

17 Environmental management commitments

This chapter contains a listing of the key commitments made in this ERMP/draft EIS relating to environmental management. These key commitments are listed in Table 17.1 together with other information as required by the guidelines (Appendix A) for this document.

Table 17.1 Summary of key commitments relating to the environmental management

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
Chapter 1—Project Objectives and Background							
1.5.1	The ongoing management proposed for the Project’s conservation areas would include research focussed at improving environmental management systems for these areas.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, Water Corporation and independent farmers.	Improve knowledge of environmental management.	By including the requirement for research in the EMP.	CALM and PWCNT.	–
Chapter 2—The Existing Ord River Irrigation Area							
2.4.2	A proactive groundwater management strategy is proposed as part of the Project. This strategy seeks to manage groundwater levels from project inception to ensure the sustainability of irrigated agriculture on the Project Area. Key elements of the strategy are as follows:						
	<ul style="list-style-type: none"> engineering design standards would comply with current best practice for all irrigation channels and regulating storage’s intended to convey or store water for prolonged periods. These design standards would specify the minimum thickness and compaction levels of the clay lining systems provided to minimise accessions to groundwater; 	Before construction.	Water Corporation.	Minimise accessions.	By implementing appropriate design, material selection and construction method and monitor.	–	Maximum seepage rate of 2 mm/d.
	<ul style="list-style-type: none"> regulating storage’s would be sited to areas that naturally contain greater surface thickness of the less permeable Aquitaine clays; 	Before construction.	Water Corporation.	Minimise accessions.	By implementing appropriate design, material selection and construction method and monitor.	–	Maximum seepage rate of 2 mm/d.
	<ul style="list-style-type: none"> drains for stormwater runoff would be designed with broad channel inverts to minimise excavation, thereby containing the channel inverts where possible in the naturally occurring less permeable surface soils; 	Before construction.	Water Corporation.	Minimise accessions.	By setting appropriate design standard.	–	–
	<ul style="list-style-type: none"> comprehensive supervision and quality assurance procedures would be adopted to ensure that the design intent is fulfilled during construction; 	Construction.	Water Corporation.	Minimise accessions.	By implementing requirements of ISO standards or similar.	–	ISO standards or similar.
	<ul style="list-style-type: none"> crop watering strategies that maximise the water uptake by crops and minimise the water loss to groundwater would be utilised; 	Operation	Wesfarmers–Marubeni and independent farmers.	Minimise accessions.	By measures such as measuring soil moisture.	AGWEST.	–
	<ul style="list-style-type: none"> groundwater levels would be controlled via the utilisation of bores and subsoil drains; 	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Minimise impacts on proposed land use.	By use of bores and subsoil drains.	WRC and DLPE.	–
<ul style="list-style-type: none"> a comprehensive monitoring programme for groundwater levels and quality, and use of the collected data to modify management practices would be practiced. 	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Monitor groundwater levels.	By regular monitoring of observation wells.	WRC and DLPE.	WRC and DLPE.	
Chapter 3—Description of the Project							
3.2.4	Wesfarmers–Marubeni and the Water Corporation would prepare an EMP for the Project upon receipt of environmental approval. The EMP would incorporate all the requirements of the commitments and conditions that apply to the Project and be prepared in consultation with the DEP, the Department of Lands, Planning and Environment and other regulatory authorities. Compliance with the EMP would be mandatory for all landowners and occupiers within the Project Area.	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Effective environmental management.	By preparing and implementing the EMP.	EPA and DLPE.	To satisfaction of EPA and DLPE.
3.3.1	Precision farm water management techniques would be developed for the Project Area and their adoption would be required under the proposed EMP. It is anticipated that these techniques would be based upon measurement of actual crop water use in the soil profile to determine the timing and magnitude of irrigation applications.	Operation.	Wesfarmers–Marubeni and independent farmers.	Minimise groundwater accessions.	By measures such as measuring soil moisture.	AGWEST.	–

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3.3.2	<p>All farms in the Project Area would be developed with irrigation tailwater management systems. Irrigation tailwater is the water leaving the end of the furrows during watering and is unavoidable if uniform water application to the crop is desired.</p> <p>A conceptual tailwater management system proposed for use in the Project Area is shown in Figure 3.3 and would consist of the following elements:</p> <ul style="list-style-type: none"> tailwater ditch that collect tailwater from the furrows and deliver it to a tailwater dam; tailwater dams. The volume of these dams would be optimised during detail design with the objective being to minimise discharges of irrigation tailwater during the dry season. As a minimum, the tailwater dam capacity would be sufficient to provide the specified first-flush stormwater retention capacity (see Section 5.5.2) for the Project—12 mm of rainfall runoff for sugarcane farms and 25 mm of rainfall runoff from other farms; tailwater return pumps and pipelines that would return irrigation tailwater to the farm head ditch or to other intermediate points in the farm irrigation system for application to the crop. The tailwater return pumps would be set to operate at partial filling of the dam, thereby reducing the volume of tailwater requiring storage. 	Construction.	Wesfarmers–Marubeni and independent farmers.	Virtually eliminate discharges of irrigation tailwater during the dry season.	By constructing and operating the tailwater return system.	–	To satisfaction of DEP and DLPE.
3.4.2	<p>Regimes of chemical and fertiliser usage, in terms of type, timing and method of application would be incorporated into the EMP to be developed for the Project Area (Section 3.2.4). These restrictions would as a minimum include:</p> <ul style="list-style-type: none"> pesticide application in accordance with the annual spray calendar prepared for the ORIA; the use only of chemicals that are approved by the Governments of Western Australia and the Northern Territory; the successful completion of training for farm staff required to spray chemicals; commercial spray operators being required to be fully accredited under a national standards system; a ban on the use of endosulfan during the wet season (November to March) and at other times when the crop areas have free-standing water in either the furrows or tail drains; application of endosulfan to comply with the NRA review recommendations (see Section 2.3.1), and substitution of more benign insecticides for endosulfan wherever possible. 	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Minimise use of pesticides.	By incorporating into EMP and implementing.	AGWEST.	NRA recommendations and National Standards.
3.5.1	The supply channels would be open excavations with sloping sides (Figure 3.7). The soil from the excavation would be used to form compacted banks on each side of the channels, and the banks would be around 4–5 m wide at their crest. Compacted clay channel lining would be provided where the channel excavation would be constructed in more permeable soils. This lining would be at least 0.5 m thick over the bed and the lower 1–2 m of the channel batters.	Construction.	Water Corporation.	Minimise groundwater accessions.	By implementing design and construction standards and monitoring.	–	Maximum seepage rate of 2mm/d.
3.5.2	Current planning is based upon the use of wider, shallower drains than were built in ORIA Stage 1. This approach would minimise seepage to groundwater by locating the channel inverts in the less permeable surface soils. Where deeper drains are required, the excavated surface of the drain would be compacted to minimise seepage.	Construction.	Water Corporation.	Minimise groundwater accessions.	By implementing design and construction standards and monitoring.	–	–
3.7.3	<p>Emissions from the boiler would be passed through a scrubber to achieve a maximum particulate discharge of 32 kg/h from the 40 m high chimney. Bagasse firing would be a complete combustion process with excess oxygen available at all times.</p> <p>The process effluent would be treated in a biological treatment plant combining activated sludge and anaerobic processes. The treated effluent, with a BOD level of less than 20 mg/L, may be used as irrigation water directly on to canefields near to the mill.</p> <p>The boiler blow-down would be combined with the process effluent for disposal.</p>	Operation.	Wesfarmers–Marubeni.	Avoid air and water pollution.	By implementing design and construction standards and monitoring.	DEP.	National standards for emissions from stationary sources.
3.9.1	Trucks would be operated and maintained to meet the requirements of relevant noise abatement legislation.	Operation.	Wesfarmers–Marubeni.	Avoid nuisance noise.	By maintenance of vehicles by haulage contractors.	DEP and DLPE.	National standards for noise emissions from mobile sources.

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3.9.1	Public roads would be designed to the appropriate national road design standards in order to provide an acceptable level of safety for the cane transport operations and other road users.	Before Construction.	Wesfarmers–Marubeni.	Design safe roads.	By adopting national road design standards.	Main Roads WA and Department of Transport and Works.	National standards.
3.9.2	All farm requirements would be transported and stored in accordance with regulatory requirements, including impervious bunding of storage areas as appropriate.	Operation.	Wesfarmers–Marubeni and independent farmers.	Avoid pollution.	By fulfilling regulatory requirements.	Minerals and Energy (WA & NT).	NRA Recommendations and national standards.
3.10	In areas where reserve widths significantly greater than those required for construction, only the sections necessary for construction and future maintenance purposes would be cleared.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Avoid excessive clearing.	By including requirement in construction contracts and monitoring.	–	–
3.10	Construction of roads and the irrigation infrastructure would require access to local sources of suitable clay, sand and gravel material. Borrow pits would be selected in accordance with Aboriginal cultural and heritage considerations of the land and operated as far as practicable with a view to minimising erosion, damage to surrounding vegetation and visual impact. Once construction is completed, areas no longer required would be rehabilitated by a combination of contouring, slope stabilisation, topsoil spreading and seeding.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Achieve appropriate rehabilitation.	By including requirement in construction contracts and monitoring.	Miriuwung and Gajerrong people, CALM, PWCNT and the Shire of Wyndham — East Kimberley.	To satisfaction of CALM and PWCNT.
3.10	Sewage and refuse from the camp would be treated and disposed of in a manner approved by the relevant public health authorities of the Northern Territory.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Avoid pollution.	By including requirement in construction contracts and monitoring.	NT Dept of Health.	To satisfaction of NT Department of Health.
3.10	Few construction-related environmental issues are envisaged due to the remoteness of the Project Area from residential areas. An exception relates to the proximity of a section of the proposed M2 Channel, which in some areas is within 300 m of residences. The following measures would be employed at these locations to minimise nuisance from construction equipment: <ul style="list-style-type: none"> • Construction activities would be restricted to daylight hours. • Prior to use, all equipment would be checked to ensure that silencing equipment had been fitted and was in good working order. Local residents would be advised of the nature of the activities to be undertaken and of their duration, particularly if blasting were required to remove rock.	Construction.	Water Corporation.	Minimise disturbance and nuisance to existing residents.	By including requirement in construction contracts and monitoring.	Local residents and the DEP.	Noise abatement regulations.
Chapter 4—Physical Environment							
4.5.2	Soil erosion in the Project Area would be controlled by a combination of the following management strategies: <ul style="list-style-type: none"> • controlling drainage by providing levee banks to prevent floodwaters entering the developed area; • grading land on farms to gentle slopes to minimise stormwater runoff velocities; • sizing and designing receiving drains to accommodate anticipated flow regimes; • providing buffer zones on both sides of watercourses to allow riparian vegetation to continue to stabilise soils in these areas; • rehabilitating disturbed areas; <ul style="list-style-type: none"> – as soon as possible following disturbance during construction; – by formulating and implementing appropriate rehabilitation plans and programmes including topsoil stripping and stockpiling, land preparation, and reseeded with local native species to facilitate regeneration of disturbed areas; • managing crops in such a way that crop cover of the soil is maximised, particularly during the wet season when erosive rainfall events may occur. 	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Minimise soil erosion.	By including rehabilitation requirements and plans in construction contracts and monitoring.	Commissioner of Soil and Land Conservation (WA) and DLPE.	To satisfaction of Commissioner of Soil and Land Conservation (WA) and DLPE.
		Operation.	Wesfarmers–Marubeni and independent farmers.	Minimise soil erosion.	By maximising crop cover.	–	–
4.5.3	Drainage waters leaving farms would first pass through farm drains and tailwater return systems that would settle and collect larger soil particles, such as coarse silts and sands. Farm maintenance would include regular desilting of these drains and return of the collected material to the cropped area.	Operation.	Wesfarmers–Marubeni and independent farmers.	Minimise water pollution.	By regular desilting of tailwater return systems.	–	Quality (suspended solids) of drainage waters to be in natural range of Keep River.

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
4.5.4	<p>Long-term monitoring would be undertaken to ascertain any changes to surface and subsoil salinity and sodicity resulting from the proposed irrigation practices, for example by assessing sodium adsorption ratio, ESP and electrical conductivity levels. Alternative management measures would be investigated and trialled if the monitoring should detect an increase in subsoil sodicity levels sufficient to threaten the long-term sustainability of the Project.</p> <p>The converse scenario is also a possibility in that monitoring may indicate that a lower leaching fraction to that currently proposed may be acceptable to control salinity and sodicity. In this case, the irrigation practices would be modified to reduce the accessions to groundwater, thereby conserving water and reducing or postponing the Project's groundwater management requirements.</p> <p>Within the irrigation area, the chemical status of the soil would also be routinely assessed as a component of ongoing management. This would include regular assessment of soil chemistry, including macro- and micronutrient status, organic matter content and pH. Records of soil tests would be maintained to develop a history of soil chemical and physical status.</p>	Operation.	Environmental Management Entity on behalf of Wesfarmers-Marubeni and independent farmers.	Avoid significant increases in subsoil salinity and sodicity levels.	Undertake monitoring and advise farmers of optimal watering strategies.	AGWEST.	Target sub-soil ESP of 15.
Chapter 5—Surface Water							
5.4.1	Localised areas of high water velocity may occur at structures constructed across natural watercourses, such as the siphon and bridge crossings of Knox Creek and the Keep River. Appropriate erosion protection measures such as stone pitching and bridge abutments would be developed for these areas as part of the detail design for the Project.	Construction.	Wesfarmers-Marubeni and the Water Corporation.	Minimise erosion of watercourses.	By implementing protective measures at watercourse crossings.	–	To satisfaction of Commissioner of Soil and Land Conservation (WA) and DLPE.
5.4.1	Monitoring of erosion along all watercourses, including constructed drains would be undertaken as part of the EMP for the Project. Localised management of any erosion would be undertaken on an as-needed basis by the Environmental Management Entity that would be established as part of the Project	Operation.	Environmental Management Entity on behalf of Wesfarmers-Marubeni, independent farmers and the Water Corporation.	Minimise erosion of water courses.	By monitoring and implementing remedial measures as needed.	–	–
5.5.1	<p>Management of sediment during construction would involve a combination of the following measures:</p> <ul style="list-style-type: none"> • wherever practicable, restricting ground-disturbing operations to the dry season; • restricting ground-disturbing operations to the minimum area required to facilitate construction; • collecting and storing for future use any topsoil from areas to be disturbed; • installing and maintaining temporary sediment traps downstream of any areas to be disturbed; • progressive clearing, developing and rehabilitating, wherever possible using locally won topsoil, of any areas that are no longer going to be disturbed. 	Construction.	Wesfarmers-Marubeni and the Water Corporation.	Minimise sediment load to receiving waters.	By incorporating requirements into construction contracts and monitoring.	Commissioner of Soil and Land Conservation (WA) and DLPE.	To satisfaction of Commissioner of Soil, Land Conservation (WA) and DLPE.
5.5.1	Monitoring of water quality in the receiving watercourses would also be undertaken during construction.	Construction	Environmental Management Entity on behalf of the Wesfarmers-Marubeni and the Water Corporation.	Monitor and advise on effective control measures.	By implementing requirements of EMP.	–	Natural range of receiving waters.
5.5.1	Fertilisers or chemicals would not be applied to cropped areas when the first-flush basin capacity is not available.	Operation.	Wesfarmers-Marubeni and independent farmers.	Minimise water pollution.	Only apply fertilisers and pesticides when first flush basin capacity available.	–	Nutrients within natural range for receiving waters. Pesticides within national guidelines to maintain aquatic ecosystems in receiving waters.
5.5.1	The storage capacity of the first-flush systems would be maintained through regular inspection and removal of sediment.	Operation.	Wesfarmers-Marubeni and independent farmers.	Maintain water management systems.	Inspect and maintain first flush systems.	–	75% of design storage capacity maintained.
5.5.2	Sugarcane has a low requirement for pesticides to grow successfully in the ORIA. However, the management measures that would be adopted for the Project to minimise the effects of any spray drift would be as follows:	Operation.	Wesfarmers-Marubeni and independent farmers.	Minimise pesticide levels in receiving waters.	As committed.	AGWEST.	National guideline values for pesticides for maintenance of aquatic ecosystems.

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
	<ul style="list-style-type: none"> • adoption, where appropriate for the crops being grown, of the integrated pest management strategy developed by AGWEST for the ORIA (see Section 2.3.1) to minimise the amount of pesticides used; • strict control on the use of pesticides, including mandatory adoption by all farmers of the spray calendar developed annually for ORIA Stage 1; • minimisation of the use of aerial spraying, by using tractor-based spraying to the maximum extent possible; • avoidance of unsuitable weather conditions such as surface temperature inversions and unstable conditions during aerial spraying whenever possible; • utilisation of a larger droplet size settings for spray equipment during aerial spraying; • a requirement that all commercial spray operators be accredited to a national registration programme. 						
5.5.2	<p>Management measures that would be adopted for the Project to minimise the effects of airborne dust include:</p> <ul style="list-style-type: none"> • provision of dedicated on-farm access tracks that would not have agricultural chemicals applied directly to them; • wherever possible, adoption of 'minimum tillage' farming practices. 	Operation.	Wesfarmers–Marubeni and independent farmers.	Minimise spread of pesticides by minimising dust.	As committed.	AGWEST.	National guideline values for pesticides for maintenance of aquatic ecosystems.
5.5.4	<p>Control of aquatic weeds in the irrigation channels and balancing storage dams would be by a combination of mechanical weed removal and periodic dosing with a chemical such as acrolein. The latter is currently used for the control of aquatic weeds in the irrigation channels in ORIA Stage 1.</p> <p>Chemical management would be in accordance with best-practice procedures as outlined below:</p> <ul style="list-style-type: none"> • emptying the channel, locking offtakes, erecting warning signage and notifying farmers prior to injection of the chemical; • releasing a known flow of water to obtain a water depth of approximately 0.5 m into the channel and releasing the chemical from a controllable release point to maintain an initial concentration (15 ppm in the case of acrolein); • releasing a marker dye to denote the chemical front; • shutting flow to the channel and holding the chemical in the channel for a minimum of forty-eight hours before diluting by release of additional water and use of the water for irrigation; • monitoring the watercourses downstream of the Project Area for acrolein and if detected, review the above procedure in conjunction with the Water and Rivers Commission and the DLPE. 	Operation.	Water Corporation.	Manage chemical use and minimise discharges to receiving waters.	As committed.	WRC and DLPE.	National guideline values for maintenance of aquatic ecosystems.
5.6.1	<p>As a consequence of the predicted endosulfan concentration being of similar magnitude to the recommended limit, a precautionary approach of adopting interim restrictions is proposed on the use of endosulfan in the Project Area.</p> <p>The interim restrictions would require each application of endosulfan to receive prior approval from the Environmental Management Entity that would be established in conjunction with the Project (see Chapter 16). The interim restrictions would include monitoring of farm drains, tailwater return systems and drainage flows to confirm the effectiveness of the proposed management measures.</p>	Operation.	Environmental Management Entity on behalf of independent farmers.	Manage endosulfan levels in receiving waters to below guideline levels	Obtain prior approval of each application of endosulfan and monitor.	AGWEST.	National guideline values for endosulfan for maintenance of aquatic ecosystems.
5.6.3	Water quality monitoring would form an important component of the environmental management programme proposed for the Project. Data collected by the monitoring programme would be assessed regularly in conjunction with management practices with the aim of minimising impacts on the receiving environment.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Provide data for improved management.	By implementing EMP.	WRC and DLPE.	To satisfaction of WRC and DLPE.

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
Chapter 6—Groundwater							
6.5.5	Groundwater monitoring for the Project would commence with delineation drilling across the interpreted position of the palaeochannel aquifers in order to define their actual position beneath the irrigation area. An extensive network of groundwater monitoring bores would also be installed within and adjacent to the irrigation area prior to the commencement of irrigation. This network would include bore transects aligned perpendicular to the Keep River and Sandy Creek to acquire additional data for the better understanding of the river–groundwater interactions, and the establishment of monitoring bores adjacent to Milligan Lagoon. Groundwater samples would be collected during the delineation drilling to quantify the vertical and horizontal water quality distribution.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Confirm parameters adopted for groundwater modeling.	Conduct further groundwater monitoring.	WRC and DLPE.	To satisfaction of WRC and DLPE.
6.5.5	Test dewatering bores would be installed and tested to confirm aquifer yields and the response of the aquifers to pumping. The data collected by the above programmes would be used to continually update the groundwater model and to optimise the extent and timing of installation of the groundwater management system.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Optimise groundwater management.	Install and operate test bores.	WRC and DLPE.	To satisfaction of WRC and DLPE.
6.5.5	The quality of groundwater adjacent to watercourses would be monitored. The groundwater pumping strategy would include provision for the capture of additional groundwater adjacent to the watercourses if considered necessary.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Maintain health of riparian vegetation.	Monitor groundwater adjacent to watercourse and implement control measures of needed.	WRC and DLPE.	To satisfaction of WRC and DLPE.
Chapter 10—Biological Environment—Impacts and Management							
10.1.3	Any loss of or impairment to, the use of flora or fauna and other resources by Miriung and Gajerrong people would be addressed in an Indigenous Land Use Agreement (ILUA) to be negotiated between the Co-proponents and the Miriung Gajerrong people.	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Obtain agreement of Miriung Gajerrong people.	By negotiation.	Miriung and Gajerrong people.	Agreement of relevant parties.
10.4.8	To ensure that the existing environmental significance of the Point Spring Nature Reserve is maintained, Wesfarmers–Marubeni and the Water Corporation would cooperate with CALM in implementing its management requirements for the site. The overall responsibility for the management of the reserve would remain with CALM. The conservation area between the proposed farmland and Point Spring Nature Reserve would be managed for the purpose of conservation.	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Maintain environmental values of Point Spring Nature Reserve.	By providing co-operation as appropriate	CALM.	To satisfaction of CALM.
10.5.1	Permanent monitoring sites for flora, fauna and biodiversity would be established in conservation areas, along ecological corridors and in selected sites in the Project Area. Monitoring would be undertaken on a regular basis with the monitoring parameters clearly defined following consultation with the staff of CALM and the Parks and Wildlife Commission of the Northern Territory.	Before construction and operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Monitor flora, fauna and biodiversity.	As committed.	CALM and PWCNT.	To satisfaction of CALM and PWCNT
10.5.2	To limit any potential for over clearing, all areas designated for construction works would be clearly marked on development maps and on the ground prior to commencement of works. Vegetation clearance would be staged so that areas are cleared only as required. Designated conservation areas and vegetation buffers would be clearly established and monitored to ensure they remained undisturbed. All contractors and consultants would be required to participate in a formal environmental and cultural heritage induction programme on the importance of the natural and social environment.	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Limit any potential for over clearing and improve environmental awareness.	As committed.	–	–
10.5.2	A fire control strategy and plan would be developed for the farms and for the proposed conservation areas. This would include monitoring areas to determine the need for burning. Advice would be sought from CALM and the Parks and Wildlife Commission of the Northern Territory in the preparation of a Fire Management Plan for the Project Area, including the proposed conservation areas. This plan would take into account community assets, environmental values, fire frequency and season, and the impact that fire could have on human life (e.g. those at risk due to fire).	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Develop appropriate fire management practices	Be developing a fire control strategy and plan and including it in the EMP.	CALM and PWCNT.	To satisfaction of CALM and PWCNT.

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10.5.3	<p>Mandatory interstate quarantine would be maintained to control weeds from other areas. During construction, all construction machinery would be cleaned of soil and other organic debris prior to being transported to the Project Area.</p> <p>If any Declared Weeds or new plants/weeds were introduced into the Project Area, the Weed Science Section of AGWEST, or the Department of Primary Industries and Fisheries (Northern Territory) would be consulted to ensure compliance with relevant legislation and to ensure implementation of appropriate control measures.</p> <p>Quarantine measures that would be implemented for the control of weeds include the following:</p> <ul style="list-style-type: none"> • Interstate quarantine would be maintained. • During project development, all construction vehicles would be washed down to the standards required by AGWEST to prevent transportation of soils and/or weeds into the Project Area. A wash-down site would be established at the main entrance to the Project Area. All vehicles entering construction areas, even private cars, would be washed down to remove seeds and soil. • All site vehicles would be site-dedicated as much as possible, thus limiting cross-contamination from outside areas. • If borrow is required, it would be obtained from surveyed weed-free sites. 	Before construction.	Wesfarmers–Marubeni and the Water Corporation.	Minimise potential for introduction of weeds to Project Area.	As committed.	AGWEST, Department of Primary Industries and Fisheries, CALM and PWCNT.	To satisfaction of AGWEST and Department of Primary Industries and Fisheries
10.5.5	As required by CALM and the Parks and Wildlife Commission of the Northern Territory, dogs and cats would not be permitted in conservation areas.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Minimised potential for feral pests.	By erection of signs.	–	–
10.5.6	<p>Rehabilitation of any sites disturbed during development would be undertaken progressively using seed species collected from the Project Area. Areas disturbed during development of the infrastructure would be rehabilitated as each stage of the work is completed, particularly those drainage channels designated as conservation-vegetation corridors.</p> <p>Where possible, topsoil would be utilised immediately or removed and stockpiled for later use on disturbed areas. Once the development was complete, the topsoil would be spread over the disturbed areas, allowing seeds and rootstock stored in the soil to germinate and become established. Active reseeded of some areas may also take place. Monitoring of success of rehabilitation would be undertaken.</p>	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Effective rehabilitation of disturbed sites.	By including requirements in construction contracts and monitoring.	Miriuwung Gajerrong people, CALM and PWCNT	To satisfaction of Miriuwung Gajerrong people, CALM and PWCNT.
10.5.7	A seed collection programme would be undertaken before vegetation is cleared. A seed mix appropriate to the area to be rehabilitated would be prepared and scattered over the disturbed areas. Alternatively, seedlings could be germinated and planted out at the commencement of the wet season. Only seeds of plant species endemic to the Project Area would be used in revegetation projects.	Construction.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Effective rehabilitation of disturbed sites.	Seed collection and use in rehabilitation projects.	Miriuwung Gajerrong people, CALM and PWCNT.	To satisfaction of Miriuwung Gajerrong people, CALM and PWCNT.
Chapter 11—Land Use							
11.4.4	It is envisaged that access to locations on the Keep River within the Conservation Area would remain open with designated recreation sites for fishing and picnicking purposes being managed by the Environmental Management Entity. Access to the remainder of the conservation area would be restricted to control erosion and weeds as well as to protect the regeneration of the flora and fauna habitats.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Control erosion and weeds.	By providing designated recreation sites and control access.	Miriuwung Gajerrong people and local recreation groups.	To satisfaction of Miriuwung Gajerrong people and local recreation groups.
11.5.1	Project development would include the erection of signs at strategic locations throughout the Project Area that would advise travelers that access to pastoral leases is restricted.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Avoid unwanted visitors to pastoral leases.	By erection of signs.	Local pastoralists.	–

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
Chapter 12—Issues Specific to Miriuwung and Gajerrong People							
12.3	Establish a working relationship with the Aboriginal community and to have consistent, open and honest consultation;	Before construction, during construction and operation.	Wesfarmers-Marubeni, the Water Corporation and Environmental Management Entity.	Ensure that a mutually beneficial working relationship is maintained.	By regular contact by Community Relations Team and formal meetings.	Aboriginal Representative Bodies and the Miriuwung and Gajerrong people.	To satisfaction of the Miriuwung and Gajerrong people.
	Hold regular meetings with Miriuwung and Gajerrong people.	Before construction, during construction and operation.	Wesfarmers-Marubeni, the Water Corporation and Environmental Management Entity.	Ensure people are informed about the Project and to provide a venue for feedback.	By regular meetings.	Aboriginal Representative Bodies and the Miriuwung and Gajerrong people.	To satisfaction of the Miriuwung and Gajerrong people, the EPA and DLPE.
12.4.5	Resolve all Native Title issues by concluding an ILUA with the Miriuwung and Gajerrong people.	Before construction.	Wesfarmers-Marubeni, the Water Corporation, WA and NT Governments.	In order to ensure that Miriuwung and Gajerrong aspirations are met and to ensure that statutory land transfer processes can occur.	By formal negotiations.	Aboriginal Representative Bodies and the Miriuwung and Gajerrong people.	To satisfaction of the NNTT.
12.5.2	Comply with relevant cultural heritage legislation and the aspirations of Miriuwung and Gajerrong people.	Before construction, during construction and operation.	Wesfarmers-Marubeni, the Water Corporation, Environmental Management Entity and independent farmers.	Ensure compliance.	By undertaking cultural heritage assessments.	Aboriginal Representative Bodies, Miriuwung and Gajerrong people, AAPA, HCB and AAD.	To satisfaction of the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.
12.5.3	Establish and implement Cultural Heritage Protection Procedures;	Before construction and during construction.	Wesfarmers-Marubeni and the Water Corporation	Ensure protection of cultural heritage sites.	By provide the Procedures to all contractors.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people, AAPA, HCB and AAD.	To satisfaction of the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.
	Undertake archaeological and ethnographic assessments of the Project Area;	Before construction.	Wesfarmers-Marubeni and the Water Corporation	Ensure protection of cultural heritage sites.	By negotiation with Aboriginal Representative Bodies.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people, AAPA, the HCB and the AAD.	To satisfaction of the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.
	Develop a Cultural Heritage Management Plan.	Operation.	Wesfarmers-Marubeni, the Water Corporation and Environmental Management Entity.	Ensure protection of cultural heritage sites.	By involving the Aboriginal Representative Bodies and Miriuwung and Gajerrong people.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people, AAPA, the HCB and the AAD.	To satisfaction of the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.
12.5.8	Excise cultural heritage sites from the Project Area;	Before construction.	Wesfarmers-Marubeni, the Water Corporation, WA and NT Government.	Ensure protection of cultural heritage sites.	By completing cultural heritage assessments.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.	To satisfaction of the Miriuwung and Gajerrong people, the AAPA, the HCB and the AAD.
	Establish 'green access paths' ;	Before construction.	Wesfarmers-Marubeni, the Water Corporation, WA and NT Governments.	Ensure that Native Title rights are maintained.	By agreement with Government.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people and relevant Government agencies.	To satisfaction of the Miriuwung and Gajerrong people and relevant Government agencies.

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
	Establish the Conservation Area.	Before construction.	Wesfarmers-Marubeni, the Water Corporation, WA and NT Governments.	Ensure protection of cultural heritage sites. Ensure that Native Title rights are maintained.	By agreement with Government.	Aboriginal Representative Bodies, the Miriuwung and Gajerrong people and relevant Government agencies.	To satisfaction of the Miriuwung and Gajerrong people and relevant Government agencies.
12.6.2	Complete an Aboriginal Socio-Economic Impact Assessment.	Before construction.	Wesfarmers-Marubeni and the Water Corporation	Ensure that the Miriuwung and Gajerrong view of the Project is understood and enable the negotiation of an ILUA.	By establishing the Working Group with Miriuwung and Gajerrong people and the Aboriginal Representative Bodies.	Aboriginal Representative Bodies and the Miriuwung and Gajerrong people.	To satisfaction of the Miriuwung and Gajerrong people.
Chapter 13—Air Quality and Noise							
13.2	The main issue associated with dust would be the protection of workers from excessive levels. Earth-moving contracts would be structured to require air-conditioned cabins on earth moving equipment and monitoring of dust levels associated with development activities.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Protect health of construction workers.	By including requirement to provide air conditioned cabins in construction contracts	–	–
	A dust monitoring programme would be established as part of the EMP and administered throughout the construction and operational phases of the Project, using dust deposit gauges that comply with AS 3580.10.1—1991. Periodic dust monitoring would also be undertaken using portable monitors.	Construction and Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Provide data for management.	As committed.	DEP and DLPE.	–
13.3.2	Some smoke and ash may be generated from burning wood and other vegetation during the construction phase of the Project. The impact of this activity is anticipated to be minimal and temporary, as the burning would be carried out over a relatively short period. The isolation of the Project Area and the relatively sparse coverage of vegetation on the black-soil plains also reduce the significance of this issue. Furthermore, burning practices would be managed to occur at times when prevailing winds would direct smoke and ash away from residential areas.	Construction.	Wesfarmers–Marubeni and the Water Corporation.	Avoid nuisance from smoke and ash fallout.	By including requirements into construction contracts and monitor.	CALM and PWCNT.	–
13.6	Construction works associated with development of the M2 Channel may at times be within 300 m of existing residences. The following management measures would be adopted to mitigate adverse impacts on these residences: <ul style="list-style-type: none"> Construction activities would be restricted to daylight hours for all activities within 500 m of an existing residence. All occupiers of residences within 1 km of construction activities would be advised of the nature and duration of the activities planned, and well in advance of construction commencing. All construction equipment would be fitted with appropriate silencing equipment and operated in a manner such that the construction activities comply with the Environmental Protection (Noise) Regulations published by the EPA in October 1997. All trucks used for product transport would be fitted with mufflers such that noise levels conform to noise abatement regulations.	Construction.	Wesfarmers-Marubeni and the Water Corporation.	Avoid nuisance to existing residents.	By incorporating requirements into construction contracts and monitoring.	Occupiers of residences within 1 km of construction works.	Noise abatement regulations.
Chapter 14—Public Health							
14.1.3	Management action would be taken in conjunction with the proposed development to reduce the risk of increased infection with arboviruses. These actions would concentrate upon the following activities: <ul style="list-style-type: none"> designing and operating the Project so as to reduce the potential for increased mosquito-breeding activity; implementing education programmes for the Project’s construction and operational workforce on measures that could be taken to reduce their personal risk of infection; extending the existing monitoring programmes to cover the Project Area. 	Before construction, construction and operation.	Wesfarmers–Marubeni, the Water Corporation (to end of construction), Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation (thereafter).	Reduce risk of infection through lower mosquito numbers and public awareness.	As committed.	Health Departments (WA) and (NT).	–

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
14.2.4	Any usage of chemicals within the Project Area would be in accordance with Commonwealth and State regulations and industry best practice. In order to minimise the potential for spray drift, the application of any chemicals within the Project Area would be from tractor-drawn boom-sprays whenever possible, utilising technology that results in relatively large spray droplets being released close to the ground.	Operation.	Wesfarmers-Marubeni and independent farmers.	Minimise chemicals in the environment.	As committed.	AGWEST Department of Primary Industries and Fisheries.	Commonwealth, State and Territory regulations.
14.2.4	A test kit has been developed by the University of Queensland that allows a rapid assessment of the placement deposit patterns in the field following spray operations. This information can be used to calculate optimum flight lane separations or, if drift is of concern, to determine the extent of drift associated with the spraying operations (Woods and Dorr 1997). This kit, or an equivalent process, would be used by the proposed Environmental Management Entity (Chapter 16) to monitor spraying operations within the Project Area as part of the EMP to be developed for the Project.	Operation.	Environmental Management Entity on behalf of Wesfarmers-Marubeni, independent farmers and the Water Corporation.	Provide data for management.	By incorporating requirements into EMP and implementing.	DEP and DLPE.	–
14.2.4	The low pesticide requirements for sugarcane cultivation combined with the prevalence of heavy soils suggest that contamination of Project Area groundwater by agricultural chemicals is unlikely. Nonetheless, as an additional precaution, groundwater would be tested on a regular basis for all chemicals used in the Project Area to ensure compliance with national drinking water quality guidelines.	Operation.	Environmental Management Entity on behalf of Wesfarmers-Marubeni, independent farmers and the Water Corporation.	Ensure safe drinking water supplies.	As committed.	WRC and DLPE.	National guidelines for drinking water.
Chapter 15 – Community Issues							
15.4.5	Access to the Keep River would be maintained.	Before construction, during construction and operation.	Wesfarmers-Marubeni, the Water Corporation and the Environmental Management Entity.	Ensure public access to the Keep River.	By providing designated recreation sites.	Miriuwung and Gajerrong people and local recreation groups.	To the satisfaction of Miriuwung and Gajerrong people and local recreation groups.
15.5.2	Further public meetings are planned.	Before construction, during construction and operation.	Wesfarmers-Marubeni, the Water Corporation and the Environmental Management Entity.	Ensure the public is kept informed about the development of the Project.	By undertaking consultation with the public.	Local community.	–
Chapter 16—Environmental Management Framework							
16.4.2	Wesfarmers-Marubeni and the Water Corporation propose that an entity be established to shoulder the operational aspects of ongoing environmental management in relation to the proposed development on behalf of the industry participants. The proposed entity, or Environmental Management Entity (EME), would be owned by the industry participants, and would provide environmental management services to the owners. Key features of the proposed EME would be as follows: <ul style="list-style-type: none"> The EME would be wholly owned by the industry participants, including all three core industry participants. The key objective of the EME would be the management of environmental issues within the entire Project Area, on behalf of the industry participants. The EME would be responsible for aspects such as ongoing monitoring, analysis, and reporting on behalf of industry within the proposed development—but legal responsibility for environmental compliance would rest with the individual asset owners. The EME would be the focal point for community input in relation to the Project environmental issues in relation to the proposed development. The EME would be resourced by the industry participants within the proposed development. Shareholder rights and obligations with respect to the EME would be assigned to any new asset owner in parallel with any future asset ownership transfer. The EME would be formed prior to the commencement of any development works associated with the proposed development. Founding shares in the entity would be issued to the core industry asset owners, including owner/operators of the farmland, the sugar mill, and the irrigation and drainage infrastructure. In the case of the farmland, shares may be allocated on the basis of landholdings.	Before construction.	Wesfarmers-Marubeni and the Water Corporation.	Establish an entity to provide environmental services to the owners.	As committed.	–	–

Relevant ERMP/EIS Section	Commitment	Timing	Responsibility	Objective	Action	Further consultation	Compliance Criteria
16.4.2	The EME would be fully resourced by the industry participants. It is envisaged that the resourcing requirements would include appropriate facilities located within the Project Area to perform the operations of the EME, and an ongoing operating budget for salaries, materials, consumables, and expenses associated with the continuous monitoring and reporting programme. Funding would be raised from industry for all capital and operating cost requirements of the EME.	Before construction and ongoing.	Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Resource the EME.	By providing facilities and funding.	–	–
16.5	The Environmental Management Plan (EMP) would be finalised prior to any development works to monitor and manage any potential environmental impact associated with the proposed development. The EMP would consider both construction and operation activities. An outline of the EMP has already been prepared (Appendix O) and finalisation of the EMP would be the responsibility of the EME on behalf of Wesfarmers-Marubeni and the Water Corporation.	Before construction and ongoing.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Prepare EMP to guide environmental management.	Prepare EMP.	EPA, DLPE, and the Public.	To satisfaction of EPA and DLPE.
16.6	The results and interpretation of the monitoring process would be reported on an annual basis by the EME on behalf of the industry participants. The annual report would detail actual environmental performance against the environmental performance targets detailed in the EMP, and would be made readily available to the industry participants. The annual report would also be made available to relevant government agencies and possibly other organisations and community interest groups.	Operation.	Environmental Management Entity on behalf of Wesfarmers–Marubeni, independent farmers and the Water Corporation.	Provide ready identification of compliance by the industry with the EMP.	Prepare annual reports and make available to industry participants and relevant government agencies.	EPA, and DLPE.	–