Ms. Davena Crosley
Permit Lead
Mining Act Reclamation Program ("MARP")
New Mexico Mining and Minerals Division
Wendell Chino Building
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Permit Modification Request for Dump 1Ea for the Dicaperl El Grande Perlite Mine; Permit No. TA002RE

Dear Ms Crosley,

As discussed recently during our meetings of November 12th and 13th of 2015, Dicaperl is herein submitting a request to modify Permit No. TA002RE for the addition of the disposal area at the El Grande Perlite Mine to accept processing waste from the Antonito Processing Facility in Colorado. This request is primarily in response to a Notice of Violation that was issued to Dicaperl Minerals Corp on October 27th, 2014. Dicaperl responded to the NOV by submitting an application to add the new disposal process as well as to modify the permit to extend the permit term and to modify the mining plan to reflect current projections.

The attached application presents the proposal for modification.

We appreciate your assistance in this matter and invite you to call me at (575) 835-2892 if you have any questions regarding this submittal.

Sincerely,

Allen Norris
Plant Manager

Dicaperl Minerals Corp
El Grande Mine
Permit No. TA002RE
Permit Modification Application Response

Prepared for :
Dicaperl Minerals Corp

P.O. Box 1436
Socorro, NM 87801

February 5, 2016

CDM Smith

February 5, 2016

Ms. Davena Crosley
Permit Lead
Mining Act Reclamation Program ("MARP")
New Mexico Mining and Minerals Division
Wendell Chino Building
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Updated Closeout Plan Application Response, Permit Modification 14-1, Permit No. TA002RE, El Grande Mine

Dear Ms. Crosley:

This letter and attachments contain Dicaperl's responses to the above-referenced Request for Additional Information (RAI) that was dated October 23, 2015. The response below is formatted to identify each request included in the RAI in the order originally presented. The specific comment from the RAI is presented in *italics* with the Dicaperl response immediately below. Any documents referenced in the response are attached to this response and identified as such.

Request 1

Dicaperl's response is acceptable to MMD.

Request 2

Dicaperl's response is acceptable to MMD.

Request 3

MMD's original comment: Section 3.2, Dump Plan, page 6-7 – What will the final slope of the waste dumps be graded to? Please provide cross-sectional drawings of the waste dumps after regrading to verify the slope grades.

<u>Please provide additional information:</u> Section 3.3, Waste Receiving Plan, page 7 in the Application - states "The super sacks are covered with obsidian-rich perlite from the middle of the quarry area every 15 days or 10 truckloads. In the case of both the 1Ea and the 1Eb areas, the placement of waste will cease after the dump (and cover) elevation reach approximately 8475 feet amsl. Following completion of the dumps, they will be reclaimed in the manner described in Section 5 ". The cross-sectional drawings of the waste dumps after regrading provided in the Response for Dump No. 1E (Figure No. 5-9) do not indicate which of the 1E waste dumps are represented (1Ea, 1Eb, or 1Ee). Additionally, Figure No. 5-9 shows the final grade to be 8505 amsl while the Application states that the approximate final elevation will be 8475 feet amsl, a difference of 30feet. Please clarify which of the 1E dumps figure No. 5-9 represents and provide a minimum of two cross sectional views per dump (north-south and east-west) of the other 1E dumps and the 2A dump. Please extend the line of current existing grade on cross sectional views of dumps to show the intersection of the reclaimed (final) dump surface slope with the surrounding slopes. Additionally, please provide plain view maps of dumps 1Ea, b, c and 2A showing the post reclamation topography.

MMD is not aware of this type of mine waste disposal plan being used at other facilities. Please provide examples of this technique (end dumping waste filled super sacks to a 3:1 slope, maintaining a cover, and revegetating these slopes) successfully employed at other mines.

MMD requires an engineered design of the proposed dump. The Final approved design shall be signed and stamped by a New Mexico Professional Geotechnical or Civil Engineer.

Response: Figures representing Dumps 1E, 1Eb, 1Ec and future 2A were created to clarify final reclamation of the waste dumps. Figures associated with Dump 1Ea were previously submitted with the January 21, 2016 El Grande Mine Dump 1Ea submittal. Dumps 1Eb and 1Ec will be graded to the slope ratio of 3H:1V for the final configuration. The proposed future Dump 2A will follow the Dump Plan with the final slopes graded to 3H: 1V. The final elevation of Dump 1Eb and 1Ec will be a peak of 8485 ft above mean sea level (amsl) with the edges extending to 8475 ft amsl. Future Dump 2A will reach a final peak of 8500 ft amsl with the edges extending to 8475 ft amsl. See attached Appendix A Reclamation Design Figures for revised cross sections of Dumps 1E, 1Eb, 1Ec and future Dump 2A for final grading configuration.

The technique implemented at El Grande of dumping and stacking is a unique process. Experience with past practices at the site suggest little concern with stability of the disposal area given the site orientation and buttressing from existing materials and natural ground. There are no known examples available to represent this type of super sack disposal.

Request 4

MMD's original comment: Section 3.2, Dump 2A, page 7 – states "It is also possible that in certain parts of the quarry, the perlite will be mined out. When adequate quarry space becomes available, all dumping will be back filled into the abandoned portions of the quarry." How will material be placed to ensure fill is adequately compacted to create a stable land form? Will material be placed in the quarry in a way that decreases the steepness of the quarry walls and helps contour the quarry to blend with the surrounding topography?

<u>Please provide additional information</u>: What will be the final slope angles, of the slopes formed by the super sacks along the quarry walls be? Will super sacks of waste material be ''placed and stacked to create a stable structure" or end dumped in the quarry, as described in the materials handling plan? MMD is concerned that end dumping the super sacks of waste then pushing them down (as described in the materials handling plan) may not result in a stable landform.

Conversely, stacking the super sacks in a regular pattern may create planes between the Super Stacks, allowing for separation.

MMD is not aware of this type of mine waste disposal plan being used at other facilities. Please provide examples of this technique (stacking or dumping waste filled super sacks against a high wall, maintaining a cover, and revegetating these slopes) successfully employed at other mines.

MMD requires an engineered design of the proposed dump. The Final approved design shall be signed and stamped by a New Mexico Professional Geotechnical or Civil Engineer.

Response: Dicaperl no longer anticipates disposal of the super sacks in the quarry area as originally anticipated. Therefore, no response is necessary for the latest inquiries.

Request 5

MMD's original comment: Section 3.2, Dump Plan, page 6 – Will topsoil be salvaged from dump 2A when it is opened? Where will the topsoil be stored? Will grubbed vegetation be salvaged for use during reclamation?

<u>Please provide additional information:</u> Please see request for additional information per comment 7b. MMD acknowledges that Perlite is used as an additive to commercial potting soils. However, based on MMD's observations of minimal natural revegetation in primarily perlite material that has been undisturbed for a number of years at the El Grande mine, it is uncertain if perlite itself would support adequate vegetation to meet the permit criteria for success.

Response: Figure No. 3_1-2 Work Area Site Plan was revised to reflect the precise locations and approximate volumes of all existing Raton-rock outcrop-Orejas topsoil stockpiles. Each topsoil stockpile was given an associated number for clarity in stockpile location. See table below for topsoil volumes, allocations and the quantity of topsoil used at each reclamation area and Figure No. 3_1-2 Work Area Site Plan for stockpile locations. There is an approximate volume of 160,974 cubic yards of Raton-rock outcrop-Orejas topsoil material available for reclamation on the El Grande site. The topsoil from future Dump 2A will be salvaged and stored at topsoil stockpile No. 7 located nearby Exploration area 3A. There will be approximately 10,224 cubic yards salvaged for storage and ultimate replacement on future Dump 2A. There is no vegetation to be grubbed from Future Dump 2A. After reclaiming Dumps 1Ea, 1Eb, 1Ec, 1E, future Dump 2A and exploration area 3A the remaining topsoil available is 80,310 cubic yards of Raton-rock outcrop-Orejas allowing the Quarry to receive approximately 8 inches of cover over the existing ORP. The Quarry is comprised of ORP, for reclamation only topsoil (Raton-rock outcrop-Orejas) will be added as cover. The roads and the Mill facility area will not have (Raton-rock outcrop-Orejas) topsoil added as cover, as those areas are observed to be constructed in Raton rock outcrop-Orejas material and no additional material will be added as cover.

In addition, Dicaperl is proposing a test plot study to identify alternative treatments regarding the cover on disturbed areas and the potential revegetation success of the various alternatives. The test plot will include an assessment of vegetation success using combinations of obsidian-rich perlite with amendments (e.g. fertilizers based on results of soils sampling and testing), obsidian-rich perlite with 6 inches of Raton-Rock outcrop-Orejas, obsidian-rich perlite with 6 inches of Raton-Rock outcrop-Orejas with soil amendments, and a mixture of topsoil and obsidian-rich material. The proposed approach for revegetation is presented below in Request 11.

El Grande Topsoil Locations and Volumes		
Topsoil Location	***No. Topsoil Stockpile***	***yd^3***
NE West Pit	1	7,164
South Side Main Pit	2	53,504
East Side South Pit	3	11,838
East End 1Eb	4	6,900
West Side South Pit	5	44,856
Dump 1D	6	3,888
Sides of Exp 3A	7	21,889
South Side West Pit	8	10,935
	Total Topsoil	**160,974**

Topsoil (Raton-rock outcrop-Orejas) Requirement					
Area to be Reclaimed	***Acres***	***yd3***	***Topsoil Depth (in)***	***Topsoil Stockpile Source Area***	***yd3***
Dump 1Ea	3	4,839	12	1	4,839
Dump 1Eb	4	6,453	6	1	2,325
			6	4	4,128
Dump 1Ec	8	12,906	12	7	12,906
Dump 1E	16	25,813	6	4	2,772
			6	5	23,041
Future Dump 2A	19	30,653	4	7	8983
			4	8	10935
			4	2	10735
Exploration 3A	5	8,389	12	2	8,389
Quarry	76.25	123,017	2	2	34,380
			2	3	11,838
			2	5	21,815
			2	6	3,888
	Total Topsoil Placed				**160,974**

Request 6

Dicaperl's response is acceptable to MMD.

Request 7

MMD's original comment: Section 3.3, Waste Receiving Plan, page 7 – states "The waste is shipped in polypropylene super sacks and is currently placed in the site identified as 1Ea" and, "The super sacks are covered with obsidian-rich perlite from the middle of the quarry area every 15 days or 10 truckloads." How much cover material is being proposed, and is appropriate, to be placed over the super sacks in terms of thickness? Pleases note, MMD will require a minimum of 2-feet of cover material, that is suitable as a vegetative growth medium, be placed over the waste material. Please revise the closeout plan, if necessary, to account for this condition.

*Please include a **material handling plan** that describes:*

a. *How the super sacks will be staged, dumped, placed, graded and/or configured to allow for long-term stability of a covered and reclaimed landfill and/or stockpile. Please note, in regard to the proposed reclamation plan for the super sacks, MMD is uncertain about how voids in between placed and stacked ore bags will accommodate re-shaping, re-contouring and placement of cover material without compromising the long-term stability (e.g., settlement, erosion) of the reclaimed pile (s).*

Please provide additional information: Please see requests for additional information per comments 3 and 4.

b. *Where the proposed "obsidian-rich perlite" cover material is located and why this proposed "obsidian-rich perlite" cover material is appropriate for supporting successful re-vegetation if it is intended to serve as the uppermost 2' of cover.*

Please provide additional information: Please provide a map showing the exact location and approximate volume of all existing and proposed stockpiles (salvaged soil stockpiles, stockpiles of Raton-rock outcrop-Orejas, stockpiles of obsidian-rich perlite, waste stockpiles, ore stockpiles, etc.) including the 460,000 ycf of obsidian-rich material (if stockpiled). Please note: MMD will not approve a Closeout plan that would require cover material to be mined (i.e., excavated geologic materials from above or beneath the ore deposit), in the event of a forfeiture. If Raton rock outcrop-Orejas cover material is to be taken from a borrow area, please identify the location of the borrow area on a map and include the cost of excavation and transportation of the material. MMD requires that disturbance caused by the excavation of the cover material be reclaimed. Please include financial assurance costs for reclaiming borrow areas, if necessary.

A Quality Assurance/Quality Control (QA/QC) plan must be submitted to MMD for approval 6 months prior to reclamation to assure a minimum of 24 inches of Raton rock outcrop-Orejas material is placed over all waste dumps containing the Super Sacks. MMD requires a mass balance for each area that will be reclaimed (Dumps 1Ea, 1Eb, 1Ee, 2-A 3A exploration, quarry, all roads, the Mill Area, and any other areas that will be reclaimed) and for each soil substitute material proposed as cover material (Raton rock outcrop-Orejas, obsidian-rich perlite, and any other cover materials proposed /or use).

Any material proposed for cover, must be supported by a chemical and textural analysis of that material. Proposed cover material should be able meet certain soil suitability criteria.

c. *The volume of available and suitable "obsidian-rich perlite",*

Please provide additional information: per comment 7b above.

d. *Dicaperl's response is acceptable to MMD.*

Please note, the cost estimate (comments 19 and 20 below) will need to be adjusted according to the material handling plan and associated quality assurance steps.

Response: See Requests 3 and 4 above for clarity on reclamation figures, elevations, and slopes. Figure No. 3_1-2 Work Area Site Plan was revised to reflect the precise locations and approximate volumes of all existing topsoil (Raton-rock outcrop-Orejas) stockpiles. See table above in Request 5 for topsoil (Raton-rock outcrop-Orejas) reclamation stockpiles, associated volumes stored and areas reclaimed.

A Quality Assurance/Quality Control (QA/QC) plan will be submitted to MMD for approval 6 months prior to reclamation to assure a minimum of 24 inches of ORP mixed with Raton-rock outcrop-Orejas topsoil material is placed over dumps 1Ea containing Super Sacks. Dump 1Eb may be considered as a future

location for super sack disposal if necessary. At that time there would be an amendment to the El Grande Closeout Plan. Dump areas 1E, 1Ec and future 2A will contain waste rock of varying sizes and a minimum of 12 inches of Raton rock outcrop-Orejas topsoil will be added as cover. A mass balance for each area being reclaimed (Dumps 1E, 1Ea, 1Eb, 1Ec, 2A, 3A exploration, quarry, roads and Mill buildings) was conducted to determine the topsoil availability and best reclamation process for each area. The roads and Mill facility area will not have topsoil (Raton-rock outcrop-Orejas) added as cover, as those areas are observed to be constructed in Raton rock outcrop-Orejas material and no additional material will be added as cover.

A chemical and textural analysis of the soil materials will be conducted to meet soil suitability criteria as soon as site conditions allow (i.e. when snow melt and thaw allow).

Request 8

Dicaperl's response is acceptable to MMD.

Request 9

MMD's original comment: Section 4.4, Hydrologic Balance, page 18 – states "In minor areas of significant run-on to the mine, run-on is diverted away from the disturbance and run off from disturbed areas is controlled by sediment ponds that are previously approved and sized for the appropriate storm event". Will run off or run on change with construction of dumps 1Eb, 1Ec and 2A in a way that would affect the quantity of storm water the sediment ponds will receive? If so how will the sediment ponds be modified to accommodate the increased storm water?

<u>Please provide additional information:</u> Provided in the Response, Figure #3-1-2, Work Area Site Plan dated Feb 2015 indicates that "area 1E includes sediment ponds, 1Ea, 1Eb, and 1Ee. However, there appears to be a sediment pond associated only with dump 1Ee. Please provide a map that shows the location(s) of sediment ponds for the 1Ea, 1Eb, and 2A dumps. Provide sediment pond designs to store the runoff from a 10 year-24 hour storm event, plus storage for 3 years of annual sediment deposition. It is assumed that there will be little to no vegetative cover for the first 3 years of plant growth, hence the annual sediment deposition will be greater during this time frame. Commit to maintaining the sediment ponds by removing accumulated sediment as necessary to maintain the design storm water capacity during the first 3 years after reclamation of all dumps. Provide profile and cross- sectional diagrams of the perimeter channels and a description of how the perimeter channel(s) tie into the existing, natural drainage. Include the drainage lengths and percent slope of each drainage. Provide plan -view and cross sectional drawings of the intersection of the perimeter channel(s) to the existing drainage including details of armoring, if proposed, and the percent slope of the perimeter channel and the collection channel(s).

Response: Figure No. 3_1-2 Work Area Site Plan was updated to include the sediment ponds associated with Dump 1Eb and future Dump 2A. The sediment ponds located near Dump 1Eb and future Dump 2A are designed to collect the precipitation and the sediment runoff from the surrounding areas. National Conservation Resources Service (NCRS) methods and calculations are used to determine the runoff amount and the annual sediment loss from the contributing area (see attached Appendix B for Stormwater Calculations). The sediment pond was designed to provide 3 years of sediment storage. The 10-year 24-hour storm event of 2.03 inches of precipitation is used for the runoff calculation. NCRS charts are used to estimate the annual sediment loading from areas Dump 1Eb and future Dump 2A. A curve number (CN) of 85 referenced from the NCRS TY-55 manual is used in the runoff calculation representing sagebrush with a grass understory condition found in semiarid regions of the country. A poor hydrologic soil condition was assumed.

From the calculations, the estimated amount of runoff from the area surrounding Dump 1Eb is 0.68 ac-ft. NCRS charts and tables are used to estimate an annual sediment load from the contributing area of 27 tons. Sediment load plus 3 years of sediment runoff from the area is approximately 0.04 ac-ft see Appendix B Stormwater Calculations for details. The total pond size required to contain the precipitation runoff and the sediment load is approximately 1 ac-ft. This quantity does not include the required freeboard. Proposed Dump 1Eb is located in a natural channel with a large contributing area. A diversion channel will route upland runoff around the waste dump. For calculation purposes the diversion channel is immediately upgradient of the waste dump and flows toward the east. The runoff and sediment loading from the area upslope of the channel is included in this design.

The proposed sediment pond located near future Dump 2A was designed per the methodology as described above. Based on the above methods, the estimated amount of runoff from the area is 2.63 ac-ft. From the NCRS charts the estimated annual sediment load from the contributing area is 105 tons. The model projects a sediment yield of 105 tons yet empirical evidence indicates less sediment is typically present. A monitoring system will be implemented to clean-out the sediment based on specified levels present. The total storage required to contain 3 years of sediment runoff in the pond from the area is approximately 0.14 ac-ft. When both sediment and runoff are totaled together, the pond size is approximately 3 ac-ft. This amount does not include the one-foot of freeboard required. See the calculations for more details in Appendix B.

See attached calculations in Appendix B for further explanation and rationale used to determine the precipitation and sediment runoff estimates from the areas surrounding Dump 1Eb and future Dump 2A. See attached Appendix A Figure Nos. A3 and A7 for plan views of Dump 1Eb and future Dump 2A final configuration including a detail on the perimeter channels. The sediment ponds will be constructed in perlite waste and lined with topsoil material.

Dump 1Eb will discharge to the sediment pond located southwest of the dump. Future Dump 2A will flow in a perimeter channel to a sediment pond located west of the dump. The perimeter channels were designed 2 feet wide by 2 feet deep with a 1H:1V side slope (see Figures A1, A3, A7 for details on the perimeter channel design).

There are two separate sediment ponds that Dump 1E and 1Ec discharge to. These ponds are connected by a culvert running under the road, this detail was also clarified on Figure No. 3_1-2 and A5. See figures attached in Appendix A for sediment pond placement and surface water flow direction.

Request 10

MMD's original comment: Section 4.6, Stability, page 19 – Dicaperl addresses how erosion has been dealt with in the past. Will future erosion problems be addressed the same way? Is there a written storm water/erosion control plan, and if so, please provide a copy to MMD. Is there a potential for buried wastes to migrate through a cover to the surface after reclamation due to low density of the material?

<u>Please provide additional information:</u> Please see requests for additional information per comment 7b.

MMD is concerned that the obsidian-rich perlite proposed for use as a cover material will not resist erosion while the dumps are active, prior to placement of the final cover material. Based on inspection reports from the mid 2000's, waste dumps, likely covered with obsidian-rich perlite , showed substantial signs of gully erosion and wind erosion. Substantial erosion of the obsidian-rich perlite cover would contribute to sediment and run off issues and could compromise the success of the final cover and

reclamation. MMD will be looking at the SWPPP to determine if it addresses erosion control during operation and reclamation of the dumps. We will discuss this further with Dicaperl, as we process the application.

Response: See Request 7 above for clarity on material availability and locations of obsidian-rich perlite and topsoil Raton rock outcrop-Orejas. Obsidian-rich perlite use, to stabilize active areas, was not significant until 2009 when the current cover was placed. No significant erosion has occurred since the 2009 placement. The future plan is to minimize the size of the active dump area which will minimize the potential for any significant erosion. This method has been used at the Socorro site and has proven to be very successful. A chemical and textural analysis of the soil materials will be conducted to meet soil suitability criteria as soon as site conditions allow (i.e. when snow melt and thaw allow).

Request 11

MMD's original comment: Section 4.11, Revegetation, page 20 – What seeding method(s) will be used on each of the reclaimed areas (waste dumps, haul roads, quarries)?

<u>Please provide additional information:</u> Based on a Post Mining Land Use ("PMLU") of grazing, the quarry must achieve erosional stability and support vegetation appropriate for livestock grazing. There is a conflict between the Application and the Response provided by Dicaperl regarding seeding the quarry for reclamation.

In the Application, Section 5.1, Quarry, pages 21-22- states "There is insufficient soil material available in the permit area to cover the quarry area. Therefore, Dicaperl is proposing to leave the quarry walls with slopes consistent with existing hill sides. The material will consist of fragmented perlite and any soil material available. These slopes will be seeded and vegetation should take hold on the slopes. Any surface runoff from the quarry flows to the bottom of the quarry and collects there until it seeps into the ground". The October 14, 1998 Closeout Plan Revision/or No Agua Peak Mine and Mill [sic), submitted by Dicaperl, is consistent with the Application language. However, the Response (above) states, "...the quarry will not have any revegetation during reclamation." MMD will not approve a closeout plan that excludes the quarry from reclamation and revegetation. The quarry will be required to achieve the revegetation success criteria stated in the permit.*

If Dicaperl does not intend to cover the quarry with a soil substitute, such as Raton rock outcrop-Orejas, Dicaperl shall propose a test plot program to demonstrate that fragmented perlite is capable of supporting adequate vegetation to meet the vegetation success criteria contained in Appendix C of the Application and to support a self-sustaining ecosystem. In addition to a test plot program, Dicaperl will be required to propose a contingency plan for reclamation in the event that fragmented perlite does not support adequate vegetation to meet the established success criteria.

Financial assurance costs for placement of Raton-Rock outcrop-Orejas will be required until a test plot program has provided adequate evidence that fractured perlite will meet final reclamation standards.

*(*Please note: Appendix C of the Application is titled, Reclamation Performance Standards at the No Agua Peak Mine and Mill Permit No. TA002RE Taos County, New Mexico, dated September 1998. This may cause some confusion, as No Agua is a neighboring mine to El Grande.)*

Response: A test plot at Exploration 3A is proposed. The test plot will include an assessment of vegetation success using approximately 3 combinations of obsidian-rich perlite with amendments (e.g. fertilizers based on results of soils sampling and testing). The following list represents the types of plots proposed:

- Obsidian-rich perlite (ORP) covered with 6 inches of Raton-Rock outcrop-Orejas
- Obsidian-rich perlite (ORP) covered with 6 inches of Raton-Rock outcrop-Orejas with soil amendments
- Mixture of topsoil and obsidian-rich material.

Additionally, Dicaperl is proposing that the one foot of obsidian-rich perlite with Raton-Rock outcrop-Orejas cover (depth dependent on outcome of pilot studies) will be required for all perlite waste dump areas 1E, 1Ea, 1Eb, 1Ec and future 2A. The roads and mill facilities area will not have one foot of Raton-rock outcrop-Orejas added as these areas are comprised of the topsoil Raton-rock outcrop-Orejas. The quarry will receive approximately 8 inches of Raton rock outcrop-Orejas There is little concern with impacts of the subsoils on acid weeping or plant growth potential. Minimization of the use of obsidian-rich perlite from the quarry will also minimize the impact to the final graded topography of the quarry and enhance effective grading, stability, and erosion/runoff control.

Request 12

MMD's original comment: Section 4.11, Revegetation, pages 20-21 – Please provide the MMD approved seed mix, or proposed seed mix, including the pounds of pure live seed (PLS) by species per acre or number of seed per acre or number of seed by species per square foot. Several species labeled as "intended for use" and "may also be used". Are these species included in the MMD approved seed mix for this site? If not, please describe the intended use of these species.

<u>Please provide additional information:</u> MMD requests that the species Linum perennee be replaced with Linum lewisii. In the event the species or the seeding rate need to be altered, please provide the proposed changes to MMD, in writing, for approval at least 30 days before the seed is applied.

With the above substitution, this seed mix and application rate is acceptable to MMD.

Response: Reclamation will be considered successful when sampling of reclaimed areas indicates that 70% of reference area cover standard at a 90% confidence level for native, perennial species has been achieved. Success criteria will be demonstrated when a minimum of 2 warm season grasses, 2 cool season grasses, and 2 forbs species are present in sufficient quantities to meet diversity objectives.

See below for the revised Seed mix for the El Grande site. Species Linum perennee was replaced with Linum lewisii as advised (highlighted).

Dicaperl also proposes the following tree and shrubs to be used as alternatives for selected plant species: Gambel Oak tree (Quercus gambelii), Wax Current shrub (Ribes cereum) and winterfat shrub (Ceratoides lanta). The following are suggested alternatives to the proposed seed mix: Spreading daisy (Erigeron divergens) and Fluffgrass (Erioneuron pulchellum).

El Grande Mine Reclamation Seed Mixture				
Common Name	***Latin Name***	***Composition (%)***	***Seeds/ft2****	***lbs of PLS/A***
Blue grama	*Bouteloua gracilis*	*12*	*19*	*0.98*
Sideoats grama	*Bouteloua curtipendula*	*8*	*12*	*2.83*
Western wheatgrass	*Pascopyrum smithii*	*15*	*23*	*9.21*
Sand dropseed	*Sporobolus cryptandrus*	*8*	*12*	*0.10*
Bottlebrush squirreltail	*Elymus elymoides*	*10*	*16*	*3.52*
Rocky mountain penstemon	*Penstemon strictus*	*4*	*6*	*0.44*
Purple prairie clover	*Dalea purpurea purpurea*	*4*	*6*	*1.29*
Western yarrow	*Achillea millefolium var. occidentalis*	*5*	*8*	*0.12*
Lewis flax	*Linum lewisii*	*5*	*8*	*1.15*
Mexican hat	*Ratibida columnifera forma pulcherrima*	*5*	*8*	*0.46*
Desert marigold	*Baileya multiradiata*	*5*	*8*	*0.32*
Munro globemallow	*Sphaeralcea munroana*	*3*	*5*	*0.41*
Fourwing saltbush	*Atriplex canescens*	*3*	*5*	*3.90*
Basin big sage	*Artemisia tridentata tridentata*	*4*	*6*	*0.11*
Fringed sagewort	*Artemisia frigida*	*6*	*9*	*0.09*
Cliffrose	*Purshia mexicana*	*3*	*5*	*3.14*
Totals		*100*	*155*	*28.05*
**The number of seeds/ft2 are derived based on the overall seeding rate (27.92 lbs of PLS/A), seeds/lb, and composition.*				

Request 13

MMD's original comment: Section 5.0, Closeout Plan, page 21 – states "There is no topsoil as such in the permit area. The cover material present is known as Raton-Rock outcrop-Orejas. This unit is used mainly for grazing, for which it has medium potential. This material supports a wide range of plant species as identified in the original permit application. Perlite itself also supports certain plant species. Perlite is an additive to commercial potting soils. When a dump area is reclaimed, it is covered with approximately one foot of soil material and experience has shown that this material will support plant species appropriate for the permit area." Please clarify what material will be used for the "soil material" cover and where the borrow source(s) is located. Is the "soil material" Raton-Rock outcrop-Orejas, or perlite, or a combination of the two? If a borrow area will be used, please include the haul distance from the borrow source to the dump areas to be reclaimed. Please provide an estimate of the volume of soil material and how this quantity was determined.

<u>Please provide additional information:</u> Please see requests for additional information per comment 7b. In a Letter from METRIC Corporation Environmental Engineering and science, on behalf of Dicaperl Minerals Corporation, dated September 15, 2006, the quantity of "Raton soil" is estimated to be 42,000 cy. "At that

time the Raton soil was intended to be used in covering Dump 1-A. No new areas appear to have been mined since 2006. Therefore, the amount of the Raton soil stockpile available for reclamation of Dumps 1Ea, 1Eb, 1Ee, and 2A is uncertain.

Response: See Request 7 above for clarity on topsoil quantities. The letter from METRIC Corporation Environmental Engineering and Science reflects previous El Grande site conditions during 2006. The topsoil storage volumes have been reevaluated and Figure No. 3_1-2 Work Area Site Plan was updated to reflect the exact location and approximate volumes of all existing stockpiles. The updated information on the quantities of the topsoil available are a result of improved site familiarity since 2006. The topsoil was reevaluated to ensure there was enough cover for reclamation of the El Grande mine. See table above in Request 5 for locations of stockpiles, associated volumes stored and type of soil present.

Request 14

MMD's original comment: Section 5.1, Quarry, pages 21-22 – states "There is insufficient soil material available in the permit area to cover the quarry area" then states "…available soil material from stockpiles, the haul road and other places, if available, will be blended into the slopes along with ripping and whatever techniques are necessary to provide a medium for vegetation." Please provide an estimate of the volume of "available soil material from stockpiles, the haul road and other places" intended for use in reclaiming quarry.

<u>Please provide additional information:</u> Please see requests for additional information per comments 7b and 13.

Response: See Request 7 above for clarity on topsoil quantities. See table above in Request 5 for locations of stockpiles, associated volumes stored and type of soil present.

Figure No. 3_1-2 Work Area Site Plan was updated to reflect the location and approximate volumes of all existing topsoil stockpiles. With the topsoil quantities available on site at El Grande there is enough Raton-rock outcrop-Orejas to cover the disturbed areas with one foot of topsoil and one foot of ORP and the Quarry with 8 inches of topsoil over the existing ORP within the Quarry. A test plot at Exploration 3A is proposed to provide recommendations for successful growth in disturbed areas. Based on results of the test-plot, chemical testing soil amendments could be added to the topsoil to promote successful growth.

Request 15

MMD's original comment: Section 5.4, Roads, page 23 – Please explain how the road beds will be treated to provide a suitable seed bed at reclamation. Will roads be ripped prior to seeding? To what depth? Will cover material be applied over the compacted soils of the road to provide a suitable seed bed?

<u>Please provide additional information:</u> There is a conflict between the response to comment 15 (above) which states "The roads will be ripped down 2 feet and regraded ..." and Appendix C in Dicaperl's Response, which states, "Areas compacted by construction operations shall be tilled to a 6-inch depth with a ripper or rototiller and then harrowed." Please clarify.

Response: The roads will be ripped to 2 feet and regraded prior to seeding to create a suitable seed bed; the proposed seed mix will be applied by broadcast seeding. There will not be a topsoil cover of Raton-rock outcrop-Orejas added to the roads. As it is observed the roads are constructed in Raton rock outcrop-Orejas material and the safety berms surrounding the roads are also comprised of Raton rock outcrop-Orejas material.

Request 16

MMD's original comment: Section 5.5, Buildings and Facilities, page 23 – states "Current structures at the El Grande operation include a mill and buildings attendant to the mill. All buildings and equipment will be razed and sold as scrap or used equipment. Concrete foundations will be broken up and buried. The building and facility sites will be graded and seeded." Where will the concrete foundations from the buildings be buried? Will the building pads and facility sites be ripped and topsoil applied prior to seeding? MMD will require a detailed demolition plan including the proposed burial location of any concrete or other scrap materials, physical and chemical characterization of the materials, an asbestos removal plan that meets state and federal environmental requirements (if drainage plan, a quality assurance/quality control plan including a demolition safety plan, and an as-built report after the demolition has been completed.

<u>Please provide additional information:</u> MMD recommends that the mill, and all unused buildings attendant to the mill, be removed and the mill area reclaimed as soon as possible. Based on inspection reports, the mill has not been operated since 2005; Dicaperl was considering reclamation of the mill facility and unused buildings in 2010. Proceeding with demolition and reclamation of these structures would allow Dicaperl to reduce the amount of Financial Assurance required for the El Grande Mine site.

Additionally, MMD requires Dicaperl to provide a detailed, incremental, description and cost estimate of the demolition of the Mil/ facility and attendant buildings to be used if MMD were required to reclaim the El Grande mine utilizing a third party contractor. The information provided in the cost estimate (i.e. the original 1998 quote Adjusted for inflation) is unacceptable.

Response: Dicaperl is committed to dismantling the old mill structure at El Grande Mill, beginning during Spring 2016 as site conditions allow (i.e. when snow melt and thaw occurs). The tank farm and associated maintenance building will remain in place. A detailed demolition plan including the proposed burial location of any concrete or other scrap materials, physical and chemical characterization of the materials and an asbestos removal plan will be provided to MMD for approval prior to demolition of the Mill facilities.

Request 17

MMD's original comment: Appendix C, Reference Area Approach, page 3 – Please provide a map that identifies the location of the reference area.

<u>Please provide additional information:</u> Appendix C of the Application, Reference Area Approach, page 3 - states "The reference area approach will be utilized to evaluate the success of reclamation on the site. The reference area will be established on-site in two locations within habitat that is similar to the desired post mining habitat. This area will be sampled in conjunction with reclamation areas, utilizing the methodology presented in this document, to determine the success of reclamation. The reference areas will be at least 5 acres ' in size and will be marked with field signs. These areas will be protected from disturbance, except for normal grazing pressure from livestock and indigenous wildlife. "

Please identify the reference areas that Dicaperl will use to evaluate reclamation success. Please ensure to each reference area is a minimum of 5 acres in size.

Please provide a map showing the exact boundaries of the reference areas and state how the reference areas will be protected. The reference areas shall be fenced to prevent impacts from livestock grazing.

Response: The Reference Area Map attached in Appendix A recommends three representative areas for the assessment of reclamation success. These areas are not intended to be fenced individually their

access is otherwise controlled to the site and grazing is not allowed. Each of these areas will be at least one acre in size, consistent with MMD guidance, and will have corners that are georeferenced for easy and consistent location. These reference areas appear to be consistent with the associated dumps and exploration areas with respect to slope and aspect.

The southwest area and northeast area are consists of open Ponderosa pine forest, while the northern area appears to be a natural savannah/meadow type community, with Ponderosa pine on the slopes above. A listing of the locations of the corners of the reference areas is provided below, and the locations are shown in Figure R1 in Appendix.

El Grande Proposed Reference Areas Corner Mark Coordinates									
		North Reference Area			***Southwest Reference Area***			***Northeast Reference Area***	
		Northwest Corner	**Northeast Corner**		**Northwest Corner**	**Northeast Corner**		**Northwest Corner**	**Northeast Corner**
Latitude		36.753870°	36.753835°		36.742122°	36.742094°		36.746083°	36.745952°
Longitude		-105.968808°	-105.968084°		-105.974014°	-105.973318°		-105.965781°	-105.965170°
		Southwest Corner	**Southeast Corner**		**Southwest Corner**	**Southeast Corner**		**Southwest Corner**	**Southeast Corner**
Latitude		36.753309°	36.753260°		36.741510°	36.741503°		36.745340°	36.745297°
Longitude		-105.968820°	-105.968115°		-105.973998°	-105.973339°		-105.965831°	-105.965321°

Request 18

Dicaperl's response is acceptable to MMD.

Please note: Several reclaimed areas at the El Grande mine will be reaching the 12-year mark for assessment of revegetation success and possible bond release in the near future. Please see comment 17 above.

Response: Request for bond release for certain areas will be included under separate cover. Dicaperl intends to request a bond release for Dump areas 1A, 1B, 1C, and 1D and Exploration areas 3B, 3C, 3D, 3E and 3F. The previous bond amount from October 1998 is $688,166 and the amount of bond release associated with the described areas is $75,760. The reclamation on Dump 1A was completed in 2007 and included regrading, recountouring and reseeding resulting in significant vegetal growth. Dump 1B was regraded, recontoured and reseeded prior to 2006 completing reclamation demonstrating significant vegetation. Dump 1C was also regraded, recontoured and reseeded finalizing reclamation in 2006 with significant regrowth. Dump 1D was reclaimed in 2010 showing positive vegetal regrowth after reclamation.

<u>Cost Estimate Comments</u>

The following are general and preliminary comments from MMD's review of the proposed cost estimate that Dicaperl submitted with the Updated Closeout Plan on December 23, 2014. Additional comments may be provided when technical comments have been adequately addressed and the cost estimate has been updated accordingly.

Request 19

MMD's original comment: Appendix D, Standard Reclamation Cost Estimator – The closeout cost estimates appears thorough. However, the accompanying narrative is vague in sections and fails to provide detailed explanations about how specific closure and reclamation activities at a level that would allow a third party to execute the closure plan within the cost estimate provided.

a. The cost estimate provides a location factor based upon Southern Nevada. Please change the location factor to Alamosa, Colorado and adjust the costs accordingly.
b. Please provide unit cost and references for labor.
c. Please provide the hours needed to complete each reclamation task.
d. Please identify where the borrow area(s) is/are, and the haul distances to the reclaimed areas from the borrow area(s) employed to perform this cost estimate.
e. The cost estimate needs to include the detailed costs of reclaiming and reseeding the borrow area(s).
f. Please update unit costs to 2015.
g. The cost estimate will need to be escalated for the five (5) year term of the Permit based upon the Consumer Price Index.

<u>Please provide additional information:</u> Thank you for changing the location factor to Alamosa, Colorado and/or updating the unit costs to 2014. MMD cannot evaluate Dicaperl's cost estimate until all of the requested information is provided. Please provide a narrative description of reclamation activities, at a level of detail that would allow a third party to execute the proposed closeout plan within the cost estimate provided. Please provide a detailed description of exactly what reclamation work would be needed to reclaim each unit if the mine were to close within the next five years. The information requested in comment 7b is also necessary to evaluate Dicaperl's cost estimate. Upon request, MMD will provide a cost estimate format example that has been acceptable in the past. Please ensure that the font size and numeric values in calculation figures are readable in both hard copies and electronic copies in future submissions.

The cost estimate, escalated over 5 years, should be based on 3%, not 2%

Response: The closure costs for the El Grande Mine have been recalculated using the location factor based on Alamosa, Colorado. The labor rates as well as equipment and material costs have been updated to reflect the location factor change as well as updated 2014 unit costs. The most current cost file available for the Standard Reclamation Cost Estimator reflects 2014 unit costs. Reclamation costs originally included in the 1998 Closeout Plan associated with Dumps 1A, 1B, 1C, 1D, 1E and Exploration Areas 3B, 3C, 3D, 3E and 3F are excluded from the current costs since these areas have been reclaimed prior to this amendment. The reclamation cost associated with Dump 1Ea submitted previously has been included in the table below for clarity to the overall reclamation bond. All cost tables and unit costs are attached in Appendix C for more detail. The costs of regrading and reseeding the topsoil stockpile areas is included in the reclamation costs of the Quarry due to the proximity of the stockpiles along the border of the Quarry. Costs associated with mobilization/demobilization, roads and facilities are included in the overall costs shown below. The updated overall closure cost is $640,115, this value includes all of the following: earthwork/grading, monitoring, topsoil cover, 2014 labor and equipment costs, and revegetation seeding costs see Appendix C for reclamation cost spreadsheets. The cost estimate escalated for the five year term at 3.0% inflation is $742,069. The cumulative closure costs including Dump 1Ea is $780,764. The details of Dump 1Ea closure costs were submitted previously in the January 21, 2016 El Grande Mine Dump 1Ea submittal. See the table below for hours needed to complete each

reclamation task and approximate haul distances to topsoil materials. Since there are multiple topsoil stockpiles the haul distances vary for each reclamation site.

EL Grande Mine Reclamation Costs	
Dump Sites (1Eb, 1Ec, 1E, 2A)	$154,297
EXP Area 3A	$54,374
Quarry	$97,190
Roads	$5,979
Facilities (Earthwork and Reveg)	$5,063
Facilities (Demo and Removal)	$44,135
Monitoring	$15,082
Mob/Demob	$21,064
Construction Management	$61,171
Indirect Costs	$181,760
TOTAL	$640,115
Inflation at 3.0% for 5 years	$742,069
Dump 1Ea	$38,695
TOTAL	$780,764

EL Grande Reclamation Haul Distance & Time to Complete		
	Time to Complete Reclamation	**Haul Distance (Varies – Averages Assumed)**
Exploration	~3 months (360 hours)	-
Roads	~3 weeks (90 hours)	-
Waste Dumps	~1 year (1,440 hours)	~1,800 feet to ORP (Dump 1Ea only) (~1592 feet to topsoil)
Quarry	~1 year (1,440 hours)	~0 feet to ORP (~1350 feet to topsoil)
Demolition of Foundation & Buildings	~8 months (960 hours)	-

**Note Exploration, Roads and Foundation and Buildings will not have Topsoil (Raton-rock outcrop-Orejas) applied.*

Request 20

Dicaperl's response is acceptable to MMD.

Additional MMD Comments (to Dicaperl's Response)

Request 21

Please provide a reclamation work schedule for the waste dumps, stockpiles, quarries, and exploration areas pursuant to §19.10.5.506.B(1) of the New Mexico Mining Act Rules ("Rules"). The schedule should include anticipated starting and finishing dates, incremental work to be conducted, and the period of time anticipated for various phases.

Response: A schedule was prepared according to the reclamation plan for the El Grande site. See attached schedule in Appendix D. The following provides the Final Reclamation steps:

Reclamation - (Dump areas 1E, 1Ea, 1Eb, 1Ec, Future 2A, Exp 3A and the Quarry)

- Grade to 2 feet below the anticipated final grading plan
- Cover import 1 – haul and place 1 foot (4853 cubic yards) of ORP cover material from the quarry area.
- Cover import 2 – haul and place 1 foot (4853 cubic yards) of Raton-rock outcrop-Orejas topsoil from stockpiles identified in Figure No. 3_1-2 Work Area Site Plan.
- Prepare area for seeding – final grading and disking, as necessary
- Seed – broadcast seed and add mulch, if prescribed

Mill Demolition – (Facilities and Buildings)

- Remove siding – detach metal siding material from the structure
- Dismantle/remove infrastructure - remove metal or wood infrastructure by disconnecting or cutting
- Stockpile removed material for temporary storage and ultimate recycling, as applicable
- Remove salvageable material
- Remove storage tanks and buildings
- Break concrete foundation to 36 inches (diameter)
- Dispose of/bury concrete on site
- Grade site
- Import top dressing
- Disc and seed

Roads – (Haul Roads)

- Rip road surface to two feet
- Final grade

- Broadcast seed

Request 22

Appendix E of the Application contained a Bid for removal of facilities dated November 7, 1998 stating that "Ace Metals can remove above ground metal and structures from the Dicaperl, No Agua Peaks, NM, site for $132,000.00. This project will take approximately ten (10) months. In the Response, Application Closure Cost Estimate Cost Summary Dicaperl reports a cost of $129,777 in section D. Structure, Equipment and Facility Removal, and Misc. Please explain why the cost of removing the above ground metal and structures decreased by $7,522.00.

Response: in the original 1998 Closeout plan Ace Metals states "can remove above ground metal and structures from the Dicaperl, no Aqua Peaks, NM site for $132, 000." The $132,000 quote only included a cost for facility removal. Dicaperl is reporting a cost of $44,135 for Facility Demo and Removal and $5,063 for earthwork and revegetation see attached Appendix C for cost details. This is an overall total of $49,198 for Facility demolition, removal, earthwork, and revegetation. There is a cost decrease based on minimal background with previous estimate for removal.

In addition please address the following agency comments:

Request 23

Office of State Engineer.

Response: Dicaperl has reviewed the contents of the attachment and concludes that none of the impoundments in questions will impound water for more than 96 hours, which would require a permit from the New Mexico Office of the State Engineer.

Request 24

New Mexico Environment Department Air Quality Bureau.

Response: Dicaperl has reviewed the contents of this attachment and concludes that no further action is necessary because the only regulated source of emissions (i.e. the Mill) is not currently operated and is intended to be removed in the spring of 2016.

Request 25

Department of Cultural Affairs Historic Preservation Division.

Response: Dicaperl has reviewed the contents of the attachment and concludes that this is an advisory statement and acknowledges that areas of future planned disturbance will be surveyed in advance of the disturbance activities for identification and mitigation of archeological sites.

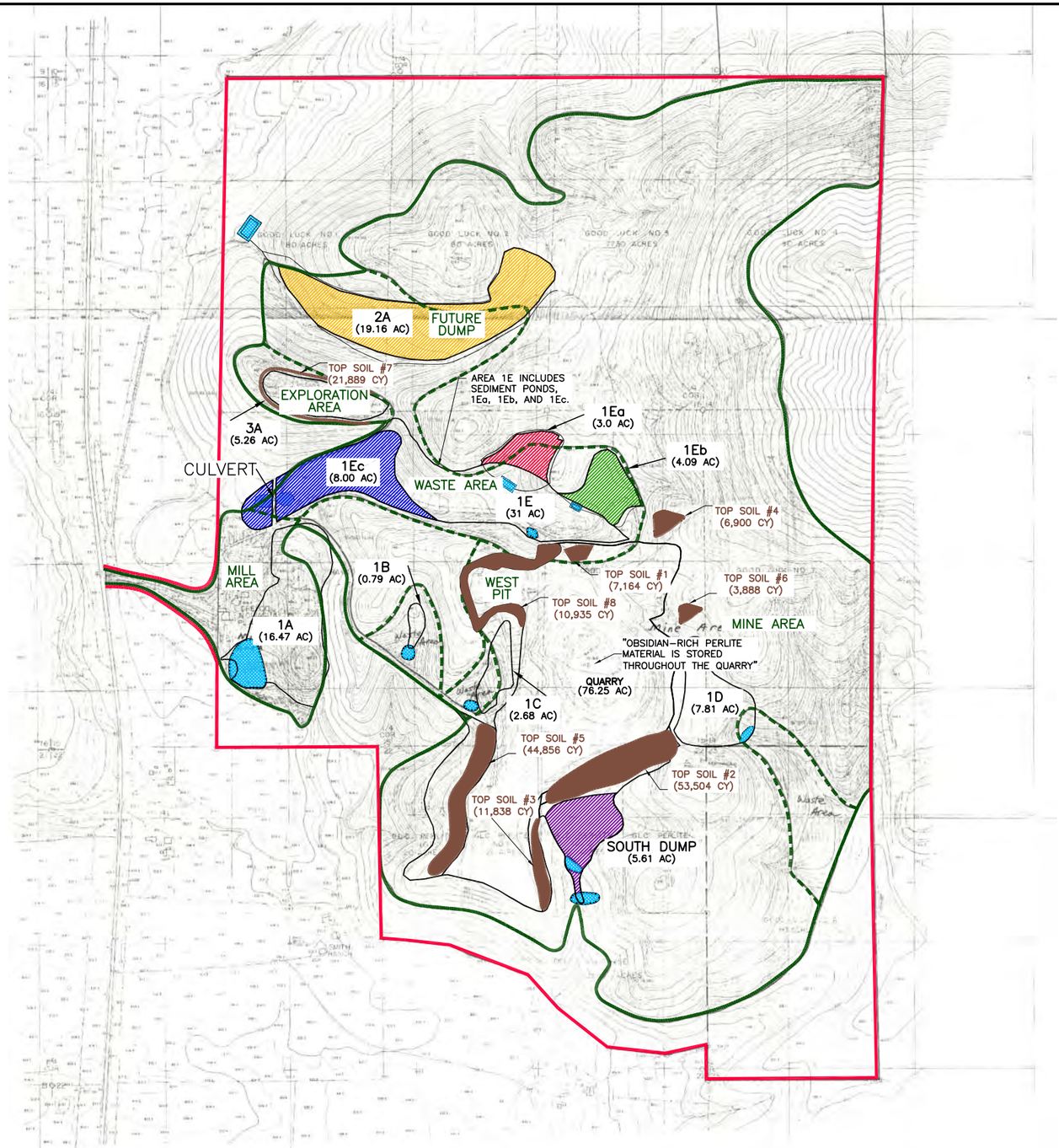
Thank you for this opportunity to provide these responses to your letter. If you have any questions regarding these responses, please do not hesitate to contact Allen Norris at 575-835-2892.

Sincerely,

Allen Norris
Plant Manager
Dicaperl Minerals Corp.

APPENDIX A

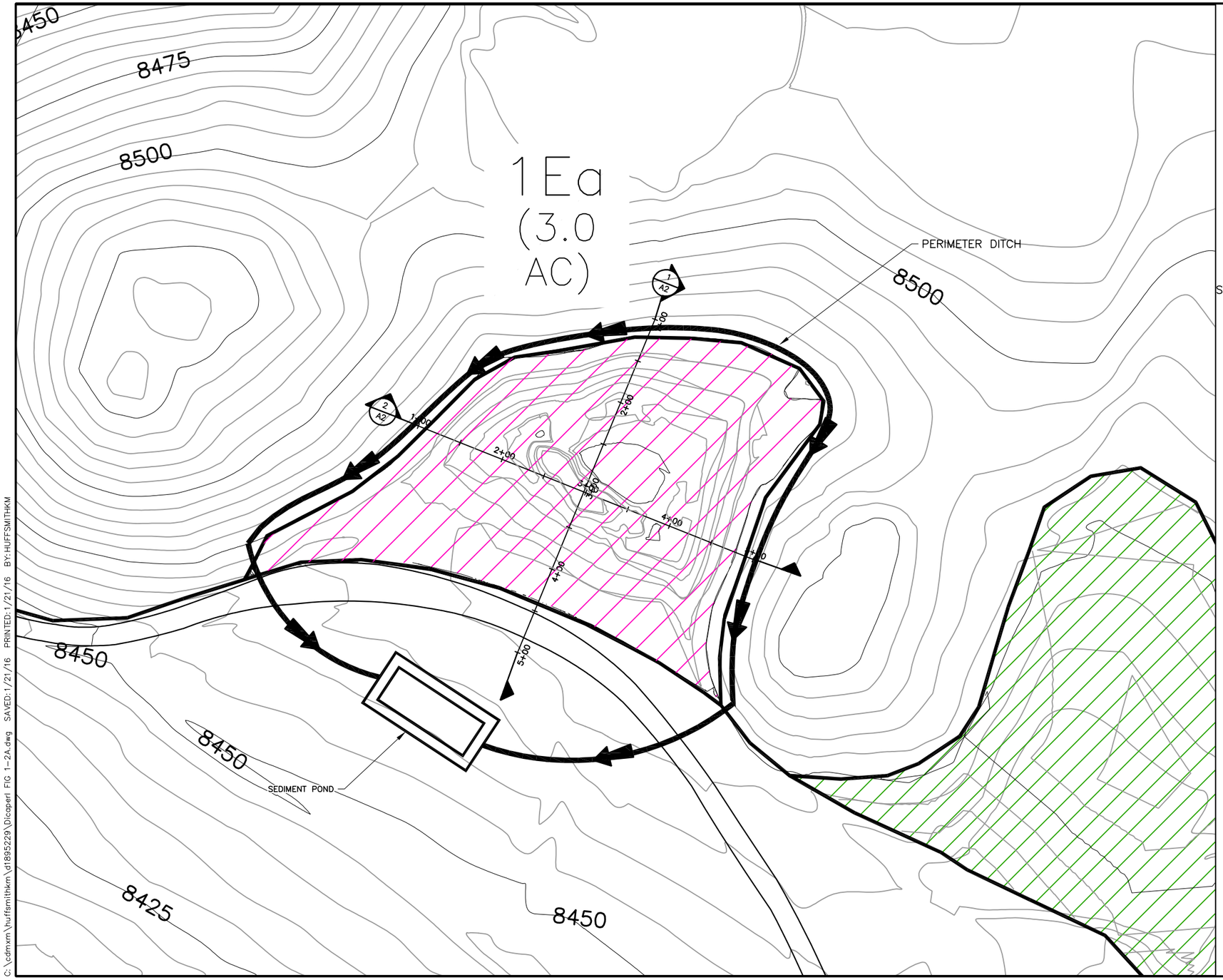
Reclamation Design Figures

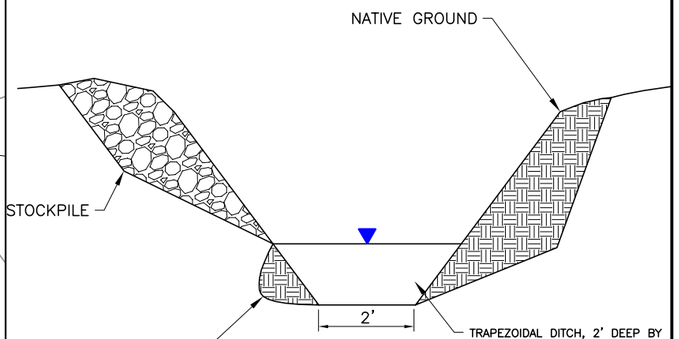


C:\cdmxm\huffsmithkm\d1895228\Dicoperl FIG 1-2A1.dwg

CDM Smith

Figure #3-1-2
WORK AREA SITE PLAN
JANUARY 2016





PERIMETER DITCH

DETAIL 1 / A1

N

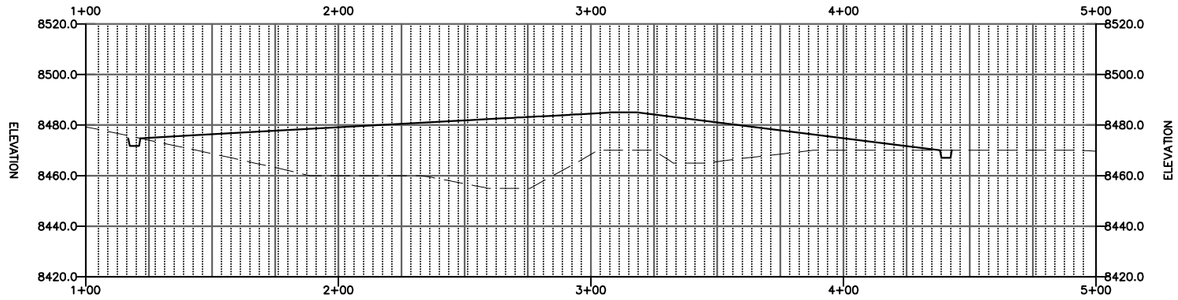
1" = 120'

30 0 60

C:\cdmxm\huffsmithkm\d1895229\Dicaperl FIG 1-2A.dwg SAVED:1/21/16 PRINTED:1/21/16 BY:HUFFSMITHKM

CDM Smith

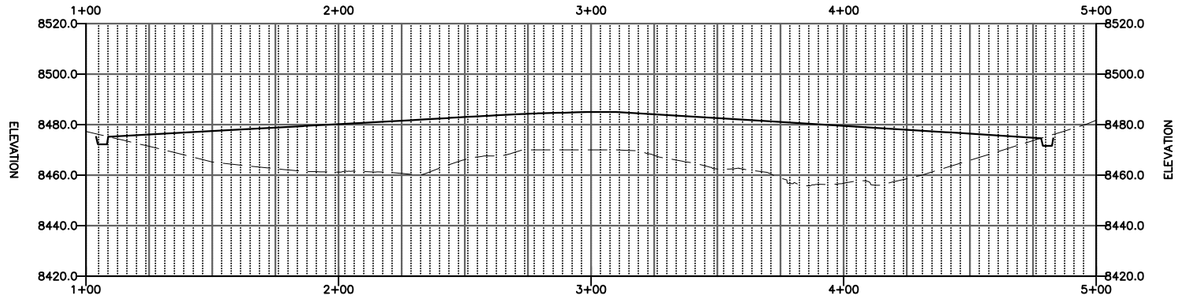
Figure No. A1
WORK AREA SITE PLAN - 1EA
JANUARY 2016



NORTH AND SOUTH SECTION 1Ea

SECTION 1 / A1

1" = 30'



EAST AND WEST SECTION 1Ea

SECTION 2 / A1

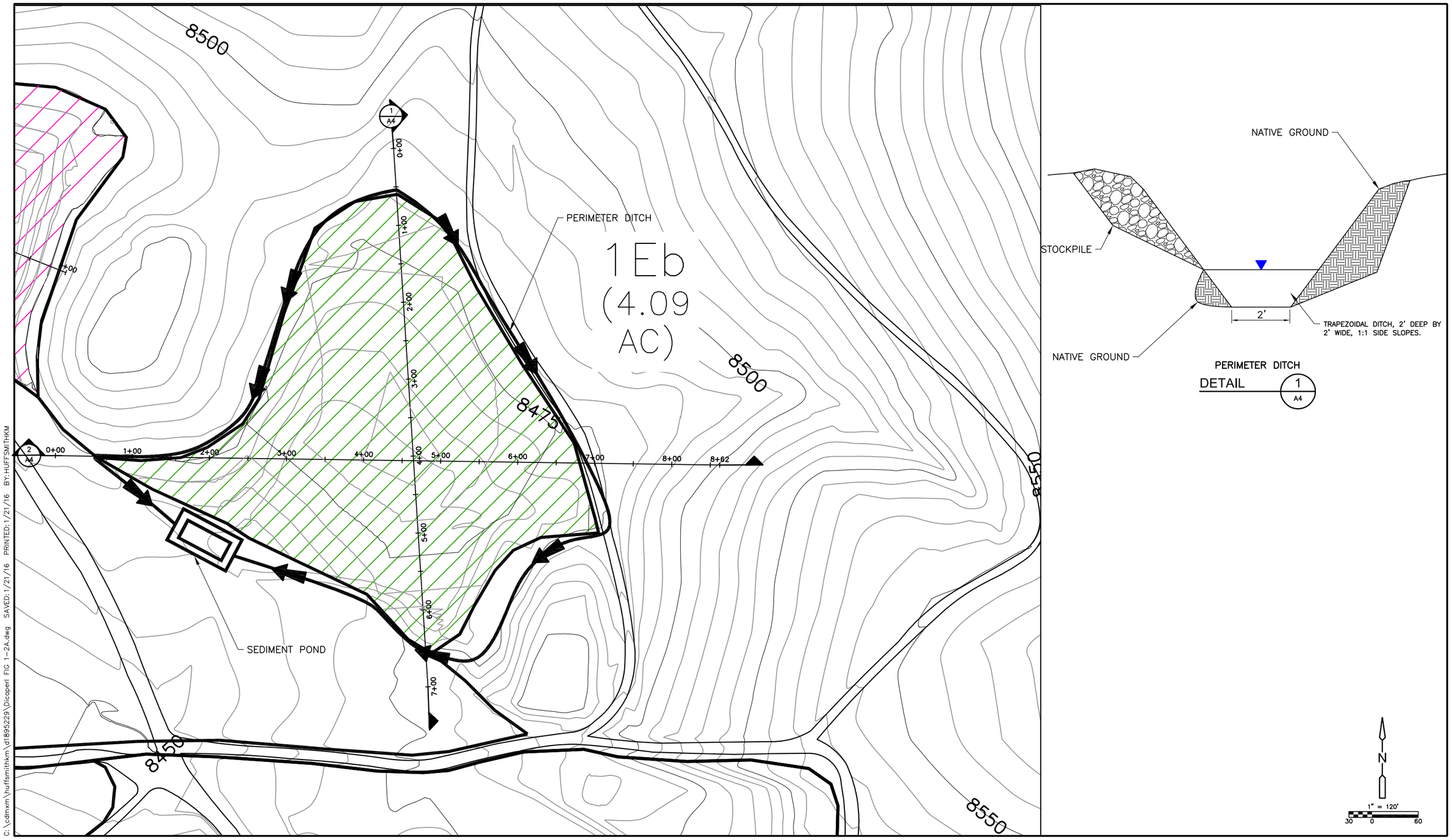
1" = 30'

CDM Smith

Figure No. A2

DUMP - 1Ea CROSS SECTIONS

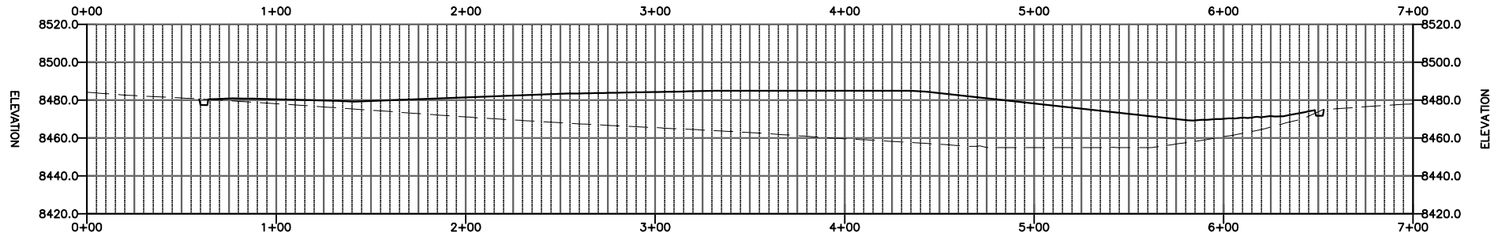
JANUARY 2016



C:\cdmxm\huffsmithkm\d1895229\Dicaperl FIG 1-2A.dwg SAVED:1/21/16 PRINTED:1/21/16 BY:HUFFSMITHKM

CDM Smith

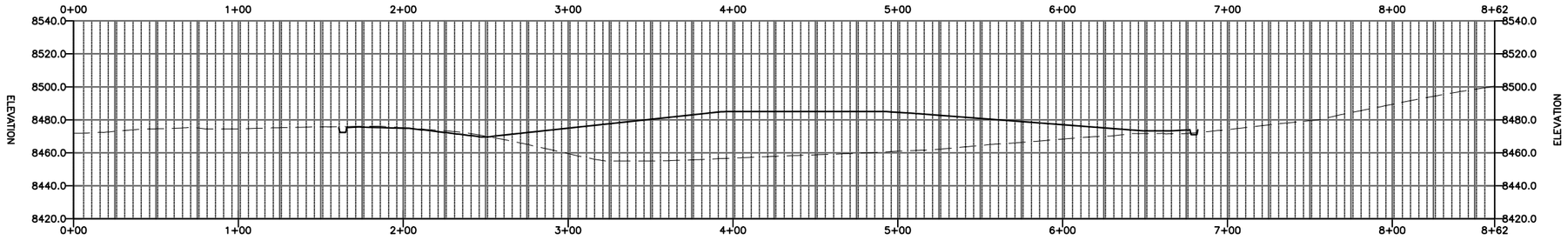
Figure No. A3
WORK AREA SITE PLAN - 1Eb
JANUARY 2016



NORTH AND SOUTH SECTION 1Eb

SECTION 1 / A3

1" = 40'



EAST AND WEST SECTION 1Eb

SECTION 2 / A3

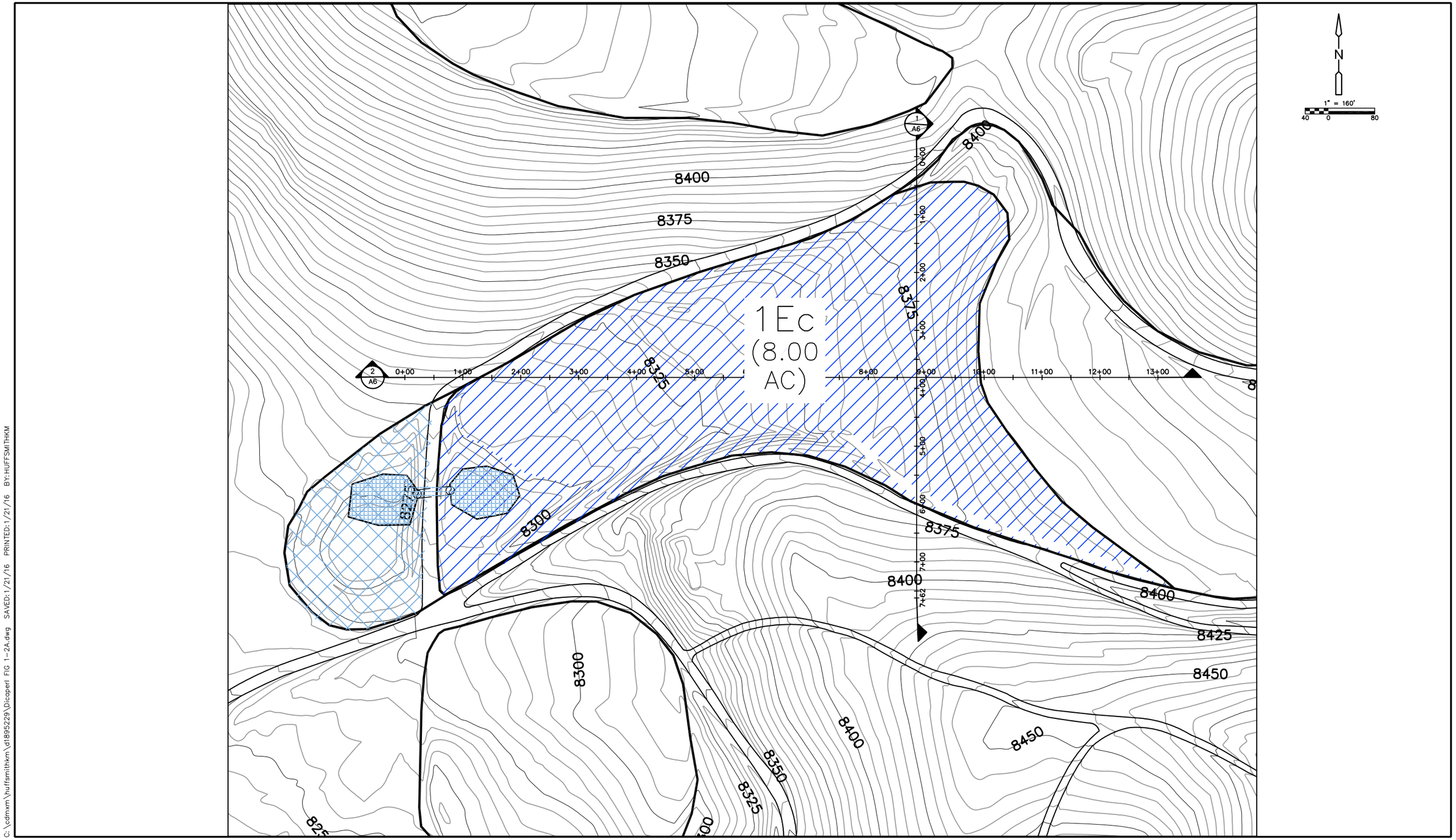
1" = 40'

CDM Smith

Figure No. A4

DUMP - 1Eb CROSS SECTIONS

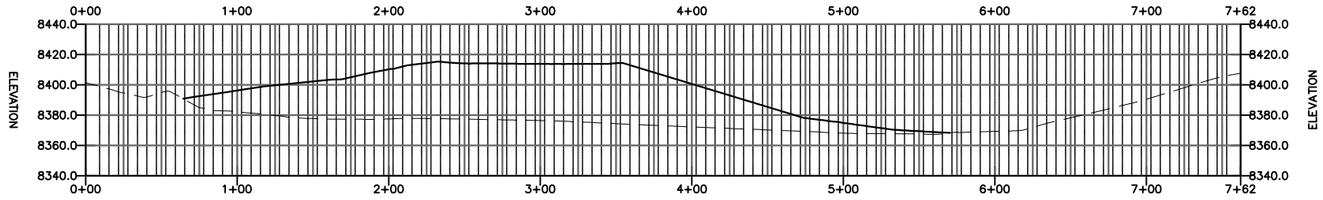
JANUARY 2016



C:\cdmxm\nuffsmithkm\d1895229\Dicaperl FIG 1-2A.dwg SAVED:1/21/16 PRINTED:1/21/16 BY:HUFFSMITHKM

CDM Smith

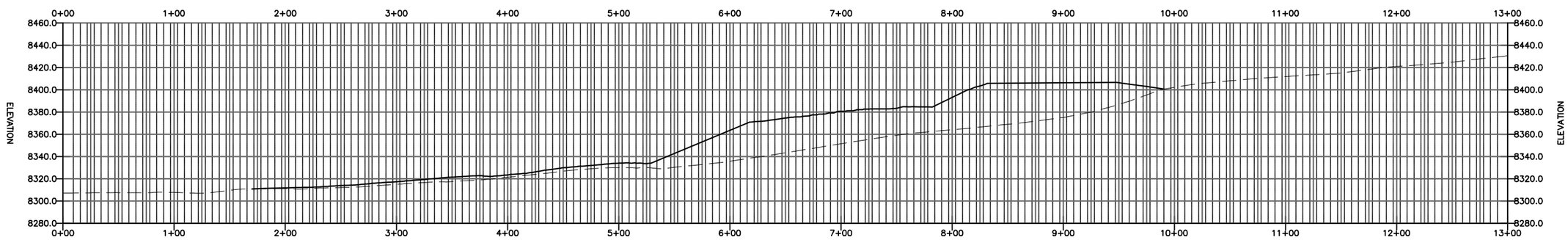
Figure No. A5
WORK AREA SITE PLAN - 1Ec
JANUARY 2016



NORTH AND SOUTH SECTION 1Ec

SECTION 1 / A5

1" = 50'



EAST AND WEST SECTION 1Ec

SECTION 2 / A5

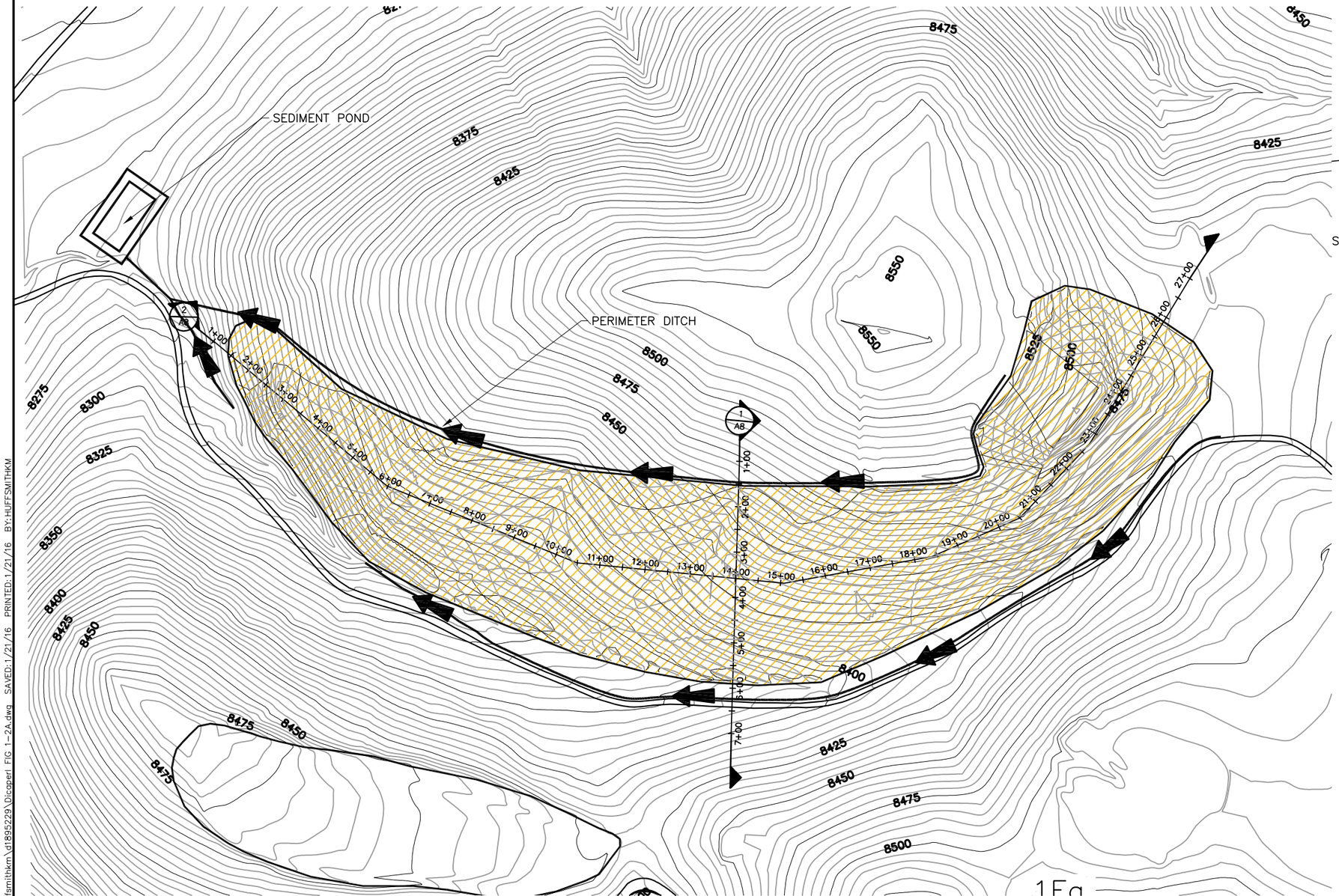
1" = 50'

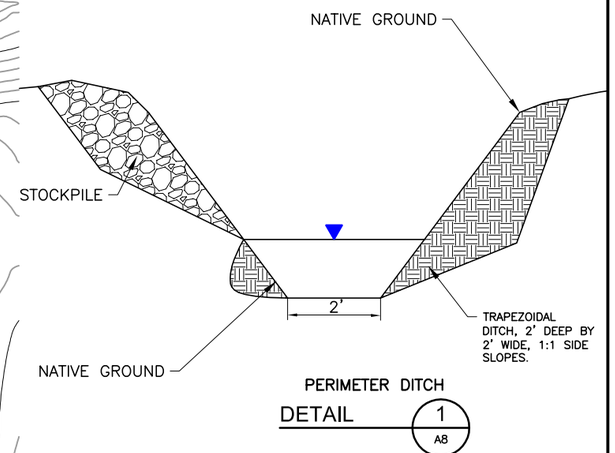
CDM Smith

Figure No.A6

DUMP - 1Ec CROSS SECTIONS

JANUARY 2016





PERIMETER DITCH

DETAIL 1 / A8

N

1" = 200'

50 0 100

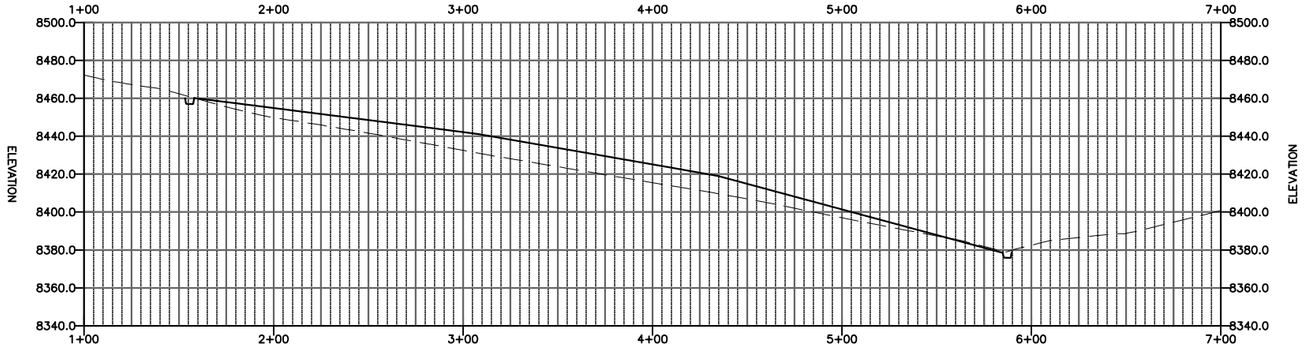
C:\cdmxm\huffsmithkm\dt1895229\Dicaperl FIG 1-2A.dwg SAVED:1/21/16 PRINTED:1/21/16 BY:HUFFSMITHKM

CDM Smith

Figure No. A7

WORK AREA SITE PLAN - 2A

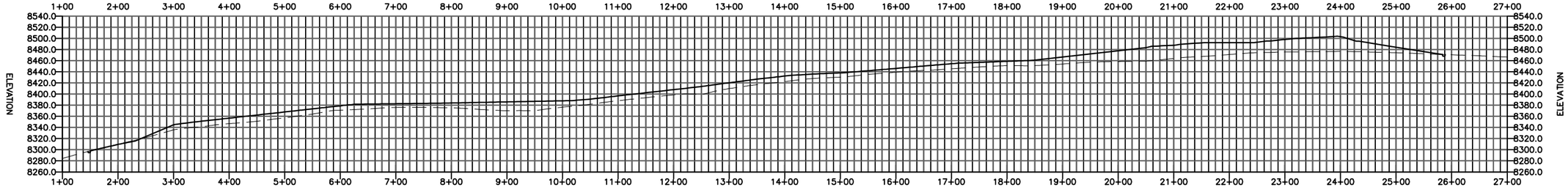
JANUARY 2016



NORTH AND SOUTH SECTION 2A

SECTION 1 / A7

1" = 40'



EAST AND WEST SECTION 2A

SECTION 2 / A7

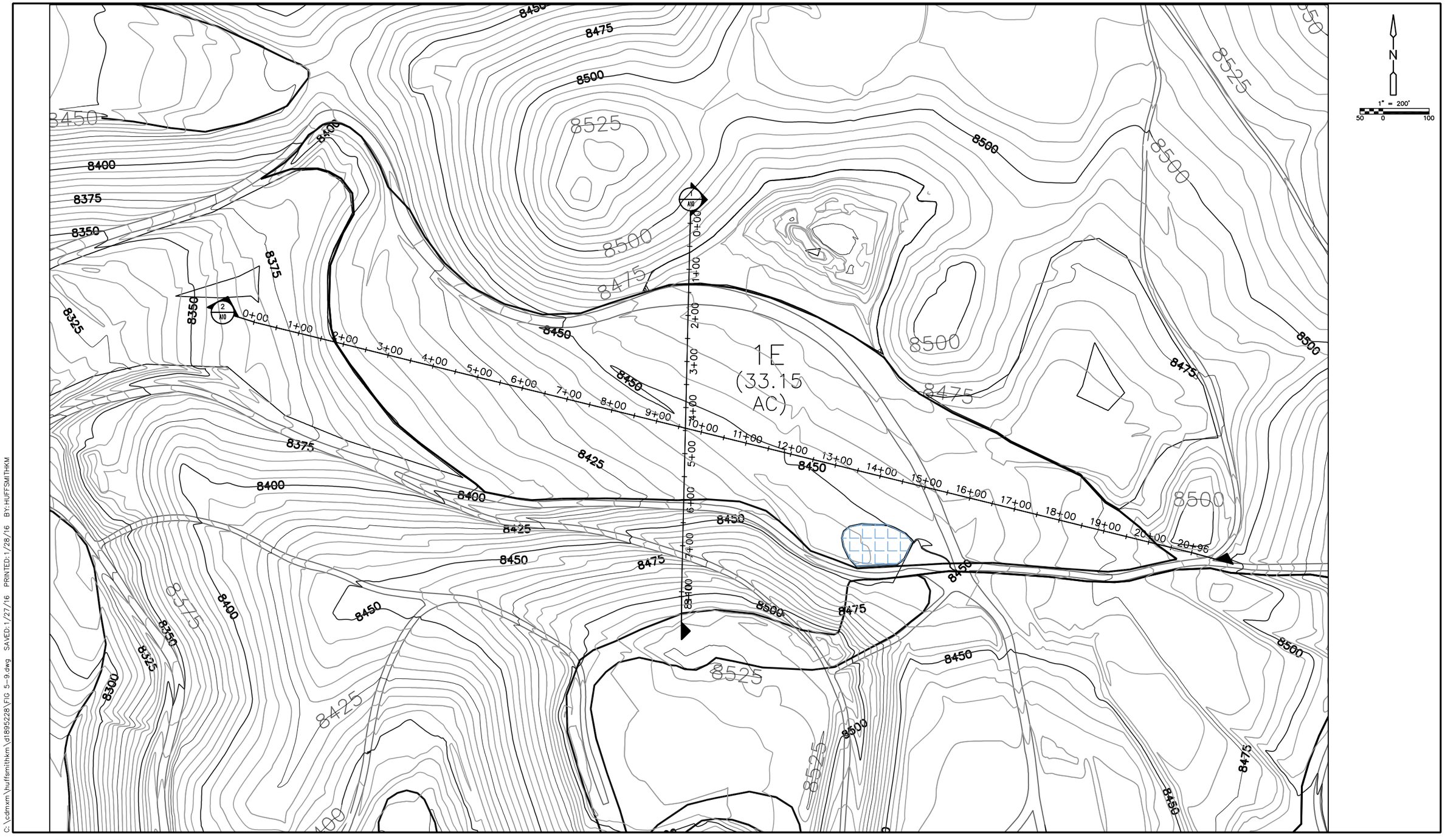
1" = 100'

CDM Smith

Figure No. A8

DUMP - 2A CROSS SECTIONS

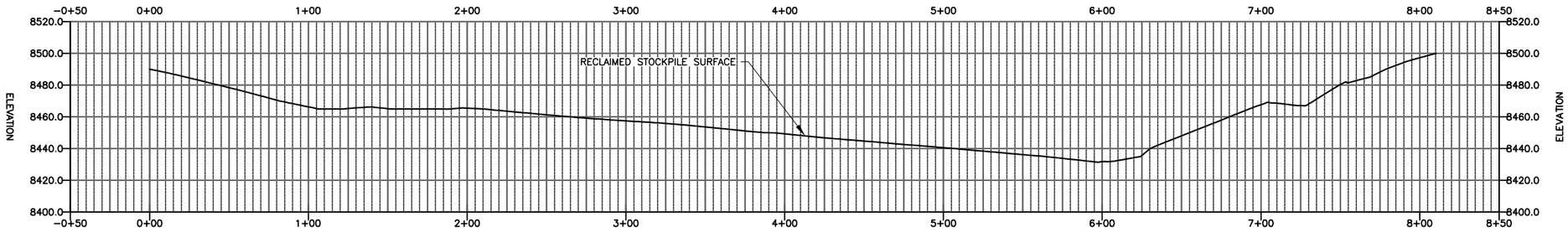
JANUARY 2016



C:\cdmxm\huffsmithkm\vd1895228\FIG 5-9.dwg SAVED:1/27/16 PRINTED:1/28/16 BY:HUFFSMITHKM

CDM Smith

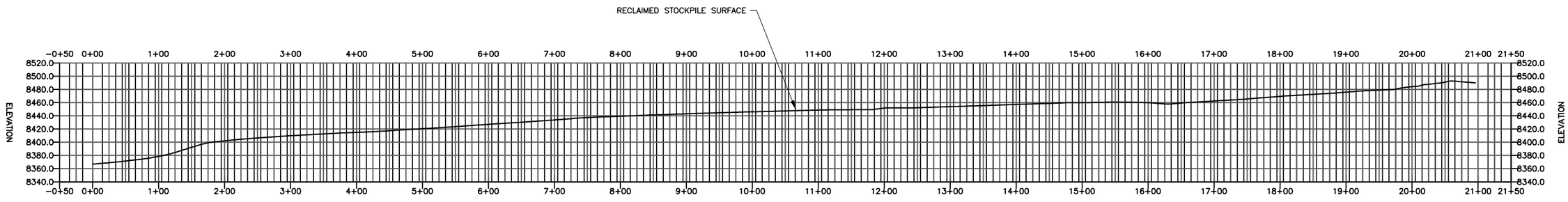
Figure No. A9
WORK AREA SITE PLAN - 1E
JANUARY 2016



NORTH AND SOUTH SECTION 1E

SECTION 1 / A9

1" = 40'



EAST AND WEST SECTION 1E

SECTION 2 / A9

1" = 80'

CDM Smith

Figure No. A10

DUMP NO. 1E NORTH/SOUTH AND EAST/WEST CROSS SECTIONAL VIEWS

JANUARY 2016

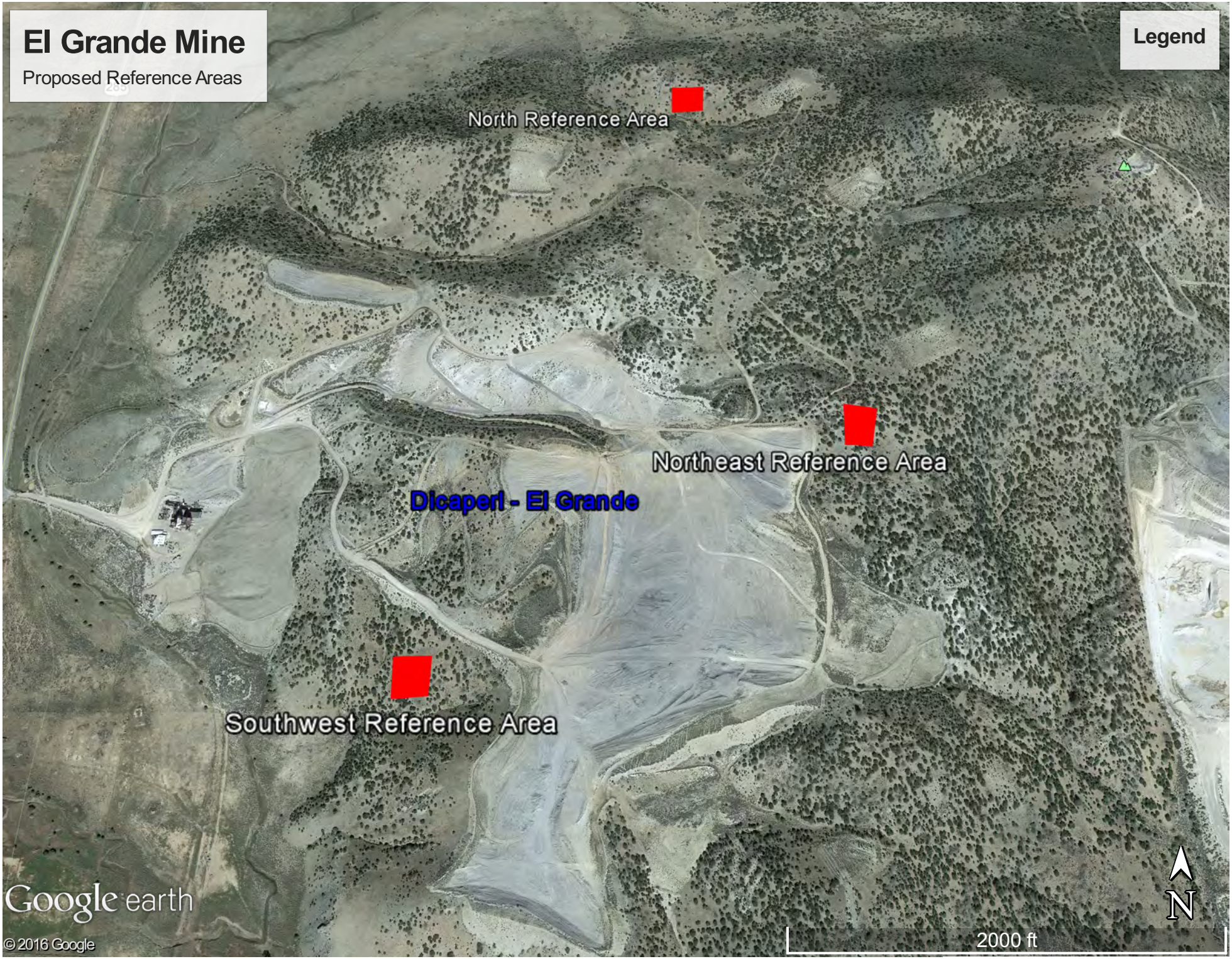

El Grande Mine
Proposed Reference Areas
Legend
North Reference Area
Northeast Reference Area
Dicaperl - El Grande
Southwest Reference Area
Google earth
© 2016 Google
2000 ft
N

Figure No. R-1

APPENDIX B

Stormwater Calculations

Sediment Pond 1 Eb

Estimate runoff and sediment from area

Note: A diversion is needed upslope from this waste pile to divert runoff from the upslope mountain contributing area.
This waste pile is located in a "natural drainage way".
For design purposes this diversion is located to the north of this waste pile and is south of contour elevation 8500 ft.

Determine the volume of runoff and sediment flowing to a proposed sediment pond near waste pile 1Eb

From acad (see attached dainage area map)

The area is :	437584	sf
	10.05	acres

Determine the curve number of the contributing area.
From NRCS TR-55 Table 2-2d (see attached)
CN= 85
assuming sagebrush with grass understory
poor hydrologic condition

Calculate the maximum possible retention (in)

S = (1000/CN)-10
S= 1.76

Calculate the total rainfall depth (P_e) in storm (in)

P_e= (P-0.2xS)^2 /(P + 0.8S)

Where P is the design storm (in)
The design storm is the 10-yr 24-hr storm event
To determine P the NOAA website is used
To use this site the latitude and longitude of th site is inptted

Lat =	36.7475	degrees
Long =	-105.971	degrees

P = 2.03 in

P_e= (P-0.2xS)^2 /(P + 0.8S)

P_e= 0.82 in

Calculate the total runoff from the area

V_r = Pe / 12 x Area

V_r = 0.68 ac-ft
This quantity represents the water storage in the pond

Calculate the sediment load from the area

From the NCRS report "Sediment loss from Soil Erosion"
for D hydologic soil group the yearly average is
2.7 tons per acre per year (see attached chart)

total sediment load = 2.7 * area

total sediment load = 27 tons
54246 lbs
Assume the sediment weighs 100 lb/cf

the volume of sediment = 542 cf
20 cy
the pond will hold 3 years of sediment

the total volume of sediment = 1627 cf
0.04 ac-ft

The total volume of the pond is the water storage plus sediment

total pond volume 0.72 ac-ft

add volume for freeboard

total pond size approximately 1 ac-ft

Sediment Pond 2A

Estimate runoff and sediment from area

Determine the volume of runoff and sediment flowing to a proposed sediment pond near waste pile 2A

From acad (see attached dainage area map)
The area is : 1680028 sf
38.57 acres

Determine the curve number of the contributing area.
From NRCS TR-55 Table 2-2d (see attached)
CN= 85
assuming sagebrush with grass understory
poor hydrologic condition

Calculate the maximum possible retention (in)

S = (1000/CN)-10
S= 1.76

Calculate the total rainfall depth (P_e) in storm (in)

P_e= (P-0.2xS)^2 /(P + 0.8S)

Where P is the design storm (in)
The design storm is the 10-yr 24-hr storm event
To determine P the NOAA website is used
To use this site the latitude and longitude of th site is inptted
Lat = 36.7475 degrees
Long = -105.971 degrees

P = 2.03 in

P_e= (P-0.2)^2 /(P + 0.8S)

P_e= 0.82 in

Calculate the total runoff from the area

V_r = Pe / 12 x Area

V_r = 2.63 ac-ft

This quantity represents the water storage in the pond

Calculate the sediment load from the area

From the NCRS report "Sediment loss from Soil Erosion"
for D hydologic soil group the yearly average is
2.7 tons per acre per year (see attached chart)

total sediment load = 2.7 * area

total sediment load =	104	tons
	208268	lbs

Assume the sediment weighs 100 lb/cf

the volume of sediment =	2083	cf
	77	cy

the pond will hold 3 years of sediment

the total volume of sediment =	6248	cf
	0.14	ac-ft

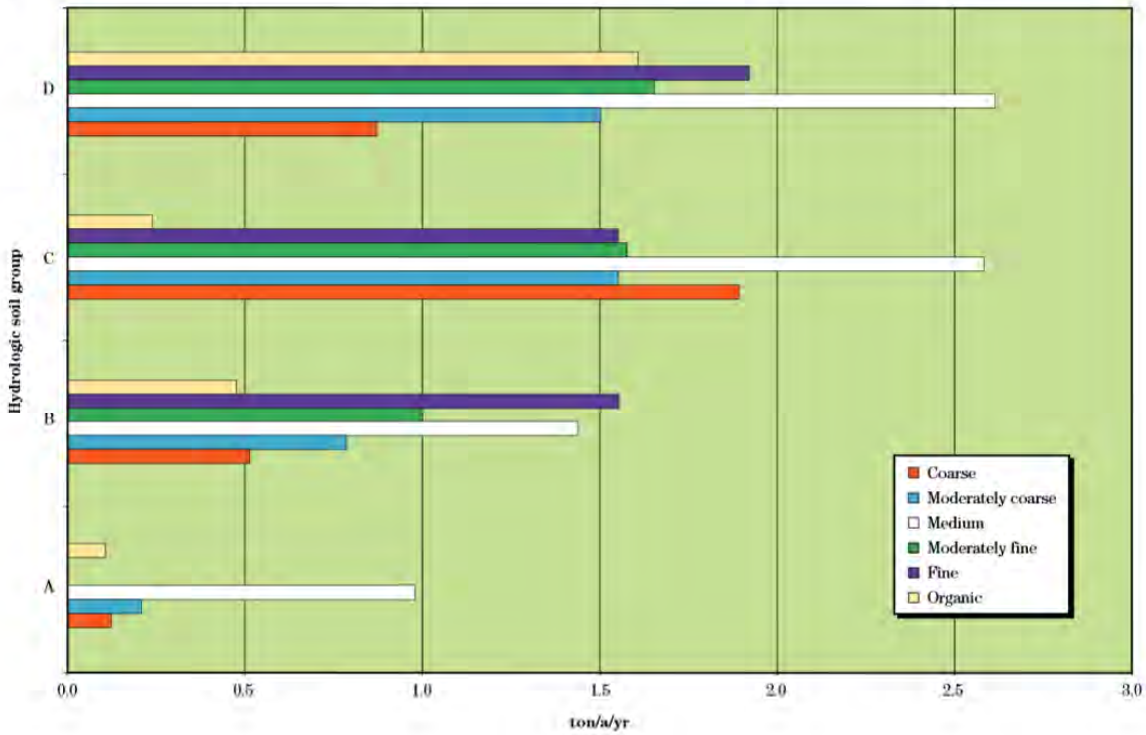
The total volume of the pond is the water storage plus sediment

total pond volume	2.77	ac-ft

add volume for freeboard

total pond size approximately	3	ac-ft

Figure 10 Average per-acre sediment loss estimates (MUSLE)–by hydrologic soil group and soil texture group



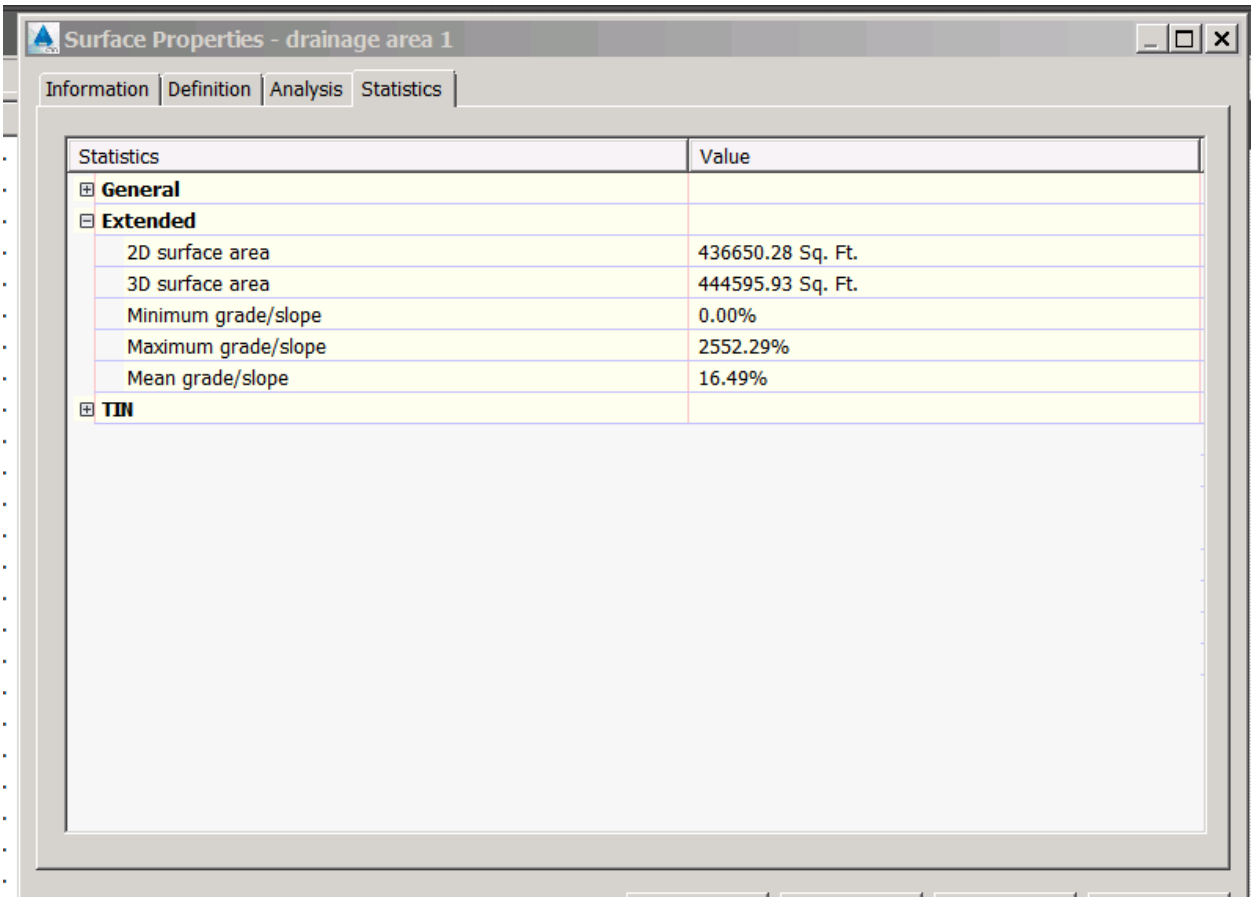

Surface Properties - drainage area 1
Information
Definition
Analysis
Statistics
Statistics
Value
General
Extended
2D surface area
436650.28 Sq. Ft.
3D surface area
444595.93 Sq. Ft.
Minimum grade/slope
0.00%
Maximum grade/slope
2552.29%
Mean grade/slope
16.49%
TIN

Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition [2/]	A [3/]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

1 Average runoff condition, and $I_a = 0.2S$. For range in humid regions, use table 2-2c.
2 Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
3 Curve numbers for group A have been developed only for desert shrub.

APPENDIX C

Reclamation Closure Costs for El Grande Mine

Closure Cost Estimate
Cost Summary

Project Name: Dicaperl El Grande Closeout Plan
Project Date: January 23,2016
Model Version: Version 1.4.1
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm

A. Earthwork/Recontouring	Labor [1]	Equipment [2]	Materials	Total
Exploration	$10,710	$42,575	$0	$53,285
Exploration Roads & Drill Pads	$0	$0	$0	$0
Roads	$317	$1,837	$0	$2,154
Well Abandonment	$0	$0	$0	$0
Pits	$0	$0	N/A	$0
Quarries & Borrow Areas	$8,781	$52,310	$0	$61,091
Underground Openings	$0	$0	$0	$0
Process Ponds	$0	$0	$0	$0
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$18,887	$112,803	$0	$131,690
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$87	$531	$0	$618
Yards, Etc.	$0	$0	$0	$0
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal	**$38,782**	**$210,056**	**$0**	**$248,838**
Mob/Demob if included in Other User sheet	$0	$0	$0	$0
Mob/Demob				$0
Subtotal "A"	**$38,782**	**$210,056**	**$0**	**$248,838**

B. Revegetation/Stabilization	Labor [1]	Equipment [2]	Materials	Total
Exploration	$389	$700	$0	$1,089
Exploration Roads & Drill Pads	$0	$0	$0	$0
Roads	$1,367	$2,458	$0	$3,825
Well Abandonment				N/A
Pits	$0	$0	$0	$0
Quarries & Borrow Areas	$12,902	$23,197	$0	$36,099
Underground Openings				N/A
Process Ponds	$0	$0	$0	$0
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$8,080	$14,527	$0	$22,607
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$643	$1,156	$2,646	$4,445
Yards, Etc.	$0	$0	$0	$0
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "B"	**$23,381**	**$42,038**	**$2,646**	**$68,065**

C. Detoxification/Water Treatment/Disposal of Wastes**	Labor [1]	Equipment [2]	Materials	Total
Process Ponds/Sludge				$0
Heaps				$0
Dumps (Waste & Landfill)				$0
Tailings				$0
Surplus Water Disposal				$0
Monitoring				$0
Miscellaneous				$0
Solid Waste - On Site	$0	$0	N/A	$0
Solid Waste - Off Site				$0
Hazardous Materials				$0
Hydrocarbon Contaminated Soils	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "C"	**$0**	**$0**	**$0**	**$0**

D. Structure, Equipment and Facility Removal, and Misc.	Labor [1]	Equipment [2]	Materials	Total
Foundation & Buildings Areas	$33,827	$10,308	$0	$44,135
Other Demolition	$0	$0	$0	$0
Equipment Removal	$0	$0	$0	$0
Fence Removal	$0	$0		$0
Fence Installation	$0	$0	$0	$0
Culvert Removal	$0	$0	N/A	$0
Pipe Removal	$0	$0	N/A	$0
Powerline Removal	$0			$0
Transformer Removal	$0			$0
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Misc. Costs	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "D"	**$33,827**	**$10,308**	**$0**	**$44,135**

E. Monitoring	Labor [1]	Equipment [2]	Materials	Total
Reclamation Monitoring and Maintenance	$8,169	$2,102	$4,811	$15,082
Ground and Surface Water Monitoring	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0

Closure Cost Estimate
Cost Summary

Project Name: Dicaperl El Grande Closeout Plan
Project Date: January 23,2016
Model Version: Version 1.4.1
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm

Subtotal "E"	**$8,169**	**$2,102**	**$4,811**	**$15,082**

F. Construction Management & Support	Labor	Equipment (2)	Materials	Total
Construction Management	$60,595	$576	N/A	$61,171
Construction Support	$0	$0	$0	$0
Road Maintenance	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "F"	**$60,595**	**$576**	**$0**	**$61,171**

Subtotal Operational & Maintenance Costs	Labor (1)	Equipment (2)	Materials (3)	Total
Subtotal A through F	**$164,754**	**$265,080**	**$7,457**	**$437,291**

** Other Operator supplied costs - additional documentation required.

Indirect Costs			Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)				$34,983
2. Contingency (8)				$43,729
3. Insurance (9)	$2,471			$2,471
4. Performance Bond (10)				$13,119
5. Contractor Profit (11)				$43,729
6. Contract Administration (12)				$43,729
7. Government Indirect Cost (13)				$0
Subtotal Add-On Costs				**$181,760**
Total Indirect Costs as % of Direct Cost				42%
GRAND TOTAL				**$619,051**

Administrative Cost Rates (%)

	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)	$500,000	$2,500,000	$25,000,000	$25,000,000	Small Plan
Variable Rate	8%	6%		4%	0%
	<=	<=	<=	>	
2. Contingency (8)	$500,000	$5,000,000	$50,000,000	$50,000,000	Small Plan
Variable Rate	10%	8%	6%	4%	0%
3. Insurance (9)	1.5%	of labor costs			
4. Bond (10)	3.0%	of the O&M costs if O&M costs are >$100,000			
5. Contractor Profit (11)	10%	of the O&M costs			
	<=	<=	<=	>	
6. Contract Administration (12)	$1,000,000	$15,000,000	$25,000,000	$25,000,000	
Variable Rate	10%	8%		6%	
0	0%	$0			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES
NOTE :

Closure Cost Estimate
Waste Rock Dumps

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$548	$3,366	N/A	$3,914
Cover Placement Cost	$17,331	$103,235	N/A	$120,566
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$1,008	$6,202	N/A	$7,210
Subtotal Earthworks	**$18,887**	**$112,803**	**$0**	**$131,690**
Revegetation Cost	$8,080	$14,527	$0	$22,607
TOTALS	**$26,967**	**$127,330**	**$0**	**$154,297**

Waste Rock Dumps - User Input

You must fill in ALL green cells in this section for each dump, lift or dump category

	Facility Description			Physical - MANDATORY									Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade
1	Dump 1E		Waste Rock Dump	1.1	1.1	3.0	0.0	15	1,753	2,013	16.00		24.0	24.0	2,242	1.0				
2	Dump 1Eb		Waste Rock Dump	1.1	1.1	3.0	0.0	15	425	640	4.00		24.0	24.0	523	1.0				
3	Dump 1Ec		Waste Rock Dump	1.1	1.1	3.0	0.0	15	680	1,003	8.00		24.0	24.0	688	1.0				
4	Dump 2A		Waste Rock Dump	1.1	1.1	3.0	0.0	50	980	2,355	19.00		24.0	24.0	2,915	1.0				

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Waste Rock Dumps - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category

		Grading				Cover		Growth Media		Revegetation								
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)
1	Dump 1E	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 1	User Mix 1					Yes	Yes	Med Dozer
2	Dump 1Eb	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 1	User Mix 1					Yes	Yes	Med Dozer
3	Dump 1Ec	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 1	User Mix 1					Yes	Yes	Med Dozer
4	Dump 2A	1.2	Alluvium	Med	No	Alluvium	Scraper Dozer			User Mix 1	User Mix 1					Yes	Yes	Med Dozer

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$548	$3,366	N/A	$3,914
Cover Placement Cost	$17,331	$103,235	N/A	$120,566
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$1,008	$6,202	N/A	$7,210
Subtotal Earthworks	**$18,887**	**$112,803**	**$0**	**$131,690**
Revegetation Cost	$8,080	$14,527	$0	$22,607
TOTALS	**$26,967**	**$127,330**	**$0**	**$154,297**

Waste Rock Dumps - Calculations

Regrading Volume Calculation

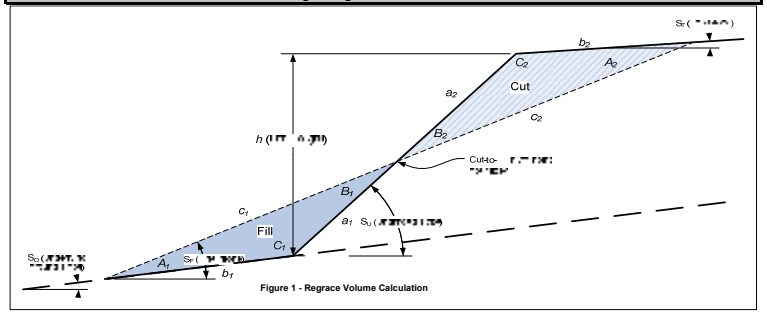


Figure 1 - Regrace Volume Calculation

Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)

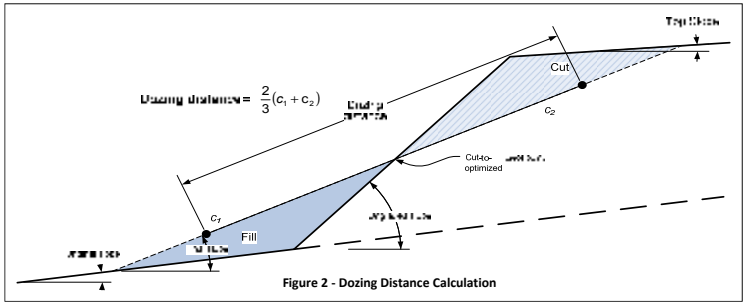


Figure 2 - Dozing Distance Calculation

Final Slope Area and Footprint Area Calculations

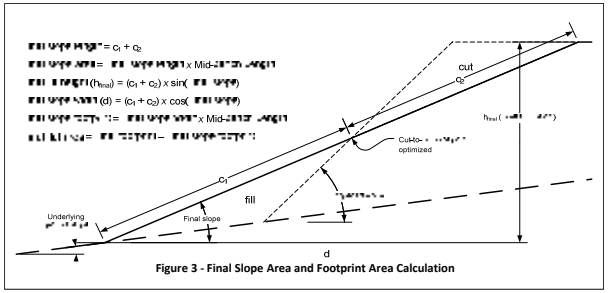


Figure 3 - Final Slope Area and Footprint Area Calculation

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:
Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

Closure Cost Estimate
Waste Rock Dumps

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$548	$3,366	N/A	$3,914
Cover Placement Cost	$17,331	$103,235	N/A	$120,566
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$1,008	$6,202	N/A	$7,210
Subtotal Earthworks	**$18,887**	**$112,803**	**$0**	**$131,690**
Revegetation Cost	$8,080	$14,527	$0	$22,607
TOTALS	**$26,967**	**$127,330**	**$0**	**$154,297**

Waste Rock Dumps - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**Dump 1E**	3,506	50	D9R	2,251	1.6	1.2	0.79	1.0	2,125	2	$58	$354	$412
2	**Dump 1Eb**	850	50	D9R	2,251	1.6	1.2	0.79	1.0	2,125	1	$29	$177	$206
3	**Dump 1Ec**	1,360	50	D9R	2,251	1.6	1.2	0.79	1.0	2,125	1	$29	$177	$206
4	**Dump 2A**	21,778	77	D9R	1,499	1.6	1.2	0.79	1.0	1,415	15	$432	$2,658	$3,090
		27,494									19	**$548**	**$3,366**	**$3,914**

Waste Rock Dumps - Cover and Growth Media Costs

		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost $	Cover Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $
1	**Dump 1E**	51,400	631G/D10R/D7R	979	2	52	$5,988	$35,670	$41,658						$0	$0	$0
2	**Dump 1Eb**	14,424	631G/D10R/D7R	860	1	17	$1,468	$8,761	$10,229						$0	$0	$0
3	**Dump 1Ec**	25,007	631G/D10R/D7R	794	1	31	$2,677	$15,976	$18,653						$0	$0	$0
4	**Dump 2A**	63,243	631G/D10R/D7R	1,271	3	50	$7,198	$42,828	$50,026						$0	$0	$0
		154,074				150	**$17,331**	**$103,235**	**$120,566**						**$0**	**$0**	**$0**

Waste Rock Dumps - Scarifying/Revegetation Costs

	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Dump 1E**	1.93	14.00	15.93	48	2,013	D9R	1	10	$317	$1,949	$2,266	$2,696	$4,846	$0	$7,542
2	**Dump 1Eb**	0.47	4.00	4.47	48	640	D9R	0	3	$86	$532	$618	$757	$1,360	$0	$2,117
3	**Dump 1Ec**	0.75	7.00	7.75	48	1,003	D9R	1	5	$173	$1,063	$1,236	$1,311	$2,358	$0	$3,669
4	**Dump 2A**	3.60	16.00	19.60	160	2,355	D9R	3	12	$432	$2,658	$3,090	$3,316	$5,963	$0	$9,279
		6.75	41.00	47.75				5	30	**$1,008**	**$6,202**	**$7,210**	**$8,080**	**$14,527**	**$0**	**$22,607**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2) Assumes 50min/hr equipment availability

Closure Cost Estimate
Exploration

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Exploration - Cost Summary

	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	$0	$0	$0	$0
Trench Backfilling Costs	$10,710	$42,575		$53,285
Subtotal Earthworks	**$10,710**	**$42,575**	**$0**	**$53,285**
Trench Revegetation Costs	$389	$700	$0	$1,089
TOTALS	**$11,099**	**$43,275**	**$0**	**$54,374**

Exploration Drillhole Abandonment - User Input

	Facility Description		Hole Plugging							
	Description (required)	ID Code	Hole Type (select)	Diameter in	Total Number of Holes	Max Holes Open at One Time	Casing to Remove ft	Average Depth of Hole[1] ft bgs	Depth to Water ft bgs	Hole Plug Method (select)

Notes:
1. If core holes are pre-drilled, use length of hole below pre-drilled length
2. If Top Plug is selected, assumes maximum 1/2hr laborer time to place plug and backfill with cuttings/soil (including move-to/set up time).

Exploration Trenches - User Input

	Facility Description		Trench Parameters					Backfill			Revegetation		
	Description (required)	ID Code	Trench Length ft	Trench Depth ft	Trench Bottom Width ft	Trench Sideslope Angle degrees	Additional Hrs for Walk-in[1] hr	Backfill Material (select)	Cut Material Type (select)	Backfilling Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	3A		973	10.0	75.0	45.0		1.2	Alluvium	Medium Dozer	User Mix 1		

Notes:
1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Exploration Drillhole Abandonment

	Description (required)	Vol/foot of depth ft3	Hole Plugging Material[1]	Total Grout Volume[2] cy	Total Cuttings Volume cy	Total Top Seal Volume[3,4] cy	Total Drillhole Abandon. Hours[6,7] hrs	Casing Removal Labor Cost[5] $	Casing Removal Equipment Cost $	Plugging Labor Cost $	Plugging Equipment Cost $	Plugging Material Cost $	Top Seal Material Cost[2,3] $	Total Cost[6,7] $
								$0	$0	$0	$0	$0	$0	$0

Notes:

1. Assumes grout backfill from bottom of hole to 50' (15.24m) above static water level, up to 10' (3m) from top of hole
2. Assumes 25% loss to formation for grout backfill
3. If "Top Plug" hole plug method is used, assumes physical plug installed without backfill, grout or cement. Not available option for Nevada projects
4. Assumes top 20' (6 m) of hole is plugged with cement if "Grout Only", "Backfill + Grout", or "Cement Plug" hole plug method are chosen.
5. Assumes that a) casing is not cemented entire length, b) does not include temporary surface casing
6. Assumes minimum 1 hr per hole for abandonment (excluding move-to and casing removal)
7. Assumes fixed hours per hole for setup & tear-down and moving between holes (see Productivty Sheet) per drill hole (includes rig time if grouting required, labor crew only if cuttings backfill only)

Closure Cost Estimate
Exploration

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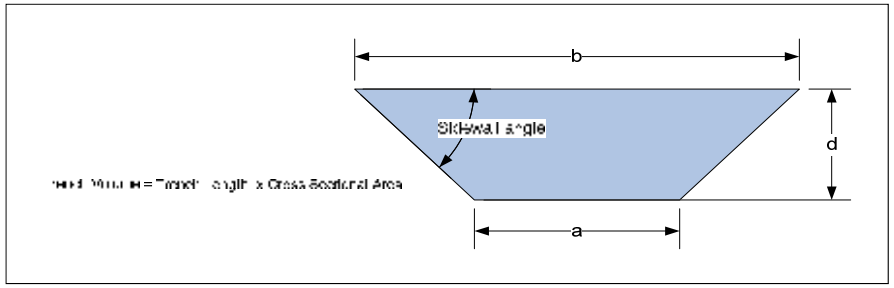
Exploration - Cost Summary

	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	$0	$0	$0	$0
Trench Backfilling Costs	$10,710	$42,575		$53,285
Subtotal Earthworks	**$10,710**	**$42,575**	**$0**	**$53,285**
Trench Revegetation Costs	$389	$700	$0	$1,089
TOTALS	**$11,099**	**$43,275**	**$0**	**$54,374**

Exploration Trenches - Calculations

Exploration Trench Volume Calculation



Dozing & Ripping/Scarifying Calculations

Dozing: Dozing distance = 1/2 trench length or 400 ft (max push) whichever is less
Assumes flat push (grade correction factor = 1)

Revegetation: 10 ft added to trench width to account for revegetation under spoil pile

Exploration Trenches - Backfill/Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)

	Description (required)	Trench Backfill Volume LCY (BCY+30%)	Dozer Push Distance ft	Equipment Productivity yd3/hr	Dozing Material	Density Correction	Backfilling Fleet	Corrected Hourly Productivity yd3/hr	Total Dozer Hours hr	Trench Backfill Labor Cost $	Trench Backfill Equipment Cost $	Total Trench Backfill Cost $
1	**3A**	39,820	487	182	1.20	0.79	D7R	107	372	$10,710	$42,575	$53,285
		39,820							372	**$10,710**	**$42,575**	**$53,285**

Exploration Trenches - Revegetation Costs

	Description (required)	Surface Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**3A**	2.30	$389	$700	$0	$1,089
		2.30	**$389**	**$700**	**$0**	**$1,089**

Closure Cost Estimate
Roads

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
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Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Roads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$115	$597	N/A	$712
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$202	$1,240	N/A	$1,442
Subtotal Earthworks	**$317**	**$1,837**		**$2,154**
Revegetation Cost	$1,367	$2,458	$0	$3,825
TOTALS	**$1,684**	**$4,295**	**$0**	**$5,979**

Roads - User Input

You must fill in ALL green cells and relevant blue cells in this section for each road

	Facility Description			Physical (1) - MANDATORY						User Overrides		Growth Media		
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	**Area Roads**		**Haul Road**	**1.0**	**1.0**	**45.0**	**20.0**	**17,424**	**3%**					

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Roads - User Input (cont.)

		Haul Road Safety Berms				
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	**Area Roads**	**17,424.0**	**0.5**	**3.0**	**3.0**	**2**

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

Roads - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each road

		Grading				Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	**Area Roads**	**1.2**	**Alluvium**	**Med Excavator**	**1**				**User Mix 1**	**None**	**None**	**Yes**	**Med Dozer**

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

Closure Cost Estimate
Roads

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Roads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$115	$597	N/A	$712
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$202	$1,240	N/A	$1,442
Subtotal Earthworks	**$317**	**$1,837**		**$2,154**
Revegetation Cost	$1,367	$2,458	$0	$3,825
TOTALS	**$1,684**	**$4,295**	**$0**	**$5,979**

Roads - Calculations

Regrading Volume and Footprint Volume

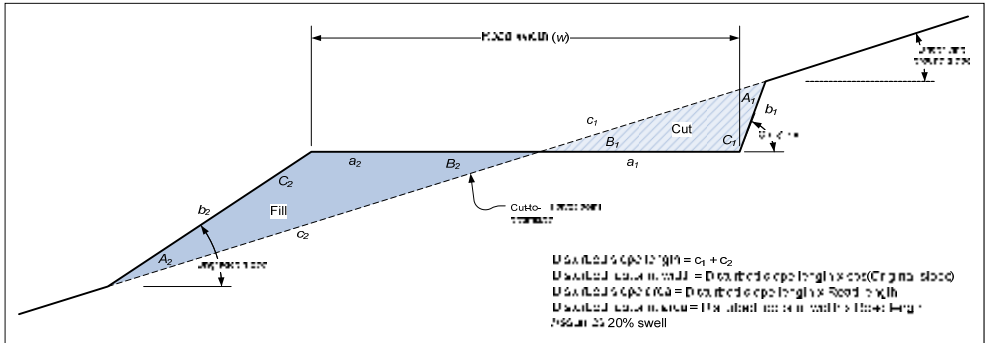
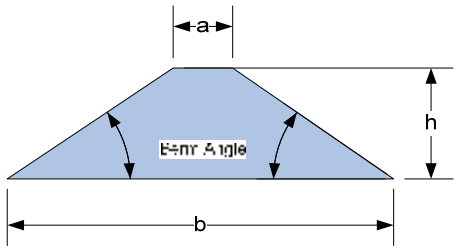


Figure 1 - Regrading Volume Calculation

Will not allow dozer for slopes greater than 30%
For dozer regrading push distance = road width
Assumes dozer push is uphill
Assumes minimum push distance of 100 ft

Safety Berm Volume Calculation

Berm volume = $\frac{(a+b)}{2} \times h$
Sides



Total berm volume doubled if both sides of road are bermed.
If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Road length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
For dozer regrading assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

Closure Cost Estimate
Roads

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
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Roads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$115	$597	N/A	$712
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$202	$1,240	N/A	$1,442
Subtotal Earthworks	**$317**	**$1,837**		**$2,154**
Revegetation Cost	$1,367	$2,458	$0	$3,825
TOTALS	**$1,684**	**$4,295**	**$0**	**$5,979**

Roads - Regrading Costs

	Description (required)	Regrading Volume cy	Recontouring Fleet	Fleet Productivity cy/hr	Total Fleet Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**Area Roads**	978	345B	480	2	$115	$597	$712
		978			2	**$115**	**$597**	**$712**

Roads - Growth Media Costs

	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $
1	**Area Roads**						$0	$0	$0
							$0	**$0**	**$0**

Roads - Scarifying/Revegetation Costs

	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs $	Ripping Equipment Cost $	Total Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Area Roads**	8.08	20.0	D9R	7	$202	$1,240	$1,442	$1,367	$2,458	$0	$3,825
		8.08			7	**$202**	**$1,240**	**$1,442**	**$1,367**	**$2,458**	**$0**	**$3,825**

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
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Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$29	$177	N/A	$206
Cover Placement Cost	$8,752	$52,133	N/A	$60,885
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Safety Berm Construction Cost	$0	$0	N/A	$0
Subtotal Earthwork	**$8,781**	**$52,310**	**$0**	**$61,091**
Revegetation Cost	$12,902	$23,197	$0	$36,099
Safety Berm Revegetation Cost	$0	$0	$0	$0
	$12,902	**$23,197**	**$0**	**$36,099**
TOTALS	**$21,683**	**$75,507**	**$0**	**$97,190**

Quarries & Borrow Pits - User Input — You must fill in ALL green cells in this section for each dump, lift or dump category

	Facility Description			Physical - MANDATORY								Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Bench or Highwall Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade
1	**EL Grande Quarry**		**Quarry**	**1.0**	**1.2**	**3.0**	**3.0**	**2**	**2,556**	**2,936**	**76.25**		**9.0**	**9.0**	**1,350**	**3.0**				

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Quarries & Borrow Pits - User Input (cont.) — You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category

		Grading				Cover		Growth Media		Revegetation								
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)
1	**EL Grande Quarry**	**1.2**	**Alluvium**	**Med**	**No**	**Alluvium**	**Scraper Dozer**			**User Mix 1**	**User Mix 1**							

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Quarries & Borrow Pits - User Input (cont.)

	Facility Description	Highwall Berms					Berm Construction		Excavate or Doze	Hauling (if selected method)				Revegetation		
	Description (required)	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Volume (if calculated elsewhere) cy	Construction Method (select)	Berm Material Type (select)	Berm Construction Equipment Fleet (select)	Berm Hauling Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	**EL Grande Quarry**															

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Waste Rock Dumps - Cost Summary	Labor	Equipment	Materials	Totals
Grading Costs	$29	$177	N/A	$206
Cover Placement Cost	$8,752	$52,133	N/A	$60,885
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Safety Berm Construction Cost	$0	$0	N/A	$0
Subtotal Earthwork	**$8,781**	**$52,310**	**$0**	**$61,091**
Revegetation Cost	$12,902	$23,197	$0	$36,099
Safety Berm Revegetation Cost	$0	$0	$0	$0
	$12,902	**$23,197**	**$0**	**$36,099**
TOTALS	**$21,683**	**$75,507**	**$0**	**$97,190**

Quarries & Borrow Pits - Calculations

Regrading Volume Calculation

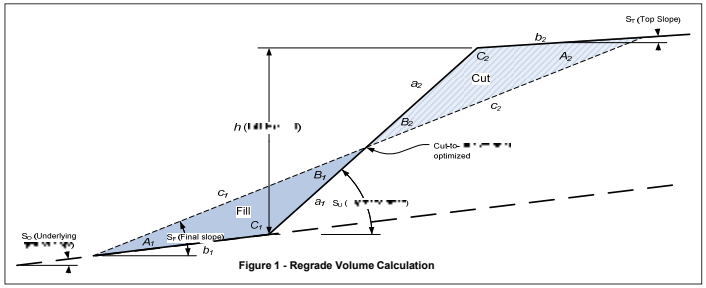


Figure 1 - Regrade Volume Calculation

Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)

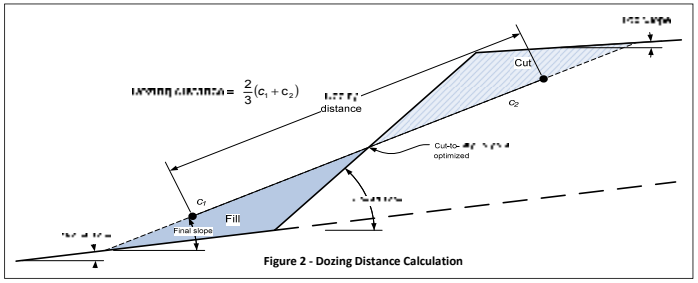
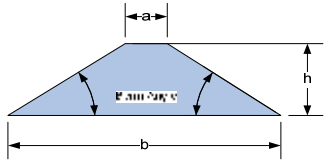


Figure 2 - Dozing Distance Calculation

Safety Berm Volume Calculation

Cross Sectional Area = $\frac{(a+b)}{2} \times h$

Berm Volume = Berm Length x Cross Sectional Area



Dozer productivity assumes push distance of:
100 feet

Dozer:
Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:
Length x (Berm Base Width + (2 x Excavator Track Width) - accounts for disturbance created in borrow area

Haul & Place:
Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

Final Slope Area and Footprint Area Calculations

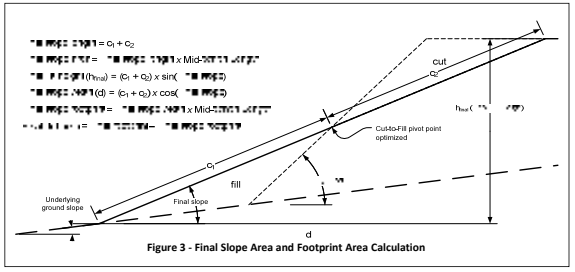


Figure 3 - Final Slope Area and Footprint Area Calculation

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:
Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

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Subtotal Earthwork	**$8,781**	**$52,310**	**$0**	**$61,091**
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	$12,902	**$23,197**	**$0**	**$36,099**
TOTALS	**$21,683**	**$75,507**	**$0**	**$97,190**

Quarries & Borrow Pits - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**EL Grande Quarry**	95	50	D9R	2,251	1.6	1.2	0.79	1.0	2,125	1	$29	$177	$206
		95									1	**$29**	**$177**	**$206**

Quarries & Borrow Pits - Cover and Growth Media Costs

		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost $	Cover Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $
1	**EL Grande Quarry**	92,262	631G/D10R/D7R	1,204	2	76	$8,752	$52,133	$60,885						$0	$0	$0
		92,262				76	**$8,752**	**$52,133**	**$60,885**						**$0**	**$0**	**$0**

Quarries & Borrow Pits - Scarifying/Revegetation Costs

	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**EL Grande Quarry**	0.41	75.84	76.25	7					$0	$0	$0	$12,902	$23,197	$0	$36,099
		0.41	75.84	76.25							**$0**	**$0**	**$12,902**	**$23,197**	**$0**	**$36,099**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2) Assumes 50min/hr equipment availability

Quarries & Borrow Pits - Safety Berm Construction Costs

		Safety Berm							
	Description (required)	Safety Berm Volume cy	Selected Fleet	Number of Trucks/ Scrapers	Corrected Fleet Productivity cy/hr	Total Hours	Safety Berm Labor Cost $	Safety Berm Equipment Cost $	Total Safety Berm Cost $
1	**EL Grande Quarry**						$0	$0	$0
							$0	**$0**	**$0**

Quarries & Borrow Pits - Safety Berms - Revegetation Costs

	Description (required)	Flat Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**EL Grande Quarry**	0.00	$0	$0	$0	$0
			$0	**$0**	**$0**	**$0**

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$30,075	$9,360	N/A	$39,435
Wall Demolition Cost	$3,596	$0	N/A	$3,596
Slab Demolition	$156	$948	N/A	$1,104
Subtotal Demolition	**$33,827**	**$10,308**	**$0**	**$44,135**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$87	$531	N/A	$618
Subtotal Earthworks	**$87**	**$531**	**$0**	**$618**
Revegetation Cost	$643	$1,156	$2,646	$4,445
TOTALS	**$34,557**	**$11,995**	**$2,646**	**$49,198**

Buildings & Foundation - User Input — You must fill in ALL green cells and relevant blue cells in this section for each building or facility

	Facility Description			Physical - MANDATORY								Foundation Cover (1)			Growth Media (1) (entire footprint)		
	Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	**Mill Building**		**Process - Plant & Buildings**	**75**	**50**	**30**	**8**	**8**	**4**	**70**	**1.00**						
2	**Mill Ancillary Site Facilities**		**Site Facilities - Structures**	**95**	**70**	**30**	**8**	**8**	**4**	**90**	**2.80**						

Notes:
1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Buildings & Foundation - User Input (cont.) — You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Construction Materials		Slab Demolition		Foundation Cover			Growth Media			Revegetation				
	Description (required)	Building Type (select)	Foundation Wall Type (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	**Mill Building**	**Lg. steel**	**Block 6 in (150 mm) thick**	**Break & bury**	**Lg Excavator**							**Mix 1**			**Yes**	**Med Dozer**
2	**Mill Ancillary Site Facilities**	**Lg. mixed**	**Block 6 in (150 mm) thick**	**Break & bury**	**Lg Excavator**							**Mix 1**			**Yes**	**Med Dozer**

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	$30,075	$9,360	N/A	$39,435
Wall Demolition Cost	$3,596	$0	N/A	$3,596
Slab Demolition	$156	$948	N/A	$1,104
Subtotal Demolition	**$33,827**	**$10,308**	**$0**	**$44,135**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$87	$531	N/A	$618
Subtotal Earthworks	**$87**	**$531**	**$0**	**$618**
Revegetation Cost	$643	$1,156	$2,646	$4,445
TOTALS	**$34,557**	**$11,995**	**$2,646**	**$49,198**

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Buildings & Foundation - Calculations

Building Volume Calculations

Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions
Estimage slab thickness and wall thickness if not known
Assumes that all concrete slabs are reinforced
Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision
(addressed in Misc. Costs) and Davis-Bacon Wage Rates
Demolition costs do not include hauling or disposing if debris - Use Waste Disposal module

Slab Demolition Calculations

Minimum 1 hr excavator time for slab demolition

Cover Volume Calculation

Foundation area x cover thickness
If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that
total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above

Ripping/Scarifying Calculations

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation

Minimum 1 acre revegetation crew time per area

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$30,075	$9,360	N/A	$39,435
Wall Demolition Cost	$3,596	$0	N/A	$3,596
Slab Demolition	$156	$948	N/A	$1,104
Subtotal Demolition	**$33,827**	**$10,308**	**$0**	**$44,135**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$87	$531	N/A	$618
Subtotal Earthworks	**$87**	**$531**	**$0**	**$618**
Revegetation Cost	$643	$1,156	$2,646	$4,445
TOTALS	**$34,557**	**$11,995**	**$2,646**	**$49,198**

Building & Foundation Demolition Costs

Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.

								Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
	Description (required)	Building Footprint (slab area) sqft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cy	Total Labor Cost $	Total Equipment Cost $	Total Building Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Wall Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Slab Breaking Cost $	Total Labor Cost $	Total Equipment Cost $	Total Demolition Costs $
1	**Mill Building**	3,750	112,500	250	1,000	385BL	93	$10,125	$3,375	$13,500	$1,550	$0	$1,550	$58	$351	$409	$11,733	$3,726	$15,459
2	**Mill Ancillary Site Facilities**	6,650	199,500	330	1,320	385BL	164	$19,950	$5,985	$25,935	$2,046	$0	$2,046	$98	$597	$695	$22,094	$6,582	$28,676
			312,000				257	**$30,075**	**$9,360**	**$39,435**	**$3,596**	**$0**	**$3,596**	**$156**	**$948**	**$1,104**	**$33,827**	**$10,308**	**$44,135**

Building & Foundation - Foundation Cover and Growth Media Costs

		Foundation Cover								Growth Media							Total Cover & Growth Media Costs		
	Description (required)	Cover Volume cy	Cover Repacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Repacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $	Total Labor Cost $	Total Equipment Cost $	Total Costs $
1	**Mill Building**						$0	$0	$0						$0	$0	$0	$0	$0	$0
2	**Mill Ancillary Site Facilities**						$0	$0	$0						$0	$0	$0	$0	$0	$0
							$0	**$0**	**$0**						**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Building & Foundation - Scarifying/Revegetation Costs

					Scarifying/Ripping			Revegetation				Total Scarify & Revegation Costs			
	Description (required)	Flat Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Costs $
1	**Mill Building**	1.00	D9R	1	$29	$177	$206	$169	$304	$696	$1,169	$198	$481	$696	$1,375
2	**Mill Ancillary Site Facilities**	2.80	D9R	2	$58	$354	$412	$474	$852	$1,950	$3,276	$532	$1,206	$1,950	$3,688
		3.80		3	**$87**	**$531**	**$618**	**$643**	**$1,156**	**$2,646**	**$4,445**	**$730**	**$1,687**	**$2,646**	**$5,063**

Closure Cost Estimate
Constr. Mgmt

Project Name: Dicaperl El Grande Closeout Plan - Reclamation Plan
Date of Submittal: January 23,2016
File Name: SRCE_Version_1_4_1_017_El Grande Reclamation Costs.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-USR_1_12(2)_El Grande Reclamation Costs.xlsm
Cost Estimate Type: Surety Cost Basis: Alamosa, Colorado

Construction Management & Road Maintenance - Cost Summary				
	Labor	Equipment	Materials	Totals
Construction Management	$60,595	$576	N/A	$61,171
Construction Support		$0		$0
Road Maintenance	$0	$0	$0	$0
TOTAL CONSTRUCTION MANAGEMENT	**$60,595**	**$576**	**$0**	**$61,171**

Construction Management

Construction Management Staff

Description	Duration mo.	Hours/ Month hr.	Number of Supervisors	Supervisor Rate $/hr	Labor Cost $	Equipment Cost[1] $	Totals $
Active Reclamation	**6**	**120**	**1**	$84.16	$60,595	$576	$61,171
Monitoring & Maintenance					$0	$0	$0
				Total Staff	**$60,595**	**$576**	**$61,171**

Construction Management Support

Description	Duration mo.	Number of Units		Rental Rate $/mo	Generator Cost $/mo	Equipment Cost[1] $	Totals $
Temporary Office Rental						$0	$0
Temporary Toilets						$0	$0
					Total Support	**$0**	**$0**

Notes: Office rental assumes only 1 generator required for every 4 trailers

Total Construction Management	**$61,171**

Road Maintenance

Description	Fleet Size (select)	Number	Duration mo.	Hours/ Month hr.	Labor Cost $	Equipment Cost $	Totals $
Active Reclamation							
Water Truck					$0	$0	$0
Grader					$0	$0	$0
Monitoring & Maintenance							
Water Truck					$0	$0	$0
Grader					$0	$0	$0

Description	Gallons/ Day	Days/ Month	Duration mo.	Cost/ Gallon $			Totals $
Water Fees							
Water Fees							$0
				Total Project Maintenance	**$0**	**$0**	**$0**

Notes: 1) Supervisor equipment = pickup truck

2015 MOB/DEMOB using R.S. MEANS and SRCE equipment and DAVIS-BACON wages

blue font is for project specific user input

Miles one way from Washoe County Courthouse

Miles to project, one way: 81

El Grande Mine

Hours travel time @ 55 MPH: 1.47

Equipment	Mobilization $/hour (1)	$ Flat Rate load & unload (2)	$/hour Deadhead (empty return cost (3)	Disassembly and assembly (4)	Permit cost $ (5)	Pilot car costs	# of units	One Way Mob Cost	Total Mob and Demob Cost
Bulldozers									
D6R	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
D7R	$ 145	$ 145	$ 145	$ -	$ 25	$ 137	1	$ 733	$ 1,466
D8R	$ 169	$ 169	$ 169	$ -	$ 25	$ 193	1	$ 885	$ 1,771
D9R	$ 169	$ 169	$ 169	$ -	$ 25	$ 193	1	$ 885	$ 1,771
D10R	$ 169	$ 169	$ 169	$ 14,500	$ 25	$ 290		$ -	$ -
D11R (two transports) (7)	$ 169	$ 169	$ 169	$ 14,500	$ 25	$ 193		$ -	$ -
Motor Graders									
14G/H	$ 84	$ 84	$ 84	$ -	$ -	$ -	1	$ 332	$ 664
16G/H	$ 145	$ 145	$ 145	$ -	$ 25	$ 97		$ -	$ -
Track Excavators									
320C	$ 145	$ 145	$ 145	$ -	$ -	$ -		$ -	$ -
325C	$ 145	$ 145	$ 145	$ -	$ -	$ -		$ -	$ -
345B	$ 169	$ 169	$ 169	$ -	$ 25	$ 193	1	$ 885	$ 1,771
385BL	$ 169	$ 169	$ 169	$ 26,800	$ 25	$ 193		$ -	$ -
Scrapers									
631G	$ 169	$ 169	$ 169	$ -	$ 25	$ 193	3	$ 2,656	$ 5,313
637G PP	$ 169	$ 169	$ 169	$ -	$ 25	$ 193		$ -	$ -
Wheeled Loaders									
928G	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
966G	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
972G	$ 145	$ 145	$ 145	$ -	$ -	$ -		$ -	$ -
988G	$ 145	$ 145	$ 145	$ -	$ 25	$ 97	2	$ 1,385	$ 2,770
992G (two transports) (7)	$ 169	$ 169	$ 169	$ 46,700	$ 25	$ 193		$ -	$ -
Hydraulic Hammers									
H-120 (fits 325) no charge, mobilize with ma	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -
H-160 (fits 345) no charge, mobilize with ma	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -
H-180 (fits 365/385) no charge, mobilize wit	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Other Equipment									
420D 4WD Backhoe	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
CS563E Vibratory Roller	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Light Truck - 1.5 Ton	$ 66	$ 66	$ 66	$ -	$ -	$ -		$ -	$ -
Supervisor's Truck	$ 55	$ 55	$ 55	$ -	$ -	$ -		$ -	$ -
Air Compressor + tools	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Welding Equipment	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Heavy Duty Drill Rig	$ 395	$ 395	$ 395	$ -	$ -	$ -		$ -	$ -
Pump (plugging) Drill Rig	$ 395	$ 395	$ 395	$ -	$ -	$ -		$ -	$ -
Concrete Pump	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Gas Engine Vibrator	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Generator 5KW	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
HDEP Welder (pipe or liner)	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
5 Ton Crane Truck	$ 92	$ 92	$ 92	$ -	$ -	$ -		$ -	$ -
25 Ton Crane	$ 146	$ 146	$ 146	$ -	$ -	$ -		$ -	$ -
Trucks									
725	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
740	$ 145	$ 145	$ 145	$ -	$ 25	$ 97	4	$ 2,770	$ 5,540
769D	$ 145	$ 145	$ 145	$ -	$ 25	$ 193		$ -	$ -
777D (two transports) (8)	$ 169	$ 169	$ 169	$ 48,300	$ 25	$ 290		$ -	$ -
613E (5,000 gal) Water Wagon	$ 169	$ 169	$ 169	$ -	$ -	$ -		$ -	$ -
621E (8,000 gal) Water Wagon	$ 169	$ 169	$ 169	$ -	$ 25	$ 193		$ -	$ -
Dump Truck (10-12 yd^3)	$ 132	$ 132	$ 132	$ -	$ -	$ -		$ -	$ -
Miscellaneous									
Equipment for dry hole abandonment (420D 4	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
Pilot car (Light Truck)	$ 56	$ 56	$ 56	$ -	$ -	$ -		$ -	$ -
Truck Tractor + Lowbed Trailer 75 ton	$ 169	$ 169	$ 169	$ -	$ -	$ -		$ -	$ -
Truck Tractor + Flatbed Trailer 40 ton	$ 145	$ 145	$ 145	$ -	$ -	$ -		$ -	$ -
Light Truck + Flatbed Trailer 25 ton	$ 84	$ 84	$ 84	$ -	$ -	$ -		$ -	$ -
							14		**$ 21,064**

Footnotes and explanations of assumptions

(1) The sum of the cost of equipment from either the SRCE or RSM equipment tab plus Davis-Bacon labor tab

(2) Assumes minimum of 30 minutes load and secure and 30 minutes unsecure and unload machine.

(3) No "Deadhead" (empty) charge for Mob up to 50 miles. More than 50 miles the cost of deadhead same rate as loaded miles.

(4) Only large equipment requires disassembly for transport. Includes cost of mechanic + mechanic's truck + crane operator + crane.

(5) Nevada Dept. of Transportation overdimensional permits are $25 per trip or $60 per year.

(6) Sum of mobilization plus all ancillary costs for one way loaded and return empty.

(7) Two transports are required but the second transport does not need pilot cars or permits or a heavy duty trailer.

(8) Two transports required with both requiring full complement of pilot cars and permits.

(9) Pilot Car costs based on SRCE light truck costs and Davis-Bacon wages

(10) SRCE costs based on July 2015 vendor quotes.

(11) RS Means costs based on R.S. Means Heavy Construction Cost Data, 2015, Q2

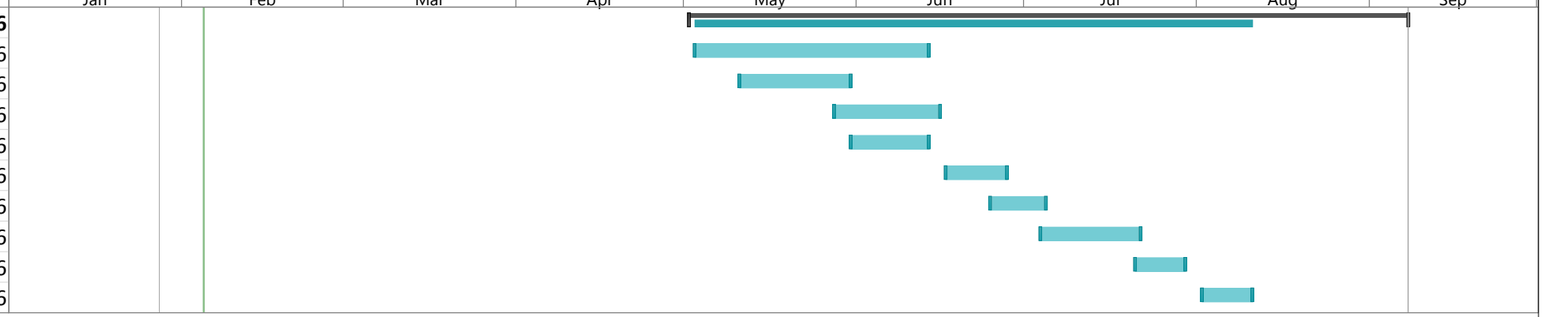
(12) Davis Bacon wages based on June 11, 2015 determination.

APPENDIX D

EL Grande Mine Reclamation Schedule

Mill Facility Demolition Schedule

ID	Task Name	Duration	Start	Finish
1	**Mill Demolition**	**93 days**	**Mon 5/2/16**	**Wed 9/7/16**
2	Prepare RFP/Select contractor	30 days	Tue 5/3/16	Mon 6/13/16
3	Remove Siding	14 days	Wed 5/11/16	Mon 5/30/16
4	Dismantle Infrastructure	14 days	Sat 5/28/16	Wed 6/15/16
5	Remove Storage Tanks and Buildings	10 days	Tue 5/31/16	Mon 6/13/16
6	Break up Concrete Foundation	7 days	Fri 6/17/16	Mon 6/27/16
7	Dispose of Concrete	7 days	Sat 6/25/16	Mon 7/4/16
8	Site Grading	14 days	Mon 7/4/16	Thu 7/21/16
9	Rip Surface	7 days	Thu 7/21/16	Fri 7/29/16
10	Disc and Seed	7 days	Tue 8/2/16	Wed 8/10/16

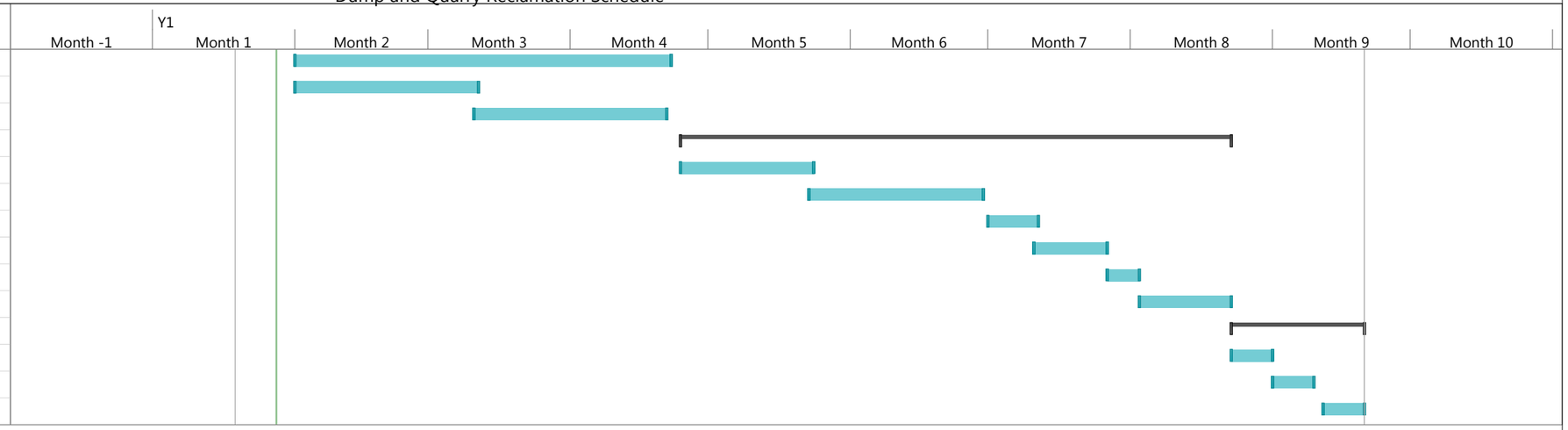


Project: El Grande Reclamation Sched
Date: Fri 2/5/16

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone

Dump and Quarry Reclamation Schedule

ID	Task Name
1	Notify NMMMD of Intent to close
2	Prepare Request for Proposal
3	Select Contractor
4	**Grading and Seeding**
5	Preliminary Grading Dump Areas
6	Preliminary Grading Quarry
7	Import Cover 1
8	Import Cover 2
9	Prepare Seedbed
10	Seed and Mulch
11	**Roads**
12	Rip Road Surface
13	Final Grade
14	Broadcast/Drill Seed and Mulch



Project: C:\Users\munsonbe\Documen
Date: Thu 1/28/16

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone