



Environmental Protection

EPA REFERRAL
FORM
PROPONENT

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the Environmental Protection Act.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, have you

| | Yes | No |
|--|-----|----|
| Completed all the questions in Part A (essential) | ✓ | |
| Completed all applicable questions in Part B | ✓ | |
| Included Attachment 1 – location maps | ✓ | |
| Included Attachment 2 – additional document the proponent wishes to provide (if applicable) | ✓ | |
| Included Attachment 3 – confidential information (if applicable) | | ✓ |
| Enclosed the CD of all referral information, including spatial data and contextual mapping but excluding confidential information. | ✓ | |

Following a review of the information presented in this form, please consider the following question. (A response is Optional)

DO YOU CONSIDER THE PROPOSAL REQUIRES FORMAL ENVIRONMENTAL
IMPACT ASSESSMENT?

☐ YES

☒ NO

☐ NOT SURE

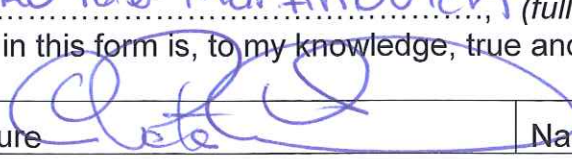
IF YES, WHAT LEVEL OF ASSESSMENT?

☐ ASSESSMENT ON PROPONENT INFORMATION

☐ PUBLIC ENVIRONMENTAL REVIEW

PROPONENT DECLARATION (To be completed by the proponent)

I, Marko Peter Martinovich, (full name) declare that the information
contained in this form is, to my knowledge, true and not misleading.

| | |
|---|---------------------------------------|
| Signature  | Name (print) |
| Position | Company <u>Public Transport Auth.</u> |
| Date <u>14 / 02 / 2013</u> | |

M Peter Martinovich
Executive Director
Infrastructure Planning
And Land Services

PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of this Part must be completed for this document to be treated as a referral)

1.1 PROPONENT

| | |
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| Name | Public Transport Authority of Western Australia (PTA) |
| Joint Venture parties (if applicable) | N/A |
| Postal Address | PO Box 8125 Perth Business Centre WA 6849 |
| Key proponent contact for the proposal <ul style="list-style-type: none">• Name• Address• Phone• Email | Chrissie Harwood Environmental Manager Public Transport Authority of Western Australia C/O Department of Treasury Strategic Projects Locked Bag 11 Cloisters Square Perth WA 6850 Phone: 08 6551 2056 Email: chrissie.harwood@treasury.wa.gov.au |
| Consultant for the proposal (if applicable) <ul style="list-style-type: none">• Name• Address• Phone• Email | Ivan Kwan Golder Associates Pty Ltd Level 3, 1 Havelock Street West Perth WA 6005 Phone: 08 9213 7600 Email: ikwan@golder.com.au |

1.2 PROPOSAL

| | |
|-------------|---|
| Title | The new Perth Stadium Transport Infrastructure Corridor (the Project) |
| Description | <p>The Project includes the design, construction, operation and maintenance of the transport infrastructure proposed for the new Perth Stadium project, located within the road and rail corridor of the Burswood Peninsula, Western Australia (Figure 1 – Regional Location).</p> <p>The Project presents a multi-modal transport strategy, largely driven by integrated public rail and bus transport and new pedestrian access ways.</p> <p>The existing road network (including Victoria Park Drive and bridge) and existing rail network (including the Armadale Line and Belmont Park Station) will be upgraded to cater for the increased patronage of the new Perth Stadium within the new Sports Precinct.</p> <p>The transport infrastructure planned for the Project to meet the transport operating requirements in the immediate vicinity of the new Perth Stadium project are:</p> <ul style="list-style-type: none"> ■ A new Perth Stadium Station to replace the existing Belmont Park Station. The new Perth Stadium Station will have three island platforms accommodating six platform faces, together with stowage for up to 117 individual railcars. The new Perth Stadium Station works will require cut and fill earthworks, some ground improvement, including generally 1 m to 2 m, but possibly up to 4 m surcharge with some structures likely to be supported on piles. ■ Duplication, and in places triplication, of the existing Armadale Line dual track railway between the Goongoonup Rail Bridge and the Burswood Station. The length of track duplication is approximately 1.9 km. The duplication is largely within the existing rail corridor and will involve cut and fill earthworks with some areas requiring ground improvement, including generally 1 m to 4 m surcharge. ■ Reconstruction of the Victoria Park Drive road bridge across the railway above the new Perth Stadium Station. This will include an extension to the length of the bridge and provision of an additional traffic lane. The reconstruction of the bridge will require piling works. ■ A bus layover facility at a location south of the State Tennis Centre near the Stadium allowing rapid 'call up' of buses to service the dedicated new Perth Stadium bus facility. ■ New and/or modified stormwater management and access tracks associated with the railway network. ■ Additional pedestrian facilities for public transport users. <p>Figure 2 illustrates the Project's Master Plan conceptual design (Strategic Projects, June 2012) and Figures 3 and 4 provide greater detail of the Project's transport infrastructure layout across the Burswood Peninsula (Public Transport Authority, Dec 2012).</p> <p>Proposed Project works are discussed in detail in the <i>New Perth Stadium Transport, Project Definition Plan, December 2012</i> (Public Transport Authority, 2012), included as Attachment 1.</p> |

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| Extent (area) of proposed ground disturbance | The total Project area to which this referral applies is approximately 14 ha (Figure 1). The extent of proposed ground disturbance is estimated to be no greater than the approximated 14 ha Project area and of that total area, approximately 8 ha of planted non remnant vegetation may be cleared to accommodate construction of the transport infrastructure. |
| Timeframe in which the activity or development is proposed to occur. (Include start and finish dates where applicable) | <ul style="list-style-type: none"> ■ Approximate duration: Five years ■ Estimated start date: Mid 2013 ■ Estimated finish date: End 2017 |
| Details of any staging of the proposal | <p>For planning purposes the new Perth Stadium project, which encompasses the transport corridor works is to be delivered in three parts:</p> <p>Part 1: the construction of the new Perth Stadium and associated Sports Precinct.</p> <p>Part 2: the construction of the transport corridor infrastructure including the rail works, the rail station upgrade and the Victoria Park Drive road bridge upgrades. This will generally be undertaken in three phases:</p> <ul style="list-style-type: none"> ■ Construction Phase, which includes: <ul style="list-style-type: none"> ■ Service Relocation – A Western Power 132kV transmission line and communications cable and a Public Transport Authority main cable carrying long line railway signalling and communications cables are buried under the proposed rail works and Victoria Park Drive bridge abutments. Relocation of the cables is required to accommodate the amended track layout, and needs to occur prior to ground improvement. A number of relocation routes for the 132kV transmission line are currently being investigated by the Public Transport Authority and Western Power north of the railway reserve within the Graham Farmer Freeway road reserve. ■ Preconstruction Site Works (PCS Works) - The objective of the PCS Works is to prepare some parts of the Project area in advance of the main construction contract so that long term ground movements in those designated areas are within prescribed limits and to facilitate timely construction of the rail and associated works. This will necessitate ground improvement of generally 1 m to 4 m surcharge in some areas. ■ Construction Works - Includes the construction and upgrades of the Belmont Park Station, railway tracks, Victoria Park Drive and pedestrian bridges on the pre-treated site and may necessitate the use of piles to support the infrastructure. ■ Operational Phase - Ongoing environmental monitoring within the Project area (where required) and management of Project facilities will continue during this phase. <p>Part 3: the construction of the new pedestrian bridge over the Swan River, including bus and pedestrian facilities at Gloucester Park.</p> <p>The three parts of the new Perth Stadium project are illustrated in Figure 5.</p> |

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| | <p>All parts (Parts 1, 2 and 3) of the Project have potential environmental and social impacts and will therefore be referred to the Environmental Protection Authority (EPA) in accordance with Section 38 of the <i>Environmental Protection Act 1986</i> (EP Act). Separate referral applications are to be lodged for Parts 1, 2 and 3 due to their different characteristics and anticipated ongoing management requirements.</p> <p>The referral application for Part 1 was submitted to the EPA on 12 October 2012 and the decision “not-assessed, public advice given” was issued by the EPA in November 2012. A third party appeal of the EPA decision was subsequently lodged with the Office of the Appeal Convenor, with a determination to dismiss the appeal issued in January 2013.</p> <p>This referral application is for Part 2 of the new Perth Stadium Project.</p> <p>Delivery of the Project, incorporating Part 2, is required by 2018. Transport infrastructure works are proposed to be implemented in a complex series of stages or packages of work to minimise disturbance to the operation of the existing rail network within the Project area, which will continue to operate throughout the Project works. The Project’s staging plan includes packages of work associated with the relocation of services, ground improvement works, construction of individual spans of the Victoria Park Drive bridge, construction of individual rail tracks and the construction of the railway station and platforms. This requires that the construction phase of the Project commences in 2013, facilitating completion by end 2017.</p> |
| Is the proposal a strategic proposal? | No |
| <p>Is the proponent requesting a declaration that the proposal is a derived proposal?</p> <p>If so, provide the following information on the strategic assessment within which the referred proposal was identified -</p> <ul style="list-style-type: none"> • Title of the strategic assessment • Ministerial Statement number | No |
| Indicate whether, and in what way, the proposal is related to other proposals in the region. | <p>This proposal encompasses Part 2 of the new Perth Stadium Project, and is related to Parts 1 and 3 of the new Perth Stadium Project, as detailed above.</p> <p>Two other developments are proposed within the Burswood Peninsula region: the Golden Group’s Belmont Park mixed use development and the Crown Perth Towers development. Both developments are in close proximity to the Project; however, neither is directly related to each other as they are being developed under different proponents and different timeframes.</p> |
| Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land? | The Project area is wholly located on Crown Land owned by the Government of Western Australia. The PTA has approval from the State Government to develop the land for the purposes of the proposed Project. |

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| What is the current land use on the property, and the extent (area in hectares) of the property? | <p>The Project area (approximately 14 ha) is highlighted by the red border in Figure 1.</p> <p>The Project area is currently being used as an operational rail corridor servicing the Armadale/Thornlie railway line. Victoria Park Drive, a dual carriageway, double lane road bridge spans the rail lines above the existing Belmont Park Station. The Project area also includes the existing Burswood Station.</p> <p>The Project area is bounded by the following:</p> <ul style="list-style-type: none"> ■ Graham Farmer Freeway to the north and north-east. ■ Belmont Park Race Course to the north of Graham Farmer Freeway. ■ The State Tennis Centre to the south of the existing Belmont Park Station. ■ The northern nine holes of the Burswood Park Golf Course to the west of the northern half of the Project area. ■ The Goongoongup Bridge to the west which carries the existing Armadale/Thornlie line railway tracks over the Swan River. ■ Victoria Park Drive, the Mirvac Burswood Peninsula residential area and the Perth Dome to the west of the southern half of the Project area. ■ A light industrial area to the east of the southern half of the Project area. ■ Great Eastern Highway to the south of the Project area. |
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1.3 LOCATION

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| Name of the Shire in which the proposal is located | Town of Victoria Park |
| For urban areas – <ul style="list-style-type: none"> • street address • lot number • suburb • nearest road intersection | <ul style="list-style-type: none"> • N/A • Refer to Table 1 • Burswood • Graham Farmer Freeway and Victoria Park Drive |
| For remote localities – <ul style="list-style-type: none"> • nearest town • distance and direction from that town to the proposal site | Not applicable. |
| Electronic spatial data - GIS or CAD on CD, geo-referenced and conforming to the following parameters: <ul style="list-style-type: none"> • GIS: polygons representing all activities and named • CAD: simple closed polygons representing all activities and named • datum: GDA94 • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA) • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD | Enclosed: Yes |

Table 1: Lot Description for Project Area

| Certificate of Title/Pin Number | Lot number | Plan | Ownership/Management |
|---------------------------------|------------|---------|----------------------------|
| 2062/549 | 51 | P20081 | Main Roads WA |
| PIN 151809 | N/A | Railway | Public Transport Authority |
| LR3139/332 | 304 | DP42394 | Main Roads WA |
| LR3139/333 | 305 | DP42394 | Main Roads WA |
| LR3139/334 | 306 | DP42394 | Main Roads WA |
| LR3139/317 | 14893 | DP35752 | Public Transport Authority |
| LR3139/318 | 14916 | UCL | State of WA |
| 2558/929 | 202 | DP35752 | Main Roads WA |
| LR3139/316 | 14892 | DP35952 | Public Transport Authority |
| LR3139/315 | 14891 | DP35952 | Main Roads WA |

1.4 CONFIDENTIAL INFORMATION

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| Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential? | No |
| If yes, is confidential information attached as a separate document in hard copy. | N/A |

1.5 GOVERNMENT APPROVALS

| Is rezoning of any land required before the proposal can be implemented? If Yes, provide details. | | | No |
|--|---|------------------------------------|--|
| Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, complete the table below | | | Yes |
| <i>Agency/Authority</i> | <i>Approval Required</i> | <i>Application lodged Yes / No</i> | <i>Agency/Local Authority contact/s for proposal</i> |
| Environmental Protection Authority (EPA) | Approval for Part 1 of the new Perth Stadium Project under the <i>Environmental Protection Act 1986</i> | Yes | Matt Spence |
| Commonwealth Minister for the Environment, or Department of Sustainability, Environment, Water, Populations and Communities (SEWPAC) under delegation. | Referral of Proposed Action under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) | Yes | Con Voutas |
| Minister for Indigenous Affairs, Department of Indigenous Affairs | Section 18 Notice under the <i>Aboriginal Heritage Act 1972</i> | Yes | Christine Lewis |
| Department of Planning | Development Approval for the new Perth Stadium Train Station and associated pedestrian access areas | No | |
| Department of Environment and Conservation (DEC) and Department of Health (DoH) | DEC Accredited Contaminated Site Auditor's Report for a Site Management Plan under the <i>Contaminated Sites Act 2003</i> | No | Andrew Miller (DEC) Martin Matisons (DoH) |
| DEC (Noise Branch) | Approval of proposed bus layover area(s) under the <i>Environmental Protection (Noise) Regulations 1997</i> and approval of any out of hours noise management plans | No | Peter Popoff-Asotoff and Jingnan Guo |
| Department of Water (DoW) | 5C Licence to Take Water under the <i>Rights in Water and Irrigation Act 1914</i> , if required. | No | Glenn Simmons |

The proposed new Perth Stadium Station will be subject to the provisions of the Metropolitan Region Scheme (MRS) and consequently will require a Development Approval application to be determined by the appropriate Development Assessment Panel. It is anticipated that the Development Approval will be lodged with the Town of Victoria Park in late 2013.

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, through the questions below:

- (i) flora and vegetation;
- (ii) fauna;
- (iii) rivers, creeks, wetlands and estuaries;
- (iv) significant areas and/ or land features;
- (v) coastal zone areas;
- (vi) marine areas and biota;
- (vii) water supply and drainage catchments;
- (viii) pollution;
- (ix) greenhouse gas emissions;
- (x) contamination; and
- (xi) social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

2.1 Flora and Vegetation

- * Do you propose to clear any native flora and vegetation as a part of this proposal?

(A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (*Environmental Protection (Clearing of Native Vegetation) Regulations 2004*). Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick)

☒ Yes

If yes, complete the rest of this section

☐ No

If no, go to the next section

The Project area contains no remnant 'native vegetation' under the definition of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*; however, native vegetation derived from rehabilitation and landscaping is present within the Project area. The DEC Native Vegetation Branch has been consulted and has confirmed that a clearing permit under Part V of the EP Act is not required in this instance.

Golder Associates (Golder) completed a Level 1 Flora survey within the Project area in October 2012 (Golder, 2012a) with the southern end of the Project area (the rail corridor south of the State Tennis Centre) surveyed in December (report included as Attachment 2). The objective of the survey was to assess the range and condition of the vegetation within the transport corridor Project area (Figure 6).

The survey concluded the following:

- The Project area contained 14 vegetation units, primarily of weed species (e.g. introduced grasses) as well as common native (e.g. *Acacia saligna*, *Casuarina obesa*), and introduced (e.g. *Eucalyptus camaldulensis*, *Ficus spp*) specimen species.
- All of the introduced species and most of the native species appear to have been directly established over the course of many revegetation attempts dating back to almost 50 years.
- A number of weed species were identified but none considered either significant or readily controlled e.g. introduced grasses.
- One small drainage basin with wetland-type vegetation was identified near the Goongoongup Rail Bridge.
- No significant floral species were identified within the Project area.

- Only common species of endemic flora were observed, with few associated environmental values outside of the planted Sheoaks (*Casuarina obesa*), which may be visited by birds such as Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*).
- Limited natural colonisation by a few endemic floral species was observed.

A total of approximately 8 ha of the Project area is considered to be vegetated, divided into the following areas:

- Two narrow strips of vegetation to the north-east and south-west of the existing Armadale/Thornlie line. A drainage basin with wetland-type vegetation was also identified within the Project area.
- An area of degraded vegetation situated south of the State Tennis Centre and north of the Mirvac residential development.

Most of the vegetation within the Project area is proposed to be cleared for Project works.

- ☐ How much vegetation are you proposing to clear (in hectares)?

The Project area covers approximately 14 ha. No greater than approximately 8 ha of vegetation is proposed to be cleared within the Project area, of which none is considered to be remnant native vegetation.

- * Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes

☒ No

If yes, on what date and to which office was the application submitted of the DEC?

Consultation has been undertaken with Jane Clarkson of the DEC Native Vegetation Branch, who has confirmed that a clearing permit is not required for the Project area, as the vegetation does not satisfy the definition of remnant native vegetation under the relevant legislation.

- * Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

☒ Yes

☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey/s. (If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.)

Golder completed a Level 1 Flora survey within the proposed Project area – *New Perth Stadium Flora and Fauna Surveys Report Addendum* (Golder, 2012a) in October 2012, included as Attachment 2.

- * Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

☒ Yes

☐ No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

- * Are there any known occurrences of rare or priority flora or threatened ecological communities on the site? #

☐ Yes

☒ No

If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

A request to DEC to carry out a search for rare or priority flora and threatened ecological communities (TEC) was made on 20 October 2011. The results from the Threatened Flora Database (DEFL), the WA Herbarium database (WAHerb) and the Declared Rare and Priority Flora Species List for the new Perth Stadium project were received on 25 October 2011. There were no occurrences of declared rare or priority flora species or TEC reported within the Project area (Golder, 2012b).

- * If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

☐ Yes

☒ No

If yes, please indicate which Bush Forever site is affected (site number and name of site where appropriate).

- ☐ What is the condition of the vegetation at the site?

The vegetation within the Project area consists primarily of weed species, introduced specimens of eastern state and non-Australian ornamental garden plants and common species of endemic flora that have been deliberately planted within the Project area. Golder (2012a) concluded that the Project area contains degraded conditions with few associated environmental values outside of the low ecological value Sheoaks (*Casuarina obesa*) planted within the Project area.

The potential environmental impacts associated with the clearing of vegetation will be managed through implementation of an Environmental Site Management Plan to be prepared by the PTA and through the Construction Environmental Management Plan(s) to be developed and implemented by the Lead Contractor(s). All areas not required for infrastructure or access purposes will be progressively rehabilitated with native flora species where practicable during the Project works.

2.2 Fauna

- * Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick)

☒ Yes

If yes, complete the rest of this section

☐ No

If no, go to the next section

- ☐ Describe the nature and extent of the expected impact.

A fauna specialist was engaged to undertake a Level 1 Fauna survey (Golder, 2012a) in October 2012 within the proposed Project area, included in Attachment 2. The objective of the survey was to opportunistically observe any fauna species that may inhabit the Project area and also assess the condition of the vegetation within the Project area to determine the presence of potential fauna habitat.

Only two water bird species were observed during the survey (see Figure 6 for survey locations):

- Black (Great) Cormorant (*Phalacrocorax carbo*) - observed near sample site 5 to the north-west of the existing Belmont Park railway station flying overhead.

- White-faced Heron (*Egretta novaehollandiae*) - observed also near sample site 5 flying overhead.

These species are endemic and common species which are not listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Matters of National Environmental Significance or the DEC Declared Threatened and Priority Fauna.

As stated previously, 8 ha of vegetation is contained within the Project area and one constructed drainage basin with a wetland-type environment was also identified (see Figure 6), which could potentially provide habitat for common waterfowl species (Golder, 2012a).

Based on the assessment of the vegetation type and condition summarised in Section 2.1 of this form, and fauna survey results, Golder (2012a) concluded that impacts to common species of endemic fauna as a result of the proposed Project works will primarily be indirect due to habitat removal and potential habitat disturbance, namely disturbance of Sheoaks (*Casuarina obesa*) and the constructed drainage basin with wetland-type habitat within the Project area.

The potential environmental impacts to fauna, largely associated with the clearing of vegetation, will be managed through implementation of an Environmental Site Management Plan to be prepared by the PTA and through the Construction Environmental Management Plan(s) to be developed and implemented by the Lead Contractor(s). All areas not required for infrastructure or access purposes will be progressively rehabilitated with native flora species where practicable during the Project works.

- * Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?
- ☒ Yes ☐ No **If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey/s. (If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.)

Golder (2012a) completed a Level 1 Fauna survey of the proposed Project area in October 2012, included as Attachment 2.

- * Has a search of DEC records for known occurrences of Specially Protected (Threatened) fauna been conducted for the site?
- ☒ Yes ☐ No (please tick)
- * Are there any known occurrences of Specially Protected (Threatened) fauna on the site? #
- ☐ Yes ☒ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

A request to DEC to carry out a search for threatened fauna was made on 20 October 2011. The results found no known occurrences of threatened fauna recorded within the Project area (Golder, 2012b).

2.3 **Rivers, Creeks, Wetlands and Estuaries**

- * Will the development occur within 200m of a river, creek, wetland or estuary?
- (please tick) ☒ Yes ***If yes, complete the rest of this section***
- ☐ No ***If no, go to the next section***

The development will occur within 200 m of the Swan River (Figure 1).

- * Will the development result in the clearing of vegetation within the 200 m zone?
- ☒ Yes ☐ No **If yes**, please describe the extent of the expected impact.

The Swan River is located to the east and west of the Project area. The Graham Farmer Freeway lies between the Project area and the Swan River to the east and the Burswood Park Golf Course lies between the Swan River and the Project area to the west. Although some non-remnant vegetation within 200 m of the Swan River is likely to be cleared, the Swan River riparian vegetation is not anticipated to be impacted by the Project. The Swan River foreshore to the west of the Burswood Park Golf Course will be enhanced through rehabilitation and landscaping efforts associated with the new Perth Stadium Project.

- * Will the development result in the filling or excavation of a river, creek, wetland or estuary?
- ☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

The development will result in the filling of the constructed drainage basin near the Goongoongup Rail Bridge. Although not considered to be a wetland, the potential fauna habitat created by the wetland-type vegetation within the drainage basin will be removed.

- * Will the development result in the impoundment of a river, creek, wetland or estuary?
- ☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

- * Will the development result in draining to a river, creek, wetland or estuary?
- ☒ Yes ☐ No **If yes**, please describe the extent of the expected impact.

The drainage network for the existing rail corridor and railway station is combined with the adjacent existing Graham Farmer Freeway drainage network. The existing drainage network includes combined freeway/rail stormwater compensating basins within the existing rail corridor with outfalls to the Swan River in two locations; one to the south of the Goongoongup Rail Bridge and one to the south-east of the existing Belmont Park Racecourse. The existing outfalls to the river include oil and sand trap manholes for water quality improvement purposes (BG&E, 2012). The existing rail corridor is also currently drained through infiltration swales adjacent to the tracks.

A conceptual drainage design has been prepared by BG&E (2012) to accommodate the proposed rail works and upgraded Belmont Park Station (new Perth Stadium Station) (Figure 4). The objective of the new drainage design will be to provide rail corridor drainage for the Project while not changing current impacts on the existing freeway drainage network or the existing Swan River outfalls. The 1 in 10 year ARI event and 1 in 100 year ARI event have been considered in the preparation of the conceptual drainage design. The existing stormwater compensating basins within the existing rail corridor will be impacted by the location of the proposed railway tracks and stormwater volumes are likely to increase slightly with changes to the impervious surfaces within the proposed rail corridor. The new drainage network will be designed to replace the existing basins, whilst providing similar outfall conditions as currently exist in terms of the water volume and water quality entering the Swan River. Although water quality improvement measures currently exist at the Swan River outfalls, there may be opportunities to improve the new drainage network through installation of additional water quality improvement measures, such as solid pollutant filters or oil and grease arresters in the new pipe network that will collect railway corridor runoff.

The final drainage design will be undertaken by an experienced drainage engineer and will involve liaison with the relevant Government agencies, where appropriate. Possible impacts to the Swan River from potentially contaminated stormwater will be managed during the Construction Phase of the Project through implementation of the Project's Environmental Site Management Plan and the Lead Contractor's Construction Environmental Management Plan. The Operational Phase of the Project is unlikely to generate any significant pollutants and with the existing water quality improvement measures already in place, the Project is not considered likely to have a negative impact on the Swan River.

- * Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

| | | | |
|--|------------------------------|--|---------------------------------|
| Conservation Category Wetland | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |
| Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998 | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |
| Perth's Bush Forever site | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |
| Environmental Protection (Swan & Canning Rivers) Policy 1998 | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |
| The management area as defined in s4(1) of the Swan River Trust Act 1988/ | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |
| Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA) # | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unsure |

2.4 Significant Areas and/or Land Features

- * Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

☒ Yes ☐ No **If yes**, please provide details.

The Project area is adjacent to the Swan Canning Riverpark.

- * Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

☒ Yes ☐ No **If yes**, please provide details.

The Swan River is an Environmentally Sensitive Area, associated with the Swan Canning Riverpark; however, the Swan River is not considered likely to be significantly impacted by the Project (refer to Section 2.3).

- * Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ☒ No **If yes**, please provide details

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

- * Will the development occur within 300m of a coastal area?
(please tick) ☐ Yes **If yes, complete the rest of this section**
 ☒ No **If no, go to the next section**
- * What is the expected setback of the development from the high tide level and from the primary dune?
- * Will the development impact on coastal areas with significant landforms including beach ridge plain, cusped headland, coastal dunes or karst?
☐ Yes ☐ No **If yes, please describe the extent of the expected impact.**
- * Is the development likely to impact on mangroves?
☐ Yes ☐ No **If yes, please describe the extent of the expected impact.**

2.6 Marine Areas and Biota

- * Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?
☐ Yes ☒ No **If yes, please describe the extent of the expected impact.**
- * Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?
☐ Yes ☒ No **If yes, please describe the extent of the expected impact.**
- * Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?
☐ Yes ☒ No **If yes, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).**

2.7 Water Supply and Drainage Catchments

- * Are you in a proclaimed or proposed groundwater or surface water protection area?
(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)
☒ Yes ☐ No **If yes, please describe what category of area.**

The Burswood Peninsula is within the Perth Groundwater Proclaimed Area.

- * Are you in an existing or proposed Underground Water Supply and Pollution Control area?
(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)
☐ Yes ☒ No **If yes, please describe what category of area.**
- * Are you in a Public Drinking Water Supply Area (PDWSA)?
(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)
☐ Yes ☒ No **If yes, please describe what category of area**
- * Is there sufficient water available for the proposal?
(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)
☒ Yes ☐ No (please tick)

The PTA will be responsible for obtaining appropriate licences and/or approvals for sourcing water required during the Project works.

Water required for the Operational Phase of the Project will be obtained from scheme water. The Water Corporation (Kevin Purcher from the Water Corporation) has been involved in the new Perth Stadium working group meetings and is aware of the potential requirements. Additionally, separate discussions have been held with the Water Corporation with respect to water source location and volumes required.

* Will the proposal require drainage of the land?

☒ Yes

☐ No

If yes, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

The existing and proposed stormwater drainage network for the Project is described in Section 2.3 of this form.

The results of preliminary geotechnical investigations and a desktop study of available data have been used to develop conceptual engineering geological and hydrogeological models for the Project area. Further investigation is underway to support detailed design of the infrastructure. Golder (2012c) summarises and Figure 7 illustrates the principal features of the subsurface materials as follows in order of increasing depth below surface:

- 1) Fill, typically consisting of a relatively thin veneer (generally about 0.5 m to 1 m thick) of clean sandy fill underlain by uncontrolled fill comprised of inert industrial waste and containing sand, gravel, steel, concrete, bricks, clay pipes, possible asbestos, etc. The uncontrolled fill was found to extend to a maximum of 12 m depth beneath the new Perth Stadium Project area, but is generally 3 m to 6 m thick.
- 2) Swan River Alluvium, consisting of dark grey to black, soft, organic, highly compressible Clayey Silt to Silty Clay of up to 26 m thickness. These materials are still being deposited within the Swan River and infill an ancient river channel (palaeochannel) that runs beneath the new Perth Stadium Project area.
- 3) Sandy Channel Deposits, generally dominated by medium dense to very dense fine to coarse grained sands and sandy silts or clays. The thickness of this unit varies between about 10 m and 25 m.
- 4) Kings Park Formation, typically encountered as very dense Sand to Gravelly Sand interpreted to be the Mullaloo Sandstone member of the Kings Park Formation. Although the name might suggest that the Mullaloo Sandstone is a rock-like material, it was recovered as an uncemented sandy soil.

In summary, Golder (2012c) estimated the following subsurface conditions to occur beneath the transport corridor Project area works (Figure 7):

- Works from the Goongoongup Rail Bridge to where the rail line and Graham Farmer Freeway diverge are expected to largely encounter Fill materials in excavation or at subgrade level. The fill material is expected to contain asbestos impacted Fill materials (as further detailed in Section 2.10 of this form).
- Fill thickness is expected to vary between about 1.5 m and 10 m, with the maximum thickness at the Goongoongup Rail Bridge and Victoria Park Drive bridge.
- Tamala Sand may vary in thickness up to about 10 m, where present, beneath the southern end of the Project area.
- Swan River Alluvium may be present beneath most of the Fill but is expected to typically range in thickness from 0 m to 3 m (in comparison to up to 26 m thickness within the Part 1 Stadium and Sports Precinct).
- Groundwater level readings taken to date indicate groundwater may be encountered at elevations between about RL 0.5 m AHD at the Goongoongup Rail Bridge to 2 m AHD near the Mirvac Burswood Peninsula residential development, with the seasonal fluctuation of groundwater levels considered to be in the order of 0.5 m to 1 m.

The proposed construction will involve both cutting and filling within the transport corridor for levelling and flood protection purposes. In areas of weaker ground requiring ground improvement (i.e. prior to construction of the existing rail line) additional surcharge fill will be placed on the final ground surface to over-consolidate the ground leading to settlement from soil consolidation. Consolidation may increase the groundwater pressure and levels in the Fill, Swan River Alluvium and Sandy Channel Deposits and may lead to local transient changes in groundwater flow (Golder, 2012c).

An increase in pore pressures results from “squeezing” of groundwater out of the materials during consolidation. The amount of water squeezed out is related to the porosity, thickness and pre-existing consolidation of the materials. The Swan River Alluvium will likely contain the most unconsolidated materials

and contribute the greatest amount of groundwater when loaded. The placement of fill may therefore temporarily increase groundwater levels, which temporarily increases the hydraulic gradient off-site.

The low hydraulic gradient between the new Perth Stadium Project area and the Swan River, coupled with the relatively minor addition of fill material (i.e. generally 1 m to 4 m surcharge) proposed within the rail corridor (Figure 8) means that any increases in the hydraulic gradient and groundwater flow rates across the site as a result of fill placement is expected to be considerably low. The total quantity of water to be squeezed from the Swan River Alluvium by the currently proposed surcharge ground improvement works within the rail corridor is estimated to be less than 7,000 m³. By comparison, this quantity is less than 10% of the approximate 80,000m³ volume of water considered likely to be squeezed from the Swan River Alluvium by the proposed surcharge ground improvement works for the stadium pitch within Part 1 Stadium and Sports Precinct (Golder, 2012i).

The use of wick drains in combination with the surcharge (as is currently proposed in Part 1 Stadium and Sports Precinct), is not considered to be required within the transport corridor Project area given the reduced thickness of the Swan River Alluvium. Dewatering is also not considered to be a requirement of the proposed surcharge ground improvement within the transport corridor Project area.

Temporary construction dewatering is currently expected to be limited to relatively localised and short-term pumping to enable installation of services and pile cap construction, etc. It is anticipated that dewatering would be carried out using drilled bores and spears and that the pumped water would be treated and discharged by either infiltration on-site or to sewer, or used for dust suppression. Where necessary, a Licence to Take Water will be obtained by the Contractor from the Department of Water for dewatering activities, along with any other approvals required for the discharge of the pumped water.

Management of stormwater and drainage impacts, particularly to the Swan River during the Construction Phase, will be effectively managed through implementation of the Environmental Site Management Plan to be prepared by the PTA and through the Construction Environmental Management Plan(s) to be developed and implemented by the Lead Contractor(s). Consultation with the relevant Government agencies has commenced and will continue through the new Perth Stadium Project's weekly Site Conditions Working Group meeting where DEC, Department of Water and Swan River Trust are represented.

- * Is there a water requirement for the construction and/ or operation of this proposal?
- | | | |
|---------------|---|---|
| (please tick) | <input checked="" type="checkbox"/> Yes | <i>If yes, complete the rest of this section</i> |
| | <input type="checkbox"/> No | <i>If no, go to the next section</i> |

During the Project works, water may be required for dust suppression and drilling/installation works. Exact volumes will need to be determined and stipulated by the Lead Contractor(s). If possible, water required will be recycled water.

Water requirements during the Operations Phase of the development (e.g. potable water, amenities) will likely be taken from scheme water, which is the current source of water used within the new Perth Stadium Project area (e.g. Burswood Park Golf Course Clubhouse).

Consultation with the Water Corporation has commenced and will be ongoing throughout the planning and delivery stages of the Project, as water requirements and volumes become realised.

- * What is the water requirement for the construction and operation of this proposal, in kl/year?

Please see above.

- * What is the proposed source of water for the proposal? (eg dam, bore, surface water etc.)

Please see above

2.8 Pollution

- * Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?
(please tick) ☒ Yes **If yes, complete the rest of this section**
 ☐ No **If no, go to the next section**
- * Is the proposal a prescribed premise, under the Environmental Protection Regulations?
(Refer to the EPA *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)
☐ Yes ☒ No **If yes**, please describe what category of prescribed premise.
- * Will the proposal result in gaseous emissions to air?
☒ Yes ☐ No **If yes**, please briefly describe.

Gaseous exhaust emissions from the operation of vehicles and machinery are anticipated during the Project works.

- * Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?
☐ Yes ☒ No **If yes**, please briefly describe.
- * Will the proposal result in liquid effluent discharge?
☒ Yes ☐ No **If yes**, please briefly describe the nature, concentrations and receiving environment.

The only liquid effluent (apart from stormwater drainage outlined in Sections 2.3 & 2.7 of this form) expected to be generated during the Project is general sewage waste from toilet facilities. Disposal of this liquid effluent will be managed by the Lead Contractor(s) during Construction Phase works and will be managed by the PTA during the Operational Phase based on the outcomes of discussions with the Water Corporation.

- * If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?
☐ Yes ☒ No **If yes**, please describe.

A series of field investigations have recently been completed for the new Perth Stadium Project within the Burswood Park Golf Course, existing rail reserve and Swan River to determine baseline site conditions including groundwater, surface water, sediment, soil and ground gas. The sampling and analysis programs were approved by the Project's appointed DEC accredited Contaminated Sites Auditor. The results of the detailed site investigations are due to be reported in February and March 2013 and will be finalised to the satisfaction of the Contaminated Sites Auditor.

- * Will the proposal produce or result in solid wastes?
☒ Yes ☐ No **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

Project solid waste will include, but will not be limited to:

- Vegetation cleared from the Project area, which will be disposed to an appropriate landfill where not recycled.
- Cut sand material, which (depending on its contamination classification), will either be reused on site in areas to be filled or be disposed of to an appropriate treatment and/or landfill facility.
- Displaced soil and waste material during ground improvement works, such as stone columns, which (depending on its contamination classification) will be collected and disposed of to an appropriate treatment and/or landfill facility.

Operational Phase waste will be comparable to the waste produced by any other public facility. Waste will be collected and disposed of accordingly and recycling schemes will also be implemented where applicable to reduce the volume of waste requiring disposal.

Waste material particularly that produced during Project works will be managed through implementation of an Environmental Site Management Plan to be prepared by the Public Transport Authority and through the Construction Environmental Management Plan(s) to be developed and implemented by the Lead Contractor(s).

* Will the proposal result in significant off-site noise emissions?

☒ Yes

☐ No

If yes, please briefly describe.

A preliminary noise and vibration assessment was completed by AECOM in December 2012, based on preliminary rail designs (AECOM, 2012). This report is a working document that will be updated as the Project rail designs and bus and rail operational plans are finalised.

Vibration measurements were taken within the Project area at varying distances from the nearest rail line. The vibration assessment was carried out against *Australian Standard 2670.2 - 1990 Evaluation of human exposure to whole-body vibration. Part 2: Continuous and shock-induced vibration in buildings (1-80 Hz)* (AS 2670.2). The vibration measurements showed that at setbacks of approximately 20 m from the nearest rail line, the ground vibration levels do not exceed the AS 2670.2 residential receiver night-time criterion. AECOM (2012) identified that the existing and proposed setbacks between rail and buildings in the Project area are sufficient and that no mitigation is required for existing buildings to attenuate vibration due to train passbys.

The closest noise-sensitive premises to the Project area are located within the Mirvac Burswood Peninsula residential area to the west of Victoria Park Drive (see Figure 5). The proposed rail redevelopment for the Project will result in the section of the rail line closest to the residential area moving approximately 5 – 15 m closer to the residential area. Operating railways are exempt from the *Environmental Protection (Noise) Regulations 1997* (noise regulations); however, redevelopments of an existing railway do trigger assessment against *State Planning Policy 5.4: Road and Rail Transport Noise and Freight Considerations in Land Use Planning* (SPP 5.4).

AECOM (2012) conducted a noise impact assessment of the proposed rail design and concluded that noise levels were modelled to exceed the 'noise target' criterion of SPP 5.4 at a number of first row residential buildings along Victoria Park Drive.

A bus layover area is currently proposed to be developed within the parcels of land bounded by the State Tennis Centre to the north, Victoria Park Drive to the south and west, and the rail corridor to the east (Figure 3). This facility is not exempt from the noise regulations. AECOM (2012) indicated that the noise levels predicted to be created by stationary buses in this bus layover area may exceed the assigned noise levels of the noise regulations during the periods of '0900 to 1900 hours Sundays and public holidays', and '1900 to 2200 hours all days'. The bus operations plan is currently being finalised and may alter the results of the noise assessment.

The modelled noise impacts from the rail line and bus layover area near the Mirvac Burswood Peninsula residential area could potentially be mitigated through installation of a 2.5 m high noise wall to the north of Victoria Park Drive as close as possible to the noise sources (AECOM, 2012). This requirement will be confirmed upon completion of the final noise assessment and in liaison with the DEC Noise Branch.

It is also predicted that temporary elevated noise emissions may be experienced during the Project works resulting from the operation of vehicles and machinery. As the Project will be constructed within an operational rail corridor, some Project works may be required to be undertaken at night while trains are not operating. In this instance, a noise management plan will be prepared and approved by the Local Council under the *Environmental Protection (Noise) Regulations 1997*. The Public Transport Authority is required to conduct the majority of the metropolitan rail network's maintenance activities at night due to operational rail constraints and has a good understanding of the necessary noise control measures and also has a good working relationship with the DEC Noise Branch and Local Councils on this matter.

* Will the development be subject to the Environmental Protection (Noise) Regulations?

☒ Yes

☐ No

If yes, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

Operating railways are exempt from the noise regulations; however, redevelopments of an existing railway do trigger assessment against SPP 5.4, which does recommend consultation with DEC to assess the potential noise impacts and proposed noise mitigation measures.

The proposed bus layover area may be subject to the noise regulations, which will provide a statutory measure to manage potential noise impacts. The Project works will also be subject to Section 13 of the noise

regulations for construction noise, and will require Local Council approval of noise management plans to be prepared for any out of hours construction work.

Consultation has commenced with Peter Popoff-Asotoff and Dr. Jingnan Guo of the DEC Noise Branch, who have committed to reviewing and providing comment on the next revision of the Project's preliminary noise and vibration assessment. This working document will be revised to include further assessments of the bus layover area, bus operational plans and other aspects of the Project. The DEC Noise Branch will also be providing advice where no assessment criterion currently exists for the relevant facility or service.

- * Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

☒ Yes

☐ No

If yes, please describe and provide the distance to residences and other "sensitive premises".

The closest 'sensitive premises' include the State Tennis Centre and the Mirvac Burswood Peninsula residential area (Figure 5). During Project works, these premises and other surrounding areas may be subject to increased levels of dust from construction activities. As later detailed in Section 2.10 of this form, the Project area is potentially contaminated with asbestos containing materials within the fill layer. The rail reserve certificates of title contain a memorial under the *Contaminated Sites Act 2003* regarding the asbestos contamination classification and places a requirement on the title that all ground intrusive works require the preparation and implementation of a site management plan (Attachment 3). Asbestos related dust impacts will be effectively managed through implementation of the stringent health and safety procedures and dust management measures to be stipulated in the Project's Environmental Site Management Plan. This plan will be prepared by the Public Transport Authority to the satisfaction of the DEC accredited Contaminated Sites Auditor, DEC Contaminated Sites Branch and Department of Health under the requirements of the *Contaminated Sites Act 2003*. A letter from Department of Health agreeing to review the public health risk aspects of the Project's Environmental Site Management Plan and provide relevant comments is enclosed as Attachment 4.

It is not anticipated that there will be any air quality, dust or odour impacts on the nearby residents during the Operational Phase.

- * If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

☐ Yes

☐ No

☒ Not Applicable

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

- * Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☐ Yes

☒ No

If yes, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

Whilst generation of electricity produces pollutants at the generating source, the benefit of the proposed railway to the Perth metropolitan area during operation is that emissions throughout the length of the electric railway are negligible. In terms of overall greenhouse gas emissions, train travel is 80 to 90 per cent more efficient than alternative private transport during peak-periods, and 50 to 60 per cent more efficient on average.

In comparison to the number of private cars required to transport an equivalent number of passengers, the greenhouse gas impact of public transport between Perth and the new Perth Stadium is lower. Assuming one event per week is held, a reduction of 100 tonnes of greenhouse gases (carbon dioxide equivalent) per event, or 10,000 tonnes per year, would be achieved.

- * Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

2.10 Contamination

- * Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☒ Yes

☐ No

☐ Unsure

If yes, please describe.

Historical land uses of the Burswood Peninsula included a landfill facility for disposal of commercial, industrial and domestic waste as well as a range of other polluting industries, such as a historical sewage treatment facility, a former James Hardie asbestos factory and a former Swan Portland cement works.

The nature of the historical land uses highlight the potential for soil and groundwater contamination to exist within the new Perth Stadium Project area, which was separated into the following stages for further investigation:

- Stage 1 – The northern nine holes of the Burswood Park Golf Course
- Stage 2 – The Transport Corridor
- Stage 3 – The East Perth foreshore and the Swan River
- Stage 4 – The State Tennis Centre and Burswood Park Board Clubhouse

To gain an understanding of the type, concentration and extent of contamination within the new Perth Stadium Project area, a number of desktop reviews and investigations have been undertaken, including the following:

- *Desktop Study and Review of Previous Environmental Reports – Proposed Perth Major Stadium* (Golder, 2012b)
- *Preliminary Site Investigation – Proposed Perth Major Stadium* (Golder, 2012d)
- *Sampling and Analysis Plan and Data Quality Objectives* (Golder, 2012e)
- *New Perth Stadium Stage 1 Detailed Site Investigation. Draft Report.* (Golder, 2012f).
- *New Perth Stadium Sampling and Analysis Plan for Stage 2 and Stage 3.* (Golder, 2012g).
- *Composition of Uncontrolled Fill New Perth Stadium and Associated Transport Infrastructure, Burswood.* (Golder, 2012h).

The desktop study (Golder, 2012b) and Preliminary Site Investigation (Golder, 2012d) conducted for the new Perth Stadium Project area identified that:

- The landscape and topography of the Project area has been altered dramatically due to historic industries and the use of the site for disposal of waste.
- Industrial activity and waste disposal has created a legacy of contamination, potential contamination and data gaps of unknown contamination issues across the Project area.
- A number of limited investigations have been undertaken across the Project area.
- Data gaps relate to assessment of contaminated soil, groundwater, and ground gas.

As a result, further assessment of soil and groundwater contamination was recommended and implemented.

- * Has any assessment been done for soil or groundwater contamination on the site?

☒ Yes

☐ No

If yes, please describe.

A Detailed Site Investigation has recently been completed for the Stage 1 area, being the northern nine holes of the Burswood Park Golf Course and is currently being revised to incorporate additional information (Golder, 2012f). The preliminary results from the Detailed Site Investigation confirm that the fill material located beneath the Burswood Park Golf Course is generally comprised of inert industrial landfill products, such as sand, gravel, steel, concrete, bricks, etc. The soil quality analysis identified some exceedances of DEC's Environmental Investigation Levels (EILs). The groundwater quality analysis identified elevated levels of nutrients and some metals when compared to DEC and Swan River Trust guidelines. The industrial fill material and groundwater conditions are anticipated to extend under the transport corridor Project area.

The transport corridor Project area predominantly extends across Lot 304 and Lot 305 on Plan 42394 that are classified under the *Contaminated Sites Act 2003* as “*Remediated for Restricted Use*”. The DEC (2010) Basic Summary of Records is included as Attachment 3. Remediation works have previously been carried out to remove an area of soil containing free asbestos fibres; however, it is presumed that soil impacted with asbestos containing materials has been buried and capped within the existing rail corridor. The classification requires a site management plan to be prepared for any ground intrusive works proposed within this area.

The Project will involve cut and fill earthworks, and will include the excavation of some contaminated material. The final landform will be reinstated to the “*Remediated for Restricted Use*” classification.

The Detailed Site Investigation for the Stage 2 Transport Corridor area was undertaken in December 2012 and January 2013 to confirm the current site conditions. The report is due to be delivered by end of February 2013. An Environmental Site Management Plan, incorporating stringent contamination and asbestos management measures will then be prepared by the Public Transport Authority to the satisfaction of the appointed DEC accredited Contaminated Sites Auditor, DEC Contaminated Sites Branch and the Department of Health to demonstrate that all potential risks to the environment and human health can be minimised and managed during Construction and Operational Phases. All Lead Contractors will be responsible for developing and implementing a Construction Environmental Management Plan in accordance with the Project’s approved Environmental Site Management Plan.

The Project area is also located in an area of high to medium risk of encountering actual acid sulphate soils (AASS) and potential acid sulphate soils (PASS) (Golder, 2012g). The acid sulphate soil risk will also be managed through implementation of the Project’s Environmental Site Management Plan.

* Has the site been registered as a contaminated site under the Contaminated Sites Act 2003? (on finalisation of the CS Regulations and proclamation of the CS Act)

☒ Yes

☐ No

If yes, please describe.

The Project area predominantly extends across Lot 304 and Lot 305 on Plan 42394 that are classified under the *Contaminated Sites Act 2003* as “*Remediated for Restricted Use*.” Remediation works have been carried out to remove the area of soil containing free asbestos fibres, however, it is presumed that asbestos has been buried and capped within the existing rail corridor. The classification requires a site management plan to be prepared for any ground intrusive works within this area.

The Transport Corridor abuts the Burswood Park Golf Course parcels of land that are classified under the *Contaminated Sites Act 2003* as “*Possibly Contaminated – Investigation Required*,” due to an extensive history of contaminating land use activities, such as an uncontrolled landfill. Given the proximity of the Transport Corridor to the Burswood Park Golf Course, this classification has also been factored into the Transport Corridor Detailed Site Investigation and Environmental Site Management Plan.

The PTA has committed to preparing the Site Management Plan to the satisfaction of the appointed DEC Accredited Contaminated Site Auditor, DEC Contaminated Sites Branch and the Department of Health. Consultation with DEC and Department of Health has commenced and will continue through the Project works.

2.11 **Social Surroundings**

* Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

☒ Yes

☐ No

☐ Unsure

If yes, please describe.

Indigenous Heritage

The Department of Indigenous Affairs (DIA) has advised of Aboriginal Cultural Heritage Sites on or near the Burswood Peninsula and that the consent of the Minister for Indigenous Affairs under Section 18 of the *Aboriginal Heritage Act 1972* will be required before works can commence.

A search using the Aboriginal Heritage Inquiry System (AHIS) was performed on 18 October 2011 for identification of Indigenous and other heritage sites. A summary of the Indigenous Heritage sites within the new Perth Stadium Project area are provided in Table 2 and illustrated in Figure 9.

Table 2: Summary of Sites Listed on Register of Indigenous Heritage Sites

| Indigenous Heritage Sites within Project Area (open access, no restriction) | | |
|--|-----------------|--------------------------|
| Site Name (ID) | Status | Site Type |
| Swan River (3536) | Registered Site | Mythological |
| Burswood Island (3701) | Registered Site | Ceremonial |
| Burswood Island Burial (15914) | Registered Site | Skeletal material/Burial |
| Burswood Island Camp (15915) | Registered Site | Camp |
| Burswood Island (15916) | Registered Site | Artefacts/Scatter |
| Claisebrook Camp (3694) | Registered Site | Camp |

An archaeologist has been engaged to undertake an assessment of the Project area conditions and likely impact of the proposed works to inform the Section 18 application and an anthropologist has also been engaged to assist in the consultation process. Liaison is ongoing with DIA and the South West Aboriginal Land and Sea Council (SWALSC) to progress the new Perth Stadium Section 18 application guided by the draft Aboriginal Cultural Heritage Protocols. The consultation process with the respective Aboriginal stakeholders has commenced and is being coordinated through SWALSC.

European Heritage

A database search was performed on 6 October 2011 to identify sites of cultural or historical significance on the States Register of Heritage Places. The search found two European heritage sites located on the Burswood Peninsula, summarised in Table 3.

Table 3: Summary of Heritage Places in the Vicinity of the Project Area

| Place Name | Location | Status | General Use |
|--|---|---|--|
| Bunbury Railway Bridge over Swan River (ID:3345) | Claisebrook - Bunbury Railway East Perth - Burswood | Constructed: 1893 Demolished: No | Historical: Transport and Communication Present: Bridges 1 and 2 demolished, piles visible in river |
| Old Burswood Canal | Near Goodwood Place, Burswood | Constructed: 1831 to 1834 Demolished: No | Historical: Transport and Communications Present: Transport and Communications |

The Bunbury Railway Bridge is not located within the Project area, whilst the Old Burswood Canal is located to the south of the State Tennis Centre within the Project area, as illustrated in Figure 5. The Old Burswood Canal is located below ground and is not anticipated to be disturbed by Project earthworks.

- * Is the proposal on a property which contains or is near a site of high public interest (for example, a major recreation area or natural scenic feature)?

☒ Yes

☐ No

If yes, please describe.

The proposed Project is located on a portion of the Armadale/Thornlie rail line, part of the Perth public transport system and is adjacent to the Crown Perth complex and Perth Dome.

Additionally, the Project is also adjacent to the Swan River which is valued by the general public for recreational activities.

- * Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☐ Yes

☒ No

If yes, please describe.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

- * Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA web.)

| | | |
|---|---|-----------------------------|
| The precautionary principle. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| The principle of intergenerational equity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| The principle of the conservation of biological diversity and ecological integrity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Principles relating to improved valuation, pricing and incentive mechanisms. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| The principle of waste minimisation. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

- * Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA web)?

☒ Yes ☐ No

The key potential environmental impacts identified for the Project are associated with the disturbance of soil materials potentially contaminated with asbestos containing materials, potential impacts of stormwater and drainage on the Swan River and the operational noise impacts of the redeveloped rail corridor on nearby noise-sensitive receptors. All of these issues can be effectively managed to minimise the potential for impacts to the environment or human health. The Public Transport Authority has commenced consultation with the DEC, Department of Health, Swan River Trust and Department of Water with regard to the management of these issues.

The Public Transport Authority has committed to the preparation of an Environmental Site Management Plan to meet the requirements of the *Contaminated Sites Act 2003* restrictions on the registered certificate of titles and associated memorials. This Plan will cover all relevant environmental and contamination risks, including but not limited to asbestos, dust, spill response, waste management, acid sulphate soils, stormwater management, auditing and monitoring requirements. All Lead Contractors will be responsible for developing a Construction Environmental Management Plan in accordance with the Project's Environmental Site Management Plan. This is consistent with the approach adopted for and detailed in the Part 1 (Stadium and Sports Precinct) referral to the EPA. The Environmental Impact Assessment Supporting Document (Golder, 2012j) prepared for Part 1 remains relevant to the Part 2 transport corridor works. This document is available on the Project website at www.perthstadium.com.au.

The PTA has also committed to the continual revision of the noise and vibration assessment working document through to final design stage in liaison with the DEC Noise Branch.

3.2 Consultation

- ☐ Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

☒ Yes

☐ No

If yes, please list those consulted and attach comments or summarise response on a separate sheet.

The stakeholder engagement strategy developed during the initial planning phase of the Project has focussed on information collation and dissemination and basically identifies two main groups of stakeholders: technical stakeholders and community stakeholders, as outlined below. Following the State Government's formal adoption of the Project Definition Plan, a series of community engagement sessions within the Perth Metropolitan area were undertaken in October and November 2012.

Technical Stakeholders

The need to consider complex legal, site and transport matters in the Project Definition Plan and Master Plan to facilitate the development of the Project required extensive input and technical advice from a large number of stakeholders including technical consultants and local and State Government agencies.

The State established four technical working groups to investigate and make recommendations with regard to technical reporting inputs to the Project. Since August 2011, these groups each met on a weekly basis,

(with exception of Land Use Planning Working Group which met monthly) with their purpose and composition outlined in Table 4.

In addition to the technical working groups, meetings were also held with the following key stakeholders to provide an overview of the Project, and for discussion and input on key items:

- Office of the Environmental Protection Authority (OEPA)
- Department of Indigenous Affairs
- Department of Sustainability, Environment, Water, Population and Communities with discussion on the impacts of the *Environment Protection and Biodiversity Conservation Act 1999*
- Elected members and officers of the City of Perth. Several formal presentations have been delivered on the progress of the Stadium's Project Definition Plan, as well as other briefings on specific elements of the Project. The main issue of concern identified by the City of Perth is the proposed pedestrian footbridge; its location and its impact on the residents of East Perth.
- Elected members and officers of the Town of Victoria Park. Several formal presentations have been delivered on the progress of the Stadium's Project Definition Plan, as well as other verbal and written updates on issues including community engagement.
- Belmont Park Racecourse development representatives. Liaison with the development representatives of Belmont Park Racecourse is ongoing and includes discussion on the environmental investigations undertaken for the Belmont Park Racecourse development site;
- Crown Perth Complex operators.

Table 4: Project Technical Working Groups

| Technical Working Group | Purpose | Composition |
|-------------------------------------|---|--|
| Site Conditions Working Group | To examine environmental, hydrological, geotechnical and servicing matters relating to the site. | <ul style="list-style-type: none"> ■ Public Transport Authority (PTA) ■ Department of Environment and Conservation (DEC) ■ Swan River Trust (SRT) ■ Department of Water (DoW) ■ Burswood Park Board (BPB) ■ Department of Planning (DoP) ■ Water Corporation ■ Western Power ■ Golder Associates and Arup (expert geotechnical, environmental and engineering Project consultants). |
| Transport Planning Working Group | To investigate the rail, bus, road and pedestrian transport infrastructure required to support the Stadium and the integration of this with the Stadium land use planning. | <ul style="list-style-type: none"> ■ PTA ■ DoP ■ Main Roads Western Australia (MRWA) ■ Town of Victoria Park ■ Golder and Arup. |
| Legal and Land Tenure Working Group | To understand the current land ownership, title, legislative and statutory planning framework and the options to progress the Stadium development to meet critical timeframes. | <ul style="list-style-type: none"> ■ State Solicitors Office (SSO) ■ DoP ■ Department of Regional Development and Lands ■ BPB ■ Golder and Arup. |
| Land Use Planning Working Group | To advance the Master Planning, synthesising the information arising from the other working groups to develop a comprehensive understanding of site considerations and to review and discuss Master Plan scenarios. | <ul style="list-style-type: none"> ■ PTA ■ DoP ■ MRWA ■ City of Perth ■ Town of Victoria Park ■ SRT ■ Metropolitan Redevelopment Authority ■ BPB ■ Golder and Arup. |

Community Stakeholders

Community engagement has been undertaken and will continue through direct engagement and via electronic and published media, as follows:

- Direct engagement with local residents. East Perth and the Burswood Peninsula residents have been informed through letters, meetings and presentations. Town of Victoria Park and East Perth/Claisebrook ratepayers owning property within the development area on the Burswood Peninsula/East Perth have been provided with two letters advising of the Project's progress and detailing ways in which they will be kept informed on an ongoing basis. Two groups representing residents on the Burswood Peninsula: the Burswood Residents Association (BRA) and the Burswood Residents Action Group (BRAG) have also been provided direct briefings. The Arden Street Residents Group has been provided with direct briefings on the bridge location and car parking in East Perth.
- Project Website: The Project has a dedicated website (<http://www.perthstadium.com.au/>) that establishes communication channels for the wider public through an email inquiry process, a newsletter distribution (monthly) and subscription process, a free-call telephone information line and via government media statements. The website provides an extensive amount of information on the progress of the Project Definition Plan, awarding of tenders and the proposed initial works stage. Information on the website is regularly updated and includes copies of presentations made to stakeholders, tender briefings, Frequently Asked Questions, newsletter articles, government media statements and details of the newsletter subscription process, the free-call telephone information line and the email inquiry process.
- Project Newsletter: A Perth Stadium newsletter is published monthly on the website and emailed direct to subscribers, providing an ongoing source of information to all interested members of the public. The newsletter is also made available to the governing bodies of all major sports for further distribution to their public memberships.
- Email and telephone inquiries: From the Project's commencement date in July 2011, a dedicated email address and phone contact via the Department of Sport and Recreation have been available to the wider public. A free-call telephone information line has since been established to further strengthen the service available. The line is staffed during office hours and has an after-hours message. Every effort is made to respond to inquiries within 24 hours.
- Media Statements: The State Government has to date issued a number of media statements on the Project. Briefings have been provided to key stakeholders in conjunction with the issuing of major statements. All the statements have received widespread media coverage within Western Australia and are available on both the Project website and the WA Government website.
- Social Media: The Project Team is also currently investigating ways in which Social Media platforms, including Facebook and Twitter, will be utilised in the future to further the level and quality of engagement that can occur with the community.
- Sports Groups and User Groups: The Joint Football Working Group, VenuesWest and other sporting stakeholders and User Groups will provide input into the delivery of the Project to ensure the requirements and views of stadium users are clearly understood and reflected in the Project Documents (as appropriate).

EPA Advice

The EPA advice provided with the decision to 'Not Assess' Part 1 of the new Perth Stadium Project, recommended the Site Conditions Working Group continue its oversight throughout the Construction and Operational phases of the new Perth Stadium Project.

These recommendations will be implemented and will also be applicable to Part 2 of the new Perth Stadium Project, being the Transport Corridor.

DEC Contaminated Sites Guidelines

The results of the contamination investigations being completed for the new Perth Stadium project and the proposed management of existing contamination will be made publicly available on the Project specific Perth Stadium website, consistent with the intent of Contaminated Sites Management Series Community Consultation Guideline (DEC, 2006).

References:

- AECOM (2012) *New Perth Stadium Transport – Preliminary Noise Assessment*. AECOM Pty Ltd. Perth, WA.
- BG&E (2012) *Burswood Rail – Drainage*. BG&E Pty Ltd. Perth, WA.
- DEC (2006) *Contaminated Sites Management Series – Community Consultation*. Department of Environment and Conservation. Perth, WA.
- Golder. (2012a). *New Perth Stadium Flora and Fauna Survey Addendum*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012b). *Desktop Study and Review of Previous Environmental Reports – Proposed Perth Major Stadium*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012c). *Geotechnical Interpretive Report Master Plan Study Phase, Transport Infrastructure for the New Perth Stadium, Burswood*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012d). *Preliminary Site investigation Report – Proposed Burswood Stadium*. Golder Associates Pty Ltd. Perth, WA.
- Golder. (2012e) *Sampling and Analysis Plan (SAP) and Data Quality Objectives*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012f) *Draft Detailed Site Investigation – Proposed Perth Major Stadium*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012g). *New Perth Stadium Detailed Site Investigation Sampling and Analysis Plan for Stage 2 and Stage 3*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012h) *New Perth Stadium and Associated Transport Infrastructure – Composition of Uncontrolled Fill*. Golder Associates Pty Ltd. Perth, WA.
- Golder (2012i) *New Perth Stadium, Preliminary Hydrogeological Report*. Golder Associates Pty Ltd, Perth, WA.
- Golder (2012j). *New Perth Stadium Section 38 Environmental Impact Assessment Referral Supporting Document*. Golder Associates Pty Ltd. Perth, WA.
- Public Transport Authority (2012) *New Perth Stadium Transport, Project Definition Plan, December 2012*. Public Transport Authority. Perth, WA.

Figures:

- Figure 1 – Regional Location
- Figure 2 – Master Plan (Strategic Projects, June 2012)
- Figure 3 – Transport Infrastructure Layout (Public Transport Authority, December 2012)
- Figure 4 – Rail and Drainage Plan (Public Transport Authority, December 2012)
- Figure 5 – Project Parts, Old Burswood Canal and Surrounding Land Uses
- Figure 6 – Transport Corridor Flora and Fauna Survey
- Figure 7 – Geological Conceptual Section and Plan
- Figure 8 – Potential Ground Improvement Areas
- Figure 9 – Indigenous Heritage Sites

Attachments:

- Attachment 1 – Public Transport Authority (2012) *New Perth Stadium Transport, Project Definition Plan, December 2012*.
- Attachment 2 – Golder (2012a). *New Perth Stadium Flora and Fauna Survey Addendum*.
- Attachment 3 – Department of Environment and Conservation (2010). Basic Summary of Records for Lot 305 on Plan 42394
- Attachment 4 – Letter from Department of Health, dated 8th February 2013.