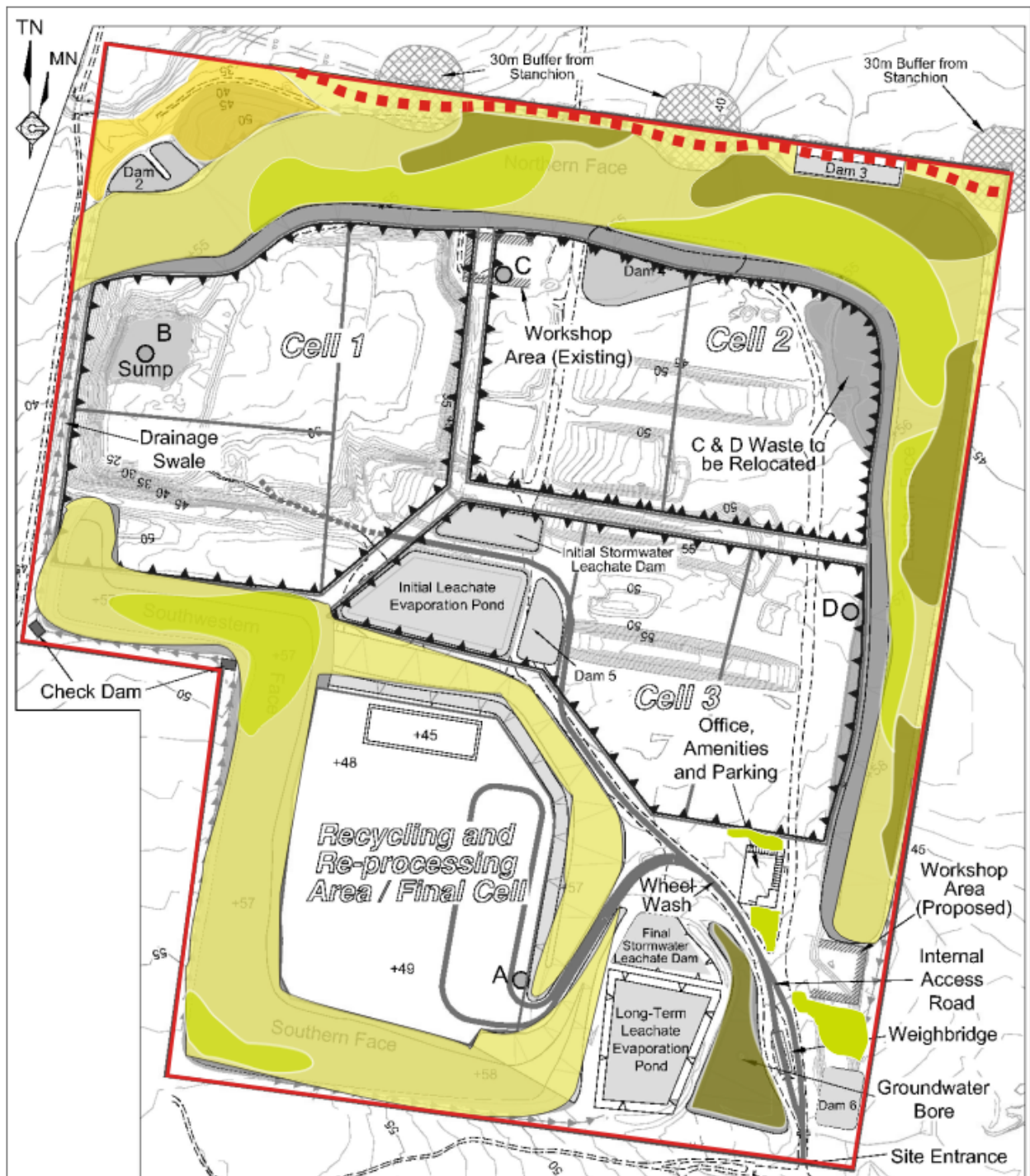


ATTACHMENT A: Schematic Landscape Plans and Schedules

Landscape Plans prepared by Richard Lamb and Associates

Plant Schedules prepared by Hyder Consulting Pty Ltd

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Schematic Landscape Plan: Initial Project Layout





Schematic Landscape Plan: Final Landform

-  Site Boundary
-  Track for transGrid Access
-  Open Pasture Grasses
-  Managed Vegetated Areas
Initial fast growing Mixed Shrub areas managed over project life to include permanent woodland species. Mature Height 6 to 30m
-  Mixed Cumberland Plain Woodland Trees
Mature Height ranging on average from 6 to 30m
-  Riparian Vegetation
Mature Height ranging on average from 8 to 30m
-  New Informal Plantings of Cumberland Plain Woodland Species
Mature Height 6 to 30m

Hydromulching of Mounds & Project Site Faces

Cover Crop

BOTANICAL NAME	COMMON NAME	Application Rate kg/ha	% of seed per 100%	HEIGHT		
				6 MONTHS	8 YEARS	25 YEARS
<i>Echinochloa esculenta</i>	Japanese Millet	40	12	1.5m	1.5m	1.5m
<i>Lolium rigidum</i>	Ryegrass	20	12	1m	1m	1m
<i>Trifolium repens</i>	White Clover	10	12	N/A	N/A	N/A

Native Grasses

<i>Aristida Vagans</i>	Speargrass	0.8	8	0.8m	0.8m	0.8m
<i>Capillipedium parviflorum</i>	Scented-top Grass	0.8	8	1m	1.5m	1.5m
<i>Capillipedium spicigerum</i>	Scented-top Grass	0.8	8	1m	1.5m	1.5m
<i>Entolasia stricta</i>	Wiry Panic	0.8	8	0.8m	0.8m	0.8m
<i>Fimbristylis dichoroma</i>	Common Fringe-sedge	0.8	8	0.7m	0.7m	0.7m
<i>Microlaena stipoides</i>	Weeping Rice Grass	0.8	8	0.5m	0.7m	0.7m
<i>Panicum simile</i>	Two-colour Panic	0.8	8	0.7m	0.7m	0.7m
<i>Themeda australis</i>	Kangaroo Grass	0.8	8	1m	1m	1m

REFERENCES:

USDA (2011) Plants Profile : Japanese Millet. Taken from <http://plants.usda.gov/java/profile?symbol=EOES>
Green Harvest (2011) Cover Crop and Living Mulch Seed. Taken from http://www.greenharvest.com.au/seeds/living_mulch.html#SB133
Groundwork (2011) Specifications for the Application and Aftercare of EcoBlanket® & EcoBerm®. Taken from <http://www.groundwork.net.au/images/Downloads/Specs%20for%20Groundwork%20EcoBlanket.pdf>

Mixed Cumberland Plain Woodland Trees
Tree Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Acacia decurrens</i>	Sydney Green Wattle	1 / 4sqm	2m	10m	Dead
<i>Acacia parramattensis</i>	Parramatta Green Wattle	1 / 4sqm	2m	8m	Dead
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	1 / 4sqm	0.5m	10m	30m
<i>Eucalyptus maculata</i>	Spotted Gum	1 / 4sqm	0.5m	10m	30m
<i>Eucalyptus moluccana</i>	Grey Box	1 / 4sqm	0.5m	7m	25m
<i>Eucalyptus tereticornis</i>	Forest Red Gum	1 / 4sqm	0.5m	10m	30m
<i>Exocarpos cupressiformis</i>	Cherry Ballart	1 / 4sqm	1m	6m	6m

REFERENCES:

Penrith City Council Remnant Native Vegetation Survey / Orchard Hills. Taken from www.penrithcity.nsw.gov.au/index.asp?id=2550

NPWS (2002) Native Vegetation of the Cumberland Plain - Final Edition, NPWS, Sydney.

NPWS (2004) Endangered Ecological Community Information - Cumberland Plain Woodland, NPWS, Sydney.

Department of the Environment, Water, Heritage and the Arts (2007) Threatened Species and threatened ecological communities - Cumberland Plain Woodlands, DEWHA, Canberra.

DECC (2008) Cumberland Plain Woodland - endangered ecological communities / NSW Scientific Committee - final determination, DECC, Sydney.

NPWS (2007) Native Vegetation of the Cumberland Plain - 1:25 000 Map Series - Map 4 of 16, NPWS, Sydney.

Riparian Vegetation

Tree Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Angophora floribunda</i>	Rough-barked Apple	1 / 4sqm	0.5m	7m	20m
<i>Casuarina glauca</i>	Swamp She-Oak	1 / 4sqm	1m	10m	20m
<i>Eucalyptus amplifolia</i>	Cabbage Gum	1 / 4sqm	0.5m	7m	25m
<i>Eucalyptus tereticornis</i>	Forest Red Gum	1 / 4sqm	0.5m	10m	30m
<i>Melaleuca decora</i>	White Feather Honey-myrtle	1 / 4sqm	0.7m	8m	20m
<i>Melaleuca linariifolia</i>	Snow-in-summer	1 / 4sqm	0.5m	5m	8m

Shrub Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Acacia implexa</i>	Black Wattle	1 / 2sqm	1.5m	5m	Dead
<i>Bursaria spinosa</i>	Blackthorn	1 / 2sqm	1.5m	3m	3m
<i>Melaleuca thymifolia</i>	Thyme Honey-myrtle	1 / 2sqm	0.3m	1m	1m

Groundcover Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Alternanthera denticulata</i>	Lesser Joyweed	5 / 1sqm	0.5m	0.5m	0.5m
<i>Carex appresa</i>	Tall Sedge	5 / 1sqm	0.5m	1m	1m
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Rice Grass	5 / 1sqm	0.5m	0.7m	0.7m
<i>Juncus usitatus</i>	Common Rush	3 / 1sqm	0.5m	1m	1m
<i>Lomandra longifolia</i>	Mat Rush	3 / 1sqm	0.5m	1m	1m
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many Flowered Mat Rush	3 / 1sqm	0.5m	0.5m	0.5m
<i>Pericaria decipiens</i>	Spotted Knotweed	9 / 1sqm	0.5m	1m	1m
<i>Themeda australis</i>	Kangaroo Grass	3 / 1sqm	1m	1m	1m

REFERENCES:

Penrith City Council Remnant Native Vegetation Survey / Orchard Hills. Taken from www.w.penrithcity.nsw.gov.au/index.asp?id=2550

NPWS (2002) Native Vegetation of the Cumberland Plain - Final Edition, NPWS, Sydney.

NPWS (2004) Endangered Ecological Community Information - Cumberland Plain Woodland, NPWS, Sydney.

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DECC (2008) Cumberland Plain Woodland - endangered ecological communities / NSW Scientific Committee - final determination, DECC, Sydney.

NPWS (2007) Native Vegetation of the Cumberland Plain - 1:25 000 Map Series - Map 4 of 16, NPWS, Sydney.

Mixed Shrub Areas Shrub Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Acacia falcata</i>	Silver Leafed Wattle	1 / 2sqm	2m	5m	Dead
<i>Acacia implexa</i>	Black Wattle	1 / 2sqm	1.5m	5m	Dead
<i>Bursaria spinosa</i>	Blackthorn	1 / 2sqm	1.5m	3m	3m
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	1 / 2sqm	1m	1.5m	1.5m
<i>Dillwynia sieberi</i>	Prickly Parrot Pea	1 / 2sqm	1.5m	2m	2m
<i>Dodonaea viscosa ssp. cuneata</i>	Wedge-Leaf Hop-Bush	1 / 2sqm	1.5m	3m	3m
<i>Indigofera australis</i>	Australian Indigo	1 / 2sqm	1m	1.5m	1.5m
<i>Lissanthe strigosa</i>	Native Cranberry	1 / 2sqm	0.5m	0.5m	0.5m

REFERENCES:

Penrith City Council Remnant Native Vegetation Survey / Orchard Hills. Taken from www.penrithcity.nsw.gov.au/index.asp?id=2550

NPWS (2002) Native Vegetation of the Cumberland Plain - Final Edition, NPWS, Sydney.

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DECC (2008) Cumberland Plain Woodland - endangered ecological communities / NSW Scientific Committee - final determination, DECC, Sydney.

NPWS (2007) Native Vegetation of the Cumberland Plain - 1:25 000 Map Series - Map 4 of 16, NPWS, Sydney.

New Informal Plantings of Cumberland Plain Woodland Species & Managed Vegetated Areas Tree Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Acacia decurrens</i>	Sydney Green Wattle	1 / 4sqm	2m	10m	Dead
<i>Acacia parramattensis</i>	Parramatta Green Wattle	1 / 4sqm	2m	8m	Dead
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	1 / 4sqm	0.5m	10m	30m
<i>Eucalyptus maculata</i>	Spotted Gum	1 / 4sqm	0.5m	10m	30m
<i>Eucalyptus moluccana</i>	Grey Box	1 / 4sqm	0.5m	7m	25m
<i>Eucalyptus tereticornis</i>	Forest Red Gum	1 / 4sqm	0.5m	10m	30m
<i>Exocarpos cupressiformis</i>	Cherry Ballart	1 / 4sqm	1m	6m	6m

Shrub Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Acacia falcata</i>	Silver Leaved Wattle	1 / 2sqm	1.5m	5m	Dead
<i>Acacia implexa</i>	Black Wattle	1 / 2sqm	1.5m	5m	Dead
<i>Bursaria spinosa</i>	Blackthorn	1 / 2sqm	1.5m	3m	3m
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	1 / 2sqm	1m	1.5m	1.5m
<i>Dillwynia sieberi</i>	Prickly Parrot Pea	1 / 2sqm	1.5m	2m	2m
<i>Dodonaea viscosa ssp. cuneata</i>	Wedge-Leaf Hop-Bush	1 / 2sqm	1.5m	3m	3m
<i>Indigofera australis</i>	Australian Indigo	1 / 2sqm	1m	1.5m	1.5m

Groundcover Species

BOTANICAL NAME	COMMON NAME	SPACING (plant No. / sqm)	HEIGHT		
			6 MONTHS	8 YEARS	25 YEARS
<i>Dianella revoluta</i>	Mauve Flax Lily	3 / 1sqm	1m	1m	1m
<i>Eremophila debilis</i>	Winter Apple	3 / 1sqm	0.6m	2m	2m
<i>Lepidosperma laterale</i>	Variable Sword Sedge	3 / 1sqm	1.5m	1.5m	1.5m
<i>Lomandra filiformis</i>	Wattle Mat Rush	3 / 1sqm	0.3m	0.3m	0.3m
<i>Themeda australis</i>	Kangaroo Grass	3 / 1sqm	1m	1m	1m
<i>Wahlenbergia gracilis</i>	Native Bluebell	9 / 1sqm	0.4m	0.4m	0.4m

REFERENCES: Refer to Cumberland Plain Woodland Trees planting schedule

Landscape Notes

Orchard Hill

Tree, shrub & groundcover species selected for this project, were taken from NPWS documents specific to the Cumberland Plain Woodlands Community. It is assumed that a maintenance plan will be in place to ensure the successful establishment of these species. Due to the nature of the site, the size of planting areas and their location, it is recommended that tube stock and direct seeding be used for all species where practicable. Tube stock has the highest rate of success during establishment, compared with larger pot sizes. Where tube stock is not available for particular species, it is recommended that seed is collected and tubestock grown. For the groundcover stratum, it would be acceptable to use hydromulching as a cheaper option.

Hydromulching of mounds and project site faces in the initial stage is recommended, to aid in slope stabilisation and erosion control. Application of the hydromulch will occur before any planting work begins, with trees, shrubs and groundcover species being added at later stages. A schedule has been provided for hydromulching species, which include cover crop and native grass species. The cover crop species have the fastest strike rate, making them ideal for initial slope stabilisation and erosion control. The native grass mix will strike at a slower rate, but will eventually take over the cover crop, providing a natural pasture land effect.

During the establishment period (initial 12 months after planting), it is expected that a certain amount of plant failure will occur in all planting areas. This is normal and is dependent on the maintenance regime and other environmental factors. Due to occasional plant failure during establishment periods, it is necessary to 'over plant', to allow a satisfactory canopy cover, not only for tree stratum, but shrub and groundcover stratum as well. It is recommended that tree guards be used to protect tree plantings from animals and wind damage. Weed control matting is also recommended to improve the success rate during establishment.

The sketch below depicts the typical planting matrix for the Orchard Hills Project. This initial planting density is necessary to ensure plant failure during the establishment period, does not affect the visual screening capacity of planting areas at 8 years and 25 years. It is recommended that tree, shrub and groundcover species are evenly distributed through the matrix, to give a natural landscape quality to all planting areas. Planting areas shown on the Schematic Landscape Plan: Final Landform includes 'Managed Vegetated Areas'. These areas will have plant stock added when the land is returned to pastureland. Plant stock for these areas will be sourced from the 'New Informal Plantings of Cumberland Plain Woodland Species' planting schedule.

