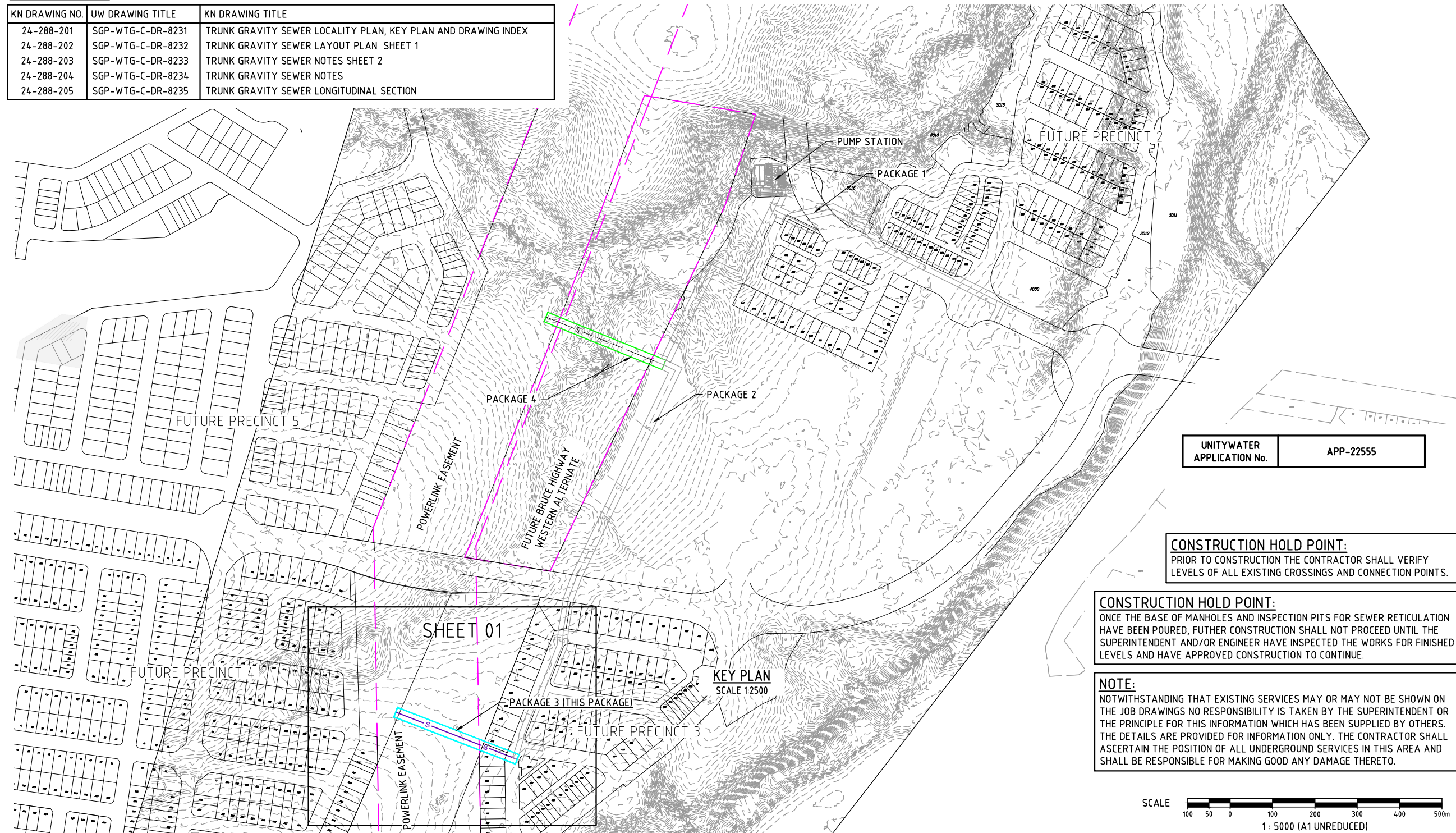


Approval no: DEV-2026-WAR-4907
Date: 17 July 2026



RIVERMONT TRUNK GRAVITY SEWER PACKAGE 3

KN DRAWING NO.	UW DRAWING TITLE	KN DRAWING TITLE
24-288-201	SGP-WTG-C-DR-8231	TRUNK GRAVITY SEWER LOCALITY PLAN, KEY PLAN AND DRAWING INDEX
24-288-202	SGP-WTG-C-DR-8232	TRUNK GRAVITY SEWER LAYOUT PLAN SHEET 1
24-288-203	SGP-WTG-C-DR-8233	TRUNK GRAVITY SEWER NOTES SHEET 2
24-288-204	SGP-WTG-C-DR-8234	TRUNK GRAVITY SEWER NOTES
24-288-205	SGP-WTG-C-DR-8235	TRUNK GRAVITY SEWER LONGITUDINAL SECTION

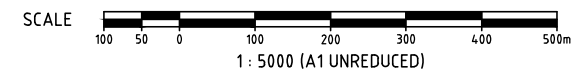


UNITYWATER APPLICATION No.	APP-22555
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CONSTRUCTION HOLD POINT:
PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY
LEVELS OF ALL EXISTING CROSSINGS AND CONNECTION POINTS.

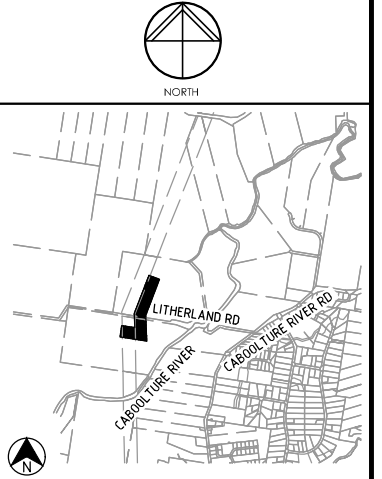
CONSTRUCTION HOLD POINT:
ONCE THE BASE OF MANHOLES AND INSPECTION PITS FOR SEWER RETICULATION HAVE BEEN POURED, FUTHER CONSTRUCTION SHALL NOT PROCEED UNTIL THE SUPERINTENDENT AND/OR ENGINEER HAVE INSPECTED THE WORKS FOR FINISHED LEVELS AND HAVE APPROVED CONSTRUCTION TO CONTINUE.

NOTE:
NOTWITHSTANDING THAT EXISTING SERVICES MAY OR MAY NOT BE SHOWN ON THE JOB DRAWINGS NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT OR THE PRINCIPLE FOR THIS INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS. THE DETAILS ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE POSITION OF ALL UNDERGROUND SERVICES IN THIS AREA AND SHALL BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE THERETO.



Unitywater Application No. APP-22555	Unitywater Drawing No. SGP-WTG-C-DR-8231
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REVISIONS

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Client



Project

RIVERMONT
TRUNK GRAVITY SEWER
PACKAGE 3



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Approved Director - RPEQ 17544

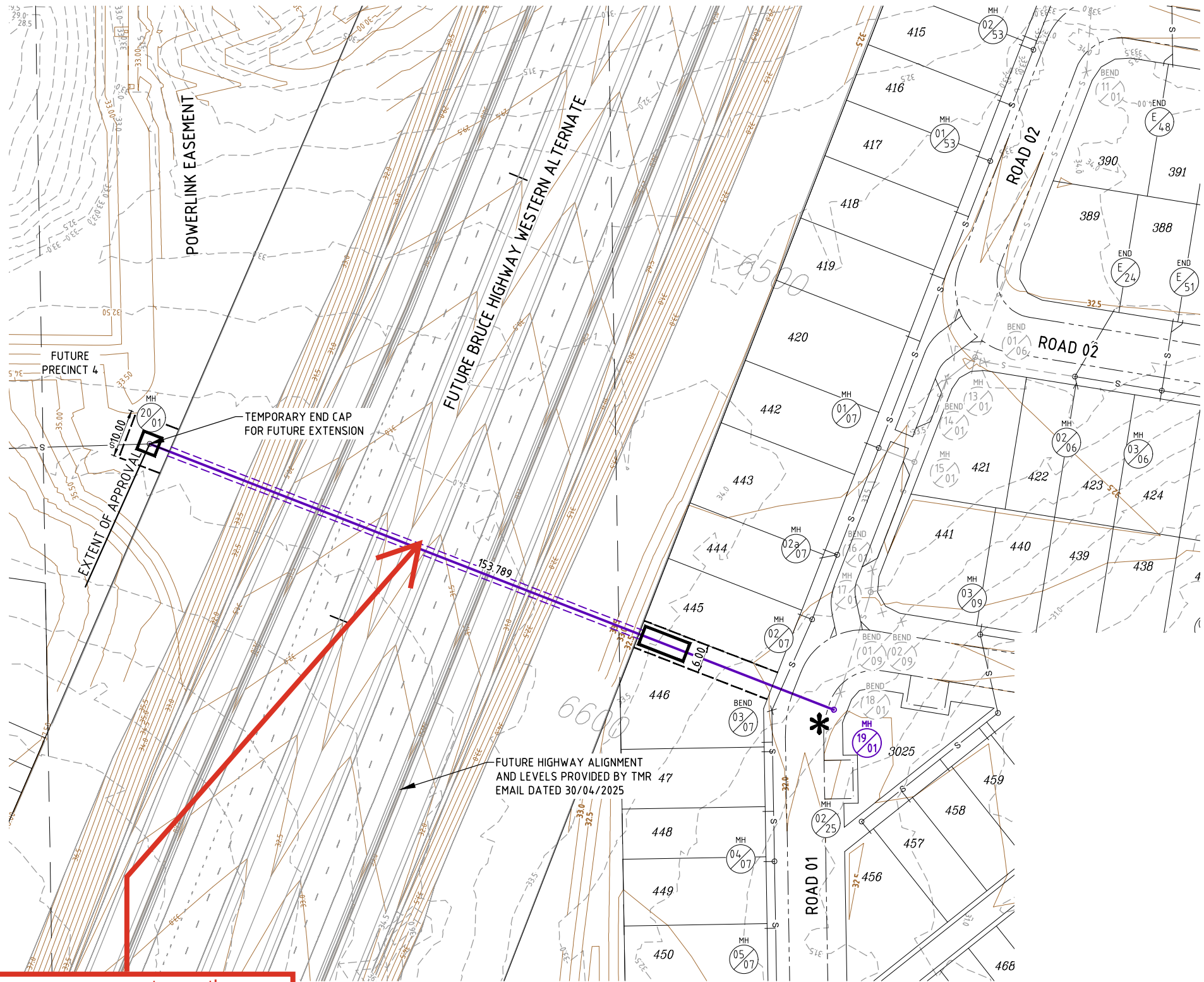
M. Shaw Digitally signed by
Mark Shaw RPEQ
17544
Date: 2026.05.08
07:25:39+10'00'

Drawing Title

TRUNK GRAVITY SEWER
LOCALITY PLAN, KEY PLAN
AND DRAWING INDEX

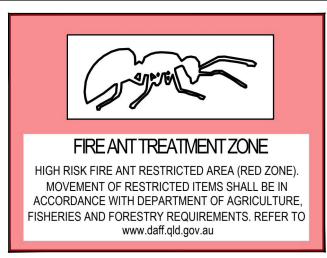
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Scale AS SHOWN			Sheet 1 of 05
A1	Drawing No 24-288-201		Revision C

M:\2024\24-288 Rivermont P2 ERM Trunk Gravity Sewer\Engineering\Acad\200 series - Package 3\24-288-202-204-SEWER.dwg Plotted by: DF on 6/05/2026 3:14:56 PM



SEWER LAYOUT PLAN
SCALE 1:500

Temporary easement over the whole section of sewer between launch pit and receive pit shall also be provided to Unitywater in accordance with SEQ code.



PROPOSED WORKS ARE NEAR EXISTING SERVICES. CONTRACTOR TO COMPLETE DBYD AND LOCATE ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION. POST SERVICE LOCATION, CONTRACTOR TO SUPPLY SURVEY INFORMATION TO SUPERINTENDENT'S REPRESENTATIVE PRIOR TO THE COMMENCEMENT OF WORK.

NOTES

PROPERTY CONNECTIONS HAVE BEEN DESIGNED TO CONTROL THE REQUIRED SERVICE AREA OF EACH LOT AT A GRADE OF 1:60 AND A MAXIMUM DEPTH OF PROPERTY CONNECTION AT 1.5m. UNLESS OTHERWISE STATED. FOR PE NUSEWER JUNCTION DETAILS REFER SEQ-SEW-1106-1 TO SEQ-SEW-1106-6.

WHERE PROPERTY CONNECTION INSPECTION TEES TERMINATE BENEATH DRIVEWAY SLAB, EXTEND AN I.O. RISER TO SURFACE LEVEL AND FINISH WITH TRAFFICABLE BRASS CAP

ALL CONNECTIONS TO LIVE SEWER TO BE UNDERTAKEN BY CONTRACTOR UNDER SUPERVISION OF CONSTRUCTION CERTIFIER OR AS DIRECTED BY UNITYWATER, AND AT THE DEVELOPERS EXPENSE

CONTRACTOR TO CONFIRM ALL EXISTING SERVICES LOCATIONS AND MATERIAL PRIOR TO CONSTRUCTION

LEGEND

- PROPOSED DN250 SEWER MAIN
- FUTURE RETAINING WALL
- PROPOSED STORMWATER MAIN
- PROPOSED WATER MAIN
- PROPOSED RISING MAINS
- DESIGN SURFACE CONTOURS (0.5m)
- EXISTING SURFACE CONTOURS (0.5m)
- DEFINES CONNECTION REQUIRED BY UNITY WATER
- CONTROL POINT AND LEVEL
- FLOW ARROW
- BEND IP LOCATION
- UNITY WATER EASEMENT
- POSSIBLE LAUNCH/RECEIVAL PIT LOCATION

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no: DEV-2026-WAR-4907

Date: 17 July 2026



AMENDED IN RED

By: Mahima Reshamwala

Date: 17 July 2026



SEWER MANHOLE LEGEND

- MANHOLE
- BEND
- END OF LINE
- FUTURE MANHOLE
- EXISTING MANHOLE
- EXISTING BEND

NOTE:
FOR BENCHING DETAILS REFER SEQ-SEW-1304-1, SEQ-SEW-1305-1, AND SEQ-SEW-1306-1.

NOTE
ALL WORKS ON EXISTING SEWER MAINS TO BE CARRIED OUT BY UNITYWATER AT THE DEVELOPERS EXPENSE.

ALL WATER AND SEWER CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT 2011. CONTACT YOUR NEAREST OFFICE OF THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION. PHONE: 1300 362 128

SCALE 1:500 (A1 UNREDUCED)

Unitywater Application No. APP-22555
Unitywater Drawing No. SGP-WTG-C-DR-8232

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REVISIONS

No	Description	Date	By
A	FOR APPROVAL	2025.12.18	VS
B	FOR APPROVAL	2026.02.03	AL
C	RFI INFO ADDED	2026.05.06	DF

Client



Project

RIVERMONT
TRUNK GRAVITY SEWER
PACKAGE 3



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Approved Director - RPEQ 17544

Digitally signed by Mark Shaw RPEQ 17544
Date: 2026.05.08 07:25:40+10'00'

Drawing Title
TRUNK GRAVITY SEWER
LAYOUT PLAN
SHEET 1

Drawn	Designed	Checked	Date
VS	VS	MAS	MAY '26
Scale	Drawing No	Revision	Sheet
AS SHOWN	A1	24-288-202	2 of 05

NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE SYSTEM.
4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY THE SEQ SERVICE PROVIDER AT THE DEVELOPER'S COST.
5. ALL PIPES AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS AND MATERIALS" LIST.
6. EACH ALLOTMENT SHALL BE SERVED BY A DN110 PE (OR DN100 PVC) PROPERTY CONNECTION. FOR ALLOTMENTS OTHER THAN SINGLE RESIDENTIAL, A DN160 PE (OR DN150 PVC) PROPERTY CONNECTION SHALL BE PROVIDED.
7. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
8. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY A MINIMUM OF 300mm AND A MAXIMUM OF 750mm. UNITYWATER REQUIRES MINIMUM EXTENSION OF 500mm INTO PROPERTY.
9. WHERE PIPES ARE LAID IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NOT EXCEEDING 300 mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% OF THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEQ SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
10. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER, BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEQ SEWER CODE.
11. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
12. SEWERS SHALL BE DISUSED /ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEQ SEWER CODE.
13. BENCH MARK AND LEVELS TO AHD.

A. ALL ENVIRONMENT PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.

- A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8 m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL COMPLETION.
- C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
- D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

- A. TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.
- B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

- A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
- B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
- C. NO SOIL SHALL BE STOCKPILED WITHIN 5m OF THE CREEK.

A. PREDISTURBANCE SOIL PROFILES AND COMPACTION LEVELS SHALL BE REINSTATED.
B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

A. THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

DESIGN REQUIREMENTS

1. DESIGN AND CONSTRUCTION OF ALL SEWERAGE INFRASTRUCTURE SHALL BE RPEQ CERTIFIED.
2. TOP SLABS HAVE BEEN DESIGNED FOR THE FOLLOWING LOADS AND LOCATIONS.

LOCATION	LIVE LOAD	ACCESS COVERS TO AS 3996
RESERVES, RESIDENTIAL ALLOTMENTS, FOOTPATHS AND VERGES	25 kN	CLASS RATING B
ROADWAYS AND DRIVEWAYS; COMMERCIAL, INDUSTRIAL AND NON-RESIDENTIAL ALLOTMENTS	80 kN	CLASS RATING D

- DESIGN LIFE 100 YEARS
- DEAD LOAD AS DETERMINED FROM SEQ SEWER CODE STANDARD DRAWINGS.
- LIVE LOADS TO AS 1170.1 AND AS 5100-2.

3. DURABILITY CLASSIFICATION

STRUCTURE	COVER LOCATION	EXPOSURE CLASSIFICATION AS 3600, AS 3735	REINFORCEMENT COVER (mm)
SLABS	TOP	B2 TO AS 3600	40
	BOTTOM	B2 TO AS 3735	50 INCLUDING PE LINER THICKNESS

4. SEQ CODE SEWER MH STANDARD DRAWINGS THAT ARE APPLICABLE TO UU AND UNITYWATER HAVE ASSUMED THAT A MINIMUM SOIL BEARING PRESSURE OF 50 kPa CAN BE ACHIEVED.

1. THESE NOTES RELATE TO ALL TOP SLABS AND CAST-IN-SITU MAINTENANCE HOLES FOR QUU AND UNITYWATER.
2. MAINTENANCE HOLE TOP SLABS SHALL BE PRECAST ELEMENTS.
3. DIMENSIONS IN MILLIMETRES.
4. DIMENSIONS NOT TO BE SCALED FROM DRAWINGS.
5. VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK ON SITE.
6. MATERIALS AND WORKMANSHIP TO COMPLY WITH THE CURRENT STANDARDS AUSTRALIA CODES, BUILDING CODE OF AUSTRALIA, WSAA PRODUCT SPECIFICATIONS, BY-LAWS AND ORDINANCES OF RELEVANT BUILDING AUTHORITIES.
7. EXISTING STRUCTURES TO BE MAINTAINED IN A STABLE CONDITION AND NO PART TO BE OVER-STRESSED DURING CONSTRUCTION.

1. MAINTENANCE HOLES SHALL BE LOCATED CENTRALLY OVER SEWERS UNLESS SPECIFIED OTHERWISE. REFER DRAWINGS SEQ-SEW-1304-1 AND SEQ-SEW-1305-1.
2. OBVERT LEVEL OF THE UPSTREAM SEWER PIPE SHALL ALWAYS BE ABOVE THE OBVERT LEVEL OF THE DOWNSTREAM SEWER PIPE UNLESS APPROVED OTHERWISE.
3. ALL CONSTRUCTION JOINTS SHALL INCLUDE HYDROPHILIC SEALS INSTALLED TO MANUFACTURER'S SPECIFICATIONS.
4. MAINTENANCE HOLE CONNECTORS, INCLUDING HYDROPHILIC SEALS AND PUDDLE FLANGES SHALL BE THE PRE-FABRICATED TYPE UNLESS APPROVED OTHERWISE.
5. ENDS OF SEWER PIPES SHALL FINISH FLUSH WITH THE INSIDE FACE OF MAINTENANCE HOLE WALL.
6. FINISHED BENCHING SHALL PROVIDE A SMOOTH NON-TURBULENT FLOW.
7. PROPERTY CONNECTION JUNCTIONS SHALL NOT BE CONSTRUCTED ON SHORT PIPES AT MAINTENANCE HOLES OR BULKHEADS.
8. FOR CONSTRUCTION OF MAINTENANCE HOLE AND OR MAINTENANCE SHAFT OVER EXISTING SEWER REFER TO SEQ-SEW-1502-1

1. CIRCULAR ACCESS COVERS AND FRAMES SHALL BE RATED TO CLASS RATING B OR CLASS RATING D TO AS 3996.
2. PRODUCT CERTIFICATION TO AS 3996 SHALL BE SUPPLIED FOR EACH COVER ASSEMBLY.
3. COVERS, FRAMES AND RISER RINGS, WHERE REQUIRED, SHALL BE SUPPLIED ASSEMBLED.
4. COVERS SHALL BE SOLID TOP.
5. COVERS SHALL HAVE IDENTIFICATION TAGS DETAILING, SEWER / VACUUM SEWER / CLASS RATING B, D / SEALED / COVER PATTERN DETAIL / SEQ.-SP NAME / WEIGHT.
6. BOLT DOWN COVERS SHALL BE PROVIDED IN FLOOD PRONE AREAS, STORM SURGE AREAS, SURCHARGING SEWERS AND WHERE SPECIFIED IN THE DESIGN.
7. BOLT DOWN COVER FRAMES TO BE FIXED TO THE TOP SLAB WITH 4 M16 STAINLESS STEEL CHEMICAL ANCHORS. EMBEDMENT LENGTH SHALL BE MINIMUM 110mm UNLESS APPROVED OTHERWISE.

1. THE SAFETY IN DESIGN, DESIGN AND RISK MITIGATION MEASURES FOR THESE DRAWINGS DO NOT NECESSARILY ACCOUNT FOR ALL DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION ASSESSMENTS. IT DOES NOT REDUCE OR LIMIT THE OBLIGATIONS OF THE CONSTRUCTOR, USER, OPERATOR, MAINTAINER AND DEMOLISHER TO PERFORM THEIR OWN SAFETY IN DESIGN RISK ASSESSMENT.
2. DEVELOP CONSTRUCTION AND INSTALLATION SAFE WORK METHOD STATEMENTS TO ELIMINATE AND MINIMISE INSTALLATION RISKS.

1. CONCRETE WORKMANSHIP AND MATERIALS TO COMPLY WITH AS 3600 AND AS 3610.
2. CONCRETE TO COMPLY WITH AS 1379, AS 1478.1, AS 1478.2, AS 3582.1 AS 3582.2, AS 3582.3 AND AS 3972.
3. SLUMP TO BE AS REQUIRED FOR PLACEMENT, COMPACTION AND FINISHING. A SAMPLE OF FRESH CONCRETE SHALL BE TESTED FOR SLUMP AND STRENGTH UPON ARRIVAL ON SITE.
4. WATER NOT TO BE ADDED TO CONCRETE AFTER TRUCK HAS LEFT BATCHING PLANT UNLESS APPROVED OTHERWISE.
5. TEST SLUMP OF EACH BATCH OF CONCRETE DELIVERED.
6. DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF FORMWORK BY CONTRACTOR.
7. CONCRETE CONSTRUCTION TOLERANCES TO AS 3610.
8. CONCRETE SIZES DO NOT INCLUDE FINISHES. SIZES NOT TO BE REDUCED OR PENETRATIONS ADDED.
9. CONDUITS, PIPES, ETC. NOT TO BE PLACED IN CONCRETE COVER TO THE REINFORCEMENT.
10. EXPOSED EDGES AND RE-ENTRANT CORNERS TO HAVE 25mm CHAMFERS OR FILLETS UNLESS NOTED OTHERWISE.
11. CONSTRUCTION JOINTS AS DETAILED AND LOCATED ON DESIGN DRAWINGS.
12. CONCRETE SURFACE FINISHES TO AS 3610.
 - FORMED EXPOSED SURFACES CLASS 2
13. CONCRETE TEMPERATURE NOT TO EXCEED TEMPERATURES STATED BELOW.

CONCRETE STRUCTURE	CONCRETE STRENGTH f'c	TEMPERATURE LIMIT
CONCRETE SECTIONS LESS THAN 600mm THICK.	EQUAL TO OR MORE THAN 40MPa.	35°C
CONCRETE SECTIONS EQUAL TO OR GREATER THAN 600mm THICK.	EQUAL TO OR MORE THAN 40MPa.	27°C

14. CONCRETE CURING TO AS3600 AS SOON AS POSSIBLE AFTER PLACING AND FINISHING.
15. CONCRETE GRADE S40.

TYPE OF AGGREGATE	CALCREOUS
COMPRESSIVE STRENGTH AT 28 DAYS	40 MPa
MINIMUM CEMENT CONTENT	380 kg/m ³
MAXIMUM CEMENTITIOUS MATERIAL	25%
MAXIMUM WATER/CEMENT RATIO	0.45
NOMINAL SLUMP	80mm±15
DRYING SHRINKAGE AT 56 DAYS	650 x 10 ⁻⁶ (+5% MAXIMUM)
MAXIMUM AGGREGATE SIZE	20mm
MINIMUM AGGREGATE SIZE	10mm

16. CONCRETE SHALL BE SPECIAL CLASS TO WSA-PS 358 WITH CALCAREOUS AGGREGATE.
17. BENCHING FINISH SHALL CONSIST OF EQUAL PARTS OF CEMENT AND SAND.

2. REINFORCEMENT FOR THE TOP SLABS SHALL BE A PRE-FABRICATED ELEMENT.
2. REINFORCEMENT TO COMPLY WITH AS 4671.
3. SYMBOLS ON DRAWINGS FOR GRADE AND TYPE OF REINFORCEMENT ARE:
 - . R - STRUCTURAL GRADE 250 PLAIN ROUND BARS
 - . N - HOT ROLLED GRADE 500 DEFORMED BAR, DUCTILITY CLASS N
 - . L - HOT ROLLED GRADE 500 DEFORMED BAR, DUCTILITY CLASS L
 - . SL - HARD DRAWN WIRE GRADE 500 MESH, DUCTILITY CLASS L
 - . RL - HARD DRAWN WIRE GRADE 500 MESH, DUCTILITY CLASS L
 - . W - STEEL REINFORCING WIRE GRADE 500
4. REINFORCEMENT DESIGNATION AS FOLLOWS (E.G. 14N16-250 EF)
 - . 14 -NUMBER OF BARS
 - . N - BAR GRADE AND DUCTILITY CLASS
 - . 16 - BAR DIAMETER IN mm
 - . 250 - SPACING OF BARS IN mm
 - . EF - LOCATION
5. ABBREVIATIONS TO REINFORCEMENT LOCATION.
 - . EW - EACH WAY
 - . EF - EACH FACE
 - . B - BOTTOM
 - . T - TOP
 - . CP - CENTRALLY PLACED
6. REINFORCEMENT IS SHOWN DIAGRAMMATICALLY ONLY AND NOT NECESSARILY IN TRUE PROJECTION.
7. REINFORCEMENT TO BE FIXED SECURELY AND SUPPORTED ON PROPRIETY CONCRETE, METAL OR PLASTIC SUPPORTS.
8. REINFORCEMENT TO BE SPLICED AS SHOWN ON PROJECT DRAWINGS. LAP LENGTHS TO COMPLY WITH AS 3600 AND TABLE BELOW U.N.O.

BAR SIZE	LAP LENGTH (mm)
N12	350
N16	500
N20	600
N24	700
N28	850
N32	950

9. REINFORCEMENT NOT TO BE WELDED UNLESS SHOWN ON PROJECT DRAWINGS OR APPROVED OTHERWISE.
10. REINFORCEMENT NOT TO BE BENT, CUT OR HEATED ON SITE UNLESS APPROVED OTHERWISE.
11. REINFORCEMENT TO BE CLEAN, FREE OF MILL SCALE, RUST, OIL, GREASE ETC.
12. DOWEL LOCATION TOLERANCE SHALL BE +/- HALF THE DIAMETER OF THE DOWEL. THE ALIGNMENT TOLERANCE SHALL BE 2mm IN 300mm.

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

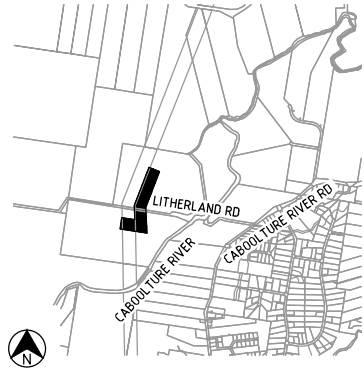
Approval no: DEV-2026-WAR-4907

Date: 17 July 2026



Utilitywater Application No. APP-22555	Utilitywater Drawing No. SGP-WTG-C-DR-8233	A1	Drawing No 24 -288 -203	Revision D
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REVISIONS

[illegible]

Client



Project

RIVERMONT
TRUNK GRAVITY SEWER
PACKAGE 3



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Approved Director - RPEQ 17544

Digitally signed by
Mark Shaw RPEQ
17544
Date: 2026.05.08
07:25:40+10'00'

Drawing Title

TRUNK GRAVITY SEWER
NOTES
SHEET 2

Drawn VS	Designed VS	Checked MAS	Date MAY' 26
Scale AS SHOWN			Sheet 3 of 05
A1	Drawing No 24 -288 -203		Revision D

1. PRECAST CONCRETE MEMBERS TO COMPLY WITH AS 3850.1 AND AS 3850.2
2. PRECAST MEMBERS ARE DESIGNED FOR THE FINAL INSTALLED CONDITIONS ONLY. PRECAST MANUFACTURER TO DESIGN THE PRECAST MEMBERS INCLUDING CONNECTIONS, FIXING DETAILS, JOINTS, FIRE RESISTANCE, ETC. FOR STABILITY, SERVICEABILITY AND STRENGTH REQUIREMENTS REQUIRED DURING MANUFACTURE, TRANSPORT, LIFTING, ERECTION AND INSTALLATION.
3. PRECAST MANUFACTURER TO PROVIDE THEIR SHOP DRAWINGS AND RPEQ CERTIFICATION FOR CONSTRUCTION OF THE PRECAST SLAB TO THE DESIGNS PROVIDED IN MAINTENANCE HOLE DRAWINGS INCLUDING DESIGN AND CONSTRUCTION CERTIFICATION FOR CONNECTIONS AND FIXING REQUIRED FOR MANUFACTURE, TRANSPORT, ERECTION AND INSTALLATION. (FORM 15 AND 16)
4. PRECAST CONCRETE MEMBERS TO BE SUPPLIED AND CONSTRUCTED BY A PRECAST CONCRETE CONSTRUCTOR.
5. ADEQUATELY DESIGNED TEMPORARY BRACING, AS REQUIRED, TO BE PROVIDED DURING ERECTION AND INSTALLATION.
6. MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE AT REMOVAL FROM MOULDS SHALL BE 15MPa.
7. ALL INSERTS IN PRECAST CONCRETE MEMBERS TO BE STAINLESS STEEL.
8. ALL STRUCTURAL STEELWORK CONNECTIONS TO PRECAST CONCRETE MEMBERS TO BE HOT DIP GALVANISED TO AS 4680 SYSTEM DESIGNATION HDG600.
9. PROVIDE 15mm CHAMFERS OR FILLETS AT EDGES AND CORNERS OF PRECAST MEMBERS EXCEPT AT UNDERSIDE OF MH SLAB ACCESS OPENING UNLESS APPROVED OTHERWISE.
10. PRECAST CONCRETE MEMBERS NOT TO BE ERECTED ON REINFORCED CONCRETE STRUCTURES UNTIL THE REINFORCED CONCRETE STRUCTURES HAVE BEEN CURED TO ACHIEVE 28 DAYS STRENGTH.
11. WEIGHT OF TOP SLAB TO BE STAMPED ON THE SLAB.
12. CONCRETE TO BE SPECIAL CLASS S40 TO WSA PS-358 AND Pr9903 WITH CALCAREOUS AGGREGATE.
13. APPROVED LIFTING PLAN IS TO BE AVAILABLE ON REQUEST.

1. STAINLESS STEEL TO COMPLY TO ASTM A240/A240M AND ASTM A480/ A480M.
2. FABRICATION BY MANUFACTURERS ASSDA ACCREDITED OR APPROVED EQUIVALENT.
3. STAINLESS STEEL TO BE GRADE 316 OR 316L U.N.O.
4. STORAGE, FABRICATION AND WELDING TO BE IN APPROVED DEDICATED AREAS.
5. WELDING, CLEANING, PICKLING AND PASSIVATION TO COMPLY TO AS 1554.6 AND WTIA TECHNICAL NOTE 16 WELDING OR STAINLESS STEEL.
6. SURFACE FINISH TO BE 2B OR BETTER TO ASTM A480.
7. MEMBERS TO BE ACID PASSIVATED AFTER FABRICATION.
8. ANTI GALLING COMPOUND "DURALAC" OR SEQ-SP APPROVED EQUIVALENT REQUIRED ON ALL FASTENERS UNLESS APPROVED OTHERWISE.

1. THE PE LINER SHALL FORM A COMPLETELY SEALED AND WELDED ROBUST CONTINUOUS MEMBRANE SYSTEM. THE PE LINER SHALL BE BUILT TO THE MH CONSTRUCTION TOLERANCES WITHOUT ANY DEFECTS SUCH AS BULGING, WARPING, PINCHING, OVERLAPPING.
2. THE PE SHEETS SHALL:
 - HAVE A MINIMUM THICKNESS OF 2.5 mm.
 - ACHIEVE A MECHANICAL BOND BETWEEN THE CONCRETE AND LINER.
 - BE INSTALLED BY AN ACCREDITED APPLICATOR APPROVED BY THE MANUFACTURER.
 - BE TENSIONED OVER THE FORMWORK WITHIN THE YIELD ELONGATION LIMIT PRIOR TO SECURING TO THE FORMWORK.
3. PREPARATION, APPLICATION AND INSTALLATION TO COMPLY WITH THE MANUFACTURER'S SPECIFICATION.
4. POURED CONCRETE TO BE AT A COOLER AMBIENT TEMPERATURE THAN THE TEMPERATURE WHEN THE PE SHEETS WERE ATTACHED TO THE FORMWORK.
5. EXTRUSION WELDING AND WELD TESTING AT SEAMS TO BE UNDERTAKEN BY THE APPROVED APPLICATOR TO THE MANUFACTURER'S SPECIFICATION.
6. ENCAPSULATION OF ANCHORS TO BE CHECKED BY TAPPING THE SURFACE TO DETECT HOLLOW SOUNDS THAT INDICATE VOIDS. VOIDS TO BE FILLED BY INJECTION GROUT AND PE SHEET REPAIRED BY EXTRUSION WELDING OVER THE INJECTION HOLE.

1. STRUCTURAL STEEL WORKMANSHIP AND MATERIALS TO COMPLY WITH AS 4100.
2. STEEL TO COMPLY WITH:
 - AS 1163 GRADE C350 FOR RECTANGULAR AND HOLLOW SECTIONS.
 - AS 3678 FOR PLATES AND FLOOR PLATES.
 - AS 3679.1 GRADE 300 OR BHP GRADE 300 PLUS FOR PARALLEL FLANGE CHANNELS.
 - AS 3679.2 GRADE 300 FOR WELDED BEAMS AND COLUMNS.
 - OTHER SECTIONS TO COMPLY WITH AS 3678 OR AS 3679 GRADE 250.
3. WELDS TO AS 1554.
 - WELD CATEGORY SP.
 - BUTT WELDS TO BE FULL PENETRATION WELDS.
 - WELDS TO BE 6mm CONTINUOUS FILLET WELDS ALL ROUND INTERFACES.
 - ELECTRODES TO AS 1554 CLASSIFICATION E48XX.
4. BOLTS TO AS 1275, COMMERCIAL GRADE 4.6/S TO AS 1111 AND AS 1112. HIGH STRENGTH STRUCTURAL BOLTS TO AS 1252.
 - BOLTS, NUTS AND WASHERS M16 AND LARGER TO GRADE 8.8/S. M12 TO BE GRADE 4.6/S.
 - STRUCTURAL CONNECTIONS TO BE 2 M16 8.8/S WITH 10mm THICK CLEAT PLATE UNLESS NOTED OTHERWISE.
 - INSTALL WASHERS UNDER BOLT HEAD AND NUT. INSTALL TAPERED WASHERS AS REQUIRED.
 - BOLT PROJECTION BEYOND NUT TO BE MINIMUM TWO THREADS AND MAXIMUM 10mm.
5. HOLD DOWN BOLTS TO BE GRADE 4.6/S UNLESS NOTED OTHERWISE. HOLD DOWN BOLTS GROUPS TO BE RIGIDLY TIED FOR CORRECT SET-OUT AND LOCATION.
6. SEAL WELD HOLLOW SECTIONS WITH 3mm THICK CAP PLATE UNLESS NOTED OTHERWISE.
7. GROUT BASE PLATES WITH HIGH STRENGTH NON-SHRINK PRE-MIXED GROUT BEFORE COLUMNS ARE LOADED.

1. STEELWORK TO BE HOT DIP GALVANISED TO AS 4680 SYSTEM DESIGNATION HDG600 AND THREADED FASTENERS TO AS 1214.
2. DAMAGED GALVANISED COATING REPAIR:
 - POWER CLEAN TO AS 1627.2
 - SOLVENT CLEAN/ DEGREASE TO AS 1627.1
 - APPLY TIN/ZINC TO PRE-HEATED STEEL OVERLAPPING THE GALVANISING COATING.

1. EXPOSED REINFORCEMENT AND CONCRETE REPAIRED AS FOLLOWS:
 - CORE HOLES ON EACH CORNER OF AREA TO BE CUT.
 - SAW CUT CONCRETE, PERPENDICULAR TO CONCRETE SURFACE, 15mm DEEP AROUND PERIMETER OF THE OPENING.
 - BREAKOUT REMAINING CONCRETE AROUND THE OPENING WITHOUT DAMAGING REINFORCEMENT.
 - CUT EXPOSED REINFORCEMENT SO THAT IS 30 mm CLEAR OF THE PIPE.
 - CLEAN CONCRETE SURFACE AND REMOVE ALL LOOSE MATERIAL.
 - ABRASIVE BLAST CLEAN EXPOSED REINFORCEMENT. IF IT IS CORRODED AND APPLY "NITOPRIME" ZINC RICH PRIMER UNLESS APPROVED OTHERWISE.
 - THOROUGHLY SOAK SUBSTRATE WITH CLEAN WATER FOR A MINIMUM OF TWO HOURS.
 - PLACE N12 CIRCULAR TRIMMER ON BOTH SIDES OF THE PIPE FLANGE.
 - INSTALL HYDROTITE CJ-07-25 SEAL ON PIPE 50mm FROM CONCRETE SURFACE UNLESS APPROVED OTHERWISE.
 - APPLY "NITOBOND HAR" PRIMER TO CONCRETE SURFACE UNLESS APPROVED OTHERWISE.
 - POUR CONCRETE/GROUT ("RENDEROC LA55" OR APPROVED EQUIVALENT) UNDER PRESSURE TO FILL OPENING.
 - FILL CONCRETE/GROUT ("RENDEROC LA55" OR APPROVED EQUIVALENT) TO SUPPLIER REQUIREMENTS.

1. ALL EXPOSED REINFORCEMENT AND MILD STEEL ANCHORED TO BE REPAIRED AS FOLLOWS:
 - SAW CUT OR CHISEL CUT CONCRETE, PERPENDICULAR TO CONCRETE SURFACE, 15 mm DEEP AROUND REINFORCEMENT/ANCHOR.
 - BREAKOUT CONCRETE AROUND REINFORCEMENT/ANCHOR TO A DEPTH OF 60mm.
 - CUT EXPOSED REINFORCEMENT/ANCHOR AT A MINIMUM DEPTH OF 50mm FROM CONCRETE SURFACE.
 - CLEAN CONCRETE SURFACE AND REMOVE ALL LOOSE MATERIAL.
 - ABRASIVE BLAST CLEAN EXPOSED REINFORCEMENT/ANCHOR. APPLY "NITOPRIME" ZINC RICH PRIMER TO REINFORCEMENT/ ANCHOR UNLESS APPROVED OTHERWISE. THOROUGHLY SOAK SUBSTRATE WITH CLEAN WATER.
 - APPLY "NITOBOND HAR" PRIMER TO CONCRETE UNLESS APPROVED OTHERWISE.
 - APPLY "RENDEROC HB70" TO FILL OPENING UNLESS APPROVED OTHERWISE.

1. BENCHMARK LEVELS ARE AS SHOWN ON KN DWG No 24-278-52.
2. THE CONTRACTOR SHALL VERIFY FINISH SURFACE LEVELS ON SITE BEFORE CONSTRUCTION OF SEWERS AND PROPERTY CONNECTION BRANCHES.
3. F.S.L. SHOWN ON THE LONGITUDINAL SECTIONS ARE INDICATIVE ONLY. MANHOLE COVERS TO BE CONSTRUCTED AS PER STD DWG No SEQ-SEW-1308-1.
4. UNITYWATER HAS APPROVED THE USE OF 5mm GRAVEL SCREENING AROUND AND SUPPORTING THE BOTTOM AND SIDES OF PIPES. A NON-COHESIVE GRANULAR MATERIAL COMPLYING WITH THE GRADING, AS SET OUT IN UNITYWATER'S SPECIFICATIONS SHALL BE USED TO ENCLOSE THE HOUSE CONNECTION BRANCH.
5. VACUUM TESTING OF ALL SEWER MANHOLES AND PIPELINES ARE REQUIRED TO THE SEQ WS&S D&C CODE - UNITYWATER - SPECIFICATION REQUIREMENTS.
6. PRIOR TO COMMENCING WORKS/CONSTRUCTIONS TO LIVE SEWERS KN IS TO BE NOTIFIED OF PROPOSED TIMING TO ALLOW NOTIFICATION TO UNITYWATER REPRESENTATIVES.
7. SEWER MAINTENANCE HOLES SHALL BE CONSTRUCTED WITHOUT STEP IRONS OR LADDERS.
8. DETECTABLE MARKER TAPE TO BE INSTALLED OVER ALL SEWER MAINS DIRECTLY ABOVE SCREENINGS.
9. PIPE EMBEDMENT SHALL BE CONSTRUCTED AS PER STD DWG No. SEQ-SEW-1201-1 TO SEQ-SEW-1205-1.
10. PROPERTY CONNECTION BRANCHES SHALL BE CONSTRUCTED AS PER STD DWG No SEQ-SEW-1106-1 TO SEQ-SEW-1106-6.
11. CCTV FOOTAGE TO UNITYWATER SEQ D&C CODE REQUIREMENTS TO BE PROVIDED. KN TO REVIEW/REPORT FOOTAGE FOR EACH SEWER LINE. CCTV NOT REQUIRED ON DN160 CROSS ROAD PROPERTY CONNECTIONS.
12. TANGENT POINT SET-OUT INFORMATION FOR HORIZONTAL BENDS IS TO BE INCLUDED ON AS-CONSTRUCTED DRAWINGS.
13. ALL PE-PE CONNECTIONS SHALL BE WELDED. WELDING REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSA 02-2014-3.1 CLAUSE 4.7.1. CLASS PN10/SDR17 PE FITTINGS SHALL BE UTILISED THROUGHOUT.
14. ALL CONNECTIONS TO LIVE SEWER TO BE UNDERTAKEN BY CONTRACTOR UNDER SUPERVISION OF CONSTRUCTION CERTIFIER OR AS DIRECTED BY UNITYWATER, AND AT THE DEVELOPERS EXPENSE
15. ALL LRB RADII SHALL BE 35 TIMES THE OUTSIDE DIAMETER OF AN SDR21 PE PIPE AND 25 TIMES THE OUTSIDE DIAMETER OF AN SDR17 PE100 PIPE. MOULDED PVC FITTING ARE NOT PERMITTED
16. LEVELS FOR EXISTING SEWER HAVE BEEN OBTAINED FROM AS-CONSTRUCTED INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM EXISTING LEVELS ON SITE.
17. WHERE PROPERTY CONNECTION INSPECTION TEES TERMINATE BENEATH DRIVEWAY SLAB, EXTEND AN I.O. RISE TO SURFACE LEVEL AND FINISH WITH TRAFFICABLE BRASS CAP

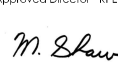
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SOIL DESCRIPTION	APPROXIMATE NATIVE SOIL MODULUS (MPa)	SDR	PE 100 DN160 TRENCH WIDTH (mm)	MAX DEPTH (mm)
SOFT CLAY	5.0	21	600	6000
SOIL DESCRIPTION	APPROXIMATE NATIVE SOIL MODULUS (MPa)	SDR	PE 100 DN250 TRENCH WIDTH (mm)	MAX DEPTH (mm)
SOFT CLAY	5.0	21	600	8000
SOFT CLAY	5.0	17	600	10300
SOIL DESCRIPTION	APPROXIMATE NATIVE SOIL MODULUS (MPa)	SDR	PE 100 DN315 TRENCH WIDTH (mm)	MAX DEPTH (mm)
SOFT CLAY	5.0	17	900	10500
SOIL DESCRIPTION	APPROXIMATE NATIVE SOIL MODULUS (MPa)	SDR	PE 100 DN630 TRENCH WIDTH (mm)	MAX DEPTH (mm)
SOFT CLAY	5.0	17	1200	10900
SOFT CLAY	5.0	13.6	1200	10900

1. EMBEDMENT MATERIAL TO BE SINGLE SIZE CRUSHED ROCK NOMINAL 5 TO 7mm SIZE OR AS NOMINATED IN THE SEQ ACCEPTED PRODUCTS AND MATERIALS LIST.
2. THE CONTRACTOR MUST CONFIRM THE TRENCH SUBGRADE INSITU MATERIAL CHARACTERISTICS EQUAL OR EXCEED A MINIMUM NATIVE SOIL MODULUS OF 0.9 MPa AND SUBMIT TO THE SUPERINTENDENT FOR APPROVAL, PRIOR TO PROGRESSING WITH CONSTRUCTION.

	RIVERMONT- TRUNK GRAVITY SEWER
	STOCKLAND
	-
	-
100	-
100	153.789

Unitywater Application No. APP-22555	Unitywater Drawing No. SGP-WTG-C-DR-8234
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DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!			
			
REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	2025.12.18	VS
B	FOR APPROVAL	2026.02.03	AL
C	RFI INFO ADDED	2026.05.06	DF
Client	 Stockland		
Project	RIVERMONT TRUNK GRAVITY SEWER PACKAGE 3		
 L1, 62 Astor Terrace, Spring Hill, QLD 4000 www.knigroup.com.au 07 3017 1900			
Approved Director - RPEQ 17544  Digitally signed by Mark Shaw RPEQ 17544 Date: 2026.05.08 07:25:40+10'00"			
Drawing Title TRUNK GRAVITY SEWER NOTES			
Drawn VS	Designed VS	Checked MAS	Date MAY' 26
Scale AS SHOWN			Sheet 4 of 05
A1	Drawing No 24-288-204	Revision C	

LEGEND:

G = CONCRETE 0.900Ø MH AS PER SEQ.-SEW-1301-2 TO 1301-5 WITH MINIMUM 150mm WALL THICKNESS.

F = CONCRETE 1.200Ø MH AS PER SEQ.-SEW-1301-8 TO 1301-11

X = CONCRETE 1.200Ø MH AS PER SEQ.-SEW-1301-14 TO 1301-21 EXCLUDING SAFETY CHAINS AND LADDER AS PER UW

Pr11051 REV 1

P = CONCRETE 1.500Ø MH AS PER SEQ.-SEW-1307-1

C = CONCRETE IN-SITU CUSTOM Ø REFER DETAIL

@ = PE LINED SEQ.-SPS-1407-1, 1407-2, AND SEQ.-SEW-1301-26

Ⓐ = CLASS B NON-TRAFFICABLE

Ⓑ = CLASS D TRAFFICABLE

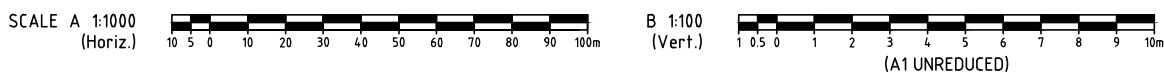
NC 01 = NONCONFORMANCE REFER NONCONFORMANCE TABLE ON 23-151-16

1. PROPERTY CONNECTION TYPE/DETAILS REFER
SEQ-SEW-1106 DWG SERIES.
2. CAST IN SITU MANHOLE TYPE/DETAILS REFER
SEQ-SEW-1301-1 to 1301-21, 1301-26, 1302-1, 1301-1, 1304-1,
1305-1, 1306-1, 1307-1, 1308-1, 1308-5 to 1308-11, 1313-1.
3. MAINTENANCE SHAFTS TYPE/DETAILS REFER
SEQ-SEW-1315-1 AND 1316-1 STD DWG.
4. WHERE CLASS "D" COVERS ARE SPECIFIED FOR MH OR
MS, INCREASE TOP SLAB THICKNESS FROM 150mm TO 175mm.
5. COMPLETE ALL END OF LINE WITH A
ELECTROFUSION STOP END OR BUTT WELDED CAP.

F1512 REFER DOLAN ENGINEERING
DRAWINGS FOR STRUCTURAL DESIGN OF
DEEP MANHOLES.

LINE

 FINISHED SURFACE LEVELS ARE INDICATIVE ONLY.
CONTRACTOR TO VERIFY ALL FINISHED SURFACE LEVELS PRIOR TO CONSTRUCTION COMMENCEMENT.



Unitywater Application No. APP-22555	Unitywater Drawing No. SGP-WTG-C-DR-8235	A1	Drawing No 24 -288 -205	Revision D
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