

# UPPER HIDDEN BASIN DIVERSION PROJECT WETLAND & STREAM IMPACTS

PREPARED FOR  
**KODIAK ELECTRIC ASSOCIATION, INC.**  
KODIAK, ALASKA  
PREPARED BY  
**LACHEL & ASSOCIATES**

PROJECT NO. 14366009.02  
FERC PROJECT NO. P-2743

Sheet List Table	
Sheet Number	Sheet Title
G-01	COVER SHEET
W-01	PRIMARY ACCESS ROAD STA 0+00 TO 60+00
W-02	PRIMARY ACCESS ROAD STA 60+00 TO 120+00
W-03	PRIMARY ACCESS ROAD STA 120+00 TO 180+00
W-04	EAST DIVERSION DAM
W-05	DIVERSION ACCESS ROAD STA 0+00 TO 30+00
W-06	DIVERSION ACCESS ROAD STA 30+00 TO 34+00
W-07	WEST DIVERSION DAM AND UPSTREAM PORTAL ROAD
W-08	DOWNSTREAM PORTAL
W-09	CONSTRUCTION FEATURES PROFILE VIEWS - 1 OF 2
W-10	CONSTRUCTION FEATURES PROFILE VIEWS - 2 OF 2



1 PROJECT AREA MAP  
SCALE: 1"=200'



2 VICINITY MAP  
SCALE: 1"=1,267,200'

Project Name: UPPER HIDDEN BASIN DIVERSION PROJECT				
Designer/Project Engineer: THOMAS J. FITZGERALD, P.E.		Schnabel PN: 14366009.03		W.O. #
Rev. No.	Revision Type	Drawn by/Date	Reviewed by/Date	Approved by/Date

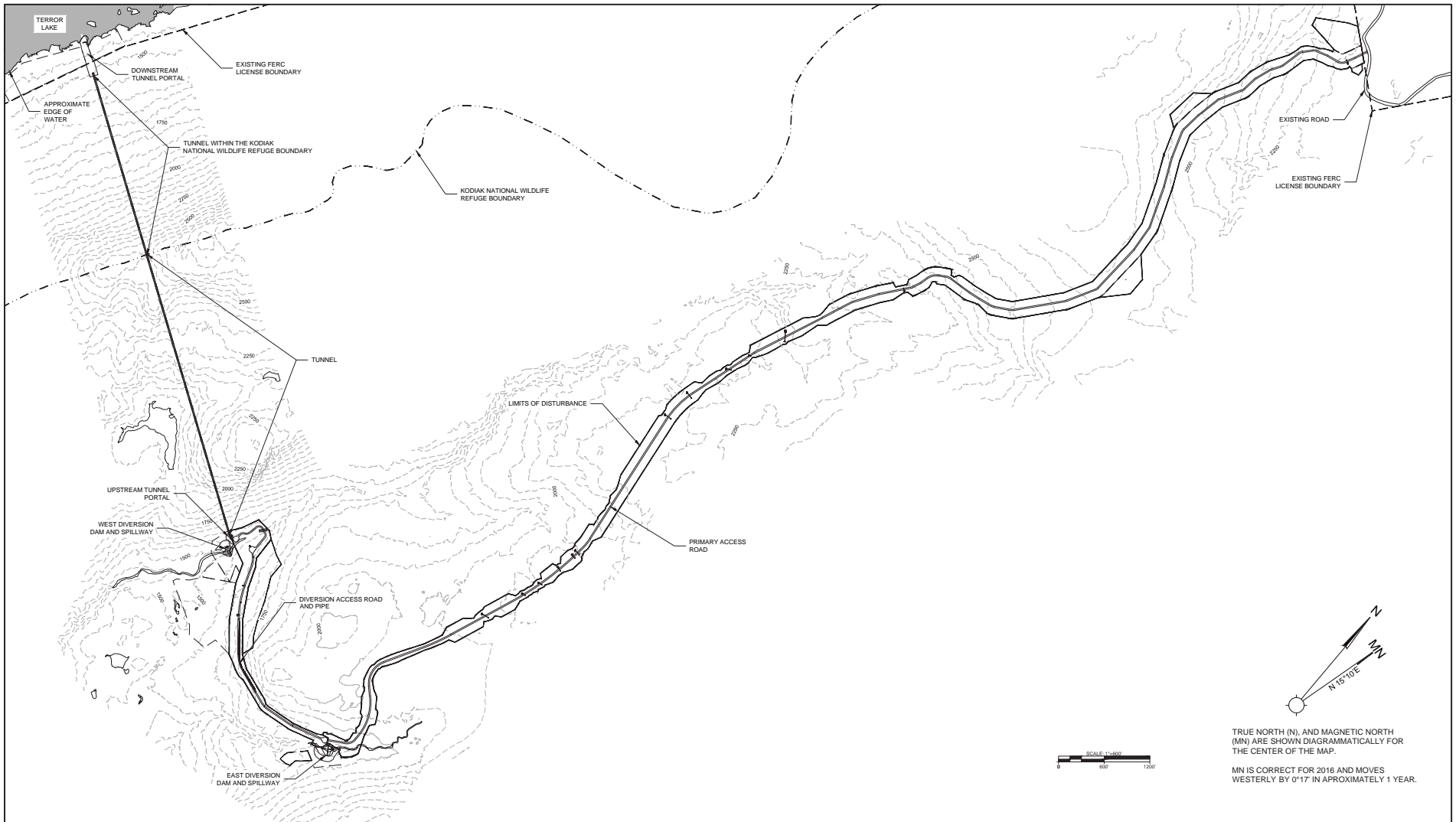
WETLAND & STREAM  
IMPACT  
DRAWINGS



COVER SHEET

Project Drawing No. G-01  
KEA Drawing Number

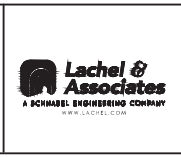
FERC PROJECT NO. P-2743  
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TRUE NORTH (N), AND MAGNETIC NORTH (MN) ARE SHOWN DIAGRAMMATICALLY FOR THE CENTER OF THE MAP.  
 MN IS CORRECT FOR 2016 AND MOVES WESTERLY BY 0°17' IN APPROXIMATELY 1 YEAR.

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WETLAND & STREAM IMPACT DRAWINGS

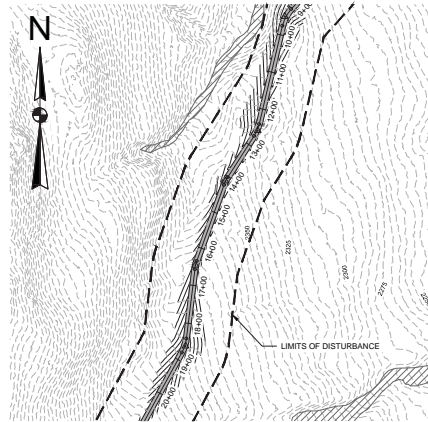


PROJECT LAYOUT	
Project Drawing No.	G-02
KEA Drawing Number	

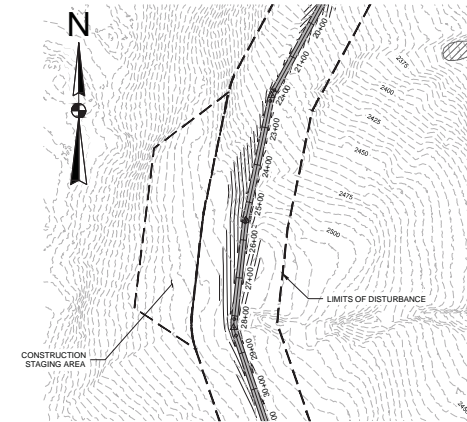
FERC PROJECT NO. P-2743  
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1 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 00+00 TO 10+00

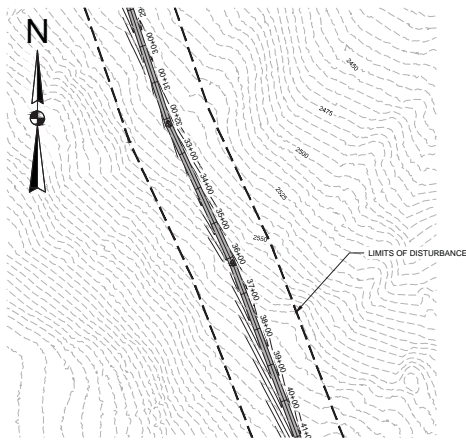


2 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 10+00 TO 20+00

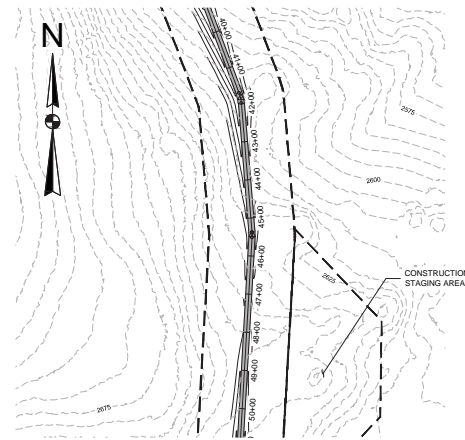


3 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 20+00 TO 30+00

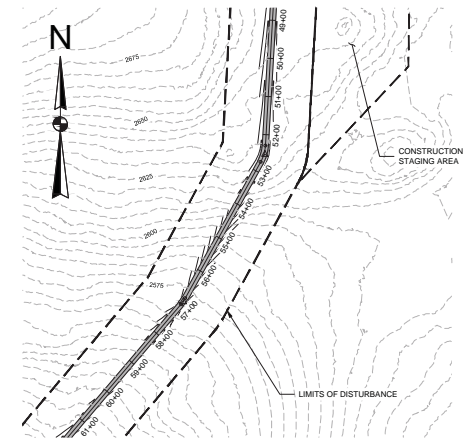
- LEGEND**
- CURRENT LIMITS OF DISTURBANCE
  - NON-IMPACTED STREAM
  - IMPACTED STREAM
  - ▨ IMPACTED WETLAND AREAS
  - ▧ NON-IMPACTED WETLAND AREAS



4 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 30+00 TO 40+00



5 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 40+00 TO 50+00



6 PRIMARY ACCESS ROAD PLAN  
SCALE 1"=150' STA 50+00 TO 60+00

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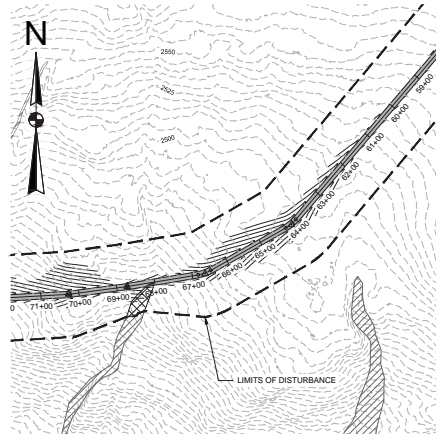


PRIMARY ACCESS ROAD STA 0+00 TO 60+00

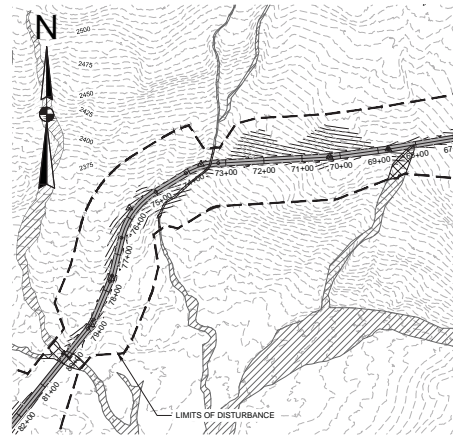
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KEA Drawing Number

FERC PROJECT NO. P-2743  
UPPER HIDDEN BASIN DIVERSION PROJECT  
KODIAK ISLAND, ALASKA  
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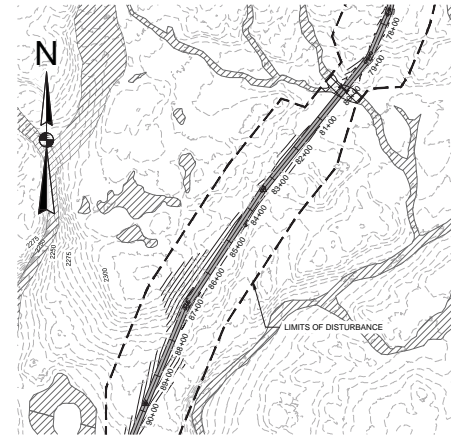




1 PRIMARY ACCESS ROAD PLAN  
SCALE: 1"=150'  
STA 60+00 TO 70+00



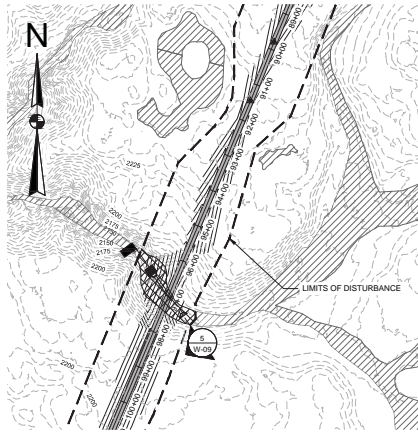
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SCALE: 1"=150'  
STA 70+00 TO 80+00



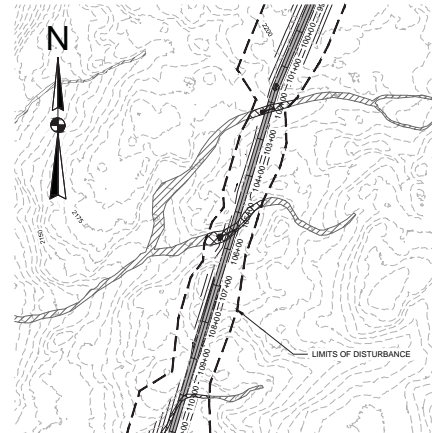
3 PRIMARY ACCESS ROAD PLAN  
SCALE: 1"=150'  
STA 80+00 TO 90+00

**LEGEND**

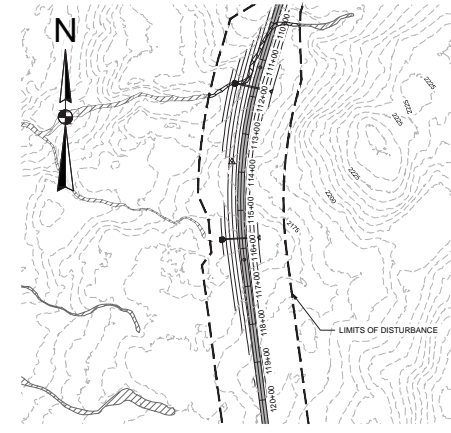
- CURRENT LIMITS OF DISTURBANCE
- NON-IMPACTED STREAM
- IMPACTED STREAM
- ▨ IMPACTED WETLAND AREAS
- ▩ NON-IMPACTED WETLAND AREAS



4 PRIMARY ACCESS ROAD PLAN  
SCALE: 1"=150'  
STA 90+00 TO 100+00



5 PRIMARY ACCESS ROAD PLAN  
SCALE: 1"=150'  
STA 100+00 TO 110+00



6 PRIMARY ACCESS ROAD PLAN  
SCALE: 1"=150'  
STA 110+00 TO 120+00

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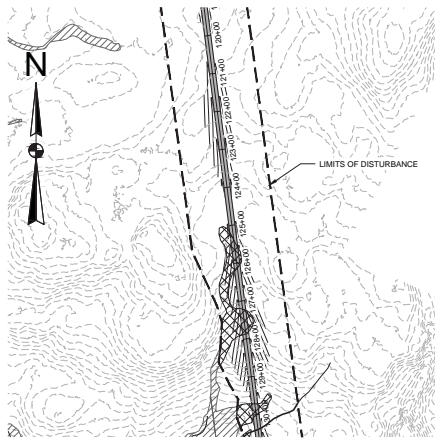
WETLAND & STREAM IMPACT DRAWINGS



PRIMARY ACCESS ROAD STA 60+00 TO 120+00

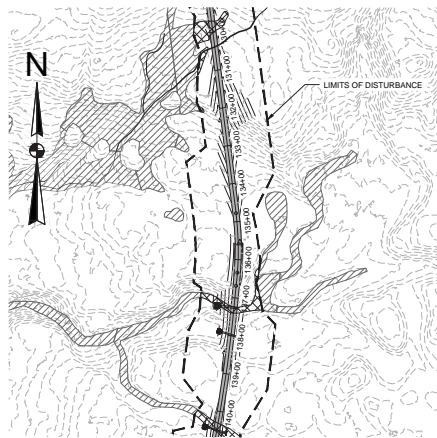
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KEA Drawing Number

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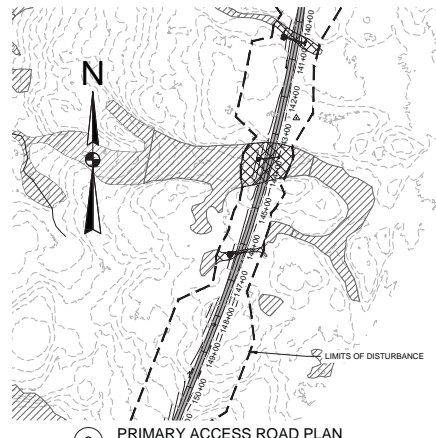
1 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 120+00 TO 130+00



2 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 130+00 TO 140+00

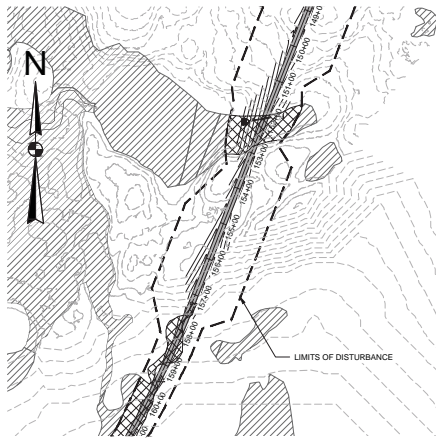


3 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 140+00 TO 150+00

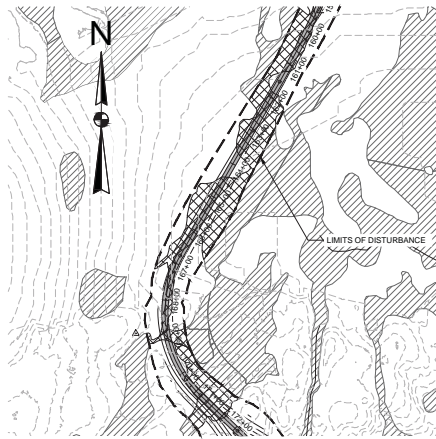
**LEGEND**

- CURRENT LIMITS OF DISTURBANCE
- NON-IMPACTED STREAM
- IMPACTED STREAM
- ▨ IMPACTED WETLAND AREAS
- ▩ NON-IMPACTED WETLAND AREAS



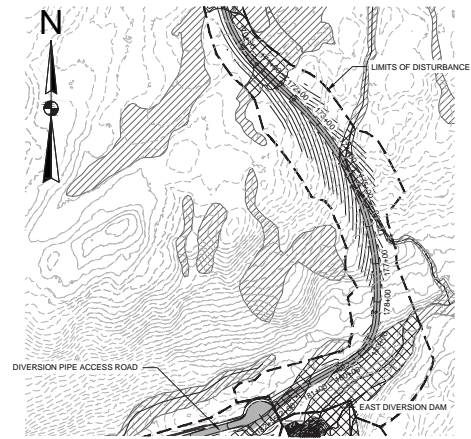
4 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 150+00 TO 160+00



5 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 160+00 TO 170+00



6 PRIMARY ACCESS ROAD PLAN

SCALE 1"=150' STA 170+00 TO 180+00

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WETLAND & STREAM IMPACT DRAWINGS

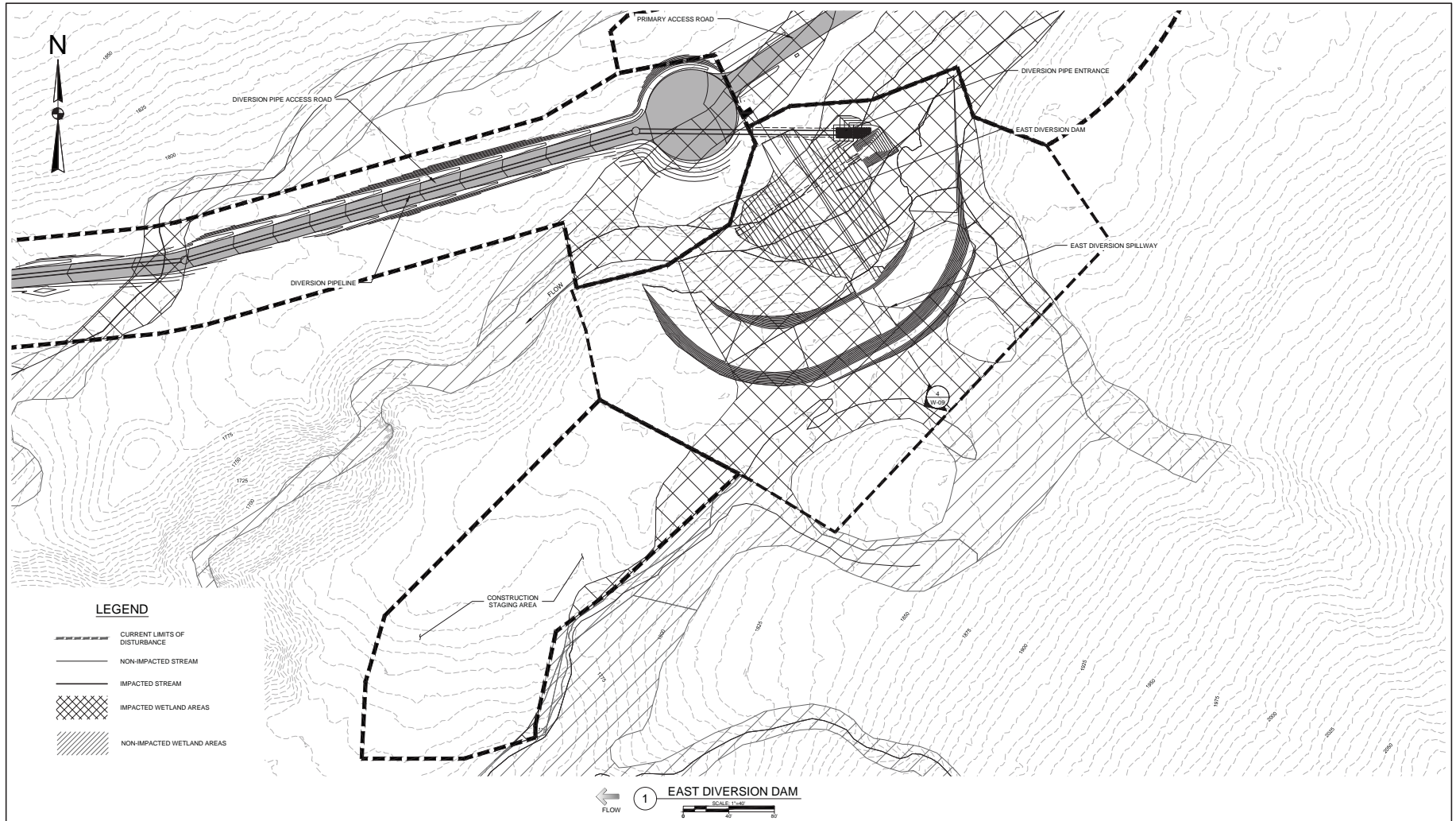


PRIMARY ACCESS ROAD STA 120+00 TO 180+00

Project Drawing No. W-03  
KEA Drawing Number

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WETLAND & STREAM  
IMPACT  
DRAWINGS

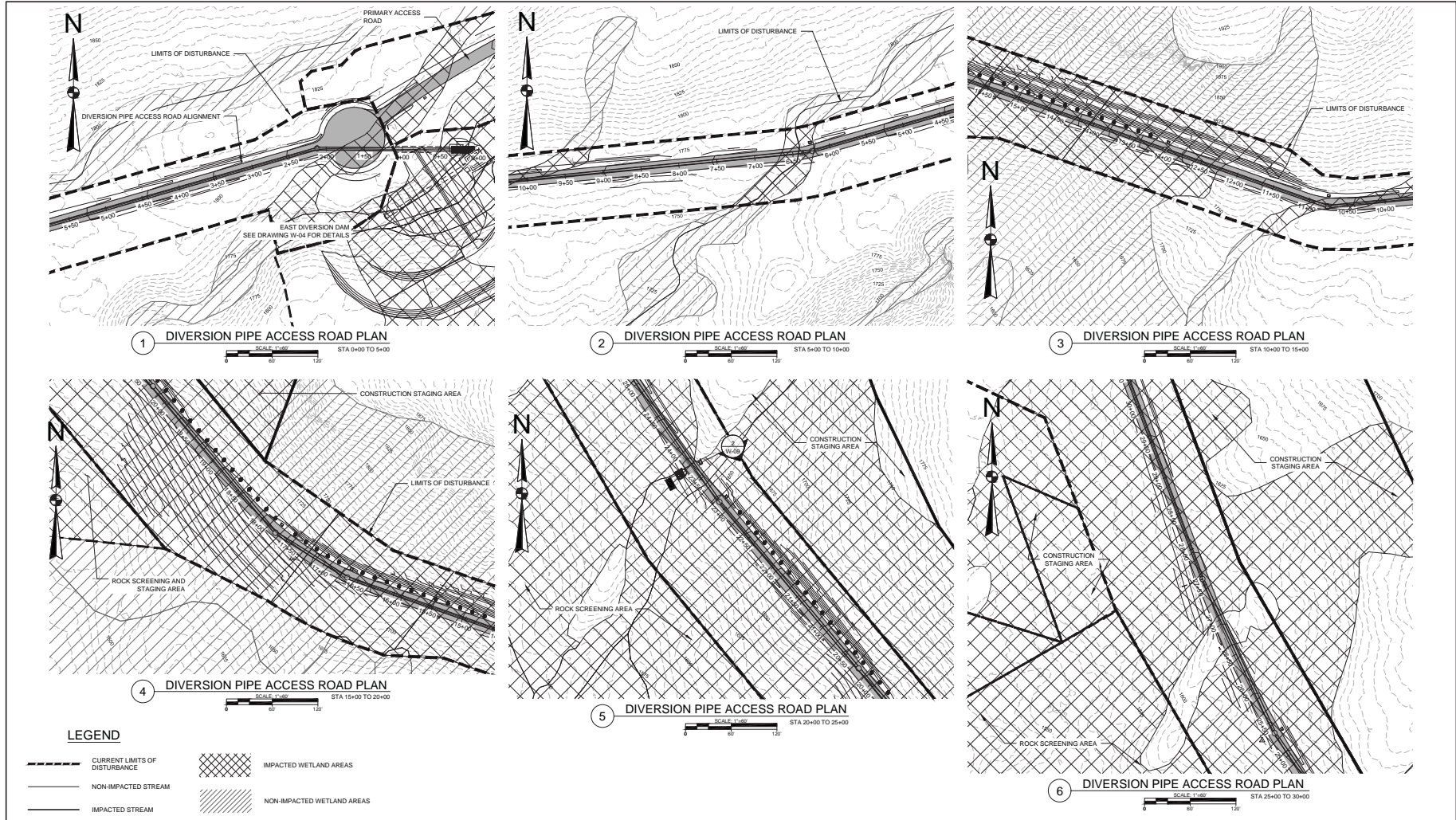


**Lachel & Associates**  
A SCHNABEL ENGINEERING COMPANY  
WWW.LACHEL.COM

EAST DIVERSION DAM

FERC PROJECT NO. P-2743  
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KODIAK ISLAND, ALASKA  
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Project Drawing No.	W-04
KEA Drawing Number	



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WETLAND & STREAM IMPACT DRAWINGS



DIVERSION ACCESS ROAD  
STA 0+00 TO 30+00

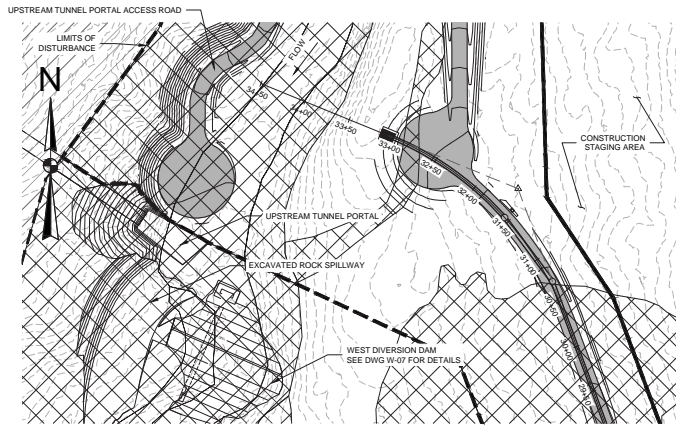
Project Drawing No. W-05  
KEA Drawing Number

FERC PROJECT NO. P-2743  
UPPER HIDDEN BASIN DIVERSION PROJECT  
KODIAK ISLAND, ALASKA

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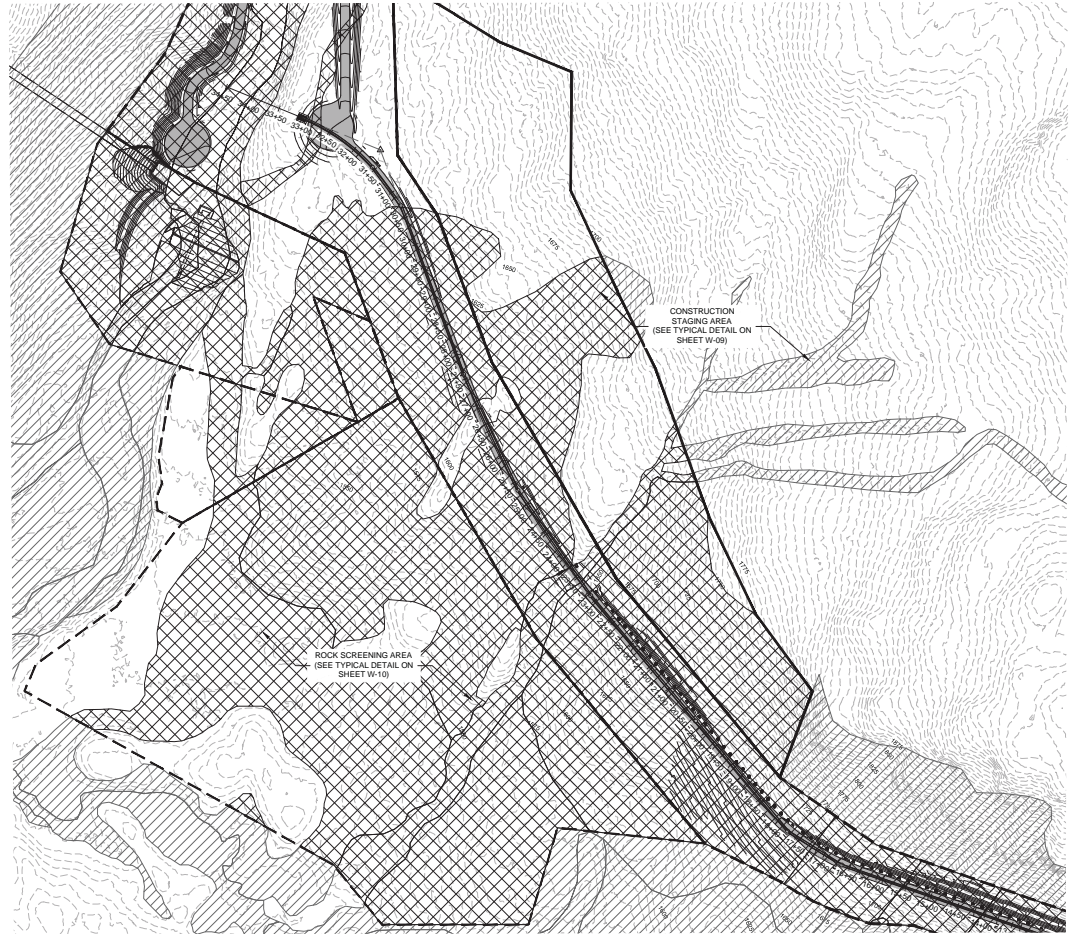




1 DIVERSION PIPE ACCESS ROAD PLAN  
SCALE: 1"=40'  
STA 30+00 TO 34+00

**LEGEND**

- CURRENT LIMITS OF DISTURBANCE
- NON-IMPACTED STREAM
- IMPACTED STREAM
- IMPACTED WETLAND AREAS
- NON-IMPACTED WETLAND AREAS



2 DIVERSION ACCESS ROAD CONSTRUCTION & ROCK SCREENING AREAS  
SCALE: 1"=40'

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WETLAND & STREAM IMPACT DRAWINGS



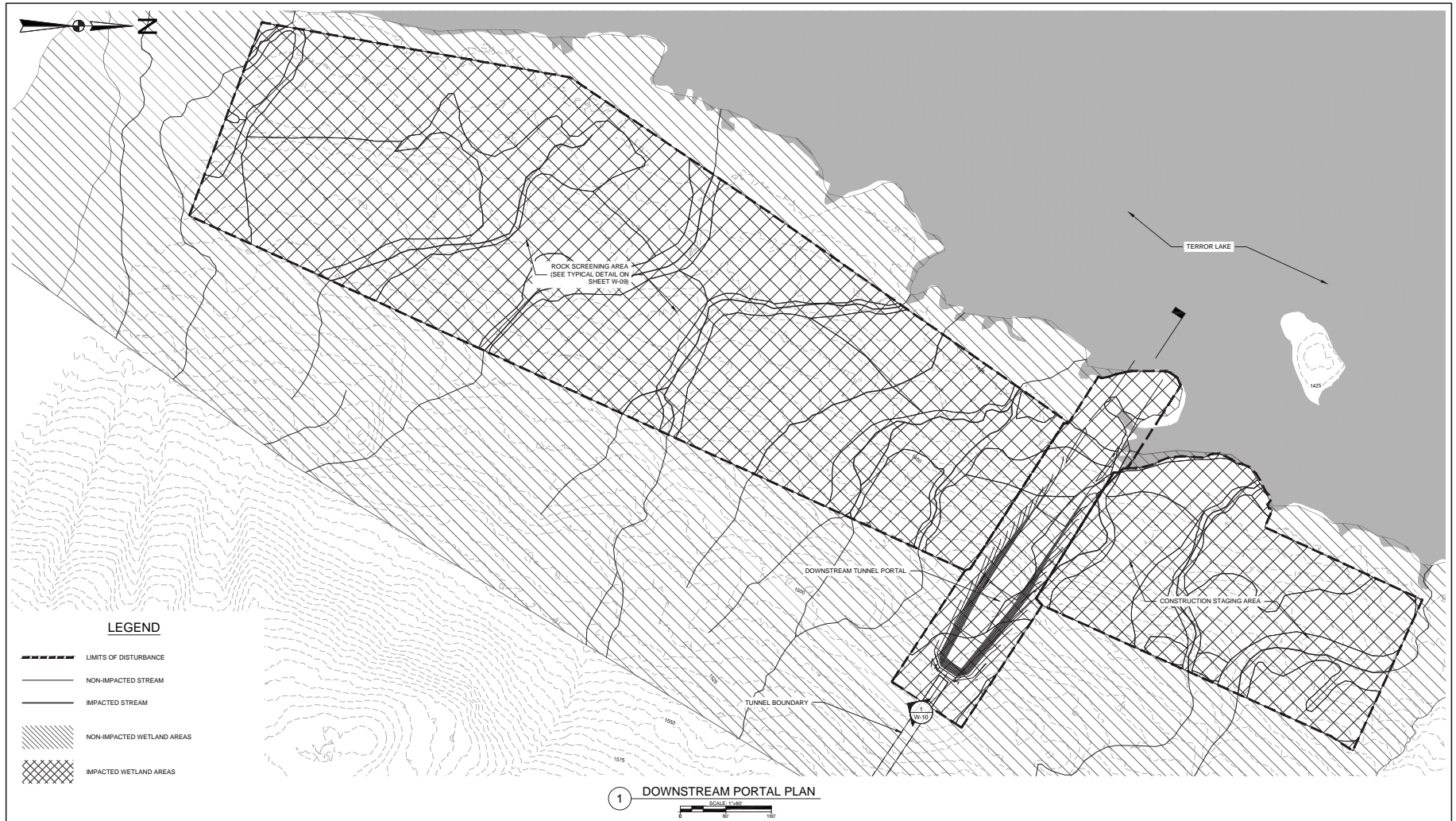
DIVERSION ACCESS ROAD  
STA 30+00 TO 34+00

Project Drawing No. W-06  
KEA Drawing Number

FERC PROJECT NO. P-2743  
UPPER HIDDEN BASIN DIVERSION PROJECT  
KODIAK ISLAND, ALASKA  
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WETLAND & STREAM IMPACT DRAWINGS

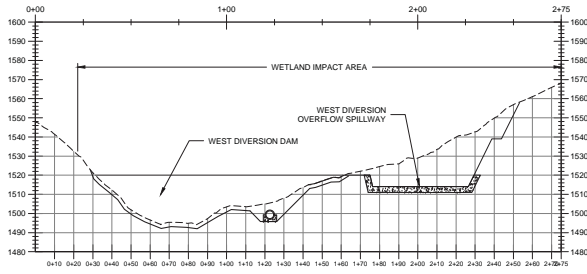


DOWNSTREAM PORTAL

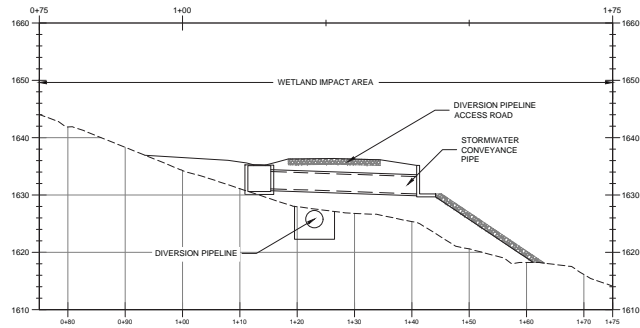
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KEA Drawing Number

FERC PROJECT NO. P-2743  
UPPER HIDDEN BASIN DIVERSION PROJECT  
KODIAK ISLAND, ALASKA  
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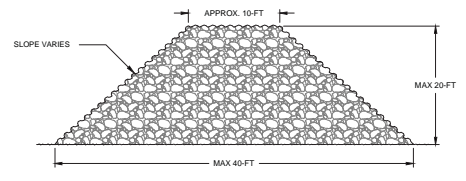




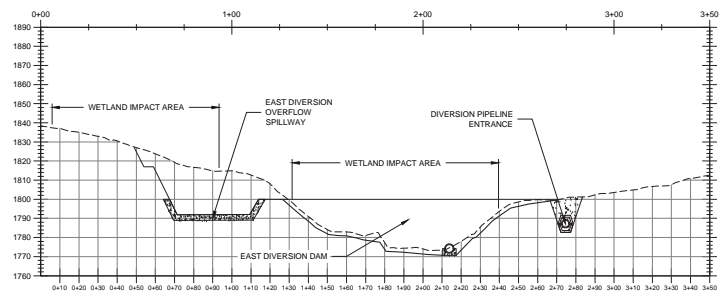
1 WEST DIVERSION DAM & SPILLWAY PROFILE VIEW  
SCALE: 1"=30'



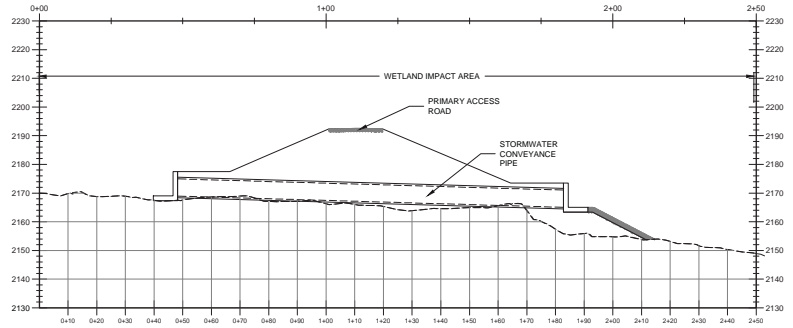
2 DIVERSION PIPELINE ACCESS ROAD PROFILE VIEW  
SCALE: 1"=20'



3 TYPICAL ROCKPILE PROFILE VIEW  
NOT TO SCALE



4 EAST DIVERSION DAM & SPILLWAY PROFILE VIEW  
SCALE: 1"=30'



5 PRIMARY ACCESS ROAD PROFILE VIEW  
SCALE: 1"=40'

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WETLAND & STREAM IMPACT DRAWINGS



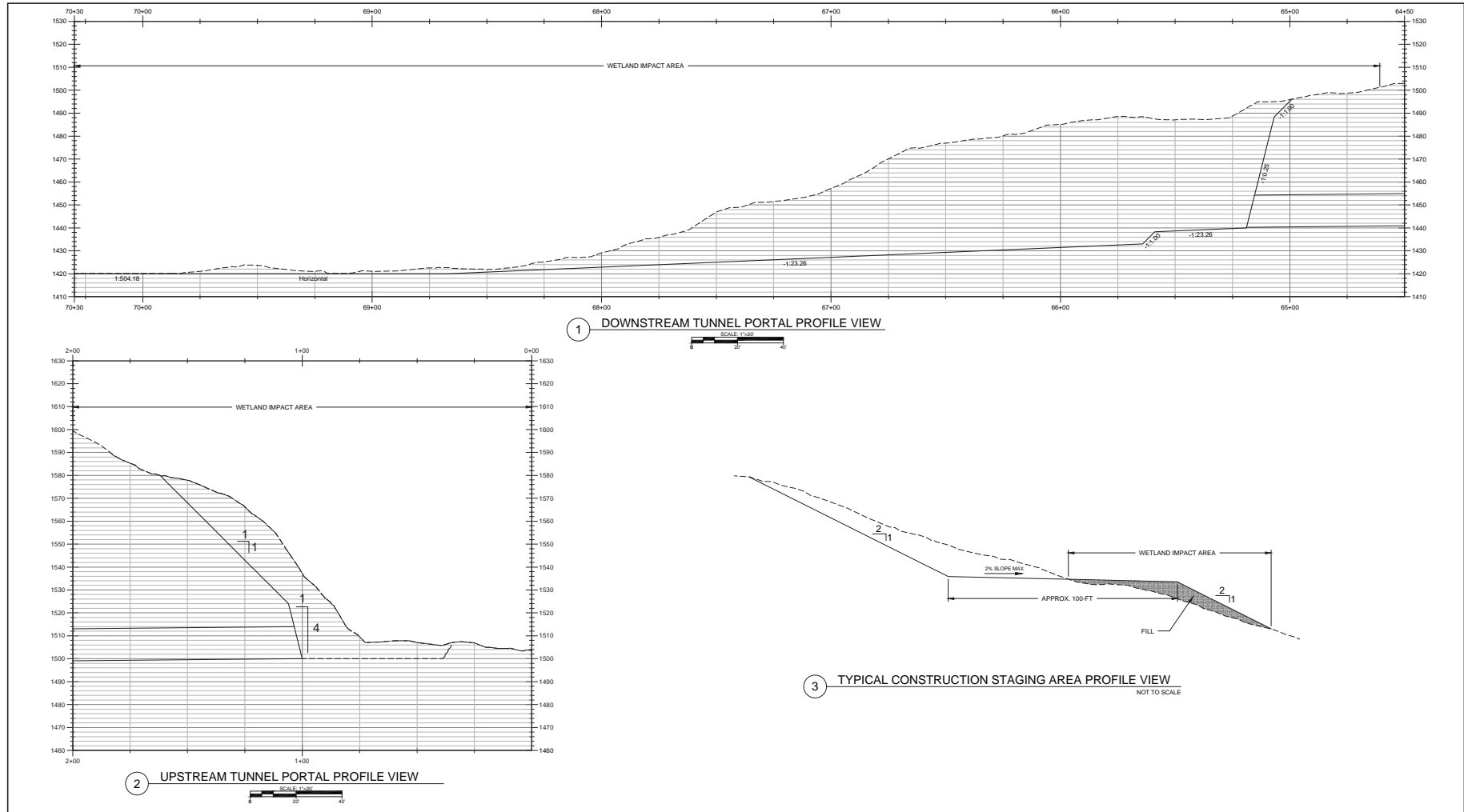
CONSTRUCTION FEATURES PROFILE VIEWS - 1 OF 2

Project Drawing No. W-09  
KEA Drawing Number

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KODIAK ISLAND, ALASKA

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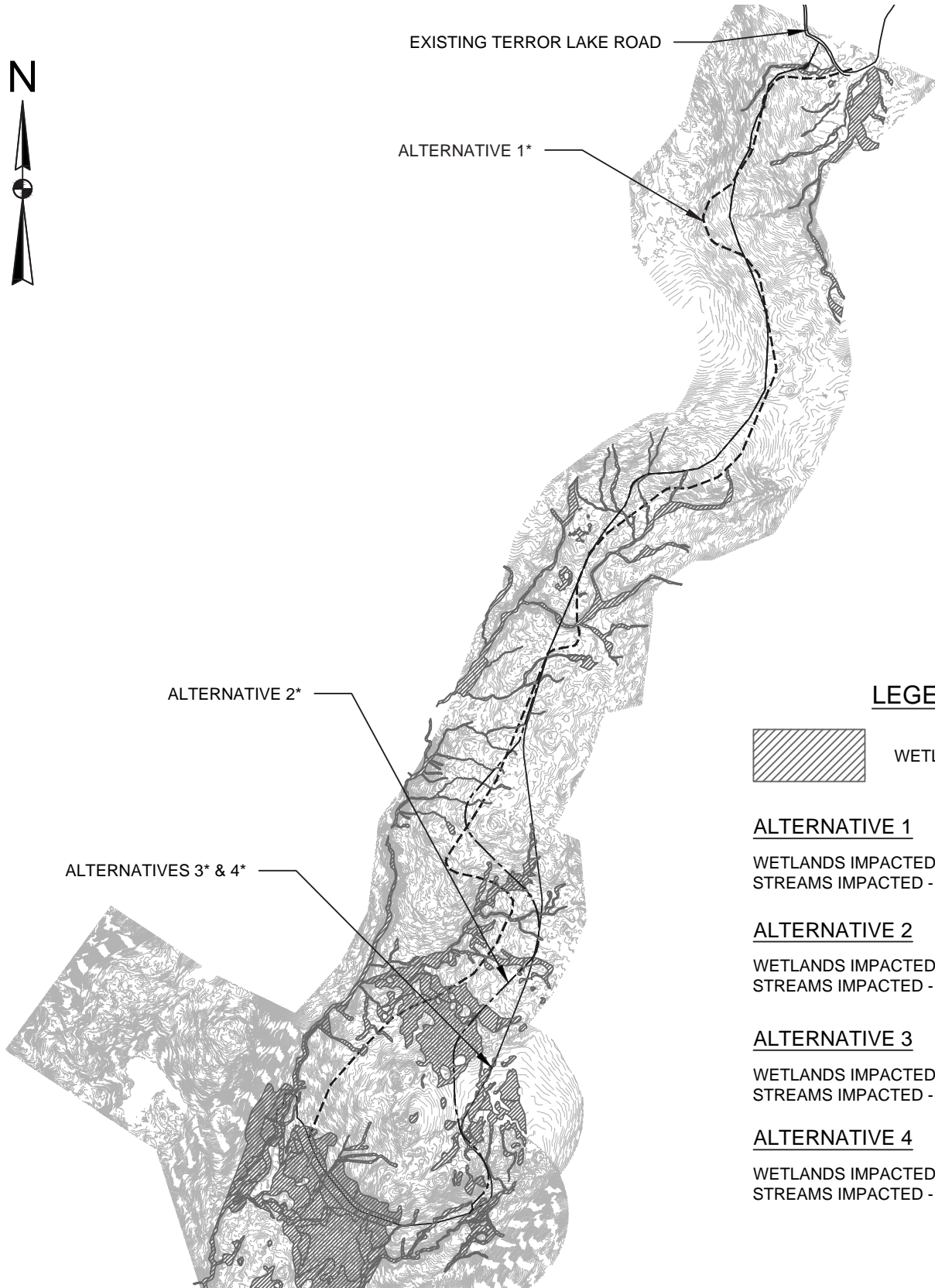
WETLAND & STREAM IMPACT DRAWINGS



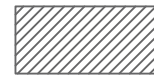
CONSTRUCTION FEATURES PROFILE VIEWS - 2 OF 2	
Project Drawing No.	W-10
KEA Drawing Number	

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 KODIAK ISLAND, ALASKA  
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**LEGEND**



WETLAND AREAS

**ALTERNATIVE 1**

WETLANDS IMPACTED - 22.50 ACRES  
STREAMS IMPACTED - 2,427 LF

**ALTERNATIVE 2**

WETLANDS IMPACTED - 21.30 ACRES  
STREAMS IMPACTED - 1,494 LF

**ALTERNATIVE 3**

WETLANDS IMPACTED - 16.64 ACRES  
STREAMS IMPACTED - 752 LF

**ALTERNATIVE 4**

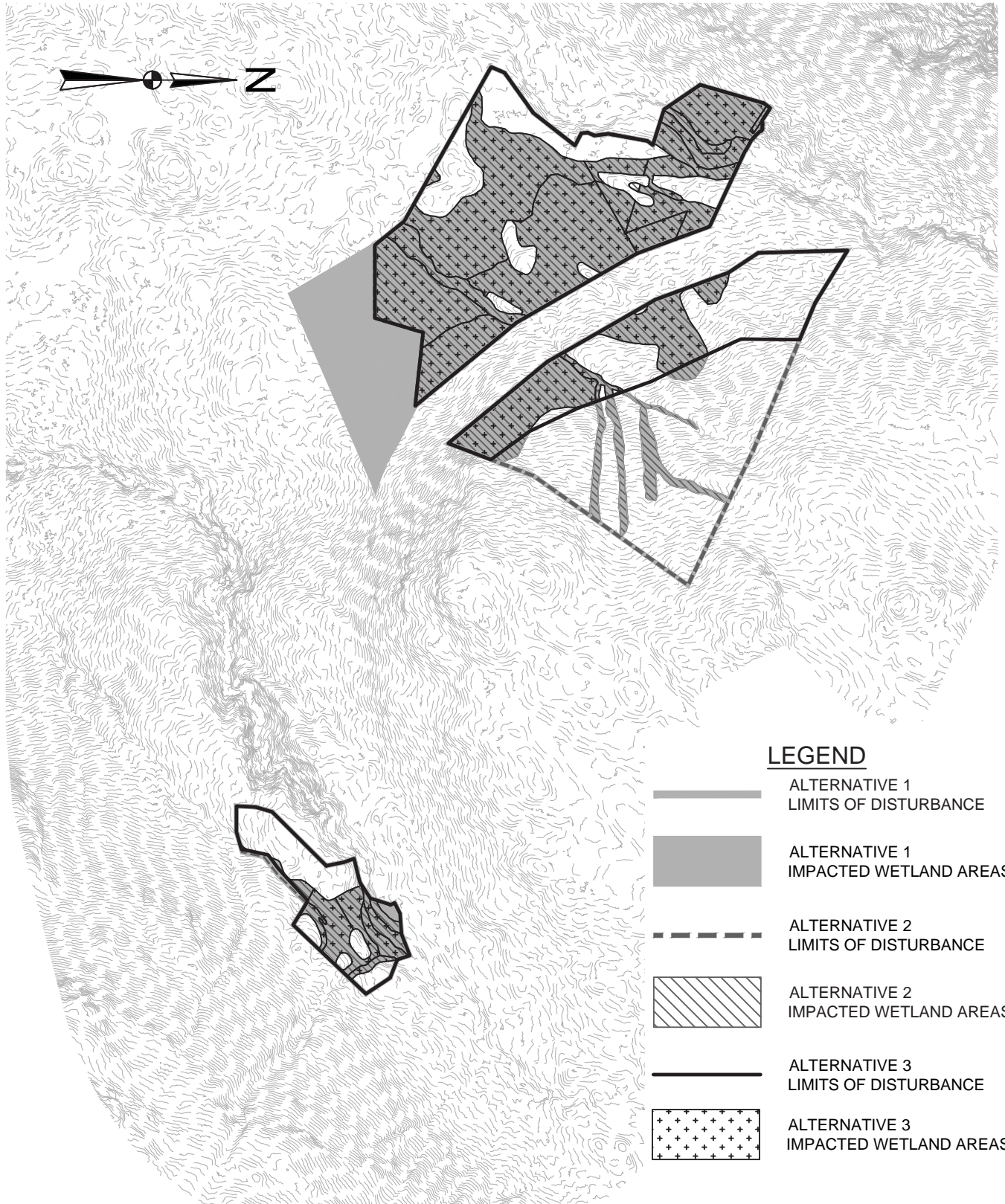
WETLANDS IMPACTED - 14.83 ACRES  
STREAMS IMPACTED - 703 LF

\*SEE CORRESPONDING FIGURE FOR MORE DETAIL









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Schnabel PN: 14366009.03

UPPER HIDDEN BASIN DIVERSION  
ROAD ALIGNMENT ALTERNATIVES



**LEGEND**

-  ALTERNATIVE 1  
LIMITS OF DISTURBANCE
-  ALTERNATIVE 1  
IMPACTED WETLAND AREAS
-  ALTERNATIVE 2  
LIMITS OF DISTURBANCE
-  ALTERNATIVE 2  
IMPACTED WETLAND AREAS
-  ALTERNATIVE 3  
LIMITS OF DISTURBANCE
-  ALTERNATIVE 3  
IMPACTED WETLAND AREAS

**ALTERNATIVE 1**  
 IMPACTED WETLANDS = 24.70 ACRES  
 IMPACTED STREAMS = 90 LF

**ALTERNATIVE 2**  
 IMPACTED WETLANDS = 20.40 ACRES  
 IMPACTED STREAMS = 90 LF

**ALTERNATIVE 3**  
 IMPACTED WETLANDS = 19.6 ACRES  
 IMPACTED STREAMS = 0 LF



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UPPER HIDDEN BASIN DIVERSION  
 DAM AND ASSOCIATED STAGING AREA  
 ALTERNATIVES