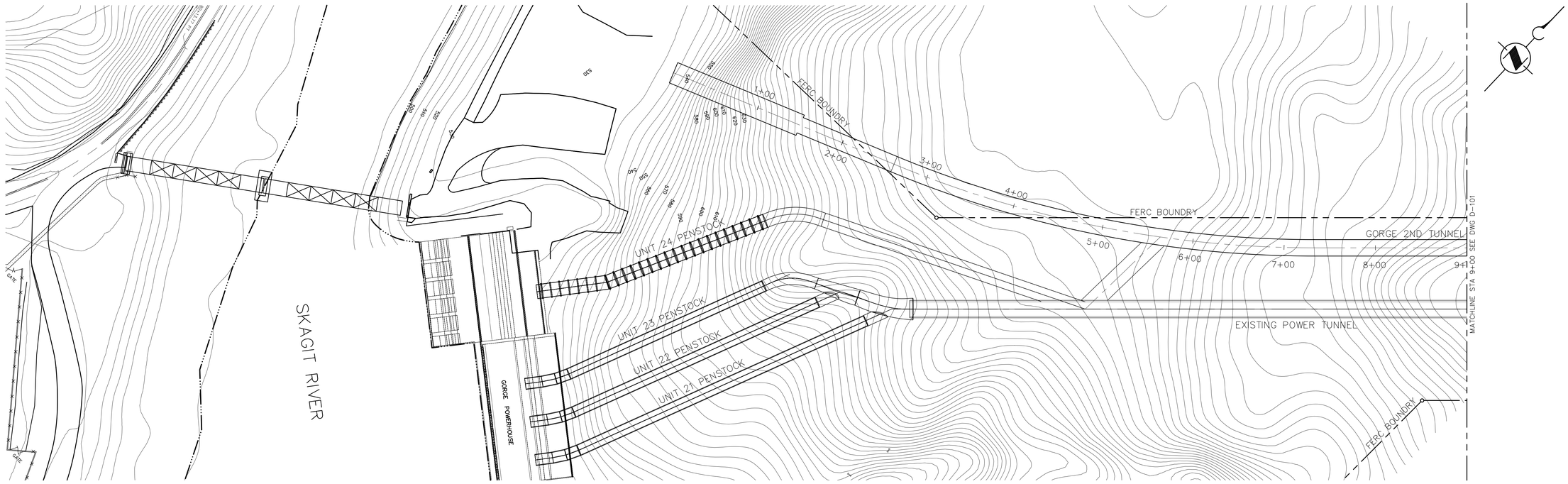
Gorge 2nd Tunnel

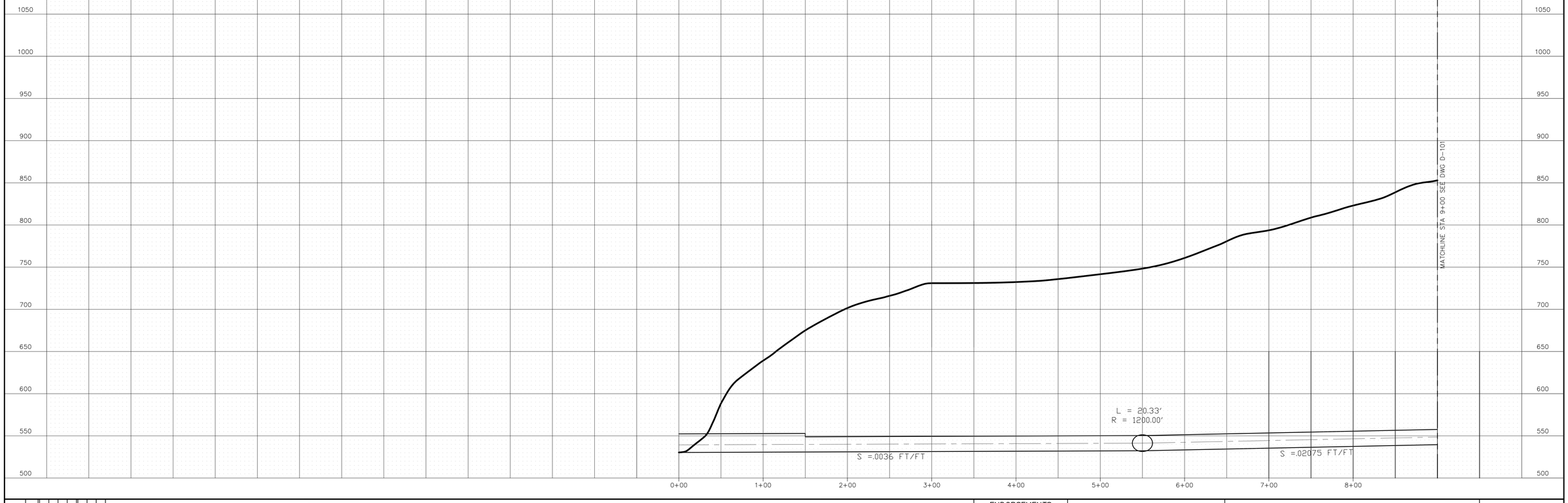
Appendix G: Preliminary Engineering Drawing Package

Prepared by:

JACOBS ASSOCIATES
Engineers/Consultants

Jacobs Associates
1109 First Avenue, Suite 501
Seattle, WA 98101





I:\4087.1 Gorge 2nd Tunnel (2008 and 2009 Services)\CAD\PP-NEW WAG.dwg
GenPS D: 28x40 lily Nov/10/2009 10:09am

ONE INCH AT FULL SIZE

REVISIONS				
REV	DATE	MF		
DR	CK	APP		
W.O.#				
DESCRIPTION				
0				
W.O.#				

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

Seattle City Light

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GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET	OF
CLASS	
DRAWING NO.	D-100
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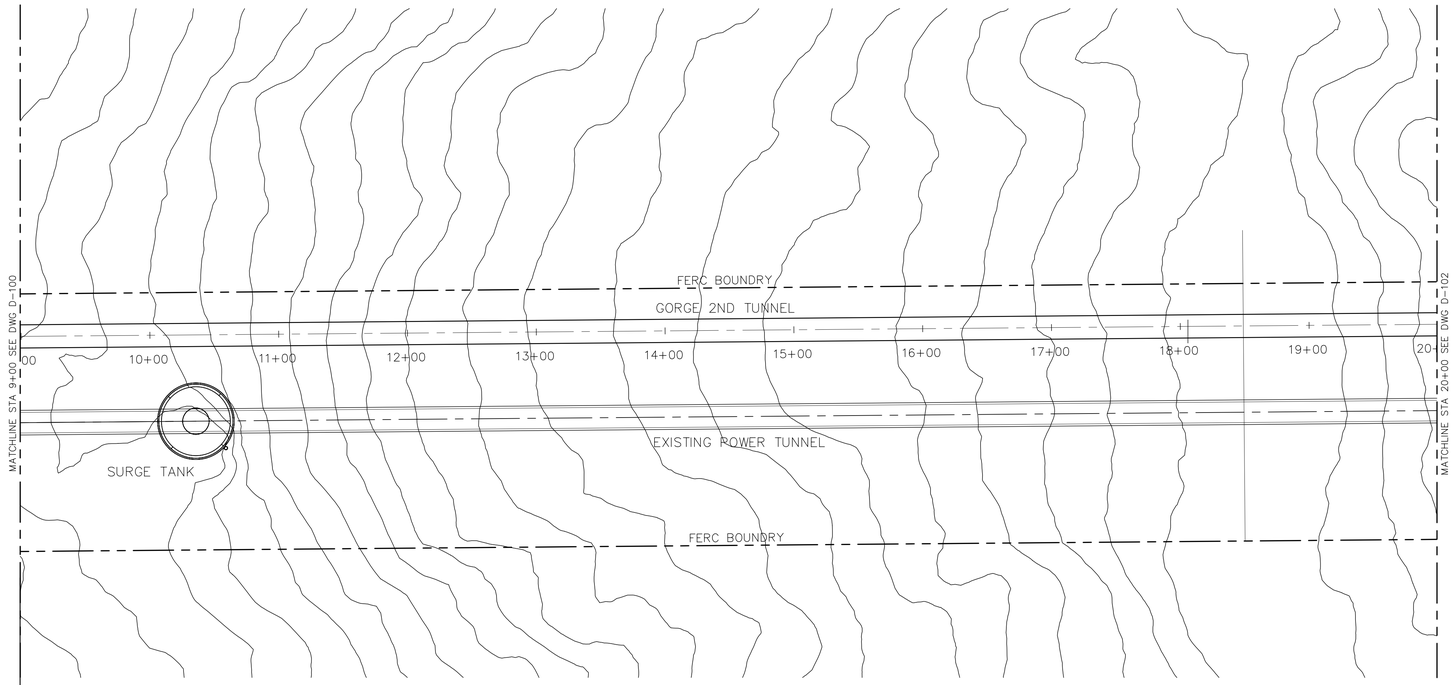
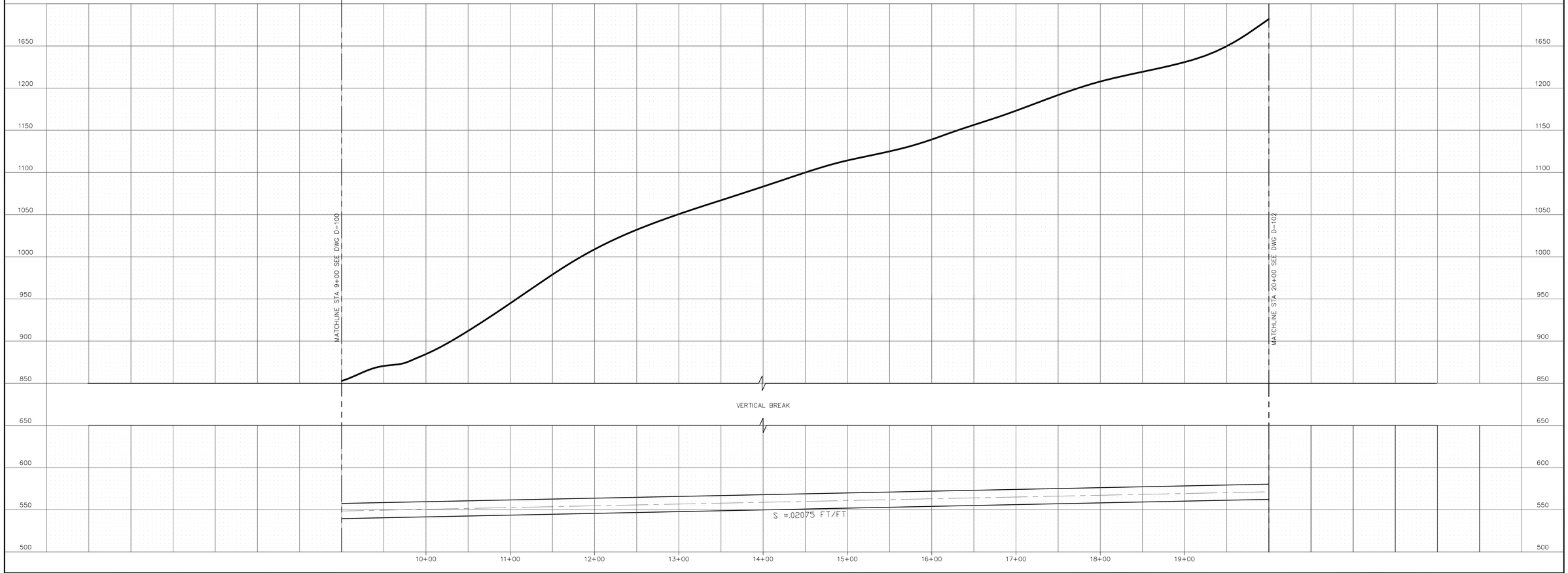
REV. NO.	0





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ONE INCH AT FULL SIZE

REVISIONS					
REV	DATE	MF			
DR	CK	APP			
W.O.#					
DESCRIPTION					
0					
W.O.#					

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

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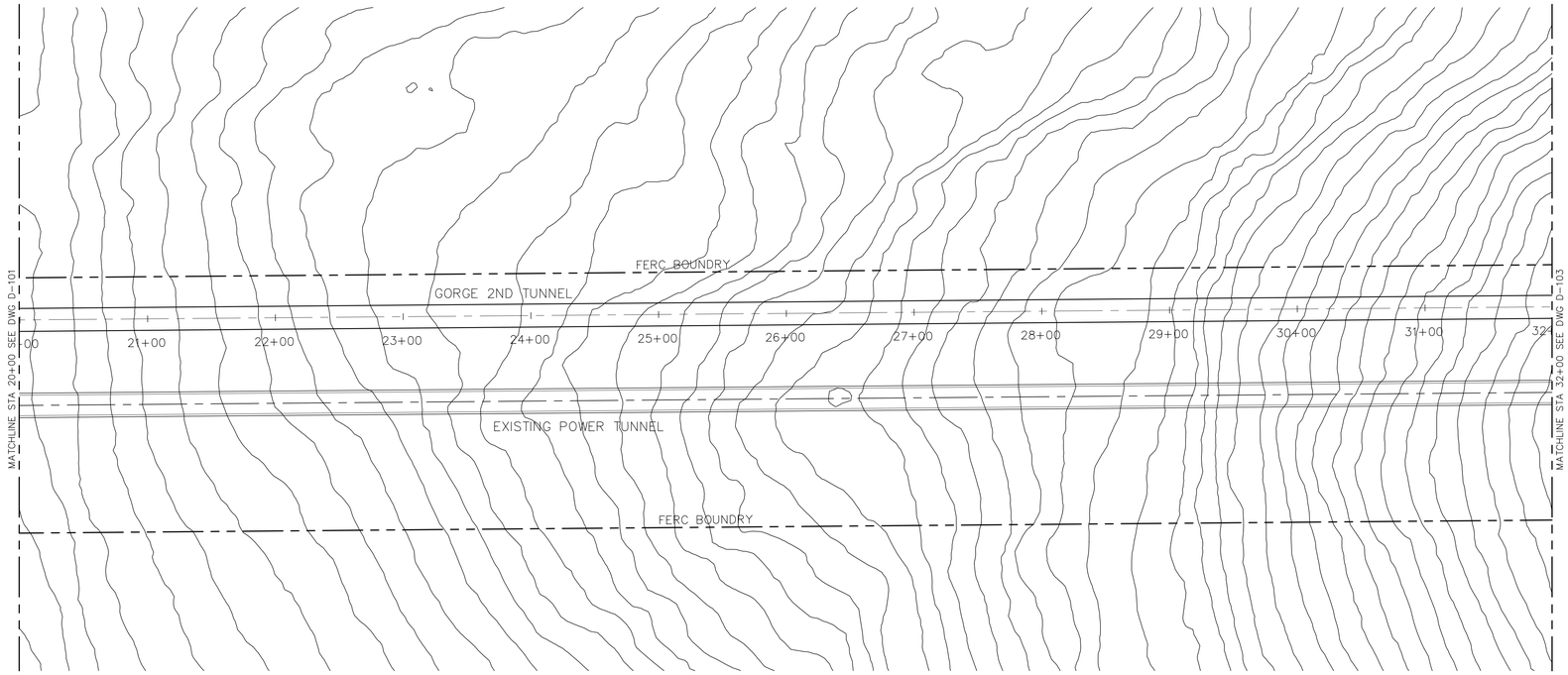

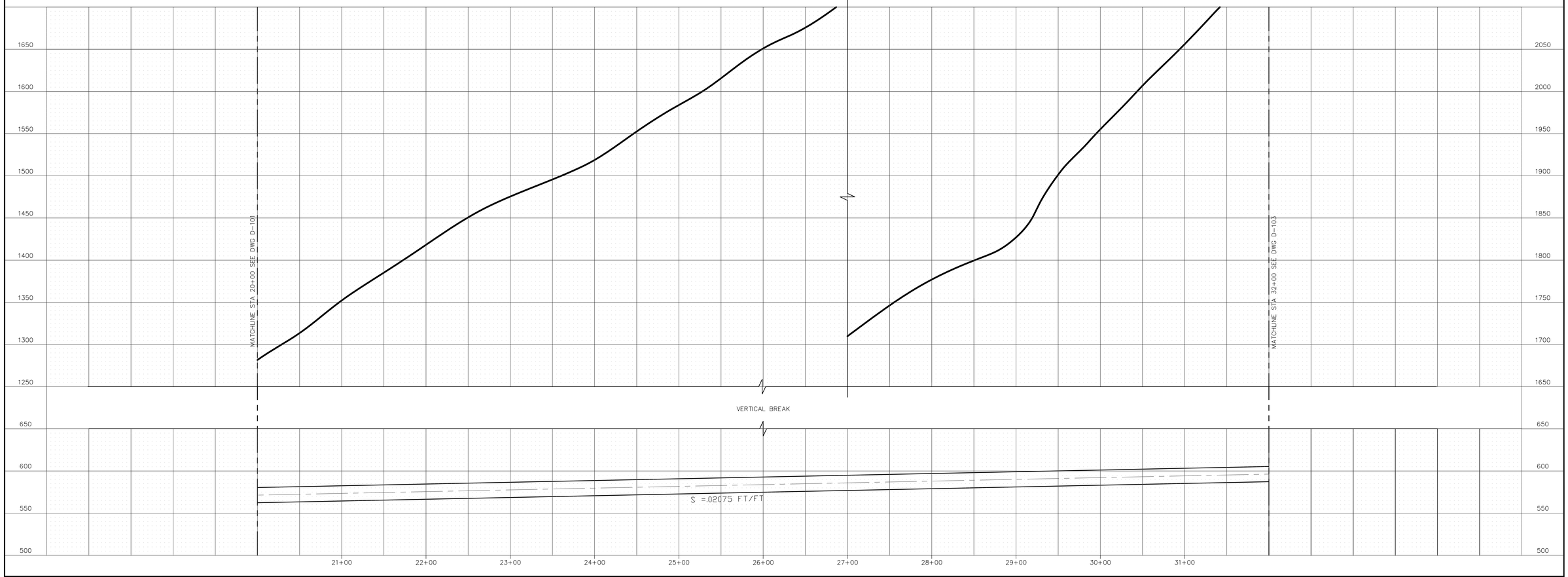

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ONE INCH AT FULL SIZE

REVISIONS				
REV	DATE		WF	
DR	CK		APP	
W.O.#		DESCRIPTION		
0				W.O.#

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET OF
CLASS
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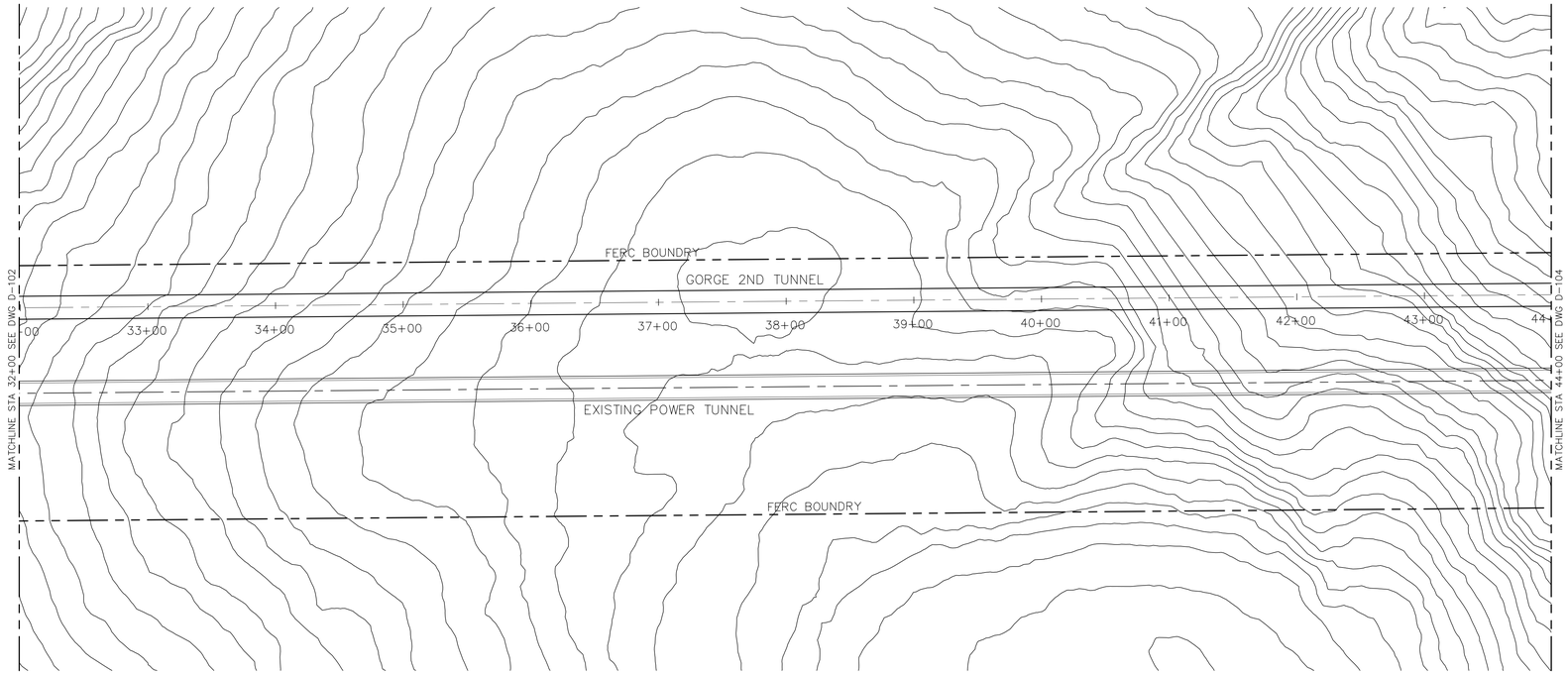

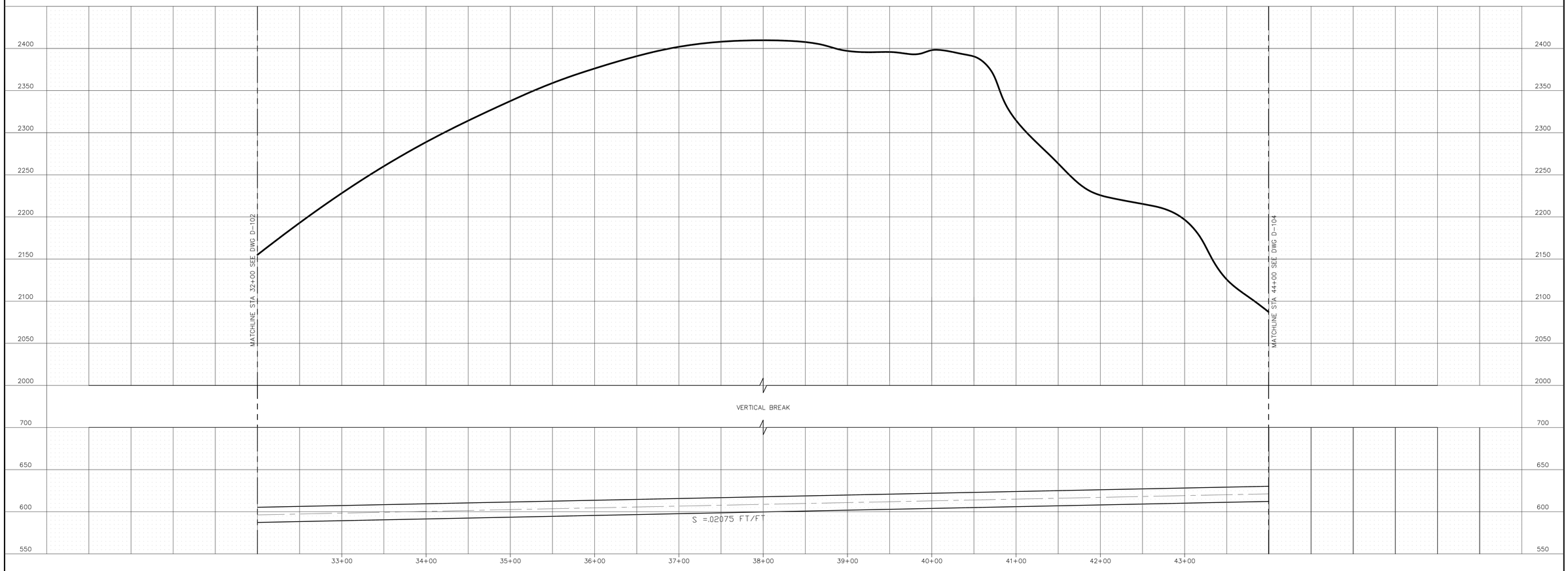

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ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	WF	
DR	CK	APP	
W.O.#			
DESCRIPTION			
0			W.O.#

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Engineers/Consultants

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SIGNATURE	DATE
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CK :	
DSGN:	
CK :	

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GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

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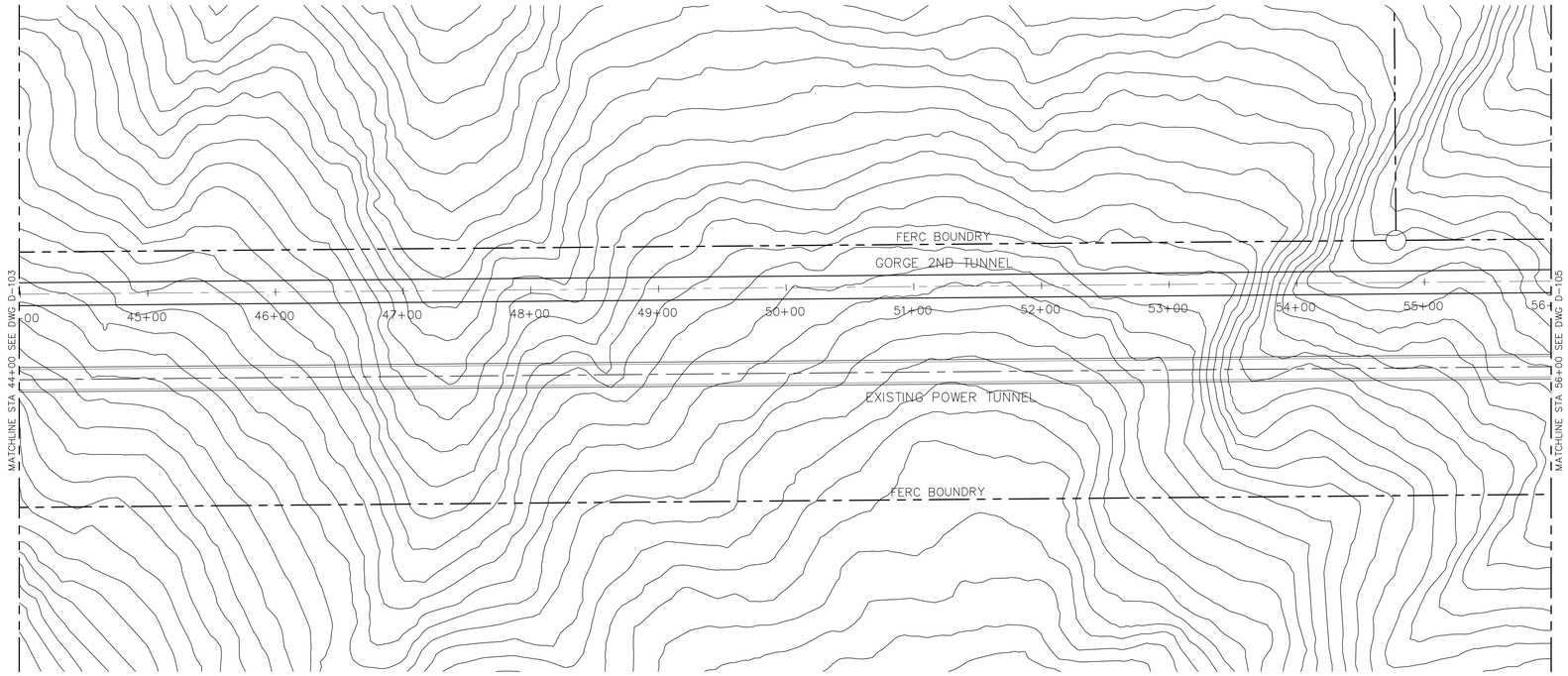

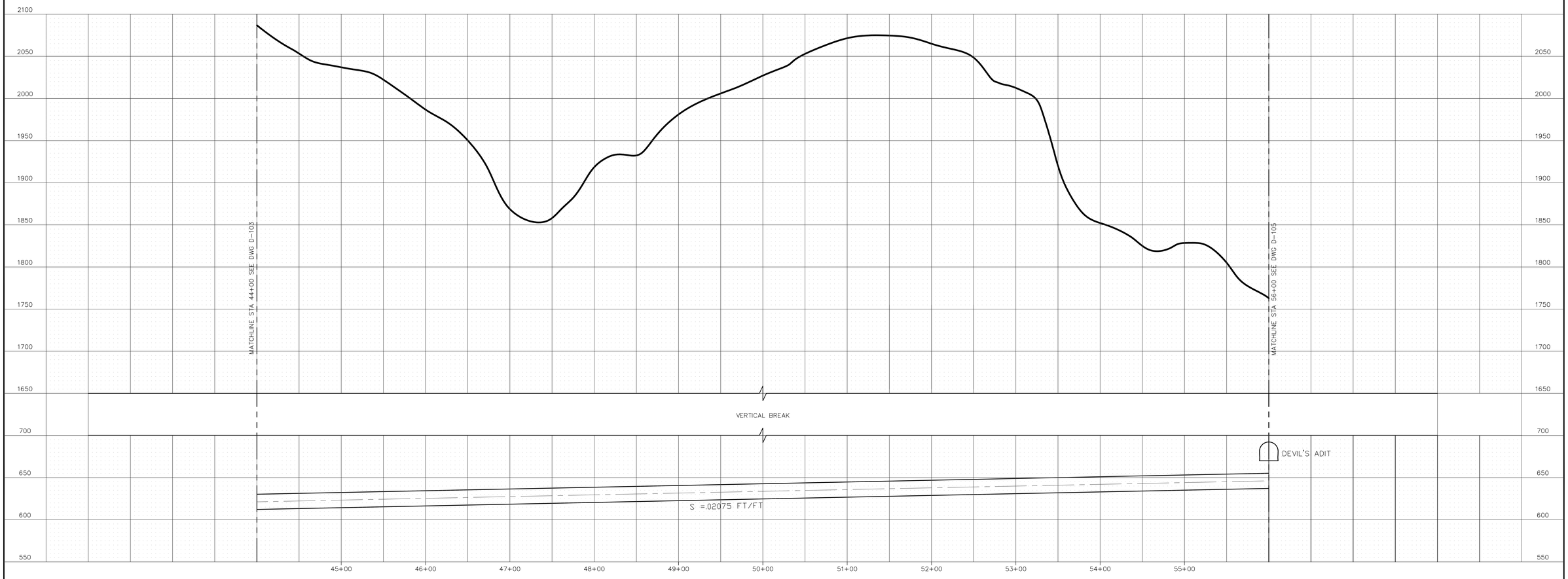

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ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	WF	
DR	CK	APP	
W.O.#	DESCRIPTION		
0			W.O.#

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Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET	OF
CLASS	
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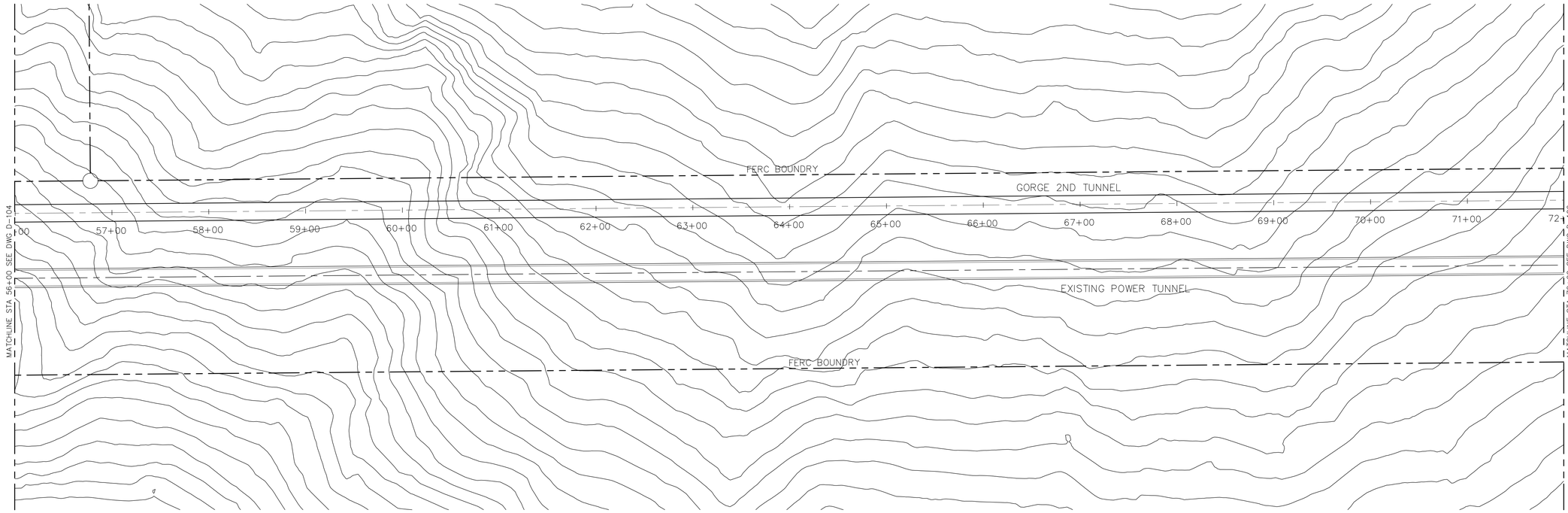

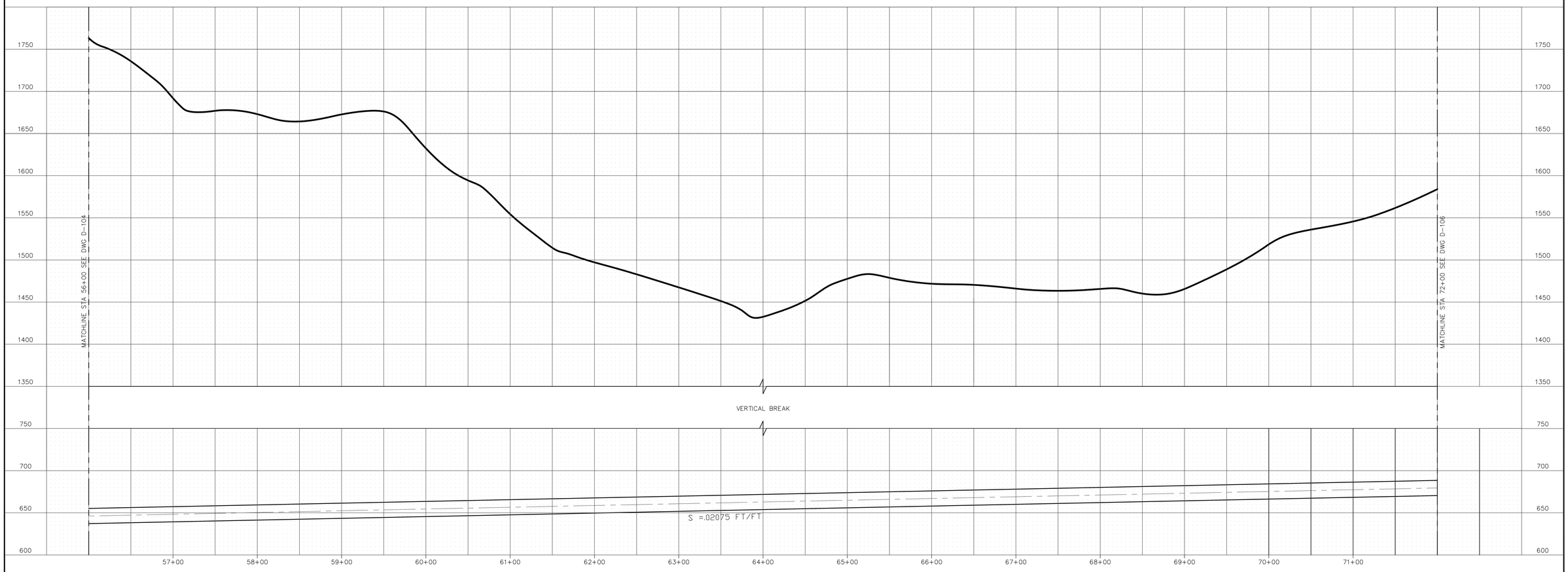

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ONE INCH AT FULL SIZE

REVISIONS				
REV	DATE	WF		
DR	CK	APP		
W.O.#				
DESCRIPTION				
0				
W.O.#				

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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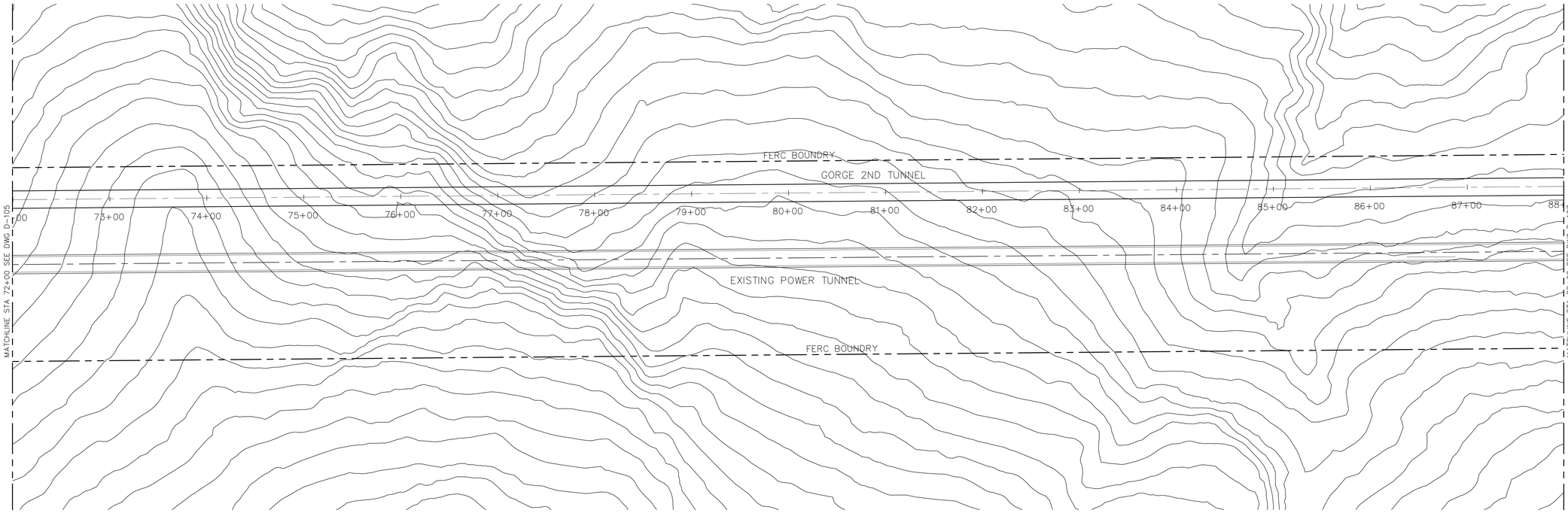
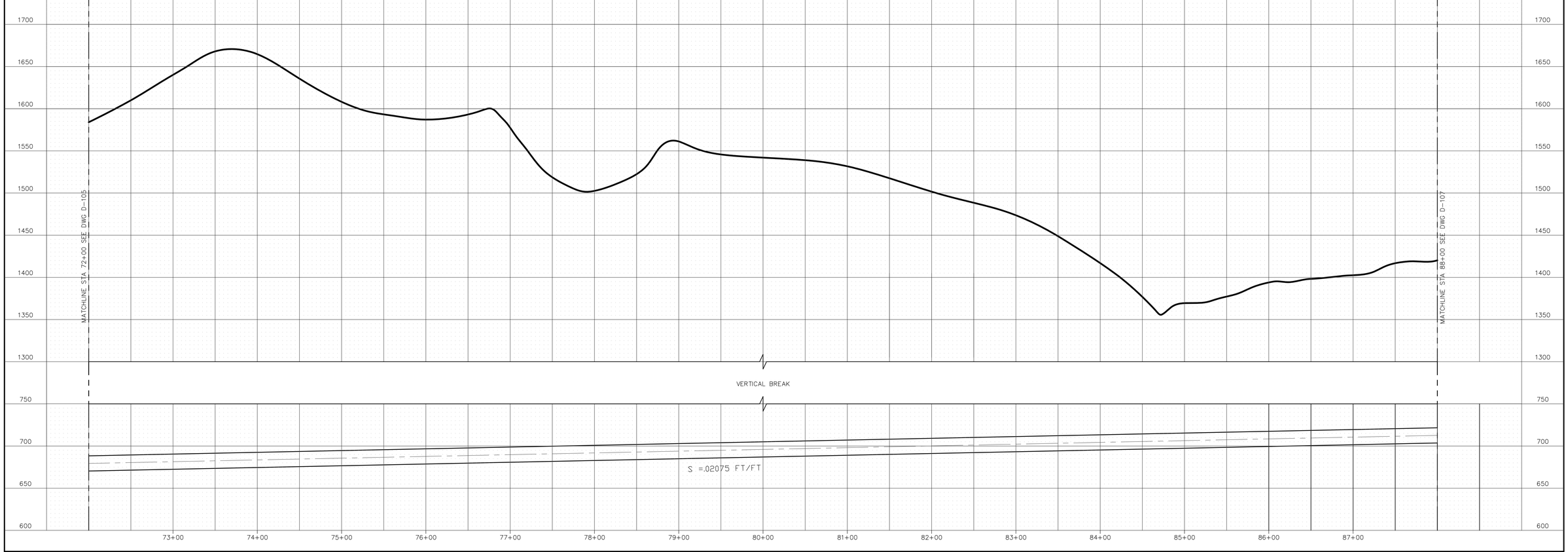
GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET	OF
CLASS	
DRAWING NO.	D-105
SCALE	1"=50'-0"
REV. NO.	0





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GenPS D: 28x40 lilly Nov/10/2009 10:16am

ONE INCH AT FULL SIZE

REVISIONS					
REV	DATE	MF			
DR	CK	APP			
W.O.#					
DESCRIPTION					
0					
W.O.#					

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

Seattle City Light

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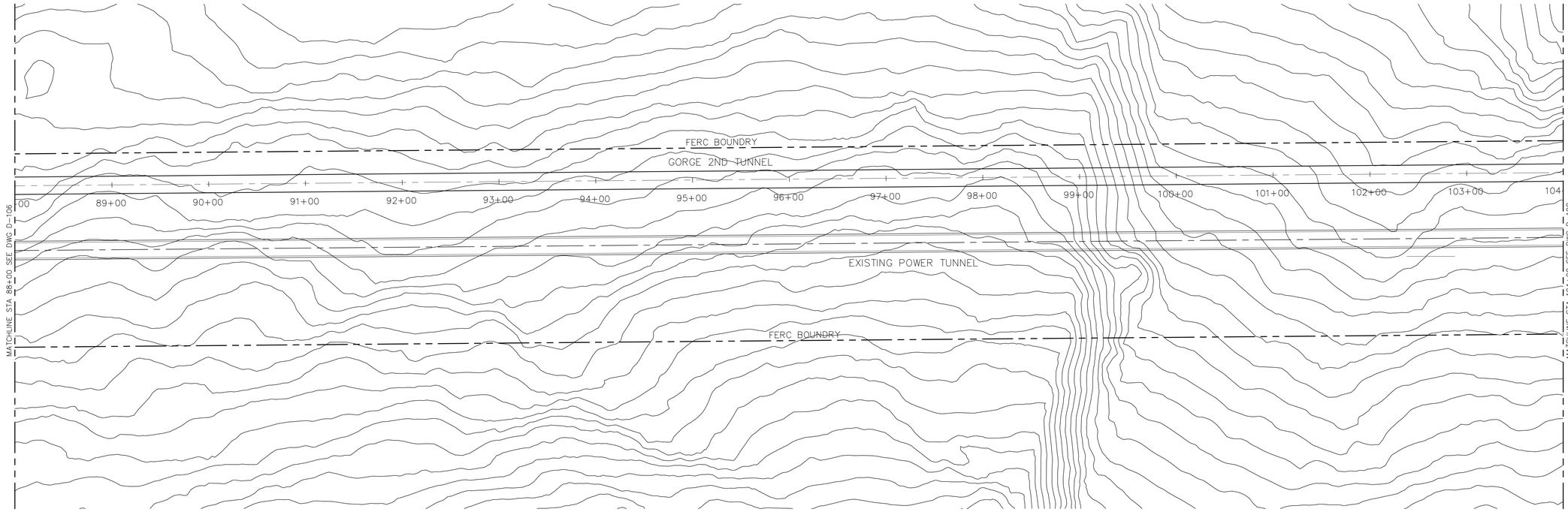
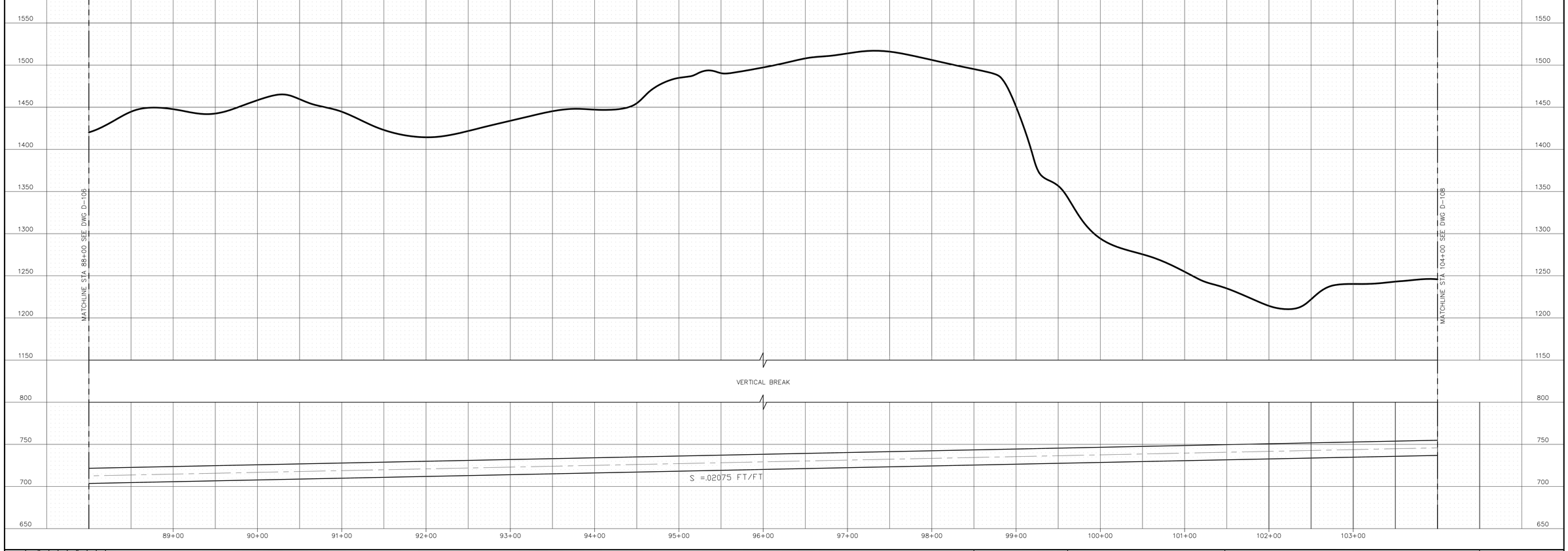
DATE

GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET OF
CLASS
DRAWING NO. D-106
SCALE 1"=50'-0"
REV. NO. 0





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ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	CK	APP
DR			
W.O.#			
DESCRIPTION			
0			
W.O.#			

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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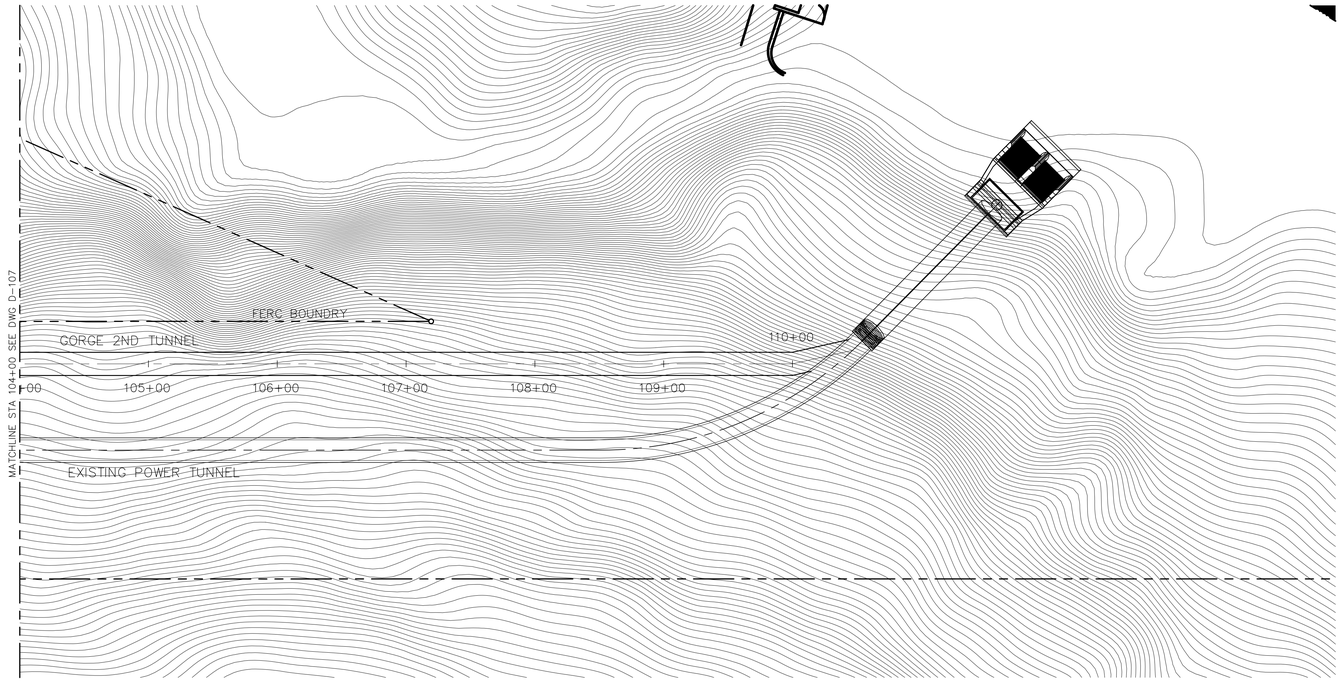
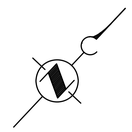
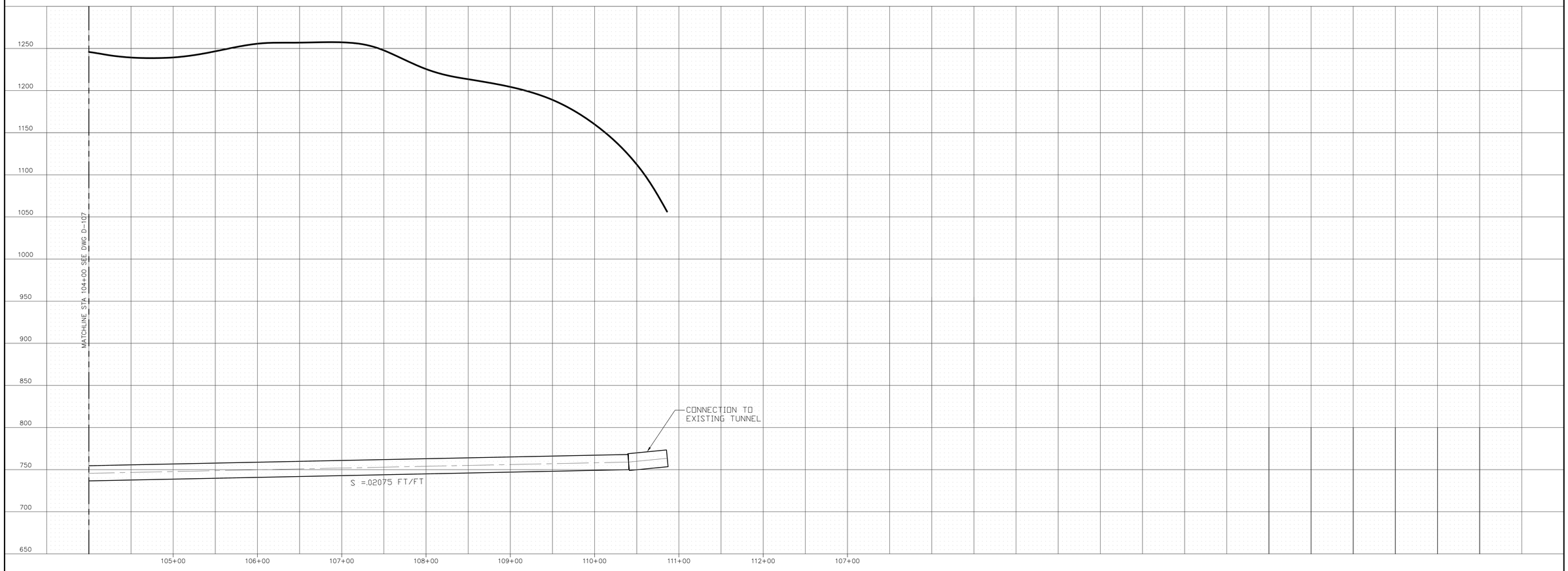
DATE

GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET OF
CLASS
DRAWING NO. D-107
SCALE 1"=50'-0"
REV. NO. 0







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ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE		WF
DR	CK		APP
W.O.#			
DESCRIPTION			
0			
W.O.#			

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

Seattle City Light

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DATE

GORGE 2ND TUNNEL PRELIMINARY DESIGN PLAN AND PROFILE

SHEET	OF
CLASS	
DRAWING NO.	D-108
SCALE	1"=50'-0"
REV. NO.	0

TREATED SITE RUNOFF DISCHARGE TO ENVIRONMENT

GROUT

WATER SUPPLY

SHOP (50X50)

SURFACE WATER TREATMENT POND

VENTILATION

PROPOSED PORTAL LOCATION

RAIL

LAYDOWN AREA

TUNNEL DISCHARGE PUMP COLLECTION

SKAGIT

TRUCK ACCESS BENEATH CONVEYOR

POWER

FUEL

TUNNEL CONVEYOR

CONVEYOR 1

OFFICE/ CHANGE

RIVER

END OF EXISTING MEDIAN REMOVED FOR TBM TRUCK ACCESSS

STATE HIGHWAY NO. 20

EXISTING BRIDGE

TRANSFORMER DECK

CONVEYOR 2

GORGE POWERHOUSE

LADDER CREEK

GORGE POWERHOUSE BRIDGE

CONVEYOR 3

TO SECONDARY TREATMENT & DISPOSAL

ECOLOGY BLOCK WALL

MUCK STORAGE AREA

I:\4087.1 Gorge 2nd Tunnel (2008 and 2009 Services)\Task 200 Tunnel Diameter Optimization and Layout\Portal Site Layout\11 JA Site Layout – conveyor–F – Layout1.dwg
GenPS D: 28x40 lilly Nov/10/2009 11:29am

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE		MF
DR	CK		APP
W.O.#	DESCRIPTION		

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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DATE

GORGE 2ND TUNNEL
PRELIMINARY DESIGN SITE LAYOUT
CONTINUOUS CONVEYOR OPTION

SHEET	OF
CLASS	
DRAWING NO.	D–109
SCALE	REV. NO.

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GenPS D: 28x40 lilly Nov/10/2009 11:26am

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE		MF
DR	CK		APP
W.O.#			
DESCRIPTION			

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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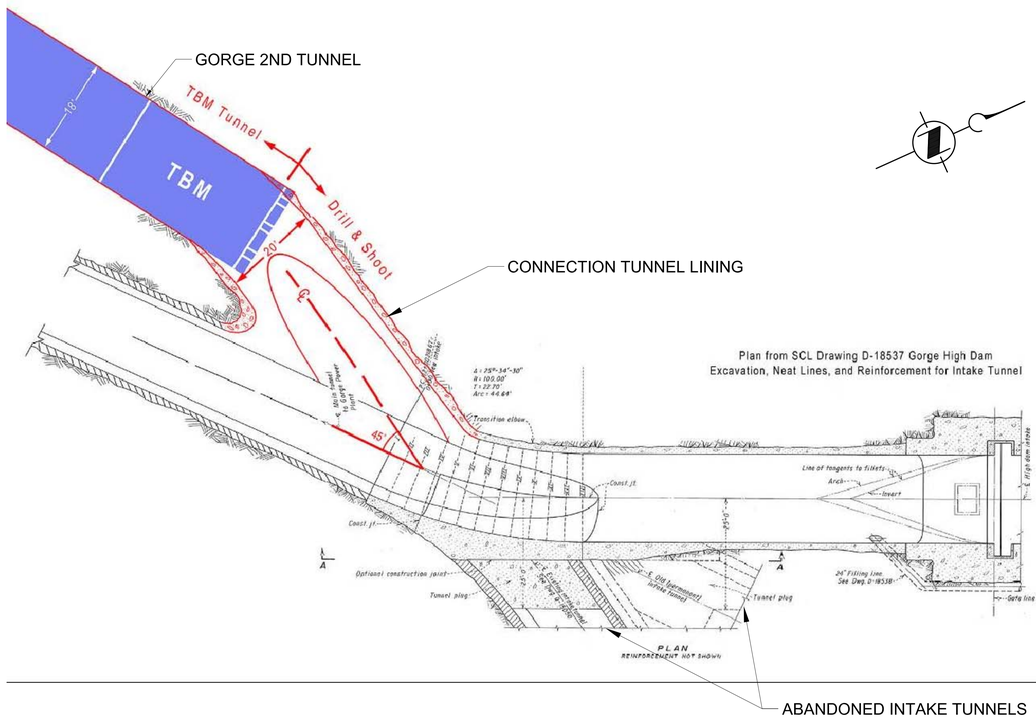
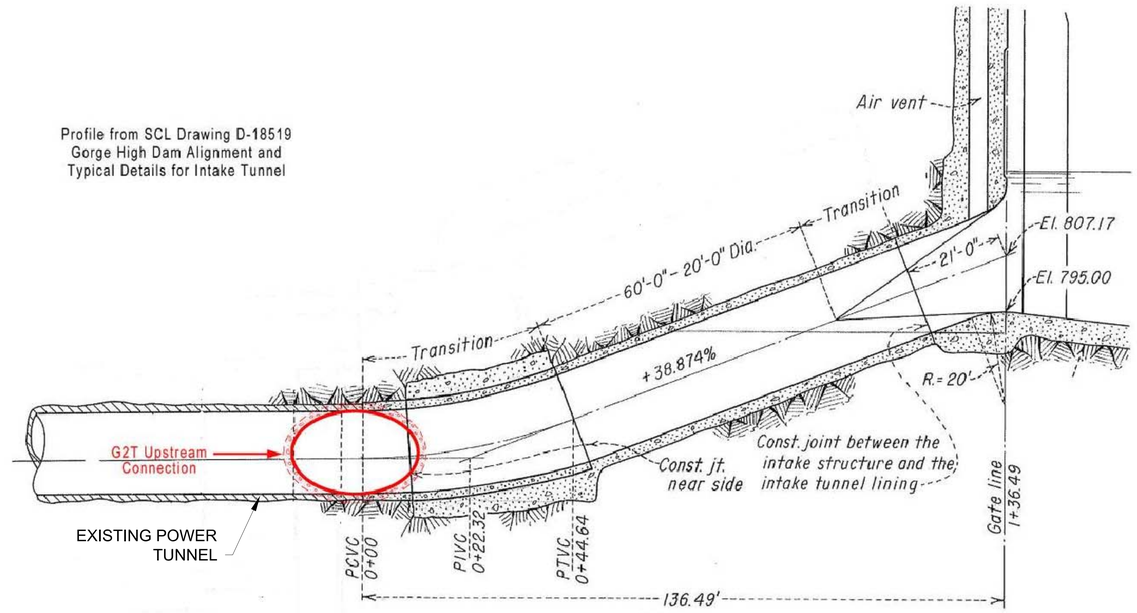
GORGE 2ND TUNNEL PRELIMINARY DESIGN SITE LAYOUT MUCK CAR OPTION

SHEET	OF
CLASS	
DRAWING NO.	D-110
SCALE	REV. NO.



UPSTREAM CONNECTION PLAN



UPSTREAM CONNECTION PROFILE

NOTES:

1. CONNECTION DRAWING SHOWS THE PRELIMINARY ALIGNMENT FOR THE GORGE 2ND TUNNEL. ALL DETAILS ARE PRELIMINARY AND WILL BE DEVELOPED DURING FINAL DESIGN.

I:\4087.1 Gorge 2nd Tunnel (2008 and 2009 Services)\Task 200 Tunnel Diameter Optimization and Layout\Portal Site Layout\13 CONNECTIONS.dwg
GenPS D: 28x40 lilly Nov/17/2009 11:38am

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	DR	MF
		CK	APP
		W.O.#	
		DESCRIPTION	

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
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DSGN:	
CK :	

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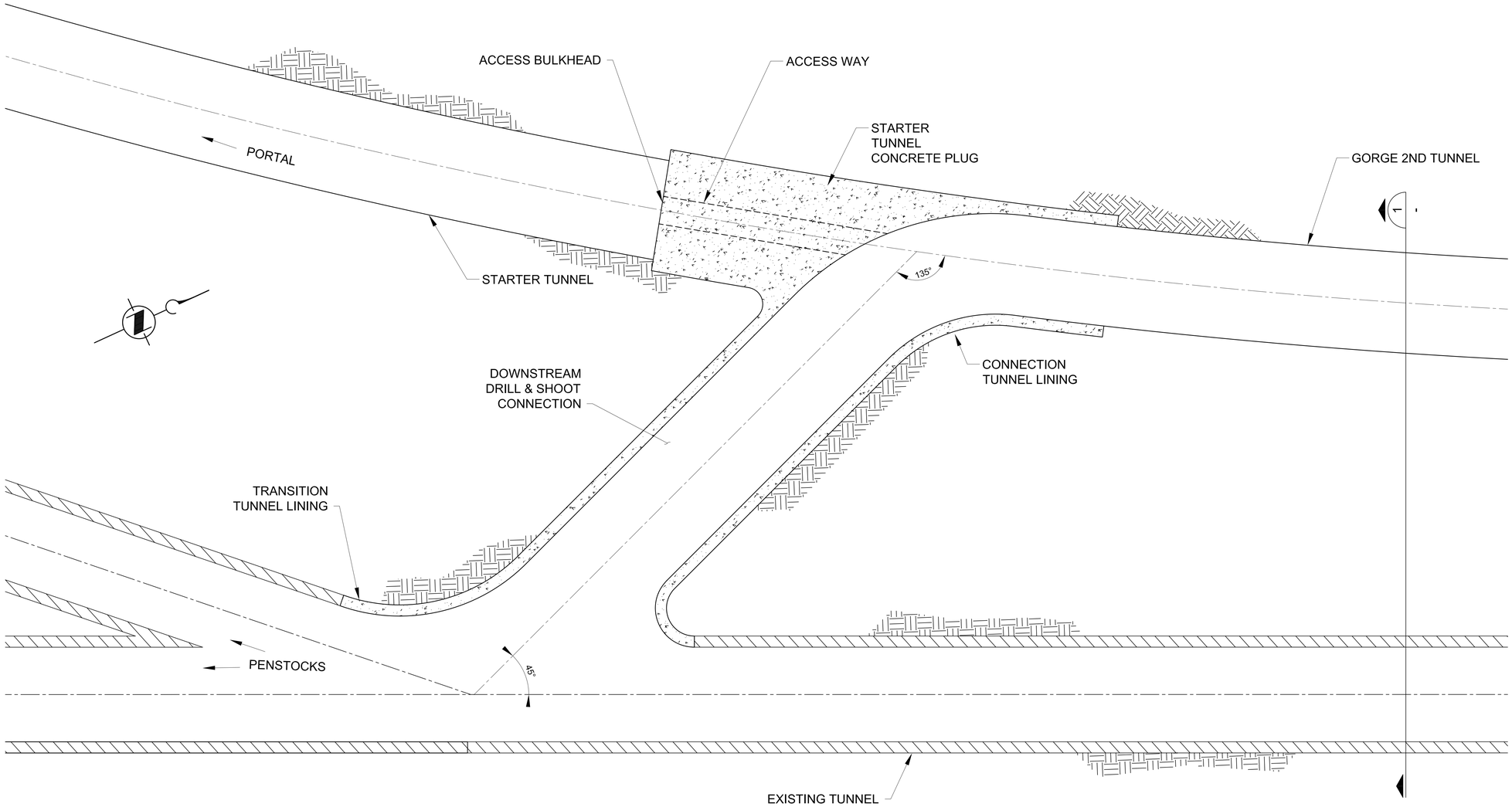
GORGE 2ND TUNNEL

PRELIMINARY DESIGN
UPSTEAM CONNECTION
PLAN AND PROFILE

SHEET	OF
CLASS	
DRAWING NO.	D–111
SCALE	REV. NO.



DOWNSTREAM CONNECTION PLAN
SCALE: NTS

NOTES:

1. CONNECTION DRAWING SHOWS THE PRELIMINARY ALIGNMENT FOR THE GORGE 2ND TUNNEL. ALL DETAILS ARE PRELIMINARY AND WILL BE DEVELOPED DURING FINAL DESIGN.
2. A ROCK TRAP AND ACCESS HATCH REQUIREMENTS WILL BE ADDRESSED DURING FINAL DESIGN.

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GenPS D: 28x40 lilly Nov/17/2009 11:48am

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	MF	
DR	CK	APP	
W.O.#	DESCRIPTION		

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS	
SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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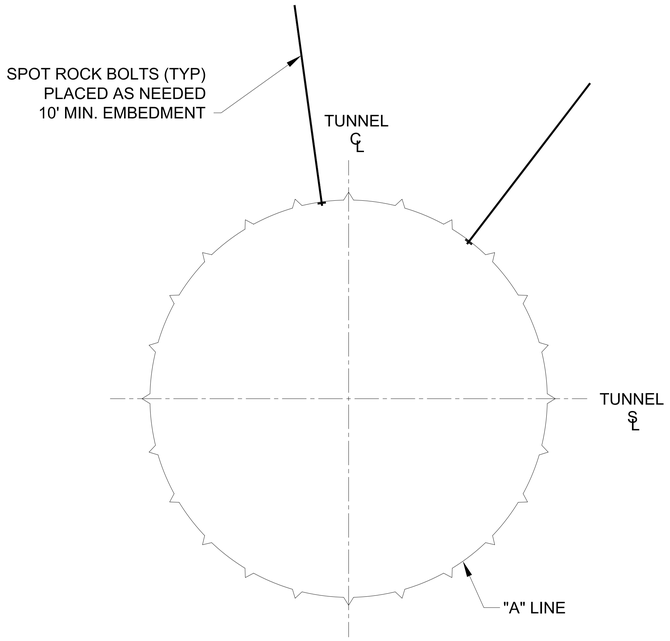
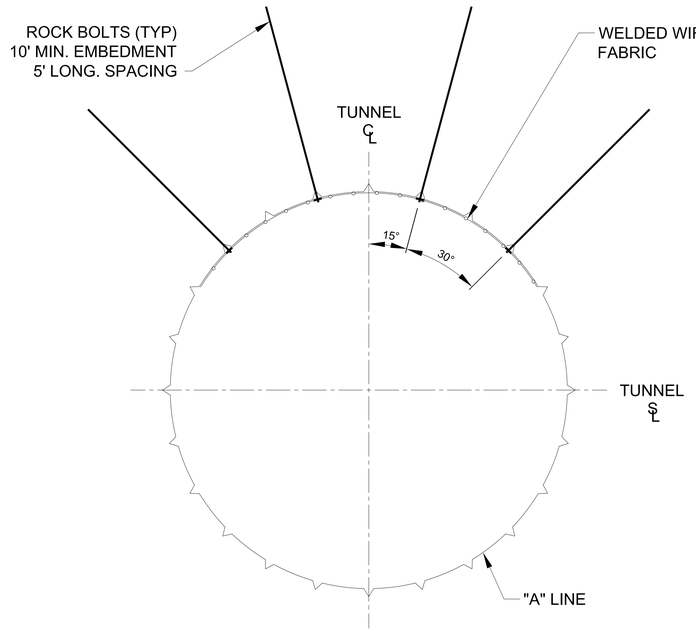
GORGE 2ND TUNNEL
PRELIMINARY DESIGN
DOWNSTREAM CONNECTION PLAN

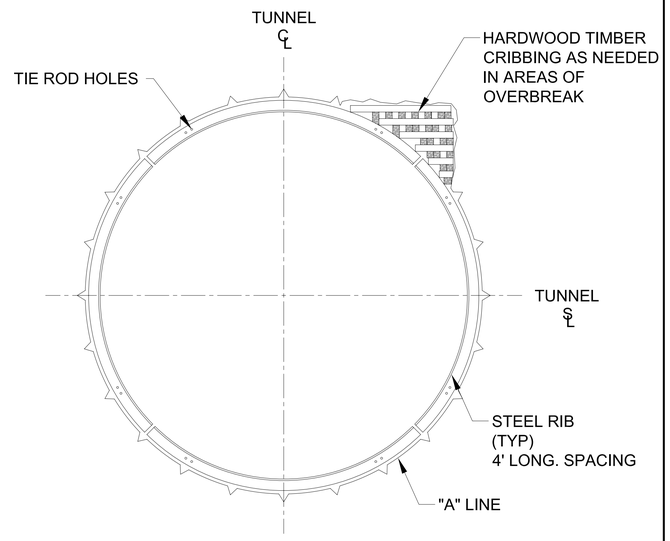
SHEET	OF
CLASS	
DRAWING NO.	D-112
SCALE	REV. NO.



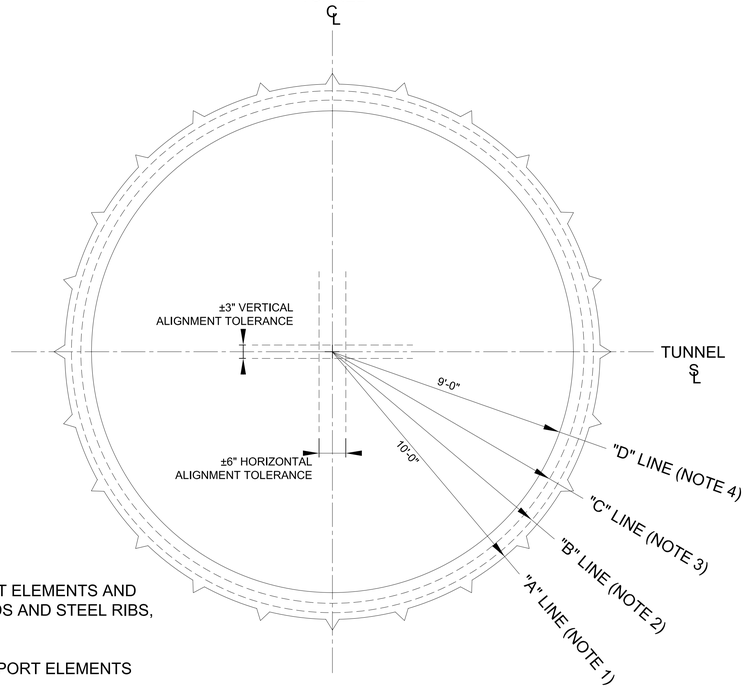
GOOD ROCK - SUPPORT



FAIR ROCK - SUPPORT



POOR ROCK - SUPPORT



TUNNEL CROSS SECTION
TOLERANCES

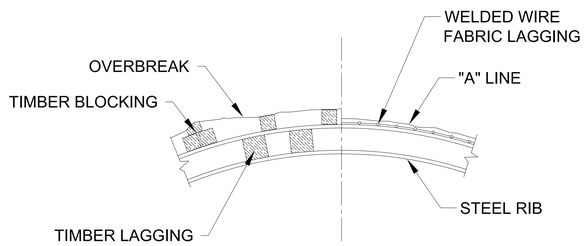
NOTES:

1. "A" LINE = EXCAVATION LINE.

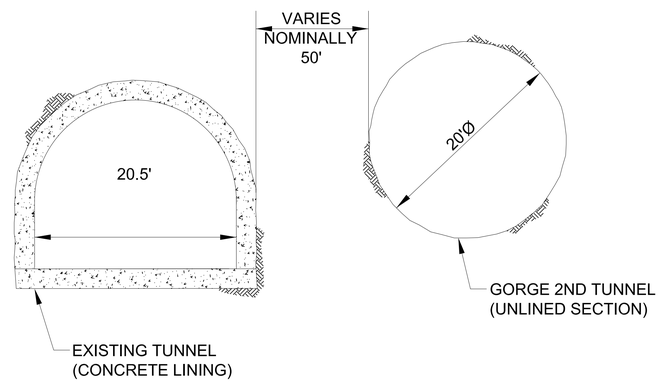
2. "B" LINE = INITIAL GROUND SUPPORT ELEMENTS AND PANNING ELEMENTS, EXCEPT TIE RODS AND STEEL RIBS, SHALL REMAIN OUTSIDE.

3. "C" LINE = ALL INITIAL GROUND SUPPORT ELEMENTS SHALL REMAIN OUTSIDE.

4. "D" LINE = INSIDE OF CONCRETE LINING (POOR GROUND ONLY)



POOR ROCK - SUPPORT
DETAIL



TUNNEL OFFSET
DETAIL

I:\4087.1 Gorge 2nd Tunnel (2008 and 2009 Services)\Task 200 Tunnel Diameter Optimization and Layout\Portal Site Layout\13 CONNECTIONS.dwg
GenPS D: 28x40 lilly Nov/17/2009 11:37am

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	MF
DR	CK	APP
W.O.#	DESCRIPTION	

JACOBS ASSOCIATES
Engineers/Consultants

ENDORSEMENTS

SIGNATURE	DATE
DR :	
CK :	
DSGN:	
CK :	

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GORGE 2ND TUNNEL

PRELIMINARY DESIGN
TUNNEL SUPPORT SECTIONS AND DETAILS

SHEET OF
CLASS
DRAWING NO. D-113
SCALE REV. NO.