Appendix 8

Initial Closure Plan for the Facility

NOTE - REDACTED FOR ASSERTED
CONFIDENTIAL BUSINESS INFORMATION

General Closure Plan and Closure Cost Estimate for the Existing Phosphogypsum Stack System

J.R. Simplot Company
Don Plant Pocatello, Idaho

CONFIDENTIAL BUSINESS INFORMATION

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This document contains financial and other information pertaining to plant operations, production rates and life expectancy. J.R. Simplot Company considers the enclosed information to be confidential and proprietary and requests that IDEQ and EPA maintain this document in a confidential file, not subject to release to the general public.

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Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

September 1, 2021
File Number 19-13-0079A

J.R. Simplot Company
Minerals & Chemicals Division
P.O. Box 912
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Attention: Mr. Alan L. Prouty
Vice President, Environmental & Regulatory Affairs

Subject: Revised General Closure Plan and Closure Cost Estimate for the Don Plant Phosphogypsum Stack System, J.R. Simplot Company, Don Plant, Pocatello, Idaho

Gentlemen:

As requested, Ardaman & Associates, Inc. has prepared a general closure plan and closure cost estimate for the current footprint and expected configuration of the existing phosphogypsum stack system at the J.R. Simplot Company, Don Plant facility in Pocatello, Idaho, assuming facility closure at the end of calendar year 2025, i.e., 5 years in the future, prior to construction of any additional lateral expansions. The gypsum stack configuration utilized for the cost estimate contained herein includes the lined and unlined footprint of the existing gypsum storage compartments, associated perimeter process water conveyance ditches and the lined process return water ponds and pump stations. The closure design and cost estimates contained herein meet the requirements of Appendix 1.C. (Closure of Phosphogypsum Stacks/ Phosphogypsum Stack Systems/Components) of the recently finalized Consent Decree between the United States and the J.R. Simplot Company for the Rock Springs, Wyoming facility. Closure in 2025 is considered to represent the condition when the cost for closure, water management/treatment, and long-term care for the current lined footprint of the Don Plant phosphogypsum stack system would be the most expensive.

The closure cost estimates, water management and long-term maintenance costs provided herein are based on recent experience with similar ongoing and completed projects in the Central Florida area, using recently updated 2018 construction cost unit rates and 2018 unit rates for long-term care. The estimated unit construction costs were compared to costs incurred for ongoing construction activities at other facilities and adjusted as necessary for site-specific construction cost information, and with a regional correction factor based on conventional cost estimating standards (2018 RS Means, Heavy Construction Cost Data). The closure cost estimates included in this report have been prepared and will be used as the basis for establishing proof of financial assurance, as required by the U.S. Environmental Protection Agency (EPA) based on the Consent Decree for the Rock Springs, Wyoming facility. The estimated closure, water management and long-term maintenance costs contained in this report are based on December 2018 dollars.

Contained in this report is a general overview of the existing facility with a conceptual closure plan and schedule of closure. Also included is an estimate of closure construction costs, water management costs and long-term maintenance and operating costs for the closed phosphogypsum stack system, based on the existing facility footprint and anticipated 2025 configuration. In preparing this closure plan and related cost estimates, we have relied on information supplied by J.R. Simplot and made assumptions relative to plant operating schedules, production rates, adjacent land and facility uses, gypsum stack growth and management, etc. These assumptions are listed in Section 3 of this report. The assumptions were made for cost estimating purposes and are subject to change.

Relative to closure and post-closure water management, this plan deviates from the way treatment and consumption of process water is handled at phosphoric acid plants in wet climates. Because of the dry climate in Pocatello, J.R. Simplot will be able to evaporate a significant portion of the ponded and drainable process water at this facility. A portion of the process water will be partially evaporated and permanently retained in the lined phosphogypsum stack. The remaining drainage water will be treated using conventional limestone-lime neutralization. The treated water and treatment residue will be evaporated and/or stored in lined ponds constructed on top of the phosphogypsum stack. No treated water will be discharged into adjacent surface waters.

Utilization of this treatment and disposal method will require that completion of closure construction activities for portions of the existing facility be extended beyond the closure period that would be required for an unlined phosphogypsum stack system. However, because the significant portions of the active Don Plant phosphogypsum stack system have already been provided with a 60-mil HDPE geomembrane bottom liner, the additional closure period will not increase the potential for groundwater discharges from the facility.

This report has been prepared in accordance with generally accepted geotechnical engineering practices for the exclusive use of the J.R. Simplot Company, for specific application to the above referenced project. No other warranty, expressed or implied, is made.

It has been a pleasure assisting you with this project and we look forward to assisting you with the detailed closure plan and closure permit application in due time. If you have any questions about this report or would like to discuss the proposed closure plan or cost estimates in greater detail, please do not hesitate to contact us.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.
Certificate of Authorization No. 2360

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Section 1

BACKGROUND

1.1 Site Location

The phosphogypsum stack system for the J.R. Simplot Company, Don Plant Facility is located in Sections 7 and 18 of Township 6 South, Range 34 East, just west of Pocatello, Idaho. The approximate site location, superimposed on a reproduction of the United States Geological Survey quadrangle map for Michaud, Idaho, dated 1971 and photo inspected in 1974, is shown in Figure 1.

1.2 Background

Figures 2 through 4 are, respectively, recent aerial photographs and a topographic map of the Don Plant facility that shows the layout of the existing gypsum storage area, which is located south and southeast of the plant site and abuts natural ground mountainous terrain to the south. The original unlined gypsum storage area has undergone a phased construction and liner installation project that converted the existing system to a totally lined and contained facility for the placement of new phosphogypsum. The completed project consisted of site grading and installation of an impervious high-density polyethylene (HDPE) liner on top of the previously unlined phosphogypsum stack and portions of the adjacent natural ground surfaces in such a manner as to facilitate continued use of the existing gypsum storage area by stacking and vertical expansion on top of the lined areas.

The primary objective of the lining project was to completely contain the by-product gypsum, the associated stack operating system process waters and any runoff from the active gypsum storage area, entirely within the lined limits of the proposed vertical expansion, thereby minimizing future groundwater impacts at the site. Total phosphorus concentrations in the nearby Portneuf River have been declining in recent years, demonstrating the success of this project. Design concepts and details for the proposed vertical expansion are contained in an Ardaman & Associates engineering report titled: "Engineering Overview of Proposed Phosphogypsum Stack Lining Project, J.R. Simplot, Don Plant, Pocatello, Idaho", dated December 17, 2008, and subsequent detailed design drawings and technical specifications utilized for ongoing construction activities.

The total footprint area of the existing gypsum stack system is currently on the order of 500 acres, which consist of approximately 380 acres of lined area and 120 acres of unlined side slope area of the original gypsum stack. All gypsum slurry deposition, stacking operations and associated process water storage and return water systems are contained entirely within lined areas. No process water is currently placed or stored on unlined portions of the original gypsum stack side slope areas.

As shown on Figures 2 through 4, the gypsum storage in late 2019 was configured into three separate settling compartments, consisting of the original lined lower compartment (Phase 1), a combination of the upper lined areas (Phases 2, 3, 4, 5, 7A, 7B and 7E) and the lined lateral expansion area (Phase 6) The lower compartment at that time had a total top area of approximately 35 acres, with a top elevation near 4735 feet (NGVD). The uppermost compartment had a combined total top area of approximately 150 acres, with an average top elevation near 4930 feet (NGVD). The west expansion area had a total top area of approximately 40 acres, with an average top elevation near 4625 feet (NGVD), for a combined total top area of 225 acres.

Section 2

GENERAL CLOSURE PLAN AND SCHEDULE

2.1 Closure Schedule

Although J.R. Simplot intends to continue to operate the Pocatello facility going forward, the closure plan and cost estimates presented herein are based on an assumed terminal gypsum stack geometry that is represented by the existing stack geometry, projected upward after five years of continued stack operation [redacted] for assumed closure in 2025. The resulting stack geometry is considered to represent the condition when the cost for closure, water management/treatment, and long-term care for the current footprint of the Don Plant phosphogypsum stack system would be the most expensive.

The proposed water management plan for this facility relies on evaporation of a significant portion of excess process water during the initial 13-year period following deactivation. The drainage water seeping from the phosphogypsum stack will be treated with limestone and lime, with the treated water and associated lime sludge stored and evaporated in lined ponds that will be constructed on top of the closed phosphogypsum stack. The phosphogypsum stack system will be closed in phases as expeditiously as practicable. A discussion of the proposed closure phases and approximate schedule for implementation of each phase is provided below.

2.2 Closure Design Concepts

The phosphogypsum stack system will be closed in general accordance with the criteria contained in Appendix 1.C. of the recent consent decree between the United States and J.R. Simplot Company for the Rock Springs, Wyoming facility. In general, the proposed closure will consist of providing a final cover over the entire surface of the gypsum stack and associated process water ponds that will meet the performance standards in Appendix 1.C. In particular, the top gradient of the gypsum stack and pond surfaces will be provided with a relatively impervious HDPE liner and protective vegetated soil cover that will be graded to promote drainage and minimize ponding of rainwater or snow melt runoff on top of the lined surface. The side slopes of the stack will be provided with a final vegetated soil cover as needed to promote rainfall runoff and evapotranspiration, while reducing infiltration and controlling erosion of the side slope cover.

Considering continued gypsum stacking operations for a 5-year operation period, [redacted], it is anticipated that the projected geometry of the gypsum stack at the time of closure will be similar to that shown on attached Figures 5 and 6. As noted, the projected average top elevation for the lower compartment on the north side of the gypsum stack (Area 1) is 4,796 feet, NGVD, while the top elevation of the combined upper compartment (Areas 2, 3, 4, 5 and 7) will be on the order of 4,977 feet (NGVD). The top elevation on lowermost lateral expansion area (Area 6) is estimate at 4,658 feet (NGVD).

Closure design concepts for the existing phosphogypsum stack system are illustrated on Figures 7 through 12 with their associated details presented in Figures 13 through 31. The assumed dimensions of the phosphogypsum stack system at the time of closure (i.e., prior to regrading), and used as the basis of the closure cost estimate presented herein, is tabulated below:

Closure Component	Estimated Area at Time of Closure (acres)
Total Gypsum Stack Footprint	499
Gypsum Top Pond Areas*	188
Gypsum Side Slope Areas	258
Slope Swales & Toe Ditches	36
Return Water Surge Pond	17
Based on total top area, including some perimeter roads adjacent to natural abutments, which may not need to be lined.	

2.3 Process Water Management During Closure

The closure schedule for the Pocatello phosphogypsum stack system will be dictated to a certain extent by the need to store and manage/treat existing process water inventories during the closure period. Primary factors include the process water inventory at the time of plant shutdown, available storage capacity within the process water containment system, post-shutdown water balance, process water seepage rates from the closed phosphogypsum stack and the ability to transfer and manage/treat water volumes throughout the closure period.

Unlike the humid subtropical climate in the southeastern U.S., where annual rainfall normally exceeds lake evaporation, the climate in the Pocatello area is cold, semiarid, with evaporation rates far exceeding precipitation. The average rainfall near the Pocatello Don plant is on the order of 12.3 inches per year, with lake or pond evaporation rates of 43.3 inches per year, equating to a net ponded area evaporation loss of about 31.0 inches per year. Given the high evaporation rates for this area, the proposed water management plan for the Pocatello facility differs from those used in the humid subtropical climate of the Southeast U.S. During the first 13 years after the phosphoric acid plant ceases operations and the slopes of the phosphogypsum stack are being closed, any remaining ponded water as well as consolidation and drainage water seeping from the stack will be allowed to partially evaporate using pond or spray irrigation on top of the phosphogypsum stack and seep back into the stack, where it will be retained by surface water tension and adsorption in the phosphogypsum above the phreatic surface (water table) in the stack.

During the closure process, one objective is that the phosphogypsum water be managed so that fluoride atmospheric emissions will be no more than the emissions during plant operations. In general, fluoride emissions from a closed gypsum stack are expected to be lower than those in an operating stack for two reasons: the vapor pressure of fluoride gases will be reduced because the process water will be at a much lower temperature (and thus less likely to result in fugitive air emissions) and fluoride will be removed from the process water due to adsorption onto compounds in the gypsum stack or from the formation of solid calcium fluoride compounds in the gypsum stack.

Fluoride emissions during plant operations are proportional to combined solar and process heat load evaporation and fluoride concentration. Solar evaporation for the Don Plant is approximately 3.6 ac-ft/acre/year, which assuming an evaporative area of 150 acres at the time of plant closure, yields a solar evaporation loss of 540 acre-ft/year. Process heat evaporation at the Don Plant, based on an annual P_2O_5 production of 440,000 tons/year, a process heat load of 7.0 MMBTU/ton, heat of vaporization of 0.525 BTU/ton, and an evaporation factor of 0.75, is approximately 810 acre-ft year. After closure, evaporation from a wetted area will be solely a function of solar energy and will be no more than 3.6 ac-ft/year/acre. The ratio of total evaporation during operation to total evaporation during and after closure, assuming the wetted area remains at 150 acres, is 2.5.

Estimating fluoride emissions from phosphogypsum stacks has a number of technical challenges. Thus, all measurement methodologies have limitations. Potential methods include spectroscopy techniques or a mass balance approach. The following equation can be used to monitor the mass ratio during and after closure:

$$\text{[Eqn-1]: Mass Ratio} = (F_e A_e T_e)/(24 F_o A_o),$$

where F_e is the average dissolved fluoride concentration (mg/L) in the percolate (applied minus evaporated water) on the Sprayfield, A_e is the area (acres) of the Sprayfield, T_e is the duration (hours) of spray or ponded evaporation, F_o is the average concentration (mg/L) of dissolved fluoride in the process water during normal plant operations, and A_o is the ponded area (acres) on top of the operating stack system at the time of plant shut down.

To confirm that the atmospheric fluoride emissions are less than or equal to the emissions during plant operations, fluoride concentration will be measured in the liquid accumulating during a 24-hour period in a shallow pan placed at several locations within the Sprayfield at least once per month during Sprayfield operations and reported quarterly, along with the area of the Sprayfield and the duration of spraying. The average concentration of fluoride in the process water measured during the last year of normal operations and the size of the ponded area on top of the operating stack will be included in the quarterly report. The output of Equation-1 can be used to adjust either the size of the application area, the application period, or both to achieve the objective. Note, alternate methods, agreed upon by EPA, the State and Simplot, can be developed to demonstrate achievement of this objective.

As stated by EPA's consultant, if the mass ratio, defined as the mass of fluoride emitted during ponded or spray evaporation, is less than 2.5, the objective of no increase in atmospheric fluoride emission above that emitted during operations will be achieved. Other analytical methods or measurement techniques could also be used. These alternate methods, upon review and approval by EPA and Simplot, could be used to demonstrate achievement of this objective.

Similar practices for minimizing the potential for birds or other wildlife to land in a ponded area on the phosphogypsum stack under operating conditions, e.g., air cannons, scarecrows, etc., will be used around the application areas during irrigation.

Drainage water seeping from the phosphogypsum stack after 13 years will be neutralized with limestone and lime and then evaporated in lined sludge/evaporation ponds constructed on top of the closed phosphogypsum stack. The sludge/evaporation ponds will ultimately be closed by dewatering, drying and stabilization of the sedimented solids, and placement of a 1-foot thick, vegetated soil cover.

The areas on top of the phosphogypsum stacks that are used for spray irrigation and evaporation and not used for lined sludge/evaporation ponds will be lined with 40-mil HDPE, covered with 2 feet of soil and planted in native vegetation. Prior to lining these areas, the upper one to two feet of phosphogypsum will be flushed with treated water. The depth of treated water applied will not be less than 4 inches over the entire surface to be covered.

2.3.1 Existing Process Water Inventories

The Pocatello gypsum storage area is operated using conventional wet stacking techniques, wherein gypsum slurry is pumped at low percent solids to sedimentation ponds or compartment on top of the gypsum storage area. Clarified return water from the various sedimentation ponds on top of the gypsum stack is either decanted or siphoned from the individual ponds into lined perimeter toe ditches or swales, where it flows by gravity through various pipes and water level control structures into either of two lined return water surge ponds and pump stations, which are referred to herein as "Decant Ponds" (see Figure 2). Utilizing recent aerial photographs and pond water inventory information provided by J.R. Simplot Company personnel [redacted] This estimated volume is for ponded water only and does not include consolidation and drainage water that will seep out of the phosphogypsum stack over time. An estimate of the drainable pore volume within the gypsum stack is provided below.

2.3.2 Drainage Characteristics of Existing Gypsum Stack

The sedimented gypsum contained in the Pocatello gypsum stack is for the most part fully saturated with process water entrained within the pores of the individual gypsum crystals or particles. After the plant and gypsum stack are shut down (i.e., no gypsum slurry or process water pumped to the top of the stack), the entrained water in the pore spaces of the sedimented gypsum will drain from the stack by gravity over time. Since the gypsum storage area is provided with a 60-mil HDPE bottom liner, any water that drains from the stack with time will be collected in the existing or proposed seepage collection drains and/or in the existing perimeter flow channels at the toe of the stack. As the closed stack drains with time, the rate of seepage entering the seepage collection drains or perimeter flow channel will likewise diminish. The rate at which pore water drains from the stack is a key factor needed for development of a detailed water management plan at the time of final closure.

Gypsum stack consolidation and drainage rates used for the closure plan and schedule presented herein were estimated using a phosphogypsum stack seepage model developed on an Excel spreadsheet. The seepage model takes into consideration the varying height, geometry, initial and final density, hydraulic conductivity, and drainable porosity of the sedimented gypsum. Material properties used to develop the relationships needed for the drainage model were obtained from a previous engineering evaluation of the Pocatello gypsum stack (see Ardaman report titled: "Engineering overview of Proposed Phosphogypsum Stack Lining Project, J.R. Simplot Don Plant, Pocatello Idaho", dated December 17, 2008). The Excel spreadsheet that was used in these analyses was developed by Ardaman & Associates in collaboration with an expert retained by the US EPA to assist in technical issues associated with the proposed Consent Decree.

The gypsum stack model and analyses indicate that the *in situ* dry density of the sedimented gypsum for a 75-ft high phosphogypsum stack at terminal closure varies from approximately 57 lb/ft^3 at the top of the stack to approximately 77.8 lb/ft^3 at the bottom with an average dry density of 69 lb/ft^3. After consolidation, the *in situ* dry density of the sedimented gypsum at terminal closure varies from approximately 75 lb/ft^3 at the top of the stack to approximately 88.2 lb/ft^3 at the bottom with an average dry density of 83 lb/ft^3. The total volume of seepage expected during the 15-year closure period and 50-year long term care period is estimated at 5,090 acre-feet. It is anticipated that initial seepage rates at the time of closure will be on the order of 170 gallons per minute (gpm). Figure 32 is a graph of the predicted seepage rate from the phosphogypsum stack as a function of time after plant shutdown.

2.3.3 Process Water Evaporation

Considering an initial ponded area of [redacted] acres for ponds on top of the gypsum stack and a net evaporation rate of 31 inches per year, it is theoretically possible to evaporate [redacted] provided that the ponds are kept fully ponded or fully surface wetted. Using water management techniques (recycling water collected in perimeter flow channels and the seepage collection drains back to the top of the stack to keep the uppermost compartments ponded and/or surface wet), all of the water that seeps from the stack and any remaining ponded water can be evaporated from the top gradient of the phosphogypsum stack. During the first 13 years after closure, the process water will be partially evaporated and some of the process water will seep back into the top of the stack where it will be retained by surface water tension in the phosphogypsum above the phreatic surface. After 13 years, water seeping from the stack will be neutralized using limestone to a pH of approximately 4 and then using lime to a pH of approximately 7. The treated water and sludge will be pumped back to lined ponds constructed on top of the stack where the treated water will be evaporated.

[redacted]

[redacted]

The conceptual water management plan during closure is to maximize evaporation rates from the gypsum stack top ponds by initially recycling collected seepage and free water back to the top of the stack in such a manner as to keep the surface area fully ponded or surface wet. Irrigation piping will be used as needed to distribute the water over the top gradient of the stack when the volume of water collected from stack seepage is no longer enough to pond the entire top surface.

During years 12 and 13, two of the existing top ponds will be lined to provide sufficient area (50 acres) to evaporate treated water and store lime residue from the treatment process. After year 13, process water evaporation from the remaining pond will cease and the remaining top ponds will be graded as needed for proper drainage, lined with the rule-specified 40-mil liner, and capped with a 2-foot thick protective soil cover. The final geometry of the top gradient is shown on Figure 12.

The water balance and drainage model used to develop this closure plan indicates that the irrigation area required to evaporate all the stack seepage will reduce over time [redacted] To distribute the partially evaporated water as evenly as possible over the top surface of the stack, the irrigation area will [redacted] by reducing the time the irrigation system is operated each day. Seepage rates should be reduced sufficiently by Year 13 to allow all collected water to be adequately managed in the return water pond, without pumping any untreated water back to the top of the gypsum stack. The return water pump pond will need to remain in place for another 50 years or until all the seepage water can be contained prior to treatment in a surge tank.

As described earlier, a portion of the process water pumped to the gypsum stack surface will be permanently stored within the phosphogypsum stack field capacity. However, a small amount will reach the water table in the gypsum stack and increase the concentrations of the process water collected as seepage from the closed stack. A spreadsheet model was used to compute the rate of seepage from the stack with time to calculate the increase in concentration of the water that will be treated in the two-stage limestone/lime treatment facility. The following table presents the results of the analysis.

Location	Years	Volume Requiring Lime Treatment (acre-feeet)	Relative Mass of Contaminants Requiring Treatment	Weighted Concentration Ratio
Pond 1	14-63	415	429	1.034
Ponds 2-5	14-63	1835	1848	1.007
Pond 6	14-63	315	331	1.051
Total		2565	2608	1.017
Pond 1	14-163	485	499	1.029
Ponds 2-5	14-163	2322	2336	1.006
Pond 6	14-163	392	408	1.041
Total		3199	3243	1.014

The concentration ratio used to compute the cost of limestone/lime for determining the unit treatment cost of $16.68/1000 gallons was rounded up to 1.02.

2.4 Key Elements of Closure Design

The Pocatello phosphogypsum stack system will be closed in general accordance with the requirements of Appendix 1.C. In general, the proposed closure will consist of providing a final cover over the entire surface of the gypsum stack and associated water flow channels and storage ponds that will meet the specified performance standards. In particular, the top gradient of the stack and associated ponds will be provided with a relatively impervious liner and protective cover that will be graded to promote drainage and minimize ponding of water on top of the lined surface. The side slopes of the stack will be provided with a final vegetated soil cover as needed to promote rainfall runoff and evapotranspiration, while reducing infiltration and controlling erosion of the side slope cover. Conceptual details of the proposed closure are discussed below.

2.4.1 Gypsum Stack Top Gradient and Capping

Appendix 1.C. requires, upon closure, that all phosphogypsum stacks be provided with a continuous, low permeability soil barrier or a relatively impervious geomembrane liner over the top gradient of the stack. If clay borrow materials are not locally available for a soil liner that meets the specified permeability criteria, an impervious geomembrane is typically used as the top liner.

For cost estimating purposes, the conceptual design of the final cover for the top of the Pocatello phosphogypsum stack utilizes the alternate cover design consisting of a synthetic geomembrane with a vegetated, 24-inch thick protective layer of clean soil obtained from locally available borrow sources. A typical cross section of the closed gypsum field and a design detail for the proposed synthetic liner and top cover is provided on Figures 29 and 30. 60-mil HDPE liner will be used for the lined lime sludge/evaporation pond, while 40-mil liner, with a 24-inch protective soil cover will be used for the remaining top ponds not utilized for treated water evaporation.

Figure 12 conceptually presents the anticipated final geometry and layout of the closed gypsum stack and the probable location of surface water control structures. In general, the top grading plan for the gypsum stack will provide positive gradients that will promote rainfall runoff and minimize water ponding on top of the lined surface. A perimeter dike will be provided around the top edge of the gypsum stack to prevent rainfall runoff from discharging down the side slopes of the stack in an uncontrolled manner. Rainfall runoff on top of the stack will, instead, be directed inboard to low points in each compartment, where decant spillways and piping systems will provide controlled release to, or beyond, the base of the stack. The locations of the decant spillways may differ from those shown, based on the actual stack geometry and location of the low points at the time the stack is deactivated.

2.4.2 Gypsum Stack Side Slope Grading and Cover

Although the lower side slopes of the existing gypsum stack are typically flatter than 3.0 horizontal to 1.0 vertical, the slopes around the upper perimeter of the active storage compartments are steeper and will need to be flattened to no steeper than 3.0 horizontal to 1.0 vertical. The existing side slopes are presently stable; this stability will increase as the gypsum stack begins to drain, dewater, and settle after closure.

For cost estimating purposes, it is assumed that the final cover on the side slopes of the stack will consist of a 12-inch layer of soil that will support a drought-resistant vegetation cover to provide erosion control, increase evapotranspiration, reduce side slope infiltration and make the closed facility more aesthetically pleasing. Approximately 43 acres of the existing side slope area have already been reclaimed (covered with soil and grassed) and are not included in the final closure cost estimate presented herein.

2.4.3 Surface Water Management

Surface water runoff from the top of the closed phosphogypsum stack will be directed inboard by perimeter dikes to low points for controlled release through decant spillways and piping systems to the base of the stack. Runoff from the lower portion of the side slope will flow directly downgradient to a lined toe swale at the base of the stack. The slope of the swale (i.e., along the swale alignment) will generally be less than 0.2 percent. This is a relatively flat slope, which, for small rainfall events will result in relatively low flow velocities and correspondingly long retention periods. To minimize the infiltration of runoff collected from larger rainfall events on and routed along the benches, each swale will be provided with an impervious liner. For cost estimating purposes, it is anticipated that the runoff swales will be lined with a textured 60-mil HDPE liner, covered with a 24-inch thick protective soil cover, similar in design to that used for the gypsum stack top cover. Conceptual details of the proposed slope and toe ditch swales are illustrated on Figures 13 through 27.

Figure 12 presents the anticipated final geometry and conceptual surface water management plan of the gypsum stack after closure. As noted by the directional arrows shown on this figure, surface water runoff from the lined top areas of the gypsum stack after closure will be directed and detained as needed by water level control structures located near the southeast corner of Area 5 and the southwest corner of Area 3. Surface water runoff from the east side of the compartment will be discharged into a secondary lined detention pond that will provide controlled release of runoff from the closed facility top area to the unlined freshwater retention pond located downgradient near the northeast corner of the property. Runoff from the closed gypsum stack side slopes will be discharged into lined toe ditch swales and routed to the south and east side of the gypsum stack where it will be detained by water level control structure as necessary prior to discharge to the freshwater retention pond. It should be noted that since all surfaces of the closed facility will be covered by not less than 12 inches of vegetated soil cover, runoff quality should be suitable for offsite discharge to the retention pond with no additional treatment.

2.4.4 Seepage/Leachate Control

Closure of the gypsum stack side slopes will require that portions of the existing side slopes be flattened and that additional seepage collection drains be provided at intervals on the slope and at the downstream toe of the gypsum to intercept process water seepage and route it back to the return water pump station for recycling to evaporation ponds located on top of the gypsum stack and eventually to the process water treatment plant. Based on the anticipated final stack geometry presented on Figure 12, it is estimated that seepage rates from the stack will initially be high, [redacted] but will further diminish significantly with time as the stack drains (See Figure 32). After final closure of the gypsum stack top ponds, seepage rates will diminish with time. The reduced seepage flow will be collected in the existing surge pond and return water pump station and will be periodically treated/neutralized with limestone and lime. The treated water and lime sludge solids will be evaporated and stored in designated lined storage ponds on top of the closed gypsum stack. The seepage rate treated/neutralized after Year 12 is plotted as a function of time after closure in Figure 33.

The return water pump station pond will not be closed immediately but will remain open after final closure of the gypsum stack is complete to collect and evaporate residual process water seepage collected after the gypsum stack is closed.

2.4.5 Closure Techniques for Other Ponds

Two of the previously lined gypsum sedimentation ponds on top of the gypsum stack will ultimately be used for treated water evaporation and lime sludge storage. These ponds will eventually be closed by dewatering, drying and stabilization of the sedimented solids to the degree necessary to facilitate placement of a 1-foot thick, vegetated soil cover.

The return water surge/pump pond will be used on a long-term basis to collect and manage small quantities of process water seepage collected after final closure of the gypsum stack is complete. Closure of this pond will need to be delayed until seepage quantities are reduced to insignificant levels that can be managed by a smaller sump and pump station. Closure of the return water decant ponds will be accomplished by pushing down the side slopes and re-grading the surface of the pond in such a manner as to shed rainfall runoff/runon away from the original pond footprint. The regraded pond surface will be capped with a 40-mil HDPE liner and covered with a 2-foot protective cover of locally available soil borrow.

2.5 Phased Closure Construction Schedule

As discussed above, the proposed water management plan for this facility will rely on evaporation of excess process water instead of treatment and discharge. The closure schedule, therefore,

[redacted]

will be determined by the need to store and manage process water inventories during the closure period. The following is an approximate plan and schedule for how the phosphogypsum stack system will be closed in phases as expeditiously as practicable. The sequence of closure and closure schedule will most likely change based on the actual gypsum stack geometry and process water inventories at the time of the Don Plant Closure.

<u>Phase 1 - Closure Years 1 and 2</u>

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation. Portions of the sedimentation ponds on top of the gypsum stack may need to be reconfigured and regraded to some degree to increase wetted surface water areas to maximize evaporation rates and accommodate the irrigation system.

- It is assumed that a two-year idle period will be required for permitting and the preparation of detailed design plans and specifications and contract documents before any closure construction activities can commence. Initial closure activities will be limited to side slope areas that are not being used to store or evaporate excess process water.

Phase 2 - Closure Years 3 through 5

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation. Reconfigure top ponds as needed to increase wetted surface water areas to maximize evaporation rates.
- Construct earthen containment dike for surface water detention pond that will be located on natural ground at the northeast corner of the gypsum stack storage for management of runoff from closed portions of the gypsum stack side slopes.
- Final grade and close gypsum stack side slopes on the north side of the detention pond, the unlined gypsum side slopes on north and east sides of the lined lower compartment and the gypsum slopes north and west side of the Area 6 expansion area (Figure 8), which may include some of the following activities:
- Bench and install seepage collection drains on the side slopes of the gypsum stack at locations where designated on final closure design drawings.
- Install perimeter seepage collection toe drains at designated areas.
- Construct lined surface water swales and toe ditches as needed to route surface water runoff to detention pond.
- Once seepage has subsided, finish grade, amend and cover side slopes of gypsum stack with 12-inches of locally available soil and grass/vegetate slopes.

Phase 3 - (Years 6 through 8)

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation. Reconfigure top ponds as needed to increase wetted surface water areas to maximize evaporation rates.
- Final grade and close gypsum stack side slopes on the east, north and west sides of the lower compartment and the unlined gypsum side slopes on the north and west sides of the upper lined compartment (Figure 9), which may include some of the activities listed in the Phase 2 description.

Phase 4 - (Years 9 through 11)

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation. Reconfigure top ponds as needed to increase wetted surface water areas to maximize evaporation rates.

- Dewater Area 6 and the Lower compartment and allow the existing gypsum surfaces to dry sufficiently to facilitate site regrading in preparation for the installation of a 60-mil HDPE bottom. These two ponds will ultimately be used for lime sludge storage and evaporation of treated water, once process water treatment operations are implemented.

- Final grade and close gypsum stack side slopes on the east, north and west sides of the upper compartment (Figure 10), which may include some of the activities listed in the Phase 2 description.

- All remaining top ponds in the larger, uppermost pond will continue to be used on an as needed basis for process water irrigation and evaporation through year 13.

- It is anticipated that In Year 12, J.R. Simplot will begin construction of a double lime treatment plant that will be capable of treating all gypsum stack drainage water by Year 14. It is also anticipated that by the end of Year 13 all excess process water will have been evaporated and two of lowermost top ponds that will be lined and ready to receive treated water and lime sludge solids.

- Lining of the remaining top ponds will commence after year 13 and should be complete by the end of year 15. Final cover will include a 40-mill HDPE liner covered with a protective, two-foot thick vegetated soil cover. Surface water control structures will be installed as needed to direct runoff from the closed top ponds to perimeter surface water swales or ditches and then to the lined detention pond on the west side of the gypsum stack.

- Process water treatment will commence during year 13, which will require that the proposed process water treatment plant be installed and fully operational by that time.

Phase 5 - (Years 11 and 13)

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation.

- The water inventory on the remaining, uppermost top pond will diminish with time through the end of year 12 and into year 13. Allow the upper ponds to dewater surface dry to the degree possible to facilitate final closure of the pond surface after year 13.

Phase 6 - (Years 13 through 15)

- Continue to pump process water collected in the surge pond and return water pump station back to the top of existing gypsum stack for water management and evaporation. It is anticipated that the volume of water that will be pumped to the top of the stack for evaporation will diminish with time and by the end of year 13 the uppermost pond will no longer be needed for water evaporation. Allow the exposed, upgradient sedimented gypsum deposits to surface dry in preparation for final grading and placement of the final cover materials.

- Physical closure of the Don Plant phosphogypsum stack system should be complete by the end of year 16, excluding final closure of the two lime treatment ponds and the decant ponds, which, by that time, should be collecting only entrained process water seepage that drains from the closed gypsum stack. A fifty-year long-term care and maintenance program for the closed facility will commence once final closure activities are complete and certified. A reduced long-term care period may be requested if Simplot can substantiate that the reduced period is sufficient to protect human health and the environment.

Phase 7 - (Years 16 through 50)

- The lined lime sludge storage and evaporation ponds on top of the closed stack will be closed incrementally once seepage rates from the closed phosphogypsum stack have reduced sufficiently to warrant closure. Closure of the sludge ponds will include dewatering and drying of the lime sludge materials to a stable consistency that will allow placement of a one-foot thick, vegetated soil cover. Any exposed HDPE liner materials on the side slopes of the pond, above the top surface of the lime deposits will be covered with a protective, two-foot thick vegetated soil cover.

Physical closure of the decant ponds will also be closed incrementally in a similar manner once seepage/drainage rates from the closed gypsum stack are reduced sufficiently to eliminate the need for temporary storage of that water for further treatment.

Section 3

CLOSURE LIABILITY

[redacted]

3.1 [redacted]

[redacted]

3.2 [redacted]

[redacted]

3.2.1 [redacted]

[redacted]

[redacted]

3.2.2 [redacted]

[redacted]

[redacted]

[redacted]

3.3 [redacted]

[redacted]

3.3.1 [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] [redacted]

[redacted]

3.4.1 [redacted]

[redacted]

3.4.2 [redacted]

[redacted]

3.5 [redacted]

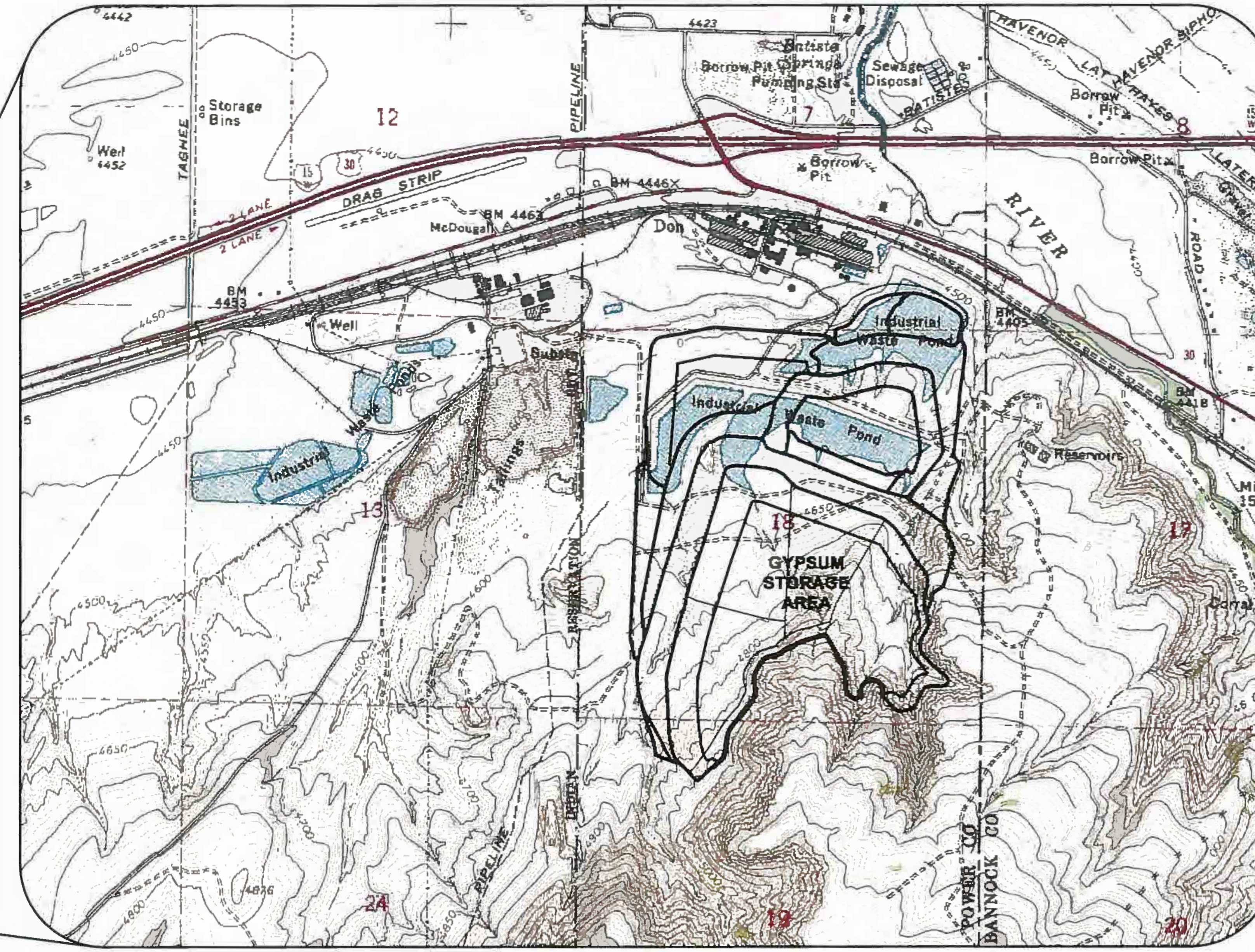
[redacted]

[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]
	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]
	[redacted]	[redacted]
	[redacted]	[redacted]
[redacted]		[redacted]

[redacted]

IDAHO STATE MAP

NOT TO SCALE



SECTION 18
TOWNSHIP 6 SOUTH
RANGE 34 EAST

OBTAINED FROM USGS QUAD MAP:
MICHAUD, IDAHO (PHOTOINSPECTED 1974)

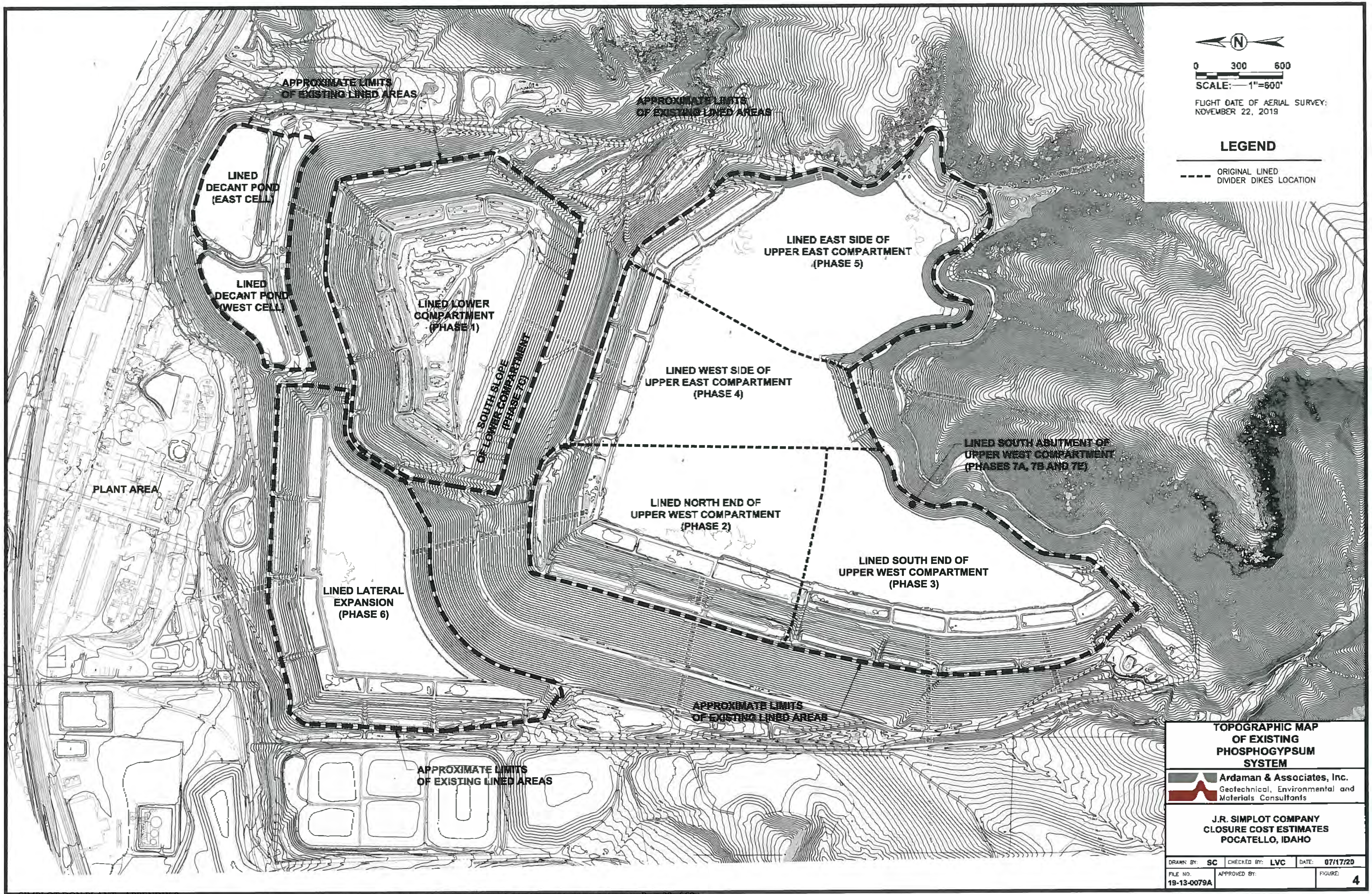
SITE VICINITY MAP

SCALE: 1" = 2000'

SITE LOCATION MAP		
Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants		
J.R. SIMPLOT COMPANY CLOSURE COST ESTIMATES POCATELLO, IDAHO		
DRAWN BY: SC	CHECKED BY: LVC	DATE: 07/17/20
FILE NO: 19-13-0079A	APPROVED BY:	FIGURE: 1

R:\Corporate\19\19-13-0079\SIMPLOT POCATELLO - CLOSURE COST ESTIMATE_Current Sheet Set\2 AERIAL PHOTOGRAPH OF EXISTING PHOSPHOGYPSUM STACK SYSTEM.dwg 2020/07/22 by brandon.white


N
0 300 600
SCALE: 1"=600'
AERIAL PHOTOGRAPH PROVIDED BY 3DI GEO TERRA MAPPING GROUP NOVEMBER 22, 2019
LEGEND
ORIGINAL LINED DIVIDER DIKES LOCATION
APPROXIMATE LIMITS OF EXISTING LINED AREAS
APPROXIMATE LIMITS OF EXISTING LINED AREAS
LINED DECANT POND (EAST CELL)
LINED DECANT POND (WEST CELL)
LINED LOWER COMPARTMENT (PHASE 1)
SOUTH LINED SLOPE OF LOWER COMPARTMENT (PHASE 7C)
LINED EAST SIDE OF UPPER EAST COMPARTMENT (PHASE 5)
LINED WEST SIDE OF UPPER EAST COMPARTMENT (PHASE 4)
PLANT AREA
LINED SOUTH ABUTMENT OF UPPER WEST COMPARTMENT (PHASES 7A, 7B AND 7E)
LINED NORTH END OF UPPER WEST COMPARTMENT (PHASE 2)
LINED SOUTH END OF UPPER WEST COMPARTMENT (PHASE 3)
LINED LATERAL EXPANSION (PHASE 6)
APPROXIMATE LIMITS OF EXISTING LINED AREAS
APPROXIMATE LIMITS OF EXISTING LINED AREAS
APPROXIMATE LIMITS OF EXISTING LINED AREAS
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 07/17/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE: 3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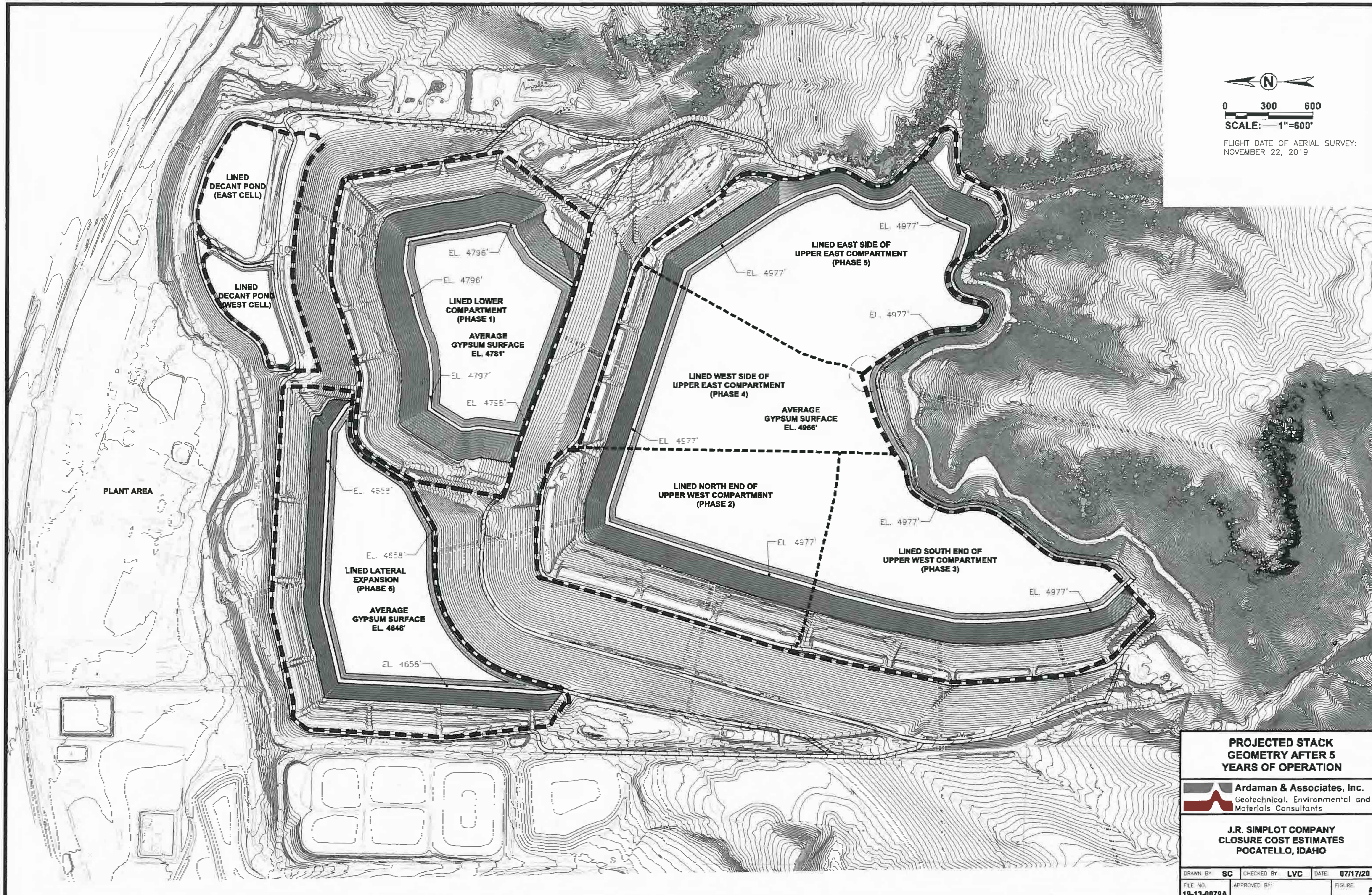
FLIGHT DATE OF AERIAL SURVEY: NOVEMBER 22, 2019
LEGEND
ORIGINAL LINED DIVIDER DIKES LOCATION
APPROXIMATE LIMITS OF EXISTING LINED AREAS
APPROXIMATE LIMITS OF EXISTING LINED AREAS
LINED DECANT POND (EAST CELL)
LINED DECANT POND (WEST CELL)
LINED LOWER COMPARTMENT (PHASE 1)
SOUTH SLOPE OF LOWER COMPARTMENT (PHASE 7C)
LINED EAST SIDE OF UPPER EAST COMPARTMENT (PHASE 5)
LINED WEST SIDE OF UPPER EAST COMPARTMENT (PHASE 4)
LINED SOUTH ABUTMENT OF UPPER WEST COMPARTMENT (PHASES 7A, 7B AND 7E)
LINED NORTH END OF UPPER WEST COMPARTMENT (PHASE 2)
LINED SOUTH END OF UPPER WEST COMPARTMENT (PHASE 3)
PLANT AREA
LINED LATERAL EXPANSION (PHASE 6)
APPROXIMATE LIMITS OF EXISTING LINED AREAS
APPROXIMATE LIMITS OF EXISTING LINED AREAS
TOPOGRAPHIC MAP OF EXISTING PHOSPHOGYPSUM SYSTEM
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 07/17/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE: 4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LINED DECANT POND (EAST CELL)
LINED DECANT POND (WEST CELL)
LINED LOWER COMPARTMENT (PHASE 1)
AVERAGE GYPSUM SURFACE EL. 4781'
EL. 4796'
EL. 4796'
EL. 4797'
EL. 4795'
LINED EAST SIDE OF UPPER EAST COMPARTMENT (PHASE 5)
LINED WEST SIDE OF UPPER EAST COMPARTMENT (PHASE 4)
AVERAGE GYPSUM SURFACE EL. 4966'
LINED NORTH END OF UPPER WEST COMPARTMENT (PHASE 2)
LINED SOUTH END OF UPPER WEST COMPARTMENT (PHASE 3)
EL. 4977'
PLANT AREA
LINED LATERAL EXPANSION (PHASE 6)
AVERAGE GYPSUM SURFACE EL. 4646'
EL. 4658'
EL. 4658'
EL. 4655'
PROJECTED STACK GEOMETRY AFTER 5 YEARS OF OPERATION
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
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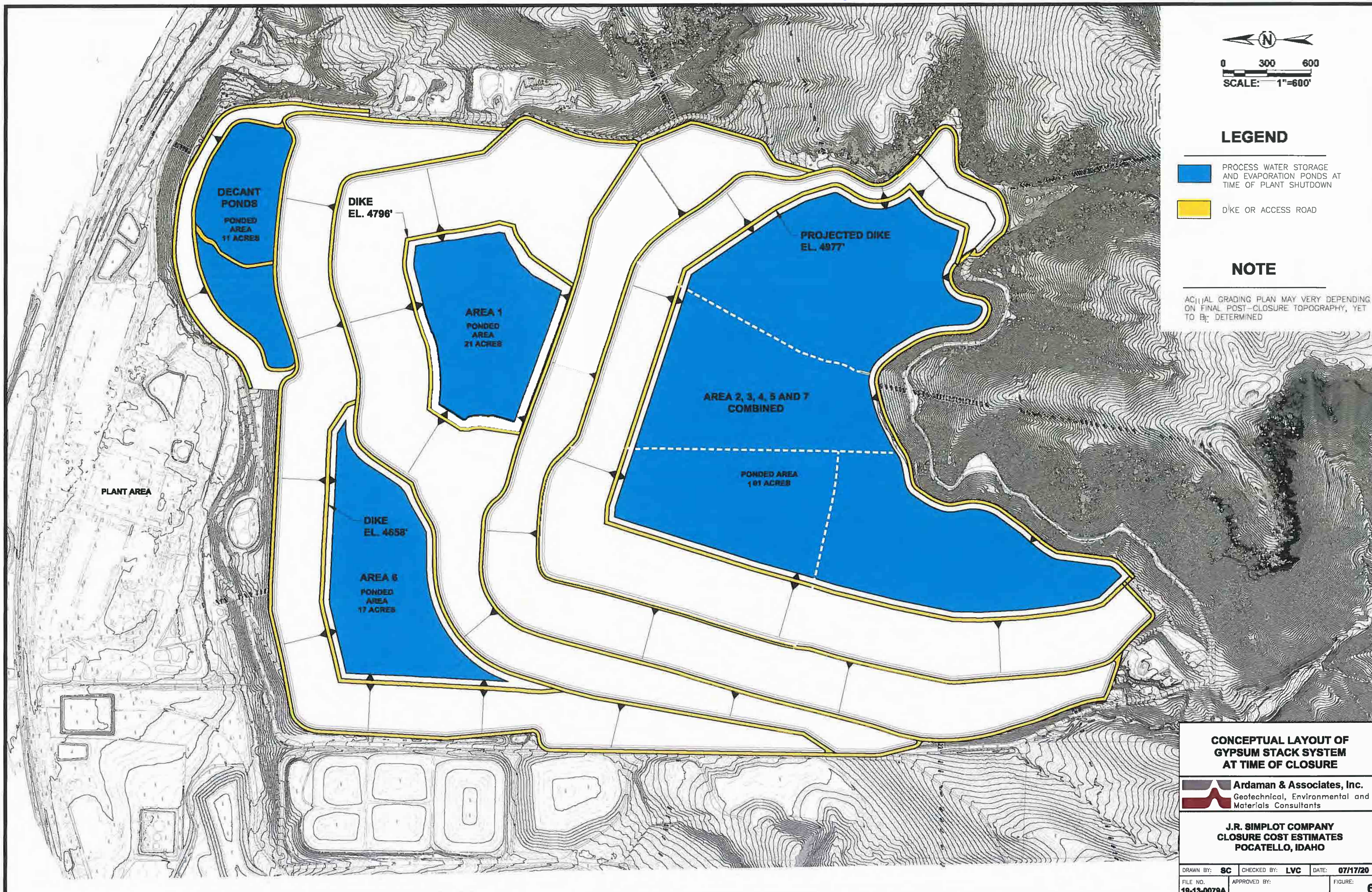
DATE: 07/17/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE 5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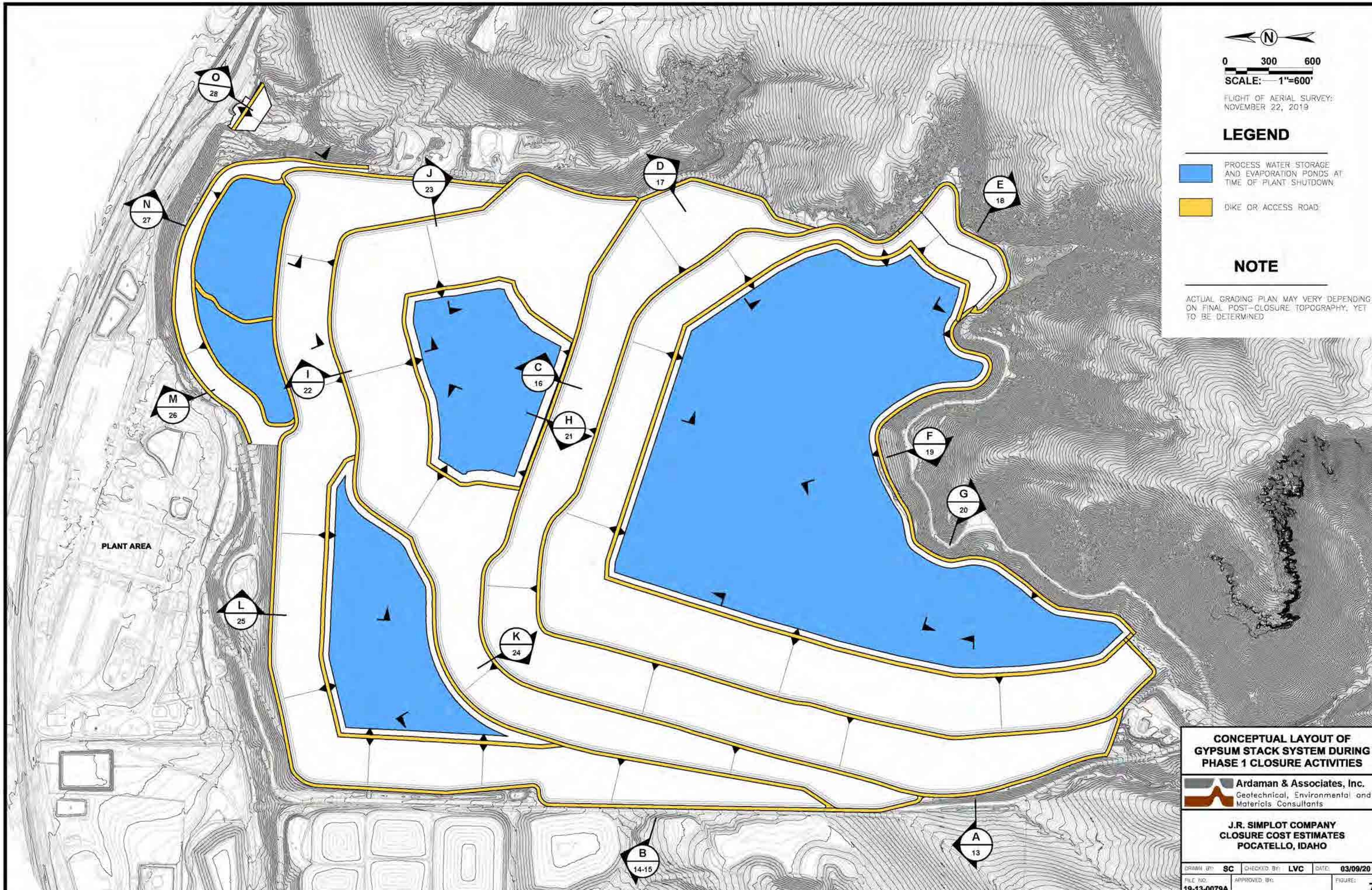
LEGEND
PROCESS WATER STORAGE AND EVAPORATION PONDS AT TIME OF PLANT SHUTDOWN
DIKE OR ACCESS ROAD
NOTE
ACTUAL GRADING PLAN MAY VERY DEPENDING ON FINAL POST-CLOSURE TOPOGRAPHY, YET TO BE DETERMINED
DECANT PONDS
PONDED AREA 11 ACRES
DIKE EL. 4796'
AREA 1
PONDED AREA 21 ACRES
PROJECTED DIKE EL. 4977'
AREA 2, 3, 4, 5 AND 7 COMBINED
PONDED AREA 181 ACRES
PLANT AREA
DIKE EL. 4658'
AREA 6
PONDED AREA 17 ACRES
CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM AT TIME OF CLOSURE
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 07/17/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE: 6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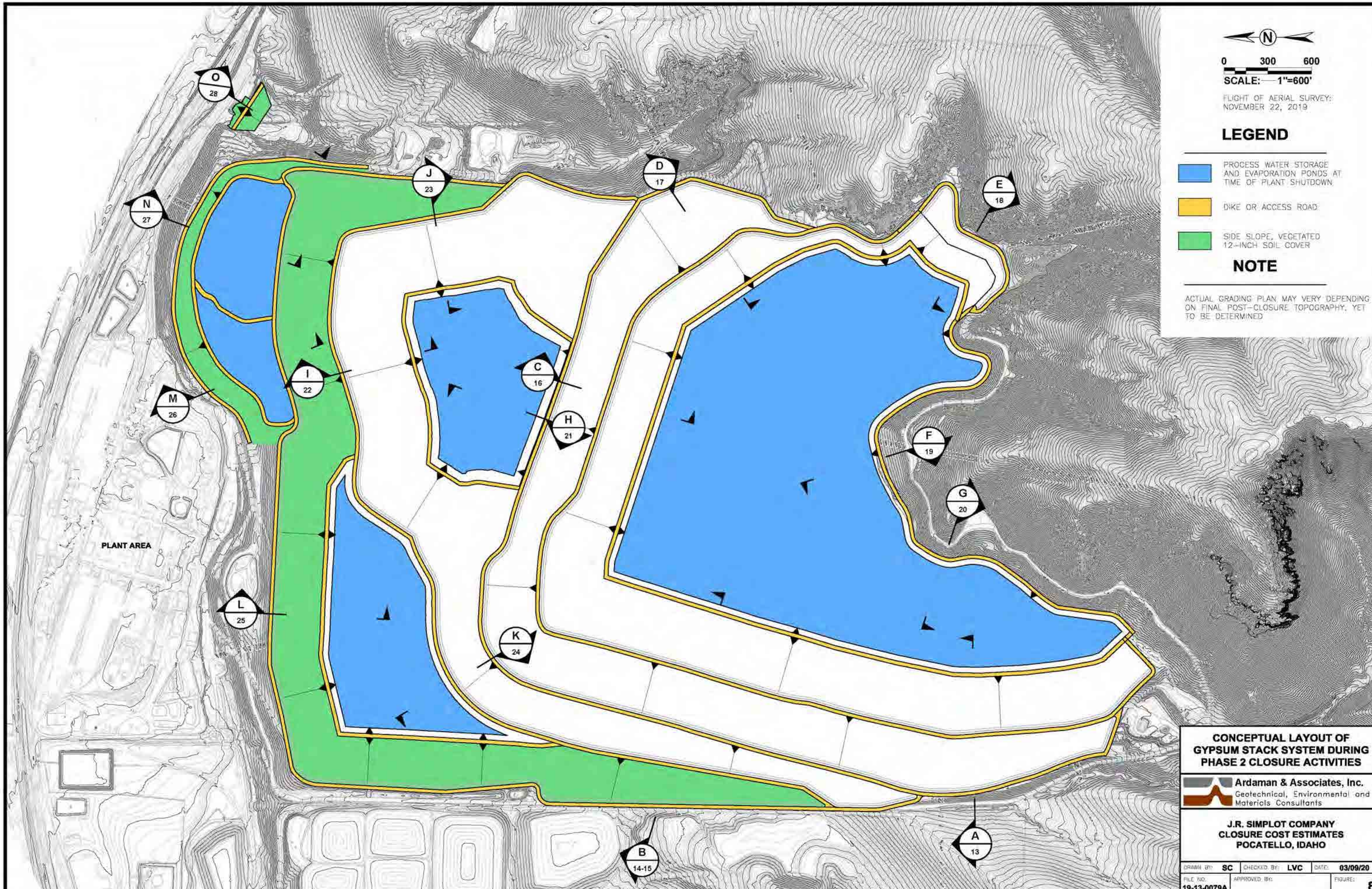
FLIGHT OF AERIAL SURVEY: NOVEMBER 22, 2019
LEGEND
PROCESS WATER STORAGE AND EVAPORATION PONDS AT TIME OF PLANT SHUTDOWN
DIKE OR ACCESS ROAD
NOTE
ACTUAL GRADING PLAN MAY VERY DEPENDING ON FINAL POST-CLOSURE TOPOGRAPHY, YET TO BE DETERMINED
PLANT AREA
A 13
B 14-15
C 16
D 17
E 18
F 19
G 20
H 21
I 22
J 23
K 24
L 25
M 26
N 27
O 28
CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 1 CLOSURE ACTIVITIES
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 03/09/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE: 7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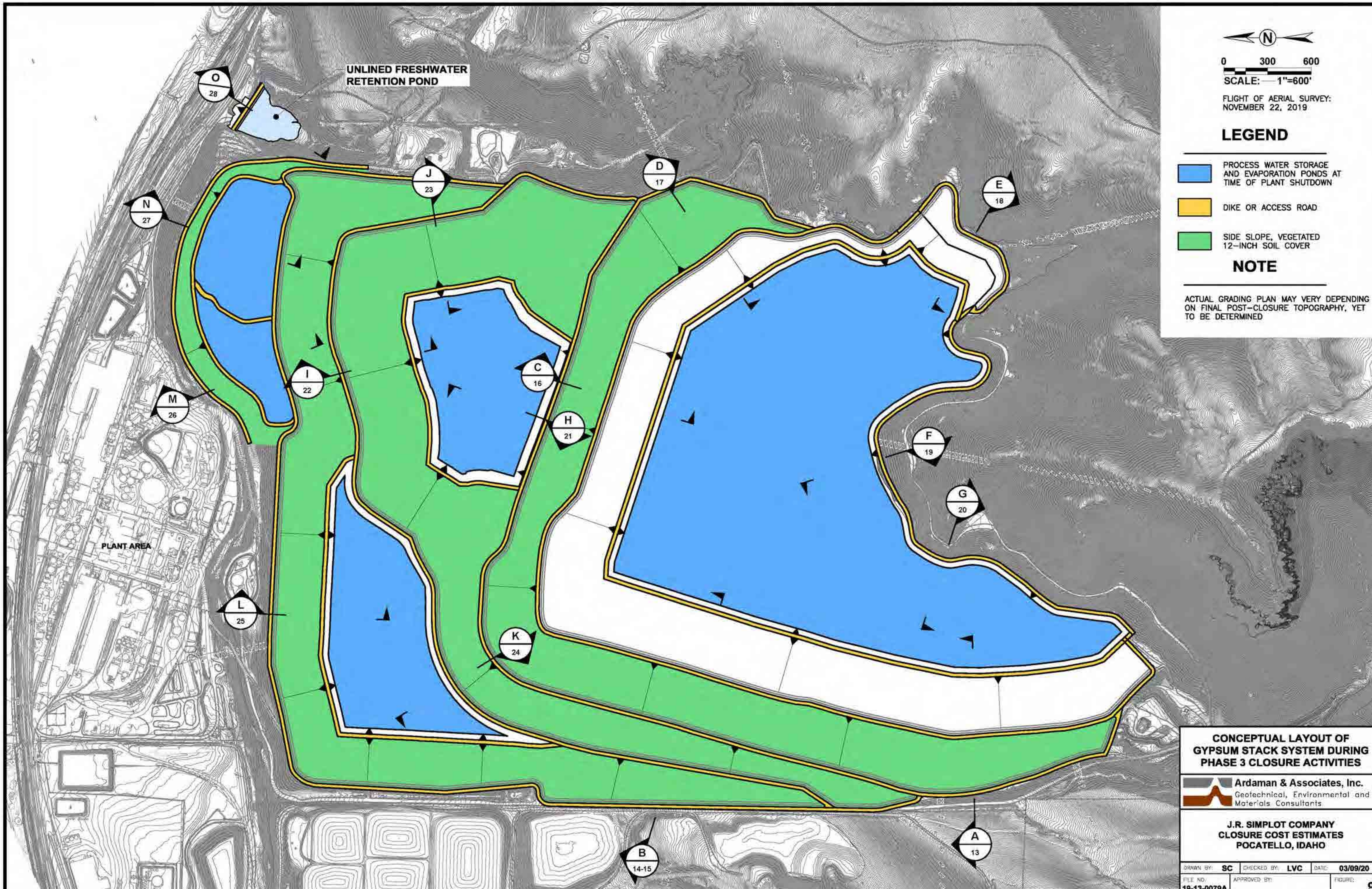
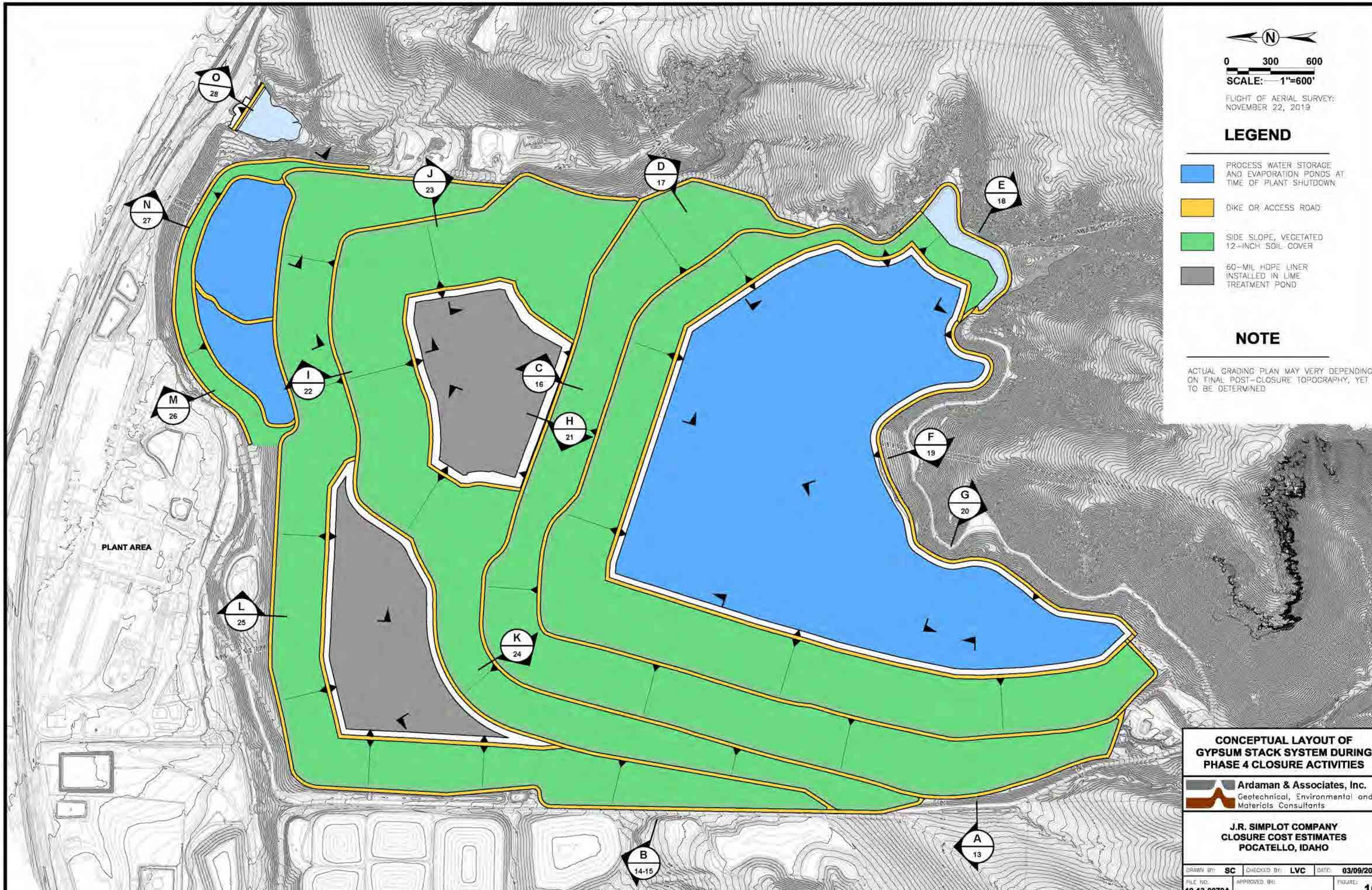
FLIGHT OF AERIAL SURVEY: NOVEMBER 22, 2019
LEGEND
PROCESS WATER STORAGE AND EVAPORATION PONDS AT TIME OF PLANT SHUTDOWN
DIKE OR ACCESS ROAD
SIDE SLOPE, VEGETATED 12-INCH SOIL COVER
NOTE
ACTUAL GRADING PLAN MAY VERY DEPENDING ON FINAL POST-CLOSURE TOPOGRAPHY, YET TO BE DETERMINED
PLANT AREA
A 13
B 14-15
C 16
D 17
E 18
F 19
G 20
H 21
I 22
J 23
K 24
L 25
M 26
N 27
O 28
CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 2 CLOSURE ACTIVITIES
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 03/09/20
FILE NO. 19-13-0079A
APPROVED BY:
FIGURE: 8


UNLINED FRESHWATER
RETENTION POND
PLANT AREA
O 28
N 27
M 26
L 25
K 24
J 23
I 22
H 21
G 20
F 19
E 18
D 17
C 16
B 14-15
A 13
N
0 300 600
SCALE: 1"=600'
FLIGHT OF AERIAL SURVEY:
NOVEMBER 22, 2019
LEGEND
PROCESS WATER STORAGE AND EVAPORATION PONDS AT TIME OF PLANT SHUTDOWN
DIKE OR ACCESS ROAD
SIDE SLOPE, VEGETATED 12-INCH SOIL COVER
NOTE
ACTUAL GRADING PLAN MAY VERY DEPENDING ON FINAL POST-CLOSURE TOPOGRAPHY, YET TO BE DETERMINED
CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 3 CLOSURE ACTIVITIES
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 03/09/20
FILE NO: 19-13-0079A
APPROVED BY:
FIGURE: 9



CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 4 CLOSURE ACTIVITIES

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

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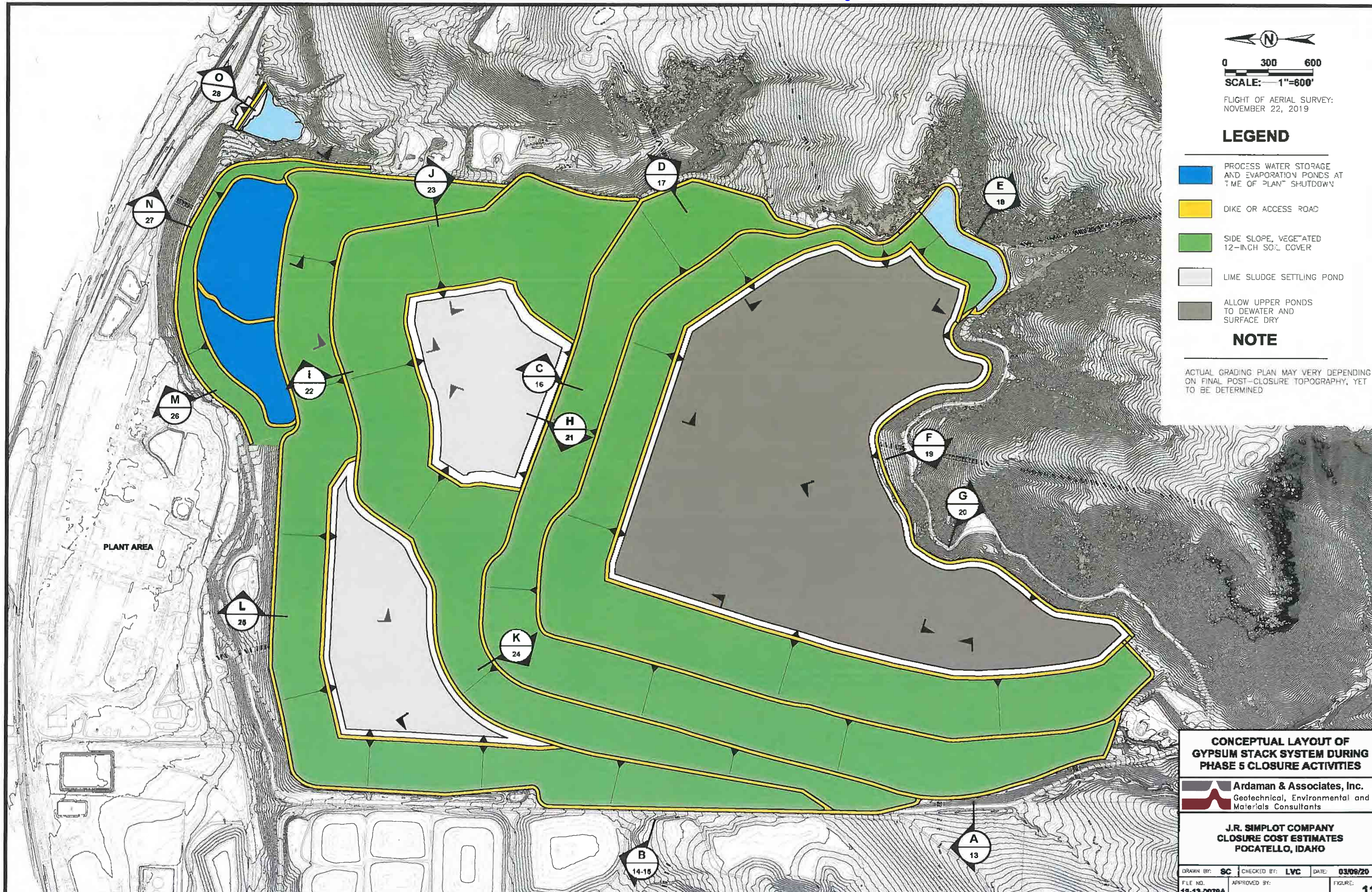
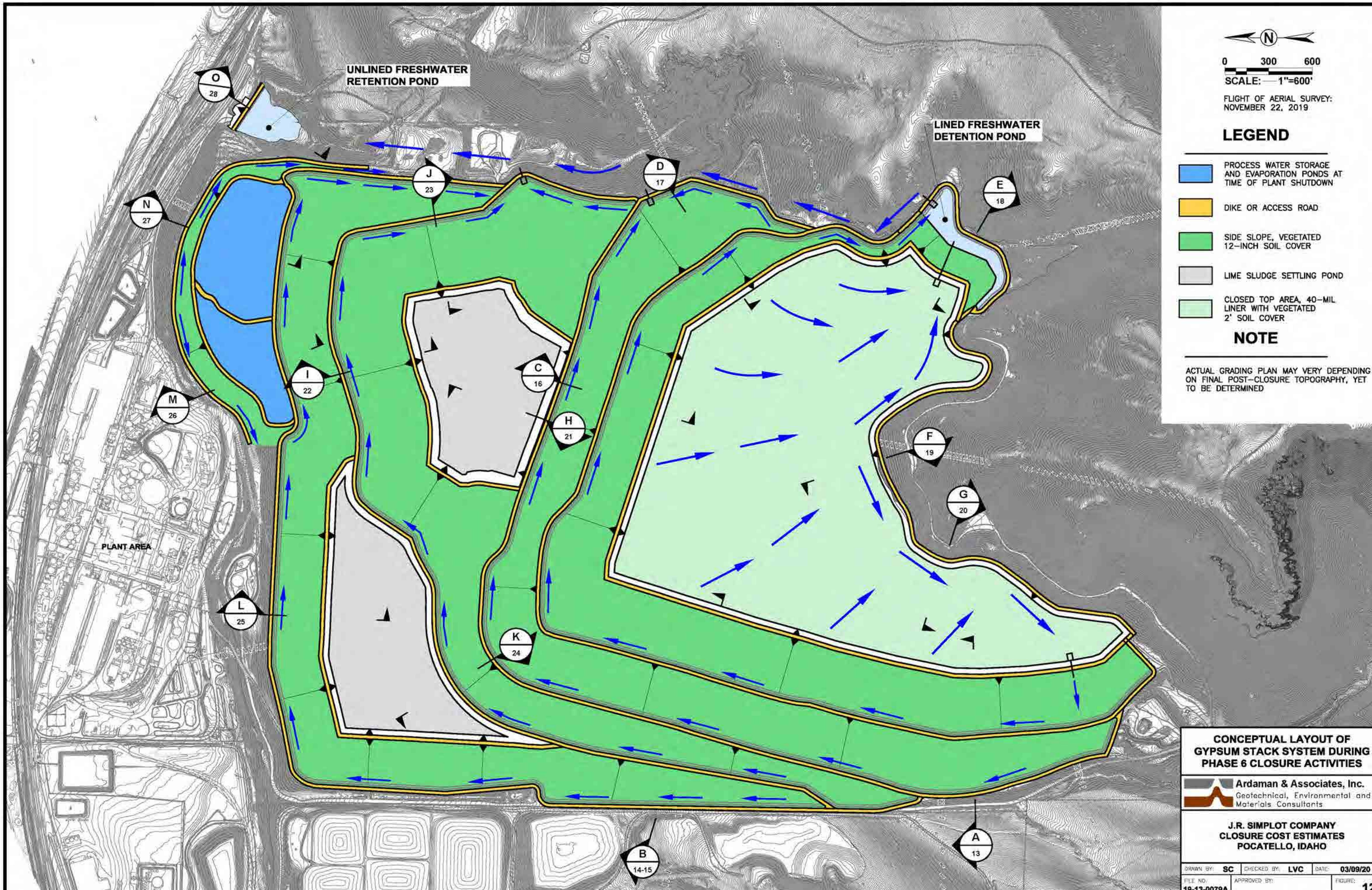
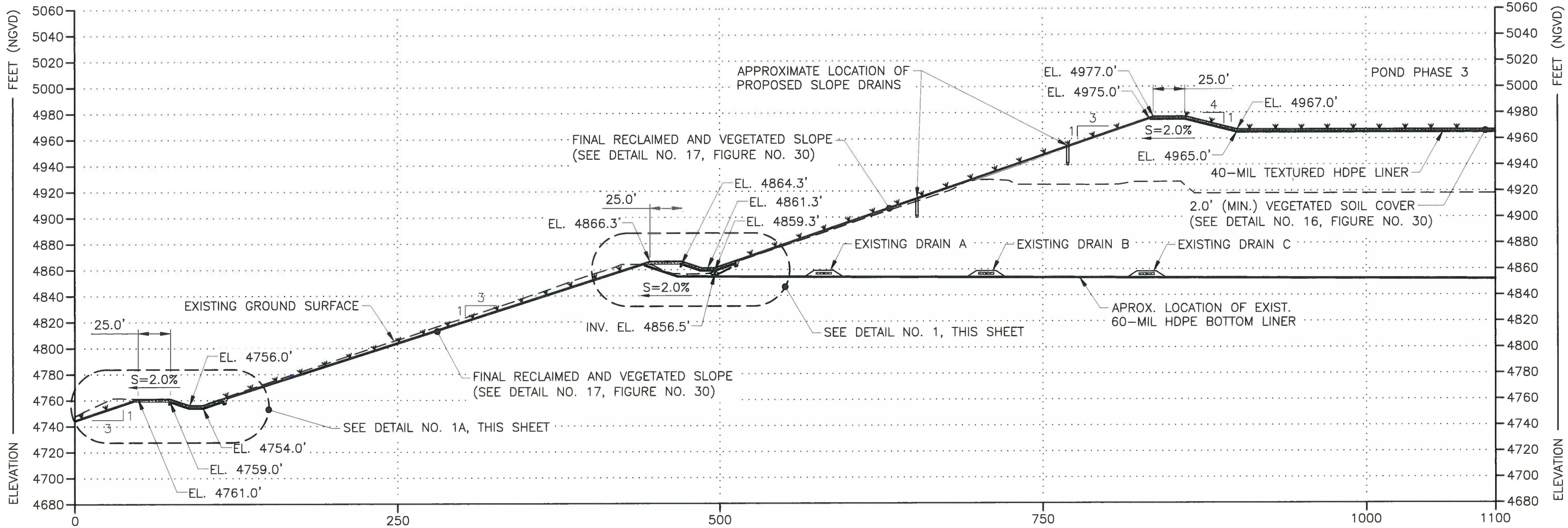
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 10



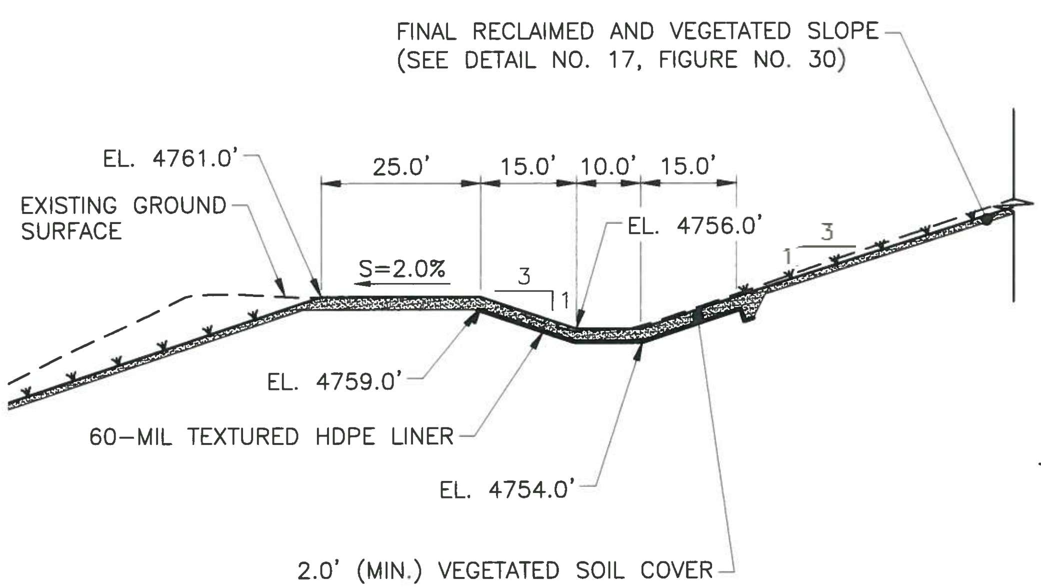
R:\Corporate\19\19-13-0079\SIMPLOT POCATELLO – CLOSURE COST ESTIMATE_Current Sheet Set\11 CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 5 CLOSURE ACTIVITIES.dwg 2020/07/27 1:39 PM, by brandon.white


UNLINED FRESHWATER RETENTION POND
LINED FRESHWATER DETENTION POND
PLANT AREA
0 300 600
SCALE: 1"=600'
FLIGHT OF AERIAL SURVEY: NOVEMBER 22, 2019
LEGEND
PROCESS WATER STORAGE AND EVAPORATION PONDS AT TIME OF PLANT SHUTDOWN
DIKE OR ACCESS ROAD
SIDE SLOPE, VEGETATED 12-INCH SOIL COVER
LIME SLUDGE SETTLING POND
CLOSED TOP AREA, 40-MIL LINER WITH VEGETATED 2' SOIL COVER
NOTE
ACTUAL GRADING PLAN MAY VERY DEPENDING ON FINAL POST-CLOSURE TOPOGRAPHY, YET TO BE DETERMINED
CONCEPTUAL LAYOUT OF GYPSUM STACK SYSTEM DURING PHASE 6 CLOSURE ACTIVITIES
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO
DRAWN BY: SC
CHECKED BY: LVC
DATE: 03/09/20
FILE NO: 19-13-0079A
APPROVED BY:
FIGURE: 12



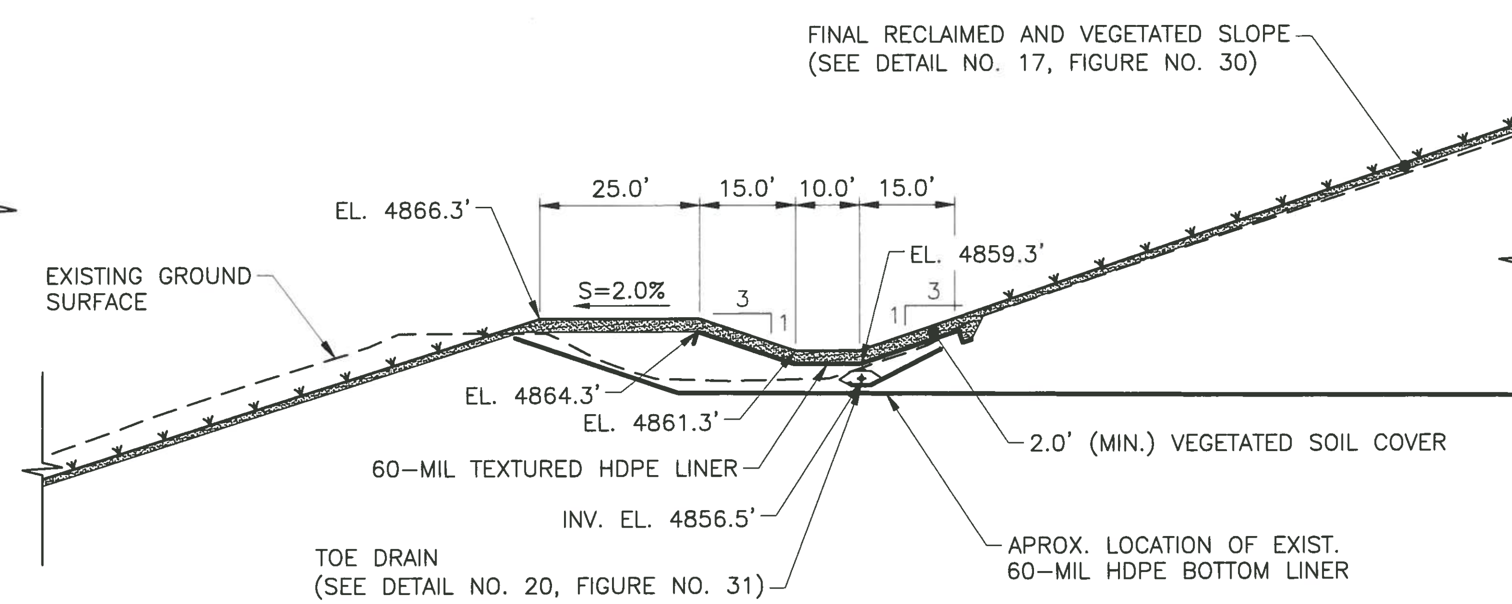
A CROSS SECTION

SCALE: 1" = 80'



1A TOE DITCH DETAIL CROSS SECTION A

SCALE: 1" = 30'



1 DETAIL CROSS SECTION A

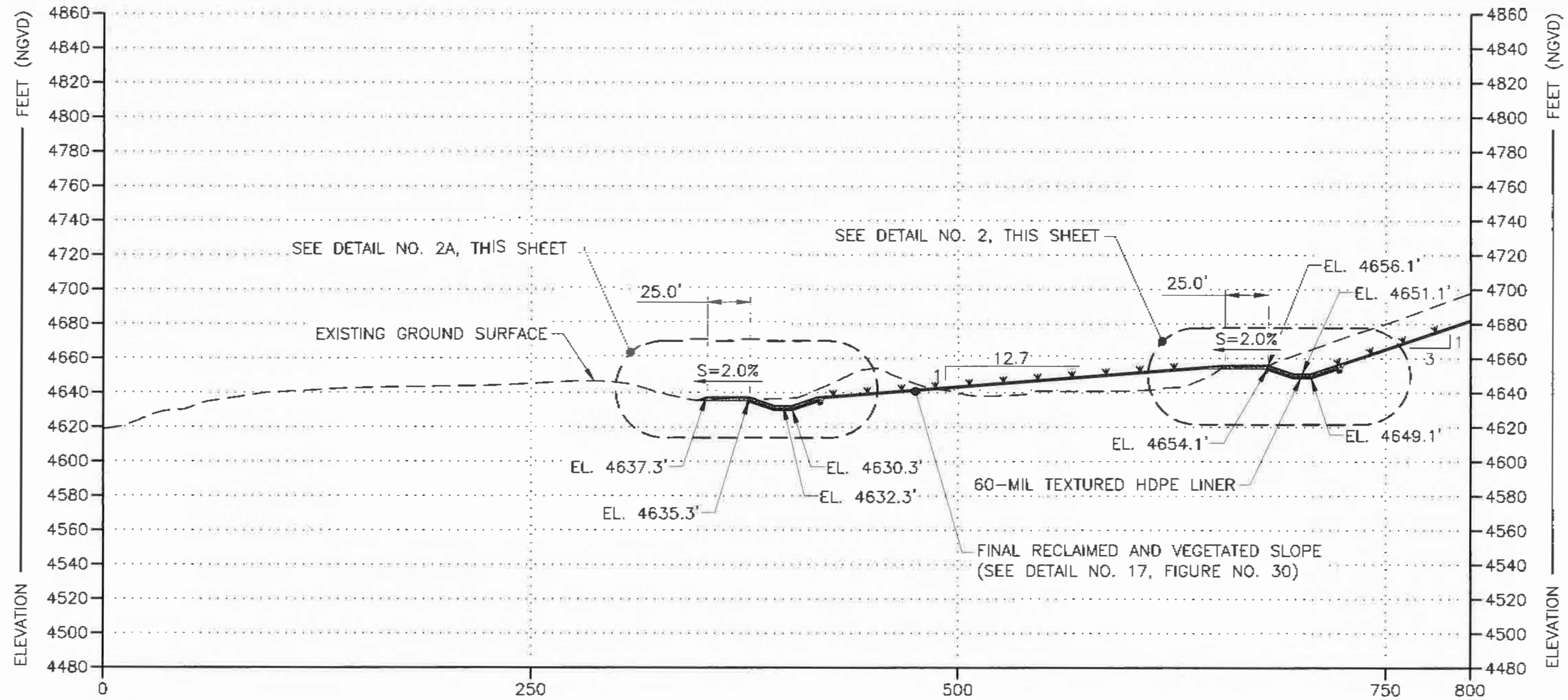
SCALE: 1" = 30'

CROSS SECTION A

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

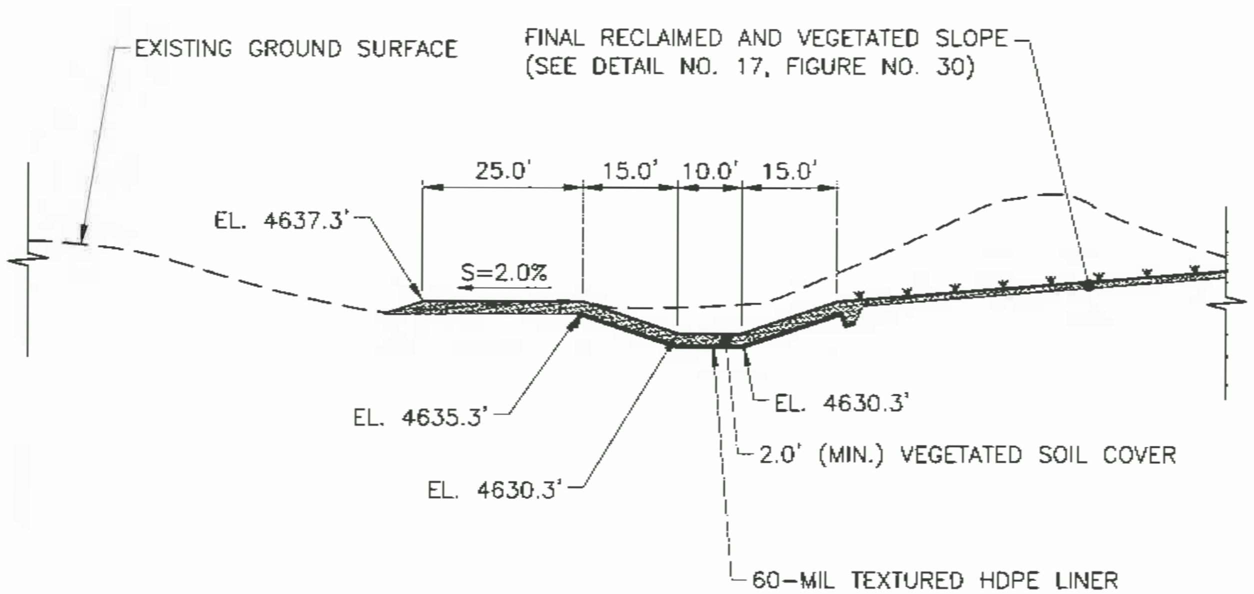
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG | CHECKED BY: LVC | DATE: 03/09/20
FILE NO. 19-13-0079A | APPROVED BY: | FIGURE: 13



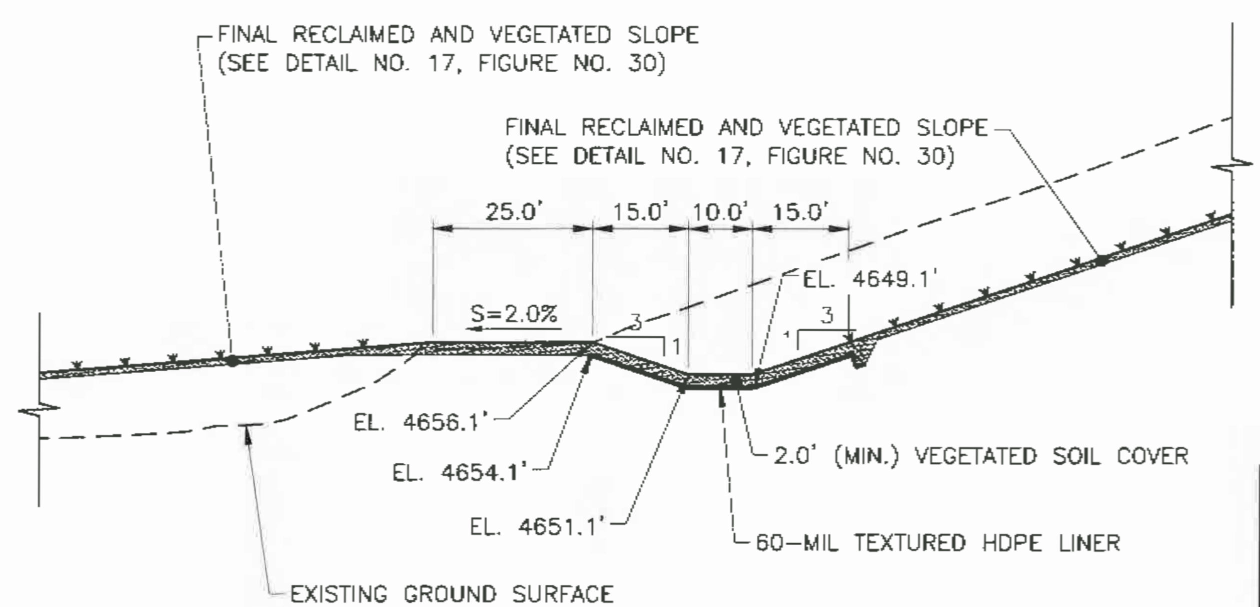
B
CROSS SECTION STA. 0+00 THROUGH STA. 8+00

SCALE: 1" = 80'



2A
TOE DITCH DETAIL CROSS SECTION B

SCALE: 1" = 30'



2
DETAIL CROSS SECTION B

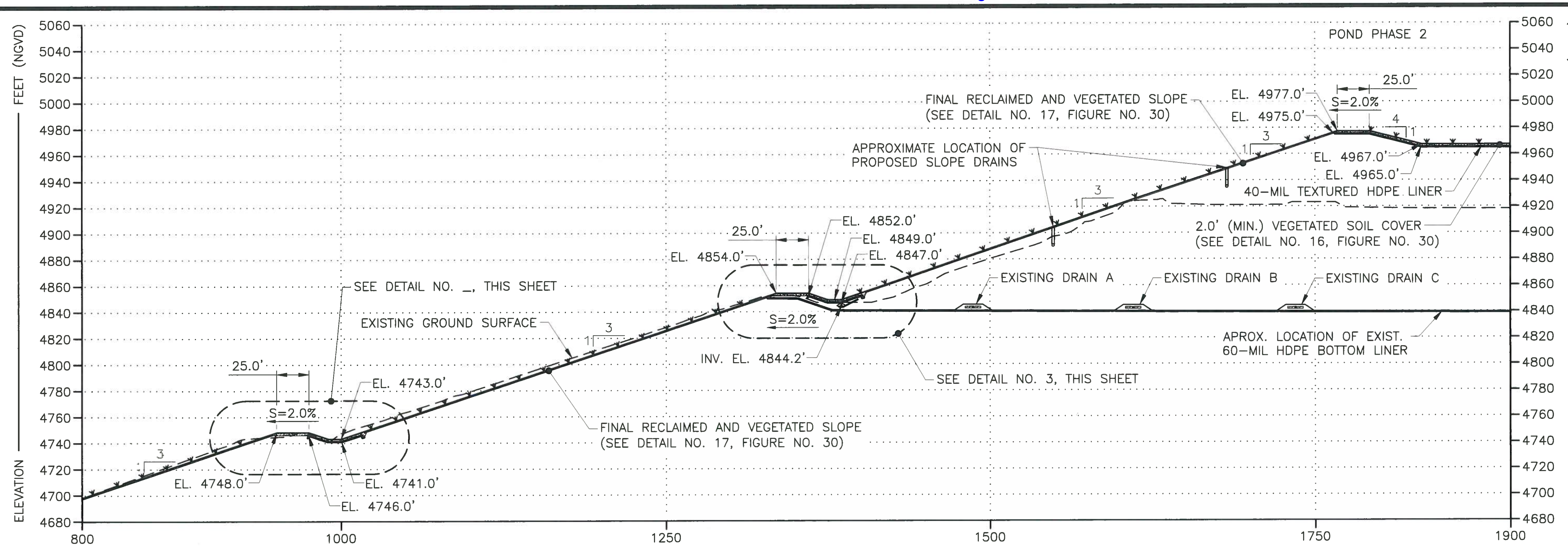
SCALE: 1" = 30'

CROSS SECTION B

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

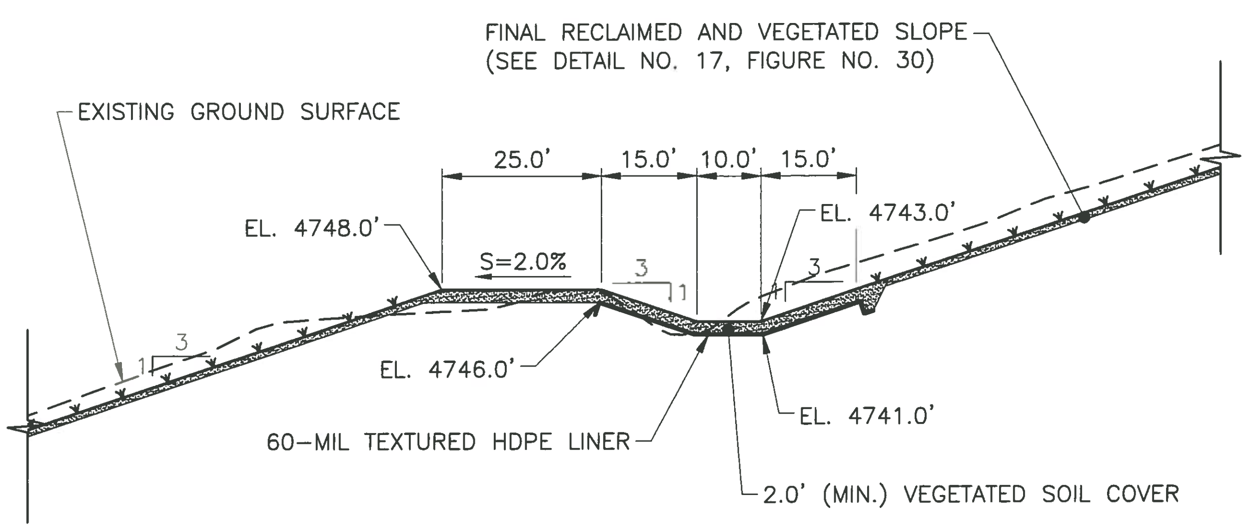
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: SC	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 14



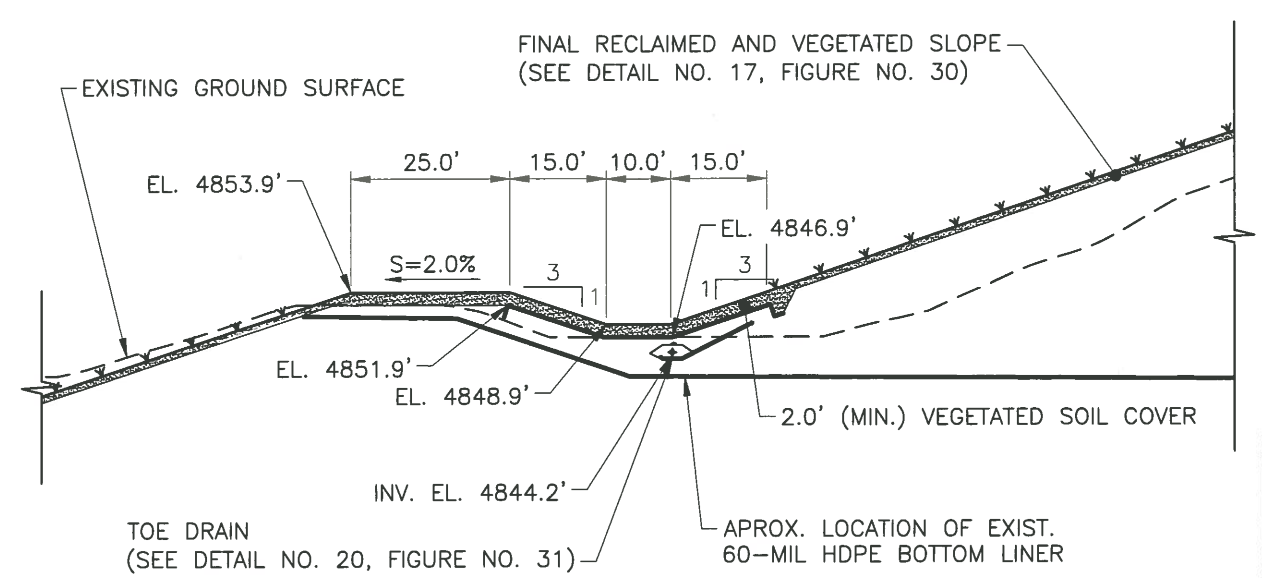
B CROSS SECTION STA. 8+00 THROUGH STA. 19+50

SCALE: 1" = 80'



3A TOE DITCH DETAIL CROSS SECTION B

SCALE: 1" = 30'



3 DETAIL CROSS SECTION B

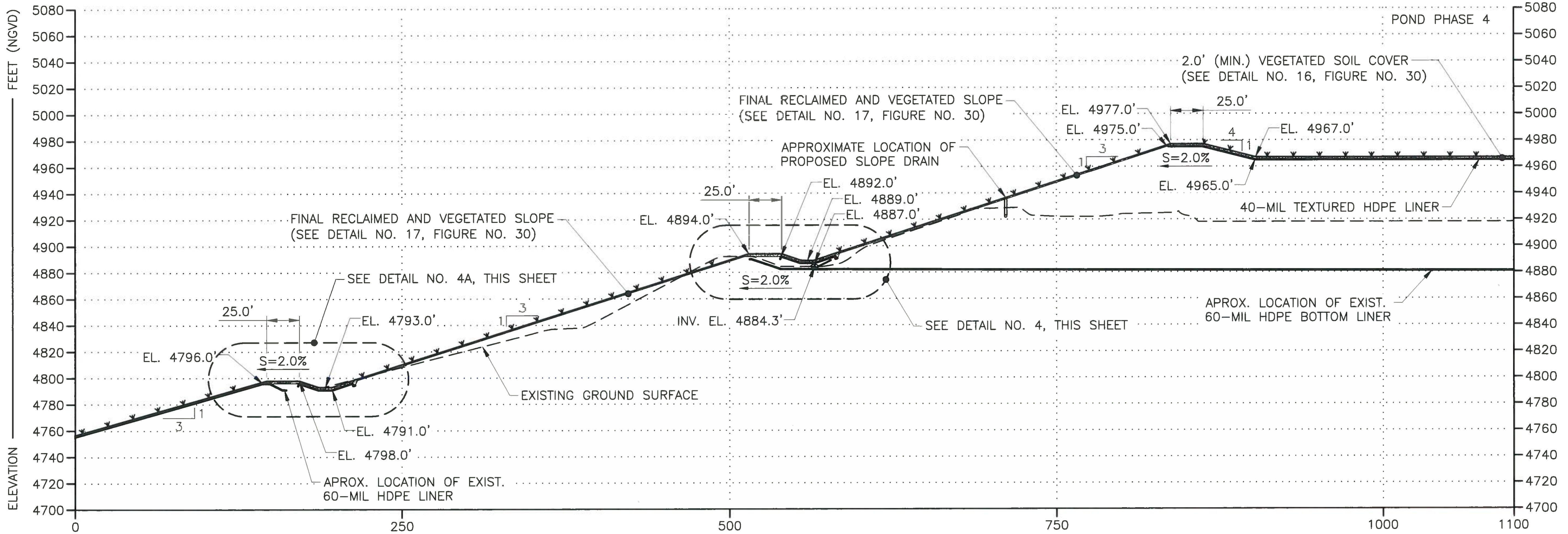
SCALE: 1" = 30'

CROSS SECTION B

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

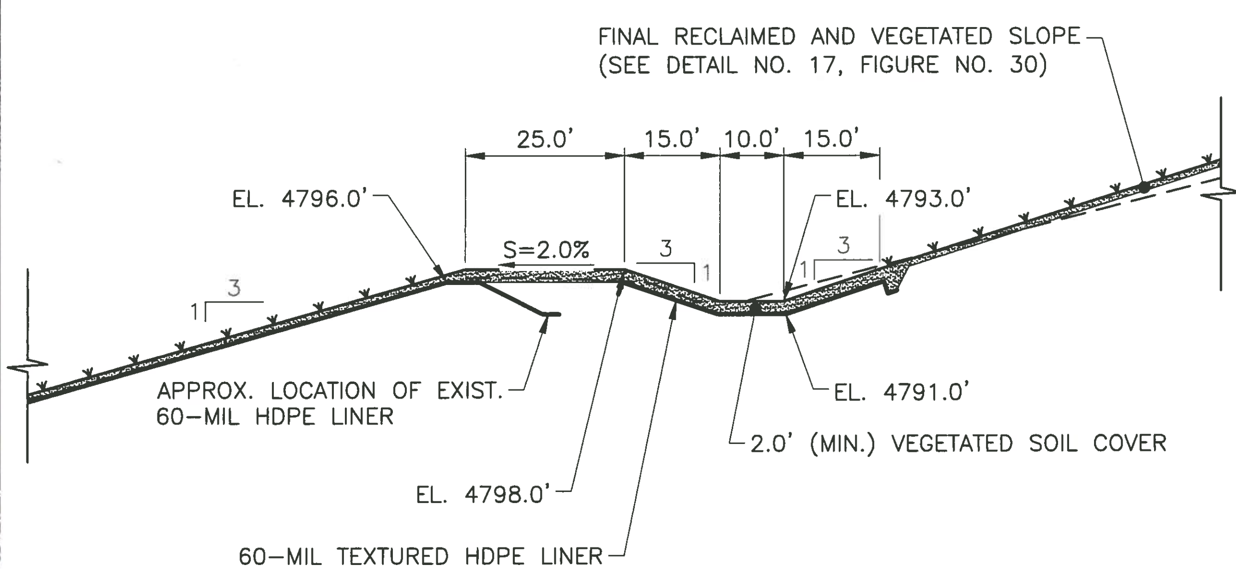
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 15



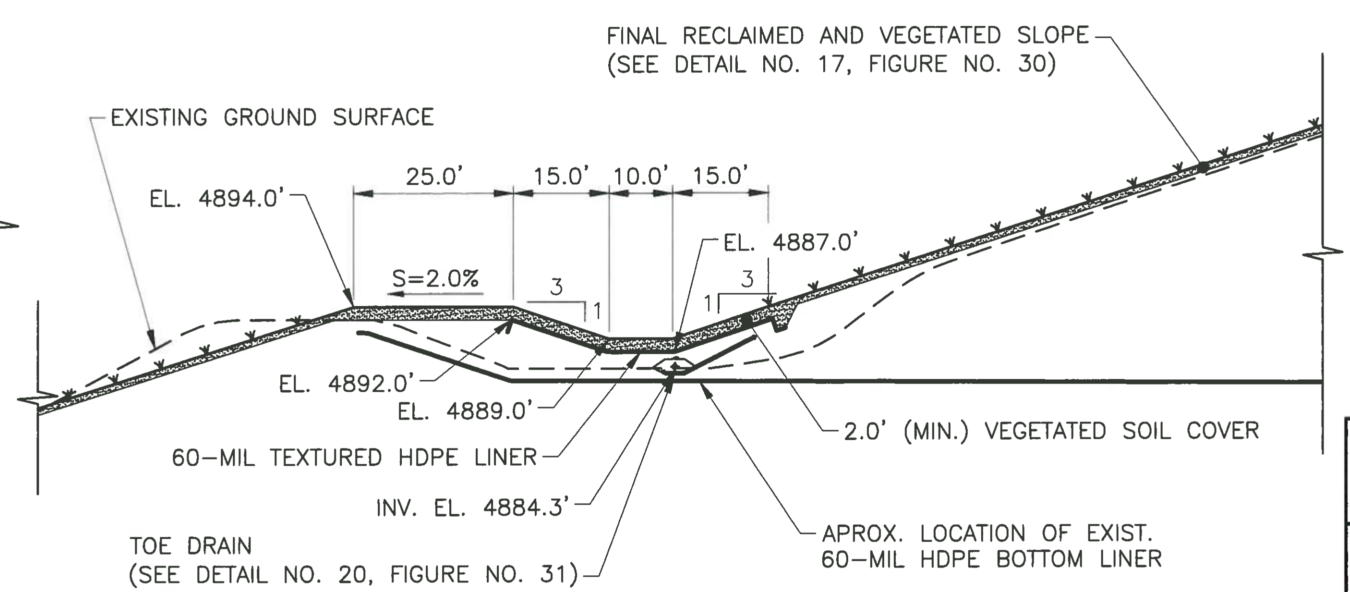
C CROSS SECTION

SCALE: 1" = 80'



4A TOE DITCH DETAIL CROSS SECTION C

SCALE: 1" = 30'



4 DETAIL CROSS SECTION C

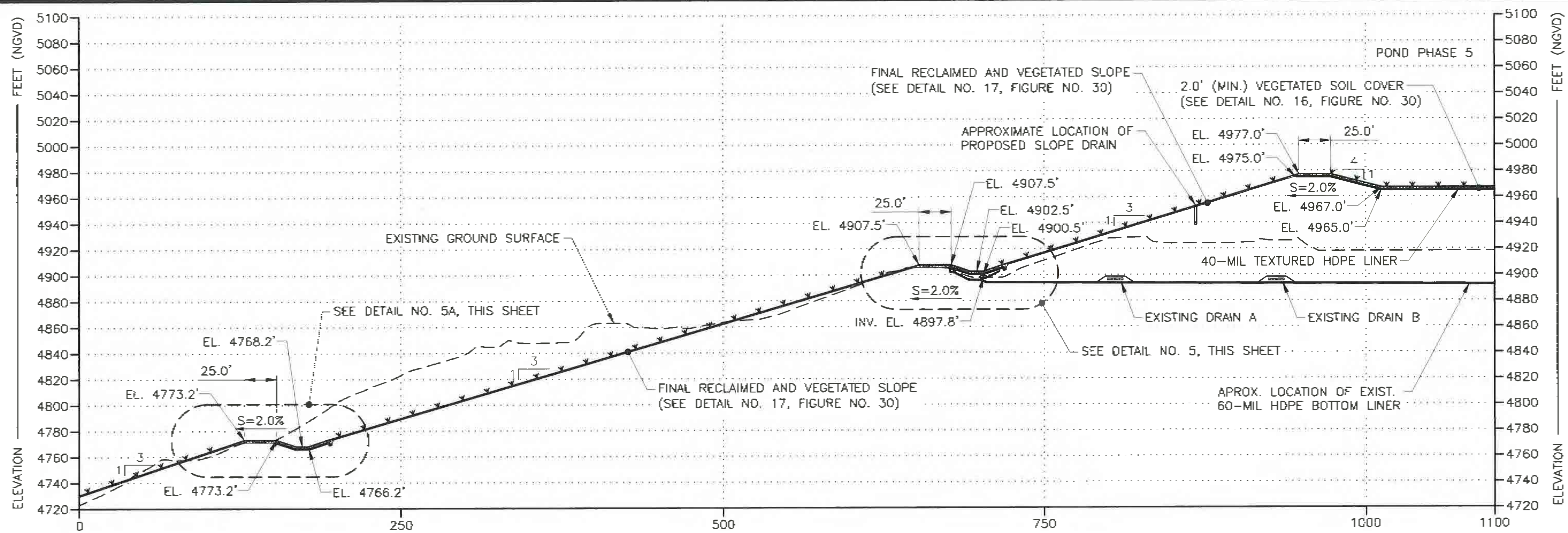
SCALE: 1" = 30'

CROSS SECTION C

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

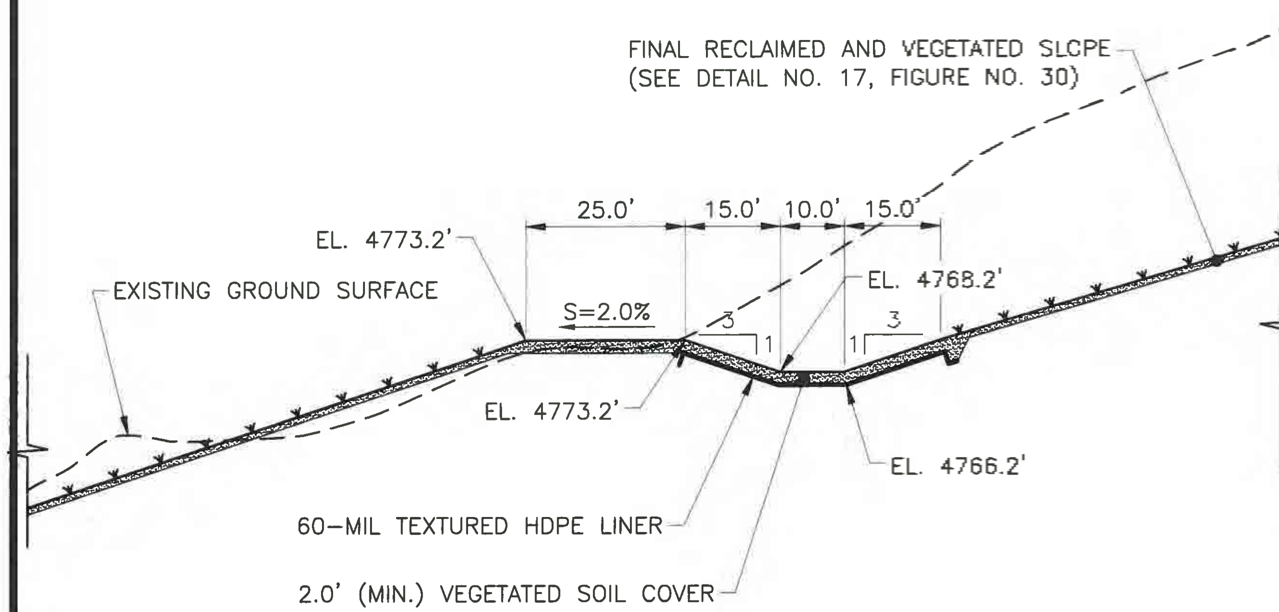
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG | CHECKED BY: LVC | DATE: 03/09/20
FILE NO. 19-13-0079A | APPROVED BY: | FIGURE: 16



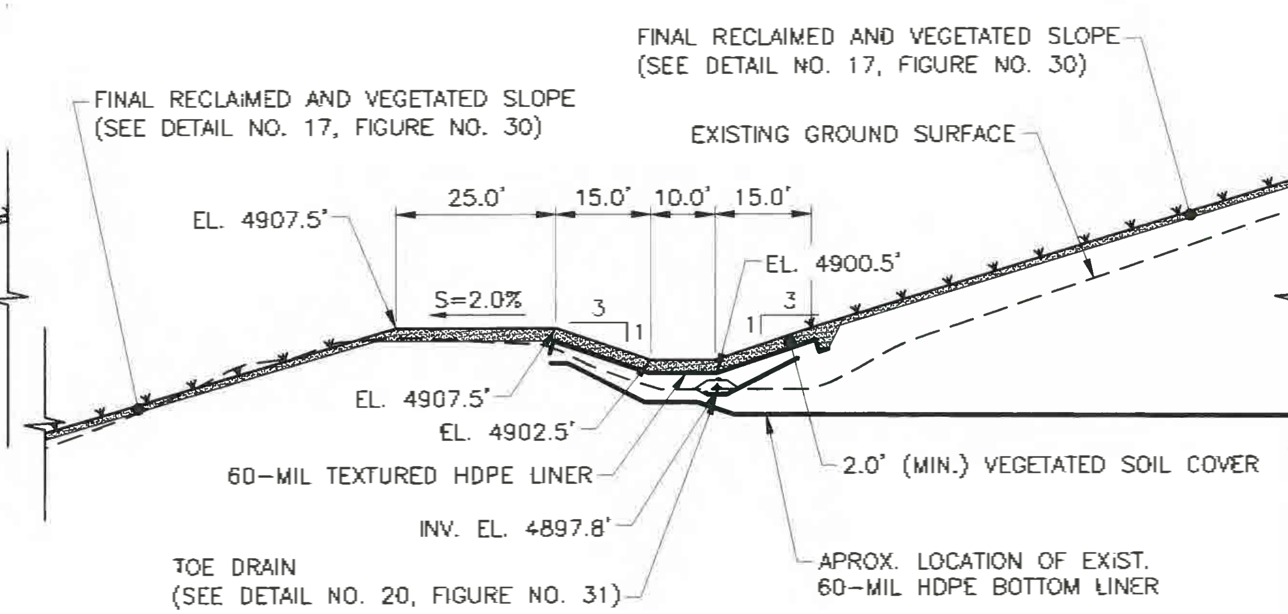
D — **CROSS SECTION**

SCALE: 1" = 80'



5A — **TOE DITCH DETAIL CROSS SECTION D**

SCALE: 1" = 30'



5 — **DETAIL CROSS SECTION D**

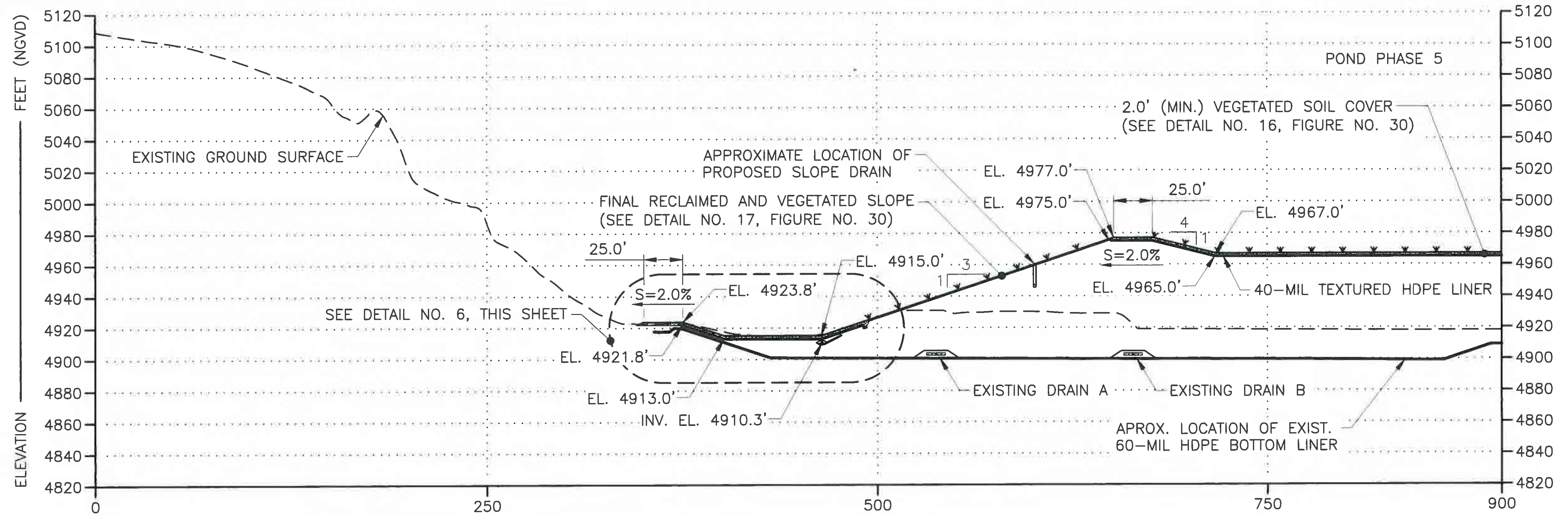
SCALE: 1" = 30'

CROSS SECTION D

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

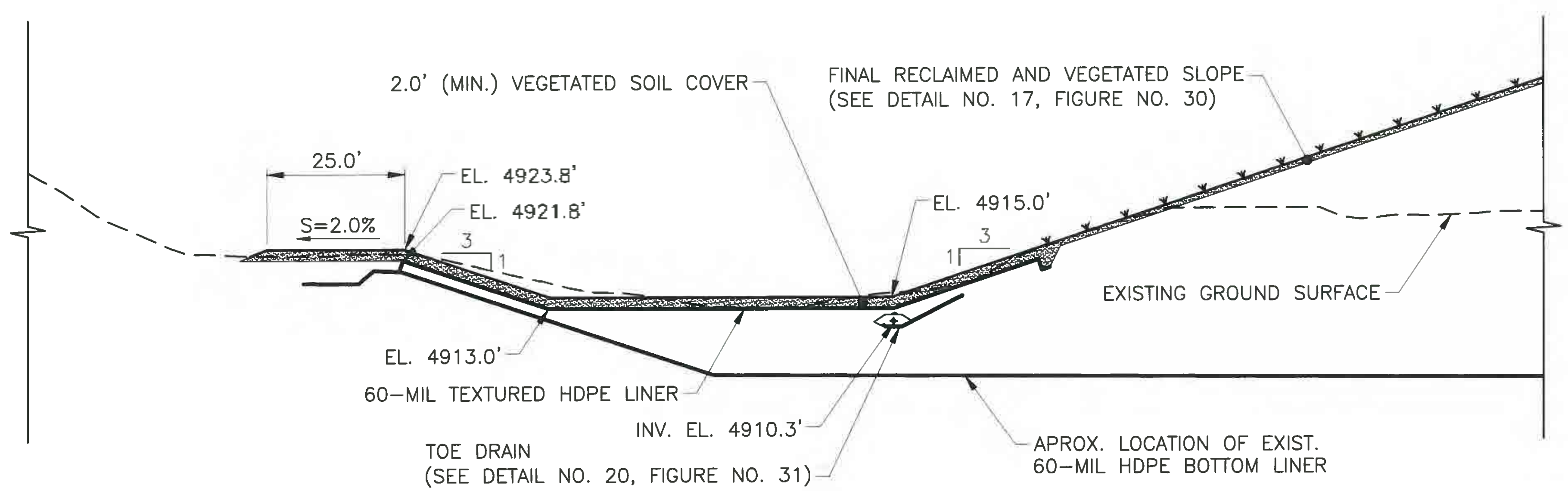
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 17



E CROSS SECTION

SCALE: 1" = 80'



6 DETAIL CROSS SECTION E

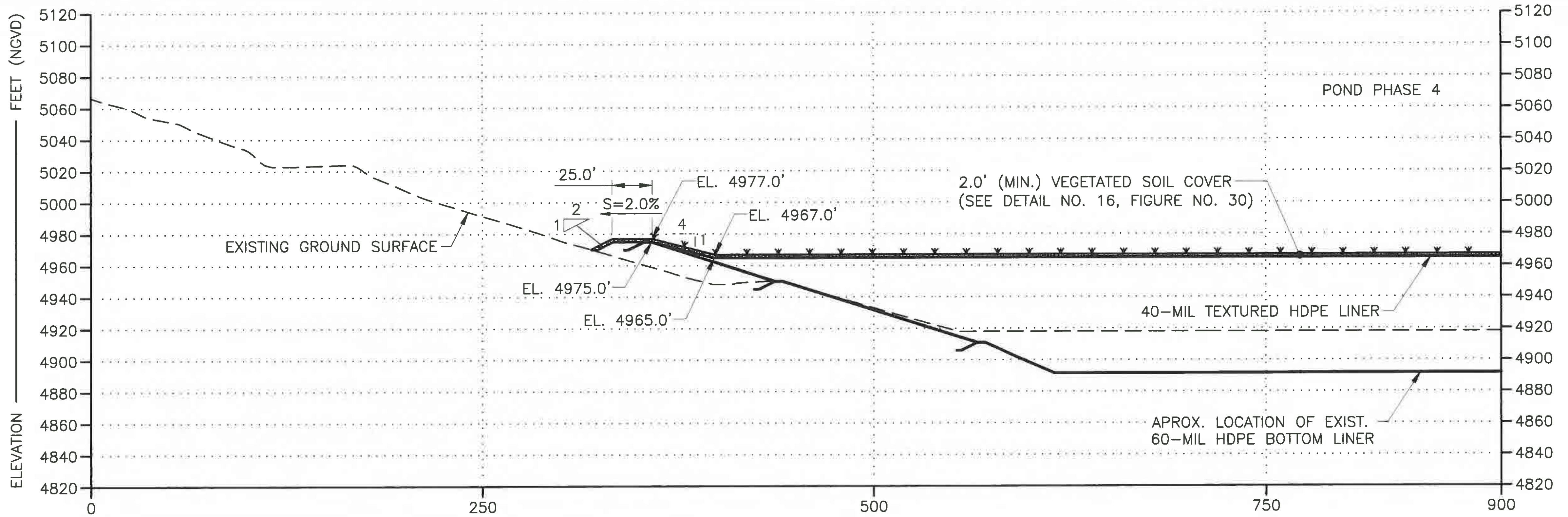
SCALE: 1" = 30'

CROSS SECTION E

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 18



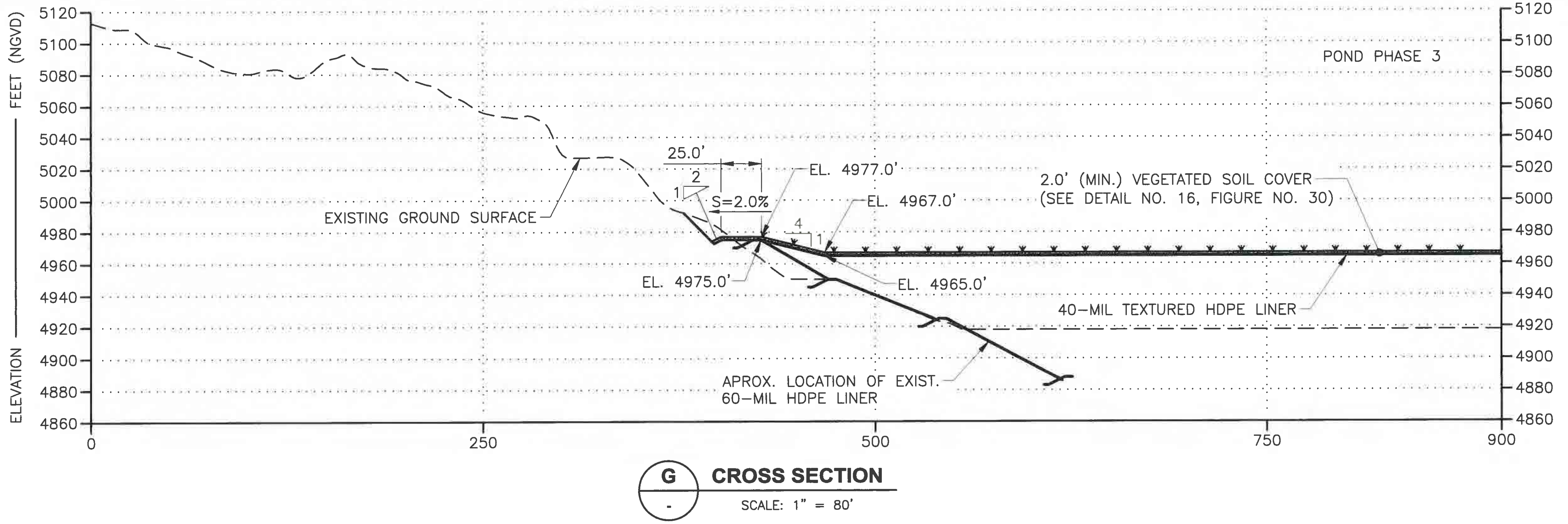
F
-
CROSS SECTION
SCALE: 1" = 80'

CROSS SECTION F

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 19

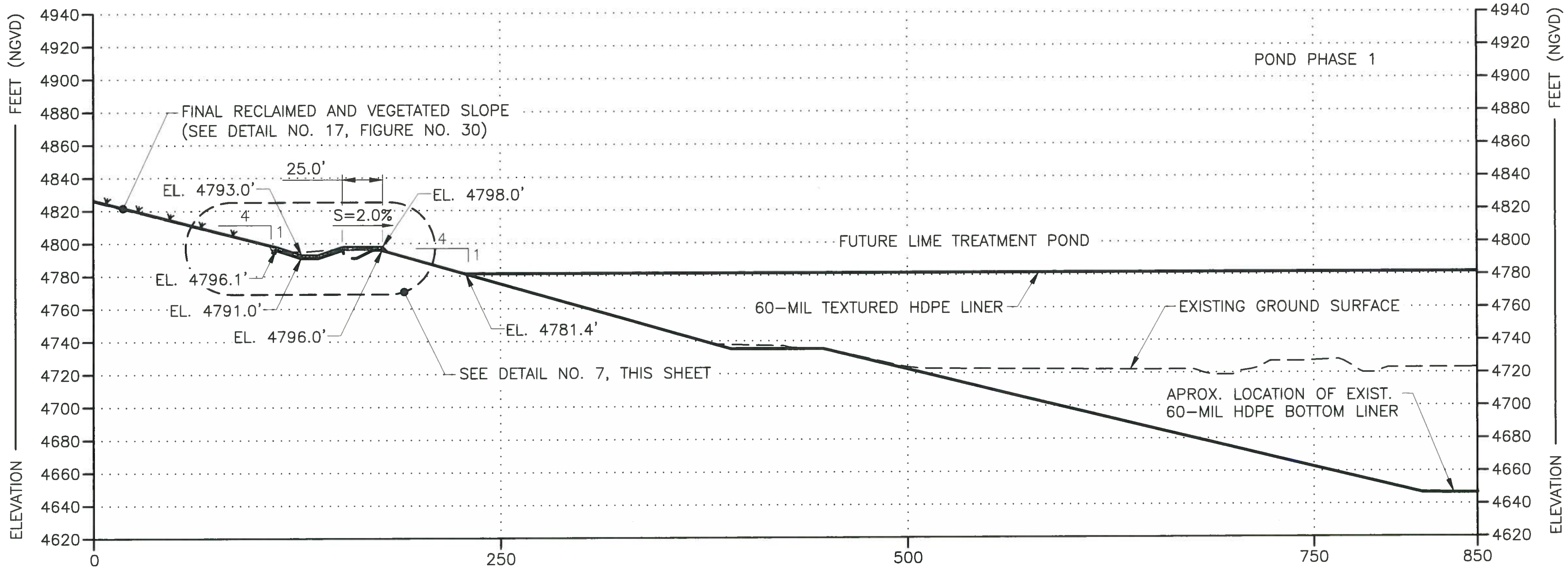


CROSS SECTION G

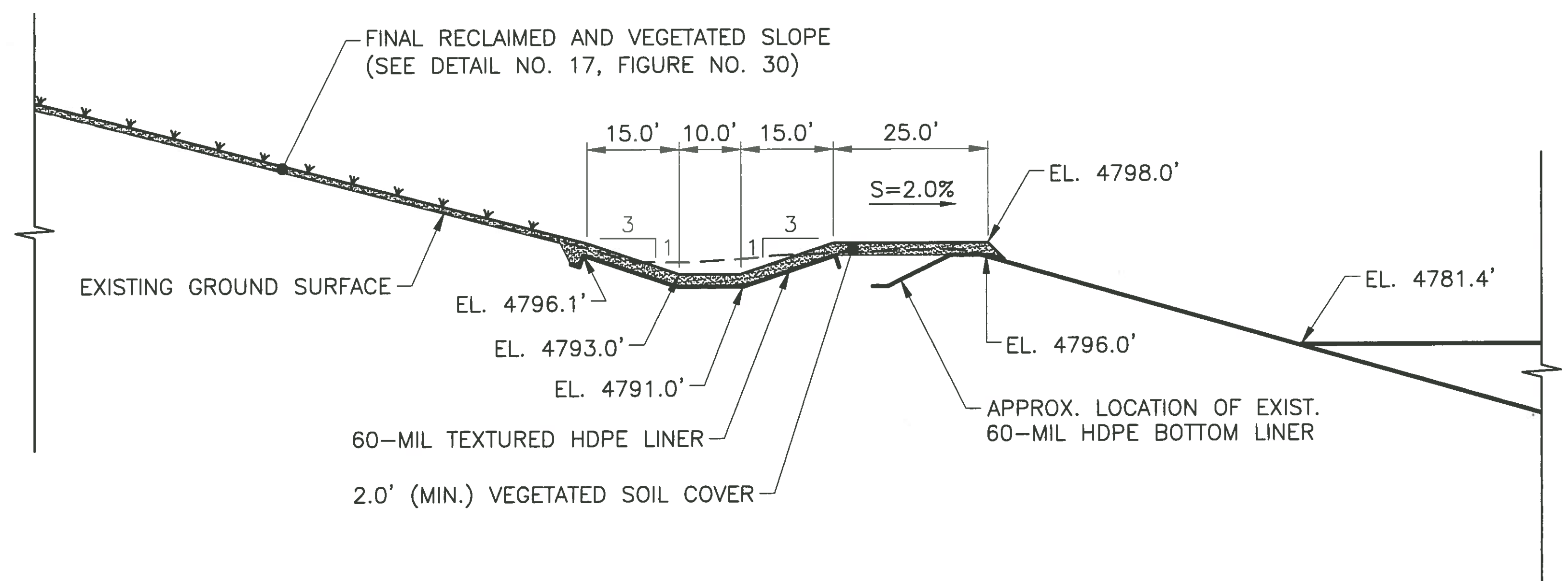
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 20



H CROSS SECTION
SCALE: 1" = 80'



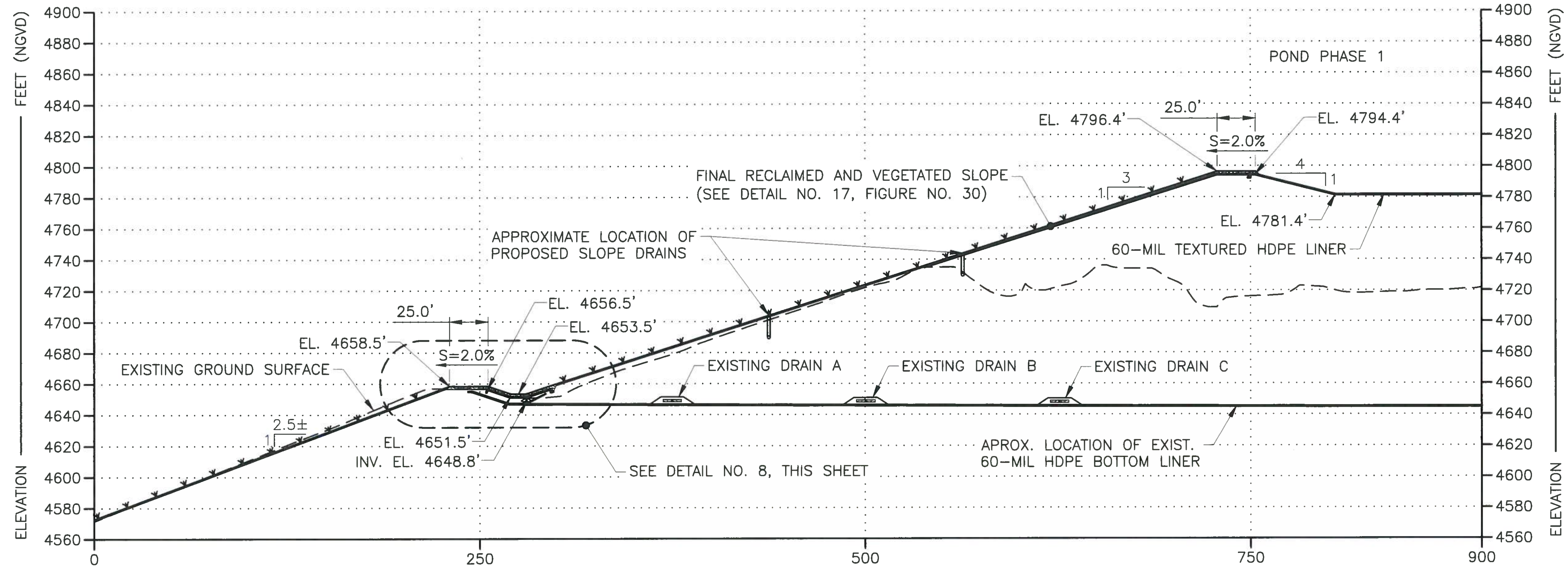
7 DETAIL CROSS SECTION H
SCALE: 1" = 30'

CROSS SECTION H

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

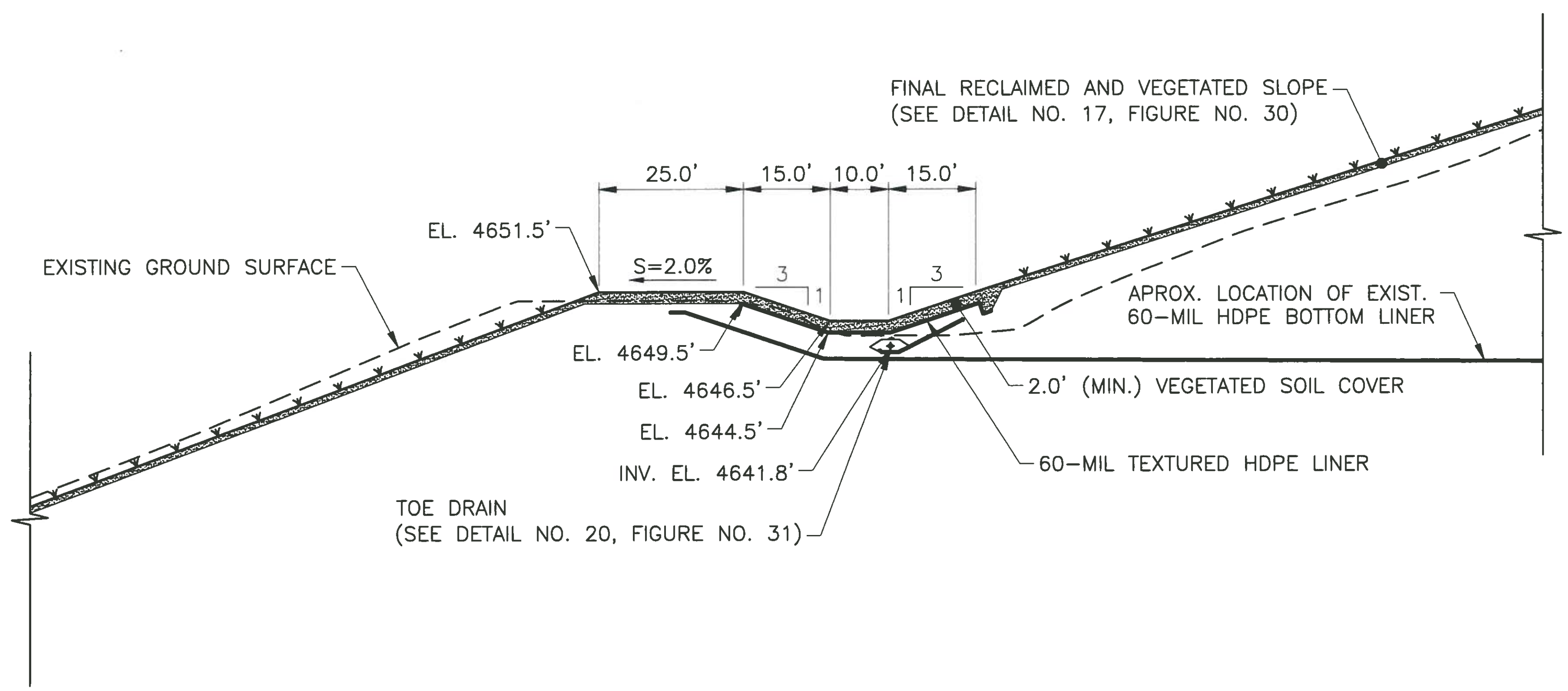
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 21



I CROSS SECTION

SCALE: 1" = 80'



8 DETAIL CROSS SECTION I

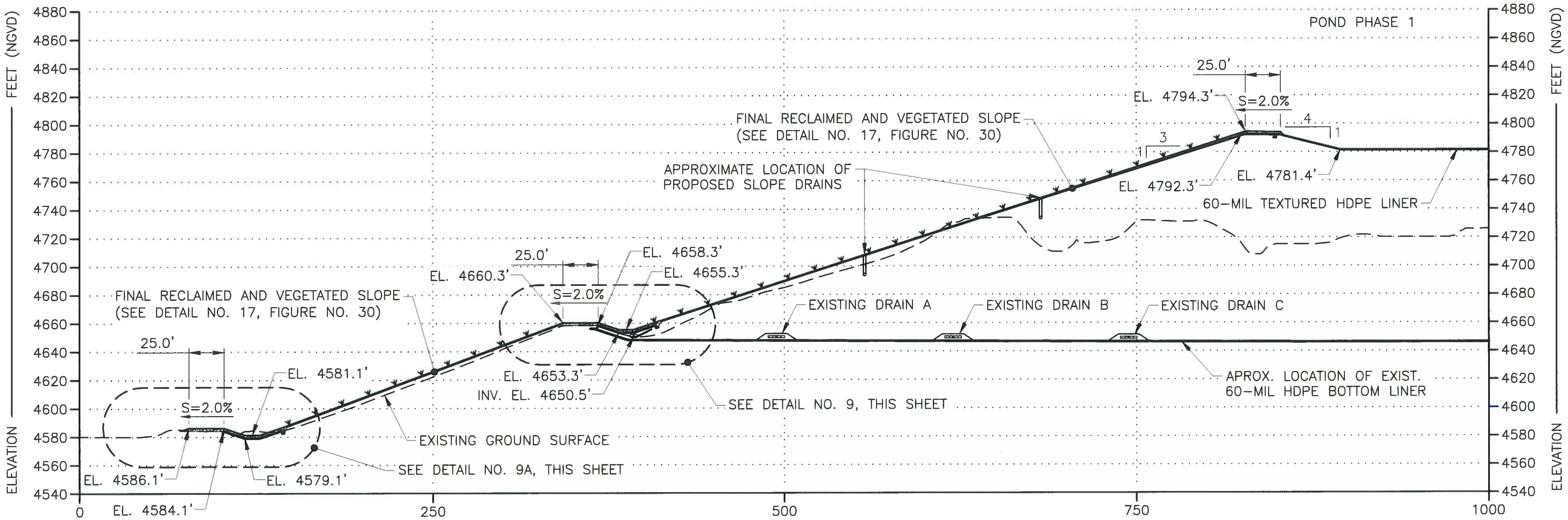
SCALE: 1" = 30'

CROSS SECTION I

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

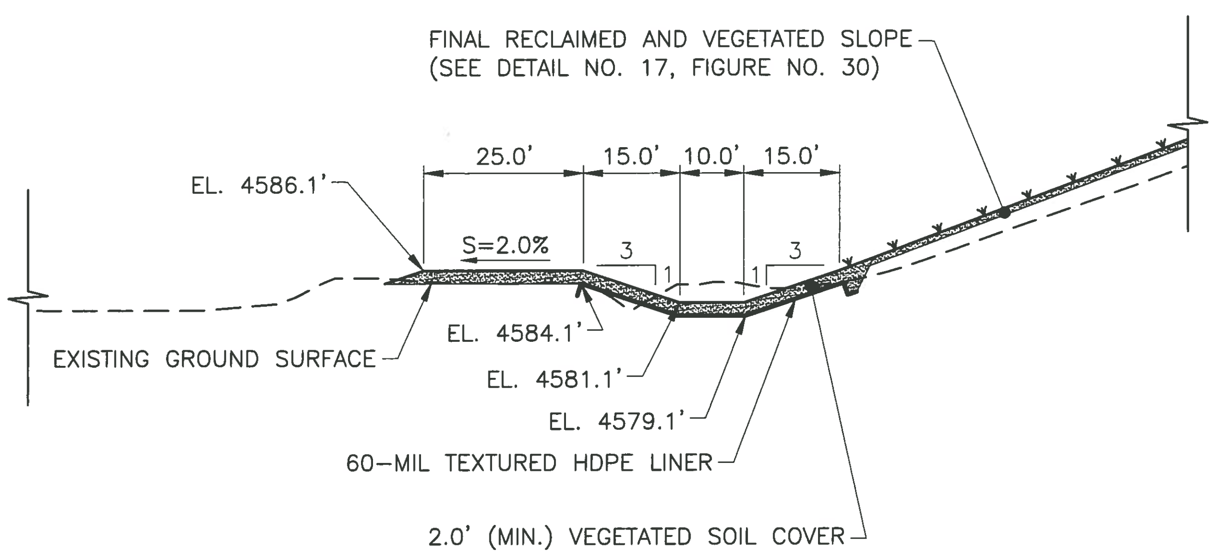
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 22



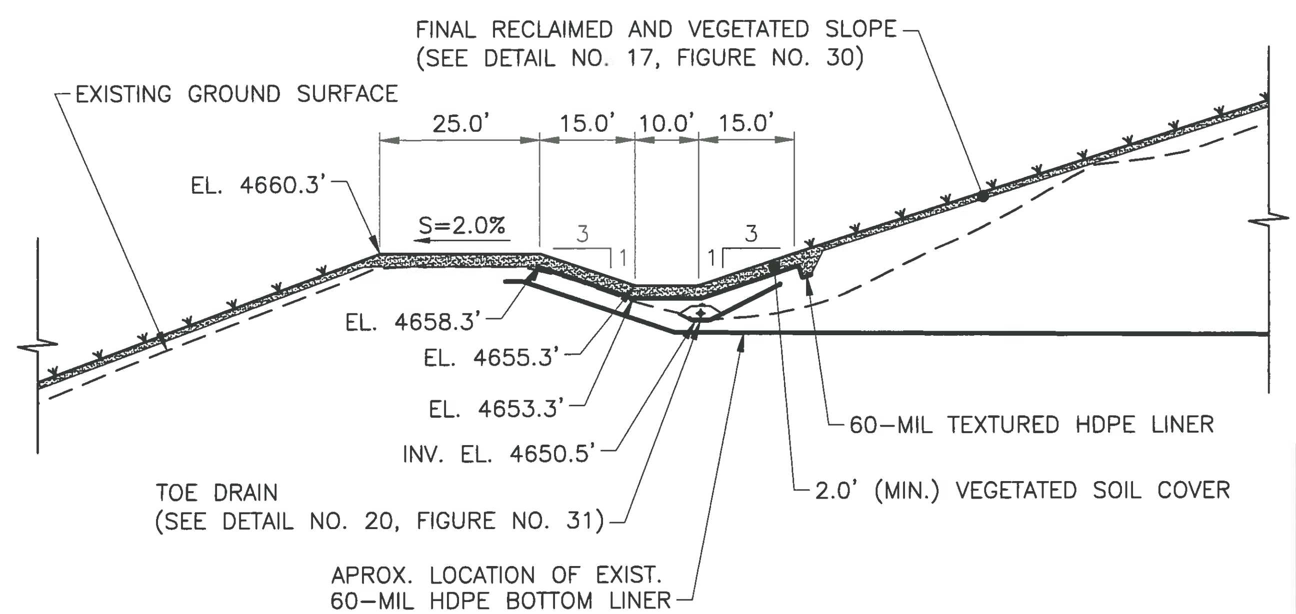
J / - **CROSS SECTION**

SCALE: 1" = 80'



- / - **TOE DITCH DETAIL CROSS SECTION J**

SCALE: 1" = 30'



9 / - **DETAIL CROSS SECTION J**

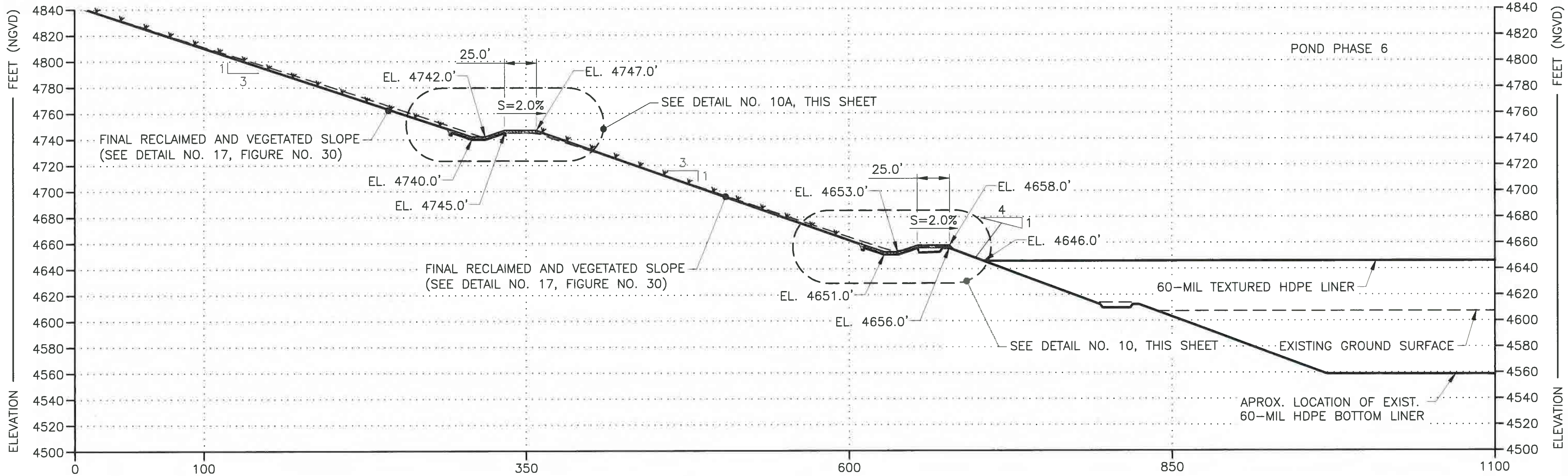
SCALE: 1" = 30'

CROSS SECTION J

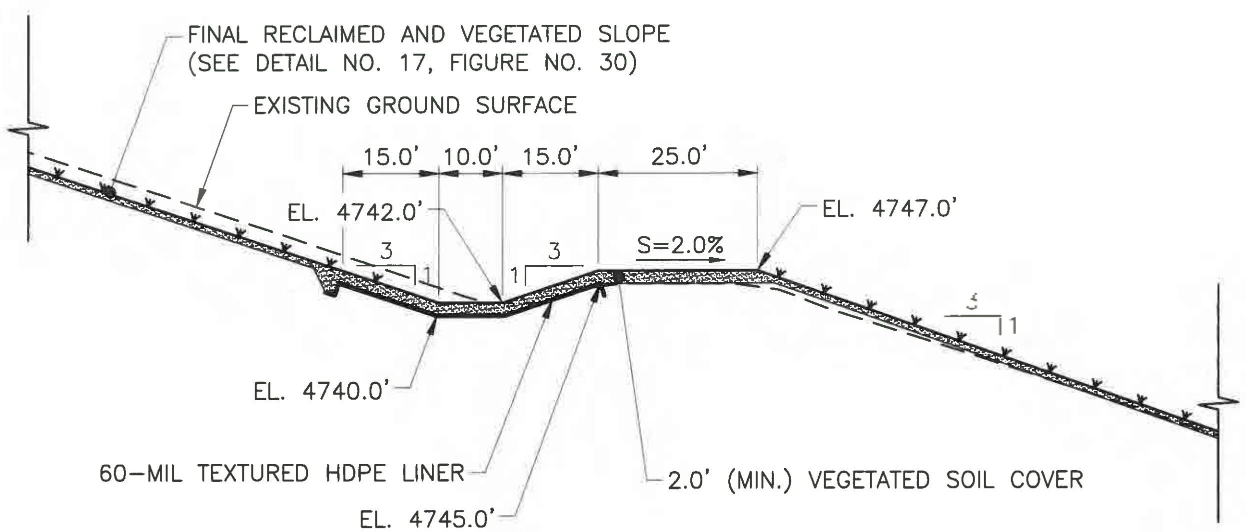
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

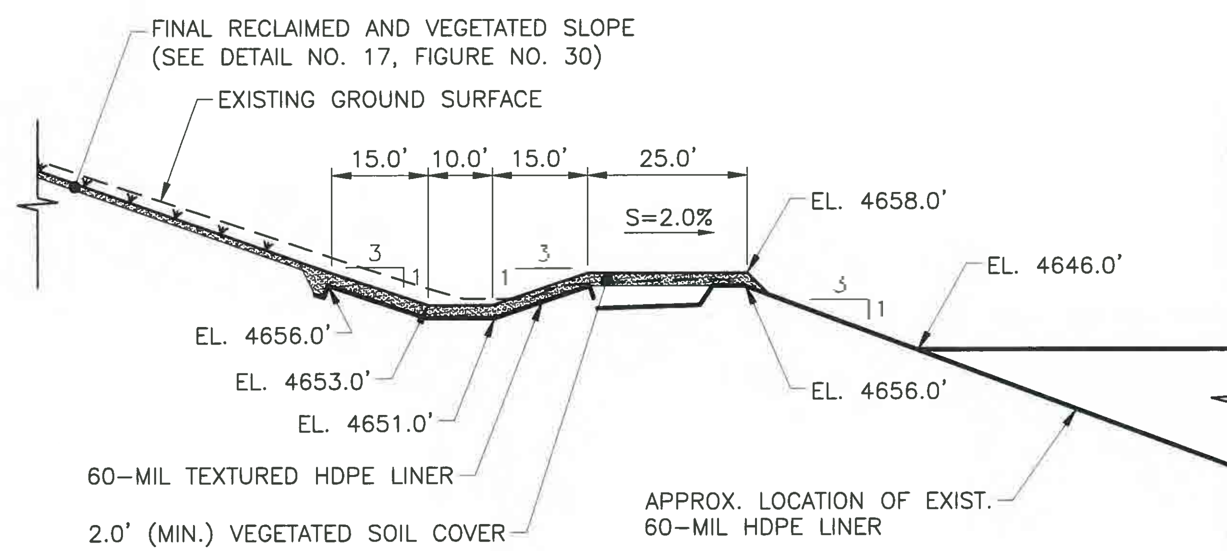
DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 23



K CROSS SECTION
SCALE: 1" = 80'



10A DETAIL CROSS SECTION K
SCALE: 1" = 30'



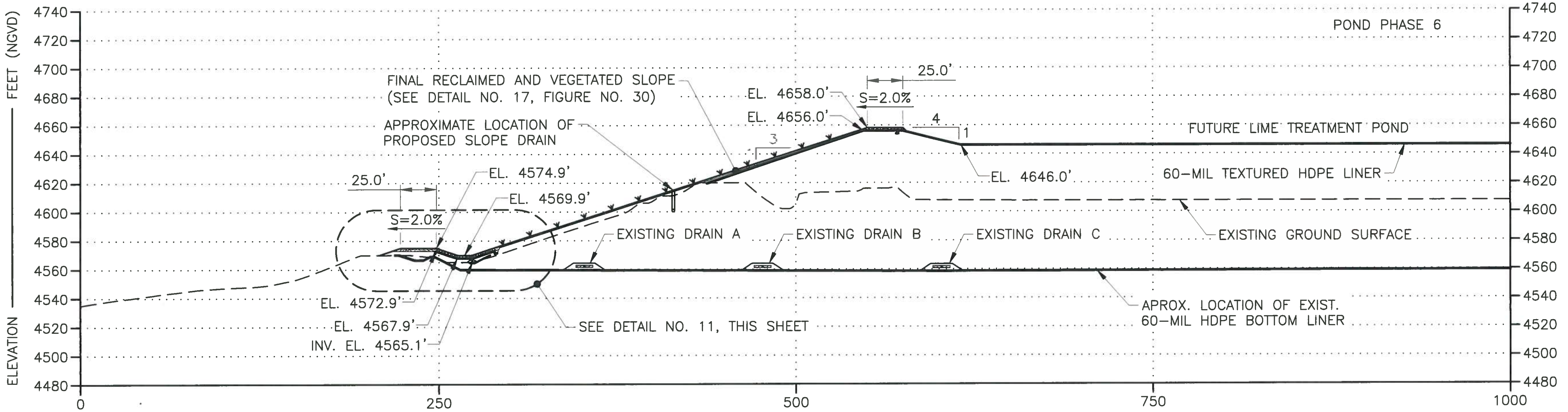
10 DETAIL CROSS SECTION K
SCALE: 1" = 30'

CROSS SECTION K

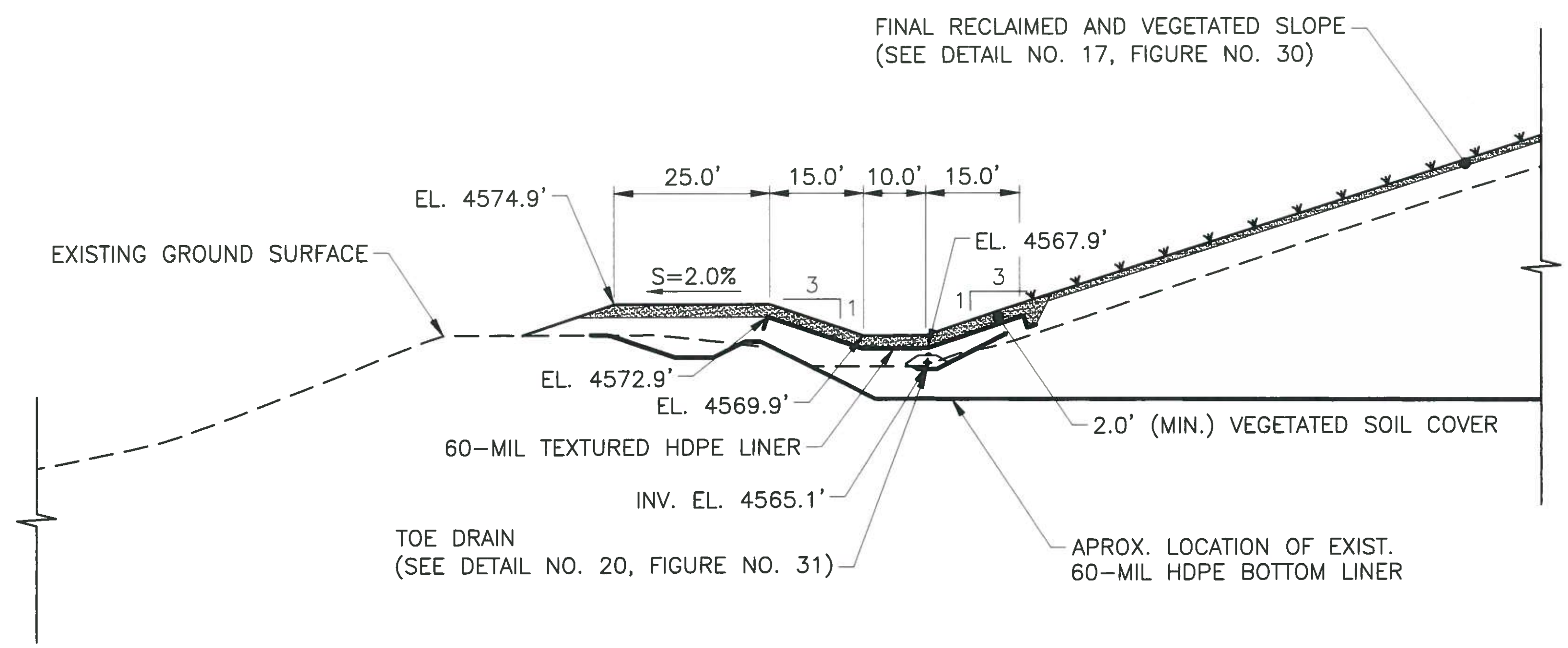
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 24



L CROSS SECTION
SCALE: 1" = 80'



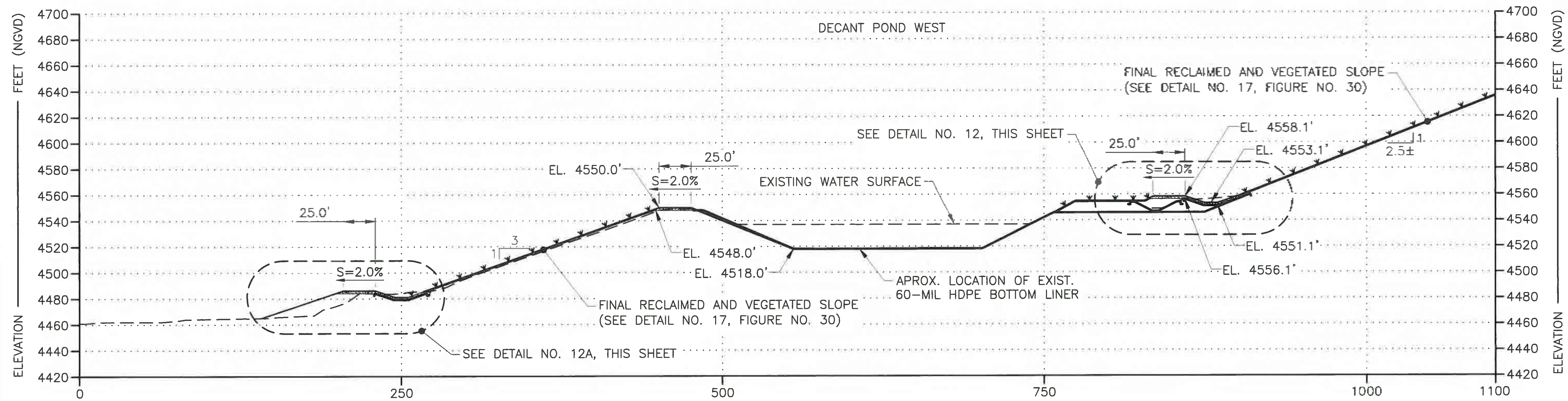
11 DETAIL CROSS SECTION L
SCALE: 1" = 30'

CROSS SECTION L

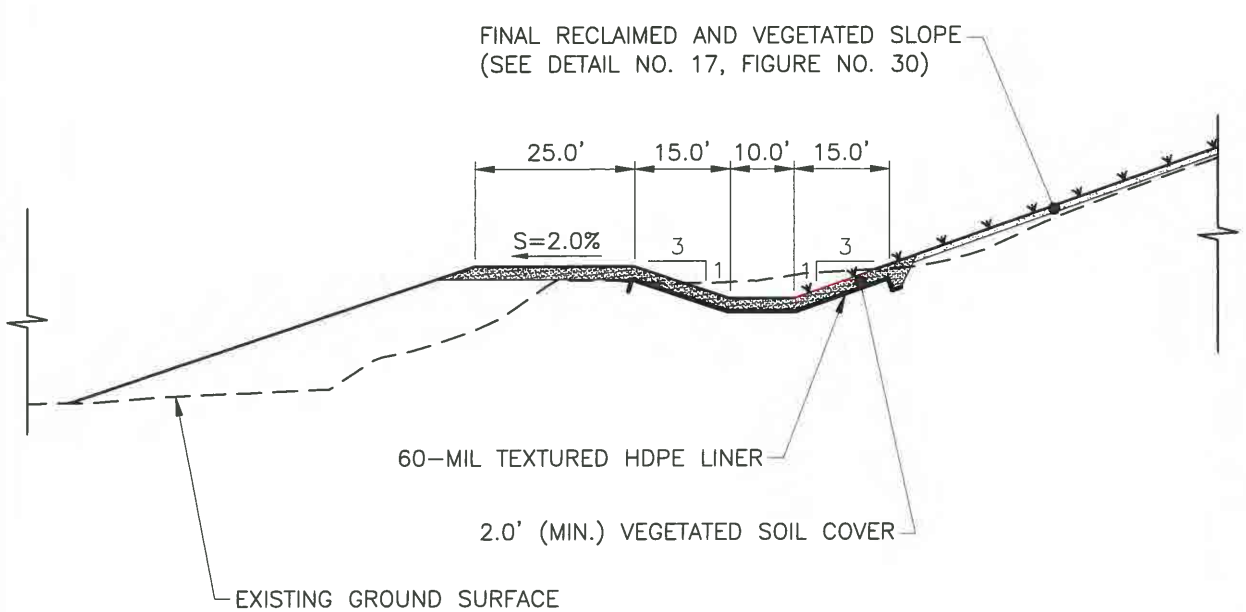
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

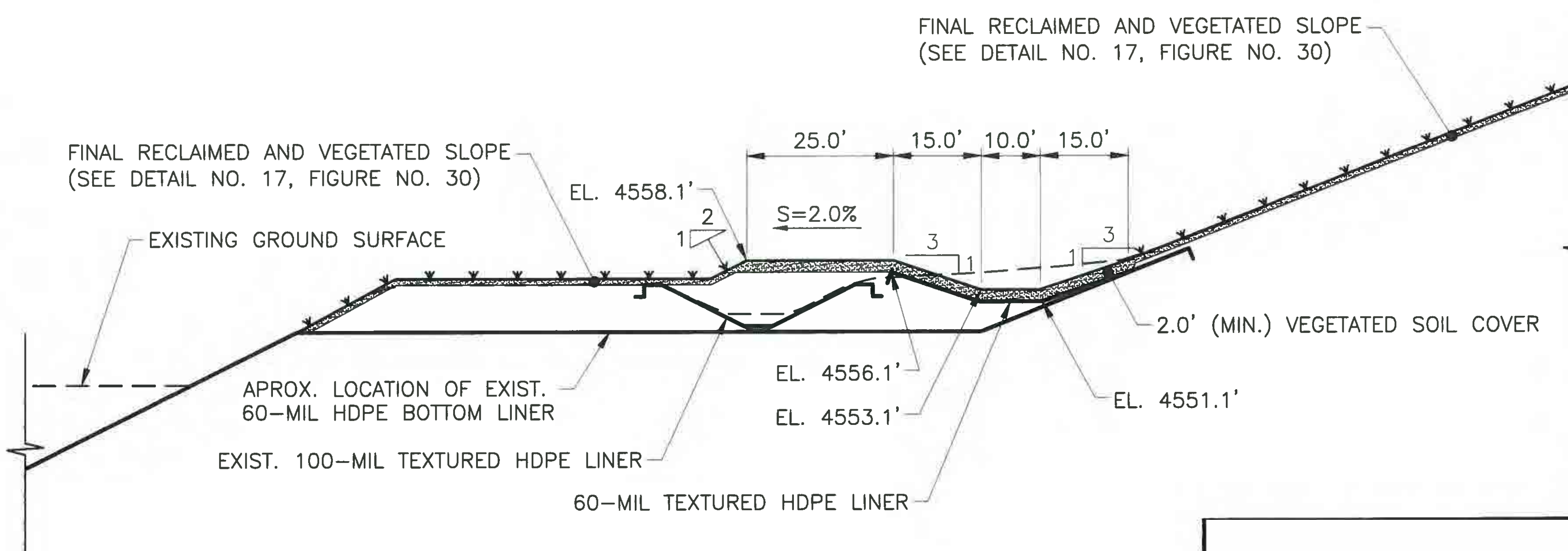
DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 25



M
-
CROSS SECTION
SCALE: 1" = 80'



12A
-
TOE DITCH DETAIL CROSS SECTION M
SCALE: 1" = 30'



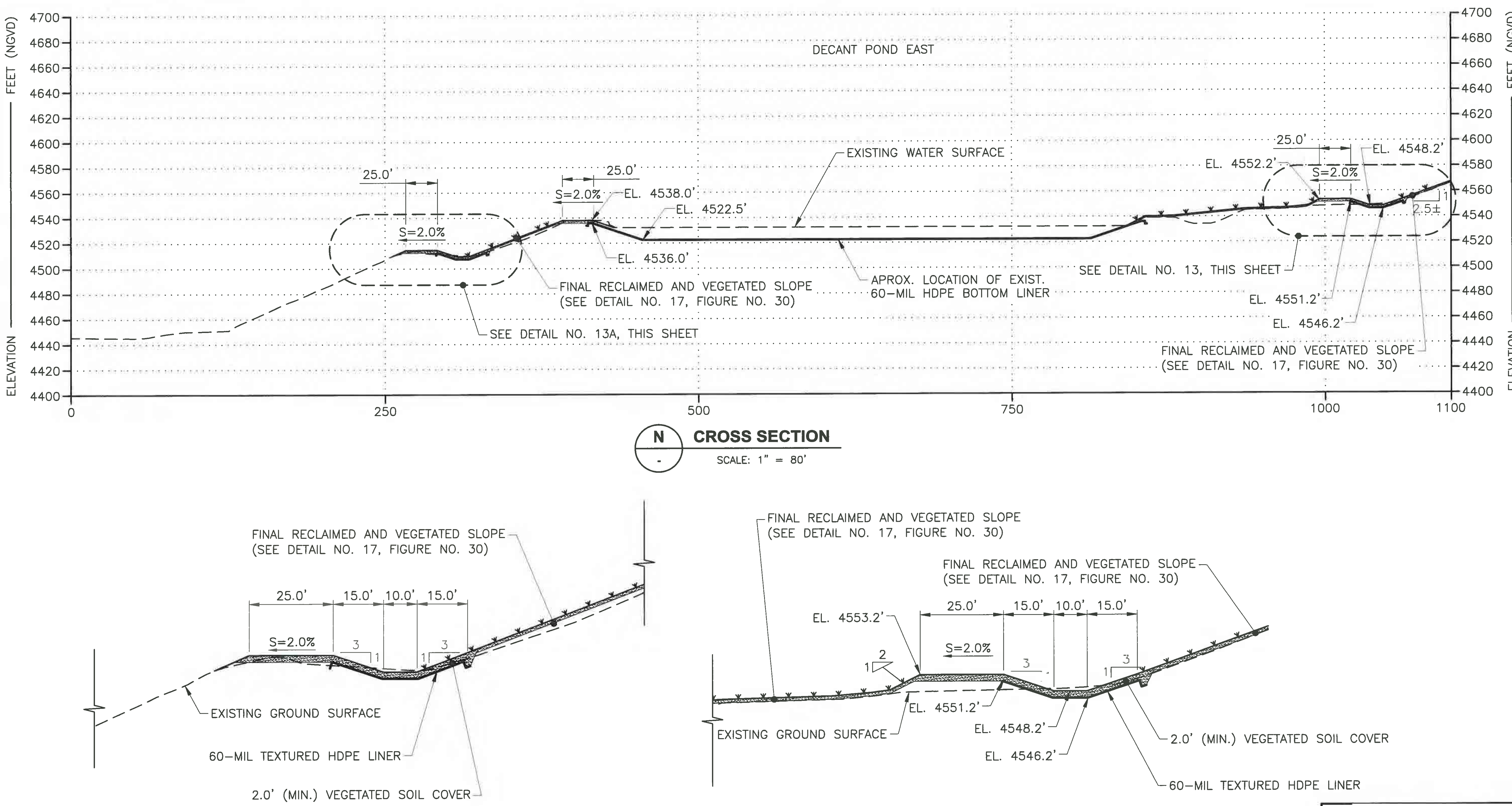
12
-
DETAIL CROSS SECTION M
SCALE: 1" = 30'

CROSS SECTION M

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: LG	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 26



N CROSS SECTION

SCALE: 1" = 80'

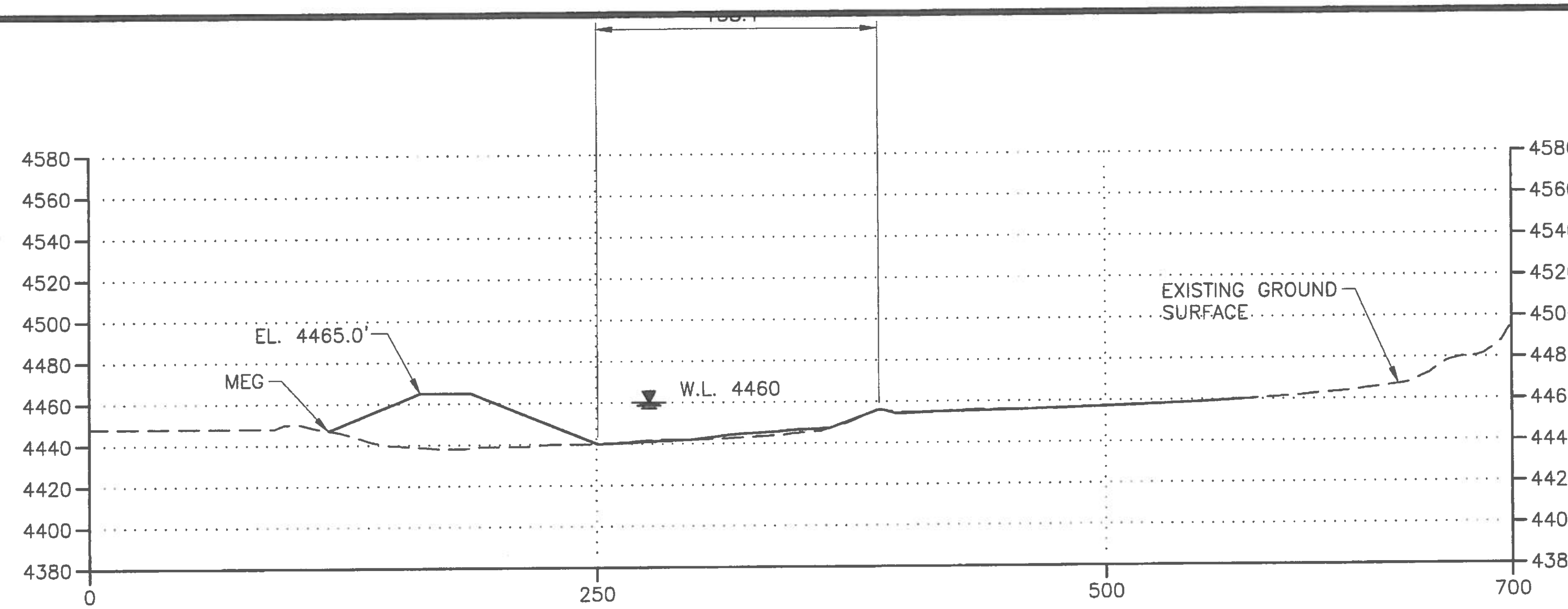
13A TOE DITCH DETAIL CROSS SECTION N

SCALE: 1" = 30'

13 DETAIL CROSS SECTION N

SCALE: 1" = 30'

CROSS SECTION N	
Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants	
J.R. SIMPLOT COMPANY CLOSURE COST ESTIMATES POCATELLO, IDAHO	
DRAWN BY: LG	CHECKED BY: LVC
DATE: 03/09/20	FILE NO. 19-13-0079A
APPROVED BY:	FIGURE 27



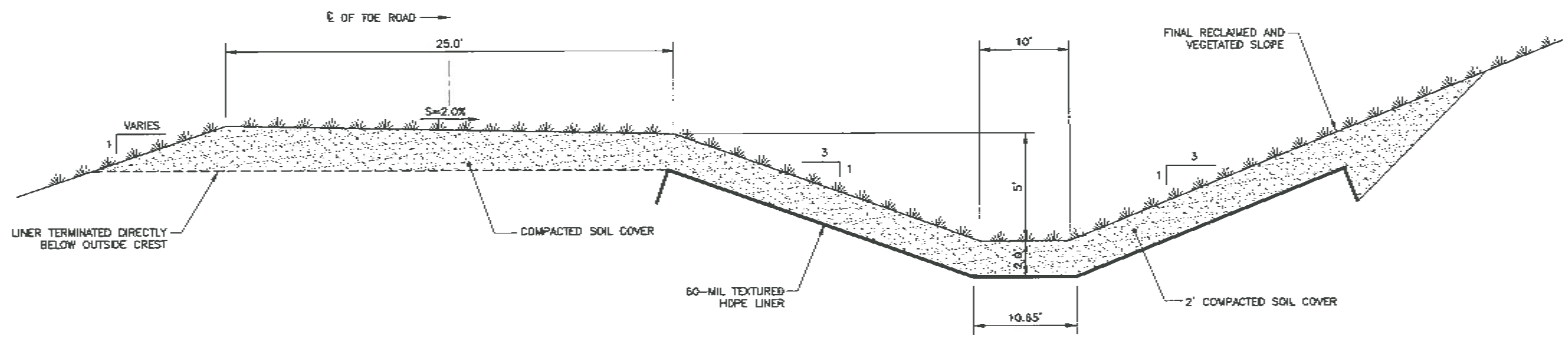
O CROSS SECTION
SCALE: 1" = 80'

CROSS SECTION - O

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

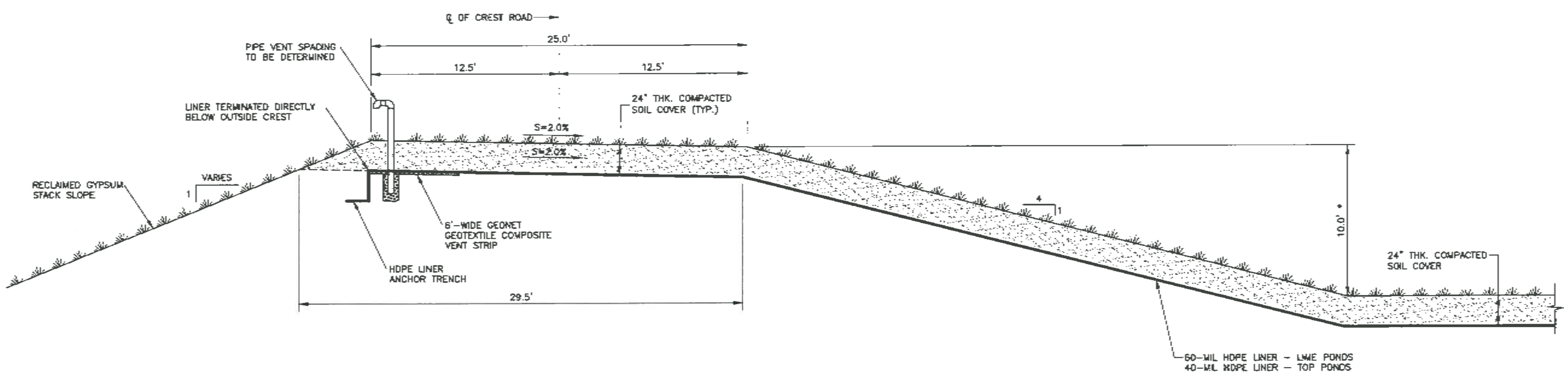
J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

DRAWN BY: SC	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0078A	APPROVED BY	FIGURE: 28



14 – TOE ROAD DETAIL

NOT TO SCALE



15 – LINED TOP CAP AND CREST ROAD DETAILS

NOT TO SCALE

* 10.0'± FOR PHASE 1

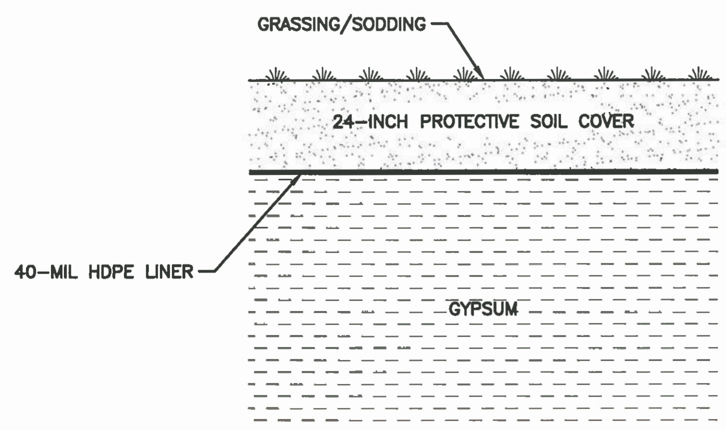
TOE PONDS, MID-SLOPE BENCH & TOE ROAD DETAILS

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

J.R. SIMPLOT COMPANY
CLOSURE COST ESTIMATES
POCATELLO, IDAHO

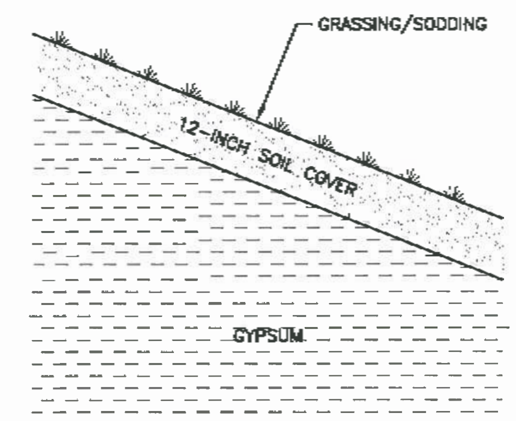
DRAWN BY: SC	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 29

R:\Corporate\19\19-13-0079\SIMPLOT POCATELLO - CLOSURE COST ESTIMATE_Current Sheet Set\29 TOE PONDS, MID-SLOPE BENCH & TOE ROAD DETAILS.dwg 7/29/2020 8:18:56 AM, brandon.white



16 - **TOP LINER AND COVER DETAIL**

SCALE: 1" = NOT TO SCALE



17 - **SIDE SLOPE COVER DETAIL**

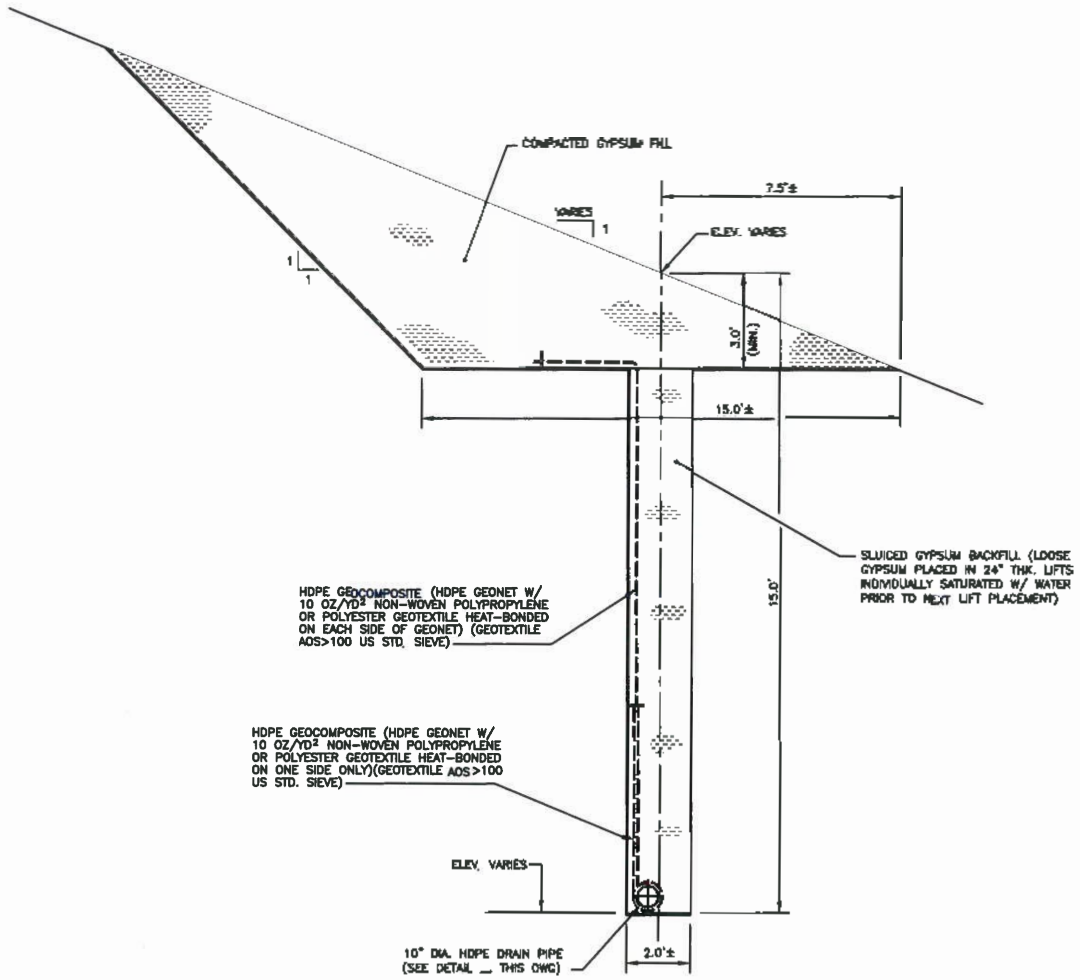
SCALE: 1" = NOT TO SCALE

TOP LINER & SIDE SLOPE COVER DETAILS

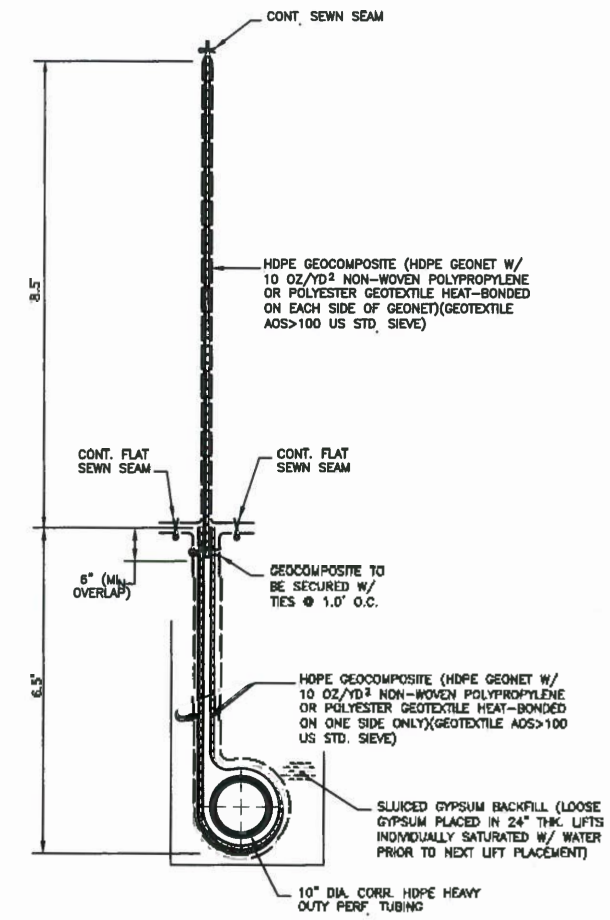
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

CLOSURE COST ESTIMATES
J.R. SIMPLOT COMPANY
POCATELLO, IDAHO

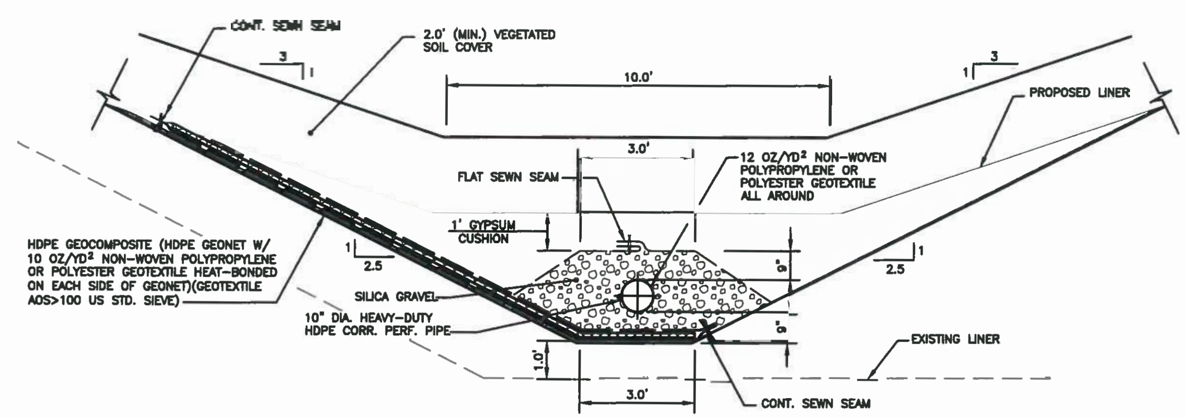
DRAWN BY:	SC	CHECKED BY:	LVC	DATE:	03/09/20
FILE NO.	19-13-0079A	APPROVED BY:		FIGURE:	30



18 **SLOPE DRAIN DETAIL**
SCALE: 1" = 3'



19 **DRAIN DETAIL**
NOT TO SCALE



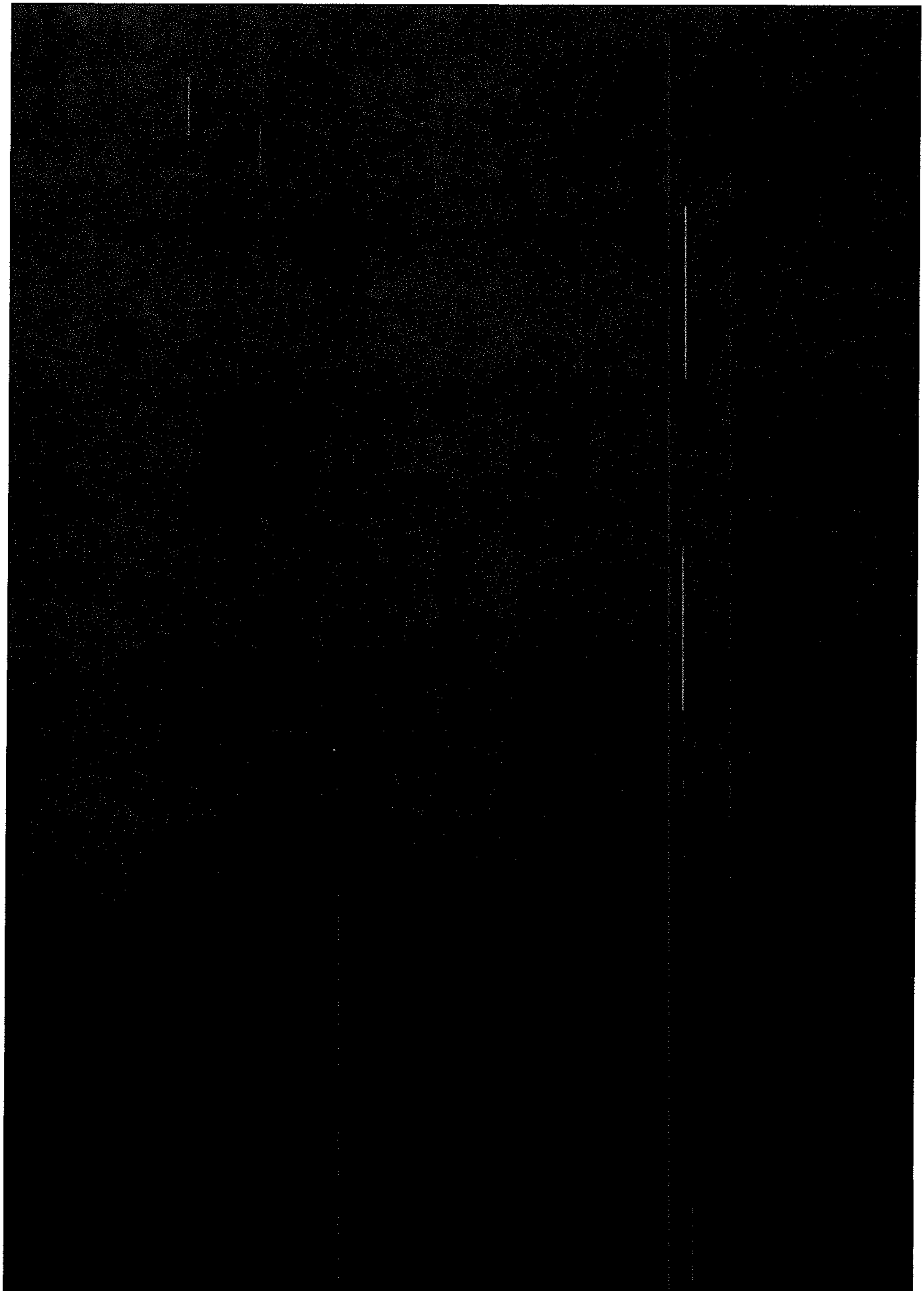
20 **TOE DRAIN DETAIL**
SCALE: 1" = 5'

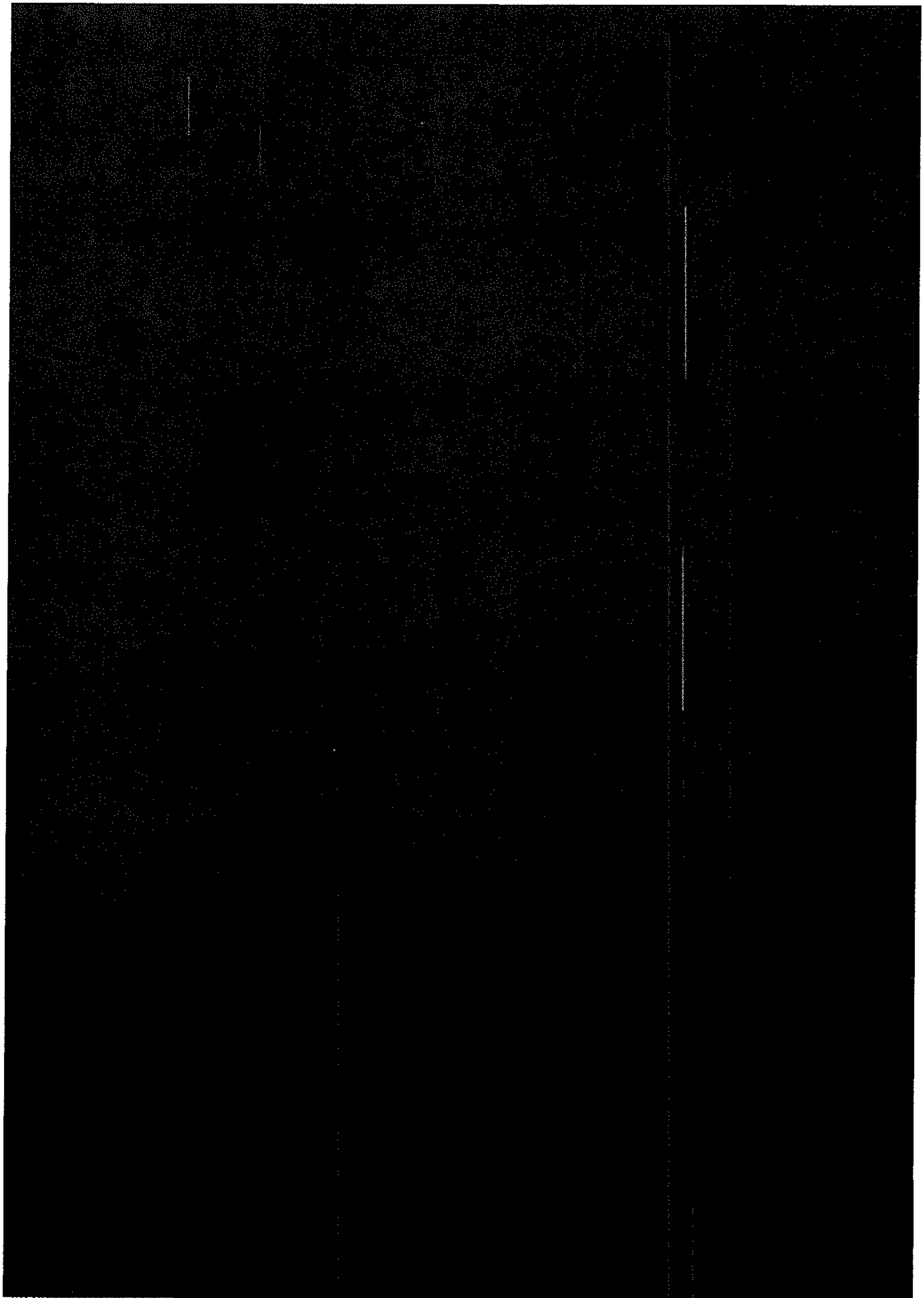
SEEPAGE COLLECTION
SLOPE & TOE DRAIN DETAILS

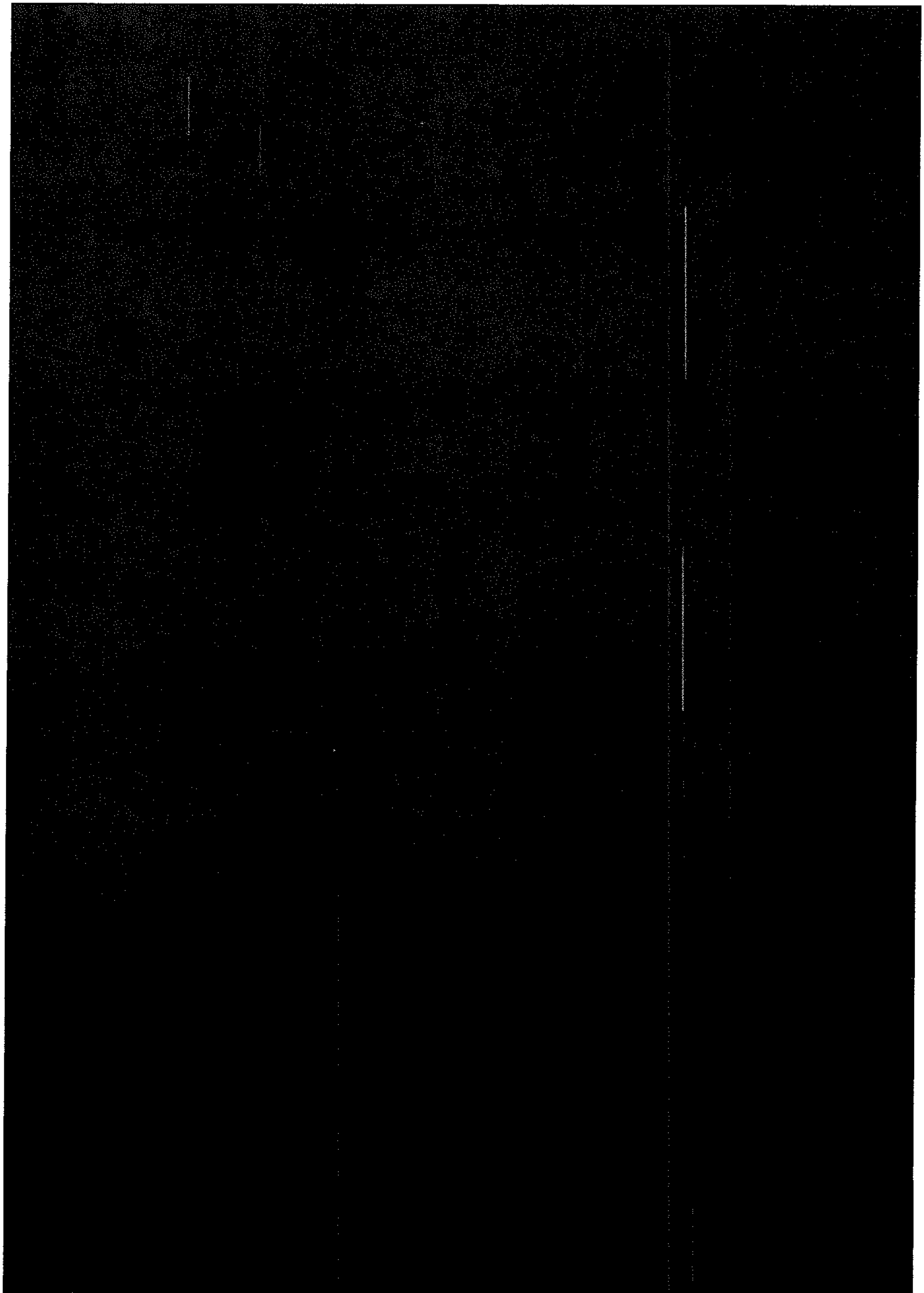
Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

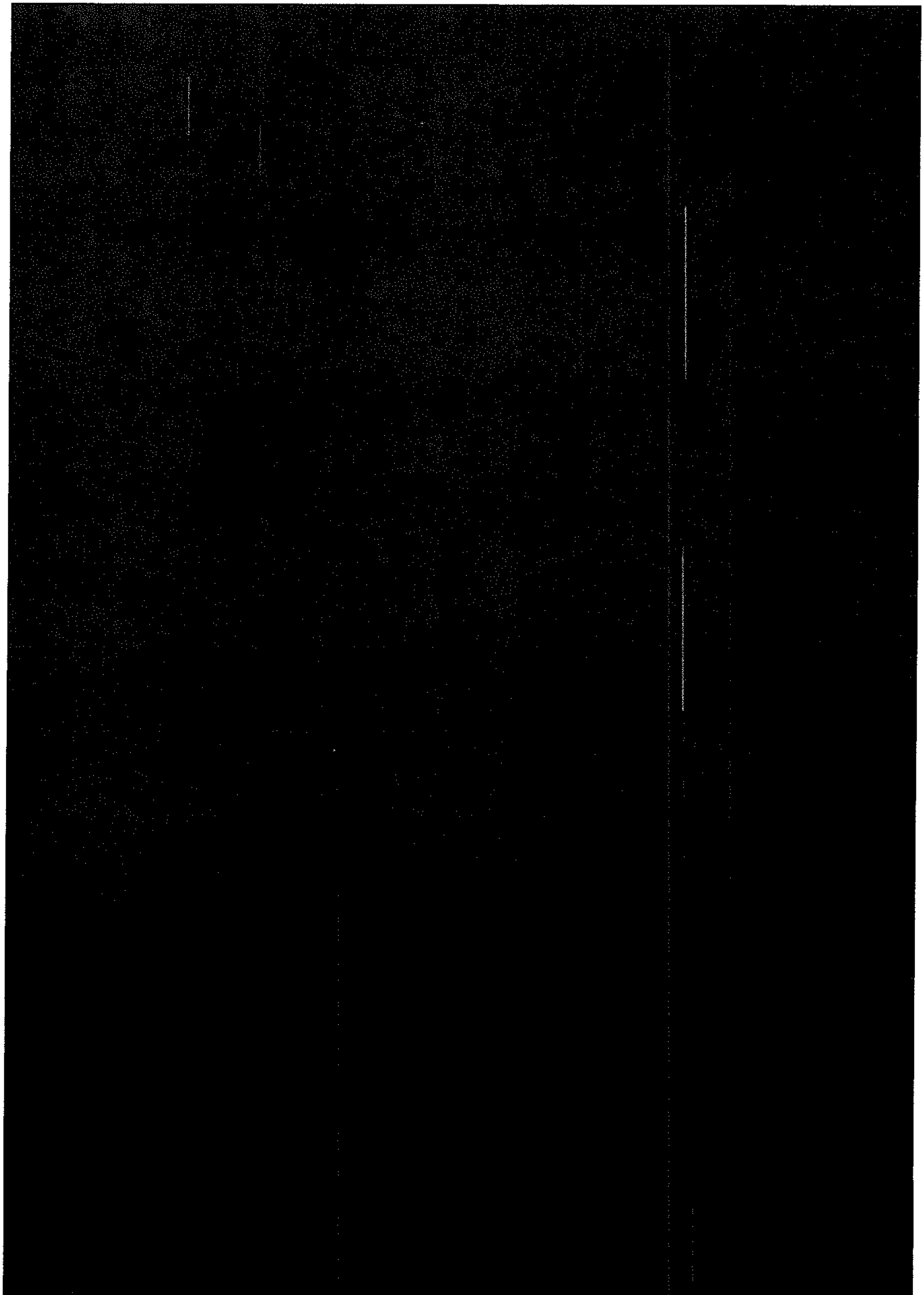
CLOSURE COST ESTIMATES
J.R. SIMPLOT COMPANY
POCATELLO, IDAHO

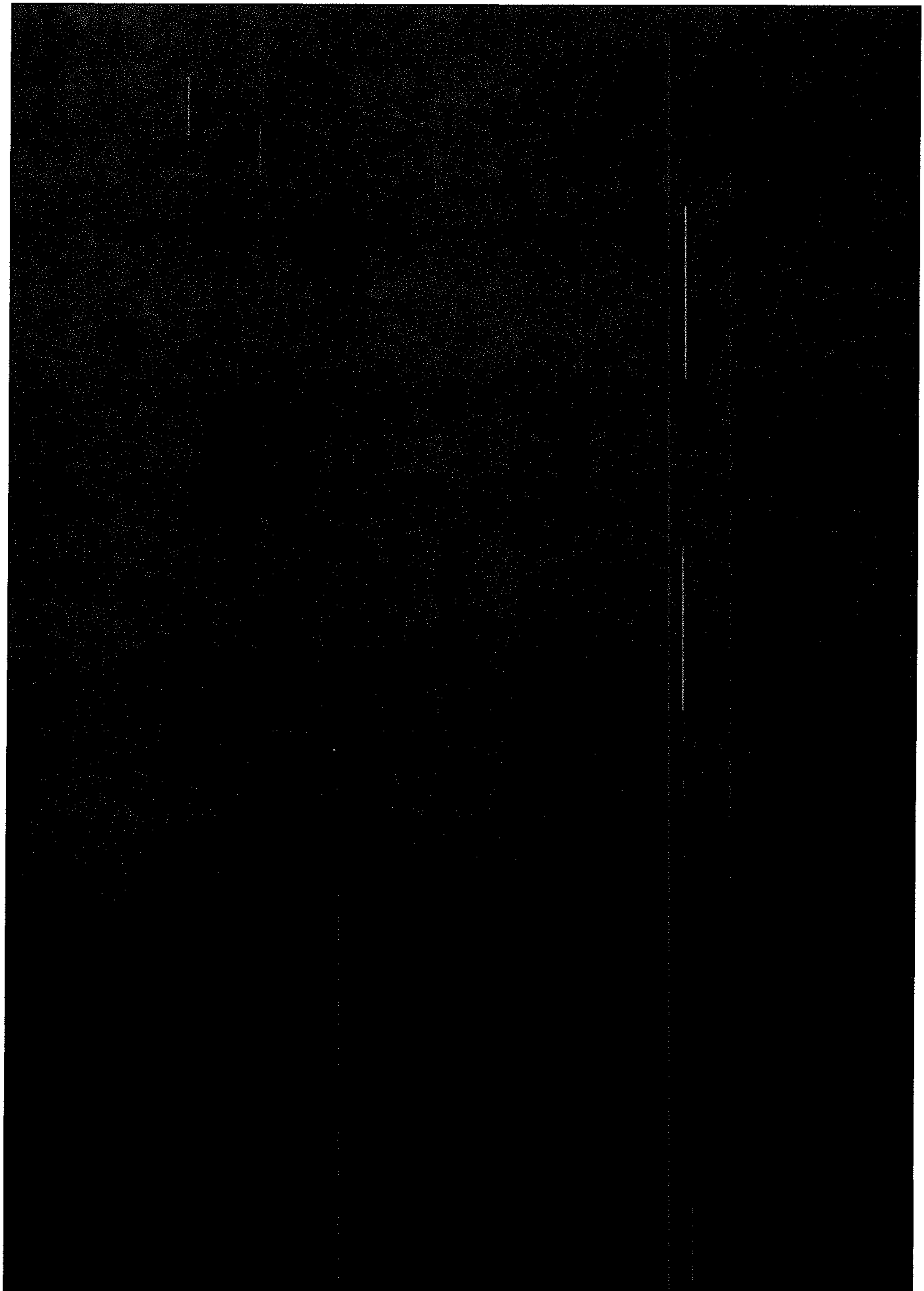
DRAWN BY: SC	CHECKED BY: LVC	DATE: 03/09/20
FILE NO. 19-13-0079A	APPROVED BY:	FIGURE: 31

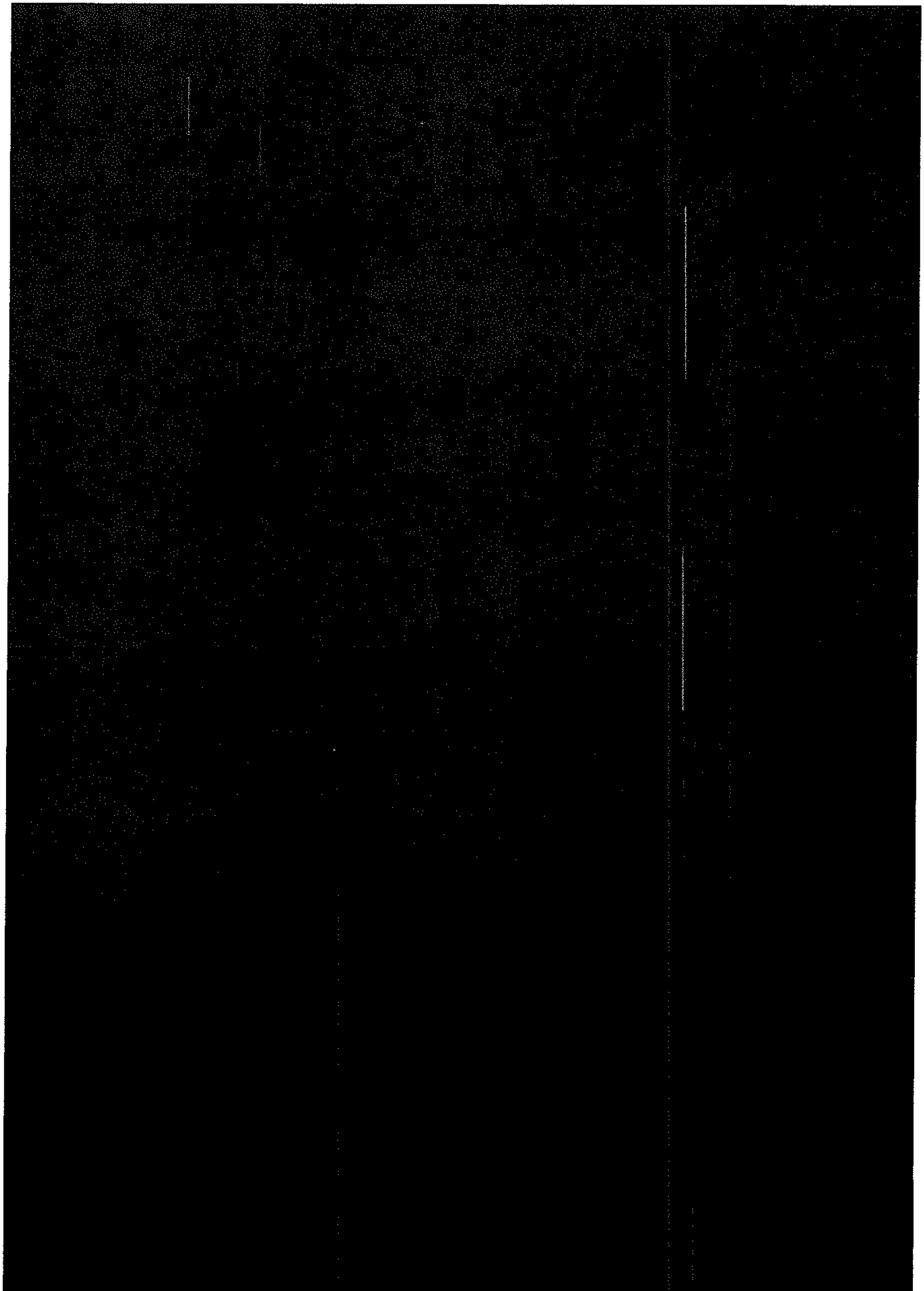






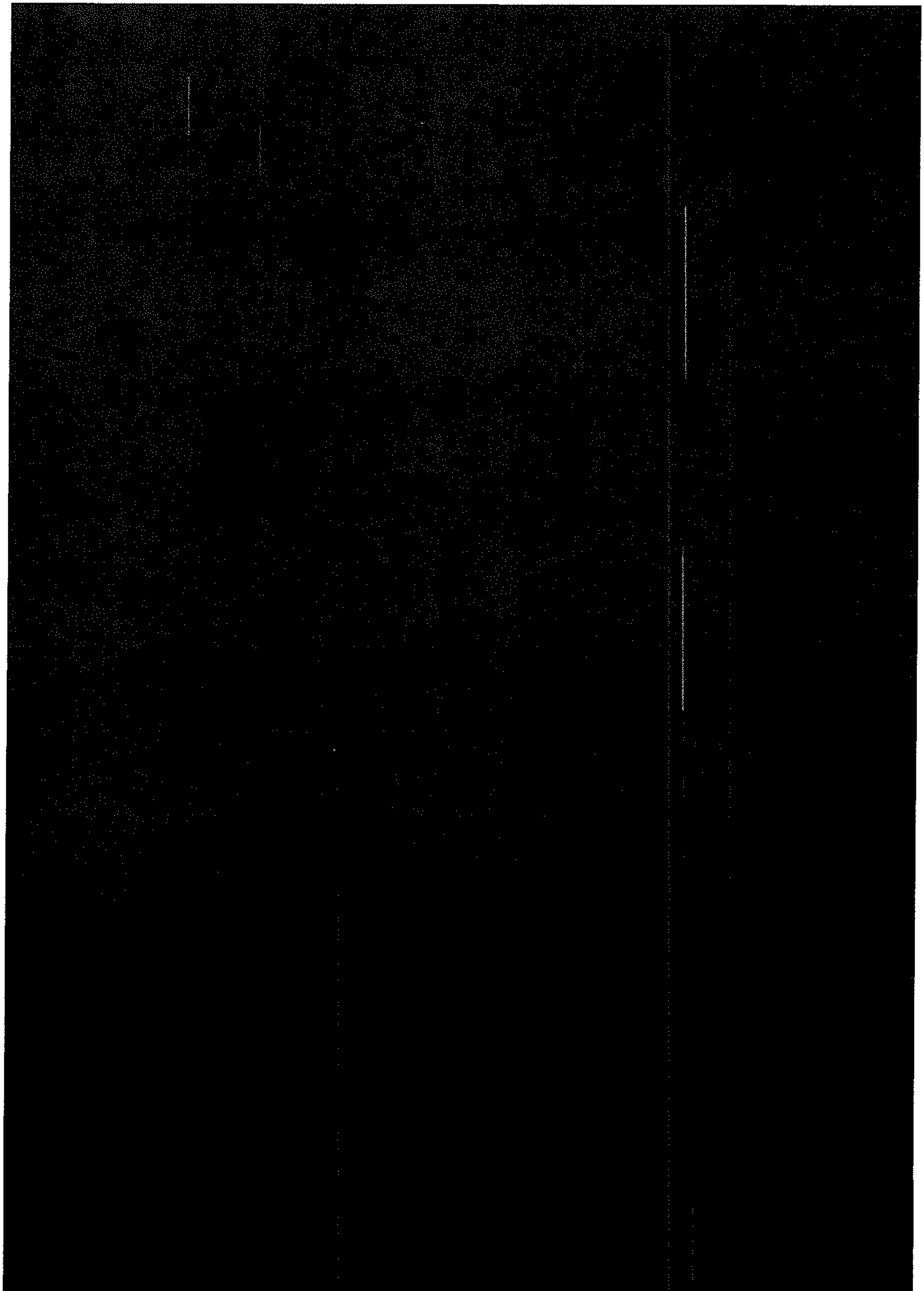


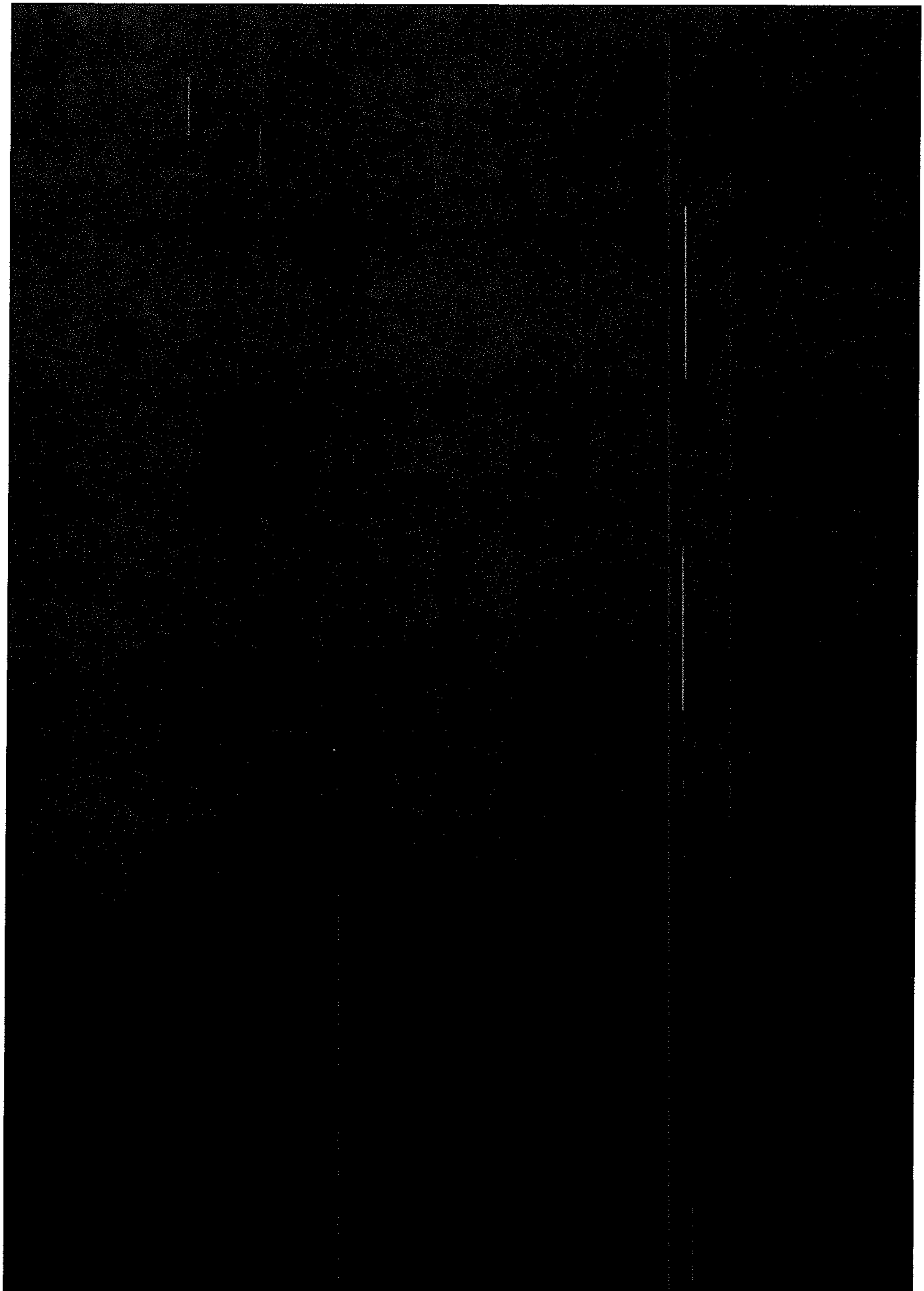


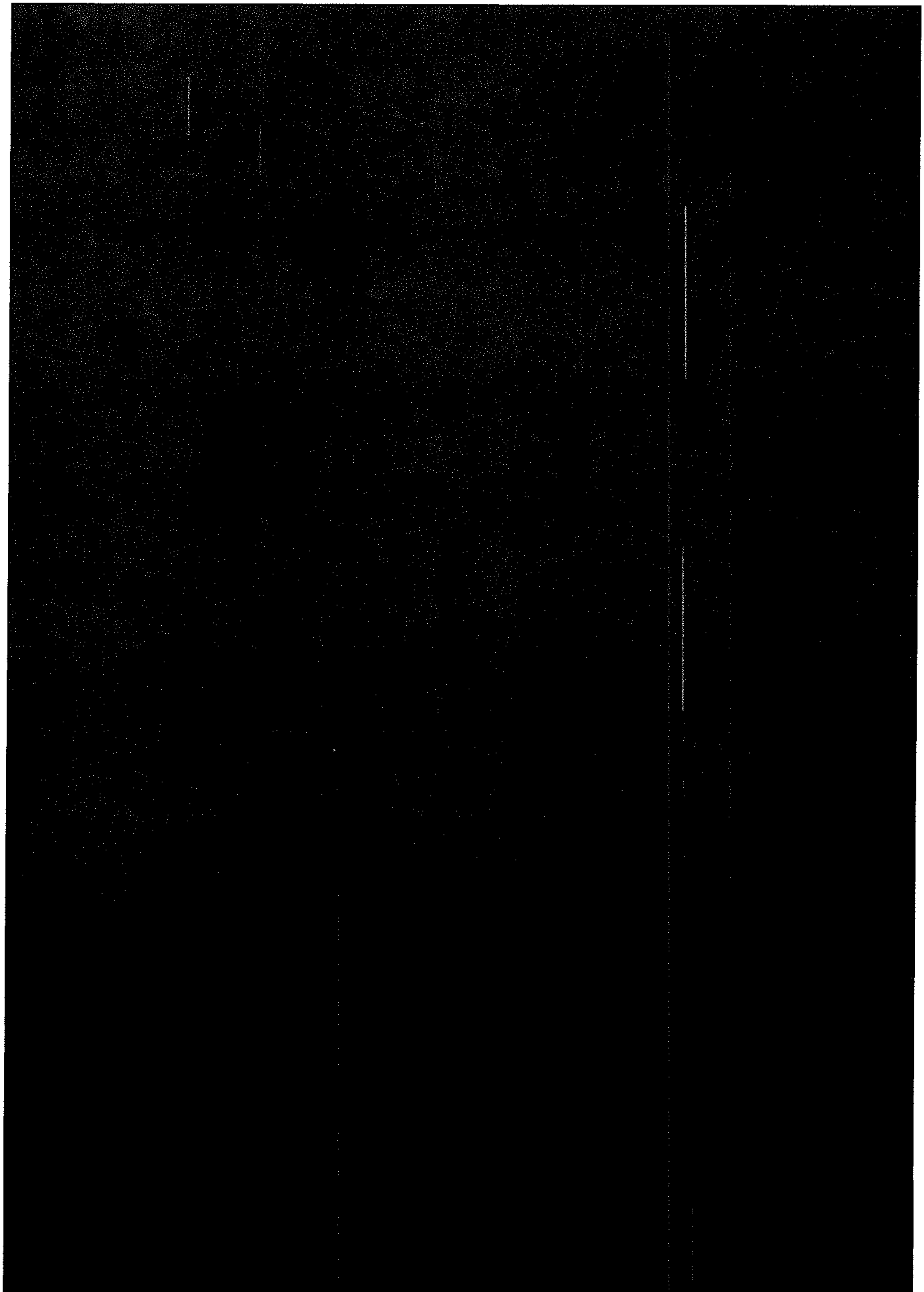


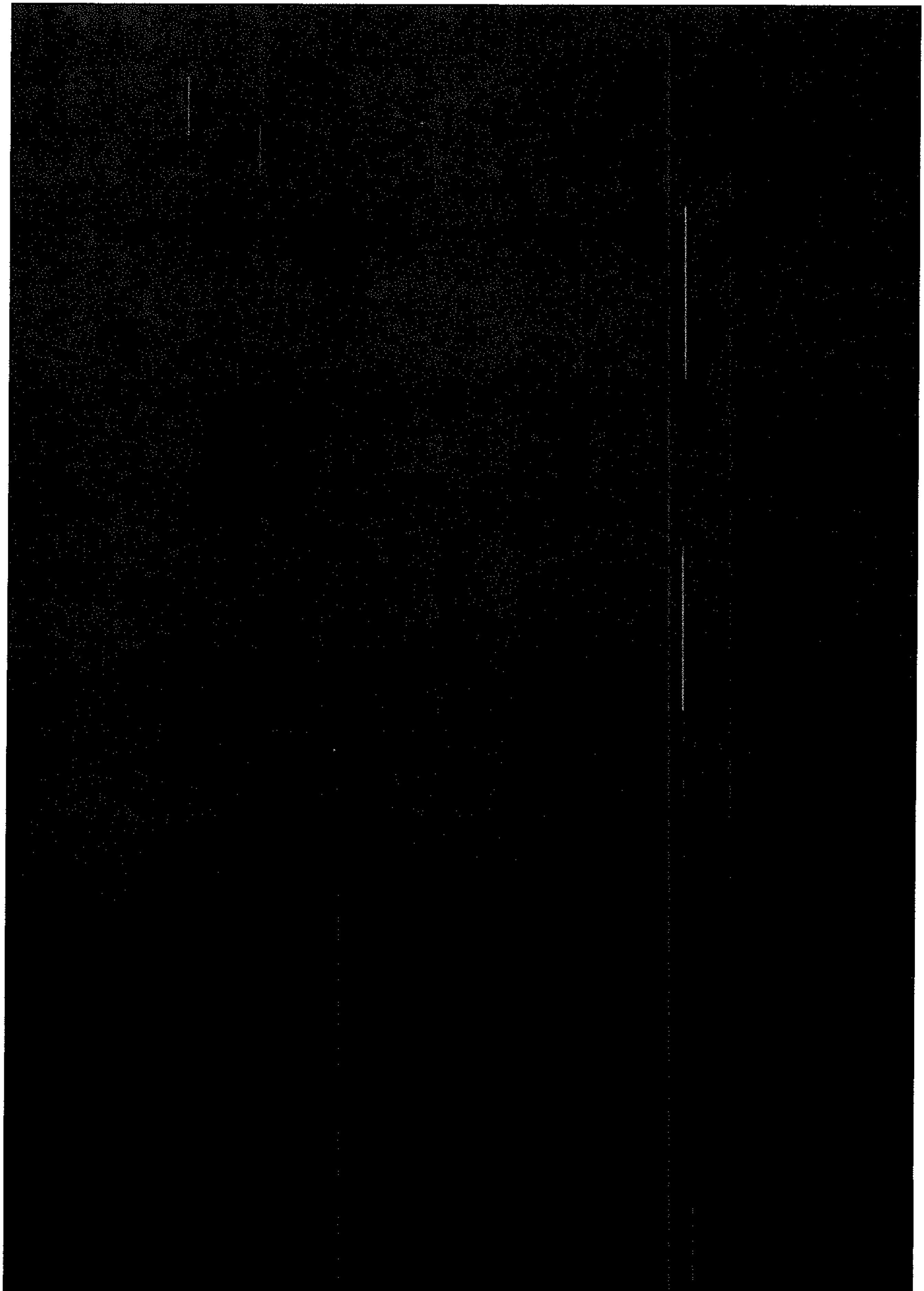
Attachment 1

BASIS FOR 2018 UNIT CONSTRUCTION COSTS FOR PHOSPHOGYPSUM STACK SYSTEMS









Attachment 2

EXCERPT FROM THE
U.S. DEPARTMENT OF COMMERCE
BUREAU OF ECONOMIC ANALYSIS
DATED MAY 28, 2020

Table 1.1.9. Implicit Price Deflators for Gross Domestic Product

[Index numbers, 2012=100] Seasonally adjusted

Bureau of Economic Analysis

Last Revised on: May 28, 2020 - Next Release Date June 25, 2020

Line		2018				2019				2020
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
1	**Gross domestic product**	109.355	110.281	110.767	111.256	111.473	112.188	112.664	113.043	113.493
2	**Personal consumption expenditures**	107.396	107.984	108.408	108.768	108.875	109.518	109.923	110.297	110.646
3	Goods	95.229	95.401	95.32	94.983	94.591	94.956	94.773	94.679	94.46
4	Durable goods	88.019	87.633	87.375	87.122	87.05	86.661	86.39	85.689	85.334
5	Nondurable goods	99.015	99.507	99.528	99.144	98.568	99.37	99.24	99.508	99.369
6	Services	113.702	114.513	115.213	115.951	116.332	117.126	117.857	118.49	119.158
7	**Gross private domestic investment**	106.963	108.039	108.218	108.624	108.683	109.485	109.614	109.956	110.854
8	Fixed investment	107.59	108.381	108.947	109.092	109.573	110.106	110.422	110.654	111.011
9	Nonresidential	102.945	103.423	103.837	103.835	104.237	104.765	104.907	105.017	105.304
10	Structures	115.138	116.55	117.482	119.087	119.9	121.075	121.543	121.878	122.247
11	Equipment	97.116	97.32	97.708	97.434	97.667	97.762	97.485	97.543	97.7
12	Intellectual property products	103.154	103.434	103.56	102.986	103.38	104.125	104.64	104.702	105.107
13	Residential	128.04	130.22	131.472	132.292	133.132	133.679	134.805	135.593	136.258
14	Change in private inventories	---	---	---	---	---	---	---	---	---
15	**Net exports of goods and services**	---	---	---	---	---	---	---	---	---
16	Exports	98.123	99.363	99.642	99.287	98.666	99.466	98.879	98.476	97.67
17	Goods	92.233	93.579	93.795	93.125	92.185	92.723	91.778	91.412	90.069
18	Services	111.348	112.327	112.753	113.146	113.287	114.703	114.973	114.489	114.994
19	Imports	91.121	91.25	91.38	90.975	90.161	90.524	89.6	89.483	89.451
20	Goods	88.205	88.251	88.341	87.82	86.862	87.231	86.143	85.932	85.903
21	Services	106.355	106.932	107.287	107.511	107.461	107.796	107.732	108.096	108.049
22	**Government consumption expenditures and gross investment**	110.004	111.043	111.878	112.67	113.042	113.521	113.968	114.489	115.36
23	Federal	108.213	108.966	109.679	110.444	111.685	111.09	111.511	111.951	112.221
24	National defense	106.568	107.307	108.016	108.506	108.793	109.195	109.584	110.058	110.309
25	Nondefense	110.795	111.618	112.287	113.468	116.191	114.046	114.517	114.904	115.204
26	State and local	111.202	112.406	113.33	114.139	113.97	115.122	115.586	116.159	117.413
	Addendum:									
27	Gross national product	109.259	110.182	110.668	111.154	111.386	112.1	112.574	112.953	113.403

Actual Inflation From December 2018 to March 2020 = 2.0233 Percent

Average Inflation for Last Year of Data (1st Quarter 2019 to 1st Quarter 2020) = 1.8108 Percent

Projected Inflation from December 2018 to December 2020 = 3.4058 **Inflation Factor = 1.03406**

S:\Projects\2019\19-13-0079 Revised Closure Plan J.R. Don Plant\Inflation\bea Inflation data 5-28-20.xls, 7/24/2020, 7:34 AM

Appendix 9

Operational Practices for Air Emissions Control

Simplot

Appendix 9

Reclaim Cooling Towers

Operational Practices for Air Emissions Controls

Don Plant

Final

November 4, 2022

Corporate Environmental & Regulatory Affairs
1099 W. Front St., Boise, ID 83702
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Table of Contents

1. Introduction

Simplot has developed Appendix 9: Reclaim Cooling Towers Operational Practices for Air Emissions Control to describe the Facility's current best operating practices including interim fluoride emissions reduction measures in place. Following the removal of the Reclaim Cooling Towers (or EPA approval of an Alternative Proposed Fluoride Reduction Plan under Paragraphs 32-33 of the Consent Decree), this Operational Practices for Air Emissions Control (Appendix 9) will no longer be in effect.

All capitalized terms and/or acronyms not otherwise defined in this Appendix shall have the meaning set forth in the Consent Decree.

2. Current Operating Practices

2.1 General

The Reclaim Cooling Towers are evaporative cooling towers. Evaporative cooling towers are open water recirculating devices that use fans or natural draft to draw or force ambient air through the device to remove heat from process water by direct contact.

Within the Phosphoric Acid Plant, the Reclaim Cooling Towers provide cooling for the phosphoric acid evaporators through a circulation of cooling water (including evaporator condensates) that directly contacts with process vapors in the evaporator barometric condensers. The process vapors add fluoride compounds to the circulating cooling water. Fluoride emissions from the Reclaim Cooling Towers are measured periodically. The testing requirements and fluoride emissions limits are documented in the Tier I Operation Permit No. T1-2017.0024 issued by the Idaho Department of Environmental Quality (IDEQ).

When the Reclaim Cooling circuit water level is low, make-up water is supplied to the cooling water supply basin. This make-up water is limited to either fresh well water or groundwater extraction well water.

2.2 Cooling Tower Fan Speeds

A major operational control feature of the cooling towers is the fan speed. The fans provide the air flow to provide the heat transfer from the condensates to ambient air. All of the fans of the Reclaim Cooling Towers are equipped with variable frequency drives that allow modulation of the fan speed. The Reclaim Cooling Tower fans are typically set at 90-100%. However, in the event a source (stack) test does not demonstrate compliance with the fluoride emission limit, the fan speed will be reduced to 85% and additional fluoride emission testing conducted.[1] The fan will then be operated at a reduced fan speed where compliance with the fluoride emission limit is demonstrated. The fan speed will not be increased until compliance with the fluoride emission limit can be demonstrated at that higher fan speed.

The following scenario demonstrates the procedures followed to set fan speed in the event a stack test does not demonstrate compliance.

[1] Historical operating data has shown that a fan speed of 85% results in a reduction of fluoride emissions.

1. Stack test on Cell "A" is conducted at normal (e.g., 90-100%) fan speed
   a. Results from the stack testing contractor (typically 2-6 weeks after sampling) does not demonstrate compliance with emission limit:
      i. Fan speed is reduced to 85% upon receipt of result;
      ii. Cooling tower cell is evaluated for any maintenance needs or other factors that might have contributed to a potential increase in emissions; and
      iii. Stack test scheduled to demonstrate compliance at reduced fan speed of 85%.
   b. If the stack test demonstrates compliance, then the fan speed will be maintained at 85%.

The following scenario outlines the procedures to be followed to increase fan speed after it has been reduced.

2. Stack test on Cell "A" is rescheduled at increased or normal (e.g. 90-100%) fan speed.
   a. Second stack test on Cell "A" conducted at increased or normal fan speed:
      i. Fan speed increased on the day of the test;
      ii. Retest conducted at increased fan speed; and
      iii. Fan speed returned to the reduced operating speed (typically 85%) immediately after completing the test.
   b. If the retest at increased or normal (e.g. 90-100%) fan speed demonstrates compliance with emission limit, then:
      i. After submittal of retest results to DEQ, fan speed is set at the normal or operating speed which is equal to, or lower than the successful retest.
   c. If the retest at increased or normal fan speed does not demonstrate compliance with emission limit, then:
      i. Fan speed remains at reduced speed (normally 85%).

2.3 Cooling Tower Operations & Scrubber Blowdown Routing

Scrubber blowdown streams are combined with the Process Wastewater from the Phosphoric Acid Plant, which (together) goes to the phosphogypsum stack. Decant process wastewater from the phosphogypsum stack is recycled back into the phosphoric acid process. A portion of the fluoride from the scrubber blowdown that goes to the Phosphogypsum Stack is routed to the Reclaim Cooling Towers only after being recycled back into the production process.

2.3.1 Typical Operation

The scrubbers that contribute scrubber blowdown to the Process Wastewater are the phosphoric acid digester scrubber, phosphoric acid belt filter scrubber, phosphoric acid tank farm scrubber, super phosphoric acid primary control scrubber, fluorine scrubber, super phosphoric acid extended absorber system, animal feed deflo scrubber, and animal feed Entoleter scrubber. The phosphoric acid and super phosphoric acid scrubber blowdowns flow into the blend system before being utilized to either fluidize the phosphogypsum going to the Phosphogypsum Stack System or as filter wash water on the phosphoric acid belt filters. The filter wash water is then recycled back to the phosphoric acid digester and incorporated into the phosphoric acid being produced. The animal feed scrubber blowdowns are used to fluidize the phosphogypsum going to the Phosphogypsum Stack System.

2.3.2 Evaporator Wash Operation

Another process stream that currently goes to the Reclaim Cooling Towers is evaporator wash water. Prior to completion of the compliance projects set forth in Appendix 6 to the Consent Decree, evaporator wash water is sent from the evaporator barometric condensers to the Reclaim Cooling Towers. The evaporator wash water is supplied by the #1 Wash Water Tank, which is an existing portion of the Acid Value Recovery System and currently receives inputs shown in Diagram 2 of the Facility Report.[2] Following completion of the compliance projects set forth in Appendix 6 to the Consent Decree, evaporator wash water will be supplied and recirculated back to the Acid Value Recovery System.

[2] Prior to completion of the compliance projects set forth in Appendix 6 to the Consent Decree, Diagram 2 of the Facility Report is not an accurate depiction of the effluent destinations of the existing portions of the Acid Value Recovery System. See Section 1.4 of the Consolidated Materials Management Practices document for further details.

2.4 Blend System

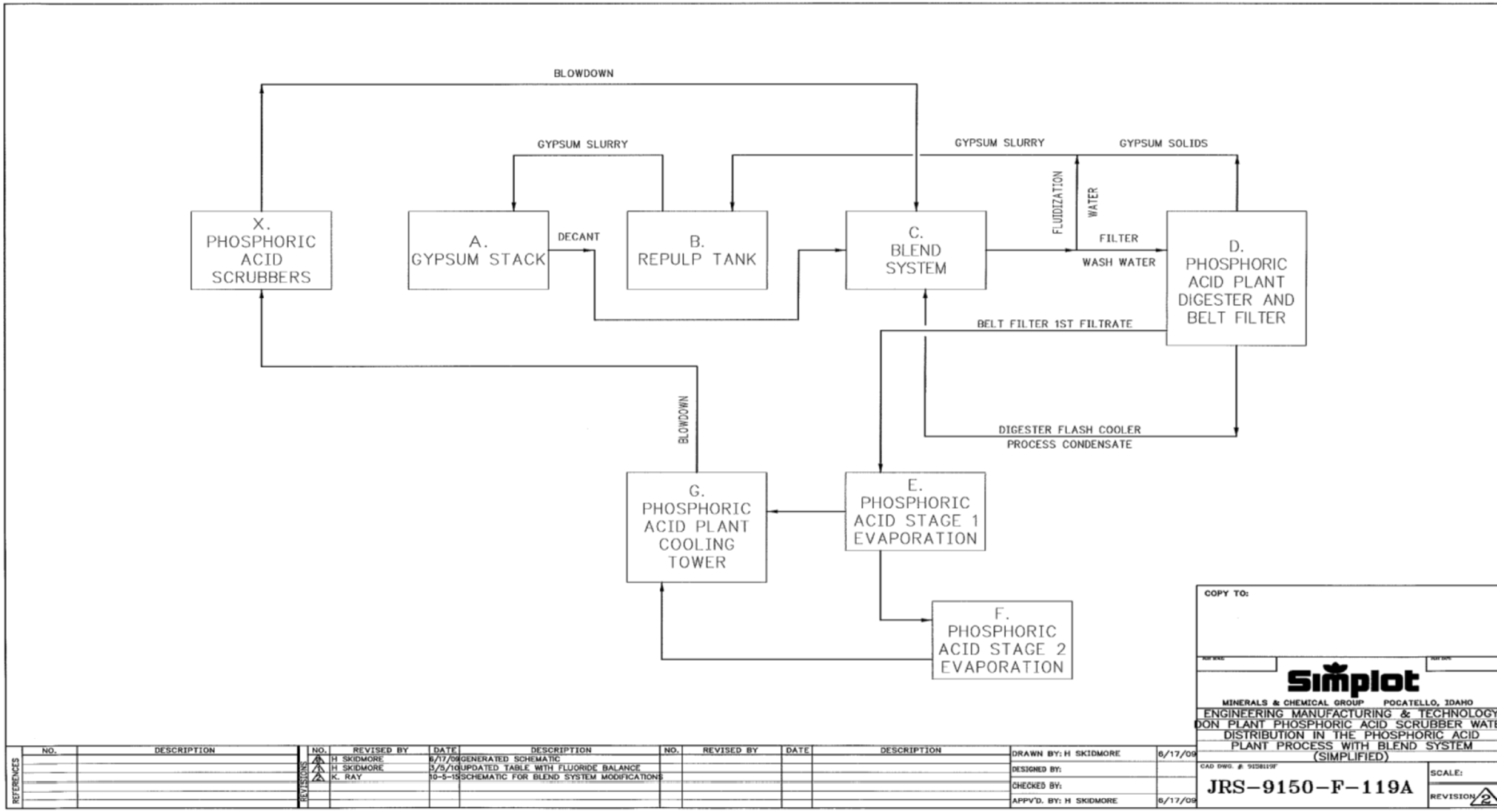
Simplot implemented the blend system in October 2016 to reduce the fluoride emissions from the Reclaim Cooling Towers. The blend system removed the phosphoric acid digester flash coolers from the Reclaim Cooling Tower circuit and re-directed this cooling and fluoride load directly to the Phosphogypsum Stack System.

The blend system enables a reduction in fluoride emissions in several ways. First, with the reduced heat load to the Reclaim Cooling Towers, the facility is currently targeting an annual average of two cooling tower cell fans idled.[3] Second, by reducing the heat load to the Reclaim Cooling Towers, the temperature of the water entering the cooling system is reduced, thus lowering the vapor pressures (and emissions) of volatile fluoride compounds. Furthermore, some of the fluoride in the flash cooler streams (that are sent to the gypsum stack) reacts with or is absorbed into the calcium sulfate (gypsum) crystal structure rather than being emitted into the atmosphere.[4] Finally, the blend system also reduces the amount of potential scrubber blowdown water flowing to the Reclaim Cooling Towers.

[3] Utilizing the motor run status tags from the facility's process control system (i.e., the Distributive Control System - DCS) averaged over a day (midnight to midnight), the number of fans idled each day is calculated and is then averaged for the calendar year. The data collected so far shows a reduction of cooling tower cell operation of 1-1.3 "cells" annually.

[4] Precipitation reactions in the gypsum pond system include sodium and potassium fluosilicates, fluoroaluminates, chukrovite, and calcium fluoride. The net result of complexation and precipitation is a reduction in free fluoride concentration, which is the primary source of fluoride emissions.

Figure 1: Post-Blend System Phosphoric Scrubbers Distribution Process Drawing



Appendix 10

Additional Definitions of Terms Used in Appendices

APPENDIX 10

ADDITIONAL DEFINITIONS OF TERMS USED IN APPENDICES

For Appendices 1-9 and 11, any capitalized terms not otherwise defined in the individual appendices shall have the meanings set forth in the Consent Decree or as provided in this Appendix 10.

"Active" means a Phosphogypsum Stack/System that currently receives Phosphogypsum and/or Process Wastewater from an operating phosphoric acid production facility.

"Auxiliary Holding Pond (AHP)" or Overflow Pond means a lined storage pond, designated by the operator and approved by the State and/or EPA, typically used to hold untreated Process Wastewater. AHPs are intended to increase system storage above that otherwise provided by the Return or Decant Pond(s) and are typically located within the footprint of a Phosphogypsum Stack System.

"(Natural) Background" means the level of any constituent in the ground water within a specified area as determined by representative measurements of the ground water quality unaffected by human activities, as defined in Idaho Administrative Code, Chapter 58, Section 01.11.007.

"Component" includes any AHP(s), overflow pond, lime treatment solids ponds, Dikes, Toe drainage swales, Process Wastewater and Leachate channels or ditches, other Process Wastewater collection or conveyance systems associated with a Phosphogypsum Stack, cooling ponds, or Return or Decant Ponds.

"Dike" means a barrier to the flow of Phosphogypsum and Process Wastewater which is constructed of naturally occurring soil (Earthen Dike) or of Phosphogypsum (Gypsum Dike) and which is a Component of a Phosphogypsum Stack System.

"Drain" means a material more pervious than the surrounding fill which allows seepage water to drain freely while preventing Piping or internal erosion of the fill material.

"Earthen Dike" means a barrier to the flow of Phosphogypsum and Process Wastewater which is constructed of naturally occurring soil and which is a Component of a Phosphogypsum Stack System.

"Emergency Diversion Impoundment (EDI)" means a storage area, typically located outside the footprint of a Phosphogypsum Stack System, designated in the Facility's site-specific water management plan to be used on a temporary basis when necessary to avoid an unpermitted Surface Water discharge resulting from Dike overtopping or other imminent and substantial endangerment identified in Appendix 1.D.

"Evaporation Pond" means impounded areas that provide for the evaporation of Process Wastewater and Leachate or treated Process Wastewater and Leachate.

"Final Cover" means the materials used to cover the top and sides of any Component of the Phosphogypsum Stack System upon closure in accordance with Appendix 1.C.

"Freeboard" means the distance between the liquid level in an impoundment and the liquid level which would result in the release of stored liquid from the impoundment.

"Geomembrane" means a low-permeability synthetic membrane used as an integral part of a Phosphogypsum Stack System designed to limit the movement of liquid or gas in the Phosphogypsum Stack System.

"Groundwater" means any water of the state which occurs beneath the surface of the earth is a saturated geological formation of rock or soil as defined in Idaho Administrative Code, Chapter 58, Section 01.11.007.

"Groundwater Table" means the upper surface of a zone of saturation, where the body of Groundwater is not confined by an overlying impermeable zone.

"Gypsum Dike" means the outermost Dike constructed from Phosphogypsum within the perimeter formed by a Starter Dike for the purpose of raising a Phosphogypsum Stack and impounding Phosphogypsum and/or Process Wastewater. This term specifically excludes any Dike inboard of a rim ditch, any partitions separating Phosphogypsum Stack compartments, or any temporary windrows placed on the Gypsum Dike.

"Inactive" means a Phosphogypsum Stack, Phosphogypsum Stack System or Component that has not undergone Stack Closure and is no longer receiving Phosphogypsum and/or Process Wastewater.

"Initial Closure Plan" means the preliminary closure plan prepared in accordance with Appendix 1.C and incorporated in Appendix 8 that includes Phosphogypsum Stack System Closure design elements needed to generate a Cost Estimate in accordance with Appendix 2.

"Lateral Expansion" means the horizontal expansion of Phosphogypsum or Process Wastewater storage capacity beyond the permitted capacity (where applicable) or design dimensions (i.e. footprint) of the Phosphogypsum Stack, or Return or Decant Ponds, and perimeter drainage conveyances at an existing Facility. Any Phosphogypsum Stack, Return or Decant Pond(s), or perimeter drainage conveyance which is constructed within 2000 feet of an existing Phosphogypsum Stack System, measured from the edge of the expansion nearest to the edge of the footprint of the existing Phosphogypsum Stack System, is considered a Lateral Expansion. A fully enclosed building, container, tank or Emergency Diversion Impoundment does not constitute a Lateral Expansion. A vertical expansion against a slope, where there is also a horizontal expansion, shall not be considered a lateral expansion as long as such vertical and horizontal expansion is part of the approved design and construction plan."

"Liner" means a continuous layer of low permeability natural or synthetic materials which controls the downward and lateral escape of waste constituents or Leachate from a Phosphogypsum Stack System.

"Log" means a record maintained by the Facility that contains a schedule of inspections of Phosphogypsum Stack System or Component, the findings of such inspections, and any remedial measures taken in response to such findings.

"Long-Term Care" means the period following Stack Closure during which long-term care activities are undertaken in accordance with the requirements in Appendix 1.C.

"Maximum Design Level" means the engineer-certified maximum water elevation that an impoundment is designed to contain, as determined using generally accepted good engineering practices with appropriate factors of safety.

"New Perimeter Dike" means a Perimeter Dike that is completed after the Effective Date.

"Perimeter Dike" means the outermost Earthen Dike surrounding a Phosphogypsum Stack System that has not been closed or any other Earthen Dike, the failure of which could cause a release of Process Wastewater outside the Phosphogypsum Stack System. In the case of a vertical expansion, the HDPE lined outermost Dike shall also be considered a Perimeter Dike, even if it is a constructed with Phosphogypsum, if its failure could cause a release of Process Wastewater outside the Phosphogypsum Stack System.

"Permanent Phosphogypsum Stack System Closure Plan" or "Permanent Closure Plan" means the plan for Stack Closure and Long-Term Care submitted at or prior to closure and prepared in accordance with the requirements of Appendix 1.C.

"Phosphogypsum Stack System Closure[1]" means the cessation of operation of a Phosphogypsum Stack, Phosphogypsum Stack System, or Component thereof and the acts of securing and closing such a system, in accordance with the Permanent Closure Plan so that it will pose no significant threat to human health or the environment. This includes Stack Closure, Long-Term Care and the water management activities associated with Stack Closure and Long-Term Care.

"Piping" means progressive erosion of soil or solid material within the dam or Dike, starting downstream and working upstream, creating a tunnel into the dam or Dike. Piping occurs when the velocity of the flow of seepage water is sufficient for the water to transport material from the embankment.

"Process Watershed" means the aggregate of all areas that contribute to or generate additional Process Wastewater from direct precipitation, rainfall Run-off, or Leachate to a Phosphogypsum Stack, Process Wastewater, Return Pond (cooling/surge ponds), collection ponds, or any other storage, collection, or conveyance system associated with the transport of Phosphogypsum or Process Wastewater for a particular Phosphogypsum Stack System.

"Return or Decant Pond" means impounded areas within the Phosphogypsum Stack System, excluding settling compartments atop the Phosphogypsum Stack, that provide capacity for the

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[1] The Permanent Phosphogypsum Stack Closure period begins on Day 1 of Stack Closure and runs through the Long-Term Care period, generally a minimum of 50 years.

cooling, storage and reuse or recirculation of phosphoric acid Process Wastewater, Phosphogypsum Stack Leachate or runoff from the Phosphogypsum Stack.

“Soil Liner” means a Liner constructed from naturally occurring earthen material. This definition expressly excludes any Liner constructed of synthetic material or Phosphogypsum.

“Stack Closure” means when a Phosphogypsum Stack, Phosphogypsum Stack System, Component thereof, or an EDI ceases to accept Phosphogypsum, Process Wastewater, Phosphogypsum System Leachate or collection waters. In addition, actions are undertaken to secure and close the Phosphogypsum Stack, Phosphogypsum Stack System, Component thereof, or EDI in Phosphogypsum Stack System closing, Long-Term care (e.g., monitoring and maintenance) and water management activities associated with Phosphogypsum Stack System closing and Long-Term care activities.

“Starter Dike” means the initial Dike constructed at the base of a Phosphogypsum Stack to begin the process of storing Phosphogypsum.

“Waters of the State” or “Surface Water” means all the accumulations of water, surface and underground, natural and artificial, public and private, or parts thereof which are wholly or partially within, which flow through or border upon the state as defined in IDAPA 58.01.02.10, Department of Environmental Quality, Water Quality Standards.

“Temporary Deactivation” means a Phosphogypsum Stack System that will cease or has ceased to accept deposits of Phosphogypsum and/or Process Wastewater on a temporary basis and for which a request has been made in writing to, and approved by, the State of Idaho and/or the EPA in accordance with the requirements in Appendix 1.C.

“Third-Party Engineer” means an engineer who is not an employee of any entity that owns or operates a phosphate mine or Facility.

“Toe” means the junction between the face of the Dike and the adjacent terrain.

“Toe Drain” is a wedge-shaped Drain supporting the downstream Toe of the dam.

“Wave Height” means the average height of the waves that are used for design purposes as a function of sustained wind speed, effective fetch length[2], and wind duration.

“Wave Run-up” means the difference in vertical height between the maximum elevation attained by wave run up or uprush on a slope and the still water elevation at the inboard Toe of the slope.

“Wind Surge” means the vertical rise in base water-surface elevation, exclusive of the Wave Height, above the still water elevation, caused by wind-induced stresses and mounding of the water surface in the leeward direction.

[2] Maximum fetch refers to the maximum unobstructed distance across a free liquid surface over which wind can act (typically the diagonal measurement across an impoundment).

Appendix 11

Environmental Mitigation

Appendix 11

Mitigation Project Summary

Don Plant

Technical Report No. 91a

November 4, 2022

Mitigation Project Summary

As environmental mitigation, Simplot has offered to provide $200,000 that will be utilized to fund water quality improvement projects in the Portneuf River. These funds will be issued to and disbursed by the Idaho Department of Environmental Quality (Idaho DEQ).

The lower Portneuf River has seen heavy disturbance since the early 1900s because of urban development as well as from the development of heavy industry in the mid-1900s with the establishment of phosphate ore processing in the area. Contaminants from these facilities, especially from the former unlined Phosphogypsum Stack, have resulted in water quality and habitat degradation in the Portneuf River. Two invasive species, Black willow (also known as Crack willow) and Russian olive trees, have become well established in riparian areas and have crowded out the native hardwood (Black cottonwood). Due to the fast growth pattern of both invasive species, they are unstable and are susceptible to disease, weather damage, and drought conditions. This results in trees which die and fall over at a high rate of frequency, damaging the riverbanks, undercutting bank stability, and causing clogged or damaging flow patterns within the river. The resulting bank erosion contributes large volumes of sediment into the river, which is one of Idaho's largest water quality issues.

Furthermore, these two tree species have succeeded so well they have almost excluded all other woody plants in this area. The lack of diversity in the riparian vegetation contributes strongly to reduced aquatic organism communities. A diverse aquatic community is essential to creating a healthy ecosystem thus leading to better water quality. By removing the invasive species and replanting with a diverse native riparian vegetation community the water quality of the Portneuf River will be directly improved.

Similar work has been undertaken previously in some small areas of the Portneuf River, however, the funding provided by Simplot will allow for a much more extensive and focused effort which should provide a large-spread positive ecosystem effect.

Photos 1 and 2: Previous invasive tree removal work in the Portneuf River provided as reference.

The mitigation funds provided by Simplot will be utilized to remove these invasive trees and replant the areas with native vegetation in up to three areas (the City of Pocatello- Portneuf River Project identified in Figures 1 and 2; the Shoshone-Bannock Tribal Project- Papoose Spring Project identified in Figures 1 and 3; and the Shoshone-Bannock Tribal Project- The Bottoms identified in Figures 1 and 4), each with a separate responsible entity. The Shoshone Bannock Tribes will be responsible for implementing the mitigation work that is within the boundaries of the Fort Hall Reservation; the City of Pocatello will be responsible for implementing the mitigation work along the Portneuf River outside the boundaries of the Fort Hall Reservation.

Although unlikely, if the work identified is completed and funds remain available Idaho DEQ will work with these partners to identify additional areas throughout the watershed that are appropriate for invasive vegetation removal and native planting.

Funds will be managed by the Idaho DEQ utilizing the following general protocols:

- Once funds are received by Idaho DEQ from Simplot, a tracking system will be put into place within Idaho DEQ's financial management system. This will include separate tracking codes for these funds.
- Contracts will be developed between Idaho DEQ and both the City of Pocatello and the Shoshone Bannock Tribes to allocate these funds for these projects. The contracts will include a scope of work, work schedule and billing procedures for the parties.

Once funding is issued, implementation of these projects will be the responsibility of each of these entities in accordance with their contracts. The Water Quality Manager at Idaho DEQ's

Pocatello Regional Office will provide oversight of the project work and will also be available for consultation throughout the project.

After the funds are received by Idaho DEQ, it may take up to one year of planning lead time prior to work being conducted on the ground. The implementation of the work is anticipated to take up to two field seasons for tree removal and plantings, with an additional two field season to ensure native plantings are successful with possible additional plantings taking place when necessary. The total project work may take up to five years to fully complete. Project milestone dates therefore are as follows:

Project Milestone	Completion Deadline
Provision of Funding	30 days after entry of Consent Decree
Completion of Project Planning	12 months after provision of funding
Initial Project Implementation	24 months after completion of project planning
Assessment/Additional Planting (if needed)	24 months after completion of initial project implementation
Mitigation Project Summary	3 months after completion of assessment/any additional planting
Final Report to EPA/DOJ	1 month after Simplot receives project summary

Idaho DEQ will provide a completion report to Simplot at the end of the work described in this Mitigation Project Summary, identifying the areas in which tree removal and plantings were completed, a summary of fund expenditures, and any other relevant information. Simplot is required by the Consent Decree to submit a Mitigation Completion Report to EPA at the end of this project detailing the work that has been performed, and certifying to the work's completion, pursuant to this Mitigation Project Summary.

Figure 1. Overall map view of the invasive tree species removal and native revegetation projects.

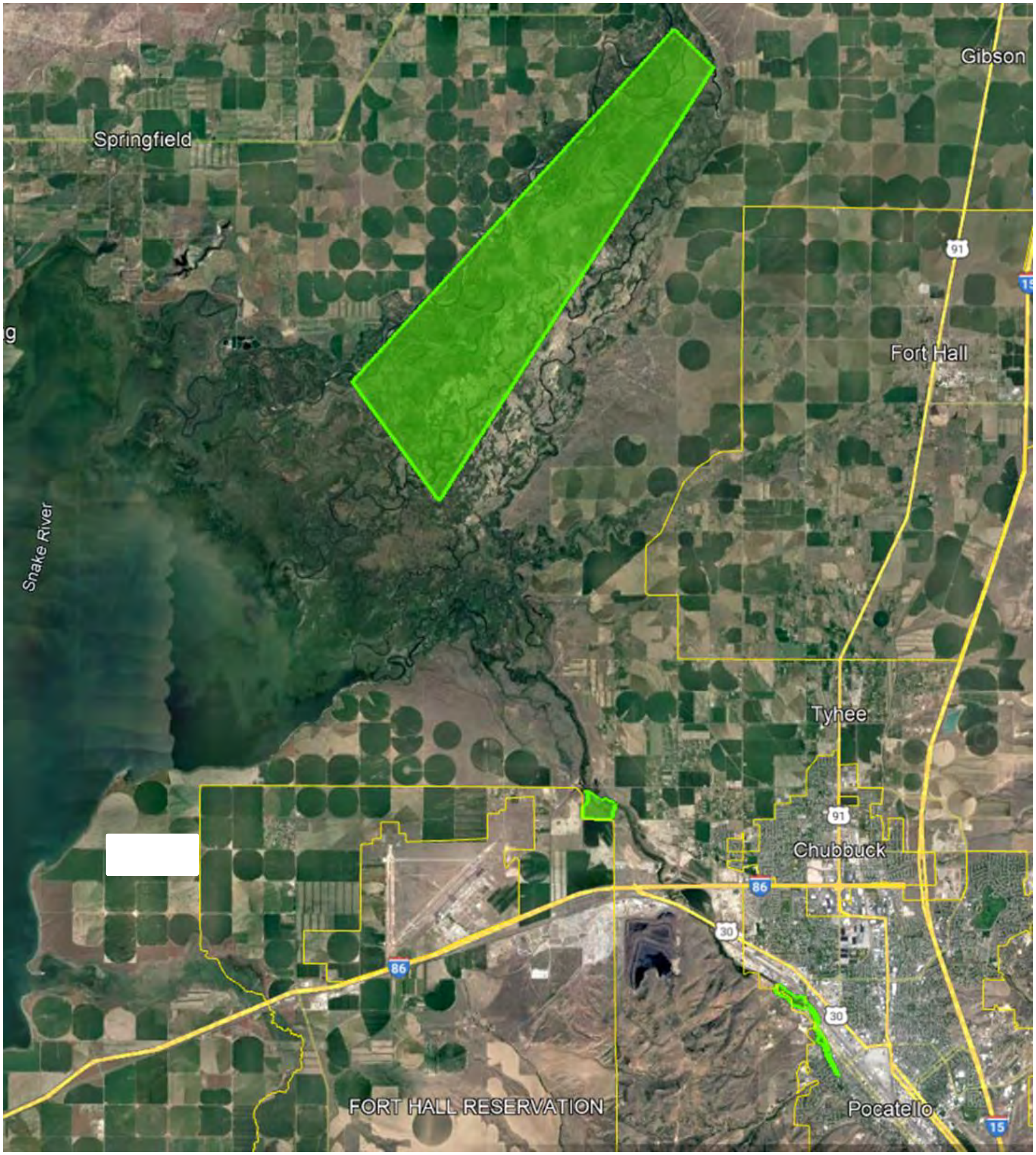

Figure 2. City of Pocatello- Portneuf Project Area.

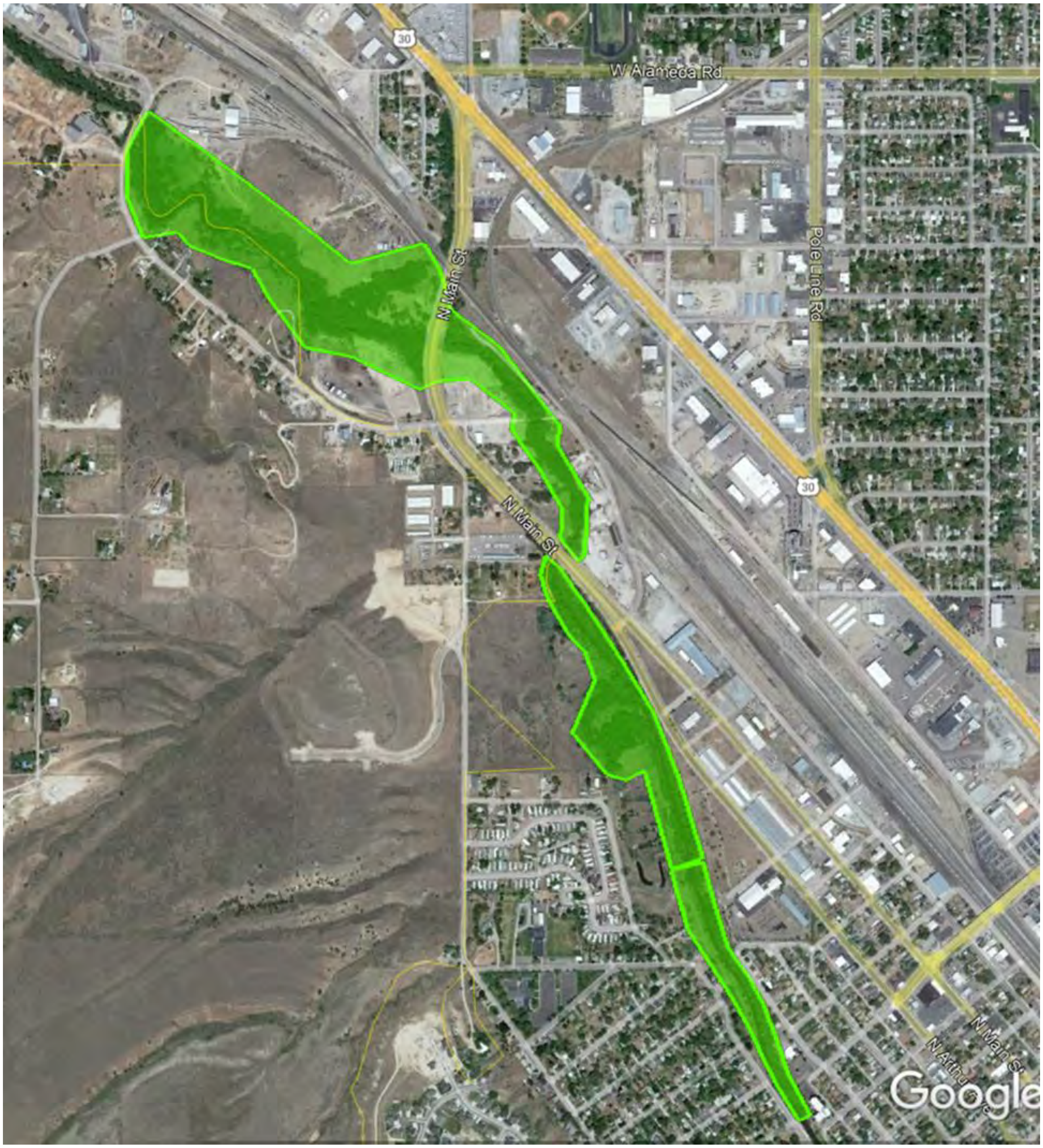

Figure 3. Shoshone-Bannock Tribal Project- Papoose Spring (Waterwheel property) Project.

Figure 4. Shoshone-Bannock Tribal Project- The Bottoms.