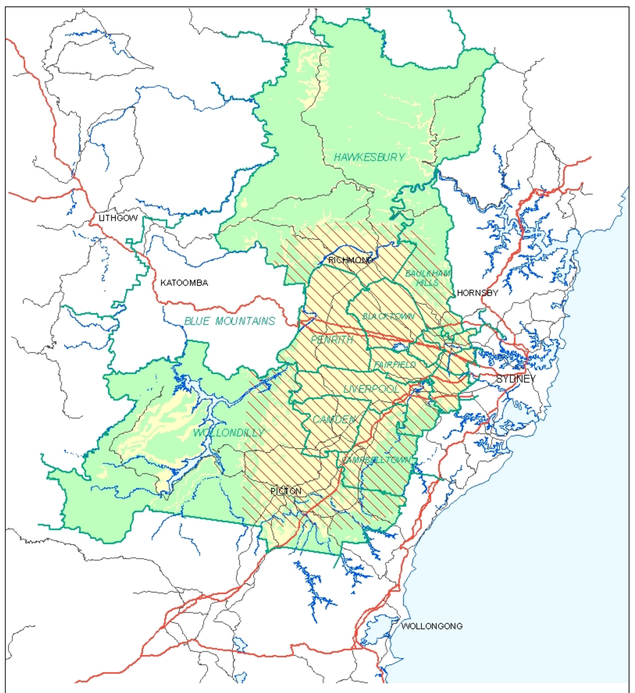
Department of Infrastructure, Planning and Natural Resources

DEPARTMENT OF INFRASTRUCTURE, PLANNING AND NATURAL RESOURCES

SALINITY POTENTIAL IN WESTERN SYDNEY 2002



LOCALITY MAP

(SHOWING STUDY AREA AND LOCAL GOVERNMENT AREAS)

STUDY AREA

LOCAL GOVERNMENT AREA — CAMDEN

N

SCALE

0 1 2 3 4 5 6 7 8 9 10 Kilometers

LEGEND

RIVER or CREEK

MOTORWAY or HIGHWAY

MAIN ROAD

WATERBODY, LAKE or SWAMP

LOCAL GOVERNMENT AREA — CAMDEN

MAPPING CATEGORY	ASSOCIATED SOIL LANDSCAPES	LANDFORM - GEOLOGY
KNOWN SALINITY Areas where there is a known occurrence of saline soil, or where air photo interpretation and field observations have confirmed more than one of these: a - scalding b - salt efflorescence c - vegetation dieback d - salt tolerant plant species e - waterlogging A high relative wetness index occurs in these areas.	* Salinity outbreaks occur in Blacktown (bt), Luddenham (lu) and Richmond (ri) Soil Landscapes - common at breaks of slope, lower slopes and drainage lines. * Berkshire Park (bp) and Upper Castlereagh (up) Soil Landscapes have localised salinity due to the impermeable nature of the clay parent material. * South Creek (sc), Monkey Creek (mk), Freemans Reach (fr) and Theresa Park (tp) Soil Landscapes have common saline outbreaks due to high run-on and low local relief. * Soils in the above landscapes have high clay content in subsoils and are imperfectly to poorly drained.	* Break of slope, lower slope and drainage lines of Wianamatta Shales (Rwb,Rwa and Rwm). * Localised salinity also occurs at the geological boundary between Tertiary Gravels (Tl, Tr) and underlaying Wianamatta Shales (Rwb ,Rwa/ Quaternary Alluvials (Qpd , Qpa, Qpl, Qal). * Localised salinity occurs in Quaternary Alluvium (Qal, Qpn. Qpd) which underlies many of the drainage systems and wetland margins.
HIGH SALINITY POTENTIAL Areas where soil, geology, topography and groundwater conditions predispose a site to salinity. These conditions are similar to areas of known salinity (see above). These areas are most common in lower slopes and drainage systems where water accumulation is high (ie. high relative wetness index).	* Soil Landscapes include Birrong (bi), Blacktown (bt) Berkshire Park (bp), Freemans Reach (fr), South Creek(sc0, Theresa Park (tp), Richmond (ri) and Luddenham (lu). Drainage systems and convergent slopes are areas of highest risk. * Soils in these landscapes have high clay content in the subsoils, low perm eability and high run-on. * Soil profiles may display signs of high salt concentrations at depth (i.e. >0.5m).	* Salinity is most likely to occur in lower slopes, foot-slopes, floodplains and creek lines on Quaternary Sediments (Qal, Qpn, Qpd, Qpc, Qpp, Qha)/Wianamatta Shales (Rwb, Rwm, Rwa) where run-on is high, resulting in seasonally high water tables and soil saturation.
MODERATE SALINITY POTENTIAL Areas on Wianamatta Group Shales and Tertiary Alluvial Terraces. Scattered areas of scalding and indicator vegetation have been noted but no concentrations have been mapped. Saline areas may occur in this zone, which have not yet been identified or may occur if risk factors change adversely.	* Areas of Agnes Banks (ab), Berkshire Park (bp), Blacktown (bt), Luddenham (lu) and Lucas Heights (lh). * Steeper areas with moderate to high local relief and well drained subsoils such as Picton (pn), West Pennant Hills (wp) and Glenorie (gn) are at a lower risk of developing salinity. * Soils are moderate to well-drained due to their elevated position in the landscape.	* Hill-slopes and hill-crests on Wianamatta Shales (Rwb, Rwm, Rwa). * Raised abandoned alluvial terraces and drainage lines on Quaternary Alluvium (Qal, Qpn, Qpd, Qpc, Qpp) from Richmond to Camden and east to Rookwood. Localised areas of elevated, well-drained Tertiary Gravels (Ta, Tl, Tr).
VERY LOW SALINITY POTENTIAL Areas where salinity processes do not operate or are of minor significance. Soils are rapidly drained and underlaying strata (Hawkesbury/Narrabeen Sandstone) are highly permeable, resulting in continual flushing and removal of salts in the landscape. No salinity has been observed in these areas and is not expected to occur.	* Rapidly drained soil landscapes with shallow soils include Warragamba (wb) and Hawkesbury (ha). * Gymea (gy) and Faulconbridge (fb) Soil Landscapes consist of highly permeable sands with well-drained subsoils. * Soils are well to rapidly drained. * Soils have high sand content.	* Occurring on Hawkesbury and Narrabeen Sandstone (Rh, Rno). * Groundwater is relatively fresh in these areas due to the sandstone's elevated position in the landscape and highly permeable nature, resulting in continuous flushing of the system (removal of any accumulated salts).

This map is an extension of the November 2000 study and all areas showing signs of salinity in August 2002 may not appear as red on this map. The area covered by the November 2000 map has been incorporated in this map, but not reassessed, and salinity is a dynamic process. Additionally, locating salinity using aerial photograph interpretation is difficult in established urban areas.

Map boundaries are valid at 1:100,000 scale and have been smoothed to accommodate uncertainties and anomalies. Boundaries should not be used at property scale and appropriate investigation should be undertaken on a site-specific basis. This Salinity Map is not a substitute for on site investigation. This map should also be used in conjunction with the document "Guidelines to Accompany Map of Salinity Potential for Western Sydney - 2002". Failure to do so may result in an inaccurate assessment of the potential for salinity hazard at a particular site.

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DATE OF MAP: MARCH 2003 ISBN 0 7347 5303 9 GS912