4.5
Extractive Industry and Borrow Pit Code

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(1) PURPOSE OF THE CODE – Overall Outcomes:

(a) The Purpose of the Extractive Industry and Borrow Pit Code is the achievement of the overall outcomes sought for the establishment and use of any Extractive industry or Borrow pit in the Shire.

(b) The overall outcomes sought for an Extractive industry or Borrow pit is that uses and works are located and designed so that as part of set-up, operations and rehabilitation:

(i) the character and dominant landscape form in the local setting is maintained,

(ii) the amenity, safety and lifestyle of communities within proximity to the site are protected from significant adverse affects,

(iii) the quality and quantity of land and water resources within the site and its surrounds are maintained,

(iv) the natural environment is protected from significant adverse affects,

(v) the safe and effective operations of adjacent uses, infrastructure and activities is maintained,

(vi) the socio-economic fabric of the host community is protected from significant adverse affects, and

(vii) they operate within the safe and effective design capacity of the road system servicing the area.

(2) ELEMENTS:

(a) Amenity and Character

(i) Environmental Management

Specific Outcome		Probable Solution	
O1	Negative impacts arising from the extent of uses and works and any transport of materials to and from the site are minimised to an acceptable level by effective: (1) emission controls[1], (2) siting and design, (3) sequencing, and (4) property buffers and set backs, addressing noise, dust, fly-rock, emissions, ground vibration, air-blast overpressure and visual impacts having regard to: (1) prevailing winds, (2) topography, (3) geological conditions, (4) operational parameters, and (5) line-of-sight from surrounding sensitive receptors and passing motorists and pedestrians.	S1.1	Uses and works associated with extraction, but not including blasting, are located the following from a property boundary to a: (1) formed, constructed, gazetted public road, or (2) a stock route[2]: 1. *Borrow pit* (other than in a road reserve) – 10 metres, 2. *Extractive industry* - 50 metres.
		S1.2	Uses and works for an *Extractive industry* involving blasting are located the following from any property boundary: (1) relative to the nearest sensitive receptor: 1. where annual production is under 10000 tonnes – 200 metres, 2. where annual production is 10000 to 50000 tonnes – 500 metres, or 3. where annual production is 50000 tonnes or more – 1km, and (2) in all other circumstances other than (1), a setback of 50 metres applies to any other side or rear property boundary to the site.

[1] Emission standard applying to operations of the use and any haulage related to the activity, are determined under the *Environmental Protection Act* for environmentally relevant activities.
[2] The location and extent of any stock route is depicted in PSP 8

(a) Amenity and Character continued

(i) Environmental Management continued:

Specific Outcome	Probable Solution
	S1.3 Extraction and processing activities (excluding crushing and screening) not involving blasting, are located no closer than the following from any side or rear property boundary: (1) relative to the nearest sensitive receptor – 200 metres, or (2) otherwise to any other side or rear boundary to the site - 20m.
	S1.4 Uses and works: (1) fronting any collector or higher order roads depicted on the Zone maps, or (2) visible to any adjacent dwelling unit or other sensitive receptor, have screen landscape planting along the respective property boundary which is of a minimum width of 10 metres.

(a) Amenity and Character

(ii) Hazard and Safety Management

Specific Outcome		Probable Solution	
O2	Blasting, crushing, screening , loading and transportation is carried out safely and so that the following is limited to being within acceptable limits: (1) disturbance to surrounding land uses, land stability and the natural environment, (2) impacts from vibration, radiation, excessive light spill and emissions, and (3) hazard or risk to public safety and wellbeing[3].	S2.1	Blasting operations are limited to the hours of 9am to 5pm, Monday to Friday[4].
		S2.2	Other operations including haulage, are limited to the hours of: (1) 6 am to 6 pm, Monday to Friday, and (2) 8 am to 1 pm on Saturdays.
		S2.3	No operations are conducted on Sundays or public holidays.
		S2.4	Stock proof (minimum 3 strand) fencing (which is lockable) having a minimum height of 1.8 metres is erected and maintained around any excavated areas and ponded water (having a depth of one metre or more), to prevent unauthorised public access.

[3] Use and storage of explosives is undertaken in accordance with *AS2187.1:1998 - Explosives-Storage, Transport and Use-Storage* and *AS2187.2:1993 - Explosives-Storage, Transport and Use-Use of Explosives.*
[4] Vibration is controlled in accordance with *AS2670.2:1990 - Evaluation of Human Exposure to Whole-Body Vibration – Continuous and Shock-Induced Vibration in Buildings (1hz to 80hz).*

(b) Land and Water Resource Management

(i) Sediment, Erosion and Drainage Control

Specific Outcome		Probable Solution	
O3	On-site control measures for managing erosion, sediment movement and drainage are provided so that during set-up and thereafter: (1) erosion and land instability is minimised, (2) the stability and integrity of groundwater, natural drainage lines, discharge points and waterways is maintained, (3) sediment from land disturbance, stockpiles and overtopping of sediment control devices during storm events is minimised through: 1. staging of site works, and 2. landform and batter slope stabilisation and revegetation at the completion of each stage, (4) clean and dirty runoff from the site is captured, separated, retarded and filtered so the quality and quantity of discharge from the site is equal to or better than those from the current approved use, (5) ponding is prevented outside approved water storages and runoff management facilities, (6) flood characteristics are maintained or restored so uses on-site and in the surrounds have adequate flood immunity, and (7) efficient extraction methods result in sustainable volumes and production rates over the life of the industry without increasing incidents of erosion, salinity, flooding, soil degradation, land slip, stormwater concentration and subsidence, and sedimentation.	S3.1	Areas for uses and associated works are located: (1) on slopes less than 10% in gradient, (2) on free draining land with a cross fall of at least 0.5-1%, (3) on existing cleared land, (4) outside areas of known salinity, (5) outside natural drainage features, (6) so water storages, extraction pits and settlement ponds are above land inundated by the 1% Annual Exceedance Probability (AEP) flood event, and (7) so processing areas, areas with improvements and accesses to roads are located: 1. above land inundated by the 0.5% Annual Exceedance Probability (AEP) flood event, or 2. otherwise 300mm above the highest known flood level on the property.
		S3.2	Internal vehicle and machinery movement: (1) involving crossing of creeks and incised drainage lines, occurs by way of bridging at right angles, and (2) drainage of tracks occurs by way of erosion resistant table and cross drains.

(b) Land and Water Resource Management continued

(ii) Water Quality Management

Specific Outcome	Probable Solution
O4 Discharge of: (1) contaminated runoff, (2) sediment/nutrient loaded stormwater, or (3) polluted waste water, from the site is minimised to an acceptable level so: 1. there are no detrimental changes in local water quality in terms of salinity, turbidity, temperature, dissolved oxygen levels, nutrients, the pH factor or other pollutants, 2. the environmental values of groundwater and receiving surface water resources are maintained, and 3. contaminated and process waters are captured and treated on site for safe and effective re-use as part of on-site operations and rehabilitation.	S4.1 Process waters and contaminated storm water are directed to a series of water polishing systems that: (1) have a capacity of twice the volume of the source waters generated daily, and (2) permit desilting when the water sediment volume is 20% of the total pond capacity. S4.2 Earthworks and excavation are located and designed so groundwater is not interrupted or exposed to evaporation or seasonal falls. S4.3 Washing plants and permanent areas for the maintenance and cleaning of vehicles, equipment and machinery are roofed, sealed and bunded, draining to a sump for first flush holding (including collection of oils and greases from vehicle servicing) to remove suspended sediment and neutralise contaminants, prior to discharge of treated waters to settlement ponds. S4.4 Oils, chemicals and fuels (including waste elements) are stored and handled[5] with storage and handling in bunded[6], sealed, level, secured, weatherproofed, impervious and screened areas.

(iii) Riparian and Habitat Land Management

Specific Outcome	Probable Solution
O5 Uses and works adjoining or incorporating the following provide that such areas are retained in or rehabilitated to provide for a natural stable state: (1) riparian lands, (2) remnant native vegetation, (3) vegetation important to land stability or local hydrology, or (4) vegetation important for the management of sensitive lands.	S5.1 Uses and works for all but gravel and sand extraction are set back to water resources on and off the site at the following distances:

Minimum set back (metres) from the[7]:	Under 10000 tonnes per annum	10000 or more tonnes per annum
Top bank to river, stream, creek or wetland	100	300
Centre line of gully	30	50
Full supply level to a referrable dam	300	800

[5] Storage and handling is in accordance with *AS1940:1993 Storage and Handling of Flammable and Combustible Liquids*
[6] Bunds referenced in Element (b)(ii) should be engineered in accordance with standards and guidelines held by the *Environmental Protection Agency.*
[7] Relevant details are depicted on SMOA map 2C

(b) Land and Water Resource Management continued

(iii) Riparian and Habitat Land Management continued

Specific Outcome	Probable Solution
	S5.2 No tree clearing occurs on: (1) groundwater recharge or discharge areas, (2) banks to waterways or in gullies, (3) within the set backs to water resources on the property resulting from S5.1 above, (4) slopes over 15% in grade, (5) flood plains as defined by land inundated by the 1% Annual Exceedence Probability (AEP) flood event, (6) remnant native vegetation and vegetation stands important to habitats for arboreal and aquatic species[8], and (7) land which is 50 metres each side of : 1. the centre of a ridgeline, 2. stormwater discharge points, or 3. known salinity outbreaks.

[8] Uses and works must protect species which are rare, endangered, vulnerable and threatened and/or having restricted distribution under the *Nature Conservation Act* and *Regulations* as well as have no measurable impact on threatened species listed in the *Environmental Protection and Biodiversity Conservation Act, 2001*,

(c) Transport, Traffic and Access Management

Specific Outcome		Probable Solution	
O6	Haulage and access for the premises occur via a public road running between the site access and the nearest arterial road that provides for the following in all reasonable conditions: (1) reasonably efficient, cost effective and safe passage of traffic from the premises relative to passing vehicle, stock, cycle and pedestrian traffic movement, (2) adequate construction capacity necessary to accommodate traffic generated by the use whilst allowing for safe vehicle movements by all local traffic in normal and emergency periods, (3) hazards or congestion on routes (and major intersections) are minimised to an acceptable level, and (4) adverse effects on the accessibility, amenity, safety and environmental values of the locality (through nuisance, emissions and conflicting movements) are minimised to an acceptable level.	S6.1	Premises are located on a site that: (1) fronts a formed, constructed and gazetted road, and (2) is connected between the access point on the frontage of the site and the nearest arterial road by one of the following: 1. a collector or higher order road depicted on the Zone maps, or 2. a 6 metre wide carriageway providing the following from the property to the nearest arterial road depicted on the Zone maps: (a) in the Rural Locality - all-weather access, or (b) in all other circumstances, bitumen sealed access, and (3) haulage/access routes do not pass through or adjacent to Residential or Rural Residential zones.
O7	Access to the premises is by way of ingress and egress arrangements providing for satisfactory visibility for both: (1) truck/trailer visibility movements on and off the site, and (2) other vehicles using or entering/leaving the road network.	S7.1	Each access driveway is: (1) 12 metres wide, (2) located not less than 9 metres from any other access driveway to the site, and (3) located at least 50 metres from an intersection or adjoining property access.

(c) Transport, Traffic and Access Management continued

Specific Outcome:

O8	**The impacts on the scenic amenity, environmental values and livability of the locality arising from transportation of materials associated with rail, conveyor, pipeline, water, etc, are minimised to an acceptable level.**

(d) Rehabilitation

Specific Outcome:

O9	**The nature and sequencing of rehabilitation works and the end-use will achieve a stable, well drained landform with a healthy soils and groundwater profile which maximises the area of land returned to its former or higher and better use as:** **(1) productive rural lands, or** **(2) other resources for the community,** **in a manner so:** **1. costs to the local community are acceptable,** **2. the safety and wellbeing of the community is maintained,** **3. the values of local habitat and water quality are protected,** **4. environmental risks for the site and surrounds are acceptable, and** **5. the visual qualities of the site and its setting are maintained.**