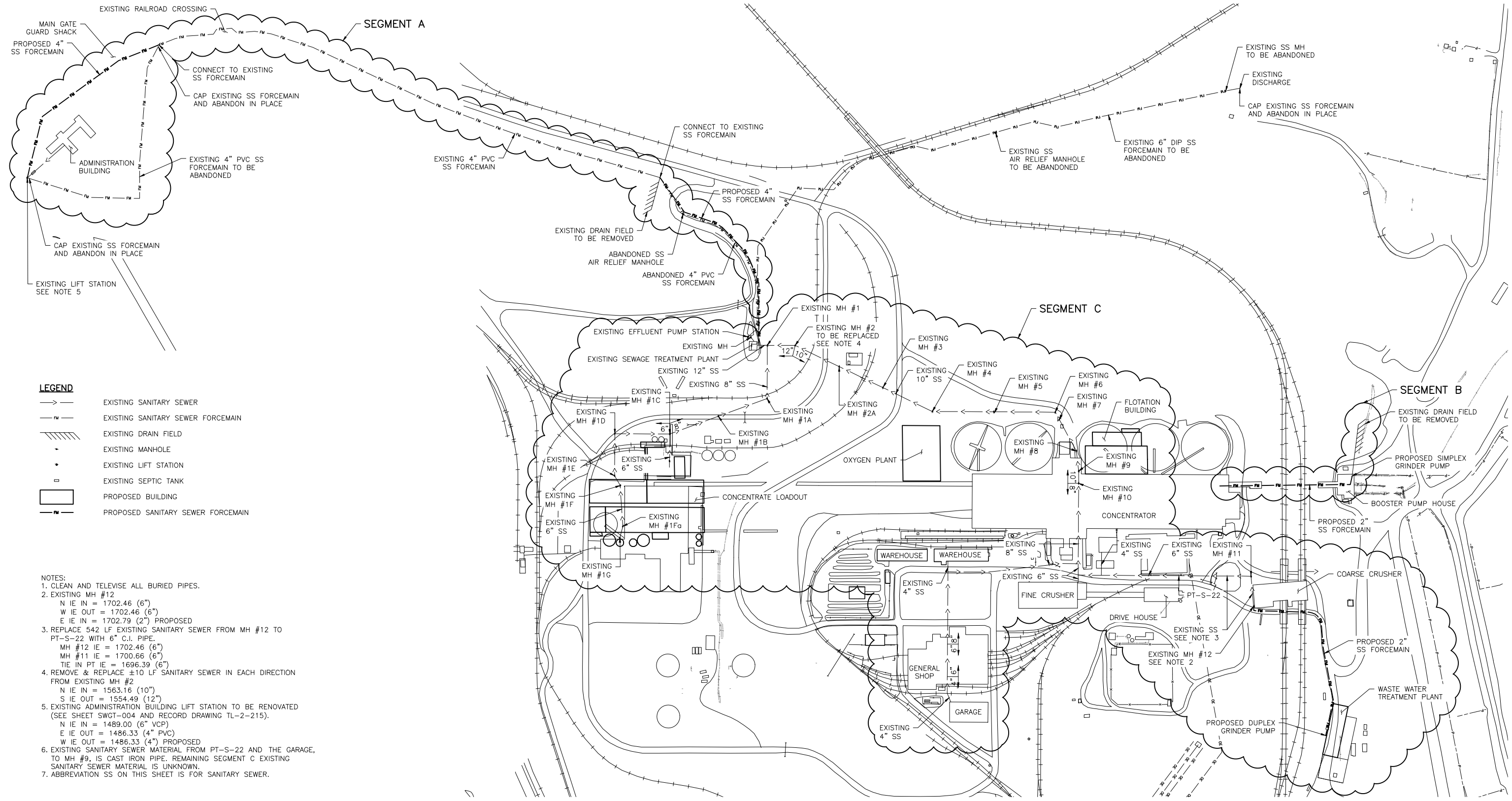


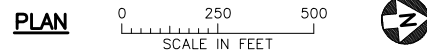
Appendix 9 Sewage Treatment System Permit Application Support Drawings

CADD USER: Veronica Sackett FILE: K:\DESIGN\NORTHMET\NMP-56-CU-001.DWG PLOT SCALE: 1:2 PLOT DATE: 11/12/2013 2:32 PM



- LEGEND**
- EXISTING SANITARY SEWER
 - EXISTING SANITARY SEWER FORCEMAIN
 - EXISTING DRAIN FIELD
 - EXISTING MANHOLE
 - EXISTING LIFT STATION
 - EXISTING SEPTIC TANK
 - PROPOSED BUILDING
 - PROPOSED SANITARY SEWER FORCEMAIN

- NOTES:**
1. CLEAN AND TELEVISION ALL BURIED PIPES.
 2. EXISTING MH #12
 N IE IN = 1702.46 (6")
 W IE OUT = 1702.46 (6")
 E IE IN = 1702.79 (2") PROPOSED
 3. REPLACE 542 LF EXISTING SANITARY SEWER FROM MH #12 TO PT-S-22 WITH 6" C.I. PIPE.
 MH #12 IE = 1702.46 (6")
 MH #11 IE = 1700.66 (6")
 TIE IN PT IE = 1696.39 (6")
 4. REMOVE & REPLACE ±10 LF SANITARY SEWER IN EACH DIRECTION FROM EXISTING MH #2
 N IE IN = 1563.16 (10")
 S IE OUT = 1554.49 (12")
 5. EXISTING ADMINISTRATION BUILDING LIFT STATION TO BE RENOVATED (SEE SHEET SWGT-004 AND RECORD DRAWING TL-2-215).
 N IE IN = 1489.00 (6" VCP)
 E IE OUT = 1486.33 (4" PVC)
 W IE OUT = 1486.33 (4") PROPOSED
 6. EXISTING SANITARY SEWER MATERIAL FROM PT-S-22 AND THE GARAGE, TO MH #9, IS CAST IRON PIPE. REMAINING SEGMENT C EXISTING SANITARY SEWER MATERIAL IS UNKNOWN.
 7. ABBREVIATION SS ON THIS SHEET IS FOR SANITARY SEWER.



For Definitive Estimate
Purposes Only
11/13/2013

PLANT DRAWING NUMBER:

**SEWAGE TREATMENT PLANT
OVERALL SITE PLAN**

**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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			ISSUED	VERSION	DATE
			FOR PERMITTING		
			FOR CONSTRUCTION		
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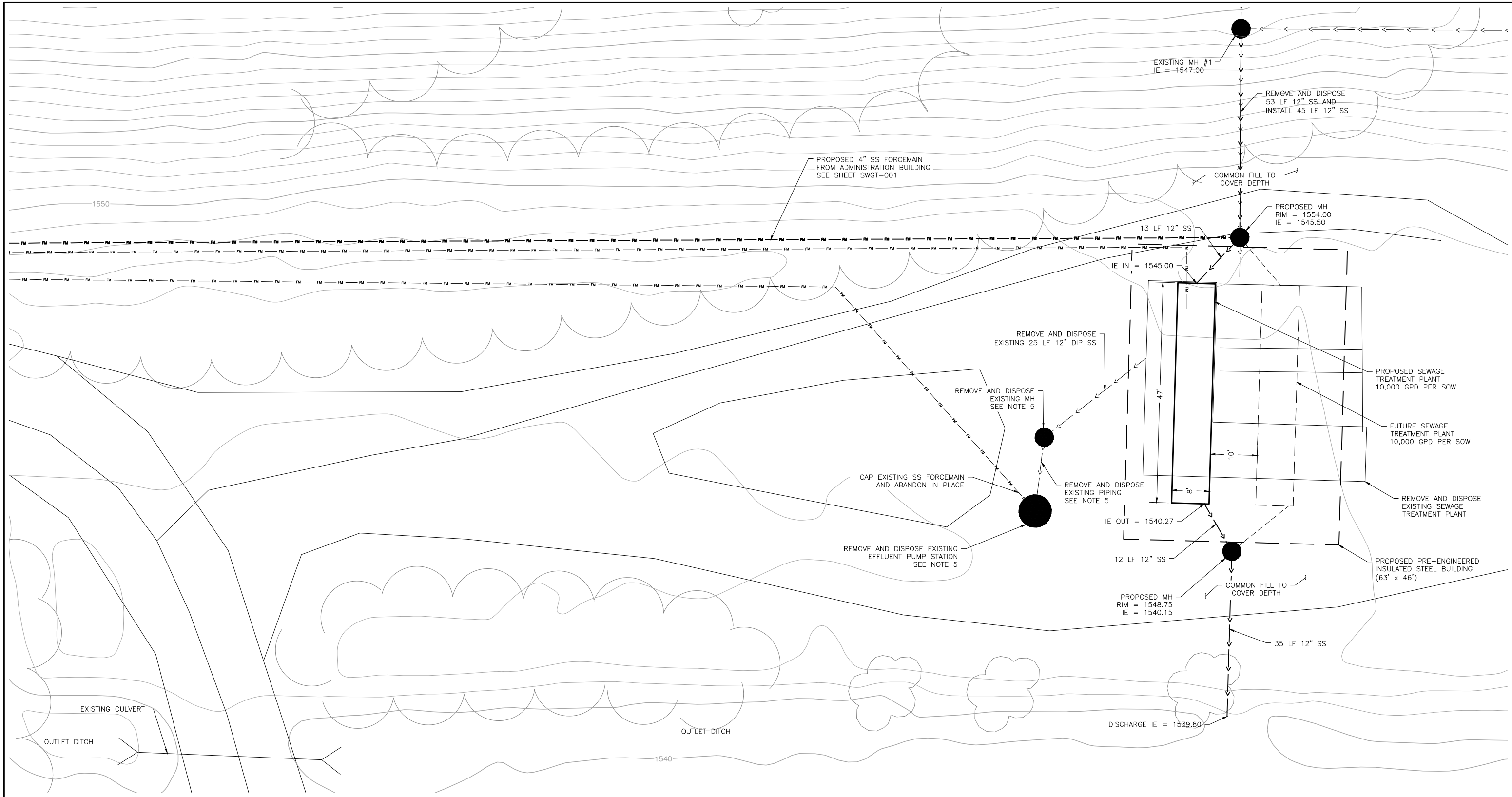
SIGNATURE _____
 PRINTED NAME _____
 DATE _____ REG. NO. _____

DRAWN: VJS
 CHECKED: JMM3
 BARR PROJECT NO.: 23/69-0C29
 SCALE: AS SHOWN

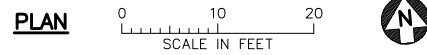
DWG. NO. **SWGT-001** REV

INCHES

CADD USER: Veronica Sackett FILE: K:\DESIGN\NORTHMET\NMP-56-CU-002.DWG PLOT SCALE: 1:2 PLOT DATE: 11/12/2013 2:34 PM



- NOTES:
- EXISTING SEWAGE TREATMENT PLANT CONSISTS OF CAST IN PLACE CONCRETE AND 8" CINDER BLOCK ABOVE GRADE BUILDING WITH CHLORINE CONTACT TANK, CHLORINE ROOM, OFFICE/PUMP ROOM, COMMUNOTOR, PRIMARY CLARIFIER, AERATOR CLARIFIER, AND DIGESTER (SEE RECORD DRAWINGS TL-2-006 TO TL-2-015).
 - EXISTING SEWAGE TREATMENT PLANT IS 44' x 47'.
 - EXISTING BUILDING FOUNDATION ELEVATION = 1535.35.
 - PROPOSED SEWAGE TREATMENT PLANT IS 8' x 47' UNIT.
 - SEE RECORD DRAWING TL-2-221 FOR DETAILS.
 - ABBREVIATION SS ON THIS SHEET IS FOR SANITARY SEWER.



**For Definitive Estimate
Purposes Only
11/13/2013**

PLANT DRAWING NUMBER:

**SEWAGE TREATMENT PLANT
MECHANICAL TREATMENT SITE PLAN**

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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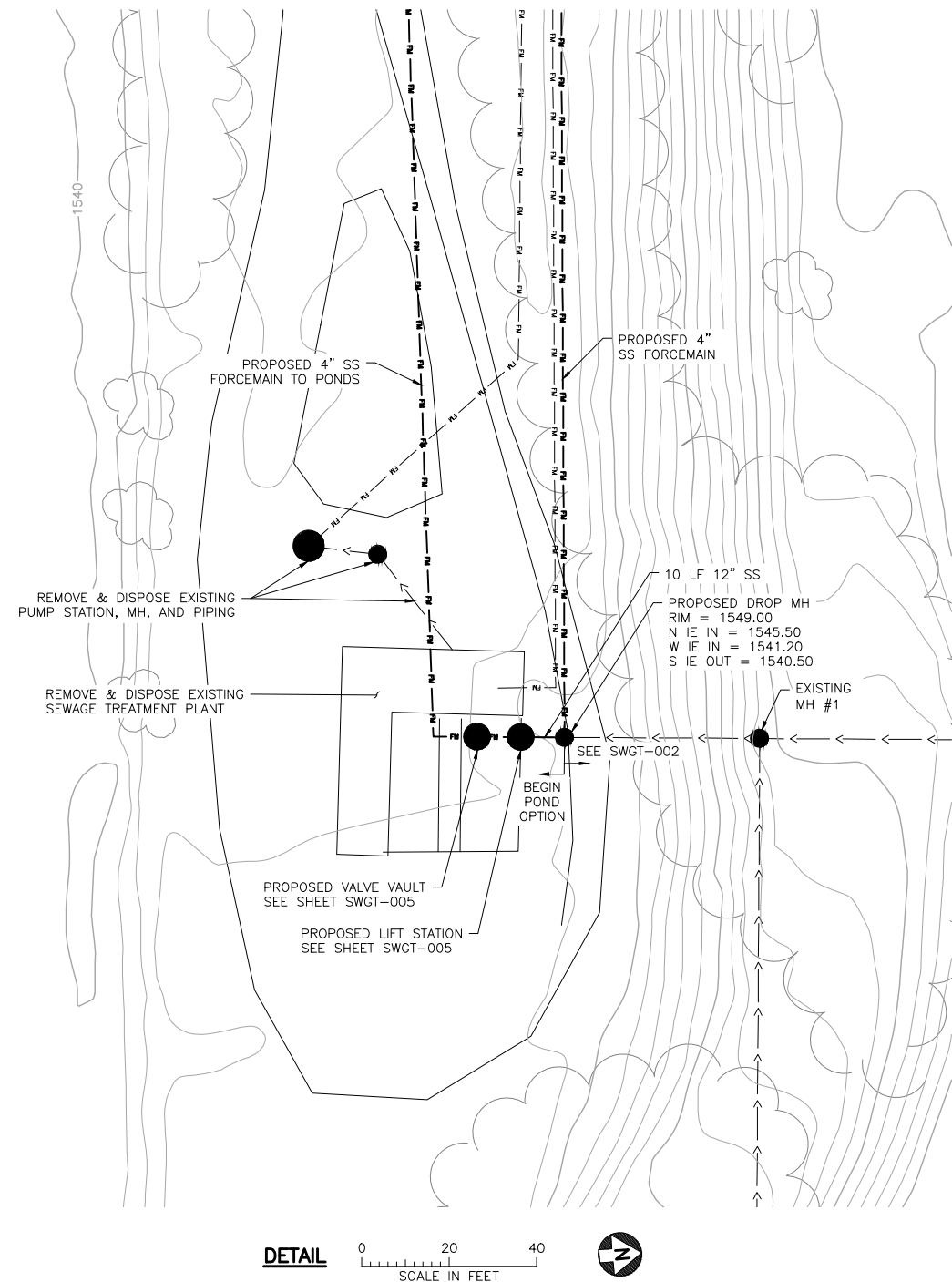
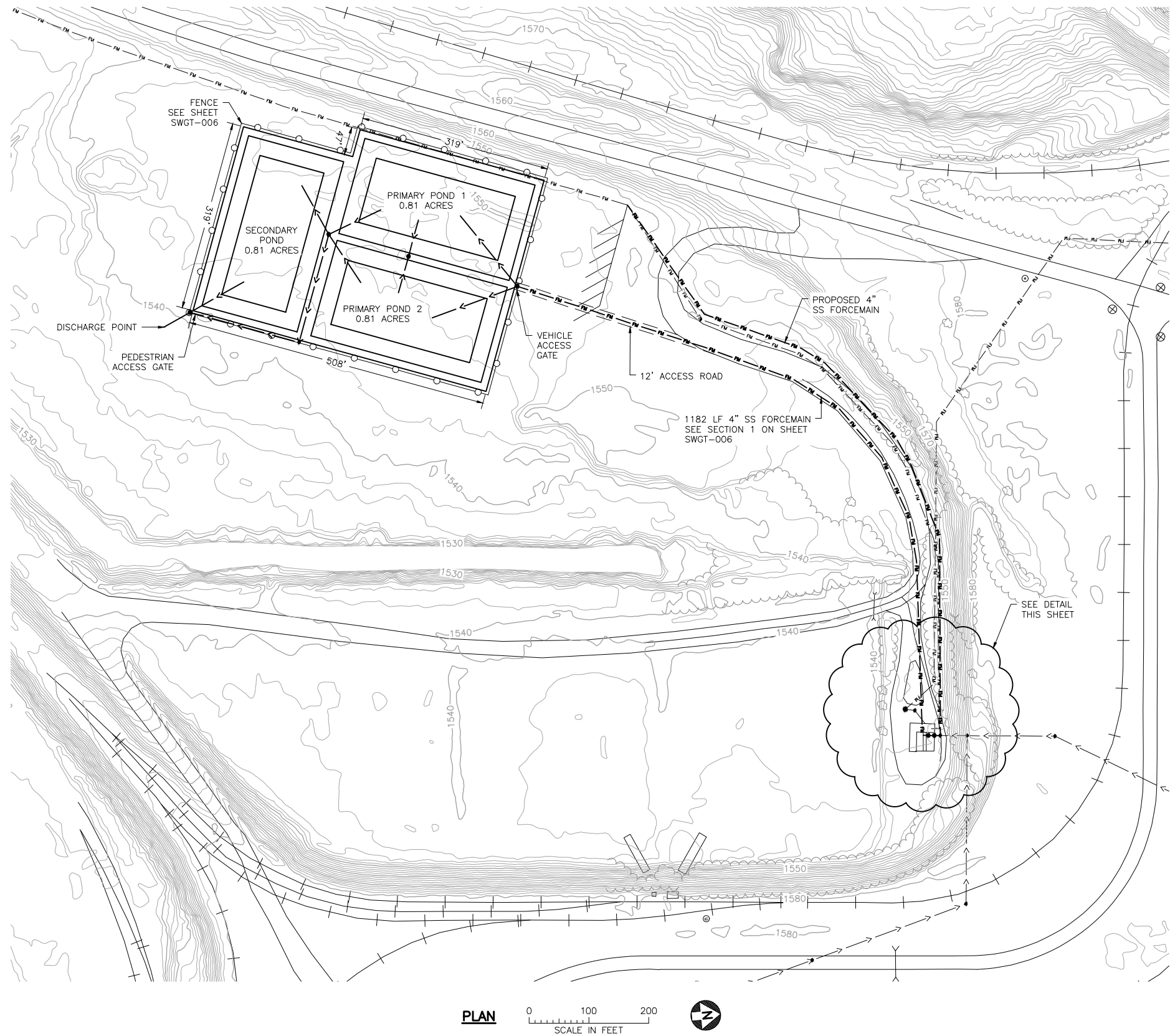
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CHECKED: JMM3
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. **SWGT-002** REV _____

INCHES

CADD USER: Veronica Sackett FILE: K:\DESIGN\NORTHMET\NMP-56-CU-003.DWG PLOT SCALE: 1:2 PLOT DATE: 11/12/2013 2:36 PM



- NOTES:
 1. STABILIZATION PONDS SHALL BE ENCLOSED WITH 4' HIGH WOVEN WIRE FENCE, SEE DETAIL 3 ON SHEET SWGT-006.
 2. ABBREVIATION SS ON THIS SHEET IS FOR SANITARY SEWER.

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 CHECKED: JMM3
 BARR PROJECT NO.: 23/69-0C29
 SCALE: AS SHOWN

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PLANT DRAWING NUMBER:
**SEWAGE TREATMENT PLANT
 STABILIZATION POND OPTION**

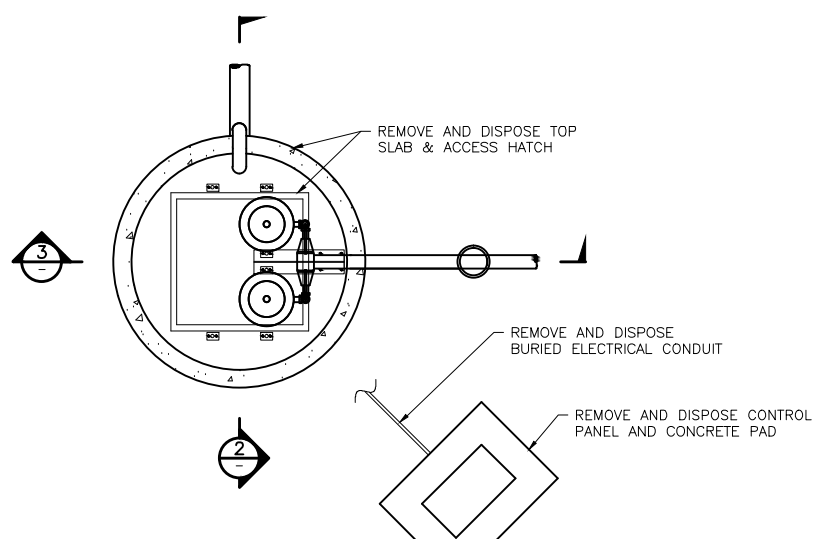
POLY MET MINING, INC.
 NORTHMET PROJECT
 HOYT LAKES, MINNESOTA

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

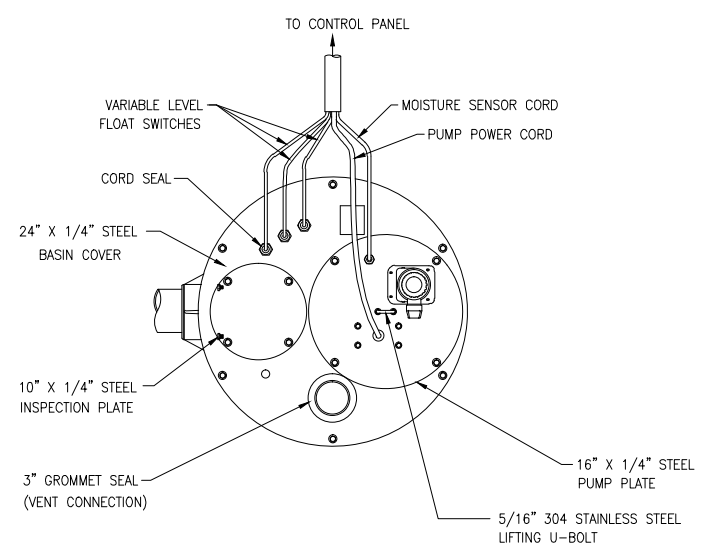
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INCHES

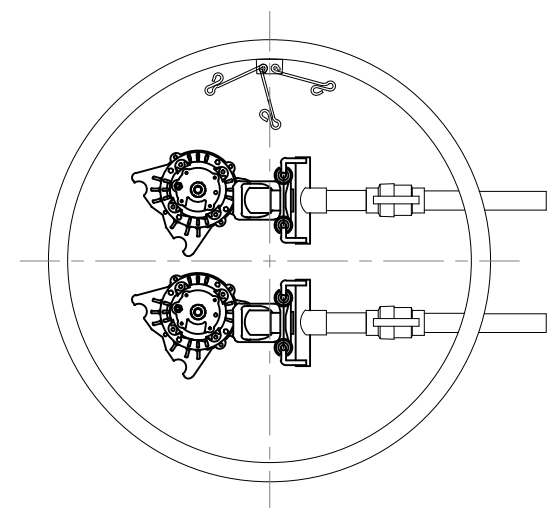
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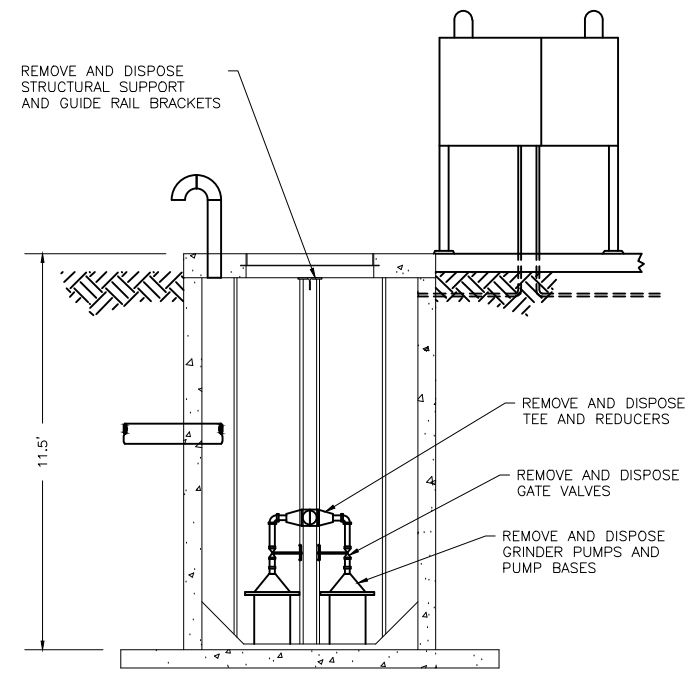
1 PLAN: LIFT STATION RENOVATION
3/8"=1'-0"



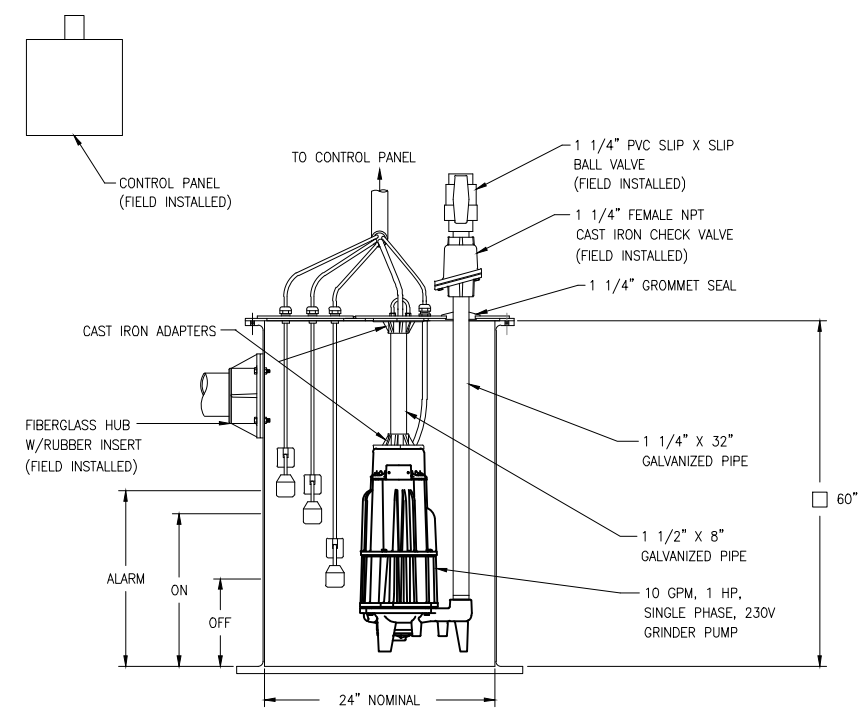
4 PLAN: SIMPLEX GRINDER STATION
N.T.S.



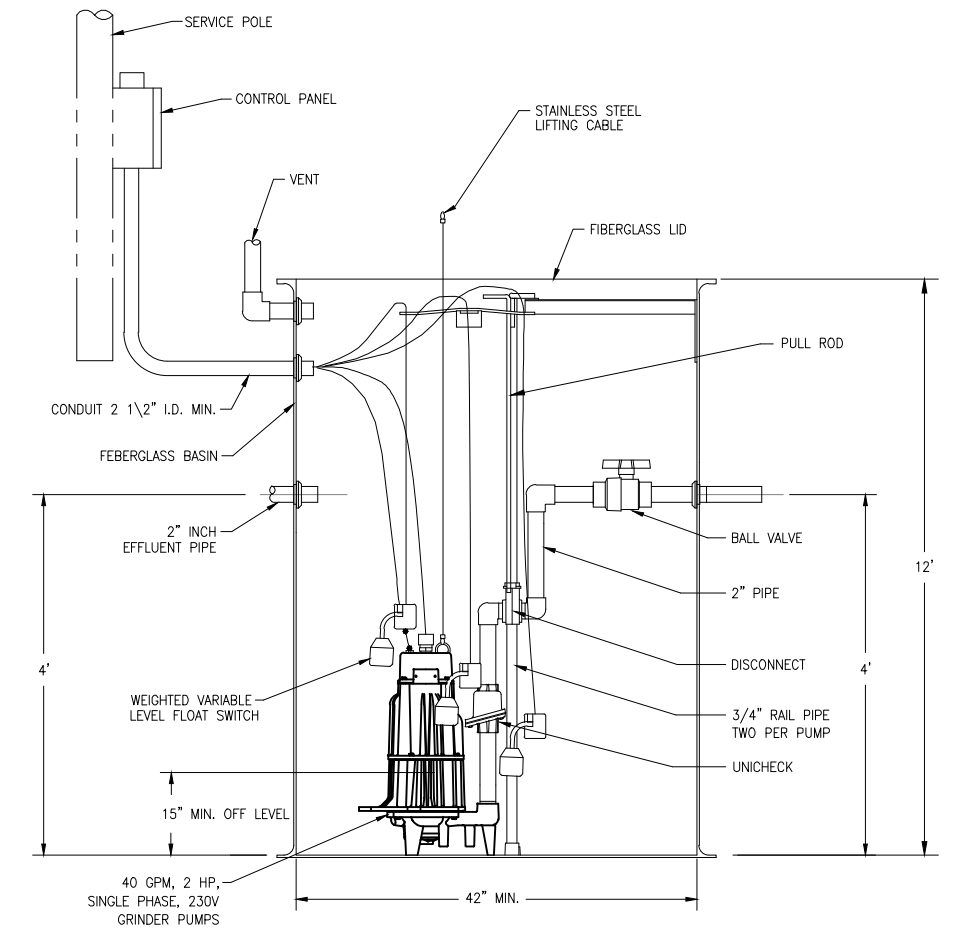
6 PLAN: DUPLEX GRINDER STATION
N.T.S.



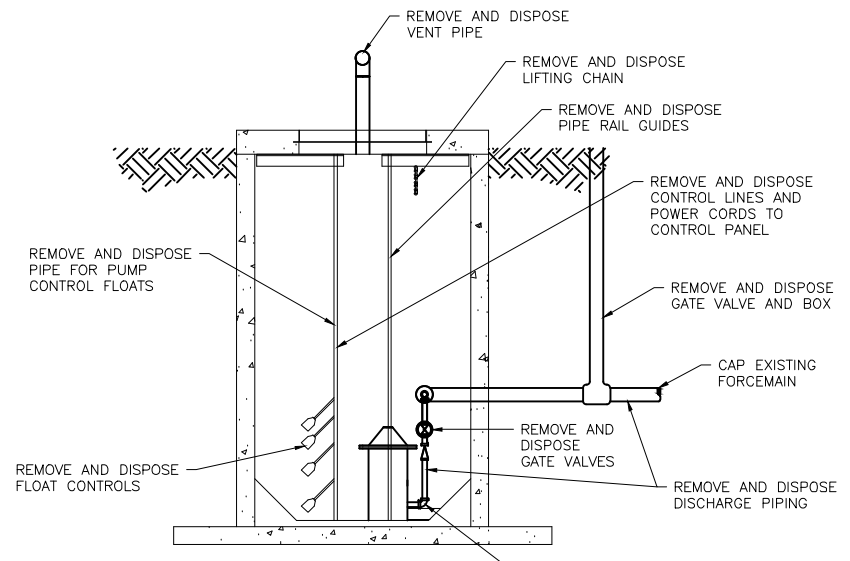
2 SECTION: LIFT STATION RENOVATION
3/8"=1'-0"



5 SECTION: SIMPLEX GRINDER STATION
N.T.S.



7 SECTION: DUPLEX GRINDER STATION
N.T.S.



3 SECTION: LIFT STATION RENOVATION
3/8"=1'-0"

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11/13/2013

PLANT DRAWING NUMBER:

**SEWAGE TREATMENT PLANT
LIFT STATION & GRINDER PUMP DETAILS**

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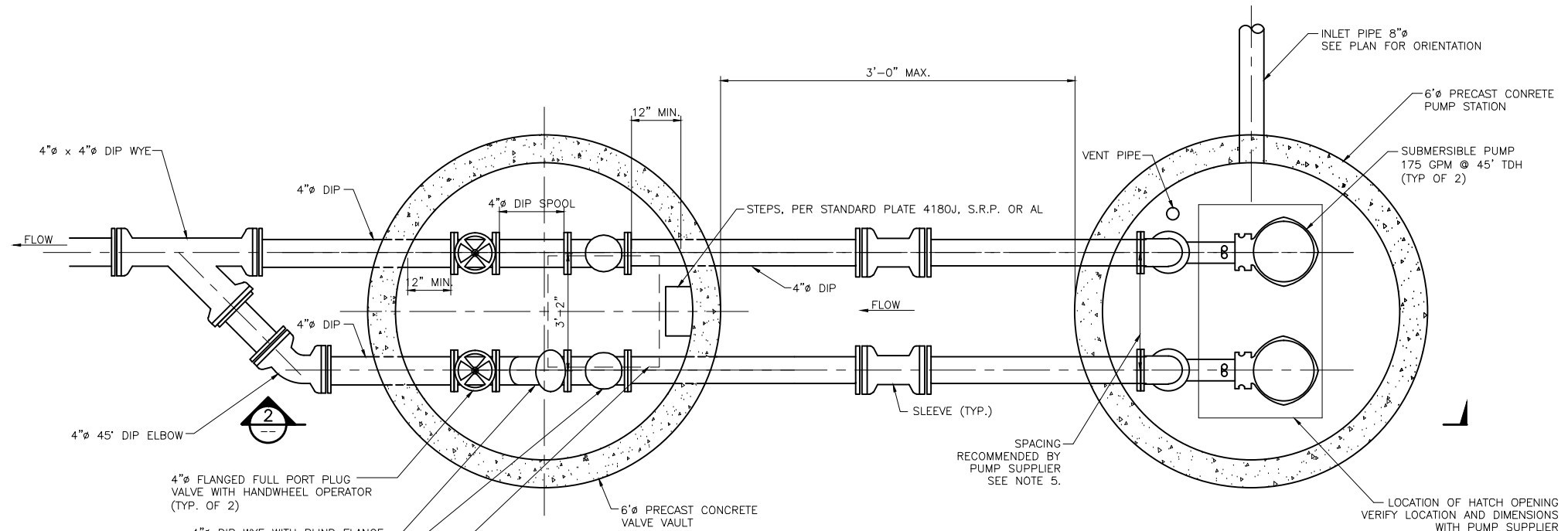
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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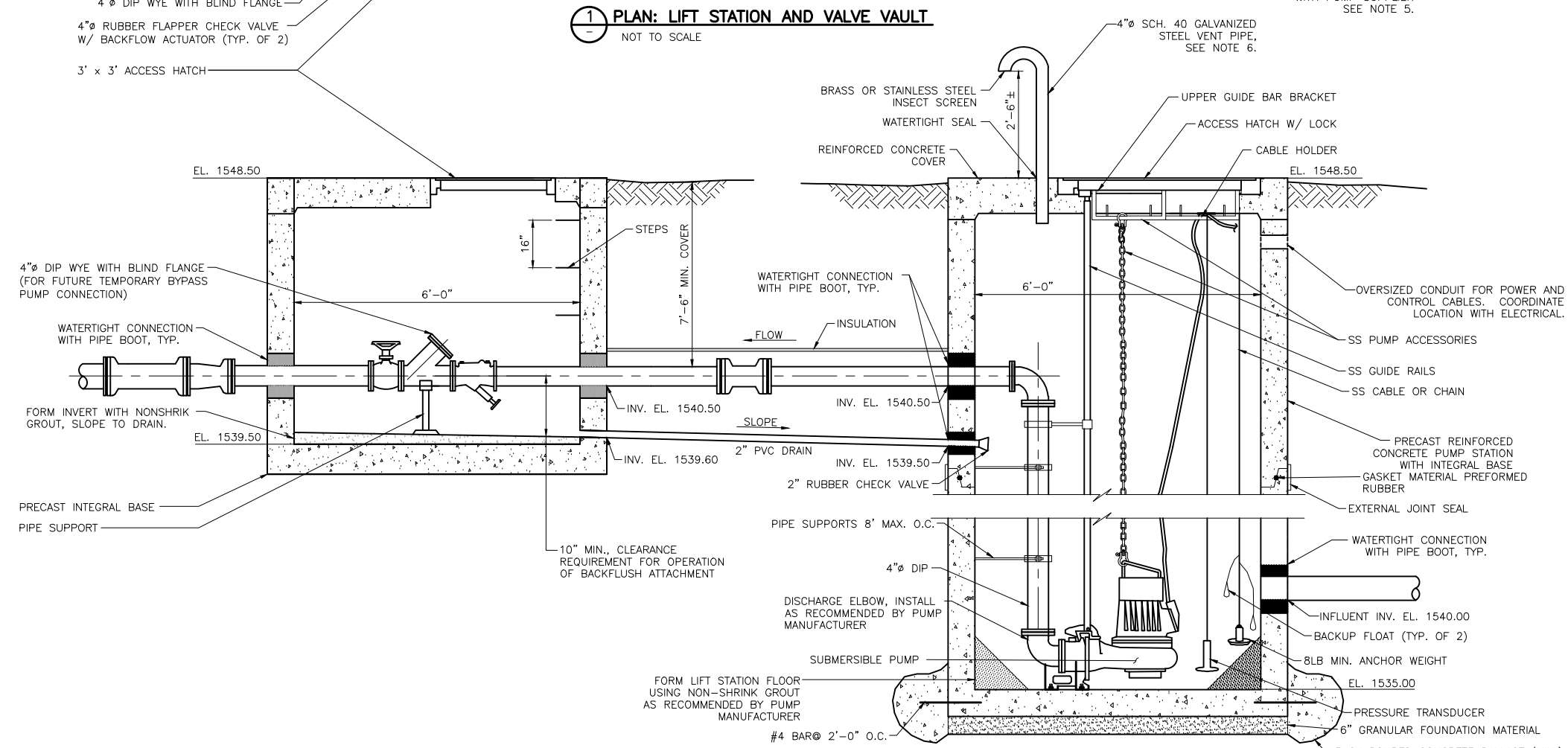
DRAWN: VJS
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BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. **SWG-004** REV

INCHES
2
1



1 PLAN: LIFT STATION AND VALVE VAULT
NOT TO SCALE



2 SECTION: LIFT STATION AND VALVE VAULT
NOT TO SCALE

- NOTES:**
- USE SS BOLTS FOR ALL FLANGED JOINTS IN VALVE VAULT (ABBREVIATION SS ON THIS SHEET IS FOR STAINLESS STEEL).
 - VALVE VAULT STRUCTURE SHOWN IS STANDARD PRECAST DESIGN WITH INTEGRAL BASE.
 - ALL BURIED DIP TO BE RESTRAINED (MECHANICAL) JOINT.
 - DIP IN LIFT STATION AND VALVE VAULT TO BE FLANGED.
 - VERIFY ALL DIMENSIONS WITH PUMP SUPPLIER.
 - INSTALL VENT TO ALLOW ACCESS HATCH TO OPEN TO LOCKED POSITION.
 - ALL BRACKETS FOR GUIDE RAILS AND LEVEL SENSING MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
 - INSTALL METAL SAFETY GRATING WITH LIFT STATION HATCH.
 - CONTRACTOR MAY USE COMPACT FITTINGS AS REQUIRED TO ACHIEVE REQUIRED PUMP SPACING.
 - SET LOW WATER BACK-UP FLOAT 6" BELOW "PUMP OFF" LEVEL AND HIGH WATER BACK-UP FLOAT 3" ABOVE "HIGH WATER ALARM".
 - INSTALL PRESSURE TRANSDUCER LEVEL SENSOR ON SIDE OF LIFT STATION OPPOSITE INLET PIPE FROM EXISTING WET WELL. CONTRACTOR TO INSTALL TRANSDUCER AND BACK-UP FLOATS IN EXISTING SUCTION PIPE TROUGH. GROUT AREA TO DRAIN.
 - COAT INTERIOR OF LIFT STATION PER SPECIFICATIONS.

PLANT DRAWING NUMBER:

**SEWAGE TREATMENT PLANT
LIFT STATION DETAILS
STABILIZATION POND OPTION**

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

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

DRAWN: VJS
CHECKED: JMM3
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

DWG. NO. **SWG-005** REV

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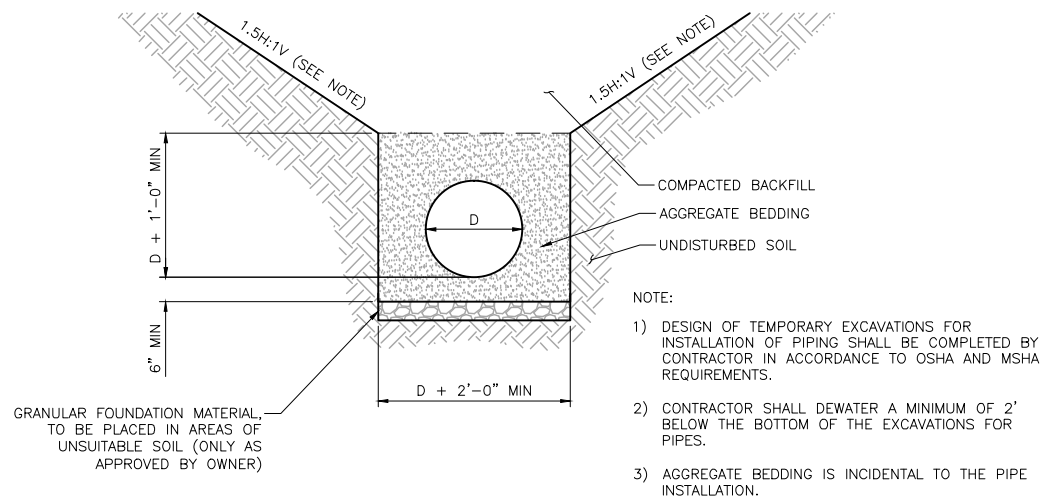
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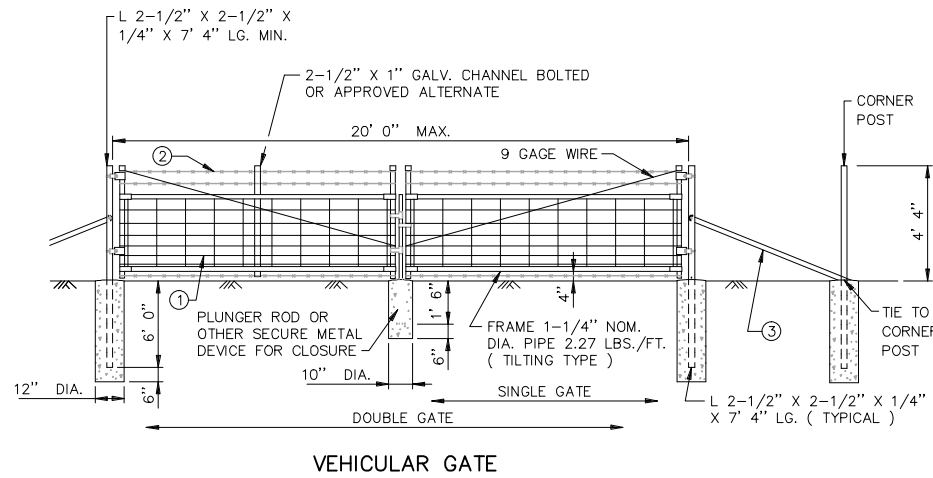
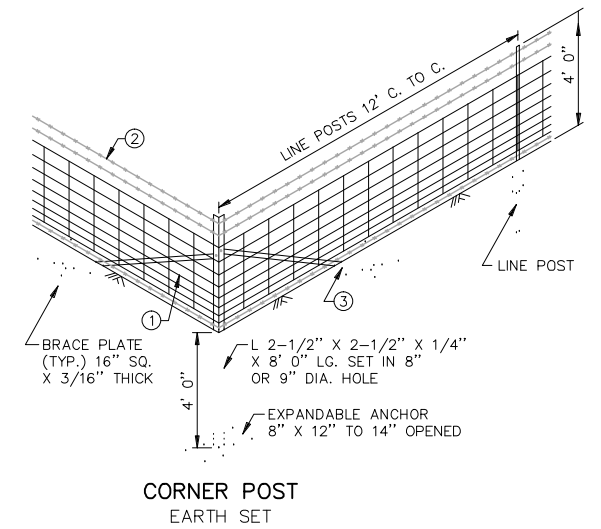
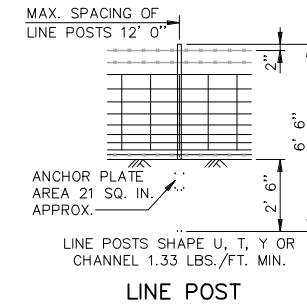
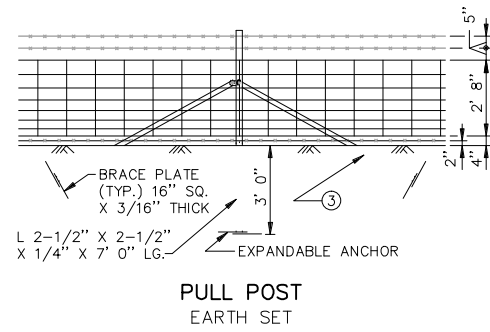
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CADD USER: Veronica Sackett FILE: K:\DESIGN\NORTHMET\NMP-56-CU-006.DWG PLOT SCALE: 1:2 PLOT DATE: 11/12/2013 2:40 PM

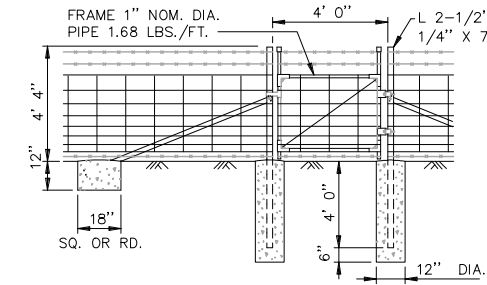


1 SECTION: TYPICAL SECTION PIPE BEDDING
N.T.S.

- NOTE:
- 1) DESIGN OF TEMPORARY EXCAVATIONS FOR INSTALLATION OF PIPING SHALL BE COMPLETED BY CONTRACTOR IN ACCORDANCE TO OSHA AND MSHA REQUIREMENTS.
 - 2) CONTRACTOR SHALL DEWATER A MINIMUM OF 2' BELOW THE BOTTOM OF THE EXCAVATIONS FOR PIPES.
 - 3) AGGREGATE BEDDING IS INCIDENTAL TO THE PIPE INSTALLATION.



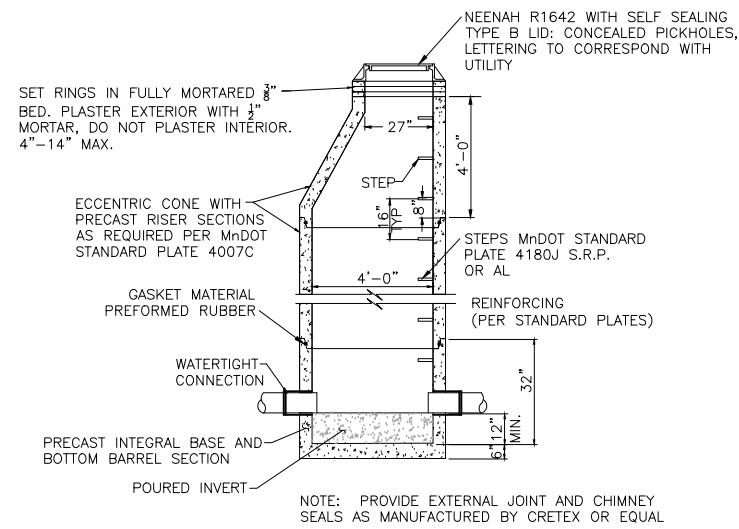
VEHICULAR GATE



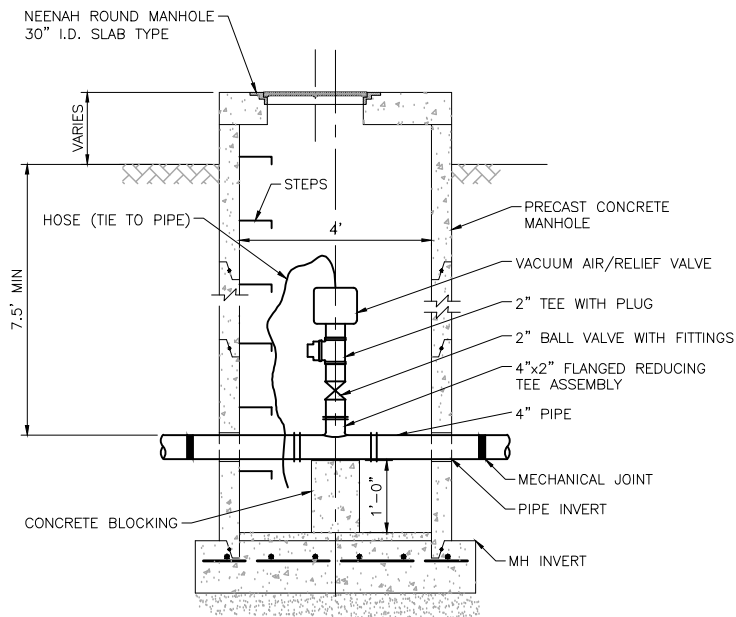
PEDESTRIAN GATE

3 DETAIL: WOVEN WIRE FENCE W/ STEEL POST
N.T.S.

- NOTES:
- 1) WOVEN WIRE FENCE DESIGN 832-6-11, FOR ZINC OR ALUMINUM COATED WIRE SEE SPEC. 3376.2B. TOP AND BOTTOM WIRE SHALL BE CLAMPED TO EVERY POST. CLAMP EVERY OTHER WIRE ALTERNATING ON SUCCESSIVE POSTS.
 - 2) BARBED WIRE, ZINC COATED OR ALUMINUM COATED. TWO LINES ON TOP AND ONE AT THE BOTTOM. CLAMP AT EVERY POST.
 - 3) L 2" x 2" x 1/4" x 7' 0" LG. BRACE (TYPICAL).
 - 4) ACCESS GATES SHALL BE PROVIDED WITH LOCKS.



2 DETAIL: SANITARY MANHOLE
N.T.S.



4 DETAIL: AIR RELIEF MANHOLE
NO SCALE

For Definitive Estimate
Purposes Only
11/13/2013

PLANT DRAWING NUMBER:

**SEWAGE TREATMENT PLANT
MISCELLANEOUS DETAILS**

	POLY MET MINING, INC. NORTHMET PROJECT HOYT LAKES, MINNESOTA
	BARR ENGINEERING COMPANY 4700 WEST 77TH STREET MINNEAPOLIS, MN. Ph: 1-800-632-2277
DRAWN: VJS	CHECKED: JMM3
BARR PROJECT NO.: 23/69-0C29	SCALE: AS SHOWN
DWG. NO. SWGT-006	REV

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