

## **Module 20: Postmining Land Use and Reclamation** **[Section 7 NSMCRA/§§77.462/77.591/77.593]**

### **20.1 Proposed Postmining Land Use**

For premining land use areas identify the postmining land use to which the land will be restored, how each land use is to be achieved and the necessary support activities which may be needed to achieve the land use. Identify the type of reclamation for each area (approximate original contour, terrace, water impoundment, etc.). (Key the postmining land use(s) to the "Land Use and Reclamation Map" Exhibit 18.)

**The premining land uses are forest and cropland. The postmining land use will be unmanaged natural habitat and unmanaged water impoundment. A signed and notarized request for the land use change and for the haul roads to remain post-mining is attached (pg 20-3).**

**The amount of material to be removed from the mining area does not permit reclamation to Approximate Original Contour (AOC). A 35 degree sloped terrace reclamation plan is proposed as detailed in Exhibit 18.**

#### **Unmanaged Natural Habitat:**

**The unmanaged natural habitat reclamation area will be achieved by grading the areas as shown on Exhibit 18. Overburden and/or spoil material will be utilized for initial grading. Topsoil will be placed as detailed in Module 21. Revegetation will be in accordance with Module 23. Soil tests will be conducted to determine the amount of soil amendments required for the proposed landuse. The soil will be scarified, lime and/or fertilizer applied, and seed mixture 1, 2, 3, or 4 with a nurse crop will be planted as detailed in Module 23.**

#### **Unmanaged Water Impoundment:**

**An unmanaged water impoundment reclamation will be achieved removed of sand and gravel below the water table. A safety bench will be constructed around the perimeter of the impoundment as detailed on Exhibit 18.**

### **20.2 Approximate Original Contour**

For postmining land use areas to be reclaimed to approximate original contour show that the reclaimed land will be capable of supporting the uses it was capable of supporting prior to mining or higher or better uses. Notes: A higher or better use is a post-mining land use where the economic value or nonmonetary benefit to the landowner or the community is greater than for the pre-mining land use. A highest or best use is where the economic value or nonmonetary benefit to the landowner or the community is maximized. If you are proposing an alternative to AOC, complete either section 20.3 or 20.4, as appropriate.

n/a

**Are you proposing an alternative to AOC?  No  Yes**  
**If Yes is checked fill out either section 20.3 or 20.4 as appropriate.**

**20.3 Alternative to Approximate Original Contour (AOC) Reclamation under Section 7 (c)(2)(ii) of NSMCRA§ 77.593(1)**

- a) Show that the alternative to AOC is likely to be achieved and that it poses no actual or potential threat to public health or safety, or of water diminution, interruption, contamination or pollution.

**The proposed reclamation at the site is a terrace type grading and will not pose any threat to public health or safety. Benches and highwalls will be reduced to 1.43:1 (35 degrees) or less slopes, dressed with topsoil, and planted with a permanent vegetation cover. Overburden stockpiled at the site will be utilized in the reclamation efforts.**

**The proposed reclamation plan is in accordance with the Department's recommendation for alternatives to approximate original contour. Removal of highwalls to slopes of 35 degrees or less will minimize any potential threats to public health or safety.**

**There will be no diminution, interception, or contamination or pollution of waters of the commonwealth as a result of this reclamation plan.**

- b) Demonstrate that the proposed operation will be carried out over a substantial period of time; the ratio of the minerals proposed to be mined, relative to the volume of the overburden, is very large; and the overburden and other spoil material at the proposed permit area are insufficient to restore the area to AOC.

**The proposed duration of operation will exceed 20 years based upon the projected average production rate.**

**SAND & GRAVEL: The mineral reserves to be mined are approximately 50' deep with minimal overburden. This difference in volume of minerals to overburden is not sufficient to restore the area to AOC.**

**HARD ROCK: The mineral reserves to be mined are approximately 500' deep with minimal overburden. This difference in volume of minerals to overburden is not sufficient to restore the area to AOC.**

- c) Show that the alternative to AOC reclamation is consistent with applicable land use policies, plans and programs and with Federal, State and Local law.

**The proposed reclamation is consistent with Federal, State, and Local regulations; the proposed maximum slope of graded areas will not exceed 35 degrees.**

**A notarized statement from the landowner approving an alternate to AOC reclamation is attached (pg 20-4).**

- d) Demonstrate that the restored land will be capable of supporting the highest or best use it can reasonably support and that the proposed postmining land use is compatible with adjacent land uses.

**The restored land will be capable of supporting land uses typical to adjacent land uses. The sloped areas will be planted with vegetation that once established, will be consistent with the surrounding land characteristics.**

**20.4 Alternative to Approximate Original Contour (AOC) Reclamation under Section 7 (c)(2)(iii) of NSMCRA§ 77.593(2)**

- a) Show that the alternative to AOC is likely to be achieved and that it poses no actual or potential threat to public health or safety, or of water diminution, interruption, contamination or pollution.

- b) Demonstrate that the proposed alternative to AOC will leave no highwalls, will improve the watershed of the area, and that the landowner has approved the alternative to AOC. (Submit a notarized statement by the landowner approving the alternative to AOC.)

- c) Demonstrate that the affected land will be restored to a condition capable of supporting the uses it was capable of supporting prior to mining or to a higher or better use.

POST MINING LAND USE CHANGE AUTHORIZATION

Mr. Greg Aaron, PG
Department of Environmental Protection
Bureau of Mining and Reclamation
Moshannon District Office
186 Enterprise Drive
Phillipsburg, PA 16866

RE: Post Mining Land Use Change Authorization
Minard Mine
Bishop Brothers Construction Co., Inc.
Athens Township, Bradford County, Pennsylvania

Dear Mr. Aaron:

I, Jeanette H Minard, the owner of record of parcel 104 as shown on the Exhibit 18 Land Use and Reclamation Map for the aforementioned SMP application hereby approve of the change of land use from forest to unmanaged natural habitat and cropland to unmanaged water impoundment. We also request that all driveways and haul roads located on our property be left in place permanently following mining as part of the post-mining land use. After the completion of mining, we will periodically inspect and maintain the haul roads for any erosion problems that may occur.

Jeanette H Minard
Jeanette H Minard

05/03/2023
Date

Commonwealth of Pennsylvania, County of Bradford
I, Jeanette H Minard, being duly sworn, according to law, depose and say that I am the owner of record of aforementioned property. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.
Sworn and Subscribed to Before Me This
3rd day of May 2023
Notary Public: Jennifer M Isaac
Signature: Jennifer M Isaac
Name (Typed): Jennifer M Isaac

Title and Seal
Commonwealth of Pennsylvania - Notary Seal
Jennifer M. Isaac, Notary Public
Bradford County
My commission expires July 27, 2023
Commission number 1263879
Member, Pennsylvania Association of Notaries

ALTERNATE TO APPROXIMATE ORIGINAL CONTOUR AUTHORIZATION

Mr. Greg Aaron, PG  
Department of Environmental Protection  
Bureau of Mining and Reclamation  
Moshannon District Office  
186 Enterprise Drive  
Phillipsburg, PA 16866

RE: Alternate to Approximate Original Contour Authorization  
Minard Mine  
Bishop Brothers Construction Co., Inc.  
Athens Township, Bradford County, Pennsylvania

Dear Mr. Aaron:

I, Jeanette H Minard, the owner of record of parcel 104 as shown on the Exhibit 18 Land Use and Reclamation Map for the aforementioned SMP application hereby approve of the proposed reclamation plan.

Jeanette H Minard  
Jeanette H Minard

05/03/2023  
Date

Commonwealth of Pennsylvania, County of <u>Bradford</u>	
I, <u>Jeanette H Minard</u> , being duly sworn, according to law, depose and say that I am the owner of record of aforementioned property. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.	
Sworn and Subscribed to Before Me This	
<u>3<sup>rd</sup></u> day of <u>May</u> <u>2023</u>	<u>t</u>
(month) (year)	Signature
<u>Jennifer M. Isaac</u> Notary Public	<u>Jennifer M. Isaac</u> Name (Typed)
Title and Seal Commonwealth of Pennsylvania - Notary Seal Jennifer M. Isaac, Notary Public Bradford County My commission expires July 27, 2023 Commission number 1263879 Member, Pennsylvania Association of Notaries	Address

## Module 21: Topsoil / Subsoil

[§77.456(4)]

### 21.1 Topsoil Characteristics

- a) Identify the thickness of topsoil present at the site. If the thickness of the topsoil varies, key the thickness of the topsoil to Exhibit 18.

**The topsoil thickness varies across the site.**

**In the sand and gravel areas, the topsoil thickness ranges from 6-12".  
In the hard rock area, the topsoil thickness ranges from 0-4"**

- b) Provide a 8 ½" x 11" copy of USDA Soil Survey Map delineating the proposed permit area.

**See attached (pg 21-2).**

### 21.2 Operations Plan

- a) Provide a plan for removal, storage and redistribution of topsoil and subsoil.

**Removal of the topsoil and subsoils will precede scheduled mining. Topsoils will be stored in topsoil berms that will provide a visual, noise, and dust barrier to the operation. The areas chosen for storage will be cleared of any materials which would inhibit the proper placement or removal of soils to be stored. Removal will be conducted during relatively dry conditions. The soil material should not form a cast or mold when squeezed in the hand. By following this rule of thumb procedure, excessive compaction and degradation of the soil material should be prevented. These areas will then be seeded with the permanent seed mix in Module 23 until reclamation of the site (or portion of the site) is complete.**

**The actual replacement of the topsoils will be restricted exclusively to favorable planting periods to encourage quick establishment of the recommended seed mixtures. The backfill should be scarified prior to topsoil placement to eliminate slippage surfaces. The results of soils analysis will dictate the application rates of fertilizer and lime needed to maintain or improve the soils pre-mining productivity. Refer to Module 23 for the baseline of soil amendments to be applied. Final distributions will be made based on the results of the soil analysis tests. Mulching material will be spread across the soils to further enhance vegetative growth and to provide soil stability.**

**Due to the variability of topsoil thickness across the site, an average of 12" of topsoil and unconsolidated materials immediately below the topsoil will be placed to achieve reclamation goals.**

- b) If the B and C horizons will be segregated and replaced as subsoil, identify the thickness in inches of the B and C horizons to be removed, segregated and replaced.

**The B and C horizons will not be segregated from each other. Unconsolidated subsoils beneath the topsoil (if present) will be removed and stockpiled in accordance with procedures listed above. At the completion of mining these subsoils will be redistributed as the base for topsoil. Subsoil thickness across the site varies.**

- c) If material other than the B and C horizons will be replaced as subsoil, identify the material and include test results demonstrating that this material will insure revegetation and soil productivity consistent with the postmining land use. Provide the name(s), address(es) and telephone number(s) of the individual(s) responsible for the collection and analysis of this data and a description of the methodologies used to collect and analyze this data

n/a

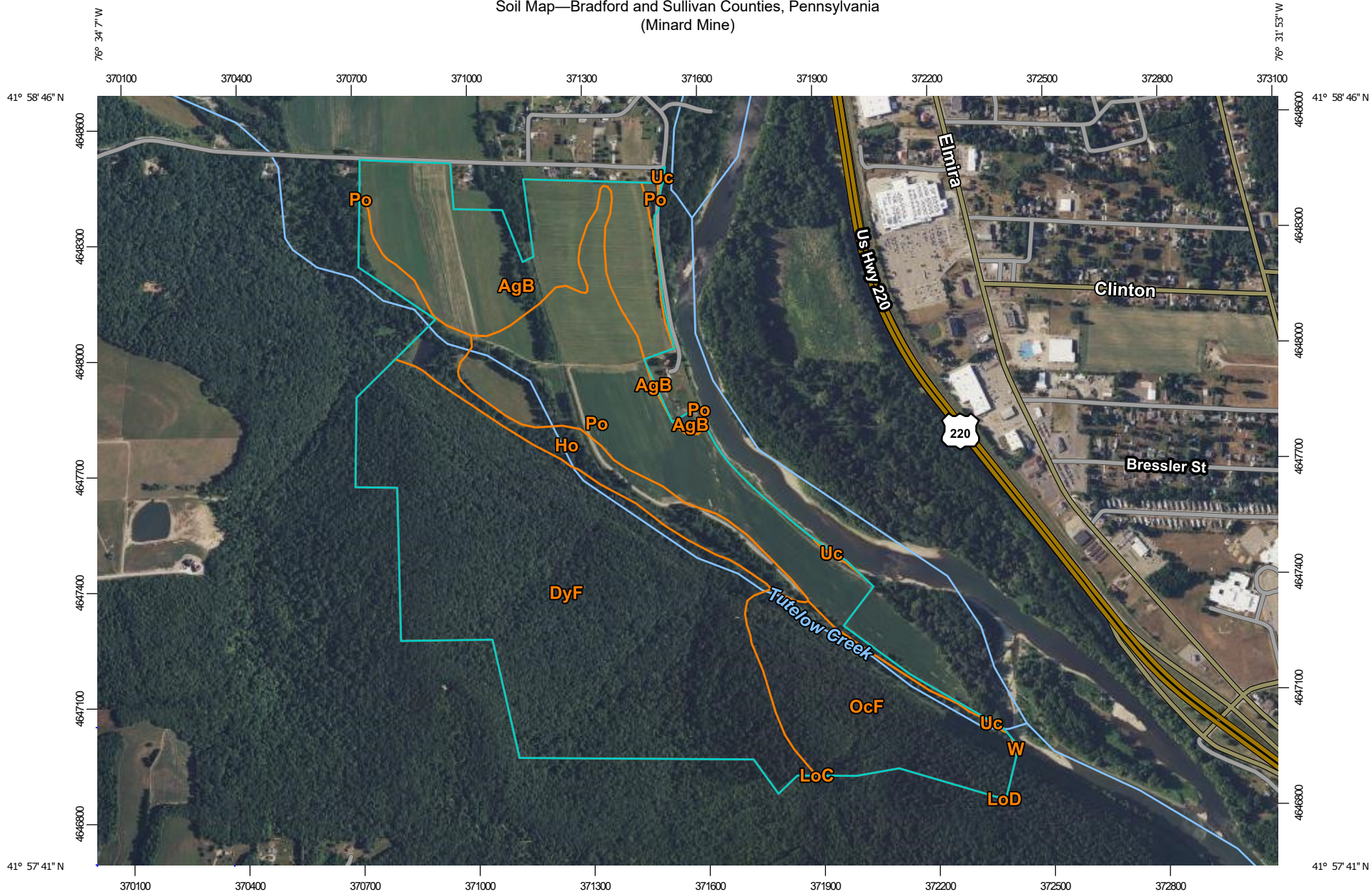
### 21.3 Previously Affected Areas

If an area has been previously affected by mining and no topsoil or subsoil is present, identify the material that will be used as the final surface layer and provide a demonstration, including chemical analysis, that the material is capable of supporting the vegetation of the postmining land use.

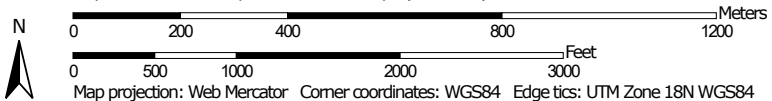
n/a



Soil Map—Bradford and Sullivan Counties, Pennsylvania  
(Minard Mine)




Map Scale: 1:14,100 if printed on A landscape (11" x 8.5") sheet.



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)




















### Soils




 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

### Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bradford and Sullivan Counties, Pennsylvania  
Survey Area Data: Version 19, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 5, 2020—Sep 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgB	Alton gravelly sandy loam, 0 to 8 percent slopes	56.1	15.5%
DyF	Dystrudepts, deep-Wellsboro-Oquaga association, steep, rubbly	164.8	45.7%
Ho	Holly soils	25.6	7.1%
LoC	Lordstown channery silt loam, 8 to 15 percent slopes	0.0	0.0%
LoD	Lordstown channery silt loam, 15 to 25 percent slopes	0.0	0.0%
OcF	Ochrepts-Rock outcrop complex, steep	47.4	13.2%
Po	Pope soils	66.1	18.3%
Uc	Udfluvents, cobbly	0.5	0.1%
W	Water	0.1	0.0%
<b>Totals for Area of Interest</b>		<b>360.7</b>	<b>100.0%</b>



## Module 23: Revegetation

[§77.456(5)]

### 23.1 Soil Test Plan

Provide a soil test plan for determining plant nutrients and soil amendments required to establish vegetation and achieve the approved postmining land use.

*Example: Soil samples will be collected using a soil auger. A composite sample will be obtained from individual core samples from each type of existing land use. These samples will be analyzed by Blank Laboratory using "Soil Mailing Kits", or another accredited laboratory.*

**Soil samples will be collected and analyzed from the topsoil stockpiles at the time of soil replacement to help determine the amount of soil amendments required for the establishment of vegetation for the approved postmining land uses. A composite sample for each land use will be analyzed.**

**Soils samples will be analyzed by the Penn State Agricultural Analytical Services Lab (or equivalent testing facility).**

### 23.2 Temporary Cover. Provide the following information for each seed mixture to be used for temporary cover:

a)

<u>Seed Mixture No.</u>	<u>Seed Mixture (Species)</u>	<u>Rate of Appl. 100% PLS* (lbs./acre)</u>	<u>Seeding Dates (Months)</u>
1	rye grass & spring oats	20 64	early spring to June 30
2	rye grass	40	May 15 to August 15
3	rye grass or winter rye or winter wheat	40 168 180	August 15 to October 15

*If storage areas are to be left longer than one growing season the following will be used:  
Perennial Ryegrass*

\* PLS means pure live seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100.

b) Use.

**Mixture 1, 2, or 3 for all areas of disturbance. Mixture will depend on the time of the year.**

c) Method(s) of seeding.

**Broadcasting by hand or cyclone seeder or hydroseeder.**

d) How seedbed will be prepared for planting.

**In most cases seed bed preparation will not be necessary as seeding should take place immediately after material is stockpiled or graded. Areas will be raked or harrowed as needed.**

e) Type(s) of mulch to be used and rate(s) of application.

**Grass hay or cereal straw mulch will be used at a rate of 3 tons/acre.**

**23.3 Permanent Cover.**

Provide the following information for each seed mixture to be used for permanent cover: (Note: Key to Exhibit 18)

a)	Seed Mixture No.	Seed Mixture (Species)	Rate of Appl. 100% PLS* (lbs./acre)	Seeding Dates (Months)
	<b>Nurse Crop:</b>			
	or	Spring oats	96	spring
	or	Annual ryegrass	15	spring or fall
	or	Winter wheat	120	fall
	or	Winter rye	112	fall
	<b>1*</b>	Birdsfoot Trefoil	10	April – May
		Timothy	6	August - October
		Redtop	3	
	<b>2*</b>	Orchardgrass	30	April – May
		Birdsfoot Trefoil	10	August - October
	<b>3*</b>	Switchgrass	20	April – May
		Birdsfoot Trefoil	10	August - October
	<b>4*</b>	Ernst Seeds Item No. ERNMX-178 Riparian Buffer Mix	20	Year Round
	<b>5*</b>	other approved seed mix		

**\* Use Nurse Crop with Seed Mix 1, 2, 3, or 4.**  
*Seed Mixture (with Nurse Crop) shall have at least two (2) grasses and one (1) legume.*

\* PLS means pure live seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100.

b) Use.

**Nurse Crop with Mixture 1, 2, 3, or 4 as detailed on Exhibit 18.**

c) Method(s) of seeding.

**Broadcasting by hand or cyclone seeder or hydroseeder or drilling (as conditions permit).**

d) How seedbed will be prepared for planting.

**For reclamation areas, the soil will be scarified. Lime and fertilizer rates are 2-3 tons calcium carbonate equivalent (CCE) per acre and 100-200-200 per acre respectively, or as recommended by soil tests.**

**Application will be through the use of disc and/or harrow, or hydroseeder.**

e) Type(s) of mulch to be used and rate(s) of application.

Hay or straw at a rate of 2 ½ tons per acre.

Any prime farmland soil areas will be mulched with 3 tons/acre of straw or hay.

**Grass hay or cereal straw mulch will be used at a rate of 3 tons/acre.**

**23.4 Woody Plants.** For areas that will also be planted with woody plants, provide the following: (**Note:** Key to Exhibit 18)

a)	<u>Woody Plant Mixture No.</u>	<u>Woody Plant Species</u>	<u>No./ac.</u>
	1	European white birch, white pine red and white oak, black cherry, American ash, sugar maple and/or shagbark hickory	680 / ac

See 23.3 Permanent Cover – utilize a seed mixture to be used with these woody plants.

- b) Method of planting.  
**The method of planting will either be by hand or mechanically. The trees will be planted with one of the Woody Plant Mixtures listed above, which will provide cover and aid in the prevention of erosion.**

**A minimum of four (4) species must be used.**

**No single tree species may occupy more than 50% of the areas reclaimed as forestland.**

**Utilize a Nurse Crop and Seed Mixture 4 for areas where trees are planted.**

- c) If the area is to be planted for wildlife habitat, identify the grouping and distribution of the plants.

**n/a**

**23.5 Cropland.** For areas that will be planted to crops (agronomic or horticultural), identify the crops to be grown and the management plans to achieve the crop yield standards. (**Note:** Key to Exhibit 18: Land Use and Reclamation Map)

**N/A**