

PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
SECRETARIA DE OBRAS E SERVIÇOS

PROJETO DE ENGENHARIA RODOVIÁRIA DE MELHORAMENTOS E PAVIMENTAÇÃO

COORDENAÇÃO E FISCALIZAÇÃO: PREFEITURA MUNICIPAL DE MOEMA
ELABORAÇÃO: MB & R ENGENHARIA E TOPOGRAFIA LTDA.
CONTRATO: 39/2021

Volume 2 - PROJETO DE EXECUÇÃO

JUNHO / 2022

PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
SECRETARIA DE OBRAS E SERVIÇOS

PROJETO DE ENGENHARIA RODOVIÁRIA DE MELHORAMENTOS E PAVIMENTAÇÃO

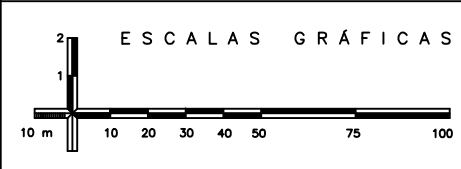
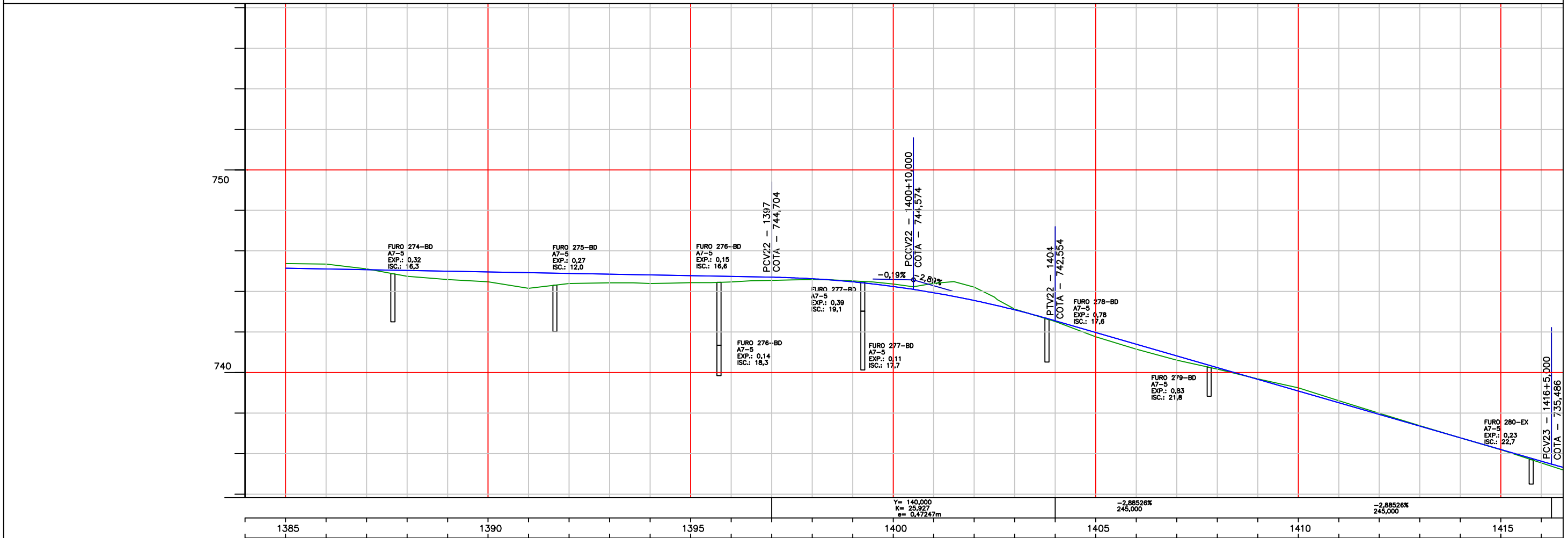
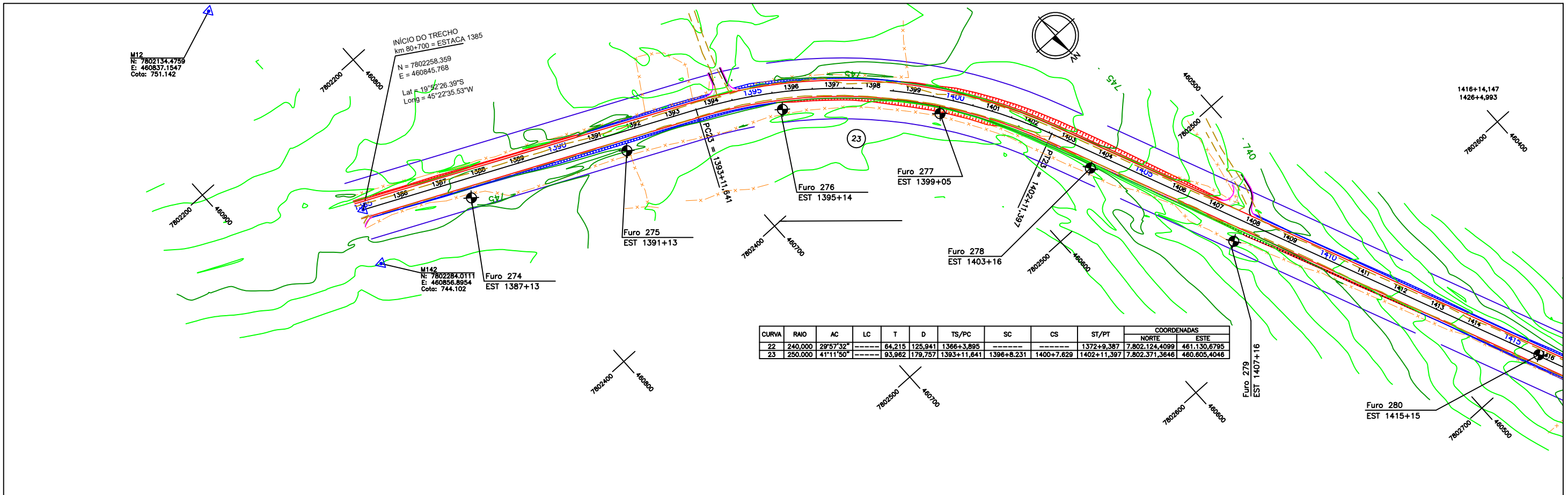
RODOVIA: MG - 252

TRECHO: MG-164/MG-170 - MOEMA

Volume 2 - PROJETO DE EXECUÇÃO

JUNHO / 2022

PROJETO GEOMÉTRICO



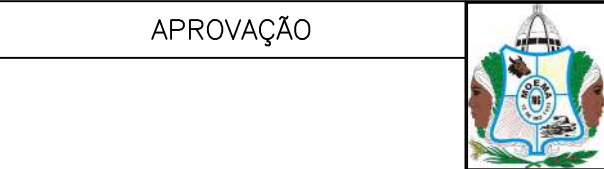
MB & R ENGENHARIA E TOPOGRAFIA LTDA.
CNPJ: 30.586.318/0001-67
CREA: 77049
R. Inácia Cândida de Jesus, 324 - Sala: 01
Bairro: Jardim Teles Lima
(35) 99838 0358
CEP: 37948-000
Bom Jesus da Penha - MG

DESENHO Nº
PMM-2021-02-MG-GM-001

MES/ANO:
JUN/22

ELABORADO POR:
Mauro Vieira Bueno Junior
Engenheiro Civil - CREA: 144763/D-MG

APROVAÇÃO



PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
SECRETARIA DE OBRAS E SERVIÇOS

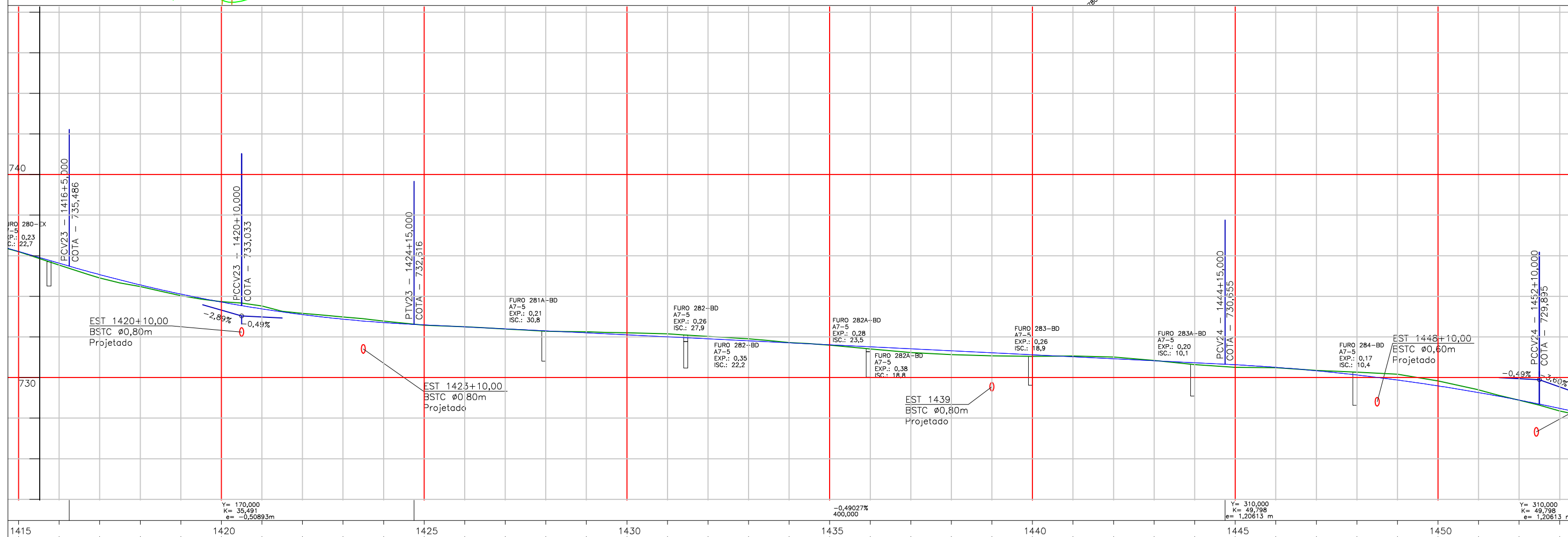
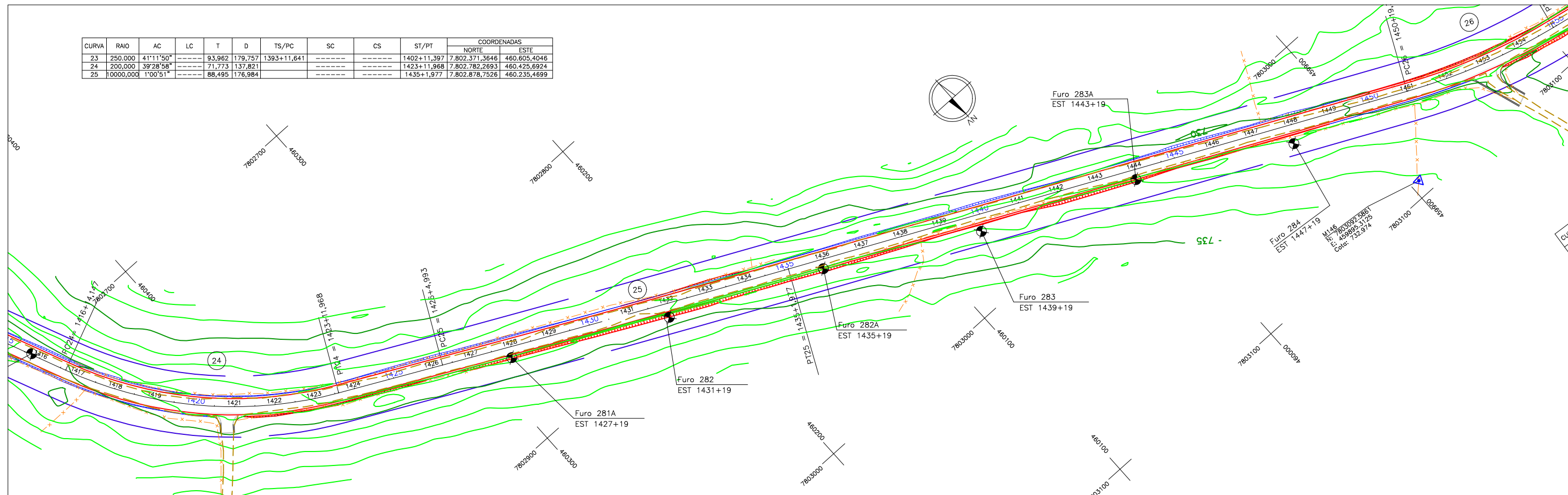
RODOVIA: MG-252

TRECHO: MG-164/MG-170 - MOEMA

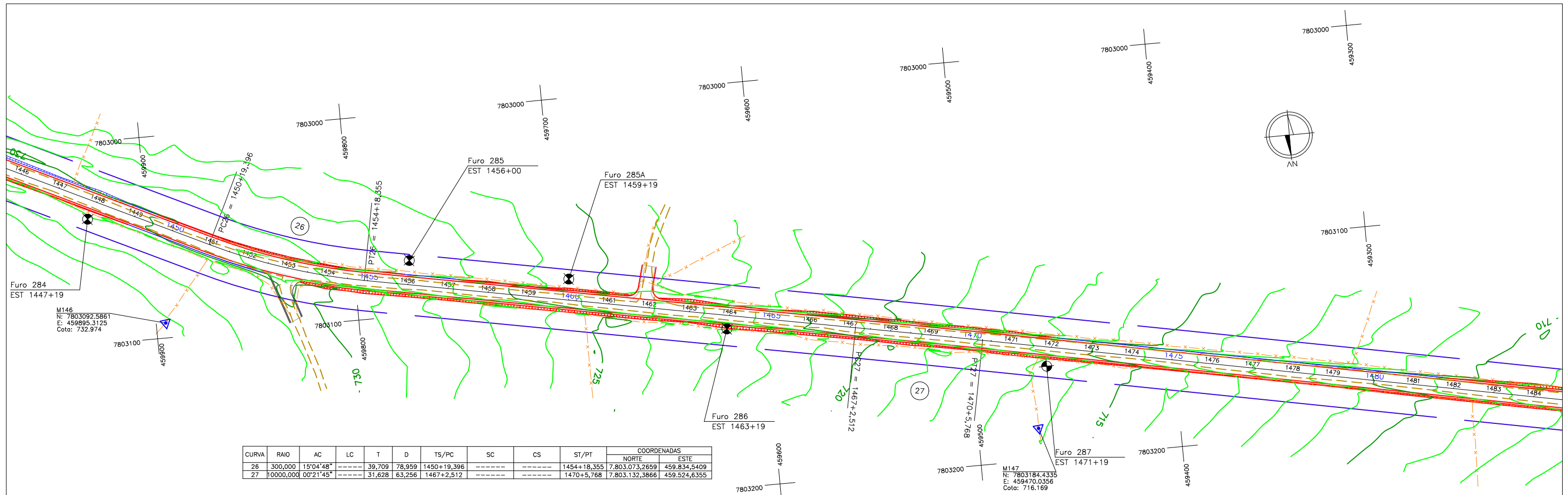
PROJETO GEOMÉTRICO
EST. 1385 a EST. 1416

FOLHA:
GM-01

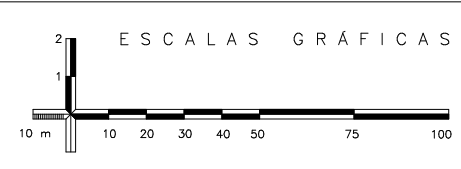
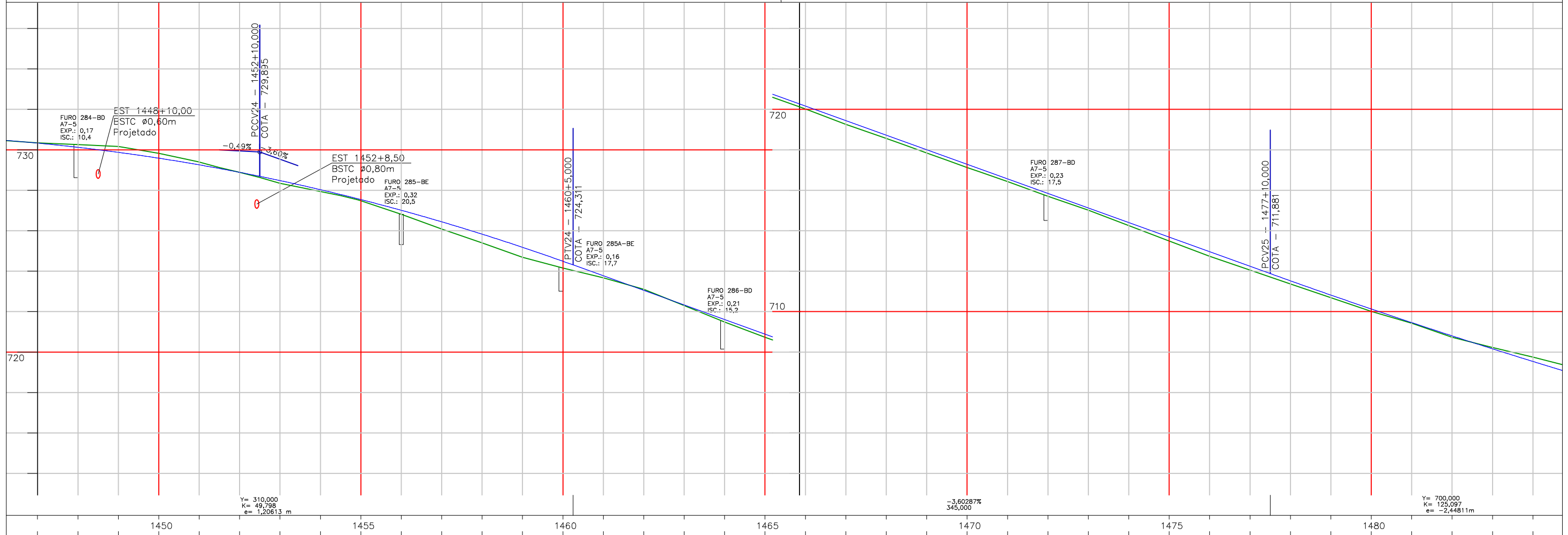
CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS		
										NORTE	ESTE	
23	250,000	41°11'50"	-----	93,962	179,757	1393+11,641	-----	-----	1402+11,397	7.802.371,3646	460.605,4046	
24	200,000	39°28'58"	-----	71,773	137,821	-----	-----	-----	1423+11,968	7.802.782,2693	460.425,6924	
25	1000,000	1°00'51"	-----	88,495	176,984	-----	-----	-----	1435+1,977	7.802.878,7526	460.235,4699	



<p>ESCALAS GRÁFICAS</p>	<p>Engenharia e Topografia</p>	MB & R ENGENHARIA E TOPOGRAFIA LTDA. CNPJ: 30.586.318/0001-67 CREA: 77049 R. Inácia Cândida de Jesus, 324 - Sala: 01 Bairro: Jardim Teles Lima (35) 99838 0358 CEP: 37948-000 Bom Jesus da Penha - MG	DESENHO Nº PMM-2021-02-MG-GM-001 MES/ANO: JUN/22	APROVAÇÃO	<p>PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS SECRETARIA DE OBRAS E SERVIÇOS</p>
		ELABORADO POR: Mauro Vieira Bueno Junior Engenheiro Civil - CREA: 144763/D-MG	RODOVIA: MG-252 TRECHO: MG-164/MG-170 - MOEMA	PROJETO GEOMÉTRICO EST. 1416 a EST. 1453	

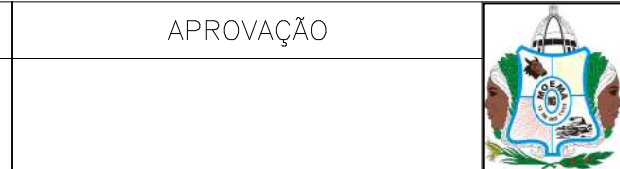


CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS	
										NORTE	ESTE
26	300,000	15°04'48"	39,709	78,959	1450+19,396	-----	-----	-----	1454+18,355	7.803.073,2659	459.834,5409
27	10000,000	00°21'45"	31,628	63,256	1467+2,512	-----	-----	-----	1470+5,768	17.803.132,3866	459.524,6355

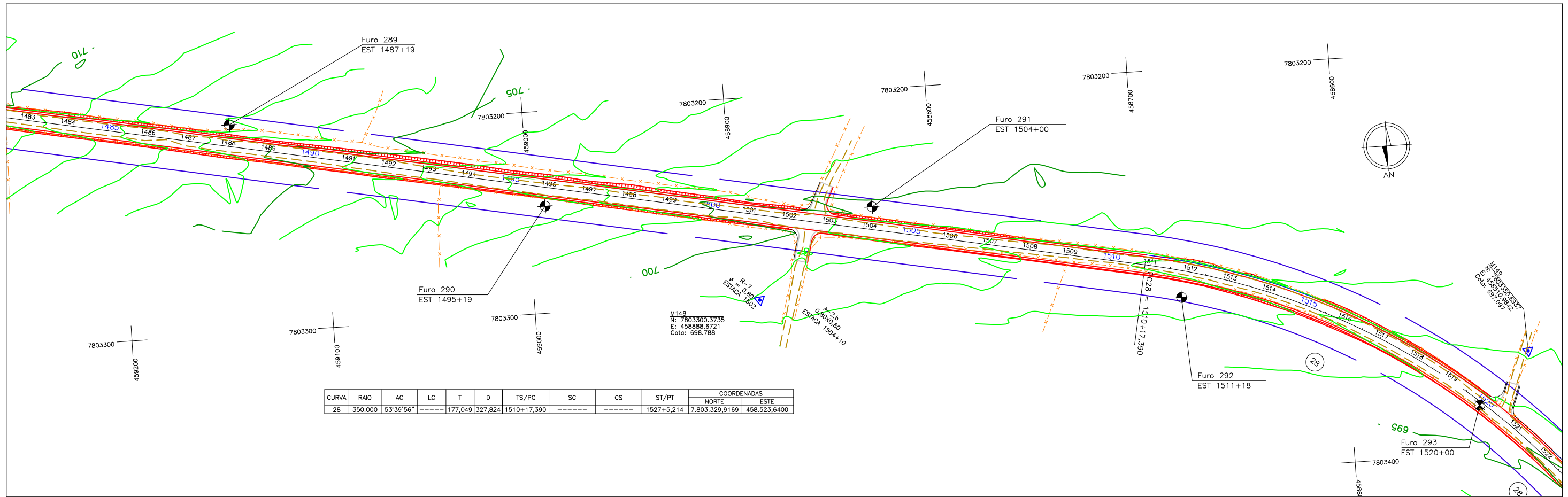


MB & R ENGENHARIA E TOPOGRAFIA LTDA.
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 R. Inácia Cândida de Jesus, 324 - Sala: 01
 Bairro: Jardim Teles Lima
 (35) 99838 0358
 CEP: 37948-000
 Bom Jesus da Penha - MG

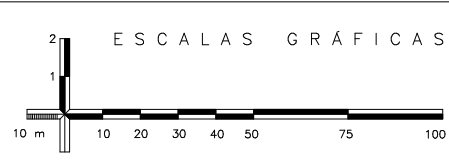
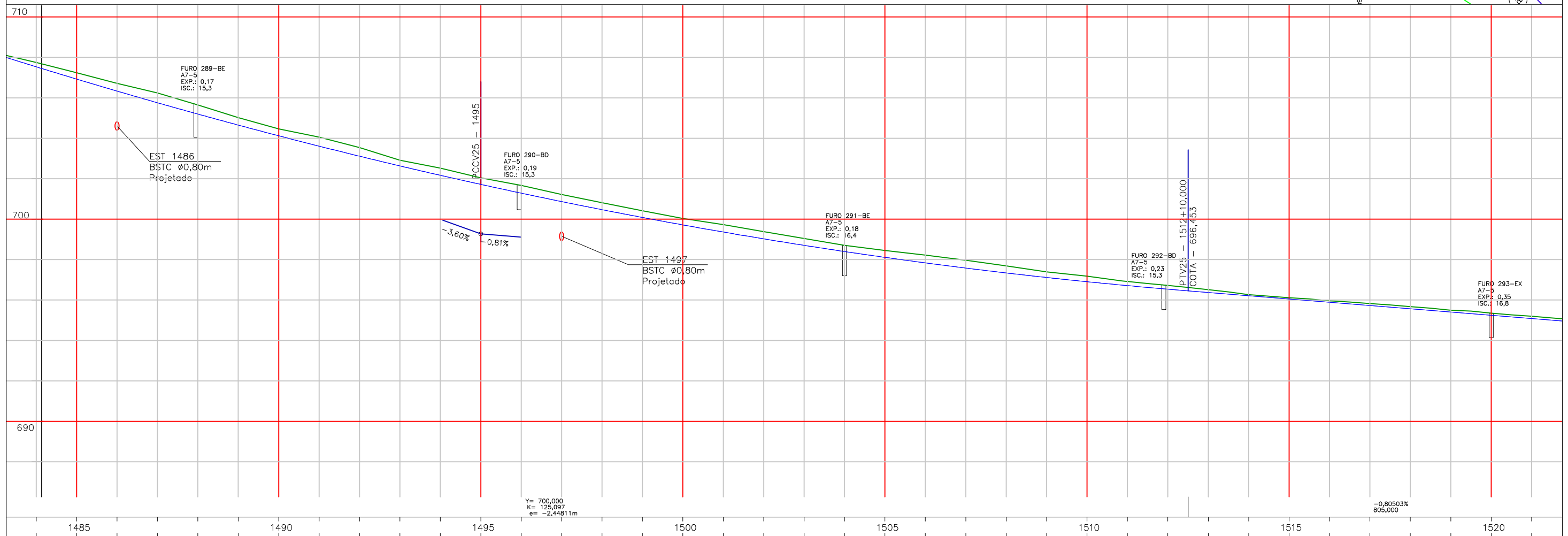
DESENHO Nº: PMM-2021-02-MG-GM-001
 MES/ANO: JUN/22
 APROVAÇÃO
 ELABORADO POR: Mauro Vieira Bueno Junior
 Engenheiro Civil - CREA: 144763/D-MG



PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS
 RODOVIA: MG-252
 TRECHO: MG-164/MG-170 - MOEMA
 PROJETO GEOMÉTRICO
 EST. 1453 a EST. 1484
 FOLHA: GM-03



CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS		
										NORTE	ESTE	
28	350,000	53°39'56"	---	177,049	327,824	1510+17,390	---	---	---	1527+5,214	7.803.329,9169	458.523,6400



MB & R ENGENHARIA E TOPOGRAFIA LTDA.
 CNPJ: 30.586.318/0001-67
 CREA: 77049
 R. Inácia Cândida de Jesus, 324 - Sala: 01
 Bairro: Jardim Teles Lima
 (35) 99838 0358
 CEP: 37948-000
 Bom Jesus da Penha - MG

DESENHO Nº
 PMM-2021-02-MG-GM-001

MES/ANO:
 JUN/22

ELABORADO POR:

Mauro Vieira Bueno Junior
 Engenheiro Civil - CREA: 144763/D-MG

APROVAÇÃO



PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS

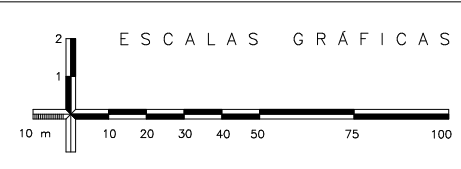
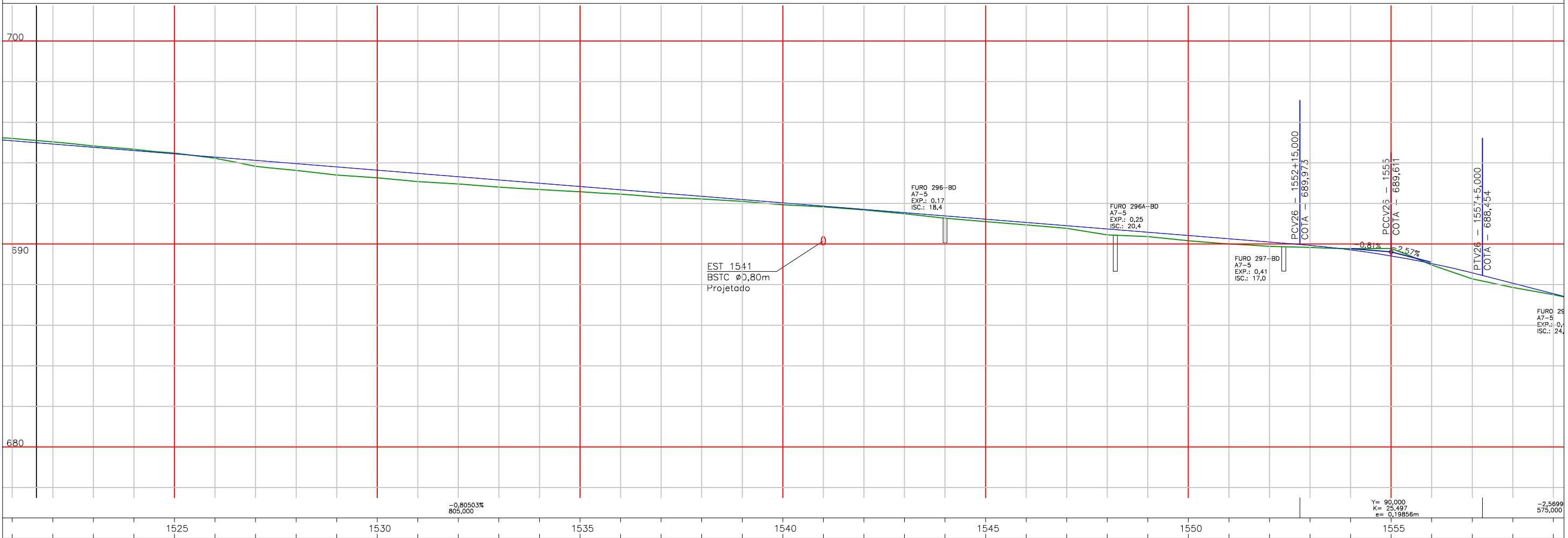
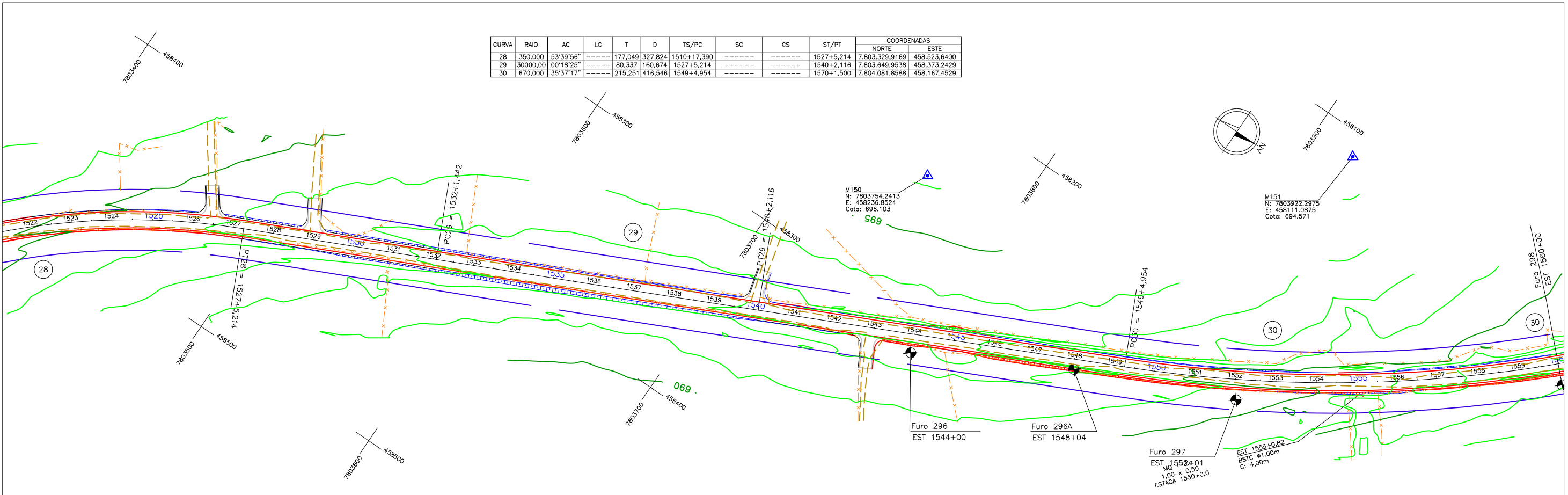
RODOVIA: MG-252

TRECHO: MG-164/MG-170 - MOEMA

PROJETO GEOMÉTRICO
 EST. 1484 a EST. 1521

FOLHA:
 GM-04

CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS	
										NORTE	ESTE
28	350,000	53°39'56"	-----	177,049	327,824	1510+17,390	-----	-----	1527+5,214	7.803.329,9169	458.523,6400
29	30000,00	00°18'25"	-----	80,337	160,674	1527+5,214	-----	-----	1540+2,116	7.803.649,9538	458.373,2429
30	670,000	35°37'17"	-----	215,251	416,546	1549+4,954	-----	-----	1570+1,500	7.804.081,8588	458.167,4529

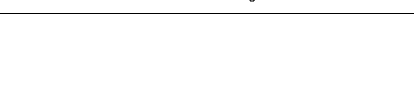


MB & R ENGENHARIA E TOPOGRAFIA LTDA.
CNPJ: 30.586.318/0001-67
CREA: 77049
R. Inácia Cândida de Jesus, 324 - Sala: 01
Bairro: Jardim Teles Lima
(35) 99838 0358
CEP: 37948-000
Bom Jesus da Penha - MG

DESENHO Nº
PMM-2021-02-MG-GM-001
ELABORADO POR:
Mauro Vieira Bueno Junior
Engenheiro Civil - CREA: 144763/D-MG

MES/ANO:
JUN/22

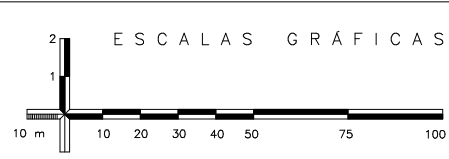
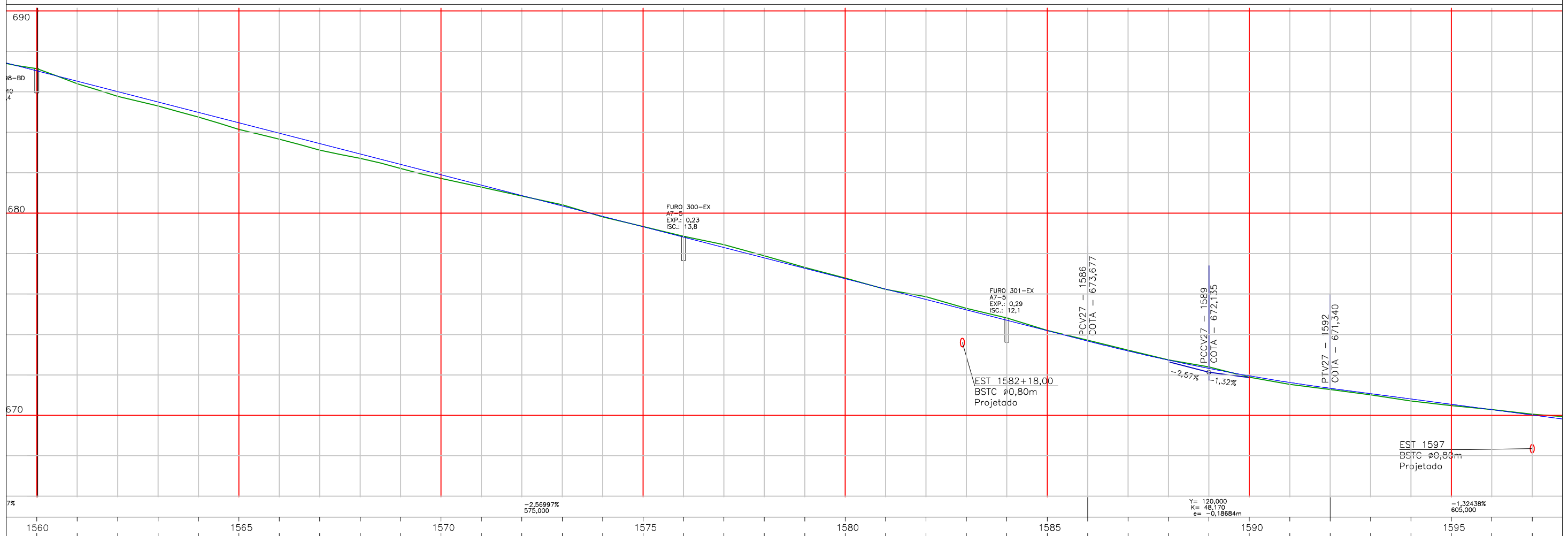
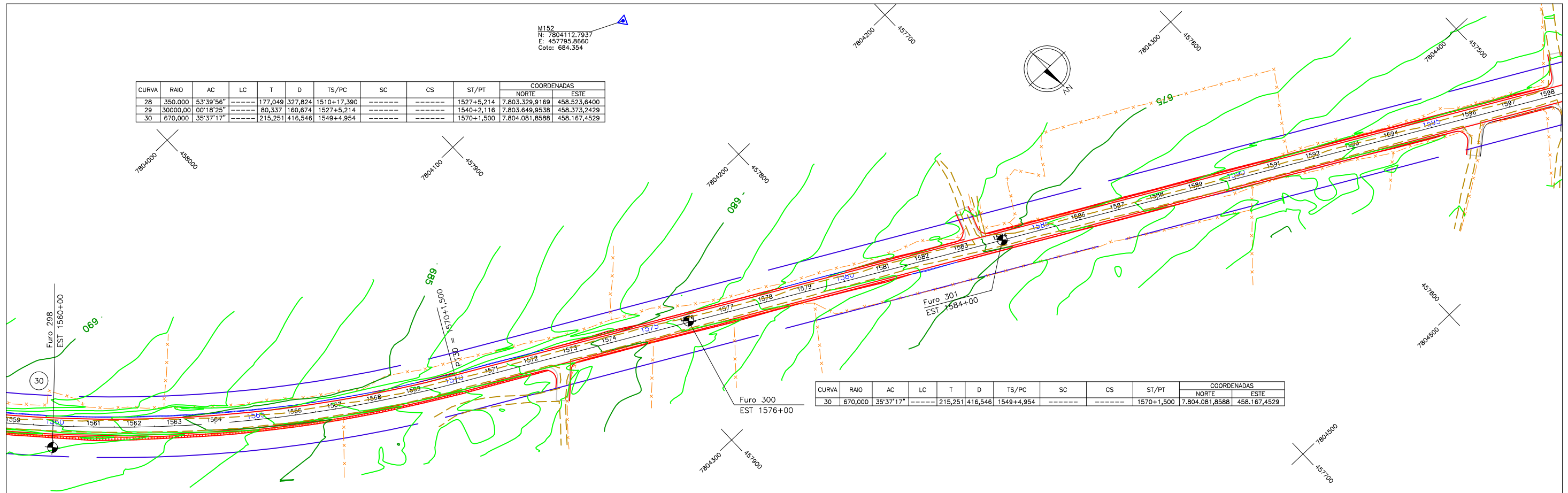
APROVAÇÃO



PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
SECRETARIA DE OBRAS E SERVIÇOS
RODOVIA: MG-252
TRECHO: MG-164/MG-170 - MOEMA
PROJETO GEOMÉTRICO
EST. 1521 a EST. 1559
FOLHA:
GM-05

CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS	
										NORTE	ESTE
28	350,000	53°39'56"	---	177,049	327,824	1510+17,390	---	---	1527+5,214	7.803.329,9169	458.523,6400
29	30000,00	00°18'25"	---	80,337	160,674	1527+5,214	---	---	1540+2,116	7.803.649,9538	458.373,2429
30	670,000	35°37'17"	---	215,251	416,546	1549+4,954	---	---	1570+1,500	7.804.081,8588	458.167,4529

CURVA	RAIO	AC	LC	T	D	TS/PC	SC	CS	ST/PT	COORDENADAS	
										NORTE	ESTE
30	670,000	35°37'17"	---	215,251	416,546	1549+4,954	---	---	1570+1,500	7.804.081,8588	458.167,4529

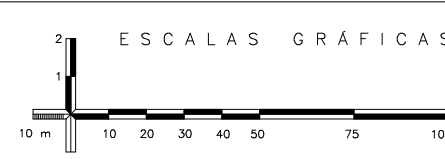
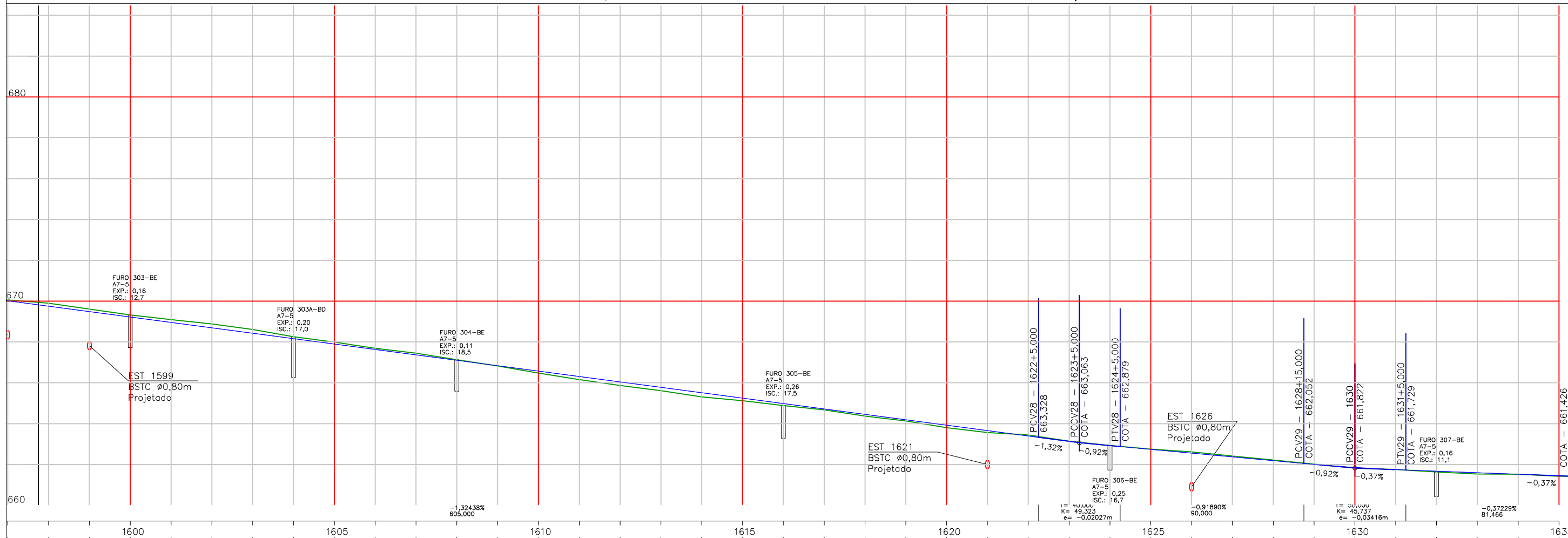
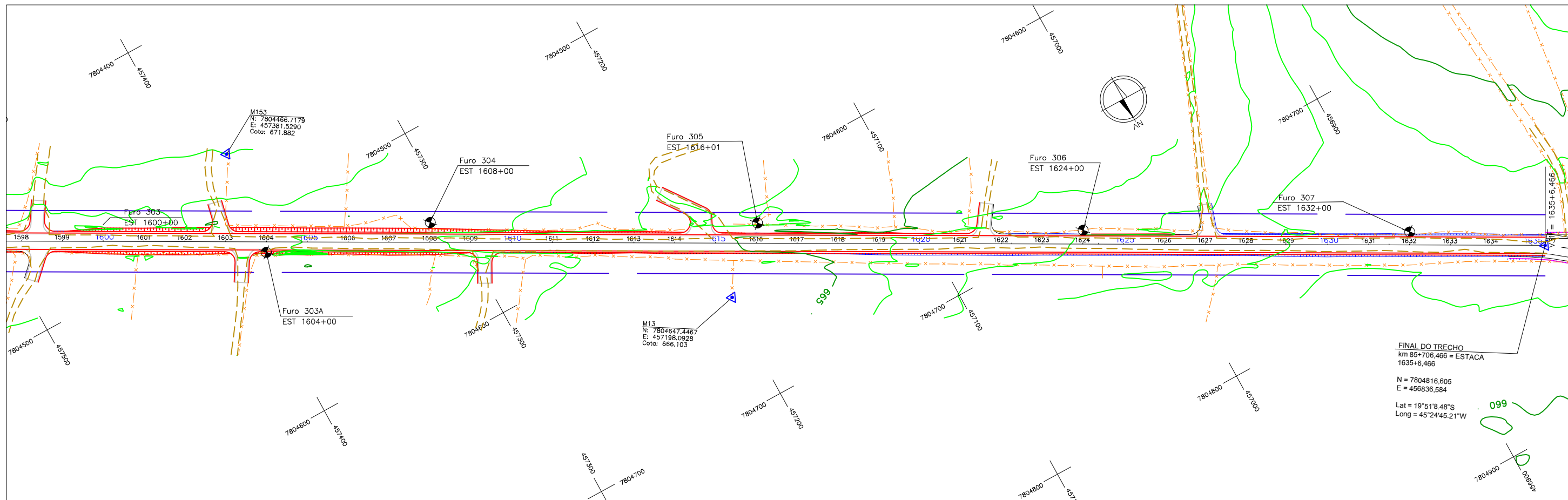


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 (35) 99838 0358
 CEP: 37948-000
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DESENHO Nº: PMM-2021-02-MG-GM-001
 MES/ANO: JUN/22
 ELABORADO POR: Mauro Vieira Bueno Junior
 Engenheiro Civil - CREA: 144763/D-MG

APROVAÇÃO

PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS
 RODOVIA: MG-252
 TRECHO: MG-164/MG-170 - MOEMA
 PROJETO GEOMÉTRICO
 EST. 1559 a EST. 1597
 FOLHA: GM-06



MB & R ENGENHARIA E TOPOGRAFIA LTDA.
 CNPJ: 30.586.318/0001-67
 CREA: 77049
 R. Inácia Cândida de Jesus, 324 - Sala: 01
 Bairro: Jardim Teles Lima
 (35) 99838 0358
 CEP: 37948-000
 Bom Jesus da Penha - MG

DESENHO Nº
 PMM-2021-02-MG-GM-001
 MES/ANO:
 JUN/22
 APROVAÇÃO

ELABORADO POR:
 Mauro Vieira Bueno Junior
 Engenheiro Civil - CREA: 144763/D-MG

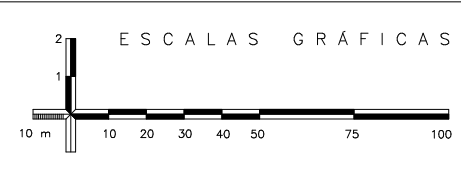
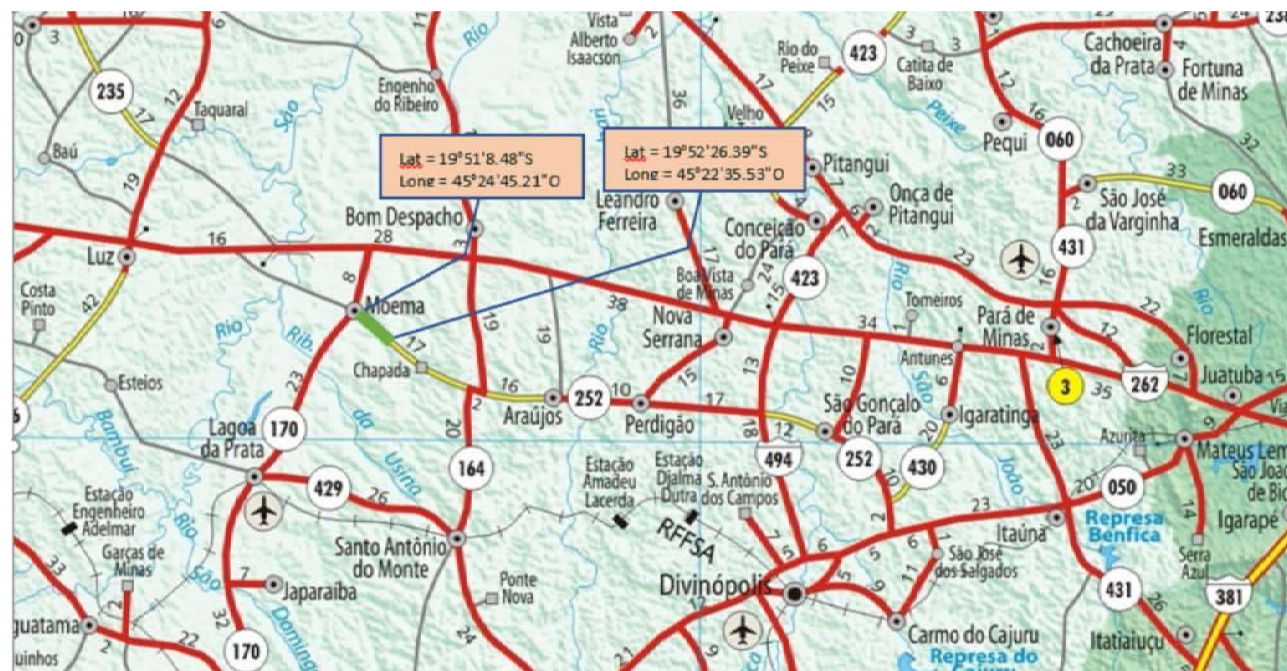
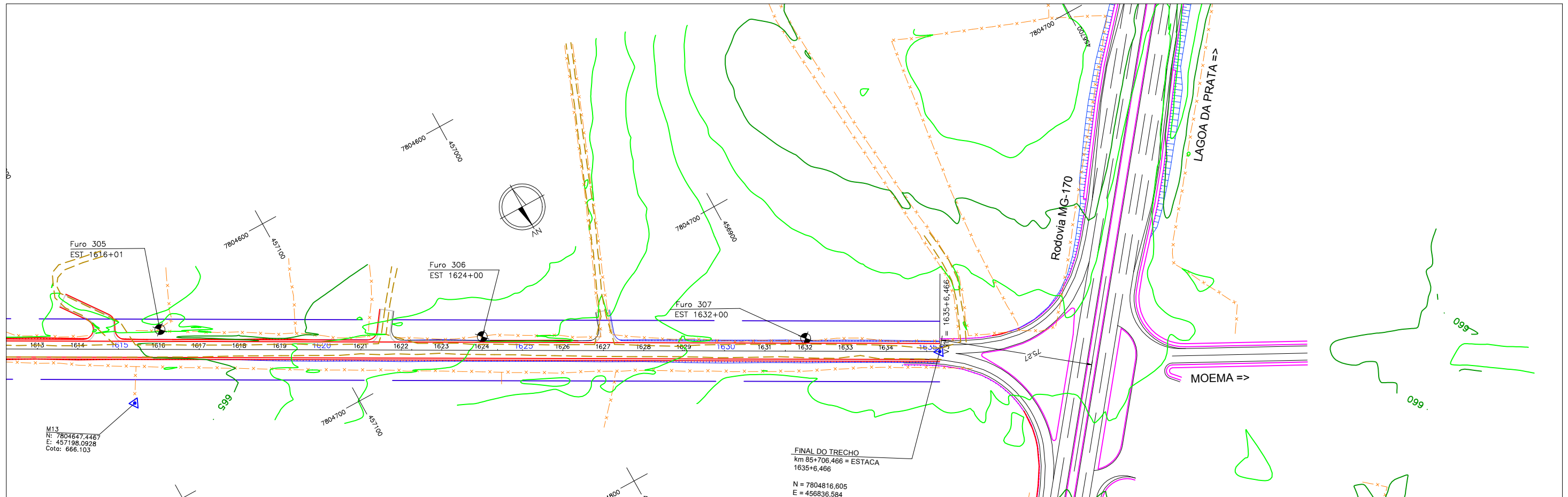


PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS

RODOVIA: MG-252
 TRECHO: MG-164/MG-170 - MOEMA

PROJETO GEOMÉTRICO
 EST. 1597 a EST. 1635+6,466

FOLHA:
 GM-07



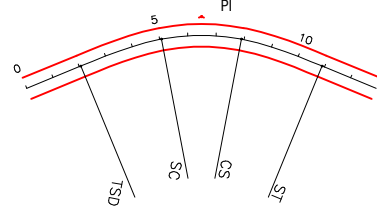
MB & R ENGENHARIA E TOPOGRAFIA LTDA.
 CNPJ: 30.586.318/0001-67
 CREA: 77049
 R. Inácia Cândida de Jesus, 324 - Sala: 01
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 CEP: 37948-000
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DESENHO Nº: PMM-2021-02-MG-GM-001
 MES/ANO: JUN/22
 ELABORADO POR:
 Mauro Vieira Bueno Junior
 Engenheiro Civil - CREA: 144763/D-MG

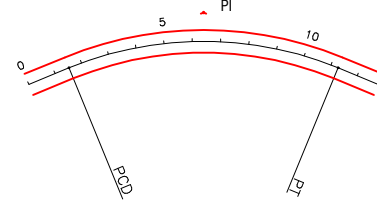
APROVAÇÃO

PREFEITURA MUNICIPAL DE MOEMA - MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS
 RODOVIA: MG-252
 TRECHO: MG-164/MG-170 - MOEMA
 PROJETO GEOMÉTRICO
 FOLHA: GM-08

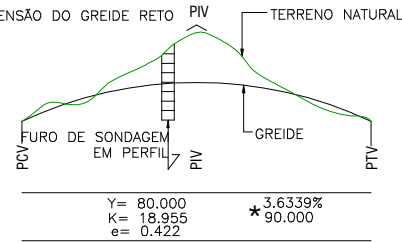
CURVA HORIZONTAL COM TRANSIÇÃO
 TS – PONTO DE MUDANÇA DE TANGENTE PARA ESPIRAL
 SC – PONTO DE MUDANÇA DE ESPIRAL PARA CIRCULAR
 CS – PONTO DE MUDANÇA DE CIRCULAR PARA ESPIRAL
 ST – PONTO DE MUDANÇA DE ESPIRAL PARA TANGENTE
 PI – PONTO DE INFLEXÃO



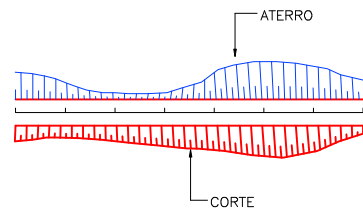
CURVA HORIZONTAL CIRCULAR
 PC – PONTO DE CURVA
 PT – PONTO DE TANGENTE
 PI – PONTO DE INFLEXÃO



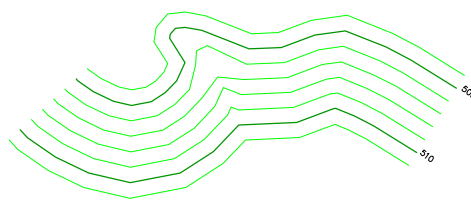
CURVA VERTICAL
 PCV – PONTO DE CURVA VERTICAL
 PTV – PONTO DE TANGÊNCIA VERTICAL
 PCRV – PONTO DE CURVA REVERSA VERTICAL
 PIV – PONTO DE INFLEXÃO VERTICAL
 Y – PROJEÇÃO HORIZONTAL DA PARÁBOLICA
 K – CONSTANTE DA PARÁBOLA VERTICAL
 e – FLECHA MÁXIMA DA PARÁBOLICA
 * – RAMPA E EXTENSÃO DO GREIDE RETO



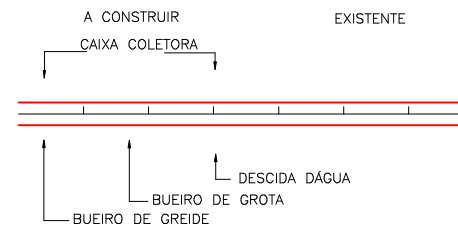
TALUDES (OFF-SET)



CURVAS DE NÍVEL



BUEIROS EM PLANTA

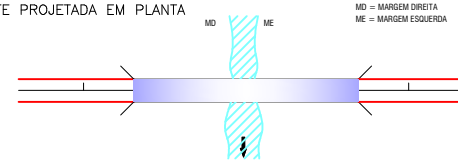


BUEIROS EM PERFIL

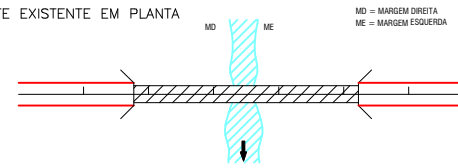
- A CONSTRUIR**
 = BSTC – BUEIRO SIMPLES TUBULAR DE CONCRETO
 = BDTC – BUEIRO DUPLO TUBULAR DE CONCRETO
 = BTTC – BUEIRO TRIPLO TUBULAR DE CONCRETO
 = BSCC – BUEIRO SIMPLES CELULAR DE CONCRETO
 = BDCC – BUEIRO DUPLO CELULAR DE CONCRETO
 = BTCC – BUEIRO TRIPLO CELULAR DE CONCRETO

BUEIROS EXISTENTES

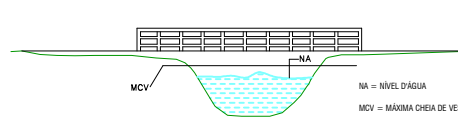
PONTE PROJETADA EM PLANTA



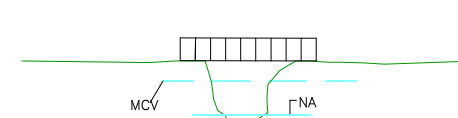
PONTE EXISTENTE EM PLANTA



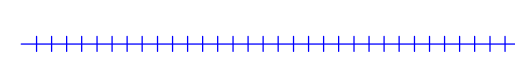
PONTE PROJETADA (EM PERFIL)



PONTE EXISTENTE (EM PERFIL)



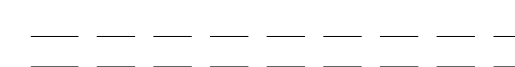
FERROVIA



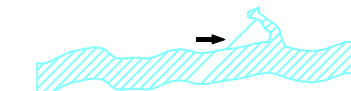
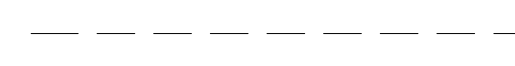
ESTRADA PAVIMENTADA



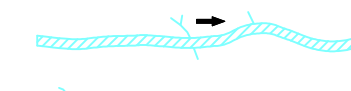
ESTRADA NÃO PAVIMENTADA



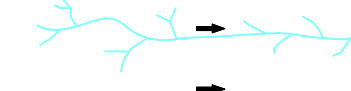
CAMINHO



RIO



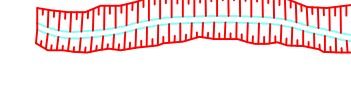
RIBEIRÃO



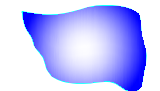
CÓRREGO E PEQUENO CURSO D'ÁGUA



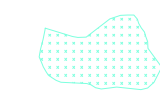
RÊGO DE SERVENTIA, VALA



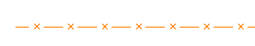
CANAL OU CORTA RIO



LAGOA OU AÇUDE



BREJO



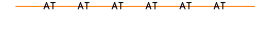
CERCA EXISTENTE



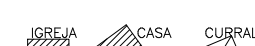
FAIXA DE DOMÍNIO



BORDO DA VIA EXISTENTE



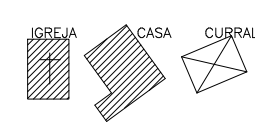
REDE TELEFÔNICA/TELEGRÁFICA



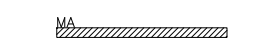
REDE DE GÁS



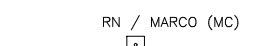
LINHA DE ALTA TENSÃO



BENFEITORIAS



MURO DE ARRIMO



REFERÊNCIA DE NÍVEL



DIVISA DE PROPRIEDADE



NORTE VERDADEIRO



ÁRVORE



POSTE



FURO DE SONDAAGEM



PLACA SINALIZAÇÃO VERTICAL (SUPORTE SIMPLES)



PLACA SINALIZAÇÃO VERTICAL (SUPORTE DUPLO)



DEFENSA



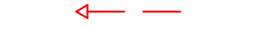
DRENAGEM PROJETADA (PERFIL-SARJETA DE CORTE)



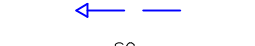
DRENAGEM PROJETADA (PERFIL-SARJETA DE ATERRO)



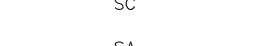
SARJETA DE CORTE



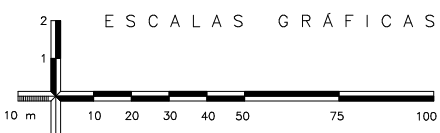
SARJETA DE ATERRO



DRENO PROFUNDO



BANQUETA



MB & R ENGENHARIA E TOPOGRAFIA LTDA.
 CNPJ: 30.586.318/0001-67
 CREA: 77049
 R. Inácia Cândida de Jesus, 324 – Sala: 01
 Bairro: Jardim Teles Lima
 (35) 99838 0358
 CEP: 37948-000
 Bom Jesus da Penha – MG

DESENHO Nº
 PMM-2021-02-MG-GM-001

MES/ANO:
 JUN/22

APROVAÇÃO

ELABORADO POR:

Mauro Vieira Bueno Junior
 Engenheiro Civil – CREA: 144763/D-MG



PREFEITURA MUNICIPAL DE MOEMA – MINAS GERAIS
 SECRETARIA DE OBRAS E SERVIÇOS

RODOVIA: MG-252

TRECHO: MG-164/MG-170 – MOEMA

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FOLHA:
 GM-09