

The following pre-referral screening questions have been developed by the NT EPA to determine whether a proposed action has the potential to have a significant impact on the environment. This screening has been conducted by Emma Lewis and Glen Ewers, from EcOz Environmental Consultants Pty Ltd, and is provided in Table 1 below. The pre-screening questions that inform the screening tool are provided in Figure 1 below.

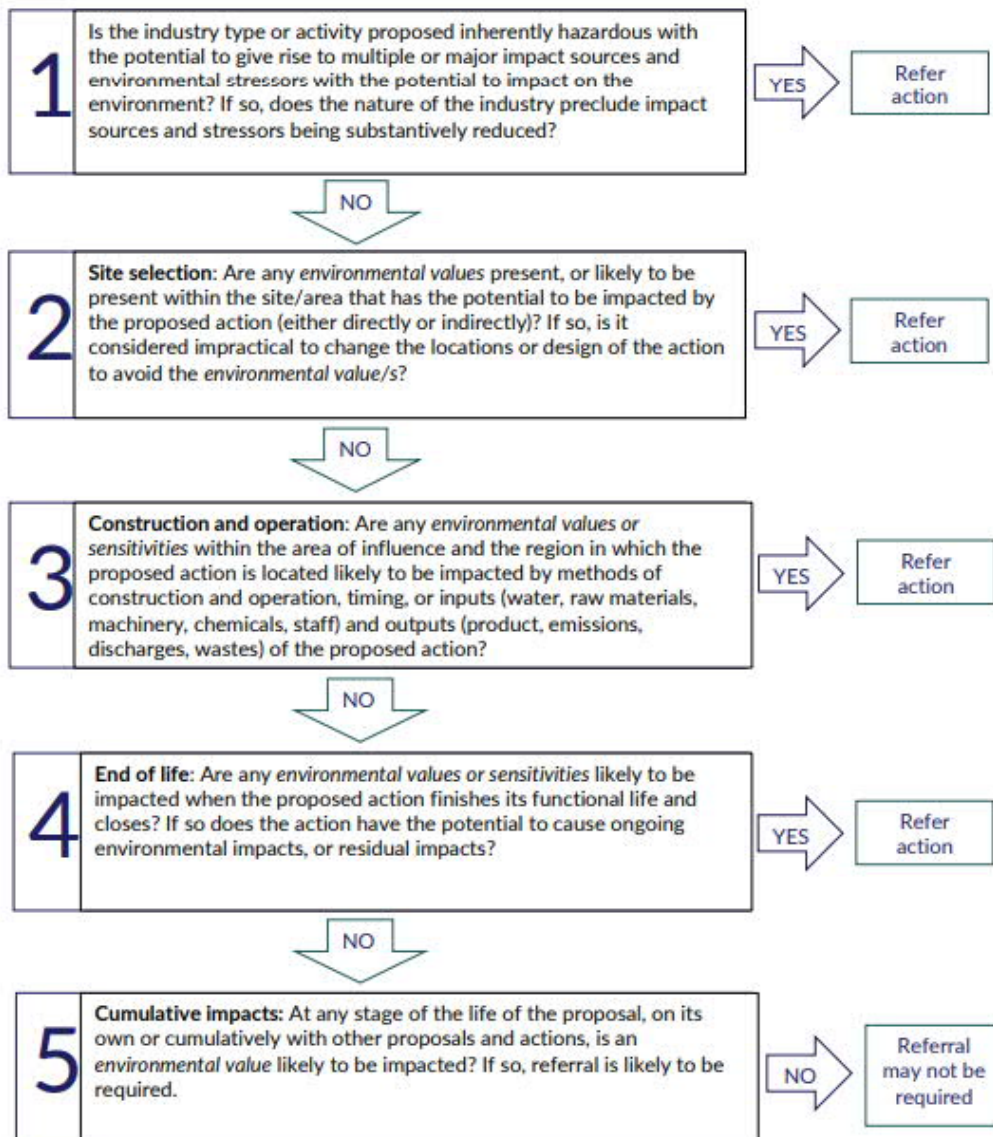


Figure 1. Pre-screening tool screening questions (Source: NT EPA 2021)

The pre-referral screening tool has been prepared below. The tool has been used to identify the environmental values and sensitivities for each of the NT EPA factors, and to assess whether these environmental values are likely to be impacted by the proposed action.

The Proposal area is defined as the development within the current Holtze lots and the land required for enabling infrastructure in adjacent lots (as detailed in the referral document).

The Proposal's 'area of influence' is the extent to which the Proposal activities (during construction and/or operations) could have a significant impact upon environmental values, beneficial users and/or sensitive receptors. Consequently, the Proposal's area of influence is considered to be the Proposal area with a buffer of 100 metres (to allow for the potential impacts from dust and noise), as well as watercourses downstream of the Proposal area (to the extent that impacts on water quality and/or quantity could be significant).

Table 1. Pre-referral screening tool checklist

Theme	Factor and Objective	Background information	Environmental values, sensitivities	Pre-referral screening questions					Justification	
					Q1	Q2	Q3	Q4		Q5
				Yes No	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>		<input type="checkbox"/> <input checked="" type="checkbox"/>
Land	Landforms <u>Objective:</u> Conserve the variety and integrity of distinctive physical landforms.		No distinct natural landforms.	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	No distinct natural landforms are present in the proposal footprint area or area of influence.
	Terrestrial Environmental Quality <u>Objective:</u> Protect the quality and integrity of land and soils so that environmental values are supported and maintained.	113 ha of land and soils will be disturbed by land clearing and development. PSI conducted in 2014 identified widespread dumping of household waste, ACM and car bodies. Presence of concrete slabs may also indicate localised contamination.	No distinct characteristics of soil or biological processes that depend on soil quality identified. Southern portion of project area has a potential high erosion risk due to slope (<15%) Headwaters of Mitchell Creek receptor to erosion risks.	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	Triggers referral due to: Q3 – construction impacts: <ul style="list-style-type: none"> • Large area of land clearing that has potential to cause erosion and soil loss that could indirectly affect water quality and aquatic ecosystems in Mitchell Creek. • The presence of contamination that could be mobilised to air or water during construction, affecting surrounding land uses or water quality in Mitchell Creek or swamps, or impact future residential land uses if not appropriately managed.
	Terrestrial Ecosystems <u>Objective:</u> Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.	113 ha of vegetation will be cleared for residential development. Approximately 80 ha of vegetation will remain for public open space. Survey of area of influence identified	Three threatened species occur: <ul style="list-style-type: none"> • Black-footed Tree-rat (<i>Mesembriomys gouldii gouldii</i>) • Darwin Cycad (<i>Cycas armstrongii</i>) • <i>Typhonium praetermissum</i> One threatened species is highly likely to occur: <ul style="list-style-type: none"> • Mertens' Water Monitor (<i>Varanus mertensi</i>) Riparian vegetation associated with drainage line in south-eastern corner. Large hollow-bearing trees suitable for fauna (<i>Eucalyptus miniata</i> and <i>E. tetradonta</i>).	Yes No Uncertain N/A	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	Triggers referral due to: Q2 – threatened plant species present within site will be directly impacted by land clearing and Black-footed Tree-rat will be directly impacted by loss of habitat and indirectly impacted by any degradation or loss of riparian vegetation caused by changes to the hydrological regime, and or introduction of weeds into surrounding areas. Q5 – cumulative impact associated with regional extent of clearing of threatened species habitat.
Water	Hydrological Processes <u>Objective:</u> Protect the hydrological regimes of groundwater and surface water so that environmental including ecological health, land uses and the welfare and amenity of people are maintained.	First order natural drainage lines exist in the southern portion of site (Mitchell Creek headwaters) which flow for short periods during the wet season. Existing drainage infrastructure is constructed around the PRH and directed south to Mitchell Creek catchment. Additional drainage infrastructure will be constructed to direct flows. The extent of clearing required is unknown. <ul style="list-style-type: none"> • Clearing of vegetation for roads and buildings and other impervious surfaces will increase stormwater runoff and concentrate stormwater flows. • Cumulative increases in stormwater flows in the catchment as a result of widespread urban development have potential to cause downstream erosion and flooding. • Potential modification to swamps and low-lying areas for biting insect management. No groundwater extraction proposed.	Surface water Headwaters of Mitchell Creek. Mitchell Creek downstream. No permanent waterways in proposal footprint.	Yes No Uncertain N/A	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	Triggers referral due to: Q2 – Mitchell Creek and sand sheet heaths (Kowandi) receive surface water runoff from proposal footprint, and could be sensitive to alteration of overland flows. Q3 –Overland surface flow paths will be altered by land clearing and installation of stormwater drainage network. Groundwater recharge could be altered by reduced infiltration due to replacement of natural ground with hard surfaces. Q5 – Cumulative impacts to Mitchell Creek from urban development in the catchment and potential for flooding.

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	Inland Water Environmental Quality <u>Objective:</u> Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.	Surface water <ul style="list-style-type: none"> No baseline surface water sampling conducted as there are no permanent waterways in the Project area. Spills, leaks and inappropriate disposal of hazardous chemicals, fuel, oils, lubricants and paint during construction may degrade downstream water quality Stormwater runoff from the new urban area may transport contaminants such as hydrocarbons, nutrients (from fertilisers) and E. coli (animal faeces) into downstream waterways. Downstream catchment already heavily urbanised. Groundwater <ul style="list-style-type: none"> No chemical / hydrocarbons are proposed to be stored based on final land use type. Project involves connection to mains water supply, including connection of current residents on bore supply. 	Surface water Headwaters of Mitchell Creek. Mitchell Creek downstream No permanent waterways in proposal footprint. Groundwater Mount Partridge Groundwater system underlies the proposal footprint, which supplies bore associated in the areas of Howard Springs, Humpty Doo and Acacia Hills. There are no shallow aquifers underlying the project area, which reduces potential for contamination.	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Triggers referral due to: Q3 – Construction activities have potential to impact water quality in Mitchell Creek and the swamp due to offsite movement of sediments from cleared areas. Residential land use will produce stormwater runoff that is likely to alter the downstream water quality.
	Aquatic Ecosystems <u>Objective:</u> Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.	First order natural drainage lines exist in the southern portion of site (Mitchell Creek headwaters) which flow for short periods during the wet season and therefore would not sustain aquatic habitat. Construction activities may result in local-scale contamination	Headwaters of Mitchell Creek. Mitchell Creek downstream. No perennial aquatic ecosystems in proposal footprint.	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Standard engineering and drainage controls for the development will be incorporated in the detailed design of the proposal. Erosion and sediment control plans (CPESC-certified) will be prepared prior to vegetation clearing and development to minimise the possibility of sedimentation contaminating downstream environments.
Sea	Coastal Processes¹ Marine Environmental Quality² Marine Ecosystems³	Proposed action is located approximately 8 km from the nearest coastal/marine ecosystem, interaction is eliminated.		Yes No Uncertain N/A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	No environmental values or sensitivities relating to sea theme factors and objective have been identified.	
Air	Air Quality <u>Objective:</u> Protect air quality and minimise emissions and their impact so that environmental values are maintained.	Construction activities produce vehicle exhaust and dust emissions that degrade local air quality. 113 ha of vegetation will be cleared. Standard clear strip and grub clearing techniques will be used with diesel-operated machinery.	Closest sensitive receptor are the residential properties located along the northern boundary of 4231 Hundred of Bagot. The Palmerston Indigenous Village is located immediately to the south. Directly west of the proposal is the industrial area of Yarrowonga.	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Based on size of clearing footprint, emissions are not expected to exceed trigger values in the large emitters policy. EcOz to include high-level GHG information in the project description to eliminate the requirement to refer the project under this factor.	
	Atmospheric Processes <u>Objective:</u> Minimise greenhouse gas emissions so as to contribute to the NT Government's aspirational target of achieving net zero greenhouse gas emissions by 2050.	<ul style="list-style-type: none"> Of the greenfield development sites available in the Darwin region, Holtze has been chosen as it is located closest to existing transport networks and services. In accordance with the sub-regional area plan, future development will include a compact and walkable neighbourhood with higher density dwellings close to the centre and public transport Interconnected local roads will support convenient access for pedestrians and cyclists 								

¹ Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.

² Objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.

³ Objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.

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People	Communities and Economy <u>Objective:</u> Enhance communities and the economy and foster resilience to a changing climate, for the welfare, amenity and benefit of current and future generations of Territorians.	<p>Ongoing consultation with community through the 2016 Holtze Area Plan approvals process and HESLUP consultation process.</p> <p>The Holtze Area Plan was included in the amended NT Planning Scheme (2007) on 18 March 2018.</p> <p>The majority of proposal footprint is uncleared with minor areas of disturbance from illegal dumping, squatting, tracks and minor shed infrastructure.</p> <p>The PRH is located within the boundary of this lot. Access if from the previously developed PRH area. Located adjacent to the Stuart Highway.</p>	<p>The closest residential properties northern and eastern boundary of 4231 Hundred of Bagot, The Palmerston Indigenous Village is located immediately to the south.</p> <p>Directly west of the proposal is the industrial area of Yarrowonga.</p>	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Triggers referral due to: Q3 – Potential impacts to local amenity at nearby residential receptors and PRH due to noise and dust emissions during construction. Future residential development will increase traffic volumes and demands for social infrastructure.
	Culture and Heritage <u>Objective:</u> Protect sacred sites, culture and heritage	<p>An archaeological assessment of the Project area has been undertaken</p> <p>AAPA certificate (C2014/036 and C2015/034) obtained for pre-construction works. New AAPA certificate would need to be obtained for the Project area.</p>	<p>The only archaeological sites identified in the proposal footprint were <i>potential</i> World War II sites (5 x concrete slabs and a Sidney Williams hit) located within the development area on Section 4231. The sites are not declared under the <i>Heritage Act</i>.</p> <p>AAPA register check confirms that there are no registered sites in the Project area.</p>	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cultural and heritage mitigation measures will be incorporated into the CEMP, which will include having a current AAPA certificate and unexpected finds procedure.
	Human Health <u>Objective:</u> Protect the health of Northern Territory population.	<p>No access by the public to the project once clearing of vegetation commences.</p> <p>Biting insect habitats not considered significant within proposal footprint however biting insect mitigation is to be undertaken on neighbouring Kowandi site. Biting insects within the wider area of influence will present a risk.</p>	<p>Closest residential properties are along the northern and eastern boundary of 4231 Hundred of Bagot. Following development, residential areas will exist within recommended buffer zones for biting insect breeding habitats.</p>	Yes No Uncertain N/A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Triggers referral due to: Q3 – There is a known biting insect risk as highlighted by medical entomology.