

MIRVAC PACIFIC GAINSBOROUGH GREENS PRECINCTS 5.2 & 5.3

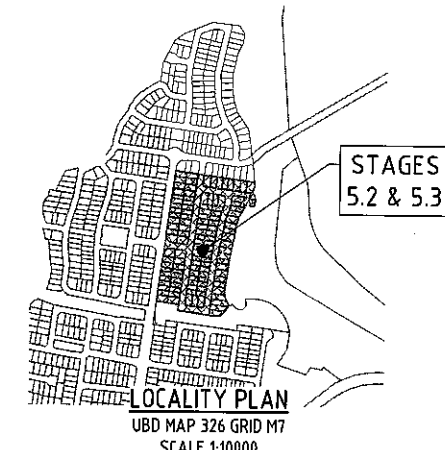
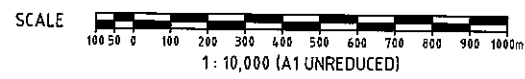


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PLAN
SCALE 1:1500



LOCALITY PLAN
UBD MAP 326 GRID M7
SCALE 1:10000

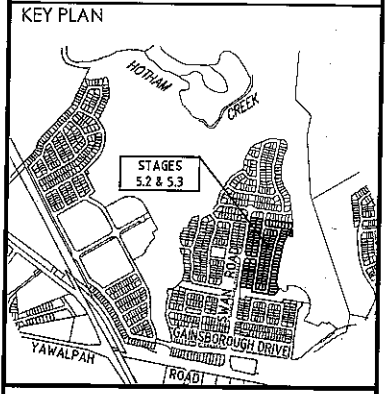
GENERAL NOTES

- ALL WORK SHALL BE JOINED NEATLY TO EXISTING CONSTRUCTION.
- WHERE REFERENCE IS MADE ON THESE DRAWINGS TO A KERB LINE, IT SHALL BE TAKEN TO MEAN THE KERB INVERT LINE.
- LEVELS FOR KERB AND CHANNEL CONSTRUCTION ARE SHOWN AT LIP OF CHANNEL UNLESS SHOWN OTHERWISE.
- RADIUS TO KERB INVERT LINE AT TURNOUTS OF ROADS SHALL BE 10.00m UNLESS OTHERWISE SHOWN.
- LIP LEVELS ARE AT QUARTER POINTS AT TURNOUTS AND AT EQUAL POINTS WHERE INDICATED (=) UNLESS NOTED OTHERWISE.
- KERBS AND KERB AND CHANNEL, SHALL BE CONSTRUCTED IN ACCORDANCE WITH G.C.C.C. STD. DWG. NUMBERS 05-02-101 & 05-02-102.
- IF MACHINE MADE KERB AND CHANNEL IS USED, EXTRA FINES AND 20mm SLUMP IS REQUIRED.
- PROVIDE PRAM RAMP TO ALL INTERSECTIONS IN ACCORDANCE WITH G.C.C.C. STD. DWG. No. 05-02-202 AND ALIGN TO DIRECT THE USER ACROSS THE ROADWAY BY THE MOST DIRECT ROUTE.
- GULLY CONNECTIONS AND STORM WATER PIPES SHALL BE 375mm DIAMETER CLASS '2' R.C. PIPES UNLESS SHOWN OTHERWISE.
- THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO 225mm BELOW THE FINISHED PAVEMENT LEVEL SHOWN ON THE DRAWINGS HE SHALL THEN NOTIFY THE ENGINEER WHO WILL FIX THE PAVEMENT THICKNESS TO BE CONSTRUCTED FOLLOWING THE RESULTS OF SUBGRADE TESTING.
- NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE ENGINEER AND SIMILARLY THE FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE ENGINEER DURING CONSTRUCTION.
- TWO KERB ADAPTORS SHALL BE PROVIDED TO EACH LOT UNLESS INDICATED OTHERWISE. KERB ADAPTORS ARE TO BE LOCATED SO THAT ITS CENTRE LINE IS 300MM FROM THE PROJECTION OF THE SIDE BOUNDARY AT THE KERB LINE.
- ALL ALLOTMENTS SHALL GRADE AT A MINIMUM SLOPE OF 1 IN 150 TOWARDS THE KERB & CHANNEL UNO.
- ALL CONCRETE FOOTPATHS TO BE MINIMUM 100mm THICK IN ACCORDANCE WITH GCCC. STD. DRG. No. 05-02-201
- KERB RAMPS TO BE PROVIDED AT ALL INTERSECTIONS IN LINE WITH THE POSITION OF THE CONCRETE FOOTPATH. TACTILE INDICATORS REQUIRED ON KERB RAMPS CONNECTING TO PATHWAYS.
- ANY SPRINGS ENCOUNTERED DURING CONSTRUCTION ARE TO BE IDENTIFIED TO THE SUPERINTENDENT AND CONNECTED TO THE PIPED STORMWATER DRAINAGE NETWORKS VIA MITRE DRAINS. REFER G.C.C.C. STD. DWG. No. 05-02-104 AS DIRECTED ON SITE.

R.P. DESCRIPTION
GAINSBOROUGH GREENS
PRECINCT 5,
YAWALPAH ROAD, PIMPAMA
LOT 2 ON SP246472,
LOT 3 ON SP246472 AND
LOT 4 ON SP246472

DATUM A.H.D.
PM166862
RL 3.982
E 74232.390, N 7742.950
YAWALPAH RD - OPPOSITE
GAWTHERN DR

DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	DRAWING INDEX AMENDED	24/02/16	RCT
C	DRAWING INDEX & P&T SITE AMENDED	18/04/16	RCT
D	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



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Approved by: [Signature] 2-6-16

Drawing Title
GENERAL
LOCALITY PLAN
DRAWING INDEX AND NOTES

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	AS SHOWN	Sheet	01 of 54
A1	Drawing No 15-179-01	Revision	D

CENTRELINE - LITTABELLA STREET

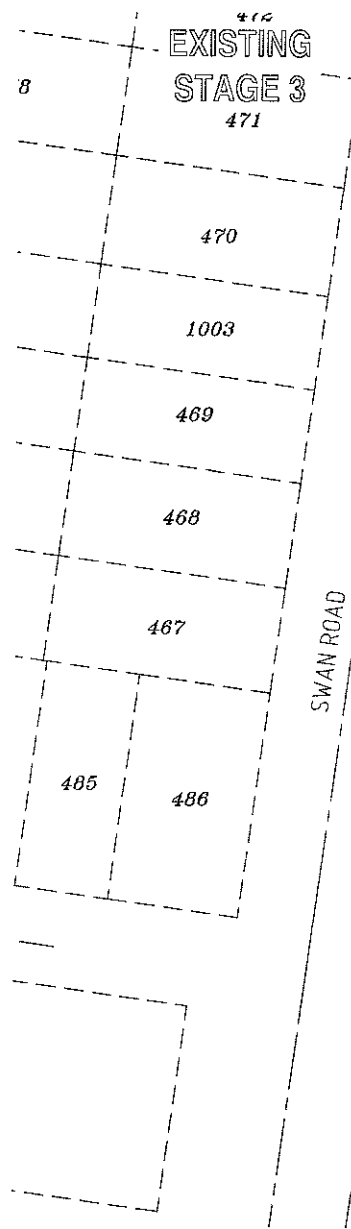
Pt	Chainage	Easting	Northing	Level	Bearing
IP1	0	74155.594	78045.686	7.144	97°55'41.05"
IP2	78.374	74233.219	78034.875	6.269	97°55'41.05"

CENTRELINE - TALLAGANDA LANE

Pt	Chainage	Easting	Northing	Level	Bearing	Rad/Spiral	A.Length	D.Angle
IP1	0	74332.929	78174.742	4.453	66°44'47.17"			
TC	11.715	74343.693	78179.367	4.507	66°44'47.17"			
IP2	14.436	74346.257	78180.469	4.493		10	5.442	31°10'53.87"
CT	17.158	74349.02	78180.084	4.479	97°55'41.05"			
IP3	58.658	74390.124	78174.36		97°55'41.05"			

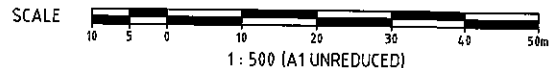
CENTRELINE - LIVINGSTONE CIRCUIT

Pt	Chainage	Easting	Northing	Level	Bearing	Rad/Spiral	A.Length	D.Angle
IP1	0	74266.156	78271.386	5.102	187°55'41.05"			
TC	387.3	74212.735	77887.788	5.022	187°55'41.05"			
IP2	395.154	74211.356	77877.883	4.873		-10	15.708	90°00'00.00"
CT	403.008	74221.261	77876.504	4.724	97°55'41.05"			
TC	450.2	74268.002	77869.995	3.994	97°55'41.05"			
IP3	458.054	74277.906	77868.615	4.006		-10	15.708	89°59'60.00"
CT	465.908	74279.286	77878.52	4.072	7°55'41.05"			
TC	599.341	74297.69	78010.677	5.399	7°55'41.05"			
IP4	606.341	74298.656	78017.613	5.364		200	13.999	4°00'37.95"
CT	613.341	74300.105	78024.464	5.329	11°56'19.00"			
TC	700.38	74318.11	78109.621	4.894	11°56'19.00"			
IP5	713.778	74320.896	78122.796	4.827		108.25	26.795	14°10'57.43"
CC	727.176	74326.825	78134.888	4.76	26°07'16.43"			
IP6	735.114	74330.349	78142.075	4.72		-50	15.877	18°11'35.38"
CT	743.052	74331.453	78150.005	4.681	7°55'41.05"			
TC	760.767	74333.897	78167.55	4.592	7°55'41.05"			
IP7	771.37	74335.759	78180.921	4.539		-13.5	21.206	90°00'00.00"
CT	781.973	74322.388	78182.783	4.495	277°55'41.05"			
IP8	849.888	74255.121	78192.151	5.317	277°55'41.05"			

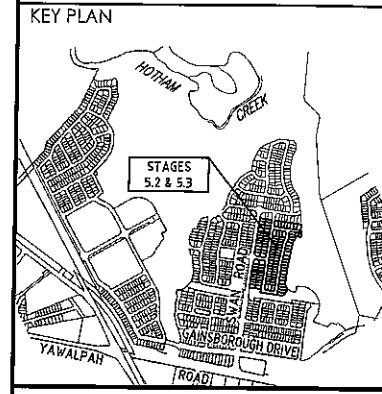


LEGEND
 - - - STAGE BOUNDARY
 - - - PROPOSED ROAD CENTRELINE

SETOUT PLAN
 SCALE 1:500



DO NOT SCALE THIS DRAWING
 IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LOT TYPE ADDED	24/02/16	RCT
C	FMT SITE ADDED	18/04/16	RCT
D	LOT BDYS & STREET NAME AMENDED	23/05/16	NJS



Project
 GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3

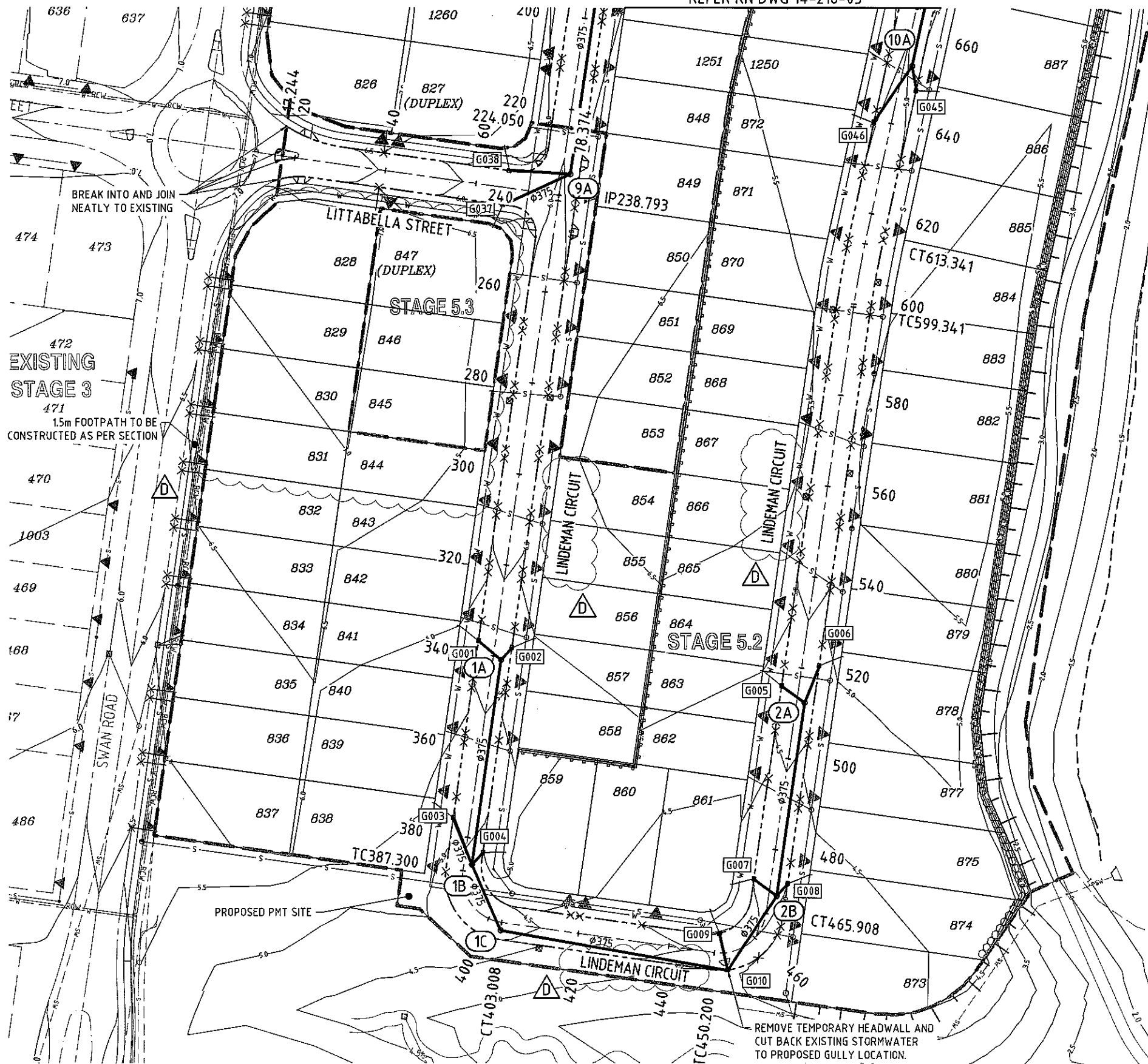
KN GROUP PTY LTD
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Approved for RPSG 1998
[Signature] 26.6
GENERAL SETOUT PLAN SHEET 1

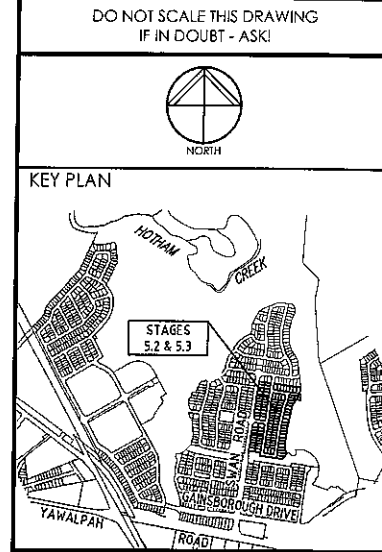
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NJS	JAS	GBG	JAN '16

Scale: 1:500
 Sheet: 02 of 54
 Drawing No: 15-179-02
 Revision: D

REFER KN DWG 14-218-05



- LEGEND**
- STAGE BOUNDARY
 - - - PROPOSED ROAD CENTRELINE
 - BARRIER KERB & CHANNEL - B1
 - KERB & CHANNEL - SM3
 - PROPOSED STORMWATER DRAINAGE
 - CONCRETE SLEEPER RETAINING WALL
 - ROCK BOULDER RETAINING WALL
 - S SEWER MAIN
 - W WATER MAIN
 - TURFED TABLEDRAIN
 - DESIGN SURFACE CONTOURS
 - (5A) STORMWATER MANHOLE NUMBER
 - G101 STORMWATER GULLY NUMBER
 - ▲ DRIVEWAY POSITION
 - X 100Ø ROOFWATER CONNECTION TO GULLY PIT/MH
 - X 100Ø ROOFWATER CONNECTION TO KERB ADAPTOR
 - X SUBSURFACE DRAIN CLEANING POINT
 - X KERB ADAPTOR LOCATION



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	MINOR AMENDMENTS	24/02/16	JAS
C	PMT SITE ADDED	18/04/16	RCT
D	LOT BDY'S & STREET NAME AMENDE	23/05/16	NJS



Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



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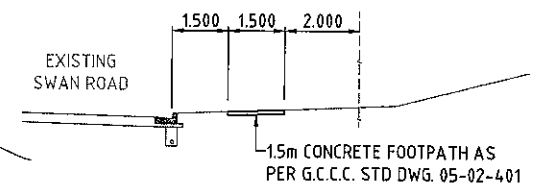
Approved Designer - RPEO 1988
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GENERAL LAYOUT PLAN SHEET 1

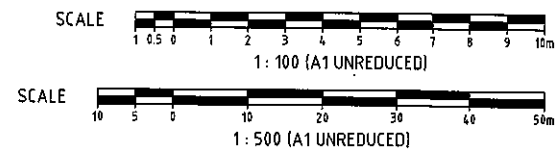
Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale	Sheet
1:500	04 of 54

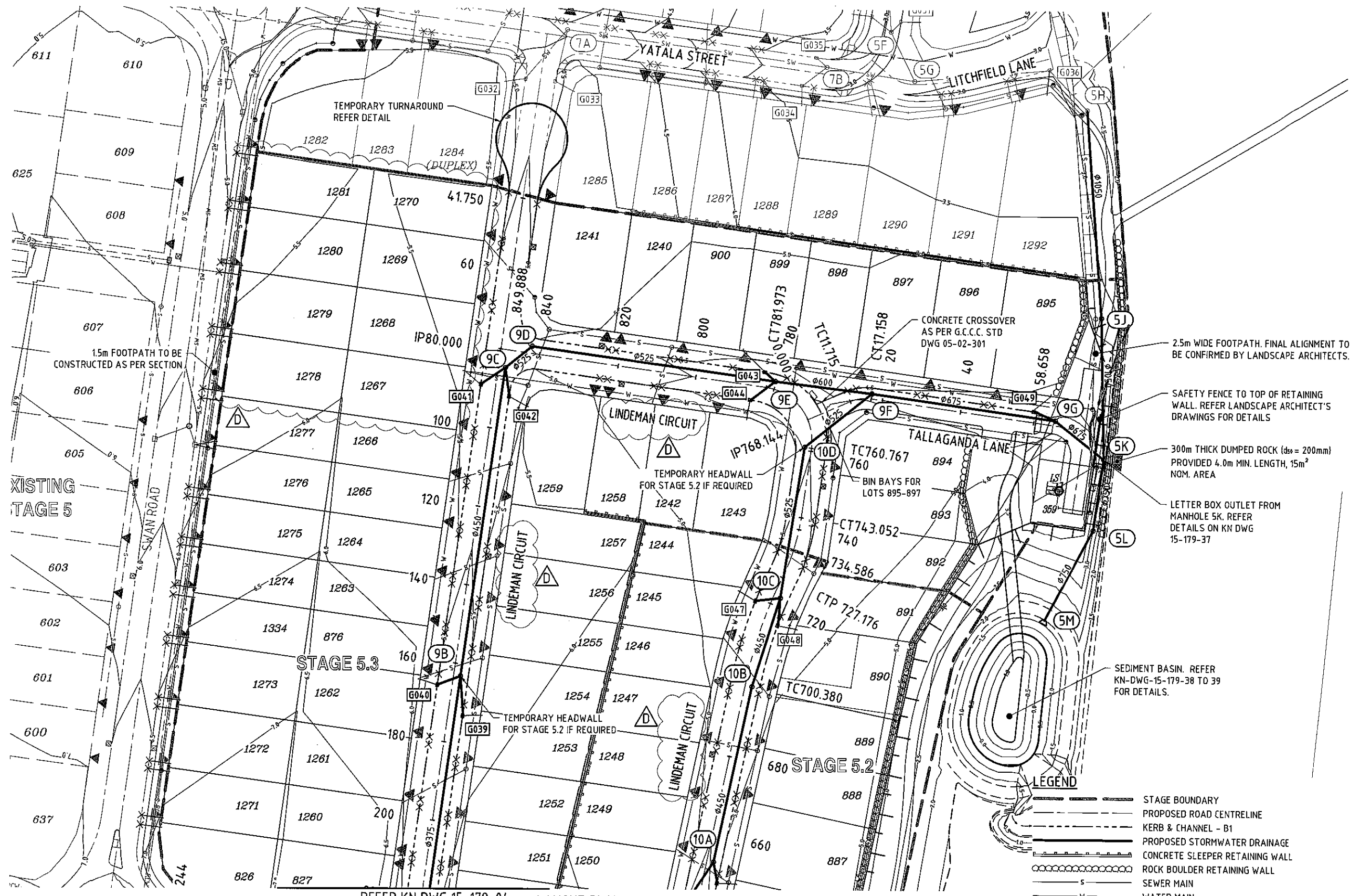
Drawing No	Revision
A1 15-179-04	D



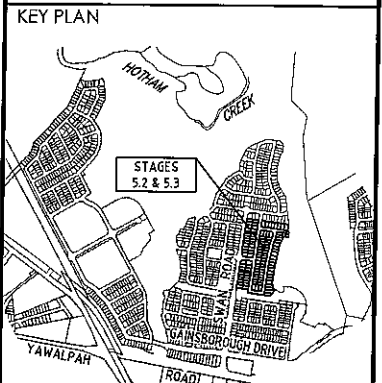
1.5m FOOTPATH (SWAN ROAD CROSS SECTION)
SCALE 1:100



LAYOUT PLAN
SCALE 1:500



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN 16	NJS
B	MINOR AMENDMENTS	24/02/16	JAS
C	FOOTPATH NOTE AMENDED	18/04/16	RCT
D	LOT BODYS & STREET NAME AMENDE	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

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Approved Drawing: *[Signature]* 26-16

Drawn by: *[Signature]*

**GENERAL
LAYOUT PLAN
SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale: 1:500

Sheet	Revision
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Drawing No: 15-179-05

1.5m FOOTPATH TO BE
CONSTRUCTED AS PER SECTION

2.5m WIDE FOOTPATH. FINAL ALIGNMENT TO
BE CONFIRMED BY LANDSCAPE ARCHITECTS.

SAFETY FENCE TO TOP OF RETAINING
WALL. REFER LANDSCAPE ARCHITECT'S
DRAWINGS FOR DETAILS

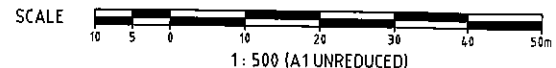
300mm THICK DUMPED ROCK (d₅₀ = 200mm)
PROVIDED 4.0m MIN. LENGTH, 15m²
NOM. AREA

LETTER BOX OUTLET FROM
MANHOLE 5K. REFER
DETAILS ON KN DWG
15-179-37

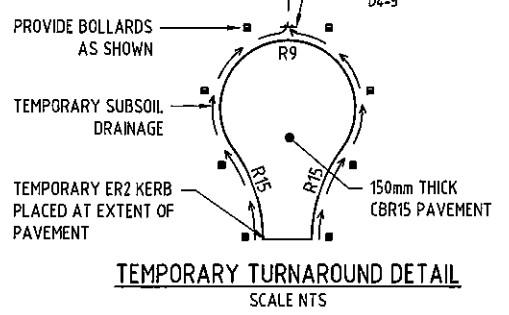
SEDIMENT BASIN. REFER
KN-DWG-15-179-38 TO 39
FOR DETAILS.

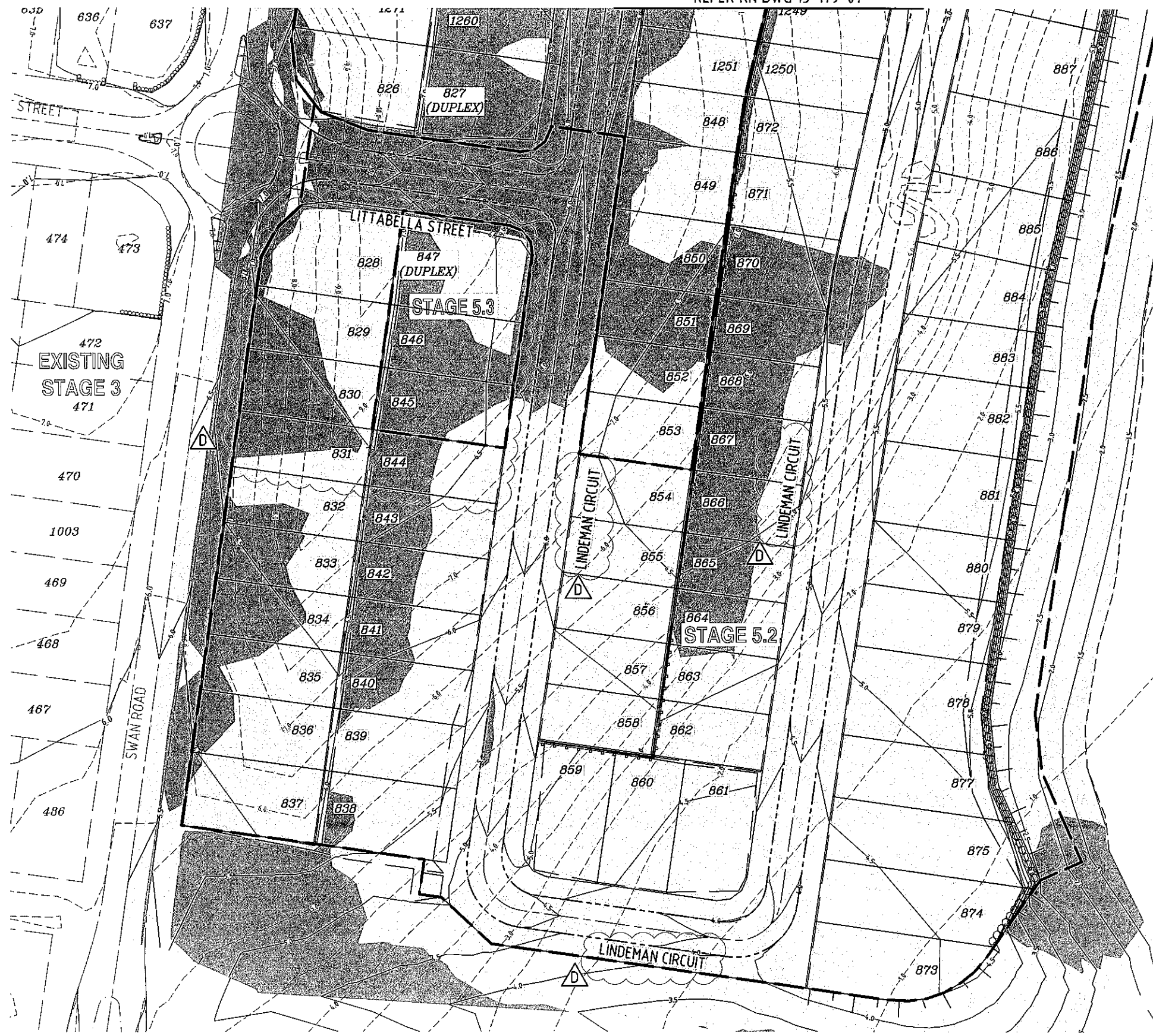
- LEGEND**
- STAGE BOUNDARY
 - PROPOSED ROAD CENTRELINE
 - KERB & CHANNEL - B1
 - PROPOSED STORMWATER DRAINAGE
 - CONCRETE SLEEPER RETAINING WALL
 - ROCK BOULDER RETAINING WALL
 - SEWER MAIN
 - WATER MAIN
 - 36.8 DESIGN SURFACE CONTOURS

- (5A) STORMWATER MANHOLE NUMBER
- G101 STORMWATER GULLY NUMBER
- ▲ DRIVEWAY POSITION
- 100Ø ROOFWATER CONNECTION TO GULLY PIT/MH
- × 100Ø ROOFWATER CONNECTION TO KERB ADAPTOR
- SUBSURFACE DRAIN CLEANING POINT
- × KERB ADAPTOR LOCATION



REFER KN DWG 15-179-04
LAYOUT PLAN
SCALE 1:500



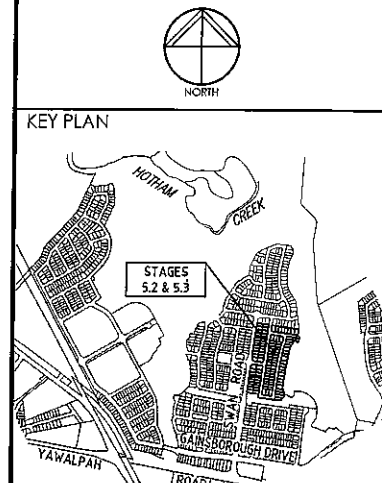


CONTOUR PLAN
SCALE 1:500

LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB AND CHANNEL - B1
- KERB AND CHANNEL - SM3
- DESIGN SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- BATTER LINE
- EXTENT OF CUT
- EXTENT OF FILL

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REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LOT TYPE ADDED	24/02/16	RCT
C	PMT SITE ADDED	18/04/16	RCT
D	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

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Approved Director - RPS 1998
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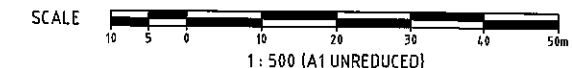
Drawing Title
**EARTHWORKS
CONTOUR PLAN
SHEET 1**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale
1:500

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Drawing No	Revision
A1 15-179-06	D





REFER KN DWG 15-179-06
CONTOUR PLAN
 SCALE 1:500

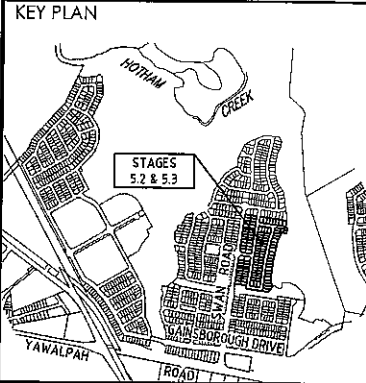
LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB AND CHANNEL - B1
- KERB AND CHANNEL - SM3
- DESIGN SURFACE CONTOURS (0.25m)
- EXISTING SURFACE CONTOURS (0.50m)
- BATTER LINE
- EXTENT OF CUT
- EXTENT OF FILL

SCALE

1: 500 (A1 UNREDUCED)

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REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	RETAINING WALL AMENDED	24/02/16	RCT
C	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**



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Approved Director - RPSG 1998
[Signature] 26/16

Drawing Title
**EARTHWORKS
 CONTOUR PLAN
 SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

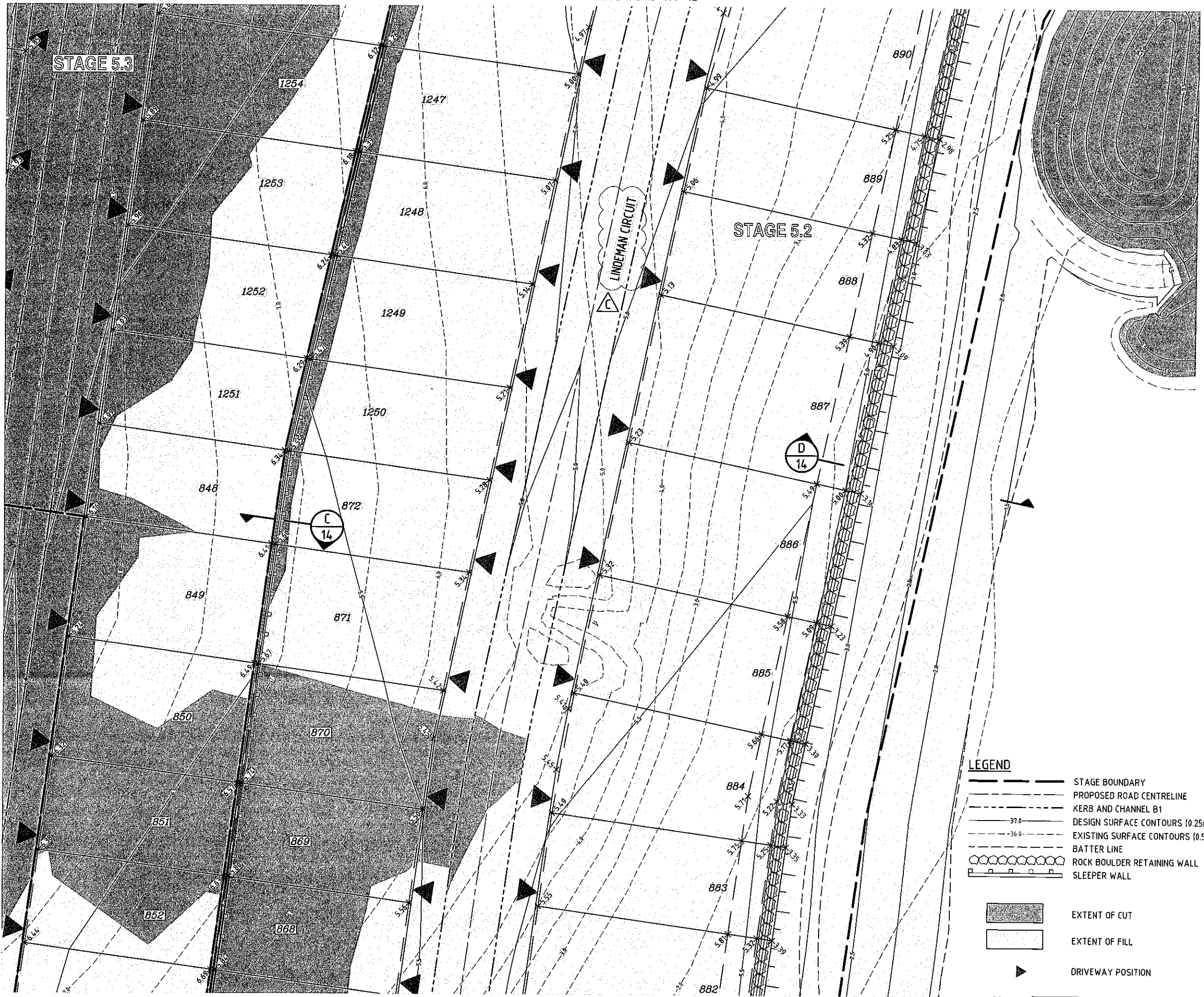
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Drawing No
 15-179-07

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Revision
 C

REFER KN DWG 15-179-12



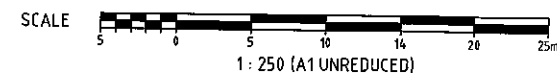
REFER KN DWG 15-179-11

REFER KN DWG 15-179-09 SPOT LEVELS PLAN SCALE 1:250

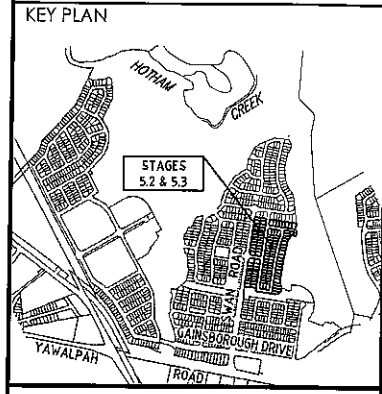
LEGEND

	STAGE BOUNDARY
	PROPOSED ROAD CENTRELINE
	KERB AND CHANNEL B1
	DESIGN SURFACE CONTOURS (0.25m)
	EXISTING SURFACE CONTOURS (0.50m)
	BATTER LINE
	ROCK BOULDER RETAINING WALL
	SLEEPER WALL

	EXTENT OF CUT
	EXTENT OF FILL
	DRIVEWAY POSITION



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	EXTENT OF CUT/FILL AMENDED	24/02/16	RCT
C	STREET NAME REVISED	23/05/16	LWH



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
 CONSULTING ENGINEERS

LEVEL 2 - 71 GREY STREET
 SOUTH BRISBANE
 QUEENSLAND 4101
 PHONE 07 3017 1900
 FAX 07 3017 1911
 EMAIL kng@knpl.com.au
 ABN 35 112 053 611

Approved by: *[Signature]* 26.16
 Drawing Title
**EARTHWORKS
 SPOT LEVELS PLAN
 SHEET 3**

Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale 1:250	Drawing No 15-179-10		Sheet 10 of 54
Revision A1		Revision C	

REFER KN DWG 15-179-14



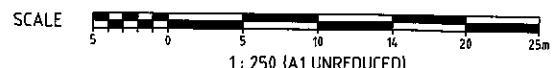
LEGEND

	STAGE BOUNDARY
	PROPOSED ROAD CENTRELINE
	KERB AND CHANNEL B1
	DESIGN SURFACE CONTOURS (0.25m)
	EXISTING SURFACE CONTOURS (0.50m)
	BATTER LINE
	ROCK BOULDER RETAINING WALL
	SLEEPER WALL

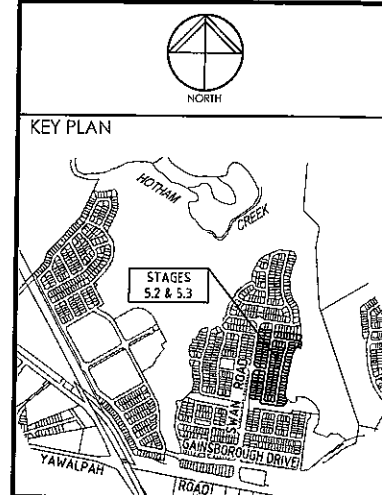
	EXTENT OF CUT
	EXTENT OF FILL
	DRIVEWAY POSITION

SPOT LEVELS PLAN
SCALE 1:250

REFER KN DWG 15-179-09



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	MINOR AMENDMENTS	24/02/16	JAS
C	LOT BOUNDARIES AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

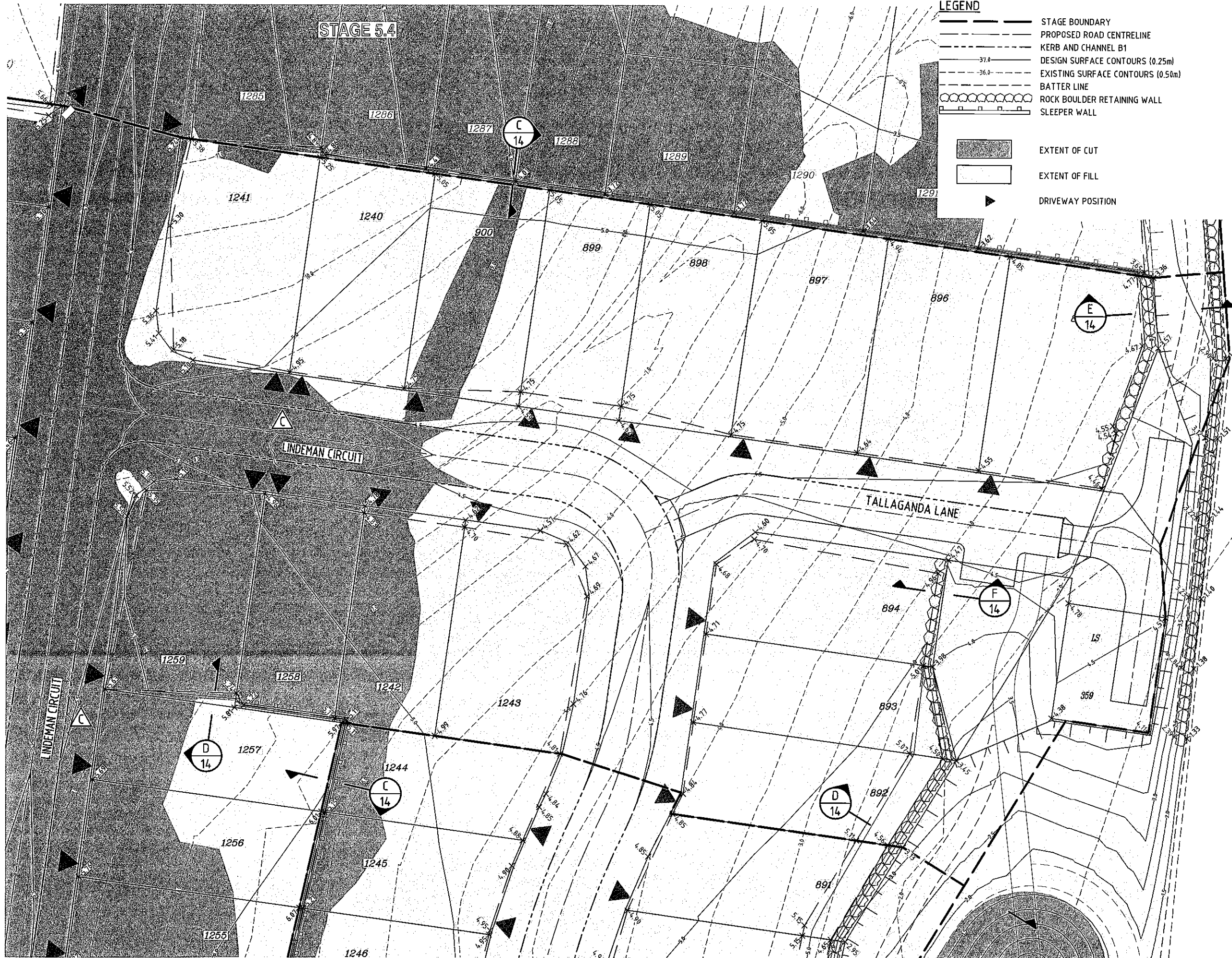
KN GROUP PTY LTD
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ABN 35 112 053 611

Approved for RPBG 1998
[Signature] 26.1.16

Drawing Title
**EARTHWORKS
SPOT LEVELS PLAN
SHEET 4**

Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale 1:250	Drawing No 15-179-11	Sheet 11 of 54	Revision C

REFER KN DWG 15-179-10



LEGEND

- STAGE BOUNDARY
- PROPOSED ROAD CENTRELINE
- KERB AND CHANNEL B1
- 37.0 DESIGN SURFACE CONTOURS (0.25m)
- 36.0 EXISTING SURFACE CONTOURS (0.50m)
- BATTER LINE
- ROCK BOULDER RETAINING WALL
- SLEEPER WALL

- [Hatched Box] EXTENT OF CUT
- [White Box] EXTENT OF FILL
- [Triangle] DRIVEWAY POSITION

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

NORTH

KEY PLAN

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LOT LEVELS & WALL AMENDED	24/02/16	JAS
C	STREET NAME REVISED	23/05/16	LWH

BURCHILLS

LANDPARTNERS

vee

DesignFlow

Client

Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

KN GROUP PTY LTD
CONSULTING ENGINEERS

LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
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EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Director - RPSO 1998

Drawn by: *[Signature]* 2-6-16

EARTHWORKS
SPOT LEVELS PLAN
SHEET 5

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale: 1:250

Sheet	Revision
12 of 54	
A1	C

REFER KN DWG 15-179-13

REFER KN DWG 15-179-10

SPOT LEVELS PLAN
SCALE 1:250

SCALE

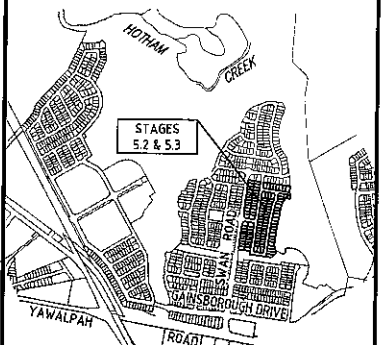
1:250 (A1 UNREDUCED)

NOMINAL PAVEMENT DETAILS

G.C.C.C. RESIDENTIAL COLLECTOR STREET
 25mm ASPHALTIC CONCRETE
 100mm BASE COURSE (TYPE 2.1, CBR 80)
 100mm UPPER SUB-BASE COURSE (TYPE 2.3, CBR 45)
 SUBGRADE REPLACEMENT AS REQUIRED (TYPE 2.5, CBR 15)

DO NOT SCALE THIS DRAWING
 IF IN DOUBT - ASK!

KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS



Client



Project

**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**



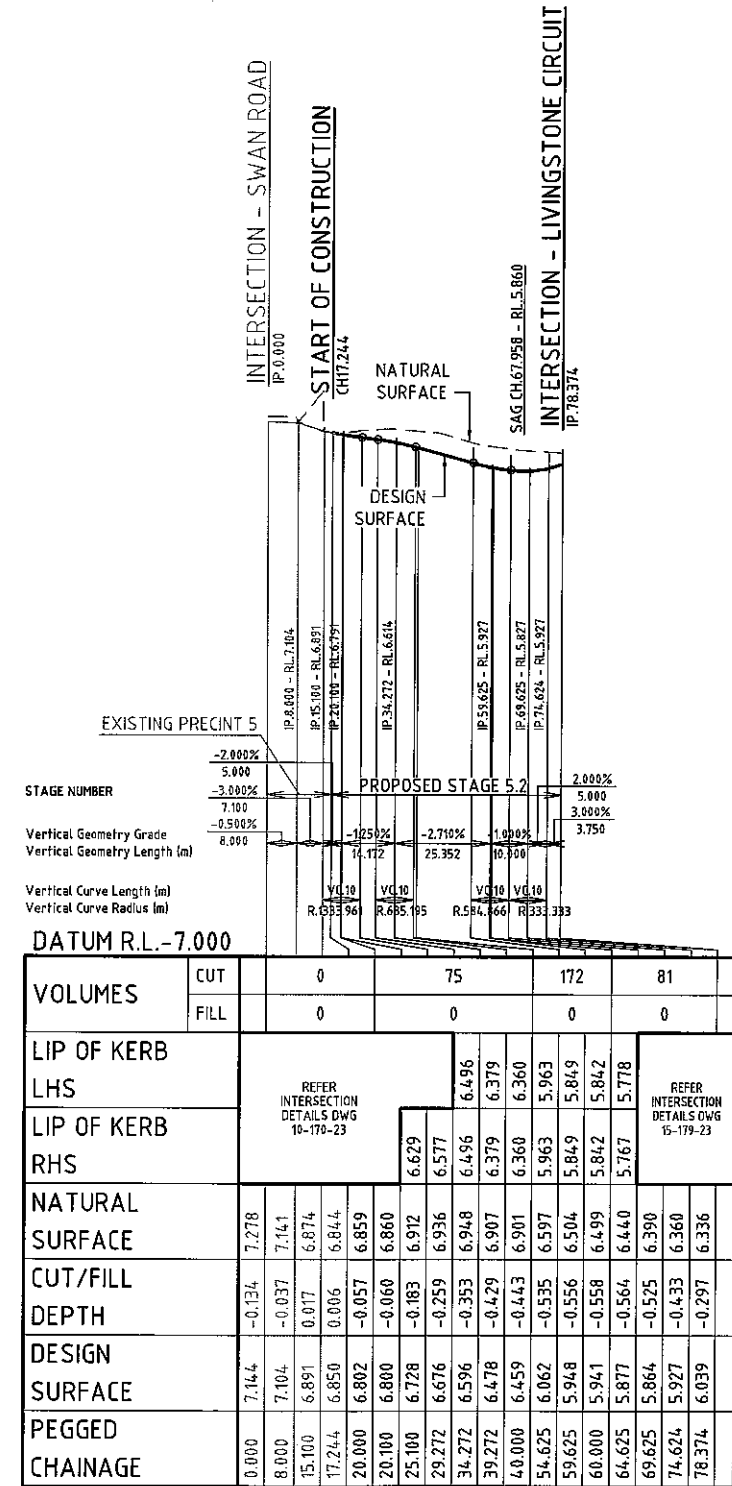
LEVEL 2 - 71 GREY STREET
 SOUTH BRISBANE
 QUEENSLAND 4101
 PHONE 07 3017 1900
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 EMAIL knp@knpl.com.au
 ABN 35 112 053 611

Approved Director - RNS 1988

19.1.16

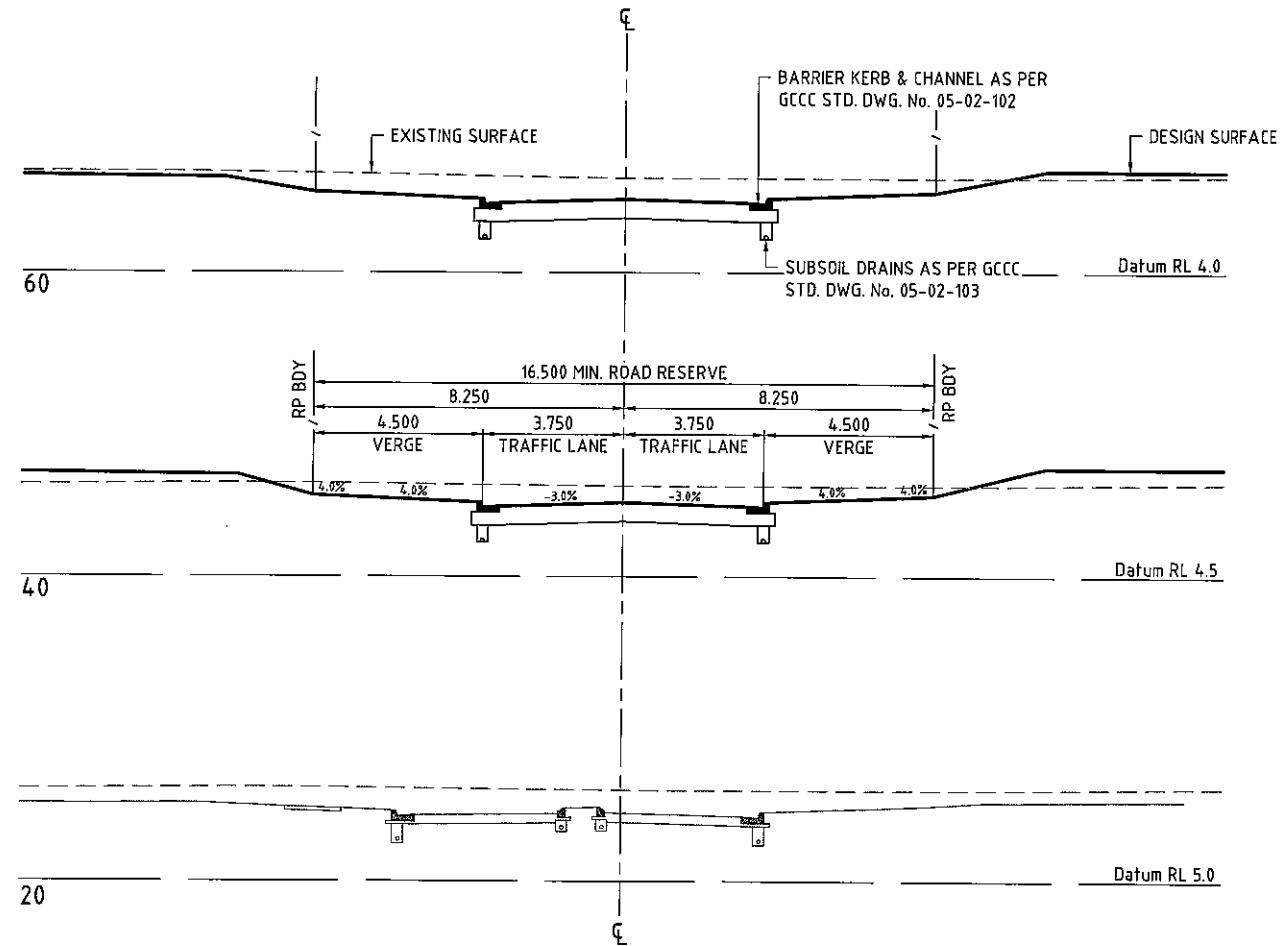
**ROADWORKS
 LONG AND CROSS SECTIONS
 LITABELLA STREET**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	AS SHOWN		Sheet
			15 of 54
Revision	Drawing No		Revision
A1	15-179-15		A



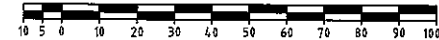
Horiz Curve Data

LITABELLA STREET
 SCALE - 1:1000 (H)
 1:100 (V)

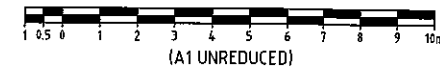


LITABELLA STREET CROSS SECTIONS
 SCALE 1:100

SCALE A 1:1000
 (Horiz.)



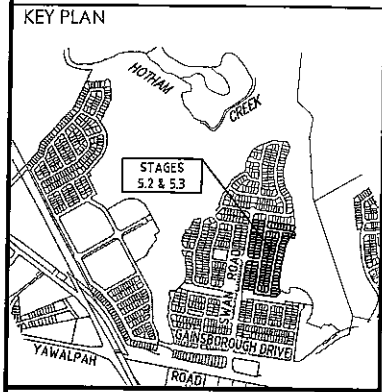
SCALE B 1:100
 (Vert.)



(A1 UNREDUCED)

NOMINAL PAVEMENT DETAILS
 G.C.C.C. RESIDENTIAL ACCESS STREET
 25mm ASPHALTIC CONCRETE
 100mm BASE COURSE (TYPE 2.1, CBR 80)
 100mm UPPER SUB-BASE COURSE (TYPE 2.3, CBR 45)
 SUBGRADE REPLACEMENT AS REQUIRED (TYPE 2.5, CBR 15)

DO NOT SCALE THIS DRAWING
 IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	STREET NAME REVISED	23/05/16	LWH



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
 CONSULTING ENGINEERS
 LEVEL 2 - 71 GREY STREET
 SOUTH BRISBANE
 QUEENSLAND 4101
 PHONE 07 3017 1900
 FAX 07 3017 1911
 EMAIL kng@knpl.com.au
 ABN 35 112 053 611

Approved: *[Signature]* 2.6.16

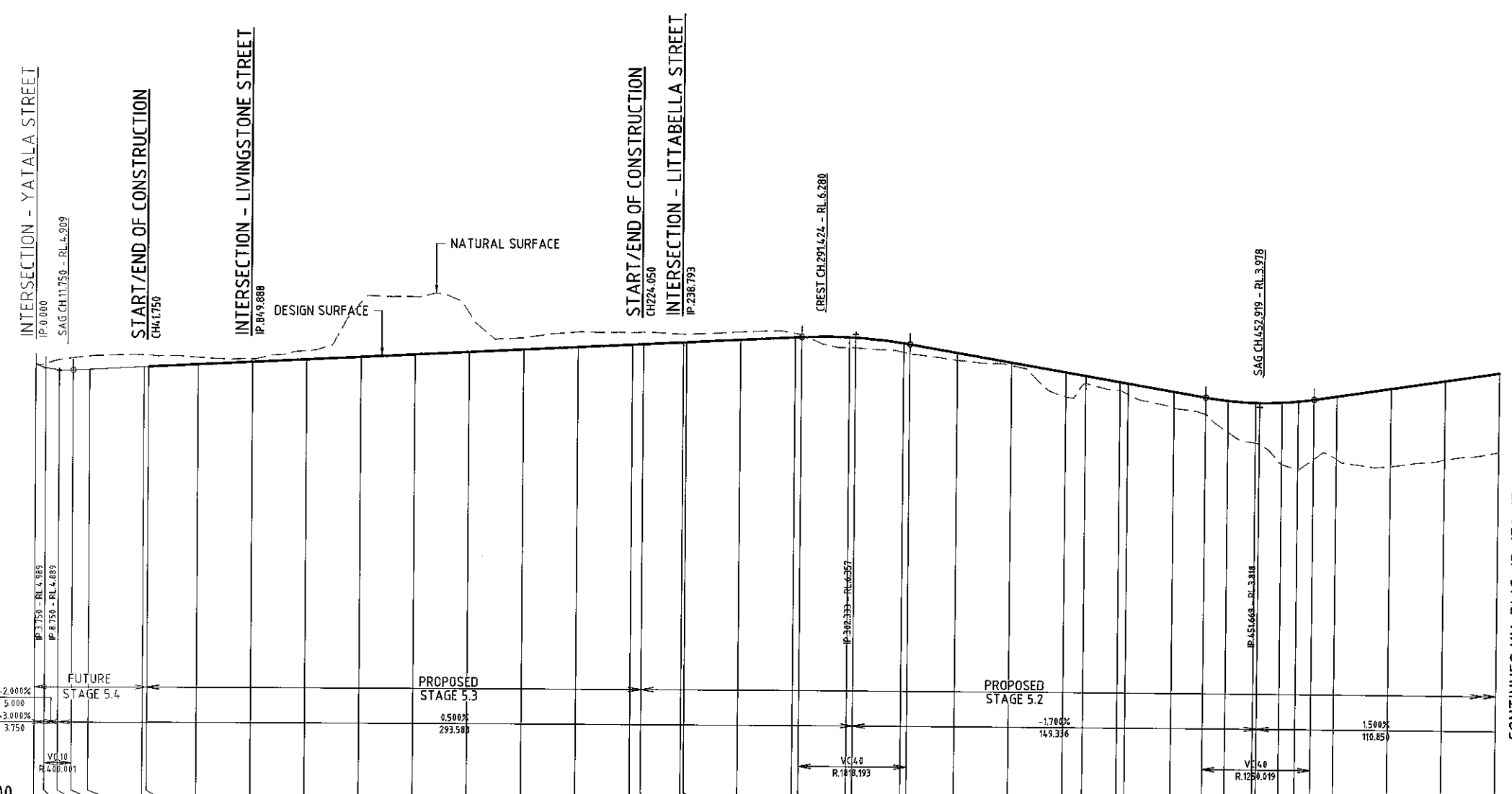
Drawing File
**ROADWORKS
 LONGITUDINAL SECTION
 LINDEMAN CIRCUIT - SHEET 1**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale
 AS SHOWN

Sheet	Revision
16 of 54	B

Drawing No
15-179-16



STAGE NUMBER
 Vertical Geometry Grade
 Vertical Geometry Length (m)
 Vertical Curve Length (m)
 Vertical Curve Radius (m)

DATUM R.L. - 11.000

VOLUMES	CUT		FILL		LIP OF KERB LHS	LIP OF KERB RHS	NATURAL SURFACE	CUT/FILL DEPTH	DESIGN SURFACE	PEGGED CHAINAGE																																		
	69	147	108	50							61	258	629	635	199	158	155	88	69	76	7	0	0	1	1	0	0	0	0	0	0	0	0	0	0									
	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	79	115	96	58	168	154	158	240	476	759	879	953	965																
	REFER INTERSECTION DETAILS DWG 15-184-31	4.815	4.846	4.946	4.955	5.046	REFER INTERSECTION DETAILS DWG 15-179-24	5.346	5.446	5.546	5.646	5.746	5.846	5.867	5.940	5.946	6.046	6.146	6.158	6.161	6.161	6.148	5.956	5.918	5.618	5.278	4.938	REFER INTERSECTION DETAILS DWG 15-179-22	3.945	3.945	3.882	3.879	3.899	3.946	4.019	4.144	4.444	4.744	5.044					
	5.155	5.152	5.298	5.362	4.802	4.846	4.946	4.955	5.046	5.146	5.246	5.346	5.446	5.546	5.646	5.746	5.846	5.867	5.940	5.946	6.046	6.146	6.158	6.161	6.161	6.148	5.956	5.918	5.618	5.278	4.938	4.814	4.059	4.059	3.945	3.882	3.879	3.899	3.946	4.019	4.144	4.444	4.744	5.044
	5.102	4.989	4.920	4.914	4.914	4.945	5.045	5.054	5.145	5.245	5.345	5.445	5.545	5.645	5.745	5.845	5.945	6.045	6.145	6.245	6.257	6.260	6.247	6.055	6.017	5.717	5.377	5.037	4.913	4.697	4.646	4.357	4.158	4.044	3.981	3.978	3.998	4.045	4.118	4.243	4.543	4.843	5.143	

Horiz Curve Data

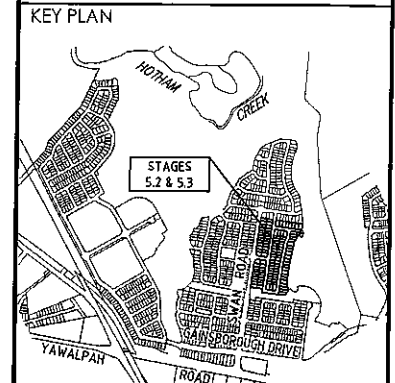
LINDEMAN CIRCUIT
 SCALE - 1:1000 (H)
 1:100 (V)



CONTINUES KN-DWG-15-179-17

NOMINAL PAVEMENT DETAILS
 G.C.C. RESIDENTIAL ACCESS STREET
 25mm ASPHALTIC CONCRETE
 100mm BASE COURSE (TYPE 2.1, CBR 80)
 100mm UPPER SUB-BASE COURSE (TYPE 2.3, CBR 45)
 SUBGRADE REPLACEMENT AS REQUIRED (TYPE 2.5, CBR 15)

DO NOT SCALE THIS DRAWING
 IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	STREET NAME REVISED	23/05/16	LWH



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
 CONSULTING ENGINEERS
 LEVEL 2 - 71 GREY STREET
 SOUTH BRISBANE
 QUEENSLAND 4101
 PHONE 07 3017 1900
 FAX 07 3017 1911
 EMAIL kng@knpl.com.au
 ABN 35 112 053 611

Approved Drawing: *[Signature]* 26.6

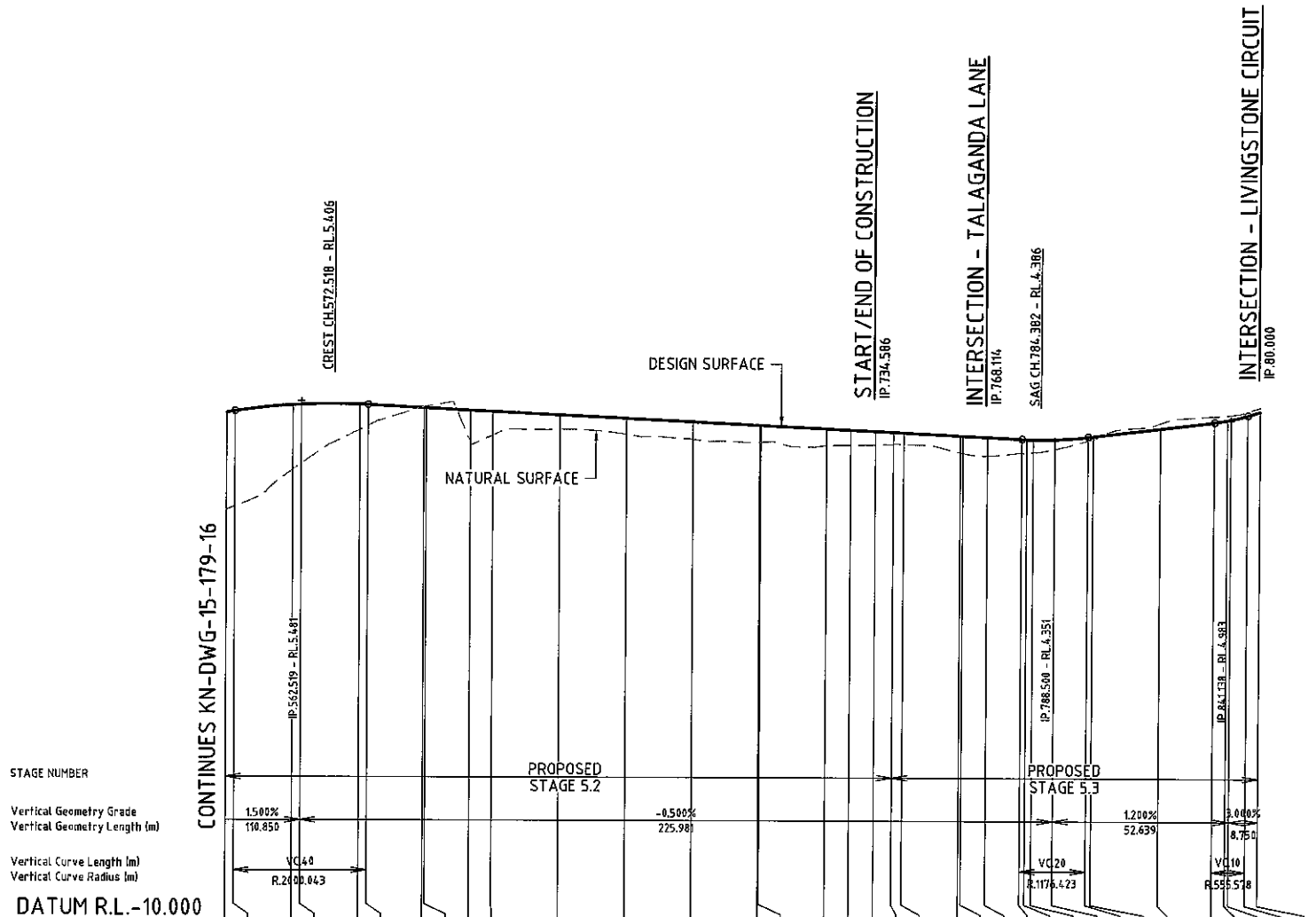
Drawn by: *[Signature]*

**ROADWORKS
 LONGITUDINAL SECTION
 LINDEMAN CIRCUIT - SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale	Sheet
AS SHOWN	17 of 54

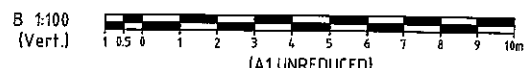
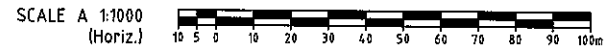
Revision	Revision
A1	B



VOLUMES	CUT																		FILL																	
	0	0	9	28	0	0	0	0	0	0	0	0	0	0	1	4.4	66	813	451	129	150	174	152	174	180	179	160	130	121	80	3	0				
LIP OF KERB LHS	5.044	5.082	5.268	5.282	5.293	5.198	5.195	5.128	5.095	4.995	4.895	4.795	4.695	4.693	4.595	4.559	4.522	4.495	4.479	4.394	4.390	4.354	4.315	4.308	4.296	4.290	4.295	4.372	4.390	4.630	4.824	4.884	4.884	4.563	4.630	
LIP OF KERB RHS	5.044	5.082	5.268	5.282	5.293	5.198	5.195	5.128	5.095	4.995	4.895	4.795	4.695	4.693	4.595	4.559	4.522	4.495	4.479	4.394	4.390	4.354	4.315	4.308	4.296	4.290	4.295	4.372	4.390	4.630	4.824	4.884	4.884	4.563	4.630	
NATURAL SURFACE	2.245	2.343	3.449	3.634	4.638	4.763	5.322	5.335	4.263	4.482	4.660	4.513	4.374	4.296	4.297	4.193	4.206	4.216	4.236	3.996	3.980	3.905	3.988	4.004	4.105	4.105	4.358	4.398	4.892	5.098	5.122	5.137	5.245	5.362		
CUT/FILL DEPTH	2.898	2.838	1.917	1.747	0.754	0.618	-0.025	-0.041	0.964	0.712	0.433	0.481	0.519	0.497	0.494	0.500	0.452	0.405	0.358	0.498	0.510	0.548	0.413	0.401	0.384	0.288	0.113	0.092	-0.163	-0.175	-0.140	-0.132	-0.113	-0.117		
DESIGN SURFACE	5.143	5.181	5.367	5.381	5.392	5.381	5.297	5.294	5.227	5.194	5.094	4.994	4.894	4.794	4.792	4.694	4.658	4.621	4.594	4.494	4.490	4.453	4.401	4.395	4.389	4.394	4.471	4.489	4.729	4.923	4.983	5.005	5.133	5.245		
PEGGED CHAINAGE	540.000	542.519	560.000	562.519	580.000	582.519	599.341	600.000	613.341	620.000	640.000	660.000	680.000	700.000	700.380	720.000	727.176	734.586	740.000	743.052	760.000	760.767	768.114	778.500	780.000	781.973	798.500	800.000	820.000	836.138	840.000	841.138	846.138	849.888		

Horiz Curve Data: R-200 (13.999), R-108.25 (26.795), R-50 (15.877), R-13.5 (21.206)

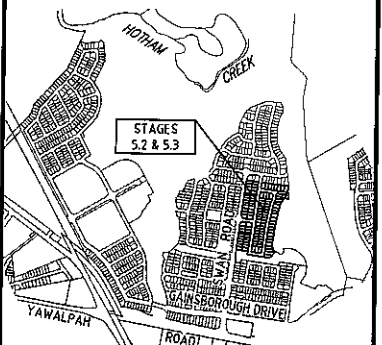
LINDEMAN CIRCUIT
 SCALE - 1:1000 (H)
 1:100 (V)



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	BIN BAYS ADDED & WALL AMENDED	24/02/16	JAS
C	LOT CALCS AMENDED	18/04/16	RCT
D	STREET NAME REVISED	23/05/16	LWH



Client



Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
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FAX 07 3017 1911
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ABN 35 112 053 611

Approved Director RPEQ J999

2.6.16
ROADWORKS
INTERSECTION DETAILS
SHEET 1

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	1:250	Sheet	22 of 54
Drawing No	15-179-22	Revision	D

LEGEND

- ROAD CENTRELINE
- KERB AND CHANNEL (TYPE B1)
- SW STORMWATER DRAINAGE
- 36.0 FINISHED SURFACE CONTOURS
- 3.000 OFFSET TO KERB FACE
- C.J. CUT JOINT
- D.J. DOWEL JOINT

CONCRETE LANE (EXPOSED)

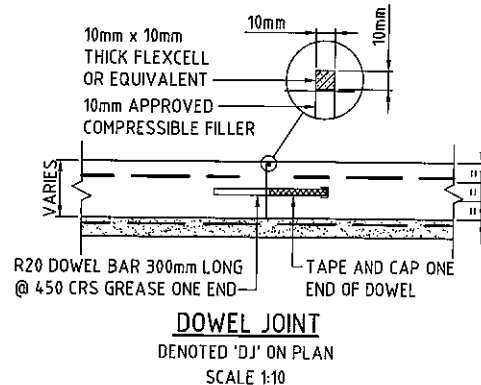
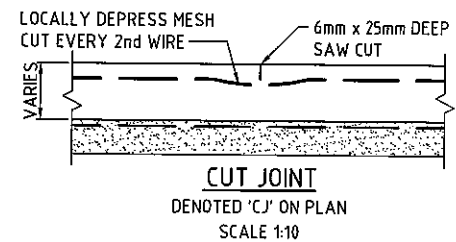
- N40 CONCRETE (f'cf=4.0MPa)
- 180mm THICK SL92 FABRIC
- 50 COVER OVER 25mm SAND BEDDING
- 150mm CBR 45 SUBBASE.
- AS PER IPWEAQ DWG SEQ R-051
- REFER GCCC STD DWG 05-02-301

CONCRETE CROSSOVER/DRIVEWAY

- N40 CONCRETE (f'cf=4.0MPa)
- 180mm THICK SL92 FABRIC
- 50 COVER OVER 25mm SAND BEDDING
- 150mm CBR 45 SUBBASE.
- AS PER IPWEAQ DWG SEQ R-051
- REFER GCCC STD DWG 05-02-301

GENERAL NOTES

1. SETOUT TABLES ARE GIVEN AT KERB LIP LEVELS.
2. KERB LIP LEVELS ARE GIVEN AT QUARTER POINTS, TP'S AND EQUAL PARTS U.N.O.
3. KERB RADII AND OFFSETS ARE GIVEN AT HORIZONTAL SETOUT POINT SHOWN ON KERB SETOUT DETAILS BELOW.
4. EXTRA DETAIL FOR SETTING OUT IS AVAILABLE ON CAD FILE.



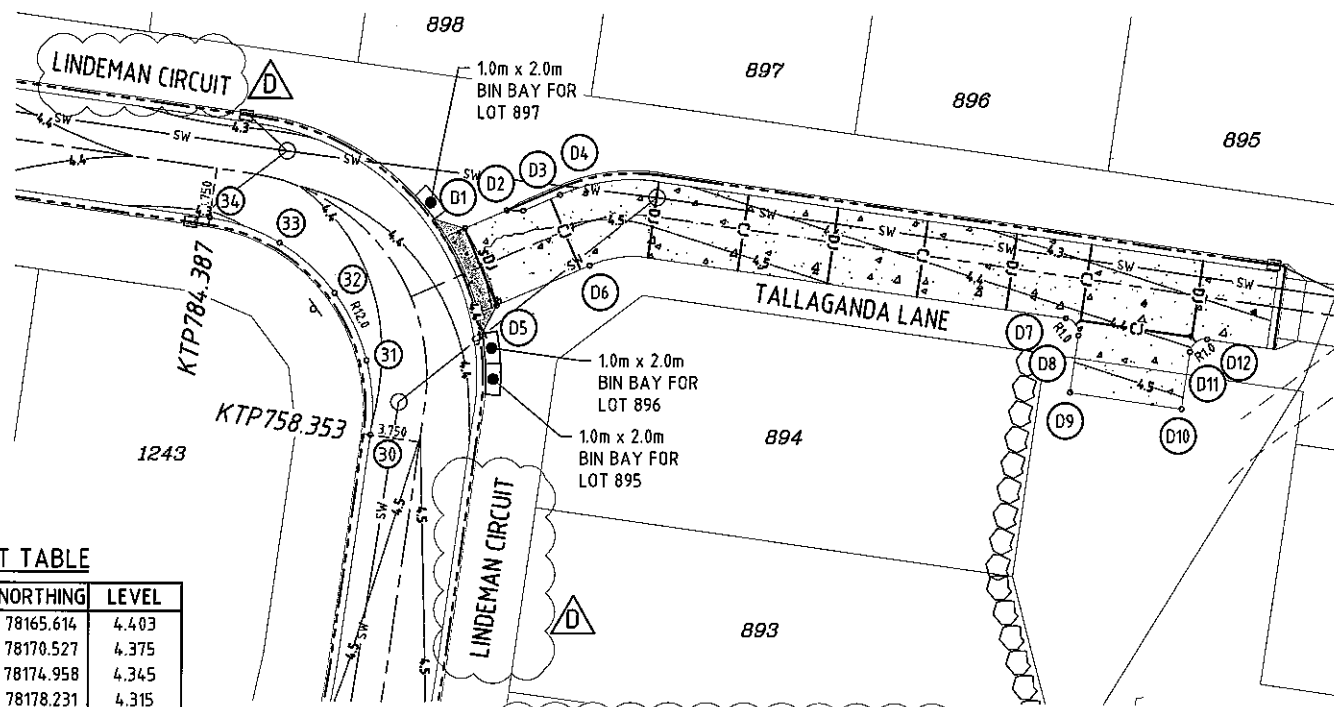
NOTE
FOR CLARITY, KERB LIP LEVELS
FOR TALLAGANDA LANE AS PER
DETAIL BELOW

SETOUT TABLE

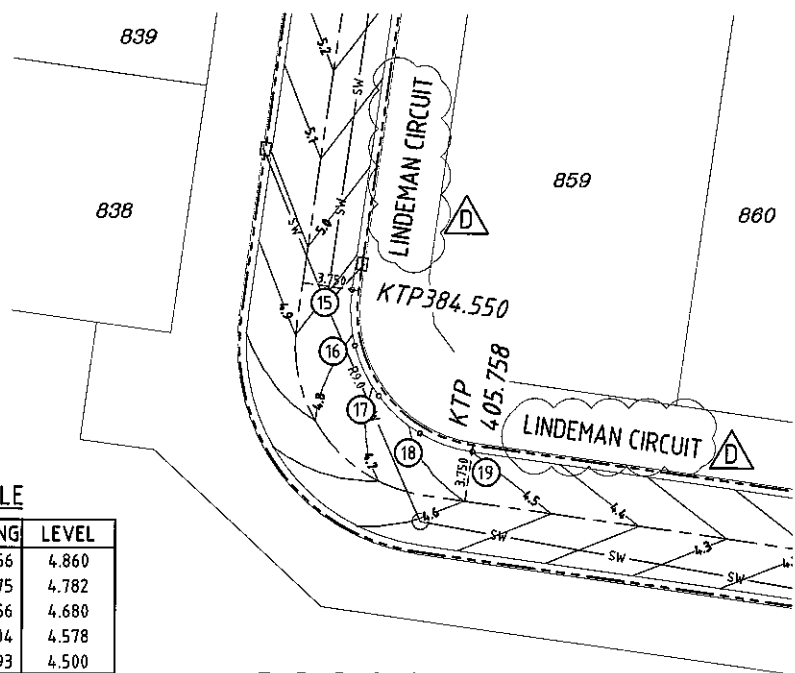
PT No.	EASTING	NORTHING	LEVEL
D1	74336.481	78179.261	4.483
D2	74339.263	78180.457	4.474
D3	74340.359	78180.438	4.472
D4	74342.785	78181.480	4.438
D5	74338.652	78174.208	4.510
D6	74344.779	78176.840	4.589
D7	74376.373	78173.498	4.422
D8	74377.226	78172.370	4.447
D9	74376.702	78168.606	4.561
D10	74384.130	78167.571	4.524
D11	74384.654	78171.335	4.410
D12	74385.782	78172.188	4.374

SETOUT TABLE

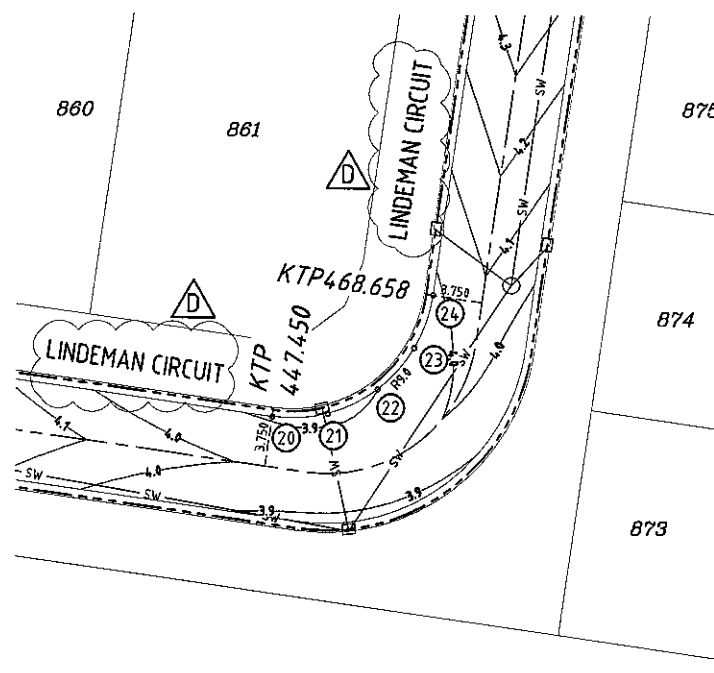
PT No.	EASTING	NORTHING	LEVEL
30	74330.295	78165.614	4.403
31	74330.010	78170.527	4.375
32	74327.866	78174.958	4.345
33	74324.190	78178.231	4.315
34	74319.542	78179.847	4.287



INTERSECTION DETAIL
LINDEMAN CIRCUIT & TALLAGANDA LANE
KERB WIDENING AND DRIVEWAY SETOUT
SCALE 1:250



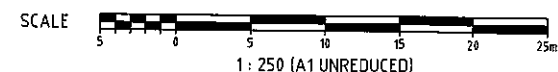
ROAD BEND DETAIL
LINDEMAN CIRCUIT
SCALE 1:250



ROAD BEND DETAIL
LINDEMAN CIRCUIT
SCALE 1:250

SETOUT TABLE

PT No.	EASTING	NORTHING	LEVEL
20	74265.734	77873.642	3.891
21	74269.415	77873.856	3.879
22	74272.734	77875.462	3.899
23	74275.185	77878.216	3.931
24	74276.397	77881.699	3.978



PAVEMENT MARKING NOTES

ALL PAVEMENT MARKING TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - CURRENT EDITION.

OUTLINE MARKINGS, OFFSET 75mm MINIMUM FROM THE KERB FACE SHALL BE PROVIDED AROUND ALL RAISED ISLANDS AND MEDIANS.

WHITE REFLECTIVE PAINT SHALL BE USED FOR ALL LANE AND EDGE LINES, CHEVRONS AND OUTLINE MARKINGS.

WHITE REFLECTIVE THERMOPLASTIC MATERIAL SHALL BE USED FOR ALL CONTINUITY, TURNING, HOLDING, GIVE WAY, STOP, CROSSWALK MARKINGS AND TURN ARROWS.

ALL EXISTING PAVEMENT MARKINGS THAT SHALL BE MADE OBSOLETE BY THESE WORKS SHALL BE REMOVED FROM THE ROAD SURFACE BY APPROVED METHOD.

SIGN NOTES

1. ALL SIGNS TO BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - CURRENT EDITION

2. THE LOCATION OF EXISTING SIGNS ARE INDICATED ON PLAN.

3. THE LOCATIONS OF PROPOSED SIGNS ARE INDICATED ON PLAN.

ALL SIGNS TO BE INSTALLED WITH THE FOLLOWING MINIMUM CLEARANCES TO EDGE OF SIGN FACE:

- NO KERB - 600mm BEHIND GUIDEPOSTS
- BARRIER KERB - 300mm FROM FACE OF KERB
- MOUNTABLE KERB - 500mm FROM FACE OF KERB.

4. CHECK FOR ALL IN GROUND SERVICES PRIOR TO PLACING SIGN SUPPORTS.

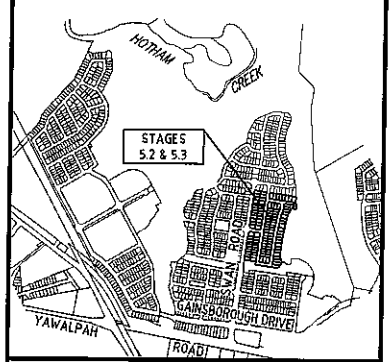
5. SIGN SUPPORT CONSTRUCTION TO BE IN ACCORDANCE WITH MAIN ROADS STANDARD DRAWING 1368 FOR SIGN SUPPORTS AND FOR MULTIPLE SUPPORT. REUSE EXISTING SIGN SUPPORTS WHERE POSSIBLE.

6. EXACT LOCATION OF ALL SIGNS IS TO BE VERIFIED ON SITE WITH THE SUPERINTENDENT PRIOR TO INSTALLATION.

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	BIN BAYS ADDED & WALL AMENDED	24/02/16	JAS
C	STREET NAME REVISED	23/05/16	LWH



Client



Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

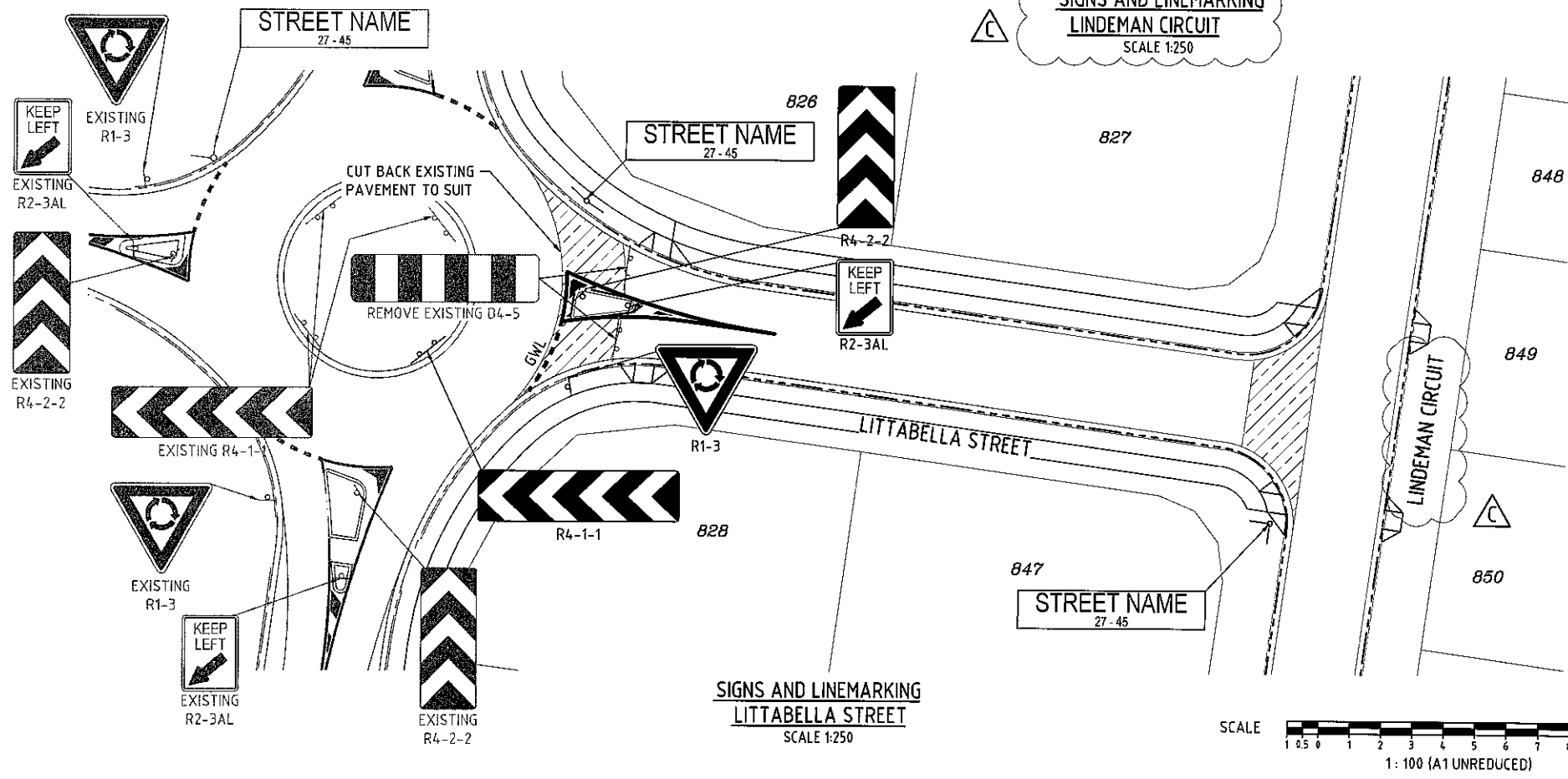
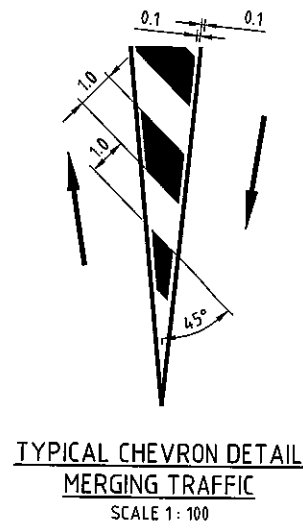
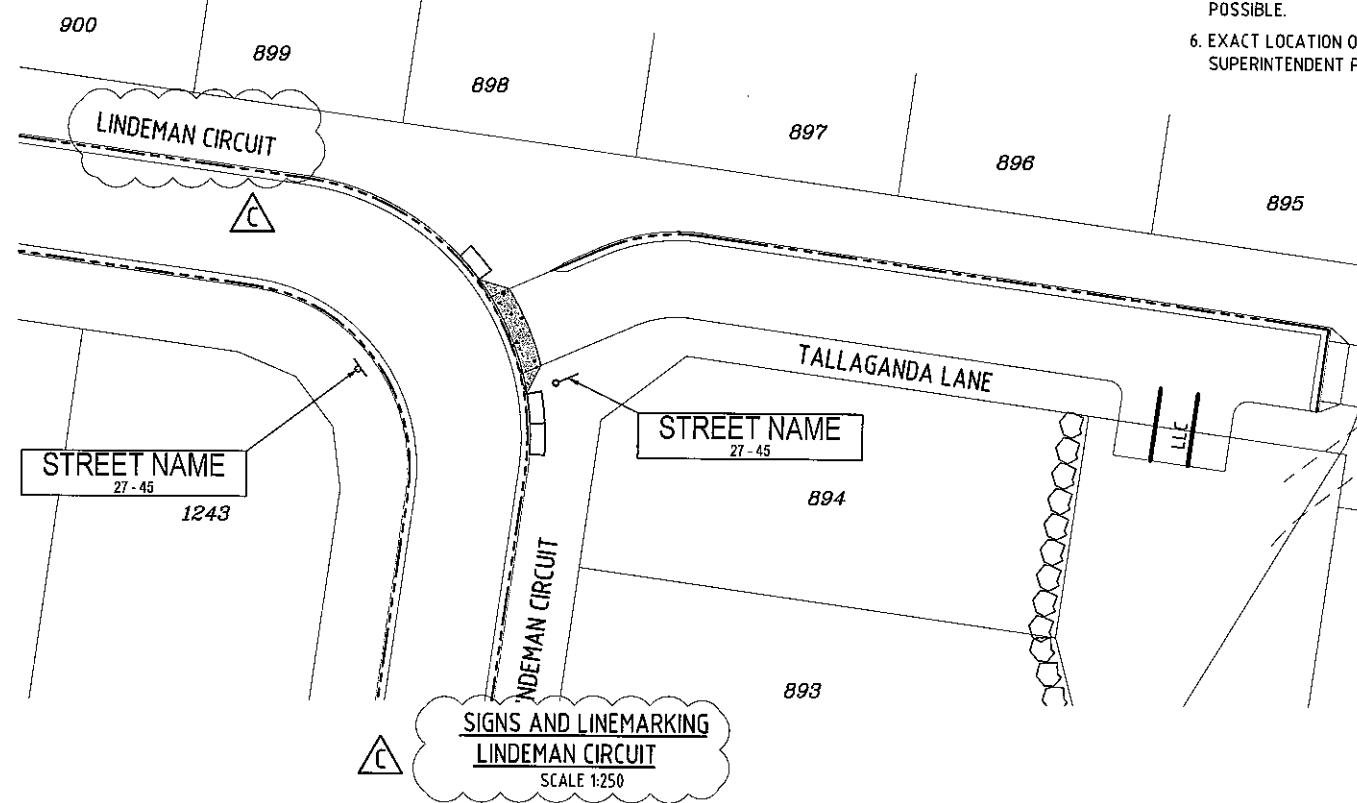
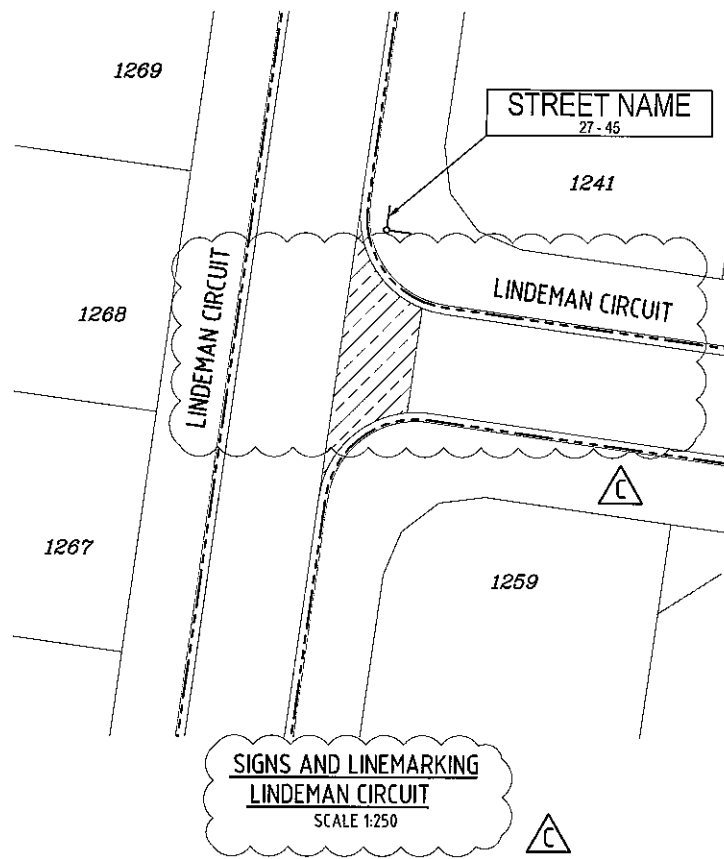


LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved Drawing RREQ 1/66
[Signature] 2.6.16

**ROADWORKS
INTERSECTION DETAILS
SHEET 3**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale AS SHOWN			Sheet 24 of 54
Drawing No A1 15-179-24			Revision C



EXPOSED AGGREGATE TREATMENT

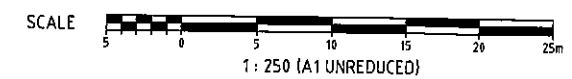
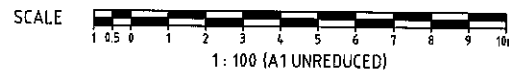
REFER LANDSCAPE DRAWINGS FOR AGGREGATE TYPE

- EXPOSED AGGREGATE REINFORCED THRESHOLD
- N40 CONCRETE - 180mm THICK SL82 FABRIC
- 40 COVER OVER 200mm CBR 45% SUBBASE.

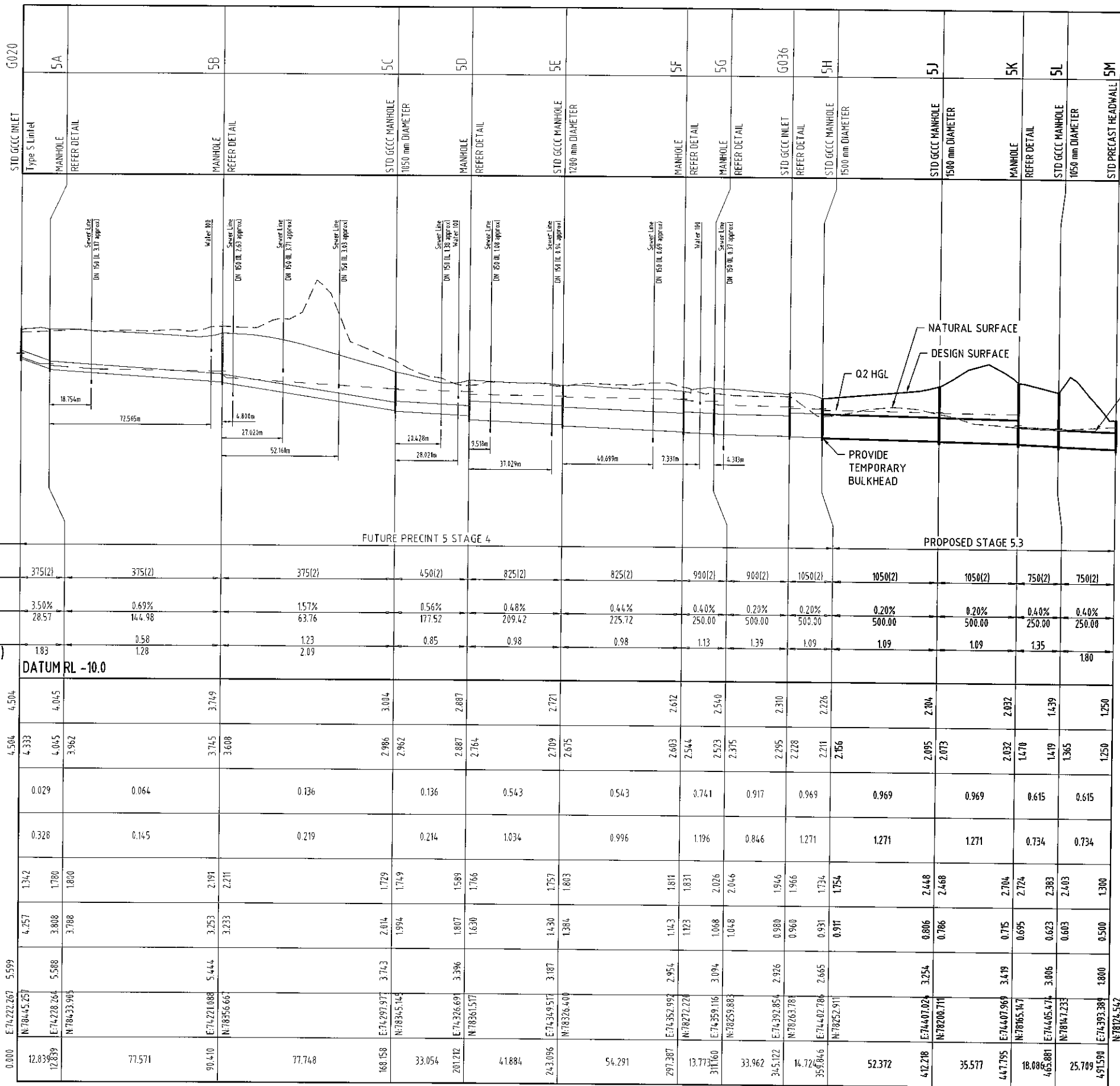
LINEMARKING LEGEND



NOTE - RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPM'S) REQUIRED TO ALL LANE LANES AND ALL PERIMETER OF CHEVRONS AS PER MAIN ROADS 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (MUTCD).



STRUCTURE NAME
STRUCTURE DESCRIPTION

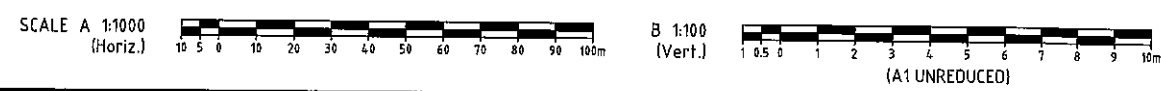


STAGE	FUTURE PRECINT 5 STAGE 4													PROPOSED STAGE 5.3						
PIPE SIZEmm (Class)	375(2)	375(2)	375(2)	450(2)	825(2)	825(2)	900(2)	900(2)	1050(2)	1050(2)	1050(2)	750(2)	750(2)							
PIPE GRADE %	3.50%	0.69%	1.57%	0.56%	0.48%	0.44%	0.40%	0.28%	0.20%	0.20%	0.20%	0.40%	0.40%							
PIPE SLOPE 1 in X	28.57	14.4.98	63.76	177.52	209.42	225.72	250.00	500.00	500.00	500.00	500.00	250.00	250.00							
FULL PIPE FLOW VELOCITY (m/s)	1.83	0.58	1.23	0.85	0.98	0.98	1.13	1.39	1.09	1.09	1.09	1.35	1.35							
PART FULL FLOW VELOCITY (m/s)		1.28	2.89																	
DATUM	DATUM RL -10.0																			
WATER LEVEL IN STRUCTURE	4.504	4.015	3.749	3.004	2.887	2.721	2.612	2.540	2.310	2.226	2.704	2.832	1.439	1.250						
HYDRAULIC GRADE LEVEL	4.504	4.015	3.745	2.986	2.887	2.675	2.603	2.544	2.295	2.211	2.656	2.095	2.073	2.032	1.478	1.385	1.250			
PIPE FLOW (Cumecs)	0.029	0.064	0.136	0.136	0.543	0.543	0.741	0.917	0.969	0.969	0.969	0.615	0.615							
PIPE CAPACITY AT GRADE (Cumecs)	0.328	0.145	0.219	0.214	1.034	0.996	1.196	0.846	1.271	1.271	1.271	0.734	0.734							
DEPTH TO INVERT	1.342	1.780	1.800	1.729	1.749	1.589	1.766	1.811	1.966	1.734	1.754	2.448	2.468	2.704	2.724	2.383	2.403	1.300		
INVERT LEVEL OF DRAIN	4.257	3.808	3.788	2.814	1.994	1.807	1.630	1.423	0.960	0.931	0.911	0.806	0.786	0.715	0.695	0.623	0.603	0.500		
DESIGN SURFACE LEVEL	5.599	5.588	5.444	3.743	3.396	3.187	2.954	3.094	2.926	2.665	3.254	3.419	3.419	3.006	3.006	3.006	3.006	1.800		
SETOUT CO-ORDINATE	E:74222.267	N:78445.257	E:74228.264	N:78433.905	E:74297.977	N:78345.145	E:74326.691	N:78361.517	E:74392.854	N:78263.781	E:74402.788	N:78252.911	E:74407.024	N:78200.711	E:74407.969	N:78165.147	E:74405.474	N:78147.123	E:74393.389	N:78124.542
RUNNING CHAINAGE	12.839	71.571	90.410	168.158	33.054	201.212	418.84	242.096	54.291	297.387	13.773	33.962	42.218	35.577	44.795	18.086	465.881	25.709	4.9159	

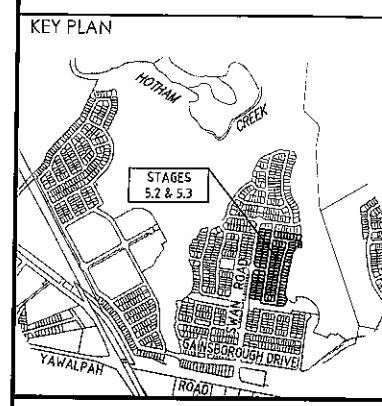
LINE

6

35



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS

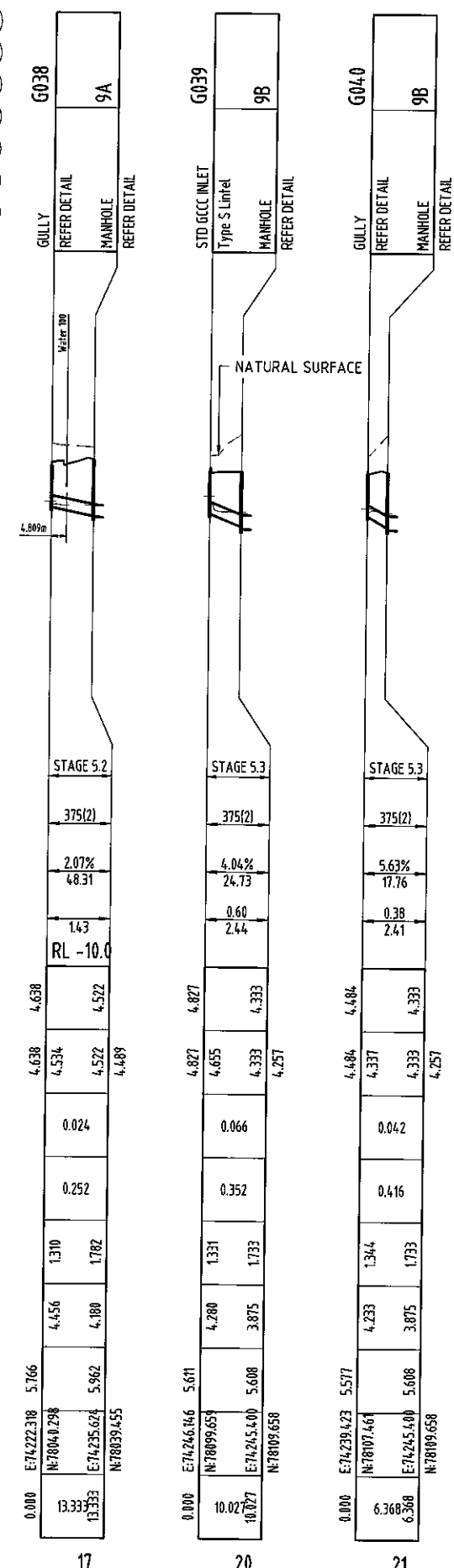
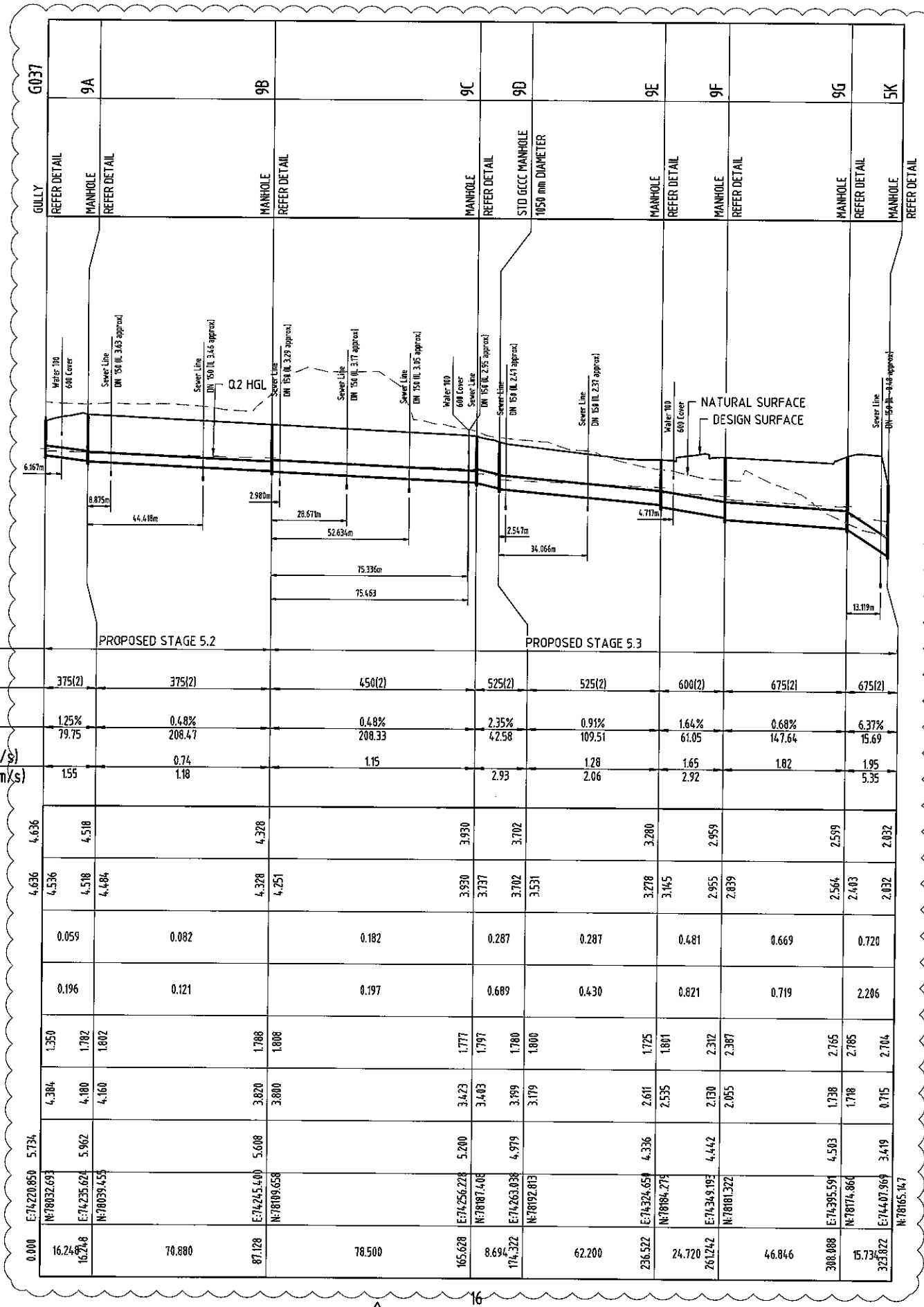


Client
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
 CONSULTING ENGINEERS
 LEVEL 2 - 71 GREY STREET
 SOUTH BRISBANE
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 FAX 07 3017 1911
 EMAIL kng@knpl.com.au
 ABN 35 112 053 611

Approved Drawing	<i>[Signature]</i> 19-116		
Drawing Title	STORMWATER LONGITUDINAL SECTIONS SHEET 1		
Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	Drawing No	Sheet	Revision
-	15-179-30	30 of 54	A

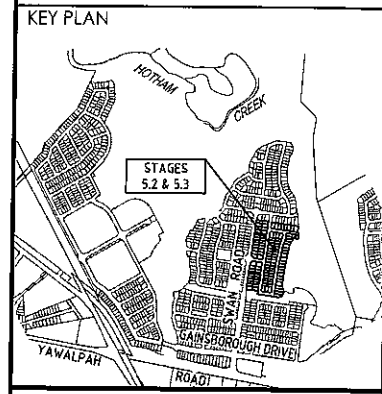
STRUCTURE NAME
STRUCTURE DESCRIPTION



STAGE	PROPOSED STAGE 5.2				PROPOSED STAGE 5.3			
PIPE SIZEmm (Class)	375(2)	375(2)	450(2)	525(2)	525(2)	600(2)	675(2)	675(2)
PIPE GRADE %	1.25%	0.48%	0.48%	2.35%	0.91%	1.64%	0.68%	6.37%
PIPE SLOPE 1 in X	79.75	208.47	208.33	42.58	109.51	61.05	147.64	15.69
FULL PIPE FLOW VELOCITY (m/s)		0.74	1.15		1.28	1.65	1.82	1.95
PART FULL FLOW VELOCITY (m/s)	155	1.18		2.93	2.06	2.92		5.35
DATUM								
WATER LEVEL IN STRUCTURE	4.636	4.518	4.328	3.930	3.702	2.959	2.599	2.032
HYDRAULIC GRADE LEVEL	4.636	4.518	4.484	4.328	4.251	3.930	3.737	3.702
PIPE FLOW (Cumecs)	0.059	0.082	0.182	0.287	0.287	0.481	0.669	0.720
PIPE CAPACITY AT GRADE (Cumecs)	0.196	0.121	0.197	0.689	0.430	0.821	0.719	2.206
DEPTH TO INVERT	1.350	1.782	1.802	1.777	1.797	1.780	1.800	1.704
INVERT LEVEL OF DRAIN	4.384	4.180	4.160	3.423	3.443	3.199	3.179	0.715
DESIGN SURFACE LEVEL	5.734	5.962	5.608	5.200	4.979	4.442	4.583	3.419
SETOUT CO-ORDINATE	E:74220.850 N:78032.693	E:74235.624 N:78039.453	E:74245.400 N:78049.658	E:74256.228 N:78084.408	E:74324.651 N:78084.274	E:74349.185 N:78081.322	E:74395.591 N:78074.860	E:74440.969 N:78065.167
RUNNING CHAINAGE	0.000	16.242	70.880	87.128	78.500	165.628	8.694	62.200

LINE

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



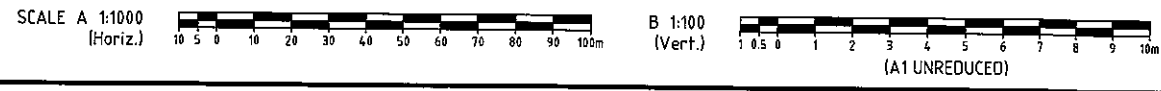
REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	MANHOLE 9C AMENDED	24/02/16	JAS
C	LINE 16 UPDATED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

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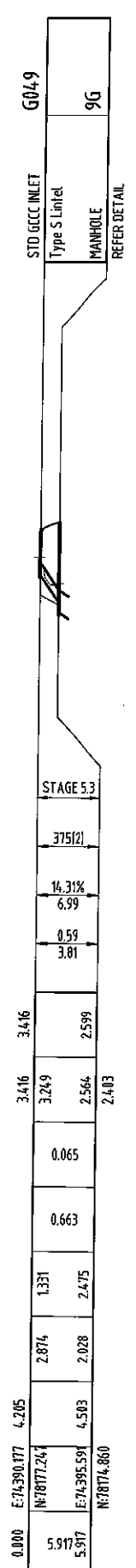
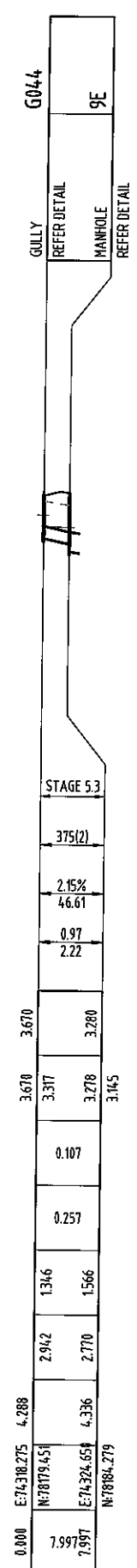
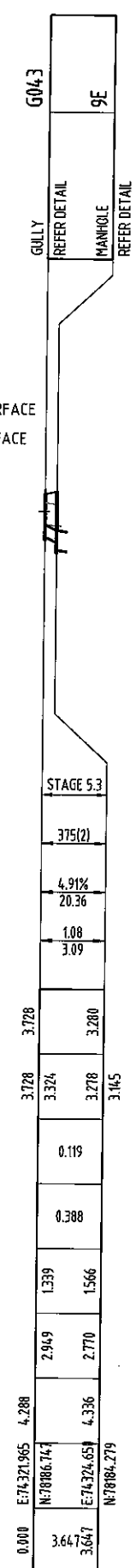
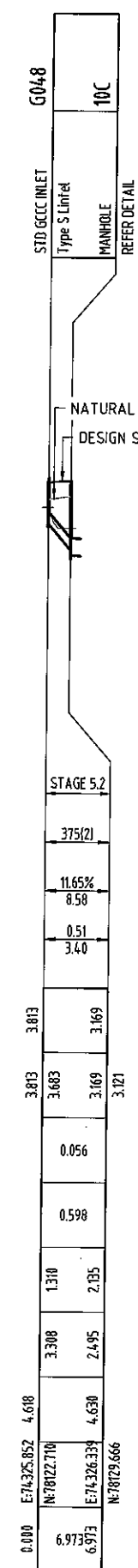
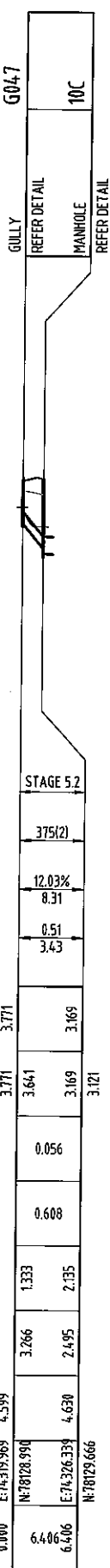
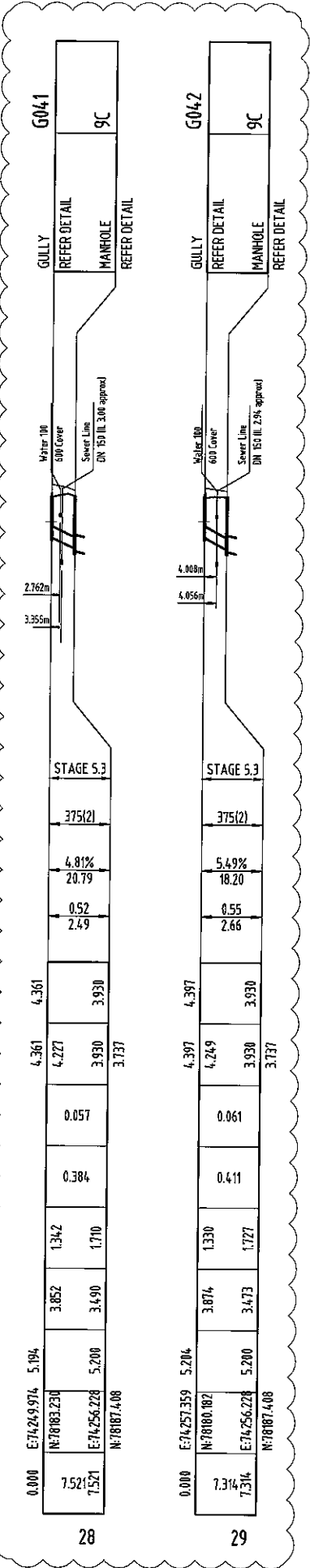
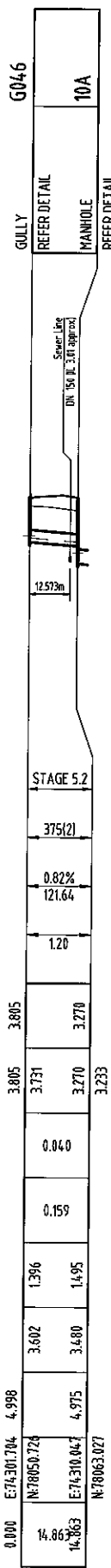
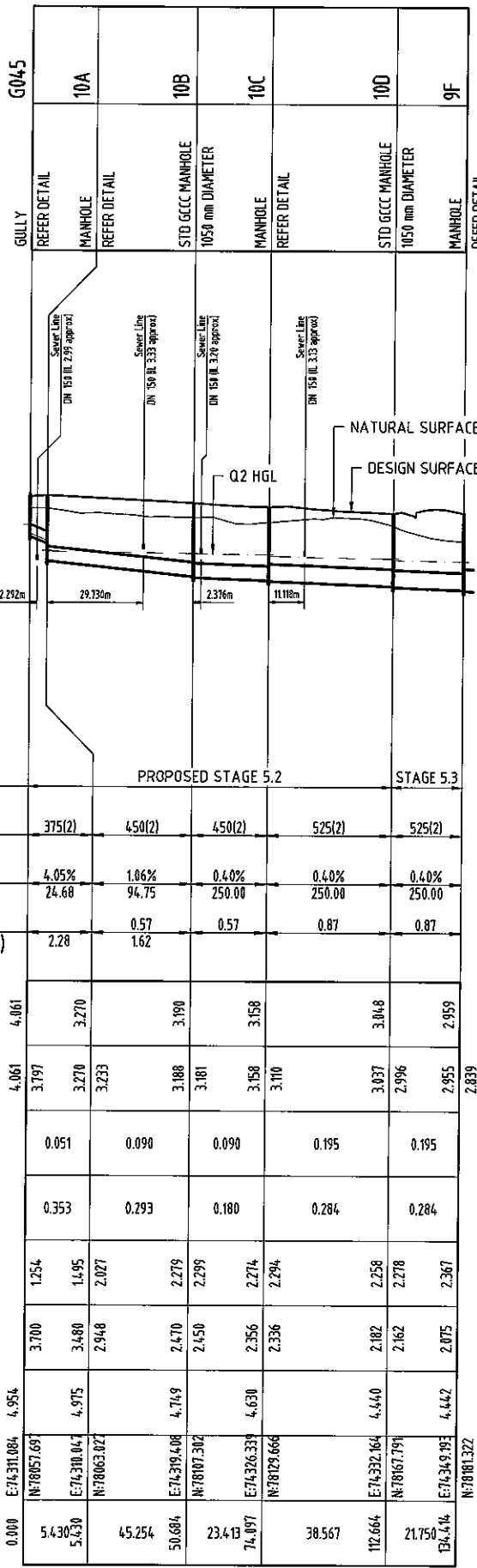
Approved: <i>[Signature]</i> 26/5/16			
Drawing Title STORMWATER LONGITUDINAL SECTIONS SHEET 2			
Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale -	Sheet 31 of 54		Revision C
Drawing No A1 15-179-31			



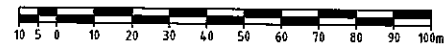
STRUCTURE NAME	
STRUCTURE DESCRIPTION	

STAGE	PROPOSED STAGE 5.2				STAGE 5.3
PIPE SIZEmm (Class)	375(2)	450(2)	450(2)	525(2)	525(2)
PIPE GRADE %	4.05%	1.06%	0.40%	0.40%	0.40%
PIPE SLOPE 1 in X	24.68	94.75	250.00	250.00	250.00
FULL PIPE FLOW VELOCITY (m/s)	2.28	0.57	0.57	0.87	0.87
PART FULL FLOW VELOCITY (m/s)		1.62			
DATUM					

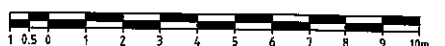
WATER LEVEL IN STRUCTURE	4.061	4.061	4.061	4.061	4.061
HYDRAULIC GRADE LEVEL	3.797	3.270	3.233	3.188	3.181
PIPE FLOW (Cumecs)	0.051	0.098	0.090	0.195	0.195
PIPE CAPACITY AT GRADE (Cumecs)	0.353	0.293	0.180	0.284	0.284
DEPTH TO INVERT	1.254	1.495	2.027	2.279	2.299
INVERT LEVEL OF DRAIN	3.700	3.480	2.948	2.470	2.450
DESIGN SURFACE LEVEL	4.954	4.975	4.719	4.630	4.630
SETOUT CO-ORDINATE	E:74331.084	E:74330.047	E:74329.408	E:74328.339	E:74327.191
RUNNING CHAINAGE	0.000	5.436	45.254	50.684	23.413



SCALE A 1:1000 (Horiz.)

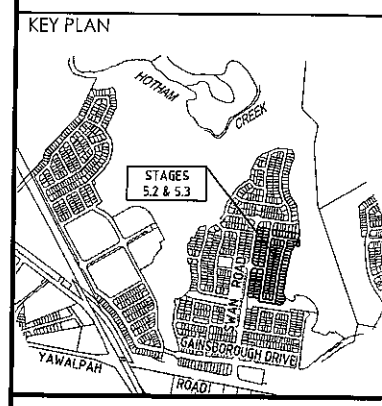


B 1:100 (Vert.)



(A1 UNREDUCED)

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	MANHOLE 9C AMENDED	24/02/16	JAS
C	LINES 28 & 28 UPDATED	23/05/16	NJS

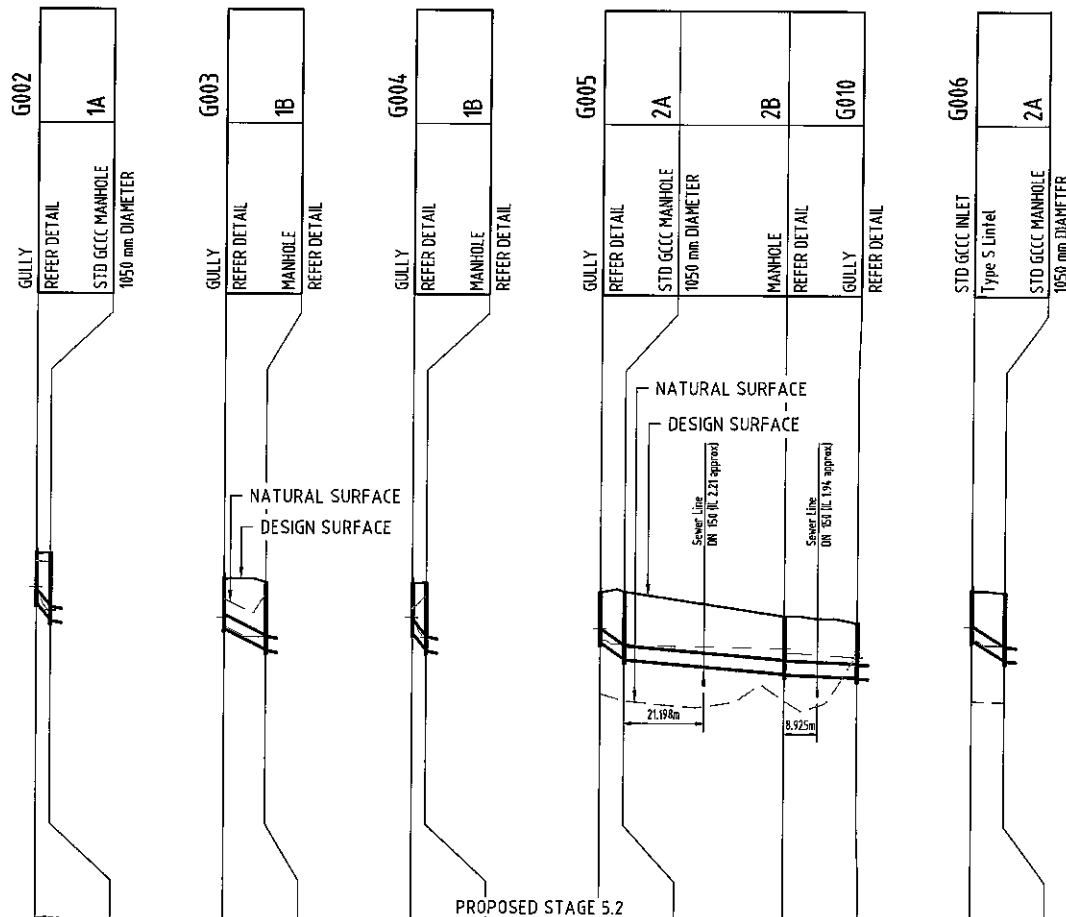
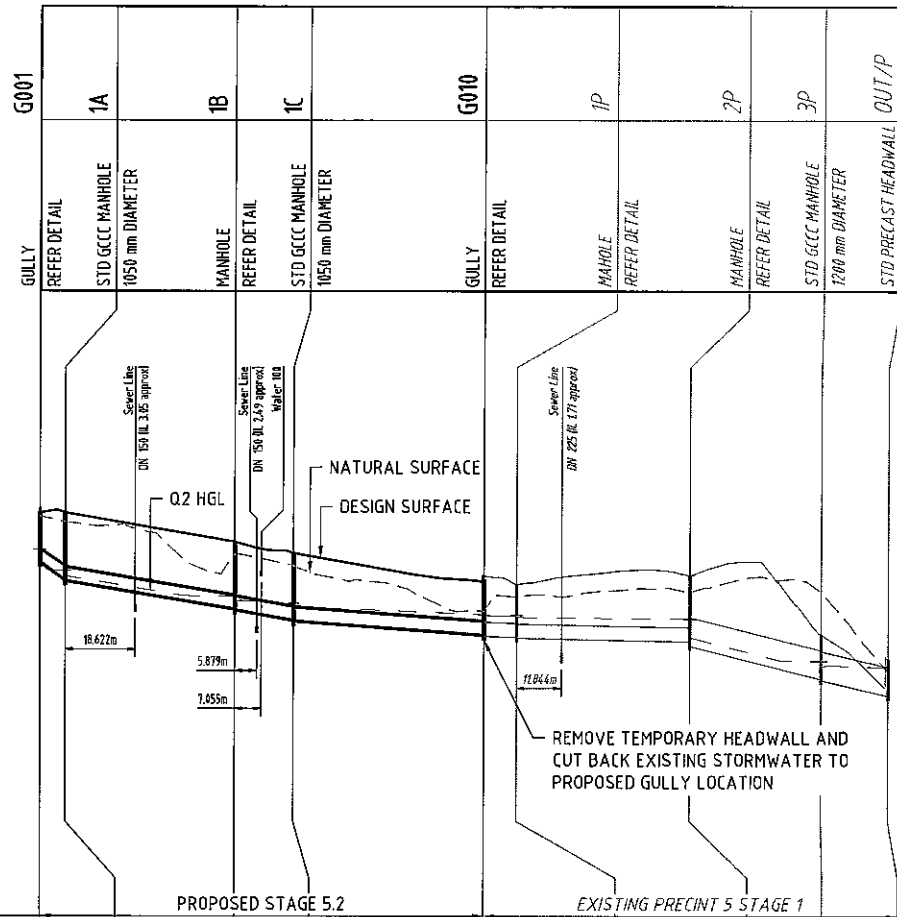


Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
 CONSULTING ENGINEERS
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 ABN 35 112 053 611

Approved Director - RPEQ 1988	<i>[Signature]</i> 21.1.16		
Drawing Title STORMWATER LONGITUDINAL SECTIONS SHEET 3			
Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale -			Sheet 32 of 54
Drawing No A1 15-179-32			Revision C

STRUCTURE NAME
STRUCTURE DESCRIPTION

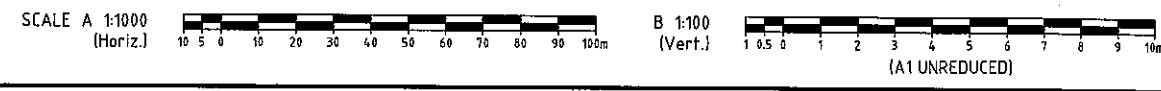


STAGE	PROPOSED STAGE 5.2				EXISTING PRECINT 5 STAGE 1			
PIPE SIZEmm (Class)	375(2)	375(2)	375(2)	375(2)	1500 x 370 (RCBC)	1500 x 370 (RCBC)	750(2)	750(2)
PIPE GRADE %	6.82%	1.65%	1.75%	0.74%	0.40%	0.20%	2.50%	2.35%
PIPE SLOPE 1 in X	14.67	60.45	57.11	135.90	250.00	499.18	39.97	42.64
FULL PIPE FLOW VELOCITY (m/s)	2.36	1.72	2.09	1.03	0.64	0.64	3.11	3.04
PART FULL FLOW VELOCITY (m/s)								
DATUM								
WATER LEVEL IN STRUCTURE	4.673	4.673	4.673	4.673	4.739	4.739	4.739	4.739
HYDRAULIC GRADE LEVEL	4.390	4.135	3.984	3.447	3.321	3.255	3.180	2.966
PIPE FLOW (Cumecs)	0.031	0.059	0.114	0.114	0.354	0.354	0.354	0.354
PIPE CAPACITY AT GRADE (Cumecs)	0.457	0.225	0.232	0.150	0.756	0.535	1.836	1.778
DEPTH TO INVERT	1.342	1.700	1.800	1.700	1.459	1.479	1.780	1.780
INVERT LEVEL OF DRAIN	4.324	3.073	3.853	3.107	3.087	2.813	2.793	2.400
DESIGN SURFACE LEVEL	5.666	5.653	4.887	4.887	3.879	3.755	3.990	3.879
SETOUT CO-ORDINATE	N:77937.991	E:74220.903	N:77933.745	E:74214.682	N:77889.077	E:74221.019	N:77874.771	E:74210.903
RUNNING CHAINAGE	0.000	6.622	45.099	51.721	15.64	67.368	50.629	117.997

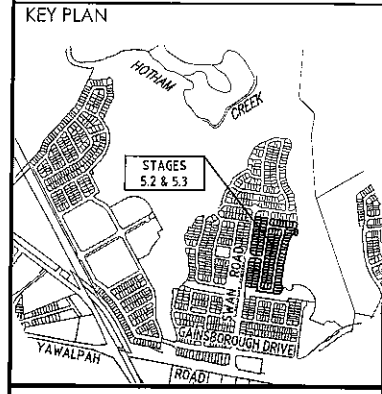
LINE 36

WATER LEVEL IN STRUCTURE	4.739	4.739	4.739	4.739	4.739	4.739	4.739	4.739
HYDRAULIC GRADE LEVEL	4.705	4.135	3.984	3.447	3.321	3.255	3.180	2.966
PIPE FLOW (Cumecs)	0.028	0.032	0.032	0.026	0.034	0.069	0.138	0.036
PIPE CAPACITY AT GRADE (Cumecs)	0.618	0.391	0.618	0.459	0.161	0.111	0.432	0.432
DEPTH TO INVERT	1.328	1.780	1.800	1.780	1.342	1.780	1.780	1.780
INVERT LEVEL OF DRAIN	4.330	3.873	3.873	3.107	3.336	2.899	2.899	2.400
DESIGN SURFACE LEVEL	5.658	5.653	4.887	4.887	3.879	3.755	3.990	3.879
SETOUT CO-ORDINATE	N:77937.991	E:74220.903	N:77933.745	E:74214.682	N:77889.077	E:74221.019	N:77874.771	E:74210.903
RUNNING CHAINAGE	0.000	3.673	3.673	11.126	11.126	35.017	17.73	25.293

LINE 37 38 39 40 41



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS



Project
GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
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FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

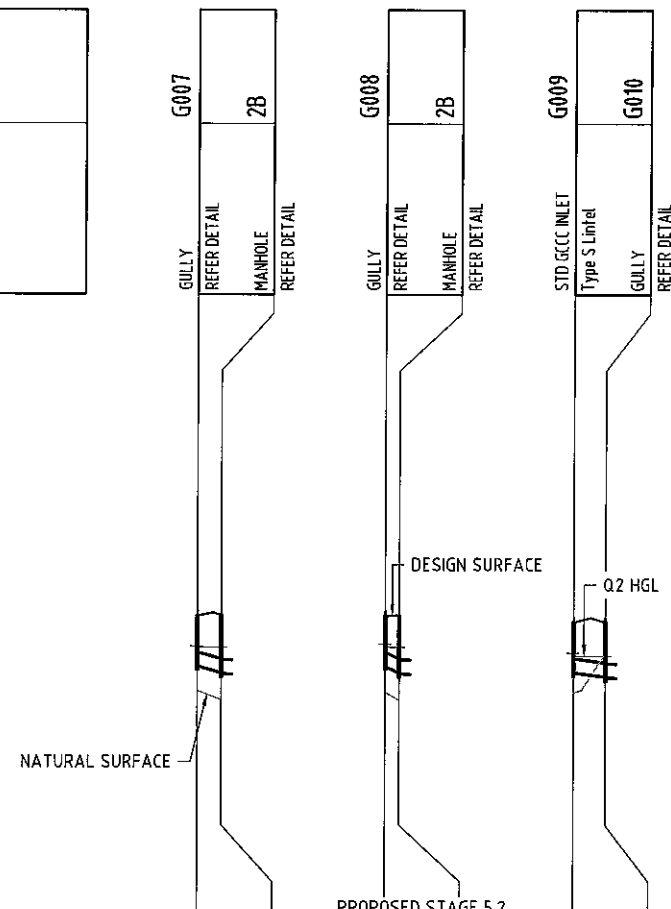
Approved Drawing - RPS 198
[Signature] P.P. 1-10

Drawing Title
STORMWATER
LONGITUDINAL SECTIONS
SHEET 4

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale			Sheet
-			33 of 54
Drawing No		Revision	
A1	15-179-33	A	

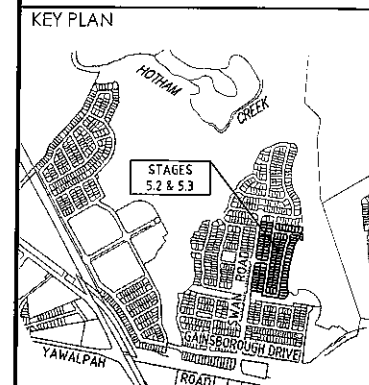
DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!

STRUCTURE NAME
STRUCTURE DESCRIPTION



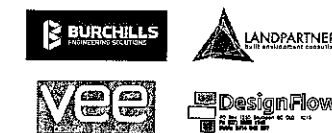
STAGE	PROPOSED STAGE 5.2	
PIPE SIZEmm (Class)	375(2)	375(2)
PIPE GRADE %	2.74%	4.89%
PIPE SLOPE 1 in X	36.53	20.44
FULL PIPE FLOW VELOCITY (m/s)	0.24	0.41
PART FULL FLOW VELOCITY (m/s)		0.43
DATUM	RL -11.0	
WATER LEVEL IN STRUCTURE	3.227	3.276
HYDRAULIC GRADE LEVEL	3.227	3.276
PIPE FLOW (Cumecs)	0.027	0.045
PIPE CAPACITY AT GRADE (Cumecs)	0.290	0.388
DEPTH TO INVERT	1.347	1.342
INVERT LEVEL OF DRAIN	2.693	2.690
DESIGN SURFACE LEVEL	4.040	4.043
SETOUT CO-ORDINATE	E:74276.441	E:74284.102
RUNNING CHAINAGE	0.000	0.000

LINE 42 43 44



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS



Project
GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

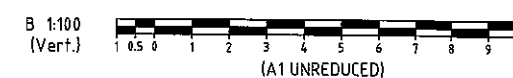
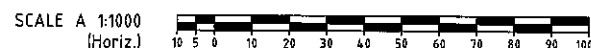


LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL: kng@knpl.com.au
ABN 35 112 053 611

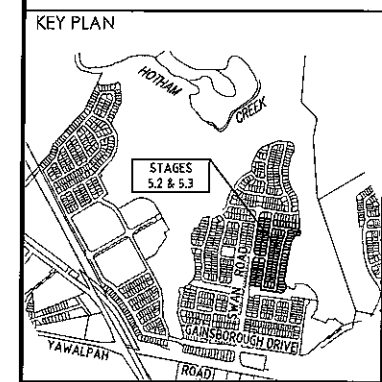
Approved Design: [Signature] 19.1.16

Drawn Title
STORMWATER
LONGITUDINAL SECTIONS
SHEET 5

Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale -	Sheet 34 of 54	Revision A	



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	MANHOLE DETAIL UPDATED	24/02/16	JAS



Project:
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**



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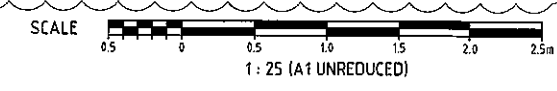
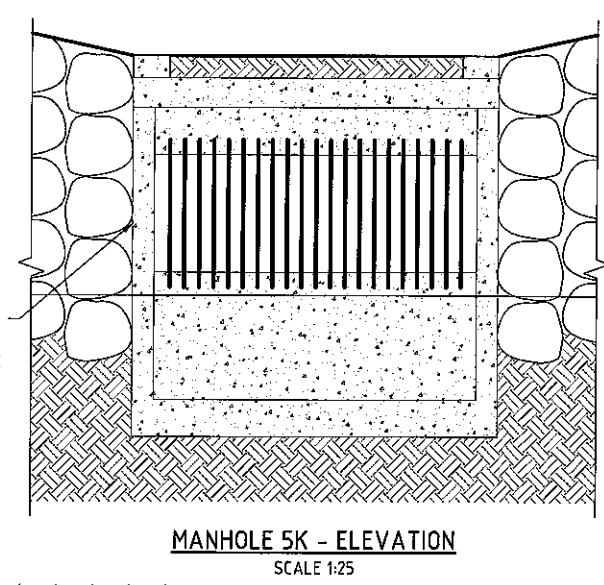
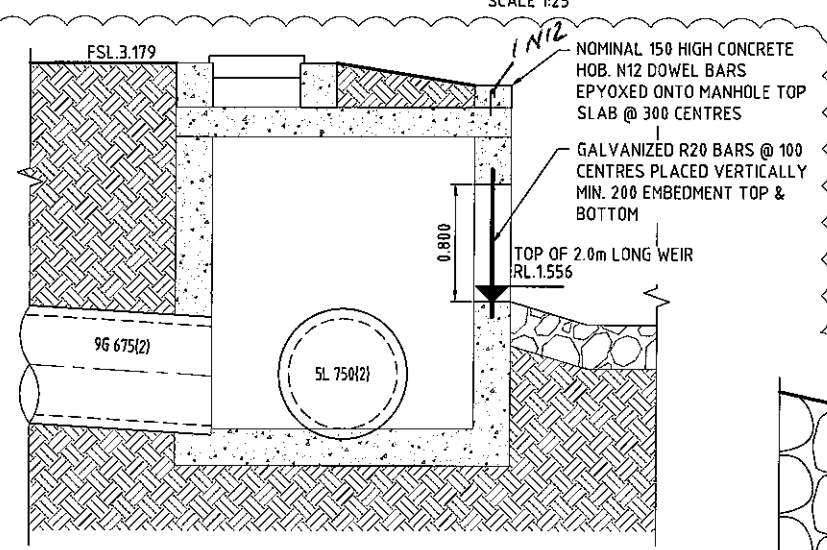
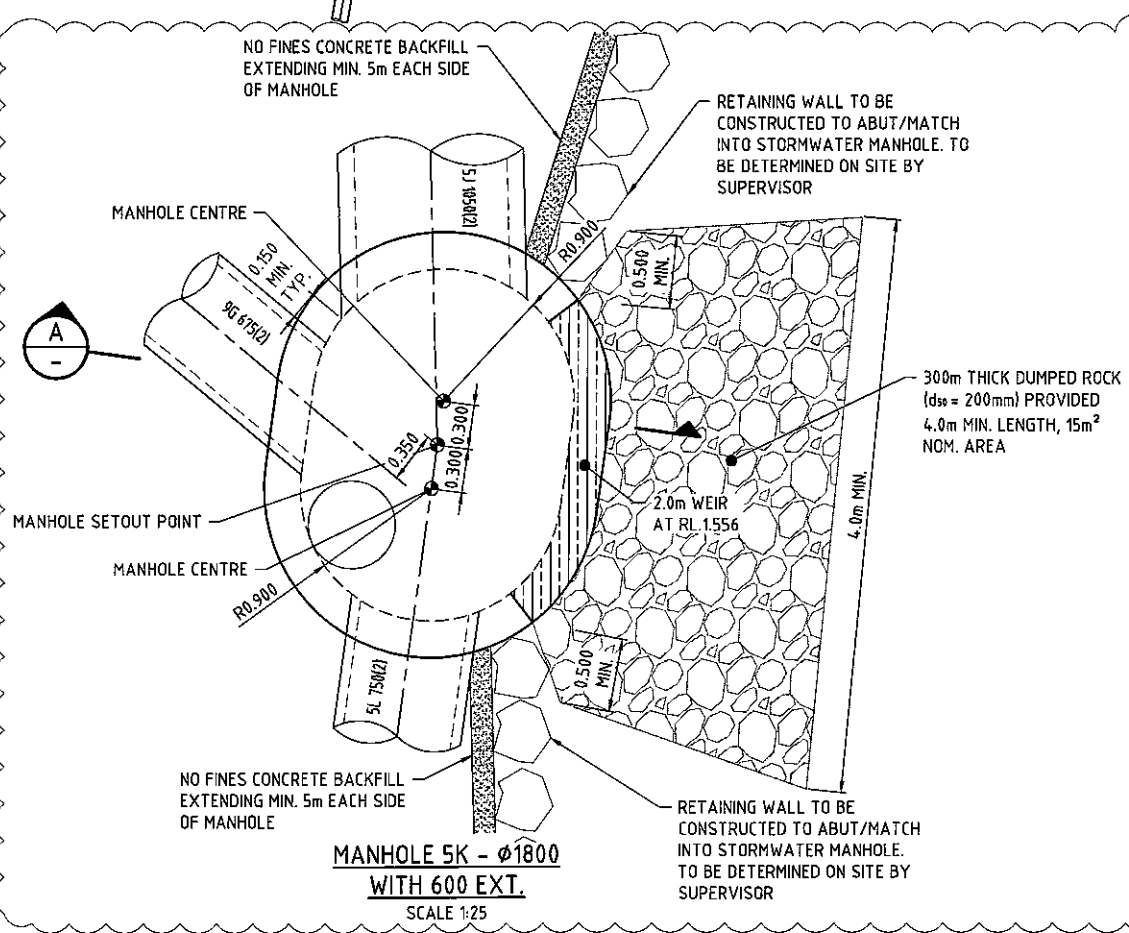
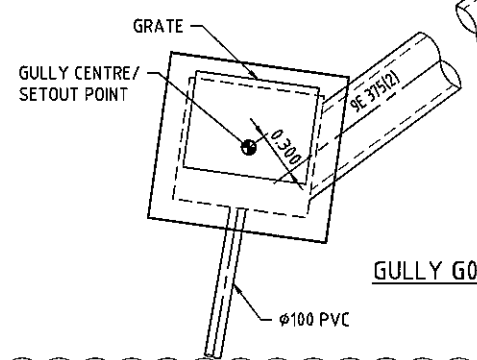
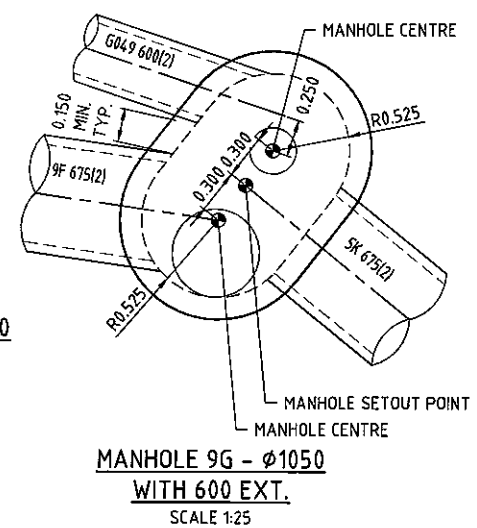
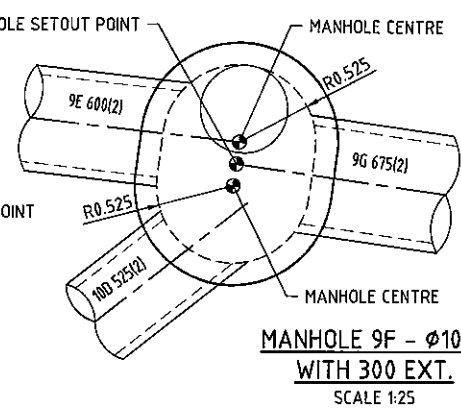
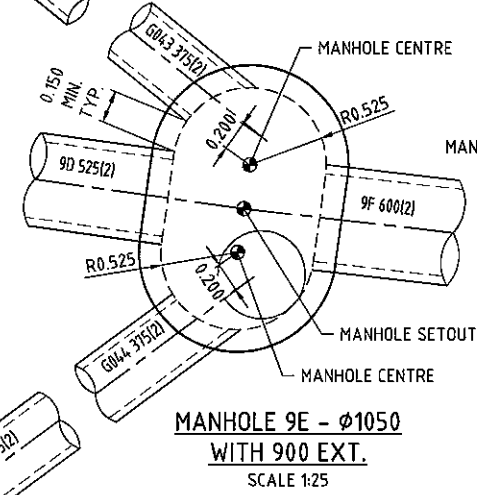
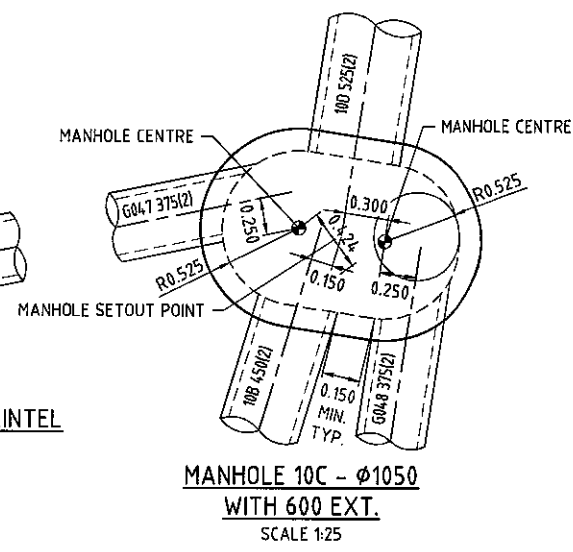
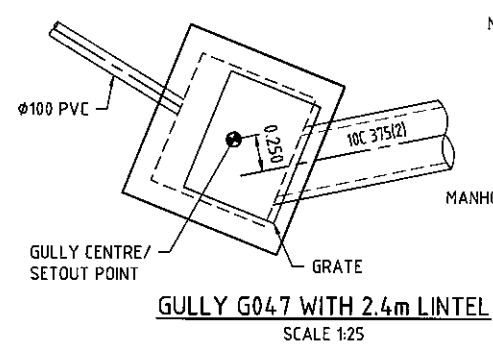
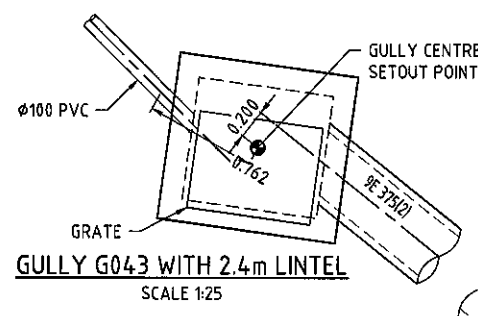
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Drawn Title:
**STORMWATER
MANHOLE DETAILS
SHEET 3**

Drawn	Designed	Checked	Date
NJS	JAS	GBC	JAN '16

Scale	Sheet
1:25	37 of 54

Revision	Revision
A1	B

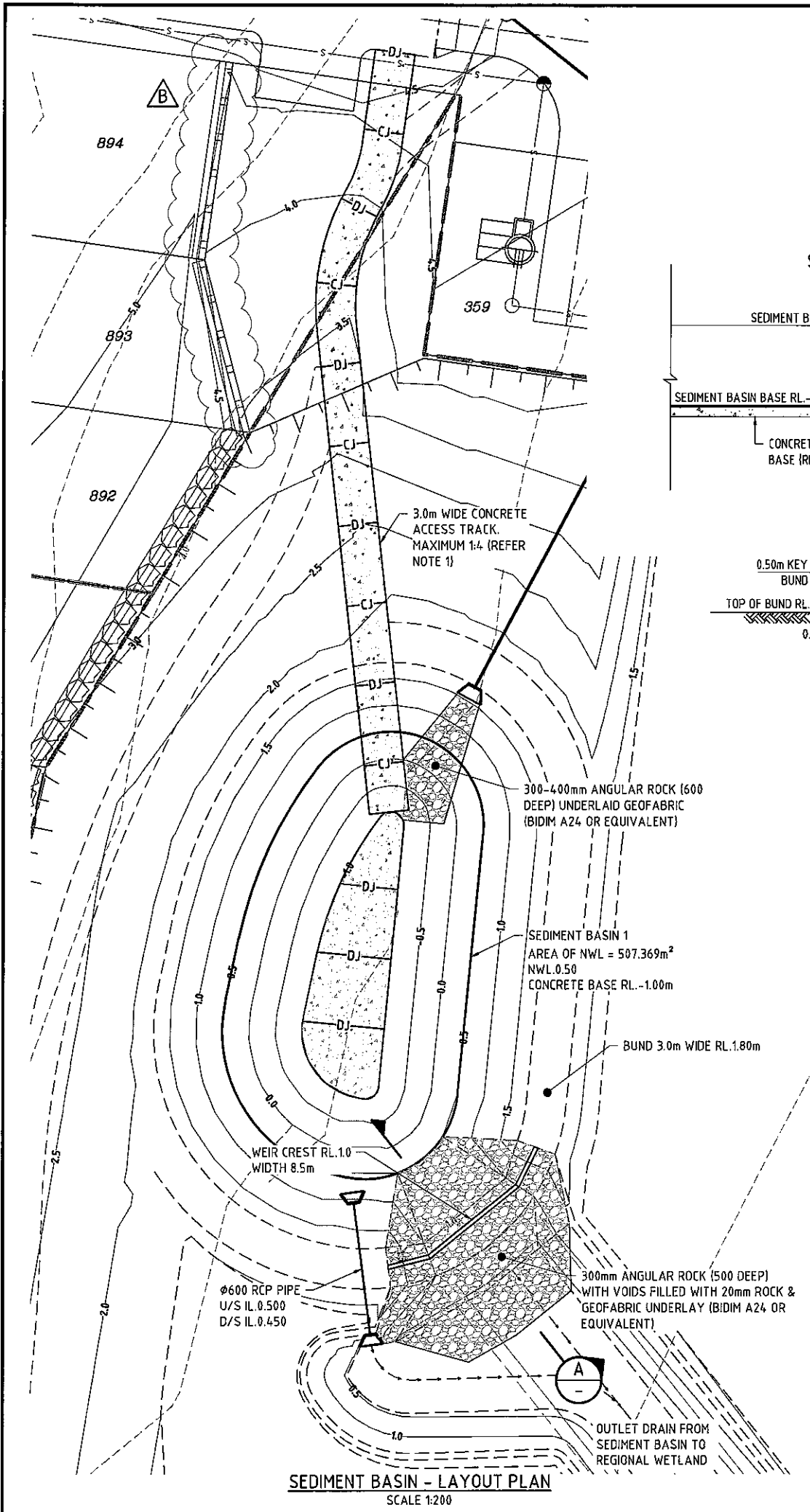


NO FINES CONCRETE BACKFILL
EXTENDING MIN. 5m EACH SIDE
OF MANHOLE

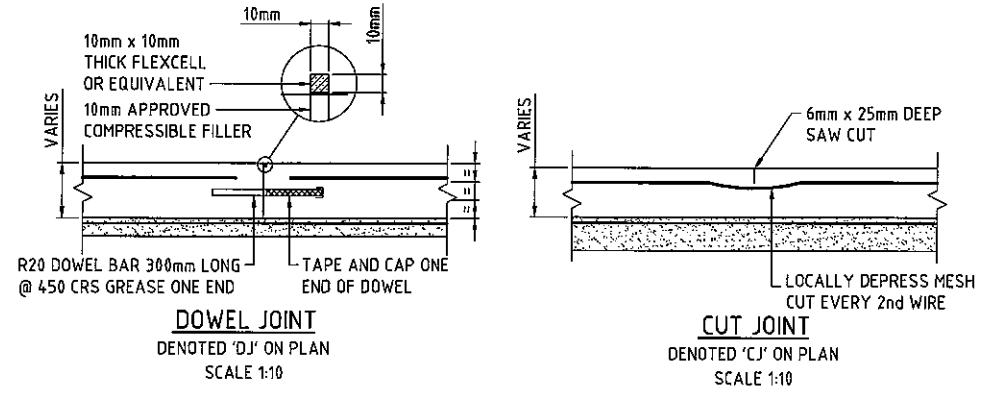
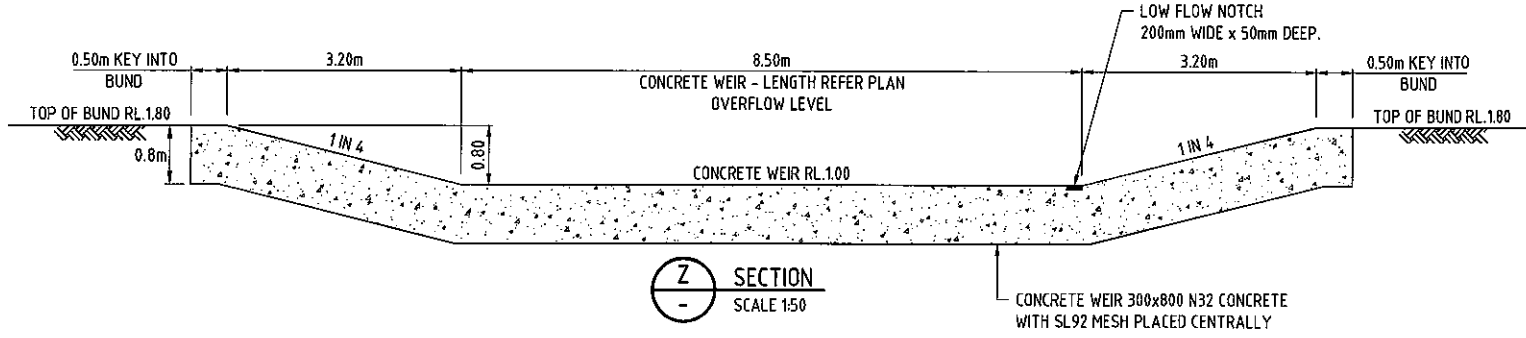
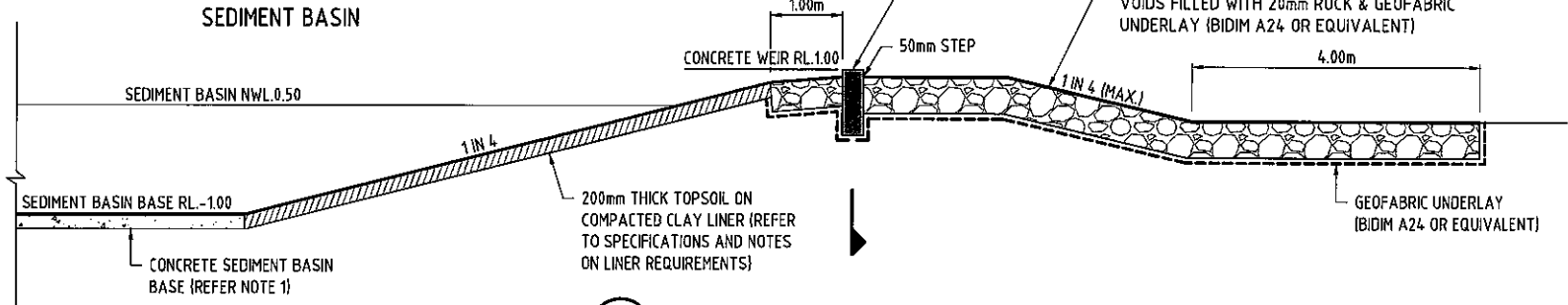
RETAINING WALL TO BE
CONSTRUCTED TO ABUT/MATCH
INTO STORMWATER MANHOLE. TO
BE DETERMINED ON SITE BY
SUPERVISOR

RETAINING WALL TO BE
CONSTRUCTED TO MATCH INTO
STORMWATER MANHOLE. TO BE
DETERMINED ON SITE BY
SUPERVISOR

RETAINING WALL TO BE
CONSTRUCTED TO ABUT/MATCH
INTO STORMWATER MANHOLE.
TO BE DETERMINED ON SITE BY
SUPERVISOR

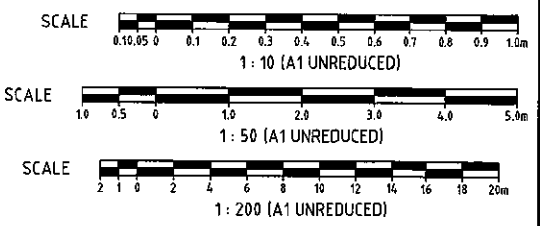


NOTE:
REFER TO PLANS & DETAILS
FOR LEVELS AND LENGTHS



NOTES

- CONCRETE ACCESS RAMPS AND BASIN BASE SLABS TO COMPRISE 200 THICK N32 CONCRETE, TWO LAYERS OF SL82 MESH PLACED WITH 50mm COVER TOP AND BOTTOM.
 - INSITU MATERIAL TO BE TESTED AND APPROVED FOR WATER RETAINING BUNDS BY GEOTECHNICAL ENGINEER PRIOR TO BUND CONSTRUCTION.
 - CONSTRUCTION TOLERANCE FOR WETLAND WORKS AND STRUCTURES ARE REQUIRED AS PER THE FOLLOWING TABLE:
- | ITEM | TOLERANCE | VERIFICATION |
|------------------------|-----------|--------------|
| PITS/PIPES | +/-25mm | SURVEY |
| CONCRETE WEIR/SPILLWAY | +/-25mm | SURVEY |
| EARTHWORKS/BUNDS | +/-50mm | SURVEY |
- DESIGN LEVELS SHOWN ARE FINISHED TOPSOIL SURFACE LEVELS. BULK EARTHWORKS TO ALLOW FOR 200MM TOPSOIL PLUS COMPACTED CLAY LINER.
 - WETLAND CONSTRUCTION STAGING AND HOLD POINT INSPECTIONS TO BE IN ACCORDANCE WITH THE 'WETLAND CONSTRUCTION SPECIFICATION' MAY 2012 BY DESIGNFLOW.



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

KEY PLAN

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	RETAINING WALL AMENDED	24/02/16	RCF

CLIENT

PROJECT

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

KN GROUP PTY LTD
CONSULTING ENGINEERS

LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
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EMAIL: kng@knpl.com.au
ABN 35 112 053 611

Approved Drawn - RPL 1989
Handwritten signature and date 18.2.16

DRAWING TITLE

STORMWATER
SEDIMENT BASIN
LAYOUT PLAN

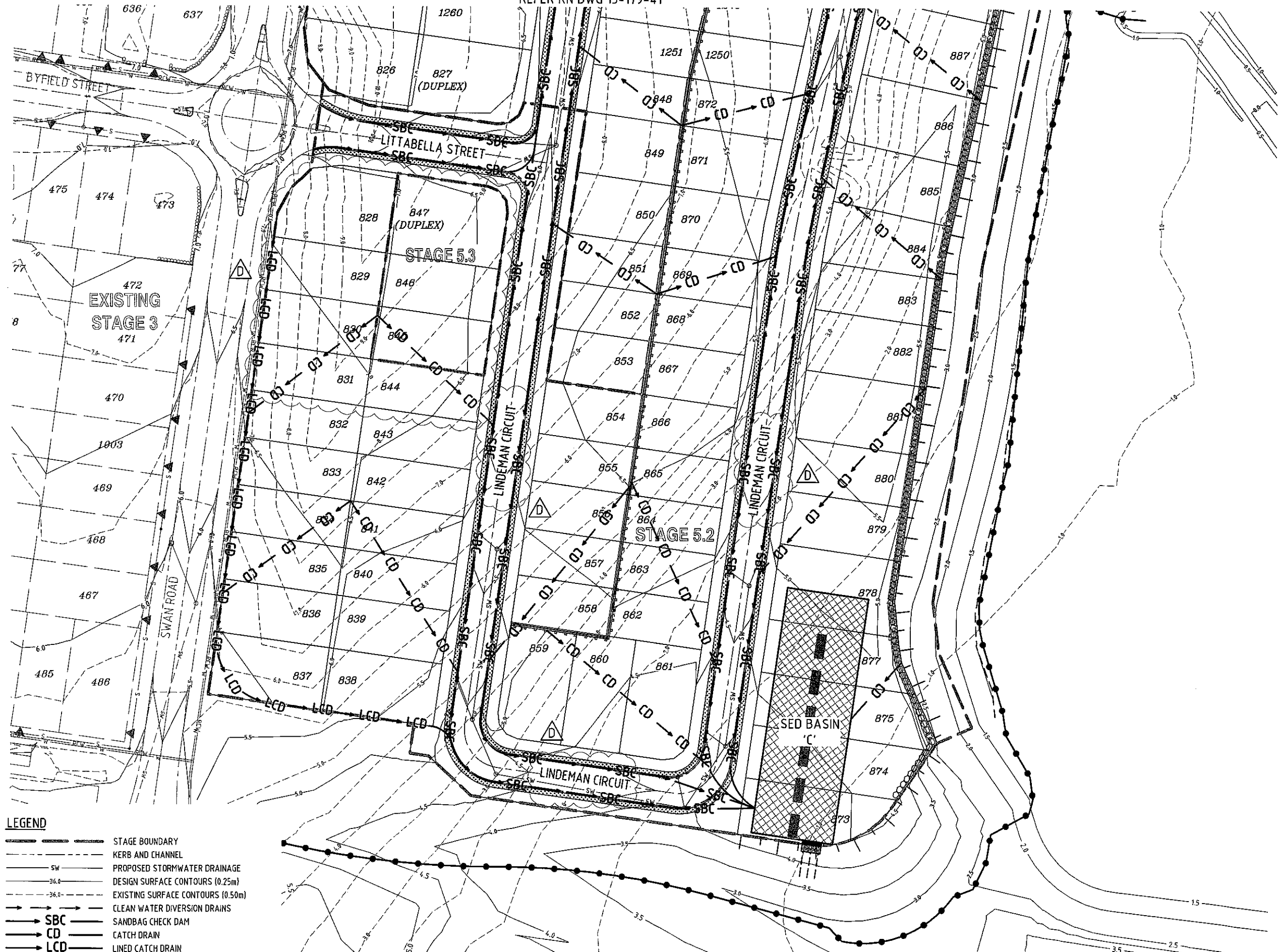
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NJS	JAS	GRG	JAN '16

Scale AS SHOWN

Sheet	Revision
38 of 54	B

A1 Drawing No 15-179-38

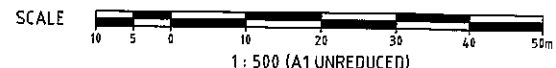
REFER KN DWG 15-179-41



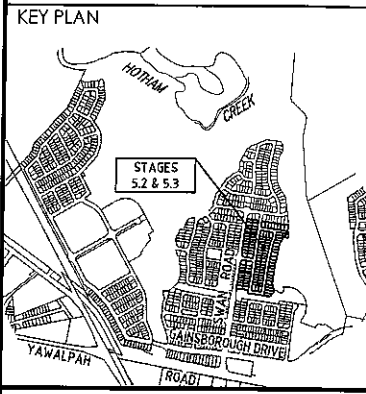
LEGEND

	STAGE BOUNDARY
	KERB AND CHANNEL
	PROPOSED STORMWATER DRAINAGE
	DESIGN SURFACE CONTOURS (0.25m)
	EXISTING SURFACE CONTOURS (0.50m)
	CLEAN WATER DIVERSION DRAINS
	SANDBAG CHECK DAM
	CATCH DRAIN
	LINED CATCH DRAIN
	SEDIMENT AND DIVERSION FENCE (TEMP)
	SEDIMENT BASIN
	TRUCK SHAKE DOWN FACILITY - LOCATION TO BE CONFIRMED ON SITE
	TURF STRIP

LAYOUT PLAN
SCALE 1:500



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REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LOT TYPE ADDED	24/02/16	RCT
C	LOT CALCS AMENDED	18/04/16	RCT
D	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



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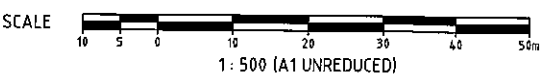
Approved Designer: *[Signature]* 2.6.16
Drawing Title
EROSION AND SEDIMENT CONTROL
LAYOUT PLAN
CONSTRUCTION PHASE - SHEET 1

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	Drawing No	Sheet	Revision
1:500	15-179-40	40 of 54	D

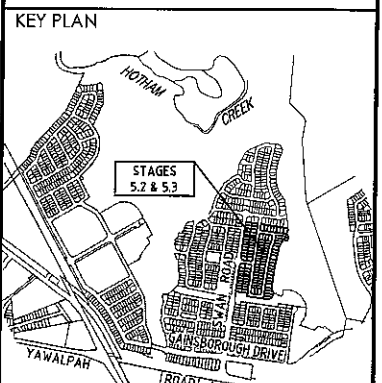


REFER KN DWG 15-179-40
LAYOUT PLAN
 SCALE 1:500

- LEGEND**
- STAGE BOUNDARY
 - - - KERB AND CHANNEL
 - - - PROPOSED STORMWATER DRAINAGE
 - - - DESIGN SURFACE CONTOURS (0.25m)
 - - - EXISTING SURFACE CONTOURS (0.50m)
 - - - CLEAN WATER DIVERSION DRAINS
 - SBC SANDBAG CHECK DAM
 - CD CATCH DRAIN
 - LCD LINED CATCH DRAIN
 - SEDIMENT AND DIVERSION FENCE (TEMP)
 - SEDIMENT BASIN
 - TRUCK SHAKE DOWN FACILITY - LOCATION TO BE CONFIRMED ON SITE
 - TURF STRIP



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 IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	RETAINING WALL AMENDED	24/02/16	RCT
C	LOT BDT'S & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
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 ABN 35 112 053 611

Approved: *[Signature]* 2.6.16
 Drawing Title: **EROSION AND SEDIMENT CONTROL LAYOUT PLAN CONSTRUCTION PHASE - SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale	Sheet
1:500	41 of 54

Drawing No	Revision
A1 15-179-41	C

REFER KN DWG 15-179-43

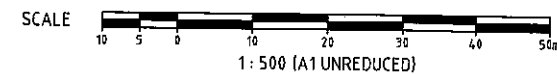


- LEGEND**
- STAGE BOUNDARY
 - KERB AND CHANNEL
 - PROPOSED STORMWATER DRAINAGE
 - DESIGN SURFACE CONTOURS (0.25m)
 - EXISTING SURFACE CONTOURS (0.50m)
 - CLEAN WATER DIVERSION DRAINS
 - SEDIMENT AND DIVERSION FENCE (TEMP)
 - SILT WEIR
 - GULLY BAGS

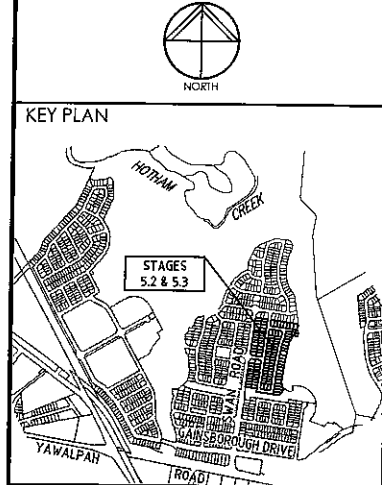
NOTE

1. 600mm WIDE TURFING STRIP WITH FINGERS @ 5m CRS TO BE PLACED BEHIND ALL KERB AND CHANNEL.

LAYOUT PLAN
SCALE 1:500



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REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LOT TYPE ADDED	24/02/16	RCT
C	LOT CALCS AMENDED	18/04/16	RCT
D	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
CONSULTING ENGINEERS

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ABN 35 112 053 611

Approved Drawing: *[Signature]* 2/6/16

Drawn by: *[Signature]*

**EROSION AND SEDIMENT CONTROL
LAYOUT PLAN
POST CONSTRUCTION - SHEET 1**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale	Sheet
1:500	42 of 54

Revision	Revision
A1	D

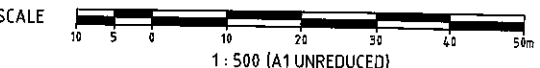


REFER KN DWG 15-179-42 LAYOUT PLAN SCALE 1:500

- LEGEND**
- STAGE BOUNDARY
 - KERB AND CHANNEL
 - SW PROPOSED STORMWATER DRAINAGE
 - 36.0 DESIGN SURFACE CONTOURS (0.25m)
 - 36.0 EXISTING SURFACE CONTOURS (0.50m)
 - CLEAN WATER DIVERSION DRAINS
 - SEDIMENT AND DIVERSION FENCE (TEMP)
 - SILT WEIR
 - GULLY BAGS

NOTE

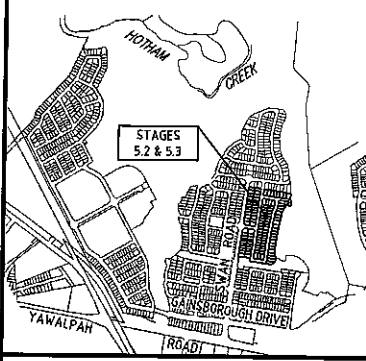
- 600mm WIDE TURFING STRIP WITH FINGERS @ 5m CRS TO BE PLACED BEHIND ALL KERB AND CHANNEL.



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	RETAINING WALL AMENDED	24/02/16	RCT
C	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3**



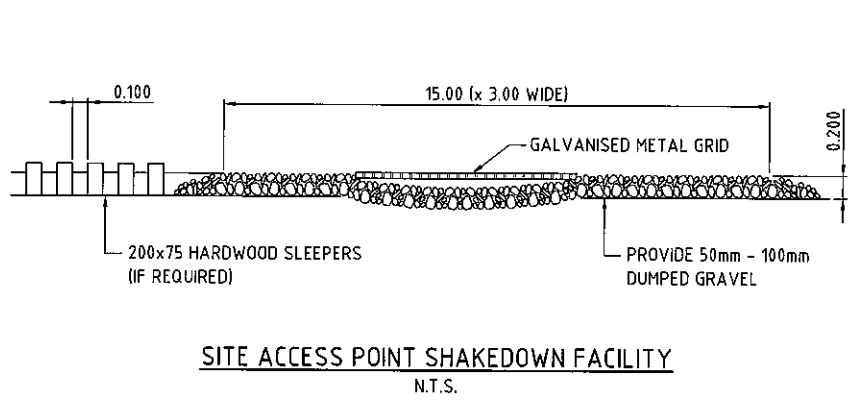
LEVEL 2 - 71 GREY STREET
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 PHONE 07 3017 1900
 FAX 07 3017 1911
 EMAIL knng@knpl.com.au
 ABN 35 112 053 611

Approved Director - R190 1988
[Signature] 2-6-16

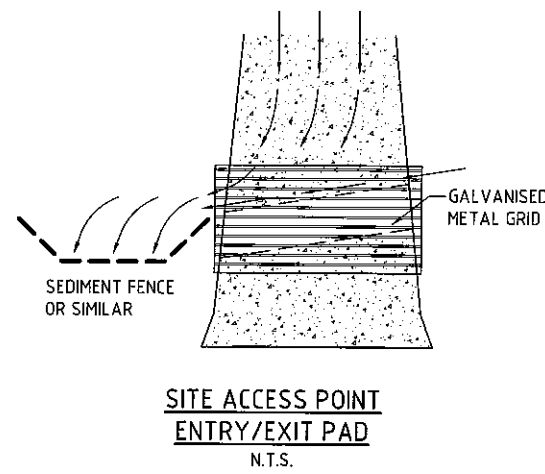
**EROSION AND SEDIMENT CONTROL
 LAYOUT PLAN
 POST CONSTRUCTION - SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	1:500	Sheet	43 of 54
A1	Drawing No 15-179-43	Revision	C

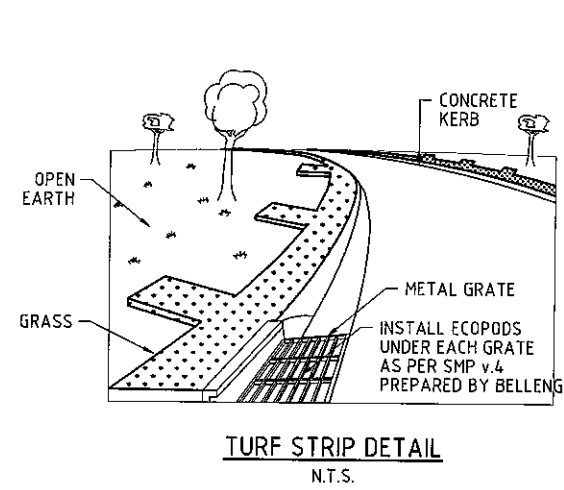
DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



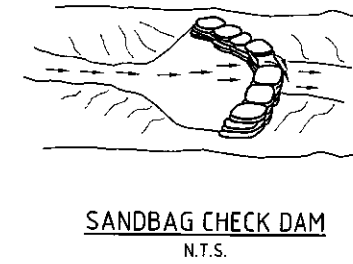
SITE ACCESS POINT SHAKEDOWN FACILITY
N.T.S.



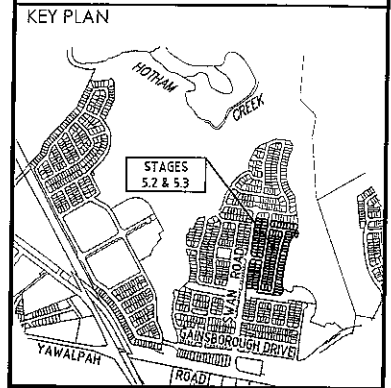
SITE ACCESS POINT ENTRY/EXIT PAD
N.T.S.



TURF STRIP DETAIL
N.T.S.

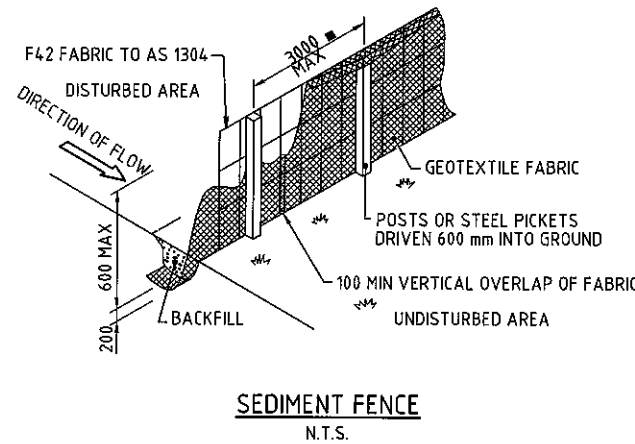


SANDBAG CHECK DAM
N.T.S.

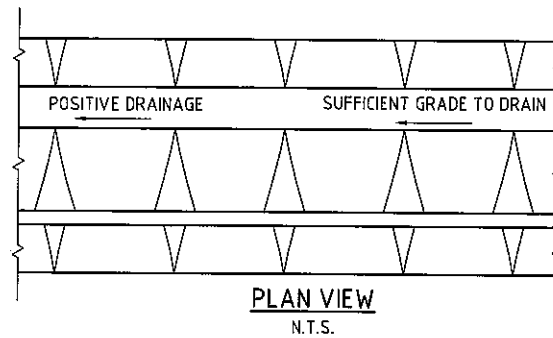


REVISIONS

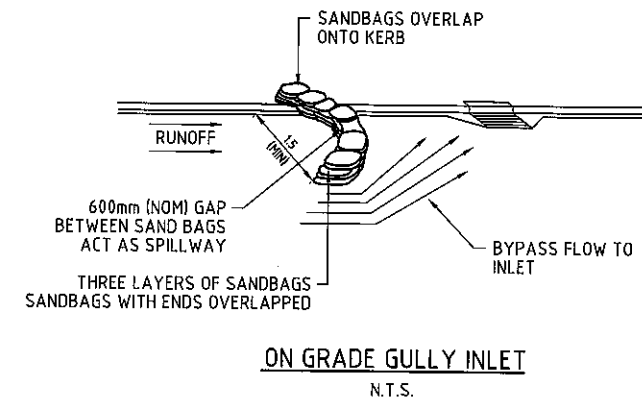
No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS



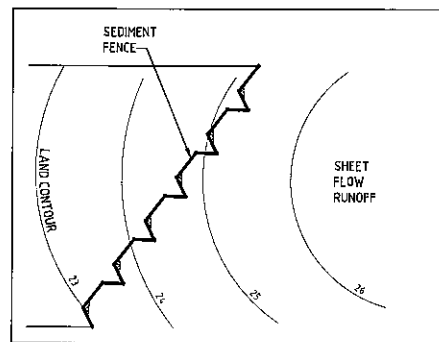
SEDIMENT FENCE
N.T.S.



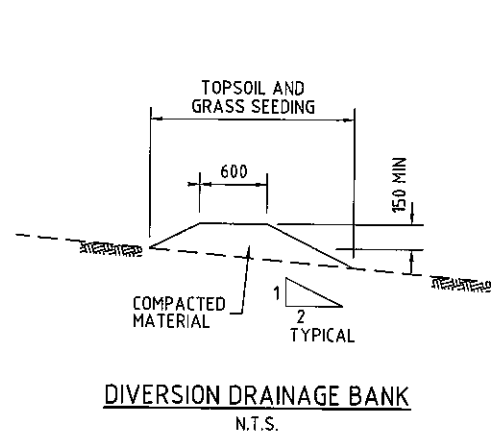
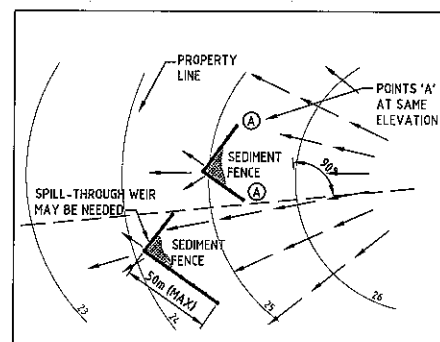
PLAN VIEW
N.T.S.



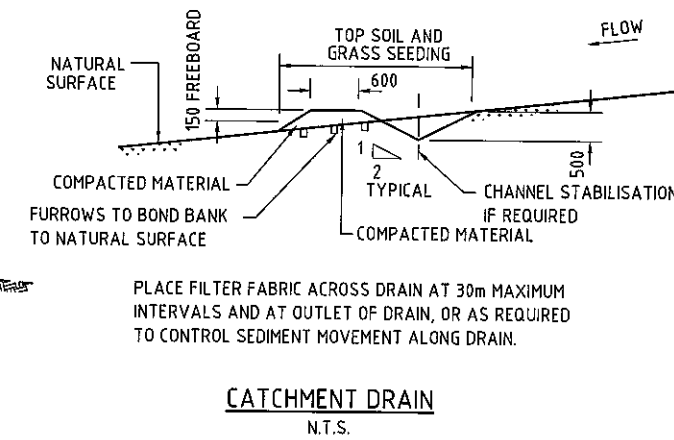
ON GRADE GULLY INLET
N.T.S.



SILT FENCE DETAILS
N.T.S.



DIVERSION DRAINAGE BANK
N.T.S.



CATCHMENT DRAIN
N.T.S.



Client
Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**


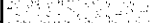



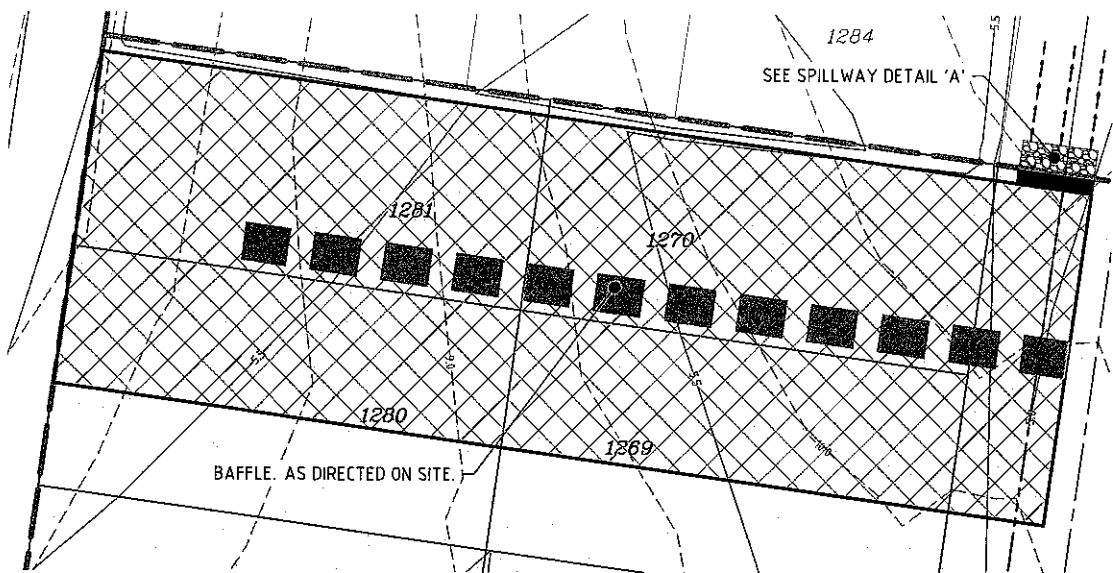
LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
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FAX 07 3017 1911
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved Director - RPEQ 1988
Drawn by
**EROSION AND SEDIMENT CONTROL
DETAILS**

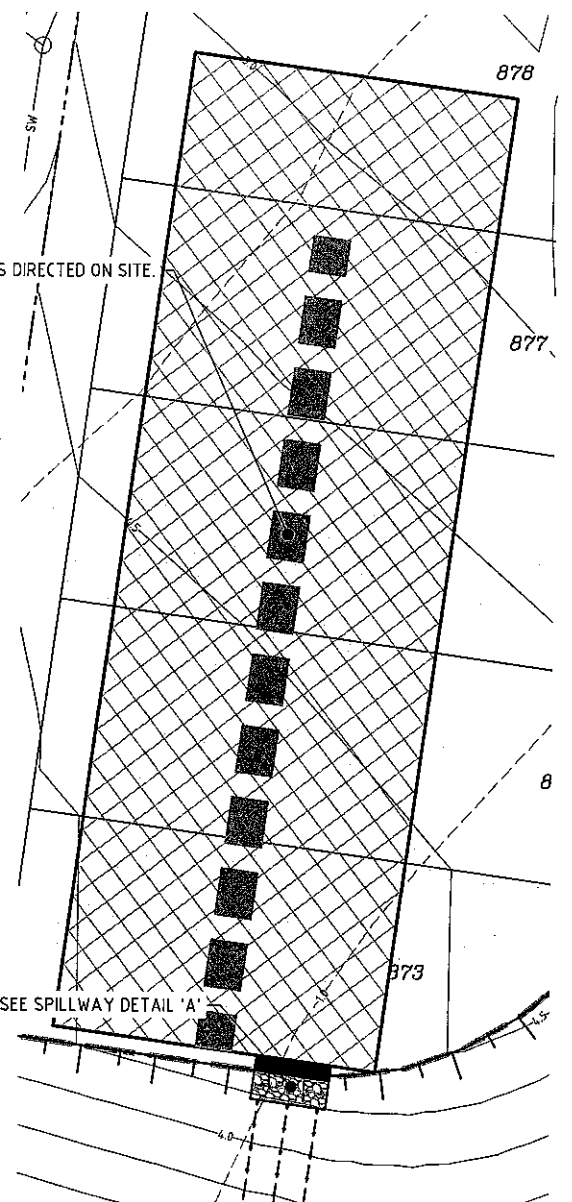
Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale			Sheet
-			45 of 54
A1	Drawing No		Revision
	15-179-45		A

LEGEND

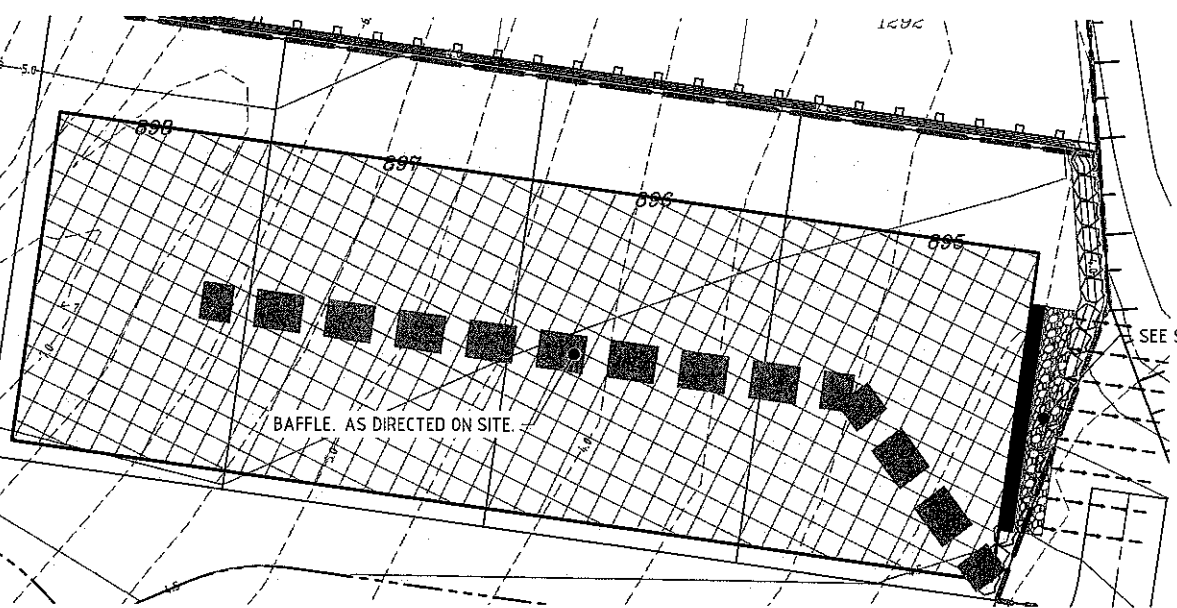
-  CATCHDRAIN (TEMPORARY)
-  TEMPORARY SEDIMENT BASIN
-  ROCK SPILLWAY



TEMPORARY SEDIMENT BASIN 'A'
SCALE 1: 250



TEMPORARY SEDIMENT BASIN 'C'
SCALE 1: 250



TEMPORARY SEDIMENT BASIN 'B'
SCALE 1: 250

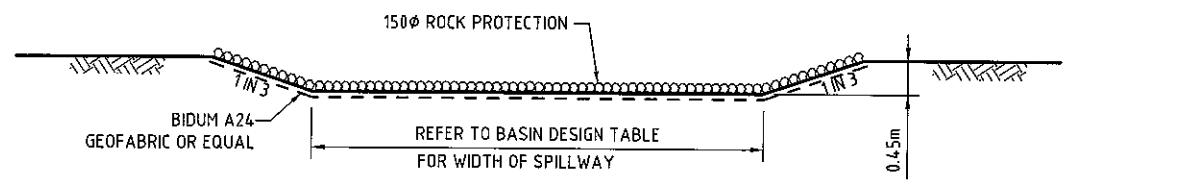
Job No. 15-179
Client: Mirvac
Project: Gainsborough Greens 5.2/3



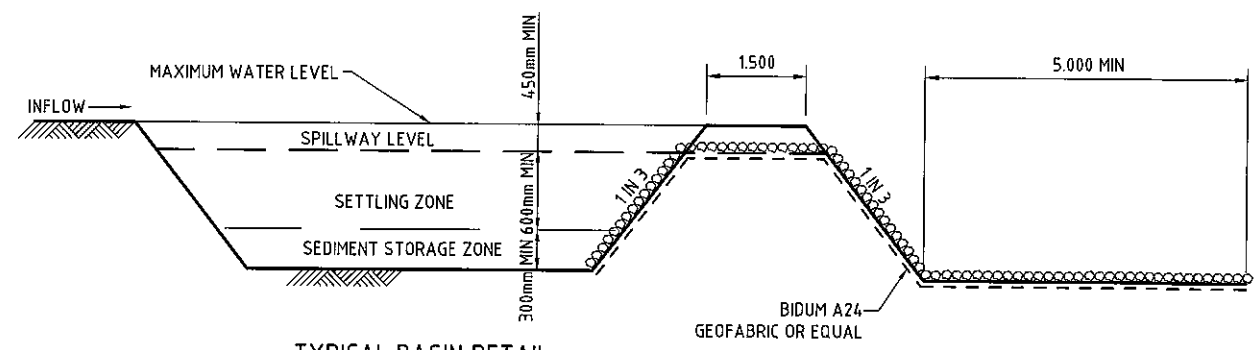
GAINSBOROUGH GREENS STAGE 5.2/3

Basin Design	Temp Basin A	Temp Basin B	Temp Basin C	
R(y%5day)	46.8	46.8	46.8 mm	Table B5 (85th%)
Soil Type	Clay	Clay	Clay	Table B7 (Clay)
Cv	0.8	0.8	0.8	Table B7 (Clay)
Effective catchment area (A)	2.26	2.21	2.16 Ha	Vs = 10.R(y%5day).Cv.A
Vs (volume of settling zone)	881.9	862.4	843.7 m ³	
settling depth	0.6	0.6	0.6 m	
Area of basin	1469.9	1437.3	1406.1 m ²	
Base width	22.1	21.9	21.6 m	
Base length	66.4	65.7	64.9 m	
settling zone Volume check	881.9	862.4	843.7 m ³	= required volume therefore ok Volume matches ultimate volume for ultimate bio-basin
Spillway Design				
Less than 3month operation	Q10	Q10	Q10	
3-12month operation	Q20	Q20	Q20	
greater than 12 months	Q100	Q100	Q100	
Intensity for a 20 year, 6 min event	217.0	217.0	217.0 mm/hr	(GCCC)
C10 value	0.88	0.88	0.88	Factor by 1.05 for C20
Effective catchment area (a)	2.3	2.2	2.2 Ha	flow to design for (velocity check for rock rip rap)
Q (flow rate)	1.3	1.2	1.2 m ³ /s	(Maximum 0.45m, IECA 2008, Page B.35)
(n)	0.025	0.025	0.025	
width of spillway	4.5	15.0	5.0 m	
depth of flow over spillway	0.20	0.10	0.17 m	
gradient of spill way "wings"	2.0	2.0	2.0 :1	
area spillway (using gradient 2:1)	0.88	1.52	0.93	area (cross section) of spillway wetted perimeter
perimeter	5.4	15.4	5.8 m	
Spillway outlet slope (S)	0.10	0.33	0.17	(area/wetted perimeter)
(R)	0.18	0.10	0.16 m	
Velocity (V)	4.1	4.9	4.8 m/s	V=R*(2/3) * S^(1/2) / n
Check against design flow (Q)	4.0	7.5	4.5 m ³ /s	OK
Bottom velocity (V)	2.8	3.4	3.4 m/s	
Weir Flow Calculation (H)	0.3	0.15	0.26 m	Maximum Depth above weir
Check on against design flow rate (Q)	1.4	1.5	1.2 m ³ /s	OK refer Table A21 IECA

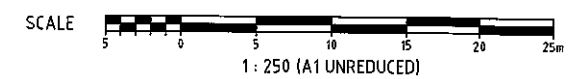
Summary Basin A	Basin B	Basin C
Depth of weir	0.45	0.45
	0.45	0.45 m



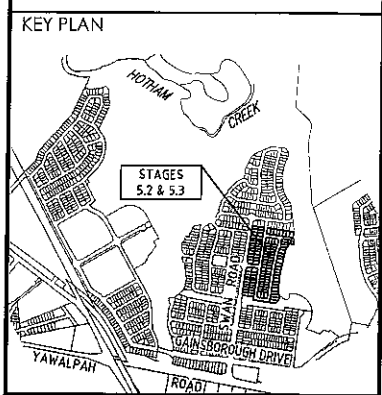
SPILLWAY DETAIL A
N.T.S.



TYPICAL BASIN DETAIL
N.T.S.



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN 16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Director - RPEQ 1998
[Signature] 19.1.16

**EROSION AND SEDIMENT CONTROL
BASIN NOTES**

Drawn	Designed	Checked	Date
NJS	JAS	G8G	JAN '16
Scale	Sheet		
1:250	46 of 54		
Revision			
A1	Drawing No 15-179-46	Revision A	

REFER KN DWG 15-179-48

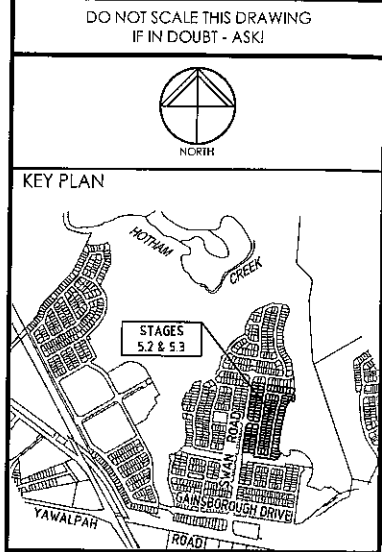


LEGEND

- CONSTRUCTION BOUNDARY
- PROPOSED SEWER MAIN
- EXISTING SEWER MAIN
- STORMWATER MAIN
- WATER MAIN
- DRIVEWAY POSITION INDICATED
- BATTER LINE
- KERB AND CHANNEL
- FINISHED SURFACE CONTOURS
- DEFINES LIVE CONNECTION UNDER GOLD COAST WATER SUPERVISION AT DEVELOPER'S EXPENSE
- CONTROL POINT
- FLOW ARROW

SEWER MANHOLE LEGEND

- MANHOLE
- MAINTENANCE SHAFT
- END OF LINE
- BEND



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	SEWER LINE AMENDED	24/02/16	RCT
C	HC'S AND LOT CALCS AMENDED	18/04/16	RCT
D	LOT BOUNDARIES AMENDED	23/05/16	NJS



Client
Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
CONSULTING ENGINEERS

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ABN 35 112 053 611

Approved Director: *[Signature]* 26-1-16

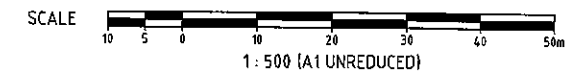
**SEWERAGE RETICULATION
LAYOUT PLAN
SHEET 1**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

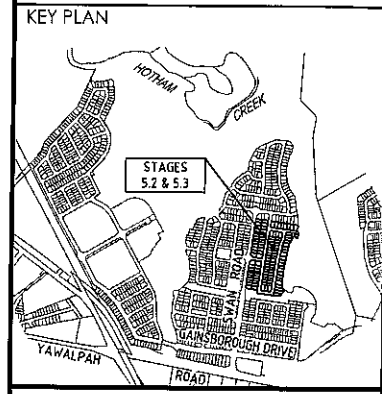
Scale: 1:500
Sheet: 47 of 54

Drawing No	Revision
A1 15-179-47	D

LAYOUT PLAN
SCALE 1:500



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IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	SEWER LINE & MH AMENDED	24/02/16	RCT
C	HC'S AMENDED	18/04/16	RCT
D	LOT BOUNDARIES AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**



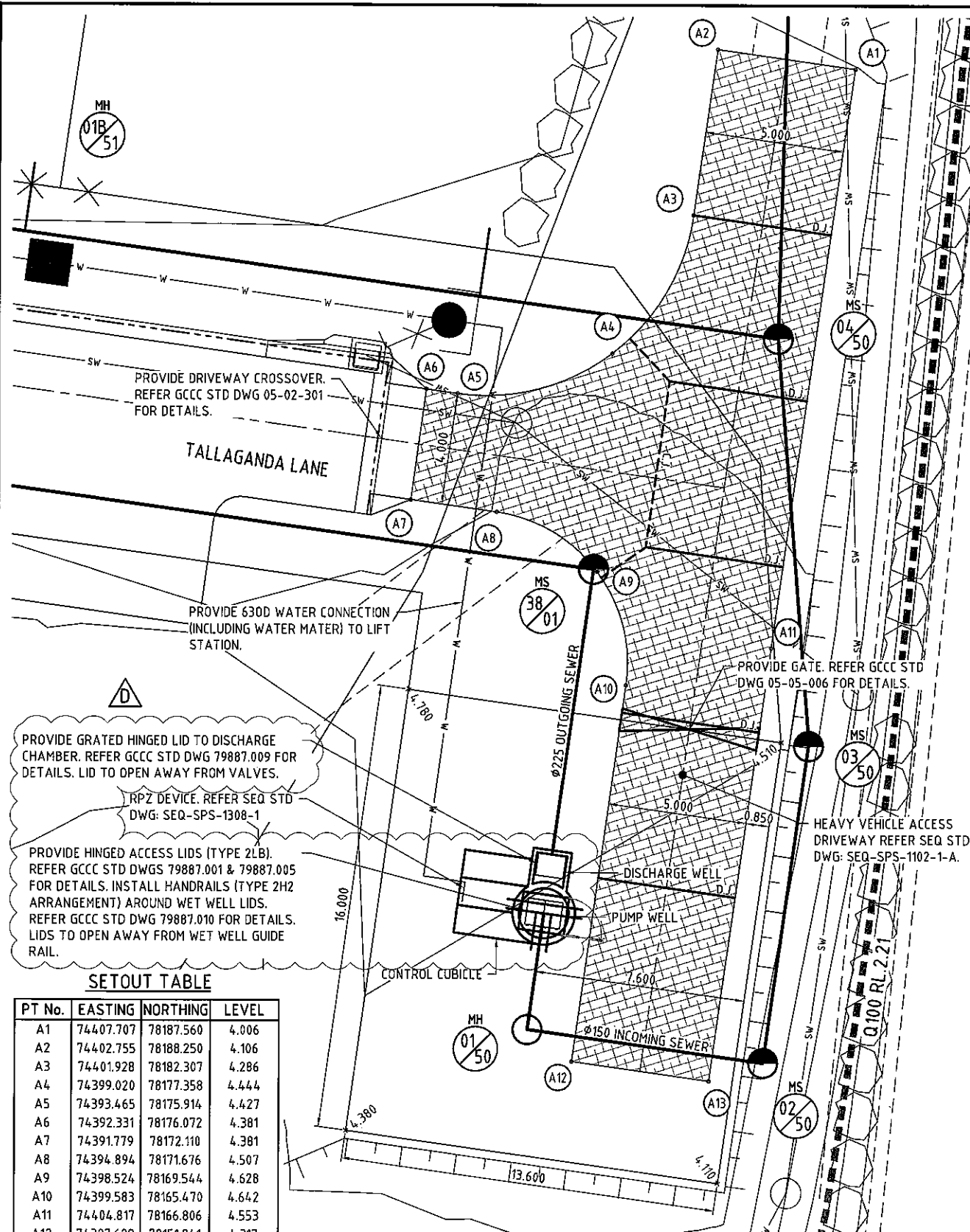
LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved: *[Signature]* 26.5.16

Drawn by:
**SEWERAGE RETICULATION
LAYOUT PLAN
SHEET 2**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	Drawing No		Sheet
1:500	15-179-48		48 of 54
		Revision	
		D	





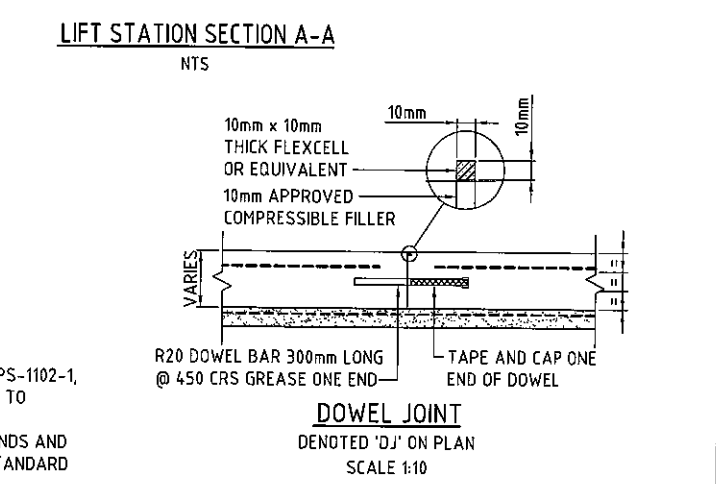
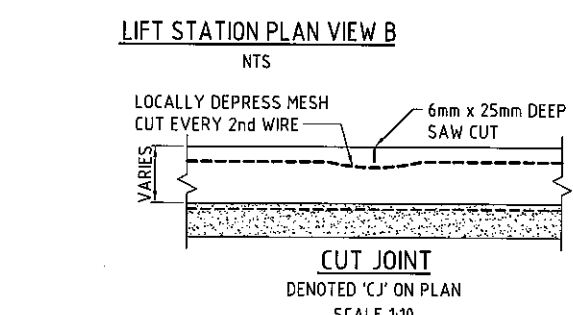
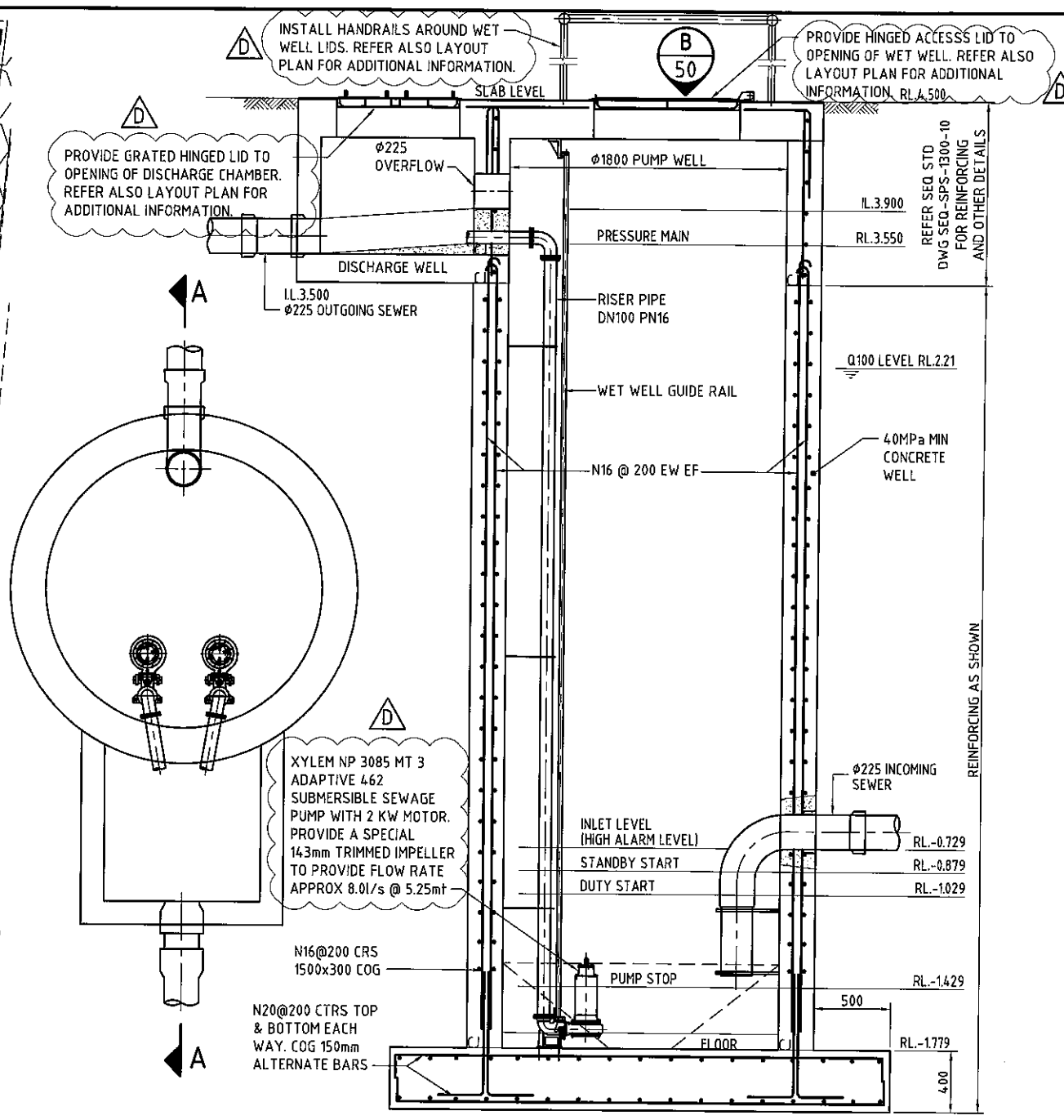
SETOUT TABLE

PT No.	EASTING	NORTHING	LEVEL
A1	74407.707	78187.560	4.006
A2	74402.755	78188.250	4.106
A3	74401.928	78182.307	4.286
A4	74399.020	78177.358	4.444
A5	74393.465	78175.914	4.427
A6	74392.331	78176.072	4.381
A7	74391.779	78172.110	4.381
A8	74394.894	78171.676	4.507
A9	74398.524	78169.544	4.628
A10	74399.583	78165.470	4.642
A11	74404.817	78166.806	4.553
A12	74397.699	78151.941	4.317
A13	74402.651	78151.251	4.217

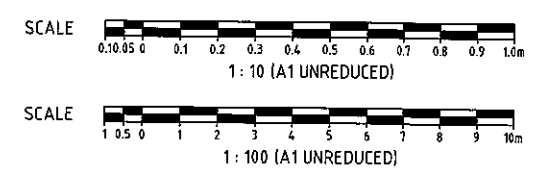
- LEGEND**
- SW - PROPOSED SEWER MAIN
 - W - STORMWATER MAIN
 - W - WATER MAIN
 - ▲ - DRIVEWAY POSITION INDICATED
 - - BATTER LINE
 - - KERB AND CHANNEL
 - - FINISHED SURFACE CONTOURS
 - C.J. - CUT JOINT
 - D.J. - DOWEL JOINT

- SEWER MANHOLE LEGEND**
- MH 1/26 - MANHOLE
 - MS 1/26 - MAINTENANCE SHAFT
 - E 2/26 - END OF LINE
 - B51 - BEND

- EXPOSED AGGREGATE TREATMENT**
- REFER LANDSCAPE DRAWINGS FOR AGGREGATE TYPE
 - N32 CONCRETE 200mm THICK SL82 FABRIC 4.0 COVER OVER 200mm SUBBASE GRAVEL



- SPECIFICATION:**
- FOR CONSTRUCTION DETAILS REFER SEQ STD DWGS.: SEQ-SPS-1102-1, SEQ-SPS-1304-0 TO SEQ-SPS-1304-9 AND SEQ-SPS-1300-7 TO SEQ-SPS-1300-11.
 - THE SUPPLY AND INSTALLATION OF PUMPS, RISER PIPES, BENDS AND ALL ASSOCIATED FITTINGS SHALL COMPLY WITH COUNCILS STANDARD SPECIFICATION SS1.
 - THE RISER PIPE SHALL BE AS PER MANUFACTURERS INSTRUCTIONS, DIOL OR HDPE, WITH ELECTRO FUSION JOINTS UNLESS OTHERWISE APPROVED BY COUNCIL.
 - THE LIFT STATION DIAMETER AND LID DIMENSIONS HAVE BEEN DETERMINED ON THE BASIS OF USE BY THE TYPE, SIZE AND VOLUME DIAMETER OF PUMPS NOMINATED ON THIS DRAWING.
 - PUMPS - DUAL SUBMERSIBLE PUMPS WITH GALVANISED GUIDE RAIL. PUMP CONTROLLER - TO BE DESIGNED AND CONSTRUCTED BY APPROVED SPECIALIST CONTRACTOR TO SEQ STANDARD SPECIFICATIONS.
 - FOR FALL PROTECTION DETAILS REFER GCCC STANDARD DRAWINGS NO. 79887.001 TO 79887.011



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

KEY PLAN

REVISIONS

No.	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	FALL PROTECTION NOTE ADDED	24/02/16	RCT
C	Q100 LEVEL ADDED	10/03/16	JAS
D	IMPELLER NOTE ADDED	09/04/16	RCT

CLIENT

Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

KN GROUP PTY LTD
CONSULTING ENGINEERS

LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved Director: *[Signature]*
Drawing Title: **SEWERAGE RETICULATION LIFT STATION LAYOUT AND DETAILS PLAN**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale: AS SHOWN

Sheet	Revision
50 of 54	D

Drawing No: 15-179-50

MAINTENANCE HOLE/SHAFT No.

MH/MS COVER TYPE
MH/MS TYPE
BRANCH LINE No.
BRANCH DROP TYPE
HC TYPE
HC DEPTH
HC CH. TO DS MH/MS
HC INVERT LEVEL
HC LOT No.

LEGEND:

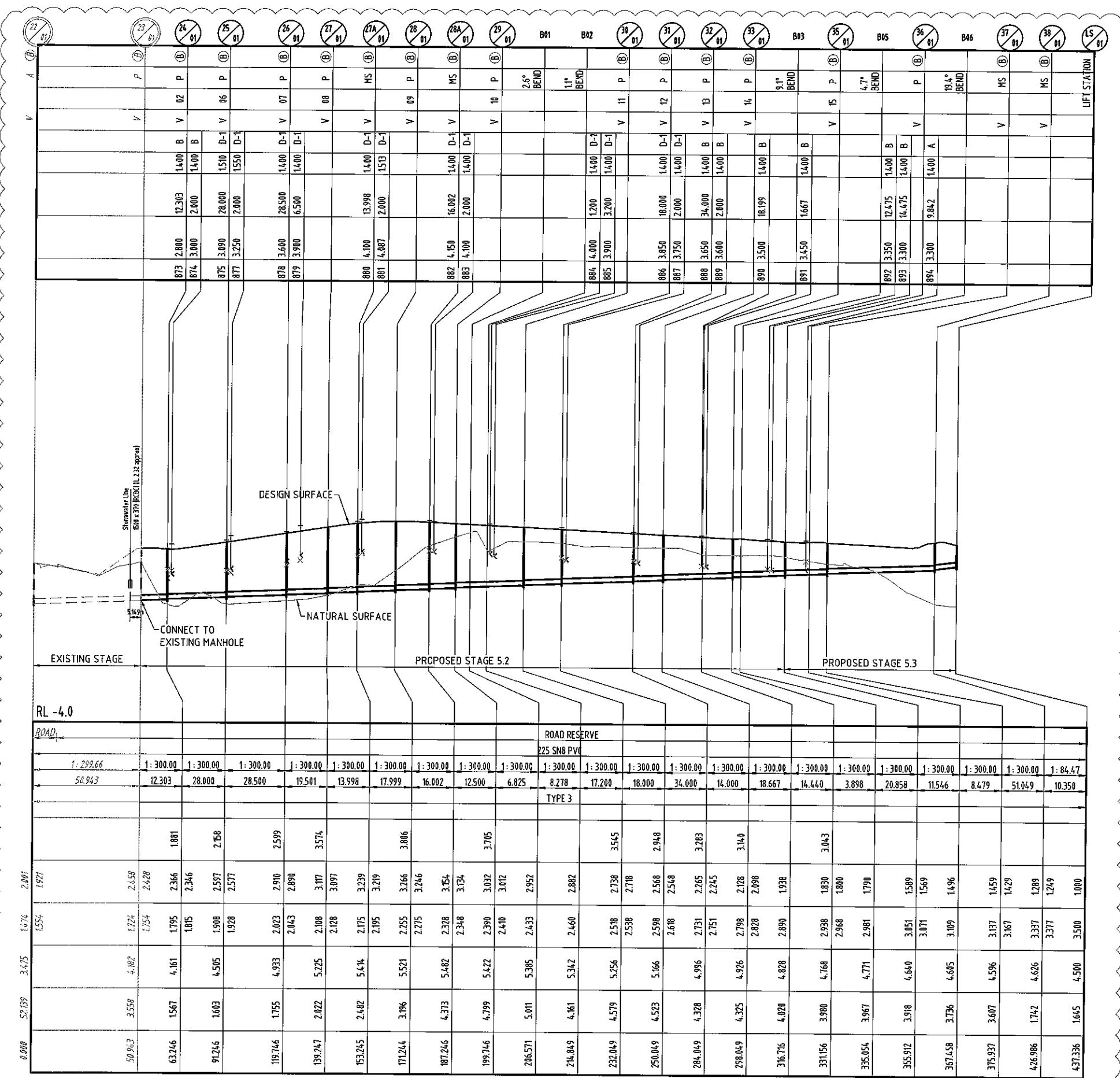
- MAINTENANCE HOLE TYPES**
- A = CONCRETE 1000Ø
 - B = CONCRETE 1200Ø
 - C = CONCRETE 1500Ø
 - P = TYPE 'P3' PRE-CAST CONCRETE
 - MS = TYPE 'MS' MAINTENANCE SHAFT
 - RE = RODDING END
 - @ = 150Ø HCB FOR DUPLEX LOTS
- Ⓟ = CLASS B NON-TRAFFICABLE
Ⓣ = CLASS D TRAFFICABLE

NOTES:

- PROPERTY CONNECTION TYPES REFER SEQ D&C CODE STD. DWGS No. SEQ-SEW-1104 & SEQ-SEW-1105.
- MAINTENANCE STRUCTURE TYPES AND DROPS REFER SEQ D&C CODE STD DWG SEQ-SEW-1300 SET.
- MAINTENANCE STRUCTURE COVER TYPES REFER SEQ D&C CODE STD DWG SEQ-SEW-1308 SET.

DATUM

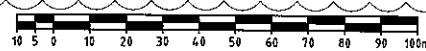
LOCATION
PIPE DIAMETER
GRADE
LENGTH
EMBEDMENT TYPE
JUNCTION INVERT LEVEL
DEPTH OF INVERT BELOW FSL
INVERT LEVEL (IL)
FINISHED SURFACE LEVEL (FSL) *
EXISTING SURFACE LEVEL (ESL)
CHAINAGE (CH)



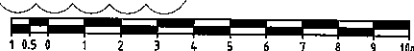
* FINISHED SURFACE LEVELS ARE INDICATIVE ONLY. REFER 'DIMENSION H' TABLE AS PER STD. DWG. No. SEQ-SEW-1308-1

DENOTES BRIDGING STRUCTURE BETWEEN STORMWATER AND SEWER MAIN. REFER KNG DWG No. 15-179-56 FOR DETAIL.

SCALE A 1:1000 (Horiz.)

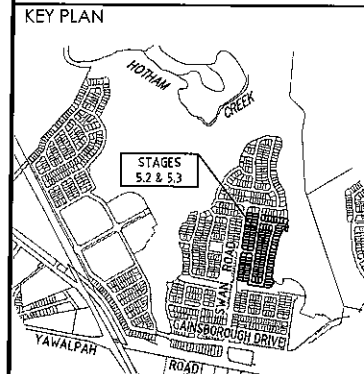


B 1:100 (Vert.)



(A1 UNREDUCED)

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	JAN 16	NJS
B	SEWER LINE AMENDED	24/02/16	JAS
C	LINE 01 AMENDED	27/05/16	CWH



Project
GAINSBOROUGH GREENS PRECINCT 5 STAGES 5.2 AND 5.3

KN GROUP PTY LTD
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LEVEL 2 - 71 GREY STREET
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EMAIL knp@knpl.com.au
ABN 35 112 053 611

Approval Director (SEQ) <i>[Signature]</i> 2.6.16			
Drawing Title SEWERAGE RETICULATION LONGITUDINAL SECTION SHEET 1			
Drawn NJS	Designed JAS	Checked GBG	Date JAN 16
Scale -	Sheet 51 of 54		Revision C
A1	Drawing No 15-179-51		

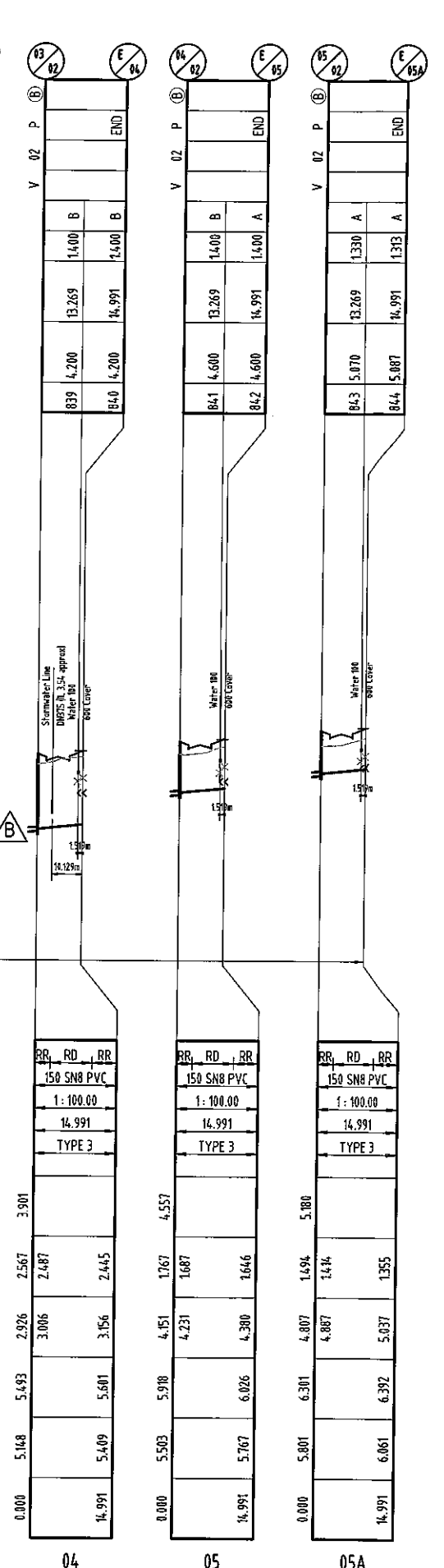
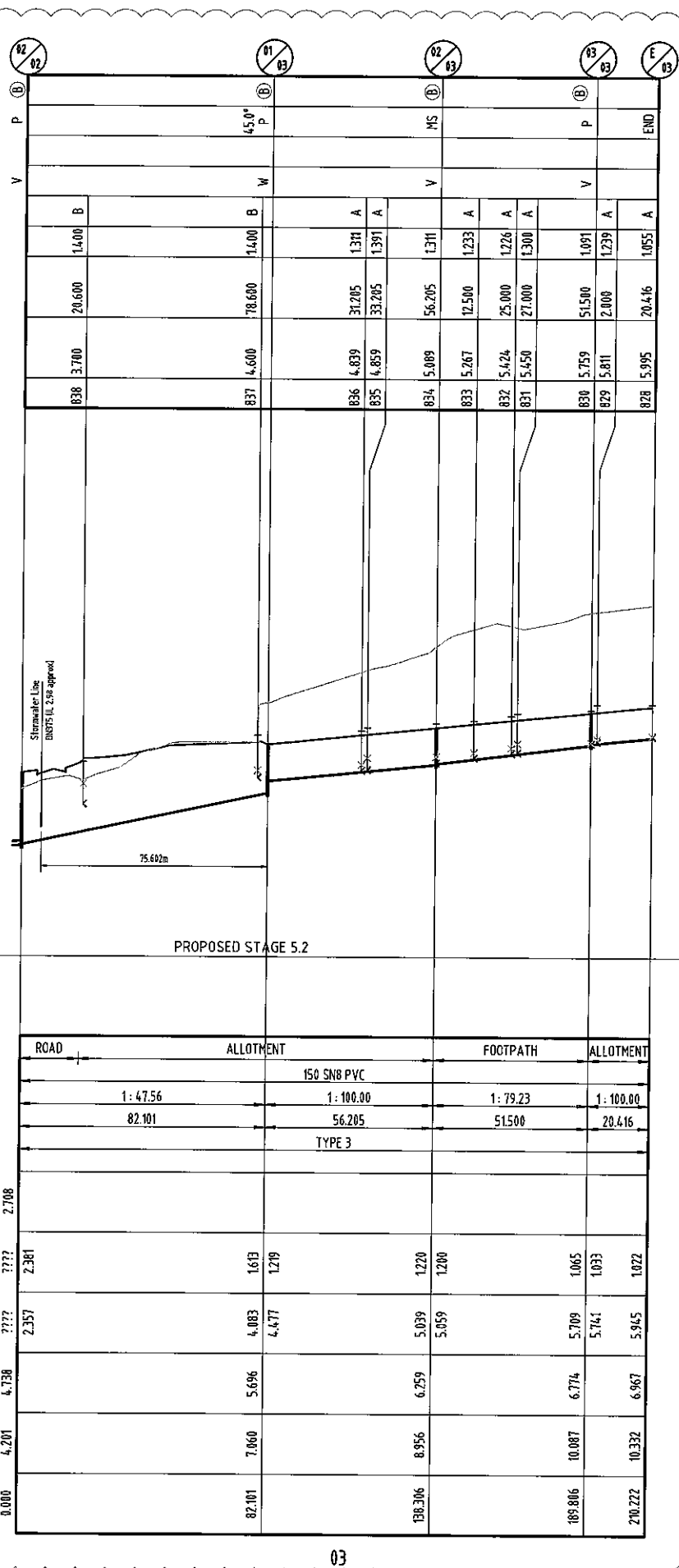
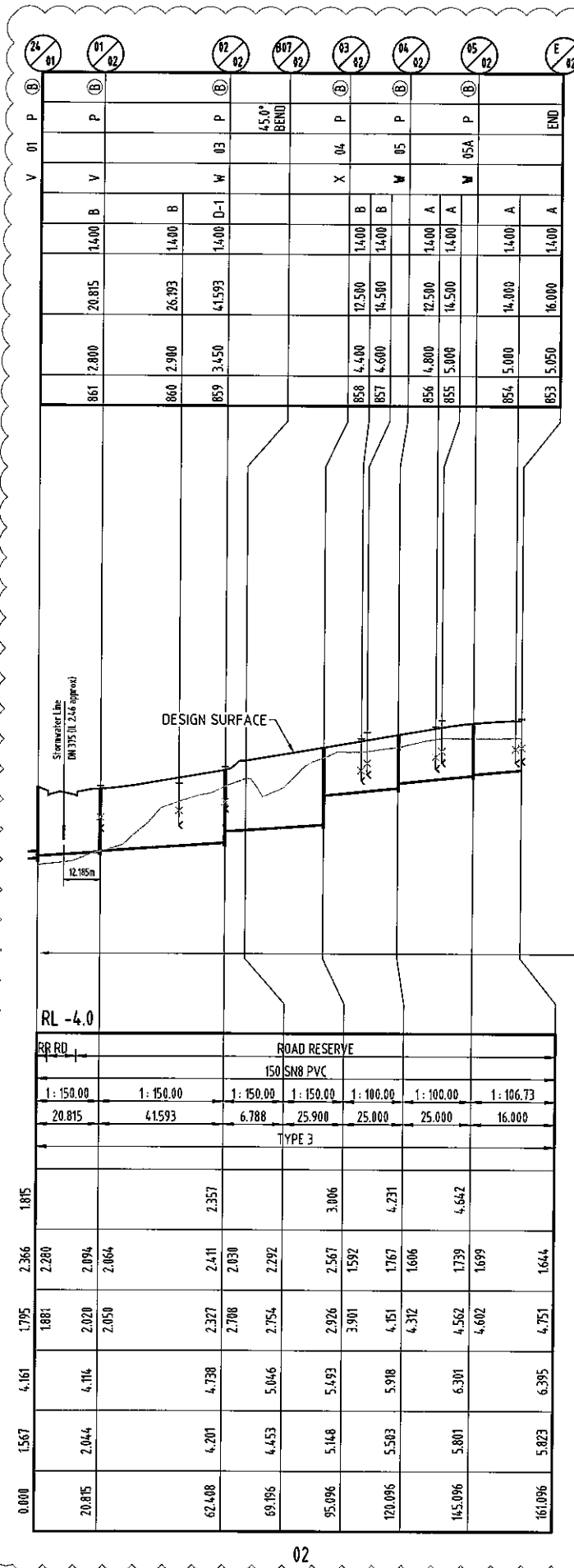
MAINTENANCE HOLE/SHAFT No.
MH/MS COVER TYPE
MH/MS TYPE
BRANCH LINE No.
BRANCH DROP TYPE
HC TYPE
HC DEPTH
HC CH. TO DS MH/MS
HC INVERT LEVEL
HC LOT No.

- LEGEND:**
- MAINTENANCE HOLE TYPES**
- A = CONCRETE 1,000Ø
 - B = CONCRETE 1,200Ø
 - C = CONCRETE 1,500Ø
 - P = TYPE 'P3' PRE-CAST CONCRETE
 - MS = TYPE 'MS' MAINTENANCE SHAFT
 - RE = RODDING END
 - @ = 150Ø HCB FOR DUPLEX LOTS
- CLASSIFICATION**
- (B) = CLASS B NON-TRAFFICABLE
 - (D) = CLASS D TRAFFICABLE

- NOTES:**
- PROPERTY CONNECTION TYPES REFER SEQ D&C CODE STD. DWGS No. SEQ-SEW-1104 & SEQ-SEW-1105.
 - MAINTENANCE STRUCTURE TYPES AND DROPS REFER SEQ D&C CODE STD DWG SEQ-SEW-1300 SET.
 - MAINTENANCE STRUCTURE COVER TYPES REFER SEQ D&C CODE STD DWG SEQ-SEW-1308 SET.

DATUM

LOCATION
PIPE DIAMETER
GRADE
LENGTH
EMBEDMENT TYPE
JUNCTION INVERT LEVEL
DEPTH OF INVERT BELOW FSL
INVERT LEVEL (IL)
FINISHED SURFACE LEVEL (FSL) *
EXISTING SURFACE LEVEL (ESL)
CHAINAGE (CH)



* FINISHED SURFACE LEVELS ARE INDICATIVE ONLY. REFER 'DIMENSION H' TABLE AS PER STD. DWG. No. SEQ-SEW-1308-1

DENOTES BRIDGING STRUCTURE BETWEEN STORMWATER AND SEWER MAIN. REFER KNG DWG No. 15-179-56 FOR DETAIL.



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

KEY PLAN

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	LINE 3 UPDATED	23/05/16	NJS

Client

Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

KN GROUP PTY LTD
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LEVEL 2 - 71 GREY STREET
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FAX 07 3017 1911
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved Director - 23/05/16

Drawing Title

SEWERAGE RETICULATION
LONGITUDINAL SECTION
SHEET 2

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16

Scale

Sheet	Revision
52 of 54	B

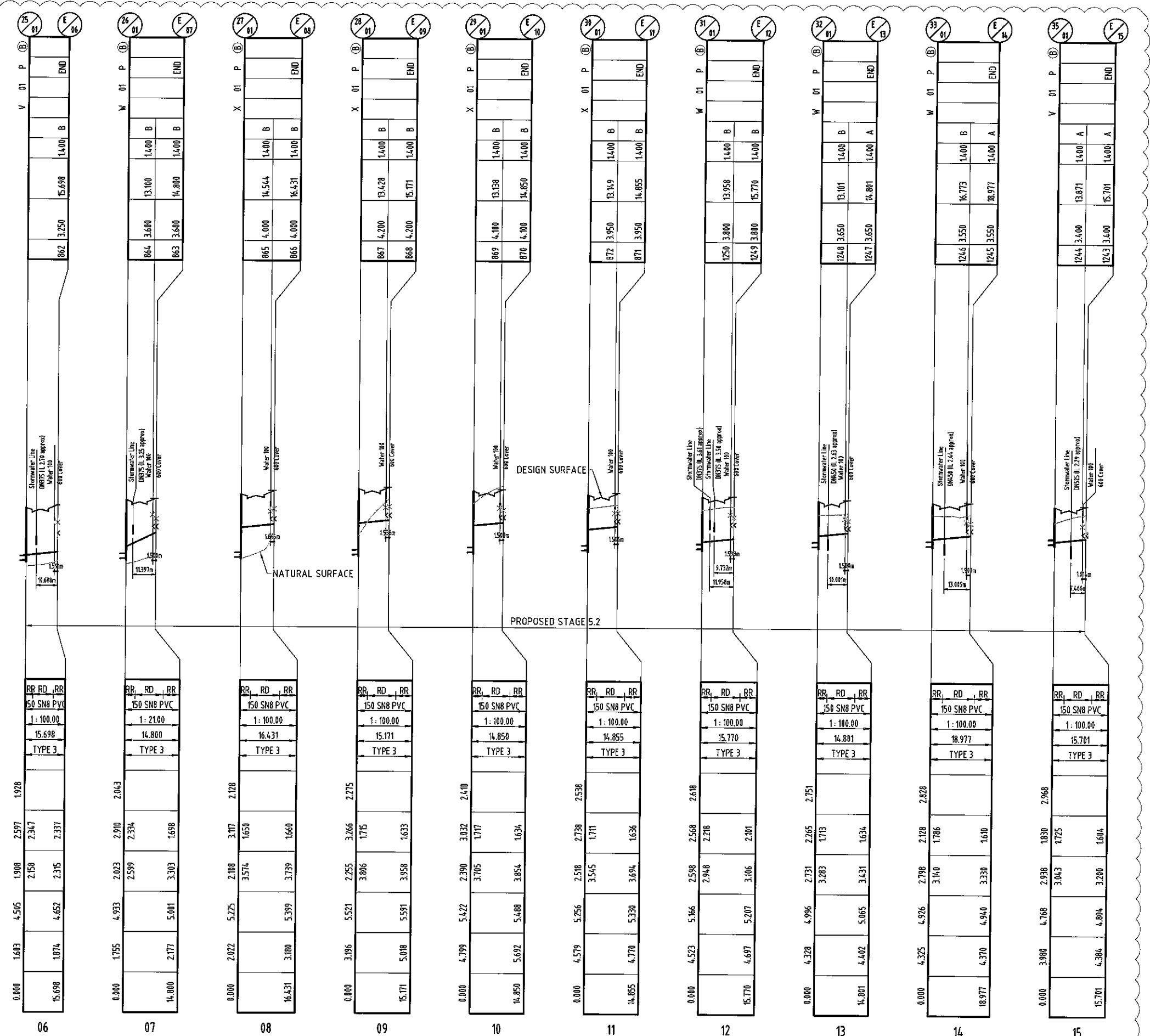
A1 Drawing No 15-179-52

MAINTENANCE HOLE/SHAFT No.
MH/MS COVER TYPE
MH/MS TYPE
BRANCH LINE No.
BRANCH DROP TYPE
HC TYPE
HC DEPTH
HC CH. TO DS MH/MS
HC INVERT LEVEL
HC LOT No.

- LEGEND:**
- MAINTENANCE HOLE TYPES**
- A = CONCRETE 1.000Ø
 - B = CONCRETE 1.200Ø
 - C = CONCRETE 1.500Ø
 - P = TYPE 'P3' PRE-CAST CONCRETE
 - MS = TYPE 'MS' MAINTENANCE SHAFT
 - RE = RODDING END
 - Ø = 150Ø HCB FOR DUPLEX LOTS
- Ⓟ = CLASS B NON-TRAFFICABLE
Ⓛ = CLASS D TRAFFICABLE

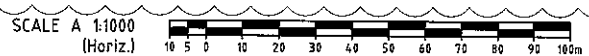
- NOTES:**
- PROPERTY CONNECTION TYPES REFER SEQ D&C CODE STD. DWGS No. SEQ-SEW-1104 & SEQ-SEW-1105.
 - MAINTENANCE STRUCTURE TYPES AND DROPS REFER SEQ D&C CODE STD DWG SEQ-SEW-1300 SET.
 - MAINTENANCE STRUCTURE COVER TYPES REFER SEQ D&C CODE STD DWG SEQ-SEW-1308 SET.

DATUM	
LOCATION	RR RD RR
PIPE DIAMETER	150 SN8 PVC
GRADE	1: 100.00
LENGTH	15.698
EMBEDMENT TYPE	TYPE 3
JUNCTION INVERT LEVEL	1.928
DEPTH OF INVERT BELOW FSL	2.597
INVERT LEVEL (IL)	1.908
FINISHED SURFACE LEVEL (FSL) *	4.505
EXISTING SURFACE LEVEL (ESL)	1.603
CHAINAGE (CH)	0.000



* FINISHED SURFACE LEVELS ARE INDICATIVE ONLY. REFER 'DIMENSION H' TABLE AS PER STD. DWG. No. SEQ-SEW-1308-1

DENOTES BRIDGING STRUCTURE BETWEEN STORMWATER AND SEWER MAIN. REFER KNG DWG No. 15-179-56 FOR DETAIL.



DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

KEY PLAN

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN'16	NJS
B	SEWER LINE AMENDED	24/02/16	JAS
C	SEWER LS AMENDED	18/04/16	RCT

Client

Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3

KN GROUP PTY LTD
CONSULTING ENGINEERS

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QUEENSLAND 4101
PHONE 07 3017 1900
FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved: *[Signature]* 2.6.16

**SEWERAGE RETICULATION
LONGITUDINAL SECTION
SHEET 3**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN'16

Scale	Sheet
-	53 of 54

Drawing No	Revision
A1 15-179-53	C

MAINTENANCE HOLE/SHAFT No.
MH/MS COVER TYPE
MH/MS TYPE
BRANCH LINE No.
BRANCH DROP TYPE
HC TYPE
HC DEPTH
HC CH. TO DS MH/MS
HC INVERT LEVEL
HC LOT No.

LEGEND:

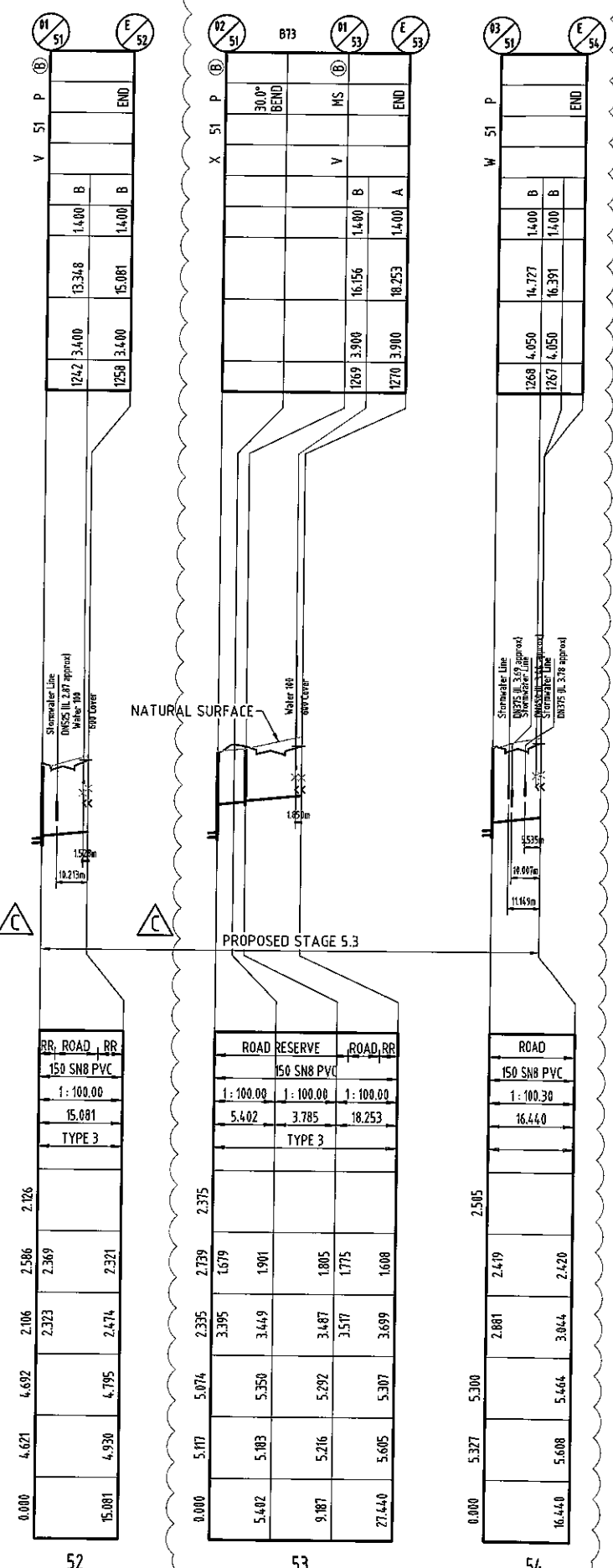
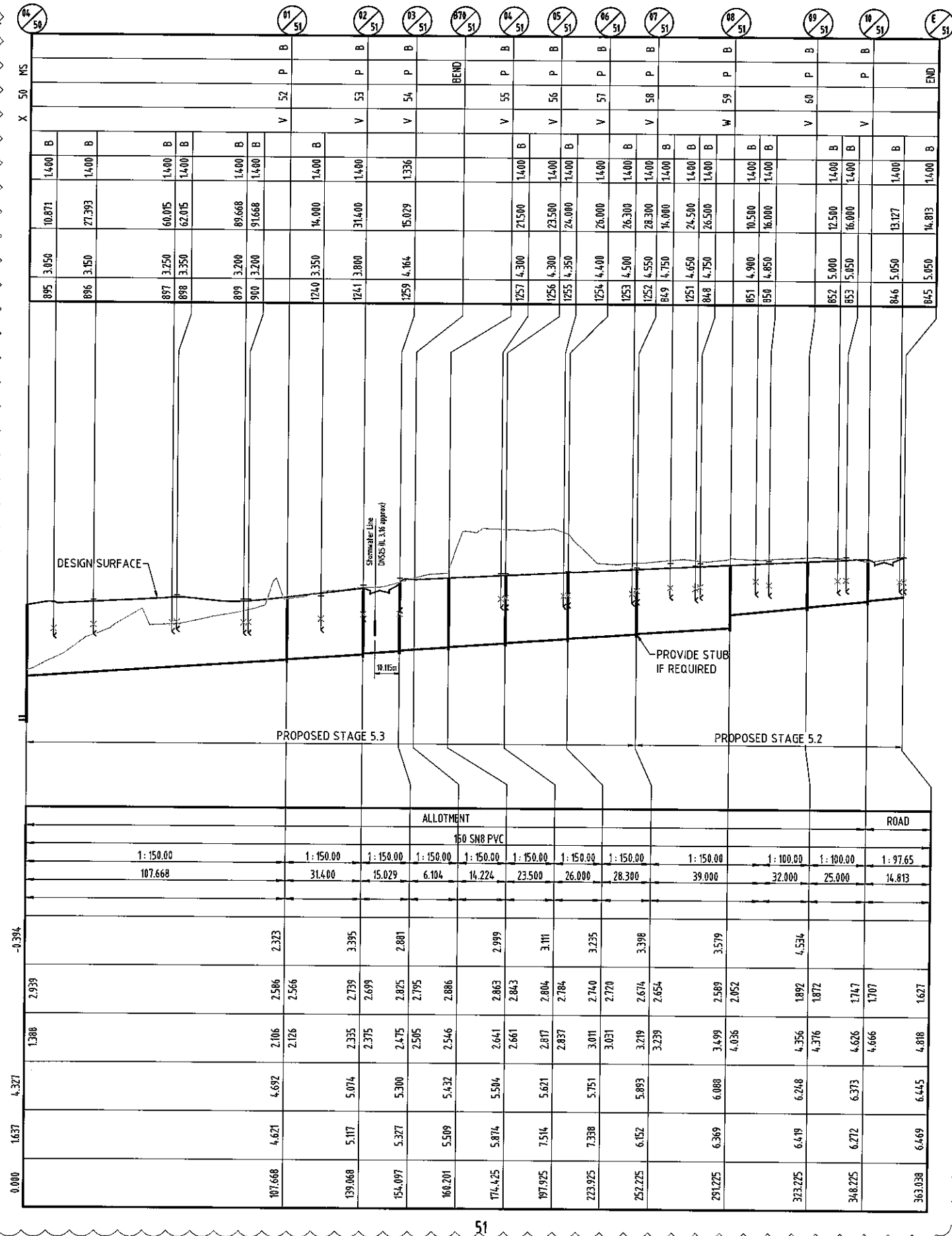
- MAINTENANCE HOLE TYPES**
- A = CONCRETE 1,000Ø
 - B = CONCRETE 1,200Ø
 - C = CONCRETE 1,500Ø
 - P = TYPE 'P3' PRE-CAST CONCRETE
 - MS = TYPE 'MS' MAINTENANCE SHAFT
 - RE = RODDING END
 - @ = 150Ø HCB FOR DUPLEX LOTS
- CLASSIFICATION**
- (B) = CLASS B NON-TRAFFICABLE
 - (D) = CLASS D TRAFFICABLE

NOTES:

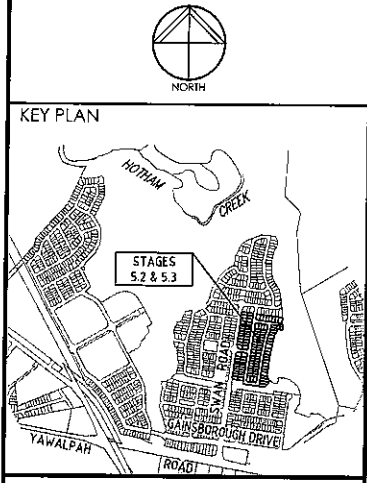
- PROPERTY CONNECTION TYPES REFER SEQ. D&C CODE STD. DWGS No. SEQ-SEW-1104 & SEQ-SEW-1105.
- MAINTENANCE STRUCTURE TYPES AND DROPS REFER SEQ. D&C CODE STD DWG SEQ-SEW-1300 SET.
- MAINTENANCE STRUCTURE COVER TYPES REFER SEQ. D&C CODE STD DWG SEQ-SEW-1300 SET.

DATUM

LOCATION
PIPE DIAMETER
GRADE
LENGTH
EMBEDMENT TYPE
JUNCTION
INVERT LEVEL
DEPTH OF INVERT BELOW FSL
INVERT LEVEL (IL)
FINISHED SURFACE LEVEL (FSL) *
EXISTING SURFACE LEVEL (ESL)
CHAINAGE (CH)



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No.	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	SEWER LINE AMENDED	24/02/16	JAS
C	LINE 51 & 54 UPDATED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 2 - 71 GREY STREET
SOUTH BRISBANE
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PHONE 07 3017 1900
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EMAIL kn@knol.com.au
ABN 35 112 053 611

Approved Drawing: *[Signature]* 2.6.16

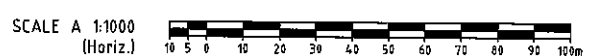
Drawn by: *[Signature]*

**SEWERAGE RETICULATION
LONGITUDINAL SECTION
SHEET 5**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale			Sheet
-			55 of 54
A1	Drawing No	Revision	
	15-179-55	C	

* FINISHED SURFACE LEVELS ARE INDICATIVE ONLY.
REFER 'DIMENSION H' TABLE AS PER STD. DWG. No. SEQ-SEW-1308-1

DENOTES BRIDGING STRUCTURE BETWEEN STORMWATER AND
SEWER MAIN. REFER KNG DWG No. 15-179-56 FOR DETAIL.



MAINTENANCE HOLE/SHAFT No.
MH/MS COVER TYPE
MH/MS TYPE
BRANCH LINE No.
BRANCH DROP TYPE
HC TYPE
HC DEPTH
HC CH. TO DS MH/MS
HC INVERT LEVEL
HC LOT No.

LEGEND:

MAINTENANCE HOLE TYPES

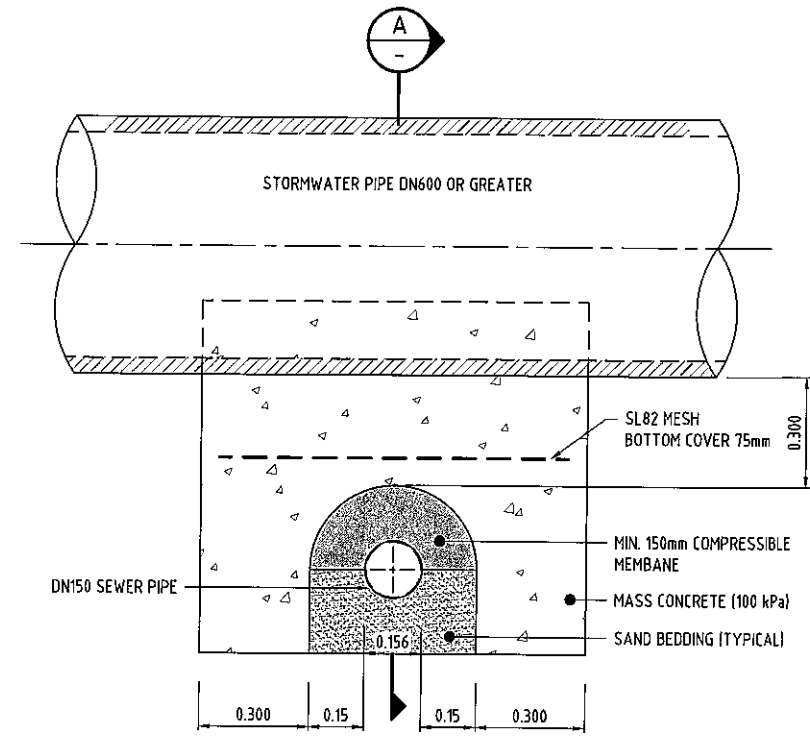
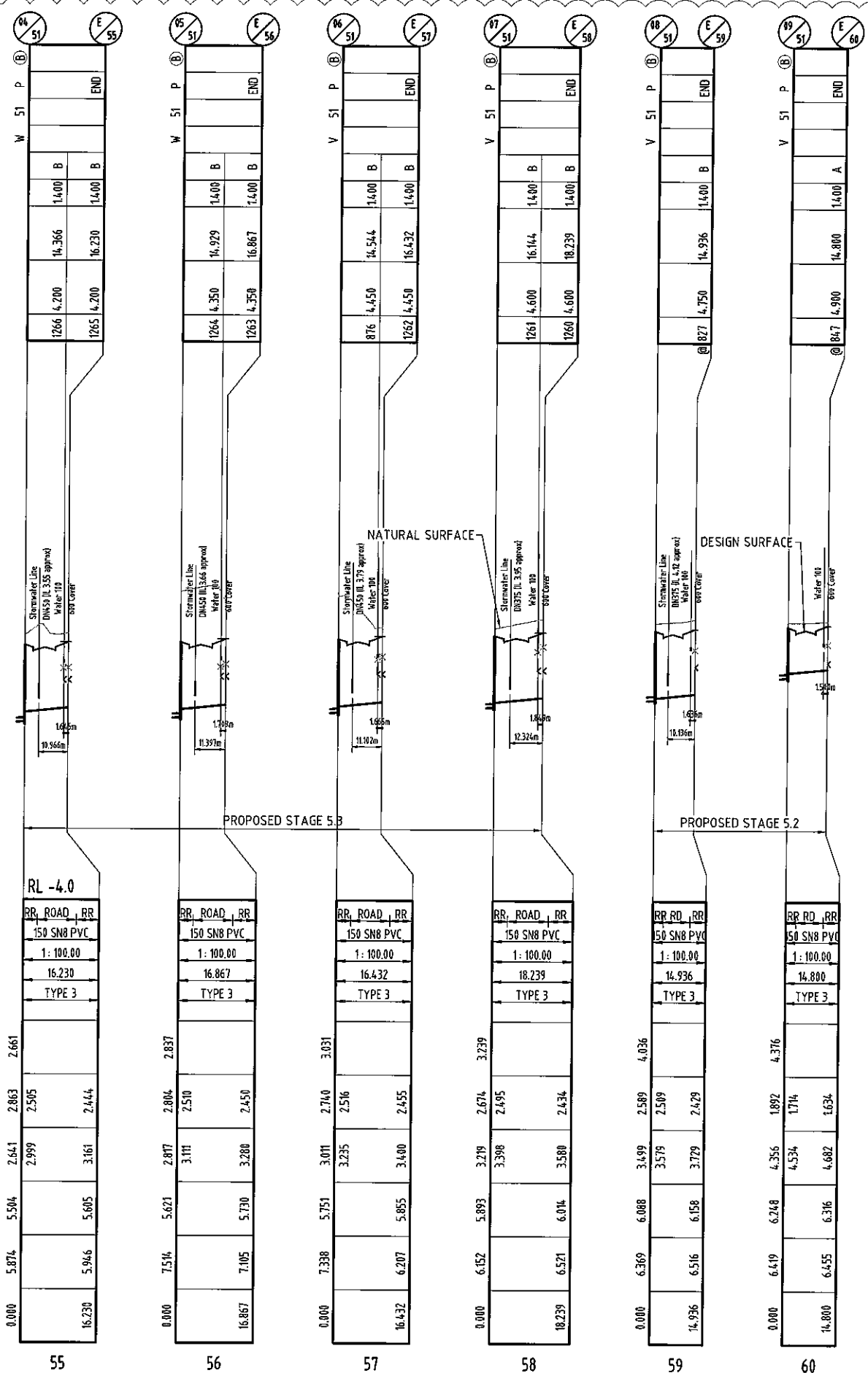
- A = CONCRETE 1000Ø
- B = CONCRETE 1200Ø
- C = CONCRETE 1500Ø
- P = TYPE 'P3' PRE-CAST CONCRETE
- MS = TYPE 'MS' MAINTENANCE SHAFT
- RE = RODDING END
- @ = 150Ø HCB FOR DUPLEX LOTS
- Ⓟ = CLASS B NON-TRAFFICABLE
- Ⓛ = CLASS D TRAFFICABLE

NOTES:

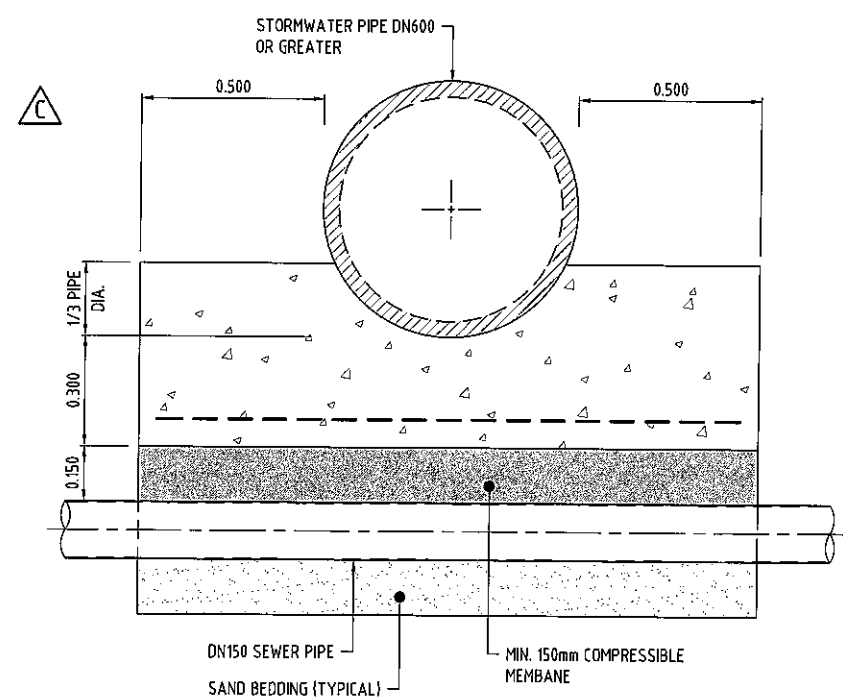
1. PROPERTY CONNECTION TYPES REFER SEQ D&C CODE STD. DWGS No. SEQ-SEW-1104 & SEQ-SEW-1105.
2. MAINTENANCE STRUCTURE TYPES AND DROPS REFER SEQ D&C CODE STD DWG SEQ-SEW-1300 SET.
3. MAINTENANCE STRUCTURE COVER TYPES REFER SEQ D&C CODE STD DWG SEQ-SEW-1308 SET.

DATUM

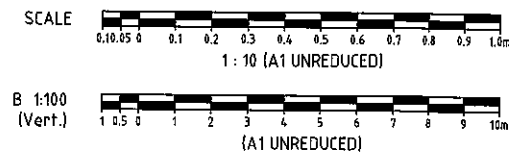
LOCATION
PIPE DIAMETER
GRADE
LENGTH
EMBEDMENT TYPE
JUNCTION INVERT LEVEL
DEPTH OF INVERT BELOW FSL
INVERT LEVEL (IL)
FINISHED SURFACE LEVEL (FSL) *
EXISTING SURFACE LEVEL (ESL)
CHAINAGE (CH)



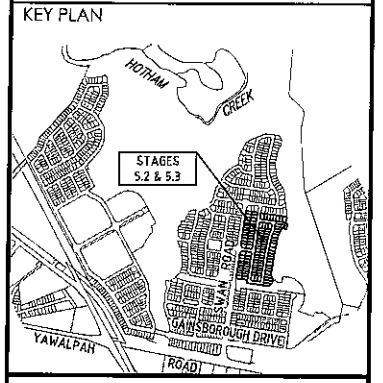
TYPICAL BRIDGING DETAIL
SCALE 1:10



SECTION A
SCALE 1:10



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	DUPLEX HCB ADDED	24/02/16	JAS
C	SEWER LS AMENDED	18/04/16	RCT



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

KN GROUP PTY LTD
CONSULTING ENGINEERS
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Approved Drawing - RPECA 1007			
Drawing Title SEWERAGE RETICULATION LONGITUDINAL SECTION SHEET 6			
Drawn NJS	Designed JAS	Checked GBG	Date JAN '16
Scale -	Sheet 56 of 54		Revision C
Drawing No A1 15-179-56		Revision	

* FINISHED SURFACE LEVELS ARE INDICATIVE ONLY. REFER 'DIMENSION H' TABLE AS PER STD. DWG. No. SEQ-SEW-1308-1

DENOTES BRIDGING STRUCTURE BETWEEN STORMWATER AND SEWER MAIN. REFER THIS SHEET FOR DETAIL.

SCALE A 1:1000 (Horiz.)

B 1:100 (Vert.)

NOTE
ALL LIVE CONNECTIONS TO EXISTING MAINS TO BE UNDERTAKEN BY GOLD COAST WATER AT DEVELOPERS COST

REFER KN DWG 15-179-58

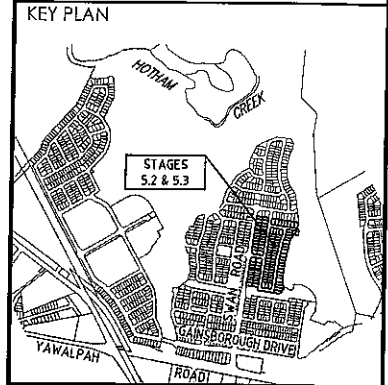
SCHEDULE OF FITTINGS

① $\phi 100 \times \phi 100 \times \phi 100$ TEE 3 REQUIRED

LIVE WATER CONNECTION TABLE

STAGE	LOCATION	DIAMETER
5-2	LITABELLA STREET ADJACENT TO LOT 828	$\phi 100$
5-2	LIVINSTONE CIRCUIT ADJACENT LOT 827	$\phi 100$
5-2	LIVINSTONE CIRCUIT ADJACENT LOT 1243	$\phi 100$

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN 16	NJS
B	WATER PIPE TYPE AMENDED	24/02/16	RCT
C	LOT CALCS AMENDED	18/04/16	RCT
D	LOT B'DY'S, W/METER & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

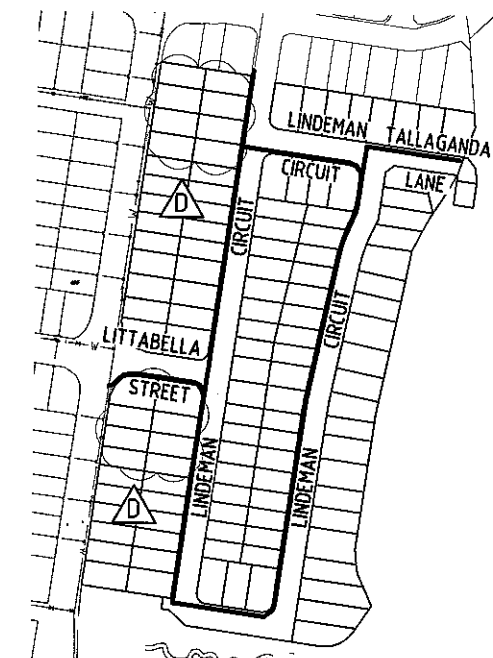


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Approved Drawing - BPRO 1998
[Signature] 26.16

**WATER RETICULATION
LAYOUT PLAN
SHEET 1**

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	1:500	Sheet	57 of 54
A1	Drawing No	Revision	
	15-179-57	D	



KEY PLAN
SCALE 1:2500

SCHEDULE OF PIPES AND FITTINGS - STAGE 5.2

PIPE SIZE	LENGTH(m)	VALVE	FIRE HYDRANT	TEMP FIRE HYDRANT	11 $\frac{1}{2}$ ° BEND	22 $\frac{1}{2}$ ° BEND	45° BEND	90° BEND
$\phi 100$ PVC	558.563	3	8	2	7	3	3	1
$\phi 100$ DI CL	27.5	-	-	-	-	-	-	-

SCHEDULE OF PIPES AND FITTINGS - STAGE 5.3

PIPE SIZE	LENGTH(m)	VALVE	FIRE HYDRANT	TEMP FIRE HYDRANT	11 $\frac{1}{2}$ ° BEND	22 $\frac{1}{2}$ ° BEND	45° BEND	90° BEND
$\phi 100$ PVC	346.129	4	5	1	4	1	1	1
$\phi 100$ DI CL	22.000	-	-	-	-	-	-	-

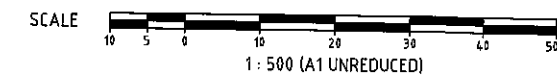
NOTE - 1. "DUCTILE IRON" PIPEWORK UNDER ROAD CARRIAGEWAYS DENOTES DI CL CLASS PN35

LAYOUT PLAN
SCALE 1:500

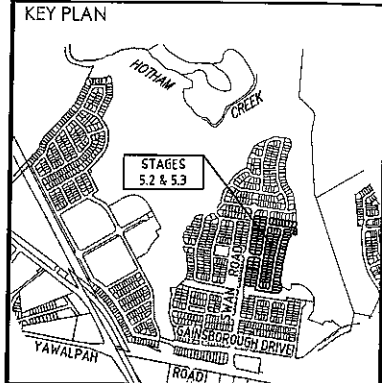
NOTE: EACH LOT IS TO BE PROVIDED WITH A SEPARATE TAPPING BAND POLY AND METER BOX. WATER METER BY CONTRACTORS AFTER ON MAINTENANCE ACCEPTANCE. ALL LIVE WORKS TO BE UNDERTAKEN BY DEVELOPER AT DEVELOPER'S EXPENSE.

LEGEND

- STAGE BOUNDARY
- PROPOSED 100 ϕ WATER MAIN
- PROPOSED 150 ϕ WATER MAIN
- PROPOSED CONDUIT
- PROPOSED VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED TEMPORARY FIRE HYDRANT
- DEAD END CAP
- WATER SERVICE CONNECTION
- REDUCER
- FLUSHING POINT
- PIPE MATERIAL CHANGED
- PROPERTY SERVICE
- EXISTING 250 ϕ MAIN POTABLE
- PROP./EXIST. STORMWATER
- PROP./EXIST. SEWER
- DEFINES LIVE CONNECTION REQUIRED BY G.C.W.



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS
B	WATER PIPE TYPE AMENDED	24/02/16	RCT
C	LOT BODYS & STREET NAME AMENDED	23/05/16	NJS



Project
**GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3**

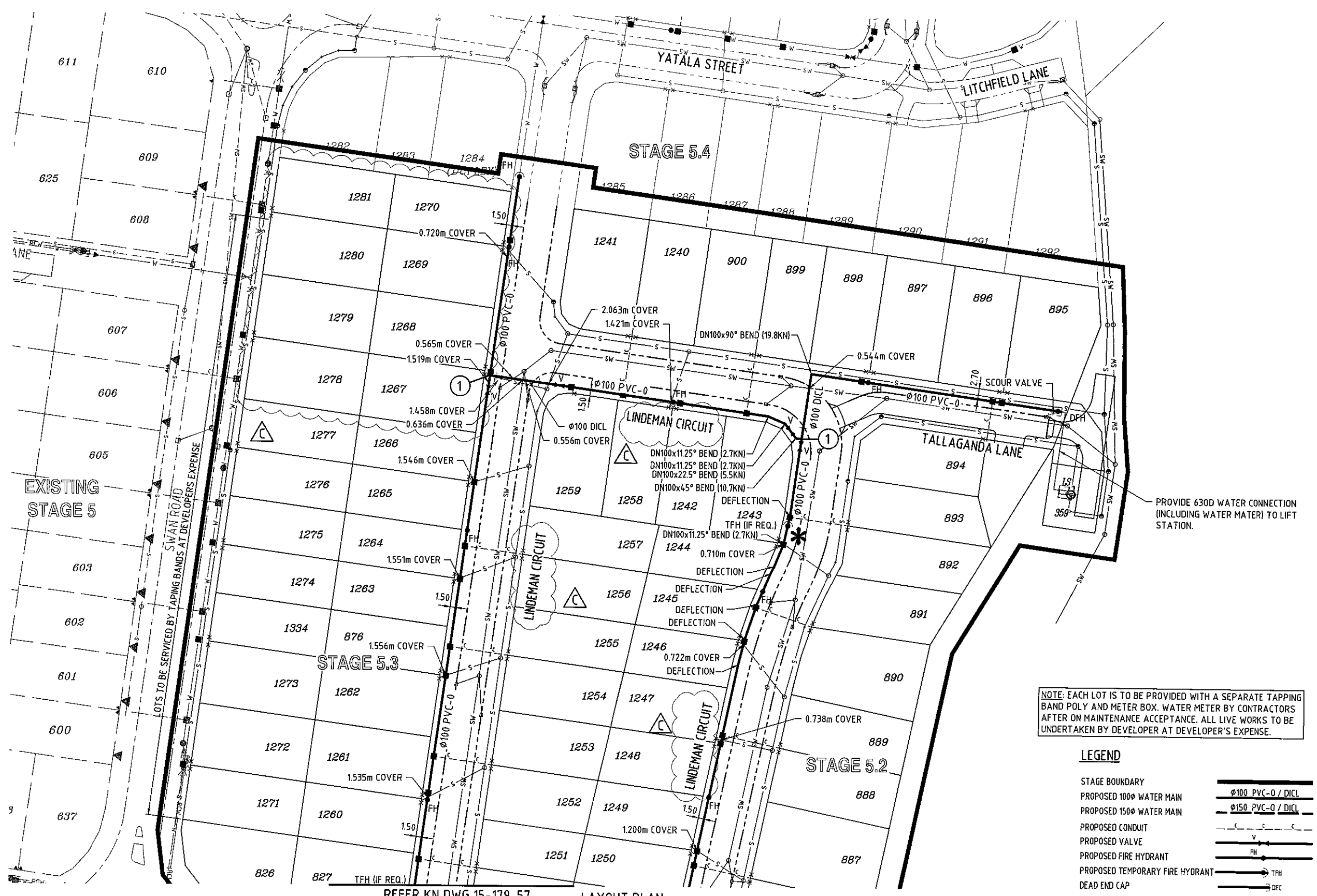
KN GROUP PTY LTD
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FAX 07 3017 1911
EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved for - 15/179-58

Drawn by: *[Signature]*

**WATER RETICULATION
LAYOUT PLAN
SHEET 2**

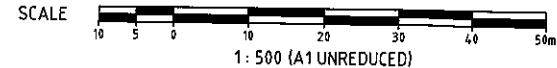
Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale	Drawing No		Sheet
1:500	15-179-58		58 of 54
Revision			
A1			C



NOTE: EACH LOT IS TO BE PROVIDED WITH A SEPARATE TAPPING BAND POLY AND METER BOX. WATER METER BY CONTRACTORS AFTER ON MAINTENANCE ACCEPTANCE. ALL LIVE WORKS TO BE UNDERTAKEN BY DEVELOPER AT DEVELOPER'S EXPENSE.

LEGEND

- STAGE BOUNDARY
- PROPOSED 100φ WATER MAIN
- PROPOSED 150φ WATER MAIN
- PROPOSED CONDUIT
- PROPOSED VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED TEMPORARY FIRE HYDRANT
- DEAD END CAP
- WATER SERVICE CONNECTION
- REDUCER
- FLUSHING POINT
- PIPE MATERIAL CHANGED
- PROPERTY SERVICE
- EXISTING 250φ MAIN POTABLE
- PROP./EXIST. STORMWATER
- PROP./EXIST. SEWER
- DEFINES LIVE CONNECTION REQUIRED BY G.C.W.



REFER KN DWG 15-179-57
LAYOUT PLAN
SCALE 1:500

Client: MIRVAC
 Project: GAINSBOROUGH GREENS PRECINCT 5 STAGE 5.2-5.3
 Prepared By: Josh Stroguz Date: 14th January 2016
 Reviewed By: Robert Mander Date: 14th January 2016

Safety in Design Analysis

Complete Safety in Design Analysis by populating the table where applicable with all of the relevant safety issues for the project. For example:

<input checked="" type="checkbox"/> Positioning of new services adjacent to existing live services <input checked="" type="checkbox"/> Construction adjacent to existing road carriageways <input checked="" type="checkbox"/> Pedestrians <input checked="" type="checkbox"/> Civil Construction Workers <input checked="" type="checkbox"/> Maintenance Workers <input checked="" type="checkbox"/> Work Place Health and Safety Constraints <input type="checkbox"/> Unusual material handling <input checked="" type="checkbox"/> Falls from heights <input checked="" type="checkbox"/> Underground Services (existing) <input checked="" type="checkbox"/> Electrical Service Installation <input checked="" type="checkbox"/> Gas Service Installation <input checked="" type="checkbox"/> Communication Installation <input type="checkbox"/> Traffic Signal Installation <input checked="" type="checkbox"/> Landscape Workers <input checked="" type="checkbox"/> Line marking Workers <input checked="" type="checkbox"/> Excavation – open cut trenching - Trench excavation depths <input checked="" type="checkbox"/> Tunnel Boring <input checked="" type="checkbox"/> Confined Spaces <input checked="" type="checkbox"/> Lifting of loads <input checked="" type="checkbox"/> Unloading of materials and storage <input type="checkbox"/> Storage of hazardous materials <input checked="" type="checkbox"/> Geotechnical investigation – works <input checked="" type="checkbox"/> Bulk Earthworks	<input checked="" type="checkbox"/> Slope Stability <input checked="" type="checkbox"/> Dust Control <input checked="" type="checkbox"/> Erosion and Sediment Control/Management <input checked="" type="checkbox"/> Sediment Basin Construction <input checked="" type="checkbox"/> Wetland/Dam Construction <input checked="" type="checkbox"/> Working under traffic Project Specific Design Elements:
--	---

List all relevant safety studies

The following table summarises the safety in design issues considered.

Section of Works	Identify any Potential Incident or Hazard	Consequence	Likelihood	Risk Rating	Risk Control Measures	Consequence	Likelihood	Residual Risk Rating (after design applied)	Risk Manager
Earthworks Material Investigation	Geotechnical Investigation	C	3	S	SWMS required by Contractor	D	3	M	Contractor
Road/Earthworks Works	Pedestrians Injury	D	3	M	TMP to be provided by Contractor to exclude pedestrians from work site	E	3	L	Contractor
	Civil Construction Workers – Injury	A	4	H	TMP and SWMS required for all activities	C	2	S	Contractor
	Maintenance Workers	A	4	H	TMP and SWMS required for all activities	C	3	S	Contractor
	Underground Services (Existing)	A	3	H	DBVD information to be sent prior to design. Existing to be located by survey if applicable to design. All existing services to be located and depths confirmed prior to commencement. SWMS to be provided by Contractor	C	2	S	Designer/ Contractor
Working adjacent to existing Infrastructure	Conflict between construction equipment / personnel and live Infrastructure in particular Power lines	B	4	S	All existing services highlighted in the documentation. Contractor to complete DBVD search before commencing works. SWMS to be provided by Contractor	C	4	M	Designer/ Contractor
Service trench/ pipe installation	Location of all trenches to provide clearance to all other services and all structures or battered embankments	A	4	H	Mains located with safe working clearance to existing pressure mains, structures and battered embankments	C	4	M	Designer
	Trench depth	A	4	M	Depth of trenches minimized for both safety and cost efficiency	C	4	M	Designer
Works within Confined Spaces	Construction of stormwater, sewer, water and wetland structures	A	4	M	Contractor to ensure works undertaken in a manner complying with safe work method statements	D	5	L	Contractor
Silt and Erosion Control	Public access to water retaining temporary sediment basins	A	5	S	Protection measures – that is fencing of all water retaining structures with side slopes greater than 1 in 5 as described in International Erosion Control Association (Australia) Table B9	C	4	M	Designer/ Contractor

RISK ASSESSMENT AND CONTROL

Risk Assessment			
Select one category from each of the columns below that best represents the likely outcome if the potential hazard actually did occur. For each consequence consider the most likely outcome and not the 'absolute worst' case.			
Consequence		Likelihood	
A	Death – major environmental damage	1	Certain
B	Permanent Disability – severe environmental damage	2	Probable
C	Lost Time Injury – moderate environmental damage	3	Possible
D	Medical Treatment Injury – minor environmental damage	4	Unlikely
E	First Aid Treatment	5	Very Unlikely

RISK RATING	
A	B

Certain - means an event or situation that is happening more or less all the time, including continuous situations
Permanent Disability – means a disability, such as loss of a limb or eyesight, loss of hearing, chronic skin disorder, chronic back disorder, emphysema, and the like

H: High Risk S: Significant Risk
 M: Moderate Risk L: Low Risk

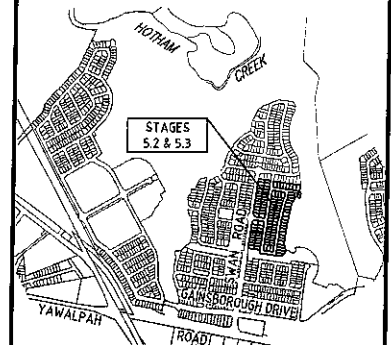
Read the Risk Rating from the matrix below:

Risk Assessment Matrix	A	B	C	D	E
1	H	H	H	S	S
2	H	H	S	S	M
3	H	S	S	M	L
4	S	S	M	L	L
5	S	S	M	L	L

Probable – means an event or situation that occurs or is likely to occur about ten times or more per year
Possible – means an event or situation that occurs or is likely to occur about once per year
Unlikely – means an event or situation that occurs or is likely to occur less frequently than once every ten years

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	JAN '16	NJS



Client



Project

GAINSBOROUGH GREENS
 PRECINCT 5
 STAGES 5.2 AND 5.3



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 QUEENSLAND 4101
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 EMAIL kn@knpl.com.au
 ABN 35 112 053 611

Approved Drawing

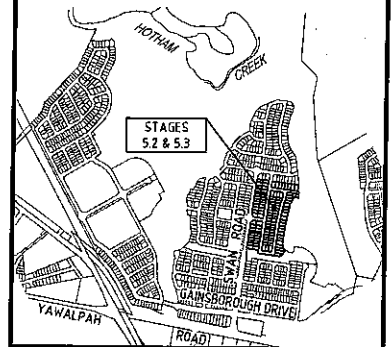
SAFETY IN DESIGN

Drawn	Designed	Checked	Date
NJS	JAS	GBG	JAN '16
Scale		Sheet	60 of 54
A1	Drawing No 15-179-60	Revision	A

DO NOT SCALE THIS DRAWING
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KEY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	FEB '16	JAS
B	LOT BOUNDARIES AMENDED	5/23/2016	NJS



Client



Project

GAINSBOROUGH GREENS
PRECINCT 5
STAGES 5.2 AND 5.3



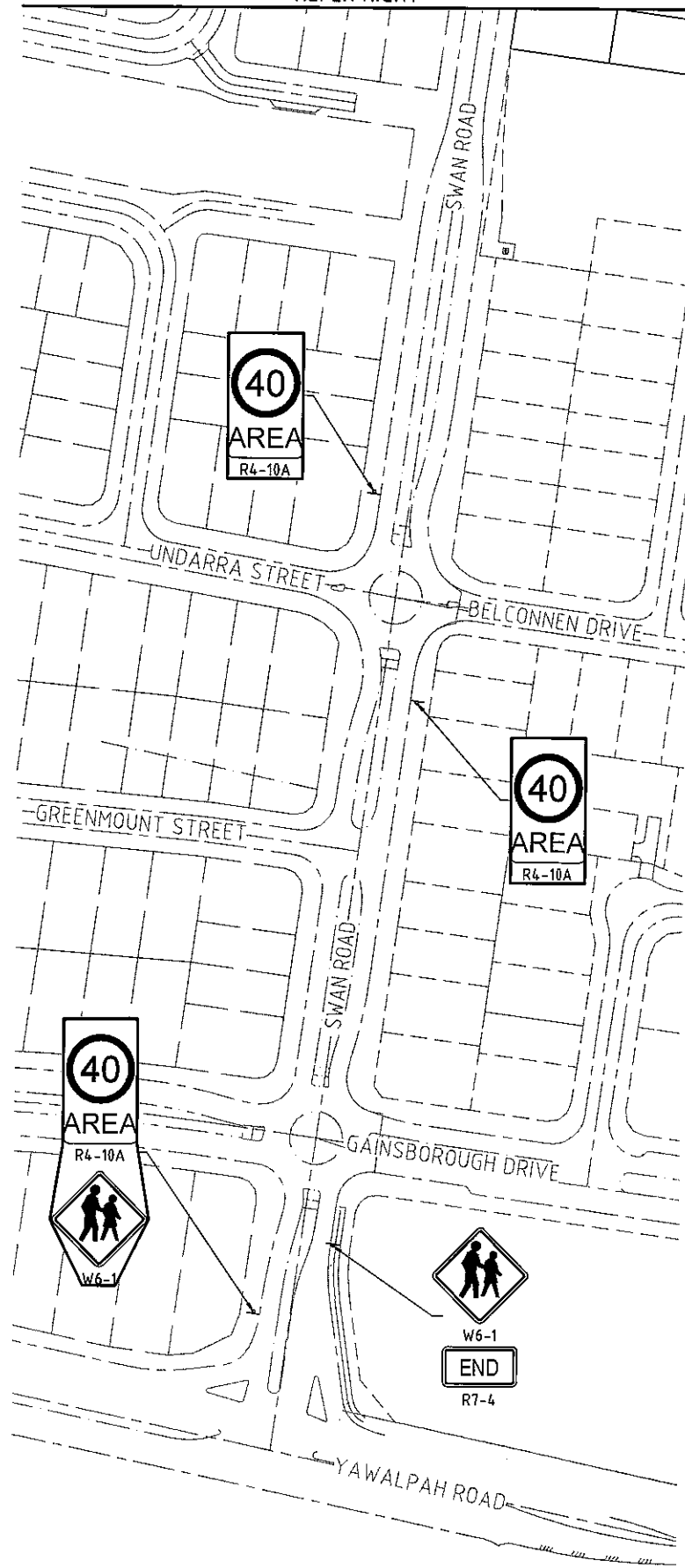
LEVEL 2 - 71 GREY STREET
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EMAIL kng@knpl.com.au
ABN 35 112 053 611

Approved Drawing: *[Signature]* 26.5.16

SWAN ROAD
PROPOSED ROAD SIGNAGE

Drawn	Designed	Checked	Date
JAS	JAS	GBG	JAN '16
Scale	Drawing No	Sheet	Revision
1:1000	15-179-61	61 of 54	B

REFER RIGHT



SIGN NOTES

- ALL SIGNS TO BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - CURRENT EDITION
- THE LOCATION OF EXISTING SIGNS ARE INDICATED ON PLAN.
- THE LOCATIONS OF PROPOSED SIGNS ARE INDICATED ON PLAN.
ALL SIGNS TO BE INSTALLED WITH THE FOLLOWING MINIMUM CLEARANCES TO EDGE OF SIGN FACE:
NO KERB - 600mm BEHIND GUIDEPOSTS
BARRIER KERB - 300mm FROM FACE OF KERB
MOUNTABLE KERB - 500mm FROM FACE OF KERB.
- CHECK FOR ALL IN GROUND SERVICES PRIOR TO PLACING SIGN SUPPORTS.
- SIGN SUPPORT CONSTRUCTION TO BE IN ACCORDANCE WITH MAIN ROADS STANDARD DRAWING 1368 FOR SIGN SUPPORTS AND FOR MULTIPLE SUPPORT. REUSE EXISTING SIGN SUPPORTS WHERE POSSIBLE.
- EXACT LOCATION OF ALL SIGNS IS TO BE VERIFIED ON SITE WITH THE SUPERINTENDENT PRIOR TO INSTALLATION.

SWAN ROAD SIGNAGE
SCALE 1:1000

REFER LEFT

