© THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.

LINCOLNSHIRE COUNTY COUNCIL

STREET LIGHTING SPECIFICATION 5/36/C/00

1. COLUMNS

STAINTON, FABRIKAT OR BRITISH STEEL

TYPE

5M MOUNTING HEIGHT BRACKETLESS COLUMN WITH
3 COAT MIO ROOT PROTECTION (SPECIFICATION ON APPLICATION)
SPIGOT TO SUIT PHILIPS RESIDIUM FGS224
POST TOP LANTERN

2. LANTERNS, LAMP AND GEAR

PHILIPS LIGHTING
420 LONDON ROAD
CROYDON, CR9 3QR
TEL: 0208 665 6655

TYPE

PHILIPS RESIDIUM FGS224 INCORPORATING HIGH FREQUENCY BALLAST, SUB-MINITURE PE CELL, SEE BELOW, AND FITTED WITH GGP76 SPIGOT FOR 76MM POST TOP MOUNTING

3. PHOTOCELLS

SELC ELECTRONICS
REDHILL HOUSE
HOPE STREET
SALTNEY
CHESTER
CH4 8BU
TEL 01244 682948

TYPE

101 TF SUB-MINATURE PE CELL: 1 PART, 1:0.5 DIFFERENTIAL
70 LUX ON



ENGINEERING NOTES

ADOPTABLE WORKS
Roads footpaths and parking bays forming part of the Highway to be adopted under Section 38 of the Highways Act 1980 and should comply with the relevant County Highways Specification. Hand laying of bituminous material is not permitted on carriageway.

STREET LIGHTING
On completion as a requirements of BS 5485 and the IIE Wiring Regulations 16th Edition Completion certificate in the form set out in Appendix 6 of the British Standards shall be provided to the council. Alternatively a Certificate may be adapted from the BS 7671 for the use in street lighting installation given in the ILE code practice for Electrical Safety in public Lighting Operations.

DRAINAGE Adoptable
Sewers to be adopted under Section 104 of the Water Industries Act 1991 should comply with the Water Authorities Association 'Sewers for Adoption' 5th Edition. Sewers to be laid at least 1 metre from kerbline to the edge of the pipe, and the outer edge of the manhole construction must be at least 500mm from the kerb. A CCTV survey is to be undertaken at the developers expense prior to the adoption by the local Water Authority.

LEGEND (Adoptable Drainage)

- Foul water manhole (see associated schedule for appropriate sizes)
- Surface water manhole (see associated schedule for appropriate sizes)
- Highway drain manhole (see associated schedule for appropriate sizes)
- Foul water sewer
- Surface water sewer
- Rising Main

EXISTING DRAINAGE
All existing drainage on the site is to be removed.

Private Crossing
Street Lighting Column

SHDC
Planning & Development
14 MAY 2003
Ref 0612/03

F	27.03.03	Existing Ordnance Survey data added.
E	21.11.02	Street lighting layout amended in accordance with LCC requirements.
D	16.10.02	Plots 44 – 87 renumbered at clients request.
C	05.08.02	MH's S1 and F3 repositioned to accomodate private drainage. Lateral Connections shown. Tactile paving added at road 1 chainage 182. Street lighting Spec added.
B	15.07.02	Pumping Station repositioned. Drainage redesigned. Slab levels amended.

PERSIMMON
PERSIMMON HOMES (EAST MIDLANDS) LTD
Persimmon House, Napier Place,
Orton Wilalow, Peterborough. PE2 6XN
Tel: (01733) 397200 Fax: (01733) 235198
© THIS DRAWING IS COPYRIGHT

A	09.05.02	Footway widths amended. Survey Grid Added. Manholes F8 and F12 added. Lateral positions shown. Visibility at Junction with Low Road shown.

REVISIONS

PROJECT
PROPOSED DEVELOPMENT AT LOW ROAD, SPALDING.

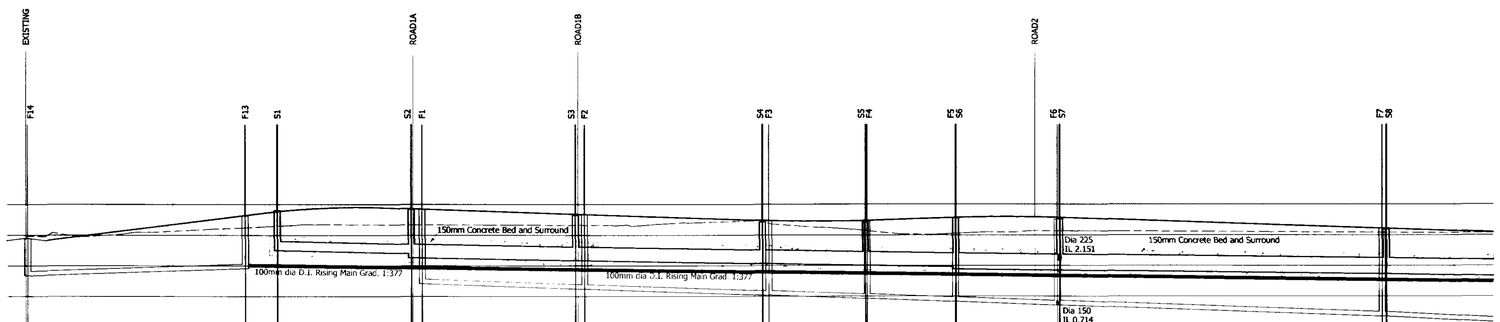
DRAWING
ROAD AND SEWER LAYOUT

SCALE: 1:500 DRAWN: RSH
DATE: APRIL 2002 APPROVED:
FILE REF:

KRT Associates
ARCHITECTURE • PLANNING • ENGINEERING
SURVEYING • COMMUNICATION
THE BOND., 180-182 Fazeley Street. Digbeth. BIRMINGHAM. B5 5SE
Tel: (0121) 685 0550 Fax: (0121) 685 0540
E-mail: reception@krtassociates.co.uk
OFFICES ALSO AT:
• RUSHALL HOUSE., School Road. Brewood. STAFFORD. ST19 9DS

D 528/C DEV. F

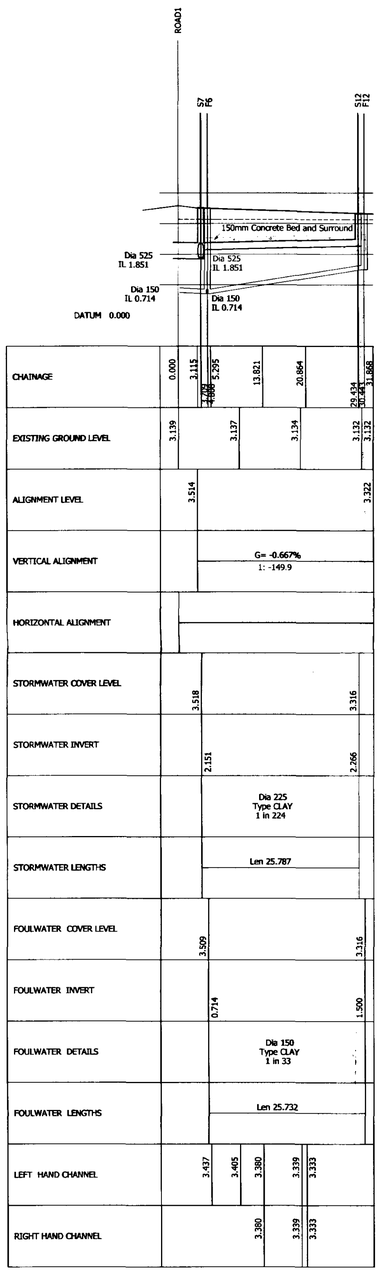
© THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.



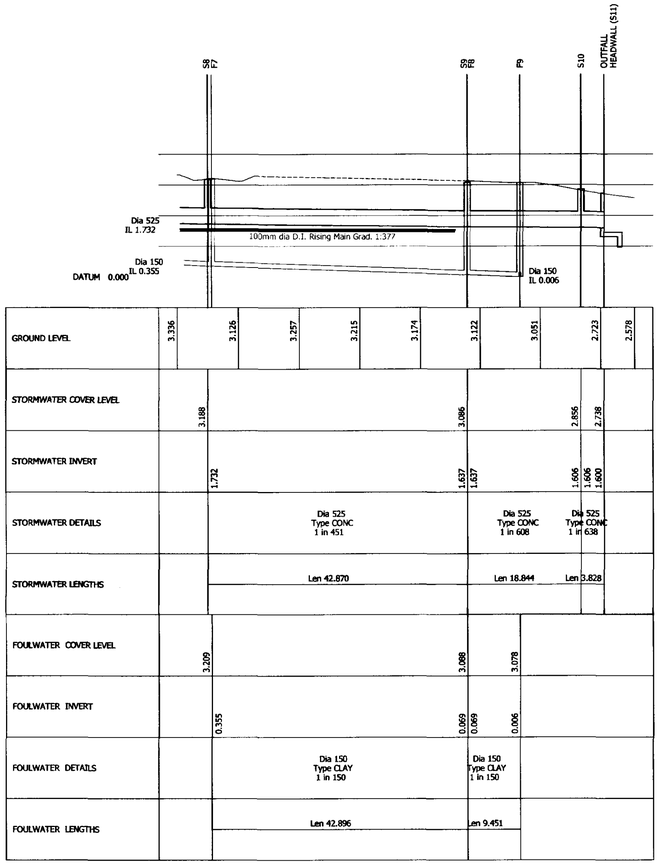
DATUM 0.000

| | | |

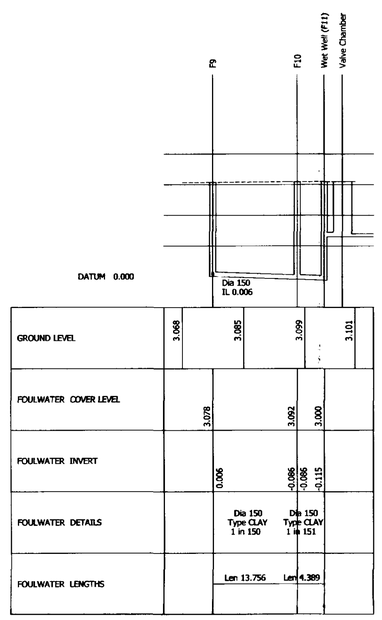
©THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.



ROAD 2



STORM OUTFALL TO SOKE DYKE



F9 TO PUMPING STATION

PERSIMMON
PERSIMMON HOMES (EAST MIDLANDS) LTD
Persimmon House, Napier Place,
Orton Wilslow, Peterborough. PE2 6XN
Tel: (01733) 397200 Fax: (01733) 235198
© THIS DRAWING IS COPYRIGHT

B 12.07.02 Pumping Station repositioned. Storm outfall level raised, vertical alignment amended accordingly.
A 08.05.02 Foul Manholes renumbered. Manholes F8 and F12 added.
REVISIONS

PROJECT
PROPOSED DEVELOPMENT AT
LOW ROAD,
SPALDING.

DRAWING
LONGITUDINAL SECTIONS
SHEET 2 OF 2

SCALE: 1:500 H, 1:100 V DRAWN: RSH
DATE: APRIL 2002 APPROVED:
FILE REF:

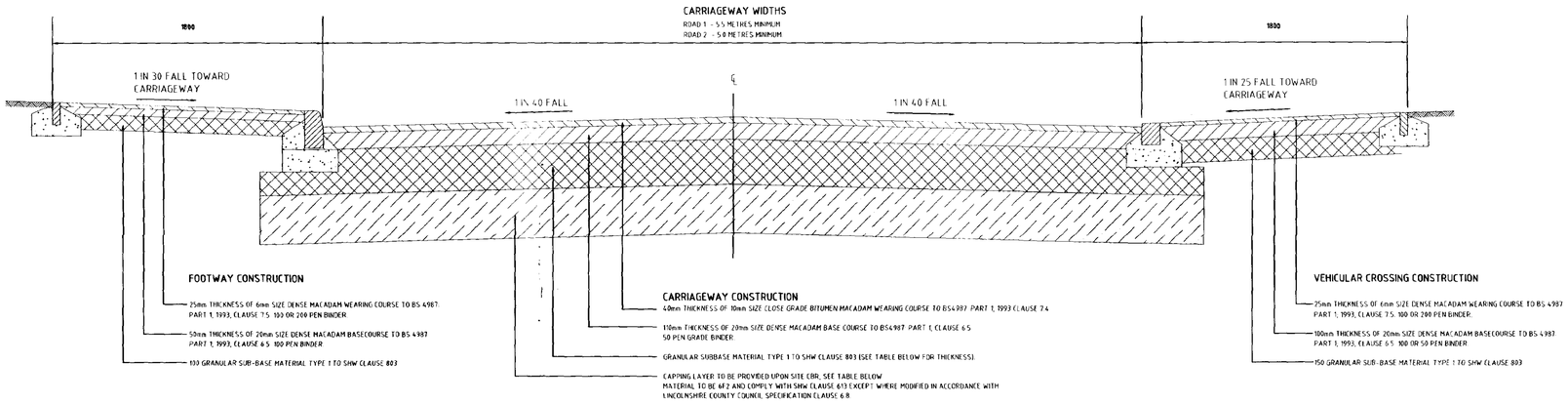
KRT Associates
ARCHITECTURE • PLANNING • ENGINEERING
SURVEYING • COMMUNICATION
THE BOND, 180-182 Fazeley Street, Digbeth, BIRMINGHAM, B5 5SE
Tel: (0121) 685 0550 Fax: (0121) 685 0540
E-mail: reception@krtassociates.co.uk
OFFICES ALSO AT:
• RUSHALL HOUSE, School Road, Brewood, STAFFORD, ST19 9DS

SHDC
Planning & Development
14 MAY 2003
Ref 0612/03

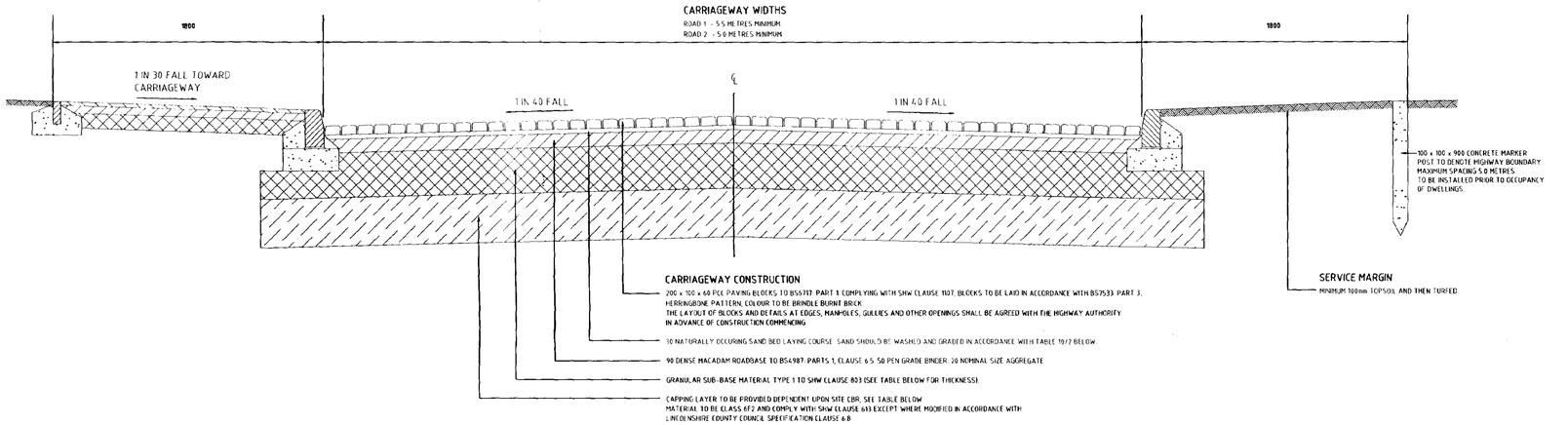
C 06.08.02 Manholes S1 and F3 repositioned to accommodate private drainage. Foul system lowered.
REVISIONS

PROJECT No/DRAWING No: B-528/8 REV: C

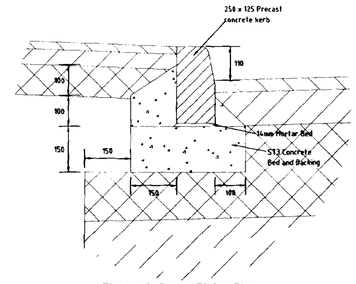
©THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.



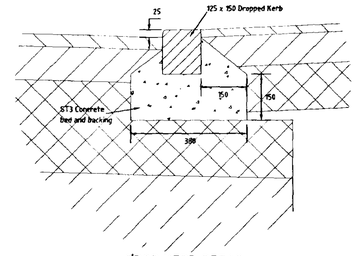
FLEXIBLE CARRIAGEWAY CONSTRUCTION



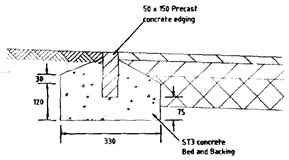
BLOCK PAVED CARRIAGEWAY CONSTRUCTION



FULL HEIGHT KERB DETAIL



DROP KERB DETAIL



EDGING KERB DETAIL

Construction Thicknesses

ROADS UP TO 0.25 m.s.a. - NORMAL FLEXIBLE CONSTRUCTION						
SUB-GRADE Note 1	SUB-BASE (mm) Note 1		SURFACING (mm)		TOTAL THICKNESS REQUIRED (mm)	
BEARING CAPACITY (CBR)	WHEN SUB-GRADE IS CLASSIFIED AS FROST SUSCEPTIBLE	WHEN SUB-GRADE IS CLASSIFIED AS NON-FROST SUSCEPTIBLE	BASECOURSE	WEARING COURSE	WHEN SUB-GRADE IS CLASSIFIED AS FROST SUSCEPTIBLE	WHEN SUB-GRADE IS CLASSIFIED AS NON-FROST SUSCEPTIBLE
Below 2% & soft spots	Note 2	Note 2	Note 4		Note 2	Note 2
2%	630 Note 3	630 Note 3	110	40	780 Note 3	780 Note 3
3%	400	400	110	40	550	550
4%	310	310	110	40	460	460
5%	300	260	110	40	450	410
6-15%	300	225	110	40	450	375
Above 15%	300	200	110	40	450	350
	300	150	110	40	450	300

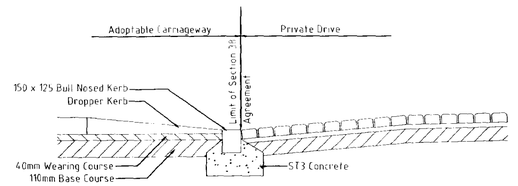
ROADS UP TO 0.25 m.s.a. - BLOCK PAVER CONSTRUCTION (See Clause 1.9)							
SUB-GRADE Note 1	SUB-BASE (mm) Note 1		SURFACING (mm)			TOTAL THICKNESS REQUIRED (mm)	
BEARING CAPACITY (CBR)	WHEN SUB-GRADE IS CLASSIFIED AS FROST SUSCEPTIBLE	WHEN SUB-GRADE IS CLASSIFIED AS NON-FROST SUSCEPTIBLE	BASECOURSE (Note 5)	LAYING COURSE	BLOCK PAVER	WHEN SUB-GRADE IS CLASSIFIED AS FROST SUSCEPTIBLE	WHEN SUB-GRADE IS CLASSIFIED AS NON-FROST SUSCEPTIBLE
Below 2% & soft spots	Note 2	Note 2	90	30	60	Note 2	Note 2
2%	630 Note 3	630 Note 3	90	30	60	810 Note 3	810 Note 3
3%	400	400	90	30	60	580	580
4%	310	310	90	30	60	490	490
5%	265	260	90	30	60	445	440
6-15%	265	225	90	30	60	445	405
Above 15%	265	200	90	30	60	445	380
	265	150	90	30	60	445	330

Ref: BS7533: 1992 Guide for structural design of pavements constructed with clay or concrete block pavers.

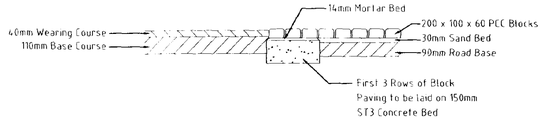
Note 1: See Lincolnshire County Council Development Road Specification and Construction 1999 Clause 1.1.7
Note 2: See Lincolnshire County Council Development Road Specification and Construction 1999 Clause 1.1.6
Note 3: Assumes no improvement is possible using either a sub-soil drainage technique or a geosynthetic. 630mm is 330mm Granular Fill to Clause 6.8 and 300mm Type 1 Sub-Base.
Note 4: May be laid in one layer.
Note 5: See Lincolnshire County Council Development Road Specification and Construction 1999 Clause 1.9

Table 10/2

BS Sieve size	Percentage by mass passing
10 mm	100
5.0 mm	90-100
2.36 mm	75-100
1.18 mm	55-90
0.6 mm	35-70
0.3 mm	8-35
0.15 mm	0-10
0.075mm	0-1.0



DETAIL AT ENTRY TO PRIVATE DRIVES



DETAIL BETWEEN FLEXIBLE CONSTRUCTION AND BLOCK PAVING

SHDC
Planning & Development
14 MAY 2003
Ref 0612/03

NOTE

1. All dimensions are in millimetres unless stated otherwise.
2. Drawing to be read in conjunction with Lincolnshire County Council Development Road Specification and Construction 1999 and Specification for Highway Works (SHW) Volume 1, published by Highway Agency, March 1998.
3. Kerbs, channels and edgings shall be hydraulically pressed and shall be obtained from an approved manufacturer.
4. Joints shall be left slightly open (max gap to be 5mm) to allow for expansion.
5. For curves of 12 metre radii or less purpose made units of the appropriate radius shall be used.
6. Joints between block paviors shall be filled with sand to B.S. 7533,1997:Part 3 Table D3, well brushed in.
7. Roads and footpaths shall be constructed in accordance with Lincolnshire County Council's current Highway Requirements for Development.
8. All trench reinstatements within the limits of the proposed Public Highway to be back filled with granular Type 1 Sub base or alternative material approved and accepted by Lincolnshire County Council upto road construction.
9. All white road markings shall be screed applied reflective thermo-plastic class A material.

PERSIMMON
PERSIMMON HOMES (EAST MIDLANDS) LTD
Persimmon House, Napier Place,
Orton Wilslow, Peterborough. PE2 6XN
Tel: (01733) 397200 Fax: (01733) 235198
© THIS DRAWING IS COPYRIGHT

B	12.07.02	Details amended in accordance with Lincolnshire County County Specification and Comments in letter dated 20th May 2002.
A	08.05.02	Footpath widths revised to 1.8m. Notes ammended in accordance with clients request.

REVISIONS

PROJECT
PROPOSED DEVELOPMENT AT
LOW ROAD,
SPALDING.

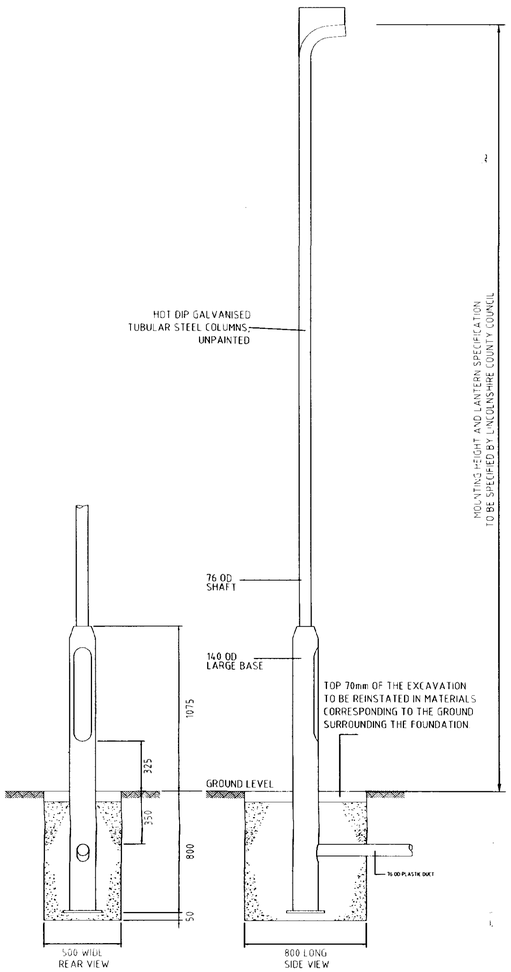
DRAWING
ROAD CONSTRUCTION DETAILS
SHEET 1 OF 2

SCALE: NTS DRAWN: RSH
DATE: APRIL 2002 APPROVED:
FILE REF:

KRT Associates
ARCHITECTURE • PLANNING • ENGINEERING
SURVEYING • COMMUNICATION
THE BOND., 180-182 Fazeley Street, Digbeth. BIRMINGHAM. B5 5SE
Tel: (0121) 685 0550 Fax: (0121) 685 0540
E-mail: reception@krtassociates.co.uk
OFFICES ALSO AT:
• RUSHALL HOUSE, School Road, Brewood. STAFFORD. ST19 9DS

PROJECT No/DRAWING No: B-528/11 REV: B

©THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.



STREET LIGHTING COLUMN FOUNDATION

NOTES FOR HIGHWAY LIGHTING

1. Installation to be in accordance with :
The British Standards Specifications.
IEE Regulations for Electrical Installations.
ILE Code of practice for Electrical Safety in Public Lighting Operations.
Health and Safety at Work Act
Electricity at Work Regulations
Engineering Recommendation G39
ASLC Code of Practice for the Erection of Street Lighting Equipment.

2. The light source shall be high pressure sodium.

3. Lighting Units to have individual mains services within the highway boundary.

4. All private cables to be laid in 50mm diameter PVC orange duct, 450mm deep in footpaths and verges, 750mm deep in roads. A minimum conductor size of 10 sq mm shall be used.

5. Private cables shall loop between lighting units with no jointing. Lit signs shall be fed by spurs from the lighting columns. (No cable feeding a lighting column shall be looped through a sign).

6. Private cables feeding lighting units shall be 2 core single phase.

7. Private 4 core three phase sub-mains may be laid between feeder control pillars.

8. No more than three cables shall terminate at alighting unit. (No more than two at alit traffic bollard).

9. Each outgoing distribution circuit from a feeder control pillar shall be protected by its own H.B.C. fuse. The outgoing circuits shall be individually switched to provide dusk to dawn lighting by means of a photoelectric control unit and suitability rated contactor. Lighting units with individual mains supplies shall have individual photo electrical control units. Photoelectric controls shall be electronic to IP67 and set at 70 lux switch-on-level. Royce Thompson OASIS 2000, SELC 841 or similar approved.

10. The local electricity supplier should be consulted at an early stage concerning electricity supplies.

11. Care should be taken to ensure that the requirements of all the public utilities are met with regard to distances from their services.

12. The layout of the proposed locations of the columns shall be approved by Lincolnshire County Council before cable design commences. The overall scheme shall be submitted to the County Council for approval on completion of the underground cabling layout. The locations and types of lit signs must be subject of separate approval.

13. Columns to be steel, hot dip galvanized and Abcite coated in grey colour.

14. Columns, wide base sign posts.

BLOCK PAVING AROUND IRONWORK

CONSTRUCTION DETAIL

BLISTER SURFACED SLAB

TACTILE PAVING DETAILS

LAYOUT OF BLISTER SURFACE AT IN-LINE UNCONTROLLED CROSSING POINT

TYPICAL GULLY DETAIL

GULLEY CONNECTION

NOTES :

1. All dimensions are in millimetres unless stated otherwise.
2. Drawing to be read in conjunction with Lincolnshire County Council Development Road Specification and Construction 1999 and Specification for Highway Works (SHW) Volume 1, published by Highway Agency, March 1998.
3. Kerbs, channels and edgings shall be hydraulically pressed and shall be obtained from an approved manufacturer.
4. Joints shall be left slightly open (max gap to be 5mm) to allow for expansion.
5. For curves of 12 metre radii or less purpose made units of the appropriate radius shall be used.
6. Joints between block paviors shall be filled with sand to B.S. 7533,1997:Part 3 Table D3, well brushed in.
7. Roads and footpaths shall be constructed in accordance with Lincolnshire County Council's current Highway Requirements for Development.
8. All trench reinstatements within the limits of the proposed Public Highway to be back filled with granular Type 1 Sub base or alternative material approved and accepted by Lincolnshire County Council upto road construction.
9. All white road markings shall be screed applied reflective thermo-plastic class A material.

PERSIMMON
PERSIMMON HOMES (EAST MIDLANDS) LTD
Persimmon House, Napier Place,
Orton Wilslow, Peterborough. PE2 6XN
Tel: (01733) 397200 Fax: (01733) 235198
© THIS DRAWING IS COPYRIGHT

B	12.07.02	Details amended in accordance with Lincolnshire County County Specification and Comments in letter dated 20th May 2002.
A	08.05.02	Notes amended in accordance with Clients request.

REVISIONS

PROJECT
PROPOSED DEVELOPMENT AT LOW ROAD, SPALDING.

DRAWING
ROAD CONSTRUCTION DETAILS SHEET 2 OF 2

SCALE: NTS DRAWN: RSH

DATE: APRIL 2002 APPROVED:

FILE REF:

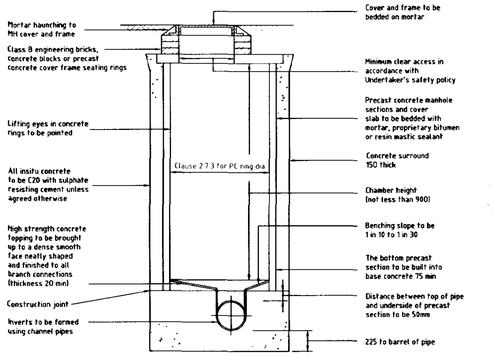
KRT Associates
ARCHITECTURE • PLANNING • ENGINEERING
SURVEYING • COMMUNICATION
THE BOND., 180-182 Fazeley Street. Digbeth. BIRMINGHAM. B5 5SE
Tel: (0121) 685 0550 Fax: (0121) 685 0540
E-mail: reception@krtassociates.co.uk
OFFICES ALSO AT:
• RUSHALL HOUSE., School Road. Brewood. STAFFORD. ST19 9DS

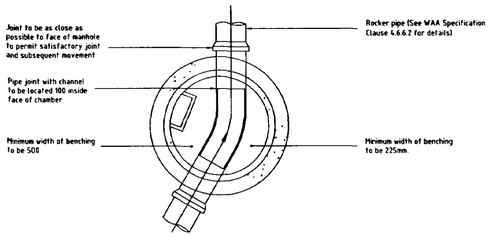
SHDC
Planning & Development
14 MAY 2003
Ref 0613/03

PROJECT No/DRAWING No: B-528/12 REV: B

TYPICAL MANHOLE DETAIL - TYPE B

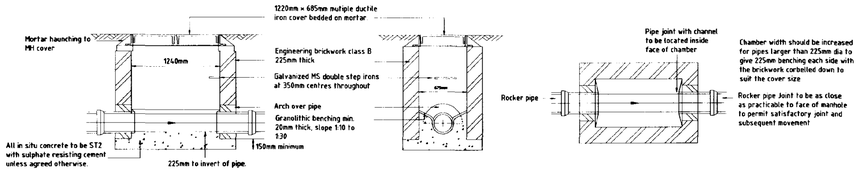
Max depth from ground level to soffit of pipe 3.0m
Steps or otherwise to be fitted as required by Undertaker's policy

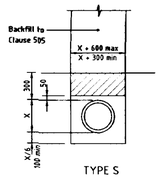




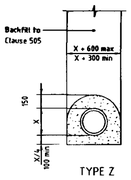
The design of manholes will need to comply with the Undertaker's safety policy

TYPE C MANHOLE





TYPE S
Bedding factor 2.2



TYPE Z
Bedding factor 2.6

NOTES

1. Dimension X is the external diameter of the pipe.

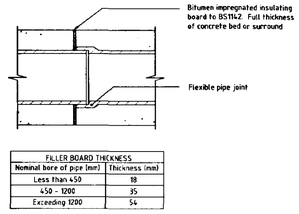
2. The minimum or maximum width of the trench applies on and below a line 300mm above the outside top of the pipe. Above the 300mm line the trench backfill material shall be as described in Clause 505 of SHW.

3. The concrete bed or surround may extend to the sides of the trench or be minimum width, Class B material is to be used to fill any voids so formed.

KEY

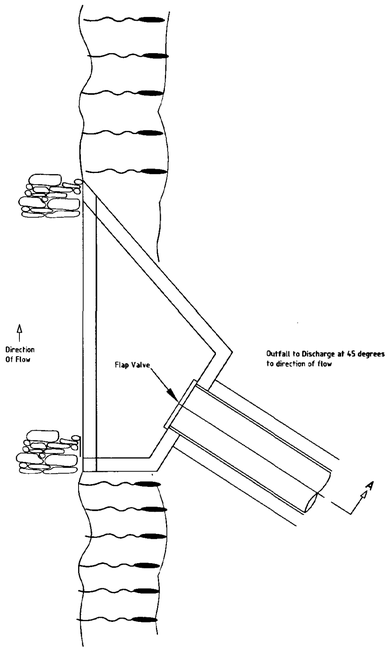
- Granular material to SHW Clause 503.3 (i)
- Concrete to SHW Clause 503.3 (iii)
- Class B material to SHW Clause 503.3 (iv)

PIPE BEDDING DETAILS

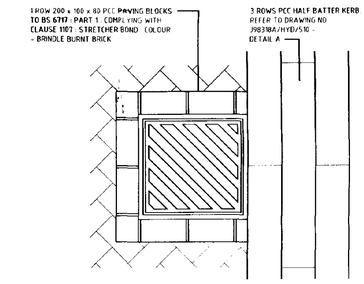


FILLER BOARD THICKNESS	
Nominal bore of pipe (mm)	Thickness (mm)
Less than 450	18
450 - 1200	35
Exceeding 1200	54

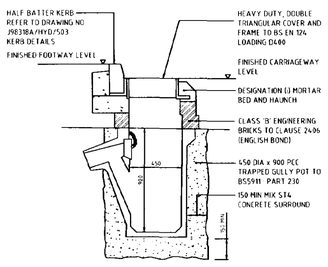
EXPANSION JOINT FOR CONCRETE BED OR SURROUND



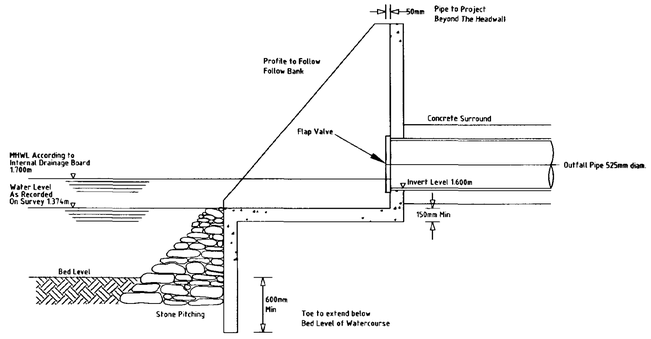
PLAN



GULLY LAYOUT
IN PAVED AREAS ONLY

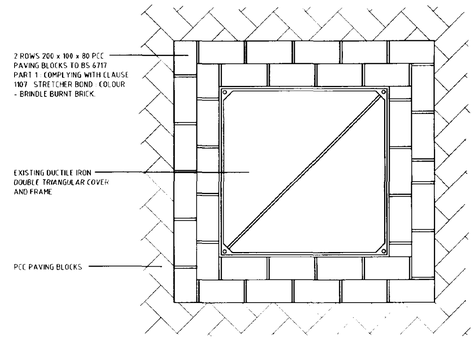


TYPICAL GULLY DETAIL



SECTION A-A

HEADWALL DETAIL
NTS



MANHOLE LAYOUT
IN PAVED AREAS ONLY

©THIS DRAWING AND THE BUILDING WORKS DEPICTED ARE THE COPYRIGHT OF KRT ASSOCIATES AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.

NOTES

1 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE

2 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH "SEWERS FOR ADOPTION, 5th EDITION" WSA, JULY 2001

3 SEVERAL STANDARD SPECIFICATIONS HAVE BEEN EMPLOYED IN DETAIL CLAUSE REFERENCES EACH PREFIXED BY AND REFERRING TO THE FOLLOWING

SHW - MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS - VOLUME 1, SPECIFICATION FOR HIGHWAY WORKS HIGHWAYS AGENCY, MARCH 1998.

CESWI - CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY, 4TH EDITION - WATER SERVICES ASSOCIATION, OCTOBER 1993.

4 ALL BURIED CONCRETE PRODUCTS AND MORTAR TO BE MANUFACTURED FROM SULPHATE RESISTING CEMENT.

5 ALL PIPES 300 DIA OR LESS SHALL BE EXTRA STRENGTH CLAY PIPES TO BS 65 ALL PIPES GREATER THAN 300 DIA SHALL BE PCC CLASS M PIPES TO BS 5911.

6 ALL CONNECTIONS TO EXISTING SEWER TO BE MADE SOFFIT TO SOFFIT.

7 THE CONTRACTOR TO MEET WITH THE SEWERAGE UNDERTAKER OR THEIR AGENT PRIOR TO COMMENCEMENT OF SEWER CONSTRUCTION TO ASCERTAIN ANY LOCAL VARIATIONS THAT HAVE NOT BEEN ADDRESSED IN THIS DESIGN. THE ENGINEER IS TO BE INFORMED IMMEDIATELY IN WRITING OF ANY SUCH VARIATIONS.

DRAWING SUBMITTED FOR SECTION 38 APPROVAL	DATE
DRAWING APPROVED FOR THE SECTION 38 AGREEMENT	DATE
DRAWING SUBMITTED FOR SECTION 104 APPROVAL	DATE
DRAWING APPROVED FOR THE SECTION 104 AGREEMENT	DATE

PERSIMMON
PERSIMMON HOMES (EAST MIDLANDS) LTD
Persimmon House, Napier Place,
Orton Wilslow, Peterborough. PE2 6XN
Tel: (01733) 397200 Fax: (01733) 235198
© THIS DRAWING IS COPYRIGHT

A 15.07.02 Manhole Type A detail removed. Flap Valve added at outfall.

REVISIONS

PROJECT
PROPOSED DEVELOPMENT AT LOW ROAD, SPALDING.

DRAWING
DRAINAGE CONSTRUCTION DETAILS

SCALE: NTS DRAWN: RSH

DATE: APRIL 2002 APPROVED:

FILE REF:

KRT Associates
ARCHITECTURE • PLANNING • ENGINEERING
SURVEYING • COMMUNICATION
THE BOND., 180-182 Fazeley Street. Digbeth. BIRMINGHAM. B5 5SE
Tel: (0121) 685 0550 Fax: (0121) 685 0540
E-mail: reception@krtassociates.co.uk
OFFICES ALSO AT:
• RUSHALL HOUSE., School Road. Brewood. STAFFORD. ST19 9DS

SHDC
Planning & Development
14 MAY 2003
Ref. 04/13/03

PROJECT No/DRAWING No: B-528/13 REV: A