NEW MEXICO ENVIRONMENT DEPARTMENT
GROUND WATER QUALITY BUREAU

GROUND WATER DISCHARGE PERMIT APPLICATION

Instructions for completing the application are included in the form itself and in the Supplemental Instructions found at the back of the application. You may fill out the application manually, or a Microsoft Word version may be downloaded from www.env.nm.gov (Ground Water Quality) and filled out electronically. Timely processing of this application is contingent upon the technical completeness of the submission. Failure to provide all of the information pursuant to Section 20.6.2.3106 NMAC, following notice of technical deficiency, may result in denial of the application.

Send two complete paper copies AND one electronic copy of this application, with the filing fee to:

Program Manager
Ground Water Pollution Prevention Section
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502

Introduction

Facility Name: Copper Flat Mine

GWQB – Date of Receipt
(Department use only)

For Existing Discharge Permits:

DP Number: DP-01
Expiration Date: N/A

Type of Discharge (*check one*):

☐ Domestic
☐ Industrial
☐ Agricultural
☒ Mining

Type of Application (*check appropriate box*)

☐ New – new facility
☐ New – existing (unpermitted) facility
☐ Renewal only
☐ Modification only
"modification" includes a change in the location of a discharge, and/or increase in the quantity of the discharge, and/or a change in the quality of the discharge.
☒ Renewal and Modification

Part I only
per NMED Instruction
Pages 1 through 9

If this application is to *modify* or *renew and modify* a Discharge Permit, what is the reason for modification of the Discharge Permit? Describe the proposed changes that would result in modification, meaning a change in the location of a discharge, and/or an increase in the quantity of the discharge, and/or a change in the quality of the discharge.

The reason for modification of the Discharge permit is that NMCC proposes to recommence operation of the Copper Flat mine. The mine has not operated since 1982 and all of the mine facility will be reconstucted per NMCC's application. The proposed changes are described in detail in the attached application. Briefly, NMCC proposes to rebuild all of the processing facilities, recommence the mining operation and construct a new tailings disposal facility and waste rock stockpiles. While the location of the discharges is generally the same, the quantity of the discharge will change

Fees Included with Application

All applicants are required to submit a **$100 Application Filing Fee**. An additional fee will be assessed prior to permit issuance. Permit fees are listed in section 20.6.2.3114 NMAC. **Make checks payable to: NMED-Ground Water Quality Bureau**

Application Checklist

The following checklist has been provided to assist in ensuring that the application is complete prior to submission (*check all that apply*):

☐	Part I. Administrative Completeness ☐ $100 Application Filing Fee $1,000 fee per Copper Rule ☒ A. General Information ☒ B. Public Notice Information ☒ C. Public Notice Preparation
☒	Part II. Technical Completeness ☒ A. Discharge Volume and Description ☒ B. Identification and Physical Description of Facility ☒ C. Flow Metering ☒ D. Ground Water Monitoring ☒ E. Engineering and Surveying (electronic copies) ☐ F. Land Application Area
☒	Part III. Site-Specific Proposals
☒	Part IV. Electronic (PDF) format of Maps and Logs is required (additional paper copies of maps and logs are optional and may be requested by the Department if required for review) ☒ A. Surface Soil Survey and Vadose Zone Geology ☒ B. Location Map ☒ C. Flood Zone Map

Copies of Application

An applicant applying for a Discharge Permit shall submit **two paper copies of the signed application, and an electronic copy of the signed application including all supporting documentation**, to the address listed below.

☒ Two paper copies – completed and signed

☒ Electronic copy in portable document format (PDF) of the signed application and all supporting documentation (designs, maps, logs), on the following media *(choose one)*:

☒ Compact disc (CD)/DVD ☐ Flash drive

Send application and fees to the following address:
Program Manager
Ground Water Pollution Prevention Section
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502

Applicant's Signature

Signature must be that of the person listed as the legally responsible party on this application (Part I, 2a).

I, the applicant, attest under penalty of law to the truth of the information and supporting documentation contained in this application for a Ground Water Discharge Permit.

Signature: J Smith Date: 12/9/2015

Printed Name: Jeff Smith Title: COO

Part I. Administrative Completeness

General Information

1. Facility Information

See Supplemental Instructions to determine what constitutes a "facility." The physical address must be provided. If the facility does not have an address, the location can be described by road intersections, mile posts, or landmarks, as appropriate. See Supplemental Instructions for additional information.

Facility Name	New Mexico Copper Corporation Copper Flat Mine
Discharge Permit #	DP-01
Physical Address	85 Copper Rock Rd., Hillsboro NM 88042
County	Sierra
Type of Facility	Open pit copper mine and concentrate production facility
Driving Directions	South from Albuquerque on Interstate 25 165 miles to Exit 63 onto to NM State Highway 152 toward Hillsboro, west on NM 152 for 10.3 miles, turn right on Gold Dust Road (marked with a Copper Flat Project sign) to enter the mine site. Follow signs to the mine project office.

2. Contact Information

a) Applicant Information The applicant is the person or entity (e.g., corporation, partnership, organization, *municipality*, etc.) legally responsible for the discharge and for complying with the terms of the Discharge Permit. If the applicant is an entity, then the name and title of a contact person must be provided. This application must be signed by the applicant or contact person named here.

Applicant Name	Jeff Smith			Title	Chief Operating Officer
Mailing Address	4253 Montgomery Blvd. NE				
	City	Albuquerque	State NM	Zip	87109
Contact Person	Jeff Smith			Title	Chief Operating Officer
	Office Number	505-382-5770		Fax Number	
Contact Information	Cell Number	520-991-4588		E-mail	jsmith@themacresourcesgroup.com

b) Facility Operator/Manager Information Provide the contact information for the facility operator or manager below. If the facility is required to have an operator certified by the State of New Mexico, please include the certification level of the operator named here.

Name	Same as above			Title	
Mailing Address					
	City		State	Zip	
Contact Information	Office Number			Fax Number	
	Cell Number			E-mail	

Cell Number		E-mail	

Certification Level (if applicable) ____

c) Consultant's Information (if applicable) If the consultant is a company or organization, then the name and title of a contact person must be provided here.

Company Name (1)	Velasquez Environmental Management Services, Inc.				
Company Contact	Juan R. Velasquez				
Mailing Address	12912 Sand Cherry Pl. NE				
	City: Albuquerque	State	NM	Zip	87111
Contact Information	Office Number	505-239-3728	Fax Number		
	Cell Number	505-239-3728	E-mail	jvelasquez@vemsinc.com	

Company Name (2)					
Company Contact					
Mailing Address					
	City		State		Zip
Contact Information	Office Number		Fax Number		
	Cell Number		E-mail		

d) Permit Contact Information (if applicable) If someone other than the contacts listed above is a primary contact for this application and/or facility, list here.

Name	Same as Applicant		Title		
Mailing Address					
	City		State		Zip
Contact Information	Office Number		Fax Number		
	Cell Number		E-mail		
Facility Affiliation					

<u>3. Ownership and Real Property Agreements</u> [20.6.2.7HH NMAC]

The applicant owns (check as appropriate):

☒ The facility
☒ All discharge sites
☒ Some discharge sites

If someone other than the applicant owns the facility or any of the discharge sites, provide ownership information below. For any portion of the facility where the applicant is not the owner of record, the applicant shall submit a copy of any lease agreement or other agreement which authorizes the use of the real property for the duration of the term of the requested permit (typically five years). Lease prices or other prices may be redacted.

- If more than one person has ownership interest, or a partnership exists, list all persons with an ownership interest.
- If a corporate entity holds an ownership interest, provide the name of the corporate entity and the entity's registered agent as filed with the New Mexico Public Regulation Commission.

Name	See Information provided in Application Section 20.6.7.11.C Ownership of the Facility is mixed. Some land is fee land owned by the applicant and other land is either patented land and/or unpatented land owned by the federal government and administered by the US BLM		Title	
Mailing Address				
	City	State	Zip	
Contact Information	Office Number		Fax Number	
	Cell Number		E-mail	
Owns	☐ The facility		☐ A discharge site	
	☐ Attached – lease (or other authorized use) agreement			

Name			Title	
Mailing Address				
	City	State	Zip	
Contact Information	Office Number		Fax Number	
	Cell Number		E-mail	
Owns	☐ The facility		☐ A discharge site	
	☐ Attached – lease (or other authorized use) agreement			

4. Public Notice Information

a) Proposed Maximum Daily Discharge Volume: 25,264,000 gallons per day

Note: Use the information from Part II.A.2 following its completion.

b) Depth-to-Most-Shallow Ground Water: 42 feet

Note: Use the information from Part II.A.2 following its completion.

c) Pre-Discharge Total Dissolved Solids Concentration in Ground Water

[Subsection C of 20.6.2.3106 NMAC]

Provide the concentration of total dissolved solids (TDS) in ground water prior to discharging from the facility. *Note: This information is likely the same as that submitted in the first application for a Discharge Permit for this facility.*

- Pre-discharge TDS concentration in ground water: 500-800 (See Section.6.7.11.G of application) mg/L (ppm)
  - ☐ Attached – Copy of laboratory analysis report (if available)
- From what source was the sample collected (e.g., upgradient monitoring well, on-site supply well, nearest well within a one-mile radius of the facility)?
  See Section 6.7.11.G of application

5. Facility Location

In the table below, describe the location for the entire facility by listing the Township, Range, and Section, and/or latitude and longitude for the locations of all components of the processing, treatment, storage, and/or disposal system. See Supplemental Instructions for additional information. [Paragraph (2) and (5) of Subsection C of 20.6.2.3106 NMAC]

Component[1] ID	Town ship	Range	Section(s)	Latitude	Longitude
See Section 20.6.7.11.E of application					

[1] Components include: septic tanks, impoundments, treatment systems, irrigation sites, leachfields, monitoring wells, mine stockpiles, etc. Additional examples are listed in the Supplemental Instructions. Each component should have a unique ID, for example septic tank-1, monitoring well-3, etc.

6. Processing, Treatment, Storage, and Disposal System

Briefly describe how wastewater, sludge, etc. is processed, treated, stored, and/or disposed of at your facility. Include each component listed in the table above.

Process water, storm water, tailings will be stored and/or disposed of in lined impoundments as described in the attached application

7. Public Notice Preparation [20.6.2.3108 NMAC]

Once NMED has determined that your application is administratively complete, you must complete the applicant's public notice requirements of Section 20.6.2.3108 NMAC. Language for notifications will be mailed to you with an administratively complete determination. Note: Guidance and instructions for completion of applicant's public notice can also be found at the following link: *https://www.env.nm.gov/gwb/NMED-GWQB-PublicNotice.htm*. The information requested below will be used by NMED to approve or reject the proposed public notice newspaper and signage posting locations in accordance with Subsection A of 20.6.2.3108 NMAC. Note: Other requirements of Section 20.6.2.3108 NMAC not listed here, such as certified mailings to nearby landowners, may also apply.

a) Public Notice Posting Locations

Select the type of application you are submitting and provide the requested information. Language to be used in the required notifications will be included in the administratively complete packet.

☐ Renewal Application

1. Following receipt of an administrative completeness determination from NMED, the applicant is required to provide public notice of this application by placing a 2 inch by 3 inch display ad (classified or legal sections are not acceptable) in a newspaper of general circulation in the location of the proposed discharge. Indicate the newspaper in which you intend to place the ad. [Subsection C of 20.6.2.3108 NMAC]

Newspaper: ____________________

☒ New Application, Modification Application, or Renewal with Modification Application

1. Following receipt of an administrative completeness determination from NMED, the applicant is required to provide public notice of this application by placing a display ad (classified or legal sections are not acceptable) in a newspaper of general circulation in the location of the proposed discharge. Indicate the newspaper in which you intend to place the ad. [Paragraph (4) of Subsection B of 20.6.2.3108 NMAC]

Newspaper: Sierra County Sentinel

2. Following receipt of an administrative completeness determination from NMED, the applicant is required to post a sign(s) (2 feet x 3 feet in size) for 30 days in a location conspicuous to the public at or near the facility. One sign must be posted for each 640 contiguous acres or less. NMED may require additional postings for facilities of more than 640 acres or when the discharge site(s) is not located on contiguous properties. Indicate the location(s) where you intend to display the sign(s). [Paragraph (1) of Subsection B of 20.6.2.3108 NMAC]

Note: Conspicuous location means a location where the sign is visible and legible to the public and the public has access (e.g., at facility entrance on public road).

- Is the entire facility (including all components and discharge sites) contained within **less than** 640 acres, <u>and</u> is the acreage contiguous?

  ☐ Yes - Indicate a sign location below.
  ☒ No – Indicate **two** sign locations below.

Sign Location(s): To be placed at the road pull-out on the souteast side of NM Highway 152 near Geronimo Trail Scenic Highway sign and another at a location to be determined, if necessary.

3. Following receipt of an administrative completeness determination from NMED, the applicant is required to post an additional notice (a flyer 8.5" X 11" or larger) for 30 days at an off-site location conspicuous to the public (e.g., public library). Indicate the location where you intend to display the flyer. [Paragraph (1) of Subsection B of 20.6.2.3108 NMAC]

Note: The U.S. Postal Service no longer allows the posting of flyers in post offices.

Flyer Location: Hillsboro Community Center

b) Mailing Instructions

a) The administrative completeness determination letter, including public notice instructions, should be sent to:

☒ Applicant ☐ Consultant

Copper Flat Mine
Discharge Permit Application
Pursuant to
20.6.7 NMAC

Prepared for:

New Mexico Environment Department

Ground Water Quality Bureau

And

New Mexico Copper Corporation

THEMAC RESOURCES | NEW MEXICO COPPER CORPORATION

Environmentally Responsible. Community-Minded. Local Opportunities.

Prepared by:

VEMS INC

Velasquez Environmental Management Services, Inc.

December 2015

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2. Appendix B, Impoundment Design Report, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corp. November, 2015
3. Appendix C, Process Facility Containment Report, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corp., November, 2015
4. Appendix D, Site Diversion Analysis, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corporation, November, 2015
5. Appendix E, Water Quality Monitoring Plan for the Copper Flat Mine Discharge Permit Pursuant to 20.6.7.11R and 20.6.7.28 NMAC, John Shomaker Associates, Inc., November, 2015

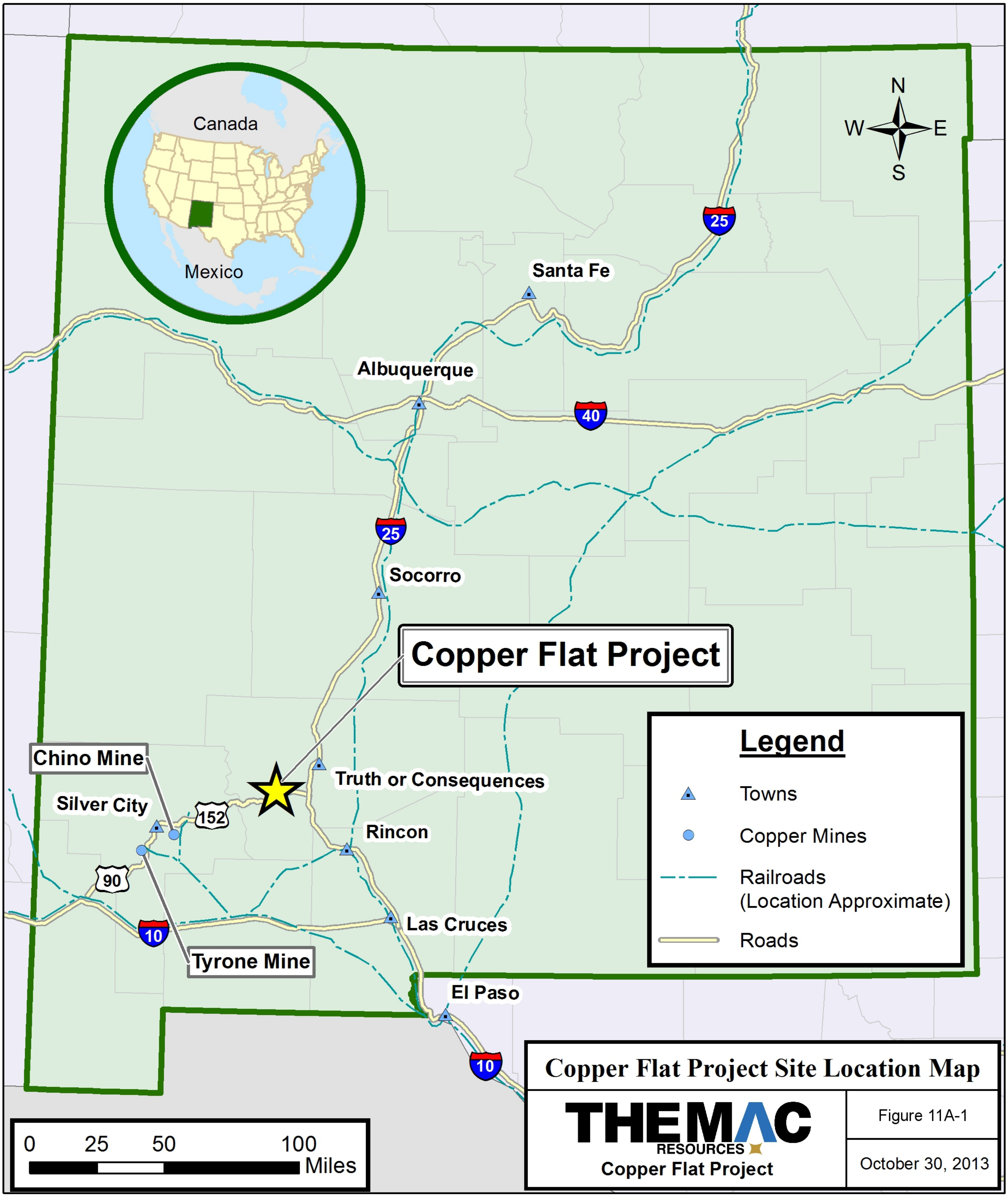
20.6.7.11.A INTRODUCTION

An application for a new discharge permit or a renewal of an existing discharge permit shall include the applicable information in this section. An application for a modification of an existing discharge permit shall include the information in this section relevant to the proposed modification but need not include information listed in this section if the information was submitted to the department in the prior discharge permit application and the information has not changed since the discharge permit was issued. The department may require separate operational and closure discharge permits, or may combine operational and closure requirements in the same permit.

New Mexico Copper Corporation (NMCC) is developing the Copper Flat Mine located approximately 150 miles south of Albuquerque, New Mexico and 20 miles southwest of Truth or Consequences, NM, north of NM state highway 152 between the communities of Caballo to the east and Hillsboro to the west in Sierra County, as shown on Figure 11A-1.

This Discharge Permit application provides the specific information required by Section **20.6.7.11 NMAC** of the New Mexico Ground Water Protection Regulations and is organized in a manner that presents all pertinent sections of the regulations followed by a discussion of the manner in which NMCC proposes to comply with the regulation. NMCC considers that this submittal is a renewal and modification of an existing discharge permit DP-001 per this section of the regulations. NMCC anticipates that approval of this Discharge Plan renewal and modification will address the issues pending with the NMED regarding abatement of certain existing site conditions that occurred as a result of previous operation of this facility. Further, NMCC recognizes its obligations to address abatement and closure of the site in accordance with the NMED ground water regulations regardless of the outcome of this application. It is NMCC's desire to proceed with future operation of the Copper Flat mine in a manner proposed herein while incorporating mitigation procedures that will ultimately address abate existing conditions at the site.

NMCC proposes to mine approximately 125 million tons of copper ore including low-grade ore. Over the life of the mine it will produce approximately 113 million tons of ore, 33 million tons of waste rock and 12 million tons of low-grade ore, defined by NMCC as mined material containing less than 0.20 percent copper. The low-grade ore maybe processed during operations during the operating life of the mine. Low grade material will be stockpiled along with the other waste rock produced until such time it is suitable for milling and processing. Annually, the mining operation will supply approximately 11 million tons of copper ore (an average of approximately 30,000 tons per day) to the mill for processing. Waste rock production is estimated to average approximately 3 million tons per year (ranging from 0 to 7 million tons annually). The mine life for the current reserve is estimated at 11 to 12 years.


Canada
Mexico
N
W
E
S
25
Santa Fe
Albuquerque
40
25
Socorro
Copper Flat Project
Legend
Towns
Copper Mines
Railroads
(Location Approximate)
Roads
Chino Mine
Silver City
152
Truth or Consequences
Rincon
90
10
Las Cruces
Tyrone Mine
El Paso
10
0 25 50 100
Miles
Copper Flat Project Site Location Map
THEMAC
RESOURCES
Copper Flat Project
Figure 11A-1
October 30, 2013

20.6.7.11.B CONTACT INFORMATION

An application shall include:

(1) *Applicant's name, title and affiliation with the copper mine facility, mailing address, and telephone number.*

Jeff Smith
Chief Operating Officer
New Mexico Copper Corporation
4253 Montgomery Blvd. NE
Suite 130
Albuquerque, NM 87109
(505) 382-5770

(2) *The name, mailing address and telephone number of each owner and operator of the copper mine facility.*

The owner and operator of the mine is New Mexico Copper Corporation. The address is that stated above.

(3) *If different than the applicant, the application preparer's name, title and affiliation with the copper mine facility, mailing address, telephone number and signature.*

Juan R. Velasquez, President of Velasquez Environmental Management Services, Inc. has prepared the application under a consulting contract with NMCC. VEMS Inc.'s address is:

12912 Sand Cherry Pl. NE
Albuquerque, NM 87111
505-239-3728

Dec 9, 2015

Juan R. Velasquez Date

(4) *The mailing address and telephone number of any independent contractor authorized to assist the copper mine facility with compliance with the Water Quality Act and 20.6.2 NMAC and 20.6.7 NMAC; and*

NMCC has not authorized any independent contractor(s) to assist with compliance with the Water Quality Act and 20.6.2 and 20.6.7.

(5) *If the person submitting the application is not the owner or operator of the copper mine facility, a certification that the person is duly authorized to submit the application on behalf of the owner or operator.*

NMCC is the owner of the mine and is the person submitting the application.

20.6.7.11.C OWNERSHIP AND REAL PROPERTY AGREEMENTS

(1) *An application shall include the copper mine facility owner's name, title, mailing address and phone number.*

- ***a)*** *If more than one person has an ownership interest in the copper mine facility or a partnership exists, then the applicant shall list all persons having an ownership interest in the copper mine facility, including their names, titles, mailing addresses and telephone numbers.*
- ***b)*** *If any corporate entity holds an ownership interest in the copper mine facility, the applicant shall also list the name(s), as filed with the New Mexico public regulation commission, of the corporate entity, and the corporate entity's registered agent's name and address.*

The Copper Flat facility is owned by New Mexico Copper Corporation (NMCC), a wholly-owned subsidiary of THEMAC Resources Group Limited, (THEMAC) a Canadian corporation.

NMCC's mailing address and telephone number are:

4253 Montgomery Blvd. NE
Suite 130
Albuquerque, NM 87109
505-382-5770

NMCC's registered agent is:

Mark Adams, Esq.
P.O. Box 1357
Santa Fe, NM 87504

THEMAC's mailing address and telephone number are:

700-510 West Hastings Street
Vancouver, British Columbia, Canada V6B, 1L8
(+1) 604-495-6723

(2) *If the applicant is not the owner of the real property upon which the copper mine facility is or will be situated, or upon which the discharge will occur, the applicant shall submit the name, address and telephone number of the owner(s), and a notarized statement from the owner which authorizes the use of the real property for the duration of the term of the requested permit. In the event the property is under federal or state ownership the applicant shall provide other evidence of authorization to enter public lands for mining.*

NMCC owns and/or controls all of the real property upon which the mine facility will be situated through a combination of fee ownership, and federal government patented and unpatented mining claims administered by the Bureau of Land Management (BLM) managed by the Las Cruces District Office of the BLM located at:

1800 Marquess Street
Las Cruces, NM 88005-3370
505-525-4300

The proposed mining will be conducted on unpatented lode, placer, and mill-site claims owned and controlled by NMCC. Claim names and BLM serial numbers are provided in Table 11C-1.

The Copper Flat mine will be situated within a 2190 acre parcel of property identified in the various maps and figures contained herein as the Mine Permit Area Boundary. While the NMED groundwater regulations are not structured in terms of a site boundary, Discharge Plan approval is one of several permissions that must be obtained as part of the New Mexico Mining Act permitting process and much of the information required by the Mining Act with respect to groundwater protection is contained in the Discharge Permit documentation. The mine permit requires designation of a permit area boundary. As such, the designated mine permit area boundary is incorporated into much of this document.

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
Unpatented Mining Claims	
Claim Name	**BLM Serial Number**
Graveyard Placer	NMMC 60021
Old Cabin Placer	NMMC 60022
Rainey Season Placer	NMMC 60027
Desert Gold Placer	NMMC 60043
Gray Back Placer	NMMC 60044
Black Sand Group 9 No. 1 Placer (amended)	NMMC 60045
Black Sand Group 10 No. 3 Placer (amended)	NMMC 60046
Surprise No. 1 Lode	NMMC 60052
Surprise No. 2 Lode	NMMC 60053
Dutch-1 Lode	NMMC 60054
Olympia (amended)	NMMC 60057
Gluck Auf	NMMC 60058
Taurus (amended)	NMMC 60059
Hercules	NMMC 60060
El Oro No. 3	NMMC 60063
Saint Louis Republic	NMMC 60069
Dolores, aka Delores	NMMC 60070
Highland No. 1	NMMC 60071
Highland No. 2	NMMC 60072
Highland No. 3	NMMC 60073
The Wellington	NMMC 60074
Three Boys No. 1 (amended)	NMMC 60080
Blue Moon (amended)	NMMC 60081
The Leone	NMMC 60082
Dolores Placer (amended)	NMMC 60083
Jones Hill Placer	NMMC 60084
Duke No. 1	NMMC 60085
Duke No. 2	NMMC 60086
Renew No. 1	NMMC 106464
Renew No. 2	NMMC 106465
M.S. #1	NMMC 60093
M.S. #2	NMMC 60094
M.S. #3	NMMC 60095

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
M.S. #4	NMMC 60096
M.S. #5	NMMC 60097
M.S. #6	NMMC 60098
M.S. #8	NMMC 60099
M.S. #10	NMMC 60101
M.S. #11	NMMC 60102
M.S. #12 (amended)	NMMC 60103
M.S. #13 (amended)	NMMC 60104
M.S. #14	NMMC 60105
M.S. #15	NMMC 60106
M.S. #16	NMMC 60107
M.S. #17	NMMC 60108
M.S. #18	NMMC 60109
M.S. #20	NMMC 60110
M.S. #21	NMMC 60111
M.S. #22	NMMC 60112
M.S. #23	NMMC 60113
M.S. #25	NMMC 60114
M.S. #26	NMMC 60115
M.S. #29	NMMC 60118
M.S. #33	NMMC 60122
M.S. #38	NMMC 60123
M.S. #48 (amended)	NMMC 60129
M.S. #49	NMMC 60130
M.S. #53 (amended)	NMMC 60131
M.S. #102	NMMC 60138
M.S. #104 (amended)	NMMC 60139
M.S. #105	NMMC 60140
M.S. #106	NMMC 60141
M.S. #107	NMMC 60142
M.S. 222 (amended)	NMMC 60170
M.S. 223 (amended)	NMMC 60171
M.S. 224 (amended)	NMMC 60172
M.S. 225 (amended)	NMMC 60173
M.S. 228 (amended)	NMMC 60176
M.S. 264 (amended)	NMMC 60194
M.S. 282 (amended)	NMMC 60210

TABLE 11C-1
NMCC Mining Claims and Fee Lands

M.S. 288 (amended)	NMMC 60216
M.S. 289 (amended)	NMMC 60217
M.S. 290 (amended)	NMMC 60218
M.S. 291 (amended)	NMMC 60219
M.S. 292 (amended)	NMMC 60220
M.S. 293 (amended)	NMMC 60221
M.S. 316 (amended)	NMMC 60240
M.S. 320 (amended)	NMMC 60244
M.S. 322 (amended)	NMMC 60246
M.S. 329 (amended)	NMMC 60253
M.S. 330 (amended)	NMMC 60254
M.S. 331 (amended)	NMMC 60255
M.S. 337 (amended)	NMMC 60261
M.S. 338 (amended)	NMMC 60262
M.S. 339 (amended)	NMMC 60263
M.S. 340 (amended)	NMMC 60264
M.S. 341 (amended)	NMMC 60265
M.S. 342 (amended)	NMMC 60266
M.S. 345 (amended)	NMMC 60267
M.S. 346 (amended)	NMMC 60268
MS. 347 (amended)	NMMC 60269
M.S. 438	NMMC 60312
M.S. 439	NMMC 60313
M.S. 440	NMMC 60314
M.S. 441	NMMC 60315
M.S. 452	NMMC 60318
M.S. 453	NMMC 60319
M.S. 454	NMMC 60320
M.S. 455	NMMC 60321
M.S. 456	NMMC 60322
M.S. 458	NMMC 60324
M.S. 460	NMMC 60326
M.S. 461	NMMC 60327
M.S. 462	NMMC 60328
M.S. 463	NMMC 60329
M.S. 464	NMMC 60330
M.S. 465	NMMC 60331

TABLE 11C-1
NMCC Mining Claims and Fee Lands

M.S. 467	NMMC 60333
M.S. 468	NMMC 60334
M.S. 469	NMMC 60335
M.S. 470	NMMC 60336
M.S. 471	NMMC 60337
M.S. 472	NMMC 60338
M.S. 473	NMMC 60339
M.S. 474	NMMC 60340
M.S. 475	NMMC 163361
M.S. 476	NMMC 163362
M.S. 477	NMMC 163363
M.S. 478	NMMC 163364
Animas #1 Placer	NMMC 60341
Animas #2 Placer	NMMC 60342
The Betsy Ross	NMMC 60344
Wicks Extension No. 1 (amended)	NMMC 60346
Anderson Extension No. 2	NMMC 60348
Crescent 101	NMMC 60349
Wicks Extension 100	NMMC 60350
Betsy Ross 101	NMMC 60351
Portland 101	NMMC 60352
Ready Pay Apex 100	NMMC 60353
Anderson Extension 101	NMMC 60354
Greer No. 2	NMMC 72821
Chatfield	NMMC 72822
Chatfield No. 3	NMMC 72823
Chatfield No. 4	NMMC 72824
Chatfield No. 5	NMMC 72825
Chatfield No. 6	NMMC 72826
Chatfield No. 9	NMMC 81353
Chatfield No. 10	NMMC 81354
Chatfield No. 25	NMMC 100695
Golden 1	NMMC 190838
Golden 2	NMMC 190839
Golden 3	NMMC 190840
Golden 4	NMMC 190841
Golden 5	NMMC 190842

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
Golden 6	NMMC 190843
Golden 7	NMMC 190844
Golden 8	NMMC 190845
Golden 9	NMMC 191032
Golden 10	NMMC 191039
Golden 11	NMMC 191033
Golden 12	NMMC 191034
Golden 13	NMMC 191035
Golden 14	NMMC 191036
Golden 15	NMMC 191037
Golden 16	NMMC 191038
CU 1	NMMC 189246
CU 2	NMMC 189247
CU 3	NMMC 189248
CU 4	NMMC 189249
CU 5	NMMC 189250
CU 6	NMMC 189251
CU 7	NMMC 189252
CU 8	NMMC 189253
CU 9	NMMC 189254
CU 10	NMMC 189255
CU 11	NMMC 189256
CU 12	NMMC 189257
CU 13	NMMC 189258
CU 14	NMMC 189259
CU 15	NMMC 189260
CU 16	NMMC 189261
CU 17	NMMC 189262
CU 18 (amended)	NMMC 189263
CU 19 (amended)	NMMC 189264
CU 20 (amended)	NMMC 189265
CU 21 (amended)	NMMC 189266
CU 22	NMMC 189267
CU 23	NMMC 189268
CU 24	NMMC 189269
CU 25	NMMC 189270
CU 26	NMMC 189271

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
CU 27	NMMC 189272
CU 28	NMMC 189273
CU 29	NMMC 189274
CU 30	NMMC 189275
CU 31	NMMC 189276
CU 32	NMMC 189277
CU 33	NMMC 189278
CU 34	NMMC 189279
CU 35	NMMC 189280
CU 36	NMMC 189281
CU 37	NMMC 189282
CU 38	NMMC 189283
CU 39	NMMC 189284
CU 40	NMMC 189285
CU 41	NMMC 189286
CU 42	NMMC 189287
CU 43	NMMC 189288
CU 44	NMMC 189289
CU 45	NMMC 191058
CU 46	NMMC 191059
CU 47	NMMC 191060
CU 48	NMMC 191061
CU 49	NMMC 191062
CU 50	NMMC 191063
CU 51	NMMC 191064
CU 52	NMMC 191065
CU 53	NMMC 191066
CU 54	NMMC 191076
CU 55	NMMC 191077
CU 56	NMMC 191078
CU 57	NMMC 191079
CU 58	NMMC 191080
CU 59	NMMC 191081
CU 60	NMMC 191082
CU 61	NMMC 191083
CU 62	NMMC 191084
CU 63	NMMC 191085

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
CU 64	NMMC 191086
CU 65	NMMC 191087
CU 66	NMMC 194880
CU 67	NMMC 194881
CU 68	NMMC 194882
CU 69	NMMC 194883
CU 70	NMMC 194884
CU 71	NMMC 194885
CU 72	NMMC 194886
CU 73	NMMC 194887
CU 74	NMMC 194888
CU 75	NMMC 194889
CU 76	NMMC 194890
CU 77	NMMC 194891
CU 78	NMMC 194892
CU 79	NMMC 194893
CU 80	NMMC 194894
CU 81	NMMC 194895
CU 82	NMMC 194896
CU 83	NMMC 194897
CU 84	NMMC 194898
CU 85	NMMC 194899
End Unpatented Mining Claims	

TABLE 11C-1
NMCC Mining Claims and Fee Lands

Claim Name	Mineral Survey
Patented Mining Claims	
Feeder	M.S. 943C
Chance	M.S. 945A
Xmas	M.S. 945B
Extension	M.S. 945D
Smokey Jones	M.S. 1024
Little Jewess	M.S. 1715
Wisconsin	Lot No. 805
Copper King	Lot No. 733A
Ventura	Lot No. 733B
Castle Hill	Lot No. 733C
Copperopolis	Lot No. 736
83	Lot No. 806
Soudan	Lot No. 807
Stenberg	M.S. 2066
Allhutten	M.S. 2066
Craze Martin	M.S. 2066
Coppenhagen	M.S. 2067
Carl Sextus	M.S. 2067
Union Leader	M.S. 2067
Stockholm	M.S. 2067
Grass Flat	M.S. 2068
Sandow	M.S. 2068
Old Mac	M.S. 2068
End Patented Mining Claims	

TABLE 11C-1 NMCC Mining Claims and Fee Lands	
Fee Lands	
Township, Range, Section	**Lot**
Township 15 South, Range 7 West	
Section 36	Part of Lot 1 (Parcel N)
Section 36	Part of Lot 4 (Parcel M)
Section 36	Part of Lot 6 (Parcel J)
Section 36	Lot 10 (Parcel L)
Section 36	Lot 11 (Parcel K)
Section 36	Part of N1/2SE1/4 (Parcel I)
Section 36	Part of N1/2S1/2SE1/4 (Parcel H)
Township 15 South, Range 6 West	
Section 31	Lot 3 (Parcel D)
Section 31	Lot 6 (Parcel G)
Section 31	Lot 7 (Parcel C)
Section 31	Part of NE1/4SW1/4 (Parcel E)
Section 31	N1/2SE1/4SW1/4 (Parcel B)
Section 31	Part of S1/2SE1/4NW1/4 (Parcel F)
Section 31	Part of SE1/4 (Parcel A)
Township 16 South, Range 6 West	
Section 6	Part of Lot 3 (Parcel P)
Section 6	Part of Lot 4 (Parcel 0)
End Fee Lands	

20.6.7.11.D SETBACKS

An application for a new copper mine facility shall include a scaled map of the proposed copper mine facility layout demonstrating that the copper mine facility meets the setback requirements of 20.6.7.19 NMAC.

20.6.7.19 SETBACK REQUIREMENTS FOR A COPPER MINES FACILITY APPLYING FOR A DISCHARGE PERMIT

20.6.7.19.E.(1) *requires that leach stockpiles, waste rock stockpiles, tailings impoundments, process water impoundments or impacted stormwater impoundments shall be located;*

- ***(a)*** *greater than 500 feet from a private domestic water well or spring that supplies water for human consumption; and*
- ***(b)*** *greater than 1000 feet from any water well or spring that supplies water for a public water system as defined by 20.7.10 NMAC, unless a wellhead protection program established by the public water system requires a greater distance.*

20.6.719.E.(4) *requires that setback distances shall be measured from the toe of the outer edge of a leach stockpile, waste tock stockpile, tailing impoundment, process water impoundment ore impacted stormwater impoundment as its final design build out.*

NMCC proposes to construct new waste rock stockpiles, a new tailings impoundment, new process water impoundments and impacted storm water impoundments. NMCC does not propose any leach stockpiles at the Copper Flat project. Figure 11D-1 is a scaled map of that shows the footprint of NMCC's proposed Copper Flat Mine Project Mine Permit Area Boundary, as defined by NMCC pursuant to the New Mexico Mining Act regulations for the New Mexico Mining and Minerals Division (MMD). All of the Copper Flat facilities, with the exception of the company's water supply wells and the pipeline that provides fresh water to the site, are otherwise located within the mine permit area boundary. Figure 11D-1 shows the location of private domestic water wells for human consumption and water wells that supply water for a public water system as defined by **20.7.10 NMAC**, in relation to the facility boundary. It shows that the closest private and public water supply wells are all located over three miles from the mine permit area boundary. Figure 11D-1 also shows the location of springs in the area of the project. However, none of the springs are sources of water for human consumption.

As shown on Figure 11D-1, the Smith Well, located along Percha Creek 3.5 miles southeast of NMCC's facilities, and the Chatfield Well, located along Las Animas Creek 3.8 miles northeast of NMCC's facilities, are the closest known private domestic water wells that supply water for human consumption. Figure 11D-1 also shows the location of the town of Hillsboro relative to the NMCC facilities, 3.2 miles from the mine site.

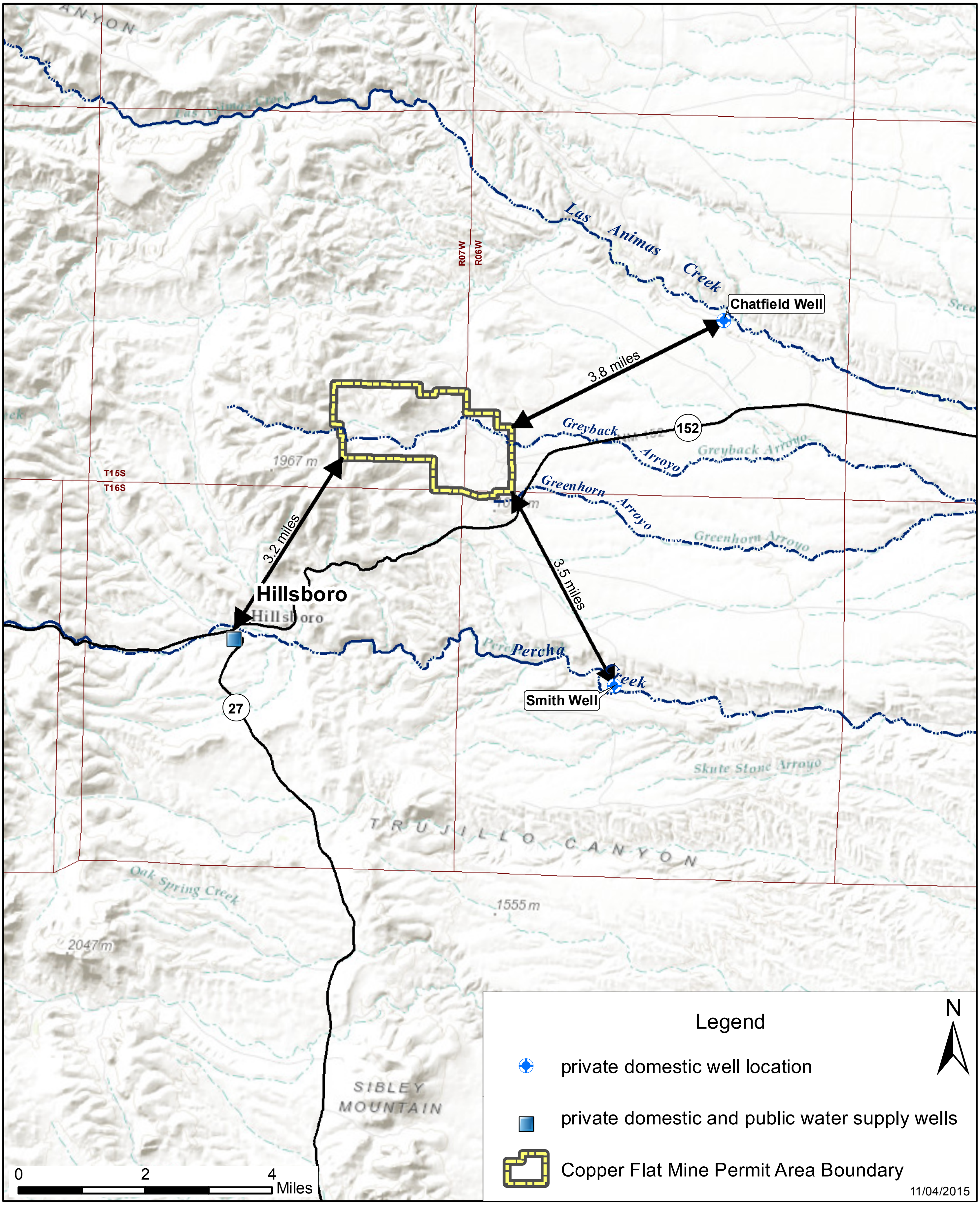


Figure 11D-1. Domestic and Public Water Supply Well Locations

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There are known to be a number of private water supply wells in the vicinity of Hillsboro, some of which are assumed to provide water for human consumption, although none have been specifically identified.

Figure 11D-1 demonstrates that the proposed NMCC mine facility meets the setback requirements of **20.6.7.19.E.(1) through (4)** of the Copper Rules. All of NMCC's proposed waste rock stockpiles, its tailings impoundment, process water impoundment and impacted storm water impoundments are located within the Mine Permit Area Boundary.

NMCC has not identified any springs within 500 ft. of the facility that supply water for human consumption nor any springs within 1000 ft. of the facility that supply water for a public water supply.

With respect to **20.6.7.19.E.(1).(b)** of the Copper Rules, as shown on Figure 11D-1, that the town of Hillsboro has a water well, or group of water wells, that supply water for a public water system. The system well(s) are over 3 miles from the southwestern edge of the NMCC facility Mine Permit Area Boundary. NMCC has not identified any springs within its area of data collection that supply water for a public water system.

With respect to **20.6.7.19.E.(4)** of the Copper Rules, all of the Copper Flat facilities are located within the mine permit area boundary and the toe of the outer edge of the proposed waste rock stockpiles, tailings impoundment, process water impoundments, and impacted storm water impoundments are all within the mine permit area boundary identified by NMCC for the MMD. All of the wells subject to the setback requirements are further than 500 ft. and 1000 ft. from the boundary. Therefore, the setback requirements are met. There are, of course, a number of other wells located throughout the site as well as others in the vicinity of the site. However, all of these wells serve a purpose other than to supply water for domestic and/or public consumption. Some are water quality monitoring wells. Others are livestock wells. As such, they have not been included herein. Information on those wells can be found in documentation previously submitted to the NMED by NMCC, such as the Baseline Data Report, and others.

20.6.7.11.E COPPER MINE FACILITY INFORMATION AND LOCATION

An application shall include:

(1) *the copper mine facility name, physical address and county;*

The facility name is the Copper Flat mine. Its physical address is:

85 Copper Rock Rd.
Hillsboro, New Mexico 88042

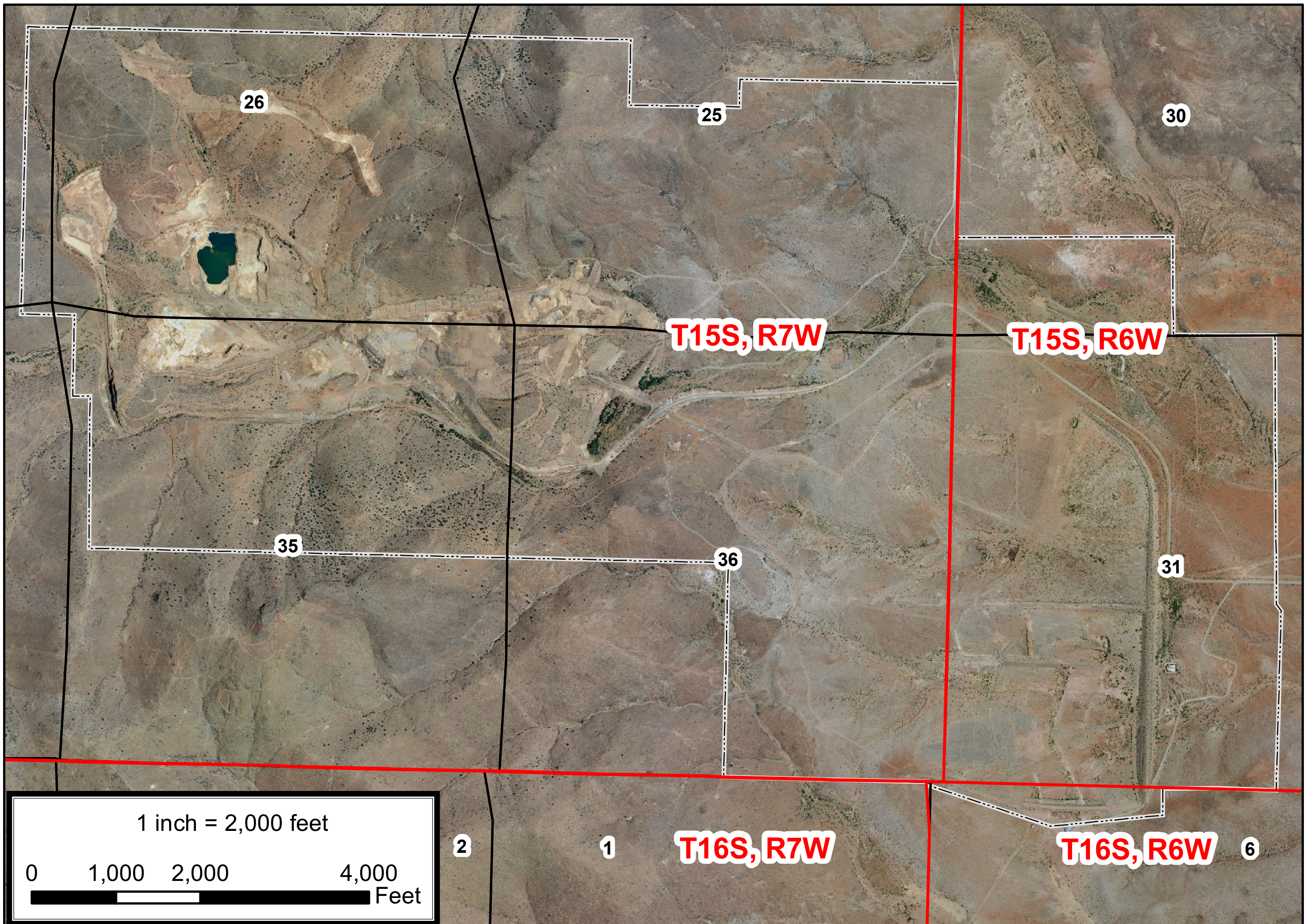
It is located north of NM state highway 152 between the communities of Caballo to the east and Hillsboro to the west in Sierra County, NM as shown on Figure 11E-1.

(2) *the township, range and section for the entire copper mine facility; and*

The facility is located in all or parts of Sections 30 and 31, Township 15 South, Range 6 West; Sections 25, 26, 35 and 36, Township 15 South, Range 7 West, New Mexico Principal Meridian, and Section 6, Township 16 South, Range 6 West, as shown on Figure 11E-1.

(3) *the total acreage of the copper mine facility.*

The total number of acres within the facility area is 2190.



Permit Boundary Area: 2,190 US Acres

Copper Flat Mine Address:
85 Copper Rock Rd.,
Hillsboro, Sierra County,
New Mexico 88042

Legend

Populated Areas

Interstates

Highway

Copper Flat Mine Permit Area Boundary

Township Boundary

Section Boundary

T16S Township

R6W Range

31 Section

Copper Flat Mine Facility Information and Location

THEMAC RESOURCES

Copper Flat Project

Figure 11E-1

August 6, 2015

20.6.7.11.F PUBLIC NOTICE PREPARATION

(1) *An application for a new, modified or renewed and modified discharge permit shall include the name of a newspaper of general circulation in the location of the copper mine facility for the display advertisement publication, the proposed public location(s) for posting of the 2-foot by 3-foot sign, and the proposed off-site public location for posting of the additional notice, as required by Subsection B of 20.6.2.3108 NMAC.*

(2) *An application for a renewed discharge permit that does not seek a discharge permit modification shall include the name of a newspaper of general circulation in the location of the copper mine facility for the future display advertisement publication as required by Subsection C of 20.6.2.3108 NMAC.*

Public notice will be provided in the Sierra County Sentinel. The required 2-foot by 3-foot sign will be placed at the road pull-out on the southeast side of New Mexico Highway 152 near the Geronimo Trail Scenic Highway sign and at a second location to be determined, if necessary. An off-site public notice flyer will be posted at the Hillsboro Community Center.

20.6.7.11.G PRE-DISCHARGE TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN GROUND WATER

An application shall include the pre-discharge total dissolved solids concentration, or range of concentration, from analytical results of ground water obtained from on-site test data from the aquifer(s) that may be affected by discharges from the copper mine facility. A copy of the laboratory analysis stating the pre-discharge total dissolved solids concentration shall be submitted with the application.

NMCC has identified three aquifers and associated sub-aquifers that may be affected by discharge from the Copper Flat mine facility. They are the;

1. Quaternary Alluvial aquifer associated with Grayback Arroyo and the alluvial fan and fluvial deposits in the Santa Fe Group
2. Santa Fe Group aquifer
3. Crystalline bedrock aquifer including the andesite and quartz monzonite

The range of pre-discharge total dissolved solids (TDS) concentrations in groundwater for these aquifers at the mine site is presented below. The data was summarized from several reports prepared for Quintana Minerals Corporation and New Mexico Copper Corporation as shown in Table 11G-1. All of these reports have been previously submitted to NMED. The laboratory reports associated with this data are incorporated into the reports. The data indicates that the results are generally consistent with the preoperational results provided to NMED by Quintana.

TABLE 11G-1
Source Reports Used For Pre-Discharge TDS Analysis

Report Title	Report Prepared By	Date
Tailings Dam and Disposal Area, Quintana Mineral Corporation, Copper Flat Project, Gold Dust, New Mexico	Sargent, Hauskins, and Beckwith (SHB 1980)	October 1980
Geohydrologic Evaluation For Submission of Discharge Plan, Copper Flat Project, Quintana Mineral Corporation, Sierra County, New Mexico	SHB (SHB 1981)	June 1981
Baseline Data Characterization Report, Copper Flat Mine, Sierra County, New Mexico	Intera et al. (Inter 2012)	June 2012
Results from the First Year of the Stage 1 Abatement Investigation at the Copper Flat Mine Site Near Hillsboro, New Mexico	John Shomaker and Associates (JSAI May 2014b)	May 2014

Table 11G-2 provides a summary of the pre-discharge TDS concentrations in groundwater for each aquifer.

TABLE 11G-2
Pre-Discharge TDS Concentrations

Aquifer	Sub-Aquifer	Pre-Discharge Concentration (mg/l)	Wells Sampled	Sample Date (m/yr)	Well Locations
Quaternary Alluvial	Grayback Alluvial Up-gradient of Ore	317-905	GWQ11-26	4/2013-10/2013	Up-gradient of the ore body
	Grayback Alluvial Down-gradient of Ore	868-1,260	GWQ-3[1] GWQ-5[2]	9/1976-2/1982	Down-Gradient of the ore body
	Alluvial Fan and Fluvial deposits in the Upper Santa Fe Group	354-840	SHB-27[3] SHB-28[3] SHB-29[3] SHB-30[3] NP-5	9/1976-2/1982	In the vicinity of the current TSF
Santa Fe Group	NA	350-650	GWQ-1 GWQ-2 GWQ-7 GWQ-8 GWQ-9 GWQ-10 GWQ-11 NP-1 NP-2 NP-3	6/1976-2/1982	In the vicinity of the current TSF down-gradient of the ore body
Crystalline Bedrock	Andesite	500-798	GWQ96-22A GWQ96-22B GWQ-4	6/1981-1/2013	Up-gradient of the ore body;
	Andesite	496-920	GWQ-5R GWQ96-23A GWQ96-23B	7/1996-10/2013[6]	Down-gradient of ore body
	Quartz Monzonite[4,5]	2,280-4,400	GWQ11-24A GWQ11-24B GWQ11-25B	1/2010-10/2013[6]	

1. GWQ-3 is a 33 ft. deep concrete lined well, 40 inches by 43 inches perforated from 10 to 33 feet.
2. GWQ-5 is a 20 ft. deep rock lined well located in Grayback Arroyo downstream of the Quintana Plant Site. Well was destroyed during construction of the Quintana Mine.
3. SHB 1981 SHB (1980) indicates that water samples were collected from geotechnical borings SHB-29, 30, 31, 33, and 34 and the water samples were submitted to "Controls for Environmental Pollution, Inc." for analysis. SHB (1981) describes these as "wells" SHB-27, 28, 29, 30, and 34. The relationship between soil borings and "wells" is not documented in either report. However, using the laboratory data reports from SHB-1980 and SHB 1981, the relationship between borings and wells can be established.
4. Quartz Monzonite TDS data from Well GWQ11-25A was not included as representative of the Quartz Monzonite because JSAI (2013) describes the groundwater chemistry samples from that well as "completely different from all other samples in the pit area". This well is completed in a localized zone of sulfide mineralization and the water source is suspected to be from oxygenated water infiltrating through sulfide bearing fractures with limited storage. TDS samples from GWQ-25A range from 11,300 to 27,700 mg/L.
5. Quartz Monzonite hosts the ore body
6. No pre-Quintana mining data exists

Figures 11G-1 through 4 are scatter-plot diagrams of the data reprented in Table 11G-2. Figure 11G-1 shows the pre-discharge TDS concentrations in the Grayback Alluvial Aquifer up gradient and down-gradient of the Copper Flat ore body. Even though monitoring well GWQ11-26 was recently installed in 2011, it is upgradient of the mine and the ore body; therefore, it is representative of pre-discharge conditions in that area. The TDS concentration in GWQ11-26 has been analyzed to be 905 mg/L or less. TDS samples collected from wells GWQ-3 and GWQ-5 in 1981 and 1982 represent pre-discharge TDS concentrations downgradient or the ore body. TDS concentration from GWQ-3 and GWQ-5 range from 868 mg/L to 1,260 mg/L suggesting that the ore body is naturally influenceing TDS concentrations in the Grayback Alluvial Aquifer downstream.

Figure 11G-2 shows consistent pre-discharge TDS concentrations for the Quaternary Alluvial and Fluvial deposits in the Upper Santa Fe Group Aquifer. More than 90 percent of the available pre-discharge data shows a consistent TDS concentration between about 380 and 580 mg. One outlier shows a TDS concentration of 840 mg/L.

Figure 11G-3 shows consistent pre-discharge TDS concentrations for the Santa Fe Group Aquifer. The TDS concentrations are consistently between 350 and 650 mg/L.

Figure 11G-4 shows that, in general, the TDS concentration in the Crystalline Bedrock Aquifer ranges from 500 mg/L to 920 mg/L. This is the case for groundwater within the hydrologic pit created by the pit and down-gradient of the pit. TDS concentration in groundwater sampled from wells within the ore body ranges from 2,280 to 4,400 mg/L. This illustrates the influence that the sulfide ore body has on the local groundwater quality.

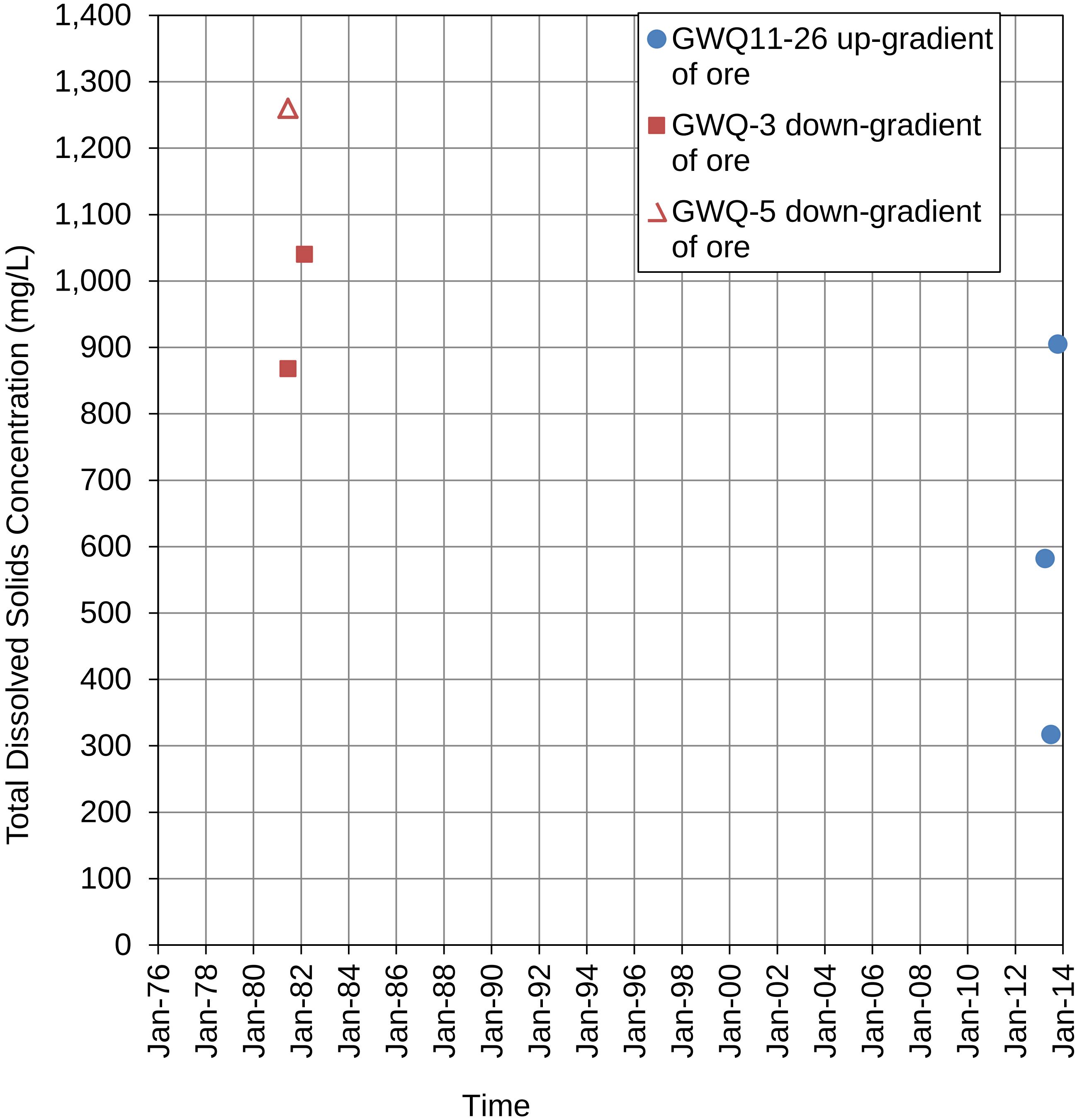


Figure 11G-1
Quaternary Grayback Alluvial Aquifer TDS Concentration

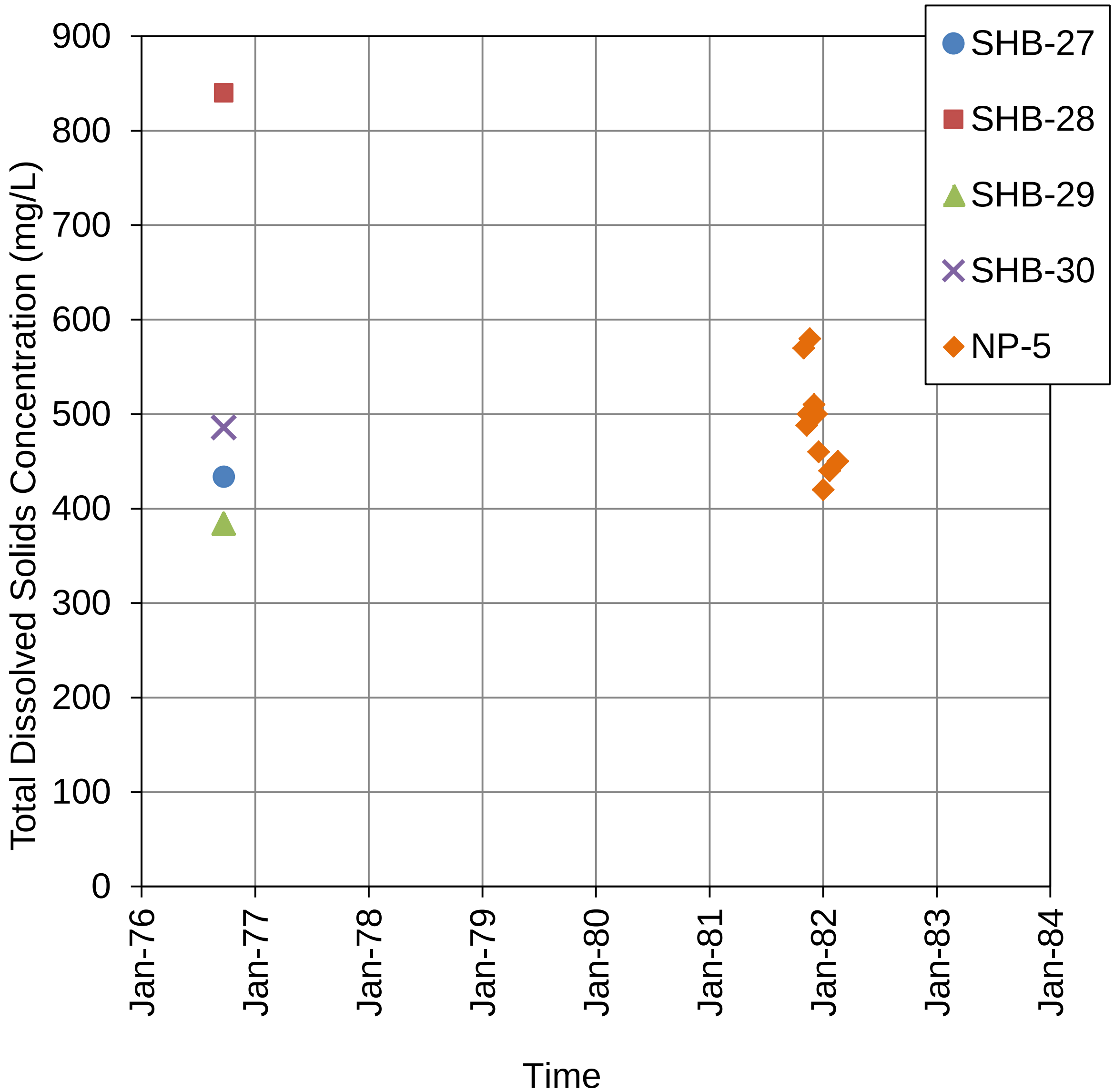


Figure 11G-2
Quaternary Alluvial & Fluvial Deposits in Upper Santa Fe Group TDS Concentration

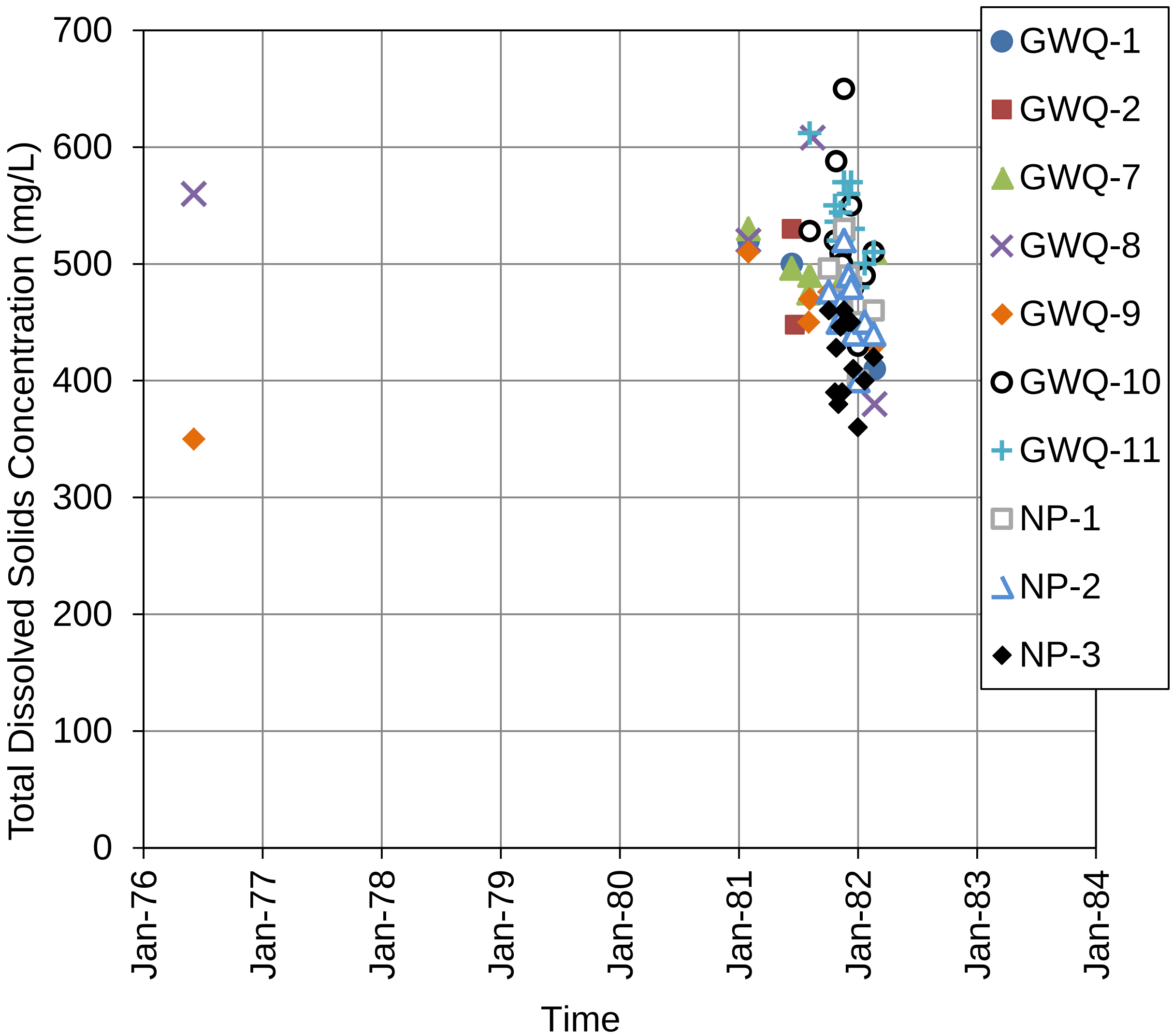


Figure 11G-3
Santa Fe Group Aquifer TDS Concentration

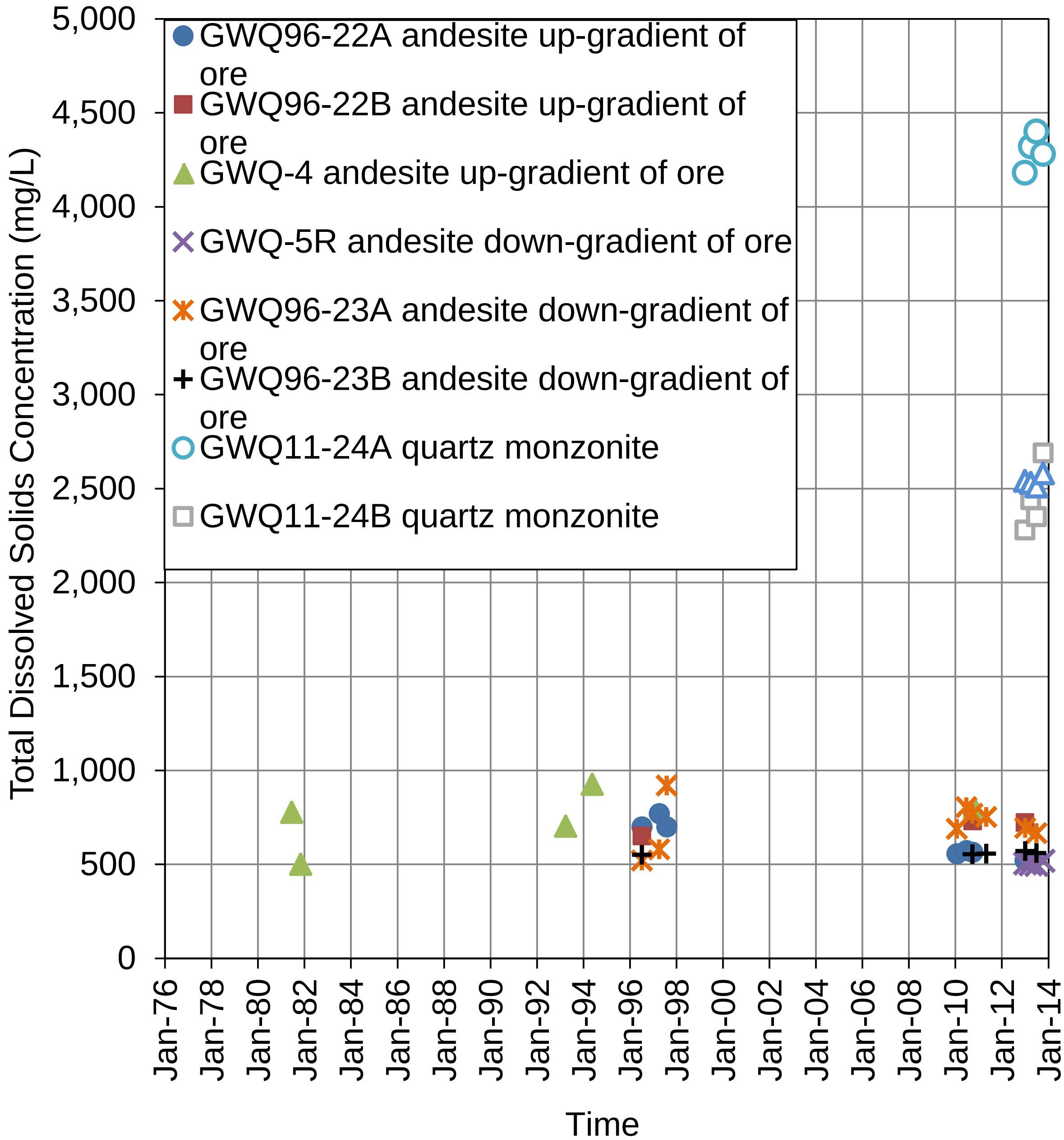


Figure 11G-4

Crystalline Bedrock Aquifer TDS Concentration

20.6.7.11.H DETERMINATION OF MAXIMUM DAILY DISCHARGE VOLUME

An application shall include the following information:

20.6.7.11.H.(1) *The proposed maximum daily discharge volume of process water and tailings for each discharge location and a description of the discharge locations and the methods and calculations used to determine that volume.*

Table 11H-1 presents the anticipated maximum daily discharge volume of process water and tailings for the various discharge locations containing mill process and tailings effluents.

TABLE 11H-1
Maximum Daily Discharge Volume of Process Water and Tailings

Location	Point of Measure	Process Water Gallons per Day	Tailings Tons per Day
Concentrator Tailings	Concentrator Tailings Sump	25,264,000	38,000
Tailings Storage Facility Water Recycle System	Recycle Water Return to Process Water Reservoir	21,236,000	0
Process Water Reservoir	Reservoir Return to Concentrator	24,300,000	0
Pit Bottom	Pit Water Sump	34,560	0

The basis for these estimates is as follows:

1. Process engineering and flow sheets prepared for NMCC by M3 Engineering and Technology Corp (M3) for the Copper Flat Feasibility Study;
2. Concentrator processing rate increased 20% over plan average to provide for operating peaks (plan average provided below in Subsection 20.6.7.11.H.(3);
3. Concentrator processes 1,600 tons of ore per hour;
4. Concentrator operates at 100% utilization (average 24 hours per day);
5. Design maximum flow rate of tailings under-drain collection system (see Appendix A); and
6. Pit discharge volume based on anticipated seepage rate into pit of 24 gpm.

20.6.7.11.H.(2) *The identification of all sources of process water and tailings*

Table 11H-2 summarizes the sources of process water and tailings at the Copper Flat Mine.

TABLE 11H-2 Sources of Process Water and Tailings			
Location	**Point of Measure**	**Process Water**	**Tailings**
Concentrator Tailings	Concentrator Tailings Sump	Yes	Yes
Tailings Storage Facility	Reclaim Water Return to Process Water Reservoir	Yes	No
Process Water Reservoir	Reservoir Return to Concentrator	Yes	No
Pit Water	Pit Water Sump	Yes	No

Mineral recovery at Copper Flat will be accomplished at the Copper Flat concentrator facility by standard crushing, grinding, and flotation processes only. There are no plans for leaching mine rock stockpile or ore heaps at Copper Flat.

Concentrator tailings will be piped from the concentrator as a slurry comprised of process water and flotation tailings, i.e., whole tailings, to the Copper Flat tailings storage facility. In route to the tailings storage facility, the slurry will pass through a cyclone classification plant to separate the whole tailings into coarse and fine fractions to facilitate ongoing construction of the impoundment and distribution of tailings within the storage facility. When the cyclone plant is not operating, concentrator tailings will bypass the plant for direct deposit at the tailings storage facility. In addition, tailings may be diverted to the surge water pond directly from the whole tailings pipeline or from the cyclone process plant in the event of upset conditions, not under normal operating conditions.

Process water will be collected from two locations at the tailings storage facility, i.e., the supernatant pond that will form on top of the stored tailings impoundment and the under-drain collection pond constructed at the base of the tailings impoundment. Water from these ponds will be combined into a single pipeline and returned to the process water storage reservoir for reuse in the mineral recovery process. The volume of process water shown in Tables 11H-1 and 11H-2 for the Tailings Storage Facility reflects the total volume from both of these sources.

The process water reservoir will hold water recycled from tailings facility and in-process dewatering points and will also serve as the entry point for fresh water addition to the mineral recovery process. The reservoir will be located in the vicinity of the concentrator facility. Water from the process water storage reservoir will be pumped to a process water head tank for gravity distribution to the concentrator.

There are no plans for further treatment of the mineral concentrate at Copper Flat.

As described in subsection **20.6.7.11.J.(4)**, water from all concentrate produced at the mine will be removed using pressure filters before packaging and the concentrate will transported off-site for smelting and refining at a separate location.

Water produced from seepage into the open pit will be used for dust control within the open pit surface drainage area. NMCC anticipates that approximately 24 gallons per minute will be generated from seepage into the pit. All of this water will be easily consumed in the operations activities.

20.6.7.11.H.(3) *The estimated daily volume of process water and tailings generated*

Table 11H-3 summarizes estimated daily volumes of process water and tailings for each of the sources identified in Subsection **20.6.7.11.H.(2)**, above.

TABLE 11H-3
Daily Volume of Process Water and Tailings – Average

Location	Point of Measure	Process Water Gallons per Day	Tailings Tons per Day
Concentrator Tailings	Concentrator Tailings Sump	19,475,000	30,000
Tailings Storage Facility	Recycle Water Return to Process Water Reservoir	16,370,000	0
Process Water Reservoir	Reservoir Return to Concentrator	18,731,000	0
Pit Bottom	Pit Water Sump	34,560	0

The Basis of these estimates is as follows:

1. Process engineering and flow sheets prepared by M3 Engineering;
2. Concentrator processes 1,333 tons of ore per hour;
3. Concentrator operates at 92.5% utilization (average 22.2 hours per day); and
4. Pit discharge volume based on anticipated seepage rate into pit of 24 gpm.

20.6.7.11.H.(4) *Information regarding other waste discharges (i.e., domestic or industrial) at the copper mine facility. Permit identification numbers shall be submitted for those discharges that are already permitted.*

Disposal of domestic wastes generated at the Copper Flat Mine will be accomplished through a combination of a single packaged wastewater treatment plant serving the majority of employees and visitors at the mine and individual portable toilet facilities for outlying areas of the operation. The packaged wastewater treatment plant will receive and treat domestic wastes from buildings located in the administration, concentrator, and mine shop areas. The packaged system is sized for a load based on the number of mine employees and visitors expected at the mine during a 24-hour period and applying an average water use of 50 gallons per day per person.

Breaking down the employee headcount for the mine by the planned rotation schedule indicates 160 employees per day will be using facilities connected to the package plant. In addition to mine employees, an additional 40 persons per day are assumed to account for visitors and contractors. Based on these figures, a 10,000 gallon per day plant has been selected for Copper Flat Mine. The design criteria for this facility will be revisited during final design to ensure that the packaged plant capacity is appropriate for the size of the facility.

The plant will be located on a pre-existing concrete slab near the main gate. The plant will generate effluent treated to secondary treatment levels. Treated effluent from the plant will be piped to the tailings storage facility for reuse as process water. System specifications and installation will conform to State and local regulations. Manufacturer information describing a type of packaged system that may be used at the Copper Flat Mine is attached as an example; final specifications and selection will be developed as the project advances to construction.

Individual portable toilet facilities will be provided for employees working in outlying areas of the operation that will not be connected to the packaged wastewater treatment plant (the pit, mine stockpile areas, the primary crusher, and the TSF). The portable toilets will be maintained by a licensed contractor on a regular basis.

20.6.7.11.I PROCESS WATER AND TAILINGS QUALITY

An application shall include estimated concentrations of process water and tailings slurry quality for the constituents identified in 20.6.2.3103 NMAC including the basis for these estimations.

An estimate of the concentrations of dissolved constituents identified in **20.6.2.3103 NMAC** in process water and tailing slurry pore water per **20.6.7.11.I NMAC** are provided in Table 11I-1. The basis used to develop the table is largely on information provided by SRK Consulting U.S. Inc., as presented in their "Geochemical Characterization Report for the Copper Flat Project New Mexico, May 2013" (SRK 2013). This report has been previously submitted to NMED and is included in this Discharge Plan application by reference. It is also based on an understanding of the chemicals used in the milling process and the geochemical processes and water-rock reactions expected to occur as part of the management of the tailing slurry and associated process waters. SRK (2013) provides solution constituent concentrations that were utilized to estimate anticipated pore water and process water chemistries as input to the geochemical modeling of the tailing storage facility at the proposed Copper Flat Project. The sources of this data included information from:

- averaged analytical data of the analyses of pore water extracts from the tailing humidity cell tests (HCT) of samples prepared in the laboratory;
- analyses of composite of extracted samples of tailing pore water from the flotation tails analyzed during operation of the Quintana facility between 1981 and 1982; and
- analyses of pore water extracted during meteoric water mobility testing of a single weathered tailing grab sample collected from the historic tailing facility.

While SRK's results are meant to be representative of anticipated tailing and process water chemistry, they are not an exact duplicate of what will actually be encountered during operations and should be viewed as such. Table 11I-1 presents an estimated range of concentrations based on SRK's data.

TABLE 11I-1 Estimated Constituent Concentrations in Process Water & Tailings	
20.6.2.3103 NMAC Constituent [a]	**Estimated Concentration Range (mg/l [a])**
Arsenic	Less than 0.01 to 0.005
Barium	Less than 0.05 to 0.2
Cadmium	Less than 0.001 to 0.005
Chromium	Less than 0.005 to 0.005
Cyanide	Not analyzed for by SRK
Fluoride	Less than 1.96 to 2.0
Lead	Less than 0.002 to 0.02
Total Mercury	Less 0.0001 to 0.001
Nitrate (as N)	Less than 1 to 5.49
Selenium	Less than 0.005 to 0.01
Silver	Less than 0.01 to 0.02
Uranium	Less than 0.04 to 0.19
Radioactivity: combined Ra-226 & Ra-228	Not analyzed for by SRK
Volatile Aromatic and Chlorinated Hydrocarbons, PAHs and PCBs in items (14) through (33) 20.6.2.3103	Not analyzed for by SRK as these compounds are not expect to be used at or produced as part of the ore processing or tailing and water management processes
Chloride	Less than 5.25 to 28
Copper	Less than 0.05 to 0.58
Iron	Less than 0.01 to 0.04
Manganese	Less than 0.03 to 0.18
Phenols	Not analyzed by SRK as these compounds are not expect to be used or produced as part of the ore processing or tailing management processes
Sulfate	Less than 75 to 2400
Total Dissolved Solids	Less than 270 to 3,700
Zinc	Less than 0.01 to 0.05
pH	7.5 to 8.1 (std. units)
Aluminum	Less than 0.01 to 0.06
Boron	Less than 0.1 to 0.11
Cobalt	Less than 0.01 to 0.02
Molybdenum	Less than 0.06 to 3.5
Nickel	Less than 0.01 to 0.05

a. except as noted

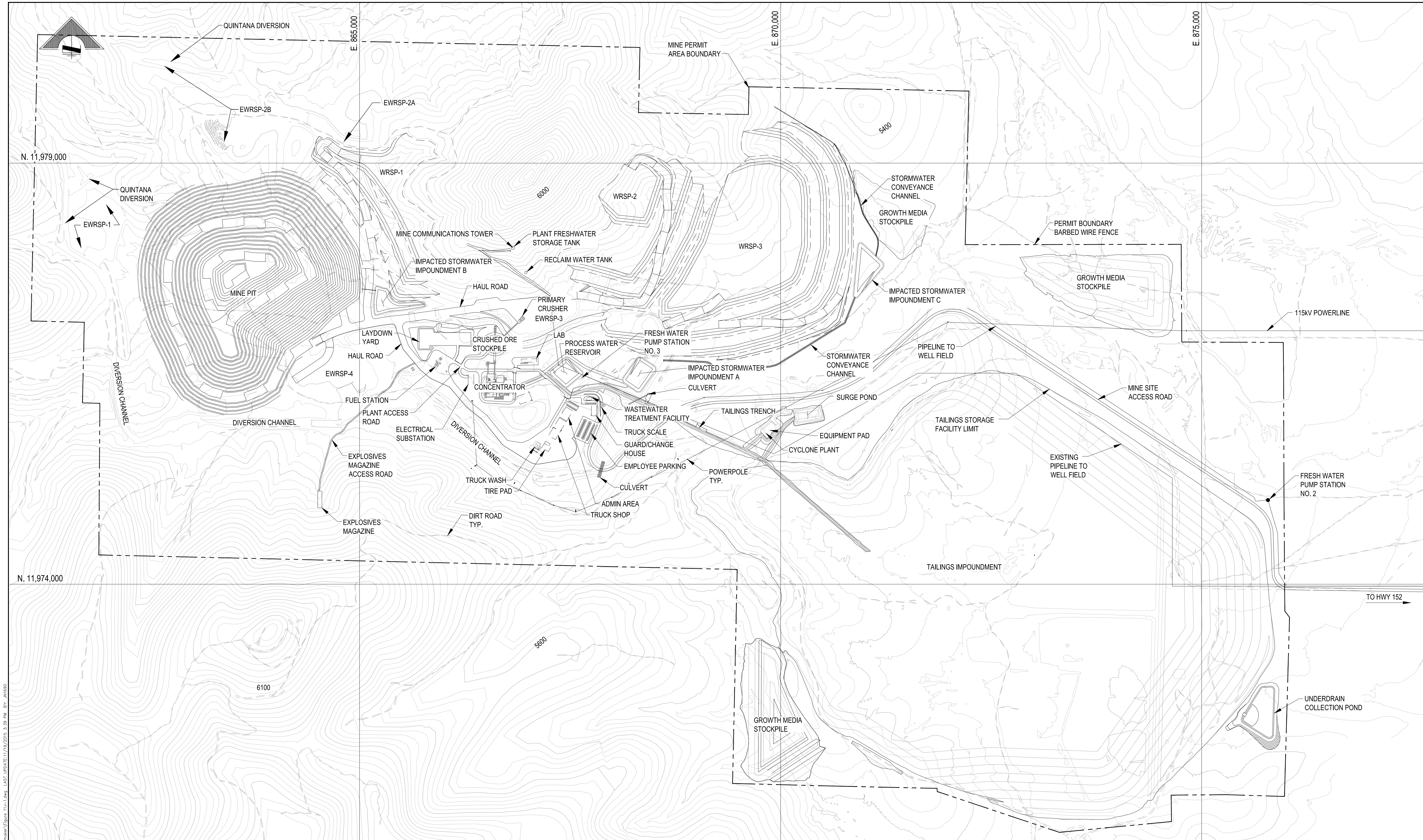
20.6.7.11.J IDENTIFICATION AND PHYSICAL DESCRIPTION OF THE COPPER MINE FACILITY

An applicant shall provide the following information;

The following subsections **20.6.7.11.J.(2) through (11)** provide the information required.

20.6.7.11.J.(1) *a scaled map of the entire existing or proposed copper mine facility showing the location of all features identified in Paragraphs (2) through (11) of this subsection; the map shall be clear and legible, and drawn to a scale that all necessary information is plainly shown and identified; the map shall show the scale in feet or metric measure, graphical scale, a north arrow, and the effective date of the map; multiple maps showing different portions of the copper mine facility may be provided using different scales as appropriate; documentation identifying the means used to locate the mapped objects (i.e., global positioning system (GPS), land survey, digital map interpolation, etc.) and the relative accuracy of the data (i.e., within a specified distance expressed in feet or meters) shall be included with the map; any objects that cannot be directly shown due to its location inside of existing structures, or because it is buried without surface identification shall be identified on the map in a schematic format and identified as such;*

Figure 11J-1 provides a map of the entire site facility showing the location of the various features identified in paragraphs (2) through (11) of this subsection. Figure 11J-2 is a map of the site as it currently exists, showing the various existing facilities as constructed by Quintana when it operated the mine in the early 1980's. This map is provided so that the reviewer can differentiate between what currently exists as a disturbance on-site as compared to NMCC's proposed activities. Figure 11J-3 is a map of the site depicting the various watersheds that will be developed at the mine site in order to manage surface water runoff. These three maps contain the essential information required by **20.6.7.11.J.(1).** There are also additional maps included within each subsection as each feature is described in more detail.



EWRSP = EXISTING WASTE ROCK STOCKPILE
WRSP = WASTE ROCK STOCKPILE

SITE PLAN
SCALE: 1:500

500' 250' 0' 500' 1000'
1" = 500'
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE: 1" = 500'		DATE
DESIGNED BY	SAM	DEC12
DRAWN BY	SAM	DEC12
CHECKED BY	TDL	JAN13
PROJECT MGR	RKZ	
CLIENT APPR.		

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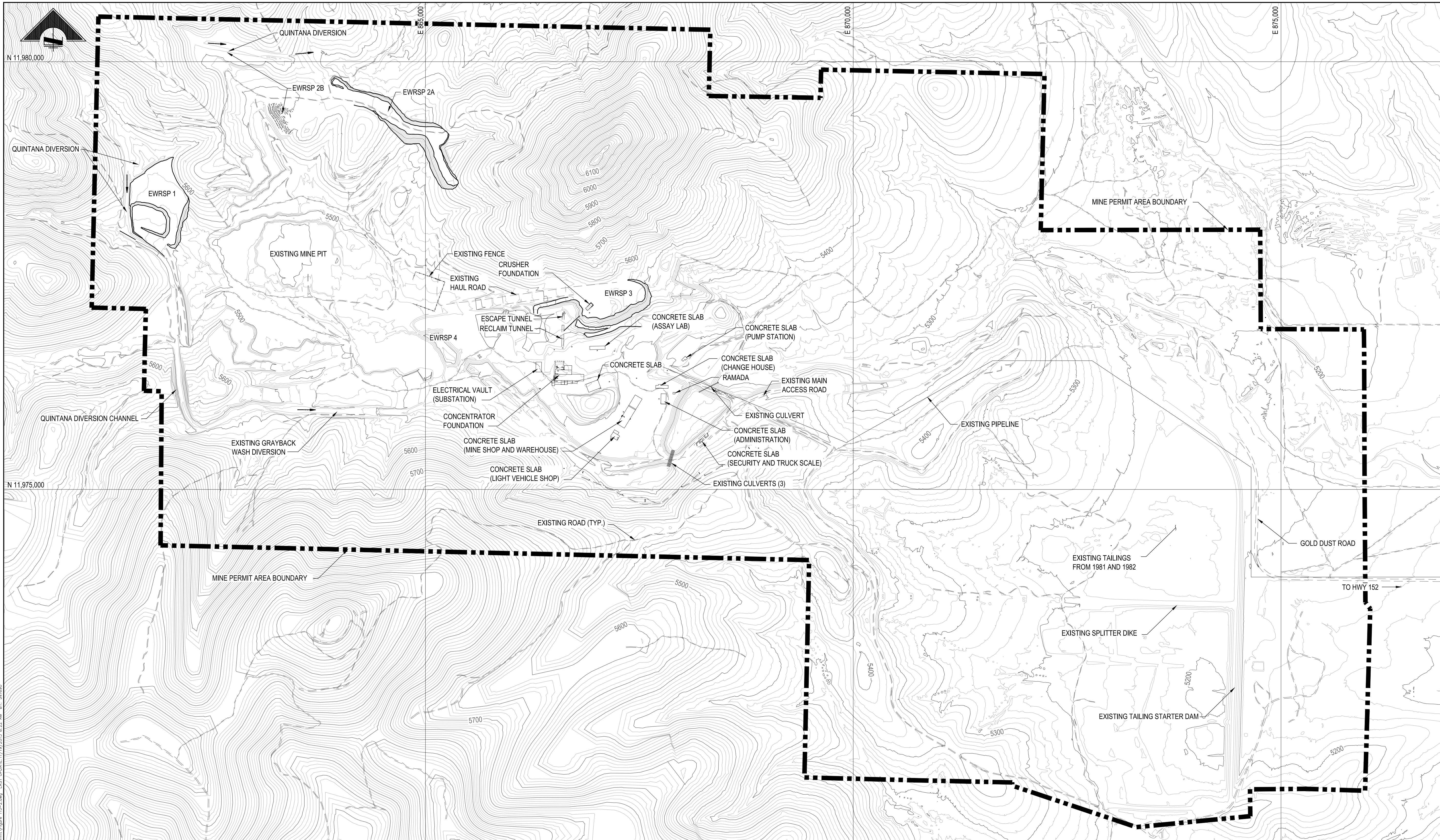
COPPER FLAT PROJECT

SITE GENERAL
CIVIL
PROJECT AREA
PROPOSED SITE PLAN

JOB NO. M3 PN-120085
DWG NO. FIGURE 11J-1
REV NO. P18
DATE 16 NOV 15

File: P:\2012\120085\CIVIL_C644\1344.2 Dwgs\For Shomaker\Figure 11J-1.dwg LAST UPDATE:11/19/2015 3:39 PM BY: JN1690



NOTES:

CONCRETE FOUNDATIONS SHOWN REFLECT PLANS BY QUINTANA MINERALS CORPORATION FROM 1981 AND MOST RECENT SURVEY CONDUCTED.

SITE PLAN

SCALE: 1" = 500'

500 250 0 500 1000

SCALE IN FEET

CONTOUR INTERVAL = 10'

DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE: 1"= 500'	DATE
DESIGNED BY JPN	OCT 15
DRAWN BY JPN	OCT 15
CHECKED BY	
PROJECT MGR RKZ	
CLIENT APPR.	

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COPPER FLAT PROJECT

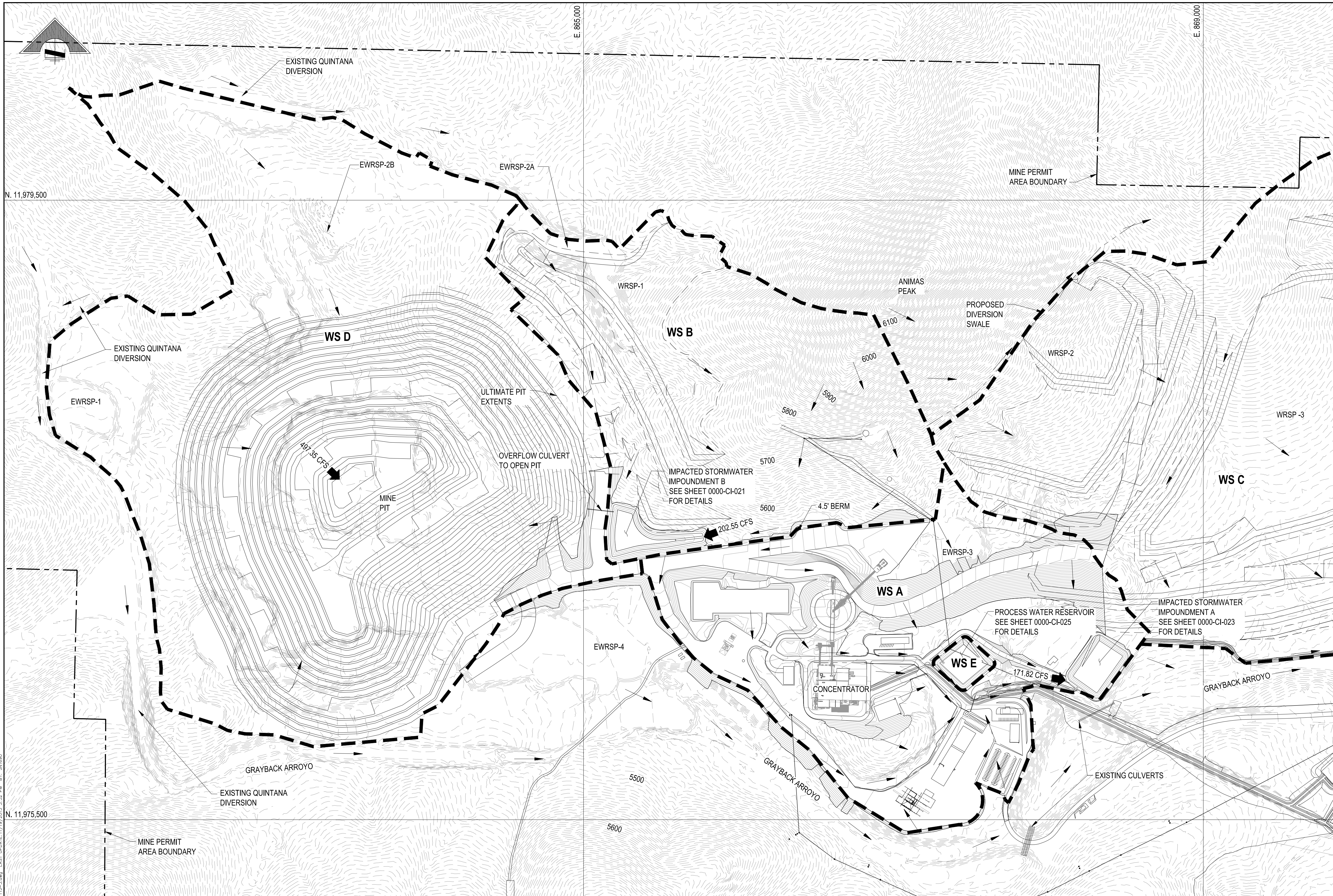
SITE GENERAL
CIVIL
MINE SITE
EXISTING CONDITIONS

JOB NO. M3 PN-120085

DWG NO. **FIGURE 11J-2**

REV NO. P2 DATE 20 NOV 15

File: P:\2012\120085\CIVIL ...\Figures for Permit\Figure 11J-2.dwg LAST UPDATE: 11/19/2015 8:22 AM BY: JN1690



WATERSHED SUMMARY

WATERSHED ID	AREA (AC)	Q100 (CFS)
WS A	95.71	171.82
WS B	92.12	202.55
WS C	198.66	315.76
WS D	233.81	497.35
WS E	1.80	9.54

LEGEND:

- FLOW ARROW
- WATERSHED BOUNDARY
- RUNOFF CONCENTRATION POINT
- DRAINAGE SWALE

EWRSP = EXISTING WASTE ROCK STOCKPILE
WRSP = WASTE ROCK STOCKPILE

PLAN VIEW
SCALE: 1" = 300'

300 150 0 300 600
SCALE IN FEET
CONTOUR INTERVAL = 5FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES	
DWG. NO.	TITLE	DWG. NO.	TITLE
0000-CI-021	IMPACTED STORMWATER IMPOUNDMENT A PLAN VIEW		
0000-CI-023	IMPACTED STORMWATER IMPOUNDMENT B PLAN VIEW		
0000-CI-025	PROCESS WATER RESERVOIR PLAN VIEW		
0000-CI-027	IMPACTED STORMWATER IMPOUNDMENT D PLAN VIEW		

REVISIONS						REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 300'	DATE
DESIGNED BY	SAM	NOV 12
DRAWN BY	SAM	NOV 12
CHECKED BY	TDL	NOV 12
PROJECT MGR	RKZ	NOV 12
CLIENT APPR.		

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COPPER FLAT PROJECT

GENERAL SITE
CIVIL
MINE AREA
DEVELOPED WATERSHED AREAS

JOB NO. M3 PN-120085
DWG NO. **FIGURE 11J-3**
REV NO. P10
DATE 29 OCT 15

20.6.7.11.J.(2) *a description of each existing or proposed tailing impoundment, leach stockpile, process water and impacted stormwater impoundment, waste rock stockpile, and slag including information about its location, purpose, liner material, storage or disposal capacity, and the methods proposed or used to prevent pollution of ground water;*

I. 20.6.7.11.J.(2) DESCRIPTION OF THE PROPOSED TAILINGS IMPOUNDMENT, UNDERDRAIN COLLECTION SYSTEM, AND WATER RECLAIM SYSTEM

NMCC proposes to construct a new tailings storage facility (TSF) which will include a lined tailings impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam as well as a water reclaim or recycle system to maximize water reuse. The TSF also includes a cyclone plant to separate the tailings coarse and fine fractions and a surge pond to handle potential upset conditions at its Copper Flat project.

Appendix A, Feasibility Level Design, 30,000 TPD Tailings Storage Facility and Tailings Distribution and Water Reclaim Systems, Copper Flat Project, Sierra County, New Mexico, November, 2015, prepared by Golder Associates, Inc., provides the technical design detail for the TSF. This document is made part of NMCC's Discharge Permit application by reference herein.

Location
The location of the proposed new TSF is shown in Figure 11J-1 provided herein in response to **20.6.7.11.J.(1).**

Purpose
The purpose of the TSF and the tailings impoundment is to handle, store and contain the tailings materials produced from processing of copper ore.

The purpose of the underdrain collection system and pond is to collect and store water that is captured by the blanket drain constructed under the tailings dam and the underflow drain system constructed under the tailings impoundment. The dam blanket drain will provide the mechanism that will drain water within the dam out of the structure and allows the dam to become consolidated and stable as it is continually constructed during operations as the sand fraction of tailings is emplaced on the dam. The tailings impoundment underdrain system will allow free water in the impoundment to be drained out of the impoundment from underneath the impoundment and be recycled to the processing facility. The underdrain, together with the impoundment synthetic liner, will provide significant mitigation against the potential for seepage from the impoundment. It will also contribute to the ability to recycle water from the system to the process facility while contributing to the stability of the TSF. The TSF underdrain collection pond will also serve to capture surface water runoff routed from the downstream face of the tailings dam via runoff control ditches to the pond.

The purpose of the water reclaim system is to provide a mechanism by which as much water as possible can be pumped from the inner surface of tailings impoundment and recycled back to the processing facility. The water reclaim system will consist of a floating barge located within the tailings impoundment containing pumps to remove water from the impoundment, a pipeline to transport the reclaimed water to the process water reservoir, and the reservoir itself. The reservoir will be located at the process facility areas shown in Figure 11J-1and 11J-3. Pumping water out of the tailings impoundment will also provide the capacity needed for tailings disposal.

The TSF will also have an associated surge pond that will be part of the cyclone plant located at the TSF. The cyclone plant will receive whole tailings slurry from the process circuit and separate the sand fraction from the slimes fraction. The purpose of the surge pond, located at the cyclone plant, will be to capture and temporarily retain tailings materials in the event of a temporary upset in the cyclone plant. It will also provide temporary storage in the event that an upset occurs in the process circuit.

Liner material

The tailings impoundment will be lined with an 80-mil high density polyethylene (HPDE), or equivalent liner, placed on a minimum 12-inch thick liner bedding fill material. In the initial phases of construction the bedding material will consist of recovered sand from the old Quintana starter dam. Later phases of construction will require the use of selected crushed and screened native materials or selected local soil be utilized.

The TSF underdrain collection pond will be double-lined with a 60 mil, or equivalent, HDPE geomembrane liner. An HDPE geonet will be placed between the liners to serve as the leak collection and recovery system (LCRS) and to minimize pressure on the lower pond liner.

The surge pond liner will consist of a compacted liner bedding fill layer, overlain with a 60 mil HDPE geomembrane or equivalent. The liner bedding will be a minimum of six inches of sand or fine soil.

Storage or disposal capacity

The tailings impoundment is designed to store 113 million tons of tailings produced over approximately 11 years. Tailings deposition will occur at a rate of approximately 32,000 tons per day (tpd).

The TSF Underdrain collection pond will be sized to contain 24 hours of underdrain flow at maximum estimated drainage rates from the dam and impoundment underdrains, as well as runoff from the 100-year, 24-hour storm event of 3.73 inches incident on the downstream dam face. The pond capacity will be approximately 12.22 million gallons with 2 feet of freeboard.

The surge pond is designed to retain whole tailings and/or other process water that cannot be diverted directly to the tailings impoundment in the event of temporary upset conditions. Under normal operating conditions the surge pond will be empty. It is designed to receive tailings materials and process water on a temporary basis. Feasibility level design capacity of the surge pond is 1.2 million gallons.

Methods proposed to prevent pollution of groundwater

The primary method to prevent pollution of groundwater at the tailings impoundment, the surge pond, the TSF underdrain collection pond and the process water reservoir will be through the use of engineered systems to control and manage water. These systems include the use of liners, installation of a tailings dam and impoundment underdrain system, where appropriate, installation of a leak collection system, and construction of appropriate run-off and run-on control structures. Storm water will be diverted away from and around these facilities to the maximum extent possible to minimize the potential for contact of storm water with materials that have the potential to impact ground water. Run-on to these facilities will be minimized to the maximum extent possible so as to reduce the volume of water that enters these facilities, thus mitigating the potential for impact to groundwater.

The tailings dam and impoundment will be constructed with underdrain systems that will collect water from the dam and the impoundment and capture it in the underdrain collection pond. The tailings impoundment will be lined with an 80 mil HDPE geomembrane, or equivalent, material.

The underdrain collection pond will be double-lined with a 60 mil HDPE geomembranes, or equivalent, and be equipped with a leak collection system to protect groundwater. In addition, the water in the pond will be continually evacuated from collection pond to the process water reservoir where it will be recycled into the process circuit.

Storm water that falls onto the down-stream face of the tailings dam will be captured in run-off control ditches. The ditches will be constructed at the outside toe of the dam and routed to the underdrain collection pond.

The surge pond will also be lined with a 60 mil HDPE geomembrane, or equivalent, to protect groundwater. While this pond will be empty under normal conditions its design capacity is sufficiently conservative to handle the volume of upset conditions plus direct precipitation from a 100-year 24-hour precipitation event with at least 2 feet of freeboard. The design capacity conservatively assumes that an upset would occur during a maximum precipitation event and that the processing facility is running at maximum design rates. It also assumes that the surge pond will begin to be pumped back to the TSF, the cyclone plant, or the process plant, as appropriate, within one-half hour of the upset condition occurring.

In addition to the mitigation measures identified above to protect groundwater, all of the pipelines that transport tailings, impacted storm water or reclaimed water will be conveyed within lined channels designed to direct leaks and spills to impoundments so as to protect ground water. The ground surface surrounding the surge pond will be graded in a manner to direct surface runoff away from the pond.

NMCC's significant proactive approach to maximally and proactively managing and recycling water, in and of itself, provides a means of protecting groundwater.

II. 20.6.7.11.J.(2) DESCRIPTION OF PROPOSED LEACH STOCKPILES

NMCC does not propose to construct or operate any leach stockpiles at the Copper Flat project.

III. 20.6.7.11.J.(2) DESCRIPTION OF PROCESS WATER IMPACTED STORM WATER IMPOUNDMENTS

NMCC proposes to construct a process water reservoir and three (3) storm water impoundments. The process water reservoir will hold water from several sources including the reclaimed water from the TSF, captured storm water, and fresh make-up water from the off-site well field. The storm water impoundments will capture surface water runoff from the waste rock stockpile areas and the plant area. Appendix B, Impoundment Design Report, Copper Flat Project, November 2015 (M3 2015), prepared by M3 Engineering & Technology Corporation, provides the technical design details for the impoundments and the process water reservoir. This document is made part of NMCC's Discharge Permit application by reference herein.

NMCC has determined that it will address the three storm water impoundments as if they were impacted storm water impoundments as defined in Section **20.6.7.7.B.(29) and (30)** of the Copper Rule, although there is some uncertainty as to whether or not one or more, in fact, meet the definition because of the quality of the water that they are intended to capture. NMCC will work with the NMED as the detailed designs become more definitive to determine the applicability of the impacted storm water requirements to each of these impoundments.

Figure 11J-3 shows the various watershed areas that will be developed on-site by grading and contouring the areas to control and capture surface water runoff. The developed watershed areas shown are as follows:

- Watershed area A (WS A) wherein the process facilities and ancillary plant areas, including the ore stockpile, will be located. An existing waste rock stockpile, EWRSP-3, as shown in Figure 11J-1, 2 and 3, also called the low-grade ore stockpile in earlier documents, is also located within WS A;

- Watershed area B (WS B) is a portion of the open pit surface drainage area wherein the proposed new Waste Rock Stockpile no. 1 (WRSP-1) will be located. An existing waste rock stockpile, EWRSP-2A, as shown in Figure 11J-1, 2 and 3, (also called the north waste rock disposal facility in earlier documents) is located at the northern edge of WS B;
- Watershed area C (WS C), wherein the proposed new Waste Rock Stockpiles no. 2 and 3 (WRSP-2 and WRSP-3) will be located; and
- Watershed area D (WS D) is a portion of the open pit surface drainage area wherein the mine pit is located. Existing waste rock stockpiles EWRSP-1 (also called the west waste rock disposal facility in earlier documents) and EWRSP-2B, shown in figures 11J-1, 2 and 3 (also called the north waste rock stockpile in earlier documents) are also located within WS D.

As noted above, developed WS B and D are sub-watersheds of the larger open pit surface drainage area. The entire area naturally drains to the mine pit. NMCC has opted to develop these two sub-watersheds separately in order to provide control of the amount of surface water that will report to the mine pit under normal operating conditions. Surface water runoff from WS D will flow directly to the bottom of the pit as shown in Figure 11J-3. Surface runoff from WS B will be diverted to flow into Impacted Storm water Impoundment B as shown on Figures 11J-1 and 3.

As described in more detail in Appendix B, Impacted Storm water Impoundment B will be constructed at the lower southwestern corner of developed WS B to capture runoff from the proposed new WRSP-1 under normal operating conditions. However, should overflow from this impoundment occur as a result of an extraordinary precipitation event, it will flow over the spillway and into the open pit via a culvert, as shown in Figure 11J-3 and discussed in Appendix B. This will allow NMCC to control the flow of surface runoff into the pit while maximizing the harvesting of water for use as process water.

In addition to the developed watershed areas described above, there is also a small developed watershed area E (WS E), shown in Figure 11J-3. WS E represents the footprint of the process water reservoir, the impoundment that holds process water prior to it being introduced into the process circuit. WS E is depicted as a watershed to indicate that the reservoir will not collect any storm water runoff from the plant site. Only precipitation the falls directly on the reservoir will be collected therein. The details of design of the process water reservoir are contained in Appendix B.

Developed watersheds A, and C will each have a storm water impoundment associated with them, as shown in Figures 11J-1 and 3. The purpose of these impoundments will be to capture and manage storm water runoff. Appendix B provides the technical design details for these impoundments.

Location
The location of the process water reservoir and the impoundments is shown in Figures 11J-1 and 11J-3, provided herein in response to **20.6.7.11.J.(1)**. Impacted Storm water impoundment A will be located at the southeastern edge of developed WS A wherein the process facilities, administrative building and associated mine infrastructure will be located and where EWRSP-3 is located. Storm water impoundment B will be located at the bottom of developed WS B at the southwestern corner of watershed. Storm water impoundment C will be located at the southeastern corner of developed WS C wherein WRSP 2 and 3 will be located.

The process water reservoir is designed to hold all of the water recycled from the tailings storage facility, water transferred from the impacted storm water impoundments and any required fresh make-up water from the off-site well field prior to introduction into the process circuit. Impacted storm water impoundment A is designed to capture and manage surface water runoff from WS A, i.e., the plant area. Impacted storm water impoundment B is designed to capture and manage storm water runoff from WS B which contains WRSP 1. Impacted storm water impoundment C is designed to capture and manage storm water runoff from WS C which contains WRSP 2 and WRSP-3.

Purpose
The purpose of the Impacted Storm water Impoundments is to capture and manage storm water run-off from watershed (WS) areas WS A, B and C. The water captured in these impoundments will be transported to the process water reservoir within 30 days for use as an additional source of make-up process water.

NMCC recognizes, as the NMED has noted, that there is an area along the western edge of developed WS D, south of EWRSP-1 that could drain into the Grayback Arroyo instead of the mine pit. NMCC will correct this condition by repairing the breach, which was made under circumstances unknown to NMCC, at that location to re-establish the integrity of the open pit surface drainage area so that all surface water runoff in WS D will flow into the mine pit.

Similarly, NMCC has determined that the northernmost edge of EWRSP-2A, shown on Figure 11J-2, is at the extreme northern limit of the open pit surface drainage area in developed WS B. The natural topography of the area in that location forms a natural hydrologic surface divide forming the northern edge of the open pit surface drainage area so that surface water runoff would naturally flow south. However, there is the possibility that the topographic configuration of the existing waste rock stockpile placed in that area by the previous operation is such that limited surface water runoff could flow north, out of the open pit surface drainage area. Recognizing that condition, as discussed in more detail in subsection **20.6.7.11.J.(2)**, Description of Waste Rock Stockpiles, below, NMCC's design of proposed new Waste Rock Stockpile no. 1 (WRSP-1), will correct this situation. That is, construction of proposed new WRSP-1 will envelop and subsume EWRSP-2A during operations at Copper Flat. Any existing waste rock identified to potentially be located outside of the open pit surface drainage area will be move back into the open pit surface drainage area. WRSP-1 will be constructed over the top of EWRSP-2A early in the operations phase of the project. The design of WRSP-1, as described below, will ensure that both EWRSP-2A and WRSP-1 remain entirely within the open pit surface drainage area.

The purpose of the process water reservoir is to provide a holding structure for recycled water from the TSF, storm water from the storm water impoundments, and fresh make-up water from the off-site wells for use as process water in the concentrator.

Liner material

The impacted storm water impoundment liners will consist of a compacted liner bedding fill layer, overlain with a 60 mil HDPE geomembrane or equivalent, as specified in Appendix B. The liner bedding will be a minimum of six inches of sand or fine soil.

The process water reservoir will be double-lined with a lower 60 mil, or equivalent, HDPE geomembrane and a 60 mil, or equivalent, upper HDPE geomembrane liner. An HDPE geonet will be placed between the liners to serve as the seepage collection pond leak collection and recovery system (LCRS) and to minimize pressure on the lower pond liner.

Storage or disposal capacity

The design storage capacity for each of the impacted storm water impoundments is driven by the size of the watershed. Table 11J-1 provides the storage capacity for each storm water impoundment and the process water reservoir.

TABLE 11J-1
Impoundment Storage Capacity

Impoundment	Size (Acres)	Capacity (Gal)
Impacted storm water impoundment A	1.98	7,306,464
Impacted storm water impoundment B	2.12	5,513,140
Impacted storm water impoundment C	6.37	10,513,140
Process Water Reservoir	1.8	5,433,472

Design capacity of the impoundments is based on anticipated normal operating conditions at the site plus prevention of overflow resulting from a 100-year, 24-hour return interval storm event while maintaining two feet of freeboard. The process water reservoir is sized to contain the water that will be pumped from the water reclaim system and the underdrain collection pond at the TSF plus additional capacity for adding makeup water for the process from other sources including the freshwater off-site well field and the storm water impacted impoundments.

Methods proposed to prevent pollution of groundwater
The primary method to prevent pollution of groundwater at the storm water impoundments and the process water reservoir is through the use of engineered systems to control and manage surface water runoff in combination with the use of liners. Surface water runoff up-gradient from the mine site location was diverted around the site during previous operations. Existing diversion structures will be kept in place as they eliminate the potential for contact of storm water runoff up-gradient from the site with materials on-site that may have the potential to impact ground water.

The process area and the proposed waste rock stockpiles will be graded and contoured to route storm water runoff through storm water conveyances such as drainage ditches, storm drains, culverts and swales to direct and capture storm water in the impacted storm water Impoundments. The impoundments are designed to store the captured water from a 100 year storm with 2 feet of freeboard. As described above, the impoundments will be lined with a 60 mil HPDE liner or equivalent. Captured water will be held in the impacted storm water impoundments for less than thirty days and will be pumped to the process water reservoir for use as process make-up water. Each impacted storm water impoundment will be designed to have a spillway per the requirements of Section **20.6.7.17.D.(7)** of the Copper Rule.

The process water reservoir will be designed such that only precipitation that falls directly upon the footprint of the reservoir will be captured by it. Surface water runoff from the area will be routed to Impacted Storm Water Impoundment A. The process water reservoir will be double-lined with a 60 mil HDPE geomembranes, or equivalent, and be equipped with a leak collection and recovery system, to protect groundwater.

In addition to the mitigation measures identified above to protect groundwater, all of the pipelines that transport tailings, impacted storm water or reclaimed water will be conveyed within lined channels designed to direct leaks and spills to impoundments so as to protect ground water.

NMCC's significant proactive approach to maximally and proactively managing and recycling water, in and of itself, provides a means of protecting groundwater. Maximally recycling water from the TSF and harvesting water from waste rock stockpiles lessens the pressure on the hydrologic cycle by conserving as much water as possible.

IV. 20.6.7.11.J.(2) DESCRIPTION OF WASTE ROCK STORAGE PILES

NMCC proposes to construct three new waste rock stockpiles (WRSP) in conjunction with operation of its Copper Flat project. The material contained in these stockpiles will meet the definition of "waste rock" as stated in Section **20.6.7.B.(65)**, i.e., "all material excavated from a mine facility that is not ore or clean topsoil."

Ore is an economic term. That is, mineralized material only becomes ore when it can be economically processed to extract the commodity to sell at a profit. As such, the proposed new waste rock stockpiles, i.e., material not deemed to be ore by NMCC, will be constructed as units segregated by the grade of copper contained in the waste rock material so as to maximize its potential to be processed as ore in the future. New proposed Waste Rock Stockpile no. 1 (WRSP 1) will contain the highest non-ore grade material. New proposed Waste Rock Stockpile no. 2 (WRSP 2) will contain the next highest non-grade material. New proposed Waste Rock Stockpile no. 3 (WRSP 3) will contain all the remaining material.

The proposed waste rock stockpiles will be built generally to a configuration of 3 horizontal to 1 vertical slope angles (18.4 degrees). This configuration will help facilitate reclamation at the end of the mine life as provided for in Section **20.6.7.33.C.(3)**. Each lift within the stockpile will be maximally 75 ft. high and be placed at angle of repose (35.54 degrees) with 120 ft. setbacks left between lifts to maintain the 3 to 1 overall angle for the stockpile. Surface water run-off collection trenches will be constructed, as needed, to collect and route run-off and/or flowing seeps from the proposed stockpiles to the storm water impoundments describe above. These trenches will be constructed in a manner to maximizing positive flow while minimizing the potential for ponding and erosion.

As shown in Figure 11J-2, there are also four existing waste rock stockpiles from previous operations at the site. They are;

- EWRSP-1 located at the western end of the site within the open pit surface drainage area. EWRSP-1 is identified in previous reports as the "existing west waste rock disposal facility" (WRDF);
- EWRSP-2A and 2B located at the northwest side of the site within the open pit surface drainage area. EWRSP-2A and B are identified in previous reports as the "existing north waste rock disposal facility" (WRDF);
- EWRSP-3 located next to the primary crusher. EWRSP-3 is identified in previous documents as the "low grade ore stockpile"; and
- EWRSP-4 located southeast of the mine. EWRSP-4 is identified in previous documents alternatively as the "lean ore stockpile" and the "south waste disposal facility".

EWRSP-1 and EWRSP-2B will remain undisturbed in the open pit surface drainage area during operations and will be reclaimed at the end of the mine life in accordance with the reclamation and closure plan. EWRSP-2A will be incorporated into the larger new proposed WRSP-1 constructed during operations. It will be enveloped and covered over by the new stockpile as WRSP-2 being developed over time.

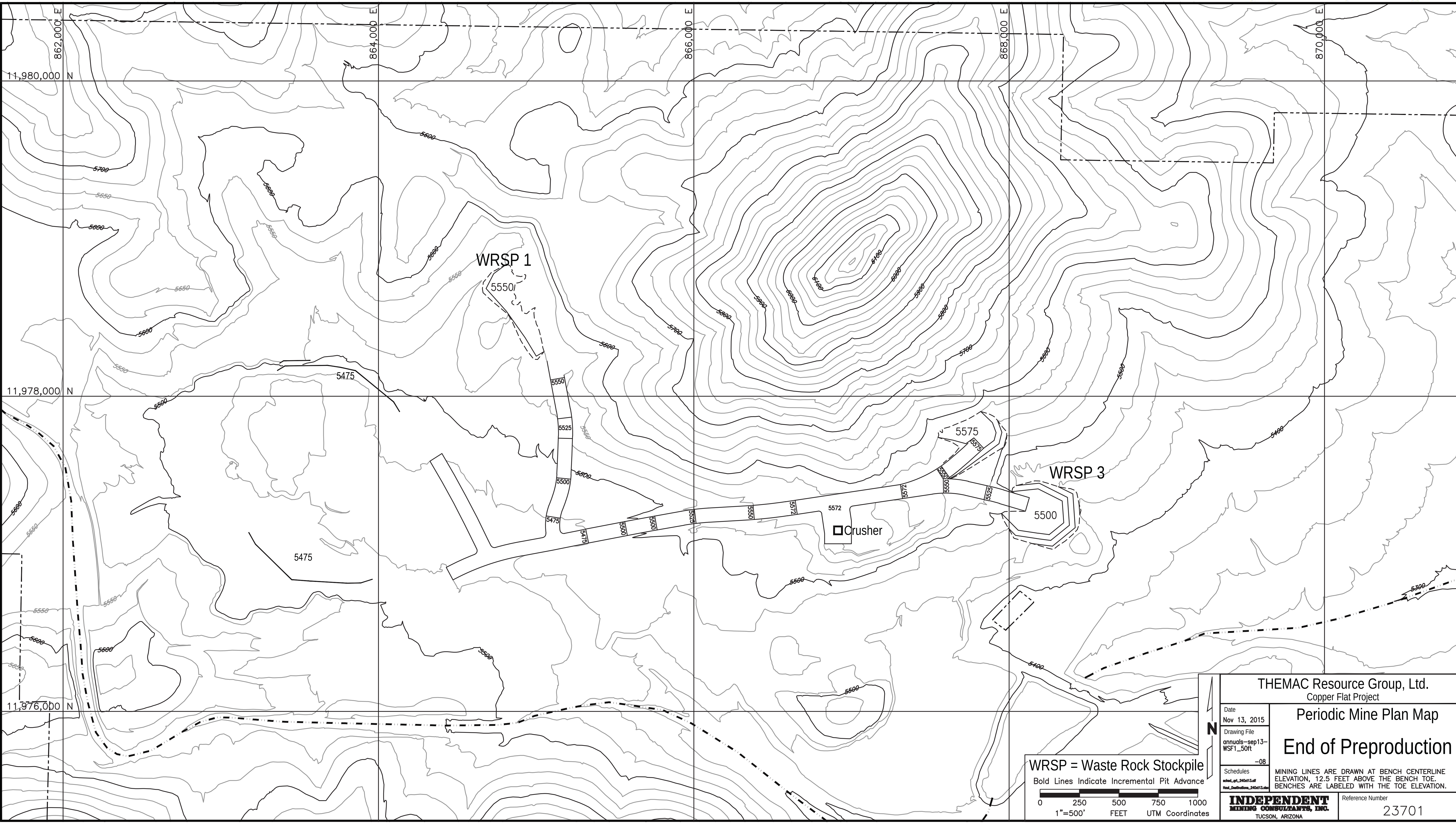
EWRSP-3 is located to the east of the primary crusher as shown on Figure 11J-2. Some of this material will be fed into the processing circuit in the early stages of process operations to "condition" the circuit. "Conditioning" refers to the process of feeding new equipment, first with water, followed by some waste rock and then to “line” the new machinery and prepare it for full operations. The material at EWRSP-3 may also be blended over time into the process if economic conditions warrant. The area containing EWRSP-3 will be the staging or holding area for rock that is too large to be fed directly into the crusher that has to be broken down with a pneumatic hammer.

EWRSP-4 will be graded and re-contoured to as shown on Figures 11J-1 and 11J-3. The area will be utilized during operations as an additional equipment storage and lay-down area and/or as a location where additional top-dressing (growth media) material can be stockpiled. The area will be reclaimed at the end of the mine life in accordance with the reclamation and closure plan.

This section, together with section **20.6.7.11.N.(1), Engineering, Design, Construction and Surveying, Waste Rock Stockpiles, 20.6.7.11.O, Material Characterization and Material Handling Plan, and 20.6.7.11.P, Hydrologic Conceptual Model,** of NMCC’s Discharge Permit application, contain the design plans for the proposed new waste rock stockpiles (WRSPs) located outside the open pit surface drainage area pursuant to **20.6.7.21.B.(1).(d).** The proposed areal extent and configuration of these new proposed WRSPs and the topography of the site where they will be located is shown in Figures 11J-4 through 11J-15. The geology of the site is described in detail later in this application in section **20.6.7.11.K, Soils, Geology and Hydrology.**

Figures 11J-4 through 11J-15 show the design and construction sequencing for the mine pit and the new proposed WRSPs beginning at the preproduction stage through the life of the mine. Their design and configuration is based on consideration of site-specific conditions as discussed in more detail below and in the sections of the application cited above. For example, the material characterization work performed by NMCC as described in section **20.6.7.11.O** that follows provides the basis for controlling surface run-off and seepage from the stockpiles using run-off collection trenches to capture it and routing it to impacted surface water impoundments. Similarly, the information presented in sections **20.6.7.11.K and P** regarding site geology and hydrology conditions provides the basis for placing the waste rock stockpiles over low permeability andesite bedrock.

Section **20.6.7.11.J.(6)** of this application provides a discussion and analysis of the storm water diversion structures present at the site that will minimize the contact between storm water run-on and the waste rock material.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THEMAC Resource Group, Ltd.
Copper Flat Project
Periodic Mine Plan Map
End of Preproduction
Date
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Drawing File
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Schedules
MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.
INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA
Reference Number
23701
WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
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1"=500' FEET UTM Coordinates
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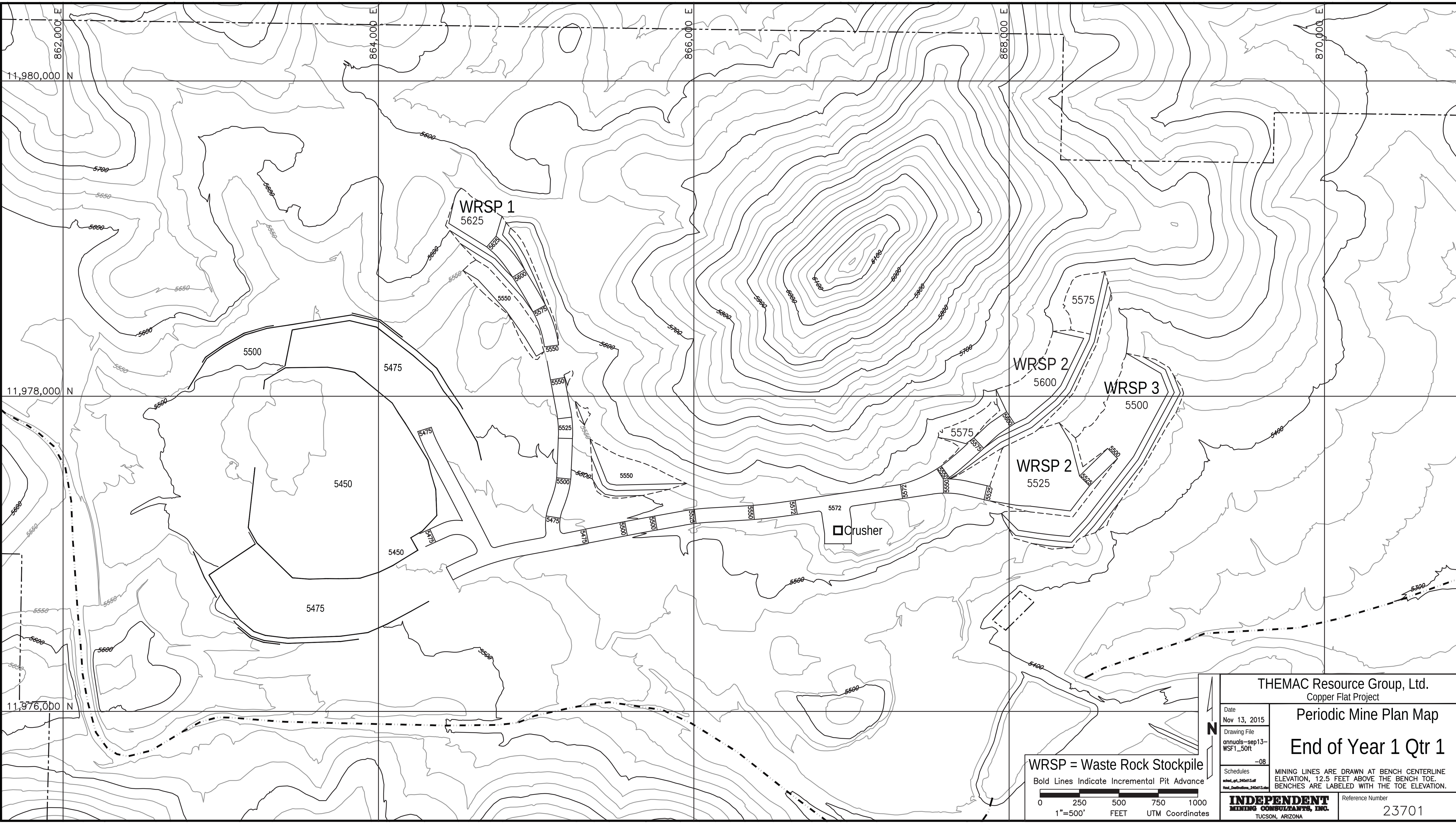
Figure 11J-4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THEMAC Resource Group, Ltd.
Copper Flat Project
Periodic Mine Plan Map
End of Year 1 Qtr 1
Date
Nov 13, 2015
Drawing File
annuals-sep13-WSF1_50ft
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Schedules
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TUCSON, ARIZONA
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WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
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1"=500' FEET UTM Coordinates
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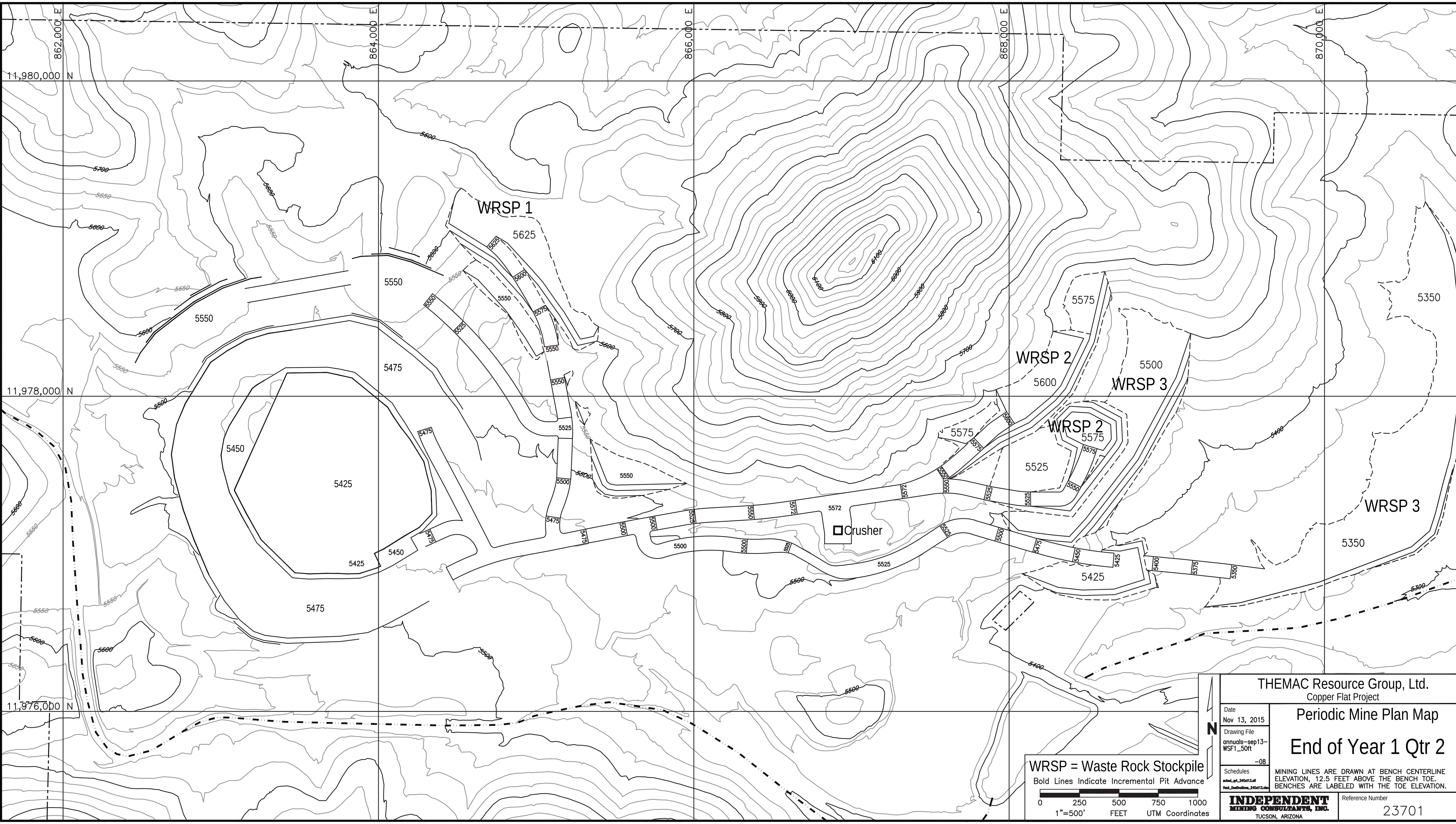
Figure 11J-5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Copper Flat Project
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End of Year 1 Qtr 2
Date
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Schedules
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INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA
Reference Number
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WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
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1"=500' FEET UTM Coordinates
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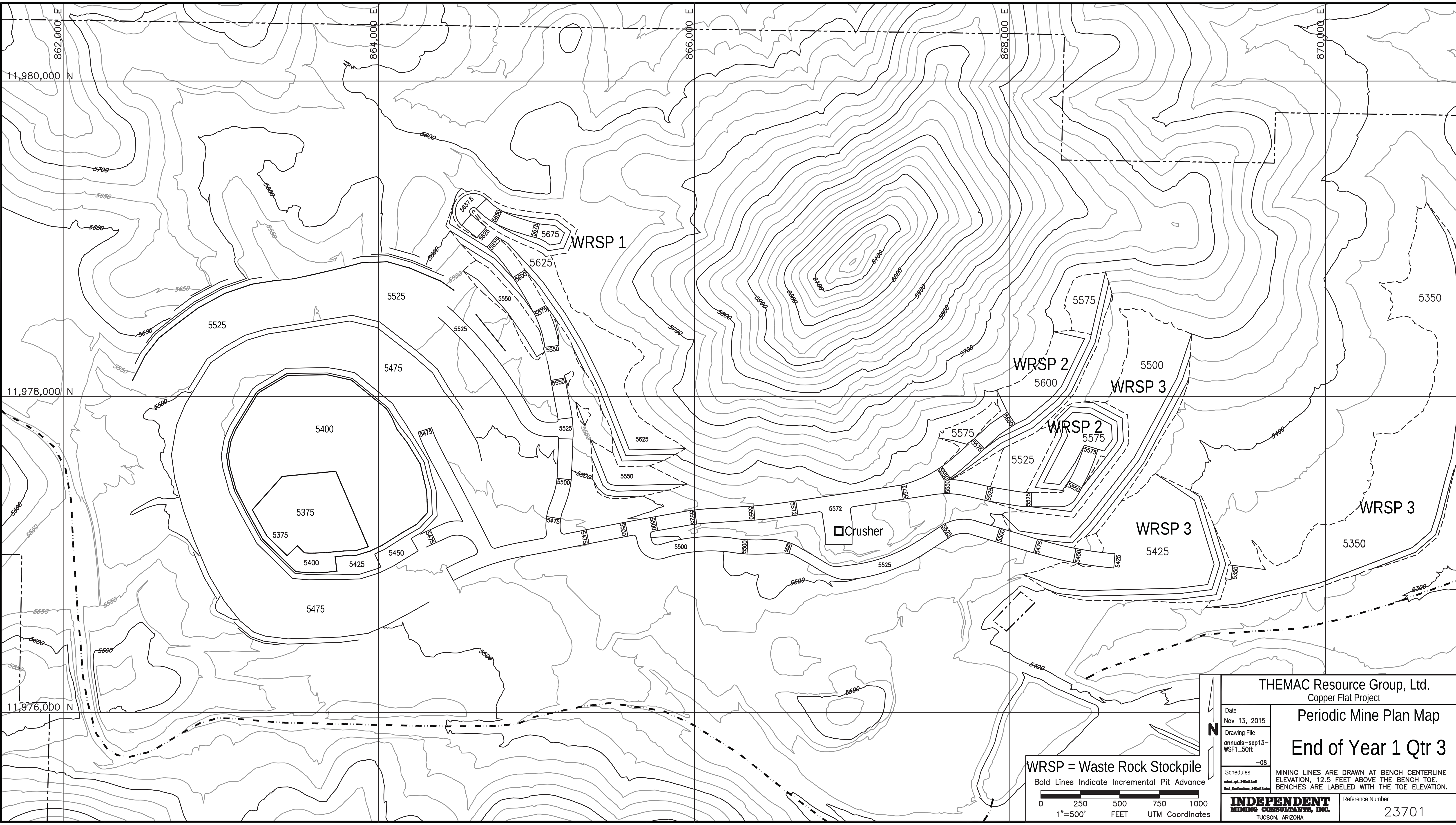
Figure 11J-6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WRSP = Waste Rock Stockpile
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THEMAC Resource Group, Ltd.
Copper Flat Project
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INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA
Reference Number
23701

Figure 11J-7

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Environmentally Responsible. Community-Minded. Local Opportunities.

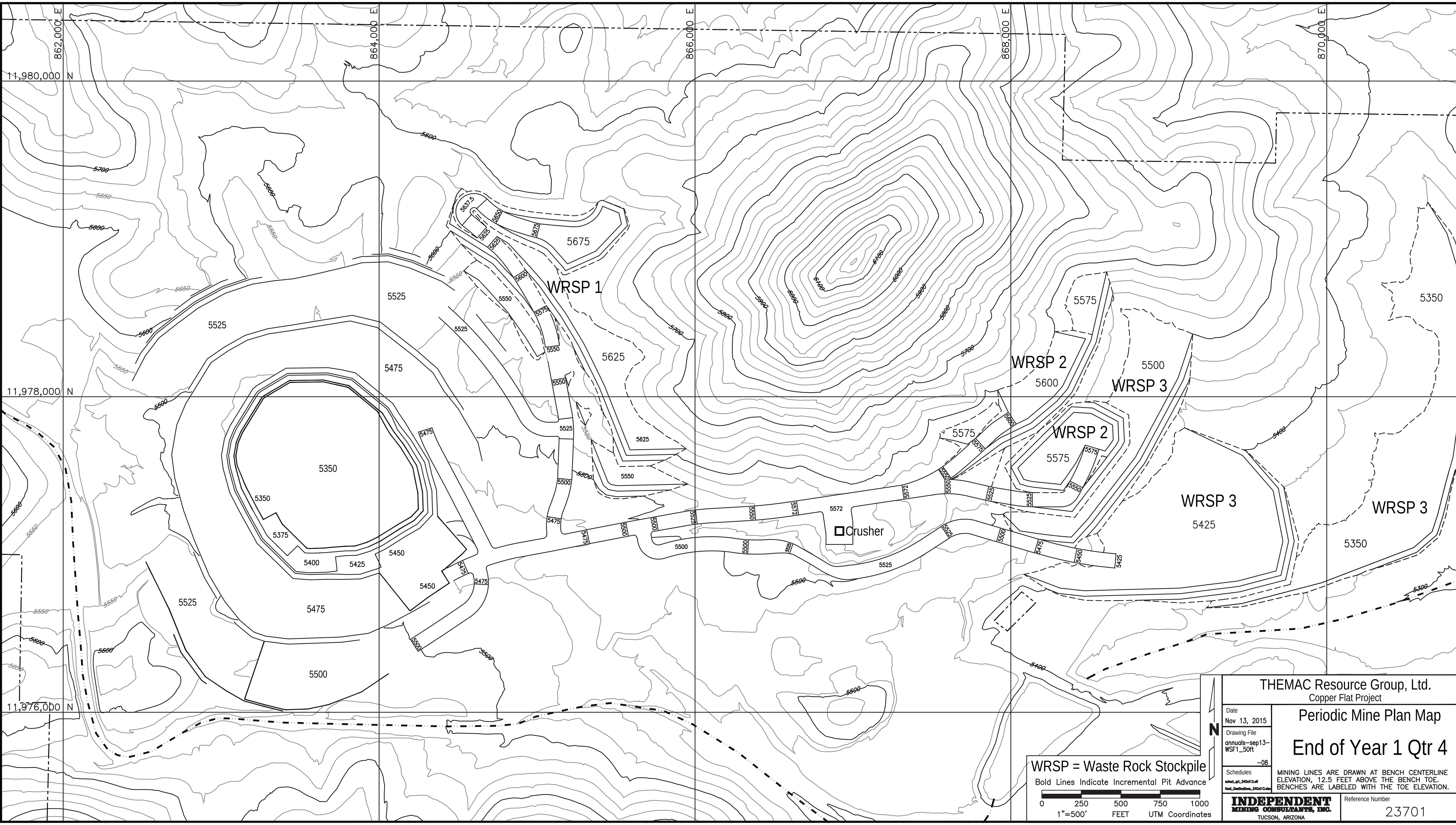
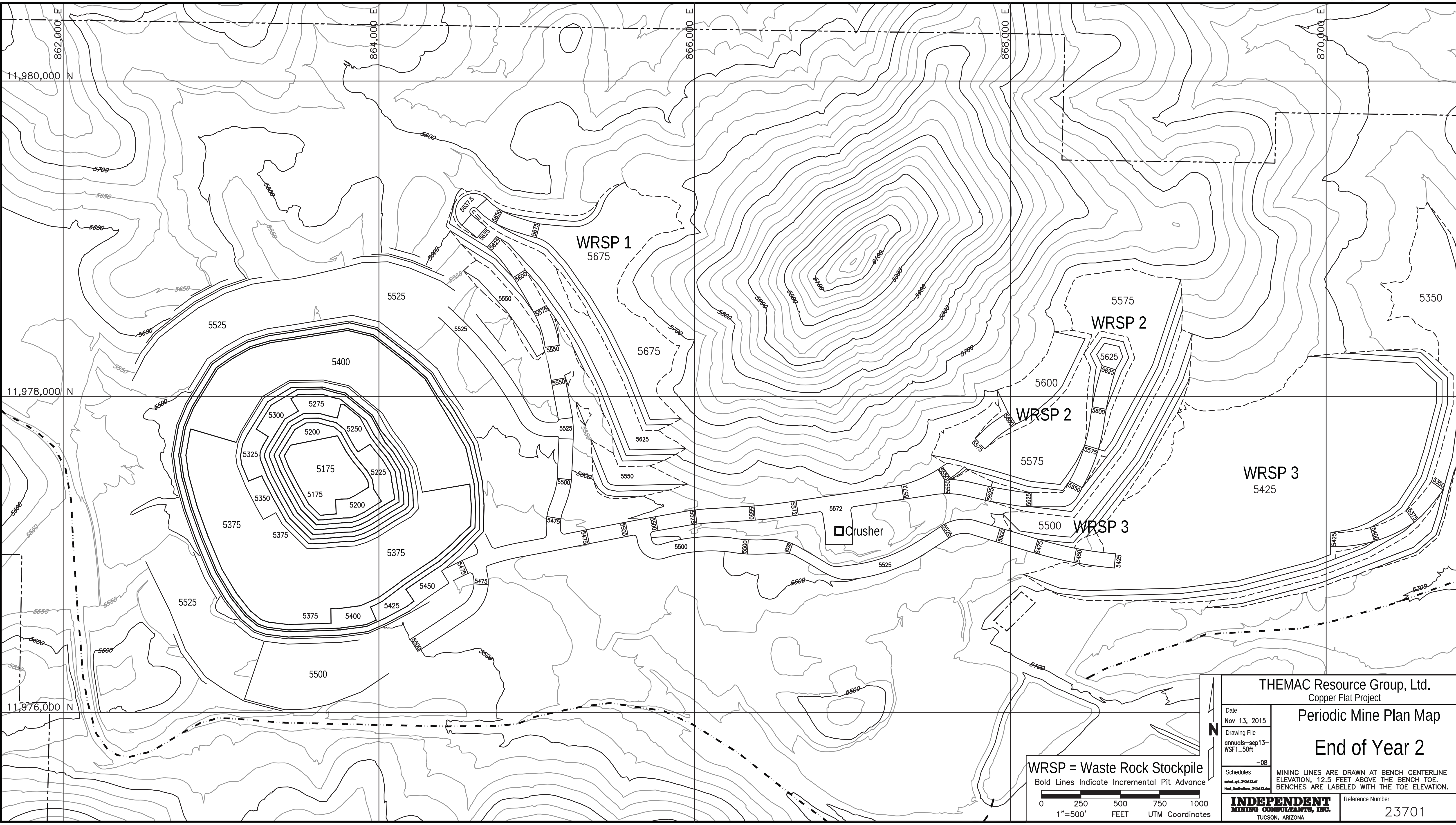


Figure 11J-8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THEMAC Resource Group, Ltd.
Copper Flat Project
Periodic Mine Plan Map
End of Year 2
Date
Nov 13, 2015
MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.
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TUCSON, ARIZONA
Reference Number
23701
WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
0 250 500 750 1000
1"=500' FEET UTM Coordinates

Figure 11J-9

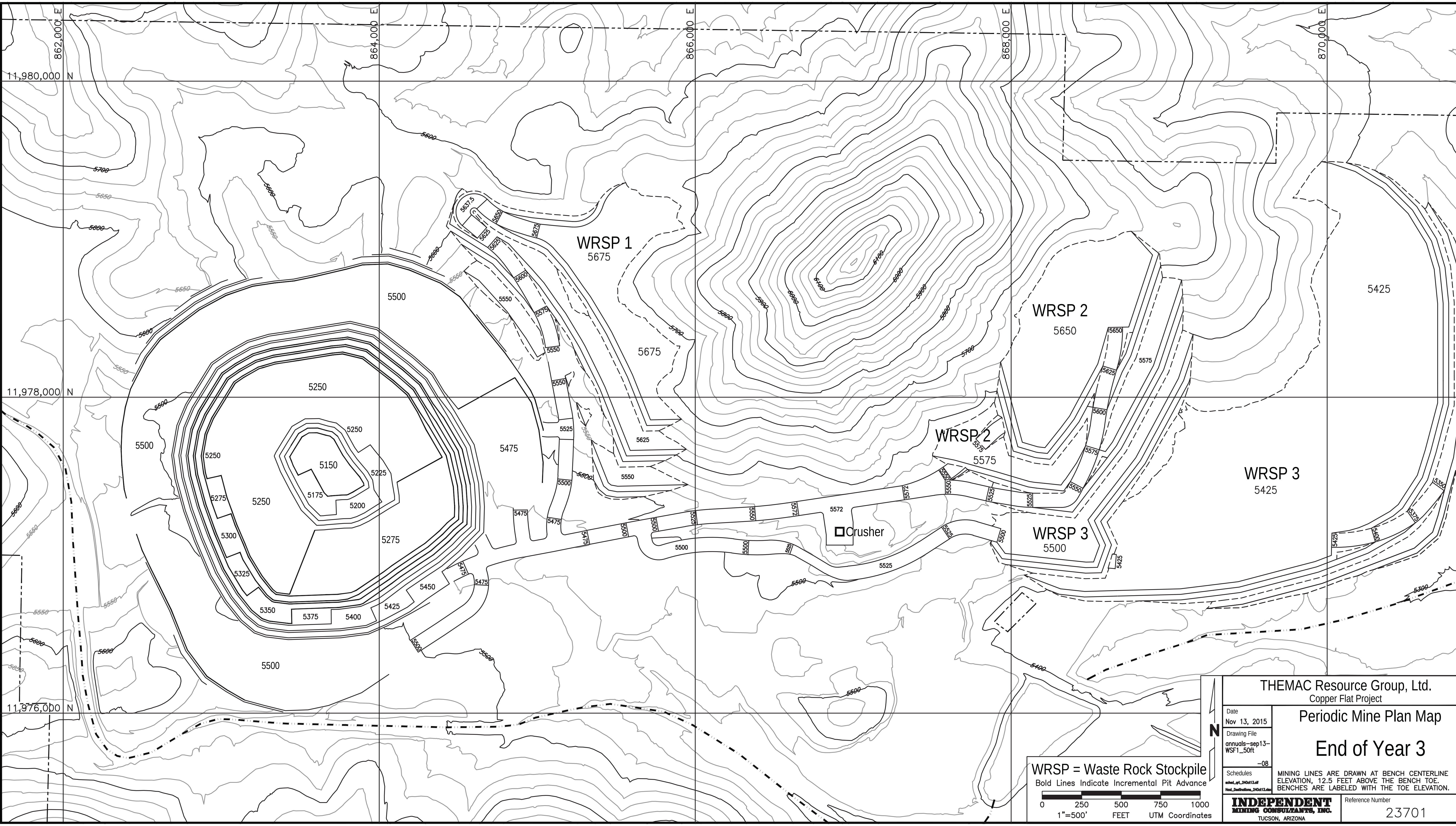


Figure 11J-10

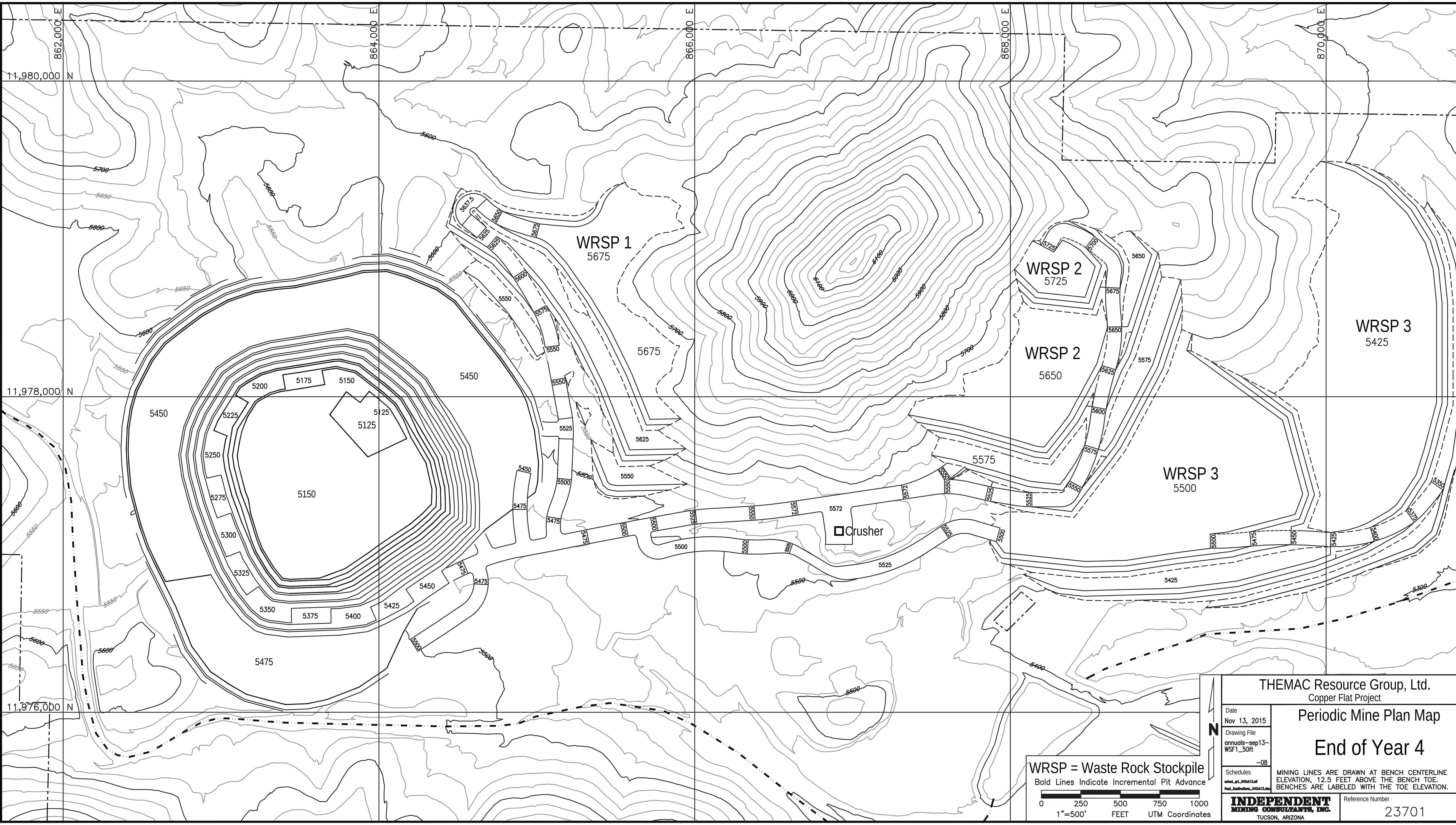


Figure 11J-11

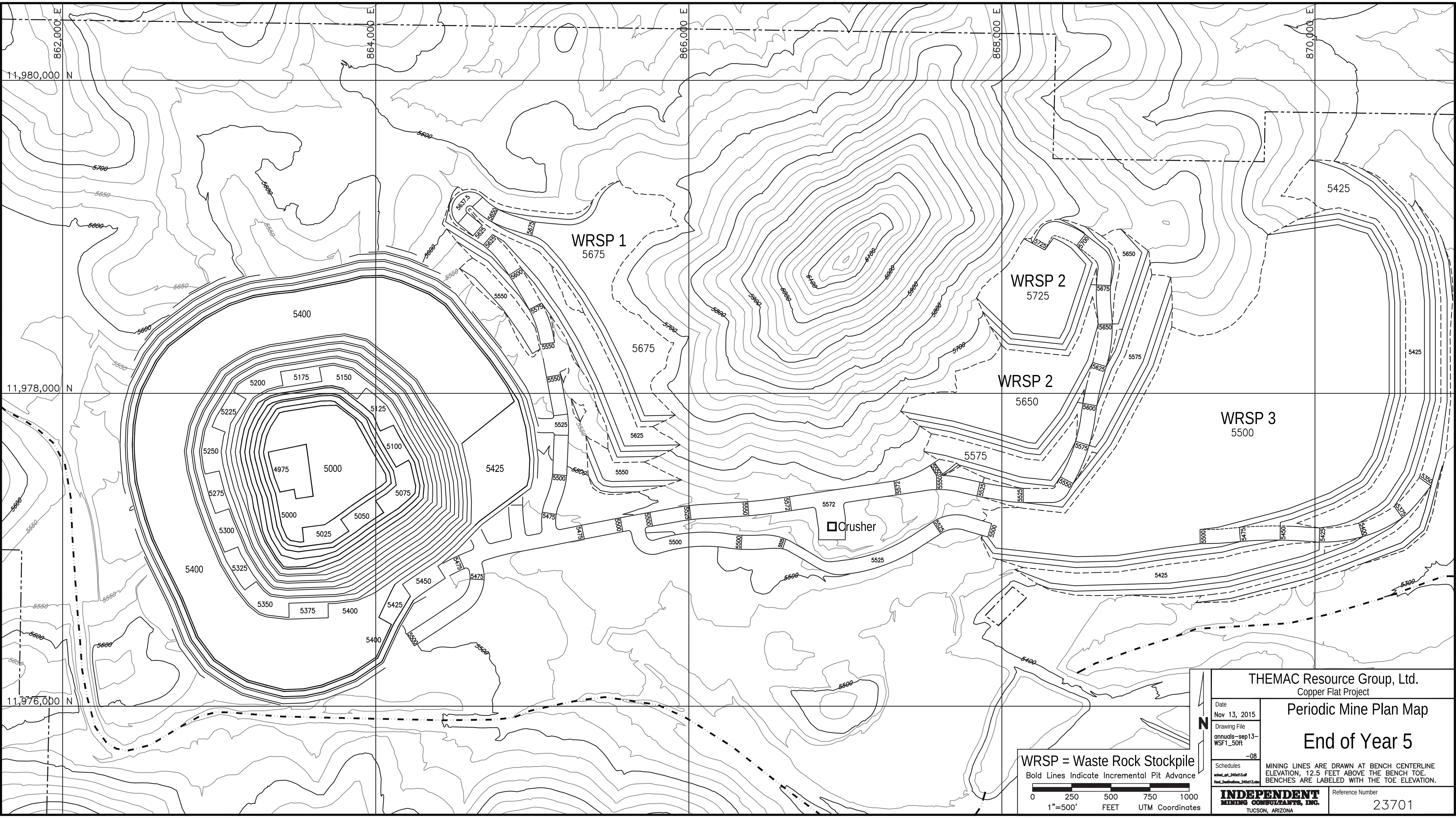


Figure 11J-12

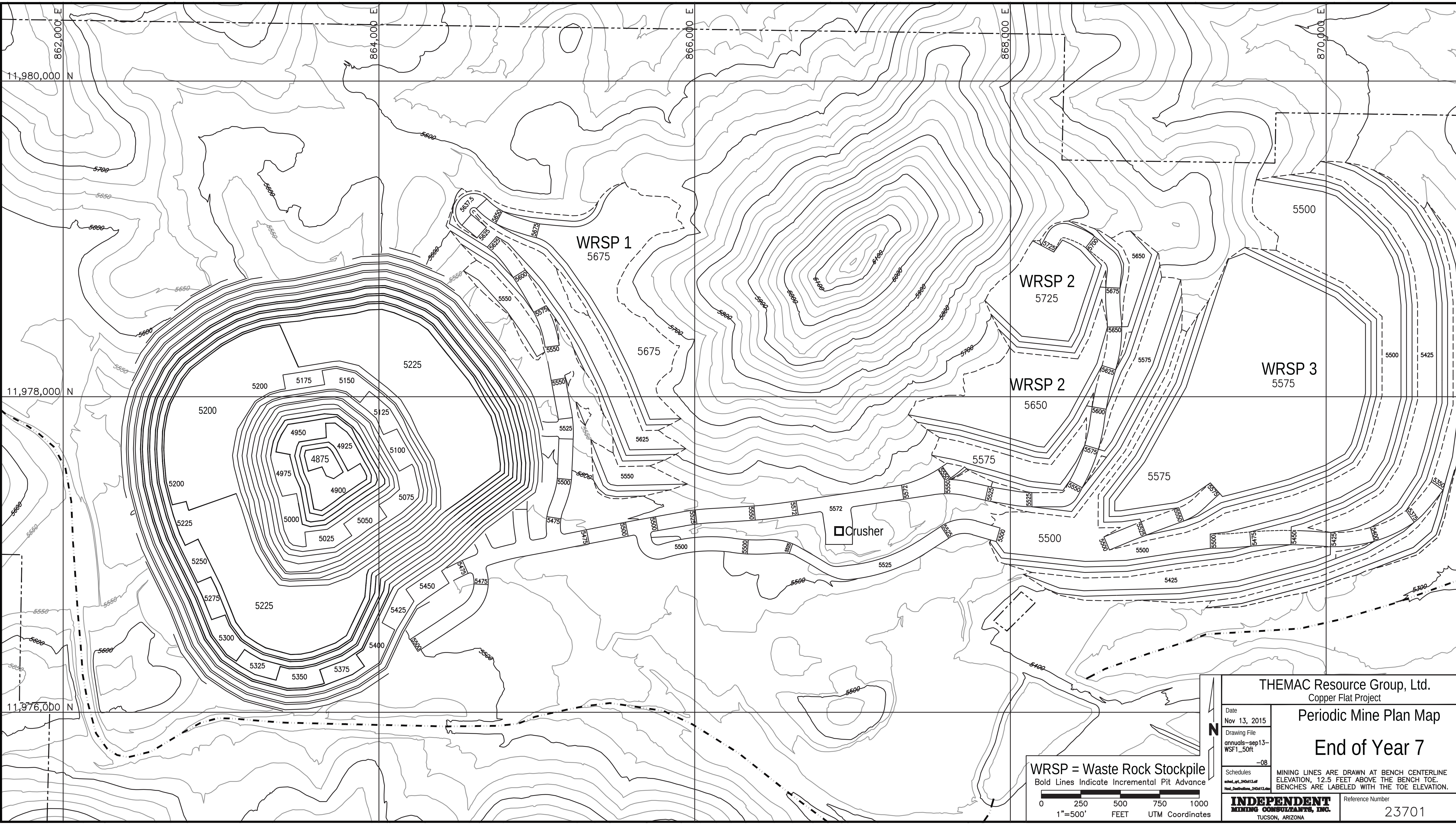


Figure 11J-13

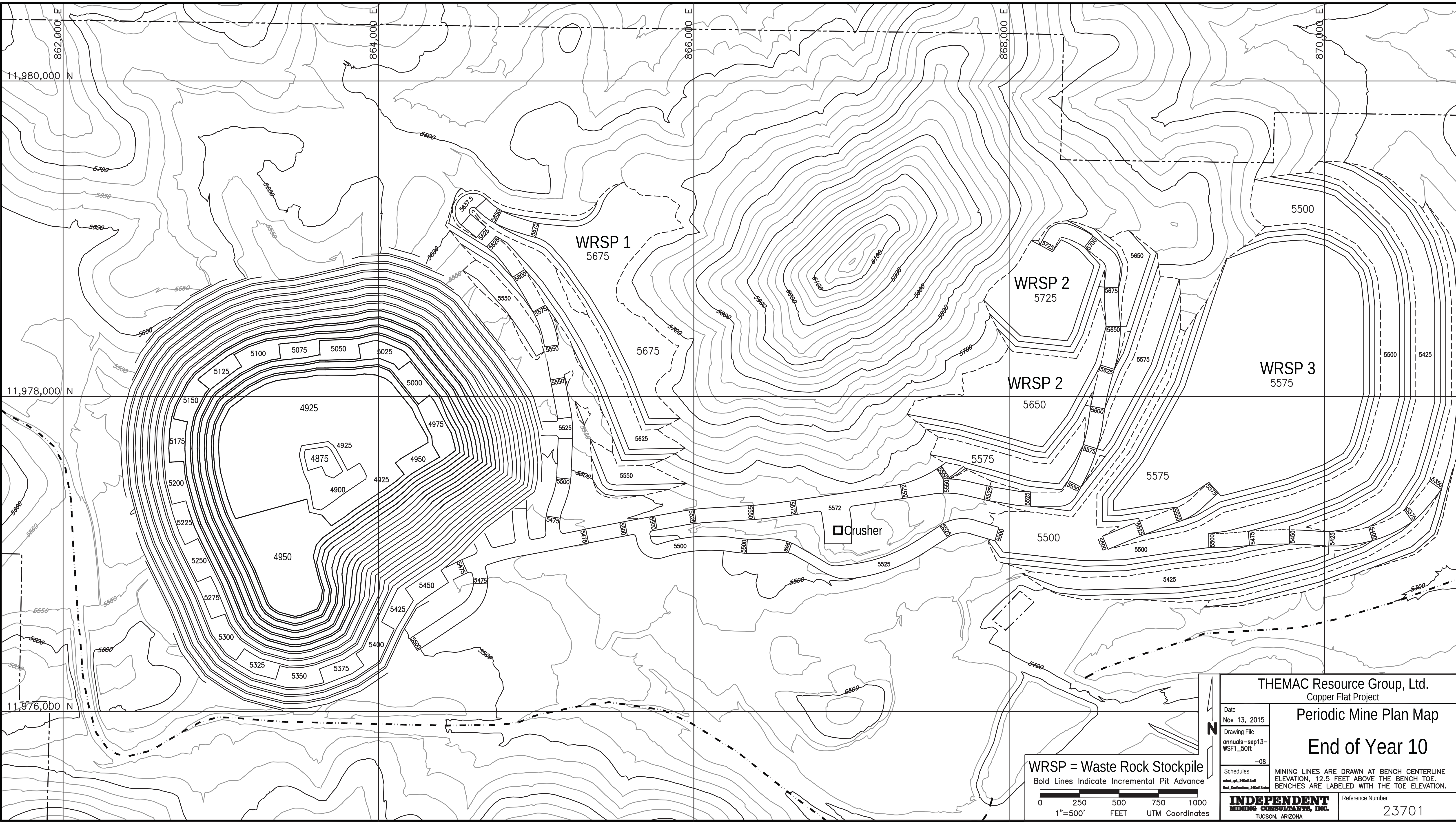


Figure 11J-14

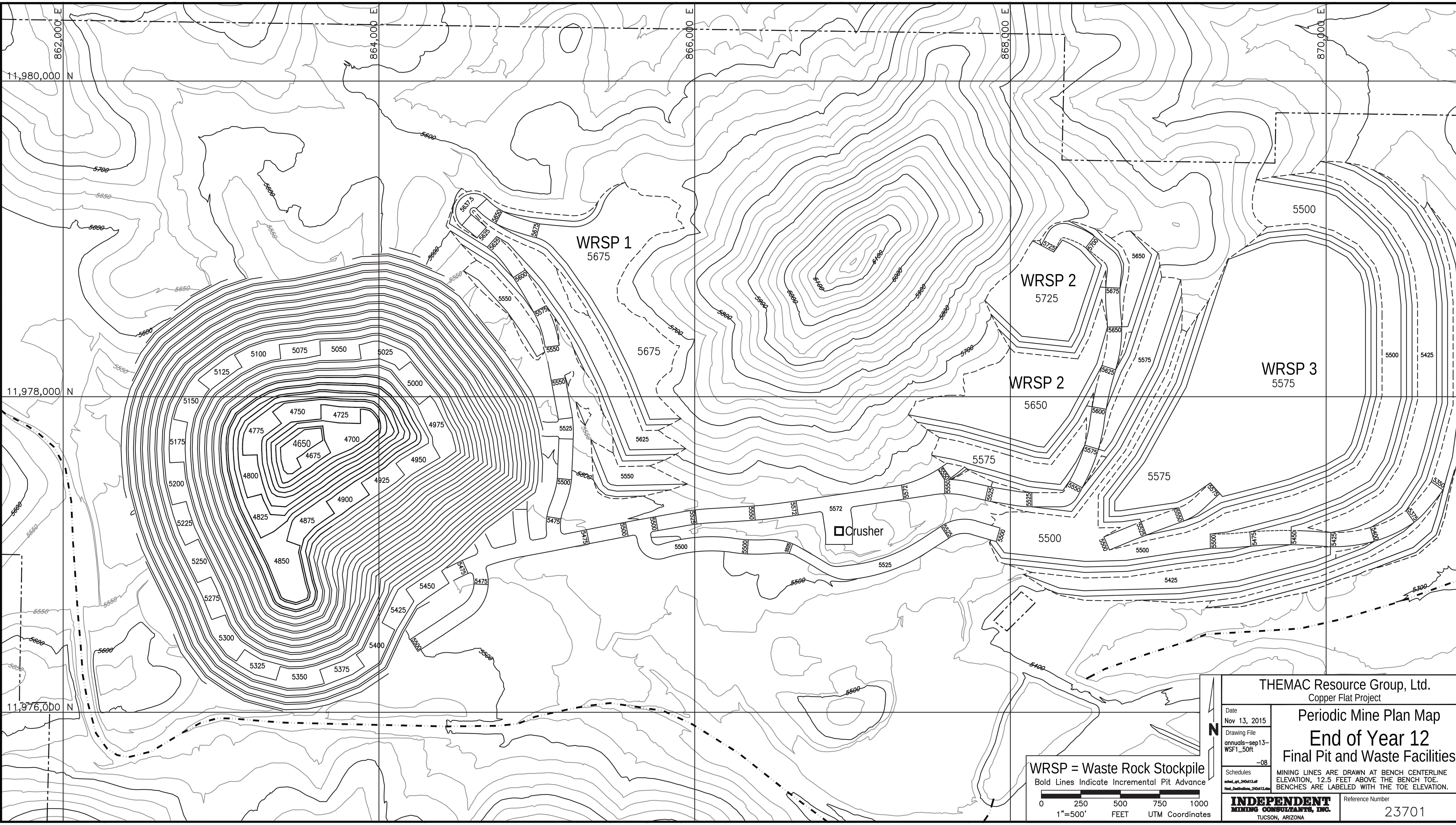


Figure 11J-15

Location
The location of the existing and proposed new waste rock stockpiles is shown in Figure 11J-1 provided herein in response to **20.6.7.11.J.(1)** and Figures 11J-2 and 3. Figures 11J-4 through 15 provide additional design detail of how the proposed new WRSP's will be constructed over time.

- Proposed new WRSP 1 will be located along the western edge of developed watershed (WS) B;
- Proposed new WRSP 2 will be located in the western third of developed WS C;
- Proposed new WRSP 3 will be located in the remainder of developed WS C;
- EWRSP-1 is located at the western end of the site within the open pit surface drainage area. EWRSP-1 is identified in previous reports as the "existing west waste rock disposal facility" (WRDF);
- EWRSP-2A and 2B are located at the northwest side of the site within the open pit surface drainage area. EWRSP-2A and B are identified in previous reports as the "existing north waste rock disposal facility" (WRDF);
- EWRSP-3 is located next to the primary crusher in WS A. EWRSP-3 is identified in previous documents as the low grade or stockpile; and
- EWRSP-4 located southeast of the mine pit. EWRSP-4 is identified in previous documents alternatively as the "lean ore stockpile" and the south waste disposal facility.

Purpose
The purpose of the waste rock stockpiles is to store the all of material excavated from the mine that is not ore or clean topsoil, i.e., growth media, in conformance with the definition of "waste rock" in **20.6.7.7.B.(65)**.

Liner material
The proposed new stockpiles will be constructed over andesite bedrock, a very low permeability formation that provides a natural liner protective of groundwater. Andesite at the site has a permeability of less than 10^{-6} centimeters per second (cm/sec) (SRK, May 2013). The existing waste rock stockpiles are also located over the same andesite bedrock. In addition, EWRSP-1, 2A and 2B are also located within the open pit surface drainage area and the mine pit is a hydrologic sink. As such all surface and groundwater movement at the EWRSP-1, 2A and 2B locations is into the mine pit.

SRK Consulting (U.S.), Inc. conducted a mine waste characterization program for the Copper Flat project. SRK's waste characterization investigations were undertaken in the midst of formulation of the Copper Rules and the report was submitted in advance of their promulgation in December 2013. Nonetheless, every effort was made to conduct the investigation in a manner consistent with Section **20.6.7.21.A.(1).(a), (b), (c) and (d)** of the Copper Rules. Further, the results of the testing demonstrated that the waste rock produced at Copper Flat will not be acid generating or generate a leachate containing water contaminants. The results of SRK's investigations have been previously presented to

NMED (SRK May 2013). Notwithstanding SRK's conclusions that the waste materials at Copper Flat are acid generating, SRK's report also concluded that migration of seepage from the waste rock stockpiles is not expected as the stockpiles will be placed on low permeability (<10^{-6} cm/sec) andesite bedrock which will function as a liner (SRK, May 2013, page 79). NMCC believes that this low permeability condition constitutes a "natural liner system" underlying materials that have been and will be placed outside of the open pit drainage area.

NMED and NMCC have worked closely in the intervening time through meetings, written comments, responses, and comment resolution to ensure that the characterization conducted by SRK satisfies those requirements. As such, this Geochemical Characterization Report, the Geochemical Modeling Report of Pit Lake Water Quality and associated documents for the Copper Flat project are incorporated into this Discharge Plan application by Reference. In correspondence in this regard in a February 23, 2015 letter from NMED to NMCC wherein NMED recommends that the results of the geochemical characterization work be incorporated into the Discharge Permit application (NMED 2105).

The geochemical testing of mine waste rock provided the characterization required to evaluate the potential for it to generate acid and to release contaminants in excess of the standards of **20.6.2.3103** NMAC. This information, in turn, allowed for a quantitative risk assessment and evaluation of the options for design, construction and closure of the tailings and waste rock stockpiles.

Storage or disposal capacity

The storage or disposal capacity of the proposed new waste rock stockpiles is as follows;

- Proposed new WRSP-1 is designed to stockpile up to 3.16 million tons of material over the life of the mine.
- Proposed new WRSP-2 is designed to stockpile up to 8.64 million tons of material over the life of the mine.
- Proposed new WRSP-3 is designed to stockpile up to 32.89 million tons of material over the life of the mine.

The existing waste rock stockpiles have the approximate amount of material associated with them;

- EWRSP-1 contains approximately 512,000 tons of material.
- EWRSP-2A and 2B contain approximately 913,000 tons of material. About half of this material, i.e., EWRSP-2A, will be enveloped into proposed new WRSP-1.
- EWRSP-3 contains approximately 523,000 tons of material. Approximately 123,000 tons of this material consists of unprocessed ore remaining on-site at the end of Quintana's operations. Of this, 24,000 tons is the small amount of unprocessed run-of-mine ore, 44,000 tons of crushed ore stockpiled around the semi-

autogenous (SAG) grinding mill and 55,000 tons utilized to backfill the process building foundations.
- EWRSP-4 contains approximately 1.2 million tons of material.

Methods proposed to prevent pollution of groundwater
NMCC's proposed method to prevent pollution of groundwater from the proposed new and existing waste rock stockpile involves the use of natural site conditions, i.e., the low permeability of the andesite bedrock and the open pit surface drainage area in combination with the use of engineered systems to control and manage water. The location of the stockpiles themselves allows the use natural conditions to protect groundwater from the waste rock materials. The use of liners in the storm water impoundments for surface water runoff control and management at the proposed new stockpile areas during the operational life of the mine will provide a significant measure of protection of groundwater in these areas. Prevention of pollution of groundwater from the waste rock stockpiles in the long-term will be provided in the reclamation and closure phase after the end of the life of the mine by re-grading, contouring and covering the waste rock stockpiles with sufficient cover material to minimize the potential for infiltration of precipitation once the facility is reclaimed.

As indicated above, the existing waste rock stockpiles are placed over the andesite bedrock and the proposed new waste rock stockpiles will also be placed on andesite bedrock. Andesite has been demonstrated to have a very low permeability, thus providing protection of groundwater. The conclusions that SRK made in their report (SRK, May 2013) were based on the 2012 conceptual hydrologic model report prepared for NMCC by John Shoemaker and Associates, Inc., Conceptual Model off Groundwater Flow in the Animas and Palomas Basin, Copper Flat Project, Sierra County, New Mexico, May, 2012, (JSAI 2012) which has previously been submitted to NMED. NMCC has since that time also submitted to NMED two comprehensive follow-on documents titled "Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico, August 22, 2013", and "Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico, March, 2014". These reports confirm that the permeability of the andesite bedrock is less than 10^{-6} cm/sec. and the mine pit is a hydrologic sink. The above cited documents are incorporated into NMCC's Discharge Plan Application by reference.

Surface water runoff will be diverted away from and around the proposed new waste rock stockpiles and processing area to the maximum extent possible to minimize the potential for contact of storm water with materials that have the potential to impact ground water. Precipitation directly onto to these stockpiles will be controlled and managed through construction of runoff control and conveyance structures leading to impacted storm water impoundments. As described above, Appendix B provides a detailed description of the design and construction of the impoundments and conveyance structures. The impoundments will be lined per the requirements of **20.6.7.17.D**. The impoundments are designed to capture all of the water that runs off from the WRSP from a 100 year return interval precipitation event with a minimum 2 ft. of freeboard. The water captured will be retained in the impoundments less than thirty days and transported to the process water reservoir for use in the process circuit. As described above, the process water reservoir will be double-lined and equipped with a leak collection and recovery system.

NMCC recognizes NMED's concerns regarding the existing waste rock stockpiles at the site. Section **20.6.7.21.C.(2)** allows the existing stockpiles to continue to "operate" as previously permitted. As discussed above, EWRSP-1, EWRSP-2A and EWRSP-2B are located within open pit surface drainage area. The mine pit acts as a natural drainage sink for surface and ground water at this location. During operations, EWRSP-1 and EWRSP-2B will remain as they currently exist and be allowed to continue to drain into the mine pit. Surface water runoff will be pumped out of the bottom of the pit for use in dust control within the open pit surface drainage area or as process water, as may be appropriate.

EWRSP-2A is located in the open pit surface drainage area in developed WS B. However, as discussed above regarding the construction of impacted storm water impoundments, while EWRSP-2A is in the open pit surface drainage area, NMCC has determined that it will manage surface water runoff from the eastern one-third of the open pit surface drainage area by developing a sub-watershed, i.e. developed WS B. The purpose of this sub-watershed is to capture runoff from the proposed new waste rock stockpile to be constructed within the watershed, i.e., WRSP-1, in constructed impacted storm water impoundment B at the southwest corner of developed WS B as an additional surface water runoff control measure to manage surface water inflow to the mine pit. The captured surface water runoff will be utilized as process make-up water. In addition, as shown in Figures 11J-4 through 11J-15, EWRSP-2A will be incorporated into the new waste rock stockpile WRSP 1 over the life of the mine.

EWRSP-3 is located at the north end of developed WS A as shown in Figure 11J-3. A portion of this stockpile represents the last vestiges of ore and low grade materials left from the Quintana operation at shut-down. As discussed earlier herein, early in the operation some of this material will be processed through the new processing equipment as a circuit "conditioning" activity. During subsequent operations some of this waste rock stockpile may also be blended with run-of-mine ore and fed into the process if economic conditions warrant. The area of EWRSP-3 will become the area of temporary storage of run-of-mine ore transported from the mine not immediately fed into the primary crusher. During operations storm water runoff from this area will be captured in impacted storm water impoundment A.

EWRSP-4 is located southeast of the mine pit. It was placed on top of andesite bedrock and, as such, is not of concern with regard to potential groundwater impact in this area. Surface water runoff from this area is to Grayback Arroyo. As such, this location has been the subject of continued surface water monitoring because of the potential for surface water impacts. The Water Quality Monitoring Plan presented in Appendix E of this application reflects continued monitoring at this location during operations.

At the end of the life of the mine, the Copper Flat facility will be reclaimed in accordance with an approved reclamation plan/closure plan. All of the waste rock stockpiles will be reclaimed by contouring and grading the piles to prevent run-on, control run-off and minimize infiltration of precipitation. Three feet of soil cover will be placed over the stockpiles and out-slopes. The cover will promote evapotranspiration, further reduce infiltration and facilitate re-vegetation.

NMCC believes that the steps described above contribute significantly to protection of groundwater.

V. 20.6.7.11J.(2) DESCRIPTION OF PROPOSED SLAG

New Mexico Copper does not propose to produce slag at the Copper Flat project inasmuch as the proposed facility does not include a smelter.

20.6.7.11.J.(3) *a description of each existing or proposed open pit and underground mine within the proposed copper mine facility and information about its location, depth, size, and acreage;*

DESCRIPTION OF THE OPEN PIT MINE FACILITY

NMCC proposes to construct an open pit mine at its Copper Flat project. This new facility will entail the expansion of an existing open pit previously developed and operated for a short time in 1982 by Quintana Minerals. A portion of the ore body at Copper Flat is exposed at and near the surface and will be mined by conventional truck and shovel open pit methods.

Existing Open Pit
NMCC's Copper Flat mine facility will expand the existing open pit shown in Figure 11J-2. Quintana Minerals created this existing open pit in 1982 when they brought the property into production as an open pit mine and mineral processing plant. The initial mine excavation needed to expose the ore body occurred during the four- to six-month period immediately preceding startup of the mineral processing plant. Following startup of processing, the open pit and processing plant were in commercial production for three and a half months. At that time, all operations were halted due to a significant decline in copper prices. Approximately 3 million tons of overburden material and 1.2 million tons of ore were mined from the open pit by Quintana. No mining has occurred at this open pit since 1982.

The location of the open pit is shown on Figures 11J-1 and 11J-3, provided herein in response to **20.6.7.11.J.(1).** The floor of the existing pit is 5,400 feet above sea level, which is approximately 100 feet beneath the original pre-mining ground surface. The existing open pit encompasses approximately 102 acres. A 5.2-acre lake is located in the existing pit. The depth of the pit lake water is approximately 35 - 40 feet. The existing pit lake contains approximately 20 to 28 million gallons (61 to 86 AF) of water.

Proposed Open Pit
NMCC's proposed open pit will be created through the expansion of the existing open pit. A multiple bench, open pit mining method will be used to mine the Copper Flat ore body. Figures 11J-4 through 11J-15 depict the expansion of the pit over time. Over the 11-year life of the proposed project, approximately 125 million tons of copper ore and 33 million tons of waste rock will be mined and removed from the open pit. The proposed mining activities will enlarge the open pit over time to a diameter of approximately 2,800 feet. In accordance with **20.6.7.24.A**, **REQUIREMENTS FOR OPEN PITS,** the open pit will remain within the area identified in the discharge permit. The floor of the proposed open pit will reach a depth of approximately 4,650 feet above sea level, which will be approximately 900 feet beneath the original pre-mining ground surface. The area of the pit will be expanded to approximately 161 acres. The existing diversions of Grayback Arroyo constructed by Quintana during its operation of the mine will not be altered by the proposed pit expansion. No underground mining is proposed.

Ore material from the pit will be drilled and blasted, loaded, and hauled to the primary crusher and then conveyed to the mill as described below. Waste rock will be placed in designated stockpile areas as described earlier herein.

MINE OPERATION WATER MANAGEMENT PLAN

This Mine Operation Water Management Plan is submitted in accordance with **20.6.7.24.C** of the Copper Rule. Water use and water conversation are amongst the most important aspects of operating a copper mine after employee safety and protection of human health and the environment. The water demands for the Copper Flat operation are such that it is very important that all water conservation measures possible are taken to maximize water harvesting and recycling of water wherever possible.

On average, approximately 13,000 gpm of water will be required to operate the facility. The source of water will come largely from recycling approximately 9,200 gpm from the tailings storage facility. The remaining made-up water will come from an off-site well field and whenever possible, make-up water provided from capture and management of surface water runoff.

Appendix A contains the detail design of the Copper Flat tailings storage facility water recycling system which includes a water reclamation barge and an underdrain collection system. The water reclaim barge located within the water pond of the tailings impoundment will be equipped with pumps that will pump free water back to the process circuit for reuse in the process. The barge pumps will operate 24 hours per day continuously providing the greatest majority of the water required by the process at a design capacity of 13,000 gpm, though as noted above, the average rate of pumping will be 9,200 gpm.

In addition, as indicated, the tailings facility will be equipped with an underdrain collection system that will allow water to drain from bottom of the tailings impoundment and from underneath the dam. This underflow water will be captured in an underdrain collection pond located at the outside toe of the tailings impoundment. In addition to the water harvested by the tailings underdrain system, precipitation that falls on the outer surface of the tailings dam will also captured by lined runoff collection galleries or trenches that will divert the water to the underdrain collection pond. The underdrain collection pond will be equipped with a pump station capable of pumping a design capacity of 4,000 gpm, though the average rate of pumping is anticipated to be approximately 1,700 gpm.

The water from the TSF water recycling system will be transported via a pipeline to the process water reservoir where it will be held for introduction to the process. The pipeline from the TSF recycling system will be placed within a trench that is lined for secondary containment such that any leaks that may occur in the line will be transported back either to the underdrain collection pond or the tailings impoundment, thus minimizing potential loss of water.

In addition to the water tailings storage facility recycling system, NMCC will harvest as much runoff water as possible. Section **20.6.7.11.J.(2)**, above, describes the various impacted storm water collection impoundments proposed at Copper Flat. These impoundments are designed to maximize the capture and retention of runoff through trenches and ponds. Water captured in these impoundments will be retained for less than thirty day before being evacuated to the process water reservoir. While the amount of water harvested from these areas is entirely dependent upon the amount of precipitation received, any water captured and utilized in the process represents an amount less that has to be produced from the freshwater wells.

Water that is captured within the crushing, grinding and process area sumps will all be routed back to the into the process as described in more detail in section **20.6.7.11.J.(5).** Water produced from the packaged wastewater treatment plant will be piped to the tailings storage facility and become subject to recycling at the point.

Approximately 73 percent of the water required for processing ore will be provided by recycling water back from the TSF through the designed water collection and recycle system described above. Approximately 23 percent of the water used for processing ore will remain entrained within the tailings. The remaining 4 percent will be lost to evaporation or as moisture in the product concentrates. The amount of water in the concentrates will be less than 1 percent of the total water used for processing ore. Table 11J-2 lists the amount of water required for processing ore as well as the amount that would result from collection and recycle from the TSF.

TABLE 11J-2
Ore Processing Water Use and Recycling

Water Use	Acre-Ft per Year			Percent of Total
	Recycled	Non-recycled	Total	
Ore Processing:				
Reclaimable TSF water	15,504	0	15,504	73%
Water retained in tailings	0	4,973	4,973	23%
Evaporation	0	752	752	4%
Concentrates	0	13	13	<1%
Ore Processing Total	**15,504**	**5,738**	**21,242**	**100%**

It is NMCC's goal to maximize the use of recycled and harvested water and minimize its waste. As such all of the water impoundments, except the mine pit, including the tailings storage facility, underdrain collection pond, storm water impoundments, process water reservoir, and the surge pond will be lined to minimize the loss of water. However, even while maximizing water recycle, there will be some water loss, mainly to entrained water in the tailings themselves, some to evaporation, and a small amount entrained in the product. As such, there will be some make-up water required to be provided by the off-site well field. NMCC hopes to keep the use of freshwater to a minimum.

Pit dewatering

Dewatering of the mine pit and the pit lake will be necessary prior to mining and continuously throughout the life of the mine. The water contained in the pit lake prior to operations will be used for dust control during construction and operations. In the event that NMCC obtains the appropriate approvals, NMCC may also utilize the pit water in the process, thus further minimizing the need for fresh make-up water. All of the mine pit water used for dust control will be utilized within the open pit surface drainage area unless sample analyses of the water indicate that application outside of the open pit drainage area will not result in impacts to groundwater.

NMCC anticipates that during operations, groundwater will continue to seep into the pit at an annual average rate of approximately 24 gpm (39 AFY). In addition, storm water runoff will contribute an average of approximately 68 AFY to the pit. Water removal from the pit will continue over the operational life of the mine through a sump or series of sumps located within the pit. Water removal will end once mining of the pit is completed.

20.6.7.11.J.(4) *a description of each existing or proposed material handling and processing unit including crushing, milling, concentrating, smelting and SX/EW units within the copper mine facility, and information about its location and proposed methods of process water handling and disposal;*

DESCRIPTION OF PROPOSED MATERIAL HANDLING AND PROCESSING

The ore processing facilities will be constructed at the site of the original Quintana Minerals processing plant site which is located southeast of the existing open pit as shown in Figure 11J-1, provided herein in response to **20.6.7.11.J.(1)**. Ore processing will consist of a conventional sulfide flotation plant to extract copper, a molybdenum processing circuit, and a gravity gold recovery circuit. No smelting, refining or SX/EW operations will be conducted at the Copper Flat site. The plant will produce copper and molybdenum concentrates as well as a small amount of coarse gold concentrate. Figure 11J-16 is a conceptual flow diagram of the process. Figures 11J-17, 18, 19 and 20 are preliminary isometric drawings that provide an overview of the process area to aid the reader in visualizing how the ore is processed. As discussed in more detail in Section **20.6.7.11.J.(5),** all of the processing units are in containment designed to capture operational spills.

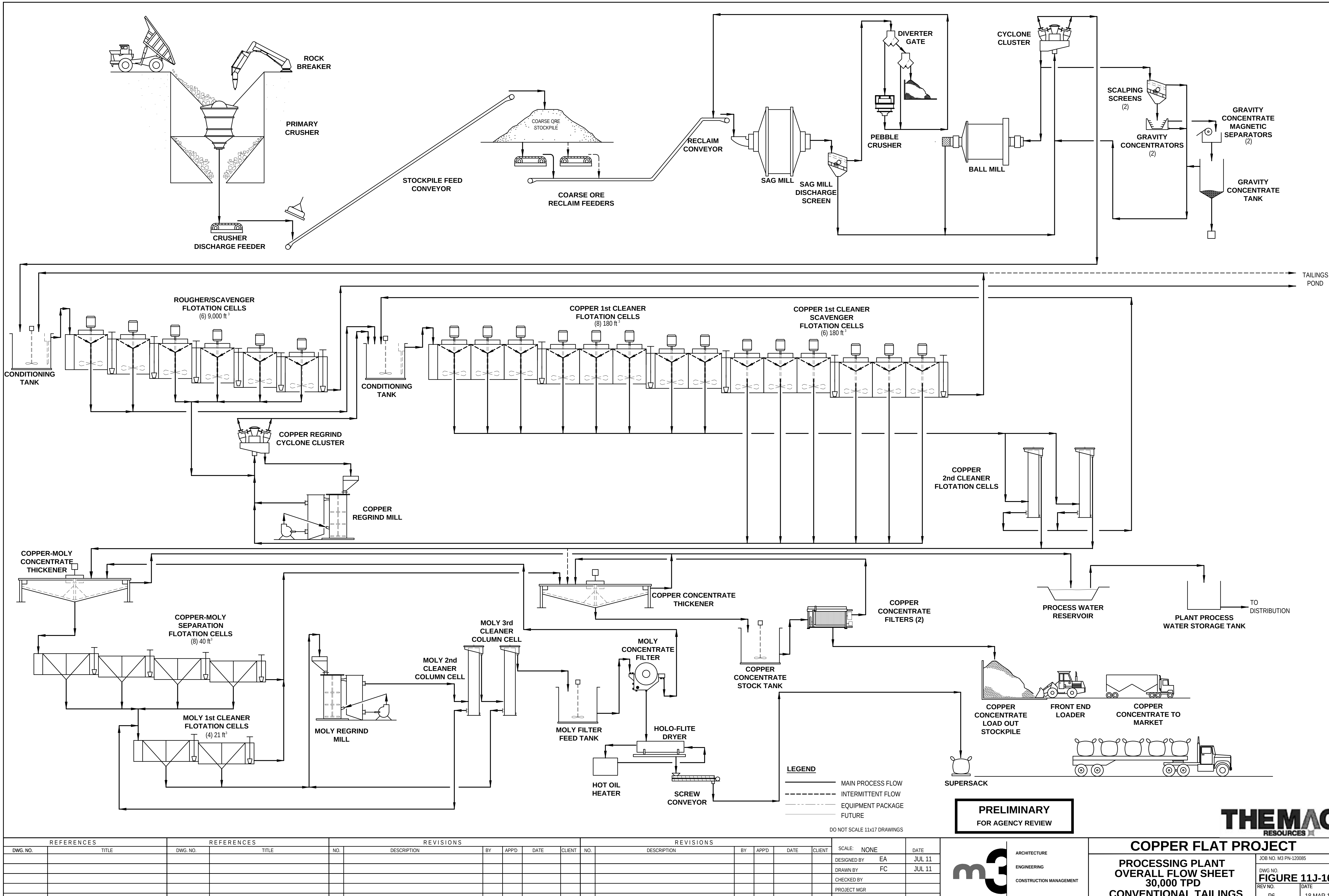
The ore will be crushed and ground to a fine particle size and then processed through mineral flotation circuits. Ore processing activities will continue 24 hours per day, seven days per week, 365 days per year. The plant will process approximately 11 million tons per year at an average rate of 30,000 tons per day or over the life of the project. The major equipment for the mineral processing plant will consist of the following:

Primary Crushing and Coarse Ore Stockpile:

- One 42- x 65-inch gyratory crusher;
- One crusher discharge feeder;
- One 48-inch x 454-foot-long stockpile feed conveyor with stacker;
- Two coarse ore reclaim feeders; and
- One 48 inch X 470-foot-long reclaim conveyor.

Crushing and Grinding:

- One 32-foot-diameter x 14-foot-long SAG mill, 11,000 horsepower;
- One 12X16-foot double deck SAG mill discharge vibrating screen;
- One 4.5-foot cone crusher, 300 horsepower (pebble crusher);
- One 24-foot-diameter X 35 foot-long ball mill, 1500 horsepower;
- One primary cyclone cluster with eight 33-inch-diameter cyclones; and
- Two gravity gold concentrators with scalping screens.


ROCK BREAKER
PRIMARY CRUSHER
CRUSHER DISCHARGE FEEDER
STOCKPILE FEED CONVEYOR
COARSE ORE STOCKPILE
COARSE ORE RECLAIM FEEDERS
RECLAIM CONVEYOR
SAG MILL
SAG MILL DISCHARGE SCREEN
DIVERTER GATE
PEBBLE CRUSHER
BALL MILL
CYCLONE CLUSTER
SCALPING SCREENS (2)
GRAVITY CONCENTRATORS (2)
GRAVITY CONCENTRATE MAGNETIC SEPARATORS (2)
GRAVITY CONCENTRATE TANK
TAILINGS POND
CONDITIONING TANK
ROUGHER/SCAVENGER FLOTATION CELLS
(6) 9,000 ft³
CONDITIONING TANK
COPPER 1st CLEANER FLOTATION CELLS
(8) 180 ft³
COPPER 1st CLEANER SCAVENGER FLOTATION CELLS
(6) 180 ft³
COPPER REGRIND CYCLONE CLUSTER
COPPER REGRIND MILL
COPPER 2nd CLEANER FLOTATION CELLS
COPPER-MOLY CONCENTRATE THICKENER
COPPER CONCENTRATE THICKENER
PROCESS WATER RESERVOIR
PLANT PROCESS WATER STORAGE TANK
TO DISTRIBUTION
COPPER CONCENTRATE FILTERS (2)
COPPER-MOLY SEPARATION FLOTATION CELLS
(8) 40 ft³
MOLY 1st CLEANER FLOTATION CELLS
(4) 21 ft³
MOLY REGRIND MILL
MOLY 2nd CLEANER COLUMN CELL
MOLY 3rd CLEANER COLUMN CELL
MOLY FILTER FEED TANK
MOLY CONCENTRATE FILTER
HOLO-FLITE DRYER
HOT OIL HEATER
SCREW CONVEYOR
COPPER CONCENTRATE STOCK TANK
COPPER CONCENTRATE LOAD OUT STOCKPILE
FRONT END LOADER
COPPER CONCENTRATE TO MARKET
SUPERSACK
LEGEND
MAIN PROCESS FLOW
INTERMITTENT FLOW
EQUIPMENT PACKAGE
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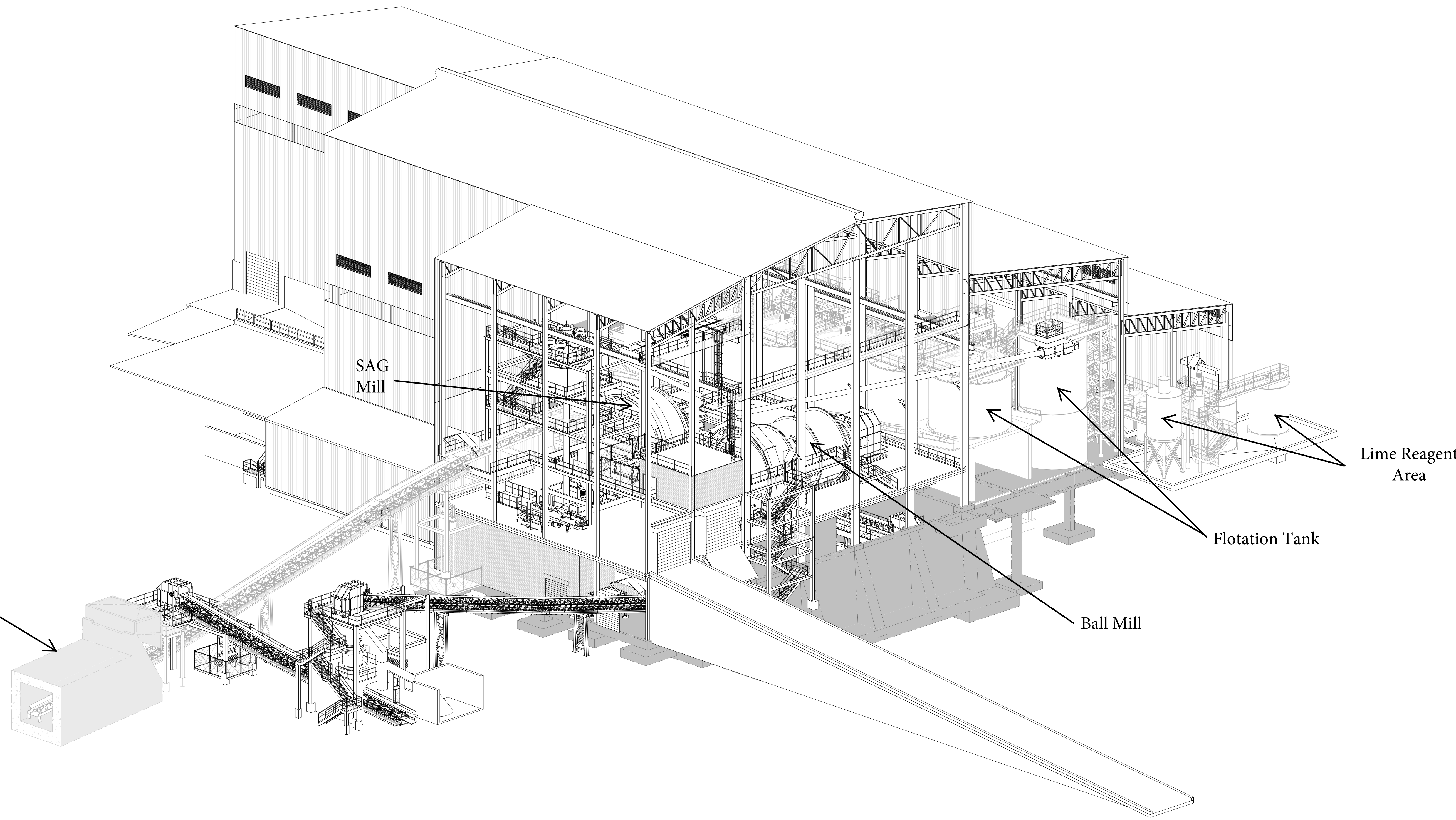
JOB NO. M3 PN-120085
DWG NO.
FIGURE 11J-16
REV NO. P6
DATE 18 MAR 13



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THEMAC RESOURCES

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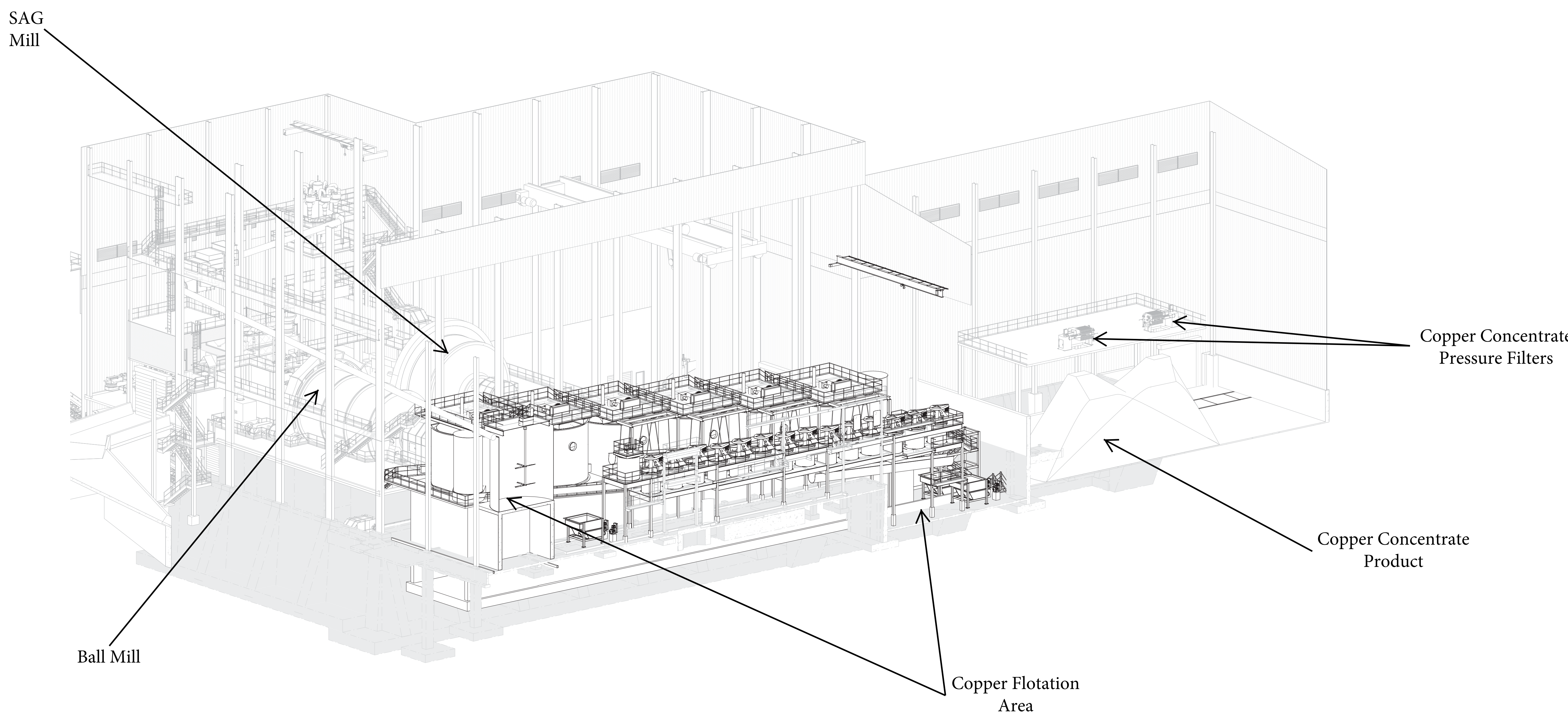
PROJECT NO. M3-PN120085
DWG NO. **3015-GA-000**
REV NO. P2
DATE 26 MAR 13

Figure 11J-17



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COPPER FLAT PROJECT

FLOTATION GENERAL ARRANGEMENT CONCENTRATOR ISOMETRIC

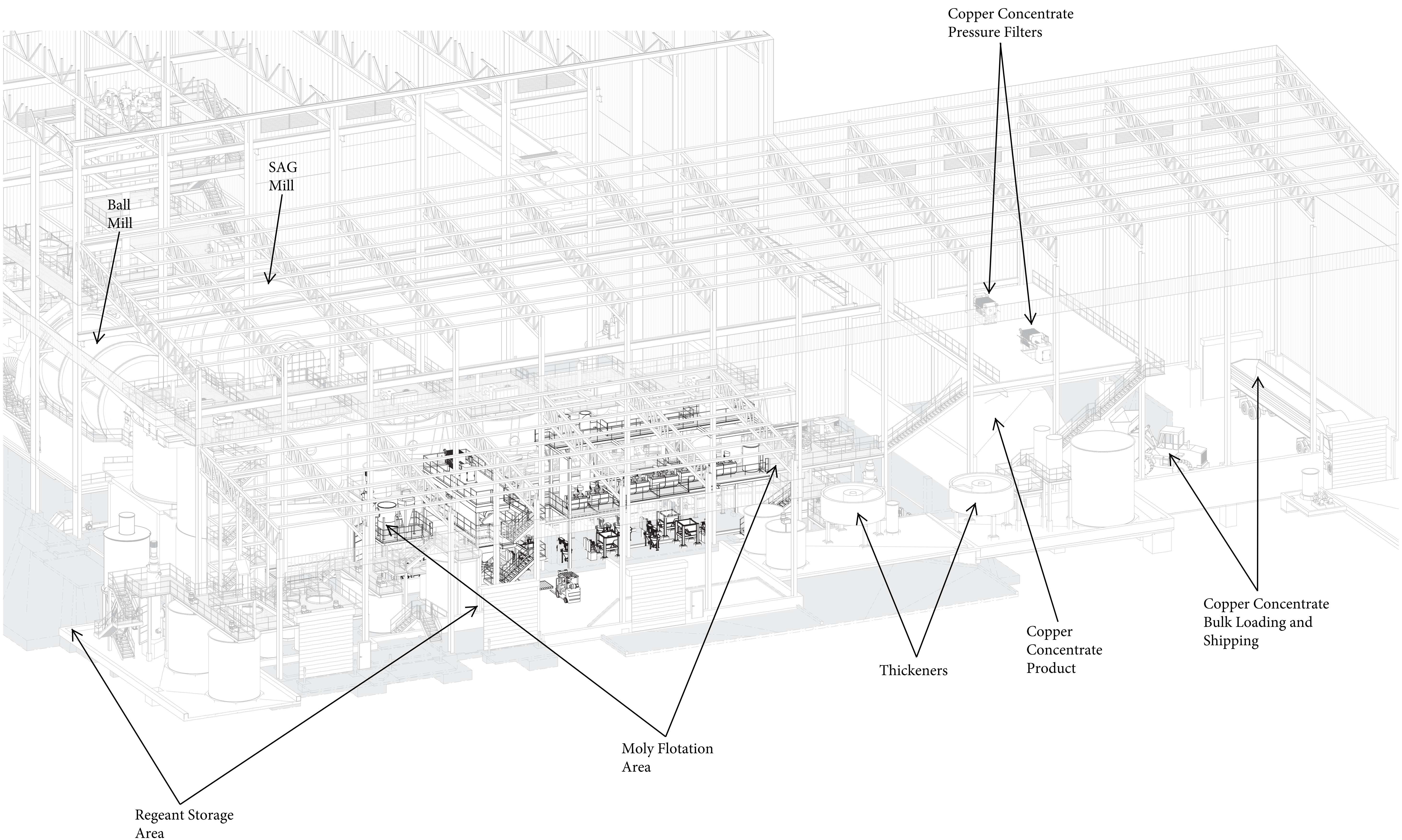
PROJECT NO. M3-PN120085

DWG NO. 3016-GA-000

REV NO. P3

DATE 06 MAY 13

Figure 11J-18



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COPPER FLAT PROJECT

MOLY PROCESS GENERAL ARRANGEMENT CONCENTRATOR ISOMETRIC

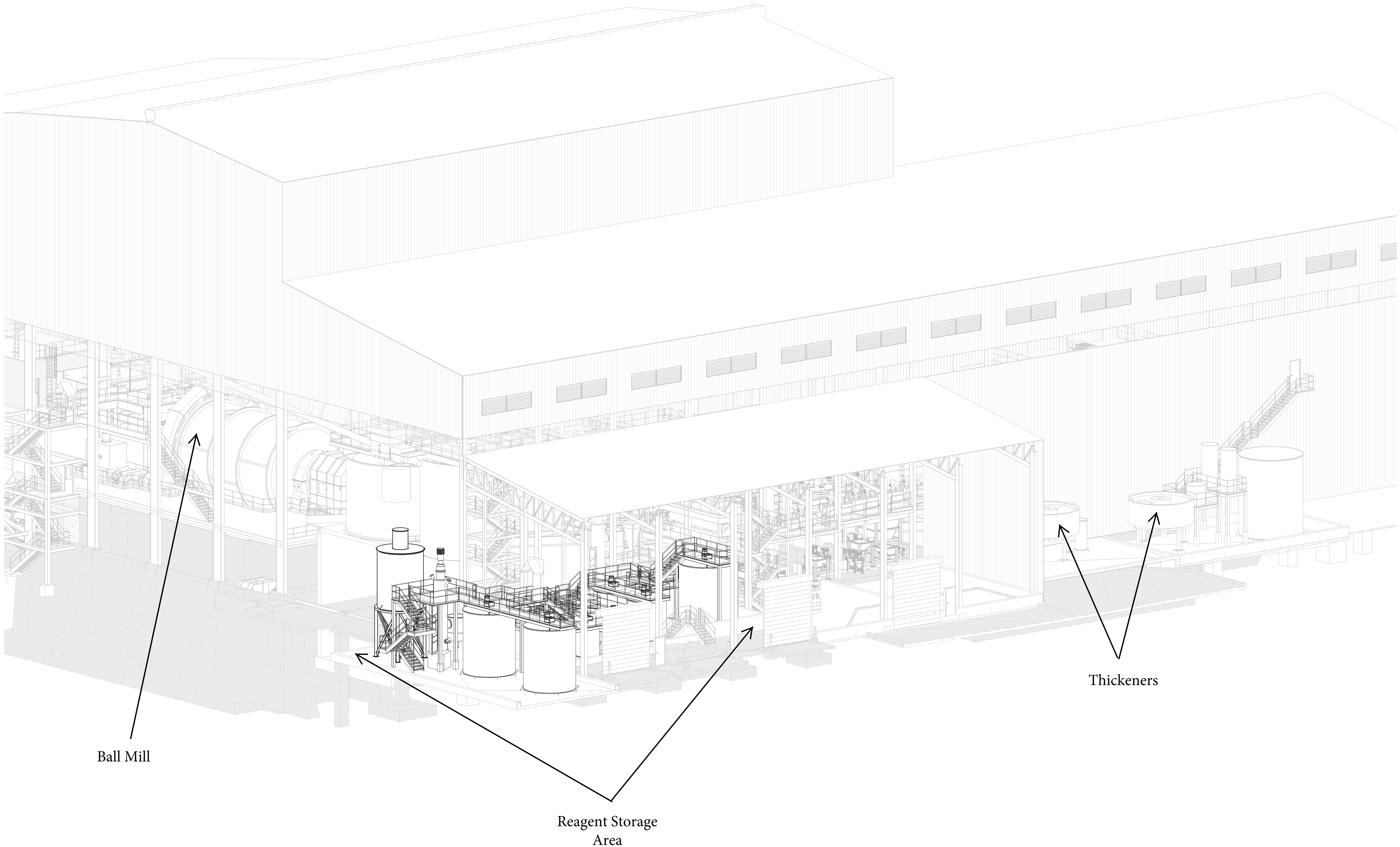
PROJECT NO. M3-PN120085

DWG NO. 3017-GA-000

REV NO. P2

DATE 26 MAR 13

Figure 11J-19



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COPPER FLAT PROJECT

REAGENTS GENERAL ARRANGEMENT CONCENTRATOR ISOMETRIC

PROJECT NO. M3-PN120085

DWG NO. 3014-GA-000

REV NO. P2

DATE 26 MAR 13

Figure 11J-20

Flotation and Concentration:

- Six 9,000-ft^3 bulk rougher flotation machines (copper/moly);
- Fourteen 180-ft^3 cleaner flotation machines (copper);
- Two 800-ft^3 column flotation machines (copper);
- Eight 25-ft^3 separation flotation machines (moly);
- Four 10-ft^3 cleaner flotation machines (moly);
- Two 40-ft^3 column flotation machines (moly);
- One 16-foot-diameter bulk concentrate high rate thickener (copper/moly);
- One 16-foot-diameter concentrate high rate thickener (copper);
- Two automatic filter presses (copper); and
- One 4-dstph disk filter (moly).

Primary Crushing and Coarse Ore Stockpile Facilities

As shown on Figure 11J-16, ore will be hauled from open pit in trucks and fed to the primary crusher for the first stage of crushing. The crusher will size the run-of-mine rock to a nominal 8 inches in diameter or less. The crushed rock will be fed by an apron feeder onto the stockpile feed belt conveyor for transport to the coarse ore stockpile where it will be temporary stored prior to being fed into to the grinding mill. The belt conveyor will include a stacker for placing the coarse ore into the stockpile as seen on Figure 11J-16. The coarse ore stockpile will have a maximum capacity of 75,000 tons.

Ore will be fed from the coarse ore stockpile through the reclaim tunnel located beneath the stockpile onto a conveyor system to feed the SAG mill in the grinding circuit. The conveyor system will be equipped with two variable speed apron feeders that will feed the reclaim conveyor.

Ore handled through this part of the process will be relatively dry. Water associated with this part of the process will include:

- Moisture associated with the ore;
- Water spray used to control dust within the primary crusher pocket and at the stockpile feed stacker; and
- Water used for housekeeping purposes.

The primary crusher and the coarse ore reclaim equipment will be located below ground level in reinforced concrete structures. These concrete structures are existing structures from the Quintana operation and have concrete sumps built into the structures to contain excess water. Water collected in these sumps will be reused within the ore processing circuit via a pumping and recycling system that will be installed during the construction phase of the project. Water used for housekeeping purposes will be confined to use within the concrete structures where it will be contained and recycled via the sump collection and recycle system.

Water spray used for dust control at the stockpile feed stacker will be exterior to the concrete structures. The sprays will only be used when necessary to control dust and will be controlled to minimize excess moisture. During normal operations, water from these sprays will evaporate once the ore reaches the coarse ore stockpile. In the event of an upset condition, any excess water from these sprays will be contained similarly to storm water runoff from this area.

Crushing and Grinding

Ore from the coarse ore stockpile fed through the reclaim tunnel as shown on Figure 11J-17 to the SAG mill will be ground up as a result of impact between the rock entering the mill and five-inch steel grinding balls fed to the mill along with the rock. The walls of the building have been removed in this drawing to allow a view of the equipment and interior.

Material handling from this point in the process will become a wet process as water and various reagents will be added to the SAG mill feed to start the conditioning of the ore pulp for subsequent stages of treatment. Rock from the SAG mill will discharge onto the double-deck SAG mill discharge vibrating screen for sizing.

The double-deck vibrating screen will size the rock in the following manner:

- Rock staying on top of the upper screen deck (oversize) will be taken by belt conveyor to the cone crusher (pebble crusher) where it will be crushed to less than 0.75-inch diameter and returned by belt conveyor to the SAG mill.
- Rock passing through the upper screen deck but not passing through the bottom screen deck will return directly to the SAG mill by conveyors for further crushing and grinding.
- Rock passing through both screen decks will travel to the cyclone feed sump for additional sizing.

Rock collected at the cyclone feed sump will be pumped to the primary cyclone cluster where the eight cyclones will be used to separate the finer ground material (overflow slurry) from the more coarse material (underflow slurry). The overflow slurry will be sent to the first stage of flotation. Most of the underflow slurry will return to the ball mill for further grinding, but a portion of the underflow will be taken through a Knelson-type gravity concentrator circuit to collect gravity recoverable gold. The gravity separation circuit will consist of two concentrators each of which will have an upstream scalping screen to remove oversize material. The gravity concentrates will pass through magnetic separators for removal of tramp iron, i.e., steel introduced from worn liners, and broken grinding media. The reject from the gravity concentrators will be pumped back to the cyclone feed sump.

The majority of this part of the process will be constructed on an existing Quintana foundation. This reinforced concrete foundation is constructed with stem walls and sloped to drain to internal sumps that will contain spills. Finer material and all solutions will be collected in the internal sumps and pumped to the cyclone feed sump for further processing. The cyclone feed sump will be a large reinforced concrete tank built on and attached to the foundation of the building. Coarser material will be collected in piles on the foundation floor and allowed to drain into the sump so that there is no free water associated with this material. Mobile equipment will be used to place the drained material in the coarse ore stockpile for reprocessing.

The pebble crusher will be located outside and adjacent to the existing Quintana foundation. The feed material for the pebble crusher will be large, free-draining, pebble-like material that will be free of water except for small amounts of residual surface moisture. This pebble crusher feed will be collected off the upper screen of the SAG mill discharge vibrating screen. This upper screen will have screen openings of approximately 0.75 inches or larger ensuring the dewatering of this material. Multiple inclined belt conveyors will be used to transport the feed from the SAG mill discharge screen to the pebble crusher.

Flotation and Concentration

Cyclone overflow slurry, which is the final product of the grinding circuit, will flow by gravity to the rougher flotation conditioning tank located ahead of the rougher flotation cells. The overflow slurry will be sampled and analyzed for metallurgical control prior to flotation. The flotation process begins when the cyclone overflow enters from the conditioning tank to the first in a series of six flotation cells (see Figure 11J-17 and 18). Flotation reagents will be added to the overflow and the tanks agitated, creating forth or bubbles, which will allow the reagents to react with the ore particles. Molybdenum and Copper-bearing sulfide mineral particles will concentrate and adhere to bubbles created by the induced air and frothing agents. The copper/molybdenum concentrate will be floated off and concentrated through a series of flotation cells. Cyclones and a regrind mill will be used for further cleaning and concentration.

The final underflow from the flotation process will be a tailings and water mixture, i.e., whole tailings that will be transported to the TSF via pipeline. The final overflow of the flotation process will be a wet copper/molybdenum concentrate mixture that will report to the copper/molybdenum concentrate thickener. The copper/molybdenum concentrate thickener will be used to dewater the concentrate prior to separating the molybdenum concentrate from the copper concentrate. The overflow of the copper/molybdenum concentrate thickener (primarily process water) will be pumped via pipeline to the process water reservoir located near the plant. The underflow (a dewatered copper/molybdenum concentrate mixture) will report to the molybdenum plant.

Flotation cells within the molybdenum plant will be used to separate the molybdenum concentrate from the copper concentrate. Reagents will be added to cause the copper minerals to remain in solution while the molybdenum minerals will adhere to bubbles and float to the top of the flotation solution. Once floated, the wet molybdenum concentrate will be collected and further cleaned and concentrated using a regrind mill and column flotation cells. The molybdenum concentrate will then be dewatered, dried, and packaged. Dewatering will be accomplished with disk filters. Filtrate from the filters will be returned to the copper/molybdenum concentrate thickener. Drying will be accomplished with a hydro-flite dryer, which will use heat to evaporate excess water in the molybdenum concentrate. The molybdenum concentrate will be packaged for transport to off-site facilities for further processing. The packaging area is located generally in the area shown on Figure 11J-18 in front of the forklift shown in the figure. The molybdenum concentrate will be approximately 50% molybdenum sulfide.

The underflow from the molybdenum flotation plant will be a wet copper concentrate. The copper concentrate will be dewatered in the copper concentrate thickener. Overflow from the copper concentrate thickener (primarily process water) will be pumped to the process water reservoir. The underflow from the copper concentrate thickener (dewatered copper concentrate) will report to pressure filters for further dewatering. Filtrate from the pressure filters will be collected and returned to the copper concentrate thickener. Once pressure filtered, the copper concentrate will be stored for transport to off-site smelting and refining facilities. The copper concentrate will average approximately 28% copper.

The flotation and concentration processes will be contained within a structure utilizing a reinforced concrete foundation and floor with sumps incorporated into the floor. Spillage caused by any upset event will be contained within the foundation area, collected in sumps and reintroduced into the process.

Process Water Handling and Disposal

All water used in the processing of ore will be either be contained within the ore processing circuit, discharged into a lined impoundment (TSF), or be in the copper and molybdenum concentrates as moisture content. The Mine Operation Water Management Plan provided above in Section **20.6.7.11.J.(3)** provides more detailed on water handling and disposal.

The plant water system will consist of a lined process water reservoir and a plant process water storage tank. Both will be located near the plant site. Water will be delivered to the reservoir via pipelines. Water reporting to the reservoir includes the following:

- Recycled process water from the TSF;
- Copper/molybdenum concentrate thickener and copper concentrate thickener overflows;
- Storm water from the Impacted storm water impoundments; and
- Makeup water from the fresh water tank (water from the well field).

Water from the process water reservoir will be pumped to the plant process water tank. The tank will deliver water the processing areas for use as needed a via gravity-flow pipeline. As indicated above, in Table 11J-1, approximately 73 percent of the water required for processing ore will be provided by recycling water back from the TSF through the designed water collection and recycle system described above. Approximately 23 percent of the water used for processing ore will remain entrained within the tailings. The remaining 4 percent will be lost to evaporation or as moisture in the concentrates. The amount of water in the concentrates will be less than 1 percent of the total water used for processing ore.

20.6.7.11.J.(5) *a description of existing or proposed sumps, tanks, pipelines and truck and equipment wash units, including information for each unit regarding its location, purpose, construction material, dimensions and capacity; for portable tanks or pipelines or those subject to periodic relocation, identify the areas within which they may be used;*

M3 has prepared a Process Facility Containment Report that provides the tank, pipeline and truck and equipment wash unit information requested. The report is included in this DP application as Appendix C. The purpose of this report is, in part, to identify and describe the proposed sumps, tanks, pipelines and truck and wash units, including their purpose, construction material, dimensions and capacity. This report also provides information regarding the form and design of the containment structures that will be incorporated into the process to contain and manage materials containing water contaminants that have the potential to migrate to groundwater and cause and exceedance of applicable groundwater standards and meet the requirements of **20.6.7.22**, **23 and 26 NMAC**.

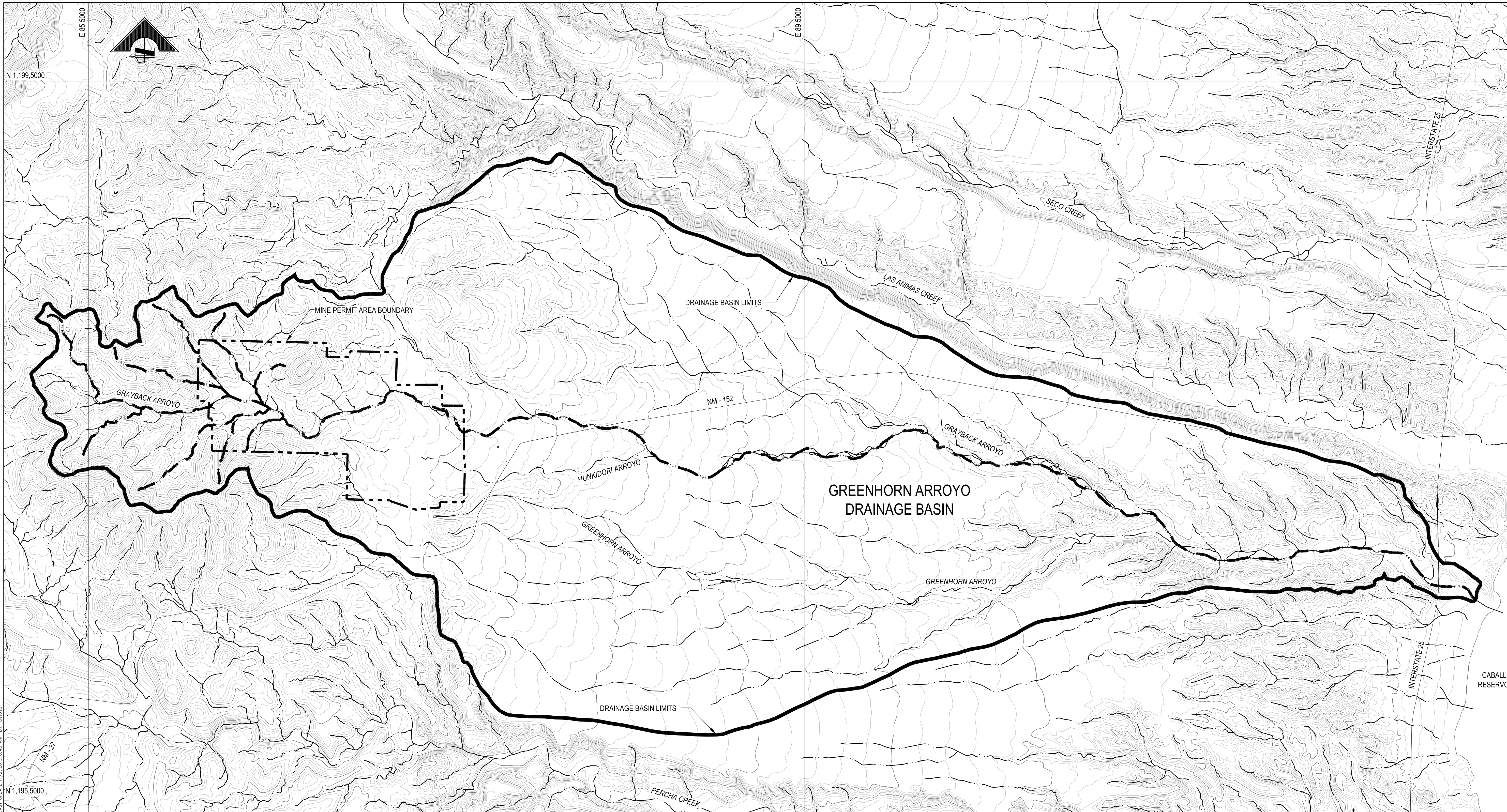
With respect to the requirements of **20.6.7.23.C.(6)** for a pipeline evaluation plan for existing pipelines, NMCC will not be utilizing any existing pipelines at the Copper Flat mine with the exception of the freshwater pipeline providing water from the off-site well field. As such not pipeline evaluation plan is necessary.

20.6.7.11.J.(6) *a description of the proposed method(s) to manage stormwater runoff and run-on to minimize leachate that may be discharged;*

NMCC proposes to utilize some existing water diversion structures as discussed in more detail below and construct other storm water management structures to manage run-on and run-off at the Copper Flat mine to minimize the potential for the discharge of leachate. M3 performed a peak discharge and volume analysis of the drainage areas contributing to Grayback Arroyo at the site. The purpose of the analysis was to evaluate the existing diversions and water conveyance features existing at the Copper Flat site as their adequacy in conveying flows from storm events and protecting the site from flooding. The return periods analyzed were the 100-year, 200-year, and 500-year, 24 hour storms. The capability of certain existing culverts within Grayback Arroyo to safely pass those storms without overtopping the proposed facility roadway or pipeline corridor was also analyzed. Appendix D contains the results of the analysis. Following is a synopsis of the results.

Figure 11J-21 shows the location of the Copper Flat mine permit area boundary within the Greenhorn Arroyo drainage basin watershed. It shows the Greenhorn Arroyo watershed as it existed prior to any mining. As shown in Figure 11J-21, the site is located in the head of the basin. Figure 11J-22 provides a closer view of the headwater drainage of the watershed in relation to the mine permit area boundary. Grayback Arroyo and its tributaries naturally begin as the headwaters of the drainage basin and converge at the western side of the site, transecting the mine permit area draining from west to east. The main-stem of Grayback Arroyo enters the western boundary of the site and several small unnamed arroyos, tributary to Grayback Arroyo, enter the site at the northwest and southwest corners of the site. As seen on Figure 11J-21, Hunkidori Gulch begins at the western edge of the site down-gradient of the operations, and drains to the east away from the site. Greenhorn Arroyo begins off of the southeast corner of the site down-gradient from the operations and also drains east. Hunkidori and Greenhorn Arroyos have no impact upon the Copper Flat facility as they are located down-gradient of the mine. Only Grayback Arroyo and its unnamed arroyos, which enter the site from the west, need be the subject of consideration with respect to surface water run-on and runoff management.

Pre-production site preparation activities conducted by Quintana Minerals in the early 1980's included the construction of diversion structures to Grayback Arroyo and unnamed arroyos to divert drainage around the site. These structures are shown in Figure 11J-23. Diversion structures were constructed to divert the headwaters of Grayback arroyo and its western tributaries as they entered the western site boundary to the south and east around the mine pit and the processing area. Another diversion structure, similar in purpose but smaller in size, was constructed at the northwest corner of the site to divert drainage from two small tributaries to Grayback Arroyo, diverting them to the east around Animas Peak away from the site into a sub-watershed that joins Grayback Arroyo east of the of the site boundary.



LEGEND

DRAINAGE BASIN BOUNDARY	
MINE PROPERTY BOUNDARY	
GRAYBACK ARROYO	
FLOWLINE	

SITE PLAN

SCALE: 1" = 2500'

2500 1250 0 2500 5000

SCALE IN FEET

CONTOUR INTERVAL = 50'

DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY

FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 2500'	DATE
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
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PROJECT MGR		
CLIENT APPR.		

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COPPER FLAT PROJECT

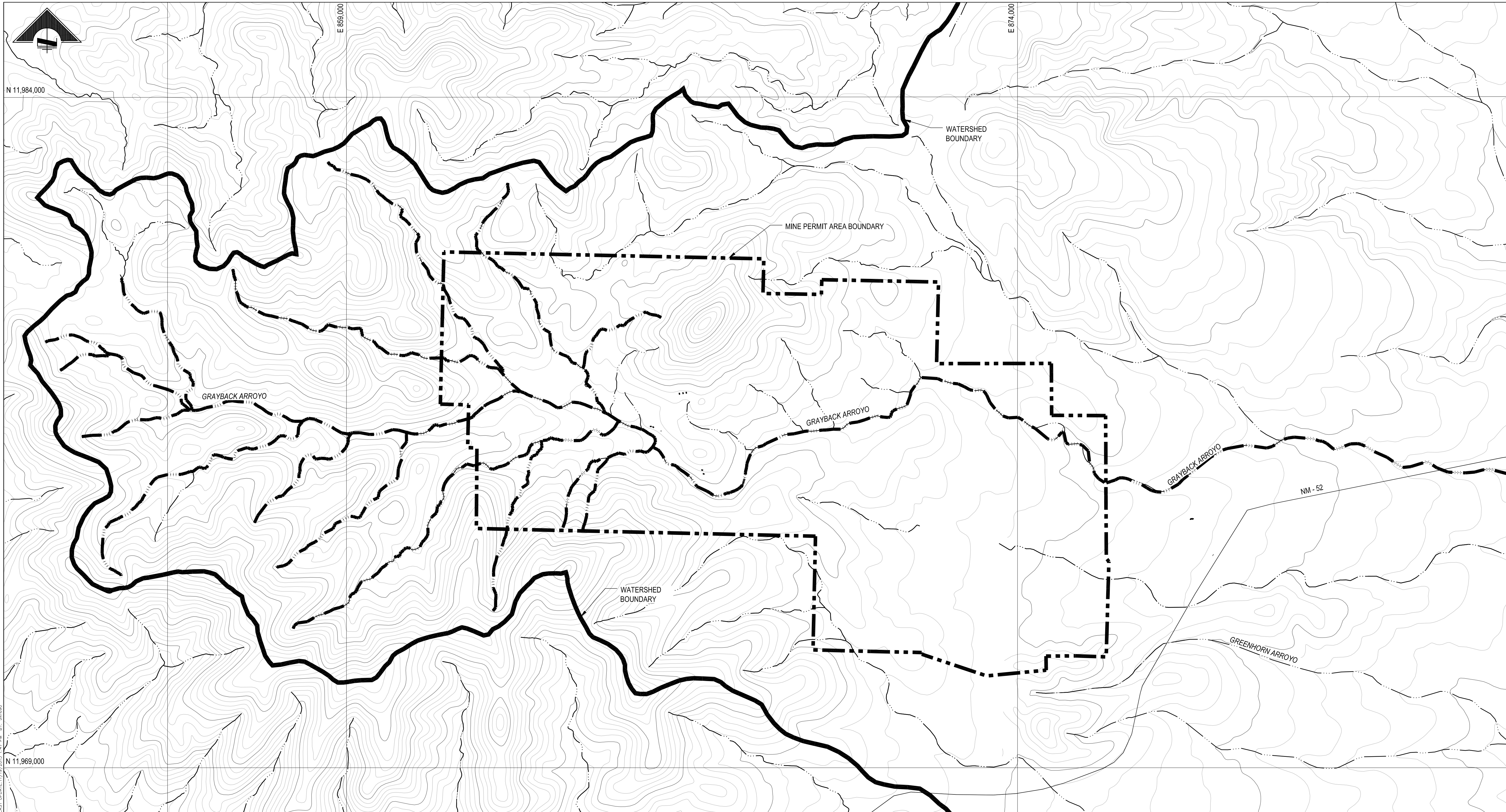
GENERAL SITE
CIVIL
GREENHORN ARROYO
PRE-MINING WATERSHED BASIN

JOB NO. M3 PN-120085

DWG NO. **0000-CI-100**

REV NO. P2 DATE 20 NOV 15

Figure 11J-21



LEGEND

DRAINAGE BASIN BOUNDARY

MINE PROPERTY BOUNDARY

GRAYBACK ARROYO

FLOWLINE

SITE PLAN

SCALE: 1" = 1000'

1000 500 0 1000 2000

SCALE IN FEET
CONTOUR INTERVAL = 20 FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

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COPPER FLAT PROJECT

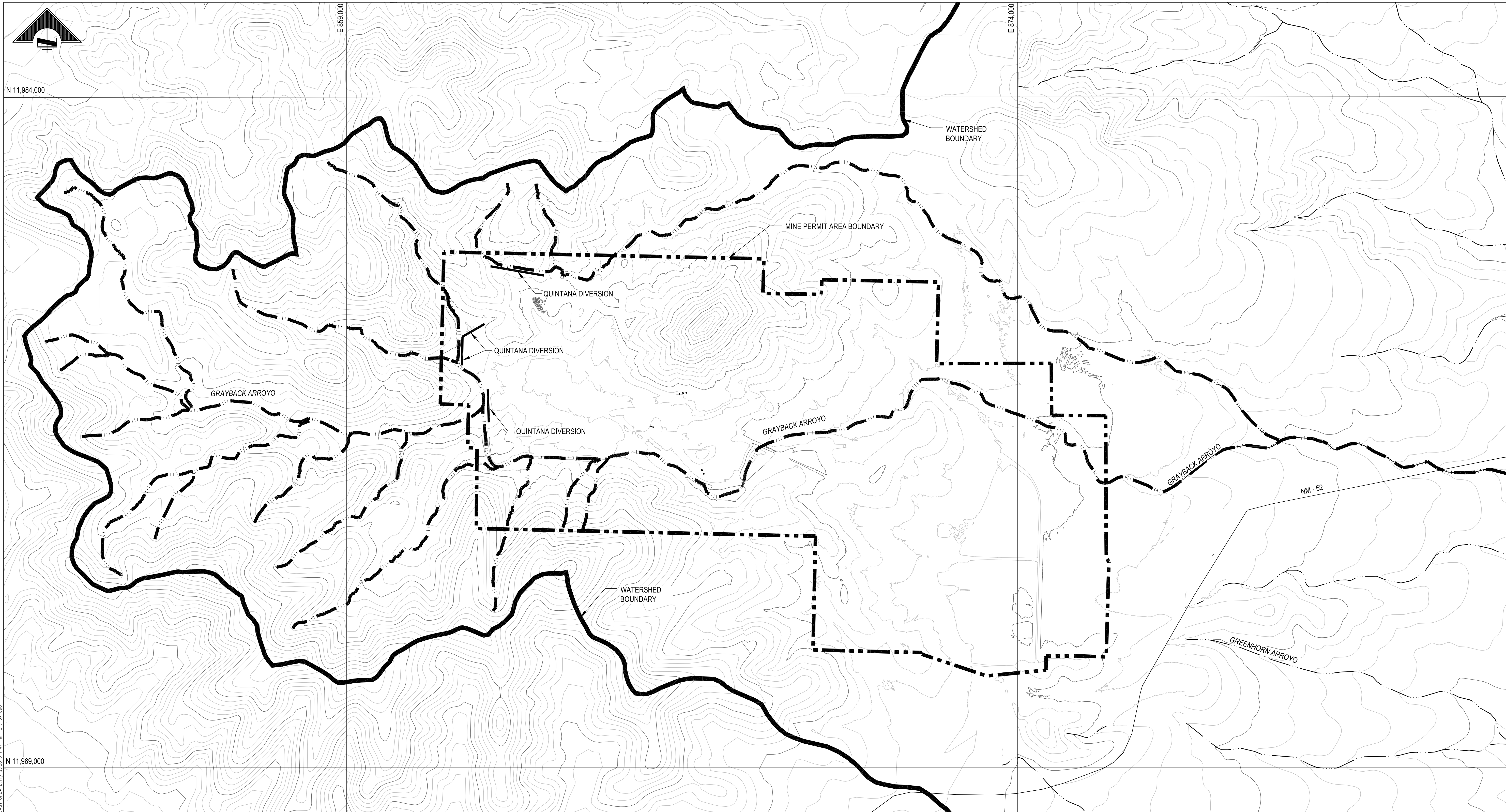
GENERAL SITE
COPPER FLAT SITE
EXISTING HYDROLOGY
PRE-QUINTANA MINING

JOB NO. M3 PN-120085

DWG NO. **0000-CI-101**

REV NO. P1 | DATE 20 NOV 15

Figure 11J-22



LEGEND

- DRAINAGE BASIN BOUNDARY
- MINE PROPERTY BOUNDARY
- GRAYBACK ARROYO
- FLOWLINE

SITE PLAN

SCALE: 1" = 1000'

1000 500 0 1000 2000

SCALE IN FEET
CONTOUR INTERVAL = 20 FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

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PROJECT MGR		
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COPPER FLAT PROJECT

GENERAL SITE
COPPER FLAT SITE
EXISTING HYDROLOGY
POST QUINTANA MINING

JOB NO. M3 PN-120085
DWG NO. **0000-CI-102**
REV NO. P1
DATE 20 NOV 15

Figure 11J-23

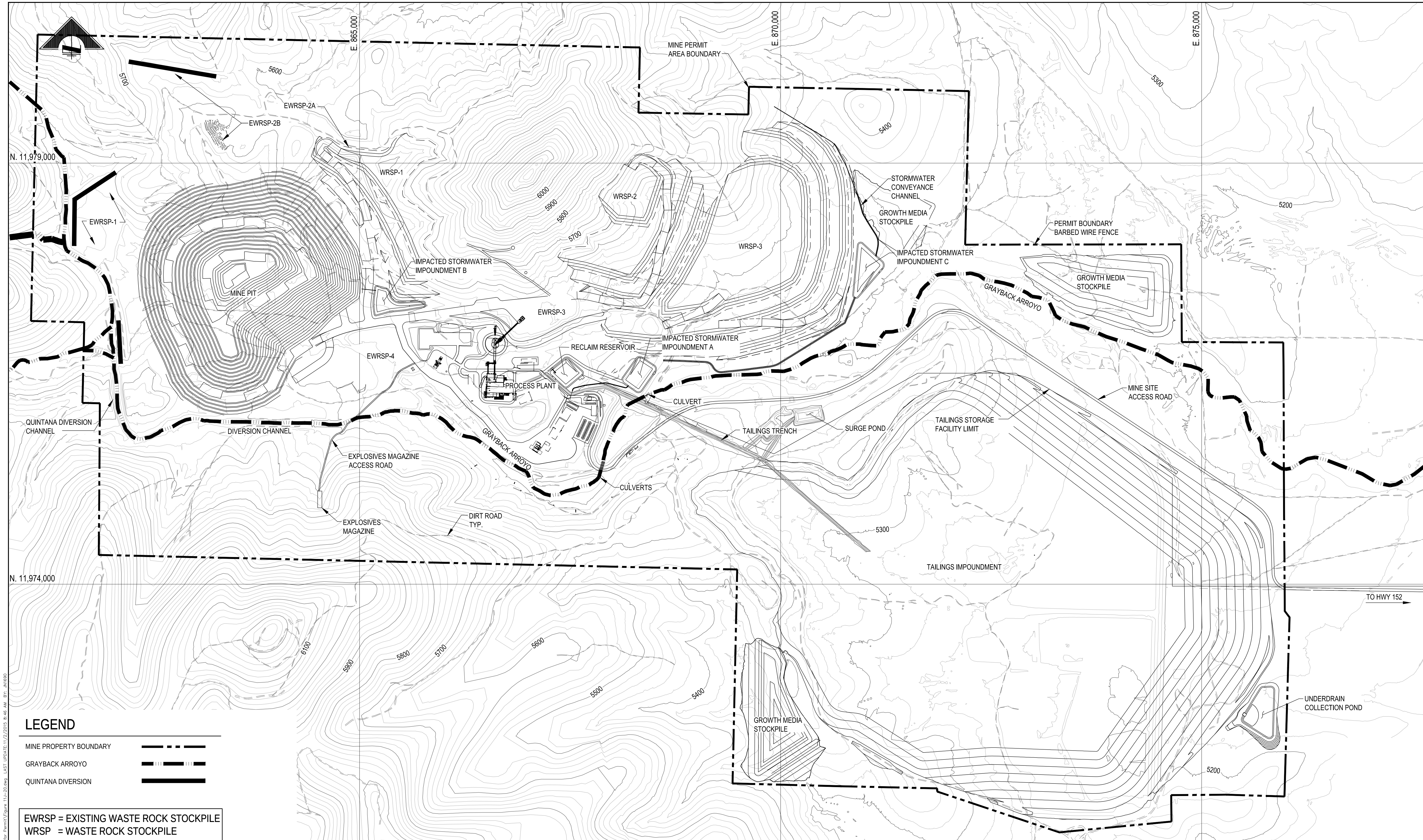
In addition to the diversion structures, Quintana installed large diameter culverts, as shown on Figure 11J-24, where the tailings transport pipeline and where the access road cross-over Grayback Arroyo. These structures are still in place and will be used to control storm water passing through the site. Figure 11J-24 also shows these structures in relation NMCC's proposed Copper Flat mine facilities. The pre-mine development natural topography and drainage pattern of the site is shown in Figure 11J-25. Sixteen sub-basin watersheds naturally contributed to Grayback Arroyo. The upstream drainages merged in the central portion of the current Copper Flat Project area and passed through to the eastern boundary via Grayback Arroyo.

M3's analysis evaluated the diversions and culverts to determine their adequacy in conveying flows from storm events and protecting the site from flooding. Peak discharge and volume analysis for a 100-year, 200-year and 500 year 24-hour storm event was performed for drainage areas contributing to Grayback Arroyo located within the Copper Flat site area. Culvert and channel capacity analysis for the two culvert crossings was conducted for Grayback to determine water surface elevations during the design storm events. Peak flows were analyzed for each sub-basin contributing flow upstream of the site. Figure 11J-26 shows the upstream sub-basins in relation to the site.

Diversion of surface drainages away from the mining area was accomplished by Quintana when they developed the site by constructing the diversions described above. Future development of the site by NMCC will result in watersheds changes to those shown on Figure 11J-25. Watershed areas no. 15 and 16 will be completely within open pit surface drainage area and will be eliminated as tributaries to Grayback Arroyo. Portions of watersheds 1, 2, 3 and 14 will be incorporated into the site storm water control area of the site and will no longer contribute directly to Grayback Arroyo. These differences can be seen by comparing Figure 11J-25 to 11J-26.

M3 evaluated the storm flows in the Grayback Arroyo drainage for the 100-year, 200-year, and 500-year 24-hour storm events for the pre-Quintana, i.e., natural conditions in comparison to Post-Quintana NMCC proposed site conditions. The results demonstrate that the existing diversion structures and culverts provide appropriate surface water management of the drainage that is protective of the site.

As NMCC has indicated earlier, it recognizes that there is an area along the western edge of developed WS D, and south of EWRSP-1, that could drain into the diversion of Grayback Arroyo instead of the mine pit. NMCC will correct this condition by repairing the breach, which was made under circumstances unknown to NMCC, at that location to re-establish the integrity of the open pit surface drainage area so that all surface water runoff in WS D will flow into the mine pit. Otherwise, this diversion remains in place and functioning today. In order to manage run-on of storm water at the site, NMCC will continue to maintain the integrity of the diversion structure during and operating life of the mine and take it into consideration as part of reclamation and closure of the project.



SITE PLAN
SCALE: 1:500

500' 250' 0' 500' 1000'
1" = 500'
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THE MAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

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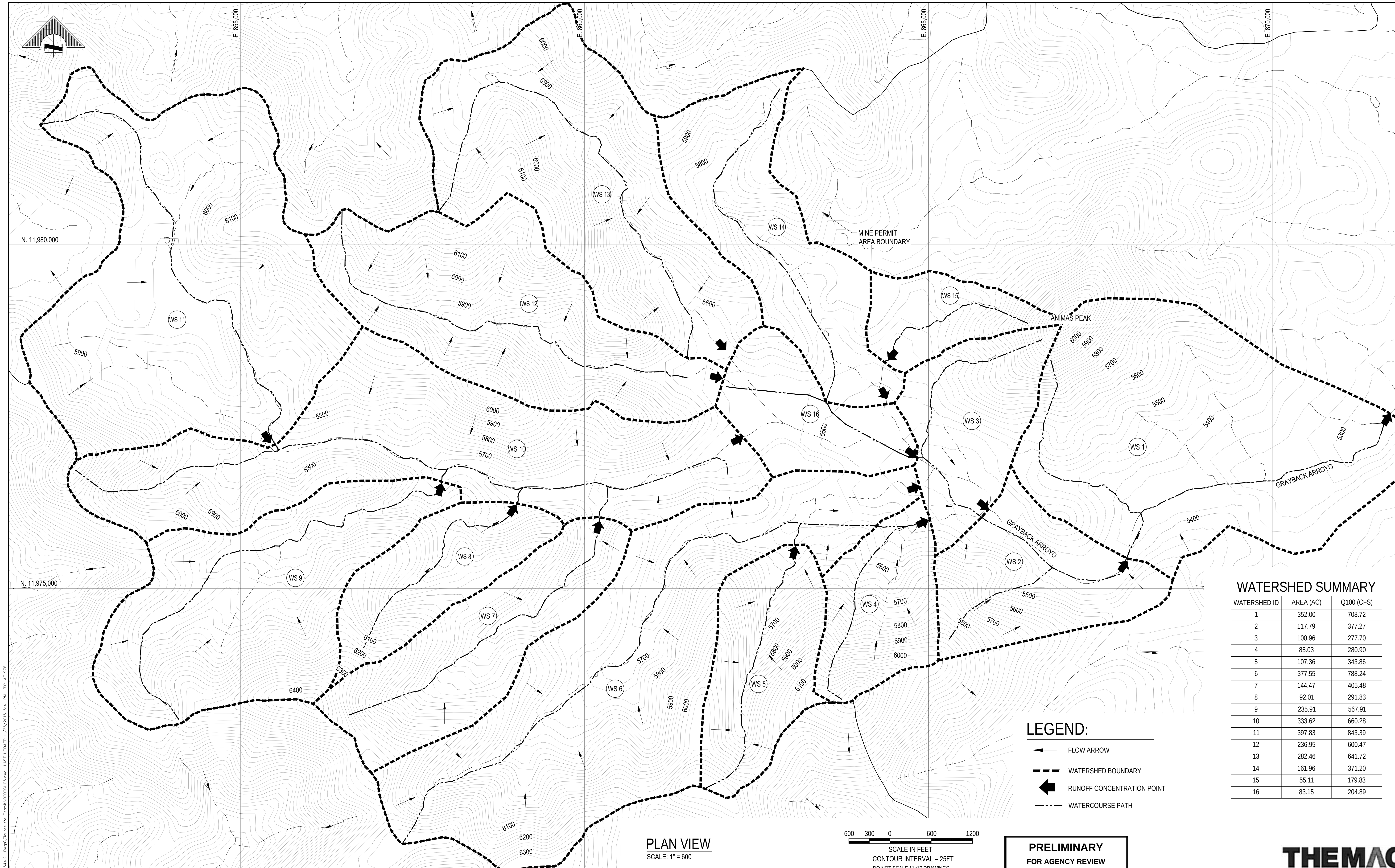
COPPER FLAT PROJECT

SITE GENERAL
CIVIL
GRAYBACK ARROYO DIVERSION
THROUGH NMCC PROJECT SITE

JOB NO. M3 PN-120085
DWG NO. 000-CI-103
REV NO. P1
DATE 20 NOV 15

Figure 11J-24



WATERSHED SUMMARY		
WATERSHED ID	AREA (AC)	Q100 (CFS)
1	352.00	708.72
2	117.79	377.27
3	100.96	277.70
4	85.03	280.90
5	107.36	343.86
6	377.55	788.24
7	144.47	405.48
8	92.01	291.83
9	235.91	567.91
10	333.62	660.28
11	397.83	843.39
12	236.95	600.47
13	282.46	641.72
14	161.96	371.20
15	55.11	179.83
16	83.15	204.89

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES DWG. NO.	TITLE
0000-CI-006	DEVELOPED WATERSHED AREAS

REVISIONS NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 600'	DATE
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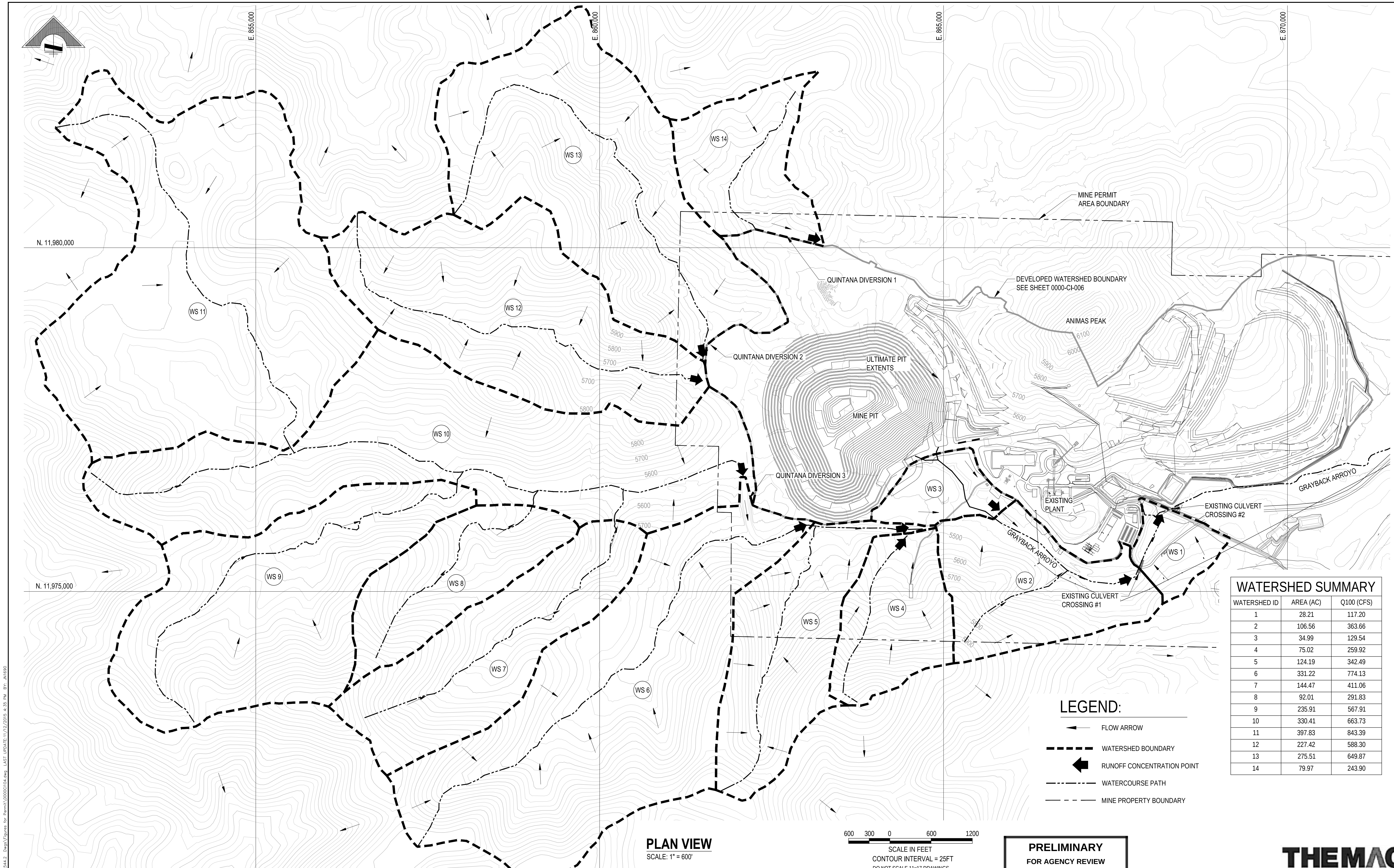
COPPER FLAT PROJECT

GENERAL SITE
CIVIL
PRE QUINTANA
EXISTING WATERSHED AREAS

JOB NO. M3 PN-120085
DWG NO. 0000-CI-105
REV NO. P1
DATE 23 NOV 15

Figure 11J-25



WATERSHED SUMMARY

WATERSHED ID	AREA (AC)	Q100 (CFS)
1	28.21	117.20
2	106.56	363.66
3	34.99	129.54
4	75.02	259.92
5	124.19	342.49
6	331.22	774.13
7	144.47	411.06
8	92.01	291.83
9	235.91	567.91
10	330.41	663.73
11	397.83	843.39
12	227.42	588.30
13	275.51	649.87
14	79.97	243.90

PLAN VIEW
SCALE: 1" = 600'

600 300 0 600 1200
SCALE IN FEET
CONTOUR INTERVAL = 25FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES	
DWG. NO.	TITLE
0000-CI-006	DEVELOPED WATERSHED AREAS

SCALE: 1" = 600'		DATE
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COPPER FLAT PROJECT

GENERAL SITE CIVIL POST QUINTANA EXISTING WATERSHED AREAS

JOB NO. M3 PN-120085
DWG NO. 0000-CI-104
REV NO. P1
DATE 20 NOV 15

Figure 11J-26

Also, as indicated in the Conclusions section of M3's Appendix D report, NMCC will repair the upstream inlets to the culverts and to remove vegetation at the culvert inlets and outlets to ensure safe passage of water.

Storm water runoff from the various areas at the site where it need be considered will be managed at the Copper Flat mine in a manner appropriate for that location. At Copper Flat there are four areas of the site that require storm water management;

- open pit mine
- process area, administration and buildings ancillary facilities, parking areas
- waste rock stockpile areas
- tailings storage facility

Open Pit Mine

The open pit mine is located at the top of the watershed area for Grayback Arroyo. The small amount of watershed area located up-gradient from the pit is diverted around and away so that it cannot contribute any run-on into the mine. Only precipitation that falls directly onto the open pit surface drainage area contributes run-on to the pit. As discussed previously, a portion of the open pit drainage area, i.e., the surface water from the open pit surface drainage area where WRSP-1 will be located, will be managed by diverting runoff into an impoundment in order to limit the amount of surface water entering the mine pit and to assist in water harvesting.

Water collected in the mine pit during operation will be pumped out and either utilized for dust control or in the process circuit. At closure, the water will be allowed to collect in the pit and contribute to the volume of the pit lake as described in the Reclamation and Closure Plans.

Processing Facility

The processing facility, including crushing and grinding, milling, flotation, concentrating, drying and packaging, administration, parking and all other ancillary support facilities will be located as shown on Figure 11J-1. This area will be graded and berms and other retainment structures constructed to eliminate storm water run-on such that there will be no run-off from this watershed area released. The area will be graded and contoured to collect all precipitation in storm water impoundment A. As discussed previously, details of the design of this impoundment are contained in Appendix B. Water captured in the impoundment will be transferred to the process water reservoir and utilized as make-up water in the process.

At closure, the impoundment will be filled, re-contoured, re-graded and covered as described in the Reclamation and Closure Plans so that water is no longer retained.

Waste Rock Stockpiles

The new proposed waste rock stockpiles will be located as shown in Figure 11J-1 and 11J-3. Berms and drain ditches will be constructed around the toe of the stockpile to eliminate storm water run-on through the stockpile area. As the areal extent of the stockpile expands over time the location of the berms and ditches will moved to continue to provide run-on control. The surface of each waste rock stockpile will be contoured and graded in a manner to control and divert run-off from each stockpile to an impacted storm water impoundment. Storm water control ditches will be constructed, as necessary, to control run-off and minimize the potential for ponding and erosion while allowing water to move quickly and easily to the impoundment thus minimizing the opportunity for infiltration and leaching. Water captured in the impoundments will be transferred to the process water reservoir and utilized as make-up water in the process. At closure, the waste rock stockpiles and the impoundments will be re-contoured, re-graded and covered as described in the Reclamation and Closure Plans.

Tailings Storage Facility

The Tailings Storage Facility will be located as shown in Figure 11J-1. The area is naturally protected from storm water runoff passing through Grayback Arroyo by the natural topography. As such, there will only be run-on and runoff from precipitation that falls directly on the on the footprint of the TSF to manage.

The tailings dam will be constructed in phases as discussed in detail in Appendix A. Surface water run-on will be controlled during operations by grading and contouring the area to minimize the amount of water contributed into the tailings impoundment. Several run-on diversion ditches will be constructed at the up-gradient perimeter of the tailings impoundment to divert run-on around it per the requirements of the NM Office of the State Engineer. These diversion ditches will be reconstructed for each phase of dam construction, as needed, as the dam expands in size until it reaches its ultimate height.

Runoff from the exterior face of the dam will be managed by constructing drainage ditches to control and direct runoff into the underdrain collection pond located at the southeastern toe of the dam. These drainage ditches will be constructed in a manner that minimizes the opportunity for ponding yet moves water in a controlled fashion to control erosion. The ditches on the face of the dam will enter a lined water conveyance ditch located at the toe of the dam. That ditch will also contain the water recycle pipeline leading from the underdrain collection pond to the process facility. Runoff water from the downstream face of the dam will join the water collected from the tailings underdrains in the pond and will be transported to the process water reservoir for use as make-up water in the process.

The surface area of the cyclone plant, immediately adjacent to the TSF, as shown on Figure 11J-1, will be contoured and graded to route runoff from the area into the lined water conveyance ditch at the toe of the dam. It will drain to the underdrain collection pond.

At closure the TSF and its attendant runoff diversion structures will be re-contoured, re-graded, filled and a cover will be placed over the entire area in accordance with the Reclamation and Closure Plans.

20.6.7.11.J.(7) *a description of water wells and monitoring wells, including information for each well regarding its location, construction material, dimensions and capacity;*

NMCC has prepared and submitted a number of documents and reports containing the information requested regarding a description of water wells which include information regarding location, construction material, dimensions and capacity, to the extent possible. These documents include;

- Baseline Data Report, June 2012 and Supplements, (Intera 2012)
- Discharge Permit Application and Abatement Plan, March 2011 (Intera 2011)
- Abatement Plan Amendment, October 2011, (JSAI 2011)
- Results From 1st year Stage 1 Abatement Investigation, (JSAI 2014b)
- Mine Plan of Operations, December 2010 and amendments, (NMCC 2010)
- Model of Groundwater Flow, August 2014, (JSAI 2014c)

These documents have been incorporated into this Discharge Permit Application by reference and are available at NMED.

With regard to monitoring wells, the Baseline Data Report, Abatement Plan and Model of Groundwater Flow all contain monitoring data that was compiled at the site and surrounding environs. In addition, NMCC has developed a proposed groundwater Quality Monitoring Plan, as required by **20.6.7.11.R and 20.6.7.28 NMAC** that incorporates some of the wells contained in these reports in combination with proposed installation of others to monitor site conditions prior to and during operation of the mine. The details of this plan, including the location, construction material (existing and proposed), dimensions, and capacity, are included in Appendix E of this application.

20.6.7.11.J.(8) *a description of flow meters required pursuant to the copper mine rule or a discharge permit and fixed pumps for discharge of process water, tailings and impacted stormwater;*

Subsection **20.6.7.11.S** of this application as required by the Copper Rule contains the information requested in this subsection.

20.6.7.11.J.(9) *a description of any surface water(s) of the state and any other springs, seeps, ditch irrigation systems, acequias, and irrigation canals and drains located within the boundary of the copper mine facility;*

The only surface water that exists within the boundary of the Copper Flat mine permit area is Grayback Arroyo. Grayback is an ephemeral arroyo that transects the mine permit area from the west to the east, roughly through the middle of the area as shown on Figure 11J-21 through 26 and 11K-8.

There is one seep that occasionally generates water in response to significant precipitation located on the sidewall of the existing open pit. The pit lake itself may or may not be considered a water of the state. However, it will be completely dewatered during the operating life of the mine.

There are no springs, ditch irrigation systems, acequias, irrigation canals or drains located within the boundary of the Copper Flat mine permit area.

20.6.7.11.J.(10) *a description of proposed sampling locations;*

The proposed sampling locations for tailings and process water will be coincident with the locations identified in Subsection **2.6.7.11.S** for the location of the flow metering devices. The other sampling locations are identified in the Water Quality Monitoring Plan required by **20.6.7.11.R and 20.6.7.28 NMAC** of the Copper Rule.

20.6.7.11.J.(11) *a description of all septic tanks and leach fields used for the disposal of domestic wastes;*

NMCC will not use a septic tank and leach field treatment systems for disposal of domestic wastes at the Copper Flat Mine. Disposal of domestic wastes generated will be accomplished by installing a single packaged wastewater treatment plant to serve the majority of employees and visitors at the mine. Individual portable toilet facilities for outlying areas of the operation will also be utilized, as needed.

The packaged wastewater treatment plant will receive and treat domestic wastes from buildings located in the administration, concentrator, and mine shop areas. The packaged system will be sized for a load based on the number of mine employees and visitors expected at the mine during a 24-hour period and applying an average water use of 50 gallons per day per person. Breaking down the employee headcount for the mine by the planned rotation schedule indicates 160 employees per day will be using facilities connected to the package plant. In addition to mine employees, an additional 40 persons per day are assumed to account for visitors and contractors. Based on these figures, a 10,000 gallon per day plant has been selected for Copper Flat Mine.

The plant will be located on a pre-existing concrete slab near the main gate as shown in Figure 11J-1. The plant will generate effluent treated to secondary treatment levels. Treated effluent from the plant will be piped to the tailings storage facility for disposal in the impoundment and recycling to the process water reservoir. System specifications and installation will conform to State and local regulations.

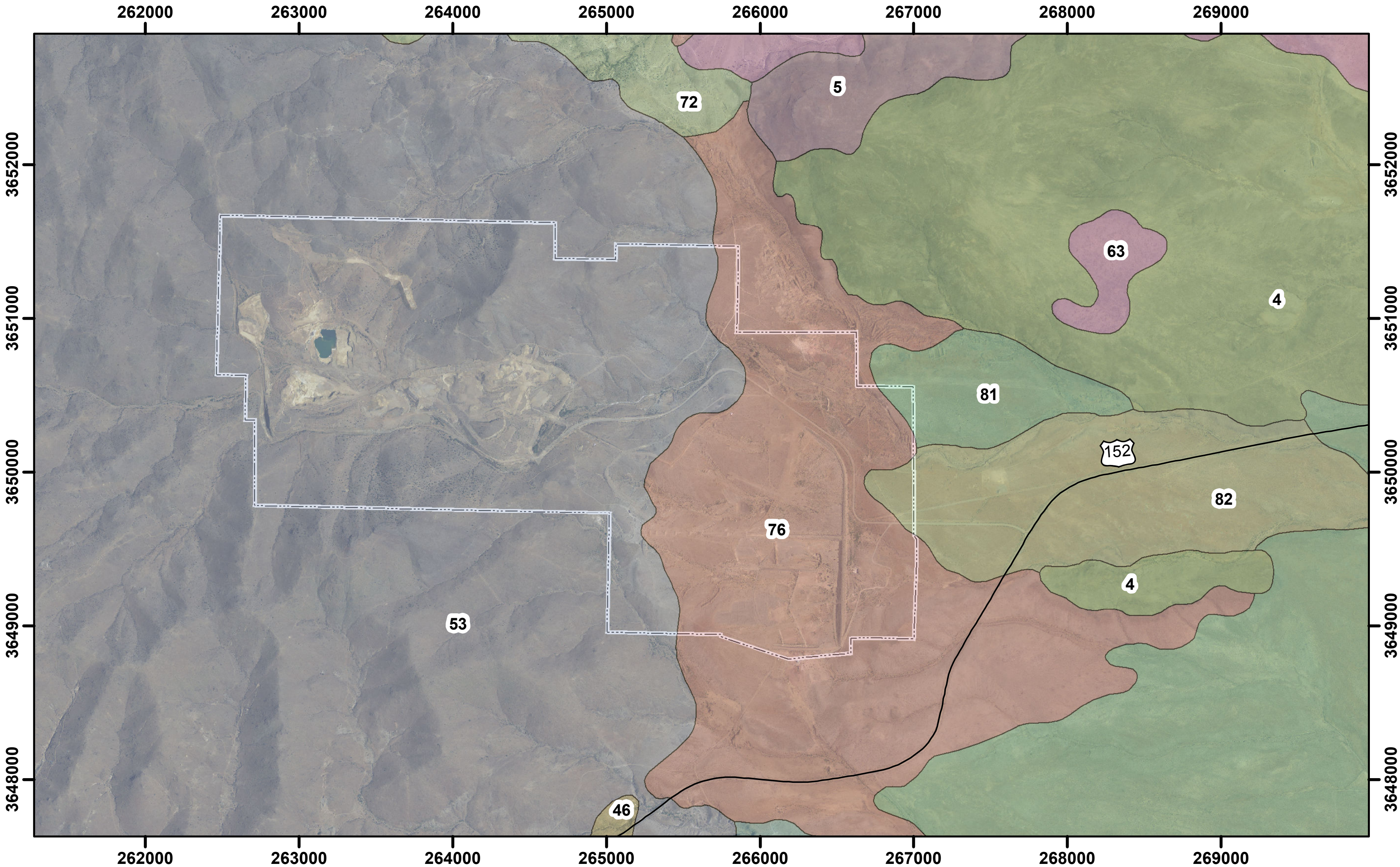
Individual portable toilet facilities will be provided for employees working in outlying areas of the operation such the pit, mine stockpile areas, the primary crusher, and the TSF. The portable toilets will be maintained by a licensed contractor on a regular basis.

20.6.7.11.K SURFACE SOIL SURVEY, GEOLOGY, AND HYDROLOGY

An application shall include:

20.6.7.11.K.(1) *the most recent regional soil survey map and associated descriptions identifying surface soil type(s);*

Figure 11K-1 is a soil survey map of soils in the mine permit and surrounding area. The map includes a description identifying the surface soil types present. In addition, Section 6.0 of the Baseline Data Report (Intera 2012) contains more detailed information regarding soils in the area.



Map Scale: 1:38,000 If printed on 8.5" x 11" sheet

0 500 1,000 2,000 Meters

0 2,000 4,000 8,000 Feet

N

Legend

- Roads
- Copper Flat Mine Permit Area Boundary
- 4 Akela very gravelly loam, moderately rolling
- 5 Akela-Rock outcrop association, very steep
- 46 Ildefonso-Scholle association, hilly
- 53 Luzena-Rock outcrop association, very steep
- 63 Nickel-Chamberino association, gently sloping
- 72 Rock outcrop-Deama association, extremely steep
- 76 Scholle-Ildefonso association, moderately rolling
- 81 Tres Hermanos gravelly fine sandy loam, gently sloping
- 82 Tres Hermanos-Hap association, gently sloping

Soil Survey	
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Source: Baseline Data Characterization Report for Copper Flat Mine, June 2012, prepared by Intera et al., and Stetson Engineers.

20.6.7.11.K.(2) *a geologic map covering the area within a one-mile radius of the copper mine facility and geologic and lithological information which provides a geologic profile of the subsurface conditions beneath the copper mine site, including the thickness of each geologic unit, identification of which geologic units are water bearing, cross sectional diagrams and sources of all such information; and*

Figure 11K-2a is a geologic map of the area within a one-mile radius of the Copper Flat mine permit area boundary. A prominent feature on this map, as well as other geologic maps prepared by JSAI on behalf of NMCC, is the East Animas Fault. Some discussion has occurred between NMCC, its' consultant JSAI, and the regulatory agencies with respect to the most accurate location of this feature. A correct interpretation of the data generated over time is necessary in order to have a correct understanding of the geology of this area. NMCC offers the following interpretation, which it believes represents the most accurate information available.

The East Animas Fault Trend is a north-south normal fault that forms boundary a between the Animas Uplift and Palomas Basin. Figure 11K-2b shows the various locations the East Animas Fault has been mapped as presented in various published documents. All previous researchers identify the East Animas Fault as trending south to north and down thrown on east side. The difference in its location near the Copper Flat mine permit boundary has been with respect to position in longitude, i.e., east to west position.

Key references for the East Animas Fault include Kelley et al. (1979), Seager et al. (1982), Harrison et al.(1993), Beaumont (2011), Hawley (2012), JSAI (2013), JSAI (2014), JSAI (2014a), and Koning et al. (2015). Kelly mapped the fault further to the east than more recent mapping has shown it to be. As such the Kelly location is not depicted on Figure 11K-2b. The East Animas Fault was mapped as an inferred fault in slightly different longitude by Seager et al. (1982) than by Hawley (2012) as shown on Figure 11K-2b.

Work performed by Beaumont (2011) and JSAI (2013) was based on analysis of well logs and lineaments identified from aerial photographs. During the 2013 evaluation, the East Animas Fault was known to exist between wells GWQ94-21(A,B) and MW-4, which narrowed the longitude position to an approximate 1,800 ft. wide zone. In 2013, monitoring well GWQ13-28 was drilled as part of Stage 1 abatement Investigation (JSAI, 2014a) to further define the longitude position of the East Animas Fault. GWQ13-28 was determined to be located on the east side of the fault, as determined by the lithologic differences between GWQ94-21(A,B) and GWQ13-28 and the 150 ft. drop in water levels between GWQ94-21(A,B) and GWQ13-28. The longitude position of the East Animas Fault provided by Beaumont (2011) was slightly east of GWQ13-28, so JSAI adjusted the longitude position to half way between GWQ94-21 and GWQ13-28 in JSAI (2014) and JSAI (2014a) to more accurately reflect the new data. Koning et al. (2015) consulted with JSAI on the most current well drilling data and geologic analysis of faults for the Skute Stone Quadrangle map, and at the time were given the East Animas Fault as mapped by Beaumont (2011) and presented in JSAI (2013). Koning et al. (2015) has not updated the longitude location of the East Animas Fault to reflect the results of GWQ13-28 as reported in JSAI (2014) and JSAI (2014a).

Figures 11K-3a and 3b through 11K-7a and 7b provide lithological information showing a profile of the subsurface conditions beneath the site at cross-sections identified in Figure 11K-2a. These cross sections provide information regarding the thickness of each geologic unit, identification of which geologic units are water bearing, as well as the source of the information. Figures 11K-3a, 6a and 7a depict the cross-sections in vertical exaggeration to provide the reviewer with more detail. Figures 11K-3b, 6b and7b provide a 1:1 vertical to horizontal depiction of the same cross-sections.

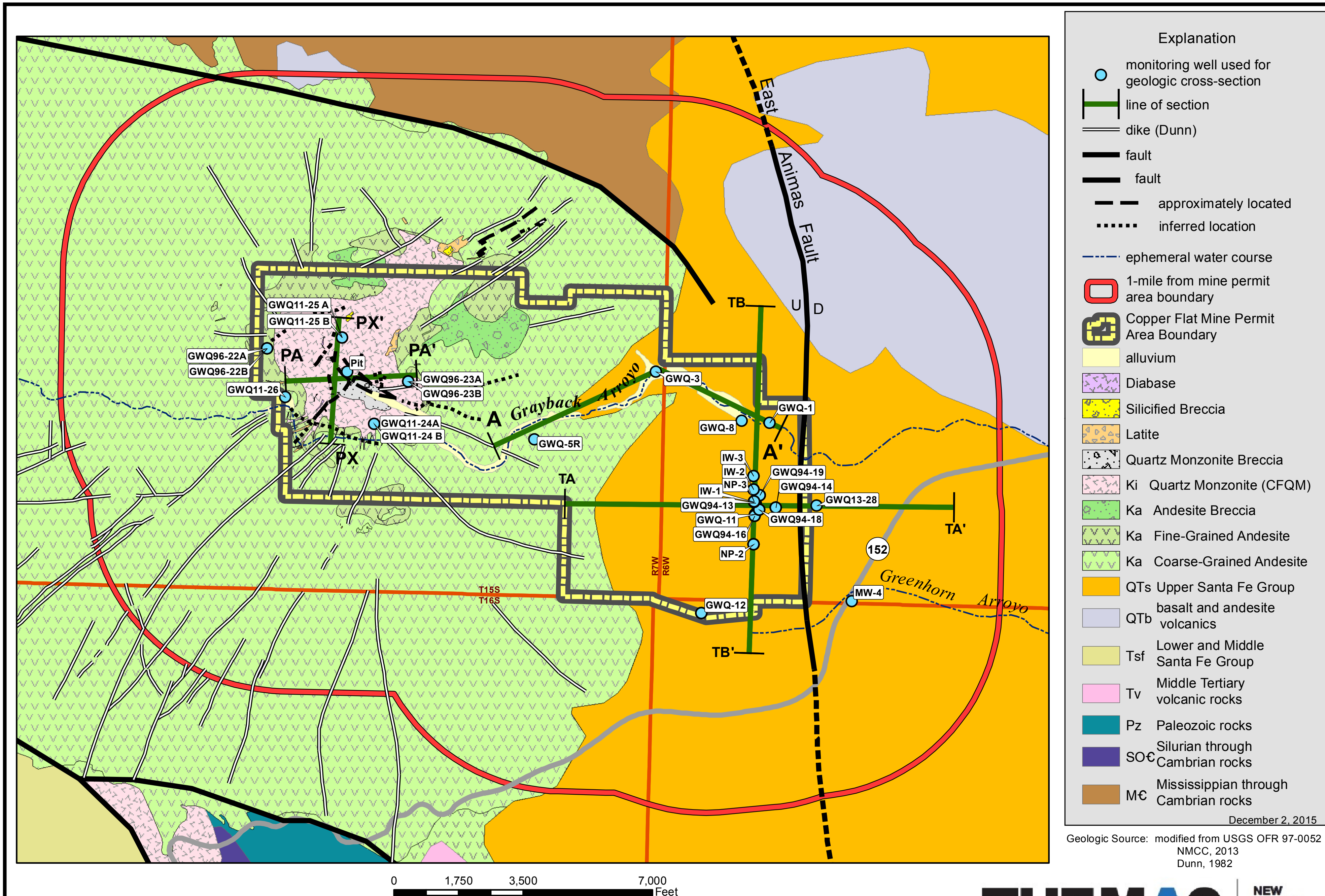

Figure 11K-2a. Geologic map within 1-mile of the Copper Flat Mine Area permit boundary, Sierra County, New Mexico.

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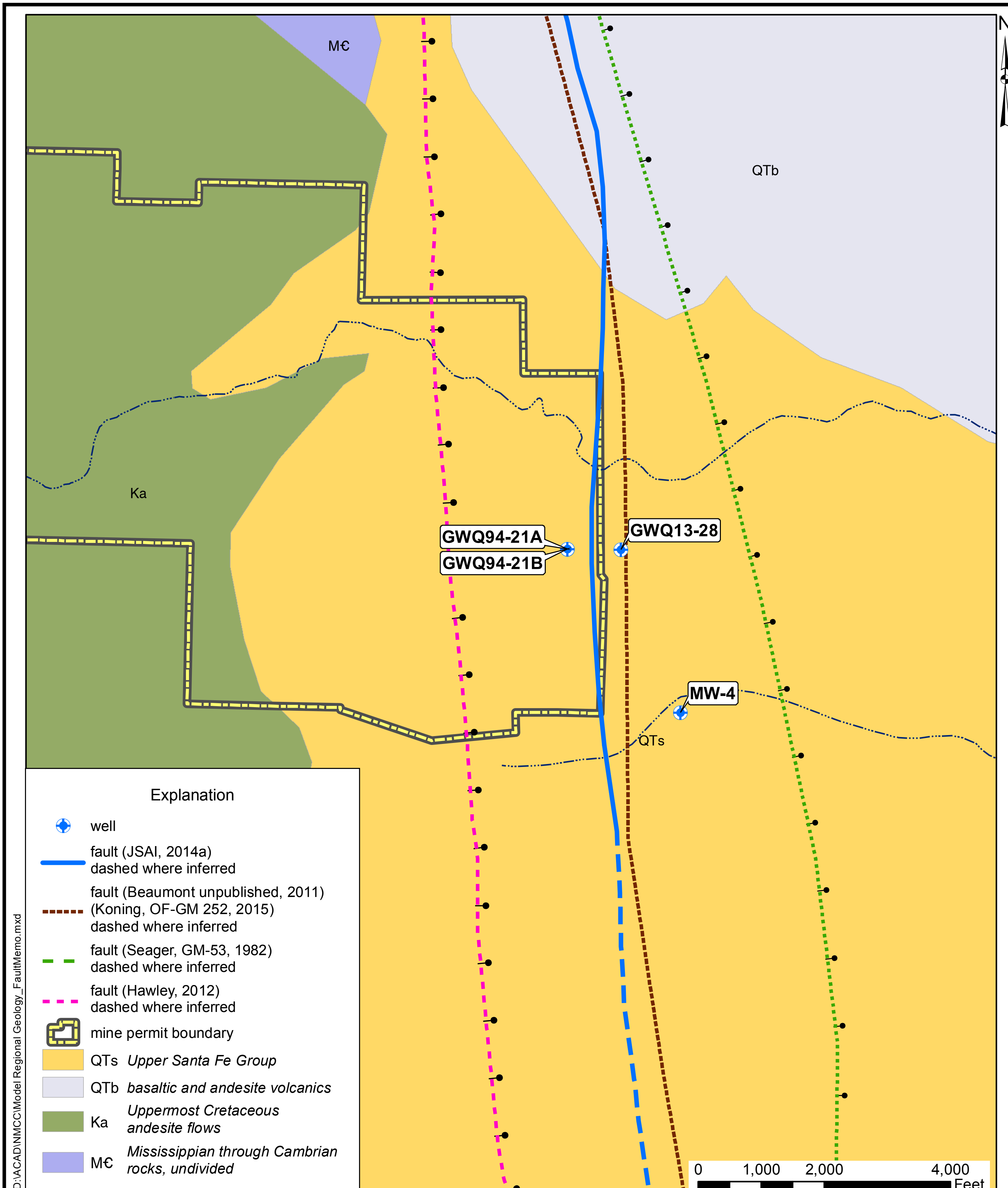

Geologic Source: USGS OFR 97-0052 modified

Figure 11K-2b. Regional surface geology and location of East Animas Fault as reported by various investigations.

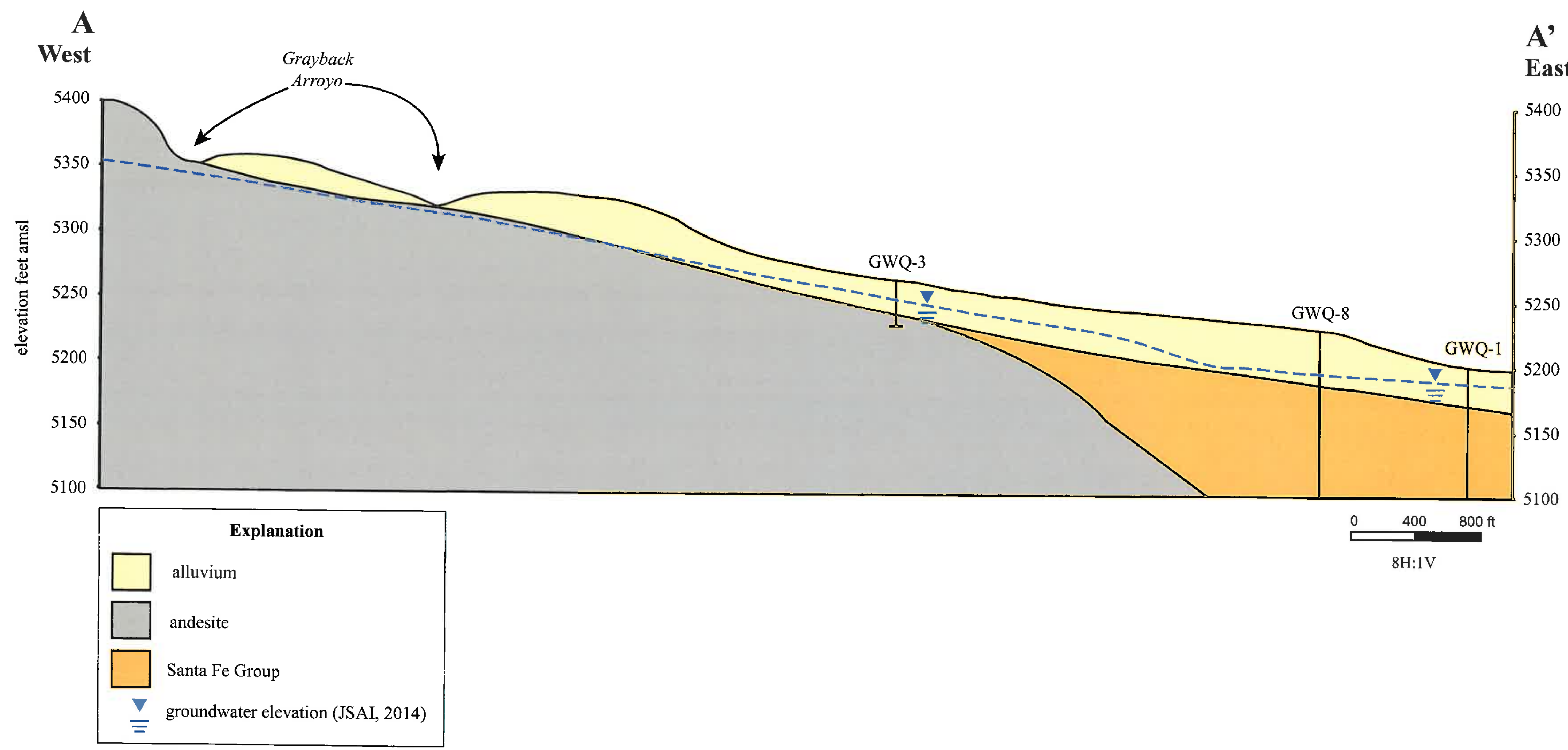

Figure 11K-3a. West to east geologic cross-section along Grayback Arroyo, Copper Flat Mine, Sierra County, New Mexico.

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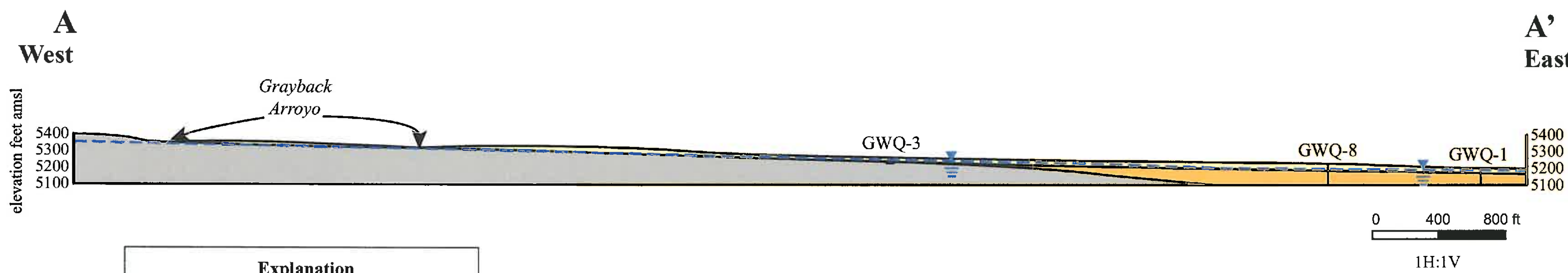

Explanation

- alluvium
- andesite
- Santa Fe Group
- groundwater elevation (JSAI, 2014)

Figure 11K-3b. West to east geologic cross-section along Grayback Arroyo, Copper Flat Mine, Sierra County, New Mexico.

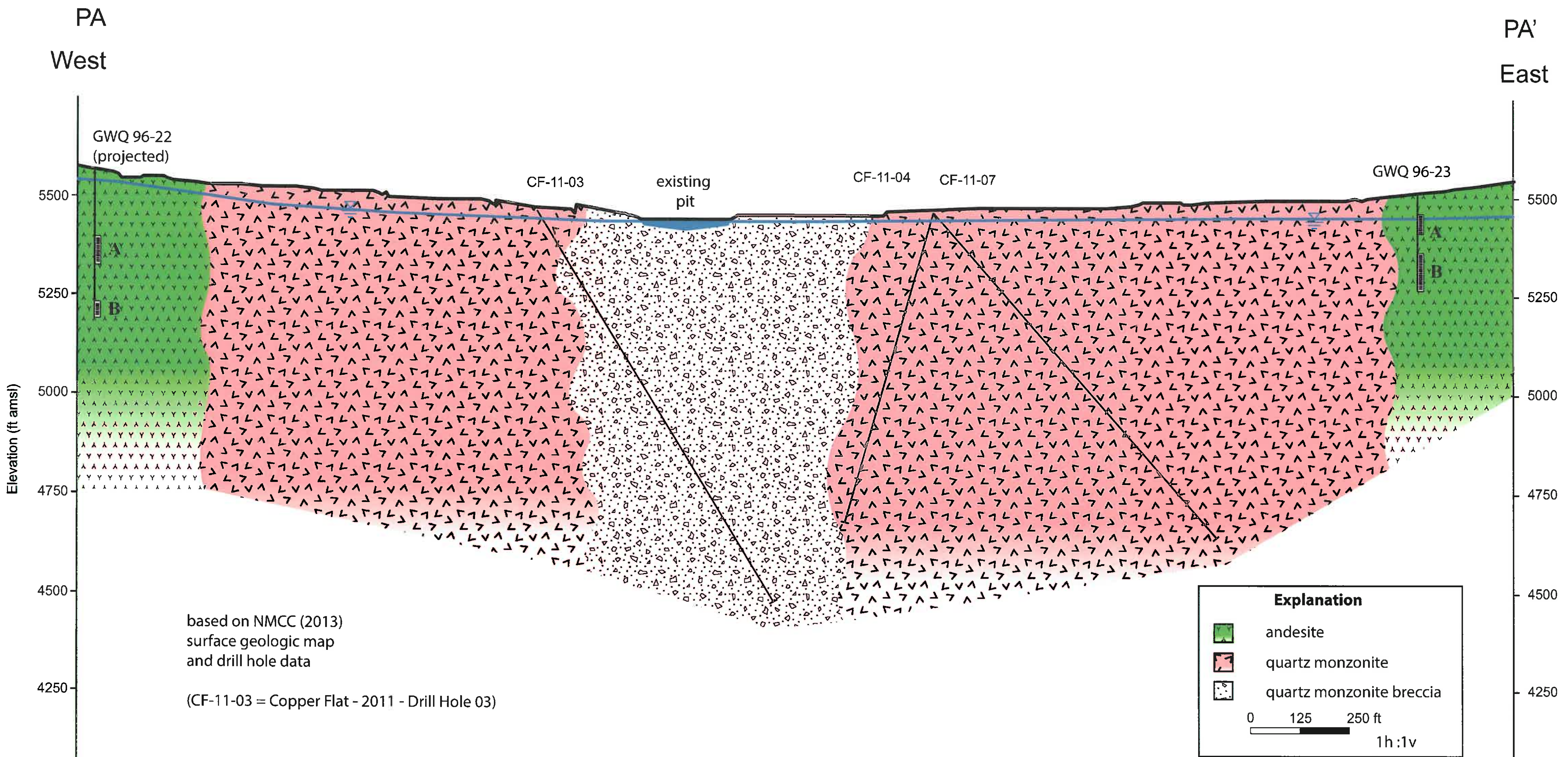

Figure 11K-4. Hydrogeologic cross- section PA-PA'. Copper Flat Mine, Sierra County, New Mexico.

5/5/2014; DA

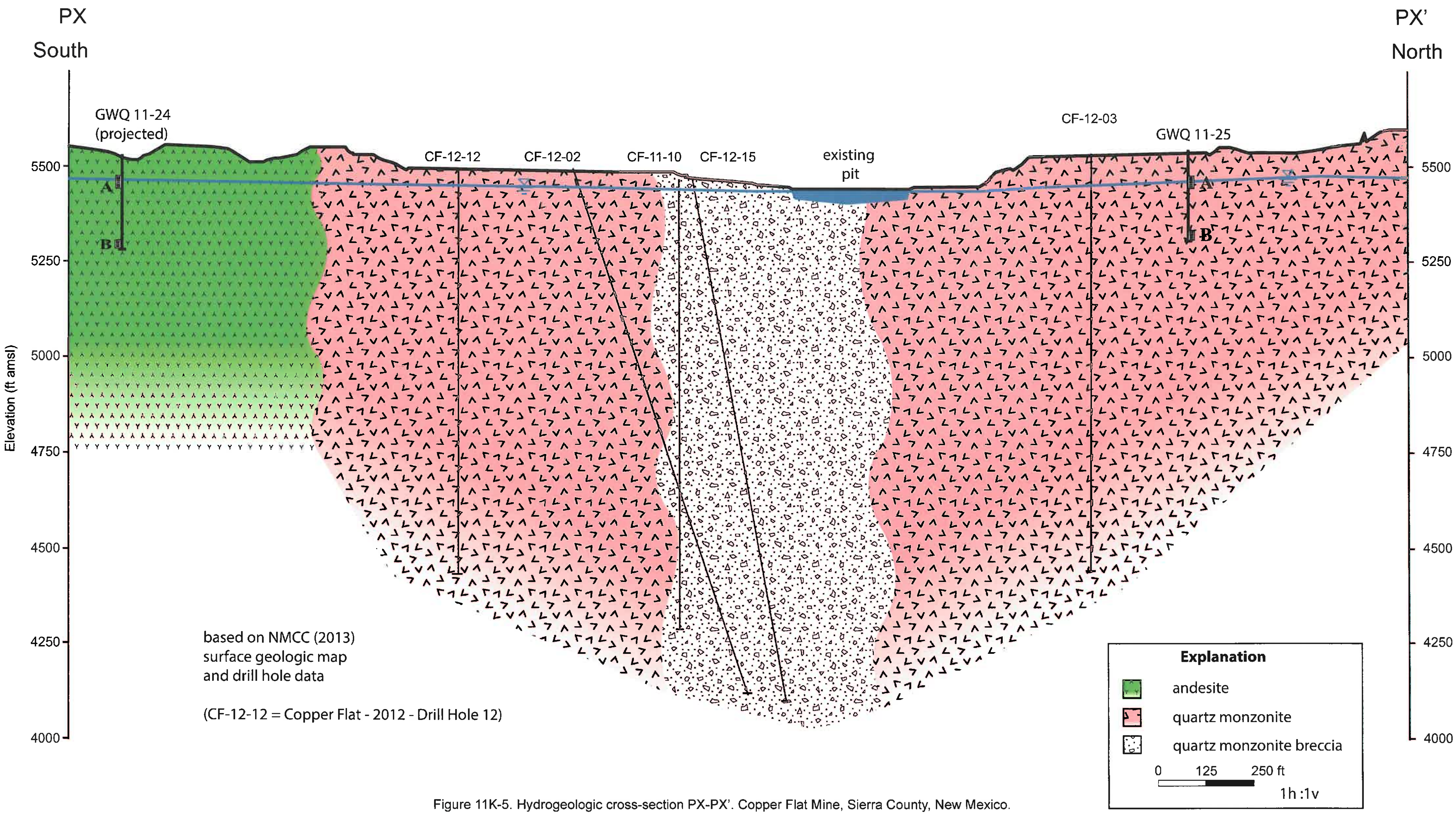

Figure 11K-5. Hydrogeologic cross-section PX-PX'. Copper Flat Mine, Sierra County, New Mexico.

5/5/2014; DA

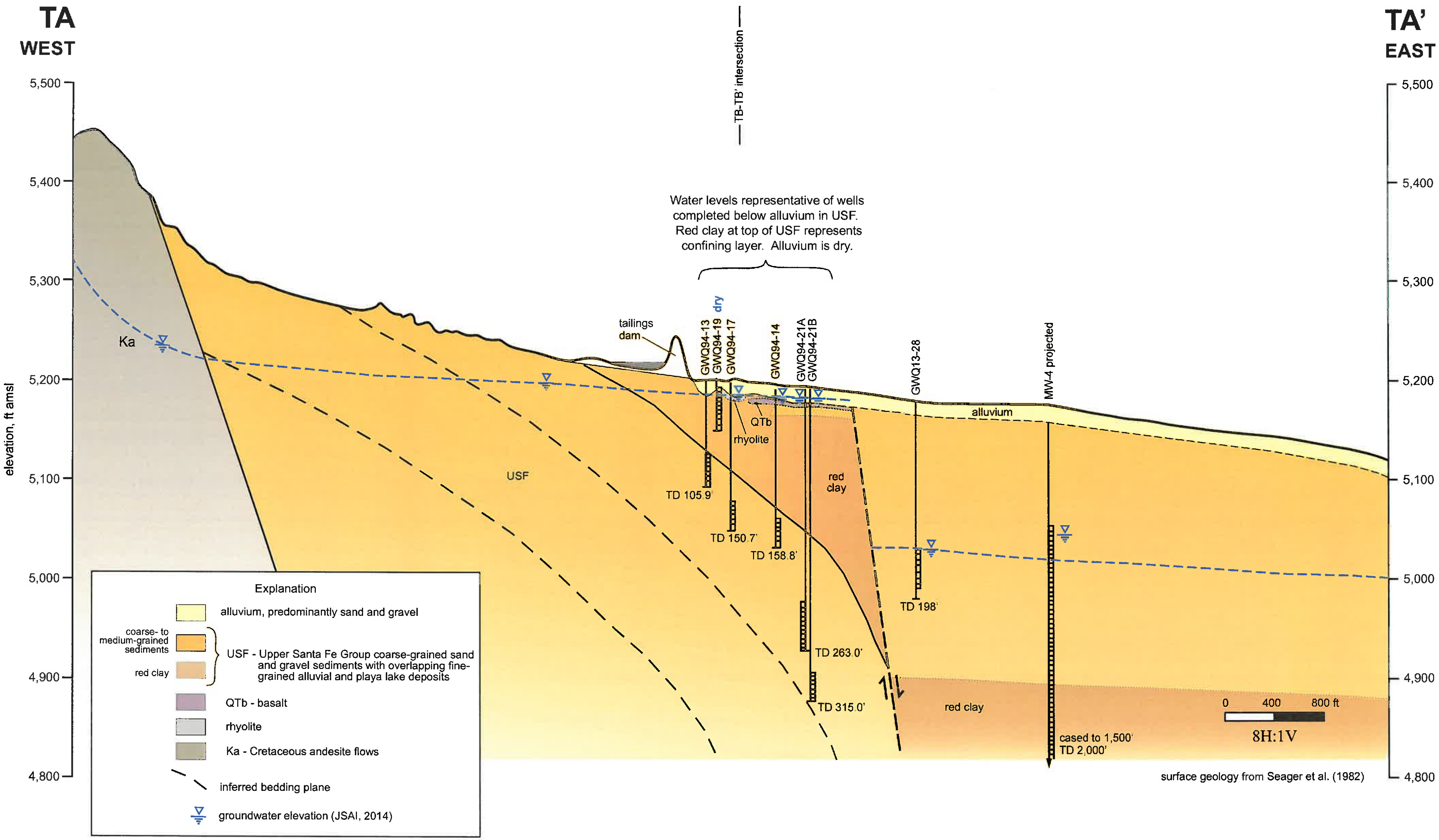

Figure 11K-6a. West to east geologic cross-section TA-TA' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico.

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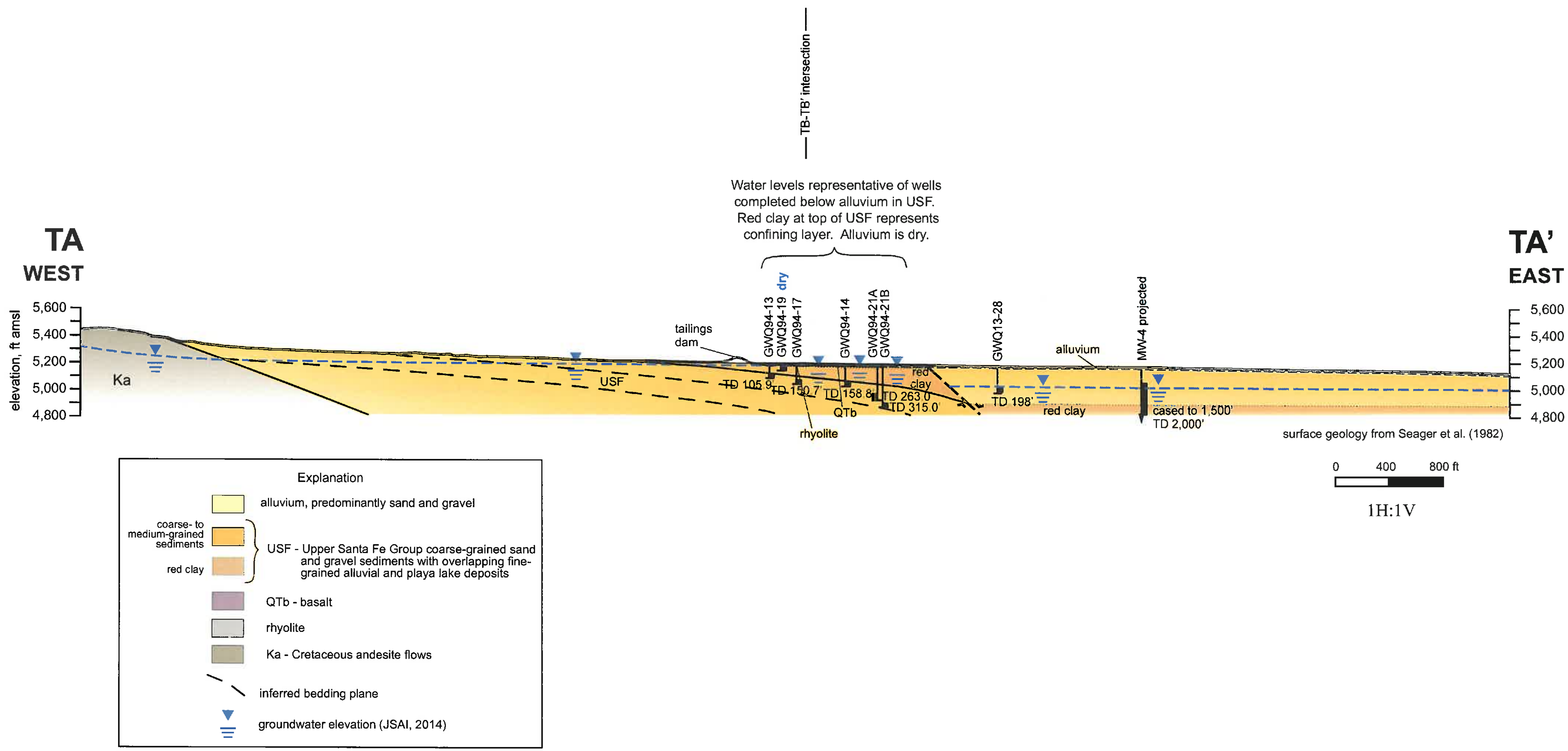

Figure 11K-6b. West to east geologic cross-section TA-TA' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico.

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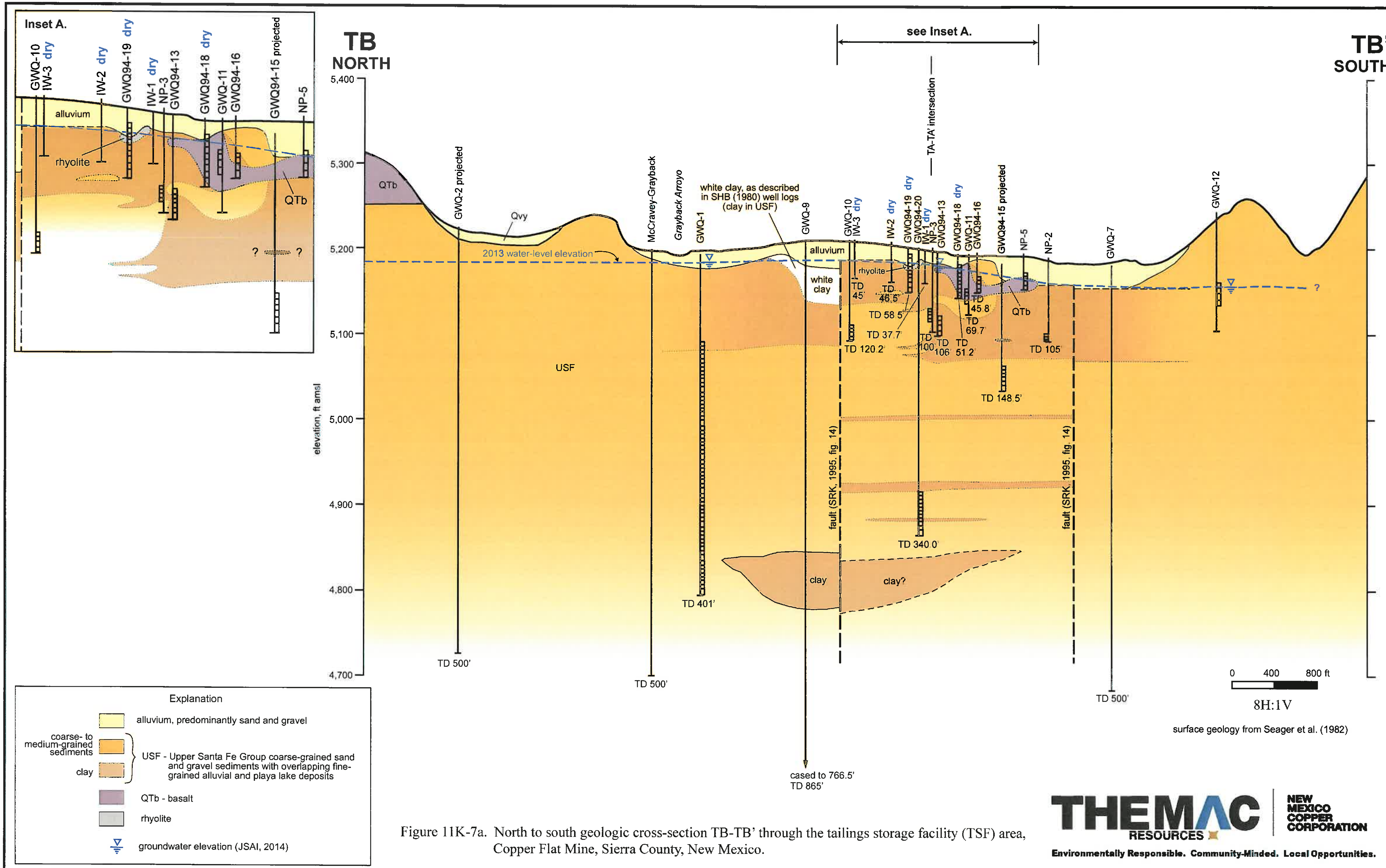

Figure 11K-7a. North to south geologic cross-section TB-TB' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico.

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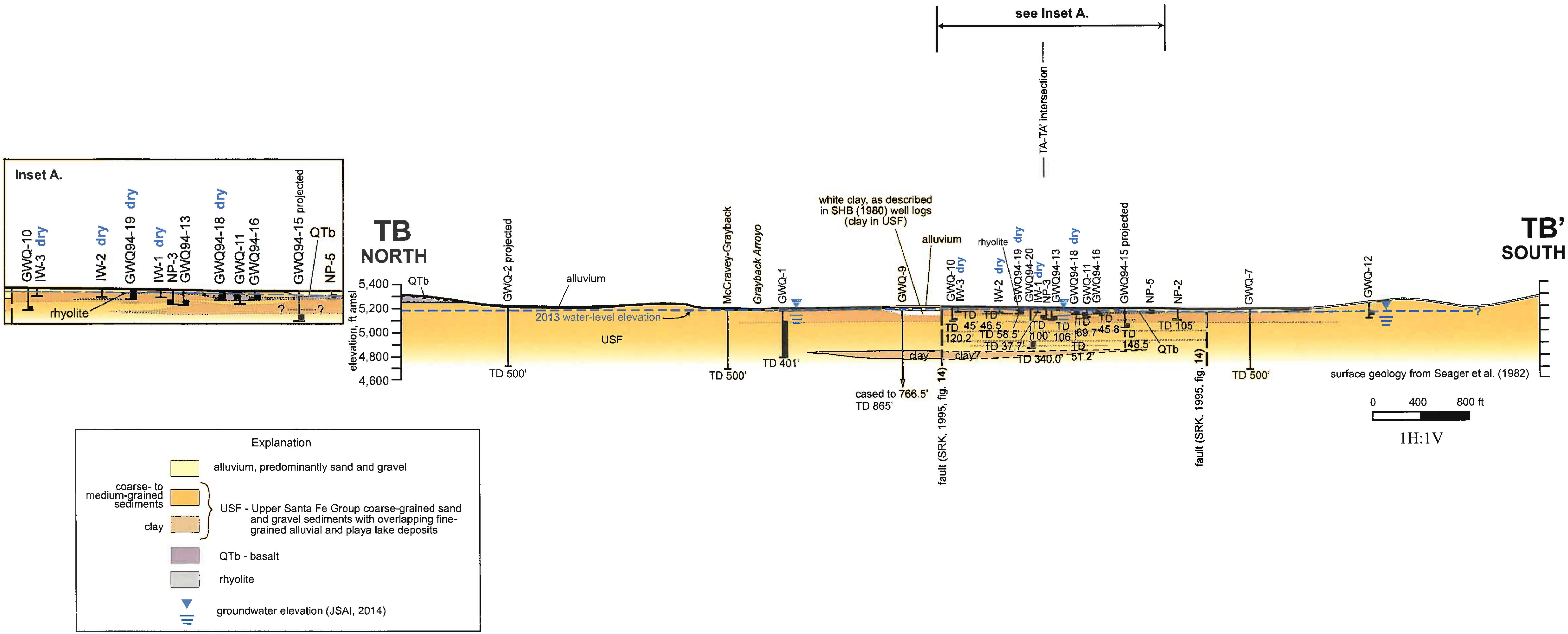

Figure 11K-7b. North to south geologic cross-section TB-TB' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico.

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20.6.7.11.K.(3) *hydrologic information on any surface waters of the state within one-half mile of the boundary of the copper mine facility, and of subsurface conditions for all water bearing zones beneath the copper mine facility including maximum and minimum depths to ground water, direction of ground water flow, hydrologic gradients shown by potentiometric maps, transmissivity and storativity, and ground water quality; the sources of all such information shall be provided with the application.*

NMCC has been actively engaged in water related baseline data studies since 2010 and Stage 1 Abatement activities since 2011. All of the hydrologic information submitted previously to NMED in this regard is incorporated into this application by reference. Relevant information from those activities has been reviewed by NMCC and its consultants to provide the following summary hydrologic information. Source reports consulted in the preparation of this hydrologic summary are presented in Table 11K-1.

Table 11K-1
Source Reports Cited

Report Title	Report Prepared By	Date
Baseline Data Characterization Report, Copper Flat Mine, Sierra County, New Mexico	Intera et al.	June 2012
Results from the First Year of the Stage 1 Abatement Investigation at the Copper Flat Mine Site Near Hillsboro, New Mexico	John Shomaker and Associates	May 2014
Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico	John Shomaker and Associates	August 2014

Surface waters of the state

Figure 11K-8 is a map that shows the surface waters of the state within one-half mile of the Copper Flat Mine Permit Area Boundary. Grayback Arroyo is an ephemeral arroyo that enters the area from the west and exits to the east.

Water bearing zones beneath the facility

NMCC has identified three water bearing zones or aquifers beneath the Copper Flat Mine facility. They are the:

1. Quaternary alluvium associated with Grayback Arroyo and the alluvial fan and fluvial sediments in the Upper Santa Fe Group
2. The Santa Fe Group
3. Crystalline bedrock including the Andesite volcanic flows and the Quartz Monzonite intrusive

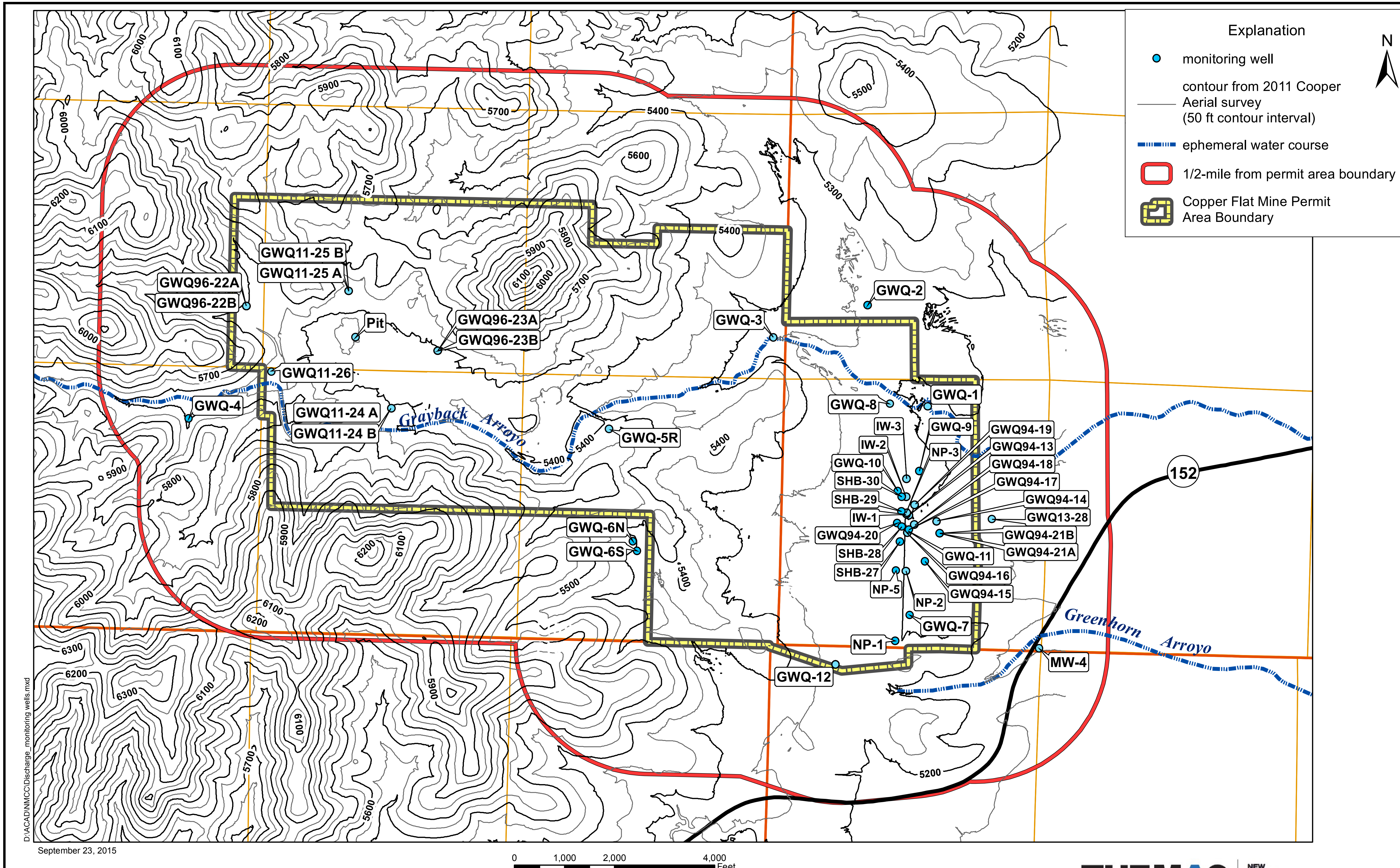

Figure 11K-8. Surface water within 1/2-mile from Copper Flat Mine Permit Area Boundary.

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Figure 11K-2a, which shows the geology of the area in plan-view, and Figures 11K-3a and 3b through 11K-7a and 7b, which show the cross sections, demonstrate the sectional spatial relationships of these water bearing units beneath the mine permit area.

The crystalline bedrock is beneath the western portion of the mine permit area. The crystalline bedrock is composed of Cretaceous age volcanic andesite flows, quartz monzonite intrusive porphyry and quartz monzonite breccia. The Copper Flat ore body is within the quartz monzonite porphyry and breccia. The quartz monzonite porphyry intruded the vent of a strato-volcano, then dikes of and mineralized veins radiated out from the porphyry into fault and fracture controlled zones in the surrounding andesite. The depth of the crystalline bedrock is over 3,000 feet deep (Intera, et. al, 2012).

The Santa Fe Group is present in the eastern portions of the mine permit area and is over 500 feet deep below the existing tailings facility. The Santa Fe group is composed of stratified sediments with a variety of grain sizes consisting of silts, clays, sand and gravel. The strata dip generally to the east (Intera et. al, 2012).

The Quaternary alluvial water bearing zones are sediments to the east of the andesite or deposited in the Grayback Arroyo. These sediments are composed of Alluvial fan deposits and fluvial sands of the Santa Fe Group and saturated alluvium in the drainages. Alluvium is found in Grayback Arroyo and is primarily composed of sand and gravel that ranges in thickness from 5 to 50 feet (Intera et. al, 2012).

The most significant water bearing zones are the Crystalline Bedrock and the Santa Fe Group that underlie the east and west portions of the Copper Flat Mine Permit Area. The Quaternary alluvial fan and fluvial water bearing units are located along the east side of andesite-upper Santa Fe Group contact in the vicinity of the existing tailings disposal facility. This shallow water bearing zone lies on top of a low permeability red clay and does not extend east of the large normal fault located east of the Mine Permit Area Boundary as shown on the Geologic Map (Figure 11K-2a) and the east-west Geologic Cross-section TA-TA'(see Figures 11K-6a and 6b).

Generally, the wells in this water bearing zone are screened to 60 feet or less (Intera et al., 2012, JSAI 2014b). In the alluvial sediments of the Grayback Arroyo overlying the crystalline bedrock, groundwater flow follows the stream channel. East of the andesite, the groundwater in the Grayback arroyo seeps into and recharges the Santa Fe Group. Within the Mine Permit Area, two wells are screened into the Grayback Alluvium, GWQ11-26 west of the pit and GWQ-3 downstream of the pit. The locations of both wells are shown on Figure 11K-2a.

Maximum and minimum depth to groundwater

Table 11K-2 provides information regarding the minimum and maximum depths to water for each water-bearing zone. It identifies the well from which the water level was collected and the date that the water level was collected. Figure 11K-8 shows the location of the wells measured. The source of this data is from recent groundwater measurements taken during the Stage 1 Abatement Investigations conducted 2013 at the site.

TABLE 11K-2 Minimum & Maximum Depth to Groundwater				
Water Bearing Zone	**Minimum Depth (ft.)**	**Well/Date**	**Maximum Depth (ft.)**	**Well /Date**
Crystalline Bedrock	19.0	GWQ11-25A/Oct 2013	75.34	GWQ11-25B/Jul 2013
Santa Fe Group	7.26	GWQ-1/Jan 2013	156.20	GWQ13-28/Oct 2013
Quaternary Alluvium, Upper Santa Fe Group	22.40	GWQ94-16/Oct 2013	46.50	IW-1/Jul 2013
Quaternary Alluvium, Grayback Arroyo Alluvium	12.60	GWQ-3/Oct 2013	41.58	GWQ11-26/Jul 2013

Aquifer Transmissivity and Storativity

Tested hydraulic conductivities are summarized in Table 11K-3. Transmissivity is conductivity multiplied by thickness, which is dependent on the saturated screened interval, which varies.

TABLE 11K-3 Properties of the Water Bearing Units Beneath the Copper Flat Mine Permit Area					
Water Bearing Zone	**Range of Hydraulic Conductivity (ft/day)**	**Range of Transmissivity (ft^2/day)**	**Storativity**	**Wells included in Test Range**	**Source of Information**
Crystalline Bedrock Aquifer (Andesite)	0 to 0.0027	NA(1)	NA(2)	GWQ96-22, GWQ96-23, GWQ-5R	JSAI May 2014, JSAI August 2014
Crystalline Bedrock Aquifer (Quartz Monzonite)	0.02 to 0.14	NA(1)	NA(2)	GWQ11-24, GWQ11-25	JSAI May 2014, JSAI August 2014
Santa Fe Group	1.0 to 4.7	187 to 1,710	$2.5X10^{-4}$ (3)	GWQ-1,GWQ-7, GWQ-9, GWQ94-17, GWQ13-28,	JSAI May 2014, JSAI August 2014
Quaternary Alluvial Aquifer	3.8	87	NA(4)	GWQ94-16	JSAI May 2014, JSAI August 2014

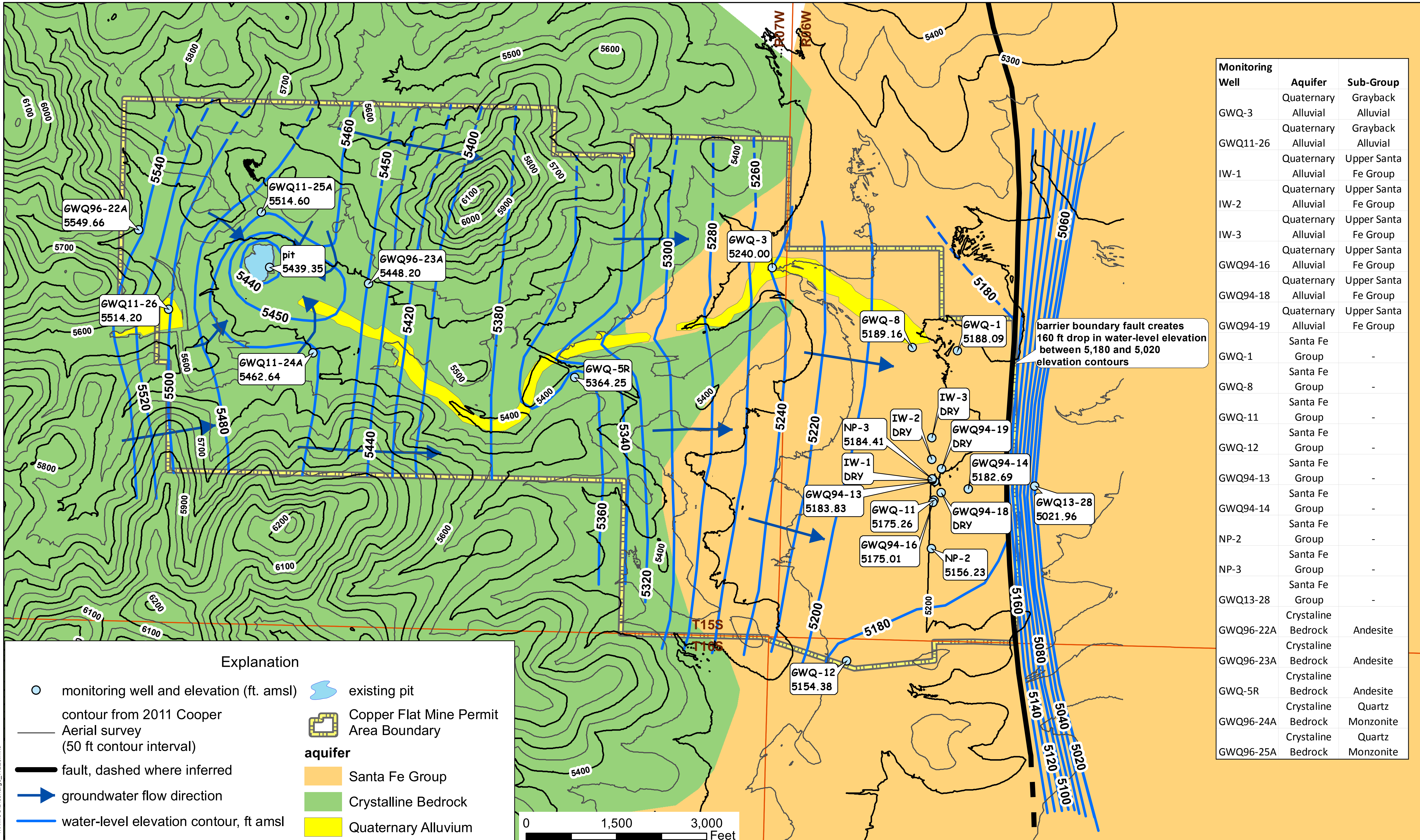
(1)Transmissivity is more appropriate for aquifers with fairly uniform inter-granular permeability and less appropriate for fractured rocks because of spatial variability and limited spatial influence (JSAI, Personal Communication July 30, 2015).
(2)Storage coefficient for a system of fractures in an otherwise nearly impermeable crystalline rock is not approachable with a short term pressure injection test because of the lack of rock volume information into which water is injected (JSAI, Personal Communication July 30, 2015).
(3)Transmissivity and storage coefficient was derived from a 78 hour pumping test on GWQ94-17 by Adrian Brown Consultants in 1994 (Appendix C of JSAI August 2014).
(4)There is no pumping test data for the alluvial aquifer system, hydraulic conductivities were estimated from water level measurement during pumping for sample collection (JSAI, May 2014).

Direction of Groundwater Flow

The general direction of groundwater flow is from the west to the east. The exception to this is in the vicinity of the existing mine pit, which acts as a hydraulic sink. Groundwater flow direction and hydraulic gradients are shown on Figure 11K-9. The water level elevation contours in shown are derived from data from wells around the perimeter of the mine pit.

Figure 11K-10 provides hydrographs that illustrate water levels in the existing pit water body and from monitoring wells installed around the pit from 2009 through 2013. The water levels show that water in the pit has been consistently lower than the water levels in the surrounding wells, indicating that the pit is and has been a hydrologic sink. The water-level elevation in the pit after mining operations have ceased is projected to be at approximately 4900 ft. While the water levels surrounding the mine pit may be lower after mining operations have ceased than shown in Figure 11K-10, they would be expected to be higher than the pit.

NMCC provided the BLM and its contractor a response to an inquiry as to the possibility of water flowing from the pit lake into groundwater after large short-term precipitation events which can occur during the summer. In the response of June 25, 2015 JSAI explained that projected water levels in the pit and downstream derived from the JSAI groundwater model indicates that the water level down-gradient of the pit will always above 5,100 ft. elevation. Filling the pit from 4,900 ft. elevation to 5,100 ft. elevation would require about 250 inches of water over the entire 327-acre pit catchment and watershed or about 6,800 acre-feet of water in order to create a flow-through system and overcome the sink that the mine pit creates. The wettest year on record in the Hillsboro area is 21 inches of water over an entire year, i.e., 1941. That would have generated about 82 acre-feet of precipitation and runoff to the pit (JSAI 2015). As such, it Is reasonable to conclude that the mine pit will continue to be a hydrologic sink.



Monitoring Well	Aquifer	Sub-Group
GWQ-3	Quaternary Alluvial	Grayback Alluvial
GWQ11-26	Quaternary Alluvial	Grayback Alluvial
IW-1	Quaternary Alluvial	Upper Santa Fe Group
IW-2	Quaternary Alluvial	Upper Santa Fe Group
IW-3	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-16	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-18	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-19	Quaternary Alluvial	Upper Santa Fe Group
GWQ-1	Santa Fe Group	-
GWQ-8	Santa Fe Group	-
GWQ-11	Santa Fe Group	-
GWQ-12	Santa Fe Group	-
GWQ94-13	Santa Fe Group	-
GWQ94-14	Santa Fe Group	-
NP-2	Santa Fe Group	-
NP-3	Santa Fe Group	-
GWQ13-28	Santa Fe Group	-
GWQ96-22A	Crystaline Bedrock	Andesite
GWQ96-23A	Crystaline Bedrock	Andesite
GWQ-5R	Crystaline Bedrock	Andesite
GWQ96-24A	Crystaline Bedrock	Quartz Monzonite
GWQ96-25A	Crystaline Bedrock	Quartz Monzonite

Figure 11K-9. Geologic map showing water level elevations from 4th Quarter 2013, Copper Flat Mine, Sierra County New Mexico.

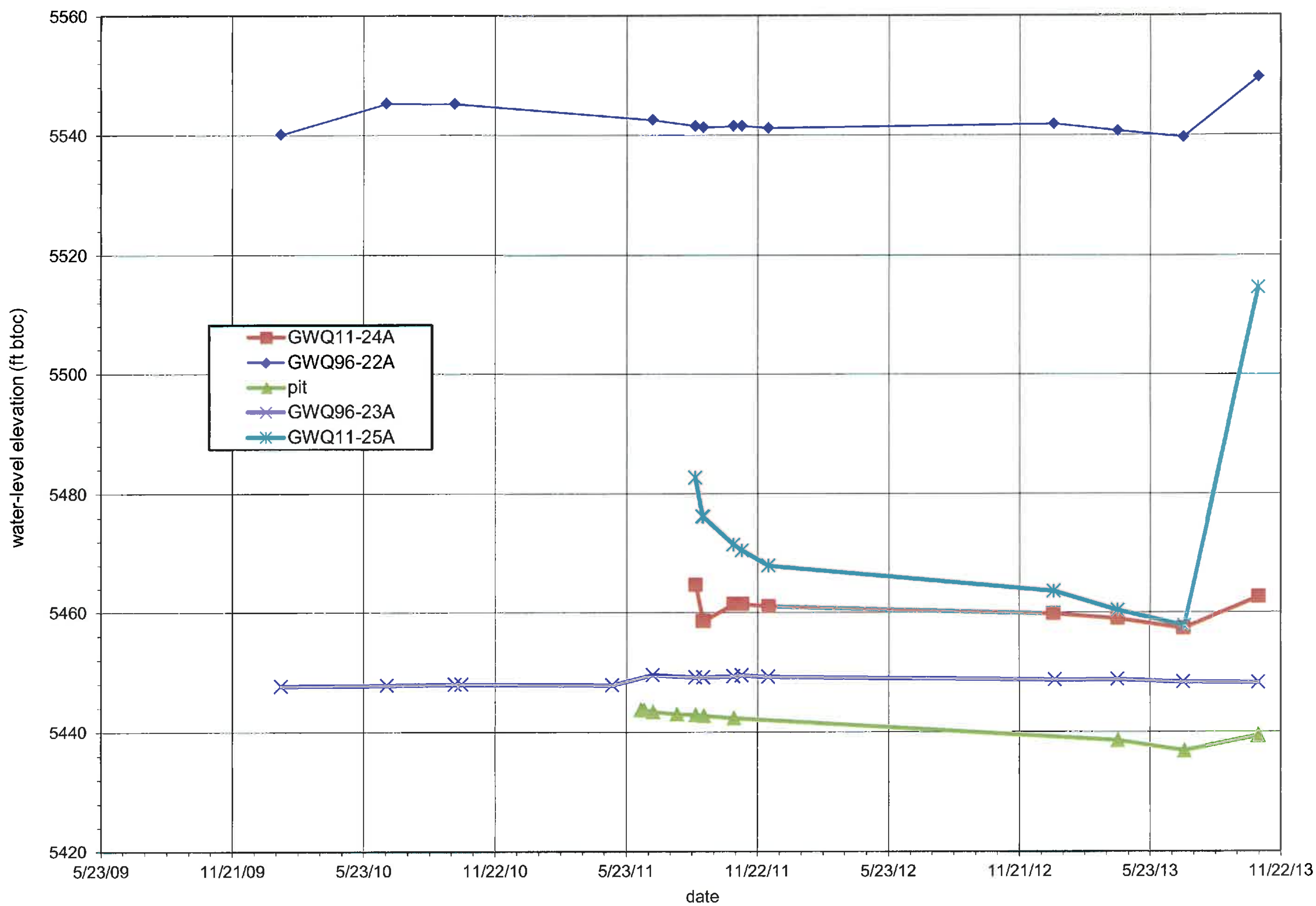


Figure 11K-10. Hydrograph of pit area wells and pit water levels.

Groundwater Quality

This section presents groundwater quality for the water bearing zones at the Copper Flat Mine project. The data was summarized from several reports prepared for Quintana Minerals Corporation and New Mexico Copper Corporation. Table 11K-4 presents the reports that were cited in this analysis. The laboratory reports associated with this data are incorporated into the cited reports in Table 11K-4.

TABLE 11K-4
Source Reports Cited in Groundwater Quality Analysis

Report Title	Report Prepared By	Date
Tailings Dam and Disposal Area, Quintana Mineral Corporation, Copper Flat Project, Gold Dust, New Mexico	Sargent, Hauskins, and Beckwith (SHB)	October 1980
Geohydrologic Evaluation For Submission of Discharge Plan, Copper Flat Project, Quintana Mineral Corporation, Sierra County, New Mexico	SHB	June 1981
Baseline Data Characterization Report, Copper Flat Mine, Sierra County, New Mexico	Intera et al.	June 2012
Results from the First Year of the Stage 1 Abatement Investigation at the Copper Flat Mine Site Near Hillsboro, New Mexico	John Shomaker and Associates (JSAI)	May 2014

Table 11K-5 presents groundwater results from samples collected prior the initiation of mineral processing by Quintana Minerals, which initiated in March, 1982. These water quality results represent the pre-discharge conditions at the Copper Flat Mine based on for some constituents the data available from that time. The results have been categorized by the wells the samples that were collected from the aquifers or water bearing units that the wells were screened in. The well locations are presented on Figure 11K-8.

Table 11K-6 presents groundwater data collected by NMCC and its consultants during baseline data characterization and Stage 1 Abatement monitoring activities conducted from 2010 to 2013. The results from this table represent the current water quality conditions beneath the Copper Flat Mine Area Permit Boundary. For the Quaternary Alluvial Aquifer in Grayback Arroyo and the Crystalline Bedrock Aquifer, the wells screened in the up-gradient and down-gradient of the Copper Flat ore body have been segregated. In Grayback Arroyo, well GWQ11-26 is up-gradient of the ore body and is also representative of a pre-discharge condition. In the Crystalline Bedrock Aquifer, wells GWQ96-22A and B, GWQ-24A and B, and GWQ-25B have all been completed since the existing Copper Flat Mine pit was excavated; therefore, these wells have been within the influence of the evaporative hydraulic sink caused by the pit. Given these wells are within the cone of depression caused by the pit, they are effectively up-gradient and are representative of pre-discharge conditions. This is not the case for the Quaternary Alluvium (upper Santa Fe Group) Aquifer and the Santa Fe Group Aquifer as these aquifers are both down-gradient of the Copper Flat ore body. Groundwater quality sample results from Well GWQ11-25A was not included as representative of the Crystalline Bedrock

TABLE 11K-5
Water Quality Samples Collected Prior to 1982

Water Bearing Units beneath the Copper Flat Mine Area Permit Boundary				
Constituent	Quaternary Alluvial Aquifer (Grayback) (mg/L)	Quaternary Alluvium (Upper SFG) (mg/L)	Santa Fe Group (mg/L)	Crystalline Bedrock (mg/L)
	Wells Sampled	Wells Sampled	Wells Sampled	Wells Sampled
	GWQ-3[1], GWQ-5[2]	NP-5, SHB-27[3], SHB-28[3], SHB-29[3], SHB-30[3]	GWQ-1, GWQ-2, GWQ-7, GWQ-8, GWQ-9, GWQ-10, GWQ-11, NP-1, NP-2, NP-3	GWQ-4, GWQ-6[4]
Arsenic	0.004 to <0.01	<0.005 to 0.02	<0.002 to 0.024	<0.01
Barium	<0.2	<0.2 to 0.218	<0.02 to 0.25	<0.2
Cadmium	<0.005	<0.001 to <0.005	<0.001 to 0.006	<0.005
Chromium	<0.01	0.002 to <0.02	<0.005 to <0.05	<0.01
Cyanide	<0.01	0.001 to <0.01	<0.001 to 0.36	<0.01
Fluoride	0.6 to 1.03	0.77 to 1.3	0.3 to 1.9	0.68 to 1.1
Lead	<0.02 to 0.073	<0.001 to <0.02	<0.005 to 0.033	<0.02
Total Mercury	<0.001	<0.0004 to <0.001	<0.0005 to 0.0064	<0.001
Nitrate	0.1 to 5.5	<0.1 to 4.1	<0.05 to 60	0.5 to 3.3
Selenium	0.0037 to 0.0062	<0.005 to <0.02	<0.0005 to 0.029	0.0046 to <0.005
Silver	<0.02	<0.001 to <0.02	<0.001 to 0.023	<0.02
Uranium	NA	NA	NA	NA
Chloride	32 to 56	21 to 51	17 to 100	22 to 102
Copper	<0.05	0.002 to <0.1	<0.02 to 0.48	<0.02 to <0.05
Iron	<0.1	0.007 to 0.52	<0.01 to 3.8	<0.1
Manganese	<0.05	0.036 to 0.42	0.001 to 1.4	<0.05 to 0.11
Sulfate	383 to 575	145 to 353	34 to 220	41 to 270
TDS	868 to 1,260	384 to 840	350 to 650	400 to 810
Zinc	0.064 to 0.32	0.004 to 0.4	<0.05 to 5.3	<0.025 to 0.28
pH	7.0 to 7.9	7.6 to 8.0	7.0 to 8.6	7.2 to 8.3
Aluminum	<0.01	<0.01 to 0.239	<0.01 to 10.2	<0.01
Boron	<0.1 to 0.108	0.07 to 0.1	<0.004 to 0.77	<0.1 to 0.135
Cobalt	<0.05	<0.001 to <0.02	<0.02 to <0.05	<0.02 to <0.05
Molybdenum	<0.05	0.002 to <0.1	<0.01 to 0.26	<0.05
Nickel	<0.05	0.019 to <0.05	<0.01 to <0.05	<0.05

[1]GWQ-3 33 ft. deep concrete line well, 40 inches by 43 inches perforated from 10 to 33 feet.
[2]GWQ5 20 ft. deep rock lined well located in Grayback Arroyo downstream of the Quintana Plant Site. Well was destroyed during construction of the Quintana Mine.
[3]SHB 1981 SHB (1980) indicates that water samples were collected from geotechnical borings SHB-29, 30, 31, 33, and 34 and the water samples were submitted to "Controls for Environmental Pollution, Inc." for analysis. SHB (1981) describes these as "wells", SHB-27, 28, 29, 30, and 34. The data from SHB-34 was not used because the concentration data was not realistic; which are more representative of a QA blank sample. The relationship between soil borings and "wells" is not documented in either report. However, using the laboratory data reports from SHB-1980 and SHB 1981, the relationship between borings and wells can be established.
[4]GWQ-6 Old well located near an old windmill site west of the existing tailings facility. No well construction details are available and depth is unknown. Subsurface conditions in this area are andesite flows and/or volcanic debris flows. The well is currently unusable. GWQ-6 corresponds to GWQ-6N on NMCC current survey files.

TABLE 11K-6 Water Quality Samples from 2010 to 2013						
Water Bearing Units Beneath the Copper Flat Mine Area Permit Boundary						
Constituent	Quaternary Alluvial Aquifer (Grayback) (mg/L)		Quaternary Alluvium (Upper SFG) (mg/L)	Santa Fe Group (mg/L)	Crystalline Bedrock (mg/L)	
	Wells Sampled	Wells Sampled	Wells Sampled	Wells Sampled	Wells Sampled	Wells Sampled
	GWQ-3 (down-gradient of ore body)	GWQ11-26 (up-gradient of ore body)	NP-5, IW-2, GWQ94-16	GWQ-1, GWQ-8, GWQ-11, GWQ-12, GWQ13-28, GWQ94-13, GWQ94-14, GWQ94-15, GWQ94-17, NP-1, NP-2, NP-3, NP-4	GWQ-5R, GWQ96-23A, GWQ96-23B (down-gradient of ore body)	GWQ11-24A, GWQ11-24B, GWQ11-25B, GWQ-4, GWQ96-22A, GWQ96-22B (up-gradient of ore body)
Arsenic	NA	NA	<0.001 to 0.0092	<0.001 to 0.0042	<0.001 to 0.0027	<0.001 to 0.0057
Barium	NA	NA	0.018 to 0.039	0.03 to 0.059	0.078 to 0.13	0.057 to 0.11
Cadmium	NA	<0.002	<0.002	<0.002	<0.0012 to <0.002	<0.0012 to 0.256
Chromium	NA	NA	<0.006	<0.006	<0.006	<0.006
Cyanide	NA	NA	<0.005 to <0.01	<0.005 to 0.012	<0.005	<0.005 to <0.01
Fluoride	NA	0.4 to <1.0	0.6 to 0.7	<0.1 to 0.6	1.3 to 2.1	0.73 to 24.4
Lead	NA	NA	<0.005	<0.005	<0.005	<0.005
Total Mercury	NA	NA	<0.0002 to 0.00048	<0.0002 to 0.00026	8.94E-07 to <0.0002	8.94E-07 to <0.0002
Nitrate	NA	NA	1.7 to 4.1	1.4 to 7.5	<0.1 to <1.0	<1.0 to 2.1
Selenium	NA	0.0015 to 0.0062	0.0021 to 0.037	<0.001 to 0.028	<0.001 to 0.0016	<0.001 to 0.0566
Silver	NA	NA	<0.005	<0.005	<0.005	<0.005
Uranium	NA	NA	0.0013 to 0.0062	0.0013 to 0.0023	<0.001 to 0.0037	<0.001 to 0.0037
Chloride	63 to 75	14 to 32	79 to 600	20 to 290	12 to 19	26 to 110
Copper	NA	0.00265 to <0.006	<0.001 to <0.006	<0.001 to <0.006	0.00087 to <0.006	<0.001 to 137
Iron	NA	NA	<0.02 to 1.3	<0.02 to 0.10	0.04 to 1.4	0.02 to 9.3
Manganese	NA	0.0168 to 0.0437	<0.002 to 3.6	<0.002 to 0.19	0.29 to 0.63	0.029 to 13.7
Sulfate	1,210 to 1,750	96.5 to 179	170 to 1,200	5 to 830	1.4 to 140	6.2 to 2,730
TDS	2,410 to 3,060	317 to 905	623 to 2,770	360 to 1,740	496 to 804	521 to 4,400
Zinc	NA	<0.01 to 0.013	<0.01 to 0.29	<0.01 to 1.85	0.0065 to 0.07	<0.01 to 8.65
pH	7.3 to 7.5	6.8 to 7.5	7.0 to 8.0	6.4 to 8.8	6.9 to 8.2	3.7 to 8.0
Aluminum	NA	<0.02 to 0.153	<0.02 to 0.13	<0.02 to 0.14	<0.0053 to 0.0314	0.0097 to 56.6
Boron	NA	NA	<0.04 to 0.081	<0.04 to 0.04	0.068 to 0.14	<0.04 to 0.28
Cobalt	NA	<0.006	<0.006 to 0.017	<0.006	0.0018 to <0.006	0.002 to 0.439
Molybdenum	NA	NA	<0.008 to 0.024	<0.008	<0.008	<0.008
Nickel	NA	NA	<0.01	<0.01	<0.01	<0.01

Aquifer because JSAI (2014) describes the groundwater chemistry samples from that well as "completely different from all other samples in the pit area…." This well is completed in a localized zone of sulfide mineralization and the water source is suspected to be from oxygenated water infiltrating through sulfide bearing fractures with limited storage.

The well locations for this time period are also presented on Figure 11K-8. Groundwater elevations from the 4th Quarter 2013 are presented on Figure 11K-9.

20.6.7.11.L LOCATION MAP

An application shall include a location map with topographic surface contours identifying all of the following features within a one-mile radius of the copper mine facility:

- ***(1)*** *watercourses, lakebeds, sinkholes, playa lakes, seeps and springs (springs used to provide water for human consumption shall be denoted);*
- ***(2)*** *wells supplying water for a public water system and private domestic water wells;*
- ***(3)*** *irrigation and other water supply wells; and*
- ***(4)*** *ditch irrigation systems, acequias, irrigation canals and drains.*

Figure 11L-1 provides the information requested. With respect to water courses, all are ephemeral, flowing only in response to significant precipitation events. Grayback Arroyo transects the site from west to east, Greenhorn Arroyo begins at the southeast corner just outside of the mine permit boundary area and runs east, and Hunkidori Gulch begins at the eastern edge just outside of the mine permit area boundary and runs east. The only lakebed in the area requested is the pit lake attendant to the existing open pit on the site. There are no playa lakes within a one-mile radius of the facility. One seep exists on the high wall of the existing open pit. There are no springs located within a one-mile radius of the facility.

With respect to water supply wells for a public system or domestic water wells, there are none within a one-mile radius of the facility.

With respect to irrigation and other water supply wells, there are several wells within a one-mile radius of the facility. Some are useable. Others are not currently useable. And other are known to exist but could not be verified as useable or not useable because access by NMCC to these wells has been denied.

With respect to ditch irrigation systems, acequias, irrigation canals and drains, there none within a one-mile radius of the facility.

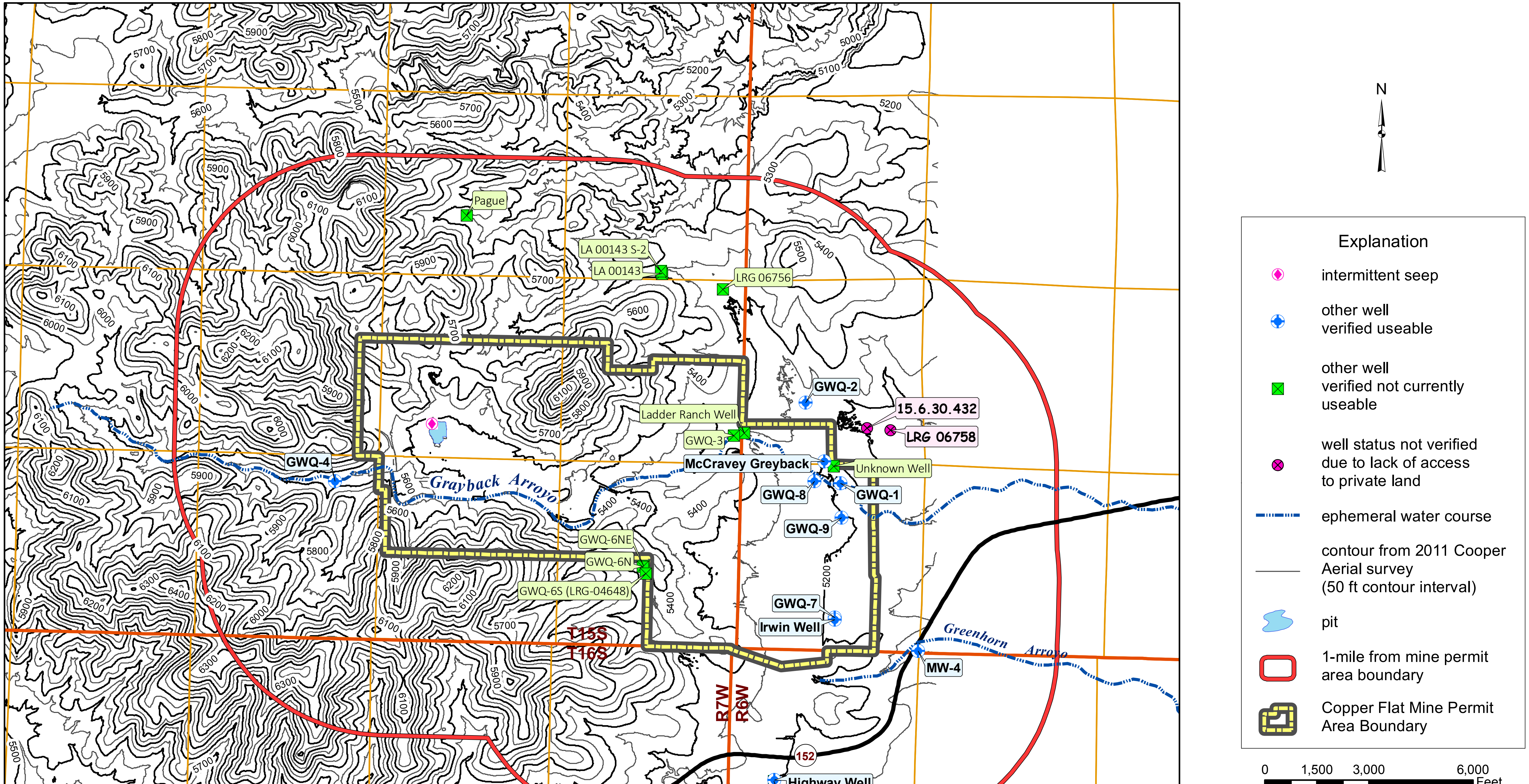


Figure 11L-1. Copper Flat Mine Location Map

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20.6.7.11.M FLOOD ZONE MAP

An application shall include, if available, the most recent 100-year flood zone map developed by the federal emergency management administration (FEMA), flood insurance rate map or other flood boundary and floodway map with the copper mine clearly identified along with all 100-year frequency flood zones for the copper mine facility, and a description of any engineered measures used for flood protection.

Figure 11M-1 is a 100-year flood insurance rate map (FIRM) flood zone map for the Copper Flat project area. All of the project site area is located in Zone C, Areas of Minimal Flooding. There are no engineered measures used in the project site area used for flood protection.

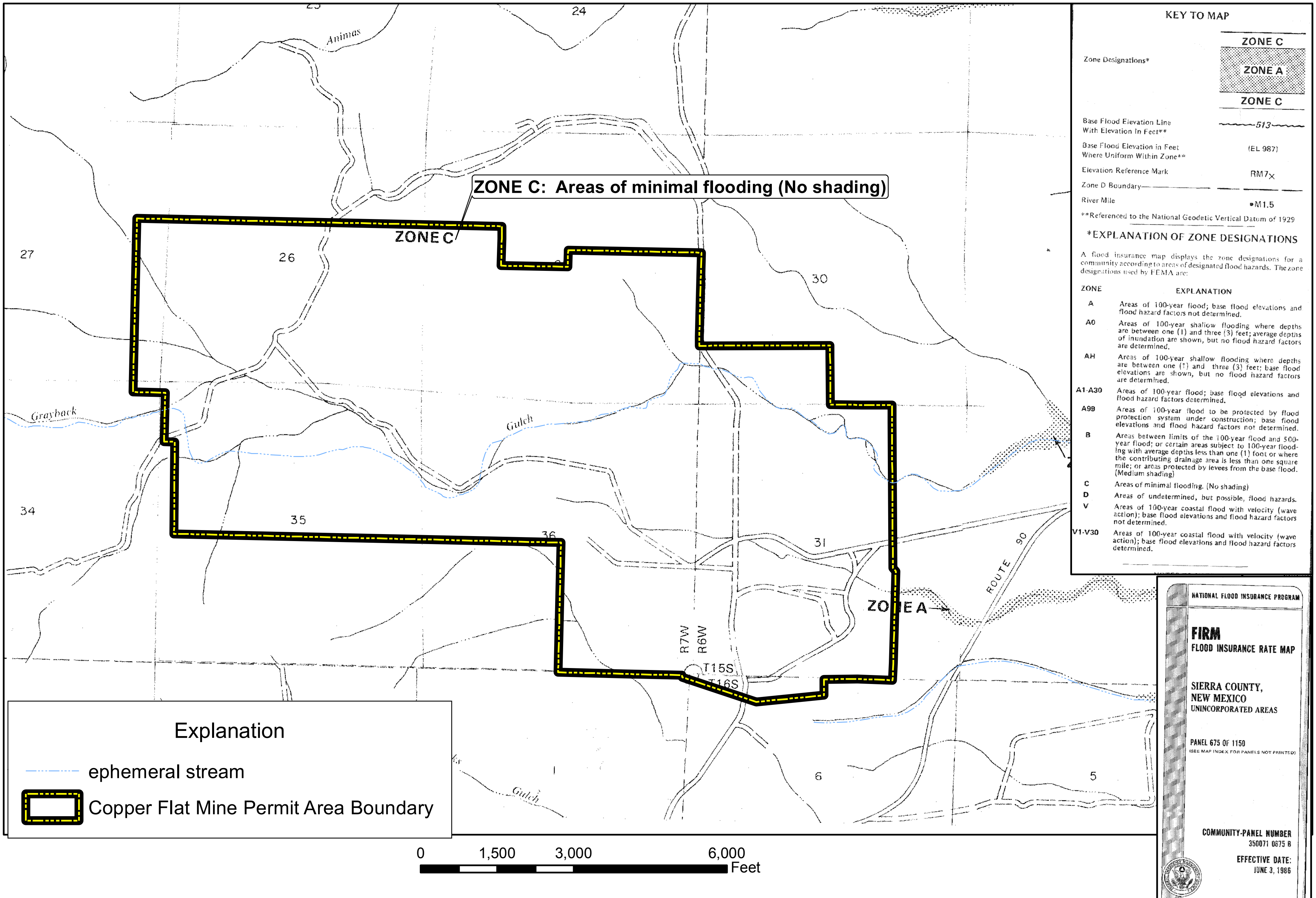

Figure 11M-1. FEMA 100-year flood zone map, Copper Flat Mine, Sierra County, New Mexico.

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20.6.7.11.N ENGINEERING DESIGN, CONSTRUCTION AND SURVEYING

Pursuant to 20.6.7.17, 20.6.7.18, 20.6.7.20, 20.6.7.21, 20.6.7.22, 20.6.7.23 and 20.6.7.26 NMAC an application shall include:

(1) *plans and specifications for proposed new or modified tailings impoundments, leach stockpiles, waste rock stockpiles, and process water and impacted stormwater impoundments and associated liners;*
(2) *plans and specifications for proposed new or modified tanks, pipelines, truck and equipment wash units and other containment systems; and*
(3) *a stormwater management plan.*

20.6.7.11.N.(1) TAILINGS STORAGE FACILITY
Plans and specifications for Copper Flat project new tailings storage facility, including associated liners are contained in Appendix A. These plans and specifications are prepared at the Feasibility grade level. NMCC believes that the information contained therein is sufficient to allow the NMED to evaluate the liner design and construction for these facilities pursuant to the Copper Rules.

Sections 1 through 5 of the design document present the various parameters and site condition considerations that were analyzed in preparing the design, including site topography, climate, subsurface geology and other site observations. The design document discusses the results of the extensive site-specific soils and geotechnical exploration and testing programs that were conducted in the field as well as the tailings test and materials classification and consolidation tests conducted in the laboratory. It also presents consolidation modeling results for the tested tailings materials.

Section 6, Feasibility Level Design, presents the design of the tailings impoundment, the seepage collection pond and related facilities, i.e., the TSF, beginning with Table 6 which summarizes the key design criteria for the design of the TSF including regional design factors, impoundment-specific design factors, water storage and storm water diversion design factors.

Sections 7 and 8 present tailings delivery and distribution system and the water reclaim system designs and their related liner systems.

20.6.7.11.N.(1) WASTE ROCK STOCKPILES
The plans and specifications for the waste rock stockpiles are also at a feasibility level of design. In general, the stockpiles will be built to a configuration of 3 horizontal to 1 vertical slope angels (18.4 degrees). This configuration will help facilitate reclamation at the end of the mine life as provided for in Section **20.6.7.33.C.(3)**. Each lift within the stockpile will be maximally 75 ft. high and be placed at angle of repose (35.54 degrees) with 120 ft. setbacks left between lifts to maintain the 3 to 1 overall angle for the stockpile.

20.6.7.11.N.(1) PROCESS WATER AND IMPACTED STORM WATER IMPOUNDMENTS

The Plans and Specifications for the process water and impacted storm water impoundments and associated liners are contained in Appendix B. As with the plans and specifications for the TSF, these plans and specifications are also prepared at the Feasibility grade level. NMCC believes that the information contained therein is sufficient to allow the NMED to evaluate the liner design and construction for these facilities pursuant to the Copper Rules.

20.6.11.N.(2) TANKS, PIPELINES, TRUCK AND EQUIPMENT WASH UNITS

As indicated above, M3 has prepared a Process Facility Containment Report that provides the plans and specifications for the tanks, pipelines and truck and equipment wash and other containment units. The report is included herein as Appendix C. As with the plans and specifications for the TSF, these plans and specifications are also prepared at the Feasibility grade level. NMCC believes that the information contained therein is sufficient to allow the NMED to evaluate the liner design and construction for these facilities pursuant to the Copper Rules.

The report identifies and describes the proposed sumps, tanks, pipelines and truck and wash and other containment units, including their purpose, construction material, dimensions and capacity. This report also provides information regarding the form and design of the containment structures that will be incorporated into the process to contain and manage materials containing water contaminants that have the potential to migrate to groundwater and cause and exceedance of applicable groundwater standards and meet the requirements **of 20.6.7.22, 23 and 26 NMAC**.

Certain foundations, sumps and other containments originally constructed by Quintana for previous operation of the Copper Flat mine exist and may be utilized, where appropriate. Specifically, the primary crusher, the coarse ore stockpile, the reclaim tunnel and the concentrator processing area are areas that have the certain structures that may be utilized by NMCC's operations. Sumps and containment structures exist in certain areas of the existing footprint that may be located and may be of sufficient size to be utilized in the NMCC operations. If they can be utilized, each of these existing sumps and containment areas will be tested to ensure that they do not leak. They will be sealed with approved water stops, coatings or liners, and/or will be reconstructed, as necessary, to meet the requirements of **20.6.7.22, 23, and 26 NMAC** prior to use. All new sumps and containments will be constructed to meet the requirements of **20.6.7.22.B.(1) NMAC**.

Sumps that and other existing containment structures that cannot be utilized in NMCC's operations will be decommissioned in a manner to prevent them from becoming conduits for potential release of contaminants to surface or groundwater. Unutilized sumps will be filled with grout and/or concrete. Unutilized containment areas will be removed so that they cannot retain water.

NMCC proposes to install new tanks and pipelines for its operations, with the exception of the freshwater pipeline that will provide water to the operation from the off-site well field. Therefore, with respect to the requirements of **20.6.7.23.C.(6) NMAC** for a pipeline evaluation plan for existing pipelines, NMCC believes that no pipeline evaluation plan is necessary. All new pipelines and tanks will be constructed in accordance with the requirements of **20.6.7.23.B.(1) NMAC.** All containment system structures, pipelines, tanks and secondary containment structures will be inspected at least monthly per **20.6.7.22.C.(3).b and 20.6.7.23.(C).(2) NMAC**, respectively.

NMCC proposes to have two (2) areas specifically designed for equipment and truck washing. One area will be located within the concentrator area, designated as the "Wheel Wash Area". The purpose of this area is to provide a location where the wheels of the located with the copper concentrate will be washed to remove any concentrate product that adheres to the truck wheels prior to leaving the concentrator area. This activity will be conducted in a containment area as described in Section 4.1.9 of Appendix C. The second area, designated as the "Truck & Equipment Washing Unit" will be constructed in the plant site along the haulage road from the mine to the truck shop as described in more detail in Section 4.4 of Appendix C. Both of these units have been designed and will be constructed and operated in conformance with **20.6.7.26 NMAC** as discussed in Appendix C.

20.6.7.11.N.(3) STORM WATER MANAGEMENT PLAN

Storm water will be managed using a series of engineering and best management practices to ensure that storm water is controlled in a manner in conformance with applicable state and federal requirements. The purpose of the plan is to control surface storm water flows to minimize contact with mine disturbances and activities so as to prevent impacts to surface water and ground water quality.

NMCC's overall storm water management and impact mitigation strategies will include actions such as;

- Grading and contouring all site facilities to maximize the opportunities to route surface drainage around and away from the mining activity;
- Eliminating and/or minimizing run-on and run-through routes;
- Controlling run-off velocity to control erosion;
- Constructing run-off control ditches wherever needed to divert run-off and control and capture impacted storm water;
- Collecting run-off water that has been potentially impacted by mining activities in the mine pit and/or lined impoundments as necessary and minimizing potential for release;
- Reusing captured water as make-up process water whenever possible.

Drainage Basin Management

As described in Section **20.6.7.11.J.(6)**, NMCC proposes to construct several storm water management structures to manage run-on and run-off at the Copper Flat mine. Figure 11J-21 shows that the Copper Flat mine permit area boundary lies within the Greenhorn Arroyo drainage basin. The site is located in the top or head of the basin. As such, storm water drainage at and through the site is limited. Grayback Arroyo, an ephemeral watercourse, and a small unnamed arroyo tributary to Grayback Arroyo are the only drainage-ways that enter the site. Grayback Arroyo transects the site from west to east beginning at the top of the basin. The unnamed arroyo enters the site at the northwest corner of the site. Mining activities undertaken by Quintana Minerals in the early 1980's resulted in construction of diversion structures to Grayback Arroyo and the unnamed arroyo to divert drainage around the site. NMCC has conducted an analysis of the capability of the structures to safely pass a 100- year 24 hour storm event through the site. This analysis has determined that Grayback Arroyo will safely handle such an event while keeping all of the water within its banks. As such, a primary feature of NMCC's storm water management strategy incorporates the existing diversion structures to eliminate run-on from all areas of the site. These structures have worked very well over time and remain in place and functioning today. NMCC will continue to maintain the integrity of the diversion structure during and operating life of the mine as part of its storm water management plan during operations and as part of reclamation and closure of the project.

Site Drainage Management

Storm water runoff from the various areas at the site will be managed at the Copper Flat mine in a manner appropriate for that location. The Copper Flat site has four areas where storm water management will be especially important;

- Open pit mine
- Process area, administration building, parking and other ancillary facilities
- Waste rock stockpile areas, and
- Tailings storage facility

NMCC will develop watershed areas within the site for each of these four areas by grading and contouring the areas and constructing the structures in a manner to control storm water. Figure 11J-3 identifies the developed watersheds in association with surface water drainage management.

Mine Pit Management

As describe previously, developed watershed D (WS D) will be located at the westernmost edge of the site. It contains the mine pit and existing waste rock stockpiles (EWRSP-1 and EWRSP-2A) constructed by the Quintana Mining operation. All precipitation that falls onto the footprint of the developed watershed D will be captured in the mine pit. Drainage ditches will be constructed, as necessary, to move run-off as efficiently as possible while taking care not to cause erosion or to allow ponding and infiltration. Water collected in the mine pit during operation will be pumped out and utilized for dust control within the open pit surface drainage area or as make-up water in the process. When applying water for dust control, care will be taken to not over-water to prevent ponding or erosion from occurring. At closure, the water will be allowed to collect in the pit and contribute to the volume of the pit lake as described in the Reclamation and Closure Plans.

Plant Area Management

Developed watershed A (WS A) will be located in the south-central portion of the site as shown in Figure 11J-3. It will control storm water from the processing facility, including crushing and grinding, milling, flotation, concentrating, drying and packaging, the administration building, parking and other ancillary support facilities. WS A also contains an area which includes an existing waste rock stockpile (EWRSP-3). As described earlier, a portion of this existing stockpile includes the small volume of ore that was not processed by Quintana before shutting down. This ore material will be utilized by NMCC to feed the process circuit early in the operations phase. The remaining existing waste rock stockpile will utilized as a temporary holding area to store oversized ore rock that cannot be fed directly into the crusher and must be reduced in size using pneumatic hammers.

Watershed A will be graded and berms constructed, as necessary, to eliminate storm water run-on. The area will be graded and contoured to direct and collect precipitation to a lined storm water impoundment as shown in Figure 11J-3. Details of the design of this impoundment are contained in Section **20.6.7.11.J.(2)** of this application and Appendix B. The impoundment will be designed to capture the water produced from a 100-year 24 hour storm event and will have a minimum of two feet of free-board. Captured water will be transferred to the process water reservoir, also located within WS A (see Figure 11J-3), and utilized as make-up water in the process.

The storm water impoundment will be constructed with a spillway designed to safely pass overflow water in the event of the occurrence of an extraordinary storm event that exceeds NMED design specifications. Overflow water from the spillway will be routed Grayback Arroyo.

The process water reservoir will also be located in within developed watershed A. The reservoir is designed such that no surface water runoff from the watershed will enter it. Only precipitation that falls directly on the footprint of the reservoir will be retained therein. The process water reservoir will not have a spillway, per **20.6.7.17.D.(7) NMAC,** that empties onto the ground surface. In the unlikely event of overtopping of the reservoir as a result of a significant storm event larger than the design storm (which has been designed per NMED requirements) the water will be directed through a weir into a lined conveyance ditch designed to route water to the tailings storage facility. The primary purpose of this conveyance ditch will be to function as the secondary containment structure for the pipeline from the process circuit to the tailings facility and the recycled water pipeline from the tailings facility to the process water reservoir. However, it is also designed to provide a means whereby overflow from the process water reservoir can be managed in conformance with **20.6.7.17.D.(7) NMAC**.

At closure, these impoundments will be re-contoured, re-graded and covered as described in the Reclamation and Closure Plans so that water in no longer retained.

Waste Rock Stockpile Management

Developed watersheds B and C will be located at the north-central portion of the site as shown in Figure 11J-3. Developed watershed B is the area that will contain proposed new waste rock stockpile (WRSP-1) described in section **20.6.7.11.J.(2)**. This area also contains existing waste rock stockpile EWRSP-2A. This existing stockpile will be enveloped and covered by construction of proposed new stockpile WRSP-1. Developed watershed C will contain proposed new waste rock stockpiles WRSP-2 and WRSP-3.

These developed watersheds and proposed waste rock stockpiles will be constructed, graded and contoured in a manner to direct precipitation runoff to lined storm water impoundments as shown in Figure 11J-3. Berms, swales and other conveyance structures will be constructed in the area and on the stockpiles, as needed, to provide controlled conveyance of storm water while preventing erosion and minimizing ponding.

The storm water impoundments will be designed and constructed to safely retain the volume of water generated from a 100-year 24-hour storm event and have a minimum 2 feet of freeboard. Details of the design of the impoundments are contained in section **20.6.7.11.J.(2)** and Appendix B.

Captured water from these storm water impoundments will be transferred to the process water reservoir in the process area for use as make-up water in the process. The storm water impoundments will be designed with a spillway structure to safely pass overflow water from an extraordinary event in excess of NMED design specifications.

Developed WS B is part of the open pit surface drainage area as shown on Figure 11J-3 and discussed in more detail above. As such, water released from the spillway at storm water impoundment B will pass via a culvert to the mine pit. In the case of storm water impoundment C, water released from the spillway will be released to the land down-gradient and adjacent to the impoundment. The water may find its way to Grayback Arroyo.

At closure, the waste rock stockpiles and the impoundments will be re-contoured, re-graded and covered as described in the Reclamation and Closure Plans.

Tailings Storage Facility Management

The Tailings Storage Facility will be located as shown in Figure 11J-1. The area is naturally protected from storm water runoff passing through Grayback Arroyo by the natural topography of the site. As such there is only runoff from precipitation that falls directly on the TSF location to manage. The tailings dam will be constructed in phases as discussed in detail in Appendix A. Surface water run-on will be controlled during operations by grading and contouring the area to minimize the amount of water contributed into the tailings impoundment. Several run-on diversion ditches will be constructed at the up-gradient perimeter of the tailings impoundment to divert run-on around it per the requirements of the NM Office of the State Engineer. These diversion ditches will be reconstructed in each subsequent phase, as needed, as the dam expands in size until it reaches its ultimate height.

Runoff from the exterior face of the dam will be managed by constructing drainage ditches to control and direct runoff into the underdrain collection pond located at the southeastern toe of the dam (See Figure 11J-1). These drainage ditches will be constructed in a manner that minimizes the opportunity for ponding yet moves water in a controlled fashion to control erosion. The ditches on the exterior face of the dam will enter the lined water conveyance ditch that also holds the water recycle pipeline leading from the underdrain collection pond to the process facility. Runoff water will join the water collected from the tailings underdrains in the pond and will be transported to the process water reservoir for use as make-up water in the process.

The surface area of the cyclone plant, located immediately adjacent to the TSF as seen on Figure 11J-1, will also be contoured and graded to route runoff from the area into the lined water conveyance ditch and drained to the underdrain collection pond.

At closure the TSF and its attendant runoff diversion structures will be re-contoured, re-graded, filled and a cover will be placed over the entire area in accordance with the Reclamation and Closure Plans.

20.6.7.11.O MATERIAL CHARACTERIZATION AND MATERIAL HANDLING PLAN

An application shall include a material characterization plan and, if applicable, a material handling plan for all waste rock excavated at the copper mine facility pursuant to Subsection A of 20.6.7.21 NMAC.

NMMC submitted a proposed Mine Plan of Operations (MPO) for the Copper Flat mine in December, 2011 to the Las Cruces, NM office of the Bureau of Land Management (NMCC 2010). This document, revised in June, 2011, was also provided to the NMED for review and comment as part of the process of preparation of an Environmental Impact Statement (EIS) by the BLM. Appendix C of the MPO contains a Mine Waste Management Plan for the waste rock which included a plan for waste characterization and handling. This plan provides the information as required by **20.6.7.11.O and 20.6.7.21.A NMAC.** Appendix C also contains results of waste characterization work performed by SRK in 1997 in support of an EIS that was being prepared for mining activities proposed by Alta Gold Corporation.

In the intervening time since the MPO was first proposed by NMCC in 2010, the waste characterization portion of the plan was implemented. The results of this work has been submitted and discussed with the NMED and is utilized in various sections of this DP application. NMCC will initiate the materials handling plan contained in Appendix C as contained in the MPO assuming that it is ultimately approved by the BLM, NMED and other constituent agencies.

MATERIAL CHARACTERIZATION

As cited previously herein, SRK has performed extensive geochemical characterization studies in support of NMCC's proposed Copper Flat mine (SRK 2013). The resulting report and additional documentation requested by NMED upon review of SRK's report represent NMCC's material characterization efforts to date and are incorporated into this application by reference. As such, NMCC believes that its material characterization program and material handling plan are in conformance with the requirements of **20.6.7.21 NMAC**.

In brief, SRK conducted a mine waste characterization program for the Copper Flat project. The geochemical testing of mine waste materials provided the characterization required to determine the potential for Acid Rock Drainage and Metal Leaching (ARDML) from mining facilities. This provided the basis for a quantitative risk assessment and evaluation of the options for design, construction and closure of the tailings and waste rock disposal facilities.

The Copper Flat mine waste characterization program was designed to investigate the potential for ARDML due to exposure and oxidation of sulfide minerals, such as pyrite, that are unstable under atmospheric conditions. Upon exposure to oxygen and water, sulfide minerals will oxidize, releasing metals, acidity and sulfate. SRK's geochemical characterization investigated the potential for rock that will be exposed in the Copper Flat waste rock disposal facility and pit walls to generate acid and leach when exposed to the atmosphere. The results of the characterization program were used in quantitative numerical predictions to assess the potential future leachate chemistry associated with the mine facilities, specifically the waste rock stockpiles and the TSF.

SRK's investigation concluded that with respect to waste rock, acid generation is not anticipated to occur for most of the un-weathered waste rock materials during operations. SRK concluded that the acid generating potential of the Copper Flat materials is largely dependent on the sulfide mineral content and that the sulfide concentrations in the material varied from less than analytical detection limits to a maximum of 2.52 weight percent (wt%) that was highest in the transitional waste material. Transitional material is the oxidized and partially oxidized surface rock material that overlies the fresh rock material below the surface. Where oxidation of this overlying material is complete, waste rock produced from it will be inert with respect to acid generation. Partially oxidized material occurs in a transition zone beneath the oxidized cover and the underlying un-oxidized material. This transitional material has been exposed to oxidizing conditions over geologic time. Such material will typically exhibit a low paste pH and high paste conductivity, and will be generally acid generating. Examples of this condition can be found in the exposed pit walls and where transitional waste material was deposited on the existing waste rock stockpiles.

SRK determined that 96% of waste rock that will be produced at Copper Flat will consist of sulfide, non-oxidized Quartz Monzonite/Breccia waste, which typically exhibited either non-acid forming characteristics or a low potential for acid generation. However, samples collected from the surface of the existing waste rock stockpiles and pit walls indicated that there is potential for acid generation from material mined by previous mining operations and exposed to natural weathering conditions.

With respect to tailings, SRK concluded that, based on tailings samples collected as part of the characterization program, that there is generally low potential for ARDML generation.

MATERIAL HANDLING PLAN

NMCC's propose material handling plan is based, in part, on SRK's recommendations to minimize the potential for acid leaching from the waste rock stockpiles and tailings. Based on SRK's findings the materials that will be generated will have only a low potential for acid leaching, NMCC anticipates that it will, generally, not be necessary segregate waste rock. As described in Appendix C of the MPO, most of the waste rock produced by the operation will be low and high sulfide material with only small amounts of oxide and transitional material produced near the surface of the proposed pit expansion. Additionally, it should be noted that the terms "high sulfide" and "low sulfide" are terms relative to specific conditions at Copper Flat and, therefore, to each other. That is, at Copper Flat low sulfide material is defined as material having less than 0.5% sulfide and high sulfide material will have 0.5% sulfide or more.

The waste will be primarily quartz monzonite and andesite and the ore will be primarily breccia. NMCC will implement a waste material classification program as described in Section 2.5 of the MPO. It is anticipated that the waste rock generated will oxidize very slowly and may potentially produce acid over some period of time. The ARD potential associated with un-oxidized waste rock is relative in the long-term. SRK determined that the waste rock can be considered as being inert with respect to ARD for a timeframe in the order approximately 20 years. Therefore, the vast majority of the waste material, i.e., about 96%, that will be generated will generally have a low ARD potential. As indicated above, the transitional materials that have been exposed to oxidizing conditions over time have the most potential for acid generation.

Section 2.6.2 of the MPO generally describes the general material handling approach the will be implemented at Copper Flat. The subsequent work conducted by SRK and presented in its May, 2013 Geochemical Characterization Report confirms the approach to be utilized. However, while the approach is generally the same as described in Appendix C of the MPO, there will be some aspects of material handling that may differ from the information provided therein as supported by the later findings of SRK's material characterization studies.

The overarching approach to waste rock material handling to control ARD will be to control the movement of water through the waste rock stockpiles in combination with continual diligent monitoring and characterization of the waste materials produced to SRK's conclusion that the majority of the material, i.e., 96% has a low ARD potential. As discussed in more detail below, NMCC believes that depositing the small amounts of material with high ARD potential, i.e., the transitional materials and the high sulfide materials, when encountered, along with the large amounts of non-ARD materials will further reduce the potential for the ARD materials to create acid. The buffering capacity of the large volume material will neutralize the small volume materials. Should field characterization reveal that more ARD materials than anticipated are being generated the materials handling plan will be adjusted to consider isolation, encapsulation and other means of treatment to mitigate the potential for acid generation.

Surface water will be managed to promote runoff from the waste rock stockpiles and to prevent surface water run-on as discussed earlier. The waste rock stockpiles will be designed and constructed to facilitate reclamation and closure in a manner to minimize the potential for ARD generation in the long-term.

SRK recommended in its May 2013 report that, during proposed operations, specific controls would be needed to collect storm water runoff from the waste rock stockpiles and that storm-water diversions would be required to prevent run-on. SRK also recommended that covering the waste rock stockpiles with a re-vegetated 36-inch cover at the end of mine life would reduce infiltration of water and flux of oxygen into the facility, and thus, limit oxidation of sulfide minerals. SRK also noted that migration of seepage from the waste rock stockpiles into the underlying bedrock would be anticipated to be very small, or nil, because of the low permeability of the andesite underlying the area. These recommendations have been incorporated into NMCC's design of its waste rock stockpiles.

The stockpile area will be located on andesite bedrock. Storm water controls will be installed to manage surface water runoff as describe above. A 36-inch soil cover will be placed over the stockpile area as described in the reclamation/closure plan.

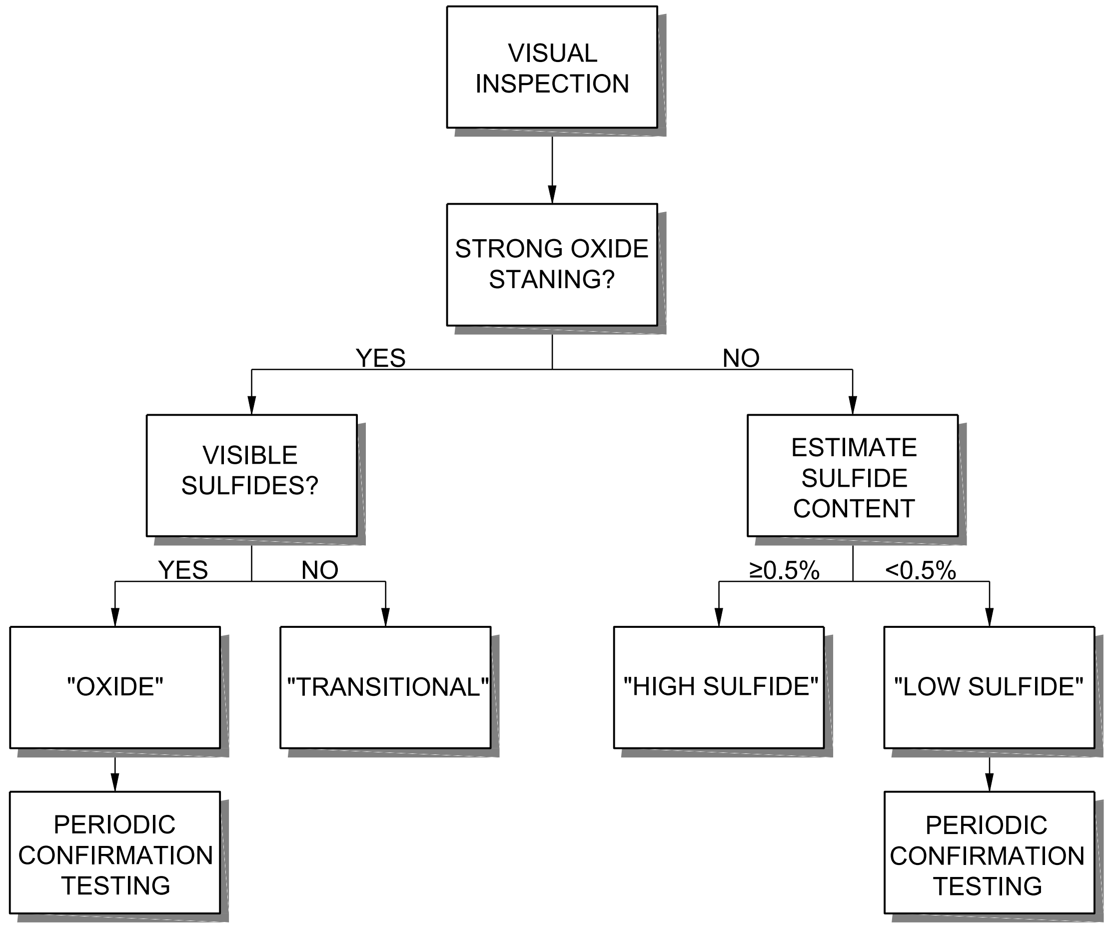
At the tailings storage facility, although the potential for acid generation is very small, NMCC has designed the TSF facility in a manner that further minimizes that potential. The tailings impoundment has been designed with a liner and underdrain collection system, and a 36 inch soil cover will be placed over the impoundment as per the Reclamation/closure Plan.

Materials classification will be performed during mine operations. Figure 11O-1 describes process that will be utilized in the NMCC's proposed waste classification program during operations. Following the evaluation path shown in Figure 11O-1, a determination will be made as to classification, and periodic confirmation testing will be conducted. Confirmation testing will include a field testing program for representative samples of the cuttings, as determined by the qualified geologist or technician. The tests conducted will include paste pH, saturated paste conductivity, and acid base accounting testing (total sulfur, sulfate sulfur, and NP testing).

As described in more detail in Section 2.6.2.5 of Appendix C of the MPO, prior to blasting active benches in the open pit, the drill cuttings from each drill blast hole will be inspected. Blast-hole drill cuttings will be visually inspected by a qualified geologist or trained technician prior to blasting and removal of the material from the pit. The rock type, color, degree of oxidation, sulfide content and other pertinent features will be noted and transferred to the bench plan maps. Representative samples will be taken on a schedule determined in the field for confirmation testing. All materials characterized as oxide or low sulfide waste will be sampled for confirmation testing. Confirmation testing will be performed on-site using a Leco Furnace to evaluate the classification determinations made.

Waste rock boundaries will be plotted on the active bench plans. When blasting is completed waste boundaries will be field flagged on the active bench. Shovel operators will selectively excavate the waste rock and inform haul truck operators as to the nature of the waste rock and its destination with the active waste rock stockpile. NMCC will develop a workable waste flagging and routing plan, as necessary, prior to the commencement of operations. The mine staff will maintain records of the volumes of each waste type mined during each shift and its disposed location within the waste rock stockpile, as necessary.

Oxidized and transition material can be distinguished from un-oxidized (high and low sulfide) material based on visual characteristics. Oxidizing and transitional materials exhibit strong iron oxide staining and may exhibit partial or complete original rock texture.



CLIENT	THEMAC RESOURCES / NEW MEXICO COPPER CORPORATION — Environmentally Responsible. Community-Minded. Local Opportunities.	PROJECT	NEW MEXICO COPPER CORPORATION COPPER FLAT PROJECT SIERRA COUNTY, NEW MEXICO
CONSULTANT	Golder Associates	TITLE	**OPERATIONAL WASTE CLASSIFICATION FLOWCHART**
YYYY-MM-DD	2015-09-28		
PREPARED	CM		
DESIGN	XXX		
REVIEW	TS		
APPROVED	XXX		

PROJECT No.	PHASE	Rev.	FIGURE
153-1453	0006	0	11O-1

High and low sulfide un-oxidized materials have a fresh appearance and may contain fresh sulfides.

The amount of waste rock classified as “oxidized” is anticipated to be small in volume. Because it is “oxidized it will have a low ARD potential. This material will be placed on the outer slopes and surfaces of the waste rock stockpiles, to the extent possible. It may be stockpiled in selected areas so that it can be utilized during reclamation. It may also be managed as “transition waste”.

Section 2.6.2.2 of Appendix C of the MPO provides that material classified as “transition waste” will be isolated in a waste rock stockpile area and covered with a minimum of six feet of “non-transition” material. SRK’s investigation determined that the transitional material to be excavated will be less than 4% of the total volume of waste produced from the operation. Therefore, it is considered unnecessary, and indeed contrary to the desire to minimize potential acid generation, to isolate and concentrate that material in one area. As such, NMCC will dispose of the transitional material along with the other 96% on un-oxidized materials in the new proposed stockpiles as it is generated. The majority of the transition material will be excavated early in the life of the operation. As such, it will be deposited in the waste rock stockpiles early and will be covered over by tons of un-oxidized material over time.

The greatest volume of material, by far, is expected to be classified as un-oxidized high sulfide and/or un-oxidized low sulfide waste. As confirmed by SRK’s waste rock characterization investigations, this material poses negligible short-term risk of ARD. This material will be deposited in the proposed new waste rock stockpiles in accordance with the designs described above in this DP application.

Quality assurance testing to verify that waste rock is being accurately classified will be performed in addition to the daily field sampling. Up to 10 archived blast-hole samples will be randomly selected and subjected to paste pH, saturated paste conductivity, and acid base accounting testing (total sulfur, sulfate sulfur, and NP testing). The testing will be performed by a third-party independent state approved laboratory. The samples will be classified with respect to ARD potential on the basis of NP/AP ratio. The samples will be located on the appropriate bench plan maps and the quality assurance test classifications will be compared to the operational waste classification designations. Classification discrepancies will signal a need to adjust and/or develop plans to improve classification techniques.

SRK has performed significant kinetic testing of waste materials since the time of submittal of the MPO. Humidity cell testing results were first reported to NMED in SRK’s May, 2013 report. Continued and more extensive humidity cell results were reported to NMED in February, 2014 in an SRK report titled “Humidity Cell Termination Report for the Copper Flat Project, New Mexico”. These documents are included in this Discharge Plan application by reference. As indicated before, these documents provide the basis for NMCC's mine waste characterization and handling plans. NMCC committed to a program of kinetic testing during the mining operation phase in Appendix C of the MPO. The details of such a program will are yet to be determined. However, NMCC anticipates that future kinetic testing will help confirm and further refine mine waste geochemical behavior predictions made.

At the end of the mine life the waste rock stockpiles will be reclaimed in accordance with the approved reclamation and closure plan. As determined by SRK the majority of the waste rock materials can be categorized as being inert from the standpoint of acid generation for about twenty years before the may begin to develop ARD potential if left uncovered. The anticipated life of the mine is 11 years. Therefore, covering the waste rock stockpiles with a minimum of 3 ft. of soil will completely mitigate the potential for acid generation and impacts to groundwater.

20.6.7.11.P HYDROLOGIC CONCEPTUAL MODEL

An application for a discharge permit for a new copper mine facility shall include a site hydrologic conceptual model providing:

20.6.7.11.P.(1) *a description of the hydrogeologic setting at the copper mine facility including ground water potentiometric maps, surface water drainages and flows, types of ground water and surface water recharge and its distribution, and hydrologic boundary conditions and divides;*

NMCC and its water resource consultant, John Shoemaker & Associates (JSAI) have conducted extensive hydrologic investigation of the Copper Flat site and the surrounding area in support of NMCC's permitting activities for the project. These activities include supplementing the NMCC Abatement Plan previously submitted to NMED and the BDR submitted to NMED and NM MMD, providing detailed analysis for the BLM Environmental Impact Statement (EIS) and supporting various requests for information by the NM Office of the State Engineer (OSE).

NMCC has previously submitted to the various agencies, including NMED, JSAI's document titled "Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico, August 2014" (JSAI 2014c). This document, and the subsequent review documentation provided by NMCC and JSAI, is therefore, incorporated into this DP application by reference. The following information is a synopsis of the volumes of information already provided in the groundwater model documentation in an effort to provide specifics as required by the Copper Rule.

Hydrogeologic Setting

The Copper Flat facility will be located in area that includes the following water-bearing formations within the Animas Uplift: crystalline bedrock (andesite and quartz monzonite) in the western part of the mine permit area, Santa Fe Group sedimentary deposits in the eastern part of the mine permit area, and alluvium of upper Grayback Arroyo overlying the crystalline bedrock and Santa Fe Group in the mine permit area. Figure 11K-9 Provided in subsection **20.6.7.K.(3)** presents the water-bearing formations at the facility, potentiometric surface contours and direction of groundwater flow, selected monitoring wells, and topography. Figure 11K-2a, provided in subsection **20.6.7.K.(2)** of the application, presents a geologic map of the facility and surrounding area, and transects of hydrogeologic cross-sections.

Groundwater flow is mainly from west to east in the mine permit area, with groundwater discharging from the crystalline bedrock as subsurface flow across the contact with the Santa Fe Group, and as evaporation from the open pit. The potentiometric surface contours shown in Figure 11K-9 in the vicinity of the existing open pit indicate that the open pit is a hydraulic sink. Cross-sections PA-PA' and PX-PX' presented in Figures 11K-2a, 11K-4 and 11K-5 show groundwater flow in the crystalline bedrock in the vicinity of the open pit.

Monitoring wells designated as "dry" in Figure 11K-9 are shallow wells installed to depths of less than 60 ft. in the Upper Santa Fe Group. Hydrogeologic cross-sections presented as Figures 11K-6a and 6b and 11K-7a and 7b depict the Upper Santa Fe Group in the mine permit area.

The crystalline bedrock at the facility is relatively impermeable and groundwater recharge from local precipitation to the crystalline bedrock is limited by low hydraulic conductivity. The groundwater system at the facility conducts little water, and the eastern mine permit boundary generally coincides with the East Animas Fault, shown in Figures 11K-2a and b and 11K-9, which acts as a barrier to groundwater flow.

A portion (approximately 230 acres) of the original Grayback Arroyo watershed within the mine permit area now drains to and includes the open pit. Grayback Arroyo is an ephemeral drainage in the mine permit area. However, groundwater levels are close to the surface, and there can be base flow discharge to Grayback Arroyo following wet periods. The cross-section A-A', presented in Figures 11K-2a and 11K-3a and 3b, show the alluvium of upper Grayback Arroyo overlying the crystalline bedrock and Santa Fe Group in the mine permit area.

20.6.7.11.P.(2) *the site hydrogeologic setting relative to both local and regional hydrology and geology including appropriate cross-sectional diagrams depicting major geologic formations and structures, aquifers, and ground water depths;*

The Copper Flat porphyry copper-molybdenum deposit is hosted by the Cretaceous quartz monzonite in the western part of the mine permit area (Fig. 11K-2a). The quartz monzonite intruded andesite of similar age. Faults to the north and south of the mine permit boundary juxtapose the andesite with older, Paleozoic sedimentary rocks. The eastern mine permit boundary generally coincides with the East Animas Fault, which defines the eastern edge of the Animas Uplift. The Santa Fe Group deposits in the mine permit area are located west of the East Animas Fault. As indicated in the section above, Figures 11K-3a and 3b through 11K-7a and 7b present hydrogeologic cross-sections showing geologic formations, water-bearing formations, and groundwater depths.

Most of the precipitation that recharges the groundwater system at the facility originates in the upper part of the watersheds to the west of the mine permit area. The main groundwater systems in the region are found in Santa Fe Group sedimentary deposits downstream of the mine permit area, with groundwater conveyed through more permeable Paleozoic sedimentary rocks located to the north and south of the facility. Runoff from Grayback Arroyo infiltrates the Santa Fe Group sedimentary deposits downstream of the mine permit area.

20.6.7.11.P.(3) *potential sources of water constituents including discharge types and their locations;*

Table 11P-1 presents a summary of the potential sources of water constituents, discharge types, and locations. Figures 11J-1 and 11J-3 show the locations of the various potential sources.

TABLE 11P-1
Potential Sources of Water Constituents, Discharge Types, and Locations

Potential Source	Discharge Type	Source Location
Tailings Storage Facility (TSF)	Tailings, process water and impacted storm water	Southeast area of site
TSF cyclone plant surge pond	Tailings	Southeast area north of TSF
Tailings slurry pipeline conveyance	Tailings	Process Area to TSF Permit Area Boundary
TSF water recycle system-under-drain collection pond	process water and impacted storm water	Eastern edge of site
TSF water recycle system pipeline conveyances	Process water and impacted storm water	TSF area to process water reservoir
Process water reservoir	Process water and impacted storm water	East-central area of plant site
Impacted storm water impoundment A	Impacted storm water and process water	Plant site Area
Impacted storm water impoundment B	Impacted storm water	Southwest corner of WS B
Impacted storm water impoundment C	Impacted storm water	Southeast corner of WS C
Waste Rock Stockpile (WRSP)-1	Impacted storm water	Western side of Watershed (WS) A
WRSP-2	Impacted storm water	Western portion of WS B
WRSP-3	Impacted storm water	Eastern portion of WS B
Open Pit	Impacted storm water, mine water	Western side of site
Material handling and processing-primary crushing	Process water	Central portion of site within WS A
Material handling and processing-crushing and grinding	Process water	Central portion of site within WS A
Material handling and processing-flotation and concentration	Process water	Central portion of site within WS A
Plant site sumps, tanks, pipelines and truck and equipment wash units	Process water	Central portion of site within WS A
Packaged water treatment plant	Influent sanitary waste, treated effluent water to the TSF	Central portion of site within WS A
Mobile Equipment Fuel Station	Petroleum Products-Diesel, Gasoline, Oil	Central portion of site within WS A

20.6.7.11.P.(4) *potential pathways for migration of water constituents to ground water and surface water;*

The potential pathways for migration of constituents to ground water from the sources identified in Table 11P-1 could be either from direct infiltration into the water bearing formations, release of fluids to the ground surface, or run-on and runoff of precipitation through and off of the site.

All of the impoundments, ponds, and reservoirs will be lined with synthetic liner materials as described in more detail above. Similarly, the conveyance ditches for the tailings to the TSF and convey process water from the TSF and other impoundments for reuse in the process will also be lined. As such, the potential for these structures being a pathway for migration is minimal and would only occur in the event of unanticipated events such as improper installation or operation, faulty materials, or exceedance of the design limits of each structure. All of the impoundments, ponds, and reservoirs and conveyance ditches are all designed to eliminate run-on and capture run-off to the maximum extent possible and contain storm events in accordance with the requirements of the Copper Rule. Therefore, the potential for these sources be sources of migration of constituents to ground water or surface water is further reduced.

As discussed in more detail above, the waste rock stockpiles will be constructed over bedrock that has a permeability of 10^{-6} cm/sec. As such, these areas will not require lining. While the waste rock stockpiles represent a potential source of migration on constituents to ground water, that potential is significantly mitigated by the natural barrier to migration that exists.

The waste rock stockpiles also represent sources of potential pathways to migration of constituents to surface water. However, as discussed in detail above, each of the waste rock stockpile areas will be constructed within a developed watershed designed to eliminate run-on, control and capture runoff in a lined impoundment. Surface water diversion ditches and swales will be constructed within the waste rock stockpile areas to divert water to the impoundments at a controlled rate while reducing the potential for ponding and infiltration.

The process area also represents a source of potential migration of constituents to ground water and surface water. With respect to ground water, the potential pathways to migration exist largely in the form of process water handling within the process, in particular at sumps that hold and transfer water from one part of the process to another. The sumps in the process area, including the crushing and grinding and flotation and concentrating areas, are designed and will be constructed using techniques such as water-stops and single monolithic pours to reduce the likelihood of release.

With respect to the potential for release to surface water, the process area will be constructed within a developed watershed that will be graded such that run-on will be eliminated and runoff will be controlled and captured in a lined impoundment. Water from all of the process facilities, material handling areas, parking areas, storage areas, chemical and fuel inventory areas and pipeline surface areas will be routed to the impoundment.

The open pit mine also represents a source of potential migration of constituents to ground water and surface water. With respect to ground water, the mine pit will receive nominal amounts of ground water inflow because the mine is a hydrologic sink, as discussed in more detail in section 20.6.7.11.K.(3), above. Because it is a sink migration will all be inward to the mine and not away from the mine.

With respect to surface water, the mine pit will be constructed in a manner within a watershed area such that all surface water within the watershed will run into the bottom of the mine pit. The water will be pumped out of the pit and used for dust control on the site and as process water whenever possible. The water will be applied in a manner that controls dust but minimizes the potential for infiltration and ponding.

20.5.7.11.P.(5) *any surface waters of the state that are gaining because of inflow of ground water that may be affected by water constituents discharged from the copper mine facility.*

Grayback Arroyo does not flow perennially in the mine permit area, but groundwater levels are close to the surface, and there can be occasional base-flow of ground water to Grayback Arroyo following wet periods. This occasional surface water has the potential to be affected by water constituents discharged from the facility.

20.6.7.11.Q WASTE MINIMIZATION PLAN

An application shall include a waste minimization plan to implement, as practicable, best management practices for minimization and recycling of process water and wastes generated at the copper mine facility to reduce the potential for impacts to ground water.

NMCC will implement best management practices with respect to the handling of water at the Copper Flat mine in a manner that maximizes the opportunity to recycle process water wherever possible and minimize the generation of wastes and reduce the potential impacts to ground water. The largest volume of waste generated at Copper Flat, by far, will be from the open pit mine and from the processing of ore. NMCC anticipates producing approximately 33 million tons of waste rock over the life of the mine to be stockpiled as described above. Processing of ore will result in the disposal of approximately 113 million tons of tailings at the Tailing Disposal facility.

The opportunity for waste minimization at the waste rock stockpiles is limited by the amount of non-ore material that must be removed from the mine in order to maximize the amount of ore mined and processed. Similarly, the opportunity for waste minimization of the tailings is limited by the amount of copper, molybdenum, and other produced that can be economically removed from the ore. However, there exists significant opportunity to minimize the amount of water that will be utilized at the facility by capturing and recycling maximal amounts of water from the stockpile areas and the tailings disposal facility.

As described in more detail above, NMCC has designed the Copper Flat facility to maximize water use and reuse. The tailings disposal facility is designed with a liner system and underdrain system that will remove water from the bottom of the tailings impoundment, capture it in a lined underdrain collection pond, and return it to the process facility for reuse. The tailing dam itself is also designed with a dam underdrain system that will capture water from the sand fraction of the tailings used to construct the dam, route it to the underdrain collection pond and then to the process for reuse. The outside face of the dam will also be designed so that water run-off from the dam will be captured, directed to the underdrain pond and then to the process for reuse.

In addition, the tailings facility will be equipped with a “water reclaim barge”, a system of pumps attached to a floating barge within the surface of the ponded water in the interior of the tailings disposal facility. Free water from the impoundment will be pumped from the impoundment to a process water reservoir located in the process area in order to maximally reuse water from the tailings facility in the process. The pipelines through which the water from the reclaim barge and the underdrain collection pond will be transported will lie in a conveyance trench that is also lined to prevent possible releases from impacting groundwater. Similarly, the run-off conveyance structures will be lined as they are routed to the pond.

The average water recovery rate from these systems is anticipated to be approximately 9200 gallons per minute which represents about 73% of the water needed for the process. This represents a huge reduction in the potential to impact ground water.

In addition to this significant amount of water recycle, as described in more detail above, the waste rock stockpiles will be designed such that water run-off from them will routed through lined trenches into lined impacted storm water impoundments. The captured water will be pumped to the process water reservoir for use in the process. Similarly, the process area will be contoured and graded to route run-off into a lined impacted storm water impoundment that will, in turn, be pumped to the process water reservoir for use in the process. All of these systems are designed to minimize the production of waste and recycle of water to reduce the potential for impacts to ground water.

Other waste management and minimization activities to reduce the potential for impacts to groundwater include the installation of a packaged wastewater treatment plant to capture and treat domestic wastes generated at the site. Treated water from the plant will be piped to the tailings storage facility to join the water in the impoundment and ultimately recycled along with the other water in the impoundment.

Mine operations will result in the generation of small amounts of non-hazardous and hazardous waste materials. With respect to non-hazardous wastes generated, including such items as waste paper, wood, scrap metal and other domestic trash, NMCC does not expect that these types of wastes pose potential impacts to ground water. However, NMCC will recycle such materials to the maximum extent possible or be disposed of in a permitted on-site Class III land fill.

With respect to hazardous and other chemical wastes, NMCC anticipates that the Copper Flat mine will be classified as a "small quantity generator" of such wastes. All such wastes will be managed and transported off-site by a licensed contractor for disposal in accordance with state and federal regulations.

20.6.7.11.R GROUNDWATER MONITORING WELLS

An application shall include the location of all existing and proposed ground water monitoring wells pursuant to 20.6.7.28 NMAC.

Appendix E, “Water Quality Monitoring Plan for the Copper Flat Mine Discharge Permit, Pursuant to 20.6.7.11.R and 20.6.7.28 NMAC”, November 2015, prepared by JSAI provides the information requested.

20.6.7.11.S FLOW METERING SYSTEM

An application shall describe a copper mine facility's flow metering system pursuant to Paragraph (5) of Subsection C of 20.6.7.17 NMAC, Subsection E of 20.6.7.18 NMAC, and Subsections C and E of 20.6.7.29 NMAC, including:

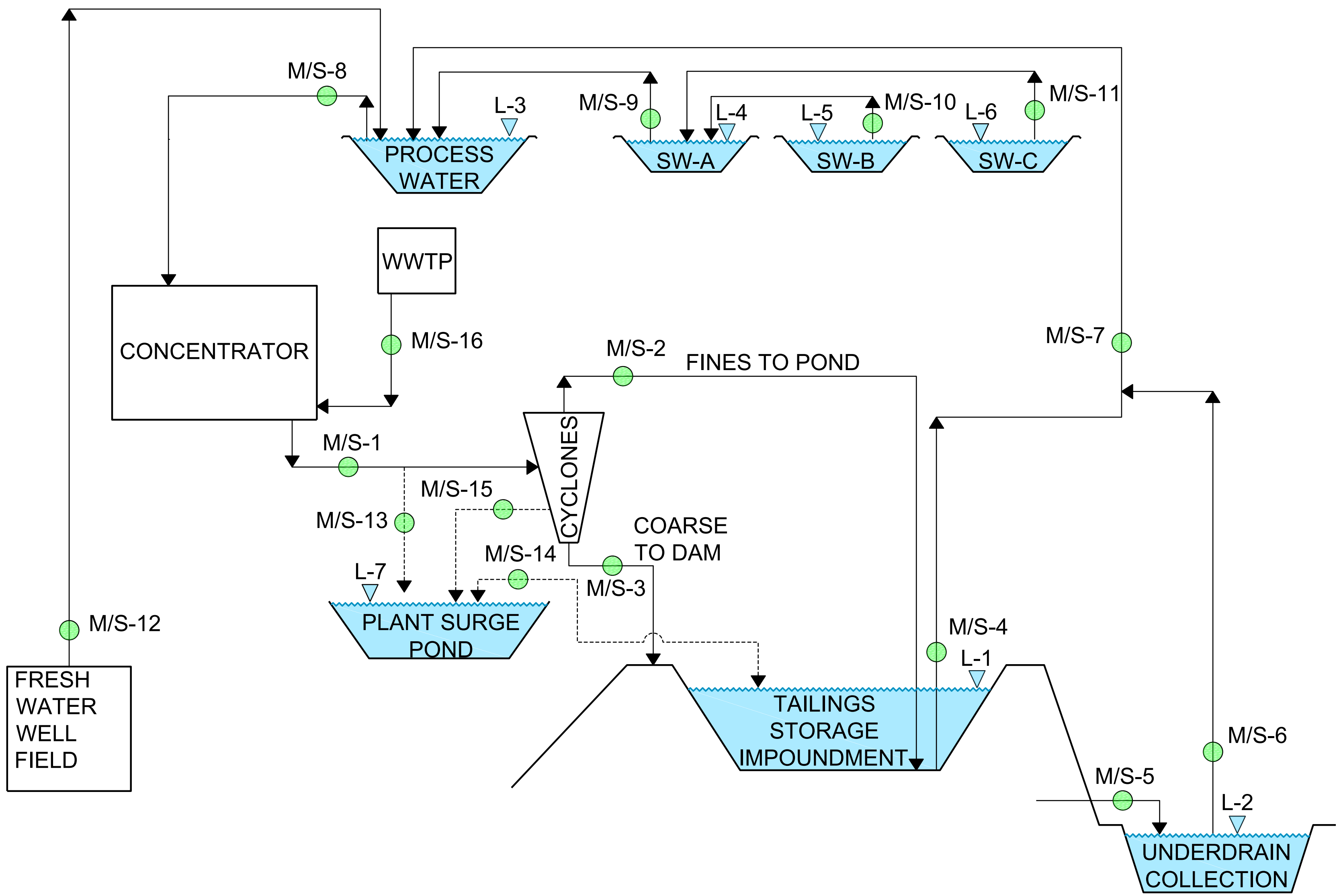
(1) *the method(s) (i.e., pumped versus gravity flow) of process water discharge and stormwater transfer and handling;*
(2) *the proposed flow measurement devices for each flow method and information about its type and capacity; and*
(3) *the location of all existing and proposed flow meters required pursuant to the copper mine rule or a discharge permit.*

The flow of process water at the Copper Flat facility is a closed loop. Process water and tailings will be handled using a combination of transfer methods, including gravity flow and mechanical pumps. Figure 11S-1 is a schematic diagram that shows the sources of water and the metering locations. The source of water to the process will be from the fresh water well field and the process water reservoir which will contain a combination of water pumped from the off-site fresh water well field, recycled water pumped from the tailings impoundment and captured storm water, pumped to the process water reservoir, when available.

As shown on Figure 11S-1, fresh intake water will be metered at the well-heads at the well field. Fresh water will be pumped to the process water reservoir, as needed. Process make-up water will be metered from the process water reservoir into the process facility. Maximal utilization of recycled water will minimize the need for freshwater to the extent possible.

Mine ore fed to the SAG mill will be ground and pulped for the concentration and flotation process. The flotation overflow materials will be directed to the remaining steps of the product concentration process. The underflow material from the flotation circuit will be discharged from the sump and transported as whole tailings materials via gravity flow to the cyclones at the tailings storage facility. Outflow from the flotation sump will be metered as shown on Figure 11S-1.

The cyclones will separate the sand or coarse fraction from the slimes or fines fraction of the tailings. The cyclone underflow or sand fraction will be pumped and metered to the tailings area where it will be used as the material to construct the dam. The cyclone overflow or slimes fraction will be pumped metered to the interior of the tailings storage facility behind the dam where it will be deposited and allowed to separate as free water which will form a pool of water, and sludge which will separate from the free water and line the inside of the impoundment.



●	FLOW METER AND SAMPLING
▽	WATER LEVEL
→	FLOW DIRECTION
WWTP	WASTE WATER TREATMENT PLANT
SW-A	STORMWATER POND A

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DESIGN	XXX
REVIEW	TS
APPROVED	XXX

PROJECT
NEW MEXICO COPPER CORPORATION
COPPER FLAT PROJECT
SIERRA COUNTY, NEW MEXICO

TITLE
FLOW METER AND SAMPLING LOCATIONS

PROJECT No.	PHASE	Rev.	FIGURE
153-1453	0006	0	11S-1

The free water will be pumped off of the surface of the impoundment using a floating pump barge located within tailings pond. The water will be pumped and metered at the barge outflow back to the process area, through a recycle water pipeline to the process water reservoir for reuse back in the process.

An underflow drain system will be installed beneath the dam and at the bottom of the lined tailings impoundment. The underflow drain system will collect water from the bottom of the impoundment and the bottom of the dam. This water will be directed to an underdrain collection pond constructed immediately down-gradient from the tailings impoundment. The underdrain collection pond will also be utilized as the impacted storm water impoundment for storm water runoff captured off of the downstream face of the dam. The water in the underdrain pond will be pumped and metered at the pond pump discharge into the underdrain recycle water pipeline which will join the recycle water pipeline and pumped to the process water reservoir where it, too, will be utilized as process make-up water. Recycle water from the tailings impoundment and underdrain water from the underdrain collection pond in the pipeline will also be metered upstream of union between the barge recycle water stream and the underdrain pond water stream as shown in Figure 11S-1.

NMCC will also construct three impacted storm water impoundments to capture runoff from the waste rock stockpile facilities and the mine processing area. The water collected therein will also be pumped metered at each impoundment pump outlet to the process water reservoir as shown in Figure 11S-1 a used as process make-up water.

As indicated in Subsection **20.6.7.11.J.(11)** of this application, NMCC will utilize a packaged wastewater treatment plant for domestic wastes. The treated water will be pumped metered to the flotation sump in the concentrator processing area and join the tailings slurry that is pumped to the TSF.

The processing facility will be designed with contingency mechanisms that will allow diversion of process water from the process area and the cyclone plant directly to the surge pond in the event of upset conditions. Transport of these flows would be accomplished using the pumps in the process. The contingency pipelines will also be metered as shown in Figure 11S-1.

20.6.7.11.T CLOSURE PLAN

An application shall include a closure plan for all portions of a copper mine facility pursuant to Subsection A of 20.6.7.18 NMAC, 20.6.7.33 NMAC, 20.6.7.34 NMAC and 20.6.7.35 NMAC unless closure of the copper mine facility is covered, or will be covered, by a separate closure discharge permit.

This section describes NMCC's Closure Plan per the requirements of the Copper Rule. This Closure Plan will be consistent with the reclamation requirements of NMCC's approved reclamation plan as described in the Mine Operations and Reclamation Plan (MORP) (NMCC 2012) submitted to the New Mexico Mining and Minerals Division and the MPO submitted to the BLM. The MORP is currently being revised to provide more detail regarding NMCC's proposed operations and reclamation plans. It will be resubmitted to the MMD in the near future. These documents are currently under review by the respective agencies and will be incorporated into this Discharge Plan upon approval.

20.6.7.18 General Operational Requirements

In accordance with subsection **20.2.6.7.18.A** of the Copper Rule, Planning for closure, NMCC has designed and will operate its mine facility units in a manner that considers implementation of its Closure Plan.

In accordance with subsection **20.6.7.18.A.(1)** NMCC has identified material on-site that is suitable for use to construct the necessary covers. The suitability of soils for reclamation purposes will relate to physical or chemical parameters. Steep slopes limit harvesting topdressing materials due to increased erosion potential and the difficulty in establishing vegetation to re-stabilize the slope, whereas chemical parameters can affect how well a soil provides nutrients to plants during the re-vegetation process. Soil texture, the relative amount of sand, silt, and clay, affects water available to plants (available water holding capacity, AWHC), rate of water movement into and through the soil, and seed-soil contact during germination. The relative size of soil particles can also affect the total porosity and water holding capability of the soil. Larger cobbles and stones can effectively decrease porosity and thus the water holding capability of the soil.

Chemical components of soils, such as the amount of calcium carbonate present, the pH, sodium, and salinity can impact various aspects of the soil. Calcium carbonate can affect the availability of nutrients, affect the hydraulic properties of the soil, and can limit root growth in high concentrations. The pH can affect the availability of nutrients. Salinity will compete with plant roots for water in the soil, and sodium, although it has little effect on plants, can act as a dispersing cation and degrade soil structure which can alter water movement into and through the soil.

Topdressing, for the purposes of reclamation, refers to soil and/or geological material used as growth media or soil cover that will sustain vegetation. The topdressing or cover materials required to support re-vegetation and reclamation efforts will be obtained from within the footprint of the new Tailings Storage Facility. The amount of growth media to be removed has been estimated on the basis of the soil survey included in the BDR and are discussed below. The soil cover system will be a store and release/evapotranspiration cover designed to provide erosion control, sustain vegetation and reduce infiltration of precipitation through the underlying materials.

NMCC determined that there is approximately 4 million cubic yards of material that may be salvageable across the project area, as shown in Table 11T-1, below. Suitable cover materials were determined as the product of the area of each map unit and the median depth of the suitable material (after mixing) in that unit. The median salvage depth for individual map units ranged from 1 to 14 ft. Salvage depths ranged from 0.5 to 1.5 ft. in the Plant Site and ore and waste rock stockpile area projected disturbances. Additional sources of alternative sources and types of topdressing materials for use as reclamation cover may be identified prior to construction activities and in consideration of performance objectives for the soil cover system.

TABLE 11T-1
Estimated Available Cover Materials

Facility	Surface Area (acres)	Estimated Available Cover Materials (yd^3)
Ancillary Disturbance	50	21,780
Open Pit Area	32	316,070
Plant Site	78	182,800
Tailings Storage Facility	533	2,543,594
Waste Rock Stockpiles	156	890,560
Total	**849**	**3,954,804**

Salvaged topdressing materials will be stored in the growth media stockpiles shown in Figure 11J-1. It will be stockpiled so as not to be disturbed by mining operations. The side-slopes of these stockpiles will be shaped with overall slopes of 3H:1V or shallower to minimize soil loss. To further minimize erosion and the establishment of undesirable weeds, the stockpiles will be seeded with an interim seed mix. Diversion ditches will be constructed up-gradient of the stockpiles, where necessary, to minimize run-on erosion. Additionally, berms will be constructed around the crest of stockpiles, as needed, to prevent out-slope erosion from overland flow. BMPs such as silt fences or staked straw bales will be used as necessary to capture sediment and reduce soil loss.

In accordance with subsection **20.6.7.18.A.(2) NMAC,** NMCC has considered the grading and drainage plans in its design of the facility, including its waste rock stockpiles and tailings impoundment (See subsection **20.6.711.J.(2)** above).

20.6.7.33 Closure Requirements for Copper Mine Facilities

In accordance with **20.6.7.33.A NMAC** all permanent storm water conveyances, ditches, channels and diversions have been designed to convey the peak flow generated by the 100-year return storm event. NMCC has used the same techniques in designing the water management aspects of the Closure Plan, including selection of the duration and maximum peak flow generated from the 100-year storm, as it has for the operation design components of the mine.

With regard to slope stability at closure, the tailings storage impoundment is regulated by the New Mexico OSE. As such, subsection **20.6.7.33.B** of the Copper Rule does not apply to the TSF. NMCC's proposed new waste rock stockpiles have been designed and will be constructed in a manner that promotes long-term stability at closure. There are no critical or non-critical structures as defined **in 20.6.7.7.B.(16) NMAC** at the Copper Flat project. At closure an analysis will be conducted of those structures or units to which **20.6.7.33.B** applies that will include an evaluation for static and seismic liquefaction.

Tailings Storage Facility

Surface re-grading of the tailings impoundment at closure will be performed to that will provide a stable configuration to minimize ponding and promote conveyance of surface water per subsection **20.6.7.33.C NMAC**. The final grade of the top surface of the re-contoured impoundment will be at least 0.5% after accounting for the magnitude and location of large-scale settlement of tailings.

Re-grading and contouring of the TSF to its post-mining configuration will begin at the end of the project life only after it has been determined that sufficient water has been removed from the tailings impoundment by the underdrain system. Because the Copper Flat TSF will be constructed with an engineered underdrain system, prior to conducting final grading activities NMCC will ensure that adequate drainage of the impoundment has occurred to ensure that large-scale settlement following grading is minimized. Consolidation drainage into the underdrain system is anticipated to continue at declining rates for an indefinite period following the cessation of tailings discharge operations. Underdrain water collected will be pumped from the underdrain collection pond and applied to the surface of the TSF using water sprays or other evaporation enhancement systems to facilitate evaporation. When underflow is reduced to an acceptably low rate, the underdrain pipes beneath the embankment will be sealed with grout and the underdrain collection pond will be decommissioned.

The embankment out-slopes of the TSF will be will be graded to establish erosion controls and control water surface drainage. The out-slope inter-bench slopes will be 3H:1V and the out-slope angle for the composite, including benches will be about 3.22H:1V. The maximum bench width will be 23 ft. and the maximum inter-bench slope length will be 100 ft. The top surface slope will be not less than 0.5 percent and the bench cross and bench longitudinal slopes will be 2 percent and 2 percent, respectively. Cross bench drainages will be trapezoidal and constructed to safely convey storm water off reclaimed slopes for a 100-year precipitation event that results in the peak discharge.

A 36-inch topdressing soil cover will be placed on the top surfaces of the tailings impoundment and embankment out-slopes unless NMCC can demonstrate a thinner cover will resist erosion, sustain vegetation and be equally protective of groundwater considering site-specific reclamation plans for the facility. The cover area will then be seeded. Riprap and other erosion control structures will be placed as necessary in the drainage channels.

Waste Rock Stockpiles

The waste rock stockpiles will be re-graded and reclaimed to blend into the surrounding topography to the extent practicable. Waste rock will be managed based on NMCC's operations material characterization program and predictive geochemical modeling. Concurrent reclamation to the extent practicable, materials management and surface water control measures will be used to maximize runoff, reduce infiltration, and reduce contact with the air, thus minimizing the potential for acid generation. The top surfaces of the waste rock stockpiles will be designed and constructed to a minimum final grade of 1%. The potential for ponding on the final surface will be reduced by careful contouring of the surface.

During operations the waste rock stockpiles will be constructed to facilitate re-grading during reclamation such that inter-bench slope faces will be 3H:1V or flatter and shaped to enhance run-off and prevent infiltration and ponding. Inter-bench slopes lengths will be no longer than 200 ft. The composite overall slope, which includes the inter-bench slopes and benches, will be 3H:1V or flatter.

The waste rock stockpiles will be reclaimed at the end of the life of the main by re-grading re-contoured, as necessary and a the 36-inch soil cover will be placed over the stockpiles, unless NMCC can demonstrate a thinner cover will be resist erosion, sustain vegetation and be equally protective of groundwater considering site-specific reclamation plans for the facility. The cover area will be seeded thereafter as soon as practicable.

The top surfaces of the stockpiles will be graded to promote positive drainage to storm water conveyance channels. These channels, in conjunction with perimeter berms, and hydraulic structures, will be designed to control erosion on the top surfaces and out-slopes and safely convey storm-water off of the stockpile areas. Cross bench drainages will be trapezoidal and constructed to safely convey storm-water off reclaimed slopes for a 100-year precipitation event that results in the peak discharge. Longitudinal slopes for these drainages will be 1 to 5 percent. Energy-dissipation structures will be constructed at channel outlets to reduce erosive velocities where necessary. Where possible, channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock, which will promote long-term integrity of the structures. The final designs will be adjusted for local conditions.

Temporary erosion control measures will be provided during the reclamation construction and early vegetation establishment periods. These control measures include mulch, straw bales, silt fences and minor corrective re-grading, as necessary.

Open Pit
The documents cited herein provide the detailed information required in subsection **20.6.7.33.D.(1) and (2) NMAC** that the open pit is currently, and is expected to remain a hydrologic sink capturing groundwater flowing from all directions during operations and post-closure (JSAI 2011, JSAI 2012, JSAI 2013, JSAI 2014, JSAI 2014b, JSAI 2014c, JSAI 2015). These documents have been previously submitted to the NMED and are incorporated into the Discharge Plan application by reference.

The water level elevation of the pit lake once mine dewatering and operations have ceased is anticipated to reach an average of 4900 ft. of the long-term. NMCC will conduct rapid filling of the mine pit with water provided from the off-site well field. This will provide a source of good quality water and provide a mechanism by which the mineralized rock walls of the pit will be more quickly submerged under water, thus limiting mineral oxidation. Rapid refill will bring the pit water to a steady-state water elevation in less than a year at a pumping rate of 3,000 gpm for about 7 months.

Stable pit walls will be left in place. Any unstable pit walls will be stabilized by blasting or using other safe methods to ensure stability of the walls. In areas that can be safely accessed, benches above the projected 4900 water level elevation will be graded, sufficient soil cover placed on the benches and seeded to promote vegetation and limit erosion. Roads will be ripped and water bars constructed to control surface water runoff. Disturbed areas around and adjacent to the pit will be graded, soil materials placed and seeded to promote vegetation. Access to the mine site will be limited with a locked gate access roads blocked as appropriate, with physical barriers to discourage trespass. The access ramp into the pit will be graded and other ramps constructed, as necessary to provide escape routes for wildlife. The pit area will and high walls will be barricaded with physical barriers and fences and posted in accordance with state and federal requirements.

Reclamation of disturbed areas in the open pit surface drainage areas surrounding the mine pit will be performed to minimize infiltration and promote vegetative growth. This will create a store and release cover, minimize infiltration of storm water around the pit perimeter, and limit water/rock interaction in the upper pit walls.

The open pit haul road will be reclaimed within the pit will be accomplished by removing loose materials, installing a lined storm water conveyance system into the pit, placing soil as needed to promote vegetation, and seeding. Vehicle access will be limited as much as possible during the rapid fill process and ultimately restricted after rapid fill has been completed through the construction of berms and other such physical barriers.

Surface Water Management
Section **20.6.7.11.J**, above, contains a detailed discussion of the surface water control systems that NMCC has designed and will construct at the Copper Flat mine facility to manage surface water. All of those same structures and best management practices will

be maintained during the reclamation and closure phase of the project to ensure compliance with subsection **20.6.7.33.E NMAC**.

In brief, there are five surface watershed areas within the mine facility that will be managed; the open pit area, the two waste rock stockpile areas outside of the open pit surface drainage area, the plant site and the tailings storage facility area. In addition, the entire surface area of the mine facility footprint is managed through surface water diversion structures that were installed by previous operations at the site, i.e., Quintana. These existing diversion channels will remain in place during and after reclamation and closure to ensure the long-term integrity of the reclaimed mine site.

Each of the surface water management areas or watersheds noted above has an engineered water retention structure associated with it to provide capture of run-off. During operation of the mine, surface water run-off from within the open pit surface drainage area watershed area will be captured in the mine pit, except that surface water from proposed new WRSP-1, also in the open pit drainage area, will be captured in a storm water impoundment. Surface water run-off from the plant site area and the two waste rock stockpile watershed areas outside of the open pit surface drainage area will be captured in storm water impoundments. Water that falls directly onto the tailings storage impoundment will be captured within the impoundment. Run-off from out-slopes of the tailings dam will be captured in the underdrain collection pond.

All of these surface water management structures will remain in place and functioning during the reclamation and closure phase of the project until they are no longer needed. Each of the impacted storm water impoundments will be decommissioned, re-contoured and re-graded so as to no longer hold water as each of the coincident areas are reclaimed. The open pit surface drainage area watershed will be re-graded to ensure that run-off water is routed to the pit. Impacted Storm Water Impoundment B will be removed and the area regarded to ensure that surface drainage from developed watershed B, which is naturally part of the open surface drainage area, will report to the mine pit after reclamation. The underdrain collection pond will be re-contoured, regarded and reclaimed only after it has been determined that it is no longer needed and the tailings disposal impoundment and associated facilities can be reclaimed and closed.

Cover System

NMCC has identified the waste rock stockpiles and the tailings storage impoundment as the units at the Copper Flat mine that will require the cover system required by subsection **20.6.7.33.F NMAC**. As indicated above, the reclaimed tailings storage impoundment and the waste rock stockpiles will be covered with 36 inches of soil unless NMCC can demonstrate a thinner cover will resist erosion, sustain vegetation and be equally protective of groundwater considering site-specific reclamation plans for the facility. The source of this soil will be the stockpiled top-dressing or growth media material inventoried and stored during construction of the mine facilities. The cover system will be a store and release/evapotranspiration cover designed to provide erosion control, sustain vegetation and reduce infiltration of storm water through the underlying materials. Other areas of the site will also receive a cover of growth media materials varying in thickness, but on less than 6 inches, to promote vegetation growth and minimize the potential for erosion as part of the site reclamation process.

In order to properly place the cover materials it will first be necessary to re-grade and re-contour the areas that will receive the cover. Grading will be performed in order to achieve positive drainage, optimize constructability, provide efficient conveyance of water, limit slope length and gradient and minimize soil erosion. An aesthetic component of grading is also to blend disturbed areas, to the extent possible, with the natural topography.

Prior to cover placement, top surfaces will require minor grading to fill rills, enable the construction of surface water control features and ensure that the final grade is between 1 and 5 percent. More extensive grading will be required on the slopes to achieve the desired slope configuration, smooth the bed materials and accommodate surface water control features. Areas that have become compaction will be ripped or disked to a depth sufficient to ensure good contact between the soil cover materials and sub-soils.

Once facilities are re-graded to an acceptable configuration, cover materials will be hauled from growth media stockpiles and placed on the top surface and slopes using a variety of equipment including scrapers or haul trucks. Bulldozers and motor graders will be used to facilitate the cover placement. Cover material will be left in a somewhat "roughened" condition in order to provide small micro sites where seed and moisture can collect thereby lending itself to better re-vegetation establishment. Table 11T-2 provides an estimate of cover materials required for reclamation.

TABLE 11T-2
Estimated Reclamation Cover Requirements

Disturbance Type	Surface Area (acres)	Cover thickness (ft)	Reclamation Cover Requirement (yd^3)
Ancillary areas	166	0.5	133,907
Growth Media Stockpile	14	0.5	11,293
Haul Roads	54	0.5	43,560
Pit Lake Perimeter & Ramp	12	3.0	58,080
Plant Site	120	0.5	96,800
Tailing Storage Facility	530	3.0	2,565,200
Waste Rock Disposal Facility	200	3.0	887,333
Total	**1,096**		**3,796,173**

The demand for process water will lessen as production slows. As such, the quantity of process water in storage will far exceed the process water in circulation at the end of production. The water in circulation at the end of production will be essentially that water used to flush out and clean the process units. That water will be disposed of in the tailings impoundment. However, until all of the water has been placed into the tailings facility, the operational water management units, i.e., the impacted storm water impoundments (one at the plant site and two at the waste rock stockpile areas), the process water reservoir, the surge pond, and the underdrain collection pond will remain functional, providing water storage capacity. At the end of production each of these units will retain differing amounts of process water in inventory.

The impacted storm water impoundments will likely have only limited amounts of water inventoried as they are designed to hold water for less than thirty days. Any water inventoried in these ponds will be pumped to the process water reservoir or directly to the tailings pond during their use in the reclamation phase of the project. Each impoundment will eventually be decommissioned as the area they service is reclaimed.

At the end of production the process water reservoir inventory will be limited as its purpose will no longer be to retain water recycled from the tailings impoundment for use in the process. All water in inventory in this impoundment will be quickly utilized in flushing operations at the plant. Fresh water from the well field will quickly replace recycle water as the source of water used for flushing and cleaning the processing plant. All of that water will be routed to tailings impoundment.

The surge pond, located near the cycle plant at the tailing storage facility, under normal conditions remains empty and only retains process water as a result of upset conditions during operations. In addition, the surge pond is designed such that it retains any water that it receives for less than thirty days before being transferred to the tailings impoundment. At the end of production the surge pond will likely not have any inventory of process water. To the extent it does, that water will be evacuated into the tailings impoundment.

The underdrain collection pond is an integral part of the process water recycling system as described earlier herein in Section **20.6.7.11.J**. It is designed to capture water that is drained from the underdrain system installed in the tailings impoundment and the dam as well as storm water run-off from the exterior face of the dam. At the end of production, the underdrain collection pond will contain process water and will continue to do so during all phases of reclamation and closure as it will continue to be an operating component of the closure water management system discussed below.

NMCC does not propose any significant modifications to any of the water management system constructed during operations in order to create a more efficient process water reduction. Each unit will simply continue to function as designed and constructed and will be decommissioned when it is no longer needed as part of the reclamation and closure phase.

Closure Water Management and Water Treatment Plan

The Closure water management and treatment plan as required in subsection **20.6.7.33.H NMAC** for the Copper Flat mine has three fundamental aspects to it that make it somewhat unique for this site and for the State of New Mexico copper mining projects. First with respect to the water in the open pit, NMCC has demonstrated that the open pit is a hydrologic sink (see JSAI, 2011; JSAI, 2014).

Second, closure water management as it pertains to the waste rock stockpiles and the plant site area involves the continued use of the impacted storm water impoundments to capture run-off from those areas while reclamation actions are being undertaken and ensuring that water from those impoundments is removed from them in less than thirty days. The water may be utilized for dust suppression or simply may be transferred into the tailings storage impoundment.

Third, closure water management of the water inventoried in the tailing impoundment actually begins at design and approval of NMCC's proposed water recycling and underdrain system. A fundamental aspect of the water management plan for closure is design and implementation of an efficient water recycling program at the tailings storage impoundment during operations.

NMCC has designed such a system for the Copper Flat tailing storage facility as described in detail in section **2.6.7.11.J** of this application and in Appendix A. The water recycling barge and underdrain system proposed for the Copper Flat tailings storage facility maximizes use of water during operations. Over 70% of the process water utilized in the mill operations will be provided by recycled water produced from the tailings facility. Efficient removal of water from the tailings during operations equates to effective management of water at closure such that only relative small amounts of water will have to be removed from the tailings impoundment over a relatively short period of time before the tailings impoundment can be permanently closed.

At the end of production some water will remain in the tailings impoundment. Closure of the tailings facility will require that the water be sufficiently removed so that the impoundment can be re-contoured and graded to allow placement of the soil cover. At end of production the tailing impoundment will enter a "drying out" or "draining" period. During that time, water within the impoundment will continue to drain through the underdrain collection gallery into to the underdrain collection pond. The water collected will be pumped back up to the tailings impoundment where it will be selectively applied on the surface of the impoundment in a manner to enhance evaporation, such as through the use of spray nozzles the will create a fine water mist, significantly increasing the rate of evaporation. The dried areas of the impoundment will begin to be re-contoured and regarded as conditions allow. It is anticipated that it will take several seasons of draining, pumping, and evaporation to complete the re-contouring and re-grading process, currently estimated at 3 to 5 years. Thereafter, the soil cover will placed over the tailings impoundment and closed.

Impoundments
All of the impoundments at the Copper Flat mine will be closed in accordance with the requirements of subsection **20.6.7.33.I NMAC**. The three impacted storm water impoundments and the surge pond will all have a 60 mil HPDE liner, or equivalent. All of these impoundments will hold water for less than thirty days. Captured water will be transferred to the tailings storage impoundment for disposal. As such, the likelihood of leaks occurring at those locations is small. Sediments contained in the impoundments will also be disposed of in the tailings impoundment. The liners will be removed and disposed of in the tailings impoundment. The impoundments berms will be pushed into the impoundment using earth-moving equipment contoured and graded to create positive drainage. A 36-inch soil cover will be placed over them, depending on their location, and subsequently seeded.

The process water reservoir and the underdrain collection pond will be constructed with a double liner and leak collection system. Upon completion of the closure and reclamation activities at their respective locations any water remaining in these impoundments will be transferred to the tailings storage impoundment for disposal. Sediments will, similarly, be removed and transferred to the tailings storage impoundment for disposal. The liners will also be removed and disposed of in the tailings disposal facility.

Because these two impoundments will have been equipped with a leak collection system, it will be possible to determine based on the operating records of the facility to determine whether or not any leaks occurred during operation. If it is determined that a leak occurred during operations that was not remediated during operations, the materials below the liner will be characterized to determine if remediation actions are required. If so, those actions will be initiated in consultation with NMED to implement the appropriate actions.

The process water impoundment is located in an area of the plant site where NMCC anticipates placing a minimum 6-inch soil cover. The underdrain collection pond is part of the tailings storage facility the will receive a 36-inch soil cover.

Pipelines, Tanks and Sumps
As discussed above, at the end of production the entire processing facility, including the attendant pipelines, tanks and sumps will be flushed with clean water and disposed of in the tailings storage facility in accordance with subsection **20.6.7.33.J NMAC**. Pipelines will be either be removed and disposed of or cleaned and buried in place, as appropriate. Sumps will either be removed for disposal or cleaned and broken up and buried in place, as appropriate. The Pipeline, sump and tank areas will be inspected at the time of decommissioning for evidence of spills not detected and remediated during operations. Corrective actions pursuant to **20.6.2.1203 NMAC** will be pursued, as appropriate. NMCC has no plans to use bedding material that has the potential to generate acid. Therefore, no such removal actions will be required at closure.

Crushing, Milling, Concentrating and Smelting

At closure, all surface facilities, including crushing, milling, and concentrating areas, equipment, and buildings will be removed from the area in a manner in conformance with subsection **20.6.7.33.K NMAC**. All concrete foundations footings and slabs will be broken up and buried in place or alternatively, excavated and disposed of in the tailing storage impoundment or at some other agency authorized location. The crushing, milling and concentrating areas will be characterized to determine if there are any potential water contaminants caused by the processing Copper Flats processing activities that could result in an exceedance of applicable standard in groundwater. All fuel tanks and reagent storage facilities and their contents will be removed from the site and disposed of in accordance with applicable federal and state laws. The plant site area will then be graded and contoured for surface drainage control and covered with a minimum of 6 inches of soil cover to conform to the surrounding topography to the extent practicable and seeded.

Closure Monitoring and Maintenance

During closure NMCC will continue to conduct its operational monitoring program as required by subsection **20.6.7.33.L NMAC**. The monitoring plan will be modified, as appropriate, to reflect the need to monitor conditions associated with closure. All such modifications will be made only after obtaining approval from NMED.

Exceptions to Design Criteria

NMCC will seek approval from the NMED for any modifications it may propose to make to the closure design criteria. NMCC acknowledges the role and jurisdiction of the New Mexico State Engineer with respect to jurisdictional impoundments.

20.6.7.11.U FINANCIAL ASSURANCE

An application shall include a proposal for financial assurance for those portions of a copper mine facility to be reclaimed in accordance with a closure plan submitted pursuant to Subsection A of 20.6.7.18 NMAC, 20.6.7.33 NMAC, 20.6.7.34 NMAC and 20.6.7.35 NMAC.

Financial assurance will required by the BLM and State of New Mexico to guarantee the completion of Project reclamation. Following regulatory review and approval of the NM MMD Mine Operations Plan (MORP), the Discharge Plan (DP) and the Mine Plan of Operations (MPO) and the reclamation techniques presented therein, NMCC will prepare a detailed estimate of cost to fully reclaim the operations as required by the **19.10.12 NMAC and the CFR § 3809.552**.

The reclamation plan will be consistent with the requirements of **Subsection A of 20.6.7.18 NMAC, 20.6.7.33 NMAC, 20.6.7.34 NMAC and 20.6.7.35 NMAC** and will be administered by the New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD) and the New Mexico Environment Department, Mining Environmental Compliance Section.

The estimated costs are based on projected third-party costs to reclaim the site assuming that all reclamation will occur following operations without the benefit of contemporaneous reclamation. Prior to commencement of operations, financial assurance in the amount of the estimated costs to reclaim the disturbance which would occur during the first five years of operations will be posted with the MMD.

The Nevada Standardized Reclamation Cost Estimator (SRCE) software that was developed in a cooperative effort between the Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation, the U.S. Department of Interior, Bureau of Land Management (BLM) and the Nevada Mining Association. This approach facilitates accuracy, completeness and consistency in the calculation of costs for mine site reclamation.

The estimate utilized current, i.e., 2013, feasibility economic model labor rates and equipment rates except where specific equipment were required, in which case rental rates were utilized and mobilization/demobilization costs were included.

Studies completed to date identified both the need for longer-term, post-closure water management for the tailings impoundment as well as the potential to develop pit lake chemistry that may not meet surface water limitations for wildlife. The cost estimate, therefore, incorporated costs for management of long-term tailings solution management, including an active and passive phase of management. In addition, estimated costs for pit water treatment have been included to account for closure liabilities that will exist until regulatory approval of the pit lake water at closure can be obtained and/or mitigation strategies are developed and closure alternatives can be identified. To allow closure cost calculation at this stage of the project, 30 years of active pit water management to arrive at a regulatory acceptable solution was assumed. The 30-year timeframe for post-closure pit lake management was selected to represent a realistic time frame for demonstration that acceptable pit-lake water quality (i.e., that satisfies NMED post-closure chemistry requirements), could be passively achieved (i.e., after cessation of treatment). This would be achieved by evaluating periods of treatment followed by periods of non-treatment of the water column.

The un-inflated and un-discounted direct closure costs, excluding the contingency costs for the Copper Flat Project range from $30.3 to $42.5 million, including all physical reclamation activities, pit water and tailings solution management. With indirect costs for engineering and permitting, project and construction management, procurement and insurances, the estimated total reclamation and closure cost is anticipated to be as much as $44.5 million. This amount is assumed to be spent over a 4-year period.

20.6.7.11.V VARIANCES

An application shall identify any issued or proposed variances for the copper mine facility pursuant to 20.6.2.1210 NMAC and the sections of the copper mine rule affected by the variance(s).

NMCC does not propose to request variances pursuant to **20.6.1210 NMAC** for any of activities proposed at the Copper Flat project.

20.6.7.11.W METEOROLOGICAL DATA

An application shall include a plan to measure meteorological data at sites throughout the copper mine facility including precipitation, temperature, relative humidity, solar radiation, wind speed and wind direction.

NMCC established its on-site meteorological monitoring station and installed a 10-meter meteorological tower in August 2, 2010, with full data collection beginning September 1, 2010. NMCC submitted a Sampling and Analysis Plan (SAP) for the proposed Copper Flat Mine to the New Mexico Mining and Minerals Division (MMD) on September 3, 2010 (Intera, September 2010). The SAP was prepared to develop the BDR required by the MMD as part of the permitting process for the proposed mine. The SAP contained a description of the meteorological monitoring station installed by NMCC and outlined the proposed monitoring activities. The MMD approved NMCC's SAP on January 11, 2011.

Subsequently, NMCC submitted the BDR to the MMD meteorological monitoring results including precipitation, temperature, relative humidity, solar radiation, wind speed and wind direction as required by this subsection. The SAP and BDR submitted by NMCC are incorporated into this Discharge Permit application by reference.

Table 11W-1 presents the meteorological data collected and instrumentation used. The location of the meteorological monitoring station is shown on Figure 11W-1. Its' location was selected prior to development of the many of the subsequent site development plans. As such, NMCC anticipates that the tower may be moved in the future as its current location may conflict with the constructed site facilities.

TABLE 11W-1
Meteorological Data Collected

Parameter	Tower Level (meters above ground surface)			Equipment Manufacturer and Model
	0	2	10	
Horizontal Wind Direction			X	Climatronics F460
Horizontal Wind Speed			X	Climatronics F460
Ambient Temperature		X	X	Climatronics 100093 Motor Aspirated
Temperature Lapse (2-10 m)		X	X	Climatronics 100093 Motor Aspirated
Pan Evaporation	X			NovaLynx
Relative Humidity		X		Climatronics 100098 Motor Aspirated
Net Radiation		X		Kipp and Zonen
Precipitation	X			Climatronix Tipping Bucket
Barometric Pressure		X		Setra

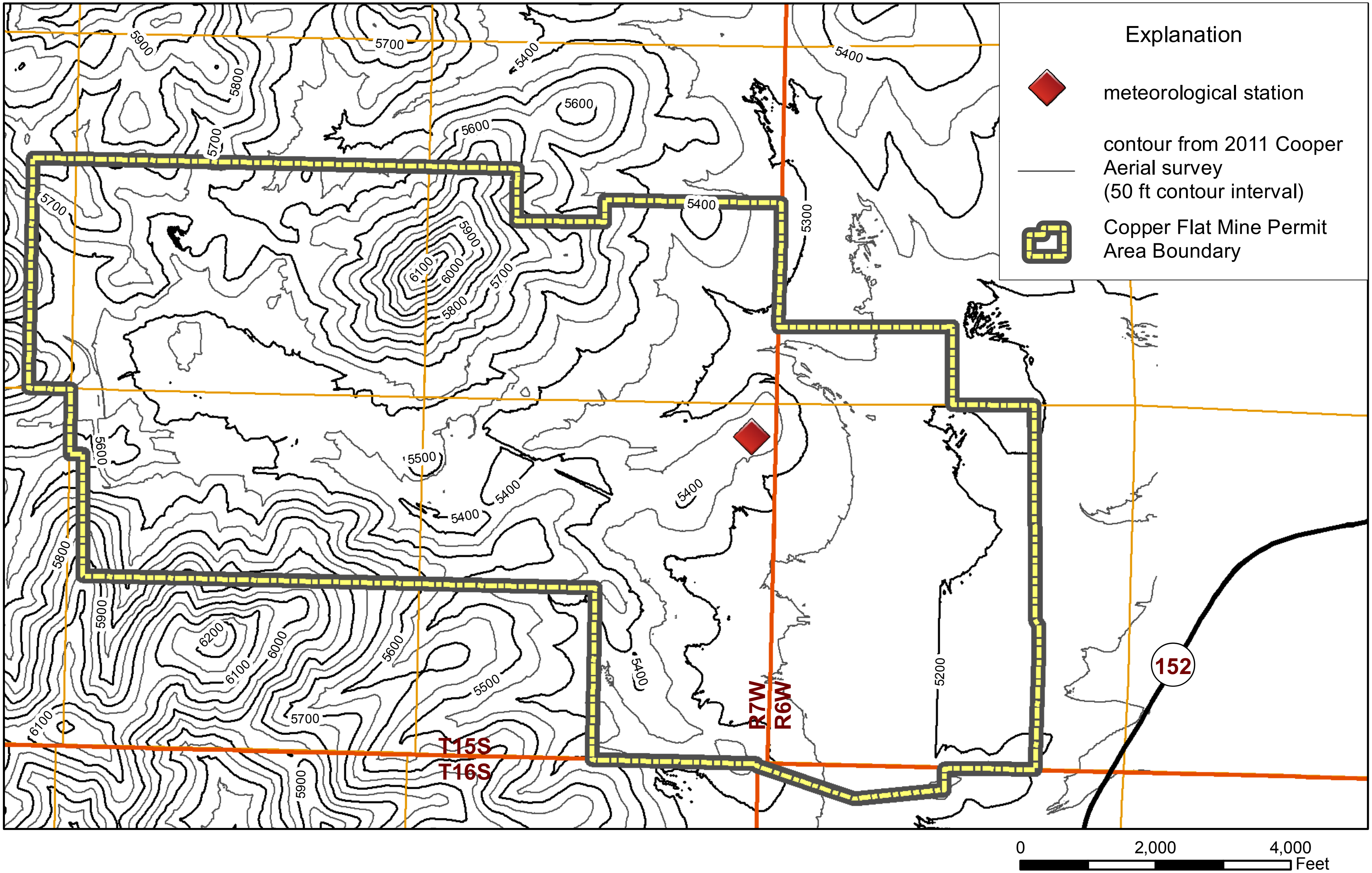

Figure 11W-1. Copper Flat Meteorological Station Location.

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The meteorological monitoring program operated for one year to collect baseline climatological data representative of the Site. The meteorological data provided input to characterize the climatological factors listed in Table 11W-1 on a quarterly and annual basis. NMCC has continued to operate the meteorological station for some time beyond the one-year BDR collection period for the purpose of supplementing the long-term record. NMCC will reinstate operation of the station as part of its operational monitoring program for the facility.

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Appendix A

Feasibility Level Design, 30,000 TPD Tailings Storage Facility
And
Tailings Distribution and Water Reclaim Systems

Copper Flat Project

Sierra County, New Mexico

Golder Associates Inc.,

November, 2015

Appendix A is contained in a separate volume binder as it is too voluminous to be included herein.

Appendix B

Impoundment Design Report

M3 Engineering & Technology Corp.

November, 2015

Appendix C

Copper Flat

Process Facility Containment Report

M3 Engineering & Technology Corporation

December, 2015

Appendix D

Copper Flat

Site Diversion Analysis

M3 Engineering & Technology Corporation

December, 2015

Appendix D is contained in a separate volume binder as it is too voluminous to be included herein.

Appendix E

Water Quality Monitoring Plan
For the
Copper Flat Mine Discharge Permit
Pursuant to 20.6.7.11.R and 20.6.7.28

John Shomaker Associates, Inc.

November, 2015