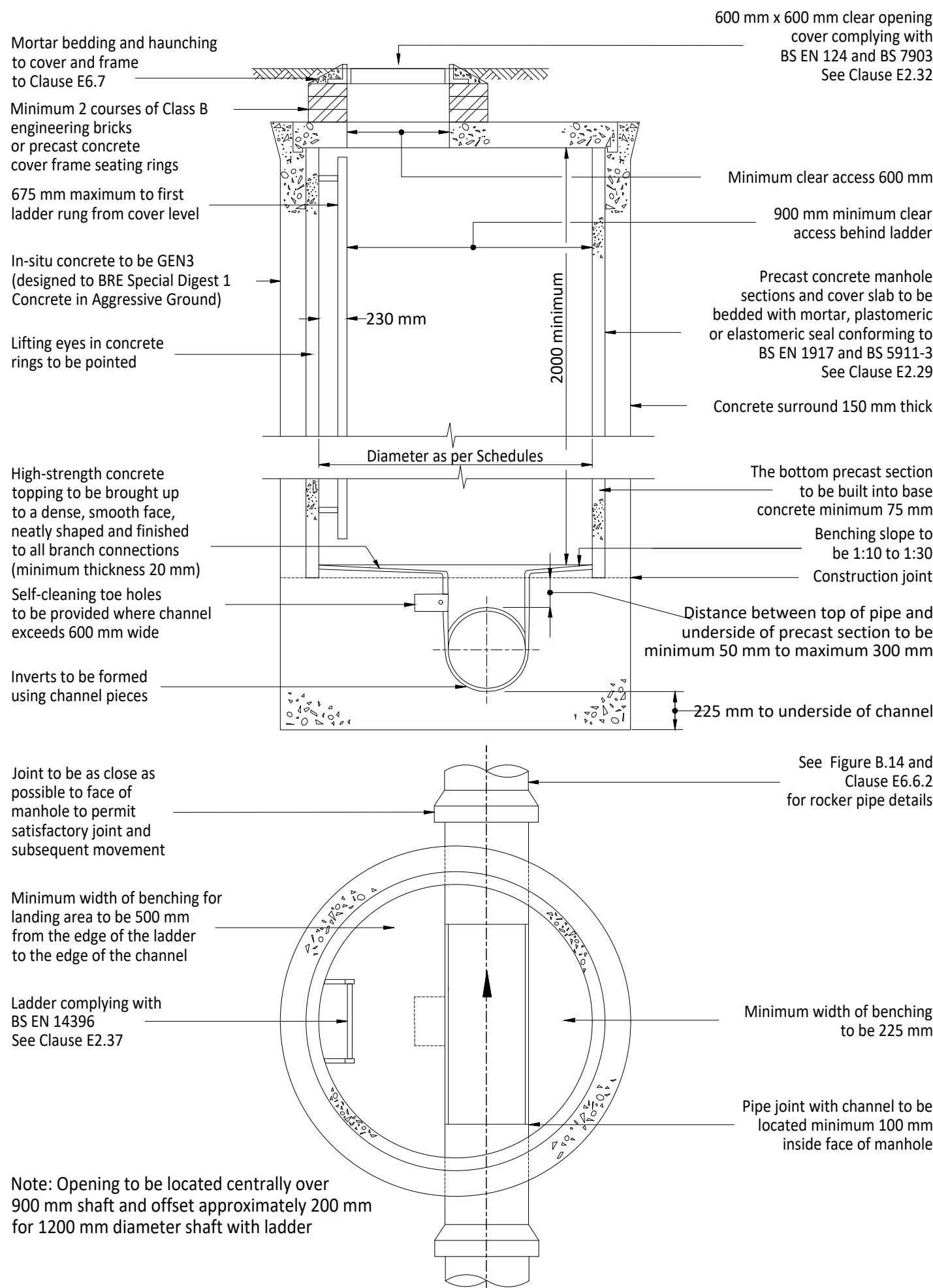
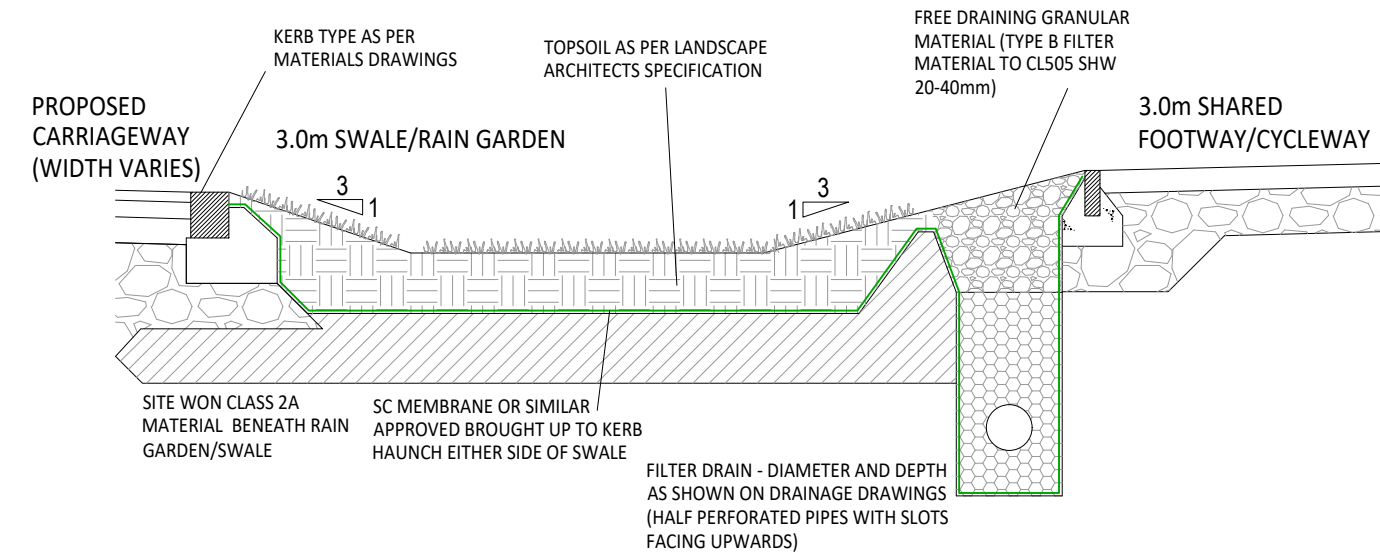
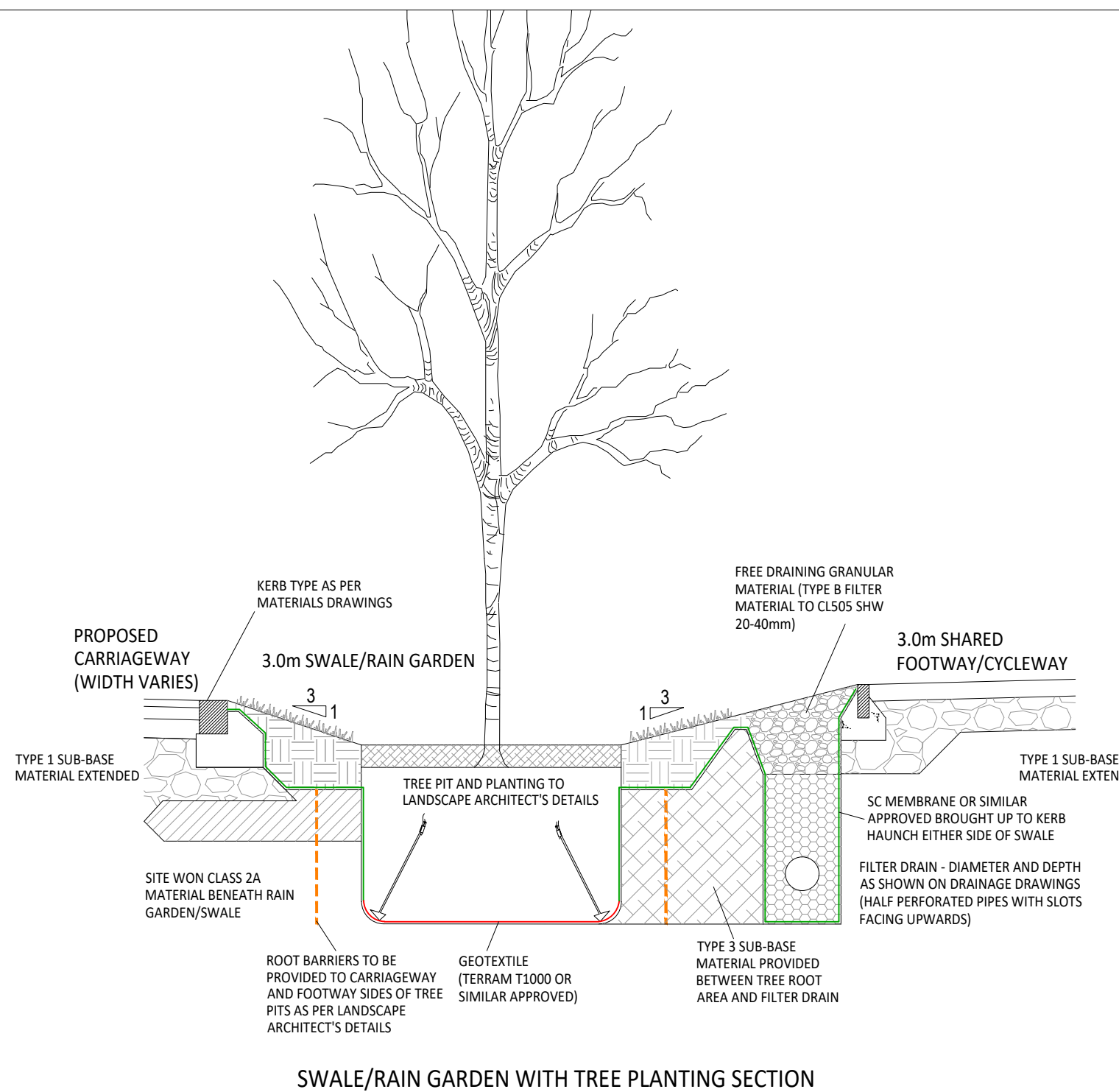
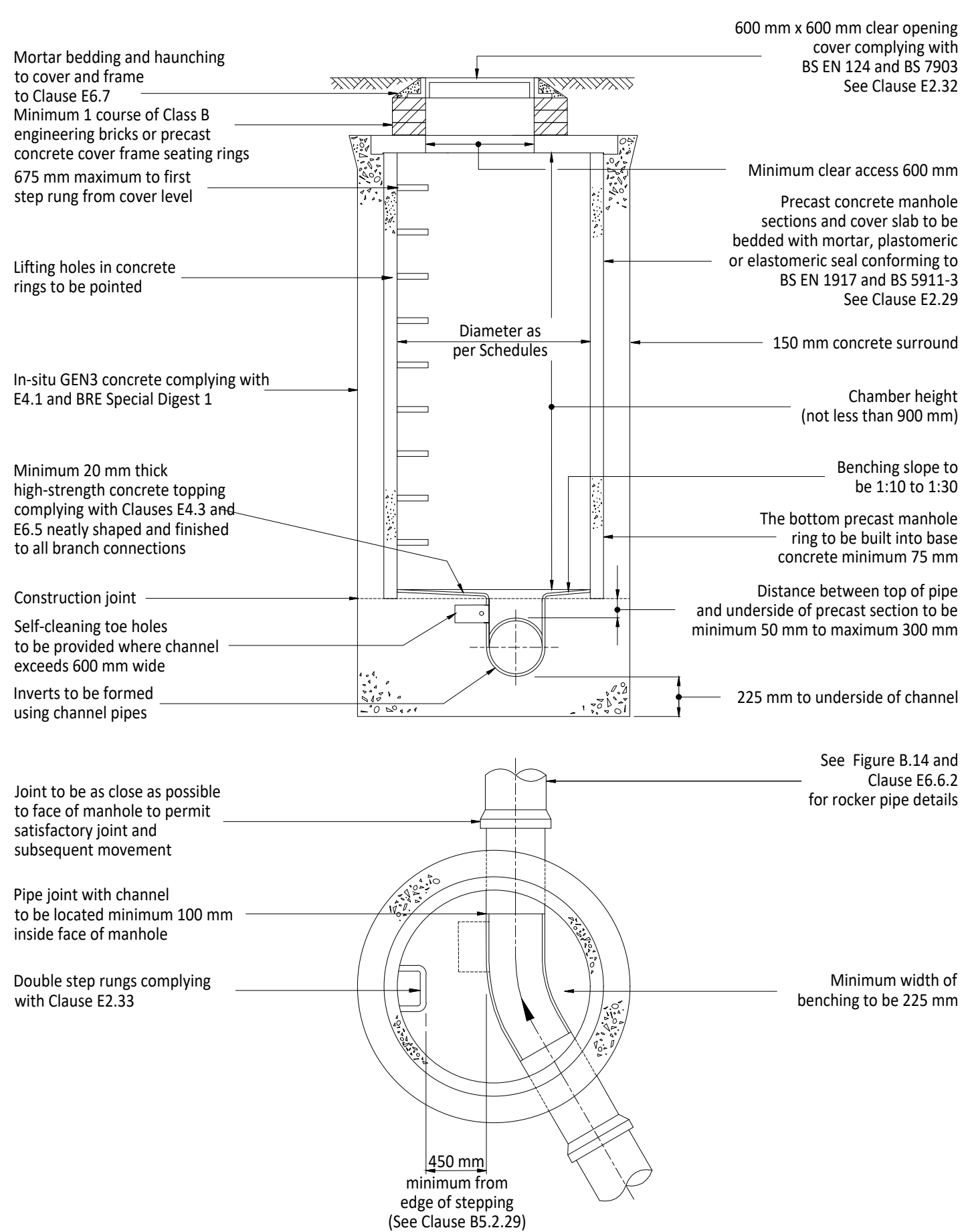


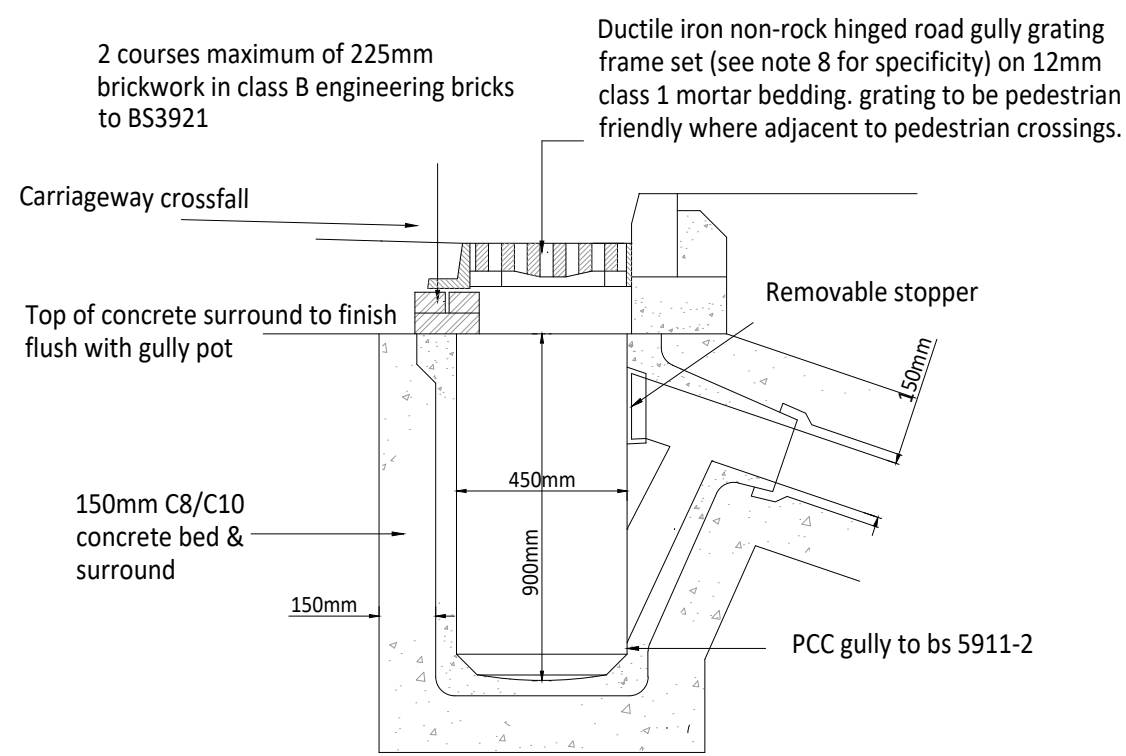
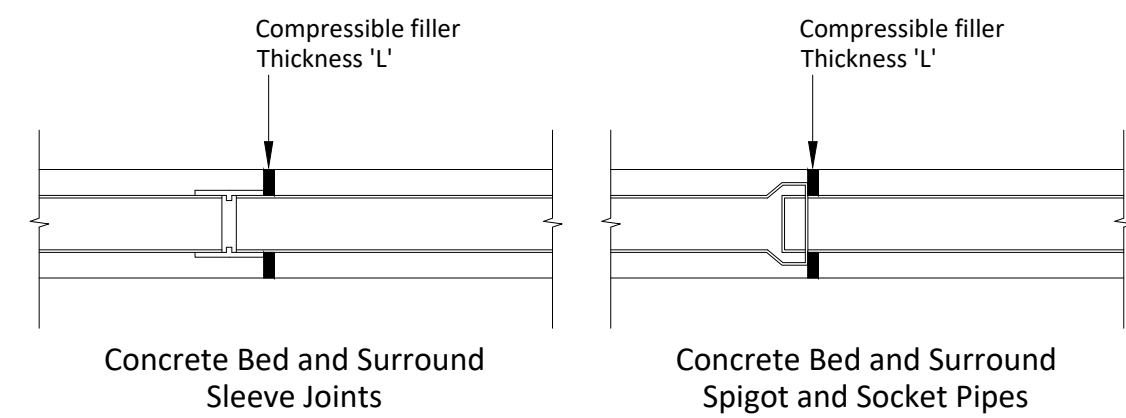
ADOPTABLE MANHOLE DETAIL - TYPE A
Depth from cover level to soffit of pipe 3 m to 6 m



ADOPTABLE MANHOLE DETAIL - TYPE B
Depth from cover level to soffit of pipe 1.5m to 3.0 m



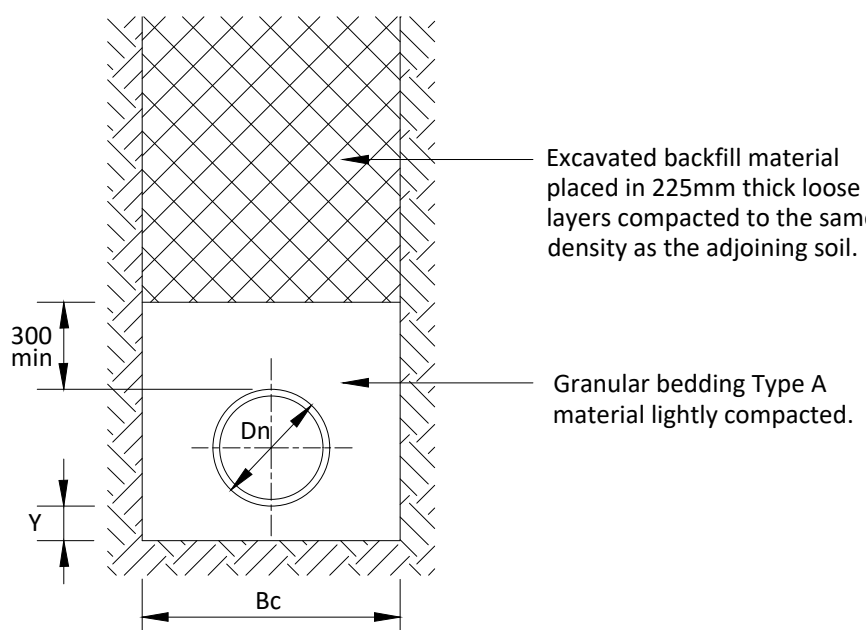
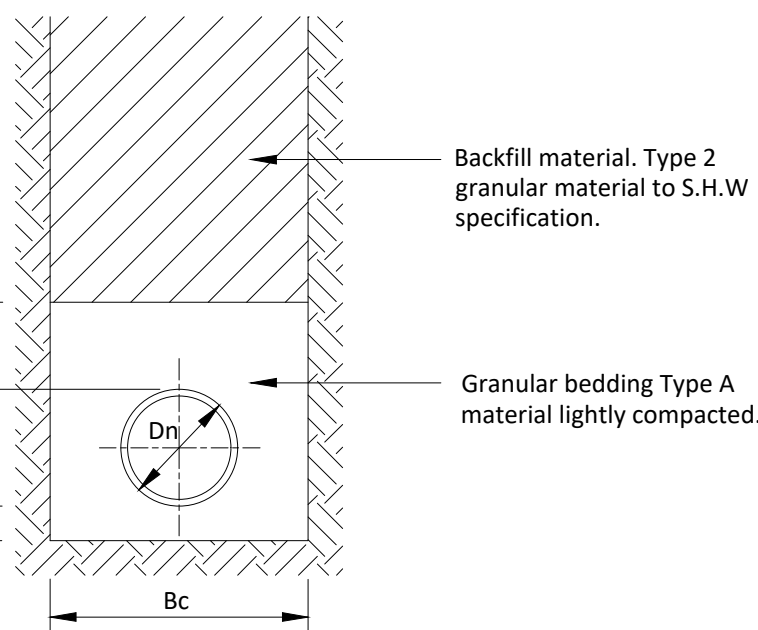
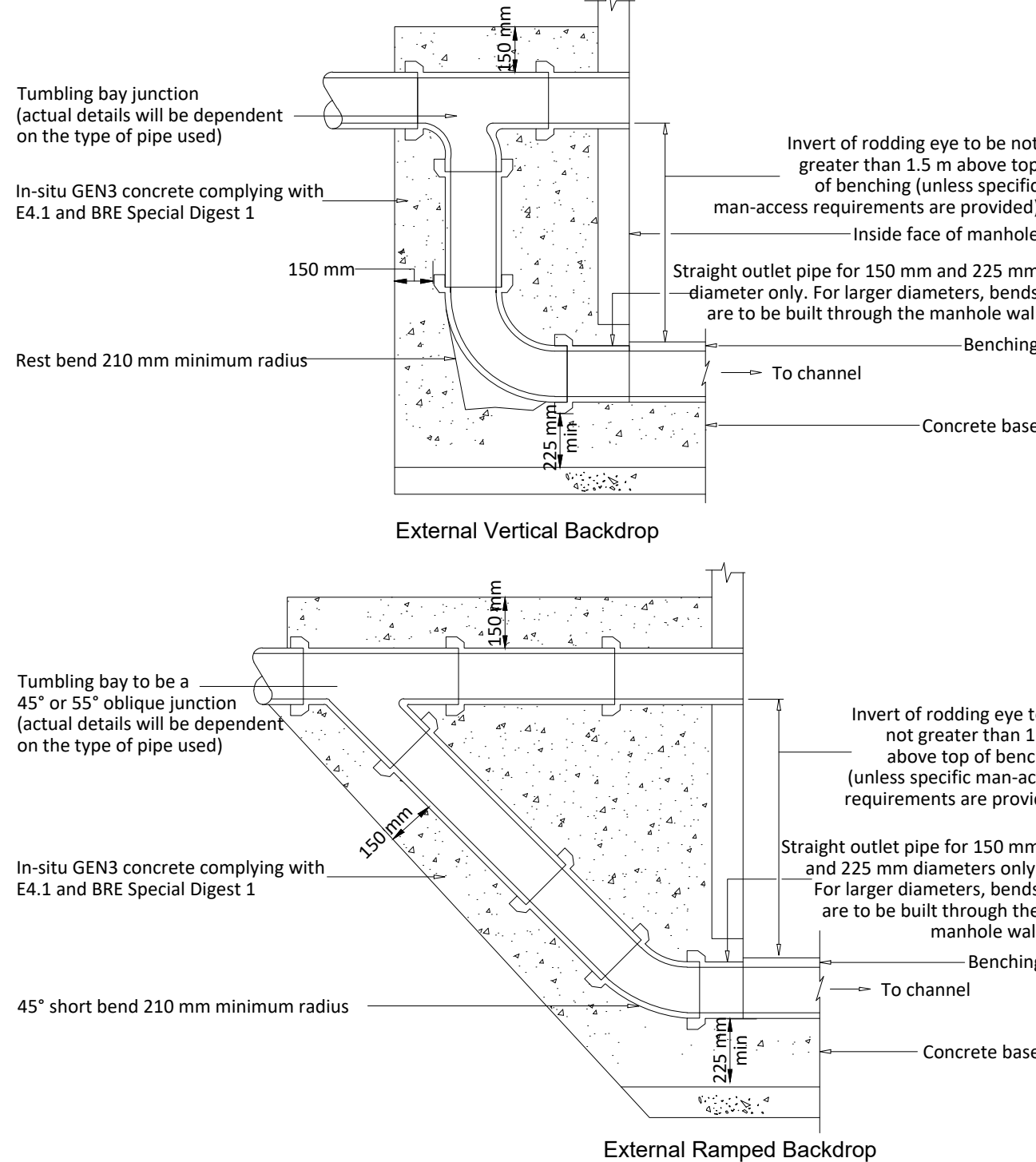
STANDARD SWALE/RAIN GARDEN SECTION



SCALE 1:20

Figure B 16
Typical vertical and ramped detail (rigid materials)
For use in manhole types A to D

Note: Steeper gradients are preferred to the use of backdrops.
Type of backdrop to be used to be agreed with the water company.



GRANULAR BEDDING

Nominal bore of pipe (mm)	Alternative Aggregate sizes (mm)	
	Single sized	Graded
100	10	-
150	10 or 14	14-5
225-300	14 or 20	14-5 or 20-5
375-525	14 or 20	14-5 or 20-5
>525	14, 20 or 40	14-5, 20-5 or 40-5

Granular bedding for pipes and backfilling material for temporary drains (trench sub-drains) shall consist of aggregates from natural sources to BS EN 13242 and BS EN 1744-1 or sintered pulverised fuel ash complying with the relevant provisions of BS 3892; sized in accordance with the above table

Selected fill material, whether selected from locally excavated material or imported, shall consist of uniform, readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones shall be retained on 100mm and 40mm sieves respectively.

TRENCH WIDTHS & KEY DIMENSIONS

Dia Dn (mm)	Width Bc (mm)		Y(mm)		L(mm)	Z MIN (mm)
	Max	Min	Y1 (Uniform Soil)	Y2 (Rock)		
100	550	450	100	200	18	150
150	600	490	150	200		150
225	700	580	150	200		150
300	750	680	150	200	18	150
375	1050	950	150	200		150
450	1150	1030	150	200		150
525	1200	1120	150	200	36	150
600	1350	1240	150	200		150
675	1450	1330	150	200		225
750	1500	1400	150	200	36	225
825	1600	1490	150	225		225
900	2100	1900	150	225		225
975	2150	1950	175	250	300	300
1050	2250	2050	175	275		300
1200	2500	2250	200	300		300
OVER 1200	O.D.+1000	O.D.+800	I.D./6	I.D./4	54	400

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DRAINAGE NOTES:

- Do not scale.
- This drawing is to be read in conjunction with and checked against all other drawings, Engineering details, Specification and any structural, Geotechnical or other specialist document provided. Site layout shown for context only, refer to other project drawings for details.
- All adoptable drainage works to be constructed as detailed in design and construction guidance or as stipulated in the water authorities addendum.
- All public sewers are to be the subject of a section 104 agreement of the water industry act 1991.
- Invert levels of existing manholes and sewers are to be checked on site before construction commences and results reported to engineers.
- The contractor is responsible for maintaining continuity of flow for all existing sewers within the site boundary and limit of works for the duration of the project.
- All drainage ironworks to comply with bs en124, and be stamped with bsi kitemark, covers to suit loading as below:
 - carriageways and roads - d400
 - driveways and verges - c250
 - footways and pedestrian areas - b125
 - gardens/landscaping - a15
- All sewer pipes, up to, and including 225mm are to be vitrified clay to BS EN295. All sewer pipes 300mm diameter and above to be concrete pipes to BS EN1916. Where agreed with adopting authority pipes up to and including 600mm diameter can be PVC-U to BS EN1404.
- All drainage shall be installed and tested strictly in accordance with the manufacturers' printed instructions, bs en 752, bs en 1601, local water authority requirements and the building regulations.
- All bedding shall be class s unless noted otherwise.
- All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted type 1 granular sub-base material.
- Drainage laid beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
- Chambers with outgoing pipes greater than 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
- The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
- All sewers to be abandoned must be surveyed to identify any lateral connections that are still live with any found to be reported to the engineer.
- All foul and storm water drains which are not to be adopted as public sewers shall be in accordance with document h of the building regulations, together with nhbc standards chapter 5.3 and bs8301.

ALL PIPE BEDDING TO BE CLASS 'S' GRANULAR SURROUND UNLESS NOTED OTHERWISE ON THE DRAWING

A	06.25	FIRST ISSUE	RG	CS
Rev	Date	Description	Drawn	Checked



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Project

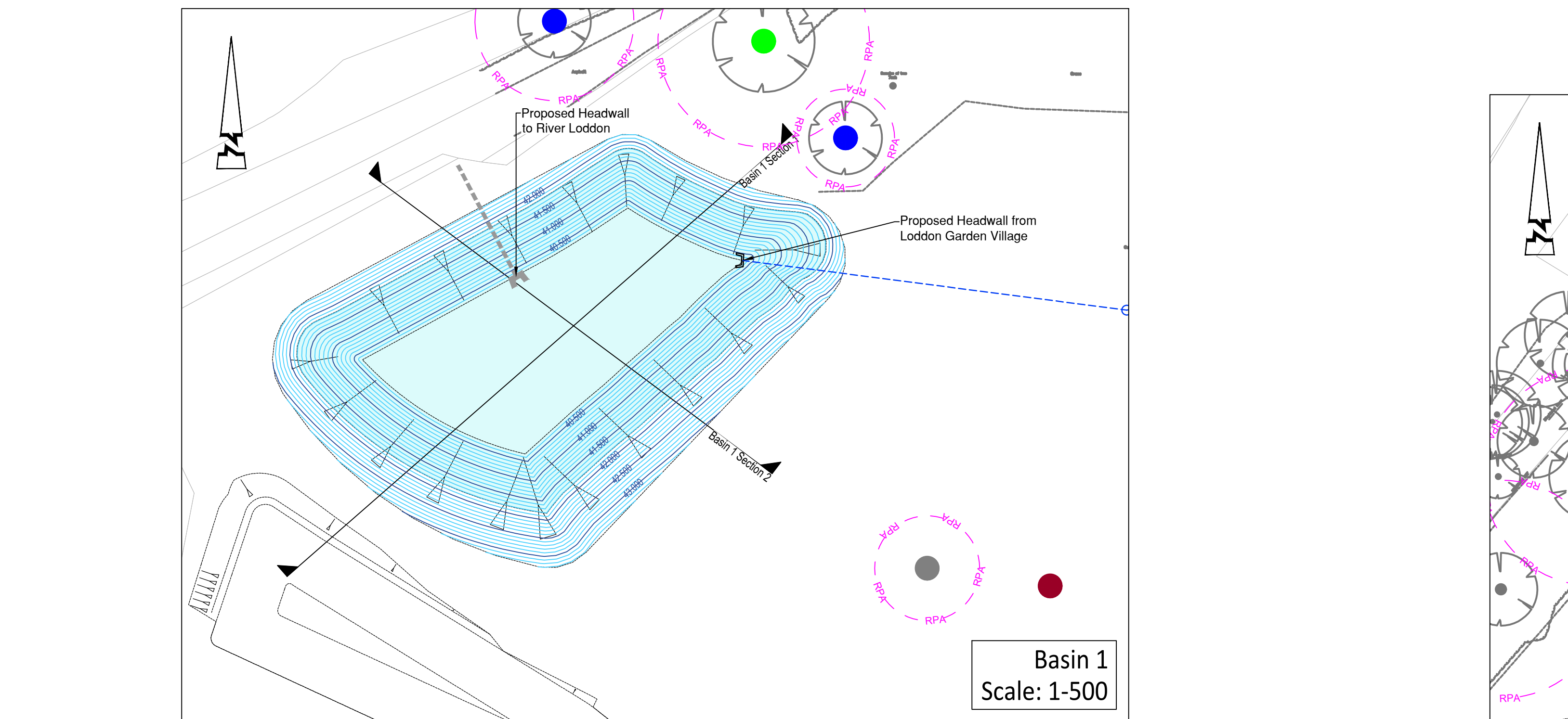
LODDON GARDEN VILLAGE

Title
DRAINAGE DETAILS
SHEET 1 OF 2

Status

Scale AS SHOWN @ A1 Date JUN 2025 Drawn RG Checked CS

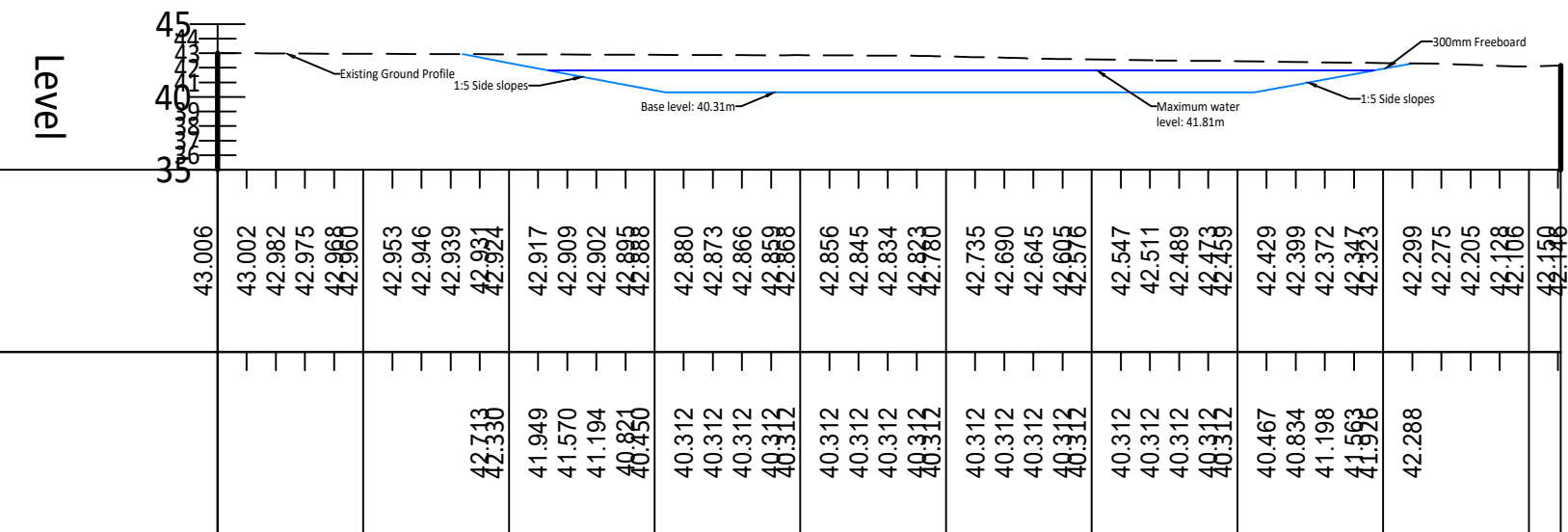
Drawing No A392-OPA-0530 Revision A



Basin 1
Scale: 1-500

Existing Levels

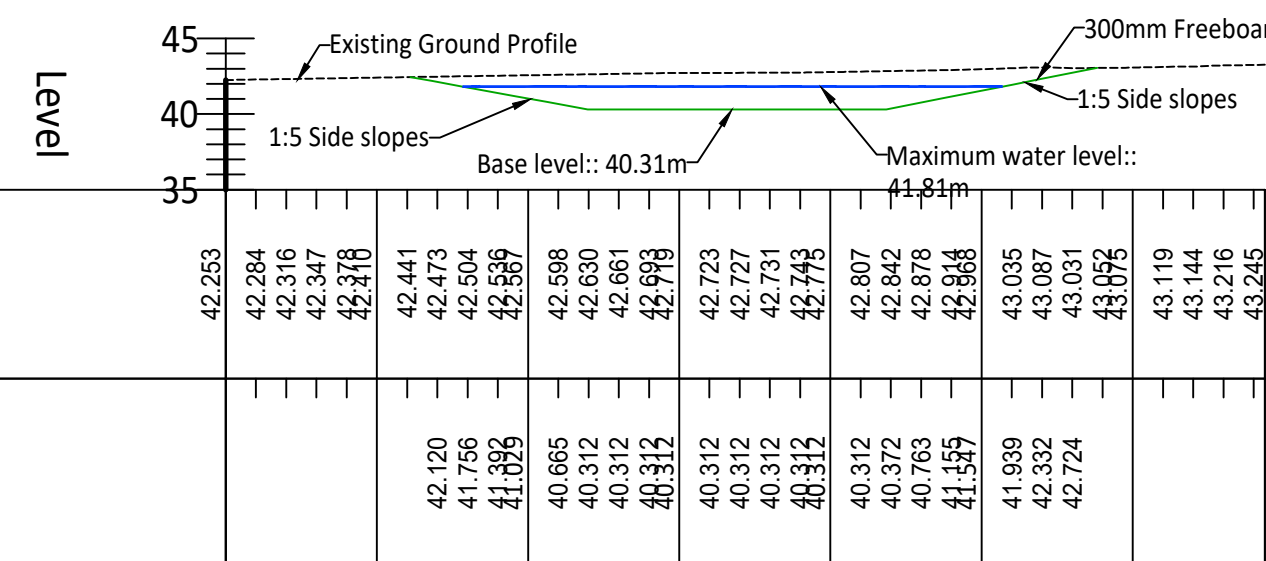
Proposed Levels



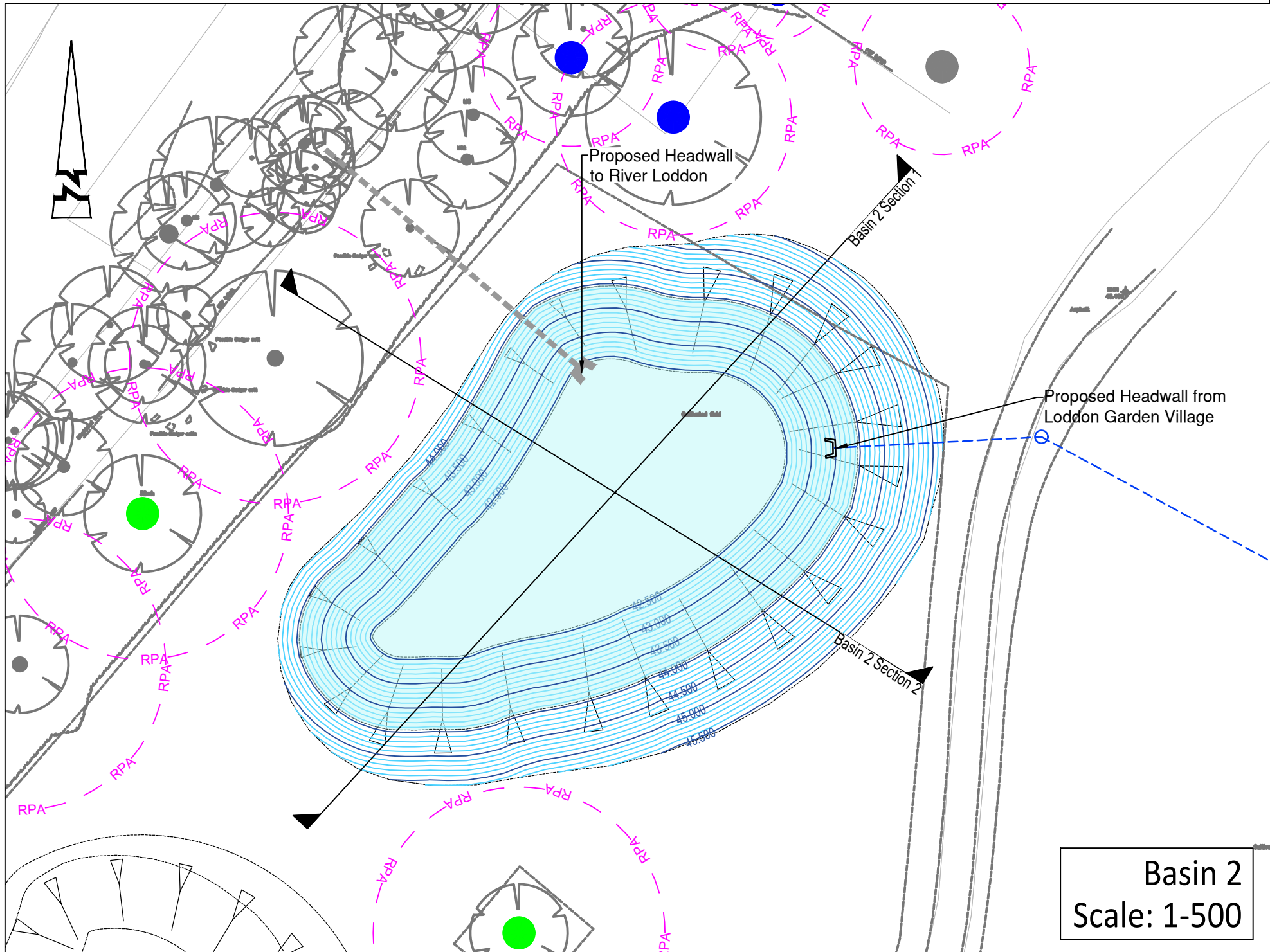
BASIN 1 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



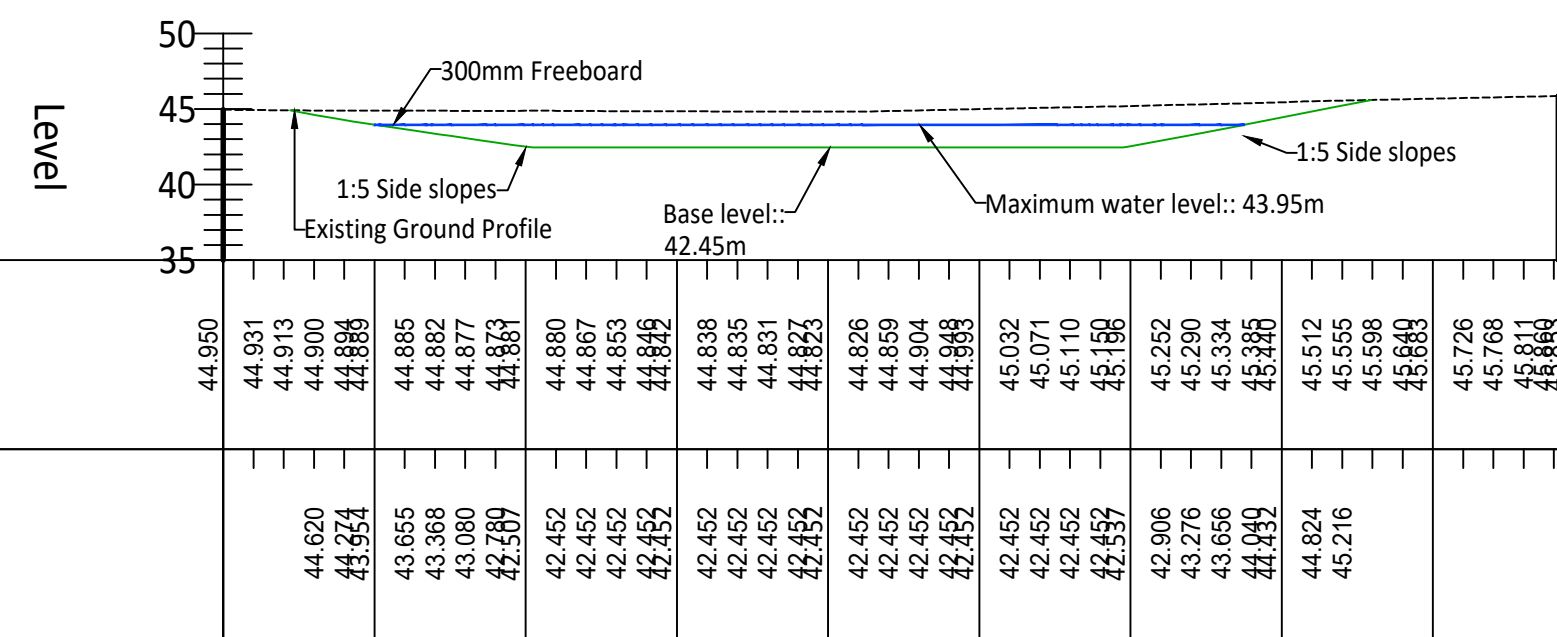
BASIN 1 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000



Basin 2
Scale: 1-500

Existing Levels

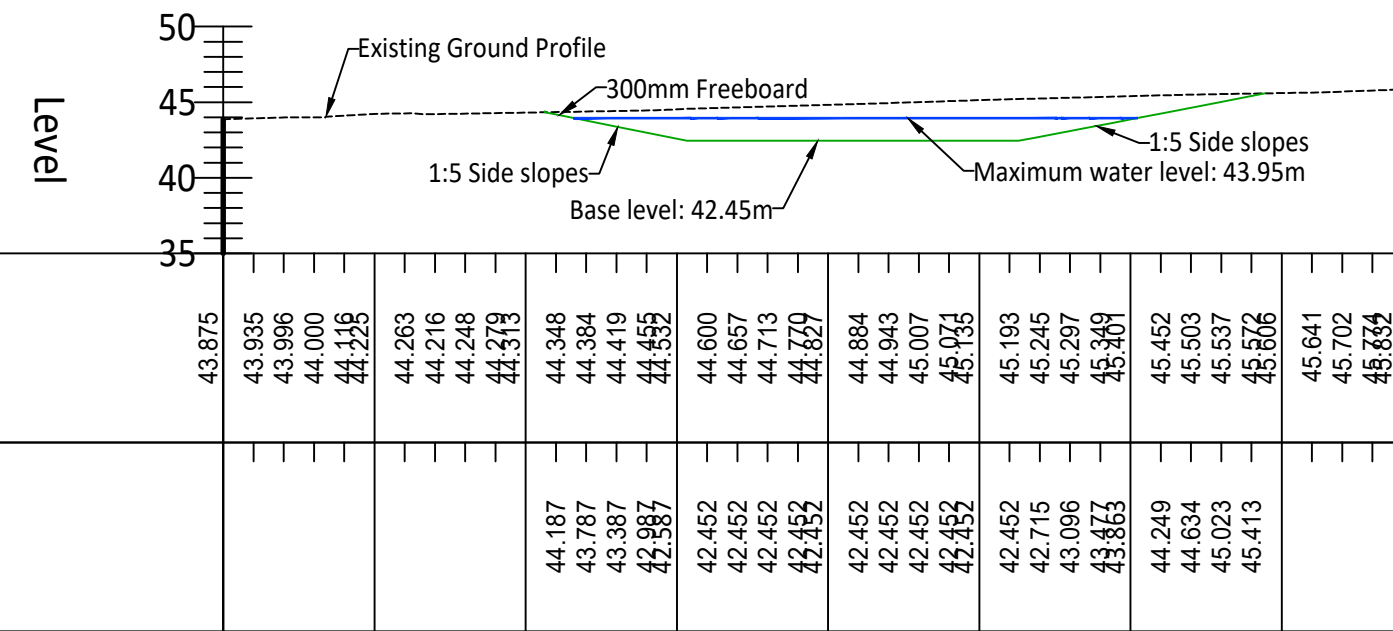
Proposed Levels



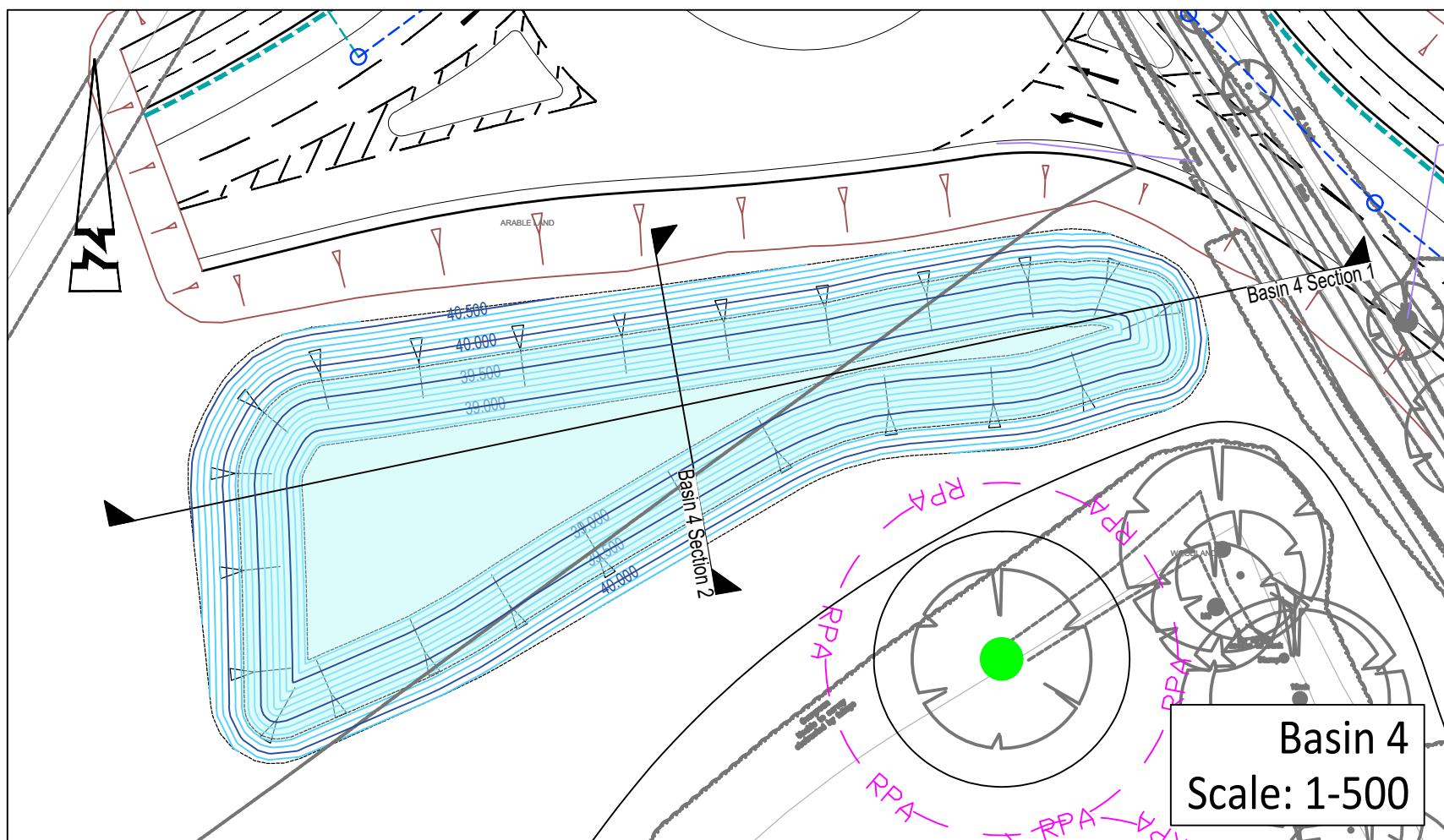
BASIN 2 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



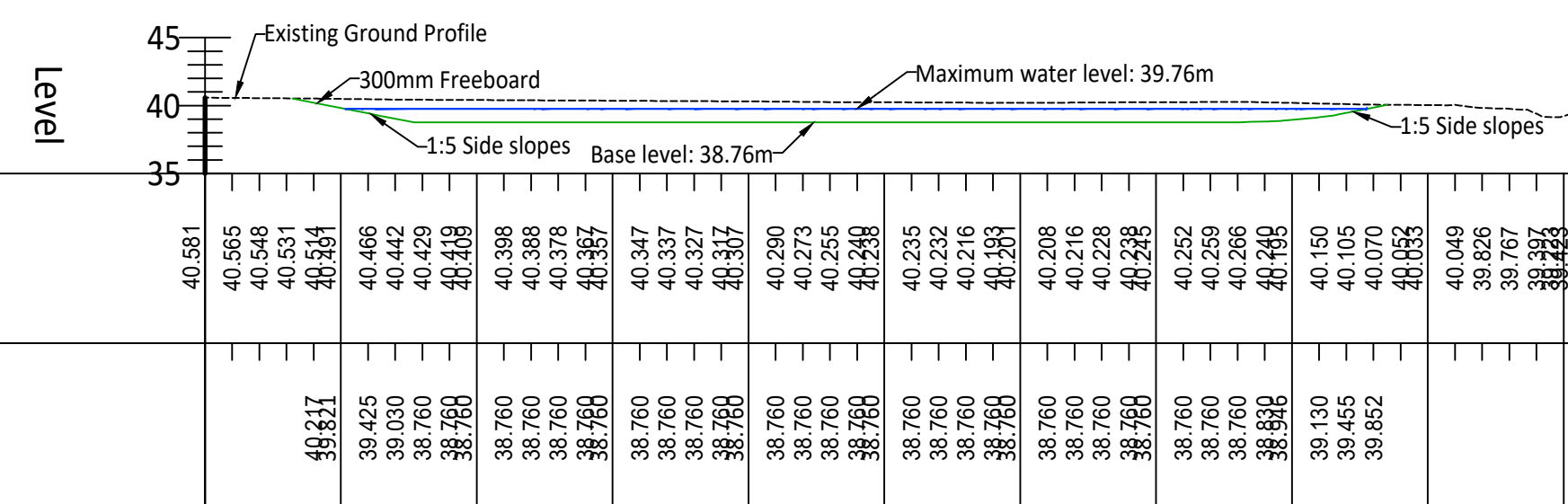
BASIN 2 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000



Basin 4
Scale: 1-500

Existing Levels

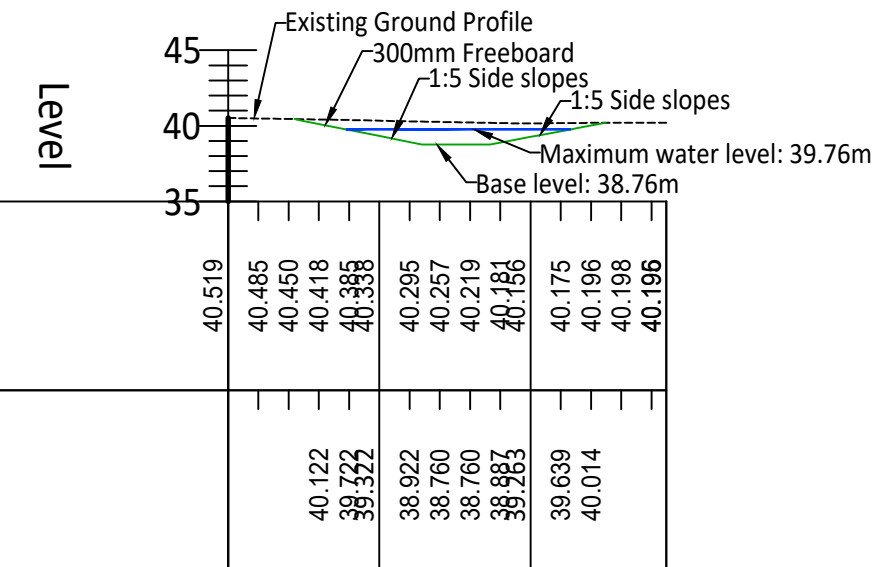
Proposed Levels



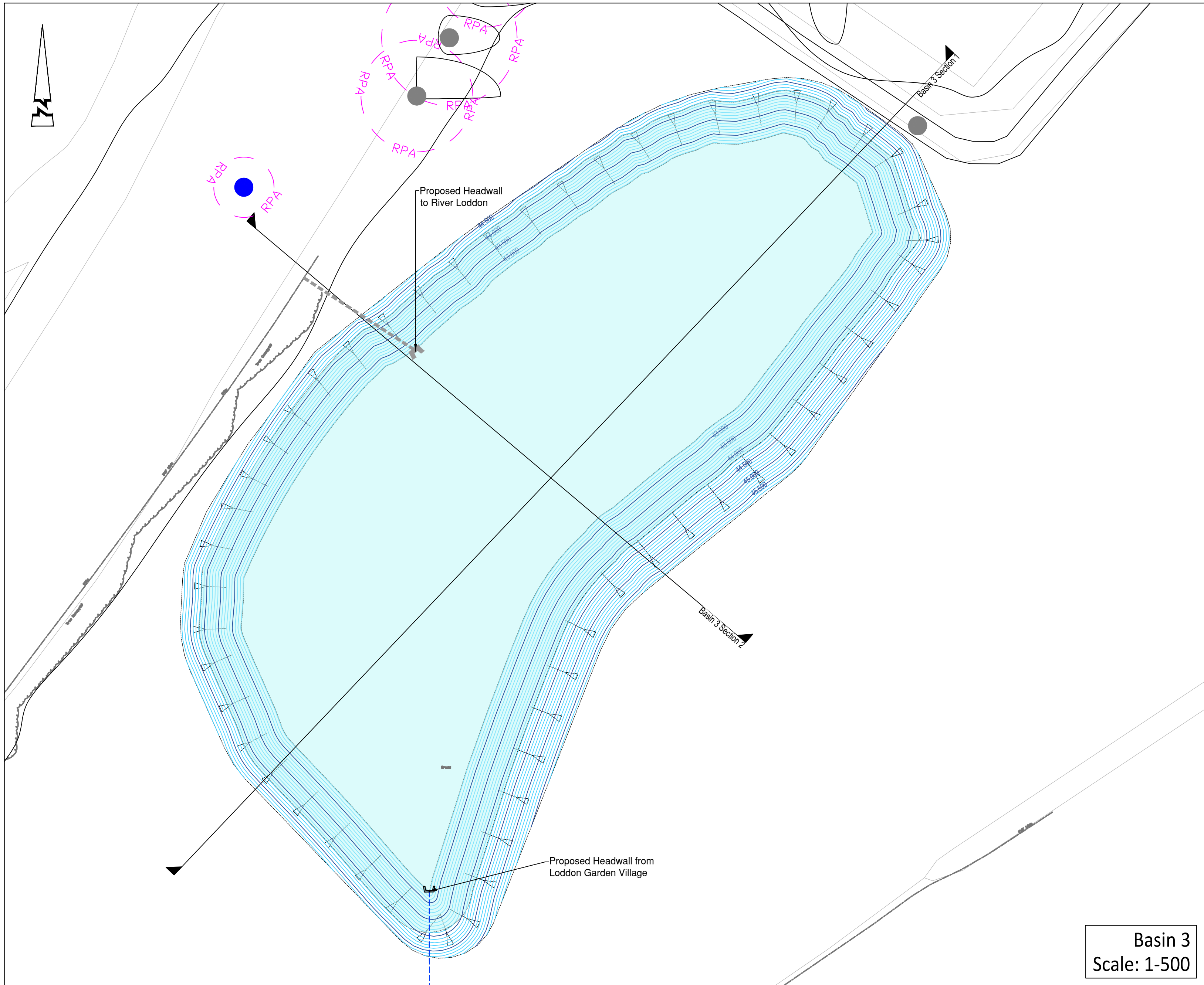
BASIN 4 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



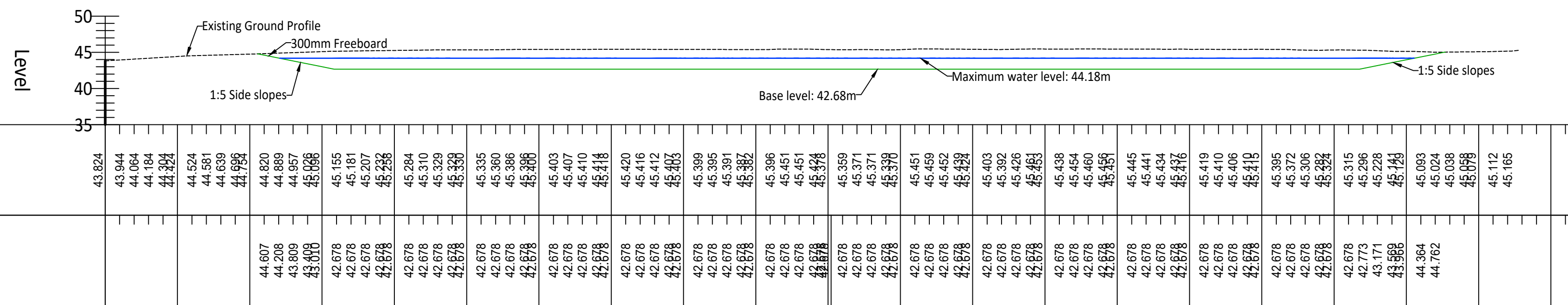
BASIN 4 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000



Basin 3
Scale: 1-500

Existing Levels

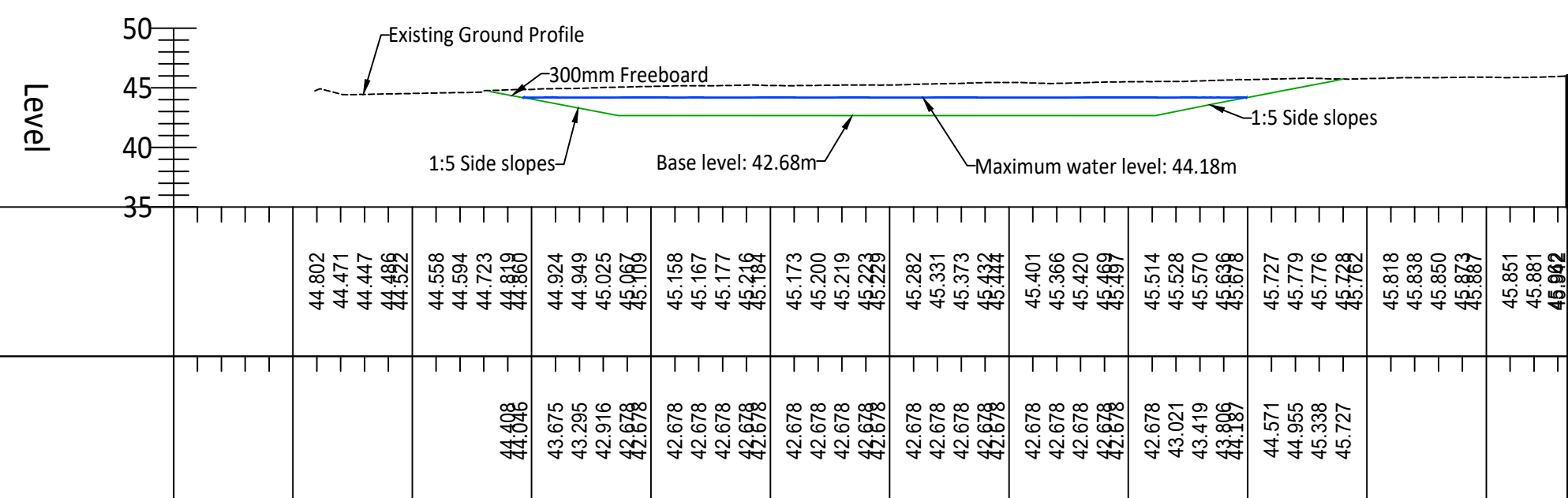
Proposed Levels



BASIN 3 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



BASIN 3 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

GENERAL NOTES:

- Do not scale.
- Refer to all other Project Drawings and supporting notes.

GENERAL KEY:

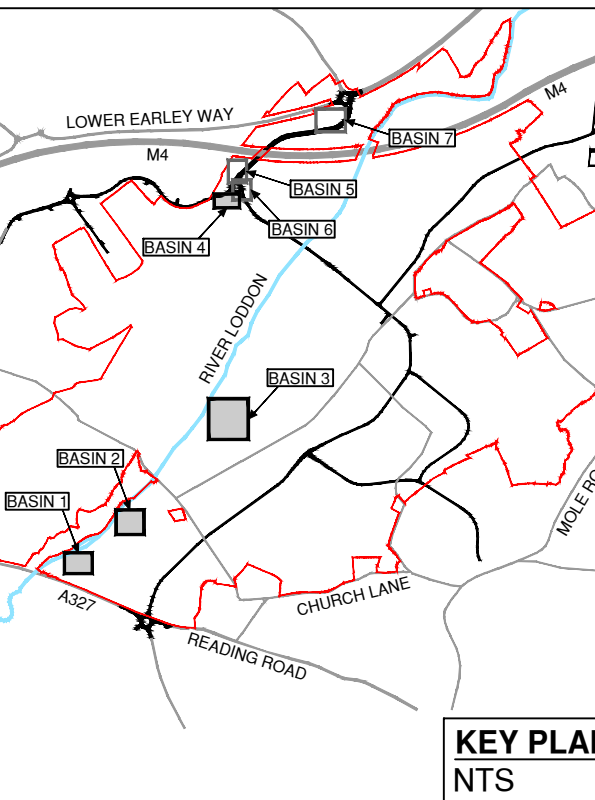
- Major Contour (500mm interval)
- Minor Contour (100mm interval)
- Max Water Level

Arbicultural Survey - Received by FLAC on 15/05/25:

- RPA - Root Protection Area
- VTB - Veteran Tree Protection Area

SECTIONS KEY:

- Existing Ground Profile
- Basin Profile
- Max Water Level



Rev	Date	Description	Rev	Date	Description
A	01/06/25	FIRST ISSUE	RG	CS	



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Project
LODDON GARDEN VILLAGE

Task
BASIN SECTIONS
BASIN 1, 2, 3 AND 4

Status

Issue	As Shown @ AD	Date	June 2025	Drawn	RG	Checked	CS
Drawn by	A392-OPA-0540	Revision					A

Proposed 125mm Upstand Kerb

Proposed Traffic Island - Tarmacadam

Proposed 125mm Upstand Quadrant Kerb

Not to scale

3m

2m

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GENERAL NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.
3. **Transition Kerbs to be installed Between all changes in kerb type.**

KEY:

Uncontrolled Blister Tactile Paving at Dropped Crossing

Controlled Blister Tactile Paving at Signalised Crossing

Segregated Footway / Cycleway
Corduroy Tactiles

Proposed Timber Fenceline

Proposed Asphalt Shared/ Segregated
Footway Cycleway

Proposed Asphalt Shared Footway /
Cycleway

Proposed Asphalt Footway

Proposed Verge

Proposed Verge / SuDS Feature

Proposed Asphalt Carriageway

Proposed Mown Path

Proposed Hoggin Path

Proposed Hard Standing

Proposed 125mm Upstand Kerb.
Appropriate Inlet / Orifice for SuDS
Provision to be Introduced Where
Necessary.

Proposed 20mm Upstand Kerb

Proposed 6mm Upstand Kerb

Proposed 0mm Upstand Inverted Kerb

Proposed 0mm Upstand Edging Kerb

Arboricultural Survey - Received by FLAC on
15/05/25:

RPA

Root Protection Area

VTB

Veteran Tree Protection Area

0 5 10 15 20 25m

Scale 1:500

B	07.25	UPDATED TO REFLECT RSA2 COMMENTS AND KEYPLAN REDLINE UPDATED	RG	CS
A	06.25	FIRST ISSUE	JJS	CS
Rev	Date	Description	Drawn	Checked

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Project

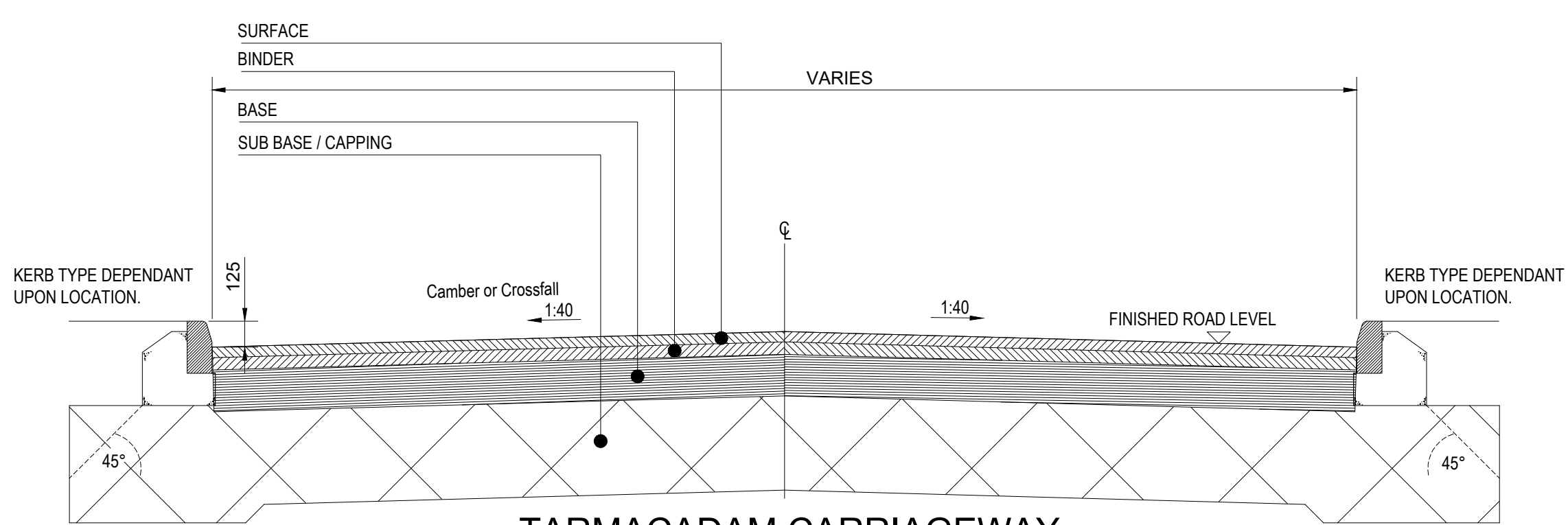
LODDON GARDEN VILLAGE

Title

HIGHWAY MATERIALS PLAN
SHEET 1 OF 8

Status

Scale 1:500 @ A1	Date JUNE 2025	Drawn JJS	Checked CS
Drawing No. A392-OPA-0701			Revision B



TARMACADAM CARRIAGEWAY
SEE TABLE FOR CONSTRUCTION DETAILS
SCALE 1:25

SPINE ROAD TARMACADAM CARRIAGEWAY

LAYER	SPECIFICATION	THICKNESS (mm)
SURFACE	HIGH STONE CONTENT HOT ROLLED ASPHALT (HRA) SURFACE COURSE COMPLYING WITH BS EN 13108-4 TABLE 4. 55/10C HRA SURF, BINDER GRADE 40/60, MINIMUM PSV = 60, MAXIMUM AAV = 12	50mm
BINDER	DENSE BITUMEN MACADAM (DBM) BINDER COURSE COMPLYING WITH BS EN 13108-1. AC20 DENSE BIN, BINDER GRADE 40/60.	60mm
BASE	DENSE BITUMEN MACADAM (DBM) BASE COMPLYING WITH BS EN 13108-1. AC32 DENSE BIN, BINDER GRADE 40/60.	200mm
SUB BASE	TYPE 1 SUB-BASE MATERIAL TO CLAUSE 803, TABLE 8/2 OF SHW. THICKNESS TO BE DETERMINED FROM CBR VALUE MEASURED ONSITE. ALL TEST AND DECISIONS ON SUB-BASE REQUIREMENTS ARE TO BE MADE BY THE HIGHWAY AUTHORITY.	220mm *
CAPPING	CLASS 6F1 OR 6F2 GRANULAR CAPPING MATERIAL TO CLAUSE 613 OF SHW. REQUIREMENT AND THICKNESS DEPENDANT UPON CBR TESTING. ALL TESTS AND DECISIONS ON CAPPING REPLACEMENT ARE TO BE MADE BY THE HIGHWAY AUTHORITY.	330mm *

* THE ABOVE DESIGN APPLIES WHERE THE FORMATION CBR 4% INSITU. CBR TEST TO BE CARRIED OUT BY THE CONTRACTOR AT 30m INTERVALS AND RESULTS REPORTED TO THE HIGHWAY AUTHORITY/ENGINEER. WHERE CBR VALUES ARE LESS THAN 2.5%, GROUND STABILISATION IS TO BE UNDERTAKEN USING EITHER CEMENT OR LIME IN ACCORDANCE WITH CLAUSES 614 AND 615 OF MCDHW VOLUME 1 SERIES 600. METHOD TO BE AGREED WITH HIGHWAY AUTHORITY/ENGINEER. CBR TESTS TO BE CARRIED OUT BY THE CONTRACTOR ON THE SURFACE OF THE STABILISED MATERIAL WHEN COMPLETE AND REPORTED TO HIGHWAY AUTHORITY/ENGINEER.

ALL THICKNESSES STATED ARE FINISHED COMPACTED THICKNESSES.

FOR FROST SUSCEPTIBLE SOILS MINIMUM CONSTRUCTION DEPTH IS 450MM. ADDITIONAL CAPPING LAYER IS TO BE LAID BELOW THE SUB-BASE TO ACHIEVE THE OVERALL CONSTRUCTION DEPTH OF 450MM.

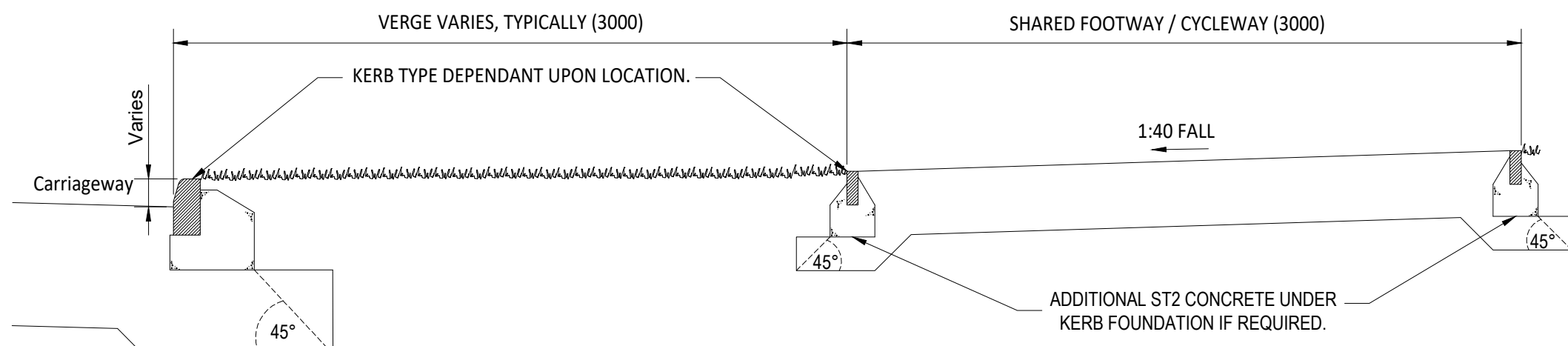
BASE, SUB-BASE AND CAPPING LAYERS SHOULD BE COMPACTED IN ACCORDANCE WITH DTP "SPECIFICATION FOR HIGHWAY WORKS".

ALL FORMATIONS TO BE PROOF ROLLED IMMEDIATELY PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE FORMATION SHALL THEN BE PROTECTED FROM THE WEATHER DURING THIS PERIOD.

TARMACADAM FOOTWAY/CYCLEWAY/DOMESTIC VEHICULAR CROSSING

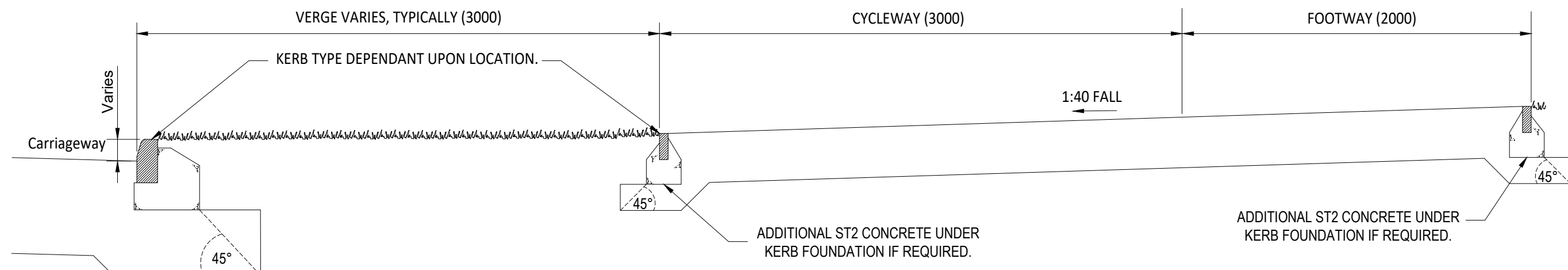
LAYER	SPECIFICATION	THICKNESS (mm)
SURFACE	DENSE GRADE ASPHALT CONCRETE SURFACE COURSE COMPLYING WITH BS EN 13108. AC 6 DENSE SUR, BINDER GRADE 100/150 PEN	25mm
BASE	DENSE GRADE ASPHALT CONCRETE BINDER COMPLYING WITH BS EN 13108. AC 20 DENSE BIN, BINDER GRADE 40/60 PEN	90mm
SUB BASE	TYPE 1 SUB-BASE MATERIAL TO CLAUSE 803, TABLE 8/2 OF SHW. MINIMUM CBR OF 2.5%. THICKNESS DEPENDANT UPON CBR TESTING.	2.5%≤CBR≤4.0% - 320mm CBR>4.0% - 210mm*

* THE ABOVE DESIGN IS BASED ON TABLE 3.18c OF CD239. CBR TEST TO BE CARRIED OUT BY THE CONTRACTOR AT 20-30m INTERVALS AND RESULTS REPORTED TO THE HIGHWAY AUTHORITY/ENGINEER.



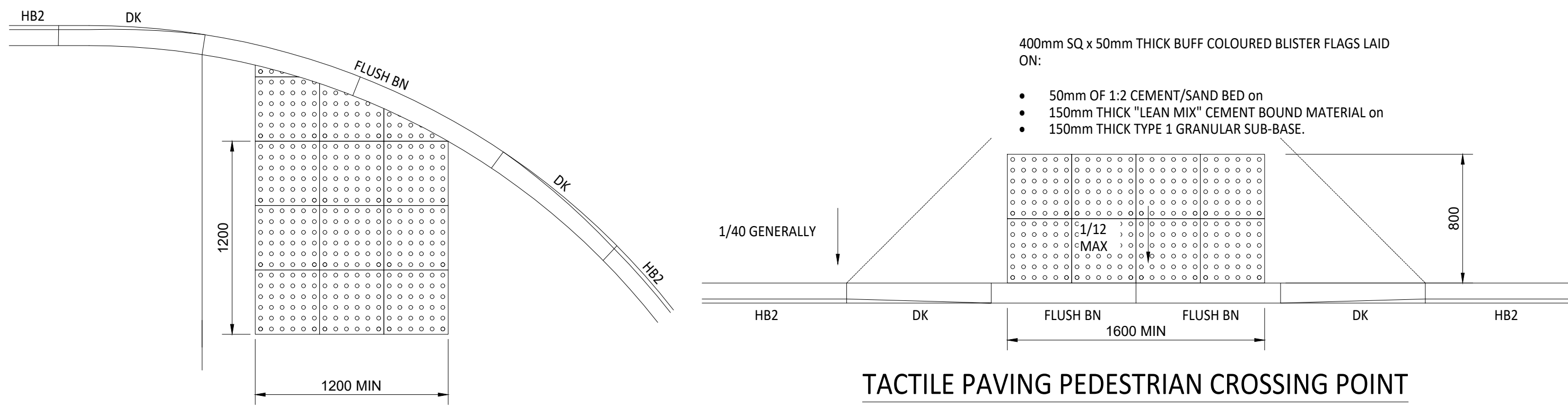
ADOPTABLE SHARED FOOTWAY/CYCLEWAY CONSTRUCTION

SEE TABLE FOR CONSTRUCTION DETAILS
SCALE 1:25



ADOPTABLE SEGREGATED FOOTWAY/CYCLEWAY CONSTRUCTION

SEE TABLE FOR CONSTRUCTION DETAILS
SCALE 1:25



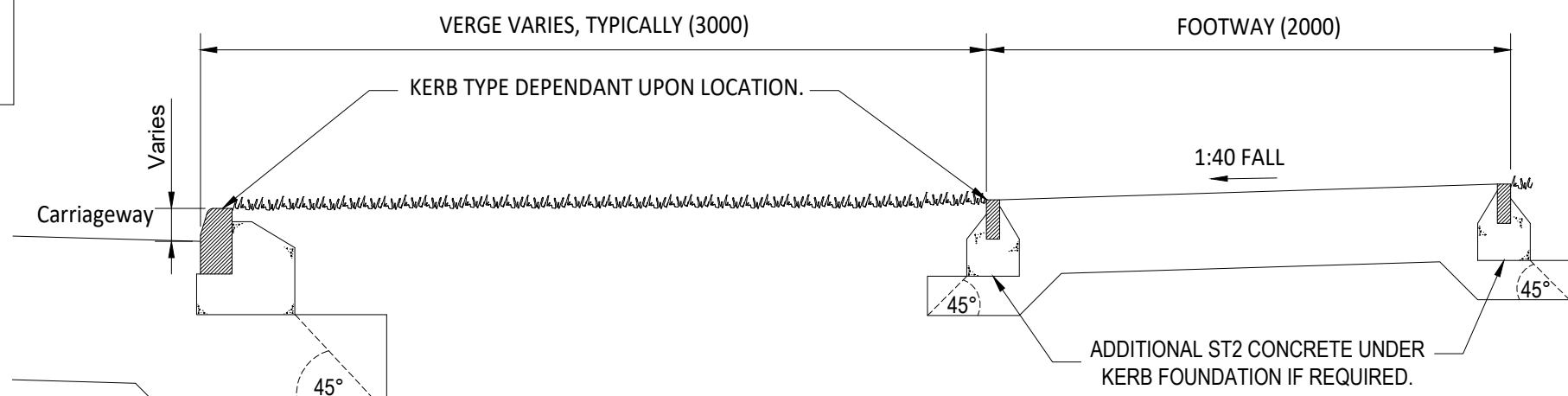
TACTILE PAVING PEDESTRIAN CROSSING POINT AWAY FROM JUNCTIONS

SCALE 1:25

CARRIAGEWAY SUBBASE/CAPPING REQUIREMENTS

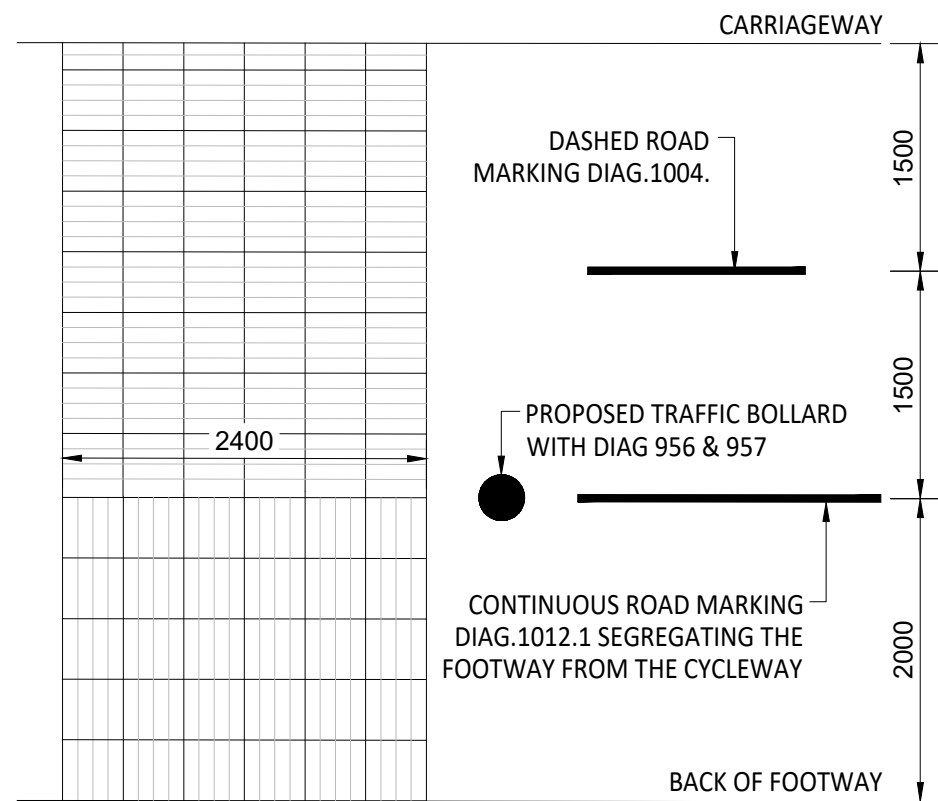
CBR (%)	SUBBASE ON CAPPING (mm)		SUBBASE ONLY (mm)
	SUBBASE	CAPPING	
<2.5%	GROUND STABILISATION		GROUND STABILISATION
2.6-2.9	250	420	420
3.0-3.9	230	380	370
4.0-4.9	220	330	320
5.0-5.9	200	250	270
6.0-9.9	180	240	260
10.0-11.9	150	200	220
12.0-14.9	150	180	220
≥ 15.0	150	150	220

DATA IN TABLE HAS BEEN DERIVED FROM FIGURES 3.18 AND 3.20 OF CD 225 REV 1



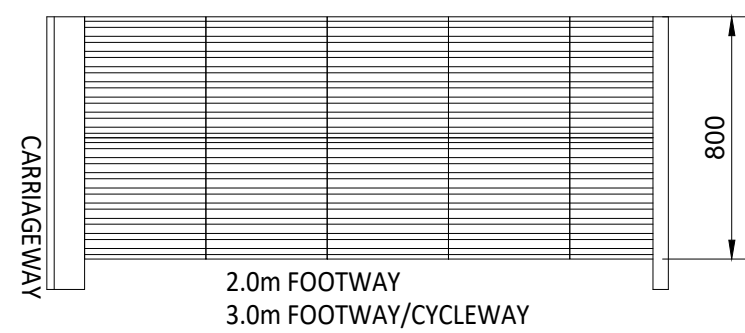
ADOPTABLE FOOTWAY CONSTRUCTION

SEE TABLE FOR CONSTRUCTION DETAILS
SCALE 1:25



END OF SEGREGATED SHARED FOOTWAY / CYCLEWAY TACTILE

SCALE 1:50



CORDUROY PAVING

400mm SQ x 50mm THICK BUFF COLOURED BLISTER OR CORDUROY FLAGS LAID ON:

- 50mm OF 1:2 CEMENT/SAND BED on
- 150mm THICK "LEAN MIX" CEMENT BOUND MATERIAL on
- 150mm THICK TYPE 1 GRANULAR SUB-BASE.

SCALE 1:25

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GENERAL NOTES:

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- Refer to all other Project Drawings and supporting notes.

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Rev	Date	Description	Drawn	Checked
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UNIVERSITY OF READING				
Project				
LODDON GARDEN VILLAGE				
Title				
HIGHWAY CONSTRUCTION DETAILS				
Status				
Scale	Date	Drawn	Checked	
AS SHOWN @ A1	JUN 2025	RG	CS	
Drawing No	A392-OPA-0720			Revision
				A



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