

Mined Land Use Plan and Reclamation Plan Narrative

Chester Hill Holding Mine

**Black Meadow Road
Town of Chester
Orange County, New York**

Prepared for:

**Chester Hill Holding
PO Box 1351
Greenwood Lake, NY 10925**

Prepared By:

**Roy T. Budnik & Associates, Inc.
317 Main Street
Poughkeepsie, NY 12601**

June 28, 2012
Revised: October 28, 2013

Mined Land Use Plan Narrative
Chester Hill Holding Quarry
Town of Chester, Orange County

1.0 Introduction

Chester Hill Holding proposes to operate a 35-acre surface consolidated mine on an approximately 47-acre property in the Town of Chester (see Figure 1; *Location Map*). The information contained herein is presented in accordance with the requirements contained in Article 23, Title 27 of the Mined Land Reclamation Law; production of this report was authorized by Mr. Frank Lotito, partner.

A total of 35 acres will be affected by mining and reclamation activities as follows:

Excavation and processing area: 30.6 acres

Entrance Road: 2.0 acres

Detention pond and parking area: 2.4 acres

Five acres were previously affected by mining; this previously-permitted and reclaimed area lays within the proposed mine limits.

Approximately 1.1 million cubic yards (2.5 million tons) of shale will be removed from the site over the projected 15-year life of the mine (see *Mining Map*). The material will be mined in five phases to minimize the area affected at any one time; no more than 8 acres will be affected by mining at a time (excluding the haulroad). Reclamation will consist of grading and placement of cover material, reseeding the floor, and reforesting the perimeter benches (see *Reclamation Map*). See *Section 5.0* for further discussion of reclamation.

2.0 Affected Land

2.1 Location

The Chester Hill Holding property is located along Black Meadow Road, off Orange County Route 13, approximately 4,000 feet south of the Village of Chester in the Town of Chester, Orange County, New York. Access to the property is via the Waste Systems entrance road from Black Meadow Road.

The property is located in a commercial and industrial area of the town. The adjoining lands include industrial parks to the north and northwest, with mainly vacant and agricultural lands to the west, south, and east. The Town of Chester Town Hall and public library are situated across Kings Highway, about 1,800 feet to the east of the site. A lightly used, but active railroad freight line runs along the western boundary of the property.

2.2 Topography

The site occupies the western portion of Durland Hill, a broad, rounded feature that rises about 350 feet above the surrounding terrain. The highest point on the hill (elevation 843 feet asl) is located to the east of the site and will not be affected by mining.

The ground surface within the property slopes irregularly to the north, west, and south. Elevations at the western and northern property lines are at approximately 490 feet asl; the highest point on the property is about 715 feet asl, along the eastern property line.

2.3 Current Land Use

The area to be affected is currently vacant. A State-permitted sand and gravel operation was active until the early 1990's. The southern and eastern parts of the property is wooded; the northern portion, including the former mine site, is rough grassland.

As part of its commercial facility, Waste Systems holds an easement on approximately 0.5 acres of the property, which contains the sanitary disposal system for that company (see *Mining Map*). There is an existing system and a reserve expansion area within the easement. The area containing the disposal system is currently crossed by the unpaved access road to the property; a proposed access road will bypass the area. The SDS will be fenced to protect it from truck traffic associated with the quarry.

2.4 Soils

The soil on the southern, higher portion of the excavation area is mapped as Rock Outcrop-Nassau Complex—very steep (RSF; about 16 acres), according to the Orange County Soil Survey. The northern, lower part of the excavation area contains Mardin gravelly silt loam (MdC; ~13 acres) and Erie gravelly silt loam (ErB; ~2 acres).

Rock Outcrop-Nassau Complex – composed of 60% rock outcrop, 30% Nassau shaly to very shaly silt loam, and 10% other soils. The soil is formed in thin glacial till over shale bedrock. It is in hydrologic group C, with a moderate erosion potential. Topsoil averages 8 inches thick, subsoil is about 10 inches thick; depth to bedrock is 15-29 inches.

Erie gravelly silt loam – deep, somewhat poorly drained, gently sloping and formed in glacial till. Topsoil averages 9 inches thick, subsoil is about 45 inches thick; depth to bedrock is greater 60 inches.

Mardin gravelly silt loam – a deep, relatively well-drained, sloping soil formed in glacial till. It is in hydrologic group C, with a slight erosion potential. Topsoil averages 6 inches thick, subsoil is about 6 inches thick; depth to bedrock is greater 60 inches.

2.5 Hydrology

There are no streams within or contiguous to the area subject to this application. A small portion (<0.1 acre) of State-regulated wetland WR-10 is located in the western portion of the property, adjacent to the railroad bed. State-regulated wetland WR-38 is located on the southwest side of Durland Hill. The proposed mine does not include any portion of either wetland or the adjacent areas. Small, non-State regulated wetland areas A, B, and C are situated in the vicinity of the entrance road (see *Mining Map*).

Stormwater flows radially off the hill across the property to off-site discharge points via culverts under the railroad bed. There is little runoff from adjacent areas because of the relatively high topographic position of the site. The permanent water table lies at about elevation 490 feet, based on the elevations of the wetland areas.

3.0 Mining Operation

3.1 Cuts and Excavation

All material within the 30.6-acre excavation area will be removed to the final grades. The maximum limits of excavation are outlined on the *Mining Map*. This plan specifies the ultimate removal of approximately 1,100,000 cubic yards of shale from the site. The mine is to be developed in 5 phases to minimize the amount of open land during the mining operation. Stripping of cover material will be limited to the area necessary for one season of mining to help provide for visual screening and to limit the acreage exposed to wind and water erosion.

Topsoil will be stripped as necessary for one season of mining. The topsoil will be stockpiled along the borders of each phase for use in reclamation, as described in Section 3.6. The exposed consolidated bedrock will be drilled and blasted to fragment the material for removal from the active face. The fragmented rock will be moved from the active face to the nearby processing plant using a front end loader.

Excavation will commence from where the access road enters Phase 1, in the northern part of the property. Quarrying operations will move southward through phases 1, 2, and 3, and then westward from Phase 3, 4 and 5 (see *Mining Map*). The upper-most active face in each phase will vary in height with the topography; the maximum height will be about 40 feet.

3.2 Grading and Slope Control

The elevation of the final mine floor will be set at 500 feet (see *Reclamation Map*), maintaining a minimum separation of 5 feet above the seasonal high water table. The mine floor will be contoured into a smooth, gentle westward grade (see *Reclamation Map*). Final perimeter slopes will be graded to a series of faces of 40 feet high or lower and about 50 feet wide (see *Reclamation Map*).

3.3 Mineral Preparation and Processing

The fragmented rock will be crushed, screened, and stockpiled within the active mine area. The processing area will be relocated as mining progresses. The primary crusher may be placed on the active bench to remain in proximity to the active face. The plant will have throughput capacities of less than 350 tons per hour (see *Schematic Diagram* and specification sheets for typical plants in *Section 6.0*). Processed material stockpiles will be placed between the plant and sensitive noise receptors to attenuate noise levels.

3.4 Storage and Disposition of Materials

Material processed onsite will be stockpiled in the vicinity of the plant. Eventually, all excavated shale will be removed from the site. The topsoil will be stripped and stored as follows:

1. All cover material will be stripped to a depth of one foot, or as available, and preserved for use in final reclamation within the life of mine boundary area. No cover materials/overburden/topsoil will leave the approved mine site.
2. Stripping of cover material will be limited to the area necessary for one season of mining to help provide for visual screening and to limit the acreage exposed to wind and water erosion.
3. To the extent feasible, all cover material stripped within the approved life of mine boundary area will be stored in segregated perimeter berms so that the topsoil and subsoil are stored separately.
4. Perimeter berms will be constructed along the nearest phase limit in a neat, uniform, continuous manner and will be finish graded, stabilized, seeded with a quality conservation seed mixture and mulched within 30 days of construction. The vegetative cover will be maintained on all berms until mining is terminated and reclamation begins in the area within which final grades have been reached.
5. Topsoil berms will be placed to avoid undermining by excavation operations and allow efficient recovery of these materials by heavy equipment.
6. The importing of non-native materials or soil will be avoided to provide control of invasive species.

3.5 Haulageways

Access to the property is via an existing drive from the Waste Systems driveway. A new paved access road will be constructed directly from Black Meadow Road (see *Mining Map*). Temporary haulageways will extend from the entrance road to the active mine area.

4.0 Pollution Control

4.1 Air Pollution Control

A *Fugitive Dust Control Plan* has been prepared for the operation (under separate cover). The following measures will be used to reduce fugitive dust:

1. Stripping will be kept to a minimum in advance of working faces.
2. Sequential reclamation of the mine floor, benches, and topsoil stockpiles will be revegetated to prevent wind erosion.
3. The haul roads, material stockpiles, mine floors, processing plant, or other operational areas of the mine will be sprayed with adequate amounts of water and/or Department-approved dust palliatives as often as necessary to effectively control fugitive dust.
4. Vehicular speeds within the mine will be controlled to reduce dust production.
5. Topsoil/overburden stockpiles will be seeded with a quality conservation seed mixture and mulched within 30 days of construction.
6. Crushed stone, or an acceptable alternative coarse aggregate, will be applied to all haulroad areas where there is evidence of dust. Additional amounts of coarse aggregate will be applied on these haulroads when the existing aggregate layer is filled with sediments causing dust.

4.2 Noise Pollution Control

Noise impacts from the mining operation will be limited by the distance to receptors, mine design, and through the use of OEM mufflers and shrouds on all equipment. The closest sensitive receptors (residences, library, and passive recreational lands) are more than 1,200 feet from the mine limits.

A *Noise Impact Assessment* (under separate cover) was prepared to evaluate the potential impacts on nearby receptors. The assessment concludes that “operation of shale mine on the Chester Hill Holding property will not create a significant noise impact at the nearest sensitive receptors. Mine-generated noise levels will be less than 50 dBA at the identified receptors; this is well within typical ambient levels”.

MITIGATING FACTORS

1. Noise Reduction at Source
 - a. Design – There is little opportunity to reduce source noise at the facility. The equipment will be of a standard design; the intrinsic noise levels are determined by the design.
 - b. Backup Alarms – MSHA-approved infrared or motion-sensitive backup alarms will be employed to reduce required sound levels.
 - c. Maintenance of Equipment – Mining equipment will be regularly maintained. OEM mufflers and noise shields will be used on the all equipment.
 - d. Noise Duration – Excavation activities will be limited to 7 am to 5 pm, Monday through Saturday. There are no operations on Sundays or the six major Federal holidays (New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas). The rock drill will be used for a few days before each blast.
2. Reduction of Noise Levels at Receptors
 - a. Distance to Receptors – Initial excavation for the mine will be located in the northern part of the property, adjacent to the industrial park. The mine will be more than 1,200 feet from the nearest non-commercial receptors during the life of the mine (see Table in Section 4.0).
 - b. Design – the mine is designed to maintain unmined rock between mining activities and most non-commercial land uses to the maximum extent practicable. Excavation of the rock will be directed eastward and southward, toward the receptors.
 - c. Screening – Overburden berms will be constructed along the limits of the active mine area. The berms and stockpiles will augment the attenuate effects of the topography, especially during drilling activities.
 - d. Aggregate stockpiles: Processed aggregate will be placed between the processing plant and sensitive off-site receptors.
3. Ambient Noise Environment
 - a. The mine will operate in the context of the industrial sites and related traffic that have been part of the sound environment for many years.

- b. Traffic on Route 17 and other highways through and in the vicinity of the Village of Chester provide additional ambient noise sources impacting historic and recreational sites.
- c. The occasional passage of trains through the community creates an infrequent but high decibel noise source to residential and non-residential properties in the area. The trains are required to audible warn drivers at grade crossings.

4.3 Water Pollution Control

There are no streams, ponds, or wetlands within the proposed mining limits. The mine has been designed to prevent pollution of groundwater and surface-water resources (see *Stormwater Pollution Protection Plan*, under separate cover). Stormwater from the ridge to the east will be diverted by temporary swales to prevent runoff. Proposed control measures will prevent runoff from active mine areas for the 100-year storm event. Runoff from the haulroad and parking area will be directed to a second stormwater basin.

The mining of construction aggregate is a physical process; no hazardous or toxic materials, other than typical fuels and lubricants, are used in the extraction or processing of shale. There will be no bulk storage of fuel on the property (see *Spill Prevention Plan* under separate cover). The reclaimed site will largely preserve pre-mining drainage patterns. No impervious areas will be created following reclamation of the site. No solid- or liquid wastes will be stored, generated, or disposed of on site.

4.4 Visual Screening

A *Visual Impact Assessment* (under separate cover) has been prepared in accordance with the NYSDEC *Program Policy Memorandum on Assessing and Mitigating Visual Impacts*. Several mitigating factors will reduce the visual impacts of a mine within the site. These factors and measures could include:

1. The Chester Hill Holding property is screened by the bulk of Durland Hill from most inventoried aesthetic resources.
2. The mine will be most visible from the industrial parks to the west and north of the site.
3. The mine has been designed to utilize existing topography and vegetation to the maximum extent practicable as a visual screen.
4. Overburden will be stored in berms along the mine perimeter with immediate establishment of a vegetative cover (trees and grasses), as per the *Reclamation Plan*.
5. Sequential mining and reclamation will limit the size of the area affected at a time.
6. The benches will be reclaimed using indigenous trees and shrubs to mitigate long-term visual impacts.

The following conclusions have been reached:

1. The position of the mine in the northwest flank of Durland Hill will screen excavation and processing activities from all identified aesthetic resources.
2. Changes in the skyline profile will be discernable from several local recreational sites and from Fury Brook Farm historic site.

3. The mine will not be visible from the First Presbyterian Church and Yelverton Inn historic sites or the Heritage Trail in the Village of Chester.
4. The mine will be most visible from viewers along Black Meadow Road and in the industrial parks to the west and north.
5. Mitigation measures will screen activities on the mine floor from nearby viewers to the west and northwest.
6. Reclamation of the benches will mitigate long-term visual impacts from more distant viewers to the west and northwest.

4.5 Mining Schedule

The mining area is to be developed in 5 phases, as indicated on the *Mining Map*. Mining will proceed from the northern mining limits southward; direction of mining in future phases is shown on the *Mining Map*. Mining will progress as follows:

1. The boundaries of Phase 1 will be staked or monumented prior to initiation of mining.
2. The permanent and temporary erosion and sediment control measures will be installed as described in the *Stormwater Pollution Prevention Plan*.
3. Vegetation within the area expected to be excavated during the coming year will be stripped; the woody material will be mulched, burnt (with appropriate permits), or removed from the site. The stumps may be buried and covered by at least 2 feet of overburden.
4. The overburden will be stripped from the area. The topsoil and subsoil will be stored in berms along the mine boundaries and in stockpiles within the mine limits.
5. The shale will be drilled and blasted per the *Blasting Plan* (under separate cover).
6. Fragmented rock will be crushed, screened, and stockpiled within the active mine area. The processing area will be relocated as mining progresses. The primary crusher may be placed on the active bench to remain in proximity to the active face.
7. The monuments and stormwater measures will remain until reclamation within that phase is approved by the Department, at which point they will be removed.
8. Excavation will proceed sequentially through the delineated phases; mining will end with the completion of Phase 5.

4.6 Traffic Study

A Traffic Study was prepared for the proposed mine by Tim Miller Associates, Inc. The study concluded that “the proposed Chester Hill mining will not result in a negative traffic impact on local roadway operations”.

5.0 Reclamation Plan

5.1 Land-Use Objective

The final land-use objective is to use the property for open space.

5.2 Disposition of Materials

Any spoils will either be removed from the site or utilized during reclamation. All mining-related machinery, equipment, and tools will be removed from the site upon completion of all mining and reclamation activities.

5.3 Treatment of Haulageways

Internal haul roads and other compacted areas will be scarified and revegetated as described below. The main entrance road to the site will be retained to provide access to the property following completion of mining and reclamation.

5.4 Drainage

Mining activities will not significantly affect the quality or quantity of water leaving the site since all runoff from the affected area will continue to drain to retention basin.

5.5 Water Impoundments

The stormwater basins created during the mining process will remain upon completion of mining.

5.6 Grading

Mine Floor – The final floor will be graded toward the retention basin with a slope of approximately 0.05% to 1.0% to insure positive drainage across the re-vegetated surface. The floor will be at least 5 feet above the seasonal high water table, as determined at the time of reclamation. The floor will be loosened by under-drilling during the blasting process to create about 2 feet of in-place fragmented rock to provide drainage and rooting zone fractures.

Perimeter Benches – The benches will be reclaimed sequentially from highest to lowest as mining progresses. Reclamation of a specific bench will begin upon completion of mining at that level. The bench will be a minimum of 50 feet wide and slope 1% into the hillside to preserve moisture, and 0.5% along the length of the bench to prevent ponding. The next to the last line of blast holes on a level will be over-drilled by three feet. This will insure a minimum of three feet of depth and maximum depth of six feet could occur (see figure on the *Cross Sections* sheet). Trees will be planted within this more deeply fragmented area, as depicted.

5.7 Revegetation

5.7.1 Grasses

All areas of the mine floor will be disked or otherwise loosened and raked to remove surface irregularities and any objectionable material. The site will be limed and fertilized at an appropriate rate based on the results of a recent soil fertility test; copies of soil tests will be provided to the Department for filing. Reseeding of the mine floor will be done as soon as possible in early to mid spring or early to mid fall after the areas have been graded. The seed mixture will be a commercially-available “Conservation Mix” or as follows:

Orchard Grass	15 lbs/ac
Tall Fescue	25 lbs/ac
Red Top	10 lbs/ac
Birdsfoot Trefoil	<u>10 lbs/ac</u>
Total:	60 lbs/ac

5.7.1 Trees

Perimeter benches will be revegetated with a diverse mixture of shrubs, early succession, and late succession deciduous and coniferous trees to expand the wooded areas of the property. The trees will be planted within a 15-wide planting zone, at least 10 feet from the base of the back rock face. Bare-root seedlings will be used to reduce planting shock and early plant mortality. Reasonably available indigenous species will be utilized on the perimeter benches. The following list is composed of shrubs, trees, and vines recommended by the DEC for use on the site:

Shrubs: Northern Bayberry, Sweetfern

Early Successional Trees: Gray birch, aspen, Eastern red cedar, pitch pine, staghorn sumac

Later Successional Trees: Red Maple, chestnut oak scarlet oak, white pine, black birch, pignut hickory

Vines: Virginia creeper, American bittersweet

Pre-planting – For the highest survival rate, the trees will be handled carefully and planted immediately. If planting must be delayed a few days, the plants will be kept in a shady, protected place with air circulation between the trees; water as needed to keep the roots damp and allow the excess water to drain. Overwatering will be avoided in cool, damp weather to reduce the threat of mold development.

Planting – The seedlings will be planted in three rows staggered on 8-foot centers along the benches. Planting on warm, windy days will be avoided, if possible, to reduce root desiccation. The roots will be dipped in a hydrogel solution prior to planting. The vines should be planted only after the shrubs and trees are reliably established.

Post-planting – The newly planted benches will be checked twice a growing season to insure that brush, grass, and other invasive vegetation is kept under control. Any undesirable plants will be physical removed or treated with an approved herbicide. Water will be applied as needed if soil becomes excessively dry for extended periods during the first two seasons following planting. Plants lost to disease, animal damage, or drought will be replaced as necessary to maintain plant density.

Mulching – The benches will be mulched with wood chips to a depth of 6 inches to retain soil moisture. An approximately 2-3 foot diameter opening in the mulch will be kept around each seedling.

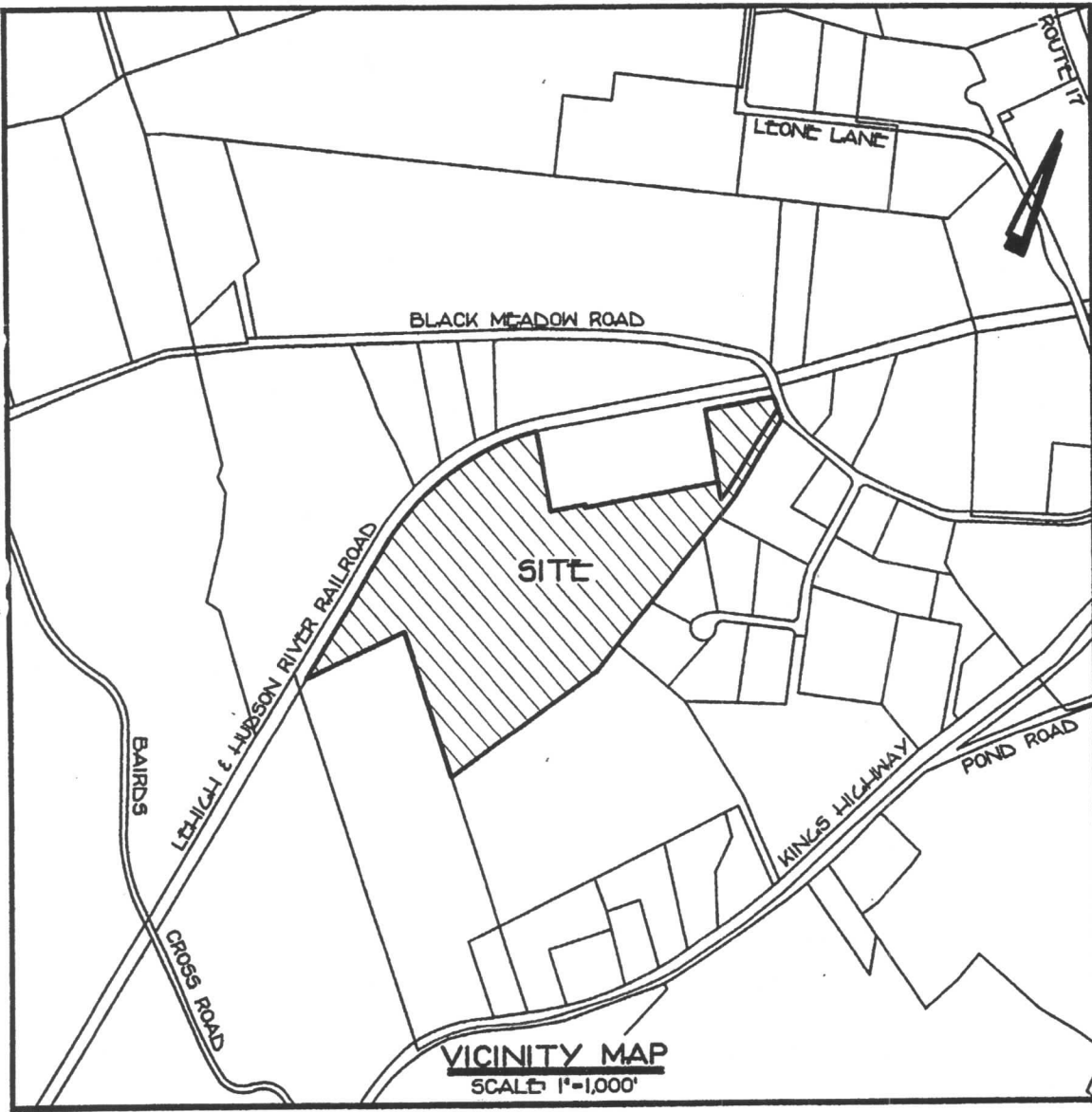
Woody Debris – Coarse woody debris (tree limbs and trunks from the site) will be placed on the planted and mulched benches to ameliorate environmental conditions on the exposed sites.

5.8 Reclamation Schedule

Reclamation will commence within the affected area when 2 acres of the mine floor or a final bench has reached final grades and is no longer needed for mining purposes. Reclamation will be completed sequentially as mining progresses so that no more than 8 acres will be open at a time, excluding the access road, processing area, and water control measures. Reclamation of perimeter benches will commence when mining on a specific bench has reached final grades and the area is not required for mining activities. The benches will be reforested progressively within one year of reclamation.

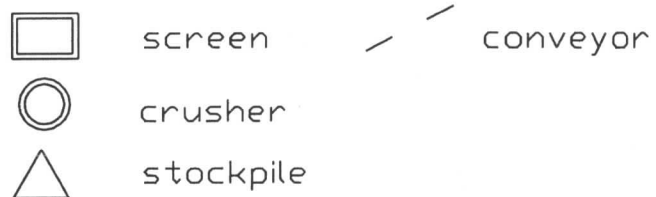
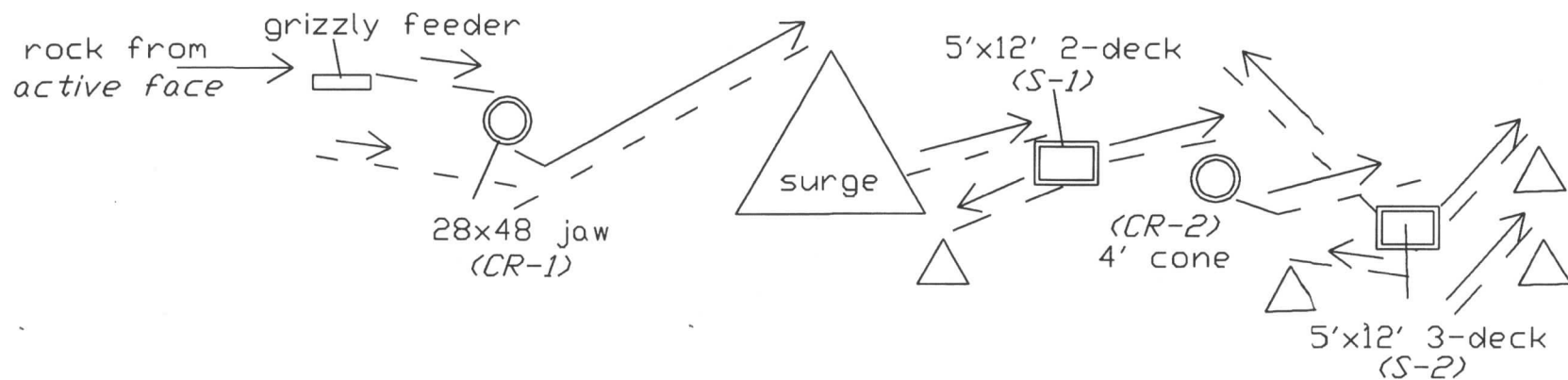
-

6.0 Figures





(Joins sheet 80) 1515 000 1111



CHESTER HILL HOLDING
AGGREGATE PLANT
SCHEMATIC DIAGRAM
(TYPICAL EQUIPMENT LAYOUT
USED AT SMALL QUARRIES)

RTBA