

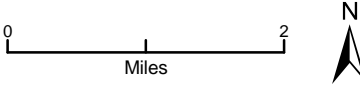
Knik Arm Crossing Development Concepts

Proposed Alignment and
Initial Construction Costs
35% Design Update



Construction Cost Summary (2010 Dollars)

Alignment	Cost(M)
1. Point MacKenzie Road Paving	\$24.0
2. Port MacKenzie Industrial-North Route	\$14.0
3. West Approach	\$38.0
4. Bridge	\$290.0
5. East Approach	\$104.0
6. MOA Future Port Expansion Alignment	\$9.0
7. Retaining Wall	\$15.0
8. Cherry Hill	\$34.0
9. Government Hill	\$76.0
Total Cost (Millions)	\$604.0

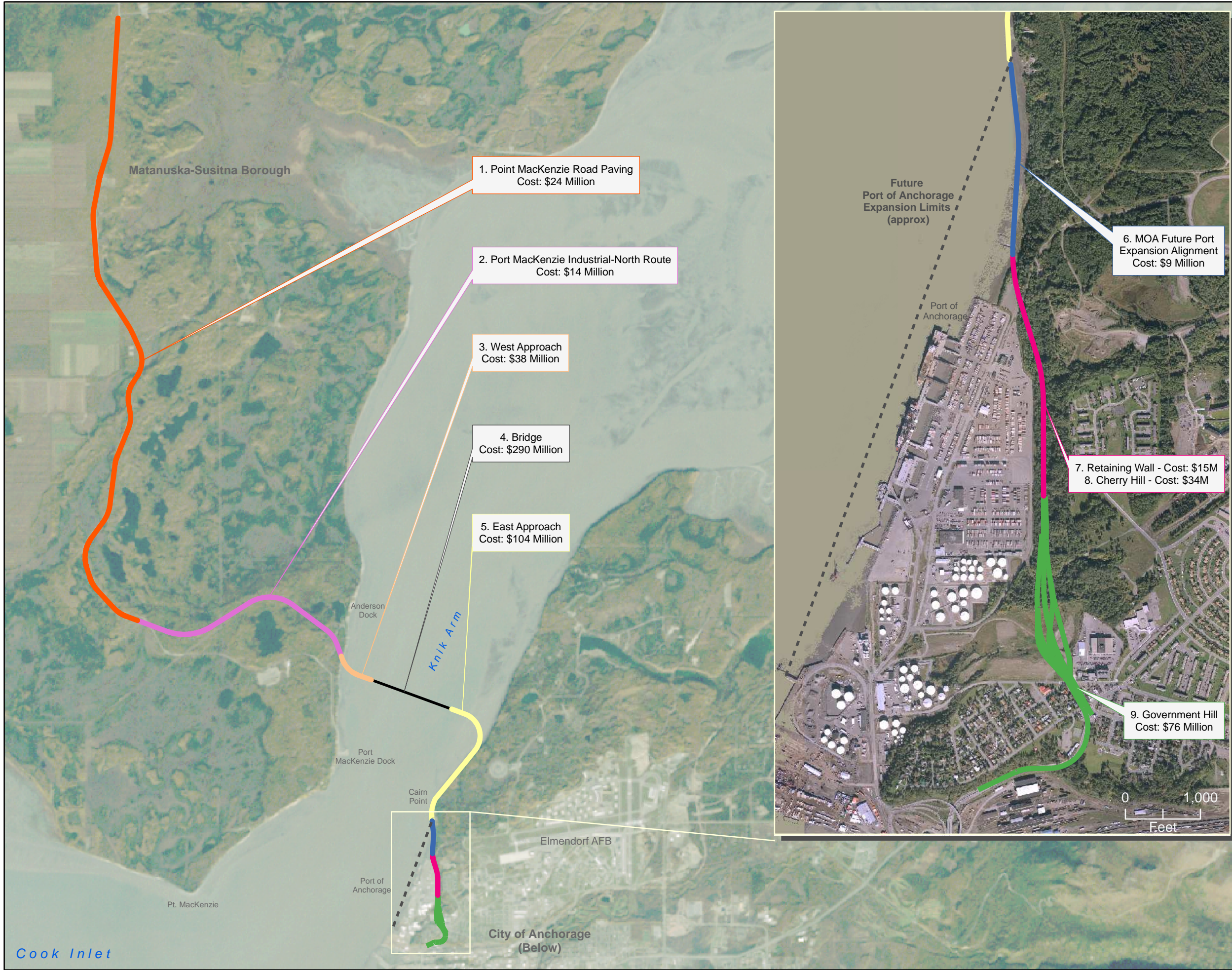


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

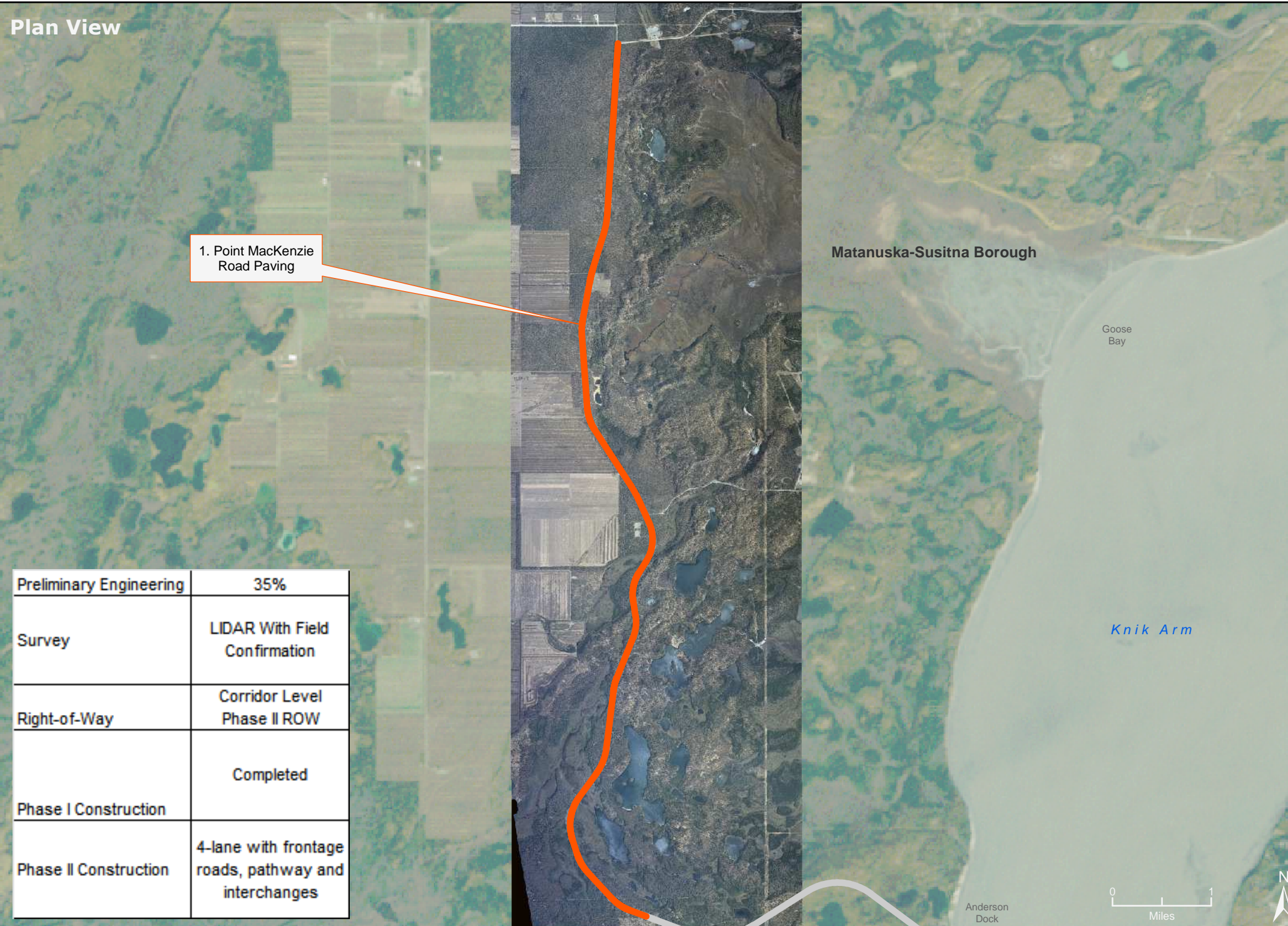


ENGINEERS, INC.



Cook Inlet

Plan View



1. Point MacKenzie Road Paving

Preliminary Engineering	35%
Survey	LIDAR With Field Confirmation
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	Completed
Phase II Construction	4-lane with frontage roads, pathway and interchanges

Knik Arm Crossing

Development Concepts

1. Point MacKenzie Road Paving



35% Design Update

Description

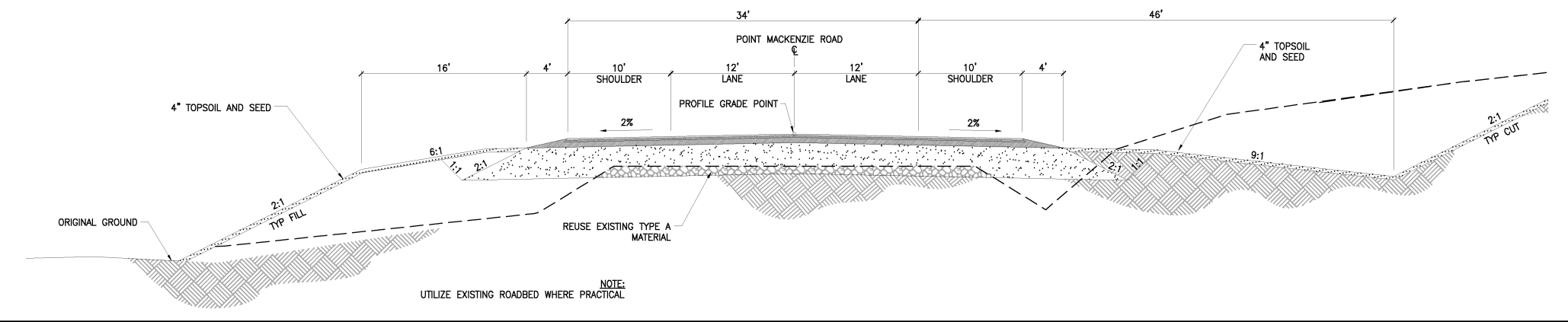
This project consists of minor realignments and paving of the existing Point MacKenzie road, beginning at the intersection of Point MacKenzie and Burma Roads. The alignment will generally follow the existing roadway alignment south to the western boundary of the Port MacKenzie District, just over 9.6 miles away. Initially, the alignment will be a two-lane roadway with provisions to allow for future expansion to a four-lane highway. Culverts will be used for cross drainage along the alignment. No bridge structures will be required.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Clearing and Grubbing	Acre	\$4,500.00	81	\$ 363,780
Clearing	Acre	\$3,500.00	46	\$ 161,000
Common Excavation	CY	\$6.50	310,143	\$ 2,015,930
Excavation (Stockpile)	CY	\$7.00	382,857	\$ 2,679,999
Excavation (Waste)	CY	\$10.00		
Borrow, Type A	CY	\$15.00	84,000	\$ 1,260,000
Borrow, Type C	CY	\$12.00	0	\$ -
Muck Excavation	CY	\$5.00	100,000	\$ 500,000
AC Pavement, Type II Cl A	TN	\$80.00	57,372	\$ 4,589,760
Base Course	TN	\$52.50	98,145	\$ 5,152,608
Topsoil and Seed	MSF	\$475.00	3,715	\$ 1,764,625
Intersection	LS	\$230,000	1	\$ 230,000
Striping	LF	\$1.75	202,752	\$ 354,816
Signs	SF	\$115.00	1,000	\$ 115,000
Culverts	LF	\$150.00	3,500	\$ 525,000
Surveying - All	All	\$175,000	-	\$ 175,000
Demolition	All	\$300,000	-	\$ 300,000
Traffic Control	All	\$230,000	-	\$ 230,000
Silt Fence/ Erosion Protection	All	\$300,000	-	\$ 300,000

Cost per Mile (millions) **\$2.16**
Total: **\$ 20,717,517**
Total w/ 15% Contingency: **\$ 23,825,145**

Typical Section

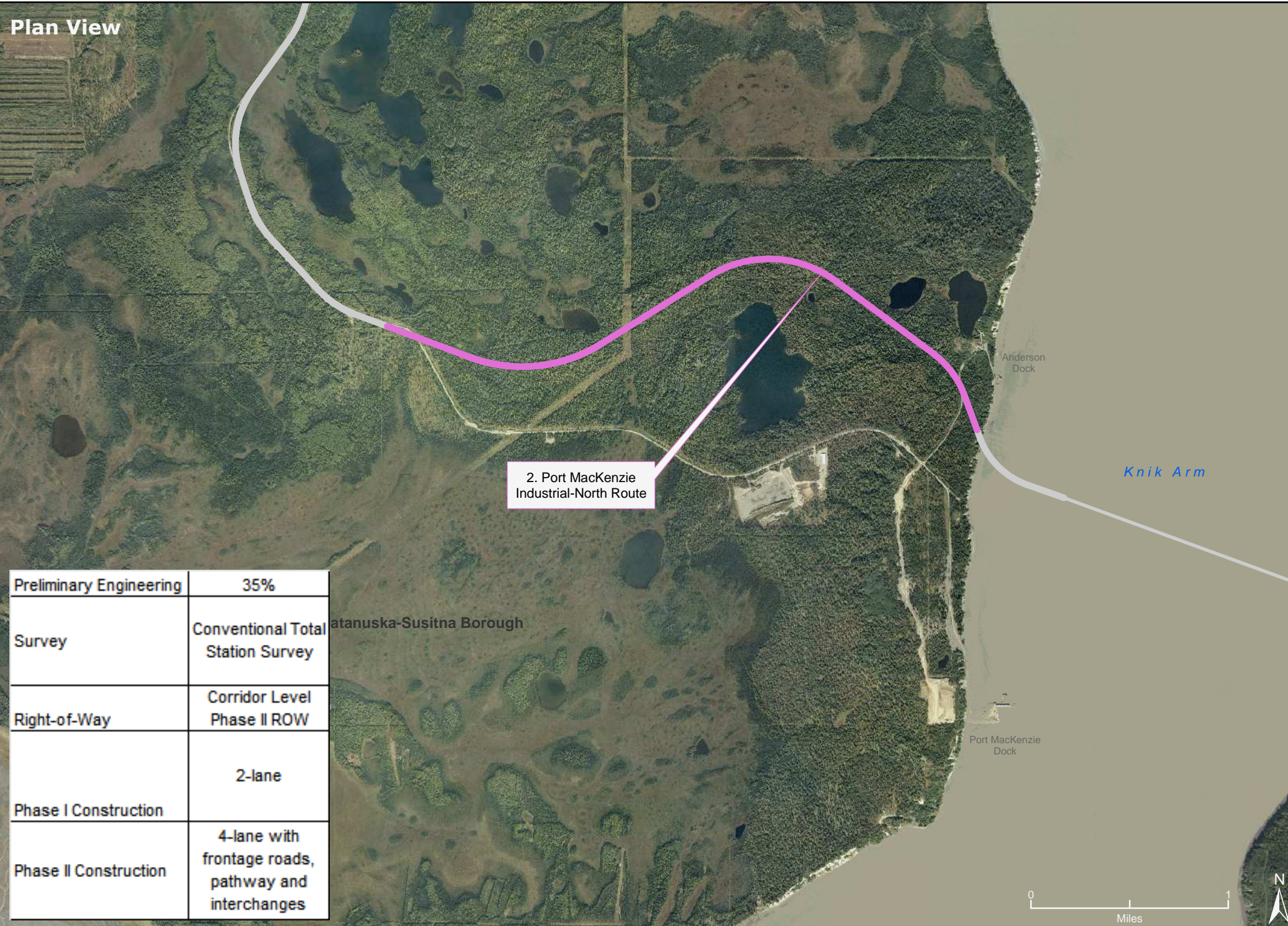


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

PND ENGINEERS, INC.

Plan View



Preliminary Engineering	35%
Survey	Conventional Total Station Survey
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	2-lane
Phase II Construction	4-lane with frontage roads, pathway and interchanges

Knik Arm Crossing

Development Concepts



2. Port MacKenzie Industrial-North Route

35% Design Update

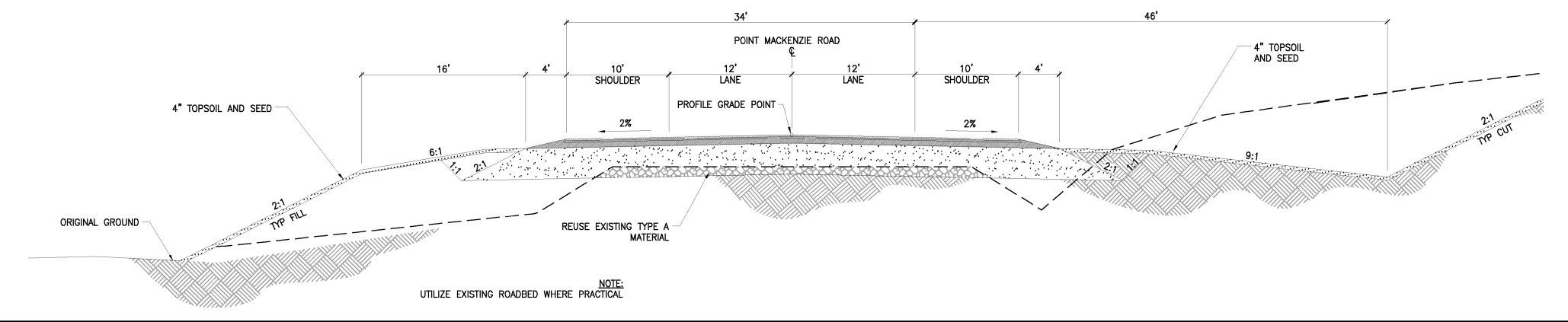
Description

This project is an all new alignment that departs from the existing Point MacKenzie Road at the western boundary of the Port MacKenzie District. The alignment would skirt the core Port MacKenzie area on the north side of Lake Lorraine leading to the western bluff of the Knik Arm. This 3.5 mile alignment slices through the bluff almost a third of the way down from the top and on approximately a 30 degree skew before spilling out onto the tidelands. A multi-use facility for road maintenance equipment will be positioned on the west side as will an intersection to allow access to the Port Mackenzie District and to the Anderson Dock area.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Clearing and Grubbing	Acre	\$4,500.00	70	\$ 315,000
Clearing	Acre	\$3,500.00	17	\$ 59,733
Common Excavation	CY	\$6.50	452,712	\$ 2,942,629
Excav. (as borrow elsewhere)	CY	\$0.00	425,291	\$ -
Borrow, Type A	CY	\$15.00	83,935	\$ 1,259,024
AC Pavement, Type II CI A	TN	\$80.00	20,932	\$ 1,674,560
Base Course	TN	\$52.50	34,600	\$ 1,816,500
Topsoil and Seed	MSF	\$475.00	2,090	\$ 992,750
Intersection	EA	\$230,000	1	\$ 230,000
Maintenance Facility	LS	\$1,725,000	1	\$ 1,725,000
Striping	LF	\$1.75	74,342	\$ 130,099
Signs	SF	\$115.00	200	\$ 23,000
Culverts	LF	\$150.00	3,000	\$ 450,000
Surveying - All	All	\$115,000	-	\$ 115,000
Demolition	All	\$57,500	-	\$ 57,500
Traffic Control	All	\$115,000	-	\$ 115,000
Silt Fence/ Erosion Protection	All	\$175,000	-	\$ 175,000
Cost per Mile (millions)				\$3.43
Total:				\$ 12,080,795
Total w/ 15% Contingency:				\$ 13,892,914

Typical Section

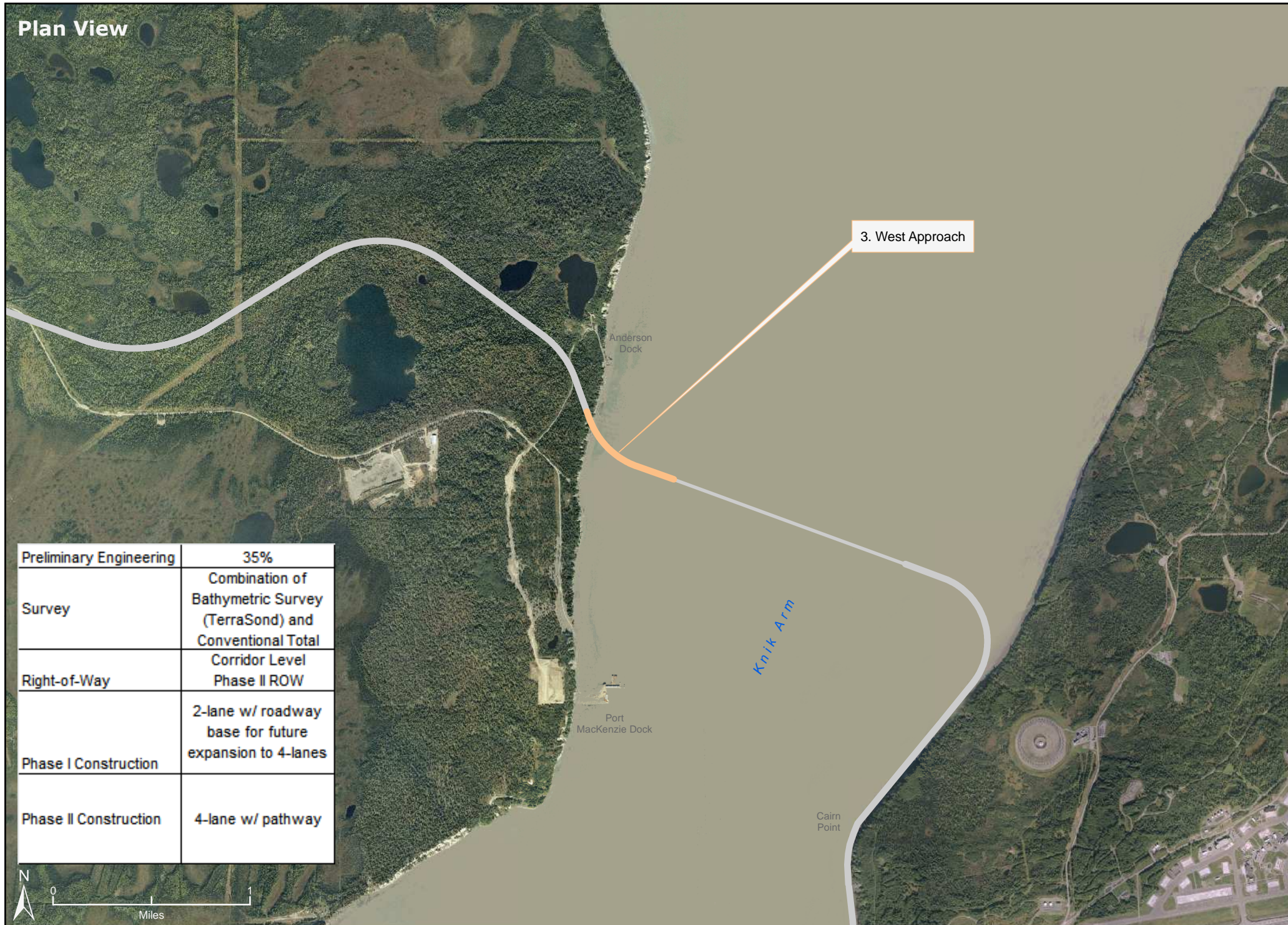


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

PND ENGINEERS, INC.

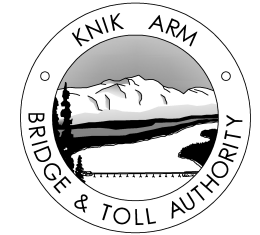
Plan View



Preliminary Engineering	35%
Survey	Combination of Bathymetric Survey (TerraSond) and Conventional Total
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	2-lane w/ roadway base for future expansion to 4-lanes
Phase II Construction	4-lane w/ pathway

Knik Arm Crossing

Development Concepts



3. West Approach

35% Design Update

Description

The West Approach begins where the crossing alignment intersects the western bluff of the Knik Arm, approximately 1/3 the way down from the top. It terminates at the -10 MLLW contour in the Knik Arm at the proposed location of the west bridge abutment. The alignment curves slightly to form a tangent with the proposed bridge orientation. Total length of this phase is approximately 0.45 miles. Fill will consist of gravel, filter rock and armor for protection against wave action. The approach will be constructed wide enough to accommodate expansion of the roadway from an initial two lanes to four.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Vibracompaction (Below elev 20')	SY	\$50.00	56,990	\$ 2,849,517
Borrow, Type A	CY	\$15.00	21,926	\$ 328,890
Borrow, Type C	CY	\$12.00	538,163	\$ 6,457,956
Fill Below elev 20'	CY	\$27.50	433,279	\$ 11,915,173
AC Pavement, Type II CI A	TN	\$80.00	3,222	\$ 257,760
Base Course	TN	\$52.50	8,520	\$ 447,300
Armor Rock	CY	\$100.00	78,014	\$ 7,801,400
Filter Rock	CY	\$60.00	20,120	\$ 1,207,200
Topsoil and Seed	MSF	\$475.00	500	\$ 237,500
Guardrail	LF	\$40.00	4,541	\$ 181,632
Concrete Barrier	LF	\$80.00	2,270	\$ 181,632
Striping	LF	\$1.75	9,082	\$ 15,893
Signs	SF	\$115.00	100	\$ 11,500
Culverts	LF	\$150.00	1,000	\$ 150,000
Surveying - All	All	\$300,000	-	\$ 300,000
Silt Fence/ Erosion Protection	All	\$460,000	-	\$ 460,000

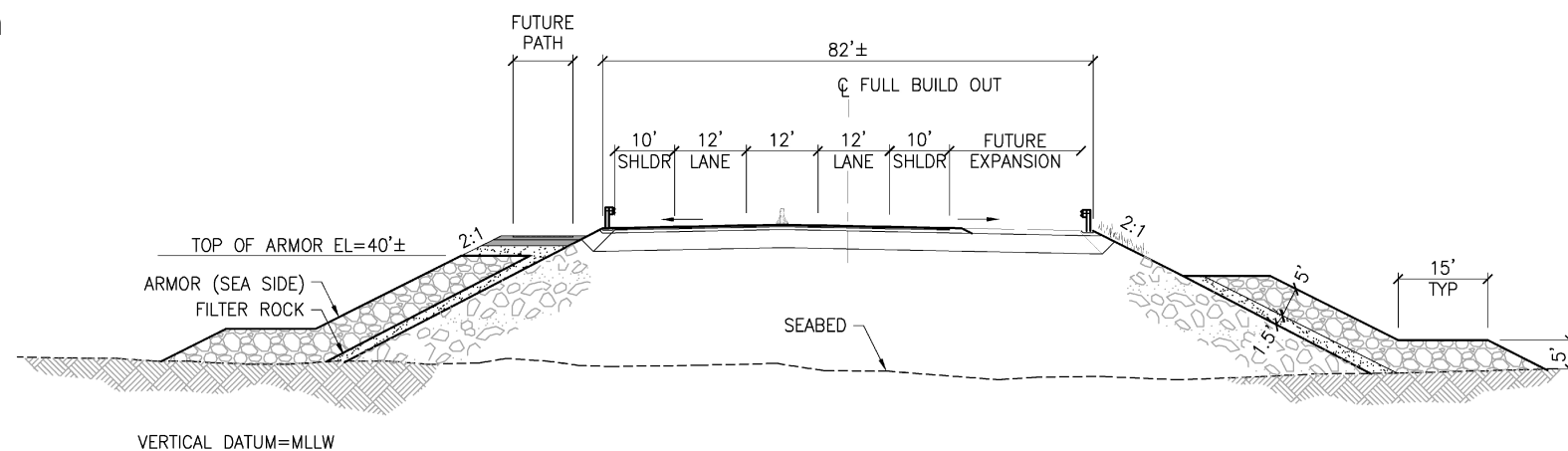
Cost per Mile (millions)

\$76.29

Total: \$ 32,803,352

Total w/ 15% Contingency: \$ 37,723,855

Typical Section

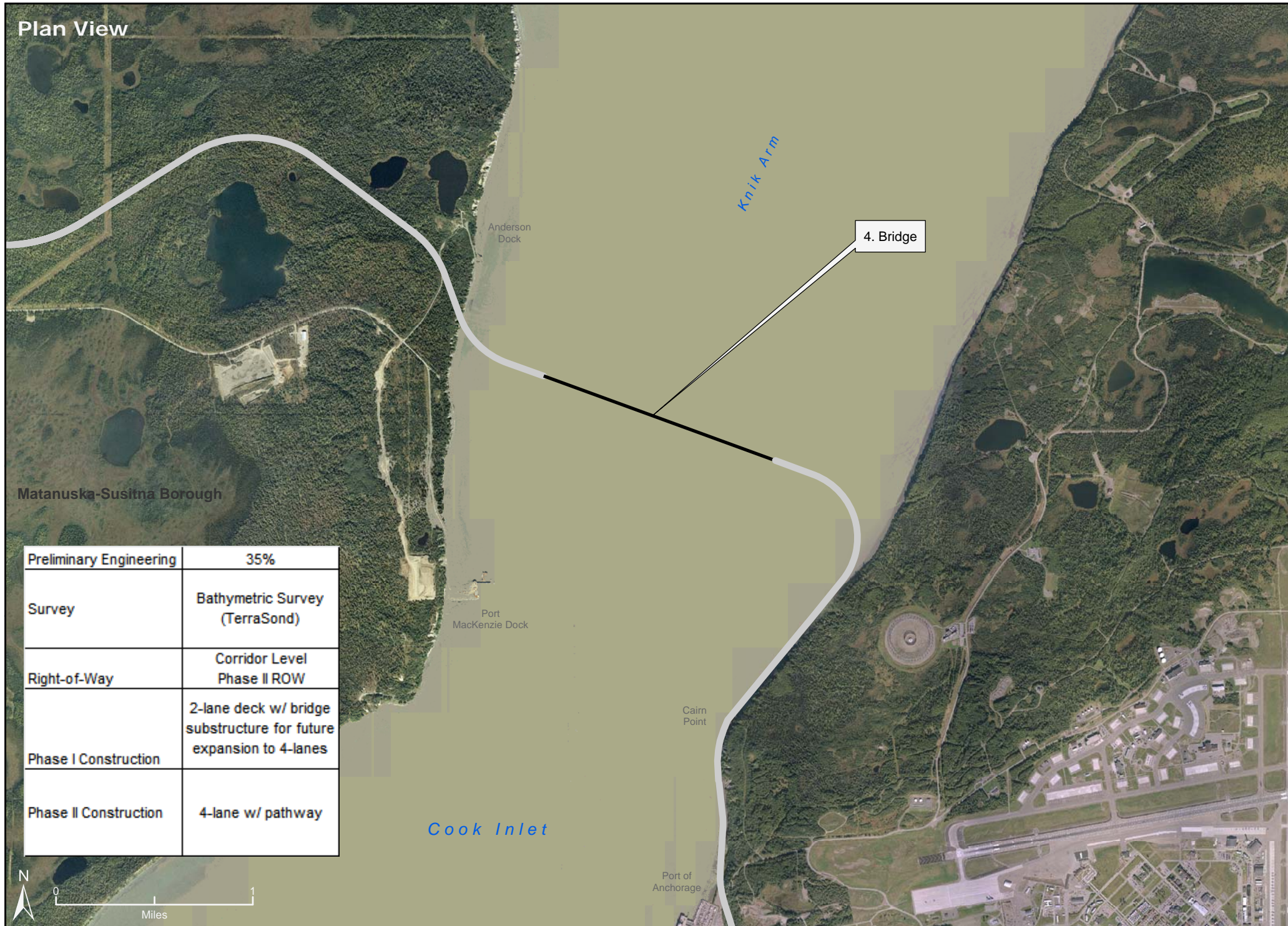


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

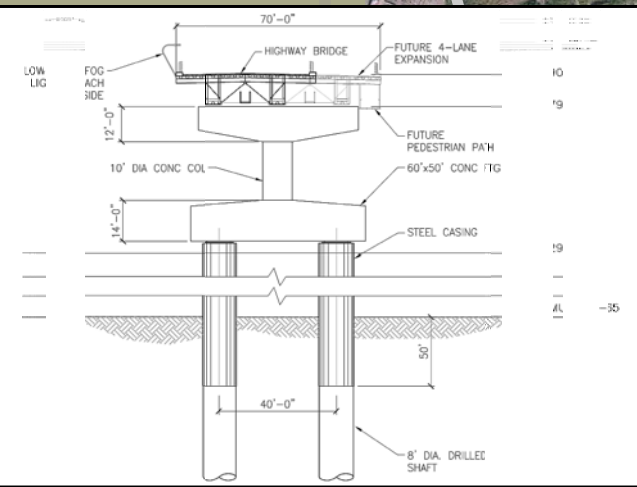


Plan View



Preliminary Engineering	35%
Survey	Bathymetric Survey (TerraSond)
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	2-lane deck w/ bridge substructure for future expansion to 4-lanes
Phase II Construction	4-lane w/ pathway

Typical Section



Knik Arm Crossing

Development Concepts



4. Bridge

35% Design Update

Description

The bridge structure is proposed to be 8,200 feet long positioned with the abutments at the -10 MLLW contour on both sides of the Arm. Pier supports will be spaced at approximately 275 feet apart along the bridge deck. A clear height of 50 feet minimum will be provided for vessel passage near the mid-span of the bridge. Coast Guard required lighting will be provided as navigational aids. The bridge structure will accommodate two lanes however; it will be designed to allow expansion to four lanes in the future.

Construction Cost Summary (2010 Dollars)

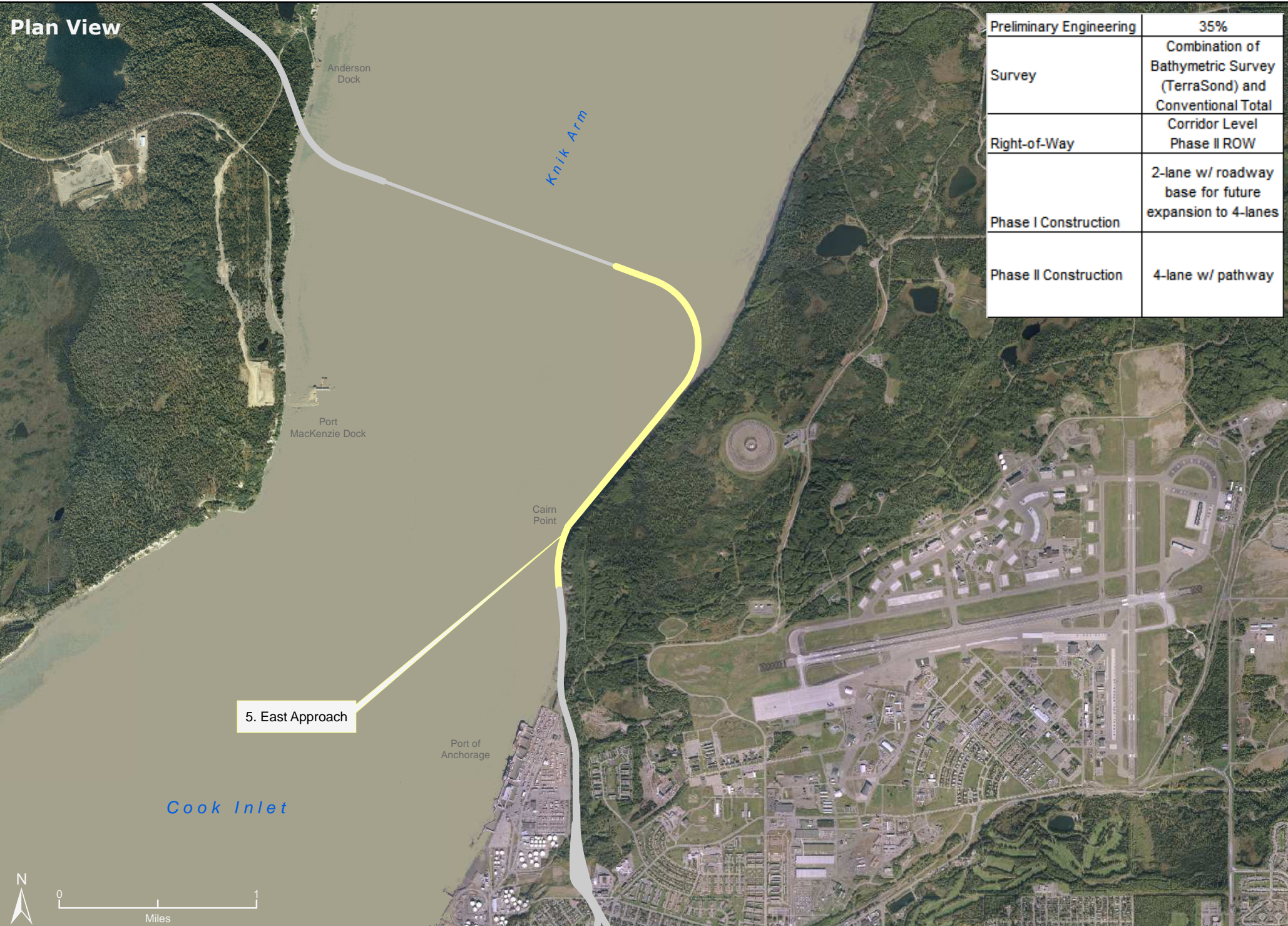
Item	Unit	Cost/ Unit	Qty	Total Cost
96" Diameter Drilled Shafts	LF	\$3,048	23,000	\$ 70,113,430
Cross Hole Sonic Logging	LF	In Drilled Shaft	23,000	In Drilled Shaft
Concrete-Substructure	CY	\$553	29,067	\$ 16,068,819
Substructure reinforcing Steel	LB	\$1	4,360,090	\$ 5,755,319
Abutment reinforced Reinforcing	CY	\$1,113	3,000	\$ 3,338,130
Abutment Concrete Reinforcing	TONS	\$2,241	200	\$ 448,142
Superstructure Structural Steel (A58)	TONS	\$6,100	20,250	\$ 123,517,508
Curb Reinforcing Concrete	CY	\$203	1,430	\$ 290,605
Curb reinforcing Steel	TONS	\$2,302	100	\$ 230,203
Bridge Rail (16,500 LF)	TONS	\$1,259	1,200	\$ 1,510,548
Deck Metalizing	SY	\$129	40,000	\$ 5,166,400
Rubberized Asphalt Paving	TONS	\$259	4,100	\$ 1,060,957
Asphlat paving	TONS	\$155	8,200	\$ 1,271,082
Lighting	LF	\$62.13	16,500	\$ 1,025,145
Signs and Miscellaneous	LS	\$205,014.48	1	\$ 205,014
10' Dia. Rubber Energy Absorbers	EA	\$21,724.21	12	\$ 260,691
Small Rubber Energy Absorbers	EA	\$4,855.36	8	\$ 38,843
Mobilization	LS	\$22,465,113.68	1	\$ 22,465,113.68
Cost per Mile (millions)				\$ 162.76
				Total: \$ 252,765,948
				Total w/ 15% Contingency: \$ 290,680,840

Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com



Plan View



Preliminary Engineering	35%
Survey	Combination of Bathymetric Survey (TerraSond) and Conventional Total
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	2-lane w/ roadway base for future expansion to 4-lanes
Phase II Construction	4-lane w/ pathway

Knik Arm Crossing

Development Concepts



5. East Approach

35% Design Update

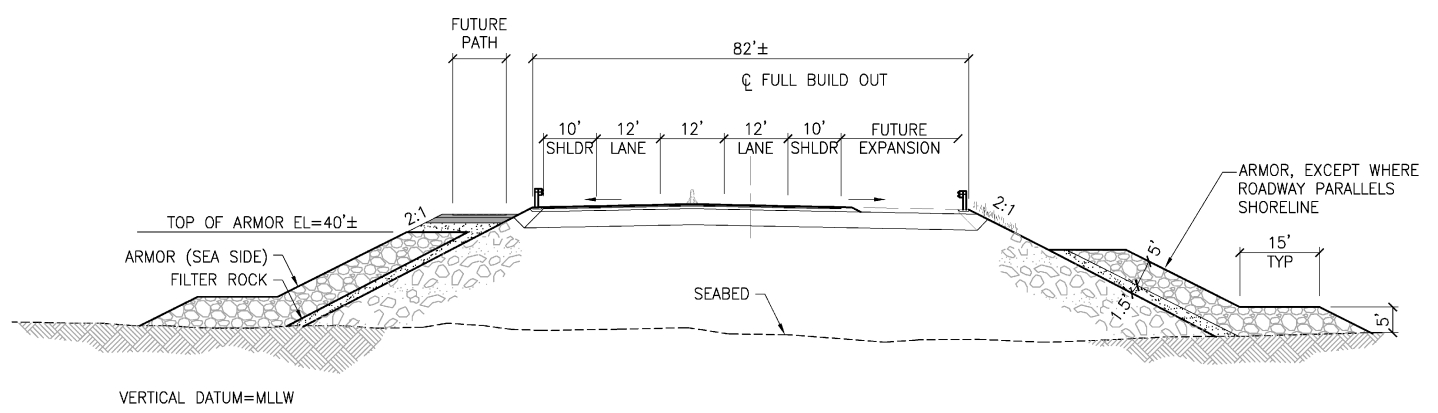
Description

The East Approach begins at the east end of the bridge structure, providing support for the abutment at -10 MLLW. The alignment then curves to the south, following the east shoreline of the Knik Arm ending at the north end of the future Port of Anchorage expansion, a distance of approximately 1.95 miles. Fill will consist of gravel, filter rock and armor for protection against wave action. The approach will be constructed wide enough to accommodate expansion of the roadway from an initial two lanes to four.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Vibracompaction (Below elev 20')	SY	\$50.00	165,832	\$ 8,291,600
Borrow, Type A	CY	\$20.00	99,397	\$ 1,987,940
Borrow, Type C	CY	\$20.00	1,078,625	\$ 21,572,500
Fill Below elev 20'	CY	\$27.50	763,000	\$ 20,982,500
AC Pavement, Type II Cl A	TN	\$88.00	14,608	\$ 1,285,504
Base Course	TN	\$25.00	38,624	\$ 965,600
Armor Rock	CY	\$100.00	256,450	\$ 25,645,000
Filter Rock	CY	\$60.00	61,923	\$ 3,715,380
Topsoil and Seed	MSF	\$475.00	3,000	\$ 1,425,000
Guardrail	LF	\$40.00	20,381	\$ 815,232
Concrete Barrier	LF	\$80.00	10,190	\$ 815,232
Security Fencing (Chain Link)	LF	\$75.00	7,920	\$ 594,000
Striping	LF	\$1.75	40,762	\$ 71,333
Signs	SF	\$115.00	500	\$ 57,500
Drainage System	LS	\$575,000	1	\$ 575,000
Surveying - All	All	\$345,000	-	\$ 345,000
Silt Fence/ Erosion Protection	All	\$1,150,000	-	\$ 1,150,000
Cost per Mile (millions)				\$46.78
Total:				\$ 90,294,321
Total w/ 15% Contingency:				\$ 103,838,469

Typical Section

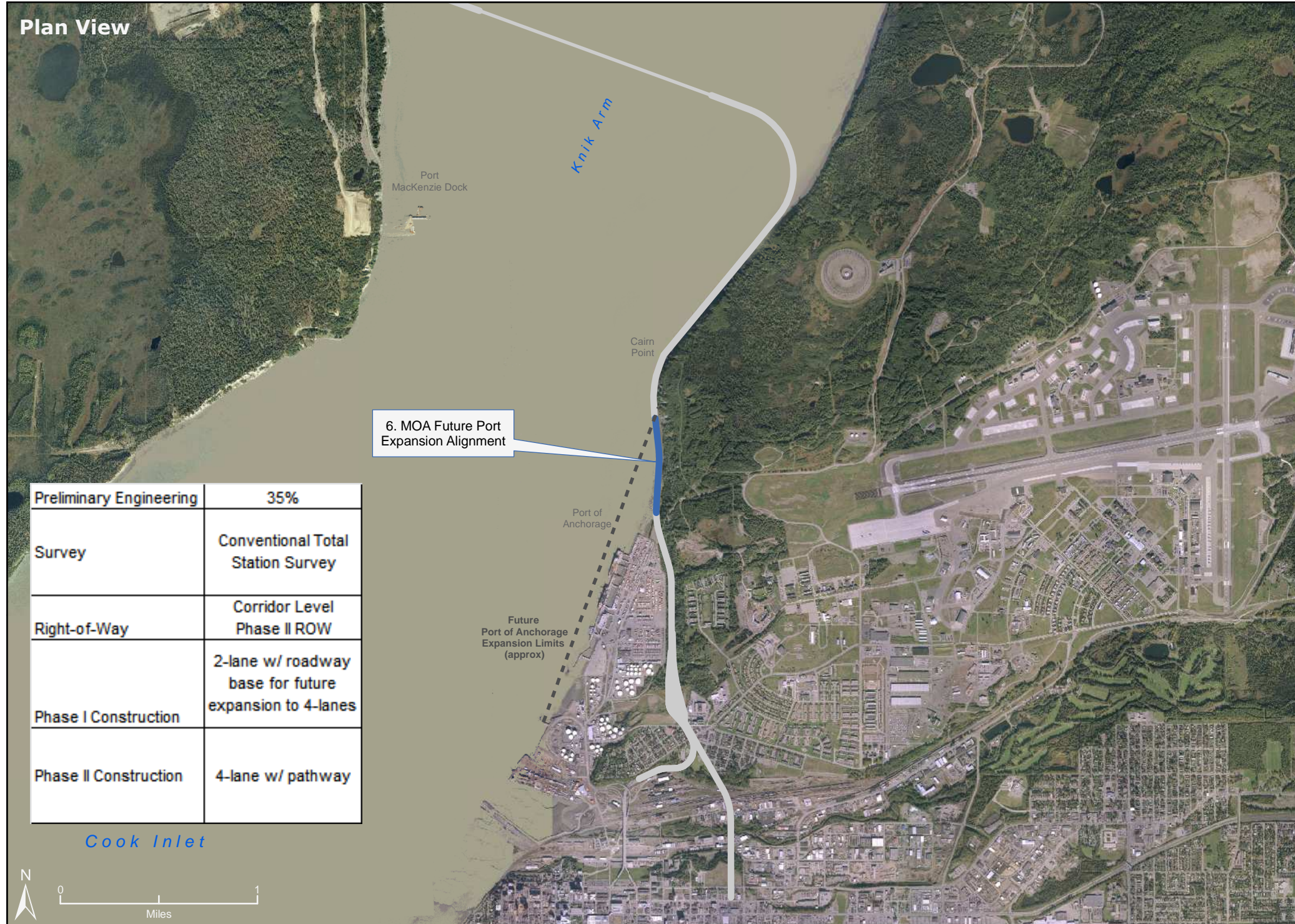


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

PND ENGINEERS, INC.

Plan View



6. MOA Future Port Expansion Alignment

Preliminary Engineering	35%
Survey	Conventional Total Station Survey
Right-of-Way	Corridor Level Phase II ROW
Phase I Construction	2-lane w/ roadway base for future expansion to 4-lanes
Phase II Construction	4-lane w/ pathway



Knik Arm Crossing

Development Concepts



6. MOA Future Port Expansion Alignment

35% Design Update

Description

This project consists of 0.60 miles of roadway alignment to be constructed atop the already permitted Port of Anchorage fill expansion. Adequate space will be provided to allow for expansion of the roadway from the initial two lanes to four. The alignment will be constructed parallel to the bluff, on top of the future port expansion.

Construction Cost Summary (2010 Dollars)

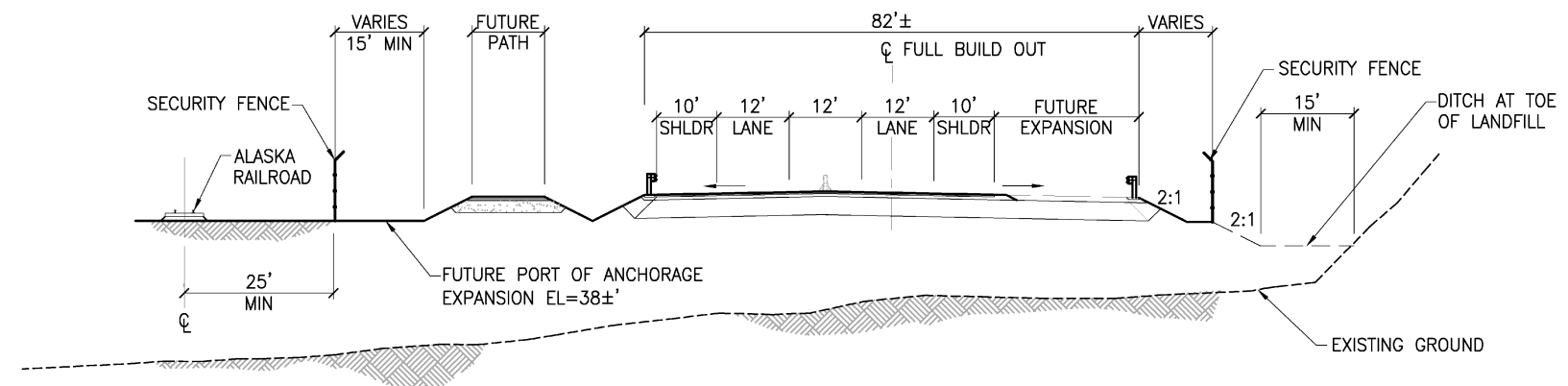
Item	Unit	Cost/ Unit	Qty	Total Cost
Borrow, Type A	CY	\$20.00	29,967	\$ 599,340
Borrow, Type C	CY	\$20.00	93,337	\$ 1,866,740
AC Pavement, Type II CI A	TN	\$88.00	4,502	\$ 396,176
Base Course	TN	\$25.00	9,621	\$ 240,525
Sheet Pile (Open Cell)	Tons	\$3,000.00	146	\$ 438,000
Topsoil and Seed	MSF	\$475.00	250	\$ 118,750
Guardrail	LF	\$40.00	6,336	\$ 253,440
Concrete Barrier	LF	\$80.00	-	\$ -
Security Fencing (Chain Link)	LF	\$75.00	6,336	\$ 475,200
Lighting	LF	\$100.00	3,200	\$ 320,000
Striping	LF	\$1.75	12,672	\$ 22,176
Signs	SF	\$115.00	500	\$ 57,500
Drainage System	LS	\$1,725,000	1	\$ 1,725,000
Surveying - All	All	\$115,000	-	\$ 115,000
Traffic Control	All	\$115,000	-	\$ 115,000
Silt Fence/ Erosion Protection	All	\$575,000	-	\$ 575,000

Cost per Mile (millions) **\$12.20**

Total: **\$ 7,317,847**

Total w/ 15% Contingency: **\$ 8,415,524**

Typical Section



Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

PND ENGINEERS, INC.

Plan View



7. Retaining Wall

Knik Arm Crossing

Development Concepts



7. Retaining Wall

35% Design Update

Description

To provide a security barrier between the roadway alignment and the Port of Anchorage, a sheet pile barrier wall will be constructed along the toe of Cherry Hill. This security wall will also act to stabilize soft, seismically sensitive soils along this 0.9 mile alignment. The wall will be positioned to accommodate construction of the Knik Arm Crossing alignment to the east, allowing for both the initial two lane roadway as well as room to expand to four lanes in the future.

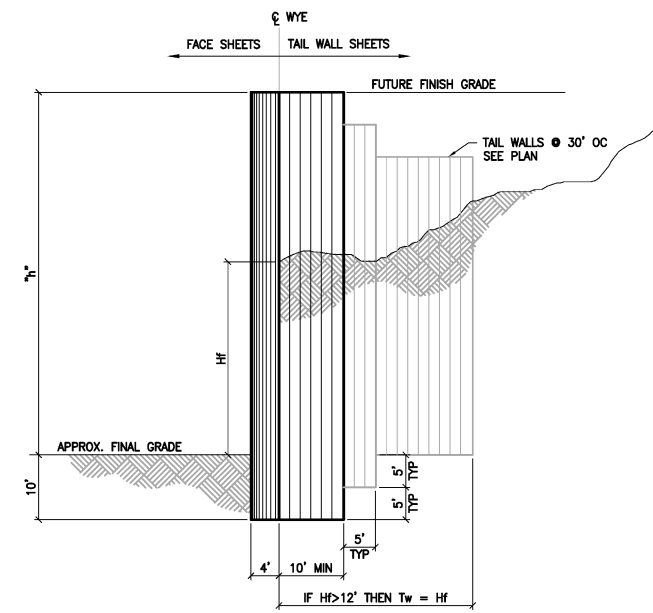
Preliminary Engineering	35%
Survey	Conventional Total Station Survey
Right-of-Way	Defined Phase II ROW
Phase I Construction	Retaining wall only
Phase II Construction	N/A

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Excavation (Waste)	CY	\$12.00	125,000	\$ 1,500,000
Sheet Pile (Security Fence)	Tons	\$3,000.00	3,166	\$ 9,498,000
Drainage System	LS	\$1,150,000	1	\$ 1,150,000
Surveying - All	LS	\$175,000	1	\$ 175,000
Traffic Control	LS	\$115,000	1	\$ 115,000

Cost per Mile (millions)	\$19.43
Total:	\$ 12,438,000
Total w/ 15% Contingency:	\$ 14,303,700

Typical Section

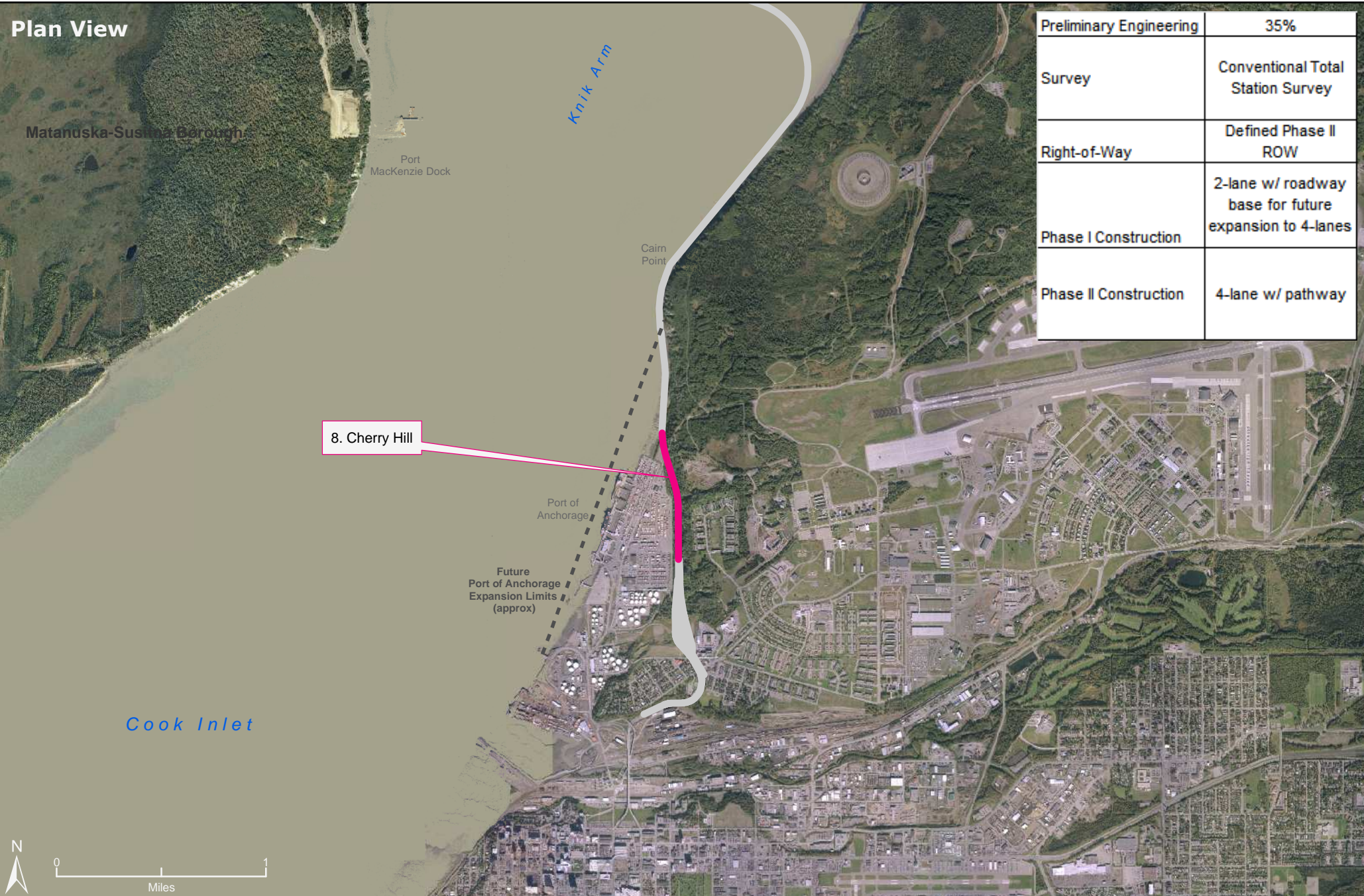


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com



Plan View



Preliminary Engineering	35%
Survey	Conventional Total Station Survey
Right-of-Way	Defined Phase II ROW
Phase I Construction	2-lane w/ roadway base for future expansion to 4-lanes
Phase II Construction	4-lane w/ pathway

Knik Arm Crossing

Development Concepts



8. Cherry Hill

35% Design Update

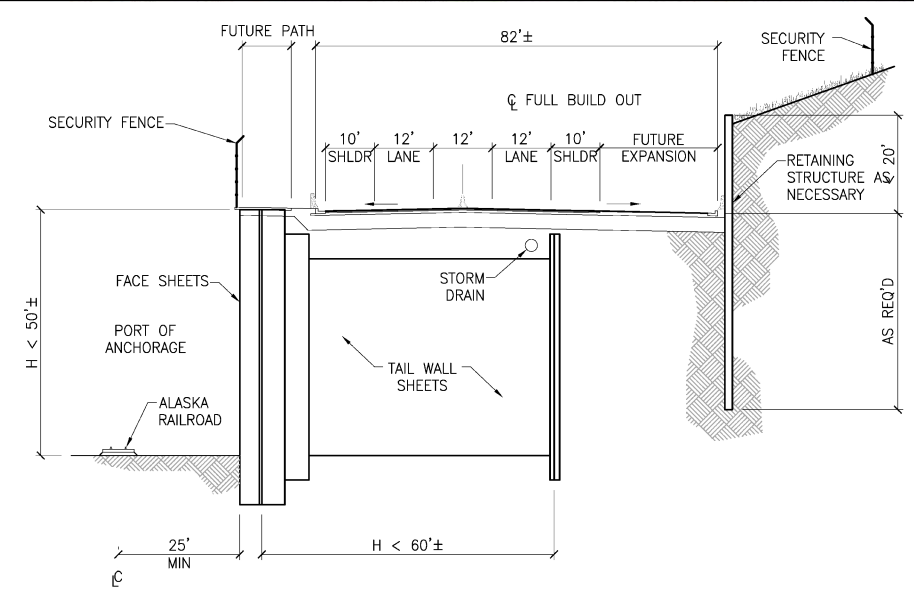
Description

After construction of the security wall, this phase consists of construction of the actual 0.65 mile road base and pavement. The roadway will be built east of the security wall, at an average height of 40 feet above the adjacent Port Of Anchorage property. Provisions have been included for collection of groundwater seepage from the Cherry Hill side-slope and for roadway storm water. This phase will also be constructed wide enough to allow expansion from the initial two lanes to four.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Clearing and Grubbing	Acre	\$4,500.00	35	\$ 159,705
Clearing	Acre	\$3,500.00	5	\$ 18,480
Common Excavation	CY	\$5.00	8,830	\$ 44,150
Borrow, Type A	CY	\$20.00	45,377	\$ 907,540
Borrow, Type C	CY	\$20.00	216,843	\$ 4,336,860
AC Pavement, Type II CI A	TN	\$88.00	4,810	\$ 423,280
Base Course	TN	\$25.00	14,518	\$ 362,950
Sheet Pile (Open Cell)	Tons	\$3,000.00	1,321	\$ 3,963,000
Sheet Pile (Cantilevered)	LF	\$2,800.00	2,000	\$ 5,600,000
Military Underpass	LS	\$3,800,000.00	1	\$ 3,800,000
Port Egress Intersection	LS	\$6,500,000.00	1	\$ 6,500,000
Topsoil and Seed	MSF	\$475.00	31	\$ 14,883
Concrete Barrier	LF	\$80.00	6,758	\$ 540,672
Security Fencing (Chain Link)	LF	\$75.00	6,758	\$ 506,880
Curb and Gutter	LF	\$25.00	20,166	\$ 504,150
Striping	LF	\$1.75	13,517	\$ 23,654
Signs	SF	\$115.00	1,000	\$ 115,000
Drainage System	LS	\$975,000	1	\$ 975,000
Surveying - All	All	\$230,000	1	\$ 230,000
Cost per Mile (millions)			\$45.35	
Total:				\$ 29,026,205
Total w/ 15% Contingency:				\$ 33,380,135

Typical Section

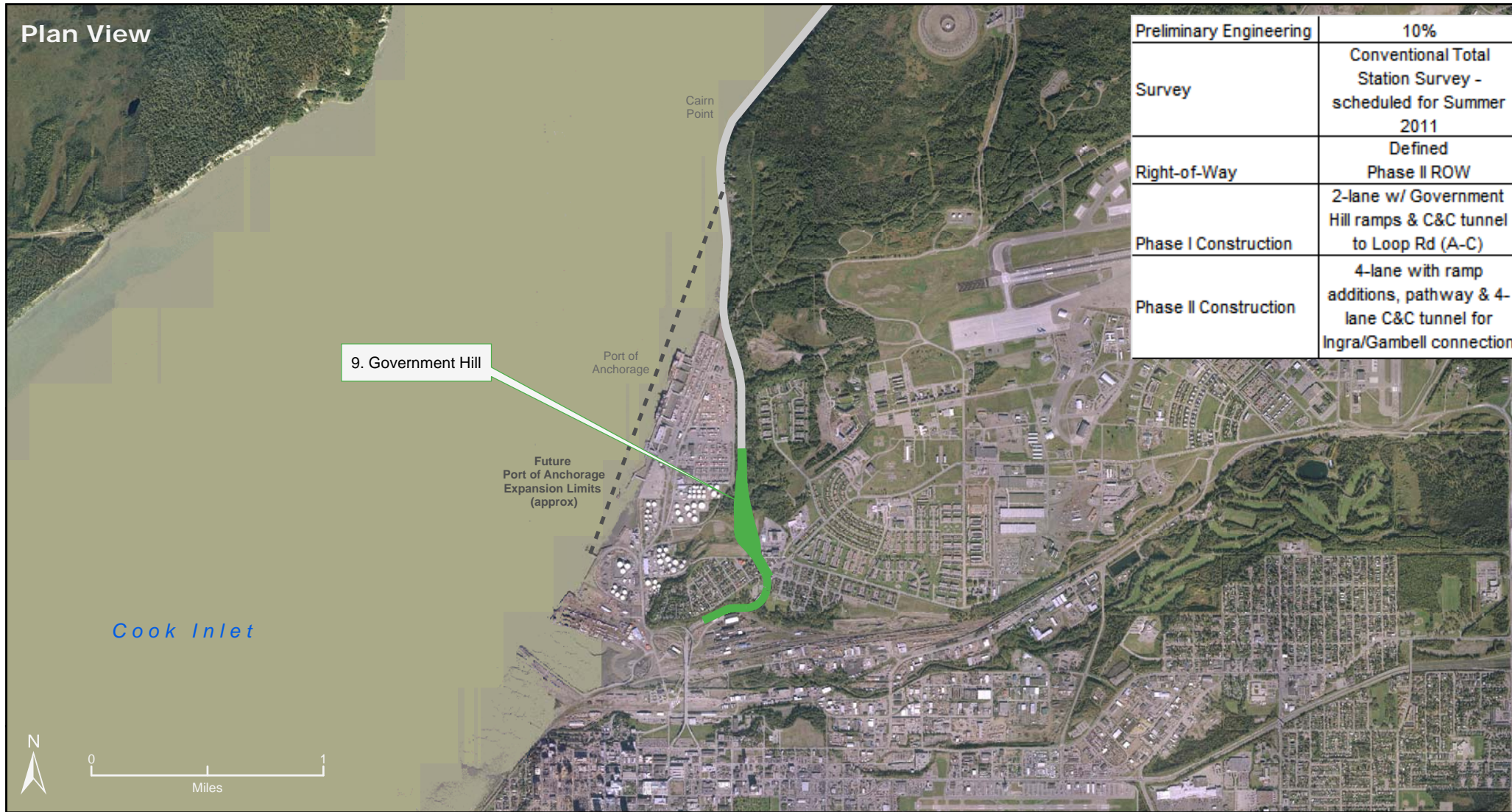


Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com



Plan View



Preliminary Engineering	10%
Survey	Conventional Total Station Survey - scheduled for Summer 2011
Right-of-Way	Defined Phase II ROW
Phase I Construction	2-lane w/ Government Hill ramps & C&C tunnel to Loop Rd (A-C)
Phase II Construction	4-lane with ramp additions, pathway & 4-lane C&C tunnel for Ingra/Gambell connection

Knik Arm Crossing Development Concepts



9. Government Hill

Description

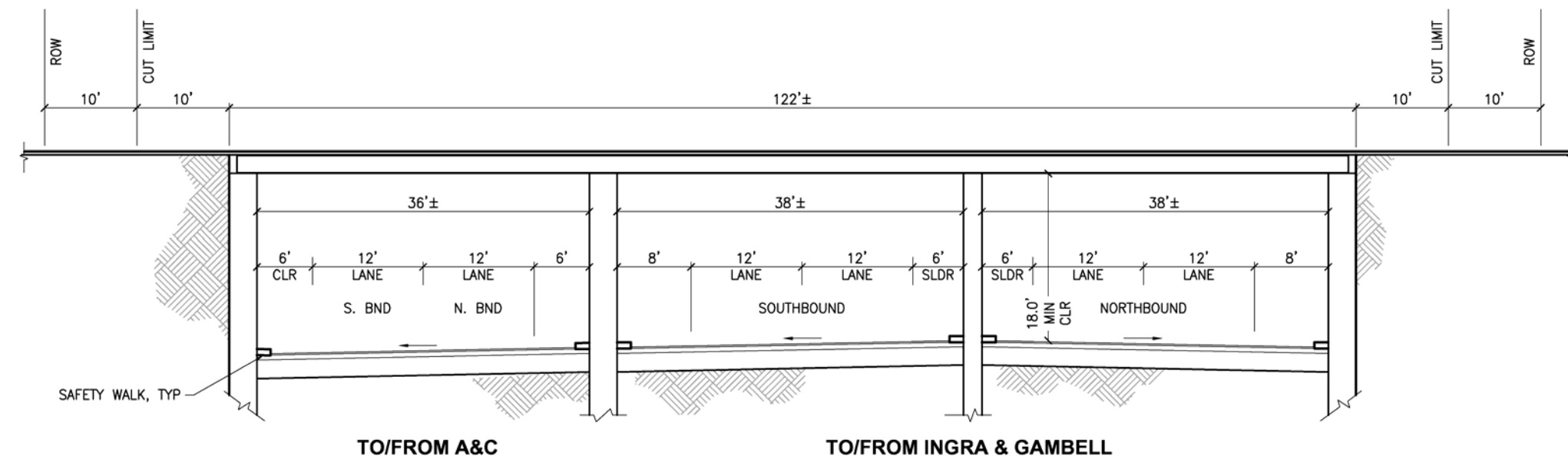
This final 1.0 mile project will connect the Knik Arm Crossing from Cherry Hill into Anchorage at the A-C Viaduct. Construction will consist of a six lane road traversing Government Hill via an 800 foot long cut and cover tunnel approximately 30 feet below Erickson Street. On the south side of the tunnel, East Loop Road will be modified to allow the roadway to connect into the A-C couplet while maintaining local connectivity to, and within, Government Hill. The tunnel and associated approaches will require significant excavation and retaining walls.

Construction Cost Summary (2010 Dollars)

Item	Unit	Cost/ Unit	Qty	Total Cost
Common Excavation	CY	\$6.50	30,000	\$ 195,000
Excavation (Special)	CY	\$10.00	30,000	\$ 300,000
Excavation (Waste)	CY	\$12.00	45,000	\$ 540,000
Borrow, Type A	CY	\$20.00	39,000	\$ 780,000
Borrow, Type C	CY	\$15.00	169,000	\$ 2,535,000
Asphalt	TN	\$88.00	5,700	\$ 501,600
Concrete Paving	CY	\$1,000.00	2,070	\$ 2,070,000
Base Course	TN	\$25.00	11,400	\$ 285,000
Guardrail	LF	\$40.00	14,400	\$ 576,000
Cut & Cover Tunnel (6 lanes)	LS	\$53,000,000	1	\$ 53,000,000
Retaining Walls	LS	\$15,000,000	1	\$ 15,000,000
Reconstruct Intersection	LS	\$1,150,000	1	\$ 1,150,000
Connection to A-C Couplet	LS	\$1,150,000	1	\$ 1,150,000
Miscellaneous	All	-	-	\$ 2,300,000

Cost per Mile (millions)	\$80.38
Total:	\$ 80,382,600
Total w/ 15% Contingency:	\$ 92,439,990

Typical Cut and Cover Section



Map Design By: PND - BP, PK
 Date(s): 3/23/10
 Project #: 041133
 Project Name: Knik Arm Crossing

1506 West 36th Avenue
 Anchorage, Alaska 99503
 907.561.1011 (phone)
 907.563.4220 (fax)
 www.pndengineers.com

