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CORPORATE PROCEDURE

Environmental Standard Brief

**LANDSCAPE DESIGN**

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Enquiries should be directed to the delegated custodian, Manager Environment.

**Printed copies are uncontrolled unless marked otherwise**

REVISION STATUS RECORD

|  |  |  |
| --- | --- | --- |
| **Revision No.** | **Revision Date** | **Description of Key Changes** |
| 1.0 | 12/7/04 | Minor text changes to all sections to clarify requirements. Update references to related documents |
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**ABOUT THIS STANDARD BRIEF**

Environmental standard briefs provide the basic technical specification for engagement of suitable consultants, and will require editing to meet the requirements of a particular road project or task.

Advisory comments may be included within this standard brief and are shown in *red italics*. Remember to delete this front section and all advisory comments from the final brief document.

For assistance in finalising this brief for a particular application, please contact the Environment Branch.

###### Application

The standard brief *Landscape Design* *(Doc. No. 6707/021)* sets out the requirements for the design and documentation (drawings, specifications and tender clauses) of landscaping works typically associated with roads in urban areas eg planting beds, grassing, irrigation, feature design treatments of walls, fencing or paving.

This brief is intended for use by a Project Manager to engage a suitably qualified consultant with demonstrated experience in landscape design and documentation associated with roads. A checklist is attached overleaf for use when reviewing a draft landscape design.

Guidance on the planning, placement and establishment of all new vegetation (by seeding, planting or transplanting) is provided in the following Main Roads Environmental Guidelines:

* *Revegetation planning and techniques (Doc. No. 6707/031)*
* *Vegetation placement within the road reserve (Doc. No. 6707/022)*

The typical process for landscape design and documentation includes:

* Site assessment.

Desktop review, site survey and analysis.

* Preliminary Design (15%).

Design development and preliminary documentation of the works.

* Final Design (85%).

Complete design documentation of the works following review and approval.

* Preparation of contract documents for the works (tender clauses, drawings and specifications).

Some level of community consultation or involvement of stakeholders will often be associated with landscape works. Presentation material for public display, meetings or for submissions may also be required for the project. Provisional amounts should be allowed for these services if required.

The time taken to complete the design and the costs involved will depend on the size and complexity of the proposed landscape works. If the necessary expertise is not available to review the documents (at preliminary and final design) then a consultant is engaged for the purpose. Advice and support is available from the Environment Branch

**Related Environmental Standard Briefs**

*Project Revegetation Design (Doc. No. 6707/033)* is to be used when preparing a brief for consultants where the project mainly comprises the establishment of native vegetation.

*Visual Impact Assessment (Doc. No. 6707/022)* is to be used when preparing a brief for consultants to complete an assessment of the visual impacts associated with a project.

**Checklist - Review of a Project Revegetation Design**

This checklist is for use by Project Managers when reviewing project landscape design.

|  | **Completed** | **Comments** |
| --- | --- | --- |
| **Yes** | **No** |
|  |  |  |  |
|  |  |  |  |
| Co-ordination with road/bridge design |  |  |  |
|  |  |  |  |
| Site assessment  |  |  |  |
| Site survey |  |  |  |
| Draft site assessment  |  |  |  |
|  |  |  |  |
| Preliminary design (15%) stage |  |  |  |
| Design report  |  |  |  |
| Design drawings  |  |  |  |
| Specifications  |  |  |  |
|  |  |  |  |
| Final design (85%) stage |  |  |  |
| Design report  |  |  |  |
| Design drawings  |  |  |  |
| Specifications  |  |  |  |
|  |  |  |  |
| Tender documentation  |  |  |  |
| Schedule of rates  |  |  |  |
| Contract Clauses  |  |  |  |
|  |  |  |  |
| Public display material |  |  |  |
| Liaison/consultation with key stakeholders |  |  |  |
|  |  |  |  |
| Others…. |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Information provided |  |  |  |
|  |  |  |  |
| Information to be returned |  |  |  |
|  |  |  |  |

Consultant Brief

**LANDSCAPE DESIGN**

# INTRODUCTION

## Purpose

Main Roads Western Australia (Main Roads) requires the services of an experienced consultant to design and prepare contract documentation (drawings, specifications and tender clauses) for the proposed landscape works within the project area *(project name and general location)*.

## Background

*Concisely describe the project planning, its current status, user groups/agencies involved/affected, and any factors that may influence the landscape design process and its outcomes.*

*Mention any relevant previous activities or reports (by Main Roads or others).*

## Project Area

The location and boundaries of the project area are shown in Attachment A.

*Identify the location (road, section, suburb/town, SLK start and finish, Local Government Authority). Clearly describe the full extent of the project area and any associated proposed road or bridge works, access tracks, connecting roads, pedestrian and cycle ways, etc*. *Also note areas that require specific attention.*

# SCOPE

The Consultant shall undertake the design and documentation of the landscape works for the project area, comprised of the following items:

* Site Assessment (desktop review, site survey, and site analysis).
* Preliminary design (report, specifications and drawings).
* Final design (report, specifications and drawings).
* Contract documentation (tender clauses, specifications and drawings).
* Public display material (as required by the Principal’s Representative).
* Stakeholder consultation (as required by the Principal’s Representative).

*Edit as required/add to suit specific project requirements*.

The Consultant shall prepare and submit the design documentation in accordance with the requirements for each work item/design stage as set out in Sections 3 to 7. All reports and drawings shall be formatted in accordance with the requirements detailed in Section 8.

A suitably qualified landscape architect shall prepare the landscape design.

## Submission and review of design documentation

Documents shall be submitted to the Principals’ Representative for review at each stage of the design, as nominated in Section 3. Submissions shall include a statement from the Consultant that the documents have been checked and are complete.

The Principals’ Representative shall not commence the review of the documents until all information required to undertake a meaningful review have been provided by the Consultant.

The Principal shall accept no responsibility for any rework or re-design that result from proceeding beyond each stage of the design before the work has been reviewed and approved by the Principals’ Representative. The Consultant shall receive written approval prior to proceeding to the next stage of the design.

# SCHEDULE

The Consultant will undertake the work in accordance with the following timetable:

|  |  |
| --- | --- |
| **Items** | **Timing** |
| Start up meeting | Within 1 week of award |
| Site Assessment | 2 weeks from award. |
| Preliminary design (15% stage) | 4 weeks after approval of site assessment. |
| Final Design (85% stage) | 2 weeks after approval of preliminary design. |
| Tender documentation | 2 weeks after approval of final design. |
| Public display material  | (As agreed with the Principal’s Representative) |
| Stakeholder consultation | (As agreed with the Principal’s Representative) |

*(Typical example, determine the specific requirements for the project and edit to suit.*

# GENERAL requirements

## Design objectives

The purpose of the landscape design is to enhance the appearance and function of the road environment for users of the road reserve and adjacent areas.

Maximum use shall be made of native flora species local to the project area. Alternatives to or departures from this requirement must be justified in the design.

The design shall aim to minimise future maintenance needs and costs whilst achieving the project objectives. This requires an understanding of the existing road reserve, current and future adjoining land uses, environmental issues, and the requirements of users including adjacent landowners, local authorities and community groups. The Consultant shall consider all pertinent issues relating to the site and any proposed road works (refer to section 5).

## Safe placement of vegetation

Restrictions apply on the height and stem/trunk size of all vegetation close to road infrastructure to assist in road safety and protect the integrity of the road formation, road structures and road furniture.

All vegetation shall be placed in accordance with the Main Roads guideline *Vegetation placement within the road reserve (Doc. No. 6707/022)* to ensure clear sightlines and lateral setbacks from the roadway.

## Project integration and liaison

It is necessary for the Consultant to be familiar with the environmental factors as well as any road engineering proposals and ongoing roadside maintenance activities associated with the project area. Enquiries should be directed to the Principal’s Representative in the first instance.

## Site assessment

The site assessment stage shall include a desktop review, field survey and site analysis as a basis for the preliminary landscape design to the satisfaction of the Principal’s Representative.

### Desktop review

The Consultant shall undertake a desktop review of all relevant information (including reports, plans, maps and air photography) pertaining to the design of landscape works within the project area.

This should include a review the existing available documentation on the proposed road engineering works (road, bridge and drainage design proposals), as well as the project environmental factors, (impact assessments or environmental management plan).

Enquiries on the existing available documentation should be directed to the Principal’s Representative in the first instance.

The desktop review shall include but not be limited to any:

* Visual impact assessment report undertaken as part of an environmental assessment.
* Vegetation survey information.
* Commitments or requirements identified in the environmental management plan (eg revegetation species list, weed management, clearing and topsoil management, visual screens and or other landscape items).
* Project Revegetation Plan (where available).

The Consultant shall review the Project Revegetation Plan prior to any field survey of the project area, to identify the currency of the information and any requirement to prepare or update existing the site feature survey or site inventory information.

*Unless there has been a significant delay between the preparation of a Project Revegetation Plan and the commencement of the Landscape Design, there should be relatively few new issues arising. Such issues, however, could include changes in policy or legislation, or physical changes within the project area, such as weed infestations or fire.*

*If there is a significant time interval between site survey and the start of any design and or delivery at the construction (say >2 years) then an allowance should be made for the growth of vegetation areas.*

The Principal’s Representative will determine the need for any additional investigation or consultation identified by the Consultant.

### Site survey and analysis

The Consultant shall undertake a field survey and analysis of all the pertinent site conditions and issues relevant to a landscape design. This must take into account, but not be limited to the following factors:

*Physical* eg soils, geology, landform, drainage, hydrology, erosion, wetlands, salinity, roads, services (above and below ground), signage, walls, fences, footpaths, dual use paths.

*Biological* eg flora and fauna (native species), rare or endangered species, exotic plant species, declared and environmental weed species, dieback and other diseases.

*Social* eg land use (including identification of reserves and institutions), heritage sites (Aboriginal and cultural), traffic patterns for vehicles, pedestrians and cyclists).

*Visual* eg local and regional landscapes, classified landscapes, views into and out of the road reserve. Landscape elements, precincts and types, paths, nodes, edges and landmarks, visual harmony and discord of colours, textures, enclosure, exposure and scale within the landscape setting.

*Visual impacts* eg degree of visual intrusion, loss of visual amenity and the management of visual impacts associated with any road works.

Where necessary a visual impact assessment shall be prepared for the project area in accordance with the Main Roads *Visual Impact Assessment (Doc. No. 6707/022)*.

Where necessary all important site features (including underground services) are to be identified and recorded in accordance with the Main Roads guideline *Digital Ground Survey (Doc. No. 67/08/43)*.

The Principal’s Representative will determine the need for any additional site survey or specialised assessments identified by the Consultant.

*If detailed site survey information does not exist or is very limited, it is recommended that a provisional amount be nominated in the form of tender to cover any necessary site survey/inventory requirements. This may include a site feature survey, soil testing, and vegetation survey.*

The Consultant shall evaluate the likely visual and physical landscape changes associated with any proposed road, bridge or other works and identify the site design opportunities and constraints for the landscape works. Particular attention shall be given to addressing the environmental and social issues and documented project commitments.

The Consultant shall summarise the findings of the site assessment and any additional site investigations prepared for the project area, as an appendix to the preliminary design report (refer to Section 5.2.1). The format of the summary report shall be as detailed in section 7.1.

A draft of the site assessment shall be submitted to the Principal’s Representative for written approval prior to proceeding to the preliminary design stage.

## Preliminary Design

The preliminary design stage shall include a design report, preliminary specifications and preliminary design drawing(s) as required to address all design issues to the satisfaction of the Principal’s Representative.

Liaison with the Principal’s Representative shall be required to confirm the proposed road/bridge design and the extent of landscape works to be adopted before the consultant begins the preliminary design drawings.

The Consultant shall develop a preliminary design proposal based on a site assessment (refer to Section 5.1), the Project Revegetation Plan (where available) and resolve the site design issues to:

* Stabilise all exposed soil surfaces.
* Minimise the medium to long-term visual impacts.
* Enhance the appearance of the road reserve.

The urban design context shall be considered as a basis for the landscape design.

The preliminary design shall take into account the design constraints and opportunities created by the proposed horizontal and vertical alignment of any road works or proposed structures (but not be limited to) the following aspects:

* Landform cut/fill batters, drainage lines and basins (e.g. form and soil surface details, batter slopes and surface treatments, erosion control protection etc.).
* Vegetation (weed control, vegetation protection, transplanting, proposed plantings and or seeding, grassing, feature areas, irrigation, etc).
* Placement and form of roadside elements (e.g. walls, paving, paths, fencing, bollards, lighting, signage, public art items etc.).
* Colour, textural finishes and detailing of road structures (eg abutments, footbridges, overpasses and bridges, piers, railings and guard rails, noise and screen walls etc.).

The preliminary design shall include (but not be limited to) the following aspects:

* Soft landscape works (e.g. weed control, soil preparation, mulching, planting, seeding, grassing).
* Irrigation works (e.g. temporary water supply, reticulation).
* Hard landscape elements (e.g. walls, fences, paths).
* Design treatments and or finishes for walls, fences or paving.
* All special features (e.g. signage, lighting, public art item).

A registered structural engineer shall certify all structural details, for example public art items or feature walls. Public art items shall be identified and allowed for, but only included in the preliminary design documentation if directly forming part of the landscape works.

The Consultant (via the Principal’s Representative) shall ensure that any necessary design details and specifications are included or cross-referenced in the road or bridge design documents. This shall include (but not be limited to) the following aspects of the clearing and topsoil management (earthworks):

* Vegetation to be disposed offsite.
* Weed control.
* Vegetation to be retained and protected.
* Vegetation to be transplanted.
* Vegetation for chipping and respread.
* Seed collection requirements.
* Topsoil to be disposed offsite.
* Topsoil for stockpiling and respread.
* Salvage of other site materials for reuse (Boulders, Rock, Timber).
* Landform changes.
* Design of batters.
* Erosion control and batter protection.
* Imported topsoil.
* Soil preparation.

### Preliminary Design report

The format of the preliminary design report shall be as detailed in section 8.1. The report shall document the issues, the landscape design proposal and components addressed in the preliminary design stage. The report shall summarise the findings of the site assessment and any additional site investigations (refer to Section 5.1.2) prepared for the project area as an appendix. The design proposal shall be summarised in terms of (but not be limited to):

* Design zones including the functional and aesthetic design intent and proposed treatments (e.g. materials, colours, textures).
* Planting themes based on native plant associations and species local to the project area. In suggesting plant species, the Consultant shall use the site vegetation survey as a basis. Alternatives to or departures from this requirement must be justified.
* Public art opportunities, based on an overall project strategy.
* Ongoing maintenance implications of the proposed landscape works.
* Other relevant issues, as determined by the consultant.

The preliminary design report shall also summarise the design components and relate these to the preliminary design drawing(s) to include (but not be limited to) the following items:

* Description of main components of the work.
* Preliminary schedule of quantities and itemised costing of the works.
* Preliminary implementation schedule.
* Preliminary plant schedule.
* Preliminary design drawings.
* Preliminary specifications (including vegetation establishment and completion criteria).
* Key items for management action (to implement the landscape works).

(Edit as required)

### Preliminary Design drawing(s)

The preliminary design drawing(s) shall be in final design format, with appropriate symbols and notes. The drawings shall include all necessary plan, elevations and sections at the appropriate scales (refer to the Section 6.2) to implement the works to Main Roads standards.

A cover sheet for the drawing set shall include:

* Project name
* Road location
* Contract number
* Locality plan
* List of drawings
* An overall key to the individual drawings for the drawing set.

Preliminary design drawings shall include, but not be limited to:

* Clearing and topsoil management plans (to include weed control, vegetation and topsoil treatments, soil preparation, mulching).
* Planting/seeding plans (plant and seed species, numbers, size, location and spacing).
* Special details (e.g. landform, walls, fencing, paving, materials and surface finishes).

All drawings and details shall comply with Main Roads standards. A registered Engineer shall certify any structural elements. Landform grading requirements (eg landform changes, or specific treatments for batters) shall be incorporated into the road design earthworks drawing(s), unless the landscape works are to be undertaken as a stand-alone contract.

### Preliminary Specifications

The preliminary specifications shall cover all items of the work and be based on Main Roads Tender Document Process (TDP) standard contract specifications.

*Project specific requirements should be nominated as required.*

Complete copies of the preliminary design (report, specifications and drawings) shall be submitted to the Principal’s Representative for written approval prior to proceeding to the final design stage.

## Final Design

The final design shall be based on the approved preliminary design. It shall include a concise report; specifications and final design drawing(s) as required to clarify all design issues to the satisfaction of the Principal’s Representative. The final design shall resolve (but not be limited to) the following aspects:

* Soft landscape works (e.g. clearing and topsoil management requirements, grading, batter protection, weed control, soil preparation, mulching, planting, grassing, transplanting).
* Irrigation works (e.g. temporary water supply, reticulation).
* Hard landscape elements (e.g. walls, fences, paths).
* Special details (e.g. landform, signage, lighting, public art item and other elements, materials and surface finishes).

(Edit as required)

### Final Design report

The final design report shall include, (but not be limited to) the following items:

* Summary of the works.
* Implementation schedule for the works.
* Schedule of quantities and itemised costing.
* Specifications; (including vegetation establishment requirements and completion criteria).
* Plant schedule.
* Design drawings.

(Edit as required)

### Final Design drawing(s)

The drawings shall include all necessary plan, elevations and sections at appropriate scales to implement the works to Main Roads standards (refer to the Section 6.2).

Complete copies of the final design (report, specifications and drawings) shall be submitted to the Principal’s Representative for written approval prior to proceeding to the tender documentation stage.

## Tender Documentation

### General

Tender documentation shall include all the tender preamble clauses and schedules, drawings and written specifications, as necessary for issue as contract tender documents for the landscape works, to the satisfaction of the Principal’s Representative. Tender document drawings and written specifications shall be based on an approved final design.

Where landscape works form part of a roadwork and/or bridgework construction contract, suitable specifications and drawings shall be prepared for incorporation into the main contract. The consultant shall ensure (via the Principal’s Representative) that the tender documentation includes any appropriate cross-referencing of specifications (e.g. clearing and earthworks requirements).

Where the landscape works are to be undertaken as a separate stand-alone contract, suitable specifications and drawings shall be prepared for incorporation into a Main Roads Minor Works Contract tender document.

The contract documentation shall include a minimum of at least two summers, following the Practical Completion of the works, for all planting and seeding works. Contractual arrangements (monitoring, inspections and financial incentives) shall be nominated to ensure any required follow up works are undertaken prior to the date of Final Completion.

### Preparation of tender documents

All tender documentation shall be completed in accordance with Main Roads guidelines for the preparation of contract tender documentation. The Main Roads standard tender documents shall be modified as necessary by the Consultant to suit the current project.

The Schedules of Rates (including preambles) shall cover all items of work in the contract and be prepared by a Quantity Surveyor with substantial experience in landscape works.

A template Preambles and Schedule of Rates (or Bill of Quantities) is available for editing. Enquiries should be directed to the Principal’s Representative in the first instance.

A complete copy of the tender documentation shall be submitted to the Principal’s Representative for written approval prior to the final submission.

# Public display material

(Project requirements should be nominated as required, eg presentation drawings and or indicative sketches for consultation purposes, master plan concept drawings).

Design concept drawing(s) shall be prepared as required to convey the landscape design intent for the project area. The scaled drawings shall include an overall plan, indicative elevations, sections and details as required to communicate the design intent and design elements to the general public.

Separate design concept drawings shall be prepared for each of the individual stages in the project, as required. Drawing(s) shall be prepared at the appropriate scale(s) as required to communicate the proposal (refer to the Section 7.2).

All additional presentation drawings or public display material, as approved by the Principal’s Representative prior to proceeding, shall be based on an approved preliminary design.

# consultation & LIAISON

*Some level of community consultation or involvement of stakeholders will often be associated with landscape works.*

Main Roads and the Consultant shall determine the extent of consultation work required following the initial project start up meeting. The consultant shall be required to:

* Identify all key stakeholders.
* Consult and liaise with those stakeholders as agreed to by Main Roads to establish their needs and views.
* Attend any public meetings as required by Main Roads.

The Principal’s Representative, prior to proceeding, shall approve all consultation activities.

*(Examples only – List as required) Amend comments regarding consultation as necessary. It is recommended that a provisional amount be nominated in the form of tender to cover the consultation requirements. Alternatively, if the requirements for consultation are known, a consultation program can be outlined in the brief.*

# FORMAT OF REPORTS AND DRAWINGS

## Reports

The Consultant shall prepare concise typed report in A4 format, illustrated and in colour as required to convey the findings. Reports shall include all necessary photographs, maps, sections, drawings, etc. and written descriptions as required. The Consultant shall ensure the report layout includes:

* Table of contents.
* Abstract/summary as a preface.
* Sections dealing with the required subject matter.
* Conclusion and recommendations.
* Appendices of supporting material.

Information, where possible, shall be summarised in tabular form using road SLK locations to identify specific sites and zones and any associated recommendations, with the use of annotated maps and photographs as required. All plans are to be reduced to A3 size for the report, but with all text still readable.

The Consultant shall provide the reports (including all photographs, maps and figures) in *Adobe Acrobat* pdf format, or as advised by the Principal’s Representative.

## Drawings

The Consultant shall provide a digital copy of all drawings in the current Main Roads’ version of AutoCAD, as advised by the Principal’s Representative. All drawings shall be produced to Main Roads' standards at the following scales:

* Preliminary Design:……..1:1000.
* Final Design:…………….1:500.

(Typical example - determine scales and drawing size to suit requirements).

## Delivery of reports and drawings

The timing of delivery of the design documents (reports and drawings) shall be as nominated in section 3. The following number of documents copies is to be provided by the Consultant.

|  |  |  |  |
| --- | --- | --- | --- |
| **Items** | **Bound copy** | **Unbound copy** | **Digital copy** |
| Preliminary design (15% stage) | X | X | Y |
| Final Design (85% stage) | X | X | Y |
| Tender documentation | X | X | Y |

# INFORMATION PROVIDED BY MAIN ROADS

The following information will be made available following award:

*List any reference materials, advice received, etc that will have a bearing on the work, for example a project revegetation plan report.*

*Insert relevant available information. This could include design drawings (if available), any mapping/reports already completed and aerial photography.*

Main Roads shall supply the base for all drawings in the current version of AutoCAD, or as advised by the Principal’s Representative.

*Note whether the information will need to be returned at the conclusion of the contract.*

All documents are deemed to be, the property of Main Roads and are not to be used by the consultant for any purposes without the permission of Main Roads. The contents of reports are not to be released without permission of Main Roads.

The Principal’s Representative upon request shall provide the following documents.

**Related Main Roads** **Environmental Standard Briefs**

* *Project Revegetation Design (Doc. No. 6707/033).*
* *Visual Impact Assessment (Doc. No. 6707/022).*

**Related Main Roads Environmental Guidelines**

* *Revegetation Planning and Techniques (Doc. No. 6707/031).*
* *Vegetation Placement within the Road Reserve (Doc. No. 6707/022).*
* *Digital Ground Survey (Doc. No. 67/08/43).*
* *Visual Screens in the road reserve (in preparation)*

**Related Main Roads Standard Drawings**

Drawings standards that relate to landscape design can be found within the Main Roads website under: Standards/Main Roads Drawings/Standard Contract Drawings/

* *Brick Paving Standards*.
* *Fencing Standards*.
* *Typical Details – Revegetation.*

Standards/Main Roads Drawings/Presentation Drawings/

* *Design Presentation Drawings.*

**Related Main Roads Specifications**

Specification clauses that relate to revegetation and landscaping works can be found within the following Main Roads Tender Document Process (TDP) standard contract specifications.

* *Clearing (301).*
* *Earthworks (302).*
* *Borrow pits (303).*
* *Revegetation and Landscaping (304).*