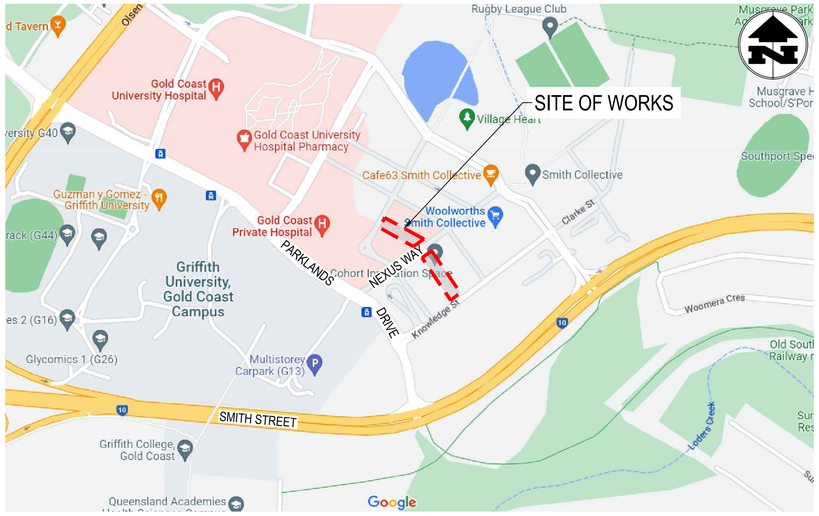
LUMINA OPEN SPACE

NEXUS WAY, SOUTHPORT

CIVIL WORKS PACKAGE

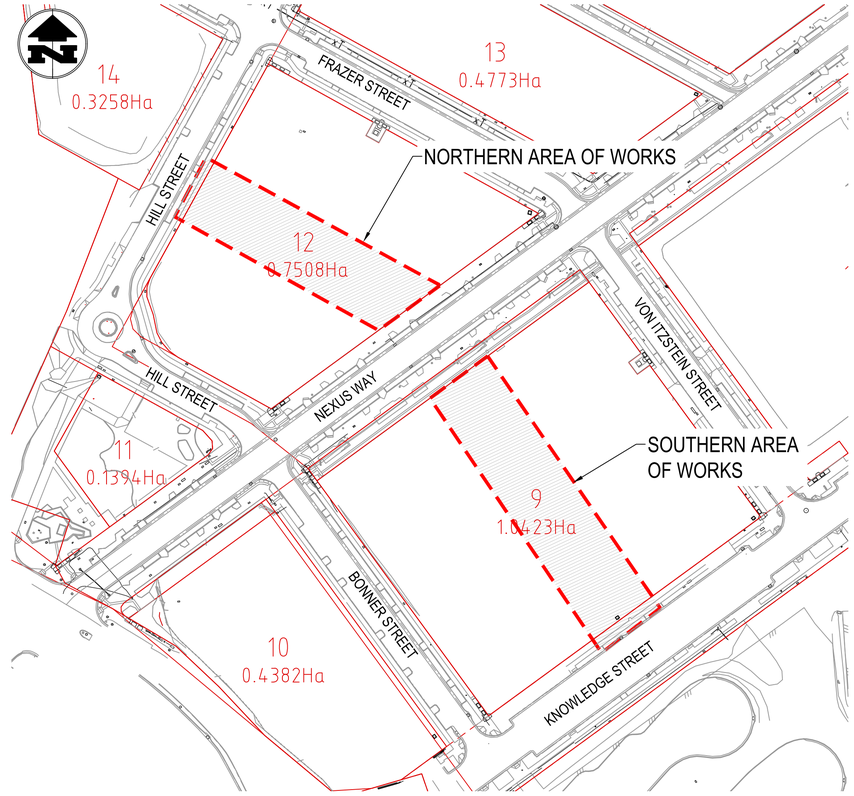


LOCALITY PLAN

NOT TO SCALE

PROJECT SPECIFICATIONS - AUS-SPEC TO BE PROVIDED AT CONSTRUCTION DOCUMENTATION STAGE	
SPECIFICATION NUMBER	SPECIFICATION TITLE
0222	EARTHWORKS
0274b	CONCRETE PAVEMENT
0319	MINOR CONCRETE WORKS
1101	CONTROL OF TRAFFIC
1102	CONTROL OF EROSION AND SEDIMENTATION
1111	CLEARING AND GRUBBING
1172	SUBSOIL AND FOUNDATION DRAINS
1351	STORMWATER DRAINAGE (CONSTRUCTION)
1352	PIPE DRAINAGE
1354	DRAINAGE STRUCTURES

ADDITIONAL DESIGN AND/OR CERTIFICATION REQUIRED TO BE OBTAINED BY THE CONTRACTOR TO BE PROVIDED AT CONSTRUCTION DOCUMENTATION STAGE	
ELEMENT	SPECIFICATION TITLE
GROUNDWORK	LEVEL 1 SUPERVISION AS SPECIFIED UNDER THE GROUND WORKS NOTES ON C010
TREE TRENCHES	TREE TRENCHES TO BE DESIGNED AND CONSTRUCTED BY RELEVANT CERTIFIED CONTRACTOR
WATER SERVICE CONNECTION	WATER SERVICE CONNECTION TO BE DESIGNED AND CERTIFIED BY CARDNO UNDER SEPARATE PORTION OF WORKS CONTRACTOR TO ALLOW TO COORDINATE AS REQUIRED WITH FINAL AS CONSTRUCTED LEVELS
SEWER SERVICE CONNECTION	SEWER SERVICE CONNECTION TO BE DESIGNED AND CERTIFIED BY CARDNO UNDER SEPARATE PORTION OF WORKS CONTRACTOR TO ALLOW TO COORDINATE AS REQUIRED WITH FINAL AS CONSTRUCTED LEVELS
CONTRACTOR IS TO PROVIDE WORK METHODOLOGY STATEMENT AND RPEQ CERTIFIED CALCULATIONS FOR REVIEW PRIOR TO WORKS COMMENCING	



SITE PLAN

SCALE 1:1000

PROJECT DRAWINGS	
SHEET NUMBER	SHEET TITLE
C-0000	COVER SHEET AND DRAWING INDEX
C-0010	PROJECT NOTES - SHEET 1 OF 2
C-0011	PROJECT NOTES - SHEET 2 OF 2
C-0020	SAFETY IN DESIGN
C-0100	SEDIMENT AND EROSION CONTROL NOTES
C-0110	SEDIMENT AND EROSION CONTROL PLAN - SHEET 1 OF 2
C-0111	SEDIMENT AND EROSION CONTROL PLAN - SHEET 2 OF 2
C-0200	BULK EARTHWORKS PLAN - SHEET 1 OF 4
C-0201	BULK EARTHWORKS PLAN - SHEET 2 OF 4
C-0202	BULK EARTHWORKS PLAN - SHEET 3 OF 4
C-0203	BULK EARTHWORKS PLAN - SHEET 4 OF 4
C-0210	BULK EARTHWORKS CUT FILL PLAN - SHEET 1 OF 4

PROJECT DRAWINGS	
SHEET NUMBER	SHEET TITLE
C-0211	BULK EARTHWORKS CUT FILL PLAN - SHEET 2 OF 4
C-0212	BULK EARTHWORKS CUT FILL PLAN - SHEET 3 OF 4
C-0213	BULK EARTHWORKS CUT FILL PLAN - SHEET 4 OF 4
C-0220	SITE SECTIONS
C-0300	SITE WORKS PLAN - SHEET 1 OF 4
C-0301	SITE WORKS PLAN - SHEET 2 OF 4
C-0302	SITE WORKS PLAN - SHEET 3 OF 4
C-0303	SITE WORKS PLAN - SHEET 4 OF 4
C-0350	TYPICAL DETAILS
C-0410	STORMWATER LONGITUDINAL SECTIONS - SHEET 1 OF 3
C-0411	STORMWATER LONGITUDINAL SECTIONS - SHEET 2 OF 3
C-0412	STORMWATER LONGITUDINAL SECTIONS - SHEET 3 OF 3

ADDITIONAL DOCUMENT SHEET LIST TABLE			
SHEET NUMBER	SHEET TITLE	SHEET TYPE	PREPARED BY
20210216 Lumina As-Constructed		AS CONSTRUCTED SURVEY	CARDNO
1-24131	GEOTECHNICAL INVESTIGATION	REPORT	SOIL SURVEYS

RP DESCRIPTION

LOT 12 SP275512, LOT 9 SP275512
L.G.A OF GOLD COAST
COUNTY OF WARD
SITE AREA ≈ 4900m²

NOTE

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PROJECT NOTES ON C-0010, C-0011 AND DOCUMENTS AND STANDARD DRAWINGS AS SHOWN ON C-0000
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

SCALE 1:1000 0 10 20 30 40m

BLIGH TANNER

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	06/04/2023	COORDINATION ISSUE	JAM	JAM	MM
P2	14/04/2023	50% DD ISSUE	JAM	JAM	MM
P3	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P4	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P5	19/07/2023	100% DD ISSUE	JAM	JAM	MM

CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: 1:1000 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: COVER SHEET AND DRAWING INDEX

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0000	P5

X:\Projects\2022\2022.0021\Lumina open space esk3 drafting\1 Civil\2 drafting\01 Detail Design\C-0000 COVER SHEET AND DRAWING INDEX.dwg Jul 08, 2024 - 2:44pm

PROJECT NOTES

GENERAL

1. ALL WORKS AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT LOCAL AUTHORITY POLICIES, SPECIFICATIONS AND STANDARD DRAWINGS, OR IF THESE DO NOT APPLY THEN THE INSTITUTE OF MUNICIPAL ENGINEERS OF QUEENSLAND STANDARD DRAWINGS AND AUSTRALIAN STANDARDS;
2. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT NEARBY PROPERTY OWNERS FROM DUST POLLUTION DURING ALL PHASES OF WORKS CONSTRUCTION. FINISHED AREAS OF EARTHWORKS SHALL BE KEPT WATERED WHERE NECESSARY UNTIL A SATISFACTORY GRASS COVER IS ACHIEVED.
3. ALL CONSTRUCTION WORKS ARE TO BE JOINED NEATLY TO EXISTING WORKS.
4. PUBLIC UTILITIES - NOT WITHSTANDING THAT THE POSITIONS OF PUBLIC UTILITIES, FITTINGS, PIPES, POLES, MANHOLES ETC MAY BE INDICATED ON THE DRAWINGS, NO RESPONSIBILITY WILL BE ACCEPTED BY THE PRINCIPAL FOR THE ACCURACY OF THE REPRESENTATION OR THE OMISSION THEREOF.
5. LOCATION AND LEVEL OF EXISTING SERVICES AND STRUCTURES HAS BEEN PLOTTED FROM AVAILABLE RECORDS AND IS INDICATIVE ONLY. THE CONTRACTOR SHALL ACCURATELY LOCATE THESE ON SITE PRIOR TO COMMENCING WORKS AND SHALL PROTECT ALL EXISTING SERVICES DURING CONSTRUCTION. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
6. VEGETATION OUTSIDE WORK AREAS SHALL NOT BE DISTURBED UNLESS SPECIFICALLY AUTHORISED BY THE SUPERINTENDENT.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN THE STABILITY OF ANY TEMPORARY WORKS ON THE SITE.
8. THE CONTRACTOR SHALL CONFIRM THE CURRENCY OF THE SET OUT & LEVELS WITH THE SUPERINTENDENT PRIOR TO COMMENCING CONSTRUCTION.
9. THIS DESIGN HAS BEEN BASED ON AS-CONSTRUCTED SURVEY PROVIDED TO BLIGH TANNER ON 21-03-2023 FILE NAME 20210216 Lumina As-Constructed . LEVEL DATUM IS mAHD AND THE CO-ORDINATE DATUM IS GDA Z56.
10. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE LOCAL AUTHORITY SPECIFICATIONS AND THE PROJECT SPECIFICATIONS. IN THE EVENT OF A DISCREPANCY. REFER TO THE SUPERINTENDENT FOR CLARIFICATION.
11. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH DRAWINGS PREPARED BY OTHER RELATED CONSULTANTS, ALL PROJECT SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE WORK. ANY DISCREPANCIES SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
12. PROPRIETARY PRODUCTS ARE SPECIFIED ON THESE DRAWINGS BASED ON THE MANUFACTURERS/ SUPPLIERS DOCUMENTED PERFORMANCE CHARACTERISTICS AND SPECIFICATIONS. ALL SUCH PRODUCTS ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS/ SUPPLIERS RECOMMENDATIONS.
13. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE AS INDICATED ON BLIGH TANNER DRAWINGS AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND/OR FABRICATION IS COMMENCED. THE ENGINEERS DRAWINGS SHALL NOT BE SCALED, UNLESS SPECIFICALLY NOTED OTHERWISE.
14. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PROPOSED AND EXISTING WORKS IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.
15. THE APPROVAL FOR A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATION MUST BE APPROVED BY THE SUPERINTENDENT BEFORE WORK COMMENCES.
16. THE ACCESS FOR THE WORK SITE SHALL BE AS INDICATED ON THE CONTRACT OR AS APPROVED BY THE SUPERINTENDENT AND THE LOCAL AUTHORITIES. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND RELEVANT PERMITS. IT IS THE CONTRACTORS RESPONSIBILITY TO CONSTRUCT AND MAINTAIN ACCESS AS THEY REQUIRE TO ALL PARTS OF CONTRACTORS WORK AREA.
17. THE CONTRACTORS COMPOUND SHALL BE LOCATED AS APPROVED BY SUPERINTENDENT.
18. ALL WORKS SHALL BE IN ACCORDANCE WITH THE PROJECT ENVIRONMENTAL MANAGEMENT PLAN.
19. FIRE ANT CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MUST HAVE APPROPRIATE DPI/DNR CERTIFICATION TO DEAL WITH FIRE ANTS.
20. CONTRACTOR SHALL UNDERTAKE ALL WORKS IN PROXIMITY TO EXISTING SERVICES AND INFRASTRUCTURE IN ACCORDANCE WITH THE RELEVANT UTILITY/AUTHORITY POLICIES AND PROCEDURES
21. EXISTING CHAMBERS
    - 21.1. CONTRACTOR TO ALLOW FOR RESETTING COVERS AND LIDS TO SUIT NEW DESIGN LEVELS.
    - 21.2. WHERE EXISTING PITS ARE NOW LOCATED WITHIN TRAFFICABLE AREAS CONTRACTOR TO ALLOW FOR REPLACING EXISTING PIT AND COVER WITH CLASS 'D'
22. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ANY RELEVANT COUNCIL APPROVALS OR WORK PERMITS RELATING TO THE WORKS DOCUMENTED IN THESE DRAWINGS HAVE BEEN OBTAINED PRIOR TO COMMENCING THE RELATED WORKS
23. WHERE WORKS ARE TO BE ADOPTED BY A LOCAL AUTHORITY / ADOPTING AUTHORITY, ALL WORKS ARE TO BE COMPLETED TO THEIR SATISFACTION AND ACCEPTED ON MAINTENANCE PRIOR TO PRACTICAL COMPLETION BEING ISSUED.
23. WHEN DESIGN ELEMENTS ARE AT MAXIMUM/MINIMUM GRADES OR COVER, THE CONSTRUCTION TOLERANCES AT THESE LOCATIONS SHALL BE CAREFULLY MANAGED AND SHALL BE SUCH THAT THE DESIGN LIMITS ARE NOT EXCEEDED. THIS MAY REQUIRE TIGHTER CONSTRUCTION TOLERANCES THAN IDENTIFIED BY THE SPECIFICATION IN THESE SPECIFIC LOCATIONS.

GROUNDWORKS

1. THE GEOTECHNICAL REPORT FOR THE PROJECT REFERRED TO IN THE NOTES IS THE GEOTECHNICAL INVESTIGATION REPORT BY SOIL SURVEYS, DATED AUGUST 2021 - PROJECT NO. 1-24131.
2. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3798 AND SUPERVISION TO LEVEL 1 SHALL BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR SHALL EMPLOY A QUALIFIED GEOTECHNICAL ENGINEER WHO IS A REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND WITH A MINIMUM $5 MILLION PROFESSIONAL INDEMNITY INSURANCE, TO UNDERTAKE LEVEL 1 SUPERVISION OF EARTHWORKS AND WHOSE CERTIFICATION IN WRITING SHALL INCLUDE THE FOLLOWING:
    - 2.1. ENGINEERING CERTIFICATION THAT ALL EARTHWORKS OPERATIONS (INCLUDING STRIPPING, PROOF ROLLING OF SUBGRADE, SUBGRADE TREATMENT, BACKFILL TO RETAINING WALLS AND TRENCHES ETC) HAVE BEEN CARRIED OUT IN ACCORDANCE WITH EARTHWORKS SPECIFICATION.
    - 2.2. ENGINEERING CERTIFICATION THAT FILL HAS BEEN PLACED AND COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION
    - 2.3. ENGINEERING CERTIFICATION THAT ANY AREAS OF CUT HAVE BEEN COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION.
    - 2.4. IF REQUIRED, ENGINEERING CERTIFICATION THAT THE CONTROLLED FILL MATERIAL IS SUITABLE TO SUPPORT A CONVENTIONAL SLAB ON GROUND FLOOR OR PAVEMENT SYSTEM.
    - 2.5. ENGINEERING CERTIFICATION THAT THE QUALITY OF ANY IMPORTED FILL COMPLIES WITH THE EARTHWORKS SPECIFICATION REQUIREMENTS
    - 2.6. ENGINEERING CERTIFICATION THAT THE AREAS OF CUT HAVE BEEN SUBJECT TO PROOF ROLL AND COMPACTED UNDER GEOTECHNICAL SUPERVISION TO THE SAME STANDARDS AS FILL AREAS
    - 2.7. ENGINEERING CERTIFICATION OF ALL BACKFILL OF TRENCHES AND RETAINING WALLS THAT IMPACT ZONE OF INFLUENCE TO ANY STRUCTURE, ROAD, SERVICE OR INFRASTRUCTURE
    - 2.8. UNLESS NOTED OTHERWISE, WHERE BUILDING STRUCTURES ARE DOCUMENTED, ENGINEERING CERTIFICATION IS TO BE PROVIDED THAT;
        - 2.8.1. THE BUILDING PLATFORM HAS A CLASS 'M' CLASSIFICATION IN ACCORDANCE WITH AS 2870
        - 2.8.2. ALL THE CONTROLLED FILL IS SUITABLE FOR SUPPORT OF CONVENTIONAL HIGH LEVEL FOOTINGS AND HAS A MINIMUM BEARING CAPACITY OF 100KPA
3. THE CONTRACTOR SHALL EMPLOY A QUALIFIED GEOTECHNICAL ENGINEER WHO IS A REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND WITH A MINIMUM $5 MILLION PROFESSIONAL INDEMNITY INSURANCE, TO UNDERTAKE FULL TIME GEOTECHNICAL SUPERVISION FOR DURATION OF EARTHWORKS, WHO SHALL PROVIDE REGULAR SITE REPORTS DETAILING;
    - 3.2. THAT THE STABILITY OF ALL TEMPORARY AND PERMANENT CUT/FILL BATTERS AND TRENCHES IS ADEQUATE
    - 3.3. THAT CONTRACTORS HAUL ROUTES AND TEMPORARY WORKS DO NOT COMPROMISE THE STABILITY OF ANY TEMPORARY OR PERMANENT SLOPES, BUILDINGS OR SITE FEATURES.
4. NOT WITHSTANDING THE REQUIREMENT FOR THE BUILDER TO OBTAIN GEOTECHNICAL CERTIFICATION, THE BUILDER IS TO ADVISE THE SUPERINTENDENT AND SEEK APPROVAL BEFORE PROCEEDING WITH ANY EARTHWORKS OR PAVEMENT CONSTRUCTION THAT IS LIKELY TO GIVE RISE TO A VARIATION CLAIM
5. UNLESS DIRECTED OTHERWISE IN THE GEOTECHNICAL REPORT FOR THE PROJECT, BY THE GEOTECHNICAL ENGINEER ON SITE OR BY THE RELEVANT LOCAL AUTHORITY FILLING SHALL BE (FOR WORKS SUBJECT TO APPROVAL/ADOPTION BY THE LOCAL AUTHORITY) FILLING SHALL BE COMPACTED IN ACCORDANCE WITH TABLE 5.1 OF AS3798. ABSOLUTE MINIMUM DENSITY RATIOS ARE THE FOLLOWING:
    - 5.1. RESIDENTIAL LOT FILL - 95% STD;
    - 5.2. COMMERCIAL FILL (FOR MINOR LOADS) - 98% STD;
    - 5.3. SUBGRADE (EXCEEDING 300MM BELOW PAVEMENT) - 95% STD;
    - 5.4. SUBGRADE (WITHIN 300MM OF PAVEMENT) - 98% STD;
6. IMPORTED GENERAL FILL MATERIAL (IF REQUIRED) SHOULD BE
    - 6.1. COHESIVE AND NON-DISPERSIVE IN NATURE AND BE A GOOD QUALITY
    - 6.2. LOW PLASTICITY
        - 6.2.1. LIQUID LIMIT OF LESS THAN 45%,
        - 6.2.2. PLASTICITY INDEX OF LESS THAN 15%,
        - 6.2.3. SHRINK/SWELL INDEX OF LESS THAN 1.0%
    - 6.3. SOAKED CBR >10%,
    - 6.4. MAXIMUM PARTICLE SIZE OF 75MM WITH AT LEAST 80% PASSING THE 19MM SIEVE.
    - 6.5. QUALITY TESTING TO CONFIRM IMPORTED FILL QUALITY SHOULD BE CARRIED OUT PRIOR TO DELIVERY TO SITE
7. PRIOR TO COMMENCING EARTHWORKS THE CONTRACTOR SHALL SUBMIT A SAMPLE OF PROPOSED FILLING MATERIAL (FROM CUTTINGS OR IMPORTED) WITH ALL TEST RESULTS FOR ALL SPECIFIED MATERIAL PROPERTIES PER THE SPECIFICATION.
8. UNLESS DIRECTED OTHERWISE IN THE GEOTECHNICAL REPORT FOR THE PROJECT, OR BY THE GEOTECHNICAL ENGINEER ON SITE, FILLING AND SUBGRADE AREAS SHALL BE COMPACTED IN MAXIMUM LIFTS OF 300MM LOOSE THICKNESS;
9. TOPSOIL AND OTHER ORGANIC MATTER ARE TO BE STRIPPED FROM GROUNDWORK AREAS PRIOR TO COMMENCING GROUNDWORKS AND SHALL BE STOCKPILED ON SITE. EARTH STOCKPILES SHALL BE SUITABLY PROTECTED FROM EROSION AND WEED INFESTATION BY COVERING WITH WEED MAT OR OTHER MEANS. RE-SPREAD TOPSOIL TO FINISHED SURFACE LEVELS AND VEGETATE TO SPECIFICATION PRIOR COMPLETION. EXCESS TOPSOIL TO BE REMOVED FROM SITE.
10. UNLESS DIRECTED OTHERWISE IN THE GEOTECHNICAL REPORT FOR THE PROJECT, OR BY THE GEOTECHNICAL ENGINEER ON SITE, MAXIMUM BATTER SLOPES TO ANY CUTTING OR FILLING TO BE 1V TO 4H FOR GRASSED SLOPES OR 1V TO 2H FOR LANDSCAPED SLOPES.
11. UNLESS DIRECTED OTHERWISE IN THE GEOTECHNICAL REPORT FOR THE PROJECT, OR BY THE GEOTECHNICAL ENGINEER ON SITE, SLOPING GROUND, EXISTING DRAINAGE CHANNELS, ETC. SHOULD BE BENCHED TO "KEY IN" FILL MATERIAL/SURFACE TREATMENTS (e.g TOPSOIL) AND OPTIMISE COMPACTION. THE BENCHES SHOULD SLOPE BACK AT 1V:10H AND BE AT LEAST 0.5M WIDE. WIDER BENCHES TO ACCOMMODATE THE WIDTH OF THE ROLLER MAY NEED TO BE ADOPTED IN SOME SITUATIONS
12. CONTRACTOR SHALL MAKE DUE ALLOWANCE FOR ADDRESSING SITE TRAFFICABILITY IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THE SITE, CONSIDERING WEATHER CONDITIONS LIKELY TO PREVAIL DURING THE EARTHWORKS PERIOD.
13. TRENCHING SHALL BE EXCAVATED TO SOUND MATERIAL AND BACKFILLED AND COMPACTED TO SPECIFICATION.
14. WHERE SHORING BOXES ARE USED FOR TRENCHING, THEY MUST EXTEND TO THE BASE OF THE TRENCH TO AVOID COLLAPSES OCCURRING BELOW THE BENCH. THERE MAY BE CONDITIONS WHERE A SHORING BOX CAN TERMINATE ABOVE THE BASE OF THE EXCAVATION SUCH AS WHERE COMPETENT ROCK IS ENCOUNTERED, BUT THE PARTICULAR CASE IS TO BE ASSESSED AND CERTIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER.
    - 14.1. THE CONTRACTOR SHALL ALLOW FOR ADDITIONAL BEDDING MATERIAL SO THAT FULL COVERAGE OF THE PIPE STILL OCCURS WHEN THE SHORING BOXES ARE REMOVED.
15. CONTRACTOR TO CONSIDER THE IMPLICATIONS OF DISTURBED GROUND CONDITIONS WHEN WORKING IN CLOSE PROXIMITY TO EXISTING SERVICES AND SHALL EMPLOY A SUITABLE METHODOLOGY TO ADDRESS TRENCH AND SERVICE STABILITY.
16. NON SUITABLE SITE WON MATERIAL (E.G. SILTY SANDS, REACTIVE, DISPERSIBLE MATERIAL) ARE NOT TO BE USED WITHIN ENGINEERING FILL, UNLESS IT HAS BEEN ASSESSED AGAINST THE DESIGN'S DOCUMENTED IN THE CONTRACT DRAWINGS SPECIFICATIONS AND CERTIFIED AS SUITABLE FOR USE BY THE LEVEL 1 GEOTECHNICAL ENGINEER.
17. WHERE INVESTIGATIVE EXCAVATIONS HAVE BEEN CARRIED OUT ON THE SITE (E.G TRIAL PITS) CONTRACTOR IS TO EXCAVATE ANY DISTURBED MATERIAL AND BACKFILL UNDER LEVEL 1 SUPERVISION.
18. DEPRESSIONS FORMED BY THE REMOVAL OF VEGETATION, UNDERGROUND ELEMENTS ETC SHOULD HAVE ALL DISTURBED WEAKENED SOIL CLEANED OUT AND BE BACKFILLED WITH COMPACTED SELECT MATERIAL

EROSION & SEDIMENT CONTROL

REFER TO C-0100 FOR EROSION AND SEDIMENT CONTROL NOTES

ROAD / PAVEMENT WORKS

1. ALL DIMENSIONS AND SETOUT ARE TO NOMINAL FACE OF KERB AND CHANNEL U.N.O
2. LEVELS ARE TO FACE OF KERB/LIP OF KERB/KERB AND CHANNEL U.N.O;
3. PAVEMENT DEPTHS SHOWN ON THE DRAWINGS ARE NOMINAL ONLY AND SHALL BE DETERMINED AFTER INSPECTION AND TESTING OF SUBGRADE. THE CONTRACTOR SHALL IN ALL CASES OBTAIN PARTICULARS OF THE PAVEMENT THICKNESS BEFORE PROCEEDING WITH THE FORMATION OF THE ROAD BOX.CBR TESTING SHALL BE UNDERTAKEN AT 25m INTERVALS ALONG THE PAVEMENT AND ANY ADDITIONAL LOCATIONS DETERMINED BY THE GEOTECHNICAL ENGINEER/OR SUPERINTENDENT SUPERVISING THE WORKS AND SHALL BE AT LEAST THE MINIMUM SPECIFIED IN THE PROJECT SPECIFICATION.
4. PAVEMENTS MATERIALS SHALL BE AS FOLLOWS:
    - 4.1. ASPHALTIC CONCRETE TO AS 2150;
    - 4.2. BASE COURSE - TYPE 2.1, SOAKED CBR 80;
    - 4.3. SUBBASE COURSE - TYPE 2.3, SOAKED CBR 45;
    - 4.4. SUBGRADE REPLACEMENT - TYPE 2.5, SOAKED CBR 15;
5. MINIMUM PAVEMENT COMPACTION TO BE AS FOLLOWS;
    - 5.1. SUBBASE AND BASE - 95% MODIFIED MAXIMUM DRY DENSITY TO AS1289.5.4.1
6. EARTHWORKS SUBGRADE SHALL BE COMPACTED TO 100% R.D.D STANDARD COMPACTION
7. SUB-SOIL DRAINAGE SHALL BE INSTALLED UNDER ALL NEW KERB AND CHANNEL AND ROAD EDGES AND GRADED TO CONNECT WITH DRAINAGE INLET PITS AT A MINIMUM OF 0.5%.
8. ASPHALT SURFACING SHALL BE MIN. 30mm COMPACTED THICKNESS AND IN ACCORDANCE WITH DEPARTMENT OF TRANSPORT SPECIFICATIONS.
9. KERB AND KERB AND CHANNEL SHALL BE CONSTRUCTED FROM N25/20 CONCRETE IN ACCORDANCE WITH LOCAL AUTHORITY SPECIFICATIONS.
10. STORMWATER PIPE BEDDING SHALL BE WELL GRADED GRAVEL AND SHALL EXTEND FOR FULL DEPTH OF THE PIPE, TYPE 2 AS PER IPWEAQ STD. DRG. D-00030. BACKFILLING TO TRENCHES SHALL BE SELECTED BACKFILL COMPACTED TO 95% R.D.D.
11. SUBSOIL DRAIN SHALL BE 100Ø SLOTTED PVC CORRUGATED PIPE BEDDED ON AND SURROUNDED WITH 100mm 5mm AGGREGATE
12. ALL WORKS TO CONFORM TO LOCAL AUTHORITY STANDARDS U.N.O.
13. ALL IMPORTED AND EXPORTED MATERIALS ARE TO BE TRANSPORTED ONLY ON ROUTES APPROVED BY THE LOCAL AUTHORITY.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SAFETY OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING CONSTRUCTION.
15. ALL LAYERS OF PAVEMENT WORKS AND EARTHWORKS ARE TO BE PROOF ROLLED AND TESTED AS PER THE SPECIFICATION, AND TO THE APPROVAL OF THE SUPERINTENDENT.
16. ALL CONSTRUCTION SHALL JOIN SMOOTHLY AND NEATLY TO EXISTING SURFACES AND STRUCTURES.
17. TACTILE INDICATORS TO BE PROVIDED AT PRAM RAMPS WHERE THEY CONNECT WITH CONCRETE FOOTPATH.
18. SIGN POST AND FOOTING DETAIL TO BE IN ACCORDANCE WITH THE RELEVANT ROAD AUTHORITY REQUIREMENTS AND STANDARD DETAILS, UNLESS SPECIFIC GUIDANCE ON FOOTING TYPE IS PROVIDED IN THESE DRAWINGS, THE SELECTION OF FOOTING TYPE TO BE CONFIRMED BY THE LOCAL ROAD AUTHORITY UPON REQUEST OF THE SUPERINTENDENT PRIOR TO CONSTRUCTION.
19. CONSTRUCTION OVER PIPES TO USE SUITABLE CONSTRUCTION/COMPACTION PLANT TO ENSURE MAXIMUM STRUCTURAL CAPACITY OF PIPEWORK IS NOT EXCEEDED.

TESTING AND INSPECTIONS

1. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARDS, AND TO THE SATISFACTION OF THE SUPERINTENDENT AND RELEVANT CONTROLLING AUTHORITY.
2. ALL WORKS ON COUNCIL OR TMR CONTROLLED ROADS MUST FULLY COMPLY WITH THEIR RESPECTIVE TESTING SPECIFICATION REQUIREMENTS
3. U.N.O POTHOLING OF EXISTING SERVICES IS TO BE AT THE PROPOSED LOCATION OF POSSIBLE DESIGN CONFLICT TO A MINIMUM 300mm BELOW DESIGN LEVEL. LOCATION AND LEVELS TO TOP AND BOTTOM OF EXISTING SERVICES ARE TO BE SURVEYED BY LICENSED SURVEYOR AND PROVIDED IN 3D DWG FORMAT TO THE SUPERINTENDENT.
4. ROADWORKS TESTING SHALL BE UNDERTAKEN AS SPECIFIED AND AT LEAST AS FOLLOWS:
    - 4.1. EARTHWORKS INCLUDING TRENCH WORKS SHALL BE TESTED IN ACCORDANCE AS3798
    - 4.2. SUBGRADE TO ROADWORKS AND BUILDING PLATFORMS REQUIRE 1 DENSITY TEST (BY SAND CONE) AND PLASTICITY TEST PER 500SQM.
    - 4.3. PAVEMENT MATERIALS REQUIRE 1 DENSITY TEST (BY SAND CONE) PER 1000SQM, AND SUBMISSION TO THE ENGINEER OF THE PAVEMENT MATERIAL SUPPLIERS SAMPLE TESTING RESULTS FOR GRADING, PLASTICITY AND SOAKED CBR. OTHER MATERIAL PROPERTIES MAY BE SPECIFIED FOR TESTING BY THE SUPERINTENDENT AT THEIR DISCRETION;
    - 4.4. PAVEMENT SEALING BY ASPHALT SHALL BE CORE TESTED AND MARSHALL PROPERTIES, GRADING, STABILITY AND DENSITY TESTED. PAVEMENT SEALING BY SPRAY SEAL REQUIRES SUBMISSION OF SUPPLIERS SAMPLE TESTING RESULTS INCLUDING SOLUBLE SULPHATE TESTS;
5. CONCRETE SHALL BE TESTED IN ACCORDANCE AS3600.;
6. SUBMISSION OF SAMPLE TEST RESULTS FROM SUPPLIERS FOR OTHER MATERIALS INCLUDING BEDDING GRAVEL'S, DRAINAGE GRAVEL'S, GEOFABRICS, CAST IRON WORKS, WATER SUPPLY FITTINGS, PRE CAST CONCRETE AND ALL PIPE SUPPLIES;

CBR - GROUND WORKS

7. CBR TESTING FREQUENCY IS AS FOLLOWS;
    - 7.1. MINIMUM OF 3No. TESTS WHERE SUBGRADE IS UNIFORM MATERIAL THROUGHOUT, OR WHERE LESS THAN 3 DIFFERENT TYPES OF SOIL HORIZON ARE OBSERVED (SEE NOTE BELOW)
    - 7.2. CBR TEST TO BE UNDERTAKEN ON EACH DIFFERENT SOIL HORIZON OBSERVED AT PAVEMENT FORMATION.
    - 7.3. 1 No. CBR TEST PER 200m² OF PAVEMENT AREA SUBJECT TO NOTE 1 ABOVE

CONTRACTOR RESPONSIBILITY

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DEMONSTRATE COMPLIANCE WITH ALL REQUIREMENTS AS STIPULATED IN THE DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTATION

NOTES CONTINUED ON C-0011

BLIGH TANNER
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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
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CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: PROJECT NOTES - SHEET 1 OF 2

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AS CONSTRUCTED INFORMATION

1. AS CONSTRUCTED INFORMATION IS TO REFLECT THE ACTUAL CONSTRUCTION AND IS TO BE ENDORSED BY A LICENSED SURVEYOR - THE SURVEY POINTS AND LEVELS SHALL BE TAKEN AT LEAST THE SAME POINTS/LEVELS LOCATIONS SHOWN ON CONSTRUCTION DRAWINGS AND ANY OTHER RELEVANT POINTS TO ALLOW ASSESSMENT AGAINST THE PROPOSED DESIGN INTENT;
2. THE CONTRACTOR IS TO SUPPLY AN 'AS CONSTRUCTED' SURVEY PLAN IN 3D DWG AND PDF FORMAT AND IN ACCORDANCE WITH THE LOCAL COUNCIL AND/OR APPROVING AUTHORITY STANDARDS, DETAILING FOR THE FULL EXTENT OF WORKS, THE LOCATION AND LEVELS OF ALL CIVIL WORKS DETAILED IN THESE DRAWINGS, INCLUDING BUT NOT LIMITED TO STORMWATER, SEWER AND FINISHED SURFACE LEVELS.
3. "CCTV' CONDITION REPORTS ARE TO BE UNDERTAKEN;
   - 3.1. FOR EXISTING PIPES - PRIOR TO COMMENCING WORKS ON SITE
   - 3.2. FOR NEW STORMWATER AND SEWER WORKS;
     - 3.2.1. AT THE COMPLETION OF INSTALLATION OF ANY PIPES BUT PRIOR TO PAVEMENTS, LANDSCAPING OR STRUCTURES OVER.
     - 3.2.2. AT THE COMPLETION OF WORKS.

CONCRETE WORKS

1. ALL CONCRETE WORK SHALL COMPLY WITH AS3600;
2. CONCRETE FINISHES SHALL BE IN ACCORDANCE ARCHITECTS SPECIFICATION UNLESS NOTED OTHERWISE;
3. CONCRETE SPECIFICATION
   - 3.1. SLUMP 80mm
   - 3.2. MAXIMUM AGGREGATE 20mm
   - 3.3. CEMENT TYPE "A" PORTLAND
4. ALL CONCRETE KERB SHALL BE GRADE S32;
5. ALL CONCRETE PAVEMENTS SHALL BE GRADE N32 UNLESS NOTED OTHERWISE;
6. U.N.O JOINTING OF CONCRETE PAVEMENTS TO BE IN ACCORDANCE WITH CEMENT AN CONCRETE GUIDE TO RESIDENTIAL STREETS AND PATHS
7. THE SUPERINTENDENT SHALL BE NOTIFIED PRIOR TO POURING OF ANY CONCRETE;
8. BASIC DRYING SHRINKAGE STRAIN MEASURED IN ACCORDANCE WITH AS 1012 - PT.13 SHALL NOT EXCEED 600 MICROSTRAIN AT 8 WEEKS.
9. MIN 40mm CLEAR COVER FOR REINFORCEMENT TO TOP, BOTTOM AND SIDES (INCLUDING FITMENTS)
   - 9.1. NOTE ADDITIONAL COVER WILL BE REQUIRED FOR SITES THAT
     - 9.1.1. ARE WITHIN 5km OF A MARINE ENVIRONMENT,
     - 9.1.2. SITES WITH AGGRESSIVE OR ACID SULPHATE SOILS,
     - 9.1.3. CHEMICAL EXPOSURE OR LISTED ON THE CONTAMINATED LAND REGISTER
10. ALL SLABS ARE TO BE SPRAYED WITH ALIPHATIC ALCOHOL BARRIER AFTER INITIAL SCREENING AND BULLFLOATING. ALIPHATIC ALCOHOL TO BE RE-APPLIED AFTER EACH SUBSEQUENT FINISHING OPERATION
11. CURE ALL CONCRETE SURFACES IN ACCORDANCE WITH AS3600. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. USE OF AN APPROVED CURING AGENT. APPLY CURING COMPOUNDS WITHIN 2 HOURS OF THE FINISHING OPERATION
12. ALL RE-ENTRANT CORNERS AND PENETRATIONS LARGER THAN 200 SQUARE ARE TO HAVE TRIMMER BARS PLACED DIAGONALLY AT CORNERS. TRIMMER BARS SHALL BE 2 N12 x 1200mm LONG AT 100mm CENTRES. TOP & BOTTOM FOR SUSPENDED SLABS. FOR SLABS ON GROUND PROVIDE TRIMMER BARS FOR EACH LAYER OF MESH
13. ALL HOOKS AND BENDS TO BE IN ACCORDANCE WITH AS3600
14. PROVIDE DAMP PROOF MEMBRANE UNDER CONCRETE PAVEMENT
15. ALL REINFORCEMENT TO BE SECURELY TIED PRIOR TO PLACEMENT OF CONCRETE
16. NO CONCRETE IS TO BE POURED ON SITE WHEN TEMPERATURES EXCEED 35 DEGS OR FALLS BELOW 5 DEGS

VEGETATION PROTECTION

1. VEGETATION PROTECTION SHALL CARRIED OUT IN ACCORDANCE WITH ANY VEGETATION MANAGEMENT PLAN FOR THE PROJECT. THE VEGETATION MANAGEMENT PLAN TAKES PRECEDENCE OVER THESE NOTES.
2. PRIOR TO CLEARANCE WORKS COMMENCING ON SITE, A JOINT INSPECTION SHALL BE UNDERTAKEN TO IDENTIFY SELECTED TREES AND / OR SHRUBS WHICH ARE TO REMAIN UNDISTURBED. THESE SHALL BE MARKED BY THE SUPERINTENDENT WITH COLOURED TAPE OR SIMILAR MARKS. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE OR REMOVE ANY OF THESE TREES AND / SHRUBS IN CARRYING OUT THE WORKS OF THE CONTRACT.
3. TREES LOCATED ALONG THE FOOTPATH SHOULD BE, WHERE POSSIBLE TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IN ACCORDANCE WITH THE VEGETATION MANAGEMENT PLAN OR AS DIRECTED BY THE SUPERINTENDENT.
4. UNLESS DIRECTED BY THE VEGETATION MANAGEMENT PLAN OR PROJECT ARBORIST/ECOLOGIST, WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHOULD BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES MUST BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL COMPLETION.
5. WHERE POSSIBLE, TREE ROOTS SHOULD BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHOULD BE TREATED WITH A SUITABLE FUNGICIDE.
6. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY A PROFESSIONAL ARBORIST.
7. CONSTRUCTION VEHICLE ACTIVITY SHOULD BE LIMITED BY FENCING OF UNDISTURBED AREAS - REFER TO VEGETATION MANAGEMENT PLAN (OR EMP)
8. ACCESS SHOULD BE RESTRICTED TO PRE-EXISTING TRACKS OR THE PATH OF LEAST DISTURBANCE.
9. THE CONTRACTOR IS NOT TO DISTURB OR CUT VEGETATION WITHOUT THE SUPERINTENDENTS APPROVAL.
10. THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL ARBORIST WHO SHALL ASSIST WITH THE WORK TO PROTECT TREES.

REHABILITATION

1. PRE DISTURBANCE SOIL PROFILES AND COMPACTION LEVELS ARE TO BE REINSTATED.
2. PRE DISTURBANCE VEGETATION PATTERNS SHOULD BE RESTORED. ALL ENVIRONMENT PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.
3. THE TRENCH AREA IS TO BE TOPSOILED AND SEEDED OR TURFED UPON COMPLETION OF WORKS.
4. ALL DISTURBED AREAS ARE TO BE LEFT IN A STABLE CONDITION. SLOPES SHOULD BE STABILISED USING APPROPRIATE EROSION CONTROL MEASURES.
5. ALL PLANTINGS WILL NEED TO BE MAINTAINED THROUGHOUT THE ESTABLISHMENT PHASE.

SUBSOIL DRAINAGE

1. SUBSOIL DRAINS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS AND GRADED TO CONNECT WITH DRAINAGE INLET PITS OR TO OUTLET TO THE BATTER
   - 1.1. ALL NEW KERB, CHANNELS AND ROAD EDGES
   - 1.2. ALL RETAINING WALLS
   - 1.3. TO UPSTREAM END OF PITS WHERE SEWERAGE TRENCHES ARE PARALLEL OR CROSS
   - 1.4. TO UPSTREAM END OF STORMWATER PITS
2. SUBSOIL DRAINS TO BE IN ACCORDANCE WITH GOLD COAST CITY COUNCIL REQUIREMENTS. REFER GCCC STD DRG 05-02-103.
3. SUBSOILS THAT OUTLET ABOVE GROUND ARE TO BE FITTED WITH ROCLA FROG FLAPS OR APPROVED EQUIVALENT.
4. SUBSOIL DRAINS TO BE LAID A MINIMUM 300mm BELOW THE SUBGRADE AND AT MINIMUM GRADE OF 1:200 UNLESS OTHERWISE APPROVED
5. SELECTED FILTER MATERIAL TO BE NOMINAL 5 OR 10mm SINGLE SIZE SCREENINGS
6. ALL SUBSOIL DRAINS TO BE
   - 6.1. TYPICALLY CLASS 1000 POLYETHYLENE CORRUGATED SLOTTED PIPE TO AS 2439.1
   - 6.2. WHERE UNDER PAVEMENT CROSSINGS, PIPE TO BE CLASS SN8 uPVC SOLID PIPE
7. SUBSURFACE DRAINS SHOULD GENERALLY OUTLET AT STORMWATER GULLY PITS AT A LEVEL ABOVE THE TOP HALF OF THE OUTLET PIPE
8. FLUSHING POINTS ARE TO BE CONSTRUCTED AT THE HEAD OF THE LINES WITH CLEANING JUNCTIONS AT MAXIMUM 30m CENTRES (IMMEDIATELY BEHIND THE KERB IF APPLICABLE)

STORMWATER DRAINAGE

1. SETOUT FOR ACCESS CHAMBERS IS TO CENTRE OF STRUCTURE; HEIGHT TO FINISHED SURFACE;
2. SETOUT FOR INLET PITS IS TO CENTRE OF KERB; HEIGHT TO SURFACE OF GRATE;
3. STORMWATER DRAINAGE WORKS SHALL USE BLACKMAX PIPES (SN8) OR EQUIVALENT APPROVED UNLESS NOTED OTHERWISE. ENSURE INSTALLATION IS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, AS2566.1 & AS2566.2.
4. EXCAVATION AND BACKFILLING SHALL BE IN ACCORDANCE WITH AS3798. CARE MUST BE TAKEN NOT TO DAMAGE TREE ROOTS DURING CONSTRUCTION OF THE PIPELINE OR AS DIRECTED BY THE ARBORIST;
5. PIPE BEDDING SHALL BE IN ACCORDANCE WITH BACKFILL (UNLESS NOTED OTHERWISE). REFER IPWEAQ STD. DWG. DS-030 FOR DETAILS.
6. FULL PIPE BENCHING TO ALL STORMWATER STRUCTURES
7. ALL DRAINAGE STRUCTURES, PIT GRATES AND COVERS SHALL BE CLASS "D" U.N.O
8. AT LOCATIONS WHERE STORMWATER DRAINAGE PIPES AND SANITARY SEWERS CROSS, THE CONTRACTOR SHALL SATISFY THEMSELVES THAT THE DESIGN LEVELS PROVIDE FOR A MINIMUM CLEARANCE OF 150mm BETWEEN PIPES PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION OF TRENCHES FOR CONSTRUCTION OF THESE FACILITIES. IF THE CONTRACTOR FINDS ANY DISCREPANCY, THEY SHALL IMMEDIATELY REFER IT IN WRITING TO THE SUPERINTENDENT.
9. SUB-SOIL DRAINAGE TO BE IN ACCORDANCE WITH GOLD COAST CITY COUNCIL STANDARDS. FLUSH OUT POINTS AND OUTLETS ARE TO BE PROVIDED AT ALL PITS OR AS SHOWN ON THE DRAWINGS.
10. SUB-SOIL DRAINS THAT OUTLET ABOVE GROUND ARE TO BE FITTED WITH ROCLA 'FROG FLAPS' OR APPROVED EQUIVALENT.
11. PROVIDE SUB-SOIL DRAINS TO UPSTREAM END OF PITS WHERE SEWERAGE TRENCHES ARE PARALLEL OR CROSS.
12. ALL WORKS SHALL COMPLY WITH RELEVANT COUNCIL REQUIREMENTS.
13. AT EVERY POINT OF LOADING OR UNLOADING, PIPES MUST BE HANDLED BY APPROVED LIFTING TACKLE.
14. PIPES AS SPECIFIED ABOVE SHALL BE LAID FROM THE DOWNSTREAM END OF THE LINE, TRUE TO LINE AND LEVEL. THE RUBBER RING SHALL BE FIXED AS PER THE MANUFACTURER'S INSTRUCTION TO ENSURE A WATERTIGHT JOINT. ANY JOINT NOT FIXED TO THE SATISFACTION OF THE SUPERINTENDENT SHALL BE REFIXED AS INSTRUCTED. ANY EARTH, CEMENT OR OTHER MATERIAL SHALL BE THOROUGHLY CLEANED OUT OF THE PIPES.
15. THE CONTRACTOR SHALL ALLOW FOR THE REINSTATEMENT OF ALL EXISTING WORKS TO ORIGINAL CONDITION. THIS SHALL INCLUDE ALL SERVICES, OTHER DRAINAGE WORKS, ROADWORKS AND KERBS, SIGNS AND FENCES ETC.
16. CONTRACTOR SHALL INCLUDE PRODUCTION OF A VIDEO BY "CCTV" OF ALL INSTALLED STORMWATER PIPES TO LOCAL COUNCIL STANDARD.
17. DURING CONSTRUCTION ANY UNDERGROUND SPRINGS ENCOUNTERED ARE TO BE IDENTIFIED AND A SUITABLE CONNECTION MADE TO THE CLOSEST PIPED ROAD DRAINAGE.
18. PIPES TO BE LAID AT 1:100 MIN GRADE UNLESS SPECIFIED OTHERWISE.
19. ALL STORMWATER PROPRIETARY DEVICES TO BE MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES. CONTRACTOR TO PROVIDE A COPY OF THESE DOCUMENTS TO THE ASSET OWNER WITHIN THE OPERATIONAL AND MAINTENANCE MANUALS.
20. ALL VEGETATED STORMWATER TREATMENT DEVICES SHALL BE MAINTAINED IN ACCORDANCE WITH WATER BY DESIGN "MAINTAINING VEGETATED STORMWATER ASSETS". CONTRACTOR TO PROVIDE A COPY OF THIS DOCUMENT TO THE ASSET OWNER WITHIN THE OPERATIONAL AND MAINTENANCE MANUALS.
21. EXISTING STORMWATER STRUCTURES AND PIPES THAT ARE TO BE RETAINED ARE TO BE CLEANED TO ENSURE FREE DRAINING.

IMPORTANT

HOLD POINTS REQUIRE ENGINEER'S INSPECTION AND/OR APPROVAL BEFORE PROCEEDING. WHERE BLIGH TANNER HAS BEEN ENGAGED FOR CONSTRUCTION SUPPORT; FAILURE TO INFORM BLIGH TANNER AT EACH OF THESE HOLD POINTS COULD RESULT IN BLIGH TANNER BEING UNABLE TO CERTIFY THE WORKS.

A MINIMUM SITE INSPECTIONS OF HOLD POINTS IS RECOMMENDED

1. PRE-START MEETING (HOLD POINT 2)
2. SUBGRADE INSPECTION AND PROOF ROLL
3. PRE-SEAL INSPECTION
4. 4 No. OF PROGRESS/HOLD POINT INSPECTIONS
5. DEFECTS INSPECTION AT COMPLETION OF CIVIL WORKS

INSPECTIONS IN EXCESS OF THESE DUE TO CONTRACTOR METHODOLOGY REQUIRING ADDITIONAL INSPECTIONS OR FAILED WORKS REQUIRING REINSPECTION WILL BE CHARGED TO THE CONTRACTOR AT A RATE OF $280 PER HOUR

IMPORTANT

THESE HOLD POINTS ARE INDEPENDENT OF LOCAL AUTHORITY REQUIREMENTS. ADDITIONAL HOLD POINTS MAY BE REQUIRED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH LOCAL AUTHORITY APPROVAL CONDITIONS AND DIRECTIONS GIVEN AT PRE-START MEETING WITH THE LOCAL AUTHORITY

HOLD POINTS

1. FULL NAME AND CONTACT DETAILS OF LEVEL 1 GEO TECHNICAL ENGINEER TO ENGINEER AND CONTRACT SUPERINTENDENT PRIOR TO PRE-START MEETING.
2. PRE-START MEETING WITH MAIN CONTRACTOR, CIVIL SUB CONTRACTOR, PIPE LAYER, CIVIL ENGINEER AND COUNCIL (IF NECESSARY) PRIOR TO ANY CIVIL WORKS COMMENCING.
3. BULK EARTHWORKS LEVEL 1 CERTIFICATION TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO BUILDING STRUCTURES OR PAVEMENT CONSTRUCTION.
4. UPON INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES AND PRIOR TO CLEARING
5. POTHOLING OF ANY POTENTIAL SERVICES CLASH

STORMWATER

1. INSPECTION OF TRENCH BASE PRIOR TO INSTALLING BEDDING.
2. INSPECTION OF BEDDING, INSTALLATION AND JOINTING OF PIPE / RCBC SECTION PRIOR TO BACKFILLING.
3. ADVISE ENGINEER OF COMMENCEMENT OF BACKFILL. COMPACTION TESTS TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO PROCEEDING WITH PAVEMENTS OR STRUCTURES.
4. ADVISE ENGINEER OF COMMENCEMENT OF CHAMBER CONSTRUCTION.
5. ADVISE ENGINEER OF COMMENCEMENT OF GULLY INSTALLATION.
6. CCTV AND 'AS BUILTS' PRIOR TO PAVEMENTS OR STRUCTURES OVER.
7. CASTING CERTIFICATES, CONCRETE TEST RESULTS TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO FINAL INSPECTION.
8. INSPECTION OF TIE IN / CONNECTION WORKS.
9. FINAL INSPECTION OF STORMWATER PRIOR TO CIVIL WORKS PRACTICAL COMPLETION.

ROADS/TRAFFICABLE PAVEMENT

1. SUBGRADE CBR TEST RESULTS TO BE SENT TO ENGINEER FOR CONFIRMATION OF PAVEMENT DEPTH PRIOR TO FINALISING SUBGRADE.
2. SUBGRADE COMPACTION TESTS TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO SUBGRADE INSPECTION.
3. SUBGRADE INSPECTION AND PROOF ROLL.
4. SIDE DRAIN INSPECTION PRIOR TO KERB AND CHANNEL GRAVEL BASE BEING PLACED.
5. CBR15 AND SUBGRADE COMPACTION AND MATERIAL QUALITY TESTS TO BE SENT TO AND APPROVED BY ENGINEER.
6. SUB-BASE PROOF ROLL.
7. BASE COMPACTION AND MATERIAL QUALITY TESTS TO BE SENT TO AND APPROVED BY ENGINEER.
8. BASE PROOF ROLL.
9. PRE-SEAL INSPECTION IMMEDIATELY PRIOR TO SEALING.
10. WEARING COURSE MATERIAL QUALITY, COMPACTION AND APPLICATION RATE TEST RESULTS TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO PRACTICAL COMPLETION OR LINEMARKING.
11. WEARING COURSE INSPECTION.
12. LINEMARKING AND SIGNAGE INSPECTION.
13. FINAL INSPECTION PRIOR TO PRACTICAL COMPLETION.

CONCRETE COURTYARD

1. SUBGRADE COMPACTION TESTS TO BE SENT TO AND APPROVED BY ENGINEER PRIOR TO SUBGRADE INSPECTION.
2. SUBGRADE INSPECTION AND PROOF ROLL.
3. CBR15 AND SUBGRADE COMPACTION AND MATERIAL QUALITY TESTS TO BE SENT TO AND APPROVED BY ENGINEER.
4. BASE COMPACTION AND MATERIAL QUALITY TESTS TO BE SENT TO AND APPROVED BY ENGINEER.
5. FINAL INSPECTION PRIOR TO PRACTICAL COMPLETION IF REQUIRED.

QA DOCUMENTATION

1. PRIOR TO THE ON-MAINTENANCE INSPECTION THE CONTRACTOR IS TO COMPILE AND SUPPLY TO BLIGH TANNER (WHERE BLIGH TANNER BEEN ENGAGED FOR CONSTRUCTION SUPPORT), A SINGLE PACKAGE OF ALL THE QA DOCUMENTATION SET OUT IN THESE DRAWINGS PROVING COMPLIANCE WITH THE DESIGN DRAWINGS.

NOTE: WHERE BLIGH TANNER BEEN ENGAGED FOR CONSTRUCTION SUPPORT, AN ALLOWANCE FOR ONE REVIEW OF THE COMPILED QA DOCUMENTS. ANY ADDITIONAL REVIEWS DUE TO INCOMPLETE OR NON-COMPLIANT DOCUMENTATION WILL BE AT THE CONTRACTORS EXPENSE AT A RATE OF $280 PER HOUR

ON MAINTENANCE/PRACTICAL COMPLETION INSPECTIONS

1. PROVISION OF ALL REQUIRED TEST RESULTS AND COMPLETION OF PRIOR INSPECTIONS.
2. CERTIFICATION OF 'AS BUILT' DRAWINGS AND DATA BY A LICENSED SURVEYOR.
3. INSPECTION AND APPROVAL BY ENGINEER INCLUDING LOCAL AUTHORITY IF APPLICABLE.

OFF MAINTENANCE/END OF DEFECT PERIOD INSPECTIONS

1. INSPECTION AND APPROVAL BY ENGINEER OF ALL RECTIFICATIONS IDENTIFIED AT ON MAINTENANCE/PRACTICAL COMPLETION AND DURING THE DEFECTS PERIOD.

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NOTES

PURPOSE

THIS DOCUMENT HAS BEEN PREPARED TO PROVIDE A TEMPLATE TO ASSIST BLIGH TANNER DESIGNERS TO MEET OUR OBLIGATIONS UNDER THE WORK HEALTH AND SAFETY (WHS) ACT 2011. IT SPECIFICALLY ADDRESSES OUR OBLIGATION UNDER THE SECTION 295 OF THE WORK HEALTH SAFETY REGULATION 2011 TO PROVIDE A SAFETY REPORT TO OUR CLIENTS.

THE WHS ACT PROVIDES A FRAMEWORK TO PROTECT THE HEALTH, SAFETY AND WELFARE OF ALL WORKERS AT WORK AND OF ALL OTHER PEOPLE WHO MIGHT BE AFFECTED BY THE WORK. THE ACT AIMS TO PROTECT THE HEALTH AND SAFETY OF WORKERS AND OTHER PEOPLE BY ELIMINATING OR REDUCING WORKPLACE RISKS.

THE QUEENSLAND WHS ACT IS CONSISTENT WITH THE COMMONWEALTH WORK HEALTH AND SAFETY ACT 2011 WHICH WAS DEVELOPED TO PROVIDE A CONSISTENT NATIONAL FRAMEWORK FOR WORKPLACE SAFETY.

GUIDELINES

FURTHER INFORMATION OF THE WHS ACT IS PROVIDED IN THE QUEENSLAND GOVERNMENT GUIDE TO THE WORK HEALTH AND SAFETY ACT 2011.

OBLIGATIONS ROLES AND RESPONSIBILITIES

THE WHS ACT PLACES OBLIGATIONS ON A PERSON CONDUCTING A BUSINESS OR (PCBU) TO PROVIDE A SAFE WORKPLACE WHERE **REASONABLY PRACTICABLE** TO DO SO. **DESIGNERS OF STRUCTURES** THAT WILL BE, OR COULD BE, USED AS A WORKPLACE HAVE AN OBLIGATION TO ENSURE THAT THE STRUCTURE IS SAFE, IE FREE FROM RISKS TO HEALTH AND SAFETY.

A **STRUCTURE** IS DEFINED AS ANYTHING THAT IS CONSTRUCTED, WHETHER FIXED OR MOVEABLE, TEMPORARY OR PERMANENT AND INCLUDES BUILDINGS, MASTS, TOWERS, FRAMEWORK, PIPELINES, TRANSPORT INFRASTRUCTURE AND UNDERGROUND WORKS (SHAFTS OR TUNNELS). THIS WOULD COVER MOST IF NOT ALL WORKS DESIGNED BY BLIGH TANNER.

OUR OBLIGATIONS RELATE TO **CONSTRUCTION**, **OPERATION AND MAINTENANCE**, AND **USE** OF THE STRUCTURE AND COVER RISKS TO WORKERS AS WELL AS THE GENERAL PUBLIC.

THE TERM **REASONABLY PRACTICABLE** MEANS WHAT COULD REASONABLY BE DONE AT A PARTICULAR TIME TO ENSURE HEALTH AND SAFETY MEASURES WERE IN PLACE. ORDINARILY, COST WILL NOT BE THE KEY FACTOR IN DETERMINING WHAT IT IS REASONABLE FOR A DUTY HOLDER TO DO UNLESS IT CAN BE SHOWN TO BE 'GROSSLY DISPROPORTIONATE' TO THE RISK.

SAFETY IN DESIGN REPORT

THE WHS REGULATION (CLAUSE 295) STATES THAT "*THE DESIGNER OF A STRUCTURE OR ANY PART OF A STRUCTURE THAT IS TO BE CONSTRUCTED MUST GIVE THE PERSON CONDUCTING A BUSINESS OR UNDERTAKING WHO COMMISSIONED THE DESIGN A WRITTEN REPORT THAT SPECIFIES THE HAZARDS RELATING TO THE DESIGN OF THE STRUCTURE THAT, SO FAR AS THE DESIGNER IS REASONABLY AWARE:*

(A) CREATE A RISK TO THE HEALTH OR SAFETY OF PERSONS WHO ARE TO CARRY OUT ANY CONSTRUCTION WORK ON THE STRUCTURE OR PART; AND

(B) ARE ASSOCIATED ONLY WITH THE PARTICULAR DESIGN AND NOT WITH OTHER DESIGNS OF THE SAME TYPE OF STRUCTURE."

PART (B) IS SIGNIFICANT AS IT INDICATES THAT WE ARE ONLY OBLIGED TO HIGHLIGHT RISKS THAT ARE SPECIFIC TO THE PARTICULAR DESIGN AND NOT COMMON RISKS THAT WOULD APPLY TO ANY DESIGN AND THAT WOULD BE DEALT WITH BY STANDARD PRACTICES AND PROCEDURES. NEVERTHELESS, JUDGEMENT MUST BE EXERCISED TO ENSURE THAT NO POTENTIALLY SIGNIFICANT RISKS ARE OVERLOOKED.

HIGH RISK CONSTRUCTION WORK

THE WHS REGULATION (CLAUSE 299) STATES THAT "*A PERSON CONDUCTING A BUSINESS OR UNDERTAKING THAT INCLUDES THE CARRYING OUT OF HIGH RISK CONSTRUCTION WORK MUST, BEFORE HIGH RISK CONSTRUCTION WORK COMMENCES, ENSURE THAT A SAFE WORK METHOD STATEMENT FOR THE PROPOSED WORK:*

(A) IS PREPARED; OR

(B) HAS ALREADY BEEN PREPARED BY ANOTHER PERSON."

HIGH RISK CONSTRUCTION WORK IS DEFINED IN THE REGULATION.

RISK MANAGEMENT

IN MANAGING RISKS, THE DESIGNER SHOULD CONSIDER THE FOLLOWING HIERARCHY OF CONTROLS:

- ELIMINATION (DESIGNING THE HAZARD OUT);
- SUBSTITUTION (USING LESS HAZARDOUS MATERIALS, FIXTURES, FITTINGS, PLANT OR CONSTRUCTION METHODS);
- ISOLATION (REMOVING PEOPLE FROM THE SOURCE OF THE HAZARD);
- ENGINEERING (CHANGING THE PHYSICAL CHARACTERISTICS OF THE STRUCTURE OR WORKPLACE TO REMOVE OR REDUCE THE RISK);
- ADMINISTRATION (SUCH AS TRAINING, SYSTEMS OF WORK AND SIGNAGE); AND
- PERSONAL PROTECTIVE EQUIPMENT (EQUIPMENT OR CLOTHING TO PROTECT THE WORKER).

FROM BLIGH TANNER'S POINT OF VIEW, WE SHOULD BE LOOKING TO DESIGN THE WORKS TO MINIMISE AND, IF POSSIBLE, ELIMINATE THE RISK, AND WHERE THIS IS NOT POSSIBLE ENSURE THAT NECESSARY RISK CONTROL MEASURES (SUCH AS SAFE WORK METHOD STATEMENTS) ARE REQUIRED TO BE PUT IN PLACE. NOTE THAT RELYING ON A SAFE WORK METHOD STATEMENT WOULD ONLY BE ACCEPTABLE WHERE WE ARE CONFIDENT THAT A SAFE WORK METHOD STATEMENT WOULD CONTROL THE RISK TO AN ACCEPTABLE LEVEL.

NOTE

1. **THIS PRELIMINARY SAFETY IN DESIGN ASSESSMENT HAS BEEN CARRIED OUT IN RELATION TO THE CIVIL ASPECTS OF THIS PROJECT.**
2. **IT ASSUMES THAT THE CONTRACTOR/OPERATOR WILL UNDERTAKE WORK IN ACCORDANCE WITH CURRENT LEGISLATION, INDUSTRY STANDARDS.**
3. **THE DESIGN AND CONSTRUCT CONTRACTOR / OPERATOR SHALL UNDERTAKE THEIR OWN SAFETY IN DESIGN ASSESSMENTS AS THE DESIGN IS FURTHER DEVELOPED AND PRIOR TO COMMENCING WORKS.**

RISK ASSESSMENT PROCESS

STEP 1: IDENTIFY HAZARDOUS EVENTS AND HAZARDS	WHAT HAZARDOUS EVENT COULD OCCUR? WHAT ARE THE POTENTIAL IMPLICATIONS WITH RESPECT TO HEALTH AND SAFETY FOR WORKERS AND THE PUBLIC?
STEP 2: IDENTIFY STANDARD CONTROL MEASURES	WHAT STANDARD CONTROL MEASURES WILL BE IN PLACE REGARDLESS OF THE LEVEL OF RISK?
STEP 3: CALCULATE RISK WITH STANDARD CONTROLS	USING THE RISK ASSESSMENT MATRIX BELOW DETERMINE LEVEL OF RISK FOR EACH HAZARD BASED ON **LIKELIHOOD** OF OCCURRENCE (REFER TO LIKELIHOOD TABLE BELOW) AND THE **CONSEQUENCE** IF IT DOES OCCUR (REFER TO CONSEQUENCE TABLE BELOW) ASSUMING THAT THE *STANDARD CONTROLS* ARE IN PLACE.
STEP 4: IS LEVEL OF RISK ACCEPTABLE?	AS A GUIDE: • RISK LESS THAN OR EQUAL TO MEDIUM (–) ACCEPTABLE • RISK GREATER THAN OR EQUAL TO MEDIUM (+) UNACCEPTABLE (SHOULD ONLY BE USED AS A GUIDE. SOME HAZARDS WITH A LOW RISK SCORE MAY STILL BE CONSIDERED TO BE SIGNIFICANT.)
STEP 5: IDENTIFY NEED FOR FURTHER CONTROL MEASURES	FOR ANY RISKS THAT ARE CONSIDERED TO BE UNACCEPTABLE UNDER THE ABOVE ASSESSMENT, OR SIGNIFICANT FOR ANY OTHER REASON, IDENTIFY THOSE ADDITIONAL CONTROL MEASURES THAT WILL NEED TO BE PUT IN PLACE TO REDUCE THE RISK TO AN ACCEPTABLE LEVEL.
STEP 6: CALCULATE RISK WITH FURTHER CONTROLS	USING THE RISK ASSESSMENT MATRIX BELOW DETERMINE THE RESIDUAL LEVEL OF RISK FOR EACH HAZARD BASED ON LIKELIHOOD OF OCCURRENCE (REFER TO LIKELIHOOD TABLE BELOW) AND THE CONSEQUENCE IF IT DOES OCCUR (REFER TO CONSEQUENCE TABLE BELOW) ASSUMING THAT THE FURTHER CONTROLS ARE PUT IN PLACE.
STEP 7: IS LEVEL OF RESIDUAL RISK ACCEPTABLE?	AS A GUIDE: • RISK LESS THAN OR EQUAL TO MEDIUM (–) ACCEPTABLE • RISK GREATER THAN OR EQUAL TO MEDIUM (+) UNACCEPTABLE (SHOULD ONLY BE USED AS A GUIDE. SOME HAZARDS WITH A LOW RISK SCORE MAY STILL BE CONSIDERED TO BE SIGNIFICANT.)

LIKELIHOOD

ALMOST CERTAIN	THE EVENT IS EXPECTED TO OCCUR IN MOST CIRCUMSTANCES
LIKELY	THE EVENT WILL PROBABLY OCCUR IN MOST CIRCUMSTANCES
MODERATE	THE EVENT SHOULD OCCUR AT SOME TIME
UNLIKELY	THE EVENT COULD OCCUR AT SOME TIME
RARE	THE EVENT MAY OCCUR ONLY IN EXCEPTIONAL CIRCUMSTANCES

CONSEQUENCES

CATASTROPHIC	DEATH; VERY LARGE FINANCIAL LOSS
MAJOR	EXTENSIVE INJURIES REQUIRING HOSPITALISATION; MAJOR FINANCIAL LOSS
MODERATE	MEDICAL TREATMENT REQUIRED; HIGH FINANCIAL LOSS
MINOR	FIRST AID TREATMENT; SOME FINANCIAL LOSS
INSIGNIFICANT	NO INJURIES; NO FINANCIAL LOSS

RISK ASSESSMENT MATRIX

LIKELIHOOD	CONSEQUENCES				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR 4	CATASTROPHIC
ALMOST CERTAIN 5	LOW (+) 5	MEDIUM (+) 10	HIGH 15	VERY HIGH 20	EXTREME 25
LIKELY 4	LOW (-) 4	MEDIUM (-) 8	MEDIUM (+) 12	HIGH 15	VERY HIGH 20
MODERATE 3	NEGLIGIBLE 3	LOW (+) 6	MEDIUM (-) 8	MEDIUM (+) 12	HIGH 15
UNLIKELY 2	NEGLIGIBLE 2	LOW (-) 4	LOW (+) 6	MEDIUM (-) 8	MEDIUM (+) 10
RARE 1	NEGLIGIBLE 1	NEGLIGIBLE 2	NEGLIGIBLE 3	LOW (-) 4	LOW (+) 5

CIVIL ENGINEERING SAFETY IN DESIGN ASSESSMENT

RISK ELEMENT	HAZARD	RECOMMENDED RISK CONTROL MEASURES	LIKELIHOOD POST-MITIGATION	CONSEQUENCES POST-MITIGATION	RISK SCORE POST-MITIGATION	RESPONSIBLE FOR RESIDUAL RISK	COMMENTS/REMARKS
GENERAL ISSUES							
CONSTRUCTION ACCESS	PUBLIC SAFETY DUE TO CONSTRUCTION VEHICLES ACCESS TO SITE.	WORK SITE TO BE ADEQUATELY FENCED AND GATED WITH ACCESS RESTRICTED TO AUTHORISED PERSONNEL ONLY. TRAFFIC CONTROL MEASURES TO BE IMPLEMENTED.	UNLIKELY	MAJOR	MEDIUM	CONTRACTOR	
WORKING NEAR HIGH VOLUME OF TRAFFIC ENVIRONMENT	RISK TO WORKERS DUE TO POTENTIAL COLLISION WITH ROAD TRAFFIC.	PHYSICAL SEPARATION BETWEEN WORKING AREA AND TRAFFIC TO BE IMPLEMENTED, TRAFFIC CONTROL MEASURES TO BE IMPLEMENTED.	UNLIKELY	MAJOR	MEDIUM	CONTRACTOR	
CONSTRUCTION ACCESS	POTENTIAL FOR CONFLICT BETWEEN PEDESTRIANS AND MACHINERY	CONTRACTOR TO PROVIDE WORK METHOD STATEMENT FOR SUPERINTENDENTS APPROVAL INDICATING HOW PROPOSED WORK SITE IS TO BE ADEQUATELY FENCED AND ACCESS RESTRICTED TO AUTHORISED PERSONNEL ONLY.	UNLIKELY	MAJOR	MEDIUM	CONTRACTOR	
SERVICES	1. POTENTIAL CONTACT WITH SERVICES 2. UNFORESEEN IN GROUND SERVICES NOT LOCATED ON SURVEY 3. DAMAGE TO SERVICES AND WORKER SAFETY DUE EXISTING SERVICES BEING PRESENT ON THIS SITE.	1. NORMAL INDUSTRY PRACTICE BY CONTRACTOR INCLUDING HAND EXCAVATION WHEN NEAR KNOWN SERVICES. 2. SURVEY SHOWS INDICATIVE LOCATION OF SERVICES - CONTRACTOR TO UNDERTAKE SERVICES LOCATION PRIOR TO COMMENCING WORK AND USE VACUUM TRUCK/OTHER SAFE EXCAVATION METHODS WHERE APPLICABLE.	UNLIKELY	MODERATE	MEDIUM	CONTRACTOR	
MACHINERY	RISK OF MACHINERY CAUSING DAMAGE TO EXISTING STRUCTURES	CONTRACTORS STANDARD OPERATING PROCEDURES. CARE NEEDS TO BE TAKEN WHEN USING MACHINERY ADJACENT TO EXISTING BUILDINGS AND STRUCTURES.	UNLIKELY	MODERATE	MEDIUM	CONTRACTOR	
DEMOLITION / CLEARING WORKS	RISK OF DEMOLITION/CLEARING WORKS CAUSING DAMAGE TO EXISTING STRUCTURES AND WORKER SAFETY	DEMOLITION/CLEARING WORKS TO BE COMPLETED IN ACCORDANCE WITH PROJECT SPECIFICATION. CONTRACTOR TO PRESENT DEMOLITION/CLEARING WORKS METHOD STATEMENT TO SUPERINTENDENT FOR APPROVAL. WORK METHOD STATEMENTS TO BE IN ACCORDANCE WITH INDUSTRY STANDARD PRACTICES.	UNLIKELY	MODERATE	MEDIUM	CONTRACTOR	
SEDIMENT AND EROSION CONTROL							
EROSION AND SEDIMENT CONTROL ISSUES	RISK OF HEAVY RAINFALL CAUSING WORKS TO BE WASHED AWAY DURING CONSTRUCTION CAUSING SAFETY ISSUES. RISK OF SEDIMENT DEPOSITION OUTSIDE THE SITE AREA.	EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE IMPLEMENTED AS NOTED ON THE PROJECT NOTES AND ESC DRAWINGS.	UNLIKELY	MINOR	LOW	CONTRACTOR	
DRAINAGE WORKS							
DRAINAGE STRUCTURES	STORMWATER PITS ACCESS FOR MAINTENANCE AND CLEANING	WORK TO BE UNDERTAKEN IN ACCORDANCE WITH CURRENT LEGISLATION, INDUSTRY STANDARDS AND CONTRACTOR STANDARD OPERATING PROCEDURES. MAINTENANCE CONTRACTOR TO ENSURE WORKERS ARE SUPPLIED WITH SUFFICIENT AND SUITABLE P.P.E GEAR. TO BE UNDERTAKEN IN ACCORDANCE WITH CURRENT LEGISLATION, INDUSTRY STANDARDS AND CLIENTS STANDARD OPERATING PROCEDURES.	UNLIKELY	MINOR	LOW	CONTRACTOR	

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
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P3	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P4	24/05/2023	90% DD ISSUE	JAM	JAM	MM
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ARCHITECT: Hassell

SCALES

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SAFETY IN DESIGN

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
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EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, LANDSCAPING PLANS AND WRITTEN INSTRUCTIONS RELATING TO THE SUBJECT DEVELOPMENT.
2. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION INCLUDING THE MAINTENANCE PERIOD.
3. THE EXTENT AND POSITION OF THE EROSION AND SEDIMENT CONTROL MEASURES TO BE DETERMINED ON SITE BY THE CONTRACTOR TO SUIT THE CONSTRUCTION PROGRAM.
4. THESE PLANS PRESENT CONCEPTS ONLY AND THE MEASURES SHOWN ON THIS DRAWING(S) ARE MINIMUM REQUIREMENTS ONLY.
5. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR THE ESTABLISHMENT, MANAGEMENT AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES TO MEET COUNCIL STANDARDS AND REGULATORY REQUIREMENTS.
6. LARGE OPEN AREAS OR STEEP BATTERS SHOULD NOT BE LEFT EXPOSED/UNSTABILISED FOR MORE THAN 10 DAYS OR IF WET WEATHER IS FORECAST.
7. EXPOSED AREAS INCLUDING BATTERS WHICH REMAIN UN-WORKED FOR MORE THAN 10 DAYS SHOULD BE STABILISED USING TEMPORARY HYDROMULCHING, HYDROSEEDING OR MULCHING, EVEN IF AREAS WILL BE WORKED AT A LATER TIME.
8. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF THE INSTITUTION OF ENGINEERS AUSTRALIA, 'SOIL EROSION AND SEDIMENT CONTROL -ENGINEERING GUIDELINES FOR QUEENSLAND CONSTRUCTION SITES.
9. THE CONTRACTOR SHALL BE AWARE OF ITS RESPONSIBILITIES FOR PROTECTING THE DOWNSTREAM ENVIRONMENT AND RECEIVING WATER FROM POLLUTION AND ENVIRONMENTAL HARM, UNDER THE ENVIRONMENTAL PROTECTION ACT. 1994.
10. ADDITIONALLY THE CONTRACTOR SHALL BE AWARE OF ITS DUTY TO NOTIFY THE LOCAL AUTHORITY AND THE ENVIRONMENTAL PROTECTION AGENCY (QLD) OF A POTENTIAL OR ACTUAL INCIDENT OF ENVIRONMENTAL HARM, UNDER THE ENVIRONMENTAL PROTECTION ACT. 1994.
11. AT ALL TIMES THE CONTRACTOR SHALL MONITOR THE PREVAILING WEATHER CONDITIONS AND PROTECT ANY DOWNSTREAM CONSTRUCTION AND RECEIVING ENVIRONMENTS.
12. ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHALL BE FORMED FROM/IN NON-ERODABLE MATERIALS
13. ALL VEHICLES EXITING FROM THE SITE ARE TO BE WASHED DOWN, CLEANED AND TREATED SO AS TO PREVENT MATERIAL BEING TRACKED OR DEPOSITED ON PUBLIC ROADS. INSTALL MEASURES FOR CONTROL OF WASH DOWN.
14. ALL VEHICLE MOVEMENTS TO BE RESTRICTED TO BUILDING WORKS AREA ONLY, UNLESS APPROVED OTHERWISE BY THE SUPERINTENDENT.

RECOMMENDED IMPLEMENTATION SEQUENCE

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO WORKS COMMENCING AND IN THE FOLLOWING SEQUENCE.
   - A. CONSTRUCT TEMPORARY STABILISED SITE ACCESS, ENSURING ADJACENT STORMWATER RUN OFF IS DIVERTED AWAY FROM ACCESS
   - B. INSTALL SEDIMENT FENCING AND/OR BARRIER FENCING TO CONFINE INGRESS TO AND EGRESS FROM THE SITE TO STABILISED ACCESS POINT(S) ONLY.
   - C. PROVIDE INLET PROTECTION TO STORMWATER INLETS AND GULLIES ON ALL ROADS ADJOINING THE SITE.
   - D. CONSTRUCT BARRIER FENCING AROUND RESTRICTED 'NO-GO' ZONES OF RETAINED VEGETATION, AREAS NOT TO BE DISTURBED AND AREAS WHICH WILL REMAIN UN-WORKED.
   - E. CONSTRUCT UPSTREAM DIVERSION CHANNELS TO DIVERT CLEAN WATER AROUND WORKSITE, AND INSTALL APPROPRIATE CHANNEL STABILISATION.
   - F. CONSTRUCT LOW FLOW EARTH BANKS AS CATCH DRAINS PARALLEL TO CONTOURS TO LIMIT LARGE SLOPE LENGTHS (SLOPES SHOULD BE LESS THEN 80m IN LENGTH).
   - G. INSTALL ALL TEMPORARY SEDIMENT FENCES.
   - H. CONSTRUCT ANY NOMINATED SEDIMENT BASINS AND SEDIMENT TRAPS.
   - I. STABILISE ALL DISTURBED AREAS ASAP AND PROGRESSIVELY AS WORKS ARE COMPLETED. TEMPORARY STABILISATION TO BE DONE USING MULCHING, HYDROMULCHING, HYDROSEEDEDING OR DIRECT SEEDING TO GIVE A 70% COVERAGE OF GROUND SURFACE WITHIN 14 DAYS OF WORKS COMPLETING (EVEN IF WORKS MAY CONTINUE LATER).
2. UNDERTAKE SITE DEVELOPMENT WORKS SO THAT LAND DISTURBANCE IS CONFINED TO MINIMUM WORKABLE AREAS.
3. ALL VEGETATION WITHIN 4M OF GENERAL MACHINE OPERATION SHALL BE PROTECTED WITH A STAR PICKET AND ROPE FENCE CONSTRUCTED AT LEAST 1m CLEAR OF THE VEGETATION
4. DISTURBED AREAS TO EXTEND NO MORE THAN 5 METRES (PREFERABLY 2m) FROM ESSENTIAL WORKS AREAS.
5. WORK AREAS TO BE DELINEATED BY BARRIER FENCING AND DIVERSION CHANNEL UPSLOPE AND SEDIMENT FENCING DOWNSLOPE.
6. THE CONTRACTOR SHALL ENSURE THAT THE EXISTING VEGETATION AND GROUNDCOVER IS RETAINED AS MUCH AS POSSIBLE.
7. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR LATER USE ONSITE.
8. NATIVE SITE VEGETATION REQUIRED AND APPROVED FOR CLEARING SHOULD BE MULCHED AND STOCKPILED FOR LATER USE IN LANDSCAPING, STABILISATION AND/OR SITE REHABILITATION WORKS.
9. EROSION AND SEDIMENT CONTROL PROTECTION MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONTRACT.
10. PLANS AND CONTROL MEASURES FOR LARGE SITES WILL NEED TO BE REVISED AND UPDATED TO REFLECT THE SITE STAGES AND PROGRESSION OF WORKS.
11. MEASURES INCLUDING SEDIMENT FENCES SHOULD BE MOVED AND REINSTATED AS WORKS PROGRESS.
12. FOOT AND VEHICULAR TRAFFIC TO BE RESTRICTED IN RECENTLY STABILISED AREAS INCLUDING THOSE HYDROSEEDED, TURFED OR SEEDED.
13. ALL DOWN PIPES TO BE INSTALLED IMMEDIATELY FOLLOWING ROOF CONSTRUCTION ENSURE DOWN PIPES DISCHARGE CLEAR OF CONSTRUCTION AREA WITH APPROPRIATE TREATMENT TO PREVENT EROSION AT THE OUTLET

CONTROL MEASURES

1. FINAL SITE LANDSCAPING SHALL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS OF CONSTRUCTION COMPLETION
2. SEDIMENT LADEN WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM BY USING INLET PROTECTION.
3. ALL PERIMETER BANKS AND CHANNEL DRAINS SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
4. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED ONCE SITE IS STABILISED AND UPSTREAM WORKS HAVE BEEN COMPLETED.
5. ALL DISTURBED AREAS SHALL BE LEFT IN A STABLE CONDITION. BATTERS STEEPER THAN 1V:4H SHALL BE TOPSOILED AND MULCHED, AND BATTERS FLATTER THAN 1V:4H SHALL BE TOPSOILED AND GRASS SEEDED OR HYDROMULCHED
6. AT CONSTRUCTION COMPLETION ALL TEMPORARY EARTH STRUCTURES, INCLUDING SOIL STOCKPILES ARE TO BE TRACK ROLLED AND SEEDED. THE CONTRACTOR IS TO ENSURE A 70% COVERAGE WITHIN 14 DAYS.

DUST CONTROL

1. SUITABLE DUST CONTROL MEASURES TO BE IMPLEMENTED AT ALL TIMES.
2. DURING WINDY AND DRY WEATHER ANY UNPROTECTED AREAS SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. WHERE WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES, SOIL BINDERS OR DUST RETARDANTS TO BE USED FOR DUST SUPPRESSION.
3. EXPOSED SURFACES INCLUDING BATTERS SHOULD BE LEFT ROUGH TO REDUCE WIND SPEEDS AND POTENTIAL FOR WIND EROSION.

OTHER MATTERS

1. ACCEPTABLE RECEPTORS AND DISPOSAL PRACTICES WILL BE USED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHERS, LITTER AND GENERAL WASTE MATERIALS.
2. ANY EXISTING TREES WHICH ARE NOT REQUIRED OR APPROVED TO BE CLEARED FOR THE WORKS AND/OR FORM PART OF THE FINAL LANDSCAPING PLAN SHOULD BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
   - A. PROTECTING THEM WITH BARRIER FENCING OR MARKERS.
   - B. ENSURING NOTHING IS NAILED TO THEM
   - C. PROHIBITING PAVING, GRADING OR PLACING OF STOCKPILES WITHIN DRIP LINE.
3. ALL VEHICLES EXITING FROM THE SITE ARE TO BE WASHED DOWN, CLEANED AND TREATED SO AS TO PREVENT MATERIAL BEING TRACKED OR DEPOSITED ON PUBLIC ROADS. INSTALL MEASURES FOR CONTROL OF WASH DOWN
4. ALL VEHICLE AND EQUIPMENT WASHING SHOULD BE CONTAINED IN SPECIFIC BUNDED AREAS, DISCONNECTED FROM CONCENTRATED FLOW PATHS AND THE STORMWATER SYSTEM.
5. ANY NECESSARY VEHICLE OR EQUIPMENT REFUELING SHOULD BE UNDERTAKEN AWAY FROM CONCENTRATED FLOW PATHS AND PREFERABLY WITHIN A BUNDED AREA.
6. ANY ONSITE FUEL STORAGE AREAS SHOULD BE COVERED AND BUNDED. MAINTENANCE OF PUBLIC ROADS
7. ALL CONSTRUCTION VEHICLES DEPARTING FROM THE SITE SHALL HAVE THEIR TYRES WASHED DOWN OR SEDIMENT REMOVED BY A STABILISED SITE ACCESS DEVICE.
8. THE STABILISED SITE ACCESS AREAS SHALL BE LOCATED SUCH THAT SILTED WATER IS FILTERED THROUGH A SUITABLE SEDIMENT TRAP (SUCH AS A SEDIMENT FENCE) INSTALLED DOWNSTREAM OF ACCESS.
9. THE CONTRACTOR SHALL INSPECT THE PUBLIC ROADS ADJACENT TO THE SITE DAILY AND MANUALLY REMOVE ANY SEDIMENT DEPOSITS (BY SWEEPING NOT WASH DOWN).

SITE INSPECTION AND MAINTENANCE

1. THE CONTRACTOR SHALL ADVISE THE SUPERINTENDENT ONCE THE ESC MEASURES HAVE BEEN INSTALLED.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED REGULARLY, IMMEDIATELY BEFORE SITE CLOSURE, PRIOR TO PREDICTED LARGE STORM EVENTS AND AFTER EVERY SIGNIFICANT (> 5mm) RAINFALL EVENT OR AT LEAST ON A WEEKLY BASIS.
3. THE CONTRACTOR WILL AS A MINIMUM CONDUCT EACH INSPECTION IN LINE WITH THE FOLLOWING:
   - 3.1. RECORD TYPE OF DEVICE/CONTROL MEASURE BEING INSPECTED AND ITS LOCATION;
   - 3.2. RECORD THE CONDITION OF EVERY CONTROL MEASURE;
   - 3.3. RECORD MAINTENANCE REQUIREMENTS FOR EVERY CONTROL DEVICE;
   - 3.4. RECORD SEDIMENT VOLUMES REMOVED FROM SEDIMENT TRAPPING DEVICES;
   - 3.5. RECORD DETAILS OF SEDIMENT BASIN TREATMENT, FLOCCULANT DOSAGE AND CLEANOUT;
   - 3.6. RECORD SEDIMENT DISPOSAL PROCEDURES AND LOCATION.
4. REPAIRS AND MAINTENANCE OF ALL DEVICES AND MEASURES INCLUDING DIVERSION CHANNELS SHALL BE UNDERTAKEN AS REQUIRED, ENSURING ALL MEASURES ARE FULLY FUNCTIONAL AT ALL TIMES.
5. ENSURE SEDIMENT LADEN WATER HAS NOT BEEN DIVERTED AROUND DEVICES.
6. REPAIR SCOUR DAMAGE TO SEDIMENT CONTROL MEASURES AFTER RAINFALL EVENTS AND REINSTATE DEVICES AS NECESSARY.
7. SEDIMENT FENCES WILL REQUIRE CLEANING WHEN SEDIMENT REACHES 300mm DEPTH OR ONE-HALF THE HEIGHT OF THE FILTER FABRIC ALL OTHER SEDIMENT TRAPS WILL REQUIRE CLEANING OUT WHEN 30% OF DESIGN CAPAREGIONAL IS REACHED.
8. ALL INLET AND GULLY TRAPS TO BE CLEANED NOT HOSED AFTER EVERY RAINFALL EVENT, (>5mm) OR AT LEAST ON A WEEKLY BASIS.
9. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE TO BE RELOCATED, ENSURING FURTHER POLLUTION TO DOWNSTREAM ENVIRONMENTS WILL NOT OCCUR.
10. ALL SEEDING, HYDROSEEDING AND TURFING REQUIRES REGULAR WATERING, UNTIL EFFECTIVE COVER ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. WATERING SHOULD VARY DEPENDING ON WEATHER AND SOIL CONDITIONS.
11. WATERING SHOULD START IMMEDIATELY AFTER PLANTING AND SHOULD COMPLY WITH THE FOLLOWING AS A MINIMUM:

WEEK 1	3 WATERINGS/WEEK
WEEK 2-6	2 WATERINGS/WEEK
WEEK 7-12	1 WATERING/WEEK

12. EXCESSIVE VEGETATION GROWTH WILL BE CONTROLLED THROUGH MOWING OR SLASHING.
13. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE INSPECTION, MAINTENANCE AND TESTING OF DEVICES IS UNDERTAKEN ON SITE.
14. THE CONTRACTOR TO KEEP DETAILED AND LEGIBLE RECORDS OF ALL INSPECTION AND MAINTENANCE UNDERTAKEN ON THE EROSION AND SEDIMENT CONTROL DEVICES.
15. PROGRESSIVELY CLEAN UP ALL LITTER AND OIL LEAKS, AND PREVENT WASH OFF OF CEMENT SLURRY AND AC PRIME
16. ALL SITE WASTE INCLUDING GENERAL RUBBISH TO BE DISPOSED OF IN AN ENVIRONMENTALLY RESPONSIBLE MANNER IN ACCORDANCE WITH THE CURRENT ENVIRONMENTAL PROTECTION (WASTE MANAGEMENT) POLICY AND ENVIRONMENTAL PROTECTION (WASTE MANAGEMENT) REGULATION.
17. THE CONTRACTOR SHALL CONSTRUCT AND IMPLEMENT ADDITIONAL MEASURES AS NECESSARY TO ENSURE PROTECTION OF DOWNSTREAM ENVIRONMENTS.

IECA STANDARD DRAWINGS	
SHEET NUMBER	SHEET TITLE
CD-01	CATCH DRAINS
DB-01	FLOW DIVERSION BANKS
DC-01	DIVERSION CHANNELS
ESC-02	GRATED STORMWATER (FIELD) INLET SEDIMENT TRAP
ESC-03	KERB INLET SEDIMENT TRAPS
EXIT-01	CONSTRUCTION EXIT - ROCK PAD
EXIT-02	CONSTRUCTION EXIT - ROCK PAD
EXIT-04	CONSTRUCTION EXITS PART 4 - VIBRATION GRID
FF-01	FILTER FENCE PART 1
FW-01	FABRIC WRAP DROP INLET PROTECTION
OG-01	ON GRADE KERB INLET SEDIMENT TRAP
SA-01	SAG KERB INLET TRAP
SF-01	SEDIMENT FENCE
SF-02	SEDIMENT FENCE

http://www.austieca.com.au/publications/book-6-standard-drawings

EROSION AND SEDIMENT CONTROL DISCLAIMER

1. DETAILS ON THESE DRAWINGS REPRESENT A CONCEPT DESIGN FOR ONE POSSIBLE METHOD TO ACHIEVE COMPLIANCE WITH LEGISLATION. THE CONTRACTOR IS REQUIRED TO COMPLETE AND IMPLEMENT A FINAL DESIGN THAT MUST ACHIEVE COMPLIANCE WITH LEGISLATION, PREVENTING ENVIRONMENTAL HARM FROM EROSION AND SEDIMENT TRANSFER OFF THE CONSTRUCTION SITE. THE CONTRACTOR MAY VARY THE CONCEPT TO SUIT THEIR WORK METHODS.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR SITE AND WEATHER CONDITIONS AND WATER QUALITY LEAVING THE SITE AND IMPLEMENT APPROPRIATE MEASURES TO COMPLY WITH THE STATUTORY REQUIREMENTS.
3. SHOULD THIS REQUIRE ADDITIONAL MEASURES OR ALTERATIONS TO THE DETAILS SHOWN ON THESE DRAWINGS THE CONTRACTOR IS TO PROVIDE WORK METHOD STATEMENTS AND/OR REVISED DRAWINGS TO THE ENGINEER CLEARLY DETAILING THE PROPOSED CHANGES PRIOR TO IMPLEMENTING THEM UNLESS IMMEDIATE IMPLEMENTATION IS NECESSARY TO PREVENT ENVIRONMENTAL HARM.
4. THE SEDIMENT AND EROSION CONTROL MEASURES DETAILED ON THIS DRAWING ARE FOR THE AREAS SHOWN. ANY WORKS IN EXCESS OF THIS MAY REQUIRE FURTHER EROSION CONTROL MEASURES.

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ARCHITECT: Hassell
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STATUS: NOT FOR CONSTRUCTION
DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
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PROJECT: LUMINA OPEN SPACE
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PRINTING REQUIREMENTS: PRINT THIS DRAWING IN COLOUR
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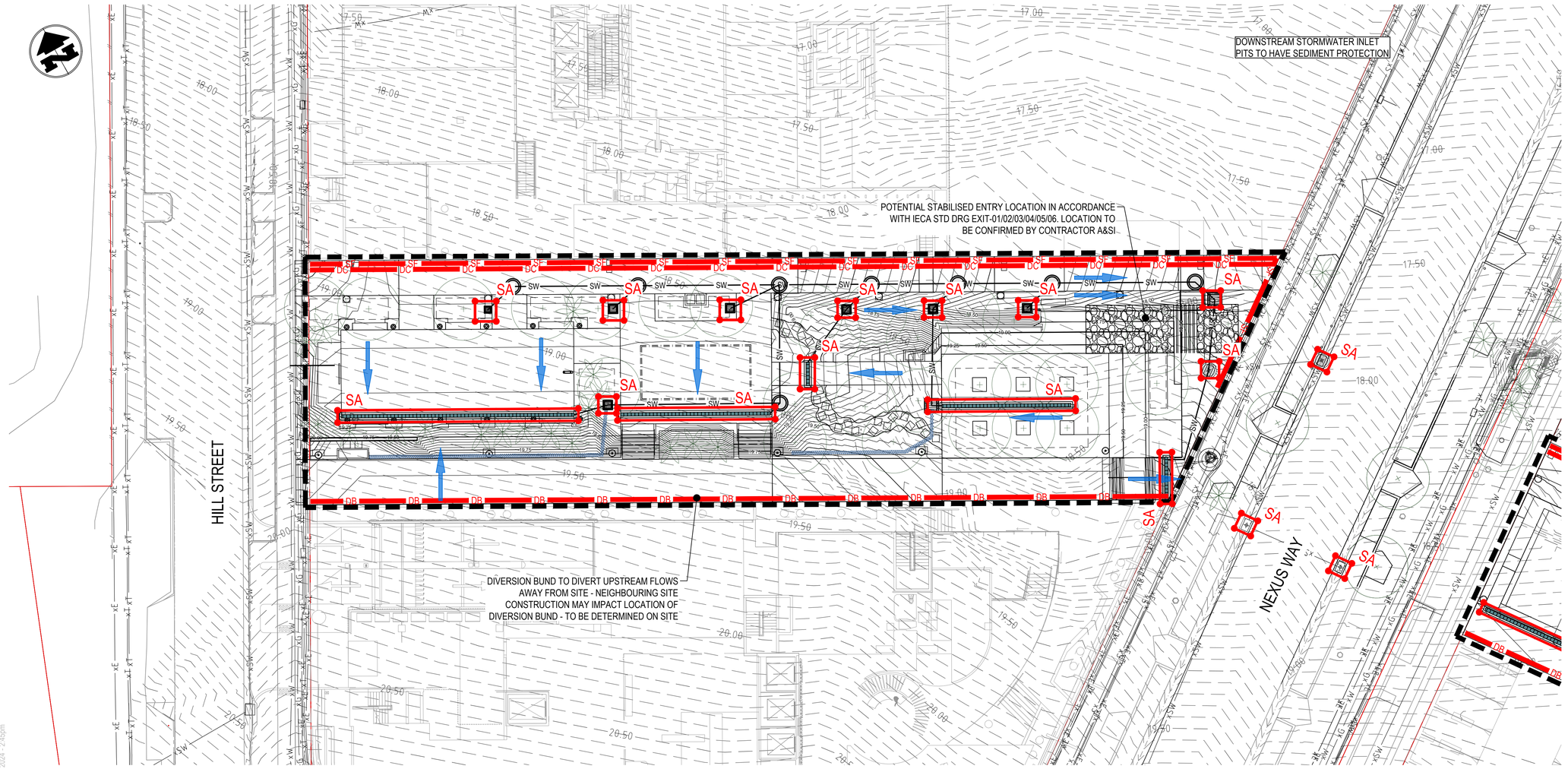

CONTOURS LEGEND

- 50.0 — PROPOSED CONTOURS MAJOR (0.25m INTERVALS)
- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
- 50.00 — EXISTING CONTOURS MAJOR (0.25m INTERVALS)
- EXISTING CONTOURS MINOR (0.05m INTERVALS)

EXISTING LEGEND

SERVICES SHOWN INDICATIVELY ONLY AND ARE SUBJECT TO POTHOLING AND CONFIRMATION ON-SITE

- xE — EXISTING ELECTRICAL
- xSW — EXISTING STORMWATER
- xS — EXISTING SEWER
- xW — EXISTING WATER
- xC — EXISTING COMMS
- xG — EXISTING GAS
- xT — EXISTING TELECOMMS
- PROPERTY BOUNDARY

ESC LEGEND

- SF — SEDIMENT FENCE - REFER TO IECA STD. DRG. SF-01/02
- DC — DIVERSION CHANNEL - REFER TO IECA STD. DRG. DC-01
- DB — DIVERSION BUND - REFER TO IECA STD. DRG. DB-01
- EXTENT OF SITE / AREA OF WORKS
- SA — SAG KERB INLET SEDIMENT TRAP - REFER TO IECA STD. DRG. SA-01
- FLOW PATH
- POTENTIAL ENTRY / EXIT VEHICLE SHAKE DOWN DEVICE - REFER IECA STD. DRG. EXIT-01/02/03/04/05/06

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2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR SITE AND WEATHER CONDITIONS AND WATER QUALITY LEAVING THE SITE AND IMPLEMENT APPROPRIATE MEASURES TO COMPLY WITH THE STATUTORY REQUIREMENTS.
3. SHOULD THIS REQUIRE ADDITIONAL MEASURES OR ALTERATIONS TO THE DETAILS SHOWN ON THESE DRAWINGS THE CONTRACTOR IS TO PROVIDE WORK METHOD STATEMENTS AND/OR REVISED DRAWINGS TO THE ENGINEER CLEARLY DETAILING THE PROPOSED CHANGES PRIOR TO IMPLEMENTING THEM UNLESS IMMEDIATE IMPLEMENTATION IS NECESSARY TO PREVENT ENVIRONMENTAL HARM.
4. THE SEDIMENT AND EROSION CONTROL MEASURES DETAILED ON THIS DRAWING ARE FOR THE AREAS SHOWN. ANY WORKS IN EXCESS OF THIS MAY REQUIRE FURTHER EROSION CONTROL MEASURES.
5. WHEN FILTER FENCE IS PRESCRIBED ON THE DRAWINGS, SEDIMENT FENCING IS NOT A SUITABLE SUBSTITUTE AND WILL NOT BE ACCEPTED BY THE CPESC ENGINEER.

COMPOUND/STOCKPILES

- LOCATION OF CONTRACTOR COMPOUND TO BE CONFIRMED WITH SUPERINTENDENT
- LOCATION OF STOCKPILE TO BE CONFIRMED BY CONTRACTOR ON SITE TO SUIT CONTRACTOR METHODOLOGY -
- STOCKPILE TO BE LOCATED AT THE TOP OF THE CATCHMENT ON FLAT GROUND AND CLEAR OF CONCENTRATED FLOW PATHS. PLACE DIVERSION BUNDS/CATCH DRAINS UPSTREAM FOR FLOW DIVERSION AND SEDIMENT FENCES 1-2M DOWNSTREAM.

CAUTION - EXISTING SERVICES

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2. REMOVE SERVICES WHERE DOCUMENTED
3. APPROPRIATE SAFE WORK METHODOLOGY WHEN WORKING IN PROXIMITY TO SERVICES BEING RETAINED
4. MAKE APPROPRIATE ALLOWANCES TO PROTECT SERVICES WHERE THEY ARE TO BE RETAINED

NOTE

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2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

SCALE 1:200 0 2 4 6 8m

BLIGH TANNER

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blightanner@blightanner.com.au
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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	06/04/2023	COORDINATION ISSUE	JAM	JAM	MM
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P4	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P5	19/07/2023	100% DD ISSUE	JAM	JAM	MM

CLIENT: Queensland Government

ARCHITECT: Hassell

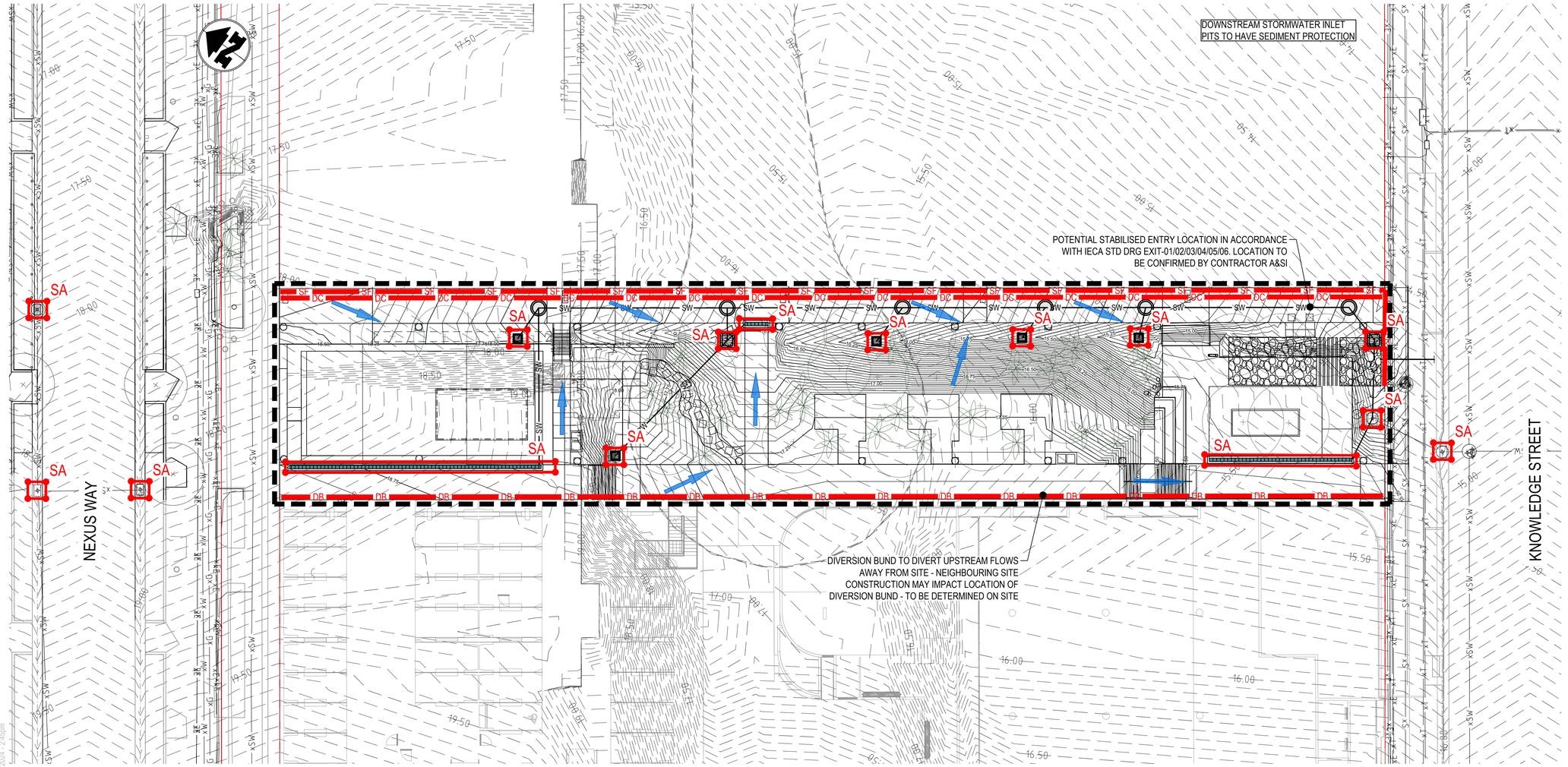
SCALES: 1:200 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SEDIMENT AND EROSION CONTROL PLAN - SHEET 1 OF 2

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0110	P5



CONTOURS LEGEND

- 50.0 — PROPOSED CONTOURS MAJOR (0.25m INTERVALS)
- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
- 50.00 — EXISTING CONTOURS MAJOR (0.25m INTERVALS)
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EXISTING LEGEND

SERVICES SHOWN INDICATIVELY ONLY AND ARE SUBJECT TO POTHOLING AND CONFIRMATION ON-SITE

- xE — EXISTING ELECTRICAL
- xSW — EXISTING STORMWATER
- xS — EXISTING SEWER
- xW — EXISTING WATER
- xC — EXISTING COMMS
- xG — EXISTING GAS
- xT — EXISTING TELECOMMS
- PROPERTY BOUNDARY

ESC LEGEND

- SF — SEDIMENT FENCE - REFER TO IECA STD. DRG. SF-01/02
- DC — DIVERSION CHANNEL - REFER TO IECA STD. DRG. DC-01
- DB — DIVERSION BUND - REFER TO IECA STD. DRG. DB-01
- EXTENT OF SITE / AREA OF WORKS
- SA — SAG KERB INLET SEDIMENT TRAP - REFER TO IECA STD. DRG. SA-01
- FLOW PATH
- POTENTIAL ENTRY / EXIT VEHICLE SHAKE DOWN DEVICE - REFER IECA STD. DRG. EXIT-01/02/03/04/05/06

EROSION AND SEDIMENT CONTROL DISCLAIMER

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CLIENT: Queensland Government

ARCHITECT: Hassell

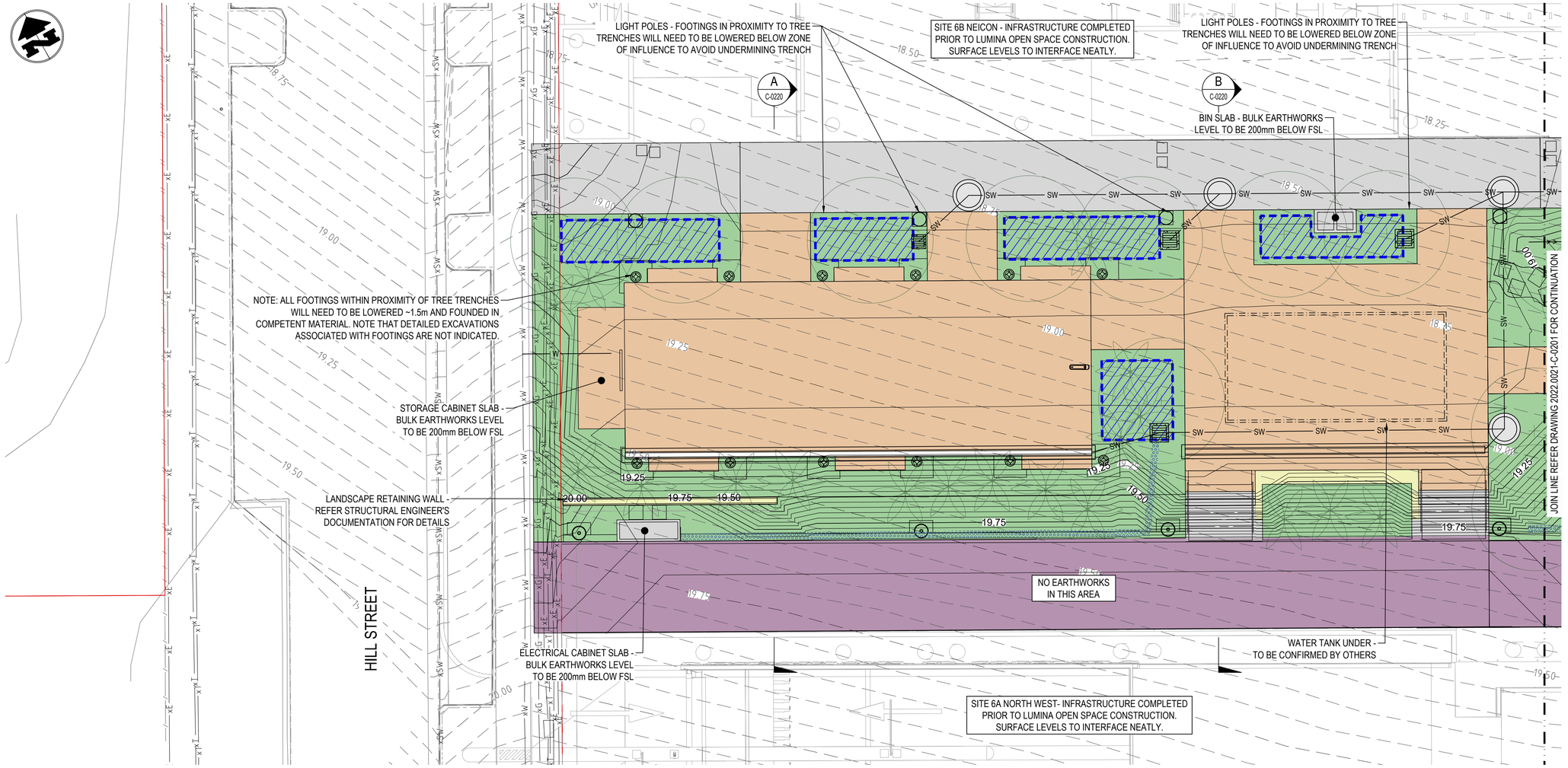
SCALES: 1:200 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SEDIMENT AND EROSION CONTROL PLAN - SHEET 2 OF 2

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0111	P5



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- PROPERTY BOUNDARY

LEGEND

- PEDESTRIAN PAVEMENT 1 - REFER TO STRUCTURAL ENGINEER'S DOCUMENTATION AND CIVIL TYPICAL DETAIL ON C-0350 FOR DETAILS - BE LEVELS ARE TYPICALLY 400mm BELOW FSL
- PEDESTRIAN PAVEMENT 2 - REFER TO STRUCTURAL ENGINEER'S DOCUMENTATION AND CIVIL TYPICAL DETAIL ON C-0350 FOR DETAILS - BE LEVELS ARE TYPICALLY 370mm BELOW FSL
- PEDESTRIAN PAVEMENT 3 (NO EARTHWORKS - AREA OF STRUCTURAL DESIGN AS PART OF NEIGHBOURING SITE 6A WORKS - SURFACE WORKS ONLY. REFER LANDSCAPE ARCHITECT FOR DETAILS.
- LANDSCAPE AREA 1 - REFER TO LANDSCAPE ARCHITECT FOR DETAILS - BE LEVELS ARE TYPICALLY 650mm BELOW FSL
- LANDSCAPE AREA 2 - REFER TO LANDSCAPE ARCHITECT FOR DETAILS - BE LEVELS ARE TYPICALLY 350mm BELOW FSL
- PROPOSED TREE TRENCH - REFER TO LANDSCAPE DRAWINGS FOR DETAILS - CONTRACTOR TO ALLOW FOR ASSOCIATED DETAILED EXCAVATION INCLUDING ANY TEMPORARY SHORING AND RAMP ACCESS REQUIREMENTS
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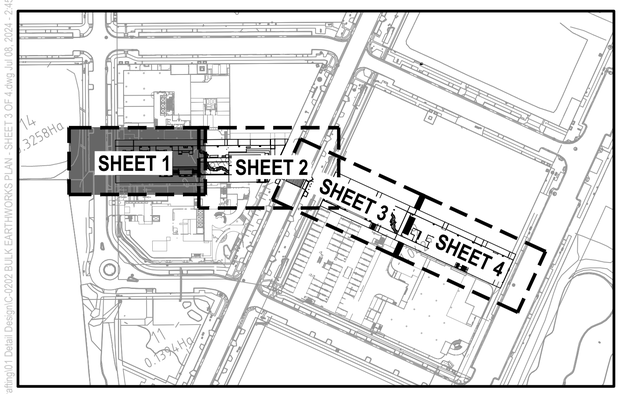
- GRAVEL STRIP DRAIN - PROVIDE SUBSOIL DRAIN TO BASE - REFER LANDSCAPE ARCITECT FOR DETAIL
- PROPOSED LIGHT POLE - REFER ELECTRICAL & STRUCTURAL ENGINEER FOR DETAILS. NOTE THAT ALL FOOTINGS IN PROXIMITY TO TREE TRENCHES WILL NEED TO BE LOWERED SUITABLE TO AVOID UNDERMINING TRENCH



KEY PLAN

N.T.S.

BULK EARTHWORKS

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2. ALL EARTHWORKS (CUT AND FILL) SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3798 AND SUPERVISION TO LEVEL 1 SHALL BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR SHALL EMPLOY A QUALIFIED GEOTECHNICAL ENGINEER WHO IS A REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND WITH A MINIMUM OF $5 MILLION PROFESSIONAL INDEMNITY INSURANCE, TO UNDERTAKE LEVEL 1 SUPERVISION OF EARTHWORKS AND WHOSE CERTIFICATION IN WRITING SHALL INCLUDE THE FOLLOWING :
   - 2.1. ENGINEERING CERTIFICATION THAT ALL GENERAL EARTHWORKS OPERATIONS (ie. STRIPPING, PROOF ROLLING OF CUT AND FILL SUBGRADES, SUBGRADE TREATMENT. ETC) HAVE BEEN CARRIED OUT IN ACCORDANCE WITH EARTHWORKS SPECIFICATIONS.
   - 2.2. ENGINEERING CERTIFICATION THAT FILL HAS BEEN PLACED AND COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION.
   - 2.3. ENGINEERING CERTIFICATION THAT ANY AREAS OF CUT HAVE BEEN COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION.
   - 2.4. IF REQUIRED, ENGINEERING CERTIFICATION THAT THE CONTROLLED FILL MATERIAL OR CUT SUBGRADE IS SUITABLE TO SUPPORT A CONVENTIONAL SLAB ON GROUND FLOOR OR PAVEMENT SYSTEM
   - 2.5. ENGINEERING CERTIFICATION THAT THE QUALITY OF ANY IMPORTED FILL COMPILES WITH THE EARTHWORKS SPECIFICATION REQUIREMENTS
   - 2.6. ENGINEERING CERTIFICATION THAT THE AREAS OF CUT HAVE BEEN SUBJECT TO PROOF ROLL AND COMPACTED UNDER GEOTECHNICAL SUPERVISION TO THE SAME STANDARDS AS FILL AREA
3. THE CONTRACTOR SHALL EMPLOY A QUALIFIED GEOTECHNICAL ENGINEER WHO IS A REGISTERED ENGINEER OF QUEENSLAND WITH A MINIMUM $5 MILLION PROFESSIONAL INDEMNITY INSURANCE, TO UNDERTAKE FULL TIME GEOTECHNICAL SUPERVISION FOR A DURATION OF EARTHWORKS, WHO SHALL PROVIDE REGULAR SITE REPORTS DETAILING:
   - 3.1. THAT THE STABILITY OF ALL TEMPORARY AND PERMANENT CUT/FILL BATTERS AND TRENCHES IS ADEQUATE.
   - 3.2. THAT CONTRACTORS HAUL ROUTES AND TEMPORARY WORKS DO NOT COMPROMISE THE STABILITY OF ANY TEMPORARY OR PERMANENT SLOPES, BUILDINGS OR OTHER SITE FEATURES.
4. NOT WITHSTANDING THE REQUIREMENT FOR THE BUILDER TO OBTAIN GEOTECHNICAL CERTIFICATION, THE BUILDER IS TO ADVISE THE SUPERINTENDENT AND SEEK APPROVAL BEFORE PROCEEDING WITH ANY EARTHWORKS OR PAVEMENT CONSTRUCTION THAT IS LIKELY TO GIVE RISE TO A VARIATION CLAIM.
5. NON SUITABLE SITE WON MATERIAL (E.G. SILTY SANDS, REACTIVE, DISPERSIBLE MATERIAL) ARE NOT TO BE USED WITHIN ENGINEERING FILL UNLESS ASSESSED AND CERTIFIED AS SUITABLE FOR USE BY THE LEVEL 1 GEOTECHNICAL ENGINEER.

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SCALE 1:100 0 1 2 3 4m

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CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS PLAN - SHEET 1 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0200	P3

SITE 6B NEICON - INFRASTRUCTURE COMPLETED PRIOR TO LUMINA OPEN SPACE CONSTRUCTION. SURFACE LEVELS TO INTERFACE NEATLY.

SITE 6E EVANS LONG - INFRASTRUCTURE COMPLETED PRIOR TO LUMINA OPEN SPACE CONSTRUCTION. SURFACE LEVELS TO INTERFACE NEATLY.

C C-0220

D C-0220

BIN SLAB - BULK EARTHWORKS LEVEL TO BE 200mm BELOW FSL

LANDSCAPE STEPPER - REFER LANDSCAPE ARCHITECT DOCUMENTATION FOR DETAILS

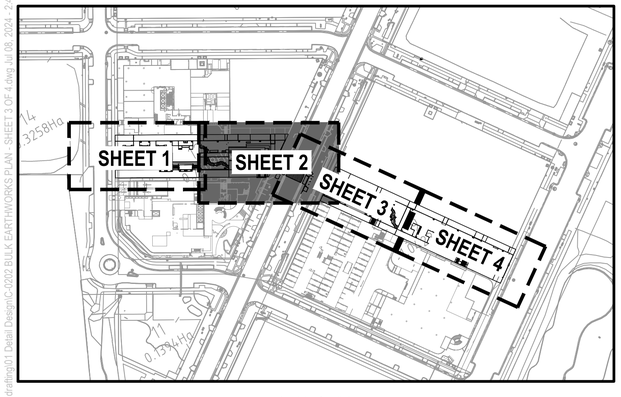
JOIN LINE REFER DRAWING 2022.0021-C-0200 FOR CONTINUATION

NO EARTHWORKS IN THIS AREA

SITE 6A NORTH WEST- INFRASTRUCTURE COMPLETED PRIOR TO LUMINA OPEN SPACE CONSTRUCTION. SURFACE LEVELS TO INTERFACE NEATLY.

NEXUS WAY

JOIN LINE REFER DRAWING 2022.0021-C-0202 FOR CONTINUATION



KEY PLAN

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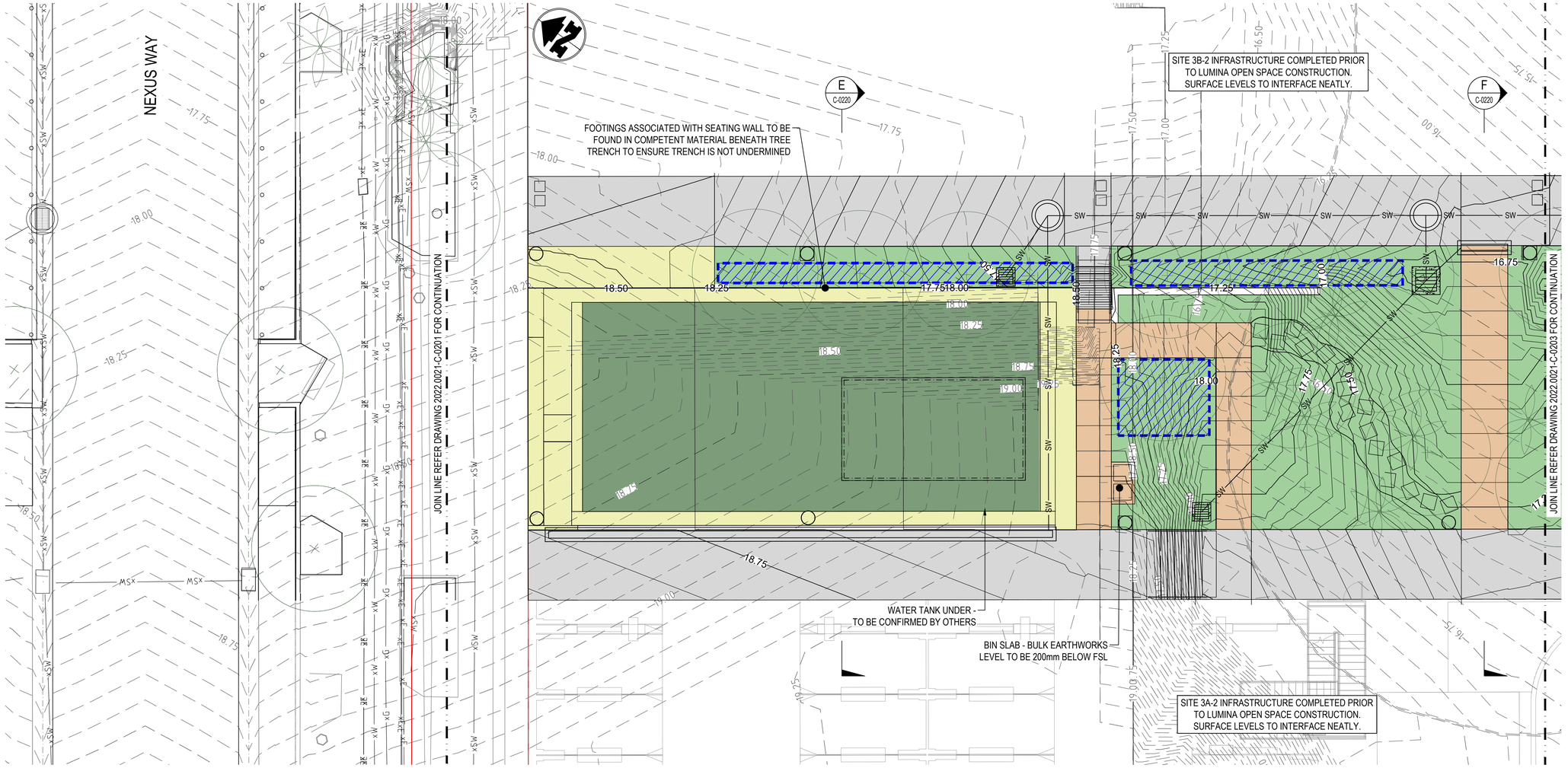
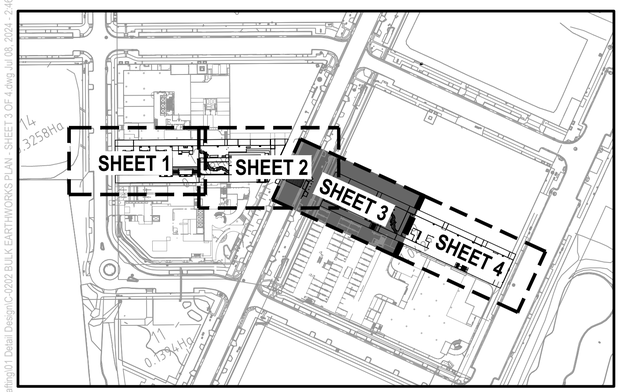
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0201	P3





KEY PLAN

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- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
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EXISTING LEGEND

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- xT — EXISTING TELECOMMS
- PROPERTY BOUNDARY

LEGEND

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- PEDESTRIAN PAVEMENT 2 - REFER TO STRUCTURAL ENGINEER'S DOCUMENTATION AND CIVIL TYPICAL DETAIL ON C-0350 FOR DETAILS - BE LEVELS ARE TYPICALLY 370mm BELOW FSL
- PEDESTRIAN PAVEMENT 3 (NO EARTHWORKS - AREA OF STRUCTURAL DESIGN AS PART OF NEIGHBOURING SITE 6A WORKS - SURFACE WORKS ONLY. REFER LANDSCAPE ARCHITECT FOR DETAILS.
- LANDSCAPE AREA 1 - REFER TO LANDSCAPE ARCHITECT FOR DETAILS - BE LEVELS ARE TYPICALLY 650mm BELOW FSL
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BULK EARTHWORKS

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   - 2.1. ENGINEERING CERTIFICATION THAT ALL GENERAL EARTHWORKS OPERATIONS (ie. STRIPPING, PROOF ROLLING OF CUT AND FILL SUBGRADES, SUBGRADE TREATMENT. ETC) HAVE BEEN CARRIED OUT IN ACCORDANCE WITH EARTHWORKS SPECIFICATIONS.
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SCALE 1:100 0 1 2 3 4m

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CLIENT: Queensland Government

ARCHITECT: Hassell

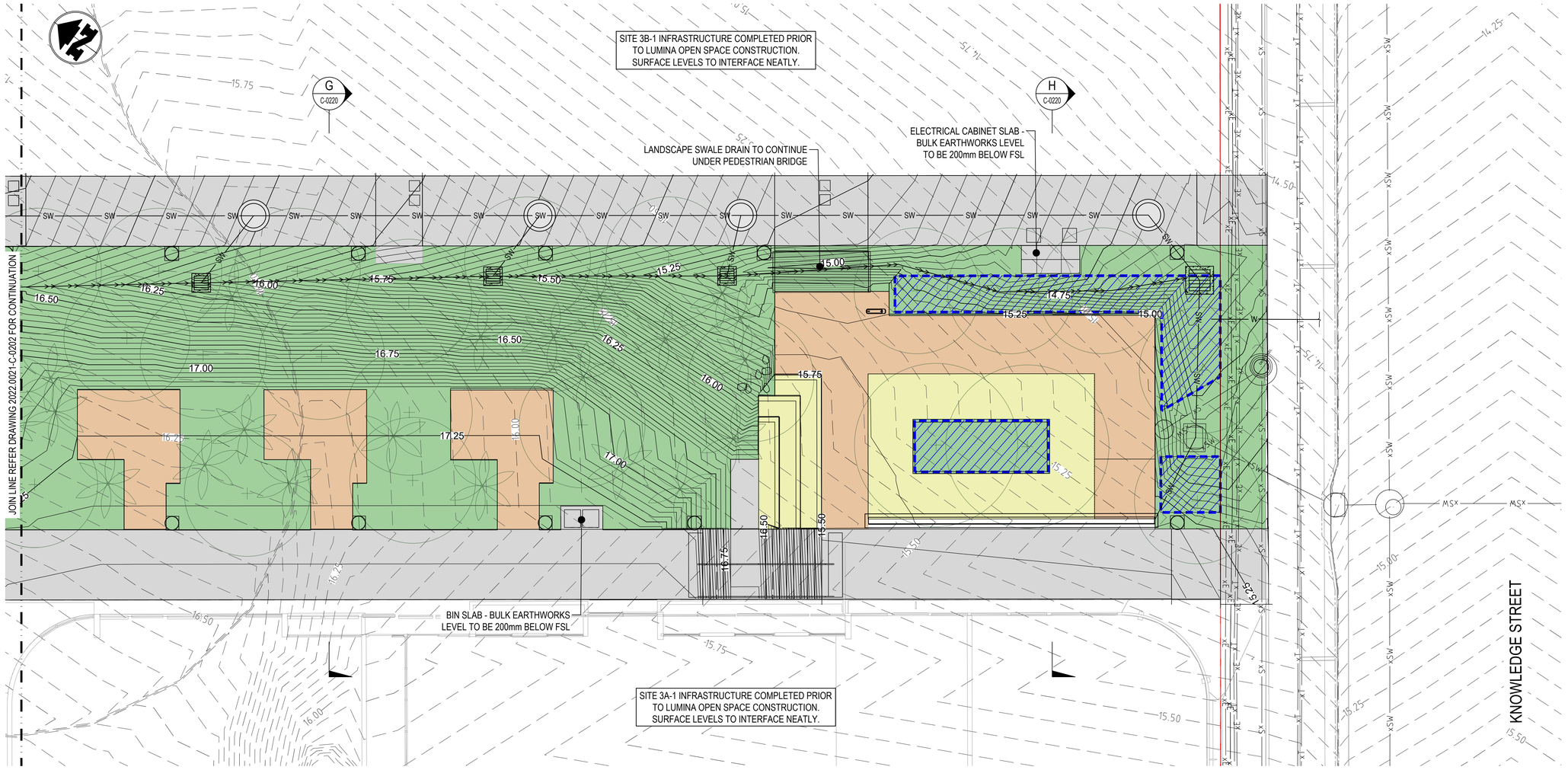
SCALES: 1:100 @ A1

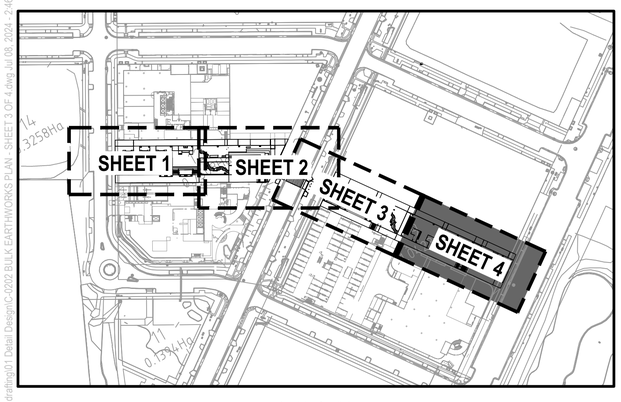
STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS PLAN - SHEET 3 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0202	P3





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CLIENT: Queensland Government

ARCHITECT: Hassell

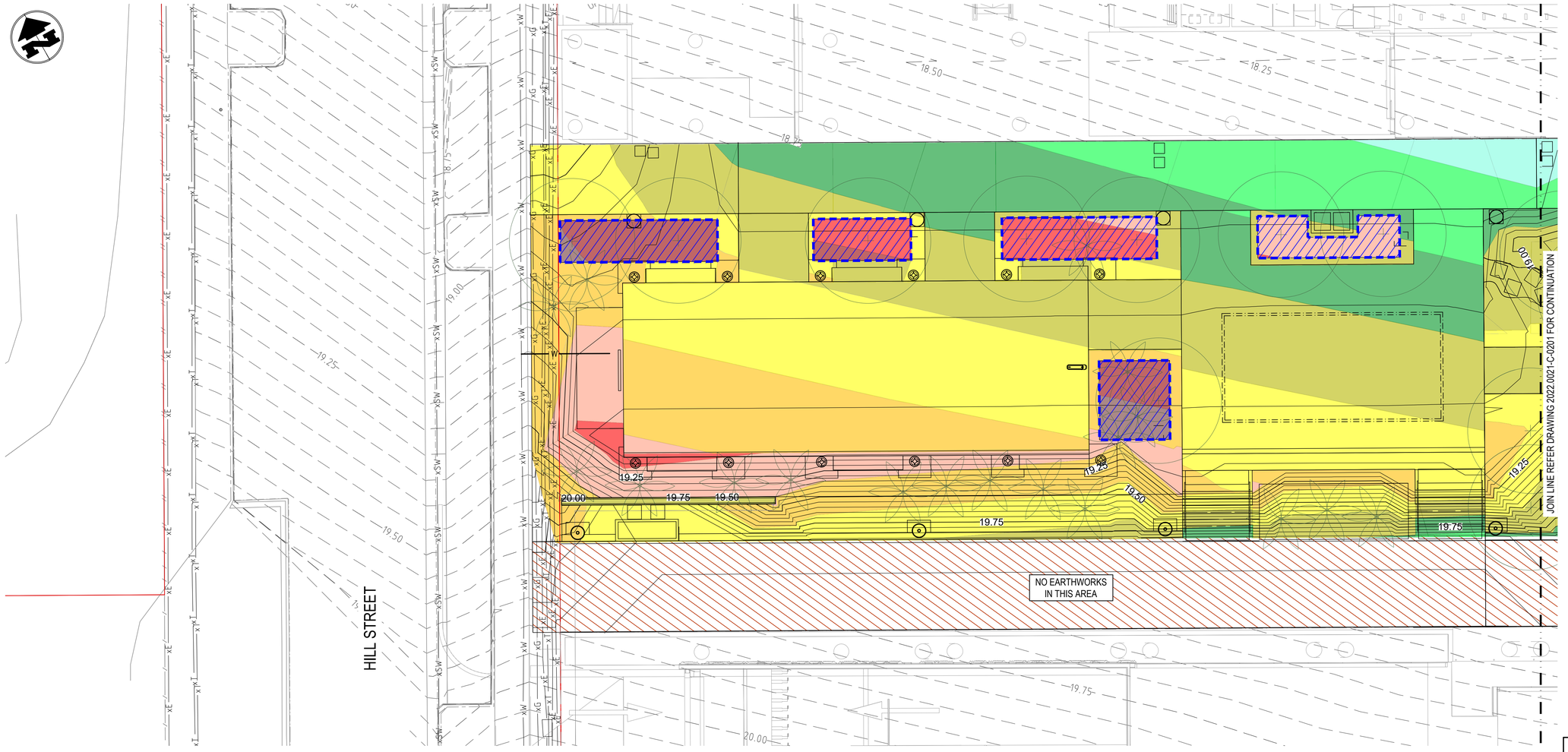
SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS PLAN - SHEET 4 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0203	P3



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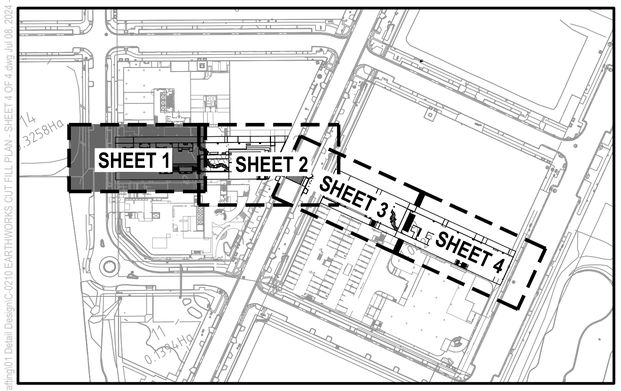
DEPTH RANGE LEGEND

CUT VALUES NEGATIVE

CUT	FILL
-2.0 TO -1.75	
-1.75 TO -1.5	
-1.5 TO -1.25	
-1.25 TO -1.0	
-1.0 TO -0.75	
-0.75 TO -0.5	
-0.5 TO -0.25	
-0.25 TO 0.0	
	0.0 TO 0.25
	0.25 TO 0.5
	0.5 TO 0.75
	0.75 TO 1.0
	1.0 TO 1.25



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EARTHWORK VOLUMES NOTES

1. ALL GROUNDWORKS WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE GROUNDWORKS NOTES ON C-0010, AS3798 AND THE GEOTECHNICAL REPORT
2. LOCALISED DETAILED EXCAVATION/FILLING MAY BE REQUIRED AND HAS NOT BEEN INCLUDED
3. BULK EARTHWORK VOLUMES ARE PROVIDED FOR INFORMATION ONLY AND SUBJECT TO COMPLIANCE WITH THE GEOTECHNICAL REPORT AND RECOMMENDATIONS ON-SITE
4. QUANTITIES ARE IN-SITU AND DO NOT ACCOUNT FOR BULKING FACTORS
5. THE INSITU SOIL COULD BE EXPECTED TO PRESENT DIFFICULTIES IN HANDLING, PLACEMENT AND COMPACTION AND IS NOT RECOMMENDED FOR REUSE AS PER THE GEOTECHNICAL REPORT . IMPORTED FILL IN ACCORDANCE WITH GROUNDWORKS NOTE 6 AND THE GEOTECHNICAL REPORT IS REQUIRED

NOTE

THE BULK EARTHWORKS PLANS AND CUT/FILL PLANS SHOW THE ANTICIPATED SOIL HORIZONS BASED ON THE EXISTING SITE CONDITIONS AND PROVIDED SITE FEATURE SURVEY. NO ALLOWANCE CAN BE MADE FOR THE DISCREPANCIES ON SITE FOLLOWING CONSTRUCTION ACTIVITIES ASSOCIATED WITH OTHER WORKS.

TEMPORARY/DETAILED EXCAVATIONS ARE NOT DEFINED. CONTRACTOR IS TO ALLOW FOR EXCAVATION AND FILLING TO SUIT, INCLUDING SAFE EGRESS.

EARTHWORKS QUANTITIES

SURFACE FROM	SURFACE TO	CUT m³	FILL m³	COMMENTS
EXISTING GROUND LEVEL	EXISTING STRIPPED - 150mm (ONLY IN AREAS OF ORGANIC MATERIAL AND EXISTING GRAVEL CARPARK)	-266	0	ORGANIC MATERIAL TO BE STOCKPILED FOR TOP DRESSING. EXISTING GRAVEL TO BE STOCKPILED AND REUSED WHERE POSSIBLE
EXISTING STRIPPED	BULK EARTHWORKS (UNDERSIDE OF ROAD BOX, FOOTPATH AND LANDSCAPED AREAS)	-271	210	EXISTING MATERIAL TO BE CONFIRMED AS SUITABLE FOR FILL BY THE LEVEL 1 GEOTECH ENGINEER - EXCESS CUT/ UNSUITABLE MATERIAL TO BE TAKEN OFFSITE

EARTHWORKS NOTE

EARTHWORKS CUT & FILL DEPTHS SHOWN REPRESENT DIFFERENCE BETWEEN EXISTING SURFACE LEVEL AND BULK EARTHWORKS LEVEL.

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PROJECT: LUMINA OPEN SPACE
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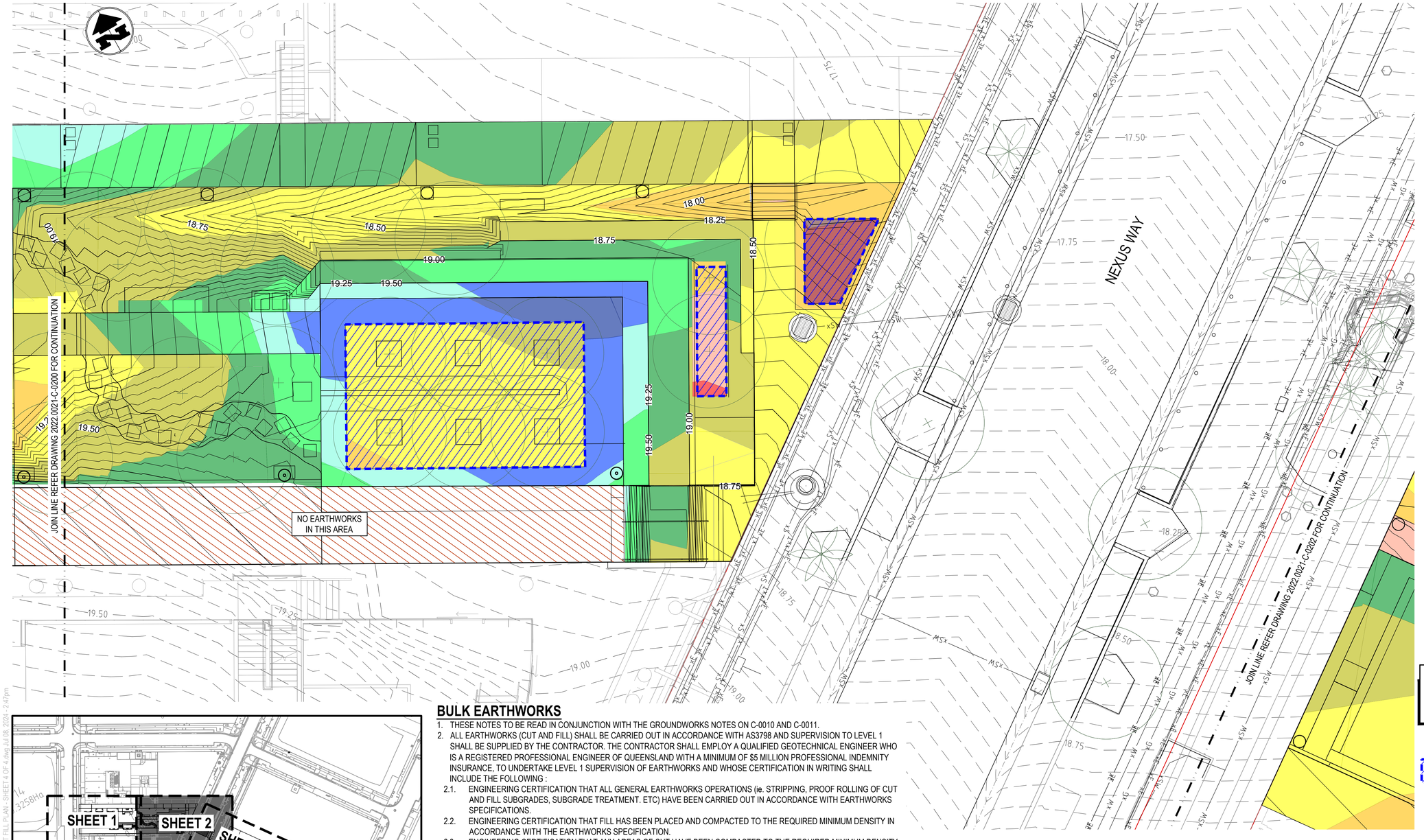
DRAWING TITLE: BULK EARTHWORKS CUT FILL PLAN - SHEET 1 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0210	P3



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- -0.5 TO -0.25
- -0.25 TO 0.0

FILL
- 0.0 TO 0.25
- 0.25 TO 0.5
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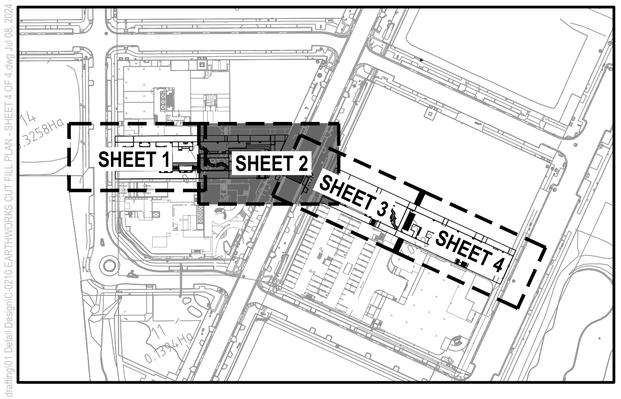

KEY PLAN

N.T.S.

BULK EARTHWORKS

1. THESE NOTES TO BE READ IN CONJUNCTION WITH THE GROUNDWORKS NOTES ON C-0010 AND C-0011.
2. ALL EARTHWORKS (CUT AND FILL) SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3798 AND SUPERVISION TO LEVEL 1 SHALL BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR SHALL EMPLOY A QUALIFIED GEOTECHNICAL ENGINEER WHO IS A REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND WITH A MINIMUM OF $5 MILLION PROFESSIONAL INDEMNITY INSURANCE, TO UNDERTAKE LEVEL 1 SUPERVISION OF EARTHWORKS AND WHOSE CERTIFICATION IN WRITING SHALL INCLUDE THE FOLLOWING :
   - 2.1. ENGINEERING CERTIFICATION THAT ALL GENERAL EARTHWORKS OPERATIONS (ie. STRIPPING, PROOF ROLLING OF CUT AND FILL SUBGRADES, SUBGRADE TREATMENT. ETC) HAVE BEEN CARRIED OUT IN ACCORDANCE WITH EARTHWORKS SPECIFICATIONS.
   - 2.2. ENGINEERING CERTIFICATION THAT FILL HAS BEEN PLACED AND COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION.
   - 2.3. ENGINEERING CERTIFICATION THAT ANY AREAS OF CUT HAVE BEEN COMPACTED TO THE REQUIRED MINIMUM DENSITY IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION.
   - 2.4. IF REQUIRED, ENGINEERING CERTIFICATION THAT THE CONTROLLED FILL MATERIAL OR CUT SUBGRADE IS SUITABLE TO SUPPORT A CONVENTIONAL SLAB ON GROUND FLOOR OR PAVEMENT SYSTEM
   - 2.5. ENGINEERING CERTIFICATION THAT THE QUALITY OF ANY IMPORTED FILL COMPILES WITH THE EARTHWORKS SPECIFICATION REQUIREMENTS
   - 2.6. ENGINEERING CERTIFICATION THAT THE AREAS OF CUT HAVE BEEN SUBJECT TO PROOF ROLL AND COMPACTED UNDER GEOTECHNICAL SUPERVISION TO THE SAME STANDARDS AS FILL AREA
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   - 3.1. THAT THE STABILITY OF ALL TEMPORARY AND PERMANENT CUT/FILL BATTERS AND TRENCHES IS ADEQUATE.
   - 3.2. THAT CONTRACTORS HAUL ROUTES AND TEMPORARY WORKS DO NOT COMPROMISE THE STABILITY OF ANY TEMPORARY OR PERMANENT SLOPES, BUILDINGS OR OTHER SITE FEATURES.
4. NOT WITHSTANDING THE REQUIREMENT FOR THE BUILDER TO OBTAIN GEOTECHNICAL CERTIFICATION, THE BUILDER IS TO ADVISE THE SUPERINTENDENT AND SEEK APPROVAL BEFORE PROCEEDING WITH ANY EARTHWORKS OR PAVEMENT CONSTRUCTION THAT IS LIKELY TO GIVE RISE TO A VARIATION CLAIM.
5. NON SUITABLE SITE WON MATERIAL (E.G. SILTY SANDS, REACTIVE, DISPERSIBLE MATERIAL) ARE NOT TO BE USED WITHIN ENGINEERING FILL UNLESS ASSESSED AND CERTIFIED AS SUITABLE FOR USE BY THE LEVEL 1 GEOTECHNICAL ENGINEER.

CAUTION - EXISTING SERVICES

SERVICES SHOWN ON PLANS ARE NOT NECESSARILY COMPLETE NOR ARE THEIR LOCATION WITH REGARDS TO POSITION AND DEPTH PRECISE. CONTRACTOR IS TO ALLOW TO;

1. CONFIRM LOCATION AND DEPTH OF EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION
2. REMOVE SERVICES WHERE DOCUMENTED
3. APPROPRIATE SAFE WORK METHODOLOGY WHEN WORKING IN PROXIMITY TO SERVICES BEING RETAINED
4. MAKE APPROPRIATE ALLOWANCES TO PROTECT SERVICES WHERE THEY ARE TO BE RETAINED

NOTE

REFER DRAWING C-0210 FOR EARTHWORKS VOLUME QUANTITIES OR NORTHERN PORTION OF WORKS

NOTE

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PROJECT NOTES ON C-0010, C-0011 AND DOCUMENTS AND STANDARD DRAWINGS AS SHOWN ON C-0000
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

SCALE 1:100 0 1 2 3 4m

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P2	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P3	19/07/2023	100% DD ISSUE	JAM	JAM	MM

CLIENT: Queensland Government

ARCHITECT: Hassell

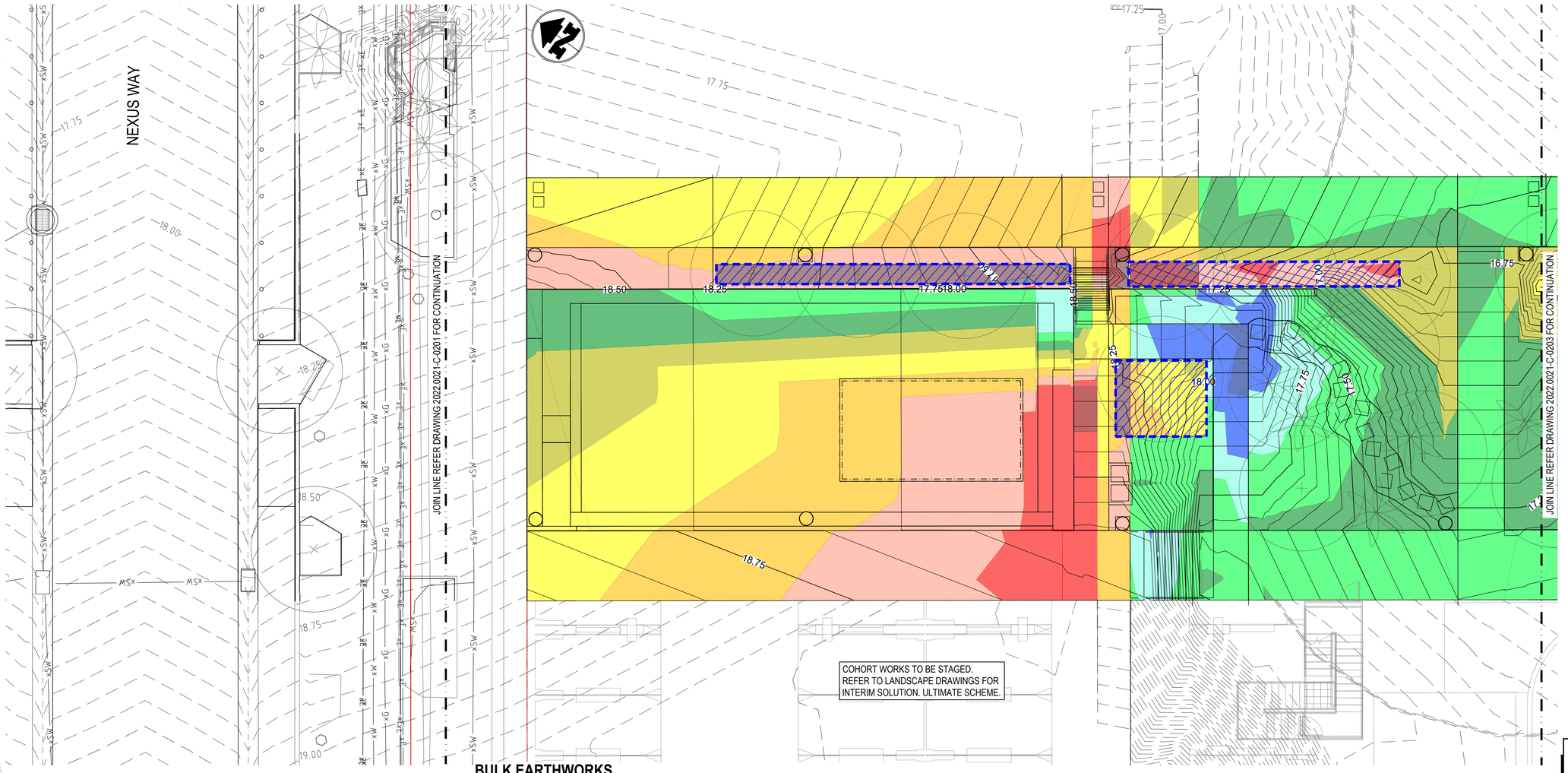
SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS CUT FILL PLAN - SHEET 2 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0211	P3



CONTOURS LEGEND

- 50.0 — PROPOSED CONTOURS MAJOR (0.25m INTERVALS)
- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
- 50.00 — EXISTING CONTOURS MAJOR (0.25m INTERVALS)
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EXISTING LEGEND

SERVICES SHOWN INDICATIVELY ONLY AND ARE SUBJECT TO POTHOLING AND CONFIRMATION ON-SITE

- xE — EXISTING ELECTRICAL
- xSW — EXISTING STORMWATER
- xS — EXISTING SEWER
- xW — EXISTING WATER
- xC — EXISTING COMMS
- xG — EXISTING GAS
- xT — EXISTING TELECOMMS
- PROPERTY BOUNDARY

DEPTH RANGE LEGEND

CUT VALUES NEGATIVE

CUT	FILL
-2.0 TO -1.75	
-1.75 TO -1.5	
-1.5 TO -1.25	
-1.25 TO -1.0	
-1.0 TO -0.75	
-0.75 TO -0.5	
-0.5 TO -0.25	
-0.25 TO 0.0	
0.0 TO 0.25	
0.25 TO 0.5	
0.5 TO 0.75	
0.75 TO 1.0	
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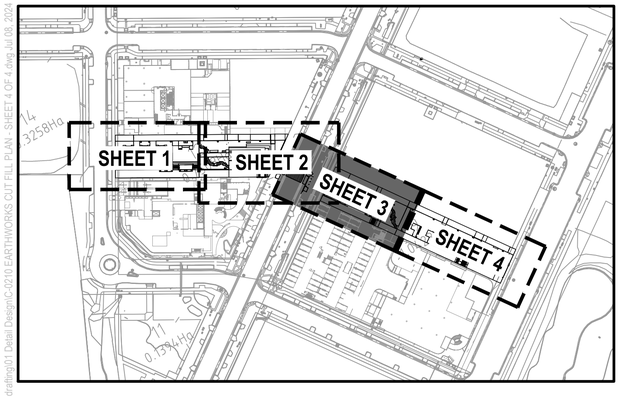

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EARTHWORK VOLUMES NOTES

1. ALL GROUNDWORKS WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE GROUNDWORKS NOTES ON C-0010, AS3798 AND THE GEOTECHNICAL REPORT
2. LOCALISED DETAILED EXCAVATION/FILLING MAY BE REQUIRED AND HAS NOT BEEN INCLUDED
3. BULK EARTHWORK VOLUMES ARE PROVIDED FOR INFORMATION ONLY AND SUBJECT TO COMPLIANCE WITH THE GEOTECHNICAL REPORT AND RECOMMENDATIONS ON-SITE
4. QUANTITIES ARE IN-SITU AND DO NOT ACCOUNT FOR BULKING FACTORS
5. THE INSITU SOIL COULD BE EXPECTED TO PRESENT DIFFICULTIES IN HANDLING, PLACEMENT AND COMPACTION AND IS NOT RECOMMENDED FOR REUSE AS PER THE GEOTECHNICAL REPORT . IMPORTED FILL IN ACCORDANCE WITH GROUNDWORKS NOTE 6 AND THE GEOTECHNICAL REPORT IS REQUIRED

NOTE

THE BULK EARTHWORKS PLANS AND CUT/FILL PLANS SHOW THE ANTICIPATED SOIL HORIZONS BASED ON THE EXISTING SITE CONDITIONS AND PROVIDED SITE FEATURE SURVEY. NO ALLOWANCE CAN BE MADE FOR THE DISCREPANCIES ON SITE FOLLOWING CONSTRUCTION ACTIVITIES ASSOCIATED WITH OTHER WORKS.

TEMPORARY/DETAILED EXCAVATIONS ARE NOT DEFINED. CONTRACTOR IS TO ALLOW FOR EXCAVATION AND FILLING TO SUIT, INCLUDING SAFE EGRESS.

EARTHWORKS QUANTITIES

SURFACE FROM	SURFACE TO	CUT m³	FILL m³	COMMENTS
EXISTING GROUND LEVEL	EXISTING STRIPPED - 150mm (ONLY IN AREAS OF ORGANIC MATERIAL AND EXISTING GRAVEL CARPARK)	-279	0	ORGANIC MATERIAL TO BE STOCKPILED FOR TOP DRESSING. EXISTING GRAVEL TO BE STOCKPILED AND REUSED WHERE POSSIBLE
EXISTING STRIPPED	BULK EARTHWORKS (UNDERSIDE OF ROAD BOX, FOOTPATH AND LANDSCAPED AREAS)	-496	398	EXISTING MATERIAL TO BE CONFIRMED AS SUITABLE FOR FILL BY THE LEVEL 1 GEOTECH ENGINEER - EXCESS CUT/ UNSUITABLE MATERIAL TO BE TAKEN OFFSITE

SCALE 1:100 0 1 2 3 4m

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
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CLIENT: Queensland Government

ARCHITECT: Hassell

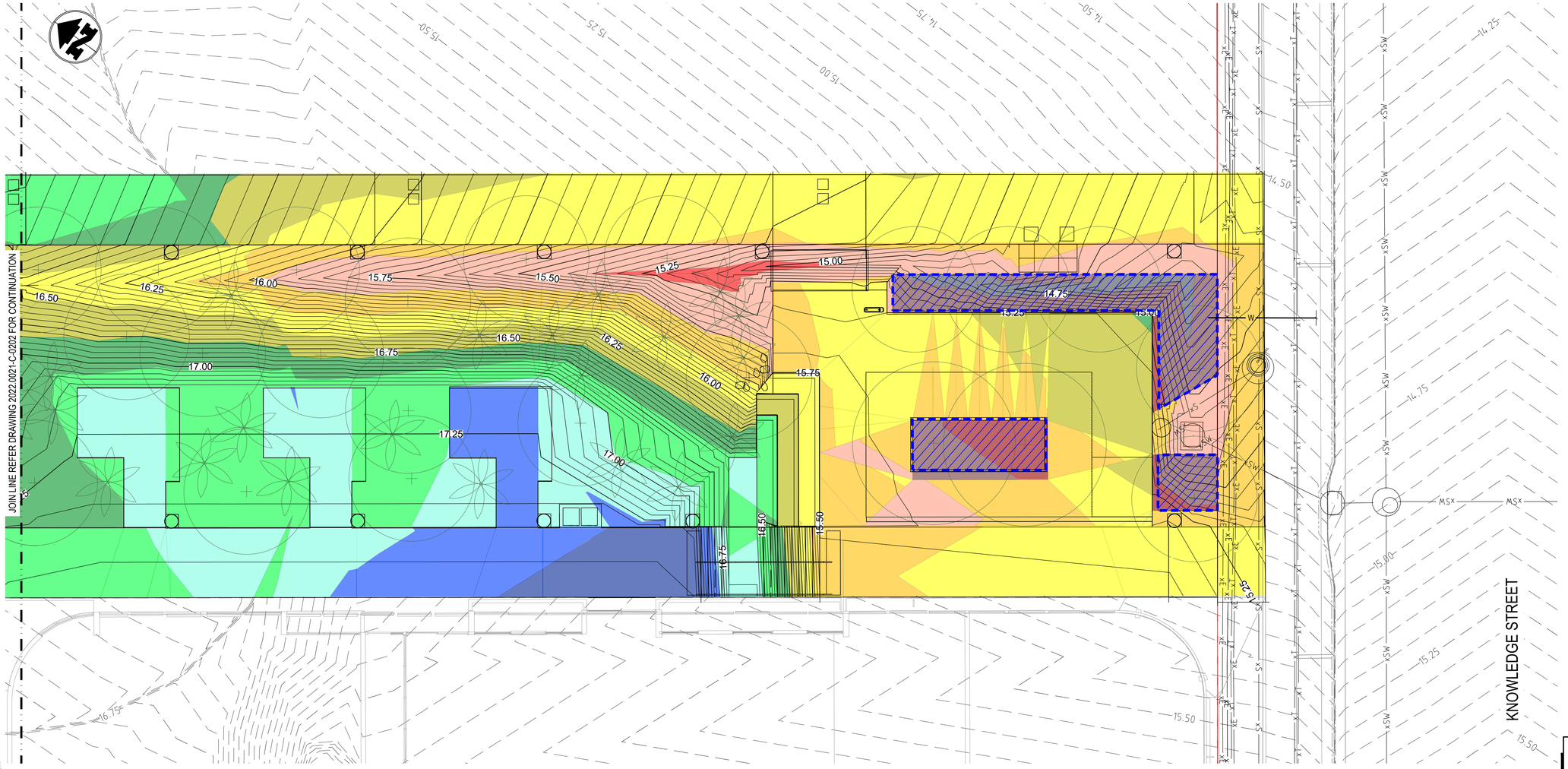
SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS CUT FILL PLAN - SHEET 3 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0212	P3



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	-0.75 TO -0.5
	-0.5 TO -0.25
	-0.25 TO 0.0
FILL	0.0 TO 0.25
	0.25 TO 0.5
	0.5 TO 0.75
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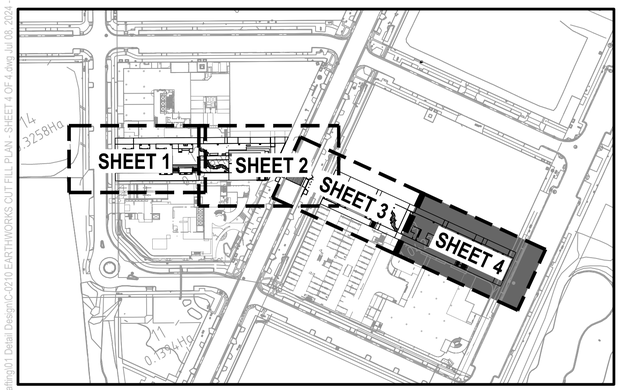

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NOTE

REFER DRAWING C-0210 FOR EARTHWORKS VOLUME QUANTITIES OR SOUTHERN PORTION OF WORKS

NOTE

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SCALE 1:100 0 1 2 3 4m

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CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

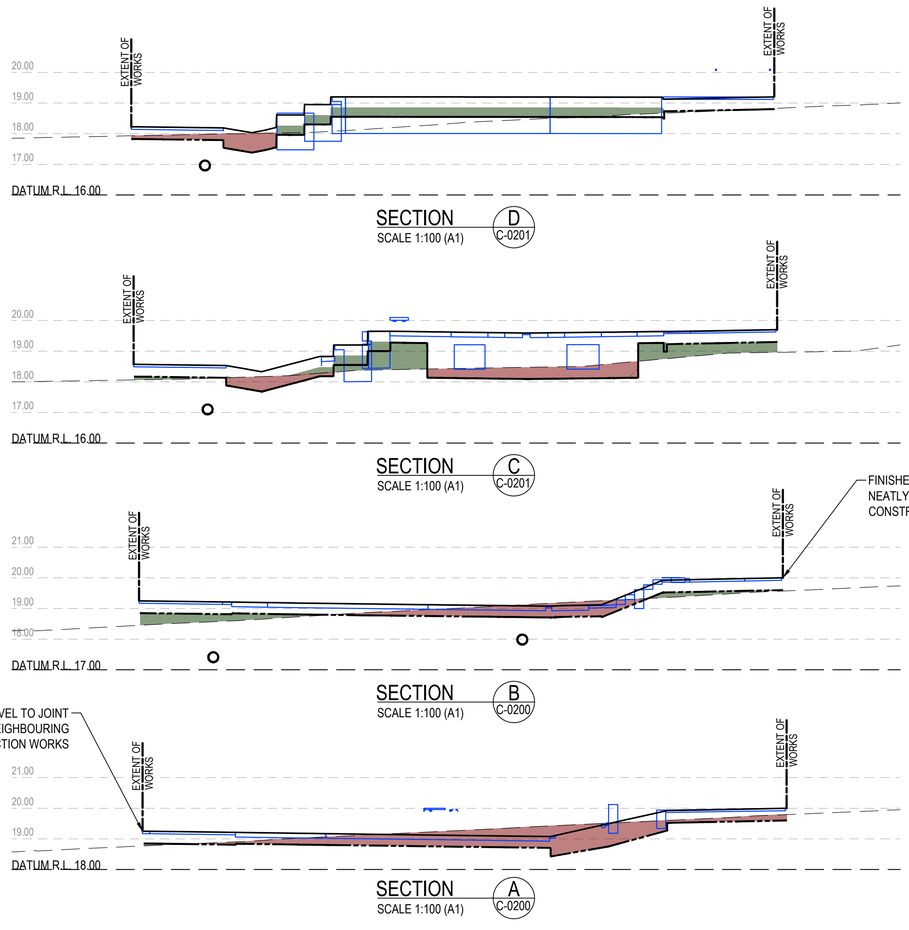
PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: BULK EARTHWORKS CUT FILL PLAN - SHEET 4 OF 4

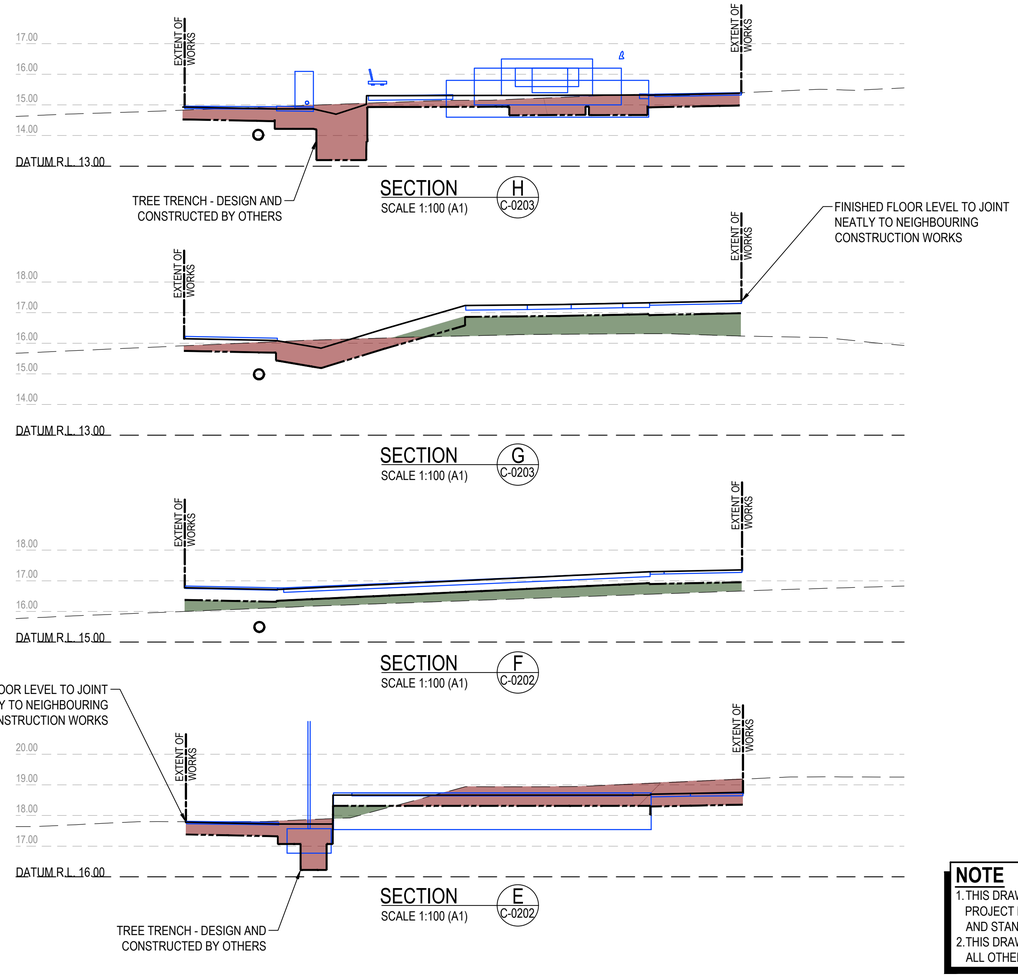
PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0213	P3

X:\Projects\2022\2022.0021-lumina open space eo\3 drafting\1 Civil\2 drafting\01 Detail Design\C-0210 EARTHWORKS CUT FILL PLAN - SHEET 4 OF 4.dwg Jul 08, 2024 - 2:47pm

SECTIONS LEGEND

- PROPOSED FINISHED SURFACE
- EXISTING SURFACE
- BULK EARTHWORKS LEVEL
- DATUM R.L. 15.00 — DATUM LINE
- R.L. 15.00 — DATUM OFFSET
- EARTHWORKS - CUT
- EARTHWORKS - FILL
- INDICATIVE ARCHITECTURAL ELEMENTS - REFER ARCHITECTURAL DOCUMENTATION





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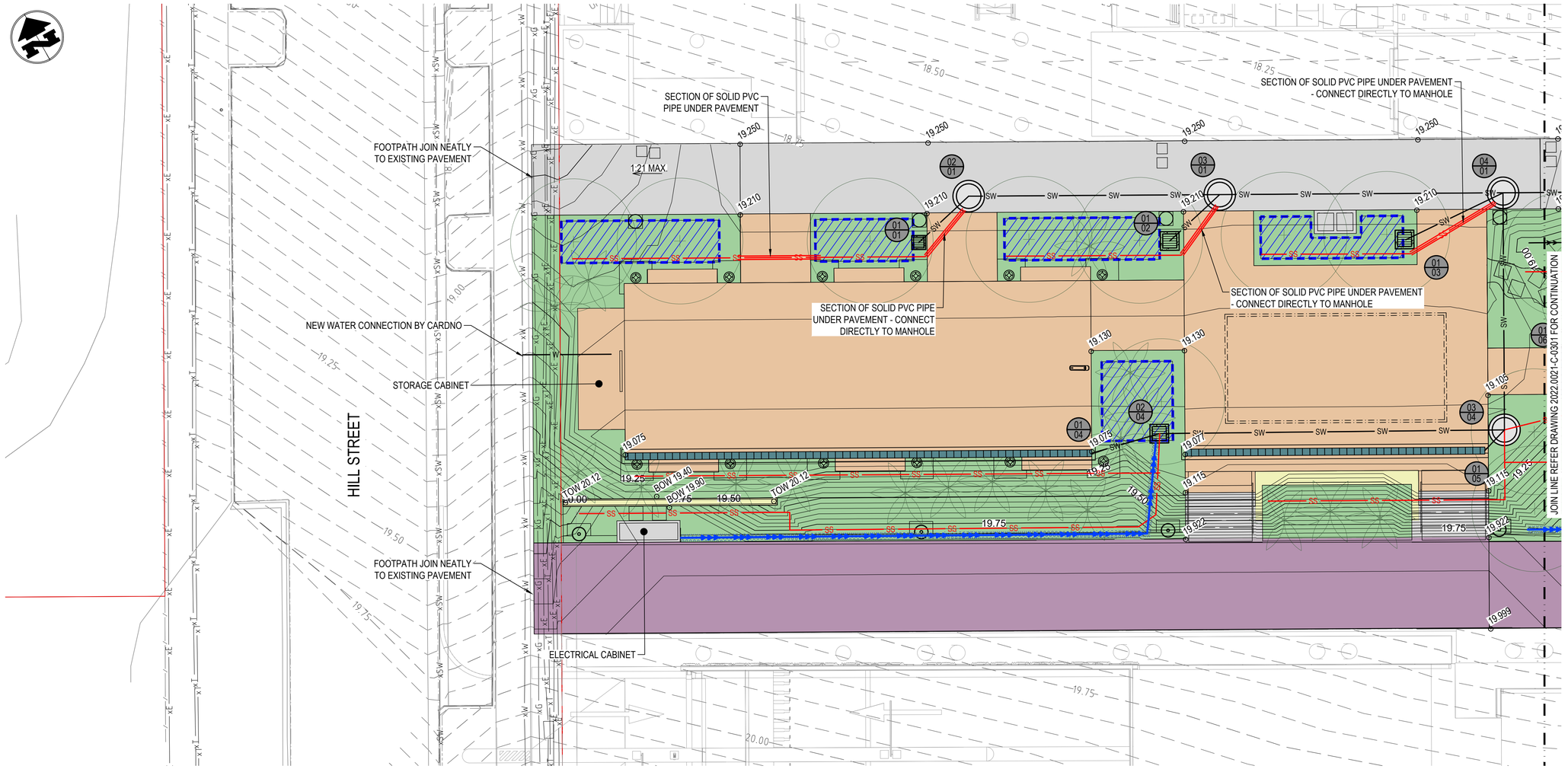
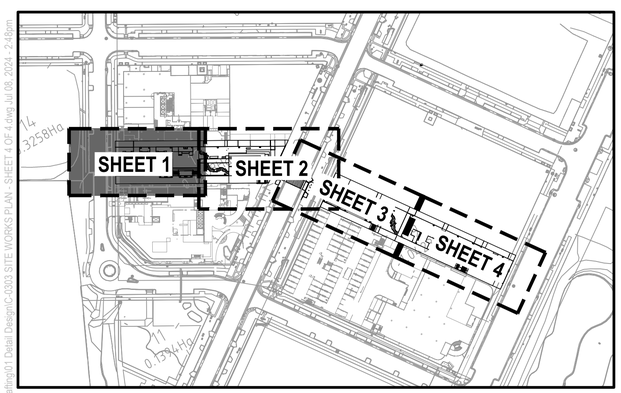
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SITE SECTIONS

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0220	P3





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- EXISTING SEWER
- EXISTING WATER
- EXISTING COMMS
- EXISTING GAS
- EXISTING TELECOMMS
- PROPERTY BOUNDARY

LEGEND

- PEDESTRIAN PAVEMENT 1 - REFER C-0350 FOR DETAILS
- PEDESTRIAN PAVEMENT 2 -REFER C-0350 FOR DETAILS
- PEDESTRIAN PAVEMENT 3 -REFER LANDSCAPE ARCHITECT FOR DETAILS
- LANDSCAPE AREA 1 -REFER LANDSCAPE ARCHITECT FOR DETAILS
- LANDSCAPE AREA 1 -REFER LANDSCAPE ARCHITECT FOR DETAILS
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- SUBSOIL DRAIN
- SWALE DRAIN - REFER C350 FOR DETAIL
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- TRENCH DRAIN - U.N.O. 200mm WIDE ACO KLASSIKDRAIN K200 WITH HEEL SAFE CLASS B GRATE - P4 SLIP RATING

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NOTE

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NOTE

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2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

SCALE 1:100 0 1 2 3 4m

BLIGH TANNER

BRISBANE | SYDNEY
blightanner@blightanner.com.au
blightanner.com.au

REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	06/04/2023	COORDINATION ISSUE	JAM	JAM	MM
P2	14/04/2023	50% DD ISSUE	JAM	JAM	MM
P3	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P4	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P5	19/07/2023	100% DD ISSUE	JAM	JAM	MM
P6	08/07/2024	COORDINATION ISSUE	JAM	JAM	
P7	08/07/2024	100% DD ISSUE	JAM	JAM	

CLIENT: Queensland Government

ARCHITECT: Hassell

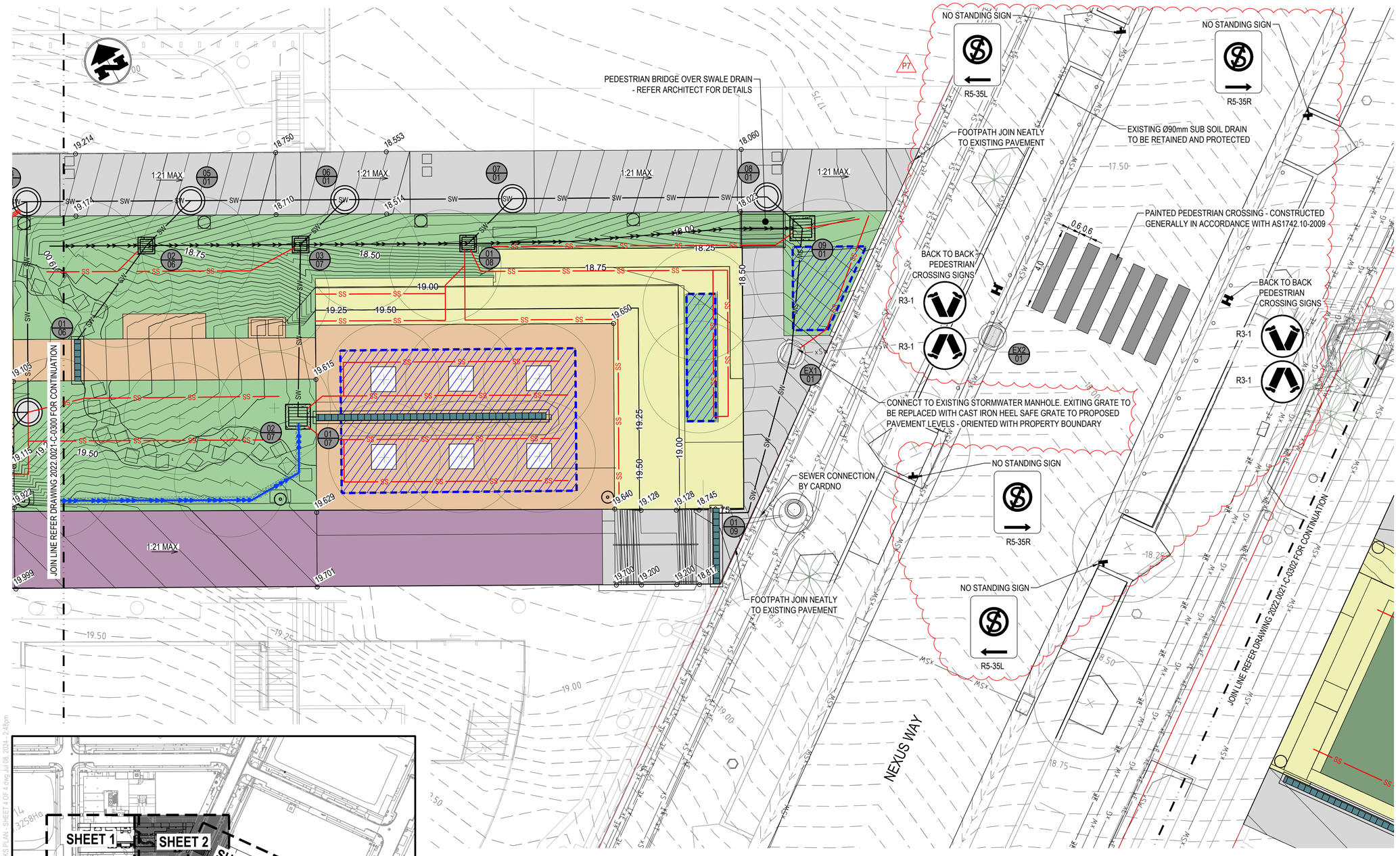
SCALES: 1:100 @ A1

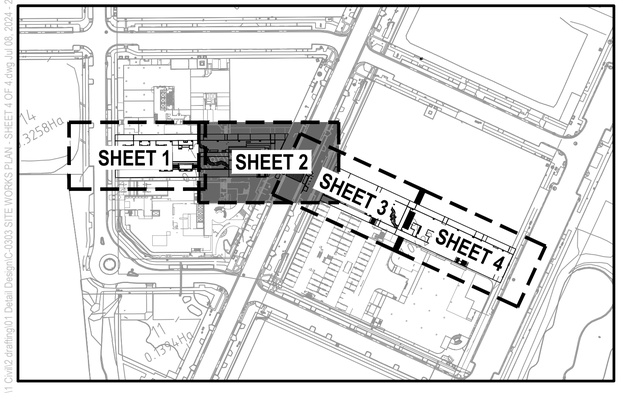
STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SITE WORKS PLAN - SHEET 1 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0300	P7





KEY PLAN

N.T.S.

CONTOURS LEGEND

- PROPOSED CONTOURS MAJOR (0.25m INTERVALS)
- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
- EXISTING CONTOURS MAJOR (0.25m INTERVALS)
- EXISTING CONTOURS MINOR (0.05m INTERVALS)

EXISTING LEGEND

SERVICES SHOWN INDICATIVELY ONLY AND ARE SUBJECT TO POTHOLING AND CONFIRMATION ON-SITE

- EXISTING ELECTRICAL
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- EXISTING COMMS
- EXISTING GAS
- EXISTING TELECOMMS
- PROPERTY BOUNDARY

LEGEND

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- SWALE DRAIN - REFER C350 FOR DETAIL
- GRAVEL STRIP DRAIN - PROVIDE SUBSOIL DRAIN TO BASE - REFER LANDSCAPE ARCITECT FOR DETAIL
- W — PROPOSED WATER - BY OTHERS
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SCALE 1:100 0 1 2 3 4m

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P6	08/07/2024	COORDINATION ISSUE	JAM	JAM	
P7	08/07/2024	100% DD ISSUE	JAM	JAM	

CLIENT: Queensland Government

ARCHITECT: Hassell

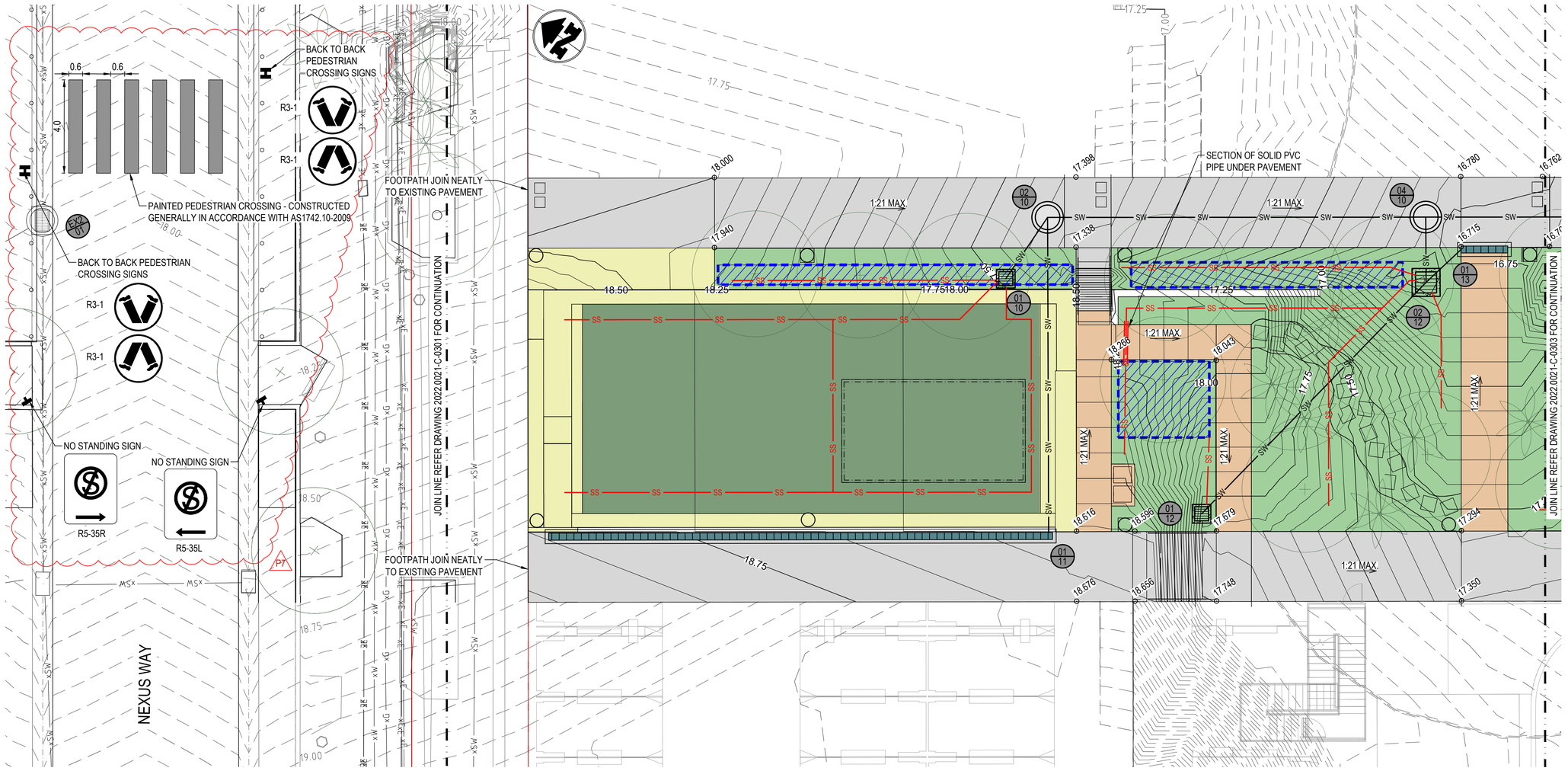
SCALES: 1:100 @ A1

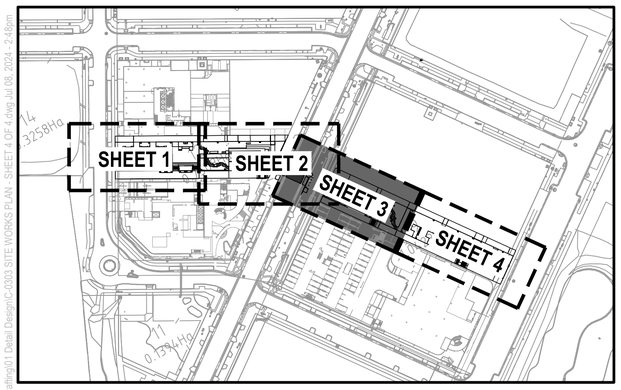
STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SITE WORKS PLAN - SHEET 2 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0301	P7





KEY PLAN

N.T.S.

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- 50.0 — PROPOSED CONTOURS MAJOR (0.25m INTERVALS)
- PROPOSED CONTOURS MINOR (0.05m INTERVALS)
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- xC — EXISTING COMMS
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P7	08/07/2024	100% DD ISSUE	JAM	JAM	

CLIENT: Queensland Government

ARCHITECT: Hassell

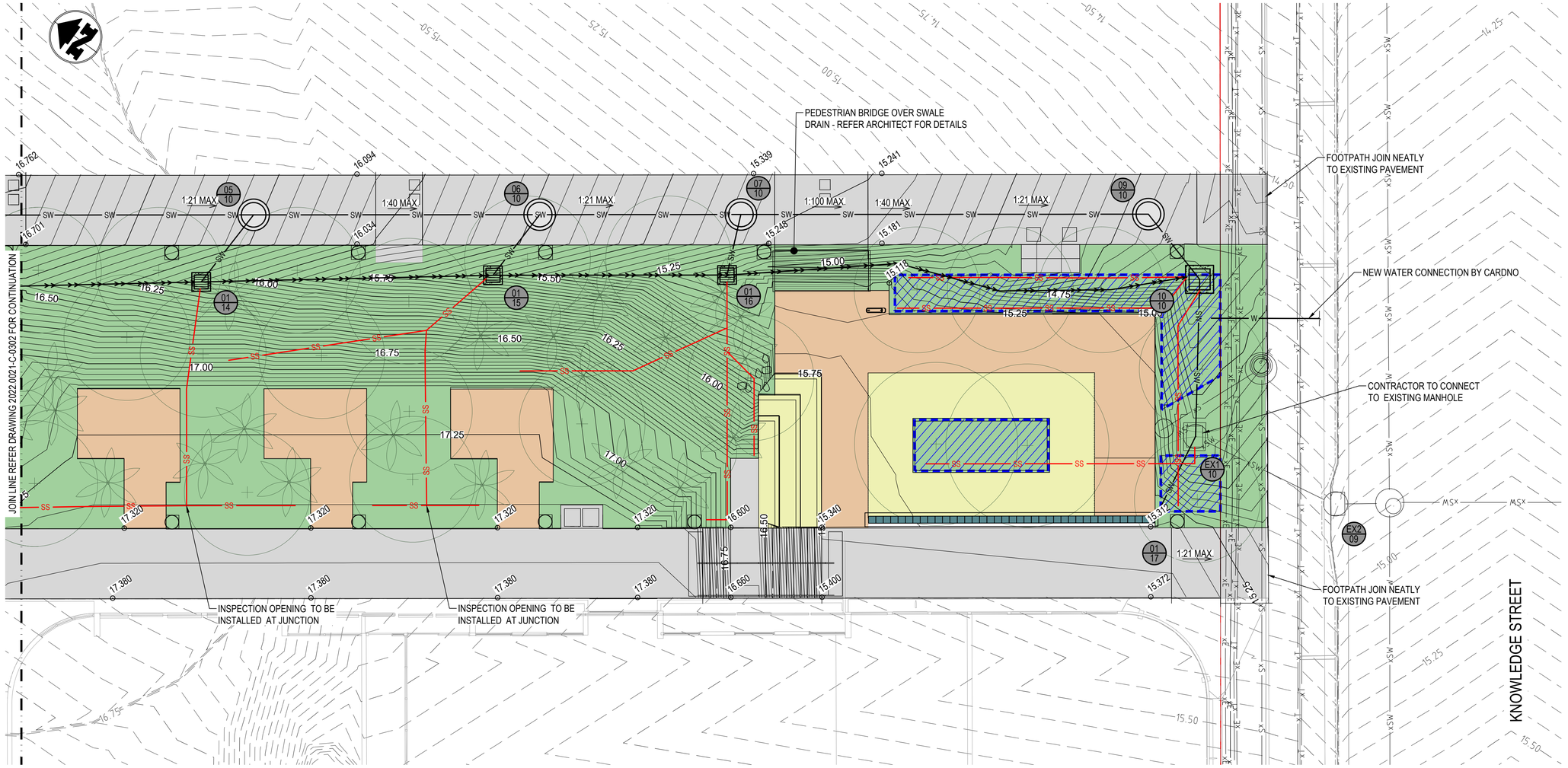
SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SITE WORKS PLAN - SHEET 3 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0302	P7



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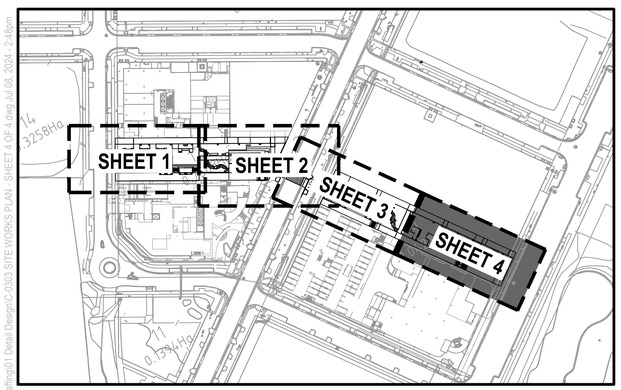

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SCALE 1:100 0 1 2 3 4m

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P5	19/07/2023	100% DD ISSUE	JAM	JAM	MM
P6	08/07/2024	COORDINATION ISSUE	JAM	JAM	
P7	08/07/2024	100% DD ISSUE	JAM	JAM	

CLIENT: Queensland Government

ARCHITECT: Hassell

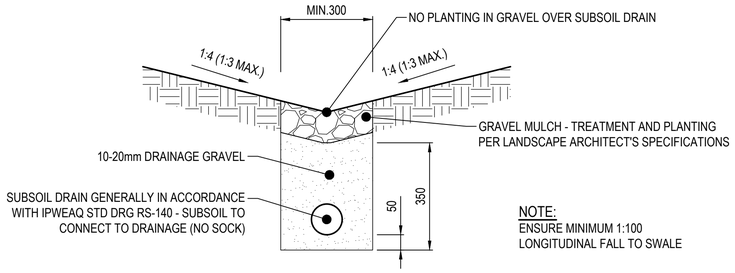
SCALES: 1:100 @ A1

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

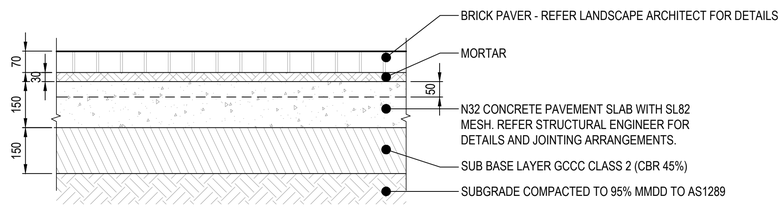
PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: SITE WORKS PLAN - SHEET 4 OF 4

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0303	P7



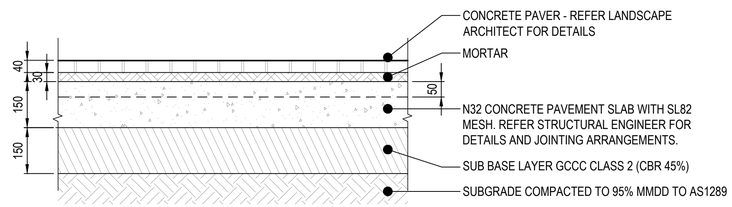
GRASSED SWALE DRAIN - TYPICAL ARRANGEMENT

SCALE 1:10



PEDESTRIAN PAVEMENT 1 - TYPICAL DETAIL

SCALE 1:10



PEDESTRIAN PAVEMENT 2 - TYPICAL DETAIL

SCALE 1:10

NOTE

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SCALE 1:10 0 0.1 0.2 0.3 0.4m

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CLIENT: Queensland Government

ARCHITECT: Hassell

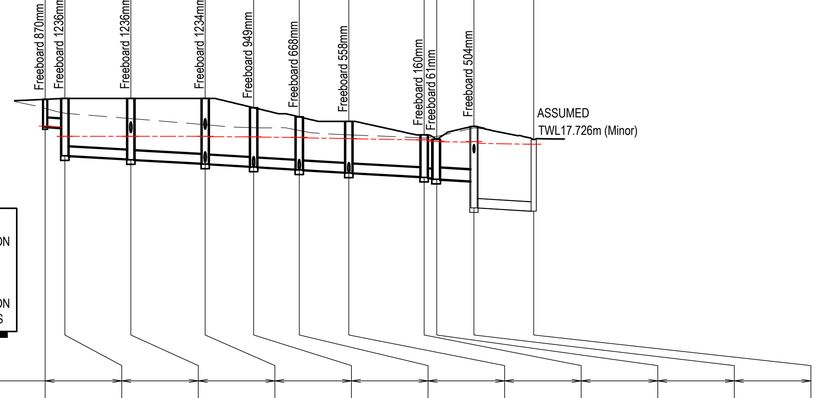
SCALES: AS SHOWN

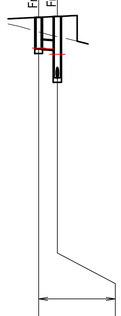
STATUS: NOT FOR CONSTRUCTION

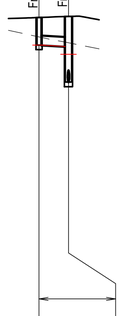
DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

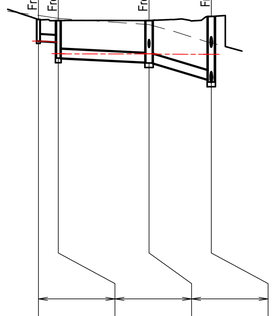
PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: TYPICAL DETAILS

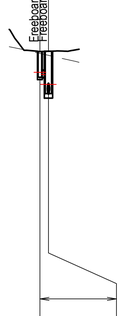
PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0350	P3

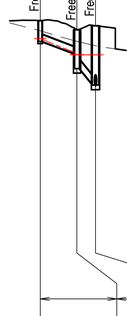


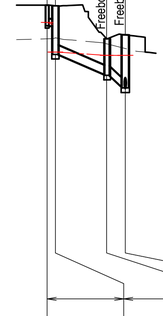












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STRUCTURE NAME	01-01	02-01	03-01	04-01	05-01	06-01	07-01	08-01	09-01	EX1-01	EX2-01
STRUCTURE DESCRIPTION	ROCLA RKO PIT DRAIN INLET PIT - 450x450	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	MH1050 BCC MANHOLE - 1050mm DIA REFER BCC BSD-8021	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	IPWEA FI1 IPWEA FIELD INLET TYPE 1 (900x900) SINGLE GULLY REFER IPWEA STD DRG DS-050	600x600 IPWEA FIELD INLET TYPE 2A SINGLE GULLY ON 1050 DIA MH REFER IPWEA STD DRG DS-050 & DS-010	IPWEA LIL S 300 300mm CHANNEL, S LINTEL, STD DRG DS-063
EXCESS PIPE FLOW (Cumecs)											
PIPE SIZE (mm)	300	300	300	300	300	300	300	300	375	300	
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	PVC	
PIPE GRADE (%)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.99%	1.00%	1.12%	
PIPE SLOPE (1 in X)	100.0	100.0	99.5	100.0	100.0	100.0	100.0	50.4	100.0	89.5	
FULL PIPE VELOCITY (m/s)	0.02	0.02	0.04	0.35	0.50	0.69	0.73	0.73	0.49	0.75	
PART FULL VELOCITY (m/s)	0.52	0.52	0.61	1.15	1.26	1.37	1.39	1.79	1.39	1.47	
DATUM RL	4.0										
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.320	18.285	17.984	17.984 / 17.965	17.972 / 17.969	17.958	17.948 / 17.951	17.932	17.911 / 17.912	17.903	17.868 / 17.870	17.829	17.823 / 17.824	17.804	17.798 / 17.809	17.754	17.726
PIPE FLOW (Cumecs)	0.002	0.002	0.003	0.025	0.035	0.049	0.052	0.052	0.053	0.054	
PIPE CAPACITY AT GRADE (Cumecs)	0.097	0.097	0.097	0.097	0.097	0.097	0.097	0.136	0.173	0.105	
DEPTH TO INVERT	0.901	0.962	1.872	1.980	2.000	2.122	2.142	1.918	1.937	1.713	1.733	1.665	1.685	1.368	1.388	1.284	1.304	1.793	2.664	2.336	2.336
INVERT LEVEL OF DRAIN	18.290	18.258	17.348	17.240	17.220	17.098	17.078	16.999	16.980	16.906	16.886	16.805	16.785	16.662	16.642	16.601	16.581	16.520	15.649	15.540	15.540
DESIGN SURFACE LEVEL	19.191	19.220	19.220	19.220	18.917	18.619	18.470	18.030	17.885	18.313	17.876
SETOUT COORDINATES	E: 537892.163 N: 6906974.459	E: 537904.722 N: 6906969.993	E: 537915.355 N: 6906964.126	E: 537922.284 N: 6906960.307	E: 537928.799 N: 6906956.714	E: 537935.886 N: 6906952.805	E: 537946.655 N: 6906946.873	E: 537947.137 N: 6906944.872	E: 537943.965 N: 6906939.689	E: 537952.859 N: 6906935.693
CHAINAGE	-10.761	3.220	-7.541	10.761	3.220	12.145	15.364	7.911	23.276	7.440	30.716	8.094	38.810	12.295	51.105	2.058	53.163	6.076	59.239	9.751	68.990
LINE	01										

STRUCTURE NAME	02-02	03-01
STRUCTURE DESCRIPTION	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010
PIPE SIZE (mm)	300	
PIPE TYPE (CLASS)	BLACKMAX	
PIPE GRADE (%)	1.00%	
PIPE SLOPE (1 in X)	100.0	
FULL PIPE VELOCITY (m/s)	0.02	
PART FULL VELOCITY (m/s)	0.47	
DATUM RL	4.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.186	18.153	17.984
PIPE FLOW (Cumecs)	0.001	
PIPE CAPACITY AT GRADE (Cumecs)	0.097	
DEPTH TO INVERT	1.031	1.090	2.000
INVERT LEVEL OF DRAIN	18.160	18.130	17.220
DESIGN SURFACE LEVEL	19.191	19.220	
SETOUT COORDINATES	E: 537901.795 N: 6906969.147	E: 537904.722 N: 6906969.993
CHAINAGE	0.000	3.047	3.047

STRUCTURE NAME	01-03	04-01
STRUCTURE DESCRIPTION	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010
PIPE SIZE (mm)	300	
PIPE TYPE (CLASS)	BLACKMAX	
PIPE GRADE (%)	1.00%	
PIPE SLOPE (1 in X)	100.0	
FULL PIPE VELOCITY (m/s)	0.00	
PART FULL VELOCITY (m/s)	0.00	
DATUM RL	4.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.286	18.238	18.065	17.985	17.972
PIPE FLOW (Cumecs)	0.000	
PIPE CAPACITY AT GRADE (Cumecs)	0.097	
DEPTH TO INVERT	0.900	0.982	2.142
INVERT LEVEL OF DRAIN	18.286	18.238	17.078
DESIGN SURFACE LEVEL	19.186	19.220	
SETOUT COORDINATES	E: 537910.551 N: 6906964.317	E: 537915.355 N: 6906964.126
CHAINAGE	0.000	4.808	4.808

STRUCTURE NAME	01-04	02-04	03-04	04-01
STRUCTURE DESCRIPTION	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010	
PIPE SIZE (mm)	225	300	300	
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	BLACKMAX	
PIPE GRADE (%)	1.00%	0.93%	5.39%	
PIPE SLOPE (1 in X)	99.9	107.2	18.5	
FULL PIPE VELOCITY (m/s)	0.00	0.12	0.31	
PART FULL VELOCITY (m/s)	0.00	0.82	2.02	
DATUM RL	4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.414	18.382 / 18.005	17.998	17.999 / 18.002	17.988	17.984 / 17.985	17.972
PIPE FLOW (Cumecs)	0.000	0.008	0.022	
PIPE CAPACITY AT GRADE (Cumecs)	0.045	0.093	0.225	
DEPTH TO INVERT	0.709	0.704	1.225	1.363	1.383	2.065	2.142
INVERT LEVEL OF DRAIN	18.414	18.382	17.860	17.722	17.702	17.154	17.078
DESIGN SURFACE LEVEL	19.123	19.085	19.085	19.220
SETOUT COORDINATES	E: 537894.263 N: 6906962.967	E: 537897.457 N: 6906962.317	E: 537910.449 N: 6906955.230	E: 537915.355 N: 6906964.126
CHAINAGE	0.000	3.259	3.259	14.799	18.059	10.159	28.217

STRUCTURE NAME	01-05	03-04
STRUCTURE DESCRIPTION	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010
PIPE SIZE (mm)	225	
PIPE TYPE (CLASS)	BLACKMAX	
PIPE GRADE (%)	0.79%	
PIPE SLOPE (1 in X)	126.3	
FULL PIPE VELOCITY (m/s)	0.35	
PART FULL VELOCITY (m/s)	0.92	
DATUM RL	5.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.395	18.333	18.317 / 18.002	17.988
PIPE FLOW (Cumecs)	0.014	
PIPE CAPACITY AT GRADE (Cumecs)	0.040	
DEPTH TO INVERT	0.839	0.860	1.383
INVERT LEVEL OF DRAIN	18.236	18.225	17.702
DESIGN SURFACE LEVEL	19.075	19.085	19.085
SETOUT COORDINATES	E: 537909.085 N: 6906954.941	E: 537910.449 N: 6906955.230
CHAINAGE	0.000	1.395	1.395

STRUCTURE NAME	01-06	02-06	05-01
STRUCTURE DESCRIPTION	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050	MH1050 BCC MANHOLE - 1050mm DIA REFER BCC BSD-8021
PIPE SIZE (mm)	225	300	
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	
PIPE GRADE (%)	6.77%	17.09%	
PIPE SLOPE (1 in X)	14.8	5.9	
FULL PIPE VELOCITY (m/s)	0.20	0.15	
PART FULL VELOCITY (m/s)	1.68	2.42	
DATUM RL	4.0		
H.G.L IN PIPE & W.S.E IN STRUCTURE	18.498	18.478 / 18.040 / 17.970	17.967	17.967 / 17.969	17.958
PIPE FLOW (Cumecs)	0.008	0.010	
PIPE CAPACITY AT GRADE (Cumecs)	0.117	0.400	
DEPTH TO INVERT	0.676	0.787	1.267	1.917	1.937
INVERT LEVEL OF DRAIN	18.405	18.000	17.520	17.000	16.980
DESIGN SURFACE LEVEL	19.081	18.787	18.917
SETOUT COORDINATES	E: 537913.949 N: 6906956.915	E: 537919.363 N: 6906959.462	E: 537922.284 N: 6906960.307
CHAINAGE	0.000	5.984	5.984	3.041	9.024

STRUCTURE NAME	01-07	02-07	03-07	06-01
STRUCTURE DESCRIPTION	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE	IPWEA FI1 IPWEA FIELD INLET TYPE 1 (900x900) SINGLE GULLY REFER IPWEA STD DRG DS-050	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER STD DRG DS-010
PIPE SIZE (mm)	225	300	300	
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	BLACKMAX	
PIPE GRADE (%)	1.03%	7.89%	12.96%	
PIPE SLOPE (1 in X)	97.2	12.7	7.7	
FULL PIPE VELOCITY (m/s)	0.25	0.14	0.19	
PART FULL VELOCITY (m/s)	0.91	1.82	2.38	
DATUM RL	4.0			
H.G.L IN PIPE & W.S.E IN STRUCTURE	19.026	18.996	18.972 / 18.057	18.054	17.952	17.949	17.948 / 17.951	17.932
PIPE FLOW (Cumecs)	0.010	0.010	0.014	
PIPE CAPACITY AT GRADE (Cumecs)	0.046	0.272	0.348	
DEPTH TO INVERT	0.675	0.666	1.587	1.172	1.192	1.713	1.733
INVERT LEVEL OF DRAIN	18.915	18.901	17.980	17.320	17.300	16.906	16.886
DESIGN SURFACE LEVEL	19.590	19.567	18.492	18.619
SETOUT COORDINATES	E: 537922.805 N: 6906948.027	E: 537921.622 N: 6906948.670	E: 537925.878 N: 6906955.669	E: 537928.799 N: 6906956.714
CHAINAGE	0.000	1.346	1.346	8.363	9.710	3.041	12.750

LINE: 02 | 03 | 04 | 05 | 06 | 07

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P2	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P3	19/07/2023	100% DD ISSUE	JAM	JAM	MM

CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: AS SHOWN
VER SCALE 1:100 0 1 2 3 4m
HOR SCALE 1:500 0 5 10 15 20m

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

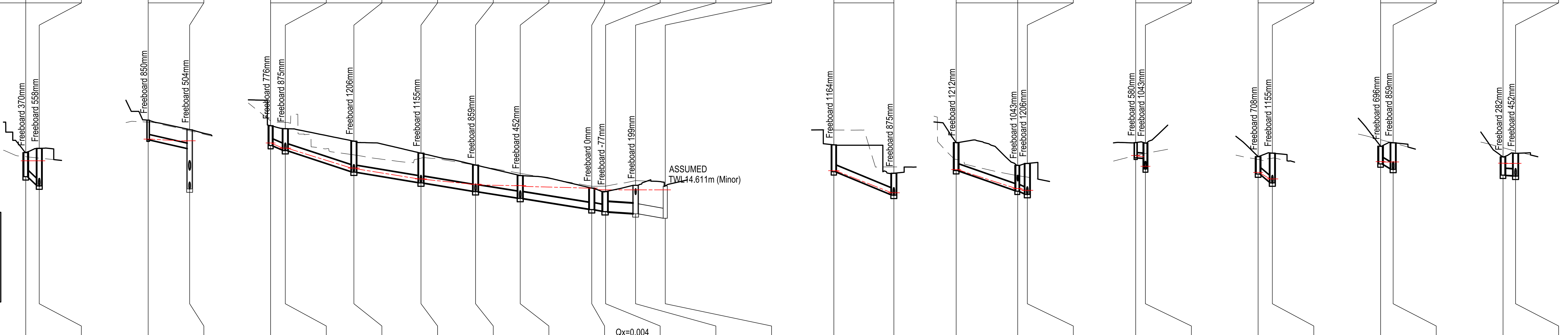
PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS - SHEET 1 OF 3

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0410	P3

STORMWATER LONGITUDINAL SECTIONS - SHEET 2 OF 3

Structures

Line	Structure name	Structure description
08	01-08	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
08	07-01	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
09	01-09	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE
09	EX1-01	IPWEA FI3 1050MH 600x600 IPWEA FIELD INLET TYPE 2A SINGLE GULLY ON 1050 DIA MH REFER IPWEA STD DRG DS-050 & DS-010
10	01-10	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
10	02-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	04-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	05-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	06-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	07-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	08-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
10	09-10	IPWEA FI1 IPWEA FIELD INLET TYPE 1 (900x900) SINGLE GULLY REFER IPWEA STD DRG DS-050
10	EX1-10	IPWEA FI3 1050MH 600x600 IPWEA FIELD INLET TYPE 2A SINGLE GULLY ON 1050 DIA MH REFER IPWEA STD DRG DS-050 & DS-010
10	EX2-10	IPWEA LL S 300 IPWEA KERB INLET - LIP IN LINE (ON-GRADE) 300mm CHANNEL; S LINTEL; STD DRG DS-063
11	01-11	IPWEA FI1 IPWEA FIELD INLET TYPE 1 (900x900) SINGLE GULLY REFER IPWEA STD DRG DS-050
11	02-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
12	01-12	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
12	02-12	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
12	04-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
13	01-13	TRENCH DRAIN 200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRATE
13	02-12	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
14	01-14	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
14	05-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
15	01-15	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
15	06-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010
16	01-16	IPWEA FI2a IPWEA FIELD INLET TYPE 2a (600x600) SINGLE GULLY REFER IPWEA STD DRG DS-050
16	07-10	IPWEA MH1050 IPWEA ACCESS CHAMBER 1050mm DIA REFER IPWEA STD DRG DS-010



NOTE

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PROJECT NOTES ON C-0010, C-0011 AND DOCUMENTS AND STANDARD DRAWINGS AS SHOWN ON C-0000
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

LINE 08

	01-08 → 07-01
EXCESS PIPE FLOW (Cumecs)	
PIPE SIZE (mm)	300
PIPE TYPE (CLASS)	BLACKMAX
PIPE GRADE (%)	12.98%
PIPE SLOPE (1 in X)	7.7
FULL PIPE VELOCITY (m/s)	0.05
PART FULL VELOCITY (m/s)	1.57
DATUM RL	4.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	17.912 / 17.911 / 17.911, 17.912 / 17.903
PIPE FLOW (Cumecs)	0.003
PIPE CAPACITY AT GRADE (Cumecs)	0.349
DEPTH TO INVERT	1.082 / 1.665 / 1.685
INVERT LEVEL OF DRAIN	17.200 / 16.805 / 16.785
DESIGN SURFACE LEVEL	18.282 / 18.470
SETOUT COORDINATES	E: 537932.963 N: 6906951.962 / E: 537935.886 N: 6906952.805
CHAINAGE	0.000 / 3.042 / 3.042

LINE 09

	01-09 → EX1-01
EXCESS PIPE FLOW (Cumecs)	
PIPE SIZE (mm)	225
PIPE TYPE (CLASS)	BLACKMAX
PIPE GRADE (%)	4.18%
PIPE SLOPE (1 in X)	23.9
FULL PIPE VELOCITY (m/s)	0.03
PART FULL VELOCITY (m/s)	0.79
DATUM RL	3.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	17.885 / 17.798, 17.809 / 17.754
PIPE FLOW (Cumecs)	0.001
PIPE CAPACITY AT GRADE (Cumecs)	0.092
DEPTH TO INVERT	0.877 / 0.844 / 2.664
INVERT LEVEL OF DRAIN	17.858 / 17.469 / 15.649
DESIGN SURFACE LEVEL	18.736 / 18.313
SETOUT COORDINATES	E: 537937.193 N: 6906934.675 / E: 537943.965 N: 6906939.689
CHAINAGE	0.000 / 9.319 / 9.319

LINE 10 (DATUM RL 2.0; values given upstream / downstream per pipe)

	01-10 → 02-10	02-10 → 04-10	04-10 → 05-10	05-10 → 06-10	06-10 → 07-10	07-10 → 08-10	08-10 → 09-10	09-10 → EX1-10	EX1-10 → EX2-10
EXCESS PIPE FLOW (Cumecs)							Qx=0.004		
PIPE SIZE (mm)	300	300	300	300	300	300	300	450	450
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	EXISTING
PIPE GRADE (%)	6.38%	6.13%	3.09%	3.02%	2.83%	3.01%	2.32%	1.12%	3.02%
PIPE SLOPE (1 in X)	15.7	16.3	32.4	33.1	35.3	33.3	43.1	89.1	33.1
FULL PIPE VELOCITY (m/s)	0.21	0.25	0.53	0.63	0.80	0.95	0.95	0.47	0.53
PART FULL VELOCITY (m/s)	1.90	1.99	1.92	2.01	2.10	2.24	2.03	1.57	2.32
H.G.L IN PIPE & W.S.E IN STRUCTURE	16.712 / 16.691 / 16.478	16.472 / 15.583, 15.587	15.553 / 15.098, 15.100	15.083 / 14.858, 14.864	14.829 / 14.795, 14.799	14.765 / 14.687, 14.688	14.624	14.611	14.611 / 14.611
PIPE FLOW (Cumecs)	0.015	0.018	0.037	0.044	0.057	0.067	0.067	0.073	0.084
PIPE CAPACITY AT GRADE (Cumecs)	0.244	0.240	0.170	0.168	0.163	0.168	0.147	0.297	0.496
DEPTH TO INVERT	0.888 / 0.963	0.983 / 1.369	1.389 / 1.315	1.335 / 1.173	1.193 / 1.005	1.025 / 0.945	0.965 / 0.883	0.903 / 1.255	1.275 / 1.450 / 1.450
INVERT LEVEL OF DRAIN	16.600 / 16.390	16.370 / 15.425	15.405 / 14.940	14.920 / 14.550	14.530 / 14.246	14.226 / 13.743	13.723 / 13.651	13.631 / 13.555	13.535 / 13.334 / 13.334
DESIGN SURFACE LEVEL	17.488 / 17.353	16.794	16.255	15.723	15.251	14.688	14.534	14.810	14.784
SETOUT COORDINATES	E: 537975.191 N: 6906900.849 / E: 537978.357 N: 6906899.946	E: 537987.420 N: 6906887.483	E: 537996.339 N: 6906875.338	E: 538003.573 N: 6906865.437	E: 538009.490 N: 6906857.340	E: 538018.971 N: 6906844.366	E: 538018.493 N: 6906841.296	E: 538012.947 N: 6906837.465	E: 538014.143 N: 6906830.918
CHAINAGE	0.000 / 3.293 / 3.293	15.410 / 18.702	15.068 / 33.770	12.263 / 46.033	10.029 / 56.062	16.069 / 72.130	3.106 / 75.236	6.741 / 81.977	6.656 / 88.633

LINES 11 – 16

	11: 01-11 → 02-10	12: 01-12 → 02-12	12: 02-12 → 04-10	13: 01-13 → 02-12	14: 01-14 → 05-10	15: 01-15 → 06-10	16: 01-16 → 07-10
EXCESS PIPE FLOW (Cumecs)							
PIPE SIZE (mm)	300	300	300	225	300	300	300
PIPE TYPE (CLASS)	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX	BLACKMAX
PIPE GRADE (%)	7.65%	6.55%	5.79%	0.96%	11.89%	7.89%	0.85%
PIPE SLOPE (1 in X)	13.1	15.3	17.3	104.3	8.4	12.7	117.5
FULL PIPE VELOCITY (m/s)	0.05	0.05	0.27	0.23	0.11	0.18	0.16
PART FULL VELOCITY (m/s)	1.32	1.25	1.99	0.87	1.94	1.96	0.86
DATUM RL	4.0	3.0		2.0	2.0	1.0	1.0
H.G.L IN PIPE & W.S.E IN STRUCTURE	17.466 / 17.465 / 16.478 / 16.472	16.520 / 16.519 / 15.665, 15.666	15.655 / 15.583, 15.587 / 15.553	16.151 / 16.124 / 16.095, 15.666 / 15.655	15.391 / 15.385 / 15.098, 15.100 / 15.083	14.873 / 14.857 / 14.858, 14.864 / 14.829	14.806 / 14.796 / 14.795, 14.799 / 14.765
PIPE FLOW (Cumecs)	0.003	0.004	0.019	0.009	0.008	0.013	0.011
PIPE CAPACITY AT GRADE (Cumecs)	0.268	0.248	0.233	0.044	0.334	0.272	0.089
DEPTH TO INVERT	1.209 / 0.963 / 0.983	1.257 / 1.139	1.159 / 1.369 / 1.389	0.685 / 0.684 / 1.159	0.779 / 1.315 / 1.335	0.796 / 1.173 / 1.193	0.818 / 1.005 / 1.025
INVERT LEVEL OF DRAIN	17.421 / 16.390 / 16.370	16.475 / 15.570	15.550 / 15.425 / 15.405	16.046 / 16.025 / 15.550	15.320 / 14.940 / 14.920	14.773 / 14.550 / 14.530	14.270 / 14.246 / 14.226
DESIGN SURFACE LEVEL	18.630 / 17.353	17.732 / 16.709	16.794	16.731 / 16.709	16.099 / 16.255	15.569 / 15.723	15.088 / 15.251
SETOUT COORDINATES	E: 537967.480 N: 6906891.997 / E: 537978.357 N: 6906899.946	E: 537972.000 N: 6906888.134 / E: 537985.681 N: 6906886.200	E: 537987.420 N: 6906887.483	E: 537987.731 N: 6906885.428 / E: 537985.681 N: 6906886.200	E: 537993.178 N: 6906875.811 / E: 537996.339 N: 6906875.338	E: 538000.782 N: 6906865.872 / E: 538003.573 N: 6906865.437	E: 538006.703 N: 6906857.773 / E: 538009.490 N: 6906857.340
CHAINAGE	0.000 / 13.472 / 13.472	0.000 / 13.817 / 13.817	2.160 / 15.978	0.000 / 2.190 / 2.190	0.000 / 3.195 / 3.195	0.000 / 2.825 / 2.825	0.000 / 2.821 / 2.821

BLIGH TANNER

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REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED
P1	17/05/2023	COORDINATION ISSUE	JAM	JAM	MM
P2	24/05/2023	90% DD ISSUE	JAM	JAM	MM
P3	19/07/2023	100% DD ISSUE	JAM	JAM	MM

CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: AS SHOWN — VER SCALE 1:100 (0 1 2 3 4m); HOR SCALE 1:500 (0 5 10 15 20m)

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS - SHEET 2 OF 3

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0411	P3

STRUCTURE NAME	01-17		EX1-10
STRUCTURE DESCRIPTION	200mm WIDE TRENCH DRAIN WITH HEELS SAFE GRRATE TRENCH DRAIN		600x600 IPWEA FIELD INLET TYPE 2A SINGLE GULLY ON 1050 DIA MH REFER IPWEA STD DRG DS-050 & DS-010 IPWEA FI3 1050MH
	Freeboard 704mm	Freeboard 199mm	

NOTE

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PROJECT NOTES ON C-0010, C-0011 AND DOCUMENTS AND STANDARD DRAWINGS AS SHOWN ON C-0000
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS

EXCESS PIPE FLOW (Cumecs)			
PIPE SIZE (mm)		225	
PIPE TYPE (CLASS)		BLACKMAX	
PIPE GRADE (%)		1.29%	
PIPE SLOPE (1 in X)		77.2	
FULL PIPE VELOCITY (m/s)		0.07	
PART FULL VELOCITY (m/s)		0.70	
DATUM RL		1.0	
H.G.L IN PIPE & W.S.E IN STRUCTURE	14.613	14.610	14.611
PIPE FLOW (Cumecs)		0.003	
PIPE CAPACITY AT GRADE (Cumecs)		0.051	
DEPTH TO INVERT	0.843	0.393	1.275
INVERT LEVEL OF DRAIN	14.474	14.417	13.535
DESIGN SURFACE LEVEL	15.317	14.810	
SETOUT COORDINATES	E: 538008.721 N: 6906836.173	E: 538012.947 N: 6906837.465	
CHAINAGE	0.000	4.419	4.419

LINE 17

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CLIENT: Queensland Government

ARCHITECT: Hassell

SCALES: AS SHOWN
VER SCALE 1:100 0 1 2 3 4m
HOR SCALE 1:500 0 5 10 15 20m

STATUS: NOT FOR CONSTRUCTION

DRAWN BY: J MARTIN
DESIGN BY: J MARTIN
CHECKED BY: M MARTIN
SIGNED:

PROJECT: LUMINA OPEN SPACE
LOCATION: NEXUS WAY, SOUTHPORT
DRAWING TITLE: STORMWATER LONGITUDINAL SECTIONS - SHEET 3 OF 3

PRINTING REQUIREMENTS	PROJECT NUMBER	DRAWING NUMBER	REVISION
PRINT THIS DRAWING IN COLOUR	2022.0021	C-0412	P3

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