phelps dodge Tyrone Inc. P. O. Drawer 571, Tyrone, New Mexico 88065 • (505) 538-5331

December 9, 2004

Via Certified Mail #70033110000605602053
Return Receipt Requested

Mr. Keith Ehlert
New Mexico Environment Department
Mining Environmental Compliance Section
P. O. Box 26110
Santa Fe, New Mexico 87502

Dear Mr. Ehlert:

Re: DP-27 Settlement Agreement, Condition 19, Elimination of Discharge to Tailing Dams, Sanitary Effluent to No. 2 Tailing Dam Report.

As required under the New Mexico Environment Department (NMED) DP-27 Settlement Agreement, Condition 18, Phelps Dodge Tyrone, Inc. (Tyrone), submitted a work plan for "Discharge Elimination for Sanitary Effluent to No. 2 Tailing Dam." This original work plan was submitted to the NMED on January 14, 2004. Comments to the work plan were received by Tyrone from the NMED on June 2, 2004. Tyrone responded to those comments on July 2, 2004.

As required under the DP-27 Settlement Agreement, Condition 19, Tyrone hereby submits the attached evaluation report pertaining to "Discharge Elimination for Sanitary Effluent to No. 2 Tailing Dam."

If you need further information, please contact Mr. Chuck Thompson at (505) 538-7181

Very truly yours,

Thomas D. Shelley
FOR

E. L. (Ned) Hall, Manager
Environment, Land & Water
New Mexico Operations

ELH:ct
Attachment(s)
20041209-100

c: David Ohori, MMD
GRIP
CEGEP

ANALYSIS FOR DISCHARGE ELIMINATION OF SANITARY EFFLUENT TO TAILING DAM 2

DP-27 Settlement Agreement, Paragraph 18

Prepared by:
Phelps Dodge Tyrone, Inc.
Tyrone, New Mexico

December 9, 2004

Phelps Dodge Tyrone, Inc (Tyrone) is submitting this document in partial fulfillment of the requirements of Paragraph 18 (Elimination of Discharges to Tailing Impoundments) of the Settlement Agreement and Stipulated Final Order dated October 11, 2003 for Discharge Permit 27 (DP-27) for the Tyrone Mine tailing area. Specifically, this document addresses item number 4 of Paragraph 18 of the Final Order, which relates to the discharge of sanitary effluent to the No. 2 Tailing Dam. The objective of this document is to present Tyrone's preferred alternative for addressing the sanitary effluent discharge to the No. 2 Tailing Dam issue. The study reported herein was conducted in accordance with the *Discharge Elimination Work Plan for Sanitary Effluent to No. 2 Tailing Dam Tyrone Mine Facility* submitted by Tyrone (Tyrone, January 14, 2004) and subsequent correspondence with the New Mexico Environment Department (NMED).

ALTERNATIVES ANALYSIS

Tyrone identified four alternatives for eliminating the discharge of sanitary effluent to the No. 2 Tailing Dam including the following:

- Divert overflow to Keener Pond
- Use the effluent for agricultural irrigation
- Evaporate all of the effluent
- Divert overflow to SPCC Pond

The following paragraphs describe the elimination of the discharge of sanitary effluent alternatives proposed by Tyrone in the original work plan in more detail and the preferred alternative.

FEASIBILITY ANALYSIS

Tyrone compared the feasibility of the discharge of sanitary effluent to the No. 2 Tailing Dam with respect to three major criteria. These criteria were as follows:

- Environmental considerations
- Permitting requirements
- Cost of implementation.

Alternative 1, Divert overflow to Keener Pond

This alternative was revised to reflect the reclamation activities at the Tyrone Concentrator. The initial concept envisioned diverting the sanitary effluent to the Keener Pond. As part of the Tyrone Concentrator reclamation project, the Keener Pond is proposed as a sediment basin for capture of storm water flow from the reclaimed areas of the Tyrone Concentrator. Therefore, this alternative was eliminated from consideration.

Alternative 2, Use Effluent for Agricultural Irrigation

The effluent from the wastewater oxidation ponds could be pumped to a nearby site and used to irrigate a field. In a comment letter dated May 27, 2004 from Mr. Keith Ehlert (NMED) to Mr. Joseph A. Brunner, (Tyrone), Mr. Ehlert states in his comment 2 "If PDTI proposes to divert the overflow to Keener Pond, PDTI must submit a plan to NMED for approval for lining Keener Pond". In comment 3 Mr. Ehlert states "Any new oxidation ponds must be lined." With these comments it is Tyrone's presumption that no effluent from the oxidation pond is to come in contact with the ground surface in order to prevent a potential to contaminate ground water. At this time the use of overflow effluent for agricultural irrigation is a non-viable solution. Therefore, this alternative was eliminated from consideration.

Alternative 3, Evaporate all of the Effluent

This alternative would involve the construction of a third oxidation pond to increase the evaporative capacity of the existing system (see Figure 4). After further analysis and using the design criteria of 4.2 gpm, a pond with a surface area of 64,862 square feet would have to be constructed to allow for proper evaporation (see table 1). The surface area required to construct a third oxidation pond is far greater than the surface area available next to the existing oxidation ponds (see Figure 4). This new lined pond would also require an overflow sump and pumping system to handle any upset condition. The installation of this system also presents an additional facility that will require remediation for compliance with MMD closure/close out requirements. Therefore, this alternative was eliminated from consideration.

Effluent Water Balance after Adding Third Pond
Table 1

Annual Evaporation	Annual Volume (gal)	Remaining Effluent (gal)			
Effluent at 1 gpm	525,600	(93,465)			
Effluent at 4 gpm	2,102,400	(1,670,265)			
Third Oxidation Pond - Equal to Existing					
New Pond Dimensions	New Pond area (sqft)	Annual Evaporation (inches)	Evaporation (ft)	Annual Volume Evaporation (cuft)	Annual Volume Evaporation (gal)
116' x 116'	13,332	52.00	4.33	57,772	432,135
Required Pond Size					
New Pond Dimensions	volume (gal)	volume (cuft)	Evaporation (ft)	Area (sqft)	
255' x 255'	2,102,400	281,070	4.33	64,862	

Alternative 4, Divert overflow to SPCC Pond

The SPCC pond was selected as an alternative discharge location for the sanitary effluent. This option is the Preferred Option due to minimal cost and ease of implementation. This option would consist of pumping system upgrades and a new pipeline from the existing overflow sump at the oxidation ponds to SPCC Pond (see Figure 3, Revised). SPCC pond is a 80 mil HDPE lined pond. The SPCC pond was lined in July, 2004 in accordance with requirements by NMED (Date, letter-?).

The amount of sanitary effluent that will be managed by this process change will be an average of 4.2 gallons per minute. This sanitary effluent will be pumped into SPCC Pond and managed with the solutions that currently report there. These solutions will be pumped onto the Number 3 Leach Stockpile and allowed to filter down through it as a part of the process solution flows of this stockpile.

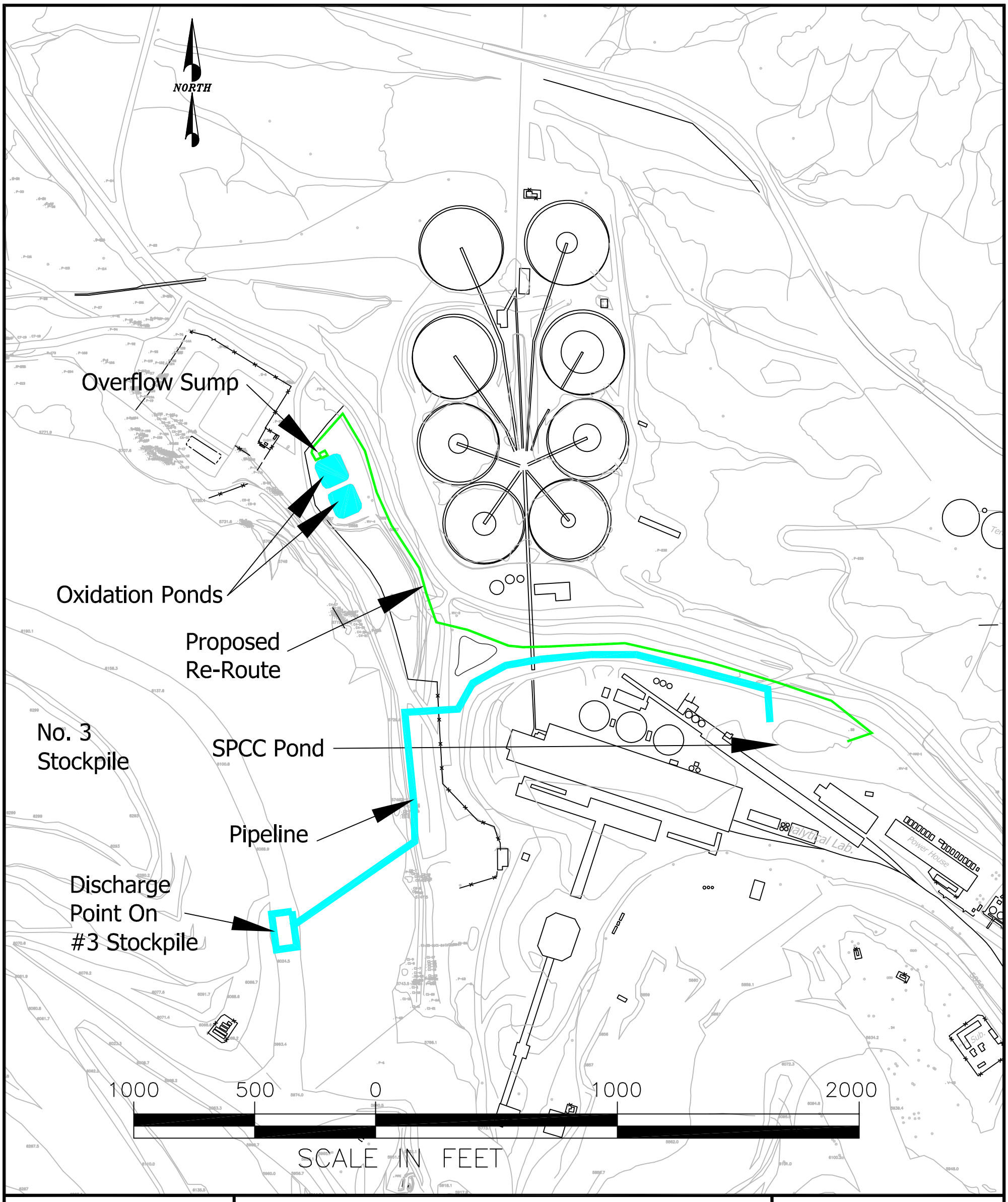
CONCLUSION

Tyrone has evaluated four alternatives for the management of discharge of the sanitary effluent at the Tyrone mine. This analysis was based on three major criteria, 1) environmental considerations, 2) permitting requirements, 3) cost of implementation.

Tyrone rejected alternatives 1, 2, and 3 primarily because of permitting and cost factors. Thus, the preferred alternative for elimination of discharge of sanitary effluent to the No. 2 Tailing Dam is to divert overflow to the SPCC pond.

Table 2: Summary of Alternatives Analysis for Sanitary Effluent Discharge

Alternative	Environmental Considerations	Permitting Requirements	Cost of Implementation
Divert Overflow to Keener Pond	Requires liner in pond	None	Moderate
Divert Overflow to SPCC Pond	None	None	Minimal
Use Effluent for Agricultural Irrigation	None	Modification of discharge permit required	High
Evaporate all of the Effluent	Requires liner in new pond	Modification of discharge permit required	High



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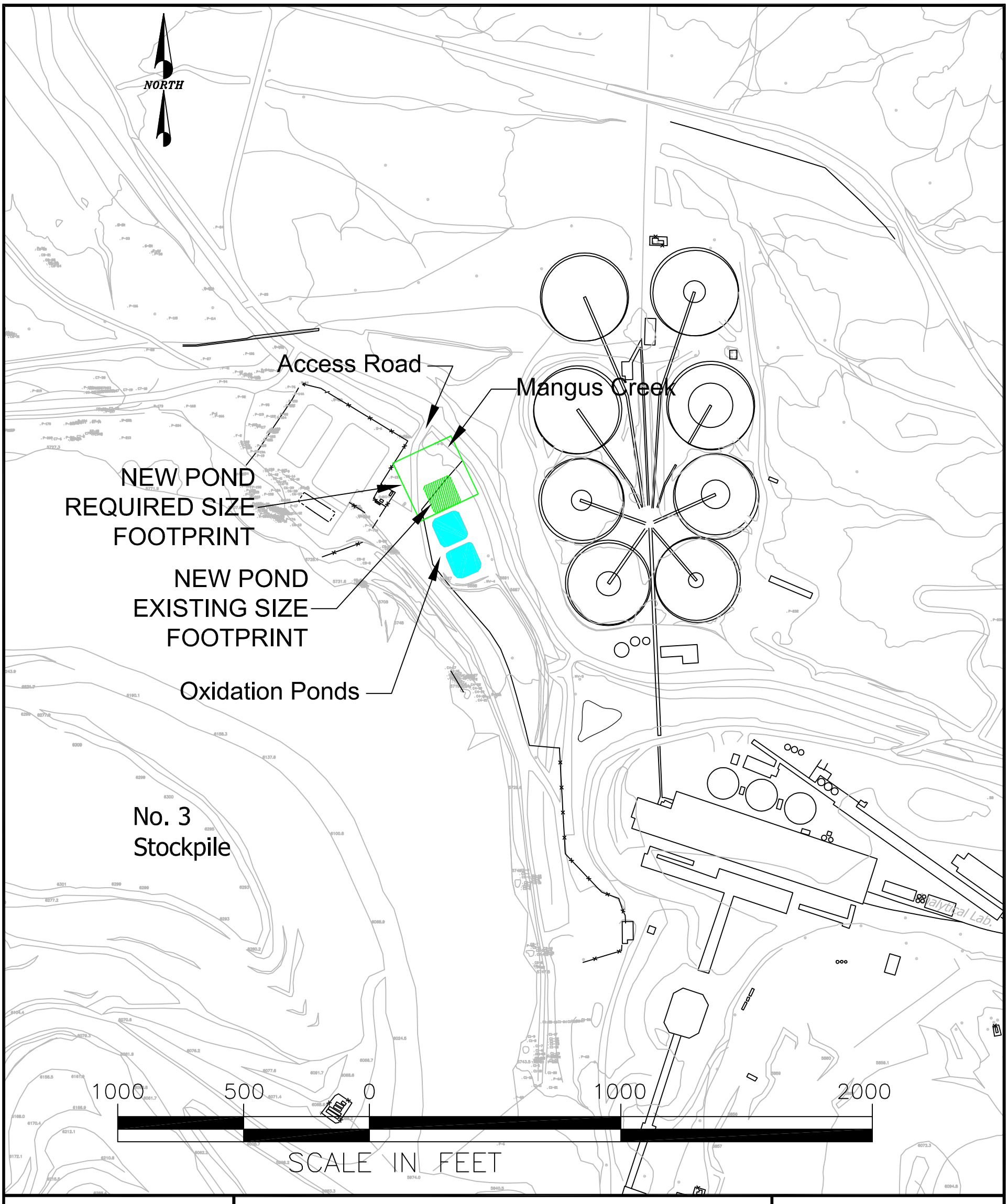
Sanitary Effluent - Proposed System

Date 11-17-04
Sheet 1 of 1
Dwg # Fig-3 Revised



phelps dodge Tyrone Inc.	Sanitary Effluent - New Pond Footprint	Date 12-6-04 Sheet 1 of 1 Dwg # Fig-4