

Appendix E

Summary of Phase II Sampling Program for the DMTS Fugitive Dust Risk Assessment

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- Sediment (sampled for Ag, Cd, Cu, Hg, Pb, and Zn; extra sediment volume collected)
- Sediment (sampled for Cd, Pb, and Zn only)

Notes: All marine locations were sampled before shipping activities and during the shipping season.

NM—Near Shore Marine

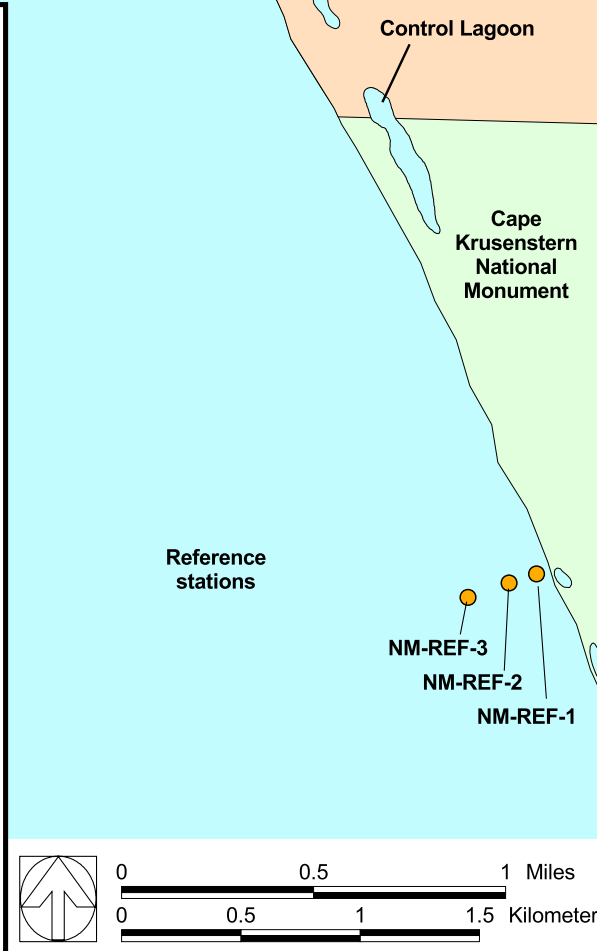
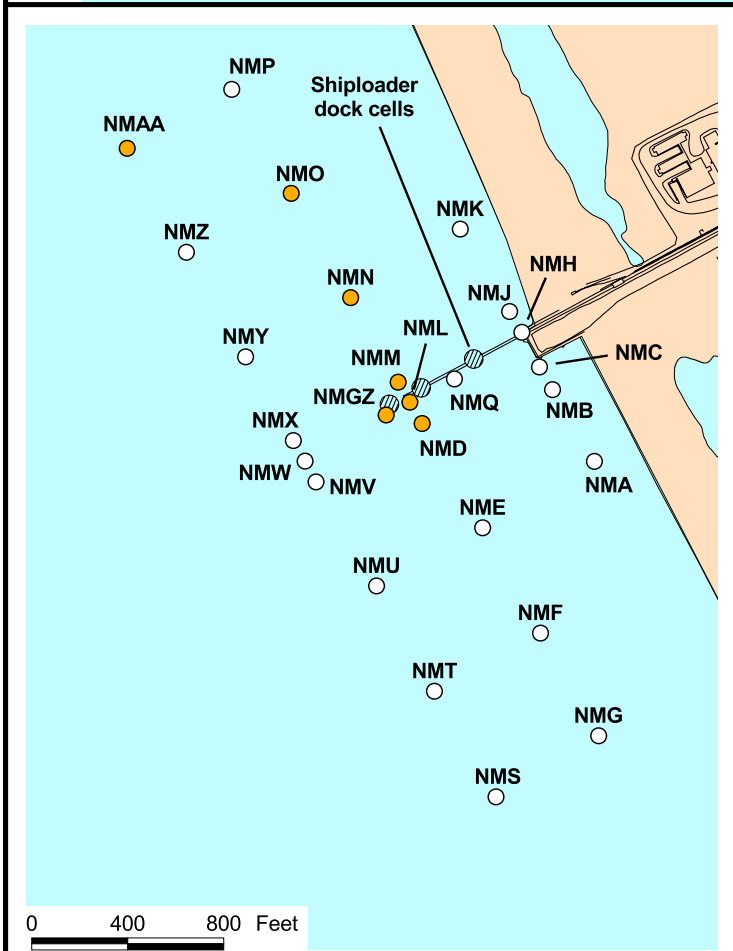
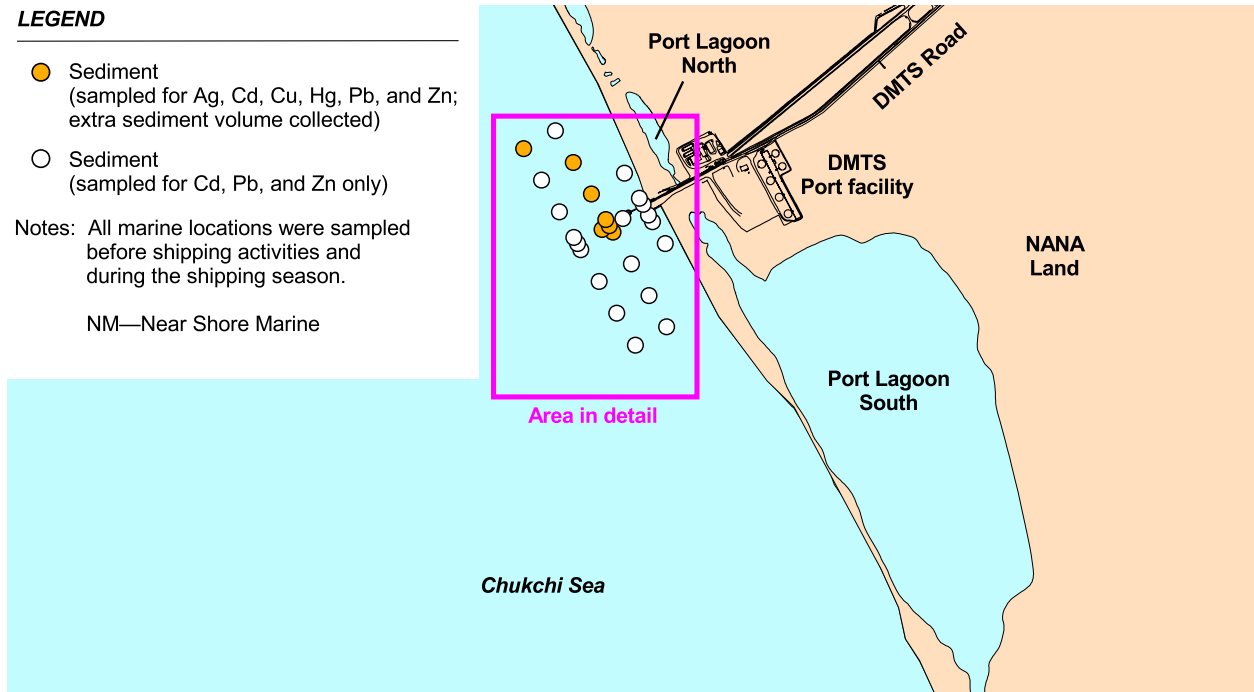


Figure E-1. Locations of marine sediment sample stations



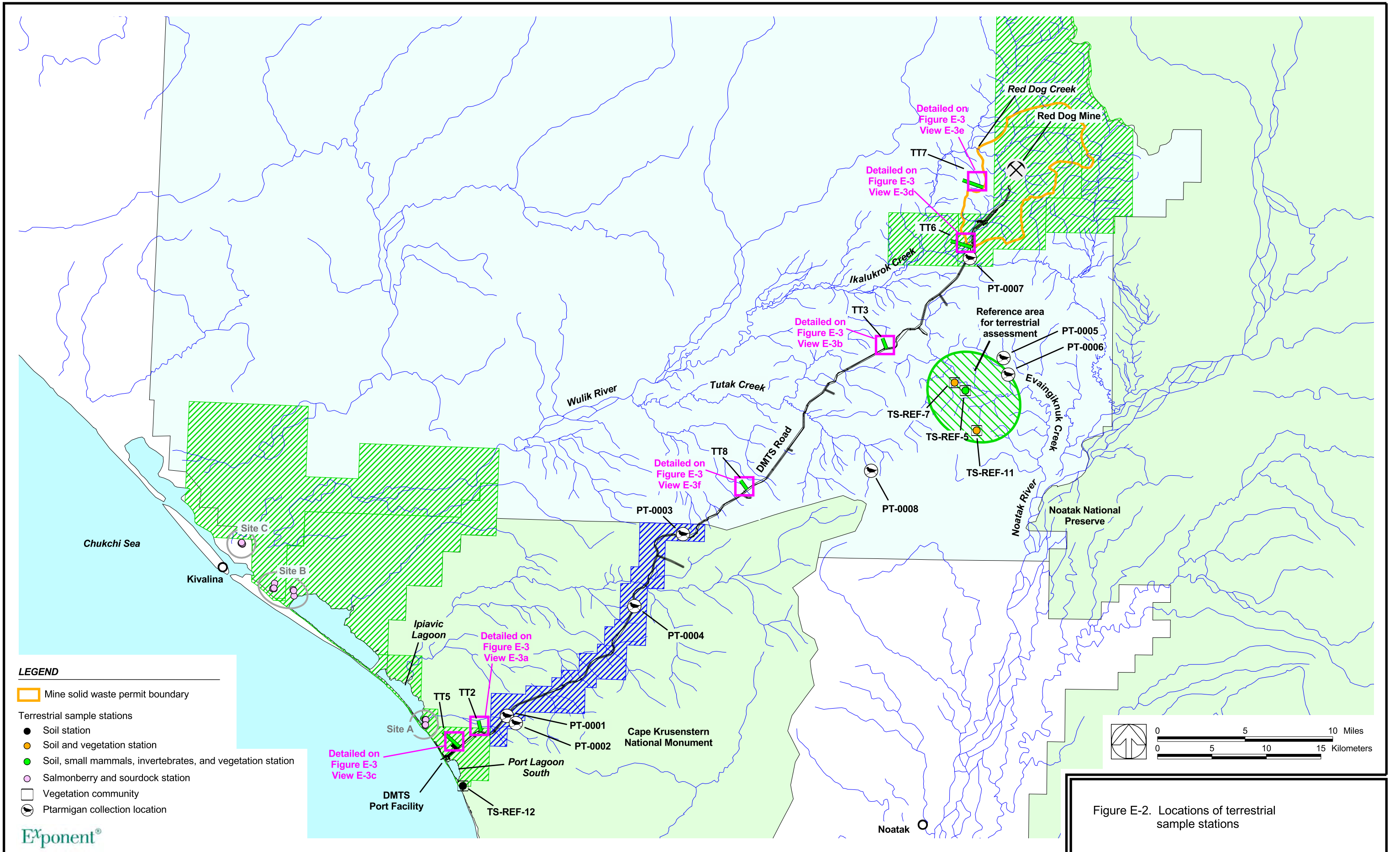
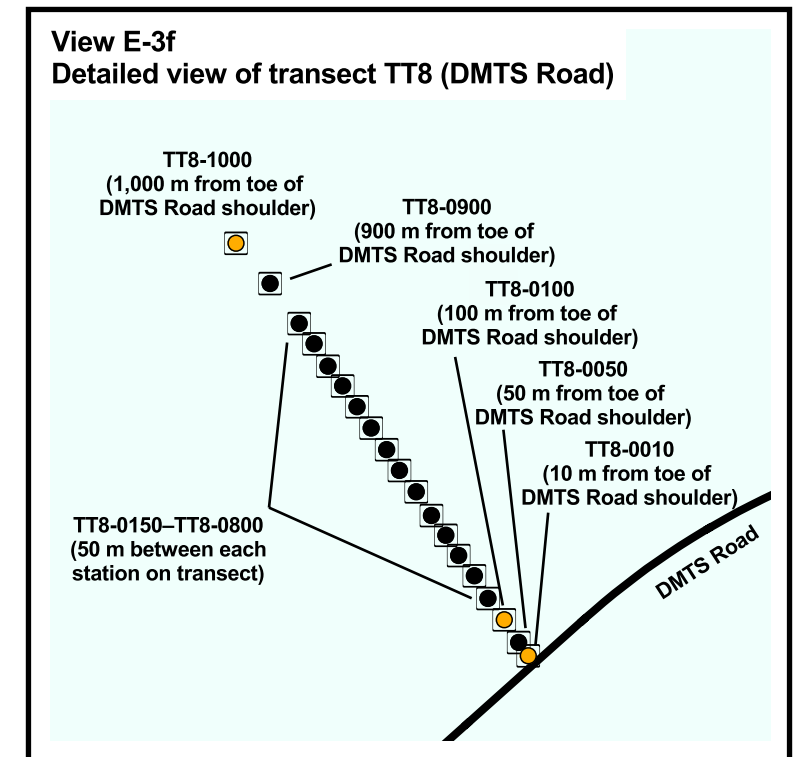
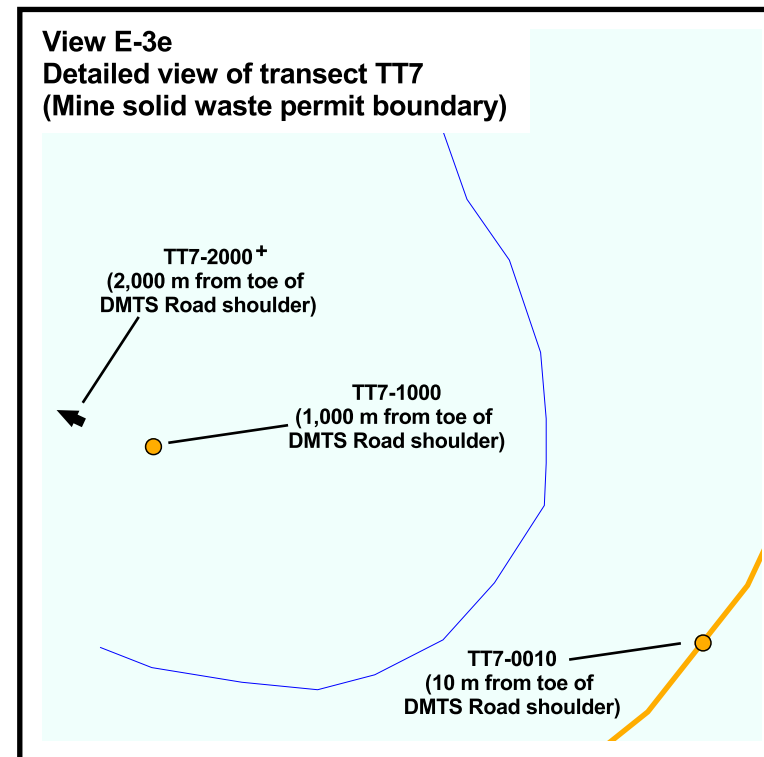
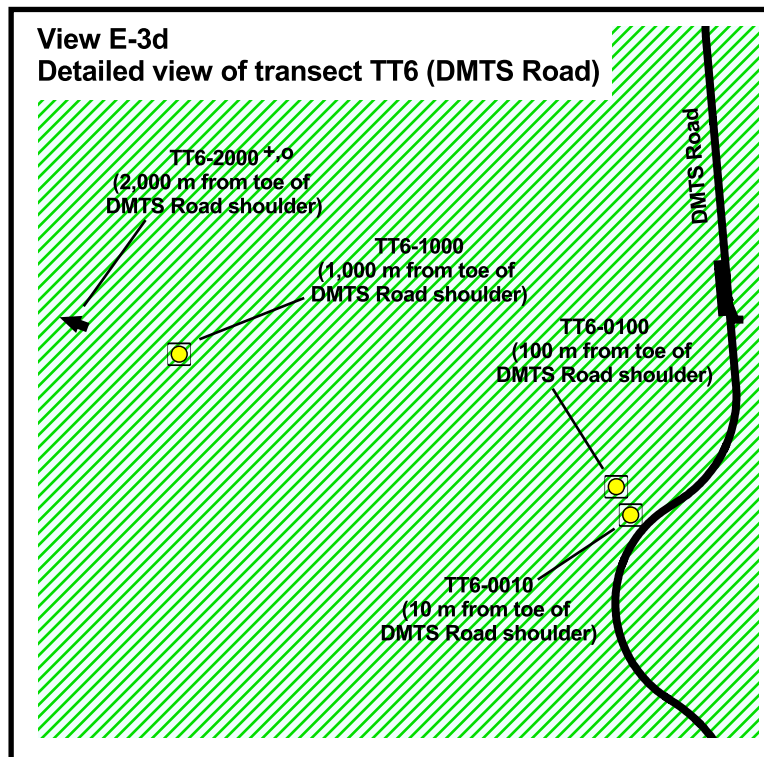
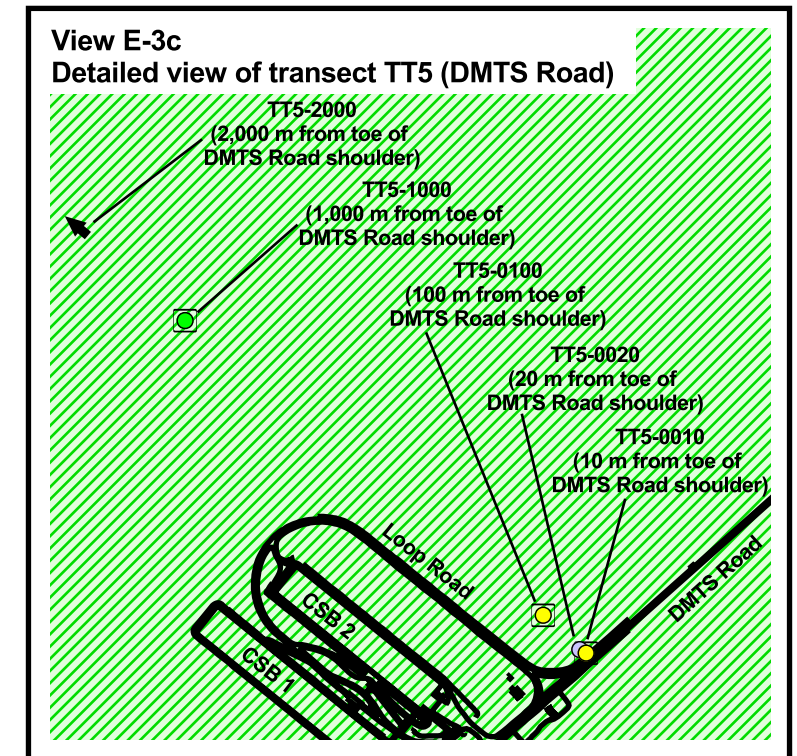
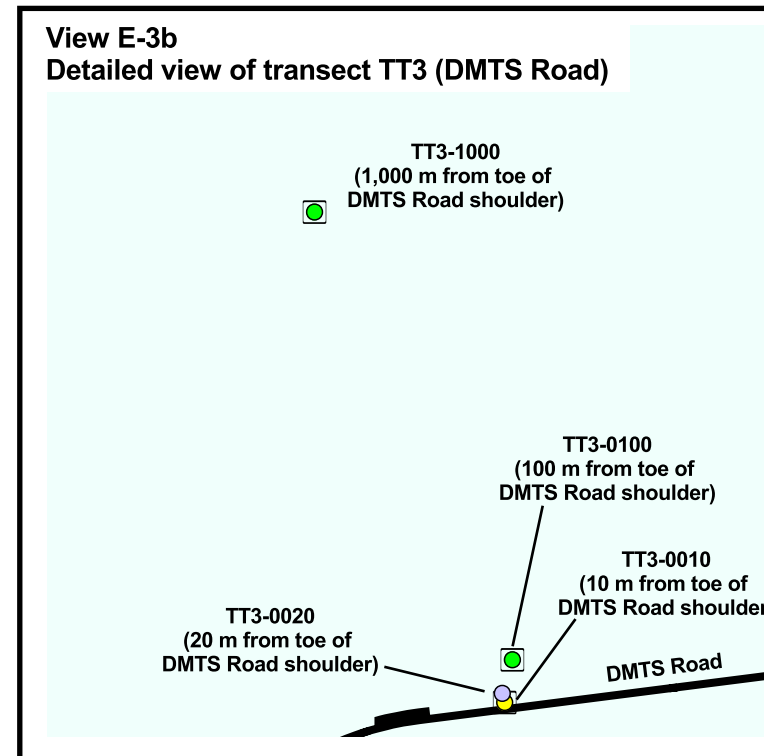
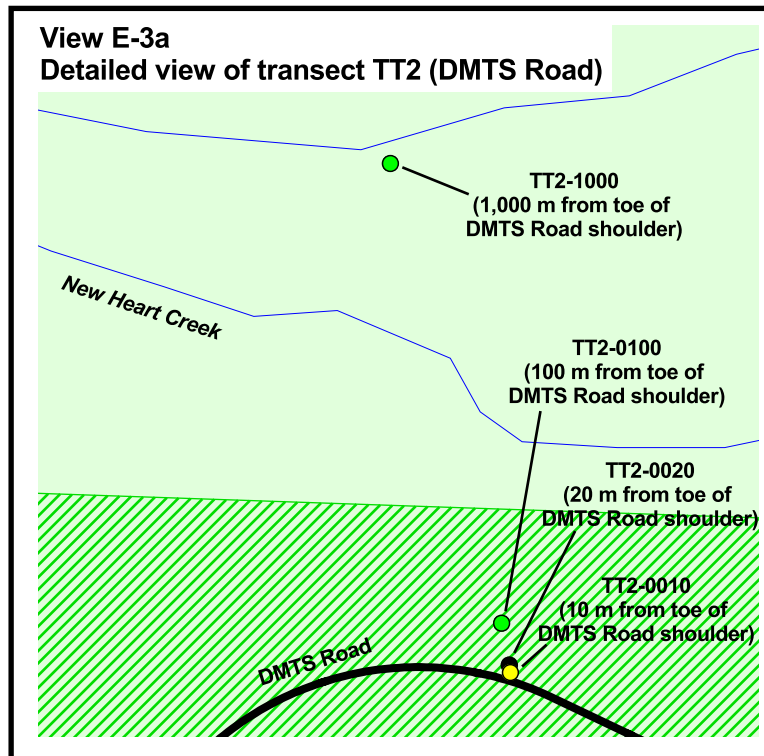


Figure E-2. Locations of terrestrial sample stations





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Mine solid waste permit boundary

Terrestrial sample stations

- Soil station
- Soil and vegetation station
- Soil, invertebrates, and vegetation station
- Soil, small mammals, invertebrates, and vegetation station
- Soil and small mammals
- Vegetation community

Notes: + No small mammals or invertebrates collected at this station
o No vegetation community analysis at this station

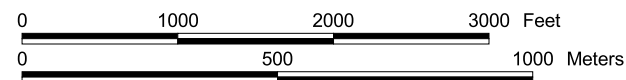


Figure E-3. Detailed views of locations of terrestrial sample stations

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- Tundra soil sampling location
- 🌿 Sedges
- 🍄 Lichen
- 🌳 Willow
- Traps for small mammals
- × Pit traps for soil invertebrates
- 1m² microplot for plant community analysis

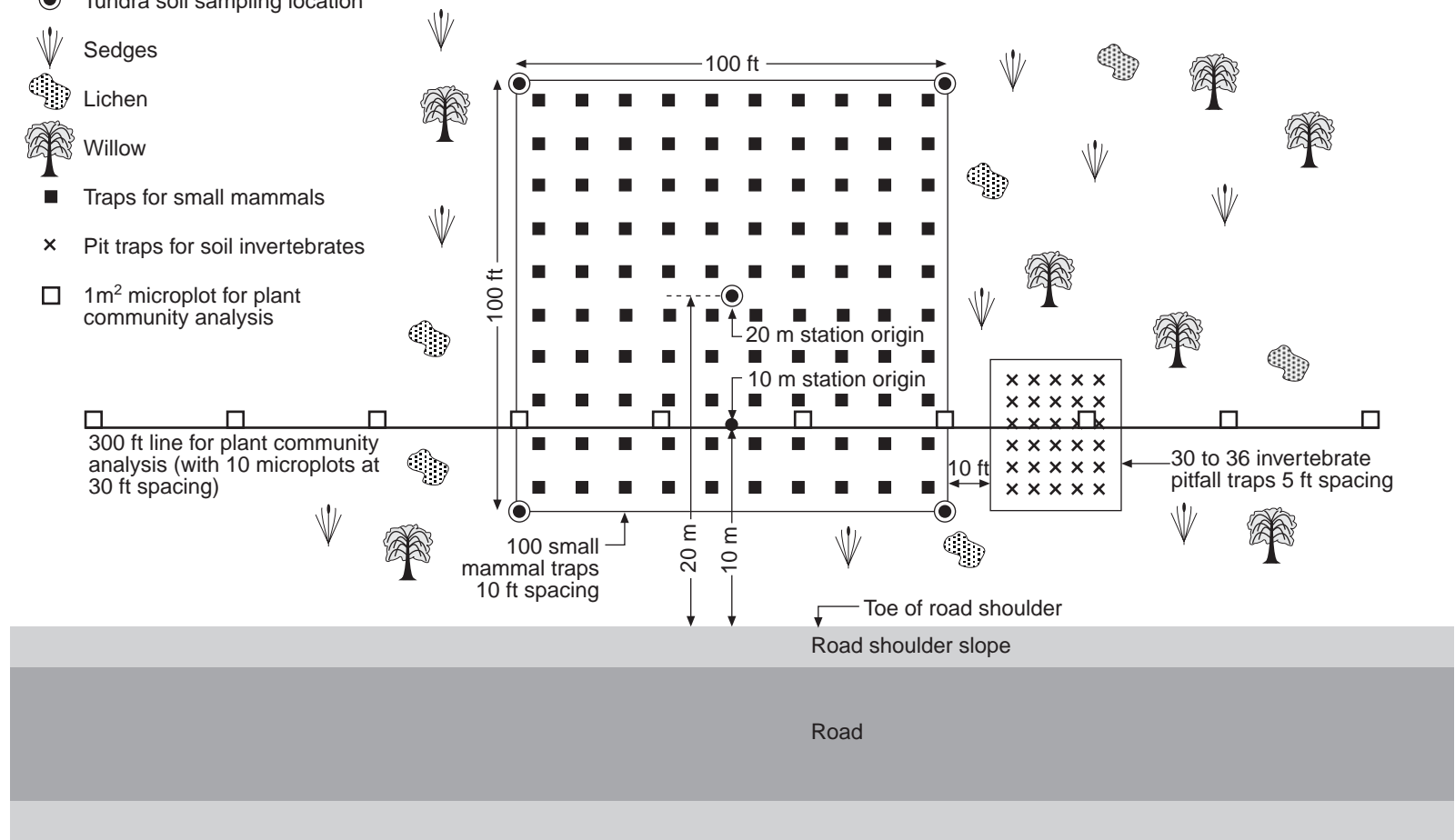


Figure E-4. Schematic layout of typical 10 m and 20 m terrestrial transect station

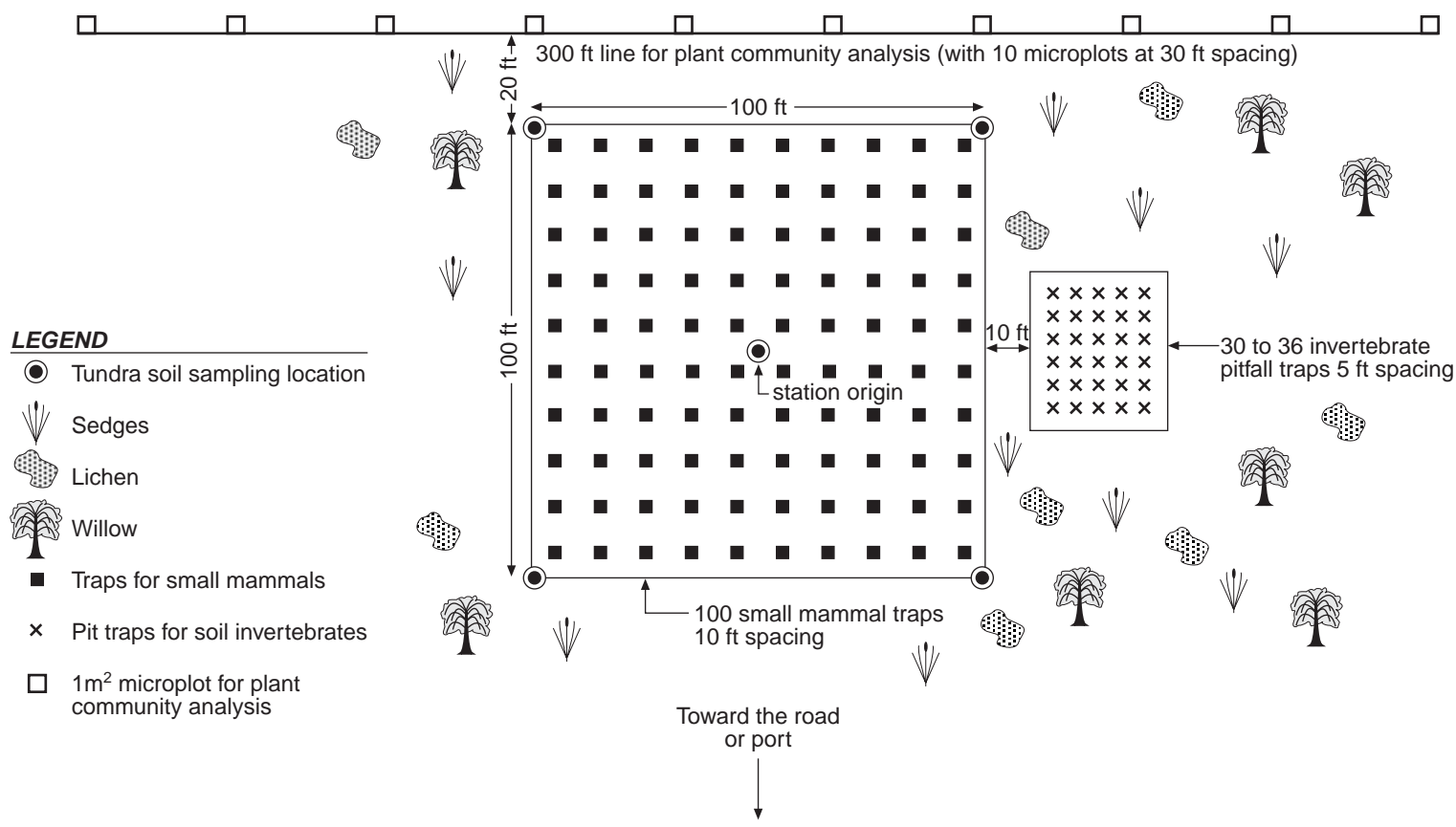
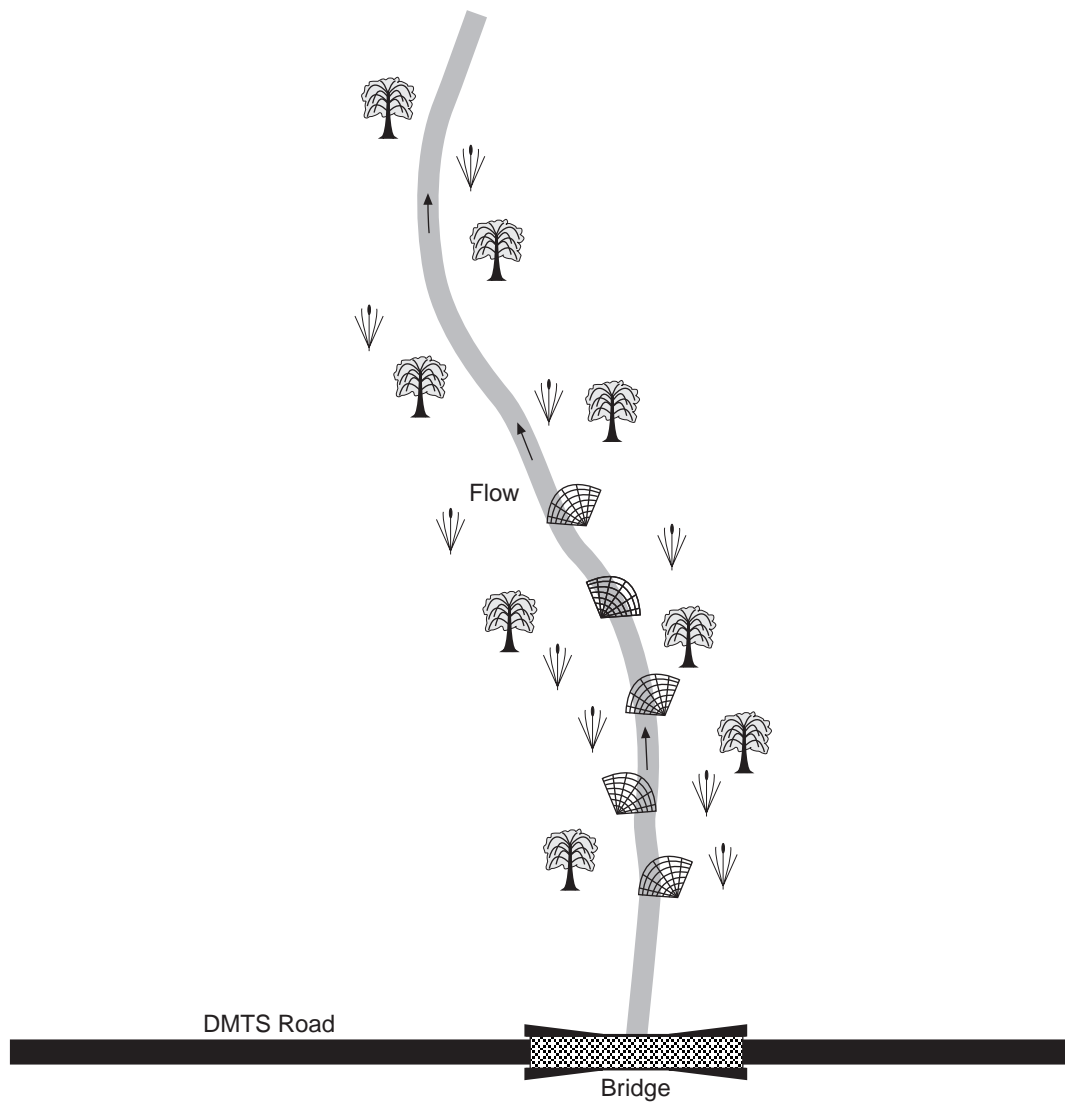





Figure E-5. Schematic layout of typical 100 m, 1,000 m, and 2,000 m terrestrial transect station

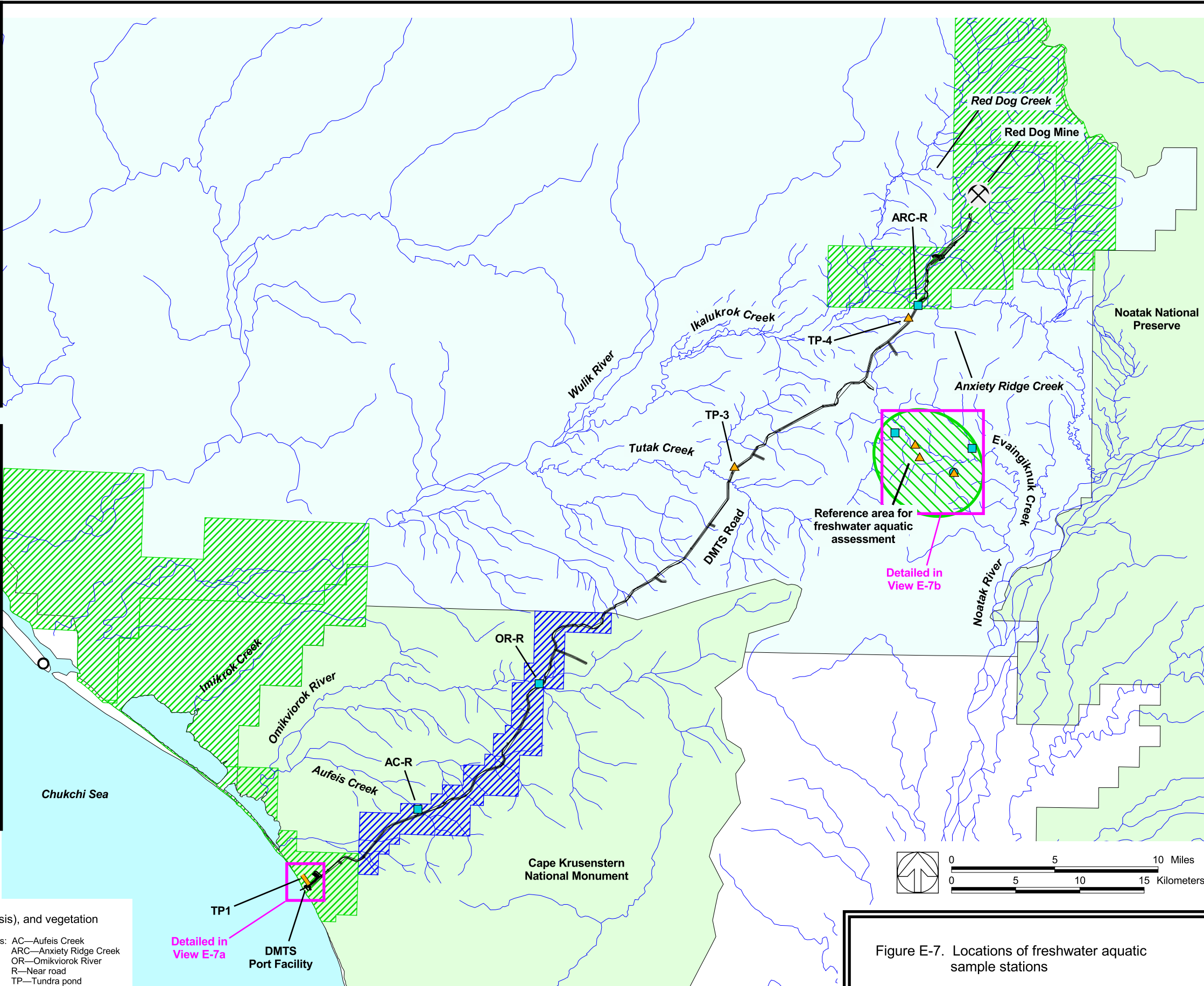
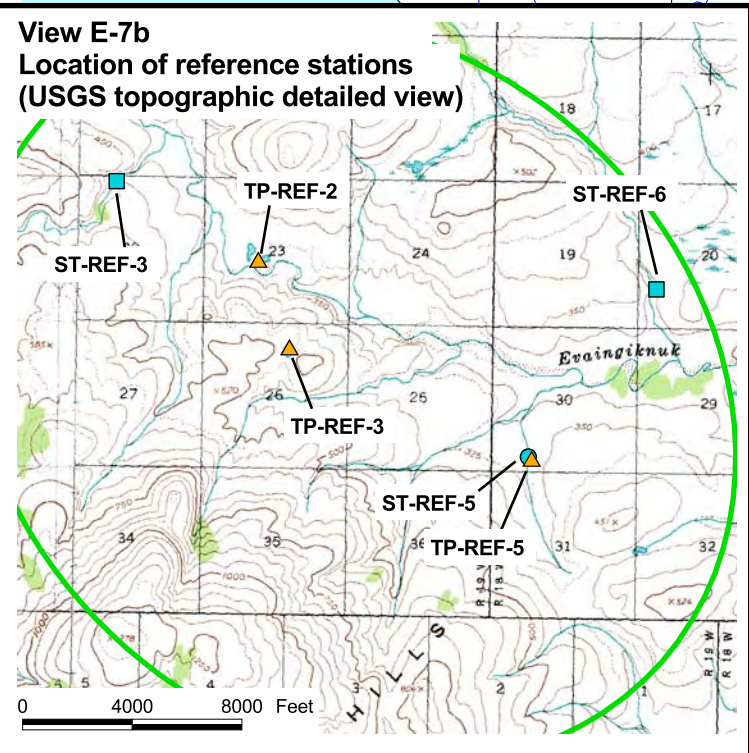
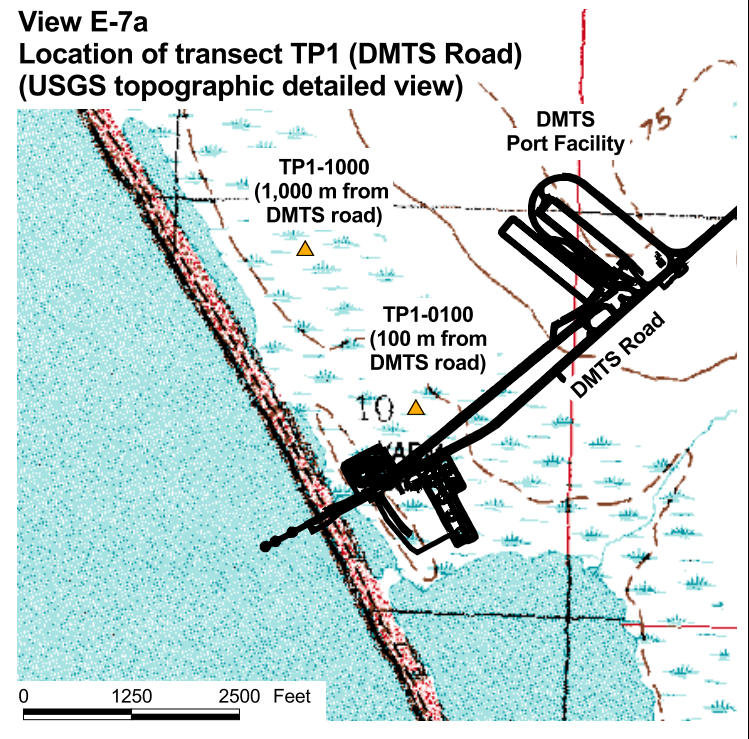


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-  Drift nets
-  Sedges
-  Willow

Note: The typical range of stream reach length between the road edge and the last net is 150–300 ft.

Figure E-6. Schematic layout of typical stream station



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- Stream station
- Aquatic invertebrates (community analysis), and vegetation
 - Sediment, aquatic invertebrates (tissue chemistry and community analysis), and vegetation
- Tundra pond station
- ▲ Tundra soil and vegetation

Notes: AC—Aufeis Creek
 ARC—Anxiety Ridge Creek
 OR—Omikviorok River
 R—Near road
 TP—Tundra pond



Figure E-7. Locations of freshwater aquatic sample stations

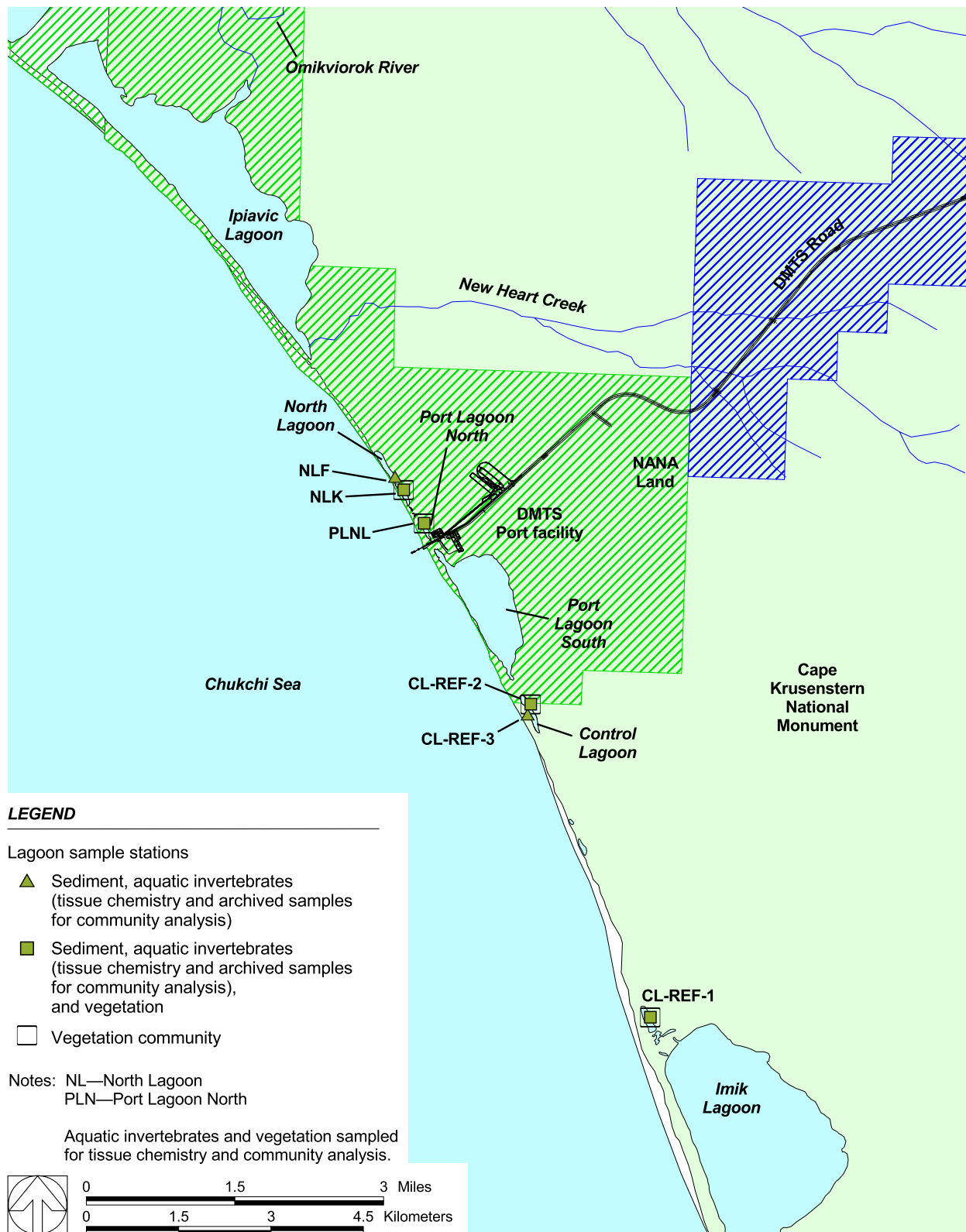


Figure E-8. Locations of coastal lagoon sample stations

Table E-1. Overview of Phase II data

Assessment Endpoint	Station/Transect	Distance (m)	Small Mammals	Ptarmigan	Terrestrial Invertebrate Tissue	Vegetation						Salmon-berries	Sour-dock	Vegetation Plots	Tundra Soil	Aquatic Invertebrates		Sediment		Water Quality Parameters
						Willow	Birch	Sedge	Lichen		Tissue					Analysis	Chemistry	Toxicity Test		
									Peltigera	Cladina										
Terrestrial																				
	TT5	10			X	X		X	X				X	X						
		20	X			X	X		X	X				X	X					
		100	a			X	X		X	X				X	X					
		1,000	X			X	X	X	X	X				X	X					
		2,000	X			X		X	X		X			X	X					
	TT2	10			X	X		X	X					X	X					
		20	a			X	X		X	X				X	X					
		100	X			X	X		X	X				X	X					
		1,000	X			X	X		X	X				X	X					
	TT8	10				X		X	X				X	X						
		20	a											X ^b	X					
		50												X ^b	X					
		100	a				X		X	X				X ^b	X					
		150												X ^b	X					
		200												X ^b	X					
		250												X ^b	X					
		300												X ^b	X					
		350												X ^b	X					
		400												X ^b	X					
		450												X ^b	X					
		500												X ^b	X					
		550												X ^b	X					
		600												X ^b	X					
		650												X ^b	X					
	700												X ^b	X						
	750												X ^b	X						
	800												X ^b	X						
	900												X ^b	X						
	1,000					X		X	X	X			X	X						
	TT3	10			X	X		X	X				X	X						
		20	X												X					
		100	X			X	X	X	X	X				X	X					
		1,000	X			X		X	X	X	X			X	X					
	TT6	10			X	X		X	X	X			X	X						
		20	c											X	X					
		100				X	X		X	X	X			X	X					
		1,000				X	X		X	X	X			X	X					
	2,000					X		X	X	X				X						
	TT7	10				X		X		X				X	X					
		1,000					X		X		X				X					
		2,000					X		X		X				X					

Table E-1. (cont.)

Assessment Endpoint	Station/Transect	Distance (m)	Small Mammals	Ptarmigan	Terrestrial Invertebrate Tissue	Vegetation					Salmon-berries	Sour-dock	Vegetation Plots	Tundra Soil	Aquatic Invertebrates		Sediment		Water Quality Parameters
						Willow	Birch	Sedge	Lichen						Tissue	Analysis	Chemistry	Toxicity Test	
									Peltigera	Cladina									
	TS-REF-5		X		X	X		X	X			X	X						
	TS-REF-7				X	X	X	X	X			X	X						
	TS-REF-11				X	X	X	X	X			X	X						
	TS-REF-12											X	X						
	Near the DMTS road																		
	Terrestrial reference area			X															
	Site A									X ^d	X ^d								
	Site B									X ^d	X ^d								
	Site C									X ^d	X ^d								
Streams																			
	AC-R					X							X	X	X	X		X	
	OR-R					X		X					X	X	X	X		X	
	ARC-R					X		X					X	X	X	X		X	
	ST-REF-3					X		X					X	X	X	X		X	
	ST-REF-5					X		X					X	X	X			X	
	ST-REF-6					X		X					X	X	X	X		X	
Tundra Ponds																			
	TP1	100						X					X					X	
		1,000						X					X					X	
	TP3							X					X					X	
	TP4							X					X					X	
	TP-REF-2							X					X					X	
	TP-REF-3							X					X					X	
	TP-REF-5							X					X					X	
Coastal Lagoons																			
	PLNL							X					X	X	X ^e	X	X	X	
	NLK							X					X	X	X ^e	X	X	X	
	NLF												X	X	X ^e	X	X	X	
	CL-REF-1							X					X	X	X ^e	X	X	X	
	CL-REF-2							X					X	X ^f	X ^e	X	X	X	
	CL-REF-3												X		X ^e	X	X	X	
Marine (Pre-shipment - June 2004)																			
	NMA																X		
	NMB																X		
	NMC																X		
	NMD																X		
	NME																X		
	NMF																X		
	NMG																X		
	NMH																X		
	NMJ																X		

Table E-1. (cont.)

Assessment Endpoint	Station/Transect	Distance (m)	Small Mammals	Ptarmigan	Terrestrial Invertebrate Tissue	Vegetation					Salmon-berries	Sour-dock	Vegetation Plots	Tundra Soil	Aquatic Invertebrates		Sediment		Water Quality Parameters
						Willow	Birch	Sedge	Peltigera	Cladina					Community	Tissue Analysis	Chemistry	Toxicity Test	
	NMK																X		
	NML																X		
	NMM																X		
	NMN																X		
	NMO																X		
	NMP																X		
	NMQ																X		
	NMS																X		
	NMT																X		
	NMU																X		
	NMV																X		
	NMW																X		
	NMX																X		
	NMY																X		
	NMZ																X		
	NMAA																X		
	NMGZ																X		
	NM-REF-1																X		
	NM-REF-2																X		
	NM-REF-3																X		

^a Grid set; no small mammals collected.

^b Single microplot for vegetation community.

^c No small mammal grid set; not correct habitat (too open).

^d Five washed and five unwashed samples were collected at each site.

^e Samples archived.

^f Aquatic invertebrate tissue sample collected from area encompassed by both Stations CL-REF-2 and CL-REF-3.

Table E-2. Phase II data collection matrix

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
Terrestrial							
Small Mammals (presented in ascending order from port facility to mine along the DMTS)					Tissue chemistry; whole body; each individual mammal equals one sample	List 1 ^a	
TT5	-- Port transect	4	3				
	20 m north of road			5; 2 brown lemmings and 3 tundra voles			
	100 m north of road			None			Grid set; no small mammals were collected
	1,000 m north of road			3 northern red backed voles			
	2,000 m north of road			1 masked shrew			
TT2	-- DMTS road transect	3	2				
	20 m north of road			None			Grid set; no small mammals were collected
	100 m north of road			3 northern red backed voles			
	1,000 m north of road			1 northern red backed vole			
TT8	-- DMTS road transect	0	0				Stations were added in the field.
	20 m north of road			None			Grid set; no small mammals were collected
	100 m north of road			None			Grid set; no small mammals were collected
TT3	-- DMTS road transect	3	3				
	20 m north of road			1 masked shrew			
	100 m north of road			2; 1 masked shrew and 1 tundra shrew			
	1,000 m north of road			3; 2 northern red backed voles and 1 masked shrew			
TT6	-- DMTS road transect	3	0				
	20 m north of road			None			No grid set; not correct habitat (too open)
	100 m north of road			None			Grid set; no small mammals were collected
	1,000 m north of road			None			Grid set; no small mammals were collected
TT7	-- Solid waste permit boundary transect	2	0				
	10 m downwind of boundary			None			No grid set; not correct habitat (rock face)
	1,000 m downwind of mine			None			No grid set; not correct habitat (rock face)
TS-REF-5	-- Terrestrial reference area	1	1	4; 3 masked shrews and 1 northern red backed vole			
Ptarmigan	Near the DMTS road	NA	NA	5 individual birds	Tissue chemistry;	List 2: Antimony,	
	Terrestrial reference area	NA	NA	3 individual birds	breast muscle tissue (skin on), liver, and kidneys from each bird analyzed separately	barium, cadmium, lead, thallium, and zinc	
Soil Invertebrate Tissue (presented in ascending order from port facility to mine along the DMTS)					Tissue chemistry;	List 1 ^a	
TT5	-- Port transect	4	4				
	10 m north of road			1 spiders-only composite and 1 multi-species composite			tissue sample of all soil invertebrates collected at a given station
	100 m north of road			1 crane flies-only composite and 1 multi-species composite			
	1,000 m north of road			2 spiders-only composites and 1 multi-species composite			
	2,000 m north of road			1 multi-species composite			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
TT2	-- DMTS road transect 10 m north of road 100 m north of road 1,000 m north of road	3	3	1 multi-species composite 1 multi-species composite 1 multi-species composite			
TT3	-- DMTS road transect 10 m north of road 100 m north of road 1,000 m north of road	0	3	1 multi-species composite 1 multi-species composite 1 multi-species composite			Stations were added in the field.
TT6	-- DMTS road transect 10 m north of road 100 m north of road 1,000 m north of road	0	3	1 multi-species composite 1 multi-species composite 1 multi-species composite			Stations were added in the field.
TS-REF-5	-- Terrestrial reference area	1	1	1 multi-species composite			
Vegetation Tissue (presented in ascending order from port facility to mine along the DMTS)							
TT5	-- Port transect 10 m north of road 100 m north of road 1,000 m north of road 2,000 m north of road	4	4	3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 4; willow, birch, sedge, and lichen (Peltigera) (1 composite sample per species) 3; birch, sedge, and lichen (Cladina) (1 composite sample per species)	Tissue chemistry; unwashed willow or birch leaves (debris removed in field), unwashed sedge blades (minimum 3 plants per station), unwashed lichen (debris removed in field with minimum 3 plants per station)	List 1 ^a	Willow and birch leaves were collected at this station. No willow leaves were collected at this station. Birch leaves were collected at this station.
TT2	-- DMTS road transect 10 m north of road 1,000 m north of road 1 km north of road	3	3	3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 3; willow, sedge, and lichen (Peltigera) (1 composite sample per species)			
TT8	-- DMTS road transect 10 m north of road 100 m north of road 1,000 m north of road	3	3	3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 3; willow, sedge, and lichen (Peltigera) (1 composite sample per species) 4; willow, sedge, and lichen (both Peltigera and Cladina) (1 composite sample per species)			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments	
TT3	-- DMTS road transect 10 m north of road	3	3	3; willow, sedge, and lichen (Peltigera) (1 composite sample per species)				
	100 m north of road			4; willow, birch, sedge, and lichen (Peltigera) (1 composite sample per species)				Willow and birch leaves were collected at this station.
	1,000 m north of road			4; birch, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				No willow leaves were collected at this station. Birch leaves were collected at this station.
TT6	-- Port transect 10 m north of road	4	4	4; willow, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				
	100 m north of road			4; willow, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				
	1,000 m north of road			4; willow, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				
	2,000 m north of road			4; willow, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				
TT7	-- Solid waste permit boundary transect 10 m downwind of boundary	3	3	3; willow, sedge, and lichen (Cladina) (1 composite sample per species)				
	1,000 m downwind of mine			3; willow, sedge, and lichen (Cladina) (1 composite sample per species)				
	2,000 m downwind of mine			3; willow, sedge, and lichen (Cladina) (1 composite sample per species)				
TS-REF-5	-- Terrestrial reference area	1	1	4; willow, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)				
TS-REF-7	-- Terrestrial reference area	1	1	5; willow, birch, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)			Willow and birch leaves were collected at this station.	
TS-REF-11	-- Terrestrial reference area	1	1	5; willow, birch, sedge, and lichen (Peltigera and Cladina) (1 composite sample per species)			Willow and birch leaves were collected at this station.	
Berries								
Site A	-- just north of the port ambient air boundary at Ipiavik Lagoon	1	1	10; 5 washed and 5 unwashed salmonberry samples	Tissue chemistry; for all washed samples any debris was removed in field	Antimony, barium, cadmium, lead, thallium, and zinc		
Site B	-- north of the port facility but closer to Kivalina	1	1	10; 5 washed and 5 unwashed salmonberry samples				

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
Site C	-- reference area north of Kivalina	1	1	10; 5 washed and 5 unwashed salmonberry samples			
Site D	-- south of Site A on Ipiavik Lagoon but closer to the port facility	0	1	10; 5 washed and 5 unwashed salmonberry samples			
Sourdock							
Site A	-- just north of the port ambient air boundary at Ipiavik Lagoon	1	1	10; 5 washed and 5 unwashed sourdock samples	Tissue chemistry; for all washed samples any debris was removed in field; minimum 3 sourdock plants per station	Antimony, barium, cadmium, lead, thallium, and zinc	
Site B	-- north of the port facility but closer to Kivalina	1	1	10; 5 washed and 5 unwashed sourdock samples			
Site C	-- reference area north of Kivalina	1	1	10; 5 washed and 5 unwashed sourdock samples			
Site D	-- south of Site A on Ipiavik Lagoon but closer to the port facility	0	1	10; 5 washed and 5 unwashed sourdock samples			
Vegetation Plots (presented in ascending order from port facility to mine along the DMTS)							
TT5	-- Port transect	4	4		Community analysis	--	
	10 m north of road			--			
	100 m north of road			--			
	1,000 m north of road			--			
	2,000 m north of road			--			
TT8	-- DMTS road transect	3	19				
	10 m north of road			--			Station was added in the field.
	50 m north of road			--			Single microplot; station was added in the field.
	100 m north of road			--			
	150 m north of road			--			Single microplot; station was added in the field.
	200 m north of road			--			Single microplot; station was added in the field.
	250 m north of road			--			Single microplot; station was added in the field.
	300 m north of road			--			Single microplot; station was added in the field.
	350 m north of road			--			Single microplot; station was added in the field.
	400 m north of road			--			Single microplot; station was added in the field.
	450 m north of road			--			Single microplot; station was added in the field.
	500 m north of road			--			Single microplot; station was added in the field.
	550 m north of road			--			Single microplot; station was added in the field.
	600 m north of road			--			Single microplot; station was added in the field.
	650 m north of road			--			Single microplot; station was added in the field.
	700 m north of road			--			Single microplot; station was added in the field.
	750 m north of road			--			Single microplot; station was added in the field.
	800 m north of road			--			Single microplot; station was added in the field.
	900 m north of road			--			Single microplot; station was added in the field.
	1,000 m north of road			--			Single microplot; station was added in the field.
TT3	-- DMTS road transect	3	3				
	10 m north of road			--			
	100 m north of road			--			
	1,000 m north of road			--			
TT6	-- Port transect	3	3				
	10 m north of road			--			
	100 m north of road			--			
	1,000 m north of road			--			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
TS-REF-5	-- Terrestrial reference area	1	1	--			
TS-REF-7	-- Terrestrial reference area	1	1	--			
TS-REF-11	-- Terrestrial reference area	1	1	--			Reference area station location was modified to better match vegetation community at site stations.
TS-REF-12	-- Terrestrial reference area	0	1	--			Station was added in the field.
Tundra Soil (presented in ascending order from port facility to mine along the DMTS)					Chemistry; 0–2 cm	List 3 ^b and pH	
TT5	-- Port transect	5	5				
	10 m north of road			1			
	20 m north of road			1			
	100 m north of road			1			
	1,000 m north of road			1			
	2,000 m north of road			1			
TT2	-- DMTS road transect	4	4				
	10 m north of road			1			
	20 m north of road			1			
	100 m north of road			1			
	1,000 m north of road			1			
TT8	-- DMTS road transect	3	19				
	10 m north of road			1			
	50 m north of road			1			Station was added in the field.
	100 m north of road			1			
	150 m north of road			1			Station was added in the field.
	200 m north of road			1			Station was added in the field.
	250 m north of road			1			Station was added in the field.
	300 m north of road			1			Station was added in the field.
	350 m north of road			1			Station was added in the field.
	400 m north of road			1			Station was added in the field.
	450 m north of road			1			Station was added in the field.
	500 m north of road			1			Station was added in the field.
	550 m north of road			1			Station was added in the field.
	600 m north of road			1			Station was added in the field.
	650 m north of road			1			Station was added in the field.
	700 m north of road			1			Station was added in the field.
	750 m north of road			1			Station was added in the field.
	800 m north of road			1			Station was added in the field.
	900 m north of road			1			Station was added in the field.
	1,000 m north of road			1			
TT3	-- DMTS road transect	6	4				
	10 m north of road			1			
	20 m north of road			1			
	100 m north of road			1			
	1,000 m north of road			1			Vegetation transition points at 50 m and 250 m were moved from TT3 to TT8.

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
TT6	-- Port transect	5	4				
	10 m north of road			1			
	20 m north of road			0			No tundra soil sample was collected at 20 m.
	100 m north of road			1			
	1,000 m north of road			1			
	2,000 m north of road			1			
TT7	-- Solid waste permit boundary transect	3	3				
	10 m downwind of boundary			1			
	1,000 m downwind of mine			1			
	2,000 m downwind of mine			1			
TS-REF-5	-- Terrestrial reference area	1	1	1			
TS-REF-7	-- Terrestrial reference area	1	1	1			
TS-REF-11	-- Terrestrial reference area	1	1	1			Reference area station location was modified to better match vegetation community at site stations.
TS-REF-12	-- Terrestrial reference area	0	1	1			Station was added in the field.
Streams							
Aquatic Invertebrate Tissue (presented in ascending order from port facility to mine along the DMTS)					Tissue chemistry	Cadmium, lead, mercury, and zinc	Stations were added in the field.
AC-R	Aufeis Creek	0	1	1 multi-species composite			
OR-R	Omikviorok River	0	1	1 multi-species composite			
ARC-R	Anxiety Ridge Creek	0	1	1 multi-species composite			
ST-REF-3	-- Freshwater aquatic reference area	0	1	1 multi-species composite			
ST-REF-6	-- Freshwater aquatic reference area	0	1	1 multi-species composite			
Aquatic Invertebrate Community (presented in ascending order from port facility to mine along the DMTS)					Community analysis	--	
AC-R	Aufeis Creek	1	1	5 replicates per station			
OR-R	Omikviorok River	1	1	5 replicates per station			
ARC-R	Anxiety Ridge Creek	1	1	5 replicates per station			
ST-REF-3	-- Freshwater aquatic reference area	1	1	5 replicates per station			
ST-REF-5	-- Freshwater aquatic reference area	0	1	5 replicates per station			
ST-REF-6	-- Freshwater aquatic reference area	0	1	5 replicates per station			
Vegetation Tissue (presented in ascending order from port facility to mine along the DMTS)					Tissue chemistry;	List 1 ^a	
AC-R	Aufeis Creek	1	1	1; willow (1 composite sample)	unwashed willow leaves (debris removed in field),		Sedge was not collected at this station.
OR-R	Omikviorok River	1	1	2; willow and sedge (1 composite sample per species)	sedge plant (rinsed roots [no sediment] and unwashed blades		
ARC-R	Anxiety Ridge Creek	1	1	2; willow and sedge (1 composite sample per species)	with minimum 3 plants per station)		
ST-REF-3	-- Freshwater aquatic reference area	1	1	2; willow and sedge (1 composite sample per species)			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
ST-REF-5	-- Freshwater aquatic reference area	1	1	2; willow and sedge (1 composite sample per species)			
ST-REF-6	-- Freshwater aquatic reference area	1	1	2; willow and sedge (1 composite sample per species)			
Tundra Soil (presented in ascending order from port facility to mine along the DMTS)					Chemistry; 0–2 cm	List 3 ^b and pH	
AC-R	Aufeis Creek	1	1	1			
OR-R	Omikviorok River	1	1	1			
ARC-R	Anxiety Ridge Creek	1	1	1			
ST-REF-3	-- Freshwater aquatic reference area	1	1	1			
ST-REF-5	-- Freshwater aquatic reference area	1	1	1			
ST-REF-6	-- Freshwater aquatic reference area	1	1	1			
Stream Sediment (presented in ascending order from port facility to mine along the DMTS)					Chemistry; 0–2 cm	List 3 ^b and pH	Stations were added in the field (associated with the stream aquatic invertebrate tissue samples).
AC-R	Aufeis Creek	0	1	1			
OR-R	Omikviorok River	0	1	1			
ARC-R	Anxiety Ridge Creek	0	1	1			
ST-REF-3	-- Freshwater aquatic reference area	0	1	1			
ST-REF-6	-- Freshwater aquatic reference area	0	1	1			
Stream Water (presented in ascending order from port facility to mine along the DMTS)					Field measurements	Water quality parameters ^c	
AC-R	Aufeis Creek	1	1	1			
OR-R	Omikviorok River	1	1	1			
ARC-R	Anxiety Ridge Creek	1	1	1			
ST-REF-3	-- Freshwater aquatic reference area	1	1	1			
ST-REF-5	-- Freshwater aquatic reference area	1	1	1			
ST-REF-6	-- Freshwater aquatic reference area	1	1	1			
Tundra Ponds							
Vegetation Tissue (presented in ascending order from port facility to mine along the DMTS)					Tissue chemistry;	List 1 ^a	
TP1	-- Port transect				sedge plant (rinsed roots [no sediment] and unwashed blades with minimum 3 plants per station); entire plant will be sampled		
	100 m north of road	1	1	1			
	1 km north of road	1	1	1			
	--DMTS road						
	TP3	1	1	1			
	TP4	1	1	1			
TP-REF-2	-- Freshwater aquatic reference area	1	1	1			
TP-REF-3	-- Freshwater aquatic reference area	1	1	1			
TP-REF-5	-- Freshwater aquatic reference area	1	1	1			2 ponds at 100-500 m north of road - near mine and middle of road; a suitable third pond was not identified

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
Tundra Soil (presented in ascending order from port facility to mine along the DMTS)					Chemistry; 0–2 cm	List 3 ^b	
TP1	-- Port transect						
	100 m north of road	1	1	1			
	1 km north of road	1	1	1			
	--DMTS road						
	TP3	1	1	1			
	TP4	1	1	1			
TP-REF-2	-- Freshwater aquatic reference area	1	1	1			
TP-REF-3	-- Freshwater aquatic reference area	1	1	1			
TP-REF-5	-- Freshwater aquatic reference area	1	1	1			
Tundra Pond Water (presented in ascending order from port facility to mine along the DMTS)					Field measurements	Water quality parameters ^c	
TP1	-- Port transect						
	100 m north of road	1	1	1			
	1 km north of road	1	1	1			
	--DMTS road						
	TP3	1	1	1			2 ponds at 100-500 m north of road - near mine and middle of road; a suitable third pond was not identified
	TP4	1	1	1			
TP-REF-2	-- Freshwater aquatic reference area	1	1	1			
TP-REF-3	-- Freshwater aquatic reference area	1	1	1			
TP-REF-5	-- Freshwater aquatic reference area	1	1	1			
Coastal Lagoons							
Aquatic Invertebrate Tissue (presented in ascending order from port facility to the north))					Tissue chemistry; composite sample of all invertebrates collected at a station	List 4: Cadmium, lead, and zinc	
PLNL	Port Lagoon North (inland shore)	1	1	1 multi-species composite			
NLK	North Lagoon (inland shore)	1	1	1 multi-species composite			
NLF	North Lagoon (seaward shore)	1	1	1 multi-species composite			
CL-REF-1	-- Reference lagoon	1	1	1 multi-species composite			
CL-REF-2/3	-- Control lagoon	0	1	1 multi-species composite			Station was added in the field.
Aquatic Invertebrate Community (presented in ascending order from port facility to the north)					Community analysis	--	
PLNL	Port Lagoon North (inland shore)	1	1	5 replicates per station			
NLK	North Lagoon (inland shore)	1	1	5 replicates per station			
NLF	North Lagoon (seaward shore)	1	1	5 replicates per station			
CL-REF-1	-- Reference lagoon	1	1	5 replicates per station			
CL-REF-2	-- Control lagoon (inland shore)	1	1	5 replicates per station			
CL-REF-3	-- Control lagoon (seaward shore)	1	1	5 replicates per station			
Fish							
	2 site lagoons	2	0	0			All 3 coastal lagoons were seined and trapped; no fish were collected.
	Reference lagoon TBD	1	0	0			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
Vegetation Tissue (presented in ascending order from port facility to the north)							
PLNL	Port Lagoon North (inland shore)	1	1	1	Tissue chemistry; sedge plant (rinsed roots [no sediment] and unwashed blades with minimum 3 plants per station); entire plant will be sampled	List 1 ^a	No sedge was present at Station NLF.
NLK	North Lagoon (inland shore)	1	1	1			
NLF	North Lagoon (seaward shore)	1	0	0			
CL-REF-1	-- Reference lagoon	1	1				
CL-REF-2	-- Control lagoon (inland shore)	1	1	1			
CL-REF-3	-- Control lagoon (northern shore)	1	0	0			
Vegetation Plots (presented in ascending order from port facility to the north)							
PLNL	Port Lagoon North (inland shore)	1	1	--	Community analysis	--	No vegetation plots were described at Station NLF; sand dune environment
NLK	North Lagoon (inland shore)	1	1	--			
NLF	North Lagoon (seaward shore)	1	0	--			
CL-REF-1	-- Reference lagoon	1	1	--			
CL-REF-2	-- Control lagoon (inland shore)	1	1	--			
CL-REF-3	--	1	0	--			
Tundra Soil (presented in ascending order from port facility to the north)							
PLNL	Port Lagoon North (inland shore)	1	1	1	Chemistry; 0–2 cm	List 3 ^b and pH	
NLK	North Lagoon (inland shore)	1	1	1			
NLF	North Lagoon (seaward shore)	1	1	1			
CL-REF-1	-- Reference lagoon	1	1	1			
CL-REF-2	-- Control lagoon (inland shore)	1	1	1			
CL-REF-3	-- Control lagoon (northern shore)	1	1	1			
Lagoon Sediment (presented in ascending order from port facility to mine along the DMTS)							
PLNL	Port Lagoon North (inland shore)	1	1	1	Chemistry and toxicity test; 0–2 cm	List 5: Arsenic, cadmium, lead, zinc; List 6: Grain size and total solids; <i>Hyalella</i> survival and growth ^d	
NLK	North Lagoon (inland shore)	1	1	1			
NLF	North Lagoon (seaward shore)	1	1	1			
CL-REF-1	-- Reference lagoon	1	1	1			
CL-REF-2	-- Control lagoon (inland shore)	1	1	1			
CL-REF-3	-- Control lagoon (seaward shore)	1	1	1			
Lagoon Water (presented in ascending order from port facility to the north)							
PLNL	Port Lagoon North (inland shore)	1	1	1	Field measurements	Water quality parameters ^c	
NLK	North Lagoon (inland shore)	1	1	1			
NLF	North Lagoon (seaward shore)	1	1	1			
CL-REF-1	-- Reference lagoon	1	1	1			
CL-REF-2	-- Control lagoon (inland shore)	1	1	1			
CL-REF-3	-- Control lagoon (seaward shore)	1	1	1			

Table E-2. (cont.)

Sample Type	Description	No. of Proposed Stations	No. of Stations Sampled	No. of Field Samples	Kind of Sample	Analytes	Comments
Marine							
Surface sediment	19 stations around the port	19	19	38 (two events) ^e	Chemistry and toxicity test; 0–2 cm	List 4: Cadmium, lead, zinc	
Surface sediment ^f	7 port stations - NMD, NMGZ, NML, NMM, NMN, NMO, NMAA	7	7	14 (two events) ^e		List 7: Cadmium, copper, lead, mercury, silver, zinc; List 6: Grain size, total solids;	
Surface sediment ^f	3 reference stations to the southeast	3	3	6 (two events) ^e		<i>Hyalella</i> survival and growth ^f	

Note: DMTS - DeLong Mountain Regional Transportation System
NA - not applicable
TBD - to be determined

^a List 1: Aluminum, antimony, arsenic, barium, cadmium, chromium, cobalt, lead, mercury, molybdenum, selenium, thallium, vanadium, and zinc.

^b List 3: Antimony, arsenic, barium, cadmium, cobalt, copper, lead, manganese, mercury, molybdenum, selenium, silver, thallium, vanadium, and zinc.

^c Water quality measurements will be taken in the field (e.g., pH, dissolved oxygen, temperature, conductivity, and salinity).

^d Toxicity testing of coastal lagoon sediment will be performed only if aquatic invertebrates collected for community analyses are negligible.

^e Second marine sediment sampling event will be conducted shortly in September 2004.

^f Toxicity testing of marine sediment will be performed only if concentrations in marine sediment have not decreased in comparison with 2003 concentrations. Toxicity tests were not performed for the June 2004 sampling event. The September 2004 sampling event has not yet occurred. Toxicity tests will be performed only for one of the two sampling events.

Table E-3. Information on level of small mammal trapping activities during the June/July 2004 sampling event

Station	Date Set	Date Picked Up	Nights Set	Number of Traps	Trap Nights	Number of Mammals	Incidental Take	Notes
TT5-0010	06/12/04	06/16/04	4	150	600	5	None	100 live traps, 50 snap traps
TT5-0100	06/16/04	06/19/04	3	100	300	0	None	100 live traps
TT5-1000	06/13/04	06/16/04	3	150	450	3	None	100 live traps, 50 snap traps
TT5-2000	06/11/04	06/15/04	4	118	472	0	1 masked shrew caught in pitfall trap	80 live traps, 38 snap traps
TT2-0010	06/18/04	06/21/04	3	100	300	0	None	100 live traps
TT2-0100	06/16/04	06/19/04	3	100	300	3	None	100 live traps
TT2-1000	06/15/04	06/18/04	3	150	450	1	None	100 live traps, 50 snap traps
TT8-0010	06/25/04	07/05/04	10	100	1,000	0	None	100 live traps
TT8-0100	06/26/04	07/05/04	9	100	900	0	None	100 live traps
TT3-0010	06/19/04	06/22/04	3	100	300	0	1 masked shrew caught in pitfall trap	100 live traps
TT3-0100	06/19/04	06/22/04	3	100	300	1	1 masked shrew caught in pitfall trap	100 live traps
TT3-1000	06/21/04	06/24/04	3	100	300	1	2 - 1 masked shrew and 1 northern red backed vole caught in pitfall trap	100 live traps
TT6-0100	06/25/04	06/29/04	4	100	400	0	None	100 live traps
TT6-1000	06/22/04	06/25/04	3	100	300	0	None	100 live traps
TS-REF-5	07/01/04	07/05/04	4	100	400	1	3 masked shrews caught in pitfall traps	100 live traps
					6,772	15	1 capture per 451.5 nights	