



- Notes:
- This drawing shows earthworks requirements in relation to the proposed earthwork bunds.
 - Existing subsoil and top soil is to be stripped and replaced following construction of the mounds as follows. Assumed existing and proposed earthworks layer thicknesses are as follows:
 - Existing Top soil layer thickness 0.2m.
 - Existing Sub soil layer thickness 0.5m.
 - Proposed thicknesses as follows:

	Top soil	Sub soil
Woodland (Non Capped)	0.30m	0.90m
Woodland (Capped)	0.30m	1.70m
Scrub	0.15m	0.60m
Grassland	0.30m	0.20m

- Volumes shown are bund capacities excluding top soil and sub soil.

- Key:
- Base case earthworks (construction).
 - Additional earthworks to base case (post shaft construction).
 - Ponds area

10	12/07/17	KK	JB	CW
S73 Issue				
Issue	Date	By	Chkd	Appd

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Client
Sirius Minerals Plc

Job Title
**Woodsmith Mine
 Minehead**

**Woodsmith Mine
 Site General Arrangement
 Illustrative Earthworks Strategy
 Earthworks Bunds and Ponds**

Scale at A1 1:2000
 Discipline Highways
 Job No Drawing Status
253285 Issue
 Drawing No
YP-P2-CX-032 Issue
10

Maximum Earthworks Volumes

	Total	Retained On-Site				Removed Off-Site		
		Inert (No Treatment Required)	Non Hazardous, Non Inert	Non-Hazardous	Haite	Non Product Grade Polyhalite		
Excavation (Excl top and sub soil)								
Surface Preparation	95,600	95,600						
Welfare and Associated Ponds	35,800	35,800						
Foreshafts	101,400	101,400						
Basements and Ventilation	12,000	12,000						
Production Shaft	135,370	6,770	79,600	37,700	6,200	5,100		
Men and Materials Shaft	135,400	7,000	79,200	37,700	6,000	5,500		
Pump and Cable Cubbies	6,790	1,000	2,400	2,000	1,390			
Pit Bottom	10,200		10,200					
MTS Shaft	33,500	12,150	21,350					
360 Level	121,360	121,360						
Tunnel	265,900	265,900						
Total (Unbulked)	953,320	271,720	569,810	87,600	13,590	10,600		
Total (Unbulked) - Retained on-site		271,720	569,810					
Bulking Factor		1.15	1.15					
Total (Bulked) - Retained on-site		312,478	655,282					
Total (Bulked) - Retained on-site		967,760						

Minimum Earthworks Volumes

	Total	Retained On-Site				Removed Off-Site		
		Inert (No Treatment Required)	Non Hazardous, Non Inert	Non-Hazardous	Haite	Non Product Grade Polyhalite		
Excavation (Excl top and sub soil)								
Surface Preparation	95,600	95,600						
Welfare and Associated Ponds	35,800	35,800						
Foreshafts	101,400	101,400						
Basements and Ventilation	12,000	12,000						
Production Shaft	94,123	3,789	40,776	19,524	3,258	26,776		
Men and Materials Shaft	70,025	3,875	40,574	19,524	3,142	2,909		
Pump and Cable Cubbies	6,790	1,000	2,400	2,000	1,390			
Pit Bottom	10,200		10,200					
MTS Shaft	17,510	6,793	10,717					
360 Level	121,360	121,360						
Tunnel	265,900	265,900						
Total (Unbulked)	830,708	260,258	481,727	51,248	7,790	29,685		
Total (Unbulked) - Retained on-site		260,258	481,727					
Bulking Factor		1.15	1.15					
Total (Bulked) - Retained on-site		299,297	553,989					
Total (Bulked) - Retained on-site		853,283						

Fill (Excluding top and sub soil)

	Total	Retained On-Site	Removed Off-Site
Surface Preparation	52,100	52,100	
Welfare and Associated Ponds	15,000	15,000	
Bund A	36,000	20,000	16,000
Bund B	3,500	3,500	
Bund C	116,160	61,878	54,282
Bund D	142,000		142,000
Bund E	153,000		153,000
Bund F	330,000	40,000	290,000
Bund G	120,000	120,000	
Total	967,760	312,478	655,282

Fill (Excluding top and sub soil)

	Total	Retained On-Site	Removed Off-Site
Surface Preparation	52,100	52,100	
Welfare and Associated Ponds	15,000	15,000	
Bund A	36,000	20,000	16,000
Bund B	3,500	3,500	
Bund C	1,683	1,683	
Bund D	142,000	47,014	94,986
Bund E	153,000		153,000
Bund F	330,000	40,000	290,000
Bund G	120,000	120,000	
Total	853,283	299,297	553,986