DETERMINATION OF UPPER DEVONIAN SAND BODY ARCHITECTURE IN WESTERN NEW YORK STATE

Final Report

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Abstract

Sandstone lenses create confusion in correlation and exploration within the Upper Devonian sedimentary system of Western New York and Pennsylvania. Examining both data collected from well-logs with depositional markers and paleoflow indicators measured in outcrop, we have identified common trends and morphologies for oil and gas reservoir sandstones. Sandstones and coarser-grained deposits typical occur as turbidite, shelf-ridges, shorefaces or fluvial deposits. Comparing the Upper Sandstone trends with faults that are known to have been syndepositionally active, it can be shown that many of the depositional trends coincide with documented and proposed faults.

The Lower Rushford Member is comprised of coarser-grained shoreface deposits and can be shown in both isopach and in paleoflow trends to mark a change in paleoshoreline from a north-south direction to a northeast-southwest direction. Structural controls of north-south trending faults strongly influence deposition of the Lower Rushford Member in the northern area of Cattaraugus and Allegany counties.

Overlying stratigraphic units, exhibit as strong, storm-influence on the depositional environment; however the main trends to the sandstone bodies is still northeast-southwest with several structurally controlled/influenced trends.

The basal conglomerates of the Conewango Group can be shown to represent incised valley deposits and represent another change in the paleoshoreline.

Acknowledgements

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SUMMARY

Understanding the architecture (shape, size and orientation) of reservoir sandstone enables more efficient exploration and more accurate modeling of oil and gas plays. The Upper Devonian sandstone reservoirs of western New York and Pennsylvania form historically productive oil and gas plays, yet the majority of sandstones are described only as lenses without coherent organization or predictable pattern. Our study incorporates outcrop and well-log data to characterize sandstone packets within the Canadaway, Conneaut and Conewango groups in Allegany and Cattaraugus counties.

The Lower Rushford Member is comprised of three, stacked shoreface sequences in outcrops which we were able correlated to well-logs in the major oil pools in New York State: Bradford, Scio, Richburg, Clarksville, Fulmar Valley and Beech Hill – Independence. The shoreface deposits of the Lower Rushford Member trend northeast-southwest along the southern border of the study area, apparently following basement faults of similar trend. North-south trending shoreface deposits occur in the northern part of the study area, following syndepositionally active faults of the Clarendon-Linden Fault System and similar faults to the west. Thickness of the reservoir sandstone range from 13 to 37 meters; widths of the sandstone bodies range from 3 to 13 kilometers and lengths are often controlled by fault length range from 12 to 20+ kilometers.

The overlying sandstones reservoirs of the Machias, Cuba, Wellsville, Hinsdale and Whiteville formations are strongly modified by storm activity, with paleoflow indicators displaying combined-flow through-out the region. Structural control or influence is typically inferred for controlling trends of the storm deposited sandstones.

The Machias 1st Sandstone packet we interpret to be the correlative of oil reservoirs of the Chipmunk, Bradford 2nd and Tiona sands. The Machias 1st Sandstone packet typically occurs in northeast-southwest trending storm-generated shelf-ridges and/or barrier bars that form along northeast trending faults. Thickness ranges from 15 to 37 meters; widths range from 3 to 11 kilometers and lengths range from 8 to 22 kilometers.

The Machias 2nd Sandstone packet forms along a northwest trend that we interpret to represent an accommodation remnant. Thickness ranges from 9 to 12 meters; width ranges from 5 to 10 kilometers and length ranges over 30 kilometers.

The Machias 3rd Sandstone packet occurs in structurally controlled/influenced storm-generated shelf-ridges orientated north-south and northeast-southwest. Thickness ranges from 15 to 24 meters; widths range from 4 to 9 kilometers and lengths range from 8 to 18 kilometers.

The Machias 4th Sandstone packet occurs in structurally controlled/influenced storm-generated shelf-ridges and/or barrier bars orientated north-south and northeast-southwest. Thickness ranges from 18 to 31 meters; widths range from 3 to 9 kilometers and lengths 12 to 40 kilometers.

The Cuba Formation is comprised of storm-generated shoreface/barrier bars preserved in smaller fault-bounded accommodation remnants generally trending northeast-southwest but forming a broader region in the southeastern part of the study area. Thickness ranges from 15 to 34 meters, width range from 3.5 to 16 kilometers and lengths range from 12 to 20 kilometers.

Upsection from the Cuba Formation, sandstone packets for the Wellsville, Hinsdale and Whiteville formations are more difficult to trace from well-log to well-log due to fewer well-logs containing the higher stratigraphic section. Paleoflow indicators measured for the Wellsville, Hinsdale and Whitesville indicate similar northeast-southwest trend to the paleoshoreline, which suggests trends for the sandstones should be similar to those observed in the Machias and Cuba formations.

The base of the Conewango Group is marked in some locations by a thick (up to 12 meters), orthoquartzite conglomerate that we have interpreted as incised valley fill. The Salamanca, Panama, Wolf Creek and similar Upper Devonian conglomerates mark the locations of lowstand rivers/transgression estuaries. The Salamanca Conglomerate was carefully examined at outcrops occurring in Little Rock City, north of the city of Salamanca, New York and within Allegany State Park to measure paleoflow variations. The lower, thicker foresets indicate the river valley trended northwest-southeast. The higher, tidal and transgressive deposits show a change to a more north-south trend.

Sandstone packets within the Cattaraugus and Oswayo formations occur infrequently in both well-logs and outcrops and did not provide adequate data to determine trends or dimensional ranges.
Depositional models for barrier bars and shelf ridges suggest a likelihood of parallel trending sandstone bodies north of the main explored oil and gas reservoirs along the southern New York border.

Section 1
INTRODUCTION

The Devonian stratigraphic section is well represented in outcrop in the Appalachian Basin, with significant continuous sections occurring within New York State. Correlations of Lower and Middle Devonian stratigraphic units can be carried across long distances throughout the basin, but Upper Devonian stratigraphic correlations become difficult not only over long distances, but also over a township or across a river valley. The difficulty arises from a combination of deposition within an energetic system and recurring seismic activity, which modified the basin topography.

The reservoir sandstones of the Upper Devonian in New York and Pennsylvania are commonly conceptualized as "discontinuous bodies within marine shales" (Woodrow, et al., 1988). A multitude of names based upon the field location, rather than the stratigraphic unit, reflects the difficulty in correlation of Upper Devonian units on the basis of lithology. The problem is the lateral variability of sandstone and conglomerate units, referred to as lenses or lentils from 1902 onward (e.g., Clarke, 1902; Glenn, 1903; Tesmer 1955). The term "lens" provides an inadequate description of the unit, since sand-filled channels, sand ridges and remnants could all imply a lensing morphology (Figure 1). It is the tacit expectation that sedimentary units maintain a constant lateral thickness and lithology that in part drives the perception of lensing sandstones and the inability to correlate over long distances. Lateral variation is inherent in

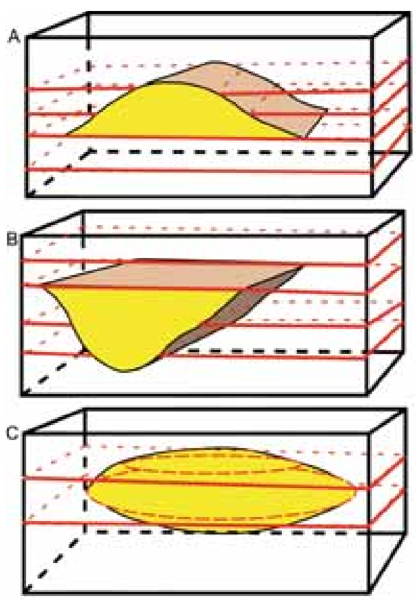


Figure 1. Variations in morphologies for lenses. A - ridge; B channel; C - erosional remnant.

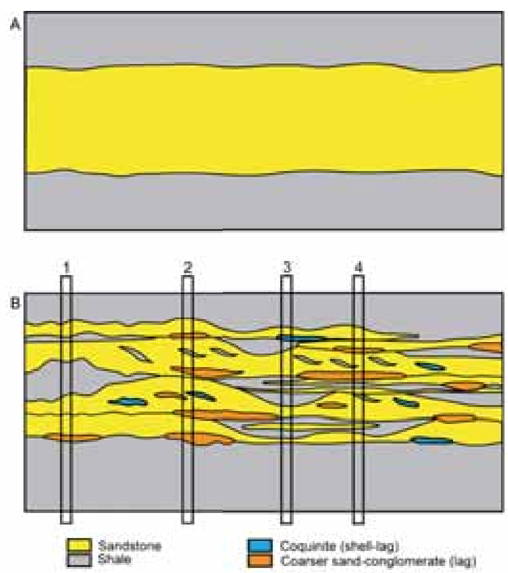


Figure 2. A - homogeneous sand body that rarely occur but are assumed to represent any correlateable sandstone. B - hypothetical example of a normal sandstone packet made up of several events with a distinct heterogeneous lithology. If a wells were drilled a locations 1, 2, 3, or 4 the logs would yield a "lensing" characteristic that is due more to lateral variation than morphology.

sandstone deposition; whether a tidal unit possesses internal mud-drapes or a tempestite contains basal coquina lags, the unit will not be laterally homogeneous in a shallow marine environment. Monolithic sands units of constant thickness will not form in typical clastic depositional environments; instead, a sand-packet comprised of several events will generate a thick sand unit. Accompanying this problem is the extrapolation of essentially point source data (well-logs) to reflect a broader area. A well-log will provide geophysical data for a narrow window surrounding the well-bore; two wells in the same sand-packet may yield different log responses, and therefore suggest no possible correlation between the wells, whereas outcrops would readily demonstrate that the two wells were sampling the same unit (Figure 2).

The chosen locality contains the Upper Devonian groups that comprise major oil (and gas) reservoir units in New York State. The sandstones in the upper part of the Canadaway and Conneaut groups are correlatives to the Bradford sands in Pennsylvania, while the sandstone and conglomerates in the Conewango Group are correlative to the Venango sands in Pennsylvania (Figure 3). Examination of the boundaries of the reservoirs shows a strong relationship between faults and the oil fields (Figure 4 and 5). Syndepositional faulting along the Clarendon-Linden Fault System has controlled the orientation of clastic deposits in Allegany County (Smith and Jacobi, 1996, 1998, 1999, 2001). Similar reactivation along other north-south trending faults in Cattaraugus County also influenced the depositional trend of Upper Devonian reservoir and source rocks. Other trends, such as the NE-trends, have a more complicated origin. Certainly Alleghanian folds form the structural closure that controlled many of the well-known fields such as the Sharon-Smethport anticline and pool. However, in addition, Iapetan opening faults that arc through Pennsylvanian and New York were reactivated and these fault-block reactivations controlled the depositional fabric of many of the sands, such as the Bradford field and the Elk sands (Jacobi et al., 2004, 2005, 2006). The occurrence of northeast-trending sedimentary deposits such as shorelines and sand-ridges were assumed to follow the paleoshoreline. Reconstruction of Devonian paleoshorelines in West Virginia, Maryland and Pennsylvania by Boswell and Donaldson (1988), Dennison (1985) were derived from well-log data, based upon the sand-percentage for a particular stratigraphic unit. Basinward limits and orientations for similar time periods seldom agree. For example paleoshorelines 4&5, 6&7 in Figure 6 both represent similar time periods in the Conneaut and Conewango groups, yet display differing trends in New York State. The coincidence between the basement structure and the location of the sedimentary deposits suggested that the paleoshoreline itself may have been controlled by reactivation of the Iapetan opening/Rome Trough fault system (Jacobi et al., 2004).

It is the intention of this study to correlate the "discontinuous bodies within marine shales", determine the architecture (size, shape and orientation) of the different sandstone packets and examine controls on the location and architecture of the sandstone packets. By understanding the architecture of the sandstone packets and what is controlling that architecture it is possible to better characterize known reservoirs and extrapolate the potential into unexplored locations.

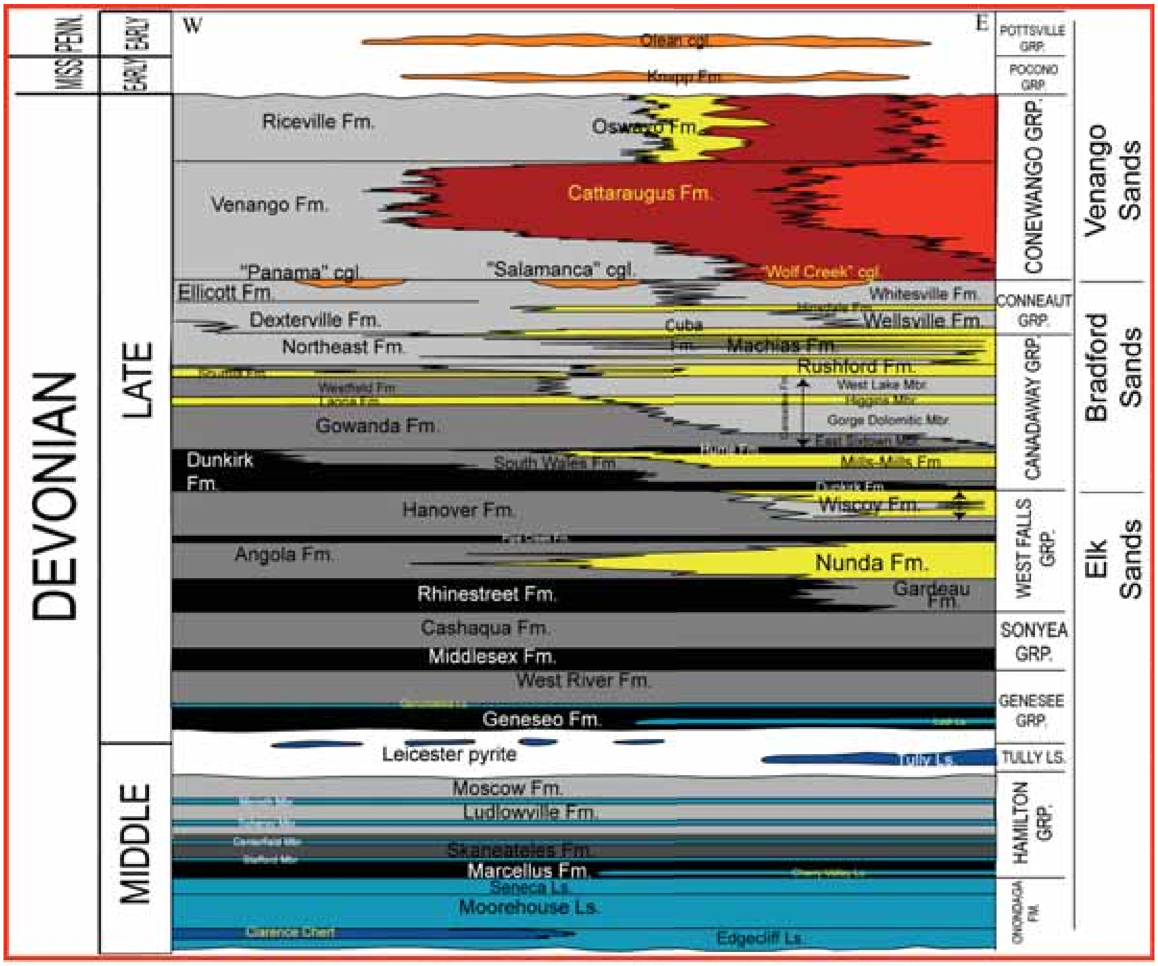


Figure 3. Devonian stratigraphic section for western New York State displaying oil and gas equivalent units. Based upon Rickard, 1975.

STUDY AREA LOCATION

The study area is comprised of 46 7 ½' topographic quadrangles that cover the majority of Allegany and Cattaraugus counties (Plate 1A). The study area expands upon 15 years of fieldwork we have conducted in and around the Allegany – Cattaraugus county region. Drawing from, and building upon, our previous work enabled us to study a large area in short time period. The outcrop within the area consists of Upper Devonian sandstones and shales from the West Falls, Canadaway, Conneaut and Conewango groups, occurring in streams exposures and road cuts. While a substantial number of oil and gas wells occur within the study area; the overwhelming majority of wells are located near the southern border of New York State, leaving a sporadic covering of wells for approximately ¾ of the study area.

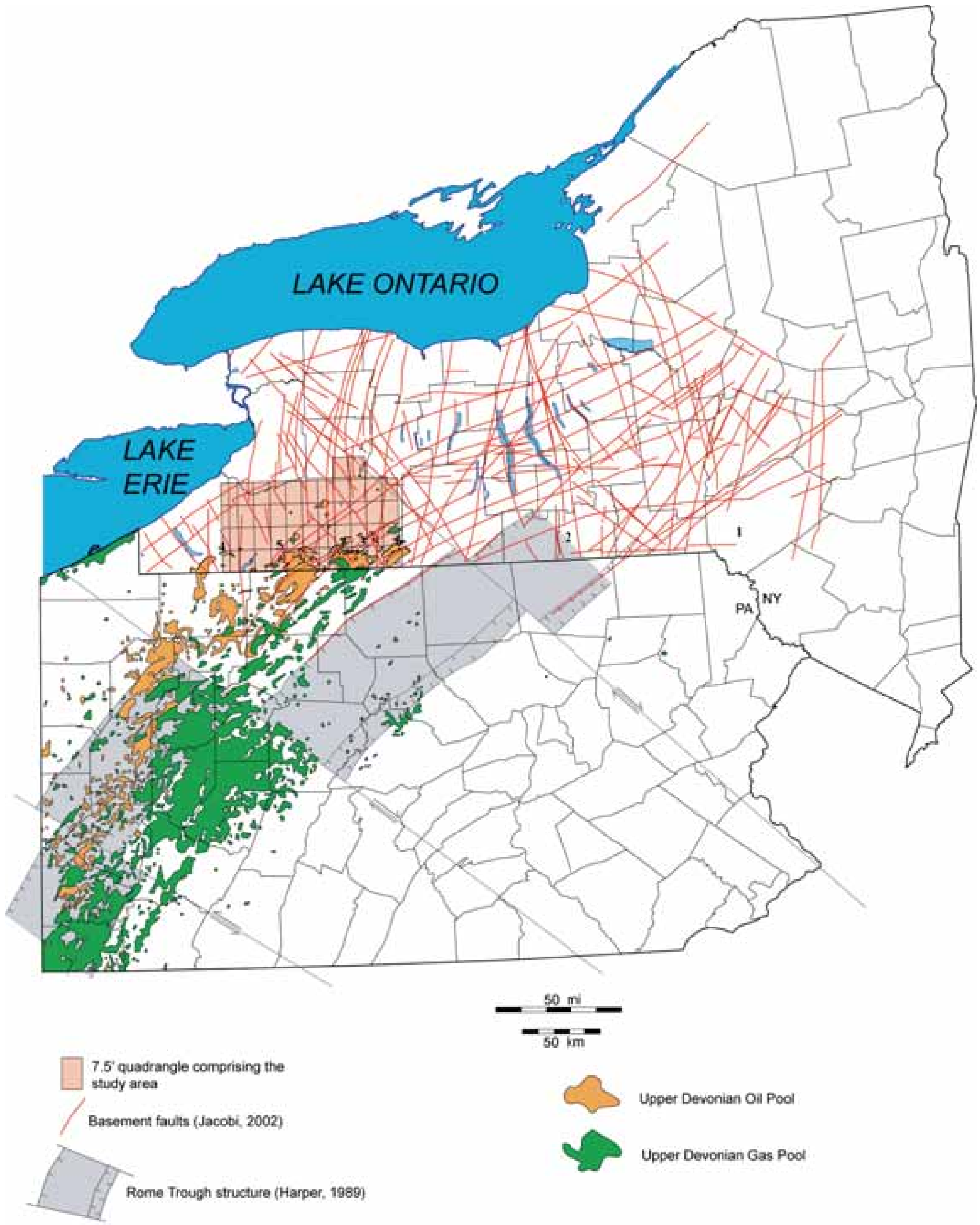


Figure 4. Upper Devonian oil and gas fields in relation to known and proposed basement structrures

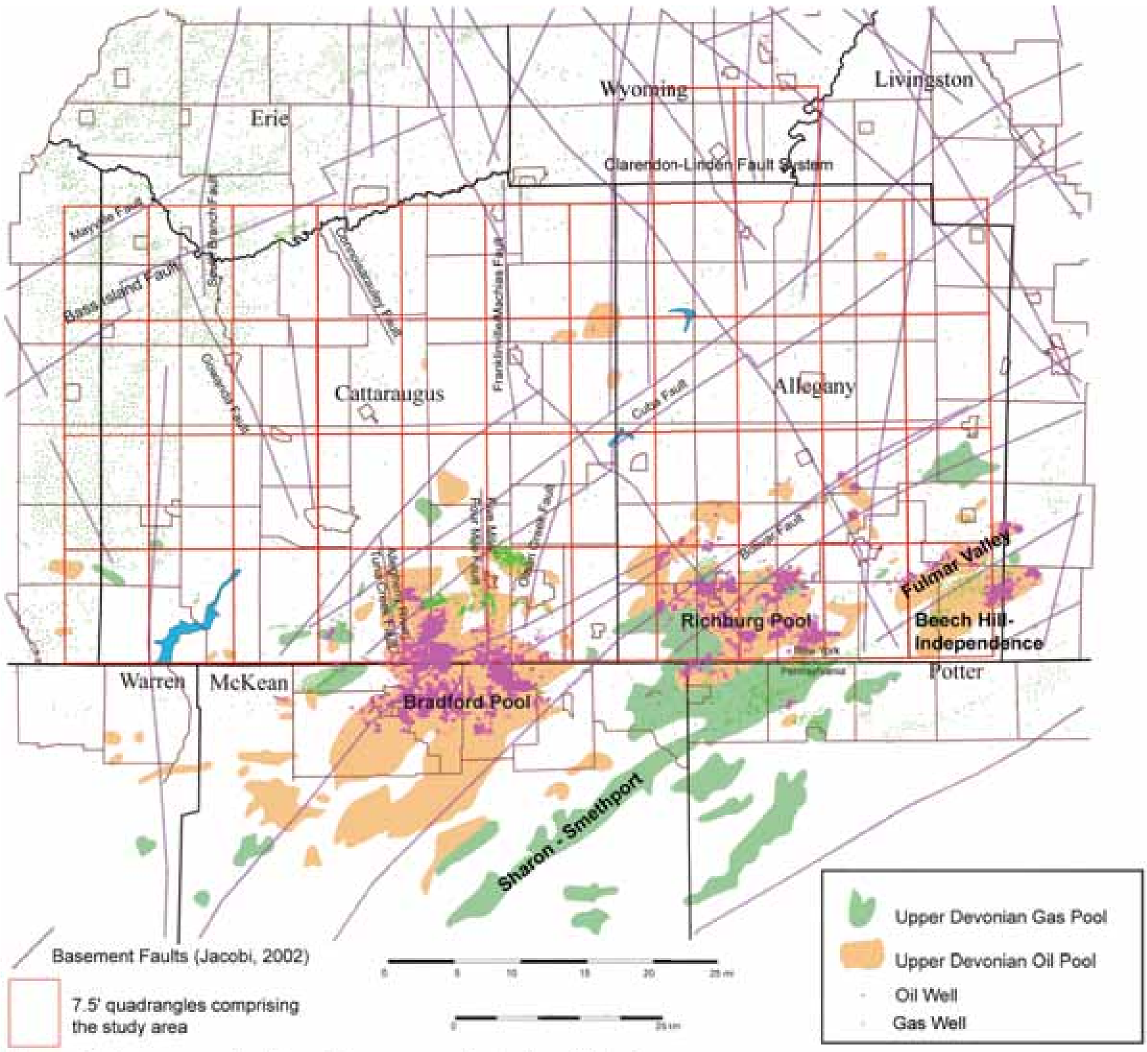


Figure 5. Closer examination of the apparent relationship between oil and gas fields with basement structure.

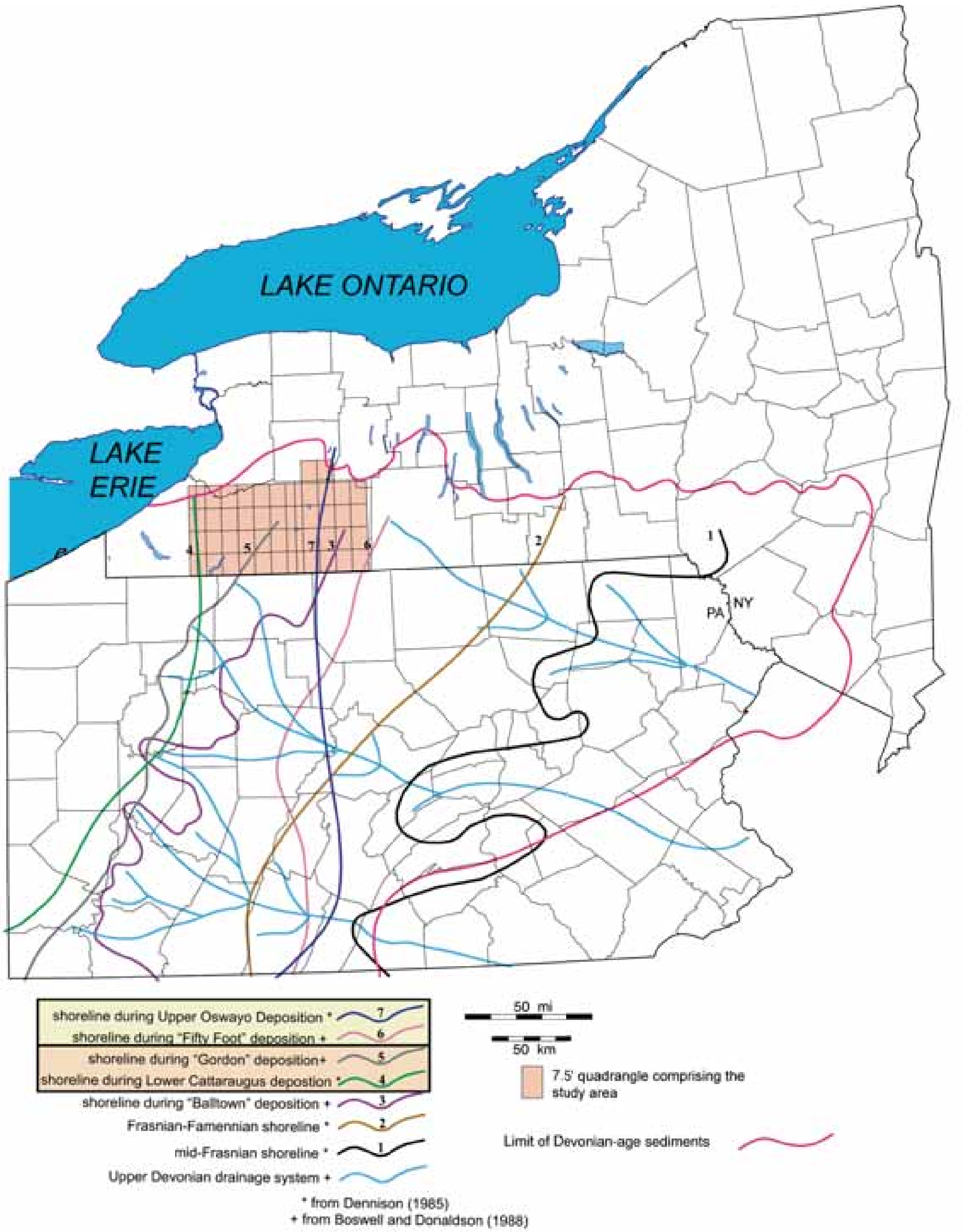


Figure 6. Paleoshorelines for different periods of the Upper Devonian. Note the "boxed" units (4&5, 6&7) represent very similar time frames in the Late Devonian.

METHODOLOGY

The sedimentological and stratigraphical data were collected from 1991 through 2006 At each site, the location of the outcrop was obtained in recent years using a Garmin 76CSx GPS, and location coordinates were transferred to USGS 7 1/2' topographic maps. In earlier years, we used the topographic maps to locate the sites. The stratigraphic thickness of each distinct lithological unit was measured to the nearest millimeter; all sedimentary and bedding structures were also recorded for each bed.

Measurement of paleoflow orientations were taken with a Brunton compass corrected for the magnetic declination for the quadrangle studied at the time. Each outcrop was also carefully examined for trace fossils so that the ichnology and changes in ichnofauna could be used to supplement interpretations of the depositional environment. Annotated, scaled stratigraphic columns were made in Adobe Illustrator for each measured site.

Well log analyses were performed using scanned well-logs provided by the New York State Museum and the well-log viewer BlueView by Schlumberger. Only the gamma ray curves were examined, to enable consistent formation picks between wells. Of the 418 wells examined, 125 gamma-ray curves were hand digitized in Adobe Illustrator to 1) allow better comparison between wells with different vertical scales, 2) enable the comparison between wells and outcrop stratigraphic columns, and 3) use both wells and outcrops in cross-sections. Only Devonian formations were examined for the purpose of this study. Well-log data were then entered into a GeoGraphix database, along with outcrop data for the Dunkirk Fm., Hume Fm., Lower Rushford Mbr., Machias 1st Sand, Cuba Fm. and Hinsdale Fm., to enable the generation of isopach and structure contour maps. Contouring in GeoGraphix was performed using a Kriging function at 30 iterations, without a geological bias to the data. The resulting contours were not subsequently modified to avoid imposing intentional or unintentional biases to the mapping.

STRATIGRAPHIC NOMENCLATURE

One of the persistent problems in Upper Devonian stratigraphy is the plethora of unit names that can refer to 1) the same unit (but with different names), 2) any oil-producing unit, 3) regional location of the well, 4) part of the same unit but with different tops or bases, and 5) a gross simplification of several units into one catch-all name.
For this report, we will follow the lithostratigraphic names that use outcrop-defined units that we have established in earlier studies (i.e., Smith and Jacobi, 2000 and 20011; Smith 2002) (Table 1). The annotated list of examined units (in stratigraphic order from lowest in the section to the uppermost units) are shown in Plate 1B.

Pennsylvanian		Pottsville Grp.	Olean Cgl.	
Mississippian		Pocono Grp.	Knapp Creek Fm.	
DEVONIAN	Famennian	Conewango Grp.	Oswayo Fm. ★	
			Cattaraugus Fm.	
			Salamanca Cgl. ★	
		Conneaut Grp.	Whitesville Fm. ★	
			Hinsdale Fm.	
			Wellsville Fm. ★	Wellsville 3rd
				Wellsville 2nd
				Wellsville 1st
			Cuba Fm.	
		Canadaway Grp.	Machias Fm. ★	Machais 4th
				Machias 3rd
				Machias 2nd
				Machias 1st
			Rushford Fm.	Upper Rushford Mbr. ★
				Intermediate Rushfrod Mbr.
				Lower Rushford Mbr.
			Caneadea Fm.	West Lake Mbr.
				Higgins Mbr. ★
				Gorge Dolomitic Mbr.
				East Sixtown Mbr.
			Hume Fm.	
			Mills-Mills Fm. ★	
			South Wales Fm.	
			Dunkirk Fm.	
	Frasnian	West Falls Grp.	Wiscoy Fm.	
			Hanover Fm.	
			Pipe Creek Fm.	
			Nunda Fm.	
			★ - see text for additional comments	

Table 1. Stratigraphic units for outcrop in Allegany and Cattaraugus counties

Some noted changes and observations in this stratigraphic section include:

Mills-Mills Fm. – We had commonly used the name Canaseraga Fm (Chadwick, 1923) as the formal name for this unit (i.e., Smith and Jacobi, 1998, 2000 and 2001), but upon further study, the Canaseraga Fm., as defined by Chadwick (1923) encompasses both the South Wales Fm., and sandstones we refer to as the Mills-Mills Fm. Since both the South Wales and Mills-Mills formations are distinct lithologically and both are mappable over a large areal extent, it seems reasonable to identify the Mills-Mills as a formation, and to be correlative to only part of the Canaseraga Fm.

Higgins Mbr. (Caneadea Fm.) – This unit is the probable eastern correlative of the Laona Fm., and contains the stratigraphically lowest seismite zone observed within the Canadaway Grp.

Upper Rushford Mbr. (Rushford Fm.) – This unit is comprised of several lensing sandstones that are relatively thin (1-2 meters) in Allegany County, but form a thicker (3-6 meter) sandstone packet in Cattaraugus County.

Machias Fm. – The original description by Chadwick (1923) described the Machias Fm. as primarily shale. Later studies by Woodruff (1942) and Manspeizer (1963) noted one or two thick sandstones and/or limestones. From outcrops examined during the past 15 years of fieldwork, as well as from well-log analyses, we have informally identified four traceable sandstone packets referred to as the Machias 1st through 4th.

Wellsville Fm. – This unit is similar to the Machias Fm.; we have informally identified three traceable sandstone packets: Wellsville 1st through 3rd.

Whitesville Fm. – although we observed several thick (1-3 meters) sandstone packets in outcrop, too few examples occurred to provide convincing correlations.

Salamanca Conglomerate – likely to be correlative to similar conglomerates at Wolf Creek and Panama, NY; each separate conglomerate possibly representing a separate incision valley formed during the same lowstand-transgressive sequence(s) marking the base of the Conewango Grp. Elevation variation between the separate localities may reflect different depth of valley incision, as well as later faulting.

Oswayo Fm. – depending on the classification system, the Oswayo Fm. is considered Mississippian-age in Pennsylvania, but in New York it is the uppermost Devonian unit.

PALEOGEOGRAPHY

There are three main controls on any depositional environment: sealevel, structure and sediment supply. The interplay of all three controls will affect what can be deposited or eroded, as well as the size, shape and orientation of the final deposits.
The Acadian Orogeny began during the Early-Middle Devonian, forming the Acadian Mountains (the primary sediment source for the study area) and the Acadian Foreland Basin (the northern area referred to as the Catskill Sea) (e.g., Woodrow and Isley, 1983).

Paleomagnetics studies (Ziegler et al., 1979; Ziegler, 1988; Witzke and Heckel, 1988; Scotese and McKerrow, 1990 and Witzke, 1990) vary in exact placement of paleolatitudes for the study area, but generally concur that the area was located in the tropical region of the southern hemisphere, 15^{o} and 30^{o} S. The paleogeographic location of the study area (Figure 7) has two significant effects: 1) the Catskill Sea would have counterclockwise surface current rotation such that longshore currents would trend from the southwest to the northeast; 2) the region would likely be affected by a monsoonal climate, alternating wet-dry seasons, with intense, large storms.

Woodrow and Isley (1983) suggested that the Catskill Sea did not include the main bathymetric provinces of shore-shelf-slope-basin found in passive margin models; rather a gently sloping clinoform formed the margin. Such a province may be common for foreland basins (e.g., Pattison, 2005). The steady, shallow slope of the Catskill Sea would lead to a lateral gradation of clastic deposits that would shift dramatically with minor fluctuations in relative sealevel. Although the gently sloping clinoform of Woodrow and Isley (1983) describes the overall nature of the Catskill, it does not reflect smaller topographic variations within the basin caused by continual fault reactivations occurring during Late Devonian.

From earlier studies (Dennison, 1985; Boswell and Donaldson, 1988); the paleoshoreline during the Frasnian-Famennian boundary was approximately located in New York in Tioga County and trended north-northwest (Dennison, 1985) (Figure 6). During later time periods, the trend of the migrating shoreline was determined from well-log studies in the Pennsylvania and West Virginia on the basis of sand-percentage (Dennison, 1985; Boswell and Donaldson, 1988). The proposed shorelines tended to become less well defined towards the Pennsylvania-New York border which may reflect the northern limits of these earlier studies. The migration of the shoreline for the period of the Late Devonian can be related to eustatic sealevel changes (Figure 8) (Johnson et al., 1985) and relative sealevel changes for the Canadaway Group (Smith and Jacobi, 2001) and the Conneaut and Conewango groups (Smith, 2002) (Plate 1B). The results from the data collected and well-log and paleoflow analyses for this study will discuss shoreline trends for New York, and why they differ from the results of Dennison (1985) and Boswell and Donaldson (1988)

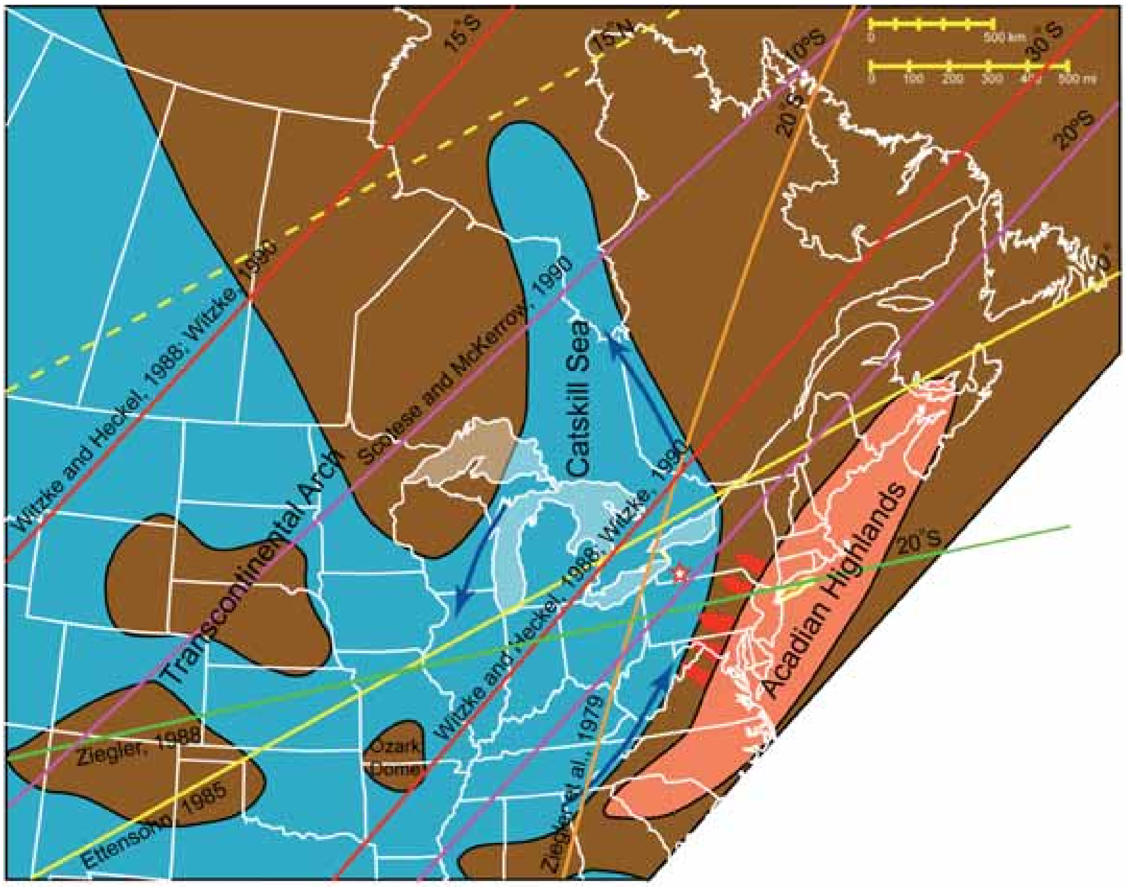


Figure 7. Catskill Sea paleogeography created by incorporating concepts from Ettensohn (1985), Ziegler (1988), and Witzke and Heckel (1988). The variations in paleolatitudes exhibits the difficulties in obtaining data that has not been over-printed by the later Alleghenian orogeny, but all place the study area (marked by the star) in the southern hemisphere for 5° to 32° south latitude.

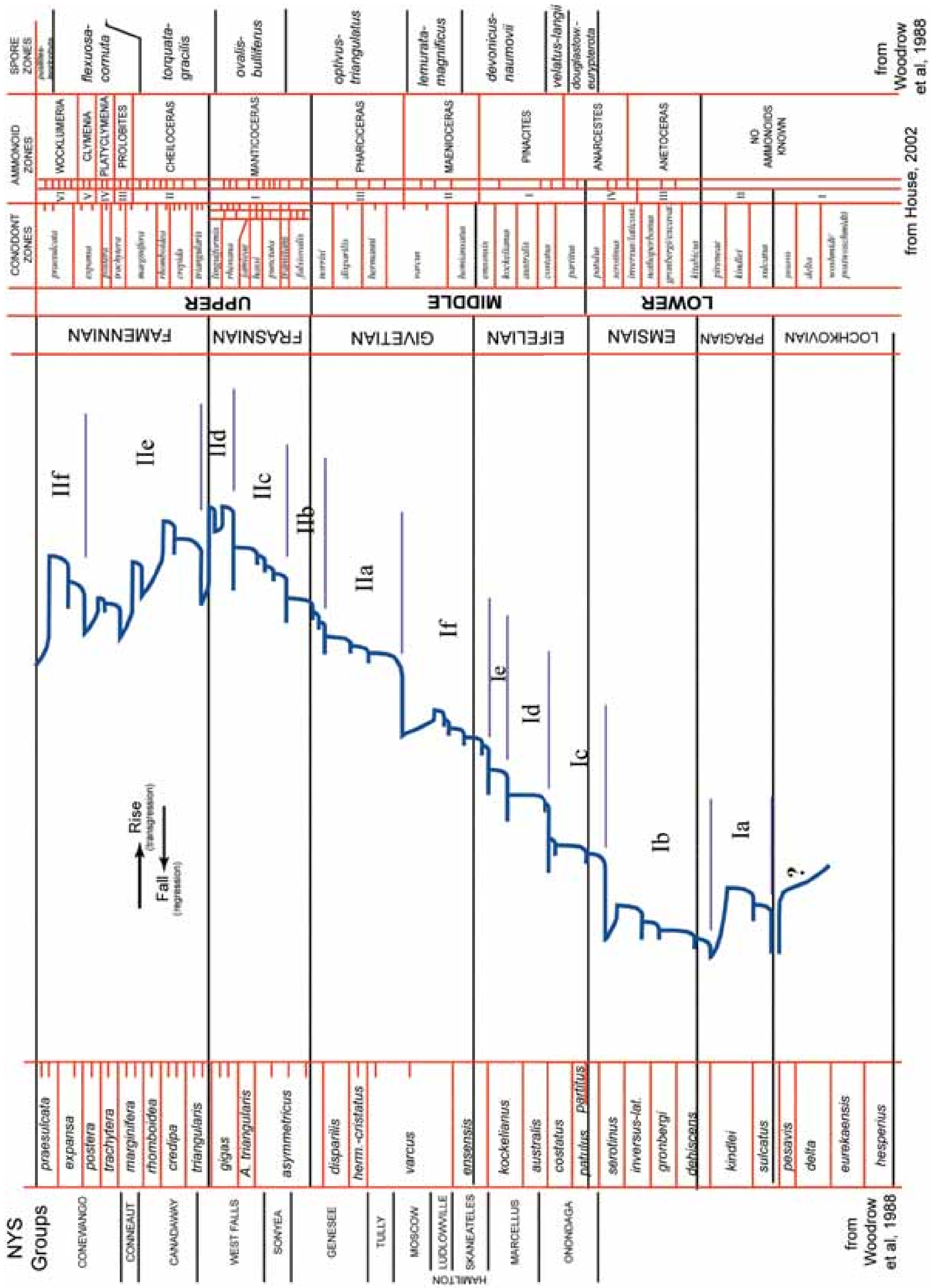


Figure 8. Eustatic sealevel curve from Johnson and others (1985) with biostratigraphic zones from Woodrow and others (1988) and House (2002).

While the gentle clinoform of Woodrow and Isley (1983) describes the overall nature of the Catskill; it does not reflect smaller topographic variations within the basin caused by continual fault reactivations occurring during Late Devonian.

TECTONICS AND REGIONAL STRUCTURE

Basement structures within the study area reflect the early geological history of eastern North America (see Plate 1A and Figures 4 and 5). A reactivated intra-Grenvillian suture zone is locally expressed in the Paleozoic section as the north-south trending Clarendon-Linden Fault System (Jacobi and Fountain, 1993, 1996, and 2002). The north-south trending Clarendon-Linden Fault System was documented at the surface by Chadwick (1920) and later described in subsurface by VanTyne (1975).

Faults associated with Iapetan-opening/Rome Trough development are expressed as northeast-trending basement structures with complimentary northwest-trending cross-structures (Jacobi, 2002; Jacobi et al., 2004, 2005, and 2006). Syndepositional reactivation of these basement structures have been observed in seismic sections for the Ordovician Taconic Orogeny (Jacobi et al., 2004 and 2005) and for Devonian Acadian Orogeny (Jacobi, 2002; Jacobi and Fountain, 1996 and 2002). Syndeposition faulting is observable in the stratigraphic section; growth fault geometries are observed in the Upper Devonian Hume and Rushford formations (Smith and Jacobi, 2000, 2001 and 2002).

Further evidence for syndepositional fault activity are the numerous zones of seismites. Seismites are formed by the sudden dewatering of uncompacted sediments brought on by a sudden shock that is generally thought to be from a large magnitude earthquake (Figure 9). The ubiquitous occurrence of seismites at numerous stratigraphic horizons through-out the study area denotes seismic events of a magnitude greater or equal to magnitude 6. Earthquakes less than a magnitude 6 would only form seismites within 1 to 2 km of the epicenter whereas magnitudes of 6 or greater the distance from the epicenter expends to 20 to 110 km (e.g., Wheeler, 2002). At a magnitude of 5.5 earthquake, a maximum surficial displacement on the fault would be ~0.3m (Bonilla et al., 1984; dePolo and Slemmons, 1990; and Wells and Coppersmith, 1994). At greater magnitudes (M= 6-7), the surficial displacement can reach 1 to 2 meters along the fault. These small offsets may greatly impact deposition within the local area by reorienting currents, raising some areas into the fair-weather wave base, dropping other regions, and generally altering the accommodation space for the region. It is obvious that the interplay among fault block motion, eustatic sea level changes (Figure 8; Johnson et al., 1985), and sediment supply in this shallowly sloping basin can significantly alter the sediment architecture.

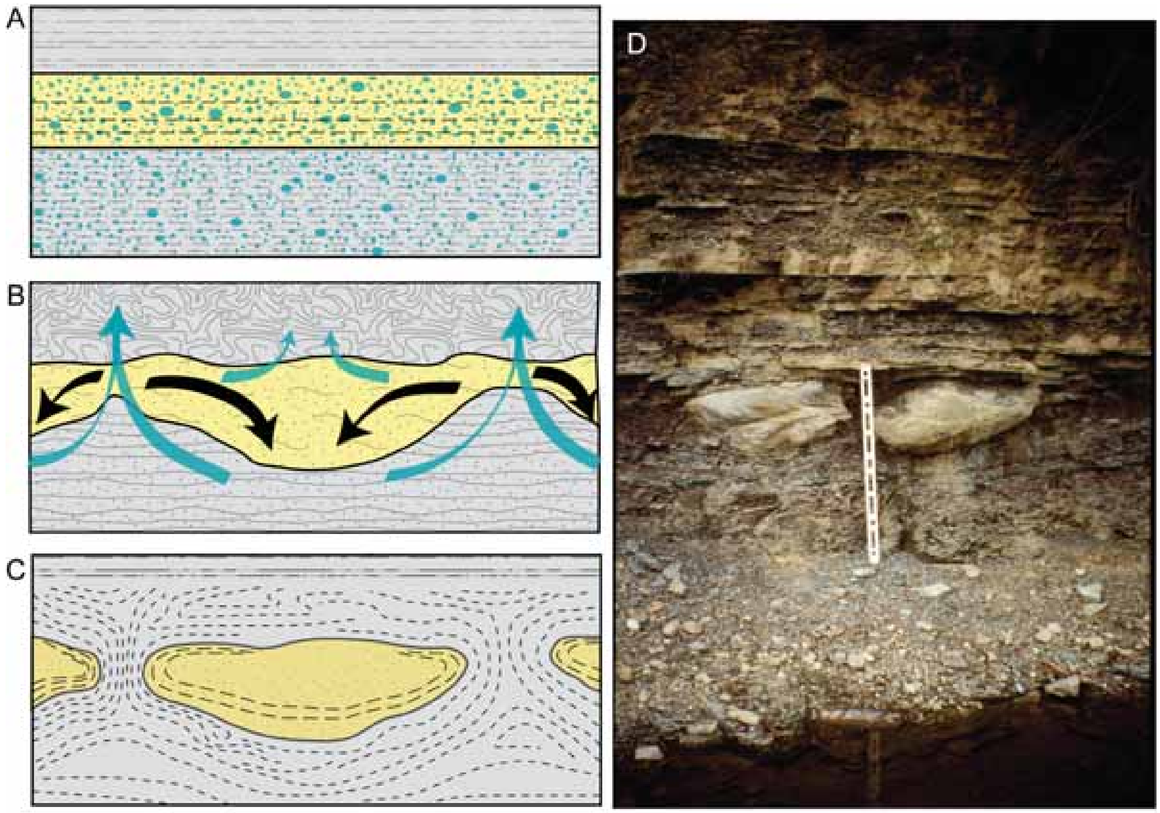


Figure 9. Stages of seismite formation.
A) In regions of high depositional rates, water saturated sediments are common.
B) A triggering mechanisn (typically assuimed to be a seismic event greater than 5.5M) will cause rapid dewatering which will cause the water to escape towards the surface bringing some of the clays up towards the surface and also cause the denser, heavier sands to sink into the underlying, unconsolidated clays.
C) The resulting structures will have sands which have turned or rolled-up edges, surrounded by a matrix of deformed shales.
D) A typical seismite occurring in outcrop in the Caneadea Formation. Ruler is 122 cm long.

DEPOSITIONAL ENVIRONMENTS

Assemblages of sedimentary structures, lithologies and ichnofauna enable the determination of water depth, current strength and salinity, which can be used to distinguish different depositional environments (Figure 10). From the collected field data we have determined the depositional environments that cover the stratigraphic section for Cattaraugus and Allegany counties (Figure 11).

Black shale deposits in the Late Devonian are thought to have formed from anoxia events (Ettensohn, 1994) rather than from great depths. High organic input combined with a stratified water column would produce a low-oxygen to anoxic system at shallower depths. Storm modified sandstones observed in outcrop within the Dunkirk and Hume formations suggest that these black shales formed within storm wave base. Above the anoxia boundary, the high organic content within the shales would oxidize, producing medium to light gray shales.

Sand and coarser clastic materials were deposited in four major depositional environments: turbidites, shelf ridges, shoreface system, and fluvial. All four depositional environments are part of a larger deltaic system, but for describing depositional patterns and controls it is easier to examine the four parts separately.

Turbidites

Turbidites are formed from relatively dense, sediment-entrained currents flowing down-slope from a disturbance that introduces the sediment into systems (see for example, “Submarine Fans and Related Turbidite Systems”, edited by Bouma, Normark, and Barnes, 1985; and “Fine-grained Turbidite Systems”, edited by Bouma and Stone, 2000). Turbidites, in general, form sharp-based, fining-upwards deposits. Methods for initiating turbidites include up-slope slumps, storms or waves stirring up or eroding bottom sediments, suspended sediments introduced by rivers in flood stage and earthquakes. The resultant turbidity currents will construct submarine fans with a form controlled in part by the bathymetry of the basin and the sediment size carried by the turbidity flow. For steep slopes (such as the slope in a passive margin) and/or sand-rich environments (with a relatively close source of coarse sediment), the resultant submarine fan will be radial in shape (assuming relatively smooth pre-submarine bathymetry, Figure 12). For gentler slopes and/or mud-rich environments (with a distant sediment source), the resultant submarine fan may be relatively elongate in shape, since the finer sediment will be able to be carried farther into the basin (e.g., Stow, 1986; Bouma, 2000; Figure 12). For example, the turbidity current pathways on the west African margin can extend over 1000 km downslope to the abyssal plains (e.g., Jacobi and Hayes, 1982, 1992). The gentle slope of the Catskill Sea along with the fine-grained composition of the Nunda, South Wales

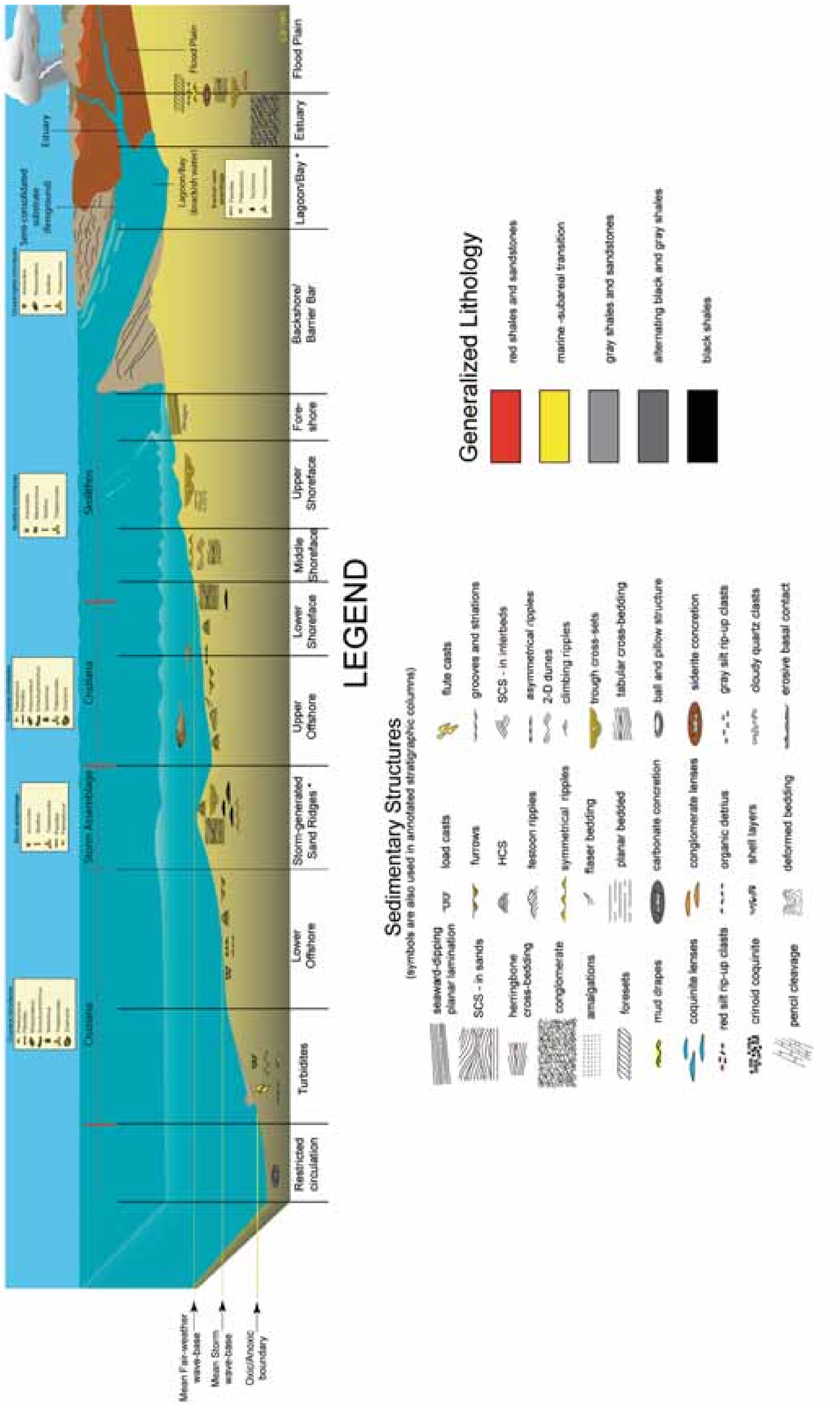


Figure 10. Depositional environments for the Acadian Foreland Basin and the common assemblages of sedimentary stuctures and ichnofacies. Legend also applies to Figure 11.

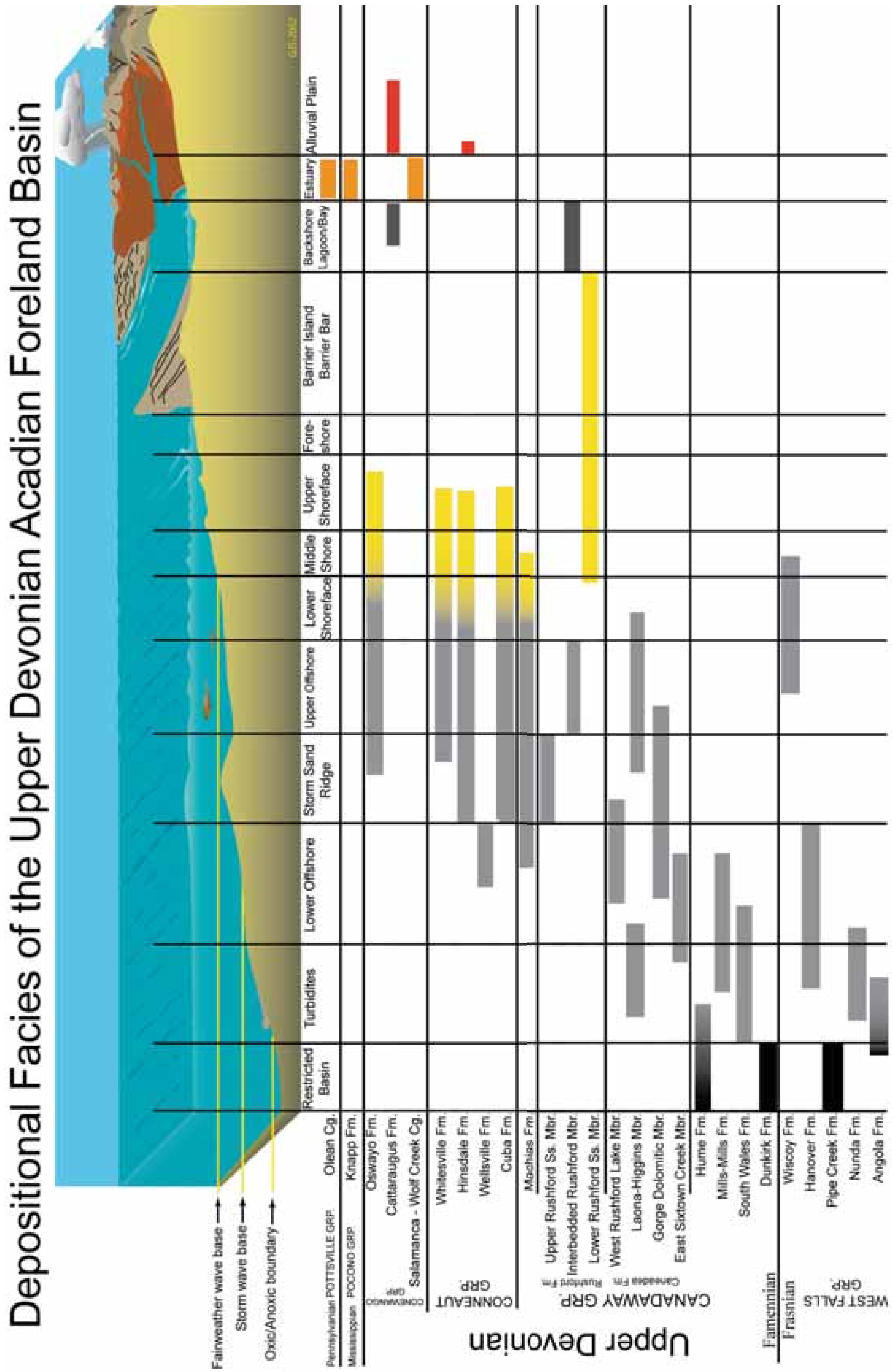


Figure 11. Depositional environments for the stratigraphic units within Allegany and Cattaraugus counties.

and Mills-Mills formations would suggest that these units would form relatively elongate fan deposits orientated perpendicular to the paleoshoreline. However, characteristics (e.g., paleoflow data) of the South Wales Formation in western New York west of our present study area suggest a radial flow pattern, consistent with lobe fringe sands of Mutti (1977) (Jacobi et al., 1994). Shallower turbidite deposits, e.g., pro-delta fans of Pattison (2005) and wave-modified turbidites of Myrow and others (2002) form within storm-wave base. These shallower turbidites share similarities to turbidites with the exception of combined-flow ripples in the C part of the Bouma model (Brett, 1983; Myrow et al., 2002). The thick sandstones of the Nunda Formation and the Higgins Member of the Caneadea Formation, correlative to the Laona Fm. to west, possess many of the features attributed to wave-modified turbidite fans. West of the present study area, distal beds of the Nunda Formation were thought to represent sand lobes on a submarine fan, based on the massive nature, abrupt pinchouts, and lobate form of isopach maps of the thick sand beds (Jacobi et al., 1994).

Shelf Ridges

Shelf ridges are generally thought to be relict sandstones reworked and reshaped by later currents (Snedden and Dalrymple, 1999). Shelf ridges have three main varieties: detached beach barrier bars, tidal shelf ridges, and storm shelf ridges. Whereas detached beach barrier bars can be considered part of the shoreface system (discussed below), both tidal and storm shelf ridges are similar in formation and internal structure, differing only in scale (Snedden and Dalrymple, 1999). Tidal shelf ridges are approximately 10-60 km in length, 5 to 40 m high and 0.7 km to 8 km wide (Snedden and Dalrymple, 1999). In contrast, storm shelf ridges are generally less than 15 km in length, average 7 m high and less than 8 km wide (Miall, 2000). The formation and growth of both tidal and storm shelf ridges can be described by the same model: 1) formation of an initial topographic irregularity oblique to the dominant flow that generates a hydrodynamic instability leading to deposition on the lee-side of the topographic irregularity (Huthnance, 1982), 2) if a sufficient supply of sand is available, the shelf ridge will grow, and the ridge now becomes the topographic irregularity, 3) with continued current activity, the ridge will grow to maximum size and eventually migrate in the direction of the current (Figure 13). Both types of shelf ridges commonly occur on transgressive surfaces where topographic irregularities (from ravinement) and available sand are common. In well-logs, shelf sand ridges will be sharp-based and blocky in appearance. Tidal shelf ridges form in areas of the shelf where strong tidal currents exist either in an area of restricted topography, such as the English Channel, or near an estuarine funnel (Snedden and Dalrymple, 1999). Storm shelf ridges can form in any area where large storms are common.

We suggest that many of the sandstone lenses (or lentils described in older papers) can be attributed to shelf sand ridges. The Upper Rushford Member, the sandstone packets in the Machias, Wellsville and

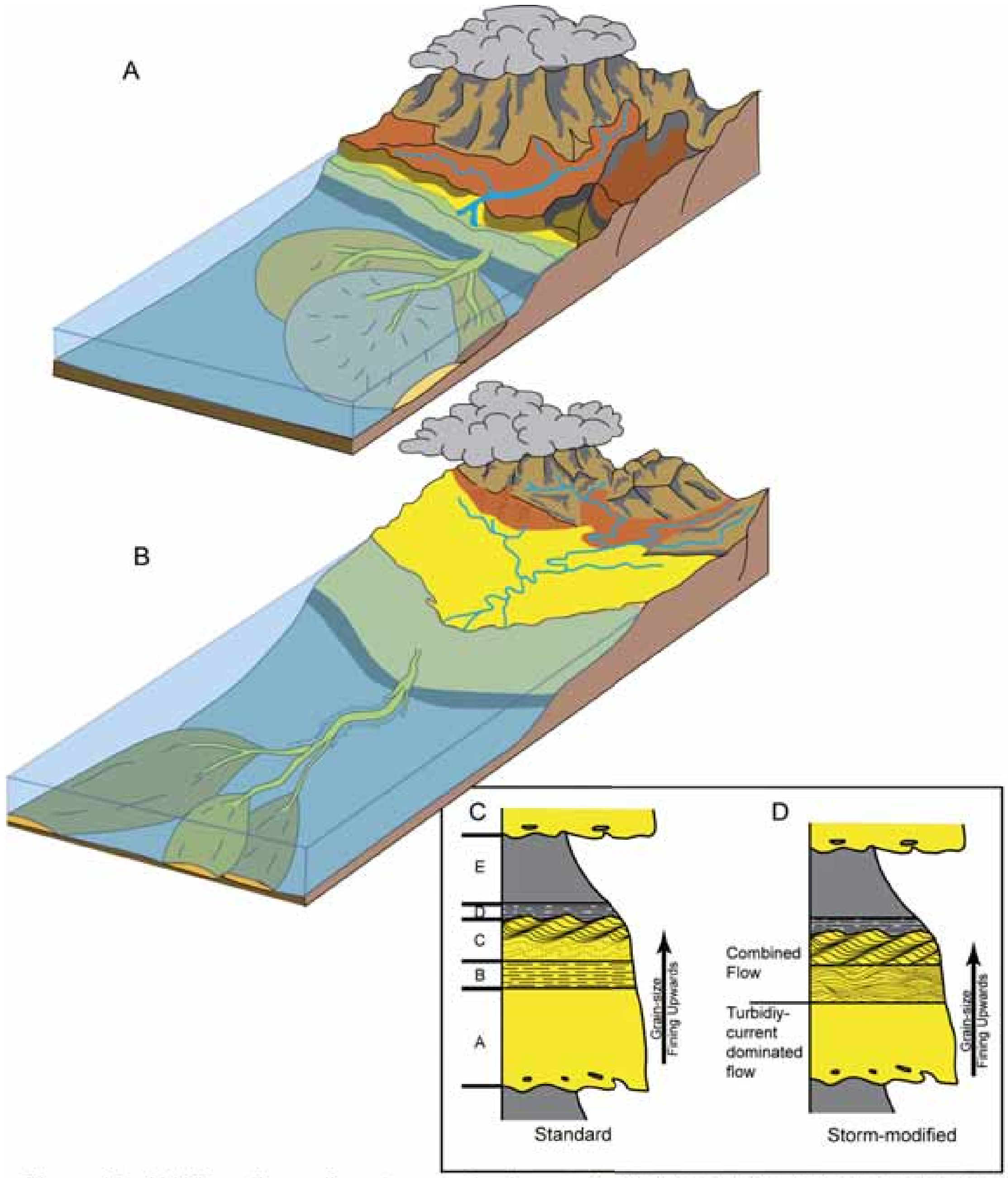


Figure 12. A) Where the sediment source is close to the shelf and typically comprised of sand and gravel and the slope is relatively steep and the pre-submarine fan bathymetry is relatively smooth, the resulting turibidite fan will be round and lobate. B) Where the sediment source is far from the shelf and typically comprised of shale, silts and fine sands the turbite fan will be farther from the shore, longer and narrower than the coarser endmember in "A". The turbidites in the Late Devonian of western New York State may follow this model. Modified from Bouma, 2000. C. Idealized turbidite model proposed by Bouma (1962), depicts the fining-upwards sequence and changes in bedding causes by decreasing flow velocity. Bouma (1962) model is proposed for a sand-rich system (depositional model A) but can still be applicable to finer-grained systems (depositional model B), although turbidites rarely exhibit a complete sequence (T_{A-E}). D) Generalized wave-dominated turbidite model from Myrow and others (2002) for comparison.

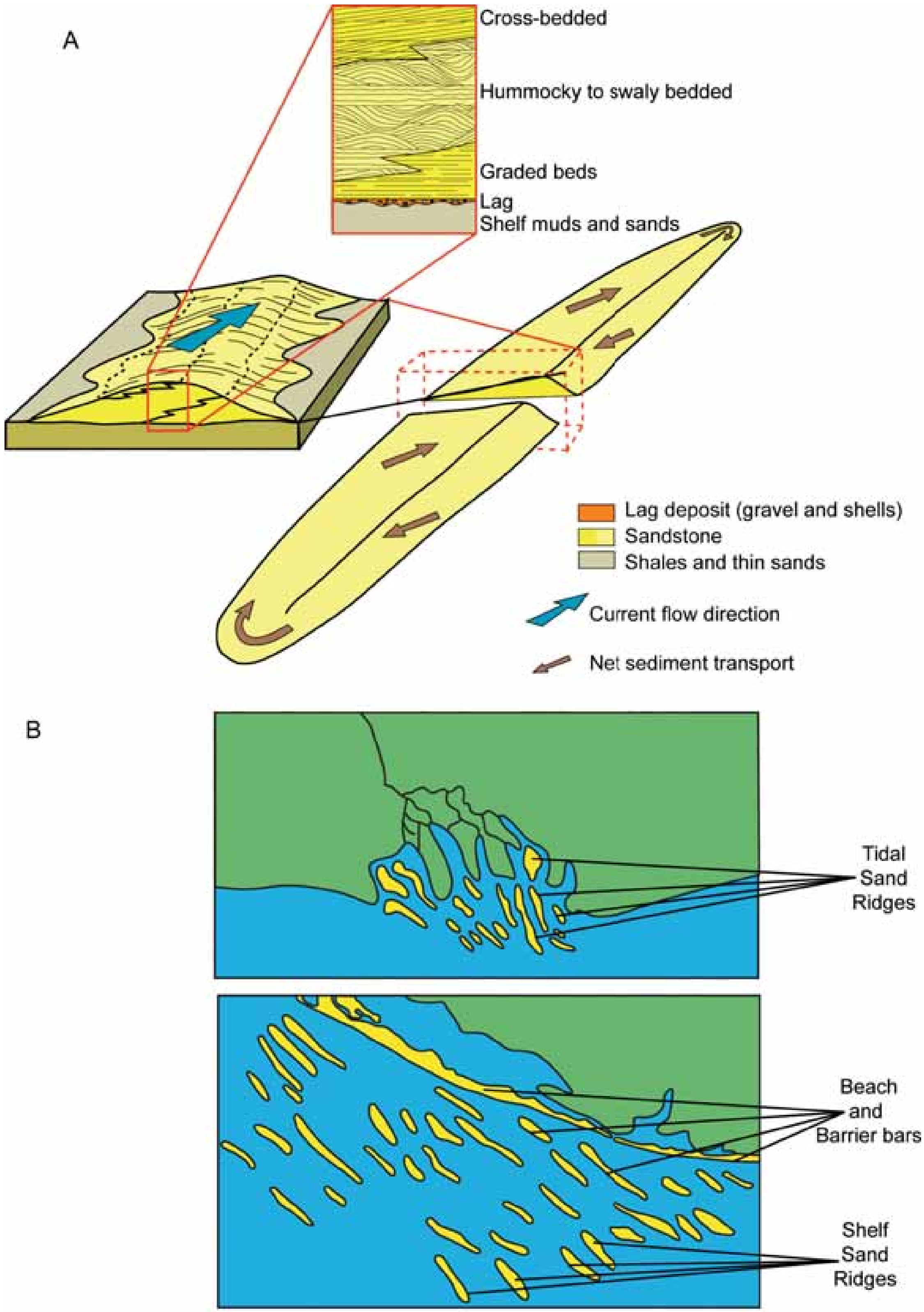


Figure 13. A) Anatomy of a shelf sand ridge incorporating models from Swift et al., 1986 and Dalrymple, 1992. B) Orientation of sand-ridges compared to shorelines, tidal sand ridges (top) are typically orientated perpendicular to shore. Beach barrier bars (bottom) run parallel to shore, while shelf ridges (bottom) become more oblique offshore.

Whitesville formations may all be shelf sand ridges, as would the basinward extent of shoreface sandstone in the Lower Rushford Member, Cuba and Hinsdale formation.

Beach and Shoreface

Beaches and shoreface systems in the Late Devonian Catskill Sea were thought to be non-existent, with only a transition from non-marine, muddy tidal systems to offshore muddy systems (Walker and Harms, 1971). Shoreface sequences are formed in wave-dominated systems and can be found as beaches attached to the land; as attached or detached barrier bar systems separated from the land by a shallow lagoon; or as cheniers where isolated beach ridges occur within the coastal mudflats (Elliott, 1986).

Our past work (Smith and Jacobi, 1998, 2000, and 2001) has shown that that the Lower Member of the Rushford Formation is comprised of three, stacked sandy shoreface sequences. Each shoreface sequence containing identifiable lower, middle, upper and foreshore zones (from lower shoreface ripples to trough cross sets to foreshore seaward-dipping planar laminae, Figures 14 and 15). Organic-rich shales containing abundant examples of the brackish-water trace-fossil *Teichichnus* (Figure 15) within the Lower Rushford Member and overlying Intermediate Rushford Member indicate the presence of lagoonal or bay facies associated with the shoreface sequences, suggesting that in the northern part of the study area, the Lower Rushford Member shorefaces are part of a barrier bar system. In the Cuba and Hinsdale formations, lower to middle shoreface zones have been identified in outcrop. In well-logs the coarsening upward gamma ray curves are typical for normal (not subsequently modified) shorefaces. By default, beaches are parallel to the shoreline, although beach barrier bars can become more oblique as they become farther from land and transition to shelf sand ridges.

Fluvial

Fluvial systems are found within the non-marine red-beds of the Cattaraugus Formation and more commonly in Pennsylvania closer to the source area. Common fluvial system sandstone beds within the study area are small tidal channel deposits that are light gray, steeply cross-bedded sandstone that is 1-2 meters in thickness and laterally limited to a few tens of meters. The tidal channel sandstones are generally heavily burrowed with *Skolithos*, *Arenicolites* and *Ophiomorpha* common to high-energy, shallow or tidal environments.

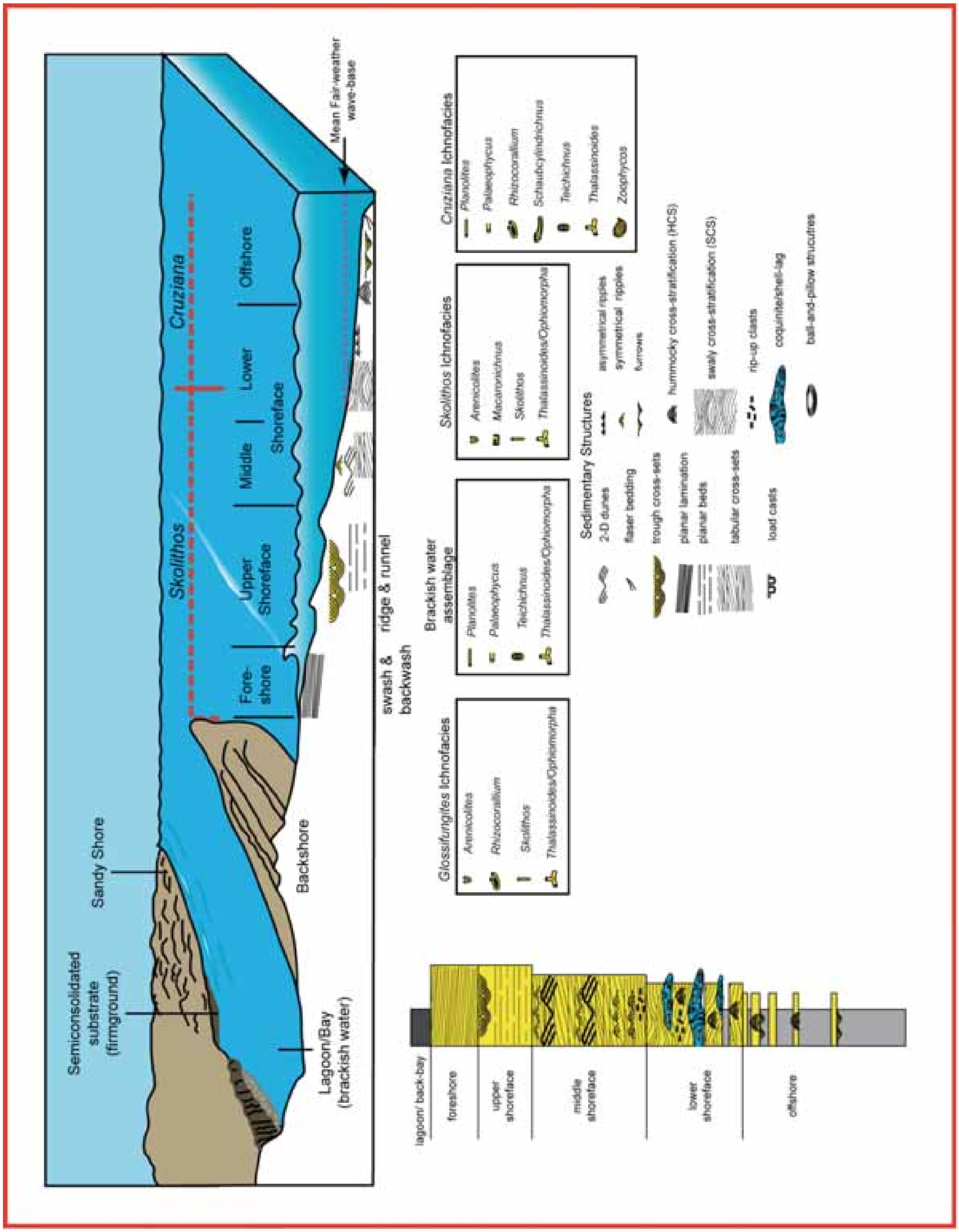


Figure 14. Generalized model for a wave-dominated shoreface showing the relationships between sedimentary structures, trace fossil assemblages and fair-weather wavebase.

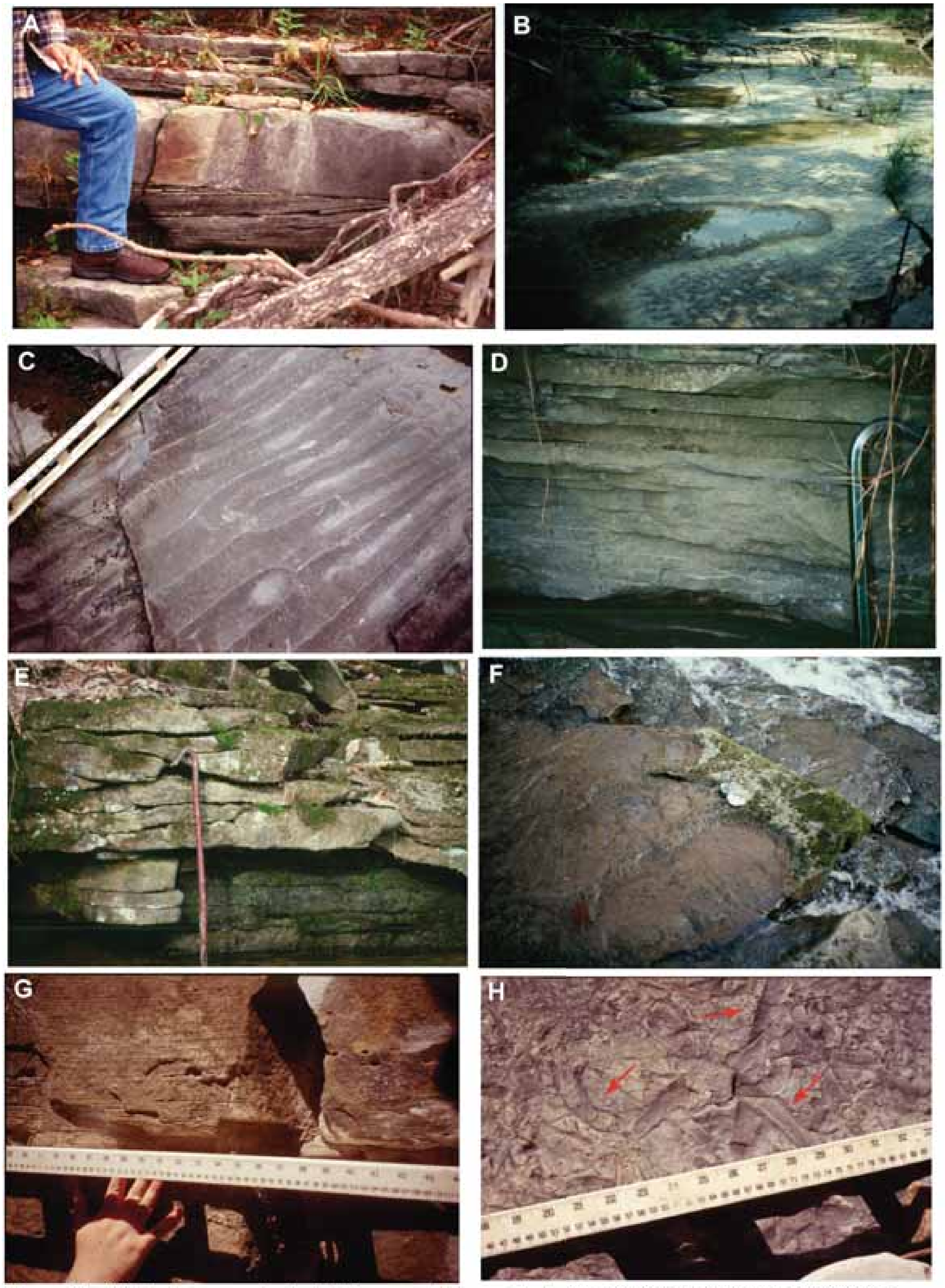


Figure 15. A) Tabular cross-beds, B) Dunes with linguoid ripples and C) symmetrical ripples with "tuning fork" and ladderbacks typical of middle shoreface deposits. D) Planer-bedded sandstones, E) Planer beds transitioning to trough cross-sets and F) trough cross-set in plan view typical of upper shoreface deposits. G) Planar lamiated sandstone with sporadic quartz pebbles indicative of foreshore deposits. Photos A-G taken from the Lower Rushord Member. H) Teichinchus (arrows) in thin sandstones in the Intermediate Rushford Member.

Less common, but more prominent, are the thick conglomerates that occur at the base of the Conewango Group. The Salamanca, Panama, Pope Hollow, Killbuck, Tunangwant and Wolf Creek conglomerates are thick orthoconglomerate deposits that range in thickness from 2 to 12 meters. These conglomerate deposits do not appear to be laterally continuous and have been previously interpreted to be non-contemporaneous (Tesmer, 1975). The problem with correlating the conglomerates is that outcrops are rare, although the large blocks of conglomerate can be easily found, but rarely in place. The sporadic occurrences across Chautauqua, Cattaraugus and Allegany counties produce exposures at varying elevations that would lead to the assumption that the conglomerates are different units. However, elevation differences between widely separated localities can also result from 1) different erosional depth for lowstand incision, and 2) post depositional faulting.

Tesmer (1975) interpreted the conglomerates with flat pebbles to represent a marine environment, whereas he suggested the spherical pebble conglomerates represent fluvial deposits. We interpret the conglomerates to represent incised-valley fill, where the fluvial system intensely erodes in response to a lowstand, and generates clastic sediment through erosion as well as transporting fluvial gravels farther basinward. During the ensuing transgression, the eroded, or incised, river valley is inundated by the rising sealevel forming an estuary. Tidal, fluvial and wave components rework and redeposit the lowstand sediments into to coarse-grained estuarine deposits. Components of an incised valley system include the “tripartite” systems: marine (barrier bar at the mouth of the estuary); mixed marine-fluvial and tidal (estuarine mud and tidal bars), and fluvial (bay-head delta, fluvial bars and overbank deposits) (Figure 16). In wave-dominated systems, the tripartite system is typically: sandy marine barrier, muddy estuarine lagoon, and sandy bay-head fluvial delta (Dalrymple, 1992). It is important to note the difference between estuarine tidal bars and tidal shelf ridges. Both can, and have been, referred to as tidal bars (e.g. Willis, 2005), but differ in size, orientation and formation. Shelf tidal ridges (as previously discussed) form in deeper water, oblique to the current and are limited in size by the strength of the current, supply of sediment, and depth of the water. Estuarine bars form parallel to the tidal current, and are limited in height by the depth of low tide (Willis, 2005). Estuarine sand bars are typically separated by ebb-tidal channels, which force the bar to parallel flow. Incised valley systems and tidal channels will generally by orientated perpendicular to shoreline.

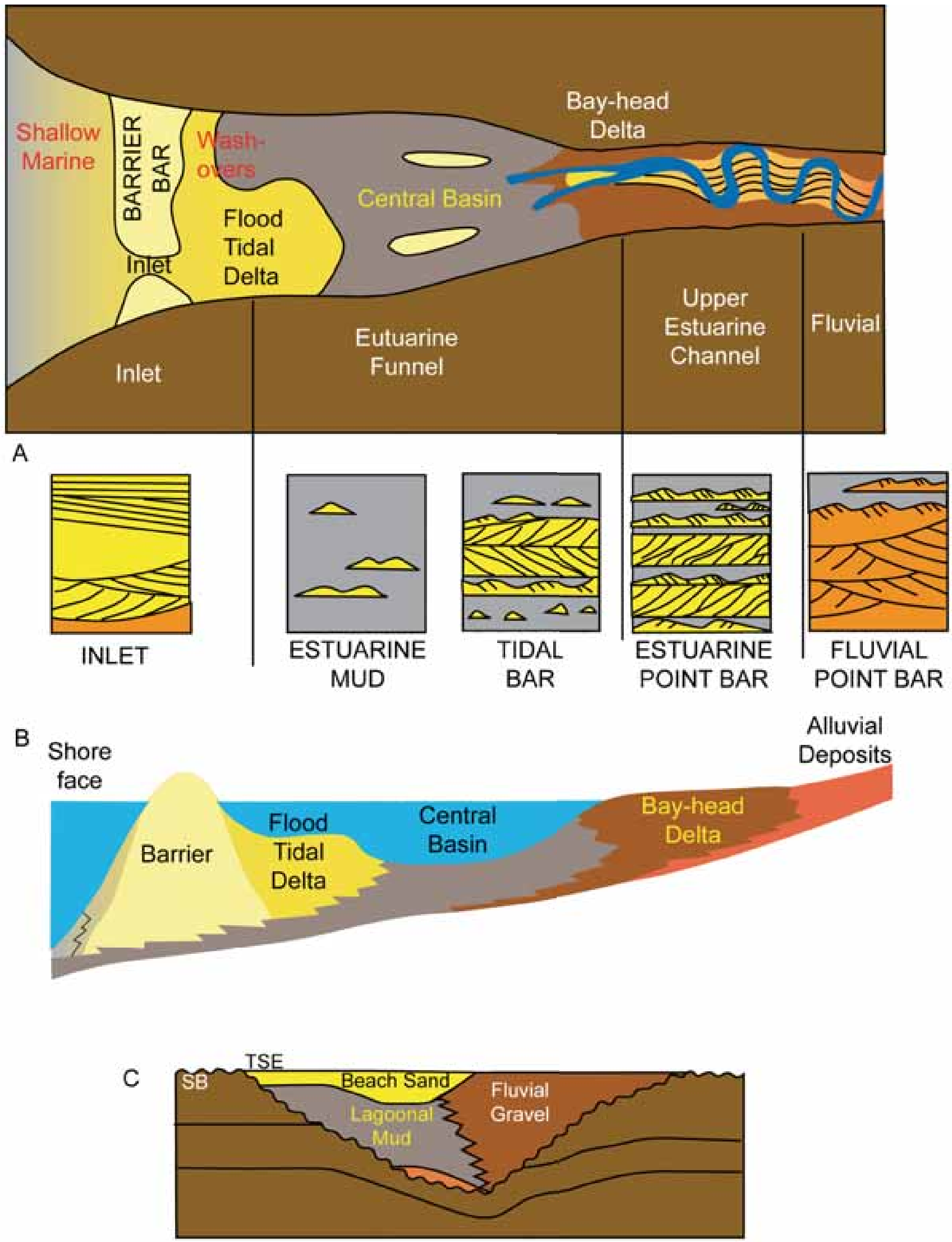


Figure 16. A) Estuarine deposition showing the "tripartite" components in a wave-dominated environment. B) Cross-sectional view of the estuarine system, parallel to the valley trend. C) Cross-sectional distribution of sediments, perpendicular to the valley trend. All Modified from Dalrymple et. al., 1992 and Reinson, 1992.

To summarize, in the absence of additional controls (structural), sand packets will be orientated: perpendicular to the shoreline (turbidite fans, estuarine and fluvial deposits), parallel to the shoreline (beaches, beach barrier bars), or oblique to the shoreline (shelf sand-ridges) (Figure 17).

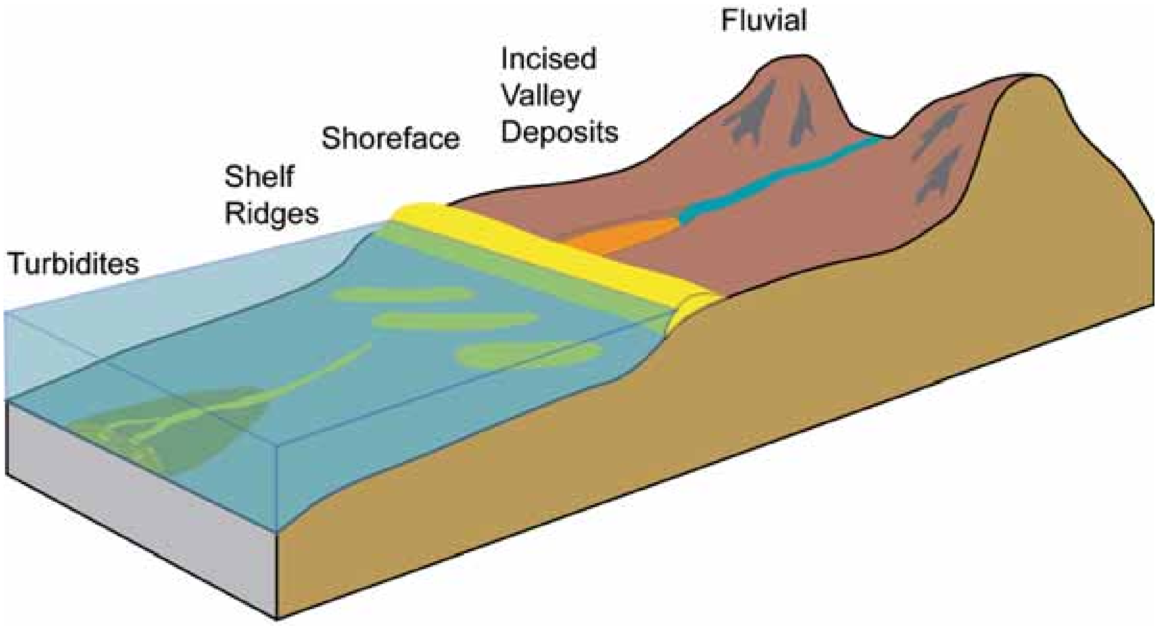


Figure 17. Summery of sandstone and coarser grained clastic depositional systems and the typical orientations to shoreline

Section 2
WELL-LOG ANALYSES

CORRELATION

To correlate the Upper Devonian sandstone packets over the entire study area it was necessary to utilize well-logs to trace units observed in outcrop into the subsurface. Numerous well-logs were available for wells within the study; approximately 2,000 wells had logs on file or online with the New York State Museum. However, this number is far less than the 23,000+ wells the New York State Department of Environmental Conservation has listed in their well database. The discrepancy between the number of wells and the number of logs reflects the age of the oil and gas fields within the area; many of the wells predate electronic logging and more importantly predate state regulations requiring the submission of well logs.

Of the well-logs available, we focused on gamma-ray curves to provide stratigraphic correlations between wells, and between wells and outcrop. In many of the well-logs, only the zones of interest were logged, or logged up to casing which in turn removed much of the Upper Devonian section for most, if not all, of the Upper Devonian stratigraphic sections. Despite these limitations, we examined 418 well-logs that contained recognizable stratigraphic units and/or units that we might be able to correlate to adjacent wells or outcrop. For the purposes of this study we examined only the Devonian stratigraphic section, using the Onondaga Formation as our lower stratigraphic limit. Picked formations included in ascending stratigraphic order: Onondaga Formation, Cherry Valley Limestone, Marcellus Formation, Centerfield Limestone, Tichenor Limestone, Tully Limestone, Lodi Limestone, Geneseo Formation, Middlesex Formation, Rhinestreet, Nunda Formation, Pipe Creek Formation, Wiscoy Formation, Dunkirk Formation, South Wales Formation, Mills-Mills Formation, Hume Formation, Higgins Member of the Caneadea Formation, Lower Rushford Member, Upper Rushford Member, Machias 1st Sandstone Packet, Machias 2nd Sandstone Packet, Machias 3rd Sandstone Packet, Machias 4th Sandstone Packet, Cuba Formation and the Hinsdale Formation. In effort to save time, formation tops for the Nunda Formation through the Higgins Member stratigraphic section were disregarded outside of areas adjacent to cross-sections as the subtle curve responses between the fine-grained sandstones, from the sandy shales and the silty black shales made formation picks ambiguous.

Crucial to our study are the correlations of the Upper Devonian sandstone packets, and most important was to identify a marker unit or zone that was evident in well-logs as well as outcrop. Correlation of outcrops within Allegany County was facilitated by marker units such as the black shales of the Dunkirk and Hume formations, but primarily the Upper Devonian sequence stratigraphy was of greater use for a wider geographic area, since exposures of the black shales were confined generally to the areas adjacent to the

Genesee River Valley. The base of the Rushford Formation is a sequence boundary with lowstand shoreface deposits overlying offshore sediments (Smith and Jacobi, 2001 and 2003); the top of the Lower Rushford Member is marked by a transgressive surface of erosion, overlain by deeper-water deposits (Smith and Jacobi, 1996, 1998, 1999, 2001, 2002, 2003 and 2004). The three stacked, coarsening-upwards, shoreface sequences could be trace from outcrop to outcrop from the Fillmore quadrangle in Allegany County to the Ellicottville quadrangle in Cattaraugus County. By comparing these identified outcrops with adjacent well-logs in the northern section of the study area, we were able to identify a sequence with a coarsening-upward sequence at the base (typically with both a sharp base and top), overlain by a shale (which represents the Lower Rushford Member). A sequence representing the Lower Rushford – Upper Rushford – Machias 1st sequence was identified for wells in Rushford and Scio oil fields that are adjacent to numerous outcrops (Figure 18). The gamma-ray pattern observed at these two locations could also be found in the major oil fields within the study area (Figure 19). Cross-section A-A' (Figure 20) is a north-south cross-section that incorporates both outcrop and well-logs. Outcrops of the Rushford Formation correlate with adjacent well-logs, and the resultant dips in the correlated Rushford match dips from the Onondaga and Tully. Two east-west cross-sections were made for this study to trace changes in stratigraphy as units were traced westward, deeper into the basin. The northern east-west cross-section B-B' (Figure 21) and the southern east-west cross-section C-C' (Figure 22) show an overall thinning of the stratigraphic section toward the west; the thinning appears more pronounced in the southern cross-section). Cross-section D-D' (Figure 23) was constructed to show the effects, if any, of the fault repetition of the Tully Limestone at the western end. The Lower Rushford Member in cross-section D-D' (Figure 23) is nearly absent in well east of the fault repetition but occurs in wells farther west. The Rushford and Machias units in cross-section D-D' all display lateral variations in thickness.

Significant lateral variations in shale thickness between outcrops and between well-logs indicate either syndepositional faulting along local fault basins (e.g., along the Clarendon-Linden Fault System, e.g., Jacobi and Fountain, 1996; Smith and Jacobi, 2002), or in some areas, tectonic thinning or thickening of the section. Such tectonic effects were expected from outcrops in Allegany and Cattaraugus counties that displayed pencil cleavage, bedding thrusts, disrupted bedding, and in one outcrop, a recumbent fold (Jacobi and Fountain, 1996; Peters, 1998; Zack 1998; Smith, 2002). These structural features are thought to represent post-depositional (Alleghanian Orogeny) crustal shorting (e.g., Engelder and Geiser, 1979) that could produce the apparent black shale thinning or especially thickening along duplexes within the interbedded sequences.

STRUCTURE CONTOUR MAPS

Structure contour maps made for surfaces from the Onondaga (top) (Figure 24), Tully (top) (Figure 25), Geneseo (top) (Figure 26), Middlesex (top) (Figure 27) and Rhinestreet (base) (Figure 28) are, in general,

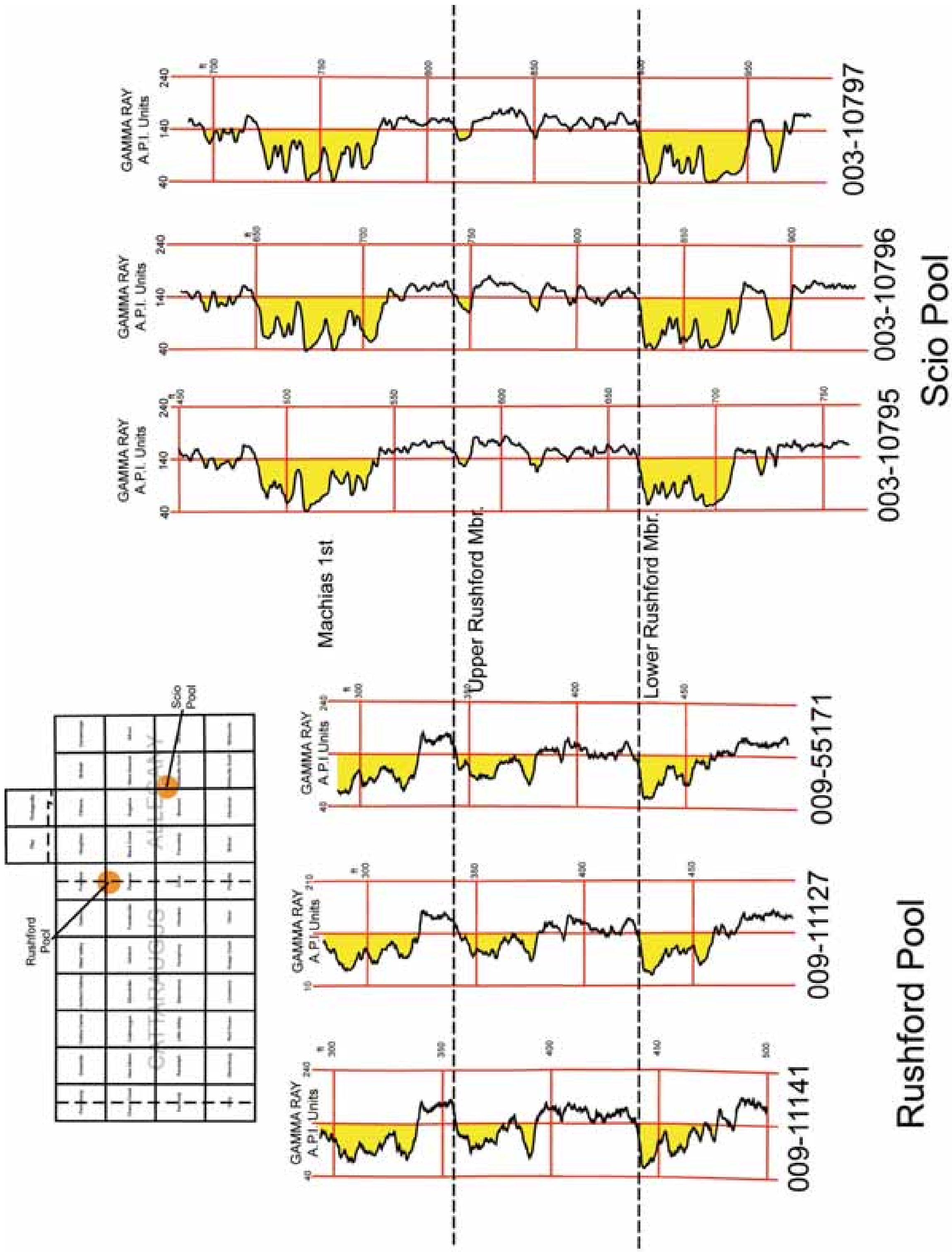


Figure 18. Comparison of the gamma-ray logs for wells in the Scio and Rushford pools showing similar signatures for the Lower Rushford, Upper Rushford and Machias 1st sandstone packets.

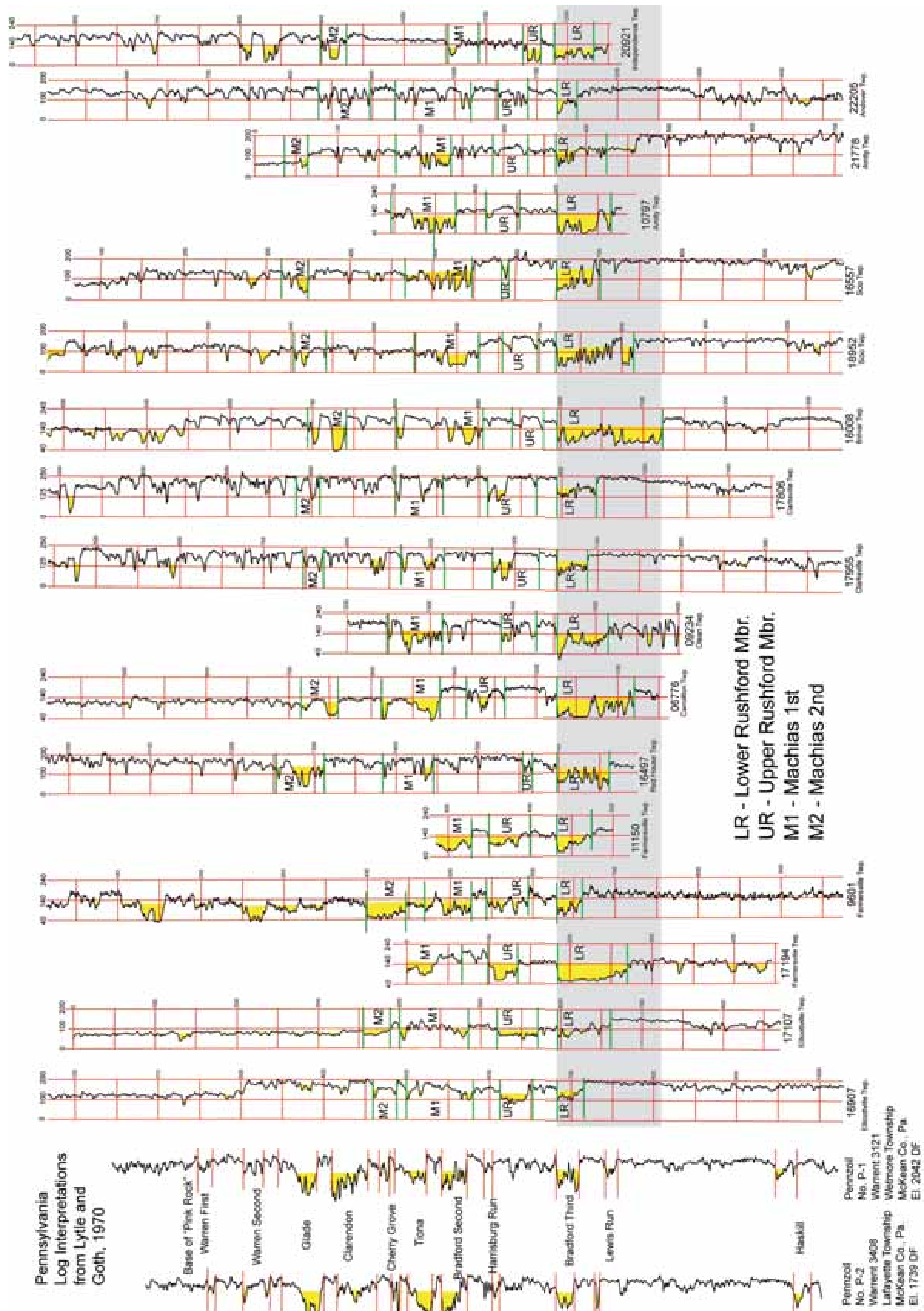


Figure 19. Selected gamma ray curves displaying Lower Rushford - Upper Rushford - Machias 1st sequence for selected wells (locations highlighted on Plate 1A); with Pennsylvania well-logs in eastern Warren County, for comparison of sands and common sandstone names.

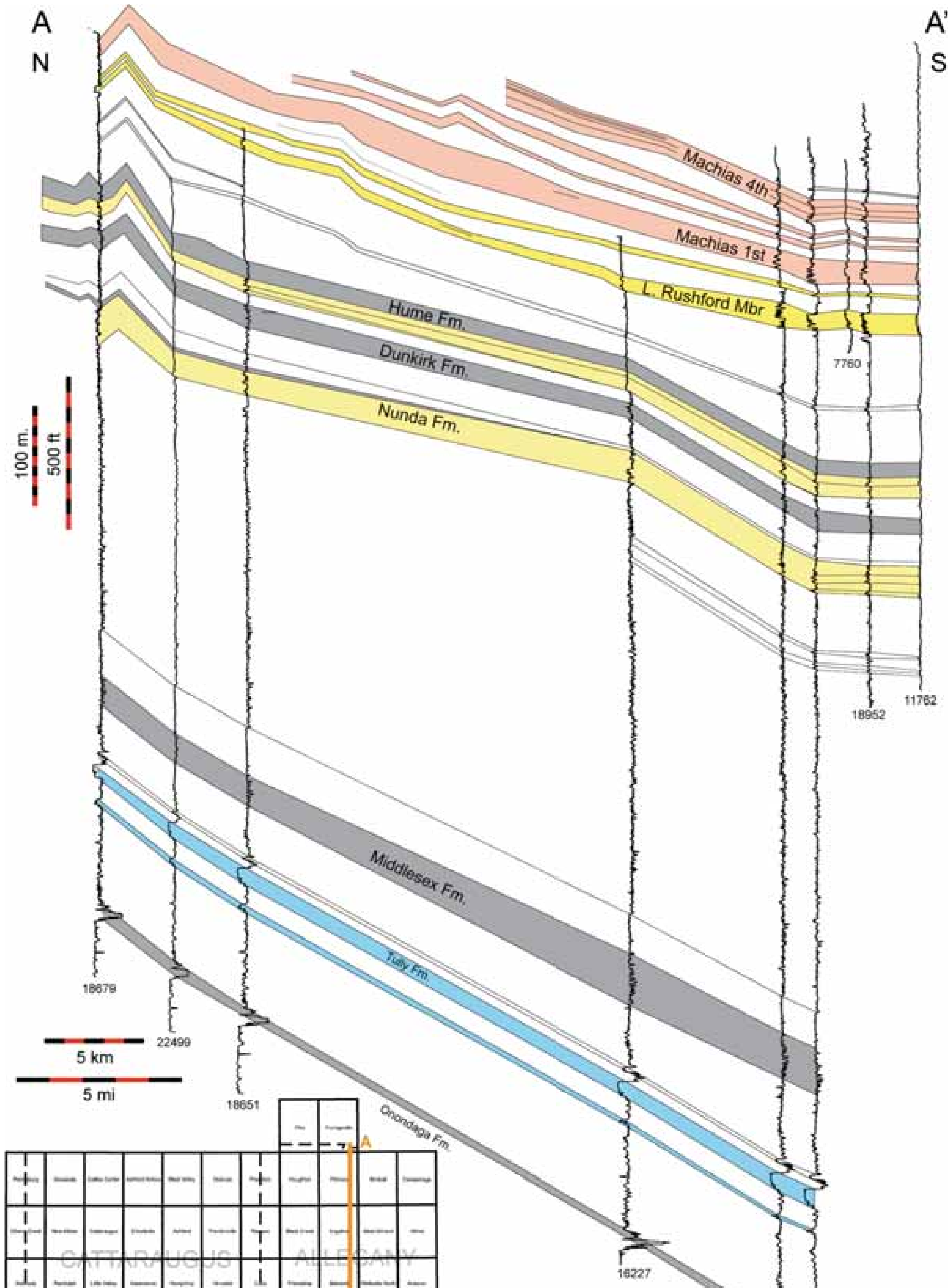


Figure 20. North-south cross-section along the east side of the Genesee River

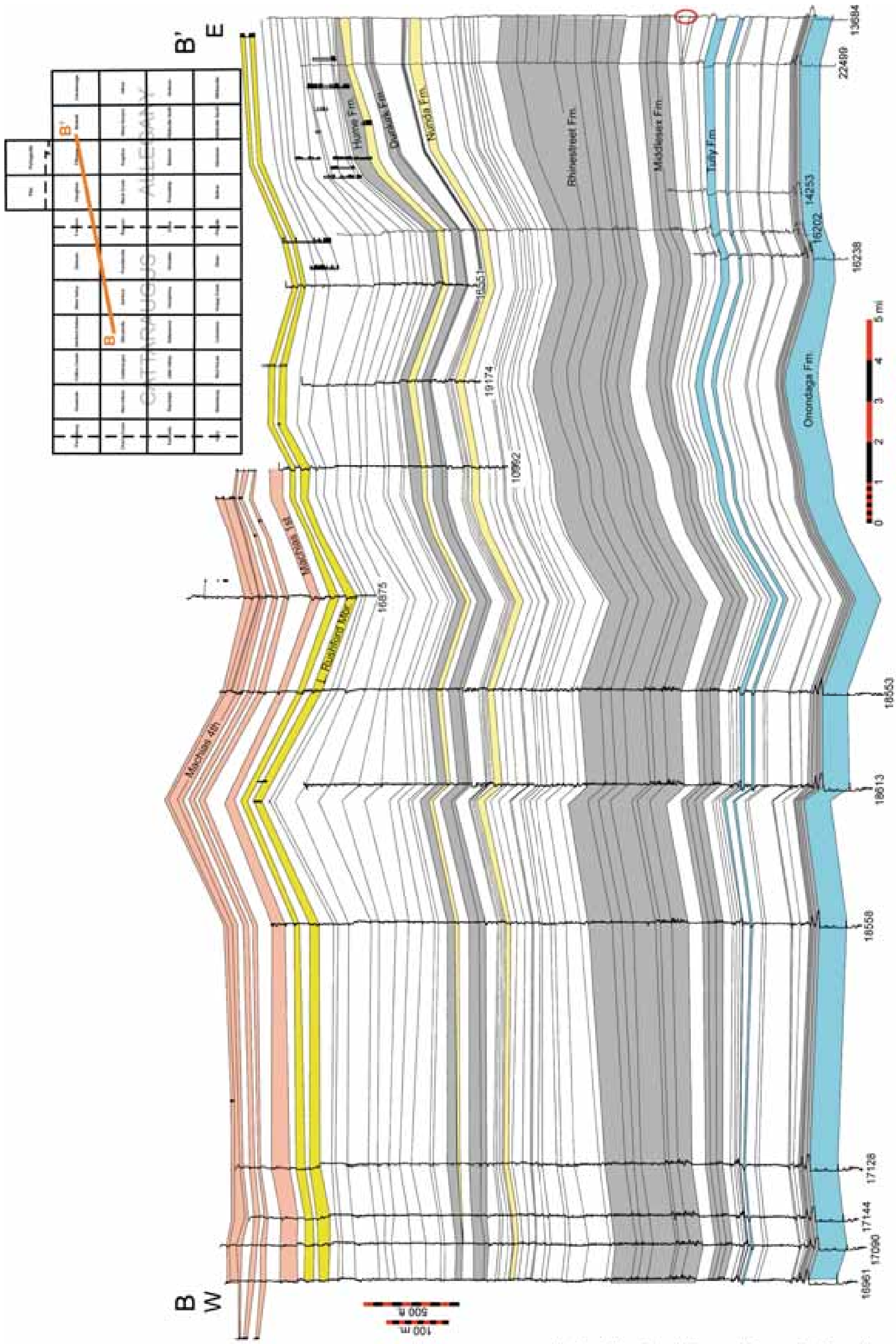


Figure 21. Northern east-west cross-section with ground elevation for datum. Repeated section circled in red

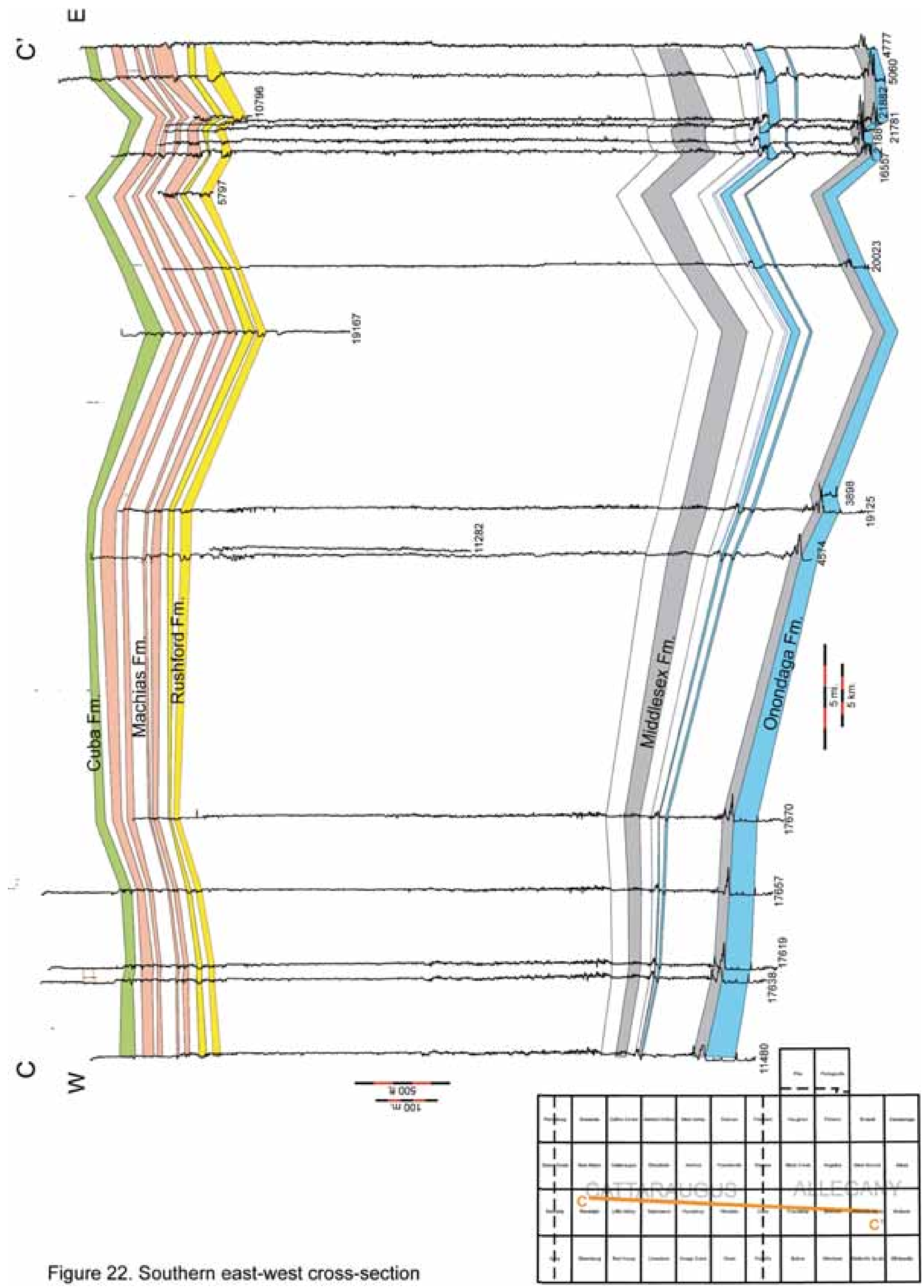


Figure 22. Southern east-west cross-section

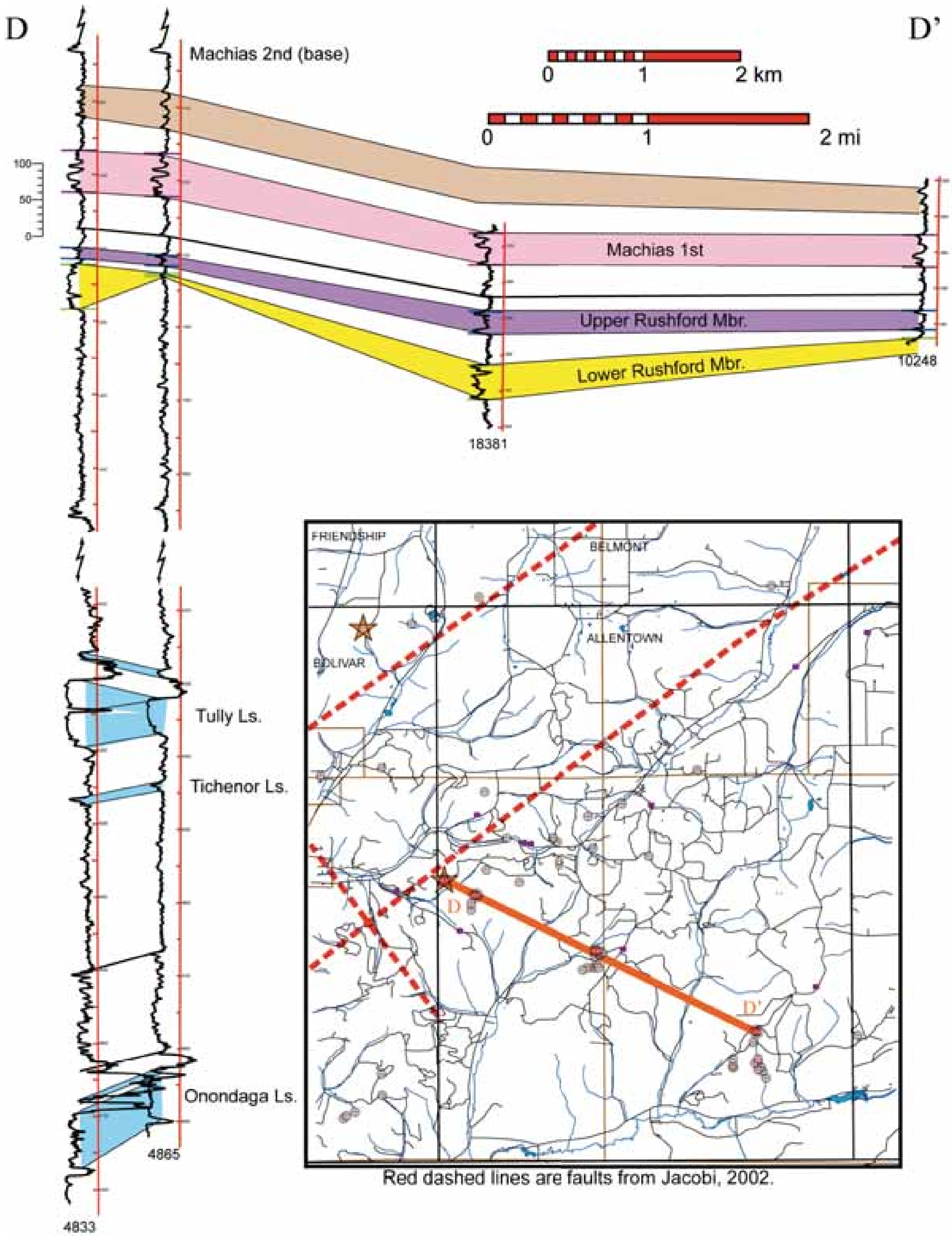


Figure 23. Cross-section in the Allentown Quadrangle, well 4833 shows a repetition of the Tully Limestone and in well 4865 the Lower Rushford Member is nearly absent.

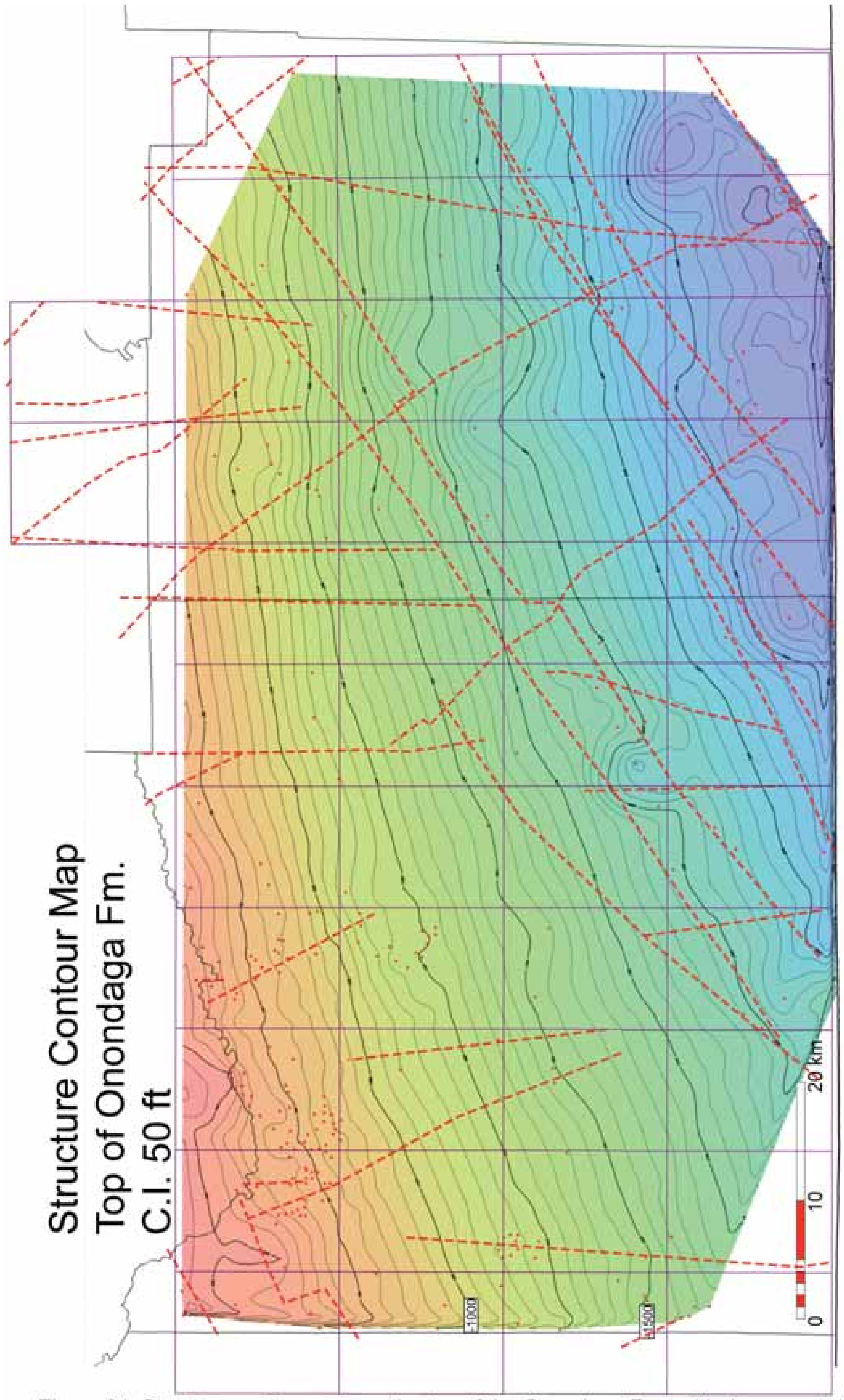


Figure 24. Structure contour map on the top of the Onondaga Fm., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

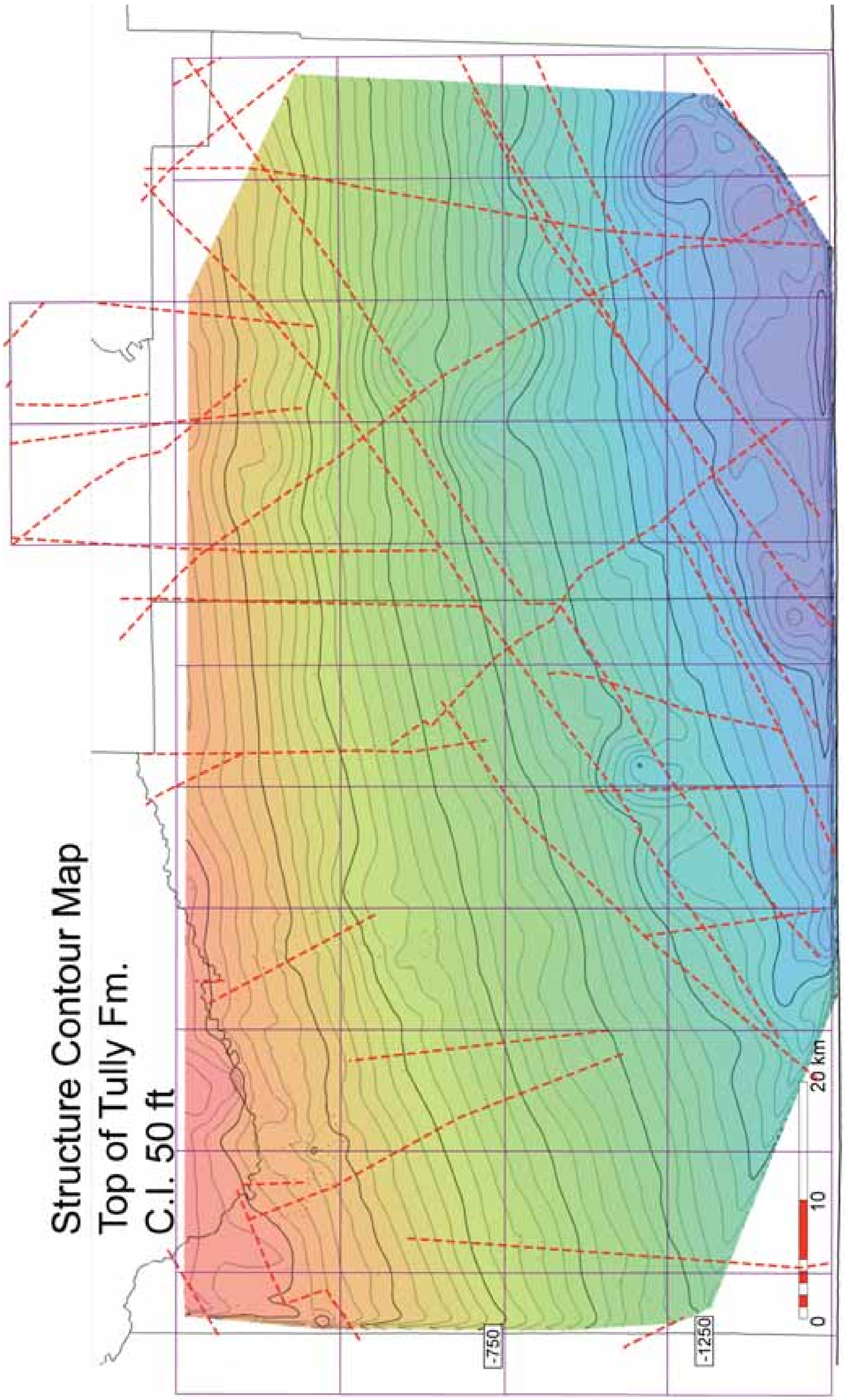


Figure 25. Structure contour map on the top of the Tully Fm., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

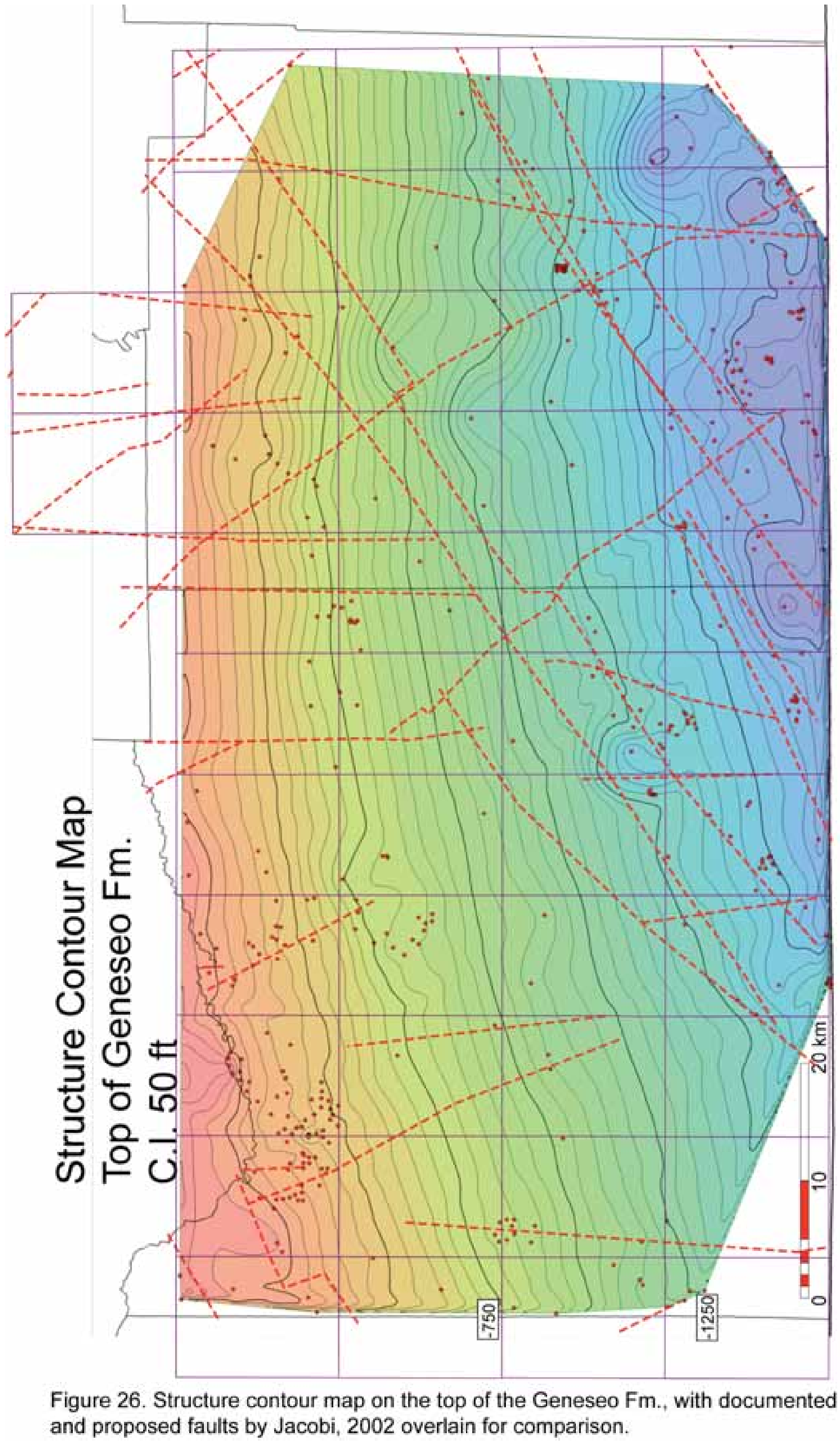


Figure 26. Structure contour map on the top of the Geneseo Fm., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

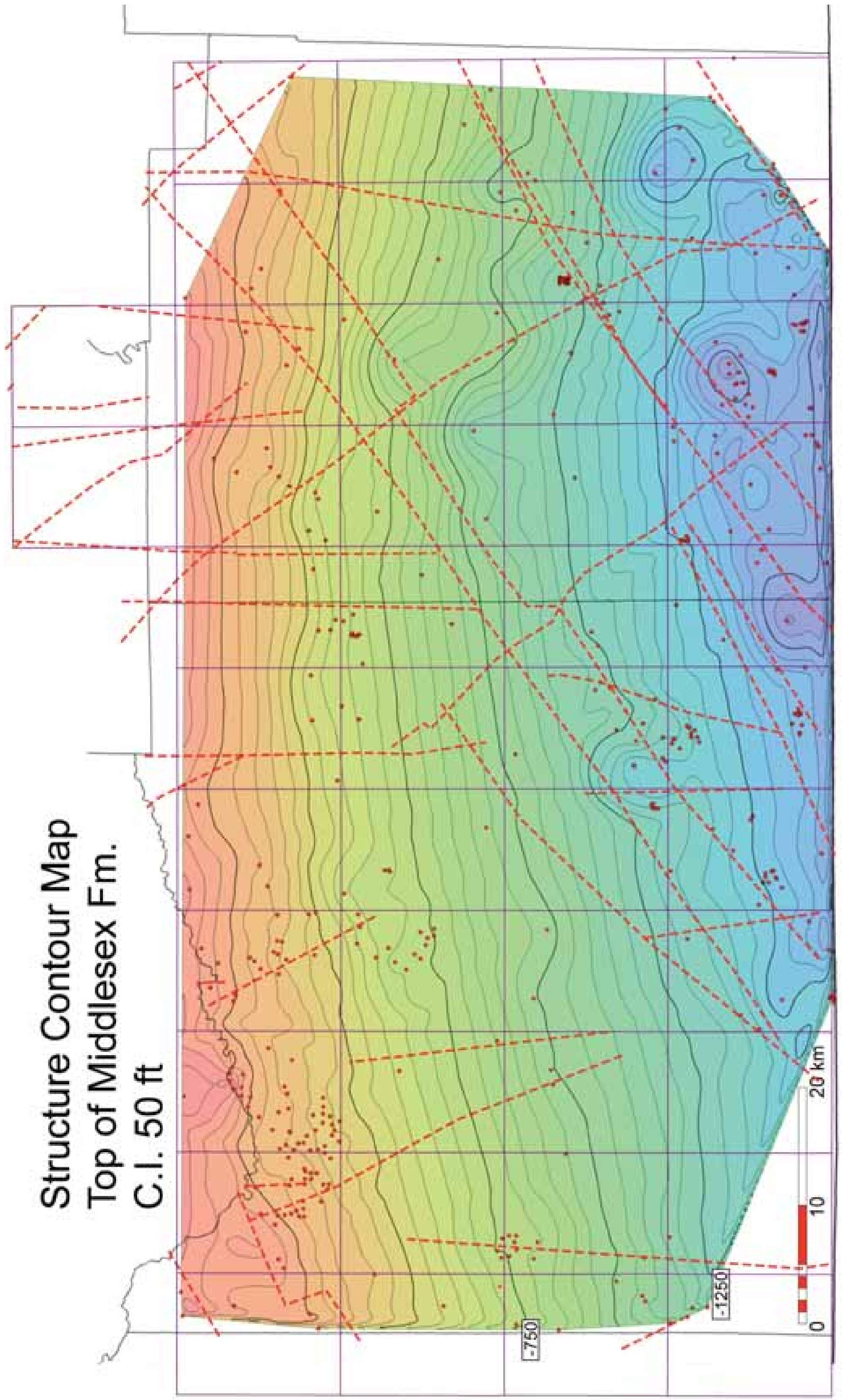


Figure 27. Structure contour map on the top of the Middlesex Fm., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

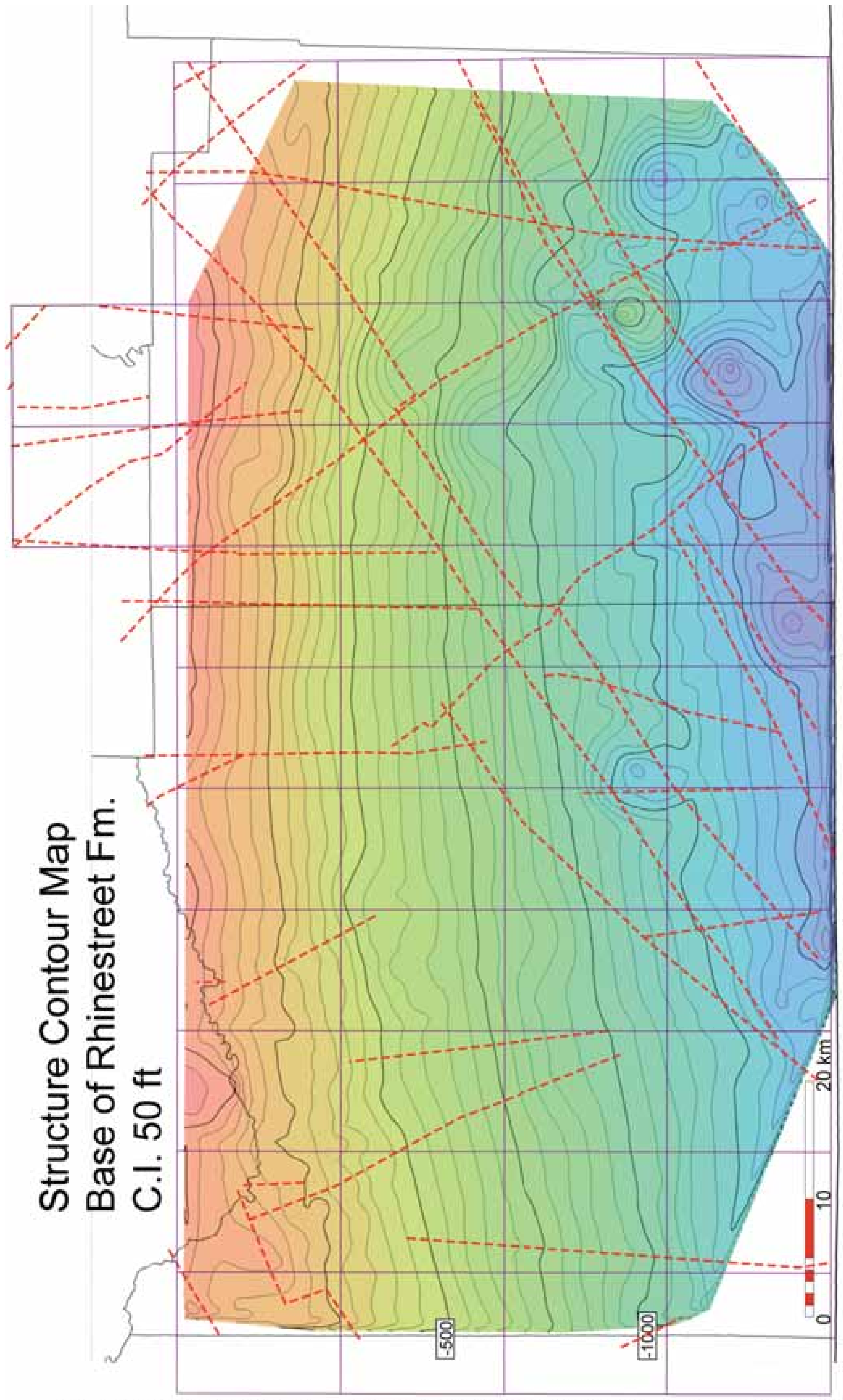


Figure 28. Structure contour map on the base of the Rhinestreet Fm., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

uniform in display are gentle south-southeast trending dip with a few irregularities that generally coincide with basement faults proposed by Jacobi (2002). Structure contour maps made on top surfaces for Upper Devonian sandstone packets (Lower Rushford Member (Figure 29), Upper Rushford Member (Figure 30), Machias 1st Sand (Figure 31) and Machias 4th Sand (Figure 32)) exhibit a more active structural history. In the northern section of the study area, north-south trending zones are evident in the Lower Rushford and Upper Rushford members, and somewhat less pronounced in the Machias 1st and 4th Sands reflecting the stratigraphic boundaries of these higher units. The north-south zones coincide with the Clarendon-Linden Fault System (Jacobi and Fountain, 1993, 1996 and 2002) and other, western north-south basement faults (Jacobi, 2002). In the southern section of the study area, a dominant northeast trending structure occurs along the Cattaraugus-Allegany border that is observable in all Upper Devonian structure contour maps. The northeast and northwest trending structures closely coincide with basement faults (Jacobi, 2002; Jacobi et al., 2004, 2005 and 2006) as well as later Alleghanian-age (Mississippian-Pennsylvanian) thrusting and folding (Wedel, 1932; VanTyne and Foster, 1979; Harper, 1989). The structures exhibited in the structural contours maps are similar to the structures exhibited in cross-sections B-B' and C-C' (Figures 21 and 22).

The disparity between structure contour maps generated between the Middle Devonian units (Onondaga through Rhinestreet and the Upper Devonian units (Rushford and Machias sandstone packets) are the partially the product geographic distribution of the data. Comparison between the data points for the Onondaga Formation (the most numerous for the Middle Devonian units) and the Lower Rushford Member (the most data points for this study) shows a clustering of Onondaga Formation data points in northeastern Cattaraugus County, a product of eastward exploration along Bass Island reservoirs and Medina fields, but comparatively few wells within the middle section of the study area (Figure 33). This is not from author bias in selecting wells, as wells extending to the Tully and the Onondaga formations were chosen in preference to wells that were limited to the Upper Devonian stratigraphic section; but is a reflection that the majority of wells only penetrated the Upper Devonian. Other factors contributing in the disparity between Upper and Middle Devonian structure contour maps are the depositional history of the units. The Middle Devonian sediments (primarily shales and limestone) reflect a quieter – low sediment input environment in which the thickness variation would be less, and erosive events not as frequent. The resulting unit surfaces would be planer, reflecting sealevel in general. The sandstones of Upper Devonian section were deposited in a shoreface or nearshore environment with higher depositional energies, higher sediment input and more erosion which would produce a top surface that would not be planer.

ISOPACH MAPS

The isopach map for the Dunkirk Formation combines data from well-logs and collected from outcrop (Figure 34). A north-south trend is evident in Allegany County, as well as northwest trend, both of which

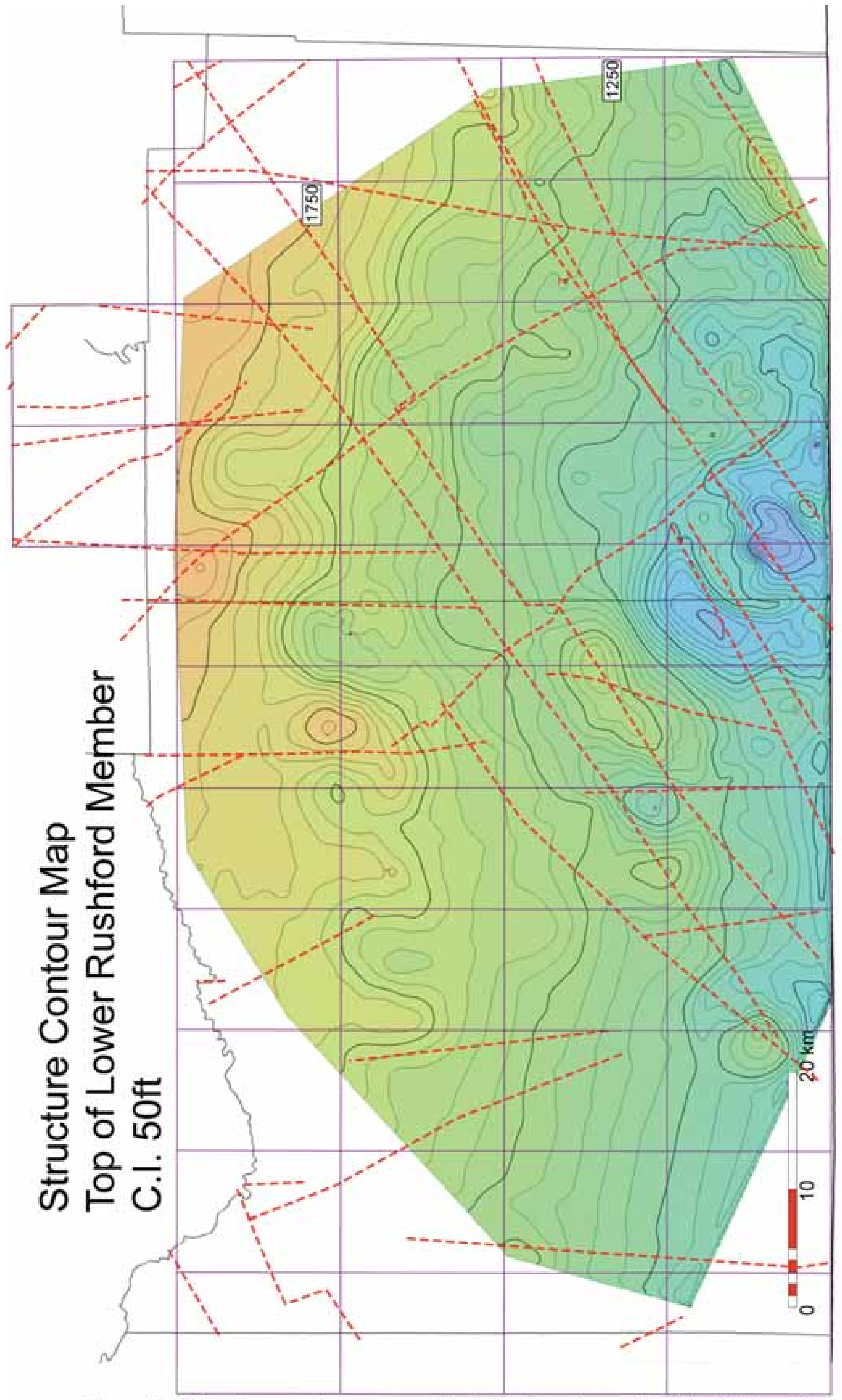


Figure 29. Structure contour map on the top of the Lower Rushford Mbr., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

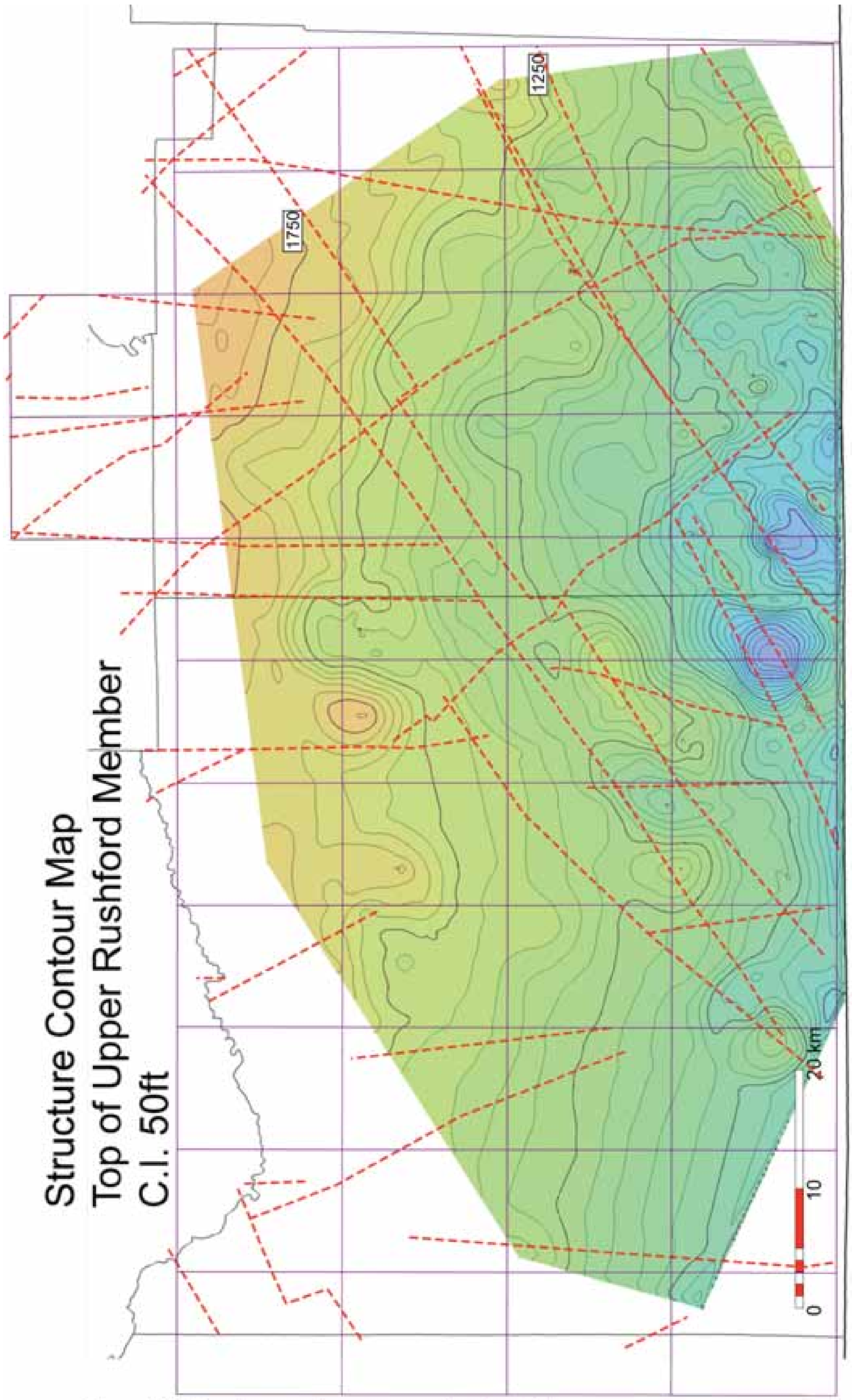


Figure 30. Structure contour map on the top of the Upper Rushford Mbr., with documented and proposed faults by Jacobi, 2002 overlain for comparison.

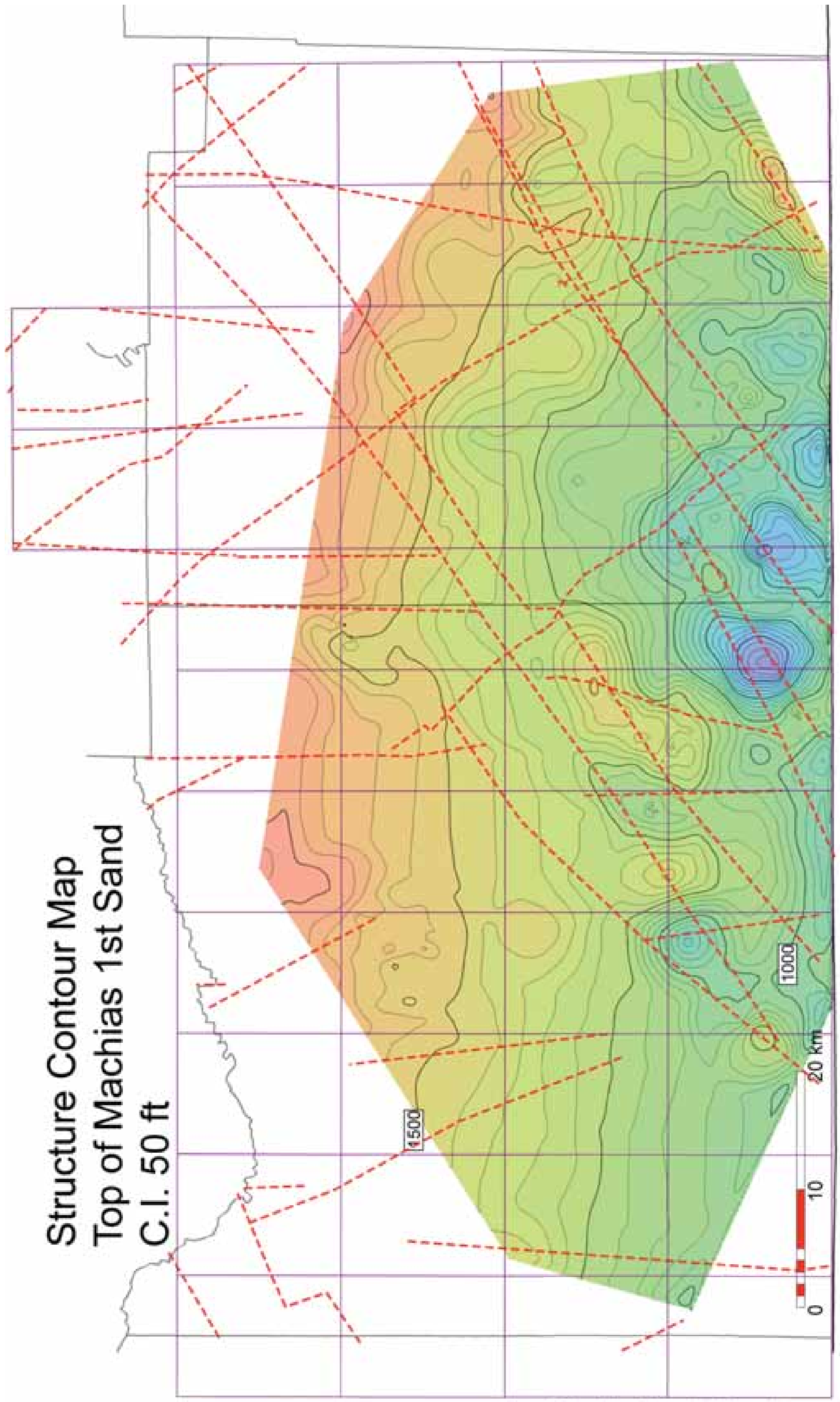


Figure 31. Structure contour map on the top of the Machias 1st Sandstone packet, with documented and proposed faults by Jacobi, 2002 overlain for comparison.

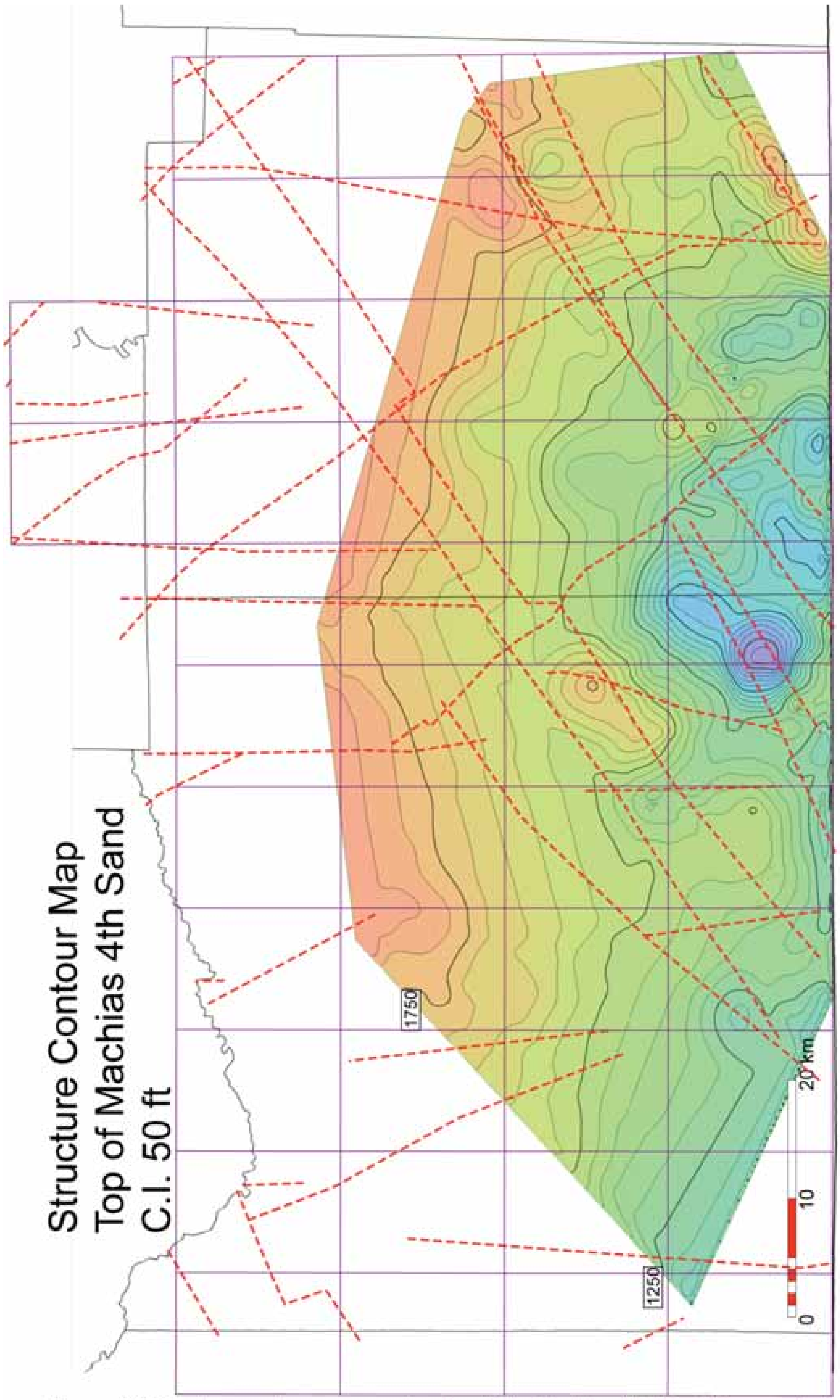


Figure 32. Structure contour map on the top of the Machias 4th Sandstone packet, with documented and proposed faults by Jacobi, 2002 overlain for comparison.

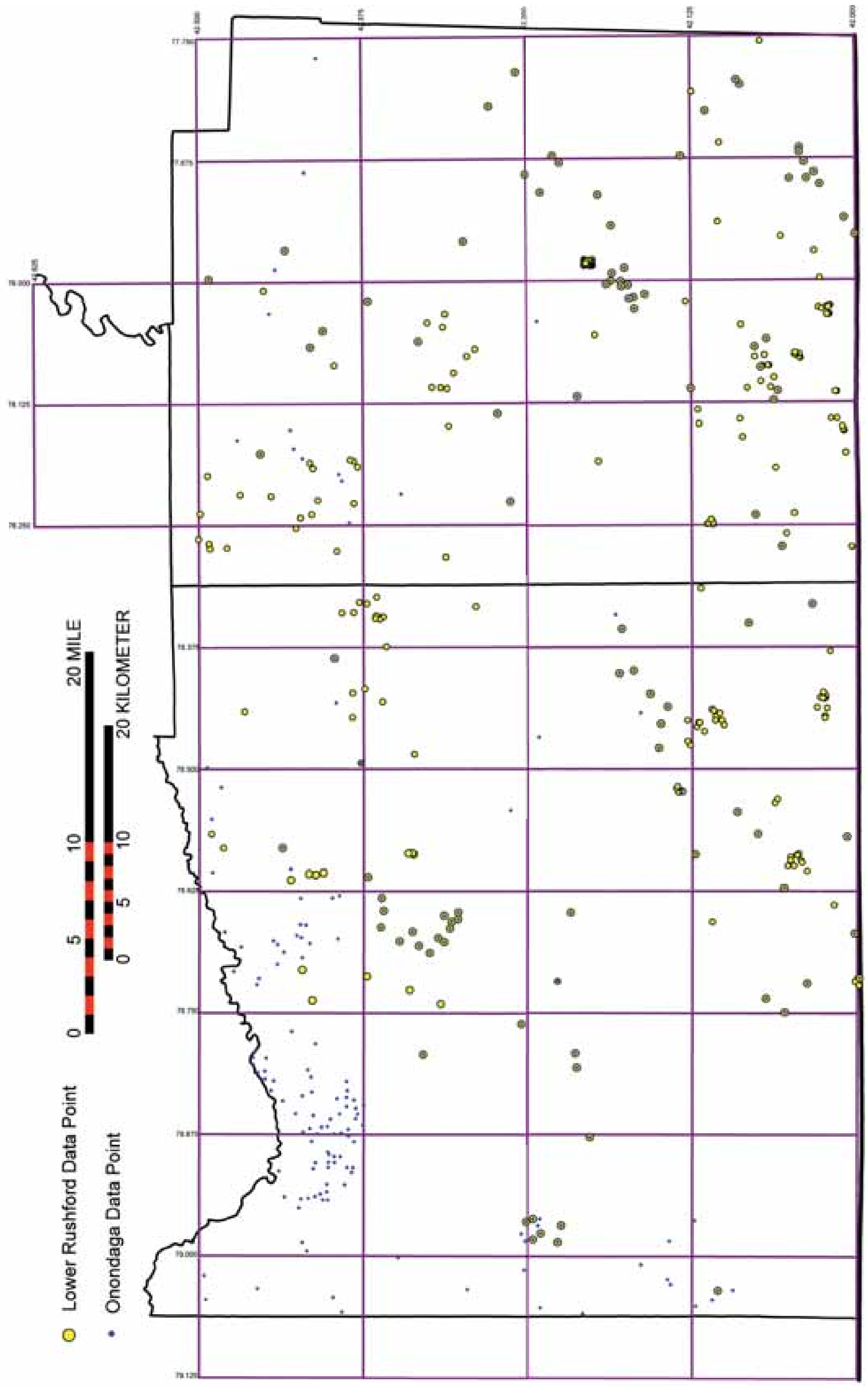


Figure 33. Comparison of spatial distribution of Onondaga Fm., (blue) and the Lower Rushford Mbr. (yellow). Potential structures shown in Rushford and Machis structure contour maps (Figures 29-32) occur in locations where Onondaga data points are scarce.

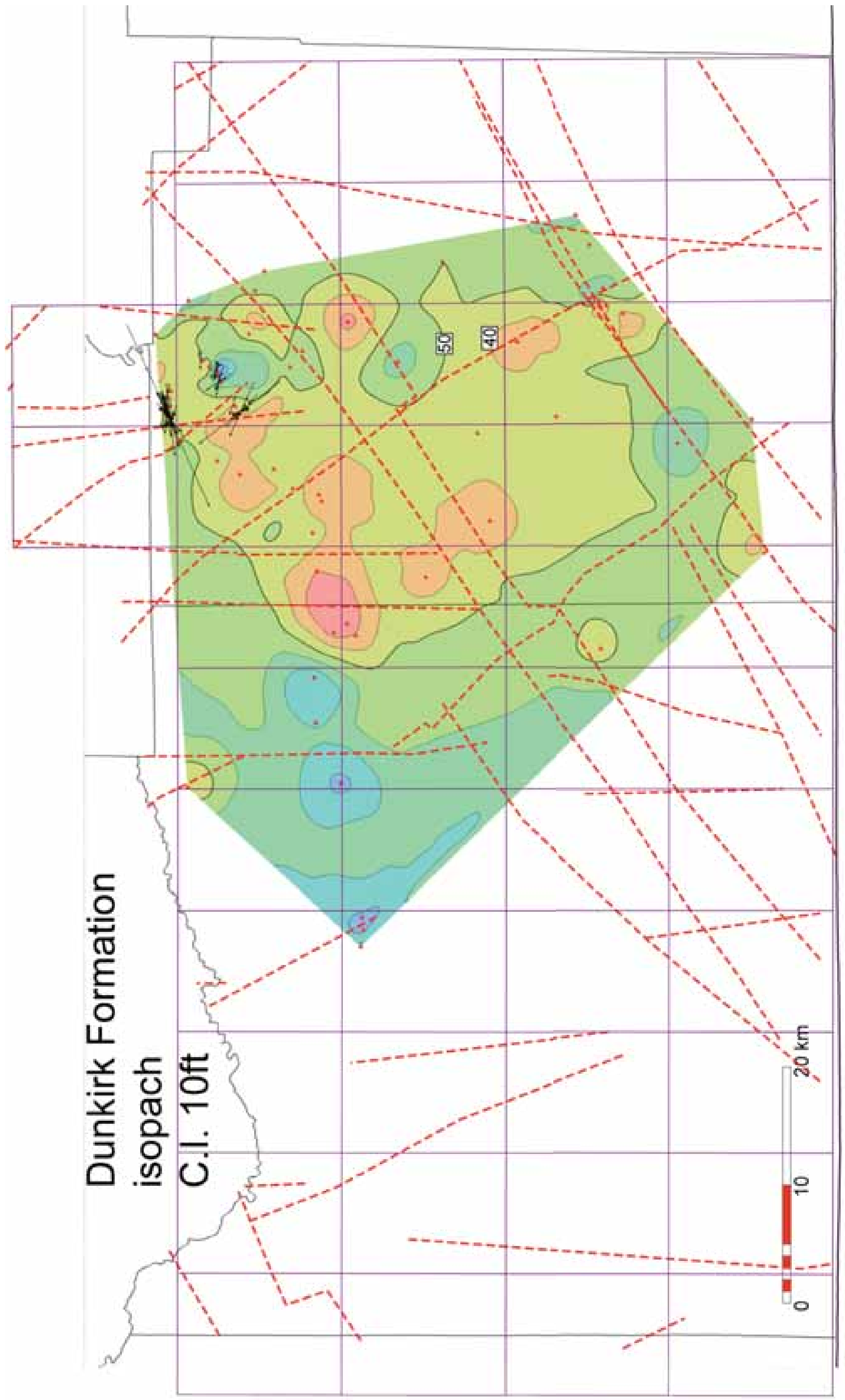


Figure 34. Isopach map of Dunkirk Fm., utilizing well-log and outcrop data. Documented and proposed faults from Jacobi (2002) overlain for comparison. Colors inverted for black shale isopachs (blues thick, reds thin).

coincide with basement structures. The east-west trend in exhibited in Cattaraugus County is a product of the data distribution, the east-west data points following the trend of Cross-section B.

The isopach for the Hume Formation (Figure 35) also combines well-log and outcrop data, exhibits a strong north-south trend. The north-south trends to the black shales suggest that the active Clarendon-Linden Fault System created smaller north-south oriented basins that formed thicker black shale deposits.

The Lower Rushford Member isopach map (Figure 36) combines both well-log and outcrop data to provide better coverage for the northern section of the study area. Three thick sandstone zones occur in the northern section of the study area, all three possessing a north-south trend. The two north-south sandstone packets in northern Cattaraugus County exhibit a weak east-west trend which may be caused by the spatial distribution of data points. In the southern section of the study area, a more complex pattern is presented; linear sandstone packets occur along of northeast trends, as well as north-south trends occur east and west of the Cattaraugus-Allegany border.

The Upper Rushford Isopach (Figure 37) shows a less coherent pattern than observed for the Lower Rushford Member. Several broad northwest-trending sandstone packets are present that seem to terminate at northeast-trending faults. In general, the isopach map reflects the lensing nature of the Upper Rushford Member, where in outcrop a 15 cm and a 30 cm sandstone beds thicken to form a 297 cm sandstone packet over a lateral distance of 250 meters.

The Machias 1st Sand isopach map (Figure 38) combines both well-log and outcrop data, displays an overall northeast and northwest trend for the thicker sand packets. In the southwestern corner of Cattaraugus County is a small, narrow northwest trending sandstone packet. In southeast Cattaraugus County, the sandstone packets exhibit north-south, northwest and east-west trends in almost a birdfoot delta patterns. In the northern section of the study area, two east-west trending sandstone packets occur along the Allegany-Cattaraugus border. The thickest sections both east-west trending packets appear to coincide with north-south trending faults. In southeastern Allegany County is an apparent north-south trending sandstone packet that is formed from two, smaller northeast-trending sandstone packets. At the eastern border of Allegany County is an apparent northwest trending sandstone packet that is comprised of two, en echelon, smaller northeast-trending sandstone packets. The broad northwest-trend in Allegany County closely follows two northwest trending basement faults and terminates at northern end along a north-south trending basement fault.

The Machias 2nd Sand isopach map (Figure 39) displays a northwest trend for the thickest sand packet that is paralleled by smaller sandstone packets to the southwest. Towards the northwest, the trend becomes more westerly.

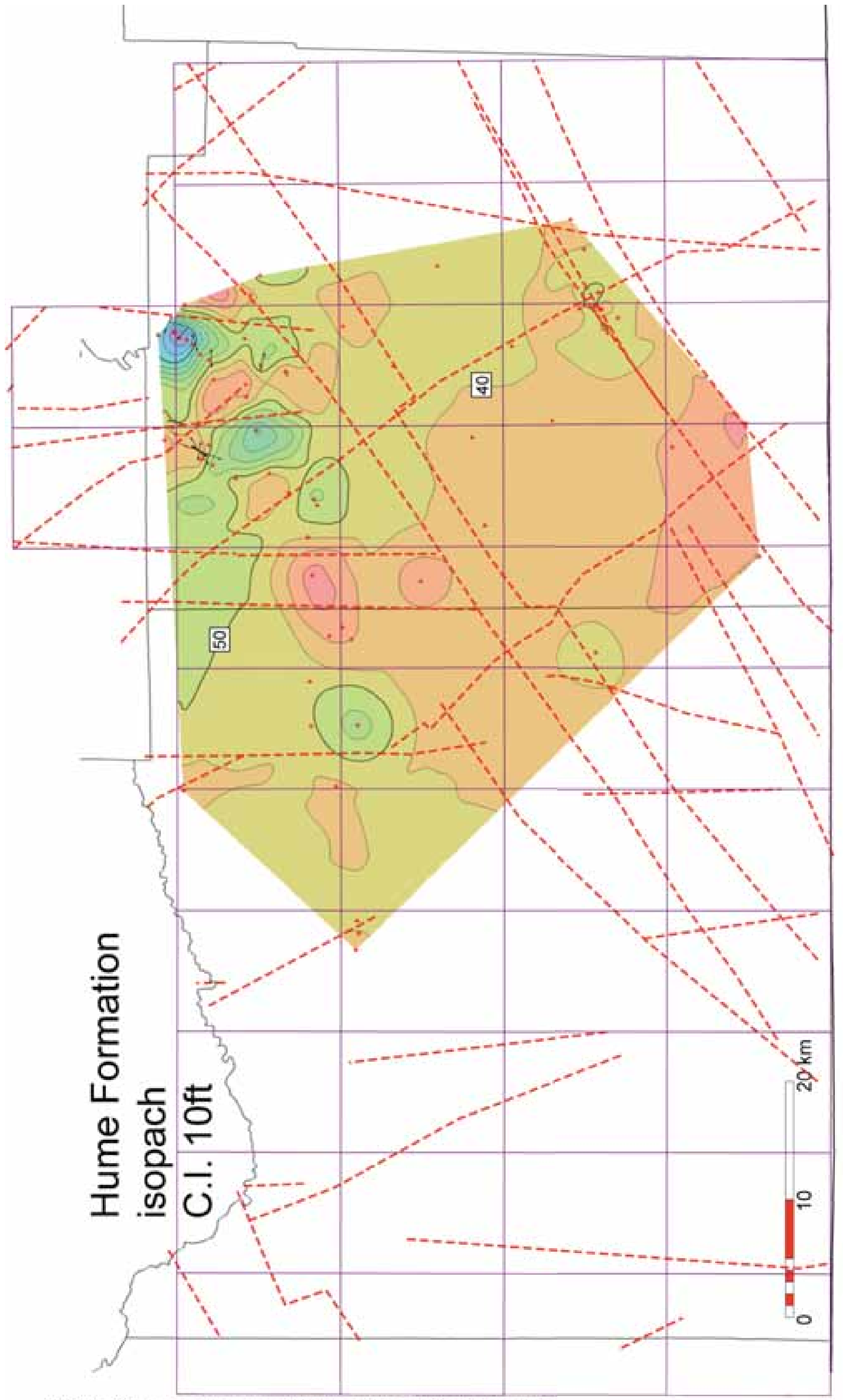


Figure 35. Isopach map of Hume Fm., utilizing well-log and outcrop data. Documented and proposed faults from Jacobi (2002) overlain for comparison. Colors inverted for black shale isopachs (blues thick, reds thin).

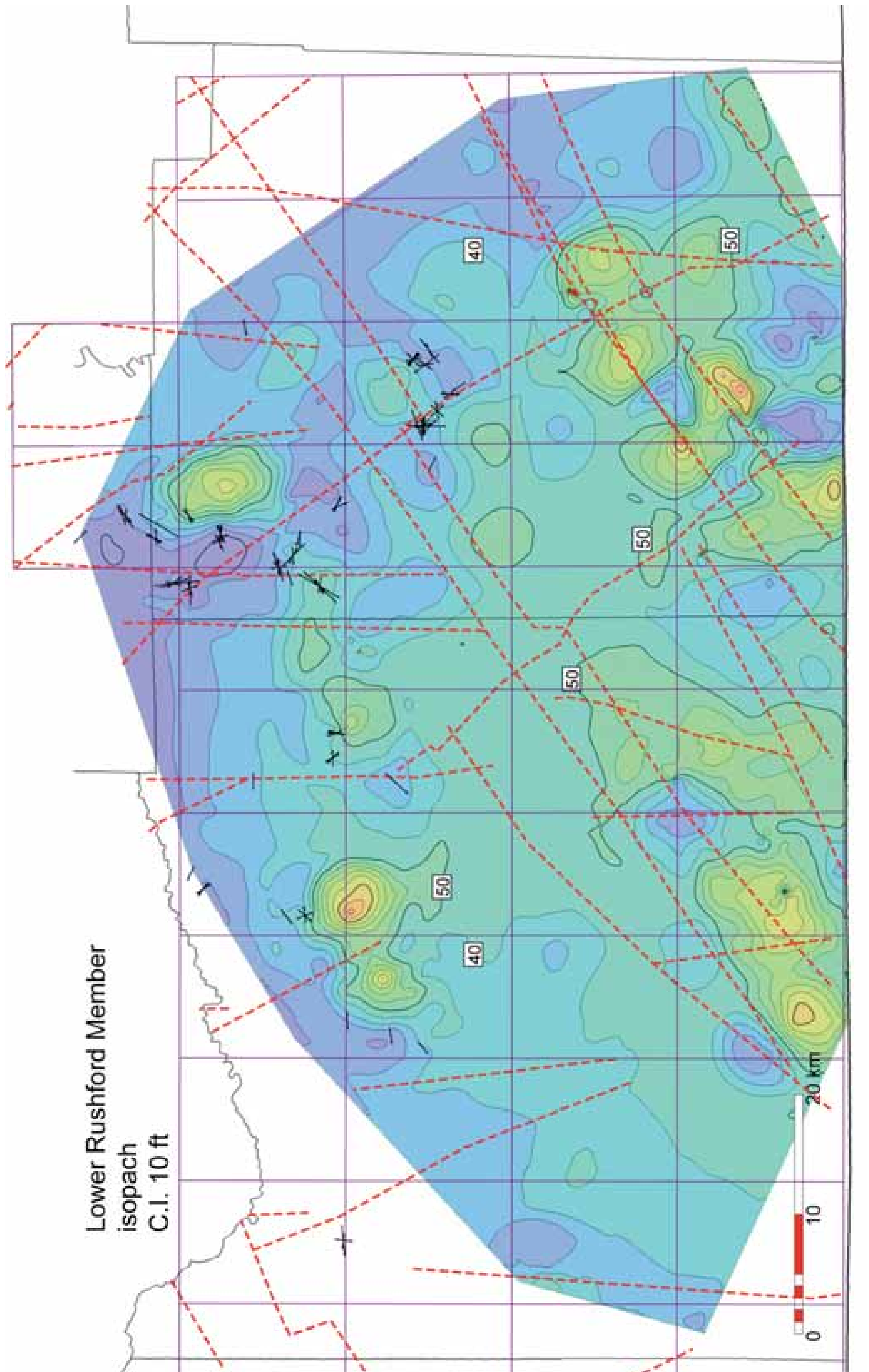


Figure 36. Isopach map of the Lower Rushford Mbr., utilizing well-logs and outcrop data. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

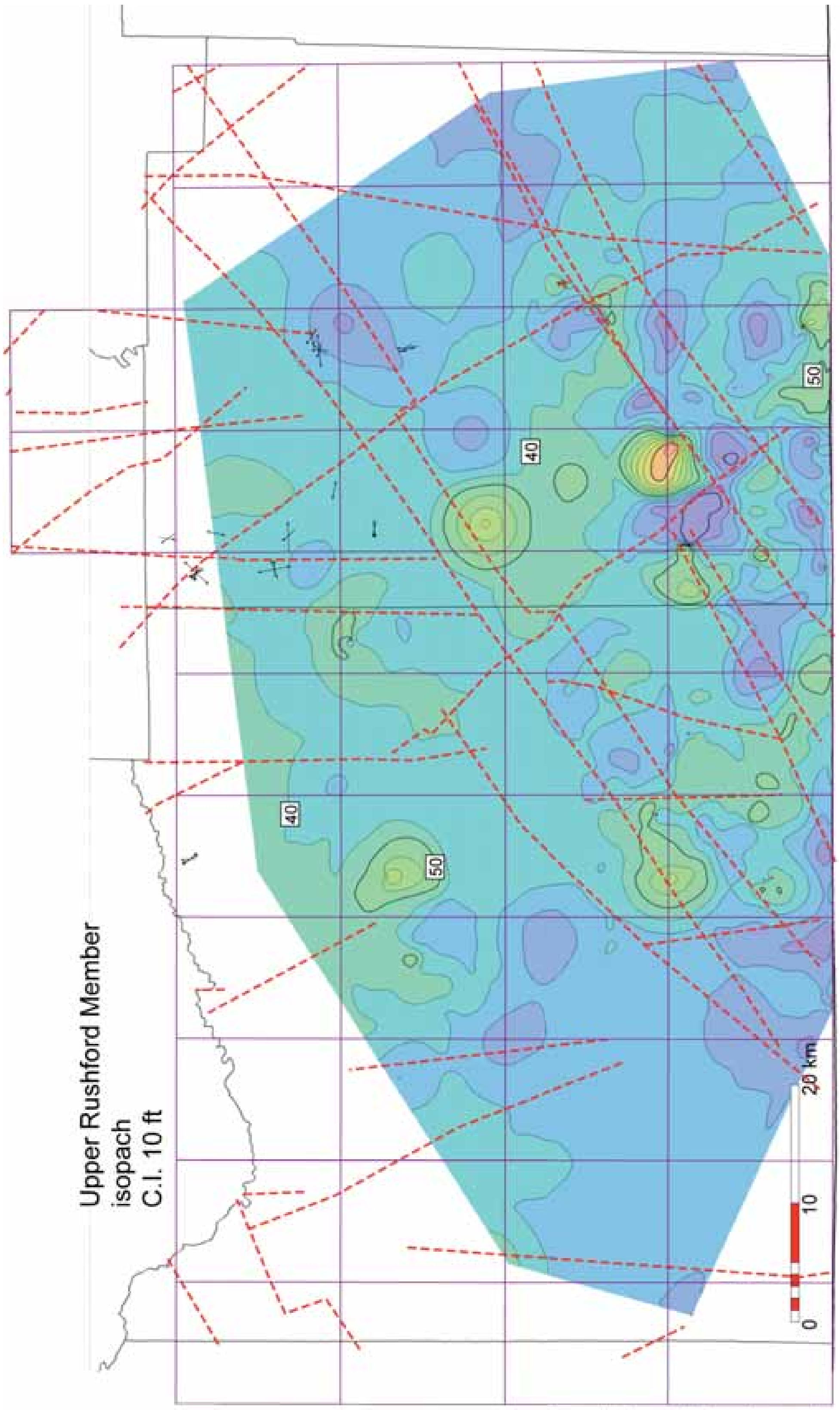


Figure 37. Isopach map of the Lower Rushford Mbr., utilizing well-log data only. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

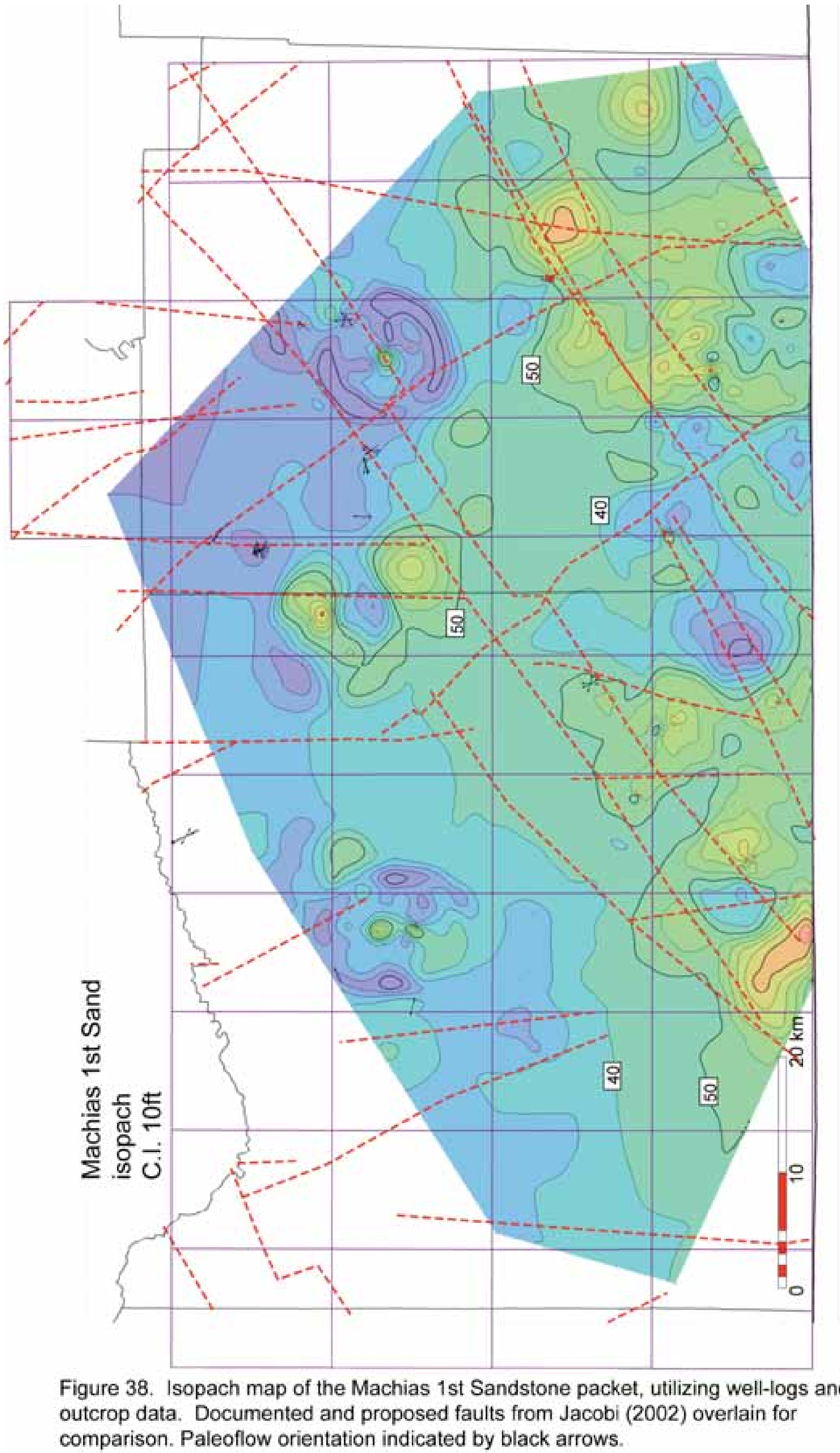


Figure 38. Isopach map of the Machias 1st Sandstone packet, utilizing well-logs and outcrop data. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

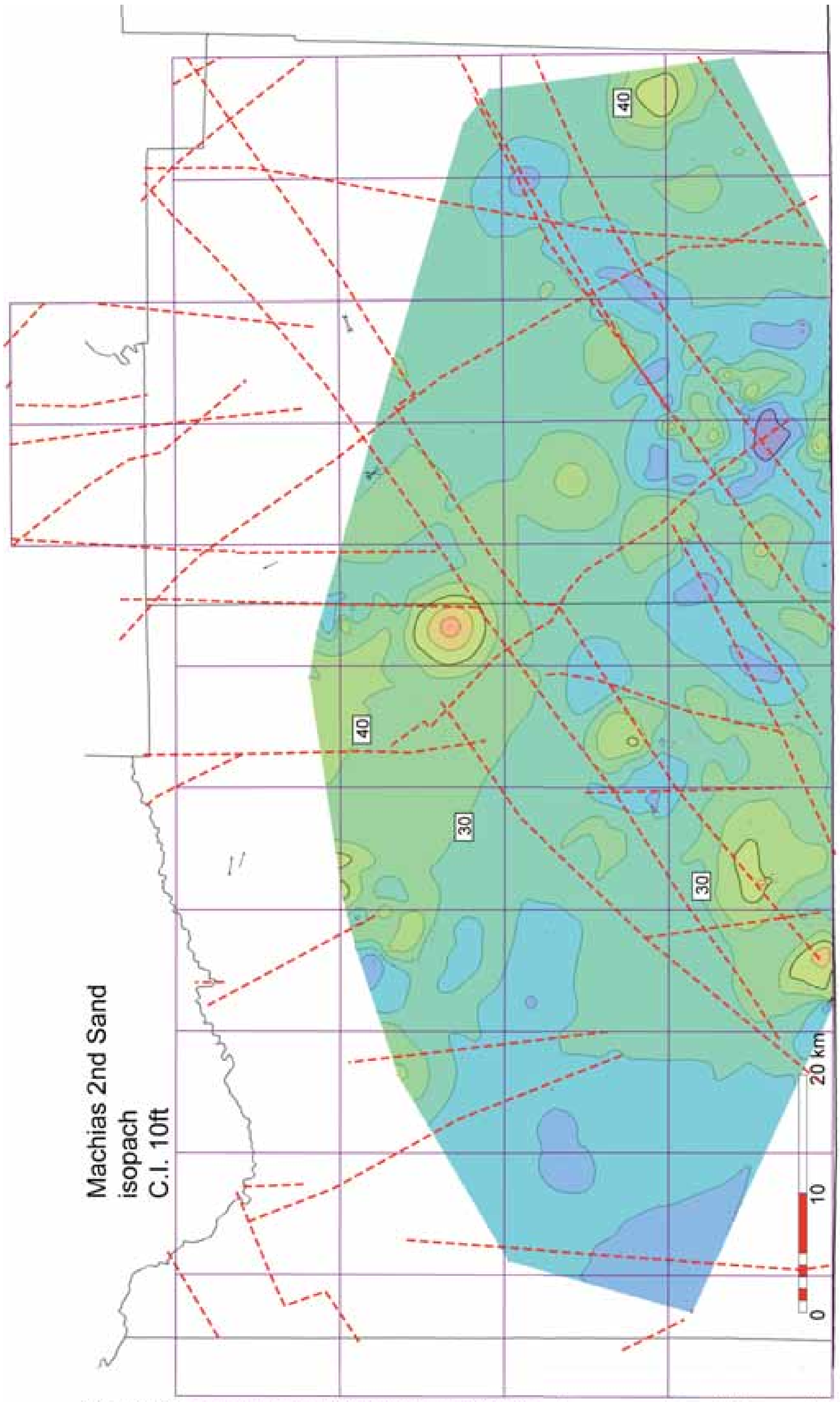


Figure 39. Isopach map of the Machias 2nd Sandstone packet, utilizing well-log data only. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

The Machias 3rd Sand isopach map (Figure 40) displays an en echelon northeast trend along the southern border of Cattaraugus County that continues into Allegany County, but becomes much weaker east of the intersection with a northwest trend in the southwest corner of Allegany County. Two north-south trending sandstone packets occur along north-south trending faults; the northern sandstone is located along the Cattaraugus-Allegany border, the southern sandstone is location along the southern border of Allegany County. A weak east-west trend occurs along the northwestern corner of the study area, although this trend may reflect the spatial distribution of the data points.

The Machias 4th Sand isopach map (Figure 41) displays two north-south trending sandstone packets, the northern packet along the Allegany-Cattaraugus border; the southern packet east of the Allegany – Cattaraugus border. A weaker northeast trend is exhibited in Allegany County, although the sandstone packets are intersected by north-south trending lows.

The Cuba Formation isopach map (Figure 42) combines both well-log and outcrop data, exhibits a weak north-south trend in the northern section of the study area. A broad zone occurs along the southern section of the study area that combines north-south and east-west trending elements along the boundaries of this zone. A small northeast-trending sandstone occurs from the northern edge of the east-west trending sandstone.

Isopach maps were not generated for units stratigraphically higher than the Cuba Formation as the spatial distribution the data became more and more clustered (in part reflecting the topography of the area in that wells drilled upon the hills contained a longer Upper Devonian stratigraphic section than wells drilled in the valleys, as well as the northern limits of units higher in the stratigraphic section). Still another factor is trying to utilize the uppermost portion of data from well-logs, which generally lies behind casing given a more muted signal, or is entirely omitted for the log. The isopach maps we produced for units above the Cuba Formation generated isolated, bulls-eye circles without forming recognizable or convincing trends.

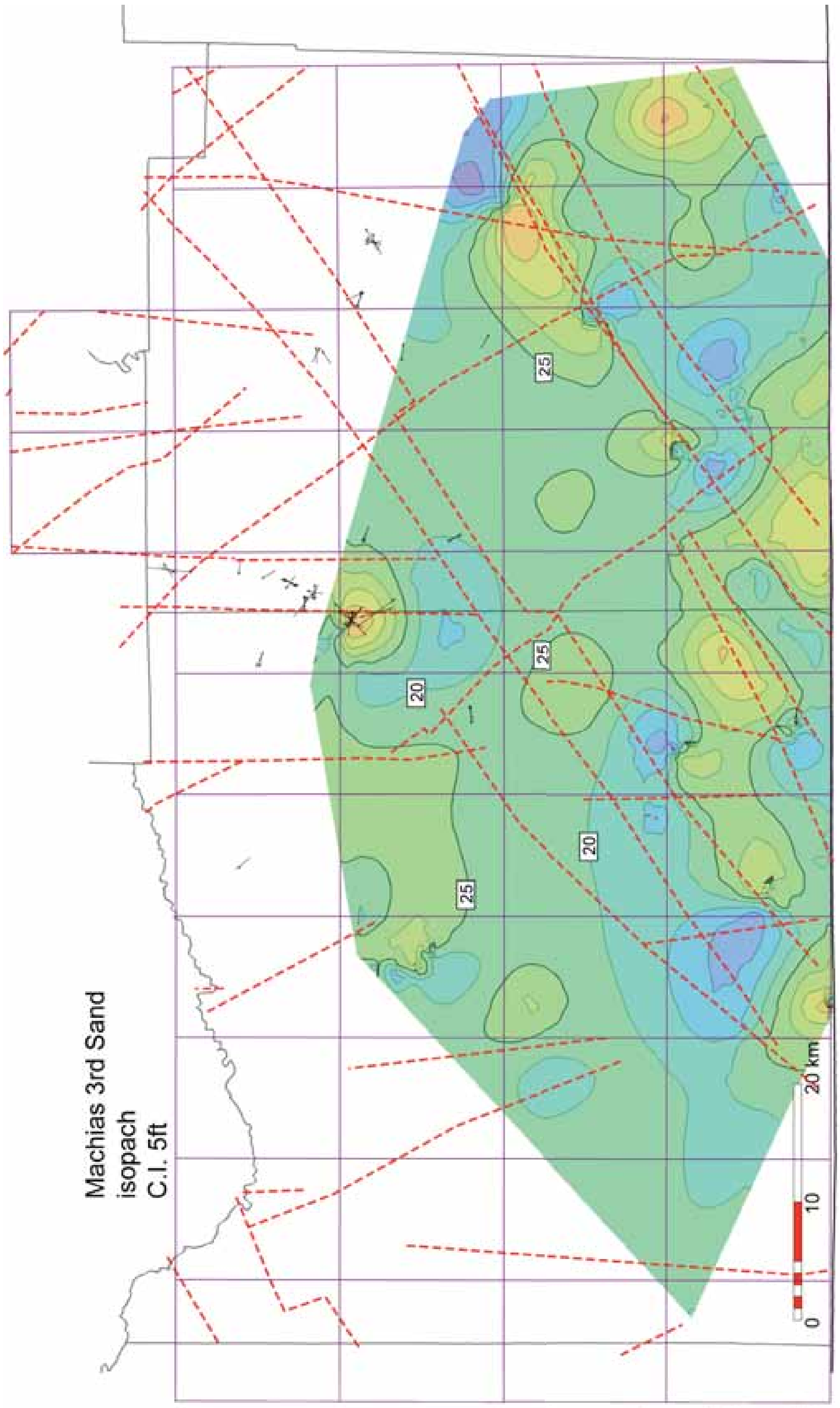


Figure 40. Isopach map of the Machias 3rd Sandstone packet, utilizing well-log data only. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

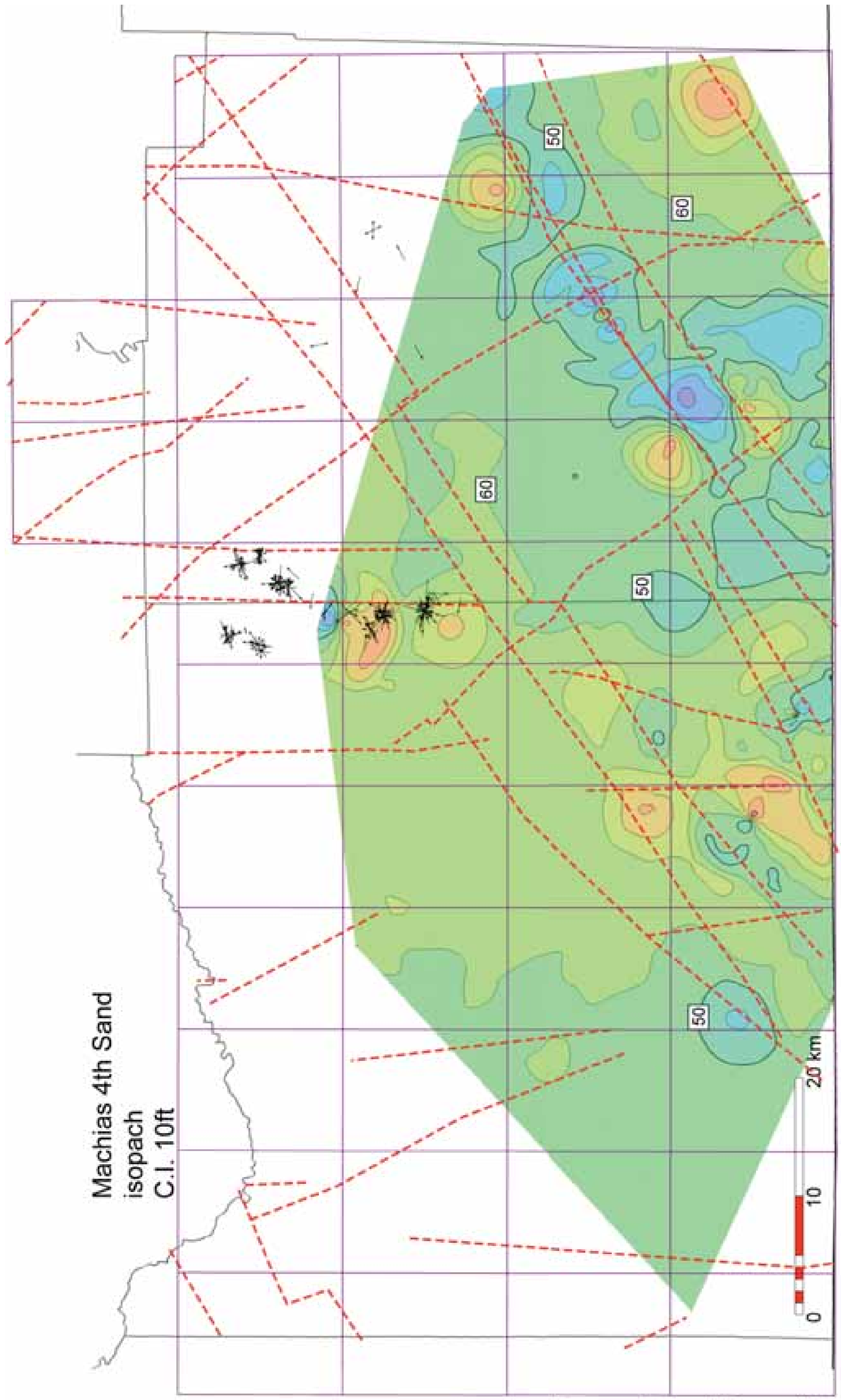


Figure 41. Isopach map of the Machias 4th Sandstone packet, utilizing well-log data only. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

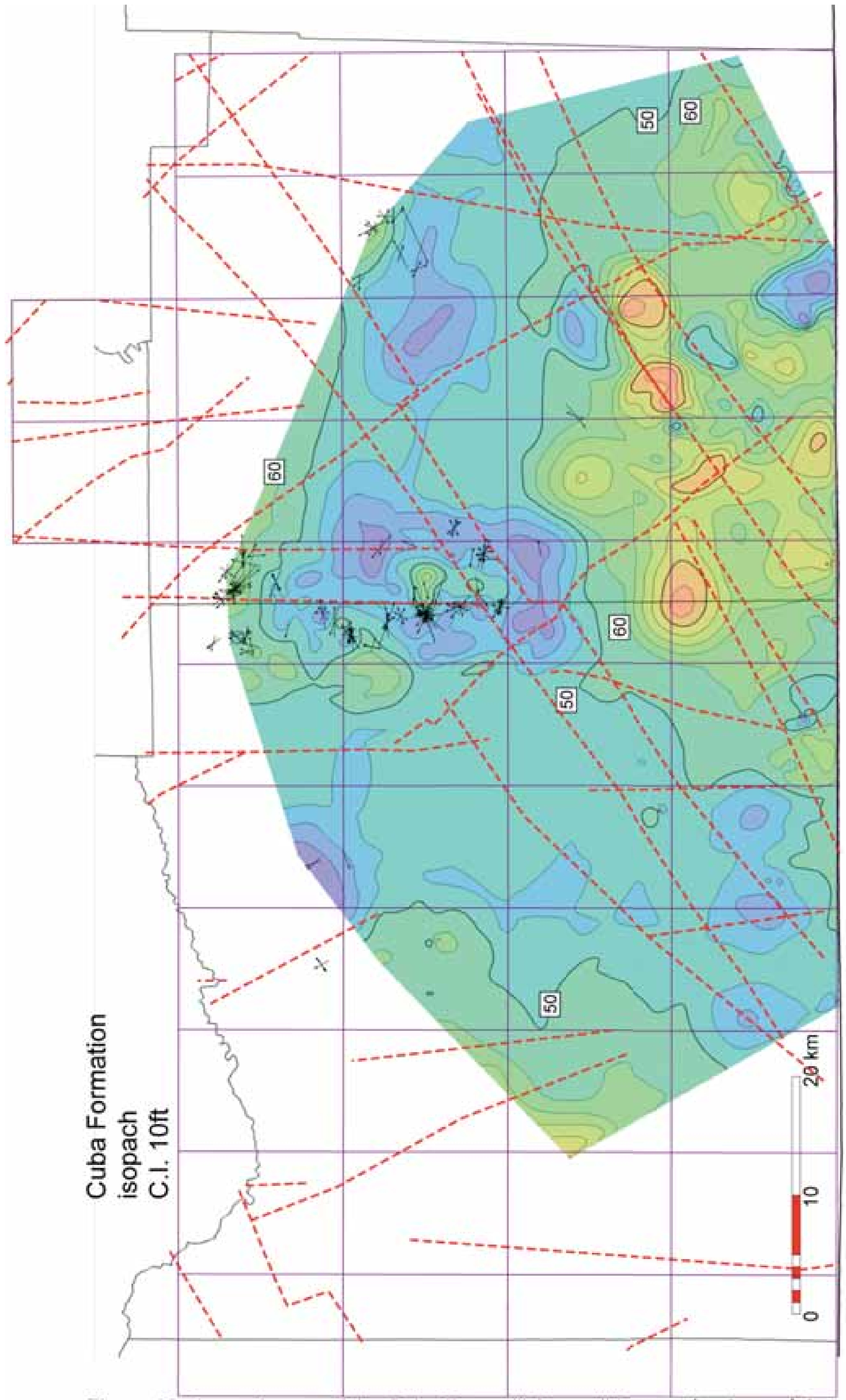


Figure 42. Isopach map of the Cuba Fm., utilizing well-logs and outcrop data. Documented and proposed faults from Jacobi (2002) overlain for comparison. Paleoflow orientation indicated by black arrows.

Section 3
PALEOFLOW INDICATORS

A main aspect of this investigation involves the collection and analysis of paleoflow, measured from sedimentary structures at outcrop. Important to the analysis is the interpretation of the depositional environment and what flow vectors are influencing and/or controlling the localized paleoflow. In general, the less dispersion in the paleoflow, the likely the deeper the depositional environment (the sediment was too deep to be affected by storm wave base, fair-weather wave base, or similar shallow currents. Turbidites will typically exhibit a strong unidirectional trend along the main channel and only show signs of dispersion occur near the end of the sand-lobe. Storm deposits (tempestites) will generally exhibited combined flow; the normal, background paleocurrents as well as currents generated by the storms passing. 3-D ripples and hummocky cross-stratification (HCS) commonly occur in combined-flow regimes as will linguoid and interference ripples. Beach and barrier bars will contain components from waves, longshore and rip currents. Fluvial regimes will exhibit a variety of flow vectors dependant on the location within the system. Estuarine flow will contain bidirectional flow vectors indicative of a strong tidal component, while lateral accretion bars will appear to flow perpendicular to the main channel.

For this study, the paleoflow indicators we examined and measured were: primary beddings structures including cross-bedding, parting lineations, ripples and trough cross-sets; erosional sole markings including flute casts, furrows (guttercasts), striations and grooves; and linear, orientated features such as small channels (1-5 meters in width) and plant/wood fragments. Measurements for unambiguous unidirectional paleoflow indicators (straight, sinuous, linguoid and mega-ripples, trough cross-sets, cross-beds and flute casts) are recorded to indicate the observed paleoflow orientation; bi-directional (symmetrical ripples) and paleoflow indicators without a clear flow direction (grooves, striations, furrows, channels, parting lineations and wood fragments) were assigned a westward flow direction to reflect the general orientation of the basin and enable the creation of rose diagrams for all measured paleoflow indicators but by no means reflects an assumption that the flow must be to the west (Figure 43 and Table 2). Where the paleoflow indicators are presented on maps, the bidirectional paleoflows are indicated with a double headed arrow.

Examining all of the collected paleoflow data by group, formation and selected sub-units a clear change is evident at the Caneadea – Rushford formations; coinciding with a major sequence boundary and change from offshore to shoreface depositional environment. From paleoflow data collected in Upper West Falls Group and the lower part of the Canadaway Group exhibits strong westward flow with minor dispersion; which reflects the overall, deeper depositional environments of the sediments and fewer depositional currents to create combined flow and/or alternating flows. The strong westward trend (281.9^{o}, vector-length 0.7269) for the lower part of the stratigraphic section suggests that the paleoshoreline was orientated nearly north-south. Solemarks, which generally do not reflect combined flow, also exhibit a strong

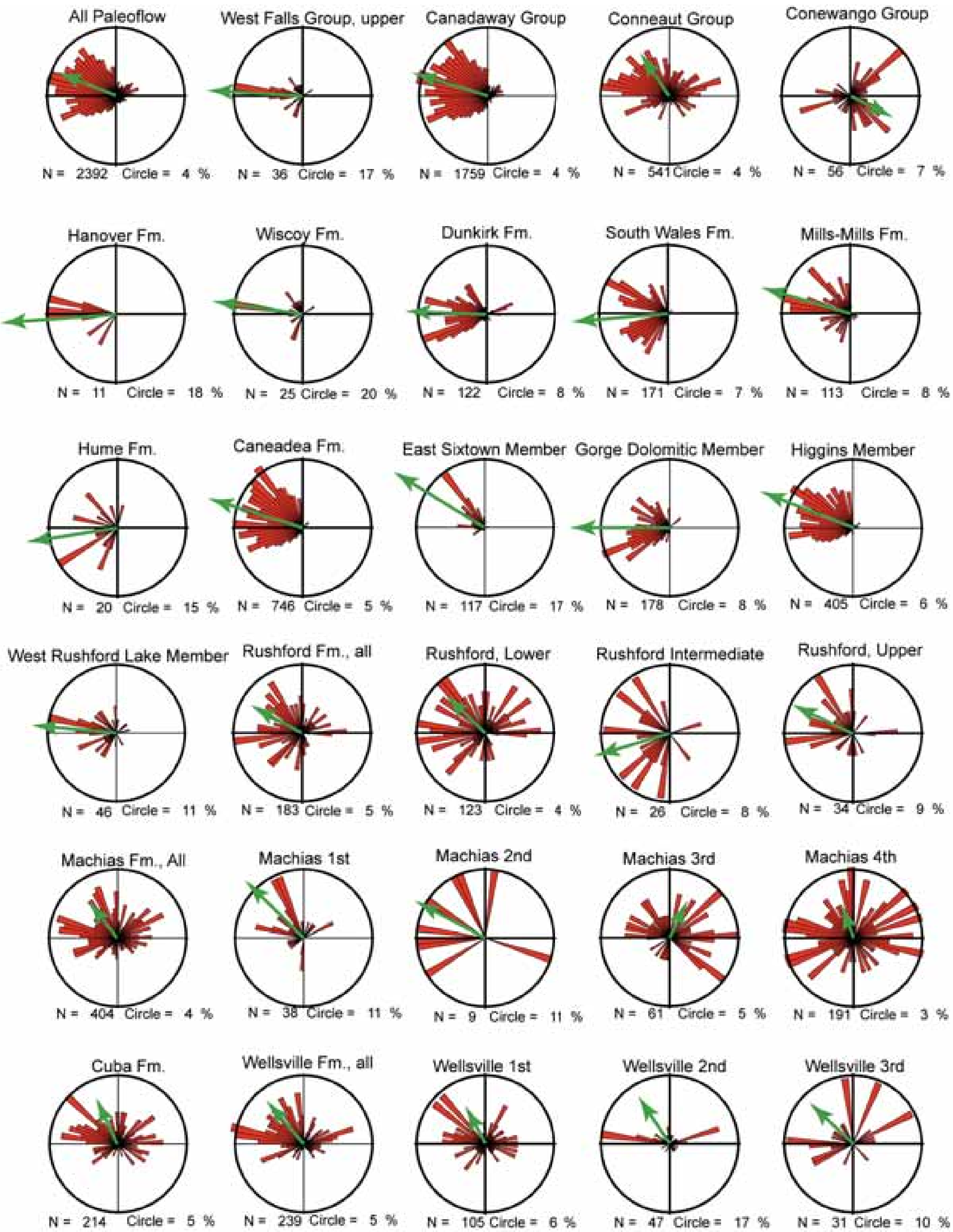


Figure 43. Paleoflow measurement rose diagrams from all formations and selected members. Green arrows represents the vector mean paleoflow. Statistics presented in Table 1.

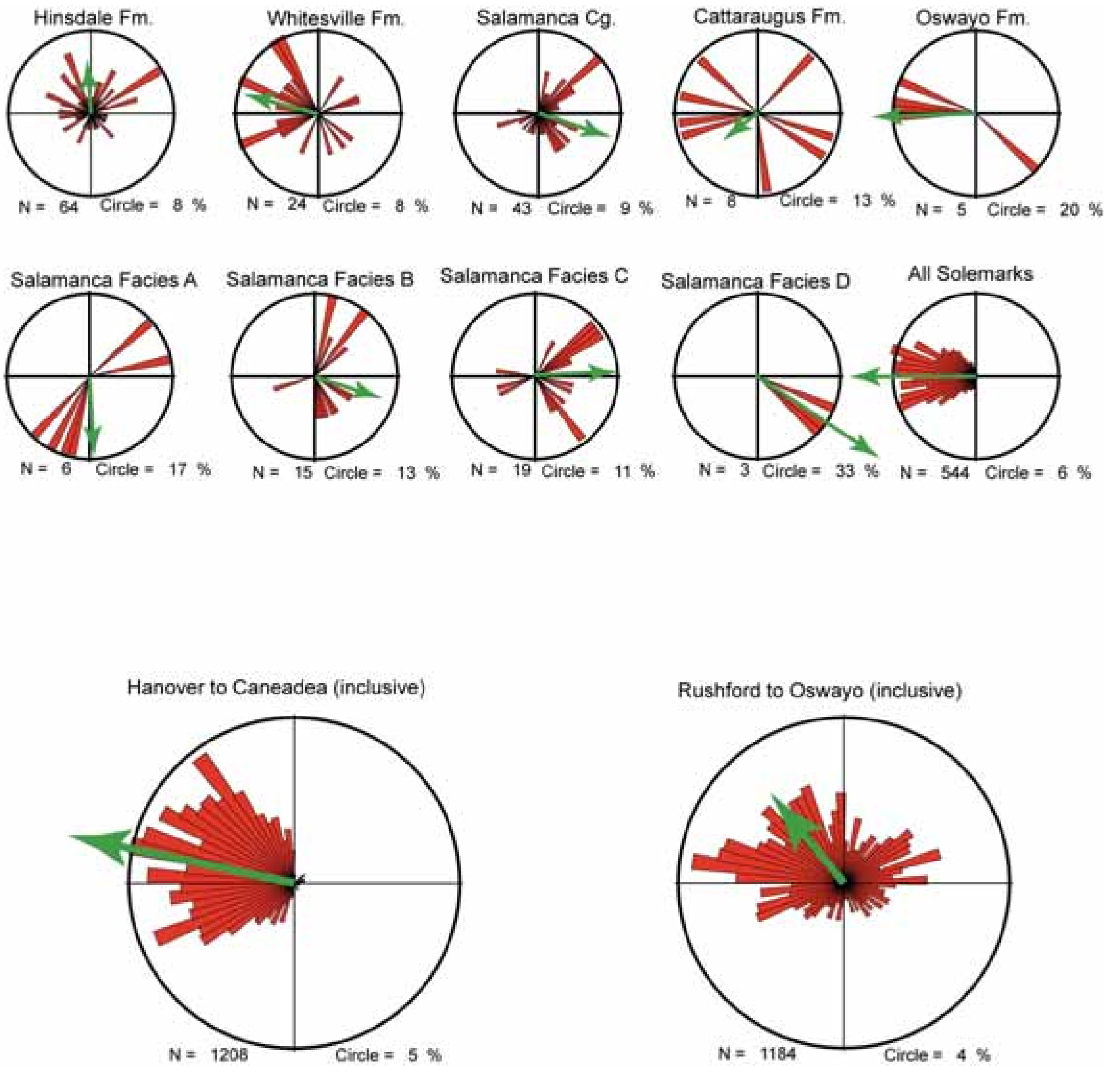


Figure 43 continued.

TABLE 2

Stratigraphic Unit	Paleoflow #	Vector Mean	Vector Length	Concentration
Hanover	11	265.8	0.9219	12.8026
Wiscoy	25	278.1	0.6773	2.9749
Upper West Falls	36	273.5	0.748	3.8577
Dunkirk	122	272.3	0.5794	3.0939
South Wales	171	265.2	0.7296	3.676
Mill-Mills	113	286.3	0.6933	3.232
Hume	20	261.2	0.6868	3.033
Caneadea All	746	287.3	0.753	4.0434
East Sixtown Mbr.	117	301.6	0.8291	5.801
Gorge Dolomitic Mbr.	178	270.1	0.7609	4.1587
Higgins Mbr.	405	291.4	0.7691	4.3203
West Rushford Lake Mbr.	46	275.2	0.6159	2.5471
Rushford All	183	298.5	0.3562	1.5448
Rushford Lower	123	314.1	0.3344	1.4901
Rushford Intermediate	26	253.2	0.5596	2.1833
Rushford Upper	34	295.7	0.4515	1.7697
Machias All	404	322.1	0.2495	1.3291
Machias 1st	38	314.5	0.5883	2.3652
Machias 2nd	9	297.8	0.5655	2.3012
Machias 3rd	61	25.2	0.1987	1.2275
Machias 4th	191	340.5	0.1424	1.1599
Canadaway	1759	287	0.5656	2.3005
Cuba	214	335.6	0.2819	1.3861
Wellsville All	239	319.4	0.3491	1.53
Wellsville 1st	105	331.8	0.2069	1.2489
Wellsville 2nd	47	326.4	0.3448	1.4939
Wellsville 3rd	31	313.3	0.3862	1.5766
Hinsdale	64	355.4	0.2349	1.2865
Whitesville	24	285	0.4154	1.6393
Conneaut	541	326.5	0.3013	1.4286
Salamanca Cgl.	43	108.4	0.4124	1.6621
Facies A	6	176.9	0.4415	1.7904
Facies B	15	107.9	0.3634	1.5709
Facies C	19	87.6	0.475	1.8046
Facies D	3	123.7	0.9927	136.4031
Cattaraugus	8	231.5	0.1569	1.186
Oswayo	5	268.1	0.6344	2.7351
Conewango	56	117.1	0.2541	1.3168
All Data	2392	291.8	0.4752	1.9048
All Solemarks	544	269.9	0.813	5.3372
Hanover to Caneadea	1208	281.9	0.7269	3.6586
Rushford to Oswayo	1184	320.7	0.262	1.354

Concentration = measurement of dispersion, the larger number is less disperse

Table 2. Breakdown of basic statistics for every formation and selected members for the study area.

westward trend (269.9^o, vector length of 0.813), 82% of the collected solemark measurements occurred within the Hanover to Caneadea formations inclusive. From Rushford deposition and upward, the vector-mean changes to 320.7^o, with a vector-length of 0.2620; the low vector length indicates more dispersion within the paleoflow data, but suggests that paleoshoreline changed to northeast-southeast trend (~50^o-230^o). The apparent shift in shoreline orientation coincides with the increase of thicker sandier units in the stratigraphic section, as well as being stratigraphically close to the start of the seismite zones suggesting that the shift in shoreline orientation might be connected to regional seismic activity. Storm deposition overall increase upsection within the study area, HCS and 3-D ripples occur in thin sandstone beds within the Dunkirk and South Wales formations modifying the top surfaces of the thin turbidites (Figure 44). Increased evidence of storm activity is observed within the Caneadea Formation from the presence of HCS and tempestite deposits comprised of fossil shell lags (Figure 45). The Rushford Formation marks the first occurrences of thick bedded sandstone packets in the Upper Rushford Member. While the Lower Rushford Member is dominantly a wave-dominated shoreface sequence, the Intermediate Rushford Member contain HCS and 3-D ripples, and the thicker (1-2+ m) sandstone packets of the Upper Rushford Member contains the swaly-cross stratification (SCS) as well as thicker shell lags (Figure 46). Swaly cross-stratification as described by Leckie and Walker (1982) as "internal stratification that is dominantly flattish to very gently undulating, and the swales cut in to this lamination" – p. 223 Walker and Plint, 1992. Generally, thick sequences of SCS (greater than 2 meters) are interpreted to represent storm-dominated shoreface sequences where storms rework the lower and middle shoreface. Overlying the Rushford Formation, nearly all thick sandstone packets within the upper Canadaway Group, and throughout the Conneaut Group, exhibit strong SCS bedding; as well as the ubiquitous occurrence of coquinite lenses of shell lags within the sandstone packets. This suggests a marked increase in either storm activity or the strength of storms affecting the region.

The lower stratigraphic units from the Hanover to the Caneadea (inclusive) all exhibit a dominant westward trend; however they are not identical in their pattern of distribution. For the limited data from the uppermost West Falls Group, the shallower deposited Wiscoy Formation contains subsets trending north-south. The Dunkirk Formation contains a developing bimodal distribution between west-northwest (~280^o) and west-southwest (~250^o). The bimodal trend is becomes better developed in the South Wales Formation, where there is an absence of west-flowing (~270^o) paleoflow indicators. This bimodal pattern may reflect a divergence between normal offshore flow and developing storm-induced currents as the majority of the west-southwest flowing paleoflow indicators (as well as a subset trending east-northeast) are comprised of linguoid and 3-D ripples typical of storm deposits and/or combined-flow deposition. A north-south trending subset occurring in the South Wales Formation continues in the Mills-Mills Formation through to the Caneadea Formation. The occurrences of the north-south paleoflow indicators were suggested by Smith and Jacobi (1998 and 2002) as resulting from redirection of paleocurrents from faulting, as the majority of north-south trending paleoflow indicators were located within north-south

Figure 44. Thin turbidite sandstone with 3-D ripples on the top surface. From Site 93/281b, tributary creek along eastern side of the Genesee River

Figure 45. A) Hummocky cross-stratification in plan view. B) Tempestite bed that laterally grades into coquinite (shell-lag). Both photographs taken in the Gorge Dolomitic Member of the Caneadea Formation, at Site 91/1

Figure 46. A) Thick-bedded, swaly cross-stratification at a roadcut of the Upper Rushford Member, Site 93/185. B) Swaly cross-stratification with thin, internal lenses of coquinite (red arrows), at a roadcut of the Hinsdale Formation, Site 05/37.

trending fault zones of Clarendon-Linden Fault Zone. The Mills-Mills Formation turbidites exhibit a strong westward trend but contain a large northwest (~320^{o}) trending subset and a more broadly dispersed pattern that suggest the influence of more than one or two controls. The Hume Formation contains too few paleoflow indicators to infer trends. The Caneadea Formation exhibits a broad range of paleoflows covering southwest (240^{o}) to north (355^{o}). Examining the paleoflow for the four members that comprise the Caneadea Formation, the lowest unit, East Sixtown Member, show a strong northwest paleoflow (301.6^{o}). The overlying Gorge Dolomitic Member has a bimodal distribution in the paleoflow indicators, the majority trending to the west-southwest (250^{o}) while a weaker subset trends to the northwest (300^{o}).

The Higgins Member, eastern correlative to the Laona Sandstone, has a disperse northwest trend (291.4^{o}) with subsets trending west and north. The uppermost West Rushford Lake Member paleoflow is the most disperse of all the member of the Caneadea Formation with a general west-trending paleoflow (275.2o) with subsets trending, north (355^{o}), southwest (220^{o}) and northeast (50^{o}). The wider dispersion of paleoflow in the West Rushford Lake Member coincides with the appearance of the first widespread seismite layers in outcrops and may mark the change between the unimodal trends of the lower stratigraphic units (Hanover to Caneadea formation, inclusive) and the polymodal trends that occur in the upper stratigraphic units.

The entire Rushford Formation has a paleoflow vector mean of 298.5^{o}. For the individual members comprising the Rushford Formation the paleoflow vector means change from northwest (314.1^{o}) in the Lower Rushford Member, to west-southwest (253.2^{o}) in the Intermediate Rushford Member, back to northwest (295.7^{o}) in the Upper Rushford Member. Both the sandstone packets of the Lower and Upper Rushford members contain east-west trending subset, north-south trending subset, as well as the northwest trending set. The Lower Rushford Member also contains a distinct northeast-southwest trending subset. The Intermediate Rushford Member does not have dominant trending set but contains: south-trending subset, southwest-trending subset, west-trending subset and a northwest-southeast trending subset. Examining the geographic distribution of the paleoflow directions with the trends observed from the generated isopach maps, it looks as if the paleoflow indicators trend either parallels or is perpendicular to the trends from the Lower Rushford Member isopach map (Figure 36). For the Upper Rushford Member, isopach trends were weak in general; the relatively few measured paleoflow indicators are oblique to the weak northwest – northeast trends (Figure 37).

The Machias Formation exhibits a very disperse paleoflow pattern; for all measured paleoflows within the formation produce a vector mean of 322.1^{o} with a vector length of 0.2495. Subsets trending west-northwest (~295^{o}), west-southwest (~255^{o}), northwest (~330^{o}), and east-northeast (~60^{o}), show the complicated pattern of currents controlling Machias deposition. Examining each of the four major sandstone packets within the Machias Formation, an increase in eastward-flowing paleoflow trends is observed upsection.

The Machias 1st Sandstone packet contains a strong north-northwest trend (~335°) with subsets trending west (~270°), south (~185°) and east-northeast (~60°). Examining the geographic distribution of Machias 1st Sandstone paleoflow indicators with the generate isopach map (Figure 38), the majority of paleoflow indicators are orientated either parallel or perpendicular to the thicker sandstone regions, although the number of paleoflow measurements in the Machias 1st is too few to establish regional trends.

The Machias 2nd Sandstone packet contains very few paleoflow measurements, that no appreciable trend can be observed. The relatively few measurements made, generally fall north of the generated isopach map (Figure 39) and do not provide confirmation of general trends.

The Machias 3rd Sandstone packet has the first eastward-trending vector mean (25.2°). Northeast (~45°), east (~90°) and southeast (~135°) trends appear dominant. Comparing the paleoflow indicators with the generated isopach map for the Machias 3rd Sandstone packet (Figure 40), a general east-west trend is observed except for a north-south trend that occurs near the Allegany-Cattaraugus border. Both the east-west and north-south trends run oblique to the thicker sandstone packets.

The Machias 4th Sandstone packet exhibits the most disperse paleoflow pattern, with an overall east-west trend with a major north-trending subset. While the number of paleoflow indicators (191 measurements) is large enough to assume statistical accuracy, the geographic distribution is too concentrated to extrapolate trends for the entire study area. Overlaying the paleoflow indicators with the generate isopach map for the Machias 4th Sandstone packet (Figure 41), it is evident that the majority of collected data occurs within the Freedom and Rawson quadrangles. The occurrence of the north-south trending Rawson Fault of the Clarendon-Linden Fault System within in these two quadrangles may explain the strong north-trending subset in the measured paleoflow. The overall east-west trend does occur eastward into Allegany County.

The Cuba Formation is the basal stratigraphic unit of the Conneaut Group and the occurrence of a coarser-grained basal lag deposits in outcrop suggests that the Cuba Formation represents the transgressive base to the next sequence overlying the Rushford through Machias sequence. Paleoflow for the Cuba Formation is generally disperse, with a vector mean of 335.6° and a vector length of 0.2819, the paleoflow exhibits a strong northwest trend (~315°) with subsets trending west (275°), north (5°), northeast (~50°) and east (~85°). Examining the geographic distribution of paleoflow indicators with the generated Cuba Formation isopach map (Figure 42), the paleoflows tend to trend perpendicular and parallel to the thicker regions. Examining the types of paleoflow indicators measured, the easterly flowing indicators are comprised predominantly of ripples and interference ripples, suggest a combined flow element orthogonally reflecting of the main northwest and west trends.

The Wellsville Formation, in general, is a deeper-water environment (Smith, 2002). The three, thin sandstone packets that are tentatively traceable in outcrop are difficult to positively recognize in well-log. Measured paleoflow indicators from the Wellsville Formation continue to exhibit a disperse pattern, with a general west (~280^{o}) trending flow, but also containing a strong north-northwest (~335^{o}) trending flow, and a distinct west-southwest – east-northeast (~255^{o}-75^{o}) trending alternating flow. The individual sandstone packets within Wellsville Formation exhibit a shift: from northwest (315^{o}) trending flow with a north-northeast – west-southwest (~205^{o}-25^{o}) subset in the Wellsville 1^{st} Sandstone packet, to a more east-west alternating trend in the Wellsville 2^{nd} Sandstone packet, to a more disperse trend in the Wellsville 3^{rd} Sandstone packet with subsets trending west (~270^{o}), north (~355^{o}), north-northeast (~25^{o}) and west-southwest – east-northeast (~255^{o}-75^{o}). As the dominant paleoflow indicators in all three sandstone packets are trough cross-sets, the environment suggest a strong combine-flow, as trough cross-sets form from the migration of 3-dimensional dunes (Miall, 2000). Examining the spatial distribution of the paleoflow for all measurements within the Wellsville Formation (Figure 47), the northeast-northwest trends are evident within Allegany County, while at the Cattaraugus-Allegany border a strong west (and east-west) trending flow is evident suggesting the influence of north-south trending fault blocks.

The Hinsdale Formation exhibits an overall disperse paleoflow pattern with a dominant northeast (~60^{o}) trend and a near-orthogonal north-northwest (~340^{o}) associated trend. Examining the types of paleoflow measured, the easterly trending measurements are predominantly comprised of trough cross-sets, while the westerly flow is comprise of interference ripples and ripples. This suggests that main depositional currents were flowing towards the east, causing a northeastward migration of the sandstone packets. Examining the spatial distribution of paleoflow measurements within the Hinsdale Formation (Figure 48), multiple directions occur at individual sites indicating a strong combined-flow during deposition.

The Whitesville Formation exhibits a paleoflow pattern that is mirror-image of the Hinsdale Formation, with a general disperse pattern, but with the subsets trending west-southwest (~255^{o}) and orthogonal trending north-northwest (~345^{o}) and oblique trending west-northwest (~290^{o}). The types of measured paleoflows are typically ripples and interference ripples, but, in general, there are few collected measurements to identify any trends. Examining the spatial distribution of paleoflow measurements within the Whitesville Formation (Figure 49), a general west-northwest/east-southeast trend is evident in Allegany County, whereas Cattaraugus County contains a more disperse trend to paleoflow measurements.

The base of the Conewango Group is marked by a pronounced erosive unconformity that is characterized by the incised valley fills of the Salamanca and correlative conglomerates (Smith, 2002). Lithologically the

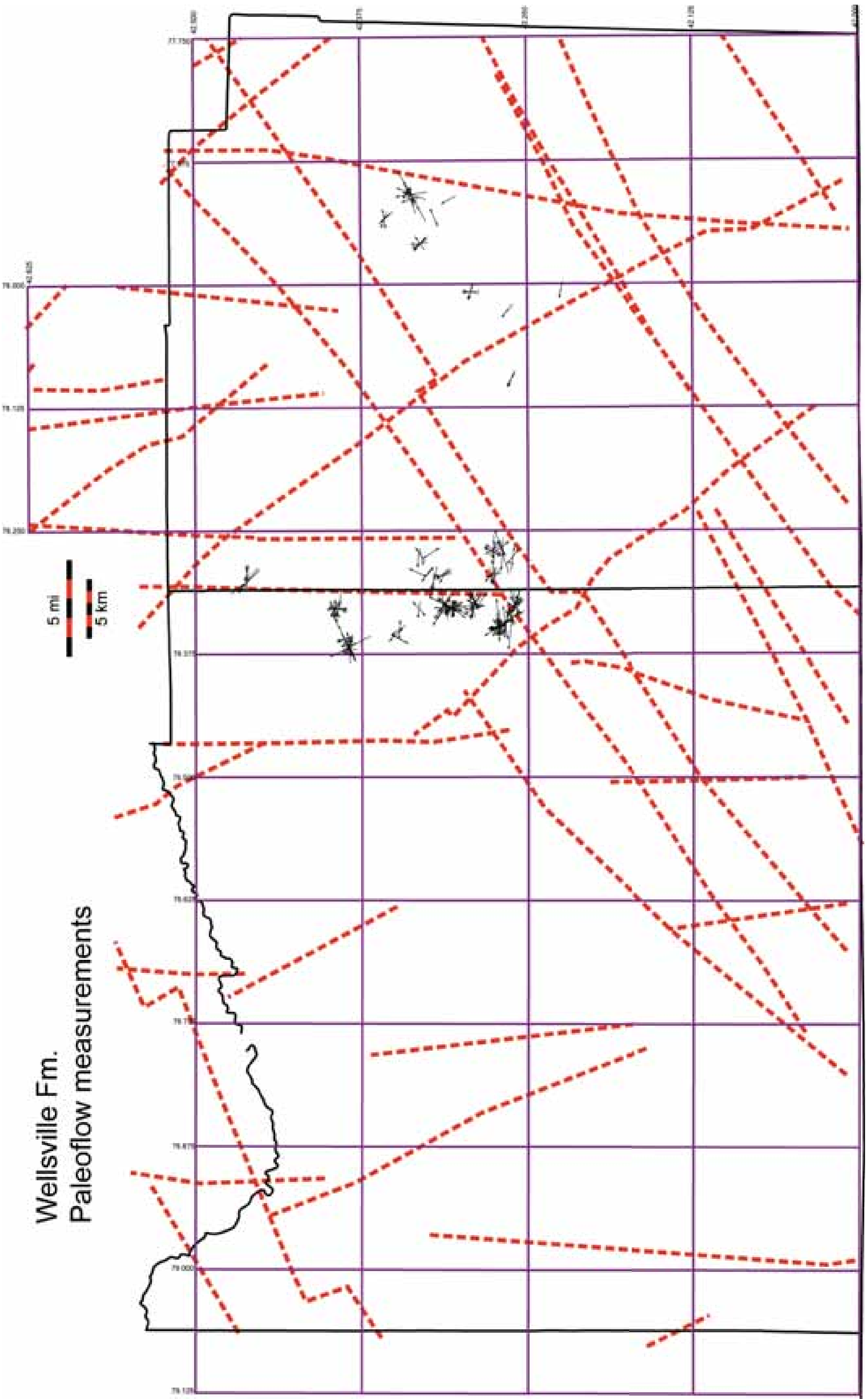


Figure 47. Paleoflow for all measurements taken within the Wellsville Fm.

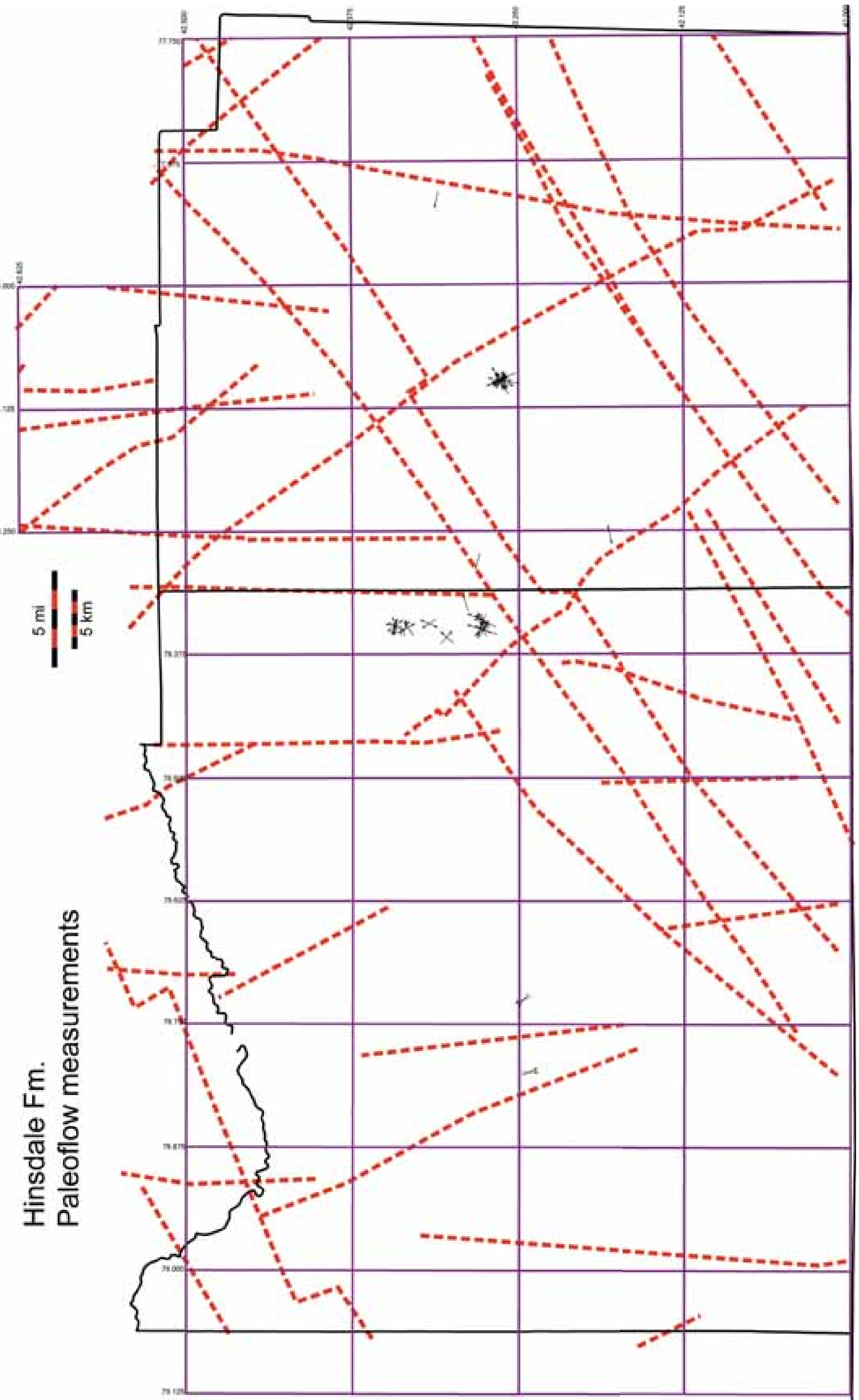


Figure 48. Paleoflow for all measurements taken within the Hinsdale Fm.

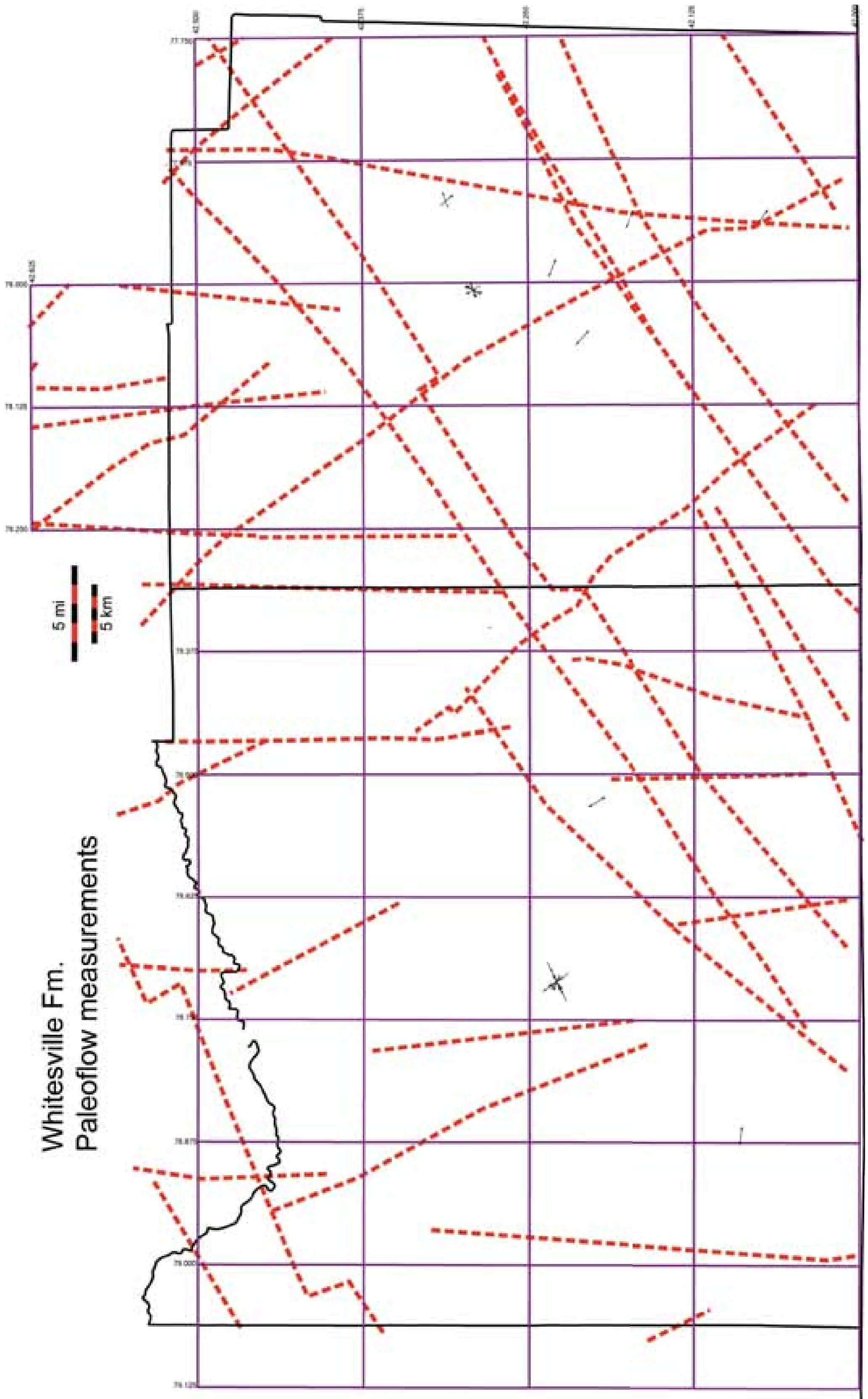


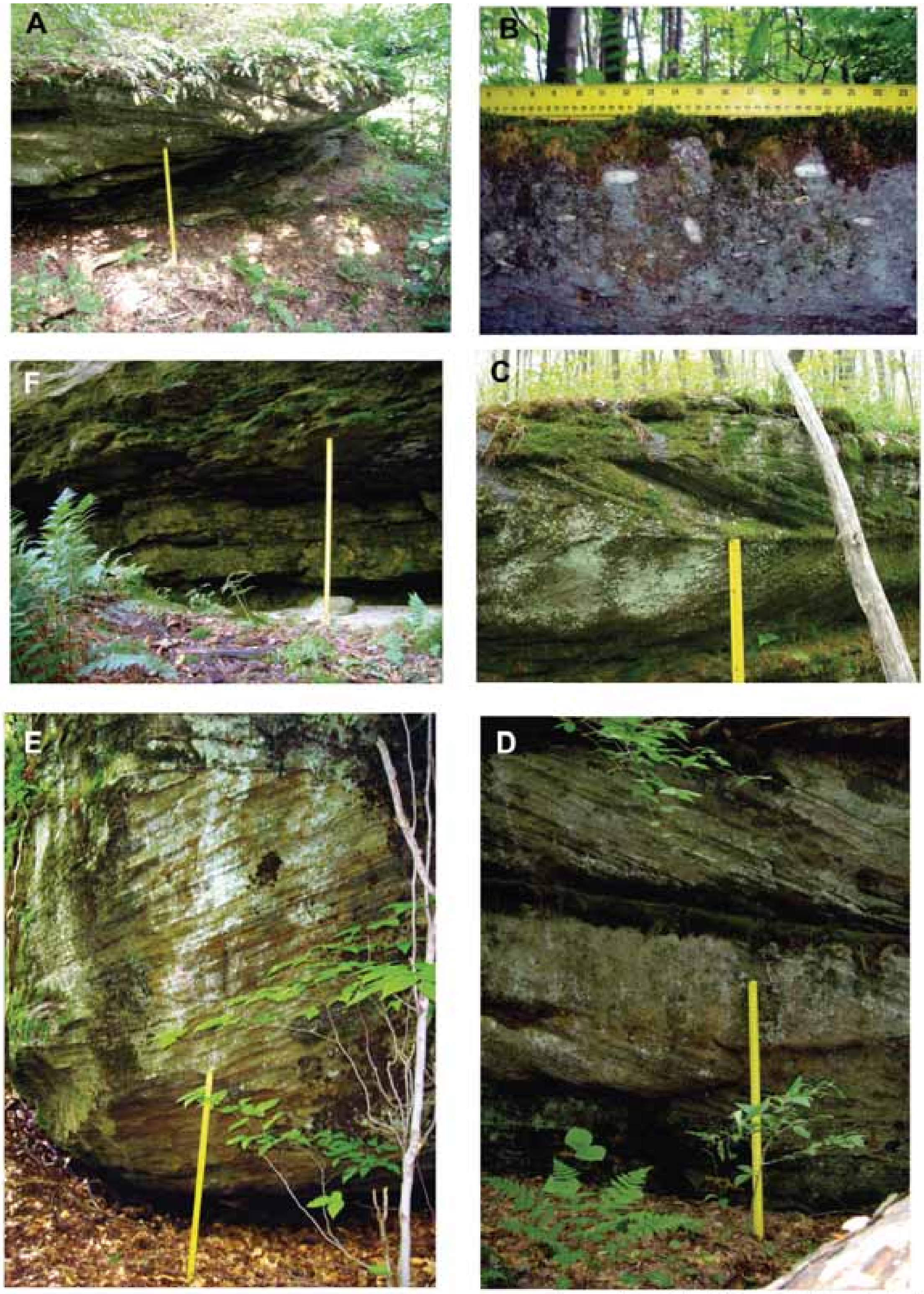
Figure 49. Paleoflow for measurements taken within the Whitesville Fm.

Salamanca conglomerate is comprised of clasts of cloudy white quartz, oblate discoids that range from 0.5 centimeters up to 6+ centimeters in diameter and a matrix is a medium to coarse sand forming an oligomict quartz orthoconglomerate. The oblate discoid shape of the pebbles that form the clasts of the conglomerate would indicate that they were shaped at a wave-dominated shoreface. The large downlapping, graded cross-sets (1 to 4 meters high) and channels suggest an overall fluvial depositional environment. Combining both beach sediments into a fluvial depositional environment is indicative of an incised valley fill. Paleoflow indicators from sedimentary structures were few, ripples and troughs on the top surface were sporadically found but generally the top surface was covered in thick moss or a thin soil layer.

We recognized several distinct facies within the Salamanca Conglomerate: facies A is the caprock of the Salamanca Conglomerate with the largest quartz clasts (>5cm) but generally disorganized with clasts orientated obliquely and perpendicular to bedding, except for the top surface; facies B is a less resistant, more friable unit that exhibits herringbone bedding marking current reversals; facies C is comprise of two thick, graded foreset packets each ranging 1 to 4 meters thick with large clasts accumulating along bedding planes, sometimes in asymmetric ripple forms; facies D is a less resistant, more friable unit that contains fewer clasts but generally does not exhibit reversals in bedding (Fig 50). Were have observed similar arrangement of facies at conglomerate blocks loose in Allegany State Park and adjacent areas, and at the "Bear Caves" area outcrops at Mount Seneca in Allegany State Park. The outcrops and loose blocks examined south of Little Rock City were generally sandier than the Little Rock City conglomerates, with clast occurring only along bedding planes, and typically not as large (maximum clast ~ 2 cm) as the clasts measured at Little Rock City.

The majority of paleoflow data from the Salamanca Conglomerate was gathered at Little Rock City (north of the city of Salamanca, NY), by measuring the cross-beds on conglomerate blocks that had not moved downslope from the main exposure. Utilizing the exposures along different sides of the conglomerate blocks we were able to measure the apparent dips and trend of cross-beds and internal cross-beds. In a few places, differential erosion allowed the measurement of strike and dip of the cross-bedding surface.

The paleoflow for facies D was obtainable at only one location, as the less-resistant nature of beds would typically cause the accumulation of soil and debris, covering the unit. Measured paleoflow trends were all directed towards the southeast (~125^{o}). Facies C exhibits a change between the lower and upper foreset packets. In facies C lower packet the paleoflow indicators trend predominantly to the northeast (~55^{o}) with one measurement trending to the southwest (~255^{o}). These paleoflow trends are interpreted to represent lateral accretion beds in deposited orthogonally to the main channel. The upper packet of facies C contains similar trends to the northeast and southwest, but also contains a strong southeast (~150^{o}) trend (Figure 51). Facies B exhibits a bimodal trend of north-northeast (~20^{o}) and south-southeast (~160^{o}). The reversal in paleoflows, as well as the observed herringbone bedding suggests that a stronger tidal current was affecting the depositional environmental for facies B. The paleoflow for facies A also displays weak bimodal trends of northeast (~45^{o}) and southwest (~215^{o}) (Figure 52). The erosive base and chaotic alignment of the clasts



Fgure 50. Salamanca Conglomerate at Little Rock City, photographis of the different facies clockwise from top left. A) Facies A and B - A forms that caprock, B is less resistant. B) Large quartz clasts in Facies A randomly orientated. C) Alternating, thick-bedded cross-beds in Facies B. D) Upper Facies C, comprised of thick tabular cross-beds. E) Lower Facies C, thick foresets (~11+ feet thick) with Facies D forming the undercut at the base. F) Overhang of Facies C, medium-bedded Facies D with even less resistant Facies E at base.

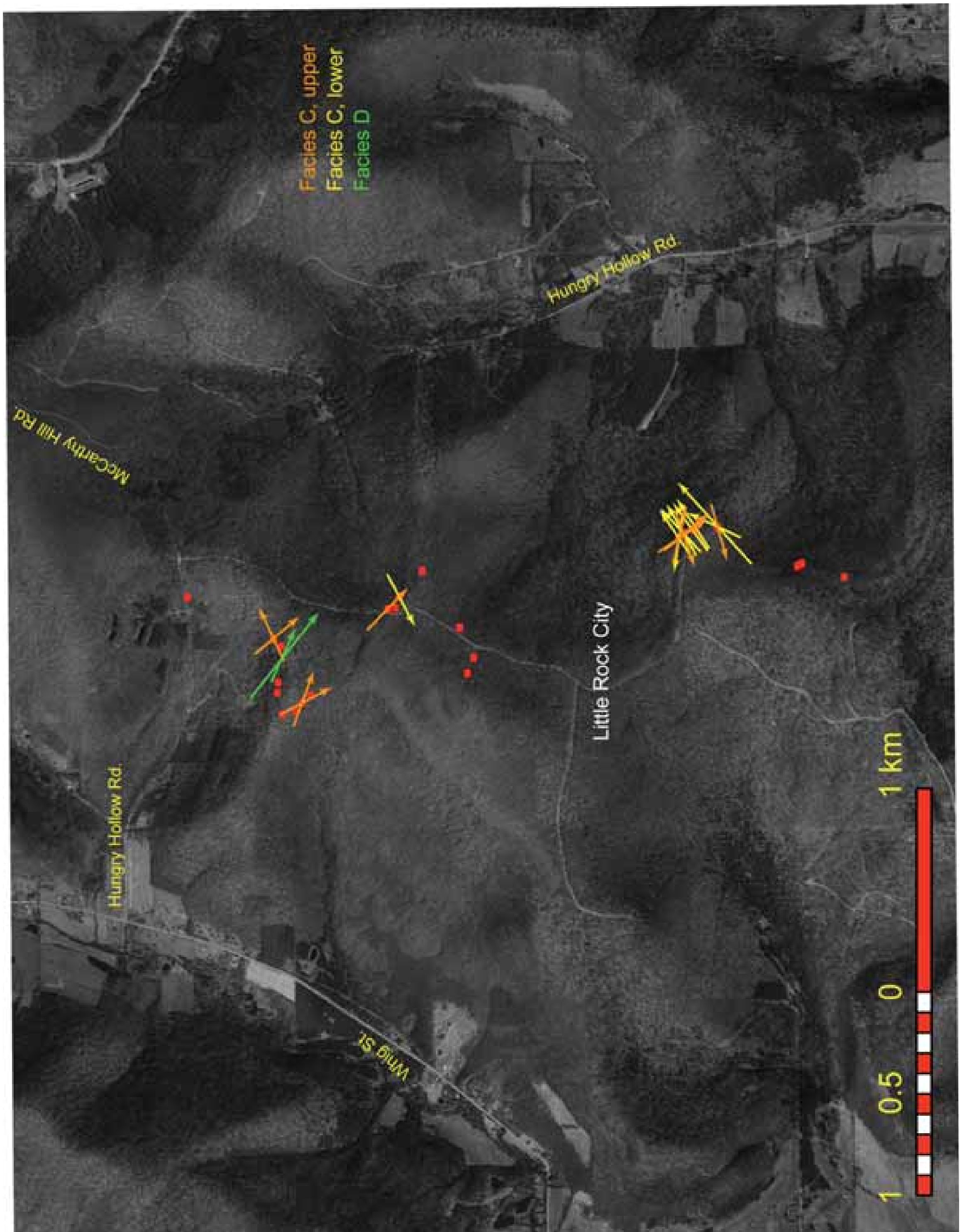


Figure 51. Paleoflow for Facies D (green), lower Facies C (yellow) and upper Facies C (orange), displaying trends towards the southeast (tidal) and northeast (lateral accretion deposits), but no measurements trending north-south as in Facies A and B (see Figure 49). Airphoto base from DeLorme Inc.

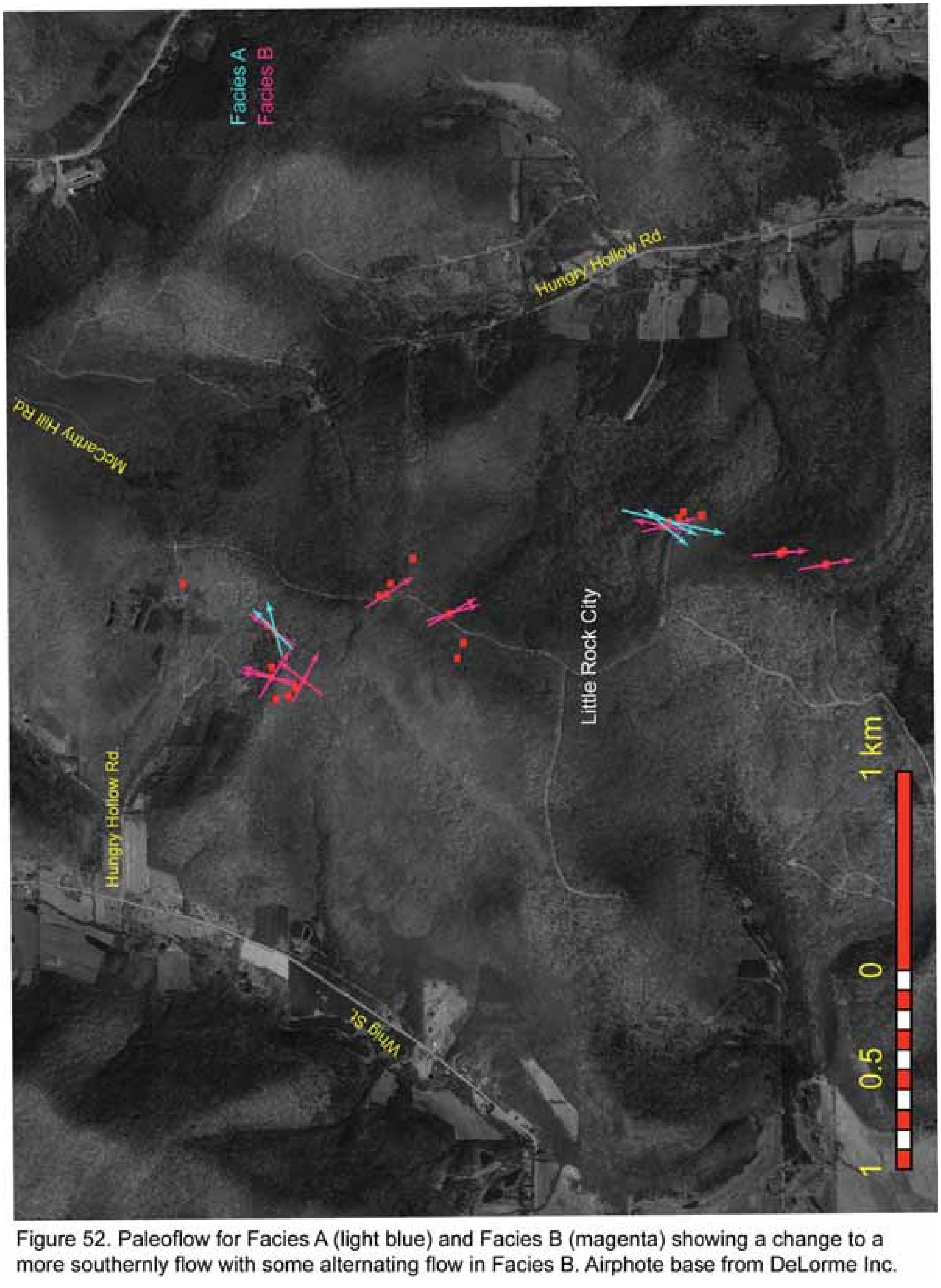


Figure 52. Paleoflow for Facies A (light blue) and Facies B (magenta) showing a change to a more southernly flow with some alternating flow in Facies B. Airphote base from DeLorme Inc.

within facies A, as well as the greater size of clast accumulated on the top surface would suggest that this unit represents a transgressive lag.

Few paleoflow indicators were obtained in the higher units of the Cattaraugus and Oswayo formations. The Cattaraugus Formation exhibits a disperse paleoflow pattern without a discernable overall trend. The Oswayo exhibits a general west (~280^{o}) trend but the number of measurements are too few to be statistically meaningful.

Section 4
INTEGRATION AND INTERPRETATION

From the isopach maps generated for the Upper Devonian sandstones; structural control appears to have had a strong influence on the location and orientation of the thicker sandstone bodies. North-south, northeast and northwest trending sandstone bodies are commonly bounded by proposed basement faults (Jacobi, 2002). Offsets exhibited in both generated east-west striking cross-section (Figures 21 and 22) and generated structure contour maps (Figures 29, 30, 31 and 32), also coincide with proposed basement faults. Growth fault geometries from cross-sections and seismites observed in outcrop indicate that faulting was concurrent with deposition. It seems reasonable to conclude that compressional stress from the Acadian Orogeny might reactivate pre-existing faults. Reactivation of basement faults during the Taconic Orogeny has been demonstrated to have in 2-D seismic by Jacobi et al., (2000, 2004, 2005 and 2006). The north-south trending Clarendon-Linden Fault System still is active, last sizeable event (5.2 M) occurring in 1929 (Jacobi and Fountain, 1993).

We propose that the stress caused by the Acadian Orogeny caused a reactivation of basement faults, including those of the Clarendon-Linden Fault System and the Iapetan opening faults. Motion on these faults resulted in a number of small fault blocks that affected the basin topography. The motion and rate of slip and rotation among the faults was not identical, with the result that minor topographic highs and lows within the basin were created by small fault block motion that would create variable accommodation space over the faulted area (Figure 53).

Accommodation is amount of space at a particular location that is available for accumulation of sediment; high accommodation may trap sediment thus starving areas farther down the transport system, low accommodation results in thin sediment deposits or even sediment by-pass. Accommodation is the result of the interplay between changes in sealevel, changes in seafloor, and compaction rates of sediments (Figure 54).

We first proposed fault control of Upper Devonian sandstones to explain the occurrence and preservation of shoreface sandstones in the Lower Rushford Member (Smith and Jacobi, 1998, 2000, 2001, 2003 and 2005; Jacobi and Smith, 2004). Syndepositional fault activity would enable coarser sediments to accumulate along active fault block as the intersection of the north-south trending Clarendon-Linden Fault System with the northeast trending shoreline would act as a groin (Figure 55). Similarly, Martinsen (2003) proposed accommodation and erosional remnants may commonly form low-accommodation and shallow-shelf settings from variations in paleotopography, syndepositional tectonics and differential compaction. Martinsen (2003) recognized three scales or depositional remnants, reservoir (small), midsize and basin (large) scale; sandstone packets in the Upper Devonian would fit Martinsen's reservoir scale remnant.

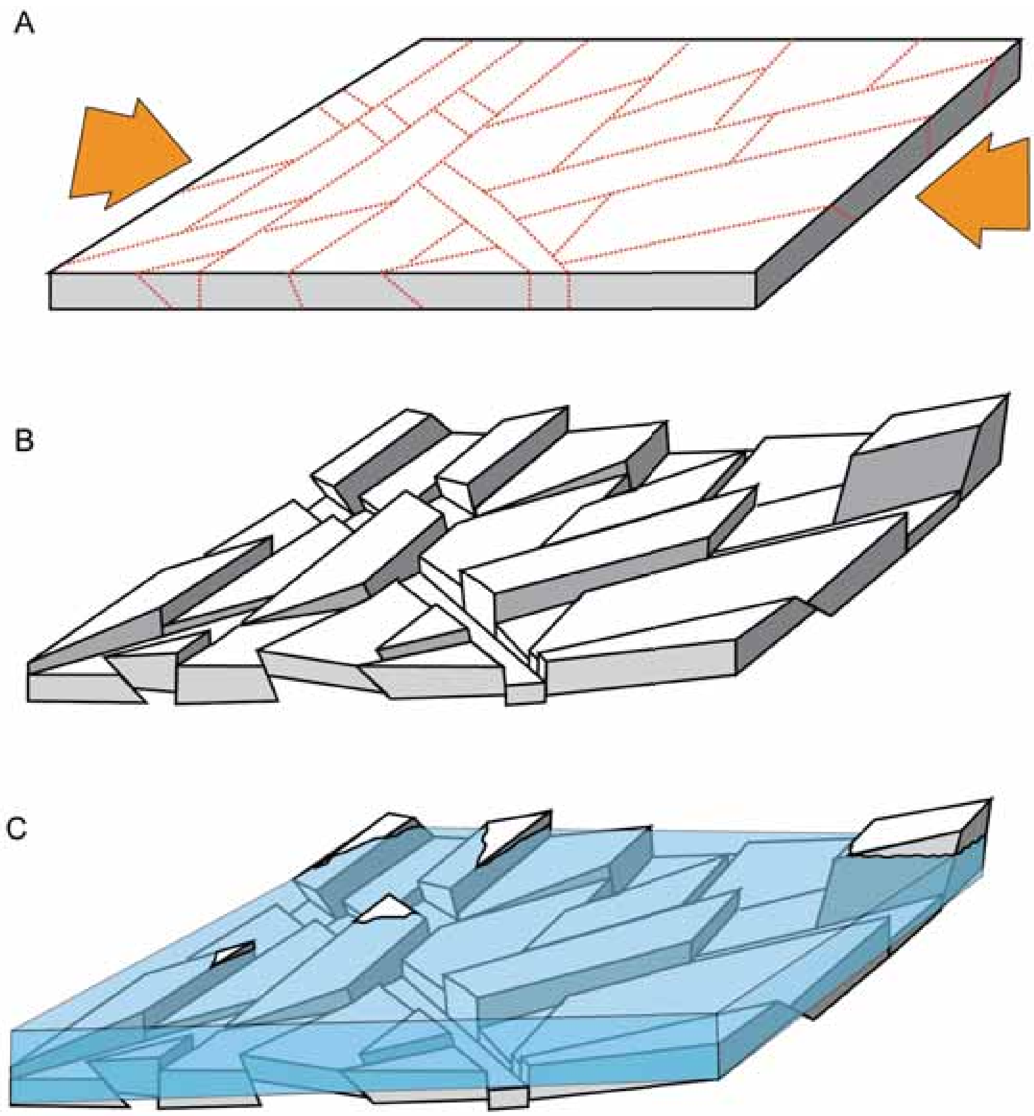


Figure 53. Hypothetical model of fault-block derived accommodation variability. A) In an area with pre-existing faulting, reactivation is likely during periods of high stress such as compression during an orogenic phase (orange arrows). B) To relieve the stress, the faults may move, but not necessarily uniformly, but at different rates creating highs and lows between faults blocks. Rotational motion will also create higher and lower regions. C) The overall effect on deposition will be to generate lows that accumulate sediment, and highs that will erode, deflect currents and create multiple trending sediment packets. If the fault activity occurs during deposition, then the changes may be observed within the sedimentary deposits. It is important to note that neither scale or orientation is impled by this model - such this model could represent basins or outcrop jointing.

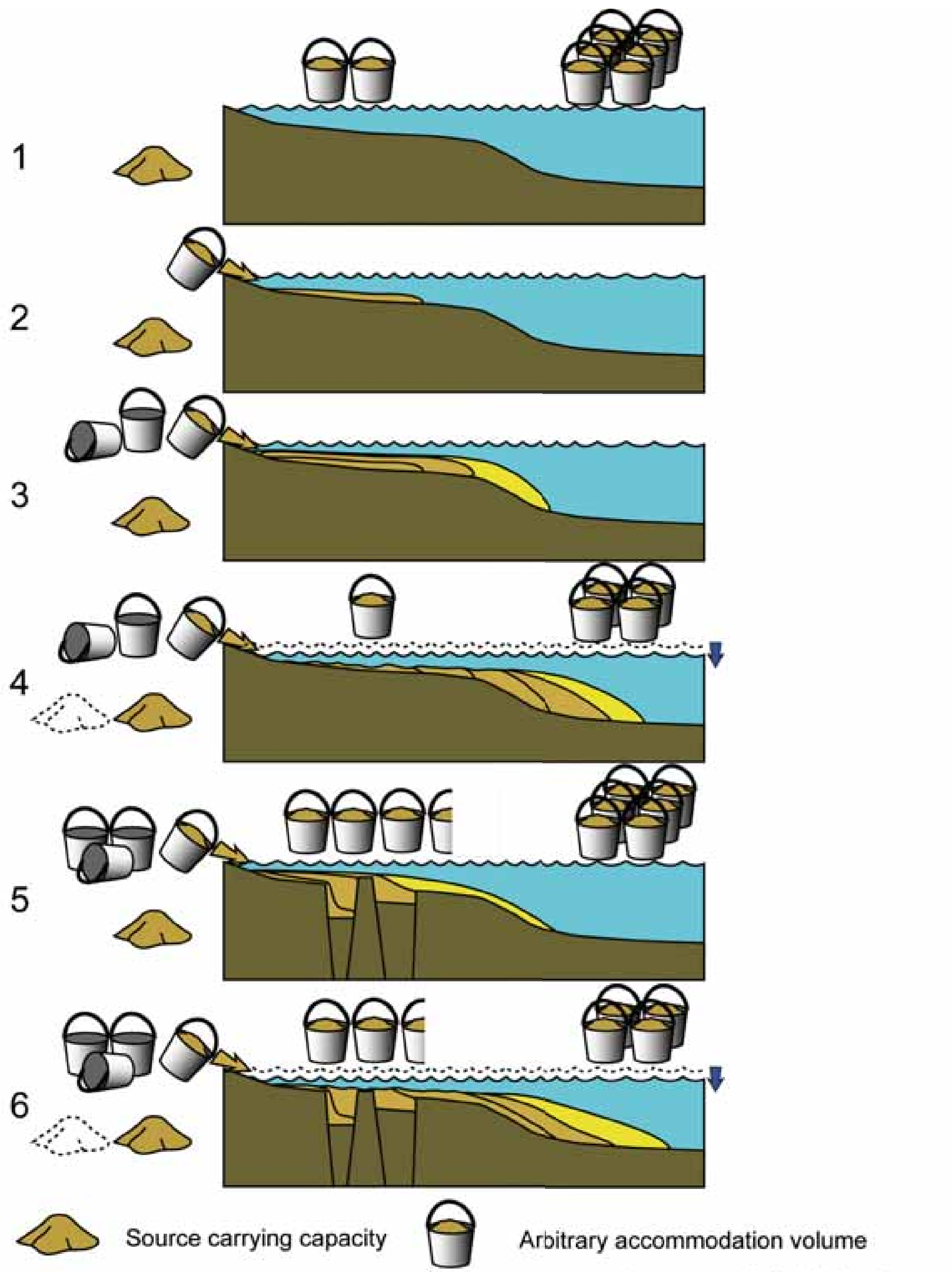


Figure 54. A simplified model of accommodation- 1) for any given area the accommodation is the volume available deposited sediment. 2 and 3) With constant sediment supply, deposition will fill in the available accommadation starting closest to the source and building outward. 4) With lower sea-level, accommodation space decrease, and the carrying capacity (typically) increases causing the erosion where the accomadation can not hold the surplus sediment. 5 and 6) In a faulted region, the accomadation is more variable and will reflect in a varied preservation potential.

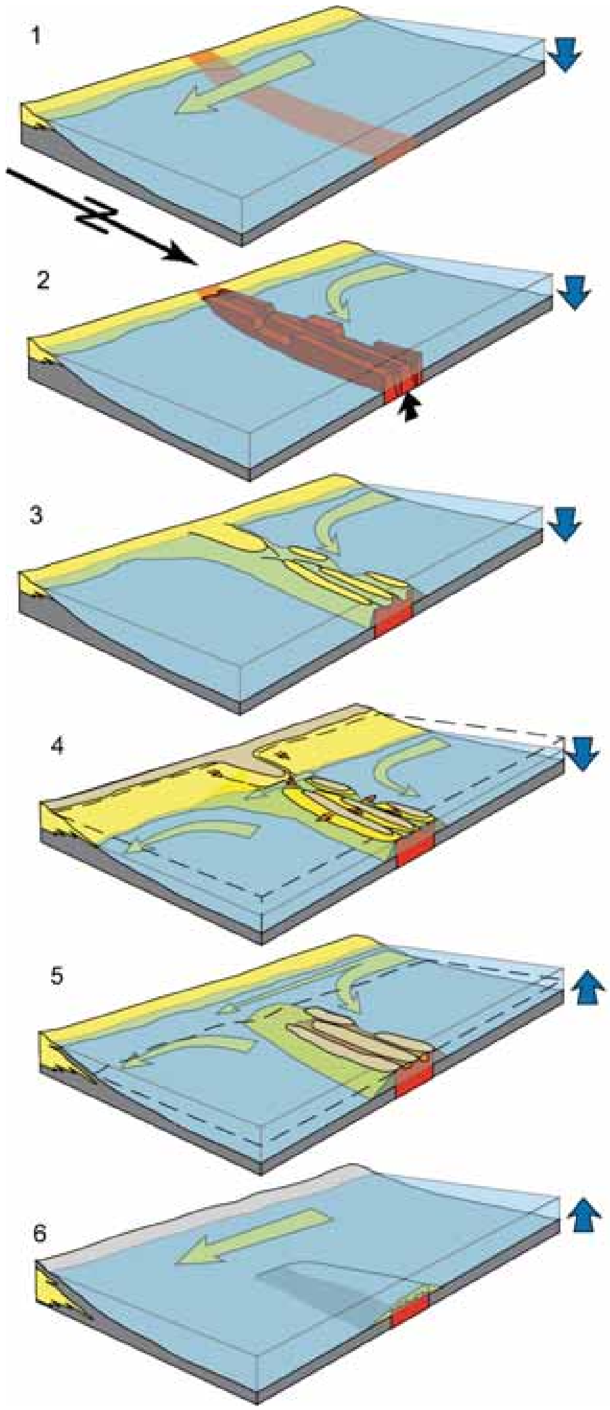


Figure 55. Model proposed for north-south depositional trend observed within the Lower Rushford Member in northern Allegany and Cattaraugus counties.
1) Preexisting fault zone (Clarendon-Linden Fault System) intersects the Late Devonian paleoshoreline at either an oblique or perpendicular angle. 2) Syndepositional fault activity causes variable uplift on the fault-blocks comprising the fault zone blocking the longshore current. 3) The fault zone behaving as a groin would redirect the sediment transport causing the shoreline to follow the trend of the fault zone. 4) During periods 1 through 4 relative sealevel has been falling, by time period 4 the shoreface is now subaerially exposed increasing erosion. Coarser materials (quartz clasts) are redeposited in immediately adjacent accommodation zones, while finer-grained material is transported away. The result is a generally cleaner and coarser sediment. 5) Sealevel rises during the ensuing transgression, reworking and redepositing the coarser material as a transgressive lag deposited at the top of the shoreface sequence. 6) With continued rise in sealevel during the transgression and later highstand tract, the fault-controlled shoreline becomes isolated offshore and is now buried under deep-water sediments. The resulting topographic anomaly may later serve as a depositional focus for shelf-ridge creation.
(Blue arrows represent the rise or fall of relative sealevel. The black arrow represents fault motion. The yellow arrows represent sediment transport. Small orange arrows represent erosion and redeposition of coarser sediments.

The Late Devonian shoreline from Frasnian to the time of the deposition of the Rushford Formation was likely to be orientated near north-south, based upon paleoflow measurements from this study, as well as paleoflow studies by Burtner (1963), Leeper (1963), Colton (1967), Walker and Sutton (1967), Sutton, Bowen and McAlester (1970) and Lundegard et al. (1985) showed the average flow direction to be between 263° and 290°. The location of the paleoshoreline during this time period was east of the study area, although high-energy, shallow marine sedimentary structures and ichnofacies observed within the Wiscoy Formation suggest a lower shoreface depositional environment (Figure 11).

The main focus of this study is determining the architecture of the Upper Devonian reservoir sandstones. Table 3 provides approximate length-width-height dimensional of the sand-bodies, as well as summarizing the conclusions discussed below.

The Lower Rushford Member marks the change in shoreline from north-south to a northeast trend. Sedimentary structures and ichnofacies observed at outcrops of the Lower Rushford Member are interpreted as being deposited in three, lower shoreface to foreshore sequences. The general orientation of the Bradford, Richburg and Fulmar Valley oil fields in southern New York and northern Pennsylvania possess a similar northeast trend (Figure 5) that suggest that paleoshoreline consisted of a series of northeast trending beach barrier bars. North-south trending sandstone packets in Lower Rushford Member are typically bounded by north-south trending faults and have been interpreted to represent fault-influenced deposition (Smith and Jacobi, 1996, 1998, 1999, 2000, 2001, 2002, 2003 and 2005) (Figure 36).

The Upper Rushford Member sandstone packets are orientated northwest-southeast, perpendicular to shoreline (Figure 37). Outcrops of the Upper Rushford Member sandstone packets common show the downward erosion into the underlying Intermediate Rushford Member which suggests that the sandstone packets represent channel fills. Rip-current transport and possibly the prodelta turbidite channel (Pattison, 2005) would form such channels (although for the prodelta turbidite channel to be more convincing, an associated turbidite fan would be identified downslope). Ubiquitous swaly-cross stratification throughout the Upper Rushford Member indicates that the deposition was above storm wave-base. Thicker Upper Rushford Sandstone Packets observed at outcrops in the Angelica, Fillmore and Ellicottville quadrangles contain thick seismite sections which could imply the possibility that the channels are transporting sediment derived from slope failures to the southeast

The Machias Formation contains four distinct linear trends observable in all of the sandstone packets that are similar to trends in the Lower Rushford Member. North-south and northeast trending sandstone packets coincide with faults and proposed faults. Typically comprised of swaly cross-stratification and tempestite lag deposits, the north-south and northeast trending sandstones are interpreted as by storm-generated sand-ridges, which may represent either storm-dominated barrier bars where the upper and foreshore sequences

TABLE 3

	Trend	Approximated Length (km)	Approximated Width (km)	Approximated Avg. Thick (m)	Approximated Max. Thick (m)	Assoc. Faults	Depositional Environment Interpretation
Rushford L	N-S	12-20N, 18-24+S	10-13N, 11S	13N, 17S	37N,31S	Y	Beach
	E-W	12	3-5	15	16.5	N	Beach
	NE	18-20+	8-12	17	35	Y	Beach
Rushford U	NW	18-20+	3-10	12-14	24	N	Channel
	NE	12	4	12	21	Y	Structure Controlled Shelf-Ridge
Machias 1st	N-S	12	4-5	18	24	Y	Structure Controlled Shelf-Ridge
	E-W	12SE, 8N, 22S	3SE, 6N, 8-11S	18SE, 18N, 15S	27SE, 27N, 24S	N	Storm Shelf Ridge
	NE	12-16	5-7	24	31	Y	Structure Controlled Shelf-Ridge
	NW	10+SW, 10SE	5SW, 3SE	21SW, 18 SE	37SW, 21SE	N	Channel
Machias 2nd	NW	30+NE, 8-11SW	5-9NE, 6-10SW	9	12	Y	Accommodation Remnant
Machias 3rd	N-S	8+N, 15+S	9N, 5-7S	15	24	Y	Structure Controlled Shelf-Ridge
	NE	15-25	4.5-7	15	24	Y	Structure Controlled Shelf-Ridge
	E-W	18	8	15	18	N	Storm Shelf Ridge
Machias 4th	N-S	15+N,20+S	9N, 8S	24	27N, 31S	Y	Structure Controlled Shelf-Ridge
	NE	12-40	3.5-5	18	18	Y	Structure Controlled Shelf-Ridge
Cuba	N-S	15+N, 12+S	3.5N, 16S	15N, 24S	20N, 31S	N	Accommodation Remnant
	E-W	12-20	5-8	27	34	N	Accommodation Remnant
	NE	12	6	21	27	N	Accommodation Remnant

Table 3. Summary of sand-body dimensions, interpreted controls and likely depositional environment.

are missing; or shelf ridges. The location and orientation of the north-south and northeast sand-ridges is likely controlled by fault-generated topographic discontinuities. East-west trending sandstone packets are not associated with faults and are generally orientated obliquely to both the shoreline and the geostrophic current. The east-west trending sandstone packets are also interpreted as being storm-generated sand-ridges, but without the underlying structural control could migrated with geostrophic flow. Northwest-trending sandstone packets are a more difficult to provide with a single interpretation as some of the sandstones clearly coincide with northwest-trending faults, while others appear to be unassociated with faulting. The northwest-trending sandstones that coincide with faults are interpreted to be accommodation remnants as, in general, they are associated with a broad, northwest trend and the thickest accumulation is adjacent to the faulting similar to Martinsen's (2003) model for a half-graben accommodation remnant. The northwest-trending sandstone packets unassociated with faulting may be interpreted as channels, similar to the Upper Rushford Member.

The Machias 1st Sandstone packets are interpreted to be generally associated with near-by structure control, with only east-west and minor northwest trending packets appearing to be controlled by the local currents (Figure 38).

The Machias 2nd Sandstone packets are interpreted as northwest-trending accommodation remnant, with possible minor east-west trending storm-generated shelf-ridges (Figure 39).

The Machias 3rd Sandstone packets are interpreted as structurally-controlled northeast-trending sand-ridges, again with minor east-west trending storm-generated shelf-ridges (Figure 40).

The Machias 4th Sandstone packets are interpreted as structurally controlled northeast and north-south sand-ridges (Figure 41).

The Cuba Formation does not contain distinct, linear trending sandstone packets, although thicker accumulations appear to be bounded by faulting (Figure 42). From outcrop, the Cuba Formation can be distinguished from the underlying Machias Formation sandstone packets by a pebbly basal-lag deposit that we interpret as the transgressive lag marking the sequence boundary between the sequence 4 and 5 (Plate 1B). The combination of a substantial transgression with fault control suggests that the various sandstone packets are accommodation remnants. Minor sandstone packets trending northeast, unassociated with adjacent faults, appear to be products and the data's spatial distribution.

The overlying stratigraphic units are interpreted from data gathered at outcrops only, as limited well-log data could not produce coherent trends or depositional patterns.

The Wellsville Formation and the traceable sandstone packets, appear very similar to the Machias Formation. An overall storm influence is observed in bedforms and depositional structures and the occurrence of seismites suggest that the environmental conditions for the Wellsville Formation were likely the same as those during deposition of the Machias Formation. Comparison of the rose diagrams from all of the Machias Formation with all of the Wellsville Formation show close similarities. The similarities also suggest that paleoshoreline and controlling currents were also very similar between Machias and Wellsville deposition. It may be speculated that the thinner sandstone packets of the Wellsville Formation might share the same structurally-controlled northeast and north-south trends, as well as east-west trending storm-ridges. Northwest-trending sandstone packets are difficult to predict, but as they have occurred within the Rushford and Machias formations may be assumed to occur during deposition of the Wellsville Formation.

The Hinsdale Formation occurs in outcrop as a thick-bedded sandstone packet, dominated by swaly cross-stratification and includes a red – or near red shale between sandstone beds and at the top of the formation (Smith, 2002). The occurrence of the red (near red) shales and the thick section of sandstone would suggest that the Hinsdale Formation formed in a nearshore environment and is interpreted as representing a storm-dominated lower and middle shoreface sequence. The Hinsdale Formation is likely to possess trends similar to the Lower Rushford Member, northeast (if shoreline did not shift) and structurally-controlled north-south (if faulting was syndepositionally active during Hinsdale Formation deposition).

The Whitesville Formation is depositionally similar to the Machias and Wellsville formations, with swaly cross-stratification comprising the thicker sandstone packets and tempesites common within the interbedded sections. The limited paleoflow data indicates a combined-flow current regime which also suggests a storm-dominated depositional environment. The overall limited data makes speculating possible linear trends, if they occur, within the Whitesville Formation impossible.

Paleoflow from cross-beds in the lower part of the Salamanca Conglomerate (Facies D and C) indicate a northwest-southeast trend. As the incised-valley trend is typically orientated perpendicular to paleoshoreline, likely the same northeast trend that was observed since Rushford Formation deposition. Upsection (Facies B and A), the paleoflow is orientated along a near north-south axis that indicates a reorientation of shoreline along an east-west trend, for at least the immediate area surround Little Rock City.

Limited outcrop and paleoflow data for the Cattaraugus and Oswayo formations prevent speculation on possible trends as the non-marine Cattaraugus Formation does not have a defined shoreline orientation. Similarly, the Oswayo Formation is separated from the underlying Cattaraugus Formation by transgressive surface of erosion which marks a major change in relative sealevel and does not current possess a defined shoreline orientation.

Section 5
DISCUSSION

IMPLICATIONS – GENERAL

One of the major conclusions from this study is that in western New York, faults controlled the orientation, length and thickness on the major sandstone packets. Syndepositional faulting generates topographic variations that enable the deposition of shallow clastic sand-bodies orientated parallel to the structure, limited in length by the size of the fault block, and may have a higher preservation potential due to increased accommodation space. Post-depositional faulting and thrusting will further influence the final pattern of the sand. En-echelon sandstone packets observed in the Machias 1st and 3rd sandstone packets may be caused by Alleghanian-age thrusting. It would appear that understanding the local faulting patterns will aid in determining the trend of sandstone packet.

Another outcome is the importance of knowing the depositional environment in which the sandstone packet is deposited. Understanding how a sandstone is deposited in what type of depositional environment should be always a consideration in understanding a clastic reservoir modeling. Sandstones rarely occur as homogeneous bodies but will have a predictable depositional pattern depending on the environment. A normal beach deposit will coarsen upward, with the highest porosity and the best sorting occurring near the top unlike turbidites where the coarsest material is at the base, but sorting increases upsection. For the Western New York area, the storm-generated sand-ridges that comprise most of the sandstone packets within the Upper Devonian, the general fine-grained sandstones will generally have coarse basal lags as well as internal tempestite lags that will likely have the higher porosity for the formation. Determination of the depositional environment will also enable the determination of the general trend of sandstone relative to paleoshoreline.

IMPLICATIONS – OIL AND GAS PLAYS

With the plethora of names for any one producing sandstone, it is generally difficult to determine which sandstone packet is producing. From the well-log analyses for this study, it appeared that the Lower Rushford Member coincided with thicker, coarsening-upward sand within the major oil fields, which suggests that the shoreface sandstones of the Lower Rushford Member forms the main oil reservoir. This agrees with oil-seeps observed at and adjacent to outcrops of the Lower Rushford Member in northern Allegany and Cattaraugus counties. That Lower Rushford Member also has a general coarser grain-size than the overlying Machias and Conneaut sandstone packets would make the Lower Rushford Member a better candidate for a productive reservoir. Where the Lower Rushford Member thins, or is absent, thicker sandstone packets of the Machias Formation appear to form the reservoirs referred to a Clarendon, Chipmunk and Tiona sands. The sandstone packets of the Conneaut Group would appear to be acceptable reservoir sandstones, except for their position in the stratigraphic column which would allow reservoirs with large lateral continuation only along the southern border of New York State. The incised valley fills of the Salamanca, Panama and Wolf Creek conglomerates would make excellent reservoirs except for the limit areal expanse as well as the tendency for the conglomerate to behave as an even better aquifer. Generally, the numerous wells drilled along the southern border of Allegany and Cattaraugus counties would preclude specifying areas for further exploration. Along the southern border, the best prospect for a successful well would be along the northeast trends, preferably where several thicker isopachs coincide. Areas in Allegany State Park appear to be favorable, as the density of drilled wells is overall less than areas towards the east. Also, closer examination in of higher elevations in the central and western areas of Cattaraugus County, towards the Chautauqua County border does not have the concentration of wells that suggest areas for exploration still exist.

In the northern section of the study area, the Upper Devonian sandstone packets of the Rushford and Machias formations occur either in outcrop or close to ground level, or are above erosional limit of the outcrop and do not exist at that locale. However, following older methods of drilling adjacent to surface oil-seeps, there exist several locations in Allegany and Cattaraugus counties (Figure 56).

IMPLICATIONS – CONTINUED STUDY

Three conclusions were derived while conducting this investigation that provides direction for future work. 1) Paleoflow indicators are poorly exposed in cliff sections and roadcuts and typically require stream exposures that allow wider exposures of the bedding surfaces. The collection of the more paleoflow data will improve depositional trends of the sand-bodies. The difficulty is the time and effort for conducting reconnaissance over the entire stream network, from past mapping experience, one 7 ½ minute quadrangle typically requires one field season (May-October) to cover one quadrangle. To cover the remaining 30+ quadrangles at the detail we covered northern Allegany County would require more time and workers. 2) More well-logs need to be incorporated into the study area. While the 418 wells examined provide a broad coverage, more wells still exist and need to be incorporated into cross-sections to refine correlations of the multiple-named sandstones along the southern border. 3) From this study, we established informal upper and lower boundaries for sandstone packets that form many of the sandstone reservoirs. However, as we are still refining these boundaries, calculating thicknesses of sand percentage, thickness of various level of porosity for each packet was not performed. To provide be exploration targets and allow better reservoir modeling, examination of porosity and total sand would be essential.

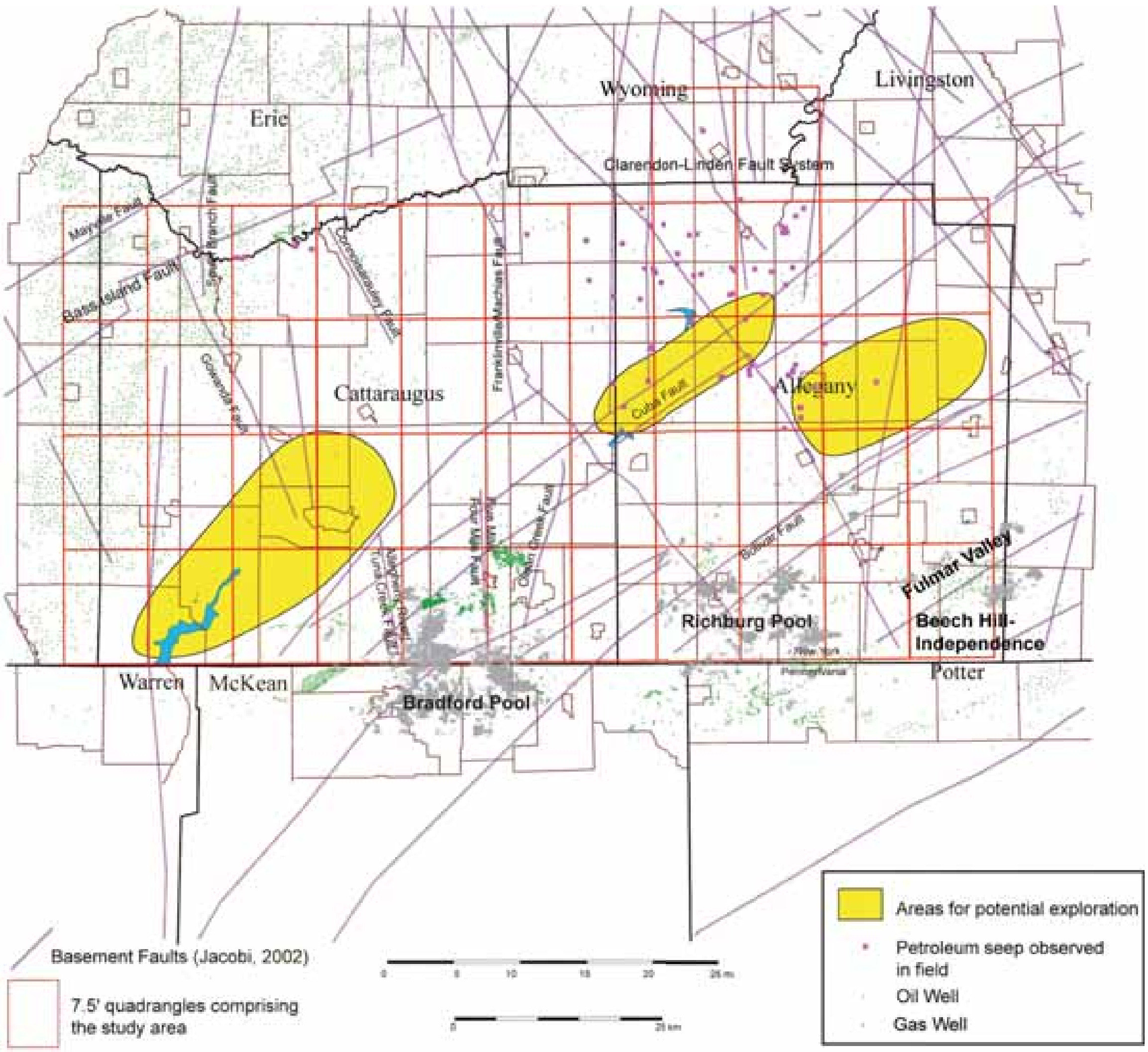


Figure 56. Possible areas for future exploration as either under-explored (low well density) or adject to petroleum seeps observed during fieldwork.

Section 6
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Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
1	6/12/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/14/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/17/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/18/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/19/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/24/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/25/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
1	6/26/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
2	7/1/1991	Houghton	Canadea Creek, quarry? near parking area	Rushford
1	7/1/1991	Houghton	Canadea Creek, gorge section below Rushord Dam	Caneadea
3	7/3/1991	Houghton	Canadea Creek, below Rushord Dam	Caneadea
3	7/10/1991	Houghton	Canadea Creek, below Rushord Dam	Caneadea
4	7/16/1991	Houghton	Canadea Creek, upstream from fallen brigde	Caneadea
4	7/17/1991	Houghton	Canadea Creek, upstream from fallen brigde	Caneadea
5	7/18/1991	Houghton	Canadea Creek, gorge cliff section by guard rail	Caneadea
6	7/19/1991	Houghton	Canadea Creek, faulted section downstream from 1	Caneadea
7	7/19/1991	Houghton	Canadea Creek, by fallen bridge	Caneadea
4	7/22/1991	Houghton	Canadea Creek, upstream from fallen brigde	Caneadea
7	7/22/1991	Houghton	Canadea Creek, by fallen bridge	Caneadea
8	7/29/1991	Houghton	Canadea Creek, cliff above 6	Caneadea
9	7/31/1991	Houghton	Canadea Creek, cliff above 7	Caneadea
10	7/31/1991	Houghton	Canadea Creek, falls above 3	Caneadea
11	8/1/1991	Black Creek	Crawford Creek, cliff outcrop near Ormel	Caneadea
11	8/5/1991	Black Creek	Crawford Creek, cliff outcrop near Ormel	Caneadea
13	8/5/1991	Black Creek	Crawford Creek, downstream from 11	Caneadea
14	8/5/1991	Houghton	Canadea Creek, ravine directly upstream from 6	Caneadea
12	8/12/1991	Black Creek	Crawford Creek, cliff above 11	Caneadea
16	10/18/1991	Houghton	Rushford Lake, while water level was lowered	Caneadea
16	10/25/1991	Houghton	Rushford Lake, while water level was lowered	Caneadea
17	10/31/1991	Houghton	Hillcrest Road, thick sandstone outcrop in road cut	Rushford L
18	11/1/1991	Black Creek	Crawford Creek , between the two close bridges	Machias
1	6/2/1992	Portageville	Wiscoy Creek, power station	South Wales
3	6/2/1992	Portageville	Wiscoy Creek, above site 2 (island to bridge)	Mills-Mills
2	6/2/1992	Portageville	Wiscoy Creek, above site 1 (rapids)	Mills-Mills
4	6/3/1992	Portageville	Wiscoy Creek, at bridge at Mills-Mills	Hume
3	6/3/1992	Portageville	Wiscoy Creek, above site 2 (island to bridge)	Mills-Mills
6	6/3/1992	Portageville	Mills-Mills, S side of bridge road cut	Hume
2	6/3/1992	Portageville	Wiscoy Creek, above site 1 (rapids)	Mills-Mills
5	6/3/1992	Portageville	Mills-Mills, N. side of bridge road cut	Hume
6	6/4/1992	Portageville	Mills-Mills, S side of bridge road cut	Hume
7	6/4/1992	Portageville	Wiscoy Falls, lower falls	Wiscoy
7	6/5/1992	Portageville	Wiscoy Falls, lower falls	Wiscoy
5	6/5/1992	Portageville	Mills-Mills, N. side of bridge road cut	Hume
7	6/8/1992	Portageville	Wiscoy Falls, lower falls	Wiscoy
8	6/8/1992	Portageville	Wiscoy Falls, middle falls	Wiscoy
1	6/8/1992	Portageville	Wiscoy Creek, power station	South Wales
C1	6/9/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
C1B	6/9/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
8	6/9/1992	Portageville	Wiscoy Falls, middle falls	Wiscoy
9	6/9/1992	Portageville	Wiscoy Falls, upper falls	Wiscoy
C1B	6/10/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
C1B	6/10/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
9	6/10/1992	Portageville	Wiscoy Falls, upper falls to dam.	Wiscoy
C1B	6/10/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
C1B	6/11/1992	Portageville	Wiscoy Creek, down stream from power station	Dunkirk
E1	6/11/1992	Portageville	Wiscoy Creek, down stream from D1	Dunkirk
D1	6/15/1992	Portageville	Wiscoy Creek, down stream base = C1B base	Dunkirk
E1	6/15/1992	Portageville	Wiscoy Creek, down stream from D1	Dunkirk
D1	6/16/1992	Portageville	Wiscoy Creek, down stream base = C1B base	Dunkirk
F1	6/16/1992	Portageville	Wiscoy Creek, down stream from E1	South Wales
E1	6/16/1992	Portageville	Wiscoy Creek, down stream from D1	Dunkirk
F1	6/16/1992	Portageville	Wiscoy Creek, down stream from E1	Dunkirk
F1	6/17/1992	Portageville	Wiscoy Creek, down stream from E1	South Wales
F1	6/17/1992	Portageville	Wiscoy Creek, down stream from E1	Dunkirk
G1A	6/18/1992	Portageville	Wiscoy Creek, down stream, below G1B, to creek	Dunkirk
G1	6/18/1992	Portageville	Wiscoy Creek, down stream, below F1, to creek	Dunkirk
G1A	6/22/1992	Portageville	Wiscoy Creek, down stream, below G1B, to creek	Dunkirk
G1B	6/22/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
G1B	6/22/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
H1	6/22/1992	Portageville	Wiscoy Creek, down stream, E. of H1A	Dunkirk
H1A	6/22/1992	Portageville	Wiscoy Creek, down stream, W of H1, E. of G1B	Dunkirk
G1B	6/23/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
J1	6/23/1992	Portageville	Wiscoy Creek, down stream, near top of J1A	South Wales
H1A	6/23/1992	Portageville	Wiscoy Creek, down stream, W of H1, E. of G1B	South Wales
I1	6/23/1992	Portageville	Wiscoy Creek, down stream, E. of H1, by pool	Dunkirk
J1A	6/23/1992	Portageville	Wiscoy Creek, down stream E. of I1	Dunkirk
G1B	6/25/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
K1	6/25/1992	Portageville	Wiscoy Creek, down stream E. of J1	South Wales
L1	6/25/1992	Portageville	Wiscoy Creek, down stream, S. of K1	Dunkirk
G1B	6/29/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
G1B	6/29/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	Mills-Mills
G1B	6/29/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
G1B	6/29/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	South Wales
G1B	6/30/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	Mills-Mills
12	6/30/1992	Houghton	Hume Falls, Cold Creek base of section	South Wales
11	6/30/1992	Houghton	Hume Falls, Cold Creek base = top of 12	Mills-Mills
G1B	6/30/1992	Portageville	Wiscoy Creek, down stream, large S. ravine	Mills-Mills
G1B	6/30/1992	Portageville	Wiscoy Creek, down stream, large S. ravine (top)	Mills-Mills
12	7/1/1992	Houghton	Hume Falls, Cold Creek base of section	South Wales
11	7/1/1992	Houghton	Hume Falls, Cold Creek base = top of 12	Mills-Mills
10	7/1/1992	Houghton	Hume Falls, Cold Creek N-S fault	Mills-Mills
12	7/2/1992	Houghton	Hume Falls, Cold Creek base of section	South Wales
13	7/2/1992	Houghton	Sixtown Creek, just W. of Cold Creek	Hume
14	7/6/1992	Houghton	Sixtown Creek, base = top of 13	Hume
13	7/6/1992	Houghton	Sixtown Creek, just W. of Cold Creek	Hume
15	7/6/1992	Houghton	Sixtown Creek, base = top of 14	Caneadea
14	7/6/1992	Houghton	Sixtown Creek, base = top of 13	Caneadea
15	7/7/1992	Houghton	Sixtown Creek, base = top of 14	Caneadea
16	7/7/1992	Houghton	Sixtown Creek, base = top of 15	Caneadea
17	7/7/1992	Houghton	Sixtown Creek, above 16	Caneadea
17A	10/8/1992	Houghton	Sixtown Creek, 5.31m. below plateau, above 17	Caneadea
17.1	7/7/1992	Houghton	Sixtown Creek, above 17	Caneadea
18	7/8/1992	Pike	N-S Dry valley N. of Stone Spring Rd.	Caneadea
19	7/8/1992	Pike	N-S Dry valley N. of Stone Spring Rd. near swamp.	Caneadea
21	7/9/1992	Houghton	Boulder till W. of farm on Sixtown Creek.	Caneadea
20	7/10/1992	Pike	1st ravine off of Dewitt, S. of Cold Creek	Caneadea
22	7/14/1992	Houghton	Sixtown Creek, N side of falls, near rippled ss. house	Caneadea
23	7/14/1992	Houghton	Sixtown Creek, S side of falls, below 22	Caneadea
22	7/16/1992	Houghton	Sixtown Creek, N side of falls, near rippled ss. house	Caneadea
24	7/16/1992	Houghton	Sixtown Creek, S side outcrop E. of 22&23	Caneadea
23	7/16/1992	Houghton	Sixtown Creek, S side of falls, below 23	Caneadea
26	7/16/1992	Houghton	Sixtown Creek (thrust and chevron folds)	Caneadea
25	7/20/1992	Houghton	Sixtown Creek, N. side outcrop across from 24	Caneadea
27	7/20/1992	Houghton	Sixtown Creek, section by Vosberg House	Caneadea
28	7/20/1992	Fillmore	Longbeard's Riffles, Genesee River	Caneadea
28	7/21/1992	Fillmore	Longbeard's Riffles, Genesee River	Caneadea
28	7/22/1992	Fillmore	Longbeard's Riffles, Genesee River	Caneadea
27A	7/24/1992	Houghton	Sixtown Creek, below 27	Caneadea
27.1	8/12/1992	Houghton	Sixtown Creek, cliff top above 27	Caneadea
29	7/26/1992	Houghton	Sixtown Creek, N cliff E. of Vosberg House	Caneadea
29	7/27/1992	Houghton	Sixtown Creek, N cliff E. of Vosberg House	Caneadea
30	7/28/1992	Houghton	Sixtown Creek, S. cliff across from 29&30A	Caneadea
30A	7/28/1992	Houghton	Sixtown Creek, N. cliff, base of 29	Caneadea
31	7/30/1992	Houghton	Sixtown Creek,, S. cliff base at major turn	Caneadea
29	7/30/1992	Houghton	Sixtown Creek, N cliff E. of Vosberg House	Caneadea
31	8/3/1992	Houghton	Sixtown Creek,, S. cliff base at major turn	Caneadea
31A	8/3/1992	Houghton	Sixtown Creek, N. flat on curve across from 31	Caneadea
31B	8/3/1992	Houghton	Sixtown Creek, W. end of S.cliff outcrop	Caneadea
33	8/5/1992	Houghton	Sixtown Creek, E. od East Higgins bridge.	Caneadea
29	8/5/1992	Houghton	Sixtown Creek, N cliff E. of Vosberg House	Caneadea
32	8/6/1992	Houghton	Sixtown Creek, top of S. cliff (above 31)	Caneadea
32	8/11/1992	Houghton	Sixtown Creek, top of S. cliff (above 31)	Caneadea
33	8/6/1992	Houghton	Sixtown Creek, E. od East Higgins bridge.	Caneadea
33	8/7/1992	Houghton	Sixtown Creek, E. od East Higgins bridge.	Caneadea
32	8/10/1992	Houghton	Sixtown Creek, top of S. cliff (above 31)	Caneadea
34	8/10/1992	Houghton	Sixtown Creek, top of Higgins falls, below bridge	Caneadea
35	8/10/1992	Houghton	Sixtown Creek, N. of East Higgins brigde	Caneadea

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
35a	6/22/1993	Houghton	Sixtown Creek, top of 35	Caneadea
35b	6/22/1993	Houghton	Sixtown Creek, N of 35A by pool	Caneadea
36	8/11/1992	Houghton	Sixtown Creek, SE. cliff W. of West Higgins bridge	Caneadea
36	8/12/1992	Houghton	Sixtown Creek, SE. cliff W. of West Higgins bridge	Caneadea
37	10/8/1992	Houghton	Sixtown Creek, ravine on S. West of Merwin Road.	Caneadea
37	10/13/1992	Houghton	Sixtown Creek, ravine on S. West of Merwin Road.	Caneadea
39	10/13/1992	Houghton	Sixtown Creek, small ravine E. of 37	Caneadea
1a	6/23/1993	Houghton	Sixtown Creek	Caneadea
1b	6/25/1993	Houghton	Sixtown Creek	Caneadea
2	6/22/1993	Houghton	Sixtown Creek	Caneadea
3	6/22/1993	Houghton	Sixtown Creek	Caneadea
4	6/22/1993	Houghton	Sixtown Creek	Caneadea
5	6/23/1993	Houghton	tributary to Sixtown Creek, Swift Hill	Rushford L
6	6/23/1993	Houghton	tributary to Sixtown Creek, Swift Hill	Rushford L
8	6/23/1993	Houghton	Railroad Cut on Swift Hill	Rushford L
13	6/24/1993	Houghton	2nd ravine N. of Hume Falls	Hume
16	6/29/1993	Houghton	tributary to Sixtown Creek, Swift Hill	Rushford U
17	6/29/1993	Houghton	tributary to Sixtown Creek, Swift Hill	Rushford U
20	6/25/1993	Houghton	ravine off Centerville Rd on Swift Hill	Machias 1st
21	6/25/1993	Houghton	ravine off Centerville Rd on Swift Hill	Machias 1st
22	6/25/1993	Houghton	ravine off Centerville Rd on Swift Hill	Machias 1st
23	6/25/1993	Houghton	ravine off Centerville Rd on Swift Hill	Machias 3rd
24	6/25/1993	Houghton	ravine off Centerville Rd on Swift Hill	Machias 4th
30	6/28/1993	Houghton	S. of Weaver Rd. 1st ravine	Rushford
40	6/30/1993	Houghton	Orchard Rd	Machias 1st
41	6/30/1993	Houghton	Orchard Rd	Machias 1st
43	6/30/1993	Houghton	Orchard Rd	Machias
45	6/30/1993	Houghton	Orchard Rd	Rushford U
46	6/30/1993	Houghton	Orchard Rd	Rushford U
46'	7/1/1993	Houghton	Orchard Rd	Rushford U
47	6/30/1993	Houghton	Orchard Rd	Rushford L
48	6/29/1993	Houghton	very nasty RR cut on Swift Hill w/muck &bees	Rushford U
49	6/29/1993	Angelica	Angelica Falls - creek	Rushford L
49	7/2/1993	Angelica	Angelica Falls- creek	Rushford L
49b	7/1/1993	Angelica	Angelica Falls -roadcut	Rushford U
49b	7/2/1993	Angelica	Angelica Falls -roadcut	Rushford U
52	7/1/1993	Houghton	ravine off in the middle of nowhere	Rushford L
63	7/6/1993	Houghton	Houghton Creek	Caneadea
63'	7/8/1993	Houghton	Houghton Creek	Caneadea
64	7/7/1993	Houghton	Houghton Creek	Caneadea
64a	7/7/1993	Houghton	Houghton Creek	Caneadea
66	7/7/1993	Houghton	Houghton Creek	Caneadea
66	7/9/1993	Houghton	Houghton Creek	Caneadea
67	7/9/1993	Houghton	Houghton Creek	Caneadea
68	7/9/1993	Houghton	Houghton Creek	Caneadea
69	7/9/1993	Houghton	Houghton Creek	Caneadea
72	7/9/1993	Houghton	Houghton Creek	Caneadea
73	7/9/1993	Houghton	Houghton Creek	Caneadea
75	7/9/1993	Houghton	Houghton Creek	Caneadea
76	7/9/1993	Houghton	Houghton Creek	Caneadea
77	7/9/1993	Houghton	Houghton Creek	Caneadea
87	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
87a	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
88	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
89	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
89a	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
90	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
92	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
92a	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
92b	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
96	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
97	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
98	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
99	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
100	7/20/1993	Houghton	"Horace Smith" Creek	Caneadea
105	7/13/1993	Houghton	ravine off of RR cut from Hell	Caneadea
105	7/15/1993	Houghton	ravine off of RR cut from Hell	Caneadea
108	7/13/1993	Houghton	RR cut from Hell	Rushford L

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
109	7/13/1993	Houghton	RR cut from Hell	Rushford L
110	7/13/1993	Houghton	RR cut from Hell	Rushford U
116	7/15/1993	Houghton	W. Canadea Creek	Caneadea
119	7/21/1993	Black Creek	Rush Creek	Rushford U
119	7/26/1993	Black Creek	Rush Creek	Rushford U
120	7/21/1993	Black Creek	Rush Creek	Machias 1st
121	7/21/1993	Black Creek	Rush Creek	Machias 1st
122	7/21/1993	Black Creek	Rush Creek	Machias 1st
123	7/21/1993	Black Creek	Rush Creek	Machias 2nd
133	7/21/1993	Black Creek	Rush Creek	Machias
134	7/21/1993	Black Creek	Rush Creek	Machias 1st
135	7/21/1993	Black Creek	Rush Creek	Machias 1st
136	7/21/1993	Black Creek	Rush Creek	Machias 1st
137		Black Creek	Barber Rd.tributary to Rush Creek	Machias
139	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Cuba
140	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias 4th
141	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias 4th
141a	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias
142	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias 4th
142a	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias
143	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias
144	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias
145	7/23/1993	Black Creek	Barber Rd.tributary to Rush Creek	Machias
146	7/21/1993	Black Creek	tributary to Crawford Creek	Machias 1st
147a	7/21/1993	Black Creek	major S. tributary to Crawford Crk. rd cut	Machias
148	7/22/1993	Black Creek	major S. tributary to Crawford Crk. stream	Machias 1st
149	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias 1st
149a	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
150	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias 4th
152	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
152a	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
153	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
153a	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
153b	7/26/1993	Black Creek	Barber Rd.tributary to Rush Creek II	Machias
154	7/27/1993	Black Creek	S. shore tributary to Rushford Lake	Machias
155	7/27/1993	Black Creek	S. shore tributary to Rushford Lake	Machias
155a	7/27/1993	Black Creek	S. shore tributary to Rushford Lake	Machias
155b	7/27/1993	Black Creek	S. shore tributary to Rushford Lake	Machias
155c	7/27/1993	Black Creek	S. shore tributary to Rushford Lake	Rushford U
157	7/27/1993	Black Creek	Off Barber Hill Rd, side gully	Machias 4th
158	7/27/1993	Black Creek	Off Barber Hill Rd, side gully	Machias 4th
163	7/28/1993	Black Creek	Rockville Lake canal/creek	Rushford L
163b	7/28/1993	Black Creek	Rockville Lake canal/creek	Rushford L
164	7/28/1993	Black Creek	Rockville Lake canal/creek	Rushford I
165	7/28/1993	Black Creek	Rockville Lake canal/creek	Rushford I
166	7/28/1993	Black Creek	Rockville Lake canal/creek	Rushford I
167a	8/2/1993	Black Creek	TibbetsHill Road creek	Hinsdale
167b	8/2/1993	Black Creek	TibbetsHill Road creek	Hinsdale
168	8/2/1993	Black Creek	TibbetsHill Road creek	Hinsdale
169	8/2/1993	Black Creek	TibbetsHill Road creek	Whitesville
170	8/2/1993	Black Creek	TibbetsHill Road creek	Whitesville
171	8/2/1993	Black Creek	TibbetsHill Road creek	Whitesville
173	8/3/1993	Angelica	White Creek, road cut	Rushford L
173	8/4/1993	Angelica	White Creek, road cut	Rushford L
173	11/23/1998	Angelica	White Creek, road cut	Rushford L
174	8/4/1993	Angelica	White Creek, stream bed	Caneadea
174	8/4/1993	Angelica	White Creek, stream bed	Caneadea
177	8/3/1993	Angelica	White Creek, stream bed	Rushford L
177	8/5/1993	Angelica	White Creek, stream bed	Rushford L
177a	12/4/1998	Angelica	White Creek, stream bed	Rushford L
178b	8/3/1993	Angelica	White Creek, stream bed	Rushford I
179	8/3/1993	Angelica	White Creek, stream bed	Rushford I
182	8/2/1993	Angelica	White Creek, stream bed	Rushford L
182	8/3/1993	Angelica	White Creek, stream bed	Rushford L
183	8/4/1993	Angelica	White Creek, stream bed	Machias
184c	8/4/1993	Angelica	White Creek, stream bed	Machias
185	8/3/1993	Angelica	White Creek, rd cut	Rushford U
189	8/5/1993	Angelica	small gully off of Rt. 19	Rushford L
189a	8/5/1993	Angelica	small gully off of Rt. 19	Rushford L

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191	8/5/1993	Angelica	gully off of Rt. 19	Rushford L
191a	8/5/1993	Angelica	gully off of Rt. 19	Rushford L
191b	8/5/1993	Angelica	gully off of Rt. 19	Rushford L
191c	8/5/1993	Angelica	gully off of Rt. 19	Rushford I
191d	8/5/1993	Angelica	gully off of Rt. 19	Rushford I
192	8/5/1993	Angelica	gully off of Rt. 19	Rushford U
193	8/5/1993	Angelica	gully off of Rt. 19	Machias 1st
194	8/5/1993	Angelica	gully off of Rt. 19	Machias 2nd
195	8/5/1993	Angelica	gully off of Rt. 19	Machias
196	8/5/1993	Angelica	gully off of Rt. 19	Machias 3rd
198	8/4/1993	Angelica	Transit Hill Rd.	Rushford I
199	8/4/1993	Angelica	Transit Bridge on Genesee River	Rushford L
199a	6/27/1997	Angelica	Transit Bridge on Genesee River	Rushford I
200	8/5/1993	Angelica	road cuts along Rt. 19	Rushford L
201	8/5/1993	Angelica	road cuts along Rt. 19	Rushford L
202	8/5/1993	Angelica	road cuts along Rt. 19	Rushford L
203	8/5/1993	Angelica	road cuts along Rt. 19	Rushford L
204	8/6/1993	Angelica	Baker Creek	Rushford L
205	8/10/1993	Angelica	Baker Creek	Rushford U
205a	8/10/1993	Angelica	Baker Creek	Rushford I
205b	8/10/1993	Angelica	Baker Creek	Machias
205c	8/10/1993	Angelica	Baker Creek	Machias 1st
209	8/9/1993	Angelica	Baker Creek	Rushford U
210	8/10/1993	Angelica	Baker Creek	Cuba
211	8/10/1993	Angelica	Baker Creek	Machias 4th
211a	8/10/1993	Angelica	Baker Creek	Machias 4th
211b	8/10/1993	Angelica	Baker Creek	Machias 3rd
211c	8/10/1993	Angelica	Baker Creek	Machias 3rd
212	8/10/1993	Angelica	Baker Creek	Machias 4th
212a	8/10/1993	Angelica	Baker Creek	Machias
212b	8/10/1993	Angelica	Baker Creek	Machias
213	8/9/1993	Angelica	Baker Creek	Rushford I
215	8/6/1993	Angelica	Baker Creek	Rushford I
217	8/6/1993	Angelica	Baker Creek	Rushford I
218	8/6/1993	Angelica	Baker Creek	Rushford L
219	8/11/1993	Angelica	VanCampen Creek	Rushford U
220	8/11/1993	Angelica	VanCampen Creek	Rushford I
221	8/10/1993	Angelica	Jacob's Hill Rd. ravine	Machias 1st
222	8/10/1993	Angelica	Jacob's Hill Rd. ravine	Machias 4th
223	8/10/1993	Angelica	Jacob's Hill Rd. ravine	Cuba
224		Angelica	creek off Emery Rd.	Rushford U
226	8/11/1993	Angelica	creek off Emery Rd.	Machias 1st
227	8/11/1993	Angelica	creek off Emery Rd.	Machias
228	8/11/1993	Angelica	creek off Emery Rd.	Machias 2nd
230	8/17/1993	Angelica	*Profanity Creek*	Caneadea
235	8/17/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 1st
236	8/17/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 1st
238	8/23/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 1st
241	8/24/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Rushford U
243	8/23/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 2nd
245	9/24/1993	West Almond	Southern Creek on Old State Road	Machias 3rd
245a	9/24/1993	West Almond	Southern Creek on Old State Road	Machias
246	9/24/1993	West Almond	Southern Creek on Old State Road	Machias 4th
246a	9/24/1993	West Almond	Southern Creek on Old State Road	Machias
246b	9/24/1993	West Almond	Southern Creek on Old State Road	Machias 4th
246c	9/24/1993	West Almond	Southern Creek on Old State Road	Machias 4th
247	9/24/1993	West Almond	Southern Creek on Old State Road	Machias
251	8/26/1993	West Almond	N. Miller Creek	Machias 2nd
251a	8/26/1993	West Almond	N. Miller Creek	Wellsville
251b	8/26/1993	West Almond	N. Miller Creek	Cuba
251c	8/26/1993	West Almond	N. Miller Creek	Machias 4th
251d	8/26/1993	West Almond	N. Miller Creek	Machias 3rd
251e	8/26/1993	West Almond	N. Miller Creek	Machias
252a	8/26/1993	West Almond	N. Miller Creek	Wellsville
253*	8/26/1993	West Almond	N. Miller Creek	Wellsville
253a*	8/26/1993	West Almond	N. Miller Creek	Wellsville
253c	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 2nd
254	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias
254a	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 3rd

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254b	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias 3rd
255	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias
256	8/25/1993	Angelica	Evergreen Trails, Basswood Hill Rd.	Machias
259	9/21/1993	West Almond	Bald Mtn. Creek	Cuba
259d	9/21/1993	West Almond	Bald Mtn. Creek	Cuba
266	9/16/1993	Houghton	Canadea Creek	Caneadea
270	9/24/1993	Houghton	Shongo Creek	Caneadea
273a	9/28/1993	Houghton	Shongo Creek	Caneadea
273c	9/28/1993	Houghton	Shongo Creek	Caneadea
274	9/28/1993	Houghton	Shongo Creek	Caneadea
274b	9/28/1993	Houghton	Shongo Creek	Caneadea
274d	9/28/1993	Houghton	Shongo Creek	Caneadea
274e	9/28/1993	Houghton	Shongo Creek	Caneadea
274f	9/30/1993	Houghton	Shongo Creek	Caneadea
274h	9/30/1993	Houghton	Shongo Creek	Caneadea
274i	9/30/1993	Houghton	Shongo Creek	Caneadea
276	6/10/1997	Fillmore	W. of Dutch Hill Rd	Caneadea
277	6/10/1997	Fillmore	W. of Dutch Hill Rd	Caneadea
279c	10/7/1993	Houghton	*"Council House" Creek*	Caneadea
279e	10/7/1993	Houghton	*"Council House" Creek*	Caneadea
280a	10/7/1993	Houghton	*"Council House" Creek*	Caneadea
280b	10/7/1993	Houghton	*"Council House" Creek*	Caneadea
280c	10/7/1993	Houghton	*"Council House" Creek*	Caneadea
281	10/14/1993	Fillmore	*"Head Nurse Biel's" Creek*	South Wales
281a	10/14/1993	Fillmore	*"Head Nurse Biel's" Creek*	South Wales
281b	10/14/1993	Fillmore	*"Head Nurse Biel's" Creek*	South Wales
281c	10/14/1993	Fillmore	*"Head Nurse Biel's" Creek*	South Wales
282	10/13/1993	Fillmore	Ballard Rd	Mills-Mills
283b	10/13/1993	Houghton	Lattice Bridge Rd	Caneadea
284	10/19/1993	Fillmore	Schuknecht Rd off RR track	Mills-Mills
284c	10/19/1993	Fillmore	Schuknecht Rd off RR track	Hume
285	8/1/1994	Fillmore	Creek off Ludwig Rd	Caneadea
285c	8/1/1994	Fillmore	Creek off Ludwig Rd	Caneadea
285c1-4	8/1/1994	Fillmore	Creek off Ludwig Rd	Caneadea
285d	8/1/1994	Fillmore	Creek off Ludwig Rd	Caneadea
288	10/19/1993	Fillmore	2nd Crk N. of Rush Crk	Wiscoy
288b	10/19/1993	Fillmore	2nd Crk N. of Rush Crk	Dunkirk
288c	10/19/1993	Fillmore	2nd Crk N. of Rush Crk	South Wales
288c	10/22/1993	Fillmore	2nd Crk N. of Rush Crk	South Wales
288d	10/22/1993	Fillmore	2nd Crk N. of Rush Crk	South Wales
288e	10/22/1993	Fillmore	2nd Crk N. of Rush Crk	Mills-Mills
289	10/22/1993	Fillmore	2nd Crk N. of Rush Crk	Mills-Mills
290	10/22/1993	Fillmore	2nd Crk N. of Rush Crk	Mills-Mills
290	10/25/1993	Fillmore	2nd Crk N. of Rush Crk	Mills-Mills
290a	10/25/1993	Fillmore	2nd Crk N. of Rush Crk	Hume
291	10/26/1993	Fillmore	Off Ballard Rd (another creek)	Dunkirk
292	10/26/1993	Fillmore	Off Ballard Rd (yet another creek)	Dunkirk-Mills-Mills
293	10/26/1993	Fillmore	Off Ballard Rd (even yet another creek)	Wiscoy
294	6/10/1997	Fillmore	W. of Dutch Hill Rd	Caneadea
295a	11/11/1993	Fillmore	Off Ballard Rd (Still even yet another creek)	Dunkirk
295c	6/22/1994	Fillmore	Off Ballard Rd (Still even yet another creek)	South Wales
296	10/28/1993	Fillmore	Rush Creek, main outcrop	Hume
297	10/28/1993	Fillmore	Rush Creek, main outcrop	Hume
298	10/28/1993	Fillmore	Rush Creek, main outcrop	Hume
299	10/28/1993	Fillmore	Rush Creek, main outcrop	Hume
300	10/28/1993	Houghton	Dr. Jacobi's Junkyard sites	Rushford L
301	10/28/1993	Houghton	Dr. Jacobi's Junkyard sites	Rushford L
300A	10/28/1993	Houghton	Dr. Jacobi's Junkyard sites	Rushford L
304	11/11/1993	Houghton	South south of Rushford Lake near Dam	Caneadea
304a	11/11/1993	Houghton	South south of Rushford Lake near Dam	Rushford
304a'	11/11/1993	Houghton	South south of Rushford Lake near Dam	Rushford
304b	11/11/1993	Houghton	South south of Rushford Lake near Dam	Rushford
304b'	11/11/1993	Houghton	South south of Rushford Lake near Dam	Rushford
600	7/22/1993	Black Creek	White Oak Run	Machias
601	7/22/1993	Black Creek	White Oak Run	Machias 1st
602	7/22/1993	Black Creek	White Oak Run	Machias 2nd
603	7/22/1993	Black Creek	White Oak Run	Machias 1st
604	7/29/1993	Black Creek	Habgood Creek	Machias 4th
605	7/29/1993	Black Creek	Habgood Creek	Machias

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606	7/29/1993	Black Creek	Habgood Creek	Cuba

1	6/22/1994	Portageville	*"Little Letchworth"*	Wiscoy
1	6/23/1994	Portageville	*"Little Letchworth"*	Wiscoy
2	6/23/1994	Portageville	*"Little Letchworth"*	Dunkirk
3	7/6/1994	Portageville	*"Little Letchworth"*	South Wales
3	7/11/1994	Portageville	*"Little Letchworth"*	South Wales
4k	7/11/1994	Portageville	*"Little Letchworth"*	South Wales
5	7/6/1994	Portageville	*"Little Letchworth"*	Mills-Mills
8a	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Hume
9a	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Hume
9b	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Hume
10	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Mills-Mills
11	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Mills-Mills
12	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Mills-Mills
13	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Hume
14	7/12/1994	Portageville	Creek South of *"Little Letchworth"*	Caneadea
15	7/18/1994	Portageville	Another creek farther South of *"Little Letchworth"*	South Wales
16	7/18/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Mills-Mills
17	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Hume
18	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Mills-Mills
19	7/18/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Mills-Mills
19	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Hume
20	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Mills-Mills
23	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
23a	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
24	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Caneadea
25	8/4/1994	Portageville	Another creek farther South of *"Little Letchworth"*	Caneadea
26	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
27a	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
28	8/19/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Hume
28	8/20/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Hume
29	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Hume
31a	7/27/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Hume
31a	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Hume
32	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
33a	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
33d	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
33e	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
33f	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
34	7/19/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	South Wales
35	7/19/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	South Wales
36	7/19/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	South Wales
37	7/27/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Mills-Mills
37a	7/27/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Mills-Mills
38	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
39	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
40	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
41	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
41a	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
42	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
48	7/28/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
49	7/19/1994	Fillmore	Crk w/ pop-up Near Hall, Eldridge and Sonnlietner Rds	Caneadea
50	8/2/1994	Fillmore	Another creek off Sonnlietner Rd	Mills-Mills
51	8/2/1994	Fillmore	Another creek off Sonnlietner Rd	Hume
51a	8/2/1994	Fillmore	Another creek off Sonnlietner Rd	Hume
52	8/2/1994	Fillmore	Another creek off Sonnlietner Rd	Caneadea
53	8/2/1994	Fillmore	Another creek off Sonnlietner Rd	Caneadea
56	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
56a	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
56b	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Mills-Mills
56c	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Mills-Mills
56d	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Mills-Mills
56e	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Mills-Mills
57	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
58	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
58a	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
58b	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Hume
58c	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Caneadea

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
58d	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Caneadea
59	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Caneadea
60	8/1/1994	Fillmore	Creek off Sonnlietner Rd	Caneadea
61	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
62	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
62a	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
62b	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
62c	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
63	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Caneadea
64a	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
64a'	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
65	8/4/1994	Fillmore	Another creek farther South of *"Little Letchworth"*	Hume
66	8/2/1994	Fillmore	Rush Creek, north branch, Vandenburg Rd	Caneadea
70	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	South Wales
71	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Mills-Mills
73	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Hume
74	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Hume
75	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Hume
75a	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Hume
76	9/12/1994	Fillmore	Knibloe Crk, Crosses Knibloe Rd	Caneadea
77	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
77a	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
77b	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
77c	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
78	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
78?	9/16/1994	Fillmore	Eldridge Rd Crk	South Wales
79	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Machias
79a	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Cuba
79b	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Cuba
80	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Cuba
81	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Cuba
82	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Wellsville 1st
83	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Wellsville 2nd
84	8/9/1994	West Almond	Murphy Hill Rd, Bennetts	Wellsville 3rd
85	8/10/1994	West Almond	Creek off George Rd	Wellsville 3rd
86	8/10/1994	West Almond	Creek off George Rd	Wellsville
87	8/10/1994	West Almond	Creek off George Rd	Wellsville
88	8/10/1994	West Almond	Creek off George Rd	Wellsville 2nd
90	8/10/1994	West Almond	Creek off George Rd	Cuba
91	8/10/1994	West Almond	Creek off George Rd	Cuba
92	8/10/1994	West Almond	Creek off George Rd	Cuba
93	8/10/1994	West Almond	Creek off George Rd	Cuba
94	8/10/1994	West Almond	Creek off George Rd	Cuba
95	8/10/1994	West Almond	Creek off George Rd	Machias
95a	8/10/1994	West Almond	Creek off George Rd	Machias
96	8/10/1994	West Almond	Creek off George Rd	Cuba
97	8/10/1994	West Almond	Creek off George Rd	Cuba
98	10/14/1994	West Almond	Scholles Crk	Cuba
98a	10/14/1994	West Almond	Scholles Crk	Cuba
99	10/14/1994	West Almond	Scholles Crk	Cuba
100	10/14/1994	West Almond	Scholles Crk	Machias
101b	10/14/1994	West Almond	Scholles Crk	Machias 4th
102	10/10/1994	West Almond	Scholles Crk	Machias 4th
102a	10/10/1994	West Almond	Scholles Crk	Machias
103b	10/14/1994	West Almond	Scholles Crk	Machias 3rd
103c	10/10/1994	West Almond	Scholles Crk	Machias 3rd
104	10/10/1994	West Almond	Scholles Crk	Machias
104a	10/14/1994	West Almond	Scholles Crk	Machias 3rd
104b	10/10/1994	West Almond	Scholles Crk	Machias 3rd
105	10/17/1994	West Almond	Scholles Crk	Wellsville 1st
106	10/17/1994	West Almond	Scholles Crk	Wellsville
106a	10/17/1994	West Almond	Scholles Crk	Wellsville 2nd
107	10/17/1994	West Almond	Scholles Crk	Wellsville 3rd
107a	10/17/1994	West Almond	Scholles Crk	Wellsville 3rd
108	9/16/1994	Fillmore	Eldridge Rd Crk	Mills-Mills
108a	9/16/1994	Fillmore	Eldridge Rd Crk	Mills-Mills
108b	9/16/1994	Fillmore	Eldridge Rd Crk	Mills-Mills
109	9/16/1994	Fillmore	Eldridge Rd Crk	Mills-Mills
110	9/16/1994	Fillmore	Eldridge Rd Crk	Mills-Mills

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111	9/19/1994	Fillmore	Eldridge Rd Crk	Mills-Mills
112	9/19/1994	Fillmore	Eldridge Rd Crk	Hume
113	9/19/1994	Fillmore	Eldridge Rd Crk	Hume
114	9/19/1994	Fillmore	Eldridge Rd Crk	Hume
115	9/19/1994	Fillmore	Eldridge Rd Crk	Caneadea
116	9/19/1994	Fillmore	Eldridge Rd Crk	Hume
117	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	Caneadea
118a	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
118b	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
118c	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
118d	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
118e	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
118f	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	South Wales
119	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	Hume
120	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	Caneadea
121	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	Caneadea
122	9/15/1994	Fillmore	Knibloe #2 Crk (2nd South)	Caneadea
123a	9/10/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123b	9/10/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123b	9/18/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123c	10/8/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123d	10/8/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123d	10/21/1994	Angelica	Oramel Hill Rd Crk	Caneadea
123d	11/19/1994	Angelica	Oramel Hill Rd Crk	Caneadea
124	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias
124a	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias 1st
124b	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias 1st
125	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias 2nd
126	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias
127	8/29/1994	Fillmore	Vincent Hill Rd DEC Crk	Machias 3rd
128	9/6/1994	West Almond	Camp Rd	Machias
129	9/6/1994	West Almond	Camp Rd	Cuba
130	9/6/1994	West Almond	Camp Rd	Wellsville
130b	9/6/1994	West Almond	Camp Rd	Cuba
131	9/19/1994	West Almond	Schuyler Rd (West) Creek	Machias
132a	9/19/1994	West Almond	Schuyler Rd (West) Creek	Machias
132b	9/19/1994	West Almond	Schuyler Rd (West) Creek	Machias
133	9/19/1994	West Almond	Schuyler Rd (East) Creek	Wellsville
134	10/3/1994	West Almond	Schuyler Rd (East) Creek	Hinsdale
134a	9/19/1994	West Almond	Schuyler Rd (East) Creek	Hinsdale
135	10/3/1994	West Almond	Schuyler Rd (East) Creek	Whitesville
136a	10/9/1994	West Almond	Simons Rd West (DEC) Crk	Machias
138	9/12/1994	West Almond	Simons Rd West (DEC) Crk	Machias
140	11/18/1994	West Almond	W. trib. to California Crk.	Wellsville
140a	11/18/1994	West Almond	W. trib. to California Crk.	Wellsville 3rd
140b	11/18/1994	West Almond	W. trib. to California Crk.	Wellsville
141	11/14/1994	West Almond	W. trib. to California Crk.	Wellsville 1st
142	11/14/1994	West Almond	W. trib. to California Crk.	Wellsville
142a	11/14/1994	West Almond	W. trib. to California Crk.	Cuba
142b	11/14/1994	West Almond	W. trib. to California Crk.	Cuba
142c	11/14/1994	West Almond	W. trib. to California Crk.	Cuba
142d	11/11/1994	West Almond	W. trib. to California Crk.	Machias
142f	11/11/1994	West Almond	W. trib. to California Crk.	Machias 4th
143	9/16/1994	Angelica	Belevediere Estates Creek (19)	Machias 3rd
145	9/16/1994	Angelica	Belevediere Estates Creek (19)	Machias 4th
146	9/20/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
147	9/20/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
148	9/20/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
149	10/7/1994	Angelica	Kleinbeck Rd Crk.	Whitesville
150	9/20/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
150	10/7/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
151	9/20/1994	Angelica	Kleinbeck Rd Crk.	Hinsdale
152	9/20/1994	Angelica	Kleinbeck Rd Crk.	Wellsville
153	10/28/1994	Angelica	Belvediere Farms South Crk	Hinsdale
154	10/28/1994	Angelica	Belvediere Farms South Crk	Wellsville
155	10/28/1994	Angelica	Belvediere Farms South Crk	Wellsville 2nd
156	10/28/1994	Angelica	Belvediere Farms South Crk	Cuba
157	10/28/1994	Angelica	Belvediere Farms South Crk	Cuba
158	10/28/1994	Angelica	Belvediere Farms South Crk	Machias 4th

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159	10/28/1994	Angelica	Belvediere Farms South Crk	Machias
160	10/28/1994	Angelica	Belvediere Farms South Crk	Machias 3rd
161	9/22/1994	Rawson	Luce Rd East Crk (53)	Machias 4th
162	9/22/1994	Rawson	Luce Rd East Crk (53)	Cuba
163	9/22/1994	Rawson	Luce Rd East Crk (53)	Cuba
164	9/22/1994	Rawson	Dolph Rd. Crk (55)	Cuba
165	9/22/1994	Rawson	Briggs Rd. Crk (77)	Wellsville
166	9/22/1994	Rawson	Briggs Rd. Crk (77)	Cuba
167	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Wellsville
168	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Cuba
169	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Cuba
170	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Wellsville
171	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Wellsville
172	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Wellsville
173	10/3/1994	Rawson	Oakes Rd. West Crk (58)	Wellsville
174	10/3/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
175	10/3/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
176	10/3/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
177	10/3/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
178	10/3/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
178a	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias
179	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
180	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
181	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
181b	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
182	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
182a	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias
182b	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias 4th
183	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias
183a	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Machias
184	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
186	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Wellsville
187	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
187a	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Wellsville 1st
188	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
189	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
190	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
190a	10/4/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
191	10/7/1994	Angelica	Coyle Hill/ Warner Rds intersection	Machias
192	10/11/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
193	10/11/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
194	10/11/1994	Rawson	Rawson Rd. East Creek (59)	Cuba
195	10/13/1994	Rawson	Rawason Rd. West Creek	Cuba
196	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville
197	10/13/1994	Rawson	Rawason Rd. West Creek	Hinsdale
198	10/13/1994	Rawson	Rawason Rd. West Creek	Hinsdale
198a	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville
199	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville
200	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville
200a	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville
201	10/13/1994	Rawson	Rawason Rd. West Creek	Wellsville 2nd
202a	10/17/1994	Rawson	Rawason Rd. West Creek	Wellsville 1st
203	10/17/1994	Rawson	Rawason Rd. West Creek	Wellsville 3rd
204	10/17/1994	Rawson	Rawason Rd. West Creek	Wellsville 2nd
205	10/17/1994	Rawson	Rawason Rd. West Creek	Wellsville
206	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Cuba
207	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 1st
208	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 2nd
208a	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 2nd
209	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 2nd
209b	10/20/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 2nd
209c	10/20/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville
210	10/17/1994	Rawson	New Mexico Rd. East Creek (59)	Wellsville 3rd
212	10/20/1994	Freedom	Mink Hollow Rd. Creek (see 1297-1305 stream # 37)	Mach1
213	10/20/1994	Freedom	Mink Hollow Rd. Creek (see 1297-1305 stream # 37)	Mach1
214	10/20/1994	Freedom	Mink Hollow Rd. Creek (see 1297-1305 stream # 37)	Mach1
215	11/12/1994	Freedom	Centerville Rd Crk West (66)	Rushford L
215b	11/19/1994	Freedom	Centerville Rd Crk West (66)	Rushford L
215c	11/19/1994	Freedom	Centerville Rd Crk West (66)	Rushford l

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216	11/19/1994	Freedom	Centerville Rd Crk West (66)	Rushford U
217	11/19/1994	Freedom	Centerville Rd Crk West (66)	Rushford U
218	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Cuba
218a	11/8/1994	Rawson	Raswon Rd. northern East Creek (47)	Cuba
219	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Cuba
220	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Cuba
221	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Cuba
222	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsville 1st
223	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsville 2nd
224	11/4/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsville
225	11/8/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsvile C
226	11/8/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsville 3rd
227	11/8/1994	Rawson	Raswon Rd. northern East Creek (47)	Wellsville
229	11/8/1994	Freedom	W. Branch Rd. (W. of Rushford) (40)	Machias
231	11/8/1994	Freedom	W. Branch Rd. (W. of Rushford) (40)	Machias
232	11/15/1994	Freedom	Meadowview Rd South Crk.	Rushford L
232a	12/1/1994	Freedom	Meadowview Rd South Crk.	Rushford L
233	11/15/1994	Houghton	N. Shore of Rushford Lake near dam	Rushford
600	6/30/1994	Fillmore	Steadman Rd. Creek	Caneadea
600	7/5/1994	Fillmore	Steadman Rd. Creek	Caneadea
600	7/6/1994	Fillmore	Steadman Rd. Creek	Caneadea
700	8/11/1994	West Almond	Creek off George Rd	Wellsville 3rd
1	6/4/1997	Fillmore	E. branch by 94/600, near fork	Caneadea
2	6/4/1997	Fillmore	E. branch by 94/600, upstream	Caneadea
3	6/4/1997	Fillmore	E. branch by 94/600, upstream	Caneadea
4a	6/4/1997	Fillmore	E. branch by 94/600, end of gorge	Caneadea
4b	6/4/1997	Fillmore	E. branch by 94/600, gorge	Caneadea
5	6/5/1997	Fillmore	E. branch by 94/600, upstream	Caneadea
6	6/5/1997	Fillmore	E. branch by 94/600, upstream	Caneadea
7	6/5/1997	Fillmore	E. branch by 94/600, by pipeline	Caneadea
8	6/10/1997	Fillmore	Stream S. of Snyder Hill Rd	Caneadea
8a	6/10/1997	Fillmore	Roadcut north of Snyder Hill Rd.	Caneadea
9	6/10/1997	Fillmore	Creek S. of English Hill Rd.	Rushford L
10	6/10/1997	Fillmore	Creek S. of English Hill Rd.	Rushford U
11a	6/11/1997	Houghton	Genesee River N. of Lattice Bridge	M.Mills
11b	6/11/1997	Houghton	Genesee River S. of Lattice Bridge	M.Mills
12	6/17/1997	Fillmore	S. of the Holiday and Clark Rds. int.	Caneadea
13	6/17/1997	Fillmore	S. of the Holiday and Clark Rds. int.	Caneadea
14	6/20/1997	Fillmore	upper Shongo Crk, by Glinderman Rd.	Caneadea
15	6/20/1997	Fillmore	upper Shongo Crk, by Glinderman Rd.	Caneadea
16	6/20/1997	Fillmore	upper Shongo Crk, by Glinderman Rd.	Rushford L
17	6/20/1997	Houghton	2nd Crk S. of Cronk Hill Rd.	Caneadea
18	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
18a	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
18b	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
18c	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
18d	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
19	6/20/1997	Fillmore	2nd Crk S. of Cronk Hill Rd.	Caneadea
20	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. W. of RR	Caneadea
21	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. E. of RR	Caneadea
22	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. E. of RR	Caneadea
23	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. E. of RR	Caneadea
24	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. E. of RR	Caneadea
24c	6/23/1997	Fillmore	Crk N. of Cronk Hill Rd. E. of RR	Caneadea
25	6/23/1997	Houghton	RR grade S. of Cronk Hill Rd.	Caneadea
26	6/25/1997	Houghton	Crk N. of Cronk Hill Rd. W. of RR	Hume
27	6/25/1997	Houghton	Crk N. of Cronk Hill Rd. W. of RR	M.Mills
28	6/25/1997	Houghton	Crk N. of Cronk Hill Rd. W. of RR	Hume
29	6/30/1997	Fillmore	Crk N. of Cronk Hill Rd. W. of RR	Caneadea
30	6/25/1997	Houghton	Crk N. of Cronk Hill Rd. W. of RR	Caneadea
32	6/30/1997	Fillmore	Crk N. of Cronk Hill Rd. W. of RR	Caneadea
33	7/8/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	Wiscoy
33a	7/8/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	Dunkirk
33b	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	Dunkirk
33d	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	S. Wales
34	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills
34c	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills
34d	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills

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35	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills
36	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills
37	7/10/1997	Fillmore	N. branch of 1st Crk N. of Rush Crk	M.Mills
40	7/16/1997	Houghton	1st Crk S. of Cronk Hill RR, E. of RR	Caneadea
42	7/16/1997	Houghton	1st Crk S. of Cronk Hill RR, E. of RR	Caneadea
43	7/16/1997	Fillmore	1st Crk S. of Cronk Hill RR, E. of RR	Caneadea
44	7/16/1997	Fillmore	1st Crk S. of Cronk Hill RR, E. of RR	Caneadea
45	7/17/1997	Fillmore	Gully E. of Seavert Rd. corner	Rushford I
46	7/17/1997	Fillmore	Gully E. of Seavert Rd. corner	Rushford U
46a	7/17/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias
47	7/17/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias 2nd
48	7/17/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias
48	7/22/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias
49	7/22/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias 3rd
50	7/22/1997	Fillmore	Gully E. of Seavert Rd. corner	Machias 4th
51	7/22/1997	Fillmore	Trib. E. of Peavy Rd	Rushford U
52	7/22/1997	Fillmore	Trib. E. of Peavy Rd	Rushford U
53	7/22/1997	Fillmore	Trib. E. of Peavy Rd	Machias 1st
54	7/22/1997	Fillmore	Trib. E. of Peavy Rd, at fork	Machias
55	7/22/1997	Fillmore	Trib. E. of Peavy Rd, center fork	Machias
56	7/22/1997	Fillmore	Trib. E. of Peavy Rd, center fork	Machias 3rd
57	7/22/1997	Fillmore	Trib. E. of Peavy Rd, center fork	Machias
58	7/22/1997	Fillmore	Trib. E. of Peavy Rd, center fork	Machias
60	7/29/1997	Houghton	Crk between North and Pike Rds.	Caneadea
61	7/29/1997	Houghton	Crk between North and Pike Rds.	Rushford L
62	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Caneadea
63	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Caneadea
64	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Rushford
66	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Rushford
67	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Rushford
68	7/29/1997	Houghton	Crk between Fitch Farm and Hodnett Rds	Rushford
72	8/12/1997	Houghton	Cold Creek north of Buffalo Rd.	M.Mills
73	8/12/1997	Houghton	Cold Creek north of Buffalo Rd.	Hume
74	8/12/1997	Angelica	White Creek north of LittleJohn Rd.	Rushford
75	8/15/1997	Angelica	1st Creek S. of Brainard Rd.	Machias 4th
76W	8/15/1997	Angelica	1st Creek S. of Brainard Rd.	Machias
76E	8/15/1997	Angelica	1st Creek S. of Brainard Rd.	Machias
77	8/15/1997	Angelica	1st Creek S. of Middle Rd.	Cuba
78	8/15/1997	Angelica	1st Creek S. of Middle Rd.	Hindsale
79	8/15/1997	Angelica	1st Creek S. of Middle Rd.	Hindsale
80	8/15/1997	Houghton	Wiscoy Creek E. of Lapp Rd.	Hume
81	7/31/1998	Angelica	Landfill Creek south of Rt 86	Whitesville C
81a	7/31/1998	Angelica	Landfill Creek south of Rt 86	Whitesville
82	7/31/1998	Angelica	Landfill Creek south of Rt 86	Hindsale
83	7/31/1998	Angelica	Landfill Creek south of Rt 86	Wellsville
83a	7/31/1998	Angelica	Landfill Creek south of Rt 86	Wellsville 2nd
84	7/31/1998	Angelica	Landfill Creek south of Rt 86	Cuba
84a	7/31/1998	Angelica	Landfill Creek south of Rt 86	Cuba
85	7/31/1998	Angelica	Landfill Creek south of Rt 86	Machias 3rd
85a	7/31/1998	Angelica	Landfill Creek south of Rt 86	Machias 3rd
85b	7/31/1998	Angelica	Landfill Creek south of Rt 86	Machias 3rd
86	10/28/1998	Angelica	small trib near Transit Bridge	Rushford U
87	11/25/1998	Angelica	Outcrop along County Rt. 17	Rushford
88	11/25/1998	Angelica	Outcrop behind barn along county rt 17	Rushford
89	11/25/1998	Angelica	More outcrop along county Rt. 17	Rushford
1000	1995-1997	Rawson	Stream # 44	Machias 4th
1001	1995-1997	Rawson	Stream # 44	Cuba
1002	1995-1997	Rawson	Stream # 44	Wellsville
1003	1995-1997	Rawson	Stream # 44	Wellsville 3rd
1004	1995-1997	Rawson	Stream # 44	Hinsdale
1005	1995-1997	Rawson	Stream # 44	Hinsdale
1005a	1995-1997	Rawson	Stream # 44	Hinsdale
1006	1995-1997	Rawson	Stream # 88	Cuba
1007	1995-1997	Rawson	Stream # 88	Wellsville 1st
1008	1995-1997	Rawson	Stream # 88	Wellsville 2nd
1009	1995-1997	Rawson	Stream # 88	Wellsville 3rd
1009b	1995-1997	Rawson	Stream # 88	Wellsville
1009c	1995-1997	Rawson	Stream # 88	Wellsville-Hinsdale

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1010	1995-1997	Rawson	Stream # 89	Machias 4th
1011	1995-1997	Rawson	Stream # 89	Cuba
1012a	1995-1997	Rawson	Stream # 89	Cuba
1012b	1995-1997	Rawson	Stream # 89	Wellsville 1st
1013	1995-1997	Rawson	Stream # 89	Wellsville 1st
1013a	1995-1997	Rawson	Stream # 89	Wellsville
1013b	1995-1997	Rawson	Stream # 89	Wellsville 1st
1013c	1995-1997	Rawson	Stream # 89	Wellsville 2nd
1014	1995-1997	Rawson	Stream # 89	Wellsville
1015	1995-1997	Rawson	Stream # 73	Cuba
1015a	1995-1997	Rawson	Stream # 73	Wellsville 1st
1015b	1995-1997	Rawson	Stream # 73	Wellsville 2nd
1016	1995-1997	Rawson	Stream # 73	Wellsville
1017	1995-1997	Rawson	Stream # 73	Wellsville 3rd
1018	1995-1997	Rawson	Stream # 73	Wellsville 3rd
1019	1995-1997	Rawson	Stream # 45	Cuba
1020	1995-1997	Rawson	Stream # 45	Wellsville 1st&B
1020a	1995-1997	Rawson	Stream # 45	Wellsville 3rd
1021	1995-1997	Rawson	Stream # 45	Hinsdale
1022	1995-1997	Rawson	Stream # 72	Cuba
1023	1995-1997	Rawson	Stream # 72	Wellsville 1st&B
1023a	1995-1997	Rawson	Stream # 72	Wellsville 2nd
1024	1995-1997	Rawson	Stream # 68	Wellsville
1025	1995-1997	Rawson	Stream # 69	Wellsville 1st&B
1025a	1995-1997	Rawson	Stream # 69	Wellsville
1026	1995-1997	Rawson	Stream # 69	Wellsville 3rd
1027	1995-1997	Rawson	Stream # 94	Cuba
1028	1995-1997	Rawson	Stream # 94	Cuba
1029	1995-1997	Rawson	Stream # 94	Wellsville 1st
1031	1995-1997	Rawson	Stream # 46d	Cuba
1032	1995-1997	Rawson	Stream # 46d	Cuba
1032b	1995-1997	Rawson	Stream # 46d	Cuba
1033	1995-1997	Rawson	Stream # 46d	Wellsville
1033b	1995-1997	Rawson	Stream # 46d	Wellsville 1st
1033b	1995-1997	Rawson	Stream # 46d	Wellsville 1st
1034	1995-1997	Rawson	Stream # 46b&d	Wellsville 1st
1034b	1995-1997	Rawson	Stream # 46d	Wellsville 2nd
1035	1995-1997	Rawson	Stream # 46	Cuba+Wlv A&B
1036	1995-1997	Rawson	Stream # 46	Wellsville 3rd
1037	1995-1997	Rawson	Stream # 46	Wellsville
1038	1995-1997	Rawson	Stream # 46	Hinsdale
1039	1995-1997	Rawson	Stream # 46c	Wellsville
1039b	1995-1997	Rawson	Stream # 46c	Wellsville
1040	1995-1997	Rawson	Stream # 46d	Wellsville 3rd
1041	1995-1997	Rawson	Stream # 46d	Machias 4th
1042a	1995-1997	Rawson	Stream # 46d	Machias 4th
1044	1995-1997	Rawson	Stream # 51	Machias 3rd
1046	1995-1997	Rawson	Stream # 51	Machias
1047b	1995-1997	Rawson	Stream # 51	Machias 4th
1049	1995-1997	Rawson	Stream # 51	Machias 4th
1050	1995-1997	Rawson	Stream # 51	Cuba
1052	1995-1997	Rawson	Stream # 51	Wellsville 1st
1053	1995-1997	Rawson	Stream # 51	Hinsdale
1053b	1995-1997	Rawson	Stream # 51	Hinsdale
1054	1995-1997	Rawson	Stream # 97	Machias 4th
1055	1995-1997	Rawson	Stream # 97	Cuba
1055a	1995-1997	Rawson	Stream # 97	Cuba
1056	1995-1997	Rawson	Stream # 97	Wellsville 1st
1057	1995-1997	Rawson	Stream # 97	Wellsville 1st
1058	1995-1997	Rawson	Stream # 97	Wellsville 2nd
1059	1995-1997	Rawson	Stream # 97	Wellsville 2nd
1060	1995-1997	Rawson	Stream # 97	Hinsdale
1061	1995-1997	Rawson	Stream # 97	Hinsdale
1062	1995-1997	Rawson	Clark Rd. E of Stream # 97	Whitesville
1063	1995-1997	Rawson	Trib to Stream #97	Wellsville 1st
1063c	1995-1997	Rawson	Trib to Stream #97	Wellsville 3rd
1064	1995-1997	Rawson	Stream # 52	Machias 4th
1064a	1995-1997	Rawson	Stream # 52	Machias
1065	1995-1997	Rawson	Stream # 52	Wellsville 1st

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
1066	1995-1997	Rawson	Stream # 52	Wellsville 3rd
1067	1995-1997	Rawson	Clark Rd. above Stream # 52	Hinsdale
1068	1995-1997	Rawson	Stream # 82	Wellsville 2nd
1068a	1995-1997	Rawson	Stream # 82	Wellsville 2nd
1069	1995-1997	Rawson	Stream # 82	Wellsville
1069a	1995-1997	Rawson	Stream # 82	Wellsville 2nd
1069b	1995-1997	Rawson	Stream # 82	Wellsville
1070	1995-1997	Rawson	Stream # 82	Wellsville
1071	1995-1997	Rawson	Stream # 82	Wellsville 3rd
1071a	1995-1997	Rawson	Stream # 82	Wellsville
1072a	1995-1997	Rawson	Stream # 82	Wellsville
1072c	1995-1997	Rawson	Stream # 82	Wellsville
1073c	1995-1997	Rawson	Stream # 82	Wellsville
1074a	1995-1997	Rawson	Stream # 82	Hinsdale
1074c	1995-1997	Rawson	Stream # 82	Hinsdale
1074d	1995-1997	Rawson	Stream # 82	Whitesville
1075	1995-1997	Rawson	Stream # 103	Machias 3rd
1075	1995-1997	Rawson	Stream # 103	Machias
1075a	1995-1997	Rawson	Stream # 103	Machias 3rd
1076	1995-1997	Rawson	Stream # 103	Machias 4th
1076	1995-1997	Rawson	Stream # 103	Machias
1076a	1995-1997	Rawson	Stream # 103	Machias 4th
1076b	1995-1997	Rawson	Stream # 103	Machias 4th
1077	1995-1997	Rawson	Stream # 110	Machias 4th
1078	1995-1997	Rawson	Stream # 110	Cuba
1079	1995-1997	Rawson	Stream # 110	Wellsville 1st&B
1080	1995-1997	Rawson	North Center Rd. extension drainage (North of Clark Rd.)	Cuba
1081	1995-1997	Rawson	North Center Rd. extension drainage (North of Clark Rd.)	Wellsville 1st
1082	1995-1997	Rawson	North Center Rd. extension drainage (North of Clark Rd.)	Wellsville 3rd
1083	1995-1997	Rawson	Stream # 84	Hinsdale
1083a	1995-1997	Rawson	Stream # 84	Wellsville
1084	1995-1997	Rawson	Stream # 84	Hinsdale
1085	1995-1997	Rawson	Stream # 84	Hinsdale
1086	1995-1997	Rawson	Stream # 84	Whitesville
1087	1995-1997	Rawson	Stream # 85	Wellsville
1088	1995-1997	Rawson	Stream # 85	Wellsville 3rd
1089	1995-1997	Rawson	Stream # 101 west Y	Cuba
1089b	1995-1997	Rawson	Stream # 101 west Y	Cuba
1090	1995-1997	Rawson	Stream # 101 west Y	Cuba
1091	1995-1997	Rawson	Stream # 101 west Y	Cuba
1092	1995-1997	Rawson	Stream # 82 @ Abbotts	Cuba
1093	1995-1997	Rawson	Stream # 82 @ Abbotts	Wellsville 1st
1095	1995-1997	Rawson	Stream # 80	Machias
1096	1995-1997	Rawson	Stream # 80	Cuba
1097	1995-1997	Rawson	Stream # 80	Cuba
1098	1995-1997	Rawson	Stream # 80	Wellsville 1st
1099	1995-1997	Rawson	Stream # 80	Wellsville 1st
1100	1995-1997	Rawson	Stream # 80	Wellsville 2nd
1101	1995-1997	Rawson	Stream # 80	Wellsville
1102	1995-1997	Rawson	Stream # 80	Wellsville
1103	1995-1997	Rawson	Stream # 69a drainage between 69&70	Wellsville 1st
1104	1995-1997	Rawson	Stream # 69a drainage between 69&70	Wellsville 1st
1105	1995-1997	Rawson	Stream # 70	Wellsville
1106	1995-1997	Rawson	Stream # 70a	Wellsville 1st
1107	1995-1997	Rawson	Rush Creek North of Dewey RD, south of stream #70	Wellsville 1st&B
1108	1995-1997	Rawson	Stream # 56	Cuba
1109b	1995-1997	Rawson	Stream # 56	Cuba
1111	1995-1997	Rawson	Stream # 56	Cuba
1112	1995-1997	Rawson	Stream # 81	Cuba
1113	1995-1997	Rawson	Stream # 81	Cuba
1113a	1995-1997	Rawson	Stream # 81	Cuba
1114	1995-1997	Rawson	Stream # 81	Wellsville 1st
1115	1995-1997	Rawson	North Center Rd.	Whitesville
1116	1995-1997	Rawson	North Center Rd.	Hinsdale
1117	1995-1997	Rawson	Lyndon Center Rd.	Hinsdale
1118	1995-1997	Rawson	Lyndon Center Rd.	Hinsdale
1119	1995-1997	Rawson	Ewing Rd.	Whitesville
1120	1995-1997	Rawson	Stream # 79	Cuba
1121	1995-1997	Rawson	Stream # 79	Wellsville 1st

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1122	1995-1997	Rawson	Stream # 79	Wellsville 1st
1124	1995-1997	Rawson	Stream # 79	Wellsville
1125	1995-1997	Rawson	Stream # 79	Wellsville
1126	1995-1997	Rawson	Stream # 79	Hinsdale
1200	1995-1997	Freedom	Stream #161	Machias 4th
1201	1995-1997	Freedom	Stream #161	Machias 4th
1202	1995-1997	Freedom	Stream #161	Machias 4th
1203	1995-1997	Freedom	Stream #161	Machias 4th
1204	1995-1997	Freedom	Stream #161	Cuba
1205	1995-1997	Freedom	Stream #161	Cuba
1206	1995-1997	Freedom	Stream #160	Machias 4th
1207	1995-1997	Freedom	Stream #160	Machias 4th
1208	1995-1997	Freedom	Stream #160	Cuba
1209	1995-1997	Freedom	Stream #160	Cuba
1210	1995-1997	Freedom	Stream #159	Machias 4th
1211	1995-1997	Freedom	Stream #159	Machias 4th
1212	1995-1997	Freedom	Stream #159	Machias 4th
1213	1995-1997	Freedom	Stream #159	Cuba
1213A	1995-1997	Freedom	Stream #159	Cuba
1214	1995-1997	Freedom	Stream #159	Cuba
1215	1995-1997	Freedom	Stream #159	Cuba
1216	1995-1997	Freedom	Stream #144	Machias 3rd
1216A	1995-1997	Freedom	Stream #144	Machias
1217	1995-1997	Freedom	Stream #143	Machias
1218	1995-1997	Freedom	Stream #143	Machias
1219	1995-1997	Freedom	Stream #143	Machias
1220	1995-1997	Freedom	Stream #143	Machias 4th
1221	1995-1997	Freedom	Stream #143	Machias 4th
1222	1995-1997	Freedom	Stream #143	Machias 4th
1223	1995-1997	Freedom	Stream #143	Cuba
1224	1995-1997	Freedom	Stream #143	Cuba
1225	1995-1997	Freedom	Stream #142	Cuba
1226	1995-1997	Freedom	Stream #141	Machias 3rd
1227	1995-1997	Freedom	Stream #141	Machias 3rd
1228	1995-1997	Freedom	Stream #141	Machias 3rd
1229	1995-1997	Freedom	Stream #141	Machias 3rd&4
1230	1995-1997	Freedom	Stream #162	Machias
1231	1995-1997	Freedom	Stream #162	Cuba
1232	1995-1997	Freedom	Stream #162	Cuba
1233	1995-1997	Freedom	Stream #162A	Wellsville
1234	1995-1997	Freedom	Stream #145	Machias
1235	1995-1997	Freedom	Stream #164	Cuba
1236	1995-1997	Freedom	Stream #166	Rushford
1237	1995-1997	Freedom	Stream #149	Cuba
1238	1995-1997	Freedom	Stream #149	Cuba
1239	1995-1997	Freedom	Stream #149	Cuba
1240	1995-1997	Freedom	Stream #149	Wellsville 1st
1241	1995-1997	Freedom	Stream #150	Cuba
1242	1995-1997	Freedom	Stream #150	Cuba
1243	1995-1997	Freedom	Stream #150	Cuba
1243A	1995-1997	Freedom	Stream #150	Welllsville A
1244	1995-1997	Freedom	Stream #168	Rushford U
1245	1995-1997	Freedom	Stream #167	Caneadea
1246	1995-1997	Freedom	Stream #171	Rushford L
1247	1995-1997	Freedom	Stream #172	Rushford L
1248	1995-1997	Freedom	Stream #149A	Cuba & Wlv A
1249	1995-1997	Freedom	Stream #36	Machias 4th
1250	1995-1997	Freedom	Stream #36	Machias 4th
1251	1995-1997	Freedom	Stream #36	Cuba
1252	1995-1997	Freedom	Stream #36	Cuba
1253	1995-1997	Freedom	Stream #133	Machias 3rd&4
1253A	1995-1997	Freedom	Stream #133	Machias 4th
1254	1995-1997	Freedom	Stream #133	Machias 4th
1255	1995-1997	Freedom	Stream #133	Cuba
1256	1995-1997	Freedom	Stream #130	Machias 4th
1257	1995-1997	Freedom	Stream #130	Machias 4th
1258	1995-1997	Freedom	Stream #130	Machias 4th
1259	1995-1997	Freedom	Stream #130	Machias 4th

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1260	1995-1997	Freedom	Stream #130	Machias 4th
1261	1995-1997	Freedom	Stream #130	Machias 4th
1262	1995-1997	Freedom	Stream #130	Machias 4th
1263	1995-1997	Freedom	Stream #130	Cuba
1264	1995-1997	Freedom	Stream #129	Machias 3rd
1264A	1995-1997	Freedom	Stream #129	Machias 4th
1265	1995-1997	Freedom	Stream #41	Machias 3rd
1265A	1995-1997	Freedom	Stream #41	Machias
1266	1995-1997	Freedom	Stream #41	Machias
1267	1995-1997	Freedom	Stream #41	Machias 4th
1268	1995-1997	Freedom	Stream #41	Machias 4th
1269	1995-1997	Freedom	Stream #41	Cuba
1270	1995-1997	Freedom	Stream #40	Rushford L
1271	1995-1997	Freedom	Stream #40	Rushford L
1272	1995-1997	Freedom	Stream #119	Wellsville 1st
1273	1995-1997	Freedom	Stream #119	Wellsville 2nd
1274	1995-1997	Freedom	Stream #119	Wellsville 3rd
1275	1995-1997	Freedom	Stream #113	Machias 4th
1276	1995-1997	Freedom	Stream #113	Machias 4th
1277	1995-1997	Freedom	Stream #113	Machias 4th
1278	1995-1997	Freedom	Stream #113	Machias 4th
1279	1995-1997	Freedom	Stream #113	Cuba
1280	1995-1997	Freedom	Stream #115	Cuba
1281	1995-1997	Freedom	Stream #42	Machias 3rd
1282	1995-1997	Freedom	Stream #42	Machias 3rd
1283	1995-1997	Freedom	Stream #125	Machias 4th
1284	1995-1997	Freedom	Stream #112	Wellsville 1st
1285	1995-1997	Freedom	Stream #112	Wellsville 2nd
1286	1995-1997	Freedom	Stream #110	Wellsville 3rd
1287	1995-1997	Freedom	Stream #121	Wellsville
1288	1995-1997	Freedom	Stream #112	Wellsville
1289	1995-1997	Freedom	Stream #111	Wellsville 1st
1290	1995-1997	Freedom	Stream #126	Machias
1291	1995-1997	Freedom	Stream #126	Machias
1292	1995-1997	Freedom	Stream #126	Cuba
1293	1995-1997	Freedom	Stream #126	Cuba
1293A	1995-1997	Freedom	Stream #126	Cuba
1294	1995-1997	Freedom	Stream #39	Rushford U
1294A	1995-1997	Freedom	Stream #39	Rushford U
1294B	1995-1997	Freedom	Stream #39	Machias
1294C	1995-1997	Freedom	Stream #39	Machias 1st
1295	1995-1997	Freedom	Stream #39	Machias 1st
1295A	1995-1997	Freedom	Stream #39	Machias 2nd
1296	1995-1997	Freedom	Stream #39	Machias 3rd
1296A	1995-1997	Freedom	Stream #39	Machias
1296B	1995-1997	Freedom	Stream #39	Machias 4th
1297	1995-1997	Freedom	Stream #37	Machias
1297A	1995-1997	Freedom	Stream #37	Machias
1298	1995-1997	Freedom	Stream #37	Machias 1st
1299	1995-1997	Freedom	Stream #37	Machias 1st
1300	1995-1997	Freedom	Stream #37	Machias 2nd
1300A	1995-1997	Freedom	Stream #37	Machias
1301	1995-1997	Freedom	Stream #37	Machias 4th
1302	1995-1997	Freedom	Stream #37	Machias 4th
1303	1995-1997	Freedom	Stream #37	Machias 4th
1304	1995-1997	Freedom	Stream #37	Machias 4th
1305	1995-1997	Freedom	Stream #37	Cuba
1306	1995-1997	Freedom	Stream #170	Caneadea
1306A	1995-1997	Freedom	Stream #170	Caneadea
1306B	1995-1997	Freedom	Stream #170	Caneadea
1307	1995-1997	Freedom	Stream #170	Caneadea
1307A1	1995-1997	Freedom	Stream #170	Caneadea
1307A2	1995-1997	Freedom	Stream #170	Caneadea
1307A3	1995-1997	Freedom	Stream #170	Caneadea
1307B	1995-1997	Freedom	Stream #170	Caneadea
1308	1995-1997	Freedom	Stream #170	Rushford L
1308A	1995-1997	Freedom	Stream #170	Rushford L
1309	1995-1997	Freedom	Stream #170	Rushford U
1310	1995-1997	Freedom	Stream #170	Machias 3rd

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
1311	1995-1997	Freedom	Stream #179	Machias
1313	1995-1997	Freedom	Stream #35	Machias 3rd
1314	1995-1997	Freedom	Stream #35	Machias 4th
1315	1995-1997	Freedom	Stream #35	Machias 4th
1316	1995-1997	Freedom	Stream #35	Machias 4th
1317	1995-1997	Freedom	Stream #38	Machias 4th
1318	1995-1997	Freedom	Stream #38	Machias 4th
1319	1995-1997	Freedom	Stream #38	Machias
1320	1995-1997	Freedom	Stream #38	Machias
1321	1995-1997	Freedom	Stream #38	Machias
1322	1995-1997	Freedom	Stream #38	Machias
1323	1995-1997	Freedom	Stream #38	Cuba
1324	1995-1997	Freedom	Stream #38	Cuba
1325	1995-1997	Freedom	Stream #38	Wellsville
1326	1995-1997	Freedom	Stream #38	Wellsville 2nd
1335	1995-1997	Freedom	Stream #101	Wellsville
1336	1995-1997	Freedom	Stream #101	Wellsville
1336a	1995-1997	Freedom	Stream #101	Wellsville
1337	1995-1997	Freedom	Stream #101	Wellsville 3rd
1338	1995-1997	Freedom	Stream #114	Cuba
1339	1995-1997	Freedom	Stream #114	Wellsville 3rd
1302	96-99	Pike	Stream # 95B	Rushford L
1303	96-99	Pike	Stream # 96	Rushford U
1304	96-99	Pike	Stream # 99	Rushford U
1305	96-99	Pike	Stream # 99	Rushford U
1306	96-99	Pike	Stream # 98	Rushford U
1307	96-99	Pike	Stream # 95C	Rushford L
1308	96-99	Pike	Stream # 95C	Machias
1309	96-99	Pike	Stream # 88	Machias
1310	96-99	Pike	Stream # 93	Caneadea
1311	96-99	Pike	Stream # 92	Caneadea
1313	96-99	Pike	Stream # 88	Rushford L
1314	96-99	Pike	Stream # 89	Rushford L
1315	96-99	Pike	Stream # 91	Caneadea
1316	96-99	Pike	Stream # 86A	Caneadea
1317	96-99	Pike	Stream # 86B	Rushford L
1318	96-99	Pike	Stream # 86C	Rushford L
1319	96-99	Pike	Stream # 86D	Rushford I
1320	96-99	Pike	Stream # 86E	Rushford U
1321	96-99	Pike	Stream # 86F	Mach1
1322	96-99	Pike	Stream # 85	Machias
1328	96-99	Pike	Stream # 83	Machias
1330	96-99	Pike	Stream # 83	Machias
1331	96-99	Pike	Stream # 83	Machias
1332	96-99	Pike	Stream # 83	Machias
1333	96-99	Pike	Stream # 83	Machias
1334	96-99	Pike	Stream # 83	Machias
1334A	96-99	Pike	Stream # 83	Machias
1334B	96-99	Pike	Stream # 83	Machias
1335	96-99	Pike	Stream # 83	Machias
1335A	96-99	Pike	Stream # 83	Machias
1335B	96-99	Pike	Stream # 83	Machias
1335C	96-99	Pike	Stream # 83	Machias
1336A	96-99	Pike	Stream # 83	Machias
1336B	96-99	Pike	Stream # 83	Machias
1336C	96-99	Pike	Stream # 83	Machias
1337	96-99	Pike	Stream # 83A	Machias
1337B	96-99	Pike	Stream # 83	Machias
1337C	96-99	Pike	Stream # 83	Machias
1338	96-99	Pike	Stream # 83	Machias
1338B	96-99	Pike	Stream # 83	Machias
1338C	96-99	Pike	Stream # 83	Machias
1339	96-99	Pike	Stream # 83	Machias
1339B	96-99	Pike	Stream # 83B	Machias
1340	96-99	Pike	Stream # 84	Caneadea
1341	96-99	Pike	Stream # 82B	Caneadea
1342	96-99	Pike	Stream # 82B	Machias
1343	96-99	Pike	Stream # 82E	Caneadea

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
1344	96-99	Pike	Stream # 81	Caneadea
1344A	96-99	Pike	Stream # 81	Caneadea
1345	96-99	Pike	Stream # 82E	Caneadea
1346	96-99	Pike	Stream # 82E	Rushford L
1346A	96-99	Pike	Stream # 82E	Rushford L
1346B	96-99	Pike	Stream # 82E	Rushford L
1346C	96-99	Pike	Stream # 82E	Caneadea
1347A	96-99	Pike	Stream # 82E	Caneadea
1347B	96-99	Pike	Stream # 82E	Caneadea
1348	96-99	Pike	Stream # 82E	Caneadea
1349	96-99	Pike	Stream # 82E	Caneadea
1349B	96-99	Pike	Stream # 82E	Caneadea
1349C	96-99	Pike	Stream # 82E	Caneadea
1350	96-99	Pike	Stream # 82B	Machias
1350A	96-99	Pike	Stream # 82B	Machias
1353	96-99	Pike	Stream # 82B	Machias
1353A	96-99	Pike	Stream # 82B	Machias
1354	96-99	Pike	Stream # 81A	Machias
1355	96-99	Pike	Stream # 81	Machias
1355A	96-99	Pike	Stream # 81	Machias
1355B	96-99	Pike	Stream # 81	Machias
1356	96-99	Pike	Stream # 81	Machias
1357	96-99	Pike	Stream # 81	Machias
1358	96-99	Pike	Stream # 81C	Machias
1359	96-99	Pike	Stream # 81D	Machias
1359B	96-99	Pike	Stream # 81D	Machias
1360A	96-99	Pike	Stream # 79	Machias
1360B	96-99	Pike	Stream # 79	Machias
1362	96-99	Pike	Stream # 74	Caneadea
1362A	96-99	Pike	Stream # 74	Caneadea
1362B	96-99	Pike	Stream # 74B	Caneadea
1362C	96-99	Pike	Stream # 74	Caneadea
1363A	96-99	Pike	Stream # 83	Caneadea
1363B	96-99	Pike	Stream # 73	Caneadea
1364	96-99	Pike	Stream # 73	Caneadea
1364A	96-99	Pike	Stream # 73	Caneadea
1364B	96-99	Pike	Stream # 73	Caneadea
1364C	96-99	Pike	Stream # 73	Caneadea
1365	96-99	Pike	Stream # 72	Caneadea
1365A	96-99	Pike	Stream # 72	Caneadea
1365B	96-99	Pike	Stream # 72A	Caneadea
1366	96-99	Pike	Stream # 72	Caneadea
1367	96-99	Pike	Stream # 70	Caneadea
1367A	96-99	Pike	Stream # 70	Caneadea
1368	96-99	Pike	Stream # 70A	Caneadea
1369	96-99	Pike	Stream # 30	Caneadea
1369A	96-99	Pike	Stream # 30	Caneadea
1369B	96-99	Pike	Stream # 30	Caneadea
1369C	96-99	Pike	Stream # 30	Caneadea
1370	96-99	Pike	Stream # 30	Caneadea
1371	96-99	Pike	Stream # 30	Caneadea
1372A	96-99	Pike	Stream # 30	Caneadea
1373	96-99	Pike	Stream # 50	Caneadea
1373A	96-99	Pike	Stream # 50	Caneadea -Rush L
1374	96-99	Pike	Stream # 31	Caneadea
1375	96-99	Pike	Stream # 32	Hume
1375A	96-99	Pike	Stream # 32	Caneadea
1376	96-99	Pike	Stream # 50	Rushford L
1377	96-99	Pike	Stream # 95E	Caneadea
1378	96-99	Pike	Stream # 95E	Rushford L
1400	96-99	Pike	Stream # 94	Caneadea
1401A	96-99	Pike	Stream # 94	Caneadea
1402	96-99	Pike	Stream # 94	Caneadea
1403A	96-99	Pike	Stream # 94	Rushford L
1403B	96-99	Pike	Stream # 94	Rushford L
1403C	96-99	Pike	Stream # 94	Rushford L
1404	96-99	Pike	Stream # 94	Caneadea
1405	96-99	Pike	Stream # 94	Caneadea
1406	96-99	Pike	Stream # 94 trib	Rushford L

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
1407A	96-99	Pike	Stream # 100	Caneadea
1407B	96-99	Pike	Stream # 100	Caneadea
1407C	96-99	Pike	Stream # 100	Caneadea
1408	96-99	Pike	Stream # 100	Rushford L
1409	96-99	Pike	Stream # 100	Rushford L
1410	96-99	Pike	Stream # 100	Rushford L
1411	96-99	Pike	Stream # 95	Caneadea
1412	96-99	Pike	Stream # 95	Caneadea
1413	96-99	Pike	Stream # 95	Caneadea
1414B	96-99	Pike	Stream # 95	Caneadea
1414A	96-99	Pike	Stream # 95	Caneadea
1414C	96-99	Pike	Stream # 95	Caneadea
1416	96-99	Pike	Stream # 95	Caneadea
1	1998	Delevan	Stream # F1	Rushford L
6	1998	Delevan	Stream # F2	Cuba+Wlv A
7	1998	Delevan	Stream # F2	Wellsville 3rd
8	1998	Delevan	Stream # F3	Wellsville 1st
10	1998	Delevan	Stream # F3	Wellsville 2nd
11	1998	Franklinville	Stream # F4	Mach2&3
12	1998	Franklinville	Old Quarry near the Narrows	Rushford L
13	1998	Franklinville	Old Quarry near the Narrows	Rushford L
13a	1998	Franklinville	Old Quarry near the Narrows	Rushford L
14	1999	Franklinville	Old Quarry near the Narrows	Rushford L
TK-1	8/6/1999	Gowanda	Mouth of creek/ south side Stream # 3	Caneadea
TK-1a	8/11/1999	Gowanda	1st bend in crk3 (to south) Stream # 3	Caneadea
TK-2	8/11/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-3	8/11/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-4	8/11/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-4a	8/26/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-5	8/11/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-6	8/13/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-7	8/13/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-7a	8/13/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-7b	8/20/1999	Gowanda	5m s of TK-7; S. Branch	Caneadea
TK-7c	8/26/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-8	8/13/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-9	8/18/1999	Gowanda	north side of fault; S. Branch	Caneadea
TK-10	8/18/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-11	8/20/1999	Gowanda	South Branch Zoar Valley	Caneadea
	8/25/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-12	8/20/1994	Gowanda	South Branch Zoar Valley	Caneadea
TK-13	8/25/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-14	6/6/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-14a	6/6/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-15	6/7/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-16	6/7/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-17	6/15/1999	Gowanda	40 bridge rd; 12	Caneadea
TK-17	6/15/1999	Gowanda	40 Bridge Section	Caneadea
TK-18	6/17/1999	Gowanda	at confluence of South Branch & Catt Creek	Hume
	6/21/1999	Gowanda	at confluence of South Branch & Catt Creek	Hume
TK-19	6/21/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-20	6/23/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-21	6/24/1999	Gowanda	South Branch Zoar Valley	Caneadea
	7/6/1999	Gowanda	South Branch Zoar Valley	Caneadea
	7/14/1999	Gowanda	South Branch Zoar Valley	Caneadea
	7/19/1999	Gowanda	South Branch Zoar Valley	Caneadea
TK-22	7/14/1999	Gowanda	near site 10	Caneadea
	7/15/1999	Gowanda	near site 10	Caneadea
TK-23	7/21/1999	Gowanda	10 above waterfall from 22	Caneadea
TK-24	7/26/1999	Gowanda	Redo of 8	Caneadea
TK-25	7/27/1999	Gowanda	Redo of 8/8b	Caneadea
TK-26	8/8/1999	Gowanda	Redo of 8a	Caneadea
	8/10/1999	Gowanda	Redo of 8a	Caneadea
	8/11/1999	Gowanda	Redo of 8a	Caneadea
TK-100	6/14/1999	Gowanda	at confluence of South Branch & Catt Creek	Caneadea
WV-1	6/1/2000	West Valley	Buttermilk Falls on Gooseneck Creek	Caneadea

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WV-2	6/1/2000	West Valley	Burns Hill Rd. Roadcut	Caneadea
WV-3	6/6/2000	West Valley	Creek behind West Valley High Schol\ol	Rushford L
WV-4	6/6/2000	West Valley	Creek South of Felton Hill Rd.	Rushford U
WV-5	6/6/2000	West Valley	Creek South of Felton Hill Rd.	Rushford U
WV-6	6/6/2000	West Valley	Creek South of Felton Hill Rd.	Rushford L
WV-7	6/6/2000	West Valley	Upstream from Site WV-1. Gooseneck Creek	Caneadea
WV-8	6/7/2000	West Valley	1st major trib east of RR on Rossick Hill Rd.	Cuba
WV-9	6/7/2000	West Valley	Fake Buttermilk Rd, Cliff exposure	Caneadea
WV-10	6/20/2000	West Valley	Trib off Rt 240, 2nd Creek south of RR xing	Rushford U
WV-11	6/20/2000	West Valley	Trib off Rt 240, 1st Creek N of Felton Hill Rd	Rushford L
WV-12	6/20/2000	West Valley	Trib of Rt 240, 1st creek north of RR xing	Rushford L
WV-13	6/23/2000	West Valley	Trib on E side of 90o turn in Bigelow Rd.	Machias 2nd
WV-14	6/27/2000	West Valley	Stony Creek Sardina-West Valley Quads	Caneadea
WV-14e	6/27/2000	West Valley	Stony Creek Sardina-West Valley Quads	Caneadea
WV-15	6/28/2000	West Valley	Creek between Town Line and Gooseneck Rds	Machias 1st
WV-16	6/28/2000	West Valley	Creek between Town Line and Gooseneck Rds	Machias
WV-17	6/28/2000	West Valley	Creek between Town Line and Gooseneck Rds	Machias 2nd
WV-18	6/28/2000	West Valley	Creek between Town Line and Gooseneck Rds	Machias 3rd
WV-19	6/28/2000	West Valley	Creek between Town Line and Gooseneck Rds	Machias 3rd
WV-20	7/6/2000	West Valley	N flowing trib to Gunbarrel Gulf, Eastern Fork	Rushford L
WV-21	7/6/2000	West Valley	N flowing trib to Gunbarrel Gulf, Western Fork	Rushford U/ Machias 1s
WV-22	7/13/2000	West Valley	Indian Creek	Rushford U
WV-23	7/13/2000	West Valley	Indian Creek	Rushford U
WV-24	7/13/2000	West Valley	Indian Creek	Machias 1st
WV-25	7/18/2000	West Valley	Roadcut on Townline Rd (SW) north side of rd	Cuba
G104	8/4/2000	Gowanda	top of Miller Hill Rd	Caneadea
3010	8/4/2000	Gowanda	Creek east of Parker Rd,	Laona
3030	8/4/2000	Gowanda	Creek east of Parker Rd,	Laona
WV-26	8/8/2000	West Valley	Roszyck Hill Rd., west Trib	Machias 4th
WV-27	8/8/2000	West Valley	Roszyck Hill Rd., west Trib	Cuba
WV-28	8/8/2000	West Valley	Winniski Property,end of West Townline Rd east branch	Rushford L
G1050	8/11/2000	Gowanda	Trib to S. Branch, off of Gibson Hill Rd	Caneadea
G1100	8/11/2000	Gowanda	Trib to S. Branch, off of Gibson Hill Rd	Caneadea
3030	8/14/2000	Gowanda	Parker Rd Creek upstream from dipping beds	Laona
G103	8/14/2000	Gowanda	Nash Hill	Caneadea
G102	8/14/2000	Gowanda	Nash Hill	Caneadea
G101	8/14/2000	Gowanda	Nash Hill	Caneadea
1	6/8/2001	Belmont	Genesee River at Belmont	Machias 1st
2	6/8/2001	Belmont	Rt 19 Roadcut north border of Belmont quad	Machias
3	6/12/2001	Cuba	Roadcut along west bound Rt 86	Cuba
4	6/18/2001	Belmont	Hood Rd.	Hinsdale
5	6/19/2001	Belmont	Roadcut along Ackerman Rd	Hinsdale
6	6/26/2001	Belmont	Moss Brook	Cuba
7	6/28/2001	Cuba	Burt Rd. roadcut	Machias 4th
8	7/5/2001	Cuba	Kinney Hollow Rd	Machias 4th
9	7/5/2001	Cuba	Munger Hollow Rd.	Cuba
10	7/10/2001	Salamanca	Little Rock City	Salamanca
11	7/18/2001	Humphrey	Chapel Hill Rd upper road cut	Cattaraugus
12	7/18/2001	Humphrey	Next roadcut south on Chapel Hill Rd.	Whitesville
13	7/20/2001	Cuba	Large roadcut on Farnsworth Rd., west end	Hinsdale
14	7/20/2001	Cuba	Large roadcut on Farnsworth Rd., east end	Hinsdale
15	7/25/2001	Ashford	RR grade, near Rt 240 and Fancy Tract Rd.	Machias 2nd
16	7/25/2001	Hinsdale	Roadcut on Steward Rd.	Wellsville
17	7/27/2001	Cuba	Roadcut on Wagner Hill Rd	Hinsdale
18	7/27/2001	Cuba	Roadcut on Winter Rd	Cuba
19	7/31/2001	Cuba	Farnsworth Rd in Creek	Wellsville
20	7/31/2001	Cuba	Loose blocks of cong on Wolf Creek Rd	Salamanca
21	7/31/2001	Portville	Path on hill North of Portville cemetary	Hinsdale
22	7/31/2001	Portville	Path on hill North of Portville cemetary	Whitesville
23	7/31/2001	Portville	Path on hill North of Portville cemetary	Hinsdale
24	7/31/2001	Portville	Path on hill North of Portville cemetary	Hinsdale
25	8/14/2001	Ashford	Canada Hill Rd. roadcut	Hinsdale
26	8/16/2001	Franklinville	Pearce Hill Rd. roadcut	Machias
27	8/16/2001	Hinsdale	Williams Hollow Rd roadcut	Hinsdale
28	8/16/2001	Hinsdale	Indian Trail Rd.	Cuba
29	9/11/2001	Ashford Hollow	Rock Springs Road roadcut	Machias 1st
30	9/11/2001	Humphrey	Northern roadcut on Chapel Hill Rd.	Cuba
31	9/20/2001	Franklinville	Bottom of Raub Rd.	Machias

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
32	9/20/2001	Franklinville	Creek alongside Raub Rd. (Whispering Pines Camp)	Machias 2nd
33	9/28/2001	Hinsdale	Creek along side Dutch Hill Rd.	Machias 1st
34	9/28/2001	Hinsdale	Creek along side Dutch Hill Rd.	Machias 2nd
Ash-1		Ashford Hollow	Creek west of 219, south of Snake Run Rd	Caneadea
Ash-1.5		Ashford Hollow	Creek west of 219, south of Snake Run Rd	Rushford
Ash-2		Ashford Hollow	Creek west of 219, south of Snake Run Rd	Rushford
Ash-3		Ashford Hollow	Creek west of 219, south of Snake Run Rd	Machias 1st
Ash-4	10/1/2001	Ashford Hollow	East of 219 on upper Y	Machias
Ash-5	10/1/2001	Ashford Hollow	East of 219 on upper Y	Machias
Ash-6	10/1/2001	Ashford Hollow	East of 219 on upper Y	Machias
Ash-7	10/1/2001	Ashford Hollow	Neff Rd, road and stream outcrop	Machias 2nd
Ash-8	10/1/2001	Ashford Hollow	Neff Rd., upper roadcut	Machias
Ash-9	10/8/2001	Ashford Hollow	Ditch on Dutch Hill Rd., north of Cross Rd.	Machias
Ash-10	10/8/2001	Ashford Hollow	Gutter alongside Rohr Rd., up hill	Cuba
Ash-11	10/8/2001	Ellicottville	Rohr Rd. or Mill Valley Rd. outcrop on North side	Rushford L
ASP-1a	10/18/2001	Salamanca	Allegheny State Park loose cong	Salamanca
ASP-1b	10/18/2001	Salamanca	Allegheny State Park loose cong	Salamanca
ASP-2	10/18/2001	Salamanca	Allegheny State Park outcrop by fake spring	Cattaraugus
ASP-3	10/18/2001	Salamanca	Allegheny State Park road cut on south side	Cattaraugus
ASP-4	10/18/2001	Salamanca	Allegheny State Park road cut with poss thrust	Cattaraugus
ASP-5	10/18/2001	Salamanca	Allegheny State Park below scenic overlook. quarry?	Whitesville
Ash-15	10/29/2001	Ashford Hollow	Roadcut off Rt 219	Caneadea
Ash-16	10/29/2001	Ashford Hollow	Excavated cliff behind House of Steel off of 219	Caneadea
Ash-17	10/29/2001	Ashford Hollow	Excavated cliff behind by house under renovation	Rushford L
Ash-18	10/29/2001	Ashford Hollow	North flowing stream, off no-name road in north quad	Machias
Ash-19	10/29/2001	Ashford Hollow	Road cut east side of Dutch Hill Rd.	Machias
Ash-20	10/29/2001	Ashford Hollow	Road cut on Dutch Hill Rd., near Cross Rd.	Machias
Ash-21	10/29/2001	Ashford Hollow	Northwest flowing stream off Monk Rd	Machias
Ash-22	10/29/2001	Ashford Hollow	Northwest flowing stream off Monk Rd	Machias
Ash-23	10/29/2001	Ashford Hollow	Northwest flowing stream off Monk Rd	Machias
35	11/1/2001	Portville	Roadcut off West River Rd.	Wellsville 1st
36	11/1/2001	Olean	Outcrop on westside of Barnum Rd, near Rt16 int.	Cattaraugus
37	11/1/2001	Olean	Outcrop on southside of Barnum Rd., crest of hill	Oswayo
38	11/12/2001	Allentown	Outcrop northside of Rt 417, north of Sawyer	Oswayo
39	11/12/2001	Allentown	Intersection of Cleveland Hill and Allen Hill Rds	Oswayo
40	11/12/2001	Allentown	Loose blocks of Olean Cg on White Hill Rd near Ball Rd.	Olean
41	11/12/2001	Allentown	Outcrop on South Bolivar Rd, top of hill	Cattaraugus
42	11/12/2001	Bolivar	Roadcut on South Bolivar Rd., south of Kossuth	Cattaraugus
43	11/12/2001	Allentown	Cliff section southside of 417 sl. West of Sawyer	Oswayo
44	11/12/2001	Allentown	outcrop off Phillips Hill Rd	Oswayo
45	11/12/2001	Bolivar	lower outcrop off of Coon Hill Rd	Whitesville
46	11/12/2001	Bolivar	upper outcrop off of Coon Hill Rd	Cattaraugus
47	11/12/2001	Friendship	Outcrop in stream off Rt 275 south of Friendship	Whitesville
48	11/12/2001	Friendship	Red silts and shales on Moulton Rd.	Cattaraugus
49	11/18/2001	Olean	Rt 16, S. of Olean roadcut before Page Rd intersection	Oswayo
50	11/18/2001	Knapp Creek	outcrop along Four Mile Road	Oswayo
51	11/18/2001	Limestone	Thunder Rocks	Olean
52	11/18/2001	Limestone	Outcrop along road east of Thunder Rocks	Oswayo
53	11/26/2001	Olean	Hillside west of Rt 16, north of Site 49	Cattaraugus
54	11/26/2001	Olean	Moore Ridge quarry	Knapp
54a	11/26/2001	Olean	Knapp Olean Contact on Moore Ridge	Olean
55	11/26/2001	Olean	Flatiron Rock	Olean
56	7/10/2002	Knapp Creek	Intersection of Nichols Run Rd and Rt 16	Oswayo
57	7/10/2002	Knapp Creek	South end of Chipmunk Rd	Cattaraugus
58	7/25/2002	Hinsdale	Creek off of Fay Hollow Rd	Machias
59	7/25/2002	Allentown	Loose boulders south of Radio Tower on Alma Hill rd.	Olean
60	4/14/2003	Derrick City, PA	Impressive roadcut sands eroding into red shale	Catt-Oswayo
E-1	8/28/2003	Ellicottville	Downstream end of Stony Pitcher Falls	Caneadea
E-2	8/28/2003	Ellicottville	Next outcrop upstream, in creek at Stony Pitcher Falls	Caneadea
E-3	8/28/2003	Ellicottville	Next outcrop upstream, in creek at Stony Pitcher Falls	Caneadea
E-4	8/28/2003	Ellicottville	Outcrop at Fork at Stony Pitcher Falls	Rushford L
E-5	8/28/2003	Ellicottville	Waterfall at Stony Pitcher Falls	Rushford L
E-6	8/28/2003	Salamanca	South end of Whig St, in road	Hinsdale
E-7	9/18/2003	Ellicottville	Creek off Mason Hill Rd. southern end	Machias 3rd
E-8	9/18/2003	Ellicottville	Creek off Mason Hill Rd. southern end	Machias 4th
E-9	9/26/2003	Ellicottville	Tough Row Rd.	Machias
E-10	9/26/2003	Ellicottville	Tough Row Rd.	Machias
E-11	9/26/2003	Ellicottville	Top of Poverty Hill	Machias

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
E-12	10/7/2003	Ellicottville	Jackman Hill Rd.	Machias
E-13a	10/7/2003	Ellicottville	Creek along Holister Rd	Rushford L
E-13b	10/7/2003	Ellicottville	Creek along Holister Rd	Rushford L
E-14	10/7/2003	Ellicottville	Creek along Holister Rd	Rushford U
E-15	10/9/2003	Ellicottville	Creek along Holister Rd	Machias 1st
E-16	10/9/2003	Ellicottville	Creek along Holister Rd	Machias 1st
E-17	10/9/2003	Ellicottville	Creek along Holister Rd	Machais 2nd
E-17a	10/9/2003	Ellicottville	Creek along Holister Rd, cliff	Machias 2nd
E-18	10/17/2003	Ellicottville	Rohr Rd. Creek Trib "Steelman's Creek"	Machias
E-19	10/17/2003	Ellicottville	Rohr Rd. Creek Trib "Steelman's Creek"	Machias
E-20	10/17/2003	Ellicottville	Rohr Rd. Creek Trib "Steelman's Creek"	Machias
E-21	10/17/2003	Ellicottville	Rohr Rd. Creek Trib "Steelman's Creek"	Machias 1st
E-21a	10/17/2003	Ellicottville	"Steelman's Creek trib"	Machias 2nd
E-22	10/17/2003	Ellicottville	Rohr Rd. Creek Trib "Steelman's Creek"	Rushford U
E-23	10/31/2003	Ellicottville	Rohr Rd. Creek	Rushford L
E-24	10/31/2003	Ellicottville	Rohr Rd., roadcut and quarry	Rushford L
E-25	10/31/2003	Ellicottville	Creek off Mason Hill Rd. northern end	Rushford L
LRC1	10/27/2004	Salamanca	Little Rock City xbed measurements	Salamanca
LRC2	10/27/2004	Salamanca	Little Rock City xbed measurements	Salamanca
WF	7/1/2005	Portageville	Photo-trace fossil exam of Wiscoy Falls	Wiscoy
McHVlly	8/8/1996	Alfred	McHenry Valley near gaging station	Caneadea
1	7/12/2005	Whitesville	Roadcut on Rt 248	Whitesville
2	7/12/2005	Whitesville	Roadcut on County Rt 19, SE of Whitesville	Whitesville
3	7/12/2005	Whitesville	Red shales on Pleasant Valley Rd	Cattaraugus
4	7/12/2005	Whitesville	Roadside outcrop on Paynesville Rd	Cattaraugus
5	7/12/2005	Whitesville	Lower End of Hesselton Gully Rd	Cattaraugus
6	7/12/2005	Whitesville	First good exposure on Hesselton Gully Rd	Cattaraugus
7	7/12/2005	Whitesville	South end of Hesselton Gully roadcut	Cattaraugus
8	7/12/2005	Whitesville	Creek exposure opposite sites 7 and 8	Cattaraugus
9	7/13/2005	Cattaraugus	Gowan Hollow Rd., upper Rd cut recon	Machias
10	7/13/2005	Cattaraugus	Gowan Hollow Rd., tight bend in creek recon	Machias
11	7/13/2005	Cattaraugus	Gowan Hollow Rd., steep gully to S, recon	Machias
12	7/13/2005	Cattaraugus	Potter Hill Rd	Machias
13	7/13/2005	Cattaraugus	Red Hill Rd., lower cliff outcrop recon	Machias
14	7/13/2005	Cattaraugus	Red Hill Rd., upper cliff outcrop recon	Machias
D104	9/10/2003	Delevan	Creek at Machias Junction	Machias
D105	9/10/2003	Delevan	Creek at Machias Junction	Machias
D106	9/10/2003	Delevan	Creek at Machias Junction	Machias
D110	6/2/2005	Delevan	Trib off of Johnson Hill Rd, lower sand outcrop	Caneadea
D112	6/2/2005	Delevan	Trib off of Johnson Hill Rd, large sand outcrop	Rushford L
D116a	8/22/2003	Delevan	W flw trib to Lime Lake, off Cagwin Rd, S of Lime Lake Rd	Rushford L
D116b	8/23/2003	Delevan	W flw trib to Lime Lake, off Cagwin Rd, S of Lime Lake Rd	Rushford L
15	7/20/2005	Whitesville	Upper stream/road outcrop along Hesselton Gully Rd	Cattaraugus
16	7/28/2005	Cherry Creek	Outcrop along Rt 62	Machias
17	7/28/2005	Kennedy	Outcrop on Northeast Rd.	Wellsville
18	7/28/2005	Kennedy	Corner of hill/stream at Bridge, north of Site 17	Wellsville
19	7/28/2005	Little Valley	The Narrows	Cattaraugus
20	8/4/2005	Red House	Northern roadcut on Rt 280	Whitesville
21	8/4/2005	Steamburg	Rt 280 past Quaker Lake, south side of road	Whitesville
22	8/4/2005	Steamburg	southern Rt 280 yellowjacket hive	Whitesville
23	8/4/2005	Ivory	Roadcut: Mud Creek Rd.	Whitesville
24	8/4/2005	Ivory	Roadcut: Sawmill Run	Whitesville
25	8/4/2005	Steamburg	Loose blocks of cong on Roundtop	Salamanca
26	8/10/2005	Red House	Allegany State Park, cong off English Stoddard Rd	Salamanca
27	9/19/2005	Wellsville N	Vandermark Creek	Machias 3rd
28	9/19/2005	Wellsville N	Bridge at Dry Brook	Cuba
29	9/19/2005	Wellsville N	parking area north end of Dry Brook Rd	Machias
30	9/19/2005	Wellsville N	poor roadcut on Irsih Settlement Road	Machias
31	9/19/2005	Wellsville N	Saunders Rd west side roadcut; West of Saunders Pond	Wellsville
32	9/28/2005	Wellsville S	Schrader Rd int with Dutch Hill Rd east side roadcut	Wellsville
33	9/28/2005	Wellsville S	Roadcut on east side of Graves Rd	Whitesville
34	9/28/2005	Wellsville S	Roadcut at curve on Fordsbrook Rd	Wellsville
35	9/28/2005	Wellsville S	West Hill Rd west of Wellsville 1stirport	Cattaraugus
36	10/18/2005	Allentown	Rt 417 West of Wellsville near Norton's Summit	Oswayo
37	11/4/2005	Little Valley	South of Little Valley on 4th St, east side of hill	Hinsdale
B1	8/22/2005	Salamanca	LRC Block 1 - see also LRC1	Salamanca
B2	8/22/2005	Salamanca	LRC Block 2 - see also LRC2	Salamanca

Site	Date Measured	Topo. Quad.	Location (general description)	Formation **
B3	8/22/2005	Salamanca	LRC Block 3	Salamanca
B4	8/22/2005	Salamanca	LRC Block 4	Salamanca
B9	8/22/2005	Salamanca	Southern end of main LRC area, Block 9	Salamanca
N1	8/23/2005	Salamanca	North end of LRC State Forest, Block 1	Salamanca
N2	8/23/2005	Salamanca	North end of LRC State Forest, Block 2	Salamanca
N3	8/23/2005	Salamanca	North end of LRC State Forest, Block 3 west end	Salamanca
N4	8/23/2005	Salamanca	North end of LRC State Forest, Block 4 end of outcrop	Salamanca
N5	8/23/2005	Salamanca	North end of LRC State Forest, Block 5 west edge	Salamanca
N5A	8/23/2005	Salamanca	North end of LRC State Forest, south of Block 5	Salamanca
N6	8/23/2005	Salamanca	North end of LRC State Forest, Block 6	Salamanca
N6a	8/23/2005	Salamanca	Next block S of Block 6	Salamanca
N7	8/23/2005	Salamanca	South end of big blocks	Salamanca
RC1	8/23/2005	Salamanca	North ditch, Hungry Hollow Rd, west of LRC Rd.	Whitesville
J1	8/24/2005	Salamanca	Large Joint Section near Rd.	Salamanca
S1S	8/24/2005	Salamanca	South LRC near Lumbering, Slot section eastside N	Salamanca
S1N	8/24/2005	Salamanca	South LRC near Lumbering, Slot section eastside S	Salamanca
S1W	8/24/2005	Salamanca	South LRC near Lumbering, Slot section westside	Salamanca
BC1	8/24/2005	Salamanca	South LRC, ridge near lumbering	Salamanca
BC2	8/24/2005	Salamanca	South LRC, "Bear Cave" not exactly in place	Salamanca
E1	8/25/2005	Salamanca	East "Triangle" slot close to road south end	Salamanca
E2	8/25/2005	Salamanca	East "Triangle" slot close to road, north end	Salamanca
E3	8/25/2005	Salamanca	East Triangle, block 17B, near overturned "toadstool" blocks	Salamanca
HC	5/6/2006	Salamanca	Creek on west side of LRC road, opposite of East Triangle	Cattaraugus
Bear	5/12/2006	Red House	"Bear Caves", Mount Seneca Trail Allegany State Park	Salamanca

** Primary formation found at this outcrop, based upon our work as of 8/31/06

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
003-00005	42.04201	-77.86283	Whitesville	Willing	4825	2159	n/a	4792	4728	4255	4208	4023	3813	3604	3476	n/a	n/a	n/a	n/a
003-00006	42.03843	-77.87785	Wellsville South	Willing	5030	2246	4941	4900	4826	4342	4296	4180	3815	3740	3557	n/a	n/a	n/a	n/a
003-00247	42.11943	-78.14545	Bolivar	Wirt	6250	2072	n/a	n/a	n/a	4074	3994	3901	3696	3612	3276	1925	1855	1731	1702
003-00258	42.03114	-77.88871	Wellsville South	Willing	4745	2036	4748	4708	4638	4162	4115	4000	3634	3536	3377	n/a	n/a	n/a	n/a
003-00261	42.04985	-77.89463	Wellsville South	Willing	4671	1868	4684	4645	4580	4111	4064	3899	3612	3497	3337	n/a	n/a	n/a	n/a
003-00440	42.03659	-77.89464	Wellsville South	Willing	5022	2282	4958	4914	4839	4364	4318	4174	3819	3718	3556	n/a	n/a	n/a	n/a
003-03941	42.05370	-78.25747	Portville	Genesee	2900	1755	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2116	2081	2054	2028
003-03956	42.45303	-78.17400	Houghton	Hume	7337	1669	2813	2702	2632	2261	2221	2153	2068	1988	1844	927	895	800	753
003-04025	42.34618	-78.21585	Black Creek	New Hudson	3330	1679	3304	3206	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-04248	42.47049	-78.15990	Houghton	Hume	7560	1573.3	2623	2510	2442	2077	2032	1965	1882	1820	1657	740	694	614	547
003-04777	42.19527	-77.91030	Wellsville North	Ward	4176	1880	n/a	4107	4048	3576	3523	3361	3144	3025	2889	1230	1160	1019	983
003-04833	42.06284	-78.12151	Allentown	Bolivar	4813	1996.5	4772	4691	4614	4196	4103	4004	3760	3726	3513	1912	1855	1782	1767
003-04865	42.05948	-78.11174	Allentown	Bolivar	4901	2188	4897	4840	4764	4368	4320	4218	3972	3911	3730	n/a	n/a	n/a	n/a
003-04925	42.29793	-77.95711	West Almond	Angelica	3513	1616	3487	3416	3346	2911	2859	2763	2594	2421	2302	780	730	612	563
003-05060	42.18503	-77.94153	Wellsville North	Scio	4322	1986	n/a	4250	4195	3736	3682	3534	3313	3177	3057	1439	1385	1210	1168
003-07503	42.17257	-78.00324	Belmont	Scio	3849	1508	n/a	3779	3724	3291	3241	3121	2893	2822	2647	1063	1022	867	841
003-07760	42.16825	-78.01580	Belmont	Scio	4014	1619.5	n/a	3915	3854	3410	3357	3238	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-08031	42.12567	-78.10939	Belmont	Wirt	4670	2105	n/a	4583	4510	4109	4060	3953	3800	3634	3500	n/a	n/a	n/a	n/a
003-08034	42.13194	-77.87090	Andover	Wellsville	4950	2183	4940	4890	4826	4346	4297	4196	3940	3793	3612	n/a	n/a	n/a	n/a
003-09194	42.43323	-77.96492	Birdsall	Allen	3412	1939	3207	3118	3037	2624	2575	2457	2356	2262	2090	737	685	580	524
003-09356	42.04215	-77.86771	Whitesville	Willing	4932	2239	n/a	4887	4795	4315	4270	4088	3883	3682	3521	n/a	n/a	n/a	n/a
003-10248	42.02839	-78.02700	Allentown	Alma	1433	2181	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10520	42.02616	-78.02811	Allentown	Alma	1300	2092	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10793	42.19922	-77.98282	Wellsville North	Amity	562	1645	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10795	42.19920	-77.97942	Wellsville North	Amity	763	1902	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10796	42.19920	-77.97805	Wellsville North	Amity	931	2022	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10797	42.19919	-77.97683	Wellsville North	Amity	978	2124	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10798	42.20023	-77.98286	Wellsville North	Amity	590	1682	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10799	42.20023	-77.98109	Wellsville North	Amity	692	1807	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10800	42.20022	-77.97942	Wellsville North	Amity	836	1907	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10801	42.20021	-77.97809	Wellsville North	Amity	957	2078	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10803	42.20131	-77.98290	Wellsville North	Amity	698	1812	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10804	42.20130	-77.98116	Wellsville North	Amity	751	1887	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10805	42.20129	-77.97957	Wellsville North	Amity	865	1952	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10806	42.20129	-77.97809	Wellsville North	Amity	963	2100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10808	42.20247	-77.97820	Wellsville North	Amity	1000	2117	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10811	42.20477	-77.97691	Wellsville North	Amity	1054	2160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10812	42.20576	-77.98294	Wellsville North	Amity	889	1972	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10813	42.20575	-77.98116	Wellsville North	Amity	967	2072	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10814	42.20574	-77.97965	Wellsville North	Amity	1031	2082	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10815	42.20574	-77.97669	Wellsville North	Amity	961	2052	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10816	42.19963	-77.98197	Wellsville North	Amity	553	1702	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10817	42.19962	-77.98025	Wellsville North	Amity	735	1832	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10818	42.19962	-77.97874	Wellsville North	Amity	934	2002	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10820	42.20073	-77.98199	Wellsville North	Amity	721	1802	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10821	42.20072	-77.98025	Wellsville North	Amity	784	1857	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10822	42.20072	-77.97873	Wellsville North	Amity	951	2027	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10823	42.20188	-77.98190	Wellsville North	Amity	700	1922	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10824	42.20188	-77.98032	Wellsville North	Amity	859	1953	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10825	42.20178	-77.97881	Wellsville North	Amity	988	2053	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10826	42.20181	-77.97744	Wellsville North	Amity	1054	2152	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10828	42.20516	-77.98180	Wellsville North	Amity	975	2042	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10829	42.20517	-77.98027	Wellsville North	Amity	1044	2113	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10992	42.39514	-78.27450	Freedom	Rushford	1202	1682	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	743	713	648	633

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
003-11012	42.20524	-77.97894	Wellsville North	Amity	1000	2117	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11013	42.20532	-77.97758	Wellsville North	Amity	1026	2122	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11014	42.20417	-77.97894	Wellsville North	Amity	1030	2107	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11015	42.20417	-77.97758	Wellsville North	Amity	1024	2152	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11016	42.20304	-77.97894	Wellsville North	Amity	1015	2072	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11017	42.20304	-77.97942	Wellsville North	Amity	1084	2163	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11018	42.20573	-77.97813	Wellsville North	Amity	971	2063	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11019	42.20477	-77.97813	Wellsville North	Amity	1049	2132	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11020	42.20362	-77.97813	Wellsville North	Amity	1028	2127	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11216	42.05645	-77.95391	Wellsville South	Willing	1029	1762	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11391	42.20422	-77.98057	Wellsville North	Amity	973	2082	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11409	42.06236	-78.09863	Allentown	Bolivar	1452	2190	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11441	42.06497	-78.10851	Allentown	Bolivar	1405	2242.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11762	42.16004	-78.01252	Belmont	Scio	4470	2018	4404	4344	4286	3855	3802	3682	3478	3379	2885	1608	1570	1421	1374
003-11978	42.31236	-78.28112	Rawson	New Hudson	3989	2141	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1429	1394	1322	1298
003-12118	42.40831	-77.76752	Canaseraga	Burns	1638	1638	3079	3004	2921	2461	2418	2306	2120	1986	1834	n/a	n/a	n/a	n/a
003-12718	42.41819	-77.88518	Birdsall	Birdsall	3245	1792	3091	3005	2945	2496	2451	2326	2147	2090	1930	n/a	n/a	n/a	n/a
003-13281	42.07247	-78.10234	Allentown	Bolivar	1174	1980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-13684	42.44087	-77.98481	Birdsall	Granger	3146	1836	3047	2960	2913	2500	2444	2334	2198	2142	1971	706	654	519	482
003-14253	42.43007	-78.14977	Houghton	Caneadea	2333	1244	n/a	2296	2234	1851	1807	1745	1630	1575	1406	n/a	n/a	n/a	n/a
003-14328	42.07144	-78.08712	Allentown	Bolivar	1180	1937	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-14481	42.33230	-78.05954	Angelica	Angelica	3707	1844	3645	3560	3480	3096	3045	2939	2832	2736	2557	1210	1144	1031	984
003-14485	42.08670	-77.79821	Whitesville	Independence	4920	2167	n/a	4774	4690	4211	4164	4025	3756	3547	3334	n/a	n/a	n/a	n/a
003-14493	42.27248	-78.13361	Black Creek	Belfast	3828	1637	3701	3620	3646	3162	3117	3023	2910	2814	2633	1258	1216	1004	969
003-14610	42.08938	-77.79351	Whitesville	Independence	4980	2217	n/a	4826	4738	4263	4215	4030	3806	3596	3194	n/a	n/a	n/a	n/a
003-15254	42.04305	-78.07624	Allentown	Bolivar	1588	2310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15282	42.02727	-77.99661	Wellsville South	Alma	1499	2402	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15443	42.04242	-78.07919	Allentown	Bolivar	1575	2254	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15444	42.0614	-78.19074	Bolivar	Bolivar	1450	1940	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15512	42.38574	-78.24499	Houghton	Rushford	4205	1460	2875	2765	2690	2310	2275	2205	2132	n/a	n/a	n/a	n/a	n/a	n/a
003-15649	42.04765	-78.23667	Bolivar	Genesee	1892	2013	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15738	42.26327	-78.22416	Black Creek	New Hudson	3516	1537	3450	3368	3319	2934	2896	2818	2715	2632	2452	1018	985	891	861
003-15822	42.01478	-78.11321	Allentown	Bolivar	956	1572	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15823	42.01616	-78.11321	Allentown	Bolivar	969	1586	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15829	42.0697	-78.07596	Allentown	Bolivar	1565	2060	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15925	42.08732	-78.04436	Allentown	Scio	1697	2160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15930	42.00392	-78.27166	Portville	Genesee	2240	1670	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15942	42.02688	-77.90108	Wellsville South	Willing	4351	1632	4358	4322	4256	3782	3738	3558	3260	3159	3002	n/a	n/a	n/a	n/a
003-16008	42.07708	-78.07736	Allentown	Bolivar	1524	1902	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16202	42.42759	-78.16890	Houghton	Caneadea	2460	1373	n/a	2425	2358	1980	1939	1857	1782	1714	1546	629	584	503	462
003-16203	42.25695	-77.78357	Alfred	Alfred	3987	1950	n/a	3976	3881	3416	3366	3277	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16227	42.24171	-78.03995	Belmont	Amity	3350	1379	n/a	3292	3235	2798	2748	2630	2496	2365	2204	591	557	437	394
003-16238	42.42099	-78.17901	Houghton	Caneadea	4262	1475	2700	2590	2520	2147	2106	2024	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16359	42.04325	-78.07808	Allentown	Bolivar	1522	2200	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16401	42.01808	-78.02420	Allentown	Alma	1136	1920	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16506	42.04388	-78.07509	Allentown	Bolivar	1604	2335	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16507	42.04305	-78.07469	Allentown	Bolivar	1717	2385	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16551	42.41302	-78.18921	Houghton	Caneadea	1000	1640	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	818	776	677	637
003-16553	42.39335	-78.19550	Houghton	Rushford	3000	1522	2923	2822	2750	2385	2347	2270	2193	2123	1951	1004	969	903	840
003-16557	42.17199	-78.01709	Belmont	Scio	4115	1781	n/a	4063	3994	3566	3513	3389	3233	3060	2934	1360	1313	1175	1125
003-16579	42.04558	-78.07561	Allentown	Bolivar	1501	2180	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16580	42.04608	-78.07417	Allentown	Bolivar	1631	2245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16997	42.00441	-78.27138	Portville	Genesee	2369	1675	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17004	42.00966	-78.15255	Bolivar	Bolivar	1854	2185	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
003-17005	42.01010	-78.15126	Bolivar	Bolivar	2268	2105	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17007	42.01093	-78.14868	Bolivar	Bolivar	1777	2110	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17247	42.06617	-78.08666	Allentown	Bolivar	1811	2357	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17248	42.06701	-78.08666	Allentown	Bolivar	1748	2302	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17805	42.11376	-78.24750	Bolivar	Clarksville	1187	1650	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17806	42.11251	-78.24737	Bolivar	Clarksville	1156	1650	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17820	42.03142	-77.9693	Wellsville South	Alma	1370	2169	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17955	42.10924	-78.24812	Bolivar	Clarksville	1413	1775	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18381	42.0466	-78.07532	Allentown	Bolivar	1501	2140	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18526	42.04641	-78.07347	Allentown	Alma	1630	2260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18546	42.02152	-78.02663	Allentown	Alma	1137	1902	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18552	42.10912	-78.24608	Bolivar	Clarksville	1455	1820	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18553	42.39748	-78.38401	Delevan	Farmersville	4659	2025	3324	3192	3147	2786	2763	2718	2651	2606	2451	1310	1232	1171	1124
003-18558	42.37773	-78.49218	Delevan	Machias	4281	1758	3048	2901	2846	2506	2489	2460	2398	2346	2214	1155	1072	995	956
003-18608	42.11052	-78.24316	Bolivar	Clarksville	1435	1685	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18632	42.02014	-78.02663	Allentown	Alma	1093	1822	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18651	42.40488	-78.04785	Fillmore	Allen	4851	1766	3069	2976	2920	2511	2440	2358	2263	2175	2001	691	634	531	481
003-18679	42.49121	-77.99408	Birdsall	Granger	4626	2051	3034	2917	2848	2450	2408	2286	2213	2131	1964	724	661	566	540
003-18902	42.1043	-77.93872	Wellsville South	Wellsville	1471	1510	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18952	42.16773	-78.02736	Belmont	Scio	4230	1840	n/a	4155	4082	3645	3592	3471	3314	3176	3010	1441	1399	1260	1211
003-19071	42.01959	-78.02521	Allentown	Alma	1126	1930	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19072	42.02017	-78.02547	Allentown	Alma	1131	1930	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19073	42.02234	-78.02663	Allentown	Alma	1200	1950	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19167	42.19575	-78.18266	Friendship	Friendship	1200	1660	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19174	42.39830	-78.23476	Houghton	Rushford	1000	1555	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	673	627	551	510
003-19181	42.08271	-78.10907	Allentown	Bolivar	1450	2150	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19198	42.12901	-78.02040	Belmont	Scio	1407	1641	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19207	42.39115	-78.20236	Houghton	Rushford	4412	1475	2878	2771	2703	2343	2308	2231	2155	2086	1914	978	948	879	824
003-19965	42.07696	-78.06722	Allentown	Alma	4630	1970	n/a	4577	4544	4104	4050	3924	3868	3818	3691	n/a	n/a	n/a	n/a
003-20023	42.21145	-78.11700	Belmont	Friendship	5236	1470	3689	3620	3560	3156	3108	2998	2850	2720	2594	1054	1010	886	852
003-20058	42.01489	-78.14058	Bolivar	Bolivar	1698	2038	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20063	42.07245	-78.08834	Allentown	Bolivar	4652	1955	4640	4586	4536	4102	4062	1394	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20094	42.02111	-78.02737	Allentown	Alma	1154	1910	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20128	42.41453	-78.06457	Fillmore	Allen	3422	1751	2991	2890	2813	2439	2387	2291	2200	2118	1946	658	604	510	481
003-20155	42.00851	-77.93509	Wellsville South	Willing	5025	2120	4870	4837	4776	4298	4253	4098	3798	3686	3518	n/a	n/a	n/a	n/a
003-20238	42.17801	-77.99944	Belmont	Scio	3880	1578	n/a	3819	3748	3316	3262	3176	2925	2836	2509	1077	1048	910	855
003-20717	42.068	-78.05906	Allentown	Alma	4898	2156	n/a	4844	4788	4367	4316	4198	3948	3850	3706	n/a	n/a	n/a	n/a
003-20816	42.27743	-77.81859	Alfred	Alfred	4130	2056	n/a	4021	3940	3456	3405	3256	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20869	42.22369	-77.87731	Wellsville North	Ward	4139	1866	n/a	4042	3966	3501	3448	3250	3127	2905	2814	n/a	n/a	n/a	n/a
003-20870	42.23845	-77.90793	Wellsville North	Ward	4115	1999	4099	4062	4002	3539	3484	3295	3179	2962	2877	n/a	n/a	n/a	n/a
003-20901	42.22903	-77.86985	Andover	Ward	4165	1894	n/a	4059	3990	3524	3470	3273	3149	2925	2840	n/a	n/a	n/a	n/a
003-20921	42.07125	-77.75385	Whitesville	Independence	1255	2182	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21182	42.25034	-77.88885	West Almond	Ward	4432	2180	4306	4248	4182	3718	3664	3508	3353	3218	2997	n/a	n/a	n/a	n/a
003-21772	42.17774	-78.00453	Belmont	Amity	3980	1667	n/a	3911	3850	3418	3364	3246	3049	2951	2784	1186	1158	1014	972
003-21778	42.18557	-77.99908	Belmont	Amity	3803	1517	n/a	3748	3685	3255	3201	3112	2917	2782	2616	1026	1002	853	806
003-21781	42.18450	-77.99060	Wellsville North	Amity	3701	1432	n/a	3653	3584	3158	3107	2978	2820	2647	2521	950	880	746	699
003-21875	42.00048	-77.95250	Wellsville South	Willing	4995	2162.4	n/a	4853	4781	4338	4290	4133	3930	3747	3570	n/a	n/a	n/a	n/a
003-21881	42.18929	-78.00220	Belmont	Amity	3818	1490	n/a	3722	3661	3230	3176	3052	2897	2727	2600	1030	982	843	808
003-21882	42.17501	-77.98533	Wellsville North	Scio	3799	1440	n/a	3738	3669	3221	3169	3048	2876	2702	2576	1016	951	803	748
003-21951	42.01946	-78.14058	Bolivar	Bolivar	1957	2380	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21997	42.05697	-78.27072	Portville	Genesee	4950	1830	4573	4470	4350	3960	3936	3866	3721	3565	3434	n/a	n/a	n/a	n/a
003-22002	42.08656	-78.15875	Bolivar	Bolivar	898	1640	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22126	42.07696	-78.23841	Bolivar	Genesee	4761	1905	4489	4376	4298	3922	3893	3820	3672	3552	3384	n/a	n/a	n/a	n/a
003-22205	42.12328	-77.80523	Whitesville	Andover	1572	2255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Appendix II: Well-log Formation Picks

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
003-22417	42.12025	-78.13082	Bolivar	Wirt	1692	2210	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22499	42.44553	-78.02982	Fillmore	Granger	2817	1565	2715	2612	2559	2160	2108	1997	1912	1828	1659	385	340	242	190
003-22552	42.00832	-78.17510	Bolivar	Bolivar	1548	1835	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22581	42.11317	-77.82525	Whitesville	Andover	4906	2117	n/a	4825	4747	4270	4220	4063	3838	3635	3275	n/a	n/a	n/a	n/a
003-22632	42.02021	-78.03432	Allentown	Alma	1342	2105	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22633	42.0209	-78.03432	Allentown	Alma	1336	2110	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22634	42.02227	-78.03432	Allentown	Alma	1374	2140	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22666	42.10279	-77.85796	Whitesville	Wellsville	1548	2160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-23531	42.37039	-78.01789	Angelica	Allen	3445	1913	3404	3317	3232	2840	2786	2675	2566	2469	2290	896	869	745	710
003-52550	42.08832	-78.14039	Bolivar	Wirt	1050	1920	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-66251	42.19795	-78.05405	Belmont	Amity	840	2022.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-02626	42.03911	-78.71858	Limestone	Red House	4069	1802	4033	3946	3901	3582	3572	3522	3476	3335	3263	n/a	n/a	n/a	n/a
009-03898	42.18338	-78.34046	Cuba	Hinsdale	4114	2007	4094	4007	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04081	42.00336	-78.66771	Limestone	Carrollton	4658	2282	n/a	4568	4518	4166	4161	4118	4032	3909	3849	n/a	n/a	n/a	n/a
009-04373	42.13373	-78.52172	Humphrey	Allegany	4043	1869	3974	3885	3817	3478	3466	3417	3330	3215	3108	n/a	n/a	n/a	n/a
009-04554	42.05658	-78.62107	Knapp Creek	Carrollton	4179	1864	4097	3998	3946	3605	3600	3557	3455	3343	3259	n/a	n/a	n/a	n/a
009-04555	42.11853	-78.31374	Portville	Portville	1861	1691	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04574	42.18070	-78.40042	Hinsdale	Hinsdale	3853	1822	n/a	3735	3681	3330	3314	3252	3162	3038	2920	n/a	n/a	n/a	n/a
009-04631	42.16481	-78.44115	Hinsdale	Hinsdale	3990	1908	n/a	3837	3736	3428	3417	3374	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04634	42.12729	-78.47444	Hinsdale	Allegany	1275	1573	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04694	42.14934	-78.45257	Hinsdale	Hinsdale	3934	1850	3924	3833	3782	3420	3411	3361	3261	3122	3028	n/a	n/a	n/a	n/a
009-04766	42.15725	-78.42194	Hinsdale	Hinsdale	3637	1560	n/a	3528	3468	3420	3407	3059	2940	2800	2713	n/a	n/a	n/a	n/a
009-04831	42.14425	-78.43505	Hinsdale	Hinsdale	3743	1652	3743	3656	3602	3238	3228	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04832	42.15106	-78.47747	Hinsdale	Allegany	3743	1648	3912	3814	3766	3408	3399	3345	3253	3104	3022	n/a	n/a	n/a	n/a
009-04834	42.10784	-78.44529	Olean	Olean	1129	1560	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04931	42.10307	-78.44908	Olean	Olean	1358	1782	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04964	42.10801	-78.44889	Olean	Olean	1284	1740	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05002	42.11640	-78.46044	Olean	Olean	1473	1910	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05019	42.04681	-78.58677	Knapp Creek	Carrollton	941	1795	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05028	42.33777	-78.58593	Ashford	Ellicottville	190	1721.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05029	42.12919	-78.44908	Hinsdale	Olean	1419	1864	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05033	42.10486	-78.44187	Olean	Olean	1028	1476	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05106	42.12349	-78.58620	Knapp Creek	Carrollton	3910	1817	n/a	3793	3741	3397	3391	3346	3263	3157	3053	n/a	n/a	n/a	n/a
009-05112	42.10156	-78.45405	Olean	Olean	1297	1700	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05174	42.33777	-78.58593	Ashford	Ellicottville	127	1691.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05204	42.39638	-78.83669	Collins Center	Otto	3760	1696.5	2686	2513	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05209	42.33876	-78.58453	Ashford	Ellicottville	207	1691.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05385	42.02467	-78.42606	Olean	Olean	1285	1740	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05500	42.34184	-78.58486	Ashford	Ellicottville	191	1705	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05550	42.11090	-78.43746	Olean	Olean	1064	1528	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05790	42.10923	-78.43932	Olean	Olean	604	1628	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06640	42.05155	-78.58898	Knapp Creek	Carrollton	988	1850	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06750	42.11090	-78.65575	Limestone	Carrollton	1143	1384	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06757	42.03897	-78.60372	Knapp Creek	Carrollton	1098	1908	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06758	42.05149	-78.59267	Knapp Creek	Carrollton	1187	2058	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06762	42.04529	-78.58581	Knapp Creek	Carrollton	957	1773	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06776	42.04367	-78.59289	Knapp Creek	Carrollton	1155	1967	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06777	42.04641	-78.58712	Knapp Creek	Carrollton	924	1816	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06794	42.01870	-78.63839	Limestone	Carrollton	1206	1443	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-06795	42.11090	-78.65575	Limestone	Carrollton	801	1581	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-07187	42.04285	-78.59478	Knapp Creek	Carrollton	991	1830	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-07218	42.04916	-78.59816	Knapp Creek	Carrollton	893	1836	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-07220	42.05353	-78.59816	Knapp Creek	Carrollton	1010	1882	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-07625	42.04242	-78.38027	Olean	Portville	1295	1490	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
009-08581	42.45633	-79.03279	Perrysburg	Perrysburg	5701	1397	2107	1938	1848	1642	1642	1638	1619	1610	1553	n/a	n/a	n/a	n/a
009-08967	42.12919	-78.47026	Hinsdale	Allegany	1209	1613	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09120	42.05610	-78.74837	Limestone	Red House	4360	2251	4323	4222	4173	3843	3838	3801	3738	3647	3558	n/a	n/a	n/a	n/a
009-09151	42.07048	-78.73418	Limestone	Red House	4321	2239	4299	4194	4143	3813	3807	3783	3705	3596	3523	n/a	n/a	n/a	n/a
009-09234	42.02523	-78.44507	Olean	Olean	1892	2322	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09235	42.00872	-78.56849	Knapp Creek	Allegany	11680	2295	4792	4652	4602	4264	4259	4188	4076	3957	3872	n/a	n/a	n/a	n/a
009-09472	42.02516	-78.44673	Olean	Olean	1509	2243	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09518	42.12223	-78.45572	Olean	Olean	1340	1830	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09554	42.12108	-78.45129	Olean	Olean	1330	1865	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09585	42.02358	-78.43705	Olean	Olean	1725	2132	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09586	42.03117	-78.43613	Olean	Olean	1570	1950	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09601	42.37245	-78.32828	Rawson	Farmersville	1390	1972	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1174	1150	1073	1048
009-09603	42.02572	-78.42540	Olean	Olean	1500	1750	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09604	42.02702	-78.42540	Olean	Olean	1188	1810	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09608	42.02869	-78.42562	Olean	Olean	1550	1851	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09828	42.02468	-78.42404	Olean	Olean	1700	1770	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09834	42.12020	-78.45122	Olean	Olean	1270	1787	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09922	42.02647	-78.42046	Olean	Olean	1600	2028	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10019	42.02550	-78.42691	Olean	Olean	1616	1841	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10020	42.02682	-78.42654	Olean	Olean	1414	1880	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10475	42.38221	-78.85719	Collins Center	Otto	3683	1580	2587	2417	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10577	42.41136	-78.87295	Collins Center	Otto	3431	1470	2356	2175	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10770	42.41700	-78.86720	Collins Center	Otto	3580	1570	2500	2312	2254	1973	1970	1960	1935	1922	1835	n/a	n/a	n/a	n/a
009-10845	42.41439	-78.85394	Collins Center	Otto	3735	1779	2684	2500	2438	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10941	42.41535	-78.88049	Collins Center	Otto	3404	1435	2317	2137	2056	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10962	42.41535	-78.82982	Collins Center	Otto	3410	1410	2316	2135	2080	1795	1792	1783	1751	1737	1644	n/a	n/a	n/a	n/a
009-10963	42.40792	-78.86587	Collins Center	Otto	3651	1633	2567	2383	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10994	42.46018	-78.79402	Collins Center	East Otto	2897	973	1659	1488	1432	1142	1137	1132	1094	1081	986	n/a	n/a	n/a	n/a
009-11045	42.45837	-78.78798	Collins Center	East Otto	2879	971	1774	1582	1521	1223	1221	1210	1175	1160	1062	n/a	n/a	n/a	n/a
009-11049	42.45991	-78.80144	Collins Center	Otto	2921	990	1648	1467	1408	1110	1107	1090	1062	1047	954	n/a	n/a	n/a	n/a
009-11066	42.40325	-78.89182	Gowanda	Persia	3310	1290	2182	1999	1923	1657	1655	1645	1624	1608	1527	n/a	n/a	n/a	n/a
009-11067	42.42759	-78.85188	Collins Center	Otto	3462	1490	2386	2204	2147	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11127	42.36530	-78.34319	Rawson	Farmersville	496	1760	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11128	42.36109	-78.34196	Rawson	Farmersville	501	1763.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11140	42.36019	-78.34196	Rawson	Farmersville	501	1761	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11141	42.36621	-78.34197	Rawson	Farmersville	498	1680	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11148	42.39849	-78.87273	Collins Center	Otto	3460	1440	2384	2209	2052	1968	1965	1960	1831	1818	1730	n/a	n/a	n/a	n/a
009-11150	42.36269	-78.34437	Rawson	Farmersville	502	1755	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11195	42.42278	-78.83382	Collins Center	Otto	3461	1495	2337	2157	2102	1815	1812	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11282	42.17691	-78.39220	Hinsdale	Hinsdale	1696	1520	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11479	42.25617	-78.76004	Cattaraugus	Little Valley	4487	1702	3198	3060	3001	2702	2697	2672	2618	2557	2468	n/a	n/a	n/a	n/a
009-11480	42.20386	-78.87642	Randolph	Napoli	4639	1822	3369	3214	3149	2865	2865	2847	2800	2767	2669	n/a	n/a	n/a	n/a
009-11689	42.47476	-78.70539	Ashford Hollow	Ashford	3160	1310	2105	1923	1872	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11706	42.45001	-78.79476	Collins Center	East Otto	2898	1022	1840	1655	1597	1308	1303	1288	1262	1211	1151	n/a	n/a	n/a	n/a
009-11723	42.46898	-78.68015	Ashford Hollow	Ashford	3304	1390	2211	2035	1986	1681	1675	1648	1612	1596	1484	n/a	n/a	n/a	n/a
009-12459	42.45647	-78.80960	Collins Center	Otto	2875	962	1694	1498	1418	1125	1123	1116	1080	1068	986	n/a	n/a	n/a	n/a
009-12461	42.44440	-78.81832	Collins Center	Otto	3186	1232	2068	1878	1821	1535	1531	1522	1491	1479	1386	n/a	n/a	n/a	n/a
009-12475	42.45699	-78.71892	Ashford Hollow	Ashford	3310	1360	2220	2038	1989	1685	1682	1657	1624	1608	1500	n/a	n/a	n/a	n/a
009-12480	42.45118	-78.80812	Collins Center	Otto	2904	960	1765	1580	1521	1228	1226	1216	1183	1170	1076	n/a	n/a	n/a	n/a
009-12505	42.45118	-78.81647	Collins Center	Otto	2836	960	1732	1545	1488	1201	1198	1189	1158	1145	1052	n/a	n/a	n/a	n/a
009-13370	42.39033	-78.92569	Gowanda	Persia	3323	1373	2276	2093	2024	1766	1763	1752	1732	1713	1601	n/a	n/a	n/a	n/a
009-13537	42.33078	-78.79105	Cattaraugus	Mansfield	4092	1736	2982	2833	2778	2476	2476	2460	2418	2350	2290	n/a	n/a	n/a	n/a
009-13609	42.41604	-78.81438	Collins Center	Otto	3394	1355	2292	2115	2058	1775	1772	1763	1728	1714	1619	n/a	n/a	n/a	n/a
009-14448	42.41838	-78.80707	Collins Center	Otto	3393	1315	2254	2082	2027	1736	1733	1722	1674	1688	1578	n/a	n/a	n/a	n/a

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
009-15442	42.08264	-78.34931	Portville	Portville	5724	1595	4050	3976	3426	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-15792	42.26409	-78.54109	Ashford	Franklinville	4766	1745	3363	3238	3194	2837	2832	2810	2728	2684	2533	n/a	n/a	n/a	n/a
009-15889	42.36571	-78.34067	Rawson	Farmersville	2550	1856	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2354	1016	985	908	878
009-16024	42.13530	-78.41056	Hinsdale	Hinsdale	1499	1435	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16209	42.24085	-78.97511	Randolph	Conewango	4253	1631	2991	2823	2789	2500	2492	2480	2449	2415	2345	n/a	n/a	n/a	n/a
009-16232	42.03433	-78.32993	Portville	Portville	4214	1490	n/a	4186	4130	3727	3709	3613	3500	3350	3219	n/a	n/a	n/a	n/a
009-16247	42.14335	-78.98284	Randolph	Randolph	4443	1535	3168	3018	2944	2688	2682	2664	2626	2604	2509	n/a	n/a	n/a	n/a
009-16390	42.12418	-78.96145	Steamburg	Randolph	4860	1845	3600	3454	3370	3112	3110	3094	3047	3022	2924	n/a	n/a	n/a	n/a
009-16406	42.41425	-78.90906	Gowanda	Persia	3163	1199	2072	1890	1820	1558	1558	1545	1523	1506	1416	n/a	n/a	n/a	n/a
009-16411	42.41274	-78.90294	Gowanda	Persia	3231	1295	2171	1989	1914	1653	1650	1640	1621	1607	1507	n/a	n/a	n/a	n/a
009-16413	42.40320	-78.94119	Gowanda	Persia	3362	1360	2221	2044	1956	1706	1704	1691	1682	1667	1594	n/a	n/a	n/a	n/a
009-16415	42.39833	-78.89645	Gowanda	Persia	3356	1346	2261	2083	1992	1751	1748	1734	1713	1678	1614	n/a	n/a	n/a	n/a
009-16416	42.40380	-78.93281	Gowanda	Persia	3322	1336	2216	2035	1964	1694	1691	1684	1672	1657	1581	n/a	n/a	n/a	n/a
009-16418	42.39363	-78.89644	Gowanda	Persia	3395	1334	2262	2089	2015	1753	1752	1737	1716	1697	1619	n/a	n/a	n/a	n/a
009-16420	42.40232	-78.89419	Gowanda	Persia	3358	1350	2257	2077	1999	1736	1734	1722	1703	1676	1607	n/a	n/a	n/a	n/a
009-16497	42.00103	-78.71398	Limestone	Red House	1692	2310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16499	41.99979	-78.71619	Limestone	Red House	1702	2285	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16501	41.99979	-78.72061	Limestone	Red House	1710	2315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16525	42.43062	-78.76756	Collins Center	East Otto	3410	1378	2308	2133	2080	1786	1782	1769	1732	1717	1615	n/a	n/a	n/a	n/a
009-16526	42.41266	-78.78016	Collins Center	East Otto	3455	1350	2303	2123	2073	1777	1773	1761	1726	1708	1609	n/a	n/a	n/a	n/a
009-16566	42.36107	-78.42919	Franklinville	Farmersville	770	1861	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	609	543
009-16567	42.28981	-78.33184	Rawson	Lyndon	1046	2075	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16722	42.09522	-79.03316	Ivory	Randolph	4620	1533	3299	3157	3124	2824	2819	2805	2766	2721	2653	n/a	n/a	n/a	n/a
009-16784	42.2969	-79.03308	Cherry Creek	Leon	3846	1518	2630	2452	2410	2130	2126	2118	2102	2077	2015	n/a	n/a	n/a	n/a
009-16863	42.02111	-78.37824	Olean	Portville	2060	2262	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16875	42.39157	-78.33752	Freedom	Farmersville	980	2161	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16890	42.14239	-79.02737	Kennedy	Randolph	4774	1763	3430	3277	3244	2951	2946	2934	2895	2857	2790	n/a	n/a	n/a	n/a
009-16904	42.30391	-78.64489	Ellicottville	Ellicottville	4710	2040	3458	3325	3252	2953	2945	2905	2857	2800	2690	n/a	n/a	n/a	n/a
009-16906	42.31461	-78.64837	Ellicottville	Ellicottville	4577	1950	3334	3196	3140	2831	2828	2772	2741	2673	2578	n/a	n/a	n/a	n/a
009-16907	42.31040	-78.66166	Ellicottville	Ellicottville	4784	2110	3496	3357	3291	2991	2987	2949	2904	2836	2752	n/a	n/a	n/a	n/a
009-16912	42.30914	-78.65444	Ellicottville	Ellicottville	4810	2170	3554	3418	3353	3054	3049	3017	2963	2895	2801	n/a	n/a	n/a	n/a
009-16931	42.38868	-78.90782	Gowanda	Persia	3431	1365	2302	2126	2054	1786	1783	1774	1754	1741	1657	n/a	n/a	n/a	n/a
009-16961	42.36282	-78.66036	Ellicottville	Ellicottville	4380	1950	3201	3054	2990	2687	2684	2659	2608	2549	2458	1365	1292	1232	1196
009-16963	42.39816	-78.90249	Gowanda	Persia	3415	1407	2323	2145	2071	1805	1803	1789	1774	1760	1678	n/a	n/a	n/a	n/a
009-16964	42.40281	-78.90750	Gowanda	Persia	3384	1401	2298	2123	2049	1785	1783	1772	1753	1738	1659	n/a	n/a	n/a	n/a
009-16965	42.40270	-78.90257	Gowanda	Persia	3420	1389	2294	2114	2043	1778	1776	1760	1751	1734	1651	n/a	n/a	n/a	n/a
009-16994	42.40696	-78.94090	Gowanda	Persia	3228	1281	2131	1955	1883	1623	1620	1616	1594	1582	1506	n/a	n/a	n/a	n/a
009-16995	42.40903	-78.93497	Gowanda	Persia	3168	1199	2058	1876	1800	1534	1532	1524	1512	1499	1422	n/a	n/a	n/a	n/a
009-17020	42.12341	-79.04955	Ivory	Randolph	4542	1560	3242	3087	3055	2768	2762	2749	2711	2671	2605	n/a	n/a	n/a	n/a
009-17042	42.24195	-78.46603	Hinsdale	Humphrey	5355	2141	3970	3849	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17043	42.31458	-78.67553	Ellicottville	Ellicottville	4678	2080	3463	3333	3271	2968	2965	2928	2883	2819	2725	n/a	n/a	n/a	n/a
009-17056	42.31910	-78.67131	Ellicottville	Ellicottville	4340	1780	3157	3026	2963	2659	2955	2626	2573	2509	2415	n/a	n/a	n/a	n/a
009-17065	42.25281	-78.98325	New Albion	Conewango	4126	1580	2903	2733	2700	2408	2404	2387	2363	2308	2263	n/a	n/a	n/a	n/a
009-17072	42.30411	-78.65215	Ellicottville	Ellicottville	4653	1980	3393	3257	3190	2895	2889	2848	2801	2733	2636	n/a	n/a	n/a	n/a
009-17073	42.34866	-78.67460	Ellicottville	East Otto	4523	2060	3347	3200	3142	2834	2834	2810	2760	2700	2608	n/a	n/a	n/a	n/a
009-17083	42.35807	-78.37246	Rawson	Farmersville	1003	1950	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17089	42.25584	-78.97604	New Albion	Conewango	4255	1710	3039	2869	2834	2542	2538	2536	2498	2463	2395	n/a	n/a	n/a	n/a
009-17090	42.36071	-78.64328	Ellicottville	Ellicottville	4403	1980	3256	3110	3055	2745	2741	2714	2663	2600	2506	1393	1312	1259	1221
009-17091	42.2414	-78.9605	Randolph	Conewango	4364	1771	3134	2964	2930	2632	2629	2617	2585	2545	2476	n/a	n/a	n/a	n/a
009-17099	42.24291	-78.96734	Randolph	Conewango	4222	1650	2987	2818	2784	2491	2487	2475	2446	2408	2338	n/a	n/a	n/a	n/a
009-17105	42.32556	-78.68686	Ellicottville	Ellicottville	4211	1680	3027	2895	2834	2525	2523	2496	2444	2385	2293	n/a	n/a	n/a	n/a
009-17107	42.33890	-78.66468	Ellicottville	Ellicottville	4531	2020	3360	3212	3149	2842	2840	2812	2760	2698	2604	n/a	n/a	n/a	n/a
009-17118	42.24671	-78.96039	Randolph	Conewango	4335	1720	3074	2900	2864	2568	2564	2557	2517	2484	2414	n/a	n/a	n/a	n/a
009-17128	42.37253	-78.60865	Ashford	Ellicottville	4350	1900	3183	3037	2975	2678	2669	2647	2574	2543	2411	n/a	n/a	n/a	n/a

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
009-17138	42.00270	-78.71671	Limestone	Red House	1756	2305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17144	42.36200	-78.63031	Ellicottville	Ellicottville	4304	1830	3128	2982	2912	2617	2612	2584	2530	2468	2372	1252	1171	1116	1070
009-17146	42.37850	-78.32680	Freedom	Farmersville	1350	1961	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17151	42.38263	-78.33715	Freedom	Farmersville	1650	2144	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1348	1322	1265	1237
009-17175	42.33386	-78.67938	Ellicottville	Ellicottville	4445	1880	3256	3118	3059	2754	2750	2724	2671	2612	2520	n/a	n/a	n/a	n/a
009-17194	42.37424	-78.41570	Delevan	Farmersville	600	1863	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17208	42.36516	-78.32142	Rawson	Farmersville	500	1740	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17619	42.21502	-78.79027	Little Valley	Little Valley	4900	2030	3661	3522	3466	3162	3161	3137	3086	3023	2937	n/a	n/a	n/a	n/a
009-17638	42.21370	-78.80492	Little Valley	Little Valley	4930	2080	3686	3550	3493	3194	3192	3167	3118	3056	2972	n/a	n/a	n/a	n/a
009-17657	42.22834	-78.71659	Salamanca	Little Valley	5001	2060	3715	3579	3524	3216	3207	3186	3121	3052	2960	n/a	n/a	n/a	n/a
009-17670	42.21800	-78.64601	Salamanca	Great Valley	4554	1600	3265	3138	3081	2750	2748	2718	2652	2572	2474	n/a	n/a	n/a	n/a
009-17683	42.40383	-78.92525	Gowanda	Persia	3343	1314	2187	2008	1935	1676	1675	1663	1643	1632	1567	n/a	n/a	n/a	n/a
009-17764	42.38510	-78.91283	Gowanda	Persia	3400	1338	2287	2112	2028	1777	1774	1757	1743	1729	1648	n/a	n/a	n/a	n/a
009-17792	42.41810	-78.93942	Gowanda	Persia	3052	1126	1953	1772	1694	1442	1439	1431	1409	1394	1333	n/a	n/a	n/a	n/a
009-17793	42.41310	-78.93793	Gowanda	Persia	3155	1198	2039	1860	1786	1533	1530	1520	1498	1485	1424	n/a	n/a	n/a	n/a
009-17794	42.42344	-78.94016	Gowanda	Persia	3052	1105	1905	1725	1645	1401	1400	1388	1368	1353	1280	n/a	n/a	n/a	n/a
009-17907	42.38416	-78.90767	Gowanda	Persia	3456	1361	2316	2140	2064	1805	1803	1791	1770	1752	1672	n/a	n/a	n/a	n/a
009-17982	42.42523	-78.94936	Gowanda	Dayton	1790	1141	n/a	1719	1652	1400	1398	1387	1366	1357	1284	n/a	n/a	n/a	n/a
009-18044	42.37602	-78.84313	Collins Center	Otto	3890	1719	2766	2602	2542	2261	2259	2246	2213	2191	2112	n/a	n/a	n/a	n/a
009-18046	42.38909	-78.84477	Collins Center	Otto	3758	1608.5	2616	2445	2381	2109	2106	2096	2062	2048	1956	n/a	n/a	n/a	n/a
009-18070	42.38317	-78.88106	Gowanda	Otto	3490	1374	2367	2197	2126	1862	1857	1845	1820	1805	1718	n/a	n/a	n/a	n/a
009-18077	42.37644	-78.86385	Collins Center	Otto	3597	1794	2784	2616	2544	2278	2275	2264	2232	2213	2125	n/a	n/a	n/a	n/a
009-18087	42.40366	-78.86535	Collins Center	Otto	3712	1630	2575	2390	2313	2044	2042	2035	2006	1990	1903	n/a	n/a	n/a	n/a
009-18090	42.38758	-78.86838	Collins Center	Otto	3669	1581	2567	2395	2322	2057	2055	2047	2017	2002	1915	n/a	n/a	n/a	n/a
009-18091	42.38758	-78.87535	Gowanda	Otto	3761	1659	2640	2469	2395	2132	2127	2114	2090	2074	1988	n/a	n/a	n/a	n/a
009-18092	42.38042	-78.85236	Collins Center	Otto	3808	1661	2680	2513	2437	2175	2173	2160	2131	2111	2020	n/a	n/a	n/a	n/a
009-18093	42.40111	-78.85775	Collins Center	Otto	3834	1739	2694	2518	2438	2172	2170	2158	2133	2115	2027	n/a	n/a	n/a	n/a
009-18094	42.39445	-78.85237	Collins Center	Otto	3858	1715	2701	2526	2448	2185	2184	2165	2147	2122	2037	n/a	n/a	n/a	n/a
009-18095	42.38194	-78.84643	Collins Center	Otto	3765	1611	2630	2461	2367	2123	2122	2109	2072	2056	1964	n/a	n/a	n/a	n/a
009-18271	42.20886	-79.0574	Kennedy	Conewango	3888	1320	2708	2540	2502	2222	2220	2214	2180	2152	2088	n/a	n/a	n/a	n/a
009-18341	41.99951	-78.71324	Limestone	Red House	4534	2272	n/a	4234	4183	3855	3852	3823	3750	3662	3572	n/a	n/a	n/a	n/a
009-18425	42.38345	-78.83772	Collins Center	Otto	3775	1595	2609	2441	2382	2104	2102	2084	2051	2037	1941	n/a	n/a	n/a	n/a
009-18429	42.25219	-78.96336	New Albion	Conewango	4395	1800	3126	2955	2920	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18484	42.38840	-78.82831	Collins Center	Otto	3556	1397	2398	2233	2175	1902	1900	1876	1841	1827	1730	n/a	n/a	n/a	n/a
009-18485	42.38901	-78.83513	Collins Center	Otto	3650	1492	2504	2338	2277	1990	1990	1980	1946	1931	1823	n/a	n/a	n/a	n/a
009-18486	42.38895	-78.81885	Collins Center	Otto	3511	1340	2355	2188	2134	1841	1840	1828	1793	1779	1680	n/a	n/a	n/a	n/a
009-18540	42.43606	-78.93829	Gowanda	Persia	2875	978	1752	1572	1482	1230	1229	1214	1195	1183	1110	n/a	n/a	n/a	n/a
009-18613	42.39638	-78.43003	Delevan	Farmersville	4642	2057	3339	3200	3152	2795	2776	2727	2674	2615	2481	1377	1305	1247	1199
009-18614	42.41884	-78.99403	Gowanda	Dayton	2499	1593	2408	2136	2072	1827	1827	1818	1799	1788	1720	n/a	n/a	n/a	n/a
009-18615	42.39204	-79.05663	Perrysburg	Dayton	3573	1606	2432	2226	2174	1909	1907	1899	1889	1880	1820	n/a	n/a	n/a	n/a
009-18786	42.39294	-78.87209	Collins Center	Otto	3495	1428	2395	2222	2145	1888	1888	1870	1841	1828	1739	n/a	n/a	n/a	n/a
009-19103	42.22806	-78.98416	Randolph	Conewango	4289	1650	3032	2869	2835	2545	2542	2531	2498	2462	2393	n/a	n/a	n/a	n/a
009-19125	42.17870	-78.35487	Cuba	Hinsdale	4004	1682	3753	3666	3621	3245	3226	3149	3059	2929	2808	946	900	755	708
009-19273	42.42257	-78.98498	Gowanda	Dayton	2712	1460	2241	1964	1898	1660	1660	1651	1632	1622	1555	n/a	n/a	n/a	n/a
009-19338	42.39882	-79.0418	Perrysburg	Dayton	3380	1395	2230	2008	1960	1688	1685	1679	1668	1645	1597	n/a	n/a	n/a	n/a
009-19725	42.14472	-79.02222	Kennedy	Randolph	4630	1760	3400	3246	3214	2927	2918	2904	2066	2820	2756	n/a	n/a	n/a	n/a
009-19729	42.10663	-79.03372	Ivory	Randolph	4843	1790	3579	3381	3348	3057	3048	3034	2995	2950	2886	n/a	n/a	n/a	n/a
009-19745	42.11068	-79.04328	Ivory	Randolph	4624	1612	3325	3176	3143	2852	2846	2832	2803	2746	2685	n/a	n/a	n/a	n/a
009-19765	42.48143	-78.66499	Ashford Hollow	Ashford	3229	1321	2100	1932	1883	1578	1572	1552	1507	1489	1377	n/a	n/a	n/a	n/a
009-19778	42.22531	-78.96697	Randolph	Conewango	4373	1760	3141	2981	2948	2654	2651	2638	2605	2548	2495	n/a	n/a	n/a	n/a
009-19912	42.1648	-79.0073	Kennedy	Randolph	4197	1390	2975	2820	2787	2496	2492	2479	2439	2400	2330	n/a	n/a	n/a	n/a
009-19956	42.24669	-78.98167	Randolph	Conewango	4179	1625	2955	2788	2752	2462	2458	2447	2417	2383	2314	n/a	n/a	n/a	n/a
009-19957	42.25377	-78.0128	Cherry Creek	Conewango	4007	1460	2753	2580	2544	2263	2257	2250	2219	2174	2124	n/a	n/a	n/a	n/a
009-20067	42.24112	-79.05151	Kennedy	Conewango	3763	1282	2562	2391	2352	2083	2077	2071	2040	2013	1951	n/a	n/a	n/a	n/a

API #	Lat	Long	Quad Name	Township Name	Total Depth	G Elv (log)	Onondaga base	Onondaga top	Marcellus top	Tully base	Geneseo base	Geneseo top	Middlesex base	Middlesex top	Rhinestreet base	Dunkirk base	Dunkirk top	Hume base	Hume top
009-20220	42.45554	-78.71272	Ashford Hollow	Ashford	3350	1350	2213	2029	1980	1674	1671	1645	1611	1596	1487	n/a	n/a	n/a	n/a
009-20224	42.13524	-78.52223	Humphrey	Allegany	1700	1960	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20225	42.13648	-78.52223	Humphrey	Allegany	1846	2040	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20226	42.13277	-78.52223	Humphrey	Allegany	1600	1860	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20283	42.49697	-79.01922	Perrysburg	Perrysburg	2498	951	1558	1386	1331	1096	1095	1088	1072	1063	1008	n/a	n/a	n/a	n/a
009-20335	42.13772	-78.51865	Humphrey	Allegany	1650	1950	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20336	42.13677	-78.51686	Humphrey	Allegany	1620	1740	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20369	42.49572	-79.04399	Perrysburg	Perrysburg	2499	973	1552	1386	1314	1102	1101	1098	1084	1075	1021	n/a	n/a	n/a	n/a
009-20369	42.49572	-79.04399	Perrysburg	Perrysburg	2499	973	1552	1386	1360	1100	1097	1089	1084	1060	1021	n/a	n/a	n/a	n/a
009-20407	42.49126	-78.54939	West Valley	Yorkshire	3805	1794	2612	2446	2396	2077	2068	2035	1987	1961	1838	n/a	n/a	n/a	n/a
009-20755	42.42333	-78.67068	Ashford Hollow	Ashford	3050	1850	2839	2662	2606	2317	2313	2287	2247	2226	2114	n/a	n/a	n/a	n/a
009-20786	42.49429	-78.49640	Delevan	Yorkshire	3573	1507	2372	2217	2170	1841	1835	1790	1744	1704	1582	390	350	260	224
009-20787	42.44134	-78.67784	Ashford Hollow	Ashford	3878	1802	2732	2563	2517	2207	2205	2174	2139	2119	2006	n/a	n/a	n/a	n/a
009-20851	42.39432	-78.62799	Ashford Hollow	Ashford	3075	1776	2909	2755	2697	2390	2388	2359	2308	2279	2153	n/a	n/a	n/a	n/a
009-20864	42.48391	-78.51671	West Valley	Yorkshire	3823	1747	2636	2474	2426	2102	2091	2057	2003	1974	1844	n/a	n/a	n/a	n/a
009-20897	42.43653	-78.68589	Ashford Hollow	Ashford	3887	1769	2714	2544	2492	2185	2183	2154	2118	2100	1985	n/a	n/a	n/a	n/a
009-20898	42.44140	-78.69803	Ashford Hollow	Ashford	3570	1514	2424	2281	2204	1896	1893	1866	1832	1814	1703	n/a	n/a	n/a	n/a
009-20899	42.42374	-78.65731	Ashford Hollow	Ashford	4104	1934	2926	2766	2722	2404	2401	2372	2332	2309	2191	n/a	n/a	n/a	n/a
009-20907	42.41673	-78.67662	Ashford Hollow	Ashford	4015	1799	2845	2688	2638	2327	2324	2294	2258	2238	2122	n/a	n/a	n/a	n/a
009-20908	42.42264	-78.69127	Ashford Hollow	Ashford	3637	1519	2487	2320	2276	1962	1960	1931	1896	1876	1763	n/a	n/a	n/a	n/a
009-20914	42.34941	-79.0005	Cherry Creek	Dayton	3500	1312	2291	2101	2058	1778	1775	1768	1748	1712	1664	n/a	n/a	n/a	n/a
009-20953	42.43722	-78.57925	West Valley	Machias	4010	1852	2826	2667	2622	2300	2289	2265	2210	2148	2056	n/a	n/a	n/a	n/a
009-21174	42.39954	-78.62994	Ashford Hollow	Ashford	4151	1880	2983	2829	2780	2466	2464	2436	2385	2326	2233	n/a	n/a	n/a	n/a
009-21763	42.43103	-78.60089	West Valley	Ashford	4042	1890	2885	2723	2687	2354	2357	2322	2269	2240	2115	n/a	n/a	n/a	n/a
009-21769	42.42347	-78.63065	Ashford Hollow	Ashford	3676	1535	2524	2358	2313	1993	1989	1957	1915	1890	1768	n/a	n/a	n/a	n/a
009-21775	42.41989	-78.65794	Ashford Hollow	Ashford	4120	1910	2933	2773	2722	2412	2408	2377	2339	2316	2198	n/a	n/a	n/a	n/a
009-21786	42.44451	-78.67421	Ashford Hollow	Ashford	3859	1780	2707	2545	2500	2178	2173	2143	2106	2088	1972	n/a	n/a	n/a	n/a
009-21809	42.39541	-78.67198	Ashford Hollow	Ashford	7502	1630	2705	2547	2498	2187	2180	2150	2111	2087	1967	n/a	n/a	n/a	n/a
009-21860	42.49057	-78.60406	West Valley	Ashford	6166	1420	2145	1977	1929	1617	1609	1581	1536	1516	1400	n/a	n/a	n/a	n/a
009-21889	42.43760	-78.83876	Collins Center	Otto	3265	1302	2162	1982	1924	1641	1639	1629	1600	1588	1498	n/a	n/a	n/a	n/a
009-22054	42.44621	-78.82816	Collins Center	Otto	3010	1050	1883	1695	1638	1354	1352	1341	1312	1300	1210	n/a	n/a	n/a	n/a
009-22080	42.42182	-78.87107	Collins Center	Otto	3535	1520	2419	2237	2180	1898	1895	1888	1861	1849	1763	n/a	n/a	n/a	n/a
009-22081	42.07603	-78.56532	Knapp Creek	Allegany	4214	1890	n/a	4018	3967	3617	3611	3568	3468	3354	3243	n/a	n/a	n/a	n/a
009-22209	42.06291	-78.53386	Knapp Creek	Allegany	1135	1980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22239	42.16995	-78.39783	Hinsdale	Hinsdale	3670	1460	3502	3408	3563	2995	2980	2918	2823	2696	2577	n/a	n/a	n/a	n/a
009-22249	42.06112	-78.53002	Knapp Creek	Allegany	986	1845	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22450	42.44021	-78.91142	Gowanda	Persia	2976	1035	1851	1660	1596	1334	1332	1319	1294	1284	1205	n/a	n/a	n/a	n/a
009-22551	42.09170	-78.54326	Knapp Creek	Allegany	3695	1415	3576	3491	3428	3078	3066	3028	2923	2809	2695	n/a	n/a	n/a	n/a
009-22593	42.42659	-78.66849	Ashford Hollow	Ashford	3938	1819	2805	2642	2598	2282	2279	2246	2210	2189	2073	n/a	n/a	n/a	n/a
009-55171	42.36626	-78.34345	Rawson	Farmersville	499	1850	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
003-00005	n/a	n/a	792	739	713	686	660	593	529	502	459	443	420	358	245	194	n/a	n/a
003-00006	n/a	n/a	922	872	845	816	769	721	658	628	610	600	557	488	366	299	n/a	n/a
003-00247	1438	1396	1189	1095	1071	956	929	881	757	742	696	689	644	552	502	413	n/a	n/a
003-00258	n/a	n/a	742	685	660	630	583	535	492	469	460	444	370	298	168	134	n/a	n/a
003-00261	n/a	n/a	720	672	646	617	582	520	458	429	409	392	352	283	173	88	n/a	n/a
003-00440	n/a	n/a	902	847	825	795	768	704	643	615	595	581	539	473	363	308	n/a	n/a
003-03941	1714	1696	1553	1502	1459	1394	1344	1306	1165	1122	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-03956	489	393	191	105	62	19	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-04025	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-04248	244	142	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-04777	788	748	686	652	602	564	480	376	358	336	300	278	210	164	81	25	n/a	n/a
003-04833	1352	1327	1182	1121	1111	1098	1020	967	833	822	747	728	701	626	604	555	366	306
003-04865	1547	1513	1331	1328	1313	1301	1221	1162	1026	1014	943	923	892	810	788	740	533	470
003-04925	n/a	n/a	288	249	222	186	135	103	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-05060	990	959	862	775	716	681	620	522	503	491	455	427	360	306	223	170	n/a	n/a
003-07503	669	641	442	372	350	301	253	194	162	146	122	109	87	n/a	n/a	n/a	n/a	n/a
003-07760	n/a	n/a	547	486	468	416	375	306	267	246	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-08031	n/a	n/a	1197	1160	1123	1103	1082	1008	931	923	870	849	764	730	698	580	n/a	n/a
003-08034	n/a	n/a	1089	1073	1024	992	936	897	830	802	735	712	694	631	450	389	237	160
003-09194	388	367	192	173	164	132	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-09356	n/a	n/a	880	827	800	774	725	679	613	586	541	523	510	443	328	280	n/a	n/a
003-10248	n/a	n/a	n/a	1421	1409	1382	1311	1276	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10520	n/a	n/a	n/a	1288	1278	1242	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10793	n/a	n/a	506	448	417	362	327	268	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10795	n/a	n/a	709	666	620	579	538	489	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10796	n/a	n/a	900	830	783	744	709	653	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10797	n/a	n/a	967	901	853	813	776	697	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10798	n/a	n/a	523	470	423	382	348	292	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10799	n/a	n/a	661	595	550	508	460	416	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10800	n/a	n/a	798	740	692	652	619	559	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10801	n/a	n/a	926	863	813	773	739	679	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10803	n/a	n/a	674	602	555	515	475	424	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10804	n/a	n/a	703	656	609	567	524	476	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10805	n/a	n/a	815	765	717	675	654	584	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10806	n/a	n/a	951	877	830	785	745	698	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10808	n/a	n/a	968	897	850	809	788	715	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10811	n/a	n/a	1028	958	907	859	833	773	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10812	n/a	n/a	835	773	724	677	635	589	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10813	n/a	n/a	924	875	824	782	748	686	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10814	n/a	n/a	977	911	862	818	780	725	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10815	n/a	n/a	920	862	810	765	727	673	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10816	800	760	554	505	451	407	376	317	175	153	104	70	n/a	n/a	n/a	n/a	n/a	n/a
003-10817	n/a	n/a	684	624	579	538	502	448	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10818	n/a	n/a	832	784	738	696	664	603	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10820	n/a	n/a	662	604	557	514	475	423	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10821	n/a	n/a	717	650	602	560	532	472	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10822	n/a	n/a	867	818	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10823	n/a	n/a	786	710	666	624	602	529	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10824	n/a	n/a	815	740	693	654	628	595	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10825	n/a	n/a	902	847	800	752	725	667	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10826	n/a	n/a	988	932	899	879	826	752	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10828	n/a	n/a	910	843	781	739	701	657	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10829	n/a	n/a	977	915	888	822	795	729	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-10992	434	423	163	115	85	60	21	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
003-11012	n/a	n/a	969	916	868	825	792	730	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11013	n/a	n/a	1024	935	886	842	802	751	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11014	n/a	n/a	955	891	842	802	766	708	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11015	n/a	n/a	1001	948	899	857	842	765	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11016	n/a	n/a	942	871	821	781	746	687	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11017	n/a	n/a	1022	947	899	861	822	767	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11018	n/a	n/a	951	897	858	801	775	708	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11019	n/a	n/a	973	922	870	826	783	736	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11020	n/a	n/a	988	909	862	817	786	729	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11216	n/a	n/a	960	930	908	869	814	769	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11391	n/a	n/a	928	869	821	776	762	685	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-11409	n/a	n/a	1232	1185	1132	1099	1084	1008	964	915	842	817	798	743	n/a	n/a	n/a	n/a
003-11441	n/a	n/a	1373	1343	1334	1299	1256	1194	1059	1048	967	955	926	845	826	760	642	582
003-11762	1198	1155	959	890	845	802	790	725	655	641	591	577	546	504	414	295	171	107
003-11978	1036	974	879	855	826	789	761	673	578	554	534	517	505	449	411	335	163	103
003-12118	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-12718	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-13281	n/a	n/a	1168	1062	1044	1008	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-13684	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-14253	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-14328	n/a	n/a	1157	1046	1000	974	950	893	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-14481	n/a	n/a	542	494	455	437	409	334	258	227	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-14485	n/a	n/a	1197	1143	1108	1075	1061	1037	993	967	850	815	769	670	424	353	n/a	n/a
003-14493	777	764	560	506	470	456	406	349	304	284	152	129	107	45	n/a	n/a	n/a	n/a
003-14610	n/a	n/a	1233	1184	1156	1130	1120	1088	1052	1020	896	864	817	718	472	410	n/a	n/a
003-15254	n/a	n/a	1551	1510	1472	1438	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15282	n/a	n/a	1470	1459	1419	1387	1351	1309	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15443	n/a	n/a	1533	1491	1454	1422	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15444	n/a	n/a	1428	1374	1306	1264	1124	1076	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15512	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15649	1720	1673	1589	1530	1502	1474	1465	1419	1332	1297	1185	1150	1050	1004	1050	970	434	333
003-15738	604	540	410	350	321	239	199	144	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15822	n/a	n/a	936	917	901	851	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15823	n/a	n/a	945	925	909	858	790	728	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15829	n/a	n/a	1274	1184	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15925	n/a	n/a	1382	1371	1349	1308	1299	1208	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-15930	1447	1368	1192	1153	1130	1094	1070	1023	938	928	886	856	786	737	683	606	n/a	n/a
003-15942	n/a	n/a	344	295	280	250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16008	1264	1231	1123	996	979	942	907	803	741	694	612	597	546	493	472	408	292	229
003-16202	136	37	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16203	n/a	n/a	331	325	276	259	229	192	169	149	128	123	111	79	n/a	n/a	n/a	n/a
003-16227	175	130	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16238	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16359	n/a	n/a	1470	1425	1387	1356	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16401	n/a	n/a	n/a	n/a	1111	1043	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16506	n/a	n/a	1569	1526	1486	1453	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16507	n/a	n/a	1668	1629	1593	1557	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16551	460	384	108	89	65	24	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16553	540	499	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16557	960	918	702	650	580	571	547	470	404	393	350	321	304	237	155	106	n/a	n/a
003-16579	n/a	n/a	1463	1417	1377	1343	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16580	n/a	n/a	1579	1536	1496	1460	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-16997	n/a	n/a	1171	1132	1116	1102	1052	1006	920	910	868	828	765	718	673	580	n/a	n/a
003-17004	1821	1806	1738	1673	1658	1628	1614	1587	1473	1427	1360	1333	1266	1217	1012	914	734	689

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
003-17005	1768	1751	1688	1629	1620	1586	1570	1534	1420	1378	1310	1283	1216	1152	960	860	631	n/a
003-17007	1730	1704	1631	1590	1570	1553	1539	1508	1375	1327	1262	1236	1167	1109	913	810	680	643
003-17247	n/a	n/a	1576	1489	1444	1423	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17248	n/a	n/a	1523	1426	1484	1462	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17805	n/a	n/a	998	941	914	895	873	853	728	690	612	588	509	452	361	264	n/a	n/a
003-17806	1118	1084	941	895	868	810	755	700	606	585	570	545	467	410	318	222	n/a	n/a
003-17820	n/a	n/a	1302	1277	1256	1221	1166	1148	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-17955	1279	1244	1088	1052	1029	973	911	862	761	748	734	706	632	572	480	387	n/a	n/a
003-18381	n/a	n/a	1461	1413	1371	1341	1274	1231	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18526	n/a	n/a	1567	1523	1483	1447	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18546	n/a	n/a	1115	1085	1066	1027	1014	952	868	859	830	808	734	703	633	615	n/a	n/a
003-18552	1315	1278	1132	1079	1059	1055	1025	1006	872	843	768	740	670	609	518	425	n/a	n/a
003-18553	746	696	568	521	479	448	353	345	278	237	161	125	n/a	n/a	n/a	n/a	n/a	n/a
003-18558	490	445	291	251	190	162	76	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18608	1175	1138	976	935	918	912	889	863	737	706	627	601	526	467	377	282	n/a	n/a
003-18632	n/a	n/a	1074	1040	1028	986	972	914	830	821	788	768	696	663	n/a	n/a	n/a	n/a
003-18651	234	223	109	73	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18679	346	308	209	188	174	135	94	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-18902	n/a	n/a	657	588	572	550	479	408	381	352	340	313	n/a	n/a	n/a	n/a	n/a	n/a
003-18952	1038	997	813	722	696	653	626	549	443	404	372	346	323	295	240	176	n/a	n/a
003-19071	n/a	n/a	1100	1090	1077	1027	996	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19072	n/a	n/a	1118	1102	1090	1063	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19073	n/a	n/a	1182	1168	1158	1113	1094	1050	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19167	n/a	n/a	759	716	703	648	608	564	518	473	422	395	340	290	224	132	n/a	n/a
003-19174	227	134	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19181	n/a	n/a	1324	1286	1264	1225	1197	1139	986	972	897	883	803	778	745	687	159	45
003-19198	883	844	658	605	560	552	501	450	372	361	314	294	275	225	n/a	n/a	n/a	n/a
003-19207	523	472	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-19965	n/a	n/a	1158	1063	1036	1005	934	892	837	819	792	787	766	714	560	522	n/a	n/a
003-20023	n/a	n/a	422	396	365	322	271	227	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20058	1613	1585	1402	1384	1364	1357	1343	1318	1222	1190	1126	1096	1010	966	868	767	n/a	n/a
003-20063	n/a	n/a	1156	1051	1001	982	953	924	860	840	819	807	784	714	n/a	n/a	n/a	n/a
003-20094	n/a	n/a	1140	1109	1091	1068	1033	977	893	884	852	831	759	727	662	590	348	256
003-20128	229	216	97	62	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20155	n/a	n/a	814	766	738	706	674	612	564	543	500	482	423	367	190	124	n/a	n/a
003-20238	701	668	477	413	389	332	306	245	213	194	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-20717	n/a	n/a	1336	1293	1248	1227	1195	1139	1104	1087	1058	1045	1036	993	836	746	584	503
003-20816	n/a	n/a	567	548	531	516	n/a	n/a	433	405	394	391	381	336	207	176	n/a	n/a
003-20869	n/a	n/a	623	610	602	591	571	529	471	463	426	392	331	287	n/a	n/a	n/a	n/a
003-20870	n/a	n/a	608	596	570	558	532	473	392	379	328	277	204	144	n/a	n/a	n/a	n/a
003-20901	n/a	n/a	497	488	479	468	456	415	364	356	345	308	261	210	n/a	n/a	n/a	n/a
003-20921	n/a	n/a	1233	1186	1161	1146	1092	1054	921	896	847	829	817	748	700	656	508	441
003-21182	n/a	n/a	767	755	736	715	690	632	548	536	489	476	410	316	n/a	n/a	n/a	n/a
003-21772	813	786	594	514	480	439	398	324	298	280	260	255	200	180	163	108	n/a	n/a
003-21778	660	633	424	365	328	289	239	168	64	41	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21781	559	527	311	262	226	195	171	120	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21875	n/a	n/a	876	831	792	758	728	664	603	571	552	532	495	410	243	220	n/a	n/a
003-21881	652	626	390	356	286	274	236	183	140	114	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21882	569	550	371	308	278	235	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21951	1916	1907	1733	1706	n/a	n/a	1669	1636	1524	1510	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-21997	1474	1410	1161	1141	1086	1058	1046	1022	955	922	857	839	767	726	659	580	n/a	n/a
003-22002	n/a	n/a	854	827	819	816	808	780	655	637	555	549	460	414	317	218	n/a	n/a
003-22126	1338	1299	1144	1081	1029	1018	986	959	893	867	815	784	717	674	606	538	n/a	n/a
003-22205	1377	1318	1150	1126	1089	1052	1023	930	896	838	790	744	674	608	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
003-22417	n/a	n/a	1354	1241	1206	1190	1146	1128	1057	1012	895	858	736	681	625	584	n/a	n/a
003-22499	26	8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-22552	1516	1496	1379	1274	1232	1214	1166	1148	1089	1069	935	898	814	780	698	603	n/a	n/a
003-22581	1188	1162	918	903	862	824	791	728	666	640	620	583	567	498	320	261	n/a	n/a
003-22632	n/a	n/a	1312	1278	1265	1240	1210	1148	1066	1058	1028	992	932	900	829	763	518	431
003-22633	n/a	n/a	1310	1282	1264	1240	1198	1148	1064	1055	1022	992	930	897	822	761	523	428
003-22634	n/a	n/a	1350	1315	1302	1272	1244	1188	1104	1096	1065	1030	970	939	868	801	556	478
003-22666	n/a	n/a	1017	995	950	914	887	820	757	729	709	680	658	590	411	341	n/a	n/a
003-23531	375	367	236	222	190	183	128	82	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
003-52550	n/a	n/a	977	912	869	863	833	814	735	688	550	530	439	405	351	283	n/a	n/a
003-66251	n/a	n/a	822	768	694	667	645	576	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-02626	n/a	n/a	1116	1014	937	914	891	785	719	683	648	622	596	533	n/a	n/a	n/a	n/a
009-03898	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04081	n/a	n/a	1504	1451	1405	1396	1382	1263	1211	1146	1126	1096	1033	979	856	810	501	396
009-04373	n/a	n/a	897	881	828	775	761	692	643	632	569	560	538	449	345	301	n/a	n/a
009-04554	n/a	n/a	1021	924	842	818	731	704	649	602	571	563	519	450	394	373	n/a	n/a
009-04555	1449	1432	1198	1166	n/a	n/a	n/a	n/a	927	916	888	865	795	755	719	599	n/a	n/a
009-04574	813	700	529	472	434	409	368	316	287	276	197	169	131	54	n/a	n/a	n/a	n/a
009-04631	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04634	661	604	412	383	330	302	255	201	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04694	861	800	622	563	528	504	464	405	381	329	290	275	241	179	100	58	n/a	n/a
009-04766	476	528	299	242	211	182	140	77	56	16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04831	625	581	401	342	308	287	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04832	893	830	640	586	543	526	485	432	403	382	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-04834	n/a	n/a	522	456	384	343	310	221	198	170	158	114	n/a	n/a	n/a	n/a	n/a	n/a
009-04931	n/a	n/a	753	680	615	575	538	464	428	399	387	360	n/a	n/a	n/a	n/a	n/a	n/a
009-04964	n/a	n/a	688	617	550	508	475	398	364	336	322	295	n/a	n/a	n/a	n/a	n/a	n/a
009-05002	n/a	n/a	847	784	709	665	629	556	520	497	482	453	n/a	n/a	n/a	n/a	n/a	n/a
009-05019	n/a	n/a	931	835	784	744	711	622	570	522	491	484	397	347	315	282	n/a	n/a
009-05028	n/a	n/a	178	108	81	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05029	897	839	656	604	574	545	501	434	416	398	371	363	302	256	n/a	n/a	n/a	n/a
009-05033	n/a	n/a	435	360	297	256	221	131	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05106	807	793	553	510	489	415	393	345	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05112	n/a	n/a	658	584	518	477	441	367	330	305	290	261	n/a	n/a	n/a	n/a	n/a	n/a
009-05174	n/a	n/a	n/a	75	46	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05204	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05209	n/a	n/a	n/a	149	124	48	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05385	n/a	n/a	942	882	860	814	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05500	n/a	n/a	158	87	62	8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05550	n/a	n/a	461	391	320	281	248	174	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-05790	n/a	n/a	554	486	405	378	345	270	234	206	179	162	n/a	n/a	n/a	n/a	n/a	n/a
009-06640	n/a	n/a	969	889	824	796	769	675	626	673	546	516	453	396	370	333	n/a	n/a
009-06750	913	885	735	705	665	657	623	604	582	559	534	521	478	416	395	353	n/a	n/a
009-06757	n/a	n/a	1084	992	922	872	847	780	732	689	651	618	553	503	476	438	n/a	n/a
009-06758	n/a	n/a	n/a	1108	1056	1011	962	900	844	778	765	729	673	618	592	550	212	118
009-06762	n/a	n/a	910	816	753	711	673	603	553	505	471	438	383	330	250	199	n/a	n/a
009-06776	n/a	n/a	1120	1027	962	917	882	813	760	713	682	655	590	541	403	376	56	n/a
009-06777	n/a	n/a	n/a	866	807	757	724	652	600	551	521	493	420	378	n/a	n/a	n/a	n/a
009-06794	n/a	n/a	691	620	563	550	538	476	428	397	387	365	n/a	n/a	n/a	n/a	n/a	n/a
009-06795	685	653	501	469	426	400	376	313	300	270	244	232	203	145	n/a	n/a	n/a	n/a
009-07187	n/a	n/a	983	890	824	775	744	679	627	579	550	520	455	406	n/a	n/a	n/a	n/a
009-07218	n/a	n/a	n/a	890	842	796	758	680	627	581	544	515	452	402	n/a	n/a	n/a	n/a
009-07220	n/a	n/a	999	924	861	809	784	714	658	599	580	547	490	436	n/a	n/a	n/a	n/a
009-07625	n/a	n/a	n/a	n/a	1174	1165	1128	1123	966	958	919	885	862	787	767	697	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
009-08581	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-08967	674	617	430	366	344	316	268	207	184	169	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09120	1314	1292	1098	1077	1038	1027	1013	940	932	905	882	857	n/a	n/a	n/a	n/a	n/a	n/a
009-09151	n/a	n/a	1368	1348	1306	1295	1283	1229	1184	1157	1140	1128	1096	1059	987	960	n/a	n/a
009-09234	n/a	n/a	1516	1453	1428	1385	1315	1248	1184	1149	1120	1108	1069	1005	890	818	n/a	n/a
009-09235	1852	1820	1583	1554	1520	1512	1456	1409	1351	1308	1227	1208	1171	1084	n/a	n/a	n/a	n/a
009-09472	n/a	n/a	1451	1391	1365	1317	1240	1178	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-09518	n/a	n/a	732	667	656	643	589	544	513	487	428	414	401	338	n/a	n/a	n/a	n/a
009-09554	n/a	n/a	747	678	672	653	604	556	525	497	442	429	415	349	n/a	n/a	n/a	n/a
009-09585	n/a	n/a	1341	1278	1256	1212	1141	1075	1034	1007	983	969	912	856	n/a	n/a	n/a	n/a
009-09586	n/a	n/a	1144	1075	1054	1003	930	864	831	799	776	750	685	646	558	516	334	270
009-09601	888	836	670	629	594	543	525	470	446	399	346	321	276	191	155	104	n/a	n/a
009-09603	1345	1282	951	883	866	819	740	680	640	610	590	578	508	461	368	328	146	99
009-09604	n/a	n/a	995	926	907	858	786	719	683	649	632	606	549	476	408	370	n/a	n/a
009-09608	n/a	n/a	1041	979	961	909	838	760	729	703	682	666	601	529	460	402	n/a	n/a
009-09828	n/a	n/a	972	913	890	844	765	709	666	639	615	603	530	486	391	335	n/a	n/a
009-09834	n/a	n/a	664	597	591	570	522	476	442	418	362	358	333	n/a	n/a	n/a	n/a	n/a
009-09922	n/a	n/a	1119	1055	1037	988	912	842	808	782	758	734	668	630	537	497	199	124
009-10019	n/a	n/a	1012	942	920	875	798	732	706	680	648	629	566	518	378	352	n/a	n/a
009-10020	n/a	n/a	1057	992	972	924	849	783	746	716	697	675	617	575	441	409	110	24
009-10475	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10577	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10770	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10845	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10962	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10963	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-10994	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11045	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11049	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11066	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11067	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11127	n/a	n/a	459	426	377	345	324	282	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11128	n/a	n/a	405	362	328	296	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11140	n/a	n/a	398	358	324	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11141	n/a	n/a	485	441	406	355	338	295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11148	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11150	n/a	n/a	474	433	398	349	328	289	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11195	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11282	447	403	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11479	650	600	405	368	338	322	268	245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11480	n/a	n/a	683	641	600	569	520	498	460	455	377	353	332	275	236	134	n/a	n/a
009-11689	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11706	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-11723	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-12459	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-12461	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-12475	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-12480	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-12505	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-13370	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-13537	596	540	371	342	317	297	262	220	187	144	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-13609	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-14448	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
009-15442	1334	1271	1128	1096	1050	1016	990	979	851	841	806	765	709	647	624	557	n/a	n/a
009-15792	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-15889	713	658	493	455	421	370	351	316	301	262	224	185	154	72	21	n/a	n/a	n/a
009-16024	425	373	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16209	n/a	n/a	364	340	312	272	234	212	188	177	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16232	1077	1052	944	898	845	823	811	781	704	672	641	622	559	489	442	378	n/a	n/a
009-16247	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16390	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16406	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16411	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16413	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16415	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16416	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16418	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16420	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16497	n/a	n/a	1661	1598	1566	1553	1443	1385	1312	1253	1220	1201	1163	1110	n/a	n/a	n/a	n/a
009-16499	n/a	n/a	1591	1530	1503	1487	1376	1340	1276	1255	1240	1207	1136	1095	1038	1003	n/a	n/a
009-16501	n/a	n/a	1675	1614	1585	1575	1457	1403	1344	1335	1324	1299	1220	1172	1120	1083	n/a	n/a
009-16525	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16526	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16566	342	323	178	126	96	60	39	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16567	n/a	n/a	908	858	814	783	772	717	696	619	594	581	540	455	407	372	149	93
009-16722	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16784	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16863	988	956	771	735	728	715	668	623	575	548	520	497	450	397	328	272	n/a	n/a
009-16875	n/a	n/a	883	829	793	750	714	649	539	504	462	446	415	373	344	301	n/a	n/a
009-16890	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16904	798	727	628	589	558	535	502	489	412	386	357	328	266	203	161	106	n/a	n/a
009-16906	725	655	544	503	472	448	412	395	350	304	262	230	174	109	66	8	n/a	n/a
009-16907	898	827	719	687	651	616	578	500	491	464	435	414	348	286	248	195	n/a	n/a
009-16912	944	868	768	726	698	668	634	620	545	518	488	457	400	338	293	247	n/a	n/a
009-16931	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16961	761	678	542	488	459	410	377	345	273	248	208	176	119	61	n/a	n/a	n/a	n/a
009-16963	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16964	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16965	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16994	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-16995	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17042	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17043	964	870	737	693	658	617	583	561	489	460	432	401	334	283	238	184	n/a	n/a
009-17056	605	532	428	389	365	310	274	255	182	150	122	91	33	n/a	n/a	n/a	n/a	n/a
009-17065	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17072	725	655	584	545	517	492	457	440	398	376	310	294	219	156	110	39	n/a	n/a
009-17073	892	826	734	636	603	557	517	495	460	460	366	348	268	205	166	102	n/a	n/a
009-17083	862	818	673	625	588	540	528	466	435	391	346	327	277	186	138	68	n/a	n/a
009-17089	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17090	775	698	568	506	487	438	397	375	300	262	235	208	149	82	n/a	n/a	n/a	n/a
009-17091	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17099	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17105	530	446	359	296	266	220	174	147	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17107	842	783	662	595	570	522	486	400	390	353	328	299	241	179	n/a	n/a	n/a	n/a
009-17118	n/a	n/a	504	484	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17128	620	578	444	321	286	238	208	158	130	74	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
009-17138	n/a	n/a	1673	1594	1575	1553	1436	1377	1335	1315	1308	1266	1213	1152	1099	1061	n/a	n/a
009-17144	664	550	426	361	342	296	258	240	201	184	100	80	56	n/a	n/a	n/a	n/a	n/a
009-17146	800	776	594	562	526	476	460	364	277	262	209	188	148	126	90	37	n/a	n/a
009-17151	1076	1060	858	814	776	728	704	606	525	507	460	441	416	n/a	n/a	n/a	n/a	n/a
009-17175	770	701	574	517	498	457	412	388	351	332	253	241	168	105	60	n/a	n/a	n/a
009-17194	440	392	260	183	135	99	61	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17208	n/a	n/a	369	346	313	261	238	206	187	166	131	85	47	n/a	n/a	n/a	n/a	n/a
009-17619	1013	1059	857	826	791	766	717	698	677	660	579	562	538	476	446	395	219	168
009-17638	1115	1067	906	873	838	812	769	737	714	704	623	605	583	524	476	423	282	225
009-17657	1028	958	822	789	765	746	698	676	654	645	575	544	524	483	456	400	n/a	n/a
009-17670	456	389	240	213	198	188	133	106	92	82	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17683	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17764	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17792	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17793	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17794	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17907	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-17982	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18044	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18046	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18070	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18077	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18087	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18090	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18091	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18092	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18093	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18094	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18095	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18271	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18341	n/a	n/a	1485	1425	1409	1382	1252	1186	1153	1129	1106	1088	1011	963	907	868	n/a	n/a
009-18425	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18429	n/a	n/a	587	570	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18484	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18485	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18486	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18540	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18613	608	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18614	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18615	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-18786	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19103	n/a	n/a	422	373	345	310	266	238	224	209	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19125	518	477	377	322	286	258	221	185	156	141	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19273	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19338	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19725	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19729	n/a	n/a	948	932	925	912	871	830	795	791	753	734	726	674	n/a	n/a	n/a	n/a
009-19745	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19765	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19778	n/a	n/a	560	542	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19912	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19956	n/a	n/a	367	326	300	247	216	194	173	154	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-19957	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20067	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

API #	Laona base	Laona top	LRmbr base	LRmbr top	URmbr base	URmbr top	1stMach base	1stMach top	2ndMach base	2ndMach top	3rdMach base	3rdMach top	4thMach base	4thMach top	Cuba base	Cuba top	Hinsdale base	Hinsdale top
009-20220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20224	n/a	n/a	1041	1024	966	921	894	836	788	778	716	702	683	597	490	449	n/a	n/a
009-20225	n/a	n/a	1158	1137	1078	1026	1014	968	901	880	824	813	795	706	578	522	n/a	n/a
009-20226	n/a	n/a	936	920	858	826	796	730	686	670	610	597	578	490	n/a	n/a	n/a	n/a
009-20283	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20335	n/a	n/a	1020	1005	960	907	885	811	765	756	696	681	662	563	471	428	n/a	n/a
009-20336	n/a	n/a	852	838	778	721	710	647	600	590	528	514	497	413	305	262	n/a	n/a
009-20369	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20369	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20407	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20755	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20786	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20787	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20851	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20864	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20898	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20899	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20907	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20908	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20914	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-20953	n/a	n/a	185	154	138	94	55	17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21174	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21763	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21769	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21775	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21786	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21809	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21860	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-21889	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22054	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22080	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22081	n/a	n/a	972	894	823	796	737	658	611	562	530	502	461	411	n/a	n/a	n/a	n/a
009-22209	n/a	n/a	1097	1057	950	923	874	810	756	708	673	644	559	513	n/a	n/a	n/a	n/a
009-22239	414	348	162	101	76	27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22249	n/a	n/a	960	898	815	764	740	674	621	572	534	506	426	332	182	158	n/a	n/a
009-22450	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22551	n/a	n/a	431	390	347	322	286	247	192	156	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-22593	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
009-55171	n/a	n/a	453	429	395	345	326	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Site Location	Dunkirk	Hume	LRmbr	Mach1	Cuba	Hinsdale	NAD27 latitude	longitude	LRmbr G.Elv
		approximate thickness in feet							
Angelica 93/173	n/a	n/a	29	n/a	n/a	n/a	42.32219	-78.10675	1335
Angelica 93/177	n/a	n/a	30	n/a	n/a	n/a	42.31073	-78.10797	1370
Angelica 93/182	n/a	n/a	33	n/a	n/a	n/a	42.31545	-78.10725	1347
Angelica 93/191	n/a	n/a	30	3	n/a	n/a	42.30552	-78.09239	1329
Angelica 93/199	n/a	n/a	15	n/a	n/a	n/a	42.29554	-78.07501	1294
Angelica 93/203	n/a	n/a	15	n/a	n/a	n/a	42.28923	-78.0682	1335
Angelica 93/204	n/a	n/a	15	n/a	n/a	n/a	42.32549	-78.04061	1419
Angelica 93/218	n/a	n/a	15	n/a	n/a	n/a	42.31365	-78.04493	1369
Angelica 93/49	n/a	n/a	26	n/a	n/a	n/a	42.31195	-78.0317	1380
Angelica 93/210	n/a	n/a	n/a	4	20	n/a	42.32792	-78.04843	
Angelica 93/221	n/a	n/a	n/a	6	n/a	n/a	42.31202	-78.0514	
Angelica 93/223	n/a	n/a	n/a	n/a	20	n/a	42.31732	-78.05689	
Angelica 93/226	n/a	n/a	n/a	3	n/a	n/a	42.34333	-78.06919	
Angelica 93/238	n/a	n/a	n/a	5	n/a	n/a	42.36242	-78.0208	
Angelica 97/82	n/a	n/a	n/a	n/a	19	36	42.29268	-78.0081	
Angelica 94/148	n/a	n/a	n/a	n/a	n/a	40	42.26297	-78.09741	
Angelica 94/150	n/a	n/a	n/a	n/a	n/a	39	42.25949	-78.10263	
Angelica 94/156	n/a	n/a	n/a	n/a	37	n/a	42.26408	-78.03206	
Ashford Hollow 1	n/a	n/a	9	n/a	n/a	n/a	42.42238	-78.70403	1597
Ashford Hollow 17	n/a	n/a	7	n/a	n/a	n/a	42.41485	-78.73565	1600
Belmont 2001 1	n/a	n/a	n/a	24	n/a	n/a	42.22404	-78.03224	
Belmont 2001 4	n/a	n/a	n/a	n/a	n/a	64	42.22529	-78.00551	
Belmont 2001 6	n/a	n/a	n/a	n/a	49	n/a	42.20046	-78.12318	
Black Creek 93/163	n/a	n/a	18	n/a	n/a	n/a	42.3097	-78.14695	1393
Black Creek 93/120	n/a	n/a	n/a	19	n/a	n/a	42.34949	-78.22841	
Black Creek 93/135	n/a	n/a	n/a	18	n/a	n/a	42.34781	-78.23044	
Black Creek 93/139	n/a	n/a	n/a	n/a	20	n/a	42.36172	-78.22585	
Black Creek 93/146	n/a	n/a	n/a	10	n/a	n/a	42.35719	-78.15856	
Black Creek 93/148	n/a	n/a	n/a	15	n/a	n/a	42.34393	-78.1594	
Black Creek 93/149	n/a	n/a	n/a	13	n/a	n/a	42.36049	-78.21403	
Black Creek 93/167a	n/a	n/a	n/a	n/a	n/a	49	42.27867	-78.18227	
Black Creek 93/601	n/a	n/a	n/a	23	n/a	n/a	42.34861	-78.17628	
Black Creek 93/606	n/a	n/a	n/a	n/a	24	n/a	42.28994	-78.23689	
Cuba 2001 14	n/a	n/a	n/a	n/a	n/a	79	42.18113	-78.25405	
Cuba 2001 3	n/a	n/a	n/a	n/a	14	n/a	42.22615	-78.25773	
Cuba 2001 8	n/a	n/a	n/a	n/a	16	n/a	42.21999	-78.338	
Cuba 2001 9	n/a	n/a	n/a	n/a	26	n/a	42.24945	-78.31898	
Delevan 113	n/a	n/a	42	n/a	n/a	n/a	42.38391	-78.44504	1805
Delevan F-1	n/a	n/a	40	n/a	n/a	n/a	42.38356	-78.42017	1761
Franklinville F-13	n/a	n/a	25	n/a	n/a	n/a	42.46592	-78.43926	1672
Ashford Hollow 11	n/a	n/a	30	n/a	n/a	n/a	42.37322	-78.71115	1583
Ellicottiville 13	n/a	n/a	33	n/a	n/a	n/a	42.31719	-78.73963	1572
Ellicottiville 5	n/a	n/a	21	n/a	n/a	n/a	42.34069	-78.72497	1576
Fillmore 97/16	n/a	n/a	10	n/a	n/a	n/a	42.39656	-78.08381	1692
Fillmore 97/9	n/a	n/a	10	n/a	n/a	n/a	42.44954	-78.00679	1839
Fillmore 92/28	40	n/a	n/a	n/a	n/a	n/a	42.45229	-78.11174	
Fillmore 93/281	40	n/a	n/a	n/a	n/a	n/a	42.45684	-78.10359	
Fillmore 93/284d	n/a	30	n/a	n/a	n/a	n/a	42.44454	-78.09021	
Fillmore 93/288	71	30	n/a	n/a	n/a	n/a	42.46931	-78.07245	
Fillmore 93/291	93	n/a	n/a	n/a	n/a	n/a	42.46999	-78.06721	
Fillmore 93/292	40	n/a	n/a	n/a	n/a	n/a	42.47594	-78.06354	
Fillmore 93/295	50	n/a	n/a	n/a	n/a	n/a	42.48141	-78.05703	
Fillmore 93/296	n/a	60	n/a	n/a	n/a	n/a	42.43362	-78.05751	
Fillmore 94/112	n/a	77	n/a	n/a	n/a	n/a	42.47937	-78.04597	
Fillmore 94/15	n/a	129	n/a	n/a	n/a	n/a	42.49791	-78.02396	

Fillmore 94/25	n/a	125	n/a	n/a	n/a	n/a	42.49988	-78.02306	
Fillmore 94/32	n/a	106	n/a	n/a	n/a	n/a	42.48514	-78.03586	
Fillmore 94/50	n/a	125	n/a	n/a	n/a	n/a	42.48982	-78.03068	
Fillmore 94/60	n/a	125	n/a	n/a	n/a	n/a	42.4951	-78.02891	
Fillmore 94/71	n/a	55	n/a	n/a	n/a	n/a	42.47229	-78.05276	
Fillmore 97/26	n/a	91	n/a	n/a	n/a	n/a	42.43735	-78.12464	
Fillmore 97/33	66	n/a	n/a	n/a	n/a	n/a	42.46727	-78.07931	
Fillmore 97/53	n/a	n/a	n/a	9	n/a	n/a	42.39665	-78.02759	
Farmersville13	n/a	n/a	25	n/a	n/a	n/a	42.33702	-78.48341	1667
Freedom 1236	n/a	n/a	7	n/a	n/a	n/a	42.47858	-78.27089	1907
Freedom 1246	n/a	n/a	8	n/a	n/a	n/a	42.49227	-78.2667	1865
Freedom 1247	n/a	n/a	7	n/a	n/a	n/a	42.49149	-78.2715	1878
Freedom 1307	n/a	n/a	11	n/a	n/a	n/a	42.50027	-78.26204	1810
Freedom 94/215	n/a	n/a	16	n/a	n/a	n/a	42.42596	-78.25113	1713
Freedom 1204	n/a	n/a	n/a	n/a	66	n/a	42.46047	-78.35023	
Freedom 1208	n/a	n/a	n/a	n/a	43	n/a	42.45716	-78.34621	
Freedom 1223	n/a	n/a	n/a	n/a	64	n/a	42.44304	-78.35645	
Freedom 1225	n/a	n/a	n/a	n/a	57	n/a	42.44806	-78.36302	
Freedom 1238	n/a	n/a	n/a	n/a	65	n/a	42.45819	-78.30138	
Freedom 1241	n/a	n/a	n/a	n/a	74	n/a	42.45566	-78.29684	
Freedom 1251	n/a	n/a	n/a	n/a	64	n/a	42.45062	-78.27218	
Freedom 1255	n/a	n/a	n/a	n/a	37	n/a	42.42646	-78.29291	
Freedom 1263	n/a	n/a	n/a	n/a	42	n/a	42.41897	-78.29617	
Freedom 1279	n/a	n/a	n/a	n/a	20	n/a	42.39056	-78.32477	
Freedom 1292	n/a	n/a	n/a	n/a	49	n/a	42.41648	-78.34611	
Freedom 1299	n/a	n/a	n/a	6	n/a	n/a	42.43195	-78.26407	
Freedom 1323	n/a	n/a	n/a	n/a	62	n/a	42.46285	-78.28105	
Houghton 91/17	n/a	n/a	11	n/a	n/a	n/a	42.38189	-78.22573	1519
Houghton 91/2	n/a	n/a	7	n/a	n/a	n/a	42.38202	-78.18233	1486
Houghton 91/5	n/a	n/a	8	n/a	n/a	n/a	42.38478	-78.18077	1498
Houghton 93/30	n/a	n/a	17	n/a	n/a	n/a	42.44508	-78.21796	1723
Houghton 93/300	n/a	n/a	21	n/a	n/a	n/a	42.4095	-78.22238	1637
Houghton 93/304b	n/a	n/a	15	n/a	n/a	n/a	42.37914	-78.18812	1480
Houghton 93/47	n/a	n/a	34	n/a	n/a	n/a	42.41403	-78.23666	1689
Houghton 93/5	n/a	n/a	9	n/a	n/a	n/a	42.46832	-78.21613	1720
Houghton 93/54	n/a	n/a	30	n/a	n/a	n/a	42.42255	-78.2404	1711
Houghton 93/108	n/a	n/a	8	n/a	n/a	n/a	42.41558	-78.18401	1589
Houghton 97/61	n/a	n/a	9	n/a	n/a	n/a	42.49885	-78.23554	1798
Houghton 97/68	n/a	n/a	74	n/a	n/a	n/a	42.49312	-78.19683	1793
Houghton 92/13	n/a	35	n/a	n/a	n/a	n/a	42.47922	-78.15399	
Houghton 93/13	n/a	45	n/a	n/a	n/a	n/a	42.47351	-78.13999	
Houghton 97/80	n/a	40	n/a	n/a	n/a	n/a	42.49866	-78.12821	
Little Valley 2005 37	n/a	n/a	n/a	n/a	n/a	41	42.24171	-78.79817	
Pike 1302	n/a	n/a	30	n/a	n/a	n/a	42.51572	-78.20721	
Pike 1307	n/a	n/a	31	n/a	n/a	n/a	42.51666	-78.2096	
Pike 1313	n/a	n/a	10	n/a	n/a	n/a	42.54014	-78.19714	
Pike 1314	n/a	n/a	8	n/a	n/a	n/a	42.54353	-78.19679	
Pike 1346	n/a	n/a	6	n/a	n/a	n/a	42.57458	-78.22059	
Pike 1406	n/a	n/a	14	n/a	n/a	n/a	42.51956	-78.22059	
Pike 1409	n/a	n/a	6	n/a	n/a	n/a	42.52291	-78.22775	
Pike 1373A	n/a	n/a	29	n/a	n/a	n/a	42.51012	-78.19893	
Pike 1403C	n/a	n/a	20	n/a	n/a	n/a	42.51754	-78.21838	
Pike 1321	n/a	n/a	n/a	10	n/a	n/a	42.54784	-78.20393	
Pike 1375	n/a	24	n/a	n/a	n/a	n/a	42.50705	-78.13451	
Portageville 91/5	n/a	45	n/a	n/a	n/a	n/a	42.50102	-78.12078	
Portageville 92/9	45	n/a	n/a	n/a	n/a	n/a	42.50518	-78.0878	
Portageville 92/G1B	45	n/a	n/a	n/a	n/a	n/a	42.50739	-78.10457	

Portageville 92/L1	45	n/a	n/a	n/a	n/a	n/a	42.5069	-78.09438	
Portageville 94/12	n/a	95	n/a	n/a	n/a	n/a	42.5113	-78.02558	
Portageville 94/2	49	n/a	n/a	n/a	n/a	n/a	42.51666	-78.02954	
Portville 2001 23	n/a	n/a	n/a	n/a	n/a	55	42.04568	-78.33326	
Rawson 1001	n/a	n/a	n/a	n/a	27	n/a	42.36275	-78.2757	
Rawson 1006	n/a	n/a	n/a	n/a	23	n/a	42.29442	-78.32265	
Rawson 1011	n/a	n/a	n/a	n/a	40	n/a	42.28631	-78.31801	
Rawson 1019	n/a	n/a	n/a	n/a	28	26	42.33301	-78.29375	
Rawson 1027	n/a	n/a	n/a	n/a	30	n/a	42.33129	-78.2367	
Rawson 1031	n/a	n/a	n/a	n/a	36	n/a	42.31125	-78.32493	
Rawson 1035	n/a	n/a	n/a	n/a	27	n/a	42.31288	-78.32565	
Rawson 1038	n/a	n/a	n/a	n/a	n/a	43	42.31764	-78.34451	
Rawson 1050	n/a	n/a	n/a	n/a	41	n/a	42.34208	-78.33372	
Rawson 1053	n/a	n/a	n/a	n/a	n/a	51	42.33623	-78.34811	
Rawson 1060	n/a	n/a	n/a	n/a	n/a	36	42.34504	-78.36092	
Rawson 1078	n/a	n/a	n/a	n/a	18	n/a	42.27116	-78.31209	
Rawson 1083	n/a	n/a	n/a	n/a	n/a	44	42.27627	-78.34375	
Rawson 1090	n/a	n/a	n/a	n/a	37	n/a	42.372	-78.34972	
Rawson 1092	n/a	n/a	n/a	n/a	43	n/a	42.2564	-78.31812	
Rawson 1096	n/a	n/a	n/a	n/a	31	n/a	42.26848	-78.26355	
Rawson 1108	n/a	n/a	n/a	n/a	28	n/a	42.32543	-78.25249	
Rawson 1112	n/a	n/a	n/a	n/a	38	n/a	42.25689	-78.27849	
Rawson 1074a	n/a	n/a	n/a	n/a	n/a	62	42.27692	-78.34923	
Rawson 94/168	n/a	n/a	n/a	n/a	20	n/a	42.29219	-78.2633	
Rawson 94/187	n/a	n/a	n/a	n/a	39	n/a	42.30198	-78.298	
Rawson 94/206	n/a	n/a	n/a	n/a	58	n/a	42.27348	-78.29462	
Rawson 94/218a	n/a	n/a	n/a	n/a	65	n/a	42.31208	-78.30334	
West Almond 93/251b	n/a	n/a	n/a	n/a	44	n/a	42.36184	-77.98438	
West Almond 93/259	n/a	n/a	n/a	n/a	30	n/a	42.31841	-77.97252	
West Almond 94/130b	n/a	n/a	n/a	n/a	46	n/a	42.33275	-77.91715	
West Almond 94/134	n/a	n/a	n/a	n/a	n/a	30	42.31026	-77.91416	
West Almond 94/142c	n/a	n/a	n/a	n/a	34	n/a	42.33017	-77.95532	
West Almond 94/79a	n/a	n/a	n/a	n/a	34	n/a	42.31916	-77.93776	
West Almond 94/93	n/a	n/a	n/a	n/a	63	n/a	42.34021	-77.91629	
West Almond 94/99	n/a	n/a	n/a	n/a	78	n/a	42.35221	-77.9311	
West Valley 11	n/a	n/a	31	n/a	n/a	n/a	42.41719	-78.60583	1672
West Valley 12	n/a	n/a	30	n/a	n/a	n/a	42.43096	-78.6119	1634
West Valley 21	n/a	n/a	19	n/a	n/a	n/a	42.49109	-78.56516	1699
West Valley 28	n/a	n/a	8	n/a	n/a	n/a	42.48227	-78.57954	1647
West Valley 3	n/a	n/a	30	n/a	n/a	n/a	42.40605	-78.60481	1623
West Valley 6	n/a	n/a	37	n/a	n/a	n/a	42.41206	-78.60667	1641
West Valley 24	n/a	n/a	n/a	19	n/a	n/a	42.39929	-78.59367	
West Valley 25	n/a	n/a	n/a	n/a	16	n/a	42.38024	-78.61074	
West Valley 27	n/a	n/a	n/a	n/a	12	n/a	42.40951	-78.56624	

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	91/1	266	2	wood	238	Bi	n
Caneadea	H	91/1	267	2	wood	232	Bi	n
Caneadea	H	91/1	267	7	grv	218	Bi	y
Caneadea	H	91/1	267	8	wood	232	Bi	n
Caneadea	H	91/1	267	14	grv	234	Bi	y
Caneadea	H	91/1	267	25	grv	244	Bi	y
Caneadea	H	91/1	267	29	frw	298	Bi	y
Caneadea	H	91/1	267	29	grv	246	Bi	y
Caneadea	H	91/1	267	33	grv	241	Bi	y
Caneadea	H	91/1	267	38	frw	209	Bi	y
Caneadea	H	91/1	267	38	frw	253	Bi	y
Caneadea	H	91/1	267	39	grv	222	Bi	y
Caneadea	H	91/1	267	70	frw	250	Bi	y
Caneadea	H	91/1	267	75	grv	248	Bi	y
Caneadea	H	91/1	267	76	frw	250	Bi	y
Caneadea	H	91/1	267	77	grv	240	Bi	y
Caneadea	H	91/1	267	85	grv	213	Bi	y
Caneadea	H	91/1	267	86	grv	248	Bi	y
Caneadea	H	91/1	267	88	grv	258	Bi	y
Caneadea	H	91/1	267	90	grv	249	Bi	y
Caneadea	H	91/1	267	90	grv	270	Bi	y
Caneadea	H	91/1	267	92	frw	249	Bi	y
Caneadea	H	91/1	267	100	frw	248	Bi	y
Caneadea	H	91/1	267	98	trough	45	E	n
Caneadea	H	91/1	267	98	trough	45	E	n
Caneadea	H	91/1	267	98	trough	45	E	n
Caneadea	H	91/1	267	4	lngd	231	W	n
Caneadea	H	91/1	267	5	lngd	246	W	n
Caneadea	H	91/1	267	7	st. asym	213	W	n
Caneadea	H	91/1	267	11	lngd	230	W	n
Caneadea	H	91/1	267	11	lngd	252	W	n
Caneadea	H	91/1	267	11	lngd	259	W	n
Caneadea	H	91/1	267	11	lngd	262	W	n
Caneadea	H	91/1	267	18	lngd	235	W	n
Caneadea	H	91/1	267	29	st. asym	232	W	n
Caneadea	H	91/1	267	29	st. asym	242	W	n
Caneadea	H	91/1	267	35	hcs	357	W	n
Caneadea	H	91/1	267	35	hcs	358	W	n
Caneadea	H	91/1	267	37	st. asym	318	W	n
Caneadea	H	91/1	267	75	lngd	248	W	n
Caneadea	H	91/1	267	86	lngd	266	W	n
Caneadea	H	91/1	267	88	lngd	250	W	n
Caneadea	H	91/1	267	90	lngd	235	W	n
Caneadea	H	91/1	267	94	lngd	226	W	n
Caneadea	H	91/1	267	98	lngd	243	W	n
Caneadea	H	91/1	267	105	lngd	230	W	n
Caneadea	H	91/1	267	107	lngd	269	W	n
Caneadea	H	91/1	267	107	lngd	270	W	n
Caneadea	H	91/3	3	11	frw	271	Bi	y
Caneadea	H	91/4	262	13	grv	221	Bi	y
Caneadea	H	91/4	262	25	chnl	199	Bi	n
Caneadea	H	91/4	262	28	wood	297	Bi	n
Caneadea	H	91/4	262	33	grv	297	Bi	y
Caneadea	H	91/4	262	50	grv	242	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	91/4	262	68	p. lins	238	Bi	n
Caneadea	H	91/4	262	70	frw	246	Bi	y
Caneadea	H	91/4	262	70	frw	246	Bi	y
Caneadea	H	91/4	262	13	lngd	272	W	n
Caneadea	H	91/4	262	33	lngd	238	W	n
Caneadea	H	91/4	262	35	sin asym	259	W	n
Caneadea	H	91/4	262	37	lngd	215	W	n
Caneadea	H	91/4	262	39	sin asym	253	W	n
Caneadea	H	91/4	262	41	lngd	263	W	n
Caneadea	H	91/6	264A	41	frw	269	Bi	y
Caneadea	H	91/7	261	38	grv	255	Bi	y
Caneadea	BC	91/11	11	13	grv	260	Bi	y
Caneadea	BC	91/11	11	13	grv	246	Bi	y
Caneadea	H	91/16	16	14	frw	293	Bi	y
Caneadea	H	91/16	16	14	frw	283	Bi	y
Caneadea	H	91/16	16	14	frw	282	Bi	y
Caneadea	H	91/16	16	14	frw	288	Bi	y
Caneadea	H	91/16	16	14	frw	273	Bi	y
S.Wales	P	92/1	1	1b	lngd	230	W	n
S.Wales	P	92/1	1	1d	lngd	217	W	n
S.Wales	P	92/1	1	1i	lngd	208	W	n
S.Wales	P	92/1	1	1i	lngd	216	W	n
S.Wales	P	92/1	1	1i	lngd	220	W	n
S.Wales	P	92/1	1	1k	lngd	194	W	n
S.Wales	P	92/1	1	1k	lngd	206	W	n
S.Wales	P	92/1	1	2d	lngd	189	W	n
S.Wales	P	92/1	1	2d	lngd	196	W	n
S.Wales	P	92/1	1	2d	lngd	202	W	n
S.Wales	P	92/1	1	2d	lngd	205	W	n
S.Wales	P	92/1	1	2d	lngd	208	W	n
S.Wales	P	92/1	1	2e	lngd	184	W	n
S.Wales	P	92/1	1	2e	lngd	201	W	n
S.Wales	P	92/1	1	2e	lngd	208	W	n
S.Wales	P	92/1	1	3	lngd	216	W	n
S.Wales	P	92/1	1	3	lngd	224	W	n
S.Wales	P	92/1	1	4	lngd	218	W	n
S.Wales	P	92/1	1	4	lngd	224	W	n
S.Wales	P	92/1	1	5	lngd	236	W	n
S.Wales	P	92/1	1	5	lngd	238	W	n
S.Wales	P	92/1	1	7	lngd	221	W	n
S.Wales	P	92/1	1	7	lngd	228	W	n
S.Wales	P	92/1	1	9b	lngd clmb	229	W	n
S.Wales	P	92/1	1	9b	lngd clmb	239	W	n
S.Wales	P	92/1	1	9b	lngd clmb	245	W	n
S.Wales	P	92/1	1	9b	lngd clmb	278	W	n
S.Wales	P	92/1	1	17	lngd	345	W	n
M.Mills	P	92/2	2	14	p. lins	268	Bi	n
M.Mills	P	92/2	2	18	grv	205	Bi	y
M.Mills	P	92/2	2	25	p. lins	277	Bi	n
M.Mills	P	92/2	2	4	clmb rips	5	E	n
M.Mills	P	92/2	2	1	sin to st	297	W	n
M.Mills	P	92/2	2	2	sin to st	318	W	n
M.Mills	P	92/2	2	3	sin to st	323	W	n
M.Mills	P	92/2	2	3	sin to st	328	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
M.Mills	P	92/2	2	3	sin to st	340	W	n
M.Mills	P	92/2	2	3	sin to st	345	W	n
M.Mills	P	92/2	2	4	clmb rips	358	W	n
M.Mills	P	92/2	2	5	sin asym	354	W	n
M.Mills	P	92/2	2	6	sin asym	340	W	n
M.Mills	P	92/2	2	6	sin asym	352	W	n
M.Mills	P	92/2	2	7	lngd	307	W	n
M.Mills	P	92/2	2	13	mega	282	W	n
M.Mills	P	92/2	2	13	mega	288	W	n
M.Mills	P	92/2	2	17	st. asym	208	W	n
M.Mills	P	92/2	2	17	st. asym	213	W	n
M.Mills	P	92/2	2	18	sin to st	205	W	n
M.Mills	P	92/2	2	24	clmb rips	255	W	n
M.Mills	P	92/2	2	27	lngd	320	W	n
M.Mills	P	92/2	2	28	st. asym	327	W	n
M.Mills	P	92/2	2	32	clmb rips	280	W	n
M.Mills	P	92/3	2	1	grv	235	Bi	y
M.Mills	P	92/3	2	1	grv	249	Bi	y
M.Mills	P	92/3	2	1	p. lins	235	Bi	n
M.Mills	P	92/3	3	41	grv	254	Bi	y
M.Mills	P	92/3	3	41	p. lins	292	Bi	n
M.Mills	P	92/3	3	45	grv	247	Bi	y
M.Mills	P	92/3	3	45	grv	281	Bi	y
M.Mills	P	92/3	3	48	grv	273	Bi	y
M.Mills	P	92/3	3	48	grv	274	Bi	y
M.Mills	P	92/3	3	48	grv	275	Bi	y
M.Mills	P	92/3	3	48	grv	280	Bi	y
M.Mills	P	92/3	3	48	grv	284	Bi	y
M.Mills	P	92/3	3	54	grv	270	Bi	y
M.Mills	P	92/3	3	45	trough	110	E	n
Hume	P	92/5	5	6	st. asym	11	E	n
Hume	P	92/6	6	15	grv	247	Bi	y
Wiscoy	P	92/7	7	11	wood	195	Bi	n
Wiscoy	P	92/7	7	15	grv	230	Bi	y
Wiscoy	P	92/7	7	68	grv	308	Bi	y
Wiscoy	P	92/7	7	75	grv	277	Bi	y
Wiscoy	P	92/7	7	97	grv	263	Bi	y
Wiscoy	P	92/7	7	13	st. asym	195	W	n
Wiscoy	P	92/7	7	17	lngd	272	W	n
Wiscoy	P	92/7	7	17	lngd	282	W	n
Wiscoy	P	92/7	7	17	lngd	289	W	n
Wiscoy	P	92/7	7	31	lngd	320	W	n
Wiscoy	P	92/7	7	31	lngd	321	W	n
Wiscoy	P	92/7	7	39	mega	337	W	n
Wiscoy	P	92/7	7	43	mega	203	W	n
Wiscoy	P	92/7	7	43	mega	349	W	n
Wiscoy	P	92/8	8	14	grv	332	Bi	y
Wiscoy	P	92/8	8	17	grv	239	Bi	y
Wiscoy	P	92/8	8	22	grv	278	Bi	y
Wiscoy	P	92/8	8	63	grv	278	Bi	y
Wiscoy	P	92/8	8	3	lngd	319	W	n
Wiscoy	P	92/8	8	14	sin asym	204	W	n
Wiscoy	P	92/9	9	55	trough	55	E	n
M.Mills	H	92/11	11	3	grv	258	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
M.Mills	H	92/11	11	21	p. lins	224	Bi	n
M.Mills	H	92/11	11	38	grv	217	Bi	y
M.Mills	H	92/11	11	1	asym	338	W	n
M.Mills	H	92/11	11	3	asym	326	W	n
M.Mills	H	92/11	11	11	clmb rips	296	W	n
M.Mills	H	92/11	11	61	mega	313	W	n
M.Mills	H	92/11	11	65	mega	302	W	n
M.Mills	H	92/12	12	78	grv	317	Bi	y
M.Mills	H	92/12	12	78	grv	318	Bi	y
M.Mills	H	92/12	12	78	grv	320	Bi	y
M.Mills	H	92/12	12	78	hcs	319	W	n
S.Wales	H	92/12	12	11	grv	297	Bi	y
S.Wales	H	92/12	12	11	grv	298	Bi	y
S.Wales	H	92/12	12	11	grv	303	Bi	y
S.Wales	H	92/12	12	11	grv	304	Bi	y
S.Wales	H	92/12	12	11	grv	310	Bi	y
S.Wales	H	92/12	12	11	p. lins	303	Bi	n
S.Wales	H	92/12	12	11	p. lins	304	Bi	n
S.Wales	H	92/12	12	13	grv	299	Bi	y
S.Wales	H	92/12	12	15	grv	296	Bi	y
S.Wales	H	92/12	12	15	grv	298	Bi	y
S.Wales	H	92/12	12	21	grv	297	Bi	y
S.Wales	H	92/12	12	25	grv	240	Bi	y
S.Wales	H	92/12	12	25	grv	297	Bi	y
S.Wales	H	92/12	12	27	grv	281	Bi	y
S.Wales	H	92/12	12	32	grv	284	Bi	y
S.Wales	H	92/12	12	32	p. lins	288	Bi	n
S.Wales	H	92/12	12	32	p. lins	294	Bi	n
S.Wales	H	92/12	12	36	grv	275	Bi	y
S.Wales	H	92/12	12	64	p. lins	297	Bi	n
S.Wales	H	92/12	12	64	p. lins	301	Bi	n
S.Wales	H	92/12	12	11	asym	327	W	n
S.Wales	H	92/12	12	23	rips	355	W	n
S.Wales	H	92/12	12	25	rips	0	W	n
S.Wales	H	92/12	12	25	rips	195	W	n
S.Wales	H	92/12	12	25	rips	296	W	n
S.Wales	H	92/12	12	25	rips	296	W	n
S.Wales	H	92/12	12	25	rips	320	W	n
S.Wales	H	92/12	12	25	rips	322	W	n
S.Wales	H	92/12	12	25	rips	334	W	n
S.Wales	H	92/12	12	25	rips	348	W	n
Caneadea	H	92/13	13	38	lngd	268	W	n
Caneadea	H	92/13	13	38	lngd	284	W	n
Hume	H	92/13	13	4	grv	211	Bi	y
Hume	H	92/13	13	4	grv	236	Bi	y
Hume	H	92/13	13	4	grv	237	Bi	y
Hume	H	92/13	13	16	p. lins	199	Bi	n
Hume	H	92/13	13	16	p. lins	202	Bi	n
Hume	H	92/13	13	17	p. lins	218	Bi	n
Hume	H	92/13	13	16	lngd	201	W	n
Caneadea	H	92/14	14	9l	p. lins	305	Bi	n
Caneadea	H	92/14	14	9j	p. lins	237	Bi	n
Caneadea	H	92/14	14	9j	p. lins	238	Bi	n
Caneadea	H	92/14	14	9f	grv	237	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	92/14	14	9	p. lins	305	Bi	n
Caneadea	H	92/14	14	15	p. lins	306	Bi	n
Caneadea	H	92/14	14	21	p. lins	305	Bi	n
Caneadea	H	92/14	14	9	asym	305	W	n
Caneadea	H	92/14	14	9	asym	322	W	n
Caneadea	H	92/14/9	14/9	9.11	grv	308	Bi	y
Caneadea	H	92/14/9	14/9	9.11	grv	310	Bi	y
Caneadea	H	92/14/9	14/9	9.1	sin to st	320	W	n
Caneadea	H	92/14/9	14/9	9.02	sin asym	322	W	n
Caneadea	H	92/15	15	11	grv	258	Bi	y
Caneadea	H	92/15	15	1	st. asym	321	W	n
Caneadea	H	92/15	15	1	st. asym	325	W	n
Caneadea	H	92/15	15	11	st. asym	310	W	n
Caneadea	H	92/15	15	11	st. asym	311	W	n
Caneadea	H	92/15	15	11	st. asym	318	W	n
Caneadea	H	92/15	15	13	st. asym	314	W	n
Caneadea	H	92/15	15	13	st. asym	316	W	n
Caneadea	H	92/15	15	21	trough	305	W	n
Caneadea	H	92/17	17	3	grv	268	Bi	y
Caneadea	H	92/17	17	3	grv	288	Bi	y
Caneadea	H	92/17'	17'	51	grv	262	Bi	y
Caneadea	H	92/17'	17'	25	grv	296	Bi	y
Caneadea	H	92/17'	17'	53	asym	271	W	n
Caneadea	H	92/17'	17'	35	asym	350	W	n
Caneadea	H	92/17a	17A	19	starved	303	W	n
Caneadea	Pk	92/19	19	4	flutes	315	W	y
Caneadea	H	92/22	22	1	p. lins	324	Bi	n
Caneadea	H	92/22	22	4	p. lins	282	Bi	n
Caneadea	H	92/22	22	4	p. lins	333	Bi	n
Caneadea	H	92/22	22	39	grv	311	Bi	y
Caneadea	H	92/22	22	46	grv	286	Bi	y
Caneadea	H	92/22	22	1	lngd	322	W	n
Caneadea	H	92/22	22	1	lngd	336	W	n
Caneadea	H	92/22	22	9	st. asym	241	W	n
Caneadea	H	92/22	22	17	lngd	236	W	n
Caneadea	H	92/22	22	27	sin asym	260	W	n
Caneadea	H	92/22	22	39	sin asym	328	W	n
Caneadea	H	92/23	23	10	p. lins	303	Bi	n
Caneadea	H	92/23	23	10	p. lins	306	Bi	n
Caneadea	H	92/23	23	10	p. lins	306	Bi	n
Caneadea	H	92/23	23	10	p. lins	312	Bi	n
Caneadea	H	92/23	23	10	grv	295	Bi	y
Caneadea	H	92/23	23	22	grv	257	Bi	y
Caneadea	H	92/23	23	22	grv	290	Bi	y
Caneadea	H	92/23	23	26	frw	302	Bi	y
Caneadea	H	92/23	23	26	grv	300	Bi	y
Caneadea	H	92/23	23	26	grv	330	Bi	y
Caneadea	H	92/23	23	38	p. lins	271	Bi	n
Caneadea	H	92/23	23	38	p. lins	272	Bi	n
Caneadea	H	92/23	23	38	grv	272	Bi	y
Caneadea	H	92/23	23	40	p. lins	248	Bi	n
Caneadea	H	92/23	23	40	p. lins	260	Bi	n
Caneadea	H	92/23	23	40	p. lins	273	Bi	n
Caneadea	H	92/23	23	40	p. lins	280	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	92/23	23	40	p. lins	282	Bi	n
Caneadea	H	92/23	23	40	grv	340	Bi	y
Caneadea	H	92/23	23	5	st. asym	266	W	n
Caneadea	H	92/23	23	5	st. asym	290	W	n
Caneadea	H	92/23	23	10	lngd	275	W	n
Caneadea	H	92/23	23	12	sin asym	264	W	n
Caneadea	H	92/23	23	38	st. asym	252	W	n
Caneadea	H	92/23	23	40	st. asym	265	W	n
Caneadea	H	92/23	23	40	st. asym	269	W	n
Caneadea	H	92/23	23	43	sin asym	250	W	n
Caneadea	H	92/24	24	3	grv	297	Bi	y
Caneadea	H	92/24	24	11	grv	306	Bi	y
Caneadea	H	92/24	24	3	lngd	300	W	n
Caneadea	H	92/24	24	3	lngd	301	W	n
Caneadea	H	92/25	25	39	grv	287	Bi	y
Caneadea	H	92/25	25	21	sin to st	306	W	n
Caneadea	H	92/25	25	23	lngd	335	W	n
Caneadea	H	92/27a	27A	3	frw	282	Bi	y
Caneadea	H	92/27a	27A	3	frw	284	Bi	y
Caneadea	H	92/27a	27A	3	frw	286	Bi	y
Caneadea	H	92/27a	27A	9	lngd	332	W	n
Caneadea	H	92/27	27	8	frw	272	Bi	y
Caneadea	H	92/27	27	18	frw	300	Bi	y
Caneadea	H	92/27	27	18	frw	307	Bi	y
Caneadea	H	92/27	27	18	frw	313	Bi	y
Caneadea	H	92/27	27	19	grv	232	Bi	y
Caneadea	H	92/27	27	25	frw	312	Bi	y
Caneadea	H	92/27	27	8	lngd	242	W	n
Caneadea	H	92/27.1	27.1	4	grv	275	Bi	y
Caneadea	H	92/27.1	27.1	4	grv	279	Bi	y
Caneadea	H	92/27.1	27.1	4	grv	283	Bi	y
Caneadea	H	92/27.1	27.1	2a	p. lins	310	Bi	n
Caneadea	H	92/27.1	27.1	2a	p. lins	320	Bi	n
Dunkirk	F	92/28	28	76	p. lins	290	Bi	n
Dunkirk	F	92/28	28	61	grv	324	Bi	y
Dunkirk	F	92/28	28	61	grv	329	Bi	y
Dunkirk	F	92/28	28	61	grv	337	Bi	y
Dunkirk	F	92/28	28	61	grv	348	Bi	y
Dunkirk	F	92/28	28	58	frw	315	Bi	y
Dunkirk	F	92/28	28	58	grv	315	Bi	y
Dunkirk	F	92/28	28	58	grv	325	Bi	y
Dunkirk	F	92/28	28	51	p. lins	295	Bi	n
Dunkirk	F	92/28	28	23	grv	300	Bi	y
Dunkirk	F	92/28	28	76	sin to st	296	W	n
Dunkirk	F	92/28	28	76	sin to st	313	W	n
Dunkirk	F	92/28	28	76	sin to st	320	W	n
Dunkirk	F	92/28	28	76	sin to st	320	W	n
Dunkirk	F	92/28	28	74	lngd	295	W	n
Dunkirk	F	92/28	28	58	st. asym	320	W	n
Dunkirk	F	92/28	28	58	st. asym	323	W	n
Dunkirk	F	92/28	28	58	st. asym	325	W	n
Caneadea	H	92/29	29	137c	grv	260	Bi	y
Caneadea	H	92/29	29	137c	grv	265	Bi	y
Caneadea	H	92/29	29	137c	grv	270	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	92/29	29	137a	grv	280	Bi	y
Caneadea	H	92/29	29	137a	grv	283	Bi	y
Caneadea	H	92/29	29	132	frw	286	Bi	y
Caneadea	H	92/29	29	130	grv	320	Bi	y
Caneadea	H	92/29	29	128	grv	240	Bi	y
Caneadea	H	92/29	29	125	grv	245	Bi	y
Caneadea	H	92/29	29	125	grv	277	Bi	y
Caneadea	H	92/29	29	104	grv	305	Bi	y
Caneadea	H	92/29	29	91	grv	280	Bi	y
Caneadea	H	92/29	29	87	grv	280	Bi	y
Caneadea	H	92/29	29	79	grv	287	Bi	y
Caneadea	H	92/29	29	79	grv	290	Bi	y
Caneadea	H	92/29	29	75	grv	258	Bi	y
Caneadea	H	92/29	29	75	grv	273	Bi	y
Caneadea	H	92/29	29	71	grv	340	Bi	y
Caneadea	H	92/29	29	71	grv	345	Bi	y
Caneadea	H	92/29	29	71	grv	350	Bi	y
Caneadea	H	92/29	29	69	grv	290	Bi	y
Caneadea	H	92/29	29	69	grv	300	Bi	y
Caneadea	H	92/29	29	42	frw	315	Bi	y
Caneadea	H	92/29	29	40	grv	312	Bi	y
Caneadea	H	92/29	29	27	grv	300	Bi	y
Caneadea	H	92/29	29	24	grv	295	Bi	y
Caneadea	H	92/29	29	23c	grv	280	Bi	y
Caneadea	H	92/29	29	5	grv	265	Bi	y
Caneadea	H	92/30	30	19	sin to st	236	W	n
Caneadea	H	92/30a	30A	1	grv	266	Bi	y
Caneadea	H	92/30a	30A	1	grv	277	Bi	y
Caneadea	H	92/30a	30A	1	lngd	252	W	n
Caneadea	H	92/31	31	2	frw	263	Bi	y
Caneadea	H	92/31	31	2	frw	264	Bi	y
Caneadea	H	92/31	31	2	frw	266	Bi	y
Caneadea	H	92/31	31	2	frw	267	Bi	y
Caneadea	H	92/31	31	2	frw	268	Bi	y
Caneadea	H	92/31	31	44	grv	263	Bi	y
Caneadea	H	92/31	31	44	grv	264	Bi	y
Caneadea	H	92/32	32	167	grv	285	Bi	y
Caneadea	H	92/32	32	167	grv	285	Bi	y
Caneadea	H	92/32	32	167	grv	290	Bi	y
Caneadea	H	92/32	32	167	grv	310	Bi	y
Caneadea	H	92/32	32	163	grv	275	Bi	y
Caneadea	H	92/32	32	160	grv	255	Bi	y
Caneadea	H	92/32	32	157	grv	293	Bi	y
Caneadea	H	92/32	32	157	grv	295	Bi	y
Caneadea	H	92/32	32	155	grv	250	Bi	y
Caneadea	H	92/32	32	150	frw	275	Bi	y
Caneadea	H	92/32	32	148	grv	253	Bi	y
Caneadea	H	92/32	32	148	frw	305	Bi	y
Caneadea	H	92/32	32	146	grv	255	Bi	y
Caneadea	H	92/32	32	136	frw	279	Bi	y
Caneadea	H	92/32	32	136	frw	285	Bi	y
Caneadea	H	92/32	32	136	frw	290	Bi	y
Caneadea	H	92/32	32	134	grv	200	Bi	y
Caneadea	H	92/32	32	134	grv	220	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	92/32	32	134	grv	250	Bi	y
Caneadea	H	92/32	32	34	grv	335	Bi	y
Caneadea	H	92/32	32	162	sin to st	270	W	n
Caneadea	H	92/33	33	3	p. lins	298	Bi	n
Caneadea	H	92/33	33	3	p. lins	301	Bi	n
Caneadea	H	92/33	33	3	p. lins	342	Bi	n
Caneadea	H	92/33	33	3	p. lins	344	Bi	n
Caneadea	H	92/33	33	17a	p. lins	292	Bi	n
Caneadea	H	92/33	33	31	grv	248	Bi	y
Caneadea	H	92/33	33	37	grv	291	Bi	y
Caneadea	H	92/33	33	39	grv	300	Bi	y
Caneadea	H	92/33	33	41	grv	254	Bi	y
Caneadea	H	92/33	33	43	grv	297	Bi	y
Caneadea	H	92/33	33	53	grv	298	Bi	y
Caneadea	H	92/33	33	1	trough	112	E	n
Caneadea	H	92/33	33	3	lngd	350	W	n
Caneadea	H	92/33	33	3	lngd	351	W	n
Caneadea	H	92/33	33	17a	asym	324	W	n
Caneadea	H	92/33	33	21	lngd	206	W	n
Caneadea	H	92/33	33	51	lngd	280	W	n
Caneadea	H	92/34	34	3	p. lins	262	Bi	n
Caneadea	H	92/34	34	7	p. lins	308	Bi	n
Caneadea	H	92/34	34	11	frw	303	Bi	y
Caneadea	H	92/34	34	15	p. lins	261	Bi	n
Caneadea	H	92/34	34	3	lngd	267	W	n
Caneadea	H	92/34	34	13	lngd	304	W	n
Caneadea	H	92/35	35	3	p. lins	291	Bi	n
Caneadea	H	92/35	35	3	p. lins	307	Bi	n
Caneadea	H	92/35	35	5	p. lins	300	Bi	n
Caneadea	H	92/35b	35B	3	p. lins	269	Bi	n
Caneadea	H	92/35b	35B	3	frw	289	Bi	y
Caneadea	H	92/35b	35B	3	lngd	289	W	n
Caneadea	H	92/36	36	13	grv	307	Bi	y
Caneadea	H	92/36	36	17	grv	344	Bi	y
Caneadea	H	92/36	36	25	p. lins	268	Bi	n
Caneadea	H	92/37	37	17	p. lins	288	Bi	n
Caneadea	H	92/37	37	17	grv	288	Bi	y
Caneadea	H	92/37	37	48	frw	231	Bi	y
Caneadea	H	92/37	37	60	frw	190	Bi	y
Caneadea	H	92/37	37	77	frw	260	Bi	y
Caneadea	H	92/37	37	77	grv	265	Bi	y
Caneadea	H	92/37	37	11	clmb rips	326	W	n
Caneadea	H	92/37	37	17	lngd	323	W	n
Caneadea	H	92/37	37	35	sin to st	317	W	n
Caneadea	H	92/37	37	48	sin to st	233	W	n
Caneadea	H	92/39	39	4	frw	330	Bi	y
Caneadea	H	92/39	39	4	frw	333	Bi	y
Caneadea	H	92/39	39	6	p. lins	340	Bi	n
Caneadea	H	92/39	39	6	flutes	340	W	y
S.Wales	P	92/c1	C1	1	p. lins	214	Bi	n
S.Wales	P	92/c1	C1	1	p. lins	218	Bi	n
S.Wales	P	92/c1	C1	1	lngd	230	W	n
Dunkirk	P	92/c1b	C1B	67	grv	248	Bi	y
Dunkirk	P	92/c1b	C1B	23	wood	294	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Dunkirk	P	92/c1b	C1B	23	wood	303	Bi	n
Dunkirk	P	92/c1b	C1B	88	p. lins	226	Bi	n
Dunkirk	P	92/c1b	C1B	85	p. lins	244	Bi	n
Dunkirk	P	92/c1b	C1B	20	p. lins	231	Bi	n
Dunkirk	P	92/c1b	C1B	17	p. lins	233	Bi	n
Dunkirk	P	92/c1b	C1B	15	p. lins	224	Bi	n
Dunkirk	P	92/c1b	C1B	50	sin asym	55	E	n
Dunkirk	P	92/c1b	C1B	50	sin asym	65	E	n
Dunkirk	P	92/c1b	C1B	50	sin asym	90	E	n
Dunkirk	P	92/c1b	C1B	50	sin asym	94	E	n
Dunkirk	P	92/c1b	C1B	41	sin clmb	66	E	n
Dunkirk	P	92/c1b	C1B	41	sin clmb	71	E	n
Dunkirk	P	92/c1b	C1B	41	sin clmb	78	E	n
Dunkirk	P	92/c1b	C1B	38	st. clmb	65	E	n
Dunkirk	P	92/c1b	C1B	38	st. clmb	67	E	n
Dunkirk	P	92/c1b	C1B	38	st. clmb	72	E	n
Dunkirk	P	92/c1b	C1B	38	st. clmb	74	E	n
Dunkirk	P	92/c1b	C1B	80	flutes	292	W	y
Dunkirk	P	92/c1b	C1B	86	lngd	239	W	n
Dunkirk	P	92/c1b	C1B	86	lngd	246	W	n
Dunkirk	P	92/c1b	C1B	68	lngd	244	W	n
Dunkirk	P	92/c1b	C1B	68	lngd	246	W	n
Dunkirk	P	92/c1b	C1B	65	lngd	246	W	n
Dunkirk	P	92/c1b	C1B	65	lngd	247	W	n
Dunkirk	P	92/c1b	C1B	65	lngd	261	W	n
Dunkirk	P	92/c1b	C1B	62	lngd	262	W	n
Dunkirk	P	92/c1b	C1B	62	lngd	263	W	n
Dunkirk	P	92/c1b	C1B	62	lngd	264	W	n
Dunkirk	P	92/c1b	C1B	62	lngd	266	W	n
Dunkirk	P	92/c1b	C1B	60	lngd	242	W	n
Dunkirk	P	92/c1b	C1B	60	lngd	249	W	n
Dunkirk	P	92/c1b	C1B	58	lngd	254	W	n
Dunkirk	P	92/c1b	C1B	58	lngd	269	W	n
Dunkirk	P	92/c1b	C1B	52	lngd	298	W	n
Dunkirk	P	92/c1b	C1B	44	sin to st	248	W	n
Dunkirk	P	92/c1b	C1B	44	sin to st	250	W	n
Dunkirk	P	92/c1b	C1B	44	sin to st	251	W	n
Dunkirk	P	92/c1b	C1B	34	sin asym	245	W	n
Dunkirk	P	92/c1b	C1B	29	sin to st	241	W	n
Dunkirk	P	92/c1b	C1B	29	sin to st	247	W	n
Dunkirk	P	92/c1b	C1B	22	lngd	230	W	n
Dunkirk	P	92/c1b	C1B	17	lngd	317	W	n
Dunkirk	P	92/c1b	C1B	12	lngd	313	W	n
S.Wales	P	92/c1b	C1B	-8	p. lins	195	Bi	n
Dunkirk	P	92/d1	D1	47	grv	243	Bi	y
Dunkirk	P	92/d1	D1	5	p. lins	259	Bi	n
Dunkirk	P	92/d1	D1	8	p. lins	247	Bi	n
Dunkirk	P	92/d1	D1	8	p. lins	256	Bi	n
Dunkirk	P	92/d1	D1	8	p. lins	258	Bi	n
Dunkirk	P	92/d1	D1	43	p. lins	227	Bi	n
Dunkirk	P	92/d1	D1	25	st. asym	275	W	n
Dunkirk	P	92/d1	D1	36	sin to st	281	W	n
Dunkirk	P	92/d1	D1	39	sin to st	285	W	n
Dunkirk	P	92/d1	D1	43	sin to st	218	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Dunkirk	P	92/d1	D1	70	st. asym	242	W	n
S.Wales	P	92/d1	D1	72	p. lins	237	Bi	n
Dunkirk	P	92/e1	E1	14	p. lins	266	Bi	n
Dunkirk	P	92/e1	E1	20	p. lins	257	Bi	n
Dunkirk	P	92/e1	E1	5	lngd	261	W	n
Dunkirk	P	92/e1	E1	5	lngd	281	W	n
Dunkirk	P	92/e1	E1	5	lngd	285	W	n
Dunkirk	P	92/f1	F1	64	grv	197	Bi	y
Dunkirk	P	92/f1	F1	74	grv	280	Bi	y
Dunkirk	P	92/f1	F1	76	grv	286	Bi	y
Dunkirk	P	92/f1	F1	4	p. lins	238	Bi	n
Dunkirk	P	92/f1	F1	6	p. lins	240	Bi	n
Dunkirk	P	92/f1	F1	12	p. lins	235	Bi	n
Dunkirk	P	92/f1	F1	14	p. lins	235	Bi	n
Dunkirk	P	92/f1	F1	18	p. lins	257	Bi	n
Dunkirk	P	92/f1	F1	24	p. lins	214	Bi	n
Dunkirk	P	92/f1	F1	56	p. lins	267	Bi	n
Dunkirk	P	92/f1	F1	66	p. lins	281	Bi	n
Dunkirk	P	92/f1	F1	4	mega	236	W	n
Dunkirk	P	92/f1	F1	60	st. asym	207	W	n
S.Wales	P	92/f1a	F1A	40	p. lins	260	Bi	n
S.Wales	P	92/f1a	F1A	40	p. lins	267	Bi	n
S.Wales	P	92/f1a	F1A	56	p. lins	302	Bi	n
S.Wales	P	92/f1a	F1A	81	p. lins	255	Bi	n
S.Wales	P	92/f1a	F1A	31	st. asym	195	W	n
S.Wales	P	92/f1a	F1A	57	sin to st	271	W	n
S.Wales	P	92/f1a	F1A	81	st. asym	287	W	n
Dunkirk	P	92/g1	G1	13	grv	242	Bi	y
Dunkirk	P	92/g1b	G1B	-30	grv	254	Bi	y
Dunkirk	P	92/g1b	G1B	-30	grv	280	Bi	y
Dunkirk	P	92/g1b	G1B	-28	grv	275	Bi	y
Dunkirk	P	92/g1b	G1B	-32	p. lins	283	Bi	n
Dunkirk	P	92/g1b	G1B	-30	p. lins	277	Bi	n
Dunkirk	P	92/g1b	G1B	-15	p. lins	261	Bi	n
Dunkirk	P	92/g1b	G1B	-30	sin to st	278	W	n
Dunkirk	P	92/g1b	G1B	-30	sin to st	278	W	n
Dunkirk	P	92/g1b	G1B	-30	sin to st	285	W	n
Dunkirk	P	92/g1b	G1B	-30	sin to st	319	W	n
Dunkirk	P	92/g1b	G1B	-11	st. asym	255	W	n
S.Wales	P	92/g1b	G1B	10	p. lins	248	Bi	n
S.Wales	P	92/g1b	G1B	12	p. lins	210	Bi	n
S.Wales	P	92/g1b	G1B	12	p. lins	300	Bi	n
S.Wales	P	92/g1b	G1B	24	p. lins	245	Bi	n
S.Wales	P	92/g1b	G1B	28	p. lins	287	Bi	n
S.Wales	P	92/g1b	G1B	32	p. lins	290	Bi	n
S.Wales	P	92/g1b	G1B	37	grv	325	Bi	y
S.Wales	P	92/g1b	G1B	37	p. lins	300	Bi	n
S.Wales	P	92/g1b	G1B	37	p. lins	335	Bi	n
S.Wales	P	92/g1b	G1B	51	p. lins	220	Bi	n
S.Wales	P	92/g1b	G1B	78a	p. lins	238	Bi	n
S.Wales	P	92/g1b	G1B	78a	p. lins	242	Bi	n
S.Wales	P	92/g1b	G1B	78a	p. lins	245	Bi	n
S.Wales	P	92/g1b	G1B	78a	p. lins	251	Bi	n
S.Wales	P	92/g1b	G1B	78a	p. lins	251	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
S.Wales	P	92/g1b	G1B	97	p. lins	233	Bi	n
S.Wales	P	92/g1b	G1B	118	p. lins	244	Bi	n
S.Wales	P	92/g1b	G1B	119	p. lins	240	Bi	n
S.Wales	P	92/g1b	G1B	119	p. lins	262	Bi	n
S.Wales	P	92/g1b	G1B	119	p. lins	348	Bi	n
S.Wales	P	92/g1b	G1B	120	p. lins	249	Bi	n
S.Wales	P	92/g1b	G1B	120	p. lins	340	Bi	n
S.Wales	P	92/g1b	G1B	122	grv	244	Bi	y
S.Wales	P	92/g1b	G1B	122	grv	250	Bi	y
S.Wales	P	92/g1b	G1B	130b	p. lins	225	Bi	n
S.Wales	P	92/g1b	G1B	136	p. lins	237	Bi	n
S.Wales	P	92/g1b	G1B	140	grv	250	Bi	y
S.Wales	P	92/g1b	G1B	140	p. lins	244	Bi	n
S.Wales	P	92/g1b	G1B	143	p. lins	231	Bi	n
S.Wales	P	92/g1b	G1B	143	p. lins	232	Bi	n
S.Wales	P	92/g1b	G1B	147	p. lins	207	Bi	n
S.Wales	P	92/g1b	G1B	157	p. lins	259	Bi	n
S.Wales	P	92/g1b	G1B	163	p. lins	223	Bi	n
S.Wales	P	92/g1b	G1B	181	grv	250	Bi	y
S.Wales	P	92/g1b	G1B	184	p. lins	190	Bi	n
S.Wales	P	92/g1b	G1B	193	p. lins	290	Bi	n
S.Wales	P	92/g1b	G1B	193	p. lins	295	Bi	n
S.Wales	P	92/g1b	G1B	37	st. asym	285	W	n
S.Wales	P	92/g1b	G1B	37	st. asym	290	W	n
S.Wales	P	92/g1b	G1B	55	rips	300	W	n
S.Wales	P	92/g1b	G1B	159	sin asym	243	W	n
M.Mills	P	92/g1ba	G1BA	74	p. lins	274	Bi	n
M.Mills	P	92/g1ba	G1BA	85	st. asym	126	E	n
S.Wales	P	92/g1ba	G1BA	13	p. lins	241	Bi	n
S.Wales	P	92/g1ba	G1BA	21	grv	234	Bi	y
S.Wales	P	92/g1ba	G1BA	31	p. lins	208	Bi	n
S.Wales	P	92/g1ba	G1BA	35	grv	268	Bi	y
S.Wales	P	92/g1ba	G1BA	39	grv	247	Bi	y
S.Wales	P	92/g1ba	G1BA	49	p. lins	209	Bi	n
S.Wales	P	92/g1ba	G1BA	1	asym	248	W	n
S.Wales	P	92/g1ba	G1BA	1	asym	253	W	n
S.Wales	P	92/g1ba	G1BA	21	lngd	348	W	n
S.Wales	P	92/g1ba	G1BA	35	lngd	289	W	n
S.Wales	P	92/g1ba	G1BA	49	asym	229	W	n
S.Wales	P	92/g1ba	G1BA	61	asym	182	W	n
M.Mills	P	92/g1bgs0	G1BGS0	4	p. lins	201	Bi	n
M.Mills	P	92/g1brdj	G1BRDJ	10	p. lins	273	Bi	n
M.Mills	P	92/g1brdj	G1BRDJ	5	rips	317	W	n
Dunkirk	P	92/h1	H1	10	frw	300	Bi	y
Dunkirk	P	92/I1	I1	31	lngd	230	W	n
S.Wales	P	92/j1	J1	5	grv	290	Bi	y
Dunkirk	P	92/j1a	J1A	6	grv	229	Bi	y
Dunkirk	P	92/j1a	J1A	96	grv	238	Bi	y
Caneadea	H	93/1a	1A	18	grv	290	Bi	y
Caneadea	H	93/2	2	13	frw	180	Bi	y
Caneadea	H	93/2	2	13	frw	189	Bi	y
Caneadea	H	93/2	2	13	frw	218	Bi	y
Caneadea	H	93/2	2	13	frw	358	Bi	y
Caneadea	H	93/3	3	5	frw	248	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	93/4	4	1	flutes	305	W	y
Rushford L	H	93/5	5	6	grv	254	Bi	y
Rushford L	H	93/5	5	10	grv	243	Bi	y
Rushford L	H	93/5	5	13	p. lins	279	Bi	n
Rushford L	H	93/5	5	13	lngd	288	W	n
Rushford L	H	93/6	6	3	grv	270	Bi	y
Rushford L	H	93/6	6	6	grv	327	Bi	y
Caneadea	H	93/13	13	19	st. asym	298	W	n
Caneadea	H	93/13	13	21	sin asym	325	W	n
Caneadea	H	93/13	13	21	sin asym	327	W	n
Hume	H	93/13	13	11	p. lins	280	Bi	n
Rushford U	H	93/16	16	1	grv	191	Bi	y
Machias 1st	H	93/20	20	3	p. lins	304	Bi	n
Machias 1st	H	93/20	20	3	p. lins	327	Bi	n
Machias 1st	H	93/20	20	3	p. lins	336	Bi	n
Machias 1st	H	93/20	20	6	grv	244	Bi	y
Machias 1st	H	93/20	22	17	lngd	306	W	n
Machias 1st	H	93/20	22	17	lngd	310	W	n
Machias 1st	H	93/20	22	17	lngd	313	W	n
Rushford U	H	93/45	45	1	asym	86	E	n
Rushford U	H	93/45	45	1	asym	89	E	n
Rushford U	H	93/45	45	1	asym	318	W	n
Rushford L	H	93/47	47	5	p. lins	265	Bi	n
Rushford L	H	93/47	47	5	p. lins	299	Bi	n
Rushford L	H	93/47	47	5	st. asym	314	W	n
Rushford L	H	93/47	47	5	st. asym	315	W	n
Rushford L	A	93/49	49	12	trough	52	E	n
Rushford L	A	93/49	49	12	trough	53	E	n
Rushford L	A	93/49	49	12	trough	65	E	n
Caneadea	H	93/63	63	39	p. lins	302	Bi	n
Caneadea	H	93/63	63	39	grv	302	Bi	y
Caneadea	H	93/63	63	38	p. lins	308	Bi	n
Caneadea	H	93/63	63	33	p. lins	295	Bi	n
Caneadea	H	93/63	63	33	p. lins	307	Bi	n
Caneadea	H	93/63	63	31	p. lins	316	Bi	n
Caneadea	H	93/63	63	31	p. lins	318	Bi	n
Caneadea	H	93/63	63	25	frw	314	Bi	y
Caneadea	H	93/63	63	5	p. lins	342	Bi	n
Caneadea	H	93/63	63	29	lngd	331	W	n
Caneadea	H	93/63	63	22	flutes	338	W	y
Caneadea	H	93/64	64	15	grv	257	Bi	y
Caneadea	H	93/64	64	12	grv	286	Bi	y
Caneadea	H	93/64	64	1	p. lins	284	Bi	n
Caneadea	H	93/64	64	15	lngd	350	W	n
Caneadea	H	93/64	64	14	lngd	349	W	n
Caneadea	H	93/64	64	12	lngd	339	W	n
Caneadea	H	93/64a	64A	21	grv	271	Bi	y
Caneadea	H	93/64a	64A	12	grv	253	Bi	y
Caneadea	H	93/64a	64A	28	lngd	330	W	n
Caneadea	H	93/64a	64A	23	lngd	236	W	n
Caneadea	H	93/64a	64a	23	lngd	258	W	n
Caneadea	H	93/64a	64A	21	lngd	261	W	n
Caneadea	H	93/64a	64A	18	lngd	309	W	n
Caneadea	H	93/64a	64A	16	lngd	337	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	93/64a	64A	14	asym	236	W	n
Caneadea	H	93/64a	64A	14	lngd	358	W	n
Caneadea	H	93/64a	64A	10	lngd	246	W	n
Caneadea	H	93/66	66	3	frw	260	Bi	y
Caneadea	H	93/66	66	20	p. lins	261	Bi	n
Caneadea	H	93/66	66	22	grv	267	Bi	y
Caneadea	H	93/66	66	32	frw	286	Bi	y
Caneadea	H	93/66	66	32	frw	288	Bi	y
Caneadea	H	93/66	66	34	frw	276	Bi	y
Caneadea	H	93/66	66	34	frw	284	Bi	y
Caneadea	H	93/66	66	34	frw	290	Bi	y
Caneadea	H	93/66	66	34	frw	300	Bi	y
Caneadea	H	93/66	66	38	frw	296	Bi	y
Caneadea	H	93/67	67	12	asym	190	W	n
Caneadea	H	93/67	67	10	lngd	228	W	n
Caneadea	H	93/73	73	1	asym	267	W	n
Caneadea	H	93/77	77	2	wood	248	Bi	n
Rushford L	H	93/8	8	13	grv	244	Bi	y
Caneadea	H	93/87	87	1	p. lins	312	Bi	n
Caneadea	H	93/87	87	5	lngd	307	W	n
Caneadea	H	93/87	87	1	sin to st	253	W	n
Caneadea	H	93/89a	89A	10	p. lins	294	Bi	n
Caneadea	H	93/89a	89a	1	sin to st	312	W	n
Caneadea	H	93/92	92	16	p. lins	287	Bi	n
Caneadea	H	93/92	92	2	lngd	299	W	n
Caneadea	H	93/92	93	22	sin to st	302	W	n
Caneadea	H	93/92	93	25	lngd	312	W	n
Caneadea	H	93/92	93	25	lngd	318	W	n
Caneadea	H	93/92	93	25	lngd	326	W	n
Caneadea	H	93/94	94	2	sin to st	275	W	n
Caneadea	H	93/105	104	43	lngd	228	W	n
Caneadea	H	93/105	105	24	grv	264	Bi	y
Caneadea	H	93/105	105	12	lngd	353	W	n
Caneadea	H	93/105	105	24	sin asym	288	W	n
Caneadea	H	93/116	116	2	grv	180	Bi	y
Caneadea	H	93/116	116	2	grv	358	Bi	y
Rushford U	BC	93/119	119	5	st. asym	268	W	n
Rushford U	BC	93/119	119	5	trough	264	W	n
Rushford U	BC	93/119	119	5	trough	281	W	n
Machias 1st	BC	93/122	122	9	grv	181	Bi	y
Machias	BC	93/145	145	1	grv	234	Bi	y
Machias	BC	93/146	146	13	trough	80	E	n
Machias 1st	BC	93/148	148	15	p. lins	185	Bi	n
Machias 1st	BC	93/148	148	16	trough	34	W	n
Machias 1st	BC	93/148	148	24	trough	324	W	n
Machias 4th	BC	93/157	157	9	sin asym	285	W	n
Machias 4th	BC	93/158	158	9	lngd	294	W	n
Rushford L	BC	93/163	163	1c	st. asym	296	W	n
Rushford L	BC	93/163	163	1c	st. asym	297	W	n
Rushford I	BC	93/164	164	1	st. asym	299	W	n
Rushford I	BC	93/166	166	7	sin asym	71	E	n
Rushford I	BC	93/166	166	3	st. asym	308	W	n
Rushford I	BC	93/166	166	3	st. asym	190	W	n
Rushford I	BC	93/166	166	3	st. asym	187	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Rushford I	BC	93/166	166	3	st. asym	188	W	n
Rushford I	BC	93/166	166	3	st. asym	300	W	n
Rushford I	BC	93/166	166	3	st. asym	328	W	n
Rushford L	A	93/173	173	54	grv	251	Bi	y
Rushford L	A	93/173	173	56	grv	250	Bi	y
Rushford L	A	93/173	173	60	dune	0	W	n
Caneadea	A	93/174	174	1	grv	252	Bi	y
Caneadea	A	93/174	174	26	grv	249	Bi	y
Caneadea	A	93/174	174	28	grv	248	Bi	y
Rushford L	A	93/177	177	4	sym	317	SYM	n
Rushford L	A	93/177	177	2a	sym	0	SYM	n
Rushford L	A	93/177	177	-3	sym	358	SYM	n
Rushford I	A	93/182	180	40	p. lins	261	Bi	n
Rushford I	A	93/182	180	43	sin asym	274	W	n
Rushford L	A	93/182	180	37	sym	270	SYM	n
Rushford L	A	93/182	180	37	sym	272	SYM	n
Rushford L	A	93/182	181	30	sym	276	SYM	n
Rushford L	A	93/182	181	30	sym	306	SYM	n
Rushford L	A	93/182	181	30	dune	344	W	n
Rushford L	A	93/182	182	18	sym	272	SYM	n
Rushford L	A	93/182	182	18	sym	276	SYM	n
Rushford L	A	93/182	182	18	mega	348	W	n
Rushford L	A	93/182	182	24	lngd	306	W	n
Rushford L	A	93/191	191	6	p. lins	222	Bi	n
Rushford L	A	93/191	191	13	p. lins	262	Bi	n
Rushford L	A	93/191	191	12	sym	318	SYM	n
Rushford L	A	93/199	199	2	p. lins	187	Bi	n
Rushford L	A	93/199	199	2	sym	359	SYM	n
Rushford L	A	93/199	199	1	asym	322	W	n
Rushford L	A	93/203	203	2	x-beds	326	W	n
Rushford L	A	93/204	204	3	dune	299	W	n
Rushford L	A	93/204	204	3	dune	306	W	n
Rushford L	A	93/204	204	3	dune	314	W	n
Rushford L	A	93/204	204	3	lngd	324	W	n
Rushford L	A	93/204	204	3	dune	348	W	n
Rushford I	A	93/205	205	10	sin asym	294	W	n
Rushford I	A	93/205	205	16	sin asym	312	W	n
Rushford U	A	93/205	205	26	sym	357	SYM	n
Rushford U	A	93/205	205	41	lngd	328	W	n
Rushford I	A	93/205a	205A	10	frw	205	Bi	y
Rushford I	A	93/205a	205A	10	frw	210	Bi	y
Rushford I	A	93/205a	205A	10	frw	212	Bi	y
Rushford I	A	93/205a	205A	10	frw	220	Bi	y
Rushford I	A	93/205a	205A	10	frw	234	Bi	y
Rushford I	A	93/205a	205A	1	lngd	349	W	n
Rushford L	A	93/204	207	7	p. lins	228	Bi	n
Rushford U	A	93/209	209	2	lngd	341	W	n
Machias 3rd	A	93/211c	211C	1	sym	274	SYM	n
Rushford I	A	93/213	213	13	grv	271	Bi	y
Rushford I	A	93/215	214	12	lngd	225	W	n
Rushford L	A	93/218	218	1	lngd	323	W	n
Rushford L	A	93/218	218	1	dune	351	W	n
Rushford L	A	93/218	218	1	trough	215	W	n
Rushford L	A	93/218	218	3	lngd	322	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Rushford I	A	93/220	220	12	grv	226	Bi	y
Machias 4th	A	93/222	222	2	sin asym	204	W	n
Caneadea	A	93/230	233A	9	rips	255	W	n
Caneadea	A	93/230	233A	9	sin asym	262	W	n
Caneadea	A	93/230	233A	9	sin asym	301	W	n
Caneadea	A	93/230	233A	9	sin asym	295	W	n
Machias 1st	A	93/235	235	4	grv	356	Bi	y
Machias 1st	A	93/236	236	2	sin asym	287	W	n
Machias 1st	A	93/238	238	2	grv	232	Bi	y
Machias 3rd	WA	93/245	245	12	p. lins	282	Bi	n
Machias 3rd	WA	93/245	245	12	p. lins	295	Bi	n
Cuba	WA	93/251b	251B	3	sym	272	SYM	n
Cuba	WA	93/251b	251B	8	sym	318	SYM	n
Machias 4th	WA	93/251c	251C	1	lngd	284	W	n
Machias 3rd	WA	93/251d	251D	1	sym	337	SYM	n
Machias 2nd	A	93/253c	253C	17a	grv	260	Bi	y
Machias 2nd	A	93/253c	253C	19	grv	238	Bi	y
Cuba	WA	93/259	259	8	sym	337	SYM	n
Cuba	WA	93/259d	259D	2	sym	298	SYM	n
Caneadea	H	93/266	266	13	wood	303	Bi	n
Caneadea	H	93/270	270	2	mega	320	W	n
Caneadea	H	93/270	270	2	mega	327	W	n
Caneadea	H	93/270	270	15	mega	321	W	n
Caneadea	H	93/270	270A	37	sin to st	321	W	n
Caneadea	H	93/270	270A	37	sin to st	323	W	n
Caneadea	H	93/270	270A	37	sin to st	323	W	n
Caneadea	H	93/273c	273C	1a	frw	259	Bi	y
Caneadea	H	93/274f	274F	2	grv	227	Bi	y
Caneadea	H	93/274f	274F	5	grv	251	Bi	y
Caneadea	H	93/274f	274F	2	lngd	298	W	n
Caneadea	H	93/274n	274N	5	frw	224	Bi	y
Caneadea	H	93/274n	274N	5	frw	231	Bi	y
Caneadea	H	93/274n	274N	6	lngd	240	W	n
Caneadea	H	93/274n	274N	10	lngd	240	W	n
Caneadea	H	93/280a	280A	4	grv	323	Bi	y
Caneadea	H	93/280a	280A	4	grv	331	Bi	y
Caneadea	H	93/280a	280A	6	grv	320	Bi	y
Caneadea	H	93/280a	280A	6	grv	325	Bi	y
Caneadea	H	93/280a	280A	20	grv	323	Bi	y
Caneadea	H	93/280a	280A	4	mega	331	W	n
Caneadea	H	93/280a	280A	20	mega	331	W	n
Caneadea	H	93/280b	280B	5	lngd	325	W	n
Caneadea	H	93/280b	280B	12	sin to st	324	W	n
Caneadea	H	93/280b	280B	12	sin to st	325	W	n
Caneadea	H	93/280c	280C	1	p. lins	214	Bi	n
Caneadea	H	93/280c	280C	1	grv	285	Bi	y
Dunkirk	F	93/281a	281A	35	grv	287	Bi	y
S.Wales	F	93/281b	281B	13	p. lins	282	Bi	n
S.Wales	F	93/281b	281B	13	p. lins	283	Bi	n
S.Wales	F	93/281b	281B	13	st. asym	280	W	n
S.Wales	F	93/281c	281C	19	3D rips	292	W	n
M.Mills	F	93/282	282	9	p. lins	259	Bi	n
Caneadea	H	93/283b	283B	2	p. lins	330	Bi	n
Caneadea	H	93/283b	283B	6	st. asym	330	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
M.Mills	F	93/284	284B	29	grv	271	Bi	y
M.Mills	F	93/284	284B	28	mega	215	W	n
M.Mills	F	93/284	284B	30	trough	283	W	n
Caneadea	F	93/285	285	2	grv	260	Bi	y
Caneadea	F	93/285	285	6	p. lins	283	Bi	n
Caneadea	F	93/285	285	6	frw	189	Bi	y
Caneadea	F	93/285	285	6	frw	221	Bi	y
Caneadea	F	93/285	285	6	frw	226	Bi	y
Caneadea	F	93/285	285	6	grv	229	Bi	y
Caneadea	F	93/285	285B	6	p. lins	275	Bi	n
Caneadea	F	93/285	285B	6	p. lins	283	Bi	n
Caneadea	F	93/285c	285C	2	lngd	245	W	n
Caneadea	F	93/285c	285C1	4	frw	282	Bi	y
Caneadea	F	93/285c1	285C1	2	frw	255	Bi	y
S.Wales	F	93/288c	288C	14	clmb rips	50	E	n
M.Mills	F	93/288e	288E	14	p. lins	315	Bi	n
M.Mills	F	93/288e	288E	14	st. asym	318	W	n
M.Mills	F	93/288e	288E	8	3D rips	300	W	n
M.Mills	F	93/288e	288F	1	trough	315	W	n
M.Mills	F	93/289	289	19	grv	275	Bi	y
M.Mills	F	93/289	289	19	p. lins	275	Bi	n
M.Mills	F	93/289	289	17	grv	273	Bi	y
M.Mills	F	93/289	289	3	p. lins	255	Bi	n
M.Mills	F	93/289	289	19	3D rips	275	W	n
M.Mills	F	93/289	289	17	mega	283	W	n
M.Mills	F	93/289	289	17	mega	285	W	n
M.Mills	F	93/289	289	17	mega	288	W	n
M.Mills	F	93/289	289	17	mega	290	W	n
M.Mills	F	93/289	289	17	mega	298	W	n
M.Mills	F	93/289	289	15	sin asym	283	W	n
M.Mills	F	93/290	290	11	grv	286	Bi	y
Dunkirk	F	93/291	291	10	grv	286	Bi	y
Dunkirk	F	93/291	291A	29	grv	307	Bi	y
Dunkirk	P	93/291	291B	31	p. lins	272	Bi	n
Dunkirk	F	93/291	291B	31	rips	284	W	n
Caneadea	F	93/294	294	1	st. asym	324	W	n
Dunkirk	F	93/295a	295B	8	grv	272	Bi	y
S.Wales	F	93/295-94	295C	3	grv	289	Bi	y
S.Wales	F	93/295a-93	295C	1	sin asym	289	W	n
Hume	F	93/296	296	1	grv	284	Bi	y
Rushford L	H	93/300	300	12	trough	268	W	n
Rushford L	H	93/301	301	10	trough	285	W	n
Rushford L	H	93/304a'	304A'	4	grv	335	Bi	y
Rushford U	H	93/304b-gs	304B-GS	5	grv	281	Bi	y
Machias	BC	93/600	600	17	grv	232	Bi	y
Machias	BC	93/600	600	2	sin to st	326	W	n
Machias 1st	BC	93/601	601	2	st. asym	282	W	n
Machias 1st	BC	93/601	601	2	st. asym	283	W	n
Machias 2nd	BC	93/602	602	1	trough	7	E	n
Machias 2nd	BC	93/602	602	1	trough	303	W	n
Machias 2nd	BC	93/602	602	1	trough	331	W	n
Machias 1st	BC	93/603	603	7	grv	257	Bi	y
Machias 1st	BC	93/603	603	1	lngd	248	W	n
Machias 4th	BC	93/604	604	1	trough	160	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias 4th	BC	93/604	604	1	lngd	324	W	n
Cuba	BC	93/606	606	1	p. lins	240	Bi	n
Cuba	BC	93/606	606	1	grv	319	Bi	y
Cuba	BC	93/606	606	6	p. lins	284	Bi	n
Cuba	BC	93/606	606	6	st. asym	120	E	n
Hanover	P	94/1	1A	24	frw	273	Bi	y
Hanover	P	94/1	1A	24	frw	283	Bi	y
Hanover	P	94/1	1A	24	frw	287	Bi	y
Hanover	P	94/1	1A	24	grv	284	Bi	y
Hanover	P	94/1	1A	26	grv	271	Bi	y
Hanover	P	94/1	1A	26	grv	279	Bi	y
Hanover	P	94/1	1A	30	frw	266	Bi	y
Hanover	P	94/1	1A	30	grv	263	Bi	y
Hanover	P	94/1	1A	33	wood	206	Bi	n
Hanover	P	94/1	1A	33	wood	233	Bi	n
Hanover	P	94/1	1B	41c	sin asym	268	W	n
Wiscoy	P	94/1	1B	62	grv	271	Bi	y
Wiscoy	P	94/1	1B	62	grv	276	Bi	y
Wiscoy	P	94/1	1C	71	grv	268	Bi	y
Wiscoy	P	94/1	1C	96	frw	276	Bi	y
S.Wales	P	94/3	3	4	frw	325	Bi	y
S.Wales	P	94/3	4	8	sin asym	306	W	n
S.Wales	P	94/3	4C	17	grv	233	Bi	y
S.Wales	P	94/3	4C	17	mega	219	W	n
S.Wales	P	94/3	4C	17	mega	225	W	n
S.Wales	P	94/3	4C	17	mega	298	W	n
S.Wales	P	94/3	4D	25	lngd	196	W	n
S.Wales	P	94/3	4F	33	grv	245	Bi	y
Hume	P	94/13	13	4	grv	295	Bi	y
S.Wales	P	94/15	15	1	st. asym	254	W	n
S.Wales	P	94/15	15	1	st. asym	280	W	n
S.Wales	P	94/15	15	1	st. asym	319	W	n
S.Wales	P	94/15	15	2	lngd	319	W	n
S.Wales	P	94/15	15	2	lngd	322	W	n
S.Wales	P	94/15	15	4	lngd	267	W	n
S.Wales	P	94/15	15	4	lngd	308	W	n
S.Wales	P	94/15	15	8	sin asym	246	W	n
S.Wales	P	94/15	15	13	lngd	264	W	n
M.Mills	P	94/16	16	6	sin asym	323	W	n
M.Mills	P	94/16	20	22	flutes	199	W	y
M.Mills	P	94/16	22	12	st. asym	346	W	n
Caneadea	P	94/25	25	1	sin asym	312	W	n
Caneadea	P	94/25	25	1	sin asym	336	W	n
Hume	F	94/28	28	15	grv	254	Bi	y
Caneadea	F	94/33d	33D	4	flutes	73	E	y
S.Wales	F	94/34	34	2	grv	237	Bi	y
S.Wales	F	94/34	34	7	grv	226	Bi	y
S.Wales	F	94/34	34	9	grv	236	Bi	y
S.Wales	F	94/34	35	17	sin asym	327	W	n
S.Wales	F	94/34	35A	19	sin asym	308	W	n
S.Wales	F	94/34	35A	19	sin asym	312	W	n
S.Wales	F	94/34	35A	20	trough	284	W	n
S.Wales	F	94/34	36	31	lngd	284	W	n
M.Mills	F	94/37a	37	40	p. lins	224	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
M.Mills	F	94/37a	37	33	mega	334	W	n
M.Mills	F	94/37a	37	33	sin to st	340	W	n
M.Mills	F	94/37a	37	33	sin to st	355	W	n
M.Mills	F	94/37a	37A	1	p. lins	353	Bi	n
M.Mills	F	94/37a	37A	3	p. lins	199	Bi	n
M.Mills	F	94/37a	37A	3	rips	300	W	n
M.Mills	F	94/37a	37A	9	flutes	248	W	y
M.Mills	F	94/37a	37A	9	flutes	253	W	y
M.Mills	F	94/37a	37A	9	lngd	278	W	n
M.Mills	F	94/37a	37A	25	sin asym	320	W	n
Caneadea	F	94/42	42	3	frw	241	Bi	y
Caneadea	F	94/42	42	6	sin asym	326	W	n
Caneadea	F	94/52	52	7	mega	327	W	n
Caneadea	F	94/53	53	2	mega	324	W	n
Caneadea	F	94/53	53	2	mega	324	W	n
M.Mills	F	94/56e	56E	3	st. asym	284	W	n
M.Mills	F	94/56e	56E	3	st. asym	285	W	n
Hume	F	94/58a	58A	2	rips	314	W	n
Caneadea	F	94/60	60	2	p. lins	244	Bi	n
Caneadea	F	94/62	62	4	st. asym	343	W	n
Caneadea	F	94/62	62	4	st. asym	351	W	n
Caneadea	F	94/66	66	4	frw	317	Bi	y
Caneadea	F	94/66	66	4	frw	320	Bi	y
Caneadea	F	94/66	66	4	grv	317	Bi	y
Caneadea	F	94/66	66	8	p. lins	246	Bi	n
Caneadea	F	94/66	66	1	asym	255	W	n
Caneadea	F	94/66	67	5	frw	288	Bi	y
Caneadea	F	94/66	67	5	frw	293	Bi	y
Caneadea	F	94/66	68	8	frw	296	Bi	y
Caneadea	F	94/66	68	8	frw	309	Bi	y
Caneadea	F	94/66	68	8	frw	338	Bi	y
Hume	F	94/73	73	4	grv	269	Bi	y
Caneadea	F	94/76	76	2	rips	330	W	n
Caneadea	F	94/76	76	2	rips	335	W	n
S.Wales	F	94/77	77	2	sin asym	270	W	n
S.Wales	F	94/77	77	2	sin asym	289	W	n
S.Wales	F	94/77b	77B	1	grv	230	Bi	y
S.Wales	F	94/77b	77B	1	grv	307	Bi	y
S.Wales	F	94/77c	77C	2	grv	285	Bi	y
M.Mills	F	94/78	78	1c	sin asym	307	W	n
Machias	WA	94/79	79	2	grv	251	Bi	y
Machias	WA	94/79	79A	9	trough	227	W	n
Cuba	WA	94/79	80	19	frw	245	Bi	y
Cuba	WA	94/79	80	19	frw	245	Bi	y
Cuba	WA	94/79	80	19	frw	245	Bi	y
Cuba	WA	94/79	80	19	frw	245	Bi	y
Wellsville 3rd	WA	94/84	84	2	p. lins	246	Bi	n
Wellsville 3rd	WA	94/85	85	1c	st. asym	245	W	n
Wellsville 3rd	WA	94/86	86A	2	trough	23	E	n
Wellsville 3rd	WA	94/86	86A	2	trough	53	E	n
Wellsville 3rd	WA	94/86	86A	2	trough	60	E	n
Wellsville 3rd	WA	94/86	86A	2	trough	61	E	n
Wellsville 3rd	WA	94/86	86A	2	trough	70	E	n
Wellsville 3rd	WA	94/86	86A	2	trough	80	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Wellsville 3rd	WA	94/86	86A	2	trough	240	W	n
Wellsville 3rd	WA	94/86	86A	2	trough	243	W	n
Wellsville 2nd	WA	94/88	88	1	trough	23	E	n
Wellsville 2nd	WA	94/88	88	1	trough	60	E	n
Wellsville 2nd	WA	94/88	88	1	trough	70	E	n
Wellsville 2nd	WA	94/88	88	1	trough	71	E	n
Wellsville 2nd	WA	94/88	88	1	sin asym	343	W	n
Cuba	WA	94/94	94	1	trough	121	E	n
Cuba	WA	94/96	96	2	rips	233	W	n
Cuba	WA	94/97	97	1	trough	1	E	n
Cuba	WA	94/99	99	7	trough	25	E	n
Cuba	WA	94/99	99	7	trough	52	E	n
Cuba	WA	94/99	99	1	trough	322	W	n
Cuba	WA	94/99	99	5	trough	332	W	n
Cuba	WA	94/99	99	7	trough	333	W	n
Cuba	WA	94/99	99	9	rips	298	W	n
Machias	WA	94/100	100	2	trough	60	E	n
Machias 4th	WA	94/101b	101	6	trough	130	E	n
Machias 4th	WA	94/101b	101B	1	frw	271	Bi	y
Machias 4th	WA	94/101b	101B	2	grv	333	Bi	y
Machias 3rd	WA	94/103c	103A	1	grv	237	Bi	y
Machias 3rd	WA	94/103c	103C	1	trough	60	E	n
Machias 3rd	WA	94/103c	103C	1	trough	81	E	n
Machias 3rd	WA	94/103c	103C	5	trough	12	E	n
Machias 3rd	WA	94/103c	103C	5	trough	32	E	n
Machias 3rd	WA	94/103c	103C	5	trough	80	E	n
Machias 3rd	WA	94/103c	103C	1	st. asym	351	W	n
Machias	WA	94/104	104	2	st. asym	213	W	n
Machias	WA	94/104	104	2	st. asym	289	W	n
Machias	WA	94/104	104	2	st. asym	292	W	n
Wellsville 2nd	WA	94/106a	106A	3	st. asym	319	W	n
Wellsville 3rd	WA	94/107	107	1	trough	135	E	n
Wellsville 3rd	WA	94/107	107	1	trough	260	W	n
Wellsville 3rd	WA	94/107	107	1	trough	289	W	n
M.Mills	F	94/108	108	1	sin asym	354	W	n
M.Mills	F	94/108	108	1	st. asym	357	W	n
M.Mills	F	94/108	108	5	st. asym	342	W	n
M.Mills	F	94/108	108	8	sin to st	335	W	n
M.Mills	F	94/108b	108B	6	grv	215	Bi	y
M.Mills	F	94/110	110	9	sin asym	272	W	n
M.Mills	F	94/110	110	9	sin asym	277	W	n
M.Mills	F	94/110	110	9	sin asym	295	W	n
Hume	F	94/115	115	2	p. lins	255	Bi	n
Hume	F	94/115	115	2	p. lins	341	Bi	n
Hume	F	94/115	115	2	st. asym	318	W	n
Hume	F	94/115	115	2	st. asym	319	W	n
M.Mills	F	94/118a	118A	12	grv	226	Bi	y
M.Mills	F	94/118b	118B	4	flutes	150	E	y
M.Mills	F	94/118b	118B	4	rips	330	W	n
M.Mills	F	94/118c	118C	2	grv	239	Bi	y
M.Mills	F	94/118c	118C	4	grv	237	Bi	y
M.Mills	F	94/118c	118C	6	grv	277	Bi	y
M.Mills	F	94/118d	118D	2	grv	286	Bi	y
Caneadea	A	94/123a	123A	0	grv	220	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	A	94/123a	123A	0	grv	225	Bi	y
Caneadea	A	94/123a'	123A	5a	st. asym	335	W	n
Caneadea	A	94/123a'	123A	7a	3D rips	270	W	n
Caneadea	A	94/123a'	123A	7a	3D rips	340	W	n
Caneadea	A	94/123a'	123A	12a	3D rips	230	W	n
Caneadea	A	94/123b	123B	-4	lngd	250	W	n
Caneadea	A	94/123b	123B	-4	lngd	305	W	n
Caneadea	A	94/123c	123C	12	grv	242	Bi	y
Caneadea	A	94/123c	123C	15	grv	243	Bi	y
Caneadea	A	94/123d	123D	17	grv	262	Bi	y
Caneadea	A	94/123d	123D	2	sym	351	SYM	n
Caneadea	A	94/123b	123F	-41	grv	242	Bi	y
Caneadea	A	94/123b	123F	-21	grv	245	Bi	y
Caneadea	A	94/123b	123F	-47	lngd	250	W	n
Machias 3rd	F	94/127	127	2	trough	55	E	n
Machias	WA	94/128	128	2	trough	57	E	n
Machias	WA	94/128	128	7	trough	115	E	n
Machias	WA	94/128	128	7	trough	133	E	n
Machias	WA	94/128	128	17	trough	60	E	n
Machias	WA	94/128	128	2	asym	334	W	n
Machias	WA	94/128	128	4	asym	308	W	n
Machias	WA	94/128	128	9	sin asym	330	W	n
Cuba	WA	94/129	129	2	sym	311	SYM	n
Wellsville	WA	94/133	133	4	trough	330	W	n
Hinsdale	WA	94/134a	134A	1	rips	282	W	n
Whitesville	WA	94/135	135	7	trough	70	E	n
Whitesville	WA	94/135	135	7	trough	140	E	n
Machias	WA	94/136a	136A	2	grv	282	Bi	y
Wellsville	WA	94/140	140	1	rips	337	W	n
Wellsville	WA	94/140b	140B	6	sym	315	SYM	n
Wellsville	WA	94/140b	140B	3	sin asym	307	W	n
Wellsville	WA	94/140b	140B	7	sin asym	331	W	n
Wellsville	WA	94/140b	140B	9	sin asym	356	W	n
Wellsville 1st	WA	94/141	141	2	trough	56	E	n
Cuba	WA	94/142b	142A	2	trough	61	E	n
Cuba	WA	94/142b	142A	2	trough	65	E	n
Cuba	WA	94/142b	142A	2	trough	110	E	n
Machias	WA	94/142c	142C	13	p. lins	208	Bi	n
Machias 4th	WA	94/142f	142F	4	trough	61	E	n
Hinsdale	A	94/147	147	1	rips	238	W	n
Hinsdale	A	94/148	148	15	trough	150	E	n
Hinsdale	A	94/148	148	16b	st. asym	165	E	n
Hinsdale	A	94/148	148	16i	trough	335	E	n
Hinsdale	A	94/148	148	28	trough	70	E	n
Hinsdale	A	94/148	148	35a	trough	58	E	n
Hinsdale	A	94/148	148	37	trough	55	E	n
Hinsdale	A	94/148	148	37	trough	58	E	n
Hinsdale	A	94/148	148	15	sym	337	SYM	n
Hinsdale	A	94/148	148	32	sym	290	SYM	n
Hinsdale	A	94/148	148	32	sym	312	SYM	n
Hinsdale	A	94/148	148	7	mega	320	W	n
Hinsdale	A	94/148	148	7	mega	335	W	n
Hinsdale	A	94/148	148	16i	st. asym	345	W	n
Hinsdale	A	94/150	150	10"	p. lins	203	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Hinsdale	A	94/150	150	10"	trough	90	E	n
Hinsdale	A	94/150	150	1	asym	260	W	n
Hinsdale	A	94/151	151	1	grv	236	Bi	y
Hinsdale	A	94/151	151	1	grv	271	Bi	y
Hinsdale	A	94/151	151	11	st. asym	10	E	n
Hinsdale	A	94/151	151	7	sym	190	SYM	n
Hinsdale	A	94/151	151	6	clmb rips	322	W	n
Hinsdale	A	94/151	151	11	st. asym	354	W	n
Wellsville	A	94/152	152	1	trough	290	W	n
Wellsville	A	94/152	152	1	trough	300	W	n
Wellsville	A	94/154	154	2	sym	305	SYM	n
Wellsville	A	94/154	154	2	trough	280	W	n
Wellsville	A	94/154	154	2	trough	310	W	n
Machias 3rd	A	94/160	160	3	frw	287	Bi	y
Machias 3rd	A	94/160	160	3	trough	111	E	n
Machias 3rd	A	94/160	160	3	trough	120	E	n
Machias	R	94/161	161	1	st. asym	318	W	n
Cuba	R	94/163	163	4	rips	275	W	n
Cuba	R	94/163	163	4	rips	310	W	n
Cuba	R	94/163	163	4	rips	310	W	n
Machias 4th	R	94/175	175	2	sym	359	SYM	n
Machias 4th	R	94/179	179	4	st. asym	240	W	n
Machias 4th	R	94/179	179	4	st. asym	245	W	n
Machias	R	94/182a	182A	5	trough	57	E	n
Machias	R	94/182a	182A	4	3D rips	337	W	n
Cuba	R	94/188	188	1	sin to st	287	W	n
Cuba	R	94/188	188	1	sin to st	288	W	n
Wellsville	R	94/199	199	1	sym	290	SYM	n
Wellsville	R	94/199	199	1	sym	335	SYM	n
Wellsville	R	94/199	199	3	st. asym	280	W	n
Wellsville	R	94/200	200	4	lngd	75	E	n
Wellsville	R	94/200a	200A	4	st. asym	285	W	n
Wellsville	R	94/200a	200A	10	3D rips	345	W	n
Wellsville 1st	R	94/202a	202A	3	trough	80	E	n
Wellsville 1st	R	94/202a	202A	3	3D rips	350	W	n
Cuba	R	94/206	206	2	3D rips	260	W	n
Wellsville 2nd	R	94/208	208	7	st. asym	304	W	n
Wellsville 2nd	R	94/209	209	3	trough	80	E	n
Wellsville 2nd	R	94/209	209	3	trough	80	E	n
Wellsville 2nd	R	94/209	209A	3	trough	282	W	n
Wellsville 2nd	R	94/209	209A	1	trough	345	W	n
Wellsville 2nd	R	94/209b	209B	1	rips	282	W	n
Wellsville	R	94/209c	209C	1	st. asym	260	W	n
Wellsville	R	94/209c	209C	1	st. asym	310	W	n
Machias 1st	Fr	94/212	212	1	grv	250	Bi	y
Machias 1st	Fr	94/212	212	6	trough	40	E	n
Machias 1st	Fr	94/214	214	4	trough	336	W	n
Rushford L	Fr	94/215	215	7	trough	90	E	n
Rushford L	Fr	94/215	215	12	trough	70	E	n
Rushford L	Fr	94/215	215	13	trough	50	E	n
Rushford L	Fr	94/215	215	13	trough	72	E	n
Rushford L	Fr	94/215	215	11	dune	260	W	n
Rushford L	Fr	94/215	215	11	lngd	350	W	n
Rushford l	Fr	94/215c	215C	5	frw	244	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Rushford I	Fr	94/215c	215C	5	grv	216	Bi	y
Rushford I	Fr	94/215c	215C	7	trough	141	E	n
Cuba	R	94/220	220	3	p. lins	255	Bi	n
Wellsville 3rd	R	94/225	225	3	sin asym	300	W	n
Wellsville 3rd	R	94/225	225	3	sin asym	330	W	n
Wellsville 3rd	R	94/225	225	3	sin asym	352	W	n
Wellsville	R	94/227	227	2	lngd	330	W	n
Rushford L	Fr	94/232a	232	all	trough	70	E	n
Rushford L	H	94/233	233	3	st. asym	290	W	n
Rushford L	H	94/233	233	3	st. asym	300	W	n
Caneadea	F	94/600	600	2	p. lins	224	Bi	n
Caneadea	F	94/600	600	2	grv	261	Bi	y
Caneadea	F	94/600	600	16	p. lins	335	Bi	n
Caneadea	F	94/600	600	20	p. lins	339	Bi	n
Caneadea	F	94/600	600	37	frw	323	Bi	y
Caneadea	F	94/600	600	41	chnl	300	Bi	n
Caneadea	F	94/600	600	43	frw	270	Bi	y
Caneadea	F	94/600	600	49	grv	276	Bi	y
Caneadea	F	94/600	600	49	grv	298	Bi	y
Caneadea	F	94/600	600	52a	frw	270	Bi	y
Caneadea	F	94/600	600	52a	frw	310	Bi	y
Caneadea	F	94/600	600	55	grv	256	Bi	y
Caneadea	F	94/600	600	59	grv	255	Bi	y
Caneadea	F	94/600	600	83	p. lins	263	Bi	n
Caneadea	F	94/600	600	83	grv	228	Bi	y
Caneadea	F	94/600	600	25	sin asym	1	E	n
Caneadea	F	94/600	600	25	sin asym	3	E	n
Caneadea	F	94/600	600	2	asym	351	W	n
Caneadea	F	94/600	600	7	sin asym	325	W	n
Caneadea	F	94/600	600	11	sin asym	326	W	n
Caneadea	F	94/600	600	16	asym	322	W	n
Caneadea	F	94/600	600	16	st. asym	322	W	n
Caneadea	F	94/600	600	20	sin asym	314	W	n
Caneadea	F	94/600	600	25	sin asym	337	W	n
Caneadea	F	94/600	600	41	st. asym	195	W	n
Caneadea	F	94/600	600	43	lngd	236	W	n
Caneadea	F	94/600	600	47	lngd	212	W	n
Caneadea	F	94/600	600	65	lngd	273	W	n
Caneadea	F	94/600	600	83	lngd	311	W	n
Wellsville 3rd	WA	94/700	700	1	trough	21	E	n
Wellsville 3rd	WA	94/700	700	1	trough	23	E	n
Wellsville 3rd	WA	94/700	700	1	st. asym	350	W	n
Wellsville 3rd	WA	94/700	700	1	st. asym	353	W	n
Caneadea	F	97/1	1	1	frw	275	Bi	y
Caneadea	F	97/4	4	3j	chnl	312	Bi	n
Caneadea	F	97/4	4	4a	frw	265	Bi	y
Caneadea	F	97/4	4	4a	frw	278	Bi	y
Caneadea	F	97/4	4	4a	frw	282	Bi	y
Caneadea	F	97/4	4	4a	frw	284	Bi	y
Caneadea	F	97/4	4	4a	frw	289	Bi	y
Caneadea	F	97/4	4	4a	frw	292	Bi	y
Caneadea	F	97/4	4	2	trough	356	W	n
Caneadea	F	97/4	4	2	x-beds	298	W	n
Caneadea	F	97/4	4	3p	st. asym	348	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	F	97/6	6	3	grv	279	Bi	y
Caneadea	F	97/6	6	5	frw	252	Bi	y
Caneadea	F	97/6	6	5	frw	324	Bi	y
Caneadea	F	97/6	6	3	lngd	50	E	n
Caneadea	F	97/6	6	3	lngd	80	E	n
Caneadea	F	97/6	6	3	st. asym	286	W	n
Caneadea	F	97/8	8	3	lngd	316	W	n
Caneadea	F	97/8a	8a	3	lngd	255	W	n
Rushford L	F	97/9	9	4m	rips	260	W	n
Caneadea	F	97/12	12	1	grv	288	Bi	y
Caneadea	F	97/12	12	1	lngd	290	W	n
Caneadea	F	97/13	13	19	p. lins	328	Bi	n
Caneadea	F	97/13	13	13	lngd	310	W	n
Caneadea	F	97/13	13	13	lngd	322	W	n
Caneadea	F	97/14	14	1	p. lins	336	Bi	n
Caneadea	F	97/14	14	3	p. lins	310	Bi	n
Caneadea	F	97/14	14	3	p. lins	333	Bi	n
Caneadea	H	97/17	17	0	frw	270	Bi	y
Caneadea	H	97/17	17	7	p. lins	245	Bi	n
Caneadea	H	97/17	17	0	lngd	270	W	n
Caneadea	H	97/17	17	1	lngd	280	W	n
Caneadea	H	97/17	17	2	3D rips	270	W	n
Caneadea	F	97/19	19	3	grv	265	Bi	y
Caneadea	F	97/20	20	8	frw	245	Bi	y
Caneadea	F	97/20	20	8	frw	260	Bi	y
Caneadea	F	97/20	20	8	frw	272	Bi	y
Caneadea	F	97/21	21	10	grv	319	Bi	y
Caneadea	F	97/21	21	10	sin asym	290	W	n
Caneadea	F	97/21	21	10	sin asym	322	W	n
Caneadea	F	97/21	21	10	sin asym	324	W	n
Caneadea	F	97/21	21	16	lngd	284	W	n
Caneadea	F	97/21	21	16	lngd	287	W	n
Caneadea	F	97/21	21	21	lngd	315	W	n
Caneadea	F	97/21	21	25	lngd	272	W	n
Caneadea	F	97/21	21	26	lngd	274	W	n
Caneadea	F	97/21	21	26	lngd	324	W	n
Caneadea	F	97/21	21	28	lngd	288	W	n
Caneadea	F	97/21	21	28	lngd	314	W	n
Caneadea	F	97/24	24	11f	grv	270	Bi	y
Caneadea	F	97/24	24	4	st. asym	302	W	n
Caneadea	F	97/24	24	10	f. moat	260	W	n
Caneadea	F	97/24	24	10	lngd	313	W	n
Caneadea	F	97/24	24	10	st. asym	320	W	n
Caneadea	F	97/24	24	11a	lngd	274	W	n
Caneadea	F	97/24	24	11b	lngd	308	W	n
Caneadea	F	97/24	24	11b	lngd	310	W	n
Caneadea	F	97/24	24	11b	lngd	313	W	n
Caneadea	F	97/24	24	11f	lngd	313	W	n
Caneadea	F	97/24c	24C	15	frw	280	Bi	y
Caneadea	F	97/24c	24C	3	st. asym	246	W	n
Caneadea	F	97/24c	24C	4	lngd	292	W	n
Caneadea	F	97/24c	24C	10	lngd	266	W	n
M.Mills	H	97/27	27	1	st. asym	308	W	n
Caneadea	H	97/29	29	19	st. asym	345	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	97/29	30	9	p. lins	292	Bi	n
Caneadea	H	97/29	30	14	frw	293	Bi	y
Caneadea	H	97/29	30	11	st. asym	298	W	n
Caneadea	H	97/29	30	11	st. asym	300	W	n
Caneadea	H	97/29	30	12	sin asym	322	W	n
Caneadea	H	97/29	30	14	sin asym	282	W	n
Caneadea	H	97/29	30	16	sin to st	315	W	n
Caneadea	H	97/29	31	2	st. asym	321	W	n
Caneadea	H	97/29	31	2	st. asym	325	W	n
Caneadea	H	97/29	31	10	st. asym	339	W	n
Dunkirk	F	97/33	33	21	3D rips	150	E	n
Dunkirk	F	97/33	33	25a	sin to st	295	W	n
Dunkirk	F	97/33	33	39	clmb rips	270	W	n
Dunkirk	F	97/33	33	39	clmb rips	290	W	n
Dunkirk	F	97/33b	33B	94a	grv	328	Bi	y
Dunkirk	F	97/33b	33B	84	lngd	326	W	n
Dunkirk	F	97/33c	33C	103	p. lins	284	Bi	n
Dunkirk	F	97/33c	33C	103	lngd	284	W	n
S.Wales	F	97/33c	33C	107	lngd	304	W	n
S.Wales	F	97/33d	33D	109	st. asym	316	W	n
S.Wales	F	97/33d	33D	109	st. asym	328	W	n
S.Wales	F	97/33d	33D	114	sin asym	312	W	n
S.Wales	F	97/33e	33E	124	grv	324	Bi	y
S.Wales	F	97/33e	33E	116	st. asym	347	W	n
S.Wales	F	97/33g	33G	132	p. lins	216	Bi	n
S.Wales	F	97/33g	33G	137	p. lins	315	Bi	n
S.Wales	F	97/33g	33G	137	p. lins	320	Bi	n
S.Wales	F	97/33g	33G	137	lngd	325	W	n
M.Mills	F	97/34c	34C	1	sin asym	313	W	n
Caneadea	H	97/40	40	7	frw	268	Bi	y
Caneadea	H	97/40	40	9	grv	264	Bi	y
Caneadea	H	97/40	40	11	grv	241	Bi	y
Caneadea	H	97/40	40	3	lngd	273	W	n
Caneadea	H	97/40	40	5	lngd	297	W	n
Caneadea	H	97/40	40	9	lngd	259	W	n
Caneadea	H	97/40	40	11	lngd	250	W	n
Caneadea	H	97/40	40	15	lngd	337	W	n
Caneadea	H	97/40	40	17	lngd	335	W	n
Caneadea	H	97/40	40	20	lngd	312	W	n
Rushford l	F	97/45	45	10	lngd	305	W	n
Rushford U	F	97/46	46	1	frw	263	Bi	y
Rushford U	F	97/46	46	1	frw	264	Bi	y
Rushford U	F	97/46	46	37b	lngd	38	E	n
Rushford U	F	97/46	46	33d	lngd	0	N	n
Rushford U	F	97/46	46	7	lngd	286	W	n
Machias 3rd	F	97/49	49	1d	st. asym	119	E	n
Machias 3rd	F	97/49	49	1e	st. asym	88	E	n
Machias 3rd	F	97/49	49	15	st. asym	287	W	n
Machias 4th	F	97/50	50	8	p. lins	349	Bi	n
Rushford U	F	97/52	52	1f	p. lins	303	Bi	n
Rushford U	F	97/52	52	1c	trough	254	W	n
Machias 1st	F	97/53	53	1f	lngd	38	E	n
Caneadea	H	97/62	62	1f	sym	289	SYM	n
Caneadea	H	97/62	62	3	sym	284	SYM	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	H	97/63	63	6	grv	266	Bi	y
Rushford L	H	97/64	64	4h	lngd	228	W	n
Rushford L	H	97/64	64	4x	lngd	248	W	n
Rushford l	H	97/68	68	5	sym	327	SYM	n
M.Mills	H	97/73	73	6	frw	189	Bi	y
M.Mills	H	97/73	73	6	frw	197	Bi	y
M.Mills	H	97/73	73	6	frw	198	Bi	y
M.Mills	H	97/73	73	11	st. asym	341	W	n
Rushford L	A	97/74	74	7	trough	86	E	n
Rushford L	A	97/74	74	3	dune	279	W	n
Rushford L	A	97/74	74	7	lngd	251	W	n
Whitesville	A	98/81	81	3	p. lins	200	Bi	n
Whitesville	A	98/81	81	-1f	lngd	34	E	n
Whitesville	A	98/81	81	1p	rips	245	W	n
Whitesville	A	98/81	81	1p	rips	330	W	n
Whitesville	A	98/81	81	1u	rips	255	W	n
Wellsville	A	98/83	83	3	st. asym	290	W	n
Wellsville 2nd	A	98/83	83A	2	rips	10	E	n
Wellsville 2nd	A	98/83	83A	1	trough	353	W	n
Wellsville 2nd	A	98/83	83A	3	rips	280	W	n
Cuba	R	TWP	1006	9	trough	43	E	n
Cuba	R	TWP	1006	1	st. asym	336	W	n
Wellsville 1st	R	TWP	1007	4	frw	247	Bi	y
Wellsville 1st	R	TWP	1007	1	trough	48	E	n
Wellsville 1st	R	TWP	1007	5	trough	62	E	n
Wellsville 1st	R	TWP	1007	5	st. asym	113	E	n
Wellsville 3rd	R	TWP	1009	8	grv	295	Bi	y
Wellsville 3rd	R	TWP	1009	4	trough	62	E	n
Wellsville 3rd	R	TWP	1009	8	trough	310	W	n
Wellsville	R	TWP	1009B	18	chnl	198	Bi	n
Hinsdale	R	TWP	1009C	24	trough	72	E	n
Machias 4th	R	TWP	1010	3	mega	280	W	n
Cuba	R	TWP	1011	10	p. lins	203	Bi	n
Cuba	R	TWP	1011	12	p. lins	310	Bi	n
Cuba	R	TWP	1011	0	trough	255	W	n
Cuba	R	TWP	1011	8	st. asym	359	W	n
Cuba	R	TWP	1011	12	rips	310	W	n
Wellsville 1st	R	TWP	1013	10	sin asym	125	E	n
Cuba	R	TWP	1015	9	trough	272	W	n
Cuba	R	TWP	1015	10	rips	279	W	n
Wellsville 1st	R	TWP	1015A	3	trough	284	W	n
Wellsville 1st	R	TWP	1015A	3	trough	291	W	n
Wellsville 1st	R	TWP	1015A	6	trough	282	W	n
Wellsville 1st	R	TWP	1015A	15	rips	271	W	n
Wellsville 3rd	R	TWP	1020A	1	frw	203	Bi	y
Wellsville 1st	R	TWP	1023	1b	trough	305	W	n
Wellsville 2nd	R	TWP	1023A	1	lngd	132	E	n
Wellsville 1st	R	TWP	1025	10	trough	54	E	n
Wellsville 1st	R	TWP	1025	3	rips	257	W	n
Wellsville 3rd	R	TWP	1026	1	trough	274	W	n
Cuba	R	TWP	1027	1	rips	121	E	n
Cuba	R	TWP	1028	3	p. lins	251	Bi	n
Cuba	R	TWP	1028	3	trough	30	E	n
Wellsville 1st	R	TWP	1029	3	sym	228	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Wellsville 1st	R	TWP	1029	3	trough	277	W	n
Cuba	R	TWP	1032	1a	rips	10	E	n
Cuba	R	TWP	1032	1b	trough	42	E	n
Cuba	R	TWP	1032	1b	rips	22	E	n
Cuba	R	TWP	1032	5	trough	40	E	n
Cuba	R	TWP	1032	5	trough	48	E	n
Cuba	R	TWP	1032	5	rips	50	E	n
Cuba	R	TWP	1032	5	int. rips	13	E	n
Cuba	R	TWP	1032	5	rips	72	E	n
Cuba	R	TWP	1032	6	rips	2	E	n
Cuba	R	TWP	1032	1a	rips	292	W	n
Cuba	R	TWP	1032	1a	rips	287	W	n
Cuba	R	TWP	1032	1a	rips	294	W	n
Cuba	R	TWP	1032	1a	rips	296	W	n
Cuba	R	TWP	1032	1a	trough	250	W	n
Cuba	R	TWP	1032	1c	x-beds	210	W	n
Cuba	R	TWP	1032	5	dune	314	W	n
Cuba	R	TWP	1032	5	int. rips	310	W	n
Cuba	R	TWP	1032	5	trough	220	W	n
Cuba	R	TWP	1032	6	rips	278	W	n
Cuba	R	TWP	1032B	9	int. rips	5	E	n
Cuba	R	TWP	1032B	9	int. rips	358	W	n
Cuba	R	TWP	1032B	9	int. rips	359	W	n
Cuba	R	TWP	1032B	9	int. rips	283	W	n
Cuba	R	TWP	1032B	10	int. rips	320	W	n
Cuba	R	TWP	1032B	9	int. rips	300	W	n
Wellsville 1st	R	TWP	1033B	1b	trough	34	E	n
Wellsville 1st	R	TWP	1033B	1b	int. rips	75	E	n
Wellsville 1st	R	TWP	1033B	11	mega	17	E	n
Wellsville 1st	R	TWP	1033B	11	int. rips	25	E	n
Wellsville 1st	R	TWP	1033B	11	int. rips	26	E	n
Wellsville 1st	R	TWP	1033B	12	int. rips	23	E	n
Wellsville 1st	R	TWP	1033B	1b	int. rips	0	N	n
Wellsville 1st	R	TWP	1033B	11	int. rips	309	W	n
Wellsville 1st	R	TWP	1033B	11	int. rips	316	W	n
Wellsville 1st	R	TWP	1033B	11	mega	357	W	n
Wellsville 1st	R	TWP	1033B	12	int. rips	296	W	n
Wellsville	R	TWP	1033C	17	trough	328	W	n
Wellsville 1st	R	TWP	1034	3	sym	345	Bi	n
Wellsville 1st	R	TWP	1034	3	sym	194	Bi	n
Wellsville 1st	R	TWP	1034	4b	p. lins	218	Bi	n
Wellsville 1st	R	TWP	1034	4b	p. lins	215	Bi	n
Wellsville 1st	R	TWP	1034A	21	frw	181	Bi	y
Wellsville 1st	R	TWP	1034A	12	rips	94	E	n
Wellsville 1st	R	TWP	1034A	12	rips	103	E	n
Wellsville 1st	R	TWP	1034A	12	rips	27	E	n
Wellsville 1st	R	TWP	1034A	12	rips	85	E	n
Wellsville 1st	R	TWP	1034A	15	rips	93	E	n
Cuba	R	TWP	1035	3	grv	250	Bi	y
Cuba	R	TWP	1035	3	grv	257	Bi	y
Cuba	R	TWP	1035	3	p. lins	237	Bi	n
Cuba	R	TWP	1035	1a	trough	10	E	n
Cuba	R	TWP	1035	1a	trough	70	E	n
Cuba	R	TWP	1035	1a	trough	75	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Cuba	R	TWP	1035	3	trough	70	E	n
Cuba	R	TWP	1035	1a	trough	308	W	n
Cuba	R	TWP	1035	1a	trough	327	W	n
Cuba	R	TWP	1035	2c	trough	353	W	n
Wellsville 1st	R	TWP	1035	13b	asym	78	E	n
Wellsville 1st	R	TWP	1035	16d	trough	35	E	n
Wellsville 1st	R	TWP	1035	16d	trough	50	E	n
Wellsville 1st	R	TWP	1035	16d	trough	75	E	n
Wellsville 1st	R	TWP	1035	13b	asym	298	W	n
Wellsville 1st	R	TWP	1035	20b	rips	307	W	n
Wellsville 1st	R	TWP	1035	20b	rips	315	W	n
Wellsville 1st	R	TWP	1035	20b	trough	298	W	n
Wellsville 1st	R	TWP	1035	20b	trough	307	W	n
Wellsville	R	TWP	1037	7	sym	304	Bi	n
Hinsdale	R	TWP	1038	5a	frw	203	Bi	y
Hinsdale	R	TWP	1038	9	trough	327	W	n
Wellsville	R	TWP	1039A	16	asym	139	E	n
Wellsville	R	TWP	1039A	7	st. asym	295	W	n
Wellsville	R	TWP	1039A	8	rips	335	W	n
Wellsville	R	TWP	1039A	8	trough	280	W	n
Machias 4th	R	TWP	1041	5	grv	260	Bi	y
Machias 4th	R	TWP	1041	11	int. rips	101	E	n
Machias 4th	R	TWP	1041	11	int. rips	26	E	n
Machias 4th	R	TWP	1041A	12	st. asym	303	W	n
Machias 4th	R	TWP	1042A	4b	sym	189	Bi	n
Machias 4th	R	TWP	1042A	4b	sym	195	Bi	n
Machias 4th	R	TWP	1042A	4b	sym	252	Bi	n
Machias 4th	R	TWP	1042A	7	sym	219	Bi	n
Machias 4th	R	TWP	1042A	7	sym	226	Bi	n
Machias 4th	R	TWP	1042A	9d	sym	283	Bi	n
Machias 4th	R	TWP	1042A	10	sym	356	Bi	n
Machias 4th	R	TWP	1042A	4b	rips	122	E	n
Machias 4th	R	TWP	1042A	4b	rips	136	E	n
Machias 4th	R	TWP	1042A	4b	rips	106	E	n
Machias 4th	R	TWP	1042A	4b	rips	119	E	n
Machias 4th	R	TWP	1042A	10	st. asym	102	E	n
Machias 4th	R	TWP	1042A	10	trough	58	E	n
Machias 4th	R	TWP	1042A	12b	rips	96	E	n
Machias 4th	R	TWP	1042A	12b	trough	71	E	n
Machias 4th	R	TWP	1042A	2b	trough	212	W	n
Machias 4th	R	TWP	1042A	2b	trough	287	W	n
Machias 4th	R	TWP	1042A	4b	rips	272	W	n
Machias 4th	R	TWP	1042A	4b	rips	277	W	n
Machias 4th	R	TWP	1042A	4b	rips	294	W	n
Machias 4th	R	TWP	1042A	4b	rips	277	W	n
Machias 4th	R	TWP	1042A	4b	rips	13	W	n
Machias 4th	R	TWP	1042A	4b	rips	248	W	n
Machias 4th	R	TWP	1042A	5	int. rips	314	W	n
Machias 4th	R	TWP	1042A	5	int. rips	223	W	n
Machias 4th	R	TWP	1042A	9d	int. rips	196	W	n
Machias 4th	R	TWP	1042A	10	trough	288	W	n
Machias 3rd	R	TWP	1044	2	wood	322	Bi	n
Machias 3rd	R	TWP	1044	2	wood	323	Bi	n
Machias 3rd	R	TWP	1044	2	wood	326	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias 3rd	R	TWP	1044	2	wood	343	Bi	n
Machias 3rd	R	TWP	1044	2	wood	346	Bi	n
Machias 4th	R	TWP	1047b	1	lngd	0	N	n
Machias 4th	R	TWP	1048	9	trough	10	E	n
Machias 4th	R	TWP	1048	9	trough	32	E	n
Machias 4th	R	TWP	1048	9	trough	32	E	n
Machias 4th	R	TWP	1048	9	trough	106	E	n
Machias 4th	R	TWP	1048	10	trough	48	E	n
Machias 4th	R	TWP	1048	9	trough	295	W	n
Machias 4th	R	TWP	1048	9	trough	336	W	n
Machias 4th	R	TWP	1048	9	trough	343	W	n
Machias 4th	R	TWP	1049	24	sym	345	Bi	n
Machias 4th	R	TWP	1049	24	sym	351	Bi	n
Machias 4th	R	TWP	1049	25	grv	230	Bi	y
Machias 4th	R	TWP	1049	1	trough	87	E	n
Machias 4th	R	TWP	1049	6b	rips	102	E	n
Machias 4th	R	TWP	1049	11	trough	70	E	n
Machias 4th	R	TWP	1049	11	rips	68	E	n
Machias 4th	R	TWP	1049	19	int. rips	44	E	n
Machias 4th	R	TWP	1049	24	sin asym	92	E	n
Machias 4th	R	TWP	1049	24	sin asym	100	E	n
Machias 4th	R	TWP	1049	25	trough	8	E	n
Machias 4th	R	TWP	1049	25	int. rips	137	E	n
Machias 4th	R	TWP	1049	25	trough	62	E	n
Machias 4th	R	TWP	1049	5a	trough	333	W	n
Machias 4th	R	TWP	1049	7	trough	334	W	n
Machias 4th	R	TWP	1049	19	int. rips	317	W	n
Machias 4th	R	TWP	1049	25	int. rips	358	W	n
Cuba	R	TWP	1050A	22	sym	279	Bi	n
Cuba	R	TWP	1050A	22	sym	291	Bi	n
Cuba	R	TWP	1050A	12	x-beds	142	E	n
Cuba	R	TWP	1050A	16	sin asym	93	E	n
Cuba	R	TWP	1050A	18c	trough	107	E	n
Cuba	R	TWP	1050A	18c	trough	109	E	n
Cuba	R	TWP	1050A	19	st. asym	88	E	n
Cuba	R	TWP	1050A	23	trough	83	E	n
Cuba	R	TWP	1050A	12	x-beds	308	W	n
Hinsdale	R	TWP	1053	10	sin asym	96	E	n
Hinsdale	R	TWP	1053	12	asym	123	E	n
Hinsdale	R	TWP	1053A	19	p. lins	330	Bi	n
Hinsdale	R	TWP	1053B	3	trough	57	E	n
Machias 4th	R	TWP	1054	2	rips	97	E	n
Cuba	R	TWP	1055	1	p. lins	8	Bi	n
Cuba	R	TWP	1055	1	int. rips	109	E	n
Cuba	R	TWP	1055	1	int. rips	17	E	n
Wellsville 1st	R	TWP	1057	3	rips	28	E	n
Wellsville 2nd	R	TWP	1058	2	p. lins	208	Bi	n
Wellsville 1st	R	TWP	1063B	28	sym	317	Bi	n
Machias 4th	R	TWP	1064	20	grv	285	Bi	y
Machias 4th	R	TWP	1064	18b	trough	11	E	n
Machias 4th	R	TWP	1064	24	trough	62	E	n
Machias 4th	R	TWP	1064	24	rips	43	E	n
Machias 4th	R	TWP	1064	24	rips	51	E	n
Machias 4th	R	TWP	1064	24	rips	59	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias 4th	R	TWP	1064	26	rips	68	E	n
Machias 4th	R	TWP	1064	16b	rips	304	W	n
Machias 4th	R	TWP	1064	24	trough	249	W	n
Wellsville 3rd	R	TWP	1066	1	p. lins	274	Bi	n
Wellsville 3rd	R	TWP	1066	3	lngd	326	W	n
Hinsdale	R	TWP	1067	19	p. lins	323	Bi	n
Hinsdale	R	TWP	1067	1	int. rips	293	E	n
Hinsdale	R	TWP	1067	13	trough	73	E	n
Hinsdale	R	TWP	1067	1	int. rips	11	W	n
Hinsdale	R	TWP	1067	19	int. rips	272	W	n
Hinsdale	R	TWP	1067	19	int. rips	209	W	n
Hinsdale	R	TWP	1067	21	trough	285	W	n
Wellsville 2nd	R	TWP	1068	5	rips	281	W	n
Wellsville 2nd	R	TWP	1068	5	rips	288	W	n
Wellsville 2nd	R	TWP	1068A	11a	wood	276	Bi	n
Wellsville 2nd	R	TWP	1068A	11a	trough	50	E	n
Wellsville 2nd	R	TWP	1068A	11a	trough	72	E	n
Wellsville 2nd	R	TWP	1068A	11a	trough	79	E	n
Wellsville 2nd	R	TWP	1068A	15	adhsn	141	E	n
Wellsville 2nd	R	TWP	1068A	15	adhsn	150	E	n
Wellsville 2nd	R	TWP	1068A	7	trough	276	W	n
Wellsville 2nd	R	TWP	1068A	11a	rips	332	W	n
Wellsville 2nd	R	TWP	1068A	11a	trough	276	W	n
Wellsville 2nd	R	TWP	1068A	11a	trough	275	W	n
Wellsville 2nd	R	TWP	1068B	19	adhsn	112	E	n
Wellsville	R	TWP	1069	2	wood	260	Bi	n
Wellsville	R	TWP	1069	2	wood	263	Bi	n
Wellsville 2nd	R	TWP	1069A	6	sym	278	Bi	n
Wellsville 2nd	R	TWP	1069A	6	sym	286	Bi	n
Wellsville 2nd	R	TWP	1069A	6	sym	337	Bi	n
Wellsville 2nd	R	TWP	1069A	6	sym	351	Bi	n
Wellsville 2nd	R	TWP	1069A	6	trough	278	W	n
Wellsville	R	TWP	1070	5	sin asym	59	E	n
Wellsville 3rd	R	TWP	1071	3	p. lins	259	Bi	n
Wellsville 3rd	R	TWP	1071	9	trough	268	W	n
Wellsville 3rd	R	TWP	1071	9	trough	272	W	n
Wellsville	R	TWP	1071A	4	trough	76	E	n
Wellsville	R	TWP	1072	10	sin asym	247	W	n
Wellsville	R	TWP	1072	12	int. rips	353	W	n
Wellsville	R	TWP	1072	12	int. rips	327	W	n
Wellsville	R	TWP	1072	12	int. rips	277	W	n
Wellsville	R	TWP	1072	12	int. rips	227	W	n
Wellsville	R	TWP	1072A	15	sin asym	284	W	n
Wellsville	R	TWP	1072A	15	rips	336	W	n
Wellsville	R	TWP	1072A	15	rips	348	W	n
Wellsville	R	TWP	1072A	15	rips	330	W	n
Wellsville	R	TWP	1072A	15	trough	326	W	n
Wellsville	R	TWP	1072A	15	trough	342	W	n
Wellsville	R	TWP	1072A	15	trough	359	W	n
Wellsville	R	TWP	1072C	1	trough	66	E	n
Wellsville	R	TWP	1072C	1	sin asym	123	E	n
Wellsville	R	TWP	1072C	1	int. rips	97	E	n
Wellsville	R	TWP	1072C	1	sin asym	297	W	n
Wellsville	R	TWP	1072C	1	int. rips	351	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Hinsdale	R	TWP	1074B	8	trough	26	E	n
Hinsdale	R	TWP	1074B	9	trough	17	E	n
Hinsdale	R	TWP	1074B	9	trough	19	E	n
Hinsdale	R	TWP	1074B	9	st. asym	117	E	n
Hinsdale	R	TWP	1074B	11	trough	67	E	n
Hinsdale	R	TWP	1074B	9	sin asym	327	W	n
Hinsdale	R	TWP	1074C	5	rips	103	E	n
Hinsdale	R	TWP	1074C	5	rips	137	E	n
Hinsdale	R	TWP	1074C	5	trough	110	E	n
Whitesville	R	TWP	1074D	1	sin asym	163	E	n
Machias	R	TWP	1075	6	flutes	233	W	y
Machias 3rd	R	TWP	1075a	4	rips	129	E	n
Machias 3rd	R	TWP	1075a	4	rips	130	E	n
Machias 3rd	R	TWP	1075a	4	sin asym	125	E	n
Machias 3rd	R	TWP	1075a	4	trough	67	E	n
Machias 3rd	R	TWP	1075a	4	st. asym	103	E	n
Machias 3rd	R	TWP	1075a	4	trough	94	E	n
Machias 3rd	R	TWP	1075a	4	rips	45	E	n
Machias 3rd	R	TWP	1075a	4	trough	47	E	n
Machias 3rd	R	TWP	1075a	4	trough	45	E	n
Machias 3rd	R	TWP	1075a	4	trough	35	E	n
Machias 3rd	R	TWP	1075a	4	trough	32	E	n
Machias 3rd	R	TWP	1075a	4	trough	300	W	n
Machias 3rd	R	TWP	1075a	4	trough	330	W	n
Machias 4th	R	TWP	1076A	17	trough	164	E	n
Machias 4th	R	TWP	1076A	16	sin asym	324	W	n
Machias 4th	R	TWP	1076A	16	sin asym	322	W	n
Machias 4th	R	TWP	1076A	17	trough	223	W	n
Machias 4th	R	TWP	1076A	17	trough	209	W	n
Machias 4th	R	TWP	1076A	17	trough	228	W	n
Cuba	R	TWP	1078	11	sym	233	Bi	n
Hinsdale	R	TWP	1085	1	trough	32	E	n
Hinsdale	R	TWP	1085	1	trough	26	E	n
Hinsdale	R	TWP	1085	1	trough	25	E	n
Hinsdale	R	TWP	1085	1	trough	44	E	n
Hinsdale	R	TWP	1085	1	trough	59	E	n
Hinsdale	R	TWP	1085	1	int. rips	8	E	n
Hinsdale	R	TWP	1085	1	trough	292	W	n
Hinsdale	R	TWP	1085	1	int. rips	260	W	n
Wellsville 3rd	R	TWP	1088	2	frw	267	Bi	y
Cuba	R	TWP	1089	1	trough	82	E	n
Cuba	R	TWP	1089	1	trough	86	E	n
Cuba	R	TWP	1089	1	int. rips	52	E	n
Cuba	R	TWP	1089	1	int. rips	77	E	n
Cuba	R	TWP	1089	4	rips	96	E	n
Cuba	R	TWP	1089	4	trough	65	E	n
Cuba	R	TWP	1089	4	trough	302	W	n
Cuba	R	TWP	1089A	7	p. lins	278	Bi	n
Cuba	R	TWP	1089B	1	trough	53	E	n
Cuba	R	TWP	1089B	1	rips	53	E	n
Cuba	R	TWP	1089B	5	trough	8	E	n
Cuba	R	TWP	1089B	5	rips	112	E	n
Cuba	R	TWP	1089B	5	trough	43	E	n
Cuba	R	TWP	1089B	1	trough	270	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Cuba	R	TWP	1089B	1	trough	279	W	n
Cuba	R	TWP	1092	1d	sym	189	Bi	n
Cuba	R	TWP	1092	1d	st. asym	79	E	n
Cuba	R	TWP	1092	1d	trough	108	E	n
Cuba	R	TWP	1092	1b	trough	304	W	n
Cuba	R	TWP	1092	1b	trough	318	W	n
Cuba	R	TWP	1092	1d	trough	303	W	n
Cuba	R	TWP	1092	3	trough	283	W	n
Cuba	R	TWP	1092	3	st. asym	277	W	n
Wellsville 1st	R	TWP	1092B	0	st. asym	270	W	n
Wellsville 1st	R	TWP	1092B	0	trough	285	W	n
Wellsville 1st	R	TWP	1093	0	sin asym	110	E	n
Wellsville 1st	R	TWP	1093	0	trough	57	E	n
Wellsville 1st	R	TWP	1093	0	st. asym	149	E	n
Wellsville 1st	R	TWP	1093	0	trough	70	E	n
Wellsville 1st	R	TWP	1093	0	trough	100	E	n
Wellsville 1st	R	TWP	1093	0	trough	74	E	n
Wellsville 1st	R	TWP	1093	0	trough	132	E	n
Wellsville 1st	R	TWP	1094	6	p. lins	219	Bi	n
Wellsville 1st	R	TWP	1094	6	sym	316	E	n
Cuba	R	TWP	1096	4	sym	270	Bi	n
Cuba	R	TWP	1096	17	sym	296	Bi	n
Cuba	R	TWP	1096	17	sym	306	Bi	n
Cuba	R	TWP	1096	19	p. lins	277	Bi	n
Cuba	R	TWP	1096	8	trough	48	E	n
Cuba	R	TWP	1096	13	int. rips	98	E	n
Cuba	R	TWP	1096	13	int. rips	112	E	n
Cuba	R	TWP	1096	13	int. rips	341	W	n
Cuba	R	TWP	1096	13	int. rips	347	W	n
Wellsville 1st	R	TWP	1098	3	rips	143	E	n
Wellsville 1st	R	TWP	1098	8	int. rips	245	W	n
Wellsville 1st	R	TWP	1098	8	trough	257	W	n
Wellsville 2nd	R	TWP	1100A	5	trough	70	E	n
Wellsville 2nd	R	TWP	1100A	5	rips	72	E	n
Wellsville 2nd	R	TWP	1100A	5	rips	74	E	n
Wellsville 2nd	R	TWP	1100A	3	trough	275	W	n
Wellsville 2nd	R	TWP	1100A	5	trough	272	W	n
Wellsville 2nd	R	TWP	1107	9	sym	327	E	n
Cuba	R	TWP	1109	19	trough	22	E	n
Wellsville 1st	R	TWP	1114	6	rips	98	E	n
Wellsville 1st	R	TWP	1114	3	trough	308	W	n
Wellsville 1st	R	TWP	1114	4	trough	278	W	n
Hinsdale	R	TWP	1118	7	int. rips	137	E	n
Hinsdale	R	TWP	1118	7	int. rips	42	E	n
Cuba	R	TWP	1120	4	frw	280	Bi	y
Wellsville 1st	R	TWP	1121	2c	int. rips	122	E	n
Wellsville 1st	R	TWP	1121	2c	trough	30	E	n
Wellsville 1st	R	TWP	1121	4	asym	90	E	n
Wellsville 1st	R	TWP	1121	2c	int. rips	330	W	n
Wellsville 1st	R	TWP	1121	2c	int. rips	280	W	n
Wellsville 1st	R	TWP	1121	4	trough	270	W	n
Wellsville 1st	R	TWP	1122	4	frw	200	Bi	y
Wellsville 1st	R	TWP	1122	4	frw	212	Bi	y
Hinsdale	R	TWP	1126	2	lngd	285	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias 4th	Fr	DLZ	1200	3	frw	275	Bi	y
Machias 4th	Fr	DLZ	1200	3	frw	260	Bi	y
Machias 4th	Fr	DLZ	1200	7	grv	249	Bi	y
Machias 4th	Fr	DLZ	1200	12	trough	74	E	n
Machias 4th	Fr	DLZ	1200	14	int. rips	78	E	n
Machias 4th	Fr	DLZ	1200	14	int. rips	177	E	n
Machias 4th	Fr	DLZ	1200	14	trough	150	E	n
Machias 4th	Fr	DLZ	1200	14	rips	145	E	n
Machias 4th	Fr	DLZ	1200	8	trough	246	W	n
Machias 4th	Fr	DLZ	1201	7	p. lins	250	Bi	n
Machias 4th	Fr	DLZ	1202	3	trough	30	E	n
Machias 4th	Fr	DLZ	1203	1	st. asym	129	E	n
Machias 4th	Fr	DLZ	1203	1	st. asym	135	E	n
Cuba	Fr	DLZ	1204	4	trough	55	E	n
Cuba	Fr	DLZ	1204	4	trough	62	E	n
Machias 4th	Fr	DLZ	1206	2	int. rips	267	W	n
Machias 4th	Fr	DLZ	1207	1	lngd	161	E	n
Machias 4th	Fr	DLZ	1207	8	adhsn	145	E	n
Cuba	Fr	DLZ	1209	5	trough	50	E	n
Cuba	Fr	DLZ	1209	12	trough	25	E	n
Cuba	Fr	DLZ	1209	12	trough	340	W	n
Machias 4th	Fr	DLZ	1210	1	trough	45	E	n
Machias 4th	Fr	DLZ	1211	2	trough	89	E	n
Machias 4th	Fr	DLZ	1211	2	trough	60	E	n
Machias 4th	Fr	DLZ	1211	2	trough	75	E	n
Machias 4th	Fr	DLZ	1211	2	rips	70	E	n
Machias 4th	Fr	DLZ	1211	2	trough	85	E	n
Cuba	Fr	DLZ	1213	3	trough	280	W	n
Cuba	Fr	DLZ	1215	4	rips	115	E	n
Cuba	Fr	DLZ	1215	4	rips	137	E	n
Cuba	Fr	DLZ	1215	4	trough	290	W	n
Machias	Fr	DLZ	1218	3	trough	50	E	n
Machias 4th	Fr	DLZ	1220	1	frw	189	Bi	y
Machias 4th	Fr	DLZ	1220	1	frw	197	Bi	y
Machias 4th	Fr	DLZ	1220	2	p. lins	238	Bi	n
Machias 4th	Fr	DLZ	1220	4	trough	12	E	n
Machias 4th	Fr	DLZ	1220	4	trough	45	E	n
Machias 4th	Fr	DLZ	1220	6	rips	105	E	n
Machias 4th	Fr	DLZ	1220	6	rips	142	E	n
Machias 4th	Fr	DLZ	1220	2	rips	252	W	n
Machias 4th	Fr	DLZ	1220	4	trough	320	W	n
Machias 4th	Fr	DLZ	1220	4	trough	350	W	n
Machias 4th	Fr	DLZ	1220	4	trough	26	W	n
Cuba	Fr	DLZ	1224	3	wood	258	Bi	n
Cuba	Fr	DLZ	1224	1	trough	20	E	n
Cuba	Fr	DLZ	1225	11	rips	18	E	n
Cuba	Fr	DLZ	1225	3	rips	344	W	n
Machias 3rd	Fr	DLZ	1226	1	rips	280	W	n
Machias 3rd	Fr	DLZ	1229	3	trough	295	W	n
Machias 4th	Fr	DLZ	1229	19	trough	12	E	n
Machias 4th	Fr	DLZ	1229	23	trough	325	W	n
Machias 4th	Fr	DLZ	1229	25	trough	280	W	n
Machias	Fr	DLZ	1230	11	trough	300	W	n
Cuba	Fr	DLZ	1231	3	trough	285	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Cuba	Fr	DLZ	1231	3	trough	322	W	n
Cuba	Fr	DLZ	1232	3	trough	325	W	n
Machias	Fr	DLZ	1234	19	int. rips	10	E	n
Machias	Fr	DLZ	1234	6a	trough	275	W	n
Machias	Fr	DLZ	1234	18	sin asym	204	W	n
Machias	Fr	DLZ	1234	18	int. rips	269	W	n
Machias	Fr	DLZ	1234	19	rips	290	W	n
Cuba	Fr	DLZ	1237	4	asym	294	W	n
Cuba	Fr	DLZ	1238	3	sym	348	Bi	n
Cuba	Fr	DLZ	1238	3	trough	8	E	n
Wellsville 1st	Fr	DLZ	1240	8	trough	305	W	n
Wellsville 1st	Fr	DLZ	1240	9	trough	285	W	n
Wellsville 1st	Fr	DLZ	1240	9	trough	310	W	n
Wellsville 1st	Fr	DLZ	1240	10	trough	318	W	n
Wellsville 1st	Fr	DLZ	1240	10	rips	315	W	n
Cuba	Fr	DLZ	1241	4	sym	350	Bi	n
Cuba	Fr	DLZ	1241	2	st. asym	164	E	n
Cuba	Fr	DLZ	1241	4	int. rips	160	E	n
Cuba	Fr	DLZ	1241	4	trough	50	E	n
Cuba	Fr	DLZ	1241	9	st. asym	310	E	n
Cuba	Fr	DLZ	1241	13	st. asym	133	E	n
Cuba	Fr	DLZ	1241	13	st. asym	140	E	n
Cuba	Fr	DLZ	1241	13	trough	72	E	n
Cuba	Fr	DLZ	1241	19	rips	140	E	n
Cuba	Fr	DLZ	1241	19	rips	142	E	n
Cuba	Fr	DLZ	1241	19	rips	146	E	n
Cuba	Fr	DLZ	1241	6	trough	270	W	n
Cuba	Fr	DLZ	1241	6	trough	275	W	n
Cuba	Fr	DLZ	1241	6	trough	286	W	n
Cuba	Fr	DLZ	1241	6	trough	298	W	n
Cuba	Fr	DLZ	1241	6	trough	310	W	n
Cuba	Fr	DLZ	1241	6	trough	356	W	n
Cuba	Fr	DLZ	1241	9	st. asym	220	W	n
Cuba	Fr	DLZ	1241	9	st. asym	222	W	n
Cuba	Fr	DLZ	1241	9	int. rips	318	W	n
Cuba	Fr	DLZ	1241	9	st. asym	313	W	n
Cuba	Fr	DLZ	1241	9	trough	298	W	n
Cuba	Fr	DLZ	1241	15	trough	330	W	n
Wellsville 1st	Fr	DLZ	1243A	1	trough	85	E	n
Wellsville 1st	Fr	DLZ	1243A	1	trough	285	W	n
Wellsville 1st	Fr	DLZ	1243A	1	trough	274	W	n
Rushford U	Fr	DLZ	1244	6	p. lins	222	Bi	n
Rushford U	Fr	DLZ	1244	6	p. lins	225	Bi	n
Rushford U	Fr	DLZ	1244	10	rips	337	W	n
Rushford U	Fr	DLZ	1244	10	rips	326	W	n
Rushford U	Fr	DLZ	1244	10	rips	310	W	n
Rushford U	Fr	DLZ	1244	10	rips	275	W	n
Rushford U	Fr	DLZ	1244	10	rips	287	W	n
Caneadea	Fr	DLZ	1245	7	frw	222	Bi	y
Caneadea	Fr	DLZ	1245	7	frw	225	Bi	y
Caneadea	Fr	DLZ	1245	7	frw	232	Bi	y
Caneadea	Fr	DLZ	1245	8	frw	206	Bi	y
Rushford L	Fr	DLZ	1247	3	sin asym	88	E	n
Rushford L	Fr	DLZ	1247	3	sin asym	75	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Rushford L	Fr	DLZ	1247	5	lngd	160	E	n
Rushford L	Fr	DLZ	1247	14	rips	90	E	n
Cuba	Fr	DLZ	1248	1	trough	5	E	n
Cuba	Fr	DLZ	1248	1	trough	44	E	n
Cuba	Fr	DLZ	1248	1	trough	59	E	n
Cuba	Fr	DLZ	1248	2	int. rips	14	E	n
Wellsville 1st	Fr	DLZ	1248	9	sin asym	142	E	n
Machias 4th	Fr	DLZ	1249	7	rips	152	E	n
Machias 4th	Fr	DLZ	1249	1	rips	254	W	n
Machias 4th	Fr	DLZ	1249	1	rips	256	W	n
Machias 4th	Fr	DLZ	1249	1	rips	342	W	n
Machias 4th	Fr	DLZ	1249	1	rips	315	W	n
Machias 4th	Fr	DLZ	1249	1	rips	348	W	n
Machias 4th	Fr	DLZ	1249	1	rips	351	W	n
Machias 4th	Fr	DLZ	1249	3	rips	184	W	n
Machias 4th	Fr	DLZ	1250	11	rips	99	E	n
Machias 4th	Fr	DLZ	1250	12	trough	46	E	n
Machias 4th	Fr	DLZ	1250	13	trough	64	E	n
Machias 4th	Fr	DLZ	1250	13	trough	70	E	n
Machias 4th	Fr	DLZ	1250	15	trough	89	E	n
Machias 4th	Fr	DLZ	1250	14	trough	295	W	n
Machias 4th	Fr	DLZ	1250	15	rips	245	W	n
Machias 4th	Fr	DLZ	1250	15	rips	256	W	n
Machias 4th	Fr	DLZ	1250	15	int. rips	354	W	n
Cuba	Fr	DLZ	1251	3	trough	85	E	n
Cuba	Fr	DLZ	1251	3	trough	89	E	n
Cuba	Fr	DLZ	1251	3	trough	96	E	n
Cuba	Fr	DLZ	1251	3	trough	105	E	n
Cuba	Fr	DLZ	1251	3	trough	86	E	n
Cuba	Fr	DLZ	1251	3	trough	89	E	n
Cuba	Fr	DLZ	1251	3	rips	75	E	n
Cuba	Fr	DLZ	1252	3	lngd	122	E	n
Cuba	Fr	DLZ	1252	3	lngd	126	E	n
Cuba	Fr	DLZ	1252	3	lngd	124	E	n
Cuba	Fr	DLZ	1252	3	int. rips	15	E	n
Cuba	Fr	DLZ	1252	3	int. rips	10	E	n
Machias 4th	Fr	DLZ	1253	14	rips	270	W	n
Machias 4th	Fr	DLZ	1253	14	rips	274	W	n
Machias 4th	Fr	DLZ	1253	14b	mega	346	W	n
Machias 4th	Fr	DLZ	1253	28	x-beds	243	W	n
Machias 4th	Fr	DLZ	1253A	30	p. lins	250	Bi	n
Machias 4th	Fr	DLZ	1253A	30	trough	40	E	n
Machias 4th	Fr	DLZ	1253A	30	trough	60	E	n
Machias 4th	Fr	DLZ	1253A	32	rips	175	E	n
Machias 4th	Fr	DLZ	1253A	34	trough	105	E	n
Machias 4th	Fr	DLZ	1253A	30	rips	355	W	n
Machias 4th	Fr	DLZ	1253D	35d	trough	42	E	n
Machias 4th	Fr	DLZ	1253D	35a	rips	307	W	n
Machias 4th	Fr	DLZ	1253D	35a	trough	317	W	n
Machias 4th	Fr	DLZ	1253D	35b	rips	339	W	n
Machias 4th	Fr	DLZ	1253D	35c	rips	349	W	n
Machias 4th	Fr	DLZ	1254	14	p. lins	264	Bi	n
Machias 4th	Fr	DLZ	1254	5	int. rips	309	W	n
Machias 4th	Fr	DLZ	1254	8	rips	359	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Cuba	Fr	DLZ	1255	14	grv	240	Bi	y
Cuba	Fr	DLZ	1255	16	grv	251	Bi	y
Cuba	Fr	DLZ	1255	22	st. asym	289	W	n
Cuba	Fr	DLZ	1255	22	st. asym	294	W	n
Machias 4th	Fr	DLZ	1256	11	st. asym	85	E	n
Machias 4th	Fr	DLZ	1257	9	grv	275	Bi	y
Machias 4th	Fr	DLZ	1258	1	grv	225	Bi	y
Machias 4th	Fr	DLZ	1258	1	grv	227	Bi	y
Machias 4th	Fr	DLZ	1259	1	p. lins	276	Bi	n
Machias 4th	Fr	DLZ	1259	1	st. asym	115	E	n
Machias 4th	Fr	DLZ	1259	4	st. asym	358	W	n
Machias 4th	Fr	DLZ	1260	1	p. lins	252	Bi	n
Machias 4th	Fr	DLZ	1261	3	trough	46	E	n
Machias 4th	Fr	DLZ	1261	1	trough	282	W	n
Machias 4th	Fr	DLZ	1262	3	p. lins	338	Bi	n
Machias 4th	Fr	DLZ	1262	3	st. asym	329	W	n
Machias 3rd	Fr	DLZ	1264	17	grv	199	Bi	y
Machias 3rd	Fr	DLZ	1264	17	int. rips	25	E	n
Machias 3rd	Fr	DLZ	1264	5	rips	216	W	n
Machias 3rd	Fr	DLZ	1264	17	int. rips	305	W	n
Machias 4th	Fr	DLZ	1264A	37	trough	45	E	n
Machias 3rd	Fr	DLZ	1265	3	rips	89	E	n
Machias 3rd	Fr	DLZ	1265	3	int. rips	10	E	n
Machias 3rd	Fr	DLZ	1265	1	rips	271	W	n
Machias	Fr	DLZ	1265A	17	trough	45	E	n
Machias	Fr	DLZ	1265A	17	trough	60	E	n
Machias	Fr	DLZ	1265A	17	trough	75	E	n
Machias	Fr	DLZ	1265A	17	st. asym	5	E	n
Machias	Fr	DLZ	1265A	21	trough	30	E	n
Machias	Fr	DLZ	1265A	17	trough	285	W	n
Machias	Fr	DLZ	1265A	17	st. asym	350	W	n
Machias	Fr	DLZ	1265A	17	st. asym	264	W	n
Machias	Fr	DLZ	1265A	17	st. asym	256	W	n
Machias	Fr	DLZ	1265A	17	st. asym	248	W	n
Machias	Fr	DLZ	1265A	19	rips	340	W	n
Machias	Fr	DLZ	1265A	19	rips	320	W	n
Machias	Fr	DLZ	1265A	21	trough	324	W	n
Machias 3rd	Fr	DLZ	1265	2	wx. rips	292	W	n
Machias	Fr	DLZ	1266	9	frw	288	Bi	y
Machias	Fr	DLZ	1266	13	trough	70	E	n
Machias	Fr	DLZ	1266	19	trough	52	E	n
Machias	Fr	DLZ	1266	14	rips	265	W	n
Machias	Fr	DLZ	1266	19	trough	277	W	n
Machias	Fr	DLZ	1266	19	rips	225	W	n
Machias	Fr	DLZ	1266	19	rips	260	W	n
Rushford L	Fr	DLZ	1270	11	trough	280	W	n
Rushford L	Fr	DLZ	1271	1	grv	225	Bi	y
Rushford L	Fr	DLZ	1271	1	grv	210	Bi	y
Rushford L	Fr	DLZ	1271	1	grv	209	Bi	y
Rushford L	Fr	DLZ	1271	1	grv	211	Bi	y
Rushford L	Fr	DLZ	1271	1	trough	40	E	n
Rushford L	Fr	DLZ	1271	1	trough	45	E	n
Rushford L	Fr	DLZ	1271	1	trough	55	E	n
Rushford L	Fr	DLZ	1271	1	trough	64	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Wellsville 1st	Fr	DLZ	1272	15	grv	186	Bi	y
Wellsville 1st	Fr	DLZ	1272	15	grv	202	Bi	y
Wellsville 1st	Fr	DLZ	1272	8	rips	277	W	n
Wellsville 1st	Fr	DLZ	1272	8	rips	281	W	n
Wellsville 1st	Fr	DLZ	1272	8	int. rips	355	W	n
Wellsville 1st	Fr	DLZ	1272	17	trough	290	W	n
Wellsville 2nd	Fr	DLZ	1273	5	sym	240	Bi	n
Wellsville 2nd	Fr	DLZ	1273	1	rips	269	W	n
Wellsville 2nd	Fr	DLZ	1273	4	trough	295	W	n
Wellsville 2nd	Fr	DLZ	1273	4	trough	304	W	n
Wellsville 2nd	Fr	DLZ	1273	5	int. rips	358	W	n
Machias 4th	Fr	DLZ	1275	4	trough	305	W	n
Machias 4th	Fr	DLZ	1276	1	trough	310	W	n
Machias 4th	Fr	DLZ	1277	3	rips	275	W	n
Cuba	Fr	DLZ	1279	3	rips	110	E	n
Cuba	Fr	DLZ	1280	1	trough	80	E	n
Cuba	Fr	DLZ	1280	4	trough	79	E	n
Cuba	Fr	DLZ	1280	4	rips	55	E	n
Cuba	Fr	DLZ	1280	2	trough	0	N	n
Machias 3rd	Fr	DLZ	1282	2	st. asym	130	E	n
Machias 3rd	Fr	DLZ	1282	2	int. rips	85	E	n
Machias 3rd	Fr	DLZ	1282	3	wx. rips	94	E	n
Machias 3rd	Fr	DLZ	1282	8	rips	114	E	n
Machias 3rd	Fr	DLZ	1282	8	rips	129	E	n
Machias 4th	Fr	DLZ	1283	1	sin asym	280	W	n
Wellsville 1st	Fr	DLZ	1284	13	trough	84	E	n
Wellsville 1st	Fr	DLZ	1284	13	rips	112	E	n
Wellsville 1st	Fr	DLZ	1284	22	rips	109	E	n
Wellsville 1st	Fr	DLZ	1284	22	int. rips	15	E	n
Wellsville 1st	Fr	DLZ	1284	23	trough	85	E	n
Wellsville 1st	Fr	DLZ	1284	24	rips	100	E	n
Wellsville 1st	Fr	DLZ	1284	1	rips	304	W	n
Wellsville 1st	Fr	DLZ	1284	19	rips	230	W	n
Wellsville 1st	Fr	DLZ	1284	19	rips	240	W	n
Wellsville 1st	Fr	DLZ	1284	19	int. rips	325	W	n
Wellsville 1st	Fr	DLZ	1284	19	int. rips	330	W	n
Wellsville 1st	Fr	DLZ	1284	26	rips	252	W	n
Wellsville 1st	Fr	DLZ	1284	26	rips	245	W	n
Wellsville 1st	Fr	DLZ	1284	26	int. rips	334	W	n
Wellsville 1st	Fr	DLZ	1284	26	int. rips	335	W	n
Wellsville 2nd	Fr	DLZ	1285	7	p. lins	275	Bi	n
Wellsville	Fr	DLZ	1288	12	sym	242	Bi	n
Wellsville	Fr	DLZ	1288	12	sym	245	Bi	n
Wellsville	Fr	DLZ	1288	2	rips	336	W	n
Wellsville	Fr	DLZ	1288	8	int. rips	245	W	n
Wellsville	Fr	DLZ	1288	8	int. rips	351	W	n
Wellsville 1st	Fr	DLZ	1289	1	st. asym	310	W	n
Machias	Fr	DLZ	1290	3	wood	355	Bi	n
Machias	Fr	DLZ	1290	3	wood	249	Bi	n
Machias	Fr	DLZ	1290	1	rips	294	W	n
Machias	Fr	DLZ	1290	1	int. rips	359	W	n
Machias	Fr	DLZ	1291	12	grv	268	Bi	y
Machias	Fr	DLZ	1291	12	st. asym	115	E	n
Machias	Fr	DLZ	1291	16	trough	50	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias	Fr	DLZ	1291	16	st. asym	132	E	n
Machias	Fr	DLZ	1291	10	st. asym	310	W	n
Machias	Fr	DLZ	1291	14	rips	330	W	n
Machias	Fr	DLZ	1291	14	int. rips	246	W	n
Cuba	Fr	DLZ	1293	6	rips	285	W	n
Rushford U	Fr	DLZ	1294A	11	grv	250	Bi	y
Rushford U	Fr	DLZ	1294A	9	trough	170	E	n
Rushford U	Fr	DLZ	1294A	9	lngd	90	E	n
Rushford U	Fr	DLZ	1294A	9	trough	349	W	n
Machias 2nd	Fr	DLZ	1295A	4	st. asym	335	W	n
Machias 3rd	Fr	DLZ	1296	2	sin asym	329	W	n
Machias	Fr	DLZ	1296A	5	rips	323	W	n
Machias	Fr	DLZ	1296A	6	rips	295	W	n
Machias	Fr	DLZ	1296A	16	st. asym	281	W	n
Machias 1st	Fr	DLZ	1298	1	trough	60	E	n
Machias 1st	Fr	DLZ	1298	3	trough	15	E	n
Machias 1st	Fr	DLZ	1298	1	lngd	353	W	n
Machias 1st	Fr	DLZ	1298	3	rips	325	W	n
Machias 1st	Fr	DLZ	1298	3	p. lins	305	W	n
Machias 1st	Fr	DLZ	1299	4	trough	330	W	n
Machias 4th	Fr	DLZ	1301	4	trough	50	E	n
Machias 4th	Fr	DLZ	1301	2	sin asym	314	W	n
Machias 4th	Fr	DLZ	1301	2	trough	234	W	n
Machias 4th	Fr	DLZ	1302	2	p. lins	225	Bi	n
Machias 4th	Fr	DLZ	1302	6	st. asym	102	E	n
Machias 4th	Fr	DLZ	1302	1	st. asym	289	W	n
Machias 4th	Fr	DLZ	1302	2	sin asym	259	W	n
Machias 4th	Fr	DLZ	1303	1	st. asym	101	E	n
Machias 4th	Fr	DLZ	1303	3	sin asym	90	E	n
Machias 4th	Fr	DLZ	1303	5	rips	152	E	n
Machias 4th	Fr	DLZ	1304	4a	trough	71	E	n
Machias 4th	Fr	DLZ	1304	4b	trough	84	E	n
Machias 4th	Fr	DLZ	1304	4b	trough	90	E	n
Machias 4th	Fr	DLZ	1304	4b	trough	111	E	n
Machias 4th	Fr	DLZ	1304	4b	st. asym	123	E	n
Cuba	Fr	DLZ	1305	1	wood	355	Bi	n
Caneadea	Fr	DLZ	1306B	4	p. lins	340	Bi	n
Caneadea	Fr	DLZ	1306B	4	lngd	150	E	n
Caneadea	Fr	DLZ	1307	4	p. lins	210	Bi	n
Caneadea	Fr	DLZ	1307	5	grv	310	Bi	y
Caneadea	Fr	DLZ	1307	6	p. lins	322	Bi	n
Caneadea	Fr	DLZ	1307A I	2	flutes	54	E	y
Caneadea	Fr	DLZ	1307A I	2	flutes	285	W	y
Caneadea	Fr	DLZ	1307A I	2	flutes	316	W	y
Caneadea	Fr	DLZ	1307B	20	lngd	5	E	n
Caneadea	Fr	DLZ	1307B	20	lngd	320	W	n
Rushford L	Fr	DLZ	1308	10	trough	15	15	n
Rushford L	Fr	DLZ	1308	2	p. lins	320	Bi	n
Rushford L	Fr	DLZ	1308	2	lngd	170	E	n
Rushford L	Fr	DLZ	1308	2	lngd	165	E	n
Rushford L	Fr	DLZ	1308	8	trough	174	E	n
Rushford L	Fr	DLZ	1308	10	lngd	160	E	n
Rushford L	Fr	DLZ	1308	10	lngd	355	W	n
Machias 3rd	Fr	DLZ	1310	9	trough	56	E	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Machias 3rd	Fr	DLZ	1310	3	mega	185	W	n
Machias 3rd	Fr	DLZ	1310	3	mega	200	W	n
Machias 3rd	Fr	DLZ	1310	3	mega	184	W	n
Machias 3rd	Fr	DLZ	1310	5	mega	190	W	n
Machias 3rd	Fr	DLZ	1313	6	rips	277	W	n
Cuba	Fr	DLZ	1323	6	rips	320	W	n
Cuba	Fr	DLZ	1323	8	rips	310	W	n
Cuba	Fr	DLZ	1323	8	int. rips	215	W	n
Cuba	Fr	DLZ	1323	10	rips	281	W	n
Cuba	Fr	DLZ	1323	10	rips	305	W	n
Cuba	Fr	DLZ	1338	2	rips	89	E	n
Cuba	Fr	DLZ	1338	2	rips	90	E	n
Cuba	Fr	DLZ	1338	1	trough	290	W	n
Cuba	Fr	DLZ	1338	2	trough	285	W	n
Rushford L	Pk	Strm#95B	1302	3	trough	30	E	n
Rushford L	Pk	Strm#95B	1302	3	trough	30	E	n
Rushford L	Pk	Strm#95B	1302	3	trough	30	E	n
Rushford U	Pk	Strm#98	1306	6	trough	188	W	n
Rushford U	Pk	Strm#98	1306	6	trough	325	W	n
Machias	Pk	Strm#92	1308	8	rips	83	E	n
Machias	Pk	Strm#92	1308	15	rips	55	E	n
Machias	Pk	Strm#92	1308	11	rips	271	W	n
Machias	Pk	Strm#88	1309	6	rips	289	W	n
Rushford L	Pk	Strm#88	1313	9	st. asym	95	E	n
Rushford L	Pk	Strm#88	1313	31	rips	55	E	n
Rushford L	Pk	Strm#88	1313	5	lngd	222	W	n
Rushford L	Pk	Strm#88	1313	21	lngd	237	W	n
Rushford L	Pk	Strm#89	1314	5	lngd	65	E	n
Caneadea	Pk	Strm#91	1315	3	lngd	309	W	n
Caneadea	Pk	Strm#91	1315	4	lngd	319	W	n
Caneadea	Pk	Strm#91	1315	23	lngd	240	W	n
Caneadea	Pk	Strm#91	1315	25	lngd	208	W	n
Machias	Pk	Strm#83	1328	3	frw	276	Bi	y
Machias	Pk	Strm#83	1328	3	frw	269	Bi	y
Machias	Pk	Strm#83	1335	6	rips	336	W	n
Machias	Pk	Strm#83	1339	2	st. asym	320	W	n
Caneadea	Pk	Strm#84	1341	9	lngd	76	E	n
Machias	Pk	Strm#82B	1342	15	3D rips	335	W	n
Caneadea	Pk	Strm#82E	1343	7	sin asym	293	W	n
Caneadea	Pk	Strm#81	1344	1	sin asym	337	W	n
Caneadea	Pk	Strm#81	1344	4	lngd	330	W	n
Caneadea	Pk	Strm#81	1344	23	lngd	315	W	n
Caneadea	Pk	Strm#81	1344A	8	grv	262	Bi	y
Caneadea	Pk	Strm#81	1344A	8	lngd	304	W	n
Caneadea	Pk	Strm#81	1344A	9	rips	352	W	n
Caneadea	Pk	Strm#82E	1345	4	grv	262	Bi	y
Rushford L	Pk	Strm#82E	1346B	3	grv	316	Bi	y
Caneadea	Pk	Strm#82E	1346C	3	3D rips	310	W	n
Caneadea	Pk	Strm#82E	1346C	4	3D rips	282	W	n
Caneadea	Pk	Strm#82E	1347A	4	lngd	232	W	n
Caneadea	Pk	Strm#82E	1347A	6	st. asym	235	W	n
Caneadea	Pk	Strm#82E	1347A	19	lngd	330	W	n
Caneadea	Pk	Strm#82E	1347A	22	3D rips	325	W	n
Caneadea	Pk	Strm#82E	1347A	29	lngd	316	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	Pk	Strm#82E	1347A	31	lngd	304	W	n
Caneadea	Pk	Strm#82E	1347B	2	lngd	20	E	n
Caneadea	Pk	Strm#82E	1347B	5	rips	343	W	n
Caneadea	Pk	Strm#82E	1347B	9	rips	333	W	n
Caneadea	Pk	Strm#82E	1347B	9	rips	327	W	n
Caneadea	Pk	Strm#82E	1347B	14	lngd	331	W	n
Caneadea	Pk	Strm#82E	1347B	16	lngd	296	W	n
Caneadea	Pk	Strm#82E	1347B	30	st. asym	328	W	n
Caneadea	Pk	Strm#82E	1347B	32	sin asym	348	W	n
Caneadea	Pk	Strm#82E	1347B	34	3D rips	330	W	n
Caneadea	Pk	Strm#82E	1347B	36	lngd	305	W	n
Caneadea	Pk	Strm#82E	1348	5	grv	275	Bi	y
Caneadea	Pk	Strm#82E	1348	9	grv	271	Bi	y
Caneadea	Pk	Strm#82E	1348	6	lngd	299	W	n
Caneadea	Pk	Strm#82E	1348	9	rips	337	W	n
Caneadea	Pk	Strm#82E	1349	8	grv	265	Bi	y
Caneadea	Pk	Strm#82E	1349	16	p. lins	287	Bi	n
Caneadea	Pk	Strm#82E	1349	1	lngd	330	W	n
Caneadea	Pk	Strm#82E	1349	4	3D rips	325	W	n
Caneadea	Pk	Strm#82E	1349	6	3D rips	303	W	n
Caneadea	Pk	Strm#82E	1349	11	sin asym	296	W	n
Caneadea	Pk	Strm#82E	1349	14	3D rips	330	W	n
Caneadea	Pk	Strm#82E	1349B	3	grv	288	Bi	y
Caneadea	Pk	Strm#82E	1349B	4	grv	348	Bi	y
Caneadea	Pk	Strm#82E	1349B	6	grv	295	Bi	y
Caneadea	Pk	Strm#82E	1349B	6	grv	350	Bi	y
Caneadea	Pk	Strm#82E	1349B	15	grv	342	Bi	y
Caneadea	Pk	Strm#82E	1349B	4	rips	350	W	n
Caneadea	Pk	Strm#82E	1349C	4	grv	190	Bi	y
Caneadea	Pk	Strm#82E	1349C	4	mega	350	W	n
Caneadea	Pk	Strm#82E	1349C	4	mega	343	W	n
Caneadea	Pk	Strm#82E	1349C	4	mega	331	W	n
Caneadea	Pk	Strm#82E	1349C	4	mega	327	W	n
Machias	Pk	Strm#82B	1350A	1	frw	288	Bi	y
Machias	Pk	Strm#82B	1353	1	st. asym	256	W	n
Machias	Pk	Strm#81	1355	1	lngd	335	W	n
Machias	Pk	Strm#81	1355B	3	grv	279	Bi	y
Caneadea	Pk	Strm#74	1362	22	p. lins	237	Bi	n
Caneadea	Pk	Strm#74	1362	23	p. lins	240	Bi	n
Caneadea	Pk	Strm#74	1362	24	p. lins	240	Bi	n
Caneadea	Pk	Strm#74	1362	53	grv	266	Bi	y
Caneadea	Pk	Strm#74	1362	57	grv	255	Bi	y
Caneadea	Pk	Strm#74	1362	32	3D rips	295	W	n
Caneadea	Pk	Strm#74	1362	56	rips	300	W	n
Caneadea	Pk	Strm#74	1362	57	rips	351	W	n
Caneadea	Pk	Strm#73	1363B	14	int. rips	30	E	n
Caneadea	Pk	Strm#73	1363B	14	int. rips	50	E	n
Caneadea	Pk	Strm#73	1364A	6	grv	261	Bi	y
Caneadea	Pk	Strm#73	1364C	1	lngd	340	W	n
Caneadea	Pk	Strm#72	1365A	28	frw	285	Bi	y
Caneadea	Pk	Strm#72	1365A	28	grv	290	Bi	y
Caneadea	Pk	Strm#72	1365A	27	trough	350	W	n
Caneadea	Pk	Strm#72	1366	22	grv	288	Bi	y
Caneadea	Pk	Strm#30	1369A	16	frw	320	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	Pk	Strm#30	1369A	16	frw	321	Bi	y
Caneadea	Pk	Strm#30	1369A	14	lngd	320	W	n
Caneadea	Pk	Strm#30	1369A	17	sin asym	325	W	n
Caneadea	Pk	Strm#30	1369C	23	frw	310	Bi	y
Caneadea	Pk	Strm#30	1371	6	grv	261	Bi	y
Caneadea	Pk	Strm#30	1372A	4	grv	325	Bi	y
Caneadea	Pk	Strm#30	1372A	3	trough	320	W	n
Caneadea	Pk	Strm#50	1373A	59	p. lins	269	Bi	n
Caneadea	Pk	Strm#50	1373A	60	rips	55	E	n
Caneadea	Pk	Strm#50	1373A	62	rips	78	E	n
Caneadea	Pk	Strm#50	1373A	62	rips	78	E	n
Caneadea	Pk	Strm#50	1373A	62	rips	60	E	n
Caneadea	Pk	Strm#50	1373A	62	rips	88	E	n
Caneadea	Pk	Strm#50	1373A	64	rips	85	E	n
Caneadea	Pk	Strm#50	1373A	64	rips	80	E	n
Caneadea	Pk	Strm#50	1373A	59	lngd	295	W	n
Caneadea	Pk	Strm#94	1400	3	grv	284	Bi	y
Caneadea	Pk	Strm#94	1400	1	mega	45	E	n
Caneadea	Pk	Strm#94	1401	3	grv	248	Bi	y
Rushford L	Pk	Strm#94	1403	2	trough	85	E	n
Rushford L	Pk	Strm#94	1406	11	lngd	22	E	n
Rushford L	Pk	Strm#94	1406	11	trough	35	E	n
Rushford L	Pk	Strm#94	1406	11	int. rips	30	E	n
Caneadea	Pk	Strm#95	1411	1	p. lins	283	Bi	n
Caneadea	Pk	Strm#95	1411	11	p. lins	275	Bi	n
Caneadea	Pk	Strm#95	1411	14	grv	270	Bi	y
Caneadea	Pk	Strm#95	1413	6b	grv	270	Bi	y
Caneadea	Pk	Strm#95	1416	3	grv	305	Bi	y
Caneadea	Gow	1998	TK-1	602	p. lins	245	Bi	n
Caneadea	Gow	1998	TK-1	605b	p. lins	213	Bi	n
Caneadea	Gow	1998	TK-1	600	rips	270	W	n
Caneadea	Gow	1998	TK-1	603	rips	223	W	n
Caneadea	Gow	1998	TK-1	606	st. asym	255	W	n
Caneadea	Gow	1998	TK-1	606	st. asym	266	W	n
Caneadea	Gow	1998	TK-1	608	sin asym	300	W	n
Caneadea	Gow	1998	TK-3	594	rips	5	E	n
Caneadea	Gow	1998	TK-4	592	x-beds	50	W	n
Caneadea	Gow	1998	TK-4a	1	sin asym	325	W	n
Caneadea	Gow	1998	TK-4a	3	st. asym	328	W	n
Caneadea	Gow	1998	TK-4a	9	st. asym	345	W	n
Caneadea	Gow	1998	TK-5	587	lngd	355	W	n
Caneadea	Gow	1998	TK-7	11	frw	247	Bi	y
Caneadea	Gow	1998	TK-7	9c	sin asym	245	W	n
Caneadea	Gow	1998	TK-8	2	st. asym	180	S	n
Caneadea	Gow	1998	TK-8	1	x-beds	190	W	n
Caneadea	Gow	1998	TK-9	8	rips	170	E	n
Caneadea	Gow	1998	TK-11	2	p. lins	250	Bi	n
Caneadea	Gow	1998	TK-11	2	st. asym	175	E	n
Caneadea	Gow	1998	TK-11	1	rips	175	E	n
Caneadea	Gow	1998	TK-11	5	rips	272	W	n
Caneadea	Gow	1998	TK-12	11	frw	262	Bi	y
Caneadea	Gow	1998	TK-12	11	grv	262	Bi	y
Caneadea	Gow	1998	TK-13	2	grv	343	Bi	y
Caneadea	Gow	1998	TK-13	2	p. lins	343	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	Gow	1999	TK-14	578	p. lins	235	Bi	n
Caneadea	Gow	1999	TK-17	27	grv	296	Bi	y
Caneadea	Gow	1999	TK-17	27	grv	305	Bi	y
Caneadea	Gow	1999	TK-17	27	grv	303	Bi	y
Caneadea	Gow	1999	TK-17	31	grv	276	Bi	y
Caneadea	Gow	1999	TK-17	31	grv	300	Bi	y
Caneadea	Gow	1999	TK-17	3	clmb rips	220	W	n
Caneadea	Gow	1999	TK-17	3	clmb rips	224	W	n
Caneadea	Gow	1999	TK-18	16	grv	240	Bi	y
Caneadea	Gow	1999	TK-18	16	grv	250	Bi	y
Hume	Gow	1999	TK-18	8	clmb rips	236	W	y
Caneadea	Gow	1998	TK-1a	614	rips	350	W	n
Caneadea	Gow	1999	TK-21	7	frw	255	Bi	y
Caneadea	Gow	1999	TK-21	7	grv	250	Bi	y
Caneadea	Gow	1999	TK-22	13	clmb rips	240	W	n
Caneadea	Gow	1999	TK-24	2c	grv	215	Bi	y
Caneadea	Gow	1999	TK-24	10	grv	310	Bi	y
Caneadea	Gow	1999	TK-24	11	grv	258	Bi	y
Caneadea	Gow	1999	TK-24	4	sin asym	330	W	n
Caneadea	Gow	1999	TK-25	2	grv	315	Bi	y
Caneadea	Gow	1999	TK-25	2	grv	300	Bi	y
Caneadea	Gow	1999	TK-25	4	grv	297	Bi	y
Caneadea	Gow	1999	TK-25	7	grv	310	Bi	y
Caneadea	Gow	1999	TK-25	0	clmb rips	285	W	n
Caneadea	Gow	1999	TK-26	2	grv	270	Bi	y
Caneadea	Gow	1999	TK-26	29	grv	230	Bi	y
Caneadea	Gow	1999	TK-26	29	grv	252	Bi	y
Caneadea	Gow	1999	TK-26	34	grv	315	Bi	y
Caneadea	Gow	1999	TK-26	41b	sym	308	Bi	n
Caneadea	Gow	1999	TK-26	51	grv	266	Bi	y
Caneadea	Gow	1999	TK-26	0	sin asym	270	W	n
Caneadea	Gow	1999	TK-26	2	sin asym	258	W	n
Caneadea	Gow	1999	TK-26	2	sin asym	315	W	n
Caneadea	Gow	1999	TK-26	34	rips	280	W	n
Caneadea	Gow	1999	TK-26	39	sin asym	295	W	n
Caneadea	Gow	1999	TK-26	43	rips	305	W	n
Rushford L	Del	F1	1	1c	trough	4	E	n
Rushford L	Del	F1	2	6	rips	10	E	n
Rushford L	Del	F1	2	6	trough	16	E	n
Rushford L	Del	F1	1	1c	trough	338	W	n
Machias	Del	F2	6	6	asym	52	E	n
Machias	Del	F2	6	6	asym	35	E	n
Machias	Del	F2	6	6	asym	36	E	n
Machias	Del	F2	6	6	trough	50	E	n
Machias	Del	F2	6	8	sin asym	2	E	n
Machias	Del	F2	6	8	sin asym	355	W	n
Machias	Del	F2	6	8	sin asym	355	W	n
Machias	Del	F2	6	12	st. asym	325	W	n
Machias	Del	F2	6	12	st. asym	314	W	n
Machias	Del	F2	6	12	st. asym	285	W	n
Rushford L	Frnk	Narrows	F13A	4	p. lins	220	Bi	n
Rushford L	Frnk	Narrows	F13A	4	st. asym	45	E	n
Caneadea	Alfd	McHny	A1	3b	rips	290	W	n
Caneadea	Alfd	McHny	A1	3b	rips	288	W	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Caneadea	Alfd	McHny	A1	3a	rips	294	W	n
Caneadea	Alfd	McHny	A1	3a	rips	310	W	n
Caneadea	WV	West Vlly	1	12	grv	270	Bi	y
Caneadea	WV	West Vlly	1	14	grv	230	Bi	y
Caneadea	WV	West Vlly	1	17	grv	245	Bi	y
Rushford L	WV	West Vlly	3	5	sym	339	Bi	n
Rushford L	WV	West Vlly	3	8	sym	222	Bi	n
Rushford L	WV	West Vlly	3	4	trough	82	E	n
Cuba	WV	West Vlly	8	0	trough	342	W	n
Cuba	WV	West Vlly	8	1	trough	318	W	n
Caneadea	WV	West Vlly	9	19	grv	251	Bi	y
Rushford L	WV	West Vlly	10	2	grv	233	Bi	y
Machias 2nd	WV	West Vlly	13	4	grv	278	Bi	y
Machias	WV	West Vlly	13	1	grv	182	Bi	y
Caneadea	WV	West Vlly	14	5	grv	309	Bi	y
Caneadea	WV	West Vlly	14	15a	grv	296	Bi	y
Caneadea	WV	West Vlly	14	19d	p. lins	274	Bi	n
Caneadea	WV	West Vlly	14	9	lngd	313	W	n
Machias 2nd	WV	West Vlly	17	1a	sin asym	109	E	n
Machias 3rd	WV	West Vlly	18	1	sin asym	319	W	n
Caneadea	WV	West Vlly	20	11	grv	214	Bi	y
Caneadea	WV	West Vlly	20	7	p. lins	238	Bi	n
Caneadea	WV	West Vlly	20	3	lngd	358	W	n
Rushford L	WV	West Vlly	20	19a	st. asym	294	W	n
Rushford U	WV	West Vlly	21	15	trough	356	W	n
Rushford L	WV	West Vlly	28	1a	p. lins	328	Bi	n
Rushford L	WV	West Vlly	28	1c	st. asym	311	W	n
Rushford L	WV	West Vlly	28	1e	st. asym	305	W	n
Machias	WV	West Vlly	29	5	st. asym	40	E	n
Machias	WV	West Vlly	29	5	st. asym	245	W	n
Machias	WV	West Vlly	29	5	st. asym	235	W	n
Machias	WV	West Vlly	29	5	st. asym	250	W	n
Machias	WV	West Vlly	29	5	st. asym	260	W	n
Machias	WV	West Vlly	29	5	st. asym	270	W	n
Caneadea	WV	West Vlly	14c	42c	mega	300	W	n
Caneadea	WV	West Vlly	1a	8a	grv	239	Bi	y
Caneadea	WV	West Vlly	1a	1	p. lins	255	Bi	n
Caneadea	WV	West Vlly	1a	5	p. lins	245	Bi	n
Machias 1st	WV	West Vlly	21a	30	grv	337	Bi	y
Machias 1st	WV	West Vlly	21a	34	p. lins	299	Bi	n
Machias 1st	WV	West Vlly	21a	44	sin asym	332	W	n
Machias 1st	WV	West Vlly	21a	32c	st. asym	330	W	n
Machias 1st	WV	West Vlly	21a	35	st. asym	338	W	n
Machias	WV	West Vlly	21a	26	st. asym	252	W	n
Rushford U	WV	West Vlly	21a	17	sym	319	Bi	n
Rushford U	WV	West Vlly	21a	18	x-beds	152	E	n
Caneadea	Gow	2000	103	1	frw	249	Bi	y
Rushford L	Gow	2000	104	2	p. lins	187	Bi	n
Rushford L	Gow	2000	104	4	mega	263	W	n
Rushford L	Gow	2000	104	5	sin asym	266	W	n
Rushford L	Gow	2000	104	8	st. asym	275	W	n
Caneadea	Gow	2000	1050	7	grv	308	Bi	y
Laona	Gow	2000	3000	1e	p. lins	288	Bi	n
Laona	Gow	2000	3000	5a	p. lins	341	Bi	n

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Laona	Gow	2000	3000	5b	p. lins	313	Bi	n
Laona	Gow	2000	3000	12	p. lins	321	Bi	n
Laona	Gow	2000	3000	21	grv	297	Bi	y
Laona	Gow	2000	3000	23	p. lins	241	Bi	n
Laona	Gow	2000	3000	1d	mega	304	W	n
Laona	Gow	2000	3000	7a	mega	311	W	n
Laona	Gow	2000	3010	3a	grv	305	Bi	y
Laona	Gow	2000	3010	3b	grv	305	Bi	y
Laona	Gow	2000	3030	1	st. asym	334	W	n
Machias	Blmt	2001	1	7	grv	241	Bi	y
Machias	Blmt	2001	1	8	frw	206	Bi	y
Machias	Blmt	2001	1	7	st. asym	1	E	n
Machias	Blmt	2001	1	7	st. asym	277	W	n
Cuba	Cba	2001	3	12	asym	78	E	y
Wellsville	Blmt	2001	4	3	trough	300	W	n
Wellsville	Blmt	2001	4	12	trough	280	W	n
Whitesville	Blmt	2001	5	11	grv	312	Bi	y
Cuba	Blmt	2001	6	32c	sym	201	Bi	n
Cuba	Blmt	2001	6	32e	asym	231	W	n
Cuba	Blmt	2001	6	36e	asym	230	W	n
Hinsdale	Cba	2001	13	13	grv	258	Bi	y
Hinsdale	Ash	2001	25	1	trough	248	W	n
Whitesville	Hmph	2001	30	5	sym	328	Bi	n
Machias 3rd	Frnk	2001	32	3	sym	268	Bi	n
Machias 3rd	Frnk	2001	32	3	trough	74	E	n
Machias 1st	Hins	2001	33	5	sym	332	Bi	n
Machias 1st	Hins	2001	33	9	sym	183	Bi	n
Machias 1st	Hins	2001	33	11	frw	284	Bi	y
Oswayo	Olean	2001	49	3	grv	279	Bi	y
Oswayo	Olean	2001	49	25	grv	273	Bi	y
Oswayo	Olean	2001	49	25	grv	269	Bi	y
Oswayo	Olean	2001	53	24	p. lins	292	Bi	n
Cattaraugus	Sal	2001	All3	7	x-beds	281	W	n
Machias	AH	AshHoll	A3	4	trough	220	W	n
Cuba	AH	AshHoll	A10	1	trough	235	W	n
Cuba	AH	AshHoll	A10	1	trough	332	W	n
Cuba	AH	AshHoll	A10	1	trough	231	W	n
Cuba	AH	AshHoll	A10	3	trough	239	W	n
Machias	AH	AshHoll	A13	2	p. lins	275	Bi	n
Machias	AH	AshHoll	A13	3	p. lins	274	Bi	n
Machias	AH	AshHoll	A13	10	st. asym	1	E	n
Caneadea	AH	AshHoll	A16	6	frw	260	Bi	y
Caneadea	AH	AshHoll	A16	6	frw	263	Bi	y
Caneadea	AH	AshHoll	A16	6	frw	275	Bi	y
Rushford L	Del	2003	116B	3	trough	90	E	n
Rushford L	Ellct	2003	E13	5	trough	50	E	n
Machias 1st	Ellct	2003	E16	5	sym	285	Bi	n
Machias 1st	Ellct	2003	E20	2	st. asym	64	E	n
Machias 2nd	Ellct	2003	E23	1	sym	267	Bi	n
Rushford L	Ellct	2003	E4	9	trough	261	W	n
Hinsdale	Sal	2003	E6	6	asym	338	W	n
Hinsdale	Sal	2003	E6	7	asym	307	W	n
Machias	Ellct	2003	E8	11	frw	252	Bi	y
Machias	Ellct	2003	E8	11	frw	255	Bi	y

Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Cattaraugus	Whtv	2005	8	1a	st. asym	250	W	n
Cattaraugus	Whtv	2005	8	1b	sin asym	109	E	n
Cattaraugus	Whtv	2005	8	3	int. rips	44	E	n
Cattaraugus	Whtv	2005	8	3	int. rips	124	E	n
Cattaraugus	Whtv	2005	8	4	mega	170	E	n
Cattaraugus	Whtv	2005	8	5	st. asym	314	W	n
Cattaraugus	Whtv	2005	15	3	sym	260	Bi	n
Whitesville	Red	2005	20	19	grv	277	Bi	y
Machias	WelN	2005	27	20a	chnl	296	Bi	y
Whitesville	WelN	2005	31	7	grv	292	Bi	y
Whitesville	WelS	2005	34	4	sin asym	126	E	n
Oswayo	Allntn	2005	36	1	st. asym	132	E	n
Hinsdale	LtVly	2005	37	16	sin asym	155	E	n
Hinsdale	LtVly	2005	37	13	sin asym	181	W	n
Rushford L	Del	2005	112	9	asym	150	E	n
Rushford L	Del	2005	112	39	st. asym	88	E	n
Rushford L	Del	2005	112	9	trough	315	W	n
Salamanca	Sal	2005	B1	1	x-beds	56	E	n
Salamanca	Sal	2005	B1	2	x-beds	103	E	n
Salamanca	Sal	2005	B1	2	x-beds	146	E	n
Salamanca	Sal	2005	B1	3	x-beds	11	E	n
Salamanca	Sal	2005	B1	3	x-beds	166	E	n
Salamanca	Sal	2005	B1	1	x-beds	278	W	n
Salamanca	Sal	2005	B1	5	trough	220	W	n
Salamanca	Sal	2005	B2	1	x-beds	47	E	n
Salamanca	Sal	2005	B2	1	x-beds	60	E	n
Salamanca	Sal	2005	B2	2	x-beds	140	E	n
Salamanca	Sal	2005	B2	2	x-beds	251	W	n
Salamanca	Sal	2005	B2	5	rips	190	W	n
Salamanca	Sal	2005	B2	5	rips	196	W	n
Salamanca	Sal	2005	B2	5	rips	206	W	n
Salamanca	Sal	2005	B3	1	x-beds	54	E	n
Salamanca	Sal	2005	B4	1	x-beds	57	E	n
Salamanca	Sal	2005	B9	1	x-beds	25	E	n
Salamanca	Sal	2005	B9	1	x-beds	46	E	n
Salamanca	Sal	2005	B9	1	x-beds	50	E	n
Salamanca	Sal	2005	B9	2	x-beds	254	W	n
Salamanca	Sal	2005	BC1	2	int. xbd	175	E	n
Salamanca	Sal	2005	E1	1	int. xbd	147	E	n
Salamanca	Sal	2005	E2	1	x-beds	134	E	n
Salamanca	Sal	2005	E3	1	x-beds	242	W	n
Salamanca	Sal	2005	J1	4	int. xbd	163	E	n
Salamanca	Sal	2005	J1	4	int. xbd	150	E	n
Salamanca	Sal	2005	N1	1	x-beds	65	E	n
Salamanca	Sal	2005	N1	1	int. xbd	140	E	n
Salamanca	Sal	2005	N2	2	int. xbd	130	E	n
Salamanca	Sal	2005	N2	2	int. xbd	127	E	n
Salamanca	Sal	2005	N2	2	int. xbd	114	E	n
Salamanca	Sal	2005	N2	5	x-beds	35	E	n
Salamanca	Sal	2005	N2	5	x-beds	45	E	n
Salamanca	Sal	2005	N2	6	x-beds	75	E	n
Salamanca	Sal	2005	N2	6	x-beds	45	E	n
Salamanca	Sal	2005	N3	1	x-beds	20	E	n
Salamanca	Sal	2005	N3	1	x-beds	10	E	n

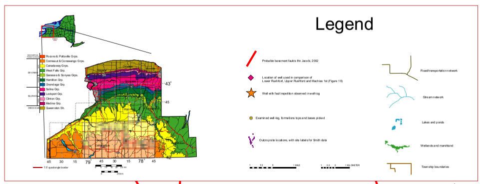
Unit	Quad	Site	Location	Bed	Type	Flow Orient	Direction	Sole?
Salamanca	Sal	2005	N3	1	trough	123	E	n
Salamanca	Sal	2005	N5A	1	x-beds	152	E	n
Salamanca	Sal	2005	N5A	1	int. xbd	110	E	n
Salamanca	Sal	2005	N6	1	x-beds	37	E	n
Salamanca	Sal	2005	N6	1	int. xbd	118	E	n
Whitesville	Sal	2005	RC1	31	frw	242	Bi	y
Whitesville	Sal	2005	RC1	1	trough	65	E	n
Whitesville	Sal	2005	RC1	1	int. rips	245	W	n
Whitesville	Sal	2005	RC1	9	int. rips	235	W	n
Whitesville	Sal	2005	RC1	9	int. rips	323	W	n
Whitesville	Sal	2005	RC1	19	sin asym	325	W	n
Whitesville	Sal	2005	RC1	21	int. rips	330	W	n
Whitesville	Sal	2005	RC1	21	int. rips	250	W	n
Whitesville	Sal	2005	RC1	28	adhsn	290	W	n
Whitesville	Sal	2005	RC1	41b	trough	306	W	n
Salamanca	Sal	2005	S1W	1	int. xbd	170	E	n

List of Abbreviations

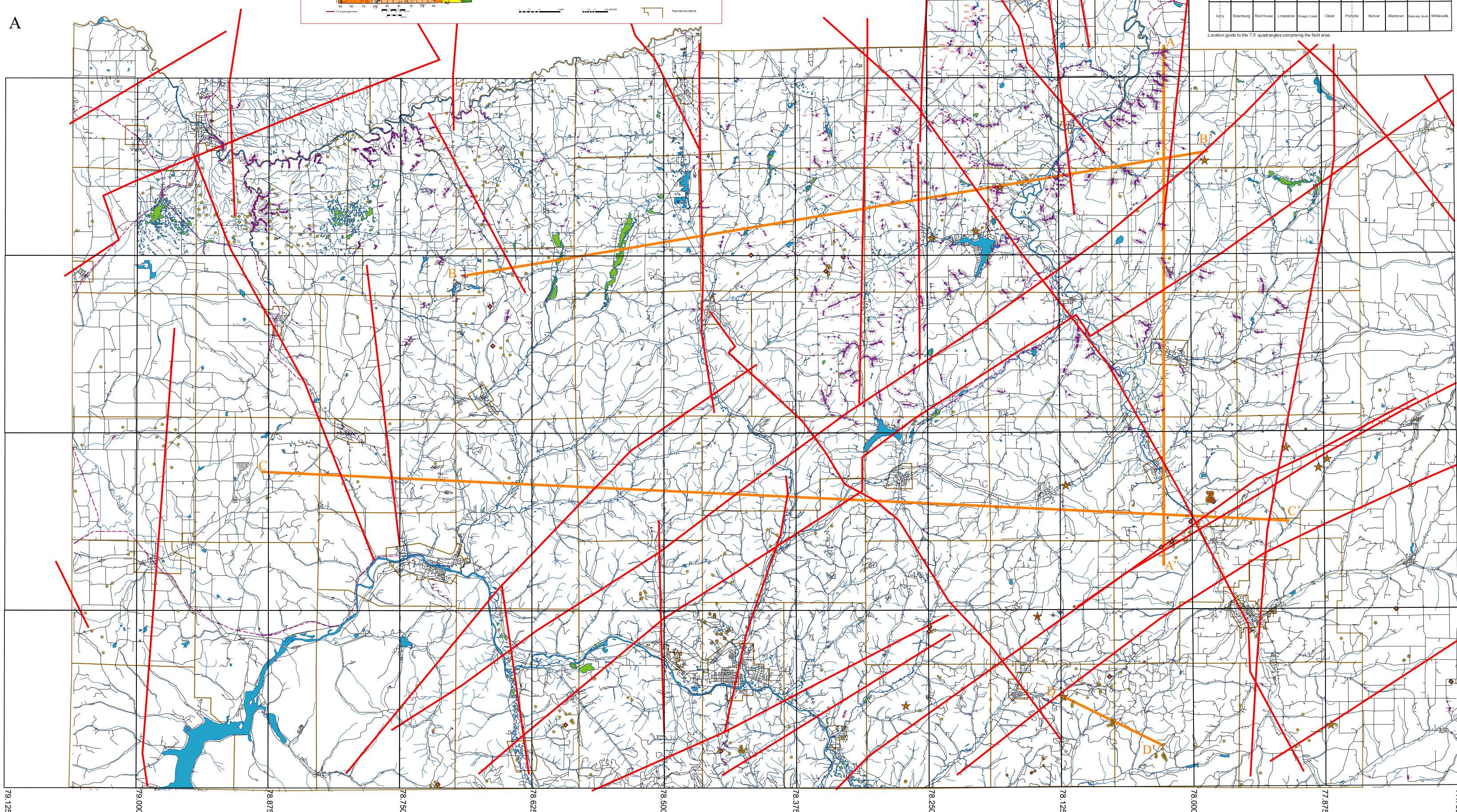
Quadrangle		Paleoflow Indicator	
A	Angelica	3D rips	3-dimension ripples
AH	Ashford Hollow	adhsn	adhesion ripples
Alfd	Alfred	asym	asymmetrical ripple
Alntwn	Allentown	chnl	channel
Ash	Ashford	clmb rips	climbing ripples
BC	Black Creek	dune	dune - large 2-d ripples
Blmt	Belmont	f. moat	fossil moat
Cba	Cuba	flutes	flute cast
Del	Delevan	frw	furrows (guttercasts)
Ellct	Ellicottville	grv	grooves and striations
F	Fillmore	hcs	hummocky cross-stratification
Fr	Freedom	int. rips	interference ripples
Frnk	Franklinville	int. xbd	internal cross-beds
Gow	Gowanda	lngd	linguiod ripples
H	Houghton	lngd clmb	linguiod ripples, climbing
Hins	Hinsdale	mega	mega-ripples, large 2-d < dunes
Hmph	Humphrey	p. lins	parting lineations
LtVly	Little Valley	rips	ripples, unclassified
Olean	Olean	sin asym	sinuous crested asymmetrical ripples
P	Portageville	sin clmb	sinuous crested climbing ripples
Pk	Pike	sin to st	sinuous to straight crested ripples
R	Rawson	st. asym	straight crested asymmetrical ripples
Red	RedHouse	st. clmb	straight crested climbing ripples
Sal	Salamanca	starved	starved rippled
WA	West Almond	sym	symmetrical ripples
WelN	Wellsville North	trough	trough cross-sets
WelS	Wellsville South	wood	wood or plant fragment
Whtv	Whitesville	wx. rips	weathered rippled
WV	West Valley	x-beds	cross-beds

Plate 1. A) Location map of measured outcrops, examined wells and basement faults from Jacobi 2002. Also highlighted are wells used to illustrate Rushford - Machias 1st gamma ray signature, and wells with fault repeated sections.
B) Generalized stratigraphic column for Allegany-Cattaraugus counties with vector mean paleoflow directions for units as well as seuquence stratigraphic systems denoting sequences tract and parasequences for the Late Devonian.

Field sites and examined well locations



A



B