per 91,000		
	Annual Depreciation Expense (Att A; Sch 1; Col (8)):				
	2013 Net Plant Investment				29,744
	2014 Net Plant Investment				42,114
-	2015 Net Plant Investment				47,491
1.1	Total Annual Depreciation Expense				119,348
10.00	2016 Cumulative Revenue Requirement				\$ 838,716
(\mathbf{r},\mathbf{r})	Less: 2015 Cumulative Revenue Requirement ⁴				(500,198)
	2016 Revenue Requirement				\$ 338,517
	Water Revenues per DW 13-130 5				\$ 27,689,214
1.1					
	2016 Revenue Surcharge %				1.22%
	2016 Cumulative Revenue Surcharge %				3.03%
-					
	Customer Impact:				
\vdash	5/8 Inch Meter Monthly Charge				\$ 20.34
	Volumetric Charge				\$ 3.30
	Average Single Family Residential Usage (CCF)				7.88
1	Average Monthly Usage Charge				\$ 26.00
	Total Average Monthly Charge				\$ 46.34
	Average Monthly \$ Impact per Customer of 2016 Surcharge				<u>\$ 0.57</u>
	Average Monthly \$ Impact per Customer of 2016 Cumulative Surch	laige			<u>\$ 1.40</u>
	Notes:				
	¹ The half-year convention for depreciation expense is employed wh	ereby one-half o	f the annual denree	iation	
1.1	expense is recorded in the first and last year of an asset's service li	• • • • • • • • • • • • • • • • • • •	a.maa depice		
÷	² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Film))		
* -		Weighted Cost	Tax Multiplier	Pre Tax Cost	
	Debt	5.59%	1.000	5.59%	
1.1	Equity -	0.35%	1.656	0.58%	
	1	5.94%		6.17%	
	City of Mashun 2016 Mill Date of \$21.00 and State Hilling Descent	Tay Date of \$6	60		
nd.	City of Nashua 2015 Mill Rate of \$21.99 and State Utility Property				
711 201	 ⁴ WICA Revenue Requirement approved in DW 15-043 by Commis ⁵ Base rate revenue requirement approved in DW 13-130 by Commi 	sion Order No. 2	25,784 (4/30/15)		

	ŀ	1		T		—		Г		1	· · · · · · · · · · · · · · · · · · ·
			DW 16-220)						1	
	PENNIC	сни	CK WATER		RKS, INC.						
	PROJECTED CAL										
\vdash	FOR COMPLETI)15				
—	and PROJEC	TE	D CONSTRU	CTI	ON YEAR 20	16					
					Actual			Pr	ojected		
			2013	_	2014		2015		2016	_	Total
	Plant in Service:								Con recording to the second		
<u> </u>	Gross Plant Investment (Att A; Sch I; Col (2))	S	1,960,879	s		\$	3,297,289	S	5.018,743		13,148,826
	Less: Cost of Removal (Att A; Sch 1; Col (3)) Less: Plant Retirements (Att A; Sch 1; Col (5))		(194,024) (25,813)		(285,975) (754)		(329,729) (53,259)		(501,874)		(1,311,603) (79,826)
	Net Plant Investment		1.741.042		2,585,186		2,914,301		4,516,869		11,757,397
1.1											
	Accumulated Depreciation:										
	Depreciation Expense ¹ (Att A; Sch 1; Col (8)):										
	2013 Net Plant Investment		14,872		29,744		29,744		29,744		104,104
	2014 Net Plant Investment				21,057		42,114		42,114		105,284
the second secon	2015 Net Plant Investment 2016 Net Plant Investment		· •		-		23,745		47,491		71,236
	Total Depreciation Expense		14,872		50,801		95,603	-	36,426		36,426 317,051
	Less: Cost of Removal (Att A: Sch 1; Col (3))		(194,024)		(285,975)		(329,729)		(501,874)		(1,311,603)
	Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)		(754)		(53,259)		-		(79,826)
	Net Accumulated Depreciation		(204,965)	_	(235,928)	_	(287,385)		(346,100)		(1,074,378)
		-									
	Net Plant in Service	<u> </u>	1,946,007	<u></u>	2,821,114		3,201,686	<u>s</u>	4,862,969	\$	12,831,775
	Pre-tax Rate of Return ²								:	×	6.17%
	Return on Investment									5	791,501
			633 60								
1.1	Property Tax Expense "	1	\$28.59	per 3	1,000						366,860
	Annual Depreciation Expense (Att A; Sch 1; Col (8)):										
_	2013 Net Plant Investment										29,744
1.1	2014 Net Plant Investment										42,114
	2015 Net Plant Investment										47,491
	2016 Net Plant Investment										72,852
	Total Annual Depreciation Expense										192,201
	2017 Cumulative Revenue Requirement									s	1,350,563
	Less: 2016 Cumulative Revenue Requirement ⁴									-	(838,716)
	2017 Revenue Requirement									5	511,847
• •										-	
· ·	Water Revenues per DW 13-130 5									\$	27,689,214
1.1											
•											
	2017 Revenue Surcharge %										1.85%
	2017 Cumulative Revenue Surcharge %										4.88%
	Customer Impact:										
	5/8 Inch Meter Monthly Charge									S	20.34
	Volumetric Charge									\$	3.30
	Average Single Family Residential Usage (CCF)										7.88
	Average Monthly Usage Charge									5	26.00
	Total Average Monthly Charge									<u></u>	46.34
	Average Monthly \$ Impact per Customer of 2017 Surcharge									S	0.86
and the owner where the party is not the party of the par	Average Monthly \$ Impact per Customer of 2017 Sucharge Average Monthly \$ Impact per Customer of 2017 Cumulative Surc	hare	c							s	2.26
1	e at an e of the second s	9									
	Notes:										
•	The half-year convention for depreciation expense is employed w	here	by one-half of	the	annual depreci	ation	E				
	expense is recorded in the first and last year of an asset's service l				•						
	Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Fil	ing i	n DW 13-130								
		We	eighted Cost	Ta	x Multiplier	P	e Tax Cost				
	Debt		5.59%		1.000		5.59%				
ll'	Equity		0.35%		1.656		0.58% 6.17%				
	City of Nashua 2015 Mill Rate of \$21.99 and State Utility Proper	ty T		60.			0.1770				
	Attachment A; Schedule 2a										
	Base rate revenue requirement approved in DW 13-130 by Comm	iceie	n Order No 3	5 69	3 (7/15/14)						
	Date tale retenue requirement approved in DW 13-150 by Comin	1,4510		5.09	- (_		-		-	

Revised Attachment A Schedule 2c Page 5 of 7

			T			
		W 16-220	بل حمد مع مع الم		11	
-	PENNICHUCK		INC			
PROJEC	TED CALCULATI					
	MPLETED CONS					
and PR	OJECTED CONST	TRUCTION YEA	RS 2016 - 2017			
		Actual		Proj	ected	
						_
Plant Investment	2013		2015	2016	2017	Total
Gross Plant Investment (Att A, Sch 1, Col (2))	S 1,960,879	\$ 2,871,915	\$ 3,297,289	\$ 5,018,743	\$ 5,311,913	\$ 18,460,739
Less Cost of Removal (Att A, Sch 1, Col (3))	(194.024)	(285,975)	(329,729)	(501,874)	(531,191)	(1,842,794)
Less Plant Retirements (Att A, Sch 1, Col (5))	(25,813)	(754)	(53,259)	-		(79,826)
Net Plant Investment	1,741,042	2,585,186	2,914,301	4,516,869	4,780,722	16,538,119
Accumulated Depreciation:						
Depreciation Expense (Att A, Sch 1, Col (8))		server and it times a first				
2013 Net Plant Investment	14,872	29,744	29,744	29,744	29,744	133,849
2014 Net Plant Investment 2015 Net Plant Investment	•	21,057	42,114	42,114	42,114	147,398
2015 Net Plant Investment		-	23,745	47,491 36,426	47,491 72,852	118,726
2017 Net Plant Investment				30,420	38,543	38,543
Total Depreciation Expense	14,872	50,801	95,603	155,775	230,744	547,794
Less Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(329,729)	(501,874)	(531,191)	(1,842,794)
Less. Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	(53,259)			(79,826)
Net Accumulated Depreciation	(204,965)	(235,928)	(287,385)	(346,100)	(300,448)	(1,374,826)
			Production and the second second			
Net Plant in Service	\$ 1,946,007	\$ 2,821,114	\$ 3,201,686	\$ 4,862,968	\$ 5,081,169	\$ 17,912,945
Pre-tax Rate of Return ²						x 6.17%
Return on Investment						S 1,104,923
-	and the second second					
Property Tax Expense	@ \$28.59	per \$1,000				512,131
Annual Description Frances (Am A. Esh I: Col (8));						
Annual Depreciation Expense (Att A; Sch I; Col (8)): 2013 Net Plant Investment						29,744
2014 Net Plant Investment						42,114
2015 Net Plant Investment						47,491
2016 Net Plant Investment						72,852
2017 Net Plant Investment						77,086
Total Annual Depreciation Expense						269,286
						. 1 896 740
2018 Cumulative Revenue Requirement						\$ 1,886,340
Less: 2017 Cumulative Revenue Requirement *						(1,350,563) \$ 535,778
2018 Revenue Requirement						3 333,778
Water Revenues per DW 13-130 3						\$ 27,689,214
water revenues per DW 13-130						3 27,089,214
2018 Revenue Surcharge %						1.93%
2018 Cumulative Revenue Surcharge %						6.81%
-						
Customer Impact:						
5/8 Inch Meter Monthly Charge						\$ 20.34
Volumetric Charge						\$ 3.30
Average Single Family Residential Usage (CCF)						7.88
Average Monthly Usage Charge						<u>\$ 26.00</u> \$ 46.34
Total Average Monthly Charge						3 40,34
Average Monthly \$ Impact per Customer of 2018 Surcharge						\$ 0.90
Average Monthly \$ Impact per Customer of 2018 Sucharge	charge					\$ 3.16
						International Property in which the rest
Notes						
¹ The half-year convention for depreciation expense is employed	whereby one-half of	the annual depreci	ation			
expense is recorded in the first and last year of an asset's service						
² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate F)				
	Weighted Cost	Tax Multiplier	Pre Tax Cost			
Debt	5.59%	1 000	5.59%			
Equity	0.35%	1 656	0.58%			
	5 94%		6.17%			
3 City of Nashua 2015 Mill Rate of \$21.99 and State Utility Prop	erty Tax Rate of \$6.	60.				
⁴ Attachment A, Schedule 2b						
⁵ Base rate revenue requirement approved in DW 13-130 by Com	mission Order No. 2	5 693 (7/15/14)				

Revised Attachment A Schedule 2d Page 6 of 7

	<u> </u>		1	<u> </u>	<u></u>		1 1	Page 6 o
			DW 16-220					
			HUCK WATER	WORKS, INC.				
				019 WICA SURC				
				TON YEARS 201: ON YEARS 2016				
-	411-2	TROJECTE	Deconstructio	ON TEAKS 2010	- 2010			
1								
			Actual			Projected		
Plant Investment:	_	2013	2014	2015	2016	2017	2018	Total
Gross Plant Investment (Att A; Sch 1; Col (2))	S	1,960,879	\$ 2,871,915	\$ 3,297,289	\$ 5,018,743	\$ 5,311,913	\$ 6,408,613	\$ 24,869,352
Less: Cost of Removal (Att A; Sch 1; Col (3))		(194,024)	(285,975)	(329,729)	(501,874)	(531,191)	(640,861)	(2,483,655
Less: Plant Retirements (Att A; Sch 1; Col (5))	_	(25,813)	(754)	(53,259)			-	(79,826
Net Plant Investment		1,741,042	2,585,186	2,914,301	4,516,869	4,780,722	5,767,752	22,305,871
Accumulated Depreciation:								
Depreciation Expense (Att A; Sch I; Col (8)):								
2013 Net Plant Investment		14,872	29,744	29,744	29,744	29,744	29,744	163,593
2014 Net Plant investment			21,057	42,114	42,114	42,114	42,114	189,512
2015 Net Plant Investment		-	-	23,745	47,491	47,491	47,491	166,217
2016 Net Plant Investment 2017 Net Plant Investment		-	-	-	36,426	72,852	72,852 77,086	182,131
2018 Net Plant Investment		-	-	-	-	38,543	46,439	115,628
Total Depreciation Expense		14,872	50,801	95,603	155,775	230,744	315,725	863,520
Less: Cost of Removal (Att A; Sch 1; Col (3))		(194,024)	(285,975)	(329,729)	(501,874)	(531,191)	(640,861)	(2,483,655
Less: Plant Retirements (Att A; Sch 1; Col (5))		(25,813)	(754)	(53,259)				(79,826
Net Accumulated Depreciation	_	(204,965)	(235,928)	(287,385)	(346,100)	(300,448)	(325,136)	(1,699,962
Net Plant in Service	s	1,946,007	\$ 2,821,114	\$ 3,201,686	\$ 4,862,968	\$ 5,081,169	\$ 6,092,888	\$ 24,005,832
Pre-tax Rate of Return 2	100						0,072,000	x 6.179
Return on Investment								\$ 1,480,750
Property Tax Expense 3	@	\$28,59	per \$1,000					686,327
Annual Depreciation Expense (Att A; Sch 1; Col (8)):								
2013 Net Plant Investment 2014 Net Plant Investment								29,744 42,114
2014 Net Plant Investment								47,491
2016 Net Plant Investment								72,852
2017 Net Plant Investment								77,086
2018 Net Plant Investment								92,878
Total Annual Depreciation Expense								362,164
2018 Cumulative Revenue Requirement								\$ 2,529,241
Less: 2017 Cumulative Revenue Requirement ⁴								(1,886,340
2018 Revenue Requirement								\$ 642,901
Water Revenues per DW 13-130 5								\$ 27,689,214
]								
2018 Revenue Surcharge %								2.32%
2018 Cumulative Revenue Surcharge %								9.13%
Customer Impact:								
5/8 Inch Meter Monthly Charge								\$ 20.34
Volumetric Charge								\$ 3.30
Average Single Family Residential Usage (CCF)								7.88
Average Monthly Usage Charge								<u>\$ 26.00</u>
Total Average Monthly Charge								\$ 46.34
Average Monthly \$ Impact per Customer of 2018 Surcharg	-							\$ 1.08
Average Monthly S Impact per Customer of 2018 Surcharg		ic.						<u>s</u> 1.00
		• 672						
Notes:								
	loyed where		the annual deprecia	ation				
The half-year convention for depreciation expense is emp								
 I. Ander and the state of the s	service life.							
¹ The half-year convention for depreciation expense is emp	Rate Filing	in DW 13-130)						
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's	Rate Filing	in DW 13-130) Veighted Cost	Tax Multiplier	Pre Tax Cost				
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's Debt	Rate Filing	in DW 13-130) Veighted Cost 5.59%	Tax Multiplier 1.000	5.59%				
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's	Rate Filing	in DW 13-130) Veighted Cost 5.59% 0.35%	Tax Multiplier	5.59% 0.58%				
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's Debt Equity	Rate Filing	in DW 13-130) Veighted Cost 5.59% 0.35% 5.94%	Tax Multiplier 1.000 1.656	5.59%				
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's Debt Equity 3 City of Nashua 2015 Mill Rate of \$21.99 and State Utilit	Rate Filing	in DW 13-130) Veighted Cost 5.59% 0.35% 5.94%	Tax Multiplier 1.000 1.656	5.59% 0.58%				
¹ The half-year convention for depreciation expense is emp expense is recorded in the first and last year of an asset's ² Calculation of Pre-Tax Rate of Return (Based on PWW's Debt Equity	Rate Filing V 	in DW 13-130) Veighted Cost 5.59% 0.35% 5.94% Fax Rate of \$6.6	Tax Multiplier 1.000 1.656 50.	5.59% 0.58%				

		- Coldina			Sec.								Page 7 of 7
		1	·		· [
			DW 16-22										
			KWATER										
	SUMMARY OF FOR APPROVED 2014 and 2015 W								DOE				
	and PROJEC							CHA	RGE				
			017 - 2017 1	nic.	SU ACHAR	GLS							
													i
*			Actual		Actual				Proj	ected			
			2014		2015		2016		2017		2018		2019
_													
	SUMMARY OF CALCULATIONS (Att A; Sch's 2):												
	Annual Revenue Requirement	s	181,151	s	319,047	s	338,517	s	511,847	s	535,778	S	642,901
	Cumulative Revenue Requirement	s	181,151	s	500,198	s	838,716		1,350,563	5	1,886,340	s	2,529,241
		-		-		<u> </u>		-		-		-	
-													
	Annual Revenue Surcharge %		0.67%		1.15%		1.22%		1.85%		1.93%		2.32%
1 A	Cumulative Revenue Surcharge %		0.67%		1.81%	-	3.03%	_	4.88%	-	6.81%	-	9.13%
L													
	Annual Average Monthly \$ Impact per Customer	5	0.31	5	0.53	5	0.57	<u>s</u>	0.86	<u>s</u>	0.90	<u>s</u>	1.08
	Cumulative Average Monthly \$ Impact per Customer		0.31	3	0.84		1.40		2.20		J.10	2	4.23
2.4													
-	PER MOST RECENT APPROVED RATE FILING DW15-0	43											
	Annual Revenue Requirement	S	181,151	S	319,047	S	529,073	S	543,192	S	444,906		
	Cumulative Revenue Requirement	S	181,151	S	500,198	S	1,029,270	S	1,572,463	S	2,017,369		
	A must B evenue Sumbarne 8/		0.679/		1.169/		1.018/		1.0664		1 (18/		
	Annual Revenue Surcharge % Cumulative Revenue Surcharge %		0.67%		1.15%		1.91%		1.96%		1.61%		
1.1	Canalan to Revenue our energe /e	Station of Concession, Name	0.0776		1.01 /0	-	3.7 2 76	-	5.0074		1,4,2 /6	_	
	Annual Average Monthly \$ Impact per Customer	S	0.31	S	0.53	S	0.89	S	0.91	S	0.74		
	Cumulative Average Monthly \$ Impact per Customer	S	0.31	S	0.84	S	1.72	S	2.63	S	3.38		

	1		<u> </u>	c	Ð		Pennichu	ct Water W	ul lorius, inc.	1	1	ĸ		м	N.	0	ŀ	2	<u>k</u>	1	1	61
	2					2015 W				latus									R			
Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>				WORK ORDER	MATIBAI	Criginal WICA LE 19ing LENGTH	N&TH as of	4/34/3815	LENGTH as of \$/30/2015	LENGTH	CAMETER	PIPE CHAMETER	FEING ESTIMATED				COSTS (color coded for same	FAVING COLT IN 2014	ALL 75 849			
La materia (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)				1502509							1									1		
Lands Mark USA USA <thusa< <="" td=""><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thusa<>	7										•											
Link	n 7 8				Cast water and the						1						\$ 191,776					
Area base base base More base base More base base More base base base More base base base base base base base bas	10																			40		Completed, final Paving in 2016 rs. 6 - \$23,000.00
Mark and Long Long Long Long Long Long Long Long		Ash Binnel (Lovel to End)	NASHUA	1502514	CAST (RON UNLINED	190	190	190	190	347	4 8 1-1/2		\$ 62,000	\$ 62 0001	\$ 42,000	\$ \$6,600	\$ \$1,198	\$27 000	1.421	40	115	Due to conflict with an and server - water was changed. If on PM DIP 8,the cost of small dram-ter musicin was increated an anticipate Completed, Final paying in 2016 et. 4 \$27,000.00
$ \frac{1}{1000} + $	12					163					2									40		
Institution Market Markt Mar	3		NASHUA	1502517	CEMENT UNED STEEL	125	125	125	125		1 1/2		\$ 39,000	\$ 99,00.1	-			\$10,000		40		
impo Band Mark Control Control <th< td=""><td></td><td>Hertza Avienae (Alida northerly)</td><td>NASHUA</td><td>1500314</td><td>CAST HIGH UNLINED</td><td>460</td><td>480</td><td>480</td><td>480</td><td>572</td><td>٠</td><td>12</td><td>\$ 221,000</td><td>\$ 279 000</td><td>\$ 229,000</td><td>\$ 129,000</td><td>\$ 135,122</td><td></td><td>1653</td><td>70</td><td>TIS</td><td>Campleta</td></th<>		Hertza Avienae (Alida northerly)	NASHUA	1500314	CAST HIGH UNLINED	460	480	480	480	572	٠	12	\$ 221,000	\$ 279 000	\$ 229,000	\$ 129,000	\$ 135,122		1653	70	TIS	Campleta
impo Band Mark Control Control <th< td=""><td>15</td><td>Foundry Streat</td><td></td><td></td><td>TRANSITE</td><td>1,465</td><td>1,445</td><td>1,465</td><td></td><td>1,199</td><td></td><td></td><td></td><td></td><td></td><td></td><td>\$ 211,122</td><td></td><td></td><td>40</td><td></td><td></td></th<>	15	Foundry Streat			TRANSITE	1,465	1,445	1,465		1,199							\$ 211,122			40		
impo Band Mark Control Control <th< td=""><td>16</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>:</td><td></td><td></td><td></td><td></td><td></td><td>1 117 aug</td><td></td><td></td><td></td><td></td><td></td></th<>	16										:						1 117 aug					
impo Band Mark Control Control <th< td=""><td>11</td><td></td><td></td><td></td><td></td><td></td><td>للمج</td><td></td><td>-84</td><td></td><td></td><td>10</td><td>• ••••</td><td></td><td>• •</td><td></td><td></td><td></td><td></td><td>40</td><td></td><td></td></th<>	11						للمج		-84			10	• ••••		• •					40		
impo Band Mark Control Control <th< td=""><td>19</td><td></td><td></td><td>1501462</td><td></td><td></td><td></td><td></td><td></td><td></td><td>6</td><td></td><td></td><td></td><td></td><td></td><td>542</td><td></td><td></td><td></td><td>0.52</td><td></td></th<>	19			1501462							6						542				0.52	
impo Band Mark Control Control <th< td=""><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	20										1											
impo Band Mark Control Control <th< td=""><td>32</td><td>Hemilton Street (Lake to Brook)</td><td>NASHUA</td><td></td><td>CAST INON UNLINED</td><td>1 141 411</td><td></td><td>7.943</td><td>3, 141</td><td></td><td></td><td>:</td><td>\$ 130,000</td><td>\$ 130 000</td><td>, wr,000</td><td></td><td>i .</td><td></td><td>1910 1941</td><td>70</td><td>TES</td><td>Deferred until 2018 by PWW</td></th<>	32	Hemilton Street (Lake to Brook)	NASHUA		CAST INON UNLINED	1 141 411		7.943	3, 141			:	\$ 130,000	\$ 130 000	, wr,000		i .		1910 1941	70	TES	Deferred until 2018 by PWW
impo Band Mark Control Control <th< td=""><td>23</td><td>Burritt Street (Lake to Brook)</td><td></td><td></td><td>CAST HIGH UNLINED</td><td>#24</td><td>434</td><td></td><td>1</td><td>-*</td><td>4</td><td>•</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td></th<>	23	Burritt Street (Lake to Brook)			CAST HIGH UNLINED	#24	434		1	-*	4	•					1					
impo Band Mark Control Control <th< td=""><td>괬</td><td></td><td></td><td></td><td>CAST (ROM LINE INFO</td><td></td><td></td><td>101</td><td>102</td><td></td><td>:</td><td>1</td><td></td><td></td><td>\$ 41,000</td><td>•</td><td>1</td><td></td><td>1892</td><td></td><td>TES</td><td></td></th<>	괬				CAST (ROM LINE INFO			101	102		:	1			\$ 41,000	•	1		1892		TES	
impo Band Mark Control Control <th< td=""><td>26</td><td>Lake Street (Ping St. easterly)</td><td></td><td></td><td></td><td></td><td>154</td><td>154</td><td></td><td></td><td>-</td><td>11</td><td>\$ 113,000</td><td></td><td></td><td></td><td>\$</td><td></td><td></td><td></td><td></td><td></td></th<>	26	Lake Street (Ping St. easterly)					154	154			-	11	\$ 113,000				\$					
impo Band Mark Control Control <th< td=""><td>27</td><td></td><td></td><td></td><td></td><td></td><td></td><td>~</td><td>-</td><td></td><td>4</td><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ter site and the second s</td></th<>	27							~	-		4	•										ter site and the second s
impo Band Mark Control Control <th< td=""><td>28</td><td></td><td></td><td></td><td></td><td>627</td><td>6.27</td><td>627</td><td></td><td></td><td></td><td>4</td><td>\$ 102,000</td><td>\$ 102,000</td><td>\$ 102,000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	28					627	6.27	627				4	\$ 102,000	\$ 102,000	\$ 102,000							
impo Band Mark Control Control <th< td=""><td>30</td><td></td><td></td><td></td><td></td><td>1,030</td><td>1,030</td><td>185</td><td></td><td></td><td>10</td><td>10</td><td>5 276,100</td><td>\$ 278,100</td><td>\$ 145,000</td><td>\$ \$17,800</td><td></td><td></td><td></td><td>70</td><td>TES</td><td>Complete</td></th<>	30					1,030	1,030	185			10	10	5 276,100	\$ 278,100	\$ 145,000	\$ \$17,800				70	TES	Complete
All free free steer, where it will will will will will will will w						(4)			300			•	*			\$ 154,700	5		1908			porponed the work we estended The project across the AR trac
Name	31											Α.										
Nate models below in Law 10 bel	13 14 A	Akta Street (Man to Herbor), parallels 18" Cl															\$ \$78,435					
No. Bits Bars - Same No. Carden No. Tr Tr< Tr Tr<							-						5 -			\$					NO	
Name from the state of the constraint of th	36	Alds Street - Selmon Brack Crossing	NASHUA	1501856	TRANSITE	760	760	760	760	534	13	30	\$ 425,000	\$ 425,000	\$ 423,000	\$ 425,000				_		
House Anome Empropried House Anome Empropried Anome	17										12	14		5 .	5 -	5 -						
1. 2013 value and creative influence and a Statements of Valuence and Antoine							1	•4			4.4.7				5 20,000	3 144,250						
1. 2013 value and creative influence and a Statements of Valuence and Antoine	40											2	5	1 .	s .	\$ 2,17,600				70		Completed, final pavement in 2016 erst - \$3900.00
1. 2013 value and creative influence and a Statements of Valuence and Antoine	41					700	700	1	•		1	4	\$ 274,000						1965			
1. 2013 value and creative influence and a Statements of Valuence and Antoine	42						-	44	•				5 5	•							0.55	
1. 2013 value and creative influence and a Statements of Valuence and Antoine							2				2		· · · ·									
1. 2013 value and creative influence and a Statements of Valuence and Antoine	41											12	1 · · ·	5 .							TES	
1. 2013 value and creative influence and a Statements of Valuence and Antoine	46					•		54		•		4	5 1	•								
1. 2013 value and creative influence and a Statements of Valuence and Antoine	47					-	•	36		*			1 1	2								
1. 2013 value and creative influence and a Statements of Valuence and Antoine	46						1	15	2		1	:		i .								
1. 2013 value and creative influence and a Statements of Valuence and Antoine	40	Buchanan St at Man St			CAST IRON UNLINED			1773				4	5.								YES	City delayed to 2016
1. 2013 value and creative influence and a Statements of Valuence and Antoine	51						-	15		8	4	4	5 -	5								
1. 2013 value and creative influence and a Statements of Valuence and Antoine								15		- 5	:		1									
1. 2013 value and creative influence and a Statements of Valuence and Antoine	4.4									22		Abandon	5	\$	•					70	YES	City delayed to 2016
1. 2013 value and creative influence and a Statements of Valuence and Antoine	45	Dickeniven 81 at Main 52				-				•			s -	\$								
1. 2013 value and creative influence and a Statements of Valuence and Antoine	46					1			+		10	Abendan		1								
1. 2013 value and creative influence and a Statements of Valuence and Antoine	17					5 A	430	3,600			:	Abendon	\$	\$ 199 500		\$						
1. 2013 value and creative influence and a Statements of Valuence and Antoine	19				the second s	- 14,640	15,070	15,729	13,451	11,548								\$ 228,330				
1. 2013 value and creative influence and a Statements of Valuence and Antoine	641											g from 2014 projects -										
1. 2013 value and creative influence and a Statements of Valuence and Antoine	61						117															
1. 2013 value and creative influence and a Statements of Valuence and Antoine	63						head			Hydras	A Replacements"	. 17		\$ 29,374	\$ 25,374	\$ 29,376	1 76,976					
1. 2013 value and creative influence and a Statements of Valuence and Antoine	64									549.501213												
1. 2015 year of casts reflect extual \$5 years on \$ when replacements, 37 errors replacements and 17 hybrit replacements and 17 hybrit replacements and 17 hybrit replacements on \$7 hybrit \$5 for hybrit, \$5 west and Yahar replacements and an anti- 2. Project contangences are not excluded 4; all being for WCA project: completed in 2015 free been recorded at the WCA tasks. ¹ Lorel \$3 hybrit w/(0 1502):10: the ord of year casts has been recorded CAC;\$51,000] which have been recorded This was been recorded. ² Contrage stores: w/(0 1502):10: the ord of year casts has been recorded. The work have been recorded the contraded the contrade the contraded th	65										Tatel Estima	ted WACA \$5 in 2013 -	\$ 5,152,294	\$ 5,162,294	\$ \$,162,294	\$ 4,477,627	\$ 1,297,289					
2. Project contingencies are not included e. all belog for WEA project. completed in 2015 here been recorded and the WEA totals. 1. Devel Stream: W(2 1502) 3: the read area completed in 2015 here been recorded (EC (\$1,000) which thouse not have been recircled. 1. Devel Stream: W(2 1502) 3: the read area completed and total comp	67 1.3	2015 year end costs reflect actual \$5 spent on 5 value rep	alacements, 37	service replacem	ents and 17 hydrant repla	ements. The averag	ge cost for ea	ch replacement	t types is the ave	er age cost for 30	15 Updated \$\$ fo	r Hydrant, Service and	Valve replacements re	Nect 2015 Year to date	work order costs							
¹ Lowest Street - W/O 1502513 - the end of year cent has been revised. Back cylound in the basis rest have been revised. They was identified during the suide due samp process. The has been revised. Existing Street - W/O 150259 - the and of year cent has been revised. Backsquark to the original amount which has now been revised during the suide due samp process. We been defined as samp process. The has been revised. Also there was an immetrial error (178 15) in the calculation of overhead which measures and and the metrical the original amount which has now been revised.	61 2	Project contingencies are not included as all billing for W	ICA projects co	empleted in 2015	have been received and in	cluded in the WICA (otais															
Editivity Supert - W/D ISO269 - the and of year cat has been revised. Subsequent to the original life, during the sudi discovery process, we have identified priving cas to (\$4.52) of the project which hourd is individed. Also there was in immutrial error (\$75.15) in the calculation of overhead which hear needed which hear needed which hear needed with hear and been revised.	70	:	Lovel Street -	W/0 1502513 . 0	he end of year cost has be	on rowspid The origi	nel cost indu	ded CIAC (S41)	000) which show	is not have been	encluded This w	as identified tuning th	e autie dass avery proce	s. This has been rem	level.							
Adds Street - W/D 1501334 - the cell of year cost has been revealed. The angenal cost and not include an enter their identified awney the audit document y process. The total has been educated to include the assements.	71	:	Eldridge Street	- W/O 150269	the end of year cast has b	neen revised. Subseq	went to the o	nginal filing, da Lunchada essan	rang the audit d	iscovery process which were late	we have identified during	ed parrings cas is (\$4.6) a the model descarery of	 of the project which rocess. The total has be 	should be included. A	Uso there was an imm the excements.	usterial error (\$78.15)	in the calculation of over	need which overstated the	a crepinal amount	WIND NO TOP I	oven revu	17

2015 Projects-Attach B

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1 2 3 4 5							ukhuck Water Work 1016 WICA Water M 1/11/2016												R	evised Attachment I Page 2 of 4
	PIPE SEGEMENT OR PROJECT NAME		MATERIAL	LENGTH	EXESTING PIPE DIAMETER BINCHESI	PROPERTO NEW PRE DIAMETER BRICHES)	ESTIMATED COST	PIPE INSTALLATION DATE	PIPE AGE	E FLALLY DEPREC	BREAK	KEY CUSTOMAERS	WATER	HAL PROTECTION	Work coordination with Gas, Sower or Starm Drain Replacement ⁸⁴⁴	Subtotal prior to Geographical Area Pointa	Goographic Paints	TOTAL	Funding Source	included in 2015-2017 WICA projects filed in January 2015
1	Found Are int with Main St	MASHUA	CAST IRON UNLINED	6	(provinces	5 45.000	1978	70	YES	HISTORY	That cost official	quant	1	-		1	10.14		Yes - 2016
1	Bucharana St ini with Main 31	NASHBIA	CAST INON UNLINED	45	1		1 65,000	13.14	1 70	MIS		1	1	1 1	1		1	04		Ves - 2016
9	Lincoln Ave int with Main St	NASHUA	CAST INON UNLINED		1		\$ 65,000	Link	X	175	1			1	1			1 11		Yes 2016
10	Repard Are int with Main St.	NASHRIA	CAST INON LINE INED	18		1	1 65,000	1905	1 20	VTS			1.00	1			1 1	1 11		Yes - 2016
11	Targing 10 jut with Masin St.	MASHRIA	CAST INON UNLINED	N		12	\$ 65,000	1104	10	YES			1.	1	1 1	1	1	1 11	Station 18, 1	Yes - 2016
17	Former Bi let with Main St	NASHNA	CAST SHOW UNLINED	15			5 65,000	1906	10	VES				1	The Provide State		1	11		Yes - 2016
13	Aikita Si tot with Main Bt	NASHELA	CAST MON LINE MED	60	14	16	1 90,000	1962	76	TES	200.280	1	1.1				-	12	12/2014 hand	Yes - 2015
14	Alicia St int with Main St. (W Alicia)	NASHILA	CAST INCH LINED	54	1	1	\$ 15,000	19.30	70	YES		1 1 1	- C.	1		1 11	-	1 14		No
15	Field &t ins with Main &t.	NASHELA	CAST INCH UNLINED	42	1 1		1 68,000	1922	70	1111		1	100	1 1	1			1 11	101 21 12	Ha
16	Revero St int with Main St	MASHRIA	CAST IRON UNLINED	10	4	1 5 A 544	\$ 65,000	1921	R	YES		A DECEMBER		1		-			1952 - 1964	Yes 2016
17	Pratt St Int with Main St.	NASHELA	CAST BROW USE WED	11	1 .	12	\$ 90,000	1808	10	YES	-			1	1 1			11		Ten - 2016
11	Formal St (at with Main St.	NASHRIA	CAST BLON UNLINED	17	4	6	1 45,000	1819	10	185				1	+ + + + + + + + + + + + + + + + + + + +		1	11		Yas - 2016
29	Elevana II ini ulik Main IX.	NASHUA	CAST INCH UNLINED	15		-	\$ 54,000	1930	70	YES				1 1		and the second se	a sense starme	11		Yes - 2016
20 31	Tolles Street (Canal to Whilroy)	NASHUA	CAST IRON UNLINED	470			\$ \$46,000	1888	70	YES		+ +	-	1 1	SAGAP	11	3	14		Na Yes - 2016
22	Tample Street (Armory to Commencial St.) Water Street	NASHUA			+			1888	70	YES	-	1			SAGEP	10		1 11	12/2014 Bond	No No
23	Chepmen SI (Lund to end)	NASHUA	CAST IRON UNLINED	755	31/4	-	\$ 56,000 \$ 34,000	1888 1548	70	YES			1 3							
24	McKmn SI (Adaption to #31 McKmn)	NASHUA	CAST IRON UNLINED	970	110		5 31,000	1940	70	VES		1 1		1	+ ÷			11		Yes - 2017
	Anherst Etreat	MASHEIA	CAST MON UNLINED	3150	1	12	\$ 1,071,000	1497-1911	1 70	115		1 1		1 1	1		1 1	12		No
25	Terruce Street	NASHLA	CAST BON UNLINED	280	48.2	1 4	\$ 73,000	1924, 1946	70	YES			1			1 7	1 1	10	5 47	Ho
77	Bruce Street	NASHILA	CAST INON UNLINED	260	6		\$ 73,000	1909-1976	20	1 103	1		1	1 1	1 7	1	1 1	1 11	340	Ma
28	Bertahiro Street	MASHILA	CAST URON LINUMED	575	1	6	\$ 158,000	1913-1915	70	YES	1			1 1	1		T	11		No
29	fert of Witnessider Erigent (Berighers in Gradiad # 607 1.1	BIADHRAA	CHART MADE LINE AND	135.00	· ···································	PRINCE NAME:	5	10000 (BAN & BOA DAVE	01100191	ARP PER		A MARTINE STATE	1 (20)/8/-24	C Performance Annalise	THE SAULP NOW	TALA IN TRUES LEAST			Cardada mana anda an ab	Pre 2011
30	Beripters Binet (Tengte is Stomaster)	MARKIN	COMENT LINE DETER	1000	计图状型 副國語	Line of the second	S	DEALER IN TRADING	APRIL 1	R STREET STREET	1.514-14-123	E MULTING STRENGT	PARTERS	中国和中国中国的国际中		ALL LISE GAL	1 CREDIST COME		品的品质方法有多	BERNET THE ATL
31	Character Auguste (Bartyters in Womenter)	PLACE AND	COMENT LINED STILL	THE DESCRIPTION	VAPO SHEET	COMPACT CONTRACT	A STATE OF AND A		1201-170	1.980	10月1日日 10月	作品的影响的 相關國际員	NAMES TAK	11479年12年2月1日	IN THE R	「大学」が御客当ずる	- 此间的 - 同時的	Sam B.	13/2014 Band	Ym - 2013
12 100	iners Le greining in Bankig	PARAM	CANT WIDE LARLINED	1040 600 TH	Support Andreas	の設計中につきた場合	Stan	ALL DATE OF	N N	1		2. 自己的问题,但是是	1. 法法法法法	1 will littlig only sorth	A BABAS	二百 法和国际代表	1 Cashering Vounted	Barrie B	A REAL PROPERTY OF A REAL PROPERTY OF	a series and a series
33 386	Doman Are (Francis britante)		CEMENT LINED STEEL	110 111 -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Parille Strand	and the state of the second	STATES - STATES	100 45117	WE VIE	1 计目标。2月4日	制度的目的	19 合相由的主动的生	1. 可其4.5%和中国动物		AND DESCRIPTION OF THE	Chiefe States	C. COLLEGE	Schutchen Berger auf	n olar Yarah
34	Clánen Breet	MASHALA	CAST HOR WILLINED	1440	484		\$ 453,000	1900-1924	10	113		1	1.			1	1		Contraction of the	
35	Bride Path	BASHELA	CAST DOW LINE IN ES	330	65114	584	1 B,335	HP	1 20	115				-			1		11/2014 Bond	
36	Chesteric Street (Cristey In W. Ollarson) Higher St (Fulchison In Worser)	RASHUA	CAST MON LINUMED	545	48.4	1	\$ 100,000	test-test	70	115	+	+ I		+ +	-	10	-	1 12		
36 37 38 34 40 41 41 42 43 44 45	Letters of Letterson in Academia	- MASHUA	Tatal UF	755	1 .	Total -		U34-1946	1 10	1 10				1 1	1					
14			Local PL -		Bandara	rem 2015 projects -														
40	V-	we Replacements*			5 2,112		\$ 14,764													
		te Replacementa*		·	5 2.067		\$ 54,077													
47		art Replacements"			\$ 4.528		\$ 40,752													
43					Pier	ning Contingency" -														
44					Total Estimate	WICA \$\$ In 2016 -	\$ 1.014,743													
45																				
17 1 M	aterial integity - Rating of 1 point for each break in the O Fire Ratings - A rabing of 1 for each 500 gpm that the f	ant 20 years	un la luca than the KO comius	at entres																
48 3. No	umber of Service. Value and Indrard replacements is the	everage of the past	5 wars. The average cost for	reach resister	vent types is the e	verse cust for 2014														
49 4 P	WW must considere replacement of its mans when the l	City replaces its seve	or reasons		12.21															
50 5. Th	te City operates on a Fiscal year basis between July 1 an	d June 30 of the Jolk	owing Calendar year.		A contingency of	f	10%	is carried to account for	this.	e										
	orb Coordination Legend - P - Project in street effected	by Lity Paving Prog	ram, G - Project in street whe	ere Gas Compo	ny master plan ca	Es lar gas main repla	ement, 5 - Project in stre	et where sower and/or s	Lorm drawn reg	placement is occu	enn g .									
53 8. 54	ojects that are highlighted in same color are located in IGBP - Water replacement related to sever and gas rep	acement with 1/3	cost sharing of pavement, mu	ist move water	due to conflict we	th sever - 10 points	some franks mere but													
34 54	BP - Water replacement related to sewer replacement +	with 1/2 cost sharing	of poversent, must move we	ater due to cor	fact with sever 1	pounts														
54 54 55 64 56 P	LP - Water replacement related to gen replacement and	City Street pavers a	with 1/3 cost sharing of pawar	went. Water d	ses not have to be	moved, na conflict	with gas - B provida													
	- City paving street over water men. 1/2 cost sharing of Water replacement related to gas replacement with 1/	PROTINITE REGICE	re ma de comage or new pave	enter be month	to dia water men	n is not reputered with	u beweiß broker - a breute													

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Bring Prinner III Print MARINA CATTEROTURETIO Dial 1 1 1 1 <th></th> <th>PIPE SEGEMENT OR PROJECT NAME</th> <th></th> <th>MATERIAL</th> <th></th> <th></th> <th>PIPE DIAMETER</th> <th>LSTIMATED COST</th> <th>AGE OF PPE</th> <th></th> <th>FULLY DEPREC</th> <th></th> <th>KEY CUSTOMERS</th> <th></th> <th></th> <th>with Gas, Sever or Storm Drain</th> <th>Geographical Aree</th> <th></th> <th>TOTAL</th> <th>Funding Source</th> <th>Included in 2015-20 WCA projects filed January 2015</th>		PIPE SEGEMENT OR PROJECT NAME		MATERIAL			PIPE DIAMETER	LSTIMATED COST	AGE OF PPE		FULLY DEPREC		KEY CUSTOMERS			with Gas, Sever or Storm Drain	Geographical Aree		TOTAL	Funding Source	Included in 2015-20 WCA projects filed January 2015
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1211 PHPL SECTIONENT ON PROJECT NAME		MATERIAL	LENGTH	PIPE DIAMETER (PIPCHES)	PROPOSED NEW PIPE CLANETER [INCHES]	ESTIMATED COST	AGE OF PPE	PIPE AGE	FULLY DEPREC	BREAK	KEY CLISTOMERS	WATER	FIRE PROTECTION	Work coordination with Gas, Sewer or Storm Drain Replacement ⁶⁴⁰	Subtatal prior to Geographical Arga Pointa	Geographic Points	TOTAL	Funding Source	included in 2015-2017 WICA projects filed in January 2015
121 Abdress & (Herber to Williams)	MASHRIA	CAST SHOW UNLINED	1783	1.1	12	\$ 900,000	1934 -1930	70	113	- 1	1	of the set of	2		1.1.1		1.		Yes- 2017
122 Handburg- Breat (Linderhill in Borers)	MASHUA	CAST MON URLINED	1094	68.8		\$ 620,000	1208-1940	20	TES	1	1 1	Sector And	1			1	1 3		Yes - 2017
24 Odia Street (Alta to Arington)	MASHRIA	CAST MON UNLINED	1090	1		1 500,000	1000		115	. 1	1 1		Texas I have a		1 1	1 1	10		Yes - 2017
24 Proctor Street (Alkis to Matranity)	MASHUA	CRIST INCH UNUMED	306	1	1	\$ \$5,000	1929 - 1940	1 10	75	1		1.0			1	1	1 1	1	Tes - 2017
23 Producer Street (Mutracity to and)	NASHRIA	CEMENT UNED STEEL	116	1 2	4	\$ \$7,000	1922 - 1940	40	TA	1			10 1 1 1		1 1	1	1 4	Ser Street	Tes - 2017
24 Minister of Products to and	NASHRIA	CEMENT LINED STEEL	254	1 1	4	1 87,000	1940 1954	1 40	113	0		1.1	and the second of		1	1	11	15 포인진 B	Pes - 2017
127 Thomas Strait (Hotes to McKeen)	MASHEIA	CAST IRON UNLINED			1	\$ 184,000	5852-1908	20	103	1 1	The second second		- 1 C . (C 8. C 1		1	1	1 1		Ves - 2017
24 Barloust Stress (Burbs to King)	KASHLA	CAST INON UNLINED	801	1.4		\$ 131,000	1892	1 70	YES			1.2010.242	Contractor and			1	1 1	Net win 18.7	Tes - 2017
21 Williaman Direct (Alda to Arlington)	MASHALA	CAST MOR UNUMED	1495			\$ 411,000	1910 - 1934	70	YES				1 1		1 1 1	1	1 5	To Be Deteriorized	
30 NotCasers Street (Alda to Arington)	NASHUA	CAST BOR URINED	1734			5 478,000	2888	70	113	2		-Automotion	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		1	1	1 .	Bund and fetters SRI	Wrg - 2017
31 Charry Brest (McKass to end)	NASHUA	CAST MON UNUNED	236		4	\$ 88,000	1525	40	115	ö					6	1	1 2	Panding	100-2017
32 Barreim Street (Berbe to Speakling)	MASHRIA	CAST MOR UNLINED	\$30	4	6	3 344,000	1489-1890	40	TO				1		1	1	1	The second	Yes - 2017
3) Artingit: on Avenue (Officia to and)	NASHRIA	CAST IRON UNLINED	300	4	4	\$ 41,000	1972	40	115	8						1 2	1 1	1.1.251	Yes - 2017
View _St (W, Halls to Kinsley)	NASSILLA	CAST INCH UNLINED	171	1		1 211,000	1523	70	1 103				1	PEG				Contract of the	He
35 Mose was \$1 (Late to Early)	NASHRIA	CAST IRON UNLINED	763		12	\$ 294,000	1893-1906	1 20	YES					786			-	王、公共的	No
Ladian St. (Pres to Almont)	RASHUA	CAST STON UNUNED	2767		11	945,000	1890-1999	1 70	715		1	T	1	PAG			1	いたまたい	No
37 Linnocod R (Labe to Chersternf)	MASHRIA	CAST INON LINE INLD	3400		1 1	\$ 201,000	1891, 1951-1958	1 20	Tentro	1.1.1	1	1	1 1				1	THE STATE AND	No
31 Edmin S-1 (Elementant to Cleveland)	NASHUA	CAST MON UNLINED	445	1		\$ 18,000	1955 1962	40	Yes				1					2000010	No
39 Minerel SE 1 met (Intervale to Temps)	NASHUA	GAVANUED STEEL	427	1 1		\$ 132,000	1927	40	YES	1		1	1			,	1		Na
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46 41. Material Integity - Pit sting of 1 point for each break. 42. In Material Integity - Pit sting of 1 point for each 500 pm th 42. Still Fire Ratings - A winds of 1 the reak 500 pm th 42. The Chry advects, Wake and Mysian trystamework 42. Well made complete to may Refar to pissement of th 43. The Chry advects in may Refar to pissement of th 44. Still made to pissement of the state strength 44. Still made to pissement of the state strength 44. Still made to pissement of the state strength 44. Still made to pissement of the state strength 44. Still made to pissement of the state strength 44. Still made to pissement of the strength of the strengt of the strength of the strength of the strength of the st	It the flow in the waterma is the average of the part in the City replaces it as easy y 1 and Janue 30 of the full lected by City Paving Prog red in the same grographi (a) replacement with 1/3 ment with 1/2 cost sharin ot and City St est paving, i mg of pavement. Reduce	5 years. The everage cost for ever mains. owing Caleridae year. pen, G. Project in street who cal area. If there is no highling cost sharing of pevement, mus g of pevenient, must move we with 1/3 cost shering of peven d itsis of themage of new perv	each replace rre Gas Comp hing the proy si move water iter due to co norit. Water d rment by brea	A contingency of ony master plan cal- rets are not located date to conflict with sheet with sewer - 1 nees not have to be a of old water man	of Is for gas main replac d in proximity to any - ih sewer - 10 points points moved, no conflict in n if not replaced with	ement, S - Project in stre- other planned WICA project with ges - 8 points			lacement is securi	ing.									

2016 2018 Projects Attach B

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 21, 2016 AT (OFFICE): NHPUC

FROM: Douglas W. Brogan

- SUBJECT: DW 16-220, Pennichuck Water Works, Inc. 2016 WICA Adjustment Filing
 - TO: Mark A. Naylor Director, Gas & Water Division

This memo is being submitted at your request to provide observations and recommendations in relation to docket DW 16-220, the 2016 WICA adjustment filing of Pennichuck Water Works, Inc. (Pennichuck or company). I have filed recommendations as a consultant to the Commission in the company's two most recent WICA dockets, DW 13-358 and DW 15-043. In the current docket the company is seeking approval of a WICA surcharge for projects completed in 2015, approval of projects proposed for 2016, and preliminary approval of 2017 projects. My review is limited primarily to the engineering and operational aspects of the current filing and is based on review of the filing, case discovery and associated materials. My comments focus in particular on the water main project listings in Attachment B, pages 1 through 4, of the testimony of Donald Ware in the case.

2015 Projects

The projects completed in 2015 differed in many instances from those approved for 2015 in DW 15-043. Such changes in 'year 1' projects have been typical of previous WICA dockets and are largely the result of coordination with projects planned by the City of Nashua and others. What was different in 2015 was new quarterly reporting by the company, implemented through a tariff change in DW 15-043, apprising those involved in the case of changes to the approved list, and the reasons behind them. The enhanced ability to trace the history of project evolution proved valuable.

The company has provided reasonable explanation through the quarterly reporting, testimony, line item project explanations and discovery, of significant variances in project scope and, for example, project cost per foot of main (see response to Staff 1-17).

The company continues to pursue cost-efficient options such as rehabilitation, instead of replacement, of mains when conditions allow. Unfortunately, due to the age and condition of many of Pennichuck's mains and the potential impact from future City sewer and storm drain work, rehabilitation opportunities are limited. The company completed one cleaning and lining project (Temple Street) in 2015, its first under the WICA program. See responses to Staff 1-18, 1-19, and 1-20 c.

The company has affirmed that the projects completed in 2015 and proposed for inclusion in its WICA surcharge are used and useful. These include valve, service and hydrant replacements in addition to the water main work.

2016 - 2018 Projects

New to future year projects is a significant increase in coordination with municipal and even gas company work. (Staff 1-13) Such coordination can provide substantial cost savings. Coordination with the City now includes not only sewer and storm drain projects, but paving-only projects that have been difficult to coordinate in the past. A matrix based on the various levels of such coordination has been incorporated into the rating system Pennichuck uses to rank potential projects.

The company's concern for cost-effectiveness is again evident in its detailed approach to challenging projects, such as those on Main Street (Staff 1-20) and the difficult side street project of Gorman Ave. (Staff 1-21).

In the larger view, the company is continuing to ramp up overall main replacement projections consistent with its interim goal of replacing 15,000 feet per year, pending completion of an asset management program. That completion will allow more accurate targeting of subpar mains and is anticipated to support even higher levels of replacement, but is still at least a couple years away. In the meantime, the increase in main replacement projections toward the interim goal is evident below (numbers are the average of the three future years proposed in each docket; lengths are in feet, spending in millions of dollars):

	DW 12-359	DW 13-358	DW 15-043	DW 16-220
Length of Main	7,462	10,205	14,473	15,247
Total WICA Spending	2.3	2.8	5.0	5.6

The 2016 replacements proposed in the current docket (12,164 feet) were limited due to a lack of funding. However, the company does not expect similar limitations to occur in the future (Staff 1-14), and the two subsequent year projections (2017/2018) make up for the shortfall.

These higher projections will begin to approach the 2 percent per year rate cap of Pennichuck's WICA pilot program beginning next year, and are projected to exceed the overall 7.5 percent cap between rate cases as of the 2018 construction year (2019 surcharge). (Ware Schedule A, p. 7) It should be noted, however, that actual spending has consistently fallen below proposed, due mainly to the various unplanned project changes, deletions and deferrals that inevitably occur.

Conclusion

The company's 2015 projects appear to have been completed prudently, and its proposed 2016 - 2018 projects appear reasonable. As such, I support approval of the company's petition.

I trust these comments are responsive to your request. Please let me know if you need anything further in this regard.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE:March 22, 2014AT (OFFICE):NHPUC

FROM: Jayson P. Laflamme, Utility Analyst, Gas-Water Division

- SUBJECT:DW 16-220, Pennichuck Water Works, Inc.2016 Water Infrastructure and Conservation Adjustment Filing
 - TO: Mark A. Naylor Director, Gas-Water Division

This memo is being submitted at your request to summarize my review of Docket DW 16-220, the petition of Pennichuck Water Works, Inc. (PWW), relative to its 2016 Water Infrastructure and Conservation Adjustment (WICA) filing. PWW's petition requests approval of a WICA surcharge for effect as of June 1, 2016, on a bills-rendered basis, as well as final approval of proposed projects for 2016 to be eligible for recovery through the WICA surcharge mechanism, and preliminary approval of proposed projects for 2017. PWW also provided its 2018 proposed projects for informational purposes, only. PWW's petition was accompanied by the direct testimony of Donald L. Ware, Chief Operating Officer, which presented the calculation of a proposed cumulative WICA surcharge for 2016 of 3.04% based on a WICA revenue requirement of \$840,557. This increase in PWW's WICA revenue requirement from 2015 is \$340,358 and is based on a 2015 WICA investment of \$3,297,881.

My review focused primarily on PWW's calculation of the proposed WICA surcharge. My review included the gathering and analysis of additional information from PWW, through formal and informal data requests. A copy of PWW's responses to Staff's data requests is attached to this recommendation. Additionally, the Commission's Audit Staff examined the final, actual costs of PWW's 2015 WICA projects. The Audit Staff's recommendations have been incorporated into my conclusions contained in this memo. A copy of the Final Audit Report dated March 9, 2016 is also attached to this memorandum.

As a result of Staff's discovery as well as the audit in this case, PWW has reduced its cumulative surcharge request to 3.03% based on \$838,716 in proposed WICA revenues. *See* PWW's Response to Staff Data Request 2-1. This is a decrease in PWW's requested cumulative WICA revenue requirement of \$1,841 (\$840,557 - \$838,716). The majority of this reduction is due to certain corrections in the WICA revenue calculation that the Company made in response to Staff's first round of discovery. Most specifically, the Company's calculation of annual depreciation expense on its 2015 WICA investment has been reduced from \$49,363 as indicated in the original filing to \$47,491 as shown in PWW's response to Staff 2-1; a difference of \$1,872. *See* the Company's response to Staff Data Request 1-1.

The Audit Staff verified a total of \$3,297,289 as PWW's 2015 WICA plant investment. This is \$592 less than the investment indicated in PWW's original filing of \$3,297,881. The Company communicated to Staff that it fully agrees with the Audit Staff's recommendations and it has incorporated the revised investment amounts into its calculations contained in its response to

.

Staff Data Request 2-1. A summary of the Audit Staff's determinations can be found on pages 17-18 of the Audit Report.

In conclusion, I have reviewed the Company's calculation of the WICA surcharge specifically as provided in its response to Staff Data Request 2-1. As a result, I recommend approval of the revised WICA surcharge for 2016 of 3.03%. This amount has been shown to be adequately supported through Staff discovery as well as the Audit Staff's examination. I also believe that the proposed calculation of the 2016 surcharge will result in just and reasonable rates for both PWW and its customers. The impact of the new calculated surcharge is estimated to result in an additional \$1.40 on the monthly bills of PWW's average, single-family residential customers, based on an average usage of 7.88 ccf per month. This represents an approximate increase of \$0.57 per month over the 2015 WICA surcharge.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 9, 2016 AT (OFFICE): NHPUC

FROM:	Bridget	Nelson,	Examiner
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- SUBJECT: Pennichuck Water Works, Inc. DW 16-220 Water Infrastructure and Conservation Adjustment Mechanism Final Audit Report
 - TO: Mark Naylor, Director Gas-Water Division, NHPUC Jayson Laflamme, Utility Analyst IV Robyn Descoteau, Utility Analyst III

Introduction

Pennichuck Water Works, Inc. (PWW, The Company) has been participating in a Water Infrastructure and Conservation Adjustment Mechanism (WICA) since approved by Commission Order 25,230 on June 9, 2011.

In Docket DW 15-043, Pennichuck, petitioned for approval of its proposed 2015 projects to be eligible for recovery though the WICA surcharge mechanism. Order 25,784, issued April 30, 2015, granted the approval for the projects.

On February 2, 2016, Pennichuck filed the 2015 costs for recovery beginning June 1, 2016 in Docket DW 16-220.

2015 Projects

Order 25,784 in Docket DW 15-043 approved a capital budget of \$5,162,295. The budget of \$4,503,600 was approved for twenty main projects. \$77,522 of the total budget was for paving costs of 2014 projects. \$16,050 was for valve replacement, \$85,388 for service replacement and \$29,374 for hydrant replacement. The remaining \$450,360 of the budget was for the planning contingency.

During 2015, Pennichuck submitted quarterly update reports to remove originally proposed and approved projects and to add new projects (See "<u>Change Orders</u>" below). The filing of the cost for recovery provided final costs for the 2015 WICA projects.

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A total of \$3,297,881 was filed for recovery with \$3,089,415 being spent on the main projects. \$44.436 in paving costs from 2014 projects. valve replacement of \$10.558, service replacement of \$76,496 and hydrant replacement of \$76,976 make up the other \$208,466 of costs.

During the audit process some project and paving costs were added and removed. The total audited amount was \$3,297,289.

Audit has included the following table showing the original projects and their cost compared to the completed used and useful projects and their respective cost.

			D١	N 15-043 Approved	DW 16-220 Final	R	evised and	Fi	nal Paving	
Project Name	City/Town	Work Order		Estimated Costs	Projects Costs	Au	dited Costs	Ca	sts in 2016	Status
Foundry St	Amherst	1500270	\$	209,000	\$ 233,322	\$	233,322	\$	-	Completed
Manchester Rd	Amherst	1501462	\$	176,000	\$ 317,860	\$	317,860	\$	-	Completed
Allds St	Nashua	1501836	\$	872,000	\$ 885,949	\$	926,435	\$		Completed
Ash St	Nashua	1502514	\$	62,000	\$ 61 ,596	\$	61,596	\$	27,000	Completed
Chestnut St	Nashua	1502509	\$	419,000	\$ 236,617	\$	236,617	\$	83,000	Completed
Eldridget St	Nashua	1500269	\$		\$ 27,996	\$	32,547	\$	-	Completed
Fairmount St	Nashua	1500445	\$	57,000	\$ 70,325	\$	70,325	\$	÷	Completed
Harbor Ave	Nashua	1500314	\$	229,000	\$ 135,122	\$	135,122	\$	-	Completed
Howard Ave	Nashua	1504064	\$		\$ 152,071	\$	152,071	\$	37,830	Completed
Kinsley St	Nashua	1502868	\$	•	\$ 101,174	\$	101,174	\$	2,000	Completed
Lovell St	Nashua	1502510	\$	502,000	\$ 234,726	\$	193,726	\$	116,000	Completed
Marquis Ave	Nashua	1502517	\$	39,000	\$ 19,177	\$	19,177	\$	10,000	Completed
Mulberry St	Nashua	1500275	\$	46,500	\$ 55,341	\$	55,341	\$		Completed
Ninth St	Nashua	1500276	\$	102,000	\$ 140,334	\$	140,334	\$	- 6	Completed
Rochette Ave	Nashua	1502516	\$	46,000	\$ 30,758	\$	30,758	\$	13,500	Completed
Temple St	Nashua	1502508	\$	278,100	\$ 387,045	\$	387,045	\$	-	Completed
Ash St	Nashua		\$	166,000	\$ -	\$		\$		Deferred until 2018
Brook St	Nashua		\$	397,000	\$ -	\$	-	\$	-	Deferred until 2018
Burritt St	Nashua		\$	198,000	\$	\$	-	\$		Deferred until 2018
Hamilton St	Nashua		\$	130,000	\$ -	\$	-	\$	-	Deferred until 2018
Lake St	Nashua		\$	113,000	\$ -	\$	-	\$	 10	Deferred until 2018
Miami St	Nashua		\$	148,000	\$ 	\$	-	\$	-	Deferred until 2018
Coburn Woods	Nashua		\$	274,000	\$ -	\$	•	\$	-	Deferred 5 years
		-	\$	4,463,600	\$ 3,089,415	\$	3,093,451	\$	289,330	-
	Paving from 2	2014 Projects	\$	77,522	\$ 44,436	\$	39,808			
	Valve Replac	ement	\$	16,050	\$ 10,558	\$	10,558			
	Service Repla	cement	\$	85,388	\$ 76,496	\$	76,496			
	Hydrant Repl	acement	\$	29,374	\$ 76,976	\$	76,976			
	Planning Con	tingency	\$	450,360	\$ -					
		-	\$	5,122,294	\$ 3,297,881	\$	3,297,289			

The work order detail report was verified to the continuing property records and the trial balance for all projects.

Change Orders

On April 20, 2015, Pennichuck filed a letter with the Commission noting a change in the 2015 WICA project list. A main replacement on Tolles Street in Nashua was added with the estimated cost of \$139,500. The WICA budget was not increased as the inclusion of this project reduced the planning contingency. On the quarterly update submitted July 16, 2015, the Tolles

project was noted as deferred until 2016 to keep the WICA budget at or below the original amount.

Another letter revising the 2015 WICA project schedule was filed on July 16, 2015 by Pennichuck. The following changes were to take place:

- Main Street and intersecting streets were added due to the City of Nashua's intention to overlay Main Street. Streets include: Allds Street, Field Street, Fossa Avenue, Revere Street, Pratt Street, Fowell Avenue, Stevens Street, Faxon Street, Buchanan Street, Lincoln Street, Russell Avenue, Taylor Street, Dickerman Street, Orchard Avenue and Main Street. The total estimated cost was \$1,005,000.
- The Kinsley Street project in the estimated amount of \$80,000 was also added to the project list.
- Miami Street, Hamilton Street, Coburn Woods, and Tolles (noted above) were removed from the 2015 WICA project list. A portion of the Burritt Street and Ash Street projects were also deferred. The total cost of the projects removed was \$1,012,500.

On October 10, 2015, the Commission received the 3rd quarter reporting which had the following changes to the 2015 WICA projects schedule:

- Two projects were added to the list: Eldridge Street and Howard Ave. The estimated cost for the two projects was \$310,300.
- The Main Street and intersecting street projects added 7/16/2015 were deferred due to the work schedule of the City of Nashua.
- Three additional projects were deferred until 2016 due to a shortage of contractors to perform the work. These jobs are Brook Street, the remaining portion of Burritt Street, and Lake Street.

All originally proposed projects in Docket DW 15-043 were completed or deferred through the quarterly project update Pennichuck submitted to the Commission. The quarterly reports also provided updated project costs as work was completed.

Bid Summary

Audit requested and was provided with a record of bid proposals for the 2015 projects.

Projects are put out to bid with several streets involved. The 2015 projects were put out to bid in five area projects. Four of the area projects received two to four bids, while one project, sent out to five contractors, only received one bid. All of the selected contractors were the lowest bidders.

Three additional area projects have extended from prior years. One project began in 2013 and the other two began in 2014. These projects were originally put out to bid in the year they began. Two of the projects received two bids and the third project received three bids. The lowest bidder on each of the three projects was chosen.

Main Projects

Foundry Street, Amherst – Work Order #1500270

The E-22 submitted January 31, 2014 has the total estimated costs being \$208,000 for the replacement of 1,375' of 6" main with 8" main. The project was originally proposed as a 2014 project in Docket DW 13-358 in the amount of \$234,400 and was subsequently deferred.

Docket DW 15-043 approved the 1,465' replacement of 6" main with 8" for an estimated cost of \$209,000. The completed project replaced 1,199' with 8" main for the amount of \$233,322.

93%, or \$316,031, of the total charges was for the contractor. The remaining 7% of the charges were for labor, overheads, trucks, paving and material. No exceptions were noted.

Audit questioned the amount paid to the contractor because the support provided appears to have two different amounts due. The "Application for Payment on Contract" sheet sent in by the Contractor provides a current payment due. Supporting detail for the amount due was provided in an Excel "Unit Billing" sheet. The amount due on the application for payment and the current value total on the Excel sheet differed.

Pennichuck provided Audit with the following explanation:

"The difference between the amount requested for payment and the amount on the AIA backup for the invoice is retainage that's accrued for. The cost put on the books is the actual work performed for the assets at that time. Retainage is released upon satisfactory completion of the job."

The amounts paid by Pennichuck were based on the Excel "Unit Billing" sheet.

The project impacted the following general ledger account:

331200 Distribution Mains - New	\$ 185,897
331250 Distribution Mains - Gate Valves	\$ 2,300
333200 Renewed Services	\$ 30,500
335000 Fire Protection Equip: Hydrants	\$ 14,625
	\$ 233,322

Manchester Road, Amherst – Work Order #1501462

The Mack Hill Road project replaced 300 feet of existing 8" water main with a new 12" main. The existing water main was going to be destroyed with the Town of Amherst's bridge replacement on Mack Hill Road. 486 feet of 12", 185 feet of 8" and 88 feet of 6" was installed for this project.

DW 15-043 approved the project for an estimated cost of \$176,000. The E-22 submitted on March 20, 2015 for the first quarter of 2015, estimated the project to be \$180,000. The final cost, and amount reviewed by Audit was \$317,860.

Audit reviewed all supporting documentation for charges listed on the work order detail report without exception. 95% of the total costs, or \$300,845, was paid to the contractor. The remaining 5 % of the costs were for labor, truck charge, overhead and shipping. No exceptions were noted.

The General Ledger reflects the following accounts were impacted by this project:

- 331200 Distribution Mains - New	\$ 294,860
331250 Distribution Mains - Gate Valves	\$ 23,000
	\$ 317,860

Allds Street, Nashua – Work Order #1501836

Docket DW 15-043 approved the Allds Street main replacement project with estimated costs to be \$872,000. A total of 3.444' was to be replaced with 1722' of the existing main to be abandoned. The E-22 submitted March 20, 2015 estimated the costs to be \$875,000 with the project beginning May 4, 2015 and ending December 10, 2105.

The final cost of the Allds Street project provided in Docket DW 16-220 were \$885,949. During the audit discovery process Pennichuck discovered they did not include \$40,486 of easements in the project expenses. Audit reviewed expenses for the project totaling \$926,435.

Charges noted on the work order detail report were reviewed by Audit. 73% of the total costs. or \$674,964.25, was paid to the contractor. The other 27% of the costs were for attorney fees. land surveyors, easements, real estate appraisals, wetland replanting plans, plumbing, structure assessments, labor, overhead, and materials. No exceptions were noted.

The following general ledger accounts were impacted by the Allds Street project:

331200 Distribution Mains - New	\$ 715,638
331250 Distribution Mains - Gate Valves	\$ 18,451
333200 Renewed Services	\$ 125,332
335000 Fire Protection Equip: Hydrants	\$ 26,527
303300 Easements	\$ 40,486
	\$ 926,435

Ash Street, Nashua - Work Order #1502514

The Ash Street project was approved for \$62,000 in Docket DW 15-043. An estimated 707' of main was to be replaced.

An E-22 was submitted for the fourth quarter of 2015 on January 18, 2016. The Ash Street project was part of the Lake Street Area Water Main Replacement-Phase 1. The project replaced mains on five streets for a total of \$1,105,000. Estimated construction dates were September 22, 2105 through November 16, 2015.

Final costs noted on Docket DW 16-220 were \$61,596. A total of 342' of main was replaced. Additional charges of \$27,000 are expected in 2016 for paving costs.

Audit reviewed the work order detail report's noted charges. \$56,840, or 92% of the total charges, was for the contractor. The remaining 8% of the charges were made up of labor and overhead, Engineering & Information Systems overhead, and vehicle expenses. No exceptions were noted.

The following general ledger accounts were impacted by the project:

331200 Distribution Mains - New	\$ 56,596
331250 Distribution Mains - Gate Valves	\$ 1,750
333200 Renewed Services	\$ 3,250
	\$ 61,596

Chestnut Street, Nashua - Work Order #1502509

The Chestnut Street project was approved for the amount of \$419,000 in Docket DW 15-043. A total of 998' of 6" main was to be replace with 12" main. The final costs proposed in Docket DW 16-220 was \$236,617 for the replacement of 1,103' of main.

An E-22 was submitted for the fourth quarter of 2015 on January 18, 2016. The Chestnut Street project was part of the Lake Street Area Water Main Replacement-Phase 1. The project replaced mains on five streets for a total of \$1,105,000. Estimated construction dates were September 22, 2105 through November 16, 2015.

Paving for the project will be completed in 2016 for an estimated cost of \$83,000.

Audit reviewed the charges noted on the work order detail report. 95% of the total costs, or \$224,472, was paid to the contractor. Other expenses include labor, overhead, printing, advertising fees, vehicle expenses, and material. Also, included in the project costs was a payment of \$40 that was paid to a customer who experienced sewer issues due to the contractor hired for the project. Audit notes that Pennichuck should not be liable for this \$40 expense as it should fall on the contractor but considers the amount immaterial.

The following general ledger accounts were impacted by the Chestnut Street project:

331200 Distribution Mains - New	\$ 175,174
331250 Distribution Mains - Gate Valves	\$ 8,500
333200 Renewed Services	\$ 28,500
335000 Fire Protection Equip: Hydrants	\$ 24,443
	\$ 236,617

Eldridge Street, Nashua - Work Order #1500269

The Eldridge Street project was originally approved in DW 13-358 as a 2014 project and was subsequently deferred. The City of Nashua planned to replace the drain and sewer lines which lie only 2-3 feet away from the mains. 410' of main was to be replaced away from the sewer so it would not be disturbed by the City's construction. The E-22 submitted January 31, 2104, estimated the total project costs to be \$148,000.

The Change Order filed with the Commission on October 21, 2015, took the originally deferred Eldridge Street project and added it to the 2015 WICA projects.

Audit reviewed all supporting documentation for charges listed on the work order detail report in the amount of \$32,547. Only 40%, or \$12,999, were for contractor charges. The other 60% of the charges were for shared paving costs with the City, trucks, labor, overhead and materials. No exceptions were noted.

The following general ledger accounts were impacted by this project:

331002 Pavements - Distribution Mains	\$ 4,629
331200 Distribution Mains - New	\$ 27,918
	\$ 32,546

Fairmont Street, Nashua – Work Order #1500445

DW 12-359 approved the Broad Street project for an estimated cost of \$360,000. The E-22 submitted April 18, 2013, provided an estimated project cost of \$276,000. This project began in 2013 and continued through 2015. The Broad Street project was to replace a total of 1127' 6" CIP with 1421 8" of DIPCL. The water main needed to be relocated due to road construction.

Per DW 15-043 approval, the 2015 work consisted of replacing 215' of 6" main for an estimated cost of \$57,000. Final project data notes that 211' was replaced with 4" main. The final cost of work completed in 2015 was \$70,325.

Audit reviewed the supporting charges, listed on the work order detail report, for the total \$70,325 without exception. \$63,868 or 91% of the total costs were paid to the contractor. The remaining charges were for labor, trucks, overhead and materials. No exceptions were noted.

The following GL accounts were impacted by this project:

331200 Distribution Mains - New	\$ 60,176
331250 Distribution Mains - Gate Valves	\$ 1,222
333200 Renewed Services	\$ 8,199
335000 Fire Protection Equip: Hydrants	\$ 729
	\$ 70.325

Harbor Ave, Amherst – Work Order #1500314

Docket DW 15-043 approved the 2015 Harbor Avenue project in the estimated amount of \$229,000. 480' of 6" cast iron main was to be replaced with 12" main. The E-22 was submitted March 20. 2015 estimating the cost of the project to be \$180,000. The final project costs of \$135,122 were for the replacement of 572'.

Audit reviewed the work order detail report and the supporting charges. Expenses totaling \$135,122 were for engineering & information system overhead, printing, shipping, traffic light sensors and contractor invoices. The total contractor expenses were \$125,304, or 93%, of the project total cost. No exceptions were noted.

The following general ledger accounts were impacted by the Harbor Ave project:

331200 Distribution Mains - New	\$ 96,803
333200 Renewed Services	\$ 32,545
335000 Fire Protection Equip: Hydrants	\$ 5,775
	\$ 135.122

Howard Ave, Nashua - Work Order #1504064

The Howard Street project was an emergency main repair was not approved on the original 2015 WICA project schedule. This project was added to the schedule on the October 21, 2015 quarterly update.

Pennichuck was receiving customer complaints and after investigation it was revealed that the main is in poor condition and unable to deliver water to customers' properties. The Howard Street project would replace and estimated 544' of cast iron and steel main.

An E-22 from September 30, 2015 estimated the project to cost \$247,500 with construction beginning October 5, 2015 and ending August 1, 2016.

Docket DW 16-220 noted that 539' of main was replaced and the total cost of the project was \$152,071. Paving is expected to be completed in 2016 at an estimated cost of \$37,830.

Audit review the charges on the work order detail report in the amount of \$152,071. 93% of the costs, or \$140,989 was contractor charges. The remaining charges include bid requests, printing, vehicles, materials, labor and overhead. No exceptions were noted.

The following general ledger accounts were impacted by the Howard Ave project:

331200 Distribution Mains - New	\$ 139,421
331250 Distribution Mains - Gate Valves	\$ 4,300
333200 Renewed Services	\$ 8,350
	\$ 152,071

Kinsley St, Nashua – Work Order #1502868

The Kinsley Street project was not approved in Docket DW 15-043 with the 2015 WICA projects. The City of Nashua intended on overlaying Kinsley Street and Pennichuck wanted to replace the water main before the City's paving moratorium goes into effect. Pennichuck was doing work in the area already so they extended the job to Kinsley Street.

Kinsley Street was added to the 2015 WICA project list on the July 16, 2015 quarter update.

An E-22 from September 30, 2015 estimated the project costs to be \$146,250. Final project costs per Docket DW 16-220 were \$101,174. An additional \$2,000 is expected in 2016 for paving expenses.

Audit reviewed the charges on the work order detail report. \$80,428, or 79% of the total, was contractor expenses. The additional 21% of the charges were made up of signs, police detail, materials, labor and overhead. No exceptions were noted.

The following general ledger account was impacted by the Kinsley Street project:

331200 Distribution Mains - New \$ 101,174

The project was originally put out to bid with three other streets with the winning bidder being RH White. Audit noticed that CSSI was the contractor performing the work and questioned Pennichuck about it. Pennichuck provided the following response:

"The City of Nashua surprised us with plans to replace the sewer at the Kinsley Street intersection. Their time frame was aggressive and since we already had shutdowns in the works for Eldridge St and Mulberry Street it made sense to carry out the Kinsley Street work simultaneously. The Intersection of Kinsley Street was a last minute addition to the project. RH White was already maxed out with Eldridge Street and Mulberry Street. They had no one else available for night work. We were already working with CSSI on the Allds Street/Harbor Ave project so we asked them if they could accommodate Kinsley Street on short notice. They were able to do the job. The City has not done any work at the intersection as of this writing. (3/7/2016)"

Lovell Street, Nashua – Work Order #1502510

The Lovell Street project was approved in Docket DW 15-043 for an estimated cost of \$502,000. The Lovell Street project was pushed to the forefront due to a housing development

being built on Lovell Street. The poor firefighting flows at hydrants along Lovell have received ongoing complaints from the Nashua Fire Department.

An E-22 was submitted for the fourth quarter of 2015 on January 18, 2016. The Lovell Street project was part of the Lake Street Area Water Main Replacement-Phase 1. The project replaced mains on five streets for a total of \$1,105,000. Estimated construction dates were September 22, 2105 through November 16, 2015.

The final costs proposed in Docket DW 16-220 for the Lovell Road project were \$234,726. During the audit discovery process it was discovered that the final proposed costs included \$41.000 of Contributions in Aid of Construction (CIAC). Pennichuck removed the CIAC which resulted in the final costs being \$193,726.

Paving for the project will be completed in 2016 at an estimated cost of \$116,000.

Audit reviewed the charges, in the amount of \$193,726, noted on the work order detail report. \$221,619, or 94% of the total prior to the CIAC removal, was paid to the contractor. Other expenses include labor, overhead, vehicle expenses, and payment for scans. No exceptions were noted.

The following general ledger accounts were impacted by this project:

331200 Distribution Mains - New	\$ 189,649
331250 Distribution Mains - Gate Valves	\$ 10,500
333200 Renewed Services	\$ 18,500
335000 Fire Protection Equip: Hydrants	\$ 16,078
271200 CIAC	\$ (41,000)
	\$ 193,726

Marquis Street, Nashua - Work Order #1502517

The Marquis Street project was approved as part of the 2015 WICA in Docket DW 15-043. An estimated cost of \$39,000 would replace 125' of 1-1/2" main with 4" main.

An E-22 was submitted for the fourth quarter of 2015 on January 18, 2016. The Marquis Street project was part of the Lake Street Area Water Main Replacement-Phase 1. The project replaced mains on five streets for a total of \$1,105,000. Estimated construction dates were September 22, 2105 through November 16, 2015.

Docket DW 16-220 notes that 128' was replaced and the final cost of the project are \$19.177. An additional \$10,000 is estimated for 2016 paving expenses.

Audit reviewed the charges noted on the work order detail report. 91% of the cost, or \$17,503, was for the contractor. The remaining charges were for Engineering & Information Systems overhead and a small charge for scans. No exceptions were noted.

The following general ledger accounts were impacted by the Marquis Street project:

331200 Distribution Mains - New	\$ 17,677
331250 Distribution Mains - Gate Valves	\$ 750
333200 Renewed Services	\$ 750
	\$ 19,177

Mulberry Street, Nashua - Work Order #1500275

Docket DW 15-043 approved the Mulberry Street project for an estimated \$46,500. 50' of 8" main was to be replaced. The final costs proposed in DW 16-220 were \$55,341 for the replacement of 42'.

An E-22 was submitted March 27, 2014, noted the project was to begin 7/1/14 and concluding 11/1/2015. A change order was submitted during the 2014 WICA year adding this project as it was discovered that the 8" main valve was broken shut or partially closed.

Audit reviewed the supporting charges listed on the Work order detail report. Of the \$55,341 project total, \$40,463 (73%) was contractor charges. The remainder of the charges was for police detail, vehicle use, labor, materials and supplies, and overhead. Audit verified the overhead charge to the 54.92% 2015 rate provided. No exceptions were noted.

The following general ledger accounts were impacted by the Mulberry Street project:

331002 Pavements - Distribution Mains	\$ 16,599
331200 Distribution Mains - New	\$ 37,596
331250 Distribution Mains - Gate Valves	\$ 1,145
	\$ 55,341

Ninth Street, Nashua – Work Order #1500276

Docket DW 15-043 approved the Ninth Street project to replace 627' of 2" main with 4" main. The proposed estimated costs were \$102,000. The final projects costs submitted in DW 16-220 were \$140,334. A total of 637' of main was replaced.

An E-22 was submitted March 27, 2014. The project was added to the 2014 WICA project list due to the City of Nashua overlaying the street. Estimated construction dates on the E-22 noted the project would commence 7/1/2014 and end 11/1/2015.

The work order detail report for the project costs totaling \$140,334 was reviewed by Audit. \$133,499 or 95% of the total charges were paid to the contractor. The remaining 5% of the charges were for labor, vehicles, home depot expense, and overhead. The overhead charge was verified to the 2015 overhead rate of 54.92%. No exceptions were noted.

The following general ledger accounts were impacted by the Ninth Street project:

331002 Pavements - Distribution Mains	\$ 6,411
331200 Distribution Mains - New	\$ 110,501
331250 Distribution Mains - Gate Valves	\$ 1,306
333200 Renewed Services	\$ 16,428
335005 Pavements - Hydrants	\$ 5.687
	\$ 140,334

Rochette Ave, Nashua - Work Order #1502516

Docket DW 15-043 approved the Rochette Avenue project of replacing 163' of 2" main with 4" main. The final cost of the project as noted in Docket DW 16-220 was \$30,758 for 175' of main replacement.

An E-22 was submitted for the fourth quarter of 2015 on January 18, 2016. The Rochette Street project was part of the Lake Street Area Water Main Replacement-Phase 1. The project replaced mains on five streets for a total of \$1,105,000. Estimated construction dates were September 22, 2105 through November 16, 2015.

Final paving costs, to be completed in 2016, are estimated to be \$13,500.

Audit reviewed all the charges on the work order detail report. \$28,748, or 93% of the total costs, was paid to the contractor. The remaining 7% of the charges were for printing and Engineering & Information Systems overhead. No exceptions were noted.

The following general ledger accounts were impacted by this project:

331200 Distribution Mains - New	\$ 28,758
331250 Distribution Mains - Gate Valves	\$ 750
333200 Renewed Services	\$ 1,250
	\$ 30,758

Temple Street, Nashua - Work Order #1502508

The Temple Street project, to replace an estimated 1,030' of 10" main with 12" main, was approved in Docket DW 15-043. The proposed cost for the project was \$278,100. The E-22 submitted September 30, 2015, estimated the cost to be \$343,250. The final cost noted in Docket DW 16-220 is \$387,045 for 990' of main replaced.

The work order detail report with project costs totaling \$387,045 was reviewed by Audit. The contractor expenses totaled \$364,688, or 94% of the total project costs. The other 6% of costs were for labor, overhead, shipping, portable toilet rentals, materials and printing.

A Unishipper's invoice in the amount of \$59.23 was changed to the Temple Street project. Upon Audit's review, it appeared that the invoice may include shipments for other

projects. Audit questions Pennichuck as only \$48.48 appeared to be for Temple. Pennichuck provided the following response:

"The Unishipper invoice should be \$48.48 for Temple St. - \$7.05 should be on Howard St. (1504064) and the remaining \$7.05 should be on Lake St. (1502515, 2016 WICA). The cost will be moved in our fixed assets system for Howard St. and Lake St. will need to be reclassed back into CWIP until the project is used in 2016."

The following general ledger accounts were impacted by the project:

331200 Distribution Mains - New	\$ 336,251
331250 Distribution Mains - Gate Valves	\$ 10,829
333200 Renewed Services	\$ 14,700
335000 Fire Protection Equip: Hydrants	\$ 25,265
	\$ 387,045

Overhead Rate

Overhead rates are calculated at the beginning of each year as part of the management fee. Overhead calculations are automatically calculated and posted to the general ledger when the work orders are posted to the GL at the end of the month.

For 2015, the Union overhead rate was 54.92% and the general overhead rate was 2%. Audit verified the Union overhead rate based on the labor charges for each of the main projects. The general overhead rate was verified to the valve, service and hydrant replacements based on the total project costs. No exceptions were noted.

Paving for 2014 Projects

Docket DW 15-043 approved the estimate cost of \$77,522 for the paving of 2014 projects. The final paving costs filed in DW 16-220 totaled \$44,436.

On February 24, 2015 Pennichuck provided Audit with revised project costs. During the audit discovery process, paving costs in the amount of \$4,629 should have been included in the Eldridge Street project (WO#1500269). The project costs were increased by \$4,629 and the paving costs were reduced by the same amount.

The revised paving costs for the 2014 projects were \$39,808.

DW 16-220 final paving costs	\$44,436.00
Less: Amount moved to WO#1500269	\$ (4,629.00)
Revised paving costs	\$39,808.00

Valve, Service and Hydrant Replacements

Audit requested and received the work order summary support for the valve, service and hydrant replacement costs.

These replacements are separate and in addition to the water main projects.

	DW 15-043		DW 16-220			
	Estin	nated Costs	Final Costs			
Valves	\$	16,050	\$	10,558		
Services	\$	85,388	\$	76,496		
Hydrant	\$	29,374	\$	76,976		
	\$	130,812	\$	164.030		

Valves

DW 15-043 estimated a total of eight valves, totaling \$16,050, would be replaced during 2015. The final costs per DW 16-220, were \$10,558 for the replacement of five valves.

Work Order #	Location	City	Cost	
1505498/01	Manchester St	Nashua	\$ 631	
1505092/01	125 Chestnut	Nashua	\$ 2,733	
1504936/01	Courtland	Nashua	\$ 4,886	
1502875/01	700 Hollis	Nashua	\$ 1,229	
1501611/01	Aldgate	Nashua	\$ 1.079	
			\$ 10.558	

All five project costs were verified to the appropriate general ledger account based on valve size without exception. (GL #331251 – Gates: 4" and under)

Audit selected work order #1504936 to review in detail. The work order summary includes labor, truck and backhoe costs, and material for the project. Overhead rates were verified to the 54.92% labor rate and 2% general overhead rate provided to Audit. No exceptions were noted with the work order detail.

Services

A total of 29 services, totaling \$85,388 were estimated to be completed during 2015 per Docket DW 15-043. Actual final costs filed in Docket DW 16-220 were for 37 service replacements totaling \$76,496.

Work Order #	Location	City	Cost	
1506698/01	Monza	Nashua	\$	3,260
1506592/01	Dunstable Rd	Nashua	\$	226
1506118/01	Hollis St	Nashua	\$	897
1506117/01	Vine St	Nashua	\$	1,234
1506116/01	Ayer	Nashua	\$	1,062
1506086/01	Watson	Nashua	\$	2,642
1506035/01	Watson	Nashua	\$	2,739
1506017/01	Dunstable	Nashua	\$	2,820
1505699/01	Ayer	Nashua	\$	583
1505597/01	Manchester St	Nashua	\$	4,283
1505533/01	New Dunstable	Nashua	\$	1,413
1505502/01	Westwood	Nashua	\$	5,121
1505496/01	Hollis St	Nashua	\$	363
1505368/01	Manchester St	Nashua	\$	1,883
1505367/01	Reservoir	Nashua	\$	1,748
1505139/01	Vine St	Nashua	\$	241
1505093/01	Hollis St	Nashua	\$	1,237
1504812/01	Pine Hill Ave	Nashua	\$	1,362
1504427/01	Vine St	Nashua	\$	891
1504291/01	Hopkins	Nashua	\$	1,127
1503727/01	Park Ave	Nashua	\$	149
1503490/01	Barker Ave	Nashua	\$	757
1503152/01	Lake St	Nashua	\$	1,113
1503131/01	Park Ave	Nashua	\$	1,703
1503130/01	Biscayne Pkwy	Nashua	\$	3,037
1503015/01	Tinker Rd	Nashua	\$	2,091
1502096/01	Bruce St	Nashua	\$	2,596
1501835/01	Lantern Ln	Nashua	\$	2,719
1501612/01	Aldgate	Nashua	\$	4,864
1501097/01	Barker Ave	Nashua	\$	4,968
1500969/01	Weathersfield	Nashua	\$	3,124
1500940/01	Newburgh	Nashua	\$	1,969
1500939/01	Burritt	Nashua	\$	1,969
1500938/01	Greenlay	Nashua	\$	2,133
1500936/01	Deerhaven	Nashua	\$	2,095
1500935/01	Lovewell	Nashua	\$	2,148
1500180/01	Leslie	Nashua	\$	3,927
			\$	76,496

All 37 projects were verified to general ledger account, 333200 – Renewed Services, without exception.

Audit selected two work orders, 1505502 and 1506116 to review in detail. The work order summary included expenses for backhoe, vehicles, labor, contractor, and materials. Audit verified the overhead expenses with the rates provided. Audit noted that the labor overhead was based on the \$2,116.19 labor charge and did not include "other pay" of \$240.07.

The work order summary for project 1505502 included: backhoe, contractor, vehicles, material and supplies, labor and overheads. The labor overhead was calculated at the correct 54.92%. The general labor, 2% of the total project costs, was miscalculated in error. Contractor pay of \$90 and Other Pay of \$240 were left out of the calculating. The total general overhead booked was \$93.95 and the correct amount should have been \$100.54. The \$6.59 variance is immaterial.

The work order summary for project 1506116 included: labor, a contractor expense, vehicles and backhoe charges. Audit verified the overhead expenses to the rates provided to Audit. No exceptions were noted.

Hydrants

Docket DW 15-043 approved the estimated costs of \$29,374 for five hydrant replacements. The final costs per Docket DW 16-220 were \$76,976 for 17 hydrant replacements.

Work Order #	Location	City	Cost
1506832/01	Central St	Nashua	\$ 4,801
1506219/01	Beverlee Dr	Nashua	\$ 3,582
1506114/01	Manchester St	Nashua	\$ 1,062
1506099/01	Central St	Nashua	\$ 3,557
1505555/01	Manchester St	Nashua	\$ 4,802
1505531/01	Manchester St	Nashua	\$ 7,010
1505491/01	Hobart St	Nashua	\$ 4,088
1505412/01	Manchester St	Nashua	\$ 575
1505129/01	E. Hobart St	Nashua	\$ 3,437
1505128/01	Elgin St	Nashua	\$ 3,022
1504897/01	Manchester St	Nashua	\$ 8,753
1504835/01	Main St	Nashua	\$ 8,547
1504741/01	Main St	Nashua	\$ 6,920
1504618/01	Natick	Nashua	\$ 3.250
1503591/01	Main St	Nashua	\$ 4,256
1503086/01	East Hollis St	Nashua	\$ 5.537
1500441/01	Marie Ave	Nashua	\$ 3,778
			\$ 76,976

All seventeen projects were verified to general ledger account, 335000 – Fire Protection Equipment: Hydrants, without exception.

Audit selected work order #1504897 to review in detail. The work order summary included expenses for vehicles, backhoe, materials, labor and overhead. The overhead rates were verified and Audit notes the labor overhead is based on the \$1,857.10 labor expense and does not include \$2.78 "other pay".

Retirements

Pennichuck provided Audit with an "Asset Disposition" report for the period of January 1, 2105 to December 31, 2015 for Mains, Services and Hydrants.

Retirements were booked to the general ledger on a quarterly basis. Audit tied the individual plant listed on the Asset Disposition report to the quarterly retirement amounts on the trial balance. No issues were noted.

The following retirement amounts were booked to the general ledger:

331200 Distribution Mains - New	\$	41,116
333100 New Services	\$	2,627
335000 Fire Protection Equip: Hydrants		9,516
	\$	53,260

Summary

Docket DW 16-220 provided final costs of 2015 WICA projects to be \$3,089,415. Paving for 2014 projects that took place in 2015 totaled \$44,436. Valve, service and hydrant replacement projects were an additional \$164,030. The total costs noted in the Docket were \$3,297,881.

During the Audit discovery process, three project costs changed, netting to an increase of \$4,037. Paving costs were reduced by \$4,628 and the valve, service and hydrant replacements remained unchanged.

Audit reviewed the used and useful WICA projects for 2015, totaling \$3,093,451, excluding anticipated 2016 paving costs. Support for the projects' costs were provided in the form of trial balances, continuing property record, work orders, contracts and invoices.

Audit also reviewed paving expenses in the amount of \$39,808 and valve, services and hydrant replacement projects were an additional \$164,030 for 2015, totaling \$203,838.

D	W 16-220			
	Final	Revised and		
Pro	jects Costs	Audited Costs		
\$	3,089,415	\$	3,093.451	
\$	44,436	\$	39,808	
\$	10,558	\$	10,558	
\$	76,496	\$	76.496	
\$	76,976	\$	76,976	
\$	3,297,881	\$	3,297,289	
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