

TILLERMAN

PARK RIDGE

PROPOSED RESIDENTIAL DEVELOPMENT

STAGE 5 OPERATIONAL WORKS 133-159 PARK RIDGE ROAD, PARK RIDGE

FOR 'HB PARK RIDGE'



LOCALITY PLAN SCALE 1:2000 (A1) SCALE 1:4000 (A3)



DRAWING LIST

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PROJECT INFORMATION SUMMARY:

STAGE 5 WORKS

No. OF LOTS = 44

AREA OF STAGE 5 SITE = 4.67 ha

RP DESCRIPTION LOT 3 ON RP137533

LOCAL AUTHORITY: LOGAN CITY COUNCIL

COUNCIL REFERENCE NUMBER: COM/36/2021

NOTE:

THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH:

- VEGETATION MANAGEMENT PLAN
- LANDSCAPE ARCHITECTS PLAN
- ELECTRICAL, COMMUNICATIONS AND GAS CONSULTANTS PLAN SEDIMENT AND EROSION HAZARD ASSESSMENT
- SAFETY IN DESIGN REPORT

	ENGINEER'S CERTIFICATION
I, Daniel Collin As Constructe types, materia Drawings.	ns, hereby certify that: d information shown on this plan is a true and correct record of the sizes, ls, classes etc., and it corresponds with the relevant approved Engineering
RPEQ (sig	nature) RPEQ No. 18631 Date: 11/10/24

TILLERMAN

COVER PLAN

PARK RIDGE			
133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)	PROJECT No. 22-0446	DRAWING No.	REVISION

GENERAL NOTES:

- THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIALS, PLANT AND EQUIPMENT TO CONSTRUCT THE WORKS AS DOCUMENTED AND STRICTLY IN ACCORDANCE WITH THE RELEVANT AUTHORITY STANDARDS, SPECIFICATIONS AND REQUIREMENTS.
- 2. THE EXISTING SERVICES THAT ARE SHOWN ON THE DRAWINGS ARE PROVIDED FOR INFORMATION PURPOSES ONLY. NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT OR THE PRINCIPAL FOR INFORMATION THAT HAS BEEN SUPPLIED BY OTHERS, OR ANY EXISTING SERVICES THAT MAY BE PRESENT NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE POSITION OF ANY UNDERGROUND SERVICES WITHIN THE AREAS OF WORKS AND SHALL BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE THERETO. ANY ALTERATION WORKS TO SERVICES WILL BE CARRIED OUT ONLY BY THE SERVICE OWNER AUTHORITY UNLESS APPROVED OTHERWISE.
- 3. ALL CONSTRUCTION ACTIVITIES UNDERTAKEN SHALL COMPLY WITH CURRENT WORKPLACE HEALTH AND SAFETY REQUIREMENTS AND LEGISLATION.
- 4. PRIOR TO COMMENCING WORK, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL RELEVANT LOCAL AUTHORITY PERMITS.
- 5. THE CONTRACTOR SHALL NOT COMMENCE THE DEMOLITION OF ANY EXISTING BUILDINGS AND/OR STRUCTURES WITHOUT APPROVAL FROM THE SUPERINTENDENT.
- 6. THE CONTRACTOR SHALL APPLY INDUSTRY BEST PRACTICE SO WORKS SHALL NOT DISTURB OR AFFECT NEARBY RESIDENTS EITHER BY DUST, NOISE, FLOODING OR DISCONNECTION OF SERVICES. CONTRACTOR TO ENSURE THAT ACCESS AND SERVICES TO EXISTING PROPERTIES ARE AVAILABLE AT ALL TIMES.
- 7. THE CONTRACTOR SHALL VERIFY LEVELS OF EXISTING SERVICE CROSSINGS AND CONNECTION POINTS PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY SUPERINTENDENT OF ANY DISCREPANCIES BETWEEN ACTUAL AND PROPOSED DESIGN LEVELS.
- THESE ENGINEERING DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE APPROVED VEGETATION MANAGEMENT PLAN, WHERE APPLICABLE. WHEN IN DOUBT, ALL EXISTING TREES ARE TO REMAIN UNLESS DIRECTED OTHERWISE.
- 9. <u>HOLD POINT:</u> ONCE THE BASE OF MANHOLES, INSPECTION PITS, GULLIES AND FIELD INLETS FOR STORMWATER DRAINAGE AND SEWER RETICULATION HAVE BEEN POURED, CONSTRUCTION SHALL ONLY RE-COMMENCE ONCE THE SUPERINTENDENT AND/OR ENGINEER HAVE INSPECTED THE WORKS.
- 10. THE CONTRACTOR SHALL NOTE DURING THE COURSE OF THE WORKS WHEN JOINT INSPECTIONS WITH THE AUTHORITY AND THE SUPERINTENDENT ARE REQUIRED. THESE INCLUDE PRE-STARTS, SUBGRADES, PRE-SEALS, CLEARING, AND OTHER SUCH INSPECTIONS AS NOMINATED IN THE APPROVAL AND THE SPECIFICATIONS. THE CONTRACTOR SHALL ENSURE NO WORKS PROCEED PAST THE INSPECTION POINT UNTIL THE JOINT INSPECTION HAS BEEN SUCCESSFULLY COMPLETED.
- 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE MOVEMENT OF TRAFFIC AND THE PROTECTION OF PERSON AND PROPERTY THROUGH AND AROUND THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC MANAGEMENT INCLUDING THE DESIGN, CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ROADWAYS, DETOURS, SIGNS, LIGHTS AND BARRIER AS REQUIRED STRICTLY IN ACCORDANCE WITH THE RELEVANT AUTHORITY REQUIREMENTS.

BULK EARTHWORKS NOTES

- NOTWITHSTANDING THE EXTENTS OF CUTTING AND FILLING SHOWN ON DRAWINGS, THE SUPERINTENDENT RESERVES THE RIGHT TO ADJUST THE FINISHED SURFACE LEVELS AND EARTHWORKS EXTENTS THROUGH WRITTEN DIRECTION.
- 2. THE CONTRACTOR SHALL UNDERTAKE ALL CLEARING USING INDUSTRY BEST PRACTICE INCLUDING CONSIDERATION OF FAUNA RELOCATION.
- 3. THE CONTRACTOR SHALL UNDERTAKE ALL EARTHWORKS IN ACCORDANCE WITH AS3798-2007 AND LOCAL AUTHORITY REQUIREMENTS. LEVEL 1 SUPERVISION IS REQUIRED.
- 4. THE CONTRACTOR SHALL CONSIDER LOADS GENERATED BY THE EARTHWORKS OPERATIONS SO AS TO AVOID DAMAGE TO ALL PIPES, SERVICES AND STRUCTURES.
- 5. THE EARTHWORKS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT'S SEDIMENT AND EROSION CONTROL PLAN, WHERE APPLICABLE.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLANNING, DESIGN, CERTIFICATION, IMPLEMENTATION AND MAINTENANCE OF AN EROSION AND SEDIMENT CONTROL PLAN THAT IS COMPLIANT WITH THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA) GUIDELINE 'BEST PRACTICE EROSION AND SEDIMENT CONTROL' AND RELEVANT COUNCIL POLICIES.
- 7. ALLOTMENT FINISHED SURFACE LEVELS, SHOWN ON THE LAYOUT PLAN, INDICATE THE FINISHED SURFACE LEVEL <u>AFTER</u> TOPSOIL PLACEMENT.

ROADWORKS AND DRAINAGE NOTES

- 1. ALL WORKS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY'S STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
- 2. NOTWITHSTANDING THE EXTENTS OF CUTTING AND FILLING SHOWN ON DRAWINGS, THE SUPERINTENDENT RESERVES THE RIGHT TO ADJUST THE FINISHED SURFACE LEVELS AND EARTHWORKS EXTENTS THROUGH WRITTEN DIRECTION.
- 3. NEW CONSTRUCTION SHALL BE NEATLY JOINED TO EXISTING FORMATION. WHERE REQUIRED, THE EXISTING FORMATION SHALL BE SAW CUT IN ACCORDANCE WITH IPWEAQ STD DRG RS-170. LEVELS AND GRADIENTS AT CONNECTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE A SMOOTH CONNECTION.
- THE CONTRACTOR SHALL UNDERTAKE ALL EARTHWORKS IN ACCORDANCE WITH AS3798-2007 AND LOCAL AUTHORITY REQUIREMENTS. LEVEL 1 SUPERVISION IS REQUIRED.
- 5. THE CONTRACTOR SHALL SUPPLY THE SUPERINTENDENT WITH THE SUBGRADE TEST RESULTS NECESSARY FOR ALL PAVEMENT DESIGN.
- 6. THE CONTRACTOR SHALL ENSURE A MINIMUM OF 75mm TOPSOIL TO ALL VERGE AND BATTER AREAS (AND STABILISATION AS ORDERED)
- 7. THE CONTRACTOR SHALL INSTALL ALL FOOTPATH AND PRAM RAMPS IN COMPLIANCE WITH THE AUTHORITY'S STANDARD DRAWINGS. PRAM RAMPS ARE TO BE LOCATED CLEAR OF DRAINAGE GULLY PITS AND FUTURE DRIVEWAY POSITIONS INDICATED ON THE LAYOUT PLANS.
- 8. THE CONTRACTOR SHALL INSTALL SUBSOIL DRAINS UNDER ALL KERBS AS REQUIRED BY THE LOCAL AUTHORITY'S STANDARDS.
- 9. THE CONTRACTOR SHALL ENSURE THAT ALL RETAINING WALL SUBSOIL DRAINS ARE TO CONNECT TO EITHER KERB ADAPTORS, KERB SUBSOIL DRAINS OR STORMWATER DRAINAGE STRUCTURES. CONTRACTOR TO DEMONSTRATE TO SUPERINTENDENT THAT SUITABLE CONNECTIONS HAVE BEEN PROVIDED FOR ALL WALLS.
- 10. ALL STORMWATER DRAINAGE MATERIALS, BEDDING, JOINTING AND STEP IRON REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITIESS STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
- 11. THE STORMWATER PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADS ONLY. THE CONTRACTOR SHALL ASSESS THE SUITABILITY OF MACHINERY USED ON SITE AND THE ANTICIPATED CONSTRUCTION LOADS, AND UPGRADE THE PIPE CLASSES IF NECESSARY IN ACCORDANCE WITH AS3725-2007.
- 12. THE TERM D_{50} DOCUMENTED ON THE DRAWINGS, IN RELATION TO ROCK ARMORING, CORRESPONDS TO THE REQUIRED MEDIAN DIAMETER OF THE PLACED ROCKS. THE ROCKS USED SHALL NOT VARY IN SIZE BY +/- 30% OF THE PROPOSED D_{50} SIZE.

ROOFWATER NOTES

4.

- . THE GEOMETRIC CENTRE SHALL BE TAKEN AS THE SETOUT POINT FOR ALL STRUCTURES, UNLESS DETAILED OTHERWISE.
- 2. ROOFWATER ALIGNMENT, COVER, MATERIALS, BEDDING, JOINTING AND STEP IRON REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY'S STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.
- 3. ALL PVC PIPES ARE TO BE MINIMUM CLASS SN8
- 4. END CAPS SHALL BE INSTALLED ON ENDS OF ALL PIPES AND STUBS.
- 5. WHERE ROOFWATER PIPES ARE ALIGNED BEHIND PROPOSED RETAINING WALLS, THE CONTRACTOR IS TO REFER TO THE SPECIFIC PROJECT DESIGN DETAILS AND CONFIRM CLEARANCES WITH THE SUPERINTENDENT PRIOR TO LAYING OF THE PIPES.
- 6. PROPERTY CONNECTIONS SHALL BE 150Ø UNLESS SHOWN OTHERWISE. THE CONTRACTOR SHALL EXTEND CONNECTIONS A MINIMUM OF 1.0m BEYOND ADJACENT SEWER LINES, WHERE APPLICABLE.
- 7. IN INSTANCES WHERE REAR ALLOTMENT DRAINAGE IS NOT PROVIDED, THE CONTRACTOR SHALL INSTALL A ROOFWATER CONNECTION TO EACH PROPERTY BY ONE OF THE FOLLOWING METHODS, AS SHOWN ON THE LAYOUT PLAN:
 - TWO ROOFWATER KERB ADAPTORS 500mm FROM THE DOWNSTREAM BOUNDARY (UNLESS SHOWN ON A DIFFERENT ALIGNMENT). WHERE THERE IS A CONCRETE FOOTPATH, A ROOFWATER PIPE SHALL BE INSTALLED FROM THE PROPERTY BOUNDARY CONNECTED TO THE KERB ADAPTOR AT 1.25% MINIMUM GRADE IN ACCORDANCE WITH COUNCIL'S STANDARDS.
 - ONE 150Ø ROOFWATER PIPE CONNECTED TO PROPOSED STORMWATER GULLY PIT OR MANHOLE AT MINIMUM 1.0% GRADE WITH 1.0m COVER.
- 8. GRALVANISED STEEL RHS ROOFWATER CONNECTIONS ARE REQUIRED UNDER FOOTPATHS.



ROVED	
NIEL COLLINS	RPEQ 18631
NIEL COLLINS	RPEQ 1863

DESIGN A

AS CONSTRUCTED

N BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DES



ENGINEER'S CERTIFICATION I, Daniel Collins, hereby certify that: As Constructed information shown on this plan is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant approved Engineering Drawings. Drawings. PREQ (signature) RPEQ No. 18631 Date: 11/10/24 NMME TILLERMAN PARK RIDGE 133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)







TILLERMAN	
PARK RIDGE	
159 PARK RIDGE ROAD	PROJECT No.





PROPOSED ROAD CONTROL LINE PROPOSED MOUNTABLE KERB AND CHANNEL 'TYPE M3' PROPOSED BARRIER KERB AND CHANNEL 'TYPE B1'

PROPOSED EDGE OF RESTRAINT

PROPOSED CONCRETE PATH (FINISHED AS PER LANDSCAPE ARCHITECT PLANS) INDICATIVE DRIVEWAY LOCATION

ZERO LOT BOUNDARY

CONTROL LINE SETOUT DRIVEWAY 03

NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
935467.541	142°23'03.60"			
935462.315	142°23'03.60"			
935459.835		R = -8.000	5.969	42°45'03.37"
935459.311	99°38'00.23"			
935456.539	99°38'00.23"			

CONTROL LINE SETOUT BASIN A DRIVEWAY

NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
935569.113	300°55'54.72"			
935573.570	300°55'54.72"			
935574.589		R = -10.000	3.912	22°24'46.94"
935574.882	278°31'07.78"			
935576.430	278°31'07.78"			

CONTROL LINE SETOUT ROAD 03

NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
935571.645	9°38'00.23"			
935646.779				

NORTHING	BEARING
935373.758	9°38'00.23"
935563.814	9°38'00.23"

CONTROL LINE SETOUT ROAD 05

u)	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
59	935348.131	9°38'00.23"			
92	935528.017	9°38'00.23"			
66	935537.876		R = -10.000	15.708	90°00'00.00"
07	935539.550	279°38'00.23"			
75	935574.775	279°38'00.23"			
44	935576.783		R = -12.000	18.850	90°00'00.00"
36	935564.953	189°38'00.23"			
75	935475.039	189°38'00.23"			
66	935463.208		R = 12.000	18.850	90°00'00.00"
36	935465.216	279°38'00.23"			
81	935475.579	279°38'00.23"			
41	935477.623		R = -12.000	19.060	91°00'16.00"
09	935465.549	188°37'44.23"			
53	935361.066	188°37'44.23"			



SURVEY SETOUT AND KERB **TYPES LAYOUT PLAN**

22-0446

105

5

133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)







PROPOSED AREA OF WORKS PROPOSED ROAD CONTROL LINE PROPOSED KERB SETOUT NODE PROPOSED CONCRETE PATH AND PRAM RAMP PROPOSED 2.50m CONCRETE PATH AND PRAM RAMP

ASCON LEGEND

EDGE OF ROAD FOOTPATH

2.50m FOOTPATH SETOUT

POINT	EASTING	NORTHING		
01	505043.876	935473.543		
02	505043.908	935476.062		
03	505060.745	935473.247		
04	505060.359	935470.776		
05	505074.390	935480.718		
06	505071.930	935481.170		
07	505082.171	935541.359		
08	505084.635	935540.935		
09	505085.748	935550.543		
10	505083.250	935550.679		
11	505084.473	935559.661		
12	505086.932	935559.211		
13	505088.281	935566.087		
14	505085.835	935566.601		
15	505108.829	935582.108		
16	505108.330	935579.656		
17	505124.144	935590.329		
18	505121.674	935590.715		
19	505127.994	935628.996		
20	505130.459	935628.577		

ENGINEER'S CERTIFICATION

, Daniel Collins, hereby certify that: As Constructed information shown on this plan is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant approved Engineering Drawings.

RPEQ (signature) RPEQ No. 18631 Date: 11/10/24

TILLERMAN	
PARK RIDGE	

2.50m SHARED PATHWAY SETOUT LAYOUT PLAN

133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)

22-0446

106

5



BLANKET COURSE TYPE (3)	SUBGRADE TREATEMENT
	-

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133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)

ROAD 05 LONGITUDINAL SECTION

 PROJECT No.	DRAWING No.	REVISION
22-0446	107	1



ASSUMED PAVEMENT DETAILS (SUBJECT TO CBR TESTING)								
ROAD 03	ROAD CLASSIFICATION	DESIGN ESAs	ASSUMED CBR	SURFACING	BASE	SUB BASE	LOWER SUB BASE	TOTAL DEPTH
ROAD 03	URBAN ACCESS ROAD	5.9 x 10 ⁵	3	35mm	150mm	150mm	200mm	535mm
NOTE: THIS PAVEMENT DESIGN IS PRELIMINARY ONLY BASED ON ASSUMED CBR. THE CONTRACTOR SHALL SUPPLY THE SUPERINTENDENT WITH SUBGRADE TEST RESULTS NECESSARY FOR FINAL PAVEMENT DESIGN. THE PAVEMENT DESIGN IS SUBJECT TO A SEPARATE PAVEMENT DESIGN APPROVAL BY COUNCIL.								

Γ		AS-CONSTRUCTED PAVEMENT DETAILS								
	LOCATION	SECTION	ESA	DESIGN CBR	TOTAL PAVEMENT DEPTH	AC	BASE COURSE CLASS (1)	UPPER SUB-BASE CLASS (2)	BLANKET COURSE TYPE (3)	SUBGRADE TREATEMENT
	ROAD 03	CH0.00 - CH44.950	5.9 x 10 ⁵ UAR	10%	335mm	35mm	150mm	150mm		-



A1

A3

SAUNDERS HAVILL GROUP PH: 1300 123 744

1:100 2

1:200

VERTICAL

IE CH 0,000 RL 57,965	16 10 10 10 10 10 10 10 10 10 10 10 10 10	1001 IP CH 8:332 KL 31:031	0.0		3.5	500%		-	UC 50.0 UC 50.0 VC 50.0 VC 50.0	
	0.271	0.268	0.241	0.180	0.223	0.225	O DEE	0.369	0.323	0.305
		_	+		58.156	58.856	50.940	59.536	59.924	59.952
		f	t		58.152	58.852	200	59.618	60.011	60.039
57.965	57.863	57.862	57.859 57.887	58.012	58.239	58.939	000	59.618	60.011	60.039
	57.592	57.595	57.618 57.603	57.832	58.016	58.714	20107	59.249	59.689	59.734
0.000	3.378	3.532	4.782 8.532	13.532	20.000	40.000	050	000.00	77.962	80.000
	1 0000 21.365 11.54 0.000 kF 57.365	0.000 B7.865 C271 C212 C40.000 BL 57.865 C271 C212 C40.000 BL 57.865 C272 C40.000 BL 57.865 C272 C40.000 BL 57.865 C272 C40.000 BL 57.865	0000 1000 1000 1000 1000 1000 1000 100	0000 L 271 P CH 3332 R 37.855 3.378 57.592 57.863 4.752 57.595 57.863 4.752 57.595 57.863 1.241 0.288 0.241 0.100 1.241 0.100 0.241 0.100 0	0000 ECH33308 E7.865 3.376 57.562 57.663 3.377 F CH 8.332 Rt 57.855 4.782 57.566 57.863 4.772 57.566 57.863 1.3532 57.568 57.863 1.3532 57.568 57.863 1.3532 57.569 57.863 0.241 0.194 0.194 0.194 0.194 0.194 0.194 0.194 0.201	M FOR KERB RETURN M FOR KERB RETURN 20000 57.965 57.965 3378 57.592 57.965 4,782 57.595 57.863 3,378 57.595 57.863 4,782 57.595 57.863 13,532 57.695 10.241 13,532 57.683 0.0194 0,194 0.194 0.194 13,532 58.156 0.223 20,000 58.016 58.233 88.152 58.156 0.1994 0,194 0.223 10.194	Image: Non-state state Image: Non-state Image: Non-state <th< th=""><th>Model State State State State 13378 57,592 57,893 9000 33378 57,592 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 3337 57,595 58,993 359,165 0,199 0,194 13,552 57,893 58,195 20,000 58,195 0,199 40,000 58,195 58,895 59,165 58,895 0,223 80,165 58,995 58,895 13,552 58,995 58,995 20,000 58,114 88,395 13,552 58,995 58,995 20,000 58,114 88,395 20,000 58,114 88,395 20,000 58,114 88,395 20,000 58,114 99,105 20,000 58,114 90,005 20,000 58,114 90,005 20,000 58,114</th><th>Model State State State State 13378 57,592 57,893 9,000 3378 57,592 57,893 9,0211 13552 57,595 57,893 9,0211 13552 57,593 57,893 9,0211 13552 57,593 57,893 9,0211 13552 57,593 58,012 9,0100 13552 57,593 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,223 20000 58,165 10,233 58,166 20000 59,216 58,316 0,225 20000 59,217 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,310 0,225 58,310 60,000 59,213 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59</th><th>13337 57.965 57.965 57.965 3337 57.595 57.965 57.965 3337 57.595 57.965 3337 57.595 57.965 3337 57.595 57.863 3337 57.595 57.863 3337 57.595 57.863 3337 57.955 57.863 3337 57.955 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3339 58.852 58.852 59.900 58.152 58.152 59.300 58.916 59.305 59.301 59.305 58.852 59.302 59.305 59.305 59.204 59.305 59.305 59.904 0.011 69.001 69.001 69.001 69.001 69.001 59.249 59.329 59.926 59.305 59.329 59.927 59.305 69.001 69.001 69.001 69.001 69.002 59.329 59.329</th></th<>	Model State State State State 13378 57,592 57,893 9000 33378 57,592 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 33378 57,595 57,893 3337 57,595 58,993 359,165 0,199 0,194 13,552 57,893 58,195 20,000 58,195 0,199 40,000 58,195 58,895 59,165 58,895 0,223 80,165 58,995 58,895 13,552 58,995 58,995 20,000 58,114 88,395 13,552 58,995 58,995 20,000 58,114 88,395 20,000 58,114 88,395 20,000 58,114 88,395 20,000 58,114 99,105 20,000 58,114 90,005 20,000 58,114 90,005 20,000 58,114	Model State State State State 13378 57,592 57,893 9,000 3378 57,592 57,893 9,0211 13552 57,595 57,893 9,0211 13552 57,593 57,893 9,0211 13552 57,593 57,893 9,0211 13552 57,593 58,012 9,0100 13552 57,593 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,190 13552 57,893 58,156 0,223 20000 58,165 10,233 58,166 20000 59,216 58,316 0,225 20000 59,217 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,310 0,225 58,310 60,000 59,213 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59,305 59,305 52,985 59,305 59	13337 57.965 57.965 57.965 3337 57.595 57.965 57.965 3337 57.595 57.965 3337 57.595 57.965 3337 57.595 57.863 3337 57.595 57.863 3337 57.595 57.863 3337 57.955 57.863 3337 57.955 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3337 57.863 57.863 3339 58.852 58.852 59.900 58.152 58.152 59.300 58.916 59.305 59.301 59.305 58.852 59.302 59.305 59.305 59.204 59.305 59.305 59.904 0.011 69.001 69.001 69.001 69.001 69.001 59.249 59.329 59.926 59.305 59.329 59.927 59.305 69.001 69.001 69.001 69.001 69.002 59.329 59.329

CL CL

AS CONSTRUCTED DESIGN APPROVED DANIEL COLLINS RPEQ 18631 OR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN

ENGINEER'S CERTIFICATION

I, Daniel Collins, hereby certify that: As Constructed information shown on this plan is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant approved Engineering Drawings.

RPEQ (signature) RPEQ No. 18631 Date: 11/10/24

89			
ස ස			
NCRETE FOOTPATH IN CORDANCE WITH LCC STANDARDS KERB AND 13' IN ACCORDANCE			
TILLERMAN PARK RIDGE	DRAWING TITLE ROAD 03 LONGI CROSS SE	TUDINAL A CTIONS	ND
133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)	PROJECT No. 22-0446	DRAWING No.	REVISION 1





DRIVEWAY CONCRETE TO BE 175mm THICK (N32), SL72 MESH WITH 50 TOP COVER, ON 150mm THICK BASE COURSE TYPE 2.3 (CBR45) FINISHED TO LANDSCAPE ARCHITECT PLANS



AS CONSTRUCTED

AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING &

RPEQ 18631

DESIGN

DANIEL COLLINS

1:1000

1:2000

1:100

1:200

Colliers





ND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DES

PARK RIDGE (STAGE 5)

PH: 1300 123 744

22-0446

112





LEGEND

	PROPOSED AREA OF WORKS
←	PROPOSED STREET NAME SIGN
-	PROPOSED ROAD SIGN
	PROPOSED END OF ROAD SIGN
0-	EXISTING STREET NAME SIGN
-	EXISTING ROAD SIGN
-0-0-	EXISTING END OF ROAD SIGN
->	PROPOSED RRPM - YELLOW - UNIDIRECTIONAL
GL	PROPOSED GIVE WAY LINE
LL-C	PROPOSED LANE LINE - CONTINUOUS
ASCON LEGEND	

EDGE OF ROAD

NOTES:

- ALL SIGNS AND LINEMARKING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND (L.C.C) STANDARDS.
- 2. TRAFFIC SIGN POSTS SHALL BE IN ACCORDANCE WITH (IPWEA RS-131) STANDARD DRAWINGS.
- 3. STREET NAME SIGN SHALL BE IN ACCORDANCE WITH (IPWEA RS-130) STANDARD DRAWINGS.
- 4. CONTRACTOR TO ENSURE SIGN LOCATIONS ARE CLEAR OF
- FUTURE DRIVEWAY LOCATIONS LOCATE ON PB OR MID BLOCK. 5. RRPM'S TO BE INSTALLED / REMOVED AND REINSTATED TO SUIT NEW CHEVRON, MEDIAN AND EDGE LINE IN ACCORDANCE WITH M.U.T.C.D. REQUIREMENTS

ENGINEER'S CERTIFICATION

I, Daniel Collins, hereby certify that: As Constructed information shown on this plan is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant approved Engineering Drawings

RPEQ (signature) RPEQ No. 18631 Date: 11/10/24

TILLERMAN
PARK RIDGE

133-159 PARK RIDGE ROAD

PARK RIDGE (STAGE 5)

0

SIGNS AND LINEMARKING LAYOUT PLAN

ROJECT No.	DRAWING No.	REVISION
22-0446	114	5



	CATCHME	ENT TABLE		
			IMPERVIOUS	IMPERVIOUS
CATCHMENT	RUNOFF	RUNOFF	CATCHMENT	CATCHMENT
AREA (ha)	COEFF	COEFF	AREA MINOR	AREA MAIOR
/ ite/ (ite)	MINOR	MAJOR	(ha)	(ha)
0 103	0.72	1	0.074	0.103
0.105	0.72	1	0.0/4	0.105
0.000	0.74	1	0.045	0.000
0.331	0.72	1	0.239	0.331
0.241	0.72	1	0.174	0.241
0.215	0.72	1	0.056	0.215
0.070	0.74	1	0.030	0.070
0.045	0.09	1	0.031	0.045
0.04	0.09	1	0.028	0.04
0.04	0.00	1	0.020	0.04
0.04	0.09	1	0.028	0.04
0.04	0.09	1	0.028	0.04
0.045	0.09	1	0.031	0.045
0.04	0.09	1	0.020	0.04
0.043	0.09	1	0.031	0.045
0.034	0.09	1	0.023	0.034
0.038	0.09	1	0.020	0.038
0.038	0.09	1	0.020	0.038
0.036	0.69	1	0.026	0.036
0.036	0.09	1	0.025	0.036
0.046	0.74	1	0.034	0.046
0.203	0.72	1	0.140	0.203
0.142	0.72	1	0.102	0.142
0.223	0.72	1	0.10	0.223
0.045	0.74	1	0.033	0.040
0.322	0.72	1	0.232	0.322
0.044	0.09	1	0.03	0.044
0.04	0.09	1	0.028	0.04
0.045	0.09	1	0.031	0.045
0.04	0.69	1	0.028	0.04
0.04	0.69	1	0.028	0.04
0.04	0.09	1	0.028	0.04
0.04	0.09	1	0.028	0.04
0.045	0.09	1	0.031	0.045
0.04	0.09	1	0.020	0.04
0.154	0.72	1	0.109	0.154
0.151	0.72	1	0.109	0.151
0.002	0.74		0.040	0.002
0.112	0.03	1	0.077	0.112
0.11	0.72	1	0.000	0.11
0.77	0.72	1	0.075	0.272
0.272	0.72	1	0.190	0.272
0.045	0.09		0.031	0.045
0.045	0.03	1	0.031	0.045
0.045	0.03	1	0.031	0.045
0.045	0.03	1	0.031	0.045
0.040	0.03		0.036	0.040
0.05	0.72		0.030	0.05

TILLERMAN PARK RIDGE	STORMWATER CATCHMENT L	R DRAINAG AYOUT PL	GE .AN
	PROJECT No.	DRAWING No.	REVISION
133-159 PARK RIDGE ROAD	22 0446	445	6
PARK RIDGE (STAGE 5)	22-0440	115	9

STRUCTURE NAME	G1/40 G2/40		G3/40	G4/40	5/40 G6/40	1/40	8/41	G1/41	G2/41	1/41	2/41	3/41	4/41	E4/41	5/41	6/41
STRUCTURE DESCRIPTION	STD TYPE A GULLY LIL; 2.4m LINTEL; TYPE S STD TYPE A GUILY	LLL; 2.4m LINTEL; TYPE S	STD TYPE A GULLY LIL; 2.4m LINTEL; TYPE S	STD TYPE A GULLY LIL; 2.4m LINTEL; TYPE S	STD MANHOLE 1050mm DIA STD TYPE A GULLY LIL; 2.4m LINTEL; TYPE S	STD MANHOLE 1200mm DIA	STD MANHOLE 1800mm DIA	STD TYPE A GULLY (SAG) LLL; 4.8m LINTEL; TYPE L	STD TYPE A GULLY (SAG) KIL: 4.8m LINTEL; TYPE L ON A 12000 MH	900x600 GULLY WITH INVERTED GRATED LID STD MANHOL F	1200mm DIA STD MANHOLE	1200mm DIA STD MANHOLE	STD MANHOLE 1800mm DIA	TEMPORARY FIELD INLET 900x600	STD MANHOLE 1500mm DIA REFER 120 FOR DETAILS	STD MANHOI F
STORMWATER STRUCTURE NOTE: STANDARD ROUND MANHOLES LESS THAN 3.0m DEEP: CONSTRUCT IN ACCORDANCE WITH THE LOCAL AUTHORITY STANDARDS. STANDARD ROUND MANHOLES 3.0m > 5.3m DEEP: CONSTRUCT IN ACCORDANCE WITH TMR STD DRAWINGS 1307 AND 1308. STANDARD ROUND MANHOLES GREATER THAN 5.3m DEEP: SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS. ROUND EXTENDED (900mm MAX) MANHOLES: CONSTRUCT IN ACCORDANCE WITH			CONTRACTOF	TO REMOVE TEMPORAL	RY	EXISTING DESIG	SURFACE (TYP)		CIRO 627	CLR 0.303	CONTRAC		DNH200mm POND INTO		Q2 HGL	
COLLIERS STD DRAWINGS S-101 & S-102. <u>NON-STANDARD STRUCTURE (SPECIAL):</u> SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS.	-	EXISTI	GULLY PIT G6	40 AND JOIN NEATLY.				-		FUTURE STA	AGE 6 AND 8 L					
PIPE SIZE (mm) PIPE CLASS	<u> </u>	375	3	3 3 450	450 -	<u>525</u>	<u>600</u> 3	<u> </u>	750	750	750	- 750 -	750	900 - 90 3 - 3	$\frac{00}{3} = \frac{90}{3}$	<u>0</u>
PIPE GRADE (%)	= 1.90%	2.64%	4.	97% 3.00%	1.31%	3.84% 2 4.01% 24.05	2.86%	- 5.199	6 5.72%	2.80%	2.01%	- 1.50%	3.69%	3.35% - 3.3	4.43 1% 4.53	3% 3 %
PIPE SLOPE (1 in X) FULL PIPE VELOCITY (m/s)	0.40	37.82	20	07 162	2 16	26.01 3	34.97 1.57	19.2	17.49	35.76	49.82	1.87	1 98	29.03 30. 1.69 1.6	24 22. 22. 39 1 7	58 57
PART FULL VELOCITY (m/s)	1.76	2.43	3	.68	2.32	3.82	3.60	3.74	5.07	3.90	3.55	3.23	4.59	4.65 4.6	53 - 1.7	26
DATUM RL H.G.L IN PIPE & W.S.E IN STRUCTURE	64.195 64.076 63.954 63.956 63.956	63.847	62.136 62.187 61.793	59.176 59.176 59.119 58.959	59.040 58.492 58.131 58.151 58.023	56.759 56.802 56.511	56.444 56.478 56.270	66.094 65.621	65.122 65.122 64.804 63.815	63.848 63.654 63.425 63.425 63.509	63.097 63.062 63.128	62.750 62.265 62.280 62.280	60.858 60.886 60.711	59.397	59.407 59.322	57.940
PIPE FLOW (Cumecs)	0.054	0.112	0.	229 0.268	0.344	0.368 0	0.445	0.24	0.695	0.691	0.771	0.825	0.873	1.075	1.12	29
PIPE CAPACITY AT GRADE (Cumecs)	0.242	0.285	0.	391 0.494	0.326	0.861 1	1.065	0.980	2.663	1.862	1.578	1.365	2.139	3.316	3.85	57
DEPTH TO INVERT	1.150	1.171	1.142	1.128	1.698 1.718 1.718 1.225 1.325	1.78 1.78 1.78 1.78	2:087 2:087 2:087 2:087	1.279	2.057	2.532	2.034	2.080	1.934	0.793	1.938 1.958 1.999	2.21 2.245
INVERT LEVEL OF DRAIN	63.908 63.640	63.600	61.488	58.653	58.110 58.090 57.74 57.77 57.613	56.18 56.073 56.073 56.060	55.70 55.690 55.406 55.42	65.290	64.512 64.287	63.159 63.139 62.393	62.373 62.207	62.187 61.603 61.603	60.247 60.037	59.083 58.74	58.713 58.693 58.67	57.26
DESIGN SURFACE LEVEL	65.058		62.630	59.934	59.808 58.94 58.942	57.84 57.805	57.50 57.503	66.569	66.569	65.691	64.267	63.462	62.181	<u>61.076</u> 60.66	60.651	59.47 59.402
SETOUT COORDINATES	E 505303.683 N 935621.838 F 505290.648	N 935616.443	E 505211.908 N 935629.808	E 505159.368 N 935638.727	E 505141.755 N 935641.755 E 505136.742 N 935613.583	E 505124.753 N 935579.059	E 505114.260 N 935571.832	E 505381.133 N 935531.020	E 505366.340 N 935533.500	E 505346.906 N 935536.908 F 505320.355	N 935534.300 E 505313.008	N 935538.097 E 505274.680 N 025544.600	E 505238.971 N 935550.664	E 505209.616	E 505198.273 N 935557.572	E 505166 837
RUNNING CHAINAGE	0.000 14.108 4	79.866	93.974	.292 147.266	165. 365 582 193. 940	-36.547 98 -36.547 1	243.228	000000000000000000000000000000000000000	000 0 <u>45</u> 19.731	187.409 76.618 76.618	6 <u>7</u> 9.69 8.270	38.876	36.220 9/2/19/1	41.280	31.8 31.8	₩ 217.941
LINE		1	I	40		I		L			1			41		

REV	DATE	DESIGN	DRAWN	REVISION DETAILS	DRAWN	STATUS			SCALE	CLIENT	PROJECT
Α	21.03.24	CL	CL	ISSUED FOR CONSTRUCTION							
1	11.10.24	CL	BP	AS CONSTRUCTED		AS CON	ISTRUCTED		1:1000 10 0 10 20 30 40 50 A1		10
									1:2000 A3		
	_							i Conners i	HORIZONTAL		
					DESIGN	APPROVED			1:100 2 1 0 2 4 41		
						DANIEL COLLINS	RPEQ 18631				
									1:200 VERTICAL A3	ASSOCIATED CONSULTANT	
	-								VENTIONE	SAUNDERS HAVILL GROUP	
_										PH: 1300 123 744	
						FOR AND ON BEHALF OF COLLIERS IN	TERNATIONAL ENGINEERING & DESIGN PTY LTD		1	111.1000 120 144	1



STRUCTURE NAME	1/41A	DUT1/41A	G1/42	1/40	G1/43	1/40	G1/46		G2/46	G3/46	10/41	E1/AR		F2/48	F3/48	F4/48	LE 140	L 0/40	F6/48	F7/48	F8/48	6	7/41	
STRUCTURE DESCRIPTION	RECTANGULAR MANHOLE 1800mm DIA EXTENDED BY 900mm REFER 22-0142-203 FOR DETAILS	HEADWALL	STD TYPE A GULLY LIL; 2.4m LINTEL; TYPE S	STD MANHOLE 1200mm DIA	STD TYPE A GULLY (SAG) LIL; 2.4m LINTEL; TYPE S	STD MANHOLE 1200mm DIA	STD TYPE A GULLY	LIL; 2.4m LINIEL; TYPE S ON A 12000 MH	STD TYPE A GULLY (SAG) LIL; 2.4m LINTEL; TYPE S	STD TYPE A GULLY (SAG) LIL: 4.8m LINTEL: TYPE L	ON A 12000 MH RECTANGULAR MANHOLE	1800mm DIA EXTENDED BY 900mm REFER 22-0142-203 FOR DETAILS	900×600	STD FIELD INLET TYPE 2 900x600	STD FIELD INLET TYPE 2	900X600 STD FIELD INLET TYPE 2	000x000	900x600	STD FIELD INLET TYPE 2 900x600 ON A 1200Ø MH	STD FIELD INLET TYPE 2	ON A 12000 MH	900x600 900x600 MH	STD MANHOLE 1500mm DIA	
STORMWATER STRUCTURE NOTE: STANDARD ROUND MANHOLES LESS THAN 3.0m DEEP: CONSTRUCT IN ACCORDANCE WITH THE LOCAL AUTHORITY STANDARDS. STANDARD ROUND MANHOLES 3.0m > 5.3m DEEP: CONSTRUCT IN ACCORDANCE WITH TMR STD DRAWINGS 1307 AND 1308. STANDARD ROUND MANHOLES GREATER THAN 5.3m DEEP: SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS. POLIND EXTENDED (200mm MAX)	DESI SURF	GN ACE (TYP)		EXISTING SURFAC (TYP)						R0 BL F0	DOFWATE JLK EART DR DETAIL	r swale hworks .s _	E - REFER PLAN 102				DINISO WATER WAIN	CLR 0.485 CLR 0.485 CLR 0.595	I, Daniel Co As Construct types, mater Drawings, c	EN Ilins, her ted inform ials, clas	IGINE eby certify nation show ses etc., ar	ER'S C that: wn on this pla ind it correspon	CERTII an is a true a onds with the	FICATION and correct record of the size a relevant approved Enginee
ROUND EXTENDED (900mm MAX) MANHOLES: CONSTRUCT IN ACCORDANCE WITH COLLIERS STD DRAWINGS S-101 & S-102. NON-STANDARD STRUCTURE (SPECIAL): SHALL BE STRUCTURALLY DESIGNED (CERTIFIED) AND CONSTRUCTED BY CONTRACTOR ON A CASE BY CASE BASIS. PIPE SIZE (mm) PIPE GRADE (%) PIPE SLOPE (1 in X) FULL PIPE VELOCITY (m/s)	- 755 3 - 1.16 - 1.30 - 76.5 86.5 - 2.89	$\frac{1}{2}$	3 5. 87 11	75 3 78% 74% 	600 33 301 335 39.5 39.5 39.5	% % 7 5 7	-	<u>375</u> 3 0.98% 1.00% 99.54 101.90 0.50	45(3 0.75 100 132. 32. 132. 132.	0 % % 00 67 7	525 3 1.50% 6.62% 45.41 66.80 0.58	-	225 PVC 4.52° 	% % 9	225 PVC 3.19% 3.33% 30.05 31.30 0.53	225 PVC 1.84% <u>1.94%</u> 51.44 54.26 0.78	300 PVC 0.96% 1.01% 99.21 104.08 0.58	300 PVC 1639 664 614 014	RPEQ (si	ignature	300 PVC 1.37% 4.56% 52.81 1.00	375 3 3.22% 4.00% 2.60% 31.04 31.04	1 Date: 11	/10/24
DATUM RL H.G.L IN PIPE & W.S.E IN STRUCTURE	43.0 43.0 18 [°] 55 55	55.578 55.578 55.578	56.746 56.737 17	56.759 56.802 56.511	44.0 20:757 56:757 70:757	56.759 56.802 56.511	56.304	44.0 917:200 92 92	26.069	56.006 56.010 55.973	55.973 55.973	55.947 50.606	46.0 46.0 8/5.65	59.013 59.013 58.985	58.622 58.622 58.622	58.575 58.286 58.271	28.165 58.165 58.165	58.138 58.138	57.964 57.964 57.925 64	57.775 57.775 57.775 57.733	57.445 57.445 57.191	57.046 57.046 7.03	57.019 56.932	
PIPE FLOW (Cumecs)	1.27	78	0.	015	0.07	7		0.055	0.10)7	0.125		0.01	1	0.021	0.031	0.041	0.05	0 0.06	61	0.071	0.081		
PIPE CAPACITY AT GRADE (Cumecs)	1.28	33	0.	519	1.06	5	_	0.176	0.28	35	1.107		0.11	7	0.097	0.074	0.115	0.14	0 0.14	40	0.140	0.351		
DEPTH TO INVERT	1.825 1.89	0.750 0.750 1.01	1.135 1.24	1.50 1.50 1.732 1.78	4.421 1.48	1.72 4.712 1.782 1.78		1.36 1.36 1.36	1.208 1.283 1.283	1.36 1.343 1.418	1.60 1.54 1.675	1.825 1.89	1.120 1.21	1.169 1.169 1.169 1.169 1.169	1.19 1.15 1.15	1.18 1.18 1.18 1.18	1.248 1.23	1.28	1.49 1.502 1.51 1.51	1.70 4.715	1.73 1.94	2.417 2.43	1.93 1.93 1.93 1.93	
INVERT LEVEL OF DRAIN	55.138 55.12	54.96 54.958 54.958 54.968 54.968	56.643 56.57	56.34 56.298 56.073 56.06	56.322 56.32	56.12 56.033 56.073 56.06		56.045 56.04 56.04	55.738 55.663 55.663	55.60 55.588 55.513	55.36 55.31 55.31	55.138 54.96	59.491 59.45	58.89 58.80 57.80 57.80	58.86 58.46 58.446 5.0.448	58.428 58.43 58.20 58.185	58.110 58.111 57.99	57.964	57.74 57.755 57.733 57.723	57.55 57.545 57.545	57.52 57.31	56.837 56.837 56.82	56.238 56.238	
DESIGN SURFACE LEVEL	56.85 56.963 56.963	56.13 55.708	57.81 57.778	57.84 57.805	57.80 57.743	57.84 57.805	57.40 57.388	56 94	56.046	56.96 56.931	56.85 56.85	60.66 60.66		60.05 60.053	59.61 59.602	59.34 59.358	59.25 59.25	noz-ree	59.23 59.255	59.25 59.260	59.25	58 16	58 .169	
SETOUT COORDINATES	E 505086.860 N 935565.336	E 505074.047 N 935570.566	E 505123.365 N 935582.752	E 505124.753 N 935579.059	E 505132.370 N 935579.242	E 505124.753 N 935579.059	E 505091.695	N 935531.697	E 505096.809 N 935561.825	E 505089.415 N 935563.080	E 505086.865	N 935565.330	E 505116.541 N 935470.420	E 505118.633 N 935482.744	E 505120.725	N 935495.067 E 505122.817	N 935507.391	E 505124.908 N 935519.715	E 505127.268 N 935533.616	E 505129.360 N 035545 040	E 505131 037	N 935561.123	E 505132.142 N 935568.796	
RUNNING CHAINAGE	000 0 13.8	送 13.839	000.0 3 .	3.946 3.946	000 00 7.61	7.619	0.000	30.559-	30.559 7.50	38.059	3.401 40 71 460		B 1 2.50	12.500	52 ^{.000}	005 12.500-22	12.500 {	14.10	00 12.5	76.600	15.400 g	7.677	99.677	
LINE	41	a	4	12	43		L		46			-						48				_		

REV	DATE	DESIGN	DRAWN	REVISION DETAILS	DRAWN	STATUS		SCALE	CLIENT	PROJECT N
Α	21.03.24	CL	CL	ISSUED FOR CONSTRUCTION	1					
4	05.06.24	CL	CL	LINE 49 REMOVED	1	AS CONSTRUCTED		1:1000 10 0 10 20 30 40 50 A1		$1 \cap$
5	11.10.24	CL	BP	AS CONSTRUCTED	1			1:2000		
					1		l l Allers	HORIZONTAL		
					DESIGN	APPROVED				
						DANIEL COLLINS RPEQ 18631	and the state of the second second	1:100 2 1 0 2 4 A1		
					1			1:200	ASSOCIATED CONSULTANT	
					1			VERTICAL	SAUNDERS HAVILL GROUP	
					4				DLI- 1200 122 744	
					1	FOR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN PTY LTD			FR. 1300 123 744	







<u>STRU</u>	CTURE SETOUT	REFERENCE F	POINT
STRUCTURE TYPE	HORIZ	ONTAL	VERTICAL
MANHOLE	@ Q	MAIN SHAFT	FINISHED SURFACE LEVEL
GULLY PIT		ERSECTION OF PIT AND KERB /ERT LNE # CLUDING MANHOLES DER GULLIES)	KERB INVERT LEVEL
HEADWALL	INT HE & F	TERSECTION OF ADWALL FACE PIPE CENTRE LINE	TOP OF HEADWALL

LOCATION	TIME			S	UBCAT	CHMEN	TRUN	NOFF						INLE	DESIGN	N								DRAII	V DESIGI	N								HEAD	LOSSES	;				PART F	ULL		DI	ESIGN LE	EVELS		
1 2 3 4	5 6 7	8		9	10	11 (CxA)		12 5(CxA)	13	14	4 15	16 1	7 18	19 2 dg)	0 21	22	23 24	4 25 a	26	27		28 5(CxA)	29 3 Ot 0	30 31	32	33	34 S	35	36	37 T	38	39	$\frac{40}{\sqrt{2}/2\pi}$	41 ·	42 43	44	45 4	46 4	7 48	49	50 Vn	51	52	53 5	4 55	56 !	7 58
	(LAND USE)	NO		<u>د</u>	A	(CXA)		<u>(CXA)</u>	HARGE	GULLIES			VVT		8			g	tc	1					Qð	L	5		V	н.			V / Zg	KU I	EADLOSS	IEADLOSS 7	KW T		S DT		vp					IT LEVEL	
No. MENTS	ONDITIONS ATCHMENT MENT	INCENTRAT		T OF RUNO	MENT ARE/	T AREA		NTRIBUTIN T AREAS	MENT DISC	PREVIOUS	kC BYPASS)	DE AT INLET	E	H AT INVEF		BER	INIET	M	AE OF CONC	4TENSITY		TRIBUTING T AREA	AL FLOW	FACE FLOW	В	HIS		IMENSIONS	CITY	DW IN REAG	-		EAD	DSS COEEFF	RUCTURE H	RUCTURE	EFICIENT	W.S.E.	ON HEADLO			/ELS	ION HGL		-	K&C INVER	No
DESIGN ARI STRUCTURE DRAIN SECT SUB-CATCH	SURFACE CC SLOPE OF C SUB-CATCH	TIME OF CO RAINFALL IN		COEFFICIEN	SUB-CATCH	EQUIVALEN		sum of co equivalen	SUB-CATCH	FLOW PAST	FLOW IN K8	ROAD GRAE		FLOW DEPT	dg xVg	INLET NUMI	INLET TYPE	BYPASS FLO	CRITCAL TIN	RAINFALL IN		TOTAL CON EQUIVALEN	MAJOR TOT	MAJOR SUR	FLOW IN PI	REACH LENG	PIPE GRADE	PIPE/BOX D	FLOW VELO	TIME OF FLO	ku METHOE	Ku CHART	VELOCITY H	U/S HEADLO	U/S PIPE ST LAT. HEADL	LAT. PIPE SI	W.S.E. COEI	CHANGE IN	PIPE FRICTION SI	DEPTH	VELOCITY	OBVERT LEV	DRAIN SECT	U/S HGL	WSE	SURFACE or	FREEBUARL
NOR NOR		m Intensity VOR	NOR NOR	NG NG		01 NON 01	Tok I	NON JO	vor vor	NOR S	+ 14				×19		er Legend m Charts	- 24		NON	JOR 2 (U/S)	80, 80,	× 28)/360		NON 95	5			Area of Sect.	(36 × 60)			× 36)/28	DM GUDM VOL	x 41 DM QUDM L 2		DM QUDM	OM SECT. 14.5.7	.R. VOL 11987								
Yrs	% mir	55∑ n. mm/h	2 2	2	На	ê∑ ê Ha	2 2	E RE Ha		22 R	/s m³/s	% г	m m	m n	/s m²/s		2 E m ³ ,	់ ព /s m³/s	min	∑ mm/hr	2 %	∑ Ź Ha	n³/s m³	³ /s m ³ /s	_	2 m	%	mm	≊ m/s	min			m	Ξ~	9 E.V	m	£β	m 9	2 % m		m/s	n n	3 3 m	m n	n m		<u></u>
2 100 G6/40 G6/40 to 1/40 7	2.5 5	130	293 0.72	2 1	0.103	0.074 0.1	.03 0.0	074 0.103	0.027 0	.084 0.00	05 0.032	3.5 7	.5 0.443	8 0.01 14	876 0.143	G6/40	AL2D 0.03	32	11.5	103.73 22	4.86 1.2	77 1.78 1.	112 2.5	784 0.733	0.368 1.1	.12 36.547	4.01	5 2 5	1.7	0.3583	u,Kw - Missou Hare Charts	^{ri/} т1/тз	0.15	0.73 0	.11		0.86 0.	.127 3.4	46 1.327	0.24 3	.821 58.13	8 56.673	58.023 56.759	58.151	58.151	58.942 0.	791 G6/40
2 100 1/40 8/41 9 5/41 to	2.5											1 7	.5			1/40 M	H1200	_	11.22	104.54 22	3.14 1.9	33 2.053 1.	272		0.445 1.0	197 12.742	3.01	600	1.57	0.13527	Hare Charts	''' тз/тб	0.13	1.96 0	.25		2.3 0.	.291 0.5	52 0.147	0.271 3	.597 56.67	3 56.29 !	56.511 56.444	56.802	56.802	57.805 1.	303 1/40
2 100 5/41 6/41 46 6/41 6/41 c	2.5		293	1		0.0	138	0.038	0.	.031		1 7	.5			5/41 M	H1500	_	11.49	103.74 2	193 3.9	16 0.038 0.	031	_	1.129 0.0	31 31.886	4.53	900	1.77	0.30024	Hare Charts u,Kw - Missou	''' т1/тз	0.16	D.46 C	.07		0.53 0.	.084 4.3	33 1.435	0.334 5	.262 59.59	3 58.147	59.322 57.94	59.407	59.407	60.651 1.	44 5/41
2 100 6/41 7/41 66 2 100 7/41 7/41 to 74	2.5		69.4	1		0.7	195	0.235	0	176		1 7	5			5/41 M	H1800		11.76	102.98	59.4 5.1	67 0.235 0	176		1.431	35.191	3.76	1050	1.65	0.35546	Hare Charts u,Kw - Missou	ri/ 11/13	0.14	0.5 0	.16		1.4 U.	.195 Z.1	19 0.827 69 0.609	0.38 5	.402 58.14	8 56 606	56.932 56.444	57.972	57.972	58 169	52 6/41
2 100 8/41 8/41 /4	2.5	+		-	+	0.2		0.235				· /	.5			8/41 M	H1800		11.73	103.08	67	18	-//		1.923	18,458	0.8	1200	1.72	0.18096 K	Hare Charts u,Kw - Missou	ri/ _{T1/T3}	0.15	1.18	.17	+	1.41 0	.208	0.009	0.636 3	.159 56 60	6 56.458	56.27 56 295	56.478	56.478	57,503 1	.025 8/41
2 100 9/41 9/41 to 83	2.5		234	1	++	0.3	103	0.303	0.	.197		1 7	.5	+		9/41 M	H1500	+	11.88	102.64 2	34 6.7	18 0.303 0.	197	-	1.915 0.1	.97 11.488	0.7	1200	1.69	0.11329 K	Hare Charts u,Kw - Missou	ri/ T3/T6	0.15	2.02	0.3		2.35 0.	.344 0.2	23 0.074	0.661 2	.999 56.43	8 56.358	55.999 55.973	56.343	56.343	57.078 C	.735 9/41
2 100 10/41 10/41 to 86	2.5											1 7	.5			10/41 MI	H RECT		11.98	102.37	7.1	03			0.742	9.06	0.8	1350	0.52	0.29038 K	Hare Charts u,Kw - Missou	ri/ тз/т6	0.01	1.95 0	.03		2.24 0.	.031	0.003	0.36 2	2.42 56.48	8 56.416	55.947 55.95	55.978	55.978	56.963 0	.985 10/4
2 100 OUT1/41	2.5		234	1		0.3	126	0.326	0	.212		1 7	.5			OUT1/41	нw	+		2	134	0.326 0.	212		0.2	12					nare Charts					+								55.95	55.95	56.415	OUT1/
2 100 1/41a 1/41a to OUT1/41a	2.5		234	1		0.3	102	0.302	0.	.196		1 7	.5			1/41a M	H RECT	+	5	130					1.278	13.839	1.3	750	2.89	0.07981	Direct		0.43					1.3	72 0.163	0.619 3	.275 55.88	8 55.708 !	55.816 55.578	55.816	55.816	56.963 1	.147 1/41;
2 100 OUT1/41a	2.5		234	1		0.1	42	0.142	0.	.092		1 7	.5			OUT1/41a	нw	-		2	:34	0.142 0.	092		0.0	174																		55.578	55.578	55.708	OUT1/4
2 100 G1/42 G1/42 to 1	2.5 6	125.6	234 0.74	4 1	0.058	0.043 0.2	14 0.0	43 0.214	0.015 0	.139	0.015	3.63 7	.5 1.08	0.052 0.3	814 0.042	G1/42	AL2D 0.0:	15	6	125.6	0.0	43	2.5	748 0.733	0.015	3.946	8.74	375	0.13	0.5059 K	u,Kw - Missou Hare Charts	ri/ G2		9.7 0	.01		0.	.009	0.001	0.044 2	.072 57.01	8 56.673	56.737 56.759	56.746	56.746	57.778 1	032 G1/4:
2 100 G1/43 G1/43 to 1	2.5 8	116.8	234 0.72	2 1	0.331	0.239 0.1	31 0.2	39 0.131	0.077 0	.085	0.077	2.94 7	.5	0.027		G1/43 S	AL2D 0.0	77	8	116.8 2	34 0.2	39 0.131 0.	085		0.077 0.0	07 7.619	3.01	600	0.27	0.47031 K	u,Kw - Missou Hare Charts	ri/ G2		9.7 0	.04		0.	.037	0.001	0.11 2	.193 56.92	2 56.693	56.757 56.759	56.794	56.794	57.743 0	949 G1/4:
2 100 G1/46 G1/46 to G2/46 1	2.5 6	125.6	234 0.72	2 1	0.241	0.174 0.2	16 0.1	.74 0.216	0.061 0).14	0.061	2.1 7	.5 2.381	0.067 0.	896 0.06	G1/46 M	AL2D- H1200 0.0	55 0.006	5 6	125.6 22	28.3 0.1	74 1.11 0.	704 2.1	144 0.188	0.055 0.2	76 30.559	1	375	0.5	1.01863 K	u,Kw - Missou Hare Charts	ri/ G1	0.01	7 0	.09		0.	.089 0.5	51 0.205	0.144 1	.408 56.42	2 56.113	56.215 56.06	56.304	56.304	57.388 1	084 G1/4/
2 100 G2/46 G2/46 to G3/46 2	2.5 8	116.8	0.72	2	0.215	0.155	0.1	.55	0.05	0.00	06 0.056	0.1 7	.5	0.011		G2/46 S	AL2D 0.0	56	8	116.8 23	0.01 0.3	29 2.001 1.	279		0.107 0.5	69 7.5	1	450	0.67	0.18657 K	u,Kw - Missou Hare Charts	ri/ G2/T10	0.02	2.34 0	.05		2.74 0.	.063 0.0	01 0.01	0.191 1	.663 56.11	3 56.038 !	56.006 56.006	56.069	56.069	56.946 0	877 G2/4
2 100 G3/46 G3/46 to 10/41 3	2.5 7	121.2	0.74	4	0.076	0.056	0.0	156	0.019		0.019	0.16 7	.5			G3/46 M	AL4E- H1200	19	8.06	116.52 22	6.99 0.3	85 3.58 2.	257		0.125 1.0	3.401	6.62	525	0.58	0.09773 K	u,Kw - Missou Hare Charts	^{ri/} тз/т6	0.02	1.95 0	.03		2.21 0.	.037	0.002	0.119 3	.384 56.03	8 55.813	55.973 55.973	56.01	56.01	56.931 0	921 G3/4(
2 100 F1/48 F1/48 to F2/48 1	2.5 5	130	0.69	9	0.045	0.031	0.0	131	0.011		0.011	1		0.02		F1/48 60	SF2 0.03	11	5	130 22	5.38 0.0	31 5.161 3.	231		0.011 1.3	63 12.5	4.86	225	0.28	0.74405 ^K	u,Kw - Missou Hare Charts	ri/ G1		7 0	.03		0.	.028 4.9	52 0.586	0.047 1	.858 59.71	6 59.109 !	59.578 59.013	59.606	59.606	60.661 1	055 F1/48
2 100 F2/48 F2/48 to F3/48 2	2.5 5	130	0.69	9	0.04	0.028	0.0	28	0.01		0.01	1		0.018		F2/48 60	SF2 0.0	1	5.1	129.54 22	3.73 0.0	59 5.494 3.	414		0.021 1.5	47 12.5	3.33	225	0.53	0.39308	u,Kw - Missou Hare Charts	^{ri/} т1	0.01	1.96 0	.03		0.	.028 2.	.9 0.39	0.071 1	.948 59.08	9 58.673 !	58.985 58.622	59.013	59.013	60.053 1	.04 F2/48
2 100 F3/48 F3/48 to F4/48 3	2.5 5	130	0.69	9	0.04	0.028	0.0	128	0.01		0.01	1		0.018		F3/48 60	SF2 0.0	1	5.21	129.08	0.0	86			0.031	12.5	1.94	225	0.78	0.26709 ^K	u,Kw - Missou Hare Charts	^{ri/} т1	0.03	1.52 0	.05		0.	.047 2.3	31 0.192	0.101 1	.777 58.65	3 58.41 !	58.575 58.286	58.622	58.622	59.602 C	.98 F3/48
2 100 F4/48 F4/48 to F5/48 4	2.5 5	130	234 0.69	9 1	0.04	0.028 0.0	145 0.0	0.045	0.01 0	.029	0.01	1		0.018		F4/48 60	SF2 0.0	1	5.31	128.63 2	34 0.1	14 0.045 0.	029		0.041 0.0	129 12.5	1.01	300	0.58	0.3592	u,Kw - Missou Hare Charts	^{ri/} т1	0.02	D.36 C	.01		0.	.006 0.	.8 0.119	0.123 1	.484 58.41	1 58.284 !	58.265 58.165	58.271	58.271	59.358 1	J87 F4/48
2 100 F5/48 F5/48 to F6/48 5	2.5 5	130	234 0.69	9 1	0.04	0.028 0.0	04 0.0	0.04	0.01 0	.026	0.01	1		0.018		F5/48 60	SF2 0.0	11	5.42	128.17 23	3.36 0.1	41 0.085 0.	055		0.05 0.0	14.1	1.5	300	0.71	0.33099	u,Kw - Missou Hare Charts	^{ri/} т1	0.03	1.07 0	.03		0.	.028 1.2	23 0.2	0.124 1	.816 58.26	4 58.053 !	58.138 57.964	58.165	58.165	59.26 1	J95 F5/48
2 100 F6/48 F6/48 to 6 F7/48 6	2.5 5	130	234 0.69	9 1	0.045	0.031 0.0	04 0.0	0.04	0.011 0	.026	0.011	1		0.02		F6/48 60	SF2 00x900	11	5.53	127.65 23	2.73 0.1	72 0.125 0.	081		0.061 0.0	81 12.5	1.5	300	0.86	0.24225	u,Kw - Missou Hare Charts	^{ri/} т1	0.04	1.01 0	.04		0.	.039 1.	.2 0.177	0.139 1	.915 58.03	3 57.845 !	57.925 57.775	57.964	57.964	59.255 1	291 F6/48
2 100 F7/48 F7/48 to F8/48 7	2.5 5	130	234 0.69	9 1	0.04	0.028 0.0	04 0.0	0.04	0.01 0.	.026	0.01	1		0.018		F7/48 60	SF2 0.0	91	5.53	127.65 23	2.09 0.1	99 0.165 0.	106		0.071 0.1	.06 15.4	1.5	300	1	0.25667	u,Kw - Missou Hare Charts	ri/ т1	0.05	D.84 C	.04		0.	.043 1.8	87 0.18	0.151 1	.985 57.82	5 57.594 !	57.732 57.445	57.775	57.775	59.26 1	485 F7/48
2 100 F8/48 F8/48 to 8 7/41 8	2.5 5	130	234 0.69	9 1	0.045	0.031 0.0	04 0.0	0.04	0.011 0	.026	0.011	1		0.02		F8/48 60	SF2 0.03	11	5.66	127.09 23	2.09 0.2	31 0.205 0.	132	_	0.081 0.1	32 7.677	4	375	0.74	0.17291	u,Kw - Missou Hare Charts	ri/ T10	0.03	2.16 0	.06		2.71 0.	.075 0.	.5 0.095	0.123 2	.585 57.21	2 56.905	57.046 57.008	57.121	57.121	59.254 2.	133 F8/48
2 100 F1/49 F1/49 to F2/49 1	2.5 5	130	234 0.69	9 1	0.034	0.023 0.0	45 0.0	0.045	0.008 0	.029	0.008	1		0.015		F1/49 60	SF2 0.00	08	5	130 23	1.38 0.0	23 0.25 0.	161		0.008 0.1	.61 12.5	1.2	225	0.21	0.99206	u,Kw - Missou Hare Charts	ri/ G1		7 0	.02		0.	.016 0.8	89 0.129	0.058 1	.042 64.88	5 64.735	64.735 64.624	64.751	64.751	65.359 0.	507 F1/49
2 100 F2/49 F3/49 2	2.5 5	130	234 0.69	9 1	0.038	0.026 0.0	04 0.0	0.04	0.009 0	.026	0.009	1		0.017		F2/49 60	SF2 0.00	09	5.1	129.54 23	0.74 0.0	49 0.29 0.	186	_	0.018 0.1	.86 12.5	1.21	225	0.45	0.46296	u,Kw - Missou Hare Charts	^{ri/} G1/T1	0.01	2.31 0	.02		0.	.024 0.8	87 0.132	0.085 1	.288 64.71	5 64.564	64.6 64.491	64.624	64.624	65.307 0.	583 F2/49
2 100 F3/49 F3/49 3	2.5 5	130	293 0.69	9 0.99	0.038	0.026 0.0	145 0.0	0.045	0.009 0.	.037	0.009	1		0.017		F3/49 60	SF2 0.00	09	5.21	129.08 23	0.63 0.0	76 0.334 0.	214		0.027 0.2	14 12.5	1.22	225	0.68	0.30637	u,Kw - Missou Hare Charts	ri/ т1	0.02	1.61 0	.04		0.	.038 0.7	75 0.124	0.108 1	.443 64.54	1 64.389	64.453 64.359	64.491	64.491	65.15 0.	559 F3/49
2 100 F4/49 F5/49 4	2.5 5	130	0.69	9	0.038	0.026	0.0	26	0.009		0.009	1		0.017		F4/49 60	0.00 00x900	09	5.31	128.62	0.1	02			0.036	12.2	1.21	225	0.91	0.22344	Hare Charts	^{гу} ті	0.04	1.31 0	.06		0.	.056 1.4	47 0.131	0.128 1	.549 64.36	9 64.221 0	64.304 64.124	64.359	64.359	65.003 0.	544 F4/49
2 100 F5/49 F5/49 to G1/49 5	2.5 5	130	293 0.69	9 1	0.036	0.025 0.0	0.0	0.059	0.009 0.	.048	0.009	1		0.016		F5/49 60	SF2 00x900	09	5.41	128.18 2	93 0.1	27 0.059 0.	048		0.045 0.0	68 6.5	4.69	375	0.41	0.26423	u,Kw - Missou Hare Charts	^{ri/} т10	0.01	2.19 0	.02		3.12 0.	.026 4.2	23 0.297	0.087 2	.311 62.47	5 62.17	62.253 61.978	62.28	62.28	64.807 2.	527 F5/49
2 100 G1/49 G1/49 to G2/49 6	2.5 5	130	0.74	4	0.046	0.034	0.0	134	0.012		0.012	5.28 7	.5 1.015	5 0.036 O.	876 0.031	G1/49	AL2D 0.03	12	5.36	128.4	0.	16	3.2	285 0.267	0.057	57.305	4.75	375	0.52	1.8367	u,Kw - Missou Hare Charts	ri/ T10	0.01	2.19 0	.03		2.66 0.	.036 4.5	55 2.654	0.098 2	.486 62.15	5 59.426	61.948 59.341	61.984	61.984	63.257 1.	273 G1/49
2 100 G2/49 G2/49 to G3/49 7	2.5 7	121.2	234 0.72	2 1	0.203	0.146 0.3	0.1	.46 0.301	0.049 0.	.196	0.049	3.85 7	.5 1.964	0.058 1.	0.061	G2/49	AL2D 0.04	45 0.004	1 7	121.2 2	34 0.3	06 0.301 0.	196 1.9	569 0.381	0.099 0.1	.53 50	1.65	375	0.9	0.92593	u,Kw - Missou Hare Charts	^{ги/} т1	0.04	1.89 0	.08		0.	.078 1.5	32 0.719	0.174 1	.978 59.40	6 58.579	59.263 58.6	59.341	59.341	60.48 1	139 G2/45
2 100 G3/49 G3/49 to G4/49 18	2.5 6	125.6	0.72	2	0.194	0.139	0.1	.39	0.049	0.00	03 0.052	0.6 7	.5 2.867	0.079 0.	539 0.042	G3/49 M	AL2D- H1200	52	7.42	119.37	0.	91	1.1	138 0.715	0.297	34.345	1	5 2 5	1.37	0.41782	u,Kw - Missou Hare Charts	^{гі/} ТЗ/Тб	0.1	1.84 0	.18		2.3 0.	.221 0.7	75 0.314	0.321 2	.145 58.57	9 58.235	58.423 58.167	58.645	58.645	59.632 0	987 G3/49
2 100 G4/49 G4/49 to 19 1/49 19	2.5 7	121.2	293 0.72	2 0.99	0.171	0.123 0.0	0.1	.23 0.034	0.041 0	.027	0.041	1	_	0.001		G4/49 S	ALZU- H1200	41	7.7	118.11 2	1.0	33 0.034 0.	027	_	0.334 0.0	127 8.07	0.81	600	1.18	0.11398	u,KW - Missou Hare Charts	^{ти/} тз/т6	0.07	2.16 0	.15		2.34 0.	.167 0.4	49 0.062	0.337 2	.042 58.23	5 58.17 !	58.013 57.974	58.18	58.18	59.41 1	23 G4/49
2 100 1/49 1/49 to 6/41 20	2.5		293	0.99		0.0	137	0.037	a	0.03		1 7	.5			1/49 M	H1200		7.77	117.81 29	1.77 1.0	59 0.071 0.	058		0.347 0.0	6.772	0.5	750	0.78	0.1447	u, KW - Missou Hare Charts	"" T1/T3	0.03	1 0	.03		1.2 0.	.038 0.0	03 0.009	0.348 1	.728 58.17	7 58.136	57.942 57.94	57.98	57.98	59.515 1.	j35 1/49
2 100 G1/50 G1/50 to 1/49 1	2.5 5	130	293 0.74	4 0.99	0.035	0.026 0.0	137 0.0	0.037	0.009 0	.c		ENC	GINE	ER'S	CER	TIFIC	CATIC	<u>NC</u>		29	0.54 0.0	26 0.109 0.	088 3.2	236 2.013	0.014 0.0	88 5.878	8.08	450	0.09	1.08852	Hare Charts	"'/ G2		9.7			0.	.004 5.1	13 0.328	0.041 1	.937 58.64	5 58.17 !	58.275 57.974	58.279	58.279	59.422 1.	143 G1/50
2 100 G1/51 G1/51 to G3/49 1	2.5 8	116.8	293 0.72	2 0.99	0.324	0.234 0.0	138 0.2	34 0.038	0.076 0	I, Dar	niel Collin	ns, hereb	y certify	that:	nlan is a	true and c	correct rec	cord of t	he sizes	28	89.3 0.2	34 0.146 0.	117 1.5	732 0.439	0.071 0.1	17 12.104	2.85	375	0.64	0.31521	u,KW - Missou Hare Charts	ri/ G2	0.02	9.51).2		0.	.201 1.1	18 0.199	0.125 2	.203 58.92	4 58.579	58.743 58.6	58.944	58.944	59.689 0.	745 G1/51
2 100 F1/52 F1/52 to 1 F2/52 1	2.5 5	130	293 0.69	9 0.99	0.044	0.03 0.0	936 0.0	03 0.036	0.011 0	types	s, material	s, classe	s etc., a	nd it corre	sponds wi	ith the rele	evant appr	roved E	ngineeri	, 1g	9.33 0.	0.181 0.	146		0.011 0.1	.46 12.5	3.49	225	0.27	0.7716 ^K	u,ĸw - Missou Hare Charts	"/ G1		7 (.03		0.	.027 3.1	15 0.415	0.05 1	.639 63.63	3 63.197	63.493 63.099	63.52	63.52	64.508 0	987 F1/52
										Drawi	iiiys.	~	S	5																																	

RPEQ (signature) RPEQ No. 18631 Date: 11/10/24

AS CONSTRUCTED Colliers 1:20 0.2 0 0.2 0.4 0.6 0.8 1 A1 1:40 A3 DESIGN APPROVED DANIEL COLLINS RPEQ 18631 OR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN

STORMWATER DRAINAGE TILLERMAN CALCULATIONS TABLE SHEET 1 OF 2

PARK RIDGE

22-0446

121

1

	LOCA	TION			TIME				S	UBCA	тснмі	ENT RUN	NOFF						IN	ILET DES	IGN									DRA	N DES	SIGN							_		HEAD	LOSSE	s			PA	RT FUL	ц			DESIG	N LEVEL]
1	2	3	4	5	6	7	8		9	10	1:	1	12	13	14	4 15	16	17 1	18 19	20 2	1 22	23	24	25	26	27		28	29	30 31	3	32	33 3	34 3	35 36	6 3	37	38	39	40	41	42 43	3 44	45 46	47	48 4	9 50	1 5	1ذ	52	53	54	55 56 5	7 58
					t	c	1		С	Α	(Cx	kA)	∑(CxA)	Q		_		V	Nf dg	Vg	_		Qg		tc	Ι	Σ(CxA)	Qt C	Qm Qs	0	Qο	L S	S	v	/	т			v²/2g	Ku	hu K _l	L hL	Kw hw	Sf	hf	Vp)						
DESIGN ARI	STRUCTURE No.	DRAIN SECTION	SUB-CATCHMENTS CONTRIBUTING	SURFACE CONDITIONS (LAND USE	SLOPE OF CATCHMENT SUB-CATCHMENT	TIME OF CONCENTRATION	- RAINFALL INTENSITY		COEFFICIENT OF RUNOFF	SUB-CATCHMENT AREA	FOULIVALENT AREA		SUM OF CONTRIBUTING EQUIVALENT AREAS	- SUB-CATCHMENT DISCHARGE	FLOW PAST PREVIOUS GUILLES	FLOW IN K&C (INCLUDING BYPASS)	ROAD GRADE AT INLET	K - K WIDTH	FLOW WIDTH FLOW DEPTH AT INVERT	GUTTER FLOW VELOCITY	dg xvg INLET NUMBER	INLET TYPE	FLOW INTO INLET	BYPASS FLOW	CRITCAL TIME OF CONC.	- RAINFALL INTENSITY	TOTAL CONTRIBUTING	EQUIVALENT AREA	MAJOR TOTAL FLOW	MAJOR SURFACE FLOW CAPACITY MAJOR SURFACE FLOW		- FLOW IN PIPE	REACH LENGTH	PIPE GRADE	PIPE/BOX DIMENSIONS		TIME OF FLOW IN REACH	Ки МЕТНОD	Ku CHART	VELOCITY HEAD	U/S HEADLOSS COEEFF.	U/S PIPE STRUCTURE HEADLOSS LAT. HEADLOSS COEEFFICIENT	LAT. PIPE STRUCTURE HEADLOSS	W.S.E. COEEFICIENT CHANGE IN W.S.E.	FRICTION SLOPE	PIPE FRICTION HEADLOSS	VELOCITY		OBVERT LEVELS	DRAIN SECTION HGL	U/S HGL	LATERAL HGL	WSE SURFACE or K&C INVERT LEVEL LEGEERAARD	STRUCTURE No.
MINOR					~	From Intensity Chart	MINOR	MINOR	MAJOR		9 × 10 MINOR	9×10 MAJOR 211	211 MAJOR	(8 × 12)/360 MINOR	(8 × 12//360 MAJOR 525	13+14	~				61 × 07	Refer Legend	 From Charts 	15 - 24		MINOR	Σ12 (U/S) MINOR	MAJOR	 (27 × 28)/360 	3, 3,	MINOR	MAJOR		~	32/Area of Sect.		- 33/(36×60)			(36 x 36)/28	FROM QUDM VOL	40 × 41 FROM QUDM	VOL 2	FROM QUDM VOL 2	FROM SECT. 14.5.			sh	s/a	sh	s/a			
2 100	52/52	F2/52 to			% m	in.	mm/nr		1	Ha	0.028	0.057 0.0		m'/s		/s m/s	%	m	m m	m/s m	/5	SF2	m /s	m /s	min	nm/nr	20 0.059	Ha	m/s n	n/sm/	0.021	0.104	m 7	70 n	nm m/	/s r	nin Ku	ı,Kw - Missouri,	/ 11	m	1.09		m	m	%		1 m/s	1 63 177	n (2.72 (m		<u>m m m</u>	
2 100	F2/32	F3/52	2		2.5	5 15	293	5 0.65	1	0.04	0.028	0.037 0.0	0.037	0.01 0	,.048	0.01	1		0.012	,	12/3	2 600x900	0.01		5.1 12	5.54 200.1	/9 0.038	0.238 0	,.191		0.021	0.194	14.1 5.	.24 2	.25 0.3	52 0.4	5152 V	Hare Charts	/	0.01	1.56	0.05		0.028	5 2.6	0.424 0.0	/1 1.921	1 65.177			2.677 65.09	5 65	5.099 64.009 0.9	1 F2/32
2 100	F3/52	F4/52	3		2.5	5 13	0 234	0.69	1	0.045	0.031	0.293 0.0	0.293	0.011 (0.19	0.011	1		0.02		F3/5	2 600x900	0.011		5.22 12	9.02 233.3	38 0.089	0.844	0.547		0.032	0.29	12.5 3.	.95 2	225 0.1	8 0.2	6042	Hare Charts	′ т1	0.03	1.62	0.05		0.053	3 3.39	0.457 0.0	85 2.323	3 62.7	62.206 67	2.624 6	62.2 62.67	7 62	-2.677 63.552 0.87	75 F3/52
2 100	F4/52	F4/52 to F5/52	4		2.5	5 13	10 234	0.69	1	0.04	0.028	0.421 0.0	028 0.421	0.01 0	0.274	0.01	1		0.018		F4/5	2 SF2 600x900	0.01		5.33 12	8.57 230.6	59 0.116	1.262	0.809		0.042	0.209	12.5 2.	.52 2	225 1.0	0.1	9841 ^{Ku}	ı,Kw - Missouri, Hare Charts	/ т1	0.06	1.23	0.07		0.069	2.99	0.231 0.1	12 2.112	2 62.186	61.871 6.	2.132 6	1.758 62.2	: 6	62.2 63.058 0.8	58 F4/52
2 100	F5/52	F5/52 to F6/52	5		2.5	5 13	ю	0.69		0.04	0.028	0.0	028	0.01		0.01	1		0.018		F5/5	2 SF2 600x900	0.01		5.43 12	8.11	0.144				0.051		12.5 3.	.69 3	300 0.7	72 0.2	8935 Ku	ı,Kw - Missouri, Hare Charts	/ т1	0.03	0.03			0.001	l 3.43	0.453 0.0	99 2.532	2 61.871	61.41 6	1.746 6	j1.317 61.74	17 61	j1.747 62.652 0.9 ⁻	05 F5/52
2 100	F6/52	F6/52 to F7/52	6		2.5	5 13	0 234	0.69	1	0.04	0.028	0.312 0.0	028 0.312	0.01 0	0.203	0.01	1		0.018		F6/5	2 SF2 600x900	0.01	1	5.53 12	7.65 234	0.172	0.312	0.203		0.061	0.099	12.5 1.	.62 3	300 0.8	36 0.2	4225 Ku	ı,Kw - Missouri, Hare Charts	/ _{T1}	0.04	0.93	0.04		0.035	5 1.32	0.192 0.1	35 1.968	8 61.39	61.187 6	1.282 6	51.116 61.3J	17 61	51.317 62.306 0.9	/89 F6/52
2 100	F7/52	F7/52 to	7		2.5	5 13	10 234	0.69	1	0.04	0.028	0.293 0.0	0.293	0.01 (0.19	0.01	1		0.018		F7/5	2 SF2	0.01		5.53 12	7.65	0.198				0.07		12.5 1.4	.62 3	300 1	0.2	.0833 ^{Ku}	ı,Kw - Missouri, Hare Charts	/ _{T1}	0.05	0.84	0.04		0.043	3 1.75	0.2 0.1	47 2.043	3 61.167	60.964 6	1.074 6	50.855 61.1?	16 6?	õ1.116 62.102 0.9	186 F7/52
2 100	F8/52	F8/52 to	8		2.5 1	0 10	18 234	0.72	1	0.04	0.029	0.224 0.0	029 0.224	0.009 0	0.146	0.009	1				F8/5	2 SF2		0.009	5.74 12	6.73 234	0.216	0.224	0.146		0.067	0.08	3.25 3	32 3	300 0.9	95 0.0	5702 Ku	ı,Kw - Missouri,	/ _{T1}	0.05	0.2	0.01		0.009	30.73	1.028 0.0	71 5.256	6 60.944	59.904 6	50.846 5	59.847 60.8	55 61	50.855 62.102 1.2	47 F8/52
2 100	F9/52	F9/52 to	9		2.5	5 13	10	0.69		0.045	0.031	0.0	031	0.011	0.0	09 0.02	1		0.035		F9/5	2 SF2	0.02		5.77 12	6.61	0.247				0.087		29.75 2	2.2 3	300 1.2	23 0.4	0312 Ki	ı,Kw - Missouri,	/ _{T10}	0.08	2.13	0.16		2.59 0.199	2.46	0.55 0.1	52 2,413	3 59.754	59.099 5	9.684 5	58.951 59.8	82 5!	59.882 61.855 1.9	J73 F9/52
2 100	1/52	1/52 to	9		2.5		234		1			0.299	0.299	0	0.194		1	7.5	_		1/5	2 MH1050			6.02 12	5.52 234	0.247	0.299 0	0.194		0.086	0.179	5.834 7.1	.63 3	375 0.7	78 0.1	2466 Ku	I,Kw - Missouri,	/ тз/тб	0.03	1.95	0.06		2.11 0.065	5 4.52	0.321 0.1	07 3.31	1 59.024	58.579 5	8.864	58.6 58.9;	29 51	58.929 59.967 1.0	138 1/52
2 100	G1/54	G1/54 to	, 1		2.5	6 125	5.6	0.72		0.154	0.111	0.1	111	0.039		0.039	3.7	7.5 1.	.782 0.053	0.996 0.0	053 G1/5	4 AL2D	0.039		6 12	25.6	0.111		2.	.826 1.43	3 0.039		5.672 4.:	.95 3	375 0.3	35 0.2	2701 Ki	ı,Kw - Missouri,	/ _{G2}	0.01	9.7	0.06		0.06	4.3	0.268 0.0	8 2.252	2 59.874	59.593 !	59.64 5	59.397 59.7/	01 5!	59.701 60.639 0.9	J38 G1/54
2 100	G1/55	G1/55 to	, 1		2.5	6 125	5.6 234	0.72	1	0.151	0.109	0.084 0.1	109 0.084	0.038 0	0.055	0.038	3.7	7.5 1.	.771 0.053	0.992 0.0	053 G1/5	5 AL2D	0.038		6 12	25.6 234	0.109	0.084 0	0.055 2.	.826 1.43	3 0.038	0.055	3.202 9.	.59 3	375 0.3	34 0.1	.5696 Ku	I,Kw - Missouri,	/ _{G2}	0.01	9.7	0.06		0.055	8.39	0.293 0.0	67 2.831	1 59.9	59.593 5	9.665 5	59.397 59.7;	24 55	59.724 60.68 0.9	956 G1/55
2 100	6/80	6/80 to	12		2.5												1	7.5			6/8) MH1200		3	30.42 62	2.78	3.507				0.612		57.277 2.4	.42 6	500 2.1	16 0.4	4195 Ku	,Kw - Missouri	/ тз/тб	0.24	1.67	0.4		1.95 0.466	5 1.1	0.685 0.3	49 3.584	4 57.061	55.675 5	6.968 5	56.338 57.4:	34 5	57,434 58.286 0.8	152 6/80
2 100	7/80	7/80 to	12		2.5		293	3				2.813	2.813	2	2.29		1	7.5			7/8) MH1200		3	30.89 62	2.42 293	3.507	2.813 2	2.29		0.608	2.29	21.688 0.	0.5 7	750 1.3	38 0.2	6193 Ku	ı,Kw - Missouri,	/ _{т6/т9}	0.1	2.34	0.23		2.45 0.237	7 0.3	0.065 0.4	95 1.967	7 55.805	55.697 5	6.112 5	56.048 56.3/	49 5/	56.349 56.649 0.	.3 7/80
2 100	G3/80	G3/80 to	24		2.5	7 121	1.2	0.74		0.062	0.046	0.0	046	0.015		0.015	0.55	7.5			G3/8	0 SAL2D-	0.015	1	10.61 10	6.27	2.586		-		0.745		8.879 0.	0.3 10	050 0.8	36 0.1	7207 Ki	ı,Kw - Missouri,	/ _{тб/т9}	0.04	2.46	0.09		2.71 0.102	2 0.05	0.005 0.5	24 1.726	6 55.977	55.95 5	i5.955	55.95 56.0!	57 5/	56.057 56.366 0.3	09 G3/80
2 100	OUT1/80	0011/80	,		2.5		234		1			0.192	0.192	0	0.125		1	7.5			00Т1	80 HW	-	-		234		0.192	0.125		-	0.066					-	Hare Charts													55.9	.5 5	55.95 55.949	OUT1/80
2 100	F1/81	F1/81 to	1		2.5	5 13	ю	0.69		0.112	0.077	0.0	077	0.028		0.028	1	1.	.756 0.026	1.234 0.0	032 F1/8	FIELD 1 INLET	0.01	0.018	5 1	30	0.077				0.01		31.971 3.4	.81 3	375 0.0	09 5.9	2056 Ki	ı,Kw - Missouri,	/ 61		7			0.003	3 3.57	1.162 0.0	43 1.357	7 58.129	56.91 5	57.823 5	56.682 57.8	26 5	57.826 59.58 1.7	/54 F1/81
2 100	61/81	G1/81 G1/81 to	, ₂		2.5	6 125	5.6 234	L 0.72	1	0.116	0.083	0.343 0.0	183 0.343	0.029 0	1.223	0.029	3.12	7.5 1	645 0.05	0.872 0.1	144 61/8	900x600	0.029		6 12	25.6 234	0.16	0.343 (1.223 1	616 0.12	0.038	0.04	27	5 3	375 0.3	34 1.3	2353 Ki	Hare Charts I,Kw - Missouri,	/ G1/T1/	0.01	4.54	0.03		4.56 0.027	7 1.48	0.445 0.0	79 2.244	4 56.89	55.54 5	6.655 5	56,256 56.61	82 5(56.682 58.091 1.4	61/81
2 100	62/81	G2/81 G2/81 to	2 10		25	7 121	12	0.72		0.11	0.079		79	0.027		0.027	4.2	75 1.	491 0.047	0.956 0.0	M5 62/8	1 4120	0.027		7 13	21.2	0.418		3	011 0.23	8 0 122		23.378 0	85 3	275 1 1	11 03	5102 Ki	Hare Charts 1,Kw - Missouri,	3	0.05	1.51	0.09		1.63 0.102	0.49	0.114 0.2	44 161	1 55 52	55 321 5		56 048 56 20	63 5(56 263 56 997 0.7	/34 62/81
2 100	61/02	G3/80 G1/83 to			2.5	. 10	NG 224	0.72		0.272	0.105	0.107 0.1	106 0 107	0.050 0	138	0.027	442	7.5	0.017		C1/6	2 64120	0.050		10 1	08 224	0.105	0.107	120	.011 0.2.5	0.050	0.101	75 0	E1 2	275 05		DE KL	Hare Charts I,Kw - Missouri,	/	0.00	4.20	0.05		0.063	0.45		01 1 112	2 55.52	EE 422 E		5.040 56.1	10 50	E6 110 E6 281 0.1	
2 100	G1/85	G3/80 F1/84 to			2.5 1	r	~ 254	0.72	1	0.272	0.196	0.15/ 0.1	0.19/	0.039 0		0.059	0.55	,.3	0.013			SF2	0.059		.0 1		0.196	0.191	^120		0.059	0.101	1.5 0.	.01 5		55 U.2	Ki	Hare Charts I,Kw - Missouri	/	0.01		0.00		0.063	, 0.11	0.000 0.1	46 1.113	3 35.47	33,432 56		0.040 00.11		0.117 30.381 0.26	. 01/83
2 100	F1/84	F2/84			2.5	5 13	w	0.69		0.04	0.028	0.0	J28	0.01		0.01	1	_	0.018	`	F1/8	4 600x900 SE2	0.01		5 1	.50	0.028		_		0.01		12.5 4.	.18 2	.25 0.2	25 0.8	13333 Ki	Hare Charts	G1		/	0.02		0.023	5 3.84	0.5 0.0	46 1.703	62.01	ь1.488 61	1.86/ 61	1.386 61.88	9 61	1.889 63.006 1.11	1/ F1/84
2 100	F2/84	F3/84	2		2.5	5 13	0 234	0.69	1	0.04	0.028	0.258 0.0	0.258	0.01 0	0.168	0.01	1		0.018		F2/8	4 600x900	0.01		5.1 12	9.54 234	0.055	0.258	0.168		0.02	0.151	12.5 4.	.78 2	225 0.	5 0.4	1667 ····	Hare Charts	тт /	0.01	2.04	0.03		0.026	5 4.36	0.571 0.0	63 2.182	2 61.468	60.871 6	1.36 60	0.815 61.38	6 61	1.386 62.701 1.31	15 F2/84
2 100	F3/84	F4/84	3		2.5	5 13	10	0.69		0.04	0.028	0.0	028	0.01		0.01	1		0.018	8	F3/8	4 600x900	0.01	!	5.21 12	9.08	0.083				0.03		12.9 3.	3.5 2	225 0.7	75 0.2	8667	Hare Charts	′ т1	0.03	1.57	0.04		0.045	5 3.58	0.451 0.0	85 2.184	4 60.851	60.399 6	.0.77 6(0.308 60.81	.5 60	0.815 62.103 1.26	88 F3/84
2 100	F4/84	F5/84	4	-	2.5	5 13	0 234	0.69	1	0.042	0.029	0.245 0.0	029 0.245	0.01 0	0.16	0.01	1		0.018		F4/8	4 600x900	0.01		5.32 12	8.61 234	0.112	0.245	0.16		0.04	0.128	11.93 4.	.51 2	225 1	0.1	9883 ^{KL}	Hare Charts	′ T1	0.05	1.3	0.07		0.067	3.8	0.483 0.1	02 2.292	2 60.299	59.761 60	J.241 59	9.788 60.30	18 60	.0.308 61.414 1.10	D6 F4/84
2 100	F5/84	F5/84 to F6/84	5		2.5	5 13	10	0.69	_	0.04	0.028	0.0	028	0.01		0.01	1		0.018		F5/8	4 SF2 600x900	0.01		5.42 12	8.17	0.14				0.05		13.07 3.	.39 2	225 1.2	25 0.1	7427 Ki	ı,Kw - Missouri, Hare Charts	/ τ1	0.08	1.09	0.09		0.087	2.82	0.391 0.1	14 2.468	8 59.741	59.298 5	9.702 5	9.333 59.78	#8 59	9.788 60.957 1.1	69 F5/84
2 100	F6/84	F6/84 to F7/84	6		2.5 1	10 10	18 234	0.72	1	0.04	0.029	0.255 0.0	0.255	0.009 0	0.166	0.009	1		0.016		F6/8	4 SF2 600x900	0.009		5.52 12	7.69 234	0.156	0.255	0.166		0.055	0.082	14.33 9.	.26 2	225 1.3	39 0.1	7182 ^{Ku}	,Kw - Missouri, Hare Charts	/ т1	0.1	0.88	0.09		0.086	5 7.76	1.131 0.	1 3.254	4 59.278	57.951 59	9.247 5'	8.135 59.33	13 59	9.333 60.455 1.1	22 F6/84
2 100	F7/84	F7/84 to 1/84	7		2.5 1	10 10	18 293	0.72	1	0.04	0.029	0.024 0.0	0.024	0.009 0	0.019	0.009	1		0.016		F7/8	4 SF2 600x900	0.009		5.64 12	7.17	0.172				0.061		29.75 7.	.69 2	225 1.5	53 0.3	2407 ^{Ku}	ı,Kw - Missouri, Hare Charts	/ _{T10}	0.12	1.91	0.23		2.26 0.27	5.49	1.649 0.1	11 3.113	3 57.931	55.643 5	7.907 5	6.273 58.17	7 58	8.177 59.704 1.5	27 F7/84
2 100	1/84	1/84 to G2/81	7		2.5												1	7.5			1/8	MH1050			5.89 12	6.08 293	0.172				0.06		5.378 0.	3.5	375 0.5	55 0.1	6297 Ku	ı,Kw - Missouri, Hare Charts	/ _{тз}	0.02	0.71	0.01		0.89 0.014	0.12	0.006 0.1	84 1.116	6 55.568	55.541 5 [,]	6.262 5	6.256 56.27	/6 5€	6.276 57.524 1.2	48 1/84

REV	DATE	DESIGN	DRAWN	REVISION DETAILS	DRAWN	STATUS		SC/
А	21.03.24	CL	CL	ISSUED FOR CONSTRUCTION				1
1	11.10.24	CL	BP	AS CONSTRUCTED		AS CONSTRUCTED	\bigcirc 11.	
					-		l'aliara	1
-								1
					DESIGN			1
						DAMIEL COLLINS RPEQ 10031		1
								1
						FOR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN PTY LTD		/

ENGINEER'S CERTIFICATION I, Daniel Collins, hereby certify that: As Constructed information shown on this plan is a true and correct record of the sizes, types, materials, classes etc., and it corresponds with the relevant approved Engineering Drawings. Drawings. RPEQ (signature) RPEQ (signature) RPEQ No. 18631 Date: 11/10/24

PARK RIDGE	OF	2	
	PROJECT No.	DRAWING No.	REVISION
133-159 PARK RIDGE ROAD PARK RIDGE (STAGE 5)	22-0446	122	1