



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

FC Scotland H&S Document Mineral Extraction Sites



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Part I: Interpretation and general

1.1 This Policy Statement is to provide, so far as is reasonably practicable, safe and healthy working conditions for employees and to provide appropriately for the Health and Safety of others who may be affected in FCS Civil Engineering extraction sites - i.e. other workers and Members of the Public in accordance with the Quarries Regulations 1999 L118 (Second Edition) published 2013

1.2 This Policy Statement sets out the duties, the training, provides rules for safe methods of working, and procedures for assessing hazards, monitoring and regular reviews to meet the safety policy objectives.

1.3 The meanings given in the Approved Code of Practice for the Quarries Regulations 1999 L118 (Second Edition) published 2013 (hereafter referred to as the ACOP) will be taken in preference to any statement in this document. No statement in this document is intended to be contrary to legislation relevant to extractives site work.

1.4 The aim is to create and maintain a sense of safety awareness in all employees and to develop co-operation for the effective achievement of the objectives.

1.5 Borrow pits and other rock extractions shall be known as extractives sites.

1.6 Contractors will adopt this H&S Doc & modify to suit the specific contract requirements. Contractors to be appointed/nominated as part of the management as competent and necessary.

1.7 The Quarries National Joint Advisory Committee (QNJAC) is a tripartite body comprising quarrying and extractive industry representatives of employers; employees; the government regulator (Health & Safety Executive, HSE); professional membership bodies; and industry training/educational organizations.

The purpose of the QNJAC is to debate and develop health and safety policies and implementation strategies

Guidance and reference to QNJAC documentation should be sought from the [Safequarry](#) pages of the internet.



Part II: Health and safety management

Regulation 5 :- The Person Entitled to Work FCS Extractives Sites

5.1 The Forestry Commission is the government department that manages the public forest estate. The CEO of Forest Enterprise Scotland (Simon Hodge) is the "Person Entitled" to Work Extraction Sites in the Forest Districts in Scotland.

5.2 Forest Enterprise Head of Operations (Les Bryson) shall be the Operator of those extraction sites.

5.3 The Forestry Commission shall ensure that its Operator is suitable and has sufficient resources to be able to operate the extraction sites safely. FCS civil engineering has a management structure with a Head for Scotland, along with an array of support staff.

5.4 Where the Person Entitled to Work an extraction site permits another person to be the Operator of that extraction site, they shall make a written record of that permission which shall be signed by the "Person Entitled" and the "Operator", and a copy shall be provided to the Operator. The Forestry Commission shall ensure that this other Operator, is suitable and has sufficient resources to be able to operate the extraction sites safely.

5.5 The said record and copy shall be kept by the person so entitled and the Operator respectively for the duration of the said permission.

5.6 The person so entitled shall provide the Operator with any relevant information available to him who might affect the health and safety of persons at work at the extraction site.

Regulation 6 :- Duties of the Operator

6.1 Take the necessary measures to ensure, so far as is reasonably practicable, that the extraction site and its plant are designed, constructed, equipped, commissioned, operated and maintained in such a way that persons at work can perform the work assigned to them without endangering their own health and safety or the health and safety of others.

6.2 Prepare a Health & Safety Document including Rules for the Extractives sites, Inspections, Excavations and Tips, Blast Design and specification, Shotfiring, Record Keeping, and the Storage and Transport of Explosives.

6.3 Ensure everyone understands the risks.

6.4 Ensure everyone is competent and proper training is given.

6.5 In writing set out the management structure of the extractives site including any sub contractors if they have a significant role in the management of the extractives site. Appoint competent individuals in writing to take charge of the extractives sites and supervise explosives with pro-forma letters retained in the central server.

6.6 Provide safe equipment and facilities including vehicle markings

6.7 Arrange for the appraisal of all tips and excavations (Regulation 32).

6.8 Ensure public safety.



6.9 Review the rules and procedures within the H&S document annually.

6.10 The Operator shall ensure that in the event of the abandonment of, or ceasing of operations at an extractives site, the extractives site is left, so far as is reasonably practicable, in a safe condition.

6.11 The Operator's Extractives Manager is to report under RIDDOR even if the incident happens to a contractor.

6.12 The Operator should notify the HSE where a "significant hazard" within the extractives site exists. (Reg. 34)

Duties of the Extractives Manager

6.13 Ensure all those working in the extractives site comply with this Health & Safety Document. Ensure site specific risk assessments are produced by themselves, Explosives Supervisor, Shotfirer or other competent individual.

6.14 Where appropriate, approve adequate written blasting specifications for the firing of shots that, so far as is reasonably practicable, will not give rise to danger.

6.15 Where appropriate, ensure the safety of explosives in keeping, handling and use.

6.16 Where appropriate, ensure the safe carriage of explosives.

6.17 On behalf of the Operator appoint competent persons to take charge of the extractives site at all times when work is being undertaken.

6.18 Check and record at regular intervals that all rules and inspections are being followed. Notify the Operator of any discrepancies that require this Health & Safety document to be altered.

6.19 Ensure that a legible and permanent record of the results of any examination of or test on any exploder or circuit tester at the extractives site is recorded and kept for a period of 3 years in the blast file.

6.20 Instruct all contractors on the safe practices set out in the safety document.

6.21 Where appropriate, inform SEPA of crushing operations being carried out on the FC estate, stating the name of the operator, location and dates they will be operating. Crushers must be licensed with a Part B permit under the PPC Regs.

6.22 Ensure there is a detailed design plan of each extractives site workings. (Appendix 6)

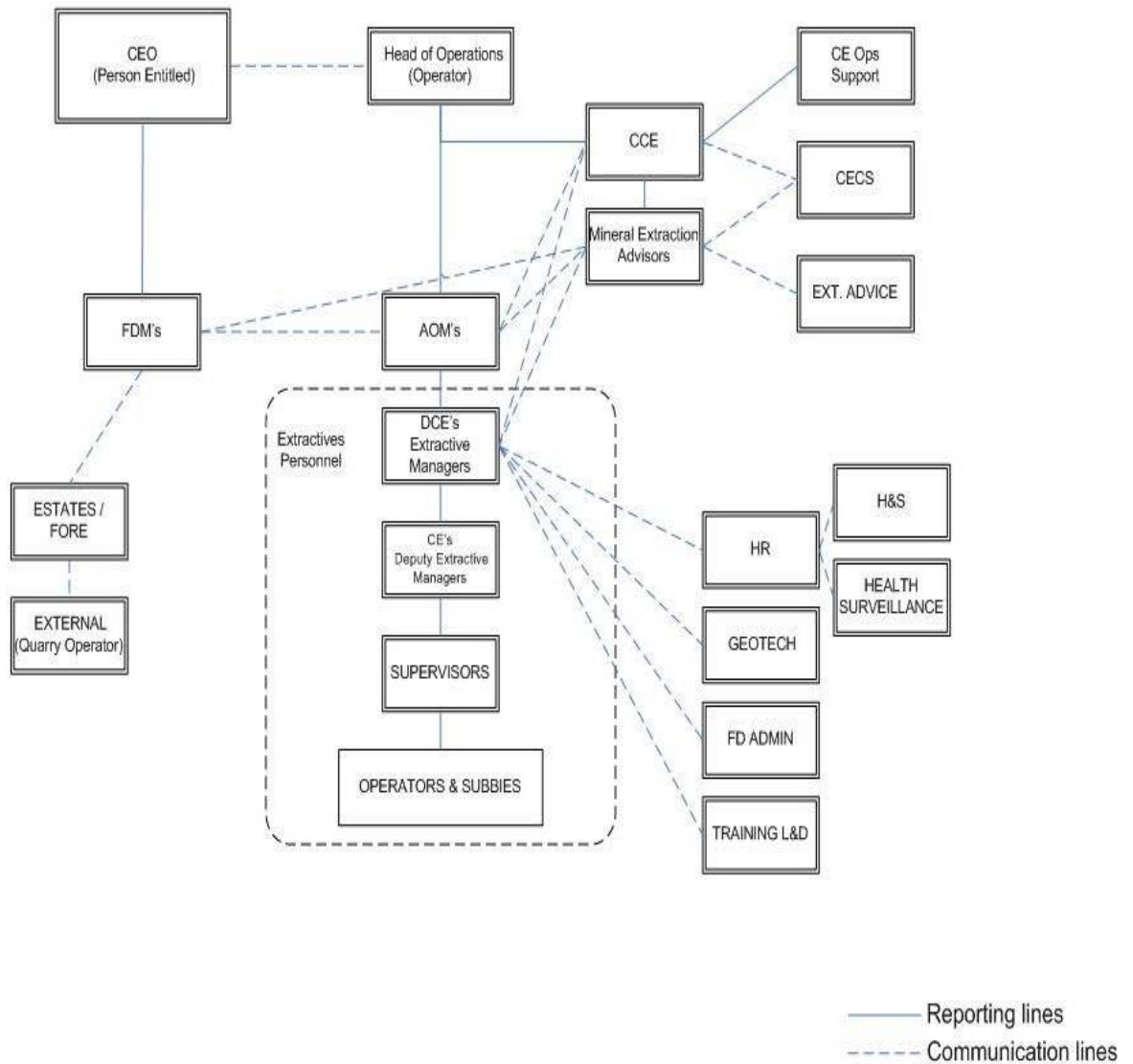
6.23 The Extractives Manager shall supply to each contractor and employee a copy of the plan and appropriate H&S document including rules and record these actions. (Appendix 6)

6.24 The Extractives Manager shall supply to the Explosives Supervisor a Blast buffer Map for each blast. If properties lie within a 750m radius, (see blast design & specification p.36) this will be checked and signed off by a second Explosives Supervisor.

Duties of the Depute Extractives Manager

6.25 As delegated by the Extractives Manager any responsibilities as noted above and full responsibilities when Extractives Manager is not readily available.

Regulation 8 - Management Structure



Regulation 2 of the Quarry Regs 1999 ACOP interprets "appoint" in relation to a person, means appoint in writing with a written statement summarising his duties and authority, and "appointed" shall be construed accordingly.

Person Entitled to work Extractives sites – Forestry Commission (Simon Hodge)
Operator – Forestry Commission (Les Bryson)

In accordance with Regulation 8 ACOP 62 "A competent individual must be appointed to be in charge of the operation of the quarry at all times when persons are working in the quarry.



Forest District	Extractives Manager	Depute Extractives Manager	Explosives Supervisor	Shotfirers
North Highland	Liam Matheson 07785 780601	Stuart Waugh (T) 07786 021902	Liam Matheson 07747 780601	Liam Matheson 07747 780601
Inverness, Ross and Skye	Liam Matheson 07747 780601	TBC 07876 478210	Liam Matheson 07747 780601	Liam Matheson 07747 780601
Moray and Aberdeenshire	Colin Smith 07769 935997	Contractor as appointed	Liam Matheson 07747 780601	Liam Matheson 07747 780601
Lochaber	Gavin Queen 07901 670121	Seymour MacLeod 07766 368416	Gavin Queen (T) 07747 780601	Seymour Macleod 07747 780601
West Argyll	Gavin Queen 07901 670121	Lesley Pirie 07766 488968	Gavin Queen (T) 07901 670121	Seymour Macleod 07747 780601
Tay	Gordon McCheyne 07827 873657	Grant Wallace (T)	Gordon McCheyne (T) 07827 873657	Gordon McCheyne (T) 07827 873657
Cowal and Trossachs	Gordon McCheyne 07827 873657	Tim Hawkins (T) 07825 594863	Gordon McCheyne (T) 07827 873657	Gordon McCheyne (T) 07827 873657
Scottish Lowlands	Gordon McCheyne 07827 873657	Tim Hawkins (T) 07825 594863	Gordon McCheyne (T) 07827 873657	Gordon McCheyne (T) 07827 873657
Dumfries and Borders	Colin McEwan 07769 642522	Bruce Hamilton 07900 607785	Contractor as appointed	Gordon Currie 07920 710791
Galloway	Davie Zybert 07867 500616	Norrie Russell 07785 530670	Davie Zybert 07867 500616 Norrie Russell 07785 530670 Gregg Reid 07920 710771	Davie Zybert 07867 500616 Norrie Russell 07785 530670 Wattie Handley 07879 862700 Gregg Reid 07920 710771

All of the above can be appointed person of a competent Contractor
(T) = Trainee



Regulation 9 :- Training and competence

"Competent" in relation to a person means a person with sufficient training, experience, knowledge and other qualities to enable him properly to undertake the duties assigned to him, and "competence" shall be construed accordingly. - Reg2.

9.1 FCS is committed to ensuring that all employees are trained in accordance with their capabilities and experience to undertake safely the duties to which they are appointed. Refresher courses will be provided to keep the skill levels to the appropriate standard.

9.2 Extractives Managers, Deputy Extractives Managers, Explosive Supervisors, Shotfirers and Drillers will have the required necessary QCF/NVQ qualification to carry out their duties in a safe and competent manner. (FC recognises the QCF/NVQ in blasting operations). Alternatively, Modules 2, 3 and 4 MPQC Blast Design and Supervision are an acceptable alternative.

9.3 Surveyors will be trained to the required MPQC standard.

9.4 Drivers of vehicles carrying dangerous goods will hold a current ADR certificate.

9.5 Machine operators should hold a current CPCS, MPQC or NPORS (including H&S test) card for the machine they are operating.

9.6 All extractives personnel should hold a Quarry passport as a minimum safety card.

9.7 Other persons to be trained appropriate to needs.

9.8 Bankspersons should be trained to carry out their duties safely. There must be a safe system of work that ensures the Banksperson and driver are using standard signals, so that they are easily understood, and that the driver knows to stop the vehicle immediately if the Banksperson disappears from view.

9.9 Training for the requirements of the ACOP will use the MPQC "Explosives at Quarries" Guidance note No. 4, tailored and devised to meet the scale of activity found in FCS Civil Engineering activities.

9.10 Certificates of competence for FC staff can be found at R:\Staff\Training\Certificates

Regulation 10 :- Extractives site rules

10.1 All Pits, Excavations and extractives sites will be treated as dangerous places and extra care will be taken in the use of plant and machinery. Access and haul roads between the above features may become part of the Extractives site and treated as such.

10.2 Signs will be placed on all access roads leading to a working extractives site warning of the operation, requiring all authorised visitors to report to the person in charge, and prohibiting general visitors from entry.

10.3 Signs will be displayed on all access roads leading to a working extractives site requiring all entering the extractives site to wear high visibility clothing, protective footwear and a hard hat.

10.4 All personnel and visitors must wear high visibility clothing, protective footwear and a hard hat within the extractives site area. Operators of screening and crushing plant and drill rigs must wear appropriate personal protective equipment and not wear loose clothing.



10.5 In general by design there should be separate routes for both vehicles and pedestrians

10.6 Nobody will approach a vehicle or machine within the loading area including the area used by tippers to manoeuvre without first attracting the attention of all operators and drivers working in that area. Operators and drivers should cease operations when this occurs.

10.7 All personnel to stay out of the slewing, tipping, overturning risk zone of plant and machines.

10.8 All trailers, dollies and bowsers will be parked on level ground and chocked.

10.9 Fuel and oil bowsers will be parked in designated areas in accordance with the water guidelines. Gloves will be worn when refuelling.

10.10 When explosives are found in a muckpile during excavation all operations will stop. The Extractives Manager and the HSE will be informed. Only appointed personnel will search stockpile to remove loose explosives into suitable containers. An excavator or loader may be used to gently remove material to search for further explosives. Operations may only continue when the Extractives Manager is satisfied that all loose explosives have been found.

10.11 Vehicles and equipment shall be stopped and made safe before any repair begins. Any machine parts needing to be raised to give access for repair must be securely chocked. Those making repairs shall park their vehicle alongside the machine under repair in order to cordon a safe area in which to execute the repair. Machine buckets will not be used as platforms while machines are running.

10.12 While working at height, edge protection will be placed adjacent to the crest to provide a physical barrier. Where applicable and with proper training, a work restraint (travel restriction) system may be used as an alternative safety system.

10.13 Personnel must not encroach within 4m of a face, edge and toe, without bunding, restraint or further protection.

10.14 Smoking is not permitted

10.15 Crushers to have dust suppression sprinkler units fitted.

10.16 Drill rigs to have dust suppression units fitted.

10.17 All extractives sites to have design and working plans and/or detailed sketches including faces, tips, stockpiles and lagoons as appropriate.



Regulation 11 :- Review of Health and Safety measures

Document Revision History

Revision Date	Author	Change Reference & Summary
25-02-2010	EB & AD	Annual Review
12-04-2010	EB & AD	Appointments & Management structure review
20-09-2010	EB	Misfire procedure
20-09-2010	EB	Size to A3 & remove 'firing by fuses'
20-09-2010	EB & AD	Windows on plant
20-09-2010	EB & AD	Crusher requirements
17-03-2011	EB & AD	Annual review
17-03-2011	EB & AD	Definitive pedestrian/vehicle routes
17-03-2011	EB & AD	Explosive packaging
17-03-2011	EB & AD	Appendix 5 Face Management
17-03-2011	EB & AD	Appendix 6 ADR UK information
11-06-2014	EB & NR	Document reconstruction following Management Review
30-10-2014	EB & NR	Annual review from QMTF (See notes of meeting)

11.1 All other Health & Safety checks, support visits and reviews will be carried out at a local level and recorded through FC resumption system.

11.2 This document will be reviewed at least annually.

11.3 Appraisals for sites not regularly worked will be reviewed every 2 years.

11.4 Other sites will be reviewed as the need arises.

Part III: Risk Control

Regulation 12 :- Inspection

12.1 The Extractives Manager and Deputy Extractives Manager will monitor the results of inspections and tests and ensure these are suitably filed and available.

12.2 All extractives sites will have an appraisal carried out on a risk based timescale by a competent person and countersigned by an appropriate person in the management structure. Out with this an appraisal is to be carried out before and after any change to the extractives site.

12.3 All active extractives sites will have a design review and a design plan detailing: Site boundary and exclusion zones, Location of working faces, Direction of advancement, Traffic access & egress, Overburden & waste locations, Water management proposals, Danger areas, Restoration proposals, Fuel storage areas.

12.4 The Forest District will check resumptions and notify the appointed person.

12.5 Significant hazards will be reported by the Extractives Manager to a Geotechnical specialist where they will carry out a geotechnical assessment, if a significant hazard is confirmed, then the Extractives Manager will report findings to the Operator and HSE. Further geotechnical assessments must be carried out as specified by the geotechnical specialist (and at least every two years) or in the event of:

- significant changes to working methods;
- new information about the geology of the site;
- changes outside the site which significantly increase the hazard, for example
- the construction of houses or roadways near the boundary;
- evidence of significant failure or movement; or
- discovery of incorrect assumptions or errors in the assessment.

12.6 The person in charge of each working extractives site will, at the start of each day, inspect the face or faces for overhangs and embankments/stockpiles for cracks or other signs of movement and also haul roads and ramps. Small overhangs or instabilities will be corrected before operations commence and noted on the Daily inspection sheet. Anything more serious should be reported to the Extractives Manager and to be rectified prior to any work being carried out.

12.7 The person in charge of each extractives site will, at the start of each day, inspect that all warning signs and barriers for the extractives site operation are in place. Any defects to be immediately corrected and those that cannot, to be reported to the Extractives Manager. No work shall commence until signs and barriers are in place.

12.8 All equipment, plant/machine Operators/users and Drivers will carry out a daily inspection and maintenance on their machines or vehicles. Plant/Machine Operators will ensure all guards on plant are in place and all conveyor belts and rollers are, as far as reasonably practical, kept free of debris preventing their safe operation. Any defective equipment, plant/machines shall not be used.

12.9 Machines and vehicles will be brake-tested (preferably inertia testing) daily and the results recorded and filed.



Regulation 13 :- Benches and haul roads

13.1 Haul roads will have a minimum formation width of 5400m with a minimum cross slope of 4.5%

13.2 Haul roads will be surfaced and maintained with a good quality graded angular material ideally of base material 75 -100mm and surfaced with 40mm running surface which will support heavy traffic.

13.3 All Haul roads will have a roadside drainage ditch of not less than 150, below the level of the road and at a gradient of not less than 3%

13.4 Haul roads will be designed for a build gradient not exceeding 10%, where requirement is necessary in excess of this, gradients will not exceed 20% over a distance of 50m on the straight.

13.5 The minimum width of running surface will be 3.5m Additional road width in excess of the minimum might be required locally along the road alignment, for example: Passing places or where sightline distances are less than stopping distances

13.6 Where curve radius to the internal edge of pavement is equal to or less than 7.5m, the running surface will be extended to 5.5m

13.7 The maximum permissible gradient on curves with an internal radius equal to or less than 7.5m will be 8%

13.8 So far as is reasonably practicable, edge protection to haul roads will be designed, constructed and maintained so as to allow vehicles and plant to be used and moved upon them safely to a minimum height of 1.5m.

13.9 Bench widths will be of sufficient width to account for face height, face angle, rock type and other engineering factors but as a minimum will not be less than 3m.

13.10 All designs for benches and haul roads will be proved by means of risk assessment

Criteria which must be considered when designing benches and haul roads are:

Types

Access track, usually intended for tracked machinery such as excavators, drill rigs, dozers, carrying out exploratory or site preparation work. The standard of construction will be basic with no intention for long term use.

Bench access/haul road, should be designed so as to provide access for road and site vehicles throughout the life cycle of the extractives site. The road should be designed and maintained to a standard as given below.

Width

The HSE guidelines (Ref quarry fact file) state that the width of the carriageway should be at least 2 times the width of the largest vehicle to use the road.

A 25Te dumper has an overall width of 2.88m meaning a haul road should have a width of 5.75m

Bench widths are dependant on face height, face angle, rock type and other engineering factors. A study by Ryan & Pryor (2000) developed, through research and testing an criterion of: - Bench Width (m) = 0.17 x Bench Height (m) + 3.5m

For a maximum face height of 12m this would equate to a bench width of 5.54m

Gradient and Alignment

Haul roads should be appropriate for the number, size, load and type of vehicle using the road. The HSE advises that for rigid bodied vehicles, roads should be designed no steeper than 1:10 (10%) Steeper gradients may be acceptable over short distances where suitable multi drive vehicles are in operation. Pump trucks come in a range of drives from 2 wheel to 6 wheel drive. Access for pump trucks must be designed so as to accommodate whichever type of vehicle is making the delivery. On recommendation from Volvo, "a typical 26 Tonne three axle rigid vehicle with an overall length of 9-10 metres, will comfortably start on gravel at a gradient of 20% the limiting factor being traction under the drive wheels (and has sufficient torque at the wheels to start on a gradient of 40%)".

The transition from flat to a 10% increase in incline should not be less than half the vehicles length gradually increasing to the maximum gradient of 20%

Pumping emulsion on a gradient is not recommended due to separation of the products constituents. Therefore, a flat hardstand or turning area at bench level should be provided. A vehicle of the dimensions stated above, will turn within a 20m diameter wall to wall.

Reversing pump trucks up inclines to benches must always be carried out using a surface banksman.

Haul roads and access tracks must be clearly defined on the blast proposal (part of the blast specification).

While the final decision regarding the safety of driver and vehicle, rests with the pump truck operator. Haul roads should not be constructed to a limit which would endanger either.

Surfacing

The surface should be well compacted, solid and made of aggregate and fines to produce an unbound surface capable of allowing easy access for all plant and vehicles requiring access.

Drainage

Haul roads should be constructed with super elevation into the rock face with a roadside drain not less than 300mm below the running surface and a longitudinal gradient of not less than 3%

Traffic Systems

Where practicable, one way systems will be employed to provide a safe system of work as part of the traffic management plan.

Edge Protection

Edge protection must be provided where; if a vehicle left the roadway it would put a driver at significant risk

Regulation 13 (ACoP) states that edge protection for heavy vehicles should be a minimum height of 1.5m, the design should comply accordingly.

Environmental issues

Where possible, haul roads should be constructed on the face nearest to houses thereby dampening noise by using the extractives site wall and overburden.

Consideration should be given to the hours of work if haul roads pass by residential properties.

Vibration from the use of Explosives

All haul roads, access tracks and benches should be checked for anomalies following an explosion and prior to the use of vehicle access.



Regulation 14 :- Vehicle rules

14.1 Operators of plant operating on FCS land will demonstrate their training by providing a current CPC and/or NPORS, plus safety awareness training / Quarry Passport and EFAW + F certificate. A valid current UK licence must be held by all drivers/operators working on FC land.

14.2 A suitable inspection scheme should be in place to ensure that brakes are in good condition at all times. This will be combined with other maintenance work -: lights, horn, rear view mirrors, cameras, radar equipment and windscreen wipers are in sound working order, and that lights are free from dirt. Lap/seat belt restraints, where fitted, must be used. Checks will be recorded on a daily basis, on the record of daily inspection sheet, under comments.

14.3 Drivers must make certain (by walking around the vehicle if necessary) that it is safe to reverse before doing so.

14.4 No person may ride in or on a vehicle unless that person is trained, competent and site inducted and rides in an approved safe position on the vehicle.

14.5 A vehicle must be stationary with the engine stopped, with any parking brake on, before it is left by the person in charge of it.

14.6 It is forbidden to get on or off a moving vehicle.

14.7 Diesel driven vehicles with manual gearbox must be left with engine stopped and gears engaged.

14.8 When loading lorries/dumpers plant operator to ensure that the driver has remained in the cab.

14.9 Before driving a vehicle for the first time on any day, a driver must make a visual inspection of the vehicle and report any worn, loose, damaged or faulty parts to the Manager immediately.

14.10 All traffic signs and warnings in the extractives site must be obeyed.

14.11 When reversing, beeper and amber lights must be operated.

14.12 Orange beacon lights to be used at all times.

14.13 Vehicles to be parked in specified areas shown on extractives site plan.

14.14 Any defect discovered on any vehicle must be reported at once to the supervisor in charge.

14.15 Vehicles must, at all times, be driven at a safe speed.

14.16 Before starting any machine, care must be taken to ensure that the drive from the engine is disengaged.

14.17 Vehicles must not be left parked on a slope, for any reason.

14.18 No vehicle will work /operate within the danger zone of overhead or underground electric cables unless the requirements of GS6 have been complied with.

14.19 If a vehicle is being repaired or maintained, the person doing the work must remove the ignition key and keep it on his person, to prevent the vehicle from being accidentally driven.



14.20 Vehicle seats should be designed, maintained to minimise the adverse effects of whole body vibration on the driver, particularly where vehicles are used on rough terrain.

14.21 Additional Rules for Loading Shovel

Loading shovels must not be left with the bucket in the raised position.

If a defect makes it impossible to lower the bucket a safe and adequate prop must be put under it.

Shovels must not be used to lift or carry in excess of their capacity.

Shovels must not travel with the bucket more than 1 metre off the ground, unless at the point of lifting and loading.

It is absolutely forbidden for any person to be lifted by the bucket. It is permissible to stand in the bucket when the machine is at rest, with the engine switched off and the bucket resting on the ground.

No person may be within the operating area of a shovel when it is working.

When a shovel is being used for lifting purposes, the correct manufacturer's lifting hook or other appliance must be used.

When stockpiling edge protection should be in place on access ramp.

14.22 Additional Rules for Dump Trucks & All Other Motor Vehicles

Vehicles must not be driven with the body in the raised position.

Drivers must stay in the cab whilst being loaded by an excavator.

The tipping mechanism must not be operated unless the vehicle is standing on level ground.

If a vehicle body is placed in the raised position so that persons may work under it, props must be securely placed so as to prevent its accidental lowering. Such props may only be removed by the person working on the vehicle, when he is satisfied that it is safe to do so.

No raised skips / tipper bodies within goalpost area at overhead wires/cables

When tipping is taking place, any loads will be tipped only as directed by a banksman. In no case may a driver approach close to an edge unless there is a substantial barrier designed to stop the vehicle at the edge of the drop.

14.23 Additional Rules for Bulldozers & Track Shovels

Bulldozers or track shovels must not be left with the blade in a raised position.

If it is necessary to leave the blade or shovel in the raised position for maintenance purposes, a suitable prop must be placed under it.

14.24 Additional Rules for Excavators

No persons to be within 2 metres of the working radius of the machine when it is in motion.

No person may climb the jib for maintenance purposes unless a suitable ladder or platform is in place.

When the machine is stopped, the bucket must be lowered to the ground.

No attempt must be made to lift loads in excess of the capacity of the machine.

If the excavator is being used for lifting the bucket, all attachments must be removed first.

No person may pass or remain under a stationary jib.

When an excavator is used for lifting purposes, the correct manufactures lifting hook or appliance must be used. Excavators fitted with restrictors and able to comply with GS6 requirements <http://www.hse.gov.uk/pubns/g6.pdf> can operate around overhead electric wires. Excavators must be fitted with adequate cab and screen protection for the operator when working at the face and rock breaking.

14.25 Additional Rules for Mobile Crushers / Screens

Loading platform should be suitable (stable) and should be high enough for the operator to be able to monitor the feed hopper from the cab.

Where wheeled loading shovels are used, then the ramp should be wide enough to allow for adequate edge protection on either side of the ramp as well as for travel of the machine.

The last few metres of the ramp should be level so that the machine is not discharging uphill, thus enabling operators to more easily monitor the feed.

All dangerous parts of machinery should be suitable guarded.

A lockout system must be in place for maintenance and repair work.

14.26 Additional Rules for Drill Rigs

Access ramps and drilling platform should be stable.

14.27 Additional Rules for Low loaders

Drivers must hold a training certificate to load and unload machines

14.28 Additional Rules for Fuel Deliveries

Drivers must report to the person in charge of the site.

Drivers must only enter the fuel area shown on the extractives site plan.

Regulation 15 :- Escape and rescue facilities at the extractives site

The operator shall ensure that –

Adequate means of escape and rescue are provided and maintained so as to permit persons in the extractives site to leave the extractives site promptly and safely in the event of danger;

Adequate means of communication and warning are provided to enable assistance, escape and rescue operations to be launched at once when required;

Written instructions concerning the use of emergency equipment and the action to be taken in the event of an emergency at or near the extractives site are prepared;

Persons at work at the extractives site are trained in appropriate action to be taken in the event of an emergency; and

Rescue equipment is provided at readily accessible, appropriately sited and clearly sign-posted places and kept ready for use.

15.1 This regulation requires the operator to ensure the provision of adequate means of escape and rescue in the event of danger. Risk assessments should indicate the emergencies which might arise and the action and equipment required to deal with them.

Particular attention should be paid to means of escape from areas such as rooms, chambers, confined spaces* and other areas where there is a significant risk from:

- fire;
- the escape of steam
- concentration of noxious gases; or
- ground collapse, for example in stockpile tunnels or other rock cavities or tunnels to which people have access in the course of their work.



* The Confined Spaces Regulations 1997 may also apply.

Means of escape need to be taken into account when designing both fixed and mobile workplaces. Sometimes a second exit may be necessary, for example in some areas where highly flammable liquids are used.

15.2 Communications

Good communications are of paramount importance in an emergency, particularly in remote areas and for lone workers. Suitable communication equipment might range from bells to more sophisticated public address or closed-circuit television systems. Radios or telephones* can enable rapid communication, if they are carefully positioned. They may, for example, be fitted to mobile plant or backup service vehicles, or issued to appropriate individuals.

* Electrical systems, radios or mobile telephones may be unsuitable where explosives are in use or where there is a risk of an explosive atmosphere and the equipment may cause ignition or initiate the explosion.

In most extractives site, liaison with the emergency services is helpful. In particular, it is advisable to inform them in advance of any dangers that might affect their operations, for example the presence of explosives, LPG (liquefied petroleum gas) storage, unstable faces and burning tyres which may explode.

Well-constructed and maintained roadways allow emergency vehicles easier access. These vehicles are generally made for road use, and are not suited to difficult terrain. In an emergency it can be helpful to have a person waiting at the extractives site entrance to direct the emergency services.

15.3 Rescue equipment

Examples of the type of rescue equipment which may be required include:

- breathing apparatus (see also regulation 21(2));
- ropes;
- Ladders (rigid or rope);
- tripods, winches;
- tools, eg pickaxe, crowbar, shovel, cutters;
- stretchers;
- buoyancy aids, eg lifejackets, lifebuoys (rings); and
- rescue boats.

Lifting and cutting equipment may also be needed in some extractives site. Emergency equipment must be subject to appropriate inspection, as required by regulation 12, to ensure that it is always ready for use.

15.4 Training

Most people only need to be able to leave their workplace and go to a designated place of safety in the event of an emergency. Where rescue equipment is provided, enough people should be trained to use it without endangering themselves or others. If breathing apparatus is required, there must be enough trained people to use it safely.

Regulation 3(2) of the Health and Safety (First Aid) Regulations 1981 requires an employer to ensure the provision of enough trained personnel to administer first aid.

Regulation 16 :- Barriers

'The operator shall ensure that, where appropriate, a barrier suitable for the purpose of discouraging trespass is placed around the boundary of the extractives site and is properly maintained.'

16.1 The provision of barriers placed around the boundary of an extraction site will be considered as part of a risk assessment taking account of location and suitability

16.2 Where barriers to extraction sites are required they shall be maintained as part of the resumptions system and suitable records kept in accordance with regulations 12 & 44

16.3 Barriers to abandoned or disused sites must be provided where a risk of falling or danger to the public is apparent

16.4 The provision of barriers needs to be considered as part of the risk assessment process, and the findings of the assessment included in the health and safety document. A decision not to provide barriers for any part of the quarry needs to be reviewed in the light of experience. The type of barrier required depends on the risks. In a rural area where the risk of public access is low; hedges, trenches and mounds may be enough. At the other extreme, where there is evidence of persistent trespass by children which places them at significant risk, sophisticated metal paling fences may be required.*

Section 151 of the Mines and Quarries Act 1954, which is enforced by local authorities, requires working and abandoned quarries to be provided with a barrier to prevent anyone accidentally falling into the quarry. Barriers must also be provided where the quarry constitutes a danger to members of the public.

There is little in the way of guidance on how to determine what constitutes a 'suitable' barrier. The HSE's consultation document CD229 (April 2010) proposes the following amendments to the Quarries Regulations 1999

The amendment to paragraph 174(c) removes the reference to falls of more than 2 metres. This is to ensure consistency with Reg. 11 of the Work at Height Regulations 2005 which imposes duties for the avoidance of risks from danger areas.

The Work at Height Regulations 2005 revoked the requirements of Reg. 13 of the Workplace Regulations regarding the prevention of falls and falling objects. The amendment to paragraph 176 removes the minimum standard for barriers, adopting instead a risk-based approach. We intend to produce separate guidance on the suitability of barriers.

By proposing the above changes the HSE are clearly promoting the use of risk based assessment in each individual case. Until such time that the HSE release the guidance on the suitability of barriers, we must continue to adopt industry best practice.

In assessing risk we must refer to best practice – The 5 Steps to Risk Assessment

1. First, identify the hazards.



2. Consider who might be harmed and how.
3. Evaluate the risk, and decide whether the existing precautions are adequate.
4. Record your findings.
5. Review your assessment and revise if necessary.

16.5 Guiding Principles:

Some topics to consider when carrying out your assessment

Site location. (Is the site remote with little evidence of public activity?)

Para 134 of the ACOP Guidance states. "The type of barrier required depends on the risks. In a rural area where the risk of public access is low; hedges, trenches and mounds may be enough. At the other extreme, where there is evidence of persistent trespass by children which places them at significant risk, sophisticated metal paling fences may be required.

Proximity of footpaths & mountain bike trails.

The proximity of footpaths and/or mountain bike trails will have an impact on the robustness of the type of barrier.

Degree of hazard (i.e high faces, loose rock.)

As the degree of hazard increases then so must the control measures

Visibility of hazard.(overhangs, deep water)

If a hazard is not visible then it is impossible to determine the risk

Ease of access.

If access tracks, haul roads & footpaths are not blocked off then this may be seen as an open invitation.

Natural barriers.

Referring to para. 134 (above) Gorse, dense vegetation/Sitka provide an effective barrier.

Communication. (Mobile cover)

Consider effective communication from the site for evacuation purposes.

Conservation & Environment

In removing the need for barriers by, for instance reshaping a face, consider the impact on conservation such as sand martins, rare species of plants or invertebrates.

Appropriate signage.

Consider whether the signage is in keeping with the ongoing operations on the site.



Detraction of natural beauty

Does the unnecessary erection of fencing and signage detract from the natural beauty of the area.

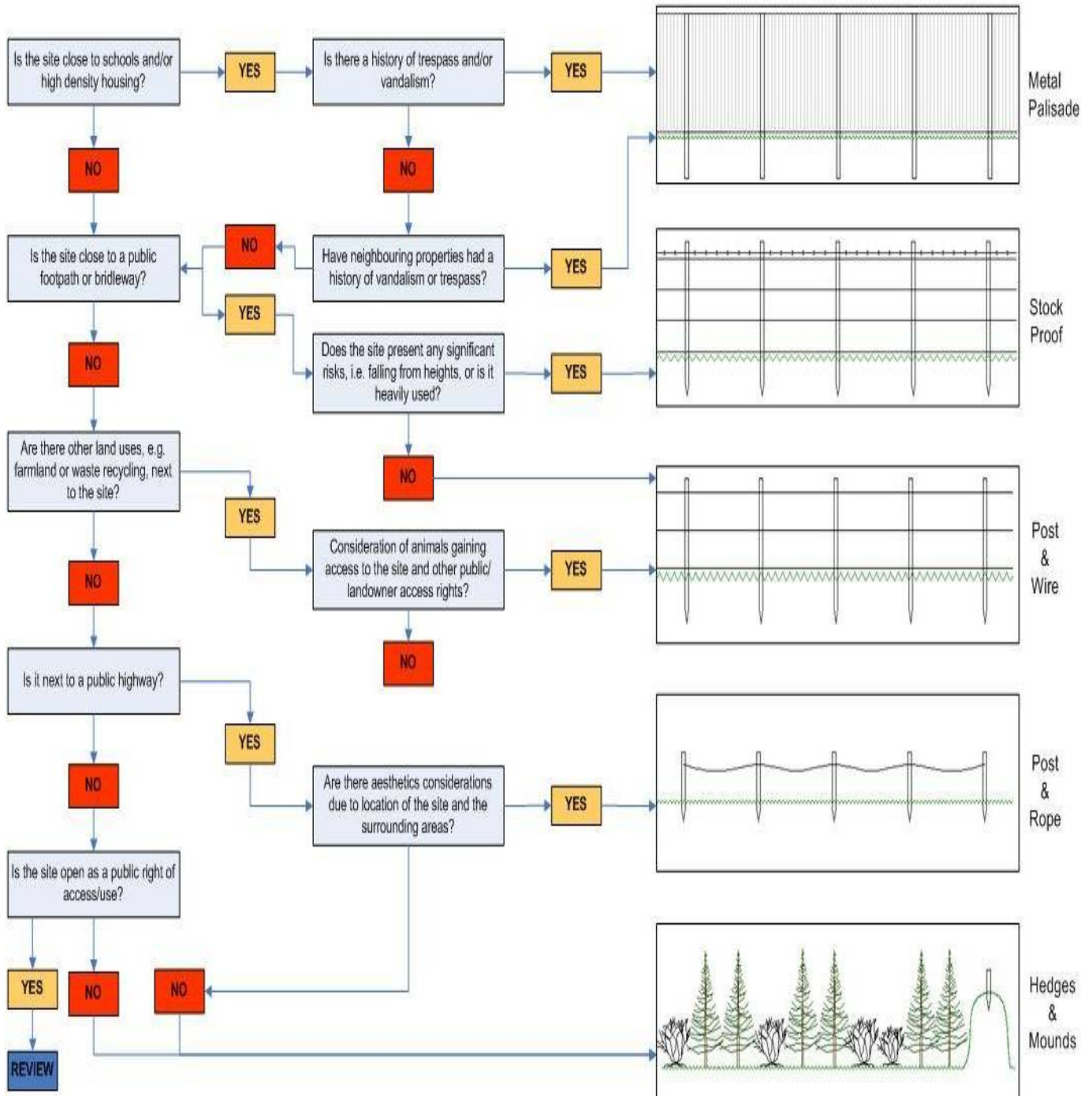
Summary

- The Regulations are written so as to provide you with the autonomy to make an informed judgment on the type of barrier.
- Local circumstances and in particular, your risk assessment (appraisal), will help determine the most appropriate solution.
- It is important to remember, that review is an important part of the process and as circumstances change; consideration to such changes must be given and applied if necessary.



BARRIERS FLOW CHART

To establish the minimum type of barriers required to a quarry boundary





Checklist for planning, constructing and maintaining Quarry fences

1. Assessment of fencing options and data collection

- Identify potential trespass problems
- Identify all statutory options
- Take account of EIA constraints
- Establish costs
- Consult neighbours
- Evaluate impacts of fencing

Confirm whether a fence is appropriate
Go to Stage 2



2. Fencing strategy and outline design

- Is there a single problem?
- Can an existing boundary fence be adopted
- Is permanent or temporary fencing required
- Location of fence end points e.g. tracks/side roads, water
- Identify potential problems during construction e.g. steep slopes, hard ground

Create outline fence spec and plot on GIS
Go to Stage 3



3. Detailed design and fencing specification

- List default fencing materials, consider:
 - fence height required
 - type of mesh required
- Identify deviations from normal fencing
 - location and type of gates and styles
 - are deer grids required?
- Is machinery required during construction

Complete revision of fence spec and procure
Go to Stage 4



4. Implementation

- Procure contractor
- Issue contract and agree responsibilities
- Exchange risk assessments
- Liaise with contractor during construction
- Final inspection

Construct fence
Go to Stage 5



5. Periodic inspection, maintenance and record keeping

- Routinely inspect fencing as per OGB34 and quarry appraisal
- Identify remedial measures and monitor actions taken

Continue inspections until quarry no longer required and made safe
Go to Stage 4





Part IV: Additional health & safety requirements

Regulation 18 :- Permit to Work

18.1 A permit to work is always required for Hot Work, Electrical Work, Work in Confined Spaces, Entry into machinery and any other residual high-risk activity.

All machinery and equipment to be worked on or entered into or with guarding removed must be locked off before this work is commenced.

A permit to work should be issued by the person in charge of the extraction site.

Regulation 22 :- Danger areas

22.1 Danger area to be defined by the explosive supervisor and agreed with the Extractives manager. Danger zone to be noted on blast zone map indicated within a red circle, site specific.

Part V: Explosives

Regulation 25 :- Shotfiring operations

25.1 A Site Specific Risk Assessment must be completed for each individual blast at every extractives site taking into account recreation facilities, shooting lets, neighbours, nearby properties, utilities, farm animals etc.

25.2 An assessment of individual blasts parameters shall be made to determine the requirement of sentries to observe forest road traffic and other forest user movements.

25.3 As far as is reasonably practicable, care must be taken to plan all blasting operations to avoid times when there is a presence of either humid conditions or low cloud.

ASSESSMENT OF THE DANGER ZONE

25.4 The danger zone for each blast is to be assessed by the Shotfirer, taking into account all factors affecting that particular blast.

25.5 Without prejudice to the above, the danger zone must extend at least 200m from the blast area.

25.6 The Shotfirer shall ensure the evacuation of the danger zone prior to firing.

25.7 If the Shotfirer has difficulty in clearing the danger zone of personnel for any reason, he must consult directly with the Extractives Manager/Explosives Supervisor.

25.8 The Shotfirer shall fire the shot from a safe place of shelter, ensuring, where possible, that his firing position gives rise to good visibility of the danger zone and is not directly in front of the blast.

25.18 The Operator shall ensure that all explosives are stored safely and securely.

25.19 Detonators must be stored separately from all other explosives.

25.20 The Operator shall ensure that there are rules that lay down in writing a procedure for appointing an Explosives Storekeeper.

25.21 The Operator shall ensure that the operations involved in the storage of explosives are carried out by a duly authorised and competent person.

25.22 The minimum duties of the storekeeper must be included in the letter of appointment.

25.23 Arrangements must be made for the custody of the store keys and how they are to be kept safe and secure when not required for opening the store.

25.24 Detailed records must be kept showing the types and quantities of explosives materials on an item by item basis and the length of time in storage.

25.25 The records must show the quantities of materials issued and the name of the person receiving them. The quantities returned to the store must be recorded along with the items used.

25.26 Explosives Store Rules must be issued to all authorised persons and displayed the inside of the Explosives Store.

25.27 Arrangements for the security of the store and the persons responsible must be noted in the Security Plan.

25.28 Persons responsible for the secure storage of explosives must have undergone Security Training.

TRANSFER

25.29 The Operator shall ensure that all explosives are transferred safely and securely.

25.30 The transfer of explosives must only be carried out by a duly authorised and competent person.

25.31 The minimum requirement for an authorised and appointed person will be training in the Handling of Explosives.

25.32 All persons who are authorised to accept delivery of explosive materials must be listed with signatures and given to the organisation that delivers the materials.

25.33 The person receiving the explosive materials must have obtained from the HSE a Recipient Competent Authority Document (RCA Certificate) which gives approval for the transfer of explosive materials to take place.

25.34 When transporting and transferring explosive materials a RCA Certificate or an authenticated copy of the certificate must accompany the load.

25.35 The transporting and transferring explosive materials on the public highway, is covered by the CDG Regulations.

25.36 Any person responsible for the transporting or transferring of explosive materials on the public highway must hold a valid ADR Licence.



25.37 Under ADR a Dangerous Goods Safety Advisor shall be appointed for the transporting or transferring of explosive materials on the public highway.

25.38 A Security Plan shall be in place for the transporting or transferring of explosive materials on the public highway.

TRANSPORT OF EXPLOSIVE MATERIALS IN THE EXTRACTIVES SITE

25.39 The Operator shall ensure that all explosives are transported safely and securely.

25.40 The transport of explosives shall be carried out by a duly authorised and competent person.

25.41 Any vehicle provided for use in relation to shotfiring operations must be so marked as to be readily identifiable from a distance.

25.42 The Explosives Supervisor shall make appropriate arrangements for the authorisation of all explosives transported within the extractives site.

25.43 The Explosives Supervisor shall make appropriate arrangements to ensure that any equipment provided for the transportation of explosive materials is safe and suitable.

25.44 The driver of the vehicle used to transport explosives must be trained and assessed for his competence and must be authorised to do so.

25.45 The vehicle used to transport explosives must be suitable for the purpose and be properly maintained.

25.46 The vehicle used to transport explosive materials must be kept clean and free of any grit.

25.47 If an open body is used to transport explosive materials, the explosives must not be loaded above the sides of the tailboards or buckets.

25.48 Only essential shotfiring equipment must be carried on board the explosives vehicle.

25.49 Detonators must be kept separately in approved locked containers.

25.50 The vehicle transporting explosives must carry suitable fire extinguishers.

25.51 On arrival at the blast site the explosives must to be handed over to the shotfirer or the person who is authorised to receive them.

25.52 The explosives vehicle, when loaded, must not be left unattended at any time.

25.53 The explosive materials being transported must be contained in the manufacturers packaging or in approved containers

TOOLS AND EQUIPMENT

25.54 The following items shall be suitable for purpose and maintained in a safe condition:

25.55 Any exploder(s) must be compatible for the particular initiation system and its test certificate valid.

25.56 Shotfiring cable/tube must be 200 metres long as a minimum.

25.57 Detonator box must be kept clean and free from grit, have an antistatic liner and be lockable.

25.58 Non-ferrous tools – pricker, shovels, stemming rods, tape measures, weights and buckets.

TIMES OF FIRING

25.59 Where there is sufficient visibility to ensure charging and inspections can be carried out safely, then blasting shall take place between:

25.60 0900 hours to 1700 hours Monday to Friday

25.61 During winter months when daylight hours are shorter, the last blast will be within daylight hours.

25.62 Blasting can only take place when there is sufficient visibility to allow operations to be carried out safely having regard to weather conditions and seasonal daylight remaining.

25.63 If, for any reason, the shot cannot be fired during the designated times, the Extractives Manager/Explosives Supervisor will make arrangements for person(s) to be in attendance to prevent access, theft or unauthorised initiation of explosives.

NOTIFICATION OF BLASTING OPERATIONS

25.64 The Forest District office and all staff likely to be affected, by must be informed at the earliest opportunity to give sufficient notice of any blast.

25.65 The MOD and CAA must be informed, at sufficient notice, of any blast that may affect low flying aircraft in that area.

25.66 On days when blasting is to take place, warning signs must be in position.

25.67 The warning horn shall be audible throughout the entire designated danger zone.

Warnings: 10 x Short Blasts @ 10 min prior
 3 x Short Blasts just before firing

The above system of signals shall be used at all times when blasting is to be carried out.

25.68 All persons working in the vicinity of the blast shall be instructed that they must at all times obey the warning signals and instructions given by the Shotfirer and Sentries and that they shall retire to outside the danger zone as defined by the Shotfirer.

DRILLING OPERATIONS

25.69 Drilling Equipment must be fitted with an efficient dust collector and be maintained in good working order.

25.70 Drilling will be carried out according to the Explosives Supervisor's instructions. The Driller will record any variation in hole depth and angle, the position of any voids, clay or shale bands, ground water and broken rock encountered, record on the Driller's Log and inform the Explosives Supervisor.

25.71 The Driller will report to the Explosives Supervisor, any failure to drill a shot hole in accordance with the blasting specification.

25.72 The Driller will ensure that if a shot is not to be used for the purpose of the blast, it is filled up with inert incombustible material before any shot hole is charged.

CHARGING OF SHOTHOLES

25.73 Prior to Charging the Shot

25.74 All shotfiring operations shall be carried out under the close personal supervision of the shotfirer.

25.75 When making arrangements for the blast, the shotfirer shall ensure that there has been sufficient time allowed and assistance available to carry out his/her duties safely.

25.76 The Shotfirer shall visually inspect the area to be blasted.

25.77 No shotfiring will be carried out when there is not enough visibility to carry out the work safely.

25.78 The Shotfirer shall liaise with the driller on rock type, broken ground, cavities, water etc.

25.79 The Shotfirer shall obtain the pre-blasting Specification from the Explosives Supervisor.

25.80 The Shotfirer shall inform the Explosives Supervisor if any variations are required with the blasting specification having regard to the Driller's Log.

25.81 The Shotfirer shall ensure that minimum burdens are intact.

25.82 required for immediate use.

25.83 The Shotfirer shall ensure that no detonators, or shock tube connectors, are used unless they are clearly marked and identifiable.

25.84 The shot holes shall be examined to ensure that they are free of obstructions to allow unimpeded loading of explosives.

25.85 The shot holes shall be measured using a tape provided for that purpose which must have a non-ferrous weight and the results checked against the Driller's Log and any changes recorded.



MAKING UP THE PRIMER

25.86 Whatever method of priming is used, the primer shall be carefully made up at the shot hole to be charged, immediately before loading.

25.87 The detonator must never be forced into the primer cartridge. It must be inserted into the specifically formed aperture, or into a hole made by a wooden, copper, brass or aluminium pricker so that it is parallel with the long axis and does not protrude from either side of the cartridge.

25.88 The detonator must be firmly embedded into the primer so that it is not pulled out of place during loading.

25.89 Only Appointed Shotfirers or Trainee Shotfirers under the close supervision of the Shotfirer are permitted to prime shot holes.

25.90 The Shotfirer shall ensure that primer cartridges are carefully lowered and the position checked against the specification

25.91 The Shotfirer shall ensure that great care is taken to ensure that all down hole initiating lines are neatly coiled and secured to the shot hole collars.

CHARGING AND STEMMING

25.92 Only Appointed Shotfirers or Trainee Shotfirers under the close supervision of the Shotfirer are permitted to charge shot holes.

25.93 In the event of imminent thunderstorms, no charging of shot holes will take place.

25.94 If charging has already commenced when a thunderstorm approaches, all charging will cease immediately and all personnel shall clear the danger area until such time as the storm has passed.

25.95 Wrapping shall not be removed from an explosive cartridge.

25.96 Cartridges shall be inserted into shot holes one at a time and the rise of the column will be checked.

25.97 The rise of bulk explosives in each shot hole must be checked at regular intervals.

25.98 Attention shall be given to ensure holes are effectively stemmed and tamped in.

25.99 While the charge and stemming is loaded, the shock tubes leading from the primer shall be kept taut.

25.100 Stemming to be 10 – 14 mm sharp crushed aggregate.

25.101 Only non-ferrous poles or rods should be inserted into the shot holes for the purpose of stemming.

25.102 Charged shot holes, explosives and detonators must not be left unattended.

25.103 The Shotfirer shall personally authorise and supervise all situations where any vehicle may be required to travel over or close to unprotected initiation lines of any description.

CONTROL OF BLEND TRUCKS

25.104 Before authorising the use of blend truck explosives, site access routes and the blast site must be checked by an experienced person, to ensure that the gradient, width, surface and edge protection are all in order for the safe access and operation of the truck.

25.105 When the truck arrives on site, arrangements must be in place for a responsible person to take charge of the truck and ensure that all operatives have had a site induction and are appointed to handle explosives.

25.106 The blend truck operatives shall be informed that the person in overall charge of the shot hole charging operations is the appointed Shotfirer and the blend truck operatives shall refer to him for their instructions.

25.107 The Shotfirer shall ensure that the blend truck operatives have with them and wear as appropriate, the correct PPE to include eye protection, hardhat, hi-viz vest or coat and safety boots.

25.108 The Shotfirer shall ensure that the truck has on board a product removal tool of approved design for the use in the event of an overcharged hole.

25.109 The Shotfirer shall ensure that where bulk explosives are mixed and pumped directly into the shot holes, quantities for each shot hole are accurately logged.

25.110 Any significant deviation from the blasting specification must be reported to the Explosives Supervisor for remedial action before charging continues.

(NB – During bulk loading operations it is possible for explosives to migrate from the shot hole into a fissure or crack. This shows up when the rise in the column charge is less than it should be. Where significant quantities are involved, there is the likelihood of fly rock occurring if the shot hole is fired. The situation must be formally risk assessed. There is no totally safe course of action, in such circumstances. Not firing the shot and dealing with it as a misfire is, in most circumstances, the least dangerous.)

25.111 Where the explosives column has risen too high in the shot hole, surplus explosives must be removed by the blend truck operatives by means of compressed air or water from the truck or the approved product removal tool.

CONNECTING A ROUND OF SHOTS

25.112 The Shotfirer shall check that all charged holes are connected up in accordance with the specification.

25.113 A knot shall be made at every connector block to prevent shock tubes being pulled through the block.

25.114 The Shotfirer shall check that electrical connections are not in contact with the ground and, in wet conditions, are insulated using tape or other approved methods.

25.115 The Shotfirer shall check that during the laying down and connecting of shock tubes, lines are clean, connector blocks are not overloaded, connectors are at least 50cm apart, kinks in shock tubes are avoided, surplus down line and connector tubing is neatly coiled.

(NB – Some connector blocks may require taping shut as an extra precaution.)



25.116 Before the connector blocks are covered, the shotfirer shall walk the shot with the blasting specification and personally carry out a thorough check to confirm that all down lines are connected into the connector blocks and that the connector blocks are connected into the circuit in accordance with the specification.

25.117 The Shotfirer shall arrange an independent final check, prior to initiation, to ensure all connectors are properly attached to each detonator and that the delay sequence is in accordance with the blasting specification.

25.118 Damage to surface lines by shrapnel.

25.119 Great care shall be taken to avoid contact between shovel and initiation lines during covering operations.

(NB – Extra care is required in the case of the initiating detonator. It should be covered with 200mm damp dust and to a distance of 0.5m ahead of the initiation point. As material for covering the connector blocks, dust is strongly recommended in preference to chippings, which is not considered as effective in containing shrapnel.)

25.120 The initiating detonator used for firing the shot must not be connected to the shock tube until the danger zone has been cleared, with sentries posted and all other precautionary measures have been taken to reduce the risk of injury to others.

TESTING THE CIRCUIT

25.121 The connecting, testing and firing of shotfiring circuits must only be carried out by the appointed Shotfirer or a Trainee Shotfirer under the close personal supervision of the Shotfirer.

25.122 Only currently certificated testers and exploders must be used.

25.123 The Shotfirer shall ensure that the shot firing cable is tested for insulation and continuity before being placed into the circuit.

25.124 The Shotfirer will satisfy himself that it is safe to check the circuit resistance. Provided that this gives a satisfactory reading, (taking into account the resistance of the cable and the total detonators), the cable can be connected to the exploder after the final warning signal has been sounded.

BLAST SITE SECURITY

25.125 All explosive cases and packaging must be inspected, to ensure no explosive remains hidden or lodged within, before disposal.

25.126 No prohibited person shall be knowingly employed in a position where they handle or have control of any explosive or any restricted substance to comply with COER Regulation 2(1).

25.127 No person shall smoke when carrying, handling or using explosive and NO Smoking will be allowed on the blast site.

25.128 A final check shall be made to reconcile explosives and accessories delivered, used and remaining are in accordance with the blast specification.

CLEARING OF THE DANGER ZONE AND POSITIONING OF SENTRIES

25.129 The Shotfirer will be responsible for posting sentries before each shot at the external perimeter of the Danger Zone, blocking all approach roads and paths.

25.130 Sentries will obey the instructions given by the Shotfirer.

25.131 All non-essential persons will retire out with the designated Danger Zone.

25.132 All Sentries shall ensure they are in position in sufficient time to clear their area and bar all entry into the danger zone.

25.133 All Sentries shall stop traffic and pedestrians as directed.

25.134 All Sentries shall stay in position until the 'all clear' is sounded or have been instructed to do otherwise by the Shotfirer.

25.135 All Sentries shall be in visual or radio contact with the Shotfirer.

25.136 All Sentries shall advise the Shotfirer immediately of any person entering the danger zone or of other similar circumstances likely to affect the safe firing of the shot.

25.137 (NB – Shotfiring rules prohibit transmission by hand held radio within 10 metres of a shotfiring circuit using electrical detonators. However, receiving messages within the prescribed distance is in order provided no attempt is made to reply without first moving 10 metres away from the shot.)

FIRING THE SHOT

25.138 Only a Shotfirer or Trainee Shotfirer under the close supervision of a Shotfirer is permitted to fire shots.

25.139 An electric detonator or other spark initiator shall initiate the Shock Tube detonator system.

25.140 The Shotfirer shall ensure that the shot firing cable is tested for insulation and continuity

25.141 When in charge of the exploder, the Shotfirer shall ensure that:

25.142 He retains any removable handle or key in his/her own possession throughout the period of duty.

25.143 He does not place any removable handle or key in position in the apparatus until about to fire the shot.

25.144 Where a shock tube initiating device is used, this is classed as a key and is retained in his/her possession throughout the period of duty.

25.145 The Shotfirer shall not fire a shot unless there is sufficient visibility to ensure that the shotfiring operation and any site inspection after the shot is fired can be carried out safely.

25.146 The Shotfirer shall examine the shot to ensure that the connections have not been disturbed and that all shot holes are linked into the system.



The Shotfirer shall ensure that:

- All Sentries are in place.
- The danger zone has been cleared of all personnel.
- The danger zone is secure.
- All mobile plant and equipment has been moved to a place of safety.

The Shotfirer shall fire the shot from a safe place of shelter.

AFTER FIRING

25.147 After the blast has been fired, and dust/fumes have cleared, the Shotfirer shall inspect the blast to check whether a misfire has occurred. He shall look for undisturbed ground, inadequate ground movement, poor fragmentation, hang ups on the face and view the floor for evidence of undetonated explosives. He shall also check for damage to the access and haul routes. Results shall be recorded on the blast specification.

25.148 When the Shotfirer is satisfied that the danger zone is safe for persons to enter, he shall sound the 'all clear' signal (one long blast on the horn) and contact Sentries by radio or other agreed method.

25.149 If a Misfire is detected, the Misfire Procedure will be followed.

PROCEDURE FOR SAFEGUARDING CHARGED SHOT HOLES OVERNIGHT

25.150 The Shotfirer shall ensure that the Explosives Supervisor, (and the Extractives Manager, if that is a different person), are informed as soon as it becomes apparent that the shot cannot be fired within permitted times.

25.151 The Shotfirer shall ensure that charging operations cease until the Explosives Supervisor has assessed the situation and given instructions on how to proceed.

25.152 The Explosives Supervisor shall ensure that, when leaving charged shot holes overnight:

- He informs the Extractives Manager.
- All surface detonators/connectors are removed and any down lines are suitably anchored
- An overnight guard is posted, in a safe place, within sight of the holes; (a minimum of one competent person is required).
- The overnight guard is aware of the location of the charged shot holes and the consequences of their being tampered with.
- The blasting record is completed and all unused explosives, detonators and accessories are returned to the explosives store.

This is inclusive of explosives left after a misfire, which have not been recovered by the end of the working day.

25.153 In the event of a Misfire, the Shotfirer will immediately inform the Explosives Supervisor and Extractives Manager, who will notify the HSE.

25.154 Sentries will remain in position to warn persons of the danger and to stop any person from moving into the Danger Zone until such times as the Misfire has been dealt with and rendered safe.



Regulation 27 :- Shotfirers Duties

27.1 Responsible for preparing the blast in accordance with blast specification and any subsequent instructions given by the Explosives Supervisor or Extractives Manager.

27.2 Comply with the Shotfiring Rules.

27.3 Train Trainee Shotfirers as required.

27.4 Report any geological anomalies to the Explosives Supervisor prior to charging.

27.5 Keep the exploder key/initiation mechanism in their possession during shotfiring operations.

Trainee Shotfirer

27.6 Comply with the Shotfiring Rules.

27.7 Carry out shotfiring operations only under the supervision of the appointed Shotfirer.

Explosives Supervisor

27.8 Design blasts, set specifications, in accordance with Appendix 2 of the ACOP, and ensure compliance.

27.9 Set the Danger Zone for each blast.

27.10 Review at adequate intervals the performance of blasts.

27.11 Supervise the training of Trainee Shotfirers.

27.12 Attend every blasting operation or otherwise give instructions to Shotfirer for any geological anomalies etc.

27.13 On behalf of the Operator appoint Shotfirers, Explosives handlers, Sentries, Guards etc
Storeman

27.14 Ensure explosives and detonators are stored safely at all times.

27.15 Keep the keys for the store in safe custody at all times with the Extractives Manager, Shotfirer or yourself.

27.16 Keep an accurate record of all stock; issue of receipts of explosives and detonators, including those delivered directly to the blast site for use on the same day.

27.17 Only issue explosives and detonators in suitable containers to the appointed Shotfirer.

27.18 Keep the store and surrounding area clean and tidy.

27.19 Display the store Certificate and Rules.



Driller/Drilling Supervisor

27.20 Drill holes to the pattern, hole diameter, depth, inclination and azimuth as set by the Explosives Supervisor.

27.21 Report any geological anomalies to the Shotfirer i.e. cavities or unusually soft lengths found in drilling a hole.

27.22 Record any unrecovered drill steels on the drillers log, noting the appropriate shothole.

Trainee driller

27.23 comply with rules and carry out drilling duties only under close supervision of the appointed driller.

Crushing / Extraction Supervisor

27.24 Take day to day charge of the crushing/extraction operations ensuring safe working. Carry out daily inspections and checks of faces, stockpiles, machines and signs. Recording the results and correcting small faults. Larger faults are to be reported to the Extractives Manager for remedial action. Ensure the crusher is unblocked, if necessary, by means of a breaker or other suitable mechanical device.

Sentry

27.25 Take up position posted by Shotfirer.

27.26 Forbid entry of FC personnel into the Danger Zone and take all reasonable steps to prevent other persons from entering.

27.27 Warn the Shotfirer when it is not possible to prevent entry or when a person is seen entering the Danger Zone.

Guard

27.28 Take up position appointed by the Shotfirer, Explosives Supervisor or Extractives Manager.

27.29 Forbid entry of FC personnel into the Danger Zone and take all reasonable steps to prevent other persons from entering.

27.30 Remain in position until relieved by a successor or instructed to do so by the person who appointed the guards or by the Extractives Manager.

Explosives Handlers

27.31 Handle explosives at the extractives site or store in order to assist the Shotfirer in their duties.

27.32 Handle explosives and detonators only under the direction and supervision of the Shotfirer.

Sentries, Guards & Explosives Handlers

27.33 (To be appointed in writing at each extractives site by the Extractives Manager, Explosives Supervisor or Shotfirer)



27.34 Individuals appointed according to need, competence and eligibility*.

*Police (CRB) checks required for prohibited persons and as part of store licence.

Machine Operators

27.25 All Plant/Machine Operators of rubber wheeled vehicles will test their machine brakes daily and record the results.

27.26 Operate/Drive safely and according to the rules and other instructions.

27.27 Stay in the cab when at the face and wear seat/lap belt or other restraint system provided with the windows closed.

Regulation 28 :- Misfires

28.1 In the event of a Misfire, apart from the Shotfirer, no person other than the Explosives Supervisor, Trainee Shotfirer or any other person authorised by the Shotfirer shall enter the Danger Zone until authorised to do so by the Shotfirer.

28.2 Appropriate steps must be taken to determine the cause of, and to deal with, the Misfire, as set out in Blasting procedure.

28.3 A suitable record must be kept of the Misfire. It is appropriate for misfires to be recorded on the blast specification.

28.4 Details of the Misfire should include:

- Who discovered it.
- Date and Time.
- Procedure for dealing with it (See Appendix 1).
- The cause.
- Date when Misfire was satisfactorily dealt with.
- Remedial procedures
- Blast reference.
- Location of the Misfire.

28.5 In the event of finding unexploded explosives at a later date ie within a disused extractives site the Extractives Manager will be notified and misfire procedures implemented on site and HSE informed.

Check Blast Area and Sound 'All Clear'
Complete Blast Records and Record and Report Misfire

Stemming Cannot Be Removed (2)

Drill Relieving Holes to Full Depth well clear of Misfire and parallel to it
Profile Design Blast
Re-assess Danger Zone and Post Sentries
Visually Check Firing Layout
Retire to a Safe Place
Check Ohmmeter Reading
Sound Warning
FIRE – Successful



Check Blast Area, Set Up Exclusion Zone and Sound 'All Clear'
Recover Explosives from Muckpile. Retain and Record Failed Items for Return to Manufacturer.
Complete Blast Records and Record and Report Misfire

Dispose of Recovered Packaged Explosives by placing them in suitable containers burning in a safe place. Bulk Explosives should be washed away on site.

Useful Numbers –	Extractives Manager
	Explosives Supervisors
	Shotfirers
R J Basting	01920 552121
EPC	0141 7767196
HSE	0131 247 2000

Storage, Transfer and Transport of Explosives

No person will be allowed to purchase explosives unless they have obtained the following certificates from the area Chief Constable:

- a. A Certificate to Acquire
- b. A Certificate to Acquire and Keep Explosives

Explosives must only be stored in a Licensed Store or Licensed Magazine.



28.6 TYPE 'A' MISFIRE (1)

- Testing before firing reveals broken continuity which cannot be rectified.
- Where an electric detonator is used to initiate a shock tube circuit, the electric detonator and cable must be checked for continuity using a suitable instrument from a safe place. The circuit should be designed in such a way that broken continuity in the electric circuit can always be rectified. Therefore a Type 'A' misfire should never occur. However, it should be remembered that there could be broken continuity in the shock tube which cannot be detected.

TYPE 'B' MISFIRE (2)

- A shot or part of a shot fails to explode when an attempt is made to fire it
- Consult Explosives Supervisor
- Wait 5 Minutes
- Establish Safety Procedures, to include Risk Assessment and Method Statement

Discovery of Surface Circuit Partial Failure

- Determine the Number of Misfired Holes
- Assess which Holes have had Burden Altered (by profiling)
- If Extra Burden is required – Create Confinement
- Profile Relevant Section of Face
- Replace Failed Section of Surface Circuit – Retain and Record Failed Items for Return to Manufacturer
- Re-assess Danger Zone and Post Sentries
- Visually Check Firing Layout
- Retire to a Safe Place
- Check Ohmmeter Reading
- Sound Warning
- FIRE – Successful
- Check Blast Area and Sound 'All Clear'
- Complete Blast Records and Record and Report Misfire

Down Hole Failure

Stemming Can Be Removed (1)

Stemming Cannot Be Removed (2)

Stemming Can Be Removed (1)

- Blow or Wash Out Stemming
- If Any Burden Lost – Re-profile and Remove Explosives to Suit Burden
- Re-prime and Re-stem

If Extra Burden is required – Create Confinement

Profile Relevant Section of Face

Re-assess Danger Zone and Post Sentries

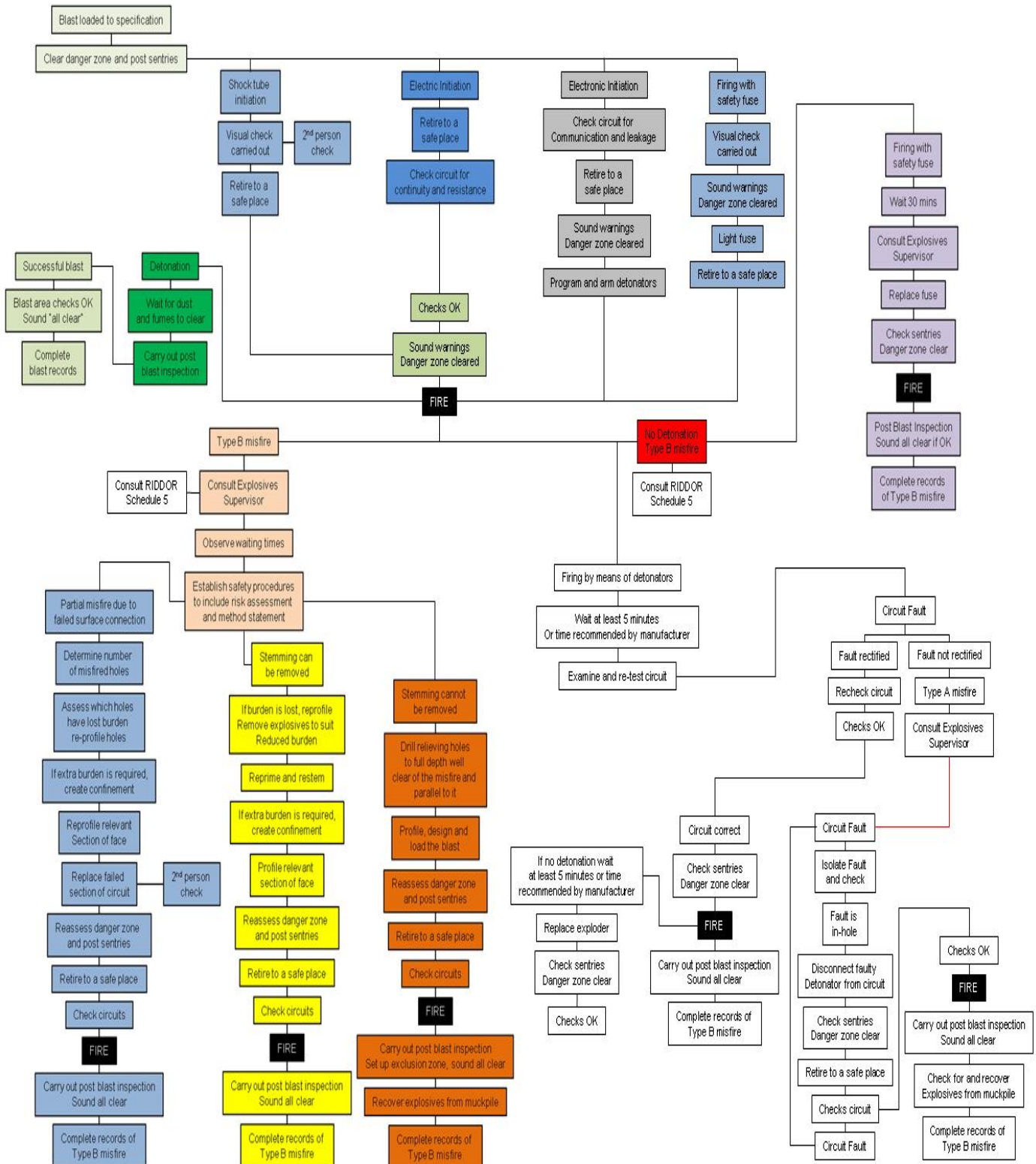
Visually Check Firing Layout

Retire to a Safe Place

Check Ohmmeter Reading

Sound Warning

FIRE – Successful



Part VI: Excavations and tips

Regulation 31 :- Excavation and tip rules

The operator shall ensure that suitable and sufficient rules (known in these Regulations as the "excavations and tips rules") are made to ensure the safe construction and operation of excavations and tips and such rules shall in particular specify the following matters –

- (a) the manner in which such activities are to be carried out;*
- (b) the nature and extent of supervision of such activities; and*
- (c) the precautions to be taken during such activities to ensure the health and safety of any person and the safety and stability of the excavation or tip.*

31.1 The maximum depth/height of any face will be 12 metres unless the Operator has given written permission to increase this height. (Notice of variation from Extractives Rules)

31.2 The documentation necessary for any work being carried out in an Extractives excavation is, a written Extractives Design Plan by a suitably experienced person. A Site Plan showing all relevant features, such as faces, roadways, hazards, emergency equipment, etc, a Work Plan outlining the activity to take place and Risk Assessment showing how any risks from the activity will be managed. (See Blasting Management Plan)

31.3 The sequence in which the extractives site will be excavated shall be recorded. (Extractives Design Review)

31.4 A scheme explaining the provision of site drainage and how it is maintained and inspected shall be made. (Site Plan)

31.5 The height and slope of faces and the thickness of the layers in which a tip is constructed shall be specified in writing. (Site Plan)

31.6 The type of plant and machinery used in the extractives site shall be recorded. (Method Statement)

31.7 The construction standards for roadways and arrangements to prevent tipping vehicles driving or reversing over edges, including the size and shape of edge protection shall be recorded. (Site Plan)

31.8 Any supervision appointed to ensure that work is carried out in accordance with the extractives site design and rules shall be recorded. (Method Statement)

31.9 The actions to carry out if particular defects are found shall be specified. For example loose rock, stockpile movements etc: - taking account of the nature and extent of the defect, the proposed working methods, the nature of the materials and the proximity and vulnerability of neighbouring structures and personnel. (Risk Assessment)

31.10 The way material may be removed from the excavation including the maximum vertical face height which may be created or left at the end of a working period shall be recorded. (Site Plan)

31.11 The maintenance arrangements for faces, for example using mechanical scaling, shall be recorded. (Site Plan)



31.12 For solid tips, including stockpiles, the degree of compaction, where required, for tipped material should also be considered and recorded. (Site Plan)

31.13 For lagoons, the following features shall be recorded, if present:

- The provision of emergency overflows;
- Minimum freeboard heights;
- The operation or maintenance of pumps;
- Procedures to allow material to be recovered safely from lagoons;
- Procedures when covering lagoons. (Site Plan)

31.14 A review of all relevant documents shall take place following a change in either, extractives site design, plant in use onsite, work activities undertaken or following unexpected events e.g. face collapse or tip movement.

Excavations and Explosives

31.15 Where excavations are worked with explosives the Extractives Manager will ensure that work is carried out as soon as reasonably practicable to ensure that;

- There is no evidence of misfired explosives in the worked material (muckpile)
- The excavated material is cleared to the toe of the excavated slope
- Loose material is cleared from the face and crest of the excavated slope including any over break
- The worked material is stable

Regulation 32 :- Appraisal of excavations and tips

32.1 Assessments will be carried out by a Geotechnical specialist procured by the Operator or Extractives Manager where a significant hazard is found. Appraisals will be carried out by the Operator, the Extractives Manager, or a suitable competent and trained person.

Advice on Geotechnical specialists currently on the framework contract can be sought from CECS (0300 067 5930)

Part VII: Duties of Employers and participation and duties of persons at work

Regulation 39 :- Co-operation

39.1 All employees are required to take reasonable care of the Health and Safety of themselves and others who may be affected by their work and to co-operate with the FC Operator for Scotland in the performance of their duties under the Health and Safety at Work Act and the Quarries Regulations. They are also required not to interfere with or misuse anything provided in the interests of Health and Safety.

Part VIII: Miscellaneous and general

Regulation 44 :- Record keeping

44.1 The following documents will be kept in an FC office for a period of 3 years in a file or an appropriate road construction site plan file.

- Detailed plans
- Blast designs and specifications
- Misfire records
- Extractives site Appraisals/Inspections
- Extractives site Assessments
- Vehicles & Equipment testing records

Appointments will be kept for a period of 1 Year after the appointment has ceased.

Risk Assessments

44.2 Risk assessments will be compiled on a site-specific basis before the work commences.

44.3 The Extractives Manager, Deputy Extractives Manager, Explosives Supervisor, Shotfirer or other competent person will ensure these are carried out.

44.4 Barriers and faces are to be controlled based on risk assessment and carried out by the Extractives Manager.

Appendix 1 - Sentry Letter Example



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

SENTRY APPOINTMENT

You are hereby authorised to act as a sentry at this blast site Under Regulation 26 of the Quarry Regulations 1999

NAME:

When blasting takes place you may be required to act as a sentry. You will be posted by the explosives supervisor or the shotfirer at an appointed place. You must not leave this place until the "all clear" has been given or until instructed to do so by the person who posted you or by the explosives supervisor.

You should forbid any company personnel from entering the danger zone and make all reasonable efforts to prevent other persons from entering. Where it is not possible to prevent entry, you must warn the shotfirer preferably by radio so that firing is suspended until the danger zone is cleared and secure.

At all times you should remain in contact (preferably by radio)* with the shotfirer

*If a radio is not used then alternative communication systems should be arranged

SIGNED:.....

(On behalf of Operator)

DATED:.....

SIGNED:.....(Sentry)

DATED:.....

Appendix 2 – Permission to Work Example



Permission to Work in an FCS Extractives Site

.....

Subject to you providing suitable proof of competence of your operators to work safely in Extraction sites and subject to the attached conditions, I hereby give you permission to work in the above named extraction site between and

Please provide quarry plans showing your intended access and egress and also the positions for bowsers, welfare facilities, parking etc.

You must also appoint a competent person to be in charge of the quarry. Please notify me in writing whom this person will be and any changes to this that may occur throughout the period of the contract.

Yours faithfully

Appendix 3 – Daily Inspection Example

RECORD OF DAILY INSPECTION – QUARRY REGULATIONS 1999 – REGULATION 12(2)

Week Commencing Monday

DAY & DATE	SITE NAME/ QUARRY NAME/ MAP REF.	EXCAVATION / TIP / ROAD					COMMENTS / ACTION	SIGNATURE & POSITION
		LOOSE ROCK/GROUND	O/HANGS	CRACKS	SLIPS	OTHER		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MON								
TUE								
WED								
THU								
FRI								
SAT / SUN								

Notes:-This inspection, forms part of the scheme of Inspections required by Regulation 12.'Other' (column 7) allows barriers, machinery, etc. to be included as required in the 'Daily Inspection' if deemed necessary.

Columns 3 – 7 should be marked 'Y' or 'N' for Yes or No.

Column 8 should expand as necessary. Column 8 should make clear what column 7 (if used) refers to. On days when the quarry is not worked, column 8 should make this clear

Appendix 4 – Brake Test Example

PAGE 1 OF 2 - SITE/VEHICLE DATA AND BRAKE TEST DETAILS

Workplace:

Vehicle Data

Vehicle Type:

Unladen weight (w):

Maximum load (L):

Gross weight (W):

Laden/unladen ration (W/w):

Design brake ration:

Site Data

Maximum gradient:

Permitted max speed:

Required retardation (service):

Required retardation (secondary):

Minimum required brake ration (laden):

Service Brake

Test description:

Comments:

Test frequency:

Pass/fail criterion:

Secondary Brake

Test description:

Comments:

Test frequency:

Pass/fail criterion:

Additional Tests

Description:

Manager's name: _____

Signature: _____

Date: _____

Appendix 5 – Factor of Safety Example

QUARRY FACTORS OF SAFETY

FACTOR 1 (Slope Gradient)

	Score
0 degrees to 27 degrees (1 in 2)	3
27 degrees to 45 degrees (1 in 1)	2
45 degrees to 90 degrees (vertical)	1 (including overhanging)

FACTOR 2 (Height)

0m to 7.5m	3
7.5m to 15m	2
> 15m	1

FACTOR 3 (Water Ponding)

No Ponding	3
Shallow Water (< 1m)	2
Deep Water	1

FACTOR 4 (Public Access)

Little Public Access	3
Medium Public Access	2
High Public Access	1



Appendix 6 – Design Review Example

Quarry Design Review

Quarry Name Date

Location NGR

Date of Last Appraisal

Current working Plan

Variation from Design

Future Design Plan

Final Design Plan

Signed

Approved

Appendix 7 – Appraisal Example
QUARRY APPRAISAL SHEET
FC SCOTLAND
FOREST DISTRICT.....

FOREST BLOCK.....

QUARRY No

Quarry Name

Grid Reference

Date of Inspection

Last Inspection

Weather

Condition of Excavated Face	Feature observed		Details of condition and location	
	Yes	No	Details	Remarks
Lowering of ground surface at or behind the crest of the overall slope/bench				
Cracking behind the crest of the overall slope/bench				
Water running over the crest of the overall slope/bench				
Water entering cracks behind the crest of the overall slope/bench				
Surcharging of ground behind the crest of the overall slope/bench				

Face	Yes	No	Details	Remarks
Bulging of the slope face				
Settlement of slope face				
Displacement across joints/bedding planes etc				
Open structural features inclined >10 degrees out of the face (Sliding & Wedge)				
Open structural features inclined steeply > 70 degrees out of the face (Toppling)				
Loose material on the face				
Irregular slope gradient				
Irregularities in plan of the slope face				
Water issuing from the face				



Condition of Excavated Face	Feature observed		Details of condition and location	
	Yes	No	Details	Remarks
Ground movements at or in front of the toe of the overall slope/bench				
Water issuing from or in front of the toe of the overall slope/bench				
Excavations at or near toe of structure not as per design of quarry				

Other Observations	Feature observed		Details of condition and location	
	Yes	No	Details	Remarks
Variations from Design and/or Excavations and Tips rules				
Recent or active rockfall				
Recent or active slope failure				
Other changes in slope condition or features of note				

Fences/Barriers/Signs	Feature observed		Details of condition and location	
	Yes	No	Details	Remarks
Are fences required?				
Are existing fences in good state of repair?				
Are barriers/gates required?				
Are barriers/gates in suitable state of repair?				
Are warning signs required?				
Are warning signs in place and in good condition?				

Benches & Haul Roads	Feature observed		Details of condition and location	
	Yes	No	Details	Remarks
Are benches and haul roads stable and without signs of failure.				
Are haul roads of adequate width and safe gradient				
Are there excessive ruts, potholes.				
Is edge protection adequate?				



Comments	Action Required

Safety and stability of the excavated slopes/tips

Recommendations for immediate action

Signed ***Date***

Recommendations agreed or varied

Signed ***Date***

Action taken to remedy defects

Signed (Quarry Manager) ***Date***

(Rev. 29th Jan 2009)

Appendix 8 – Procedures Checklist Example

QUARRY CHECKLIST

DOCUMENTS	RESPONSIBILITY	CHECKED (FC)	REMARKS
H & S Documents & Quarry Rules	FC Contractor		
Quarry Plans (System of Work)	FC Contractor		
Site Plans	FC Contractor		
Site Safety Rules	FC Contractor		
Location Plan	FC		
Relevant Work Plans	FC		
Job Risk Assessments Job Risk Assessments	FC Contractor		
Site Specific Risk Assessments	Contractor		
Refuelling Risk Assessment	Contractor		
Welfare Facilities	Contractor		
Environmental Assessment	FC		
Water Guidelines	FC		
Method Statement	Contractor		
Programme of Works	Contractor		
Emergency Procedures	Contractor		
RIDDOR Letter	FC		
List of Operators & Certification	Contractor		
Quick Hitch Certification	Contractor		
Machine Maintenance Checklists	Contractor		
Quarry Passport or Equivalent (Letter of Competency for Working in a Quarry-only accepted up to end Dec 2010)	Contractor		
Daily Machine Brake Checks	Contractor		
Daily Inspections Quarry Face & Signage	Contractor & FC		
Checklists (FESS)	FC		
Letter of Permission to Work the Quarry	FC		
Quarry Appraisal	FC		
Site Security	Contractor		
Record of Stone Quantities	Contractor		
CRUSHING: Notification to SEPA (quarry location) Notification to SEPA office local to contractors base . (quarry location)	FC Contractor		
Part B – Permit to Work from SEPA	Contractor		
Operator Certification	Contractor		
Risk Assessment	Contractor		

Time Period Covered	1st August 2014 – 1st February 2015	Location: Scotland	Appendix 9 – Risk Assessment Example
Job	Quarry Loading and Hauling		
Employees covered by risk assessment:			

The Hazard	Location of the Hazard	Who could be harmed	Level of risk	Controls	Implementation/ Monitoring
Contact with Machinery	Quarry and road head	Machine Operator	Med	Maintain safe working zone with other machines. Discuss and agree method of working with other operatives. CPCS (Or equivalent certificated). Load dumpers over tail gate. Dumper operator to stay in cab when loading.	
Rockfall from quarry face/crest	Quarry	Loading excavator operator	Med	Prepare rock trap in accordance with P31 of H&S doc. (1/4 face height width & 1/8 face height depth) and do not encroach within 1 boom length when loading.	
Overturning from loading platforms	Quarry	Machine operator	Low	Prepare a loading platform 1.5 x machine track width. Do not excavate into platform sides	
Slips trips and falls	All work areas	Operators , drivers, MOPs	Med	Dismount machines using 3 points of contact. Keep quarry floor tidy and free of trip hazards.	
Contact with Operational and haulage sites	Worksite	Operators/public	Med	Harvesting Site Safety Rules to be adhered to. Third Party risk assessments to be issued to harvesting operators and hauliers.	
Contact with Public	Quarry and haul road	MOPs	Low	Erect correct signage at quarry entrance. Stop all operations if a pedestrian enters the quarry or approaches an item of plant. Dumpers to slow to walking pace when passing a MOP.	
Lone Working	Worksite	Operator	Med	Radio fitted to machine or mobile phone provided. Safety checks at frequent pre-determined intervals	
Soft Ground	Roadhead	Operator	Med	Experienced/competent/trained operators. Be aware of surroundings on soft ground	

Assessment By: E G Brown

Date: 11th August 2014

Checked By: EGB

Date: 11th August 2014

Signed:

Signed:

Review Date:

Date: 11th Feb 2015

Confirmed By:

Date:

The generic risk assessments have been made available and discussed with all the above employees and they have been advised if they come across a hazard not covered by the risk assessment on a particular site they should contact:

Eric Brown (Safety Engineer Scotland) 077742221

Appendix 10 – Environmental Impact Assessment Example

Environmental Aspects and Impacts Assessment										
Site:			Person Completing the Assessment:				Date of Assessment:			
Stage 1 Identifying Impacts			Stage 2 Legal compliance and key Issues		Stage3 Additional Details	Stage 4 Control Measures		Stage 5 Further Actions		
Impact Type	Answer questions about environmental impacts on your site Any issue that is answered Yes is significant for your site and Stages 2 -5 of this assessment should be completed	Y/N	Where you answered Yes to the questions in Stage 1, answer the following additional questions relating to legal compliance and good environmental practice	Y/N	Where legal compliance, failures, incidents or complaints and other issues have been identified in Stage 2. Add further details about these below	Complete this section if you answered Yes in Stage 1.		Where there is a legal non-compliance or other environmental issue identified an action must be added below and included in the SHE Action Plan		
						Normal Operations Add details describing how the impact is controlled	Emergency Situations What additional controls are used in emergency situations (where appropriate)	Action	By Who	By When
Land use & Planning	Is the quarry subject to any leasing or planning arrangements?									
Recreation & Aftercare	Is there a requirement for restoration of the site?		Is there a restoration plan?							
Visual Impact	Does the quarry have a visual impact on the natural landscape?		Have there been any complaints from local residents in the last two years?							

Biodiversity	Does the quarry have direct impact on biodiversity (are there any species of interest such as badgers, birds etc. affected by the operations) ?		Is there an biodiversity action plan in place to deal with affected species ?							
Archaeology	Has there been or is there potential for archaeology finds on site ?		Does the quarry comply with all legal requirements for archaeology included in workplans ?							
Emissions to Air	Is the quarry covered by a process permit which sets conditions for the control of dust and other air emissions?		Does the quarry comply with all the legal requirements set in the permit or other legal documents ?							
	Can dust collect on access roads ?		Have there been any complaints from local residents or MOPs in the last two years ?							
Water Discharge	Are there any silts traps or settlement ponds that discharge into watercourses ?		Have discharges from silt traps or settlement ponds complied with the Forest & Water guidelines for the last two years ?							
Water Use	Is abstracted water used in the control of dust emissions ?									
Energy Use	Do you use one or mor of the following, electricity, gas, oil, or other fuel for power, heating or lighting at the quarry ?		Does the quarry have an action plan in place to reduce energy consumption?							

Environmental Aspects and Impacts Assessment										
Site:			Person Completing the Assessment:				Date of Assessment:			
Stage 1 Identifying Impacts			Stage 2 Legal compliance and key Issues		Stage3 Additional Details	Stage 4 Control Measures		Stage 5 Further Actions		
Impact Type	Answer questions about environmental impacts on your site Any issue that is answered Yes is significant for your site and Stages 2 -5 of this assessment should be completed	Y/ N	Where you answered Yes to the questions in Stage 1, answer the following additional questions relating to legal compliance and good environmental practice	Y/N	Where legal compliance, failures, incidents or complaints and other issues have been identified in Stage 2. Add further details about these below	Complete this section if you answered Yes in Stage 1. Normal Operations Add details describing how the impact is controlled		Emergency Situations What additional controls are used in emergency situations (where appropriate)	Where there is a legal non-compliance or other environmental issue identified an action must be added below and included in the SHE Action Plan	
								Action	By Who	By When
Natural Resource Use	Does the quarry generate waste containing aggregates?		Does the quarry reuse or recycle process waste?							
	Do you use packaging around your products ?		Do you record how much packaging you use and pass on the information to the SD department ?							

Hazardous Materials	Do you use, store or handle hazardous liquids such as oils, fuels, lubricants?		Do the oil and fuel storage facilities comply with all the legal requirements ?						
	Do you use store or handle chemicals or other hazardous materials not already mentioned ?		Are other hazardous substances stored, banded or packaged to prevent accidental spillage ?						
Waste	Do you produce hazardous waste (oil, chemicals)?		Is hazardous waste disposed of in accordance with legal requirements and does the quarry have documented evidence to support ?						
	Do you produce non-hazardous or inert waste (general waste, wood. Plastic, cardboard, etc.) ?		Is Non-hazardous waste disposed of in accordance with legal requirements and does the quarry have documented evidence to support ?						
	Does the quarry have a waste management licence or exemption certificate ?		Does the quarry have the necessary legal permits or licences in place and in compliance with all conditions ?						

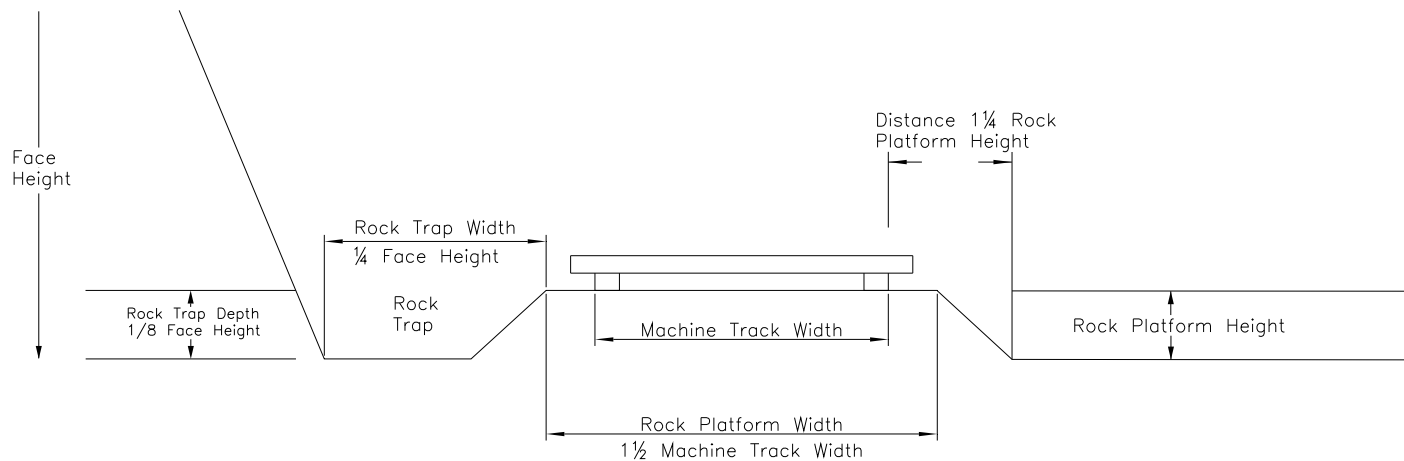
Noise & Vibration	Do the operations on site generate noise which could be audible beyond your boundary to local residents ?		Have there been any noise incidents or complaints from local residents or MOPs in the last two years, including those relating to blasting?							
	Are blasting activities carried out at the quarry ?		Have all blasts carried out in the last two years complied with all legal requirements including vibration limits and monitoring ?							
Local Communities	Are liaison meetings held with the local community ?		Have the meetings been held at the frequency specified by legal requirements set in workplans ?							
	Are there designated times for entering or leaving the quarry, avoiding particular roads or villages as specified in workplans ?		Have there been any incidents or complaints relating to the transport of products from the quarry in the last two years ?							

Environmental Aspects and Impacts Assessment														
Site:			Person Completing the Assessment:				Date of Assessment:							
Stage 1 Identifying Impacts			Stage 2 Legal compliance and key Issues		Stage3 Additional Details	Stage 4 Control Measures		Stage 5 Further Actions						
Impact Type	Answer questions about environmental impacts on your site	Y/ N	Where you answered Yes to the questions in Stage 1, answer the following additional questions relating to legal compliance and good environmental practice	Y/N	Where legal compliance, failures, incidents or complaints and other issues have been identified in Stage 2. Add further details about these below	Complete this section if you answered Yes in Stage 1.		Where there is a legal non-compliance or other environmental issue identified an action must be added below and included in the SHE Action Plan						
	Any issue that is answered Yes is significant for your site and Stages 2 -5 of this assessment should be completed					<table border="1"> <tr> <th>Normal Operations</th> <th>Emergency Situations</th> <th>Action</th> <th>By Who</th> <th>By When</th> </tr> <tr> <td>Add details describing how the impact is controlled</td> <td>What additional controls are used in emergency situations (where appropriate)</td> <td></td> <td></td> <td></td> </tr> </table>	Normal Operations	Emergency Situations	Action	By Who	By When	Add details describing how the impact is controlled	What additional controls are used in emergency situations (where appropriate)	
Normal Operations	Emergency Situations	Action	By Who	By When										
Add details describing how the impact is controlled	What additional controls are used in emergency situations (where appropriate)													
Other issues	Are there any significant environmental issues affecting the site that have not been identified above ?		Is there any legal non-compliance associated with these issues or have they led to any incidents or complaints in the last two years ?											

Appendix 11 - Face Management Example

In the case of a 360 deg. tracked excavator, the machine selected should be able to reach the face crest from a safe position with a suitably designed rock trap in place.

A site specific risk assessment will determine the actual design of the rock trap, but as a rule of thumb it might be expected to be $\frac{1}{8}$ of the face height in width.



Appendix 5

In the case of a wheeled loader or 360 deg. Face shovel working from the quarry floor, the crest should be within the safe reach or capture capability of the machine, if no other working procedure is available to manage the face above the reach of the machine.

The objective in maintaining quarry faces is to remove all significant loose material and rocks within the face to prevent danger and to establish a solid, stable rock face. Rocks should be dislodged so that they either fall safely in a controlled manner into the rock trap or are removed in the bucket of the machine.



Confirmation Receipt

of:

HEALTH & SAFETY DOCUMENT

for

FCS CIVIL ENGINEERING EXTRACTION SITES

As issued on.....

I ,....., hereby confirm receipt of this document.

I understand that I am expected to abide by its provisions, and to bring it to the attention of any staff or contractors who may be working for the time being in FCS extraction sites.

Signature.....

Name (Block Capitals).....

Date.....

Issued by:

(On behalf of the Operator)