

KENNETH SCHMITT
Town Supervisor

TOWN OF CARMEL
TOWN HALL

ANN SPOFFORD
Town Clerk

SUZANNE MC DONOUGH
Town Councilwoman
Deputy Supervisor

60 McAlpin Avenue
Mahopac, New York 10541

KATHLEEN KRAUS
Receiver of Taxes

MICHAEL A. BARILE
Town Councilman
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Town Councilman
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MICHAEL SIMONE
Superintendent of Highways
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TOWN BOARD WORK SESSION
Wednesday, October 10, 2018 7:00pm

Pledge of Allegiance – Moment of Silence

6:00pm Executive Session:

1. Board Vacancy Interview
2. Councilman Michael Barile – Mahopac Tompkins Bank Property Update-Contractual
3. Budget F/Y 2019 - Personnel

Town Board Work Session:

- Review of Town Board Minutes, September 19, 2018
1. Mary Ann Maxwell, Town Comptroller, Anne Pasquerello, Supervisor's Office - Consider Request to Authorize Advertise for Bids for the Purchase and Installation of Back Up Servers - Town of Carmel IT Department
 2. Mary Ann Maxwell, Town Comptroller & Sgt. Laura Smith, Carmel P.D. – Consider Request to Accept Proposal for the Purchase and Installation of Alarm Billing Software
 3. Mary Ann Maxwell, Town Comptroller – Consider Request to Accept Proposal for LOSAP (Length of Service Award Program) Services for Carmel Fire Protection District #s 1 and 2
 4. Mary Ann Maxwell Town Comptroller – Consider Request to Attend NYSLRS (New York State Local Retirement System) Seminar (October 26, 2018) Pomona, NY (no Charge to Town) Barbara Alosco, Payroll Clerk
 5. Richard Franzetti, PE, Town Engineer – Consider Request to Accept Proposal for Architectural Design Consulting Services – Town of Carmel Planning Board
 6. Richard Franzetti, PE, Town Engineer – Consider Request for Evaluation of Easement B – Waring Drive TM# 44.14 1-90
 7. Richard Franzetti, PE, Town Engineer – Consider Request to Authorize Payment for Operation and Maintenance Services - East of Hudson Watershed Corporation
 8. Richard Franzetti, PE, Town Engineer – Consider Request to Authorize Payment for Repairs and Services CWD#s 10 and 12
 9. Richard Franzetti, PE, Town Engineer – Consider Authorizing Request for Proposals - Lake Casse and Upper Teakettle and Teakettle Lake Dams

- **Public Comment (Three (3) Minutes on Agenda Items Only)**
- **Town Board Member Comments**

Open Forum:

- **Public Comments on New Town Related Business (Three (3) Minutes Maximum Speaker for Town Residents, Property Owners & Business Owners Only)**
- **Town Board Member Comments**
- **Adjournment**

Executive Session:

1. Mary Ann Maxwell, Town Comptroller - Budget F/Y 2019 – Personnel
2. Budget F/Y 2019 - Personnel

Maxwell, Mary Ann

From: gfolchetti@aol.com
Sent: Wednesday, October 03, 2018 9:41 AM
To: Maxwell, Mary Ann
Subject: Re: Server Project

Good morning Mary Ann:

Thanks for forwarding the info on the new servers. As the estimated cost of the servers and software falls into purchase of goods in excess of \$20,000 (looks to be just over \$34k estimated) the proper way to address the matter under the General Municipal Law and Town Procurement Policy is to let it out to competitive bid. If you want to ask for it to be put on the 10/10 worksession the bid authorization can be voted on 10/17.

The proposed \$9,000 for Sullivan data services installation/setup/decommission of old servers etc is exempt under monetary thresholds and because it's professional services as well. It may even be provided for in the existing contract so no need for that portion to be included in the bid.

Let me know if any questions.

Thanks.

Gregory L. Folchetti

Costello & Folchetti, LLP
1875 Route Six
Carmel, NY 10512
845-225-1900
845-228-4228 Fax

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-----Original Message-----

From: Maxwell, Mary Ann <mam@ci.carmel.ny.us>
To: 'gfolchetti@aol.com' (gfolchetti@aol.com) <gfolchetti@aol.com>
Sent: Wed, Oct 3, 2018 9:23 am
Subject: FW: Server Project

Mary Ann Maxwell
Town Comptroller
Town of Carmel
(845) 628-1500 ext 175
Fax (845) 628-7085
mam@ci.carmel.ny.us

From: Glenn Sullivan [<mailto:gsullivan@sullivananddata.com>]
Sent: Tuesday, October 02, 2018 4:00 PM
To: Maxwell, Mary Ann; Pasquerello, Anne
Subject: Server Project

Mary Ann / Anne

I still have not received the server migration assistance quote from Impact yet (the police software vendor) I suspect this is because the company has been bought 3 times in the last 2 years (like KVS was) and they are constantly shuffling people around.

At this point with the Vision "vig" in place, and my estimate for Impact cost (based on numerous previous migrations) we are \$6,464.15 over budget. Hopefully I will get their response in the next day or so.

In the interim, lets discuss the hardware / software, are you going to want to bid this? If you are we will need to put together the bill of material for the bid document. Let me know and we will work on that. As I said before, my pricing expires on 10/31 and the discounts we were able to get are substantial. If we are providing the hardware we need to have it purchased and shipped prior to that day.

Glenn Sullivan

Sullivan Data Management, Inc.

Phone 914-962-1573 Ext 309

Direct 914-488-8810

Fax 914-962-6030

E-Mail

Web www.sullivandata.com



Town of Carmel 2018 IT System Upgrades				10/2/2018	Revision 6	Page #1	
Support, Email and Anti-Virus Subscriptions And Renewals							
Sullivan Data Spam Firewall Service							
1	Sullivan Data	Email Filtering Service	Sullivan Data Spam Firewall Email Filtering Service - Renewed each year in September. Cost will remain the same at the 2017 renewal for the 6th year and increase \$100 per year at the September 2018 renewal.	\$1,450.00	\$1,450.00	\$1,450.00	
Anti-Virus Subscription Renewal - Current 2 Year Subscription Expires / Renews November 2018 - Please Choose 1 of 3 Options Provided Below							
95	Trend Micro	CMRA0044	Trend Micro Worry Free Business Advanced - 1 Year Renewal	\$18.06	\$1,715.89		
95	Trend Micro	CMRI0013	Trend Micro Worry Free Business Advanced - 2 Year Renewal	\$32.69	\$3,105.74		
95	Trend Micro	CMRJ0002	Trend Micro Worry Free Business Advanced - 3 Year Renewal	\$49.19	\$4,673.24	Choose 1	
Infrastructure Upgrades - Replace TH2 & PD1 Servers - Server Purchase Is Approved For Project Registration Discount (#REGE-0009248127) And Dell Competitive Edge Discount (Expires 10/31/18)							In 2018 Budget
TH2 Server - Current TH2 Is KVS (Oracle) & Vision Appraisal Server (MSSQL & IIS). The New TH2 Will Stay As KVS & Vision Server - Need To Review Config With Steve (KVS + Vision + Terminal Services + IIS) is current Vision IIS on TH4?							
1	HP Enterprise	875762-S01	DL380 G10 1 Xeon 5120 2.20 / 20MB 14Core 32GB DD4 SDRAM SAS Array P408i /2GB 2X500 Power Supply	\$3,317.07	\$3,317.07		
1	HP Enterprise	826856-B21	HPE DL380 Gen10 Intel® Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit	\$1,413.26	\$1,413.26		
4	HP Enterprise	835955-B21	HPE 16GB (1x16GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory Kit	\$306.18	\$1,224.72		2 Added
1	HP Enterprise	826690-B21	HPE DL38X Gen10 Premium 6 SFF SAS/SATA + 2 NVMe or 8 SFF SAS/SATA Bay Kit	\$205.49	\$205.49		Added
1	HP Enterprise	870549-B21	HPE DL38X Gen10 12Gb SAS Expander Card Kit with Cables (Recommended)	\$400.11	\$400.11		Added
2	HP Enterprise	872477-B21	HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD - Raid 1 System Array	\$175.77	\$351.54		
9	HP Enterprise	872479-B21	HPE 1200GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD (4.8TB Usable Space)	\$277.64	\$2,498.72		3 Added
1	HP Enterprise	733664-B21	HPE 2U Cable Management Arm for Non Ball Bearing Rails - Confirm G10 Compatible	\$37.21	\$37.21		
2	Cables To Go	3134	10' Rack Length Power Cords	\$4.63	\$9.27		
1	HP Enterprise	U7AH5E	3 To 5 Year NBD Warranty Upgrade *SDM Will Maintain A Spare Of This Model Server With Drives & Power Supply	\$1,985.19	\$1,985.19	\$11,442.57	\$11,451.41
PD1 Server - Domain Controller - Impact Application & Database Server - File & Print Server For All Police Users							
1	HP Enterprise	875762-S01	DL380 G10 1 Xeon 5120 2.20 / 20MB 14Core 32GB DD4 SDRAM SAS Array P408i /2GB 2X500 Power Supply	\$3,317.07	\$3,317.07		
1	HP Enterprise	826856-B21	HPE DL380 Gen10 Intel® Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit	\$1,413.26	\$1,413.26		
2	HP Enterprise	835955-B21	HPE 16GB (1x16GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory Kit	\$306.18	\$612.36		
2	HP Enterprise	872477-B21	HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD - Raid 1 System Array	\$182.25	\$364.50		
6	HP Enterprise	872479-B21	HPE 1200GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD (4.8TB Usable Space)	\$277.64	\$1,665.81		
1	HP Enterprise	733664-B21	HPE 2U Cable Management Arm for Non Ball Bearing Rails - Confirm G10 Compatible	\$37.21	\$37.21		
2	Cables To Go	3134	10' Rack Length Power Cords	\$4.63	\$9.27		
1	HP Enterprise	U7AH5E	3 To 5 Year NBD Warranty Upgrade *SDM Will Maintain A Spare Of This Model Server With Drives & Power Supply	\$1,985.19	\$1,985.19	\$9,404.66	\$11,451.41
PD1 PD2 PD3 Backup							
1	Hewlett Packard	716191-B21	HP SAS Min-Min 1x-2M (8088) Cable Assembly Kit For Gen9 / Gen10 Server	\$73.84	\$73.84		
1	Hewlett Packard	804398-B21	HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	\$199.77	\$199.77		
1	Hewlett Packard	BB873SB	Internal Ultrium 15000 6TB Native Capacity SAS Tape Drive Each With 1 Tape - Controller Above	\$2,674.60	\$2,674.60		
21	Hewlett Packard	C7977A	Tapes For Ultrium 15000 6TB Drive 10 Weekly & 12 Monthly - 1 Provided With Tape System	\$74.73	\$1,569.23		
2	Hewlett Packard	C7978A	Cleaning Tape For Ultrium Drive	\$62.52	\$125.04	\$4,642.48	\$5,471.41
Server Software - Microsoft And Veritas Government Licensing							
42	Microsoft	9EM00254	Windows Server 2016 Standard Gov Core License. Each License Supports 2 Cores 16 Core Minimum Purchase. TH2 is 14 cores per processor x 2 processors and will run 3 virtual servers which requires 28 2 core licenses. PD1 is 14 Core Per Processor x 2 Processors and requires 14 2 core licenses. Note: Must Install 2012R2 For Vision Application VM	\$81.49	\$3,422.41		14 Added
50	Microsoft	R18-05166	Windows Server 2016 Device CAL Government License 100 Total, 50 CALS Being Purchased Fall 2017	\$21.61	\$1,080.54		
15	Microsoft	6VC-03267	Windows Server 2016 Remote Desktop Services CAL Government License - Confirm Number Of KVS Users	\$74.90	\$1,123.52		Added For KVS
1	Microsoft		Microsoft SQL Server 2017 Standard Government License For TH2 Vision. PD1 SQL Server Purchased 7/28/16 License #67235919	\$663.07	\$663.07		
5	Microsoft		Microsoft SQL Server 2017 Device CAL Government License For TH2 Vision. PD1 SQL 2016 CALs Purchased 7/28/16 License #67235919	\$154.23	\$771.17		
1	Veritas	13670-M0010	Backup Exec Server Government Full Version - PD1 / Backup Server	\$602.07	\$602.07		
1	Veritas	10931-M0010	Backup Exec Server Government Agent For VMWare / Hyper V Used For Backing Up TH2A, TH2B TH2C PD2 PD3	\$994.50	\$994.50		Added
0	Veritas	13131-M0010	Backup Exec Remote Agent Full Version - This Will Be Used For Backing Up TH2, PD2, PD3	\$358.75	\$0.00	\$8,657.27	\$6,368.60
UPS Battery Replacement							
1	American Power	APCRBC133	Replacement Battery Packs In 1 SMT1500RM2U Server UPS Unit	\$206.94	\$206.94		
0.4	Sullivan Data	Server and Networking Services	Installation Of Replacement Batteries In 1 Server UPS Units.	\$150.00	\$60.00	\$266.94	
SDM Services To Replace 2 Servers							
1	Sullivan Data	Network Services	Services To Replace Server, Reinstalling And Reconfiguring Applications		\$9,000.00	\$9,000.00	
Accela Services To Move KVS Applications							
1	Accela	Server Migration	Server Migration Services - Estimate Based On Previous Installations - Quoted @ \$195.00 per hour. Previous projects have taken 4-8 hours. Going To Estimate 4		\$1,560.00	\$1,560.00	Added
Impact Services To Move Impact Applications							
1	Impact	Server Migration	Server Migration Services - Estimate Based On Previous Installations - Awaiting Written Quotation		\$700.00	\$700.00	Added
Vision Appraisal Services To Move Vision Applications							
1	Vision	Server Migration	Server Migration Services - Written Quotation Received			\$4,800.00	Added
				TH2 & PD1 Server Replacement		\$50,473.92	\$44,009.77
							\$6,464.15

From: [Cazzari, Mike](#)
To: [Pasquerello, Anne](#)
Cc: [Maxwell, Mary Ann](#); [Smith, Laura](#)
Subject: A1 Computer Services - Alarm Billing.pdf
Date: Thursday, October 04, 2018 3:15:27 PM
Attachments: [A1 Computer Services - Alarm Billing.pdf](#)

Anne,

Attached is the information from A1 Business Solutions on our false alarm billing. As we had discussed in the IT meeting with Sullivan Date the software system that Eileen Brennan is utilizing is antiquated and inefficient. The police department records management software would integrate with the A1 Business solutions software and generate the false alarm bills at the PD. The funds would still be collected upstairs it just makes the most sense to have the police coordinate the billing.

Laura Smith and Maryann Maxwell can offer the Town Board further insight into this proposal.

Thanks,

Mike

Chief Michael Cazzari
Town of Carmel Police Department
60 McAlpin Ave
Mahopac, NY 10541
phone (845) 628-1300 ext 107
fax (845) 628-2597



September 19, 2018

Dear Laura,

As requested, I've updated the pricing options. We have actually changed our pricing model to a flat monthly charge to cover the cost of the software and support. Enhancements are still reviewed on a one to one basis and quoted accordingly as we have done here. Hopefully all will find that as a positive thing.

I think we have a very good fit for you and many of the current manual procedures used today should go away. As it turns out I found my actual billing records for the BAS data migration for the Town of Bedford from 2012, 26 hours. The revised costs are as follows:

Alarm Billing Module	\$175/month
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One Time Costs

Program Modifications	\$ 230
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Add support for 10% late fee calculation vs flat fee

Data conversion from BAS, 30 hrs	\$3,000
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Installation and Training	\$ 750
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Estimated at 6hrs

Total	<u>\$ 3,980</u>
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If you have any questions, please contact me at (914) 263-7156,

We appreciate your business,

Wayne Frick



Alarm Permits and Activation Billing System Highlights

- Very flexible fee structure to customize rates for activations
 - set how many free activations
 - set any flat fees for activations occurring without
- Helps increase revenue by invoicing temporary permits for activations WITHOUT permits and then allowing follow up to turn those temporary permits into recurring annual permits
- Export interface from Impact to upload activations quickly and accurately
- Prepare annual permit renewal reminders and monthly invoices and statements
- System security
 - unique username and password control for system access
 - establish user rights for items such as view only, full access, specific system modules and menus
- New York State Contract
- References can be furnished upon request but feel free to contact Chief Norm Campion at the Village of Briarcliff Manor, NY or Ed Ritter, Comptroller in the Town of Bedford, NY for some quick and straight-forward feedback.
- Joint marketing arrangement with Impact and A1 Computer Services
- **If you are interested in speaking with a representative and perhaps scheduling a demo please feel free to call us at 914-495-3473 ext 802**

Main Menu

ALARM BILLING MAIN MENU

- Add Transactions
- Transaction Maintenance
- Trial Balance
- Print Bills
- Permit Account Maintenance
- New Permit
- Reports Menu
- Renewals
- End of Period Processing
- Import Menu
- Administrator Functions

V2013.04.13 01:28 PM

EXIT

Alarm Permit Renewal For Folder Machine: Report

Village of Briarcliff Manor 1111 Pleasantville Road Briarcliff Manor, N.Y. 10510 (914) 941-4800	ALARM PERMIT RENEWAL	Invoice Date: 4/21/2015 Permit Number: 0012 Name: Wayne Frick
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2016 Alarm Permit Renewal Fee.....	\$40.00
This permit is valid 01/01/16 through 12/31/16.	Total Due \$40.00

The Board of Trustees has adopted a resolution to authorize the Village Treasurer's office to renew all active alarm permits and to charge \$40.00 for administration costs. Please review and correct any information for this alarm permit.

Village of Briarcliff Manor
Mail to: Attn: Police Department
1111 Pleasantville Road
Briarcliff Manor, N.Y. 10510

PLEASE INDICATE ANY CHANGES AND RETURN WITH YOUR REMITTANCE

PERMIT NUMBER:	0012	
LOCATION OF ALARM:	590 Commerce Street	
PRIMARY CONTACT:	Wayne Frick	
PHONE:	(914) 495-3473	
MAILING ADDRESS:	Wayne Frick 590 Commerce Street Thornwood, Ny 10594	
SECONDARY CONTACT:		
PHONE:		
ALARM COMPANY:		

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Basic Monthly Procedures

1. Process new activations from the Police Department for the new month
 - a. This file is typically created by the police department and sent via email or stored on a shared network drive for access within the alarm application and is called qmf_temp.xls. It MUST be stored in the designated location as outlined in the control table (Administrative Functions/Maintain Control Record/File Locations).
2. From the Main Menu, click on Import Menu
 - a. Select Import Activations
 - b. Upon completion, the import file is renamed based on the current date to assure the data is not processed more than once.
3. Sight check the imported activations using Listing of Alarm Transactions
 - a. Print the transaction report, Listing of Alarm Transactions. Ideally, you will see no *
 - b. However, if * do exist, this indicates a discrepancy with the data coming from the import file.
Make corrections using the menu option Edit Transactions
 - c. When satisfied all are in order, use the menu option Transfer Activations to Work File to transfer all valid activations.
4. If your current Police RMS system does not support a data export feature for alarm activations, you can input them manually. (Main Menu/Add Transactions)

NOTES ON *

If a single *, indicates an activation with NO permit # on file. This could be for a couple of reasons:

- It is truly an activation that has no permit on file
- A valid permit # was NOT given to the police department to update their database
- **If you find that a valid permit # exists**, enter it in the permit # column, permit holder's name should appear, confirm name is correct and move off the permit # column and save the change when prompted.
- **If there is NO valid permit #**, double click the * and create the record as best you can assuring valid mailing data is entered so a proper invoice can be prepared. You will see a temp # assigned which can be converted once a valid permit and permit # have been assigned.

If a single * WITH a permit #, indicates the permit number on file within the police department database does not match what is in our file in your alarm database and needs to be researched. This could be for a couple of reasons:

- Typo within the police department system.
- The account is no longer active within your alarm system but was never removed from the police database
- Follow the steps above once it is determined whether this is an activation from a non-permit holder or simply replace with the valid permit # should one exist.

You will notice two highlighted columns, Name and Location. If you double-click on a line item under either of those columns, the database will display a drop-down list by either Name or Location which

you can check for valid existing permits. If a valid permit is found, double-click that line item to move the permit number to the current record. You will be prompted to click OK to accept that update.

It is HIGHLY recommended that all activations be addressed and processed from the Edit Transactions screen and Transferred to the Work File during the current month's billing cycle and before the invoices are produced. This assures:

- All items are invoiced in a timely manner thus maximizing the revenue stream
- Should help, over time, increasing the overall number of active permits on file
- Assures proper billing as activation counts will be accurate for the given time period. This should further reduce phone inquiries questioning the timing and timeliness of the billings.

It is also strongly recommended that the Listing of Alarm Activations report be used as a tool for the police department to update their database records with accurate permit numbers to assure greater accuracy during future monthly updates as well as reduce the staff's time in processing these monthly activations.

5. Return to Main Menu. Click on Reports Menu. Run Current Period Transaction report (total # of activations should agree to the import plus any entered manually)
 - a. If you notice items requiring adjustments, please repeat steps 3.b - 4 until satisfied.
6. Run Trial Balance, sight check and verify totals at the end of the Trial Balance.
 - a. The Trial Balance report should contain NO credit balances. They exist for the following reasons:
 - A payment was posted to the wrong account
 - The account was in fact over paid
 - An error has occurred within the system that needs technical attention
 - b. This process updates all account balances
 - c. If you notice items requiring adjustments, please repeat steps 3.b - 4 until satisfied.
 - d. If you have opted to charge a late fee for unpaid annual renewals, they will be created during the processing of the Trial Balance. The criteria for the charging of late fees can be found in the Control File (Administrator Functions/Maintain Control Record/Renewal Charges).
7. Print Bills
 - a. You have the ability to customize past due notices/invoices
(Administrator Functions/Maintain Control Record/Messages)
Enter your textual message
Turn on Dunning Notice
Set the numbers of days that makes an item past due
8. Perform End Of Month Process
 - a. Return to Main Menu.
 - b. Click on End of Period Processing
 - c. Click on End of Month Processing. Follow the prompts.
 - This process moves all items in the Work File to the History file
 - Clears the Work File in preparation for next month's transactions

Temporary Permits

As stated above as part of the data importing process from the police system, not all records will have a permit # and thus should be assigned a temporary permit # so that invoicing can occur in a timely manner. Ultimately, the goal is to turn all these temporary permits into recurring annual permits. Assuming you are successful in this endeavor, there is a function that will convert a temporary permit # into a real permit #.

1. Do NOT create a new Permit via the New Permit menu option.
2. Use the Change Permit Number menu option
(Administrator Functions/Change Permit Number)
3. Enter the permit # you'd like to change
4. Enter the desired new permit# or let the system select the next available number. Press Enter.
NOTE: All permit data, payments, activations, etc. will be transferred to the new permit #. If somehow you try to transfer to an EXISTING permit #, the process will not proceed. Check the new permit # or contact technical support for guidance.

Merge Accounts

Even with your best efforts, sometimes multiple permits will be assigned to the same business and/or residence. This can be for several reasons but those particulars are not of concern, only that we can 'fix' the problem. The Merge Account function (Administrator Functions/Merge Accounts) allows you to take the items from two permit #'s and combine them into one making the 'other' permit inactive.

NOTE: Even after the merge process you STILL may need to enter a credit or debit adjusting entry to reflect a proper account balance. As an example:

- Resident has a valid current permit (# 100)
- They were assigned a temp permit and thus charged a new permit fee (# 9999)
- The account should be credited as such to waive the new permit fee

Annual Permit Renewal Processing

1. The printing of Renewals is done BEFORE the End of Year processing
 - a. This assures the renewal date is not incremented prematurely
2. You have the ability to customize a message on the renewals
(Administrator Functions/Maintain Control Record/Messages)
3. From the Main Menu, select Renewals

NOTE: It is VERY important to decide from a business perspective whether you want to create PR (Permit Renewal) entries for the new year (Administrator Functions/Maintain Control Record/System Flags). By checking this box, permit renewal charges will be created in the transaction table as part of the Annual Permit Renewal Process. The trial balance report will be several pages in length as will the number of monthly invoices till which time all or most of the renewals have been paid. Some municipalities opt out of this to avoid having to process volumes of paper each month.

4. Then select Print Alarm Permit Renewals
 - a. Review the screen and take the time to verify the following

- The renewal fees are correct
(Administrator Functions/Maintain Control File/Renewal Charges)
 - Do you want to print renewals for seniors?
(Administrator Functions/Maintain Control File/Renewal Charges)
 - Print renewals prior to:
 - o Some permits are issued towards the end of the year. It is your discretion to allow a few months of free fees rather than charge them a renewal fee such a short time after applying for their permit. Enter that cutoff date here.
5. Run End of Year Processing to increment the Renewal Date
- a. Main Menu/End of Period Processing/End of Year Processing
 - b. Check option to Increment Alarm Expiration Date for new year

Processing Renewal Payments

1. Renewal Payments should be handled in the following manner
 - a. From the Main Menu select Renewals
 - c. Then select Enter Renewals/Payments
 - d. Enter the data as required
 - NOTE: If a payment contains BOTH a renewal amount AND other payments, the difference of the total payment amount less that of the renewal payment can be entered in the OTHER column so as not to have to enter the payment under Add Transactions.
 - e. Once completed you can select the View Entered Renewals/Payments to make sure your inputs are accurate. It is suggested you print this screen to verify your totals on the report match those entered. As you review the data, you can edit each item as needed. If a line item needs to be deleted, click the left most column and then press the Delete key.
 - f. Select the Process Payments Renewals (without or without receipts as needed)
 - This will move the payment to the work file for processing within the trial balance but most importantly will update the renewal date for this permit.
 - NOTE: Renewal payments should NOT be entered as AP (Apply Payment) within Add Transactions as this will NOT update the renewal date as mentioned above. As mentioned in End of Year Processing, you MUST also assure the check box for 'Check here to Create AP for Permit Renewals' is selected in the Control file (Administrator Functions/Maintain Control Record/System Flags) if in fact you opted to create PR (Permit Renewal) entries for the new year. If these two features are not inline, you will create out of balance conditions.
2. There are two reports (Main Menu/Renewals/Renewal Status Reports) that are considered helpful in determining where you are in the annual permit renewal process, Renewed Permits Report and Overdue Permits Report. The names should be self-explanatory. The second is deemed to be more critical as it should be used as a follow up tool with residents and businesses to remind them that their annual permit fee is overdue. How you proceed based on this information is based on your own individual municipal policies and procedures.

Add Transactions/Transaction Maintenance

1. AP- Transaction type is used for standard payments

2. BL- Transaction type is used for Burglar activations
3. FD- Transaction type is used for Fire activations
4. CA- Transaction type is used for entering credit adjustments to accounts for items such as overpayments or agreed upon account balance adjustments/write-offs
5. DA- Transaction type that is used for entering debit adjustments to accounts for items deemed to be valid charge add-ons negotiated outside the standard invoice types

As determined for each transaction type, enter the payment method, amount, date and any comments deemed appropriate to help identify the nature of the transaction.

Transaction Maintenance allows you to view/print/edit the current transactions as necessary. Click on the desired column to change the data or to delete an erroneous entry, click on the left most column to highlight and then press the Delete key.

End of Year Processing

End of year processing MUST be done BEFORE the processing of January invoice activations to assure the activation counts are reset for the new year.

- a. Main Menu/End of Period Processing/End of Year Processing
- b. Check option to Update file, zero activations, to prepare for next year
- c. For the most part, Purging History files and Deleting backups can be ignored at this time

PENFLEX, INC.

SERVICE AWARD PROGRAM SPECIALISTS

www.penflexinc.com

Penflex, Inc.
50 Century Hill Dr., Suite 3
Latham, NY 12110

Phone: 800.742.1409
Fax: 518.783.6915
Email: info@penflexinc.com

September 2018

Ms. Mary Ann Maxwell
Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541

Re: Service Award Program 2018-2019 Service Fee Agreement

Dear Ms. Maxwell:

Enclosed is our Service Fee Agreement for the upcoming administrative year. You will note a modest increase to the Base Fee. The underlying costs of providing services to our clients have increased. We've taken some steps to minimize the impact of these additional costs on our fees, but after projecting our costs for the upcoming year we felt a small increase was necessary to continue the quality service our clients have come to expect.

In addition, we have increased our fee for preparing our GASB 73 disclosure package. Although this does not pertain to all of our clients, we have enclosed our "*GASB 73 Frequently Asked Questions*" for more information regarding this relatively new accounting standard. This increase only impacts those clients that elect this optional service.

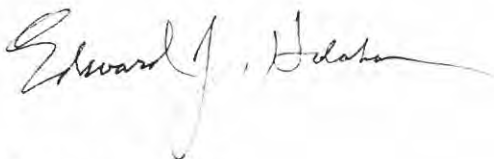
You may notice a slight change to this year's Agreement – we have incorporated last year's elections regarding our optional financial statement disclosures fees. This includes the contact information for your external auditor. If you are requesting that we prepare either of the financial statement disclosure packages, please review your auditor's information and make any applicable changes on the Agreement.

For your reference, an Annual Statement detailing fees billed and paid to Penflex over the last 12-month period and a Penflex directory are also enclosed.

Please return a signed copy of the Service Fee Agreement to Penflex. The signed Agreement can be faxed to (518) 783-6915, or emailed to: info@penflexinc.com. Please note that, if applicable, an invoice for our base fee is enclosed.

All of us at Penflex sincerely look forward to working with you for another year. Thank you for your continued business.

Serving your Volunteers,



Edward J. Holohan
President & Actuary

Penflex, Inc. 11/1/2018-10/31/2019 Service Fee Agreement

TOWN OF CARMEL

CARMEL FIRE PROTECTION DISTRICT NO. 1

SERVICE AWARD PROGRAM

Standard Services Fee Schedule

Base Fee: \$3,800, \$100 change from 2017

Per-Participant Fee: \$18, \$0 change from 2017

Payment certification and trustee directive letters: \$75 per letter, \$0 change from 2017

Total Estimated Standard and Distribution Services Fees: \$6,600

Preparation of Financial Statement Disclosures

Disclosure Packages Provided For Program Year 2017:

NYS LOSAP Audit Package: No

GASB 73 Package: Yes

Auditing Firm: PKF O'Connor Davies, LLP

Contact Name: Alan Kassay

Email Address: akassay@pkfod.com

Please Check 'Yes' Or 'No' For Program Year 2018:

Complete the NYS LOSAP Audit Package for a fee of \$495: _____ Yes _____ No

This is a \$0 change from 2017. Please refer to the enclosed newsletter titled 'New York State Volunteer Firefighter LOSAP Audit Requirement' for more information

Complete the GASB 73 Package for a fee of \$950: _____ Yes _____ No

This is a \$200 change from 2017. Please refer to the enclosed 'GASB 73 Frequently Asked Questions' for more information. For a sample GASB 73 package, please email: info@penflexinc.com

PLEASE NOTE: If you are requesting any Disclosure Packages, please review and make any necessary changes to your auditor's information noted above.

All other services are optional and are billed only when requested. Please call for fee estimates and purchase order arrangements. Optional services include additional client meetings, drafting of special correspondence and documents, and performing actuarial cost estimate calculations.

To authorize Penflex, Inc. to begin providing these services in accordance with this fee schedule, please have the Town Supervisor sign and return this Service Fee Agreement. Keep a copy for your records.

Supervisor
Town of Carmel

Edward J. Holohan
Edward J. Holohan, ASA
President, Penflex, Inc.

Penflex, Inc. 11/1/2018-10/31/2019 Service Fee Agreement

TOWN OF CARMEL

CARMEL FIRE PROTECTION DISTRICT NO. 2

SERVICE AWARD PROGRAM

Standard Services Fee Schedule

Base Fee: \$3,800, \$100 change from 2017

Per-Participant Fee: \$18, \$0 change from 2017

Payment certification and trustee directive letters: \$75 per letter, \$0 change from 2017

Total Estimated Standard and Distribution Services Fees: \$7,200

Preparation of Financial Statement Disclosures

Disclosure Packages Provided For Program Year 2017:

NYS LOSAP Audit Package: No

GASB 73 Package: Yes

Auditing Firm: PKF O'Connor Davies, LLP

Contact Name: Alan Kassay

Email Address: akassay@pkfod.com

Please Check 'Yes' Or 'No' For Program Year 2018:

Complete the NYS LOSAP Audit Package for a fee of \$495: _____ Yes _____ No

This is a \$0 change from 2017. Please refer to the enclosed newsletter titled 'New York State Volunteer Firefighter LOSAP Audit Requirement' for more information

Complete the GASB 73 Package for a fee of \$950: _____ Yes _____ No

This is a \$200 change from 2017. Please refer to the enclosed 'GASB 73 Frequently Asked Questions' for more information. For a sample GASB 73 package, please email: info@penflexinc.com

PLEASE NOTE: If you are requesting any Disclosure Packages, please review and make any necessary changes to your auditor's information noted above.

All other services are optional and are billed only when requested. Please call for fee estimates and purchase order arrangements. Optional services include additional client meetings, drafting of special correspondence and documents, and performing actuarial cost estimate calculations.

To authorize Penflex, Inc. to begin providing these services in accordance with this fee schedule, please have the Town Supervisor sign and return this Service Fee Agreement. Keep a copy for your records.

Supervisor
Town of Carmel

Edward J. Holohan

Edward J. Holohan, ASA
President, Penflex, Inc.

Maxwell, Mary Ann

To: Alosco, Barbara
Subject: FW: Employer Education Seminar Invitation - Rockland County - October 26, 2018

From: RTEmpSer [<mailto:RTEmpSer@osc.ny.gov>]
Sent: Friday, September 14, 2018 9:49 AM
Subject: Employer Education Seminar Invitation - Rockland County - October 26, 2018



Employer Education Seminar

Dear Employer,

The NYS Retirement System Employer Education Unit will be presenting a one day Employer Education Seminar at:

Rockland County Fire Training Center
35 Firemans Memorial Dr
Pomona, NY 10970

October 26, 2018

Our seminar covers reporting requirements and procedures that have proven valuable for payroll and personnel staff.

The Seminar addresses topics such as:

- Membership
- Monthly Reporting
- Elected and Appointed Officials
- Reporting at Time of Retirement
- Post-Retirement Employment
- Planning for Retirement
- Tier 5 and Tier 6 information

The seminar will begin at 9:00am and will run until approximately 3:30pm.

Seminar size is limited. Reservations will be accepted on a "first come, first served" basis. Please limit your response to two attendees in order for us to serve as many employers as possible.

****If you have already attended the employer education one day seminar within the past 18 months, please forward this invitation along to others in your organization who may benefit from attending.***

If you are interested in attending, please reply to this email with the following information:

Name

Employer

Location Code (if known)

Title

Email address

Thank you - Hope to see you soon!

Employer Participation & Education Unit
NYS & Local Employees Retirement System

RTEmpSer@osc.ny.gov

(518) 474-0167

Richard J. Franzetti, P.E.
Town Engineer



(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541

MEMORANDUM

To: Carmel Town Board

From: Richard J. Franzetti P.E. Town Engineer 

Date: September 25, 2018

Re: Architectural Design Consulting Services to the Planning Board
Warshauer Mellusi Warshauer Architects

As the Town Board is aware in 2015 the Town issued a request for proposal (RFP) entitled Architectural Design Consultant (RFP #R2015-006) for an Architectural Design Consultant to assist the Planning Board in carrying out the duties formally undertaken by the Architectural Review Board. In January of 2016, Warshauer Mellusi Warshauer Architects (WMW) was recommended to perform this service and has continues to provide this service to date. A copy of the January 21, 2016 memorandum recommending WMW is attached.

This Department requested that WMW provide a multi-year proposal for the continuation of this service. WMW has provided the attached three (3) year proposal for services in years 2019, 2020 and 2021.

WMW has been performing this professional service adequately for the Town since 2016. Please see the attached email from Vie Chairman Paepre recommending the continued use of WMW. Therefore, this Department recommends the Town Board consider retaining WMW for this multi-year proposal.

Please note the Comptroller's office provided a line item in the 2019 budget and funding is available for 2019.

I respectfully request that this be placed on your next Town Board work session agenda.

MEMORANDUM

To: Supervisor Schmitt & Members of the Town Board

From: Patrick Cleary, AICP, CEP, PP, LEED AP, Planning Consultant
Richard Franzetti, P.E., BCEE, LEED AP, Town Engineer

Date: January 21, 2016

Re: **Architectural Design Consultant Recommendation**

Last month the Town issued a request for proposal (RFP) entitled Architectural Design Consultant (RFP #R2015-006) for an Architectural Design Consultant to assist the Planning Board in carrying out the duties formally undertaken by the Architectural Review Board. A copy of the RFP is attached. Town staff had targeted the RFP to architects and architectural firms that have the technical capability to effectively support the Board, are generally familiar with the Town of Carmel, its architectural character, and importantly, do not currently practice in the Town or have any other form of conflict that would otherwise influence their impartial review of development applications.

The RFP was sent to eight (8) architects. Six (6) of those firms did not respond to the RFP, one (1) architect had moved out of the region and declined to respond, and one (1) firm submitted a response.

As noted above, all of the firms the Town reached out to were essentially “pre-qualified” so the lack of more responses is not necessarily problematic.

The firm that responded is Warshauer Mellusi Warshauer (“WMW”), with offices in Elmsford. This firm has maintained an extensive practice in the region since 1956. The firm is well known and well respected. Vincent Franze is the architect will be assigned to this assignment. Mr. Franze is a licensed professional architect, who grew up in Carmel and graduated from Mahopac High School.

The WMW RFP response is attached for your review and consideration. The Board should be aware that a significant application is currently before the Planning Board involving the complete renovation of the Lake Plaza Shopping Center, including the façades of all the stores. The support of the Architectural Design Consultant would be very helpful for that application, so retaining the consultant in a timely manner is important.

An interview of Mr. Franze by Chairman Gary is being scheduled for sometime in the next few days. The Town Board may also wish to interview Mr. Franze and WMW as well.

Upon review of the RFP response, staff recommends that the Town Board consider retaining WMW.

Richard J. Franzetti, P.E.
Town Engineer



*Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541*

(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

December 15, 2015

NOTICE TO VENDORS
REQUEST FOR PROPOSALS
Architectural Design Consultant
RFP #R2015-006

The Town of Carmel is currently seeking proposals for ARCHITECTURAL DESIGN CONSULTANT SERVICES as detailed in the enclosed Request for Proposals.

Your proposal must include but may not be limited to the scope of tasks outlined. The services date will commence on once approved by the Town of Carmel Town Board.

For additional information contact:

Name: Patrick Cleary, AICP, CEP, PP, LEED AP
Town Planning Consultant
Email: cleary@optonline.net

Please submit your response on or before January 15, 2016 at 11:00 AM. The Proposal must be addressed as follows:

Richard Franzetti, Town Engineer
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541

The proposal envelope must be marked "PROPOSAL R2015-006".

Should you have any questions, please contact me at 845-628-1500 ex. 183.

Sincerely,

Richard J Franzetti
Town Engineer

REQUEST FOR PROPOSALS
Architectural Design Consultant
RFP #R2015-006

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REQUEST FOR PROPOSALS

Architectural Design Consultant

RFP #R2015-006

I. INTRODUCTION

The Town of Carmel is seeking qualified architectural design consultants to provide professional architectural design review services to the Town of Carmel Planning Board for private development applications on an “on-call” basis. The architectural design consultant must be intimately familiar with the fundamental principles of architecture, building design and the New York State Building Code. The consultant should also be familiar with the Town of Carmel Master Plan, the Town’s history, geography, land use, patterns of development, commercial hamlet areas, building stock and local architecture.

II. BACKGROUND

The Town of Carmel, located in south-central Putnam County encompasses approximately 40 square miles, and has a population of over 34, 000 residents. The Town supports two (2) hamlets; Carmel, which is the County Seat and Mahopac. Most of the Town’s commercial activity is found within these two hamlets. Since the second half of the last century, the Town has experienced steady residential growth, while commercial activity has grown more sporadically. Major commercial, residential and mixed-use projects on the horizon have caused the Town to reevaluate certain elements of the land use approval process.

In 2015, the Town of Carmel Board of Architectural Review was abolished by the Town Board, and the duties and authority of that Board were transferred to the Planning Board.

In carrying out these duties, the Planning Board has determined that it may periodically require the services of an architectural design consultant to assist in reviewing site plan applications.

To assist the Planning Board with the architectural design review of projects, the Town Board determined that a “peer-review” process for development applications should be implemented. Peer-review would consist of a hired architectural design consultant that would review development applications and provide the Planning Board with recommendations. It is anticipated that these recommendations would result in beneficial modifications to building projects and/or the establishment of various approval conditions related to building architecture.

REQUEST FOR PROPOSALS
Architectural Design Consultant

RFP #R2015-006

III. TERMS OF CONTRACT

The agreement shall be for a term of twelve (12) months with two (2) one (1) year extensions at the unilateral option of the Town Board. The Contract will commence as of the date of the Contract Execution.

IV. SCOPE OF SERVICES

In general, the successful individual or firm will be expected to provide peer-review services for the applications brought before the Planning Board that involve the construction of buildings. This may involve the construction of entirely new buildings, or the renovation of existing buildings. Not all applications considered by the Planning Board would require the peer review services of the architectural design consultant.

The services that the architectural design consultant shall provide to the Planning Board include, but are not limited to the ability to perform one or more of the following:

1. Analyze the quality of a project's architecture and design and provide the Planning Board with specific comments and recommendations that will provide feedback and direction to the applicant so that appropriate revisions to building plans can be made.
2. Assess the viability and/or practicality of proposed revisions to building architectural plans. Determine if modifications to architectural plans are realistic, economically feasible, and consistent with applicable building codes and the Town of Carmel's Master Plan.
3. Analyze proposed signage to assure consistency with building architecture, surrounding properties, general neighborhood character and the Town of Carmel's Master Plan.
4. Develop appropriate conditions of approval related to building architectural issues.
5. Analyze a project's visual impacts on surrounding projects and/or neighborhoods;
6. Assist in defining the architectural character and important design elements and themes within areas where projects are proposed, so that new development will be consistent with surrounding neighborhoods and the Town of Carmel's Master

REQUEST FOR PROPOSALS
Architectural Design Consultant

RFP #R2015-006

Plan.

7. Advocate for the incorporation of green building practices in building architecture, and assist with opportunities for applicants to obtain green building certifications, such as LEED.
8. Work closely with the Director of Codes Enforcement, Town Engineer and Planning Consultant in developing recommendations for the Planning Board.
9. Attend Planning Board meetings when requested by the Planning Board. It should be noted that there are approximately 25 Planning Board meetings per year. The meetings begin at 7 PM and are held on the second (2nd) and fourth (4th) Wednesdays of the month. There are times when meetings are not held either due to Town Hall being closed due to emergency or Holiday or lack of agenda items.
10. Prepare drawings or exhibits to illustrate recommendations for projects when necessary.
11. Demonstrate the ability to review projects and provide comments within 15 days of receipt of application materials (shorter timelines may be required for certain projects);
12. Conduct site visits as necessary;
13. Be available during regular business hours to consult with Planning Board members, Town staff and consultants and the applicant.

The Planning Board shall determine when the services of the Architectural Design Consultant are required. Upon this determination, the Planning Board Secretary shall immediately forward (in a format mutually agreed upon) the application package, including the Site Plan, architectural plans, details and renderings, the Application Form, Environmental Assessment Form and all other documentation submitted in support of the application.

V. SELECTION CRITERIA

The Town of Carmel's selection of the architectural design consultant will be based upon:

REQUEST FOR PROPOSALS

Architectural Design Consultant

RFP #R2015-006

1. The firm's ability to perform the work;
2. Demonstrated experience with similar projects;
3. Demonstration that the individual assigned to this task is a licensed professional architect in the state of New York, and maintains other appropriate certifications relative to this assignment, such as LEED AP.
4. Familiarity with, or the demonstrated ability to become rapidly familiar with the history, geography, land use, patterns of development, commercial hamlet areas, building stock and local architecture of the Town of Carmel;
5. Demonstrated ability to communicate and work effectively with the Planning Board, Town staff and consultants, the public and the applicant;
6. Demonstrated ability to review projects constructively, and not utilize this position to hinder appropriate development, or slow down the Planning Board's review process.
7. Responsiveness to this Request for Proposals.
8. Availability to begin work immediately upon being selected.

VI. SUBMITTAL REQUIREMENTS

Double sided printing is strongly encouraged. Provide five (5) bound copies, one (1) unbound copy, and one (1) electronic copy in pdf format.

1. **Cover Letter** – Summarize qualifications most relevant to this assignment; identify key team members; provide name of contact person, phone, fax and email address (maximum 1 page).
2. **Relevant Qualifications** – Offer short, focused paragraphs in a summary format by topic; do not include general information (maximum 4 pages).
3. **Relevant Experience** – List projects completed by the firm relevant to the scope of services listed above. Include the scope of the services provided and specify the role of the firm (identify if the work was performed exclusively by the firm or a joint venture).

REQUEST FOR PROPOSALS
Architectural Design Consultant

RFP #R2015-006

4. **Key Team Member Summary** – Identify key team members of the firm and summarize typical roles and responsibilities for each member on a project team. List experience relative to those typical roles (reference projects relevant to those described in the scope of services, if applicable).
5. **Current Clients/Projects** – Provide a list of all clients doing business with the firm in the past 3 years and identify any projects within the Town of Carmel in the past 3 years.
6. **Firm's Billing Structure** – Provide an outline of the hourly fee structure for the key team members identified in #4 and associated administrative/technical support fee structure.
7. **References** – Provide 3 client references relevant to the scope of services listed above (names, titles, current mailing and email addresses, and phone numbers).
8. **Appendix** – (items to be included) Firm brochure with background information (if available); key team member resumes.

VII. SUBMISSION INSTRUCTIONS/SCHEDULE

Five (5) bound copies, one (1) unbound copy, and one (1) electronic copy in pdf format of the proposal must be submitted no later than 11:00 AM on January 15, 2016 to:

Town of Carmel
Town Engineer
Town Hall
60 McAlpin Avenue
Mahopac, New York 10541

Any questions regarding this Request for Qualifications should be directed to:

Patrick Cleary, AICP, CEP, PP, LEED AP
Town Planning Consultant
cleary@optonline.net

Interviews with select firms will be conducted approximately two weeks after receipt of proposals.

REQUEST FOR PROPOSALS
Architectural Design Consultant

RFP #R2015-006

VIII. COMPENSATION

The selected architectural design consultant is to provide consulting services for a fixed-fee not to exceed the amount of six thousand dollars (\$6,000).

In instances where extraordinary services are required of the consultant beyond the general scope of services outlined above, and as determined necessary by the Planning Board (such as a commitment of additional hours required to adequately assist the Planning Board or the requirement to provide specialized review services), these additional costs shall be reimbursed through the establishment of a **“Development Review”** escrow account funded by the applicant. In such an instance, the architectural design consultant shall provide a written estimate for the anticipated cost of review services, which shall then be transmitted to the applicant, who shall then fund the escrow account.

VIII. CONFLICTS

The selected architectural design consultant shall be precluded from conducting peer review services to the Planning Board for applicants that are current clients of the firm or with which the firm has worked within the 12 months preceding the firm’s execution of a contract with the Town. The architectural design consultant shall also not be permitted to submit plans and specifications for, or represent clients before the Town of Carmel Planning Board. Other potential conflict issues will be addressed on a case-by-case basis.



15 January 2016
HAND DELIVER

Richard Franzetti, Town Engineer
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541

Re: Cover Letter
PROPOSAL R-2015-006

Dear Mr. Franzetti,

Thank you for considering our firm as the Architectural Design Consultant for the Town of Carmel Planning Board. Enclosed please find five bound, one unbound and one pdf copy of the RFP reply, as requested.

Our firm has been practicing architecture in the Westchester-Mid Hudson Region since its inception in 1956. Our work includes the planning, design, approvals processing, preparation of construction documents and specifications, construction administration and post construction services for the wide range of project types that are outlined in our firm's brochure, which is included in this submission.

An important part of our practice is our communication with the Community Officials who oversee the built environment. We work closely with the Planning and Building Commissioners, and the Elected and Appointed Officials who administer the Site Plan Approvals and Building Permits for all of our projects.

Our firm's principals and staff have extensive experience administering the approvals process as both applicants and municipal reviewers.

Vincent Franze will be the architect assigned to all Town of Carmel reviews. In the unlikely event that he is not available, one of the Firm Principals will fill in for him. Vincent will also be your contact for this RFP review, and can be reached by phone (914-592-4466 extension 515), by cell phone (914-420-1119) or e-mail (vf@wmwarchitects.com).

We very much look forward to the opportunity of working with The Town Planning Board as your Architectural Review Consultant and are available at your convenience to meet and discuss our qualifications in detail.

Sincerely,

Gary David Warshauer NCARB, AIA
Principal

15 January 2016
HAND DELIVER

Richard Franzetti, Town Engineer
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541

Re: Relevant Qualifications
PROPOSAL R-2015-006
RFP Item 2



Dear Mr. Franzetti,

In response to the Relevant Qualifications portion of the above referenced RFP, we offer the following:

1. The firm's ability to perform the work;

In addition to Vincent Franze, who will be your prime contact for this work, there are twelve other members of our firm who will support Vincent as needed. The three principals of the firm all have extensive experience in the scope of services being requested by the Town and can fill in for Vincent if necessary.

2. Demonstrated experience with similar projects;

Our firm has extensive experience over the six decades we have practiced here in the Westchester-Mid Hudson region, as outlined in our attached brochure. The type of projects we have designed and the scope of services provided for our clients, together with our active involvement with Municipal Officials during the approvals process, demonstrates our ability to provide the services requested.

3. Demonstration that the individual assigned to this task is a licensed professional architect in the state of New York, and maintains other appropriate certifications relative to this assignment, such as LEED AP.

Vincent Franze, the architect who will be assigned to these services, is licensed to practice architecture in New York State. In addition, the three firm principles, also duly licensed to practice architecture in New York State, one of whom is LEED Certified, will support Vincent as needed.

4. Familiarity with, or the demonstrated ability to become rapidly familiar with the history, geography, land use, patterns of development, commercial hamlet areas, building stock and local architecture of the Town of Carmel;

Vincent Franze lived in Carmel's hamlet of Mahopac from 1971 to 1994. He graduated from Mahopac High School 1982. He currently resides in the Croton Falls vicinity, 5 minutes from Carmel Town Hall. His parents and wife's parents still live in Mahopac as does his brother-in-law. From 1988 to present he has been involved with many architectural projects in the town of



Carmel, both residential and commercial. He has appeared many times before the Planning Board, Zoning Board of Appeals, Architectural Review Board, the Environmental Conservation Board and the building department. Vincent is very familiar with the architecture, land use and development patterns for the commercial hamlet areas and overall Town of Carmel.

5. Demonstrated ability to communicate and work effectively with the Planning Board, Town staff and consultants, the public and the applicant;

Vincent has developed an excellent working relationship with Town Officials as a town resident and neighbor and when presenting the projects he has designed to Town reviewing boards. He will continue to bring this professionalism as the Planning Board's consultant.

6. Demonstrated ability to review projects constructively, and not utilize this position to hinder appropriate development, or slow down the Planning Board's review process.

We understand that the role of a Town Consultant is to support the Board with consistent and professional reviews. Our collective experience, having worked extensively as both Town Officials and applicants, demonstrates our ability to effectively communicate in a public forum and respond to the issues at hand in a timely and courteous manner.

7. Responsiveness to this Request for Proposals.

We are pleased to have the opportunity to respond to your RFP.

8. Availability to begin work immediately upon being selected.

We are prepared to commence work immediately upon your authorization.

15 January 2016
HAND DELIVER

Richard Franzetti, Town Engineer
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541

Re: RFP Items 3 thru 8
PROPOSAL R-2015-006

Dear Mr. Franzetti,

In response to the remaining sections of the RFP, we offer the following:

3) Relevant Experience – List projects completed by the firm relevant to the scope of services listed above. Include the scope of the services provided and specify the role of the firm (identify if the work was performed exclusively by the firm or a joint venture).

- a) Town of Southeast. Vincent Franze was the architectural consultant to the Architectural Review Board of the Town of Southeast from 2009 thru 2012. He was a principal with Franz & Franze Architects at the time. His services included receiving application submittal packages, reviewing all documentation, making site visits, preparing memos to the board, and attending ARB meetings. Vincent handled this consultation almost exclusively. His partner Phil Franz contributed some critique and attended an occasional meeting in **Vincent's** stead but Vincent wrote all of the memos. Sample memos have been included in appendix
- b) Our firm has completed countless projects that were well received in the neighborhoods in which they were located. This is due to our ability to incorporate design elements and scale that meld well with adjacent buildings and natural features. We also work closely with municipal officials and community groups throughout the architectural process, maintaining consistent communication from design and approvals through post construction. We will offer this same degree of sensitivity as your consultant.

4) Key Team Member Summary – Identify key team members of the firm and summarize typical roles and responsibilities for each member on a project team. List experience relative to those typical roles (reference projects relevant to those described in the scope of services, if applicable).

- a) Vincent Franze, Project Architect, (vf@wmwarchitects.com, office phone 914-592-4466 extension 515, cell phone 914-420-1119) will be your main contact for all services provided to the Town of Carmel. He graduated New York Institute of Technology, cum laude, and has been a licensed architect in New York State since 1996. Vincent is the former director of the





Westchester-Mid Hudson chapter of the American Institute of Architects, former director of the Mt Kisco Rotary Club, former adjunct educator at Caramoor Center for the Art's Education Department. His Architectural experience includes single and multi-fam residential, commercial, retail, historic, religious, adaptive re-use and public/municipal projects. His clients have included the county of Westchester, Town of Eastchester, Village of Mount Kisco, Mount Kisco Housing Authority, Town of Lewisboro and the Town of Southeast.

- b) Vincent Mellusi, a principal of our firm, (vjm@wmwarchitects.com, office phone 914-592-4466 extension 103, cell phone 914-646-7456) has served his home town of Yorktown as chairman of their Architectural Review Board. In that role Vinny was responsible for the review of numerous applications brought before the town, similar to the scope of services outlined in this RFP.
- c) Gary Warshauer, a principal of our firm, (gdw@wmwarchitects.com, cell phone 914-582-9597) has served his home town of Pound Ridge as Planning Board Chairman, a Town Board Member, Deputy Town Supervisor and Town Supervisor over the 23 year period from 1990 to 2013. In those roles he has been involved in the review and processing of numerous applications submitted to the Town, with similar scope as outlined in this RFP. He was **also involved in the preparation and adoption of the Town's Master Plan.** In addition to his community service, Gary has been involved in the approvals **process for all of the firm's projects over the past 30 years**, the scope of which includes demonstrating that the proposed design is contextually compatible with adjacent architectural and other physical features.
- d) Edmund Vogel, a principal of our firm, (ev@wmwarchitects.com, office phone 914-592-4466 extension 106) is LEED certified and will provide support for environmental sustainable suggestions, when requested as part of any reviews. Ed has also been actively involved in processing approvals for the **firm's projects** over the past decade.

5) Current Clients/Projects – Provide a list of all clients doing business with the firm in the past 3 years and identify any projects within the Town of Carmel in the past 3 years.

- a) Our firm has not designed any projects within the Town of Carmel in the last 3 years. Our current clients include:
 - i. 880 Central Park Avenue Scarsdale LLC
 - ii. Conifer Development, LLC
 - iii. Exclusive Management, LLC
 - iv. Executive Associates North 9, LLC
 - v. Ginsburg Development Companies



- vi. Hastings on Hudson Affordable Housing Development
- vii. Keystone Property Group
- viii. Mack-Cali Realty
- ix. Marathon Development Group
- x. Mt. Hope A.M.E. Church
- xi. Mt. Hope Community Development Corporation
- xii. Ossining Land, LLC
- xiii. Peekskill Housing Authority
- xiv. Region Nine Housing Corp.
- xv. Rising Development Company
- xvi. Rosenberg Land Development, LLC
- xvii. S&R Development Estates
- xviii. The Fresnel Group LLC
- xix. Trinity Associates
- xx. VS Construction
- xxi. Weinberg-Q LLC
- xxii. Wilder Balter Partners, LLC
- xxiii. White Plains Housing Authority

b) Vincent Franze, prior to joining our firm, clients included:

- i. IBM
- ii. The Durst Organization
- iii. Arroway Chevrolet
- iv. Chazz Palminteri
- v. Chevy Chase
- vi. Bryant Gumble
- vii. Alan Menken
- viii. Westchester Country Club
- ix. Bedford Presbyterian Church
- x. Brewster Honda
- xi. Best Locking Systems
- xii. Hudson Valley Bank

6) Firm's Billing Structure – Provide an outline of the hourly fee structure for the key team members identified in #4 and associated administrative/technical support fee structure.

- a) Our standard hourly rates are attached as appendix II.

7) References – Provide 3 client references relevant to the scope of services listed above (names, titles, current mailing and email addresses, and phone numbers).



- a) Richard Lyman, Pound Ridge Town Supervisor, Pound Ridge Town House, 179 Westchester Avenue, Pound Ridge, NY 10576, rlyman@townofpoundridge.com, 914-764-5511.
- b) Town of Southeast A.R.B. (Vincent Franze reference) John Goudey, Chariman. 845-279-7736
- c) Michael Baione (Vincent Franze reference), residential Client, Mahopac Point, 917-317-3115

8) Appendix – (items to be included) Firm brochure with background information (if available); key team member resumes.

- a) Our Firm brochure is attached as appendix III.

25 September 2018

Kenneth Schmitt, Town Supervisor
Town of Carmel
Carmel Town Hall
60 McAlpin Avenue
Mahopac, New York 10541



Re: Architectural Design Consulting Services to the Planning Board
For years; 2019, 2020, 2021

Dear Supervisor Schmitt and Members of the Town Board,

We are pleased to submit our proposal to provide architectural design consulting services to the Town of Carmel Planning Board, as outlined below:

The scope of our services under this agreement shall be to assist the Planning Board in their review of matters pertaining to architectural design, as directed by the Planning Board Chairman.

Our fee for this work will be billed monthly, in accordance with the attached Hourly Rates Schedule.

We will provide separate invoices for each application or project reviewed, submitted monthly by email to the Planning Board Chairman or designated recipient. Payments are due within the normal payment requisition process of the Town of Carmel, approximately 45 days. A 1.5% per month administration fee will be added to any balance not received within 60 days.

Reimbursable expenses, in addition to the compensation for professional services, shall also be billed monthly. This includes the direct cost (times 1.10) for all renderings, photography, models, reproductions, computer plots, postage, handling of drawings, specifications and electronic data, long distance telephone calls, telefaxes and transportation.

We look forward to the opportunity to continue working with the Town of Carmel. Please indicate your acceptance of this agreement by returning one signed copy to me for our files.

Sincerely,

Vincent J. Mellusi, NCARB, AIA
Principal

**Accepted By:
Town of Carmel**

Kenneth Schmitt, Town Supervisor

Date: _____

Attachment



STANDARD HOURLY RATES SCHEDULE
(For Town of Carmel 2019-2021)

Principal	\$220.00
Principal / Project Architect	\$195.00
Project Architect	\$150.00
Project Manager	\$130.00
Job Captain	\$100.00
Level III Designer/CADD Technician	\$95.00
Level II Designer/CADD Technician	\$80.00
Level I Designer/CADD Technician	\$70.00
Technical Typist/Bookkeeper	\$70.00

From: [Craig R Paeprer](#)
To: [Franzetti, Richard](#)
Cc: [Pasquerello, Anne](#); ["Patrick Cleary"](#); ["Gary Harold"](#); ["Charbonneau Joseph A. Esq."](#); [Schmitt, Kenneth](#); [Carnazza, Mike](#); [Trombetta, Rose](#)
Subject: Re: 09-19-18 FW: WMW Architectural Services Proposal
Date: Friday, September 21, 2018 7:54:41 AM
Attachments: [20180919 WMW Architects 2019 Proposal Architectural Design Consultant to....pdf](#)
[2019 Standard Hourly Rates Schedule.pdf](#)

Hello Rich,

As per our discussion yesterday and to follow up, Yes, I support continuing the use of Warshauer Mellusi and Warshauer, thank you Rich.

Regards,

Craig R. Paeprer,
Senior Location Executive & Program Mgr Research
IBM Thomas J. Watson, Research Division
Yorktown Heights, New York, 10598
8/862-3800, 914-945-3800, fax 914-762-8055

From: "Franzetti, Richard"
To: 'Gary Harold' , 'Paeprer Craig'
Cc: "Carnazza, Mike" , 'Patrick Cleary' , "'Charbonneau Joseph A. Esq.'" , "Trombetta, Rose" , "Schmitt, Kenneth" , "Pasquerello, Anne"
Date: 09/20/2018 03:46 PM
Subject: 09-19-18 FW: WMW Architectural Services Proposal

Chairman Gary and Vice Chairman Paeprer,
Please see the attached proposal from the architects Warshauer Mellusi and Warshauer. They are interested in continuing support services for the Town of Carmel Planning Board in 2019.

In speaking with Mr. Mellusi, he indicated that they will use Principals of the firm for the Planning Board reviews versus the prior use a Project Architect.

Please advise if this acceptable.

Richard J. Franzetti. P.E, BCEE

Town Engineer

60 McAlpin Avenue

Mahopac, New York 10541

Phone - (845) 628-1500 ext 181

Fax – (845) 628-7085

Cell – (914) 843-4704

rjf@ci.carmel.ny.us

This communication may be confidential and is intended for the sole use of the addressee(s). No use or reproduction of the information provided is permitted without the written consent of the Town of Carmel. If you are not the intended recipient, you should not copy, disclose or take any action in reliance on this communication. If you have received this communication in error, please notify the sender by reply e-mail and delete the message and any attached documents.

Richard J. Franzetti, P.E.
Town Engineer




(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

*Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541*

MEMORANDUM

To: Carmel Town Board

From: Richard J. Franzetti P.E. Town Engineer
Michael Simone, Highway Superintendent 

Date: October 4, 2018

Re: Evaluation of Easement area "B" Waring Drive

PURPOSE

Recently the owner of 33 Waring Drive (TM# 44.14-1-90) applied for a building permit to construct a pool on the property. The application was forwarded to the Engineering Department and the applicant was advised that the permit could not be granted as the pool is sited over a Town of Carmel Drainage Easement. The applicant requested relief from the easement, from the Carmel Town Board. This Department was tasked with investigating if abandonment of the easement is warranted.

DISCUSSION

Easement "B" is shown of the attached Exhibit "A" which is a portion of Filed Map # 2934A "Michaels Glenn Subdivision". The easement transects lot 5 which is the subject parcel. The easement crosses over lots 6 and 7 and terminates in lot 8. The Schedule of Easements indicates that the easement is in favor of the Town of Carmel and that the purpose of the Easement is "swale Maintenance" (See attached exhibit "B" portion of filed Map #2934A).

A. Existing Conditions

Based upon our observations, no swale exists in the easement. There is a depression at the edge of the road with an end section that connects to an 18" HDPE pipe (see attached photos as Exhibit "C"). The extent to which this depressed area **does not** collect any water is evidenced by the fact that the property owner has actually installed plantings and mulch in the area.

In order to provide complete observations, this department conducted a wet weather field inspection of the subject location on July 25, 2018 after 3 straight days of rain. No water was observed in the depressed area (See attached Exhibit "D").

B. Potential Future use of the Easement Area.

Four properties lie topographically above the subject easement as shown on Exhibit "E". Each of these properties is evaluated below as to any potential future use or impact to easement "B".

1. Lot 24 of Michael's Glen Subdivision- TM# 44.14-1-108- This property is restricted by virtue of filed map # 2934 to remain "Open Space". Therefore no development is possible and no future use of easement "B" is possible.
2. Woodland Trail Condominiums- This property is fully developed; therefore there is no future impact on easement "B".
3. Hillcrest Common Development – Lot E-2.2. TM# 44.10-2-4.2 -This property is currently before the Town of Carmel Planning Board for re-grant of final approval. Storm water from the Detention pond for this project will be discharged to an existing stone swale to the north of the existing emergency access road. From there, the water will pass under the access road via culvert and enter into another existing stone swale. The swale terminates with a level spreader which discharges into a natural stream that eventually flows under Waring Drive at the intersection of Fair Street and ultimately ends up in St. Michael's Brook. See attached Exhibit "F" and photos as Exhibit "G". The development of Lot E-2.2 will have no impact on Easement "B".
4. Shop Rite Property- Tm#44.9-1-9- This property is fully developed, therefore, there is no future impact on Easement "B"

C. Prior regulatory approvals

The Michael's Glen Subdivision was approved by the Town of Carmel Planning Board, on April 23, 2003. As part of the approval process Storm water Pollution Prevention Plan was developed and ultimately approved by the Planning Board and NYCDEP. The SWPPP was provided to this department by the Design Engineer for the project Peder Scott, P.E.. We have reviewed the SWPPP and find no discussion regarding any swale in Easement "B". We therefore conclude that the existence or nonexistence of the swale in Easement "B" was not a material consideration in approving the SWPPP or the Subdivision.

CONCLUSION

Based upon this Departments investigation, Easement "B" currently serves no present or future purpose to the Town of Carmel. We therefore conclude that abandonment of the easement will have no impact.

EXHIBIT "A"

EXHIBIT “B”

(REFER TO KEY MAP ABOVE FOR NUMBERED PARCELS CORRESPONDING TO THIS LIST OF OWNERS)

SCHEDULE OF EASEMENTS

EASEMENT	PURPOSE	IN FAVOR OF	LOCATION	AREA
A	SEWER, WATER MAINTENANCE	T/O CA	LOT NOS. 18-21	0.134 AC±
	ACCESS MAINTENANCE (LOT 18-20)	LOT 18-20		
B	SWALE MAINTENANCE	T/O CA	LOT NOS. 5-8	0.173 AC±
C	SEWER, WATER MAINT.	T/O CA	LOT NOS. 15-20	0.141 AC±
	COMMON DRIVEWAY MAINTENANCE	LOT 15-17		
D	SEWER MAINTENANCE	T/O CA	LOT NOS. 18-2	0.074 AC±
E	STREAM CROSSING CULVERT MAINTENANCE	T/O CA	LOT NO. 23	0.014 AC±
F	STREAM CROSSING CULVERT MAINTENANCE	T/O CA	LOT NO. 24	0.015 AC±
G	SWALE MAINTENANCE	T/O CA	LOT NOS. 14, 15 & 24	0.775 AC±
H	SWALE / STORMWATER BASIN MAINTENANCE	T/O CA	LOT NO. 24	1.059 AC±
I	SWALE / STORMWATER BASIN / FOREST FILTER STRIP MAINTENANCE	T/O CA	LOT NOS. 20-22 & 24	1.096 AC±
J-EAST	STREAM CROSSING CULVERT MAINTENANCE	T/O CA	LOT NO. 24-EAST	0.014 AC±
J-WEST	STREAM CROSSING CULVERT MAINTENANCE	T/O CA	LOT NO. 24-WEST	0.015 AC±
K	SEWER MAINTENANCE	T/O CA	LOT 24	0.088 AC±
L	RESTRICTS DISTURBANCE	T/O CA	LOT 1 & 2	0.339 AC±
M	RESTRICTS DISTURBANCE	T/O CA	LOT 4	0.075 AC±
N	RESTRICTS DISTURBANCE	T/O CA	LOTS 5, 6, 7, 8, 9	0.524 AC±
O	RESTRICTS DISTURBANCE	T/O CA	LOTS 21 & 22	0.197 AC±
P	RESTRICTS DISTURBANCE	T/O CA	LOT 10	0.088 AC±
R	GRADING	LOT 12	LOT 11	0.101 AC±
S	GRADING	LOT 12	LOT 13	0.047 AC±

EXHIBIT "C"

c



C







EXHIBIT "D"







EXHIBIT “E”

Shop Rite property
Already Developed TM#44.9-1-9

Hillcrest Common Development Lot E-2.2
currently before planning board for
re-grant of approval. TM#44.10-2-4.2

Subject Area Easement "B"

Woodland Trail Condominiums
already developed . No TM#

Lot 24 of Michael's Glen Subdivision Dedicated as
open space per filed map #2934- TM# 44.14-1-108



Legend



surrounding
properties to
easement "B"

Google Earth

© 2018 Google



EXHIBIT “F”

Legend

Subject Property

Discharge
Path from
Hillcrest
Commons

Waring Dr

Woodland Trl

Fair St

60

Vink Dr




800 ft


Google Earth

© 2018 Google

EXHIBIT "G"



Culvert Discharge to stone swale
Above level spreader

A photograph of a stone swale in a forest. The swale is a shallow, rocky channel filled with large, flat, greyish-brown stones. It runs diagonally from the bottom left towards the center of the image. The surrounding area is covered in dry, brown leaves and some green vegetation. The background is a dense forest of tall trees with green foliage. Sunlight filters through the trees, creating dappled light on the ground.

Stone swale heading to
level spreader

Richard J. Franzetti, P.E.
Town Engineer




(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541

MEMORANDUM

To: Carmel Town Board
Mike Simone, Superintendent of Highways

From: Richard J. Franzetti P.E. Town Engineer 

Date: October 1, 2018

Re: EOHWC O&M Agreement

As the Board is aware, the Town of Carmel (Town) is a member of the East of Hudson Watershed Corporation (EOHWC). The EOHWC is made up of nineteen municipalities in Dutchess, Putnam and Westchester Counties and was established as a regional stormwater entity in response to the heightened phosphorus removal requirements under the New York State Department of Environmental Conservation (NYSDEC) stormwater regulations.

The EOHWC administers, coordinates and installs the regional stormwater retrofit projects (SRPs), with funding made available by the New York City Department of Environmental Protection (NYCDEP), Westchester County, and Putnam County. Through the EOHWC, the member municipalities are collectively achieving compliance with their SRP requirements through bubble compliance, regardless of the physical location of each retrofit.

As identified in the attached EOHWC O&M policy each municipality has to maintain the SRPs that have been or will be installed. The Town adopted the EOHWC policy as identified in the attached February 17, 2016 Resolution.

Due to bubble compliance the Town is required to pay for O&M based on the Town's overall phosphorus reduction not just for those SRPs installed in the Town. The EOHWC, through Putnam County (PC) provides the O&M for the SRPs located in the Town.

Attached please find the document entitled "AGREEMENT FOR OPERATION AND MAINTENANCE OF STORMWATER RETROFIT PRACTICES TOWN OF CARMEL" which formalizes that PC will perform the O&M for the retrofits located in the Town. The Town is required to pay for the EOHWC for this maintenance under bubble compliance.



EAST OF HUDSON WATERSHED CORPORATION

2 Route 164
Patterson, NY 12563
Tel: 845-319-6349
Fax: 845-319-6391

November 10, 2015

To the Chief Elected Officials of Member Municipalities,

Today the Board of Directors of the EOHWC adopted an Operation and Maintenance Policy ("O&M Policy"), conditioned on each member municipality agreeing by resolution of its legislative body to accept the Policy. I'm enclosing for your review and action the EOHWC Board resolution, a model member resolution, the O&M Policy (5 pages) and the Annual Estimated O&M Cost (1 page).

It is critically important that each of you give this your immediate attention. The MS4 Permit requires each municipality to maintain the stormwater retrofit practices ("SRPs") that have been or will be installed. Failure to do so would violate the permit and may cause the phosphorus reduction credits we've amassed to be lost. In a worst case, if EOHWC does not step up to the plate and ensure O&M is performed, all municipalities could be liable for a permit violation and bubble compliance would collapse.

In addition, we have been told by representatives of DEP that while they may be willing to fund some or all of the next five years of SRP construction, they are not willing to fund O&M. They are looking to the municipalities to take on that responsibility as their contribution to the overall effort. Without DEP funding of SRP construction, all the cost of the next five years would fall on the municipalities.

The Annual Estimated O&M Cost I've enclosed is only an estimate to give you an idea of the numbers our engineers have calculated. As O&M is performed we will acquire actual data that will give us more accurate figures, hopefully less than what is conservatively estimated on the enclosed sheet. The basic concept is that municipalities will be expected to perform the O&M in the most efficient way possible. As you will see in the Policy, some will get reimbursement from EOHWC and some will pay in, depending on the allocation in the Policy.

Again, please give this your immediate attention. If at all possible, please return your adopted resolution to me at EOHWC no later than December 31. This is a very important step in our negotiations for funding for years 6-10 of the MS4 Permit. If you have questions about how the policy works or how it will apply to your municipality, feel free to contact me or Kevin Fitzpatrick at EOHWC.


Michael Griffin, President

**BOARD OF DIRECTORS
EAST OF HUDSON WATERSHED CORPORATION
2 Route 164, Patterson, NY 12563**

RESOLUTION TO ADOPT O&M POLICY

Resolution #: R-1110-07

Moved By: _____

Dated: November 10, 2015

Seconded By: _____

At the meeting of the Board of Directors of the East of Hudson Watershed Corporation held on November 10, 2015, the following resolution was adopted:

WHEREAS, the MS4 Permit applicable to all member municipalities requires the municipality to maintain each stormwater retrofit project (SRP) for its useful life to ensure that it continues to operate as it was designed; and

WHEREAS, DEP has indicated that while it may to some extent be willing to continue funding the construction of SRPs approved by NYSDEC as part of the regional stormwater retrofit plan, it is not willing to fund the non-construction costs of operation and maintenance (O&M) of completed SRPs, as such expenses may not be paid from bond proceeds; and

WHEREAS, the Executive Committee has developed and recommends for adoption by the Board of Directors the annexed O&M Policy providing for the equitable sharing of the costs and responsibilities of O&M by all member municipalities in a manner consistent with the MS4 Permit bubble compliance concept; and

WHEREAS, approval of the O&M Policy is a Type II action exempt from the State Environmental Quality Review Act (SEQRA) under 6 NYCRR 617.5(c)(1) as it relates to the routine maintenance of the SRPs;

NOW THEREFORE IT IS HEREBY RESOLVED by the Board of Directors of the East of Hudson Watershed Corporation that:

1. The Board of Directors hereby approves the annexed O&M Policy providing for the equitable sharing of the costs and responsibilities of O&M by all member municipalities in a manner consistent with the MS4 Permit bubble compliance concept, conditioned on the legislative body of each member municipality agreeing to comply with the terms and conditions of the O&M Policy; and

2. Authorizes the President to distribute to each member municipality the annexed Model Member O&M Resolution with a request that the member municipality promptly adopt the model resolution or a similar resolution assuring that it will comply with the terms and conditions of the O&M Policy.

Aye _____ Nay _____

Michael Griffin, Chair

[Town/Village/County] of _____

**Resolution Regarding O&M
of Stormwater Retrofit Projects**

Resolution No. _____
Date: _____, 2015

Moved by: _____
Second by: _____

WHEREAS, the [Town/Village/County] of _____ is a member of the East of Hudson Watershed Corporation ("EOHWC"), a not-for-profit local development corporation formed to assist the member municipalities in complying with the stormwater retrofit requirements of the Municipal Separate Storm Sewer System Permit (MS4 Permit); and

WHEREAS, EOHWC has installed and will continue to install stormwater retrofit projects (SRPs) or has reimbursed member municipalities for installing SRPs in compliance with the first five-year Regional Stormwater Retrofit Plan and intends to do so for the second five-year plan to the extent funding is provided by New York City Department of Environmental Protection (DEP); and

WHEREAS, the MS4 Permit requires member municipalities to maintain each SRP for its useful life to ensure that it continues to operate as it was designed; and

WHEREAS, the Board of Directors of EOHWC has adopted an O&M Policy providing for the equitable sharing of the costs and responsibilities of O&M by all member municipalities in a manner consistent with the MS4 Permit bubble compliance concept, conditioned on the legislative body of each member municipality agreeing to comply with the terms and conditions of the O&M Policy; and

WHEREAS, approval of the O&M Policy is a Type II action exempt from the State Environmental Quality Review Act (SEQRA) under 6 NYCRR 617.5(c)(1) as it relates to the routine maintenance of the SRPs; and

WHEREAS, approval of the O&M Policy is in the best interests of the [Town/Village/County] as it assures continued compliance by the [Town/Village/County] with the MS4 Permit;

NOW THEREFORE IT IS HEREBY RESOLVED by the [Legislative Body] of the [Town/Village/County] of _____ that:

1. The [Town/Village/County] of _____ accepts and agrees to the terms and conditions of the EOHWC O&M Policy; and
2. Authorizes the [Supervisor/Mayor/County Executive] to take whatever other actions are required to implement this resolution.



EAST OF HUDSON WATERSHED CORPORATION

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POLICY FOR THE OPERATION AND MAINTENANCE of EOHWC STORMWATER RETROFIT PRACTICES Adopted November 10, 2015

The nineteen municipalities, represented by the East of Hudson Watershed Corporation (EOHWC) have over 150 stormwater retrofit practices planned for, or constructed within their individual municipalities. Each of these projects, over time will require maintenance in order for the practice to maintain optimal efficiency in its operation. Within the EOHWC there has been much discussion concerning funding for, and completion of the maintenance required for these stormwater retrofits. This Policy will define how maintenance of the stormwater retrofit projects (SRP's) will occur.

In order for stormwater practices to remain effective at reducing phosphorus, proper maintenance is essential. Each stormwater retrofit that is installed by the EOHWC will have its own unique set of maintenance requirements and maintenance cycle, however some generalities can be made. Maintenance can be broken down into three parts; inspections, routine maintenance and non-routine repairs that may be required after large storms, or as a result of other unforeseen problems. Practices can be broken down into classes which have similar maintenance periods and requirement. These classes would include wet ponds, created wetlands, infiltration, and filter practices.

The NYSDEC General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (GP-0-15-003) places the ultimate responsibility with each individual municipality for all stormwater practices within their jurisdiction including those considered stormwater retrofits. Part VI.Q states, "A covered entity must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the covered entity to achieve compliance with the conditions of this SPDES general permit."

At present, Towns and Villages are considered 'traditional land use control MS4's' as they hold the authority to make land use decisions under zoning and subdivisions controls. As such, they are obligated under the General Permit to maintain an inventory¹, provide for inspections and ensure the maintenance of all stormwater practices within their jurisdiction². The NYSDEC language in the General Permit covers both publically-owned, and privately owned stormwater management facilities that are located in, or under a municipality's jurisdiction.

Under the requirements of the General Permit, Towns and Villages should already be maintaining, or causing maintenance to be performed on, the stormwater management practices in their respective jurisdictions. This includes all drainage control structures such as stormwater ponds, and other practices installed as part of their highway drainage system. This also includes stormwater management practices

¹Part VII.A.5.a.vi. "maintain an inventory of post-construction stormwater management practices within the covered entities jurisdiction" [including] "type of practice, maintenance needs per the NYS Stormwater Management Design Manual, SWPPP and dates and type of maintenance performed."

²Part VII.A.5.a.vii 'ensures adequate long-term operation and maintenance of management practices identified in Part VII.5.a.vi. by trained staff, including inspection to ensure that the practices are performing properly.'



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constructed as part of a subdivision or site plan approved by the Town or Village. Pursuant to the requirements of the General Permit, municipalities must already have written procedures³, the equipment and the manpower to provide inspections and maintenance to the stormwater infrastructure in their respective municipalities. Since municipalities must already have a program in place, it should be relatively simple to manage the additional EOHWC retrofit practices constructed in their municipalities, although their individual resources will likely need to be supplemented.

With participation in the EOHWC, each municipality has agreed to “bubble compliance”, or a shared responsibility for the installation of stormwater retrofits. While each individual municipality will ultimately be responsible for the retrofits located within their jurisdiction, it is generally agreed that the EOHWC should remain involved in some fashion for meeting the maintenance requirements for as long as the EOHWC is in existence.

The EOHWC has chosen the following means for providing maintenance to EOHWC SRP’s;

Each stormwater retrofit will require maintenance specific to each individual retrofit. This maintenance obligation will be described in a written plan, prepared for each project by the design engineer preparing the construction documents in consultation with the host municipality. The maintenance plan shall include the design life of each SRP, recommended inspection schedule and checklist which also provides basic design criteria for the practice, required maintenance activities, an estimate of time needed and cost of such activities, schedule of such activities, and a present worth cost for inspecting and maintaining the SRP for its design life. Three copies of the maintenance plan shall be provided to the host municipality, along with an as-built drawing upon completion of construction of the retrofit. Moving forward, each maintenance plan shall be reviewed and approved by the chief elected officer of the host municipality prior to the SRP construction being placed for bidding.

Each municipality will be responsible for providing the inspections and maintenance of the stormwater retrofit practices (SRP) within, or under their jurisdiction. Maintenance shall be completed in accordance with the maintenance plan that has been prepared for the project.

The EoH municipalities have sought to achieve compliance with the stormwater regulations and the retrofit program through bubble compliance i.e., a sharing of the overall phosphorus reduction requirements for all of the EoH municipalities. Similarly the expense of paying for the cost of maintenance of the stormwater retrofits that have been installed would be shared between the municipalities in proportion to each of their obligations for phosphorus removal. The O&M **financial obligation** for each municipality will be based on their percentage of the overall 5-year phosphorus reduction (see Table 1) and the estimated annual total O&M cost for maintaining the stormwater retrofits.

Municipalities will be reimbursed by the EOHWC for costs incurred for providing maintenance at the actual cost plus 2% for administration. Municipalities can individually chose how to accomplish maintenance responsibilities to find the most cost-effective and efficient means; either by using municipal staff/highway departments, or through the use of private contractors.

³Part IX.A.6



EAST OF HUDSON WATERSHED CORPORATION

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When completing SRP maintenance by contracting with a private contractor, all contracts seeking reimbursement from the EOHWC must follow EOHWC procurement policies. However, as the minimum requirement to qualify for reimbursement of maintenance costs, municipalities must request at least three written quotes from three different contractors in order to ensure that the work is being completed at a fair price. Where there is a conflict between a municipality's procurement policy and the EOHWC procurement policy, the EOHWC procurement policy will govern.

Costs associated with the use of municipal employees and equipment to provide SRP maintenance shall be.

Work completed by municipal employees and consultants will be reimbursed at cost, based on a schedule of values, and subject to a cap. The EOHWC Board of Directors shall establish a schedule of reimbursement rates for completing SRP maintenance. The schedule shall provide a maximum hourly rate for municipal employees, consultants and equipment. Reimbursement costs shall also be capped by the estimate of time needed and cost of such activities found in the maintenance plan. Any exceedance of the cap must be approved by the EOHWC Board of Directors.

Financing O&M Requirements

The EOHWC shall oversee the O&M operations for the retrofits installed by the Corporation. The EOHWC shall create a separate fund (a bank) to fund the estimated cost of providing the annual operation and maintenance cost of all the stormwater retrofits in the Program. Each municipality is responsible to provide their proportionate share of this amount to the EOHWC as either a direct payment or as a documented labor and capital expenditure to be applied as credit toward O&M costs.

Twice annually, in June and November municipalities will submit an invoice for reimbursement of the actual cost for providing maintenance of the stormwater practices under their jurisdiction. Invoices will be reviewed by the EOHWC staff and Executive Board. Actual costs incurred will be credited against any amount due and owing to the Corporation. Where there is a surplus, the municipality would receive a refund. EOHWC staff shall be responsible for spot checking inspections completed by each municipality and ensuring that the maintenance of each practice is being completed in a timely and efficient manner.

Each municipality's financial obligation will fall into one of two categories:

- 1) The estimated O&M financial obligation of your municipality is **less** than your yearly O&M costs. Those municipalities that are required to contribute towards retrofit maintenance fund must provide payments to the EOHWC on the following schedule:
 - \$ January 1, 2016. 35% of total O&M estimates costs minus any incurred costs for completing retrofit maintenance.
 - \$ May 1, 2016. 35% of total O&M estimates costs minus any incurred costs for completing retrofit maintenance.
 - \$ September 1, 2016. 30% of total O&M estimates costs minus any incurred costs for completing



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Fax: 845-319-6391

retrofit maintenance.

In case 1, the actual expenses incurred by the municipality will serve as a credit towards meeting its responsibility to the EOHWC O&M program. The difference between the actual expenses and the municipality's financial obligation will be due as payment to the EOHWC.

- 2) The estimated O&M financial obligation for your municipality is **more** than your yearly O&M Costs.

Those municipalities that will receive O&M funds must provide documentation of inspection and maintenance completed for each project to the EOHWC on the following schedule:

- \$ June 30, 2016. O&M Documentation for December 1, 2015 thru May 31, 2016.
- \$ November 30, 2016. O&M Documentation for June 1, 2016 thru November 30, 2016

In case 2, the municipality will document all expenditures for the O&M program. Once the municipality has reached the estimate annual O&M costs, the EOHWC will reimburse the municipality for the additional required O&M which exceeds its financial obligation.

These reimbursements will be capped by the calculated percentage contribution for the overall bubble compliance. Any additional expenditure will be documented by the municipality. All overages to the estimated municipal costs must be verified and approved by the EOHWC prior to the work being completed. These costs will be then included in an updated budget for the next O&M calendar year.



EAST OF HUDSON WATERSHED CORPORATION

PO Box 176
Patterson, NY 12563
Tel: 845-319-6349
Fax: 845-319-6391

TABLE 1

Municipality	5-Year Phosphorus Reduction (kg)	Percent Contribution
Bedford	32.2	7.01%
Brewster	9.2	2.00%
Carmel	72.0	15.67%
Cortlandt	11.6	2.52%
Kent	33.6	7.31%
Lewisboro	35.5	7.73%
Mount Kisco	18.7	4.07%
New Castle	25.1	5.46%
North Castle	1.0	0.22%
North Salem	19.1	4.16%
Patterson	17.2	3.74%
Pawling, Town	3.5	0.76%
Pawling, Village	4.3	0.94%
Pound Ridge	9.5	2.07%
Putnam County	30.9	6.72%
Putnam Valley	1.0	0.22%
Somers	50.0	10.88%
Southeast	31.1	6.77%
Yorktown	54.0	11.75%
Total	459.5	100.00%

ANNUAL ESTIMATED O&M COST

	5-Year Phosphorus Reduction Requirement	Estimated Annual O&M Total	Estimated Share of Annual O&M Total	Difference
Bedford	32.2	\$ 21,902	\$ 17,055.84	\$ 4,846.11
Brewster	9.2	\$ 3,427	\$ 4,873.10	\$ (1,445.90)
Carmel	72.0	\$ 27,418	\$ 38,137.28	\$ (10,719.68)
Cortlandt	11.6	\$ 2,678	\$ 6,144.34	\$ (3,466.84)
Kent	33.6	\$ 19,171	\$ 17,797.40	\$ 1,373.50
Lewisboro	35.5	\$ 14,073	\$ 18,803.80	\$ (4,730.86)
Mt. Kisco	18.7	\$ 7,336	\$ 9,905.10	\$ (2,568.75)
New Castle	25.1	\$ 4,142	\$ 13,295.08	\$ (9,153.08)
North Castle	1.0	\$ -	\$ 529.68	\$ (529.68)
North Salem	19.1	\$ 8,954	\$ 10,116.97	\$ (1,163.41)
Patterson	17.2	\$ 30,572	\$ 9,110.57	\$ 21,461.12
Pawling (T)	3.5	\$ 11,500	\$ 1,853.90	\$ 9,645.97
Pawling (V)	4.3	\$ 4,284	\$ 2,277.64	\$ 2,006.36
Pound Ridge	9.5	\$ -	\$ 5,032.00	\$ (5,032.00)
Putnam County	30.9	\$ 10,399	\$ 16,367.25	\$ (5,967.84)
Putnam Valley	1.0	\$ -	\$ 529.68	\$ (529.68)
Somers	50.0	\$ 38,369	\$ 26,484.22	\$ 11,884.35
Southeast	31.1	\$ 29,902	\$ 16,473.19	\$ 13,429.13
Yorktown	54.0	\$ 9,264	\$ 28,602.96	\$ (19,338.81)
Total	459.5	\$ 243,390	\$ 243,390	

**RESOLUTION ADOPTING OPERATIONS AND MAINTENANCE
POLICY FOR EAST OF HUDSON WATERSHED CORPORATION**

WHEREAS, the The Town of Carmel is a member of the East of Hudson Watershed Corporation ("EOHWC"), a not-for-profit local development corporation formed to assist the member municipalities in complying with the stormwater retrofit requirements of the Municipal Separate Storm Sewer System Permit (MS4 Permit); and

WHEREAS, EOHWC has installed and will continue to install stormwater retrofit projects (SRPs) or has reimbursed member municipalities for installing SRPs in compliance with the first five-year Regional Stormwater Retrofit Plan and intends to do so for the second five-year plan to the extent funding is provided by New York City Department of Environmental Protection (DEP); and

WHEREAS, the MS4 Permit requires member municipalities to maintain each SRP for its useful life to ensure that it continues to operate as it was designed; and WHEREAS, the Board of Directors of EOHWC has adopted an O&M Policy providing for the equitable sharing of the costs and responsibilities of O&M by all member municipalities in a manner consistent with the MS4 Permit bubble compliance concept, conditioned on the legislative body of each member municipality agreeing to comply with the terms and conditions of the O&M Policy; and

WHEREAS, approval of the O&M Policy is a Type II action exempt from the State Environmental Quality Review Act (SEQRA) under 6 NYCRR 617.5(c)(1) as it relates to the routine maintenance of the SRPs; and

WHEREAS, approval of the O&M Policy is in the best interests of the Town of Carmel as it assures continued compliance by the Town of Carmel with the MS4 Permit;

NOW THEREFORE BE IT RESOLVED by that the Town Board of the Town of Carmel and the Town of Carmel hereby accepts and agrees to the terms and conditions of the EOHWC O&M Policy; and

BE IT FURTHER RESOLVED that the Town Board of the Town of Carmel hereby authorizes Town Supervisor Kenneth Schmitt to take whatever other actions are required to implement this resolution.

Resolution

Offered by: Councilman Lombardi

Seconded by: Councilman Lupinacci

<u>Roll Call Vote</u>	<u>YES</u>	<u>NO</u>	
Jonathan Schneider	<u>X</u>	<u> </u>	
John Lupinacci	<u>X</u>	<u> </u>	
Suzanne McDonough	<u> </u>	<u> </u>	Absent
Frank Lombardi	<u>X</u>	<u> </u>	
Kenneth Schmitt	<u>X</u>	<u> </u>	

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I, Phyllis Bourges, Deputy Town Clerk of the Town of Carmel, Putnam County, New York, do hereby certify that the foregoing resolution is a true and exact copy of the original on file in my office which was adopted by the Town Board of said Town at a duly called and held meeting on the 17th day of February, 2016; and of the whole thereof.

Dated: February 18, 2016



Phyllis Bourges, Deputy Town Clerk

**AGREEMENT FOR OPERATION AND MAINTNANCE
OF STORMWATER RETROFIT PRACTICES
TOWN OF CARMEL**

THIS AGREEMENT is made and entered into the ____ day of _____, 2018, by and between:

EAST OF HUDSON WATERSHED CORPORATION, a not-for-profit local development corporation having its principal office at 2 Route 164, Patterson, New York 12564 ("EOHWC");

COUNTY OF PUTNAM, a municipal corporation having its principal office at 40 Gleneida Avenue, Carmel, New York, 10509 ("County"); and

TOWN OF CARMEL, a municipal corporation having its principal office at 60 McAlpin Avenue, Mahopac, New York 10541 ("Town").

EOHWC, the County and the Town are referred to collectively herein as the "Parties".

WHEREAS, EOHWC is assisting its member municipalities, including the County and the Town, in complying with the New York State Department of Environmental Conservation ("NYSDEC") Municipal Separate Storm Sewer Systems Permit effective May 1, 2010, as amended ("MS4 Permit") by the design and installation of stormwater retrofit practices ("SRPs") approved by NYSDEC; and

WHEREAS, the MS4 Permit requires EOHWC's member municipalities to provide proper operation and maintenance ("O&M") of all completed SRPs installed by EOHWC or by the affected municipality which are part of the regional stormwater retrofit plan approved by EOHWC's member municipalities and NYSDEC; and

WHEREAS, EOHWC has adopted an Operation and Maintenance Policy ("O&M Policy") providing for the equitable sharing of the costs and responsibilities of O&M by all member municipalities in a manner consistent with the MS4 Permit bubble compliance concept, and all member municipalities have agreed to comply with the terms and conditions of the O&M Policy; and

WHEREAS, the County desires to provide O&M services to the Town on the terms and conditions provided herein, and EOHWC desires to process the credits and debits for the costs of such O&M services as provided in the O&M Policy;

NOW, THEREFORE, in consideration of the premises and the respective representations and agreements herein contained, the Parties agree as follows:

Section 1. Either the Town or EOHWC has installed in the Town the SRPs identified in Exhibit "A" annexed hereto, for each of which the Town is required by the MS4 Permit to provide long-term O&M by trained staff, including periodic inspection, to ensure that the practices are performing properly.

Section 2. The County agrees to provide to the Town for each SRP in Exhibit "A" the O&M services required by the maintenance plan prepared by the design engineer, by the MS4 Permit and the O&M Policy, as further detailed in the reference documents identified in Exhibit "B" annexed hereto, as such reference documents may from time to time be updated and revised by EOHWC, by NYSDEC or by the other originating author.

Section 3. Consistent with the O&M Policy, the individual O&M financial obligation ("O&M Financial Obligation") for the Town and the County will be based on their individual percentages of the overall phosphorus reduction multiplied by the estimated annual total O&M cost for maintaining all SRPs of member municipalities.

Section 4. As required by the O&M Policy, the County and the Town will separately submit to EOHWC invoices for reimbursement of the actual cost for providing O&M to the SRPs in the Town. Where the actual costs of providing O&M to all County and Town SRPs is greater than the County's O&M Financial Obligation, the County will receive reimbursement for the surplus as provided in the O&M Policy. Where the Town's actual cost of providing O&M is less than its O&M Financial Obligation, the Town will pay the difference to EOHWC as provided in the O&M Policy.

Section 5. EOHWC staff shall be responsible for spot checking that the maintenance of each Stormwater Retrofit Project is being performed in a timely and efficient manner.

Section 6. The Town grants to the County and EOHWC access to the SRPs in Exhibit "A" for purposes, respectively, of performing O&M services and inspection. Such access shall be unrestricted during normal business hours or, upon reasonable notice, during non-business hours and shall include, without limitation, unrestricted access, egress and ingress to and across all land, improvements, structures and facilities thereon reasonably necessary for access to the SRPs.

Section 7. This Agreement shall be effective upon the date set forth above and shall terminate one year from the effective date hereof, provided that this Agreement shall be renewed and continue for successive one-year terms upon the consent of the Parties hereto. Either the Town or the County may terminate this Agreement at any time upon thirty (30) days written notice to the other Parties.

Section 8. If any provision of this Agreement or its application shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of all other provisions and applications hereof shall not be affected or impaired in any way.

Section 9. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

IN WITNESS WHEREOF the authorized representatives of EOHWC, the County, and the Town have executed this agreement.

EAST OF HUDSON WATERSHED CORPORATION

By  _____

Peter Parsons, President

COUNTY OF PUTNAM

By _____
MaryEllen Odell, County Executive

TOWN OF CARMEL

By _____
Kenneth Schmitt, Supervisor

On this 28th day of JUNE, 2018, before me, the undersigned, a Notary Public in and for said State, personally appeared PETER PARSONS, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

YVETTE E. RIVERA
Notary Public, State of New York
Qualified in Dutchess County
Commission Expires: 01/19/2020
No. 01R16335857

On this ____ day of _____, 2018, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

[illegible]

On this ____ day of _____, 2018, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

4

EXHIBITS

- A. SRP Summary by Municipality
- B. Requirements for Operation and Maintenance

EXHIBIT A
SRP Summary by Municipality

Municipality	Project ID	Common Name	Retrofit
Carmel	Carmel-AM-112	Austin Rd Elementary School	Wet Extended Detention Pond (P-3)
Carmel	Carmel-AM-116	Mahopac Middle School	Infiltration & Sand Filter
Carmel	Carmel-CF-119B	Kelly Ridge & St. Michael's Terrace	Outfall Channel Stabilization
Carmel	Carmel-AM-129	Hitchcock Hill Rd	HDS
Carmel	Carmel-CF-123	Garret Place	Outfall Stabilization
Carmel	Carmel-PRE-02	Lakeview Court	Outfall Stabilization
Carmel	Carmel-PRE-03	Silvergate Road	Outfall Stabilization
Carmel	Carmel-PRE-04	Red Mills Road	Outfall Stabilization
Carmel	Carmel-PRE-06	Belden Road	Channel Stabilization
Carmel	Carmel-PRE-07	Colier Drive	Channel Stabilization
Carmel	Carmel-AM-111A	Falls Elementary School	Infiltration
Carmel	Carmel-CF-102A	Guide Post Seminary	Channel stabilization
Carmel	Carmel-CF-102B	Guide Post Seminary	Channel stabilization

Richard J. Franzetti, P.E.
Town Engineer




(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541

MEMORANDUM

To: Carmel Town Board

From: Richard J. Franzetti P.E. Town Engineer 

Date: October 4, 2018

Re: Request Payment for Repairs/Services

This memorandum is being presented to the Town Board to request payment of the attached repairs invoices. These invoices are over the Town of Carmel's procurement policy threshold. The following provides a brief a summary of the work that was performed.

- Carmel Water District 12 – Leak at 12 Seminary Hill Road

On August 29, 2018 Inframark, the operators for CWD 12, notified the Engineering Department of a water line leak at 53 and 59 Tommy Court. Upon further investigation it was determined that the service lines were leaking. Attached is an invoice in the amount of \$6,838.72 for Kuck Excavating to install perform the repair which included moleing a new line under the Tommy CT.

- Carmel Water District 10 – Install flushing hydrant

On September 17, 2018 Bee and Jay, the operators for CWD 10, notified the Engineering Department that they were installing a flushing hydrant proximate to 57 Senior Avenue. The installation of the flushing hydrant was needed to alleviate brown water concerns from residents in the area. Attached is an invoice in the amount of \$6,004.00 for Kuck Excavating to install the flushing hydrant.

We have advised the Comptroller's office of this expenditure and per the attached there are sufficient funds in budget for this work as describe. The Engineering Department requests that the Town Board approve payment.

ED KUCK EXCAVATING INC
20 Day Road
Carmel NY 10512

September 17, 2018
Emergency – Two Service Line Repairs

Town of Carmel Engineering Dept
60 McAlpin Avenue
Mahopac, NY 10541

CWD# 12
REQ -
Inv # TOC 095-18
Tax ID- 133851002
Vendor – 0670

Attn: Robert Vara

Job Location: #53 & #59 Tommy Court

Job Date: 8/29/2018, 9/5/18 & 9/6/18

As per: Inframark

Job Description

8/29/18

- Excavate and expose leak
- Make repair on main side of service line
- Backfill and compact area

9/5/18

- Mole 2 new service line under road for both locations
- Connect service lines at both locations
- Backfill and compact

9/6/18

- Topsoil, rake and seed disturbed area

Materials	Total hrs, yds, qty	Price per yd,qty,day	Total
Track Hoe MR55	15 hours	\$80.00	\$1,200.00 ✓
Machine operator	15 hours	\$55.00	\$825.00 ✓
Laborers	2 men X 15 hours	\$43.00	\$1,290.00 ✓
Dump truck	15 hours	\$85.00	\$1,275.00 ✓
Support vehicle	3 days	\$155.00	\$465.00 ✓
Mud Sucker	Day rate	\$70.00	\$70.00 ✓
Seed	1/4 bag	\$96.00	\$24.00 ✓
Hay	2 bags	\$15.36	\$30.72 ✓
Topsoil	4 yards	\$46.00	\$184.00 ✓
Mole	Day rate	\$1,475.00	\$1,475.00 ✓
Total			\$6,838.72 /

~~Resident Engineer~~ P.E.
Town Engineer



(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541

WATER MAIN BREAK/DAMAGED HYDRANT REPORT

District & Number: Carmel Water 12

Location (street address): 53 & 59 Tommy Ct.

Time and Date of Main Break or Hydrant Damage: 8-29-18, 9-5-18, 9-6-18

Field Response:

Manpower	HRS	Equipment	HRS
<u>1 operator</u>	<u>15</u>	<u>Mt-55</u>	<u>15</u>
<u>2 laborers</u>	<u>30</u>	<u>Dump truck</u>	<u>15</u>
		<u>pile</u>	

Water Main: Size: _____ Material: _____ Depth to Main: _____

Hydrant: Manufacturer & Model: _____

Repair Materials Utilized: (2) 1"x6" Saddles, (2) 1" corporations,
(2) 1" curb valves, (2) Curb box and stems, (2) rolls of 1"x6" copper
(1) 3/4"x1" compression coupling, (2) 1" insert stiffeners

Cause of Main Break or Hydrant Damage: Repair leak at both
addresses

Description of Damage caused, if any: _____

Future Restoration Required:

Pavement:

Lawn Area:



Sidewalk:

Shrubs:



Cause of Main Break or Hydrant Damage: _____

Date Repair Completed: 9-6-18

Prepared by: Amanda Delgado
(Printed Name)

From: [Esteves, Donna](#)
To: [Franzetti, Richard](#)
Subject: 09-24-18 ~ CWD #12, Tommy Ct ~ Service Line Repairs
Date: Monday, September 24, 2018 2:09:30 PM
Attachments: [TOC 095-18.pdf](#)

Rich,

Please see attached invoice that will need authorization from the Board for payment. There are sufficient funds in the CWD 12 budget to cover this expense.

Thanks,

Donna Esteves

Town of Carmel ~ Engineering Department
60 Mc Alpin Ave
Mahopac, NY 10541
845-628-1500 ext. 184

ED KUCK EXCAVATING INC
20 Day Road
Carmel NY 10512

September 28, 2018
Emergency – Installation of 2" flushing hydrant

Town of Carmel Engineering Dept
60 McAlpin Avenue
Mahopac, NY 10541

CWD# 10
REQ -
Inv # TOC 098-18
Tax ID- 133851002
Vendor – 0670

Attn: Robert Vara

Job Location: #57 Senior Ave

Job Date: 9/17/2018 & 9/21/18

As per: Bee & Jay

Job Description

- Excavate and expose ¾" copper service line
- Excavate and hammer across driveway entrance (blacktop very thick)

9/21/18

- Continued excavation down road to flushing hydrant
- Hookup 2" CTS line for hydrant
- Installed flushing hydrant
- Backfill and compact with item 4
- Rake and seed lawn area
- Blacktop restoration to follow

Materials	Total hrs, yds, qty	Price per yd,qty,day	Total
Track Hoe MR55	14 hours	\$80.00	\$1,120.00 ✓
Machine operator	14 hours	\$55.00	\$770.00 ✓
Laborers	2 men X 14 hours	\$43.00	\$1,204.00 ✓
Dump truck	14 hours	\$85.00	\$1,190.00 ✓
Support vehicle	Day rate X 2 days	\$155.00	\$310.00 ✓
Jumping Jack	Day rate X 2 days	\$70.00	\$140.00 ✓
Chop saw	Day rate X 2 days	\$70.00	\$140.00 ✓
Machine hammer	Day rate	\$250.00	\$250.00 ✓
Item 4	22yards	\$40.00	\$880.00 ✓
Total			\$6,004.00 ✓

From: [Esteves, Donna](#)
To: [Franzetti, Richard](#)
Subject: 10-02-18 ~ CWD #10, TOC #098-18
Date: Tuesday, October 02, 2018 12:39:43 PM
Attachments: [Kuck Invoice.pdf](#)

Rich,

Please see attached invoice for the installation of a flushing hydrant at Senior Ave that will require authorization from the Board for payment. There are sufficient funds in the CWD #10 budget for this expense.

Thanks,

Donna Esteves

Town of Carmel ~ Engineering Department
60 Mc Alpin Ave
Mahopac, NY 10541
845-628-1500 ext. 184

Richard J. Franzetti, P.E.
Town Engineer




(845) 628-1500
(845) 628-2087
Fax (845) 628-7085

Office of the Town Engineer
60 McAlpin Avenue
Mahopac, New York 10541

MEMORANDUM

To: Carmel Town Board

From: Richard J. Franzetti, P.E. Town Engineer 

Date: October 4, 2018

Re: Lake Casse, Upper Teakettle and Teakettle Lake Dam EA Summary

As the Board is aware the Town of Carmel is responsible for the Lake Casse, Upper Teakettle and Teakettle Dams. These three (3) dams are currently classified Class B – intermediate hazard dams. Per the New York State Department of Environmental Conservation (NYSDEC) an Engineering Assessment (EA) is required.

The EAs for these dams are completed and reports have been submitted to the New York State Department of Environmental Conservation (NYSDEC) for review and approval. Copies of the reports submitted to the NYDEC (without attachments) are attached to this memorandum. The following table provides the necessary capital projects required to bring the dams into regulatory compliance. A more detailed summary is provided on the subsequent pages and in the attached reports.

Capital Projects		
Dam	Maintenance ⁽¹⁾	Investigations ⁽²⁾
Lake Casse	√	√
Upper Teakettle	√	√
Teakettle	√	√

- (1) Maintenance includes: Trees, woody brush and root systems should be removed from the upstream and downstream slopes of the dams. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.
- (2) Investigations include: Clearing out outlet pipes; hydraulic analysis of the metal grate and chain link fence system for the primary spillway; geotechnical explorations; Video inspect riser spillways and outlet pipes and conduct a topographic survey of the dams

The Engineering Department will reach out to Woidt Engineering to determine approximate costs for these capital projects in order for the necessary funding can be secured by the Town.

The Engineering Department recommends approval to go out for RFP to address maintenance shortfalls and a second RFP to address structural and geotechnical deficiencies for future capital upgrades

Lake Casse, Upper Teakettle and Teakettle Lake Dam EA Summary

(3) Teakettle Spout Dam

The hazard reclassification report, requesting that the dam classification be lowered to a class A dam was submitted to New York State Department of Environmental Conservation (NYSDEC) on July 3, 2018.

If the dam hazard classification is lowered to an A (low), future dam safety compliance requirements will be reduced. This includes the elimination of periodic safety inspections by a professional engineer, a reduced spillway design flood from 150% of a 100-year flood to a 100-year flood. In addition, an "A" hazard classification would eliminate the requirements to maintain an EAP and would not require preparation of future detailed engineering assessment report.

There are dam deficiencies identified in the report that will need to be addressed. These include:

- The Teakettle Spout Lake Dam does not have sufficient spillway capacity to safely pass the spillway design flood (SDF 150% of the 100-year storm event));
 - **Action Item** - *Investigations and improvements to the dam embankment are recommended which include - providing a level dam crest, a uniform, flatter backslope, consideration of toe drain system and investigation of rock slope protection along the upstream slope. In conjunction with above, alternatives for improving spillway capacity should be investigated to pass the SDF without dam crest overtopping*

Structural and embankment issues , as noted in the attached NYSDEC Dam Safety Visual Inspection letter dated December 22, 2017 includes:

- Signs of seepage at the left and right toe of the embankment (looking downstream) and structural cracks and undermining of concrete in the non-overflow sections of the spillway;

Action Item - *This area should be monitored and repaired to prevent further deterioration of the concrete and to correct the seepage*

- The fish screen upstream of the service spillway can collect debris and potentially cause a rise in water surface elevation behind the dam..

Action Item - *Inspect the fish screen on a routine basis to remove any debris to prevent this condition from occurring*

- Presence of undesirable woody growth on the dam embankment.

Action Item - *Trees, woody brush and root systems should be removed from the dam crest, upstream and downstream slopes of the dam. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.*

Lake Casse, Upper Teakettle and Teakettle Lake Dam EA Summary

Upper Teakettle Spout Lake Dam

The final Engineering Assessment Report submitted to the NYSDEC on September 12, 2018. There are dam deficiencies identified in the report that will need to be addressed. These include:

- The Upper Teakettle Spout Lake Dam does not have sufficient spillway capacity to safely pass the spillway design flood (SDF 150% of the 100-year storm event));
 - **Action Item** - *Investigations and improvements to the dam embankment are recommended which include - providing a level dam crest, a uniform, flatter backslope, consideration of toe drain system and investigation of rock slope protection along the upstream slope. In conjunction with above, alternatives for improving spillway capacity should be investigated to pass the SDF without dam crest overtopping*
- The upstream and downstream dam embankment slopes are covered by numerous trees, large woody growth and root systems;
 - **Action Item** - *Trees, woody brush and root systems should be removed from the dam crest, upstream and downstream slopes of the dam. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.*
- The outlet pipes from both the primary and auxiliary spillways were submerged at the outlet channel.
 - **Action Item** – *This area should be cleared so as to provide water to flow freely in this area.*
- Based on visual observations and measured downstream embankment slopes; the dam embankment in its current condition would not have acceptable factors of safety for several stability conditions. Appendix D, attached, provides additional details regarding this comment.
 - **Action Item**- *Additional investigations and improvements to the dam embankment are recommended. This includes providing a level dam crest, a uniform, flatter backslope, consideration of toe drain system and investigation of rock slope protection along the upstream slope. In conjunction with above, alternatives for improving spillway capacity should be investigated to pass the SDF without dam crest overtopping.*
- The primary and auxiliary riser structures have metal grates sitting on top of the structures that may limit the hydraulic capacity of the spillways and may be prone to clogging of debris. The condition of the primary and auxiliary riser and outlet pipe spillways could not be fully observed due the reservoir level.
 - **Action Item** - *Investigations should be conducted to replace the metal grates on the primary and auxiliary spillways as the grate openings are too closely spaced which limit hydraulic capacity and could also promote clogging of the inlets.*
 - **Action Item** - *the condition of the primary and auxiliary riser spillways and outlet pipes should be confirmed by video inspection to determine if they are in good condition or if additional repairs are required.*
 - **Action Item** – *A full topographic survey of the dam should be completed initially so the geometrics of the dam can be accurately assessed for future assessments and repair plan development.*
 - **Action Item** - *A geotechnical exploration plan should be developed and completed to properly assess dam stability issues and to refine suggested repair plans.*

Lake Casse, Upper Teakettle and Teakettle Lake Dam EA Summary

Lake Casse Dam

The final Engineering Assessment Report submitted to the NYSDEC on September 24, 2018. There are dam deficiencies identified in the report that will need to be addressed. These include:

- The downstream dam embankment slopes are covered by numerous trees, large woody growth and root systems and the upstream slope has several trees and woody growth at the ends of the dams;
 - **Action Item** - *Trees, woody brush and root systems should be removed from the dam crest, upstream and downstream slopes of the dam. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.*
- The primary riser structure has a metal grate sitting on top of the structure and chain link fence surrounds the riser structure both may limit the hydraulic capacity of the spillways and be prone to clogging of debris.
 - **Action Item**- *Investigations should be conducted to replace the metal grate and chain link fence system for the primary spillway as the chain link fence and metal grate openings may limit hydraulic capacity via clogging by debris.*
- The 48" outlet pipe is submerged and backwater in the outlet channel, appears to be due to the hydraulic control of downstream cross pipes underneath the Putnam County Rail Trail as well as cross pipes underneath Fulmar Road.
 - **Action Item**- *It is suggested that the Town of Carmel have discussions with Putnam County regarding the replacement of the culverts underneath the Rail Trail. It is noted that the Town of Carmel is responsible for the maintenance of Fulmer Road. If the culverts underneath the Rail Trail could be replaced to provide positive grade from the 48" outlet pipe, additional channel grading and replacement of the culverts underneath Fulmer Road would be required by the Town of Carmel.*
- The condition of the primary and auxiliary riser and outlet pipe spillways could not be fully observed due the reservoir level.
 - **Action Item** - *the condition of the primary and auxiliary riser spillways and outlet pipes should be confirmed by video inspection to determine if they are in good condition or if additional repairs are required.*
 - **Action Item.** – *the valve and closure mechanism for drawing down the reservoir should be inspected, and if necessary, required repairs made to restore the drawdown function of the dam.*

**TEAKETTLE SPOUT LAKE DAM
NYSDEC ID #231-4784
HAZARD CLASSIFICATION ASSESSMENT**

Town of Carmel
Putnam County, New York



Prepared for:

**Richard Franzetti, P.E.
Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541**

Prepared by:



**Woidt Engineering & Consulting, P.C.
11 South Washington Street
Binghamton, New York 13903**

June 30th, 2018

*TEAKETTLE SPOUT LAKE DAM
NYSDEC ID #231-4784
HAZARD CLASSIFICATION ASSESSMENT*

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Appendix A

- Drainage Area Map: 1" = 500'
- Downstream Area of Interest Map: 1" = 100'
- HydroCAD Summary Output – Sunny Day with Dambreak
- HydroCAD Output – SDF (Rainy Day)
- HydroCAD Output – SDF (Rainy Day) with Dambreak
- CD of HydroCAD and HEC-HMS computer files

Appendix B

- DOW TOGS 3.1.5

1.0 Purpose of Investigation

The investigation was conducted to assess the current hazard classification of Teakettle Spout Lake Dam, NYSDEC Dam ID #231-4794. The investigation included analysis of downstream hydraulic conditions from a hypothetical dam failure that was used to guide the hazard class recommendation. It is noted that the current NYSDEC hazard classification of Teakettle Spout Lake Dam is Intermediate (Class B). The investigation was conducted by Woidt Engineering & Consulting, P.C. (WEC).

2.0 Project Location & Description

Teakettle Spout Lake Dam consists of a concrete spillway structure embedded in an earthen berm. The spillway structure consists of a concrete wall approximately 38' in length. An eight (8) foot long weir is centered along the concrete wall that serves as the primary spillway with a normal pool elevation of 614.2. The remaining top of wall is approximately 1.1' higher than the normal pool and serves as an overflow auxiliary spillway (see photos below).



The dam is currently classified as an intermediate hazard (Class B) dam per the NYSDEC dam inventory. The reservoir created behind the dam has approximately 6 acres of surface area at normal summer pool and a maximum dam height of approximately 6-7 feet. The original construction date of the dam is unknown, and the spillway and adjacent embankment sections are in generally poor condition and appear to not have been maintained.

The outlet of the dam discharges into Plum Brook which flows west and under Kia Ora Boulevard through twin 48" diameter pipes. Plum Brook then flows south through an undeveloped area before discharging into Glencoma Lake, approximately 2000' downstream of Teakettle Spout Dam. There is one residence adjacent to Glencoma Lake that is located on high ground. The area downstream of Glencoma Lake is completely undeveloped until Plum Brook crosses under Lovell Street, nearly 3 miles downstream of the Teakettle Spout Dam.

3.0 Hydrologic Analysis/Spillway Capacity

Inflow hydrographs were developed using the Soil Conservation Service (SCS) Unit hydrograph method imbedded in the HydroCAD version 10.00-22 software. "CN" values were estimated from review of land use, aerial photography and Putnam County Soil Mapping. Predominant soil types consist of Hydrologic Group C soils intermixed with smaller amounts of type B soils for the inflow areas upstream of the dam. Land cover primarily consists of residential neighborhoods interspersed with wooded areas.

The total drainage area entering the dam is 165 acres or 0.26 square miles (see Drainage Area Map - Appendix A). The drainage area was broken into 4 subareas (see further discussion below). Lag time's (Tlag) for the inflow hydrographs were computed utilizing travel time methodology from NCRS TR-55 procedures, with $T_{lag} = 0.6 \times T_c$ (time of concentration). Sheet flow lengths for all subcatchment areas were estimated to be 100 feet per the guidelines in NRCS NEH Chapter 15.

The 24-hour precipitation values for the 25, 50 and 100-year recurrence interval storm events were obtained from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Frequency Estimates precipitation data for the project vicinity. The inflow hydrographs for the 150% of 100-year storm were computed by increasing the 100-year storm precipitation (8.40") to produce peak runoff values that are 150% of the runoff rates from the 100-year storm event. It is noted that the 150% of 100-year flood is considered the Spillway Design Flood (SDF) for an existing small, intermediate "B" hazard dam.

Reservoir routing was performed assuming normal summer pool conditions (elevation 614.2). Stage-storage relationships were developed from 2' contour data (from Putnam County GIS LiDAR mapping) supplemented with aerial photos. A stage-discharge rating curve for the primary spillway configuration was developed by hydraulic routines imbedded within the HydroCAD program. The peak inflows, outflows and reservoir stages for selected routed storm events are presented in Table 1 below.

A network of four (4) subcatchments, two stream reaches, two roadway cross culverts and Upper Teakettle Spout Lake Dam were included in the model to more accurately estimate the inflow hydrographs into Teakettle Spout Lake. The spillway configuration of Upper Teakettle Spout Lake Dam and Teakettle Spout Lake Dam were surveyed by WEC and augmented with Putnam County LiDAR. Stream reach geometry was estimated using the LiDAR information and field investigation. More details can be found in the electronic HydroCAD files in Appendix A.

Table 1 – Teakettle Spout Lake Dam Storm Event Discharges/Stages

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Stage (ft)	Freeboard above lowest embankment crest elevation
25-year	172	97	615.74	-0.24*
50-year	200	128	615.88	-0.38*
100-year	228	160	616.00	-0.50*
150% 100-year	334	273	616.33	-0.83*

¹Normal Pool Elevation = 614.2

²Minimum Concrete Dam Top Elevation = 615.14

³Minimum Earthen Berm Top Elevation = 615.5

As can be observed from Table 1, all storms including and exceeding the 25-year recurrence exceed the lowest embankment elevation of the dam crest.

4.0 Dam Hazard Class/Dam Break Analysis and Inundation Mapping

Based on storage capacity and height, Teakettle Spout Lake Dam's size classification is considered small. Regarding hazard class, WEC performed a dam break analysis utilizing the dam break routine imbedded in the HEC-HMS (for a sunny day piping failure) and the HydroCAD computer program (for an overtopping failure).

The resultant outflow hydrographs from the dam break were then routed downstream. Both the SDF (150% of 100-year) and the Sunny Day (normal pool elevation) dam break scenarios were investigated. The assumed dam breach parameters for the dam failure included a bottom width of 3 times the height of dam height. Failure of the dam was triggered at or near the maximum water surface elevation for the SDF failure (elevation 617.2) and at the normal summer pool elevation (elevation 614.2) for the sunny day break failure. A failure development time of 0.50 hours was assumed. For the SDF with dambreak failure scenario, it was assumed that Upper Teakettle Dam would overtop and subsequently fail. As such, the SDF dambreak scenario for Teakettle Spout Lake Dam included the added incremental effect of upstream dam failure.

To assess the incremental flooding hazard to the downstream area below the dam, the hydrographs from the sunny day failure, the SDF with a dam failure and the SDF without a dam break failure were routed downstream to Glencoma Lake. As mentioned previously, the only infrastructure between the dam and Glencoma Lake is a low volume local roadway (Kia Ora Boulevard) and one residential house adjacent to Glencoma Lake that is located on high ground and will not be inundated by any of the dambreak scenarios. In addition, as previously noted, there is no development along Plum Creek downstream of Glencoma Lake for approximately another 3 miles where Plum Creek passes underneath Lovell Street (see Project Location Map Appendix A).

Under the Sunny Day dam failure scenario, the resultant dam break flow does slightly overtop Kia Road Boulevard (0.69' maximum overtopping depth). Proceeding downstream, the incremental effect of the sunny day dam break is absorbed by Glencoma Lake as there is only a 1.3' increase in the normal pool elevation with the Sunny Day dambreak.

In addition to the Sunny Day dam break scenario, the SDF with and without dam break were also analyzed. As mentioned above, the SDF with dambreak scenario assumed the upstream Upper Teakettle Dam would fail and contribute to the SDF dambreak inflow at Teakettle Spout Dam. This is considered a worst-case condition to assess the maximum incremental effect of a rainy-day failure at Teakettle Spout Dam.

At Kia Ora Boulevard, the SDF overtops the roadway with a maximum depth of 0.37' for approximately 30 minutes. Similarly, the SDF with dambreak overtops the roadway with a maximum depth of 1.88' for approximately 2 hours. Proceeding downstream, the incremental effect of the SDF dam break flood is absorbed by Glencoma Lake as there is only a 0.55' difference in the pool elevation between the SDF and SDF dambreak scenarios.

Additional details can be viewed in the HydroCAD summary sheets in Appendix A.

5.0 Conclusions and Recommendations

The hydrologic and hydraulic analysis conducted in this study identified that Teakettle Spout Lake Dam does not have sufficient spillway capacity to safely pass the current SDF (the 150% of the 100-year flood) without dam overtopping. The analysis was based on a synthetic hydrograph developed using the SCS Unit hydrograph methodology.

Regarding hazard classification, the current NYSDEC classification for the dam, as listed in their dam inventory, is "B" or intermediate. NYSDEC has provided detailed guidelines relative to determining dam hazard class. The current guidelines (DOW TOGS 3.1.5 Guidance for Dam Hazard Classification) provide more specific guidance relative to equating dam hazard class to loss of human life and damage to homes, roadways, railroads, utilities and the environment.

A copy of the final hazard class guidelines (DOW TOGS 3.1.5) is included in Appendix B. The guideline includes the definitions of hazard class and the suggested procedures for verification of hazard classes. Based on the guidelines provided in the document and the incremental dam break assessment in this report, it is our opinion that the Teakettle Spout Lake Dam hazard class is consistent with an A (low) hazard classification as opposed to the current B (intermediate) hazard classification.

This hazard classification recommendation is due to the results of the foregoing dambreak analysis which concluded that the Sunny Day Dam break does not result in any damage to occupied homes and barely overtops a minor local roadway. In addition, the SDF with dambreak does not result in a significant incremental increase in downstream damage and hazard. Although the SDF with dambreak does overtop Kia Ora Boulevard to a greater depth than the SDF without dambreak, the roadway is a very low volume local roadway that if damaged, does not warrant a B hazard class according to guidelines in DOW TOGS 3.1.5. It is also noted that even if the roadway was damaged and temporarily closed, access to an existing condominium complex is still maintained along Kia Ora Boulevard south of Plum Brook where the roadway profile is higher than the northern approach.

Given the results of this investigation, it is recommended that the dam owner submit this report to NYSDEC Dam Safety for review and concurrence with a letter requesting that the hazard class be reduced to A.

If the dam hazard classification is lowered to an A (low), future dam safety compliance requirements will be reduced. This includes the elimination of periodic safety inspections by a professional engineer, a reduced spillway design flood from 150% of a 100-year flood to a 100-year flood. In addition, an "A" hazard classification would eliminate the requirements to maintain an EAP and would not require preparation of future detailed engineering assessment report.

Assuming the hazard class is reduced to low (A), there are still dam deficiencies that will need to be addressed in the future. These include insuring adequate spillway capacity and addressing a number of structural and embankment issues including visible signs of seepage at the left and right toe of the embankment (looking downstream); structural cracks and undermining of concrete in the non-overflow sections of the spillway; and the presence of undesirable woody growth on the dam embankment. These were noted in NYSDEC Dam Safety Visual Inspection letter dated December 22nd, 2017 (see Appendix B).

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Flood Protection and Dam Safety

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December 22, 2017

Mr. Richard Franzetti, P.E., Town Engineer
Town of Carmel
Town Hall
60 McAlpin Avenue
Mahopac, NY 10541

Re: Tea Kettle Spout Dam
DEC ID# 231-4784
Carmel (T), Putnam County

Re: Upper Tea Kettle Spout Dam
DEC ID# 231-1406
Carmel (T), Putnam County

Dear Mr. Franzetti:

Mr. Alon Dominitz and I conducted a routine visual inspection at the above referenced dams on December 7, 2017 as part of the Department of Environmental Conservation's (Department) ongoing Dam Safety program. I am writing to you because it is my understanding that you are, or represent, the owner of this structure. The left/right nomenclature used in this letter and in the enclosed Visual Observation Report is based on looking downstream from the center of the dam's crest.

Tea Kettle Spout Dam

The following observations were noted during the visual inspection:

- Mature trees and brush were observed to be growing on the upstream and downstream embankments as well as the dam crest. The trees and brush should be removed to allow for proper inspection of the dam embankments and prevent the root systems from damaging the dam.
- A large crack was observed in the left non-over flow section as well as a large area of undermined concrete on the downstream face of the left non-overflow section. This area should be monitored and repaired to prevent further deterioration of the concrete.
- An area of potential seepage was observed on the left downstream embankment. This area and any other areas of potential seepage should be monitored on a regular basis for any signs of change in amount of flow or turbidity.



Department of
Environmental
Conservation

- The fish screen upstream of the service spillway can collect debris and potentially cause a rise in water surface elevation behind the dam. Please inspect the fish screen on a routine basis to remove any debris to prevent this condition from occurring.

Upper Tea Kettle Spout Dam

The following observations were noted during the visual inspection:

- Mature trees and brush were observed to be growing on the upstream and downstream embankments as well as the dam crest. The trees and brush should be removed to allow for proper inspection of the dam embankments and the root systems can provide seepage paths through the dam.
- The service spillway and auxiliary spillway outlet pipes were both submerged by the downstream plunge pool. The plunge pool outlet should be regraded to allow for proper hydraulic function of the outlet pipes.
- The trash rack on the service spillway inlet riser and the fencing around the auxiliary spillway riser can become clogged with debris, potentially causing an increase in the water surface elevation behind the dam. Please ensure the screens are inspected regularly to prevent a buildup of debris.

The following table summarizes the current status of compliance for these dams for those sections of the regulations that have specific deadlines for compliance.

Compliance Status Table

<u>Citation</u>	<u>Requirement</u>	<u>Status</u>
673.6	Develop and implement an Inspection & Maintenance (I&M) Plan by August 19, 2010.	An I&M Plan must be available for review, if requested.
673.7	Develop and submit to the Department an Emergency Action Plan (EAP) no later than August 19, 2011, and review and update annually thereafter. To be considered "final" a completed Promulgation and Concurrence (P&C) form must also be submitted indicating that the EAP has been distributed to and coordinated with local emergency responders.	EAPs have been submitted for both dams dated 2/7/2017. Please review and provide any updates for the 2018 calendar year.
673.8	Submit an Annual Certification to the Department by January 31 st of each year (covering the previous calendar year).	2016 Annual Certifications have been received for both dams. Please submit the 2017 Annual Certifications by January 31, 2018.

673.13	The first Engineering Assessment (EA) of a Class B dam is due no later than August 19, 2015, and a full Engineering Assessment is due every 10 years thereafter.	VIOLATION – EAs have not been received for these dams. Please submits the EAs as soon as possible.
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The full text of the revised 6 NYCRR Part 608 and Part 673, along with technical guidance, templates and forms can be downloaded from the Dam Safety webpage at: <http://www.dec.ny.gov/lands/4991.html>.

Deficiencies may exist beyond those identified here. The Department's visual inspections are not intended to take the place of a comprehensive engineering evaluation by a professional engineer. The Department's inspection observations and notes should not be relied on for "risk management/assessment" or other financially based determinations.

A desktop review of downstream conditions indicates that it may be possible to justify lowering the hazard class to Class A - Low Hazard for both dams. If you choose to pursue this reclassification, then note that a more detailed evaluation of downstream hazards by a P.E. experienced in dam safety will be required. Also, please note that changes in downstream development can result in the hazard class being upgraded again.

Please keep in mind that any repair or construction activities related to the dam may require permits from Department. Well before beginning work on the dam, please check with the Regional Permit Administrator at the Department's Region 3 – New Paltz office at (845) 256-3054 to see if any permits are required.

If you have any questions, please feel free to contact me by phone at 518-402-8148, or by e-mail at jennifer.ross@dec.ny.gov.

Sincerely,



Jennifer Ross
Assistant Engineer
Dam Safety Section

ec w/ enc: Kenneth Schmitt, Supervisor, Town of Carmel
Berhanu Gonfa, DEC Region 3, Dam Safety Representative
Shohreh Karimipour, DEC Region 3, Regional Water Engineer
John Petronella, DEC Region 3, Regional Permit Administrator
Anthony Sutton, Putnam County Bureau of Emergency Services

bcc w/ enc: Project file
bcc w/o enc: Daybook

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Spout Lake Dam\2017-12-07 Inspection\letter.dam.231-4784.231-1406.2017-12-
21.TeaKettleSpout&UpperTeaKettleSpout2017Inspection.docx

New York State Department of Environmental Conservation
Bureau of Flood Protection and Dam Safety



Visual Observations

DAM NAME Teakettle Spout Lake Dam
STATE ID 231-4784 SECTION C HAZARD CODE B
COUNTY Putnam INSPECTION DATE 12/7/2017
NEAREST DS CITY/TOWN Lincolndale INSPECTOR(S) JER/AXD
OWNER'S NAME TOWN OF CARMEL
DOWNSTREAM HAZARD Intermediate TOWNSHIP Town of Carmel

WATER LEVEL BEHIND DAM Approximately 1/2 inch over spillway weir.

DRAIN OPERATION Unknown

DEFICIENCIES

<input checked="" type="checkbox"/>	1)Seepage	<input checked="" type="checkbox"/>	4)Maintenance	<input checked="" type="checkbox"/>	7)Cracking
<input type="checkbox"/>	2)Slope Stability	<input checked="" type="checkbox"/>	5)Surficial Deterioration	<input type="checkbox"/>	8)Movement/Misalignment
<input checked="" type="checkbox"/>	3)Undesirable Growth	<input checked="" type="checkbox"/>	6)Voids	<input type="checkbox"/>	9)Data

—Richard Franzetti, P.E., Town Engineer accompanied us during the inspection.

Upstream:

—Mature trees and brush were observed on the upstream embankments.

Dam Crest:

—Mature trees and brush were observed on the dam crest.

Downstream:

—Mature trees and brush were observed on the downstream embankments.

—Cracking and deterioration of the concrete on the downstream left non-over flow section was observed. Exposed rebar and seepage were also observed from the voids in the concrete.

—Potential seepage was observed on the left downstream embankment.

—Concrete deterioration was observed on the right downstream non-over flow section.

Service Spillway:

—Concrete deterioration was observed on the service spillway weir.

—Fish screen upstream of service spillway may catch debris and cause an increase in water surface elevation.



Photo 1 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Dam crest from left abutment.



Photo 2 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Fish screen upstream of service spillway.



Photo 3 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Concrete non-overflow sections and spillway weir.



Photo 4 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Downstream channel.



Photo 5 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Right dam embankment as viewed from left side of spillway.



Photo 6 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Left upstream embankment.



Photo 7 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Concrete deterioration and voids on downstream left non-overflow section.



Photo 8 Dam ID# 231-4784 Teakettle Spout Lake Dam 12/07/2017
Downstream view of service spillway and non-overflow sections.

**New York State Department of Environmental Conservation
Bureau of Flood Protection and Dam Safety**



Visual Observations

DAM NAME Upper Teakettle Spout Lake Dam
STATE ID 231-1406 *SECTION* C *HAZARD CODE* B
COUNTY Putnam *INSPECTION DATE* 12/7/2017
NEAREST DS CITY/TOWN Lake Lincolndale *INSPECTOR(S)* JER/AXD
OWNER'S NAME TOWN OF CARMEL
DOWNSTREAM HAZARD Intermediate *TOWNSHIP* Town of Carmel

WATER LEVEL BEHIND DAM Approximately 1-2 inches over spillway crest.

DRAIN OPERATION Unknown

DEFICIENCIES

<input type="checkbox"/>	1)Seepage	<input checked="" type="checkbox"/>	4)Maintenance	<input type="checkbox"/>	7)Cracking
<input type="checkbox"/>	2)Slope Stability	<input type="checkbox"/>	5)Surficial Deterioration	<input type="checkbox"/>	8)Movement/Misalignment
<input checked="" type="checkbox"/>	3)Undesirable Growth	<input type="checkbox"/>	6)Voids	<input type="checkbox"/>	9)Data

Upstream:

–Mature trees and brush were observed on the upstream embankment.

Dam Crest:

–Brush and a fallen tree were observed on the dam crest. A low spot was observed on the crest near the center of the dam.

Downstream:

–Mature trees and brush were observed on the downstream embankment.

Service Spillway:

–Some leafy debris was observed on the spillway inlet trash rack.

Auxiliary Spillway:

–The auxiliary spillway inlet was observed to be surrounded by fencing.

Outlet Conduit:

–The two outlet conduits for the service spillway and auxiliary spillway were observed to be submerged by the outlet plunge pool.



Photo 1 Dam ID# 231-1406 Upper Teakettle Spout Lake Dam 12/07/2017
Dam crest from right abutment.



Photo 2 Dam ID# 231-1406 Upper Teakettle Spout Lake Dam 12/07/2017
Service spillway and auxiliary spillway riser inlets.



Photo 3 Dam ID# 231-1406 Upper Teakettle Spout Lake Dam 12/07/2017
Upstream embankment from left side dam crest.



Photo 4 Dam ID# 231-1406 Upper Teakettle Spout Lake Dam 12/07/2017
Downstream embankment from downstream toe.



Photo 6 Dam ID# 231-1406 Upper Teakettle Spout Lake Dam 12/07/2017
Submerged outlet pipes in plunge pool.

***UPPER TEAKETTLE SPOUT LAKE DAM
(NYSDEC # 231-1406)
ENGINEERING ASSESSMENT REPORT***

Town of Carmel
Putnam County, New York



Prepared for:

Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541

Prepared by:



Woidt Engineering & Consulting, P.C.
11 South Washington Street
Binghamton, NY 13903

August 30th, 2018

*UPPER TEAKETTLE SPOUT LAKE DAM
(NYSDEC # 231-1406)
ENGINEERING ASSESSMENT REPORT*

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Appendix A - Project Figures

- Project Location Map
- Drainage Area Map
- Putnam County Soil Mapping

Appendix B - Hydrologic & Hydraulic Data

- HydroCAD Computer Summary - 150% of 100-year Storm
- Reservoir Drawdown Calculations

Appendix C - Visual Inspection Report

- 2018 Visual Inspection Report by Woidt Engineering & Consulting, PC

Appendix D – Geotechnical/Stability

- Geotechnical/Stability Assessment - Daniel Loucks, P.E.

1. Purpose of Investigation

This investigation was conducted to comply with the requirements of NYCRR Part 673, Dam Safety Regulations, which include the completion of a Dam Safety Engineering Assessment. The Engineering Assessment generally includes:

- Record Review
- A complete visual dam safety inspection
- A hydrologic/hydraulic assessment
- A structural/stability assessment
- Confirmation of Dam Hazard Class
- Review of Emergency Action Plan and Inspection & Maintenance Plan
- Conclusions & Recommendations regarding the safety of the dam
- Preparation and submission of an Engineering Assessment Report

The engineering assessment was developed in accordance with TOGS 3.1.4 "Guidance for Dam Engineering Assessments". The investigation was conducted by Woidt Engineering & Consulting, PC (WEC) of Binghamton, NY in association with Daniel G. Loucks, P.E. of Ballston Spa, NY. Mr. Loucks completed the geotechnical and stability analysis portion of the assessment.

2. Project Location & Dam Description

Upper Teakettle Spout Lake Dam is a small, municipally owned recreational, earthen dam located in the Town of Carmel, Putnam County, New York. The dam is currently classified as an intermediate hazard (Class B) dam per the NYSDEC dam inventory. The reservoir created behind the dam has approximately 7.5 acres of surface area at normal pool and a maximum dam height of approximately 10' feet. Review of NYSDEC Dam Safety files revealed that the construction date of the original dam was 1950. Original design or as-built plans were not available; thus, the dam's geometry and spillway components were defined through field and survey measurements.

The primary spillway of the dam consists of a concrete riser structure with a 30"x30" metal grate on top of the riser structure that connects to a 14" diameter outlet pipe. A secondary (auxiliary) spillway is located immediately adjacent to the primary spillway. The auxiliary spillway consists of a concrete riser structure with a 36" metal grate on top of the riser that connects to a 12" diameter outlet pipe. The auxiliary spillway crest elevation is approximately 4-5" higher than the primary spillway crest. Although as-built plans were not available, a one plan sheet of dam details (1940) indicate that the two structures have a common interior wall with the auxiliary riser serving as an overflow and lake drain. It is noted that the records indicate that the dam was constructed in 1950 so the 1940 plans may or may not depict the actual conditions. The photos below show the spillways at two different lake stages (photo on right is a higher stage and the primary spillway is inundated).



auxiliary spillway left, primary spillway right



auxiliary spillway left, primary spillway inundated

The auxiliary spillway is also surrounded by a chain link fence and is equipped with a gate valve on the upstream face, which is assumed to control a low flow drain outlet. The dam embankment is approximately 250' long. Field measurements and survey indicated that the crest elevation was not entirely level with several low areas identified. See additional discussion in sections 6 and 7 of the report.

3. Records Review

The following records pertaining to the design, construction, operation, maintenance, and inspection of Upper Teakettle Spout Lake Dam were reviewed as part of this assessment.

Upper Teakettle Spout Lake Dam
Table 1 - Summary of Reviewed Documents

Document	Date	Entity	Description
Dam Design Details	1940	private engineer	one sheet with basic details for spillway and dam section
Visual Inspection Report/NYSDEC Correspondence	10-18-95; 6-19-03; 4-21-2009; 4-3-2012; 4-3-2012; 4-18-2013; 5-17-2013; 12-22-2017	NYSDEC	Periodic Visual Inspection Report/Correspondence/photos
EAP and Inundation Map	3-24-2015	Insite Engineering, Surveying and Landscape Architecture	Emergency Action Plan and Inundation Map
Visual Inspection reports	4-19-16; 12-30-16; 6-21-17; 12-7-17	Town of Carmel Engineer	Periodic Visual Inspection Reports
Hazard Classification and Spillway Capacity Analysis	10-24-2014	Insite Engineering, Surveying and Landscape Architecture	Hazard Classification and Spillway Capacity

4. Emergency Action Plan and Inspection & Maintenance Plan Review

The EAP and inundation map prepared by Insite Engineering, Surveying and Landscape Architecture in March of 2015 was reviewed. The EAP document was well organized and contained appropriate information consistent with an Intermediate Hazard "B" dam. The associated inundation mapping and methodology were also reviewed and the inundation extents looked appropriate based on the dam size, storage volume and downstream channel and floodplain characteristics. In addition, WEC performed our own internal dambreak and hazard classification analysis which concluded that a B (Intermediate) hazard classification is appropriate for Upper Teakettle Spout Lake Dam. The hazard classification was primarily based on the depth of overtopping of Union Valley Road, which is classified as an Urban Major Collector (also see section 5).

The Inspection & Maintenance Plan (IMP) was also reviewed and the inspection and maintenance procedures identified in the plan were deemed appropriate. However, based on the inspection of the dam (section 6) it is evident that additional removal of trees and woody brush from the crest and upstream and downstream slopes has yet to occur.

5. Hazard Class Review

The Hazard Classification and Spillway Capacity Analysis report prepared by Insite Engineering, Surveying and Landscape Architecture in October of 2014 was reviewed by WEC. WEC concurs that the B (intermediate) hazard classification identified in the report for Upper Teakettle Spout Lake Dam is appropriate, however, for a different reason than stated in the referenced report. WEC performed our own internal dambreak and hazard classification analysis for Upper Teakettle Spout Lake Dam and confirmed the B (intermediate) hazard classification primarily based on the depth of overtopping of Union Valley Road, which is classified as an Urban Major Collector. The estimated depth of overtopping for Union Valley Road was 1.9' for the sunny day dam break and 2.7' for the Spillway Design Flood (SDF) with dam break.

It is also noted that a nearby downstream B (intermediate) hazard dam, Teakettle Spout Lake Dam has also been investigated by WEC. Our hazard class analysis recommended that the hazard classification for that dam be reduced to an A (low) from the current classification B (intermediate). The Hazard Classification Report for Teakettle Spout Lake Dam has been submitted to NYSDEC Dam Safety for review and concurrence.

6. Visual Inspection

A visual inspection of the dam was performed by WEC and Daniel Loucks, P.E., Geotechnical Engineer on May 17th, 2018 and July 6th, 2018 respectively. Mr. Loucks inspection primarily focused on the dam embankment relative to stability assessment. The reservoir level at the time of main inspection by WEC was approximately 0.3' above the normal pool elevation of 649.6 (assumed elevation) which corresponds to the top of the primary riser structure.

The overall condition of the dam was considered poor to fair. There were several areas that were flagged for additional investigations or recommended repairs including providing a level

dam crest, providing a uniform downstream slope in certain areas, consideration of installation of a toe drain to address seepage areas, and an extensive tree, root, brush removal and disposal plan. The complete inspection report and photo documentation are provided in Appendix C.

7. Hydrologic & Hydraulic Analysis/Spillway Capacity

WEC completed a hydrologic and hydraulic assessment for Upper Teakettle Spout Lake Dam to assess the spillway capacity of the dam. Inflow hydrographs were developed using the Soil Conservation Service Unit hydrograph method contained in the HydroCAD software package. "CN" values were estimated from review of land use, aerial photography and soil mapping for the contributory watershed. Predominant soil types consist of Hydrologic Group D with a smaller amount of B soils for the inflow area upstream of the dam. Land cover primarily consists of ½ acre residential lots interspersed with wooded and grassed areas.

The total drainage area entering the Dam is 78 acres, or approximately 0.12 square miles. Lag time's (Tlag) for the inflow hydrographs were computed utilizing the travel time methodology from NCRS time of concentration procedures, with $T_{lag} = 0.6 \times T_c$ (time of concentration).

The 24-hour precipitation value for the 100-year recurrence interval (8.40") was obtained from NOAA Atlas 14 precipitation data for the project vicinity and was used to develop a 100-year inflow hydrograph. The inflow hydrograph for the 150% of 100-year storm was then computed by increasing the 100-year storm hydrograph by 50%. It is noted that the 150% of 100-year flood is considered the Spillway Design Flood (SDF) for an existing small, intermediate "B" hazard dam.

Reservoir routing was performed assuming normal summer pool conditions (assumed elevation 649.6). Stage-storage relationships were developed from aerial photos and available LiDAR 2' contour interval mapping. Stage-discharge rating curves were developed using an orifice and culvert function (for both the primary and auxiliary riser structures and outlet pipes) and a broad crested weir function (for a non-level dam crest overtopping). The peak inflows, outflows and reservoir stages for selected storm events are presented in Table 2.

Upper Teakettle Spout Lake Dam
Table 2 – Discharges/Stages for Various Storm Events

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Stage (ft)	Top of Dam* Available Freeboard
100-year	200	24	651.61	(-0.16') ft
150% of 100-year	300	54	652.42	(-0.97') ft

* Low point Top of Dam = 651.45+/-; Normal Pool Elevation = 649.6; Auxiliary Spillway crest = 650.0 elevations based on field measurements and survey

As shown in Table 2, the small drainage area and relatively large storage volume of the dam's lake results in a significant attenuation (reduction) of peak outflows. Furthermore, it can be observed that Upper Teakettle Spout Dam does not have adequate spillway capacity to pass the 150% of 100-year storm event without dam overtopping. The approximate spillway capacity of

the dam is 23 cfs which approximately equates to the peak outflow from a 100-year recurrence interval event. Selected HydroCAD computer output is included in Appendix B.

8. Geotechnical Investigations/Stability Assessment

The geotechnical investigations and stability analysis were conducted by Daniel G. Loucks, P.E. of Ballston Spa, NY. Mr. Loucks' report and supporting analysis, calculations, observations and recommendations are included in Appendix D and in section 10 of this report.

9. Outlet Works Assessment

In accordance with 1989 NYSDEC Guidelines for Design of Dams, the low level drain of a dam is required to have adequate capacity to discharge 90% of the storage below the lowest spillway crest within 14 days, assuming no inflow into the reservoir.

Based on our field review and observations, we are assuming that the auxiliary spillway riser structure with the gate valve and 12" diameter outlet pipe serves as the outlet drain configuration for the dam.

WEC utilized HydroCAD version 10.0-19 to assess the drawdown time to remove 90% of the storage below normal pool elevation (649.6). The results of the drawdown HydroCAD analysis (Appendix B) revealed that 90% of the normal storage can be removed in approximately 28 hours, which is well under the recommended maximum 14 day period per NYSDEC Dam Safety Guidelines.

10. Conclusions & Recommendations

Conclusions

1. The hydrologic and hydraulic analysis identified that Upper Teakettle Spout Lake Dam has inadequate spillway capacity to pass the 150% of the 100-year storm event (Spillway Design Flood).
2. As noted in the inspection report, the dam embankment is covered by numerous trees, large woody growth and root systems (dam crest) along the upstream and downstream slopes.
3. As noted in the inspection report, the outlet pipes from both the primary and auxiliary spillways were submerged at the outlet channel.
4. As noted in Daniel Loucks' report, it was determined that based on visual observations and measured downstream embankment slopes; the dam embankment in its current condition would not have acceptable factors of safety for several stability conditions. (see Appendix D for more details).
5. As noted in the inspection report, the condition of the primary and auxiliary riser and outlet pipe spillways could not be fully observed due the reservoir level.

6. Both the primary and auxiliary riser structures have metal grates sitting on top of the structures that may limit the hydraulic capacity of the spillways and may be prone to clogging of debris.
7. The overall condition and maintenance of the dam is poor to fair.
8. The EAP and inundation mapping were prepared in 2015 and seemed in good order with reasonable inundation mapping limits.
9. A formal written Inspection & Maintenance Plan (IMP) was reviewed and its format and content was considered acceptable.
10. The existing Hazard Class of B (intermediate) is considered appropriate based on review of available dam break methodology, inundation mapping and downstream site review.

Recommendations/Proposed Schedule

1. Trees, woody brush and root systems should be removed from the dam crest, upstream and downstream slopes of the dam. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.
2. Per Dan Loucks Stability Assessment Report, additional investigations and improvements to the dam embankment are recommended. This includes providing a level dam crest, a uniform, flatter backslope, consideration of toe drain system and investigation of rock slope protection along the upstream slope. In conjunction with above, alternatives for improving spillway capacity should be investigated to pass the SDF without dam crest overtopping.
3. Investigations should be conducted to replace the metal grates on the primary and auxiliary spillways as the grate openings are too closely spaced which limit hydraulic capacity and could also promote clogging of the inlets. A properly designed trash/debris rack system should be considered with removal of the restrictive existing grates.
4. In conjunction with items 1, 2 and 3, the condition of the primary and auxiliary riser spillways and outlet pipes should be confirmed by video inspection to determine if they are in good condition or if additional repairs are required.

Proposed Schedule

Since items 1, 2 and 3 are related and will take some significant effort, we suggest the following action items and timeline.

1. Since as-built plans are unavailable, a full topographic survey of the dam should be completed initially so the geometrics of the dam can be accurately assessed for future assessments and repair plan development. It is recommended that this be completed before the end of 2018.
2. Per Dan Loucks report, a geotechnical exploration plan should be developed and completed to properly assess dam stability issues and to refine suggested repair plans. It is recommended that this be completed before spring of 2019.
3. Conceptual repair plans including providing preliminary cost estimates for design, permitting and construction to address the dam stability and spillway capacity issues should then be completed. It is recommended that this should be completed in the summer of 2019.
4. Depending on the magnitude of repair costs, a timeline for subsequent development of final repair plans and permitting and eventual construction of repairs should be developed. It is suggested that the final design and permitting phase be completed by early 2020. Subsequent completion and construction of repairs should follow with a goal of completion by late 2020 or spring of 2021. It is noted that this schedule may need to be flexible dependent on funding sources available to the Dam Owner (Town of Carmel). A phased construction approach may also need to be investigated (i.e. address vegetation removal and level dam crest initially with subsequent work at a later phase).

11. Statement of Conformance

Presently, the inadequate spillway capacity, excessive vegetation growth and likely dam stability issues are the primary reasons that the dam is not in compliance with NYSDEC Dam Safety Regulations.

Upon resolution and completion of Recommendations 1 through 4, it is our opinion that Upper Teakettle Spout Dam will be in compliance with NYSDEC Dam Safety regulations. It is recognized that the Dam Owner (Town of Carmel) has limited financial resources to address all of the recommended actions in a short time period. A suggested timeline is provided in section 10.

12. Limitations

Standard of Care

1. Our findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the report and/or proposal and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work.
2. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

General

3. The observations described in this report were made under the conditions stated therein. The conclusions presented were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services.
4. In preparing this report, we relied on certain information provided by the dam owner, state and local officials, and other parties referenced therein available to us at the time of the evaluation. We did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
5. Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the structure or site, or to structures on the site was unavailable or limited, we render no opinion as to the condition of that portion of the site or structure. In particular, it is noted that water levels in the impoundment and elsewhere and/or flow over the primary and auxiliary spillways may have limited our ability to make observations of underwater portions of the structure.
6. In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions during the course of this study along with data made available to us.

DAM INSPECTION CHECKLIST

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF WATER, BUREAU OF FLOOD PROTECTION & DAM SAFETY

NAME OF DAM:	<u>Upper Teakettle Spout Lake Dam</u>	DEC I.D. NO:	<u>231-1406</u>
LOCATION:	<u>Carmel</u> TOWNSHIP		<u>Putnam</u> COUNTY
DEC CLASSIFICATION DATA:		<u>Small</u> SIZE	<u>B (Intermediate)</u> HAZARD

PHYSICAL DATA:	<u>Embankment</u> TYPE OF DAM	<u>11' feet max.</u> HEIGHT OF DAM	<u>28 acre-feet</u> NORMAL POOL STORAGE CAPACITY
ELEVATIONS:	<u>649.6+/-</u> NORMAL POOL	<u>649.9+/-</u> POOL AT INSPECTION	<u>1.0'+/-</u> TAILWATER AT INSPECTION

PERSONS PRESENT AT INSPECTION

NAME	TITLE/POSITION	REPRESENTING
<u>Charles F. Woidt Jr., P.E.</u>	<u>President</u>	<u>Woidt Engineering & Consulting, P.C.</u>

DATE OF INSPECTION:	<u>May 17th, 2018</u>
WEATHER:	<u>Partly Cloudy</u>
TEMPERATURE:	<u>70 degrees F</u>

THIS IS TO CERTIFY THAT THE ABOVE DAM HAS BEEN INSPECTED AND
THE FOLLOWING ARE THE RESULTS OF THIS INSPECTION

SIGNATURE OF REGISTERED PROFESSIONAL ENGINEER

NAME: Upper Teakettle Spout Dam

DEC I.D. NO.: 231-1406

INSPECTION DATE: 5/17/2018

AREA INSPECTED	EMBANKMENT 1 OF 2			CHECK () ACTION NEEDED		
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTI- GATE	REPAIR
CREST	1	SURFACE CRACKING	none observed			
	2	SINKHOLE, ANIMAL BURROW	none observed			
	3	LOW AREA(S)	crest elevation slightly uneven with one notable low area (Photo P-3)		X	X
	4	HORIZONTAL ALIGNMENT	OK			
	5	RUTS AND/OR PUDDLES	isolated puddles observed			
	6	VEGETATION CONDITION	generally bare earth, tree roots growing through crest multiple areas (Photo P-9)		X	X
	7	DIKE	n/a			
	8					
UPSTREAM SLOPE	9	SLIDE, SLOUGHS, SCARP	some minor scarping at waterline			
	10	SLOPE PROTECTION	none observed			
	11	SINKHOLE, ANIMAL BURROW	none observed			
	12	EM. - ABUT. CONTACT	good			
	13	EROSION	none observed; a few areas with minor scarping at the waterline			
	14	VEGETATION CONDITION	multiple mature trees growing in upstream slope (Photos P-1, P-2, P-10)		X	X
	15					
	16					
ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE <div> <div>3</div> <div>One notable area approximately 10' in length near center of dam approximately 10" lower than average crest elevation. It appears that this low area might have overtopped in the past.</div> </div> <div> <div>6</div> <div>14 Tree roots in crest should be removed. All woody growth exceeding 2" in diameter along upstream slope should be cut and removed. Stumps and rootballs for larger trees (greater than 10" in diameter) should have root balls removed and replaced with well compacted fill. Crest elevation should be leveled and or adjusted to prevent overtopping from the Spillway Design Flood event.</div> </div>						

NAME: Upper Teakettle Spout Dam

DEC I.D. NO.: 231-1406

INSPECTION DATE: 5/17/2018

AREA INSPECTED	EMBANKMENT 2 OF 2			CHECK () ACTION NEEDED		
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTI- GATE	REPAIR
DOWNSTREAM SLOPE	17	WET AREA(S) (NO FLOW)	none observed			
	18	SEEPAGE	none observed			
	19	SLIDE, SLOUGH, SCARP	none observed			
	20	EMB. - ABUT. CONTACT	OK		X	
	21	SINKHOLE, ANIMAL BURROW	none observed			
	22	EROSION	area of erosion observed in line with low spots of crest	X	X	X
	23	UNUSUAL MOVEMENT	downstream slopes inconsistent		X	X
	24	VEGETATION CONTROL	Numerous trees exceeding 12" in diameter mixed with smaller trees growing on		X	X
	25		majority of downstream slope (Photos P-4, P-5, P-7)			
	26					
INSTRUMENTATION	26	PIEZOMETER/OBSERV. WELLS	none			
	27	STAFF GAGE & RECORDER	none observed			
	28	WEIRS	none observed			
	29	SURVEY MONUMENTS	none observed			
	30	DRAINS	none			
	31	FREQUENCY OF READINGS	none			
	32	LOCATION OF RECORDS	none			
	33					
	34					
	35					
ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE 23 24 All woody growth exceeding 2" in diameter along the downstream slope should be cut and removed. Stumps and rootballs for larger trees (greater than 10" in diameter) should have root balls removed and voids filled with compacted fill. The downstream slope varies from approximately 1.5H:1V in the center of the dam to 4H:1V near the abutments. Future investigations will be required to determine embankment improvement requirements that may include a consistent flatter slope and installation of toe drains.						

NAME: Upper Teakettle Spout Dam

DEC I.D. NO.: 231-1406

INSPECTION DATE: 5/17/2018

AREA INSPECTED	DOWNSTREAM AREA AND MISC.			CHECK () ACTION NEEDED		
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
DOWNSTREAM AREA	36	ABUTMENT LEAKAGE	none observed			
	37	FOUNDATION SEEPAGE	some wet areas observed but no visible standing water observed	X		
	38	SLIDE, SLOUGH, SCARP	none observed			
	39	DRAINAGE SYSTEM	none observed			
	40	WHEEL RUTS	none observed			
	41					
	42	DOWNSTREAM HAZARD DESCRIPTION	Primary hazards include overtopping of Union Valley Road and overtopping of Teakettle Spout Dam located just downstream of Union Valley Road. Effects of dam break would terminate at Lake Glencoma.			
	43	DATE OF LAST UPDATE OF EMERGENCY ACTION PLAN	EAP was updated in February 2017.		X	
INSTRUMENTATION	44	RESERVOIR SLOPES	good			
	45	ACCESS ROADS	access to dam via Northview Drive and across grassed area			
	46	SECURITY DEVICES	none observed			
	47	STAFF GAGE	none			
	48					
	49					
	50					
ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE 43 The EAP should be reviewed for any updates by the end of 2018.						

NAME: Upper Teakettle Spout Dam

DEC I.D. NO.: 231-1406

INSPECTION DATE: 5/17/2018

AREA INSPECTED	SPILLWAYS*		CHECK () ACTION NEEDED			
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
AUXILIARY SPILLWAY	51					
	52	EROSION	n/a			
	53	VEGETATION CONDITION	n/a			
	54	DEBRIS	n/a			
	55	CONCRETE SURFACES	n/a			
	56	OTHER	36"+/- diameter grate and vertical concrete riser (see Photo P-8)		X	
MAIN SPILLWAY	57	SIDEWALLS	see items 65-69			
	58	CHANNEL FLOOR				
	59	UNUSUAL MOVEMENT				
	60	APPROACH AREA				
	61	WEIR OR CONTROL				
	62	DISCHARGE AREA				
	63	DRAINS				
CULVERT SPILLWAY	65	INTAKE STRUCTURE	A 30"X30" concrete riser with grate connected to 14" diameter pipe (Photo 11)		X	
	66	TRASHRACK	Metal grate sits on top of Riser pipe (Photo 11)		X	
	67	STILLING BASIN	14" Outlet pipe is submerged (Photo P-6)		X	
	68	FLOOR	could not be observed submerged in reservoir		X	
	69	SIDEWALLS	could not be observed submerged in reservoir		X	
<p>ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE</p> <p>56 A 36" diameter grate and concrete riser connected to a 12" diameter outlet pipe appears to serve as an auxiliary spillway that is set 4-5" higher than the primary spillway (see 65-69). The riser appears to be equipped with a low flow valve on the upstream face. The condition of the valve and outlet pipe was not accessible during the inspection. Future investigations should verify the valve and outlet pipe condition. A chain link fence surrounding the riser pipe serves as a trash rack.</p> <p>65- 69 The primary spillway is approximately 4-5" lower than the secondary low flow auxiliary riser structure. A metal grate serves as the only debris/trash rack. Further investigation is needed to determine the condition of the outlet pipe and riser structure as well as considering a better designed trashrack system to prevent clogging of the grate. Finally the outlet channel should be regraded to allow free flow conditions for the outlet pipe.</p>						

INSPECTION DATE: 5/17/2018

AREA INSPECTED	OUTLET WORKS 1 OF 1			CHECK () ACTION NEEDED		
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
INTAKE AND DOWNSTREAM OUTLET	70	INTAKE STRUCTURE	see item 56		X	
	71	TRASHRACK	see item 56			
	72	STILLING BASIN				
	73	PRIMARY CLOSURE	see 56			
	74	SECONDARY CLOSURE	no apparent secondary closure system			
	75	CONTROL MECHANISM	see 56, Valve control on upstream side of riser			
	76	INTAKE TOWER	see 56			
	77	OUTLET PIPE & HEADWALL	Low flow outlet pipe is submerged (Photo P-6)		X	
	78	EROSION ALONG DAM TOE	none observed			
	79	SEEPAGE	none observed			
	80	UNUSUAL MOVEMENT	none observed			
	81					
	82					
	83					
ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE						

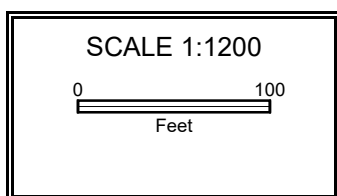


Photo Index Map
Upper Teakettle Spout Dam
NYSDEC # 231-1406
Scale 1"=100'
May 17th, 2018

Upper TeaKettle Spout Lake Dam - 2018 Inspection Photos



Photo P-1 Upstream slope/reservoir; view south



Photo P-2 Upstream slope; view north



Photo P-3 Low area along crest; view north



Photo P-4 Downstream slope; view east



Photo P-5 Downstream slope; ponding area at outlet; view northeast



Photo P-6 Submerged outlet pipes; view north



Photo P-7 Outlet channel/ponding area; view east



Photo P-8 Auxiliary Riser inlet grate and fencing; view east



Photo P-9 Trees roots along dam crest; view north



P-10 Mature trees along upstream slope; view north



Photo P-11 Auxiliary/Low Riser on left, Primary Riser on right, view north

DANIEL G. LOUCKS, P.E.
G E O T E C H N I C A L E N G I N E E R I N G

1

1 August 2018

Rick Woidt
Woidt Engineering & Consulting
11 Washington Street
Binghamton, NY 13903

Ref: Geotechnical Observations and Opinions for the Embankment for Upper Teakettle Spout
Lake Dam, Carmel , New York
File No. 3359

I understand that the dam was constructed in 1950 and that the maximum height of the dam is approximately 9 feet. I understand that the downstream slope was recently surveyed to be approximately 1.5:1.0 (H:V). I visited the site to observe the existing conditions of the embankment on 6 July 2018. The scope of my services is limited to observing the existing surface conditions of the embankment and providing my opinion of the geotechnical aspects of the existing embankment as it relates to the requirements by NYSDEC Embankment Dan Guidelines. All other aspects of the dam review should be provided by qualified others. No soil borings were performed at the time this report was written. I understand that there are no formal design plans for the embankment available at this time.

I observed that the existing embankment had a narrow path along the top of the embankment with significant tree growth and vegetation along the sides of the path and embankment. The downstream slope of the embankment varied from approximately 1.5:1.0 (H:V) near the center to approximately 4.0:1.0 (H:V) or shallower near each end of the embankment. At the bottom of the embankment there was a small area of ponded shallow water with a drain pipe extending to it from the pond. Water was observed flowing from at least two locations. Portion of the lower section of the embankment appeared to be saturated. It did not appear that the embankment area had been properly maintained for many years.

At this time no formal slope stability analysis was performed on the embankment because of the observations made at the site during my site visit and my experience with dams in similar condition. It is my opinion that the existing embankment would require significant improvement to meet the NYSDEC requirements for stability of the embankment.

The first issue that would need to be addressed is that there, to date, are no plans or design documents showing the design details for the embankment. To proceed with any analyses, it would have to be assumed that the existing embankment was constructed with relatively homogeneous soils with no internal drainage. In my experience embankments with this type of condition typically

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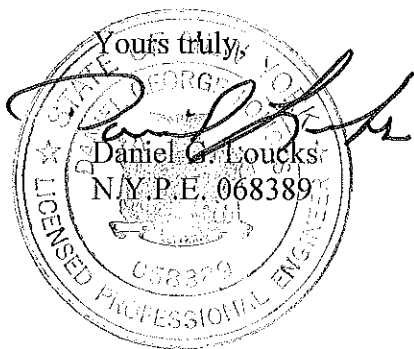
would not have an adequate factor of safety for slope stability with portions of the downstream slope being at steep as approximately 1.5:1.0 (H:V). Because of this steep slope, the downstream portion of the embankment would have to be reconstructed and regraded to a gentler slope to meet the required factors of safety for slope stability. In addition, in my opinion, an internal drainage system such as a toe drain would also need to be added to the embankment to achieve the required factors of safety for slope stability. The grade of the upstream slope would have to be determined and depending on the results, may require the placement of rip rap to satisfy the requirements for adequate stability for a rapid drawdown event.

A second requirement would be that all the existing trees and brush would have to be removed from the embankment. I observed some large trees on the embankment. Removal of these large trees would also have to include the removal of their root balls/stumps which may be extensive and would then require reconstruction of portions of the upstream and downstream embankment.

Because of these existing problems it is likely that a major reconstruction of the embankment would be required to satisfy the geotechnical requirements for the project. Also, if there are hydrologic issues with the spillway, they could add to the required improvements for the dam. These required improvement could be very expensive. I recommend that if the owner decides that they want to address these issues, that soil borings be performed at the site to determine the soil and groundwater conditions in the embankment. Also, complete topographic mapping of the upstream and downstream portions of the embankment and adjacent areas should be performed to more accurately determine the existing grades and provide information for the regrading and redesign of the downstream embankment.

The recommendations contained in this letter are based on the information that was provided up to the date the letter was completed. Any changes in the design of the project or corrections in my understanding of the existing conditions should be brought to my attention to determine if there needs to be any revision of the geotechnical recommendations provided in this letter.

If there are any questions with regard to the opinions in this letter, please feel free to call.



**LAKE CASSE DAM
(NYSDEC # 231-1797)
ENGINEERING ASSESSMENT REPORT**

Town of Carmel
Putnam County, New York



Prepared for:

Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541

Prepared by:



Woidt Engineering & Consulting, P.C.
11 South Washington Street
Binghamton, NY 13903

September 21st, 2018

**LAKE CASSE DAM
(NYSDEC # 231-1797)
ENGINEERING ASSESSMENT REPORT**

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Appendix A - Project Figures

- Project Location Map
- Drainage Area Map
- Putnam County Soil Mapping
- Topographic Map of Dam and Downstream Area
- 1953 Original Design Sheet

Appendix B - Hydrologic & Hydraulic Data

- HydroCAD Computer Summary - 150% of 100-year Storm
- Reservoir Drawdown Calculations

Appendix C - Visual Inspection Report

- 2018 Visual Inspection Report by Woidt Engineering & Consulting, PC

Appendix D – Geotechnical/Stability

- Geotechnical/Stability Assessment - Daniel Loucks, P.E.

1. Purpose of Investigation

This investigation was conducted to comply with the requirements of NYCRR Part 673, Dam Safety Regulations, which include the completion of a Dam Safety Engineering Assessment. The Engineering Assessment generally includes:

- Record Review
- A complete visual dam safety inspection
- A hydrologic/hydraulic assessment
- A structural/stability assessment
- Confirmation of Dam Hazard Class
- Review of Emergency Action Plan and Inspection & Maintenance Plan
- Conclusions & Recommendations regarding the safety of the dam
- Preparation and submission of an Engineering Assessment Report

The engineering assessment was developed in accordance with TOGS 3.1.4 "Guidance for Dam Engineering Assessments". The investigation was conducted by Woldt Engineering & Consulting, PC (WEC) of Binghamton, NY in association with Daniel G. Loucks, P.E. of Ballston Spa, NY. Mr. Loucks completed the geotechnical and stability analysis portion of the assessment.

2. Project Location & Dam Description

Lake Casse Dam is a small, municipally owned recreational, earthen dam located in the Town of Carmel, Putnam County, New York. The dam is currently classified as an intermediate hazard (Class B) dam per the NYSDEC dam inventory. The reservoir created behind the dam has approximately 32 acres of surface area at normal pool and a maximum dam height of approximately 14' feet. Review of NYSDEC Dam Safety files revealed that the construction date of the original dam was 1953. As-built plans were not available thus the dam's geometry and spillway components were defined through detailed survey and topographic mapping prepared by Putnam Engineering in 2011. There was a one page design sheet prepared in 1953 that was also reviewed and considered when preparing this report (see Appendix A).

The primary spillway of the dam consists of a concrete riser structure with a metal grate/plate on top of the riser structure that connects to a 48" diameter outlet pipe. The riser structure has 2 orifice openings on the east and west side measuring 32" long by 8" high and one orifice opening on the north side of the riser measuring 48" long X 8" high. In addition, the metal top grate has 24 4.5"X4.5" openings (see photos on next page).



Metal grate orifice opening on east side of riser



Metal grate orifice opening on north side of riser

The riser spillway is also surrounded by a chain link fence. The dam embankment is approximately 700' long and a paved roadway (Lake Drive) is located along the crest of the dam (See photos below).



Lake Drive (crest of dam) view west



Lake Drive (crest of dam) view east

3. **Records Review**

The following records pertaining to the design, construction, operation, maintenance, and inspection of Lake Casse Dam were reviewed as part of this assessment. The review included information available from the Town of Carmel and information obtained from NYSEC Dam Safety files.

Lake Casse Dam
Table 1 - Summary of Reviewed Documents

Document	Date	Entity	Description
Dam Permit Application/One sheet Design Plan	1953	Private engineer	Original application/design sheet for dam permit
ACOE Phase 1 Inspection Report	1981	USCOE	Phase 1 Inspection Report
Visual Inspection Reports (NYSDEC)	1969,1971,1983,1984,1991,1993, 1995,1999,2002,2003,2005, 2007,2009,2013	NYSDEC	Periodic Visual Inspection Reports
NYSDEC/Town of Carmel Dam Safety Correspondence	1969-2013	NYSDEC & Town of Carmel	Various correspondence between Town of Carmel and NYSDEC Dam Safety
EAP and Inundation Map	3-24-2015	Insite Engineering, Surveying and Landscape Architecture	Emergency Action Plan and Inundation Map
Inspection & Maintenance Plan (IMP)	1/2016	Town of Carmel	Inspection & Maintenance Plan
Visual Inspection reports	6/2017,12/2017	Town of Carmel Engineer	Periodic Visual Inspection Reports
Lake Casse Hydrologic Report	9/2007	Putnam Engineering	Hydrologic and Hydraulic Report
Hydrologic, Hydraulic & Dam Failure Analyses Report	3/2010	Putnam Engineering	H&H, Hazard Classification report
Topographic Mapping of Dam/Downstream area	4/2011	Putnam Engineering	Topographic Mapping

4. Emergency Action Plan and Inspection & Maintenance Plan Review

The EAP prepared by Insite Engineering, Surveying and Landscape Architecture in March of 2015 was reviewed. The EAP document was well organized and contained appropriate information consistent with a Intermediate Hazard "B" dam. The associated inundation mapping and methodology (prepared by Putnam Engineering in 2010) was also reviewed and the inundation extents looked appropriate based on the dam size, storage volume and downstream channel and floodplain characteristics.

The Inspection & Maintenance Plan (IMP) was also reviewed and the inspection and maintenance procedures identified in the plan were deemed appropriate. However, based on the inspection of the dam (section 6) it is evident that additional removal of trees and woody brush from the upstream and downstream slopes has yet to occur.

5. Hazard Class Review

The Hydrologic, Hydraulic & Dam Failure Analyses Report prepared by Putnam Engineering, Surveying and Landscape Architecture in March of 2010 that provided the basis for the current hazard class of B (intermediate) was reviewed by WEC. WEC concurs that a B (intermediate) hazard classification for Lake Casse Dam is appropriate. It is noted that NYSDEC Dam Safety approved a hazard reclassification of Lake Casse Dam in 2012 from "C" (High) to "B" (Intermediate) based on the Putman Engineering Report.

6. Visual Inspection

A visual inspection of the dam was performed by WEC and Daniel Loucks, P.E., Geotechnical Engineer on May 17th, 2018 and July 6th, 2018 respectively. Mr. Loucks inspection primarily focused on the dam embankment relative to stability assessment. The reservoir level at the time of the inspection by WEC was approximately 0.1' above the normal pool elevation of 607.8 which corresponds to the orifice openings in the sides of the metal grate/plate of the primary riser structure.

The overall condition of the dam was considered fair. There were several areas that were flagged for additional investigations or recommended repairs including removal of trees and vegetation on the upstream and downstream slopes, further investigations of the condition of the concrete riser structure, 48" RCP outlet pipe, submergence of the 48" RCP outlet pipe and confirmation/status of a low flow drain mechanism. The complete inspection report and photo documentation are provided in Appendix C.

7. Hydrologic & Hydraulic Analysis/Spillway Capacity

WEC completed a hydrologic and hydraulic assessment for Lake Casse Dam to assess the spillway capacity of the dam. Inflow hydrographs were developed using the Soil Conservation Service Unit hydrograph method contained in the HydroCAD software package. "CN" values were estimated from review of land use, aerial photography and soil mapping for the contributory watershed. Predominant soil types consist of Hydrologic Groups B and C. Land cover primarily consists of ½ acre residential lots interspersed with wooded and grassed areas.

The total drainage area entering the Dam is 237 acres, or approximately 0.37 square miles. Lag time's (Tlag) for the inflow hydrographs were computed utilizing the travel time methodology from NCRS time of concentration procedures, with $T_{lag} = 0.6 \times T_c$ (time of concentration).

The 24 hour precipitation value for the 100-year recurrence interval (8.38") was obtained from NOAA Atlas 14 precipitation data for the project vicinity and was used to develop a 100-year inflow hydrograph. The inflow hydrograph for the 150% of 100-year storm was then computed by increasing the 100-year storm hydrograph by 50%. It is noted that the 150% of 100-year flood is considered the Spillway Design Flood (SDF) for an existing small, intermediate "B" hazard dam.

Reservoir routing was performed assuming normal summer pool conditions (elevation 607.8). Stage-storage relationships were developed from aerial photos and available LiDAR 2' contour interval mapping. Stage-discharge rating curves were developed using an orifice and culvert function (for both the primary riser structures and outlet pipe) and a broad crested weir function (for a non-level dam crest overtopping). The peak inflows, outflows and reservoir stages for selected storm events are presented in Table 2.

Lake Casse Dam
Table 2 – Discharges/Stages for Various Storm Events

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Stage (ft)	Top of Dam* Available Freeboard
100-year	384	44	609.78	2.02 ft
150% of 100-year	576	65	610.74	1.06 ft

* Low point Top of Dam (Lake Drive) = 611.8+/-; Normal Pool Elevation = 607.8; Auxiliary Spillway crest = n/a
elevations based on detailed Topographic Mapping prepared by Putnam Engineering

As shown in Table 2, the small drainage area and relatively large storage volume of the dam's lake results in a significant attenuation (reduction) of peak outflows. Furthermore, it can be observed that Lake Casse Dam does have adequate spillway capacity to pass the 150% of 100-year storm event without dam overtopping. Selected HydroCAD computer output is included in Appendix B.

8. Geotechnical Investigations/Stability Assessment

The geotechnical investigations and stability analysis were conducted by Daniel G. Loucks, P.E. of Ballston Spa, NY. Mr. Loucks' report and supporting analysis, calculations, observations and recommendations are included in Appendix D and in section 10 of this report.

9. Outlet Works Assessment

In accordance with 1989 NYSDEC Guidelines for Design of Dams, the low level drain of a dam is required to have adequate capacity to discharge 90% of the storage below the lowest spillway crest within 14 days, assuming no inflow into the reservoir.

Based on our field review and observations and review of the one sheet 1953 design plans we are assuming that the riser structure is equipped with a 24" diameter opening controlled by a gate valve. It is noted that the vertical stem rod that serves as the control mechanism for the valve was missing and the valve will need repair to be operational.

Assuming the valve mechanism will be repaired and will become operational in the future, WEC utilized HydroCAD version 10.0-19 to assess the drawdown time to remove 90% of the storage below normal pool elevation (647.8). The results of the drawdown HydroCAD analysis (Appendix B) revealed that 90% of the normal storage can be removed in approximately 82 hours, which is well under the recommended maximum 14 day period per NYSDEC Dam Safety Guidelines.

10. Conclusions & Recommendations

Conclusions

1. The hydrologic and hydraulic analysis identified that Lake Casse Dam has adequate spillway capacity to pass the 150% of the 100-year storm event (Spillway Design Flood for a Intermediate or "B" hazard class dam).
2. As noted in the inspection report, the downstream dam embankment is covered by numerous trees, large woody growth and dense vegetation. The upstream slope is in much better shape than the downstream slope, however there are several trees and isolated areas of woody growth near the left and right ends of the dam.
3. As noted in the inspection report, the outlet pipe from the primary spillway was partially submerged at the outlet channel.
4. Per Daniel Loucks, P.E., stability assessment letter (see Appendix D) it is his opinion that the dam embankment would have adequate factor's of safety for sliding and overturning. Mr. Loucks opinion was based on the wide crest width of the embankment (36'), age of the embankment (over 60 years), boring data and no observed visible signs of slope instability.
5. As noted in the inspection report the condition of the primary spillway riser and outlet pipe spillway could not be fully observed due the reservoir level and presence of backwater at the outlet channel.
6. The primary riser structure has a metal grate sitting on top of the structure that limits the overall hydraulic capacity of the spillway. Despite the presence of the grate, the dam has adequate capacity to pass the SDF without overtopping the dam. A chain link fence also surrounds the riser structure and the small openings of the fence may be prone to clogging of debris.
7. The overall condition and maintenance of the dam is judged to be fair.

8. The EAP and inundation mapping was prepared in 2015 and seemed in good order with reasonable inundation mapping limits.
9. A formal written Inspection & Maintenance Plan (IMP) was reviewed and its format and content was considered acceptable.
10. The existing Hazard Class of B (intermediate) is considered appropriate based on review of available dam break methodology, inundation mapping and downstream site review.
11. The submergence of the 48" outlet pipe and backwater in the outlet channel, appears to be due to the hydraulic control of downstream cross pipes underneath the Putnam County Rail Trail as well as cross pipes underneath Fulmar Road. As can be seen on the topographic map of the dam and downstream area in Appendix A, the inverts of the pipes underneath the Rail Trail are over 2' higher than the outlet invert of the 48" pipe.

Recommendations/Proposed Schedule.

1. Trees, woody brush and root systems should be removed from the upstream and downstream slopes of the dam. Root balls from trees larger than 10" in diameter should be removed and compacted backfill placed in the root ball voids.
2. Per Dan Loucks Stability Assessment Report, additional investigations regarding the dam embankment stability were not recommended at this time. Per his visual observations and the fact that the dam embankment has existed since 1953 with no known issues or visible areas of settlement, it was his opinion that the dam embankment was at least marginally stable.
3. Investigations should be conducted to replace the metal grate and chain link fence system for the primary spillway as the chain link fence and metal grate openings may limit hydraulic capacity via clogging by debris. A properly designed trash/debris rack system should be considered with removal of the restrictive existing chain link fence and metal grate.
4. The condition of the primary riser spillway and outlet pipe should be confirmed by video inspection to determine if they are in good condition or if additional repairs are required. This recommendation was noted as far back as the Phase 1 inspection report in 1981. Review of available material could not verify if an inspection of the riser pipe and outlet has occurred since that time.
5. In conjunction with Item 4, the valve and closure mechanism for drawing down the reservoir should be inspected, and if necessary, required repairs made to restore the drawdown function of the dam.
6. The issue of standing water at the outlet is a result of backwater controls from downstream cross culverts. Unless the culverts are replaced underneath the Rail

Trail and Fulmer Road and the entire outlet channel regraded to a point downstream of Fulmer Road, this backwater condition will continue to exist. It is suggested that at a minimum, the Town of Carmel have discussions with Putnam County regarding the replacement of the culverts underneath the Rail Trail. It is noted that the Town of Carmel is responsible for the maintenance of Fulmer Road. If the culverts underneath the Rail Trail could be replaced to provide positive grade from the 48" outlet pipe, additional channel grading and replacement of the culverts underneath Fulmer Road would be required by the Town of Carmel.

Proposed Schedule

It is our opinion that the condition of the riser structure, outlet pipe, low level valve, excessive downstream embankment vegetation, and presence of downstream backwater are the primary areas of concern for additional investigations and repairs. To that end, it is recommended that the following schedule be considered.

1. Arrangements for inspecting and cleaning the 48" outlet pipe and inspecting the condition of the concrete riser pipe and low level valve should occur within 12 months of the date of this report.
2. By the end of 2018, the Town of Carmel should discuss the issue of replacement of the Rail Trail culverts with Putnam County. If replacement of these pipes are feasible, additional investigation of channel regrading and replacement of the culverts underneath Fulmer Road should occur in 2019.
3. A program for removal of trees, woody growth and heavy vegetation/debris on the downstream slope of the embankment should begin in the spring of 2019 with a planned removal of all vegetation by the end of 2020. Removal of larger trees along the upstream slope are not as much of a concern, but it is recommended that this occur by the end of 2020.
4. Investigations for removing the metal grate and chain link fence system at the primary spillway should be completed within 12 months of the date of this report.
5. Depending on the magnitude of needed repair costs for items 1,2 and 4, a timeline for subsequent development of final repair plans and permitting and eventual construction of repairs should be developed. It is suggested that the final design and permitting phase be completed by early 2020. Subsequent completion and construction of repairs should follow with a goal of completion by late 2020 or spring/summer of 2021. It is noted that this schedule may need to be flexible dependent on funding sources available to the Dam Owner (Town of Carmel). A phased construction approach may also need to be investigated.

11. Statement of Conformance

Presently, the condition of the primary spillway and outlet works, excessive vegetation growth on the downstream embankment are the primary reasons that the dam is not in compliance with NYSDEC Dam Safety Regulations.

Upon resolution and completion of Recommendations 1 through 5, it is our opinion that Lake Casse Dam will be in compliance with NYSDEC Dam Safety regulations. It is recognized that the Dam Owner (Town of Carmel) has limited financial resources to address all of the recommended actions in a short time period. A suggested timeline is provided in section 10.

12. Limitations

Standard of Care

1. Our findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the report and/or proposal and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work.
2. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

General

3. The observations described in this report were made under the conditions stated therein. The conclusions presented were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services.
4. In preparing this report, we relied on certain information provided by the dam owner, state and local officials, and other parties referenced therein available to us at the time of the evaluation. We did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
5. Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the structure or site, or to structures on the site was unavailable or limited, we render no opinion as to the condition of that portion of the site or structure. In particular, it is noted that water levels in the impoundment and elsewhere and/or flow over the primary and auxiliary spillways may have limited our ability to make observations of underwater portions of the structure.

6. In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions during the course of this study along with data made available to us.