

ROAD CONSTRUCTION ZONES TABLE:

Fill Zone 1	1.0m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 2	1.5m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 3	2.0m min. Overall Road Thickness with 2.0H:1V Side Slopes
Bedrock Zone	0.3m min Road Thickness (ROQ not required) with Side Slopes to be determined in the field

NOTE

- All dimensions in metres unless noted otherwise.

DRAWING NO. DRAWING TITLE DRAWING NO. DRAWING TITLE

REFERENCE DRAWINGS

REVISIONS

PROFESSIONAL ENGINEER'S STAMP

B Issued for Discussion CH EMR 18Nov16

A Issued for Discussion MMM EMR 13Jul16

NO. DESCRIPTION CHK'D APP'D DATE

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HOPE BAY PROJECT

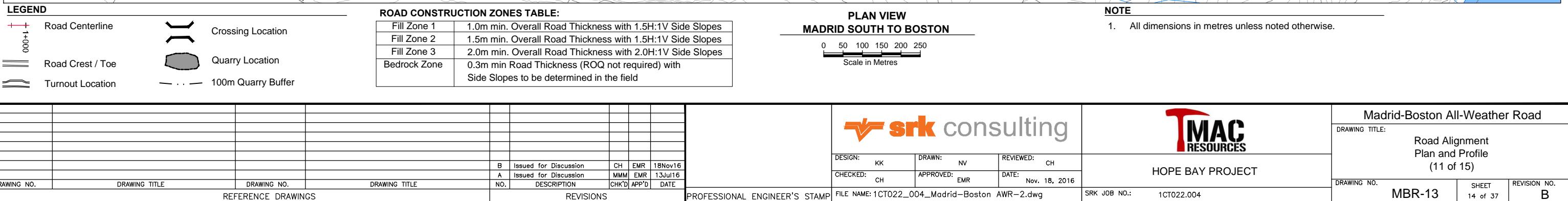
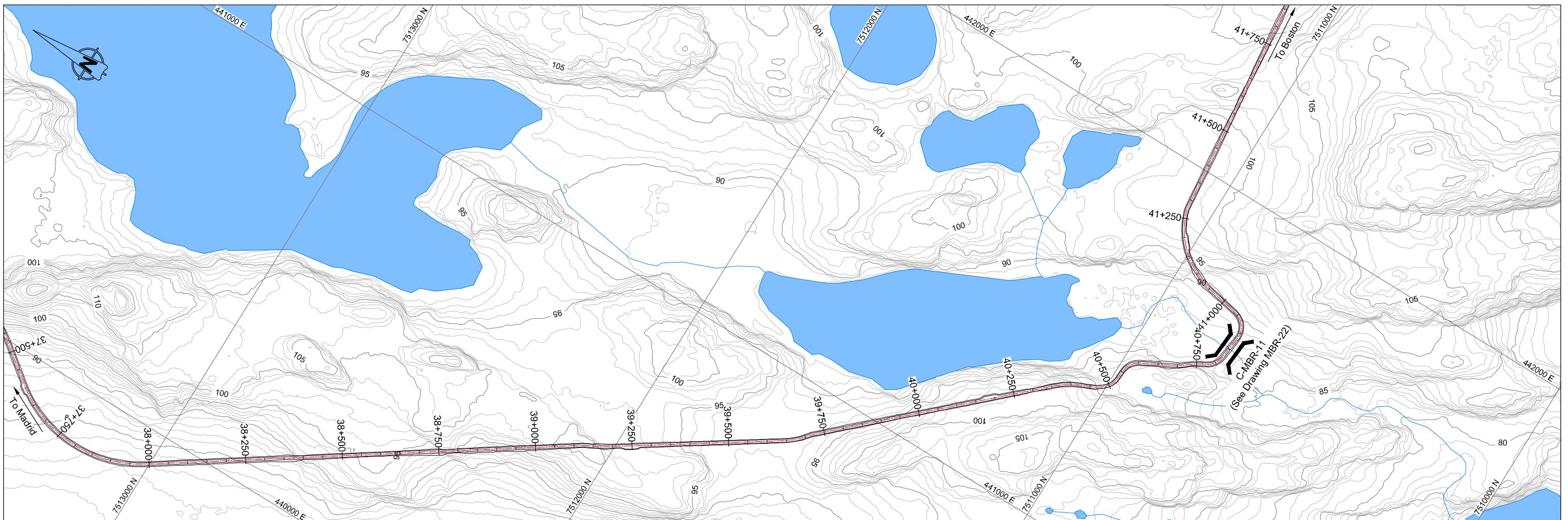
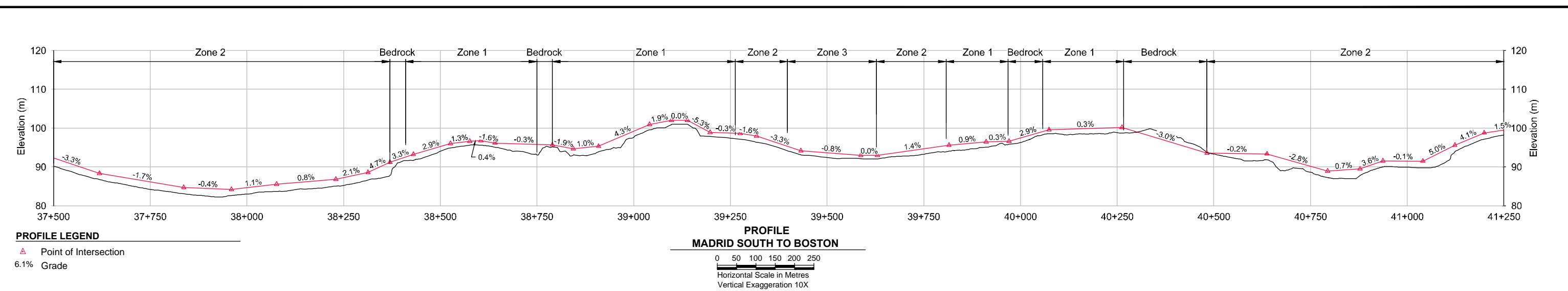
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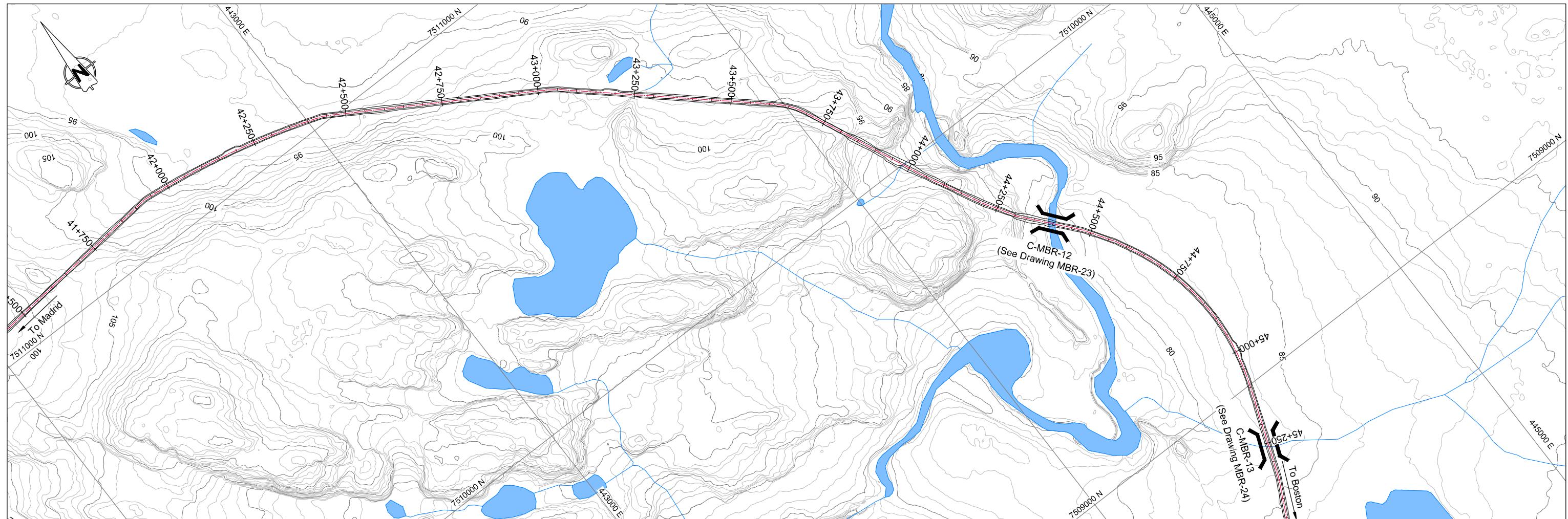
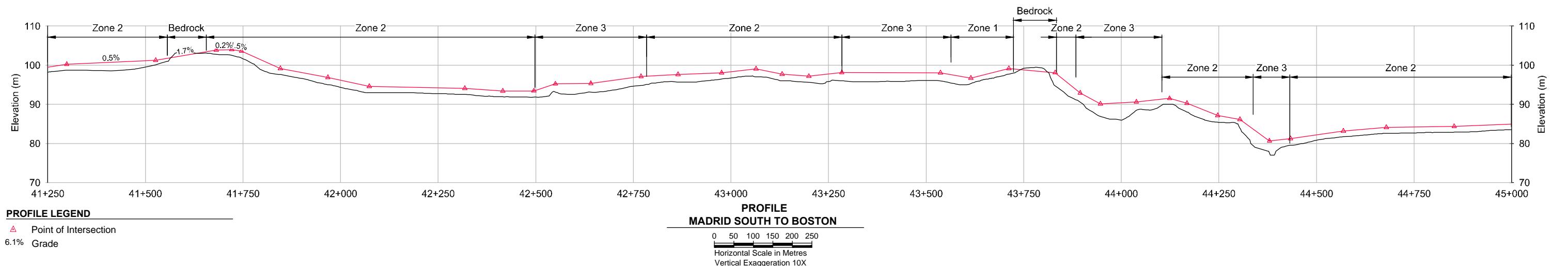
SRK JOB NO.: 1CT022.004

Madrid-Boston All-Weather Road

DRAWING TITLE: Road Alignment Plan and Profile (10 of 15)

DRAWING NO. MBR-12 SHEET 13 of 37 REVISION NO. B





OR

LEGEND

- Road Centerline
- Crossing Location
- Road Crest / Toe
- Quarry Location
- Turnout Location
- 100m Quarry Buffer

ROAD CONSTRUCTION ZONES TABLE:	
Fill Zone 1	1.0m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 2	1.5m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 3	2.0m min. Overall Road Thickness with 2.0H:1V Side Slopes
Bedrock Zone	0.3m min Road Thickness (ROQ not required) with Side Slopes to be determined in the field

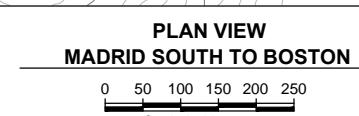
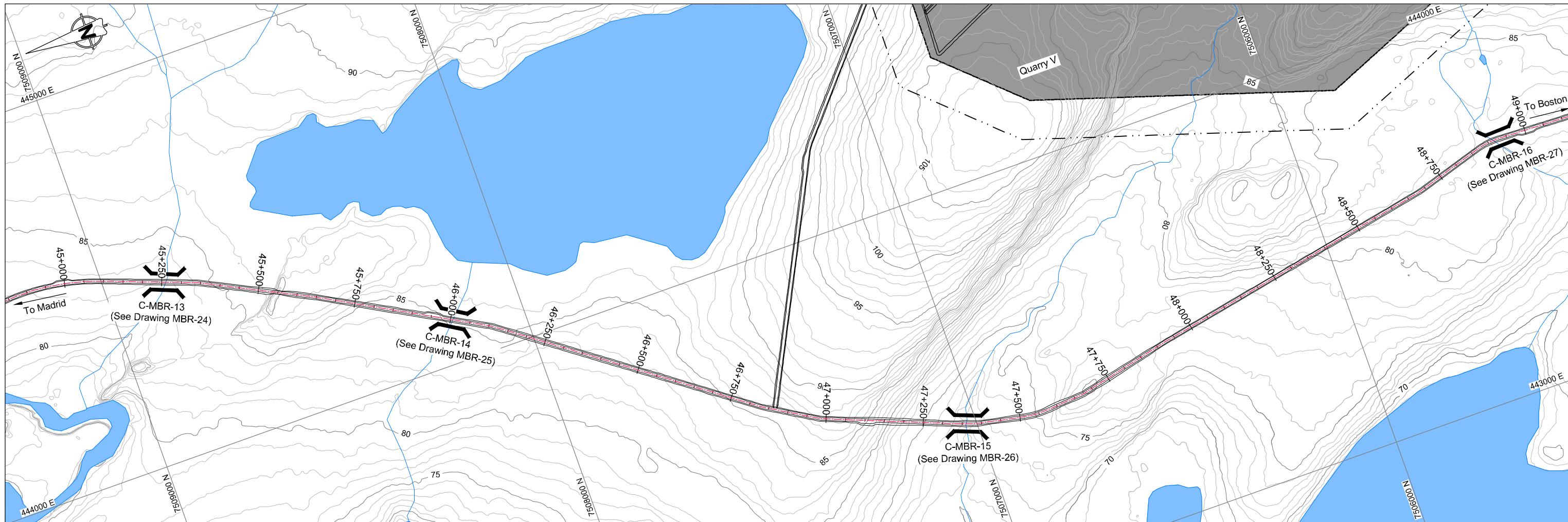
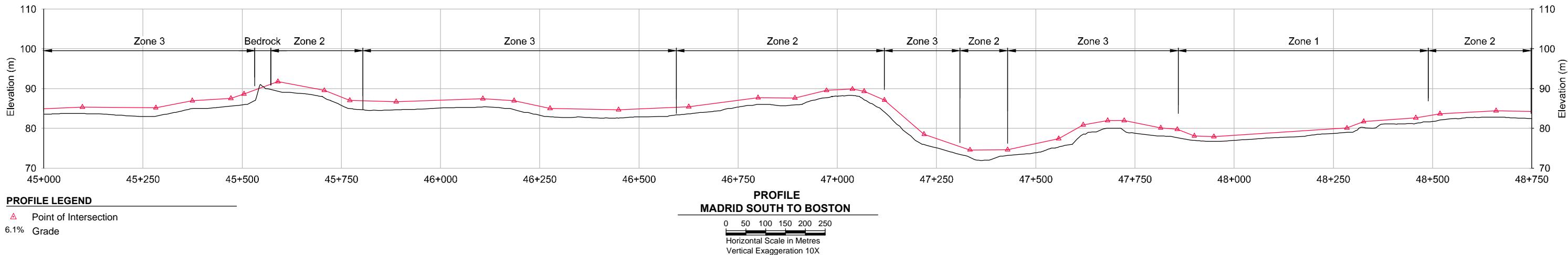
PLAN VIEW

NOTE

Nov16	PROFESSIONAL ENGINEER'S STAMP	 DESIGN: KK DRAWN: NV REVIEWED: CH		
Suul16		CHECKED:	APPROVED:	DATE: Nov. 18, 2016
DATE		FILE NAME: 1CT022_004_Madrid-Boston AWR-2.dwg		

The logo for T MAC RESOURCES. It features a stylized red 'T' above the word 'MAC' in large, bold, black capital letters. Below 'MAC' is the word 'RESOURCES' in a smaller, black, sans-serif font. Below the logo, the text 'HOPE BAY PROJECT' is centered in a large, black, sans-serif font.

Madrid-Boston All-Weather Road
ING TITLE:
Road Alignment
Plan and Profile
(12 of 15)
NG NO. MBR-14 SHEET 15 of 37 REVISION NO. B



NOTE

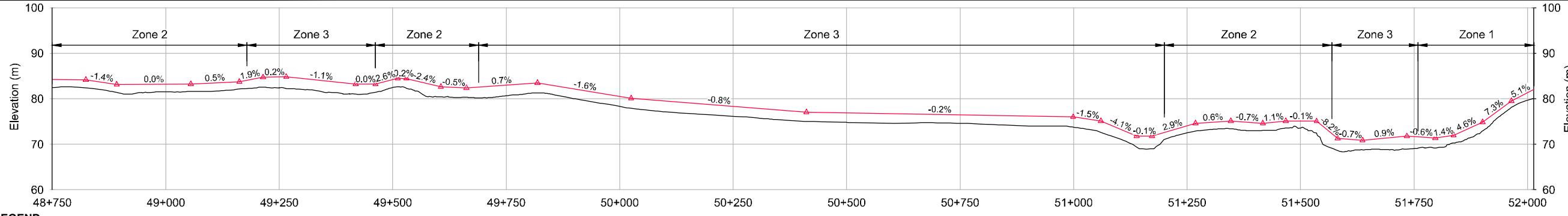
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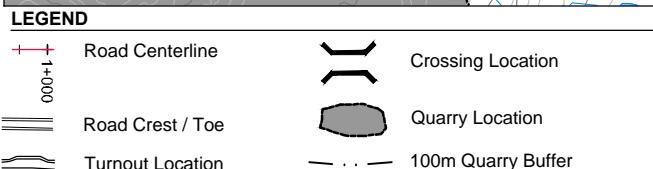
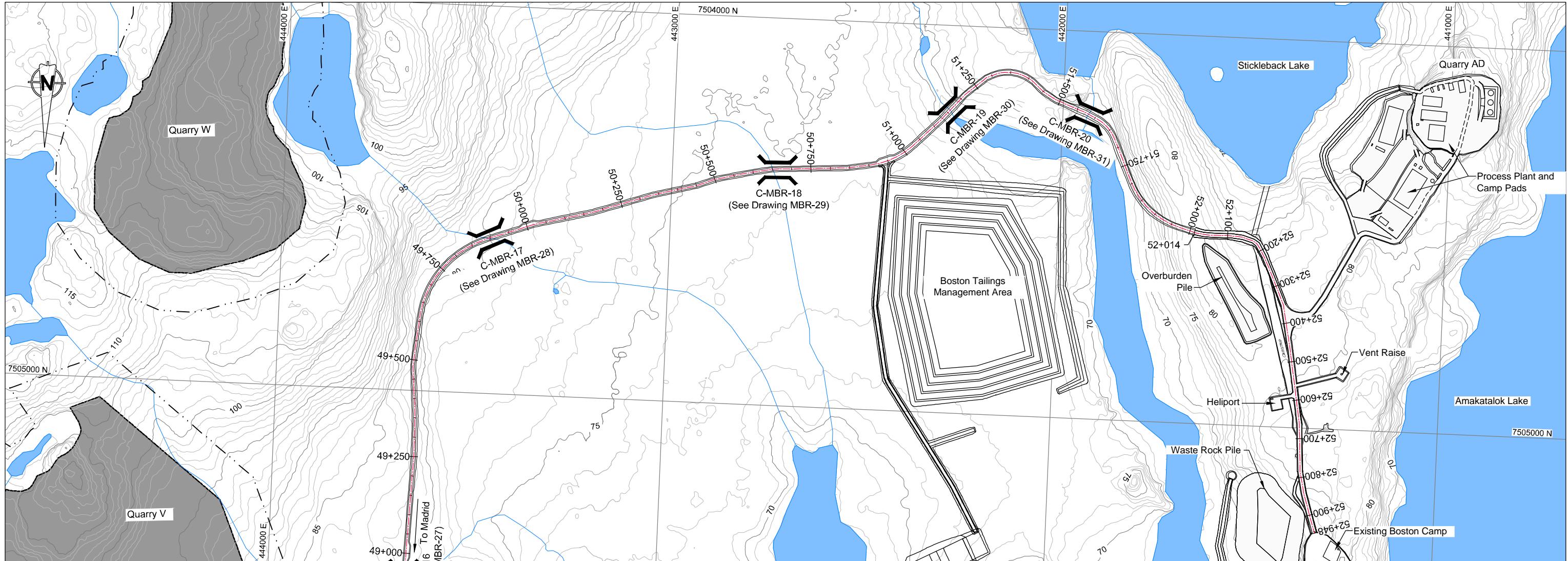
Madrid-Boston All-Weather Road
DRAWING TITLE: Road Alignment Plan and Profile (13 of 15)
DRAWING NO. MBR-15 SHEET 16 of 37 REVISION NO. B
HOPE BAY PROJECT


PROFILE LEGEND

- Point of Intersection
- 6.1% Grade

**PROFILE
MADRID SOUTH TO BOSTON**

0 50 100 150 200 250

 Horizontal Scale in Metres
Vertical Exaggeration 10X

ROAD CONSTRUCTION ZONES TABLE:

Fill Zone 1	1.0m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 2	1.5m min. Overall Road Thickness with 1.5H:1V Side Slopes
Fill Zone 3	2.0m min. Overall Road Thickness with 2.0H:1V Side Slopes
Bedrock Zone	0.3m min Road Thickness (ROQ not required) with Side Slopes to be determined in the field

**PLAN VIEW
MADRID SOUTH TO BOSTON**

 0 50 100 150 200 250
Scale in Metres

NOTE

- All dimensions in metres unless noted otherwise.

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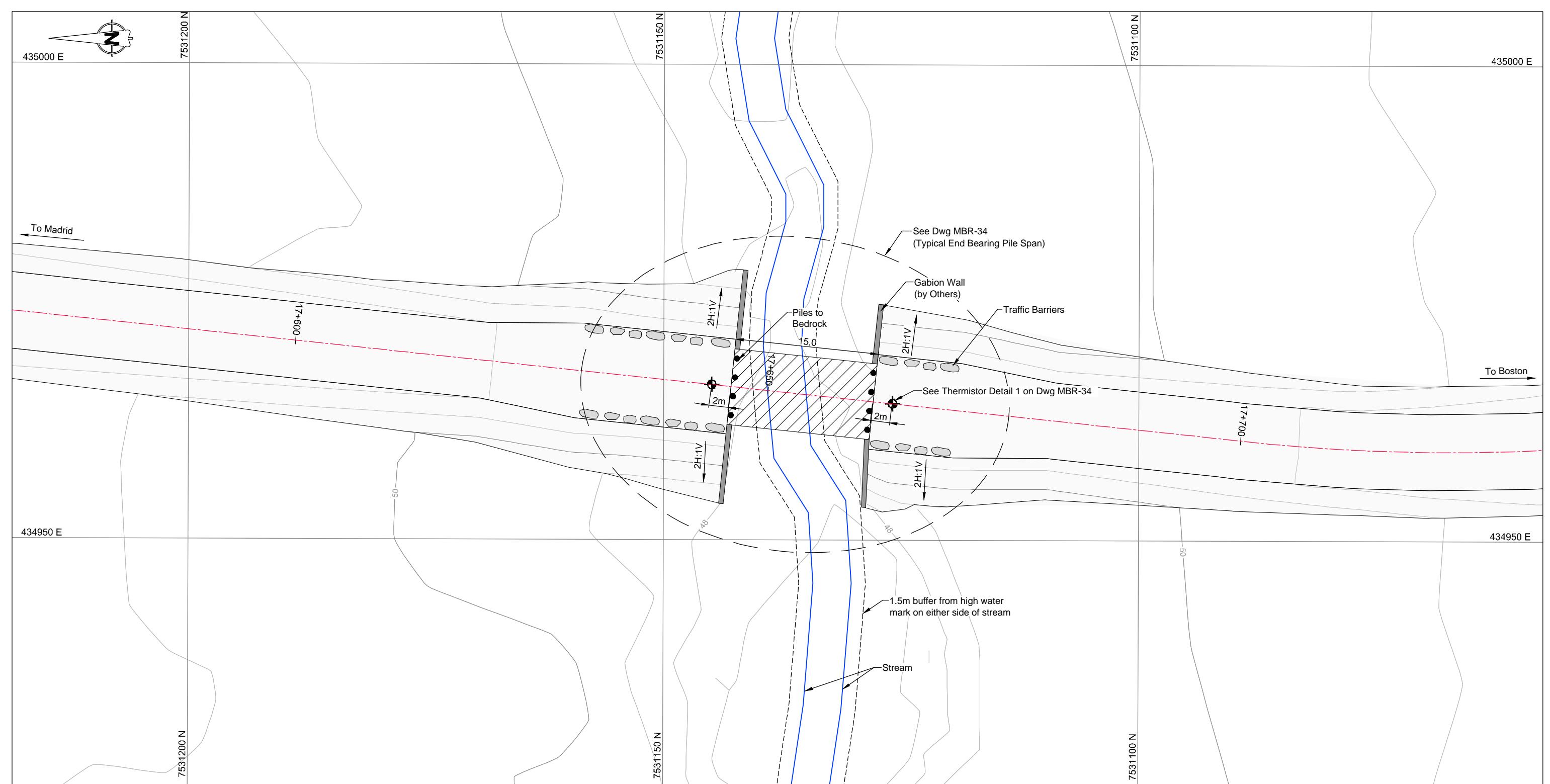
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FILE NAME: 1CT022_004_Madrid-Boston AWR-2.dwg								
SRK JOB NO.: 1CT022.004								

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Madrid-Boston All-Weather Road

 DRAWING TITLE:
Road Alignment
Plan and Profile
(14 of 15)

DRAWING NO. MBR-16 SHEET 17 of 37 REVISION NO. B



DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REVISIONS
REFERENCE DRAWINGS				

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PROFESSIONAL ENGINEER'S STAMP

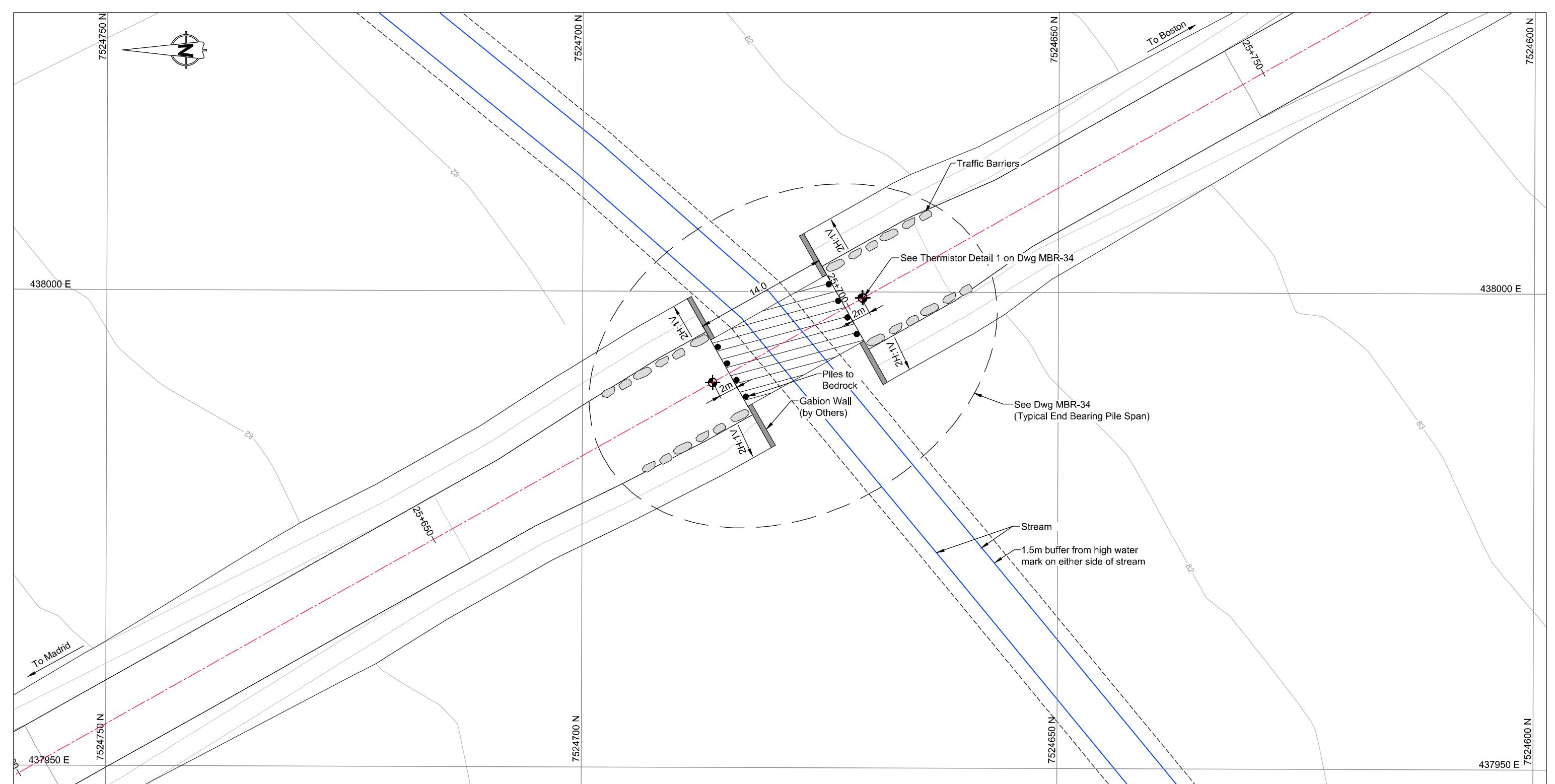
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SRK JOB NO.: 1CT022.004

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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-7
(End Bearing Pile Span)
DRAWING NO.: MBR-18
SHEET 19 of 37
REVISION NO.: B


LEGEND

- Road Centerline
- Bridge Span
- Thermistor
- Stream Edge (not ground surveyed)
- Stream Exclusion Line

PLAN VIEW
STREAM CROSSING C-MBR-8

0 2 4 6 8 10
Scale in Metres

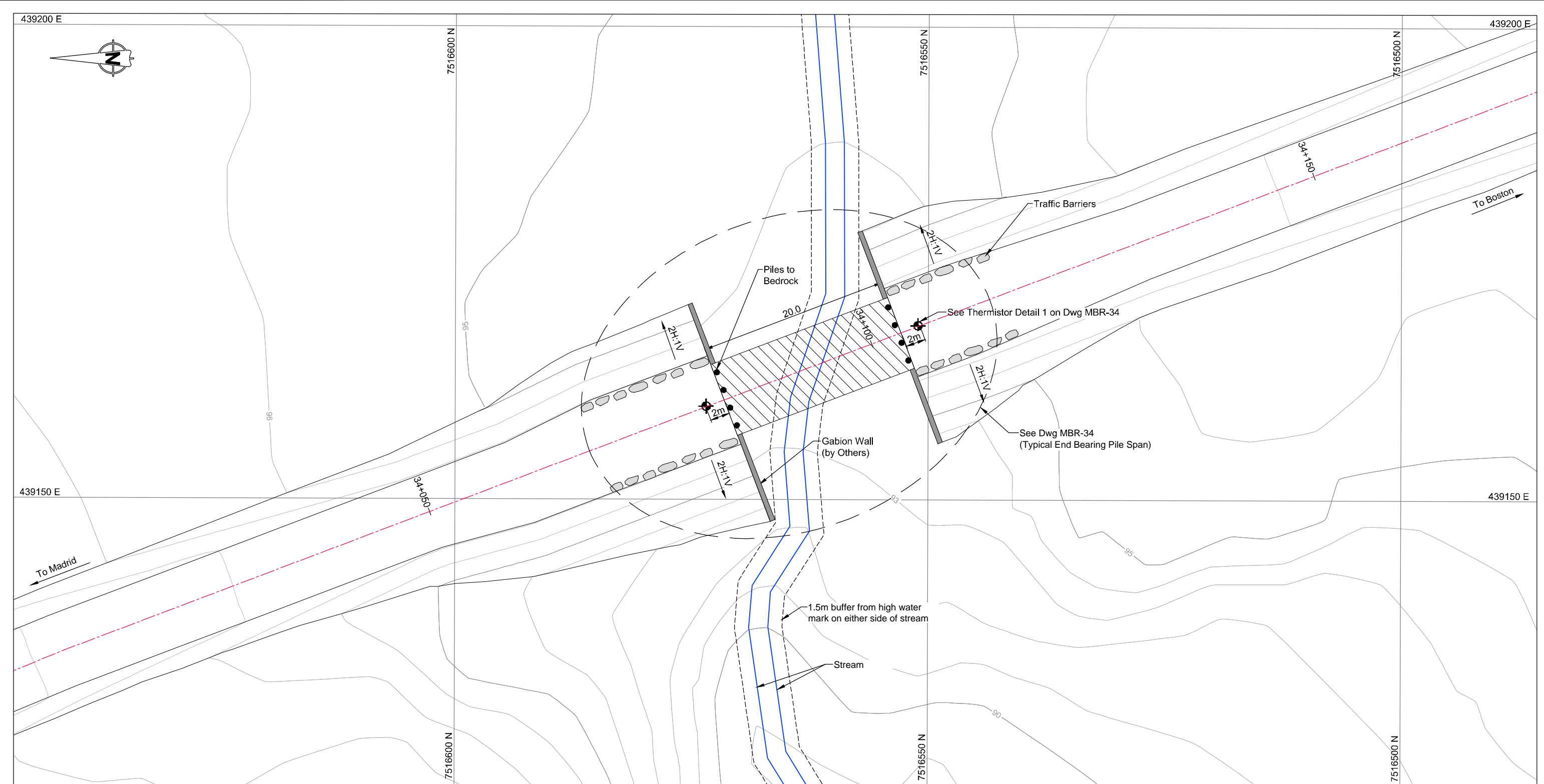
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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-8
(End Bearing Pile Span)

DRAWING NO. MBR-19
SHEET 20 of 37
REVISION NO. B



LEGEND

- Road Centerline
- Bridge Span
- Thermistor
- Stream Edge (not ground surveyed)
- Stream Exclusion Line

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REFERENCE DRAWINGS	REVISIONS

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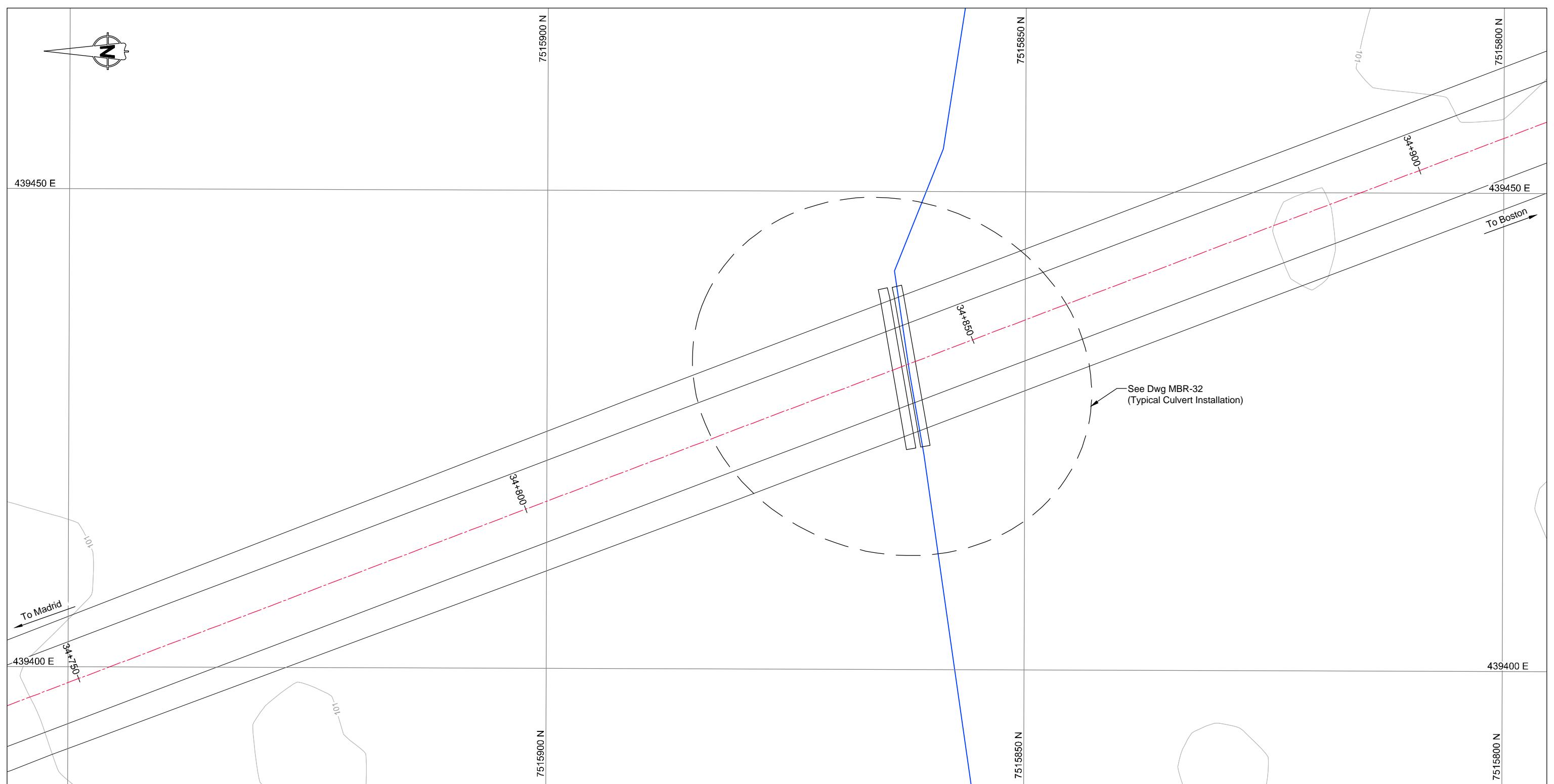
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Madrid-Boston All-Weather Road

DRAWING TITLE:
Stream Crossing C-MBR-9
(End Bearing Pile Span)

DRAWING NO. MBR-20 SHEET 21 of 37 REVISION NO. B

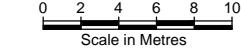
HOPE BAY PROJECT
SRK JOB NO.: 1CT022.004



LEGEND

— Road Centerline
— 1+000
— Stream Edge (not ground surveyed)
- - - Stream Exclusion Line

PLAN VIEW
STREAM CROSSING C-MBR-10



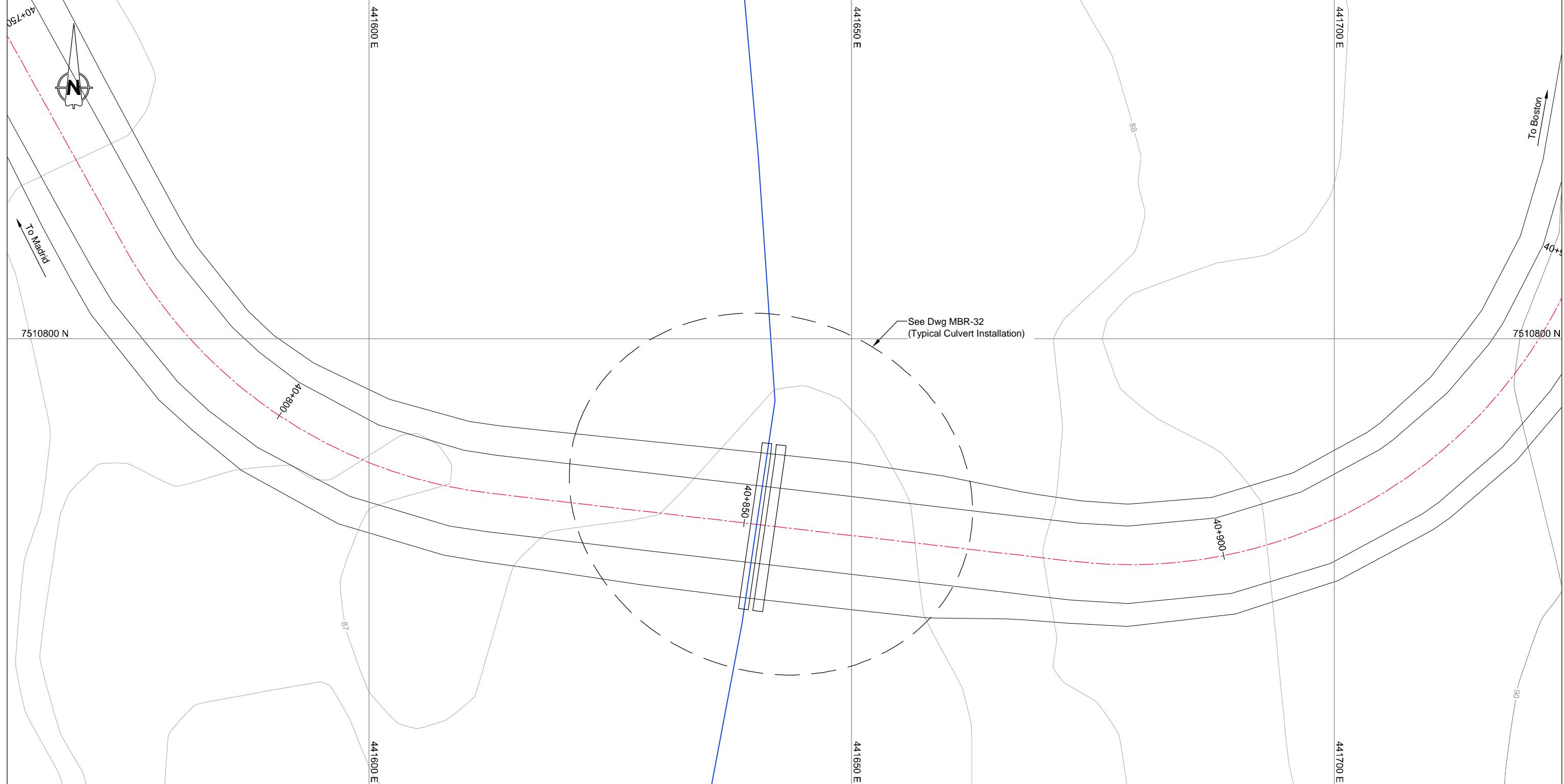
The logo for T MAC RESOURCES. It features a large, stylized red letter 'T' on the left, with the word 'MAC' in large, bold, black capital letters to its right. Below 'MAC', the word 'RESOURCES' is written in a smaller, black, sans-serif font.

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Madrid-Boston All-Weather Road

Stream Crossing C-MBR-10 (Culvert Crossing)

(Cover Crossing)



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REFERENCE DRAWINGS				

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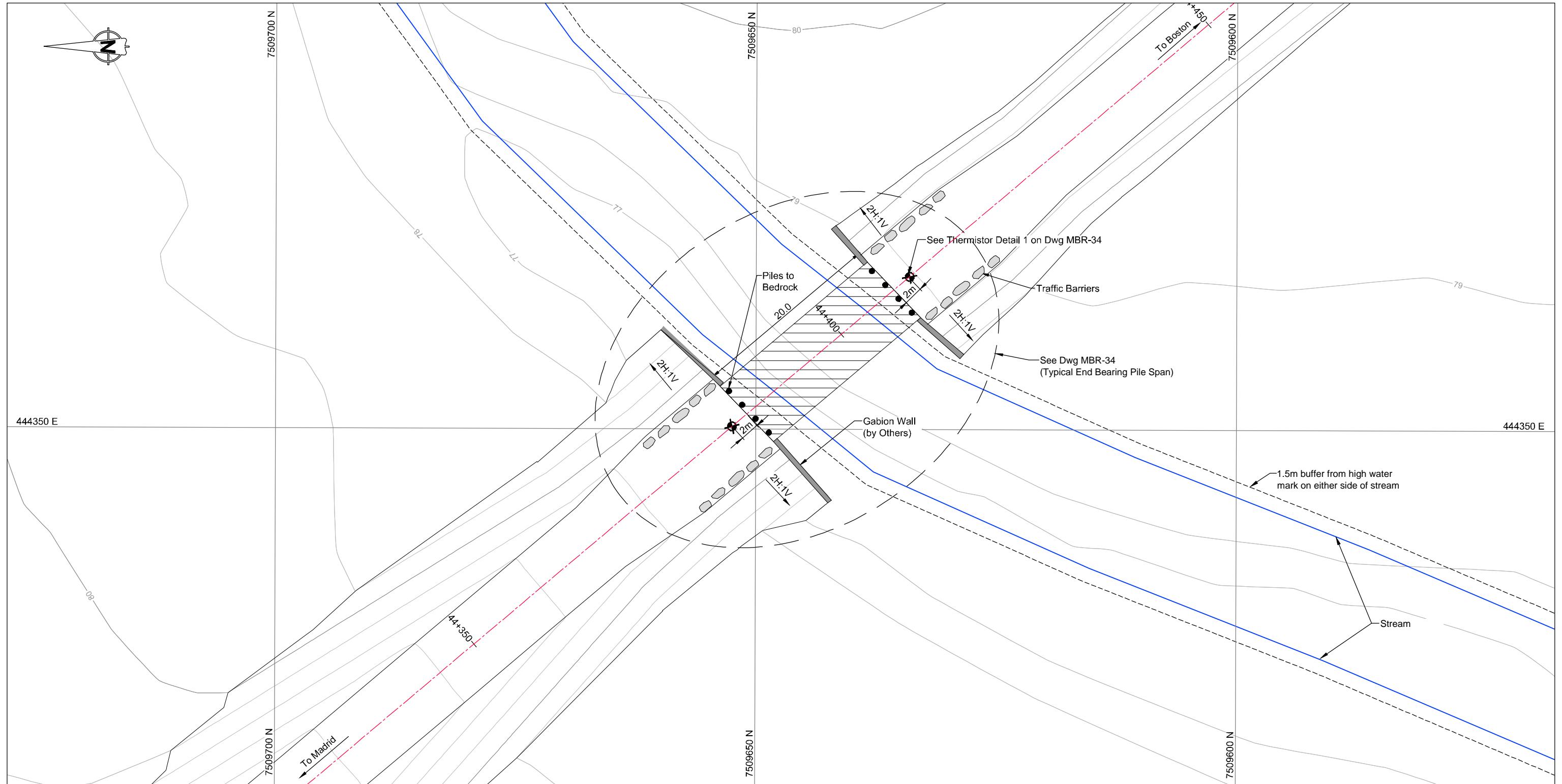
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HOPE BAY PROJECT	Madrid-Boston All-Weather Road

DESIGN: KK DRAWN: NV REVIEWED: CH

CHECKED: CH APPROVED: EMR DATE: Nov. 18, 2016

SRK JOB NO.: 1CT022.004

DRAWING TITLE:	Madrid-Boston All-Weather Road	
DRAWING NO.	SHEET	REVISION NO.
Stream Crossing C-MBR-11 (Culvert Crossing)	MBR-22	B
	23 of 37	



DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REVISIONS
	REFERENCE DRAWINGS		REVISIONS	

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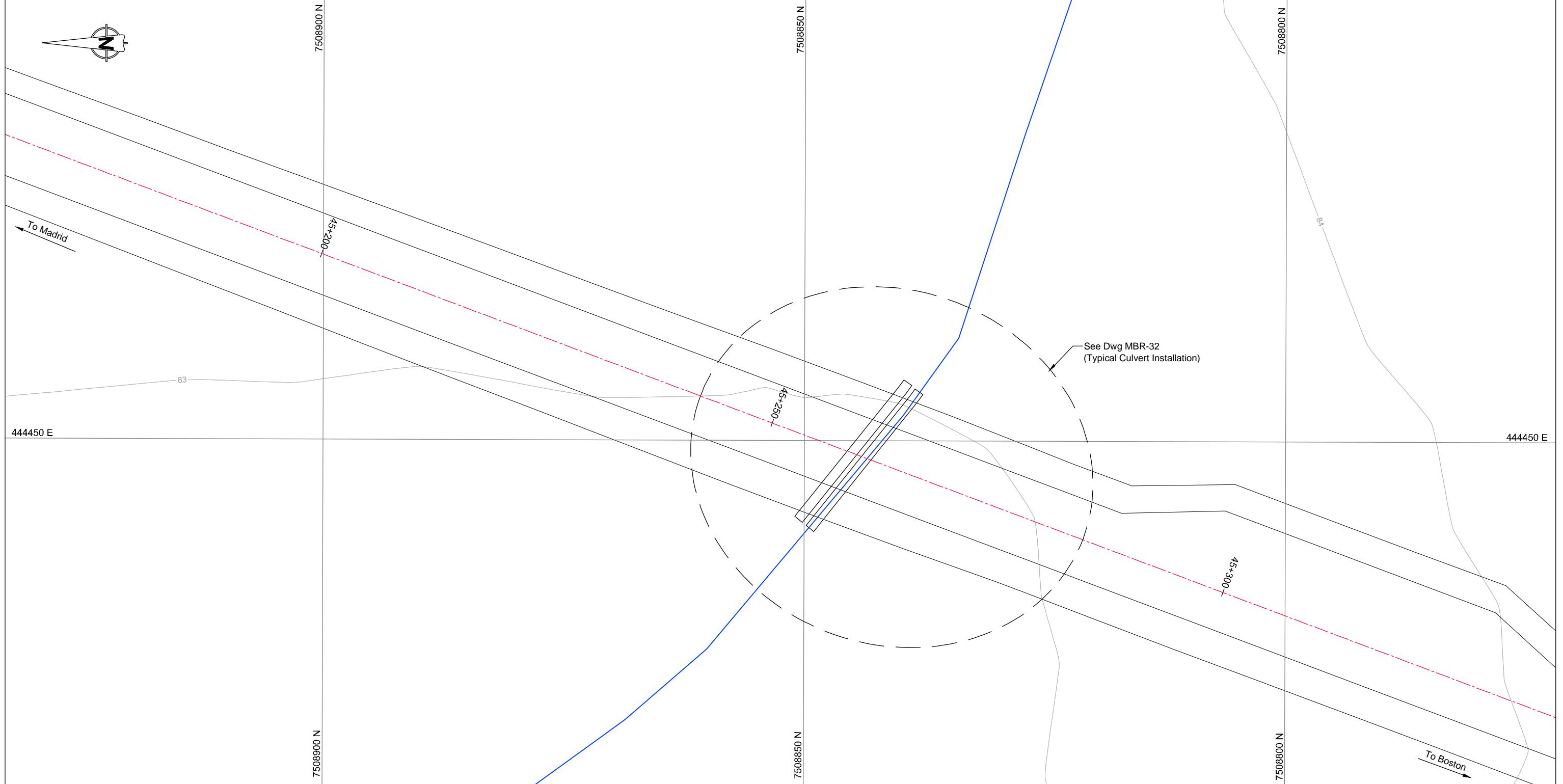
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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-12
(End Bearing Pile Span)
DRAWING NO.: MBR-23
SHEET 24 of 37
REVISION NO.: B

HOPE BAY PROJECT
SRK JOB NO.: 1CT022.004



LEGEND

- Road Centerline
- Stream Alignment (not ground surveyed)

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REVISIONS
	REFERENCE DRAWINGS			

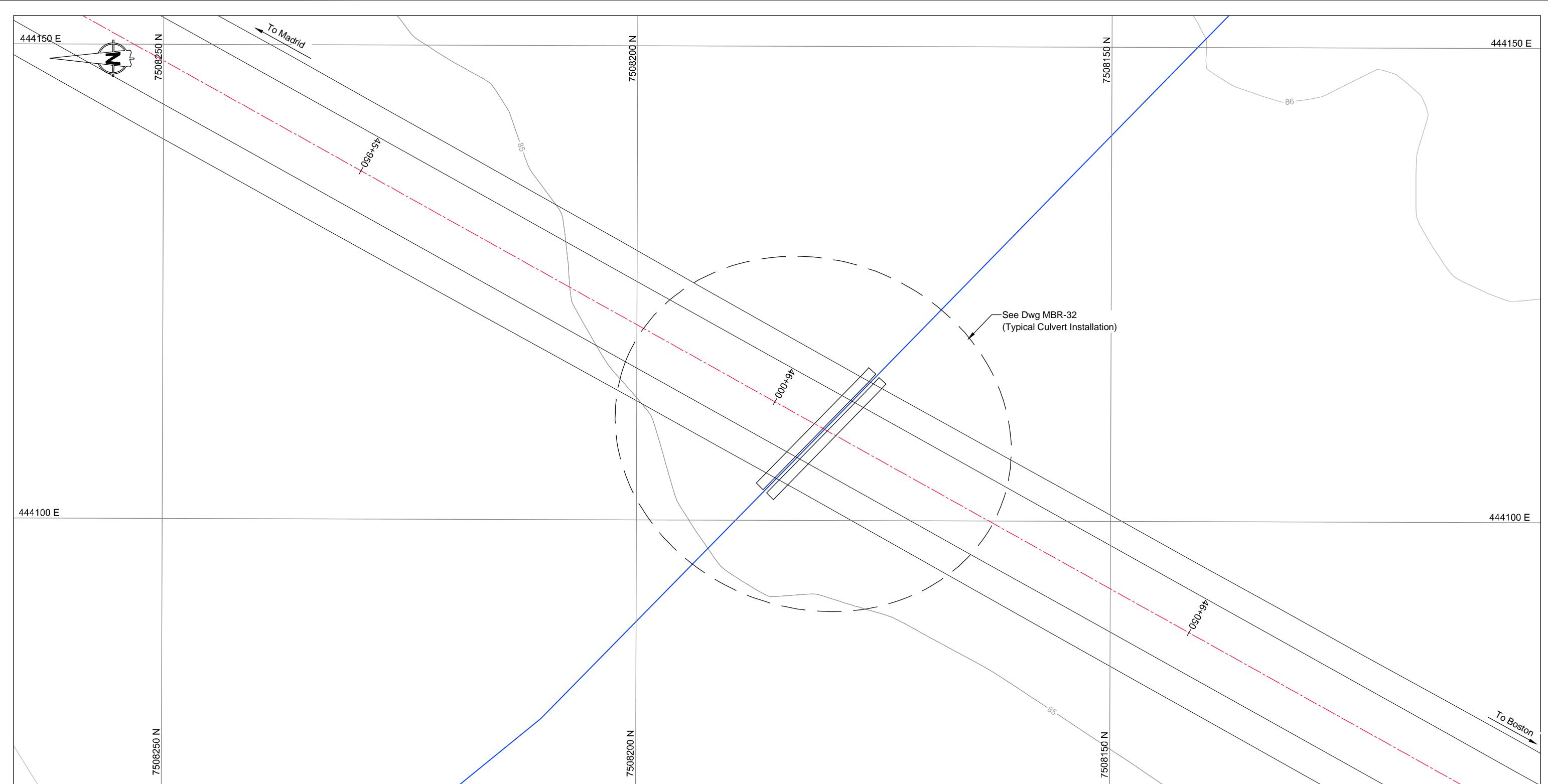
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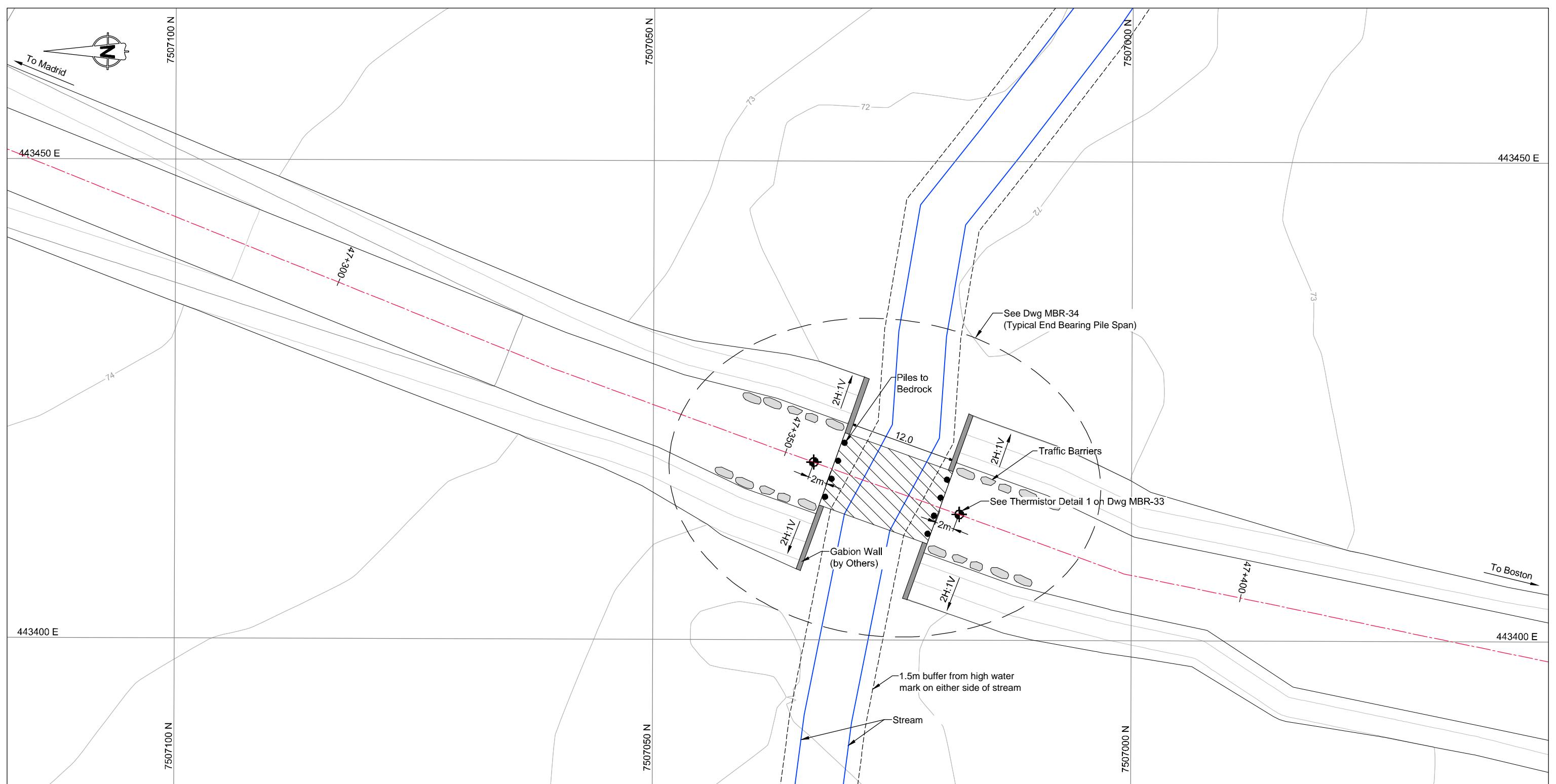
Madrid-Boston All-Weather Road		
DRAWING TITLE:		
Stream Crossing C-MBR-13 (Culvert Crossing)		
DRAWING NO.	MBR-24	SHEET 25 of 37
REVISION NO.	B	



LEGEND

- Road Centerline
- 000+1 Stream Alignment (not ground surveyed)

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REFERENCE DRAWINGS	REVISIONS	PROFESSIONAL ENGINEER'S STAMP	FILE NAME: 1CT022_004_Madrid-Boston AWR-5.dwg	SRK JOB NO.: 1CT022.004
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						A Issued for Discussion MMM EMR 13Jul16	CHECKED: CH APPROVED: EMR DATE: Nov. 18, 2016	
						NO. DESCRIPTION CHK'D APP'D DATE		



LEGEND

- +— Road Centerline
-  Bridge Span
- 000+1 Stream Edge (not ground surveyed)
- Stream Exclusion Line
-  Thermistor

PLAN VIEW
STREAM CROSSING C-MBR-1

A horizontal number line with tick marks at 0, 2, 4, 6, and 8. A vertical tick mark is placed halfway between the 6 and 8 marks. Below the line, the text "Scale in Metres" is centered.



Madrid-Boston All-Weather Road

NG TITLE: Stream Crossing C-MBR-15
(End Bearing Pile Span)

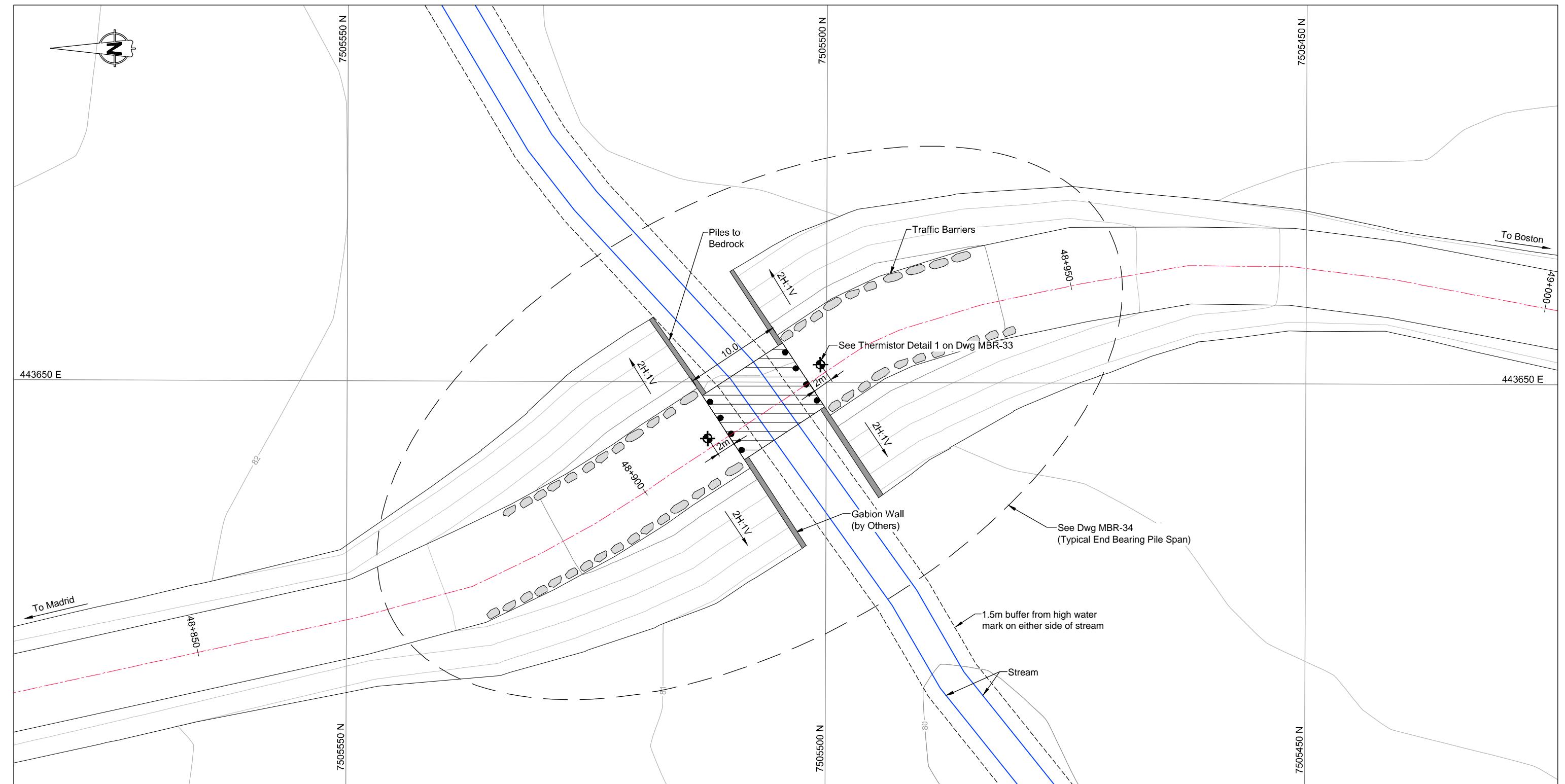
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FILE NAME: 1CT023_004 Madrid-Boston AWP-5 dwg

SRK JOB NO: 16T023.004

(End Bearing Flange Span)



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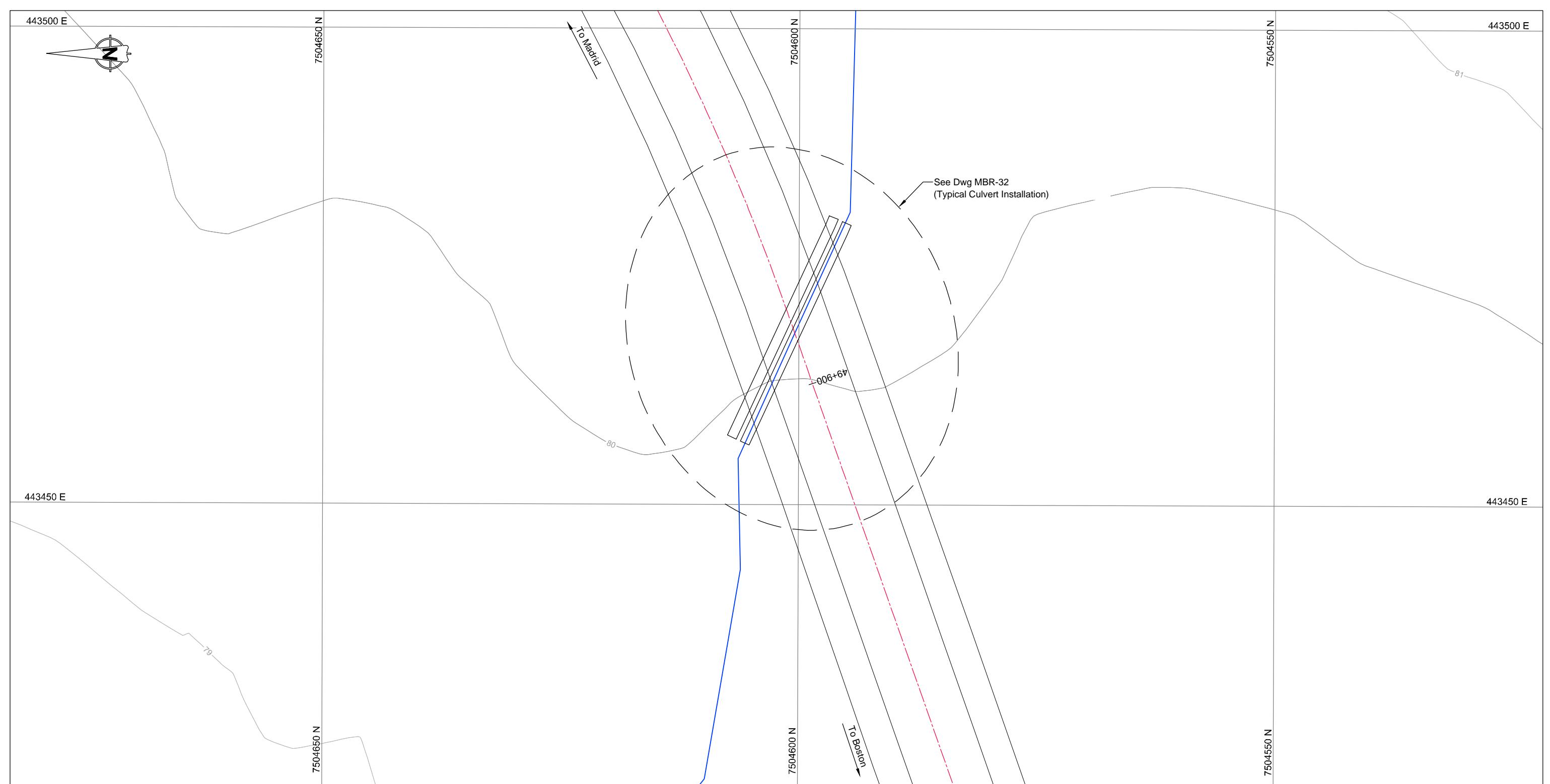
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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-16
(End Bearing Pile Span)

DRAWING NO.: MBR-27
SHEET 28 of 37
REVISION NO.: B



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REFERENCE DRAWINGS			
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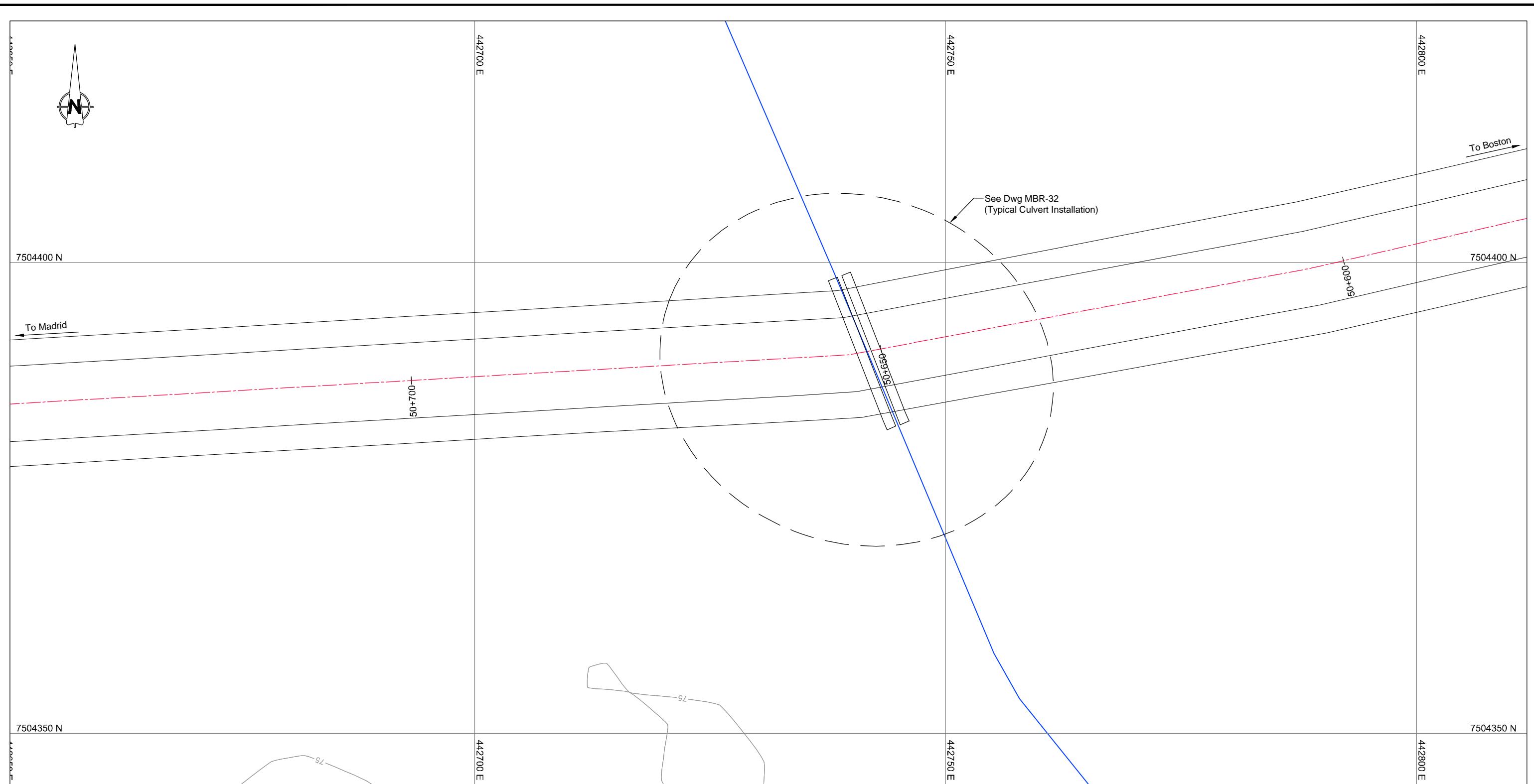
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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-17
(Culvert Crossing)

HOPE BAY PROJECT
SRK JOB NO.: 1CT022.004

DRAWING NO. MBR-28 SHEET 29 of 37 REVISION NO. B



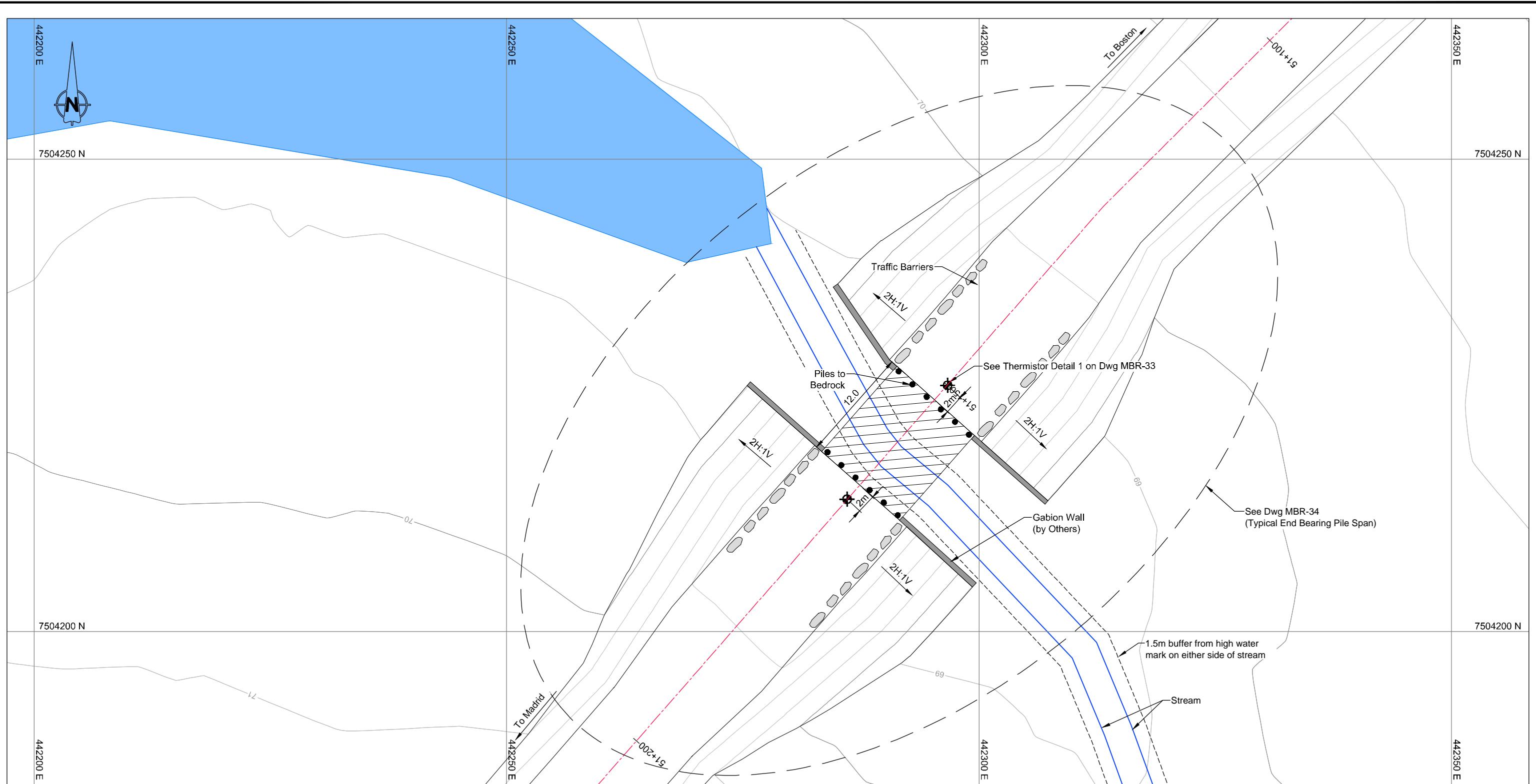
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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-18
(Culvert Crossing)
DRAWING NO.: MBR-29
SHEET 30 of 37
REVISION NO.: B



LEGEND

Legend for stream survey symbols:

- Road Centerline
- Bridge Span
- Thermistor
- Stream Edge (not ground surveyed)
- Stream Exclusion Line

PLAN VIEW
STREAM CROSSING C-MBR-

A horizontal scale bar with tick marks at 0, 2, 4, 6, and 8. Below the scale, the text "Scale in Metres" is written.



Madrid-Boston All-Weather Road

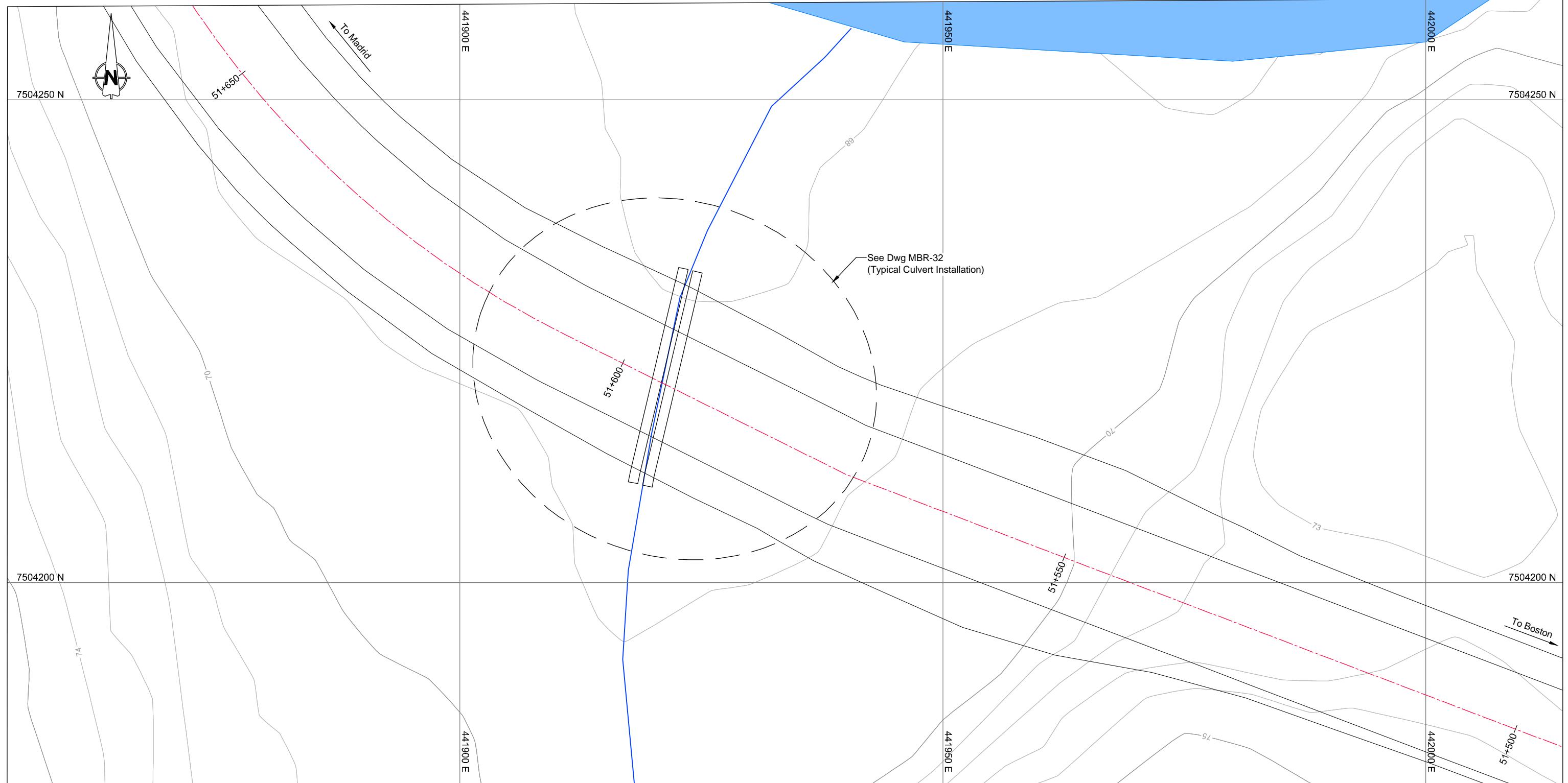
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HOPE BAY PROJECT

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g SRK JOB NO.: 1CT022.004

IG NO. MBR-30 SHEET 31 of 37 REVISION 1



LEGEND

- Road Centerline
- Stream Alignment (not ground surveyed)

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	REFERENCE DRAWINGS	REVISIONS	PROFESSIONAL ENGINEER'S STAMP	FILE NAME: 1CT022_004_Madrid-Boston AWR-5.dwg	SRK JOB NO.: 1CT022.004

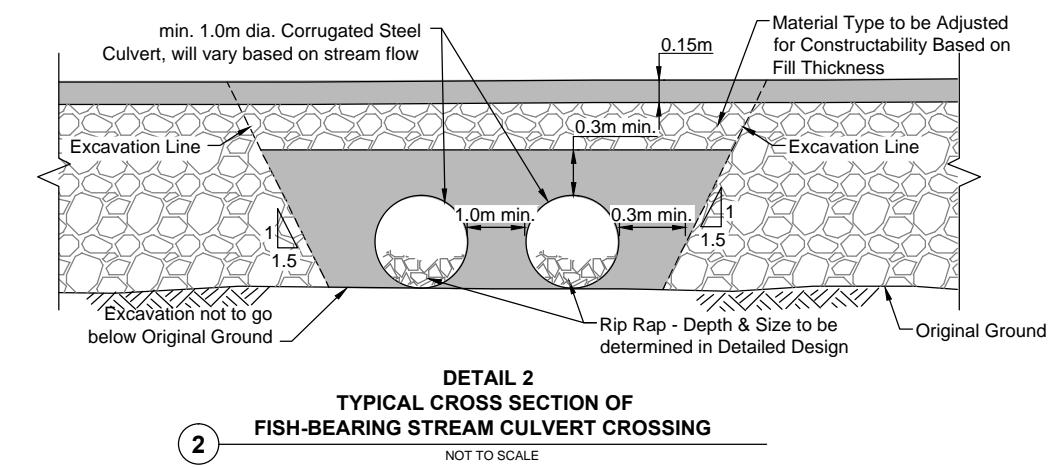
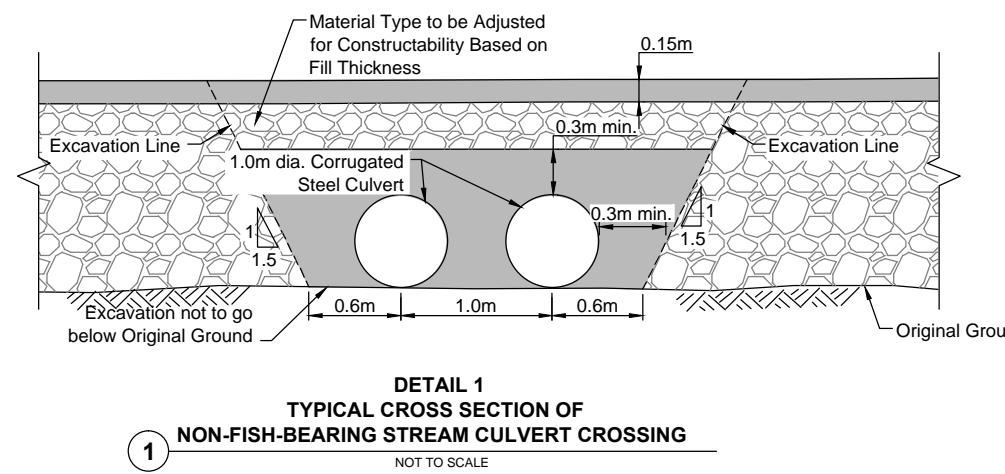
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NO.	DESCRIPTION	CHK'D	APP'D	DATE				

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Madrid-Boston All-Weather Road
DRAWING TITLE:
Stream Crossing C-MBR-20
(Culvert Crossing)

DRAWING NO.: MBR-31 SHEET 32 of 37 REVISION NO.: B



LEGEND

-  Surfacing Material
-  Run of Quarry Mater

NOTES

1. All dimensions in metres unless noted otherwise.
2. Minimum design thickness must be maintained for all sections of the all-weather road including turnouts.
3. Notes in this drawing apply to all other active drawings.

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Madrid-Boston All-Weather Road

NG TITLE.

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PROFESSIONAL ENGINEERS S

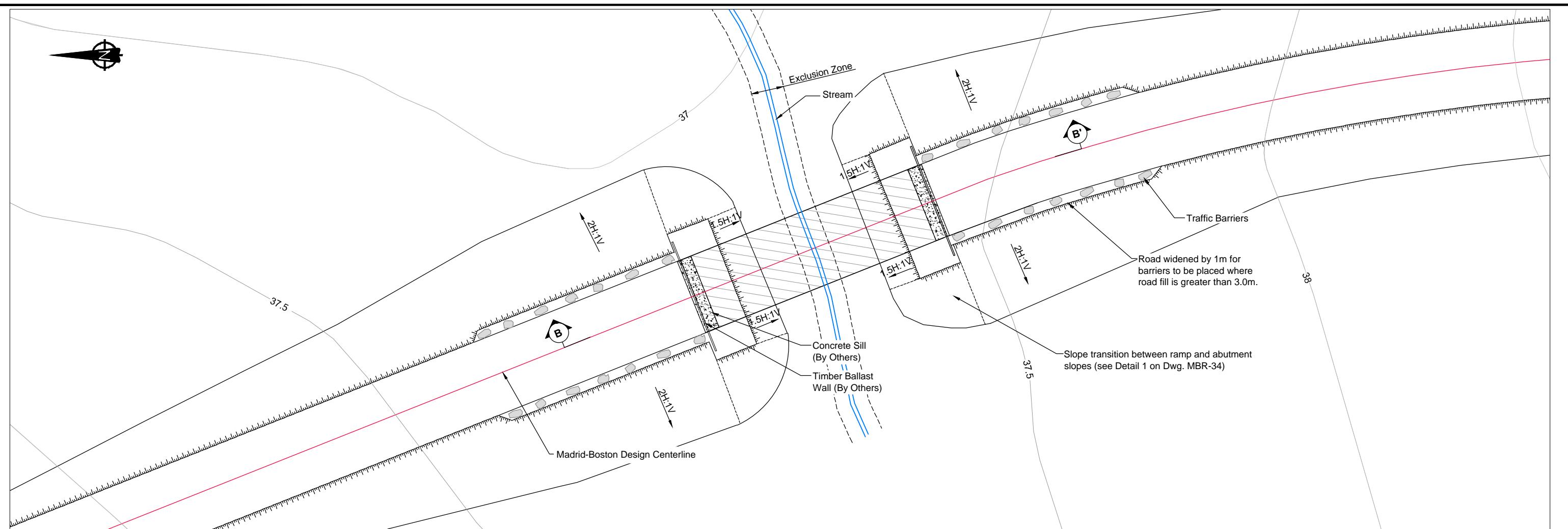
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MBR-32

SHEET
33 OF

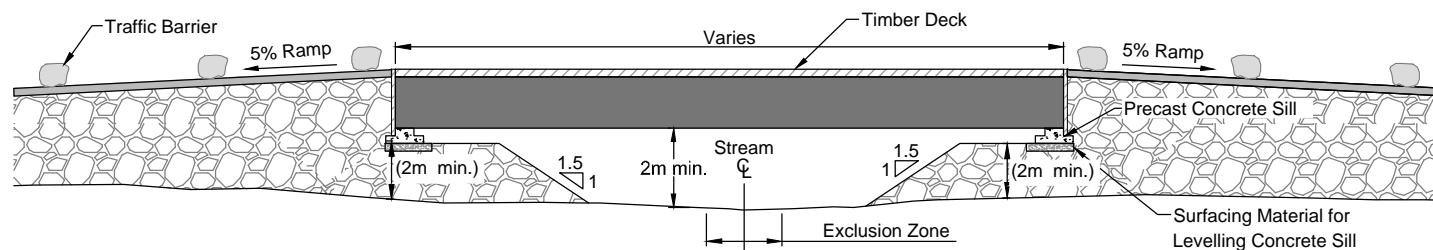
REVISION
7



PLAN VIEW
TYPICAL FROZEN ABUTMENT BRIDGE CROSSING

0 1 2 3
Scale in Metres

Scale in Metres



SECTION B - B'

0 1 2 3

Scale in Metres

LEGEND

Legend for the site plan:

- Route Centerline: A red line with a crossbar and a vertical scale bar labeled 000.
- Boulder: A grey irregular shape.
- Timbers: A hatched pattern.
- Toe of Fill / Cut Daylighting: A line with arrows pointing to the left and right.
- Run of Quarry: A hatched pattern.
- Centerline of Road: A red line with a crossbar.
- Surfacing Material: A grey rectangle.
- Crest of Road: A line with arrows pointing up and down.
- Steel: A dark grey rectangle.
- Creek: A blue line.
- 000: A vertical scale bar.

NO

1. See notes on drawing MBR-33

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	NO.	DESCRIPTION	REVISIONS		
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				A	Issued for Discussion	MMM	EMR	13

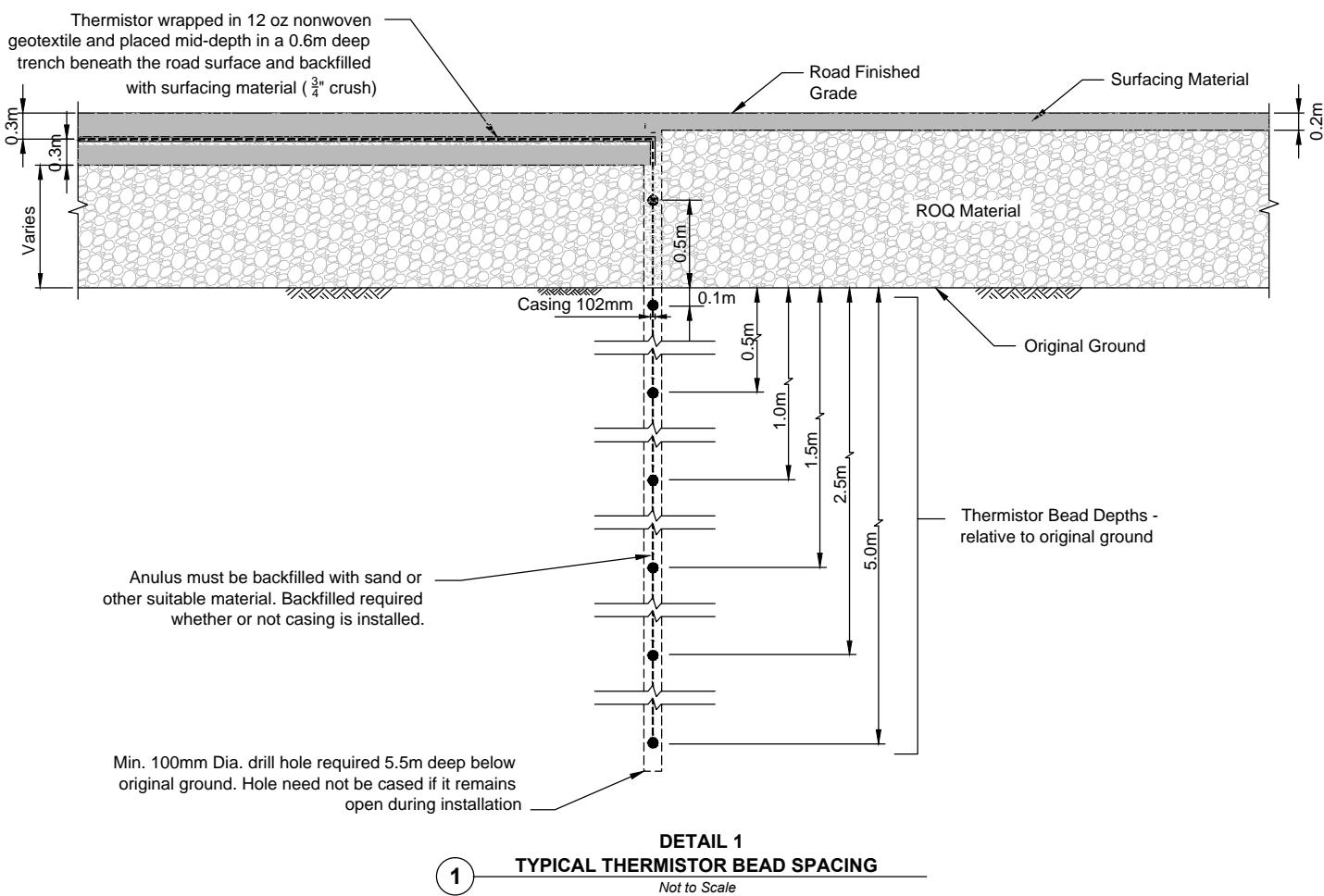


Madrid-Boston All-Weather Road

G TITLE:

Typical Frozen Abutment Bridge Crossing Plan and Section

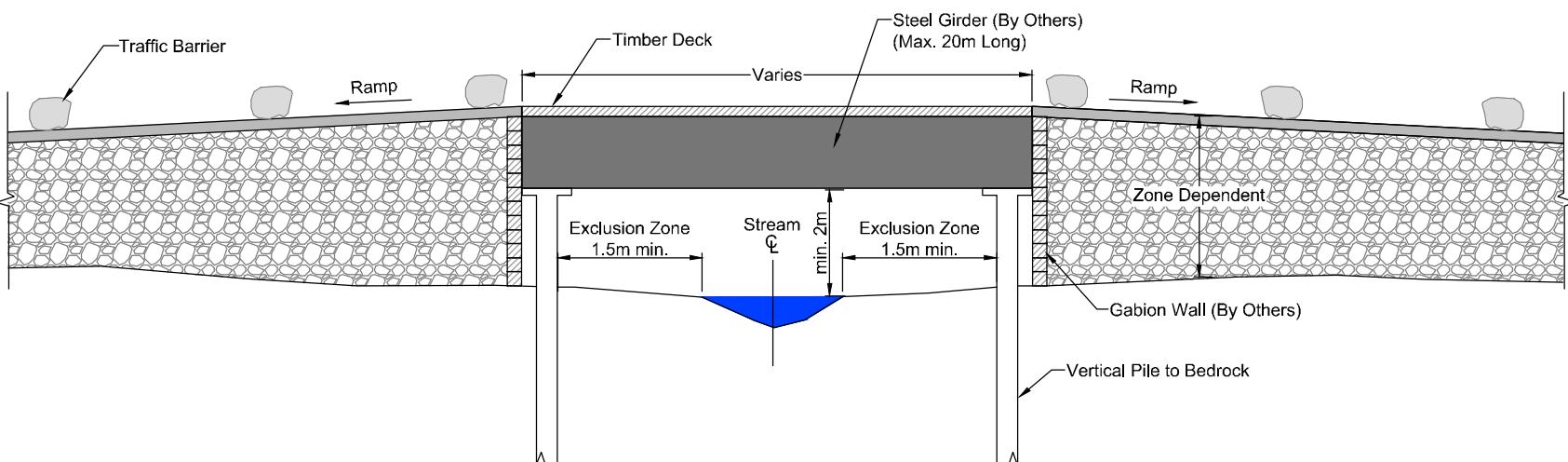
NO. SHEET REVISION NO.
MBR-33 34 OF 37 B



LEGEND	
 Boulder	 Timber
 Run of Quarry	 Steel
 Surfacing Material	

NOTES

1. All dimensions in meters unless noted otherwise.
2. Construction of the bridge will follow the manufacturer's drawings.
3. The toe of the abutment must be a minimum 1.5m away from the creek banks.
4. The Contractor shall take all necessary precautions to ensure that flow is not affected in any way, either during or after construction.
5. The road crest width is to be widened by 1.0m on each side of the road where fill is greater than 3.0m to allow for placement of traffic barriers.
6. The Thermistors shall be RST Instruments (or equivalent approved by the Engineer) Standard Precision Thermistor Strings with 7 beads and single readout box.
7. The locations of the Thermistors can be adjusted within limits of the cable lengths with approval by the Engineer.
8. Bridge span dimensions and details to be determined once each crossing site has been inspected by a qualified engineer.



TYPICAL END BEARING PILE SCHEMATIC

Not to Scale

PROFESSIONAL ENG

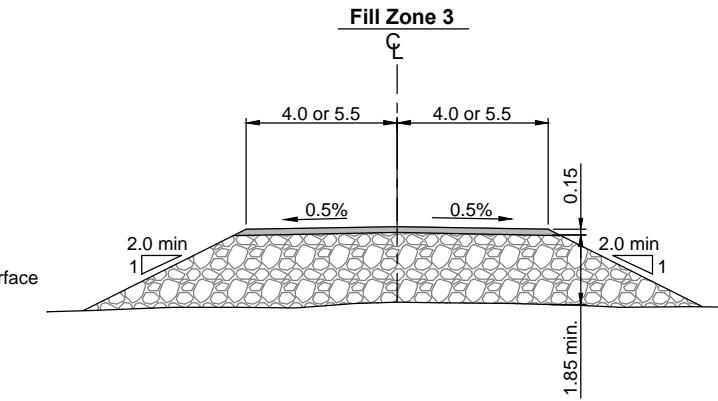
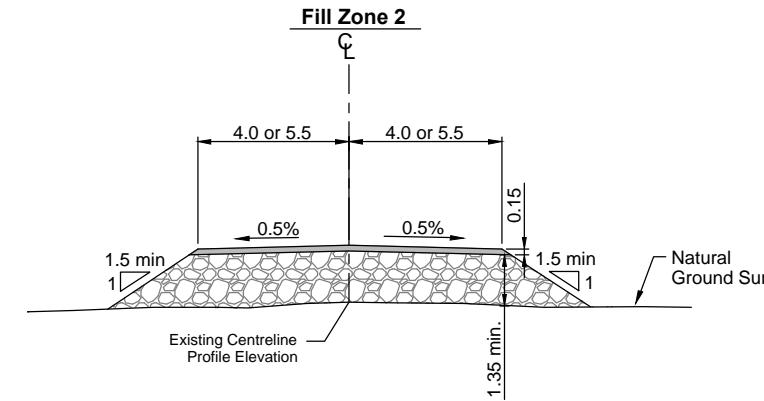
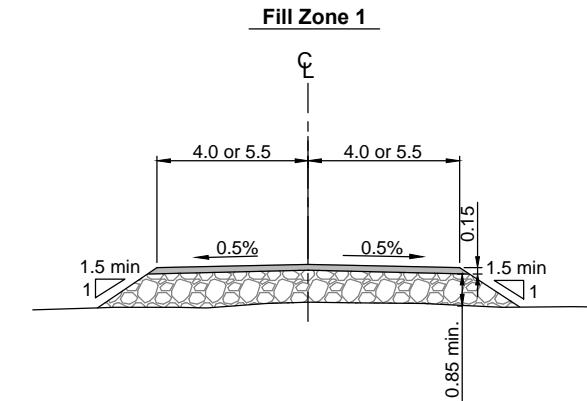
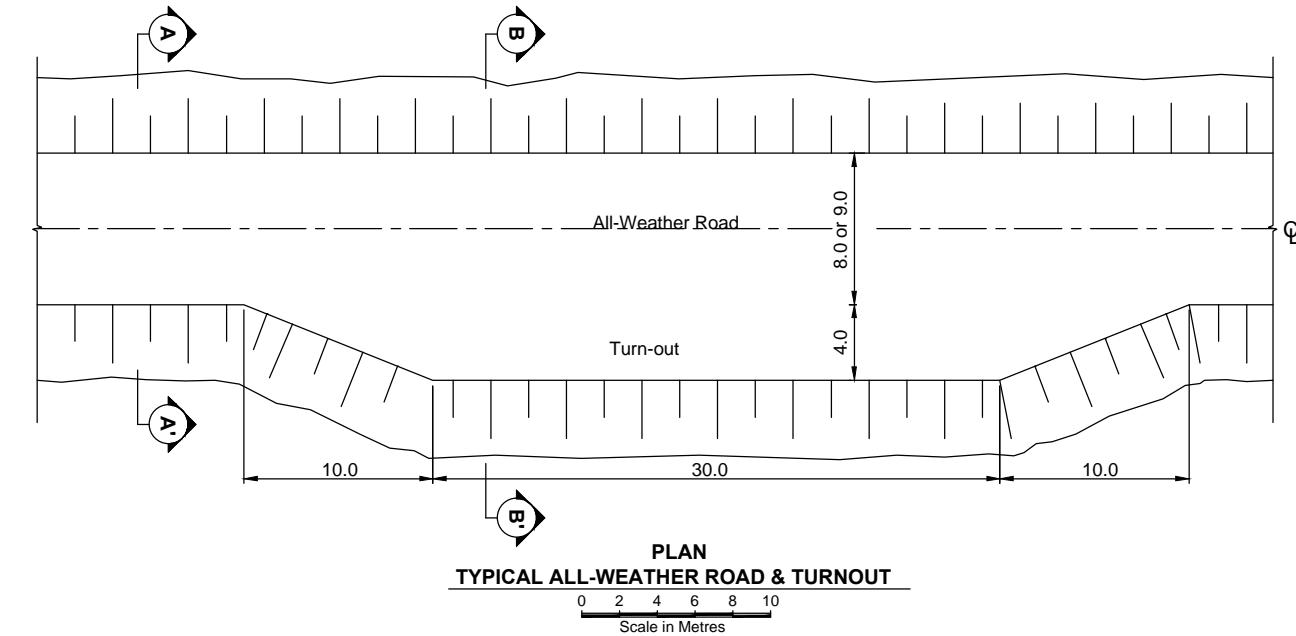
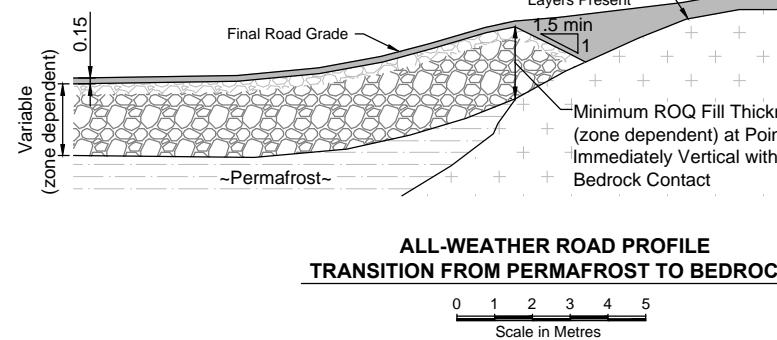
 **srk** consulting

 T MAC RESOURCES

Madrid Boston All Weather Road

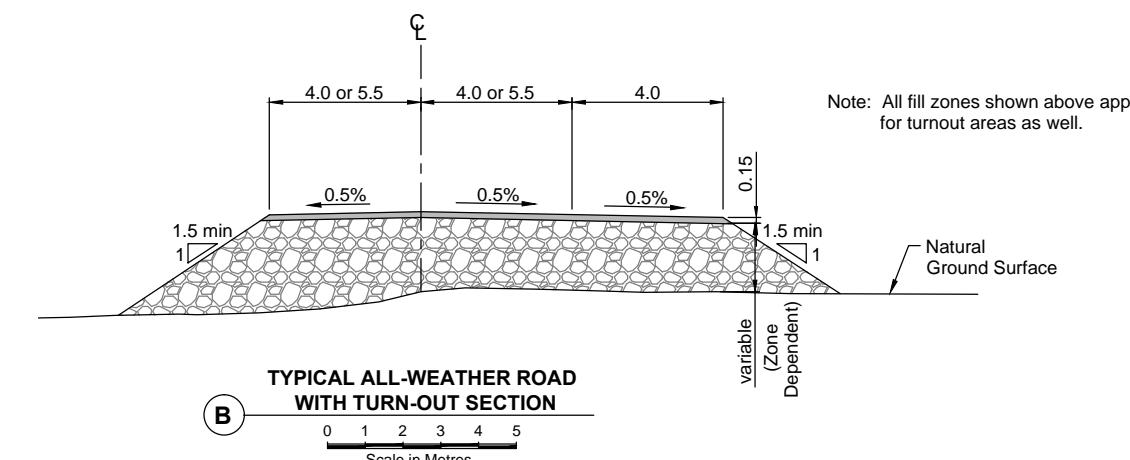
Typical End Bearing Pile Section and Thermistor Bead Spacing Detail

IG NO. MBR-34 SHEET 35 OF 37 REVISION NO. B



(A) TYPICAL
ALL-WEATHER ROAD SECTIONS

Scale in Metres



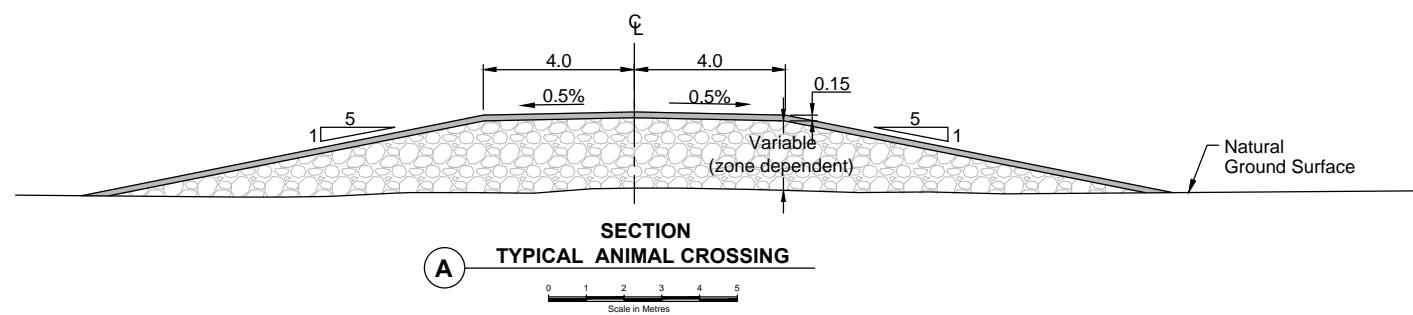
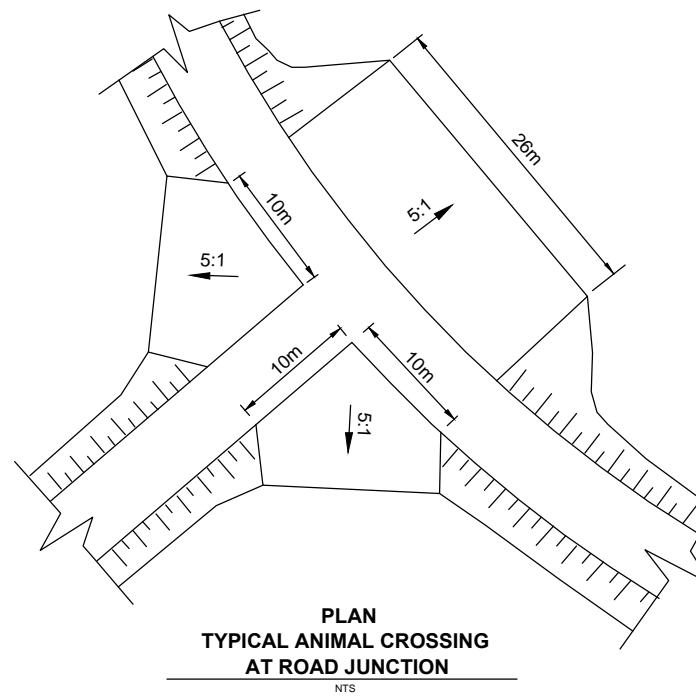
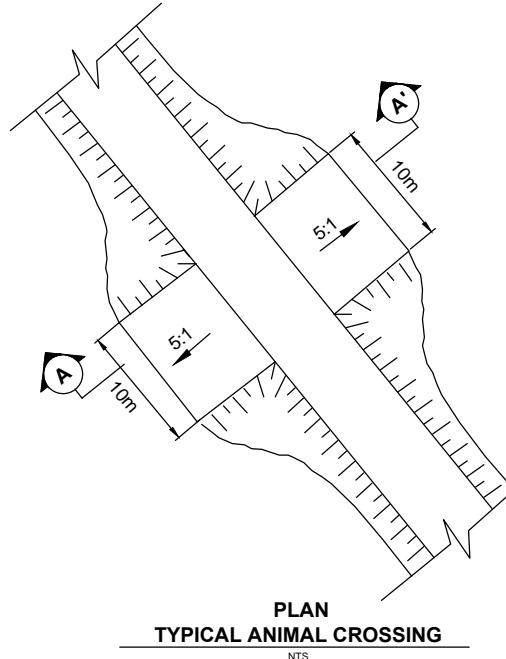
LEGEND	
	Surfacing Material
	Run of Quarry Material

NOTES

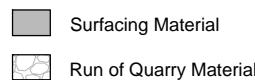
1. All dimensions in metres unless noted otherwise.
2. Minimum design thickness must be maintained for all sections of the all-weather road including turnouts.
3. Notes in this drawing apply to all other active drawings.

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	B	Issued for Discussion	CH	EMR	18Nov16
DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	A	Issued for Discussion	MM	EMR	13Jul16
DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE	NO.	DESCRIPTION	CHK'D	APP'D	DATE
REFERENCE DRAWINGS								
REVISIONS								

		Madrid-Boston All-Weather Road
DRAWING TITLE:	Typical Road Plan and Sections	
HOPE BAY PROJECT	DRAWING NO.: MBR-35	
FILE NAME: 1CT022_004_Madrid-Boston AWR-3.dwg	SRK JOB NO.: 1CT022.004	REVISION NO. B
PROFESSIONAL ENGINEERS STAMP	36 OF 37	



LEGEND



NOTES

1. All dimensions in metres unless noted otherwise.
2. Locations for animal crossings will be identified by Land Owner and Elders once road construction is completed.
3. Notes in this drawing apply to all other active drawings.

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE					
REFERENCE DRAWINGS								

B	Issued for Discussion	CH	EMR	18Nov16
A	Issued for Discussion	MM	EMR	13Jul16
NO.	DESCRIPTION	CHK'D	APP'D	DATE

PROFESSIONAL ENGINEERS STAMP

FILE NAME: 1CT022_004_Madrid-Boston AWR-3.dwg

SRK JOB NO.: 1CT022.004

DESIGN: KK DRAWN: NV REVIEWED: CH
CHECKED: CH APPROVED: EMR DATE: Nov. 18, 2016

HOPE BAY PROJECT

Madrid-Boston All-Weather Road
DRAWING TITLE:
Animal Crossing Plan and Section and
Material List and Quantity Estimates

DRAWING NO. MBR-36 SHEET 37 OF 37 REVISION NO. B