

# Whites Point Quarry and Marine Terminal Joint Review Panel

Nova Scotia  
Department of Natural Resources  
(NSDNR)

June 19, 2007

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# NSDNR Context

- The Department has broad responsibilities relative to the management of forest, mineral, parkland, wildlife resources and the administration of the province's Crown land.
- Management includes resource conservation, protection and development.

# *Presenters...*

- **Mark Elderkin, Species-at-Risk Biologist:**
  - environmental effects, rare and potentially at-risk terrestrial species known to exist at proposed quarry site.
- **Peter Neily, Senior Forester, Ecosystem Management:**
  - forest and forest ecology, buffer zones.
- **Mike MacDonald, Director of Geological Services:**
  - alternative quarry sites on North Mountain, potential alternate quarry sites along NS coastline.
- **Don Jones, Director of Mineral Development Management:**
  - resource royalties, fees, reclamation.

# Species Context

Nova Scotia Department of Natural Resources strives to meet our commitments to the National Accord for the Protection of Species at Risk (1996) through its Departmental responsibilities including Environmental Assessment.

The National Accord for the Protection of Species at Risk makes clear that:

“...lack of full scientific certainty must not be used as a reason to delay measures to avoid or minimize threats to species at risk.”

Language and spirit of the Accord are echoed in both the Federal Species at Risk Act and the Nova Scotia Endangered Species Act.

Continued....

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# Species Context

- In the absence of listing under laws, the status of species is assessed in the Nova Scotia General Status of Wild Species which is an expert based, status assessment process. There are about 200 species known to be at risk that are flagged as “RED” (Known or believed to be at-risk). Other status categories include “YELLOW” (Species sensitive to human activities or natural events), “GREEN” (Secure), “EXTIRPATED” (No longer exists in Nova Scotia).
- Species listed under laws and those identified under the Nova Scotia General Status of Wild Species are regularly part of the pre-screening process and environmental assessment review.



# Species at Risk and the Environmental Assessment Process

- Hundreds of species were considered in the White's Point screening and their potential occurrence investigated on-site through field inventories. Despite one of the most exhaustive taxonomic screenings we have yet seen in an environmental assessment in Nova Scotia, no species listed under Federal Species at Risk Act or Nova Scotia Endangered Species Act were found inextricably associated with habitats on the proposed development site.
- Adult Monarch Butterfly that are listed as “Special Concern” under the Federal Species at Risk Act were found on site in the summer of 2006, however we suggest that last year was an exceptional year for Monarchs and that the development would pose no threat to this species.



# Rare species and Those Potentially “At-Risk” and the Environmental Assessment Process

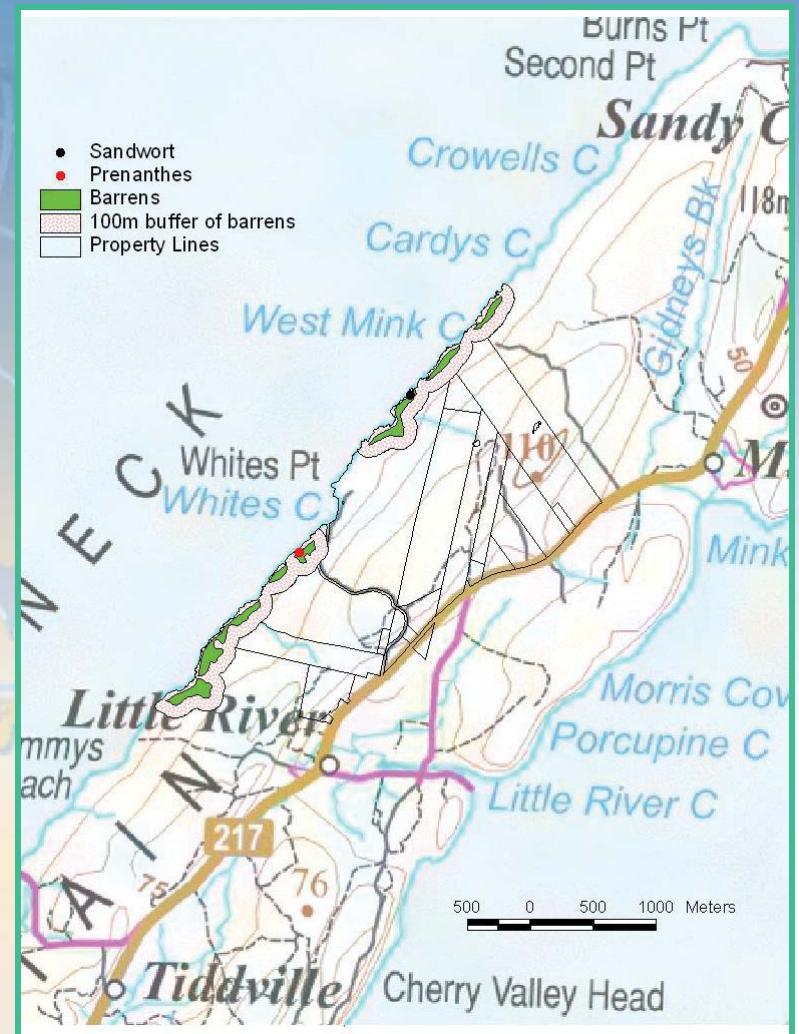
Three Nova Scotia General Status of Wild Species listed species of vascular plants were found in the White’s Point environmental assessment and include:

- (a) Glaucous Rattlesnake Root (*Prenanthes racemosa*) = Believed Extirpated,
- (b) Mountain Sandwort (*Minuartia groenlandica*) = YELLOW (Sensitive to human activities and natural events), and
- (c) Hemlock Parsley (*Conioselinum chinense*) = YELLOW (Sensitive to human activities and natural events)



# Recommendations For Mitigation

- Nova Scotia Department of Natural Resources recommended that the proponent provide a 100 meter buffer to protect the coastal zone where rare Rattlesnake Root and Mountain Sandwort are known to occur. While our earlier communication to the Review Panel suggested that the buffer width could be lessened based on results of monitoring (if the project was approved), additional analysis and site visits since that time suggest that 100 meters should be applied throughout the duration of the project. This buffer width is required in the interest of precaution to protect rare plants and integrity of sensitive coastal barrens. We also recommend that monitoring be undertaken at 3 year intervals to ascertain what, if any impacts the development may pose to rare plants and what further mitigation may be required.





# Forest Communities

- Harsh coastal environment
- Plant species diversity reflects growth limiting factors
- Anthropogenic influences on better sites



# Forest Soils

- Inherently nutrient rich soils – productive
- Variable soil depth influences tree growth
  - stability
- Soil carbon reserves high



# Reclamation of Forest Communities

- Re-establish existing communities
- Use native species
- Re-establishment of tree species may require assistance
  - re-establishment of some shrub and herb will be impacted by extensive pioneer vegetation
  - red spruce and white ash not appropriate species
  - seed trees unlikely to withstand exposure



# Reclamation of Forest Soils

- Nutrient and lime enrichment of little benefit
- Soil depths  $>1\text{m}$  not beneficial
- Stock piling of soils may cause chemical changes

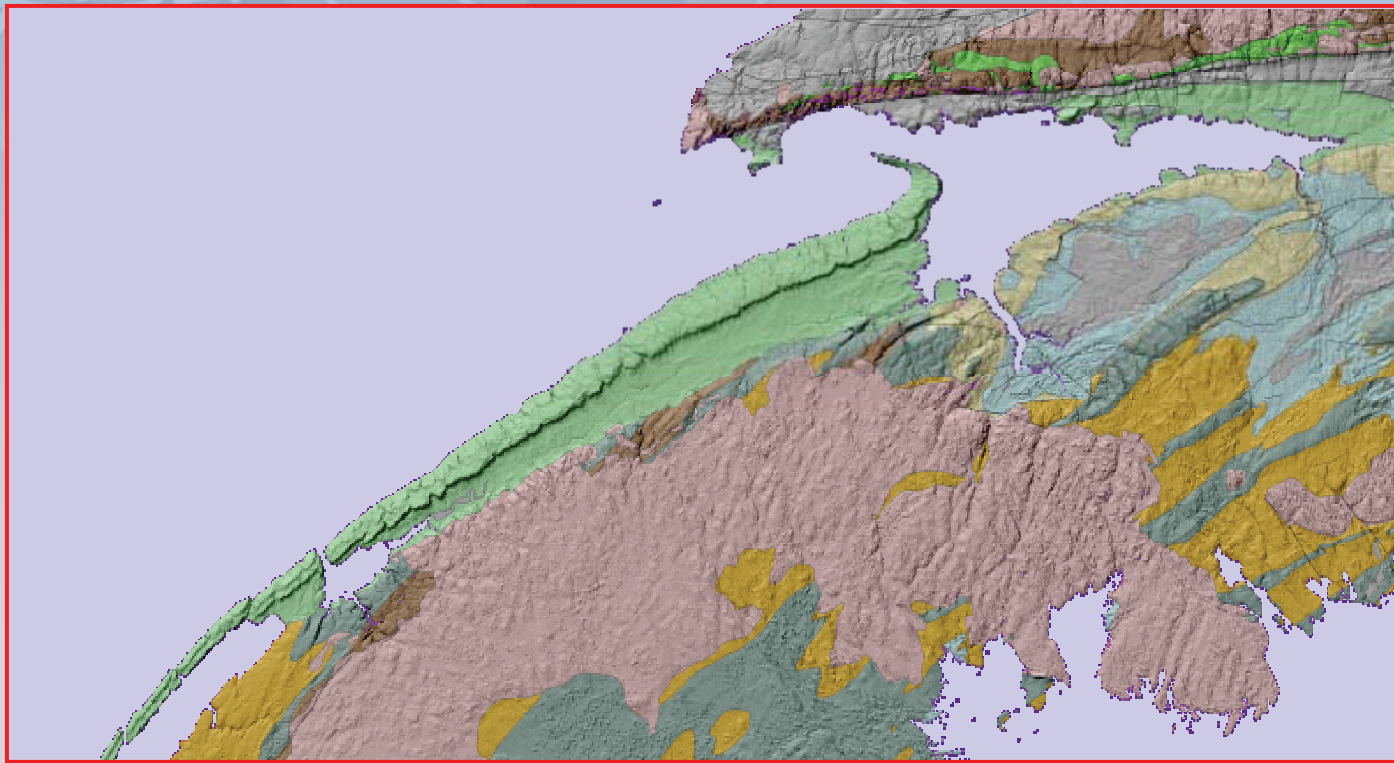


# Establishment of Buffer Zones

- No regulations re: buffer width
- Tree stability a function of species, soil depth, drainage, and exposure
- For buffer stability, 50 m should be suitable on most portions of project site, blowdown on exposed edges still expected



# Alternate Quarry Sites on the North Mountain



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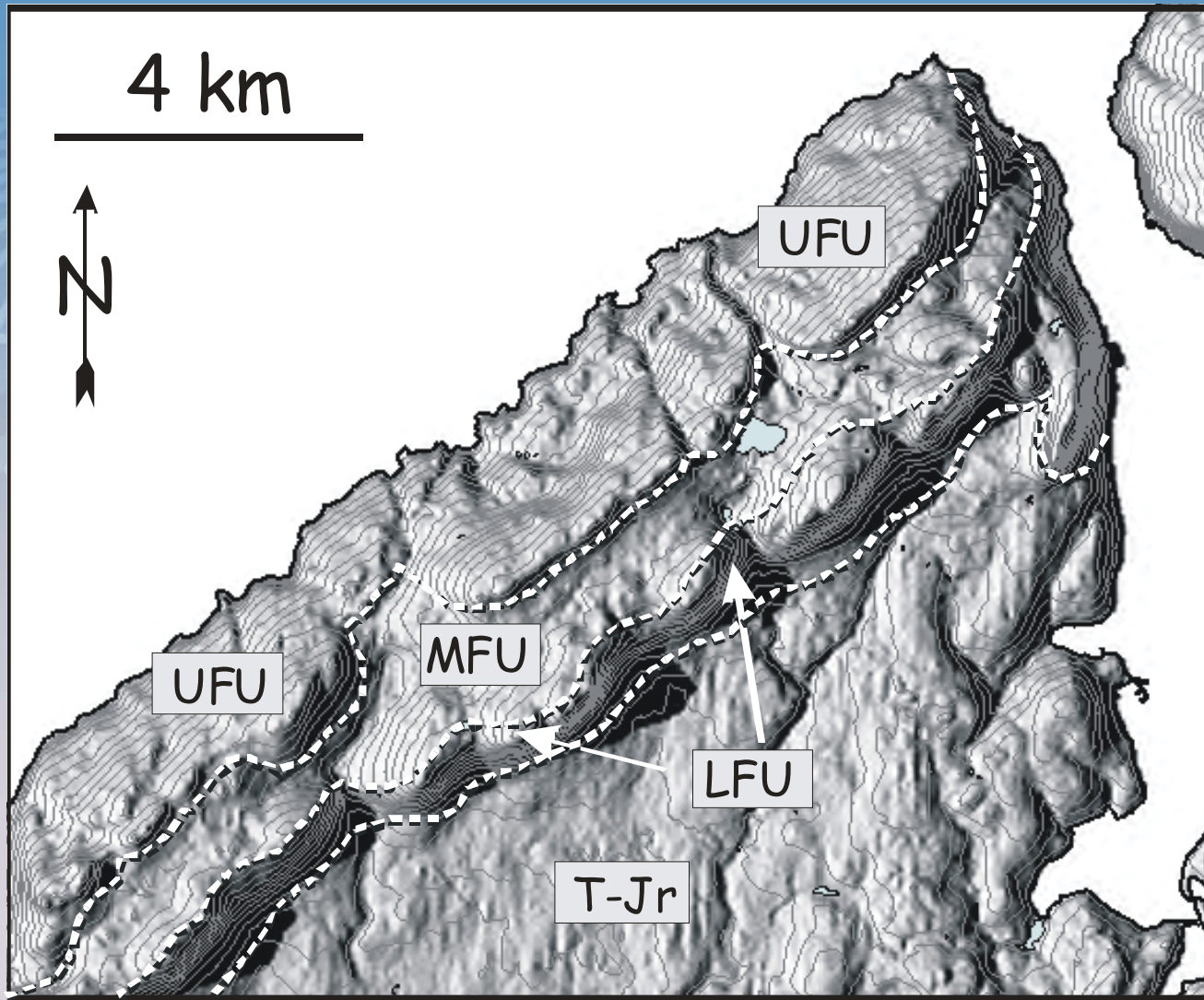
# Geology of the North Mountain

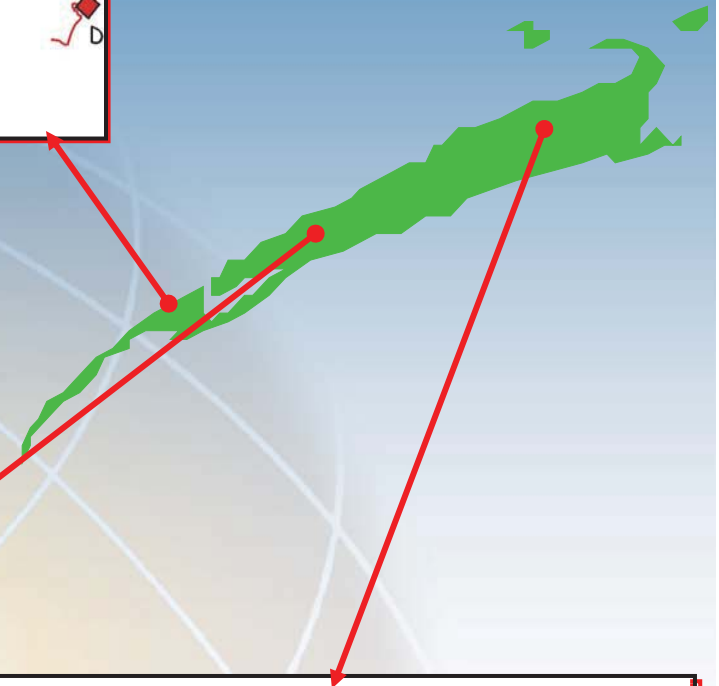
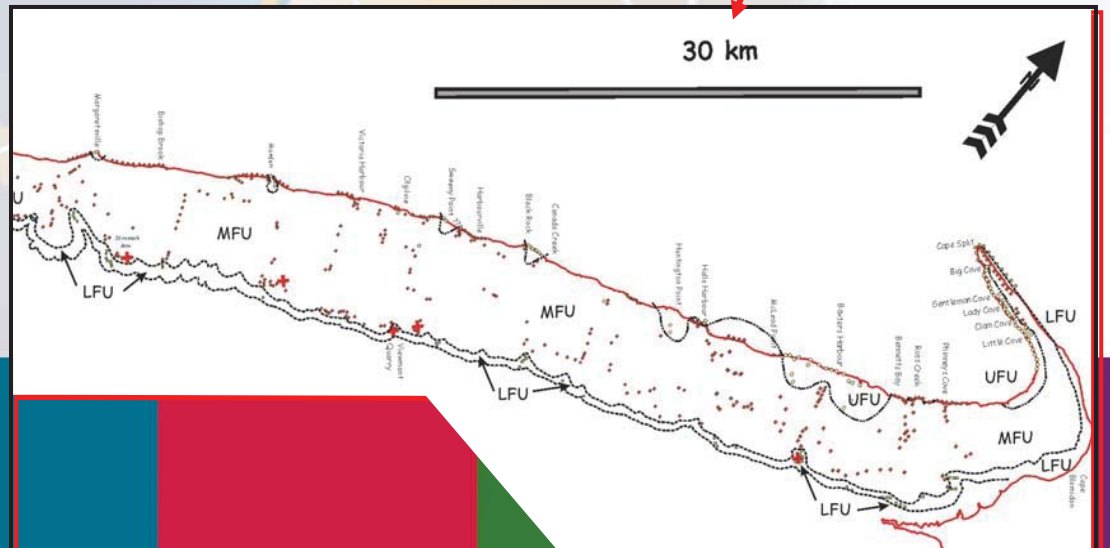
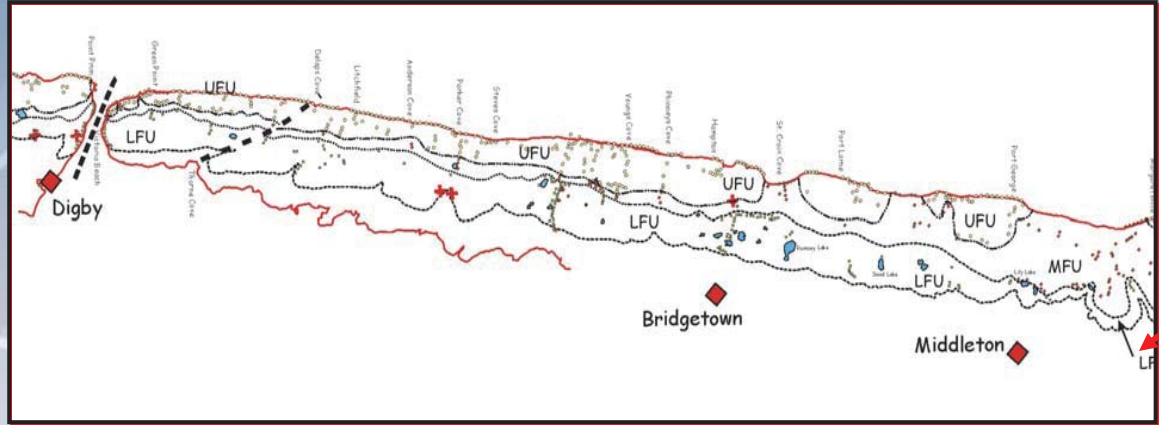
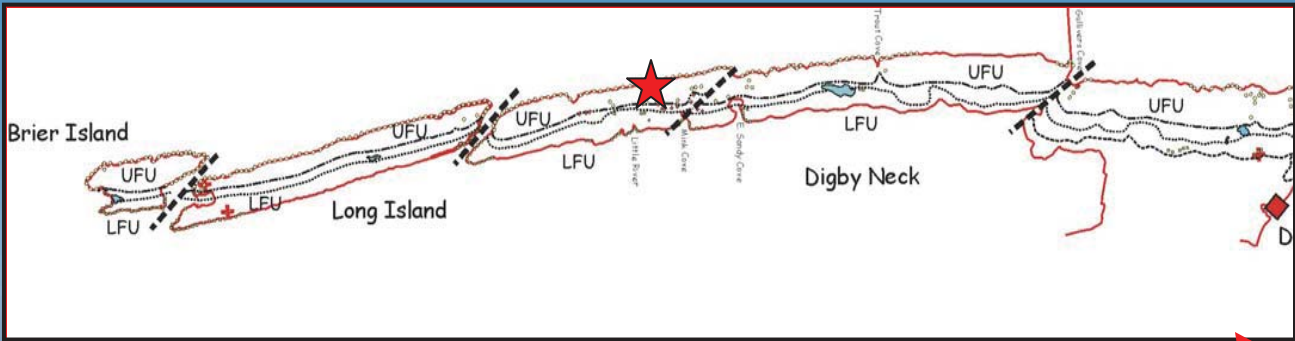
- Recent mapping gives insight into composition of NMB
- 3 main units (Upper Flow Unit - UFU; Middle Flow Unit – MFU; and Lower Flow Unit – LFU)
- UFU and LFU consist of massive flows suitable for aggregate
- MFU generally not suitable as aggregate source rock

# North Mountain Basalts









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# Alternate Sites – Controlling Factors

- Suitable basalt type – UFU and LFU
- Sufficient elevation
- Sufficient water depth

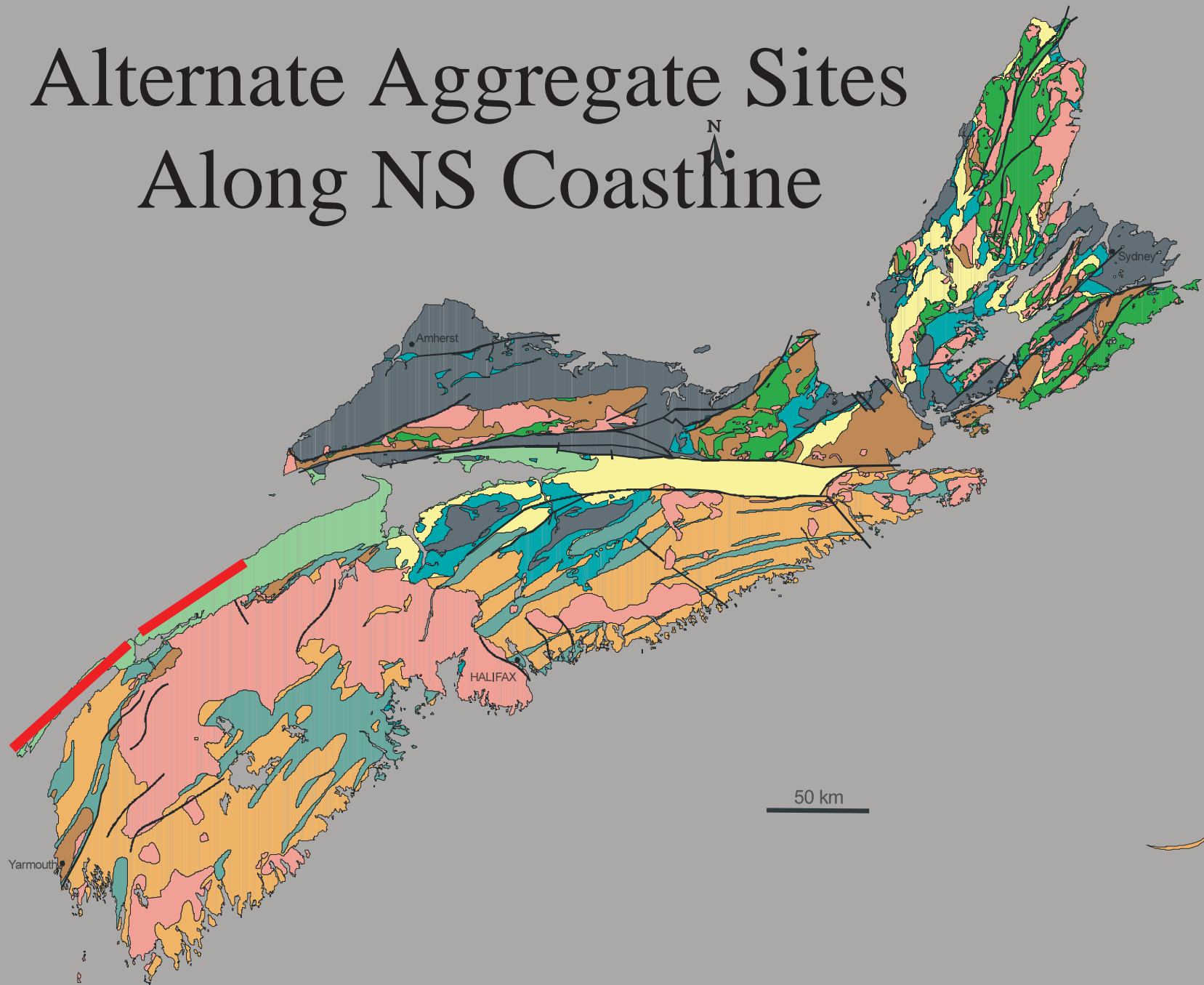
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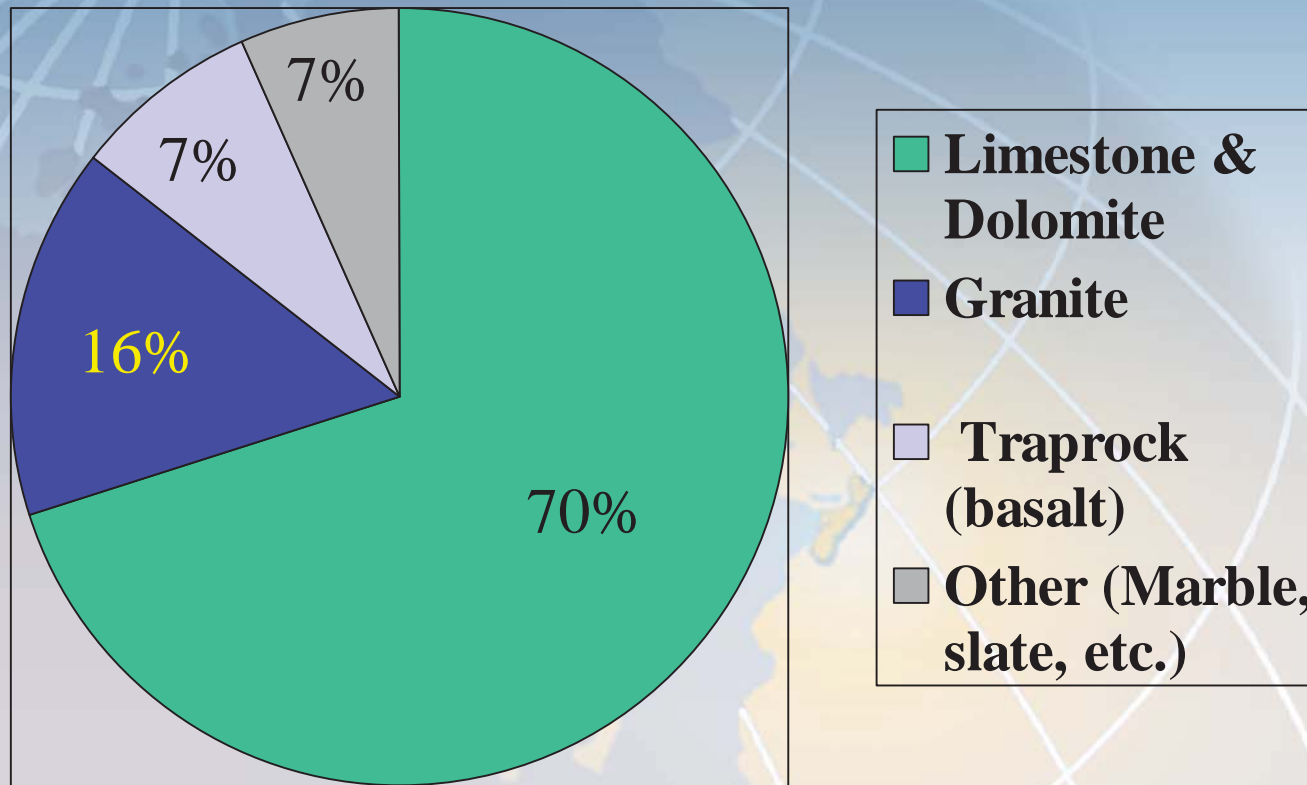
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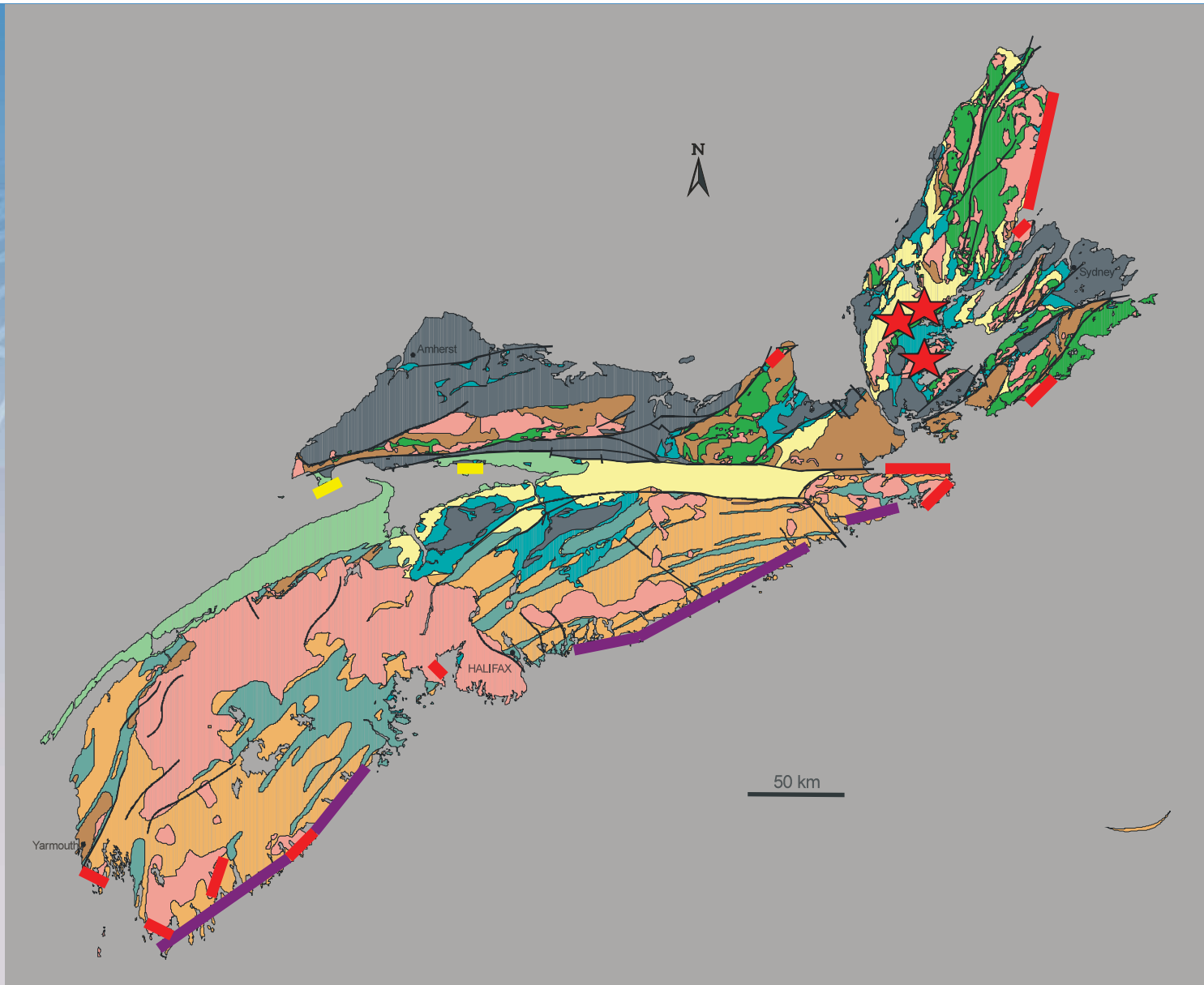
  
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# Alternate Aggregate Sites Along NS Coastline



# US Aggregate Consumption 2007





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# Reclamation Plan

- Background on Mine Reclamation
- Review “Leading Practices” in Mine Closure and Completion



# BACKGROUND

## Sustainable Reclamation Initiatives

- 1998 - Global Mining Initiative – GMI
- 2001 - International Council on Mining and Metals – ICMM
  - *Sustainable Development Framework – SDF (2003)*
  - *10 Sustainable Development Principles – SDP*
- Mining Association of Canada – MAC
  - *2005 - Towards Sustainable Mining Initiative*
  - *Tailings management, energy use, external outreach, crisis management*
- Minerals Council of Australia – MCA
  - 2003 Adopted the ICMM's 10 SDP
  - *2004 - Enduring Value – The Australian Minerals Industry Framework for Sustainable Development*
  - 'Leading Practices' handbooks (14)
    - *Mine Closure and Completion*

Minerals Council of Australia (MCA)  
Leading Practice Sustainable Development Program for  
the Mining Industry  
*Mine Closure and Completion*

*“The future of the Mining Industry is dependent on the legacy it leaves”*

*“To gain access to future resources it needs to demonstrate that it can effectively close mines with the support of the communities where it operates”*

*Objectives*

*Strategy*

*Activities*

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# MCA - 'Leading' Practices

## *Mine Closure & Completion Plan*

- Initial Reclamation Plan is 'conceptual'
- Reclamation Plan requires continuous collection of data and information
- Plan is a 'living document' to be continuously reviewed and revised with formalized updating
- Responsibility for the plan should be assigned to a 'closure committee' throughout the mine-life

# MCA - 'Leading' Practices

## *Mine Closure & Completion - Objectives*

- Ensure:
  - stakeholders interests are considered
  - closure is orderly, cost-effective and timely
  - closure cost is 'disclosed' in company accounts
  - the company establishes 'accountability' and 'financial resources' for closure and completion
  - liability cannot default to community or government
- Establish clear criteria for satisfactory closure and completion

# MCA - 'Leading' Practices

## *Mine Closure & Completion - Strategy*

- Company formalize a policy on mine closure that commits:
  - Stakeholder engagement
  - Environmental minimization of risk
  - Meeting regulatory requirements
  - Social and community aspirations
  - Continuous improvement to the closure plan; setup a 'closure team'
- Company specify a framework for closure that provides:
  - Standards and Principles
  - Objectives and criteria
- Company continually collect data and information and conduct analysis for closure improvements

# MCA - 'Leading' Practices

## *Mine Closure & Completion - Activities*

- Progressive reclamation
- Remove structures
- Reshape post-closure mining landforms
- Complete rehabilitation (vegetation / land use features)
- Monitor and measure against 'agreed' standards and criteria
- Consult and report to stakeholders
- Progressive government and community sign-off

# Royalties and Fees

- Background
- Current situation for aggregates in NS
- Alternatives for production based royalty
- Other Jurisdictions

# Royalties and Fees

## Aggregate Production in NS

- ‘Minerals’ are owned by the Province and administered under *Mineral Resources Act*
  - *Annual fee for exploration license*
  - *Annual rental for a mineral lease*
  - *Royalty on mineral production (mining tax)*
- Aggregate (basalt) is not a ‘mineral’; it is owned by the landowner
- DNR, as administrator of Crown Land, charges a production royalty for aggregate produced on Crown land (Policy)



# Royalties and Fees

## Other Jurisdictions

- Newfoundland
  - *Quarry Materials Act (Crown Land)*
    - Quarry Permit and Lease of Quarry
    - Royalty payment on Crown Aggregate
    - Inspectors and reclamation plan
- Ontario
  - *Aggregate Resources Act*
    - Aggregate Resources Trust – reclaim old quarries
      - Paid from annual Aggregate License fees
      - Royalty Crown Aggregate (\$/tonne)
    - Inspectors and reclamation plans

# Royalties and Fees

## Alternatives to Tax Aggregate Production

- Implement 'Aggregate Tax' legislation
  - Similar to the *Gypsum Tax Act*
  - Gypsum Tax was developed in consultation with producers
  - Limited domestic consumption of gypsum
  - Increased cost of aggregate within NS
- Maintain status quo

# Royalties and Fees

## Current Situation for Aggregate Producers in NS

### - Taxes

• Federal Income Tax	~20%
• Provincial Income Tax	~12%
• <i>Provincial Mining Tax (royalty)</i>	(N/A)
• Municipal Property Tax	-
• Sales Tax (goods and services)	~14%
• Capital Tax	-
• NS Road (Fuel) Tax (off-highway)	\$0.154 / l
• Federal Excise Tax on fuel	\$0.04 / l

### - Fees

• Environmental Assessment Fees	-
• WCB Fees	-
• Others	-