## Document Information

<table>
<thead>
<tr>
<th>Document</th>
<th>Key Information</th>
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<tbody>
<tr>
<td>Document Title</td>
<td>MITS 16D Gross Pollutant Traps</td>
</tr>
<tr>
<td>Next review date</td>
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<td>Key words</td>
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<td>AUS-SPEC Base</td>
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<tr>
<td>Document</td>
<td>1351 Stormwater Drainage (construction)</td>
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## Revision Register

<table>
<thead>
<tr>
<th>Edition/ Revision Number</th>
<th>Clause Number</th>
<th>Description of Revision</th>
<th>Authorised By</th>
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<tr>
<td>1/0</td>
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</table>
1 GROSS POLLUTANT TRAPS

1.1 General

General: This Specification comprises the supply and construction of Water Sensitive Urban Design (WSUD) Gross Pollutant Traps (GPT).

Requirement: Provide the following systems:

> Proprietary GPT; or
> Custom GPT.

Exclusions: This Specification does not include WSUD measures such as bioretention systems, ponds, wetlands etc. Specification for works such as Preliminaries, Traffic Management, Earthworks, Drainage Structures, Incidental Works, Landscaping, Concrete Works and Signage required to construct GPT’s shall be included under the respective MITS00, MITS 01, MITS 02, MITS 03, MITS 08, MITS 09, MITS 10 and MITS 14.

1.1.1 Responsibilities

1.1.1.1 Objectives

Requirement: Provide Gross Pollutant Traps, as documented and as follows:

> Free of pollutants
> Stormwater diverted off line until construction works upstream are complete or as agreed with TCCS.
> Constructed in accordance with the detailed design plans
> In accordance with the construction tolerances specified.

1.1.2 Cross references

General: The following documents are related to this Specification:

1.1.2.1 Legislation

Environmental Protection Act
Lakes Act
Water Resources Act
Waste Minimisation Act
Scaffolding and Lifts Act
Scaffolding and Lifts Regulation
Work Health and Safety Act
1.1.2.2 Specifications
Requirement: Conform to the following:

- MITS 00 Preliminaries
- MITS 01 Traffic Management
- MITS 02 Earthworks
- MITS 03 Underground services
- MITS 06 Concrete kerbs, footpaths and minor works
- MITS 10 Concrete works
- MITS 14 Road Signs
- MITS 16B Constructed Ponds
- MITS 16C Wetlands

1.1.2.3 Design Standards
General: The following Design Standards are related to this Specification:

- MIS 19 Gross Pollutant Traps
- Attachment B Design acceptance requirements
- Canberra Central Design Manual

1.1.2.4 TCCS Reference Documents
General: The following TCCS reference documents are related to this Specification:

- Reference document 4 Protection of public landscape assets
- Reference document 7 Operational acceptance submissions
- Reference document 8 Works as executed quality records
- Reference document 9 Final acceptance submissions
- Reference document 10 Landscape consolidation
- Reference document 11 Drafting Standard for Civil and Landscape works
1.1.3 Referenced documents

1.1.3.1 Standards
General: The following documents are incorporated into this Specification by reference:

**Australian standards**

AS 1141 Methods for sampling and testing aggregates
AS 1141.11.1 Particle size distribution - Sieving method
AS 1141.22 Wet/dry strength variation
AS 1289 Methods of testing soils for engineering purposes.
AS 1289 2.1.1 Moisture Content Tests
AS 1289 3.1.1 Plastic Limit Tests
AS 1289 3.1.2 Atterberg Limit Tests
AS 1289 3.2.1 Liquid Limit Tests
AS 1289 3.3.1 Plasticity Index Tests
AS 1289 3.6.1 Particle Size Distribution Tests
AS 1289 3.8.1 Emerson Class Number
AS 1289.5.2.1 Maximum Modified Dry Density Test
AS 1289.5.4.1 Optimum Moisture Content
AS 1289.5.5.1 Soil compaction and density tests - Determination of the minimum and maximum dry density of a cohesionless material - Standard method
AS 1289 5.7.1 Optimum Moisture Content
AS 1289 6.7.3 Permeability (remoulded) on undisturbed tube samples collected from the completed pad liner
AS 2758.5 Filter Material Test
AS 3706.2 Geotextile Grab Tensile Strength
AS 3706.3 Geotextile Trapezoidal Tear Strength
AS 3706.7 Geotextile EOS – Pore Size
AS 3706.9 Geotextile Flow Rate
AS 4133.4.1 Rock Point Load Strength

1.1.3.2 Other publications

IPWEA (NSW) Specification for the supply of recycled materials for pavements, earthworks and drainage (Greenspec)
USEPA Calcium Carbonate content

Proprietary products: To *TCCS Products previously considered for use list*

**Austroads**

Austroads 90 Geotextile G Rating
AGPT Austroads Guide to Pavement Technology
AGPT04J Part 04J: Aggregate and source rock
1.1.4 Interpretation

1.1.4.1 Abbreviations
General: For the purposes of this Specification the following abbreviations apply:

- **CCTV**: Closed Circuit Television
- **D**: External diameter of the pipe.
- **DN**: Nominal Diameter of pipe.
- **GPT**: Gross Pollutant Trap.
- **ITP**: Inspection and Test plan.
- **NATA**: National Association of Testing Authorities.
- **PAP**: Principal Authorised Person (For use with GC-21 contracts).
- **RMS**: NSW Roads and Maritime Services.
- **TCCS**: Transport Canberra and City Services, ACT Government and its successors.
- **WSUD**: Water Sensitive Urban Design.

1.1.4.2 Definitions
General: For the purposes of this work section the definition given below applies:

- **Authorised person**: PAP/Superintendent/Client of the works.
- **Inadequate foundation material**: Material beneath or adjacent to the proposed drainage structures with insufficient strength to support the structure and loads on the structure, or material with characteristics that would adversely affect the performance or construction of the drainage structure.
- **Select fill**: Backfill material with known properties and grading placed and compacted in layers.
- **Water Sensitive Urban Design (WSUD)**: Design principles aimed at improving the sustainable management of the urban water cycle.

1.1.5 Submissions

1.1.5.1 General
Conform to **Hold points and witness points**.

Drawings: Prepare drawings or other documentation to record extent and constitution of final works in accordance with Requirements for Works as Executed quality records, TCCS.

1.1.5.2 Execution details
Survey: Submit set-out survey for temporary and permanent drainage system.

Set-out of stormwater drainage system (Temporary and Permanent): Submit details of any proposed changes to the location, length, design levels, strength, conditions of installation or cover to suit construction procedures.

Temporary drainage during construction: Submit details of procedures/devices to maintain effective drainage of the works area and/or upstream diversions.

Soil type: Give notice if the soil type on site is not consistent with the soil type used for design.
1.1.5.3 Tests
A NATA registered laboratory and a geotechnical engineer or an agronomist experienced and qualified in the relevant testing required must be used to carry out all testing for and verification of all materials.

Provide the Authorised Person with copies of all test results, together with certification by the Testing Authority that all the stockpiled materials are in accordance with the Project Samples and the tolerances nominated in this Specification.

Carry out sampling and testing of the materials to confirm compliance with the material requirements tabulated within this specification.

1.1.6 Hold points and witness points

1.1.6.1 Notice
General: Give notice so that the documented inspection and submissions may be made to the Hold point table and the Witness point table.

All hold/witness points related to supply and construction of the various components related to provisions of GPT’s are included within the following sections:

- MITS 01 Traffic Management
- MITS 02 Earthworks
- MITS 03 Underground Services: All pipes and standard manholes.
- MITS 04 Flexible Pavement Construction
- MITS 06 Minor Concrete Works, Kerbs and Footpaths.
- MITS 08 Incidental Works: All stone, wire mattress and retaining wall infrastructure.
- MITS 10 Major Concrete Works: All concrete and steel infrastructure.
- MITS 14 Road Signs: Floodway and other signage

Table 16D-1 Hold point table

<table>
<thead>
<tr>
<th>Item</th>
<th>Clause title</th>
<th>Requirement</th>
<th>Notice for inspection</th>
<th>Release by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16D.1</td>
<td>Proprietary products</td>
<td>Submit certification / documentation from the manufacturer confirming that proprietary products are compliant with the specification.</td>
<td>7 days before ordering proprietary products.</td>
<td>Authorised Person</td>
</tr>
<tr>
<td></td>
<td><strong>Execution</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16D.2</td>
<td>GPT installation</td>
<td>Approval of completed trenches and replacement of any deleterious material required prior to installation of GPT components</td>
<td>2 working days prior to installation of GPT.</td>
<td>Authorised Person</td>
</tr>
<tr>
<td>16D.3</td>
<td>Removal of Temporary Weirs and Diversions to bring GPT on line.</td>
<td>Approval of all stormwater and WSUD system components prior to bringing on line.</td>
<td>5 working days prior to removal of temporary weirs and stormwater diversions.</td>
<td>Authorised Person</td>
</tr>
</tbody>
</table>
### Table 16D-2 Witness point table

<table>
<thead>
<tr>
<th>Item</th>
<th>Clause title</th>
<th>Requirement</th>
<th>Notice for inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16D.1</strong></td>
<td>Temporary drainage during construction</td>
<td>Locate materials and equipment clear of water courses and provide temporary drainage to protect area of works.</td>
<td>7 days prior to commencement of GPT construction.</td>
</tr>
<tr>
<td><strong>16D.2</strong></td>
<td>Protection of GPT from Pollutant Ingress and Upstream Drainage Established</td>
<td>The Contractor shall notify the Authorised Person that protection measures to prevent pollutants entering GPT works (including upstream diversions) are constructed in accordance with the specification and ready for inspection and approval.</td>
<td>3 days prior to commencement of excavation for bioretention system.</td>
</tr>
<tr>
<td><strong>16D.3</strong></td>
<td>Establishment - Set out</td>
<td>Submit the proposed set-out for approval by the Authorised Person.</td>
<td>7 days before planned execution.</td>
</tr>
<tr>
<td><strong>16D.4</strong></td>
<td>Backfilling of GPT</td>
<td>Approval of installed GPT prior to backfilling over works.</td>
<td>2 working day prior to installation of overlay landscaping work.</td>
</tr>
</tbody>
</table>

### 1.2 Preconstruction planning

#### 1.2.1 Protection to WSUD

Gross Pollutant Traps: Do not allow construction traffic access to areas of GPT or infiltration systems. Provide fences if required to protect GPT systems.

Temporary Protection: Install silt fences, filter rolls or other approved sediment and erosion protection measures to protect the GPT system during all construction works.

### 1.3 Materials

#### 1.3.1 General

#### 1.3.1.1 Materials and components

All requirements related to material supply for other materials not described in this specification are included within the following sections:

- MITS 00 Preliminaries
- MITS 01 Traffic Management
- MITS 02 Earthworks
- MITS 03 Underground Services: All pipes and standard structures.
- MITS 04 Flexible Pavement Construction
- MITS 06 Minor Concrete Works, Kerbs and Footpaths.
- MITS 08 Incidental Works: All stone, wire mattress and retaining wall materials.
- MITS 10 Concrete Works: All concrete and steel materials.
- MITS 14 Road Signs: Floodway and other signage
1.4 Execution

1.4.1 General
All works shall be constructed in accordance with the construction drawings and this specification.

Survey control: Provide for the following:

- Mapping and pegging the drainage system.
- Locating components.

Survey data: Provide data for the set-out of gradients, culverts and drains and construction to tolerances.

Driveways and manoeuvring areas: MIT01 Traffic management.

Earthworks, driveways and manoeuvring areas: MIT02 Earthworks.

Stormwater Pipes and culverts: To MIT03B Pipe Drainage.

Precast Stormwater Structures: To MIT03C Precast box culverts.

Other Drainage Structures: To MIT03D Drainage structures.

Flexible Pavements: MIT04 Flexible pavement construction.

Minor concrete works, kerbs and footpaths: MIT06 Concrete kerbs, footpaths and minor works.

All stone, wire mattress and retaining wall materials: MIT08 Incidental works.

All concrete and steel works: MIT10 Concrete works.

Floodway and other signage: MIT14 Road signs.

1.4.2 Subgrade Preparation to GPT Structures
Subgrade preparation for GPT components: To MIT03A Trenching for underground services and as specified by the manufacturer.

1.4.3 Backfilling to GPT structures
Backfilling for GPT components: To MIT03D Drainage structures and as specified by the manufacturer.

1.4.4 Batter Slopes
Requirement: The maximum grade for batter slopes adjacent a GPT is 1(V):6(H), refer to MIS08 Stormwater.

1.5 Completion

1.5.1 Submissions
Work as Executed Records: To MIT00B Quality Requirements.
2 MEASUREMENT AND PAYMENT

2.1 Measurement

2.1.1.1 General
Payments made to the Bill of Quantities: To MITS 00A General requirements, this Specification, the drawings and Pay items.

2.1.1.2 Methodology
The following methodology will be applied for measurement and payment:

- Allow for all work, materials, testing and quality assurance requirements in each Pay Item.
- Excavation, bedding, support and backfill material for drainage structures: Conform to MITS 03A Trenching for underground services, paid under this Specification.
- Earthworks associated with the construction of swales, batters, bulk cutting or filling: To MITS 02 Earthworks
- Miscellaneous minor concrete work not included in the pay items in this Specification: To MITS 06 Concrete kerbs, footpaths and minor works.
- Subsoil drains: To MITS 03J Subsoil and foundation drainage.
- Excavation and replacement of Unsuitable Material in Trenches: MITS 02B Bulk Earthworks.
- Barrier fences for drainage structures: To MITS 08A Fences and Barriers.
- Removal of existing drainage structures: To MITS 03A Trenching for underground services.
- Hardstand pavement, driveways, kerbing for GPT’s: To MITS 06A Concrete kerbs and open drains and MITS 06B Concrete paths, driveways medians.
- All costs associated with removal of water from excavations shall be included within respective excavation rates for drainage structures.
- No Additional payment will be made for excavation in rock, overbreak of trench due to ground conditions or over excavation of trenches.

2.1.1.3 Deductions
Insitu concrete strength: Deductions made as follows:

- Scheduled rate of payment is reduced by 2% for each 1%, or fraction thereof, by which the strength of the specimen fails to reach the specified strength, up to a maximum deficiency of 10%.
- If the deficiency in strength exceeds 10%, the concrete represented by the specimens may be rejected, in which case no payment will be made.
## 2.2 Pay items

### Table 16D-3 Pay items table

<table>
<thead>
<tr>
<th>Item No</th>
<th>Pay items</th>
<th>Unit of measurement</th>
<th>Schedule of rates scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>16D.1</td>
<td>Proprietary GPT (Insert Manufacturer Name and size)</td>
<td>Number</td>
<td>All activities associated with the construction of nominated Proprietary GPT’s including detailed excavation for the units in all types of material encountered including rock, shoring, dewatering, supply and placement of bedding and precast units including all fixtures and fittings. This pay item shall include liaison with the supplier, backfilling and compaction around the structure. A separate pay item shall be included in the Contract for each GPT.</td>
</tr>
<tr>
<td>16D.2</td>
<td>Custom GPT (Insert size)</td>
<td>Number</td>
<td>All activities associated with the construction of nominated custom GPT’s and associated footings including detailed excavation for the units in all types of material encountered including rock, shoring, dewatering, supply and placement of bedding, formwork and reinforced concrete including all fixtures and fittings. This pay item shall include weepholes, step irons, internal trash racks, covers and access hatches, as detailed. This pay item shall include backfilling and compaction around the structure. A separate pay item shall be included in the Contract for each GPT.</td>
</tr>
<tr>
<td>16D.3</td>
<td>Davit unit and surround</td>
<td>Number</td>
<td>All activities associated with construction of a davit unit and mounting base for GPT’s including excavation for the units in all types of material encountered including rock, supply and placement of bedding, concrete, reinforcement, formwork, and the davit unit, as detailed. This pay item shall include backfilling and compaction around the structure.</td>
</tr>
</tbody>
</table>