

PRESENTATION DRAWINGS FOR THE

ISOLATION BARRIER ALTERNATIVES ANALYSES REPORT

BRIDGETON LANDFILL BRIDGETON, ST. LOUIS COUNTY, MISSOURI

OCTOBER 2014

PREPARED FOR:
BRIDGETON LANDFILL



LOCATION MAP

AERIAL IMAGE PROVIDED BY COOPER AERIAL SURVEYS CO. AND IS DATED MARCH 20, 2014



406 EAST WALNUT STREET
CHATHAM, IL 62629
TEL. (217) 483-3118
FAX. (217) 483-2356

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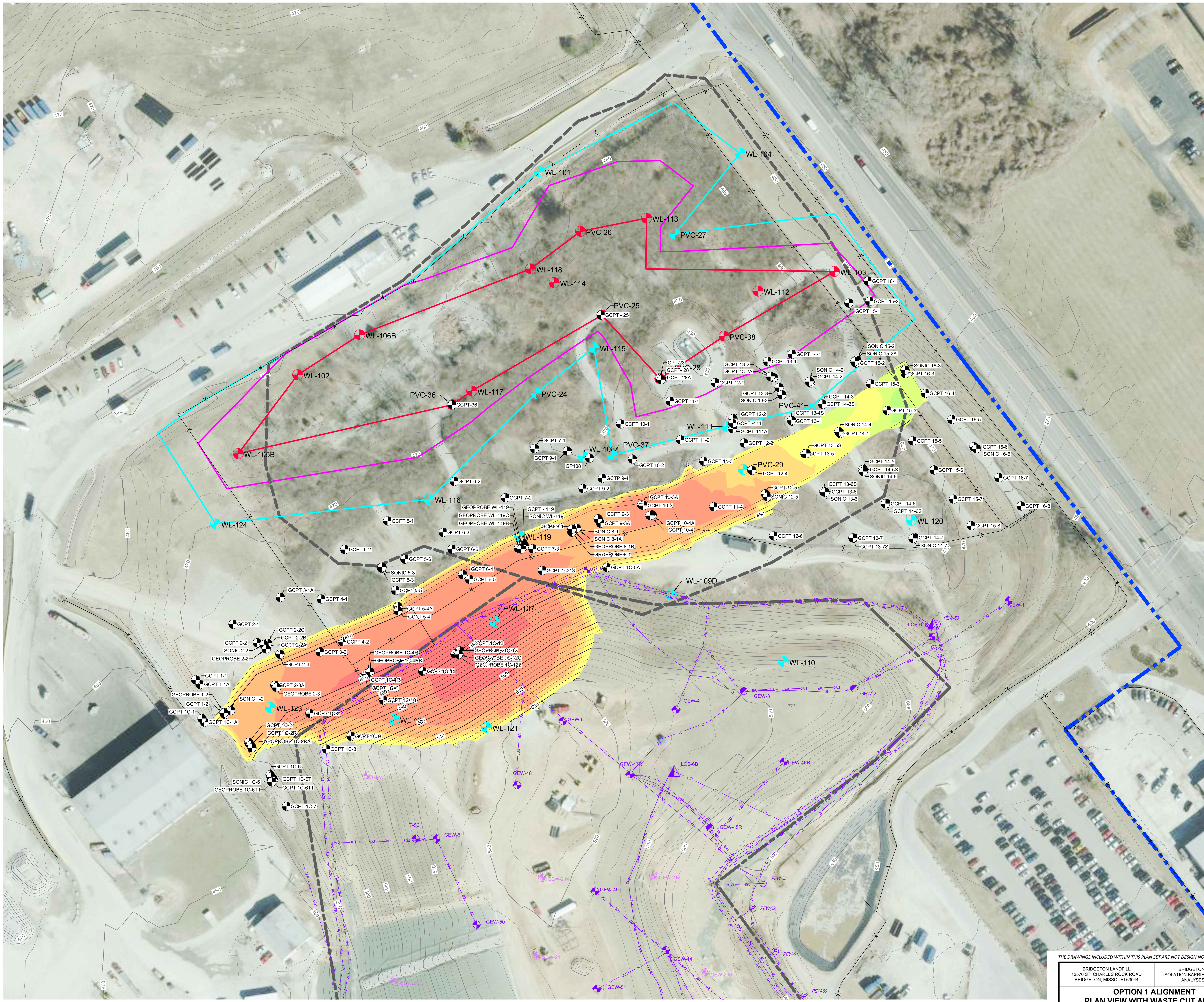
- LEGEND**
- PHASE 1 BORING LOCATION
 - ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
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 - NON-ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
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 - 03-20-14 TOPOGRAPHY (2' CONTOUR)
 - INERT BARRIER ALIGNMENT
 - EXISTING INFRASTRUCTURE PIPE
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NOTES:

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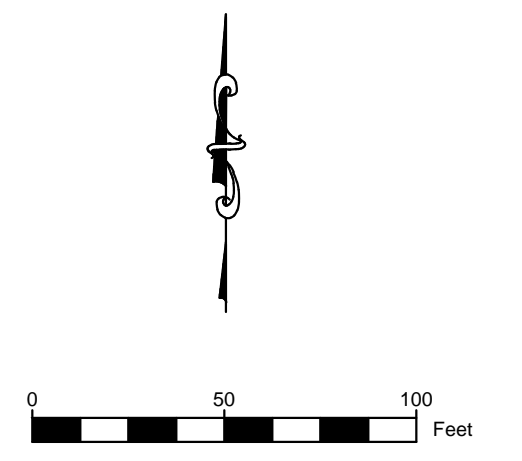
BRIDGETON LANDFILL 13670 ST. CHARLES ROCK ROAD BRIDGETON, MISSOURI 63044	BRIDGETON LANDFILL ISOLATION BARRIER ALTERNATIVES ANALYSIS REPORT		OCTOBER 2014 DESIGNED BY: PML APPROVED BY: DRF	DRAWING NO.:
OPTION 1 ALIGNMENT PLAN VIEW				002
PROJECT NUMBER: BT-032	FILE PATH:		REVISION	DATE



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Dark Purple
-64	-32	Medium Purple
-32	-16	Red-Orange
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow-Orange
-2	0	Yellow

Pre-Excavation Volume:
47,500 c.y.

Barrier Volume:
7,500 c.y.

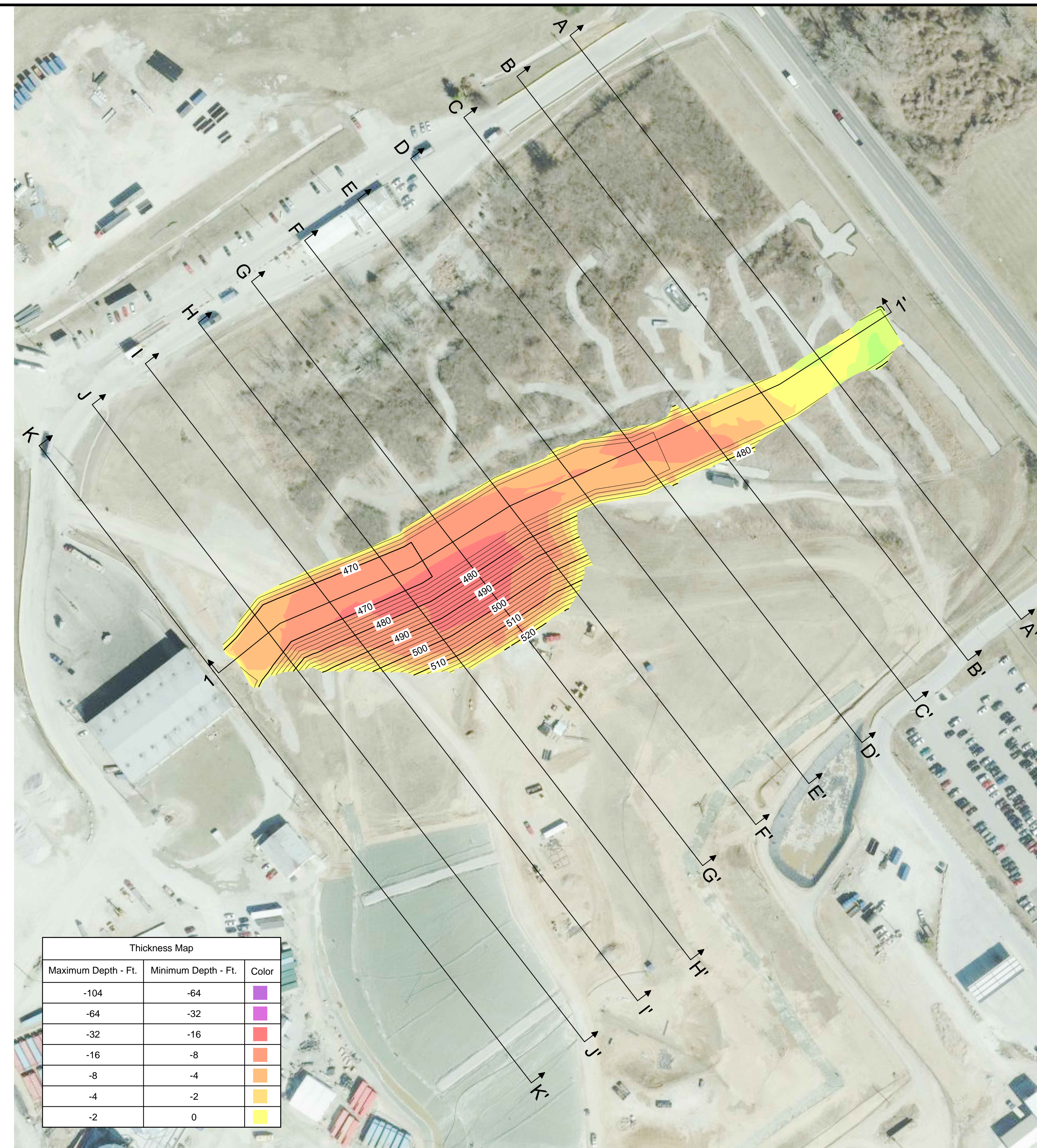
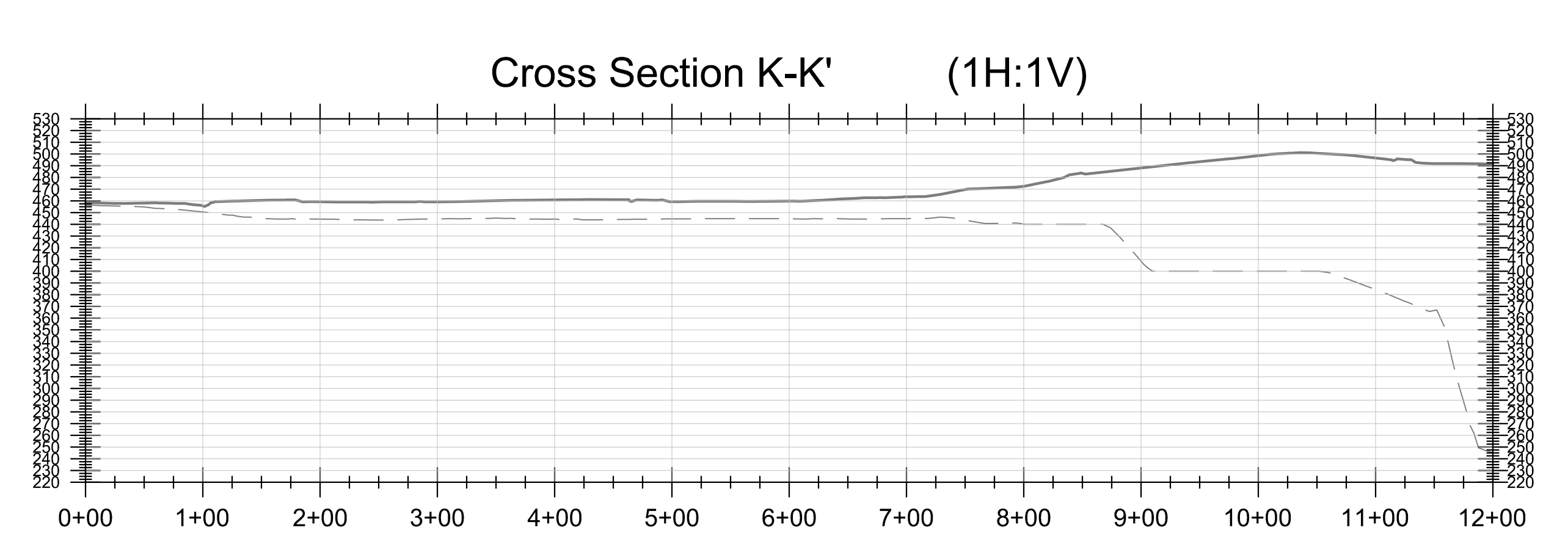
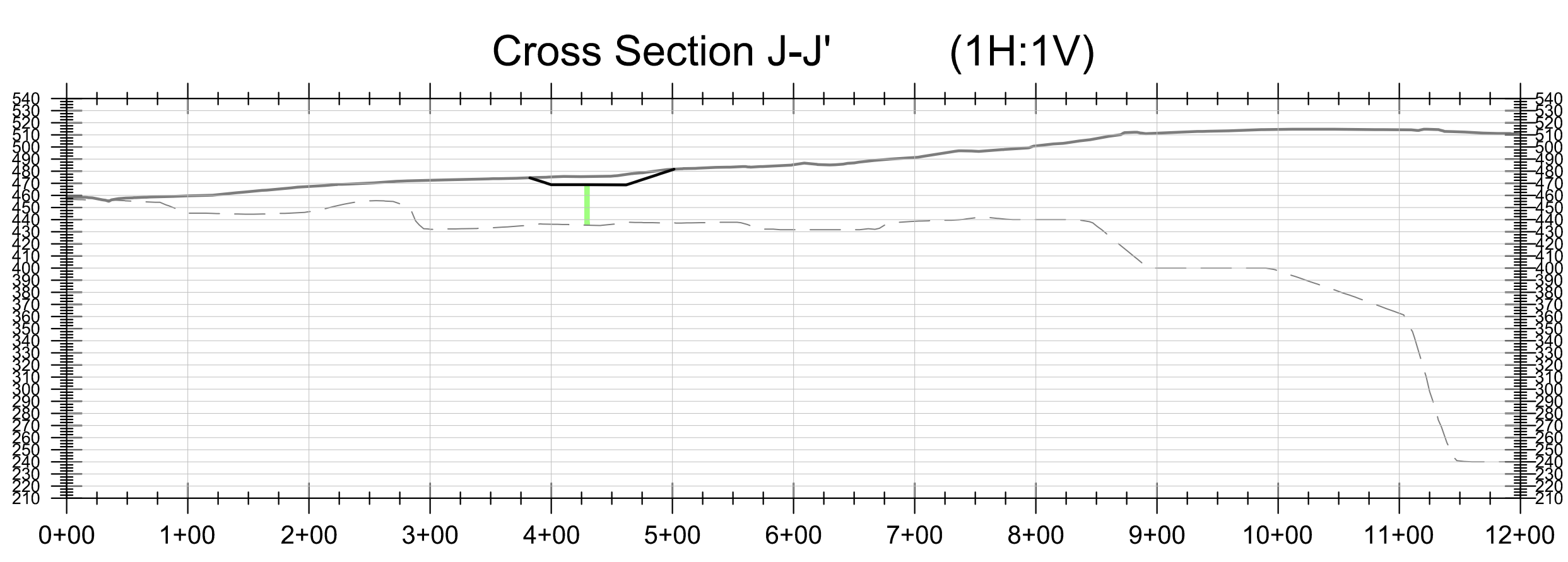
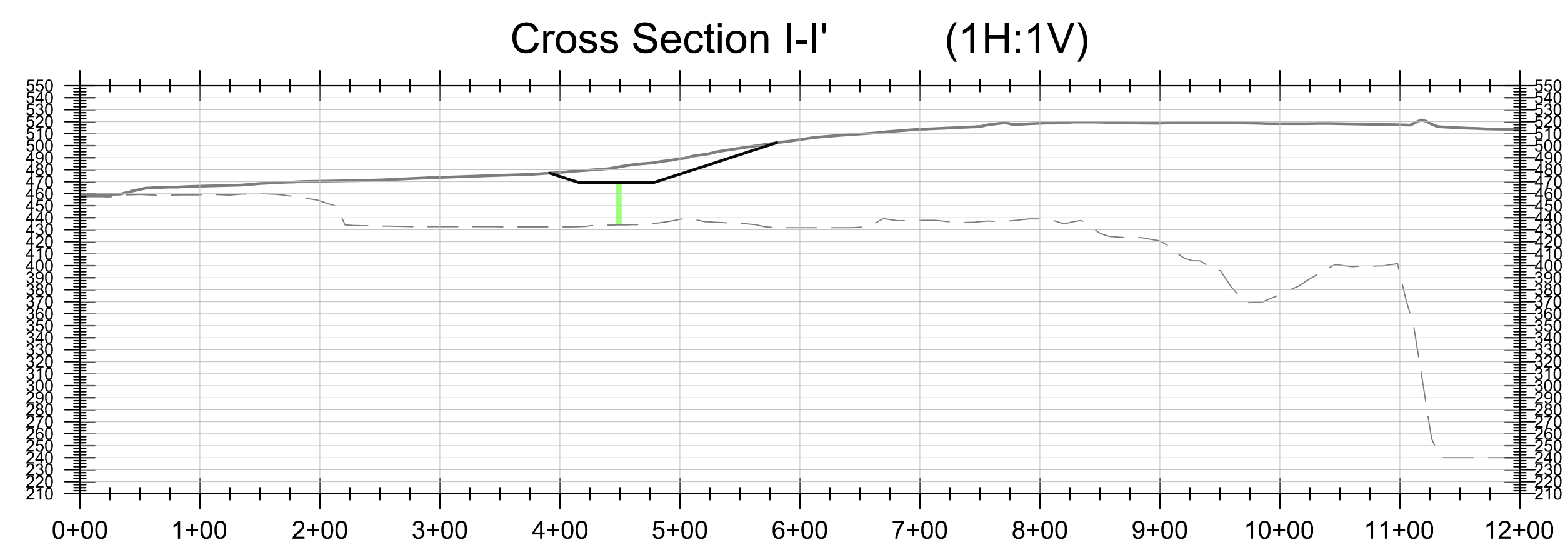
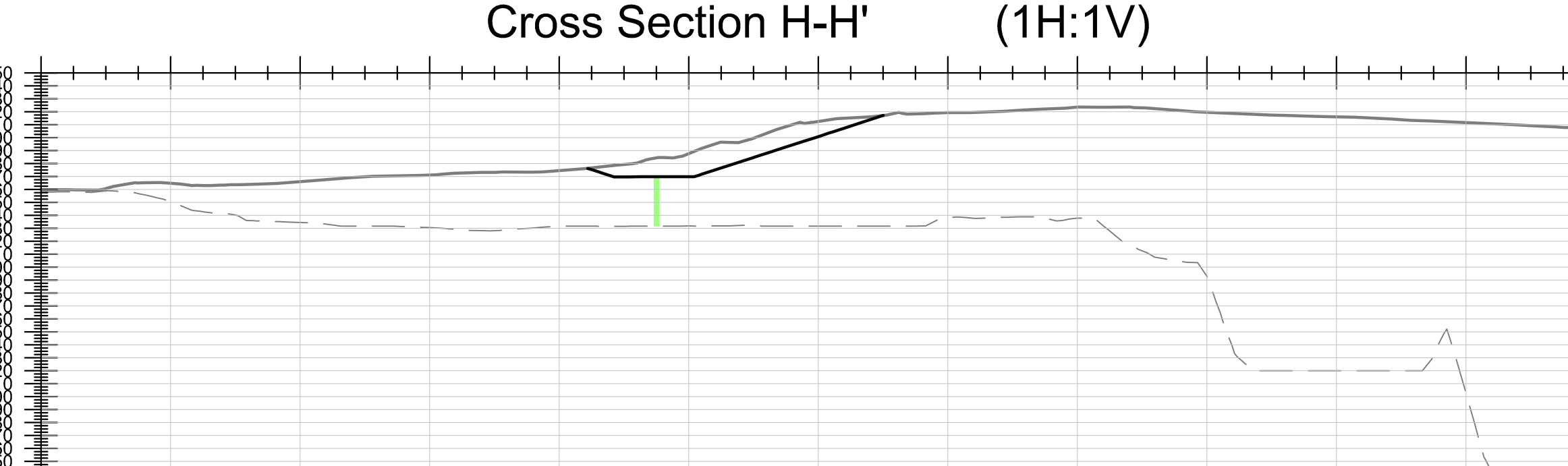
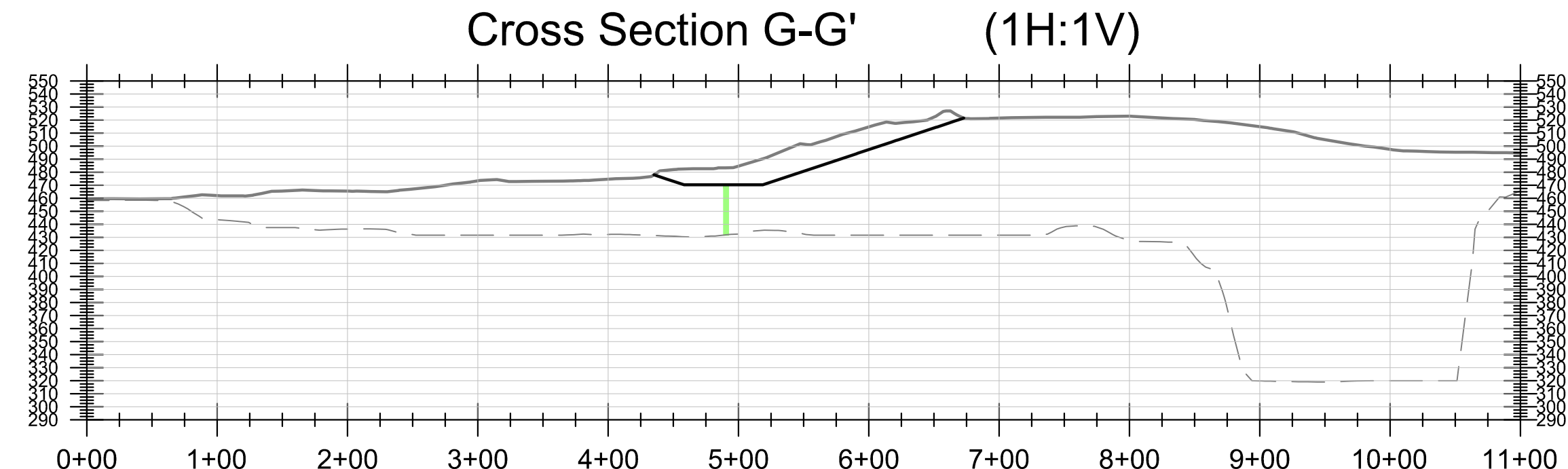
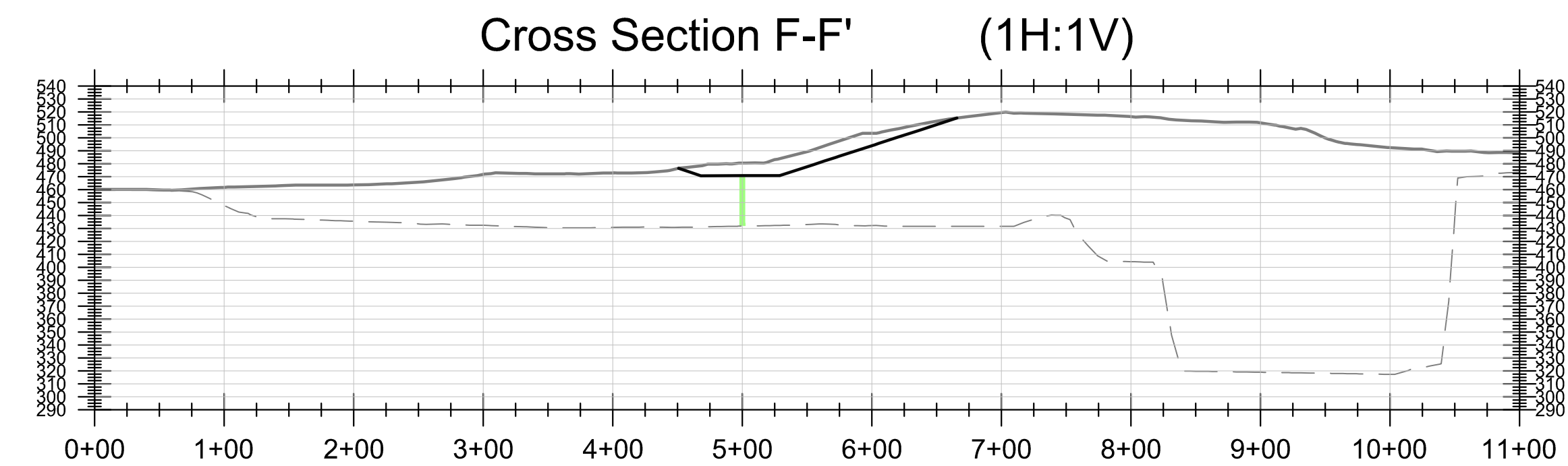
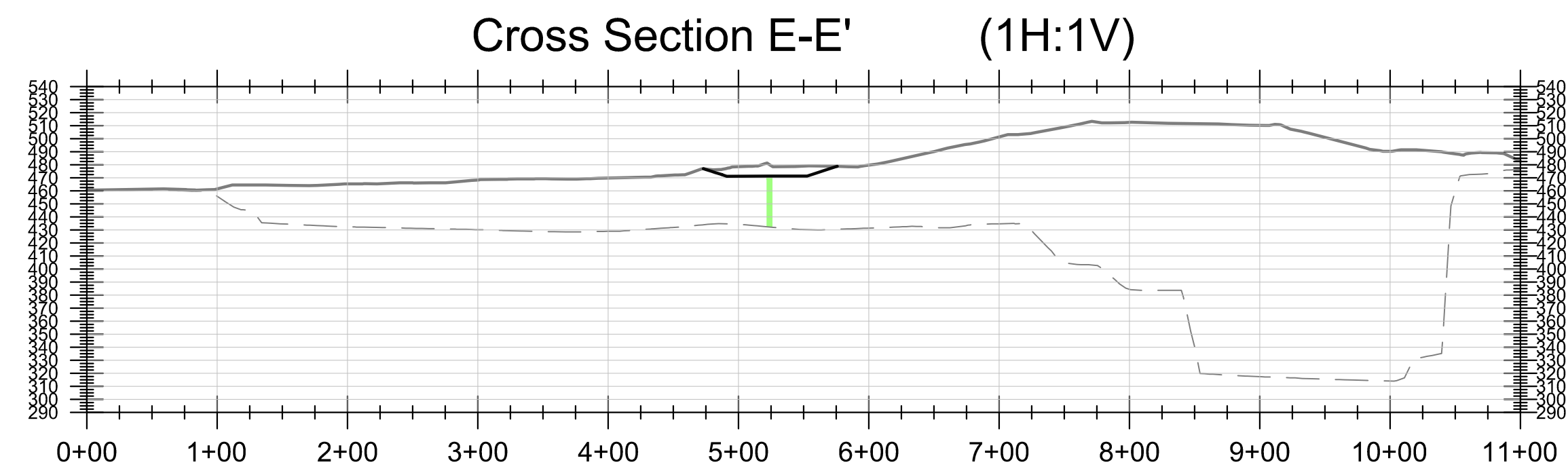
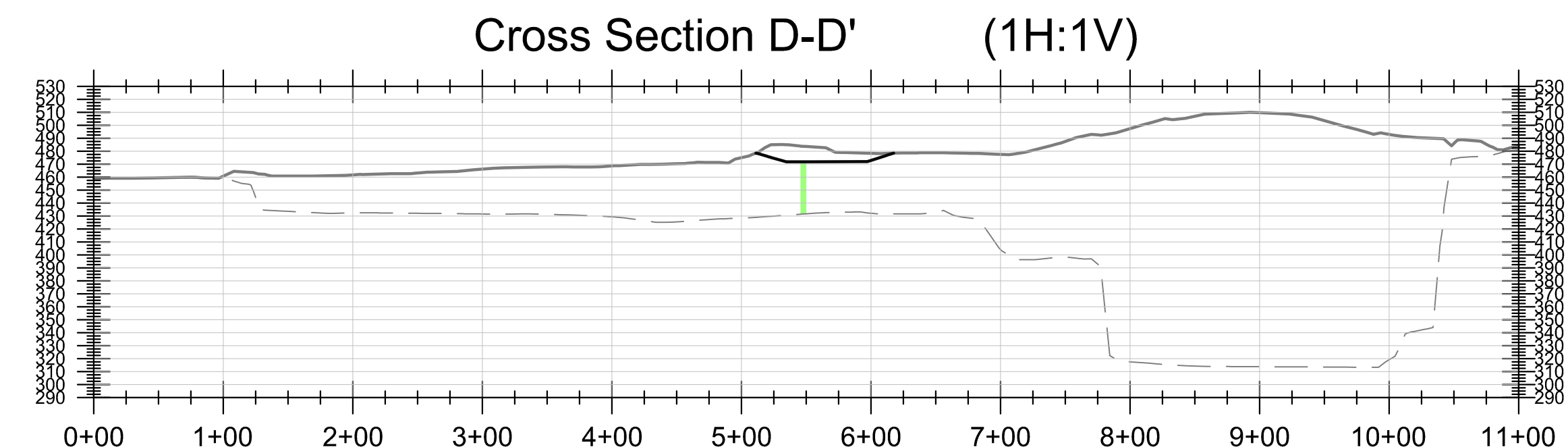
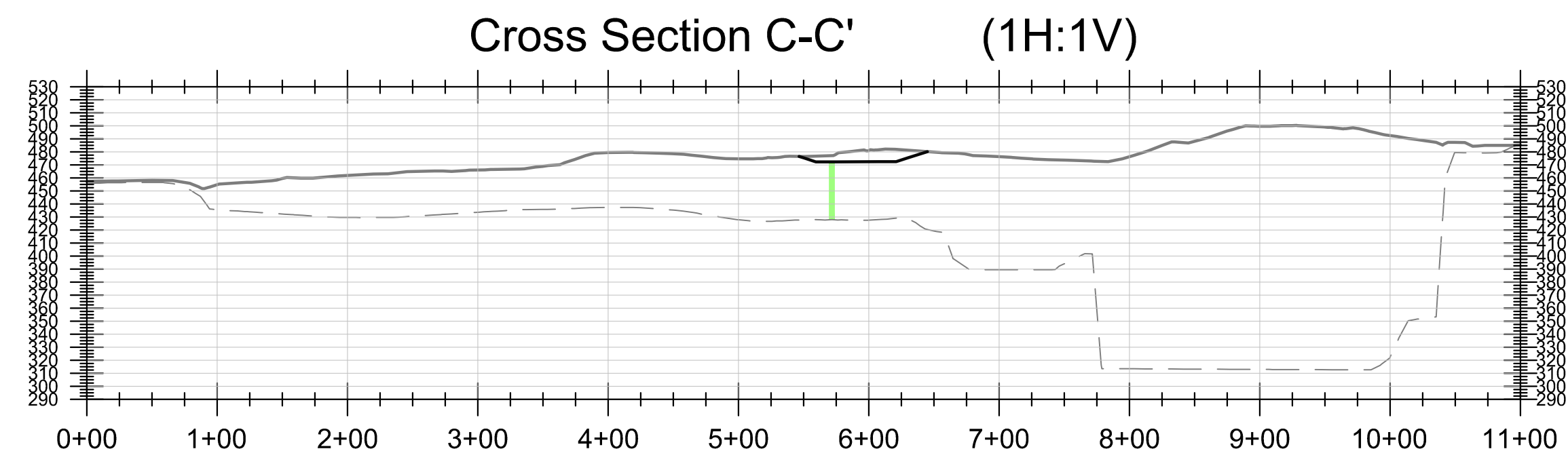
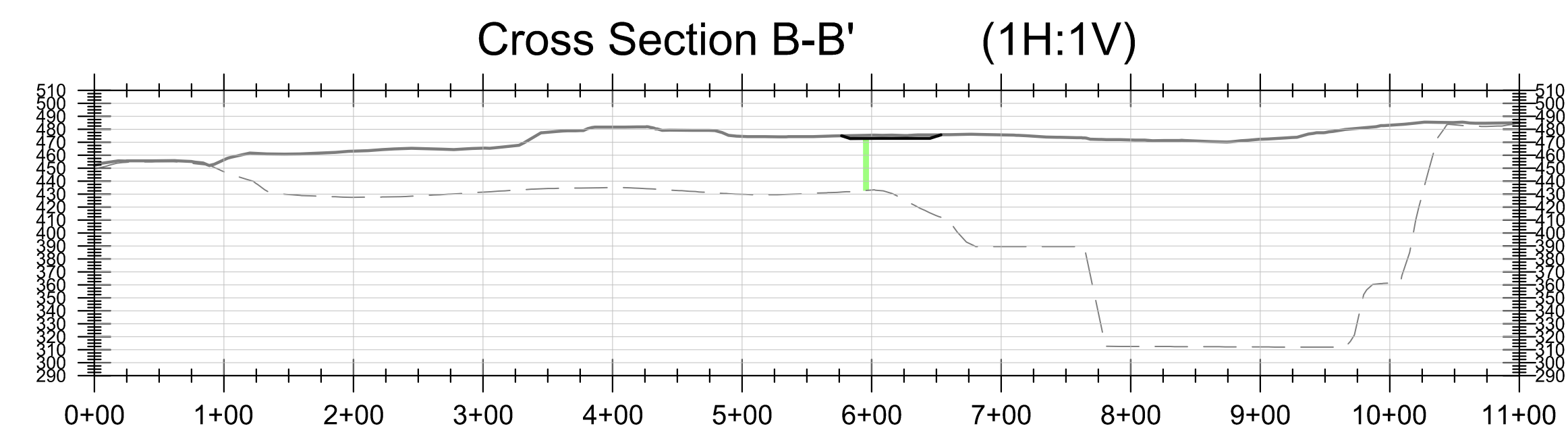
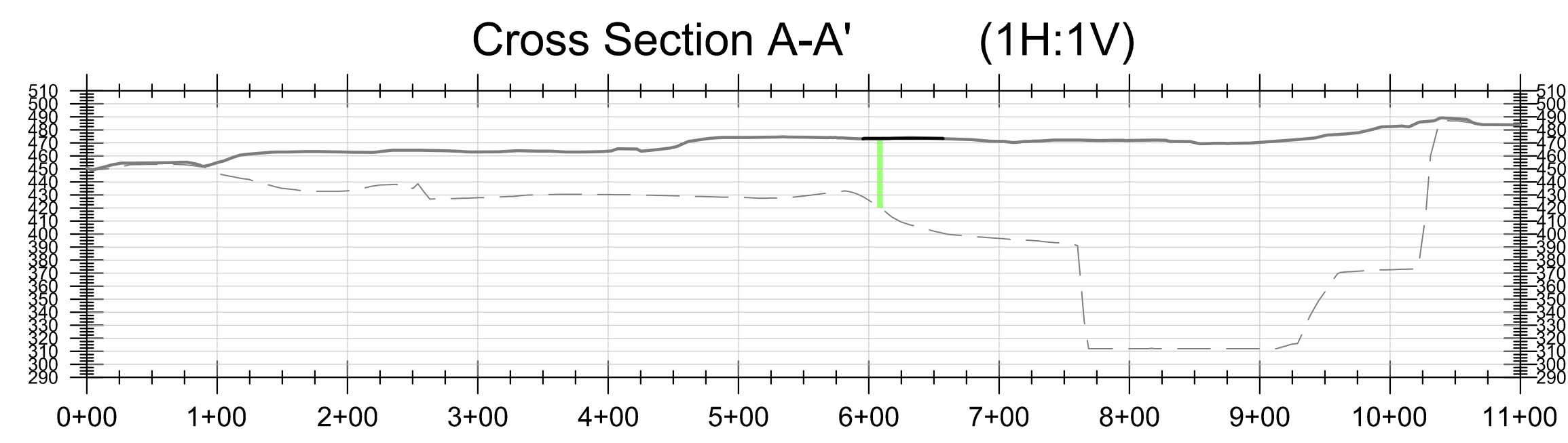


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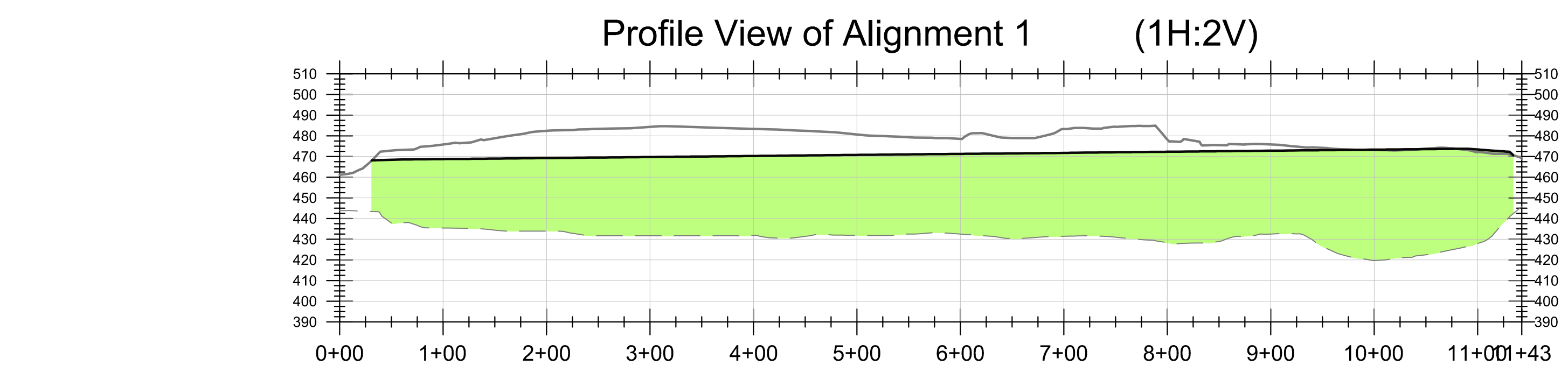
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OPTION 1 ALIGNMENT PLAN VIEW WITH WASTE CUT AREAS			REVISION DATE	003



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Purple
-64	-32	Dark Blue
-32	-16	Red
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow
-2	0	Light Yellow



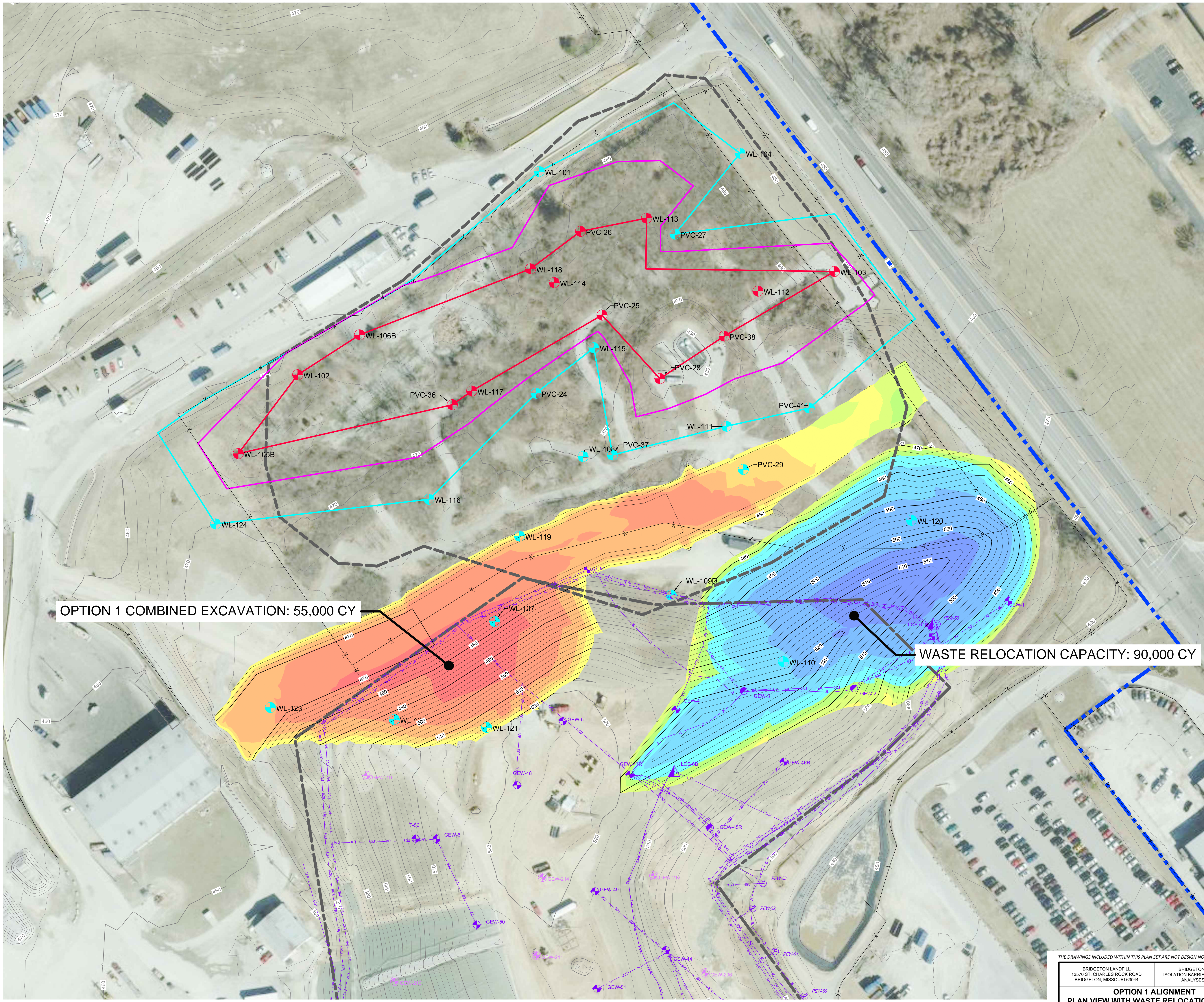
- LEGEND**
- 03-20-14 TOPOGRAPHY
 - - - ESTIMATED BOTTOM OF WASTE
 - EXCAVATION GRADING
 - █ INERT BARRIER

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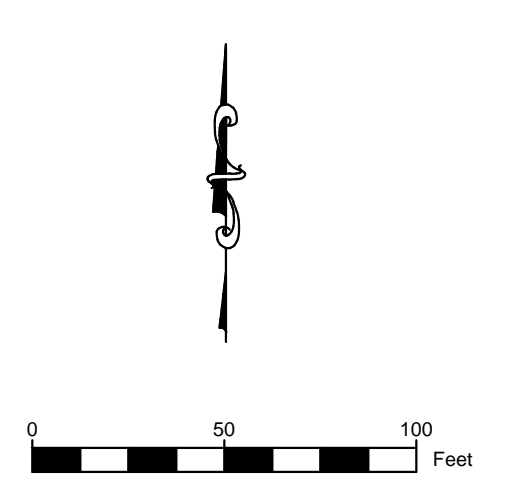
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OPTION 1 ALIGNMENT PROFILE VIEW AND CROSS SECTIONS			REVISION DATE	004



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Dark Purple
-64	-32	Medium Purple
-32	-16	Red-Orange
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow
-2	0	Light Yellow

Thickness Map		
Minimum Depth - Ft.	Maximum Depth - Ft.	Color
0	2	Light Green
2	4	Green
4	8	Cyan
8	16	Blue-Cyan
16	32	Blue
32	47	Dark Blue



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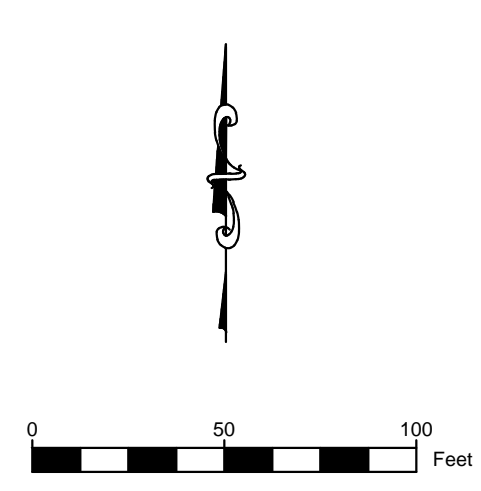
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OPTION 1 COMBINED EXCAVATION: 55,000 CY

WASTE RELOCATION CAPACITY: 90,000 CY

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OPTION 1 ALIGNMENT PLAN VIEW WITH WASTE RELOCATION AREAS			REVISION DATE	005

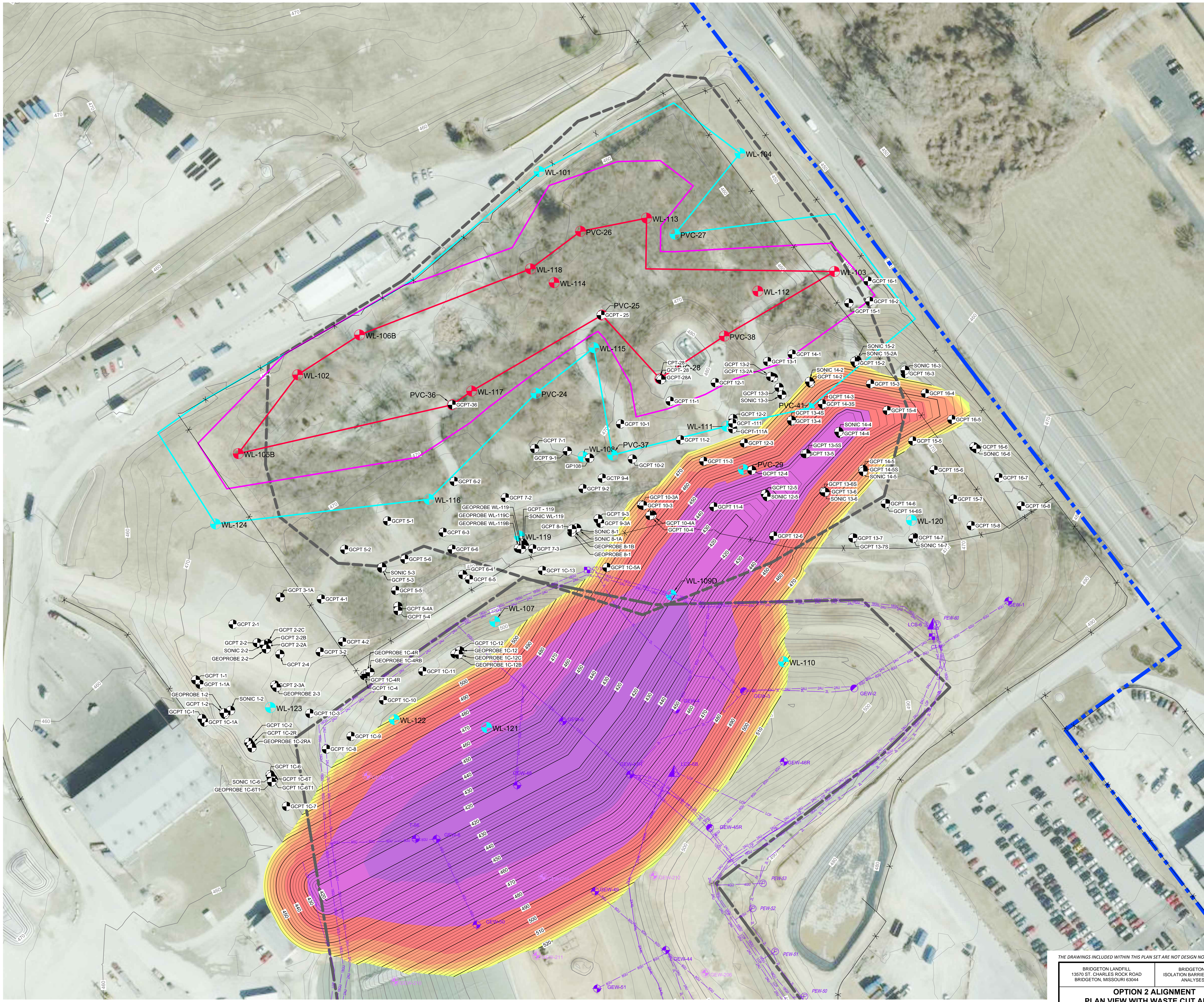


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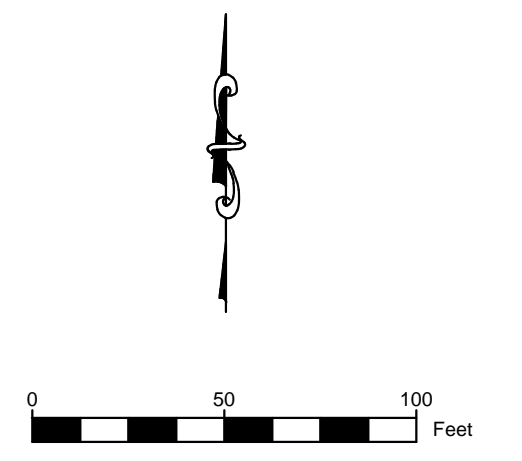
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OPTION 2 ALIGNMENT PLAN VIEW				006
PROJECT NUMBER: BT-032	FILE PATH:		REVISION	DATE



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Dark Purple
-64	-32	Medium Purple
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Excavation Volume:
535,000 c.y.



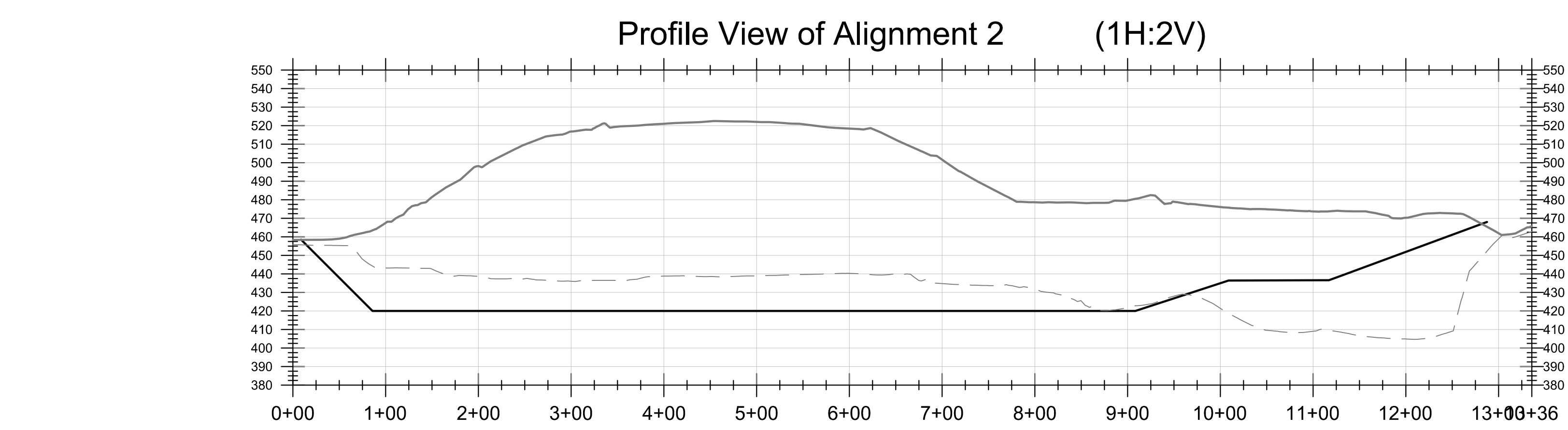
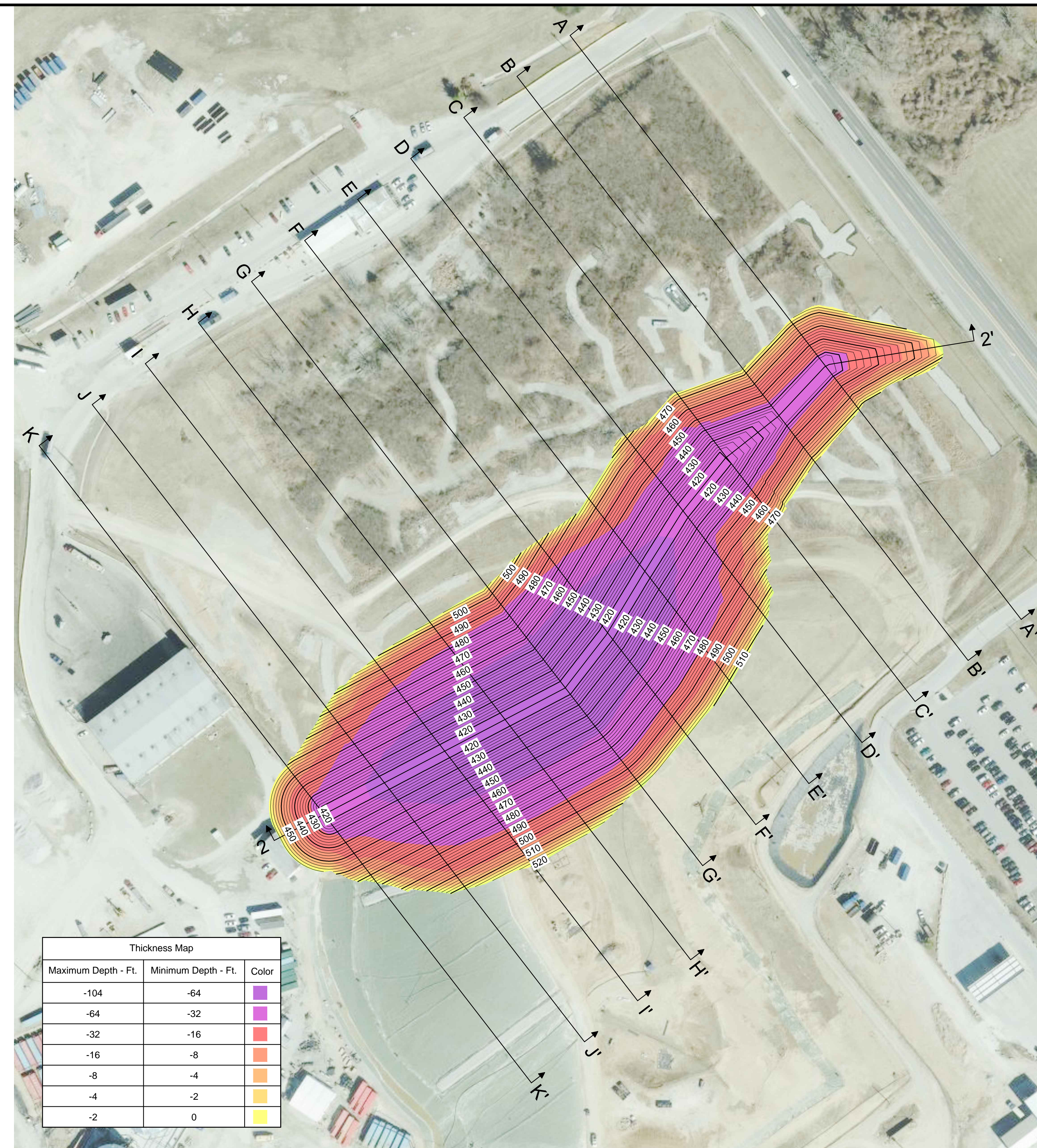
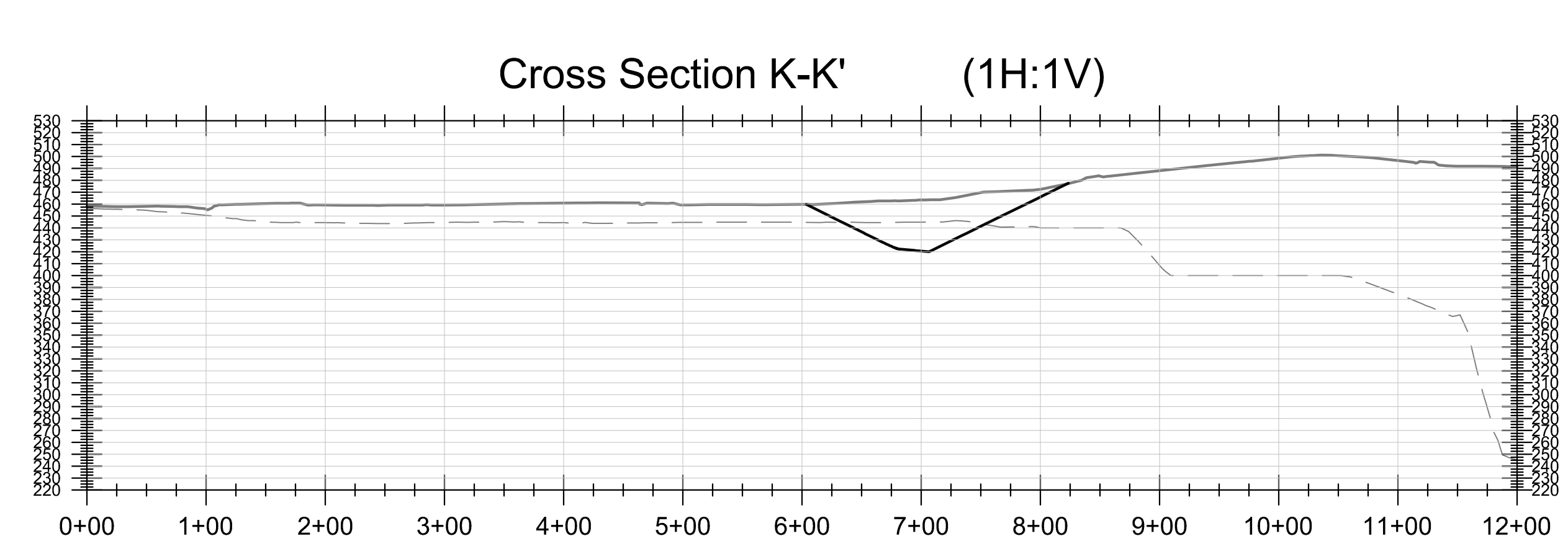
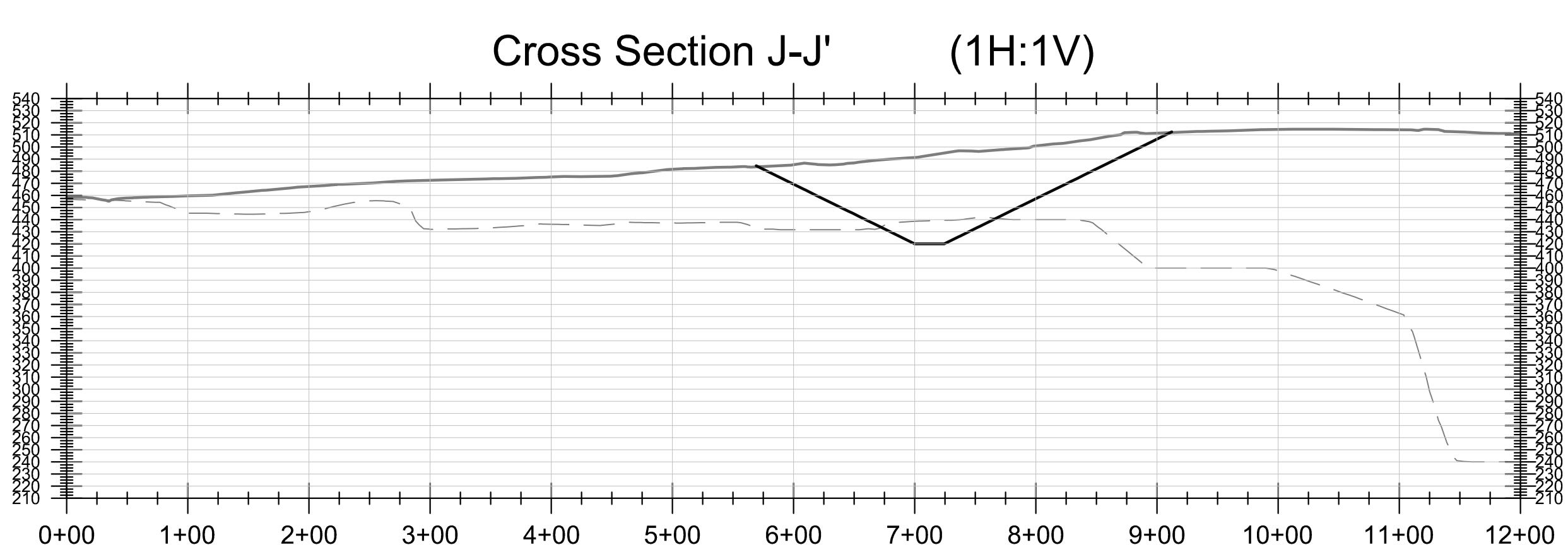
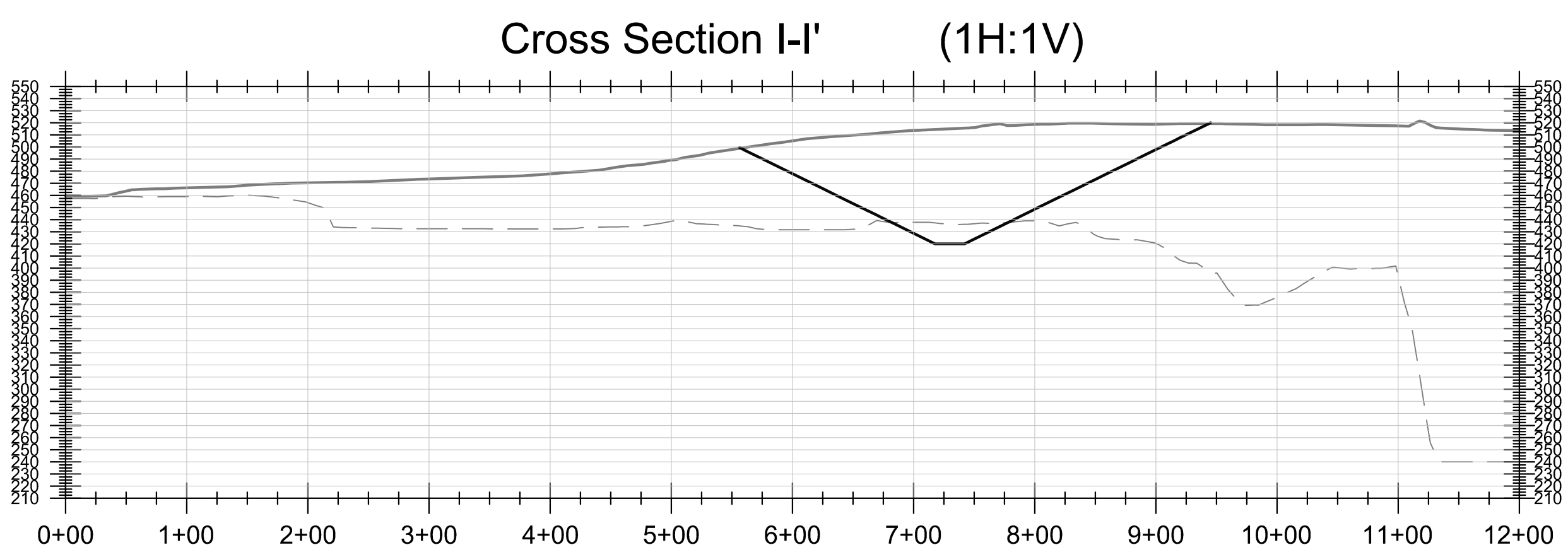
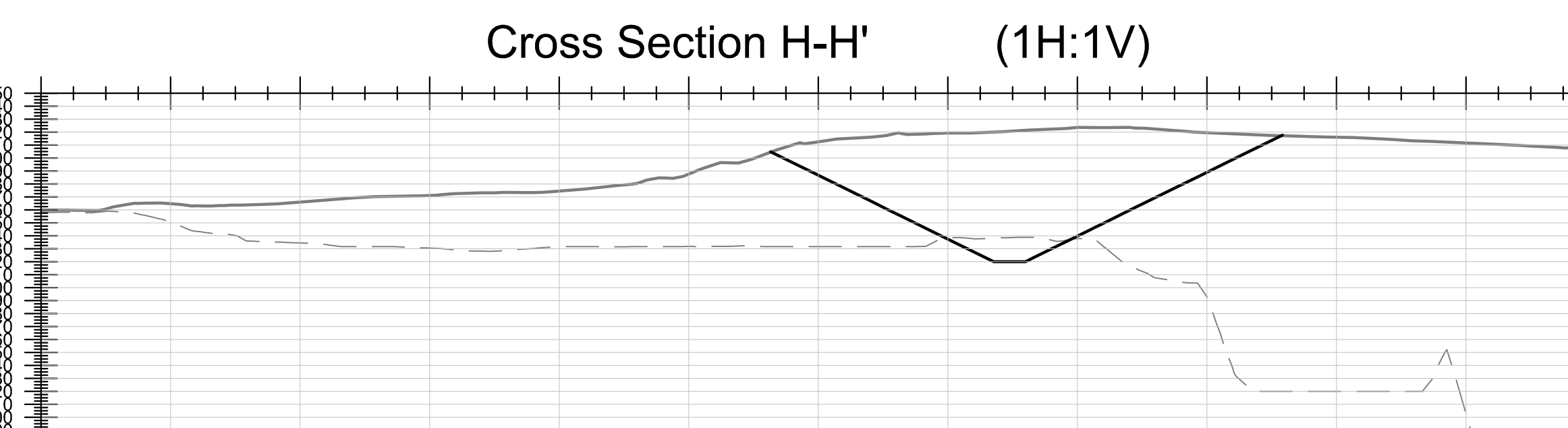
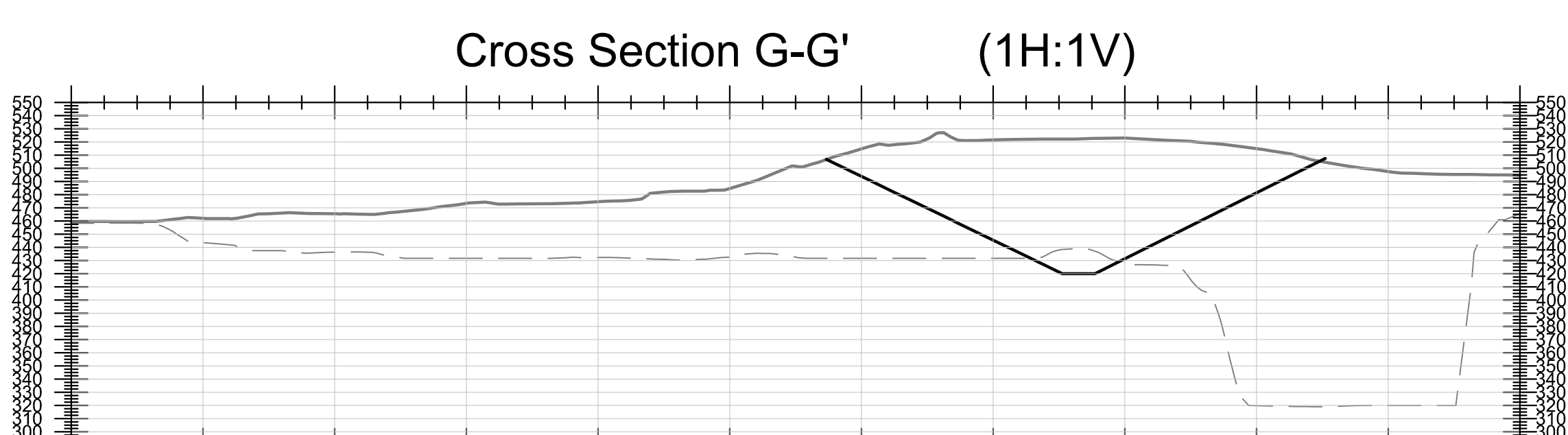
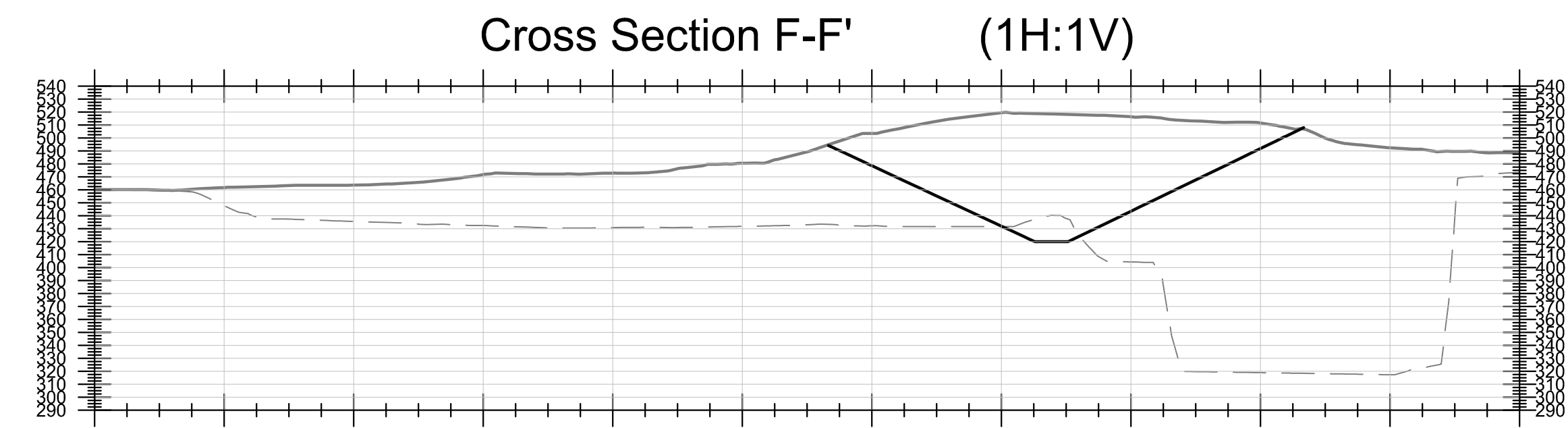
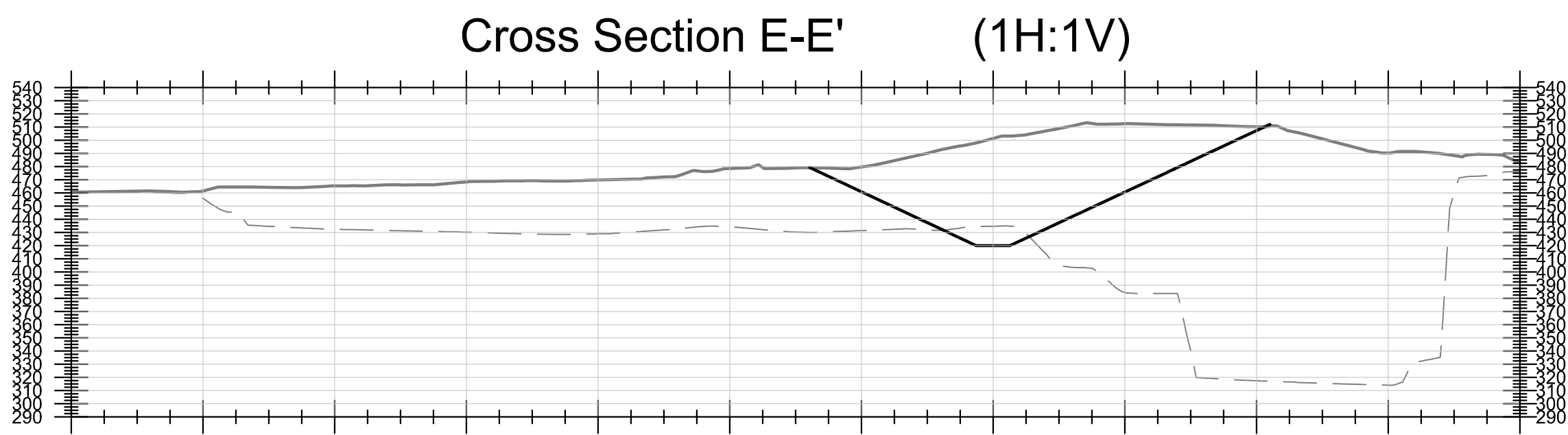
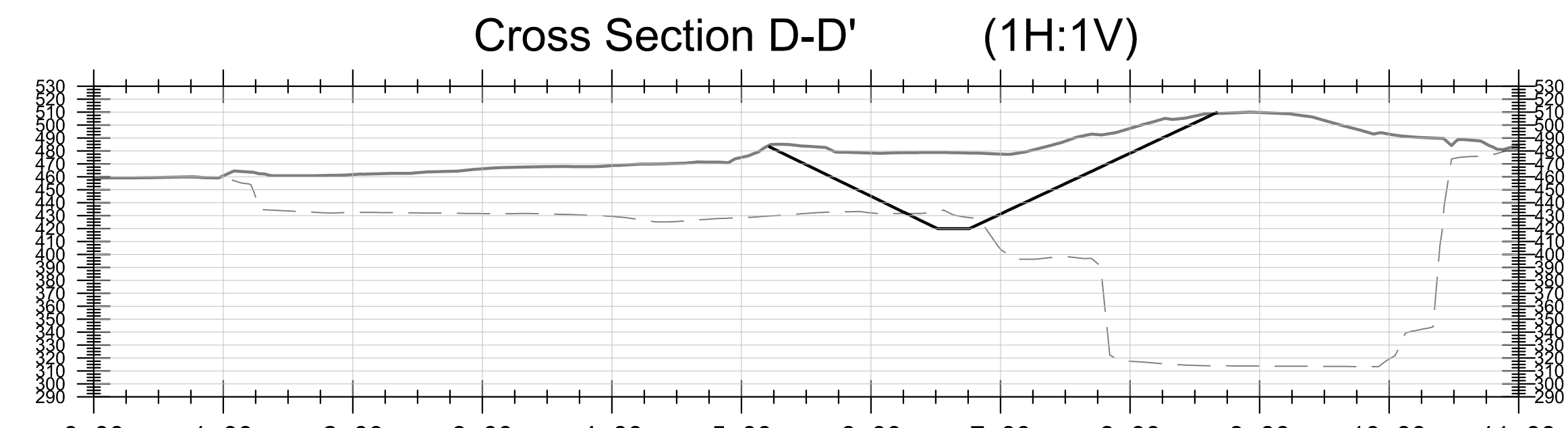
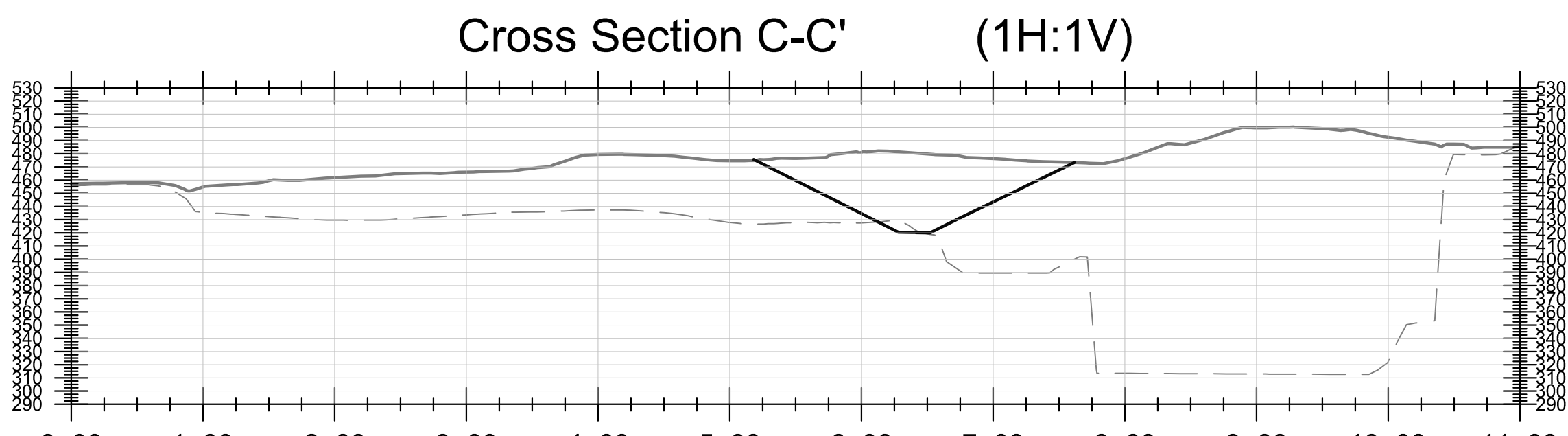
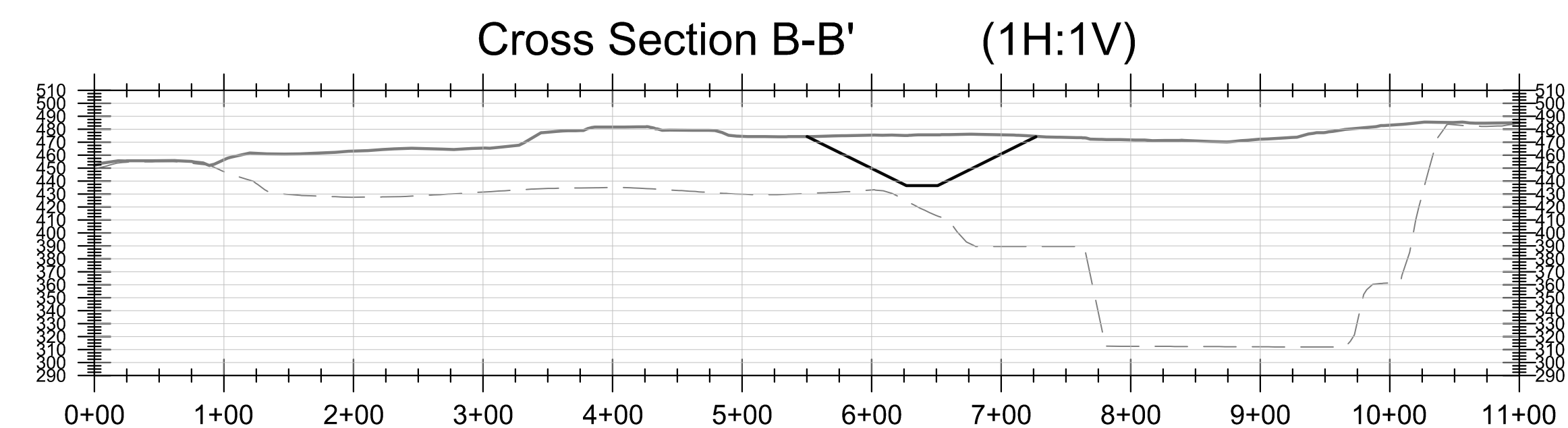
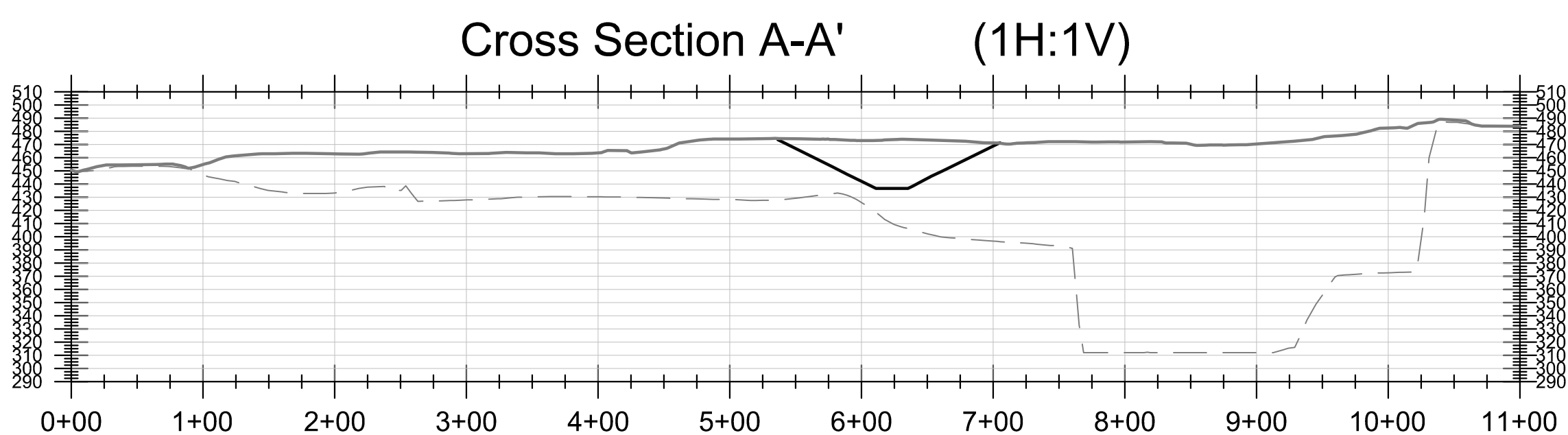
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OPTION 2 ALIGNMENT PLAN VIEW WITH WASTE CUT AREAS		PROJECT NUMBER: BT-032 FILE PATH:	REVISION: DATE:	



LEGEND

—— 03-20-14 TOPOGRAPHY

- - - ESTIMATED BOTTOM OF WASTE

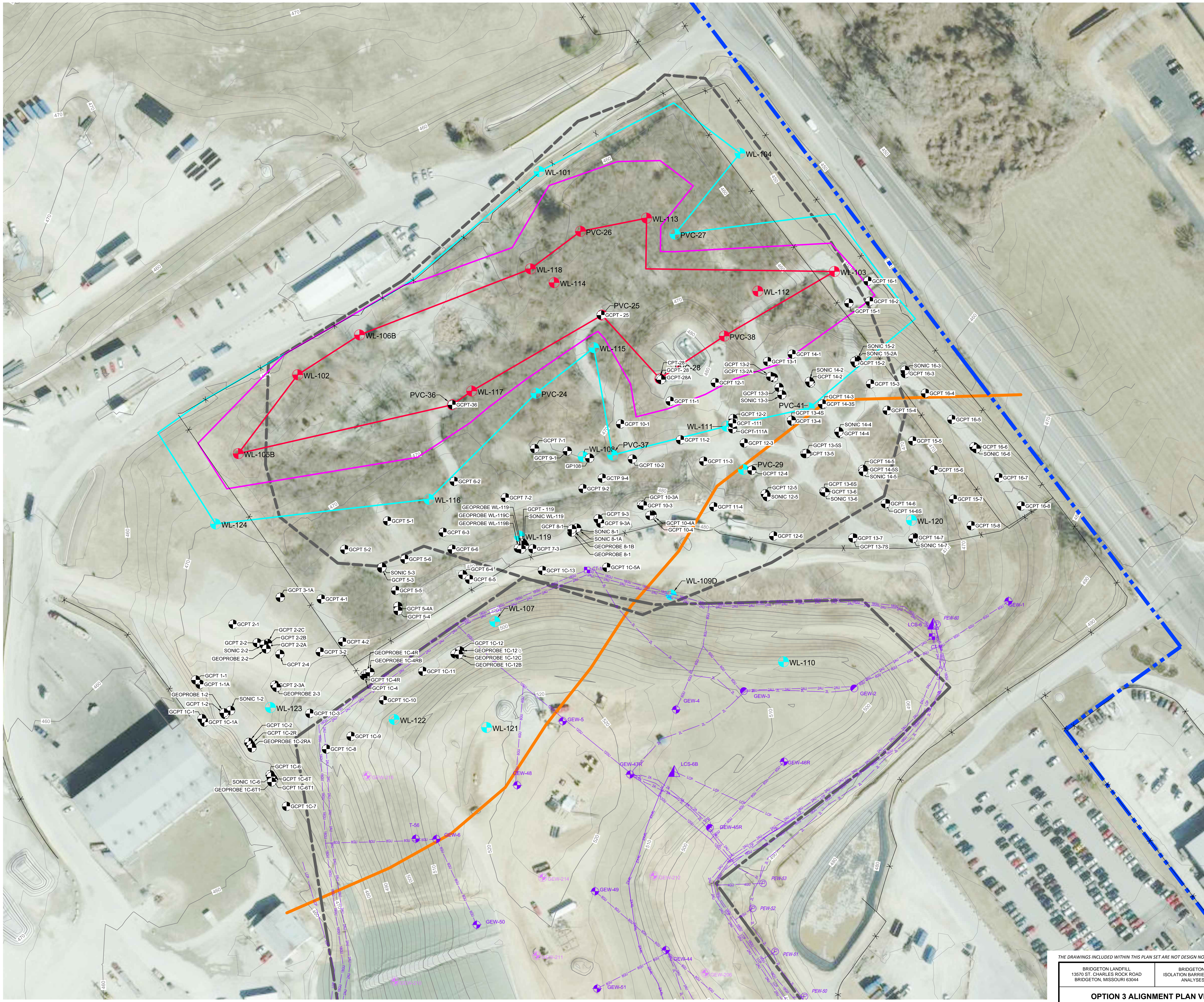
—— EXCAVATION GRADING

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<p>OPTION 2 ALIGNMENT</p> <p>PROFILE VIEW AND CROSS SECTIONS</p>		<p>Engineering for a Better World</p> <p>FEEZOR</p> <p>ENGINEERING, INC.</p>	008
PROJECT NUMBER: BT-032	FILE PATH:	REVISION	DATE



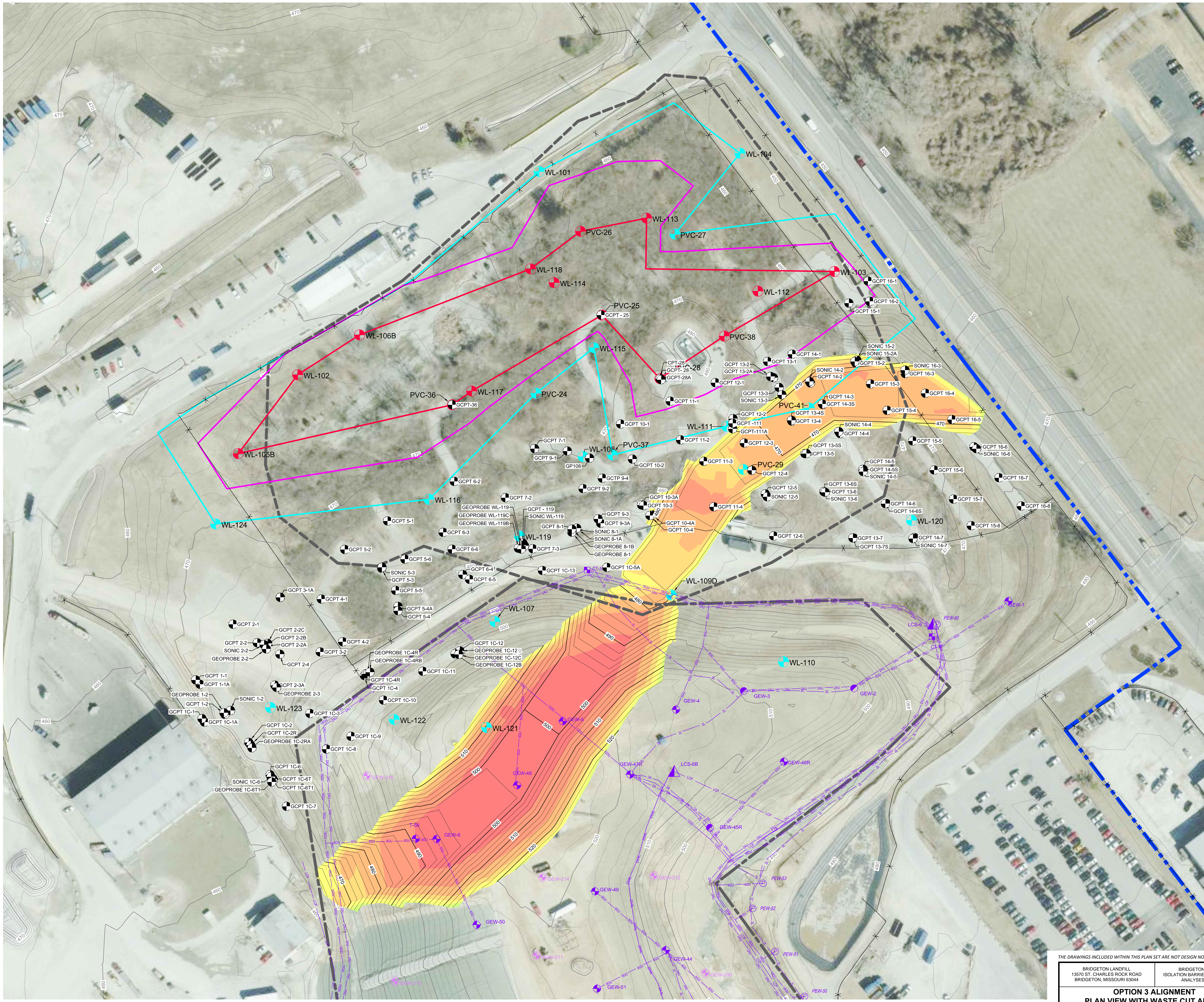
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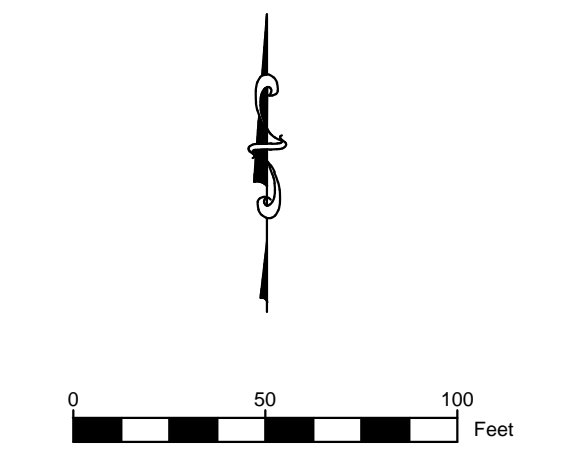
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PROJECT NUMBER: BT-032 FILE PATH:	OPTION 3 ALIGNMENT PLAN VIEW		REVISION DATE	



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Purple
-64	-32	Pink
-32	-16	Red
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow
-2	0	Light Yellow

Excavation Volume:
52,500 c.y.

Barrier Volume:
7,500 c.y.

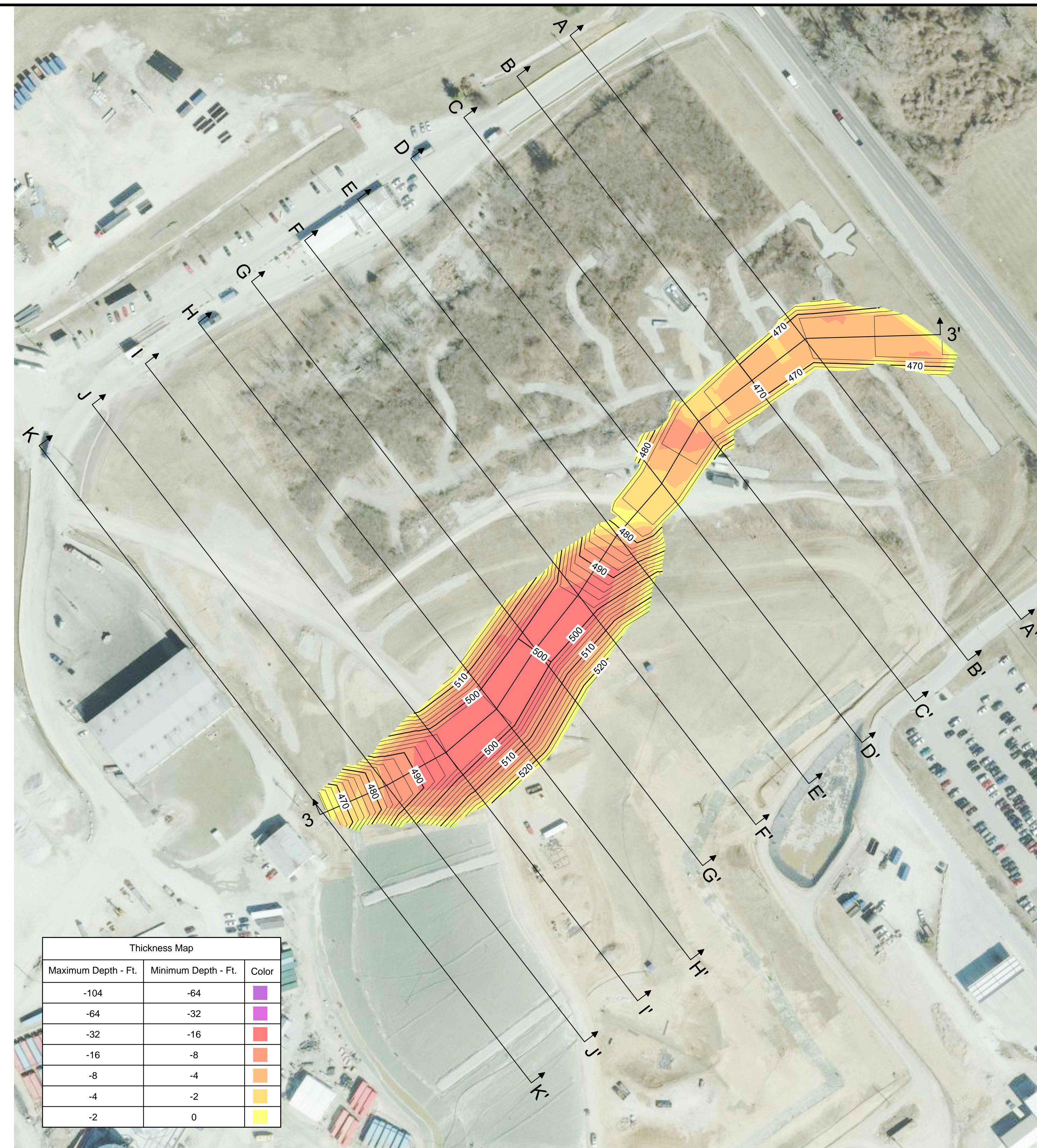
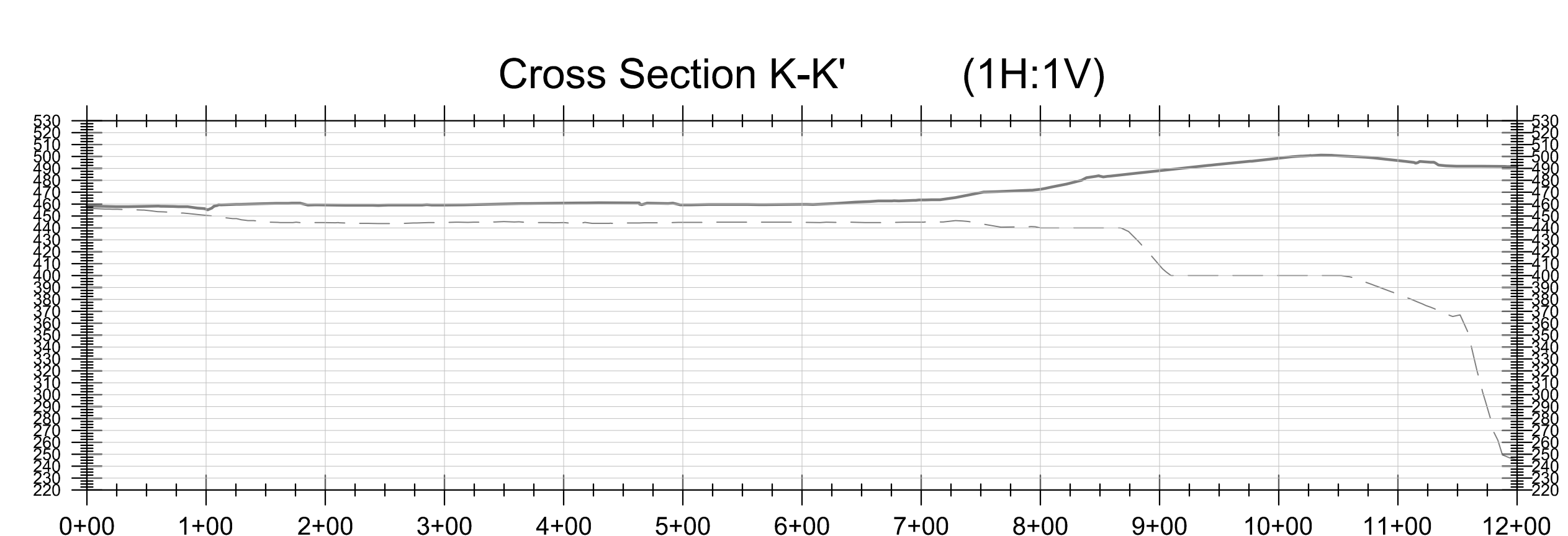
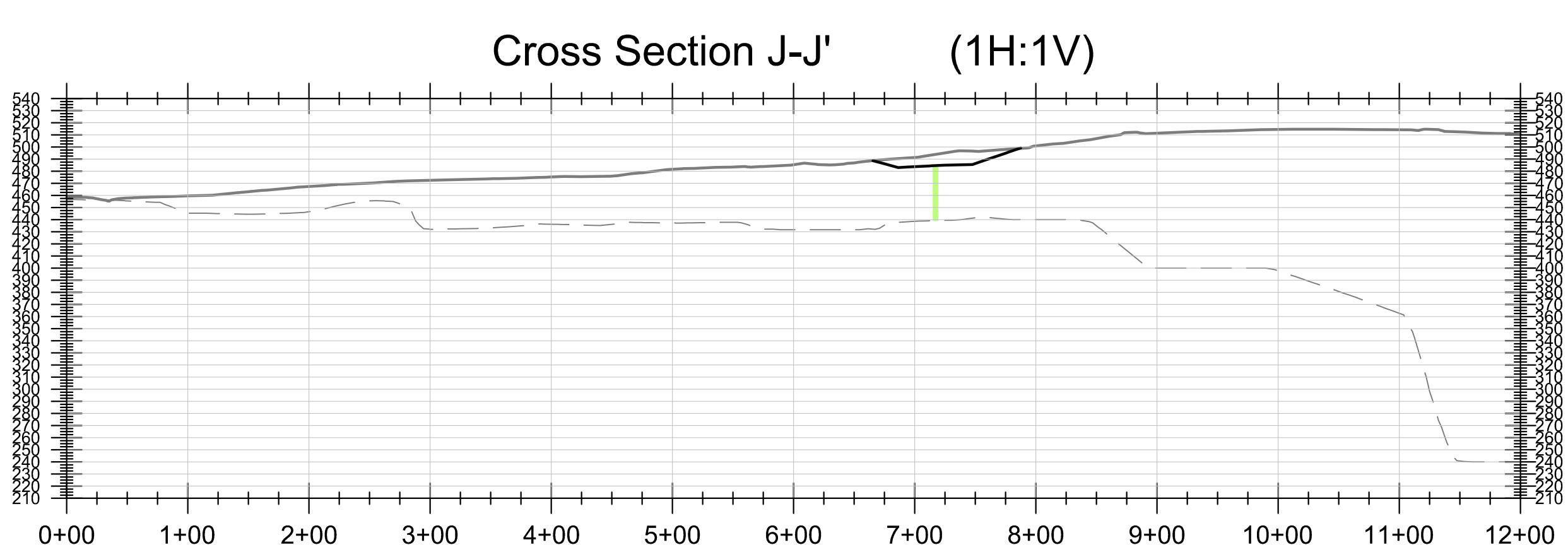
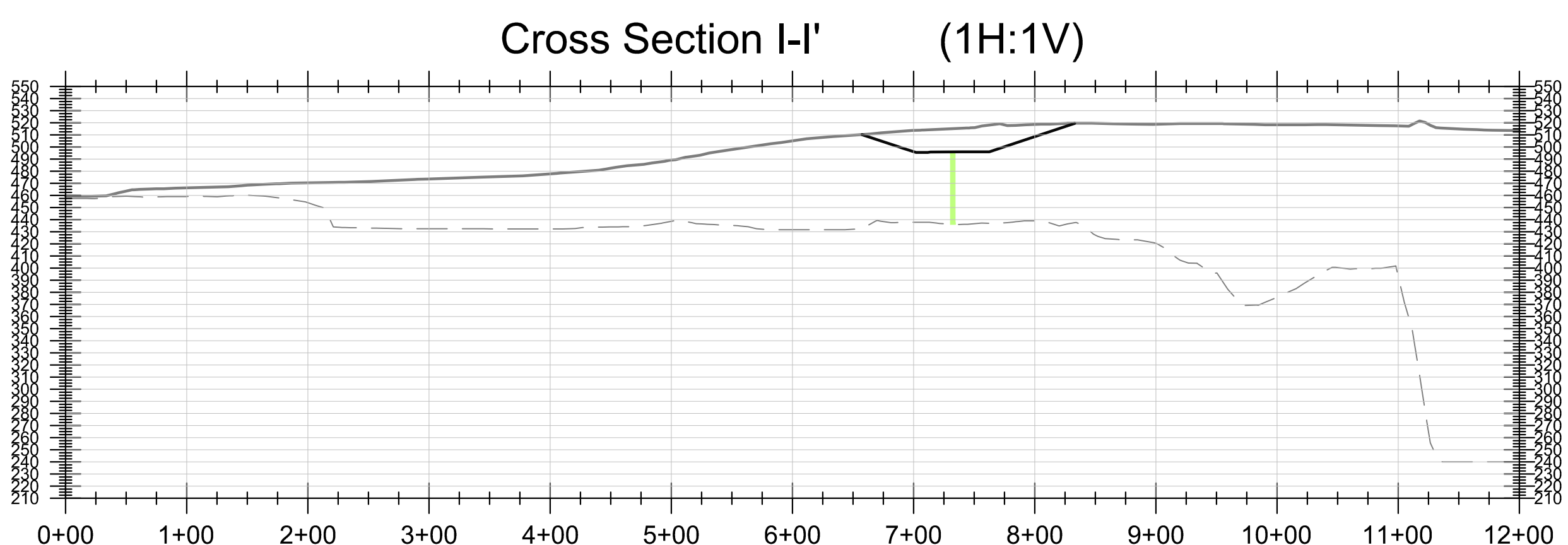
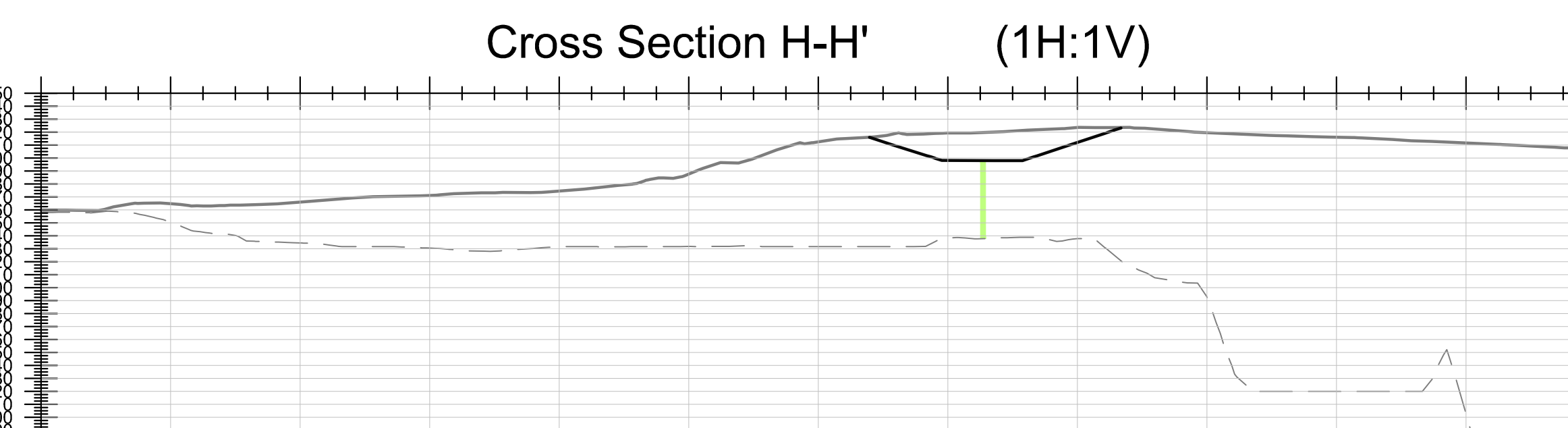
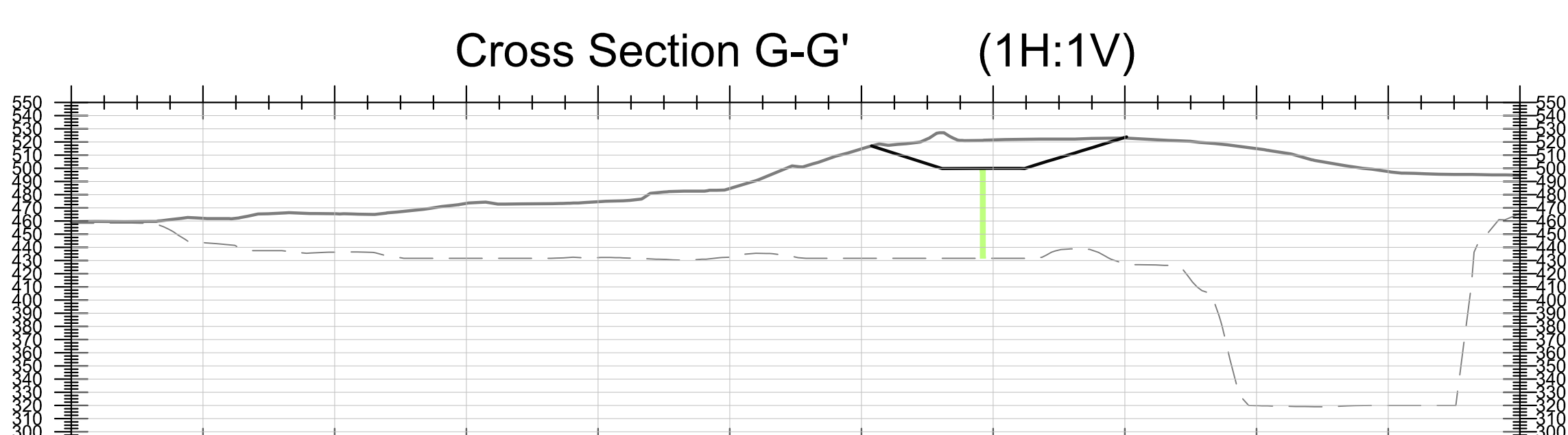
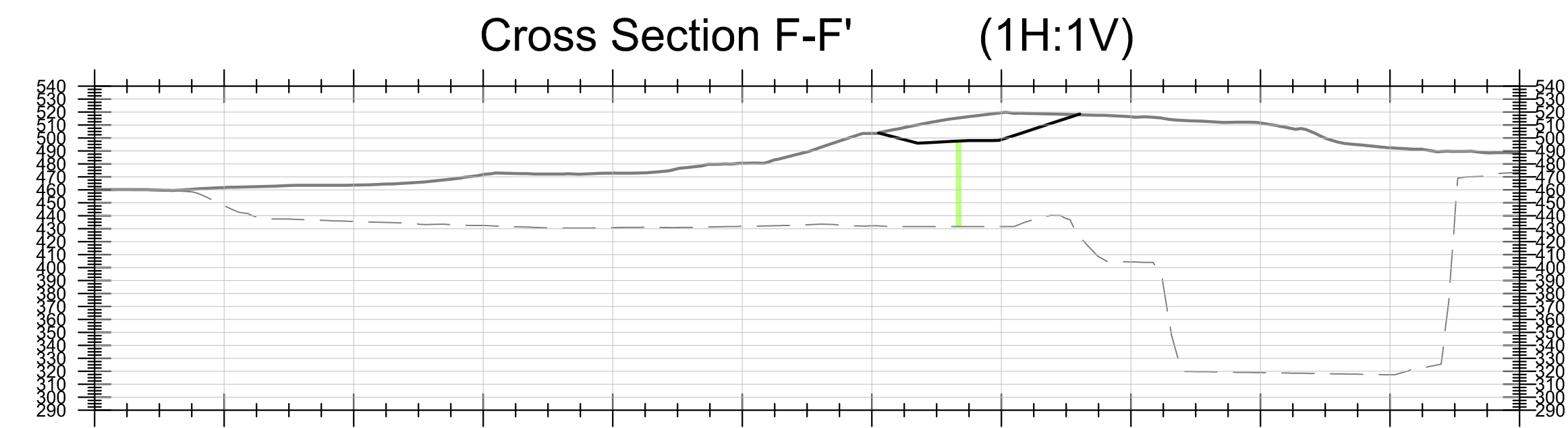
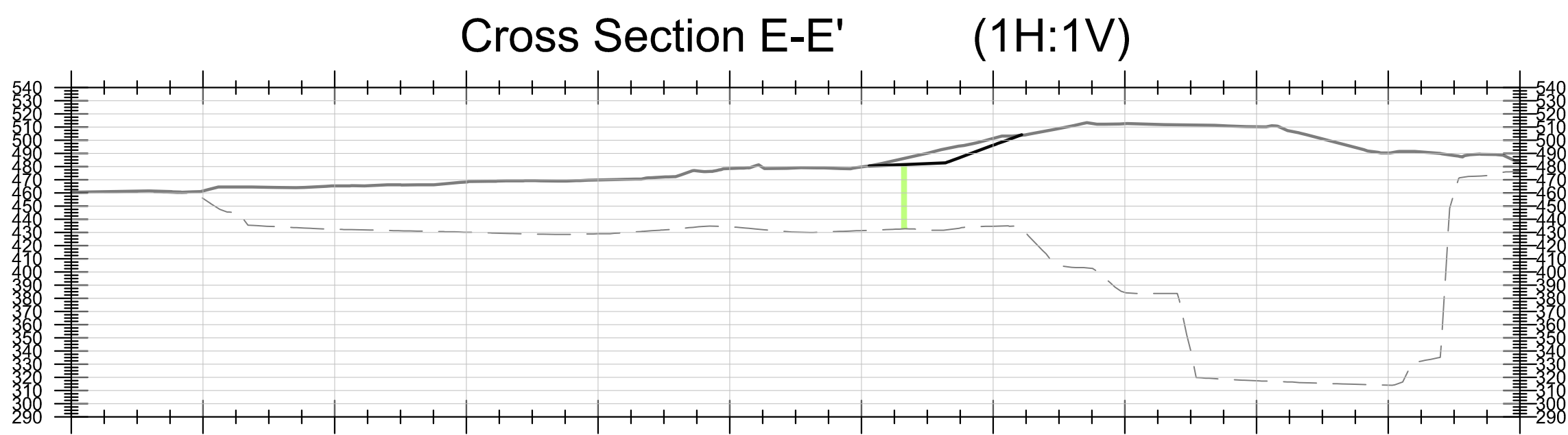
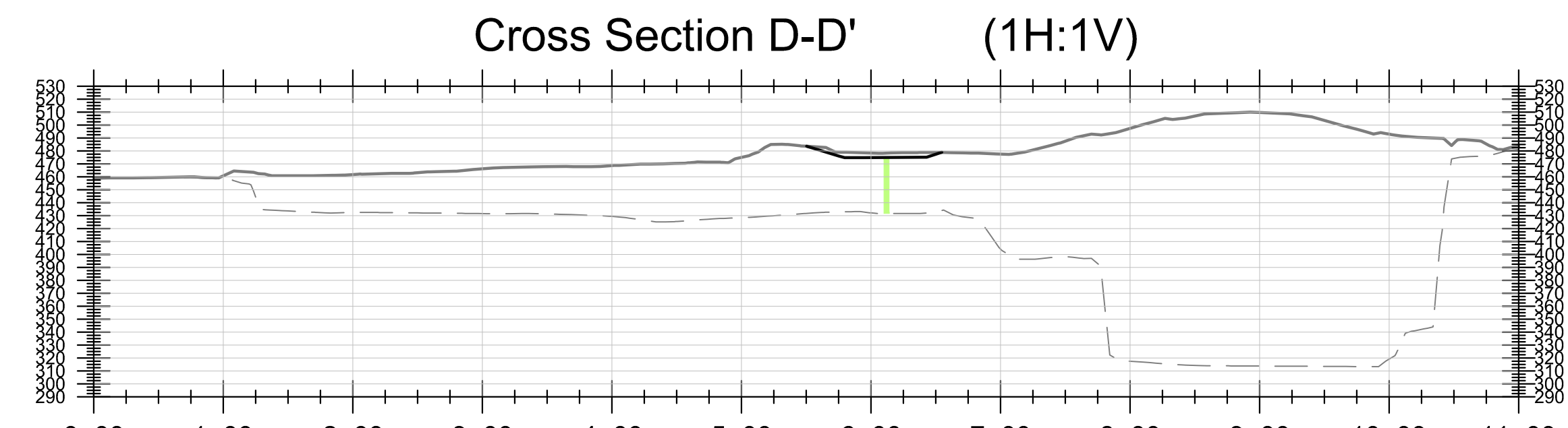
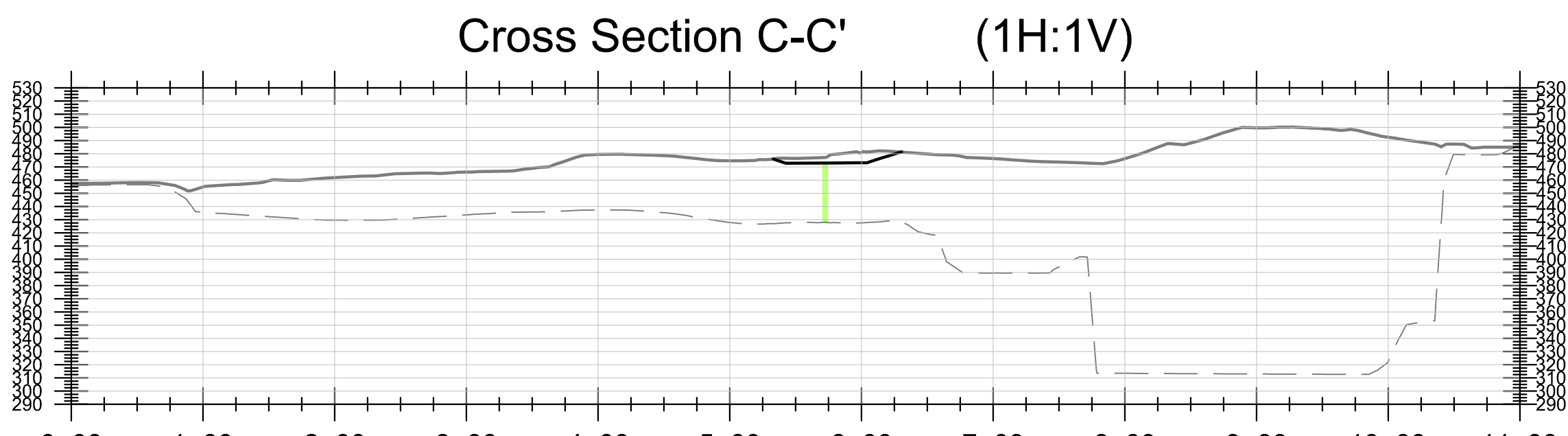
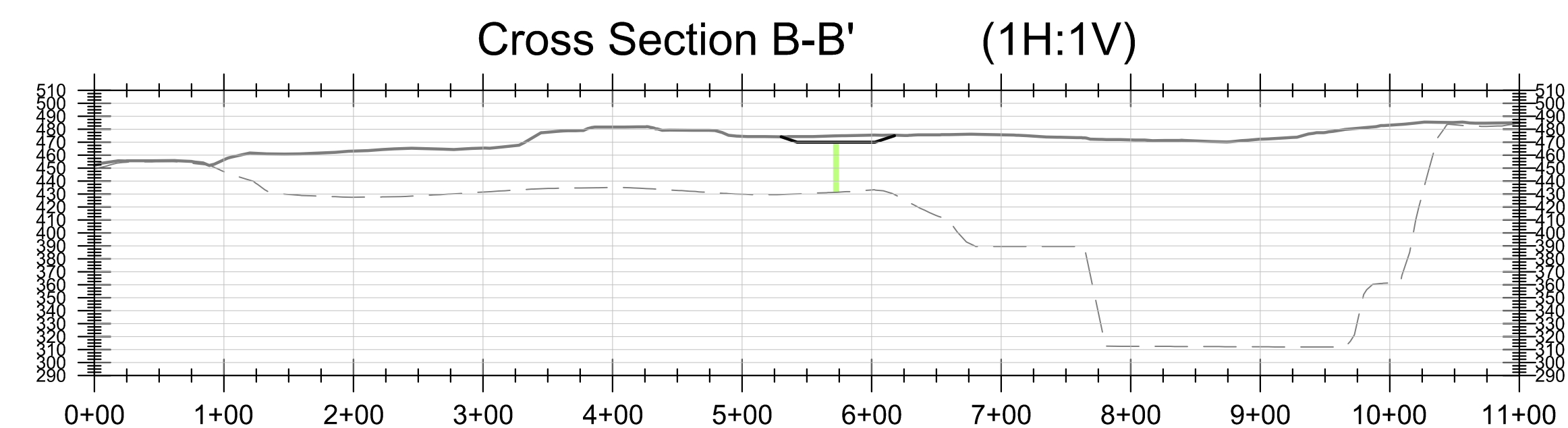
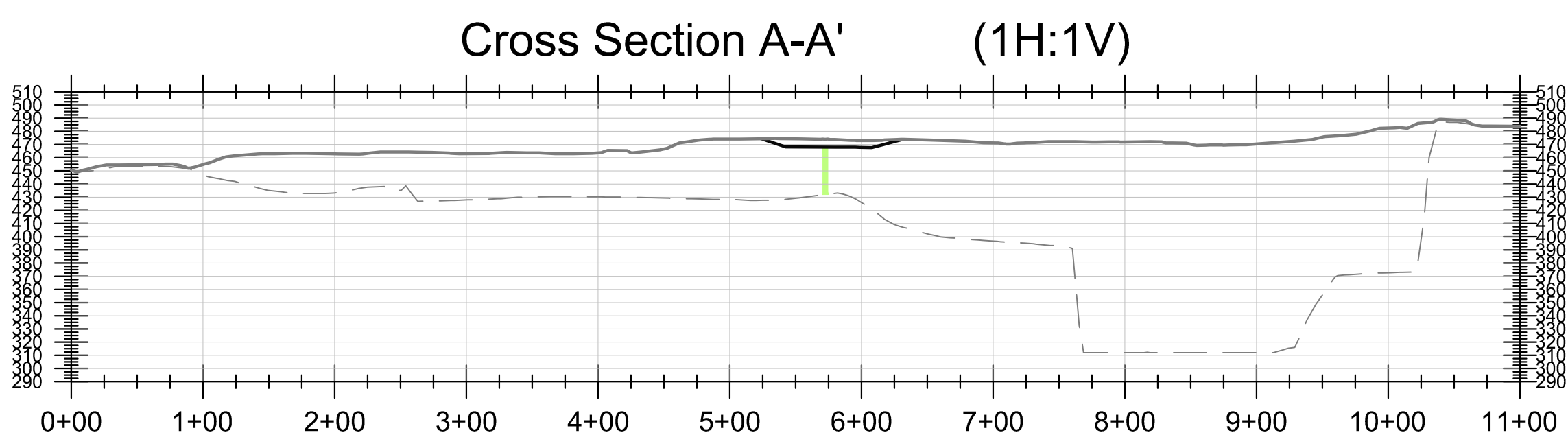


- LEGEND**
- PHASE 1 BORING LOCATION
 - ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF ELEVATED DOWNHOLE READINGS
 - NON-ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF NON-ELEVATED DOWNHOLE READINGS
 - HISTORIC BOUNDARY OF INTERPOLATED RIM LIMITS
 - FENCE
 - OU-1 BOUNDARY
 - BRIDGETON LANDFILL BOUNDARY
 - PROPERTY LINE
 - 03-20-14 TOPOGRAPHY (10' CONTOUR)
 - 03-20-14 TOPOGRAPHY (2' CONTOUR)
 - EXCAVATION GRADING (10' CONTOUR)
 - EXCAVATION GRADING (2' CONTOUR)
 - EXISTING INFRASTRUCTURE PIPE
 - EXISTING GAS EXTRACTION WELL
 - EXISTING GAS EXTRACTION WELL - NEWLY INSTALLED (NOT PART OF ACTIVE GAS SYSTEM)
 - EXISTING DUAL GAS EXTRACTION WELL
 - EXISTING PERIMETER GAS EXTRACTION WELL
 - EXISTING LEACHATE COLLECTION SUMP
 - EXISTING CONDENSATE SUMP

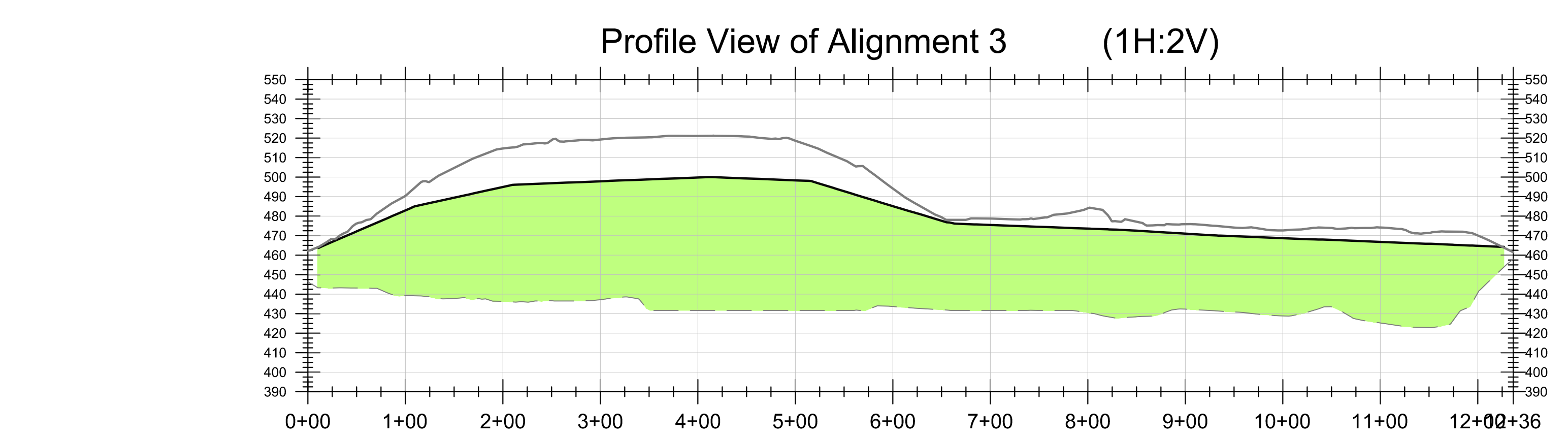
NOTES:
 • AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS
 • CO. AND IS DATED MARCH 20, 2014
 • ALL ELEVATIONS ARE ABOVE MEAN SEA LEVEL (AMSL)

THE DRAWINGS INCLUDED WITHIN THIS PLAN SET ARE NOT DESIGN NOR CONSTRUCTION LEVEL DRAWINGS. THEY ARE INTENDED FOR ILLUSTRATIVE PURPOSES ONLY.

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OPTION 3 ALIGNMENT PLAN VIEW WITH WASTE CUT AREAS			REVISION DATE	010
PROJECT NUMBER: BT-032 FILE PATH:				



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Purple
-64	-32	Dark Blue
-32	-16	Red
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow
-2	0	Light Yellow

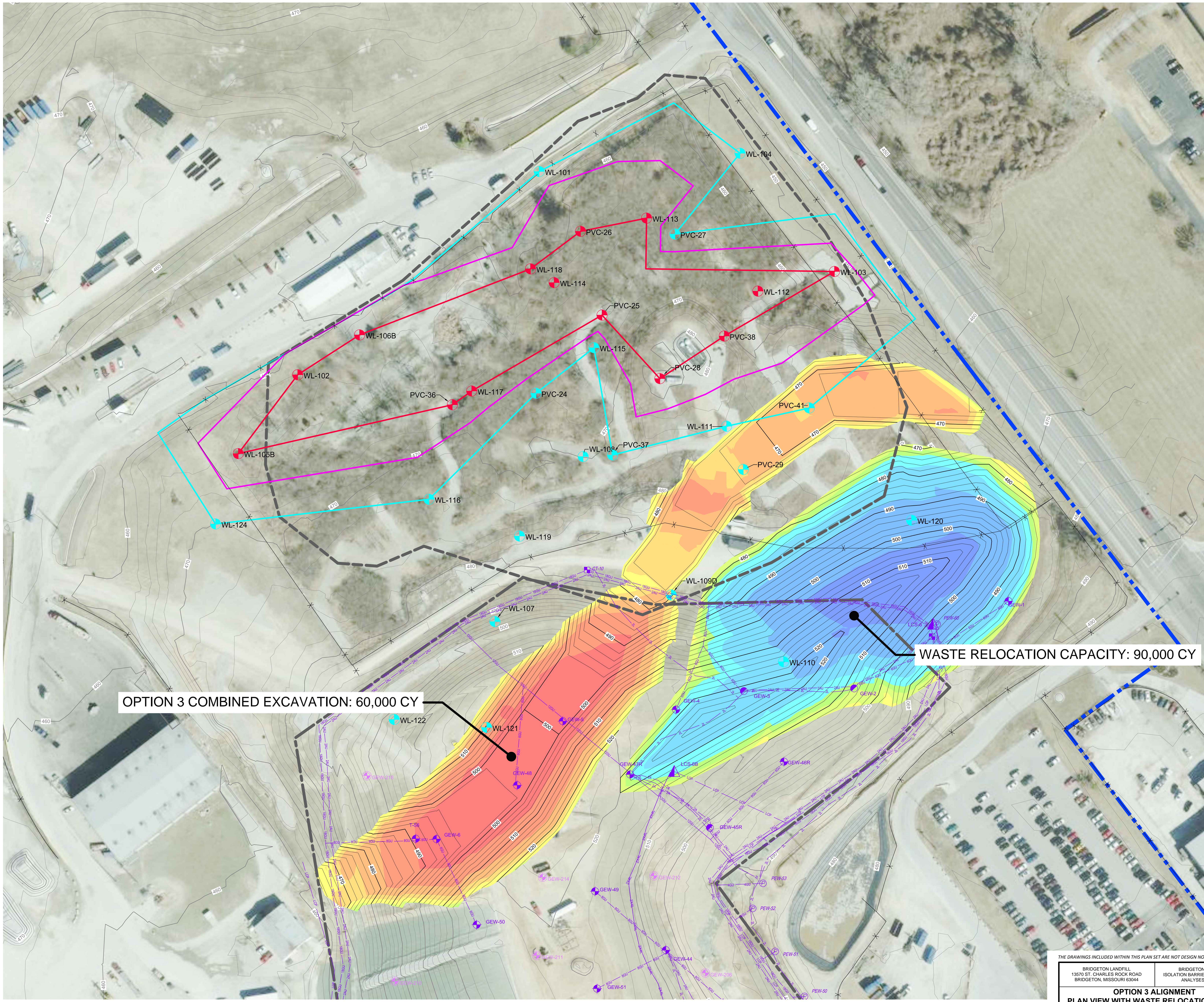


- LEGEND**
- 03-20-14 TOPOGRAPHY
 - - - ESTIMATED BOTTOM OF WASTE
 - EXCAVATION GRADING
 - █ INERT BARRIER

- NOTES:**
- AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS CO. AND IS DATED MARCH 20, 2014.
 - ESTIMATED BOTTOM OF WASTE WAS DEVELOPED BY COMPARING HISTORIC AND GEOLOGIC SURFACE DATA PROVIDED BY MULTIPLE SOURCES. SOME OF WHICH ARE INTERPOLATED ESTIMATES IN AND OF THEMSELVES. THE LOWEST ELEVATION AT EACH POINT ON A 10' X 10' GRID WAS SELECTED FOR INCLUSION IN THE ESTIMATED BOTTOM OF WASTE SURFACE.
 - ALL ELEVATIONS ARE ABOVE MEAN SEA LEVEL (AMSL).

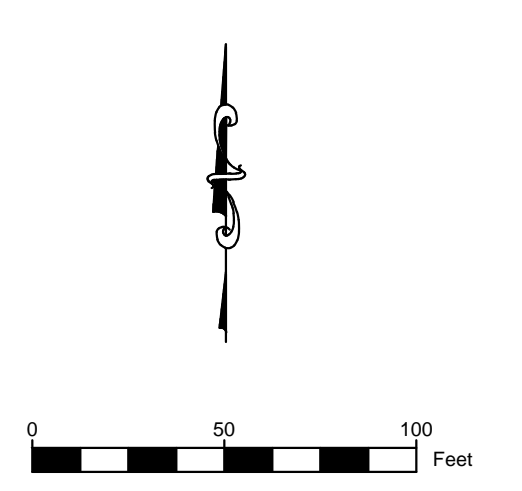
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BRIDGETON LANDFILL 13570 ST. CHARLES ROCK ROAD BRIDGETON, MISSOURI 63044	BRIDGETON LANDFILL ISOLATION BARRIER ALTERNATIVES ANALYSES REPORT		OCTOBER 2014 DESIGNED BY: PML APPROVED BY: DRF	DRAWING NO.:
OPTION 3 ALIGNMENT PROFILE VIEW AND CROSS SECTIONS			REVISION DATE	011



Thickness Map		
Maximum Depth - Ft.	Minimum Depth - Ft.	Color
-104	-64	Dark Purple
-64	-32	Medium Purple
-32	-16	Red-Orange
-16	-8	Orange
-8	-4	Light Orange
-4	-2	Yellow
-2	0	Light Yellow

Thickness Map		
Minimum Depth - Ft.	Maximum Depth - Ft.	Color
0	2	Light Green
2	4	Green
4	8	Cyan
8	16	Blue-Cyan
16	32	Blue
32	47	Dark Blue



- LEGEND**
- PHASE 1 BORING LOCATION
 - ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF ELEVATED DOWNHOLE READINGS
 - NON-ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF NON-ELEVATED DOWNHOLE READINGS
 - HISTORIC BOUNDARY OF INTERPOLATED RIM LIMITS
 - FENCE
 - OU-1 BOUNDARY
 - BRIDGETON LANDFILL BOUNDARY
 - PROPERTY LINE
 - 03-20-14 TOPOGRAPHY (10' CONTOUR)
 - 03-20-14 TOPOGRAPHY (2' CONTOUR)
 - EXCAVATION GRADING (10' CONTOUR)
 - EXCAVATION GRADING (2' CONTOUR)
 - EXISTING INFRASTRUCTURE PIPE
 - EXISTING GAS EXTRACTION WELL
 - EXISTING GAS EXTRACTION WELL - NEWLY INSTALLED (NOT PART OF ACTIVE GAS SYSTEM)
 - EXISTING DUAL GAS EXTRACTION WELL
 - EXISTING PERIMETER GAS EXTRACTION WELL
 - EXISTING LEACHATE COLLECTION SUMP
 - EXISTING CONDENSATE SUMP

NOTES:
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 COJ AND IS DATED MARCH 20, 2014
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OPTION 3 COMBINED EXCAVATION: 60,000 CY

WASTE RELOCATION CAPACITY: 90,000 CY

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OPTION 3 ALIGNMENT PLAN VIEW WITH WASTE RELOCATION AREAS			REVISION DATE	012



- LEGEND**
- PHASE 1 BORING LOCATION
 - ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF ELEVATED DOWNHOLE READINGS
 - NON-ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
 - HISTORIC BOUNDARY OF NON-ELEVATED DOWNHOLE READINGS
 - HISTORIC BOUNDARY OF INTERPOLATED RIM LIMITS
 - FENCE
 - OU-1 BOUNDARY
 - BRIDGETON LANDFILL BOUNDARY
 - PROPERTY LINE
 - 03-20-14 TOPOGRAPHY (10' CONTOUR)
 - 03-20-14 TOPOGRAPHY (2' CONTOUR)
 - HEAT EXTRACTION BARRIER ALIGNMENT
 - EXISTING INFRASTRUCTURE PIPE
 - EXISTING GAS EXTRACTION WELL
 - EXISTING GAS EXTRACTION WELL - NEWLY INSTALLED (NOT PART OF ACTIVE GAS SYSTEM)
 - EXISTING DUAL GAS EXTRACTION WELL
 - EXISTING PERIMETER GAS EXTRACTION WELL
 - EXISTING LEACHATE COLLECTION SUMP
 - EXISTING CONDENSATE SUMP

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PROJECT NUMBER: BT-032	FILE PATH:		REVISION	DATE



LEGEND

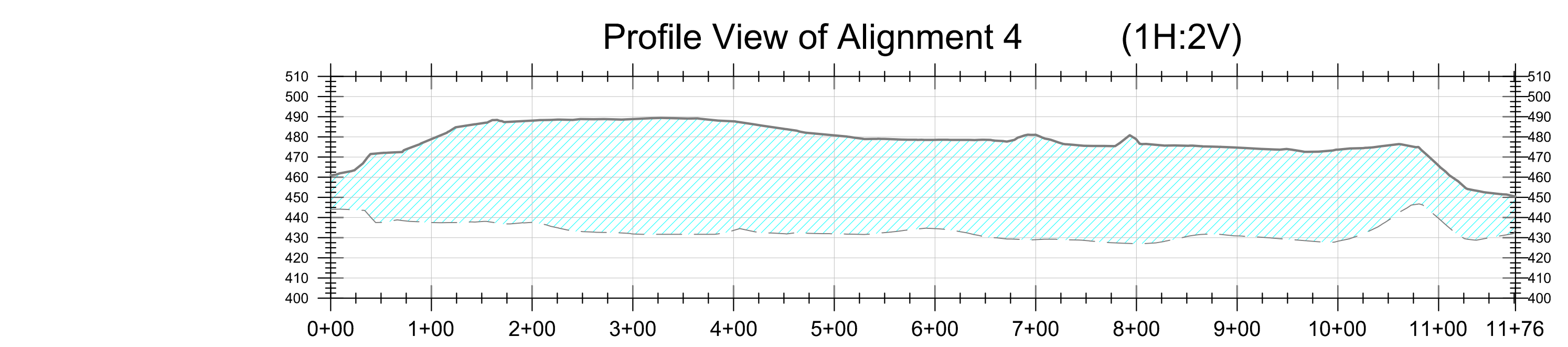
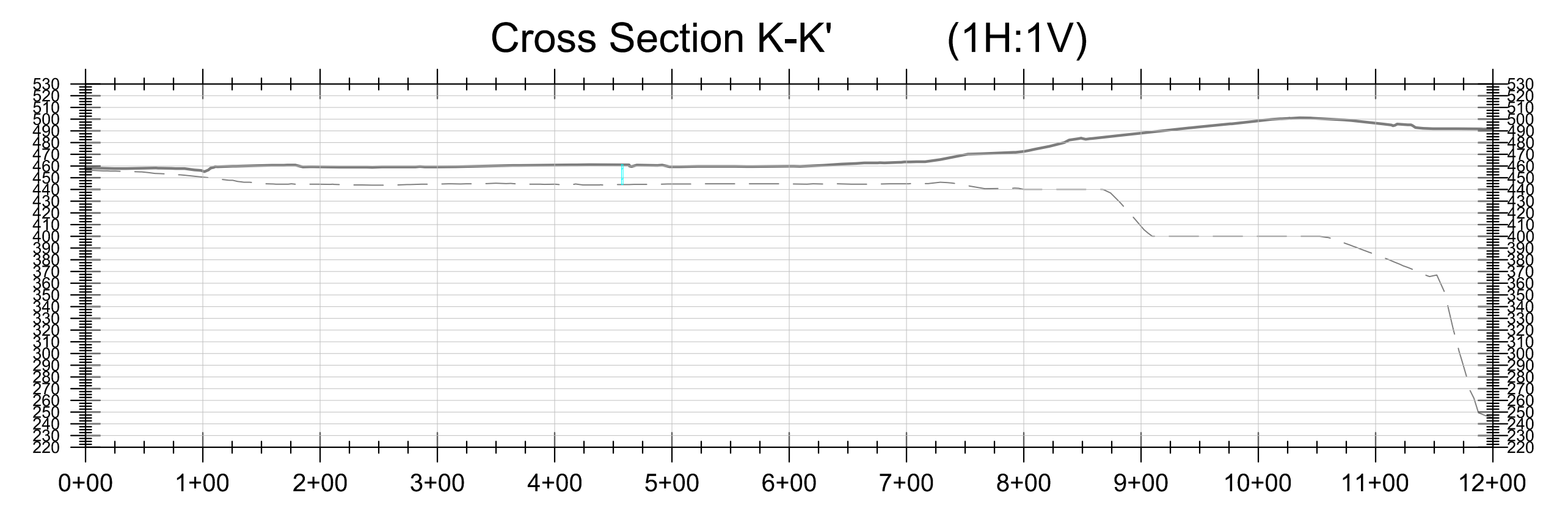
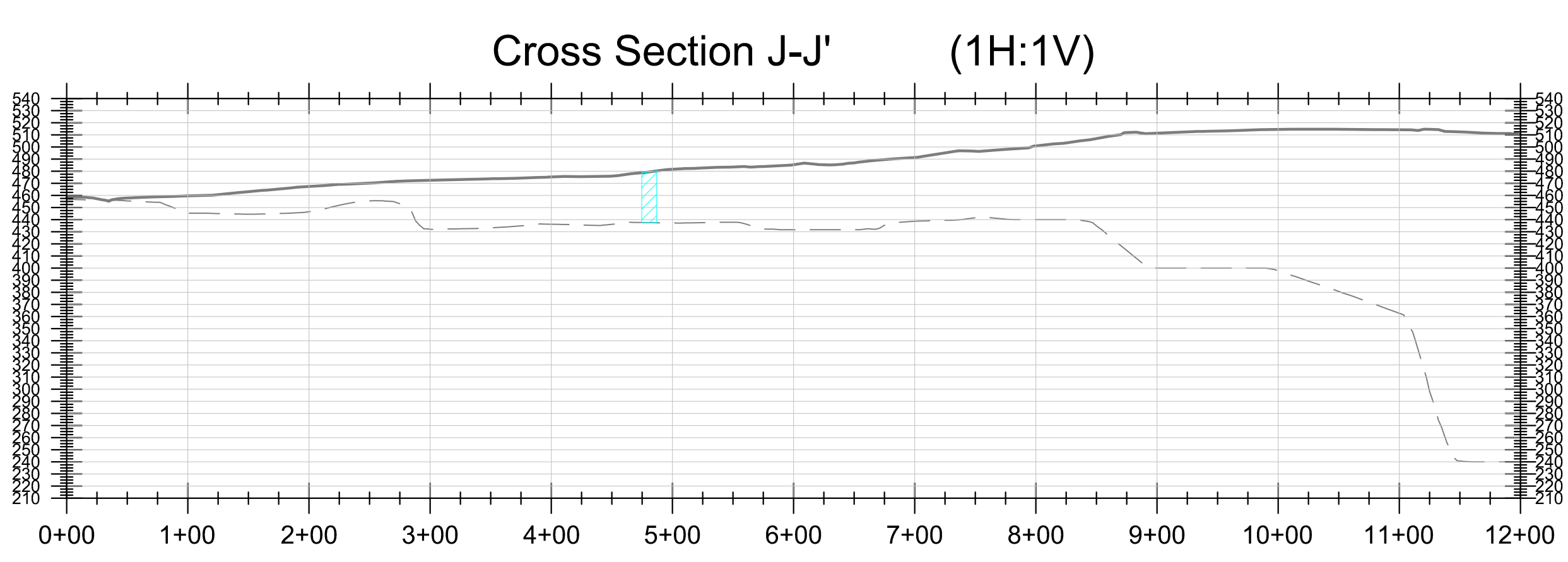
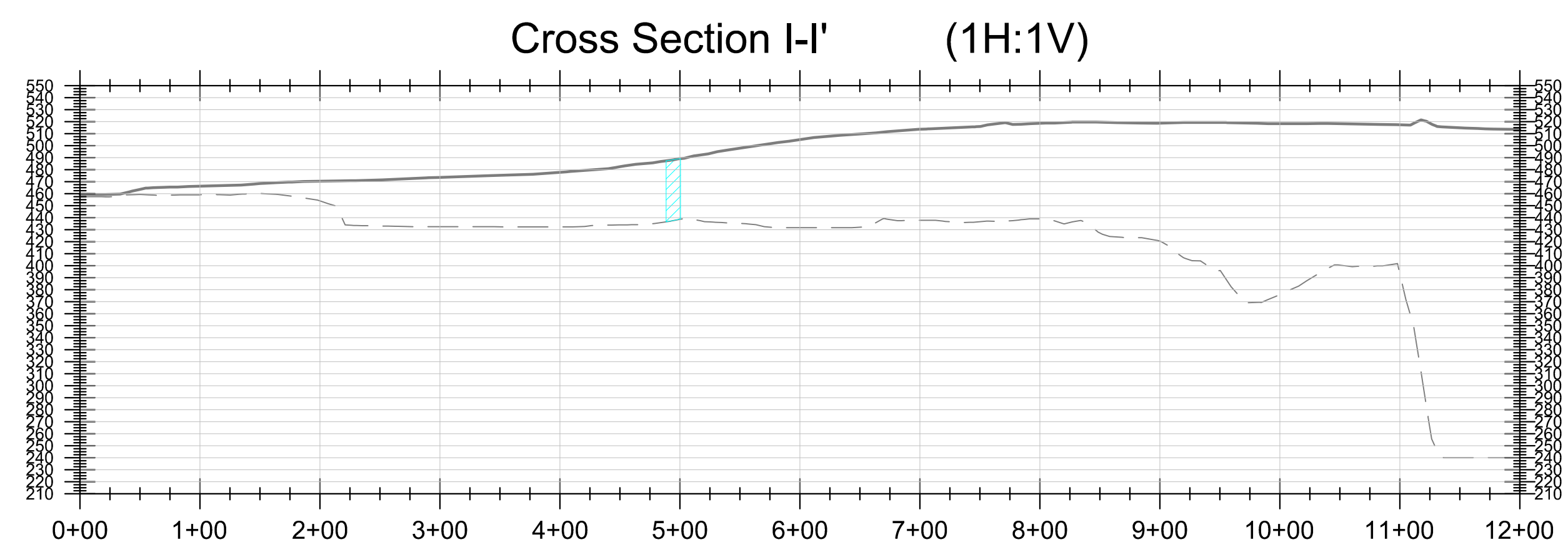
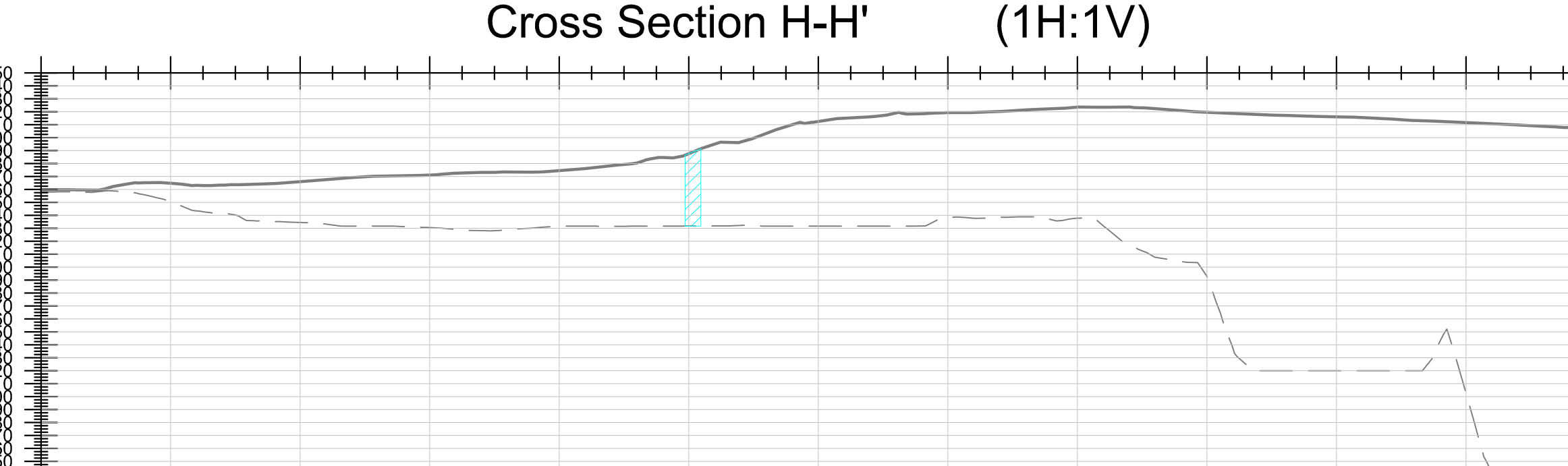
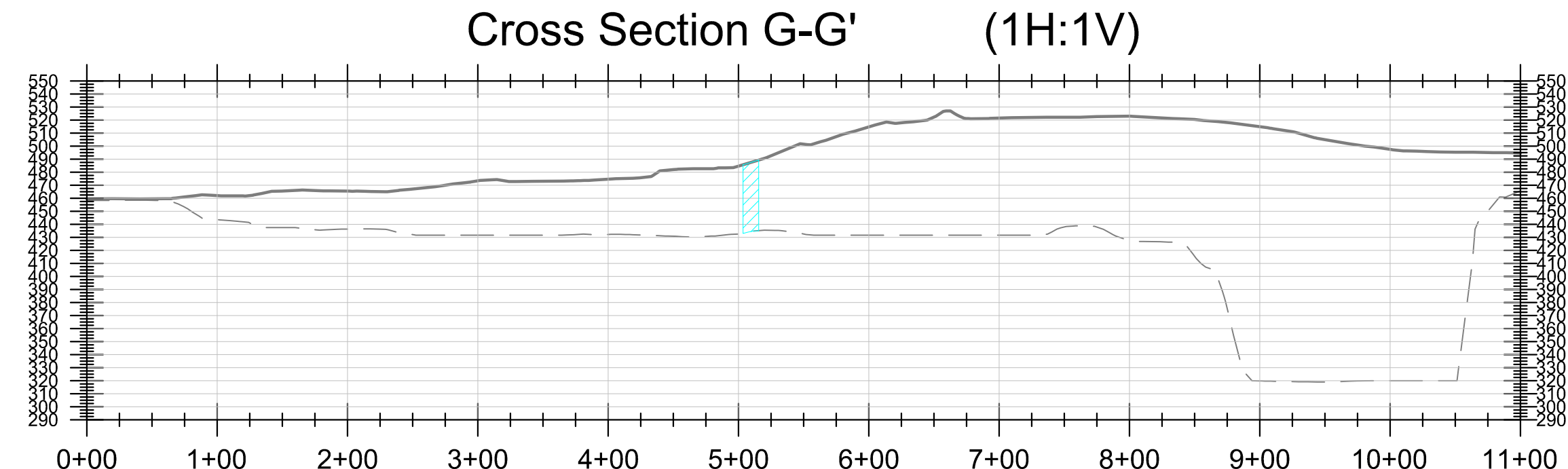
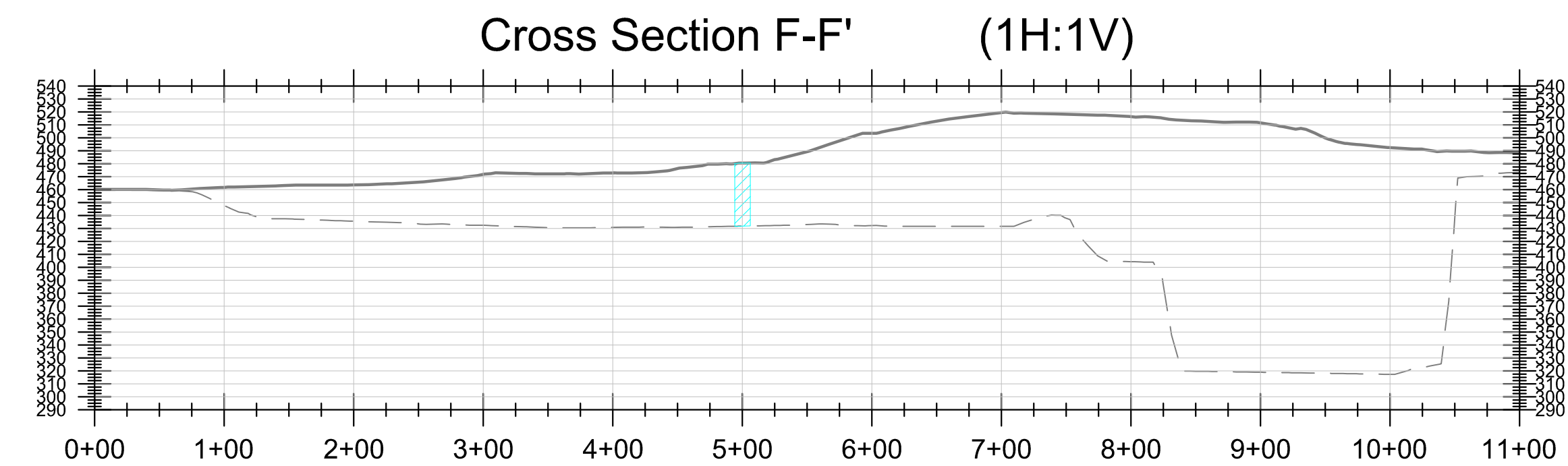
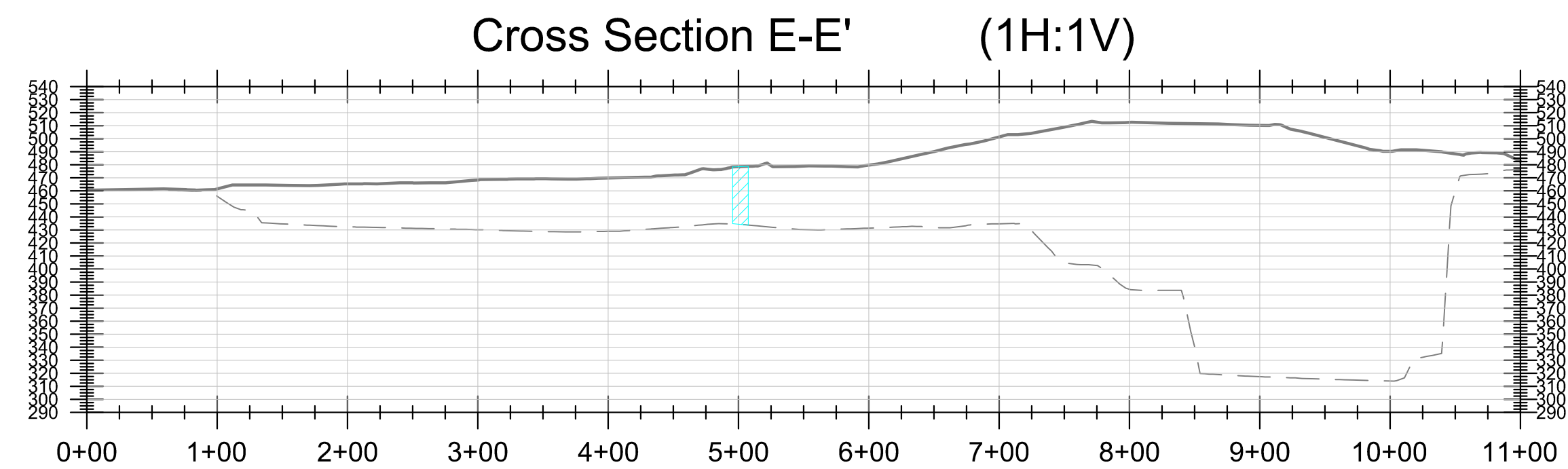
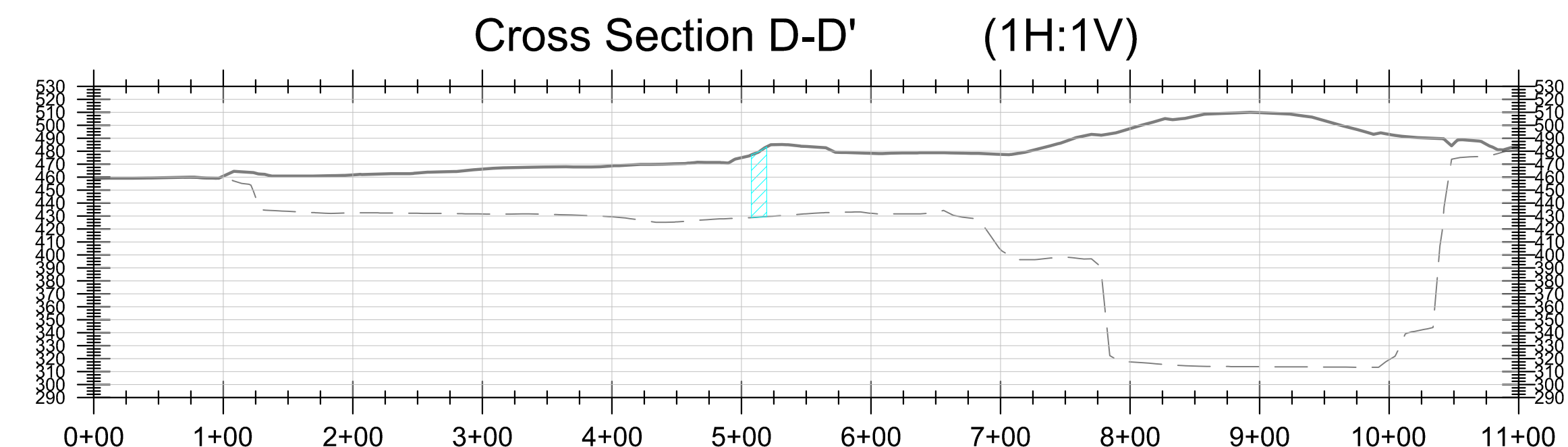
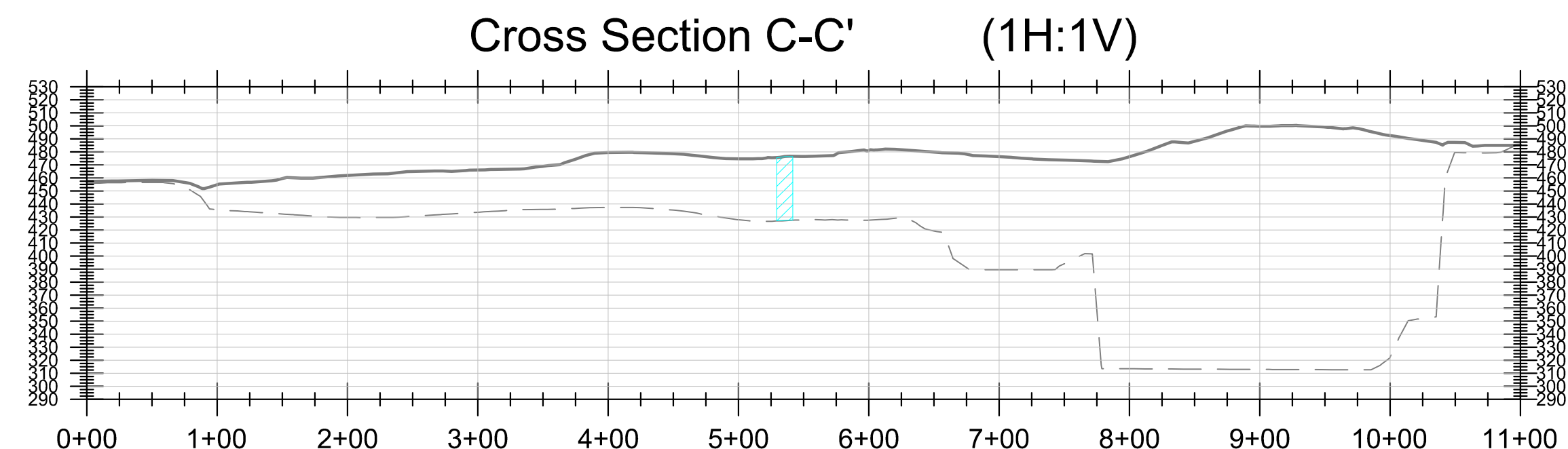
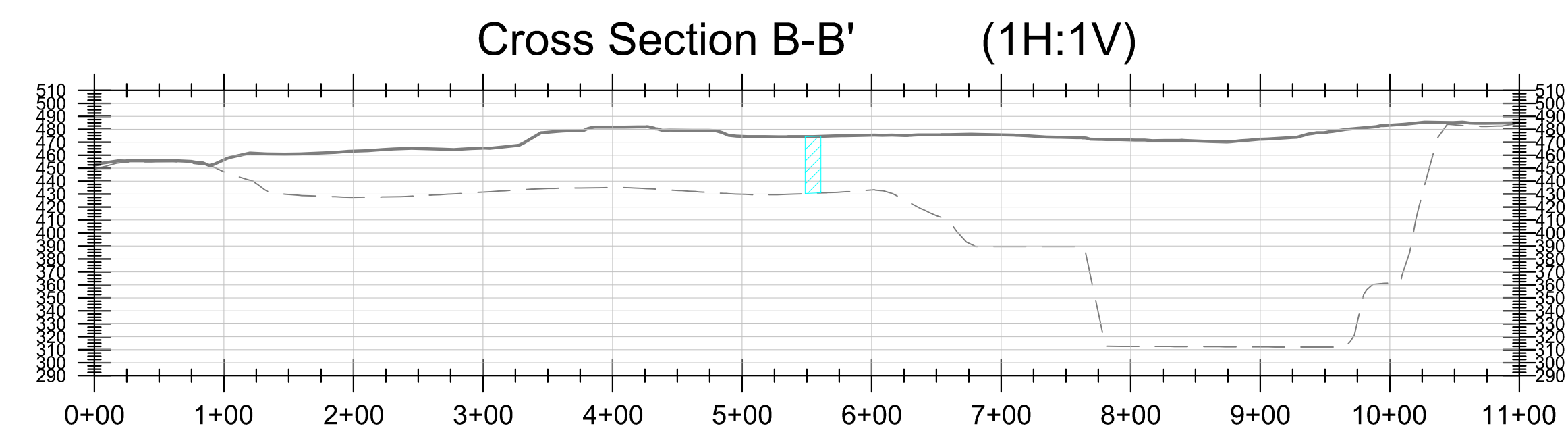
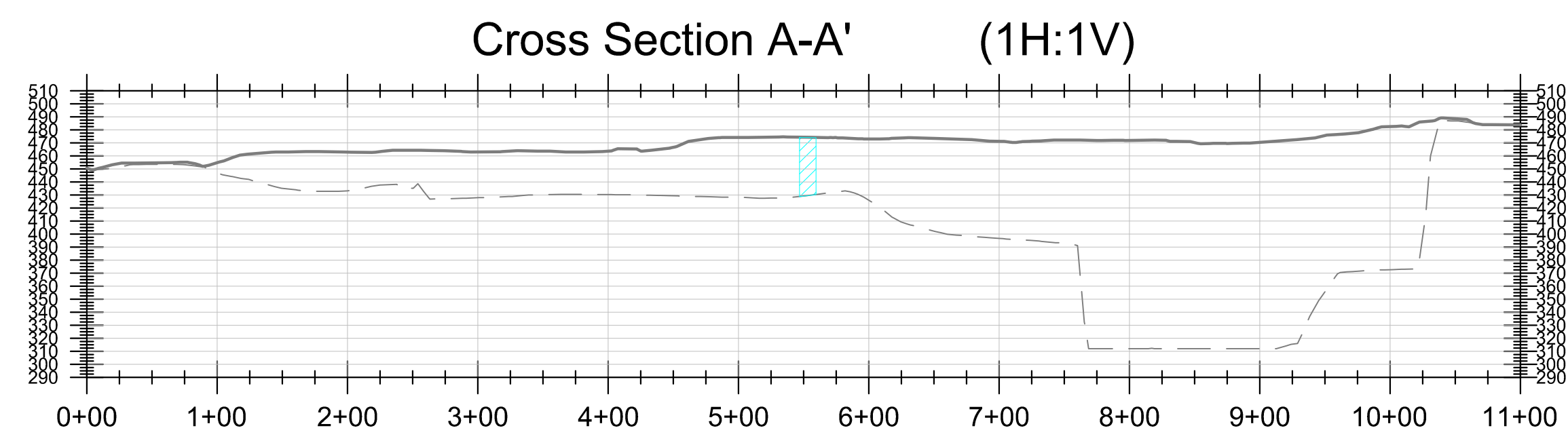
- PHASE 1 BORING LOCATION
- ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
- HISTORIC BOUNDARY OF ELEVATED DOWNHOLE READINGS
- NON-ELEVATED DOWNHOLE GAMMA READING FROM PREVIOUS STUDY
- HISTORIC BOUNDARY OF NON-ELEVATED DOWNHOLE READINGS
- HISTORIC BOUNDARY OF INTERPOLATED RIM LIMITS
- FENCE
- OU-1 BOUNDARY
- BRIDGETON LANDFILL BOUNDARY
- PROPERTY LINE
- 03-20-14 TOPOGRAPHY (10' CONTOUR)
- 03-20-14 TOPOGRAPHY (2' CONTOUR)
- EXCAVATION GRADING (110' CONTOUR)
- EXCAVATION GRADING (2' CONTOUR)
- COOLING POINT (WITH 10' RADIUS)
- EXISTING INFRASTRUCTURE PIPE
- EXISTING GAS EXTRACTION WELL
- EXISTING GAS EXTRACTION WELL - NEWLY INSTALLED (NOT PART OF ACTIVE GAS SYSTEM)
- EXISTING DUAL GAS EXTRACTION WELL
- EXISTING PERIMETER GAS EXTRACTION WELL
- EXISTING LEACHATE COLLECTION SUMP
- EXISTING CONDENSATE SUMP

NOTES:

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OPTION 4 ALIGNMENT				014
PLAN VIEW WITH COOLING LOOP LOCATIONS			REVISION	

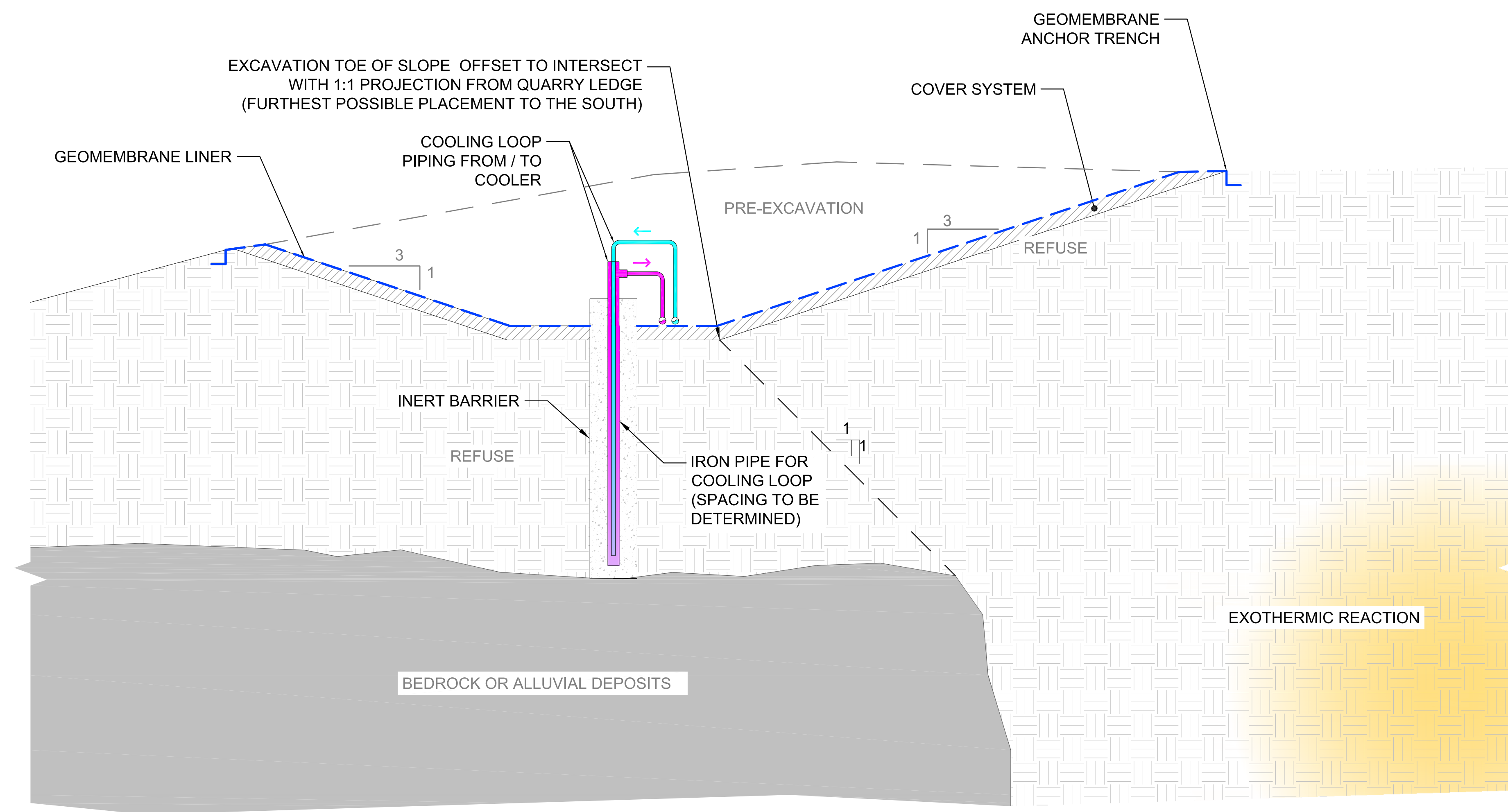


- LEGEND**
- 03-20-14 TOPOGRAPHY
 - - - ESTIMATED BOTTOM OF WASTE
 - ▨ DRILLED OR DRIVEN COOLING POINT AREA
 - COOLING POINT (WITH 10' RADIUS)

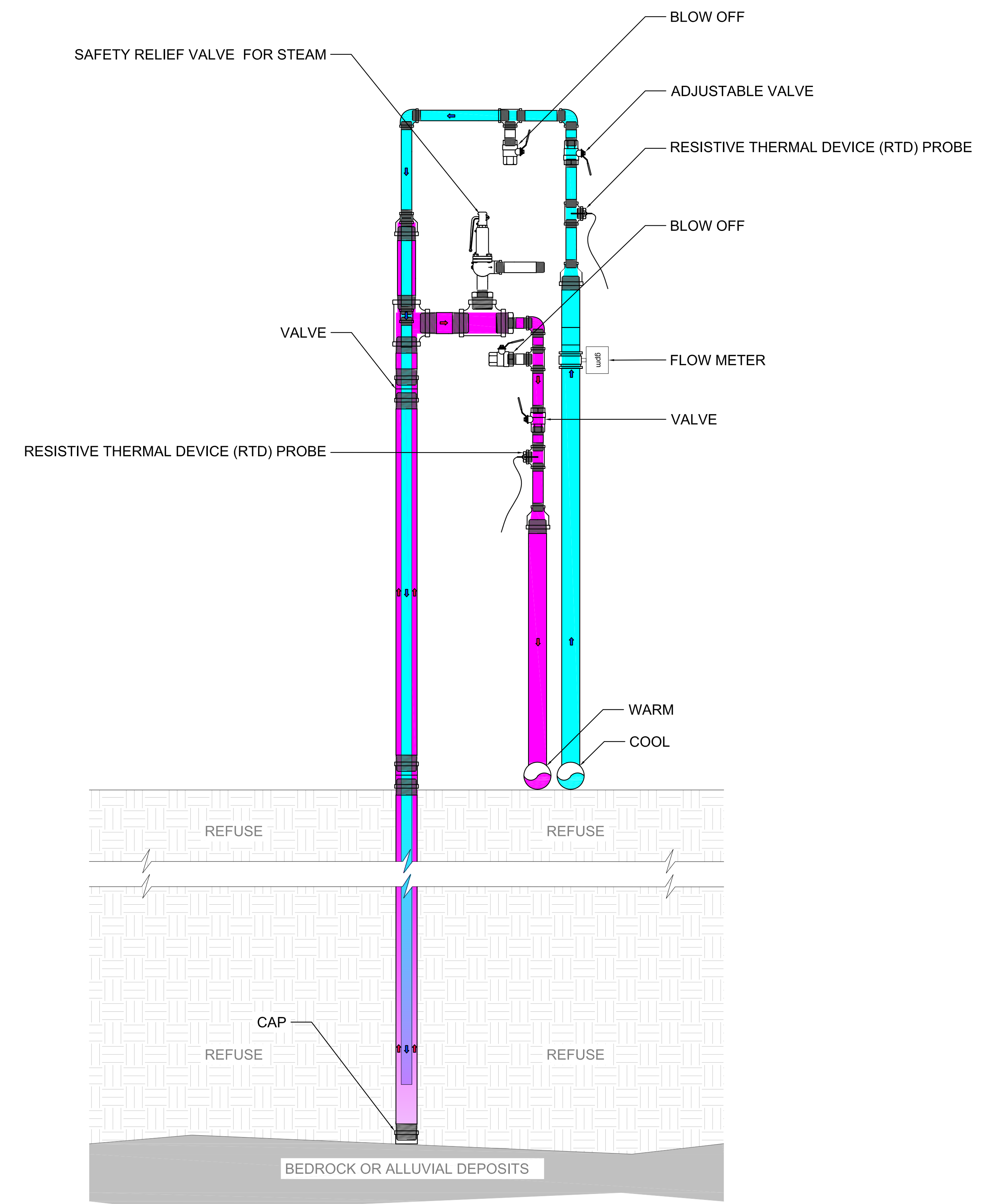
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OPTION 4 ALIGNMENT						015
PROFILE VIEW AND CROSS SECTIONS						
PROJECT NUMBER: BT-032 FILE PATH:				REVISION	DATE	



1 OPTION 1 AND 3 - TYPICAL INERT BARRIER
16 NOT TO SCALE



2 OPTION 4 - DRILLED OR DRIVEN COOLING POINT
16 NOT TO SCALE