

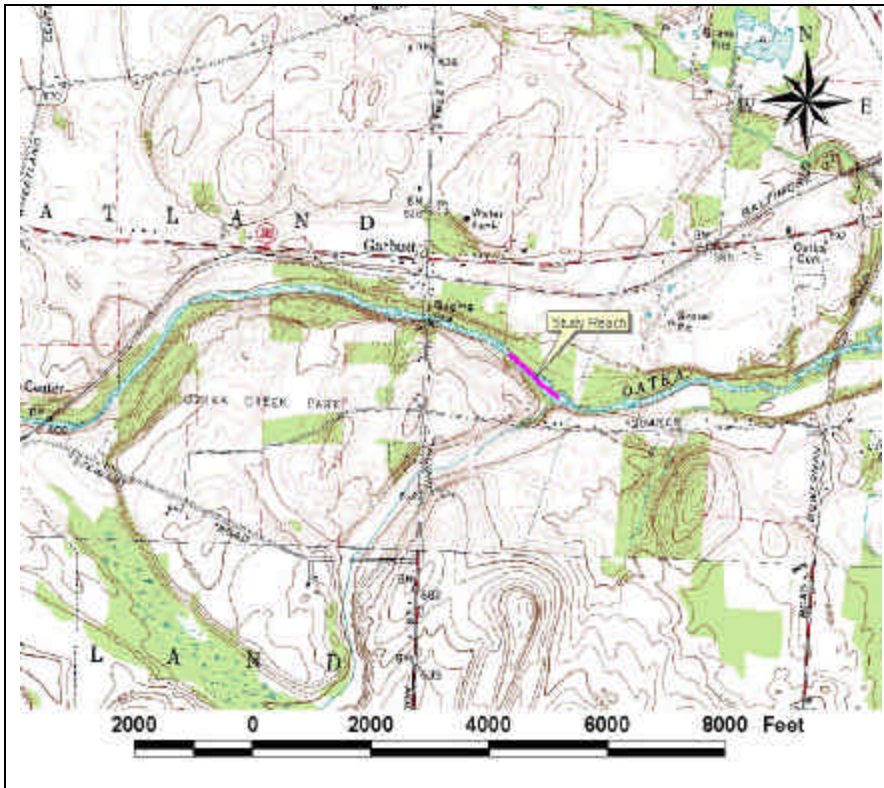
REFERENCE REACH FIELD FORM
STREAM CHANNEL CLASSIFICATION LEVEL II

STREAM TYPE: B3 grading into D3

STREAM NAME: <u>Oatka Creek</u>	DRAINAGE AREA: <u>200 square miles</u>	BASIN NAME: <u>Oatka</u>	
OBSERVERS: <u>F. Reese</u>		DATE: <u>11/16/2004</u>	
LOCATION: <u>Oatka Creek, one-half mile east of Union Street bridge, Town of Wheatland, Monroe County</u>		Latitude <u>43°00'25"</u> Longitude <u>77 ° 47'03"</u>	
		Type(s) <u>Wampsville K cobble loam Factor 0.20 K Eel silt loam Factor 0.43 Genesee silt K loam Factor 0.43</u>	

Bankfull WIDTH	203	Ft.(W _{bkf})	Bankfull MAX>DEPTH	6+	Ft.(d _{max})	Channel SLOPE	0.0023	Ft/Ft		%
Bankfull Mean DEPTH	3.5	Ft.(d _{bkf})	Flood Prone Area WIDTH	370	Ft.(W _{FP})	Valley SLOPE	0.0015	Ft/Ft		%
WIDTH/DEPTH Ratio	57		ENTRENCHMENT Ratio	1.82		SINUOSITY (Stream Dist/Valley Dist.)	1.12			
Channel MATERIALS: (Pebble Count)			D50		mm	D84		mm		

Note: This stream channel was observed from the south channel bank. Measurements of depth were estimated from the height of the bank, and from information provided by K. Stollery, the property owner. Flood prone width is estimated from USGS data.



Oatka Creek at 1198 Quaker Road, Site Location Map



2002 Aerial Photograph, 1198 Quaker Road



Erosion on south bank of Oatka Creek at 1198 Quaker Road. Note slumping from undercutting of clay bank.



Single remaining black willow tree holds bank in place. Root system is completely exposed.



View of south bank of Oatka Creek, looking west (upstream) from leaning willow tree in photo above. Current has scoured a large indentation in the south bank.



View of exposed willow tree and mowed bank looking upstream.



View of Oatka Creek looking downstream (east) from exposed willow tree point.



View of mid-channel island in Oatka Creek, opposite scour hole.

Site Description: This site is located approximately one-half mile east of the U.S.G.S. gaging station at Garbutt (adjacent to the Union Street bridge over Oatka Creek). The property is privately owned. The owner, Ms. Kathy Stollery, has lived on the property for more than fifty years. Ms. Stollery leases access rights to a private fishing club. With the exception of a mowed area along the south bank, both banks of the creek are well vegetated.

Land use on the south side of the creek is predominantly large-lot residential. On the north side of the creek, the land is heavily wooded for a distance of 400-500 feet back from the creek bank.

Ms. Stollery is concerned that the south bank has been scoured about 30 feet south from the original bank location. The scoured bank appears to be a fine textured clay material with a few stones. A steep bank is located approximately 60 feet south of the top of bank. Ms. Stollery noted that the creek bank has been eroding toward the steep embankment. A perennial stream channel forms a confluence with the Oatka immediately east of Ms. Stollery's property.

Two islands are also located opposite the scoured area. The main channel is divided as it flows around these two islands. Ms. Stolley reported that she owns land on both sides of the creek.

Statement of Problem: This site was selected because it reportedly generates a large amount of sediment into the Oatka system, and Ms. Stollery is willing to cooperate with proposed remedial measures. She noted that the creek erodes about 2-3 feet per year on the south bank, enlarging a natural scour hole. She currently mows most of the flat area adjacent to the creek. She says the bank used to support many large willow trees, which have been undercut and uprooted by frequent flood events.

The biggest problem is a bifurcated riffle at the head end of the meander on Ms. Stollery's property. This riffle has split into two thalweg zones, directing the flow against both banks of the creek. The largest flow comes toward her south bank, creating the meander measured above. The south bank is clay, which has become undercut, causing sloughing into the creek. Sloughing has created a mid-channel bar slightly downstream and opposite of the meander. High flows continue to erode this bank. Bank height is approximately 4.5 ft. Water depths in the scour hole are over 5 feet in the center.

Proposed Remediation/Restoration Methods:

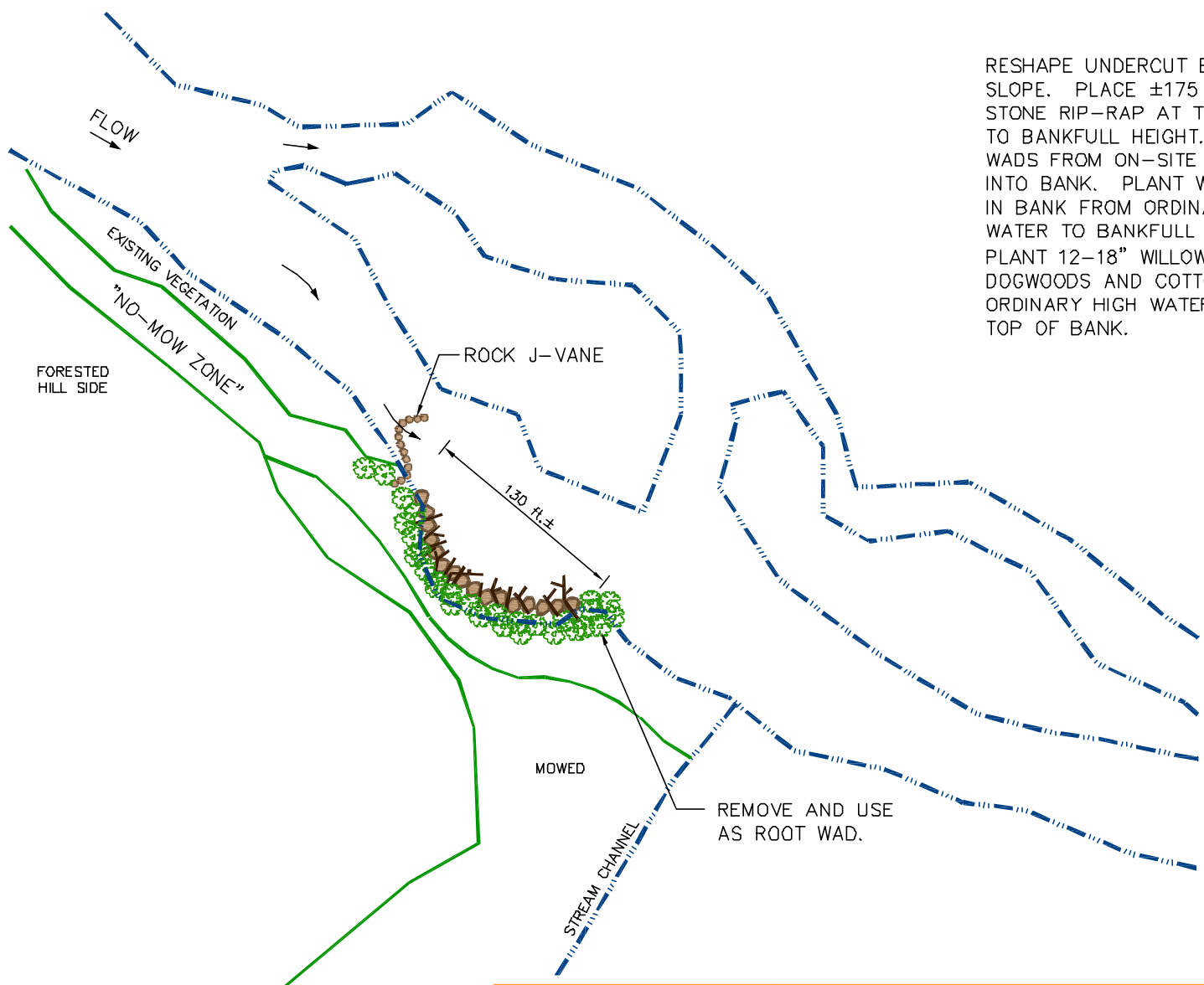
Note: No work is proposed for the north side of the creek, except to obtain plant materials (willow stakes and logs) for use in bank stabilization and restoration on the south side.

1. Establish a 25-50 ft. "no-mow" zone adjacent to the creek
2. Remove existing in-stream obstructions (logs, stones, etc.) directing current toward scoured bank.
3. Plant willows, dogwoods, and cottonwoods to re-establish riparian vegetation on the south side of the creek.
4. Construct a rock J-vane (stream barb) upstream of the scour zone to re-direct flow into the main channel.
5. Embed approximately 175 feet of stone riprap, and on-site rootwads at the toe of the scoured bank. Backfill to 1:2 slope and stabilize with willow stakes. Plant top of bank with dogwood and cottonwood to match existing riparian vegetation.

Cost Estimate:


Item	Unit	Unit cost	Extended Cost (\$)
Heavy stone rip rap (24 in.+) at toe of slope	175' x 6' x 2' (77 cy)	46	3542
Soil backfill (cy)	230	16	3680
Topsoil (cy)	30	16	480
Rock J-vane (cy)	15	46	690
Root wads (constructed from on-site and nearby materials)	10	50	500
Willow stakes (if purchased)	80	8	640
Woody plantings (if purchased)	70	15	1050
Coffer dam	ea.	10,000	10,000
Mobilization fee for earthwork	ea.	600	600
Plans and permits	ea.	6000	6000
Detailed survey	ea.	2000	2000
Estimated Project Cost			29182

Conceptual Plan Sheets/Standard Details



RESHAPE UNDERCUT BANK TO 1:2 SLOPE. PLACE ±175 LF OF HEAVY STONE RIP-RAP AT TOE OF SLOPE TO BANKFULL HEIGHT. EMBED ROOT WADS FROM ON-SITE MATERIALS INTO BANK. PLANT WILLOW STAKES IN BANK FROM ORDINARY HIGH WATER TO BANKFULL ELEVATION. PLANT 12-18" WILLOWS, SILKY DOGWOODS AND COTTONWOODS FROM ORDINARY HIGH WATER MARK TO TOP OF BANK.




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OATKA CREEK AT 1198 QUAKER ROAD
CONCEPTUAL DESIGN

STREAM RESTORATION STUDY AREAS

P.N. 32502

DATE:	MARCH 2005
APPROX. SCALE:	1" = 100'
DRAWN :	DLS
CHECKED:	FAR