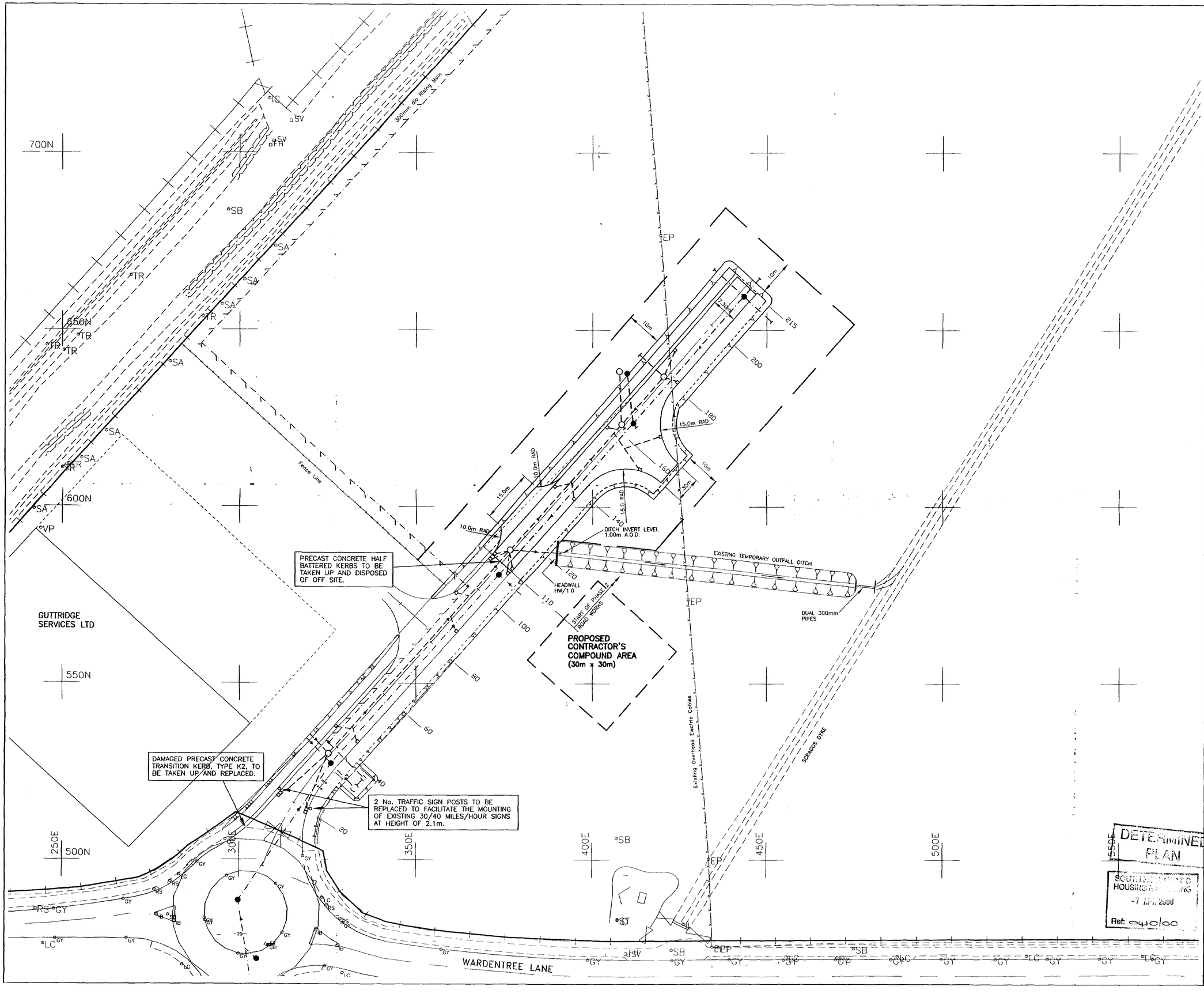


KEY

CONTRACTOR'S WORKING AREA (ANY INREASE TO THIS AREA REQUESTED BY THE CONTRACTOR MUST BE AGREED BY THE ENGINEER)

Rev	Revision	Drn	App	Date

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SPALDING
LINCOLNSHIRE PE11 1QG

Project
WARDENTREE LANE
SPALDING
PHASE 2 ROADWORKS

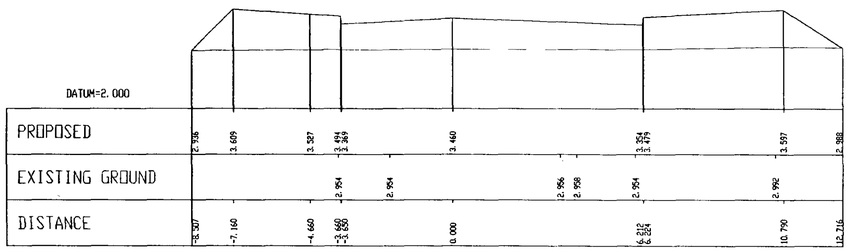
DETERMINED PLAN
SOUTH HOLLAND DISTRICT COUNCIL HOUSING & PLANNING
-7 APR 2000
Ref: 04/0100

Title
MISCELLANEOUS DETAILS

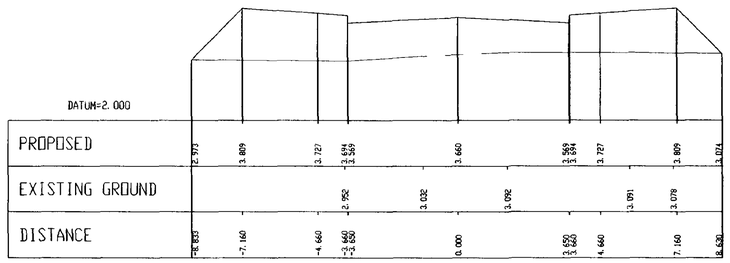
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M.B.R.			17.2.00

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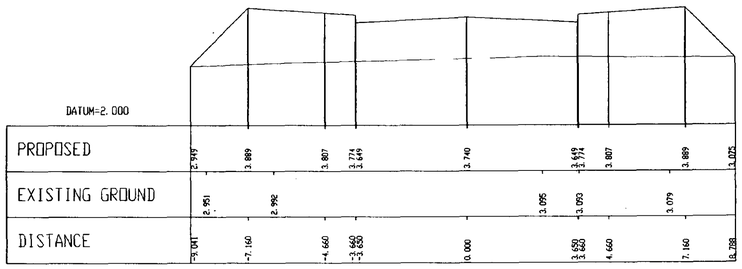
CAD Ref Plot	Drawing No.	Rev
30177-Wardentree Lane/ 30177-10-	30177/10	



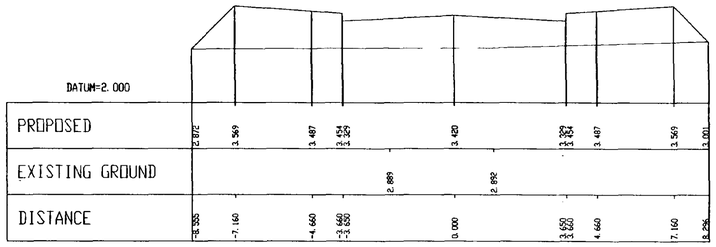
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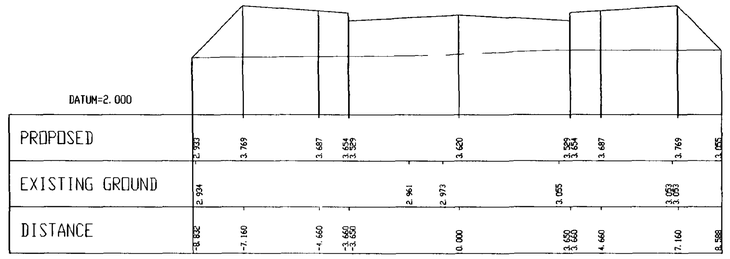
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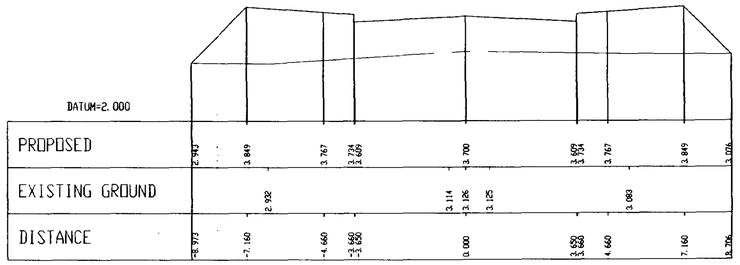
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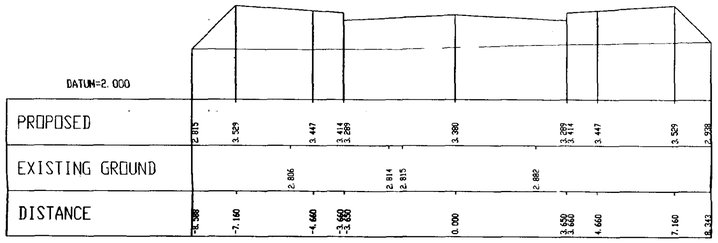
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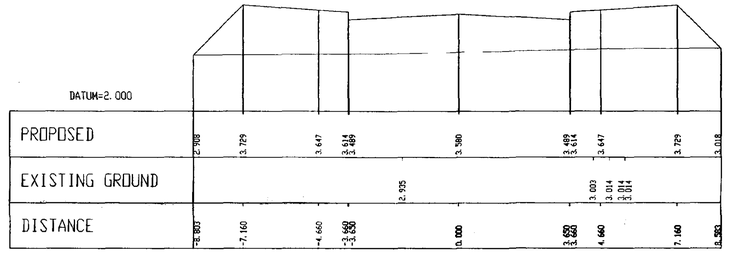
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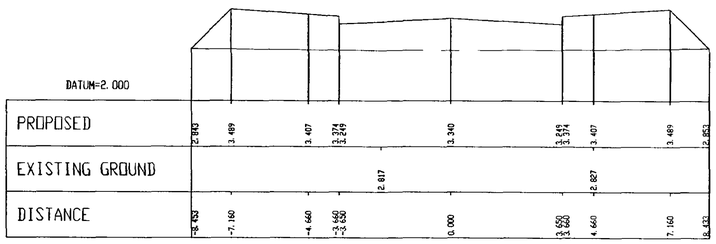
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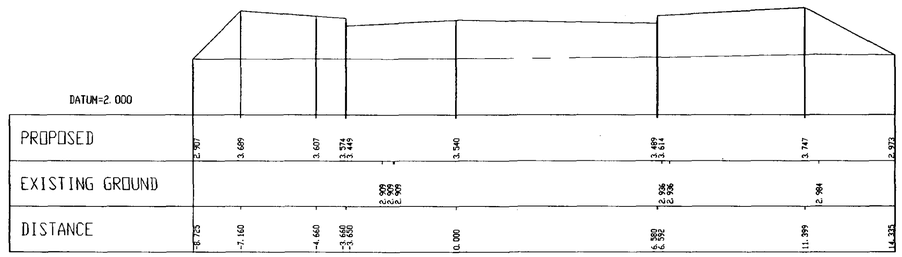
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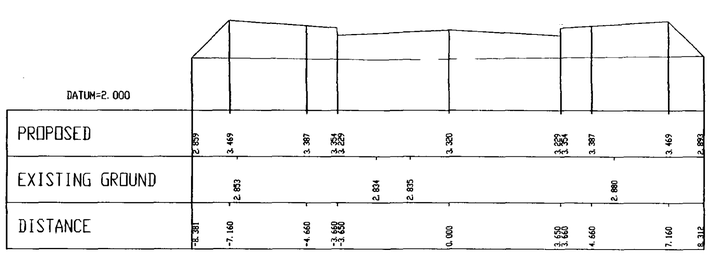
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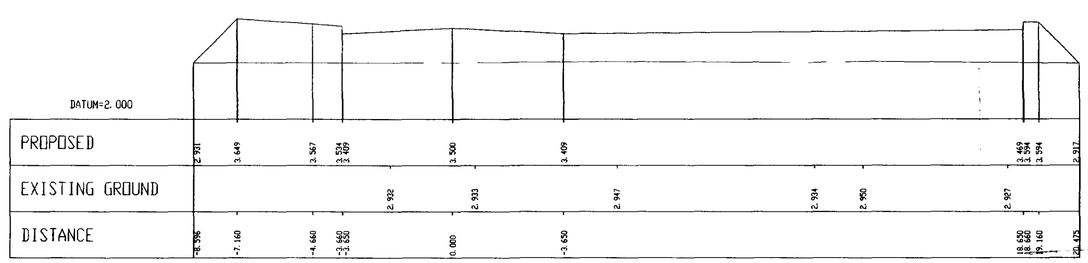
CHAINAGE 120.000



CHAINAGE 170.000



CHAINAGE 110.000



CHAINAGE 160.000

Rev	Revision	Drn	App	Date

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Project
WARDENTREE LANE
SPALDING
PHASE 2 ROADWORKS

Title
ROAD CROSS SECTIONS

Drawn	Checked	Approved	Date
M.B.R.	N.P.C.	G.R.S.	10.2.00

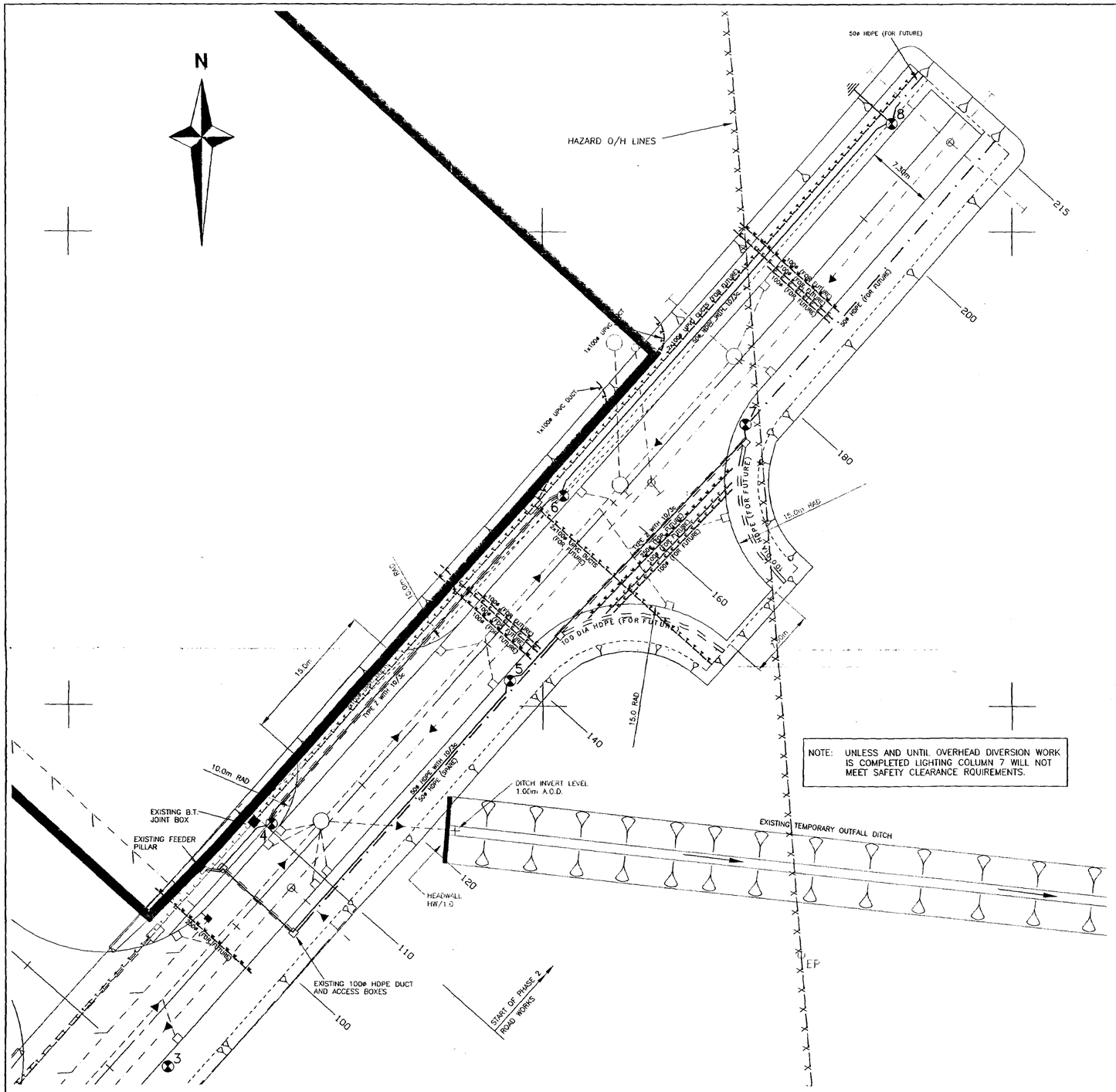
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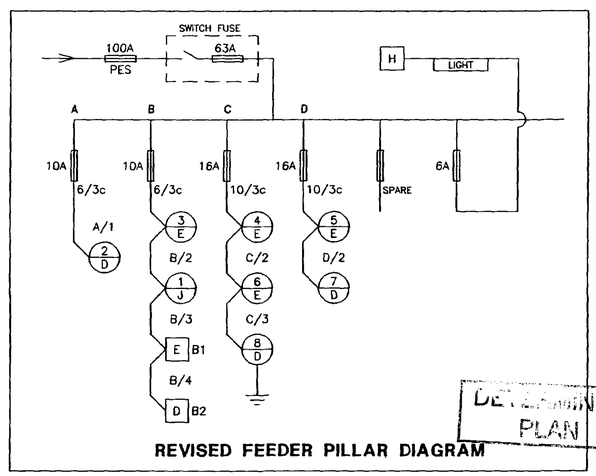
CAD Ref	Plot	Drawing No.	Rev
30177-Wardentree Lane/ 30177-09-road Xsections		30177/09	

EXAMINED PLAN

-7 APR 2000

Ref: S40109





REVISED FEEDER PILLAR DIAGRAM

DETERMINED PLAN

GENERAL NOTES

1. Setting out of street lighting columns shall be in accordance with Volume 3 – Specification appendix 1/12.
2. Setting out of ducting and jointing chambers shall be agreed with the Engineer.

KEY TO STREET LIGHTING

- 6 — 8 metre lighting column with 1 metre/5° bracket to Appendix 13/1 incorporating a 70W lantern to Appendix 14/2 S.H.W. Column centres are to be located 0.8m back from the kerb face, as agreed with the Engineer.
- (TYPE Z) — 100mm HDPE duct to Appendix 5/2 terminated in access boxes to SD14/6B. Type Z – indicates that a Class Z concrete bed and surround is required.
- 10/3c — 10/3c cable in 50mm HDPE duct to Appendix 5/2.
- 50mm HDPE duct (spare)

NOTE: Electrical testing shall be carried out to BS7671 including, additionally, a sheath test on armouring irrespective of being laid in duct.

KEY TO TELECOM

- 100mm UPVC duct
- Joint Box, Ref -------

NOTE: British Telecommunications will supply to site, free of charge, the ducting and joint box accessories required to complete the works.

KEY TO WATER

- 250ø — 250mm UPVC duct with Class Z concrete bed and surround
- 100ø — 100mm UPVC duct with Class Z concrete bed and surround

KEY TO WATER

- 100ø — 100mm UPVC duct with Class Z concrete bed and surround

Rev	Revision	Drn	App	Date
A	Feeder pillar diagram added. Two cables shown from feeder pillar to access box.	M.B.R.		13.3.00

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Project
WARDENTREE LANE
SPALDING
PHASE 2 ROADWORKS

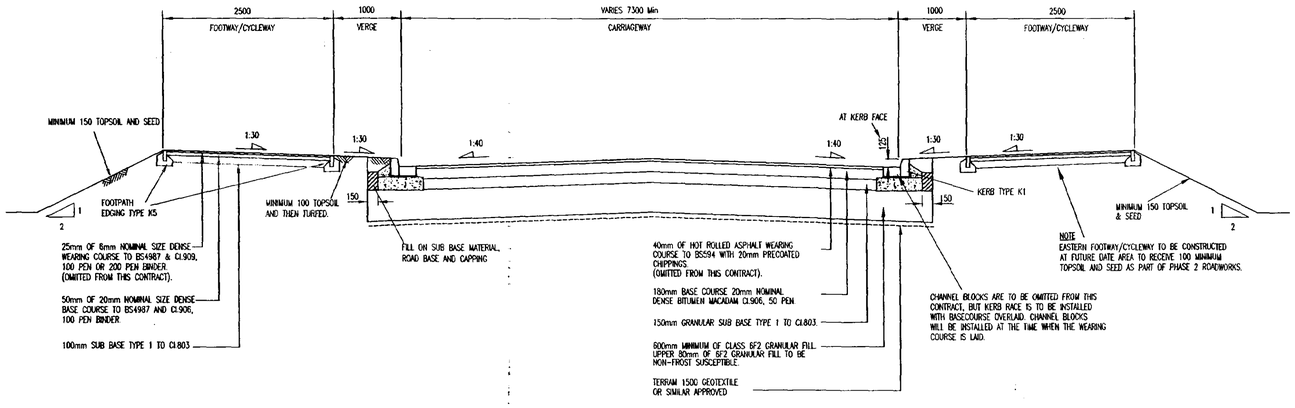
Title
SERVICES PLAN

Drawn	Checked	Approved	Date
M.B.R.	N.J.O.	R.C.B.	17.2.00

Scales
1:250

CAD Ref	Plot	Drawing No.	Rev
30177-Wardentree Lane/ 30177-08-		30177/08	A

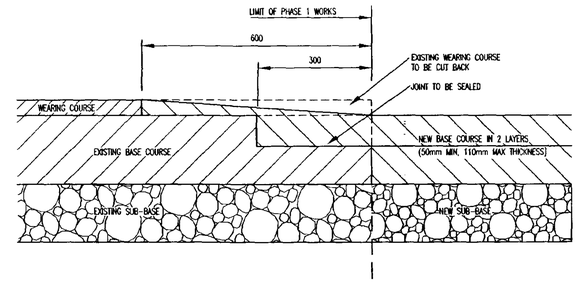
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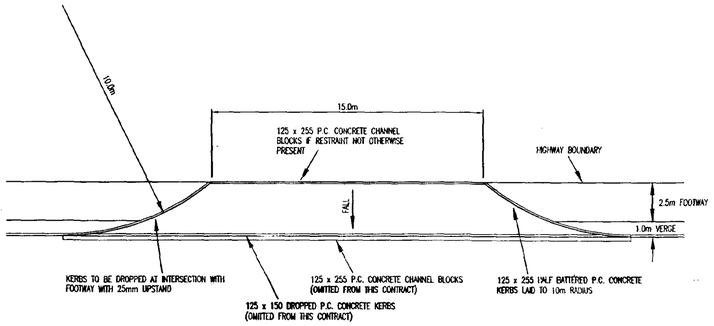
TYPICAL ROAD CROSS SECTION

N.T.S.

NOTE:- PAVEMENT CONSTRUCTION IS TO COMPRISE A MINIMUM OF 450mm OF NON-FROST SUSCEPTIBLE CONSTRUCTION.

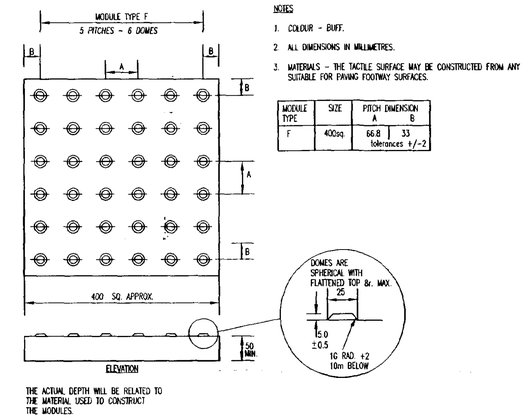


TYPICAL DETAIL OF CONSTRUCTION JOINT WITH EXISTING PAVEMENT



HEAVY DUTY VEHICLE ACCESS CROSSING

NOTE:- VEHICLE ACCESS SHALL BE CONSTRUCTED AS THE ADJOINING CARRIAGEWAY



NOTES

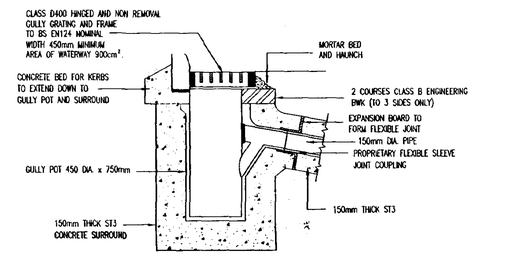
1. COLOUR - BUFF.
2. ALL DIMENSIONS IN MILLIMETRES.
3. MATERIALS - THE TACTILE SURFACE MAY BE CONSTRUCTED FROM ANY SUITABLE FOR PAVING FOOTWAY SURFACES.

MODULE TYPE	SIZE	PITCH DIMENSION A	PITCH DIMENSION B
F	400sq.	66.8	33
		tolerances +/-2	

THE ACTUAL DEPTH WILL BE RELATED TO THE MATERIAL USED TO CONSTRUCT THE MODULES.

TYPICAL DETAIL OF TACTILE PAVING

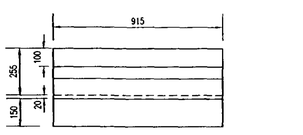
(OMITTED FROM THIS CONTRACT)



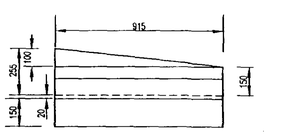
TYPICAL GULLY DETAIL

NOTE:- 1. THE FOLLOWING MARKINGS MUST APPEAR ON ALL GULLY COVERS AND FRAMES:-
(i) THE MARK OF THE CERTIFICATION BODY
(ii) THE MANUFACTURERS NAME IN FULL
(iii) THE EN CLASS

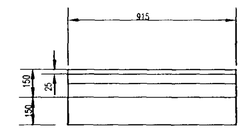
2. CONCRETE BED AND SURROUND TO CONNECTION IS TO EXTEND FOR FULL DEPTH.
3. GULLY CONNECTIONS SHALL BE 150mm DIAMETER WITH CLASS 2 CONCRETE BED AND SURROUND AS DETAILED DRAWING No. 30177/08. GULLY CONNECTIONS SHALL BE 22kN/m STRENGTH CLAY PIPES, OR AN ALTERNATIVE PIPE FROM TABLE 5.1 OF THE LINCOLNSHIRE C.C. "DEVELOPMENT ROAD SPECIFICATION AND CONSTRUCTION - 1999".
4. TRENCHES UNDER CARRIAGEWAYS SHALL BE BACKFILLED WITH TYPE 1 SUB-BASE MATERIAL.
5. GRATINGS ARE TO BE SET AT BASECOURSE LEVEL AS PART OF THIS CONTRACT.



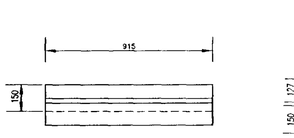
TYPE K1
(HALF BATTERED)



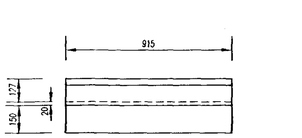
TYPE K2
(TRANSITION TYPE K1 TO TYPE K3)



TYPE K3
(DROPPED)

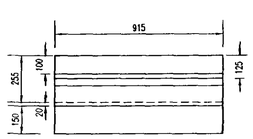


TYPE K5
(FOOTWAY EDGING)



TYPE CS1
(CHANNEL KERB DETAIL)

NOTE:- RADIUS KERBS AND CHANNELS SHALL BE USED IN CURVES OF RADIUS 12m OR LESS. FOR RADII BETWEEN 12m AND 80m INCLUSIVE, STRAIGHT KERBS OF LENGTH 600mm MUST BE USED, UNLESS CHANNELS ARE REQUIRED, IN WHICH CASE RADIUS KERBS AND CHANNELS WILL BE REQUIRED. FOR RADII GREATER THAN 80m AND ALL STRAIGHTS, KERBS OF 900mm LENGTH MUST BE USED.



TYPE KCS
(CHANNEL KERB DETAIL)

PLANNING DEPARTMENT APPROVED PLAN

SOUTH HOLLAND DC HOUSING & PLANNING -7 APR 2000 Ref: H416100

GENERAL NOTES

1. All roadworks and highway drainage works shall comply with the Lincolnshire C.C. 'Development Road Specification and Construction – 1999 publication'.
2. Works indicated as being 'Omitted from this contract' will be completed as part of a finishing works contract.

Rev	Revision	Drn	App	Date

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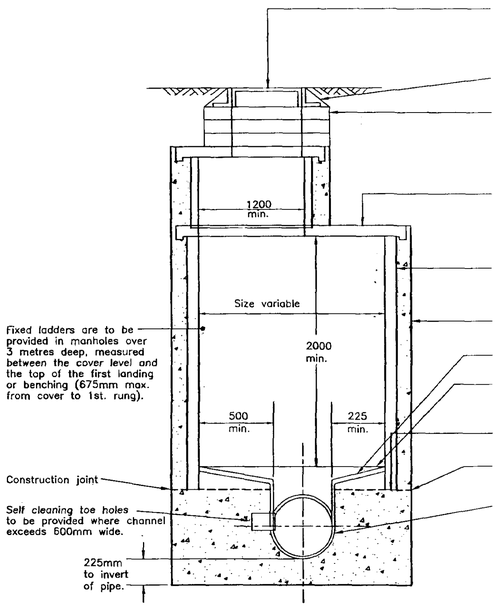
Project
WARDENTREE LANE
SPALDING
PROPOSED PHASE 2 ROADWORKS

Title
HIGHWAY CONSTRUCTION DETAILS

Drawn	Checked	Approved	Date
L.N.		GAJ	20.1.00

Scales: N.T.S.

CAD Ref	Plot	Drawing No.	Rev
		30177/07	



Cover and frame to be grade D400 to BS EN 124 having 600mm minimum clear opening.

Mortar haunching to M.H. cover and frame

Cover frame to be bedded on mortar

Engineering or special purpose concrete brickwork
4 courses (max)
2 courses (min)
and/or precast concrete cover frame seating rings.

Reinforced concrete cover slab bedded with mortar, proprietary bitumen or resin mastic sealant. On manholes less than 1.5m diameter reducing slabs should not be used and chamber rings should continue up to cover slab.

Precast concrete shaft, chamber sections and cover slab to be bedded with mortar, proprietary bitumen or resin mastic sealant.

C20P concrete surround 150mm thick

Fixed ladders are to be provided in manholes over 3 metres deep, measured between the cover level and the top of the first landing or benching (675mm max. from cover to 1st. rung).

Benching slope to be not flatter than 1 in 30

High strength concrete topping to be brought up to a dense smooth face neatly shaped and finished to all branch connections (min. thickness 200mm).

The bottom chamber section to be built into base concrete min. 75mm.

Construction joint

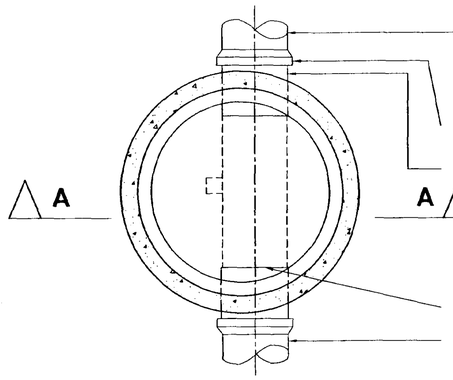
Self cleaning toe holes to be provided where channel exceeds 600mm wide.

Inverts formed generally using channel pipes

Distance between top of pipe and underside of PC chamber to be 100mm.

SECTION A - A

Diameter of largest pipe in manhole(mm)	Internal diameter of manhole(mm)
Less than 375	1200 (1050 where depth to soffit is 1.35m – 1.5m)
375 – 450	1350
500 – 700	1500
750 – 900	1800



Pipe Dia. (mm)	Rocker Pipe Length (m)
150–600	0.60
675–800	1.00
825–1200	1.25

Joint to be as close as practicable to face of manhole to permit satisfactory joint and subsequent movement.

Short length pipe to be similar length to rocker pipe

Chambers with outgoing pipes greater than 600mm Dia. shall be fitted with guard bars, safety chains or other safety devices

Pipe joint with channel to be located min. 100mm inside face of chamber.

Rocker pipe

TYPICAL MANHOLE DETAIL - TYPE A

DEPTH TO SOFFIT 3.0 – 6.0m

GENERAL NOTES

1. All works to adoptable sewers shall comply with the 'Civil Engineering Specification for the Water Industry' – 5th Edition and the requirements of the Anglian Water Services Ltd.
2. Materials for adoptable sewers to be clay and concrete as approved for use by Anglian Water Services Ltd.
3. Manhole covers shall bear the Anglian Water logo and be marked FW or SW. Minimum manhole frame depth shall be 150mm.
4. All step rungs and ladders are to be manufactured from stainless steel.
5. All concrete below ground, including precast concrete products should be suitable for Class 1 soil conditions in accordance with B.R.E. Digest 363.

Mortar haunching to M.H. cover and frame
Cover frame to be bedded on mortar

Cover and frame to be grade D400 to BS EN 124 having 600mm minimum clear opening.

Engineering or special purpose concrete brickwork
4 courses (max)
2 courses (min)
and/or precast concrete cover frame seating rings.

Reinforced concrete cover bedded with mortar, proprietary bitumen or resin mastic sealant

Precast concrete shaft, chamber sections and cover slab to be bedded with mortar, proprietary bitumen or resin mastic sealant.

Step rungs (double steps) at 250 crs to be provided for access (675mm max. from cover to 1st. rung).

Benching slope to be not flatter than 1 in 30

Construction joint

C20P concrete surround 150mm thick

The bottom chamber to be built into section base concrete min. 75mm.

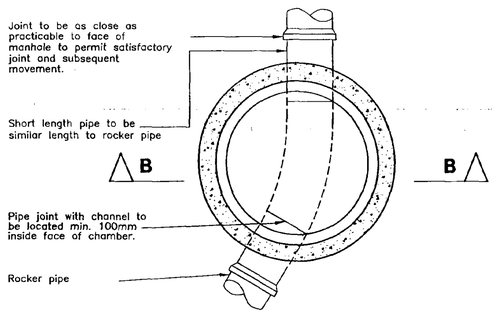
High strength concrete topping to be brought up to a dense smooth face neatly shaped and finished to all branch connections (min. thickness 20mm).

225mm to invert of pipe.

Inverts formed generally using channel pipes

Distance between top of pipe and underside of PC chamber to be 100mm.

SECTION B - B



Joint to be as close as practicable to face of manhole to permit satisfactory joint and subsequent movement.

Short length pipe to be similar length to rocker pipe

Pipe joint with channel to be located min. 100mm inside face of chamber.

Rocker pipe

Chambers with outgoing pipes greater than 600mm Dia. shall be fitted with guard bars, safety chains or other safety devices

TYPICAL MANHOLE DETAIL - TYPE B

DEPTH TO SOFFIT 1.46 – 3.0m

MANHOLE SCHEDULE

Manhole Ref	Cover Level (m)	Manhole Plan	Pipes (mm)	Invert Levels (m)	Manhole Depth to Invert (m)	Manhole Size (mm)	Manhole Type
S2 (Existing manhole to be rebuilt)	3.311		0 – 750 01 – 750 1 – 750 2 – 150 3 – 150 (Ex) 4 – 150 (Ex) 5 – 150	1.190 1.190 1.190 1.790 Existing Existing 1.790	2.121	2100	B
S4	3.490		0 – 975 1 – 750 2 – 300 3 – 525	0.925 1.150 1.600 1.375	2.565	2100	B
S4A	3.700		0 – 300	1.705	1.995	1050	B
S6	3.675		0 – 525 1 – 525 2 – 300	1.473 1.473 1.698	2.202	1500	B
F3	3.520		0 – 225 1 – 225 2 – 225 3 – 225	0.362 0.362 0.362 0.362	3.158	1200	B
F3A	3.700		0 – 225	1.355	2.345	1050	B
F5	3.669		0 – 225 1 – 225 2 – 150 3 – 150	0.681 0.681 0.756 0.756	2.988	1200	B

NOTES:–
1. Cover levels relate to finished road levels. Covers are to be set at base course level as part of this contract.
2. Manhole F5 – 150mm foul water stub connections are to be laid at a gradient of 1 in 150. Pipes are to be clay, 22kN/m crushing strength with Class S bedding.
3. Manhole S4 – 975mm diameter stub pipe to be Class M concrete pipe.
4. Manhole F3 – 225mm diameter stub pipe to be Class 160 clay pipe.
5. Manhole S6 – 300mm diameter surface water stub connection is to be laid at a gradient of 1 in 150. Pipes are to be clay, Class 120 with Class S bedding.

Rev	Revision	Drn	App	Date
B	S4 stub pipe upsized. Sewer run F3–F3A upsized. Manhole S6 repositioned. Sewer run S6–S4 upsized.	M.B.R.	[illegible]	7.3.00
A	Plot connection information added to Manhole Schedule. Manhole Schedule notes 2 & 5 rev'd.	M.B.R.	R.C.B.	15.2.00

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SPALDING
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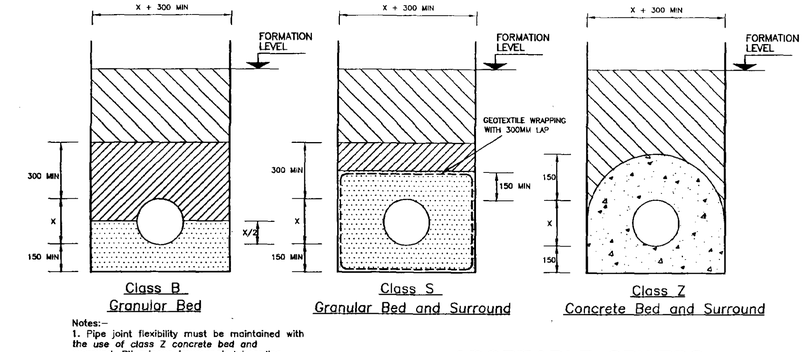
Project
WARDENTREE LANE
SPALDING
PROPOSED PHASE 2 ROADWORKS

Title
DRAINAGE CONSTRUCTION DETAILS

Drawn	Checked	Approved	Date
L.N.	N.J.O.	G.A.J.	20.1.00

Scales
N.T.S.

CAD Ref	Plot	Drawing No.	Rev
30177–WARDENTREE LANE/ 30177–06–		30177/06	B



Notes:–
1. Pipe joint flexibility must be maintained with the use of class Z concrete bed and surround. Bituminous impregnated boarding 18mm thick should be used for pipes less than 450mm dia. at each pipe joint.
2. pipe trenches in rock shall be cut to a depth of 150mm below pipe barrel or X/4 which ever is the greater

KEY

GRANULAR MATERIAL TO W.I.S NO. 4–08–02

C20 CONCRETE

SELECTED BACKFILL MATERIAL

TYPE 1 SUB–BASE MATERIAL BACKFILL UNDER CARRIAGEWAYS AND FOOTWAYS.

ADOPTABLE SEWERS
TRENCH AND BEDDING DETAILS

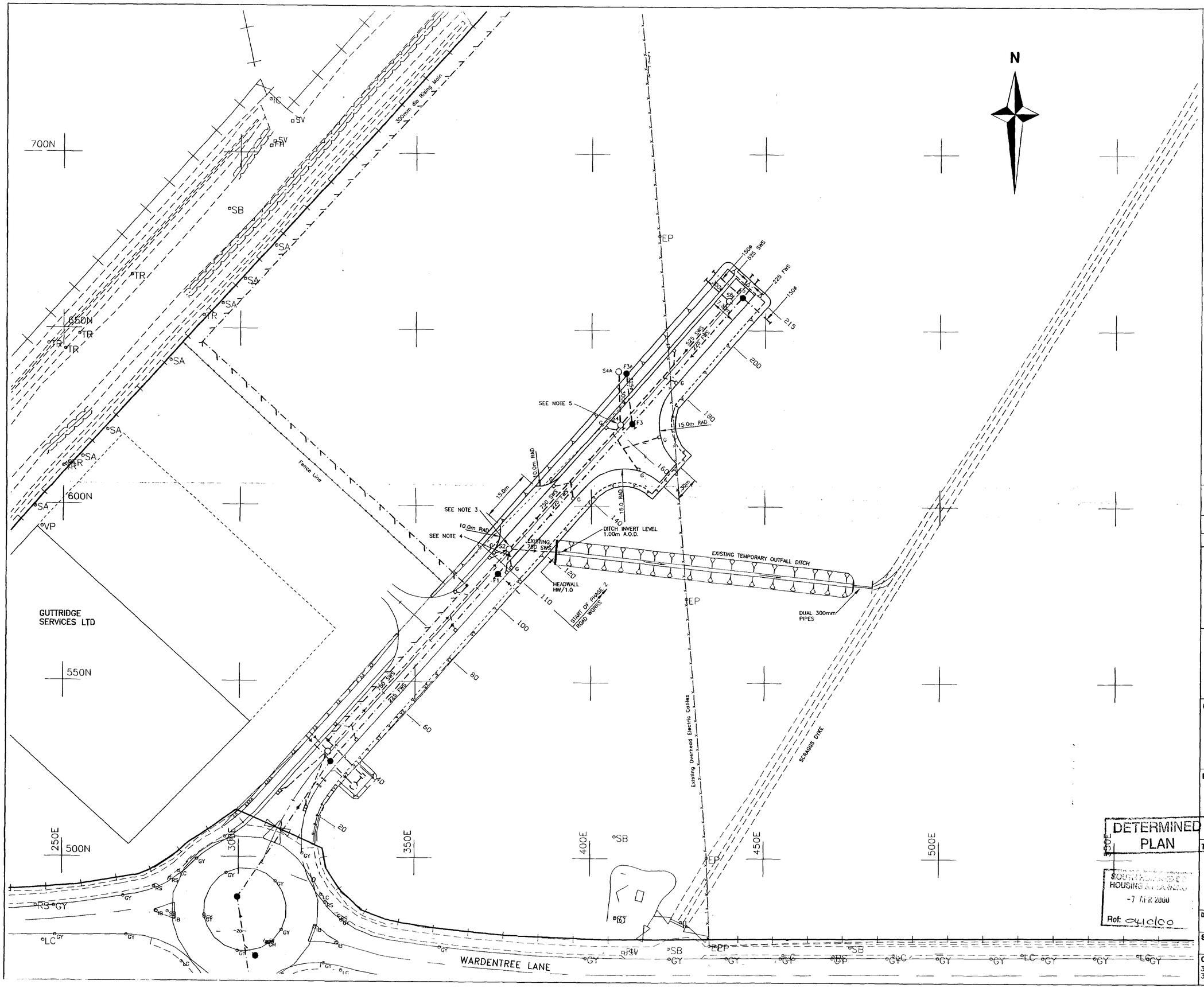
PIPE INTERNAL DIAMETER	MAXIMUM TRENCH WIDTH 300mm above crown of pipe
150	0.60m
225	0.70m
300	0.80m
375	1.05m
450	1.15m
525	1.20m
600	1.35m
750	1.40m
825	1.40m
900	1.75m
1125	1.95m

TABLE 1

Note:–
The trench widths given in this table are relevant to the pipe sizes and depths shown on the drainage layout and long section drawings. Any changes to the pipe sizes or depths, as detailed, may result in a revision to the maximum trench widths.

PIPE DIAMETER	GRANULAR BEDDING MATERIAL TO BS 882
150	10 OR 14mm NOMINAL SINGLE SIZE 14mm TO 5mm GRADED
225 300	10,14 OR 20mm NOMINAL SINGLE SIZE OR 14mm–5mm/20mm–5mm GRADED
OVER 300 TO 550	14 OR 20mm NOMINAL SINGLE SIZE OR 14mm–5mm/20mm–5mm GRADED
OVER 550	14, 20 OR 40mm NOMINAL SINGLE SIZE OR 14mm–5mm/20mm–5mm/40mm–5mm GRADED

DETERMINED PLAN
HOUSING DRAWING
7 MAR 2000
Ref: 941000



GENERAL NOTES

1. All works to adoptable sewers shall comply with the 'Civil Engineering Specification for the Water Industry' – 5th Edition and the requirements of Anglian Water Services Ltd.
2. All roadworks and highway drainage works shall comply with the Lincolnshire C.C. "Development Road Specification and Construction"–1999 publication.
3. Existing manhole to be demolished and rebuilt as manhole S2. Manhole S2 is to incorporate a temporary galvanised steel baffle plate set across the channel of the 750mm diameter sewer to divert flows from the Guttridge Services Ltd's site to the temporary outfall ditch.
4. Proposed 225mm diameter foul water sewer to be connected to existing stub end.
5. Manhole S4 shall incorporate a 975mm diameter stub pipe for future connection. Manhole F3 shall incorporate a 225mm diameter stub pipe for future connection.
6. All stub connections shall be sealed in accordance with the specification. Marker posts shall be used to locate the termination of stub connections, outside of the carriageway. Stub connections shall be terminated at locations agreed with the Engineer.
7. Tactile paving is required at all dropped crossing points where a footway is provided. layout is to be agreed with the Divisional Highways Manager.
8. All road signs and markings are to be agreed with the Divisional highways Manager.

KEY TO SERVICES

- Foul Water Sewer
- Surface Water Sewer
- Electricity to be Abandoned

Rev	Revision	Drn	App	Date
C	Notes 7 & 8 added.	M.B.R.	GAJ	13.3.00
B	Manhole S6 repositioned. Sewer run F3–F3A upsized. Sewer run S6–S4 upsized. S4 stub pipe upsized.	M.B.R.	G.A.J.	7.3.00
A	Manholes S4A & F3A repositioned and labelled. Note 3 revised.	M.B.R.	R.C.B.	18.2.00

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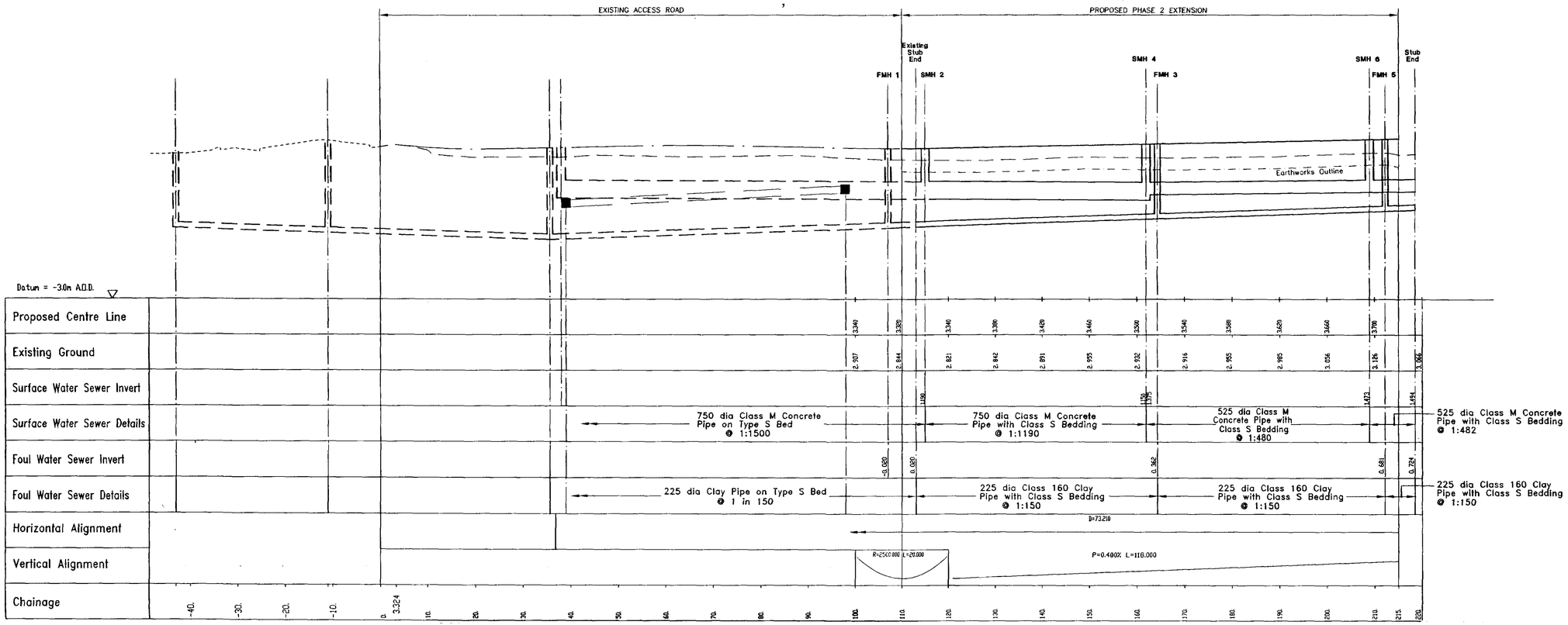
Project
WARDENTREE LANE
SPALDING
PHASE 2 ROADWORKS

Title
ENGINEERING LAYOUT

Drawn	Checked	Approved	Date
L.N.	N.J.O.	G.A.J.	20.1.00

Scales
1:500

CAD Ref Plot	Drawing No.	Rev
30177–Wardentree Lane/ 30177–05–ga	30177/05	C



ROAD AND DRAINAGE LONGITUDINAL SECTION

(H1:500 V1:100)

NOTES

1. All works to adoptable sewers shall comply with the 'Civil Engineering Specification for the Water Industry' – 5th Edition and the requirements of the Anglian Water Services Ltd.
2. All roadworks and highway drainage works shall comply with the Lincolnshire C.C. "Development Road Specification and Construction"–1999 publication.

Rev	Revision	Drn	App	Date
D	GRADIENT SMH6–STUB END AMENDED.	MBR		3.4.00
C	MANHOLE S6 REPOSITIONED. SEWER RUN S6–S4 UPSIZED.	MBR	GAJ	7.3.00
B	EARTHWORKS OUTLINES ADDED.	MBR	RCB	18.2.00
A	DRAINAGE INFORMATION TO PHASE 2 ADDED. NOTE 1 REVISED.	MBR	GAJ	28.1.00

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Project
WARDENTREE LANE
SPALDING
PHASE 2 ROADWORKS

Title
LONGITUDINAL SECTION

DETERMINED PLAN

SOUTH ... DC
HOUSING & PLANNING
- 7 APR 2000
Ref: 0410/00

Drawn	Checked	Approved	Date
DH	NJO	GAJ	14.01.00

Scales: AS SHOWN

CAD Ref Plot	Drawing No.	Rev
30177–Wardentree Lane/ 30177–04–	30177/04	D