

## **Appendix 10**

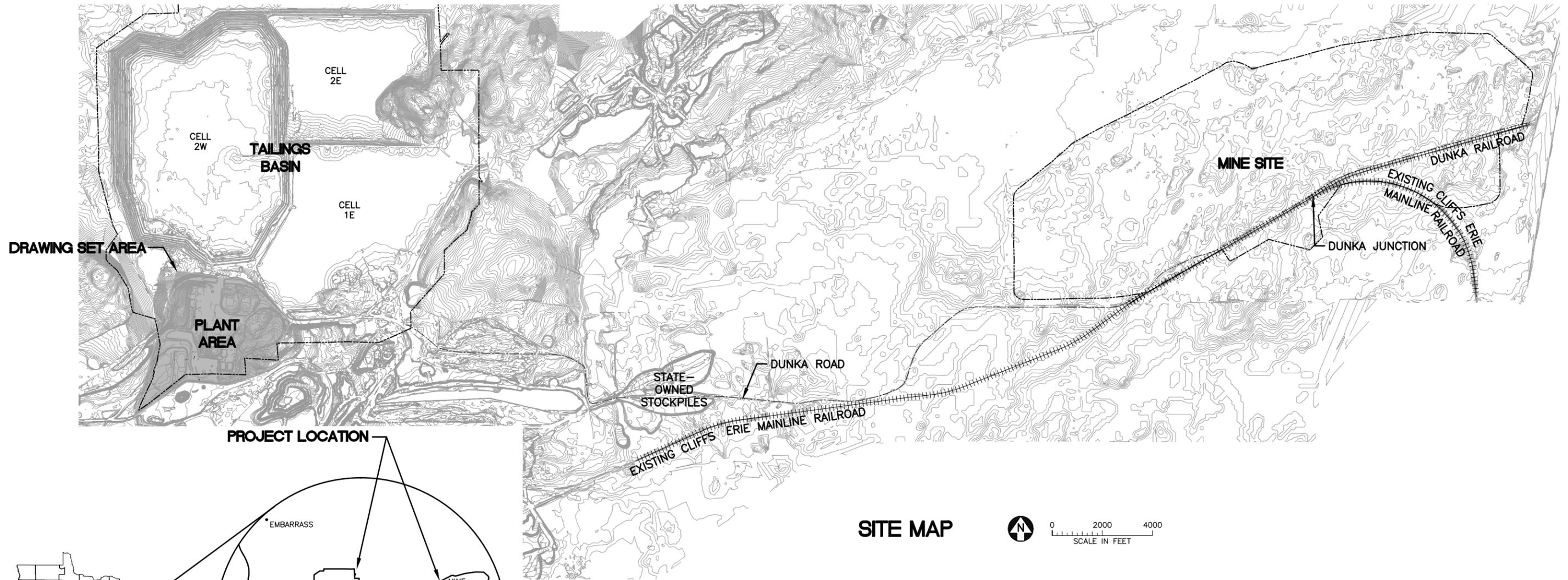
### **Plant Site Stormwater Permit Application Support Drawings**

# POLY MET MINING, INC. NORTHMET PROJECT

## PERMIT APPLICATION SUPPORT DRAWINGS

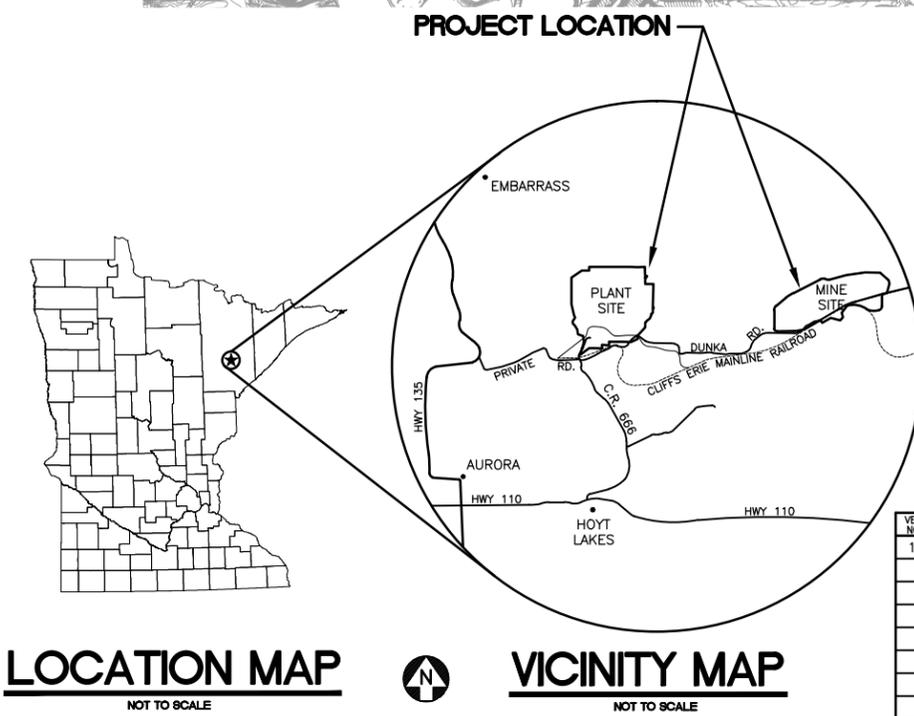
### PLANT SITE STORMWATER

### HOYT LAKES, MINNESOTA



**SITE MAP**

0    2000    4000  
 SCALE IN FEET



VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
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PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE:   
 DATE: 5/15/15    LICENSE # 46593

DRAWN: VJS  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:	
PLANT SITE STORMWATER GENERAL DWGS LOCATION MAP AND SITE MAP	
 <b>POLYMET</b> <small>MINING</small>	<b>POLY MET MINING, INC.</b> <b>NORTHMET PROJECT</b> <b>HOYT LAKES, MINNESOTA</b>
 <b>BARR</b>	BARR ENGINEERING COMPANY 4700 WEST 77TH STREET MINNEAPOLIS, MN. Ph: 1-800-632-2277
DWG. NO. <b>PSSW-001</b>	REV

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-001.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 9:36 AM  
 2  
 1  
 INCHES

**PLANT SITE STORMWATER LEGEND**

EXISTING		PROPOSED	
—1000—	EXISTING CONTOUR – MAJOR 10'	—1000—	PROPOSED CONTOUR – MAJOR 5'
—	EXISTING CONTOUR – MINOR 2'	—	PROPOSED CONTOUR – MINOR 1'
+++++	EXISTING RAILROAD	1+00X	PROPOSED CENTERLINE STATIONING
- - - - -	WATER EDGE/CREEK CENTER LINE	—/—	PROPOSED CULVERT (STORMWATER)
=====	EXISTING ROAD	—	PROPOSED PIPE
[ ]	EXISTING STRUCTURES	○	PROPOSED MANHOLE/CATCH BASIN
~~~~~	TREE LINE	[ ]	PROPOSED RIPRAP
○	EXISTING MANHOLE/CATCH BASIN	- - - - -	PROJECT AREA BOUNDARY
—/—	EXISTING CULVERT	→	FLOW PATH
-x-	EXISTING FENCE	[ ]	PROPOSED OTHER FACILITY
[ ]	WETLAND BOUNDARY	=====	PROPOSED RAILROAD

**NOTES**

- COORDINATE SYSTEM IS MINNESOTA STATE PLANE NORTH ZONE, NAD83.
- ELEVATIONS ARE MEAN SEA LEVEL (MSL), NAVD88.
- EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THE DRAWINGS WAS PREPARED BY AEROMETRIC, INC. FROM LIDAR DATA COLLECTED ON MARCH 17, 2010.

**SHEET INDEX**

**SHEET NO. TITLE**

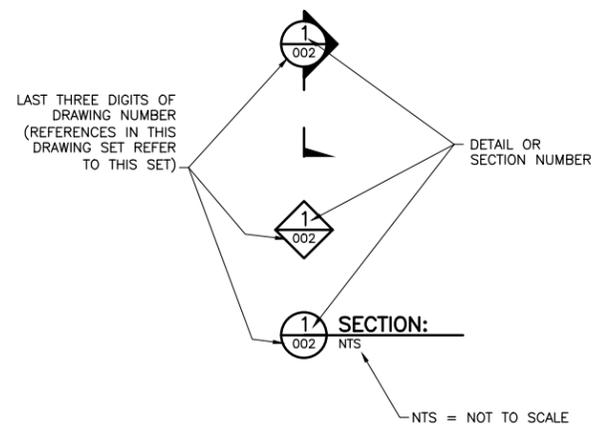
**PLANT SITE STORMWATER DRAWINGS**

PSSW-001	LOCATION MAP & SITE MAP
PSSW-002	LEGEND & SHEET INDEX
PSSW-003	GENERAL LAYOUT & SHEET INDEX MAP
PSSW-004 TO PSSW-015	GRADING PLANS
PSSW-016 TO PSSW-030	GRADING PROFILES
PSSW-031 TO PSSW-033	SECTIONS & DETAILS

**ABBREVIATIONS**

AC-FT	-	ACRE-FEET
AVE	-	AVERAGE
CB	-	CATCH BASIN
C	-	CENTERLINE
CMP	-	CORRUGATED METAL PIPE
DS	-	DOWNSTREAM
DV	-	DRAIN VALVE
DWG	-	DRAWING
EL.	-	ELEVATION
FTB	-	FLOTATION TAILINGS BASIN
GAL	-	GALLONS
GPM	-	GALLONS PER MINUTE
HDPE	-	HIGH-DENSITY POLYETHYLENE
INV	-	INVERT
LF	-	LINEAR FEET
MH	-	MANHOLE
MIN	-	MINIMUM
NWL	-	NORMAL WATER LEVEL
PSSW	-	PLANT SITE STORMWATER
SDR	-	STANDARD DIMENSION RATIO
STA	-	STATION
TYP	-	TYPICAL
US	-	UPSTREAM

**DRAWING NUMBERING**



PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER GENERAL DWGS  
LEGEND AND SHEET INDEX**

**POLYMET MINING** POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR** BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

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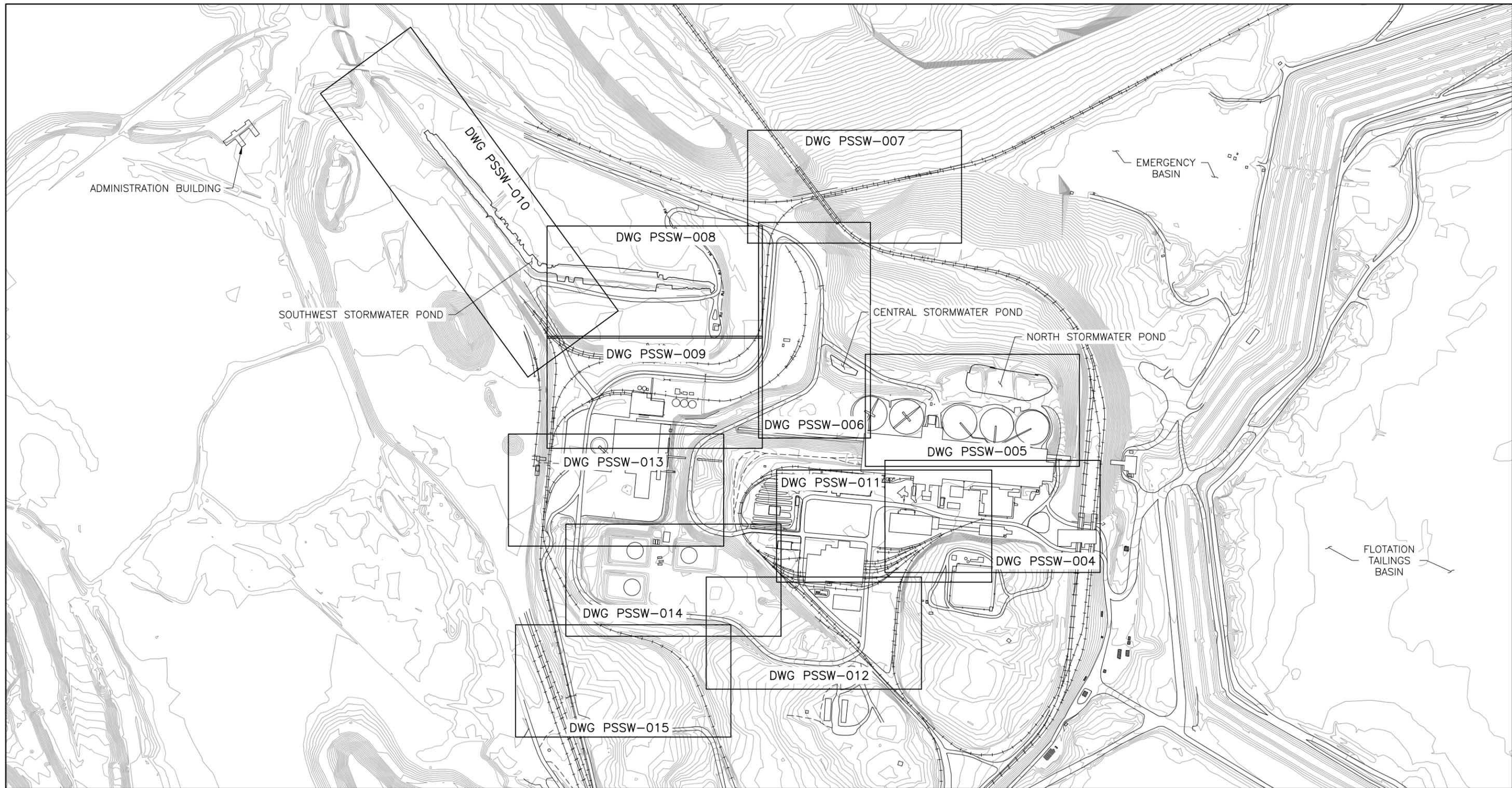
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: CRISTIAN A. DIAZ  
SIGNATURE: [Signature]  
DATE: 5/15/15 LICENSE# 46593

DRAWN: VJS  
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BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

DWG. NO. **PSSW-002** REV

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-003.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 9:39 AM



1 PLAN: SHEET INDEX



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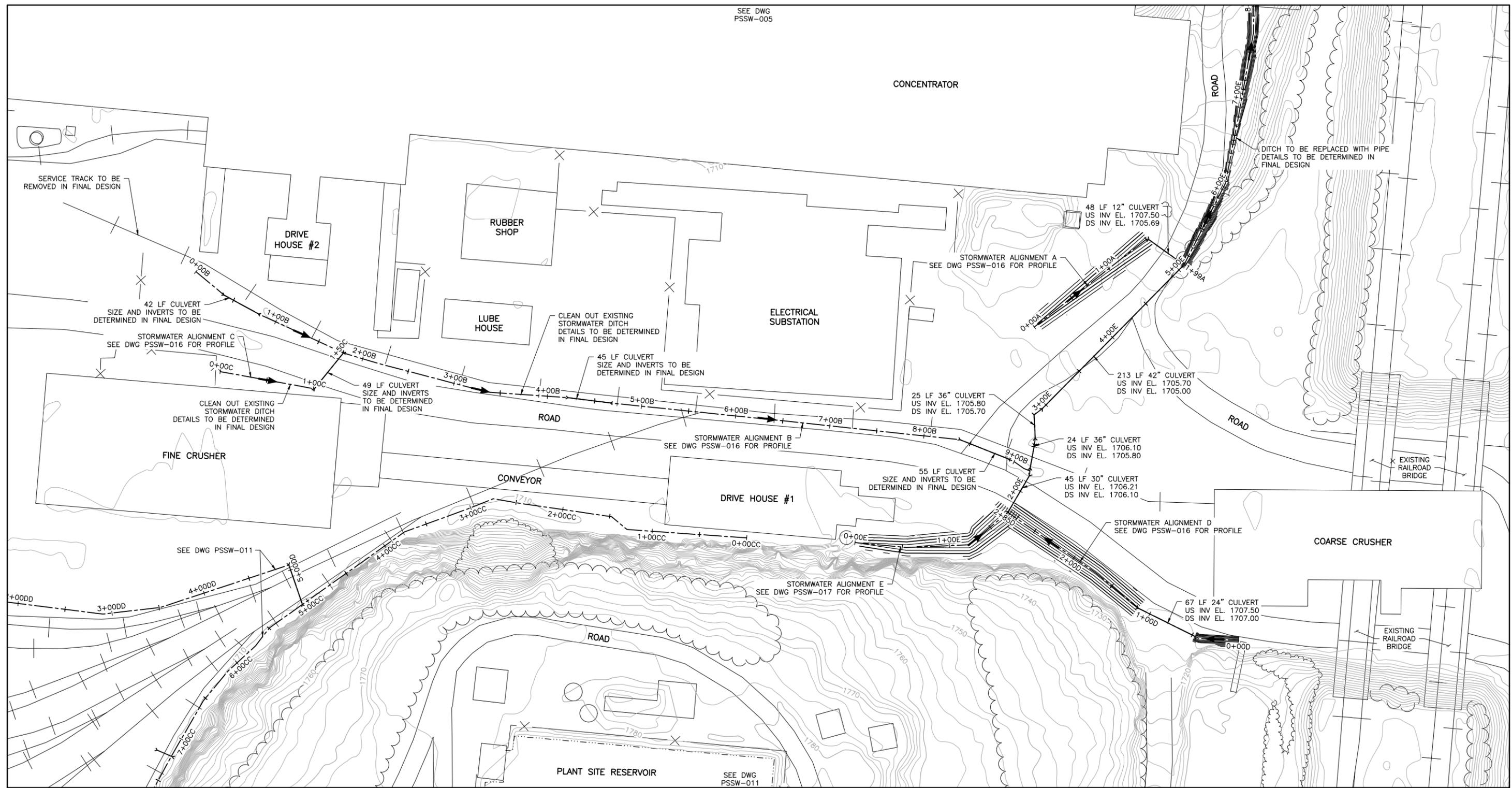
**PLANT SITE STORMWATER  
GENERAL LAYOUT AND SHEET INDEX MAP**

**POLYMET MINING** POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR** BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

DWG. NO. **PSSW-003** REV

INCHES 1 2



1 PLAN: STORMWATER ALIGNMENTS A-E

NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

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DATE: 5/15/15 LICENSE# 46593

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CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING**

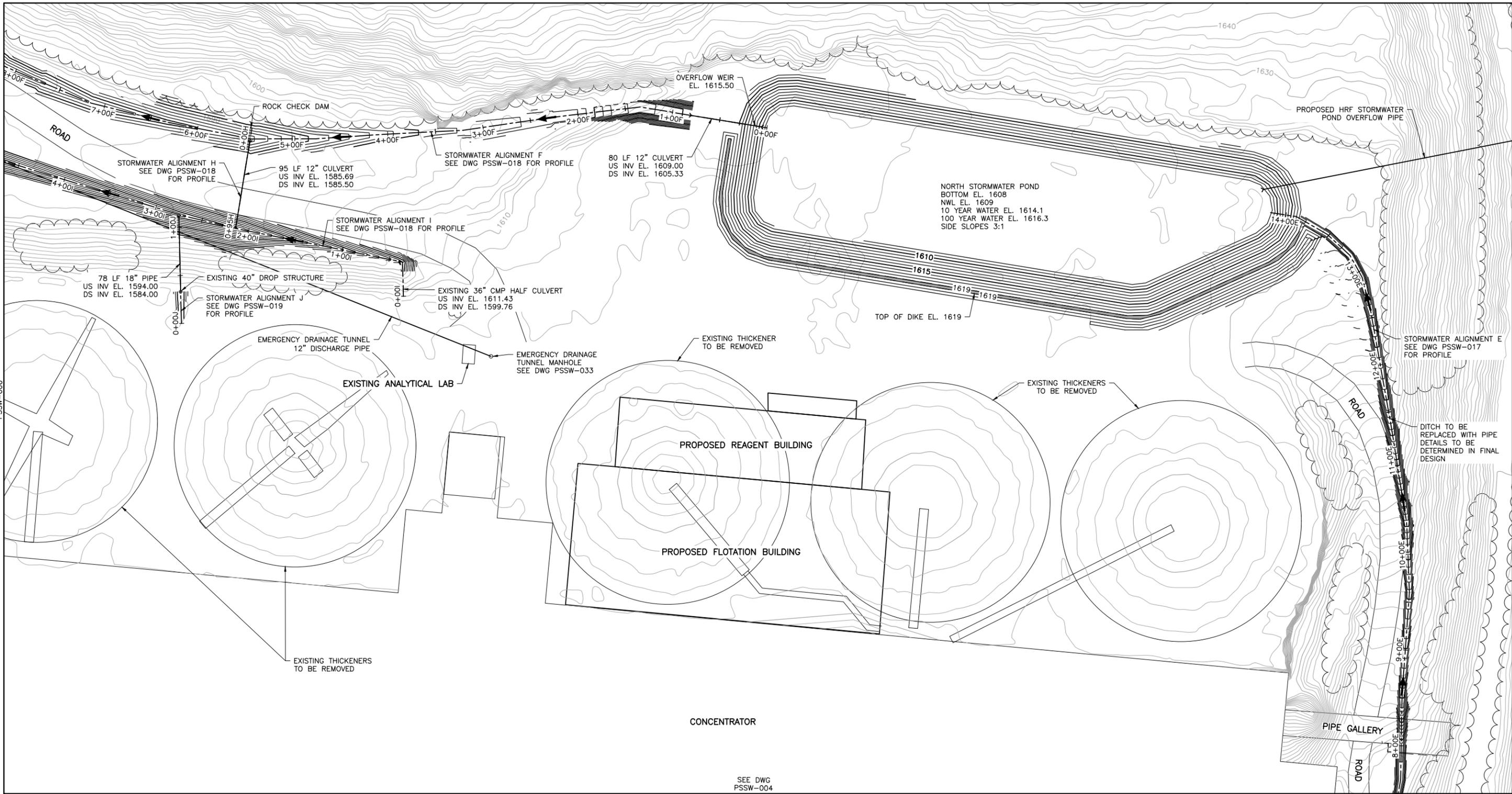
**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR** ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

DWG. NO. **PSSW-004**

REV

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-005.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 9:55 AM



SEE DWG PSSW-004

1 PLAN: STORMWATER ALIGNMENTS E, F, H-J

NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.



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SCALE: AS SHOWN

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING**  
POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

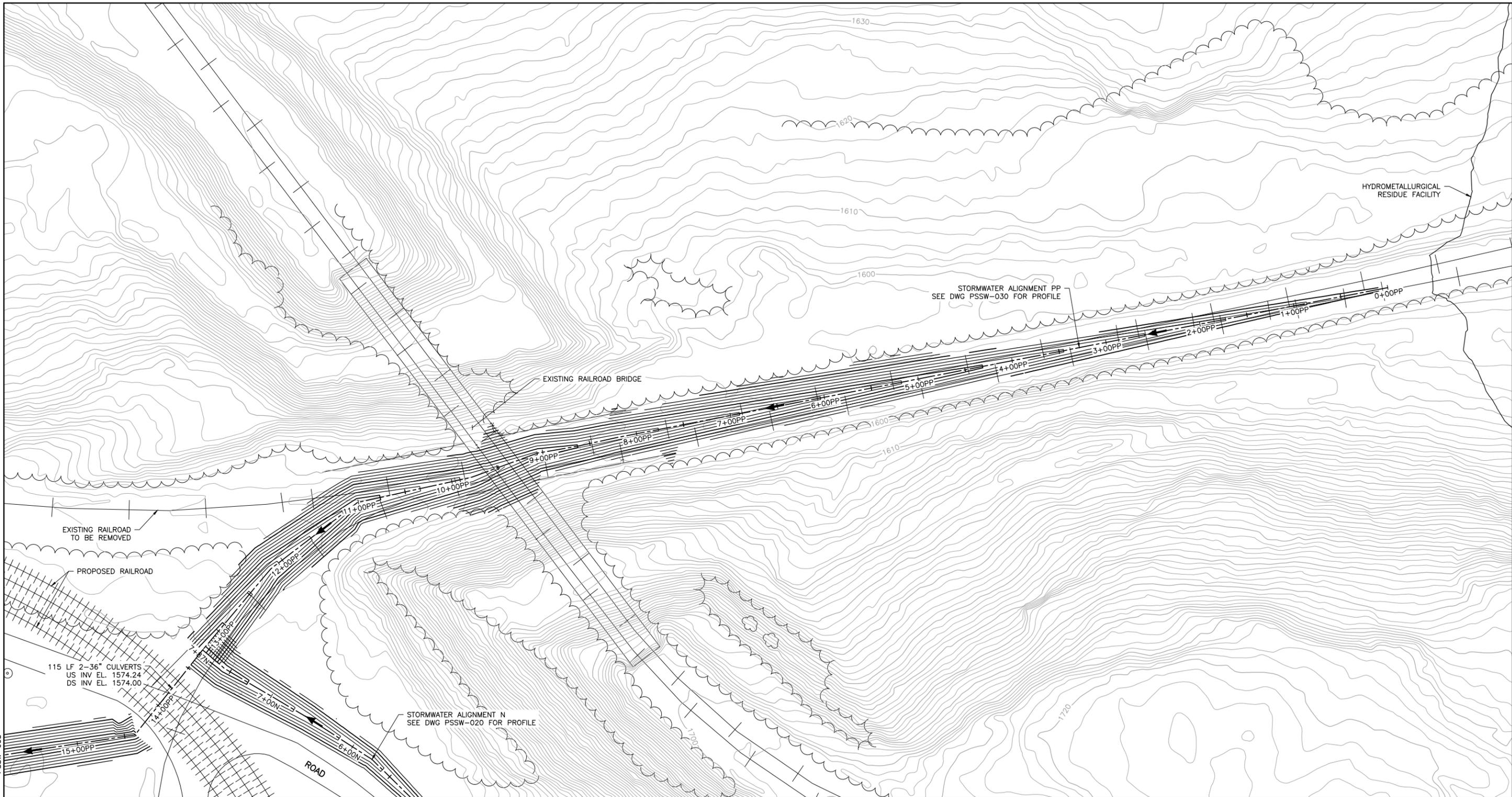
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BARR ENGINEERING COMPANY  
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DWG. NO. **PSSW-005** REV

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SEE DWG PSSW-006

**1 PLAN: STORMWATER ALIGNMENTS N AND PP**

NOTE:  
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PLANT DRAWING NUMBER:

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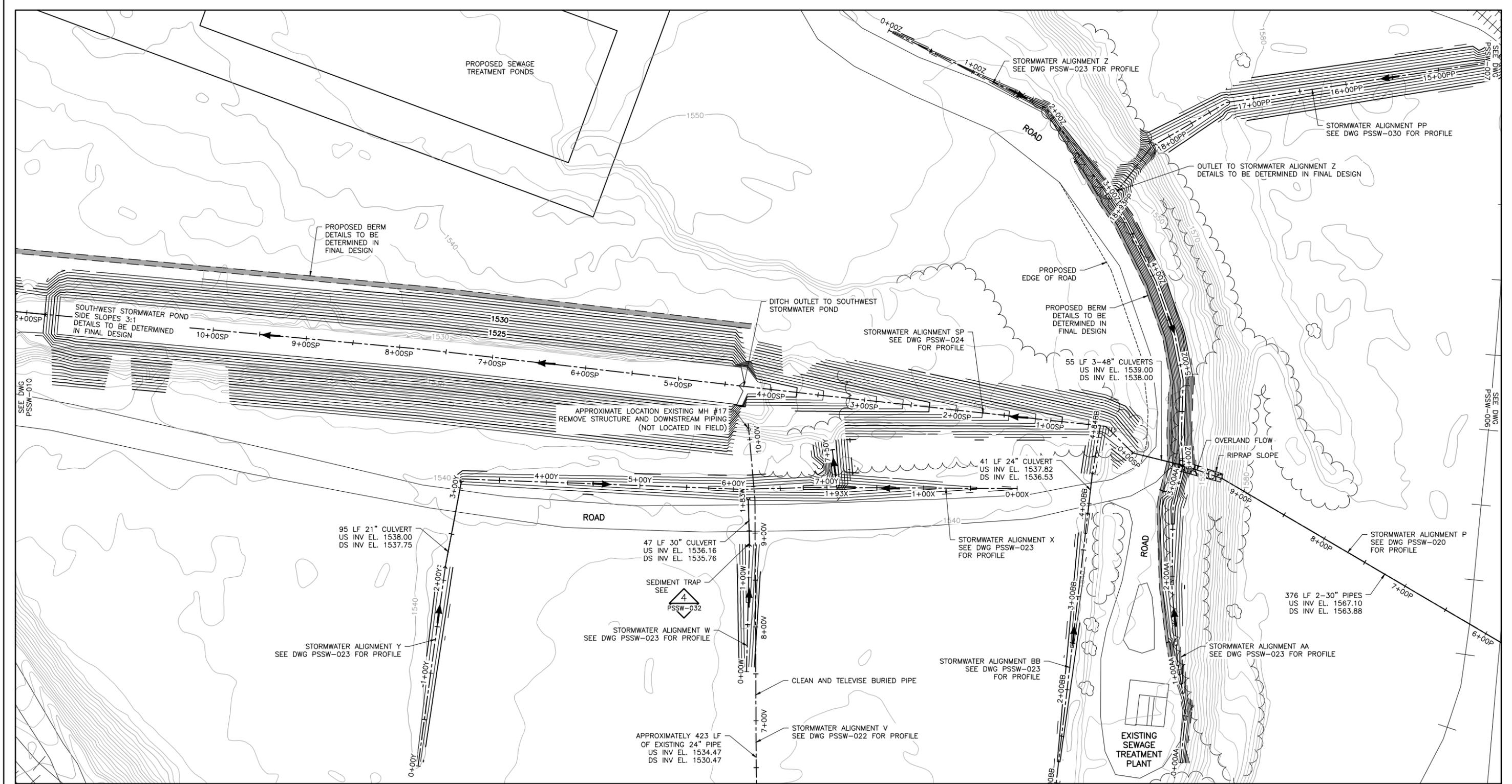
**POLYMET MINING** POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

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4700 WEST 77TH STREET  
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DWG. NO. **PSSW-007** REV

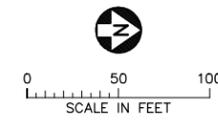
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CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-008.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:13 AM



1 PLAN: STORMWATER ALIGNMENTS V-Z, AA, BB, SP

NOTE:  
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BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING**  
POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

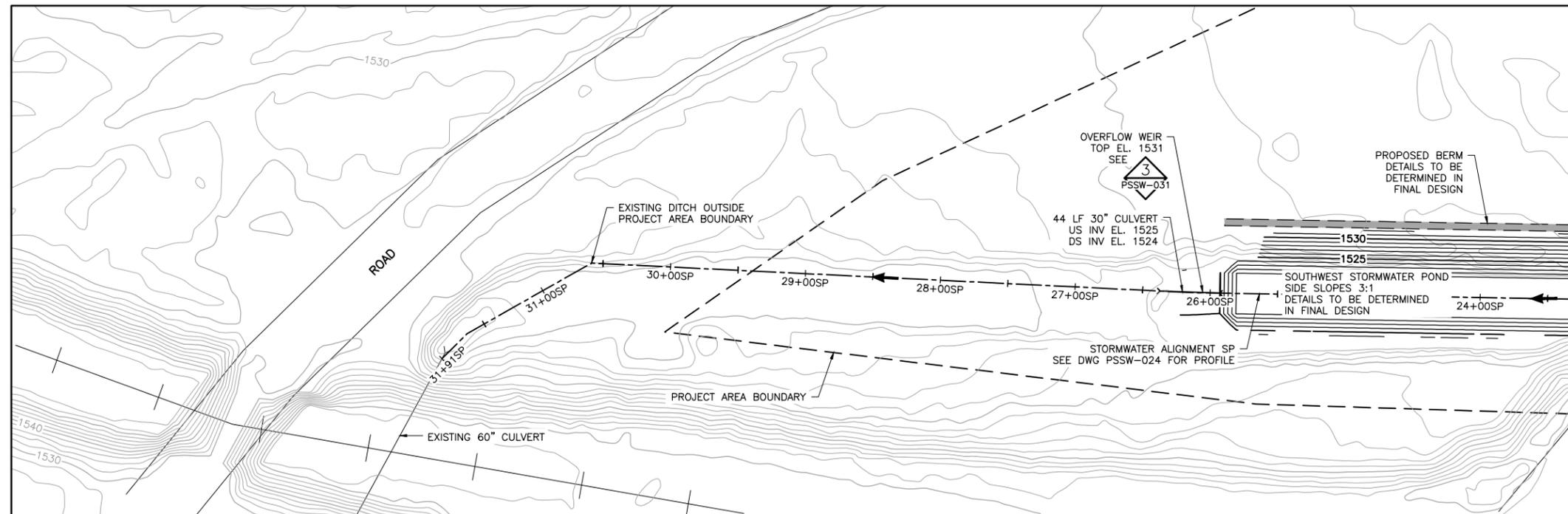
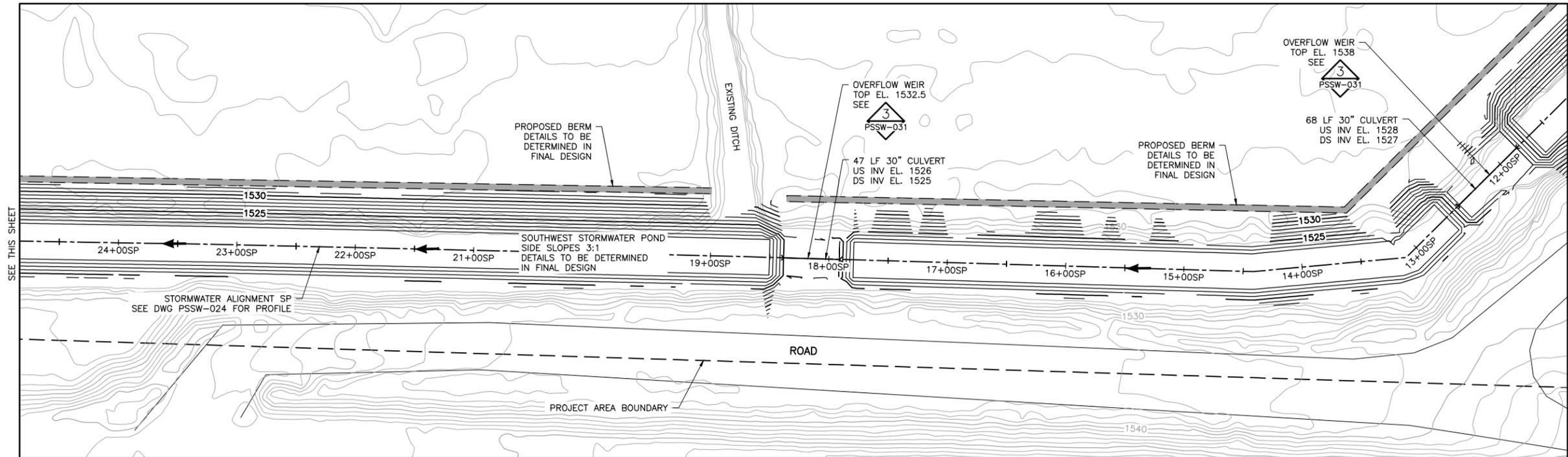
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MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

DWG. NO. **PSSW-008**

REV

2  
1  
INCHES





1 PLAN: STORMWATER ALIGNMENT SP

NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:

PLANT SITE STORMWATER GRADING PLAN



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SCALE: AS SHOWN

**POLYMET MINING**

**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR**

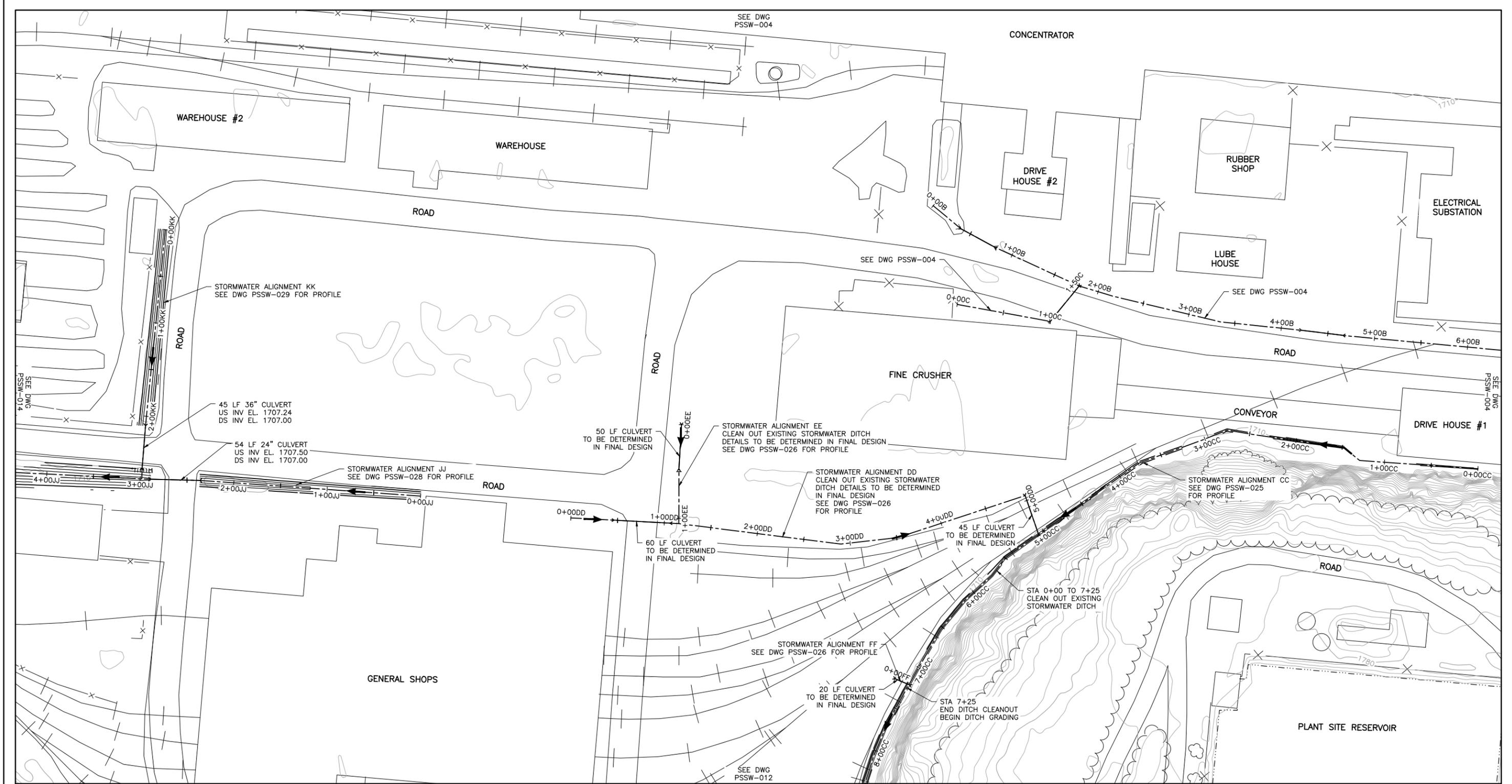
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CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\MNP-63-CS-011.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:20 AM



1 PLAN: STORMWATER ALIGNMENTS CC, DD, EE, FF, JJ, AND KK

NOTE:  
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**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING**

**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

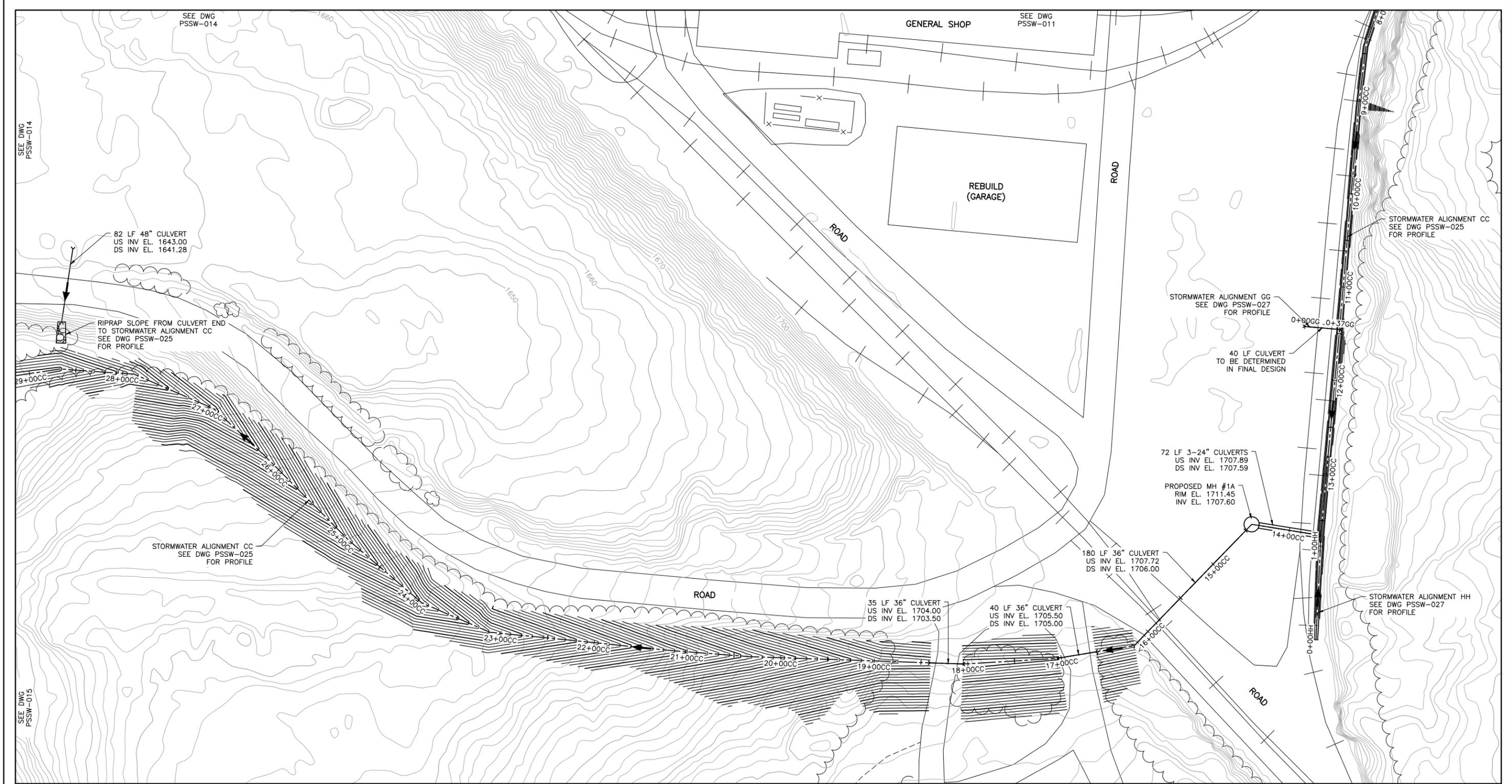
**BARR** ENGINEERING COMPANY  
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DWG. NO. **PSSW-011**

REV

INCHES 1 2

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-012.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:22 AM



**1 PLAN: STORMWATER ALIGNMENTS CC AND HH**

NOTE:  
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PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING**  
POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR**  
BARR ENGINEERING COMPANY  
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CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

DWG. NO. **PSSW-012** REV

INCHES 1 2

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-013.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:24 AM



**1 PLAN: STORMWATER ALIGNMENTS JJ, MM, AND NN**

NOTE:  
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**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

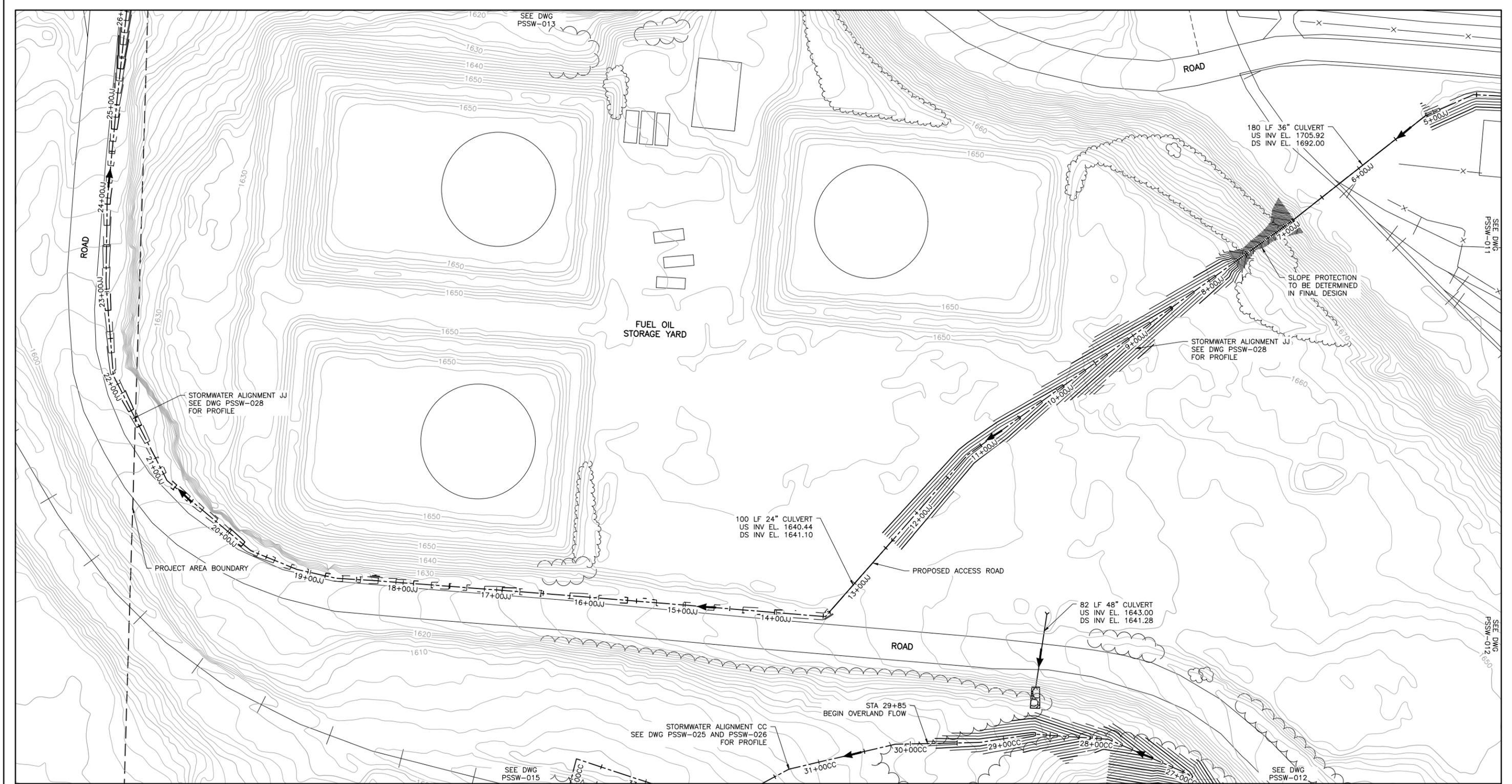
**BARR** ENGINEERING COMPANY  
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MINNEAPOLIS, MN.  
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DWG. NO. **PSSW-013**

REV

INCHES 1 2

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-014.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:26 AM



**1 PLAN: STORMWATER ALIGNMENTS CC AND JJ**

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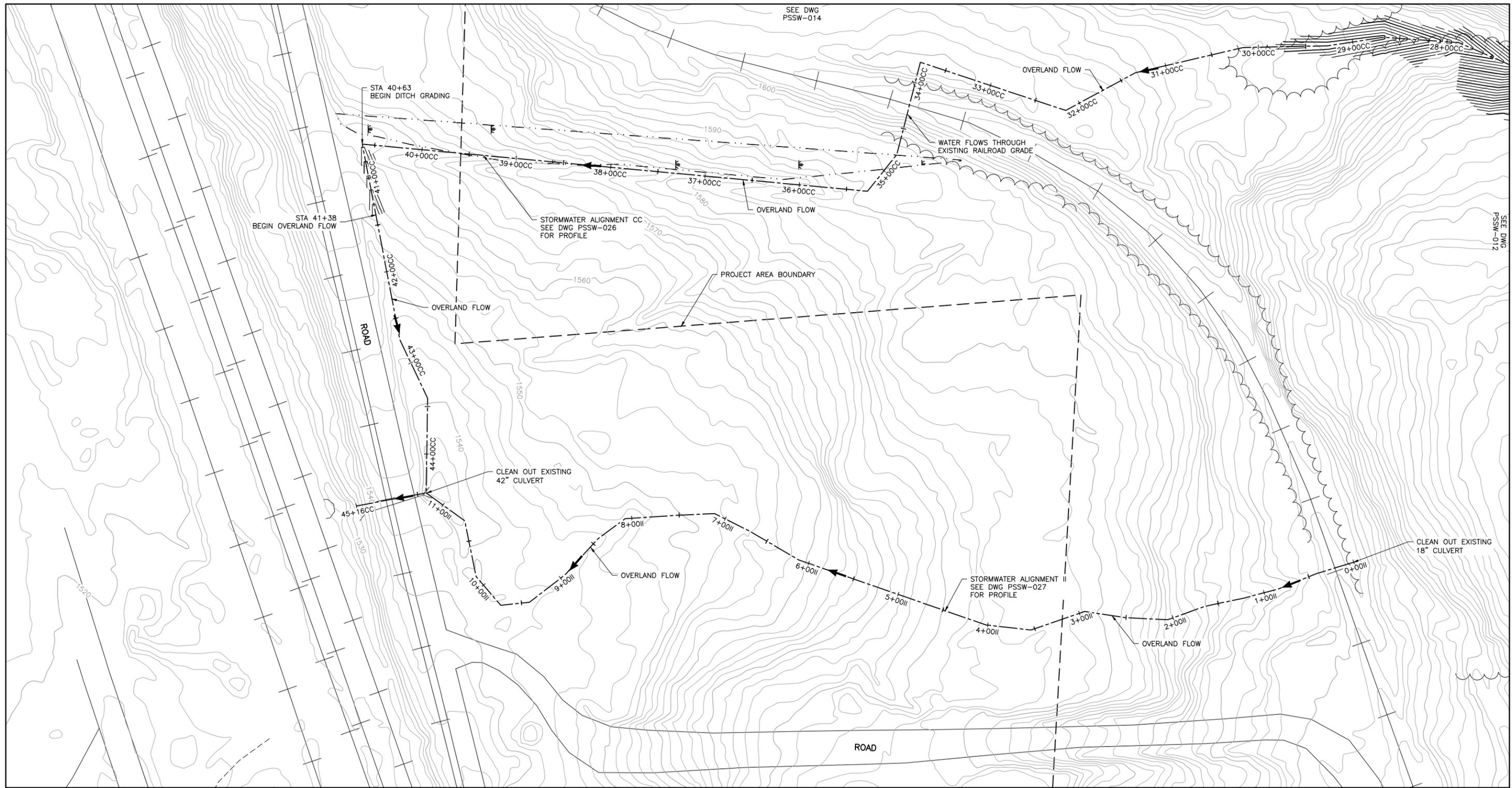
**POLYMET MINING**  
POLY MET MINING, INC.  
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HOYT LAKES, MINNESOTA

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BARR ENGINEERING COMPANY  
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DWG. NO. **PSSW-014** REV

INCHES 2 1

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-015.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:45 AM



**1 PLAN: STORMWATER ALIGNMENTS CC AND II**

NOTE:  
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PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER GRADING PLAN**

**POLYMET MINING** POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR** BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED		
			FOR PERMITTING	1	5/15/15
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION		

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PRINTED NAME: CRISTIAN A. DIAZ  
SIGNATURE: *[Signature]*  
DATE: 5/15/15 LICENSE# 46593

DRAWN: PRT  
CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

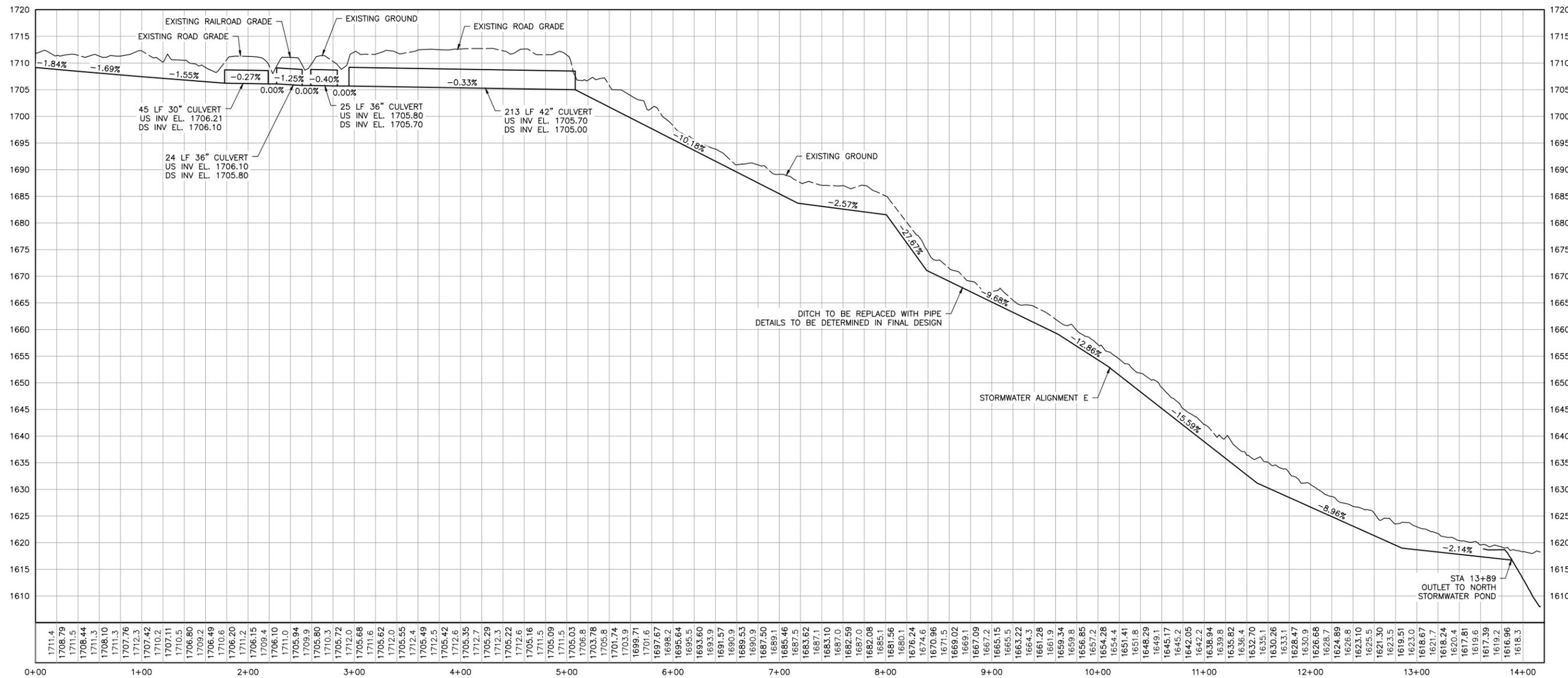
DWG. NO. **PSSW-015** REV



INCHES 2 1



CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_MNP-63-CS-017.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 10:58 AM



**PROFILE: STORMWATER ALIGNMENT E**  
 PSSW-004.005  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
 ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING**  
**POLY MET MINING, INC.**  
**NORTHMET PROJECT**  
**HOYT LAKES, MINNESOTA**

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

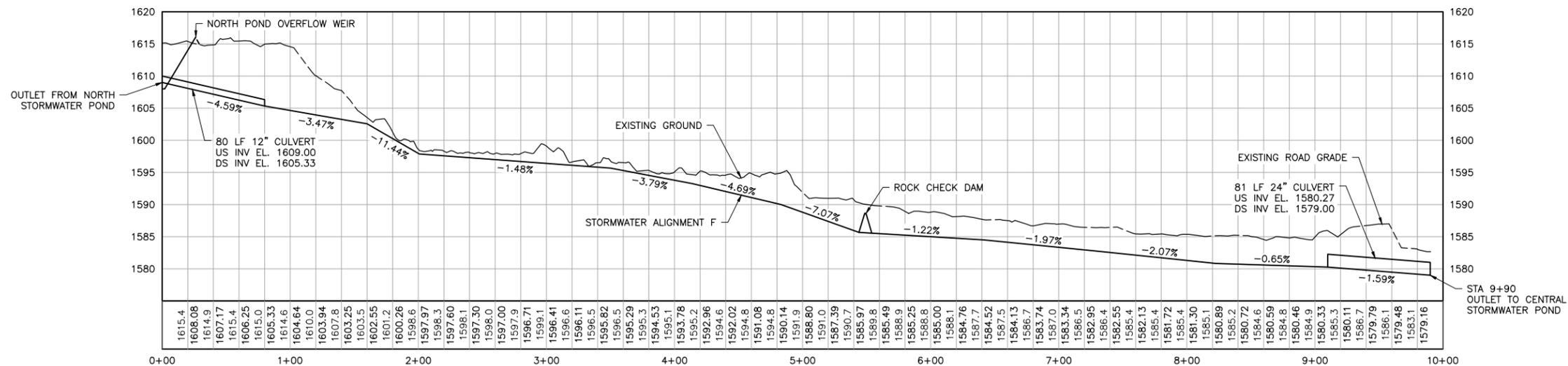
VER NO	DATE	DESCRIPTION	ISSUE STATUS		
1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED	VERSION	DATE
			FOR PERMITTING	1	5/15/15
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 PRINTED NAME: **CRISTIAN A. DIAZ**  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE# 46593

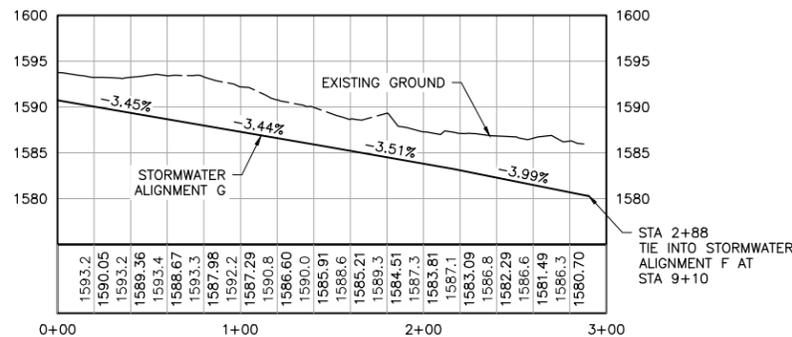
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 SCALE: AS SHOWN

DWG. NO. **PSSW-017** REV

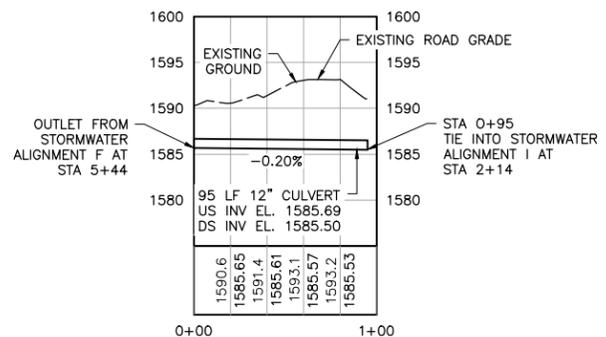
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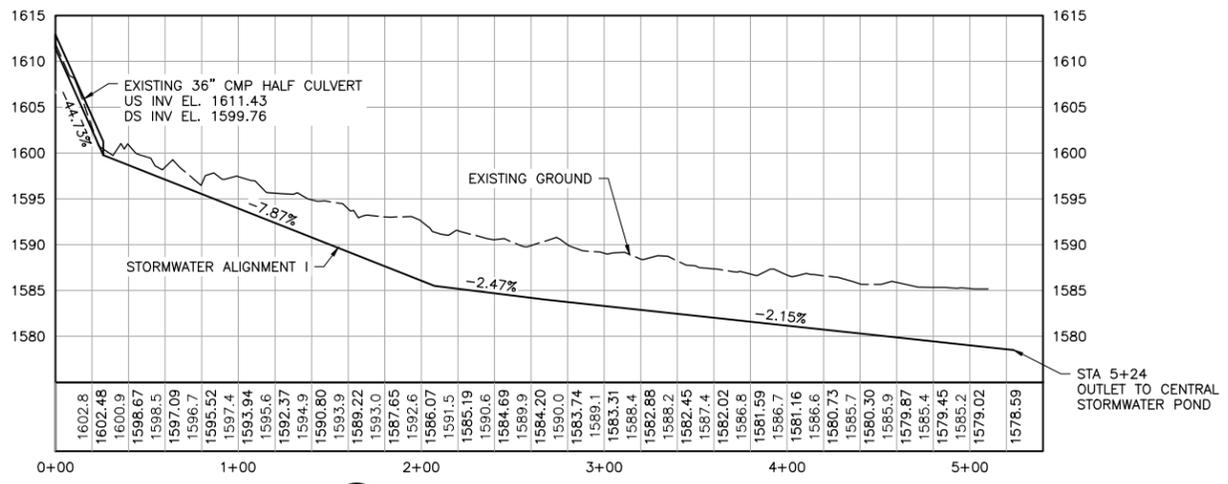
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 PSSW-005,006  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**G PROFILE: STORMWATER ALIGNMENT G**  
 PSSW-006  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**H PROFILE: STORMWATER ALIGNMENT H**  
 PSSW-005  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**I PROFILE: STORMWATER ALIGNMENT I**  
 PSSW-005,006  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
 ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLY MET MINING, INC.**  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

DRAWN: VJS  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

DWG. NO. **PSSW-018** REV

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
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1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED	1	5/15/15
			FOR PERMITTING		
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION		

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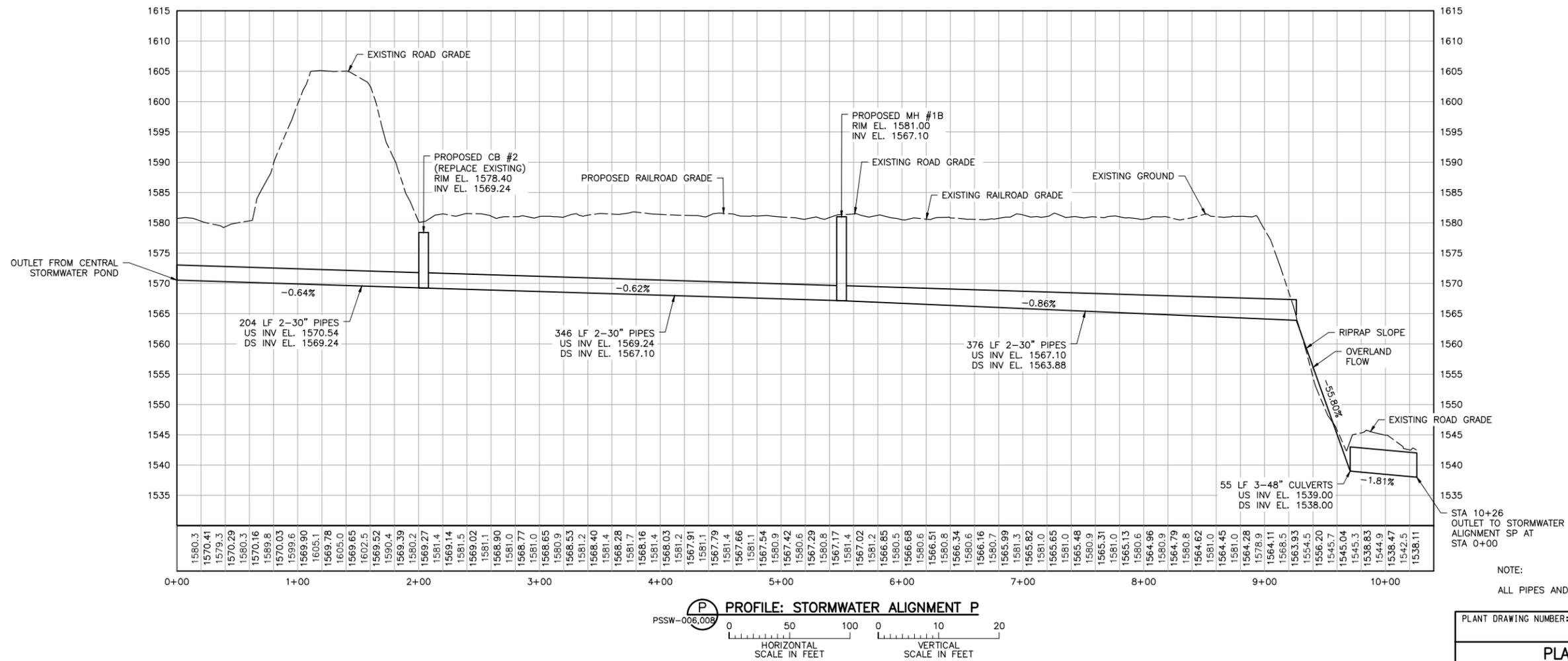
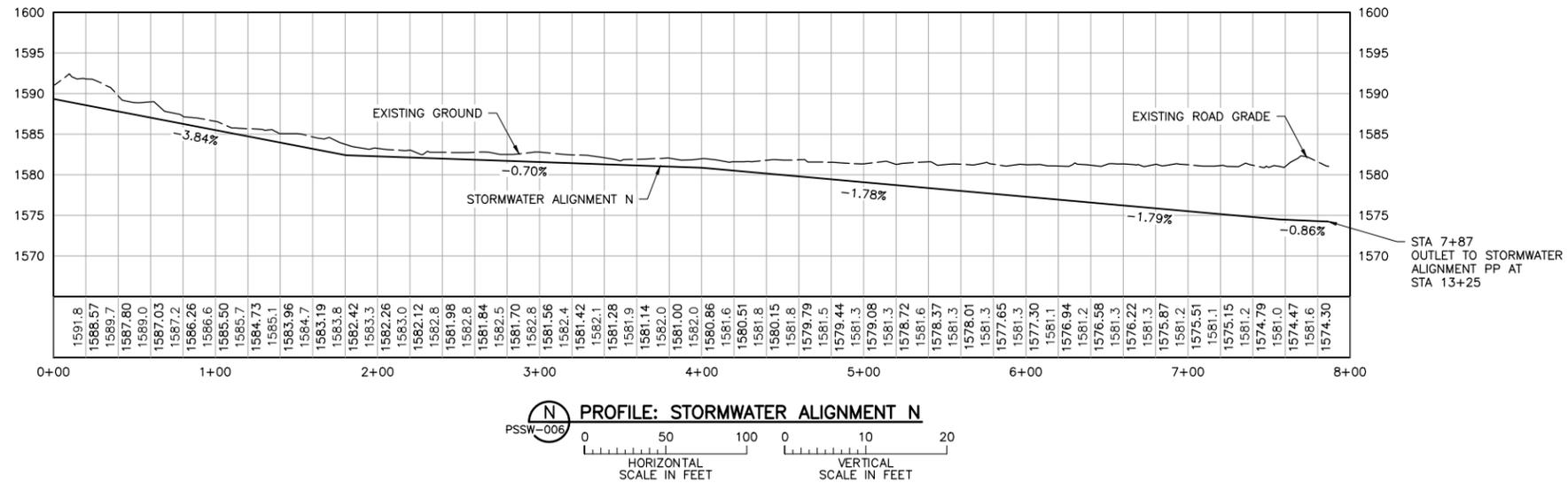
PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: [Signature]  
 DATE: 5/15/15 LICENSE# 46593

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-018.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:12 AM  
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 INCHES



CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-020.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:18 AM

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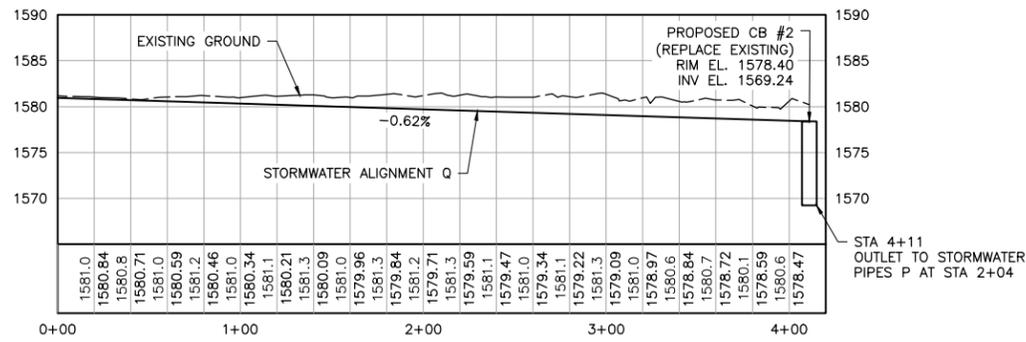
NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:	
<b>PLANT SITE STORMWATER GRADING PROFILES</b>	
 <b>POLY MET MINING, INC.</b> NORTHMET PROJECT HOYT LAKES, MINNESOTA	 <b>BARR ENGINEERING COMPANY</b> 4700 WEST 77TH STREET MINNEAPOLIS, MN. Ph: 1-800-632-2277
DRAWN: VJS CHECKED: CMK2 BARR PROJECT NO.: 23/69-0C29 SCALE: AS SHOWN	DWG. NO. <b>PSSW-020</b> REV

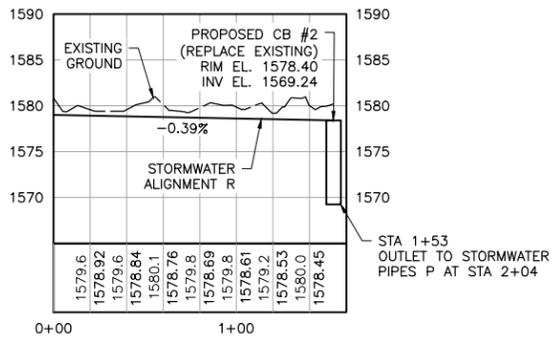
VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED	1	5/15/15
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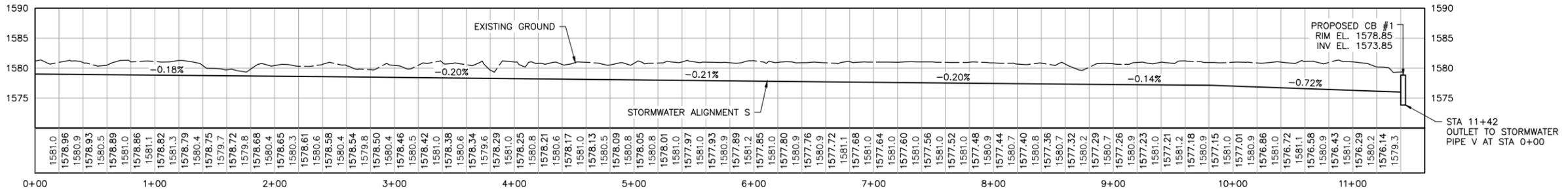
PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE# 46593



**Q** PROFILE: STORMWATER ALIGNMENT Q  
PSSW-006  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20



**R** PROFILE: STORMWATER ALIGNMENT R  
PSSW-006  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20



**S** PROFILE: STORMWATER ALIGNMENT S  
PSSW-006,009  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
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PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING** POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR** BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

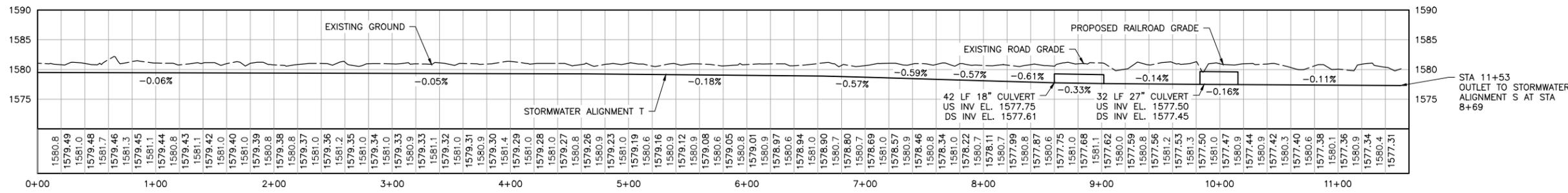
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CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

DWG. NO. **PSSW-021** REV

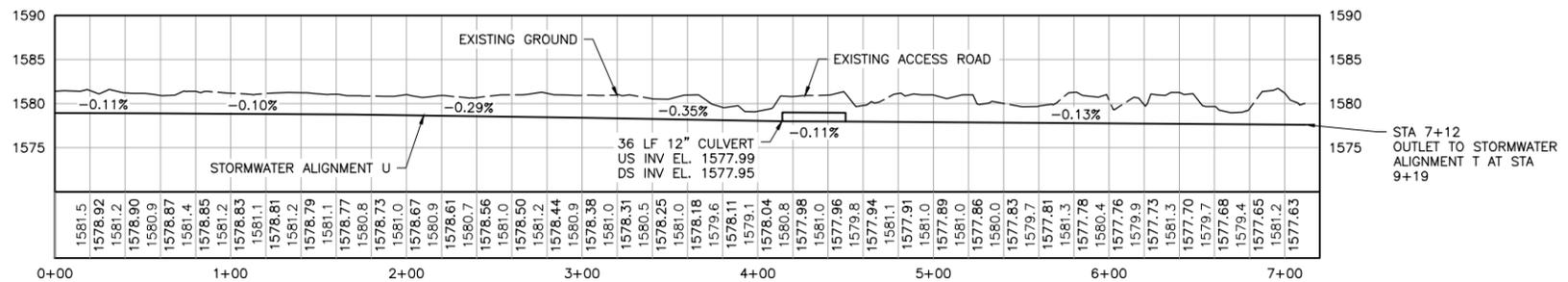
VER NO	DATE	DESCRIPTION	ISSUE STATUS		
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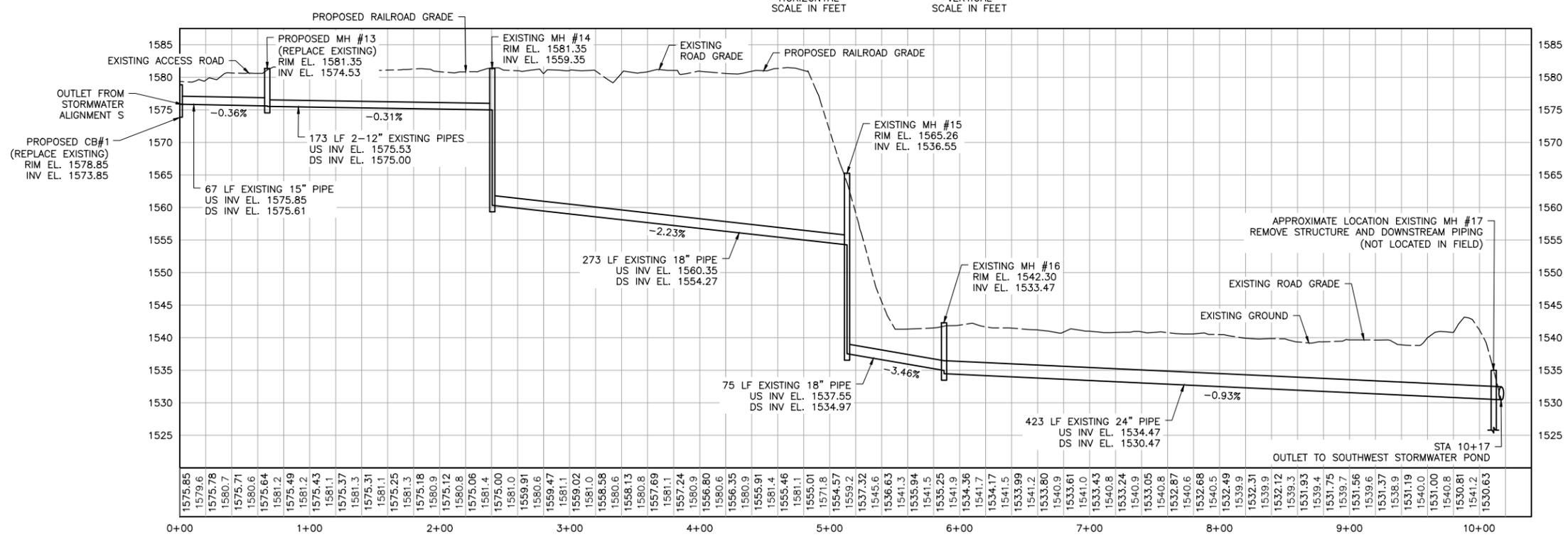
PRINTED NAME: CRISTIAN A. DIAZ  
SIGNATURE: *[Signature]*  
DATE: 5/15/15 LICENSE # 46593



**PROFILE: STORMWATER ALIGNMENT T**  
 PSSW-009  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**PROFILE: STORMWATER ALIGNMENT U**  
 PSSW-009  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**PROFILE: STORMWATER ALIGNMENT V**  
 PSSW-008,009  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
 CLEAN AND TELEWISE BURIED PIPE.

NOTE:  
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PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLY MET MINING**  
 POLY MET MINING, INC.  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

DRAWN: VJS  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN  
 DWG. NO. **PSSW-022**  
 REV

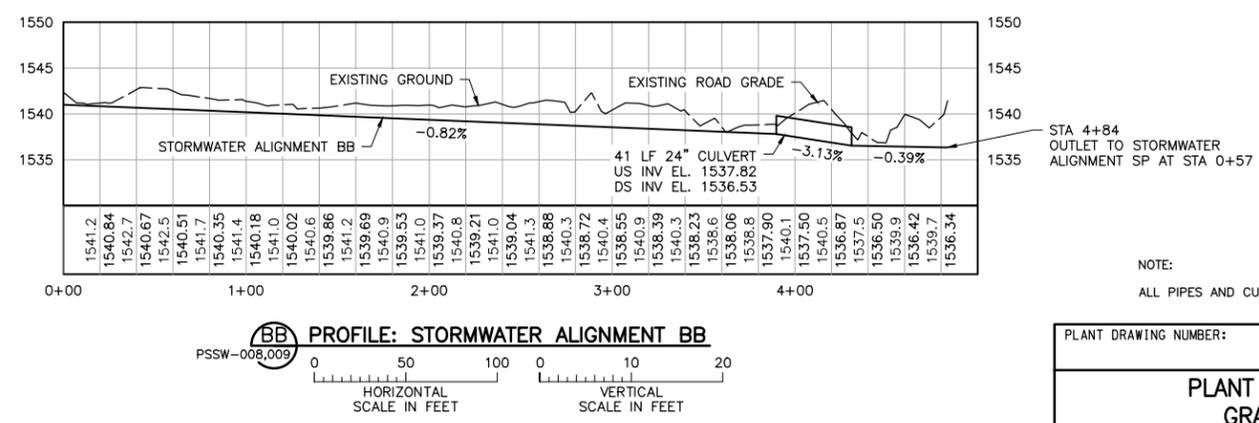
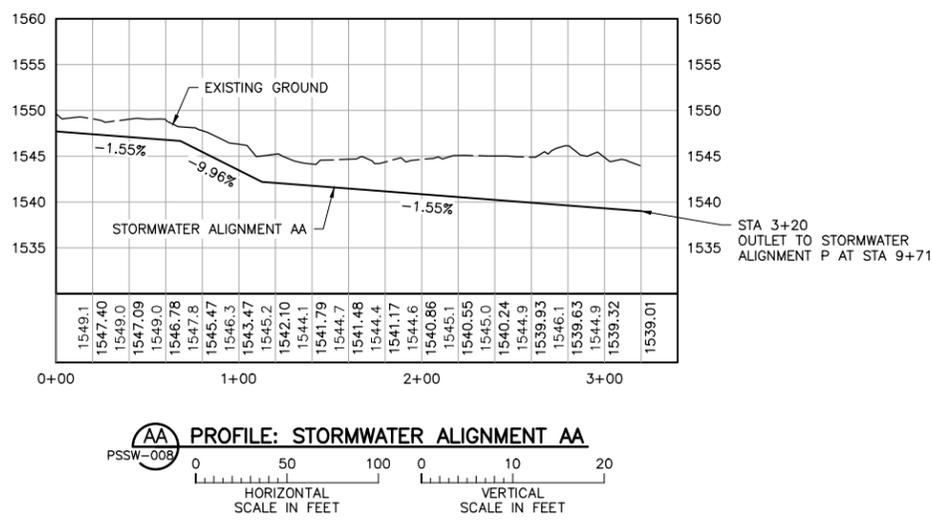
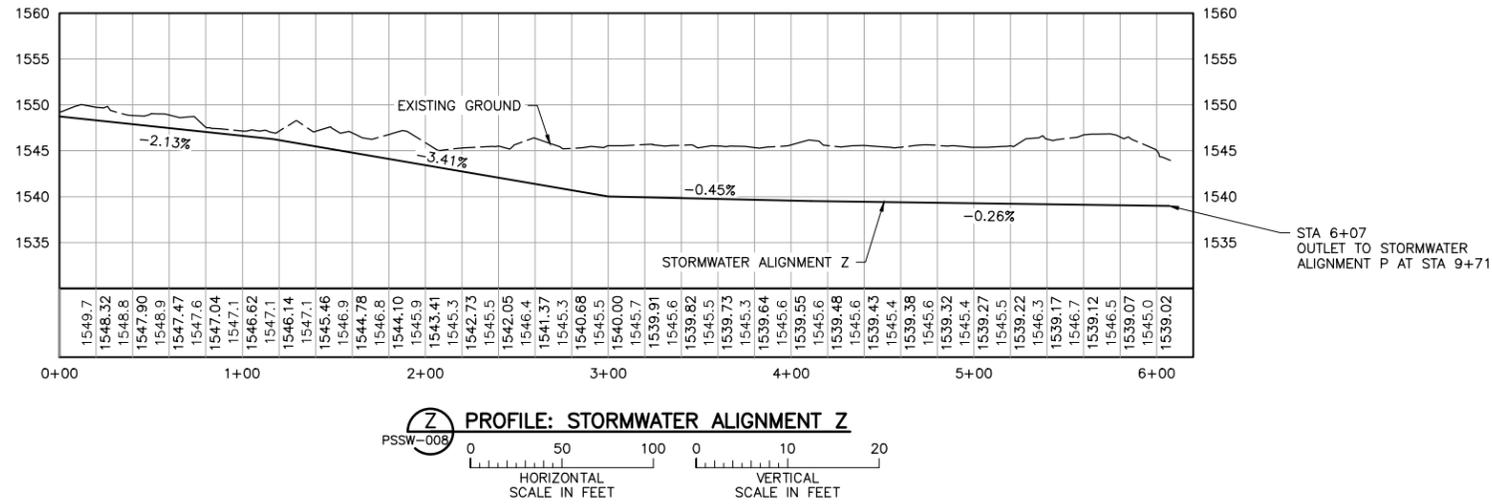
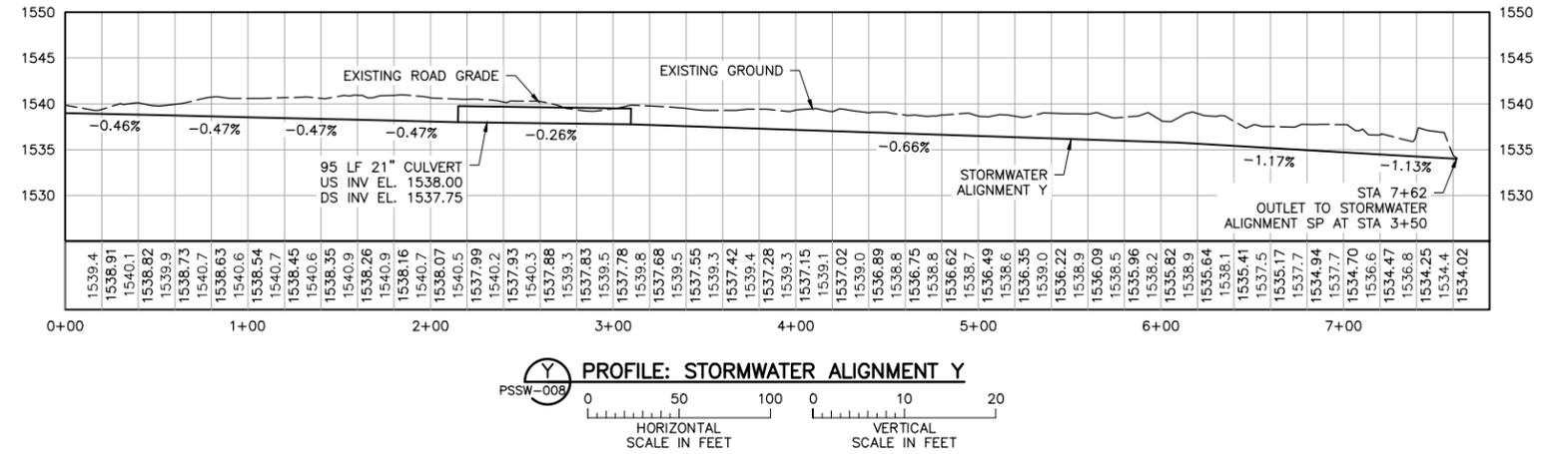
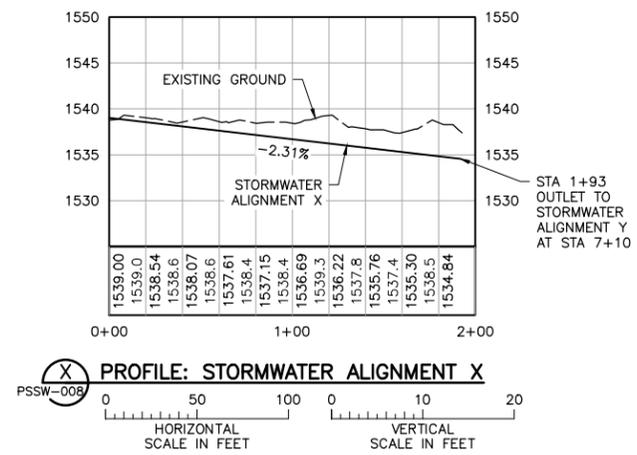
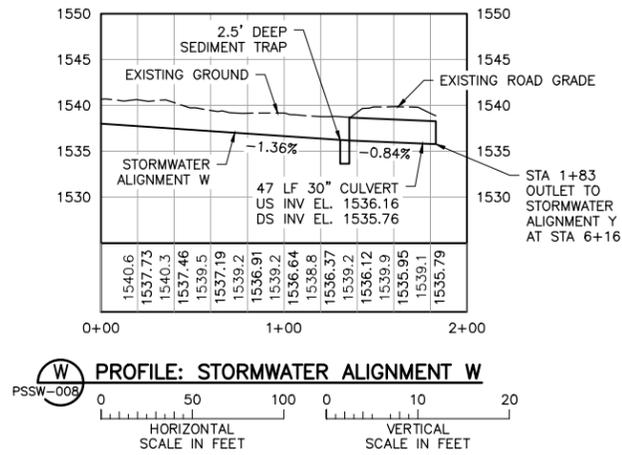
VER NO	DATE	DESCRIPTION	ISSUE STATUS		
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 DATE: 5/15/15 LICENSE # 46593

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-022.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:24 AM  
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CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-023.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:28 AM



NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING**  
POLY MET MINING, INC.  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

**BARR**  
BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

DRAWN: VJS  
CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

DWG. NO. **PSSW-023**  
REV

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
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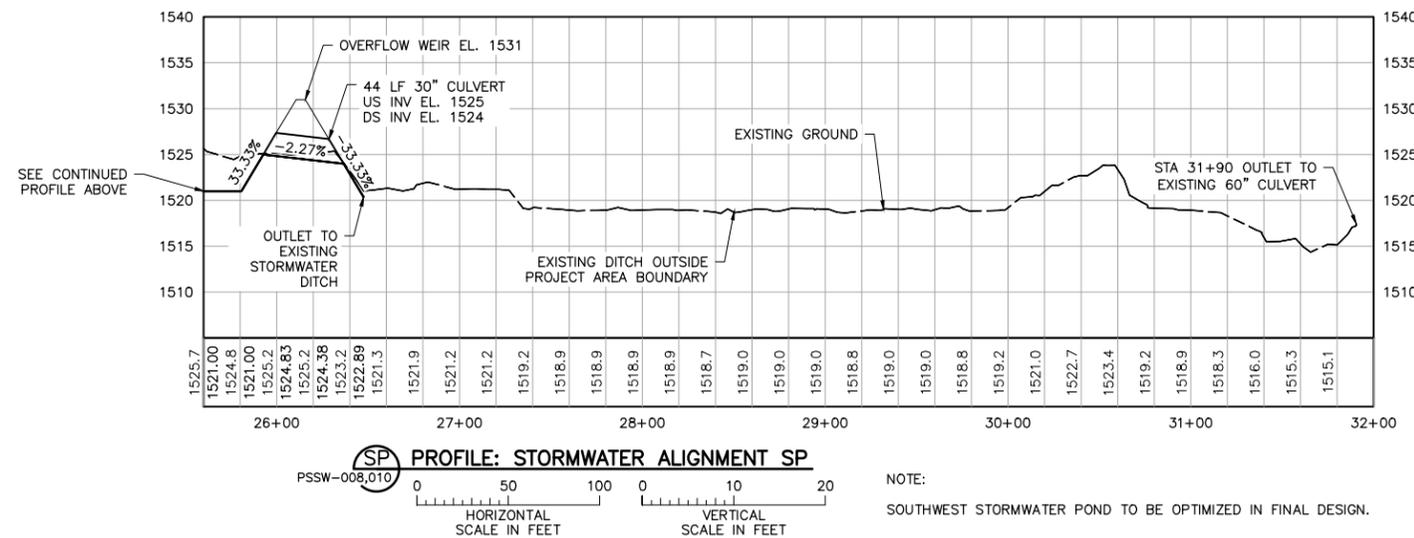
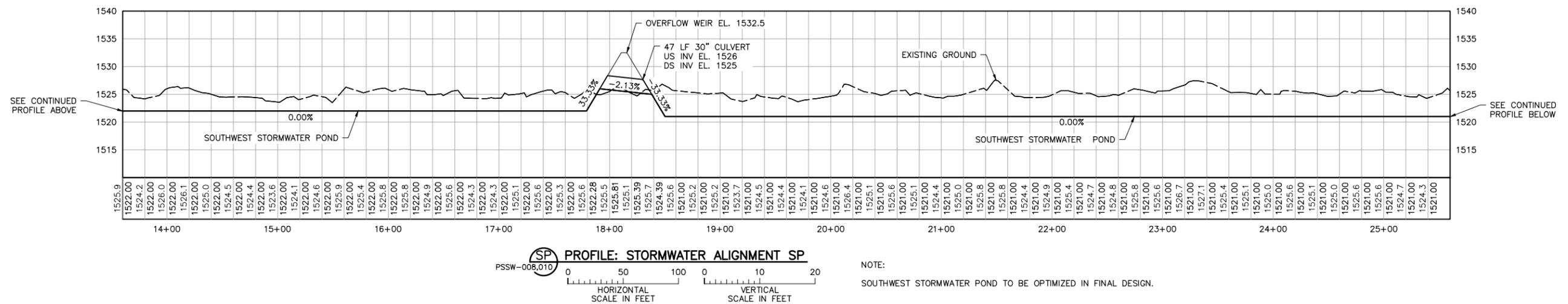
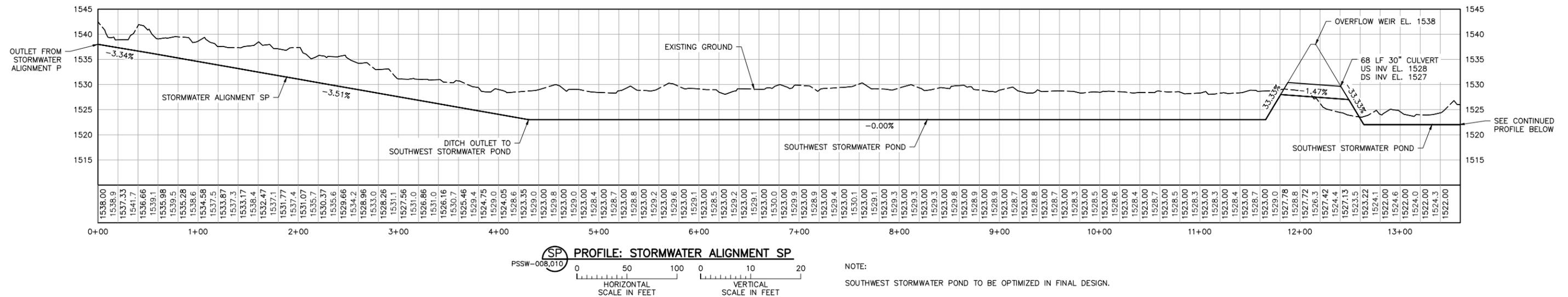
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PRINTED NAME: CRISTIAN A. DIAZ  
SIGNATURE: *[Signature]*  
DATE: 5/15/15 LICENSE# 46593

INCHES

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-024.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:37 AM

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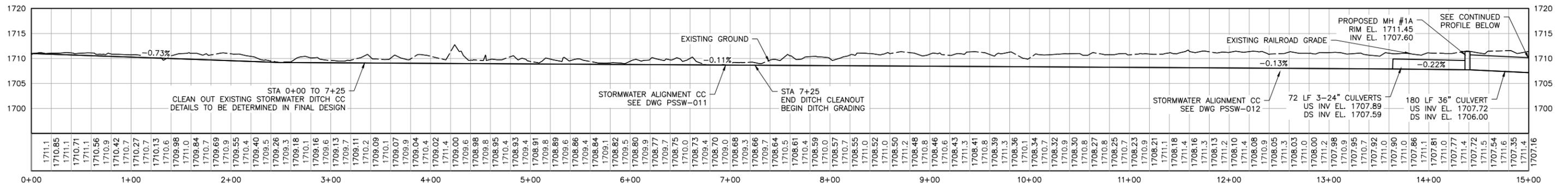
NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:	
<b>PLANT SITE STORMWATER GRADING PROFILES</b>	
 <b>POLYMET</b> MINING	<b>POLY MET MINING, INC.</b> <b>NORTHMET PROJECT</b> <b>HOYT LAKES, MINNESOTA</b>
DRAWN: VJS CHECKED: CMK2 BARR PROJECT NO.: 23/69-0C29 SCALE: AS SHOWN	 <b>BARR</b> BARR ENGINEERING COMPANY 4700 WEST 77TH STREET MINNEAPOLIS, MN. Ph: 1-800-632-2277
DWG. NO. <b>PSSW-024</b>	REV

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
			ISSUED	VERSION	DATE
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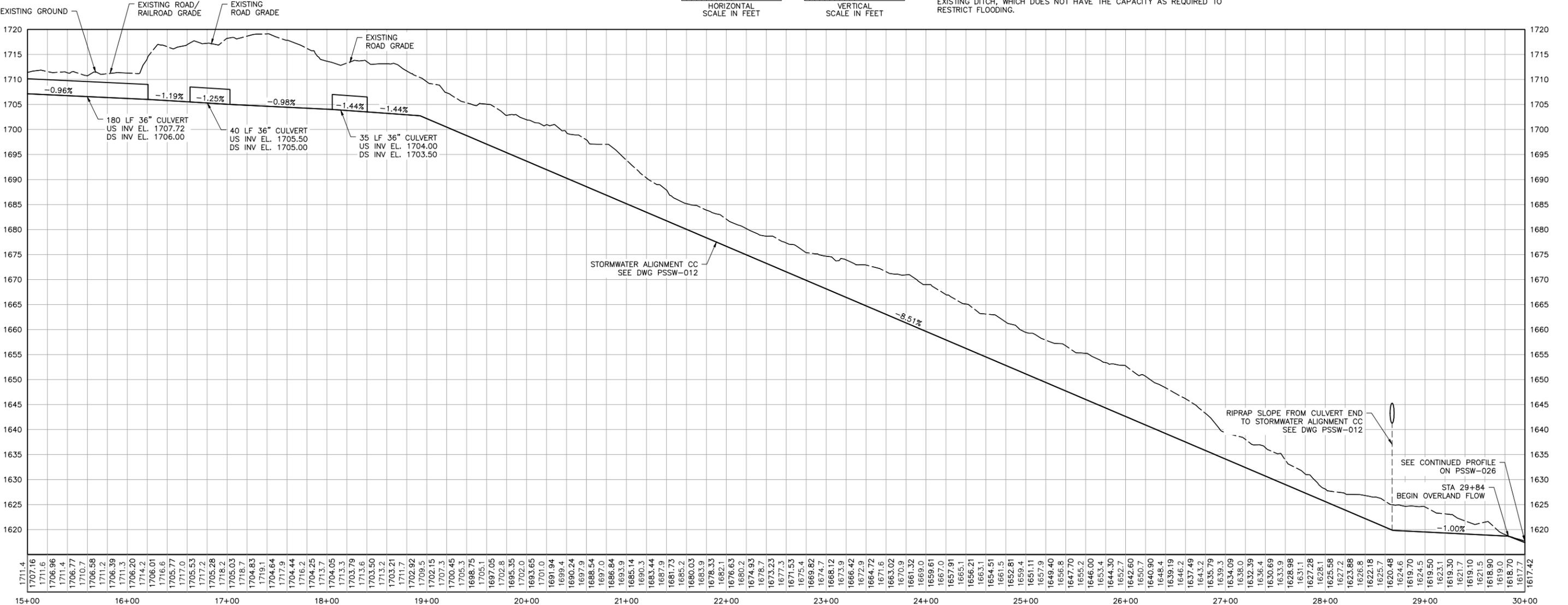
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PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE:   
 DATE: 5/15/15 LICENSE # 46593



**CC PROFILE: STORMWATER ALIGNMENT CC**  
 PSSW-011  
 PSSW-012

NOTE:  
 STORMWATER DITCH HAS CONSTRAINTS RESTRICTING CONSTRUCTION. DESIGN OPTIONS HAVE BEEN IDENTIFIED. THIS PROFILE SHOWS CLEAN-OUT OF THE EXISTING DITCH, WHICH DOES NOT HAVE THE CAPACITY AS REQUIRED TO RESTRICT FLOODING.



**CC PROFILE: STORMWATER ALIGNMENT CC**  
 PSSW-012

NOTE:  
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PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING**  
 POLY MET MINING, INC.  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

DRAWN: PRT  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN  
 DWG. NO. **PSSW-025**  
 REV

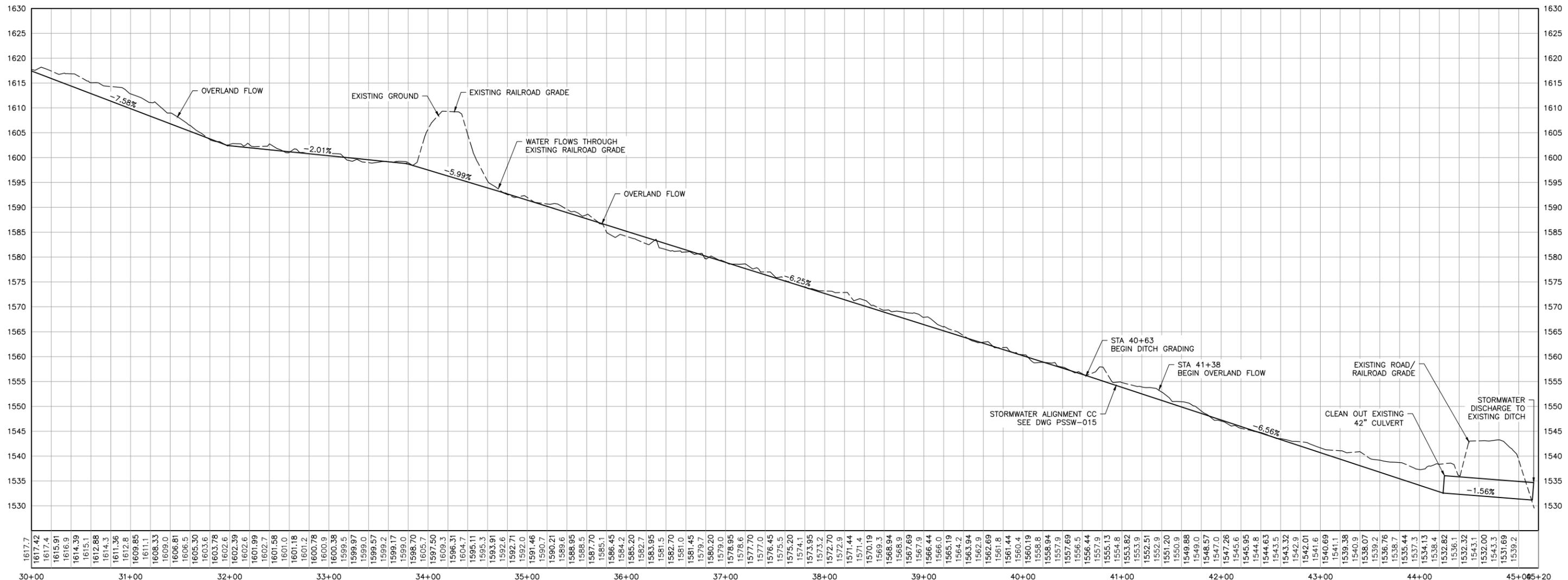
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1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED		
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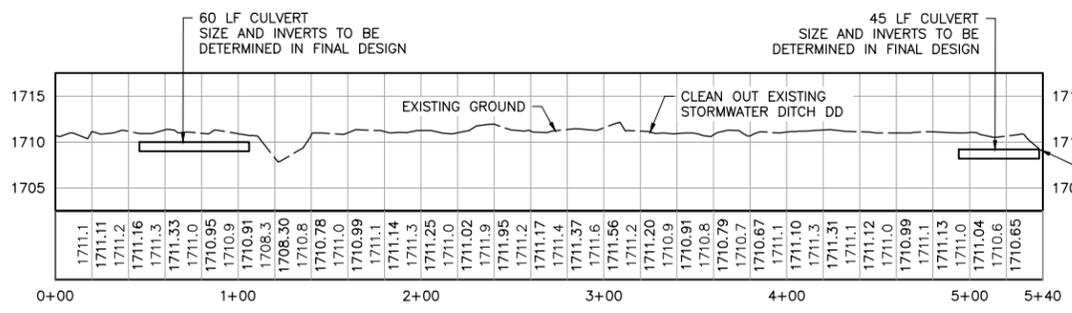
PRINTED NAME: **CRISTIAN A. DIAZ**  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE# 46593

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-025-DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:33 AM  
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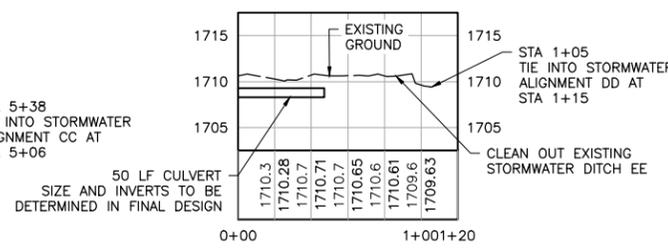


**CC PROFILE: STORMWATER ALIGNMENT CC**  
 PSSW-015  
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 VERTICAL SCALE IN FEET: 0, 10, 20



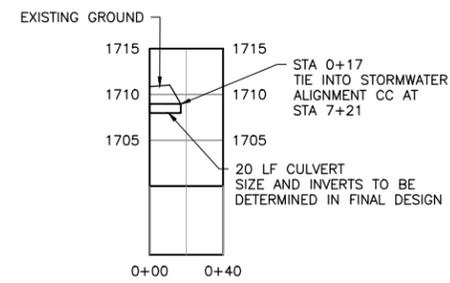
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 PSSW-011  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
 STORMWATER DITCH HAS CONSTRAINTS RESTRICTING CONSTRUCTION. DESIGN OPTIONS HAVE BEEN IDENTIFIED. THIS PROFILE SHOWS CLEAN-OUT OF THE EXISTING DITCH, WHICH DOES NOT HAVE THE CAPACITY AS REQUIRED TO RESTRICT FLOODING.



**EE PROFILE: STORMWATER ALIGNMENT EE**  
 PSSW-011  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
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**FF PROFILE: STORMWATER ALIGNMENT FF**  
 PSSW-011  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
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 PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE # 46593

DRAWN: PRT  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLY MET MINING, INC.**  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

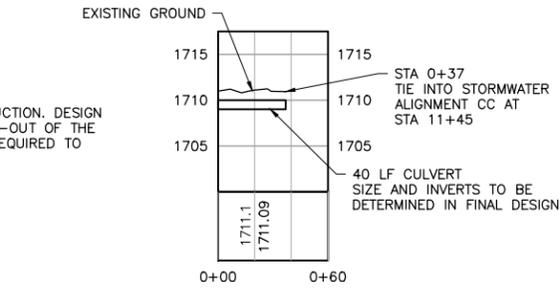
**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

DWG. NO. **PSSW-026** REV

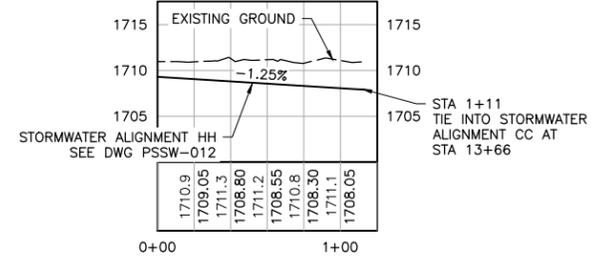
INCHES

NOTE:

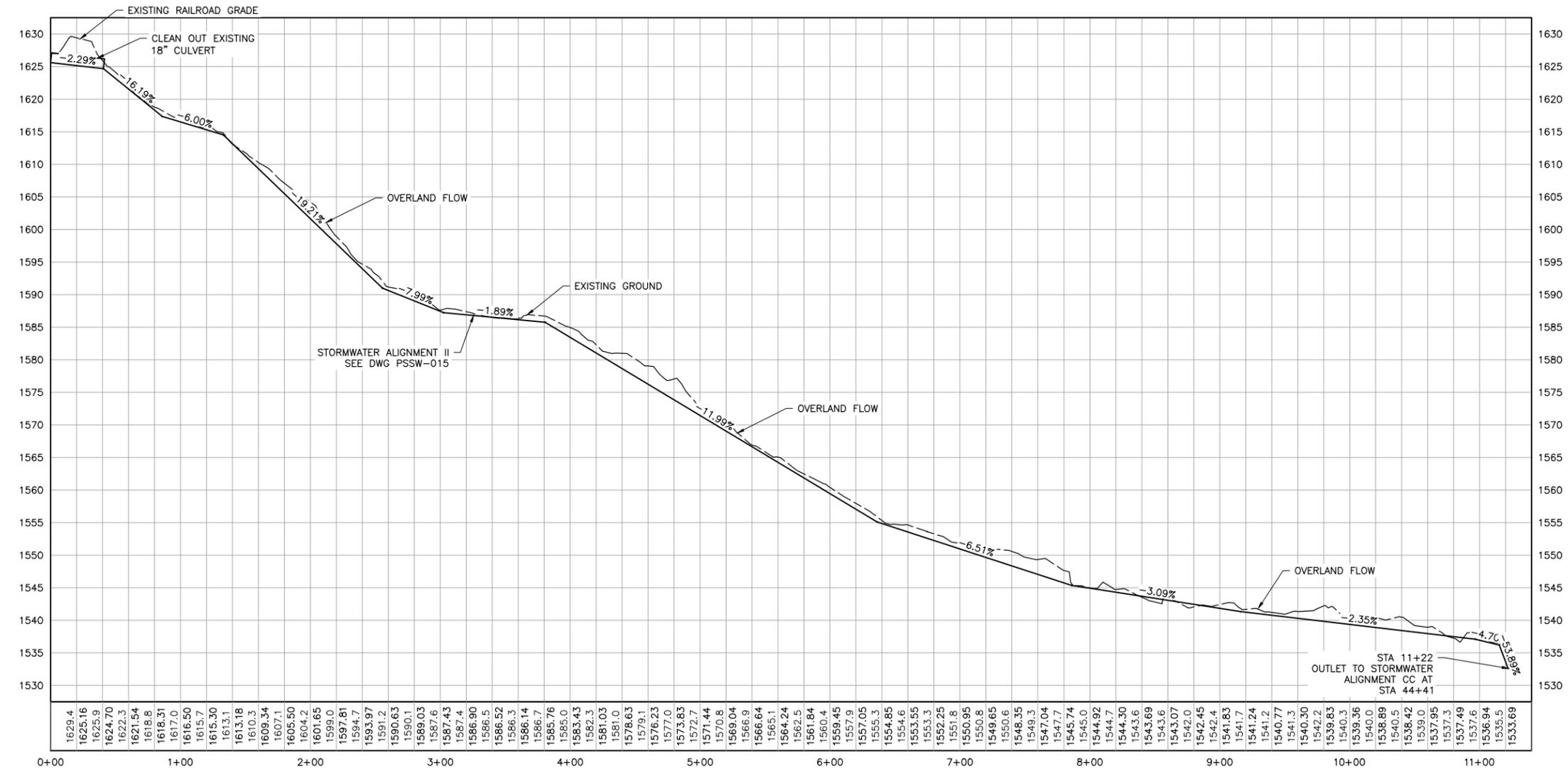
STORMWATER DITCH HAS CONSTRAINTS RESTRICTING CONSTRUCTION. DESIGN OPTIONS HAVE BEEN IDENTIFIED. THIS PROFILE SHOWS CLEAN-OUT OF THE EXISTING DITCH, WHICH DOES NOT HAVE THE CAPACITY AS REQUIRED TO RESTRICT FLOODING.



**GG PROFILE: STORMWATER ALIGNMENT GG**  
 PSSW-012  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**HH PROFILE: STORMWATER ALIGNMENT HH**  
 PSSW-012  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20



**II PROFILE: STORMWATER ALIGNMENT II**  
 PSSW-015  
 HORIZONTAL SCALE IN FEET: 0, 50, 100  
 VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
 ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING**  
 POLY MET MINING, INC.  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
1	5/15/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS	ISSUED	VERSION	DATE
			FOR PERMITTING	1	5/15/15
			FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION		

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE# 46593

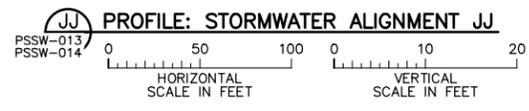
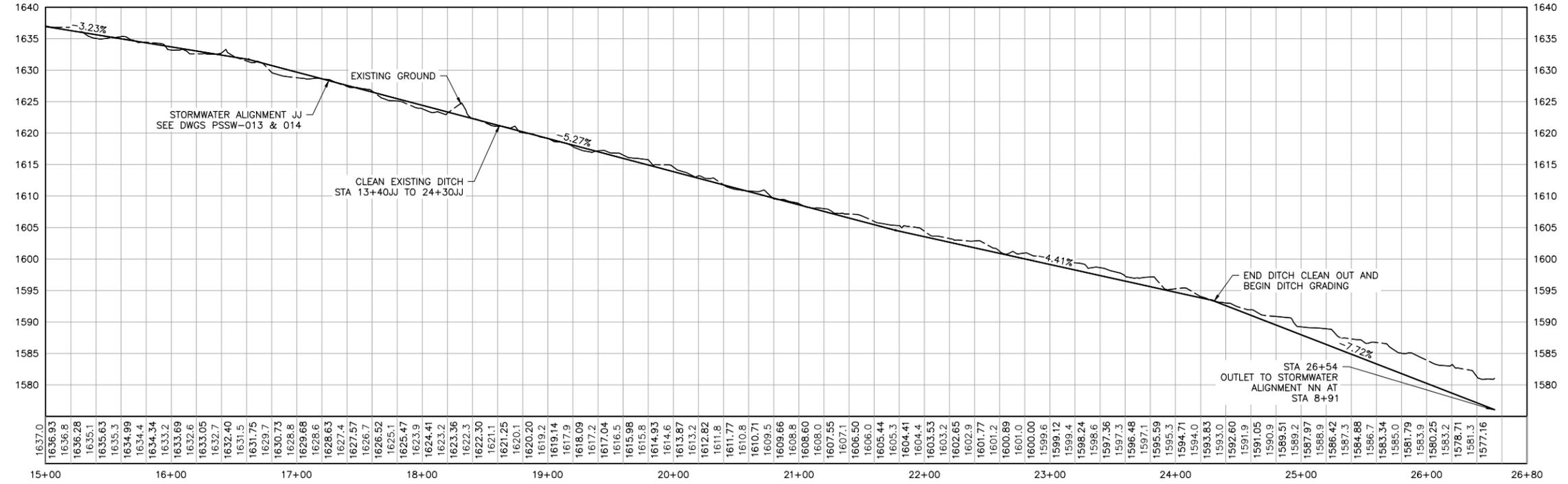
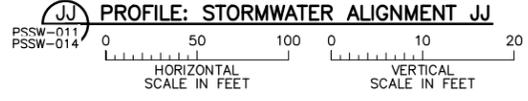
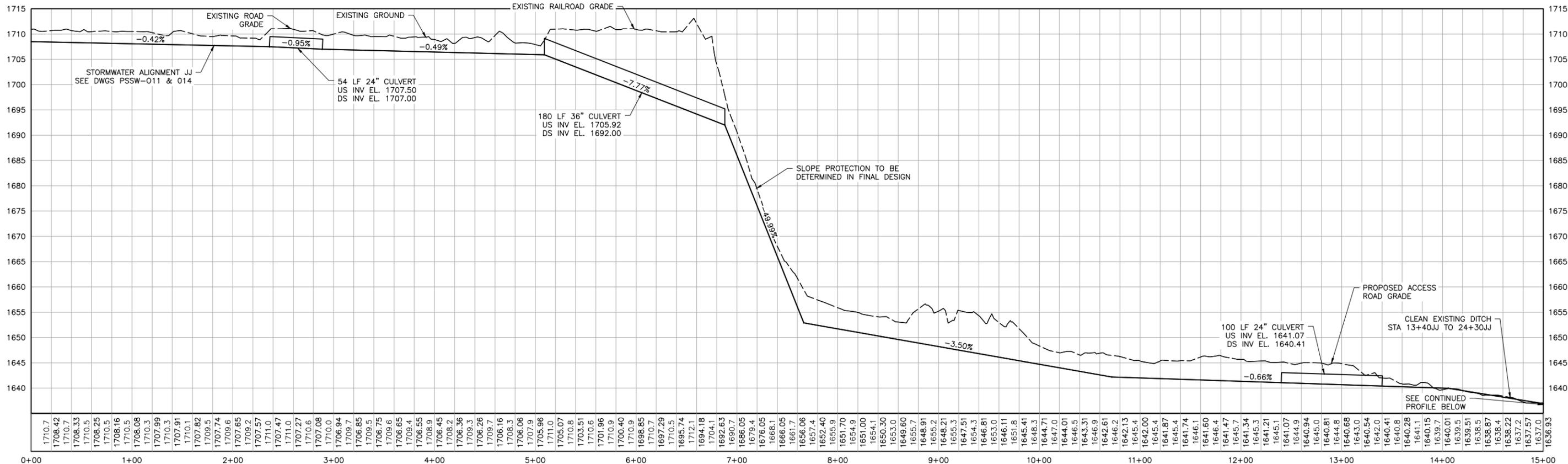
DRAWN: PRT  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

DWG. NO. **PSSW-027** REV

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_NMP-63-CS-027.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:39 AM

INCHES  
 2  
 1

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_MNP-63-CS-028.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:43 AM



NOTE:  
 ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

**POLYMET MINING**  
 POLY MET MINING, INC.  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR**  
 BARR ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

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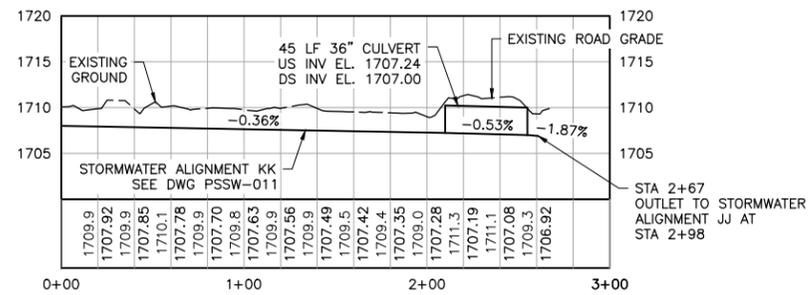
PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: *[Signature]*  
 DATE: 5/15/15 LICENSE # 46593

DRAWN: PRT  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

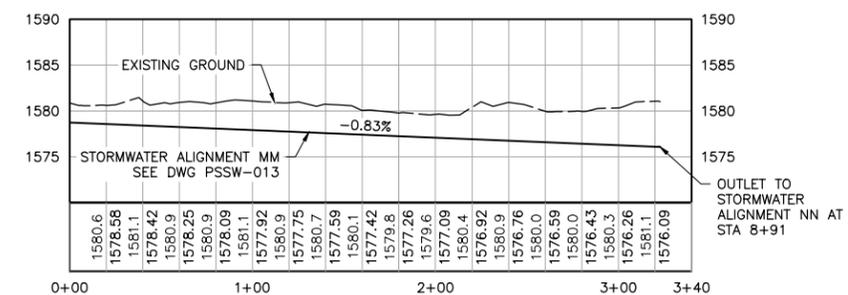
DWG. NO. **PSSW-028** REV

INCHES

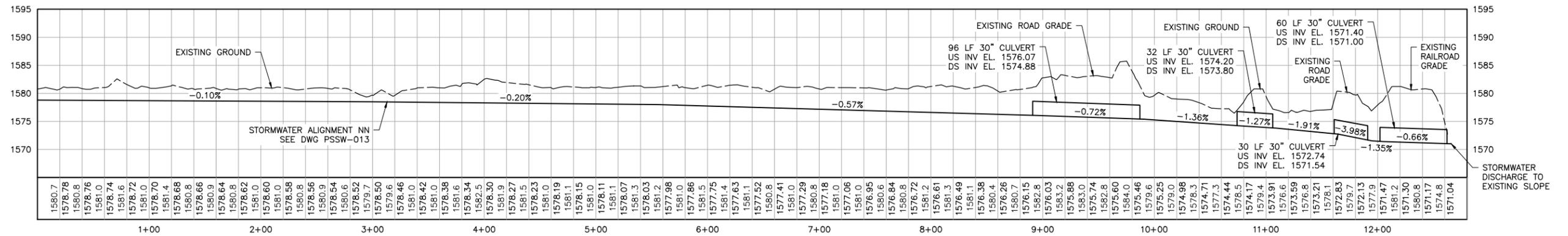
CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29\10\PERMIT\_MNP-63-CS-029.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:45 AM



**KK PROFILE: STORMWATER ALIGNMENT KK**  
PSSW-011  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20



**MM PROFILE: STORMWATER ALIGNMENT MM**  
PSSW-013  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20



**NN PROFILE: STORMWATER ALIGNMENT NN**  
PSSW-013  
HORIZONTAL SCALE IN FEET: 0, 50, 100  
VERTICAL SCALE IN FEET: 0, 10, 20

NOTE:  
ALL PIPES AND CULVERTS ARE PROPOSED UNLESS INDICATED.

PLANT DRAWING NUMBER:  
**PLANT SITE STORMWATER GRADING PROFILES**

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SIGNATURE: *[Signature]*  
DATE: 5/15/15 LICENSE # 46593

DRAWN: PRT  
CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

**POLY MET MINING**

**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA

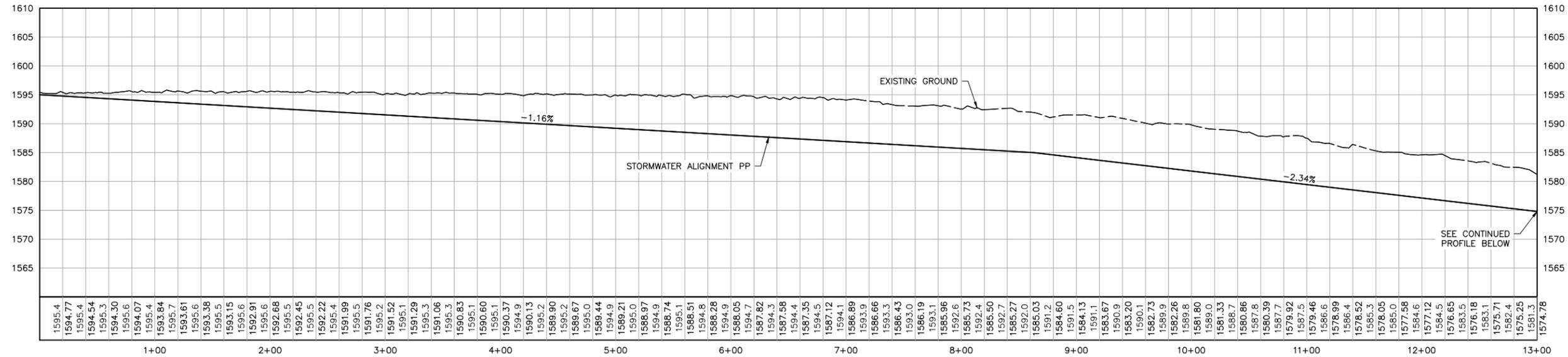
**BARR**

BARR ENGINEERING COMPANY  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

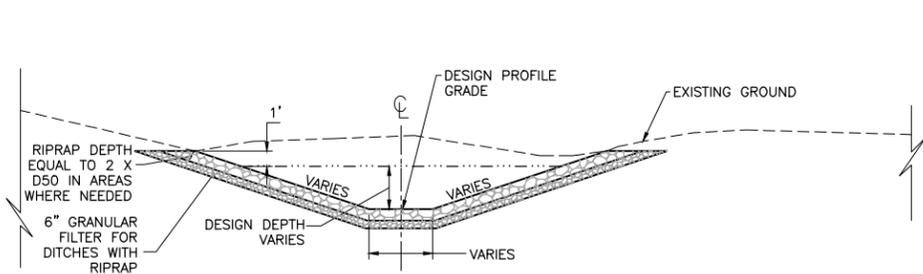
DWG. NO. **PSSW-029**

REV

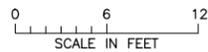
INCHES  
2  
1



CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690229.10\PERMIT\_NMP-63-CS-031.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:50 AM

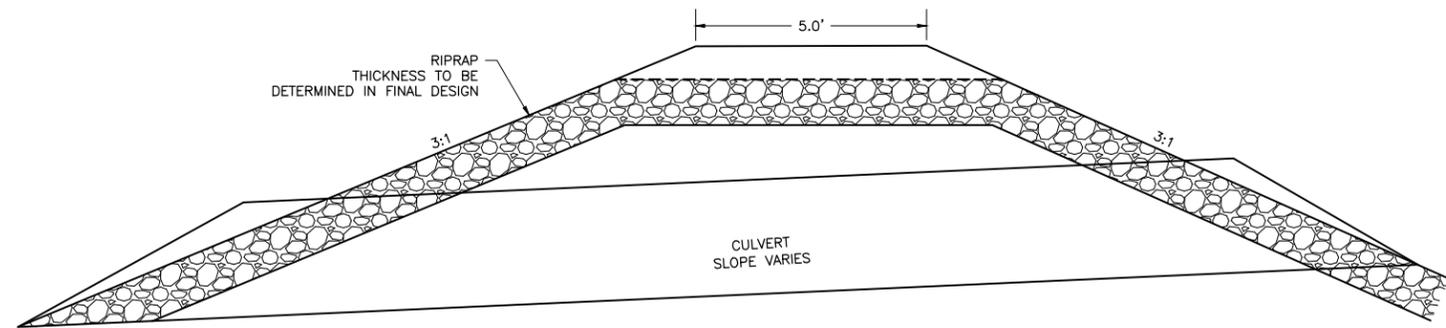


**1 SECTION: TYPICAL DITCH**



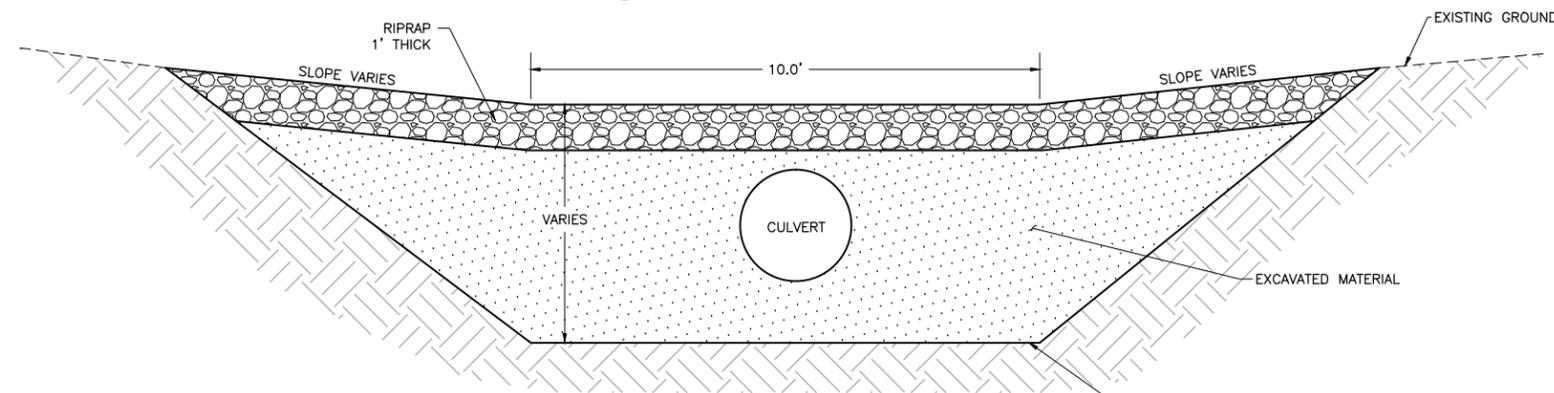
**NOTES**

1. DITCHES NOT REQUIRING RIPRAP WILL BE CONSTRUCTED WITH NATIVE SOILS AND 4" TOPSOIL TO DESIGN PROFILE GRADE.
2. DITCHES CONSTRUCTED IN BEDROCK WILL NOT REQUIRE RIPRAP OR TOPSOIL.
3. RESTORE ALL DISTURBED AREAS NOT STABILIZED WITH RIPRAP.
4. DITCH CROSS SECTIONS VARY. DETAILS WILL BE TABULATED IN FINAL DESIGN.
5. DITCHES THAT REQUIRE LARGE DIAMETER RIPRAP MAY REQUIRE AN ADDITIONAL LAYER BETWEEN THE RIPRAP AND THE GRANULAR FILTER, TO BE DETERMINED IN FINAL DESIGN.



**A SECTION: OVERFLOW WEIR SIDE VIEW**

NOT TO SCALE



**NOTES**

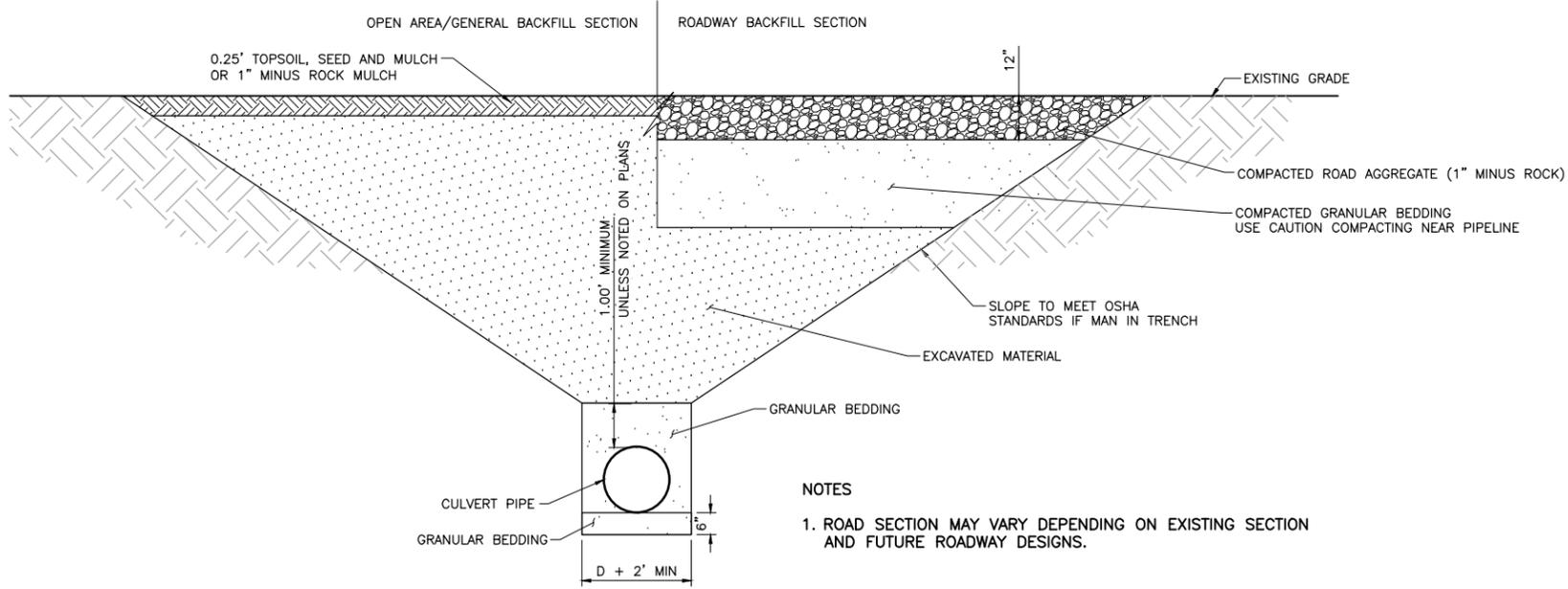
1. WEIR CROSS SECTIONS VARY. DETAILS WILL BE TABULATED IN FINAL DESIGN.

**B SECTION: OVERFLOW WEIR CROSS SECTION**

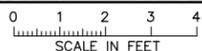
NOT TO SCALE

**3 DETAIL: SOUTH POND OVERFLOW WEIRS**

PSSW-010.024 NOT TO SCALE



**2 SECTION: PIPELINE AND CULVERT TRENCH CONSTRUCTION**



**NOTES**

1. ROAD SECTION MAY VARY DEPENDING ON EXISTING SECTION AND FUTURE ROADWAY DESIGNS.

PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER SECTIONS AND DETAILS**

**POLYMET MINING** POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA

**BARR** BARR ENGINEERING COMPANY 4700 WEST 77TH STREET MINNEAPOLIS, MN. Ph: 1-800-632-2277

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			NOT APPROVED FOR CONSTRUCTION		

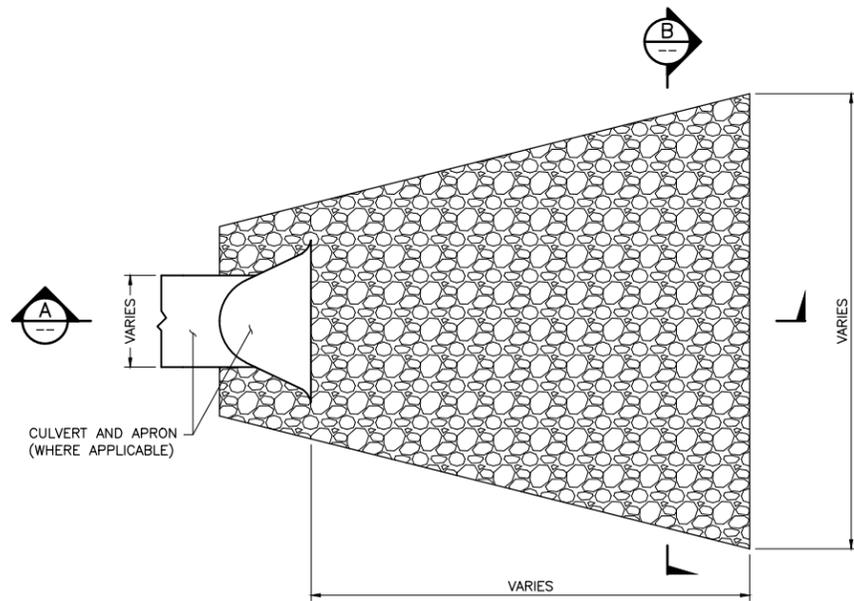
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: [Signature]  
 DATE: 5/15/15 LICENSE# 46593

DRAWN: VJS  
 CHECKED: CMK2  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

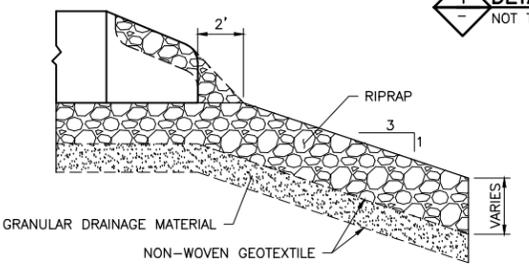
DWG. NO. **PSSW-031** REV

INCHES 2 1

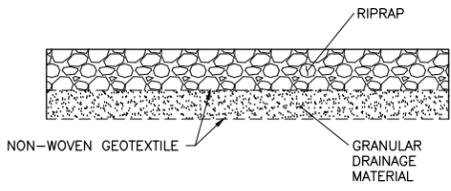
CADD USER: Cristian A. Diaz FILE: K:\DESIGN\23690C29.10\PERMIT\_NMP-63-CS-032.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2015 11:51 AM



**1 DETAIL: RIPRAP SLOPE**  
NOT TO SCALE



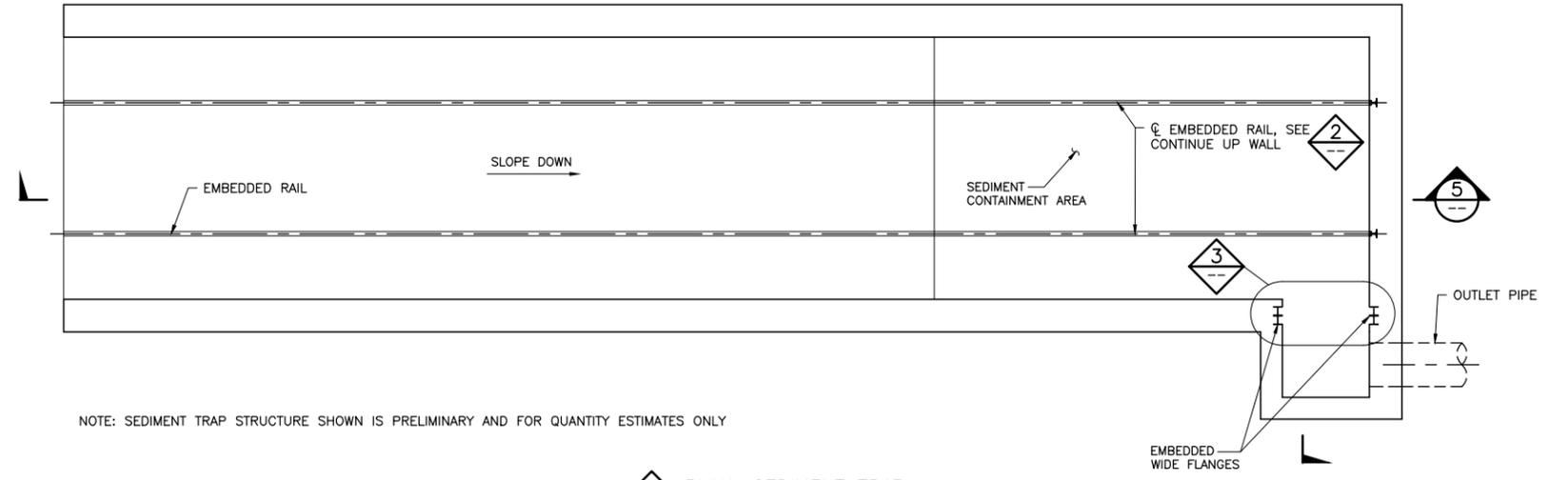
**A SECTION: RIPRAP SLOPE**  
NOT TO SCALE



**B SECTION: RIPRAP SLOPE**  
NOT TO SCALE

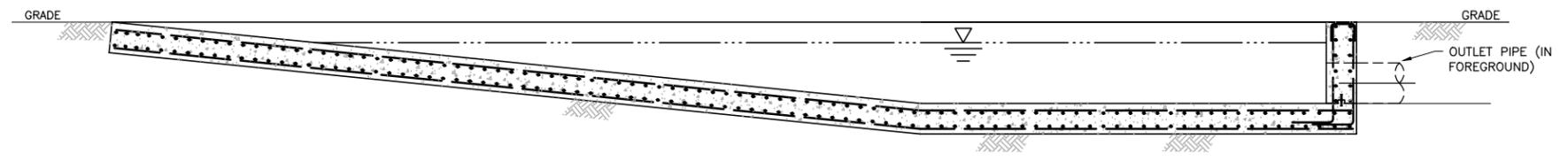
**NOTES:**

1. RIPRAP GRADATION BASED ON EXPECTED VELOCITIES FROM 10 YEAR 24-HOUR STORM EVENT.
2. RIPRAP DIMENSIONS AND CLASSES VARY. DETAILS WILL BE TABULATED IN FINAL DESIGN.
3. ALL CULVERT UPSTREAM AND DOWNSTREAM ENDS SHALL HAVE FLARED END SECTIONS.

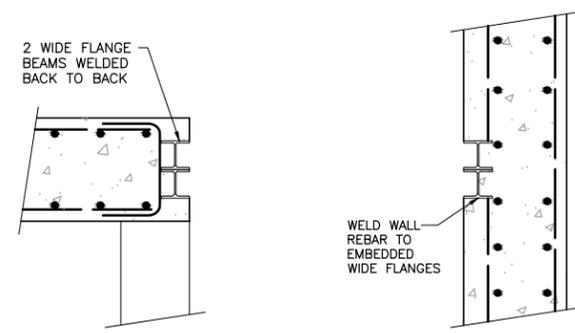


NOTE: SEDIMENT TRAP STRUCTURE SHOWN IS PRELIMINARY AND FOR QUANTITY ESTIMATES ONLY

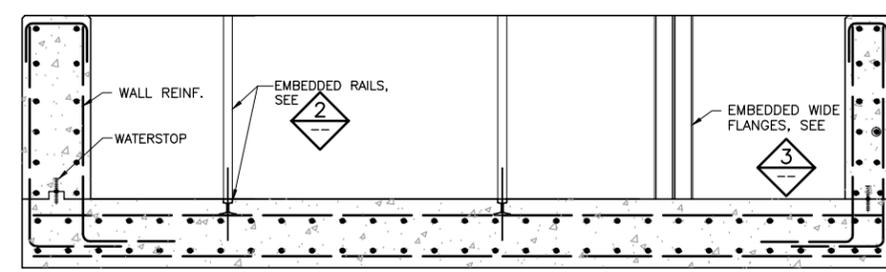
**4 PLAN: SEDIMENT TRAP**  
PSSW-007 NOT TO SCALE



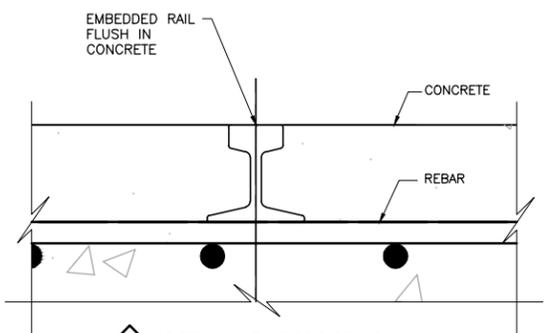
**5 SECTION: SEDIMENT TRAP**  
NOT TO SCALE



**3 DETAIL: EMBEDDED WIDE FLANGES**  
NOT TO SCALE



**6 SECTION: SEDIMENT TRAP**  
NOT TO SCALE



**2 DETAIL: EMBEDDED RAIL**  
NOT TO SCALE

PLANT DRAWING NUMBER:

**PLANT SITE STORMWATER SECTIONS AND DETAILS**



**POLY MET MINING, INC.**  
NORTHMET PROJECT  
HOYT LAKES, MINNESOTA



**BARR ENGINEERING COMPANY**  
4700 WEST 77TH STREET  
MINNEAPOLIS, MN.  
Ph: 1-800-632-2277

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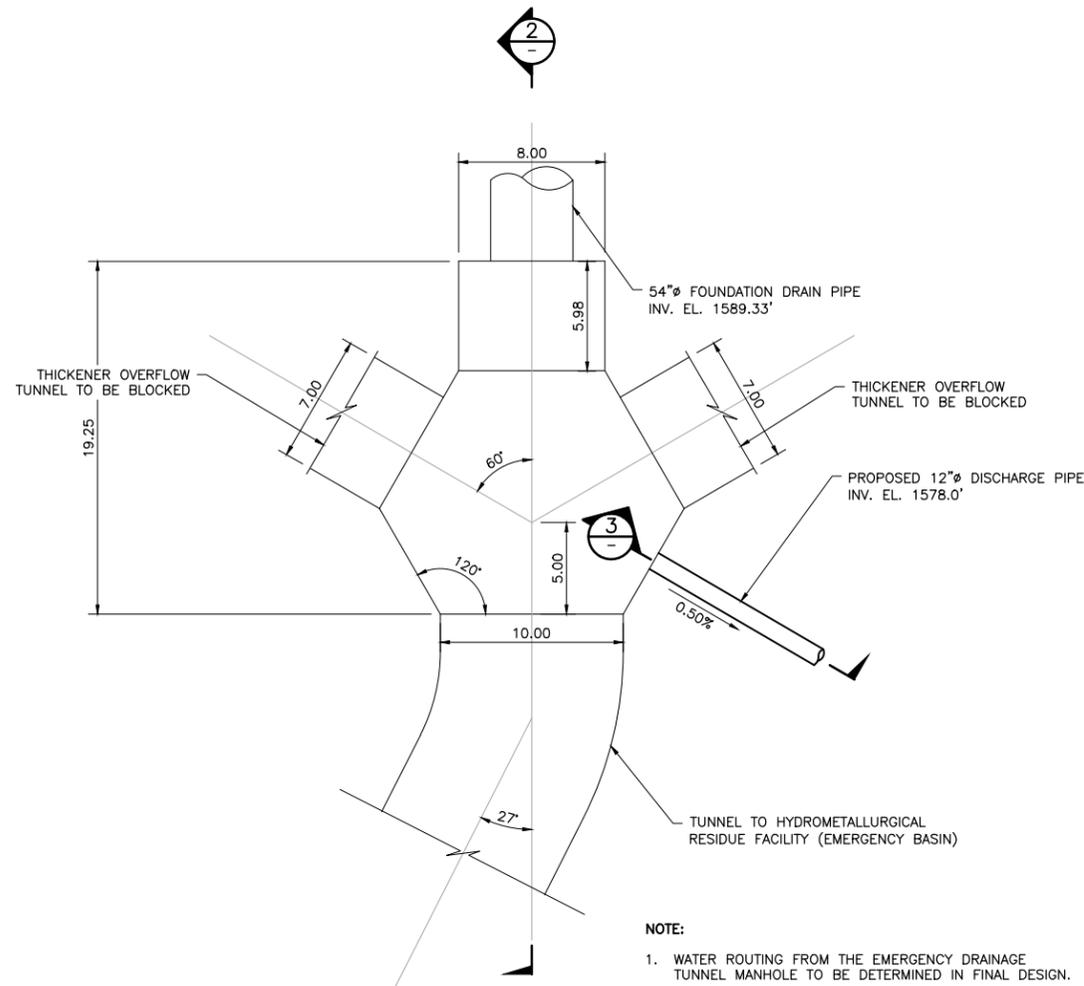
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SIGNATURE: *[Signature]*  
DATE: 5/15/15 LICENSE# 46593

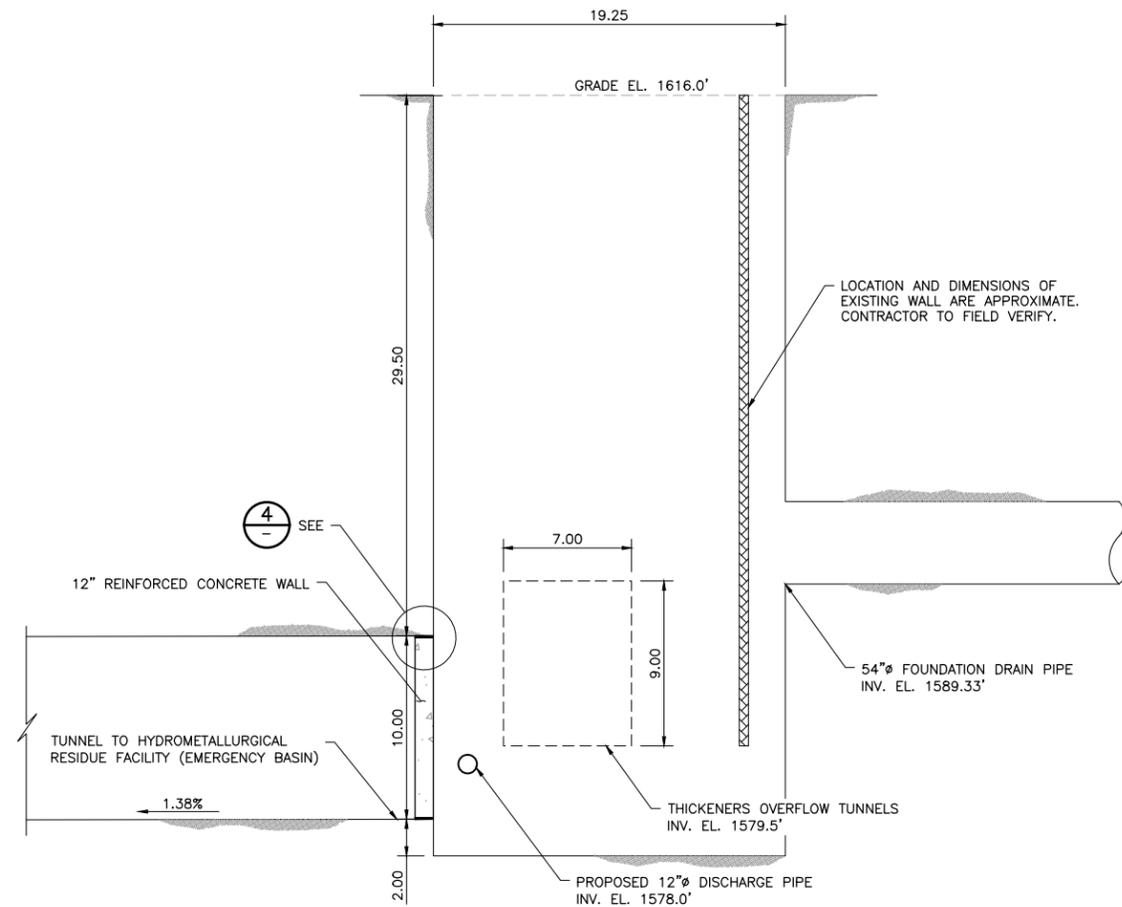
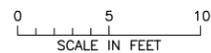
DRAWN: VJS  
CHECKED: CMK2  
BARR PROJECT NO.: 23/69-0C29  
SCALE: AS SHOWN

DWG. NO. **PSSW-032** REV

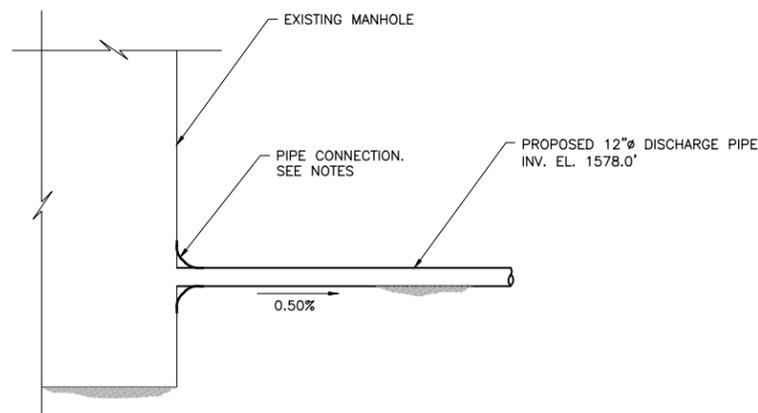
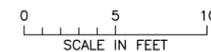
INCHES 1 2



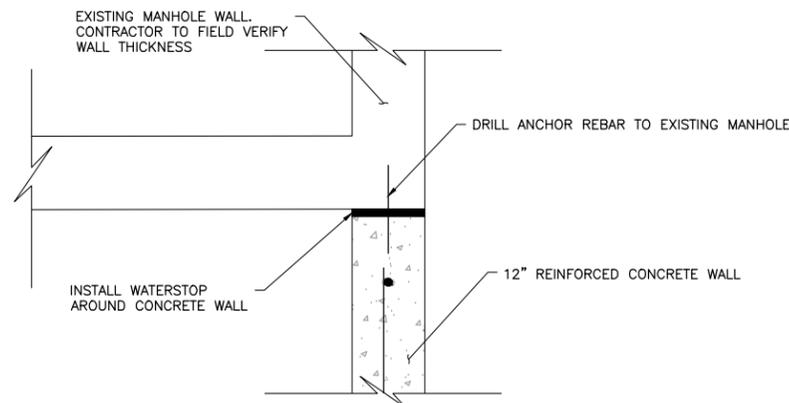
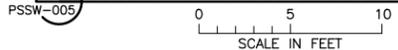
1 PLAN: EXISTING EMERGENCY DRAINAGE TUNNELS AND MANHOLE



2 SECTION: EXISTING EMERGENCY DRAINAGE TUNNELS AND MANHOLE



3 SECTION: PROPOSED PIPE CONNECTION



4 SECTION: ANCHOR AND WATER STOP DETAIL (TYP.)

NOT TO SCALE

NOTES:

- DIMENSIONS SHOWN ARE BASED ON DRAWINGS TB-651, TB-679 AND TJ-63, APPROVED ON 08/06/54. ACTUAL DIMENSIONS MAY VARY.
- CORE THROUGH EXISTING MANHOLE TO PROVIDE SPACE FOR PLACEMENT OF NEW PIPE.
- CONTRACTOR TO PLACE WATERTIGHT CONNECTION BOOT.
- BACKFILL SHALL BE PLACED WITH CARE OVER PIPE TO AVOID SETTLEMENT AND DISRUPTION TO THE CONNECTION WITH MANHOLE.

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PRINTED NAME: CRISTIAN A. DIAZ  
 SIGNATURE: [Signature]  
 DATE: 5/15/15 LICENSE# 46593

DRAWN: CMB2  
 CHECKED: CAD  
 BARR PROJECT NO.: 23/69-0C29  
 SCALE: AS SHOWN

PLANT DRAWING NUMBER:

**POLY MET MINING, INC.**  
 NORTHMET PROJECT  
 HOYT LAKES, MINNESOTA

**BARR** ENGINEERING COMPANY  
 4700 WEST 77TH STREET  
 MINNEAPOLIS, MN.  
 Ph: 1-800-632-2277

DWG. NO. **PSSW-033**

REV