Figure 2.5-187 {Regional Tectonic Features}

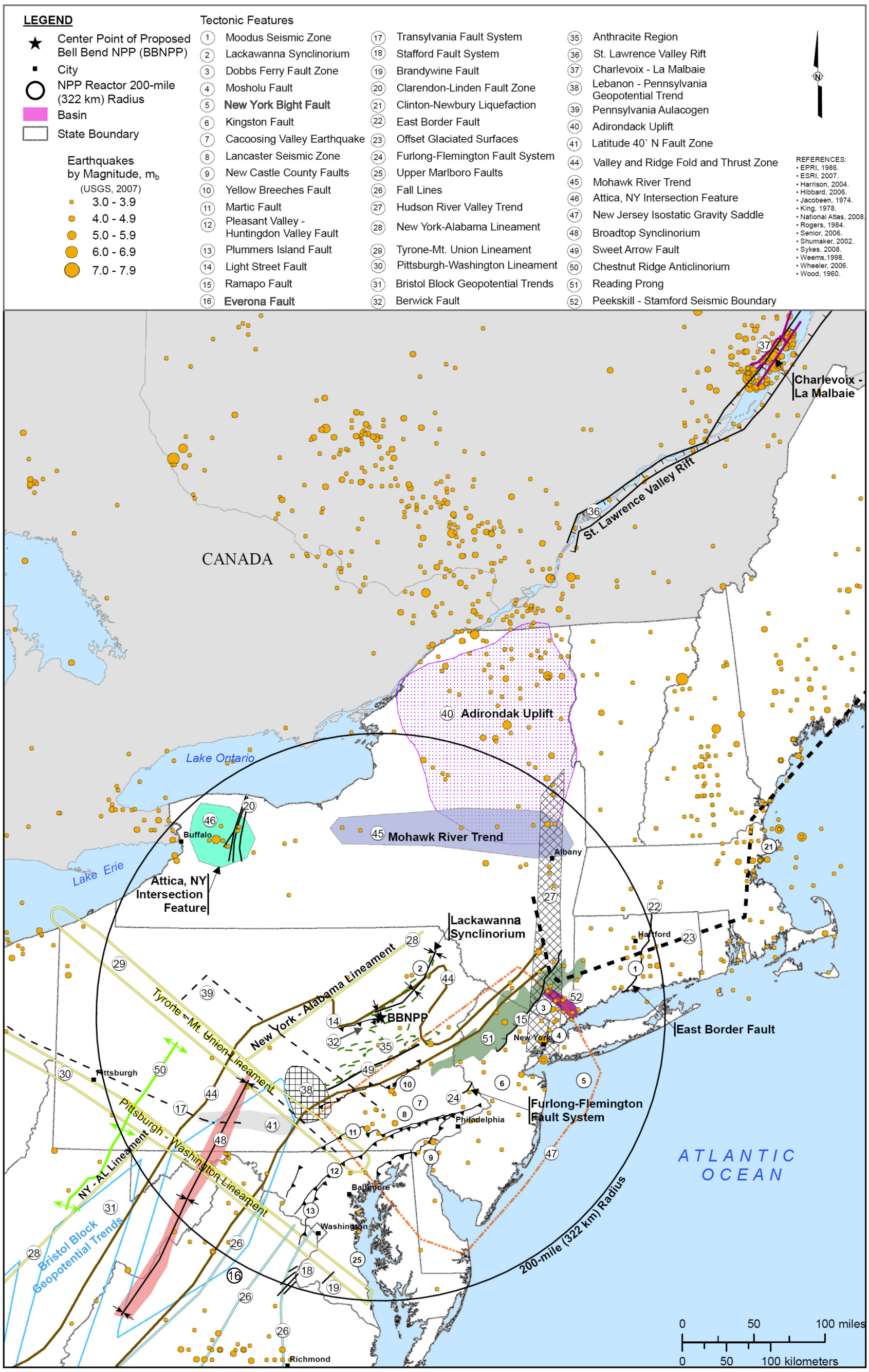

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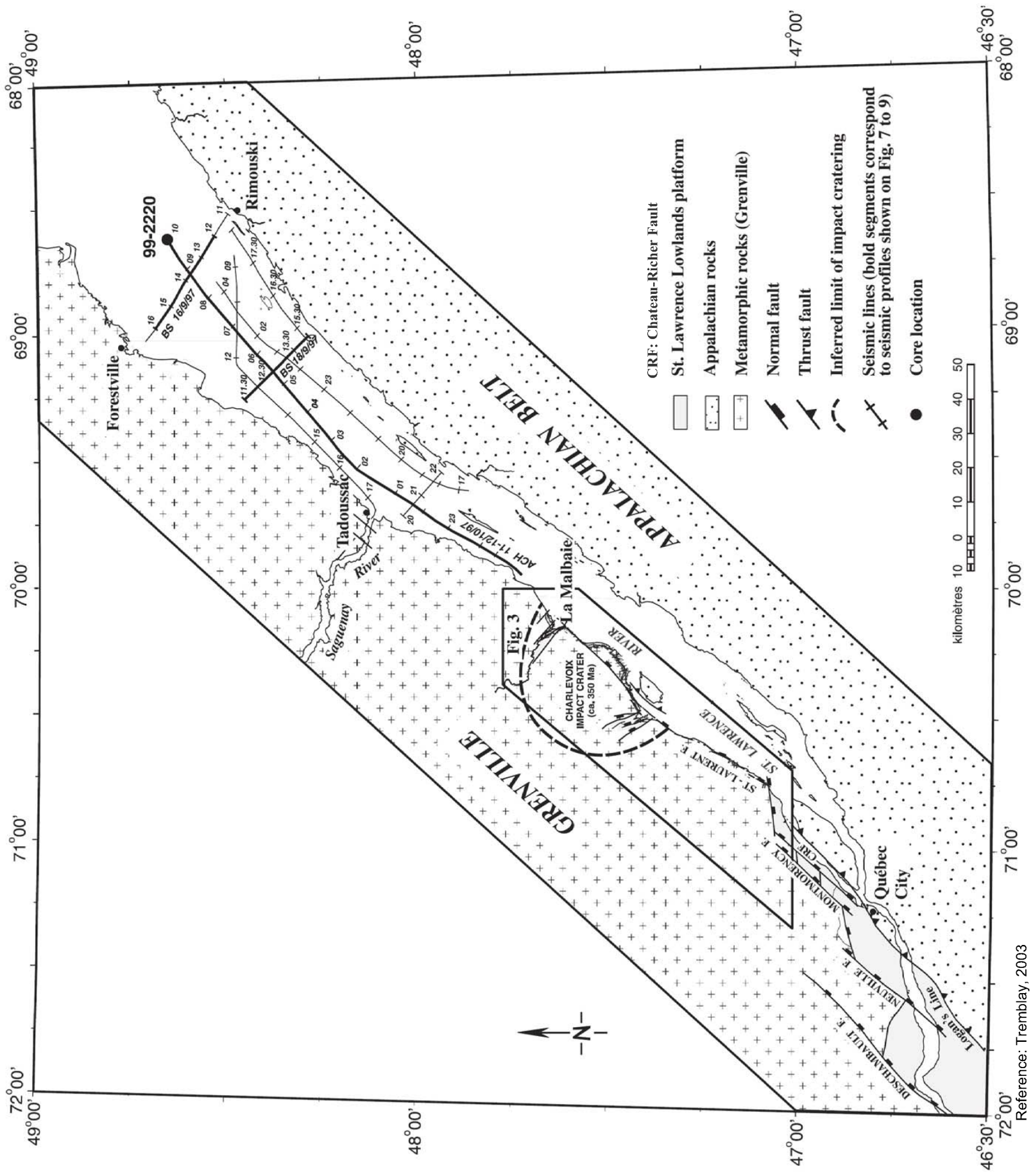
Figure 2.5-188 {Geological Map of the St. Lawrence Rift System Between Quebec City and the St. Lawrence Estuary}



Reference: Tremblay, 2003

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Figure 2.5-189 {Regional Tectonic Basins with Gravity and Magnetic Anomalies}

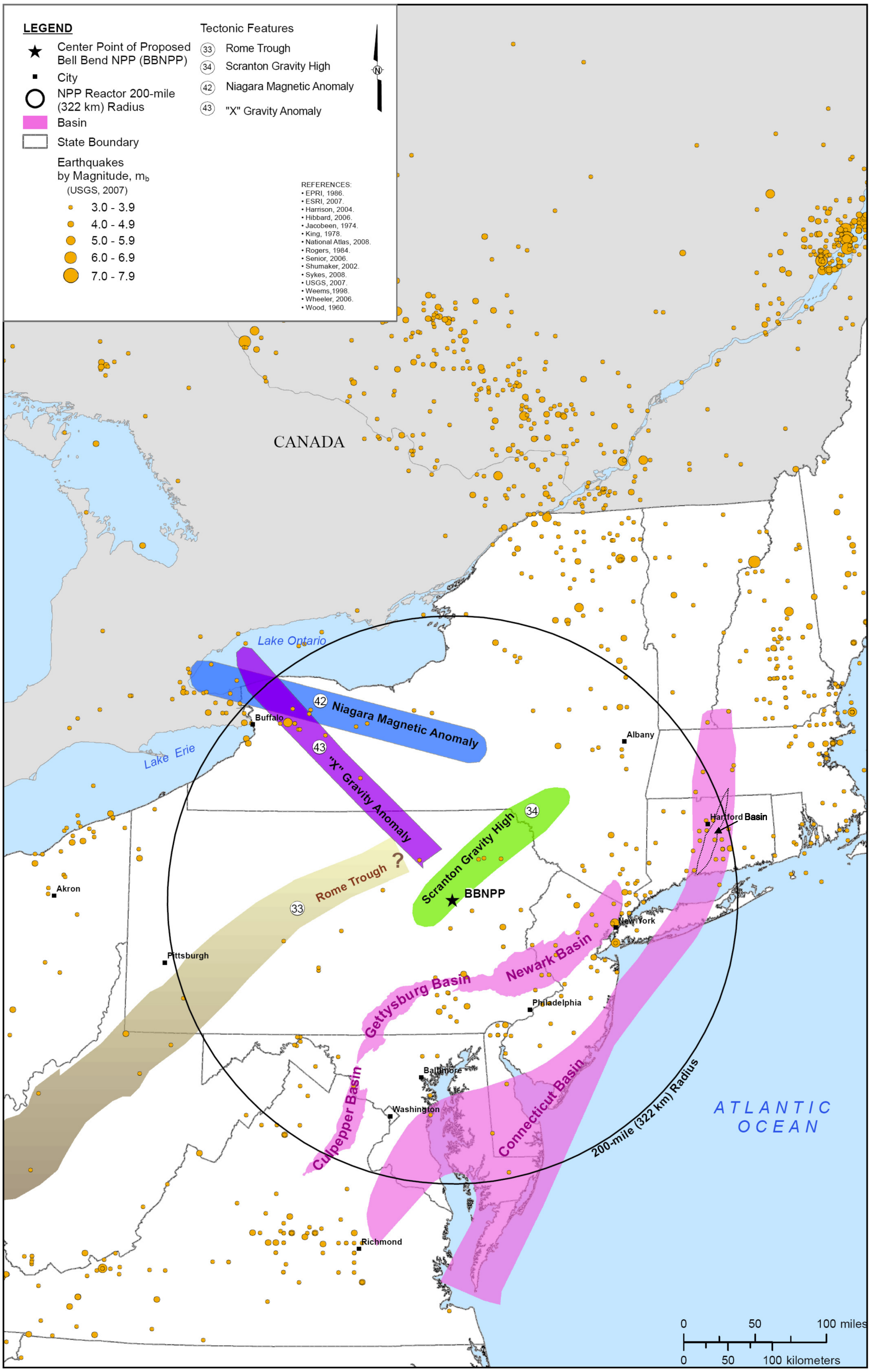

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Figure 2.5-190 {Regional Cross Section}

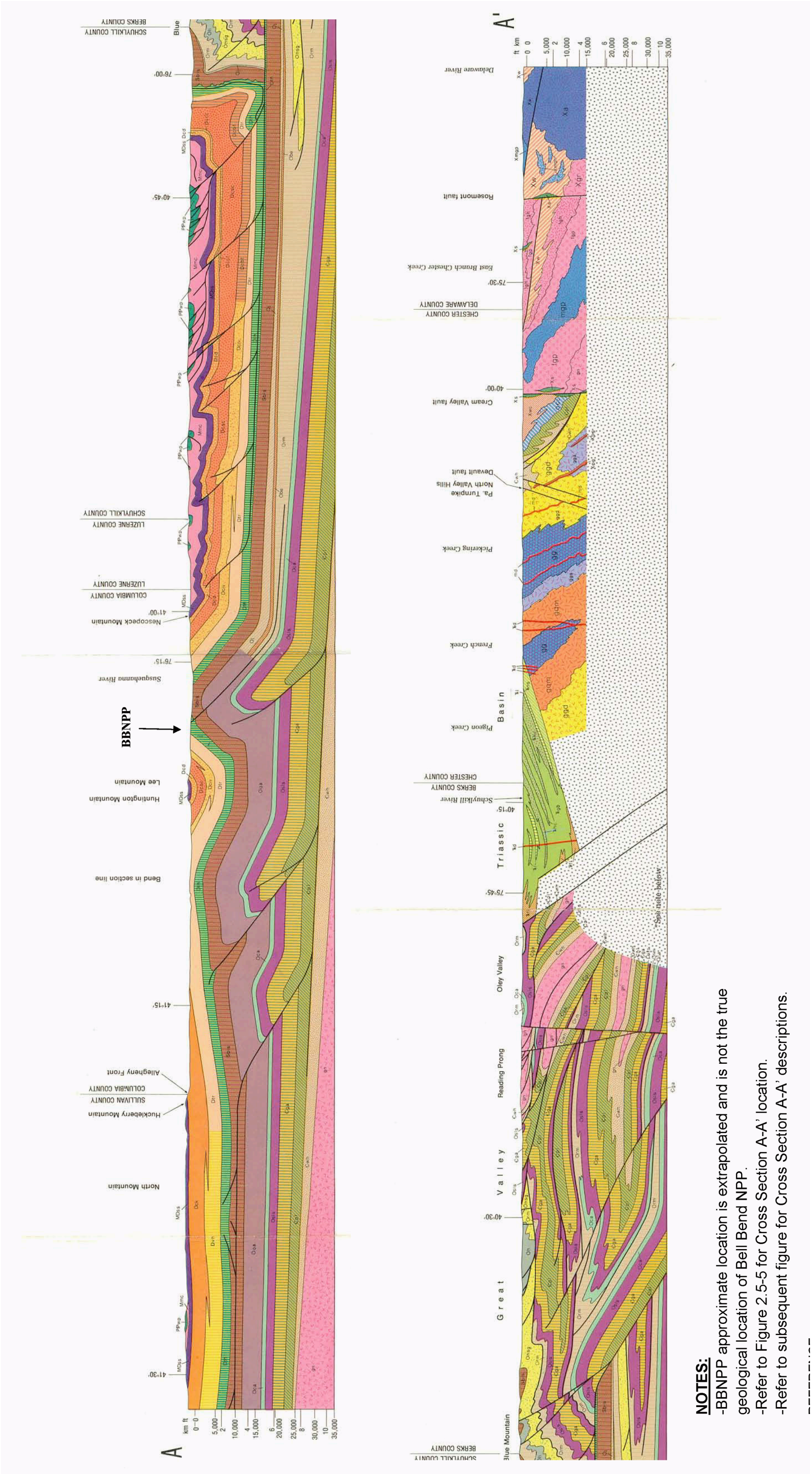

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Figure 2.5-191 {Stratigraphic Description for Regional Cross Section}

TRIASSIC

- Ŧd — DIABASE
- Ŧfl — LIMESTONE FANGLOMERATE
- Ŧfq — QUARTZ FANGLOMERATE
- Ŧgb — GETTYSBURG, HAMMER CREEK, AND BRUNSWICK FORMATIONS, UNDIVIDED
- Ŧgh — HEIDLERSBURG MEMBER OF GETTYSBURG FORMATION
- Ŧl — LOCKATONG FORMATION
- Ŧhc — HAMMER CREEK CONGLOMERATE
  Also includes some conglomerate in Gettysburg Formation.
- Ŧns — NEW OXFORD AND STOCKTON FORMATIONS, UNDIVIDED
- Ŧnc — NEW OXFORD CONGLOMERATE

PERMIAN AND PENNSYLVANIAN

- PIPwp — WAYNESBURG FORMATION, MONONGAHELA GROUP, CONEMAUGH GROUP, ALLEGHENY GROUP, AND POTTSVILLE GROUP, UNDIVIDED (western Pennsylvania); LLEWELLYN FORMATION AND POTTSVILLE GROUP, UNDIVIDED (eastern Pennsylvania)

MISSISSIPPIAN

- Mmc — MAUCH CHUNK FORMATION

MISSISSIPPIAN AND DEVONIAN

- MDms — Same as MDss (described below), but also includes MAUCH CHUNK FORMATION
- MDss — SHENANGO FORMATION, CUYAHOGA GROUP, BEREA OR CORRY SANDSTONE, BEDFORD SHALE, CUSSEWAGO SANDSTONE, AND RICEVILLE FORMATION OR OSWAYO FORMATION, UNDIVIDED (northwestern Pennsylvania); BURGOON SANDSTONE AND HUNTLEY MOUNTAIN FORMATION OR ROCKWELL FORMATION, UNDIVIDED (northern and western Pennsylvania); POCONO AND SPECHTY KOPF FORMATIONS, UNDIVIDED (eastern Pennsylvania)

DEVONIAN

UPPER

- Dck — CATSKILL FORMATION
- Dcd — DUNCANNON MEMBER OF CATSKILL FORMATION
- Dccf — CLARKS FERRY MEMBER OF CATSKILL FORMATION
- Dcsc — SHERMAN CREEK MEMBER OF CATSKILL FORMATION
- Dciv — IRISH VALLEY MEMBER OF CATSKILL FORMATION
- Dcbt — BEAVERDAM RUN, WALCKSVILLE, AND TOWAMENSING MEMBERS OF CATSKILL FORMATION, UNDIVIDED
- Dtr — TRIMMERS ROCK FORMATION
  Includes Harrell Formation in part of section A-A'.
- Dvh — VENANGO GROUP, CHADAKOIN FORMATION, GIRARD SHALE, NORTHEAST SHALE, SHUMLA SILTSTONE, WESTFIELD SHALE, LAONA SILTSTONE, PERRYSBURG FORMATION, JAVA FORMATION, WEST FALLS FORMATION, SONYEA FORMATION, AND GENESEE FORMATION, UNDIVIDED (northwestern Pennsylvania); VENANGO GROUP, CHADAKOIN FORMATION, BRADFORD GROUP, ELK GROUP, BRALLIER FORMATION, AND HARRELL FORMATION, UNDIVIDED (western Pennsylvania); LOCK HAVEN, FOREKNOBS, SCHERR, BRALLIER, AND HARRELL FORMATIONS, UNDIVIDED (Valley and Ridge province; northern Pennsylvania)
  Also includes equivalents of Ohio Shale, Chagrin Formation, and Huron Shale in parts of westernmost Pennsylvania.

DEVONIAN

MIDDLE AND LOWER

- Dth — TULLY LIMESTONE, HAMILTON GROUP, ONONDAGA FORMATION, BOIS BLANC FORMATION, ORISKANY SANDSTONE, AND MANLIUS FORMATION, UNDIVIDED (northwestern Pennsylvania); HAMILTON GROUP, ONONDAGA FORMATION, OLD PORT FORMATION, AND UPPER PART OF KEYSER FORMATION, UNDIVIDED (western Pennsylvania; Valley and Ridge province); MAHANTANGO FORMATION, MARCELLUS FORMATION, BUTTERMILK FALLS LIMESTONE, PALMERTON SANDSTONE, SCHOHARIE FORMATION, ESOPUS FORMATION, RIDGELEY SANDSTONE, SHRIVER CHERT, AND HELDERBERG GROUP, UNDIVIDED (eastern Pennsylvania)

SILURIAN

- Sbis — BASS ISLANDS GROUP, SALINA GROUP, LOCKPORT DOLOMITE, ROCHESTER SHALE, IRONDEQUOIT DOLOMITE, REYNALES DOLOMITE, AND MEDINA GROUP, UNDIVIDED (northwestern and western Pennsylvania); LOWER AND MIDDLE PARTS OF KEYSER FORMATION, TONOLOWAY FORMATION, WILLS CREEK FORMATION, BLOOMSBURG FORMATION, MIFFLINTOWN FORMATION, CLINTON GROUP, AND TUSCARORA FORMATION, UNDIVIDED (Valley and Ridge province); DECKER FORMATION, BOSSARDVILLE LIMESTONE, POXONO ISLAND FORMATION, BLOOMSBURG FORMATION, AND SHAWANGUNK FORMATION, UNDIVIDED (eastern Pennsylvania)

ORDOVICIAN

- Oqa — QUEENSTON SHALE, JUNIATA FORMATION, BALD EAGLE FORMATION, REEDSVILLE FORMATION, AND UTICA FORMATION OR ANTES SHALE, UNDIVIDED
- Oj — JUNIATA FORMATION
- Obe — BALD EAGLE FORMATION
- Orm — REEDSVILLE FORMATION AND UTICA FORMATION OR ANTES SHALE, UNDIVIDED (western Pennsylvania; Valley and Ridge province); MARTINSBURG FORMATION (Great Valley)
- Oh — HAMBURG SEQUENCE ROCKS (phyllitic shale)
  Includes some limestone.
- Ohsg — HAMBURG SEQUENCE ROCKS (shale and graywacke)
- Oca — COBURN, SALONA, NEALMONT, BENNER, SNYDER, HATTER, AND LOYSBURG FORMATIONS, UNDIVIDED (western Pennsylvania; Valley and Ridge province); CHAMBERSBURG FORMATION, ST. PAUL GROUP, HERSHEY FORMATION, MYERSTOWN FORMATION, JACKSONBURG FORMATION, AND ANNVILLE FORMATION, UNDIVIDED (Great Valley)
- Osls — SHADOW LAKE, BELLEFONTE, AXEMANN, NITTANY, AND STONEHENGE/LARKE FORMATIONS, UNDIVIDED (western Pennsylvania; Valley and Ridge province); PINESBURG STATION, ROCKDALE RUN, STONEHENGE, AND STOUFFERSTOWN FORMATIONS (BEEKMANTOWN GROUP), UNDIVIDED (Cumberland Valley sequence); ONTELAUNEE, EPLER, RICHENBACH, AND STONEHENGE FORMATIONS (BEEKMANTOWN GROUP), UNDIVIDED (Lebanon and Lehigh Valley sequences; northern Piedmont)

ORDOVICIAN AND CAMBRIAN

- OCc — CONESTOGA FORMATION

CAMBRIAN

- Ꞓga — GATESBURG FORMATION AND UPPER PART OF WARRIOR FORMATION, UNDIVIDED (western Pennsylvania; Valley and Ridge province); SHADYGROVE FORMATION, ZULLINGER FORMATION, AND UPPER PART OF ELBROOK FORMATION, UNDIVIDED (Cumberland Valley sequence); RICHLAND, MILLBACH, SCHAEFFERSTOWN, AND SNITZ CREEK FORMATIONS, UNDIVIDED (Lebanon Valley sequence); ALLENTOWN FORMATION (Lehigh Valley sequence)
- Ꞓgw — GATESBURG, WARRIOR, PLEASANT HILL, POTSDAM, ELBROOK, AND WAYNESBORO FORMATIONS, UNDIVIDED
  Also includes lateral equivalents of Tomstown Formation and Chilhowee Group (if present).
- Ꞓpl — POTSDAM FORMATION (western Pennsylvania); MIDDLE AND LOWER PARTS OF ELBROOK FORMATION, LOWER PART OF WARRIOR FORMATION, AND PLEASANT HILL FORMATION, UNDIVIDED (Valley and Ridge province); BUFFALO SPRINGS AND ZOOKS CORNER FORMATIONS, UNDIVIDED (Lebanon Valley sequence); LEITHSVILLE FORMATION (Lehigh Valley sequence).
- Ꞓwh — WAYNESBORO, TOMSTOWN, ANTIETAM, HARPERS, AND WEVERTON FORMATIONS, UNDIVIDED (south-central Pennsylvania); LEDGER, KINZERS, VINTAGE, ANTIETAM, HARPERS, CHICKIES, AND HARDYSTON FORMATIONS, UNDIVIDED (Lebanon Valley and Lehigh Valley sequences; northern Piedmont)

PRECAMBRIAN

- mv — METAVOLCANIC ROCKS
  Includes metabasalt, metarhyolite, and greenstone schist.
- md — METADIABASE
- gqm — QUARTZ MONZONITE AND QUARTZ MONZONITE GNEISS
- ggd — GRANODIORITE AND GRANODIORITE GNEISS
- gga — GABBROIC GNEISS AND GABBRO
- gg — GRAPHITIC GNEISS
- fgh — FELSIC GNEISS, HORNBLENDE-BEARING
- fgp — FELSIC GNEISS, PYROXENE-BEARING
- hg — HORNBLENDE GNEISS
- mgp — MAFIC GNEISS, PYROXENE-BEARING
- gn — GRANITIC GNEISS
  Includes all Precambrian and undifferentiated basement crystalline rocks (igneous or metamorphic).

PROBABLY LOWER PALEOZOIC

- Xpg — PEGMATITE
- Xa — ANORTHOSITE
- Xgr — GRANITIC GNEISS AND GRANITE
- Xmgh — MAFIC GNEISS, HORNBLENDE-BEARING
- Xmgp — MAFIC GNEISS, PYROXENE-BEARING
- Xs — SERPENTINITE
- Xpb — PEACH BOTTOM SLATE AND CARDIFF CONGLOMERATE, UNDIVIDED
- Xpc — PETERS CREEK SCHIST
- Xwc — WISSAHICKON FORMATION, ALBITE-CHLORITE SCHIST
- Xw — WISSAHICKON FORMATION, OLIGOCLASE-MICA SCHIST
- Xc — COCKEYSVILLE MARBLE
- Xsq — SETTERS QUARTZITE

INSUFFICIENT DATA FOR INTERPRETATION

*Note: Décollement surfaces may extend under the Pennsylvania Piedmont, based on seismic research in the southern Appalachians and in Quebec, but no data are presently available to extend this structural interpretation into Pennsylvania.

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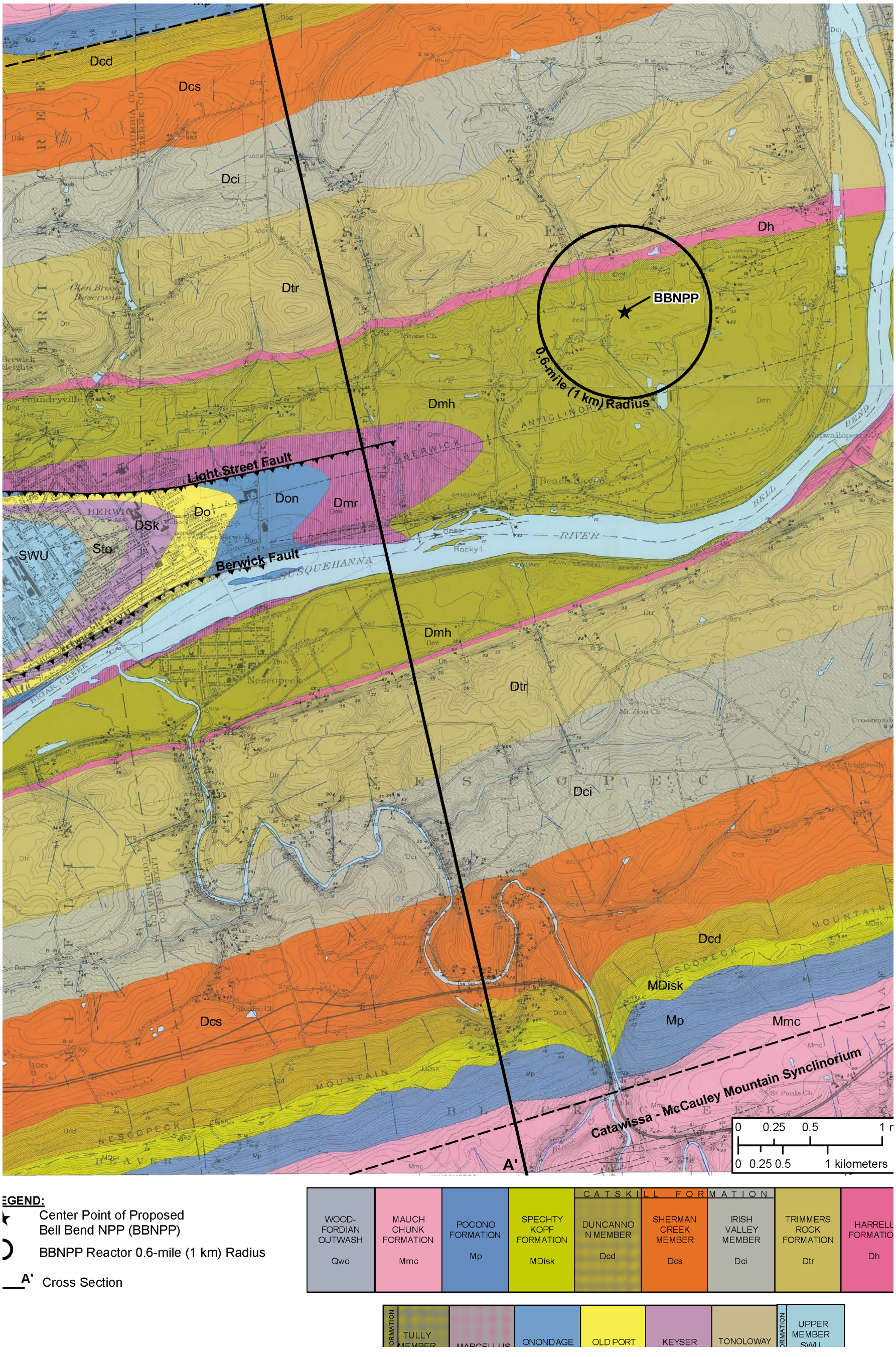
Figure 2.5-192 {Bedrock Geologic Map Berwick Quadrangle}



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