



CALIFORNIA SURFACE MINING AND RECLAMATION POLICIES AND PROCEDURES

RECLAMATION PLAN FORM INSTRUCTIONS STATE MINING AND GEOLOGY BOARD

These instructions are provided as guidelines to be followed in the preparation of most reclamation plans. SMARA requires that mined lands be reclaimed to a useable condition. This form is intended for sites that will be reclaimed to open space, grazing, wildlife habitat, etc. Other end uses could be commercial or residential development, inert landfill, recharge basin, etc. Some end uses may require a custom reclamation plan. All the applicable elements included in this form should be addressed. Additional information may be needed depending on site specific conditions or as required by the local agency's mining ordinance certified by the State Mining and Geology Board (Board). A suggested outline for reclamation plans is provided (Attachment 20a).

It is the Board's policy that all professional reports, documents, calculations, plans, specifications, maps, cross sections, boring or trench logs, and diagrams (documents hereafter) which must, under applicable law, regulation or code, be prepared by or under the supervision of licensed professionals will not be accepted or considered by the Board unless at least one copy of the document bears an original signature, stamp impression or seal, and date affixed by the author in accordance with applicable law and regulation.

Unless otherwise directed or agreed in advance, all professionally prepared documents included in Board or Board committee meeting packages or presented to the Board in a meeting are to be in final form and must be signed, stamped or sealed, and dated in accordance with applicable law and regulation. The Board maintains upon its website the current statutes and regulations governing what must be included within a reclamation plan. The Legislature, in recognizing the diverse nature of mining and geology within the state, has created a set of minimum requirements as well as allowed the Board to adopt specific standards which may apply, depending upon the type of operations as well as end use. Questions 1-14 of the form deal with basic information required by statute for regulation of all mining operations or which are necessary for the Board to determine an operator's right to mine and therefore any limits on the extent of operations which can be covered under a reclamation plan. You are strongly encouraged to review both the statutory and regulatory requirements for reclamation prior to completing this document.

Public Resources Code (PRC) Section 2772 sets much of the basic information which an operator is required to submit. In addition, California Code of Regulations (CCR) Section 3502 captures much of this information and provides additional information which will be particularly useful to operations amending an existing reclamation plan.

CCR Section 3503 sets minimum reclamation practice standards. The CCR Sections 3700-3713 provide specific standards for different activities to be met by the operator in conducting reclamation activities. This section of the regulations will be critical to ensuring you submit a reclamation plan which meets applicable standards. CCR Section 3700 sets the applicability of these standards to operations. Not all of the standards may apply to your operation.

INSTRUCTIONS FOR COMPLETING A RECLAMATION PLAN

A suggested outline for reclamation plans is attached to these instructions.

1. MINING OPERATION:

Indicate the name of the company operating the mine, the name and telephone number of the site contact person, and the street address and mailing address (if different than street address) of the mine site. The site contact person is (1) the person in authority at the site of the operation, and (2) normally, the person with whom contact would be made should the lead agency require an immediate action be taken.

2. DESIGNATED AGENT:

Each operation must designate a person who resides in California as its legal agent (PRC Section 2207). The designated agent is the person who will receive and accept legal documents for the mining operation on behalf of the legal owner. Indicate the name, mailing address, and telephone number of the designated agent. If the designated agent is the same person as the owner or site contact person, you may indicate "same as owner" or "same as site contact person" and leave the rest of this section blank.

3. LEGAL OWNER OF OPERATION:

Indicate the name, mailing address, country (if other than the USA) and telephone number of the legal owner of the mining operation. The legal owner may be a person, corporation, government agency, or other entity. If the operation is owned in partnership, supply this information for each partner. If the legal owner is the same person as the owner or site contact person, you may indicate "same as owner" or "same as site contact person" and leave the rest of this section blank.

4. LANDOWNER:

Indicate the name, mailing address, country (if other than the USA) and telephone number of the landowner(s). The landowner may be a governmental entity, such as the U.S. Forest Service, Bureau of Land Management, or State Lands Commission.

5. LEGAL DESCRIPTION:

Provide the legal description and current zoning of the area to be disturbed by surface mining operations.

6. LOCATION OF MINING OPERATION:

Describe the location of the mining operation.

7. TYPE OF OPERATION

Indicate the type of mining operation and whether it is in the 100-year flood plain or within a stream channel.

8. DISTURBED ACREAGE

- a. Specify the anticipated total acres to be disturbed by surface mining operations and the anticipated total acres to be reclaimed.
- b. If this is an amendment to a reclamation plan for an existing mine, indicate the number of acres currently disturbed.
- c. Indicate the total number of acres anticipated to be disturbed at the end of the first year. This acreage should be used in developing a financial assurance cost estimate.

9. FINANCIAL ASSURANCE

- a. If this is an existing mine, indicate the current financial assurance amount, the type of financial assurance mechanism, and expiration date.
- b. If this is a new mine, attach a financial assurance cost estimate (FACE). If there are proposed changes to an existing financial assurance, attach a FACE. The FACE should conform to the Financial Assurance Guidelines adopted by the State Mining and Geology Board.

10. PRE-1976 MINING

- a. If surface mining operations were conducted on site prior to 1976, check yes.
- b. Clearly delineate on a map any areas that were disturbed by surface mining operations prior to 1976, and that have not been disturbed by surface mining operations after 1976.
- c. The reclamation plan must describe how all areas disturbed by surface mining operations after 1976 will be reclaimed.

11. DETERMINATION OF VESTED RIGHTS

- a. Operations that qualify for vested rights will not need a permit to conduct surface mining operations within the scope of the established vested right, but are required to obtain approval of a reclamation plan and financial assurances for all areas disturbed by surface mining operations after 1976.
- b. Check yes if you are currently operating under a vested right for all or a portion of the surface mining operation.
- c. Attach a copy of the vested rights determination.
- d. If a vested rights determination has not been made by the lead agency, check no.

12. AGRICULTURAL LAND

- a. Check yes if all or a portion of the area to be disturbed by surface mining operations is classified as prime or non-prime agricultural land by the U.S.D.A. Natural Resources Conservation Service.
- b. Check yes if all or a portion of the area to be disturbed by surface mining operations is currently under Williamson Act contract.

13. COMMODITIES AND PRODUCTION

A list of commodities with respective units of measure and sorted by category is available (Attachment B) as part of the Annual Report Instructions which can be found on OMR’s website at http://www.consrv.ca.gov/OMR/reporting_compliance/index.htm.

Provide the anticipated maximum total production to occur at the site for both the primary commodity to be mined and any other commodities to be mined.

14. RECLAMATION PLAN MAPS AND NARRATIVE ATTACHMENTS

Maps: Maps are a very useful way to clearly present the proposed surface mining operation. Maps included in the reclamation plan must be drawn to scale. The scale of the map depends on the total area to be disturbed by surface mining operations. Suggested map scales are as follows.

Site size	Suggested map scale
3 – 6 acres	Not less than 1” = 50’
10 – 20 acres	Not less than 1” = 100’
20 – 80 acres	Not less than 1” = 200’
>80 acres	Not less than 1” = 400’

At a minimum, maps must include the following:

- Legend: defines all symbols and patterns used on the map.
- Title block with:
 - Title of map.
 - Name of the mine.
 - Permit/reclamation plan number.
 - Map number.
 - Date of map.
 - Preparer's name.
- North arrow.
- Both written and graphic scales
- Maps must be stamped and signed by a registered professional licensed to do business in California.

The reclamation plan should include the following maps (SMARA 2772 and 2773(a), CCR 3711(b)):

- a. Location/Access map: shows the regional setting of the site and how to reach the site from the nearest highway. This type of map is commonly presented on a letter size page.
- b. Pre-mining topographic map: establishes the pre-mining topography, location, and setting of the mine site as it exists before mining, including:
 - Property, permit, and reclamation plan boundaries.
 - Zoning.
 - Existing drainage patterns.
 - Existing watercourses, ponds, and wetlands.
 - Existing roads, pipelines, and utilities.
 - Existing wells.
 - Prime agricultural lands and areas under Williamson Act Contract.
 - Any areas disturbed prior to 1976 by mining that will not be disturbed by the proposed surface mining operations.
 - Any other relevant pre-mining conditions.
- c. Topsoil resources map: shows topsoil thickness contours of area to be disturbed by surface mining operations.
 - Where topsoil is limited, map thickness of soil/subsoil layer capable of being used to establish a rooting zone for revegetation of site.
 - Locate soil stockpile locations and volumes.
 - Include a table of estimated volumes of soil to be salvaged and used for reclamation.

- d. Mine plan map(s):** shows how the deposit will be mined. The mine plan map should be accompanied by cross sections showing water table information, pit configuration, and geological structure. Other features to include:
- Property, permit, and reclamation plan boundaries.
 - Proposed and existing roads, pipelines, and utilities.
 - Pits (including phased mining plan) or any other proposed excavations (supported by geologic cross sections).
 - Ore stockpile areas.
 - Overburden and mine waste stockpiles (supported by cross sections).
 - Setbacks from adjacent properties and from sensitive on-site areas.
 - Buildings, processing facilities, and any other proposed infrastructure.
 - Location of equipment storage areas.
 - Location of topsoil stockpiles.
 - Location of revegetation test plots.
 - Temporary locations of erosion control facilities, including any sediment basins, benches, and berms.
 - Location of proposed water wells.
 - Any other information necessary to represent the proposed surface mining operations.
- e. Concurrent or phased reclamation plan map:** SMARA requires a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.
- Show the phases of mining and reclamation and indicate the sequence.
 - Show the time schedule for completion of each phase of mining and reclamation.

The Board recognizes that market conditions may impact the timeframe in which an operation meets the site configuration at which concurrent or phased reclamation was set to begin. As such, a map is an invaluable tool for the Board to use during inspections to assess when an operation has met the physical site parameters at which it was scheduled to begin reclamation on portions of the site.

- f. Final reclamation plan map(s):** establishes the post-mining topography and shows the site as it will appear after reclamation, including:
- Property, permit, and reclamation plan boundaries.
 - Final elevations, contours, drainage patterns, and other topographic features.
 - Remaining roads, structures, pipelines, and utilities.
 - Permanent drainage and erosion control systems (with expanded view, if needed).
 - Areas to be revegetated (by vegetation type).
 - Watercourses, ponds, and wetlands.
 - At least two cross sections (typically at right angles) that show original and final topography and water table.

g. Description of the Environmental Setting (CCR3502(b)(1))

- Description of the physical setting :
 - Describe the climate, precipitation (mean annual and 20-year/one hour storm), temperature (mean and historic highs and lows), and soils.
- Description of the biological resources:
 - Describe the plant communities found on the site and the principal species in each.
 - Baseline vegetation study results, including a species list, should be included for reference. Baseline studies should document density, percent cover, and species richness for each vegetation community on the site. In habitats dominated by herbaceous plants, such as grasslands, the density measurement is not necessary. If the site is previously disturbed, baseline vegetation data can be obtained from nearby undisturbed sites that are comparable to the mine site and compatible with the end use of the project.
 - List sensitive resources such as special status animals and plants, wetlands, or sensitive habitats found or potentially occurring on the site.
- Description of the general geology of the area, using current references.
- Site specific geologic description:
 - Discuss the mineralogy of the ore body and surrounding host rock.
 - Discuss the chemical nature of the ore and waste rock.
 - Describe surface and ground water resources. This may include flow estimates of affected watersheds, land and water uses in those watersheds, a discussion relating geologic setting to ground water regime and delineation of the hydrostratigraphic units, a water table (potentiometric) surface map and a hydrologic inventory (include any known wells and springs in affected areas).
 - Describe the known stratigraphy, structure, and fault systems of the ore deposit and surrounding area.
 - Geology reports must be signed and stamped by a professional licensed to do business in California and attached to the reclamation plan when it is submitted for approval.

h. Description of the Proposed Surface Mining Operations

- Discussion of the mining plan (SMARA 2772(c))
 - Describe the type of mining: open pit, quarry, in-stream, etc.
 - State the total anticipated area (acres) to be disturbed by surface mining operations.
 - Include estimated initiation and termination dates (estimated month and year).
 - Describe the anticipated type of equipment that will be used to remove overburden and mine the ore body.

- State the anticipated maximum depth of mining in feet in relation to a permanent survey point or mean sea level elevation.
- Include a cross section showing the anticipated maximum depth of mining in relation to the water table. Cross section locations must be shown on the mine plan map.
- Provide the estimated production of ore and waste (annual and total).
- Describe the proposed ore processing methods and equipment.
- Include a time schedule for mining that provides for reclamation as soon as possible following mining.
- If mining will be phased to facilitate reclamation, show the phases on a map and include a table of ore and waste production by phase.
- Describe precautions to protect public health and safety from surface mining and reclamation activities.
- Description of cut slopes (CCR 3502)
 - Include cross sections that depict the design and gradient of cut slopes.
 - Include a geotechnical report demonstrating that final cut slopes will be stable with a factor of safety appropriate for the end use.
 - Geotechnical reports must be signed and stamped by a professional licensed to do business in California and attached to the reclamation plan when it is submitted for approval.
- Fill material placement and compaction (CCR 3704)
 - Describe fill placement and compaction with reference to the end use and the appropriate engineering standards and technology.
 - Describe the location and maximum depth and/or height of fill material.
 - Where fill slopes will be steeper than 2:1 (horizontal:vertical), include a geotechnical report demonstrating that final fill slopes will be stable with a factor of safety appropriate for the end use.
 - Where fill slopes will be steeper than 2:1 (horizontal:vertical), include evidence demonstrating that the final fill slopes can be successfully revegetated.
- Methods to be used for temporary drainage and erosion control (CCR 3706)
 - Show locations of erosion control structures on the mine plan map.
 - Include typical drawings of temporary erosion control structures.
 - Estimate of the size (acres) of the drainage basin, mean annual precipitation, 20-year/one-hour storm event, and estimated runoff.
 - Include specifications for culverts, settling ponds, catchment basins, sediment ponds, etc.
 - Describe and show on maps any temporary drainage diversions and their design specifications.
- Instream mining (CCR 3710)
 - Include any permit requirements or guidelines from concerned regulatory agencies such as the California Department of Fish and Game, National Marine Fisheries Service, Regional Water Quality Control Board, US Army Corps of Engineers, US Fish and Wildlife Service, or the California Department of Transportation. If permits have not yet been obtained, include a statement that mining will be conducted in compliance with such permits.

- The Department of Fish and Game requires a Stream Bed Alteration Agreement (SBAA) for all mining activity that impacts a river or stream. Include a statement that mining will be conducted in compliance with this Agreement. A copy of the approved SBAA should be forwarded to the Board (as the SMARA lead agency) prior to the commencement of mining operations.
- Give locations of all in-stream mining operations within five miles both upstream and downstream, with a discussion of annual recruitment and potential cumulative impacts of the proposed mining operation and existing operations on the same reach.
- Discuss potential impacts to any bridges, pipelines, or other structures that could be caused by changes in stream-bed elevations as a result of mining.
- Describe any measures required to prevent entrapment of fish or restriction of spawning or migratory activities.
- Describe how annual monitoring of changes in channel elevations and bank erosion will be done.

i. Detailed Description of Reclamation Activities

- Description of the proposed end use (SMARA 2772(c))
The reclamation plan should identify the proposed end use(s) and provide a detailed plan for reclaiming the site to the proposed end use(s). Potential future uses may be identified, but the plan need only describe reclamation for the proposed end use(s).
 - Provide a description of the proposed end use(s) of the land after completion of reclamation. The end use will determine the species and methods used for revegetation.
 - Examples of end uses include agriculture, open space or wildlife habitat. Commercial, residential, or industrial development are generally future uses. Operators should consult the underlying zoning regulations for applicable end use(s).
 - If more than one end use is proposed, delineate areas to be reclaimed to each end use on the maps.
 - Include a discussion or statement on the anticipated impact (if any) of reclamation on future mining.
- Protection of fish and wildlife habitat and sensitive species (CCR 3503, 3703)
 - Discuss impacts to wildlife habitat through removal of vegetation and shelter, roads that interrupt migration or travel routes, noise, and human presence, and how these impacts will be minimized during and following surface mining operations.
 - Include verification (from a qualified biologist) of the presence or absence of any rare, endangered, threatened, species or species of special concern that could be impacted by the proposed surface mining operation. The California Dept. of Fish and Game and the U.S. Fish and Wildlife Service can provide recommendations for habitat conservation, especially

- in the case of sensitive species. Describe how sensitive species will be conserved or how impacts to them will be mitigated.
- Delineate any wetlands on the pre-mining topographic map and provide acreages. Wetland delineation should be conducted according to US Army Corps of Engineers standards by a qualified professional, and the delineation report included in the reclamation plan. Describe how impacts to any wetlands on site will be avoided or mitigated at a minimum 1:1 ratio. Provide verification that consultation was undertaken with the U.S. Army Corps of Engineers and the California Department of Fish and Game if impacts to wetlands are unavoidable. Impacts to wetlands can largely be avoided by mapping wetlands with setbacks prior to initiation of the project.
 - Describe measures taken to prevent placement of spoils or dumps within wetlands, such as signing, fencing, and employee training.
 - Provide the anticipated time schedule for mining phases and for reclamation (concurrent or phased reclamation) (SMARA 2772(c)(6))
 - The reclamation plan must include a time schedule for completion of each segment of mining so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation. Completed phases can be identified during routine SMARA mine inspections. Reclamation treatments can be evaluated and refined as needed. Successful incremental reclamation will allow the release of a portion of the financial assurances (PRC Section 2773.1) held to ensure that reclamation is accomplished.
 - A time schedule for mining phases will help minimize the removal of vegetation prior to mining, and thereby minimize the effects of erosion.
 - Mine closure (CCR Section 3713)
 - Describe specific means by which all shafts, tunnels, portals or openings will be gated or otherwise protected from public entry, while maintaining access for wildlife.
 - Describe how all drill holes, water wells, monitoring wells, etc. will be abandoned according to appropriate statutes and ordinances, unless they will be used for reclamation purposes or for the end use.
 - Describe how all structures and equipment are to be dismantled and removed prior to mine closure unless they are necessary for the proposed end use.
 - If any structures or equipment are to remain after mining, the reclamation plan should include a discussion on why they are necessary for the proposed end use.
 - Topsoil Salvage and Redistribution (CCR 3707, 3708, 3711)

"Topsoil" or "growth medium" refers to the upper six to eight inches of soil, including sandy or gravelly "nonsoils." The conservation and reapplication of topsoil is essential to the reclamation of mined lands since native soils contain seeds and microorganisms that can aid in revegetation. Conservation of topsoil or growth media may eliminate the need for the application of soil

amendments or fertilizers. The length of time growth medium is stored is critical. For example, soil microorganisms, especially mycorrhizal fungi, usually remain viable for a maximum of two or three years in an unvegetated stockpile. Seeding with native species may conserve some of the soil fungi until the soil is reapplied. If mining is of long duration and reclamation does not commence until ultimate mine closure, the stockpiled topsoil may essentially be sterile with respect to soil microorganisms. Soils stored for a long period of time still have a beneficial texture and nutrients and should still be saved. The establishment of a vegetative cover or other erosion control method is essential in minimizing wind and water erosion. The upper six to eight inches of soil should be salvaged separately for resoiling even if soils have very deep A horizon. The lack of an obvious A horizon boundary is often found in deep alluvial soils and in sandy or gravelly nonsoils.

- Describe how topsoil will be removed, stockpiled, and protected from erosion, preferably by seeding with an erosion control mix. Usually the top six to eight inches of soil is considered topsoil. Prime agricultural land requires removal and segregation of the top three soil horizons (where present) for later replacement in reverse order of removal.
 - Topsoil and mine waste stockpiles should be shown on maps, clearly identified in the field, and protected from equipment or other damage.
 - Where possible, topsoil removal should not precede mining by more than one year. Phased mining minimizes disturbance and facilitates early and successful reclamation and release of financial assurances.
 - If the amount of topsoil needed to resoil a site is not available, other suitable growth media, such as fines or subsoil capable of supporting vegetation, can be used. Such material may need to be amended in order to improve soil structure.
- Water Quality (CCR 3710)
 - Identify potential on-site contaminants and describe their control or disposal. Describe the disposal of imported wastes such as domestic garbage, chemicals, oil, or other materials.
 - Regulations approved by the State Water Resources Control Board require that a mine site that discharges storm water that has contacted any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the mine site obtain a National Pollutant Discharge Elimination System (NPDES) permit, obtain a general industrial activities Storm Water Permit, and submit a Storm Water Pollution Prevention Plan (SWPPP), as applicable. Waste Discharge Requirements (WDRs) must be approved by the Regional Water Quality Control Board for disposal of mine waste water. The statewide reclamation standards adopted by the Board require that water quality be protected in conformance with the Clean Water Act and Porter-Cologne Act. To demonstrate that the mine is in compliance with these laws,

provide a copy of the NPDES, WDRs, and SWPPP to the Board prior to commencement of mining operations.

- Drainage and Erosion Control (CCR 3503)
 - An erosion and sediment control plan should be prepared and include data demonstrating that the facilities proposed are adequately designed to control erosion and sedimentation during mining and reclamation. Design specifications, placement, and maintenance procedures for erosion and sediment control facilities should be included in an erosion control plan. The erosion control plan should show proposed interim and final drainage patterns.
 - The control of off-site run-off is required during all phases of mine operations and reclamation. The reclamation plan should demonstrate that surface run-off will be contained within project boundaries.
 - Erosion control measures should be designed to receive and control runoff from at least a 20 year-1 hour intensity storm event. Include the calculations that demonstrate the adequacy of the erosion control measures.
 - Installation procedures and maintenance schedules should be included for erosion control facilities proposed for the project.
 - Provide typical drawings of permanent erosion control structures and locate them on the reclamation plan map.
 - Provide specifications for permanent ponds and sediment ponds, etc.
 - Discuss any permanent drainage diversions and provide design specifications.
- Resoiling and site preparation (CCR 3503, 3704, 3705, 3707, 3711)
 - In agricultural areas or areas to be revegetated, soils must be decompacted prior to topsoil spreading. Describe ripping or other measures used to loosen the substrate.
 - Describe how roads will be stripped of roadbase materials, ripped, resoiled, and revegetated.
 - Describe the means by which topsoil and suitable growth media shall be redistributed in a manner that results in a stable, uniform thickness consistent with the approved end use, site configuration, and drainage patterns. If there is an inadequate amount of topsoil to cover the site, stockpiled fine material and subsoil can be used. Such materials may need amendment for revegetation purposes.
 - If the soil has been altered chemically, or consists of other material than native topsoil, a chemical analysis must be performed and the growth medium amended as necessary.
 - The decision to apply soil amendments such as mulch, compost, or fertilizers can also be based on test plot results. If fertilization is used with native plants, a slow-release formula that will restore the altered soil to conditions similar to native reference soils is recommended.
 - Vehicle access to the site should be kept to a minimum to prevent soil damage. Identify any temporary access roads and location of vehicle barriers on maps.

Plant selection and planting methods (CCR Section 3705)

- Plants used in revegetation should usually be native California species typical of the site, as determined by baseline survey data. Introduced (non-native) species may be used if they are necessary to meet the end uses specified in the reclamation plan (i.e. agriculture or a golf course),
- Give seed mixes, application rates, and method of application.
- Planting must correspond to the most favorable season of the year to ensure successful establishment. For example, seeding undertaken with the onset of the winter or spring rainy season can eliminate potential drought stress, as well as the need for irrigation. The correct season will vary by region, elevation, and habitat type. Provide a time schedule for planting at the optimal time of the year.
- Give details about the sources and type of plant materials to be used. Use available research, test plot data, baseline data, and plant characteristics to select plants and methods that will result in long-term survival and self-sustaining vegetation. Include Latin names and seeding rates in pounds per acre of pure live seed.
- The revegetation plan must clearly state what remedial actions will be undertaken if revegetation does not initially meet the performance criteria established.
- Erosion control during plant establishment (CCR 3705(I))
 - Until plants become established, the soil surface will need to be protected from wind- and water-caused erosion. Techniques that can be employed include the application of a straw mulch through crimping or with a tackifier, the use of a wood fiber mulch and tackifier (hydromulch), the use of a tackifier or emulsion directly on the soil surface, or the use of a gravel mulch. Describe methods to be used in conjunction with other erosion control facilities, such as silt fences, perimeter berms that deflect water, or straw bales.
 - Mulch material should be free of weed seeds that could create problems through the introduction of competing weeds. In dry areas, rice straw is preferred, as any weed contaminants would be wetland species and would not survive on dry sites. For the same reason, wheat or barley or other dry-farmed straw is preferred for wetland sites.
 - Seed mixes are applied prior to mulching; container stock or cuttings are installed after the mulch.
- Irrigation (CCR 3705(I))
 - The use of plants adapted to the site and scheduling planting at the proper season can minimize the need for irrigation.
 - Describe irrigation methods and proposed schedule for irrigation, if any. Include any supplemental irrigation and criteria and schedule for supplying supplemental water if rainfall is insufficient for plant establishment.
 - Demonstrate that the vegetation will be self-sustaining following cessation of irrigation for a period of at least two years.
 - If the end land use entails formal landscaping, such as a golf course, the non-irrigated self-sustaining criterion does not apply. Another exception

would be an agricultural end use where irrigation is required for crop production.

- Weed management (CCR 3705(k))
 - List potential weed species in the area that might affect the success of the proposed revegetation, spread to nearby areas, or pose a fire hazard.
 - State action thresholds by species for weed infestations and proposed control measures to be used for each species.
 - Some noxious weeds are managed by the California Department of Food and Agriculture. Information can be obtained from the Analysis and Identification Branch.
- Plant protection measures (CCR 3705(l))
 - Fencing of revegetation areas is often necessary where grazing, vehicular access, and herbivory may occur. If installed, fencing should be maintained until revegetation is successfully completed.
 - Tubing, cages, or shade structures around individual plants may also be necessary. The need for such measures may become evident through test plot data. Plant protection measures should be described in the reclamation plan.
- Vegetation test plots (CCR 3705(b))
 - The use of test plots can assess planting procedures, the need for fertilizers or soil amendments, and irrigation regimes. Information gained from test plots is to be used to refine revegetation of the mine site. This approach can result in cost savings to the applicant since unnecessary treatments can be eliminated prior to full project revegetation.
 - Include a test plot design in the reclamation plan describing variables to be tested, a monitoring program, and reporting mechanism. The design should specify the size and number of test plots, define what variables will be tested, and include a monitoring plan. A control plot should be established for comparison with the variables tested.
 - The SMGB may waive the requirement to conduct test plots when the success of the proposed revegetation plan can be documented from experience with similar species and conditions or by relying on competent professional advice based on experience with the species to be planted.
- Monitoring plan (CCR 3705(m))
 - A reclamation monitoring and reporting plan should be described in the reclamation plan. The plan should describe what will be monitored, criteria for success, monitoring frequency, and include a reporting schedule.

15. RECLAMATION STANDARDS SUMMARY

Reclamation plans are required to include specific performance standards that can be used to define final reclamation and release of financial assurances. The performance standards must be quantitative so they can be measured to determine success. Prior to

approving a reclamation plan, the State Mining and Geology Board is required to certify that the plan is in compliance with the statewide reclamation standards and forward the plan to the Office of Mine Reclamation for a 30-day review pursuant to SMARA §2774. This section of the form provides a summary of the reclamation standards and is intended to facilitate both the preparation of a reclamation plan and the SMGB's review of the plan to ensure that the minimum statewide reclamation standards have been addressed.

The reclamation plan details how mined lands will be reclaimed to a beneficial end use. The Reclamation Plan Standards Summary includes reclamation standards that are commonly overlooked when reclamation plans are prepared. Specific standards included in the reclamation plan should be summarized in sections a through k below. If a specific standard does not apply, indicate with NA in the space provided.

a. Performance Standards for Wildlife Habitat.(CCR.3703):

The reclamation standard adopted by the SMGB for wildlife habitat requires that mining operations be in compliance with the Federal Endangered Species Act of 1973, 16 U.S.C. section 1531 et. seq., and the California Endangered Species Act, Fish and Game Code section 2050 et seq. Complete the following sections to demonstrate that the mine will be in compliance with applicable requirements. In section a:

1. Provide a list of all rare, endangered, or threatened species or sensitive habitats that may be impacted by the mining operation.
2. Attach a copy of a biological survey report verifying the presence or absence of rare, endangered, or threatened species or sensitive habitats on the proposed mining site.
3. If mitigation is required pursuant to CEQA, check here to indicate that a copy of proposed mitigation measures is attached or will be provided to the SMGB prior to commencement of surface mining operations.

b. Performance Standards for Backfilling, Regrading, Slope Stabilization, and Recontouring.(CCR 3704):

The minimum statewide reclamation standards adopted by the SMGB require that cut slopes be stable with a factor of safety appropriate for the proposed end use. Fill slopes must not exceed 2:1 (horizontal:vertical) unless it can be demonstrated that steeper slopes will be stable with a factor of safety appropriate for the proposed end use and can be successfully revegetated. Complete the table provided for both interim and final cut and fill slopes providing both the slope gradient and respective factor of safety.

c. Performance Standards for Backfilling Excavations and Recontouring Lands Disturbed by Open Pit Surface Mining Operations for Metallic Minerals. (CCR 3704.1

Specific backfilling requirements apply to open pit metallic mining operations. Check yes if any of the following metallic minerals will be produced by the open pit extraction method:

- Precious metals (gold, silver, platinum);
- Iron;
- Nickel;
- Copper;
- Lead;
- Tin;
- Ferro-alloy metals (tungsten, chromium, manganese);
- Mercury;
- Uranium and thorium;
- Minor metals including rubidium, strontium, and cesium;
- Niobium and tantalum;

If yes, check the 2nd box to indicate that the reclamation plan includes a design for backfilling pursuant to CCR 3704.1.

d. Performance Standards for Revegetation. (CCR 3705)

The minimum statewide reclamation standards adopted by the SMGB for revegetation require that mined lands be revegetated with native species unless specifically precluded by the proposed end use (i. e. agriculture, development, landfill, etc.). Where revegetation is required, quantitative standards for success must be adopted specifying cover, density, and species richness. In the table provided, indicate both the Latin and common name of the species to be planted and the seeding rate in terms of pure live seed (PLS). Also provide the cover, density, and species richness standard to be achieved prior to final reclamation and release of financial assurances.

If the mined lands will not be revegetated, provide a brief explanation as to why revegetation is not a component of reclamation (i.e. the proposed end use will be a peach orchard).

The minimum statewide reclamation standards require that noxious weeds be controlled. Provide a list of noxious weeds that occur on or in the vicinity of the proposed mine site. Provide a quantitative performance standard indicating the density at which weed control measures will be implemented.

e. Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control (CCR 3706).

Rather than adopt redundant requirements for drainage, diversion structures, waterways, and erosion control, the SMGB recognized that the State Water Resources Control Board and the Regional Water Control Boards regulate these

natural resources by implementing the Federal Clean Water Act and the Porter-Cologne Water Quality Act. A Storm Water Pollution and Prevention Plan (SWPPP) is required for all mining operations that discharge storm water offsite. Confirmation that the mine has obtained the necessary permits to protect drainages and streams and to control erosion is all that is required to satisfy the statewide standard for drainage, diversion structures, waterways, and erosion control.

The SWPPP is intended to prevent offsite sedimentation and pollution. An exemption from the requirement for a SWPPP may be requested from the RWQCB if there will be no off-site discharge of storm water. By checking the first box, the mine operator agrees to obtain a SWPPP from the RWQCB and provide a copy of the SWPPP for the site prior to commencement of surface mining operations. If a SWPPP is not required, provide a copy of the exemption issued by the RWQCB.

Impacts to natural drainages, streams, and lakes are protected through implementation of the Clean Water Act or by obtaining a Lake and Streambed Alteration Agreement from the California Department of Fish and Game. By checking the second box, the operator agrees to obtain, if required, and provide a copy of a section 301 permit (CWA), section 404 permit (CWA), section 10 permit (River and Harbors Act) and provide a copy to the SMGB prior to commencement of surface mining operations. The operator also agrees to obtain and provide a copy of a Lake and Streambed Alteration Agreement, if required, to the SMGB prior to commencement of surface mining operations.

f. Performance Standards for Agricultural Land (CCR3707-3708)

The minimum statewide reclamation standard adopted by the SMGB for prime agricultural land requires that prime agricultural land be returned to a fertility level resulting in a crop productive capacity equivalent to or exceeding that of premining conditions.

The minimum statewide reclamation standard adopted by the SMGB for other (other than prime) agricultural land requires that mined lands be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding area.

Check the first box to indicate if the mined lands are currently designated prime or non-prime agricultural land.

Check the second box if the end use is agriculture.

If the end use is agriculture, check the third box and state the performance standard in the space provided.

g. Performance Standards for Building, Structure, and Equipment Removal (CCR 3709).

The minimum statewide reclamation standards adopted by the SMGB for Building, Structure, and Equipment Removal require that all buildings, structures, and equipment be dismantled and removed from the mined lands prior to final reclamation, except for those buildings, structures, and equipment approved in the reclamation plan as necessary for the approved end use.

Check the first box if any buildings, structures, and equipment will remain on site following final reclamation. Check the second box to indicate that the reclamation plan narrative includes an explanation as to why any buildings, structures, and equipment that will remain on site are necessary for the proposed end use and indicate the page number in the reclamation plan narrative where the explanation can be found.

h. Performance Standards for Stream Protection, Including Surface and Groundwater. (CCR 3710)

The minimum statewide reclamation standards adopted by the SMGB requires that the mining operator obtain, if required, a Lake and Streambed Alteration Agreement from the California Department of Fish and Game, section 404 permit (CWA), and section 10 permit (Rivers and Harbors Act). By checking the first box, the operator agrees to obtain, if required, a section 301 permit (CWA), section 404 permit (CWA), section 10 permit (River and Harbors Act) and provide a copy to the SMGB prior to commencement of surface mining operations. The operator also agrees to obtain and provide a copy of a Lake and Streambed Alteration Agreement, if required, to the SMGB prior to commencement of surface mining operations.

The minimum statewide reclamation standards require that extraction of gravel from river channels be regulated to control channel degradation in order to prevent exposure of bridge supports, pipelines, or other infrastructure buried in or near the river channel. Extraction must also be regulated to prevent loss of spawning habitat, lowering of groundwater levels, and destruction of riparian vegetation. Changes in channel elevations must be monitored on an annual basis using records of annual extraction quantities, cross sections and/or aerial photographs that demonstrate that annual extraction rates are being regulated to prevent channel degradation.

By checking the first box, the operator agrees to obtain and provide a copy of a Lake and Streambed Alteration Agreement, if required, to the SMGB prior to commencement of surface mining operations. Any requirements imposed under the Lake and Streambed Alteration Agreement must be consistent with the contents of reclamation plan.

By checking the second box, the operator agrees to provide an annual in stream mining monitoring report to the inspector during or prior to the annual SMARA inspection that demonstrates that channel degradation is being controlled to prevent undermining of bridge supports, exposure of pipelines or other utilities, loss of spawning habitat, lowering of ground water levels, destruction of riparian vegetation,

or increased stream bank erosion. The monitoring report shall evaluate annual extraction quantities, annual cross sections, and changes in the thalweg profile and make recommendations on appropriate extraction rates and locations for the next year.

i. Performance Standards for Topsoil Salvage, Maintenance, and Redistribution. (CCR 3711)

The minimum statewide reclamation standard requires that all topsoil be salvaged for use in reclamation when revegetation is a component of reclamation. All topsoil suitable for revegetation must be salvaged and stockpiled for later use in reclamation. Prior to salvage, topsoil resources are to be mapped and the total volume of salvageable topsoil estimated. If the total amount of salvageable topsoil needed for reclamation is not available on site, other suitable material capable of sustaining vegetation must be salvaged and stockpiled separate from topsoil stockpiles.

Check the first box if revegetation is an element of reclamation.

Check the second box to indicate that topsoil will be salvaged and indicate the total volume to be stockpiled and used for revegetation.

If the total volume of topsoil will not be adequate for successful revegetation, indicate the type of alternative growth media that will be utilized to ensure an adequate rooting zone for successful revegetation.

j. Performance Standards for Tailings and Mine Waste Management. (CCR 3712)

The minimum statewide reclamation standards adopted by the SMGB requires conformance with the Clean Water Act which authorizes issuance of a National Pollutant Discharge Elimination System (NPDES) permit. Regulations approved by the State Water Resources Control Board require that a mine site that discharges storm water that has contacted any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the mine site obtain a NPDES permit. By checking box one, the operator agrees to provide a copy of the site NPDES permit (or a copy of the determination from the Regional Water Quality Control Board (RWQCB) that the permit is not required) to State Mining and Geology prior to commencement of surface mining operations.

If your activities involve discharges such as those to land or groundwater or from diffused sources, you must complete and file a Report of Waste Discharge with the appropriate RWQCB in order to obtain Waste Discharge Requirements (WDRs). By checking box two, the mine operator agrees to provide a copy of the site WDRs to the State Mining and Geology Board prior to commencement of surface mining operations.

The RWQCB may require a closure plan for any mine waste or tailings facilities located on the mine site. By checking box three, the operator agrees to provide a copy of any closure plans for tailings and mine waste units mandated by the Regional Water Quality Board to the State Mining and Geology Board prior to commencement of surface mining operations.

k. Performance Standards for Closure of Surface Openings. (CCR 3713)

The minimum statewide reclamation standards adopted by the SMGB requires that all water wells and monitoring wells be abandoned in accordance with specific requirements of the Water Code. In addition, all portals, shafts, or other underground openings must be gated or otherwise protected to eliminate any threat to public safety while preserving access for wildlife habitat. By checking the box, the operator is verifying that a plan for abandoning wells and a plan for closure of all portals, shafts, or other underground openings is included in the reclamation and is providing the page number where the plan can be found.

16. PREPARER:

Provide name of preparer of the reclamation plan, and date.

17. SUBMITTED BY:

Provide name and contact information of individual who submitted the reclamation plan to the Lead Agency.

18. STATEMENT OF RESPONSIBILITIES:

Provide name and title of the individual(s) who accept responsibility for reclamation of all mined lands as described and submitted herein, and is in conjunction with SMARA and the State Mining and Geology Board's regulations, and with any modifications requested by the administering agency as Conditions of Approvals.

19. LEAD AGENCY CERTIFICATION:

Signature of Board's Executive Officer or his/her designee certifying that the reclamation plan complies with SMARA and the Board's regulations. Provide name and title of designee if signing form.

20. ATTACHMENTS:

The following documents must be attached to the reclamation plan when it is submitted to the board for approval. For new reclamation plans, documents specified under b,c,d, and e must be forwards to the SMGB prior to the commencement of surface mining operations.

- a.** A copy of the proposed financial assurance cost estimate. If changes in the amount of an existing financial assurance are proposed, attach a revised cost estimate.
- b.** A copy of the mining permit or conditional use permit. If a permit has not been approved, attach a copy of the application submitted to the permitting agency. If the operation is claiming vested rights, attach the document(s) that demonstrate the prior determination of those rights or a request for a determination to the Board.
- c.** A copy of the Mitigation and Monitoring Plan developed to ensure implementation of mitigation adopted pursuant to the California Environmental Quality Act (CEQA).
- d.** A copy of the Storm Water Pollution and Prevention Plan (SWPPP) required by the Regional Water Quality Board.
- e.** Copies of any other permits, such as a Lake and Streambed Alteration Agreement, Storm Water Permit, National Pollutant Discharge Elimination System Permit, Waste Discharge Requirements, Clean Water Act Section 301 and 404, Rivers and Harbors Act Section 10, and any other permits as applicable.

Attachment 20a

RECLAMATION PLAN OUTLINE

The following is a suggested outline to use when developing the text of a reclamation plan. It follows the same format as the Reclamation Plan Form and the Reclamation Plan Form Instructions.

1. Mining operation
2. Designated agent
3. Legal owner of operation
4. Landowner
5. Legal description
6. Location of mining operation
7. Type of operation
8. Disturbed acreage
9. Financial assurance
10. Pre-1976 mining
11. Determination of vested rights
12. Agricultural land
13. Commodities and production
14. Reclamation plan maps and narrative and attachments
 - a. Location/access map
 - b. Pre-mining topographic map
 - c. Topsoil resources map
 - d. Mine plan map(s)
 - e. Concurrent or phased reclamation plan map
 - f. Final reclamation plan map(s)
 - g. Description of the environmental setting
 - h. Description of the proposed surface mining operations
 - i. Detailed description of reclamation activities
15. Reclamation standards summary
16. Preparer
17. Submitted by
18. Statement of responsibilities
19. Lead agency certification
20. Attachments