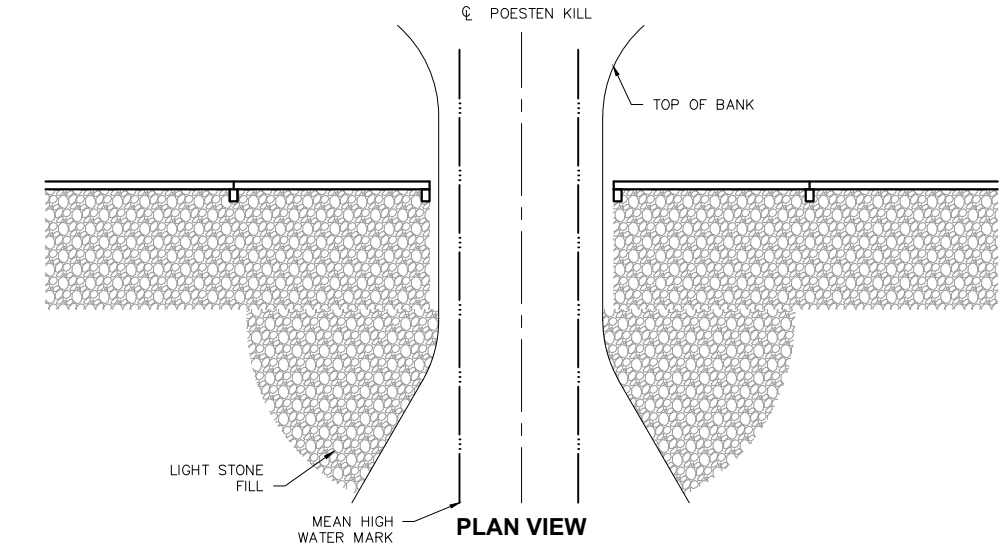
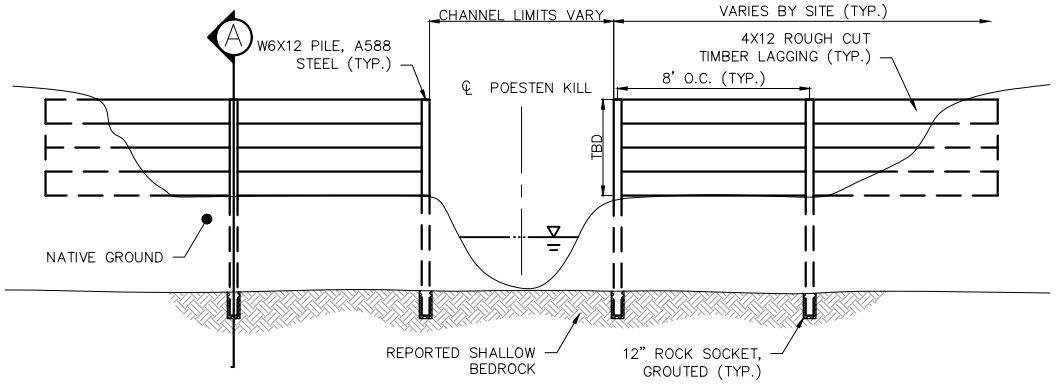
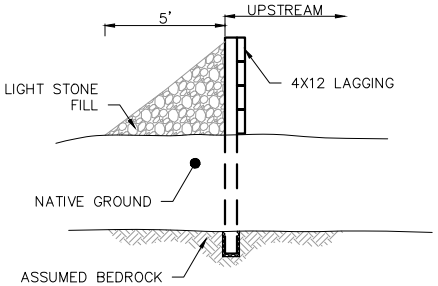
Appendix 2: Conceptual Wetland Detention Structure Designs and Budgets



PLAN VIEW





SECTION A-A

A **STREAM SECTION - DIKE ELEVATION**
SCALE: NOT TO SCALE

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE, CO., D.P.C.

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RPA POESTEN KILL FLOOD MITIGATION STUDY

PILE & LAGGING / NO BERM

POESTEN KILL WATERSHED, RENSSELAER COUNTY, NEW YORK

design	chked
FBM	MAC
date	scale
6/21/19	N.T.S.

project no. 41822.00

sheet no. **DETAIL A**

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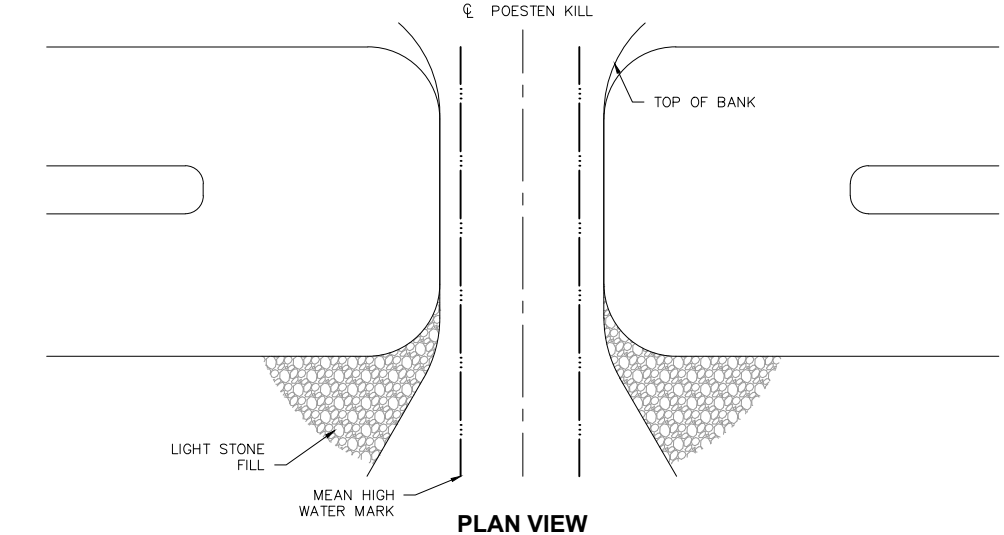
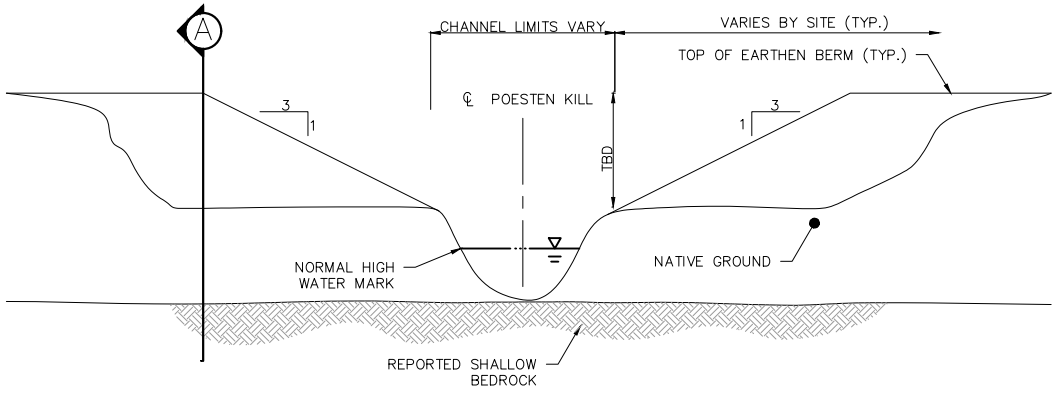
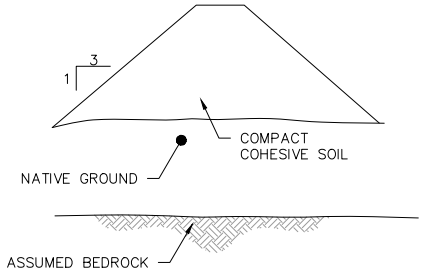


PLAN VIEW





SECTION A-A

B **STREAM SECTION - DIKE ELEVATION**
SCALE: NOT TO SCALE

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RPA POESTEN KILL FLOOD MITIGATION STUDY

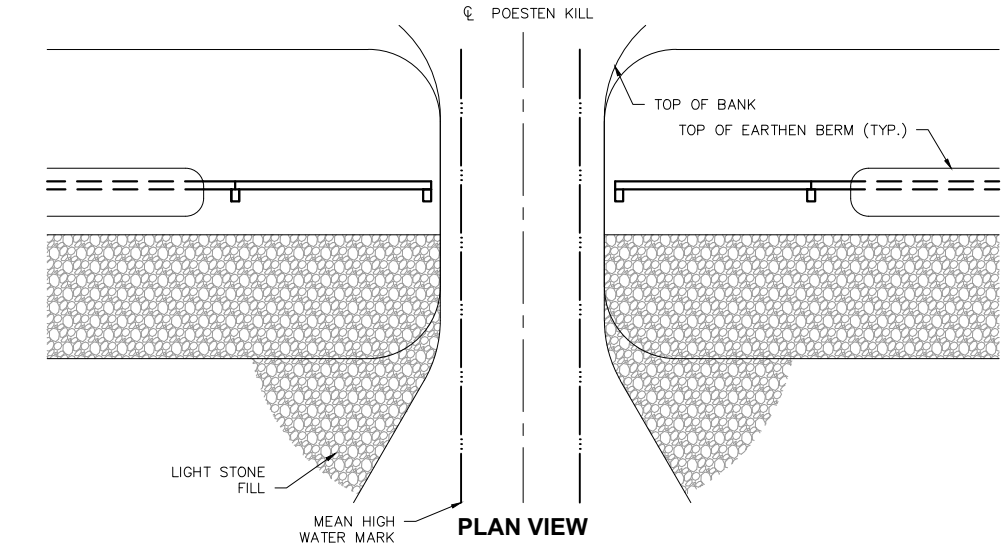
EARTHEN BERM (NO CORE)

POESTEN KILL WATERSHED, RENSSELAER COUNTY, NEW YORK

design	chked
FBM	MAC
date	scale
6/21/19	N.T.S.

project no. 41822.00

sheet no. **DETAIL B**



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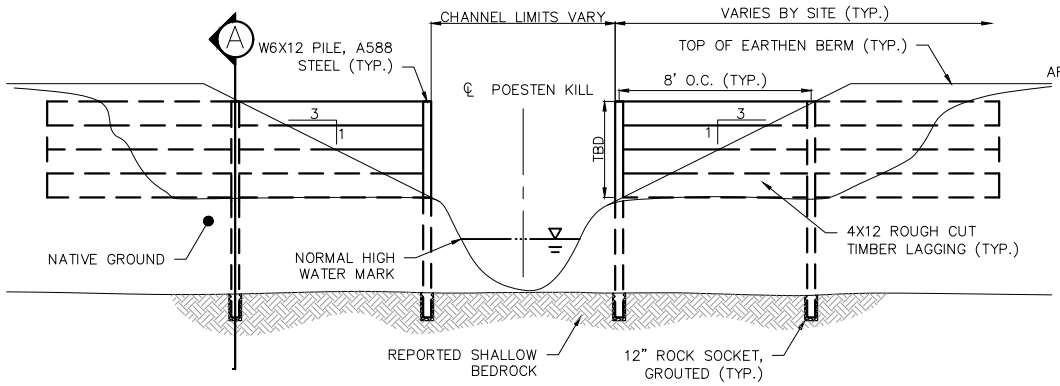

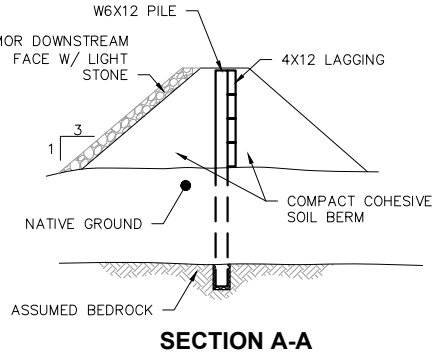

SECTION A-A

C **STREAM SECTION - DIKE ELEVATION**
SCALE: NOT TO SCALE

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RPA POESTEN KILL FLOOD MITIGATION STUDY

PILE & LAGGING / WITH BERM

POESTEN KILL WATERSHED, RENSSELAER COUNTY, NEW YORK

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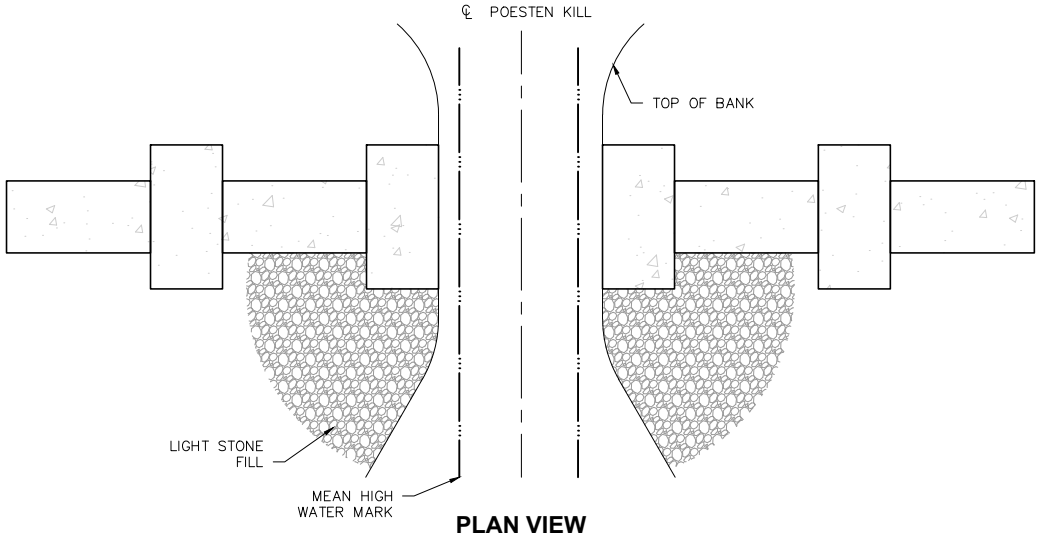
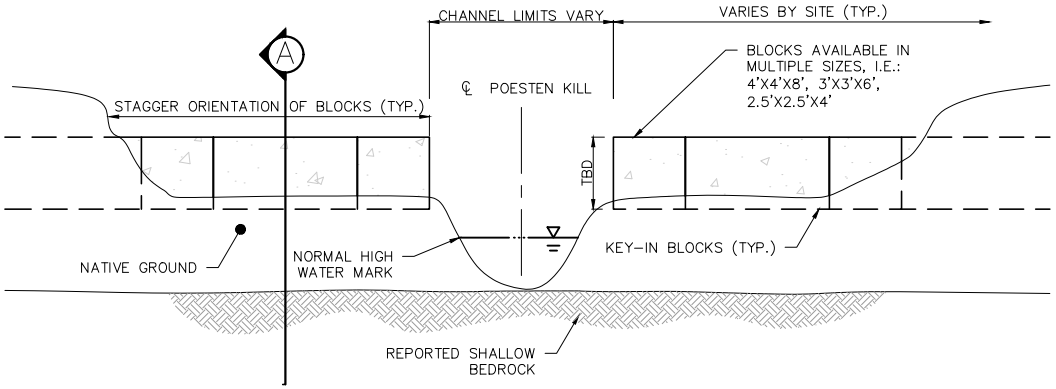
FBM	MAC
date	scale
6/21/19	N.T.S.

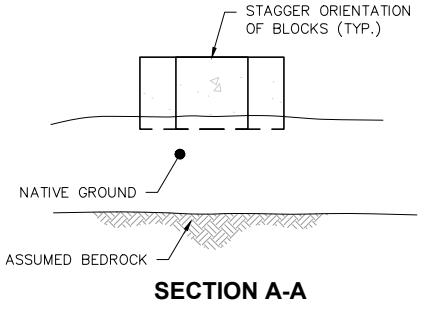
project no. 41822.00

sheet no. **DETAIL C**



PLAN VIEW





SECTION A-A

D **STREAM SECTION - DIKE ELEVATION**
SCALE: NOT TO SCALE

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RPA POESTEN KILL FLOOD MITIGATION STUDY

PRE-CAST CONCRETE GRAVITY BLOCK

POESTEN KILL WATERSHED, RENSSELAER COUNTY, NEW YORK

design	chked
FBM	MAC
date	scale
6/21/19	N.T.S.

project no. 41822.00

sheet no. **DETAIL D**

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C.

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Phone: (845) 454-3980

547 River Street, Troy, NY 12180
Phone: (518) 273-0055 Fax: (518) 273-8391
Web: www.chazencompanies.com

North Country Office
Phone: (518) 812-0513

RPA - Poestenkill NEWIIPIC

41822.00

Date: April 24, 2019
REVISED June 28, 2019

WETLAND RESTRICTING DIKES (Each)				
Description	QTY	Unit	Unit Price	Total Cost
Method A - Pile & Lagging/No Berm				
Mobilization	1	LS	$2,000.00	$2,000.00
14 - W6x12 Posts @ 6' long = 72 lb ea.	1,008	LB	$3.00	$3,024.00
Timber Lagging -	1,400	Bd. Ft	$5.00	$7,000.00
Install Piles	2	Day	$2,500.00	$5,000.00
Light Stone Fill	80	CY	$50.00	$4,000.00
Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
			Total Method A	***$22,524.00***
Method B - Earthen Berm w/ No Core				
Mobilization	1	LS	$2,000.00	$2,000.00
Light Stone Fill	20	CY	$50.00	$1,000.00
Earthen Embankment-in-Place	100	CY	$60.00	$6,000.00
Seed & Mulch	1	LS	$250.00	$250.00
Plantings	8	LS	$400.00	$3,200.00
Topsoil	150	SY	$40.00	$6,000.00
Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
			Total Method B	**$19,950.00**
Method C - Pile & Lagging w/ Berm				
Mobilization	1	LS	$2,000.00	$2,000.00
14 - W6x12 Posts @ 6' long = 72 lb ea.	1,008	LB	$3.00	$3,024.00
Timber Lagging -	1,400	Bd. Ft	$5.00	$7,000.00
Install Piles	2	Day	$2,500.00	$5,000.00
Light Stone Fill	35	CY	$50.00	$1,750.00
Earthen Embankment-in-Place	100	CY	$60.00	$6,000.00
Seed & Mulch	1	LS	$250.00	$250.00
Plantings	8	LS	$400.00	$3,200.00
Topsoil	150	SY	$40.00	$6,000.00
Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
			Total Method C	**$35,724.00**
Method D - Pre-Cast Concrete Gravity Block				
Mobilization	1	LS	$2,000.00	$2,000.00
36x36x72 block, In-Place	18	Each	$300.00	$5,400.00
Light Stone Fill	20	CY	$50.00	$1,000.00
Site Prep	1	LS	$2,000.00	$2,000.00
Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
			Total Method D	***$11,900.00***
			Annual Maintenance - All Options (Each) - (2 man-days+time on equipment)	**$1,300.00**
			Engineering Design & Environmental Permitting (Each Site)	***$18,000.00***
AVERAGE PROJECT BUDGET, EACH SITE				***$40,524.50***

[1] *Estimate is an opinion of probable construction costs based on approximate dimensions from the final design drawings.*
[2] *Assumes a mean length of dyke = 100'*
[3] *Assumes that the work of each site will not require a publicly bid contract*
[4] *Assumes that the average height of the dyke is 3.5'*

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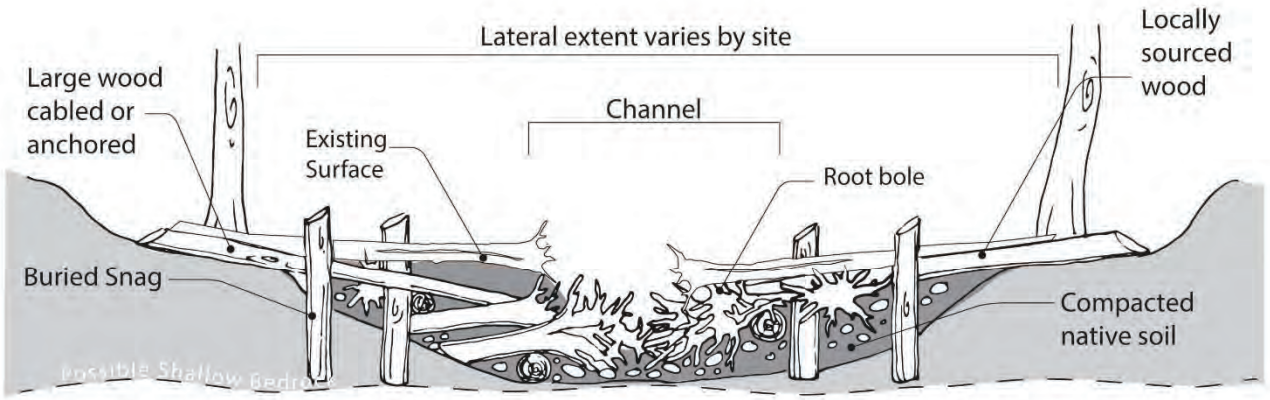
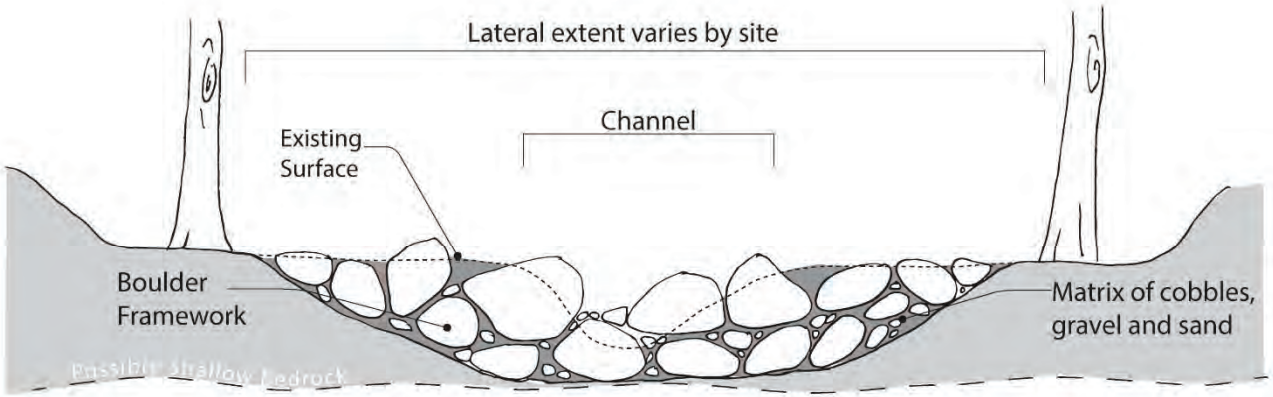


2a- Large Wood Cross-Sections N.T.S.
Replace native bed and bank material with large wood and root boles within a matrix of native soil

Interfluve Design 1

Concept 2. Option a: Measure to increase flood retention within wetlands on Bonesteel Creek using large wood



2b- Boulder Cross-section N.T.S.
Replace native bed and bank material with well-graded mixture of river rock, boulder and sand

Interfluve Design 2

Concept 3. Option b: Measure to increase flood retention within wetlands on Bonesteel Creek using rock