



MEMORANDUM

STATE OF ALASKA

Department of Natural Resources

Office of Habitat Management and Permitting

TO: Jackie Timothy
Juneau Area Manager
OHMP

DATE: July 31, 2007

FILE NO:

THRU:

SUBJECT: Auke Lake Trail Fish Trapping
Sect. 23, T. 40 S., R. 65 E. (Juneau B-2)
Lat. 58.381° N., Long. 134.631° W

FROM: Carl Schrader 
Habitat Biologist

TELEPHONE NO: 465-4287

The City and Borough of Juneau and University of Alaska have proposed to upgrade the foot trail along the south and east shore of Auke Lake (Anadromous Stream #111-50-10420-0010). Auke Lake supports populations of sockeye, coho, chum and pink salmon, cutthroat trout, and Dolly Varden char. The project would widen the existing trail and re-route a portion of the trail farther inland. Floating walkways would be used for observation platforms and to avoid disturbance to some large trees and sensitive habitats. The trail crosses numerous small streams that flow into the lake, which the applicant has proposed to cross using mostly 24" diameter corrugated plastic culverts. None of these streams are documented as supporting anadromous fish. The purpose of the trip was to determine which of the streams crossed by the trail support fish and require crossing structures designed for fish passage.

On Friday, July 20 Tess Quinn and I hiked the existing trail beginning at the parking area near the floatplane dock to determine if there are streams that might support fish. We had three minnow traps (1/4" mesh) to place in likely fish streams. We trapped fish in two streams; several other streams we considered likely to support fish. Tess returned July 25 and set traps overnight in streams along both the existing and proposed trail alignment. Stream crossing locations are identified sequentially based on the plan sheets provided in the application and field notes (see attached plan sheets). GPS fixes were taken at some locations, but were not generally available because of the tree cover.

1st Crossing (Plan Sheet 4) This stream is located in wetlands and is about 2 feet wide and 4 inches deep. It crosses Glacier Highway through a 24" CMP culvert about 50 feet upstream of the trail (Photo 1). Above the highway the stream is about 1 foot wide and comes down a hillside on private land. On July 20 we set a trap about 15 feet above the trail (58.38089° N, 134.63075° W, WGS-84). The trap was in for 2 hours and caught 2 Dolly Varden char (110 mm and 90 mm). We trapped the site again (Trap #1) July 25-26 overnight (20 hrs) and caught 1 cutthroat trout (120 mm) and 1 Dolly Varden char (85mm).

Conclusion: this stream supports *cutthroat trout* and *Dolly Varden char* and requires a structure designed for fish passage.



Photo 1. Culvert above 1st Crossing



Photo 2. Upper trap location at 2nd Crossing

2nd Crossing (Plan Sheet 4) This stream is in wetlands and is about 4 feet across and 4 inches deep at the crossing. July 20 we set a trap for an hour and a half about 50 feet upstream of the crossing (58.38072° N, 134.62961 W) and caught 1 coho (50 mm), 2 Dolly Varden (75 mm), and 9 Dolly Varden (55 mm). (See Photo 2) We set a trap July 25 (Trap #2) at the same location and caught 24 Dolly Varden char (50-80mm). A second trap 10' below the crossing caught 4 Dolly Varden (60-100mm).

Conclusion: this stream supports *coho salmon* and *Dolly Varden char* and requires a structure designed for fish passage.

3rd Crossing (Plan Sheet 5) This crossing is located at the head of a slough of Auke Lake where the stream is about 5 feet wide and was nearly dry. We observed salmon fry in the slough below the crossing, but the stream was too shallow to trap above the crossing. Based on vegetation, this slough floods under the trail crossing at higher lake levels, and is therefore considered anadromous.

Conclusion: this is an *anadromous fish stream* and requires a structure designed for fish passage.



Photo 4. 3rd trail crossing



Photo 5. Slough of directly below 3rd crossing

4th Crossing (Plan Sheet 10) The stream at this location flows under roots beneath the trail and is about 18" wide above the trail crossing (Photo 6 below). A trap (Trap #3) set overnight July 25 did not catch fish.

Conclusion: this stream was not documented to support, however fish may be present under higher flow conditions. *A crossing designed for fish passage is recommended.*



Photo 6. Above 4th crossing

Photo 7. 5th Crossing on existing trail

5th Crossing (Plan Sheet 12 – near flag #155) The new alignment heads uphill just before this point, with the new crossing about 150' above the existing trail. We set a trap July 20 in this stream under the boardwalk on the existing trail (Photo 7 above). The stream is about 2 feet wide and a foot deep at the crossing. The trap was in for about an hour and a half and caught no fish. A second trap (Trap #4) placed here overnight July 25 also came up empty. Trap #5 set overnight just below the intersection of the new alignment also did not catch fish. We were baffled, because this stream appears to be a good fish stream.

Conclusion: fish were not documented in this stream, however fish may be present under higher flow conditions. *A crossing designed for fish passage is recommended.*

6th Crossing (Plan Sheet 12) We placed traps July 25 overnight just below the existing trail crossing (Trap #6) and just below the new alignment (Trap #12). The lower trap caught a cutthroat trout (90mm) and a Dolly Varden char (85mm). The trap above the wetland at the new alignment caught 10 Dolly Varden char (20-30mm). (Photo 8 below).

Conclusion, this stream supports *Dolly Varden char*; *a crossing designed for fish passage is required.*



Photo 8. 6th Crossing above wetlands



Photo 9. Below 9th Crossing

7th Crossing (Plan Sheet 13) A trap (#11) set overnight July 25 just below a stringer bridge on the existing trail caught no fish. Upstream near the new alignment the stream turns into a seep and is not fish habitat.

Conclusion: this crossing *does not need to be designed for fish passage.*

8th Crossing (Plan Sheet 13) The crossing on the new alignment is in a wetland that is too shallow to support fish.

Conclusion: this stream *does not need to be designed for fish passage.*

9th Crossing (Plan Sheet 14) The new alignment crosses a shallow stream in a wetland. Trap # 7 set here overnight did not catch fish. However, a trap (Trap # 8) about 50' below the trail caught 5 Dolly Varden char (20-30 mm). (See photo 9 above). We believe that the reason we caught fish below but not above the new alignment is because we were using a 1/8" mesh trap at the lower site, but 1/4" mesh at the upper location. These small fish could easily slip through the larger mesh trap. There was no obvious blockage to fish passage between the lower trap location and the trail crossing.

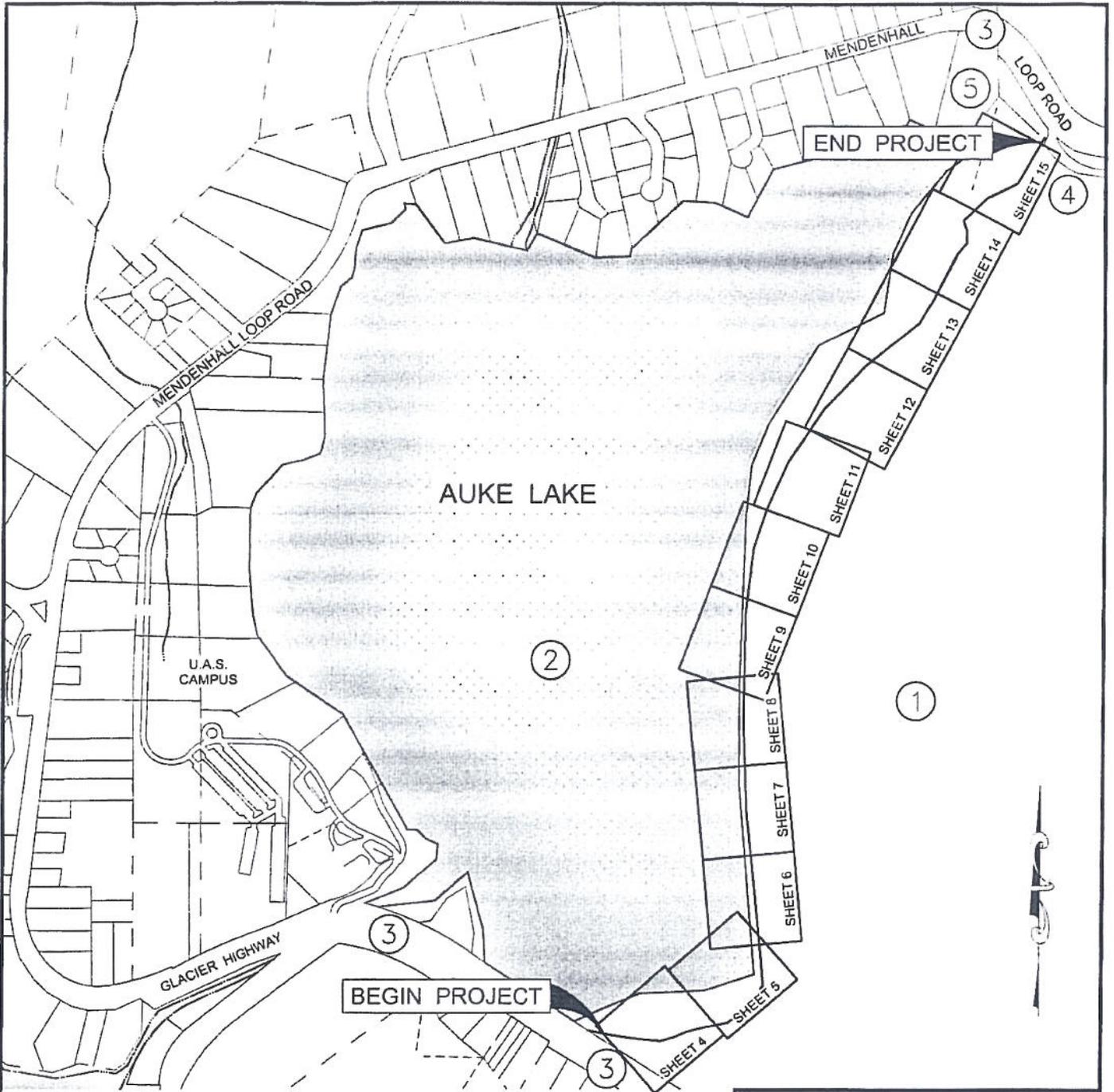
Conclusion: this stream crossing *should be designed for fish passage.*

10th Crossing (Plan Sheet 15) The 10th and last crossing before the Goat Hill trailhead is a small ephemeral stream that we don't consider fish habitat. Trap #9 set overnight above the existing trail about 100' up from the lake caught a cutthroat trout (80mm). A second trap (Trap # 10) about 20' below the existing trail caught 3 cutthroats (60-75mm) and 1 Dolly Varden (75mm).

Conclusion: the stream at the new trail crossing *does not need to be designed for fish passage.*

CC: Al Ott, DNR-OHMP, Fairbanks
Tess Quinn, DNR-OHMP, Juneau
Mark Fink, ADF&G, Anchorage
Brian Glynn, ADF&G, Juneau
Joe Donohue, DNR-OPMP, Juneau
Sadie Wright, DNR-OPMP, Juneau
Joran Freeman, DEC, Juneau

PACKET



Adjacent Property Owners and Sheet Key Map

N.T.S

Property Owners

- ① CITY AND BOROUGH OF JUNEAU
- ② STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
- ③ STATE OF ALASKA DEPT. OF TRANSPORTATION AND PUBLIC FACILITIES
- ④ SCOTT L. JOHNSON
- ⑤ DAVID & DONNA HANNA

UNIVERSITY OF ALASKA
 SOUTHEAST
 AUKE LAKE TRAIL
 IMPROVEMENTS

IN: AUKE LAKE
 AT: JUNEAU, ALASKA

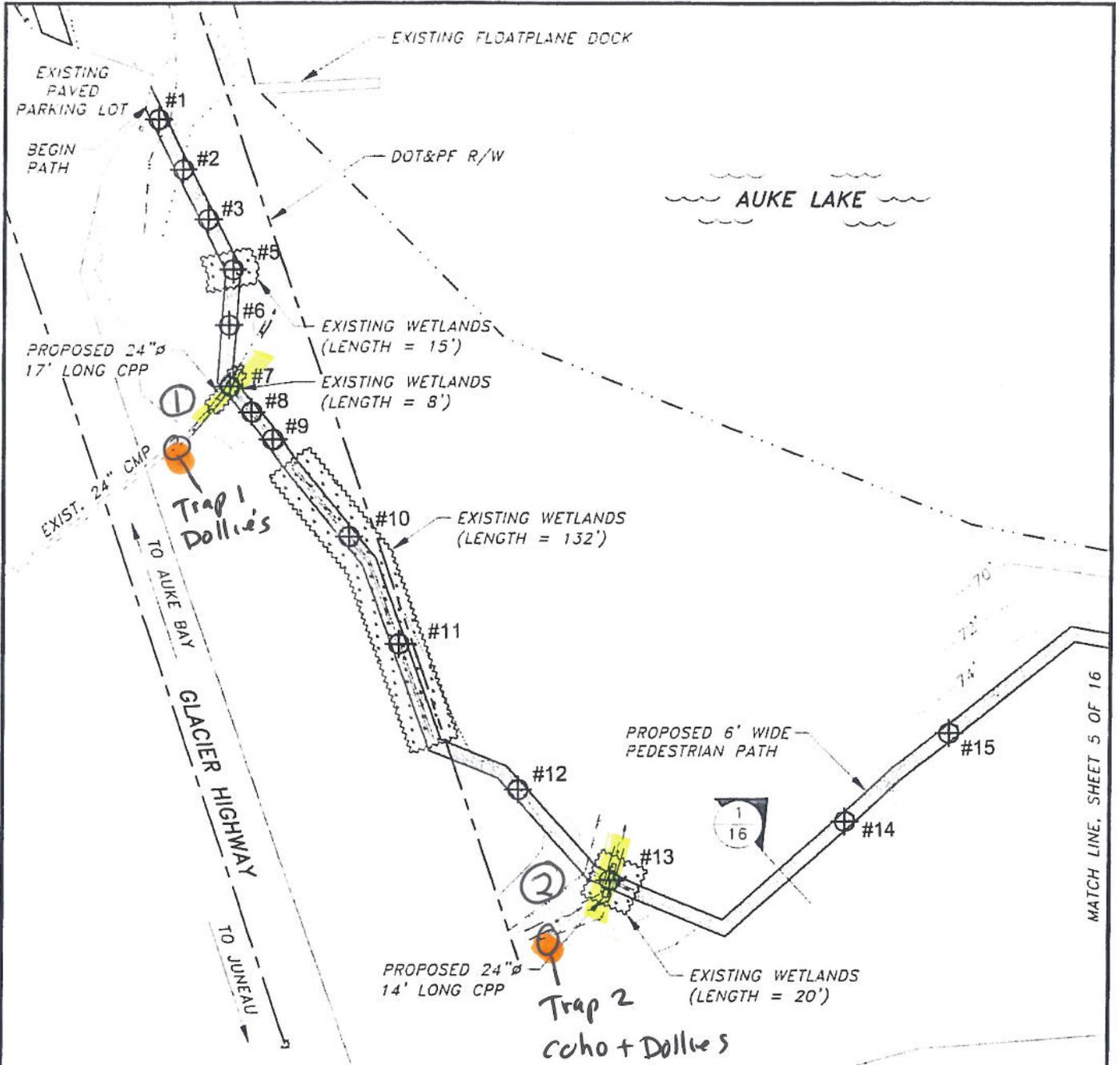
APPLICANTS: CITY & BOROUGH OF JUNEAU
 155 SOUTH SEWARD STREET
 JUNEAU, AK 99801

UNIVERSITY OF ALASKA S.E.
 11120 GLACIER HIGHWAY
 JUNEAU, AK 99801

DATE: MAY, 2007 SHEET 2 OF 16

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SITE PLAN



UNIVERSITY OF ALASKA SOUTHEAST AUKE LAKE TRAIL IMPROVEMENTS

IN: AUKE LAKE

AT: JUNEAU, ALASKA

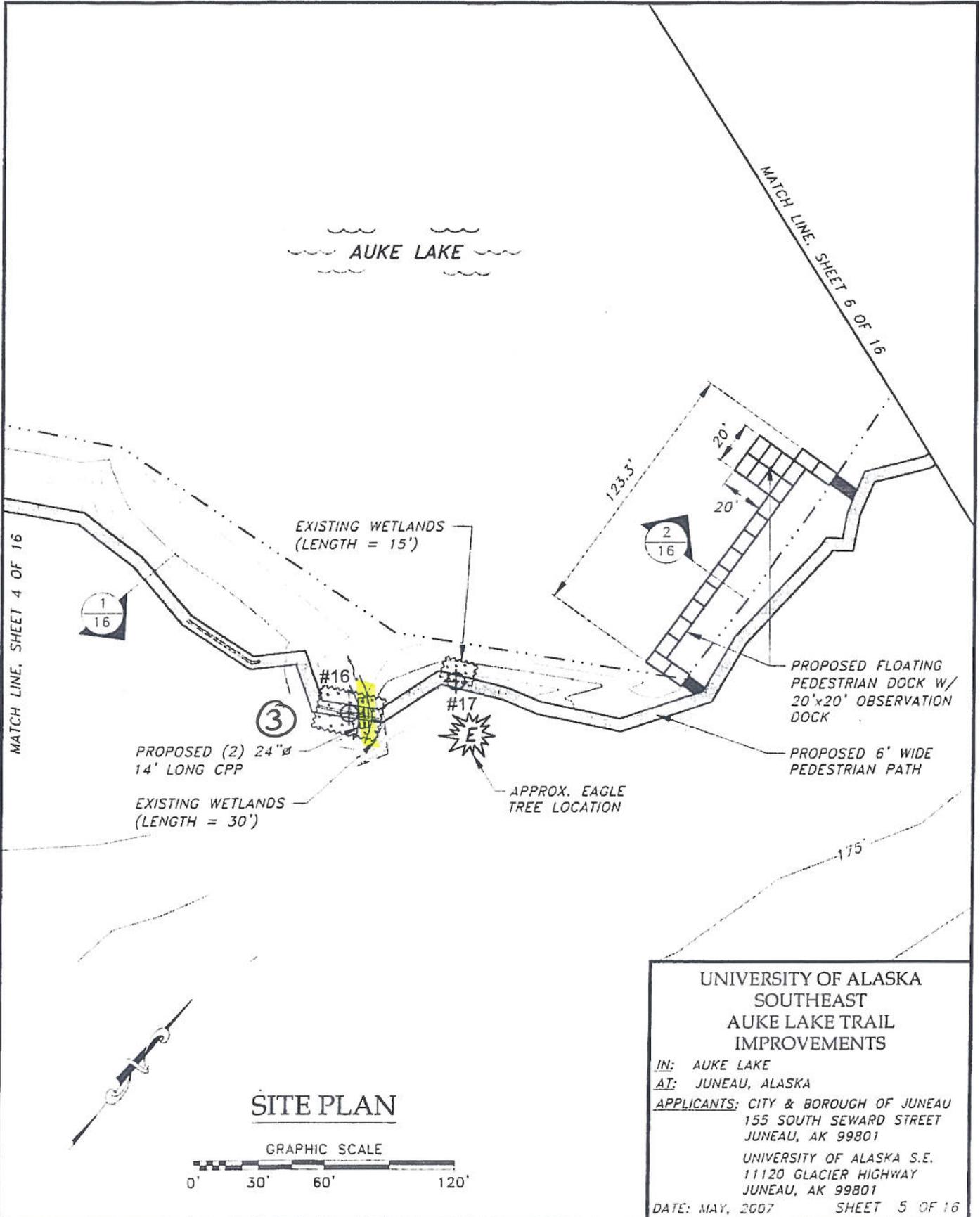
APPLICANTS: CITY & BOROUGH OF JUNEAU
155 SOUTH SEWARD STREET
JUNEAU, AK 99801

UNIVERSITY OF ALASKA S.E.
11120 GLACIER HIGHWAY
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DATE: MAY, 2007

SHEET 4 OF 16

R&M PROJ. No. 051374



SITE PLAN



UNIVERSITY OF ALASKA
SOUTHEAST
AUKE LAKE TRAIL
IMPROVEMENTS

IN: AUKE LAKE
AT: JUNEAU, ALASKA

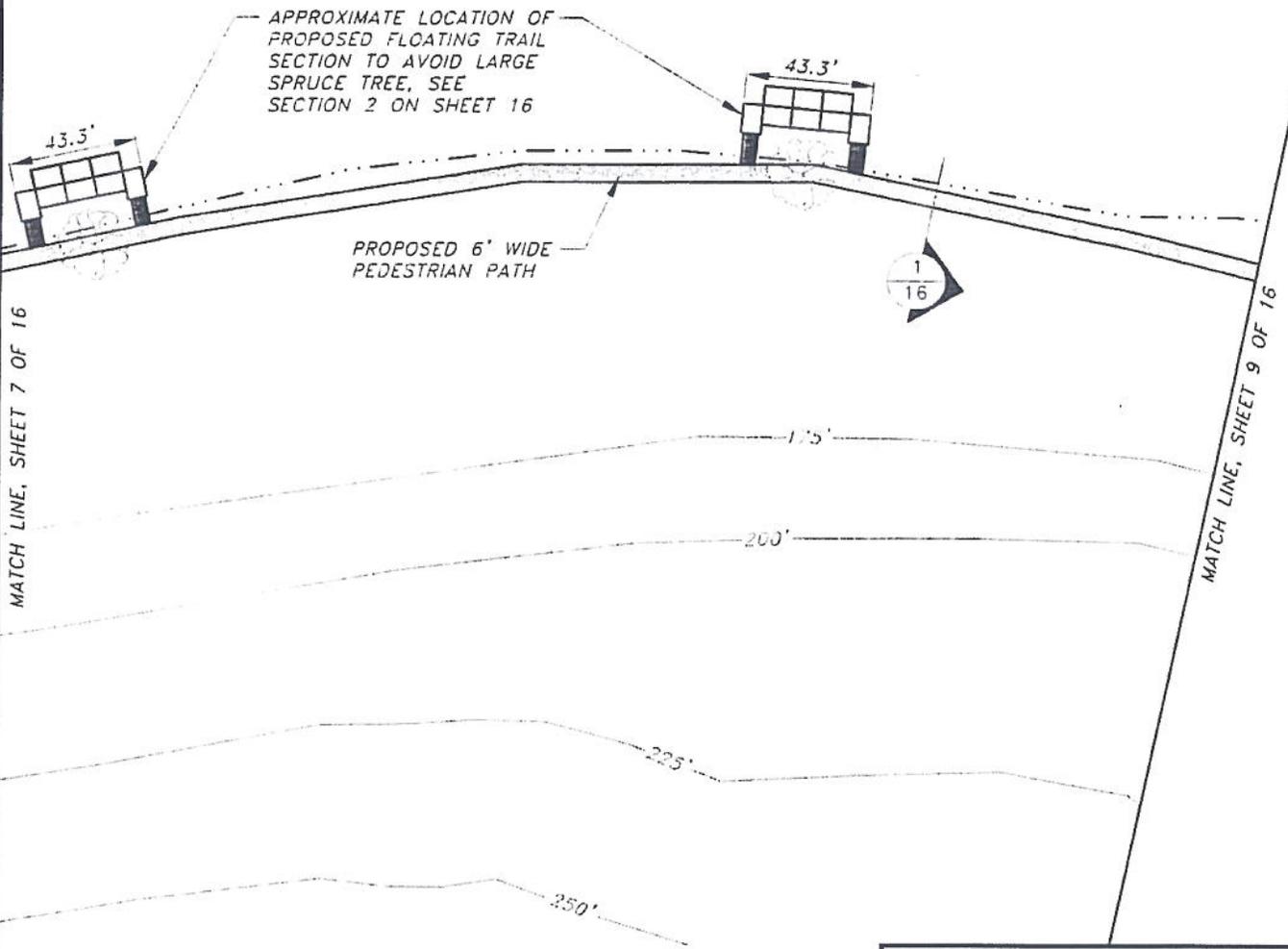
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155 SOUTH SEWARD STREET
JUNEAU, AK 99801

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11120 GLACIER HIGHWAY
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DATE: MAY, 2007 SHEET 5 OF 16

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AUKE LAKE



SITE PLAN



UNIVERSITY OF ALASKA
SOUTHEAST
AUKE LAKE TRAIL
IMPROVEMENTS

IN: AUKE LAKE

AT: JUNEAU, ALASKA

APPLICANTS: CITY & BOROUGH OF JUNEAU
155 SOUTH SEWARD STREET
JUNEAU, AK 99801

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DATE: MAY, 2007

SHEET 8 OF 16

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AUKE LAKE  
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APPROXIMATE LOCATION OF
PROPOSED FLOATING TRAIL
SECTION TO AVOID LARGE
SPRUCE TREE, SEE
SECTION 2 ON SHEET 16



#18



PROPOSED 6' WIDE
PEDESTRIAN PATH

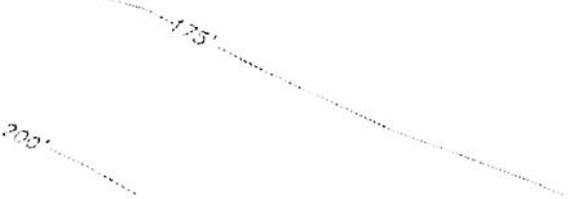


PROPOSED 24"Ø
15' LONG CPP

Trap 3
no fish

MATCH LINE, SHEET 9 OF 16

MATCH LINE, SHEET 11 OF 16



SITE PLAN



UNIVERSITY OF ALASKA
SOUTHEAST
AUKE LAKE TRAIL
IMPROVEMENTS

IN: AUKE LAKE

AT: JUNEAU, ALASKA

APPLICANTS: CITY & BOROUGH OF JUNEAU
155 SOUTH SEWARD STREET
JUNEAU, AK 99801

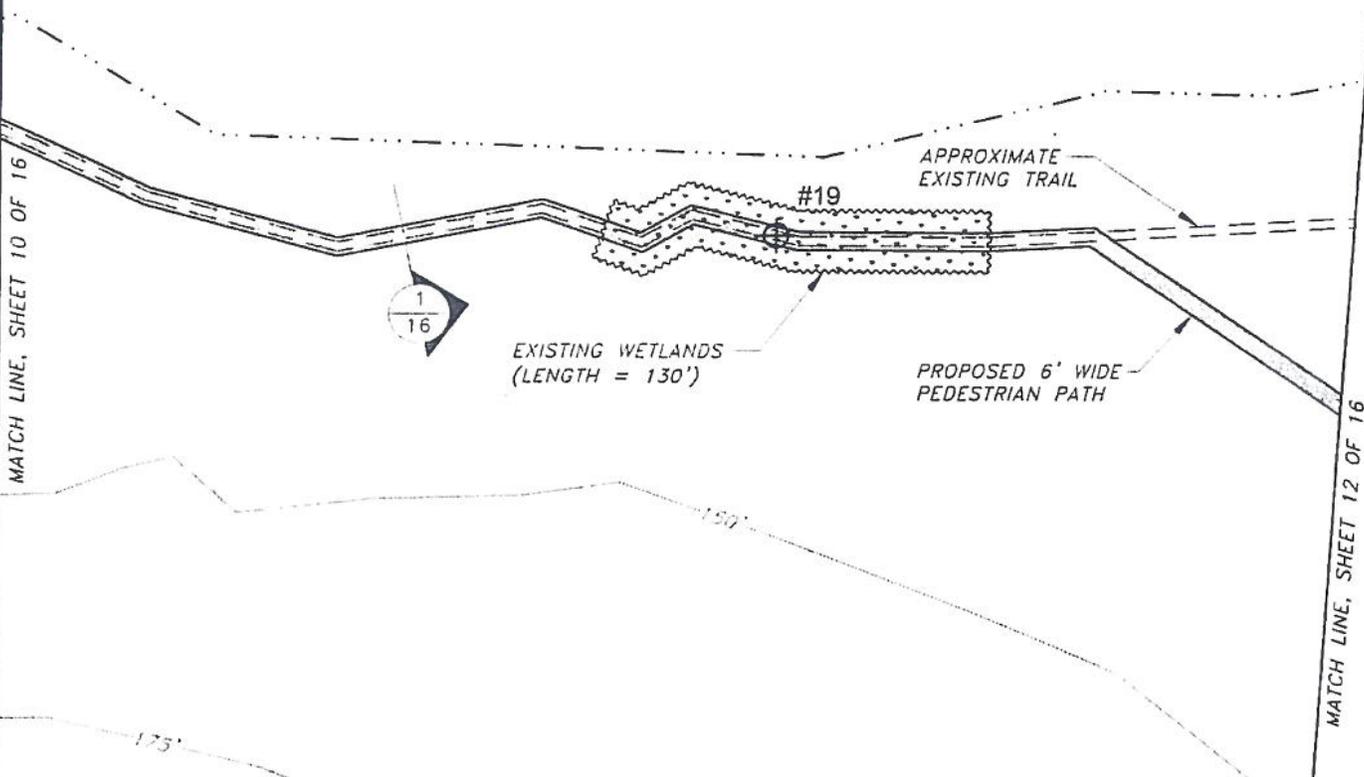
UNIVERSITY OF ALASKA S.E.
11120 GLACIER HIGHWAY
JUNEAU, AK 99801

DATE: MAY, 2007

SHEET 10 OF 16

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AUKE LAKE



SITE PLAN



UNIVERSITY OF ALASKA SOUTHEAST AUKE LAKE TRAIL IMPROVEMENTS

IN: AUKE LAKE

AT: JUNEAU, ALASKA

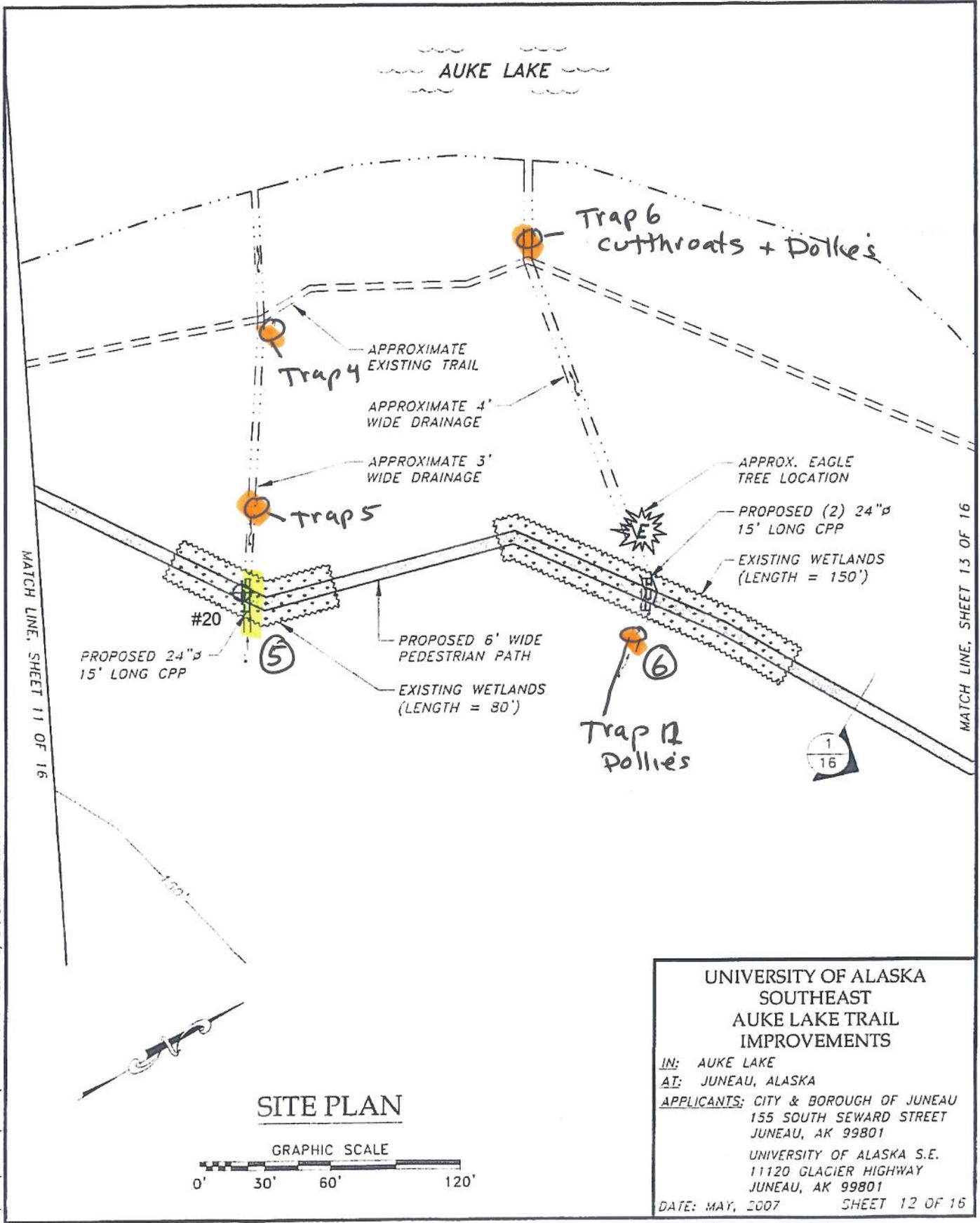
APPLICANTS: CITY & BOROUGH OF JUNEAU
155 SOUTH SEWARD STREET
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DATE: MAY, 2007

SHEET 11 OF 16

R&M PROJ. No. 051374



SITE PLAN



UNIVERSITY OF ALASKA SOUTHEAST AUKE LAKE TRAIL IMPROVEMENTS

IN: AUKE LAKE
 AT: JUNEAU, ALASKA
 APPLICANTS: CITY & BOROUGH OF JUNEAU
 155 SOUTH SEWARD STREET
 JUNEAU, AK 99801
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 11120 GLACIER HIGHWAY
 JUNEAU, AK 99801
 DATE: MAY, 2007 SHEET 12 OF 16

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AUKE LAKE  
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MATCH LINE, SHEET 12 OF 16

MATCH LINE, SHEET 14 OF 16

APPROXIMATE EXISTING TRAIL

PROPOSED 6' WIDE PEDESTRIAN PATH

Trap #11
No Fish

APPROXIMATE 1.5' WIDE DRAINAGE

APPROXIMATE 6' WIDE DRAINAGE

PROPOSED (2) 24"Ø 14' LONG CPP

#21

⑦

EXISTING WETLANDS (LENGTH = 80')

EXISTING WETLANDS (LENGTH = 50')

PROPOSED 18"Ø 14' LONG CPP

⑧

1
16



SITE PLAN

GRAPHIC SCALE



UNIVERSITY OF ALASKA SOUTHEAST AUKE LAKE TRAIL IMPROVEMENTS

IN: AUKE LAKE

AT: JUNEAU, ALASKA

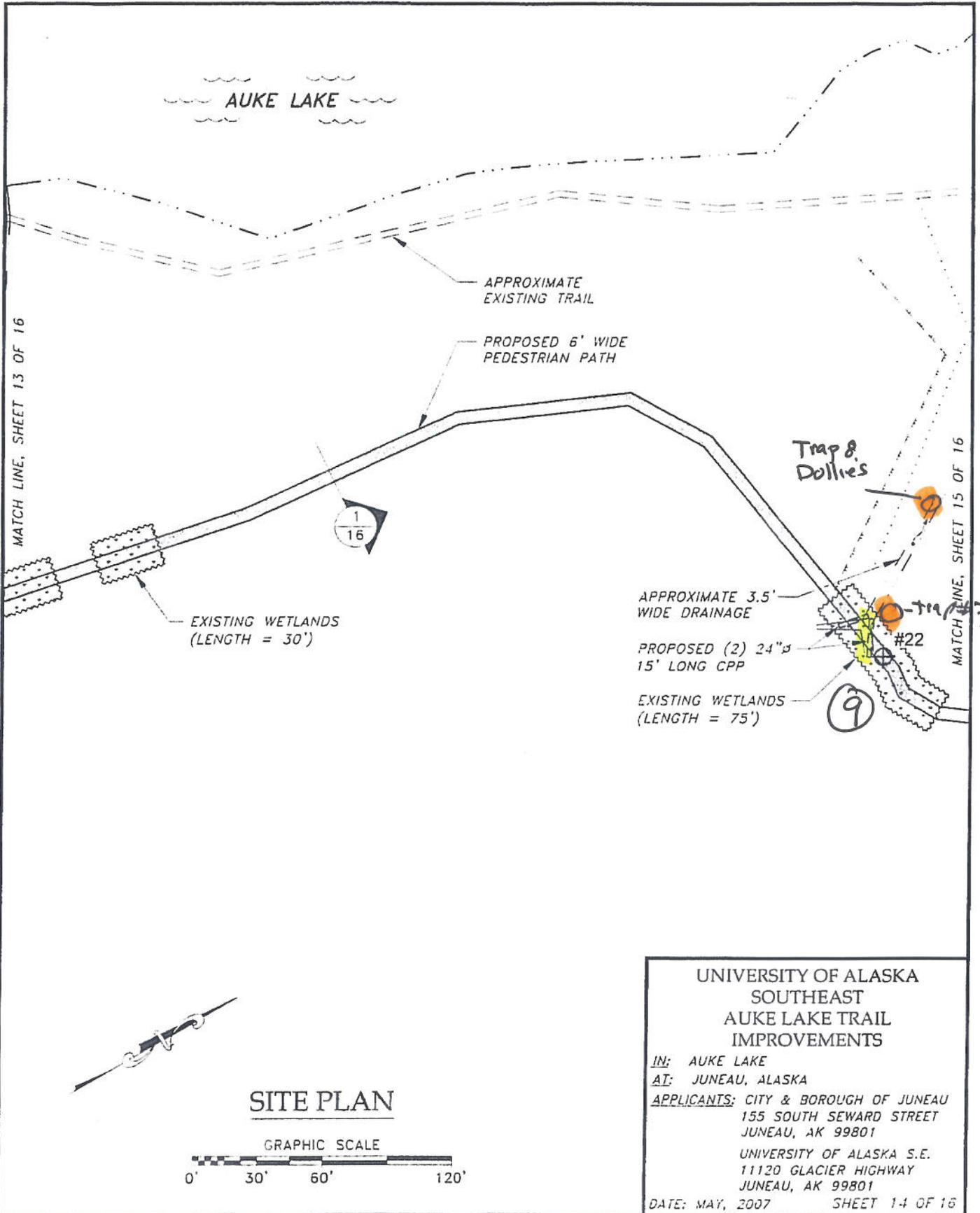
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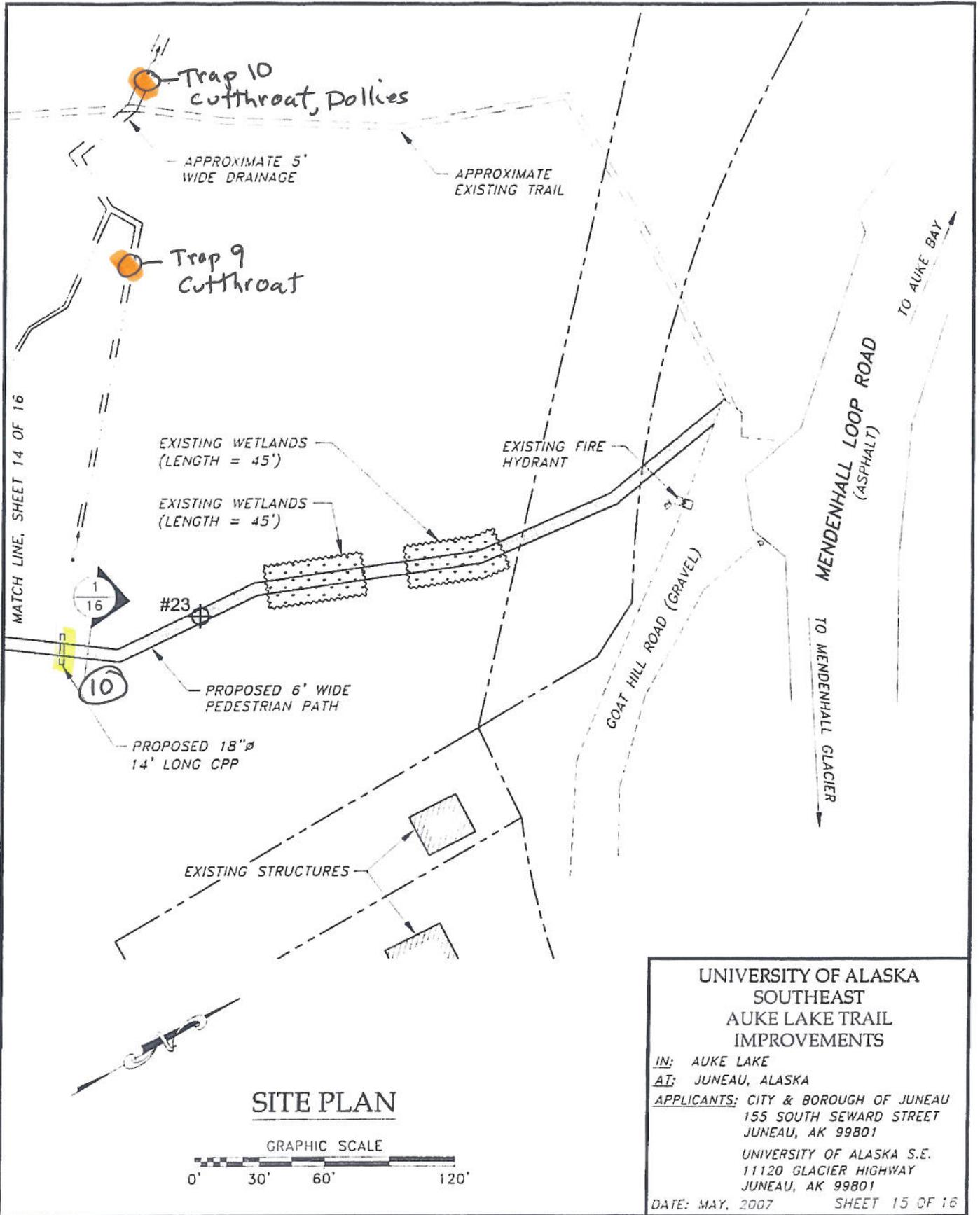
SHEET 13 OF 16

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