Executive Summary

Sinclair Knight Merz (SKM) was commissioned by Western Power to undertake a corridor selection process for a proposed high capacity 330,000 Volt (330kV) transmission interconnection between an existing substation south of Eneabba and a proposed new terminal substation at Moonyoonooka, 15km east of Geraldton. The project represents Stage 1 of a larger transmission interconnection that will ultimately connect the Perth Metropolitan Area with Moonyoonooka.

The proposed transmission line development would comprise galvanised lattice steel towers, approximately 50m in height, eventually carrying two 330kV line circuits.

The transmission line would provide power to existing and proposed energy users in the Mid West Region including new mining and industrial projects. It would also facilitate the development of additional power generators including wind farms and improve the security of power supply to the Mid West Region.

Corridor Selection Process

The corridor selection process incorporated a significant degree of stakeholder engagement, spatial analysis and sustainability planning.

In broad terms, the process involved the establishment of a 'picture' of constraints and opportunities in the 'area of interest' based on stakeholder knowledge. This allowed the definition of potential corridor options that were subsequently refined following more localised community input. The final phase of the corridor selection process was to assess each corridor option against sustainability principles using a sustainability assessment process. A summary of the six phases in the corridor selection process is provided below.

Phase 1: Scoping and baseline data collection

The initial phase in the process involved the collation, review and management of data acquired during the corridor selection process. This phase also involved initial consultation with owners and operators of infrastructure in the Region to determine appropriate separation distances to the transmission line.

In addition, draft sustainability principles were created at this early phase of the process to drive the entire project.

Phase 2: Design Parameter Workshops

Design Parameter Workshops were held with Local and State government agencies, local representative groups and other key stakeholders with an interest in a range of social, economic, technical and environmental considerations in the Mid West. These stakeholders were asked to input into the following tasks:

- definition of the sensitivity of known land uses;
- refinement of the draft sustainability principles; and
- mapping areas of cultural or intrinsic significance.

Phase 3: Geographic Information Systems analysis

A map of constraints in the 'area of interest' was created using a Geographical Information System (GIS). The GIS model processed the information provided by stakeholders in Phase 2 to identify areas that may be suitable for accommodating a transmission line.

Phase 4: Define corridor options

Using the information from the GIS analysis, a number of broad (1km wide) corridor options were selected to enable community discussion of any potential issues. Three main corridors were identified (Orange, Pink and Blue (see **Figure ES1**) which appeared to be less constrained by the social, economic, technical and environmental issues identified at Phases 2 and 3, but which also took into account the proximity of existing and proposed loads and generators.

Phase 5: Community workshops

Members of potentially affected communities were invited to a series of Community Workshops to map constraints and opportunities within, and in the vicinity of, the corridor options. Attendees also contributed to the weighting of sustainability principles that would be used in the sustainability assessment of corridor options (Phase 6). This stage also involved the refinement of corridor options. The three main corridor options were refined at this phase to take community concerns into account. Sixteen final corridor options were identified; all of them being derivatives of the three main corridors, taking into account all possible connections between corridors. These options were referred to as Corridor Options 1 to 16.

Phase 6: Sustainability assessment

Each of the sixteen corridor options was subjected to a comprehensive assessment against the sustainability principles that were defined and refined in earlier phases of the process. The draft scoring was verified at a series of external stakeholder workshops and further reviewed by SKM.

The assessment stage of the **sustainability assessment process concluded that Corridor Option 10 performed more positively over all analyses, including the sensitivity analyses.** Option 4 also performed particularly well and was also recommended by SKM. Both corridor options have specific issues that would need to

be addressed at the line route selection phase if Western Power were to select either option. The constraints that SKM identified at a strategic level are shown on **Figure ES 2 and Figure ES 3 below.**

In the next phase of the process, Western Power will select a preferred corridor based on the corridor selection process and subsequently identify an appropriate line route through the corridor. Western Power will then seek the necessary approvals (Economic Regulation Authority approval, Aboriginal heritage clearance and environmental approval) to construct and operate the line.

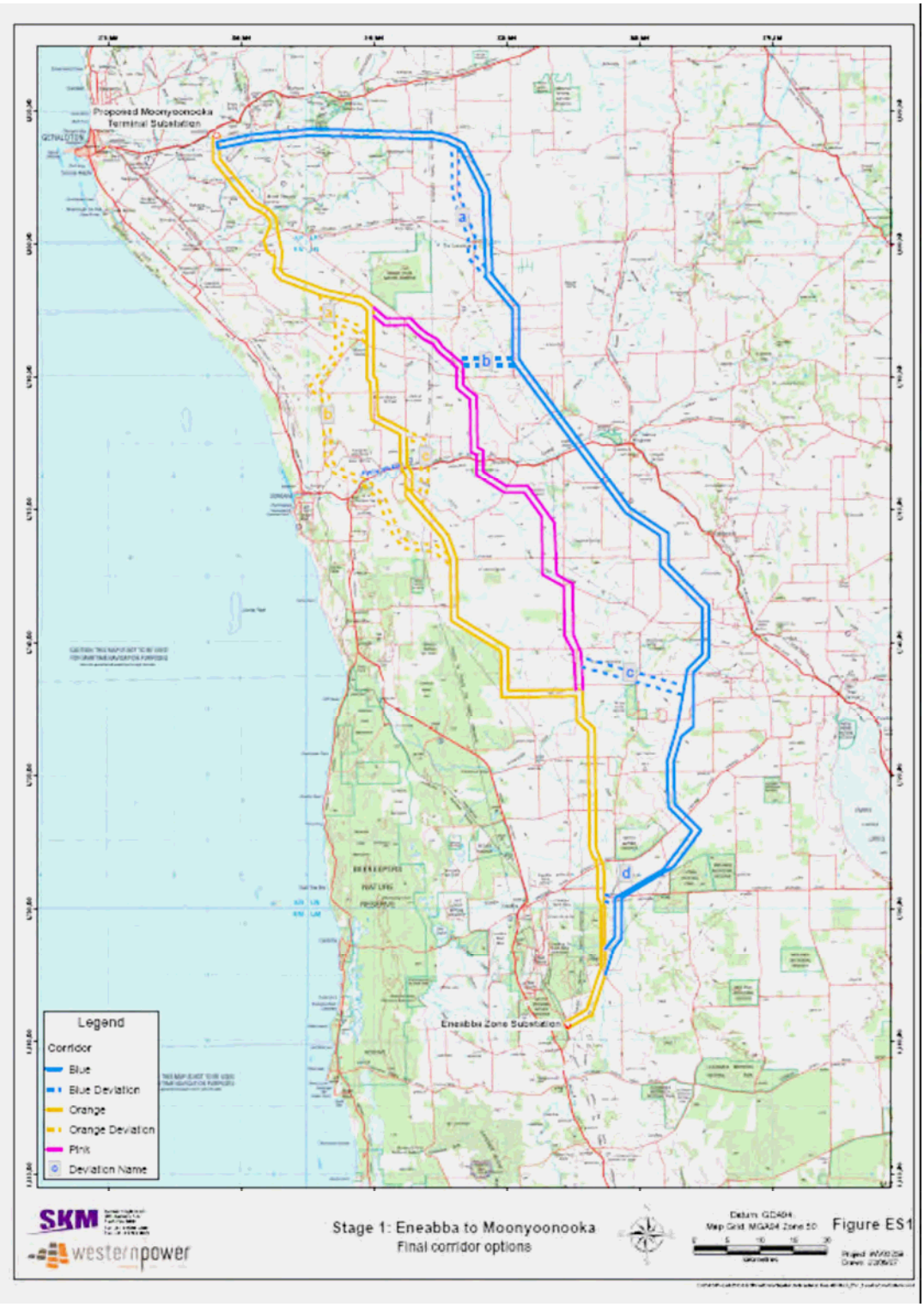
Proposed Moonyoonooka Terminal Substation
Eneabba Zone Substation
a
b
c
d
Legend
Corridor
Blue
Blue Deviation
Orange
Orange Deviation
Pink
Deviation Name
SKM
western power
Stage 1: Eneabba to Moonyoonooka
Final corridor options
Figure ES1

Figure ES 1

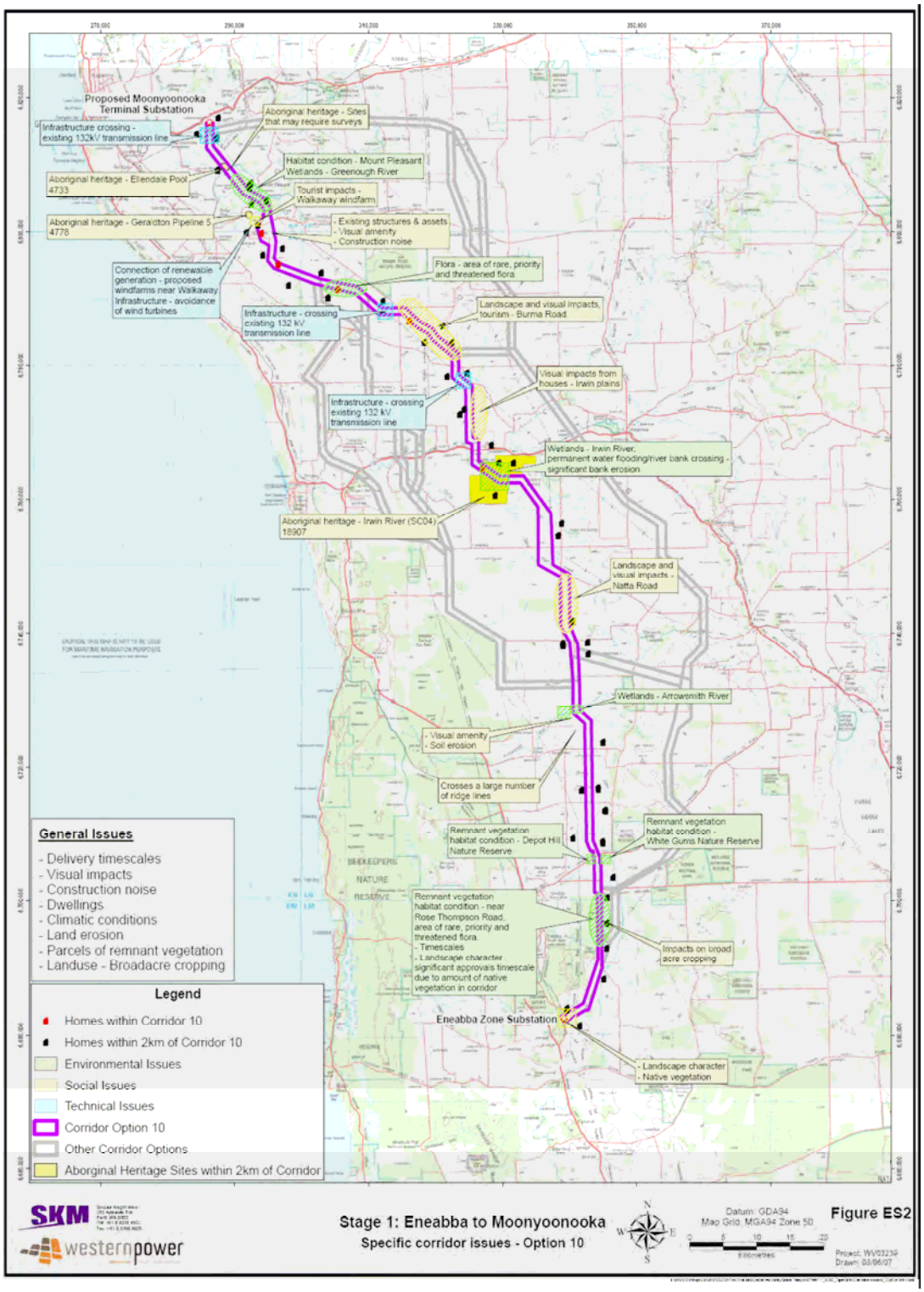

Figure ES 2

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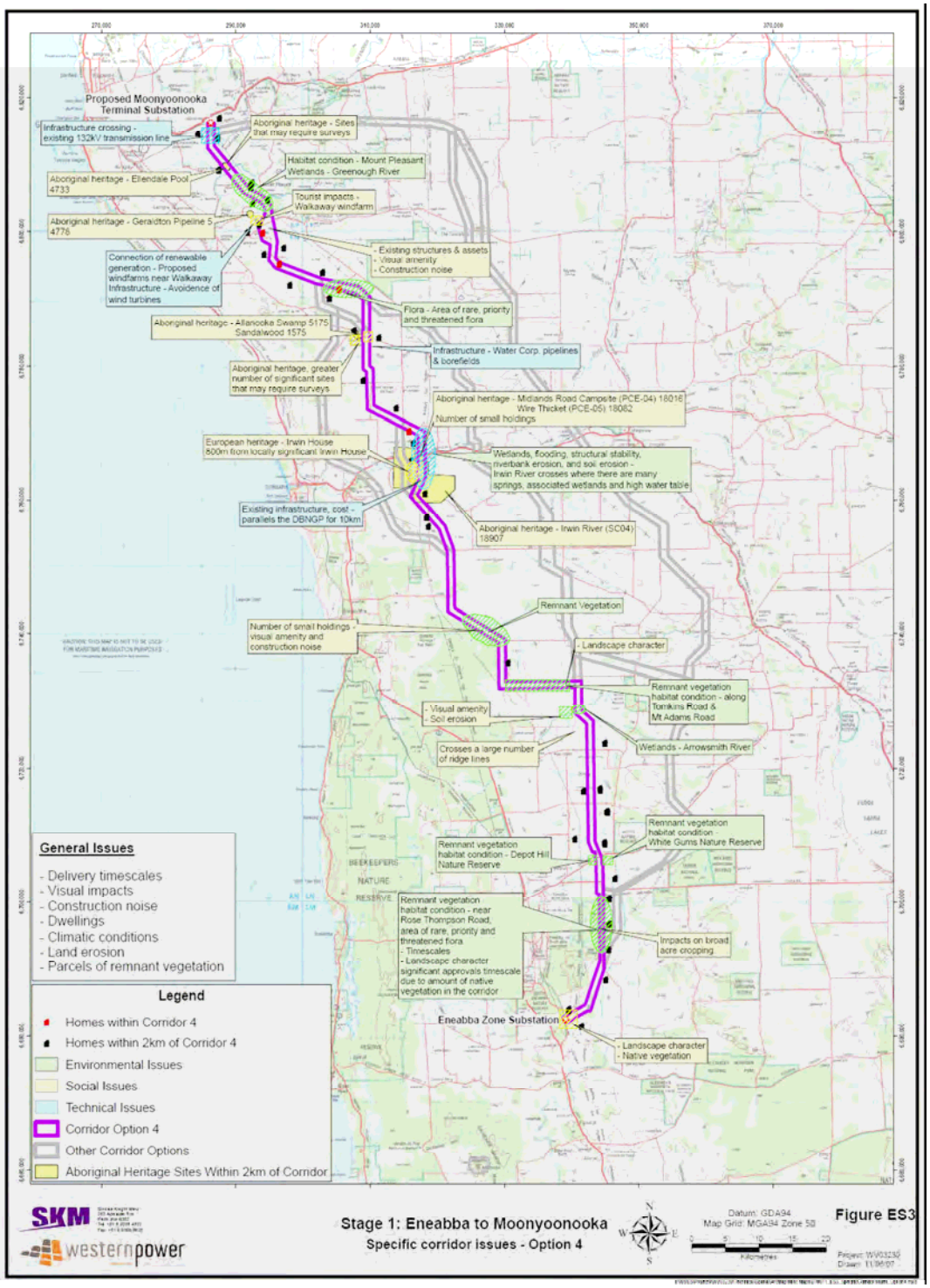

Figure ES 3

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