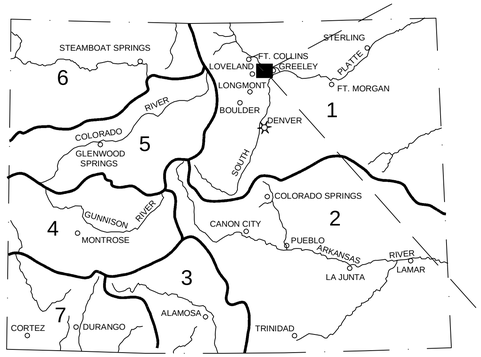
RIVERSIDE SPILLWAYS AND SITE GRADING
IVERSON MINE
WATER DIVISION NO. 1, WELD COUNTY, COLORADO

www.tetratech.com

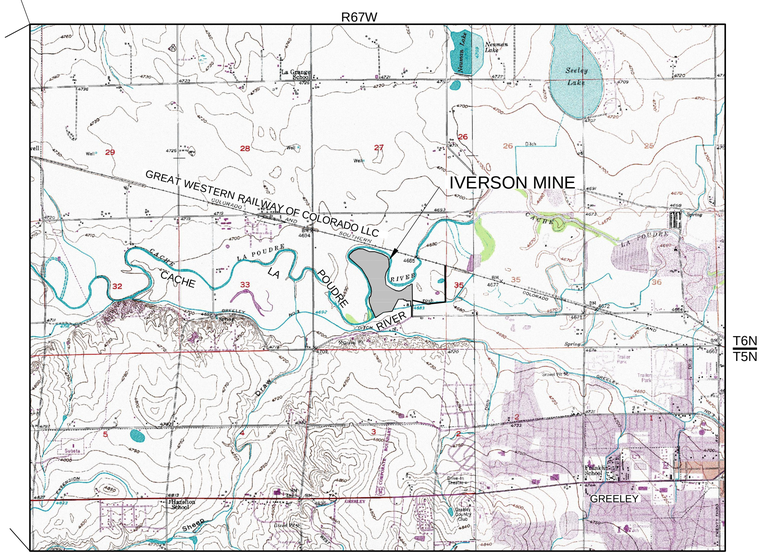
TETRA TECH



STATE OF COLORADO
PROJECT LOCATION MAP

NORTH

SCALE: NONE



NORTH

PROJECT VICINITY MAP

0 1500 3000
SCALE IN FEET

NOTES:

TETRA TECH INC. IS NOT A GUARANTOR OF THE PERFORMANCE OF THE WORK.

TETRA TECH INC. IS NOT RESPONSIBLE FOR SAFETY, IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY WITH ANY REGULATIONS RELATED THERETO.

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WRITTEN SCALES ON PLAN ARE FOR FULL SIZED 24" x 36" PLANS AND DO NOT APPLY TO REDUCED PLAN SETS.

TETRA TECH ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL AND VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

UNCC
CALL BEFORE
YOU DIG

1-800-922-1987
Utility Notification
Center of Colorado
Administrative Office 303-232-1991
16361 Table Mountain Parkway
Golden, Co 80215

CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

PROJECT LOCATION:
5011 WEST F STREET
GREELEY, COLORADO 80631

CLIENT INFORMATION:
MARTIN MARIETTA
1800 NORTH TAFT HILL ROAD
FT COLLINS, COLORADO 80521

Tt PROJECT No.:
133-24097-15001

CLIENT PROJECT No.:

PROJECT DESCRIPTION / NOTES:

ISSUED:

FOR BID: SEPTEMBER 10, 2015

SHEET INDEX:

SHEET LIST TABLE

Sheet Number	Sheet Title
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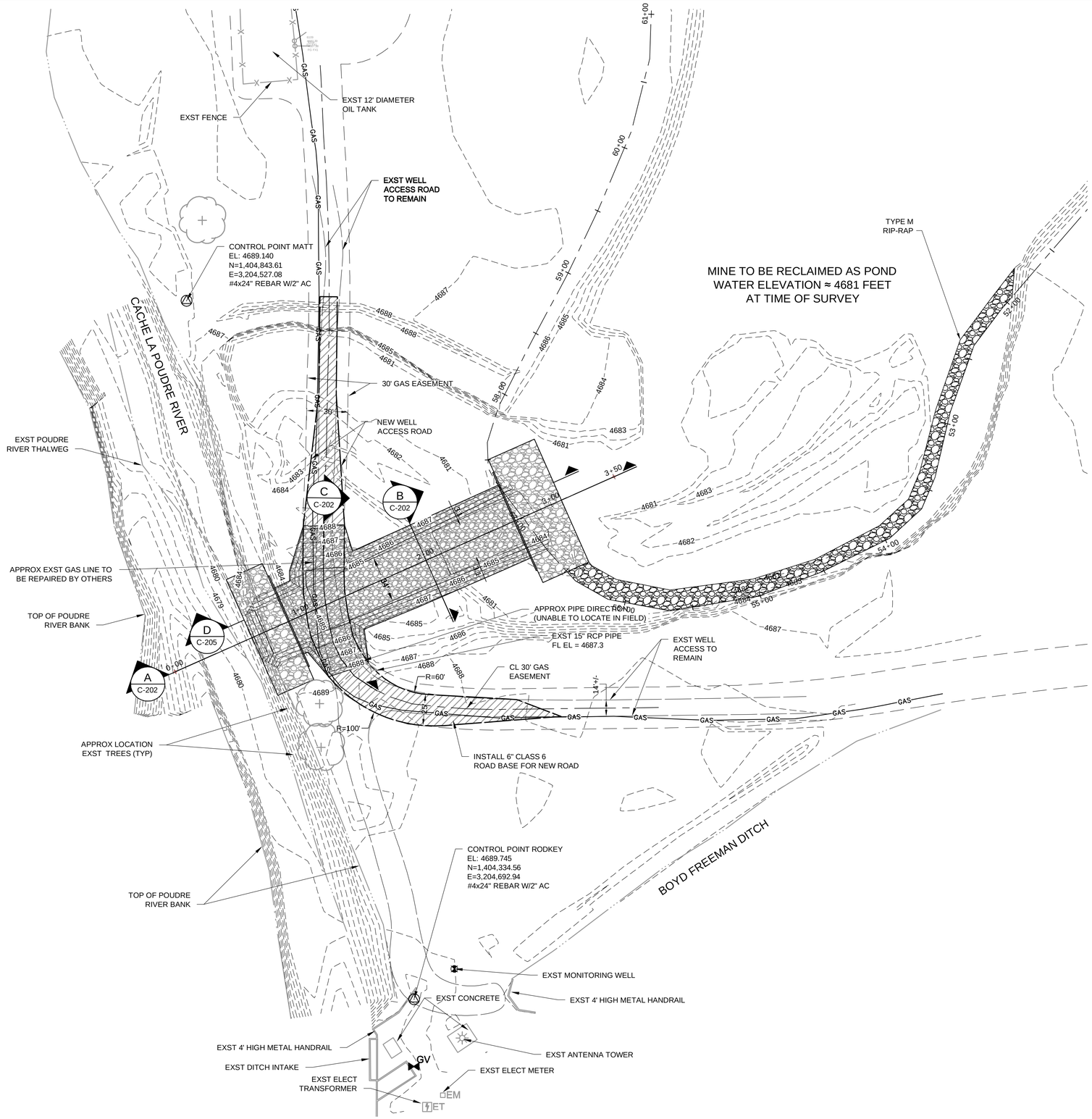
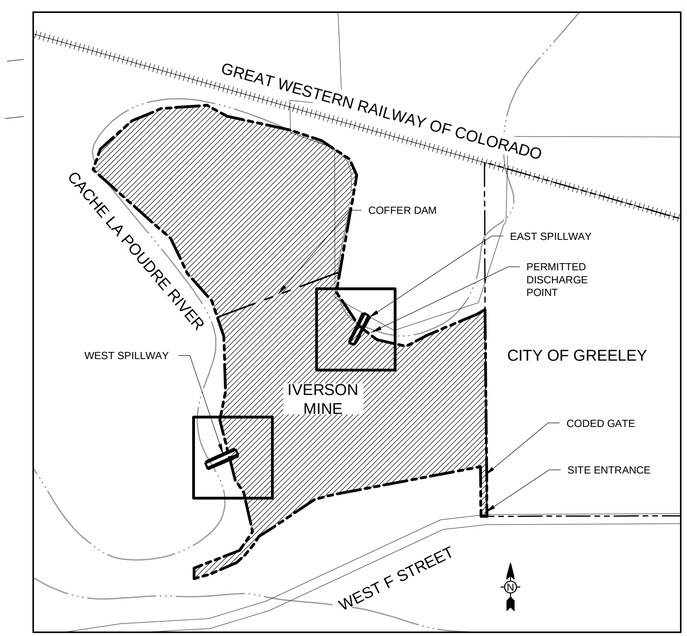
C-202	WEST SPILLWAY CROSS SECTION AND PROFILE
C-203	EAST SPILLWAY PLAN VIEW
C-204	EAST SPILLWAY CROSS SECTION AND PROFILE
C-205	SPILLWAY DETAILS
C-206	OVERALL GRADING PLAN
C-207	CROSS SECTIONS STA 0+00 TO 11+00
C-208	CROSS SECTIONS STA 12+00 TO 23+00
C-209	CROSS SECTIONS STA 24+00 TO 35+00
C-210	CROSS SECTIONS STA 36+00 TO 47+00
C-211	CROSS SECTIONS STA 48+00 TO 59+00
C-212	CROSS SECTIONS STA 60+00 TO 66+00
C-213	EAST CROSS SECTIONS STA 2+00 TO 5+00
C-214	EAST CROSS SECTIONS STA 6+00 TO 9+00



NOTES:

1. TOPOGRAPHY BY KING SURVEYING JULY 2015.
2. DATUM
   HORIZONTAL: MODIFIED STATE PLANE
   VERTICAL: NGVD 29
3. BENCHMARK: NGS "U 136", A BRASS DISK SET IN THE TOP OF THE NORTH END OF THE WEST ABUTMENT OF R.R. BRIDGE OVER SMALL CREEK.

   ELEVATION: 4671.13 FEET (NGVD 29)
4. SPILLWAY WILL TIE INTO PRE-MINING CONTOURS (NOT SHOWN).



KEY MAP
NOT TO SCALE

TETRA TECH
www.tetratech.com
1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

WEST SPILLWAY PLAN VIEW

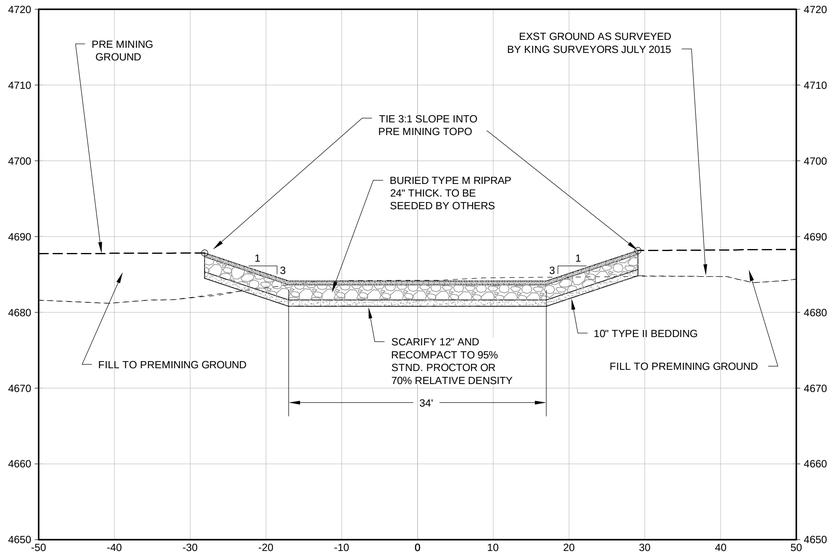
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-201

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:17:09 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-201 WEST SPILLWAY PLAN VIEW.DWG - ANDRYAUSKAS, JEREMY

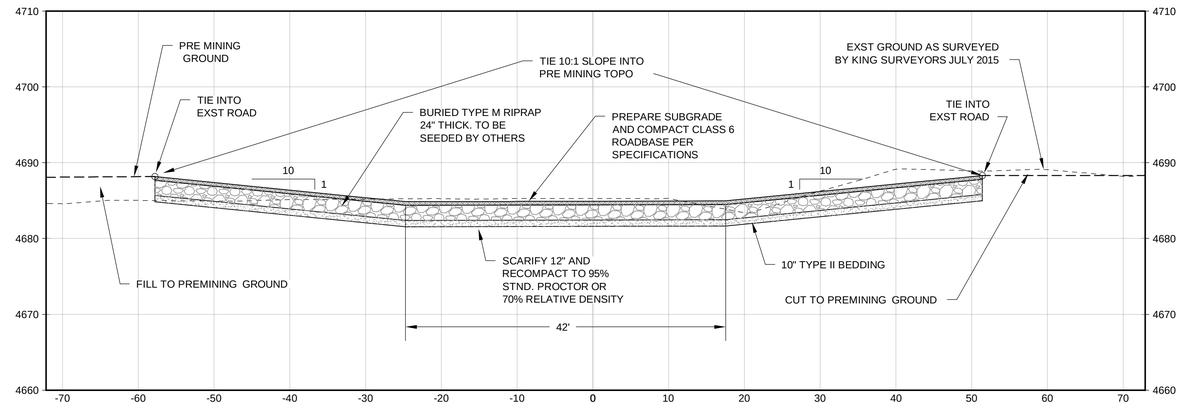


B C-201 WEST SPILLWAY SECTION

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'

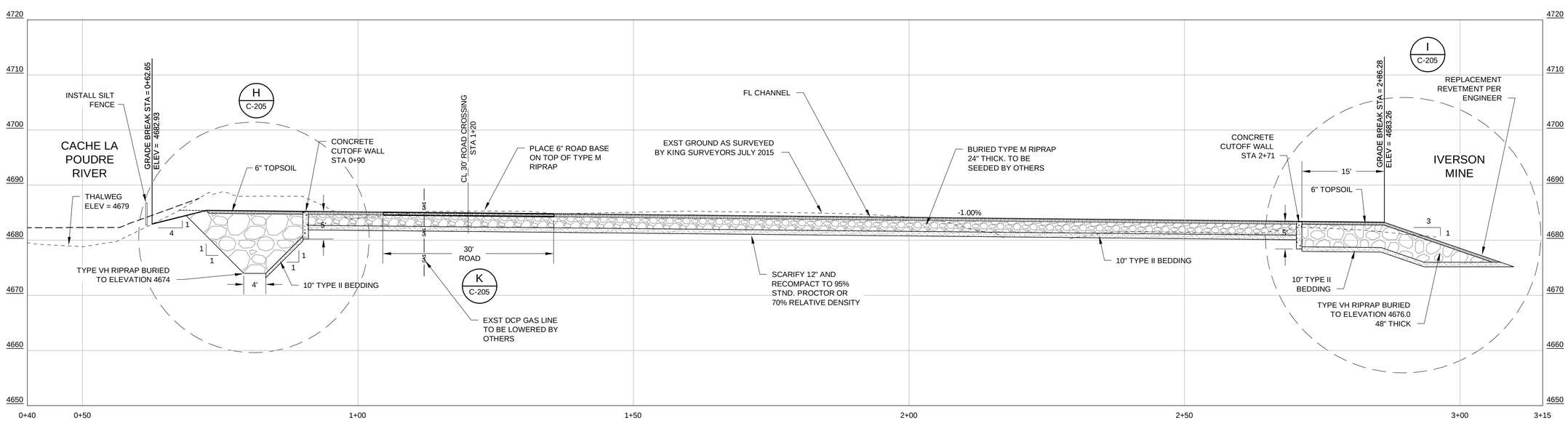


C C-201 WEST SPILLWAY SECTION AT NEW ROAD CROSSING

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'



A C-201 WEST SPILLWAY PROFILE

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'

EXISTING TOPO JULY 2015

PREMINING TOPO

TETRA TECH
www.tetratech.com
1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

WEST SPILLWAY CROSS SECTION AND PROFILE

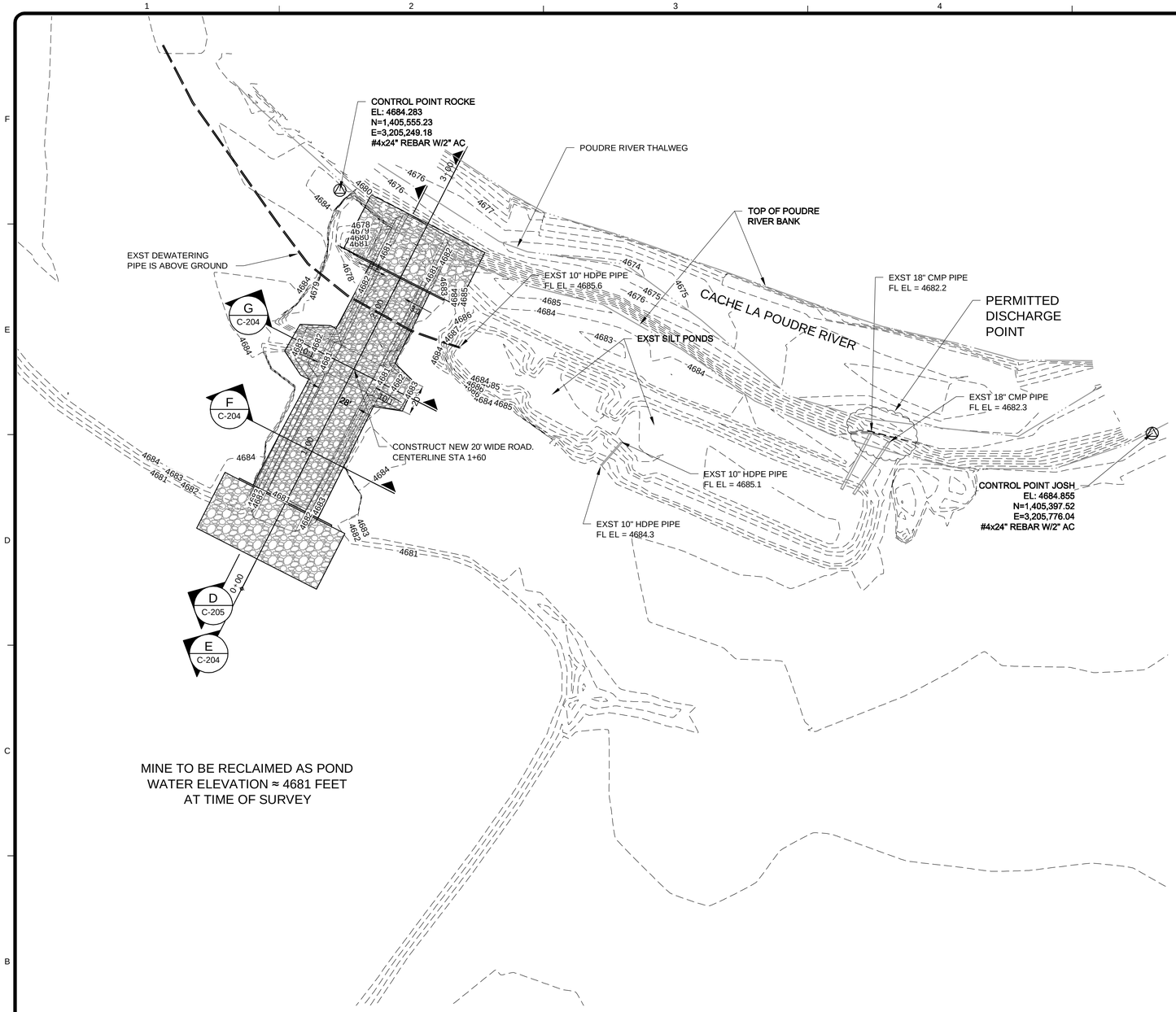
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

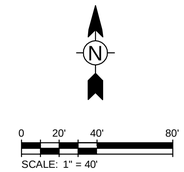
C-202

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:17:33 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-202 WEST SPILLWAY CROSS SECTION AND PROFILE.DWG - ANDRYAUSKAS, JEREMY





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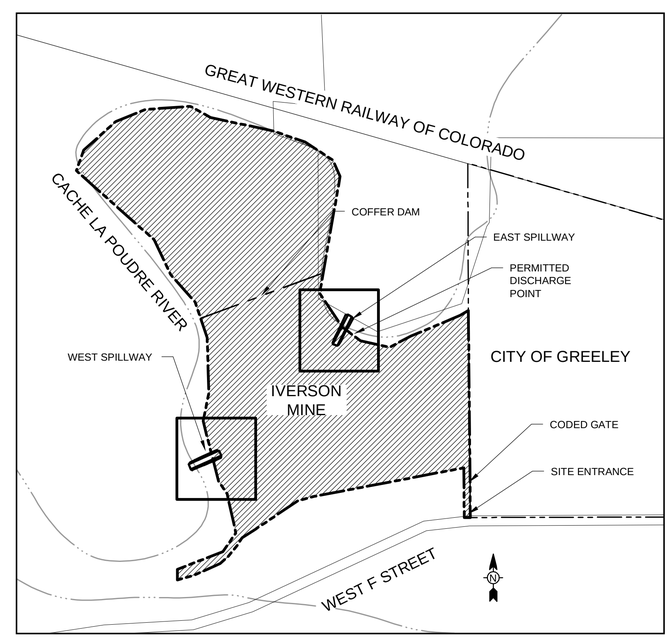

KEY MAP
NOT TO SCALE

TETRA TECH
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1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

EAST SPILLWAY PLAN VIEW

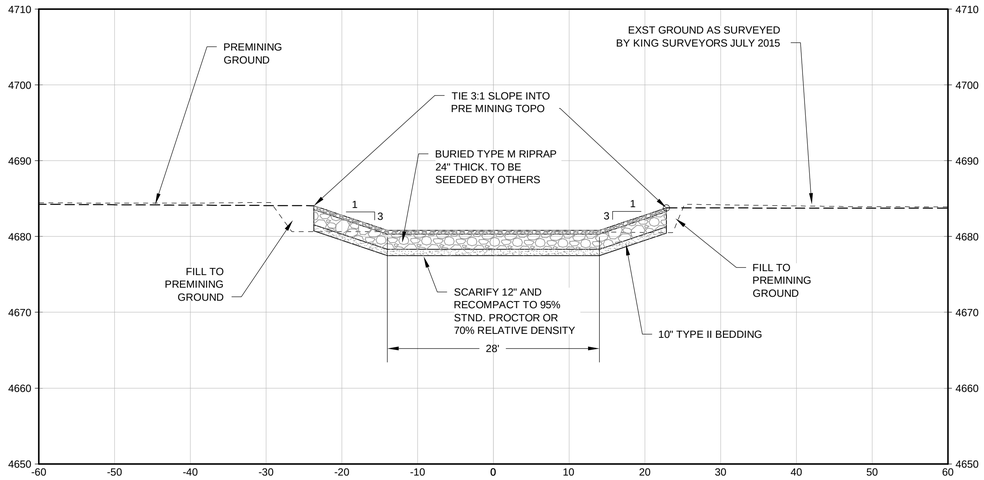
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-203

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:18:16 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-203 EAST SPILLWAY PLAN VIEW.DWG - AND\RYAUSK4S, JEREMY

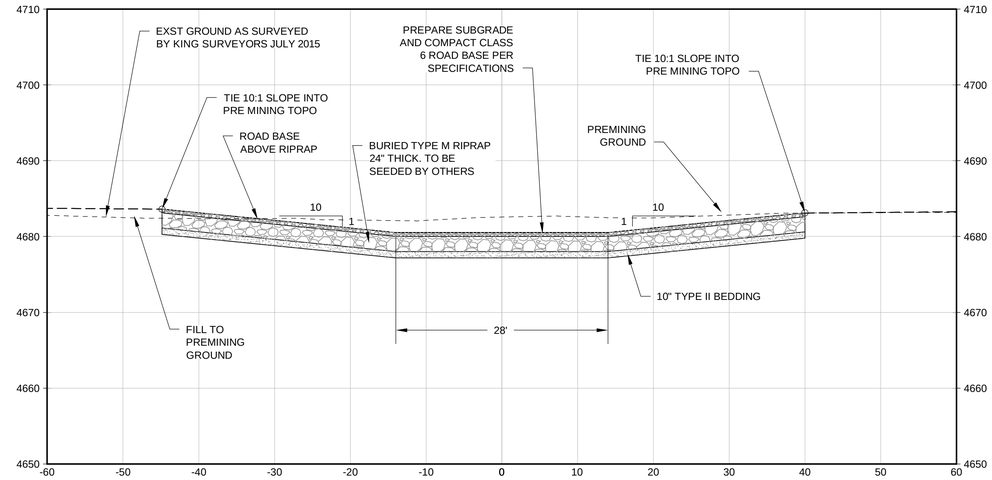


F C-203 EAST SPILLWAY SECTION

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'

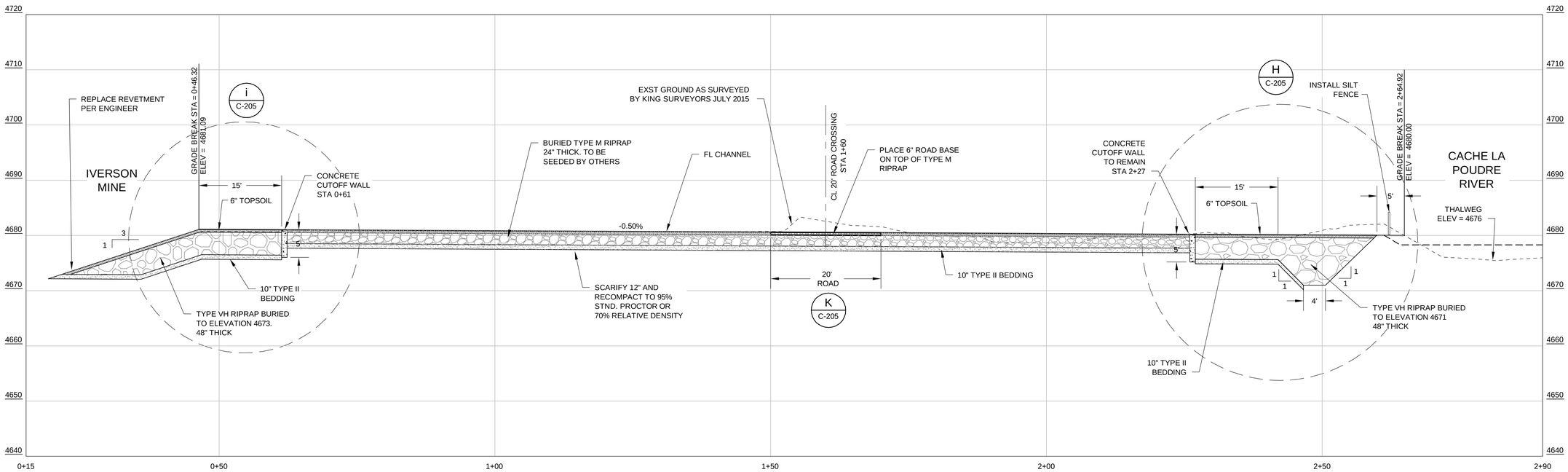


G C-203 EAST SPILLWAY SECTION AT ROAD CROSSING

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'



E C-203 EAST SPILLWAY PROFILE

SCALE: AS SHOWN

0 5' 10' 20'

SCALE: 1" = 10'

EXISTING TOPO JULY 2015

PREMINING TOPO

TETRA TECH

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1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA

IVERSON MINE

EAST SPILLWAY CROSS SECTION AND PROFILE

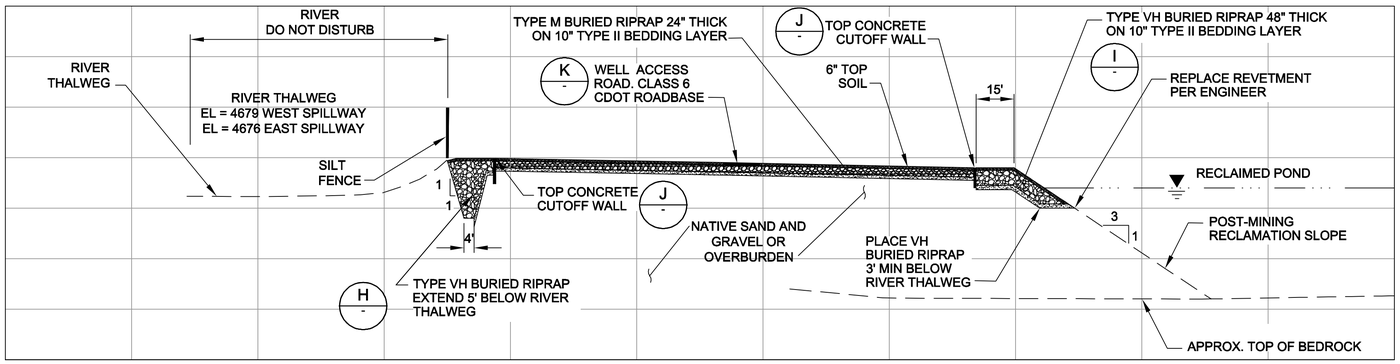
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-204

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:18:39 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-204 EAST SPILLWAY CROSS SECTION AND PROFILE.DWG - ANDRYAUSKAS, JEREMY



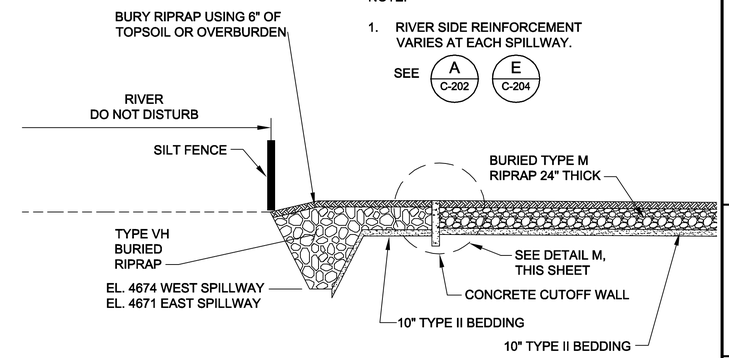
NOTE:
ALL BURIED RIPRAP TO BE SEEDED BY OTHERS

D C-201 SPILLWAY TYPICAL PROFILE
SCALE: NOT TO SCALE

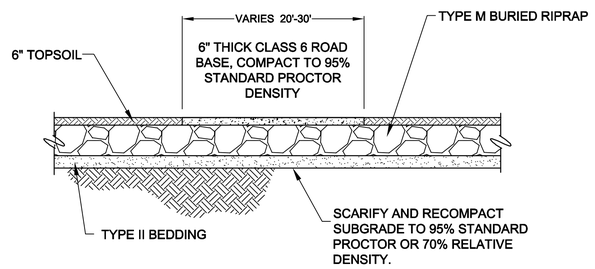
NOTE:

1. RIVER SIDE REINFORCEMENT VARIES AT EACH SPILLWAY.

SEE A C-202 E C-204

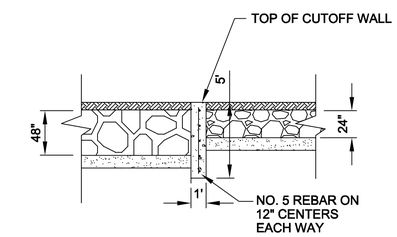


H – RIVER SIDE CUTOFF WALL AND RIPRAP SECTION (TYP)
SCALE: NOT TO SCALE

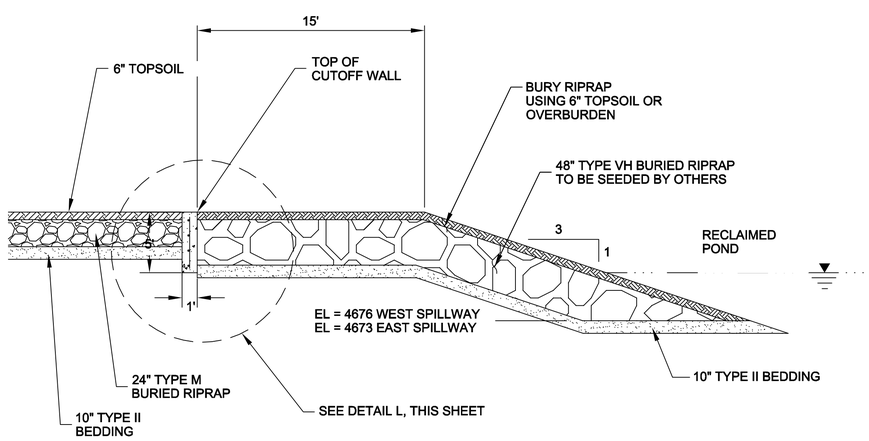


K – SPILLWAY ROAD SECTION (TYP)
SCALE: AS SHOWN

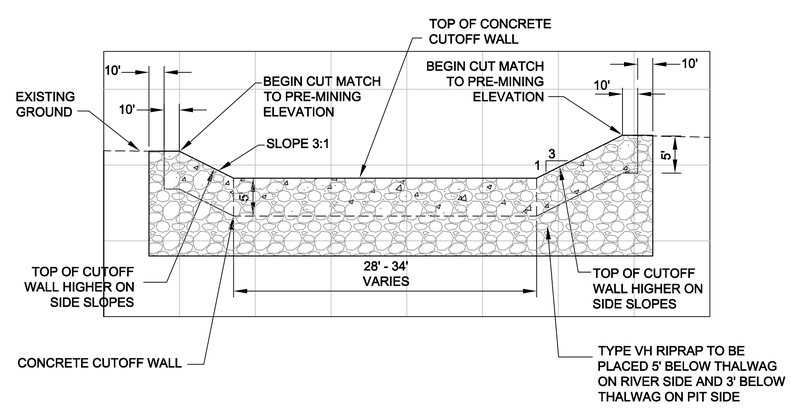
0 5 10
SCALE IN FEET



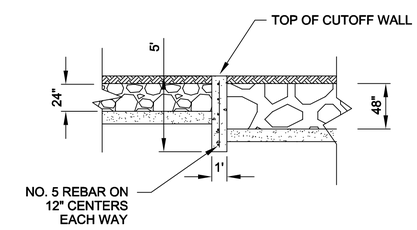
M – RIVER SIDE CONCRETE CUTOFF WALL (TYP)
SCALE: NOT TO SCALE



I – PIT SIDE CONCRETE CUTOFF WALL AND RIPRAP SECTION (TYP)
SCALE: NOT TO SCALE



J – CONCRETE CUTOFF WALL PROFILE
SCALE: NOT TO SCALE



L – PIT SIDE CONCRETE CUTOFF WALL (TYP)
SCALE: NOT TO SCALE

NOTES:

1. CONCRETE CUTOFF WALLS TO BE PLACED IN EXCAVATED TRENCH.
2. EXTEND BURIED RIPRAP AND CUTOFF WALLS A MINIMUM OF 15' BEYOND TOP OF SPILLWAY CUT ON BOTH RIVER AND PIT SIDES OF SPILLWAY.

TETRA TECH
www.tetratech.com
1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

SPILLWAY DETAILS

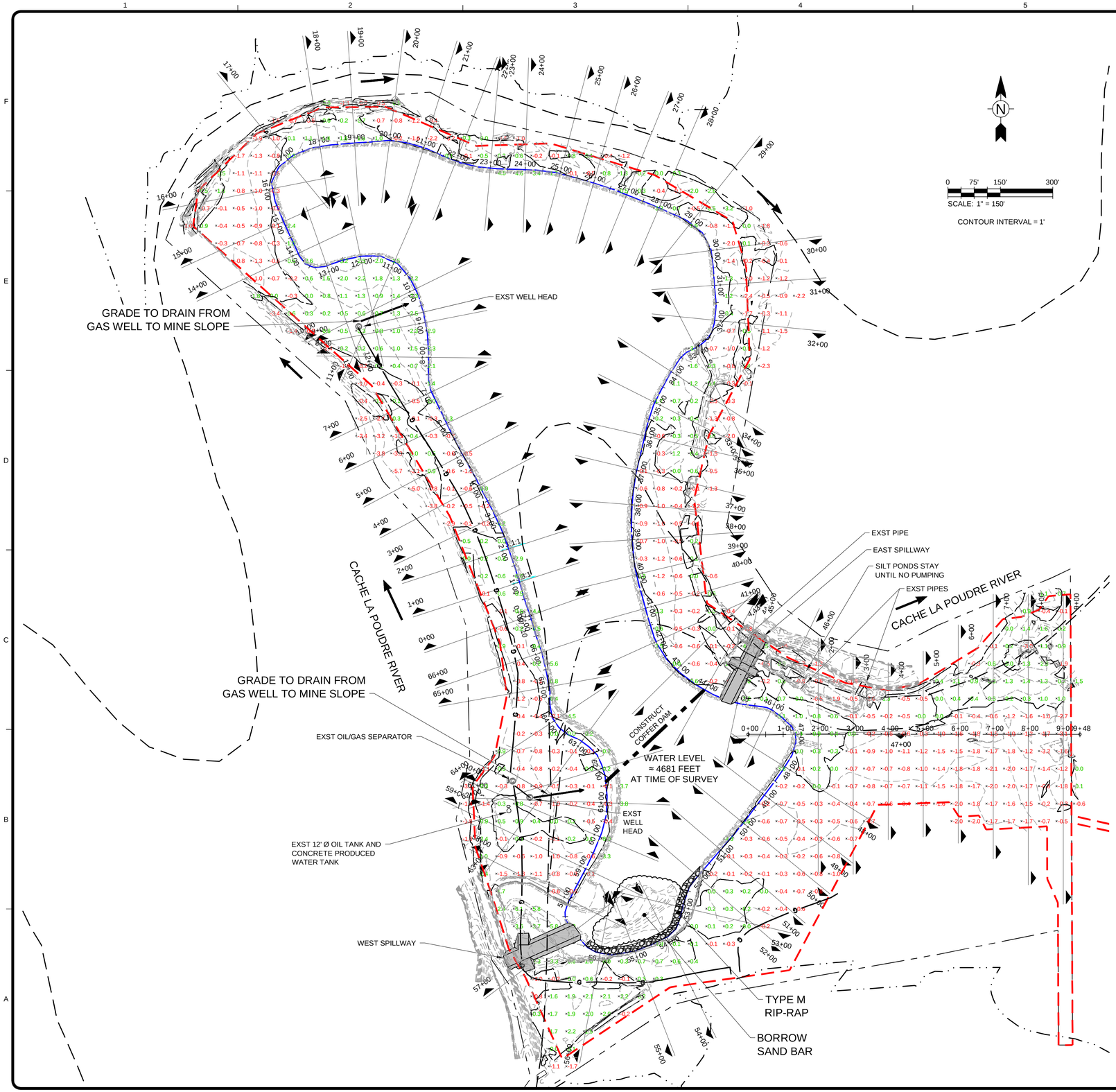
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-205

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:19:01 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-205 SPILLWAY DETAILS.DWG - ANDRYAUSKAS, JEREMY



LEGEND:

- PERMIT BOUNDARY
- PROPERTY LINE
- PRE-PROJECT FLOOD PLAIN
- PRE-PROJECT FLOODWAY (ONE-FOOT)
- PRE-PROJECT FLOODWAY (HALF-FOOT)
- EXISTING CONTOUR JULY 2015 BY KING SURVEYORS
- NO CUT ISOPACH
- x -0.6 CUT AREAS
- x 1.2 FILL AREAS
- CACHE LA POUDRE FLOW DIRECTION
- G EXISTING GAS LINE, APPROXIMATE LOCATION

TETRA TECH ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL AND VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

UNCC
CALL BEFORE
YOU DIG

1-800-922-1987

Utility Notification
Center of Colorado
Administrative Office 303-232-1991
16361 Table Mountain Parkway
Golden, Co 80215

CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

TETRA TECH
www.tetratech.com
1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN FOR FLOOD HAZARD DEVELOPMENT PERMIT

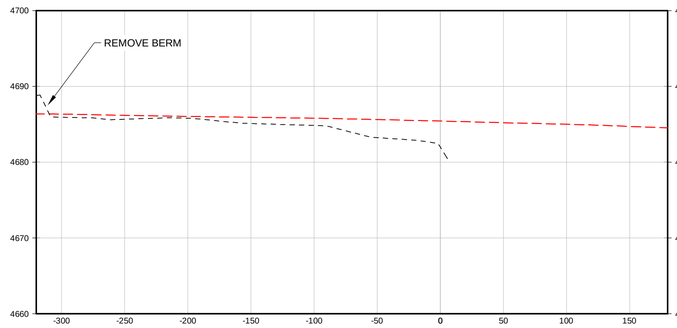
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

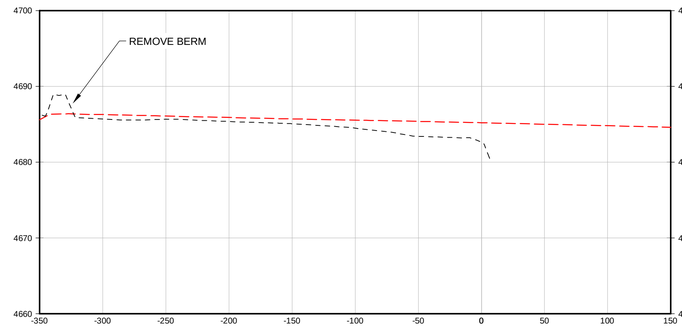
C-206

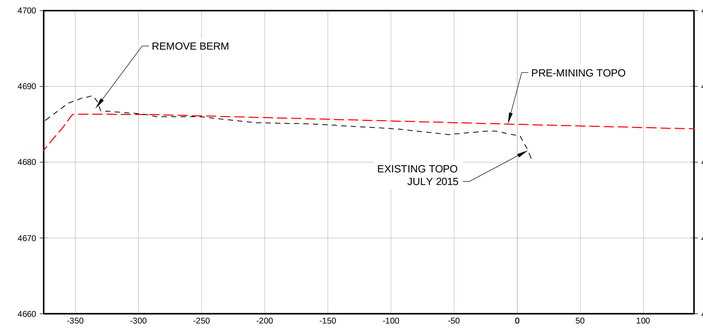
Copyright: Tetra Tech

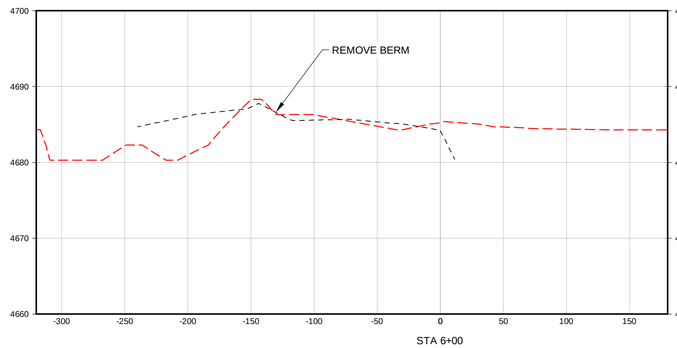
Bar Measures 1 inch

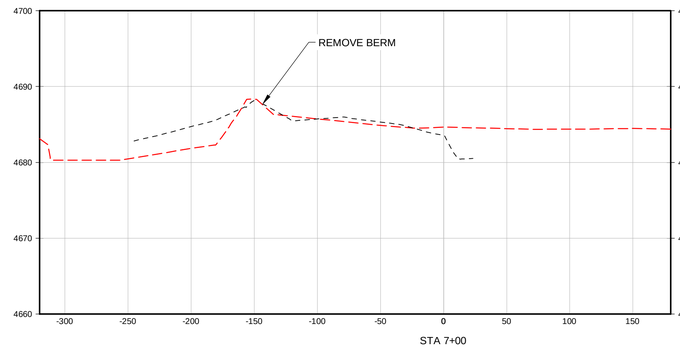
9/10/2015 3:19:09 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY

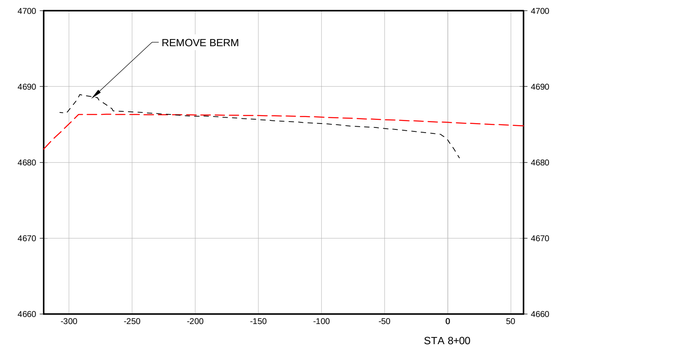


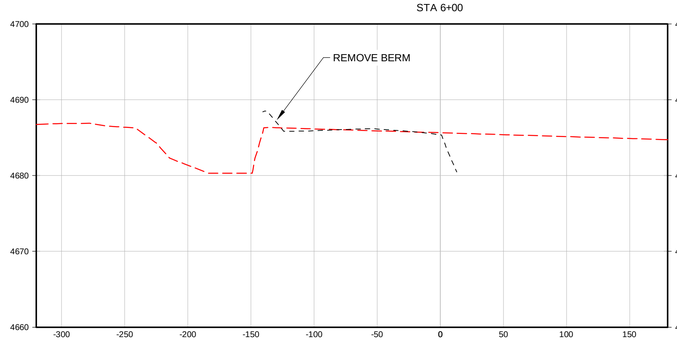


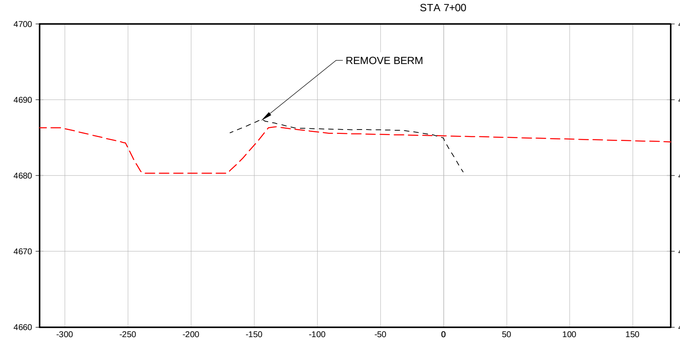


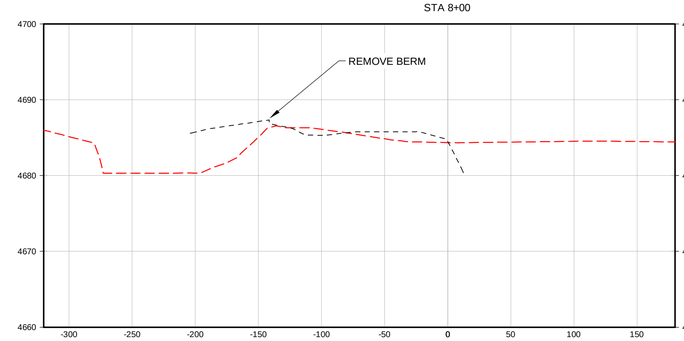


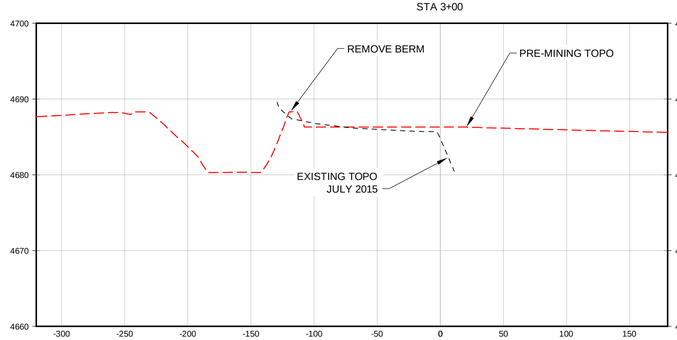


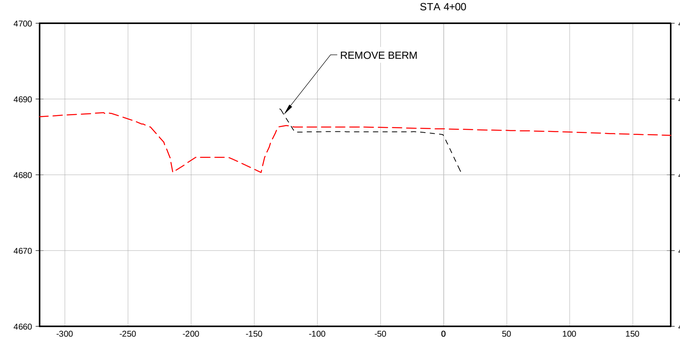


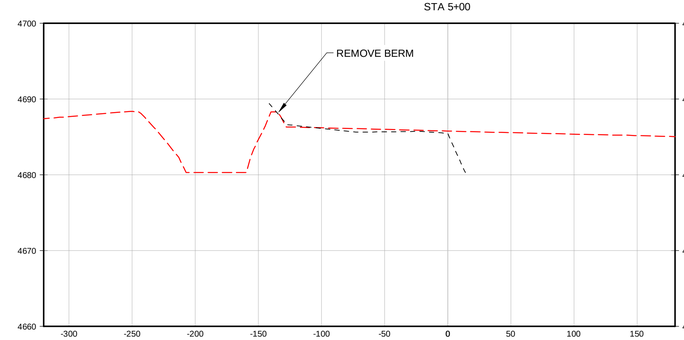


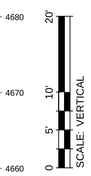












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0 30' 60' 120'

SCALE: 1" = 60'

HORIZONTAL SCALE

VERTICAL EXAGGERATION = X6

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1900 SOUTH SUNSET STREET, SUITE 1-E
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PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN CROSS-SECTIONS STA 0+00 TO 11+00

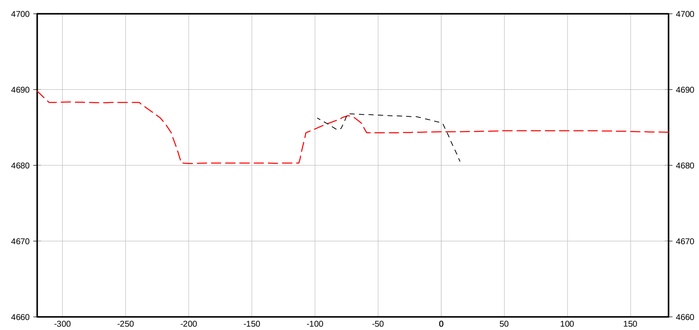
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

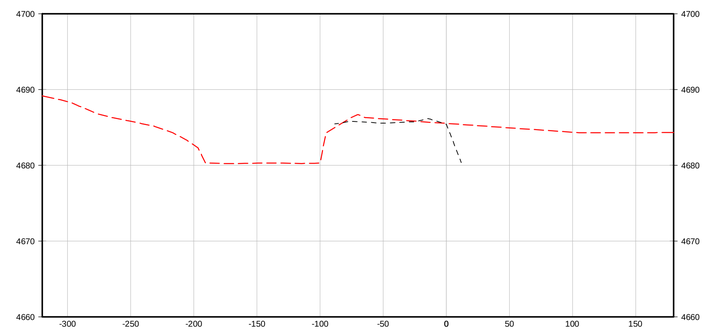
C-207

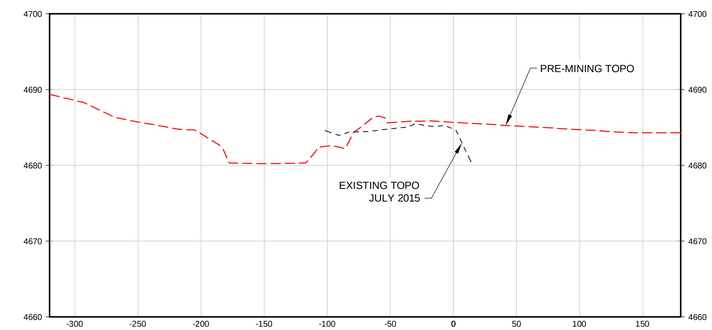
Copyright: Tetra Tech

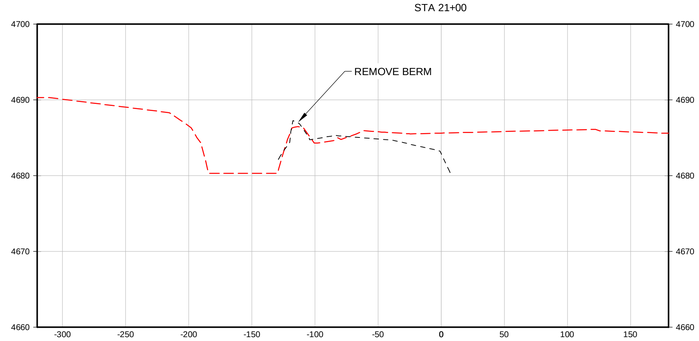
Bar Measures 1 inch

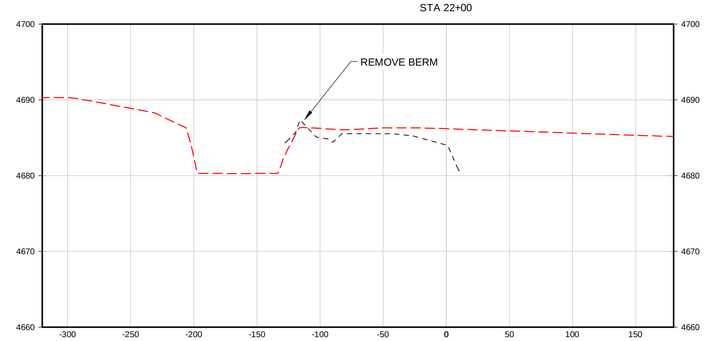
9/10/2015 3:19:13 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY

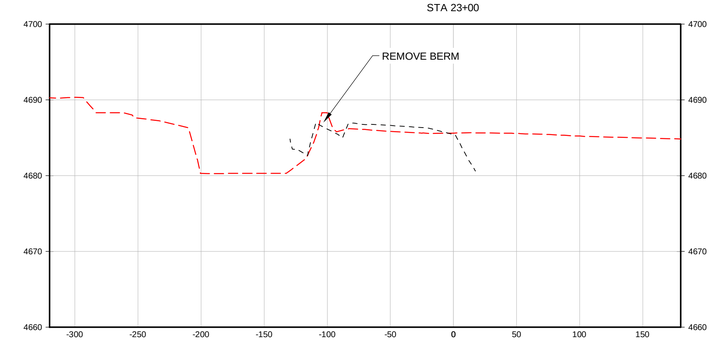


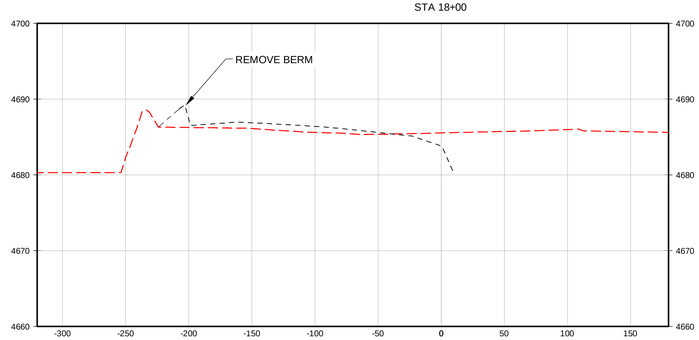


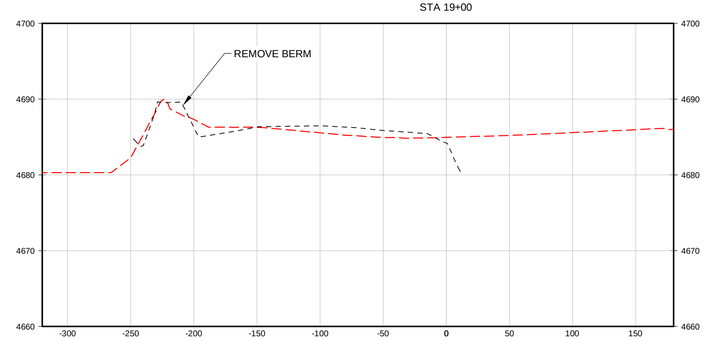


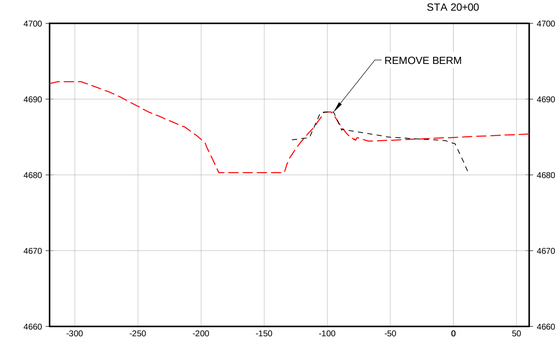


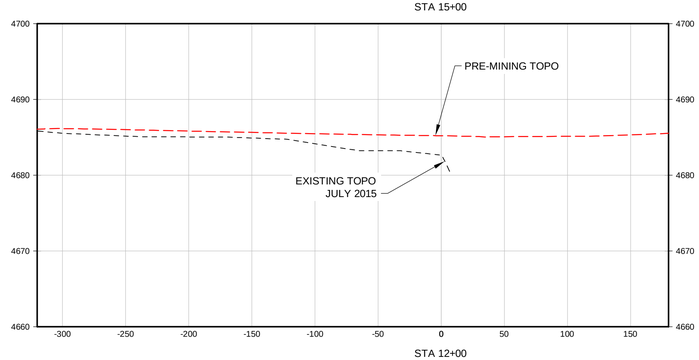


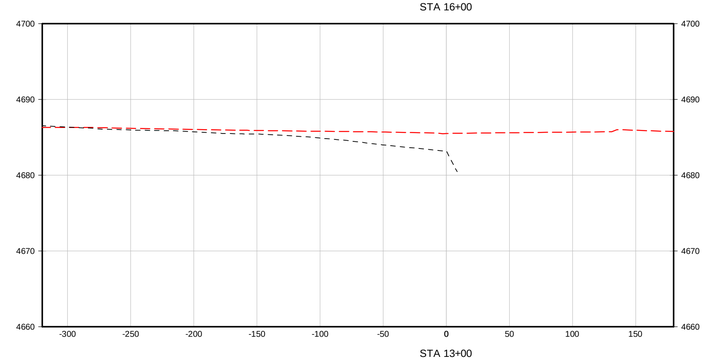


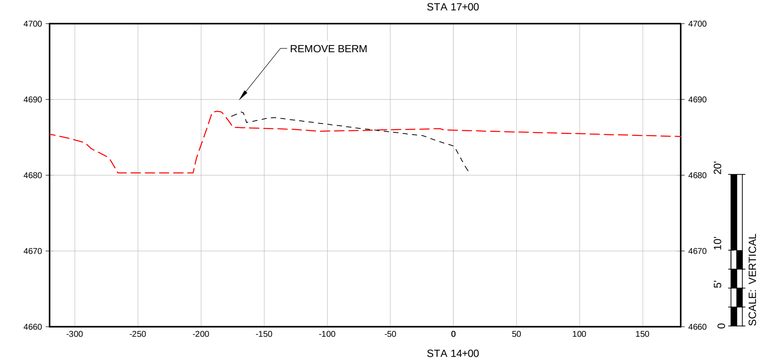












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HORIZONTAL SCALE
VERTICAL EXAGGERATION = X6

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PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN CROSS-SECTIONS STA 12+00 TO 23+00

Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-208

Copyright: Tetra Tech

Bar Measures 1 inch

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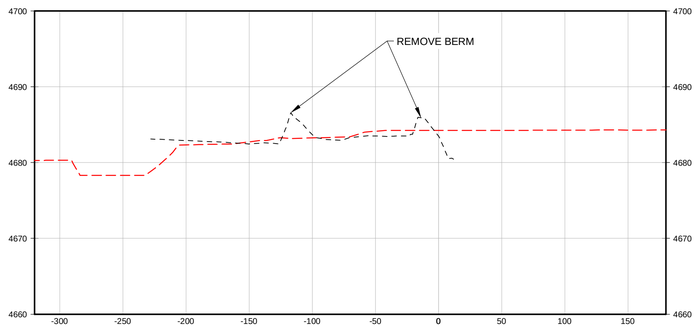

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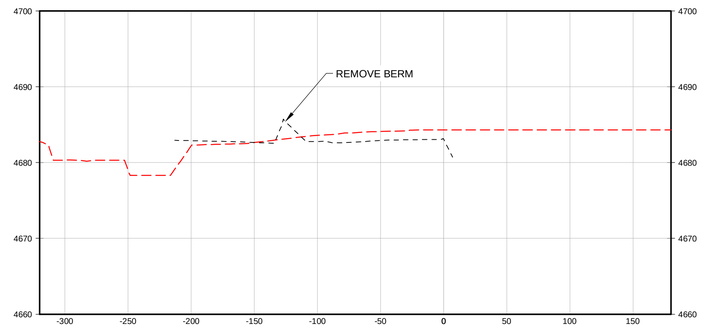

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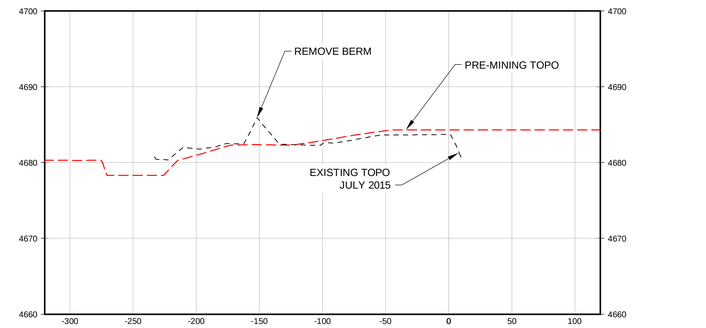

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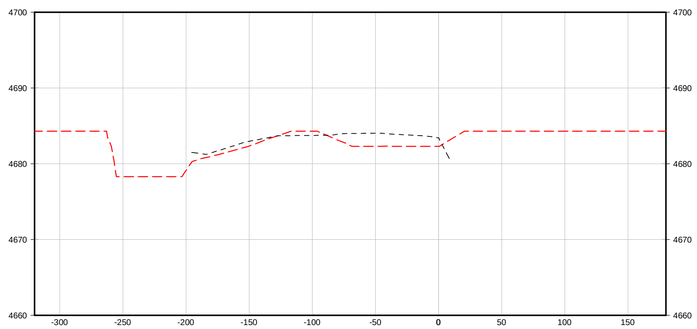

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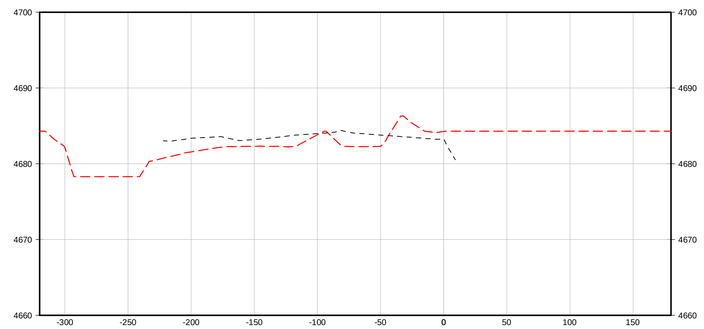

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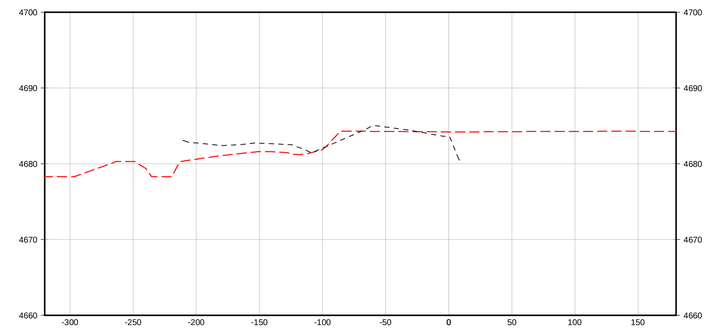

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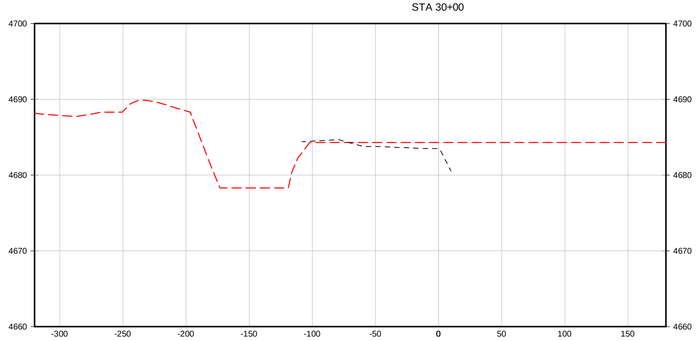

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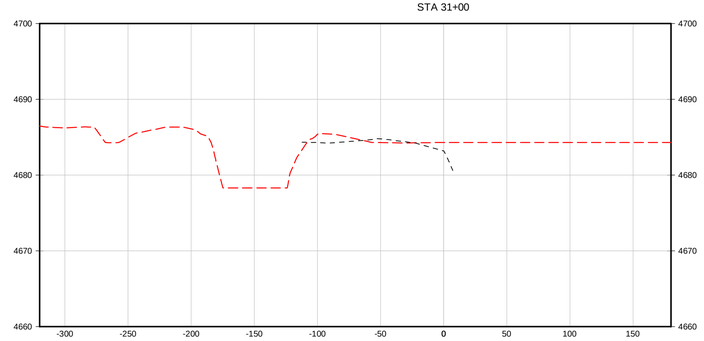

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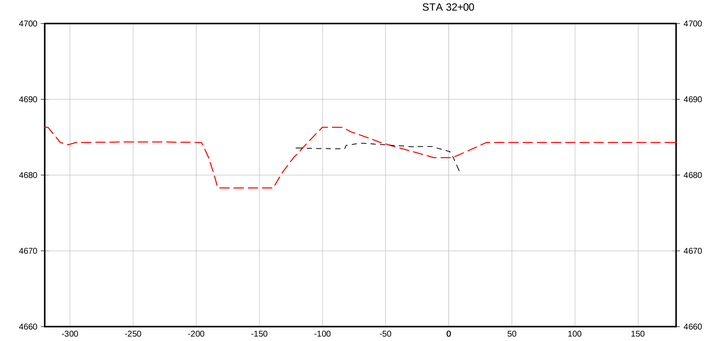

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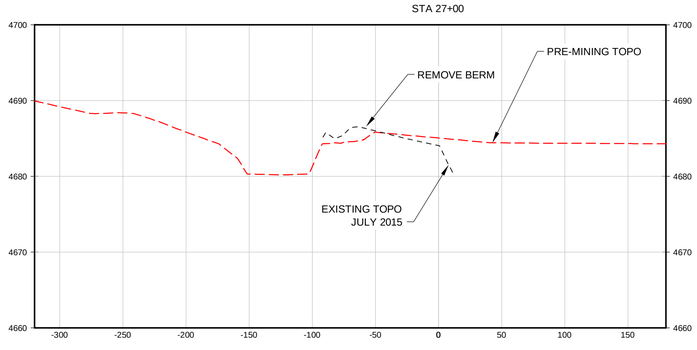

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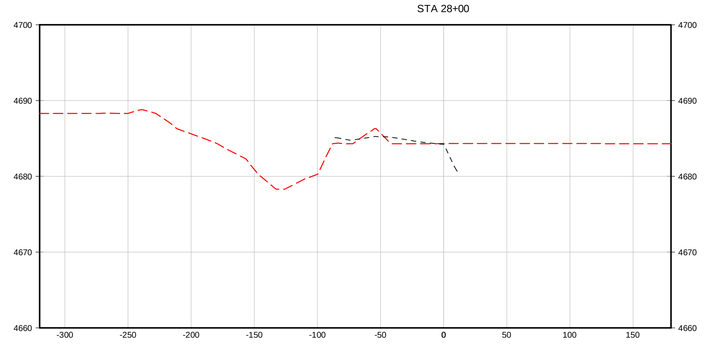

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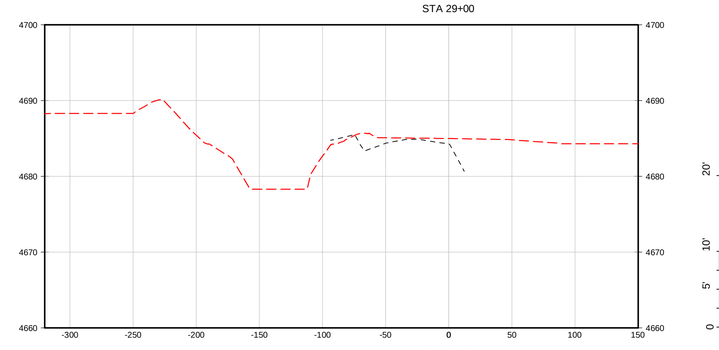

STA 26+00

SCALE: VERTICAL
0 5' 10' 20'

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VERTICAL EXAGGERATION = X6

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PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN
CROSS SECTIONS
STA 24+00 TO 35+00

Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-209

Copyright: Tetra Tech

Bar Measures 1 inch

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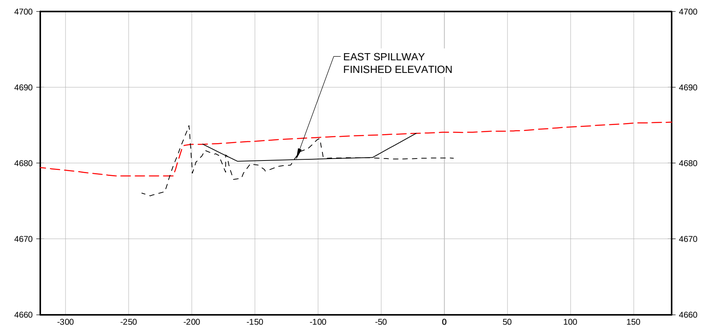

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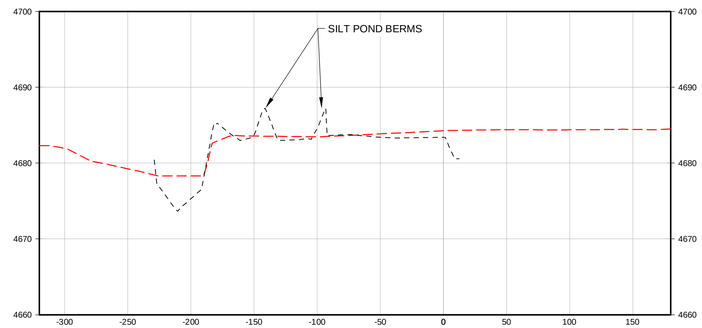

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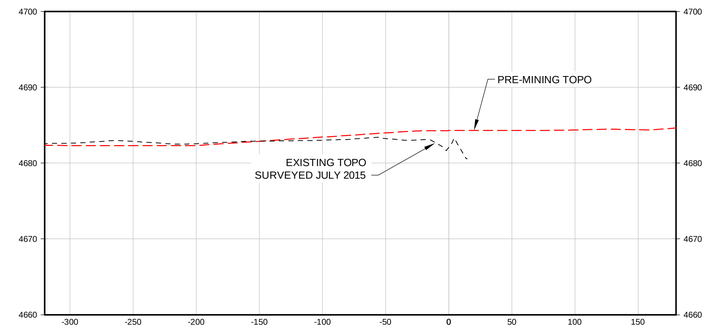

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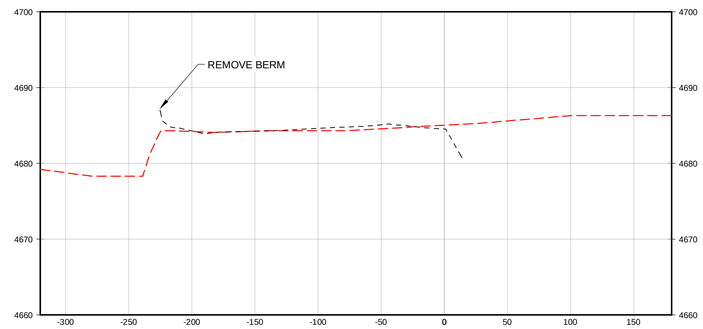

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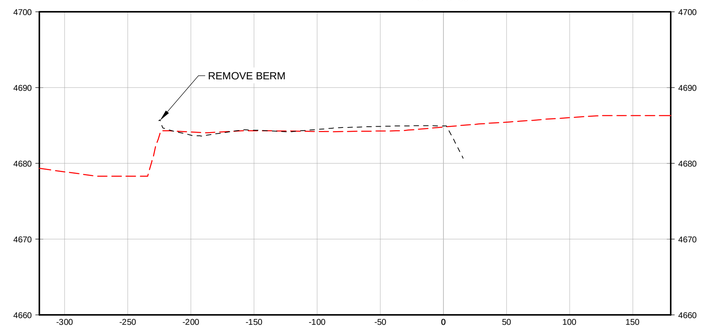

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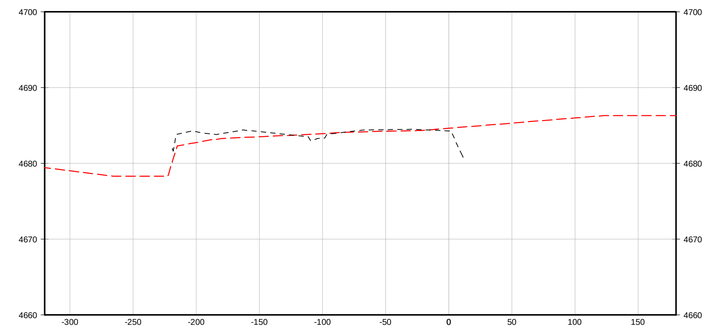

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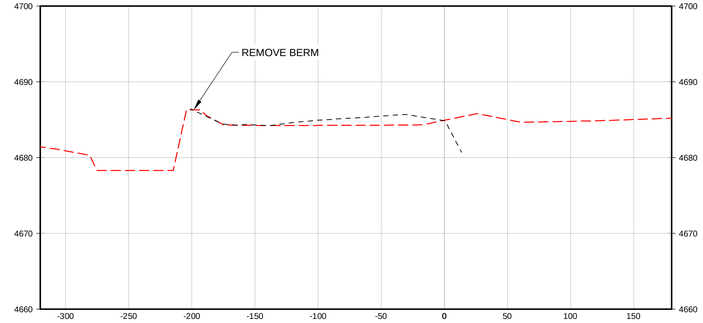

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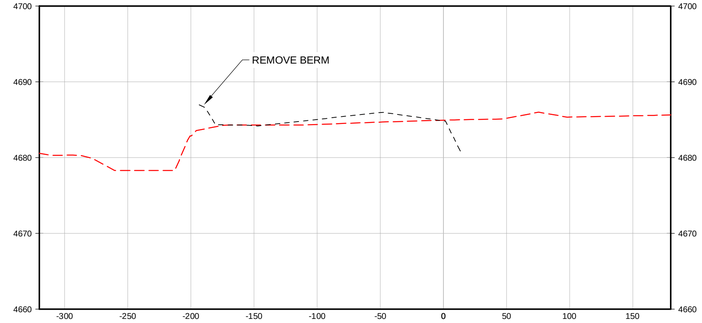

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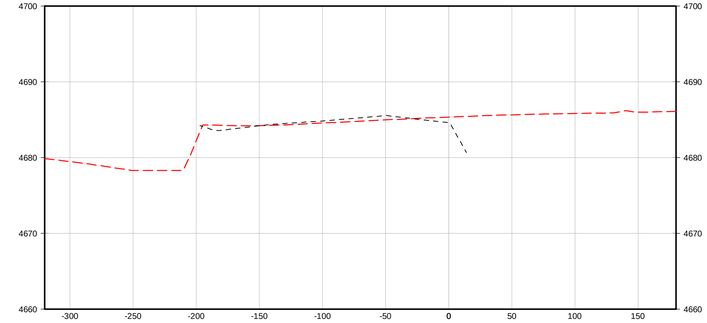

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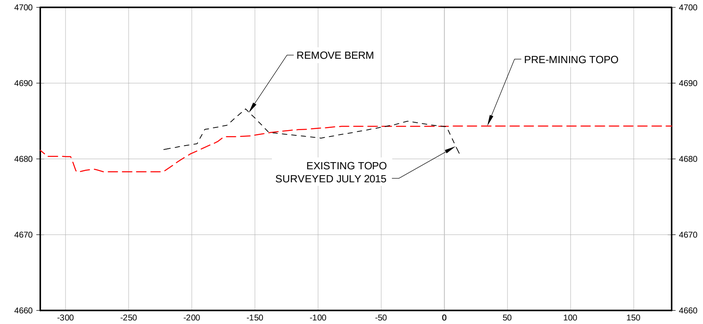

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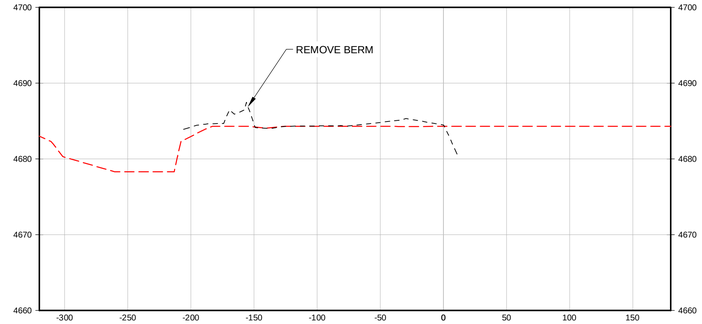

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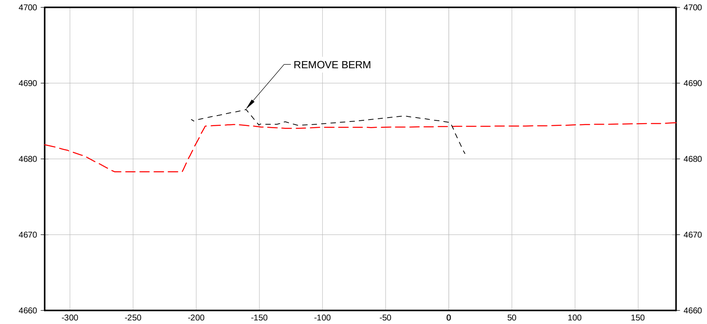

STA 38+00

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HORIZONTAL SCALE

VERTICAL EXAGGERATION = X6

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SCALE: VERTICAL

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MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN
CROSS SECTIONS
STA 36+00 TO 47+00

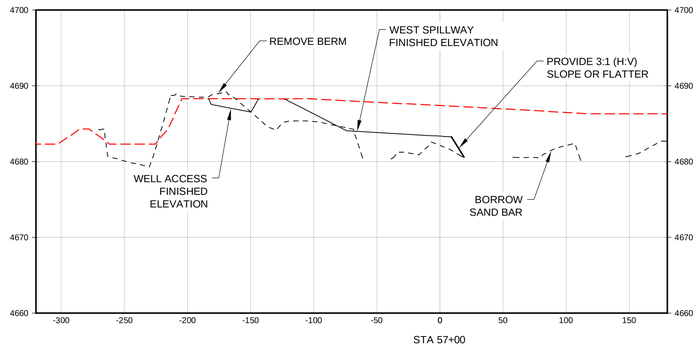
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-210

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:19:23 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY



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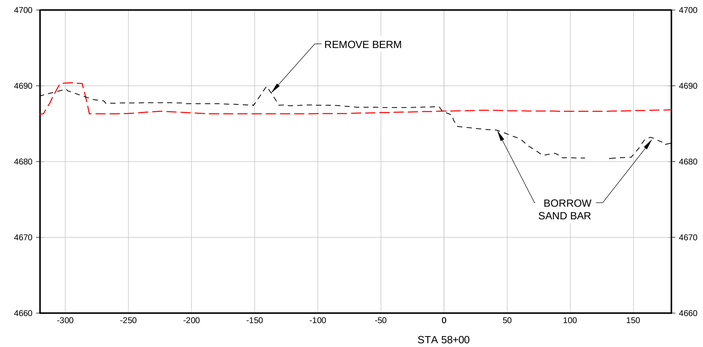

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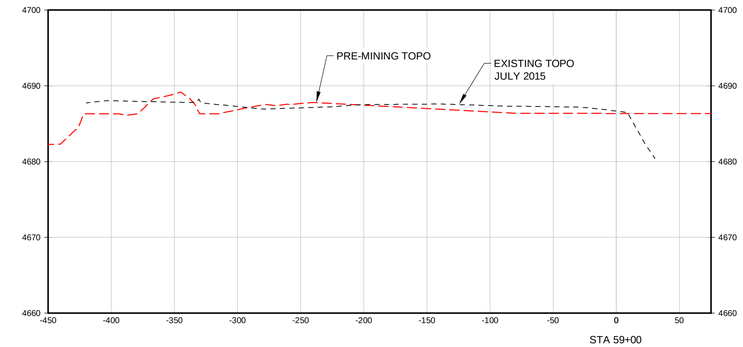
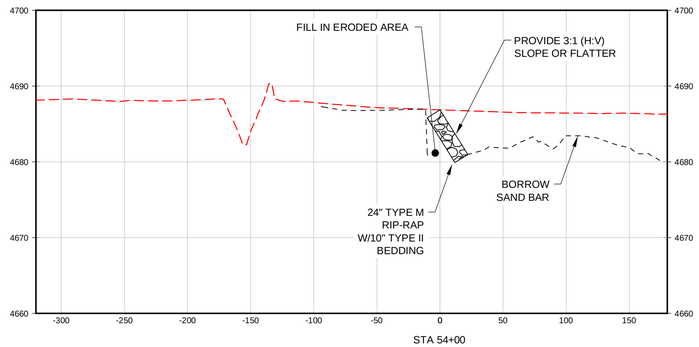
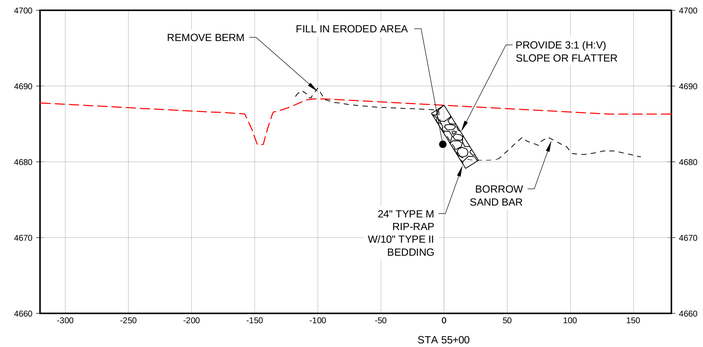


STA 59+00



STA 54+00



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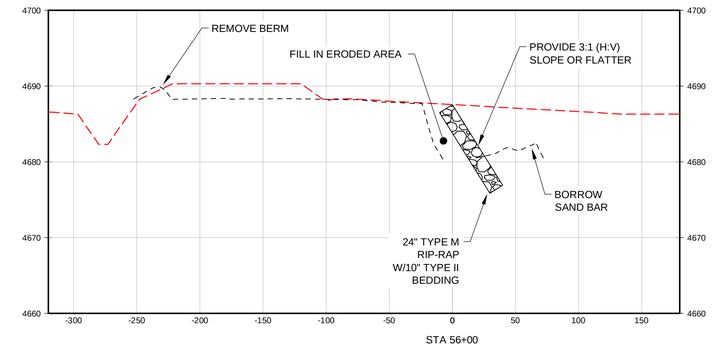
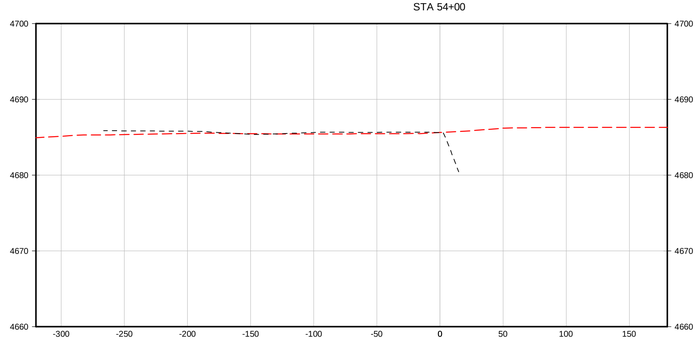
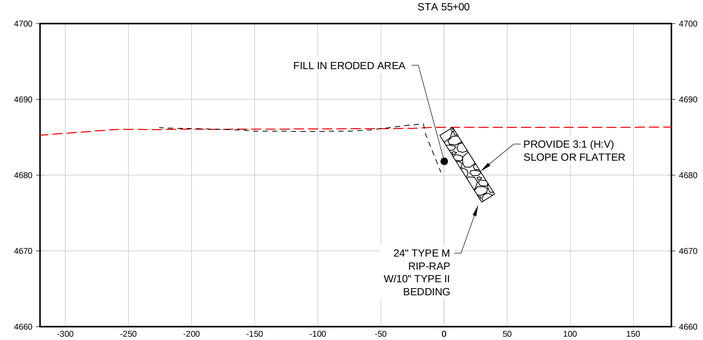


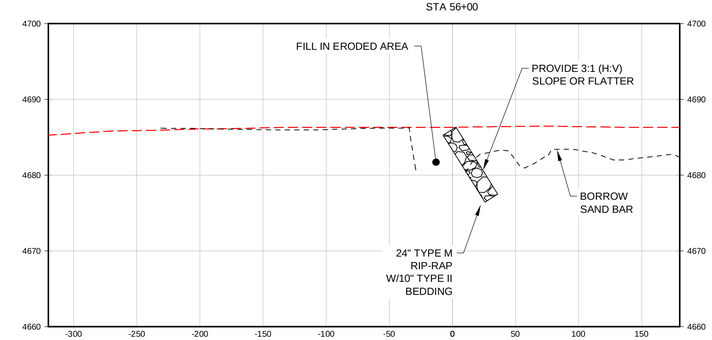
STA 56+00



STA 51+00



STA 52+00



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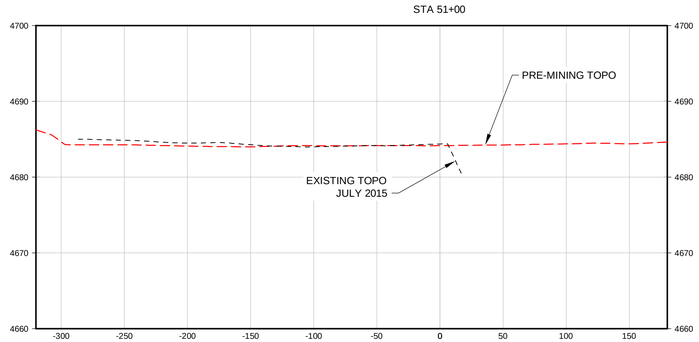

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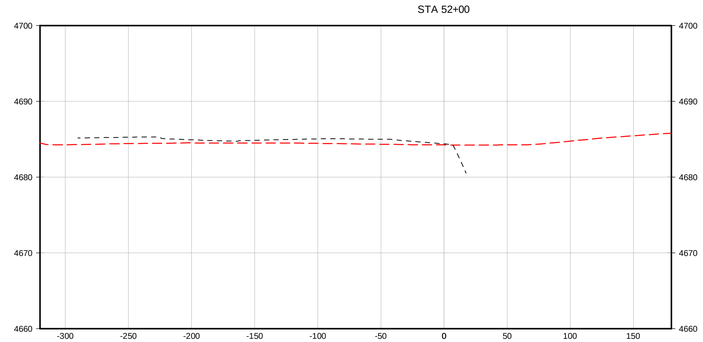

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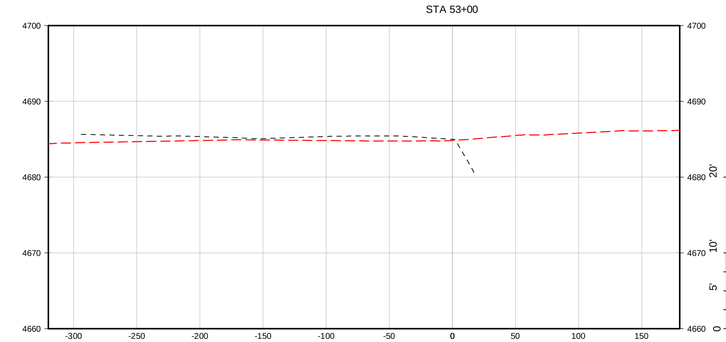

STA 50+00

NOTES:

1. BERMS SHOWN IN PRE-MINING CONDITIONS ALONG RIVER SHALL BE REMOVED AND GRADED TO CREATE A UNIFORM GRADE BETWEEN RIVER BANK ELEVATIONS OF ADJACENT UPSTREAM AND DOWNSTREAM SECTIONS.
2. IN OTHER AREAS, FINAL GRADE WILL BE TO THE PRE-MINING TOPO OR LOWER.
3. AREAS HIGHER THAN PRE-MINING TOPO WILL BE PLACED PER FIGURE 1. EXCESS WILL BE PLACED IN PIT BOTTOM OR STOCKPILED FOR FUTURE HAUL PER MINER.
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5. EXISTING TOPOGRAPHY BY KING SURVEYORS JULY 2015.
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7. GRADING SHALL NOT EXTEND PAST RIVER BANK.
8. PIT SLOPES SHALL HAVE A SLOPE OF 3:1 (H:V) OR FLATTER.

0 30' 60' 120'

SCALE: 1" = 60'

HORIZONTAL SCALE

VERTICAL EXAGGERATION = X6

TETRA TECH
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1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN CROSS SECTIONS STA 48+00 TO 59+00

SCALE: VERTICAL 0 5' 10' 20'

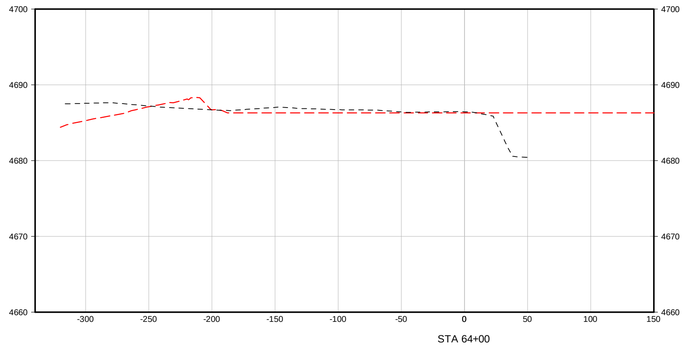
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

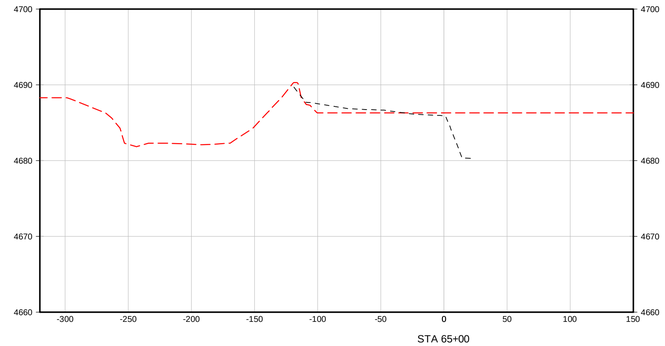
C-211

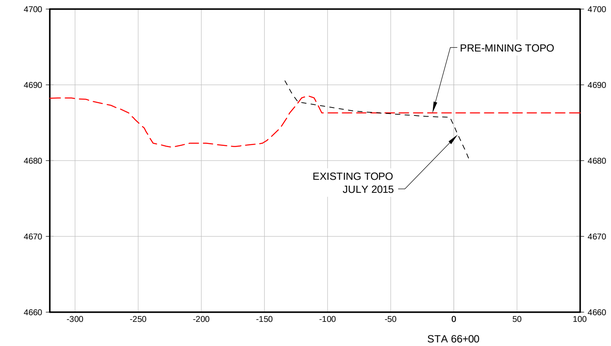
Copyright: Tetra Tech

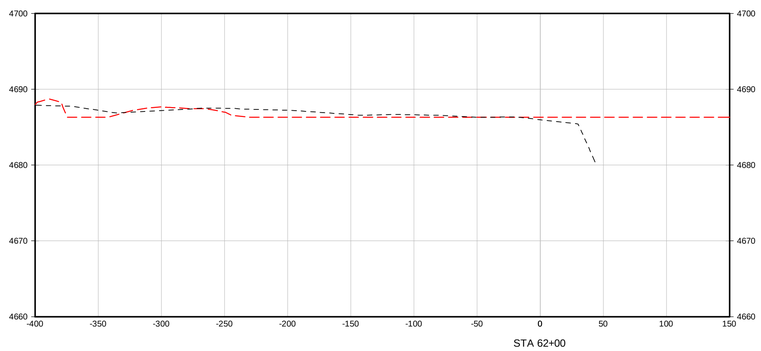
Bar Measures 1 inch

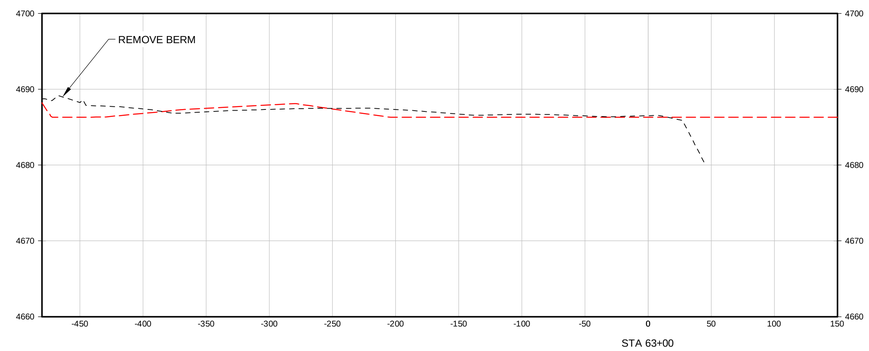
9/10/2015 3:19:27 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY

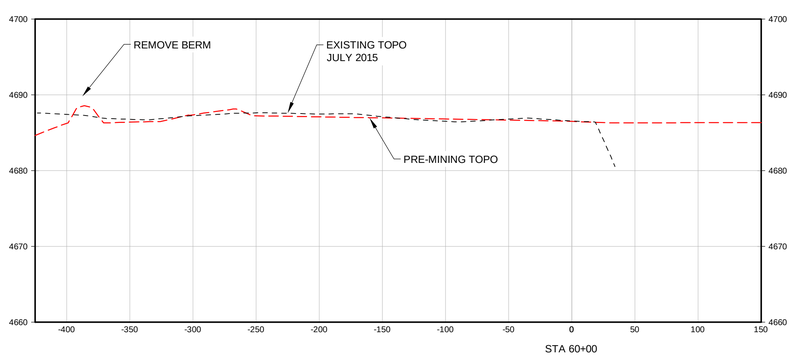


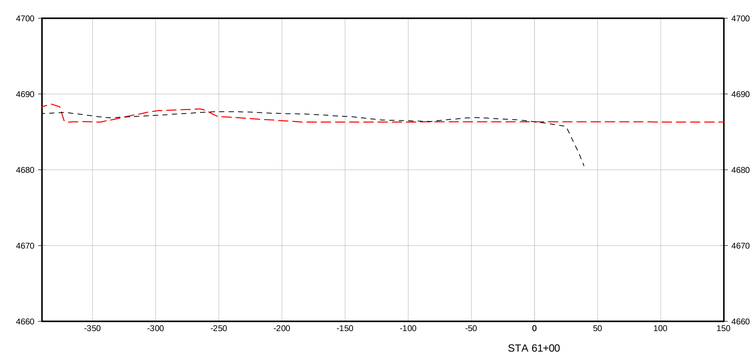












0 30' 60' 120'
SCALE: 1" = 60'

HORIZONTAL SCALE
VERTICAL EXAGGERATION = X6

0 5' 10' 20'
SCALE: VERTICAL

NOTES:
1. BERMS SHOWN IN PRE-MINING CONDITIONS ALONG RIVER SHALL BE REMOVED AND GRADED TO CREATE A UNIFORM GRADE BETWEEN RIVER BANK ELEVATIONS OF ADJACENT UPSTREAM AND DOWNSTREAM SECTIONS.
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8. PIT SLOPES SHALL HAVE A SLOPE OF 3:1 (H:V) OR FLATTER.

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1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
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MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING CROSS SECTIONS STA 60+00 TO 66+00

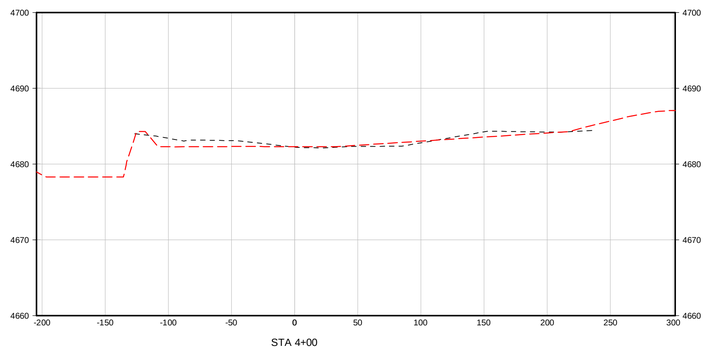
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-212

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:19:31 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY



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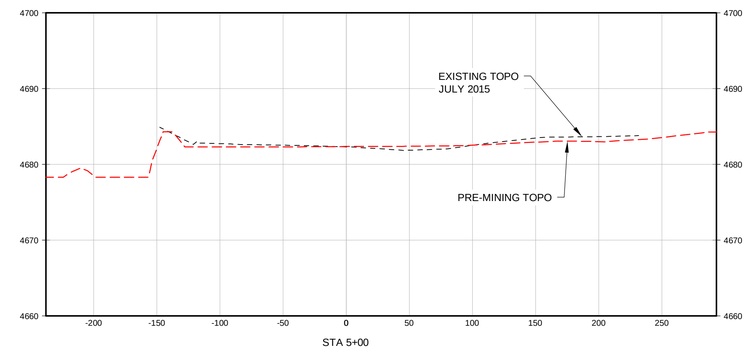
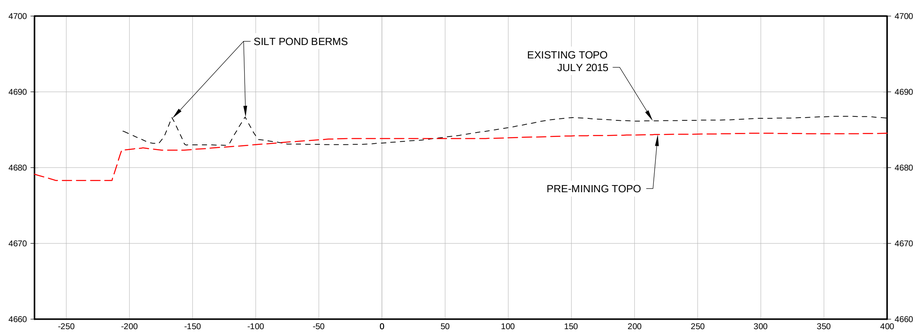


STA 5+00



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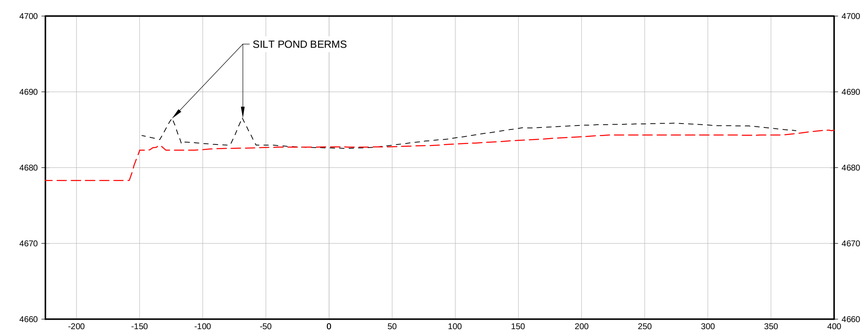
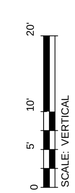
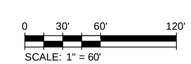


STA 3+00





SCALE: 1" = 60'

HORIZONTAL SCALE

VERTICAL EXAGGERATION = X6

NOTES:

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LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN
EAST CROSS SECTIONS
STA 2+00 TO 5+00

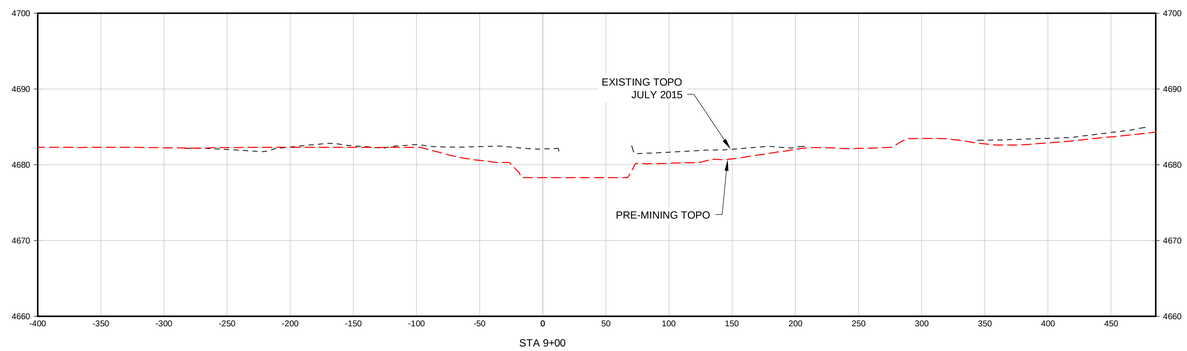
Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

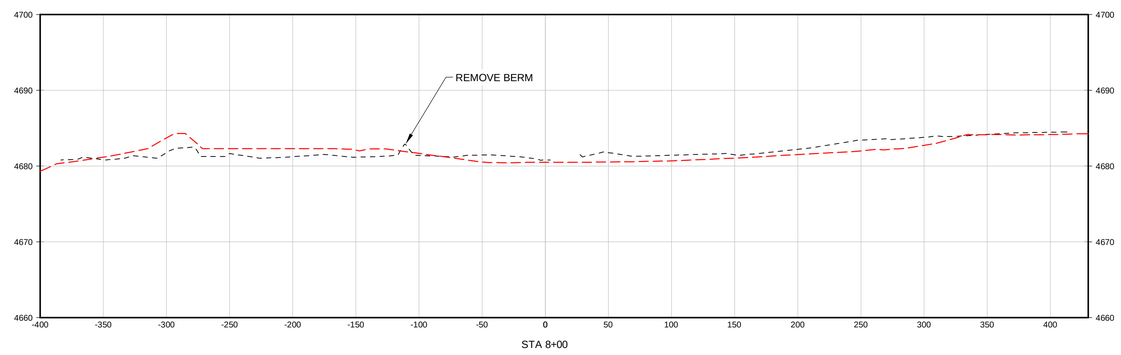
C-213

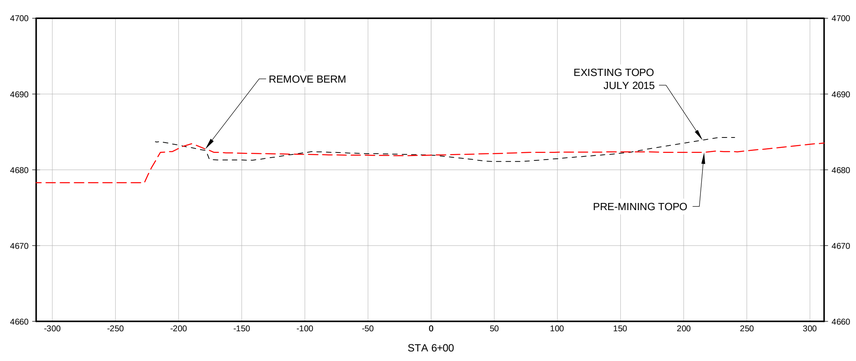
Copyright: Tetra Tech

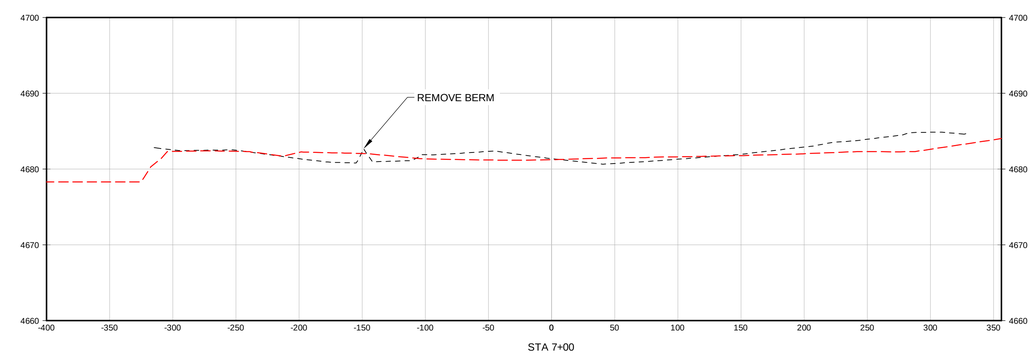
Bar Measures 1 inch

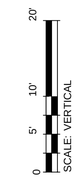
9/10/2015 3:19:34 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY











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HORIZONTAL SCALE
VERTICAL EXAGGERATION = X6

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1900 SOUTH SUNSET STREET, SUITE 1-E
LONGMONT, COLORADO 80501
PHONE: (303) 772-5282 FAX: (303)772-7039

MARK	DATE	DESCRIPTION	BY

MARTIN MARIETTA
IVERSON MINE

OVERALL GRADING PLAN EAST CROSS SECTIONS STA 6+00 TO 9+00

Project No.:	133-24097-15001
Designed By:	GL
Drawn By:	RAP
Checked By:	JAB

C-214

Copyright: Tetra Tech

Bar Measures 1 inch

9/10/2015 3:19:39 PM - P:\24097\133-24097-15001\CAD\SHEETFILES\C-SP-IVERSON GRADING.DWG - ANDRYAUSKAS, JEREMY