VOLUNTARY REMEDIATION WORK PLAN

FOR

TRENCH CAMP MINE PROPERTY

(January Mine, Norton Mine and Trench Camp Mine Claims, in Harshaw Mining District)

Flux Canyon Road and Harshaw Road
South of Patagonia
Santa Cruz County, Arizona

Volume 2 of 2

ADEQ VRP SITE CODE #505143-02

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October 19, 2016
CPE Job No. 346.VRPWP

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Volume 2

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RPTS Design Documents

JANUARY MINE WATER PASSIVE TREATMENT SYSTEM

GENERAL NOTES

1. ALL CONSTRUCTION AND TEST METHODS SHALL BE IN CONFORMANCE WITH _____ , EXCEPT AS MODIFIED, SHOWN AND ACCEPTED BY DETAIL WITHIN THESE PLANS.

2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS.

3. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED BY GOVERNMENTAL AGENCIES.

4. ALL REVISIONS TO THESE PLANS MUST BE APPROVED BY _____ PRIOR TO CONSTRUCTION.

5. OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES, AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEEDING WITH THE WORK.

6. IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION AND ARE BEYOND THE SCOPE OF THE DESIGN, THE ENGINEER SHALL SUBMIT THE NECESSARY REVISED OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND APPROVAL BY _____.

7. THE CONTRACTOR IS NOT PERMITTED TO MAKE AUTONOMOUS DECISIONS TO CARRY OUT CONSTRUCTION FIELD CHANGES WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD AND _____ .

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR, OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.

9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAUL AND APPLY ALL WATER REQUIRED FOR COMPACTION AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST THEREOF IS TO BE INCLUDED IN THE GRADING CONSTRUCTION PRICE.

10. GRADING BOUNDARIES SHALL BE CLEARLY MARKED, AND ALL WORK WILL BE CONFINED TO APPROVED PROJECT LIMITS AS SHOWN ON THESE PLANS.

11. ANY PROPOSED ENGINEERING WORK TO BE DONE BELOW GRADE (I.E. _____, ETC.) SHALL NOT BE BACK FILLED UNTIL THE INSPECTOR INSPECTS AND APPROVES IT.

EARTHWORK QUANTITIES

SITE
CUT: 50,214 CY
FILL: 3656 CY

BENCHMARK

BASIS OF ELEVATION: _____
ELEVATION = _____ NAVD 88.

BASIS OF BEARINGS

BASIS OF BEARING IS THE _____.
BEING N __°__'__" E.

LEGAL DESCRIPTION

_____
_____

ABBREVIATIONS

MIW	MINE INFLUENCED WATER
BCR	BIOCHEMICAL REACTOR
APW	AEROBIC POLISHING WETLAND
MRB	MANGANESE REMOVAL BED
PTS	PASSIVE TREATMENT SYSTEM
PFD	PROCESS FLOW DIAGRAM
FM	FORCE MAIN

OWNER/DEVELOPER

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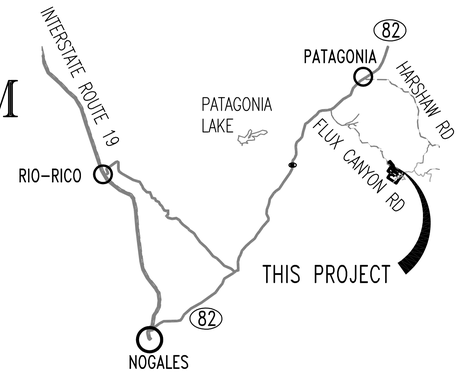
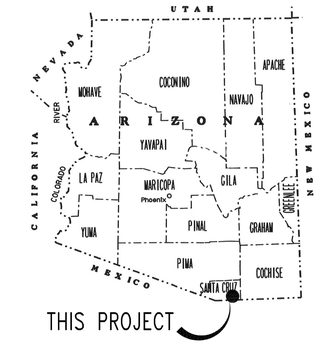


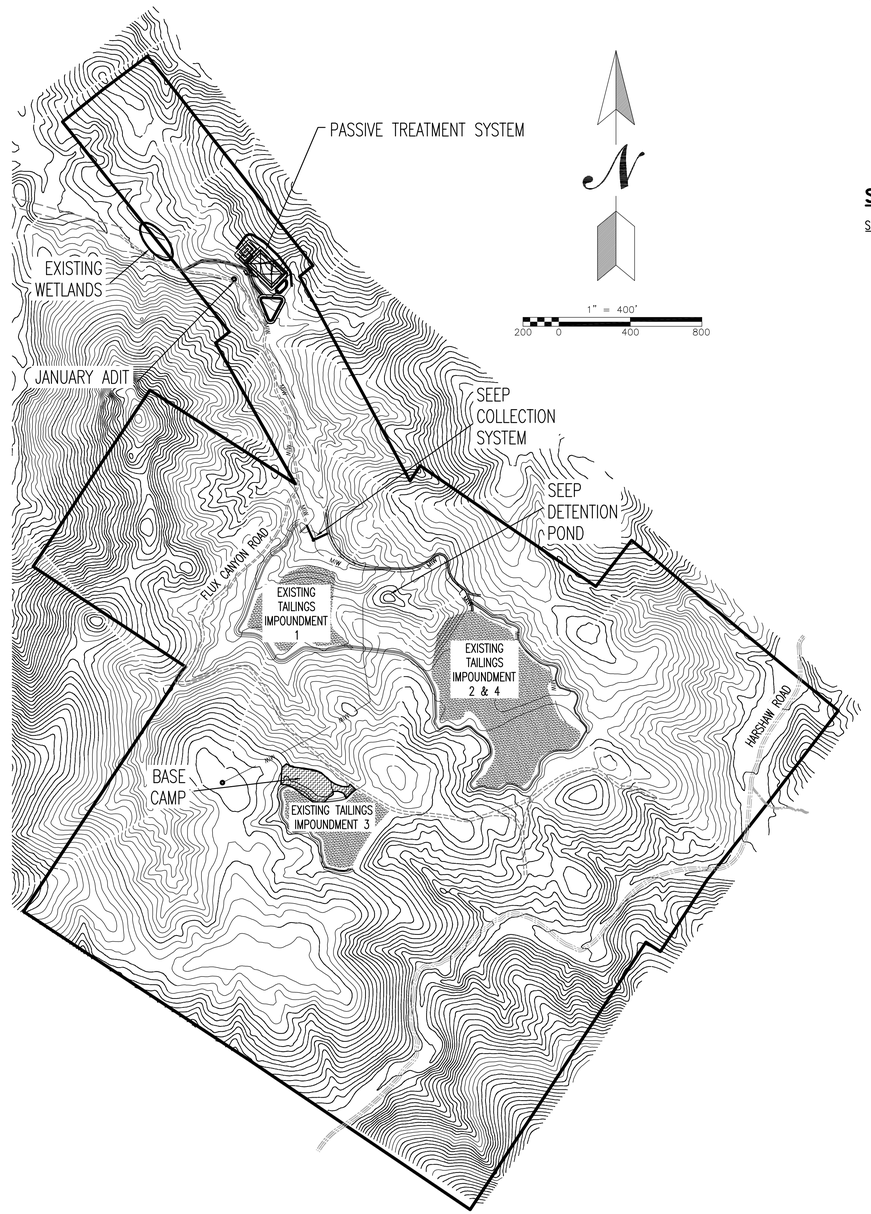
LOCATION MAP

NTS



VICINITY MAP

NTS



KEY MAP

SCALE: 1"= 400'

SHEET INDEX

SHT #	DESCRIPTION	SHEET
1	COVER SHEET	G 0.01
2	PROJECT OVERVIEW	G 1.01
3	PROCESS FLOW DIAGRAM (PFD)	G 6.01
4	UTILITY PLAN	C 1.01
5	PROCESS PIPING OVERVIEW	C 2.01
6	PTS PROCESS PIPING PLAN	C 2.02
7	WATER WELL AND PUMP DETAILS	C 2.03
8	SEEP DETENTION POND, FRENCH DRAIN AND SEEP PUMP STATION DETAILS	C 2.04
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LEGEND

PROPOSED		EXISTING
★	BENCH MARK	
	PROPERTY LINE	
	UNPAVED ROAD	
5000	INDEX CONTOUR	2700
	INTERMEDIATE CONTOUR	
	FENCE	x x
	POWER/UTILITY POLE	PP
	OVERHEAD POWER LINE	OHE OHE
UGE UGE	UNDERGROUND ELECTRIC	
MIW MIW	MINE INFLUENCED WATER – 3" HDPE	MIW MIW
W W	PROCESS PIPING – 4" HDPE	
SP SP	SEEP WATER GRAVITY MAIN – 2" HDPE	
FM	SEEP WATER FORCE MAIN – 3" HDPE	
	OUT FALL WATER – 12" PVC	
SP	FRENCH DRAIN – 2–8" HDPE	
	FLOW METER	
○	CONCRETE VAULT	
	DRAINAGE PIPE CULVERT	
1.00%	GRADE	
	LOW POINT	
	HIGH POINT	
	WATER FLOW DIRECTION	
	FLOW DIRECTION ARROW	
5003.5	SPOT ELEVATION	(5000.2)
1:1	SLOPE AND DIRECTION ARROW	
C C	GRADING LIMIT – DAYLIGHT LINE (CUT AREA)	
F F	GRADING LIMIT – DAYLIGHT LINE (FILL AREA)	
BBE = 5010.00	BASIN BOTTOM ELEVATION	
1/20	DETAIL NUMBER	
	SHEET NUMBER	

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PRELIMINARY NOT FOR CONSTRUCTION
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CERTIFICATE NO. 75606
Raul Francisco G. Piña
ARIZONA, U.S.A.
Expires 12/31/2015

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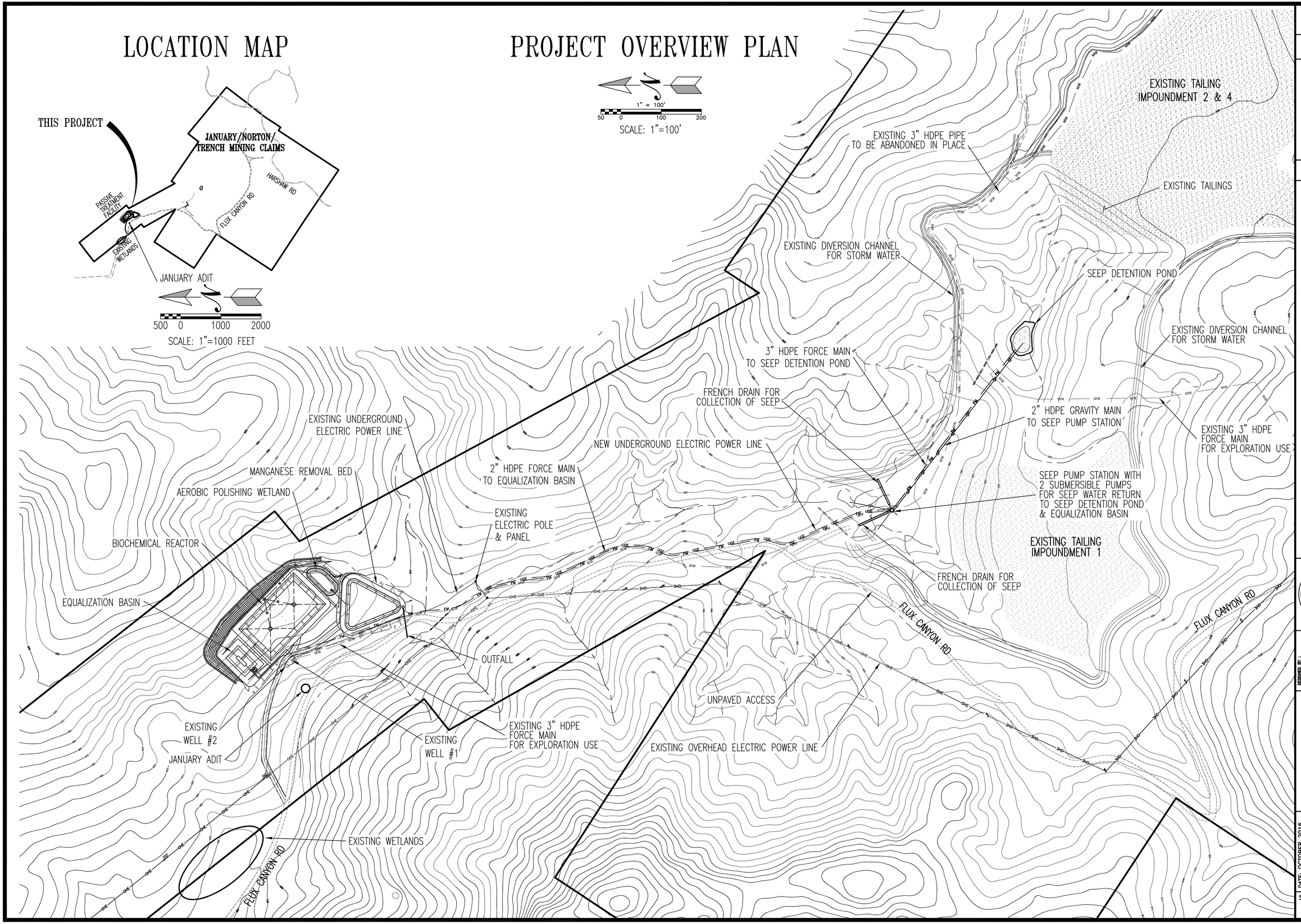
LOCATION MAP

PROJECT OVERVIEW PLAN



NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
PROJECT OVERVIEW

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
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DATE: OCTOBER 2016
SCALE: HORIZ. : 1" = 100' VERT. : N/A
JOB NO: 346
FILE NAME:

SHEET : G 1.01
2 OF 25

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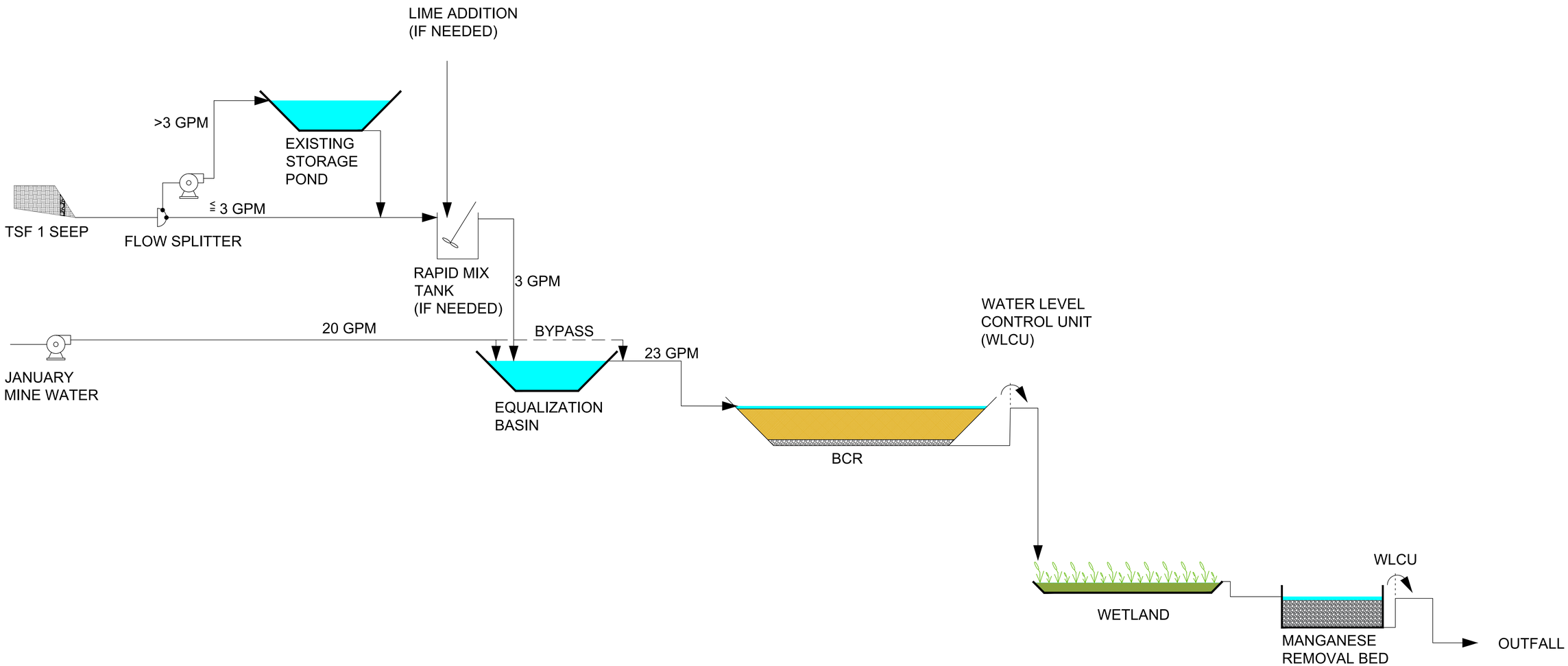

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

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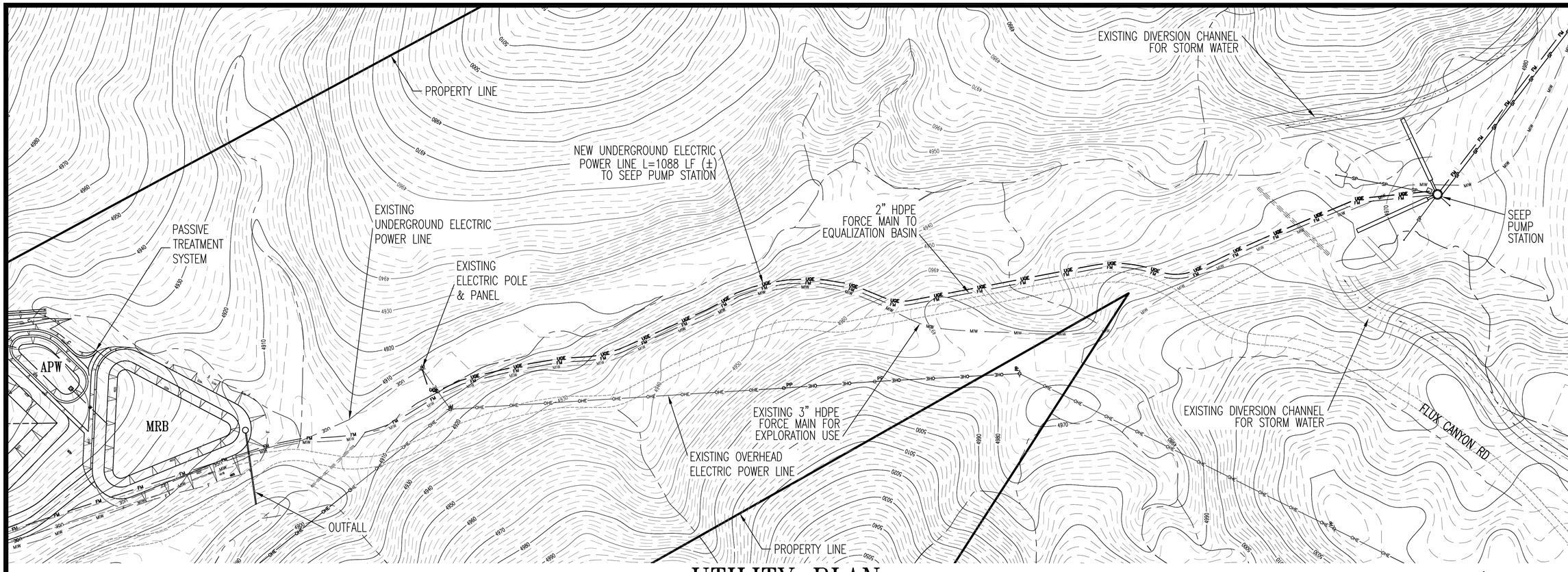
PROJECT: JANUARY MINE - PTS

TITLE: PROCESS FLOW DIAGRAM

PROJECT NUMBER: DV020

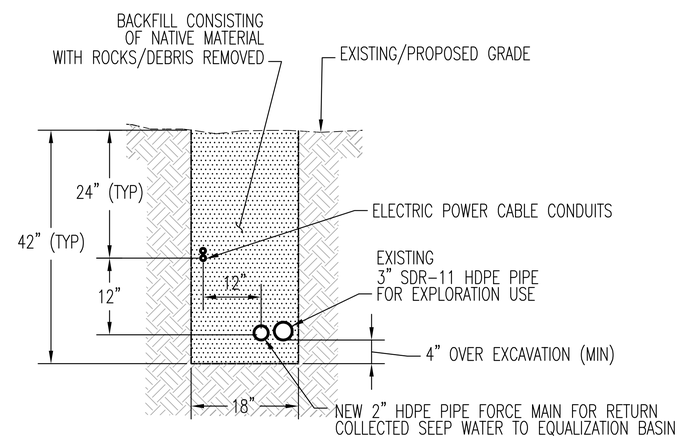
REVISION: A

DRAWING NUMBER: G 6.01



UTILITY PLAN

1" = 50'
25 0 50 100
SCALE: 1"=50'



TYPICAL PRESSURE PIPES & ELECTRIC POWER CABLES EMPLACED IN UTILITY TRENCH DETAIL
SCALE: 1"=1'

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JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
UTILITY PLAN
SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

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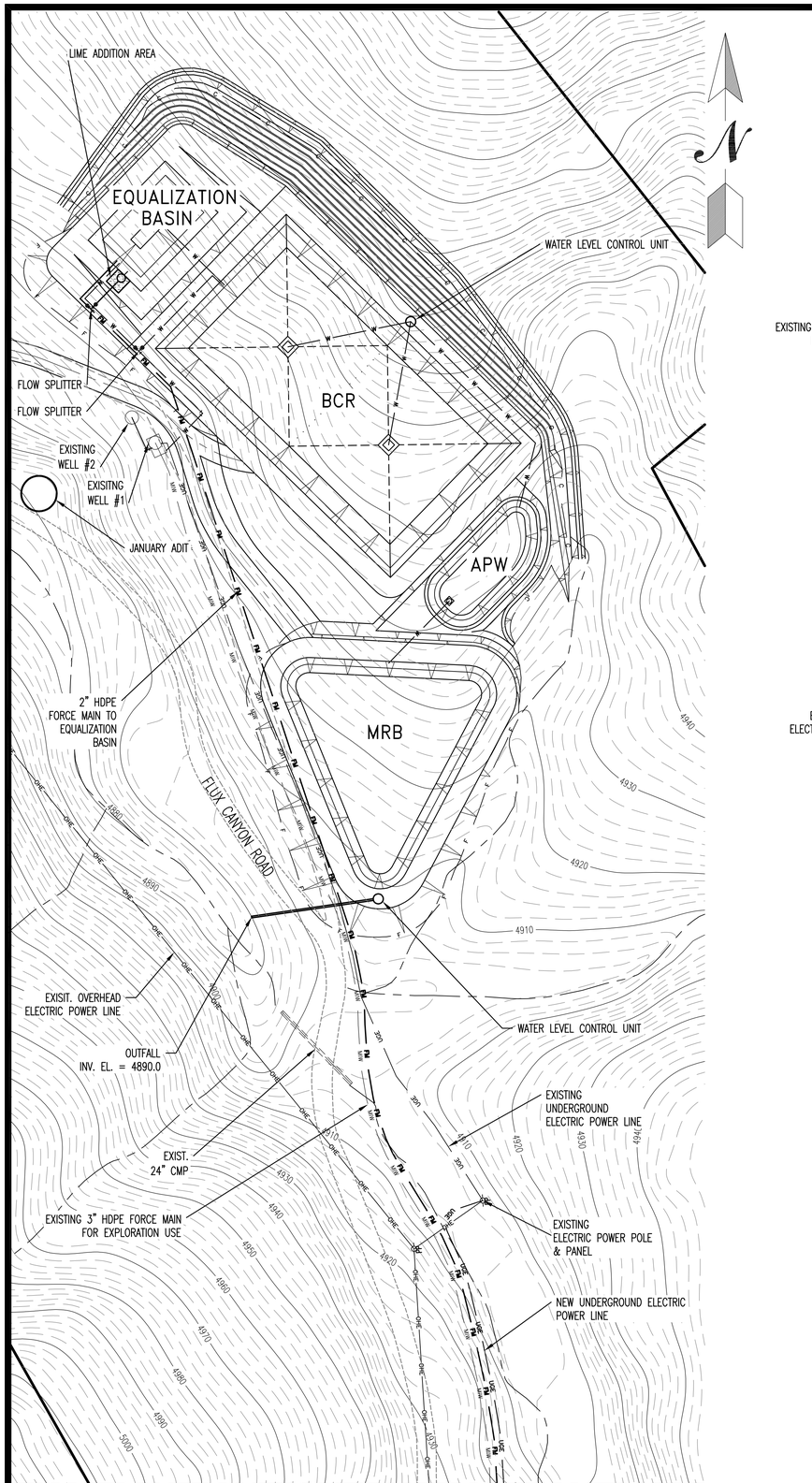

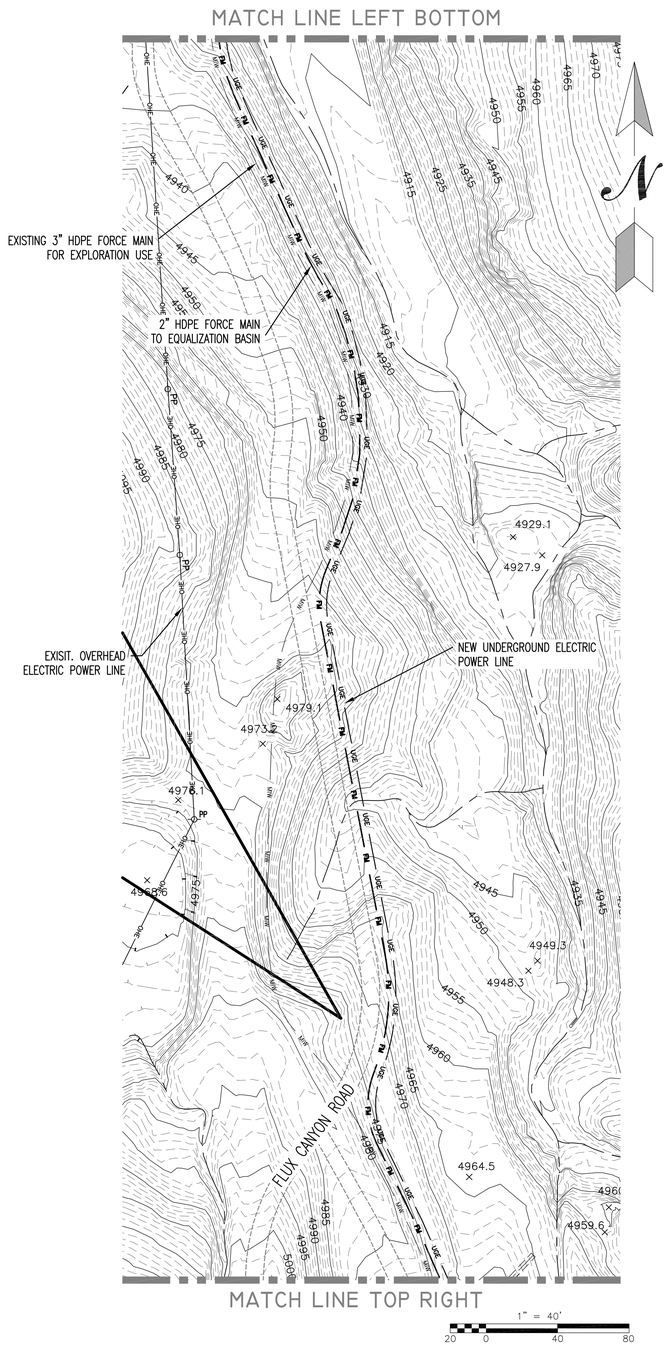

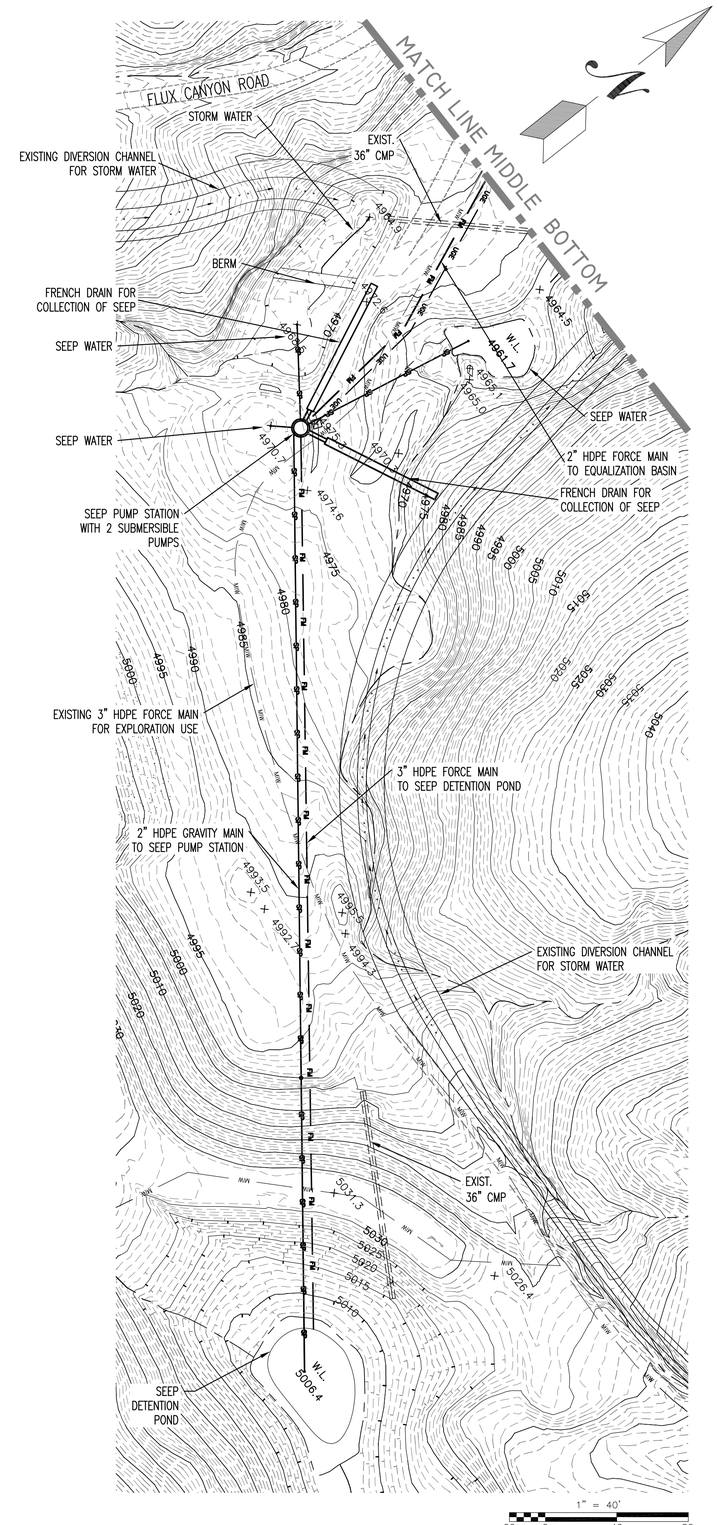

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JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
PROCESS PIPING OVERVIEW PLAN

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

REGISTERED PROFESSIONAL ENGINEER (CIVIL) — CERTIFICATE NO. 32 — ARIZONA — Expires 12/31/16

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SCALE — HORIZ. : 1" = 40' VERT. : N/A
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5 OF 25

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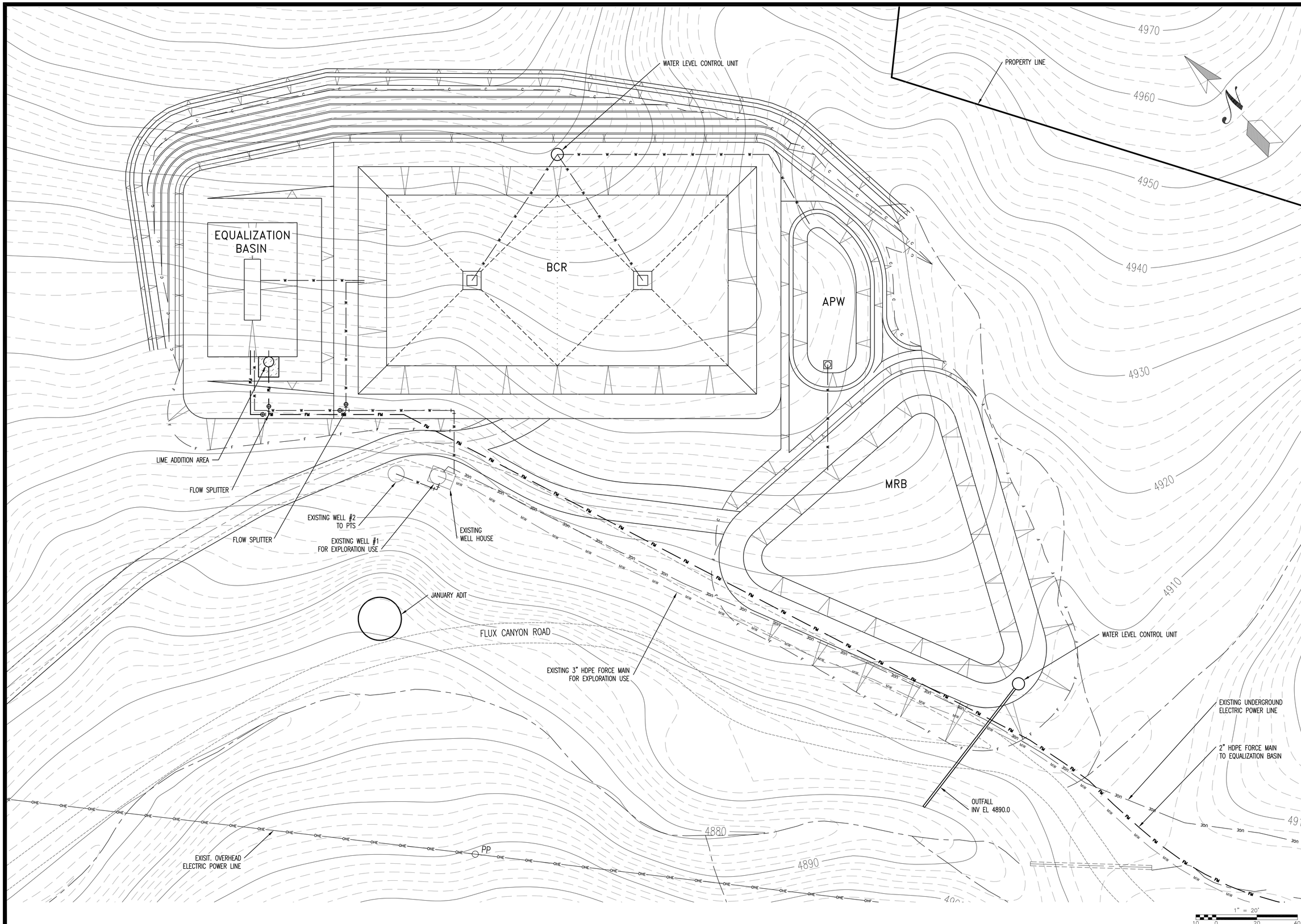

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
PASSIVE TREATMENT PROCESS PIPING PLAN

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

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VERT. : N/A
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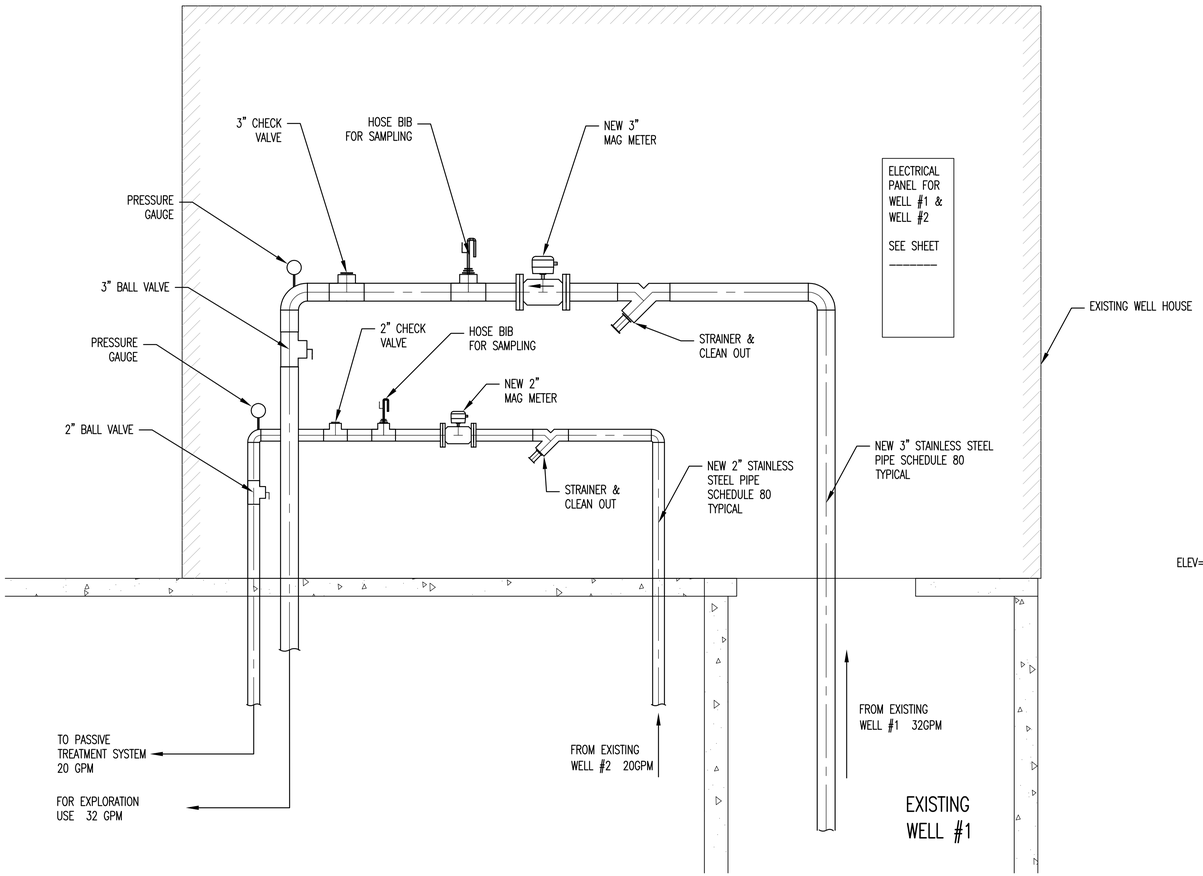
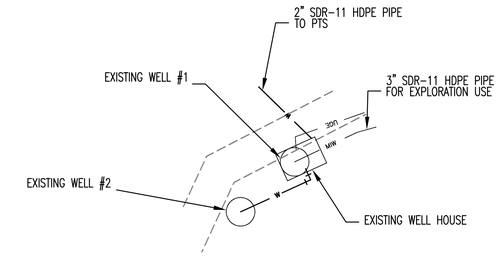
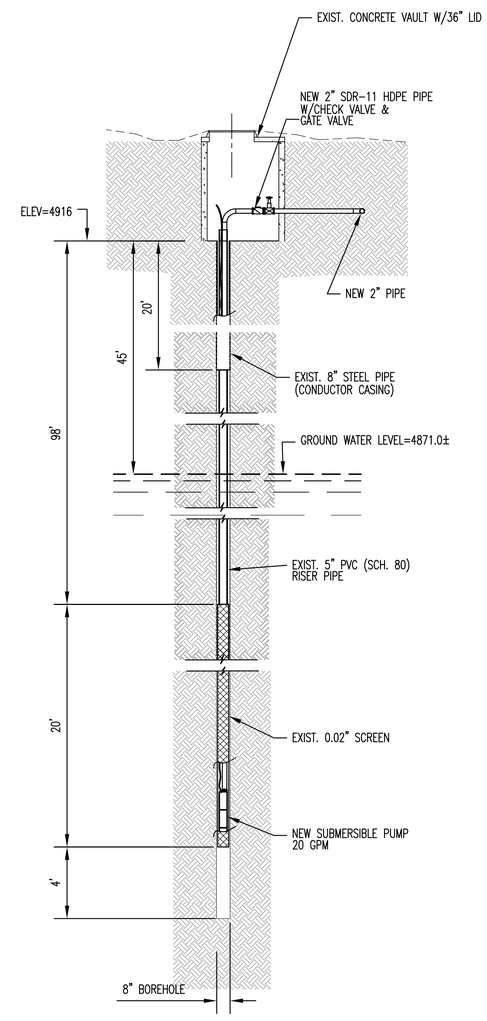


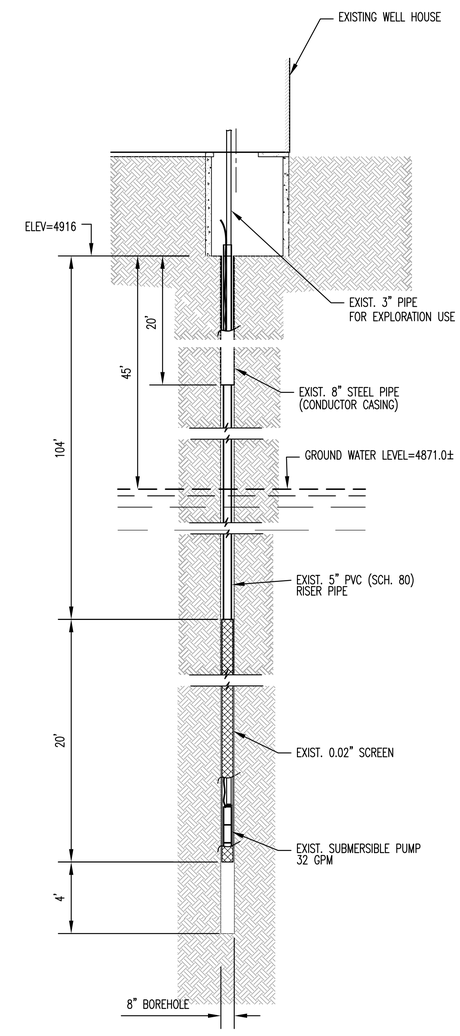
EXISTING WELL HOUSE
SCALE: NTS



WELL PLAN
SCALE: 1"=20'



NEW WATER WELL #2 SECTION FOR ADIT
SCALE: 1"=4'



EXISTING WATER WELL #1 SECTION FOR ADIT
SCALE: 1"=4'

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JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
WATER WELL AND PUMP DETAILS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

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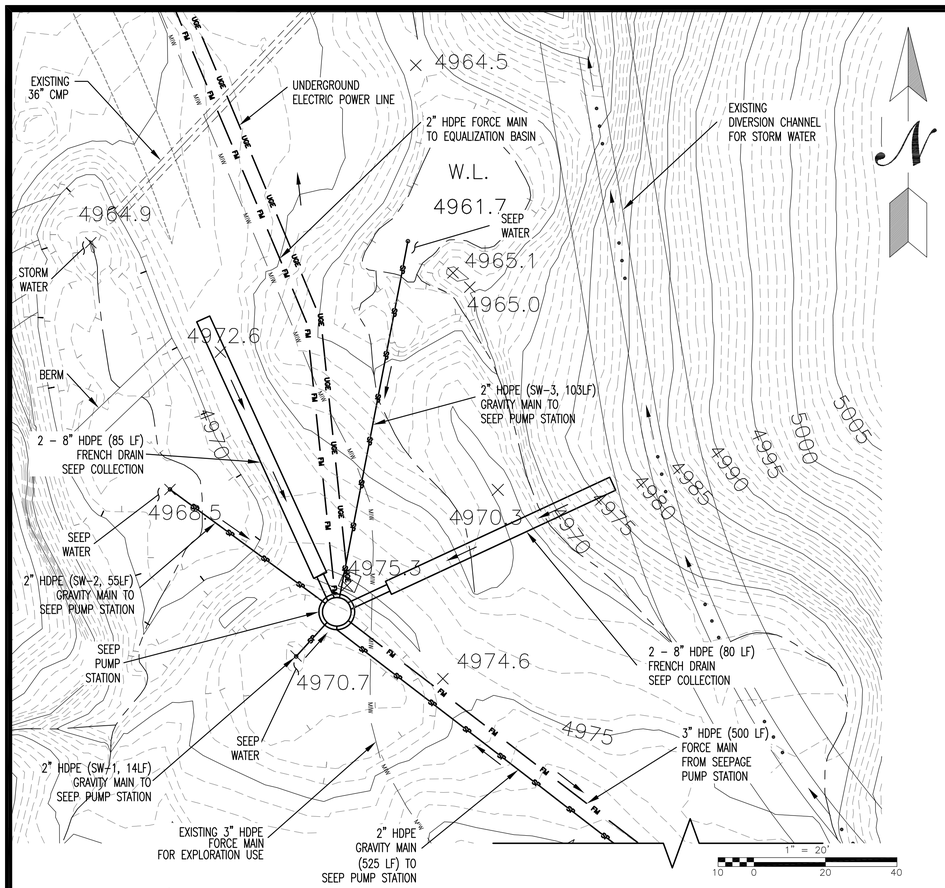
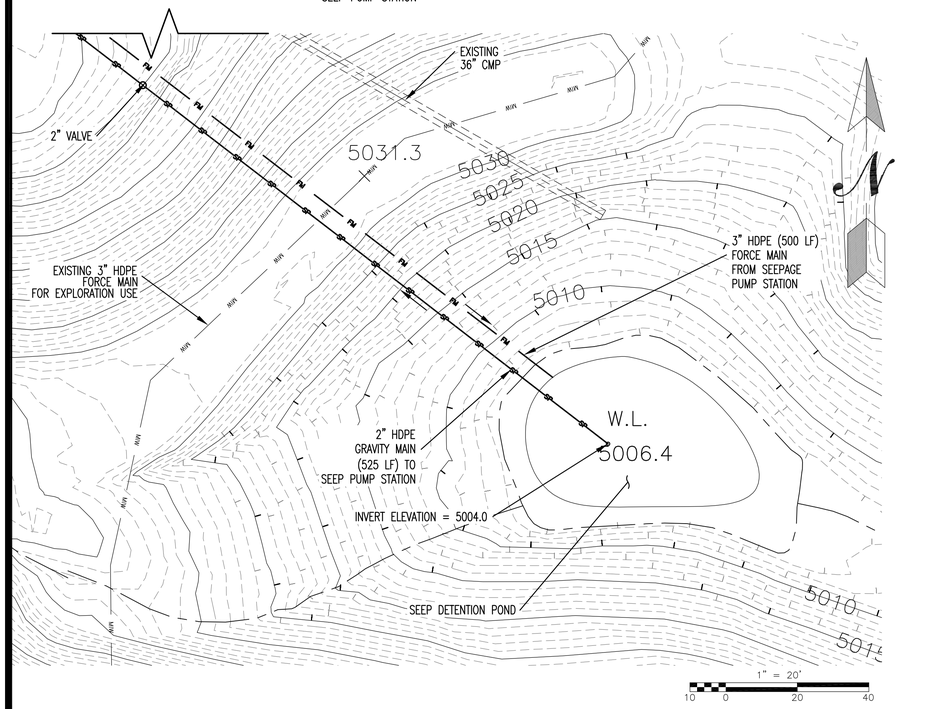
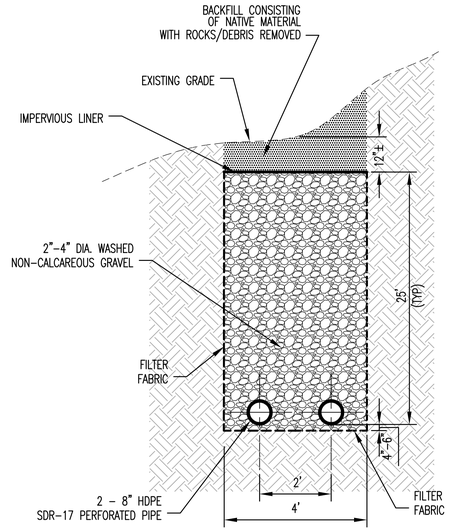
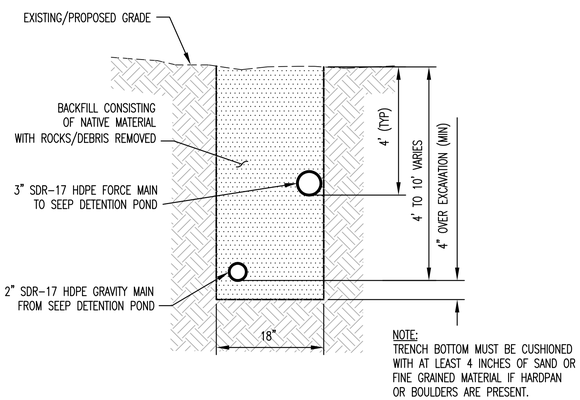






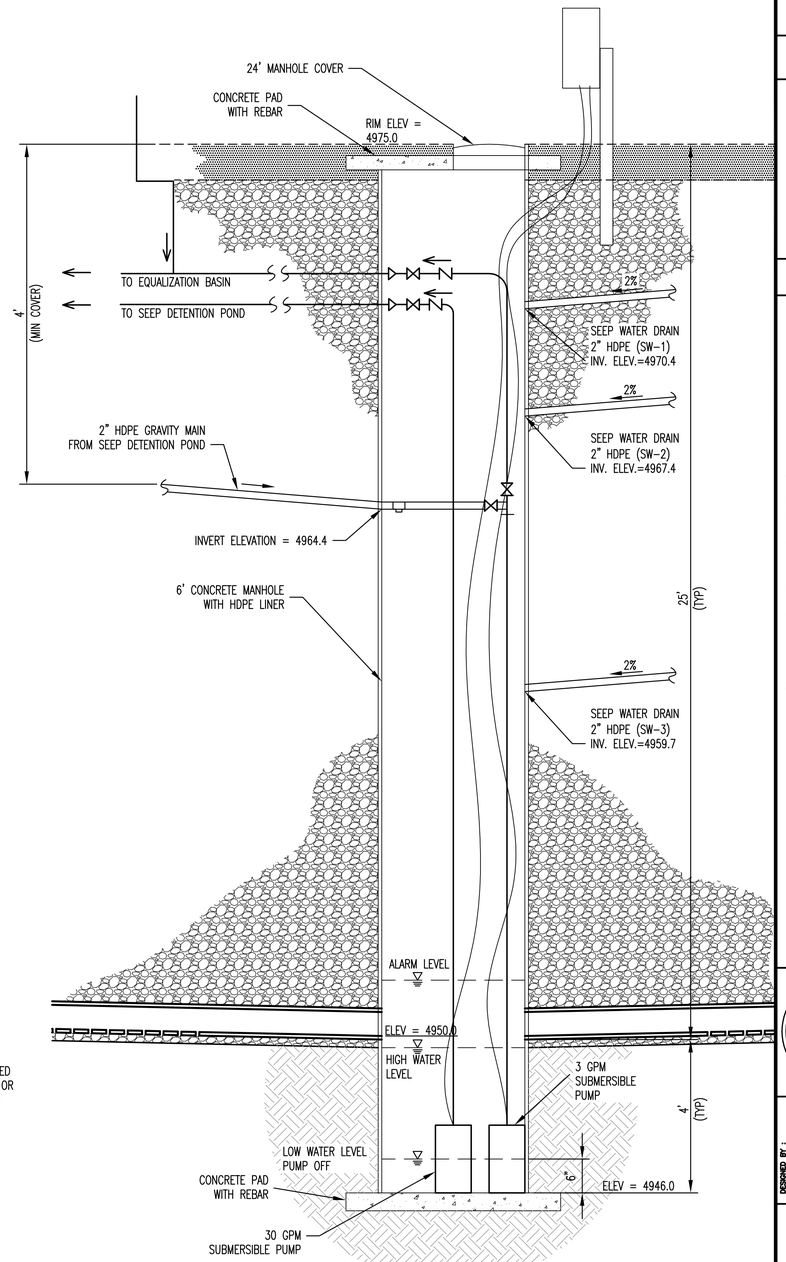
TYPICAL FRENCH DRAIN DETAIL
SCALE: N.T.S.

NOTE:
TRENCH BOTTOM MUST BE CUSHIONED WITH AT LEAST 4 INCHES OF SAND OR FINE GRAINED MATERIAL IF HARDPAN OR BOULDERS ARE PRESENT.

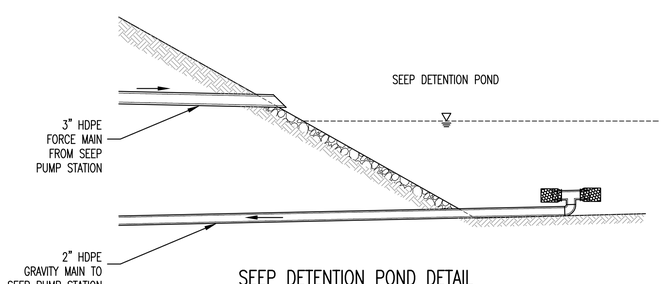


NOTE:
TRENCH BOTTOM MUST BE CUSHIONED WITH AT LEAST 4 INCHES OF SAND OR FINE GRAINED MATERIAL IF HARDPAN OR BOULDERS ARE PRESENT.

TYPICAL SEEP WATER & PROCESS GRAVITY PIPES EMPLACED IN UTILITY TRENCH DETAIL
SCALE: 1"=1'



SEEP PUMP STATION DETAIL
SCALE: N.T.S.



SEEP DETENTION POND DETAIL
SCALE: N.T.S.

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
SEEP DETENTION POND, FRENCH DRAIN, AND SEEP PUMP STATION DETAILS

SECTION 5, T23S, R16E, G&SRM.
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REGISTERED ENGINEER
MARK A. MOORE
ARIZONA U.S.A.
Expires 12/31/17

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8 OF 25

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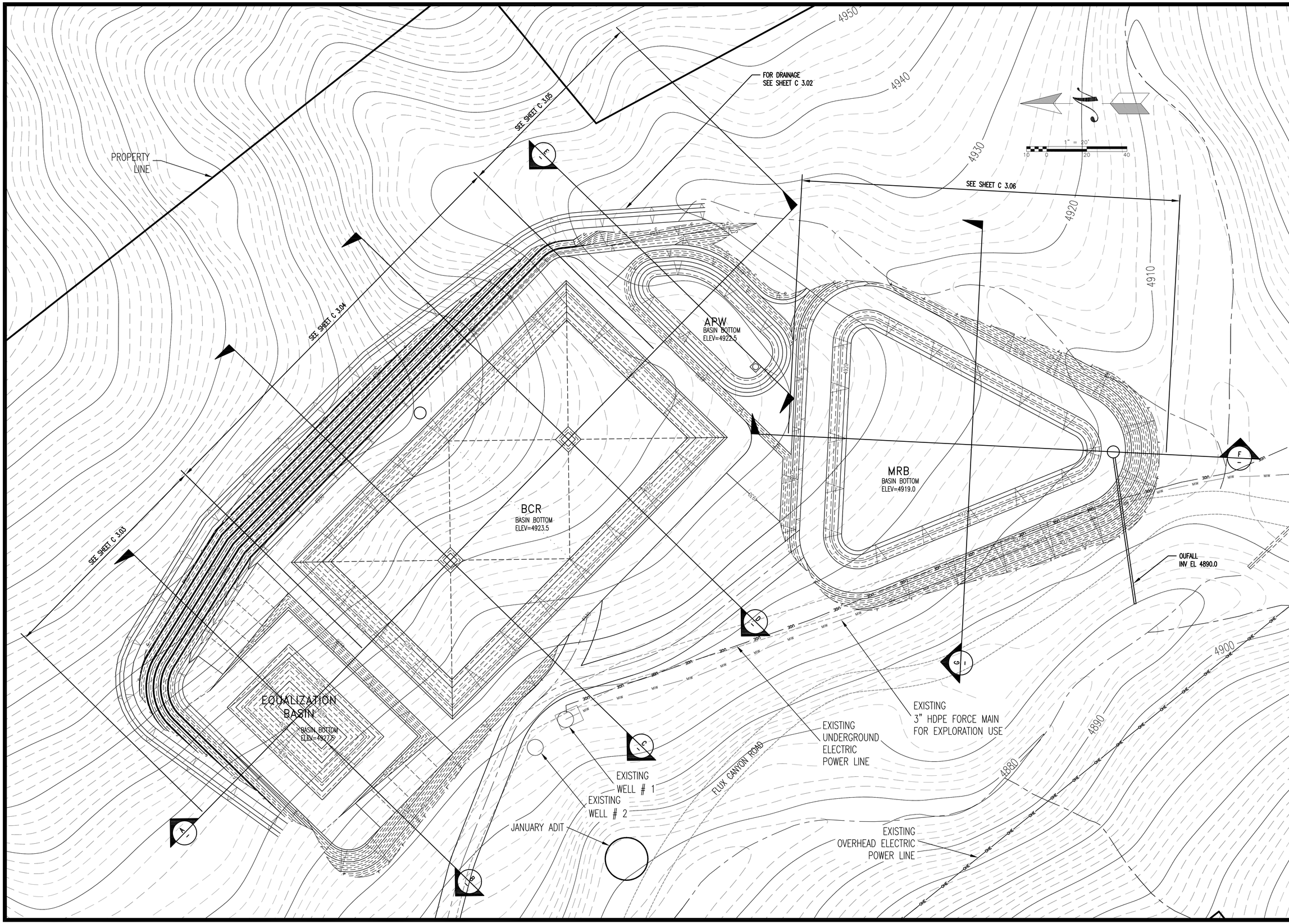


NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
GRADING AND DRAINAGE OVERVIEW PLAN

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
3005 N. Business Center Dr.
Suite 110 Flagstaff, AZ 86705
520-545-7001

DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 20'
VERT. : 1" = 20'
JOB NO: 346
FILE NAME:

SHEET : C 3.01
9 OF 25

60% PLANS PRINTED ON 10/18/2016

APW

MRB

BCR

EQUALIZATION BASIN

ROCK RIP-RAP SLOPE PROTECTION

EXISTING UNDERGROUND ELECTRIC POWER LINE

EXISTING 3" HDPE FORCE MAIN FOR EXPLORATION USE

EXISTING OVERHEAD ELECTRIC POWER LINE

EXISTING WELL # 1

EXISTING WELL # 2

JANUARY ADIT

FLUX CANYON ROAD

4920

4910

4900

4890

4880

1" = 20'

10 0 20 40

4928.0

4927.05

4926.5

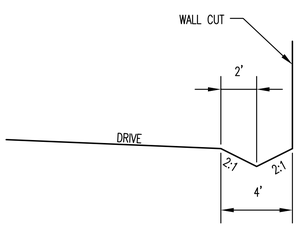
4929.0

4929.5

4935.5

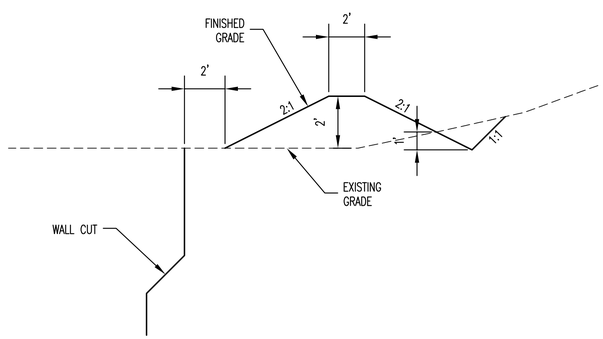
4935.4

4934.0



2 DRAINAGE SWALE DETAIL

SCALE: N.T.S.



1 STORM WATER DIVERSION BERM/SWALE DETAIL

SCALE: N.T.S.

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
DRAINAGE PLAN & DETAILS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

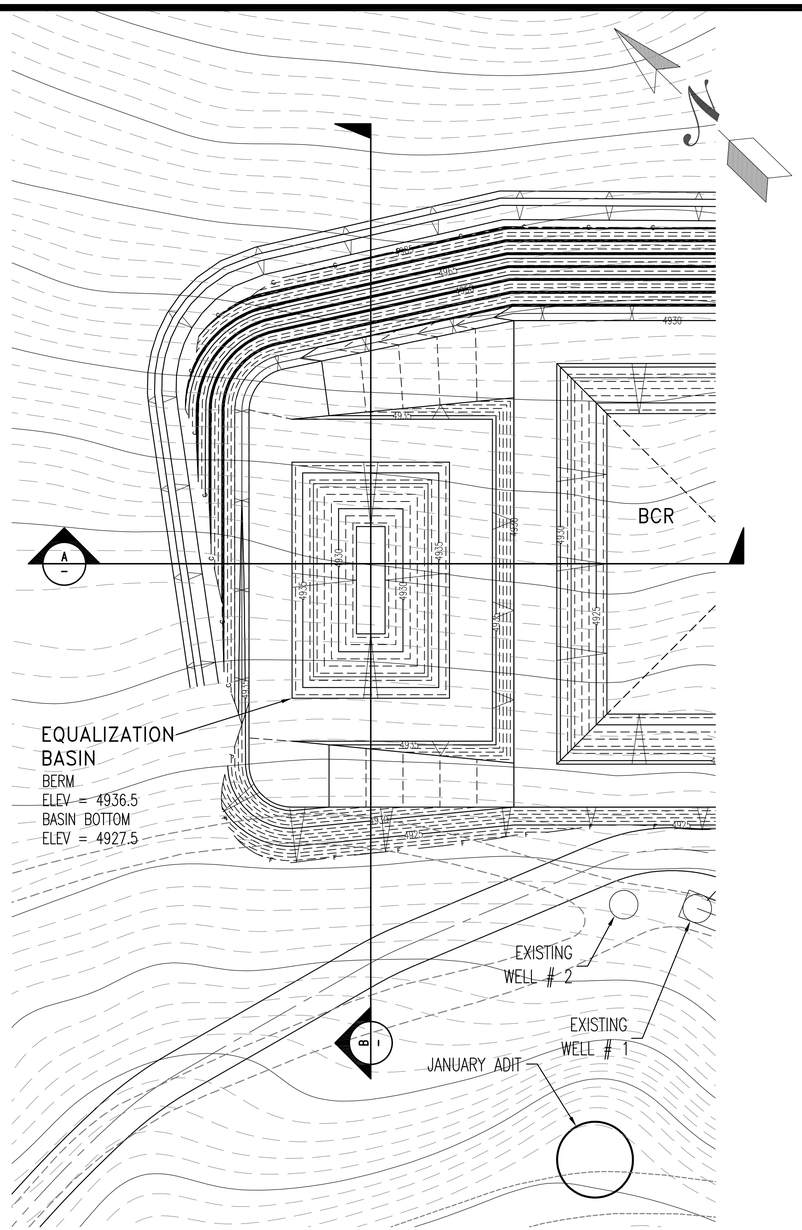
DESIGNED BY : RCGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
8825 N. Business Center Dr.
Suite 115 Tucson, AZ 85705
520-545-7001

DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 40'
VERT. : 1" = 40'
JOB NO: 346
FILE NAME:

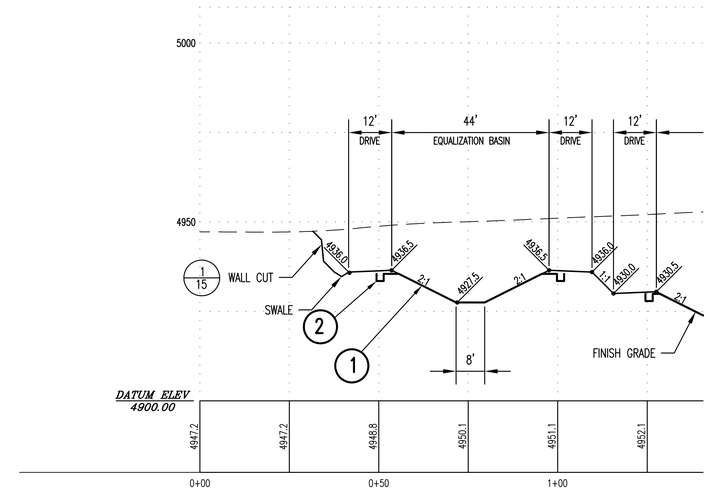
SHEET : C 3.02
10 OF 25

60% PLANS PRINTED ON 10/18/2016

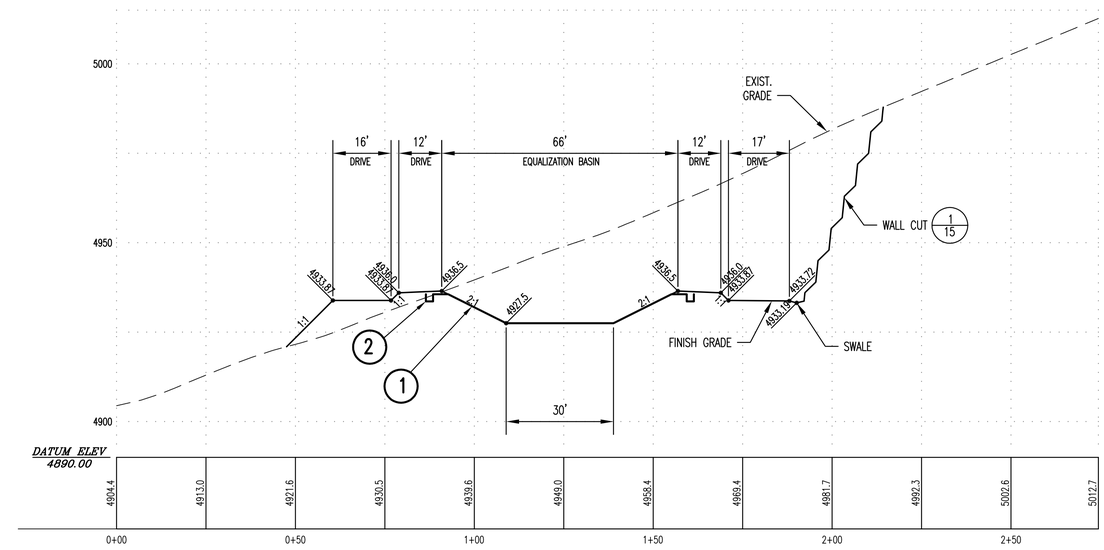


EQUALIZATION BASIN PLAN
1" = 20'

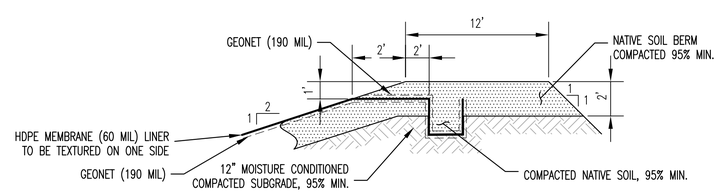
1" = 20'
10 0 20 40



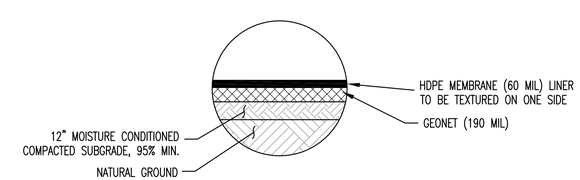
EQUALIZATION BASIN
SECTION A
1" = 20'



EQUALIZATION BASIN
SECTION B
1" = 20'



2 **ANCHOR TRENCH DETAIL**
SCALE: N.T.S.



1 **BASIN LINER DETAIL**
SCALE: N.T.S.

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
EQUALIZATION BASIN PLAN AND SECTIONS
SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

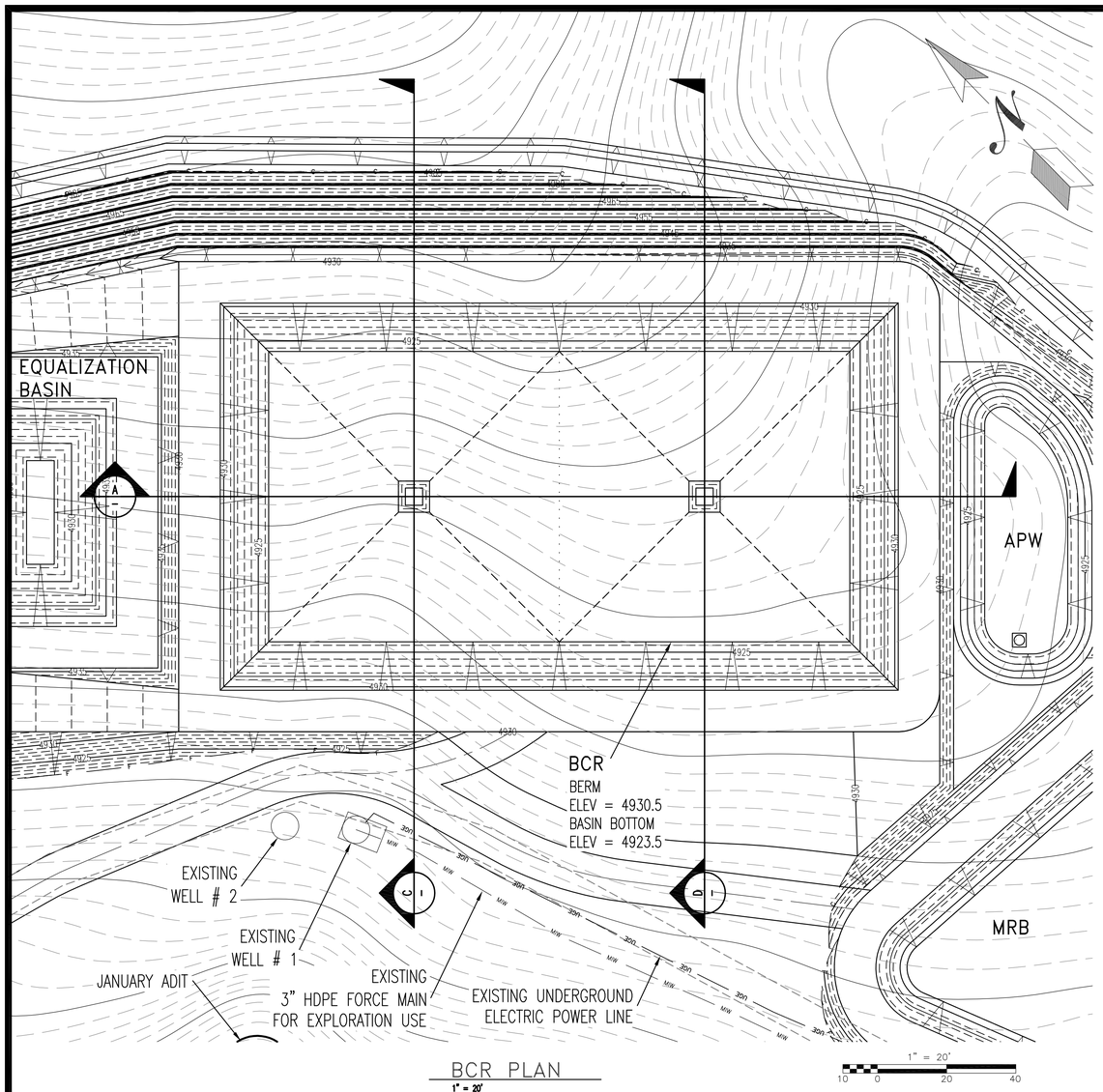
DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
3895 N. Business Center Dr.
Suite 115 Tucson, AZ 85705
520-545-7001

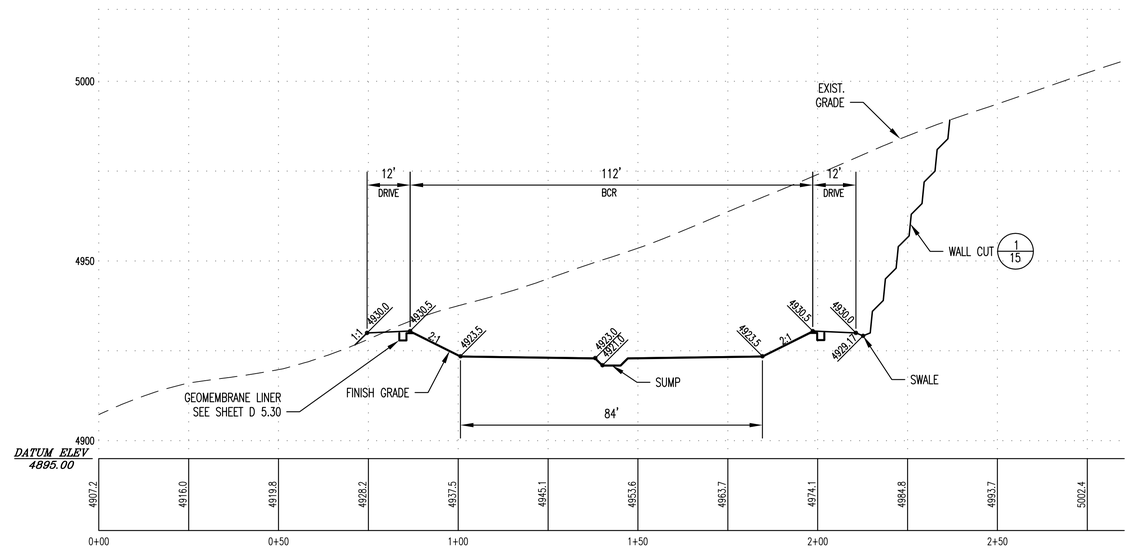
DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 20'
VERT. : 1" = 20'
JOB NO: 346
FILE NAME:

SHEET : C 3.03
11 OF 25

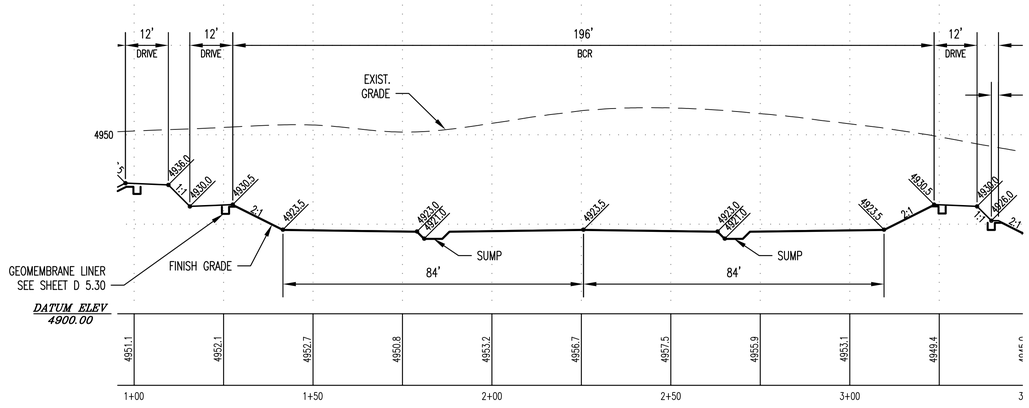
60% PLANS PRINTED ON 10/18/2016



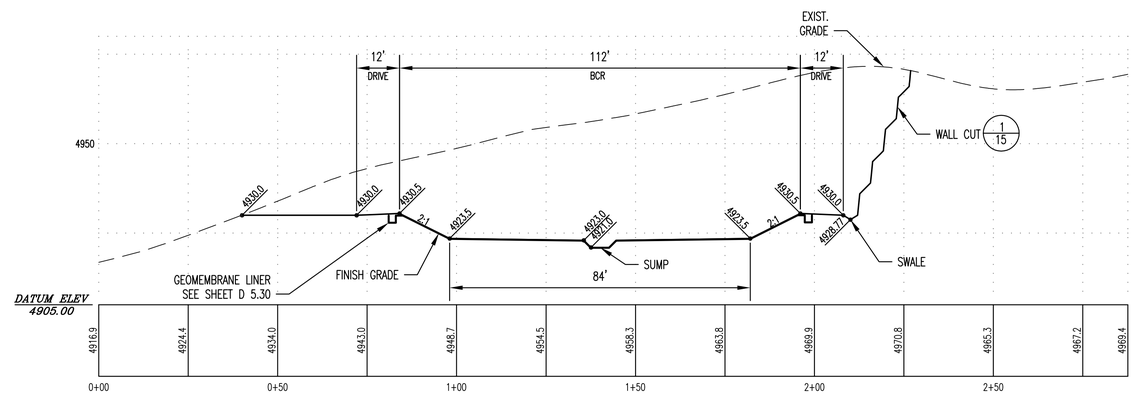
BCR PLAN
1" = 20'



SECTION C
1" = 20'



SECTION A
1" = 20'



SECTION D
1" = 20'

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
BIOCHEMICAL REACTORS GRADING PLAN AND SECTIONS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 32126 — STATE OF ARIZONA — Expires 12/31/16

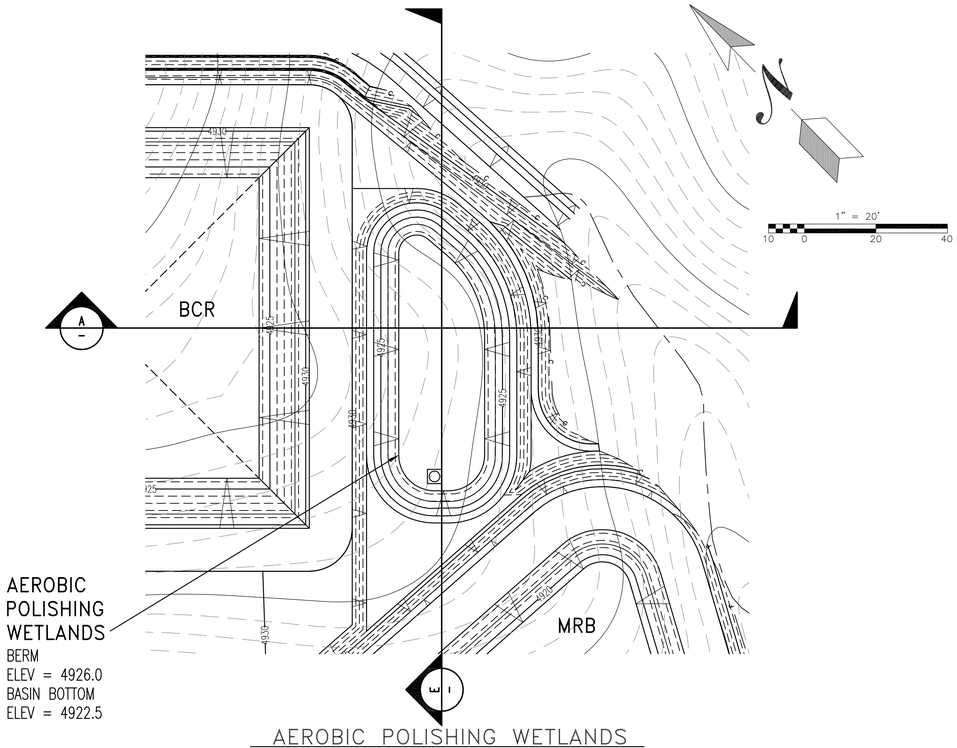
DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
8825 N. Breakview Center Dr.
Suite 110, Phoenix, AZ 85051
520-545-7001

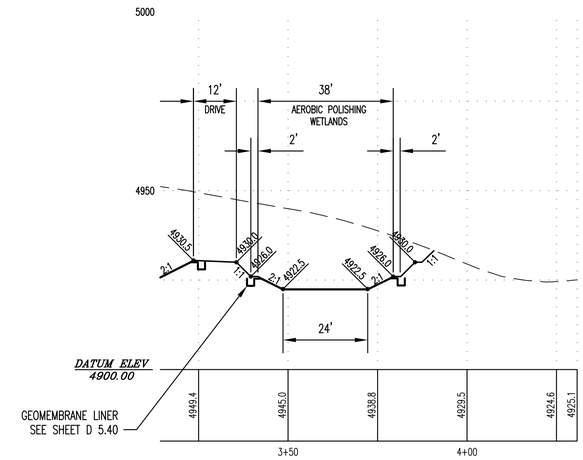
DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 20'
VERT. : 1" = 20'
JOB NO: 346
FILE NAME:

SHEET : C 3.04
12 OF 25

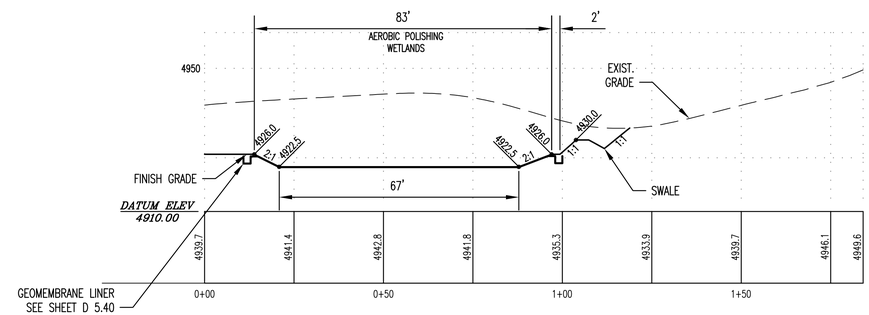
60% PLANS PRINTED ON 10/18/2016



AEROBIC POLISHING WETLANDS
1" = 20'



AEROBIC POLISHING WETLANDS
SECTION A
1" = 20'



AEROBIC POLISHING WETLANDS
SECTION E
1" = 20'

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
AEROBIC POLISHING WETLAND PLAN AND SECTIONS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

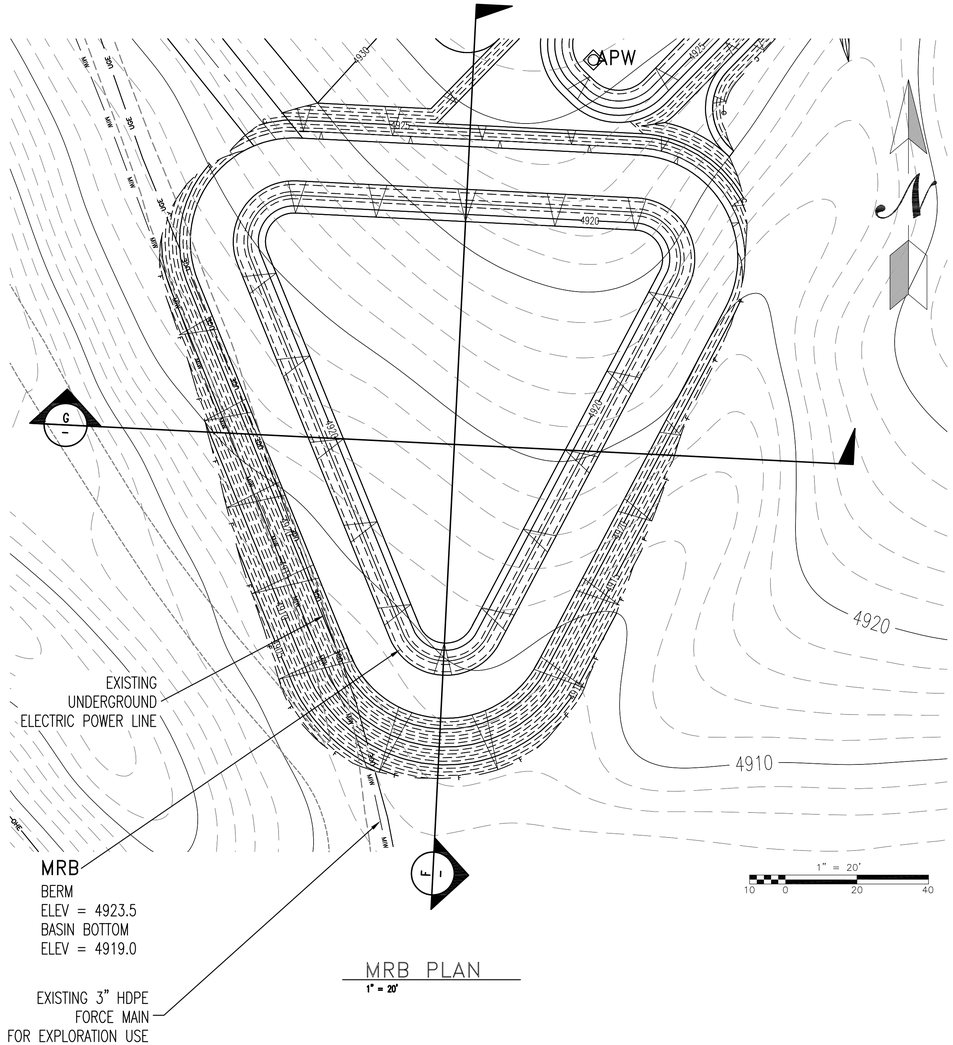
DESIGNED BY : RFGP
DRAWN BY : LMGB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
3895 N. Business Center Dr.
Suite 115 Tucson, AZ 85705
520-545-7001

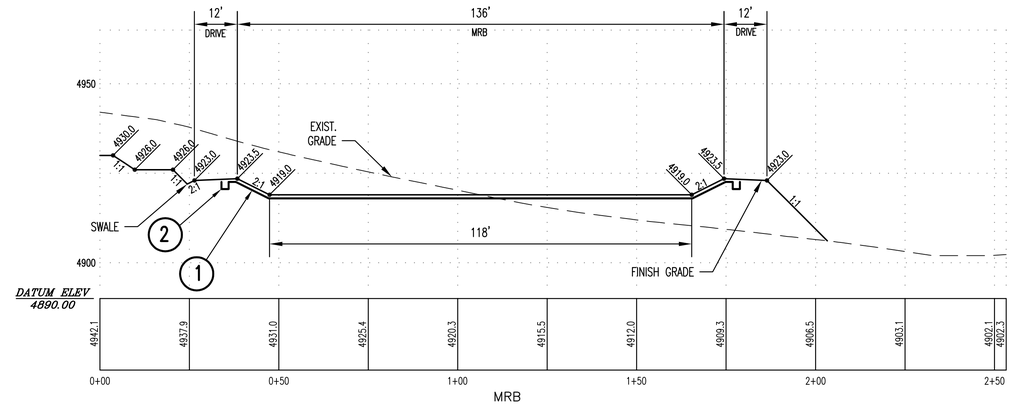
DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 20'
VERT. : 1" = 20'
JOB NO: 346
FILE NAME:

SHEET : C 3.05
13 OF 25

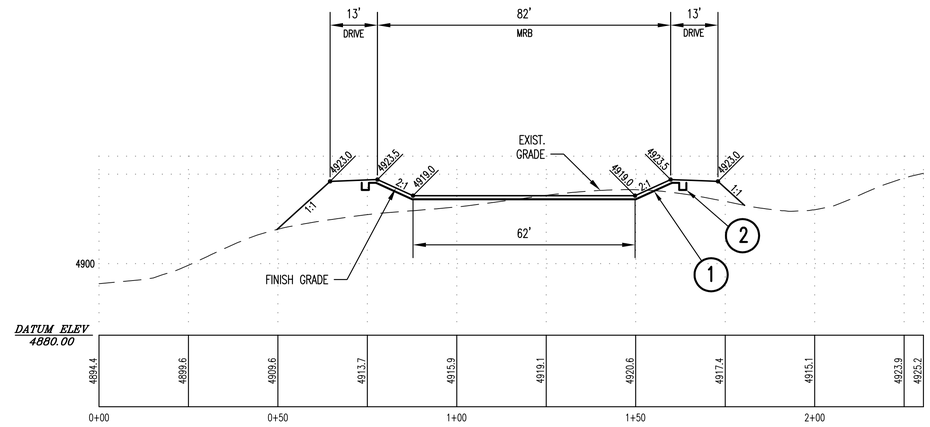
60% PLANS PRINTED ON 10/18/2016



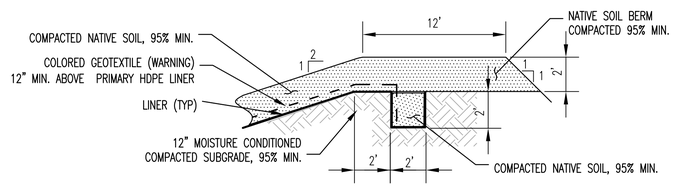
MRB PLAN
1" = 20'



SECTION F
1" = 20'

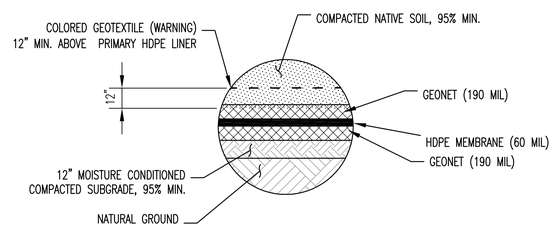


SECTION G
1" = 20'



ANCHOR TRENCH DETAIL

SCALE: N.T.S.



BASIN LINER DETAIL

SCALE: N.T.S.

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
MANGANESE REMOVAL BED PLAN AND SECTIONS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

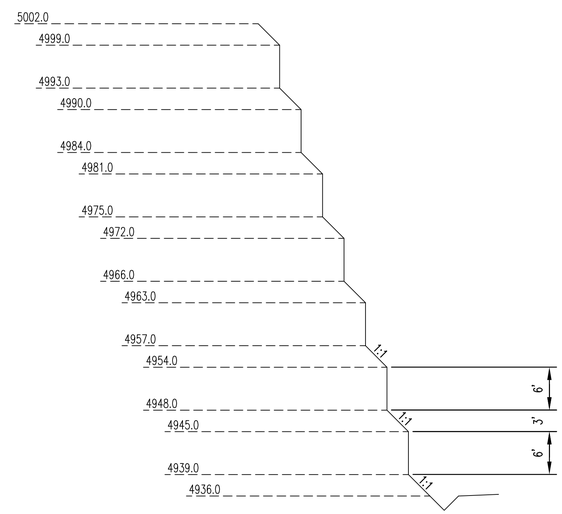
DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
8825 N. Business Center Dr.
Suite 115, Tucson, AZ 85705
520-545-7001

DATE: OCTOBER 2016
SCALE HORIZ. : 1" = 20'
VERT. : 1" = 20'
JOB NO: 346
FILE NAME:

SHEET : C 3.06
14 OF 25

60% PLANS PRINTED ON 10/18/2016



1 **WALL CUT DETAIL**

SCALE: N.T.S.

NO.	REVISION	APPV'D	DATE

JANUARY MINE WATER
PASSIVE TREATMENT SYSTEM
MISCELLANEOUS DETAILS

SECTION 5, T23S, R16E, G&SRM.
SANTA CRUZ COUNTY, ARIZONA

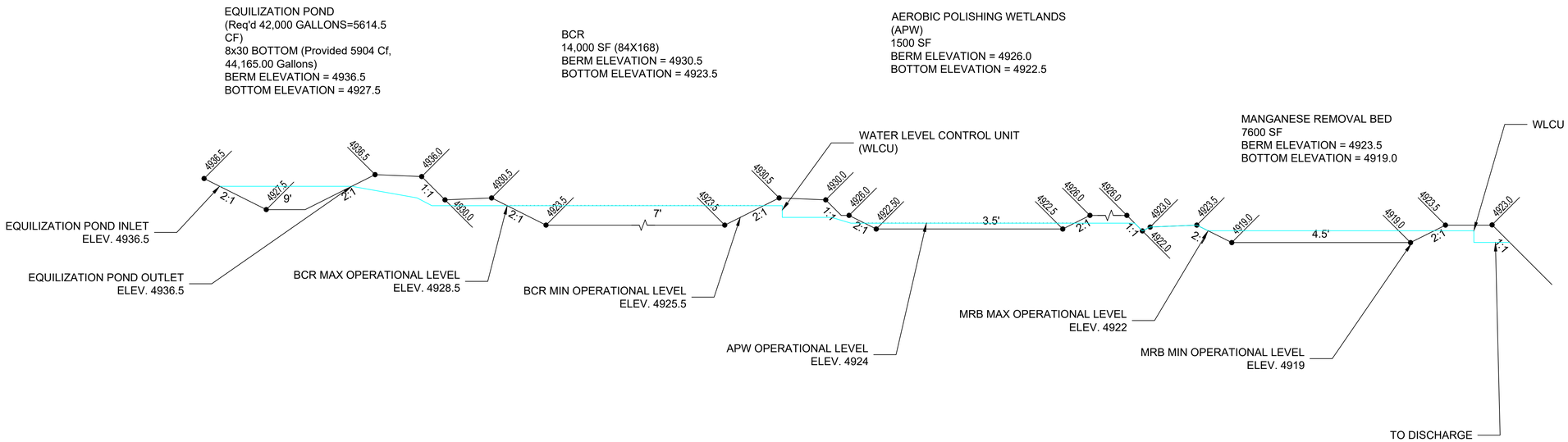
DESIGNED BY : RFGP
DRAWN BY : LMOB
CHK'D BY (DESIGN) :
CHK'D BY (FIELD ENGR) :

CPE CONSULTANTS
8825 N. Business Center Dr.
Suite 11, Tucson, AZ 85705
520-545-7001

DATE: OCTOBER 2016
SCALE HORIZ. : NTS
VERT. : NTS
JOB NO: 346
FILE NAME:

SHEET : C 3.07
15 OF 25

60% PLANS PRINTED ON 10/18/2016



NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:

ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

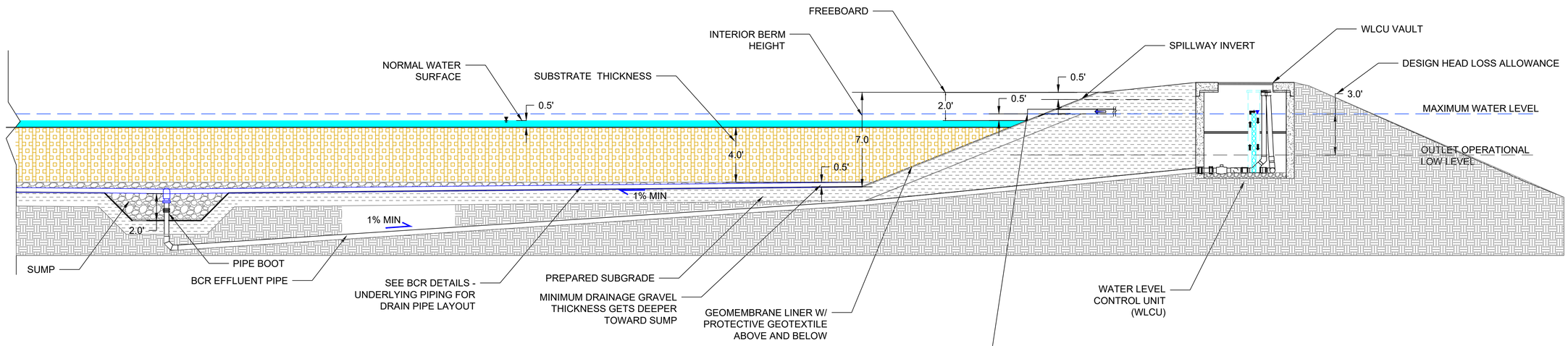
PROJECT: JANUARY MINE - PTS

TITLE: HYDRAULIC PROFILE

PROJECT NUMBER: DV020

REVISION: A

DRAWING NUMBER: C 4.01



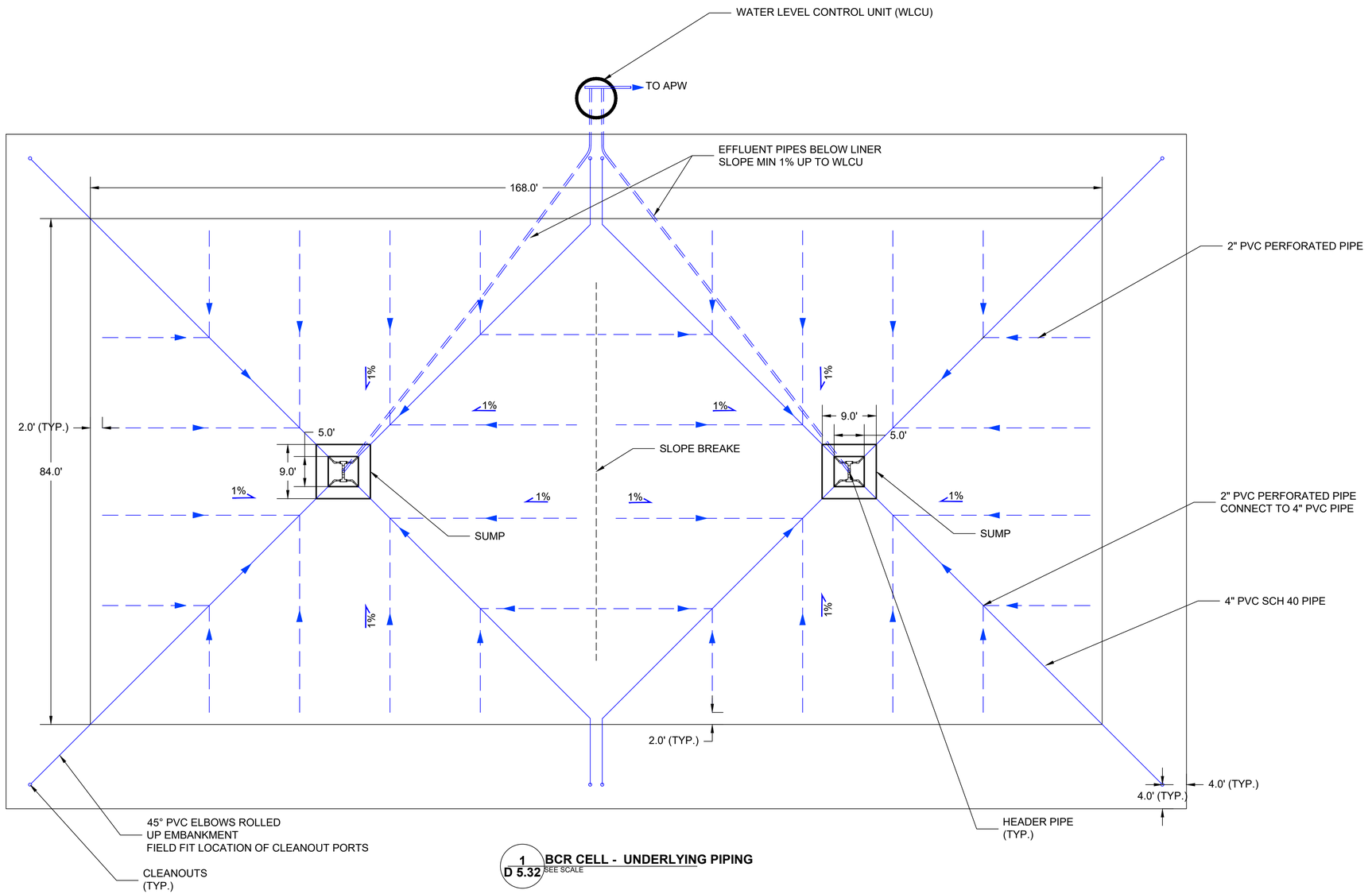
1 / D 5.30 **BCR CELL - INTERNAL SECTIONS**
1" = 4' AT 22X34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:
ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

PROJECT: JANUARY MINE - PTS
TITLE: BCR DETAILS - INTERNAL SECTIONS
PROJECT NUMBER: DV020
REVISION: A
DRAWING NUMBER: D 5.30



1
D 5.32
BCR CELL - UNDERLYING PIPING
SEE SCALE

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:

ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

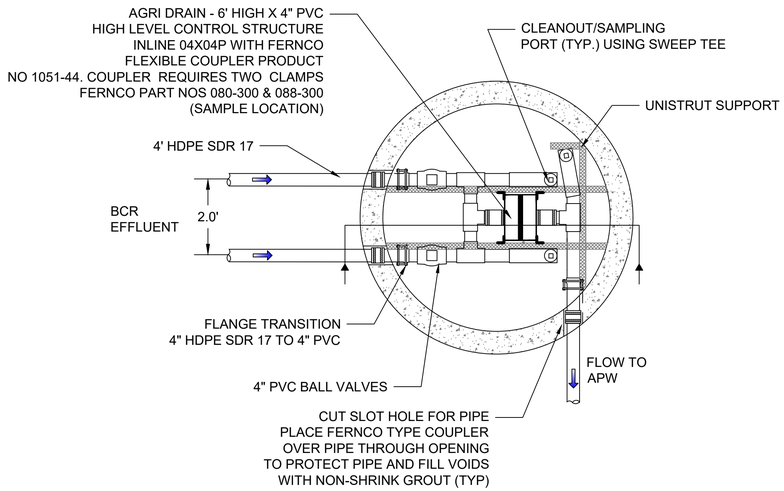
PROJECT: JANUARY MINE - PTS

TITLE: BCR DETAILS - UNDERLYING PIPING

PROJECT NUMBER: DV020

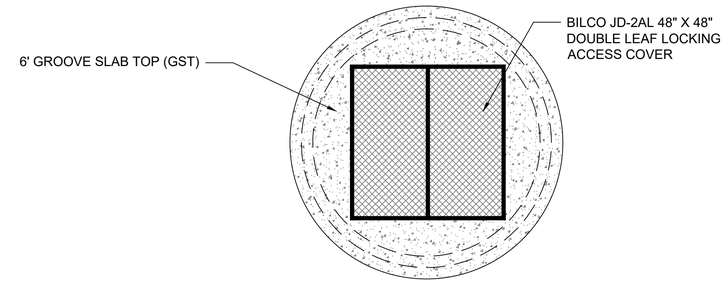
REVISION: A

DRAWING NUMBER: D5.32



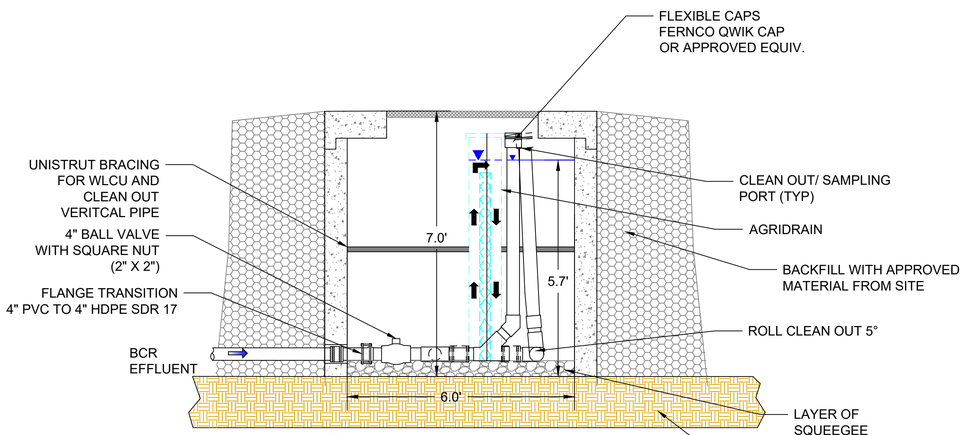
1 / D5.33 WATER LEVEL CONTROL UNIT PLAN VIEW

1" = 2' AT 22 X 34



2 / D5.33 WATER LEVEL CONTROL UNIT ACCESS COVER PLAN VIEW

1" = 2' AT 22 X 34



3 / D5.33 WATER LEVEL CONTROL UNIT

1" = 2' AT 22 X 34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF	JJG	

PREPARED FOR:

ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

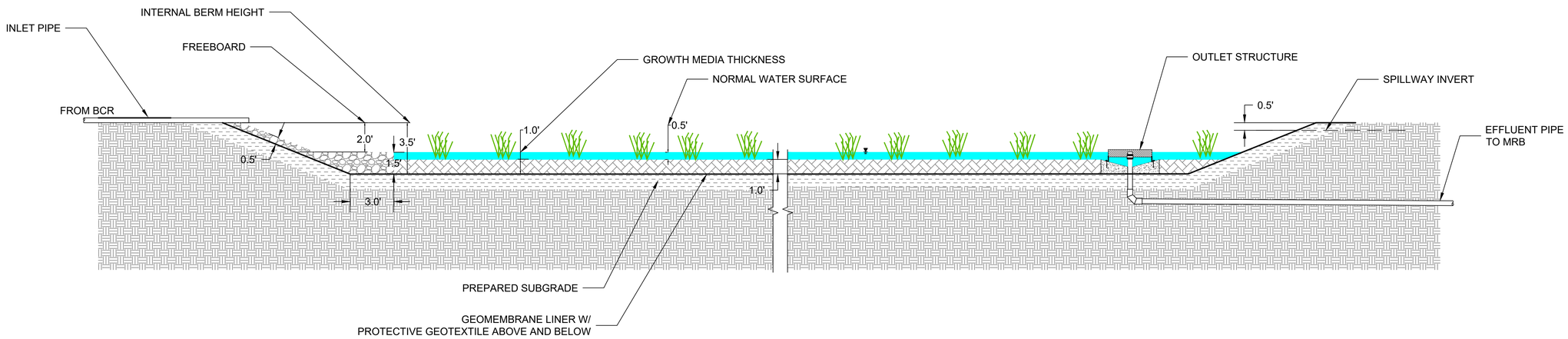
PROJECT: JANUARY MINE - PTS

TITLE: BCR DETAILS - WLCU

PROJECT NUMBER: DV020

REVISION: A

DRAWING NUMBER: D5.33



1
D5.40
APW CELL - CROSS SECTIONS
1" = 4' AT 22X34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:

ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

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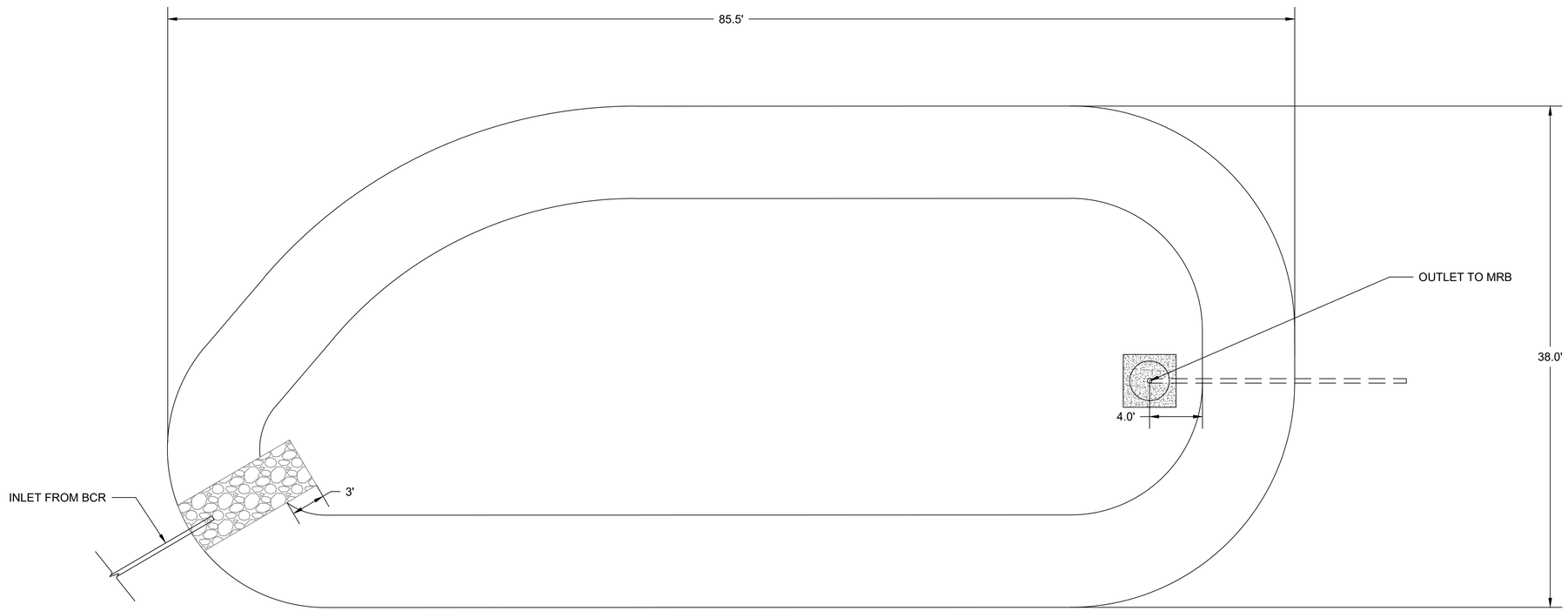
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

PROJECT: JANUARY MINE - PTS

TITLE: APW DETAILS - INTERNAL SECTIONS

PROJECT NUMBER	REVISION	DRAWING NUMBER
DV020	A	D 5.40



NOTE:
REFER TO DRAWING 3/D5.43 FOR PLUG PLANTING SPACING PLAN

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING PACKAGE	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:
ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

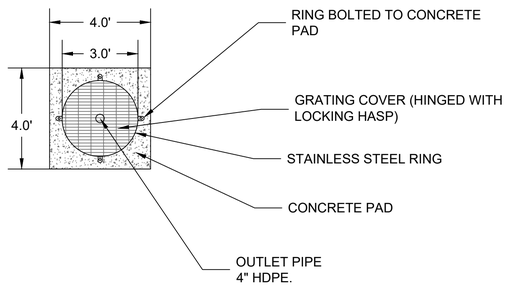
PROJECT: JANUARY MINE - PTS

TITLE: APW PIPING

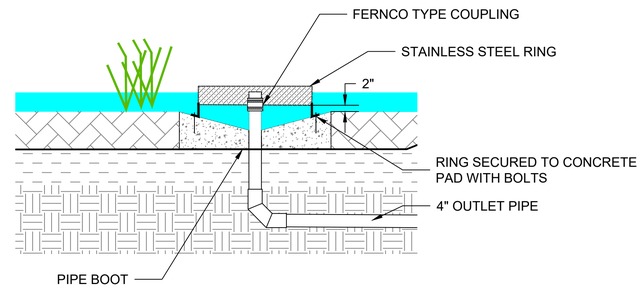
PROJECT NUMBER: DV020

REVISION: A

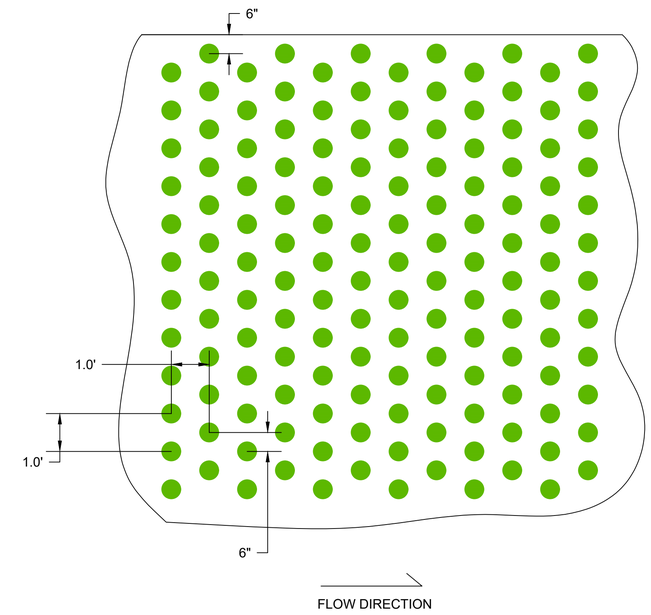
DRAWING NUMBER: D 5.42



1 D5.43 **APW CELL - OUTLET PLAN VIEW**
1" = 3' AT 22X34



2 D5.43 **APW CELL - OUTLET PROFILE VIEW**
1" = 2' AT 22X34



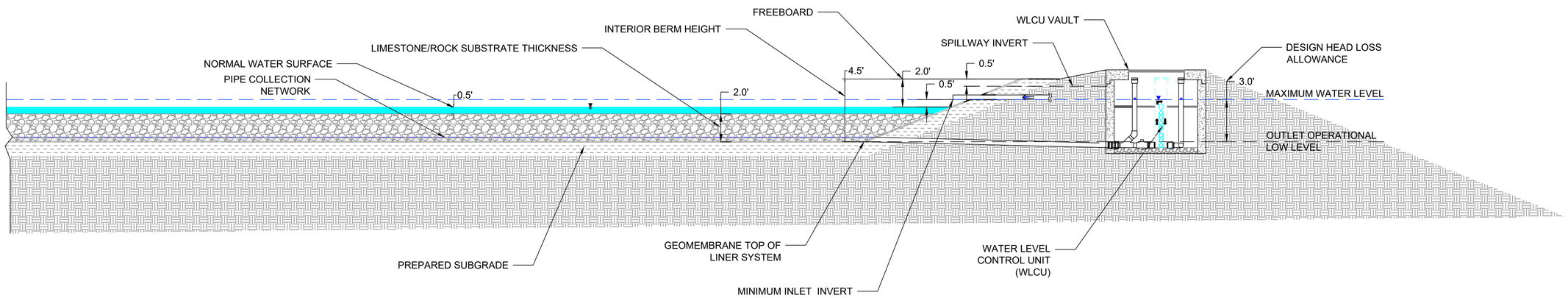
3 D5.43 **APW CELL - PLUG PLANTING SPACING PLAN**
1" = 2' AT 22X34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

PREPARED FOR:
ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

PROJECT: JANUARY MINE - PTS
TITLE: APW DETAILS
PROJECT NUMBER: DV020
REVISION: A
DRAWING NUMBER: D 5.43



1 D5.50 **MRB CELL - CROSS SECTIONS**
1" = 4' AT 22X34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

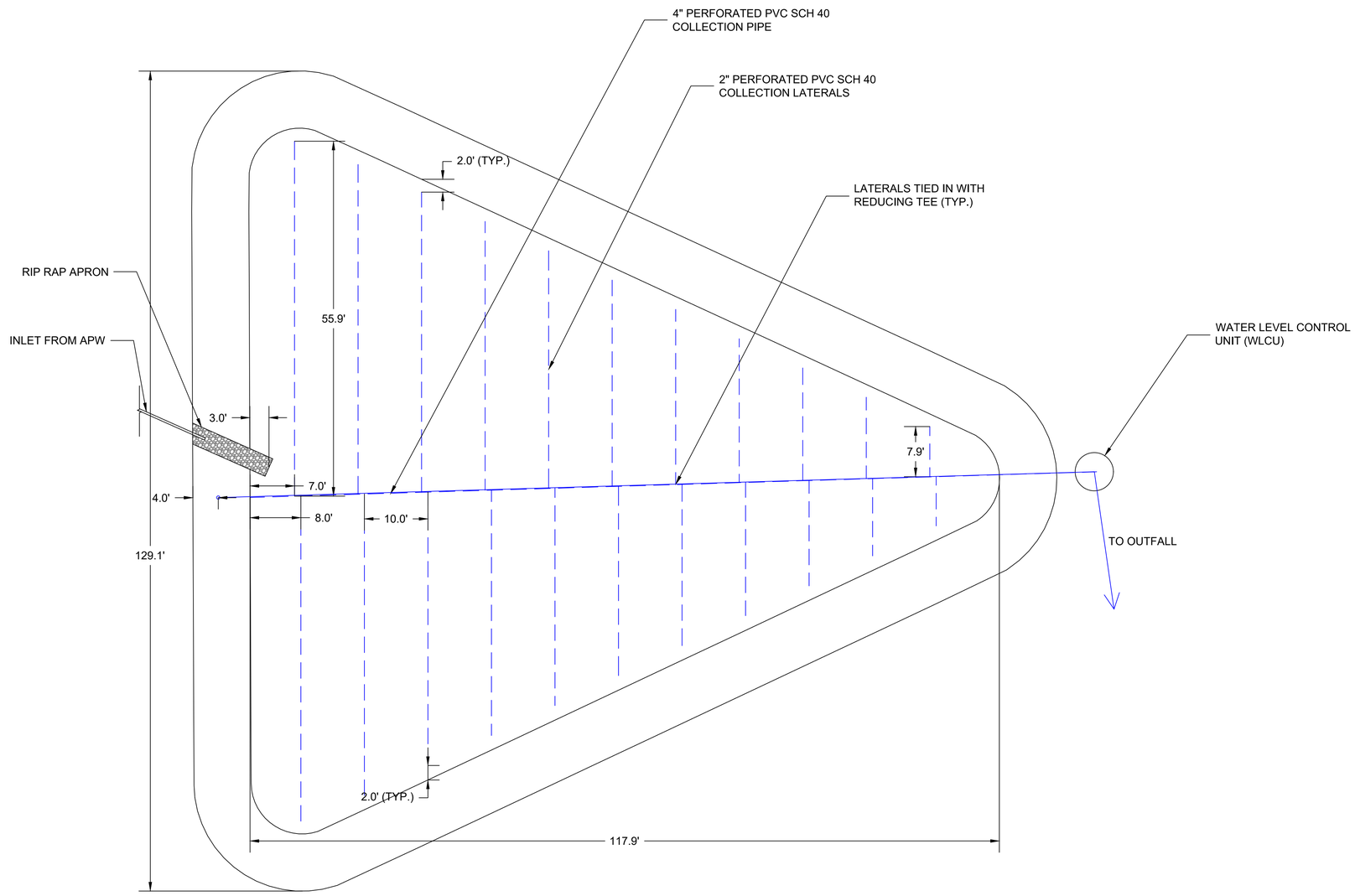
PREPARED FOR:
ARIZONA MINERALS, INC.
825 N. GRAND AVE
NOGALES, AZ 85621

SOVEREIGN CONSULTING INC
science. service. solutions.
12687 Cedar Dr.,Suite 305, Lakewood, CO 80228
Ph:(720) 524-4908
www.sovcon.com

PROJECT: JANUARY MINE - PTS

TITLE: MRB DETAILS - INTERNAL SECTIONS

PROJECT NUMBER: DV020 | REVISION: A | DRAWING NUMBER: D 5.50



1
D5.52
MRB CELL - UNDERLYING PIPING
1" = 2' AT 22 X 34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF/ERW	JJG	

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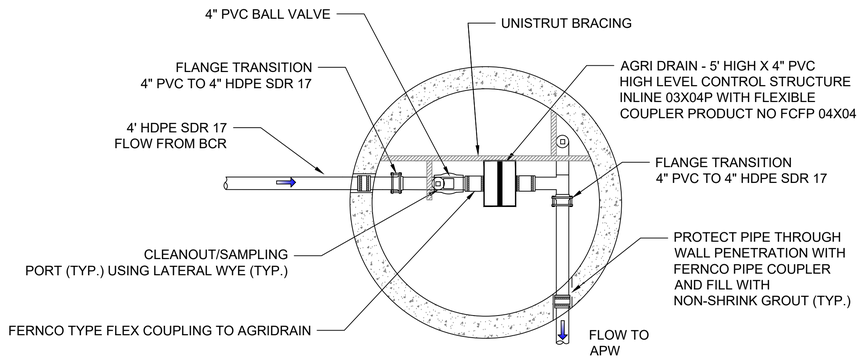
PROJECT: JANUARY MINE - PTS

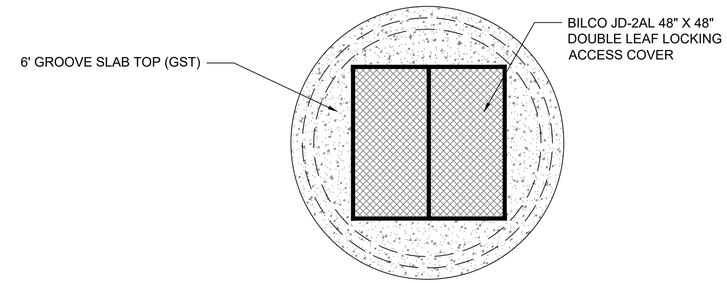
TITLE: MRB DETAILS - UNDERLYING PIPING

PROJECT NUMBER: DV020
REVISION: A
DRAWING NUMBER: D 5.52



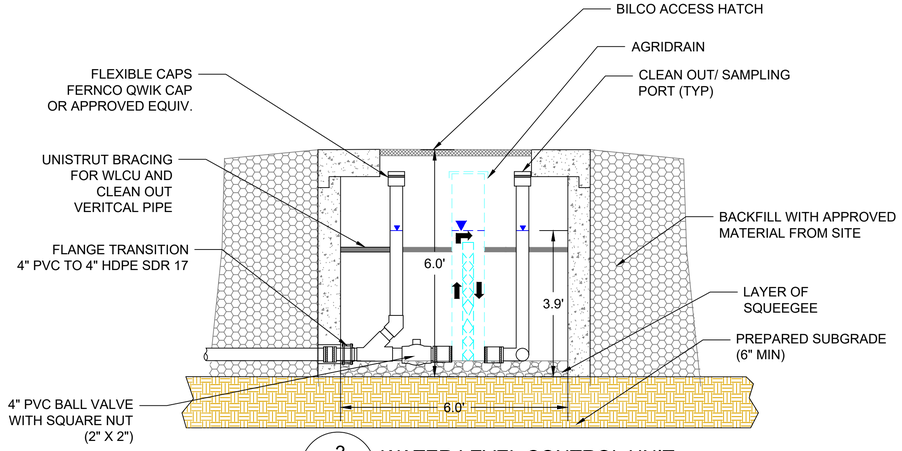
1 / D5.53 WATER LEVEL CONTROL UNIT - BCR DETAIL

1" = 2' AT 22 X 34



2 / D5.53 WATER LEVEL CONTROL UNIT ACCESS COVER PLAN VIEW

1" = 2' AT 22 X 34



3 / D5.53 WATER LEVEL CONTROL UNIT

1" = 2' AT 22 X 34

NO.	REVISION DESCRIPTION (THIS DRAWING IS NOT APPROVED UNLESS LAST REVISION IS HAND WRITTEN)	DATE	DESIGN	CADD	CHECK	REVIEW
A	ISSUED FOR REVIEW – 60% DRAWING SET	10/14/16	LPJ/JJG	GF	JJG	

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PROJECT: JANUARY MINE - PTS

TITLE: MRB DETAILS - WLCU

PROJECT NUMBER: DV020

REVISION: A

DRAWING NUMBER: D5.53

Appendix F

Wetland Soil Sampling Report

SOVEREIGN CONSULTING INC.

JANUARY ADIT, SANTA CRUZ COUNTY, AZ

WETLAND

SOIL SAMPLING REPORT

October 05, 2016

CPE CONSULTANTS

DV020.005

12687 West Cedar Drive, #305 • Lakewood, CO 80228 • Tel: 720-524-4908

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1. INTRODUCTION

Sovereign Consulting Inc. (Sovereign) was contracted to sample the soil and vegetation in the existing January Adit Wetland as per the Wetland Sampling and Characterization Plan (Sovereign, 9/25/15). The main focus was to evaluate if the wetland has sequestered selected contaminants of concern (COCs) that may have been present in the January Adit mine influenced water (MIW) feeding the wetland for many years.

The wetland is located in Santa Cruz County, AZ, along Flux Canyon Rd about 3.5 road miles west of Harshaw, (31.472171, -110.730563). The wetland is approximately 200 ft long and 50 ft wide, with a total area of about 2 acres. See Figure 1. The inlet to the wetland is just downstream of the January Adit portal on the south eastern end. The water flows northwest toward the opposite end where it discharges under Flux Canyon road toward Alum Gulch in one or more unidentified discharge points. Part of the wetland is on Coronado National Forest property (the northwest side), encompassing two of the wetland soil sample locations.

The objective of the sampling was to obtain screening information that can be used to inform further evaluations or actions for the wetland and to assist in determining zones where selected contaminants of concern (COCs) are found. This involved taking soil samples at three depths in four different locations, one background soil sample, and one wetland vegetation sample.

Figure 1. Wetland Soil Sample Location

This report presents the laboratory results for the wetland soil samples, including total metals and toxicity characteristic leaching procedure (TCLP) metals. The data are discussed in comparison with the Non-Residential Soil Remediation Levels (NR-SRL) and EPA TCLP regulatory levels. The soil samples were evaluated pursuant to the Resource Conservation and Recovery Act (RCRA) eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

Sovereign performed TCLP testing, as suggested by ADEQ. The TCLP test simulates leaching in a municipal solid waste landfill context by using an organic acid in the test, and may be over representative of the leaching that would occur in different contexts, especially in an arid environment. TCLP is a fairly aggressive procedure compared to what many Arizona programs use, the synthetic precipitation leaching procedure (SPLP – EPA Method 1312) or the meteoric water mobility procedure developed by the State of Nevada, to simulate leaching that will occur in Arizona's arid areas. The acceptability of using these other procedures is demonstrated in Appendix B to ADEQ's Mining BADCT Guidance Manual identifies the SPLP test as the "preferred approach" for performing leach testing on mining-related materials.

Arizona Minerals takes the position that any soil excavated from the wetlands is exempt from hazardous waste regulation regardless of TCLP test results, pursuant to the Bevill Amendment exemption for extraction and beneficiation waste codified at 40 C.F.R. § 261.4(b)(7).

> *EPA clearly included acidic mine water as one of the extraction and beneficiation wastes studied in the December 1985 Report to Congress (RTC) on extraction and beneficiation wastes from mining (EPA/530-SW-85-033) that was required under 42 U.S.C. §§ 6921(B)(3)(A) & 6982(f). Mine water (water that infiltrates a mine during the extraction process) was one of the four primary waste types studied in the RTC, and acid formation was identified in the RTC as a risk from mining operations. Nevertheless, EPA's 1986 regulatory determination excluded all extraction and beneficiation wastes from RCRA Subtitle C (hazardous waste) regulation, despite again acknowledging the risk of acid mine drainage. See 51 Fed. Reg. 24496 (July 3, 1986).*
>
> *Subsequent to the 1986 regulatory determination, EPA has confirmed that seepage from a closed underground mine is covered by the Bevill Amendment exclusion. In a November 2000 letter to the Mineral Policy Center, EPA specifically noted that closed underground mines could fill with groundwater or rainwater and in turn generate liquid wastes that could be toxic. EPA nevertheless concluded that such liquid wastes were Bevill-exempt because to regulate them would frustrate congressional intent. This conclusion is consistent with judicial precedent. See Friends of Santa Fe County v. LAC Minerals, 892 F. Supp. 1333, 1341-42 (D.N.M. 1995) (acid mine drainage covered by Bevill amendment).*
>
> *EPA has also clarified (in a June 1993 memorandum) that soils contaminated by constituents from a Bevill-exempt waste, and which as a result fail the TCLP test solely because of the presence of the Bevill-exempt materials, are covered by the Bevill amendment.*
>
> *For these reasons, Arizona Mining believes that even if wetland soils fail the TCLP test, they are covered by the Bevill Amendment and are thus do not constitute hazardous waste under RCRA.*

2. SAMPLING

With the assistance of Arizona Mining and CPE, on June 28th, 2016, the following 14 samples were collected: See Figure 1.

- Twelve (12) wetland soil samples – Three depth intervals (top, middle, and bottom) from four separate locations. The four locations were spread along the approximate centerline of the wetland from the southeast inlet end to the northwest end (S1, S2, S3, S4).
- One control samples (native soil) – Sample point S5.
- One wetland vegetation sample – Composite taken near S1, S2, S3, S4

Table 1 shows the samples collected and the depth intervals. Figure 1 shows the sample locations. It was assumed that potential contamination levels would be the more-elevated closest to the end of the wetland that receives January Mine MIW. Consequently, the sampling order was from the furthest to the closest location to the MIW influent. This added a measure of protection against sample cross contamination.

Table 1. Samples ID and Analysis

			Analysis	
Sample ID	**Sample Description**	**Map Sample Point**	**ICP (Method 6020B)**	**TCLP (Method 1311)**
Jan062816WET01_T	01_Top	S1	X	X
Jan062816WET01_M	01_Mid		X	X
Jan062816WET01_B	01_Bottom		X	X
Jan062816WET02_T	02_Top	S2	X	X
Jan062816WET02_M	02_Mid		X	X
Jan062816WET02_MD	02_Mid (Duplicate)		X	X
Jan062816WET02_B	02_Bottom		X	X
Jan062816WET03_T	03_Top	S3	X	X
Jan062816WET03_M	03_Mid		X	X
Jan062816WET03_B	03_Bottom		X	X
Jan062816WET04_T	04_Top	S4	X	X
Jan062816WET04_M	04_Mid		X	X
Jan062816WET04_B	04_Bottom		X	X
Jan062816CON	05_CONTROL	S5	X	X
Jan Wet VEG	VEG	Composite nearby S1, S2, S3, S4	X	-

The samples were collected using an AMS Replaceable Tip San/Loose Sediment Probe with a 1" diameter by 36" long probe body. The soil probe is equipped with a core catcher (liner) which ensures full sample recovery in the proper soil conditions. The disposal plastic liner also serves as a contamination barrier between samples. A fresh liner was used for each sample. Photos of the liners containing the samples are found in Attachment A. The probe body was advanced 36" into the wetland soil using a slide hammer and then retracted for sample recovery.

The control sample (native soil) was a composite from the excavated soil of one foot deep hole located outside the north wetland boundary and slightly up gradient to stay away from any impacts by the wetland or roadway to the south.

The vegetation sample was taken from the stems and leaves of the vegetation nearby each wetland soil sample point. Three quart size bags of vegetation were collected in total.

3. TESTING/RESULTS

3.1. Soil Samples

The wetland and control soil samples were analyzed for both ICP total metals and toxicity characteristic leaching procedure (TCLP) metals.

3.1.1. ICP Total Metals

Samples were subjected to a whole rock analysis using Aqua Regia Digestion followed by analysis using inductively couple plasma (ICP Method 6010B) to determine trace metals in solution. The results for ICP metals are summarized in Table 2 below. The laboratory results are presented in Attachment B.

ICP results from the wetland soil samples indicate that barium, cadmium, chromium, mercury, selenium, and silver were below the NR-SRL. All the arsenic results were above the NR-SRL. (It should be noted that the arsenic NR-SRL is not a risk-based standard but is based on statewide average background levels.) Seven samples out of 12 were above the NR-SRL for lead. One middle sample (Wet02) was a duplicate.

The control sample (Jan062816CON) was below the NR-SRL for all the RCRA metals.

Table 2. ICP Total Metals Results

Parameter	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
NR-SRL[1]	10	170,000	510	4500	800	310	5100	5100
01_Top	***21***	41	3.8	25	***1,800***	0.2	ND	4
01_Mid	***19***	37	2.3	20	550	0.09	ND	ND
01_Bottom	***56***	43	4.3	18	***5,300***	0.17	ND	5.2
02_Top	***36***	32	5.8	13	***10,000***	1.1	ND	16
02_Mid	***36***	29	9.3	9.8	***27,000***	1.3	ND	34
02_Mid (duplicate)	***47***	60	11	17	***30,000***	0.88	ND	48
02_Bottom	***31***	40	3.5	14	***1,600***	ND	ND	1.1
03_Top	***21***	26	4.3	13	500	0.071	ND	5.2
03_Mid	***32***	38	5.9	14	***2,200***	0.11	ND	2.1
03_Bottom	***38***	31	3.7	22	530	0.17	ND	0.99
04_Top	***150***	16	15	7.8	80	ND	ND	3.9
04_Mid	***44***	31	6.3	11	***29,000***	0.18	ND	3.5
04_Bottom	***26***	22	4.3	11	340	0.21	ND	ND
05_CONTROL	5.1	59	3.1	26	38	ND	ND	ND

Notes: ND – Non Detect
Values in ***bold*** and *italic* are above the Non-Residential Soil Remediation Levels NR- SRL
[1] Arizona Administrative Code, Title18, Ch. 7

3.1.2. Toxicity Characteristic Leaching Procedure (TCLP)

Samples were subjected to the toxicity characteristic leaching procedure (TCLP, EPA Method 1311). The results for TCLP are summarized in Table 3 and the laboratory results are presented in Attachment B.

TCLP results from the 12 wetland soil samples indicate that arsenic, barium, cadmium, chromium, mercury, selenium, and silver were below the TCLP regulatory levels. Five samples out of twelve were above the TCLP regulatory level for lead. However, for the reasons discussed above, these levels would not result in the soil being considered hazardous waste under RCRA because of the Bevill Amendment exclusion.

Table 3. TCLP Results

Parameter	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TCLP Regulatory Levels	5.0	100.0	1.0	5.0	5.0	0.2	1.0	5.0
01_Top	ND	ND	0.029	ND	ND	ND	ND	ND
01_Mid	ND	ND	ND	ND	ND	ND	ND	ND
01_Bottom	ND	ND	ND	ND	***83***	ND	ND	ND
02_Top	ND	ND	ND	ND	***7.6***	ND	ND	ND
02_Mid	ND	ND	ND	ND	***200***	ND	ND	ND
02_Mid (duplicate)	ND	ND	ND	ND	***190***	ND	ND	ND
02_Bottom	ND	ND	ND	ND	0.6	ND	ND	ND
03_Top	ND	ND	ND	ND	ND	ND	ND	ND
03_Mid	ND	ND	0.023	ND	***25***	ND	ND	ND
03_Bottom	ND	ND	ND	ND	***5.5***	ND	ND	ND
04_Top	ND	ND	ND	ND	ND	ND	ND	ND
04_Mid	ND	ND	ND	ND	4.2	ND	ND	ND
04_Bottom	ND	ND	ND	ND	ND	ND	ND	ND
05_CONTROL	ND	ND	ND	ND	ND	ND	ND	ND

Note: ND – Non Detect

Values in ***bold*** and *italic* are above the TCLP Regulatory Levels

[1]40 CFR 261, Appendix II, 1993d ed., as amended by 58 FR 46040, August 31, 1993

3.2. Vegetation Sample

This sample was collected to screen the types of plants that are in the wetland and determine the extent that COC may have bio-accumulated into the plant tissue. This will help determine characteristics of the local wetland vegetation and provide more information to assess if the plants can be transplanted into the planned full scale water treatment system.

A visual inspection of the vegetation was performed to identify different vegetation species and to roughly assess the relative abundance of each species. The results of this screening inspection were:

- Cattails – 50%
- Western wheatgrass – 20%
- Reed grass and great bulrush – 20%
- Trees (Arizona ash or Mexican elderberry, black willow, and juniper), limber pine – 5%
- Sphagnum moss – 5%

The entire vegetation sample collected in the field was provided to the laboratory for pulverization, drying, Aqua Regia Digestion, and analysis using inductively couple plasma (ICP Method 6010B) to determine trace metals content in the plant tissue. The results are shown in Table 4 below and in Appendix C.

ICP results from the wetland vegetation samples indicate that all RCRA metals concentrations were below the NR-SRL. Other metals (aluminum, copper, iron, manganese, and zinc) were also analyzed to determine if the existing wetland plants can be used in the full scale wetland.

Table 4. Plant Tissue Results

Parameter	Al	As	Ba	Cd	Cr	Cu	Fe	Pb	Mn	Hg	Se	Ag	Zn
Units	mg/Kg												
NR-SRL[1]		10	170,000	510	4500			800		310	5100	5100	
VEG	24	ND	0.9	ND	ND	10	60	ND	1090	14.1	ND	ND	157

Notes: ND – Non Detect

[1] Arizona Administrative Code, Title18, Ch. 7

4. SUMMARY/RECOMMENDATIONS

4.1. Soils

The purpose of the soil characterization was to obtain information that can be used to evaluate the wetland soils and precipitated materials for levels of contaminants of concern and to determine the approximate zones where COC may be located. In addition, the information would be used to decide if the soil could be used as a "seed" inoculant for the full scale passive treatment system (PTS).

Below are zone profiles showing the concentrations results for Arsenic (ICP Metals only) and Lead (ICP Metals and TCLP) relative to the sample locations where they were detected. The color shade in each zone gets darker as the concentration increases to help visually illustrate where the more concentrated samples results were found. Arsenic and lead were the only COCs above the given regulatory levels and thus the only ones illustrated. Sample point S1 is closer to the effluent end of the wetland (northwest corner) and point S4 is closer to the influent end (southeast corner).

Arsenic Concentration by Sample Zone (ICP Total Metals Results in mg/Kg)

Depth\Area	S1	S2	S3	S4
Top	***21***	***36***	***21***	***150***
Mid	***19***	***36/47***	***32***	***44***
Bottom	***56***	***47***	***38***	***26***

Note: The Non-Residential Soil Remediation Levels (NR- SRL) for Arsenic is 10 mg/KG

Lead Concentration by Sample Zone (ICP Total Metals Results in mg/Kg)

Depth\Area	S1	S2	S3	S4
Top	***1,800***	***10,000***	500	80
Mid	550	***27,000/30,000***	***2,200***	***29,000***
Bottom	***5,300***	***1,600***	530	340

Note: The Non-Residential Soil Remediation Levels (NR- SRL) for lead is 800 mg/KG

Lead Concentration by Sample Zone (TCLP Results in mg/l)

Depth\Area	S1	S2	S3	S4
Top	ND	***7.6***	ND	ND
Mid	ND	***200/190***	***25***	4.2
Bottom	***83***	0.6	***5.5***	ND

Note: The TCLP Regulatory Level for Lead is 5.0 mg/l

These results (elevated lead levels) are consistent with the geology of the local bedrock which is being evaluated as a prospective zinc, lead, and silver deposit (Arizona Mining Website, 2016). The wetland soils could potentially be managed/comingled with tailings from the future ore processing mill or disposed of in either of two managed tailings storage facilities developed during previous mining & milling operations at the site.

4.2. Vegetation

Based on the wetland vegetation sample results, the plants could most likely be used in the full scale wetland.

5. REFERENCES

Sovereign (2015) Wetland Sampling and Characterization Plan. Prepared for Arizona Mining and CPE. September 25, 2015

40 CFR 261, Appendix II, 1993 ed., as amended by FR 46040, August 31, 1993.

Arizona Administrative Code, Title 18, Ch. 7. Department of Environmental Quality – Remedial Action. March 31, 2019.

Arizona Mining Website, accessed July, 2016.

ATTACHMENT A

SAMPLE PHOTOS

Photo 1. January Adit Wetland

Photo 2: Sample Location

Photo 3: Sampling using AMS Replaceable Tip San/Loose Sediment Probe and Existing Soil Grab Sample

Photo 4: Samples S1, S2, S3, S4 in a liner

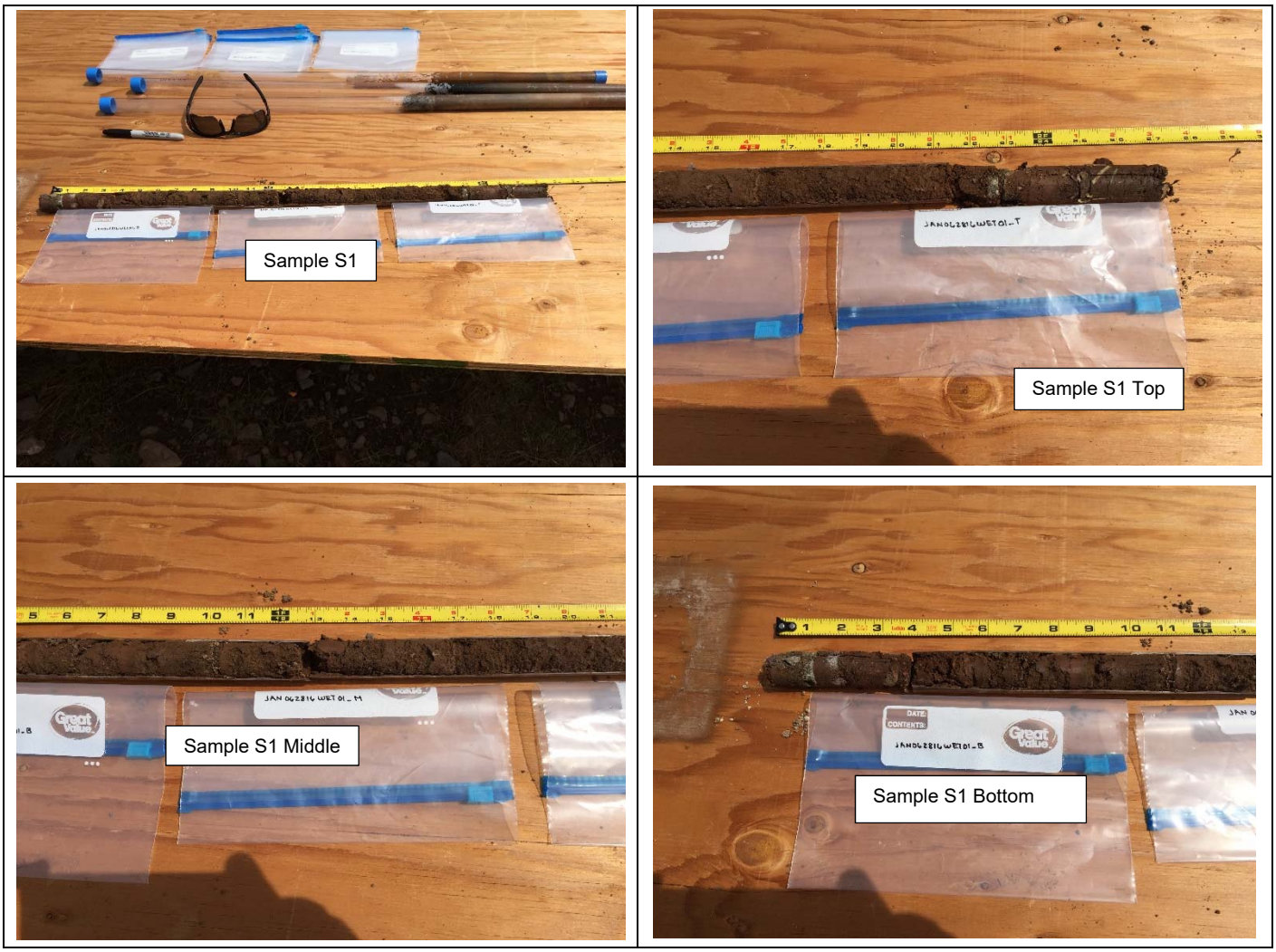

Photo 5: S1 Sample Soil Layers

Photo 6: S2 Sample Soil Layers

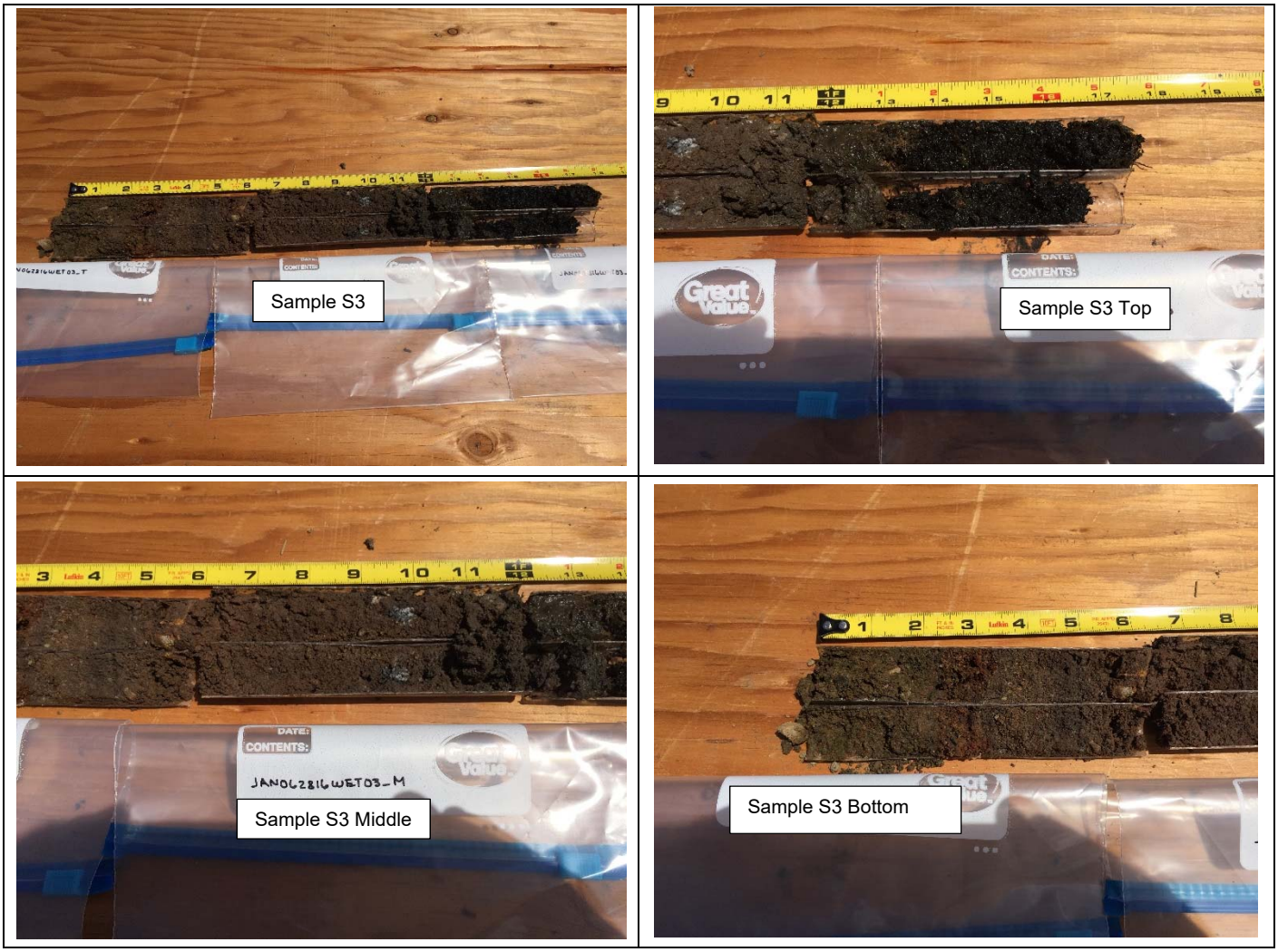

Photo 7: S3 Sample Soil Layers

Photo 8: S4 and S5 Soil Sample Layers

ATTACHMENT B

SOIL LABORATORY RESULTS

July 14, 2016

Guadalupe Fattore
Sovereign Consulting, Inc.
12687 West Cedar Drive, #305
Lakewood, CO 80228

TEL (720) 524-4908
FAX

Work Order No.: 16F0831
Order Name: Pilot Plant

RE: Pilot Plant

Dear Guadalupe Fattore,

Turner Laboratories, Inc. received 14 sample(s) on 06/29/2016 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Max DiSante
Technical Director

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

Order: Pilot Plant

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
16F0831-01	Jan062816WET01_T	Soil	06/28/2016 1000
16F0831-02	Jan062816WET01_M	Soil	06/28/2016 1000
16F0831-03	Jan062816WET01_B	Soil	06/28/2016 1000
16F0831-04	Jan062816WET02_T	Soil	06/28/2016 1030
16F0831-05	Jan062816WET02_M	Soil	06/28/2016 1030
16F0831-06	Jan062816WET02_MD	Soil	06/28/2016 1030
16F0831-07	Jan062816WET02_B	Soil	06/28/2016 1030
16F0831-08	Jan062816WET03_T	Soil	06/28/2016 1100
16F0831-09	Jan062816WET03_M	Soil	06/28/2016 1100
16F0831-10	Jan062816WET03_B	Soil	06/28/2016 1100
16F0831-11	Jan062816WET04_T	Soil	06/28/2016 1130
16F0831-12	Jan062816WET04_M	Soil	06/28/2016 1130
16F0831-13	Jan062816WET04_B	Soil	06/28/2016 1130
16F0831-14	Jan062816CON	Soil	06/28/2016 0930

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

Case Narrative

M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
M7	Matrix spike recovery was low. Data reported per ADEQ policy 0154.000. Matrix interference was confirmed.
R13	MS/MSD RPD exceeded method acceptance limit. Matrix spike recovery was outside acceptance criteria. Batch precision and accuracy were demonstrated.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-01

Client Sample ID: Jan062816WET01_T
Collection Date/Time: 06/28/2016 1000
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1311	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
Cadmium	0.029		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1608	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1729	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.20		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1557	MR
ICP Total Metals-SW6010B									
Arsenic	21		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1517	MR
Barium	41		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1517	MR
Cadmium	3.8		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1517	MR
Chromium	25		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1517	MR
Lead	1800		10		mg/Kg	10	07/01/2016 0910	07/05/2016 1234	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1517	MR
Silver	4.0		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1940	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-02

Client Sample ID: Jan062816WET01_M
Collection Date/Time: 06/28/2016 1000
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1314	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1612	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1733	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.090		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1525	MR
ICP Total Metals-SW6010B									
Arsenic	19		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Barium	37		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Cadmium	2.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Chromium	20		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Lead	550		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1436	MR
Silver	ND		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1859	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-03

Client Sample ID: Jan062816WET01_B
Collection Date/Time: 06/28/2016 1000
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1316	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
Lead	83		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1615	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1737	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.17		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1559	MR
ICP Total Metals-SW6010B									
Arsenic	56		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1520	MR
Barium	43		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1520	MR
Cadmium	4.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1520	MR
Chromium	18		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1520	MR
Lead	5300		10		mg/Kg	10	07/01/2016 0910	07/05/2016 1238	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1520	MR
Silver	5.2		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1943	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-04

Client Sample ID: Jan062816WET02_T
Collection Date/Time: 06/28/2016 1030
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1319	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
Lead	7.6		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1619	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1740	MR
CVAA Total Mercury-SW 7471A									
Mercury	1.1		0.25		mg/Kg	5	07/05/2016 1320	07/06/2016 1612	MR
ICP Total Metals-SW6010B									
Arsenic	36		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1524	MR
Barium	32		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1524	MR
Cadmium	5.8		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1524	MR
Chromium	13		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1524	MR
Lead	10000		50		mg/Kg	50	07/01/2016 0910	07/05/2016 1331	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1524	MR
Silver	16		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1946	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-05

Client Sample ID: Jan062816WET02_M
Collection Date/Time: 06/28/2016 1030
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1321	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
Lead	200		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1623	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1744	MR
CVAA Total Mercury-SW 7471A									
Mercury	1.3		0.25		mg/Kg	5	07/05/2016 1320	07/06/2016 1617	MR
ICP Total Metals-SW6010B									
Arsenic	36		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1527	MR
Barium	29		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1527	MR
Cadmium	9.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1527	MR
Chromium	9.8		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1527	MR
Lead	27000		100		mg/Kg	100	07/01/2016 0910	07/05/2016 1334	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1527	MR
Silver	34		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1950	MR

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Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-06

Client Sample ID: Jan062816WET02_MD
Collection Date/Time: 06/28/2016 1030
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1329	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
Lead	190		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1547	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1708	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.88		0.25		mg/Kg	5	07/05/2016 1320	07/06/2016 1620	MR
ICP Total Metals-SW6010B									
Arsenic	47		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1619	MR
Barium	60		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1619	MR
Cadmium	11		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1619	MR
Chromium	17		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1619	MR
Lead	30000		100		mg/Kg	100	07/01/2016 0910	07/05/2016 1612	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1619	MR
Silver	48		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1953	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-07

Client Sample ID: Jan062816WET02_B
Collection Date/Time: 06/28/2016 1030
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1243	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
Lead	0.60		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1557	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1719	MR
CVAA Total Mercury-SW 7471A									
Mercury	ND		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1622	MR
ICP Total Metals-SW6010B									
Arsenic	31		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1623	MR
Barium	40		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1623	MR
Cadmium	3.5		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1623	MR
Chromium	14		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1623	MR
Lead	1600		10		mg/Kg	10	07/01/2016 0910	07/05/2016 1342	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1623	MR
Silver	1.1		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2007	MR

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Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-08

Client Sample ID: Jan062816WET03_T
Collection Date/Time: 06/28/2016 1100
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1332	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1632	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1805	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.071		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1625	MR
ICP Total Metals-SW6010B									
Arsenic	21		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Barium	26		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Cadmium	4.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Chromium	13		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Lead	500		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1626	MR
Silver	5.2		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2011	MR

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Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-09

Client Sample ID: Jan062816WET03_M
Collection Date/Time: 06/28/2016 1100
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1334	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
Cadmium	0.023		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
Lead	25		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1656	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1809	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.11		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1627	MR
ICP Total Metals-SW6010B									
Arsenic	32		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1629	MR
Barium	38		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1629	MR
Cadmium	5.9		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1629	MR
Chromium	14		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1629	MR
Lead	2200		10		mg/Kg	10	07/01/2016 0910	07/05/2016 1350	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1629	MR
Silver	2.1		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2014	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-10

Client Sample ID: Jan062816WET03_B
Collection Date/Time: 06/28/2016 1100
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1337	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
Lead	5.5		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1700	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1812	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.17		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1630	MR
ICP Total Metals-SW6010B									
Arsenic	38		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Barium	31		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Cadmium	3.7		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Chromium	22		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Lead	530		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1633	MR
Silver	0.99		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2017	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-11

Client Sample ID: Jan062816WET04_T
Collection Date/Time: 06/28/2016 1130
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1339	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1704	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1816	MR
CVAA Total Mercury-SW 7471A									
Mercury	ND		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1645	MR
ICP Total Metals-SW6010B									
Arsenic	150		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Barium	16		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Cadmium	15		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Chromium	7.8		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Lead	80		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1636	MR
Silver	3.9		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2021	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-12

Client Sample ID: Jan062816WET04_M
Collection Date/Time: 06/28/2016 1130
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1257	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
Lead	4.2		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1707	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1820	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.18		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1635	MR
ICP Total Metals-SW6010B									
Arsenic	44		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1640	MR
Barium	31		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1640	MR
Cadmium	6.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1640	MR
Chromium	11		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1640	MR
Lead	29000		100		mg/Kg	100	07/01/2016 0910	07/05/2016 1616	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1640	MR
Silver	3.5		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2024	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-13

Client Sample ID: Jan062816WET04_B
Collection Date/Time: 06/28/2016 1130
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1342	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1711	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1823	MR
CVAA Total Mercury-SW 7471A									
Mercury	0.21		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1642	MR
ICP Total Metals-SW6010B									
Arsenic	26		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Barium	22		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Cadmium	4.3		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Chromium	11		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Lead	340		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1643	MR
Silver	ND		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 2028	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Lab Sample ID: 16F0831-14

Client Sample ID: Jan062816CON
Collection Date/Time: 06/28/2016 0930
Matrix: Soil
Order Name: Pilot Plant

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A									
Mercury	ND		0.0010		mg/L	1	07/07/2016 1300	07/08/2016 1344	MR
ICP Metals, TCLP Leached by SW 1311-SW 6010B									
Arsenic	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
Barium	ND		0.50		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
Cadmium	ND		0.020		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
Chromium	ND		0.30		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
Lead	ND		0.40		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
Selenium	ND		0.40		mg/L	10	07/06/2016 1150	07/11/2016 1714	MR
Silver	ND		0.10		mg/L	10	07/06/2016 1150	07/08/2016 1827	MR
CVAA Total Mercury-SW 7471A									
Mercury	ND		0.050		mg/Kg	1	07/05/2016 1320	07/06/2016 1538	MR
ICP Total Metals-SW6010B									
Arsenic	5.1		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Barium	59		1.3		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Cadmium	3.1		0.050		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Chromium	26		0.75		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Lead	38		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Selenium	ND		1.0		mg/Kg	1	07/01/2016 0910	07/05/2016 1456	MR
Silver	ND		0.25		mg/Kg	1	07/01/2016 0910	07/08/2016 1919	MR

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1607014 - SW6010B										
Blank (1607014-BLK1)				Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	ND	1.0	mg/Kg							
Barium	ND	1.3	mg/Kg							
Cadmium	ND	0.050	mg/Kg							
Chromium	ND	0.75	mg/Kg							
Lead	ND	1.0	mg/Kg							
Selenium	ND	1.0	mg/Kg							
Silver	ND	0.25	mg/Kg							
LCS (1607014-BS1)				Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	45	1.0	mg/Kg	50.00		91	80-120			
Barium	47	1.3	mg/Kg	50.00		93	80-120			
Cadmium	44	0.050	mg/Kg	50.00		87	80-120			
Chromium	47	0.75	mg/Kg	50.00		94	80-120			
Lead	44	1.0	mg/Kg	50.00		87	80-120			
Selenium	40	1.0	mg/Kg	50.00		80	80-120			
Silver	21	0.25	mg/Kg	25.00		85	80-120			
LCS Dup (1607014-BSD1)				Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	46	1.0	mg/Kg	50.00		91	80-120	0.5	20	
Barium	47	1.3	mg/Kg	50.00		94	80-120	0.8	20	
Cadmium	44	0.050	mg/Kg	50.00		88	80-120	1	20	
Chromium	47	0.75	mg/Kg	50.00		95	80-120	0.9	20	
Lead	44	1.0	mg/Kg	50.00		88	80-120	1	20	
Selenium	40	1.0	mg/Kg	50.00		80	80-120	0.2	20	
Silver	21	0.25	mg/Kg	25.00		85	80-120	0.04	20	
Matrix Spike (1607014-MS1)	**Source: 16F0831-02**			Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	55	1.0	mg/Kg	50.00	19	72	75-125			M7
Barium	76	1.3	mg/Kg	50.00	37	78	75-125			
Cadmium	31	0.050	mg/Kg	50.00	2.3	57	75-125			M7
Chromium	55	0.75	mg/Kg	50.00	20	70	75-125			M7
Lead	480	1.0	mg/Kg	50.00	550	NR	75-125			M3
Selenium	25	1.0	mg/Kg	50.00	ND	49	75-125			M7
Silver	19	0.25	mg/Kg	25.00	ND	75	75-125			
Matrix Spike (1607014-MS2)	**Source: 16F0831-14**			Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	38	1.0	mg/Kg	50.00	5.1	66	75-125			M7
Barium	93	1.3	mg/Kg	50.00	59	68	75-125			M7
Cadmium	28	0.050	mg/Kg	50.00	3.1	50	75-125			M7
Chromium	56	0.75	mg/Kg	50.00	26	60	75-125			M7
Lead	64	1.0	mg/Kg	50.00	38	52	75-125			M7
Selenium	9.0	1.0	mg/Kg	50.00	ND	18	75-125			M7
Silver	15	0.25	mg/Kg	25.00	ND	59	75-125			M7

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1607014 - SW6010B										
Matrix Spike Dup (1607014-MSD1)	**Source: 16F0831-02**			Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	60	1.0	mg/Kg	50.00	19	81	75-125	7	20	
Barium	80	1.3	mg/Kg	50.00	37	86	75-125	5	20	
Cadmium	29	0.050	mg/Kg	50.00	2.3	53	75-125	6	20	M7
Chromium	54	0.75	mg/Kg	50.00	20	67	75-125	2	20	M7
Lead	830	1.0	mg/Kg	50.00	550	564	75-125	52	20	M3, R13
Selenium	24	1.0	mg/Kg	50.00	ND	47	75-125	4	20	M7
Silver	19	0.25	mg/Kg	25.00	ND	77	75-125	2	20	
Matrix Spike Dup (1607014-MSD2)	**Source: 16F0831-14**			Prepared: 07/01/2016 Analyzed: 07/05/2016						
Arsenic	38	1.0	mg/Kg	50.00	5.1	66	75-125	0.4	20	M7
Barium	89	1.3	mg/Kg	50.00	59	60	75-125	4	20	M7
Cadmium	28	0.050	mg/Kg	50.00	3.1	49	75-125	0.8	20	M7
Chromium	55	0.75	mg/Kg	50.00	26	58	75-125	2	20	M7
Lead	61	1.0	mg/Kg	50.00	38	46	75-125	5	20	M7
Selenium	9.0	1.0	mg/Kg	50.00	ND	18	75-125	0.08	20	M7
Silver	15	0.25	mg/Kg	25.00	ND	60	75-125	1	20	M7, R13
Batch 1607035 - SW 7471A										
Blank (1607035-BLK1)				Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	ND	0.050	mg/Kg							
LCS (1607035-BS1)				Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.24	0.050	mg/Kg	0.2500		94	85-115			
LCS Dup (1607035-BSD1)				Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.23	0.050	mg/Kg	0.2500		94	85-115	0.2	20	
Matrix Spike (1607035-MS1)	**Source: 16F0831-02**			Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.29	0.050	mg/Kg	0.2500	0.090	81	85-115			M7
Matrix Spike (1607035-MS2)	**Source: 16F0831-14**			Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.23	0.050	mg/Kg	0.2500	0.020	86	85-115			
Matrix Spike Dup (1607035-MSD1)	**Source: 16F0831-02**			Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.31	0.050	mg/Kg	0.2500	0.090	90	85-115	7	20	
Matrix Spike Dup (1607035-MSD2)	**Source: 16F0831-14**			Prepared: 07/05/2016 Analyzed: 07/06/2016						
Mercury	0.24	0.050	mg/Kg	0.2500	0.020	86	85-115	0.5	20	
Batch 1607059 - SW 6010B										
Blank (1607059-BLK1)				Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	ND	0.40	mg/L							
Barium	ND	0.50	mg/L							
Cadmium	ND	0.020	mg/L							
Chromium	ND	0.30	mg/L							
Lead	ND	0.40	mg/L							
Selenium	ND	0.40	mg/L							
Silver	ND	0.10	mg/L							

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1607059 - SW 6010B										
LCS (1607059-BS1)				Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000		103	80-120			
Barium	2.0	0.50	mg/L	2.000		100	80-120			
Cadmium	2.1	0.020	mg/L	2.000		103	80-120			
Chromium	2.0	0.30	mg/L	2.000		99	80-120			
Lead	1.9	0.40	mg/L	2.000		94	80-120			
Selenium	2.1	0.40	mg/L	2.000		105	80-120			
Silver	0.92	0.10	mg/L	1.000		92	80-120			
LCS Dup (1607059-BSD1)				Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000		104	80-120	0.5	20	
Barium	2.0	0.50	mg/L	2.000		102	80-120	2	20	
Cadmium	2.1	0.020	mg/L	2.000		104	80-120	1	20	
Chromium	2.0	0.30	mg/L	2.000		101	80-120	2	20	
Lead	1.9	0.40	mg/L	2.000		95	80-120	1	20	
Selenium	2.1	0.40	mg/L	2.000		106	80-120	0.5	20	
Silver	0.93	0.10	mg/L	1.000		93	80-120	0.8	20	
Matrix Spike (1607059-MS1)	**Source: 16F0831-06**			Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000	ND	103	75-125			
Barium	2.1	0.50	mg/L	2.000	0.15	99	75-125			
Cadmium	2.1	0.020	mg/L	2.000	ND	103	75-125			
Chromium	2.0	0.30	mg/L	2.000	0.030	100	75-125			
Lead	180	0.40	mg/L	2.000	190	NR	75-125			M3
Selenium	2.1	0.40	mg/L	2.000	ND	103	75-125			
Silver	0.94	0.10	mg/L	1.000	ND	94	75-125			
Matrix Spike (1607059-MS2)	**Source: 16F0831-07**			Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000	ND	105	75-125			
Barium	2.1	0.50	mg/L	2.000	0.076	100	75-125			
Cadmium	2.1	0.020	mg/L	2.000	ND	103	75-125			
Chromium	2.0	0.30	mg/L	2.000	0.028	99	75-125			
Lead	2.1	0.40	mg/L	2.000	0.60	77	75-125			
Selenium	2.0	0.40	mg/L	2.000	ND	101	75-125			
Silver	0.96	0.10	mg/L	1.000	ND	96	75-125			
Matrix Spike Dup (1607059-MSD1)	**Source: 16F0831-06**			Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000	ND	105	75-125	2	20	
Barium	2.2	0.50	mg/L	2.000	0.15	102	75-125	3	20	
Cadmium	2.1	0.020	mg/L	2.000	ND	105	75-125	2	20	
Chromium	2.1	0.30	mg/L	2.000	0.030	102	75-125	3	20	
Lead	180	0.40	mg/L	2.000	190	NR	75-125	2	20	M3
Selenium	2.0	0.40	mg/L	2.000	ND	101	75-125	1	20	
Silver	0.97	0.10	mg/L	1.000	ND	97	75-125	3	20	

Turner Laboratories, Inc.

Date: 07/14/2016

Client: Sovereign Consulting, Inc.
Project: Pilot Plant
Work Order: 16F0831
Date Received: 06/29/2016

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1607059 - SW 6010B										
Matrix Spike Dup (1607059-MSD2)		**Source: 16F0831-07**		Prepared: 07/06/2016 Analyzed: 07/08/2016						
Arsenic	2.1	0.40	mg/L	2.000	ND	104	75-125	0.9	20	
Barium	2.1	0.50	mg/L	2.000	0.076	101	75-125	1	20	
Cadmium	2.1	0.020	mg/L	2.000	ND	104	75-125	0.5	20	
Chromium	2.0	0.30	mg/L	2.000	0.028	101	75-125	2	20	
Lead	2.1	0.40	mg/L	2.000	0.60	76	75-125	1	20	
Selenium	2.0	0.40	mg/L	2.000	ND	99	75-125	1	20	
Silver	0.97	0.10	mg/L	1.000	ND	97	75-125	0.5	20	
Batch 1607067 - SW 1311/7471A										
Blank (1607067-BLK1)				Prepared & Analyzed: 07/08/2016						
Mercury	ND	0.0010	mg/L							
LCS (1607067-BS1)				Prepared & Analyzed: 07/08/2016						
Mercury	0.0052	0.0010	mg/L	0.005000		104	85-115			
LCS Dup (1607067-BSD1)				Prepared & Analyzed: 07/08/2016						
Mercury	0.0051	0.0010	mg/L	0.005000		103	85-115	1	20	
Matrix Spike (1607067-MS1)		**Source: 16F0831-07**		Prepared & Analyzed: 07/08/2016						
Mercury	0.0024	0.0010	mg/L	0.005000	0.00010	47	85-115			M7
Matrix Spike (1607067-MS2)		**Source: 16F0831-12**		Prepared & Analyzed: 07/08/2016						
Mercury	0.0046	0.0010	mg/L	0.005000	ND	93	85-115			
Matrix Spike Dup (1607067-MSD1)		**Source: 16F0831-07**		Prepared & Analyzed: 07/08/2016						
Mercury	0.0025	0.0010	mg/L	0.005000	0.00010	49	85-115	4	20	M7
Matrix Spike Dup (1607067-MSD2)		**Source: 16F0831-12**		Prepared & Analyzed: 07/08/2016						
Mercury	ND	0.0010	mg/L	0.005000	ND		85-115		20	M7, R13

TURNER LABORATORIES INC.
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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 16F0831 DATE 6/28/16 PAGE 1 OF 1

PROJECT NAME January Adit # DV020
CONTACT NAME Guadalupe Fattore
COMPANY NAME Sovereign Consulting Inc
ADDRESS 12687 W Cedar Dr. Ste 305
CITY Lakewood STATE CO ZIP CODE 80228
PHONE 720-524-4908 FAX
SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	ICP-E200.7 As,Ba,Cd,Cr,Pb,Hg,Se,Ag	TCLP As,Ba,Cd,Cr,Pb,Hg,Se,Ag
Jan062816WET01_T	6/28/2016	10:00		SG/SL	1	X	X
Jan062816WET01_M		↓		SG/SL	1	X	X
Jan062816WET01_B		↓		SG/SL	1	X	X
Jan062816WET02_T		10:30		SG/SL	1	X	X
Jan062816WET02_M		↓		SG/SL	1	X	X
Jan062816WET02_MD		↓		SG/SL	1	X	X
Jan062816WET02_B		↓		SG/SL	1	X	X
Jan062816WET03_T		11:00		SG/SL	1	X	X
Jan062816WET03_M		↓		SG/SL	1	X	X
Jan062816WET03_B		↓		SG/SL	1	X	X
Jan062816WET04_T		11:30		SG/SL	1	X	X
Jan062816WET04_M		↓		SG/SL	1	X	X
Jan062816WET04_B		↓		SG/SL	1	X	X
Jan062816CON		9:30		SL	1	X	X

1. RELINQUISHED BY:
Signature
Guadalupe Fattore
Printed Name
Sovereign Consulting
Firm
6/29/16
Date/Time 13:10

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
X Standard (approx.10 days)*
Next day 2 Day 5 Day*
Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
I. Routine Report
X II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account Y N
P.O. # DV020
Bill to: Sovereign Consulting

SAMPLE RECEIPT:
Total Containers 14
Temperature 33.1
☐ Wet Ice ☐ Blue Ice
NO

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Printed Name
TURNER LABORATORIES, INC.
Firm
6/29/16 1310
Date/Time

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis: ☐ Yes ☐ No	Custody Seals ☐	Preservation Confirmation NO	
ADEQ Forms: ☐ Yes ☐ No	Container Intact ☒	Appropriate Head Space ☒	
Mail ADEQ Forms: ☐ Yes ☐ No	COC/Labels Agree ☒	Received Within Hold Time ☒	

ATTACHMENT C

VEGETATION LABORATORY RESULTS

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

August 24, 2016

Report to:
Guadalupe Fattore
Sovereign Consulting Inc.
12687 W. Cedar Dr.
Ste 305
Lakewood, CO 80228

cc: Jim Gusek

Bill to:
Lee Josselyn
Sovereign Consulting Inc
12687 W. Cedar Dr
Ste 305
Lakewood, CO 80228

Project ID: DV020
ACZ Project ID: L31934

Guadalupe Fattore:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on July 25, 2016. This project has been assigned to ACZ's project number, L31934. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L31934. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 23, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Sovereign Consulting Inc.
Project ID: DV020
Sample ID: JANWET_VEG

ACZ Sample ID: ***L31934-01***
Date Sampled: *07/25/16 16:00*
Date Received: *07/25/16*
Sample Matrix: *Plant Tissue*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010B ICP	106	24		*	mg/Kg	3	20	08/22/16 12:48	aeb
Arsenic, total (3050)	M6010B ICP	106		U	*	mg/Kg	4	20	08/22/16 12:48	aeb
Barium, total (3050)	M6010B ICP	106	0.9	B	*	mg/Kg	0.3	2	08/22/16 12:48	aeb
Cadmium, total (3050)	M6010B ICP	106		U	*	mg/Kg	0.5	2	08/22/16 12:48	aeb
Chromium, total (3050)	M6010B ICP	106		U	*	mg/Kg	1	5	08/22/16 12:48	aeb
Copper, total (3050)	M6010B ICP	106	10		*	mg/Kg	1	5	08/22/16 12:48	aeb
Iron, total (3050)	M6010B ICP	106	60		*	mg/Kg	2	5	08/22/16 12:48	aeb
Lead, total (3050)	M6010B ICP	106		U	*	mg/Kg	3	20	08/22/16 12:48	aeb
Manganese, total (3050)	M6010B ICP	106	1090		*	mg/Kg	0.5	3	08/22/16 12:48	aeb
Mercury by Direct Combustion AA	M7473	1	14.1	B	*	ng/g	6.66	33.3	08/16/16 10:28	pta
Selenium, total (3050)	M6010B ICP	106		U	*	mg/Kg	5	30	08/22/16 12:48	aeb
Silver, total (3050)	M6010B ICP	106		U	*	mg/Kg	1	3	08/22/16 12:48	aeb
Zinc, total (3050)	M6010B ICP	106	157		*	mg/Kg	1	5	08/22/16 12:48	aeb

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Moisture Content	D2216-80	1	79.3		*	%	0.1	0.5	08/03/16 12:30	arc/bcc

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				08/03/16 8:00	arc
Digestion - Hot Plate	M3050B ICP				*				08/16/16 23:02	bcc
Plant Tissue Pulverization	USDA #60, Method 53				*				08/15/16 9:20	arc

Arizona license number: AZ0102

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

Sovereign Consulting Inc.

ACZ Project ID: ***L31934***

Aluminum, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		2.012	mg/L	101	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.09	0.09			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-9	9			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	598		190.5	mg/Kg		179	239			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	1.0013		1.034	mg/Kg	103	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	1.0013		1.03	mg/Kg	103	80	120	0	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	106.1378	24	162.9	mg/Kg	131	75	125			M1
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	106.1378	24	160.7	mg/Kg	129	75	125	1	20	M1

Arsenic, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	4		4.014	mg/L	100	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.12	0.12			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-12	12			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	1.0018		1.009	mg/Kg	101	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	1.0018		.993	mg/Kg	99	80	120	2	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	106.1908	U	104.2	mg/Kg	98	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	106.1908	U	108.2	mg/Kg	102	75	125	4	20	

Barium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.989	mg/L	99	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.009	0.009			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-0.9	0.9			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.5005		.4886	mg/Kg	98	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.5005		.487	mg/Kg	97	80	120	0	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53.053	.9	52.45	mg/Kg	97	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53.053	.9	51.51	mg/Kg	95	75	125	2	20	

Cadmium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.977	mg/L	99	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.015	0.015			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-1.5	1.5			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	1.52		1.22	mg/Kg		1.22	1.82			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.502		.4838	mg/Kg	96	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.502		.478	mg/Kg	95	80	120	1	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53.212	U	51.15	mg/Kg	96	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53.212	U	51.01	mg/Kg	96	75	125	0	20	

Sovereign Consulting Inc.

ACZ Project ID: ***L31934***

Chromium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.976	mg/L	99	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.03	0.03			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-3	3			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.5005		.496	mg/Kg	99	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.5005		.492	mg/Kg	98	80	120	1	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53.053	U	52.1	mg/Kg	98	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53.053	U	52.4	mg/Kg	99	75	125	1	20	

Copper, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.983	mg/L	99	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.03	0.03			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-3	3			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	4.7		4.4	mg/Kg		3.8	5.6			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.501		.491	mg/Kg	98	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.501		.493	mg/Kg	98	80	120	0	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53.106	10	62.6	mg/Kg	99	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53.106	10	62	mg/Kg	98	75	125	1	20	

Iron, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.993	mg/L	100	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.06	0.06			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-6	6			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	368		296.1	mg/Kg		294	442			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	1.0017		.981	mg/Kg	98	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	1.0017		1.005	mg/Kg	100	80	120	2	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	106.1802	60	176.7	mg/Kg	110	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	106.1802	60	172.1	mg/Kg	106	75	125	3	20	

Lead, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	4		3.875	mg/L	97	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.09	0.09			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-9	9			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	1.001		.968	mg/Kg	97	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	1.001		.944	mg/Kg	94	80	120	3	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	106.106	U	103.3	mg/Kg	97	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	106.106	U	102.6	mg/Kg	97	75	125	1	20	

Sovereign Consulting Inc.

ACZ Project ID: ***L31934***

Manganese, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		1.963	mg/L	98	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.015	0.015			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-1.5	1.5			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	246		222.7	mg/Kg		197	295			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.5		.503	mg/Kg	101	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.5		.5001	mg/Kg	100	80	120	1	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53	1090	1192.5	mg/Kg	193	75	125			M3
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53	1090	1217.94	mg/Kg	241	75	125	2	20	M3

Mercury by Direct Combustion AA M7473

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG406800													
WG406800ICV1	ICV	07/26/16 9:46	HG160713-1	100		103	ng/g	103	90	110			
WG406800ICV2	ICV	07/26/16 9:54	HG160713-2	100		94.1	ng/g	94	90	110			
WG406800ICV3	ICV	07/26/16 10:07	HG160713-3	1000		952	ng/g	95	90	110			
WG406800ICV4	ICV	07/26/16 10:13	HG160713-3	1000		944	ng/g	94	90	110			
WG408241													
WG408241ICV1	ICV	08/16/16 8:33	HG160811-3	100		99.1	ng/g	99	90	110			
WG408241ICV2	ICV	08/16/16 8:50	HG160811-4	100		91.3	ng/g	91	90	110			
WG408241ICV3	ICV	08/16/16 9:06	HG160811-5	1000		971	ng/g	97	90	110			
WG408241ICV4	ICV	08/16/16 9:15	HG160811-5	1000		937	ng/g	94	90	110			
WG408241PBS	PBS	08/16/16 9:55				U	ng/g		-6	6			
WG408241LCSS	LCSS	08/16/16 10:03	PCN50816	34		34.3	ng/g		80	120			
WG408241LCSSD	LCSSD	08/16/16 10:16	PCN50816	34		31.7	ng/g		80	120	8	20	
L31934-01DUP	DUP	08/16/16 10:40			14.1	15.4	ng/g				9	20	RA
L31934-01MS	MS	08/16/16 10:57	HG160811-3				ng/g	93	80	120			

Moisture Content D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG407565													
WG407565PBS	PBS	08/03/16 12:30				100	%		99.9	100.1			

Selenium, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	4		3.913	mg/L	98	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.15	0.15			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-15	15			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.999		.996	mg/Kg	100	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.999		.954	mg/Kg	95	80	120	4	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	105.894	U	108.2	mg/Kg	102	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	105.894	U	111.4	mg/Kg	105	75	125	3	20	

Sovereign Consulting Inc.

ACZ Project ID: ***L31934***

Silver, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	1.001		1.029	mg/L	103	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.03	0.03			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-3	3			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.501		.45	mg/Kg	90	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.501		.471	mg/Kg	94	80	120	5	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	53.106	U	48.4	mg/Kg	91	75	125			
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	53.106	U	48.1	mg/Kg	91	75	125	1	20	

Zinc, total (3050) M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG408521													
WG408521ICV	ICV	08/22/16 12:19	II160805-2	2		2.017	mg/L	101	90	110			
WG408521ICB	ICB	08/22/16 12:22				U	mg/L		-0.03	0.03			
WG408234PBS	PBS	08/22/16 12:35				U	mg/Kg		-3	3			
WG408234LCSS1	LCSS	08/22/16 12:38	PCN50816	30.9		28.8	mg/Kg		24.7	37.1			
WG408234LFB1	LFB	08/22/16 12:41	II160802-3	.4995		.499	mg/Kg	100	80	120			
WG408234LFBD1	LFBD	08/22/16 12:44	II160802-3	.4995		.491	mg/Kg	98	80	120	2	20	
L31934-01MS	MS	08/22/16 12:51	II160802-3	52.947	157	226.1	mg/Kg	131	75	125			M3
L31934-01MSD	MSD	08/22/16 12:54	II160802-3	52.947	157	229.4	mg/Kg	137	75	125	1	20	M3

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Sovereign Consulting Inc.

ACZ Project ID: ***L31934***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L31934-01	WG408521	Aluminum, total (3050)	M6010B ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Cadmium, total (3050)	M6010B ICP	ZG	The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Manganese, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG408241	Mercury by Direct Combustion AA	M7473	Q6	Sample was received above recommended temperature.
			M7473	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG408521	Zinc, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.

Sovereign Consulting Inc. ACZ Project ID: ***L31934***

Metals Analysis

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Aluminum, total (3050)	M6010B ICP
Arsenic, total (3050)	M6010B ICP
Barium, total (3050)	M6010B ICP
Cadmium, total (3050)	M6010B ICP
Chromium, total (3050)	M6010B ICP
Copper, total (3050)	M6010B ICP
Iron, total (3050)	M6010B ICP
Lead, total (3050)	M6010B ICP
Manganese, total (3050)	M6010B ICP
Mercury by Direct Combustion AA	M7473
Selenium, total (3050)	M6010B ICP
Silver, total (3050)	M6010B ICP
Zinc, total (3050)	M6010B ICP

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Mercury by Direct Combustion AA	M7473
Selenium, total (3050)	M6010B ICP

Soil Analysis

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Moisture Content	D2216-80

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Moisture Content	D2216-80

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Sample Receipt

Sovereign Consulting Inc.
DV020

ACZ Project ID:	L31934
Date Received:	07/25/2016 16:19
Received By:	kmo
Date Printed:	7/26/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?		X	
The Date:Time was not present on the sample containers or the Relinquished section. Sample logged in for receive date.			
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. The project manager is contacting the client.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA24397	27.6	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Sovereign Consulting Inc.
DV020

ACZ Project ID:	L31934
Date Received:	07/25/2016 16:19
Received By:	kmo
Date Printed:	7/26/2016

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L31934

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Guadalupe Fattore
Company: Sovereign Consulting Inc.
E-mail: gfattore@sovcon.com
Address: 12687 W Cedar Dr. Ste 305
Lakewood, CO 80228
Telephone: 720-524-4908

Copy of Report to:

Name: Jim Gusek
Company: Sovereign Consulting Inc.
E-mail: jgusek@sovcon.com
Telephone: 720-524-4908

Invoice to:

Name: Lee Josselyn
Company: Sovereign Consulting Inc.
E-mail: josselynl@sovcon.com
Address: 12687 W Cedar Dr. Ste 305
Lakewood, CO 80228
Telephone: 720-524-4908

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Guadalupe **Sampler's Site Information** **State** Arizona **Zip code**_____ **Time Zone**_____

***Sampler's Signature:** Guadalupe Fattore

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: Metals-ICP-Plant
PO#: DV020
Reporting state for compliance testing: Arizona
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals-ICP-Plant							
JanWet_Veg		Veg	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
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				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
		[signature]	7.25.16 1600

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L31934 Chain of Custody

Appendix G

CWA Section 404 JD Documents

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
3636 N. CENTRAL AVE, SUITE 900
PHOENIX, AZ 85012-1939

October 13, 2016

Tom Klimas
WestLand Resources, Inc.
1750 South Woodlands Village Blvd.
Flagstaff, Arizona 86001

SUBJECT: Approved Jurisdictional Determination Regarding Geographic Jurisdiction

Dear Mr. Klimas:

I am responding to your request (File No. SPL-2016-00752-MWL) dated June 10, 2016, for an approved Department of the Army jurisdictional determination (JD) for the January Adit Passive Treatment System project site (Sections 4 and 5, Township 23 South, Range 16 East) located southeast of the Town of Patagonia, Santa Cruz County, Arizona.

Based on available information, I have determined waters of the United States do not occur on the project site. The basis for our determination can be found in the enclosed Approved Jurisdictional Determination (JD) form(s).

This letter includes an approved jurisdictional determination for the January Adit Passive Treatment System project site. If you wish to submit new information regarding this jurisdictional determination, please do so within 60 days. We will consider any new information so submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. If you object to this or any revised or reissued jurisdictional determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you wish to appeal this decision, you must submit a completed RFA form within 60 days of the date on the NAP to the Corps South Pacific Division Office at the following address:

Tom Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division, CESPD-PDS-O, 2042B
1455 Market Street
San Francisco, California 94103-1399

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5 (see below), and that it has been received by the Division Office by December 12, 2016.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the particular project site identified in your request, and is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Thank you for participating in the regulatory program. If you have any questions, please contact me at 602-230-6953 or via e-mail at Michael.W.Langley@usace.army.mil. Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

Sallie Diebolt

Sallie Diebolt
Chief, Arizona Branch
Regulatory Division

Enclosure(s)

Appendix H

Sampling and Analysis Plan

(to be determined from AZPDES Permit)

Appendix I

Community Involvement Notices and Forms

NOTICE OF 45-DAY PUBLIC COMMENT PERIOD
ASARCO JANUARY ADIT (NORTON MINE)
VOLUNTARY REMEDIATION PROGRAM (VRP) SITE
REMEDIAL ACTION WORK PLAN

The Arizona Department of Environmental Quality (ADEQ) has received a work plan for a Passive Treatment System (Work Plan) for the ASARCO January Adit (Norton Mine) VRP Site, VRP Site Code 505143-02. The Work Plan proposes a passive treatment system designed to treat the waters discharging from the January Adit and precipitation induced seepage from Tailing Piles 1, 2 and 4. The work plan was submitted in accordance with Arizona Revised Statutes (A.R.S.) § 49-175 and § 176. The ASARCO January Adit (Norton Mine) VRP Site is located near Patagonia, Arizona.

The work plan is available for review online at: http://www.azdeq.gov/notices, at the Patagonia Public Library, 346 Duquesne Ave., Patagonia, (520) 394-2010 and at the ADEQ Records Center, 1110 W. Washington St., Phoenix, (602) 771-4380, or (800) 234-5677, ext. 6022345677; please call for hours of operation and to schedule an appointment.

PARTIES WISHING TO SUBMIT WRITTEN COMMENTS regarding the Work Plan for the ASARCO January Adit (Norton Mine) VRP Site may do so to Arizona Mining Inc., Attention: Johnny Pappas at 3845 North Business Center Drive, Suite 115, Tucson, AZ 85705. Comments may also be submitted to ADEQ, Attention: John Patricki, VRP, 1110 W. Washington St., Phoenix, AZ 85007, or jp10@azdeq.gov and reference this listing. **Comments must be postmarked to Arizona Mining and/or ADEQ no later than December 5, 2016.**

To request an auxiliary aid or service for accessible communication, please contact ADEQ at (602) 771-4791 or at aap@azdeq.gov or dial 7-1-1 for TTY/TTD Services.

Dated this 21 and 28 day of October, 2016
Johnny Pappas, Arizona Mining Inc.

Si desea esta información en Español, por favor llame al (602) 771-4189 ó sin tarifa al (800) 234-5677 y marque el número 2 para Español.