AMATS: CAMPBELL CREEK TRAIL CROSSING AT LAKE OTIS PARKWAY

Project No.: 2023.04

ALTERNATIVES ANALYSIS REPORT

ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

PREPARED BY: B&C Engineering, Inc.
2900 Spirit Drive, Anchorage AK 99508

April 2023

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DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
DESIGN AND ENGINEERING SERVICES – CENTRAL REGION

ALTERNATIVES ANALYSIS REPORT

For

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Written by: B&C Engineering, Inc.

Prepared by:

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B&C Engineering, Inc.
2900 Spirit Drive Anchorage, AK 99508
(907)-371-6001
12345678

Concur by:

Logan J. Curtiss Date 04/24/23
Student Project Manager

NOTICE TO USERS

This report reflects the thinking and design decisions at the time of publication. Changes frequently occur during the evolution of the design process, so persons who may rely on information contained in this document should check with the Alaska Department of Transportation and Public Facilities for the most current design. Contact the Design Project Manager, Logan J. Curtiss (907) 371-6001 for this information.

PLANNING CONSISTENCY

This document has been prepared by the Alaska Department of Transportation and Public Facilities according to currently acceptable design standards and Federal regulations, and with the input offered by the local government and public. The department's Planning Section has reviewed and approved this report as being consistent with present community planning.

CERTIFICATION

The Alaska Department of Transportation and Public Facilities hereby certify that this document was prepared in accordance with Section 520.4.1 of the current edition of the department's Highway Preconstruction Manual and CFR Title 23, Highway Section 771.111(h).

The department has considered the project's social and economic effects upon the community, its impacts on the environment and its consistency with planning goals and objectives as approved by the local community. All records are on file with Central Region - Design and Engineering Services Division, Highway Design Section, 4111 Aviation Avenue, Anchorage, AK 99502.

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LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AHDM	Alaska Highway Drainage Manual
AMATS	Anchorage Metropolitan Area Transportation Solutions
ANSI	American National Standards Institute
APDES	Alaska Pollutant Discharge Elimination System
BLM	Bureau of Land Management
BMP	Best Management Practice
CFR	Code of Federal Regulations
CGP	Alaska Construction General Permit
DEC	Alaska Department of Environmental Conservation
DOT	U.S. Department of Transportation
DOT&PF	Alaska Department of Transportation and Public Facilities
DOJ	U.S. Department of Justice
ESCP	Erosion and Sediment Control Plan
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
HMA	Hot Mix Asphalt
HPCM	Alaska Highway Preconstruction Manual
HMCP	Hazardous Material Control Plan
LOS	Level of Service
MOA	Municipality of Anchorage
MP	Milepost
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer Systems
NPDES	National Pollutant Discharge Elimination System
PIP	Public Information Plan
PROWAG	Proposed Accessibility Standards for Pedestrian Facilities in the Public Right-of-Way
ROW	Right-of-Way
SWMM	Storm Water Management Model

SWPPP Storm Water Pollution Prevention Plan

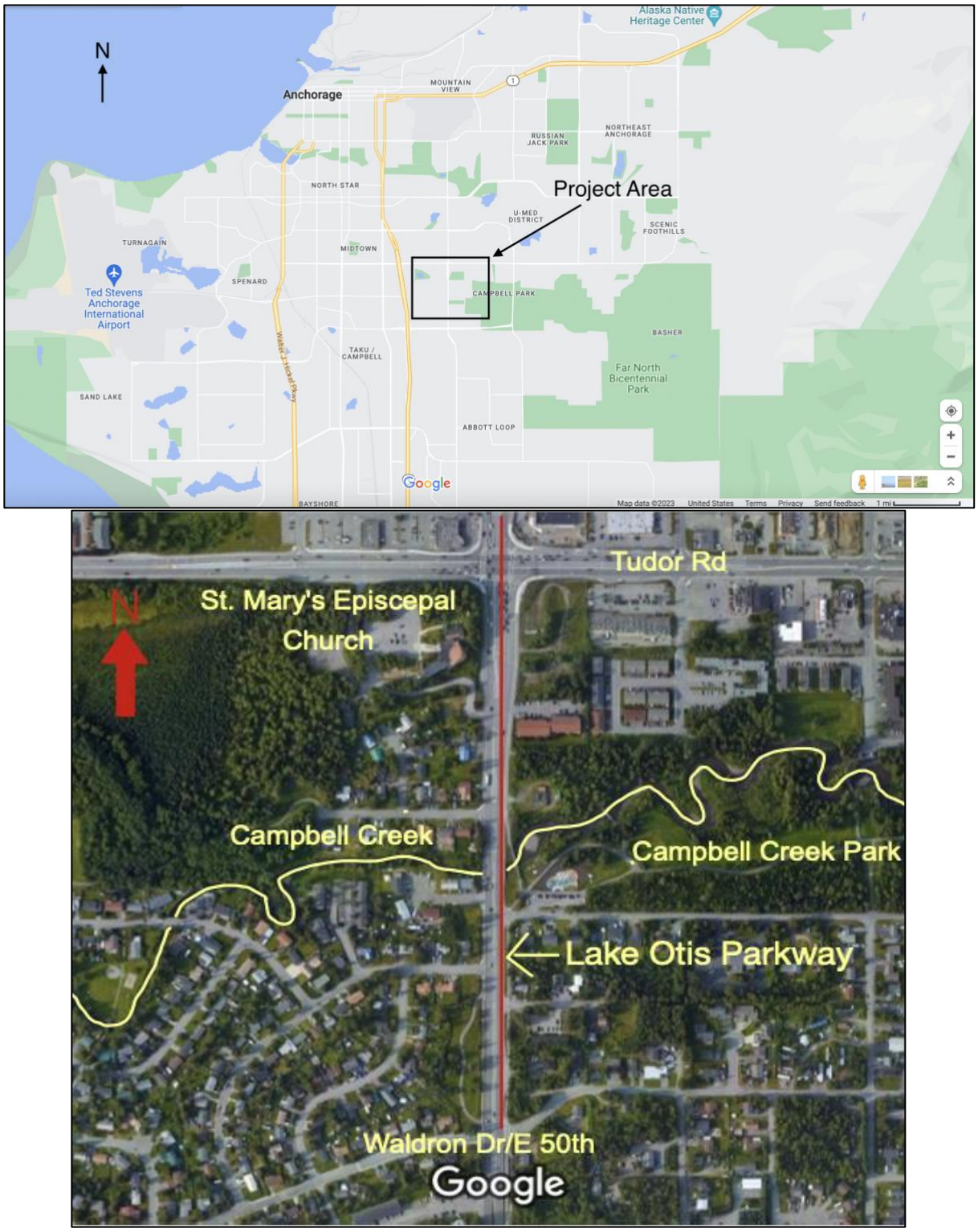


Figure 1 Location and Vicinity Map

1.0 PROJECT DESCRIPTION

1.1 Project Location and Description

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration (FHWA), proposes to construct a grade separated crossing of Campbell Creek Trail Crossing at Lake Otis Parkway. This project is located in Sections 32 and 33 Township 13N, Range 3 W., Anchorage, USGS Topographical Map Anchorage A-8: Latitude 61.1774505°N, Longitude 149.8370751°W, within the Municipality of Anchorage (MOA). See Figure 1 for Location & Vicinity Map. This project is being administered through Anchorage's Metropolitan Planning Organization (MPO), more commonly known as Anchorage Metropolitan Area Transportation Solutions (AMATS).

Beginning January of 2023, B&C Engineering has been commissioned by the Alaska DOT&PF (DOT&PF) to complete an Alternative Study to propose a grade separated crossing of Lake Otis Parkway at the vicinity of 47th court to provide a safe, grade separated alternative to the current provisions for crossing the road.

1.2 Existing Facilities and Land Use

Campbell Creek is named for Sir Joseph Campbell who explored Alaska from 1785-1792. After the 1964 earthquake, because of a shortage of buildable land in the downtown area, the Federal Bureau of Land Management (BLM) discussed transferring several prime government parcels to the city. At about this same time, the military decided the Campbell Creek Range and Maneuver site was no longer needed and portions of it were divided into what would become in part, the Far North Bicentennial Park and Municipal properties along Tudor Road. Jack Roderick, mayor of Anchorage from 1972-1975, recognized the city needed to become a place that could provide commuter options for individuals who did not own a car. The first master plan for the Far North Bicentennial Park was adopted in 1974. In 1975, the Campbell Creek Green Belt was established as a flood control measure and Waldron Lake, an artificial lake, appeared on maps around this same time. During the oil boom of the 1980's, the Department of the Interior gave the remainder of the Campbell Creek Tract to the Municipality of Anchorage, except for the BLM Headquarters at the Campbell Airstrip.

In 1982, Campbell Park was established on Far North Bicentennial Park property adjacent to Lake Otis Parkway and 48th avenue. In 2013, (Figure 2) upgrades were made to Campbell Park valuing approximately $260,000.

Figure 2 Campbell Creek Park Facilities

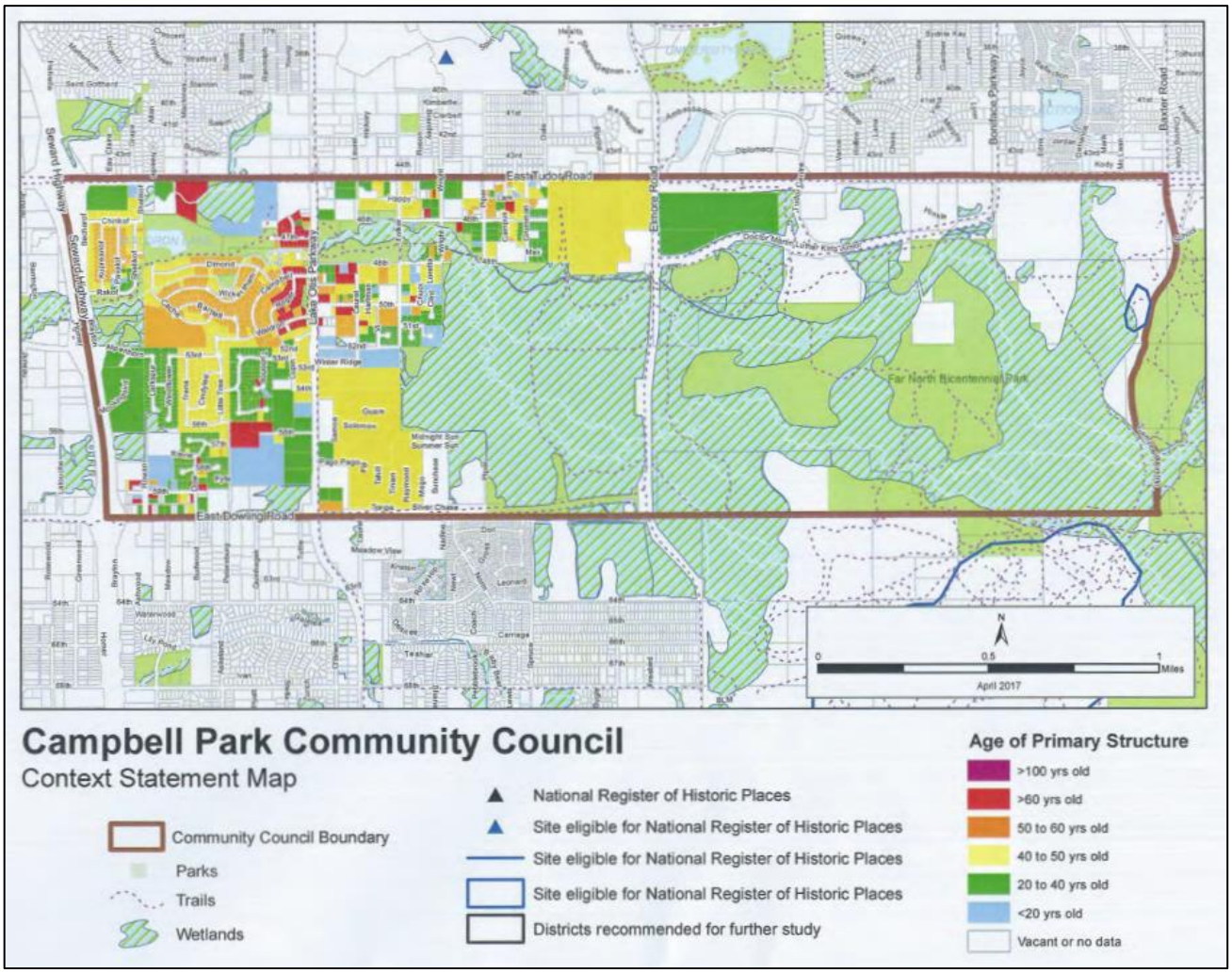


Figure 3 Extents of Campbell Creek Park & Existing Infastructure Age

1.3 Purpose and Need

Campbell Creek trail is a 7.5-mile-long trail that serves as a vital artery for bicyclist commuters and recreationists in Anchorage. The Campbell Creek Trail crossing at Lake Otis is the only at-grade crossing in the entire length of the trail system resulting in conflict points between bicyclists, pedestrians, and all users of the trail system with passenger vehicles. With increasing urbanization of the area and increasing use of the Campbell Creek Trail, providing an improved crossing of Lake Otis Parkway is needed. The purpose of this project is to analyze several alternatives and select a preferred alternative that will establish grade separated trail connectivity and continuity across Lake Otis Parkway.

1.4 Project Challenges

The neighborhood surrounding the Campbell Creek Trail in this area is well established and is built close to Campbell Creek. Right of Way within the project area is heavily populated with the land owned residentially and by Anchorage Parks & Recreation land, or the Municipality of Anchorage. The

terrain is hilly and steep at times with slopes exceeding 2:1. Part of the existing green space available to build is considered wetlands. These areas may be subject to special permits and regulations. The Municipality of Anchorage has a maintenance lot adjacent to the trail system on the east side of Lake Otis that cannot be moved and will limit alternatives for a bridge landing over the road. The water level of Campbell Creek will affect tunnel designs under the road (Figure 4). Lake Otis Pkwy has a variety of utilities buried under the road, including Communications, natural gas, water and wastewater and power lines suspended above the road, along with sewer lines and utility junction boxes. The area is also lit with two different types of luminaires. Other general project challenges are observed when following dedicated design criteria such slope requirements, and clearance over the existing roadbed and facilities.

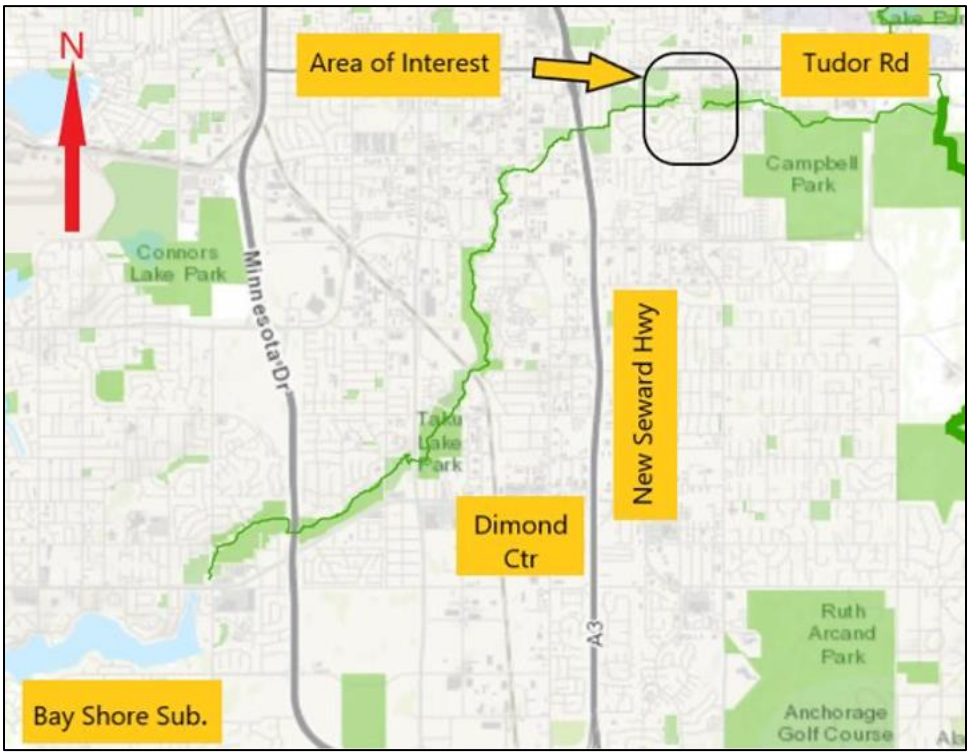


Figure 4 Campbell Creek trail Map

2.0 DESIGN STANDARDS AND GUIDELINES

Design standards and guidelines that apply are contained in the following publications:

Standards:

- Alaska Highway Preconstruction Manual (HPCM), DOT&PF, 2022 as amended at the time of design approval.
- Alaska Highway Drainage Manual (AHDM), DOT&PF, 2006.
- ADA Standards for Transportation Facilities, DOT, 2006.
- ADA Standards for Accessible Design, DOJ, 2010.
- Guide for the Development of Bicycle Facilities, 4th Edition, AASHTO, 2012.
- Recommended Practice for Roadway Lighting (RP-8-14), ANSI / IES, 2014.

- Design Criteria Manual (DCM), MOA, Project Management & Engineering Department, 2007 with 2018 revision.

Guidelines:

- Proposed Accessibility Standards for Pedestrian Facilities in the Public Right-of-Way (PROWAG), U.S. Access Board, 2011.
- Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition, AASHTO, 2004.

Appendix C contains the project Design Criteria.

3.0 DISCUSSION OF ALTERNATIVES

Assessment of the alternatives provided for a Campbell Creek Trail crossing of Lake Otis Parkway poses the following main concerns:
1. Ease of use, minimizing elevation changes along the trail.
2. Environmental Impact, working to minimize impact on the wetlands adjacent to Campbell Creek.
3. Considered that the trail will be used by a mix of users with various levels of abilities.
4. If a bridge is used in the design, how will that affect current homeowners view and what is the potential for use of the trail beyond daily traffic.
5. Consideration of the ability to maintain the trail during winter usage and how often trail and bridge repair maintenance will be needed.

To effectively address these concerns, a design matrix was formulated to measure the merits and drawbacks of each alternative. From these considerations, impacts of each alternative are weighed with respect to the following categories: environmental impact, utility relocation, ROW acquisition, community impact, and overall cost.

Right of way within the project area is heavily populated and primarily residential, Anchorage Parks & Recreation land, or land owned by the DOT&PF. There are existing wetlands adjacent to either side of Campbell Creek on the east and west side of Lake Otis near the existing trail system. These areas may be subject to special permits and regulations. Lake Otis Parkway itself runs adjacent to several utilities including power transmission cables, communication wires, optical fiber, natural gas, sewer, and freshwater lines. Other general project challenges are observed when following dedicated design criteria such slope requirements, and clearance over the existing roadbed and facilities.

All bridge alternatives compared in this study have an assumed superstructure primarily constructed of steel as per DOT&PF direction.

3.1 Non-Constructable Alternatives

Three alternatives were eliminated early in the analysis as existing bore hole data documented by the MOA shows high groundwater levels (See Appendix B). Alternatives A, B1, and B2, all include pedestrian under crossings beneath Lake Otis Parkway. With a shallow ground water level, construction of a pedestrian tunnel is not feasible. If the department would like to pursue these alternatives further, additional geotechnical information is needed to verify current water table depth.

Figure 5 Non-constructible Alternatives

3.2 Alternative D1 – At-grade crossing (Blue)

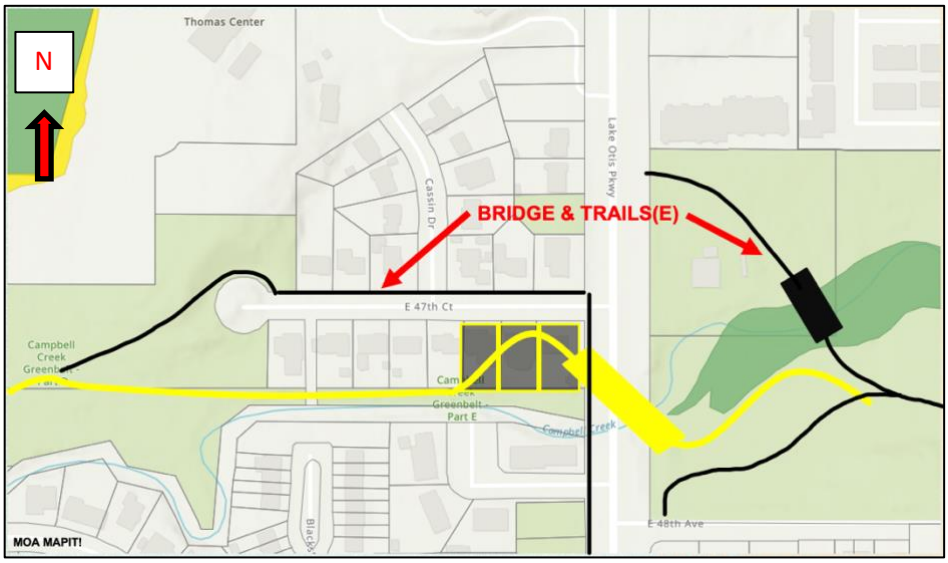
This alternative proposes an at grade crossing branching from the existing pedestrian route starting at East 48th Avenue and leading to East 47th Court. This route will travel approximately 65' on existing sidewalk facilities north to utilize the existing Campbell Creek pedestrian and vehicular bridge at Lake Otis Parkway as seen below (Figure 6).

Figure 6 Alternative D1 Route

This route may require a marked crosswalk and appropriate traffic control strategy for when this alternative crosses Lake Otis Parkway north of East 47th Avenue. This route is more direct but offers a lower level of service compared to other continuous alternatives, as pedestrians will likely be stopped due to the flow of traffic. The terrain is mild and requires little utility relocation due to utilization of existing sidewalks. No right of way acquisition is required for this route as the crossing will be maintained within the right of way, and no environmental impacts are observed. This alternative crossing method does not meet the purpose and need of the project due to no grade separation between trail users and vehicular traffic.

3.3 Alternative C1 – S Curve (Yellow)

On the west side of Lake Otis Parkway, this alternative's proposed trail closely follows Campbell Creek using an elevated walkway and transitions into an "s-curve" to gain elevation for a bridge crossing Lake Otis Parkway. The approximate bridge span is 207 feet. It ties onto the existing trail system east of Campbell Creek Park and propose approximately 1200' of new pathway (Figure 7).



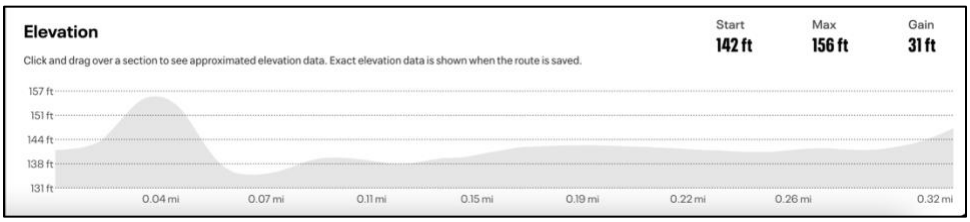
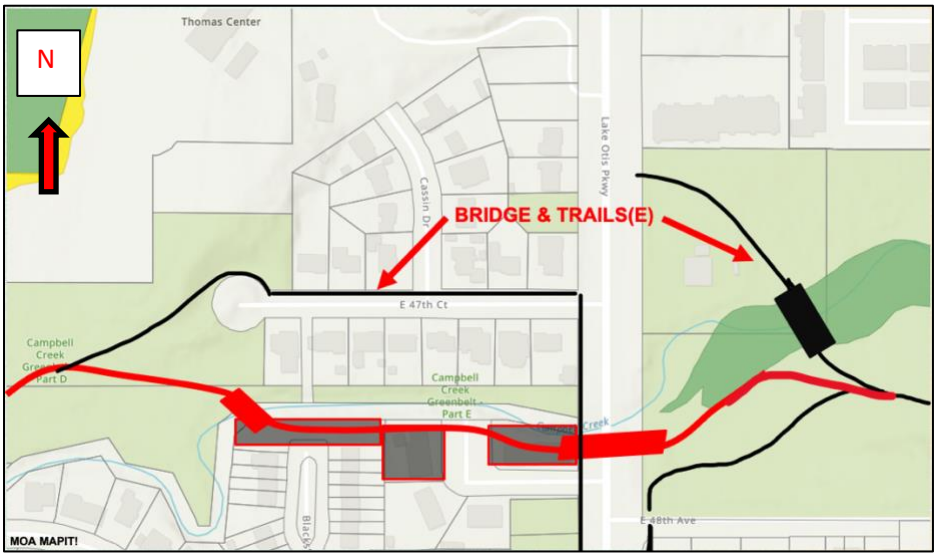


Figure 7 Alternative C1 Route & Profile

Alternative (C1) initially included a spiral grade change would allow for design criteria to be met with 5% max. slopes. This spiral grade change: following design criteria allowance of a minimum radius of curvature of ninety-five-feet (95'), would require the removal of three structures and intrude over 47th court and Campbell Creek. Horizontal alignment for this alternative was adjusted to maintain constructability. Alternative (C1) in this study implements a lengthened switch back curve to meet design criteria. This route requires acquiring four Parkway, causing a medium impact on the community. This alternative has a high impact on utilities because it crosses behind well-developed properties utilizing utility located overhead and behind subject properties. It has the highest impact of all alternatives on wetlands as an elevated walkway is needed to satisfy trail users along Campbell Creek, that will have a high impact on plants and existing vegetation growth with no light penetration. Overall, the elevated walkway crossing will have the highest construction cost compared to all other alternatives when considering a raised substructure. Due to space constraints between existing right of way and Campbell Creek, construction of earth embankment substructure is not achievable to meet a desired grade of 5% maximum slopes and required clearance over Lake Otis Parkway. This subjects this alternative to primarily elevated substructure that increases cost of construction and maintenance.

3.4 Alternative C2 – Southern Route (Red)

This proposed alternative (C2) involves constructing a double bridge crossing providing the most direct route for the existing trail system. This alternative proposes to realign the trail path, approaching the existing trail from the west to construct a pedestrian bridge that spans approximately 90 feet across Campbell Creek. The trail would then continue eastward, crossing Lake Otis Parkway perpendicularly with a bridge that has a span of approximately 105 feet (Figure 8). The proposed pathway ties onto the existing trail east of Campbell Creek Park and propose approximately 1632' of new pathway.



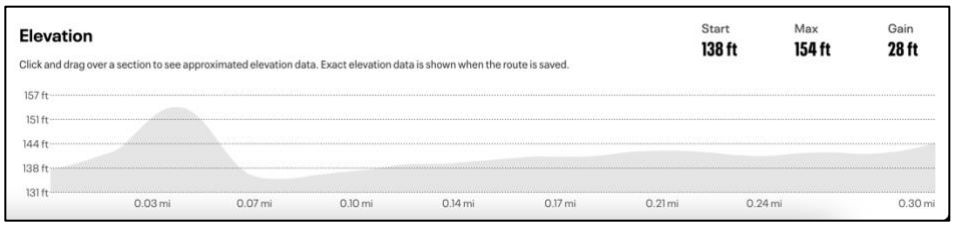
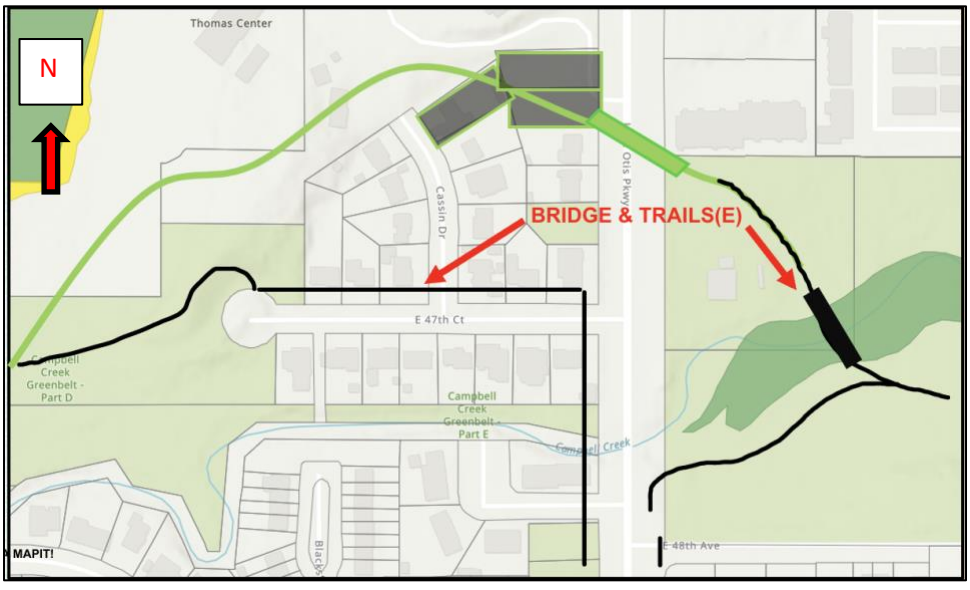


Figure 8 Alternative C2 Route & Profile

To implement this alternative, it would be necessary to acquire several units with a combined appraised value of nearly $1.3 million as indicated by MOA's property information. This alternative holds the greatest impact score in terms of right-of-way acquisitions, community impacts, and level of service. It will require a moderate amount of utility relocation in comparison to other options, and it has medium impact to the wetlands compared to alternative C1 according to the MOA Wetlands mapping. Furthermore, to construct a large-scale bridge span over Lake Otis Parkway, it will be necessary to build an elevated walkway that meets the maximum slope of 5% when crossing. Additionally, to satisfy the design criteria, a height clearance of 17.5 feet will be required. It should be noted that Alternative (C2) has the highest overall cost compared to alternatives C1 and C3 due to the construction of bridges and right of way acquisitions.

3.5 Alternative C3 – Northern Route (Green)

This alternative is the most northern route between the existing trails west and east of Lake Otis Parkway, and utilizes the existing elevation rise of the land north to meet desired clearance over Lake Otis Parkway. This route acquires utility cost with facilities running parallel with LOP. A lower impact on the community is observed as less right of way acquisition is needed for this alternative. When crossing Parkway at a skew, the largest bridge span of the alternatives is produced of approximately 230 feet. This alternative will require the acquisition of one residential lot, and two undeveloped lots owned by Saint Mary's Episcopal Church. Due to this alternative staying north of Campbell Creek, the longest length of the new path is generated of approximately 1570 feet. Little environmental impact is associated with this alternative it does not impact wetlands as recorded by the Municipality of Anchorage and does not lie within proximity of Campbell Creek (Figure 9).



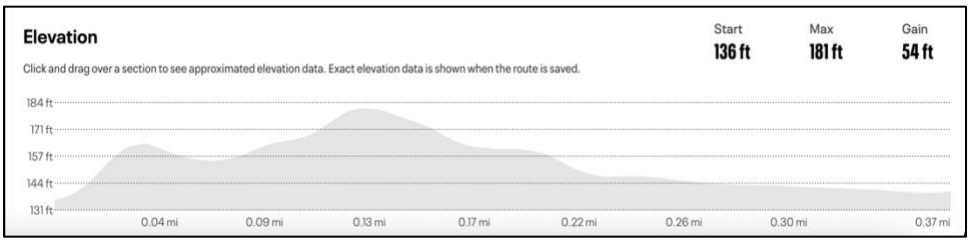


Figure 9 Alternative C3 Route & Profile

4.0 PREFERRED ALTERNATIVE

Alternative (C3) is the preferred alternative. Alternative C3 has the lowest overall impact to design matrix criteria (Figure 10). This alternative achieves the lowest overall impact score to the environment, utility relocation, community impact, and right of way acquisition. Alternative (C3) poses the lowest overall costs of the constructable alternatives despite having a greater length of new path and the largest bridge crossing. All alternatives must meet the required 17.5' height clearance over Lake Otis Parkway. This alternative utilizes a higher existing elevation of the land to the west to achieve the required roadway clearance; whereas other alternatives will require large scale bridge spans and elevated superstructures to meet grade when crossing the Lake Otis Parkway to meet design criteria. The LOS of the preferred alternative is comparable to alternative C1 and C2, as grade change of these alternatives is more drastic and will promote slower pedestrian travel. With the preferred alternative route traveling north in the project area—lower impact to right of way is observed; by effectively avoiding heavily populated and developed lots. The effects of increasing the length of pedestrian pathway will reduce construction costs as increasing the length of elevated substructure and bridge crossings with alternative C1 & C2 will promote greater cost in comparison. Despite an increased length of bridge, an increased length of pathway to avoid developed areas-- makes earth work substructure obtainable and promotes reduced overall costs (Figure 10).

Path			
		Weight (tons)	
	GREEN C1	**YELLOW C3**	**RED C2**
2'' CLASS E PAVE (14'w)	443.51	262.86	460.08
4'' Type (IIA) Base (20'w)	681.6456517	528.5751381	707.1126262
18'' Type (II) Subbase (20'w)	3539.3175	2744.5275	3671.55
		Cost	
	GREEN	**YELLOW**	**RED**
2'' CLASS E PAVE $200/TON	$88,701.33	$52,572.75	$92,015.31
4'' Type (IIA) Base $45/TON	$30,674.05	$23,785.88	$31,820.07
18'' Type (II) Subbase $40/TON	$141,572.70	$109,781.10	$146,862.00
PATHWAY	**$260,948.09**	**$186,139.73**	**$270,697.38**
BRIDGE	$2,082,937.50	$1,249,762.50	$1,177,312.50

RIGHT OF WAY	$523,600.00	$1,130,700.00	$1,274,200.00
UTILITIES	$301,175.80	$301,175.80	$632,362.00
MSE & SUBSTRUCTURE	$113,400.00	$162,150.00	$113,400.00
TOTAL COST	$3,282,061.39	$3,029,928.03	$3,467,971.88

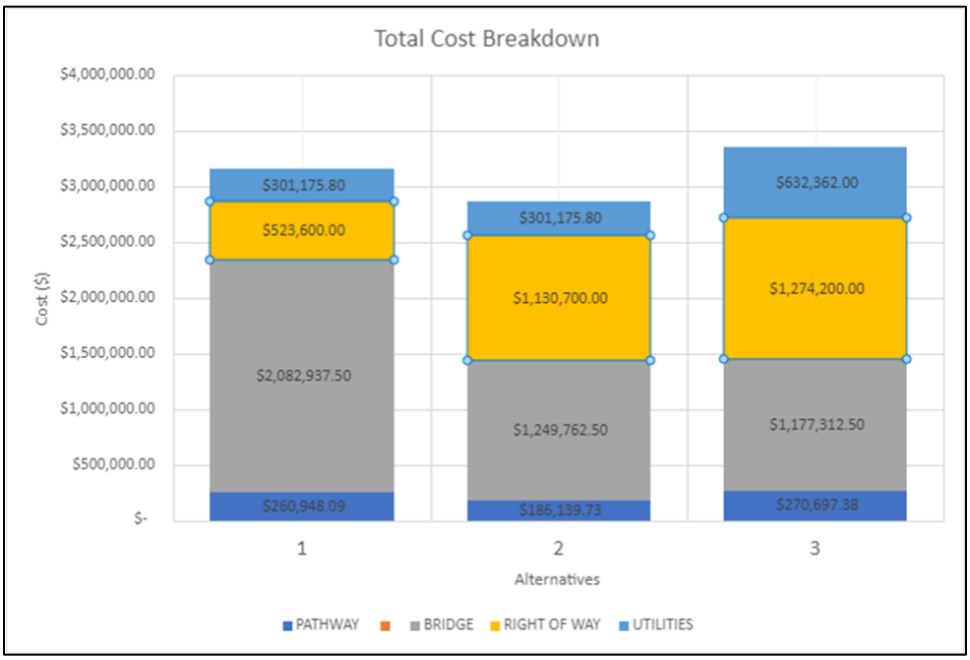


Figure 10 Cost Breakdown

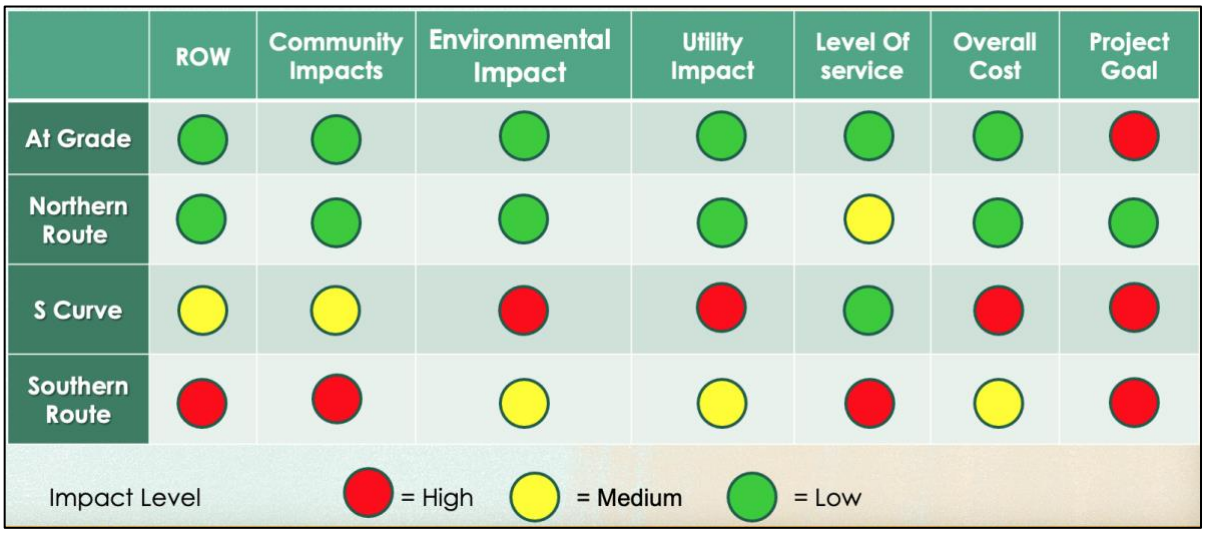


Figure 11 Summary of Alternative Impacts

5.0 TYPICAL SECTIONS

The typical sections are provided in Appendix D.

6.0 HORIZONTAL AND VERTICAL ALIGNMENT3

6.1 Horizontal Alignment

The horizontal alignment includes the plan to tie into existing trails and ensure minimal intrusion into existing structures and right of way.

6.2 Vertical Alignment

The ensure all vertical alignment meets the prescribed specifications and design criteria, all alternatives were subject to 5% maximum grade changes and crest/sag vertical curves were not investigated.

7.0 EROSION AND SEDIMENT CONTROL

The project includes temporary and permanent measures to control or prevent erosion and sedimentation during and post project construction. The contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction that conforms to the DOT&PF Best Management Practices (BMPs) for Erosion and Sediment Control in accordance with the DOT&PF contract specifications and follows the guidelines of the Erosion and Sediment Control Plan (ESCP) provided to the contractor. The contractor will submit the SWPPP for approval by the Construction Project Engineer. The contractor will conduct construction activities in accordance with the approved SWPPP. Appropriate erosion and siltation controls will be used and maintained in optimal condition during construction and all other exposed soils/fills will be permanently stabilized. Temporary BMP's will remain in place until permanent erosion and sediment control measures are in place and soil is permanently stabilized.

8.0 PEDESTRIAN AND BICYCLE FACILITIES

To meet pedestrian and bicycle accommodations, sufficient path space is provided for multi-user traffic3' shoulders on both the right- and left-hand side to provide pedestrians a softer surface and space to travel the pathway if temporarily needed-- from bikes and other modes of transportation that may impose temporary conflict. Updated maps, and pedestrian signage will advise users of the new crossing route.

9.0 UTILITY RELOCATION AND COORDINATION

Utility companies with facilities within the project limits include Alaska Communications (AC), Chugach Electric Association, Inc (CEA), ENSTAR Natural Gas Company (ENSTAR), and GCI Communication Corp (GCI). Utilities will require relocation agreements at select locations throughout the project to address the following conflicts: proposed substructure interference with existing underground utility, and proposed superstructure interference with existing overhead utilities. Burial of utilities, and relocation of existing underground utility will occur.

10.0 ENVIRONMENTAL COMMITMENTS AND CONSIDERATIONS

It's anticipated 4F impacts will occur and the 4F process will be followed during the design phase. The contractor will be required to prepare and implement a SWPPP in accordance with Section 7. The contractor will be required to dispose of solid waste at a DEC approved landfill. The contractor will be

responsible for obtaining all necessary permits and clearances for materials sites, disposal sites, and staging areas unless DOT&PF has obtained all necessary permits.

11.0 EXCEPTIONS TO DESIGN STANDARDS

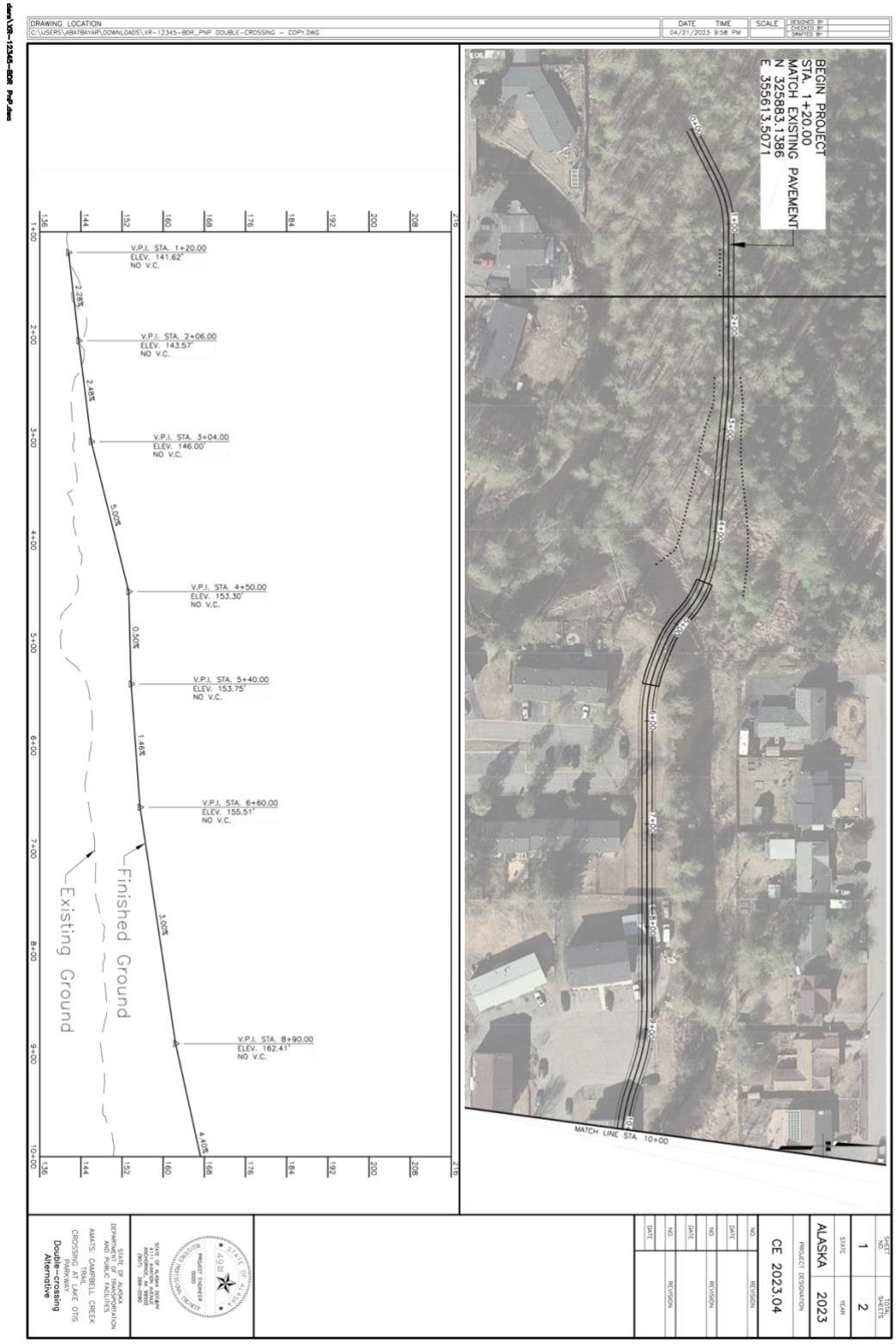
It is likely that future projects of the area will demand adjustments to design criteria and considerations at design year. Due to the changing nature of the project area, and future proposed projects, this report assumes the design is applicable only to current conditions.

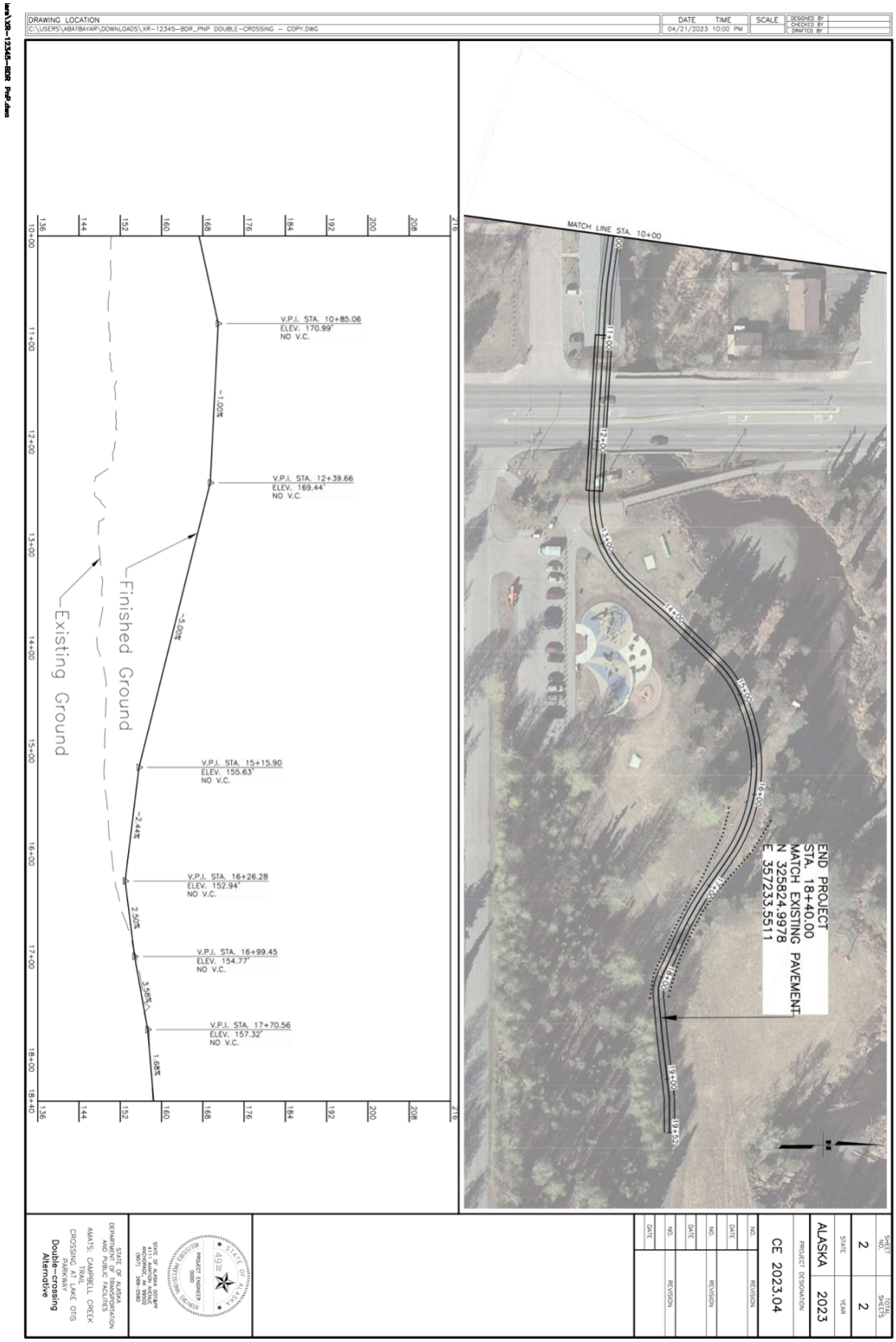
12.0 MAINTENANCE CONSIDERATIONS

Maintenance will remain the responsibility of AMATS with the Municipality of Anchorage. The project will increase maintenance efforts because of the new trail and overpass structures. Drainage over the length of proposed path and crossing structures of this project is not expected to be an issue. If lighting is proposed, this will increase maintenance cost.

APPENDIX A

Design Documents

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MATCH EXISTING PAVEMENT
N 325824.9978
E 357233.5511
Finished Ground
Existing Ground
V.P.I. STA. 10+85.06
ELEV. 170.99'
NO V.C.
-1.00%
V.P.I. STA. 12+39.66
ELEV. 169.44'
NO V.C.
-5.00%
V.P.I. STA. 15+15.90
ELEV. 155.63'
NO V.C.
-2.44%
V.P.I. STA. 16+26.28
ELEV. 152.94'
NO V.C.
2.50%
V.P.I. STA. 16+99.45
ELEV. 154.77'
NO V.C.
3.95%
V.P.I. STA. 17+70.56
ELEV. 157.32'
NO V.C.
1.68%
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
AMATS: CAMPBELL CREEK
TRAIL CROSSING AT LAKE OTIS
PARKWAY
Double-crossing
Alternative
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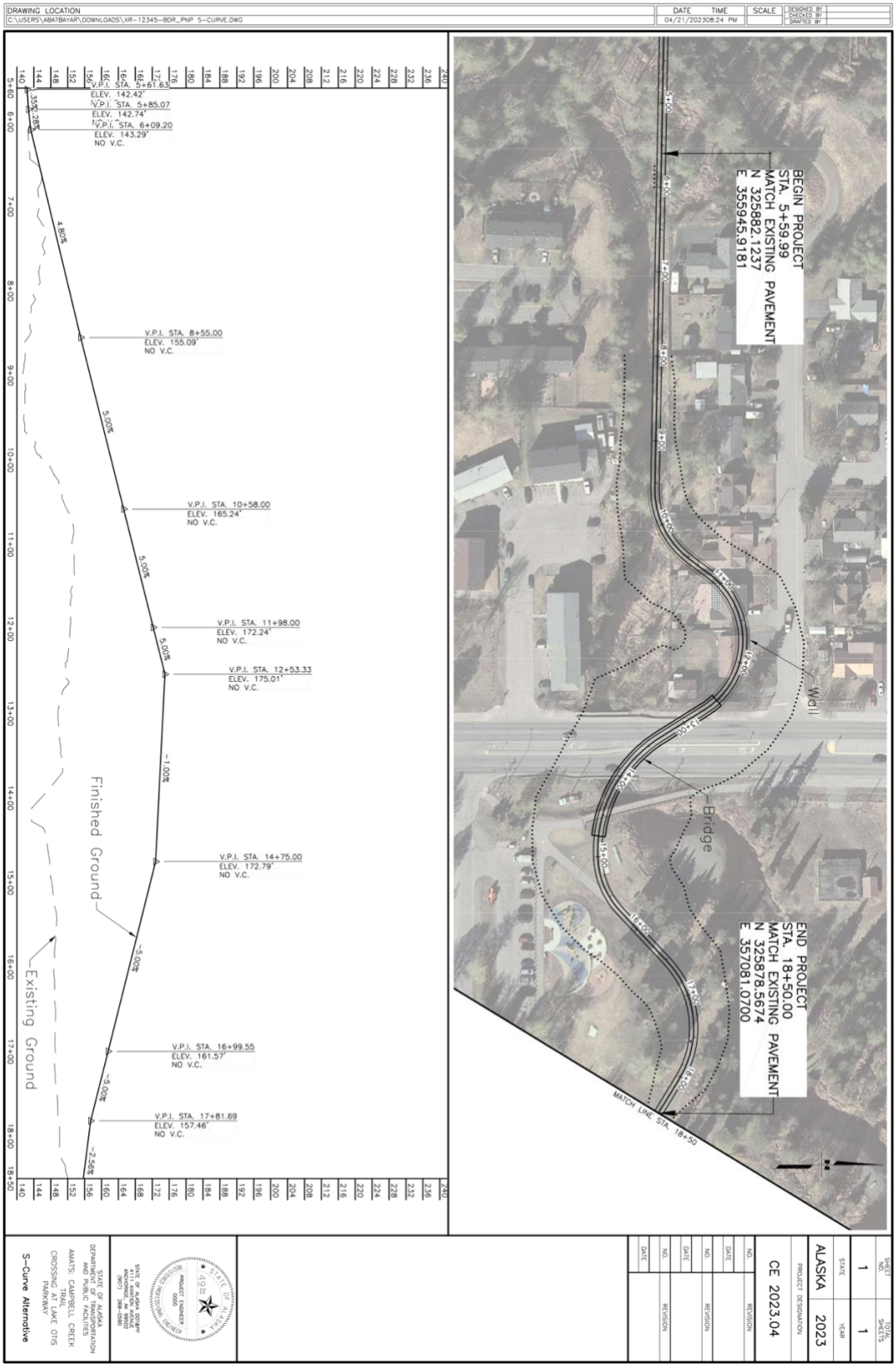
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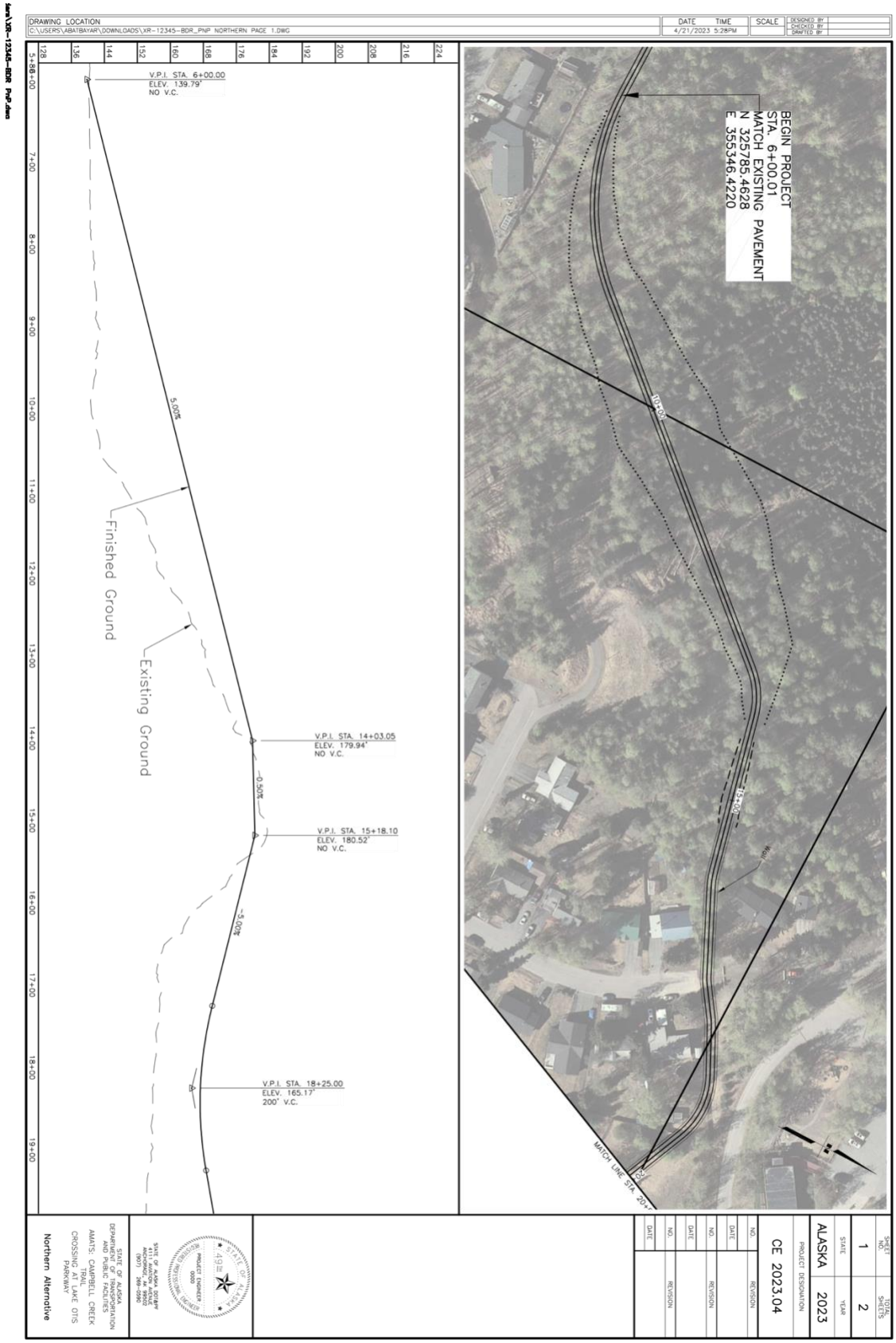
04/21/2023 8:24 PM
SCALE
DESIGNED BY
CHECKED BY
DRAFTED BY
BEGIN PROJECT
STA. 5+59.99
MATCH EXISTING PAVEMENT
N 325882.1237
E 355945.9181
END PROJECT
STA. 18+50.00
MATCH EXISTING PAVEMENT
N 325878.5674
E 357081.0700
Wall
Bridge
MATCH LINE STA. 18+50
V.P.I. STA. 5+61.63
ELEV. 142.42'
V.P.I. STA. 5+85.07
ELEV. 142.74'
V.P.I. STA. 6+09.20
ELEV. 143.29'
NO V.C.
4.80%
V.P.I. STA. 8+55.00
ELEV. 155.09'
NO V.C.
5.00%
V.P.I. STA. 10+58.00
ELEV. 165.24'
NO V.C.
5.00%
V.P.I. STA. 11+98.00
ELEV. 172.24'
NO V.C.
5.00%
V.P.I. STA. 12+53.33
ELEV. 175.01'
NO V.C.
-1.00%
Finished Ground
V.P.I. STA. 14+75.00
ELEV. 172.79'
NO V.C.
-5.00%
Existing Ground
V.P.I. STA. 16+99.55
ELEV. 161.57'
NO V.C.
-5.00%
V.P.I. STA. 17+81.69
ELEV. 157.46'
NO V.C.
-2.56%
SHEET NO. 1
TOTAL SHEETS 1
STATE ALASKA
YEAR 2023
PROJECT DESIGNATION CE 2023.04
NO. REVISION DATE
NO. REVISION DATE
NO. REVISION DATE
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
AMATS: CAMPBELL CREEK TRAIL CROSSING AT LAKE OTIS PARKWAY
S-Curve Alternative


DRAWING LOCATION
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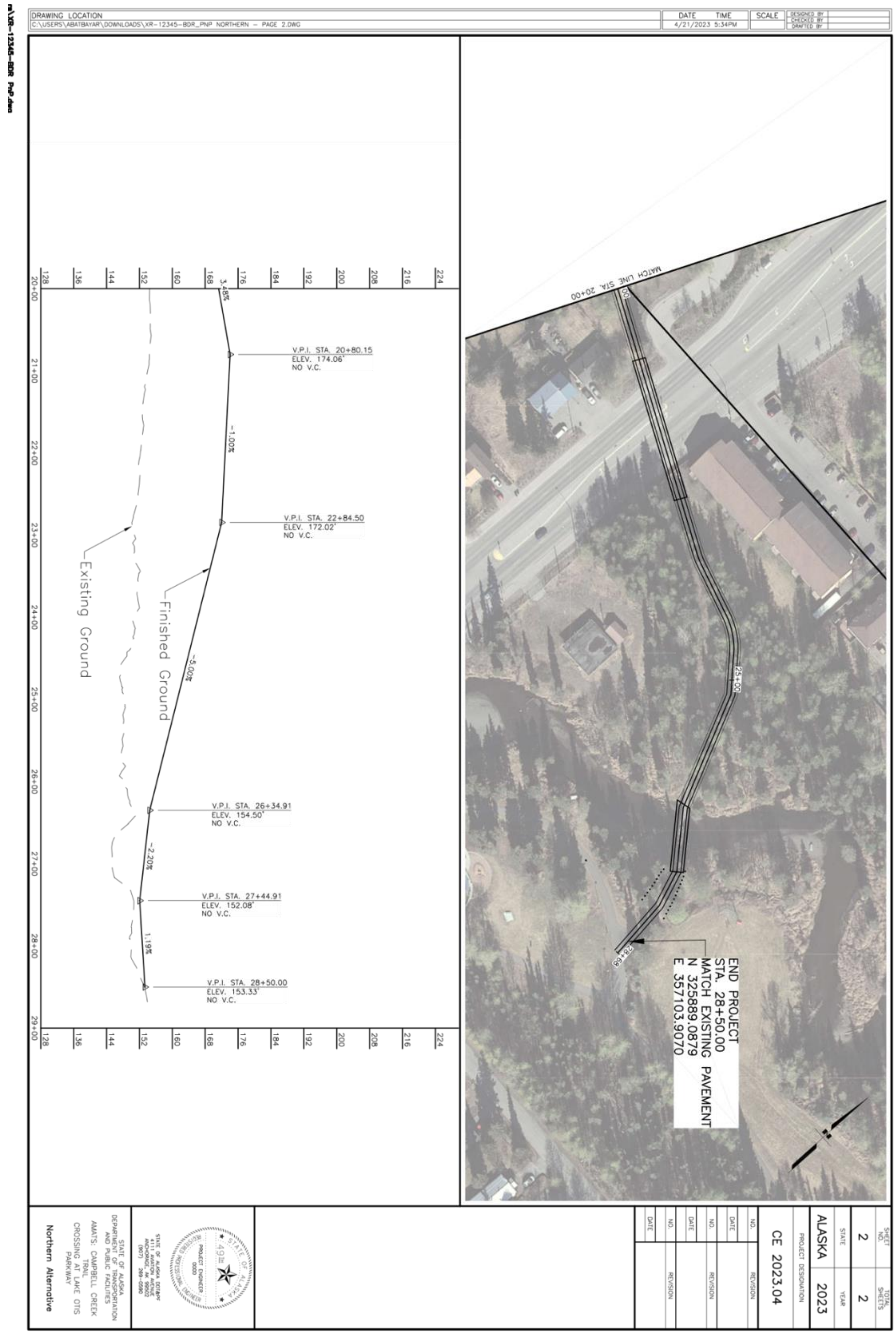
DATE TIME
4/21/2023 5:28PM
SCALE
DESIGNED BY
CHECKED BY
DRAFTED BY
BEGIN PROJECT
STA. 6+00.01
MATCH EXISTING PAVEMENT
N 325785.4628
E 355346.4220
MATCH LINE STA. 20+
V.P.I. STA. 6+00.00
ELEV. 139.79'
NO V.C.
5.00%
Finished Ground
Existing Ground
V.P.I. STA. 14+03.05
ELEV. 179.94'
NO V.C.
-0.50%
V.P.I. STA. 15+18.10
ELEV. 180.52'
NO V.C.
4.00%
V.P.I. STA. 18+25.00
ELEV. 165.17'
200' V.C.
5+88+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
128
136
144
152
160
168
176
184
192
200
208
216
224
SHEET NO.
1
TOTAL SHEETS
2
STATE
ALASKA
YEAR
2023
PROJECT DESIGNATION
CE 2023.04
NO.
REVISION
DATE
NO.
REVISION
DATE
NO.
REVISION
DATE
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
AMATS: CAMPBELL CREEK
TRAIL
CROSSING AT LAKE OTIS
PARKWAY
Northern Alternative
PROJECT ENGINEER
0000
STATE OF ALASKA
49TH
STATE OF ALASKA DOT&PF
4111 AVIATION AVENUE
ANCHORAGE, AK 99502
(907) 269-0560


DRAWING LOCATION
C:\USERS\ABATBAYAR\DOWNLOADS\XR-12345-BDR_PNP NORTHERN - PAGE 2.DWG
DATE TIME
4/21/2023 5:34PM
SCALE
V.P.I. STA. 20+80.15
ELEV. 174.06'
NO V.C.
V.P.I. STA. 22+84.50
ELEV. 172.02'
NO V.C.
V.P.I. STA. 26+34.91
ELEV. 154.50'
NO V.C.
V.P.I. STA. 27+44.91
ELEV. 152.08'
NO V.C.
V.P.I. STA. 28+50.00
ELEV. 153.33'
NO V.C.
Existing Ground
Finished Ground
MATCH LINE STA. 20+00
END PROJECT
STA. 28+50.00
MATCH EXISTING PAVEMENT
N 325889.0879
E 357103.9070
Northern Alternative
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
AMATS: CAMPBELL CREEK TRAIL CROSSING AT LAKE OTIS PARKWAY
CE 2023.04
ALASKA
2023
2
2

APPENDIX B

Existing Bore Hole Data

MUNICIPALITY OF ANCHORAGE
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION DIVISION

ENTERED By C.H. JAN 14 1987

SOILS LIBRARY

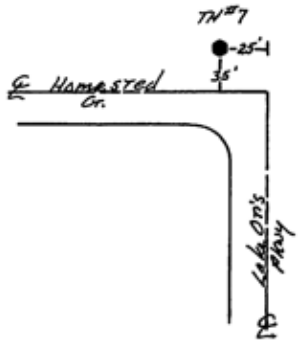
SOILS LOG

HOLE NO. 7 (36)
DATE 10-23-84
BY D.N. Galles
DEPTH 15.0'
WATER TABLE 8.0'

LOCATION Lake Otis Pkwy. (Tudor to Abbott) / 25' West of E Lake Otis / 35' North of E Homestead Cr. (Warwick ct)
COMMENTS Sta 39+44 (approx.)

	DEPTH	UNIFIED CLASS	FROST GROUP	DESCRIPTION
	0			Existing Grade
				2" AC
				(36%) (54%) (10%)
7-A (EX-299)	1	GW/GM	F1	Brown - Sandy Gravel / w/Silt / Moderately Low Moist.
	2			Moderately High Density
	3			
	4			
	5			
7-B EX-300	6	SM	F2	Grey - Silty (23%) Gravely (28%) Sand (49%) / Trace Organics
				Isolated Cobbles / Moist. = 8% / Mod. High Density
▼	8			
	9			
	10			
	11			
7-C EX-301	12	GW/GM	NF3	Grey - Sandy (31%) Gravel (64%) w/Silt (5%) / Coarse
				Saturated / Moderately Low Density
	13			
	14			

LOCATION SKETCH:



LEGEND
SYMBOL
TEST HOLE
WATER TABLE
FROZEN MATERIAL
ALL FROST CLASSIFICATION BASED ON THE .02mm = 50% OF THE #200 UNLESS OTHERWISE NOTED

GRID NO. 1833-B

82-032 (2/81)

APPENDIX C

Design Criteria

PROJECT DESIGN CRITERIA – MULTI-USE TRAIL

Campbell Creek Trail – Lake Otis Crossing

Criteria	Value	Source
Functional Classification	Trail Class 5 - Fully Developed Trail	DCM,
Design Year	2033	
Design Year ADT	TBD	TBD
Surfacing, Lane Surfacing, Shoulder	2” Pavement	DCM,
Traveled Surface Width	12’ (10’ Recommended by Marcy)	DCM,
Design Speed	18 mph for grades > 4% 30 mph for grades < 4%	DCM,
Stopping Sight Distance	125 feet (flat surfaces) 250’ dog mushing	DCM,
Maximum Longitudinal Grade	≤ 5%	DCM, ADA
Cross Slope	1% Desirable 3% Maximum (1.5% recommended by Chris)	DCM,
Shoulder Width	3 foot minimum (2 foot recommended by Marcy) 5 foot minimum if side slopes are steeper than 3:1(H:V)	DCM,
Shoulder Grade	3:1 (H:V)	DCM,
Clear Zone	3 feet from edge of traveled surface	DCM,
Bridge Clear Width	12 feet	DCM,
Minimum Radius of Curvature	95 feet	DCM,
Embankment Slopes	3:1 (H:V) or flatter desirable No steeper than 2:1 (H:V) with 3 foot shoulders	DCM,
Vertical Clearance above Trail	12 feet	DCM,
Vertical Clearance above Road	17 ft – 6 in	DOT&PF HPCM, Table 1130-1
Road Separation	N/A	N/A
Illumination	Direction from Parks & Rec Department	DCM,

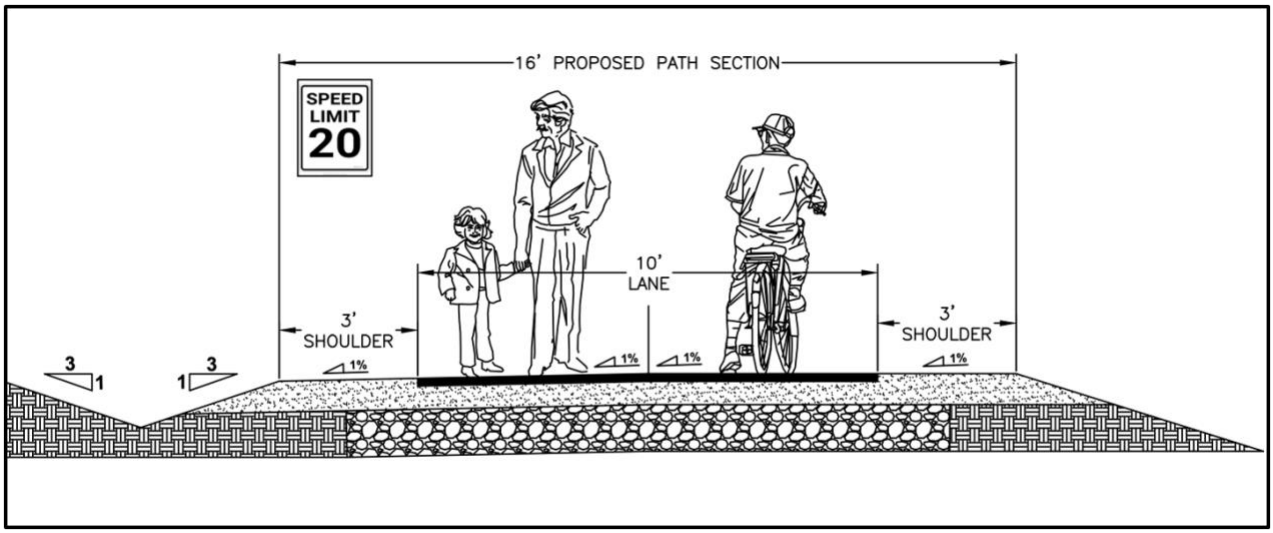
DCM = Municipality of Anchorage Design Criteria Manual, Draft Chapter 4 (2013)
HPCM = Alaska Department of Transportation and Public Facilities, Highway Preconstruction Manual, Chapter 11 (November 2016)

Proposed By:	Design Project Manager	Date
Recommended By:	MOA Project Manager	Date

APPENDIX D

Typical Sections

Pathway Typical Section



Embankment Typical Section
(Mechanically Stabilized Earth Wall Vs Earth Embankment)