LEGEND

- SITE BOUNDARY
- MAXIMUM PLANNING ENVELOPE ABOVE GROUND LEVEL
- MAXIMUM PLANNING ENVELOPE BELOW GROUND LEVEL
- CONSTRUCTION ROAD ALONG APPROXIMATE ALIGNMENT OF FINAL CAMPUS ROAD (DETAILS TO BE FINALISED IN STAGE 2)
- ROAD INTERSECTION CONSTRUCTED IN ACCORDANCE WITH S.138 APPROVAL REFLECTING FINAL ALIGNMENT, TEMPORARY SEAL (FINAL SEAL, KERBING, FOOTPATH / CYCLEWAY (AS RELEVANT), LINE MARKING ETC. TO BE COMPLETED IN STAGE 2
- TEMPORARY CONSTRUCTION ROAD
- EXISTING TREES TO BE RETAINED REFER "L-EIS-1 TREE REMOVAL AND PRESERVATION PLAN"

00	ISSUED FOR INFORMATION	20/02/2018
01	ISSUED FOR INFORMATION	22/01/2019
02	ISSUED FOR INFORMATION	23/04/2019
03	ISSUED FOR INFORMATION	02/05/2019
04	ISSUED FOR INFORMATION	03/05/2019

DIMENSIONS

USE FIGURED DIMENSIONS, DO NOT SCALE. CONTRACTORS MUST VERIFY ALL DIMENSIONS ON THE SITE BEFORE COMMENCING ANY WORK OR MAKING ANY SHOP DRAWING WHICH MUST BE SUBMITTED AND REVIEWED BEFORE MANUFACTURE.

FIXTURES, FITTINGS & EQUIPMENT SPECIFICATIONS

SUBSTITUTE FF&E EQUIPMENT SPECIFICATIONS

THE FIT-OUT DESIGN AND DOCUMENTATION HAS BEEN COMPLETED ON THE BASIS OF FF&E AND EQUIPMENT ADVISED TO THIS OFFICE AT THE TIME OF BRIEFING THE DESIGN. THE DESIGN PROVISIONS FOR FF&E AND EQUIPMENT INCORPORATES SPATIAL ALLOCATIONS, SERVICING, LOADING AND ACCESS CLEARANCES AND WHERE APPROPRIATE SERVICES REQUIREMENTS, HAVING DUE REGARD FOR SURROUNDING FIXTURES AND FITTINGS. IT SHOULD BE NOTED THAT SUBSTITUTE FF&E OR EQUIPMENT WITH ALTERNATE SPECIFICATIONS SHOULD NOT BE PROCURED PRIOR TO VALIDATING THOSE SPECIFICATIONS AGAINST THE ITEN CONTROL SCHEDULE AND DESIGN PROVISIONS IN THE MODEL. THIS OFFICE ACCEPTS NO RESPONSIBILITY FOR THE PROCUREMENT OF SUBSTITUTE FF&E AND EQUIPMENT WHICH HAS NOT BEEN REVIEWED AND VALIDATED AGAINST THE ORIGINAL DESIGN PROVISIONS

SERVICE POINTS DISCLAIMER

THE SERVICE POINTS IDENTIFIED ON THESE DRAWINGS HAVE BEEN OVERLAYED FROM THE BUILDING SERVICES ENGINEERING MODEL, AND ARE PROVIDED FOR INFORMATION AND SET-OUT PURPOSES ONLY. WE HAVE BEEN ADVISED BY THE SERVICES ENGINEERS THAT THE POINTS REPRESENTED ON THESE DRAWINGS ARE CORRECT AT THE TIME OF PUBLICATION. THIS OFFICE DOES NOT WARRANT THE ACCURACY OF THIS DATA. REFER TO THE BUILDING SERVICES ENGINEERING DOCUMENTATION FOR THE INSTALLATION OF THE SERVICES POINTS, AND THE INTERFACE BETWEEN THE SERVICES POINTS AND THE RESPECTIVE ENGINEERING SYSTEMS

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed ...

Sheet No. 23 of 50

ARCHITECTS

STH BATESSMART.

ABN: 21 134 476 065
LEVEL 4, 89 YORK STREET
SYDNEY NSW 2000, AUSTRALIA
PH: (02) 8299 4600 FAX: (03) 9885 2455

43 BRISBANE STREET,
SURRY HILLS, NSW 2010
ABN: 68 094 740 986 PH: (02) 8354 5100
E: syd@batessmart.com.au

PROJECT MANAGER

TSA MANAGEMENT

CLIENT

NSW GOVERNMENT Health Infrastructure | Health Northern NSW Local Health District

PROJECT

TWEED VALLEY HOSPITAL

771 Cudgen Road, Cudgen

DRAWING TITLE

STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION GENERAL ARRANGEMENT

SCALE

0 25 50 75 100 125 m

SCALE	DATE	DRAWN BY	CHECKED
1:2500@A3	03/05/2019	SL	AB

PROJECT No	DRAWING No	REVISION
10363.00	AR-SKE-10-110	04

LANDSCAPE PROPOSAL

TREE REMOVAL AND PRESERVATION PLAN

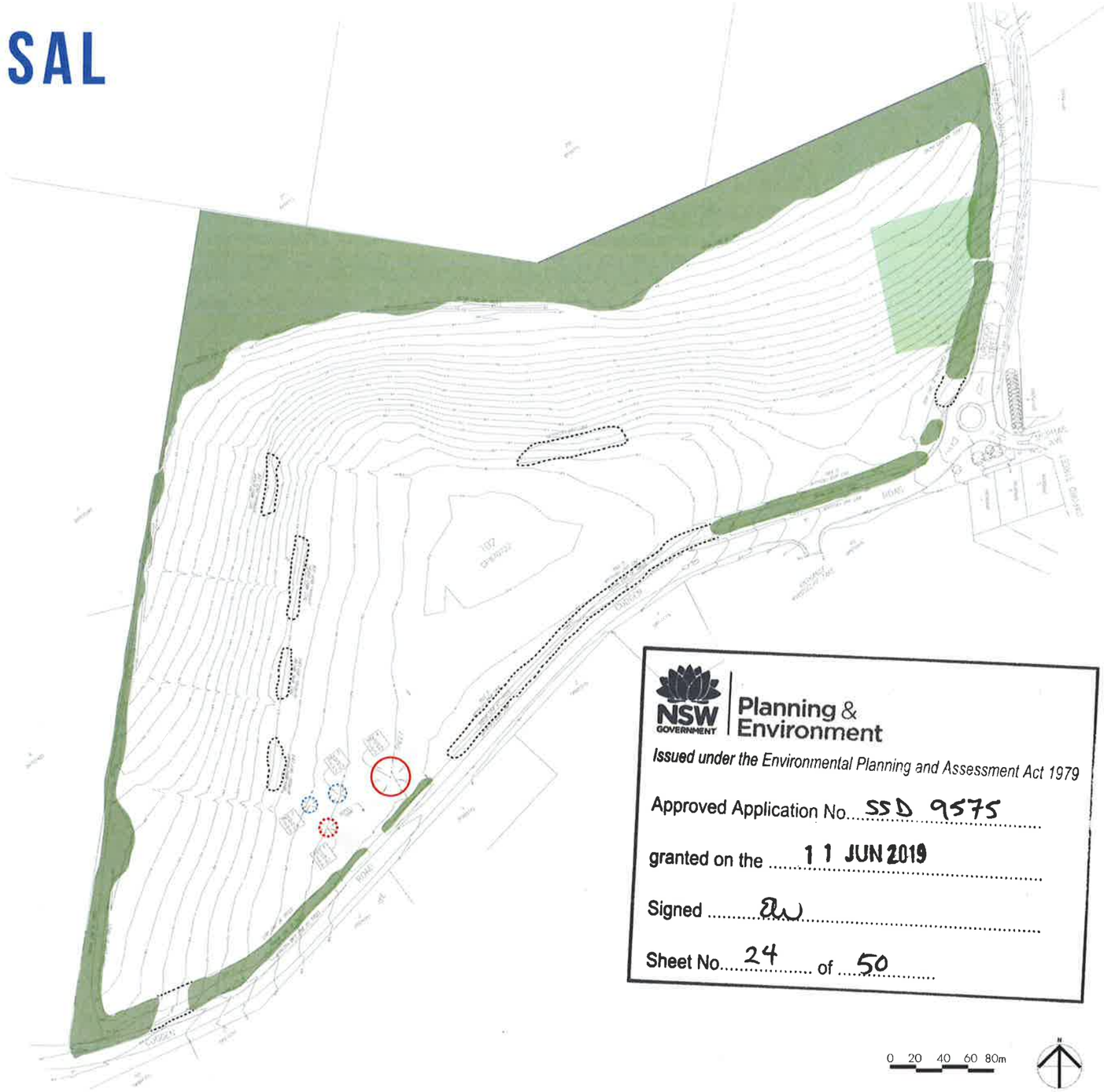
Hospital planning has focused development high on the site and with an appropriate offset from the northern bush covered wetland to ensure it is undisturbed.

Existing windbreak planting to Cudgen Rd is proposed for retention where possible to mitigate visual impacts of the development and spray drift from adjacent farmland. Removal of vegetation is required in some locations to accommodate road widening, new entry roadways, and easements. Vegetated buffer zones along Cudgen Rd will be designed to supplement the existing buffer planting.

Existing trees will be retained wherever possible, and integrated as landscape features of the development.

LEGEND

- Existing trees to be retained in accordance with BMP (Biodiversity Management Plan).
  (TPZ in accordance with arborist report and AS 4970-2009)
- Existing Fruit Tree Orchard to be retained
- Existing trees to be removed
  (due to development footprint and road works)
- High retention value tree - to be retained
  (TPZ in accordance with arborist report and AS 4970-2009)
- Moderate retention value tree - to be retained if possible, pending detail civil roadworks design
- Moderate retention value tree - to be removed



NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed ....

Sheet No. 24 of 50

0 20 40 60 80m

TWEED VALLEY HOSPITAL DEVELOPMENT
STAGE 1 - EARLY AND ENABLING WORKS

DRAWING LIST DELETED FOR SSDA RESUBMISSION - NOT APPLICABLE

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed .....

Sheet No. 25 of 50

GENERAL NOTES

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS. CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.

G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTON OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD, REFERENCE: GE18/144, DATED AUGUST 2018.

G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.

G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.

G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.

G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.

G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.

G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.

G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

SITEWORKS NOTES

S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E1.1' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.

S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD REFERENCE: GE18/144 DATED AUGUST 2018 MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILED BELOW FOR (ALL REQUIREMENTS ARE TO VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER):

- LANDSCAPED AREAS 95% STD.
- FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL;
  - FINE CRUSHED ROCK 98% STD.
  - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT 98% STD.
- BUILDING BASECOURSE 98% MOD
- FILL UNDER ROAD PAVEMENTS;
  - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL 98% STD.
  - UP TO FINISHED SUBGRADE LEVEL 98% STD.
- ROAD PAVEMENT MATERIALS;
  - SUB BASE 98% MOD.
  - BASE COURSE 98% MOD.

THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.

S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES

S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER

S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT

S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.

S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.

S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS

S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011

B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011

S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

STORMWATER DRAINAGE NOTES

SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SYPHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.

SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 2 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR ⌀225mm OR SMALLER.

SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.

SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.

SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY BONACCI GROUP.

SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.

SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES, GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.

SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED, DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

KERBING NOTES

K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O

K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.

K3 EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.

K6 IN THE REPLACEMENT OF KERBS:-
- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
- EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN

JOINTING NOTES

PEDESTRIAN FOOTPATH JOINTS

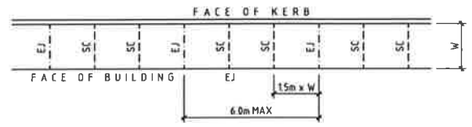
J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.

J2 SAWCUT JOINTS (SC) ARE TO BE LOCATED AT A MAX 1.5m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED.

J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.

J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS

J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).



VEHICULAR PAVEMENT JOINTS

J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.

J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJ's SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.

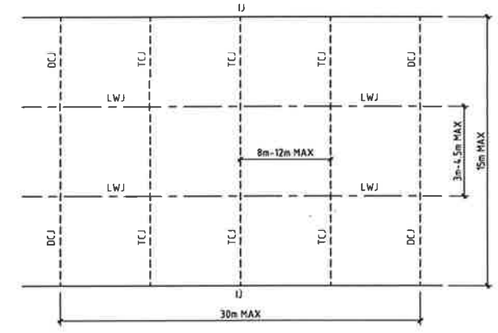
J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 8m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.

J9 TRANSVERSE DOWELLED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.

J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.

J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 PAVEMENT DESIGN FOR LIGHT TRAFFIC

J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.)



Rev	Description	Date	By	App
P5	DA ISSUE	16.01.19	DB	-
P4	ISSUED FOR EARLY AND ENABLING WORKS	16.10.18	PN	-
P3	ISSUED FOR EARLY WORKS DA	04.10.18	PN	-
P2	ISSUED FOR EARLY WORKS DA	06.09.18	PA	-
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

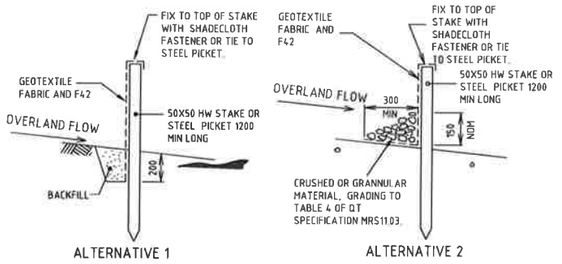
Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, CUDGEN STAGE 1 EARLY WORKS

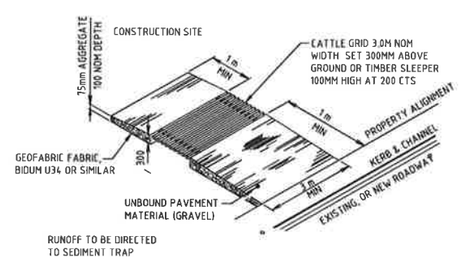
Drawing Title: DRAWING REGISTER AND CONSTRUCTION NOTES

DEVELOPMENT APPLICATION

Designed	CS	Project Director Approved	Date
Drawn	PA		
Scale	-		North
Date	03.09.18	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C001 P5

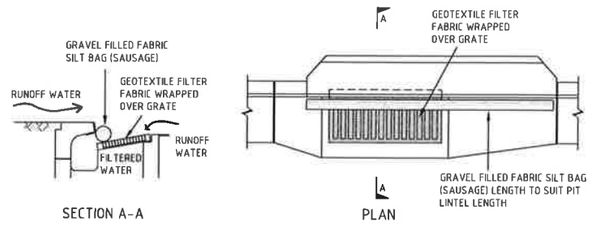
File: G:\Jobs\10748\903 Work in Progress\02 Civil\01 CAD\01 Autocad\000 Series - Early Works\10748C-C001.dwg Plotted: 16.01.19 at 6.05 PM By: Dean Bowen





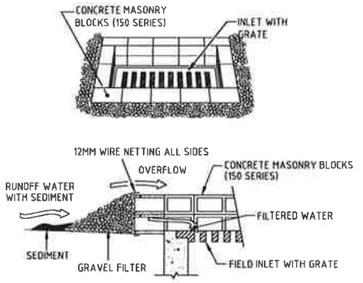
TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP

NOT TO SCALE



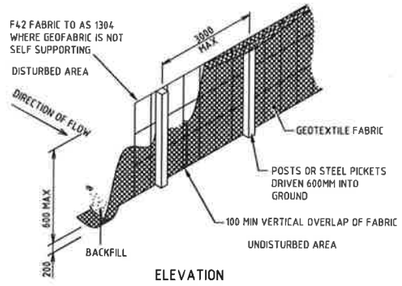
KERB INLET SEDIMENT TRAP

NOT TO SCALE



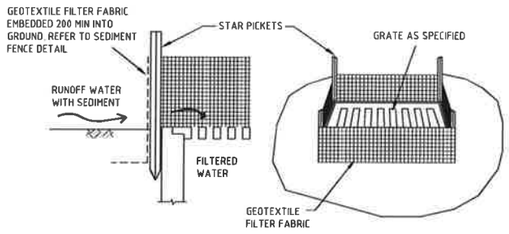
FIELD INLET SEDIMENT TRAP

NOT TO SCALE



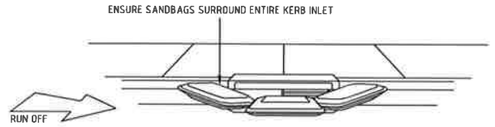
SEDIMENT FENCE

NOT TO SCALE



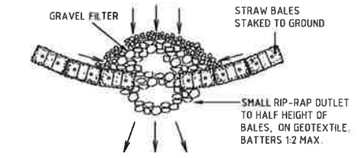
GEOTEXTILE PIT FILTER 1

NOT TO SCALE



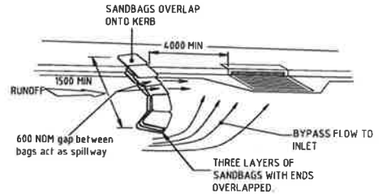
SANDBAG KERB INLET SEDIMENT TRAP

NOT TO SCALE



STRAW BALE AND STONE TRAP SEDIMENT CONTROL (CONCENTRATE FLOW)

NOT TO SCALE



ON GRADE KERB INLET SEDIMENT TRAP

NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE

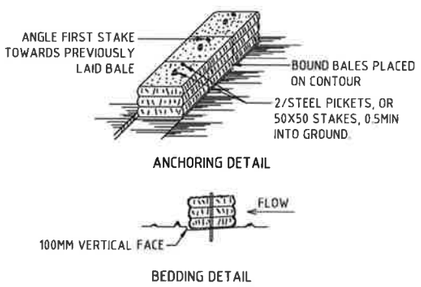
NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE NOTES

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.

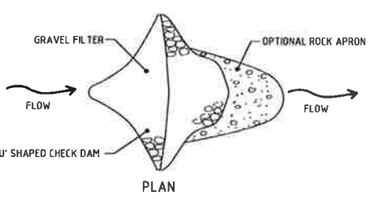
GEOTEXTILE PIT FILTER 2

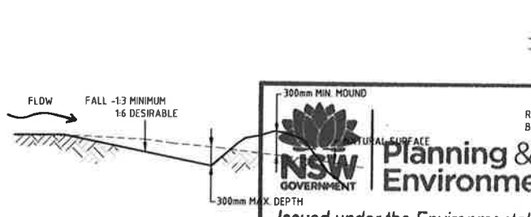
NOT TO SCALE



STRAW BALE BANK SEDIMENT CONTROL

NOT TO SCALE





CATCH DRAIN

NOT TO SCALE

CHECK DAMS FLOW CONTROL

NOT TO SCALE

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed .....

Sheet No. 26 of 50

Rev	Description	Date	By	App
P2	DA ISSUE	16.01.19	DB	-
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, CUDGEN STAGE 1 EARLY WORKS

Drawing Title: SOIL AND WATER MANAGEMENT DETAILS

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PA		
Scale	-	Project Ref	Drawing No / Rev
Date	03.09.18	20 10748 01	C006 P2
Sheet	A1		

North

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: TWEED VALLEY HOSPITAL

Site Location: TWEED VALLEY HOSPITAL CUDGEN ROAD KINGSCLIFF

Precinct: HEALTH

Description of Site:

Site area	Site						Remarks
	1	2	3	4	5	6a	
Total catchment area (ha)	1.9	3.12	2.17	0.34	0.21	0.86	
Disturbed catchment area (ha)	1.9	3.12	2.17	0.34	0.21	0.86	

Soil analysis

% sand (faction 0.02 to 2.00 mm							Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e)
Soil Texture Group							See Section 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5	5	5	5	5	5	See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	85	85	85	85	85	85	See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	62.5	62.5	62.5	62.5	62.5	62.5	See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	15.9	15.9	15.9	15.9	15.9	15.9	See IFD chart for the site

RUSLE Factors

Rainfall erosivity (*R*-factor)	5750	5750	5750	5750	5750	5750	Automatic calculation from above data
Soil erodibility (*K*-factor)	0.015	0.015	0.015	0.015	0.015	0.015	RUSLE data can be obtained from Appendixes A, B and C
Slope length (m)	173	103	106	55	52	85	
Slope gradient (%)	6.36	13.9	4.9	25	7.1	16.8	
Length/gradient (*LS*-factor)	2.38	5.42	1.36	6.8	1.31	7.29	
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Calculations

Soil loss (t/ha/yr)	267	608	152	762	147	817	
Soil Loss Class	3	5	2	6	1	6	See Section 4.4.2(b)
Soil loss (m^3/ha/yr)	205	467	117	587	113	629	
Sediment basin storage volume, m^3	66	248	43	34	4	92	See Sections 6.3.4(i) and 6.3.5 (e)

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 27 of 50

4. Volume of Sediment Basins, *Type D* and *Type F* Soils

Basin volume = settling zone volume + sediment storage zone volume

Settling Zone Volume

The settling zone volume for *Type F* and *Type D* soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day, y-\%ile}} \ (m^3)$$

where:

10 = a unit conversion factor

C_v = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

$R_{x\text{-day, y-\%ile}}$ = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

Sediment Storage Zone Volume

In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 50 percent of the settling zone capacity. Alternately designers can design the zone to store the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)). However, on Soil Loss Classes 5, 6 and 7 lands, the zone must contain the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(iii).

Place an "X" in the box below to show the sediment storage zone design parameters used here:

	50% of settling zone capacity,
X	2 months soil loss calculated by RUSLE

Total Basin Volume

Site	C_v	$R_{x\text{-day, y-\%ile}}$	Total catchment area (ha)	Settling zone volume (m^3)	Sediment storage volume (m^3)	Total basin volume (m^3)
1	0.70	62.5	1.9	831.25	66	897.25
2	0.70	62.5	3.12	1365	248	1613
3	0.70	62.5	2.17	949.375	43	992.375
4	0.70	62.5	0.34	148.75	34	182.75
5	0.70	62.5	0.21	91.875	4	95.875
6a	0.70	62.5	0.86	376.25	92	468.25

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: TWEED VALLEY HOSPITAL

Site Location: TWEED VALLEY HOSPITAL CUDGEN ROAD KINGSCLIFF

Precinct: HEALTH

Description of Site:

Site area	Site						Remarks
	6b	7	8	9	10	11	
Total catchment area (ha)	0.19	0.34	1.46	0.83	0.88	1.06	
Disturbed catchment area (ha)	0.19	0.34	1.46	0.83	0.88	1.06	

Soil analysis

% sand (faction 0.02 to 2.00 mm							Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e)
Soil Texture Group							See Section 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5	5	5	5	5	5	See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	85	85	85	85	85	85	See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	62.5	62.5	62.5	62.5	62.5	62.5	See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	15.9	15.9	15.9	15.9	15.9	15.9	See IFD chart for the site

RUSLE Factors

Rainfall erosivity (*R*-factor)	5750	5750	5750	5750	5750	5750	Automatic calculation from above data
Soil erodibility (*K*-factor)	0.015	0.015	0.015	0.015	0.015	0.15	
Slope length (m)	64	98	76	124	82	188	
Slope gradient (%)	1.5	2.9	19.7	5.3	1.95	3.4	RUSLE data can be obtained from Appendixes A, B and C
Length/gradient (*LS*-factor)	0.25	0.71	7.1	1.6	0.41	1.3	
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Calculations

Soil loss (t/ha/yr)	28	80	796	179	46	1458	
Soil Loss Class	1	1	6	2	1	6	See Section 4.4.2(b)
Soil loss (m^3/ha/yr)	22	61	612	138	35	1121	
Sediment basin storage volume, m^3	1	4	152	19	5	202	See Sections 6.3.4(i) and 6.3.5 (e)

4. Volume of Sediment Basins, *Type D* and *Type F* Soils

Basin volume = settling zone volume + sediment storage zone volume

Settling Zone Volume

The settling zone volume for *Type F* and *Type D* soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day, y-\%ile}} \ (m^3)$$

where:

10 = a unit conversion factor

C_v = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

$R_{x\text{-day, y-\%ile}}$ = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

Sediment Storage Zone Volume

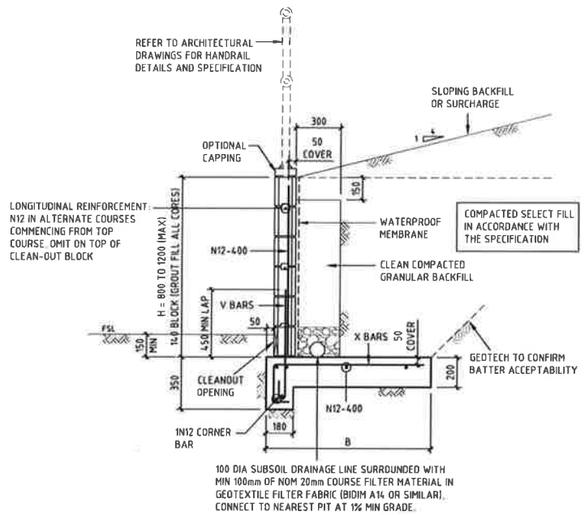
In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 50 percent of the settling zone capacity. Alternately designers can design the zone to store the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)). However, on Soil Loss Classes 5, 6 and 7 lands, the zone must contain the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(iii).

Place an "X" in the box below to show the sediment storage zone design parameters used here:

	50% of settling zone capacity,
X	2 months soil loss calculated by RUSLE

Total Basin Volume

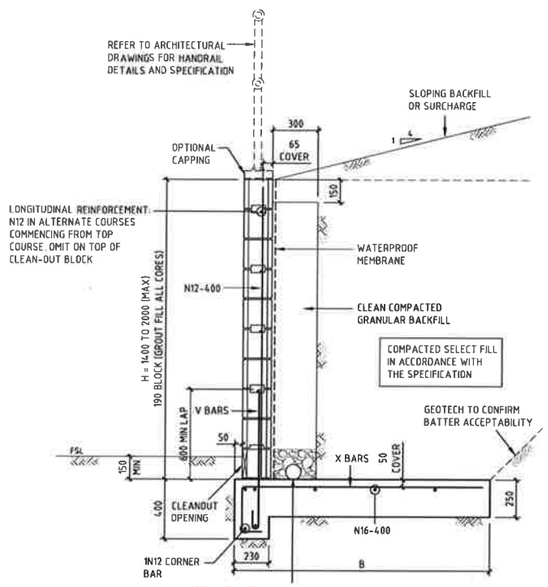
Site	C_v	$R_{x\text{-day, y-\%ile}}$	Total catchment area (ha)	Settling zone volume (m^3)	Sediment storage volume (m^3)	Total basin volume (m^3)
6b	0.70	62.5	0.19	83.125	1	84.125
7	0.70	62.5	0.34	148.75	4	152.75
8	0.70	62.5	1.46	638.75	152	790.75
9	0.70	62.5	0.83	363.64375	19	382.64375
10	0.70	62.5	0.88	385	5	390
11	0.70	62.5	1.06	463.75	202	665.75



BLOCK RETAINING WALL (MAX 1200 HIGH)

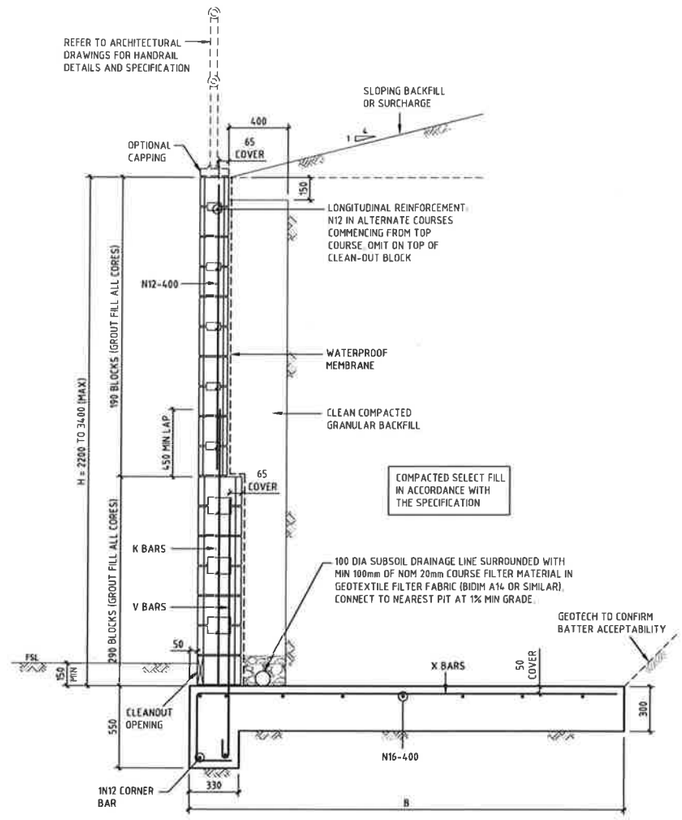
SCALE 1:20

NOTE: DESIGNER TO CHECK THE NEED FOR SHEAR KEY



BLOCK RETAINING WALL (MAX 2000 HIGH)

SCALE 1:20



BLOCK RETAINING WALL (MAX 3400 HIGH)

SCALE 1:20

BLOCK RETAINING WALL BASE TYPE 1

WALL HEIGHT				REINFORCEMENT		BASE DIMENSIONS	
TOTAL HEIGHT (mm) H	HEIGHT OF BLOCKWORK			X-BARS AND V-BARS	K-BARS	WIDTH, B (mm) WITH FOLLOWING BACKFILL CONDITIONS	
	150 SERIES	200 SERIES	300 SERIES			LEVEL	MAX 1:4 SLOPE
800	800	-	-	N12-400	-	800	1000
1000	1000	-	-	N12-400	-	1000	1200
1200	1200	-	-	N12-400	-	1100	1500
1400	-	1400	-	N12-400	-	1300	1700
1600	-	1600	-	N16-400	-	1400	2000
1800	-	1800	-	N16-400	-	1600	2200
2000	-	2000	-	N16-200	-	1700	2500
2200	-	1400	800	N16-400	N16-400	1900	2800
2400	-	1600	800	N16-400	N16-400	2000	3100
2600	-	1600	1000	N20-400	N20-400	2200	3300
2800	-	1800	1000	N20-400	N20-400	2400	3600
3000	-	2000	1000	N16-200	N16-200	2600	3900
3200	-	2000	1200	N20-200	N16-200	2800	4200
3400	-	2000	1400	N20-200	N16-200	2900	4500

Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed ...

Sheet No. 29 of 50

Rev	Description	Date	By	App
P2	DA ISSUE	14.01.19	DB	-
P1	ISSUED FOR EARLY WORKS DA	14.10.18	PH	-

Rev Description Date By App

BONACCI GROUP Pty Ltd
ABN 42 000 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel. +61 2 8247 8400 Fax. +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, CUDGEN STAGE 1 EARLY WORKS

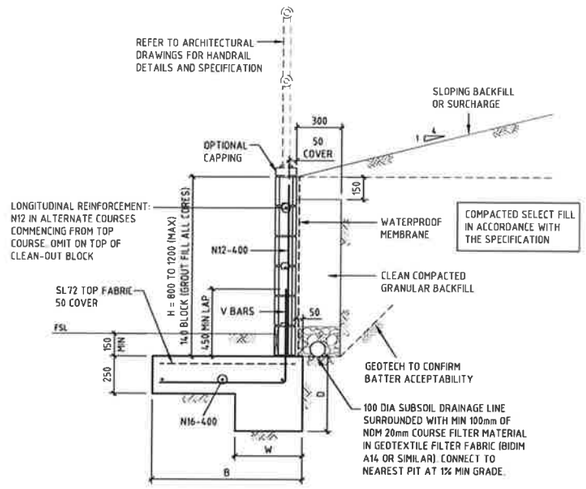
Drawing Title: RETAINING WALL DETAILS SHEET 1

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PA		
Scale	-		
Date	03.09.18	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C055 P2

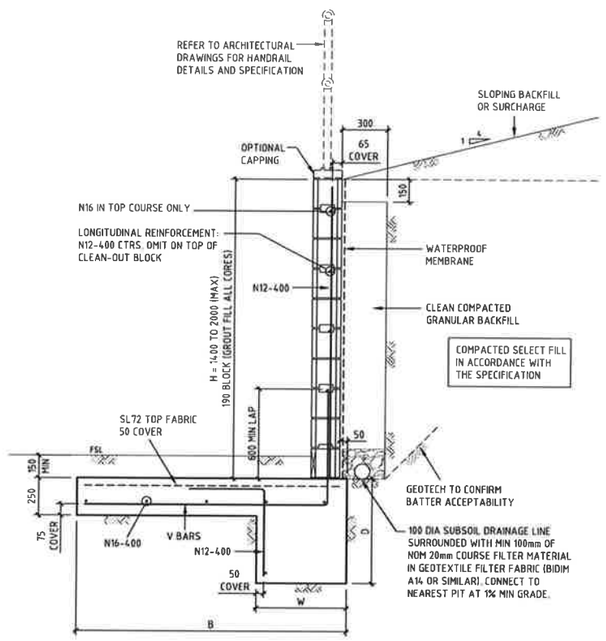
North

File: G:\Jobs\10748\03 Work in Progress\02 Civil\01 CAD\01 Autocad\000 Series - Early Works\10748C-C055.dwg Plotted: 16.01.19 at 5:50 PM By: Dean Brown



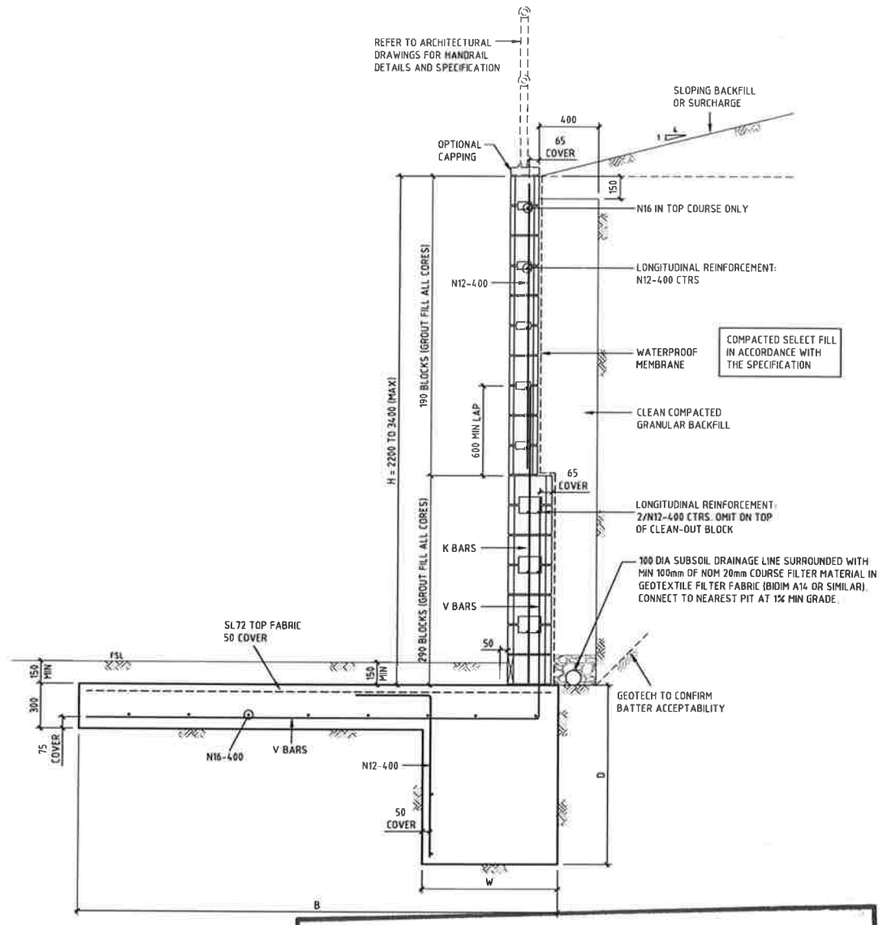
BLOCK RETAINING WALL (MAX 1200 HIGH)

SCALE 1:20



BLOCK RETAINING WALL (MAX 2000 HIGH)

SCALE 1:20



BLOCK RETAINING WALL (MAX 3400 HIGH)

SCALE 1:20

BLOCK RETAINING WALL BASE TYPE 2

WALL HEIGHT				REINFORCEMENT		BASE DIMENSIONS				
	HEIGHT OF BLOCKWORK						LEVEL BACKFILL		MAX 1:4 SLOPING BACKFILL	
TOTAL HEIGHT (mm) H	150 SERIES	200 SERIES	300 SERIES	X-BARS AND V-BARS	K-BARS	HEEL WIDTH (mm) W	BASE WIDTH (mm) B	HEEL DEPTH (mm) D	BASE WIDTH (mm) B	HEEL DEPTH (mm) D
800	800	-	-	N12-400	-	450	600	500	800	500
1000	1000	-	-	N12-400	-	450	800	500	1000	500
1200	1200	-	-	N12-400	-	450	1000	500	1200	600
1400	-	1400	-	N16-400	-	450	1200	500	1400	600
1600	-	1600	-	N16-400	-	450	1400	600	1600	700
1800	-	1800	-	N16-400	-	450	1600	700	1800	800
2000	-	2000	-	N16-200	-	600	1800	700	2000	800
2200	-	1400	800	N16-400	N16-400	600	2000	800	2200	900
2400	-	1600	800	N16-400	N16-400	600	2200	900	2400	1000
2600	-	1600	1000	N20-400	N20-400	900	2400	900	2600	1000
2800	-	1800	1000	N20-400	N20-400	900	2600	900	2800	1100
3000	-	2000	1000	N16-200	N16-200	900	2800	1000	3000	1200
3200	-	2000	1200	N20-200	N16-200	900	3000	1100	3200	1300
3400	-	2000	1400	N20-200	N16-200	900	3200	1200	3400	1500

Rev	Description	Date	By	App
P3	DA ISSUE	16.01.18	DB	-
P1	ISSUED FOR EARLY WORKS DA	16.10.18	PN	-

Rev Description Date By App

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 30 of 50

BONACCI

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel. +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, CUDGEN STAGE 1 EARLY WORKS

Drawing Title: RETAINING WALL DETAILS SHEET 2

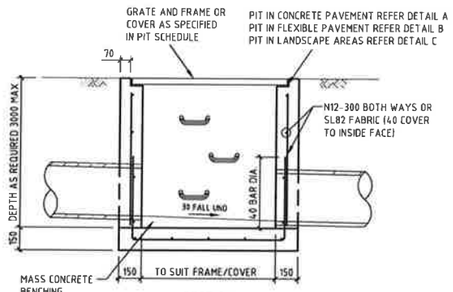
DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PN		
Scale	-		
Date	03.09.18		
Sheet	A1		

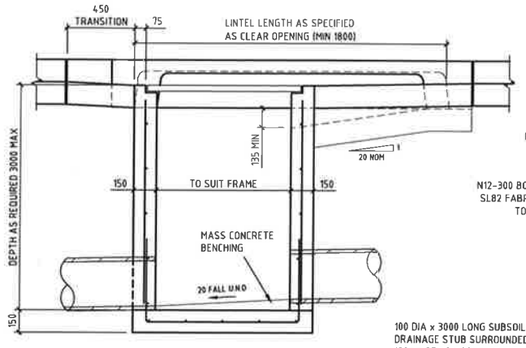
North

Project Ref	Drawing No	Rev
20 10748 01	C056	P2

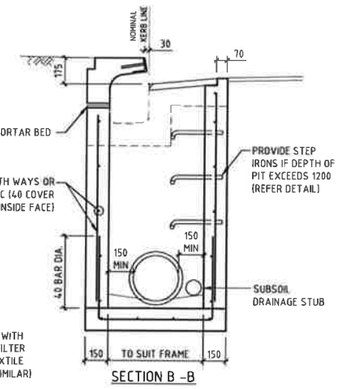
File: G:\Jobs\10748\03 Work in Progress\02 Civil\01 CAD\01 Autocad\000 Series - Early Works\10748C-C056.dwg Plotted: 16.01.18 at 5:49 PM By: Dean Bowen



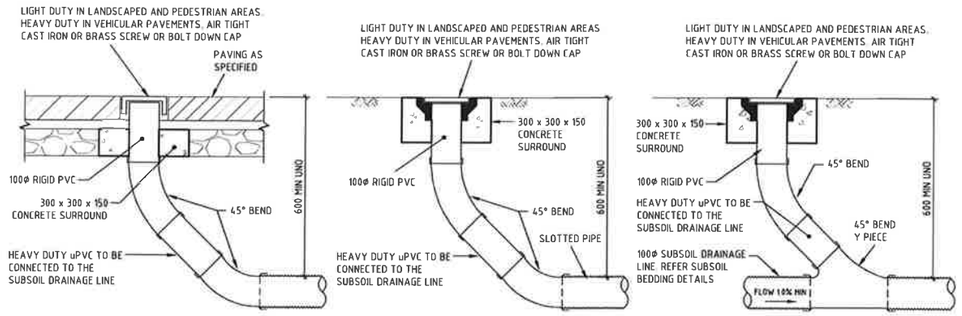
SECTION



SECTION A -A



SECTION B -B



FLUSHOUT RISER (FOR) IN PAVING BRICKS

SCALE 1:10

FLUSHOUT RISER (FOR)

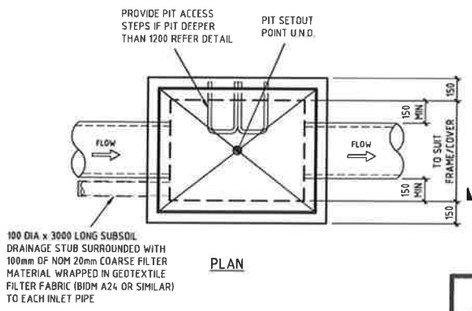
SCALE 1:10

NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS WITHIN DRAINAGE LAYER ONLY

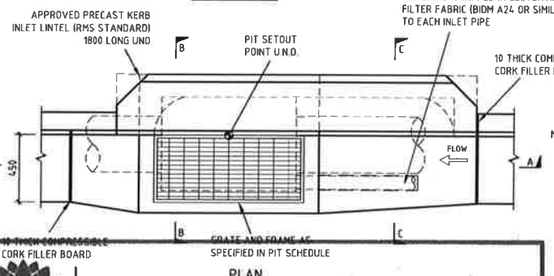
INTERMEDIATE RISER

SCALE 1:10

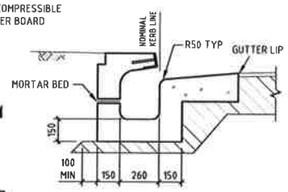
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



PLAN



PLAN



SECTION C -C

SURFACE INLET/JUNCTION PIT DETAIL

SCALE 1:20

STORMWATER PIT NOTES

1. CONCRETE TO HAVE A MIN. COMPRESSIVE STRENGTH (F'c) OF 25 MPa AT 28 DAYS.
2. REINFORCEMENT NOT REQUIRED IF DEPTH OF PIT IS LESS THAN 1000mm. PITS GREATER THAN 3000mm DEEP TO HAVE WALL AND BASE 200mm THICK REINFORCED WITH N12-250 EACH WAY EACH FACE WITH CONCRETE STRENGTH F'c = 40 MPa.
3. PROVIDE STEP IRONS AT MAX 350mm CTRS IF DEPTH OF PIT EXCEEDS 1200mm.
4. IF REINFORCING FABRIC IS TO BE USED REFER TO WALL AND CORNER DETAILS.
5. PRECAST PITS ARE TO GENERALLY COMPLY WITH THESE DETAILS.
6. PRECAST PIT MAY BE USED SUBJECT TO ENGINEERS APPROVAL.
7. ALL PITS TO BE LOCKABLE.
8. FINAL INTERNAL PIT DIMENSIONS ARE TO COMPLY WITH AS 3500.

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

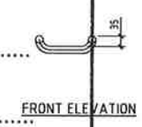
granted on the 11 JUN 2019

Signed

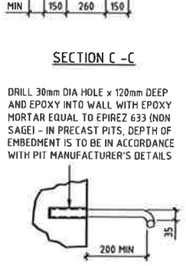
Sheet No. 31 of 50

KERB INLET PIT DETAIL

SCALE 1:20

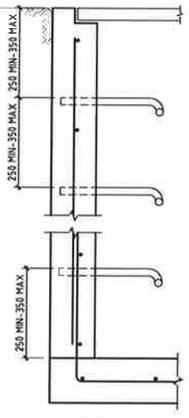


FRONT ELEVATION

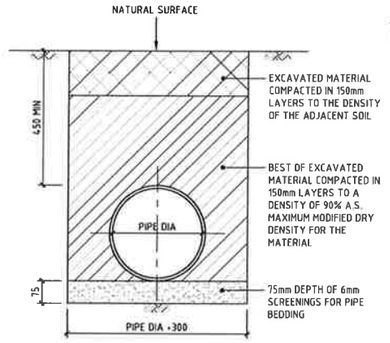


SIDE ELEVATION

NOTES
1. WHEN POSITIONED IN STRAIGHT ALIGNMENT, STEP TO BE 400 WIDE.
2. STAGGERED STEPS TO BE 200 WIDE, STEPS TO BE STAGGERED 200 CENTRE TO CENTRE FOR ALTERNATIVE STEPS.
3. SPACING OF STEPS TO BE UNIFORM TO WITHIN ±8mm IN EACH PIT.

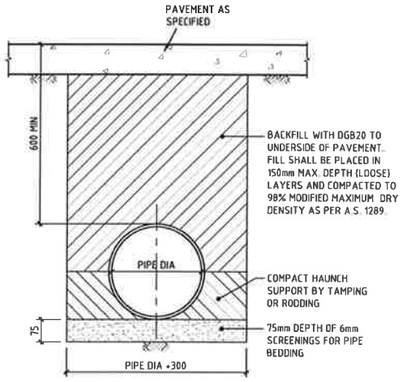


SECTION



PIPE LAYING DETAIL (ALL PIPES) UNDER LANDSCAPED AREAS

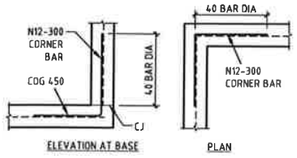
SCALE 1:10



PIPE LAYING DETAILS UNDER ALL PAVEMENTS

SCALE 1:10

NOTE: AVOID RUNNING CONSTRUCTION EQUIPMENT OVER THE PIPES UNTIL BACKFILL MATERIAL IS 300mm MIN. ABOVE CROWN OF PIPE.



ELEVATION AT BASE | PLAN | PLAN - SINGLE LAYER | PLAN - DOUBLE LAYER

FABRIC | REINFORCEMENT

PLAN

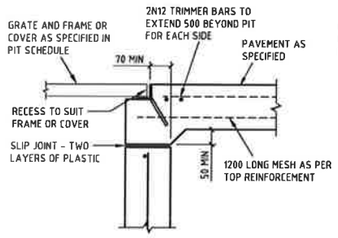
PIT CORNER DETAILS

SCALE 1:20

NOTE: DESIGNER TO VERIFY EXTENT OF DETAILING

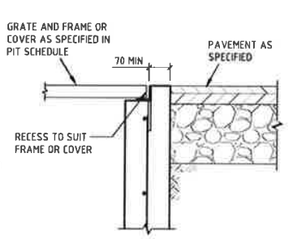
PIT ACCESS STEP DETAIL

SCALE 1:10



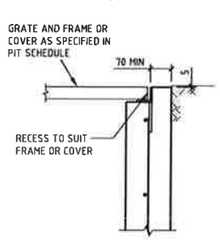
DETAIL A

SCALE 1:10



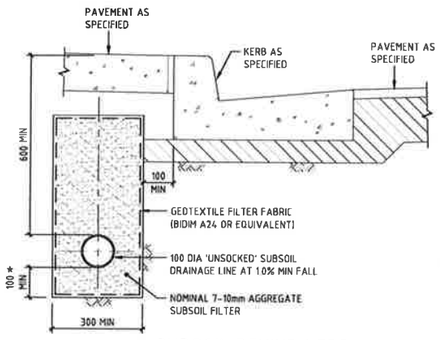
DETAIL B

SCALE 1:10



DETAIL C

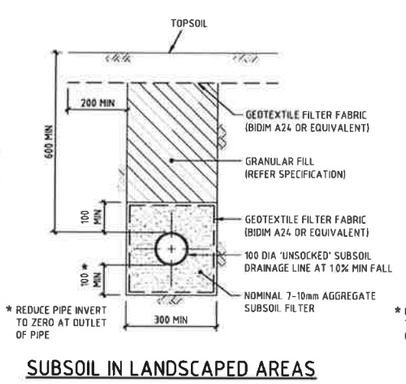
SCALE 1:10



* REDUCE PIPE INVERT TO ZERO AT OUTLET OF PIPE

SUBSOIL BEHIND KERB

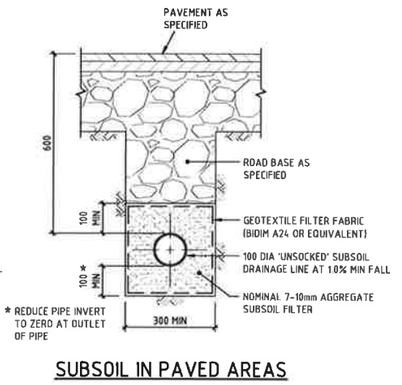
SCALE 1:10



* REDUCE PIPE INVERT TO ZERO AT OUTLET OF PIPE

SUBSOIL IN LANDSCAPED AREAS

SCALE 1:10



* REDUCE PIPE INVERT TO ZERO AT OUTLET OF PIPE

SUBSOIL IN PAVED AREAS

SCALE 1:10

Rev	Description	Date	By	App
P2	DA ISSUE	14.01.19	DB	-
P1	ISSUED FOR EARLY WORKS DA	03.09.18	PA	-

Rev	Description	Date	By	App

BONACCI GROUP Pty Ltd
ABN 42 000 332 349
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel. +61 2 8247 8400 Fax. +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, CUDGEN STAGE 1 EARLY WORKS

Drawing Title: STORMWATER DRAINAGE DETAILS

DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PA		
Scale	-		North
Date	03.09.18	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C060 P2

TWEED VALLEY HOSPITAL DEVELOPMENT
TURNOCK STREET ROUNDABOUT WORKS

DRAWING No.	DESCRIPTION
20 10748 C500	DRAWING REGISTER AND CONSTRUCTION NOTES
20 10748 C505	SEDIMENT AND EROSION CONTROL PLAN
20 10748 C540	EXTERNAL WORKS INTERSECTION PLAN
20 10748 C545	DEMOLITION PLAN
20 10748 C560	CIVIL WORKS DETAILS

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed .....

Sheet No. 32 of 50

GENERAL NOTES

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS. CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.

G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTON OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD, REFERENCE: GE18/144 REV 2, DATED 28th SEPTEMBER 2018.

G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.

G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.

G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.

G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.

G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.

G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.

G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

G13 THESE DWGS SHOULD BE READ IN CONJUNCTION WITH COUNCIL'S STANDARD DETAILS.

SITEWORKS NOTES

S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E1.1' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.

S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY MORRISON GEOTECHNIC PTY LTD REFERENCE: GE18/144 REV 2 DATED 28th SEPTEMBER 2018 MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILED BELOW FOR (ALL REQUIREMENTS ARE TO VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER):

- LANDSCAPED AREAS — 95% STD.
- FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL;
  - FINE CRUSHED ROCK — 98% STD.
  - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT — 98% STD.
- BUILDING BASECOURSE — 98% MOD
- FILL UNDER ROAD PAVEMENTS;
  - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL — 98% STD.
  - UP TO FINISHED SUBGRADE LEVEL — 98% STD.
- ROAD PAVEMENT MATERIALS;
  - SUB BASE — 98% MOD.
  - BASE COURSE — 98% MOD.

THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.

S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.

S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.

S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT

S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.

S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.

S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS

S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011

B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011

S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

STORMWATER DRAINAGE NOTES

SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SYPHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.

SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 4 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR Ø225mm OR SMALLER.

SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.

SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.

SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY BONACCI GROUP.

SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.

SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.

SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

KERBING NOTES

K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O.

K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.

K3 EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.

K6 IN THE REPLACEMENT OF KERBS:-
- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
- EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

JOINTING NOTES

PEDESTRIAN FOOTPATH JOINTS

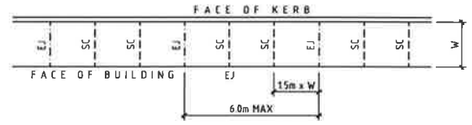
J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.

J2 SAWCUT JOINTS (SC) ARE TO BE LOCATED AT A MAX 1.5m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED.

J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.

J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS

J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).



VEHICULAR PAVEMENT JOINTS

J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.

J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJ's SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.

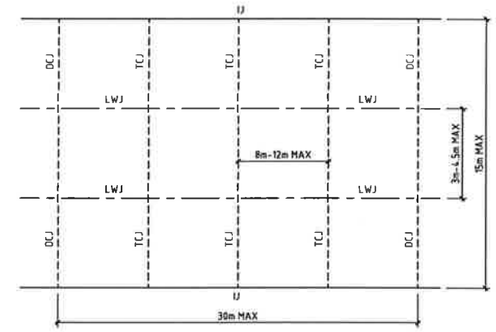
J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 8m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.

J9 TRANSVERSE DOWELLED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.

J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.

J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 PAVEMENT DESIGN FOR LIGHT TRAFFIC

J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.)



Rev	Description	Date	By	App
P2	ISSUED FOR TENDER ISSUE	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

Rev Description Date By App

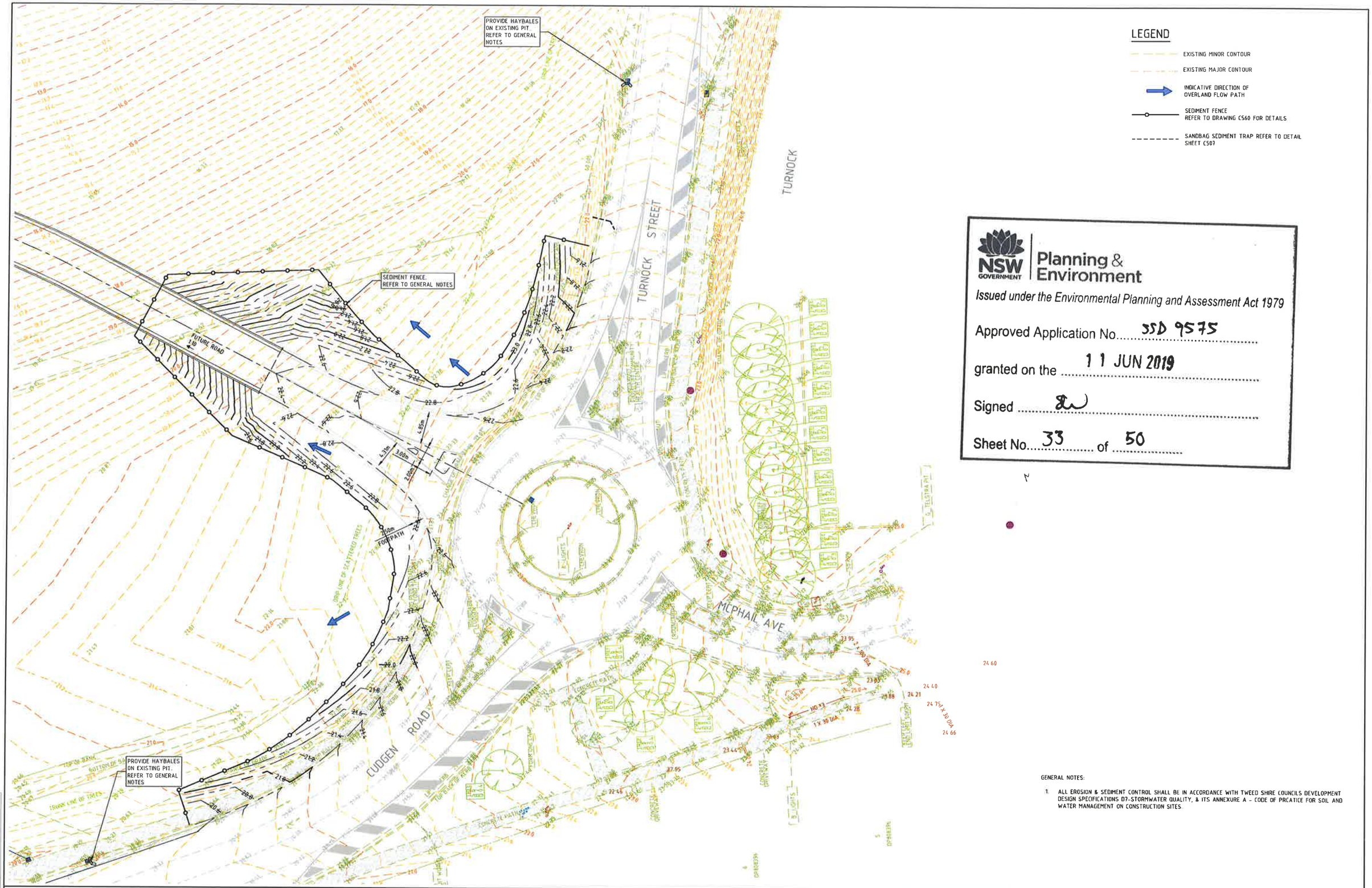
BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name	TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS
Drawing Title	DRAWING REGISTER AND CONSTRUCTION NOTES

TENDER

Designed	CS	Project Director Approved	Date
Drawn	PA		North
Scale	NTS	Project Ref	Drawing No / Rev
Date	3.10.2018	20 10748 01	C500 P2
Sheet	A1		

File: G:\Job\10748\01_Civil\Issued\Dwg\10748C-C500-CAD[P2].dwg Plotted: 05.11.18 at 8:20 PM By: Cameron Stanford



LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- INDICATIVE DIRECTION OF OVERLAND FLOW PATH
- SEDIMENT FENCE REFER TO DRAWING C560 FOR DETAILS
- SANDBAG SEDIMENT TRAP REFER TO DETAIL SHEET C507

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 33 of 50

GENERAL NOTES:

1. ALL EROSION & SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH TWEED SHIRE COUNCILS DEVELOPMENT DESIGN SPECIFICATIONS D7-STORMWATER QUALITY, & ITS ANNEXURE A - CODE OF PRCATICE FOR SOIL AND WATER MANAGEMENT ON CONSTRUCTION SITES.

Rev	Description	Date	By	App
P2	ISSUED FOR TENDER ISSUE	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

Rev	Description	Date	By	App

PLAN SCALE 1:250 A1 SHEET 5.0 0 2.5 5.0 7.5 10.0m

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers. Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel +61 2 8247 8400 Fax +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

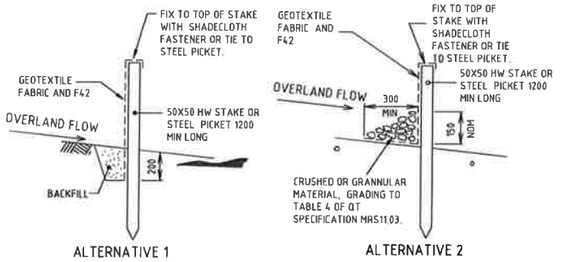
Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title: SEDIMENT AND EROSION CONTROL PLAN

TENDER

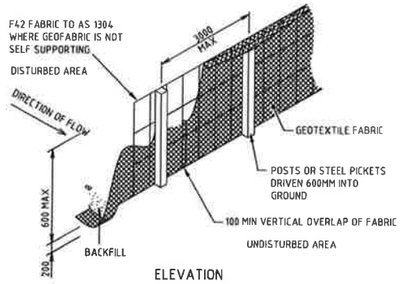
Designed	CS	Project Director Approved	Date
Drawn	PA		
Scale	NTS		
Date	3.10.2018	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C505 P2

File: G:\Job\10748\01_Civil\Issued\Dwg\10748C-C505-CAD[P2].dwg Plotted: 05.11.18 at 9:21 PM By: Cameron Stanford

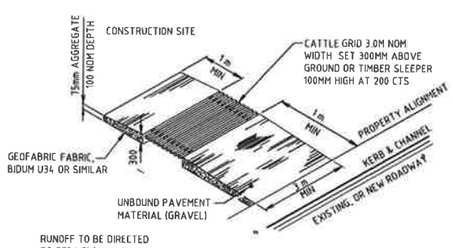


SEDIMENT FENCE

NOT TO SCALE

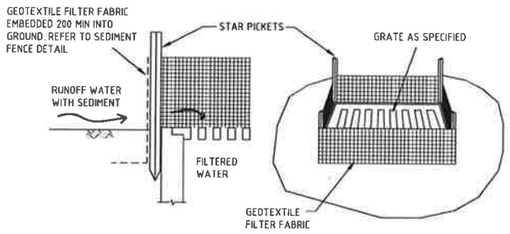


ELEVATION



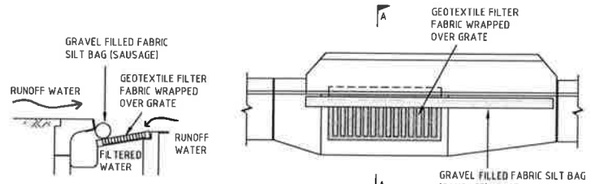
TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP

NOT TO SCALE



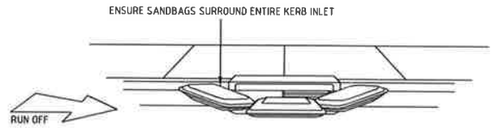
GEOTEXTILE PIT FILTER 1

NOT TO SCALE



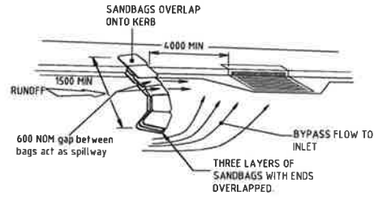
KERB INLET SEDIMENT TRAP

NOT TO SCALE



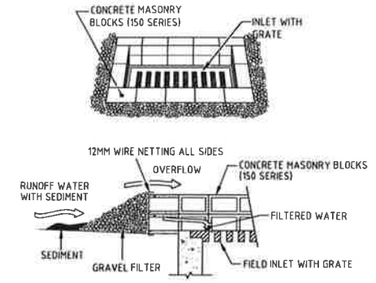
SANDBAG KERB INLET SEDIMENT TRAP

NOT TO SCALE



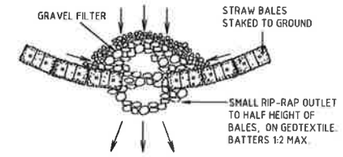
ON GRADE KERB INLET SEDIMENT TRAP

NOT TO SCALE



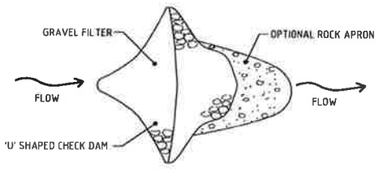
FIELD INLET SEDIMENT TRAP

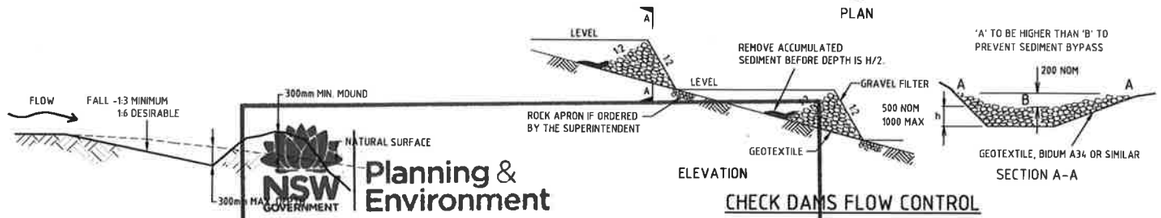
NOT TO SCALE



STRAW BALE AND STONE TRAP SEDIMENT CONTROL (CONCENTRATE FLOW)

NOT TO SCALE



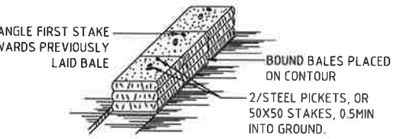


CHECK DAMS FLOW CONTROL

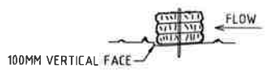
NOT TO SCALE

CATCH DRAIN

NOT TO SCALE



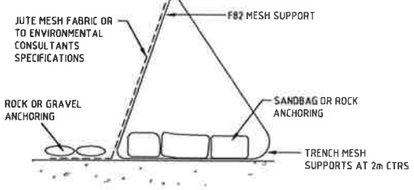
ANCHORING DETAIL



BEDDING DETAIL

STRAW BALE BANK SEDIMENT CONTROL

NOT TO SCALE

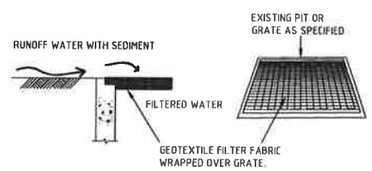


ALTERNATIVE SEDIMENT FENCE

NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE NOTES

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.



GEOTEXTILE PIT FILTER 2

NOT TO SCALE

Rev	Description	Date	By	App
P1	ISSUED FOR TENDER ISSUE	05.11.18	PA	-

BONACCI

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 6400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title: SOIL AND WATER MANAGEMENT DETAILS

TENDER

Designed	PA	Project Director Approved	Date
Drawn	PA		
Scale	-		
Date	02.10.18	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C507 P1

North

File: G:\Job\10748\01_Civil\10748C-C507.dwg Plotted: 05.11.18 at 9:27 PM By: Cameron Stamford

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

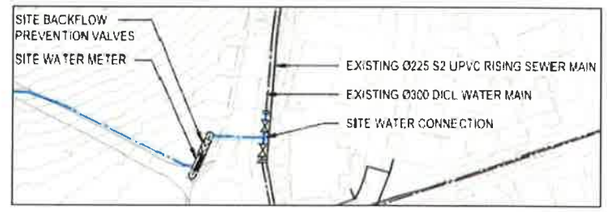
granted on the 11 JUN 2019

Signed .....

Sheet No. 35 of 50

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- Ex S — EXISTING SEWER
- Ex OH — EXISTING OVERHEAD LINES
- Ex T — EXISTING TELSTRA
- EXISTING STORMWATER
- Ex W — EXISTING WATER
- 19.0 — DESIGN MINOR CONTOUR
- 20.0 — DESIGN MAJOR CONTOUR
- KG — KERB AND GUTTER
  REFER TO TWEED SHIRE COUNCIL ROADWORKS STANDARD DRAWING NO. S.D.007 FOR DETAILS
- KO — KERB ONLY
  REFER TO TYPICAL DETAILS AT DRAWING NO. 560
- MK — MOUNTABLE KERB
  REFER TO TWEED SHIRE COUNCIL ROADWORKS STANDARD DRAWING NO. S.D.007 FOR DETAILS
- KR — KERB RAMP
  REFER TO TWEED SHIRE COUNCIL ROADWORKS STANDARD DRAWING NO. S.D.014 FOR DETAILS
- PAVEMENT TYPE 1
  HEAVY DUTY ASPHALT PAVEMENT.
  REFER TO DRAWING C560 FOR DETAILS
- CONCRETE FOOTPATH
  REFER TO TWEED SHIRE COUNCIL ROAD WORKS STANDARD DRAWING NO. S.D.013 FOR DETAILS
- PAVEMENT REINSTATEMENT
  REFER TO DRAWING C560 FOR DETAILS
- MTE — MATCH TO EXISTING PAVEMENT
- SD — SUBSOIL DRAINAGE
  - REFER TO TWEED SHIRE COUNCIL ROADWORKS STANDARD DRAWING NO. S.D. 012 FOR DETAIL (UNO)
- P — INTRA PAVEMENT DRAINAGE
  - REFER RMS STD DRG MD R37.A01
- FENCE LINE
- BOUNDARY



PROPOSED FUTURE POTABLE WATER CONNECTION BY TWEED SHIRE COUNCIL

NOT TO SCALE

Rev	Description	Date	By	App
P3	RE-ISSUED FOR TENDER	22.11.18	CS	-
P2	ISSUED FOR TENDER	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

PLAN SCALE 1:250 A1 SHEET

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel +61 2 8247 8400 Fax +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title: EXTERNAL WORKS INTERSECTION PLAN

TENDER

Designed	CS	Project Director Approved	Date
Drawn	PA		
Scale	1:250		
Date	3.10.2018		
Sheet	A1		

Project Ref: 20 10748 01 | Drawing No: C540 | Rev: P3

File: G:\Job\10748 NEW\03 Work In Progress\02 Civil\01 CAD\01 Autocad\10740C-C540.dwg Plotted: 22.11.18 at 12:23 PM By: Cameron Stanford

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- Ex S — EXISTING SEWER
- Ex OH — EXISTING OVERHEAD LINES
- Ex T — EXISTING TELSTRA
- Ex SW — EXISTING STORMWATER
- Ex W — EXISTING WATER
- Ex OF — EXISTING OPTICAL FIBRE
- KG — EXISTING KERB AND GUTTER TO BE REMOVED
- EXISTING LINEMARKING TO BE REMOVED (ALLOW TO GRIND EXISTING LINEMARKING AND PATCH AND PATCH AS REQUIRED)

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed .....

Sheet No. 36 of 50

Rev	Description	Date	By	App
P2	ISSUED FOR TENDER ISSUE	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

Rev	Description	Date	By	App

50 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 AT SHEET

BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers : Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title: DEMOLITION PLAN

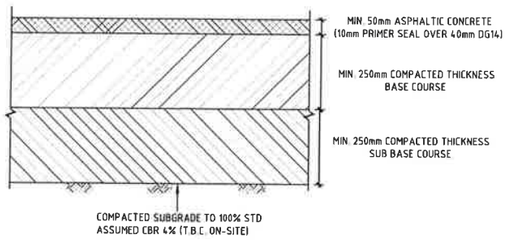
TENDER

Designed	CS	Project Director Approved	Date
Drawn	PA		
Scale	1:250		
Date	3.10.2018		
Sheet	A1		

North

Project Ref	Drawing No	Rev
20 10748 01	C545	P2

File: G:\Job\10748\01_Civil\Issued\Dwg\10748C-C545-CAD[P2].dwg Plotted: 05.11.18 at 9:24 PM By: Cameron Staniford



PAVEMENT TYPE P1
HEAVY DUTY ASPHALT PAVEMENT

SCALE 1:10

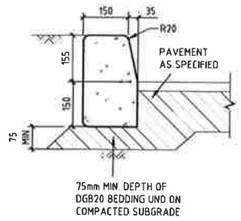
DENOTED ON PLAN

ROAD DESIGN PARAMETERS (FLEXIBLE)

DESIGN TRAFFIC 1.5 X 10^6 (ESA's OR HVAG)

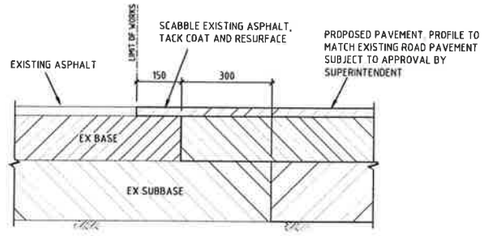
ASSUMPTIONS:

- TWEED SHIRE COUNCIL PAVEMENT DESIGN TABLE D2.2 ARTERIAL DISTRIBUTOR, SHOPPING STRIP ACCESS, INDUSTRIAL, DESIGN PERIOD 25 YEAR.
- CBR 4.0%
- PREPARE SUBGRADE AND SELECT FILL IN ACCORDANCE WITH (MORRISON GEOTECH, REFERENCE NO. GE18/144-REV 1)



KERB ONLY (KO)

SCALE 1:10



AC CONNECTION TO EXISTING PAVEMENT

SCALE 1:10

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed RW

Sheet No. 37 of 50

Rev	Description	Date	By	App
P2	ISSUED FOR TENDER ISSUE	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

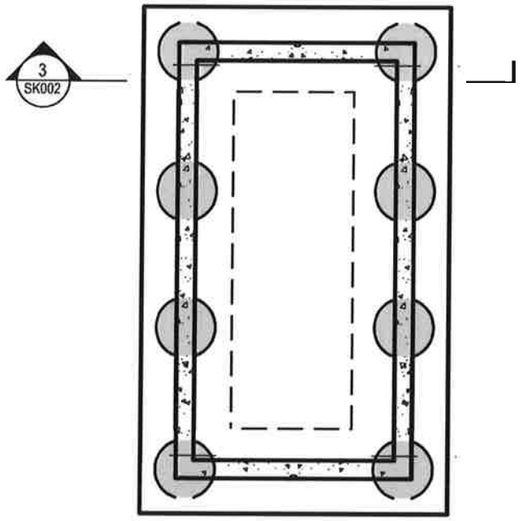
BONACCI GROUP Pty Ltd
ABN 42 060 332 345
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name: TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

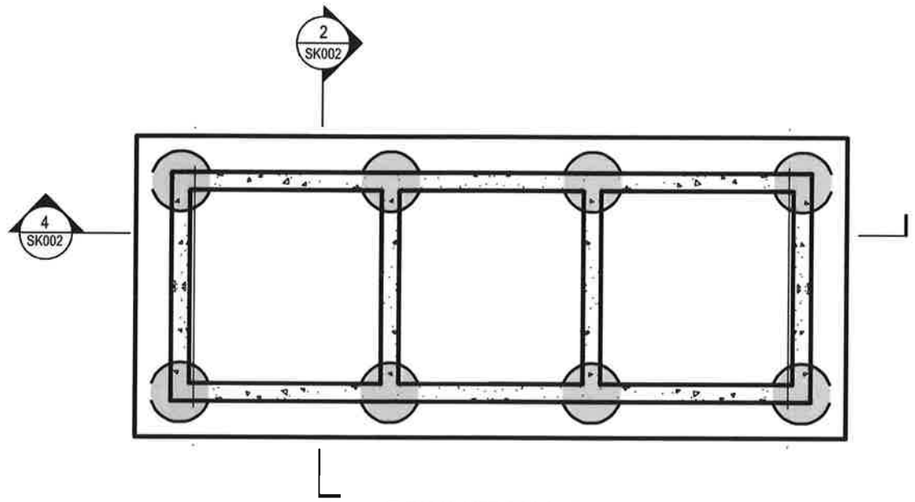
Drawing Title: CIVIL WORKS DETAILS

TENDER

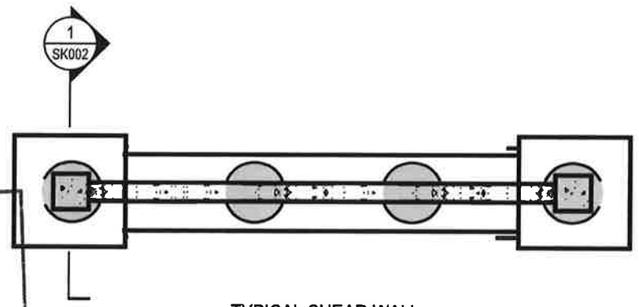
Designed	CS	Project Director Approved	Date
Drawn	PA		
Scale	NOTED		
Date	3.10.2018	Project Ref	Drawing No / Rev
Sheet	A1	20 10748 01	C560 P2



TYPICAL STAIR CORE PILE ARRANGEMENT



TYPICAL LIFT CORE PILE ARRANGEMENT



TYPICAL SHEAR WALL PILE ARRANGEMENT

BORED PILE SCHEDULE			
PILE	NO OF SUSPENDED SLABS SUPPORTED	ULTIMATE LIMIT STATE VERTICAL LOAD (kN)	NOMINAL DIAMETER (mm)
P1	3	3600	1000
P2	4	4800	1000
P3	5	6000	1000
P4	6	7200	1000
P5	7	8400	1000
P6	8	9600	1000
P7	9	10800	1000

NOTES

1. PILES TO BE DESIGNED BY D&C PILING SUBCONTRACTOR IN ACCORDANCE WITH AS2159
2. SUBJECT TO FINAL DESIGN, PILE DIAMETERS MAY VARY FROM 600MM TO 1200MM
3. PILES UNDER CORES, LIFT SHAFTS AND SHEAR WALLS TO BE DESIGNED TO RESIST THE LATERAL LOADS NOMINATED ON THE STRUCTURAL DRAWINGS

BORED PILES

BP1 REFER TO THE GEOTECHNICAL REPORT FOR A DESCRIPTION OF THE ANTICIPATED SITE CONDITIONS. THE PILING CONTRACTOR IS TO STUDY THE REPORT AND MAKE HIS OWN EVALUATION OF THE SITE CONDITIONS. ANY ADDITIONAL COSTS INCURRED SHALL BE BORNE BY THE PILING CONTRACTOR.

BP2 THE BORED PILES ARE PROPORTIONED FOR THE SCHEDULED LOADS WITH ALLOWABLE SOCKET SKIN FRICTION AND END BEARING CAPACITY AS INDICATED IN THE REPORT. THE DEPTHS AND LENGTHS NOMINATED IN THE SCHEDULE ARE INDICATIVE ONLY. THEY MAY NEED TO BE VARIED DEPENDING ON THE SITE CONDITIONS ENCOUNTERED. THE PILING CONTRACTOR NEEDS TO INCORPORATE ANY DESIGN CHANGES REQUIRED.

BP3 THE BORED PILES SHALL BE INSTALLED TO A MAXIMUM TOLERANCE OF ±75mm FROM THAT REQUIRED IN PLAN AND INCLINED AT NOT MORE THAN 1 IN 75 FROM THE VERTICAL OR SPECIFIED RAKE.

BP4 ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS 2159.

BP5 THE BORED PILES SHALL BE LOCATED CONCENTRIC WITH THE COLUMNS AND WALLS UNLESS NOTED OTHERWISE.

BP6 DRILL AND INSTALL THE BORED PILES IN THE LOCATIONS SHOWN ON THE DRAWINGS AND THE ABOVE REQUIREMENTS.

BP7 BEFORE ANY CONCRETE IS POURED, ALL ROCK SOCKETS SHALL BE DEWATERED AND INSPECTED BY THE GEOTECHNICAL ENGINEER , WHO SHALL BE EMPLOYED BY THE BUILDER, TO VERIFY THE SOIL PARAMETERS. THE SOCKET BASE AND WALLS MUST BE CLEAN AND FREE FROM CLAY.

BP8 IF THE CONCRETE NEEDS TO BE TREMIED, SUPER PLASTICIZER MUST BE ADDED TO THE MIX AND THE CONCRETE GRADE INCREASED BY 30% . REFER TO THE SPECIFICATIONS FOR THE INSPECTION OF THE HOLE PRIOR TO CONCRETING.

BP9 THE PILING CONTRACTOR SHALL ALLOW FOR THE COST INTEGRITY TESTING OF ALL BORED PILES.

BP10 ANY ALTERNATIVE DESIGN SHALL MEET THE ABOVE REQUIREMENTS AND THE SCHEDULED LOADS. THE PILING CONTRACTOR SHALL OBTAIN CERTIFICATION FOR THE CALCULATIONS OF THE ALTERNATIVE SYSTEM. THE DETAILS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PERFORMANCE OF THE ALTERNATIVE BORED PILES.

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

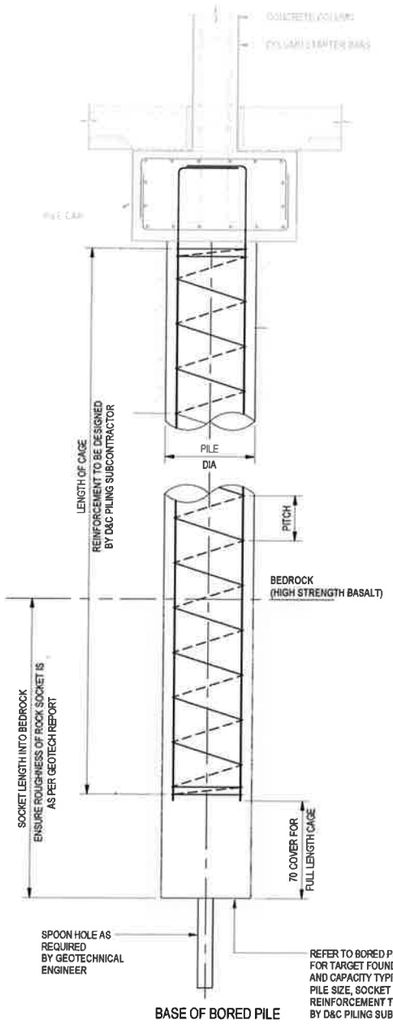
Signed .....

Sheet No. 38 of 50

BONACCI

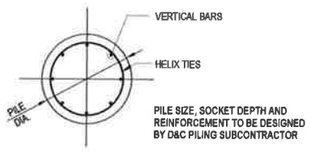
BONACCI GROUP (NSW) Pty Ltd
ABN 28 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name	Drawn	Date
TWEED VALLEY HOSPITAL	TU	08/08/2018
Drawing Title	**Project Ref**	**Sketch No**	**REV**
PILING DETAILS SHEET 1	10748	SK001	1

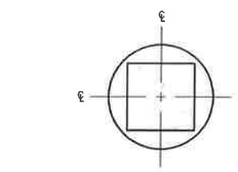


BORED PILE DETAIL

SECTION 1 SK001

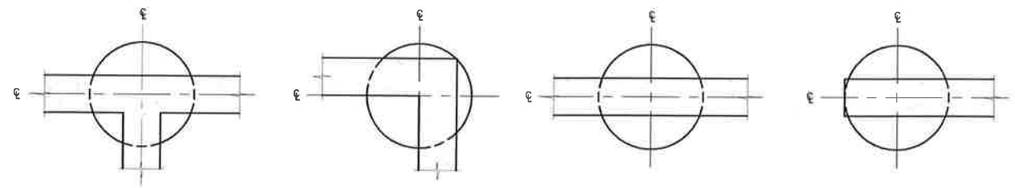


BORED PILE SECTION



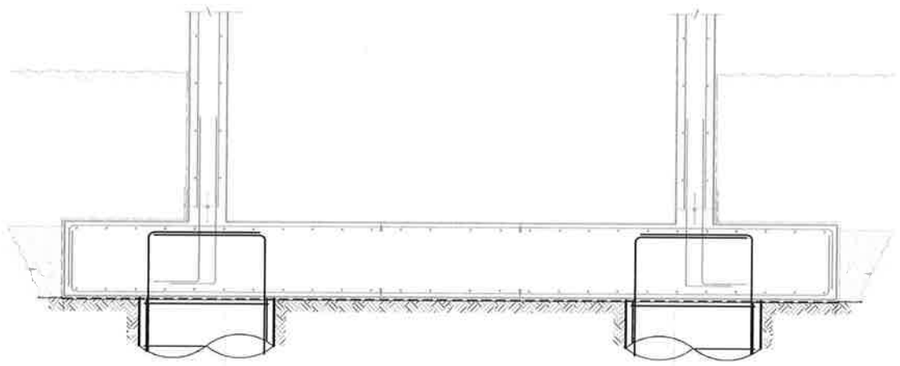
TYPICAL PILE LOCATIONS AT COLUMNS

ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN



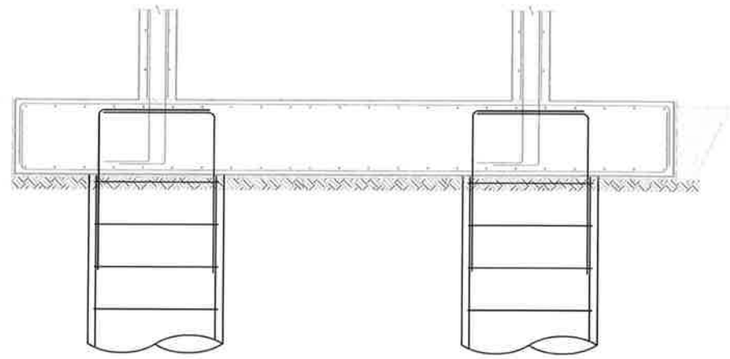
TYPICAL PILE LOCATIONS AT COLUMNS/WALLS

ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN



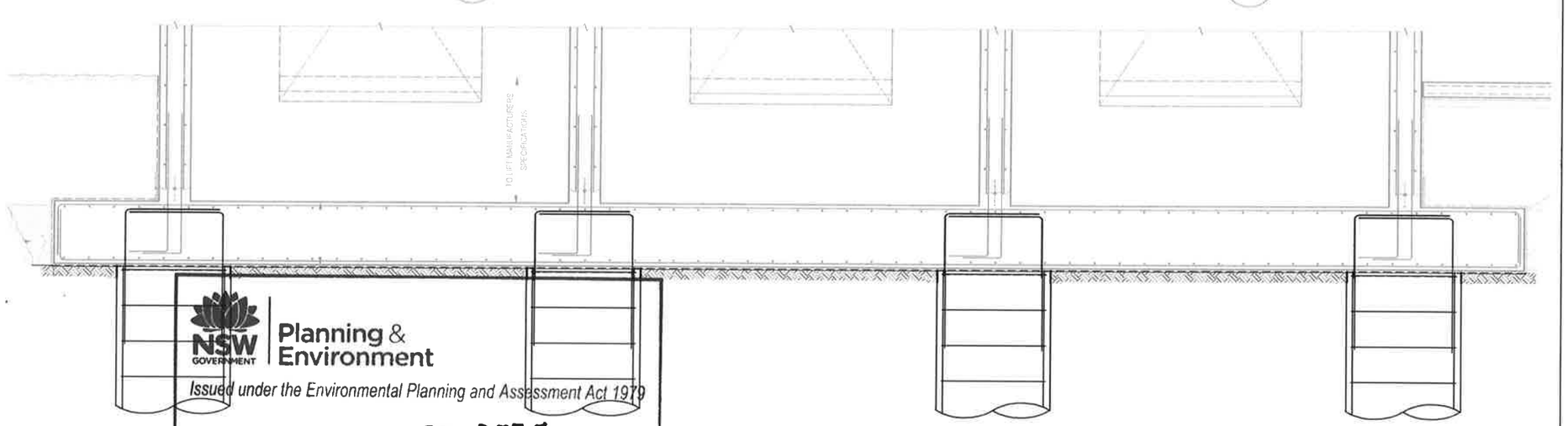
TYPICAL SECTION THROUGH LIFT PIT BASE

SECTION 2 SK001



TYPICAL SECTION THROUGH STAIR CORE BASE

SECTION 3 SK001



TYPICAL LONG SECTION THROUGH LIFT PIT BASE

SECTION 4 SK001

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed RW

Sheet No. 39 of 50

BONACCI

BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 5, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name	Drawn	Date
TWEED VALLEY HOSPITAL	TU	08/08/2018
Drawing Title	**Project Ref**	**Sketch No**	**REV**
PILING DETAILS SHEET 2	10748	SK002	1

LEGEND

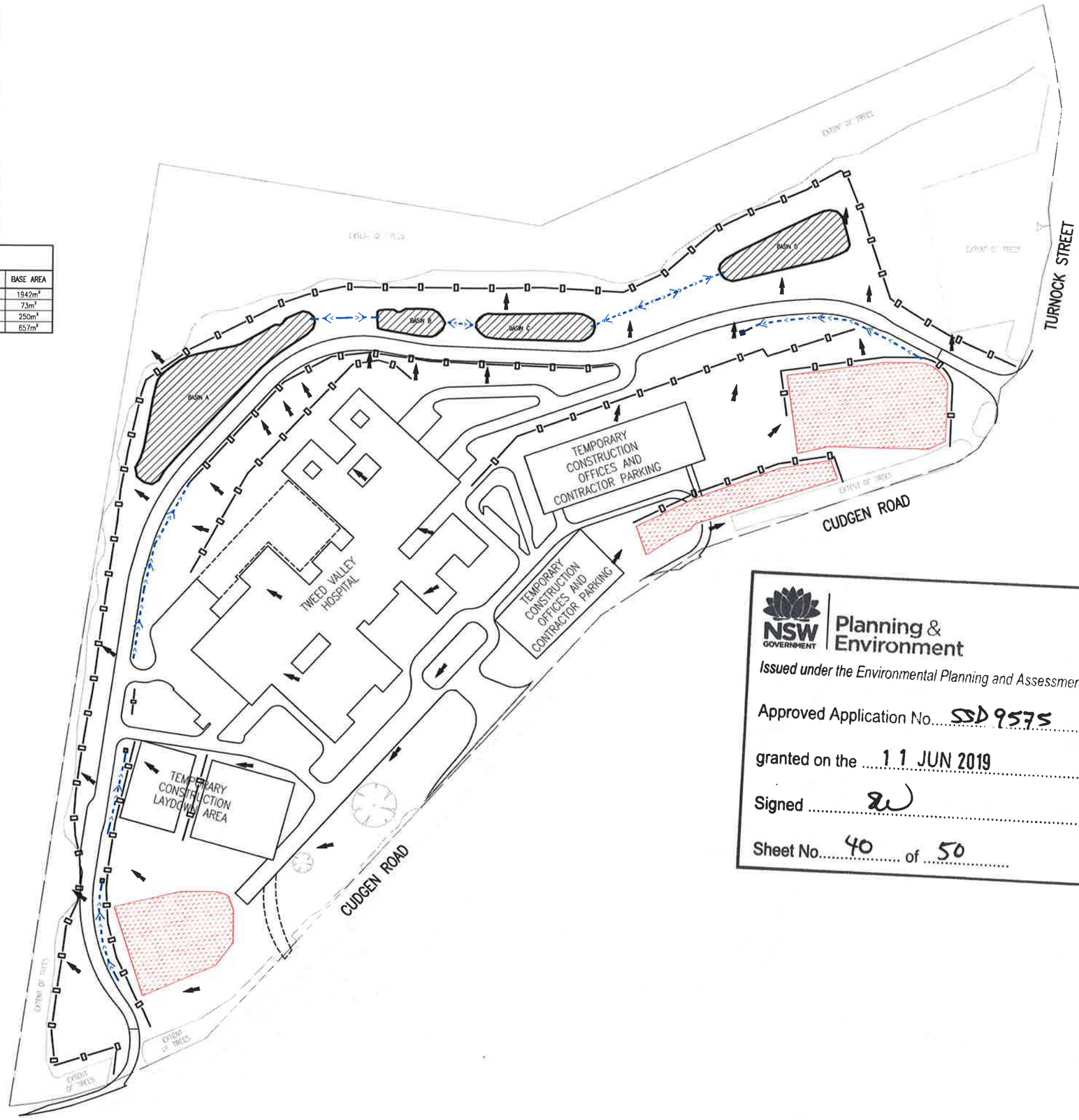
- FALLS (TYP)
- SEDIMENT FENCE
- CATCH DRAIN
- LAND BOUNDARY
- PROPOSED TEMPORARY STOCKPILE LOCATION WITH SEDIMENT FENCE AROUND
- EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS)
- FIELD INLET PIT

NOTES

1. SEDIMENT BASINS TO BE MODIFIED TO BIO-DETENTION BASINS ON COMPLETION OF SITE EARTHWORKS.

SEDIMENT BASIN SCHEDULE

BASIN REFERENCE	VOLUME (MIN.)	BASE RL	WEIR CREST RL	TOP BUND RL	BASE AREA
A	3503m³	7.0	8.85	9.6	1942m²
B	279m³	7.6	9.45	10.2	73m²
C	705m³	8.6	10.45	11.2	250m²
D	1839m³	5.5	7.35	8.1	657m²



SCALE 1:1250

10 0 10 20 30 40m

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 40 of 50

Rev	Revision Description	By	App	Date
3	ISSUED FOR SSDA1	RG	CR	06.05.19
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8248 3200
Fax: (02) 8248 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 280 248

Client

lendlease

Project

TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title

STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION SEDIMENT AND EROSION PLAN

Date: 06.05.2019	Drawn: R.GILL
Scale at A1: AS SHOWN	Designer: C.ROPE
	Design Checker: C.ROPE
Job Number: 19005	Approved: C.ROPE

NOT FOR CONSTRUCTION

Drawing Number: C-2-105

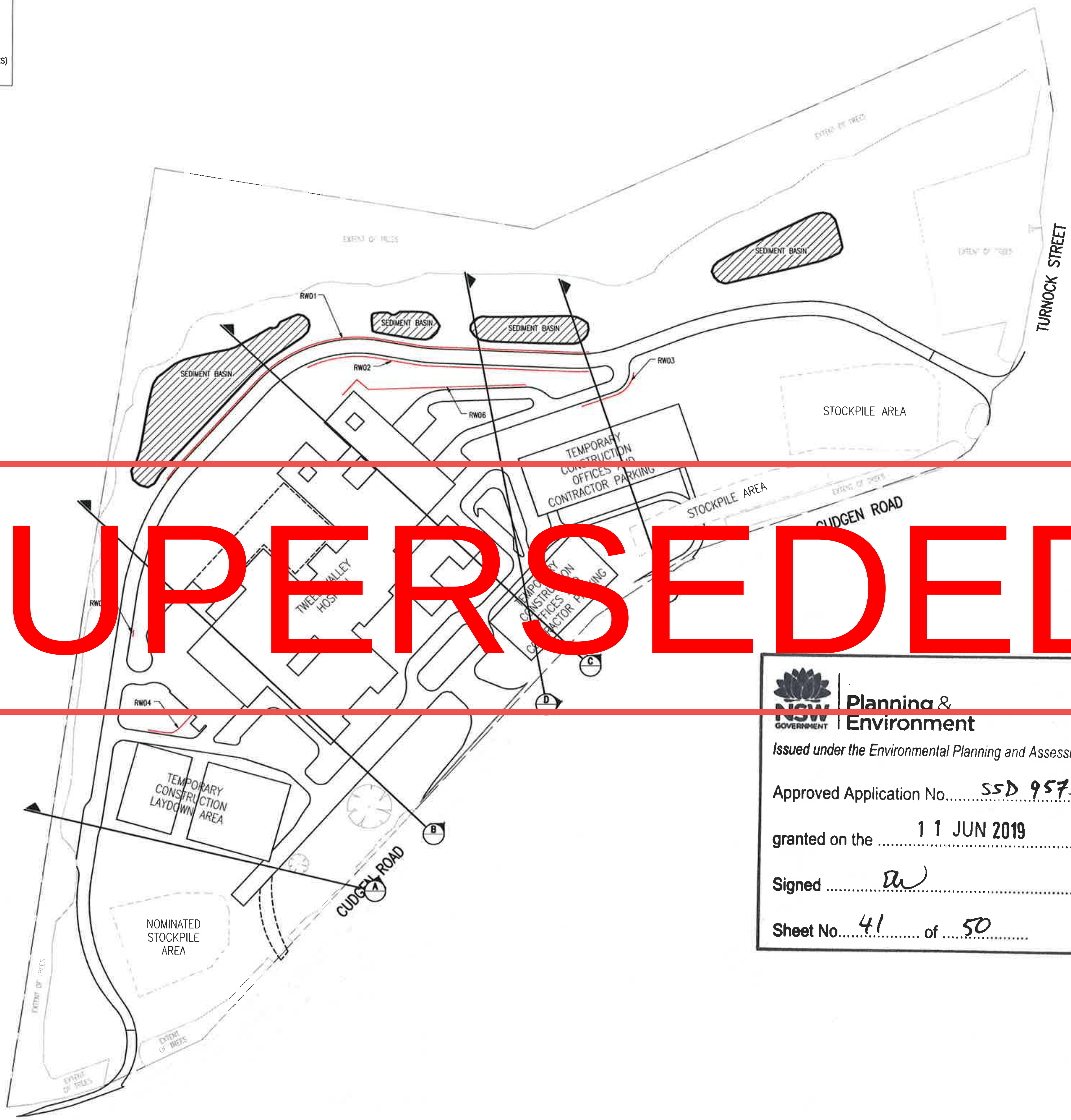
Revision: 3

LEGEND

🟥	RETAINING WALL
— — —	LAND BOUNDARY
▨	EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS)

RETAINING WALL SCHEDULE

WALL REFERENCE	APPROX. LENGTH	TYPICAL HEIGHT	PROBABLE MAX HEIGHT
RW01	290m	UP TO 3.0m	UP TO 3.4m
RW02	170m	UP TO 2.0m	UP TO 2.5m
RW03	40m	UP TO 1.0m	UP TO 2.4m
RW04	30m	UP TO 1.8m	UP TO 3.0m
RW05	4m	UP TO 0.5m	UP TO 0.5m
RW06	120m	UP TO 1.2m	UP TO 1.5m



SUPERSEDED

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed [illegible]

Sheet No. 41 of 50

SCALE 1:1250

10 0 10 20 30 40m

Rev	Revision Description	By	App	Date
3	ISSUED FOR SSDA1	RG	CR	06.05.19
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client
lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION RETAINING WALL PLAN

Date 06.05.2019	Drawn R.GILL
Scale at A1 AS SHOWN	Designer C.ROPE
	Design Checker C.ROPE
Job Number 19005	Approved C.ROPE

NOT FOR CONSTRUCTION

Drawing Number C-10-101
Revision 3

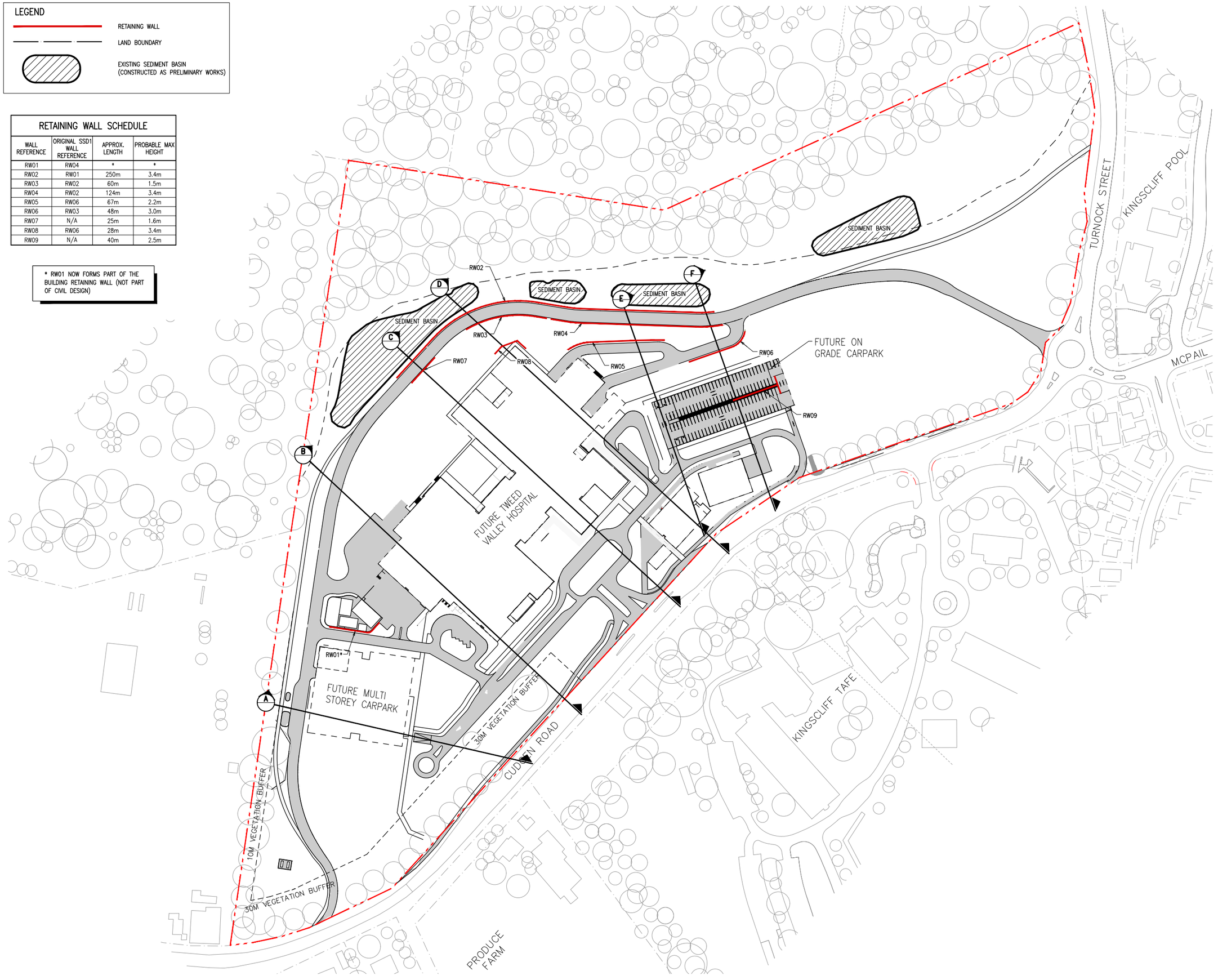
LEGEND

- RETAINING WALL
- LAND BOUNDARY
- EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS)

RETAINING WALL SCHEDULE

WALL REFERENCE	ORIGINAL SSD1 WALL REFERENCE	APPROX. LENGTH	PROBABLE MAX HEIGHT
RW01	RW04	*	*
RW02	RW01	250m	3.4m
RW03	RW02	60m	1.5m
RW04	RW02	124m	3.4m
RW05	RW06	67m	2.2m
RW06	RW03	48m	3.0m
RW07	N/A	25m	1.6m
RW08	RW06	28m	3.4m
RW09	N/A	40m	2.5m

* RW01 NOW FORMS PART OF THE BUILDING RETAINING WALL (NOT PART OF CIVIL DESIGN)



SCALE 1:1250

10 0 10 20 30 40m

Rev	Revision Description	By	App	Date
7	ISSUED FOR SSDA1		MC	CR 04.02.20
6	ISSUED FOR SSDA1		MC	CR 03.02.20
5	ISSUED FOR SSDA1		MC	CR 28.01.20
4	ISSUED FOR SSDA1		MC	CR 20.12.19
3	ISSUED FOR SSDA1		RG	CR 06.05.19
2	ISSUED FOR SSDA1		RG	CR 03.05.19
1	ISSUED FOR SSDA1		RG	CR 23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2300
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney, NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client: lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION RETAINING WALL PLAN

Date: 04.02.2020	Drawn: M.CLAVEL
Scale at A1: AS SHOWN	Designer: M.CLAVEL
	Design Checker: C.ROPE
Job Number: 19005	Approved: C.ROPE

NOT FOR CONSTRUCTION

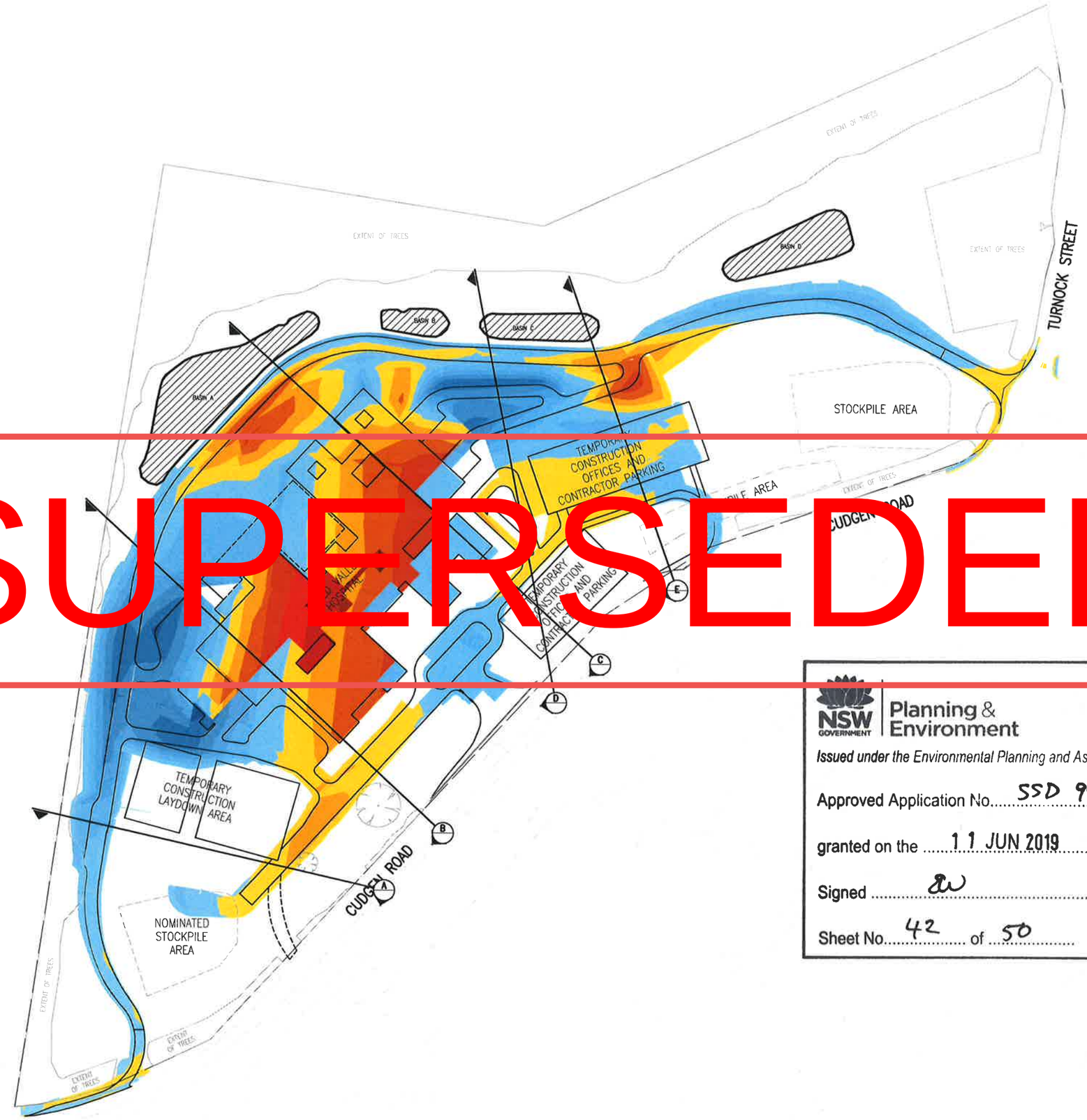
Drawing Number: C-10-101
Revision: 7

LEGEND

LAND BOUNDARY

EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS)

EXCAVATION CUT FILL DEPTH Lower Value		Upper Value		Colour
7.0	to	9.0	m	
6.0	to	7.0	m	
5.0	to	6.0	m	
4.0	to	5.0	m	
3.0	to	4.0	m	
2.0	to	3.0	m	
1.0	to	2.0	m	
0.0	to	1.0	m	
−1.0	to	0.0	m	
−2.0	to	−1.0	m	
−3.0	to	−2.0	m	
−4.0	to	−3.0	m	
−5.0	to	−4.0	m	
−6.0	to	−5.0	m	
−7.0	to	−6.0	m	
−9.0	to	−7.0	m	



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed ...

Sheet No. 42 of 50

SCALE 1:1250

10 0 10 20 30 40m

Rev	Revision Description	By	App	Date
3	ISSUED FOR SSDA1	RG	CR	06.05.19
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 560 248

Client: lendlease

Project: TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title: STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION
CUT AND FILL PLAN

Date: 06.05.2019	Drawn: R.GILL
Scale at A1: AS SHOWN	Designer: C.ROPE
	Design Checker: C.ROPE
Job Number: 19005	Approved: C.ROPE

NOT FOR CONSTRUCTION

Drawing Number: C-2-101

Revision: 3

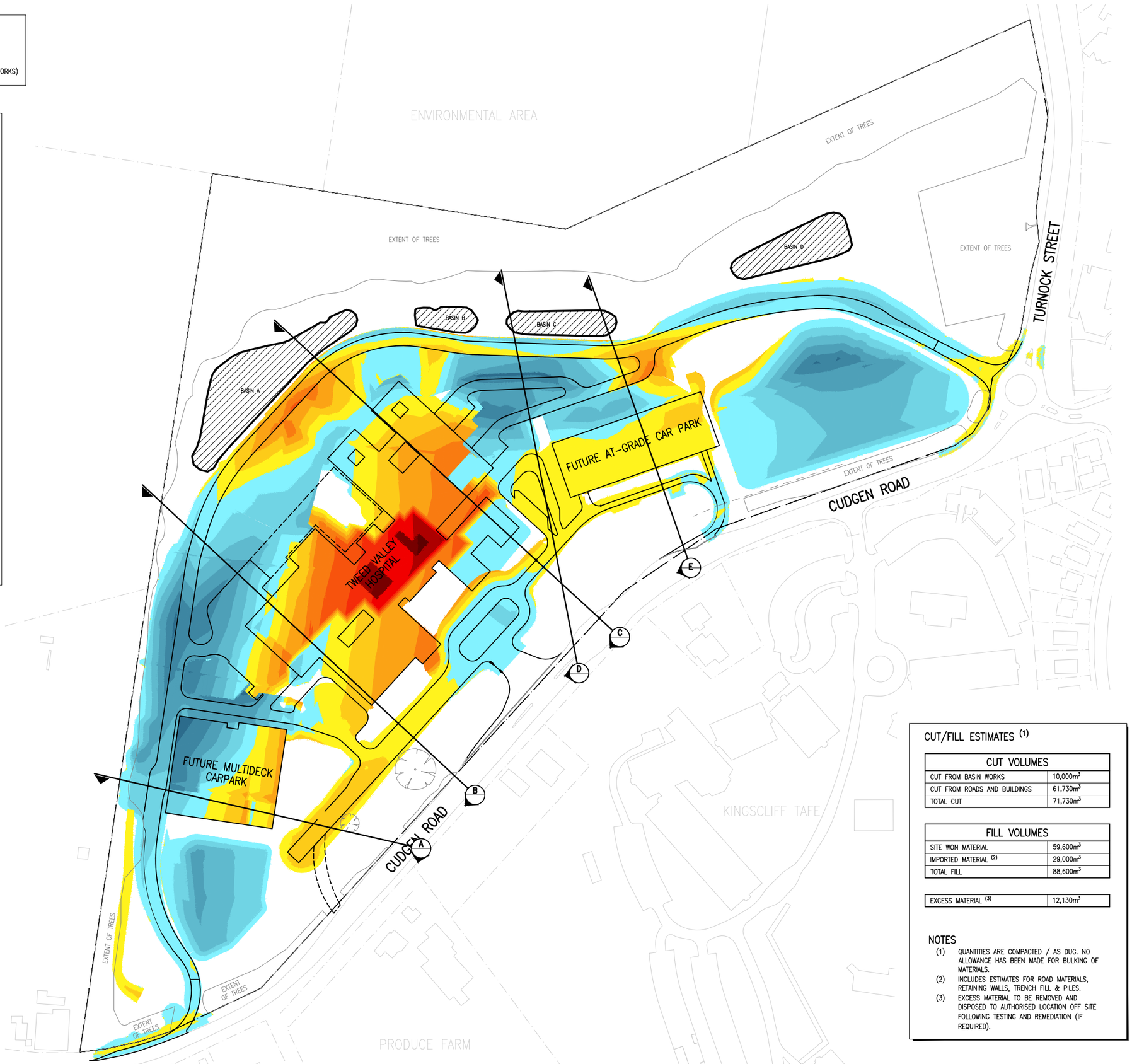
LEGEND

LAND BOUNDARY

EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS)

EXCAVATION DEPTH RANGE

LOWER VALUE		UPPER VALUE		COLOR
7.0	to	9.0	m	
6.0	to	7.0	m	
5.0	to	6.0	m	
4.0	to	5.0	m	
3.0	to	4.0	m	
2.0	to	3.0	m	
1.0	to	2.0	m	
0.0	to	1.0	m	
−1.0	to	0.0	m	
−2.0	to	−1.0	m	
−3.0	to	−2.0	m	
−4.0	to	−3.0	m	
−5.0	to	−4.0	m	
−6.0	to	−5.0	m	
−7.0	to	−6.0	m	
−8.0	to	−7.0	m	
−9.0	to	−8.0	m	
−10.0	to	−9.0	m	
−11.0	to	−10.0	m	



SCALE 1:1250

10 0 10 20 30 40m

CUT/FILL ESTIMATES (1)

CUT VOLUMES	
CUT FROM BASIN WORKS	10,000m³
CUT FROM ROADS AND BUILDINGS	61,730m³
TOTAL CUT	71,730m³

FILL VOLUMES	
SITE WON MATERIAL	59,600m³
IMPORTED MATERIAL (2)	29,000m³
TOTAL FILL	88,600m³

EXCESS MATERIAL (3)	12,130m³

NOTES

(1) QUANTITIES ARE COMPACTED / AS DUG. NO ALLOWANCE HAS BEEN MADE FOR BULKING OF MATERIALS.

(2) INCLUDES ESTIMATES FOR ROAD MATERIALS, RETAINING WALLS, TRENCH FILL & PILES.

(3) EXCESS MATERIAL TO BE REMOVED AND DISPOSED TO AUTHORISED LOCATION OFF SITE FOLLOWING TESTING AND REMEDIATION (IF REQUIRED).

Rev	Revision Description	By	App	Date
1	ISSUED FOR RTS	MC	CR	25.02.20

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2300
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client

lendlease

Project

TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title

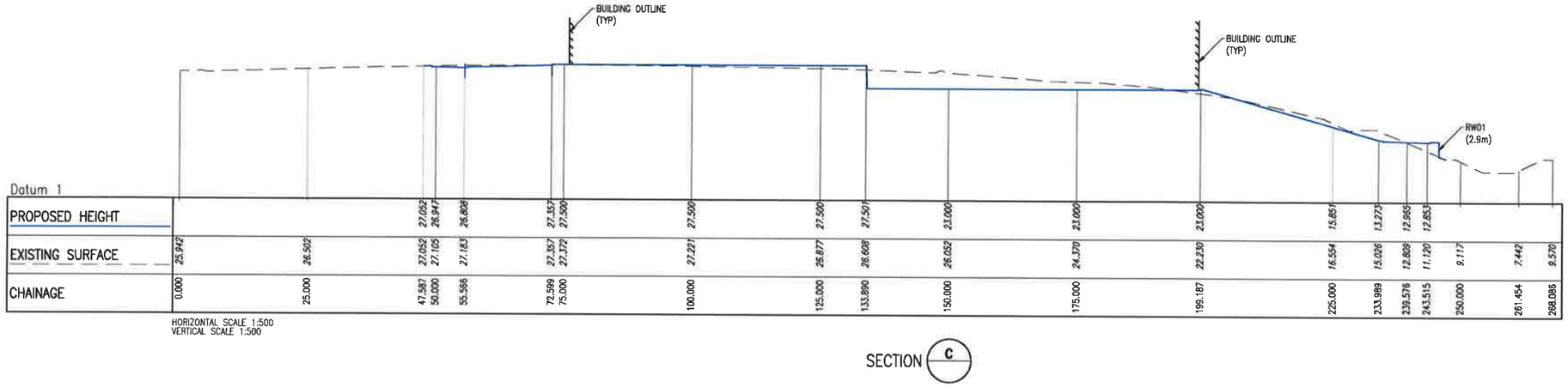
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION CUT AND FILL PLAN

Date 26.02.2020	Drawn M.CLAVEL
Scale at A1 AS SHOWN	Designer M.CLAVEL
	Design Checker C.ROPE
Job Number 19005	Approved C.ROPE

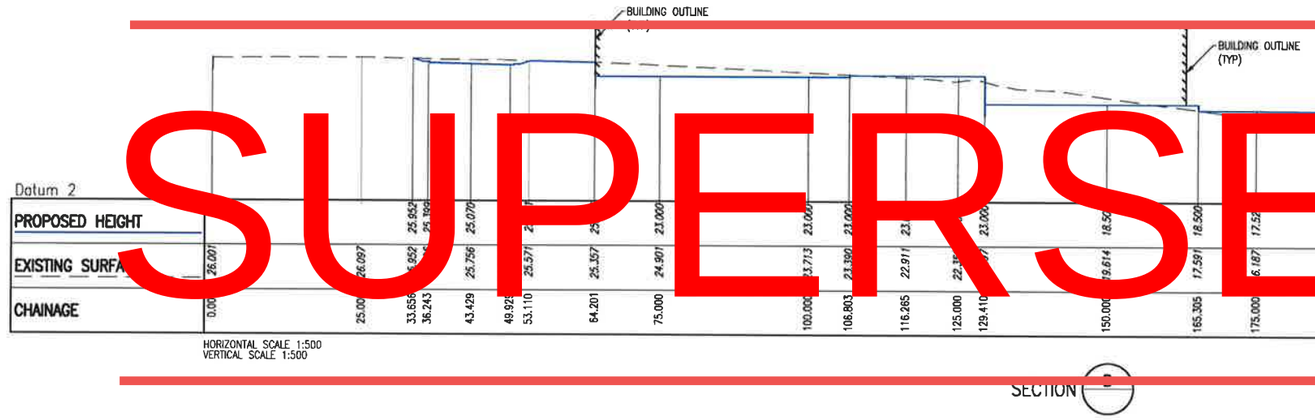
NOT FOR CONSTRUCTION

Drawing Number: RBG-CV-DWG-RIE-82-701

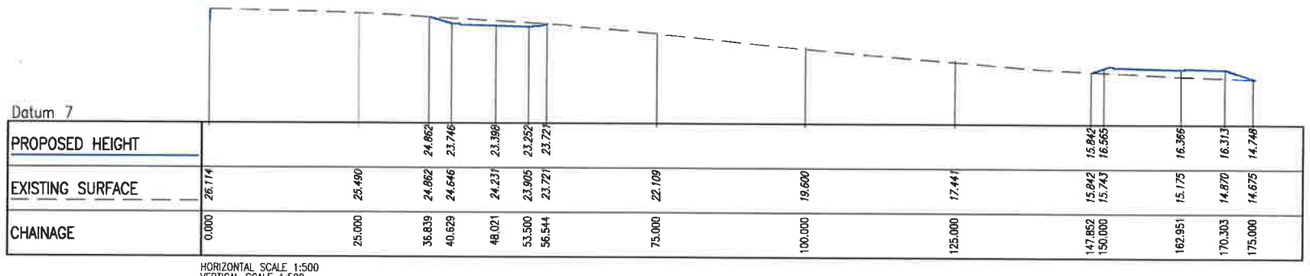
Revision: 1



SECTION C



SECTION B



SECTION A

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 43 of 50

SCALE 1:500

10 0 10 20m

Rev	Revision Description	By	App	Date
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client: lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

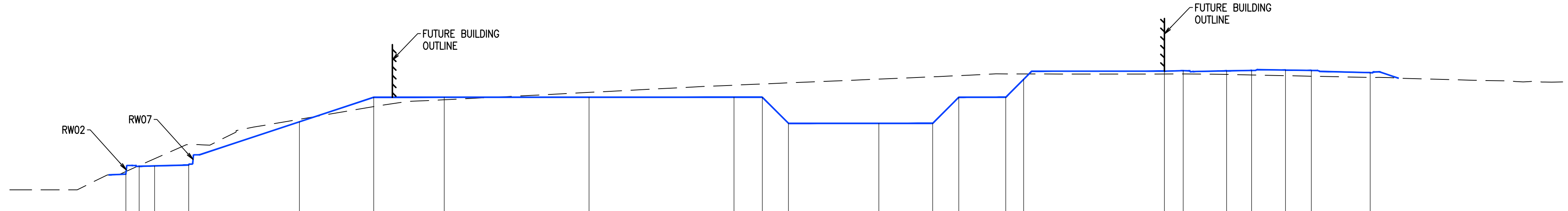
Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION LONGITUDINAL SECTION – SHEET 1 OF 2

Date 03.05.2019	Drawn R.GILL
Scale at A1 AS SHOWN	Designer C.ROPE
	Design Checker C.ROPE
Job Number 19005	Approved C.ROPE

NOT FOR CONSTRUCTION

Drawing Number C–2–120

Revision 1

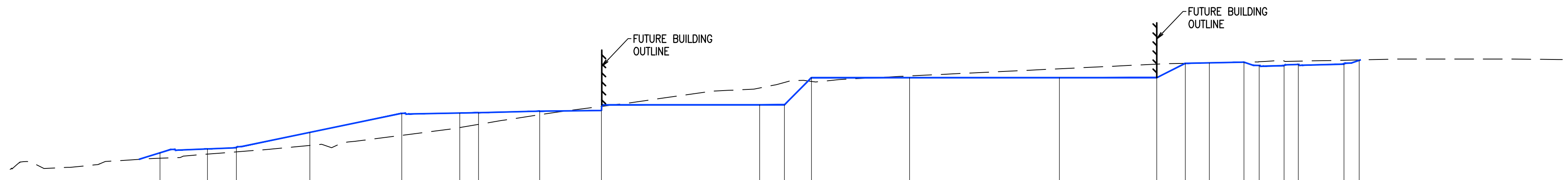


Datum 2

PROPOSED HEIGHT	EXISTING SURFACE	CHAINAGE
	7.019	0.000
9.723	10.185	20.043
11.087	11.205	22.327
11.154	12.389	25.000
11.301	14.823	30.878
18.768	19.199	50.000
23.000	21.393	62.826
23.000	22.562	75.000
23.000	23.840	100.000
23.000	25.078	125.000
23.000	25.292	129.901
18.500	25.480	134.401
18.500	26.132	150.000
18.500	26.521	159.301
23.000	26.732	163.801
23.000	27.036	171.901
26.098	27.028	175.000
27.500	27.015	199.291
27.586	27.020	202.534
27.558	26.939	210.021
27.625	26.851	214.356
27.695	26.727	220.198
27.625	26.632	224.647
27.242	26.416	234.804
	25.999	250.000
	25.645	268.054

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION C

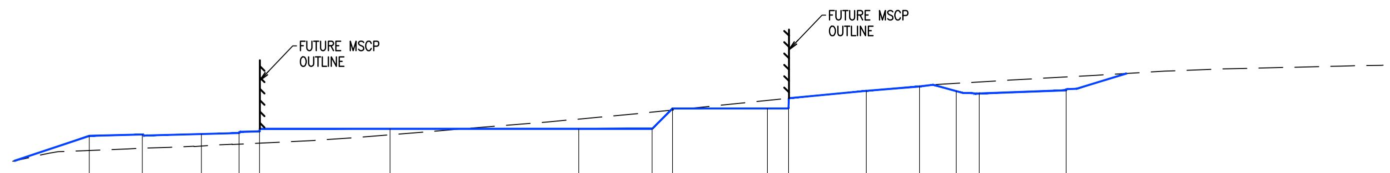


Datum 2

PROPOSED HEIGHT	EXISTING SURFACE	CHAINAGE
	7.787	0.000
10.540	9.636	25.000
11.179	10.317	32.923
11.379	10.691	37.744
13.928	11.767	50.000
17.085	13.437	65.327
17.135	14.736	75.000
17.192	15.256	78.115
17.447	16.853	88.327
17.550	18.232	98.619
18.500	21.298	125.000
18.500	22.204	129.134
23.000	22.385	133.634
23.000	23.291	150.000
23.000	24.478	175.000
23.000	25.250	191.236
25.383	25.384	196.003
25.460	25.460	200.000
25.571	25.571	205.778
25.030	25.654	208.324
24.996	25.777	212.459
25.191	25.744	214.824
25.244	25.892	222.459
25.875	25.947	225.000
	26.097	250.000
	26.001	258.888

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION B



Datum 8

PROPOSED HEIGHT	EXISTING SURFACE	CHAINAGE
	13.408	0.000
16.763	14.833	10.146
16.944	15.127	17.168
17.009	15.422	25.000
17.138	15.671	29.996
17.358	15.796	32.704
17.700	16.907	50.000
17.700	18.986	75.000
17.700	19.904	84.716
20.400	20.177	87.424
20.400	21.453	100.000
20.400	21.735	102.773
22.729	22.729	113.081
23.305	23.305	120.147
22.687	23.720	125.000
22.380	23.905	128.056
22.801	24.570	139.563
	25.176	150.000
	25.981	175.000
	26.114	181.553

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION A

SCALE 1:500
10 0 10 20m

Rev	Revision Description	By	App	Date
1	ISSUED FOR RTS	MC	CR	25.02.20

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client
lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

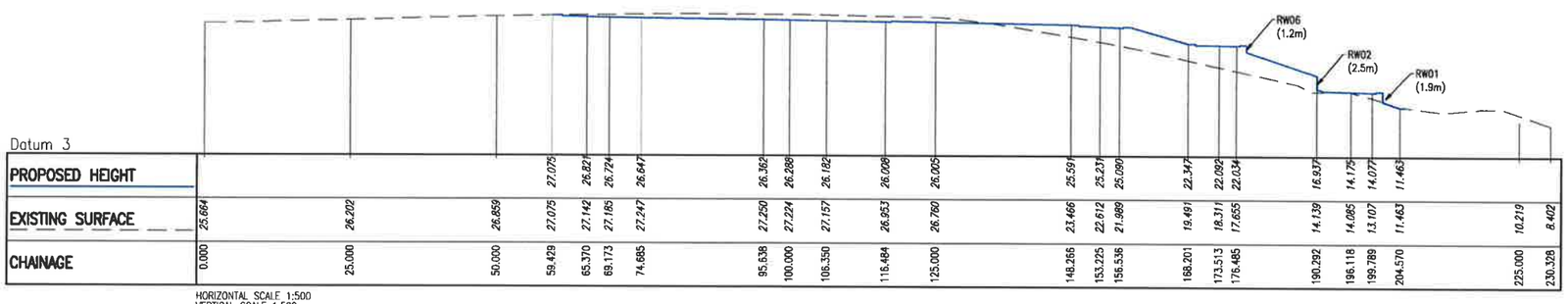
Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION LONGITUDINAL SECTION – SHEET 1 OF 2

Date: 25.02.2020
Drawn: M.CLAVEL
Scale at A1: AS SHOWN
Designer: M.CLAVEL
Design Checker: C.ROPE
Job Number: 19005
Approved: C.ROPE

NOT FOR CONSTRUCTION

Drawing Number: RBG-CV-DWG-RIE-82-721
Revision: 1

SECTION C



SECTION D

SCALE 1:500
10 0 10 20m

Rev	Revision Description	By	App	Date
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group
SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3300
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 380 248

Client
lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION LONGITUDINAL SECTION – SHEET 2 OF 2

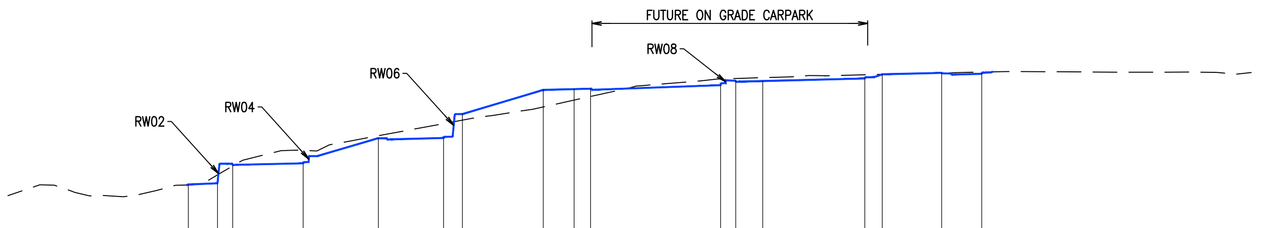
Date: 03.05.2019	Drawn: R.GILL
Scale at A1: AS SHOWN	Designer: C.ROPE
	Design Checker: C.ROPE
Job Number: 19005	Approved: C.ROPE

NOT FOR CONSTRUCTION

Drawing Number: C-2-121
Revision: 1

SCALE 1:500

10 0 10 20m

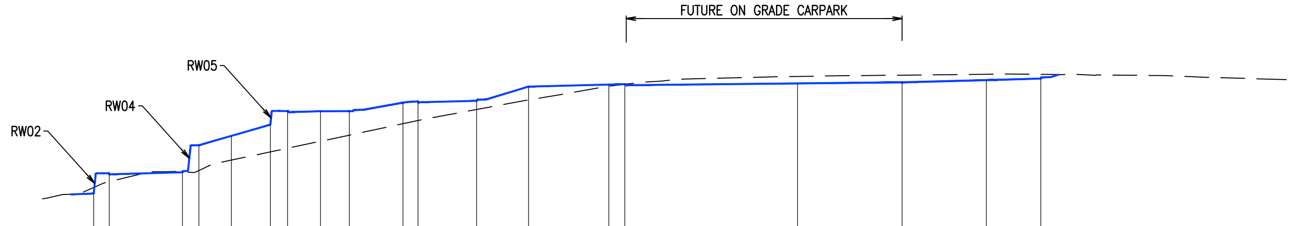


Datum 4

CHAINAGE	PROPOSED HEIGHT	EXISTING SURFACE
0.000		9.848
23.880	11.320	11.252
27.757	11.476	12.595
29.781	13.903	13.772
39.103	14.125	15.852
49.083	17.460	17.786
57.719	17.485	19.394
60.204	20.664	19.857
70.913	23.871	21.615
75.000	23.972	22.519
77.180	24.027	23.001
94.415	24.492	25.330
96.417	25.092	25.387
100.000	25.049	25.491
113.515	25.385	25.882
115.833	25.942	25.942
123.697	26.124	26.124
129.009	26.008	26.239
150.000		26.221
164.732		26.180

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION F

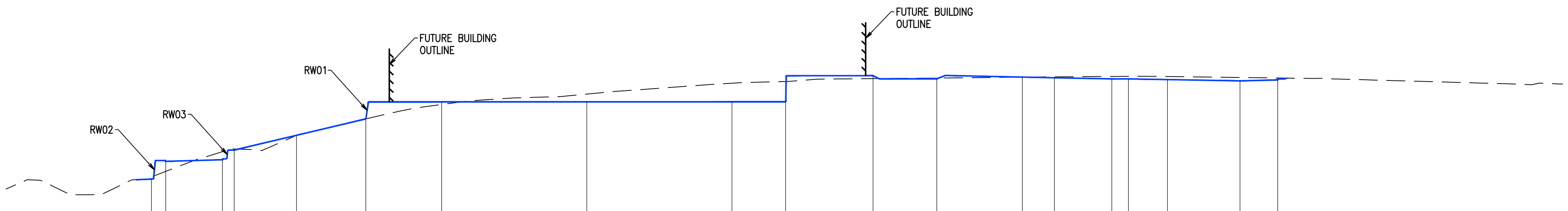


Datum 5

CHAINAGE	PROPOSED HEIGHT	EXISTING SURFACE
0.000		10.665
6.778	11.363	12.174
8.837	14.041	12.928
18.532	14.170	14.223
20.705	17.746	14.404
25.000	18.981	15.772
30.173	20.468	16.863
32.457	22.258	17.347
36.816	22.237	18.271
40.629	22.262	19.080
47.734	23.373	20.586
49.737	23.533	21.010
57.508	23.613	22.473
64.381	25.495	23.737
75.000	25.759	25.546
77.116	25.812	25.797
100.000	25.915	26.836
113.846	26.054	27.005
125.000	26.355	27.123
132.223	26.558	27.117
150.000		26.894
164.732		26.422

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION E



Datum 2

CHAINAGE	PROPOSED HEIGHT	EXISTING SURFACE
0.000		8.019
25.000	9.713	10.083
27.476	12.902	11.038
37.254	13.033	14.428
39.265	14.709	14.882
50.000	17.243	17.229
61.953	20.065	20.065
75.000	23.000	22.536
100.000	23.000	24.332
125.000	23.000	26.204
134.251	23.000	26.498
149.301	27.500	26.986
160.270	26.959	27.087
175.000	27.257	27.258
180.536	27.138	27.295
190.409	26.946	27.362
193.277	26.940	27.381
200.000	26.821	27.358
212.485	26.601	27.185
218.985	26.764	27.095
225.000		27.012
250.000		26.340
268.054		26.059

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500

SECTION D

Rev	Revision Description	By	App	Date
1	ISSUED FOR RTS	MC	CR	25.02.20

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client
lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION LONGITUDINAL SECTION – SHEET 2 OF 2

Date	Drawn
25.02.2020	M.CLAVEL
Scale at A1	Designer
AS SHOWN	M.CLAVEL
	Design Checker
	C.ROPE
Job Number	Approved
19005	C.ROPE

NOT FOR CONSTRUCTION

Drawing Number: RBG-CV-DWG-RIE-82-722
Revision: 1

LEGEND

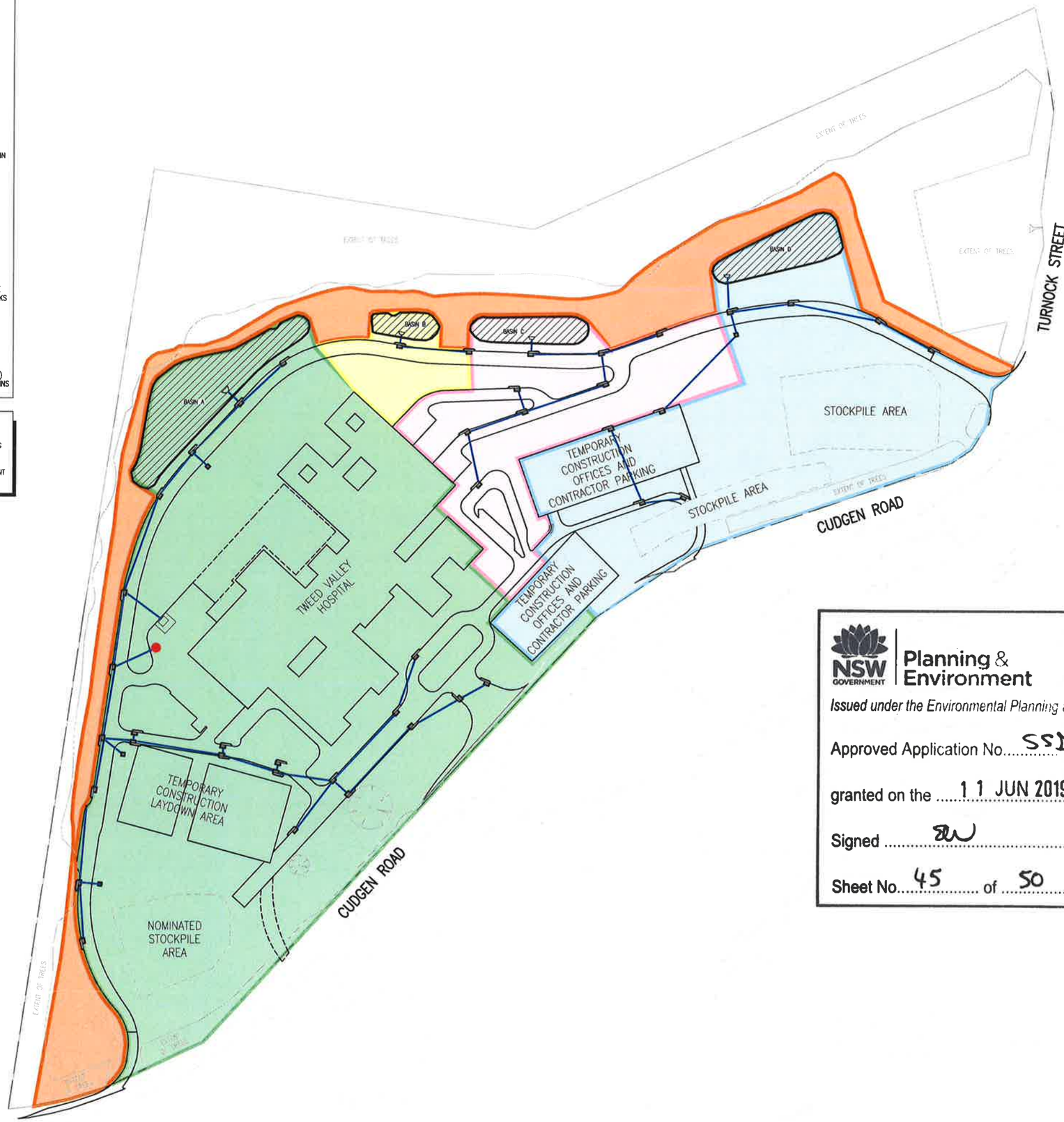
- BASIN A CATCHMENT (APPROX. 74500m²)
- BASIN B CATCHMENT (APPROX. 3300m²)
- BASIN C CATCHMENT (APPROX. 14500m²)
- BASIN D CATCHMENT (APPROX. 31500m²)
- BYPASS CATCHMENT (APPROX. 16100m²)
- EXISTING SEDIMENT BASIN TO BE RECONSTRUCTED AS BIODETENTION BASIN
- STORMWATER PIPE
- FIELD INLET PIT
- SAG INLET PIT
- KERB INLET PIT
- FUTURE RAINWATER TANK FOR STORAGE OF ROOF WATER – NOT STAGE 1 WORKS
- FUTURE OIL SEPARATOR FOR HELIPAD ROOF WATER – NOT STAGE 1 WORKS
- LAND BOUNDARY
- EXISTING SEDIMENT BASIN (CONSTRUCTED AS PRELIMINARY WORKS) TO BE MODIFIED TO BIODETENTION BASINS

NOTES

1. DETENTION BASINS TO BE SIZED TO ENSURE POST DEVELOPMENT FLOW RATE NO GREATER THAN EXISTING RUNOFF RATE IN 5YR ARI AND 100YR ARI STORM.
2. BIODETENTION TREATMENT TO BE SIZED TO ENSURE COMPLIANCE WITH TWEED SHIRE COUNCIL DEVELOPMENT DESIGN SPECIFICATION

BASIN SCHEDULE

BASIN REFERENCE	BIORETENTION AREA (MIN.)	DETENTION VOLUME (MIN.)
A	300m²	3500m³
B	40m²	350m³
C	170m²	750m³
D	410m²	1600m³



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 45 of 50

SCALE 1:1250

10 0 10 20 30 40m

Rev	Revision Description	By	App	Date
3	ISSUED FOR SSDA1	RG	CR	06.05.19
2	ISSUED FOR SSDA1	RG	CR	03.05.19
1	ISSUED FOR SSDA1	RG	CR	23.04.19

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client: lendlease

Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION STORMWATER MANAGEMENT PLAN

Date: 06.05.2019	Drawn: R.GILL
Scale at A1: AS SHOWN	Designer: C.ROPE
	Design Checker: C.ROPE
Job Number: 19005	Approved: C.ROPE

NOT FOR CONSTRUCTION

Drawing Number	Revision
C-6-150	3

LEGEND:

- DENOTES PILES AT BASEMENT 2
- DENOTES PILES AT BASEMENT 1
- DENOTES PILES AT LOWER GROUND
- DENOTES PILES AT GROUND

PILE SCHEDULE

TYPE	SIZE SQ/DIA	SWL	N°
CRANE	900	-	10000
P1	900	5000	6750
P2	900	7500	10125
P3	750	3500	4725
P4	750	3400	5100
P5	900	4500	6075
P6	900	6000	8100
P7	900	7000	9450
P10	600	2000	2700
CORES	900	-	10000

NOTES :

1. ALL LOADS ARE PRELIMINARY AND SUBJECT TO REVIEW.
2. STARTER BARS TO BE INSTALLED TO PILES FOR COLUMNS OVER.
3. PILE SIZES ARE PRELIMINARY AND SUBJECT TO REVIEW.

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 46 of 50

PRINT DRAWING IN COLOUR

Rev	Revision Description	By	App	Date
P1	ISSUED FOR SSDA1	KP	SH	02.05.19

Rev	Revision Description	By	App	Date

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3300
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 340 248

Client

Title: PILING LAYOUT

Project: TWEED VALLEY HOSPITAL

Scale at A1	Drawn	Design Checker
1:350	K.PETROVSKI	S.HAWDON
Date	Designer	Approved
Feb 2019	R.RAMACHANDRA	M.HARDING
		Job Number 19005

NOT FOR CONSTRUCTION

Drawing Number: SK02-00

Revision: P1

REFER DRAWING
SK02-00 FOR PILING
LAYOUT

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed ...

Sheet No. 47 of 50

FOUNDATION PLAN

Rev	Revision Description	By	App	Date
P1	ISSUED FOR SSDA1	KP	SH	02.05.19

Rev	Revision Description	By	App	Date

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Surbana Jurong Group

SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph (02) 8246 3200
Fax (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com
ACN 010 580 248

Client

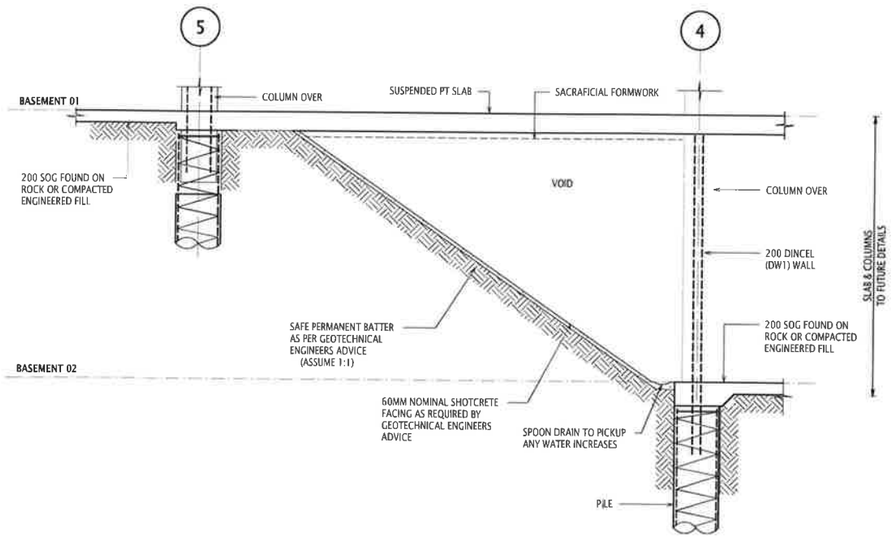
Title
FOUNDATION PLAN

Project
TWEED VALLEY HOSPITAL

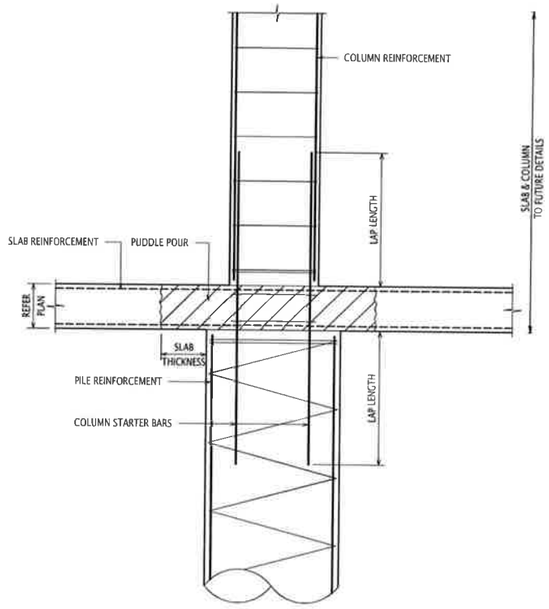
Scale at A1	Drawn	Design Checker
1:500	K.PETROVSKI	S.HAWDON
Date	Designer	Approved
Apr 2019	R.RAMACHANDRA	M.HARDING
		Job Number
		19005

NOT FOR CONSTRUCTION

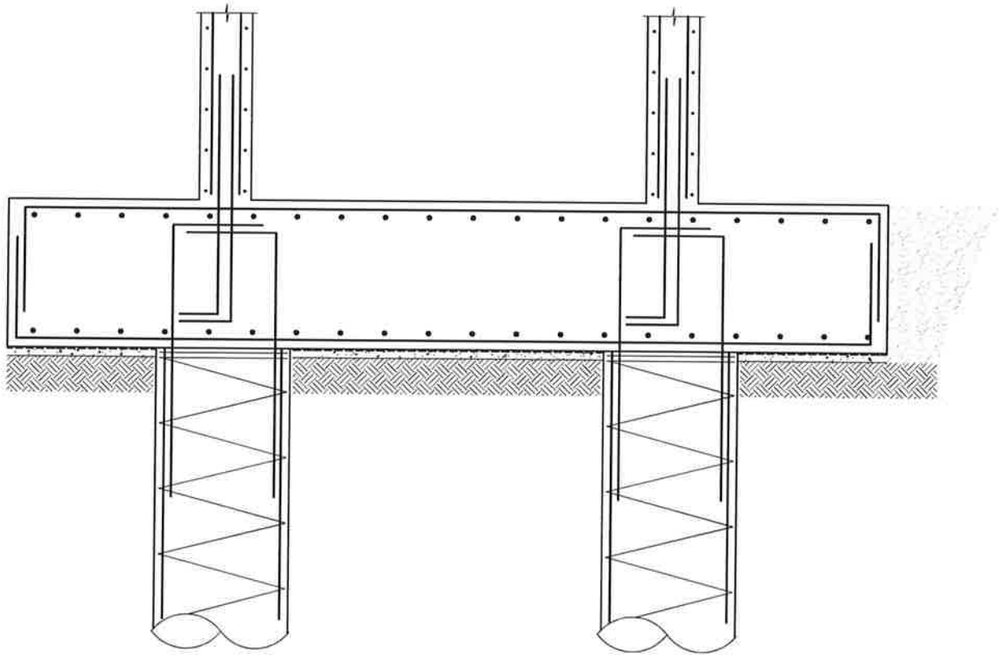
Drawing Number	Revision
SK02-01	P1



TYPICAL DETAIL FOR RETAINING WALL BUILDING UNDER CROFT (DW1)
SCALE 1 : 50



TYPICAL PILE/COLUMN REINFORCEMENT DETAIL
SCALE 1 : 20



TYPICAL STAIR CORE BASE

NOTE:
ALL FOOTING CONCRETE TO BE 32 MPa MINIMUM U.N.O

Rev	Revision Description	By	App	Date
P1	ISSUED FOR SSDA1	KP	SH	06.05.19

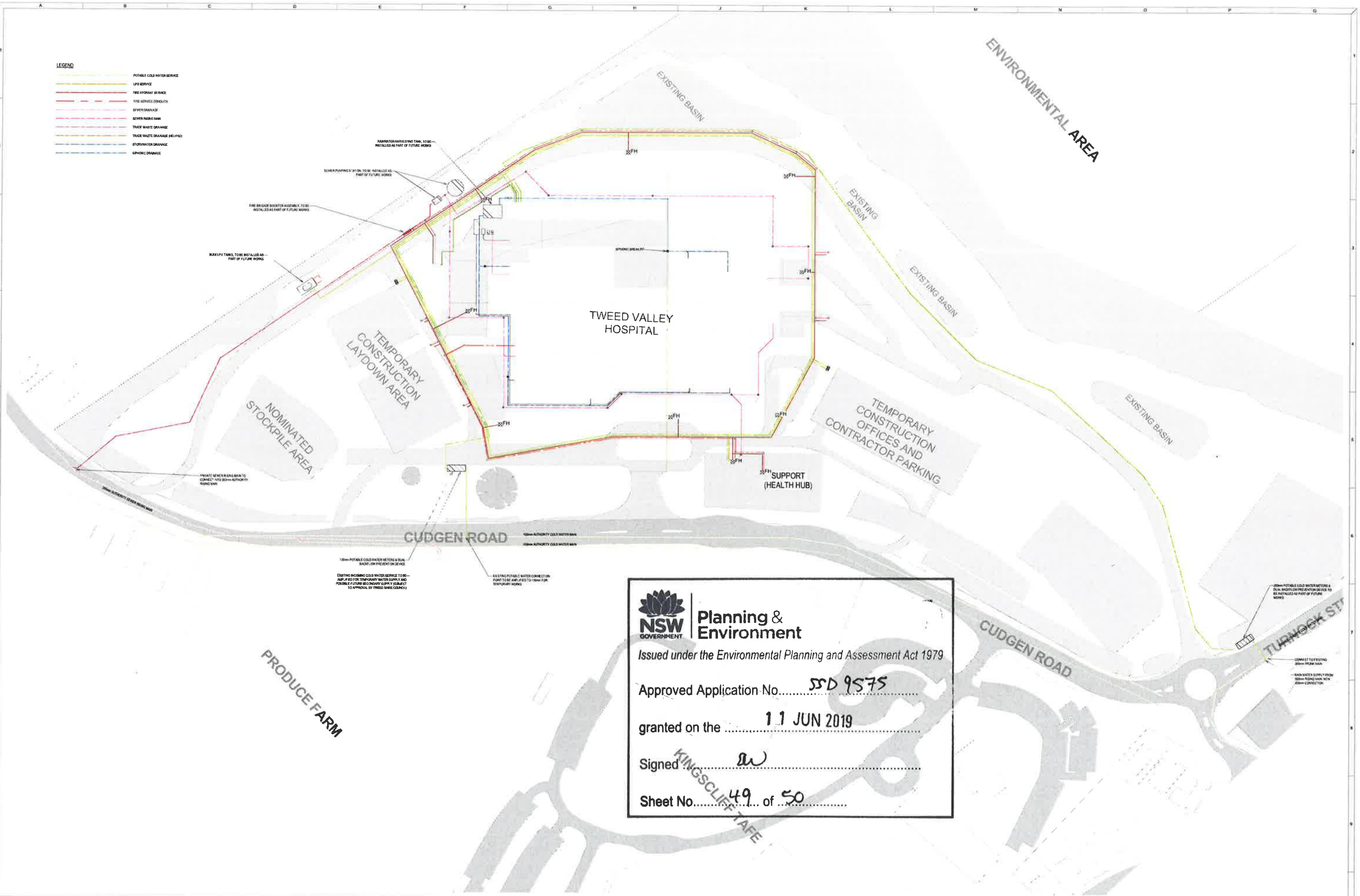
DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE

Structural, Civil & Construction Engineering Consultant
RobertBirdGroup
Member of the Surbana Jurong Group
SYDNEY OFFICE
Robert Bird Group Pty Ltd
PO Box A2309
Sydney South, NSW 1235
Level 11, 151 Castlereagh St
Sydney NSW 2000
Ph: (02) 8246 3200
Fax: (02) 8246 3201
Email: sydney@robertbird.com.au
Web: www.robertbird.com

Client

Title: TYPICAL SECTIONS SHEET 1
Project: TWEED VALLEY HOSPITAL

Scale at A1: 1:20, 1:50
Date: Feb 2019
Drawn
Designer
Design Checker
Approved
Job Number: 19005
NOT FOR CONSTRUCTION
Drawing Number: SK11-11
Revision: P1



NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed [illegible]

Sheet No. 49 of 50

REVISION / AMENDMENTS

OUT OF STRATA

CLIENT: NSW GOVERNMENT | Health Infrastructure

ARCHITECT: STH

CONSULTANT: JHA

PROJECT: TWEED VALLEY HOSPITAL

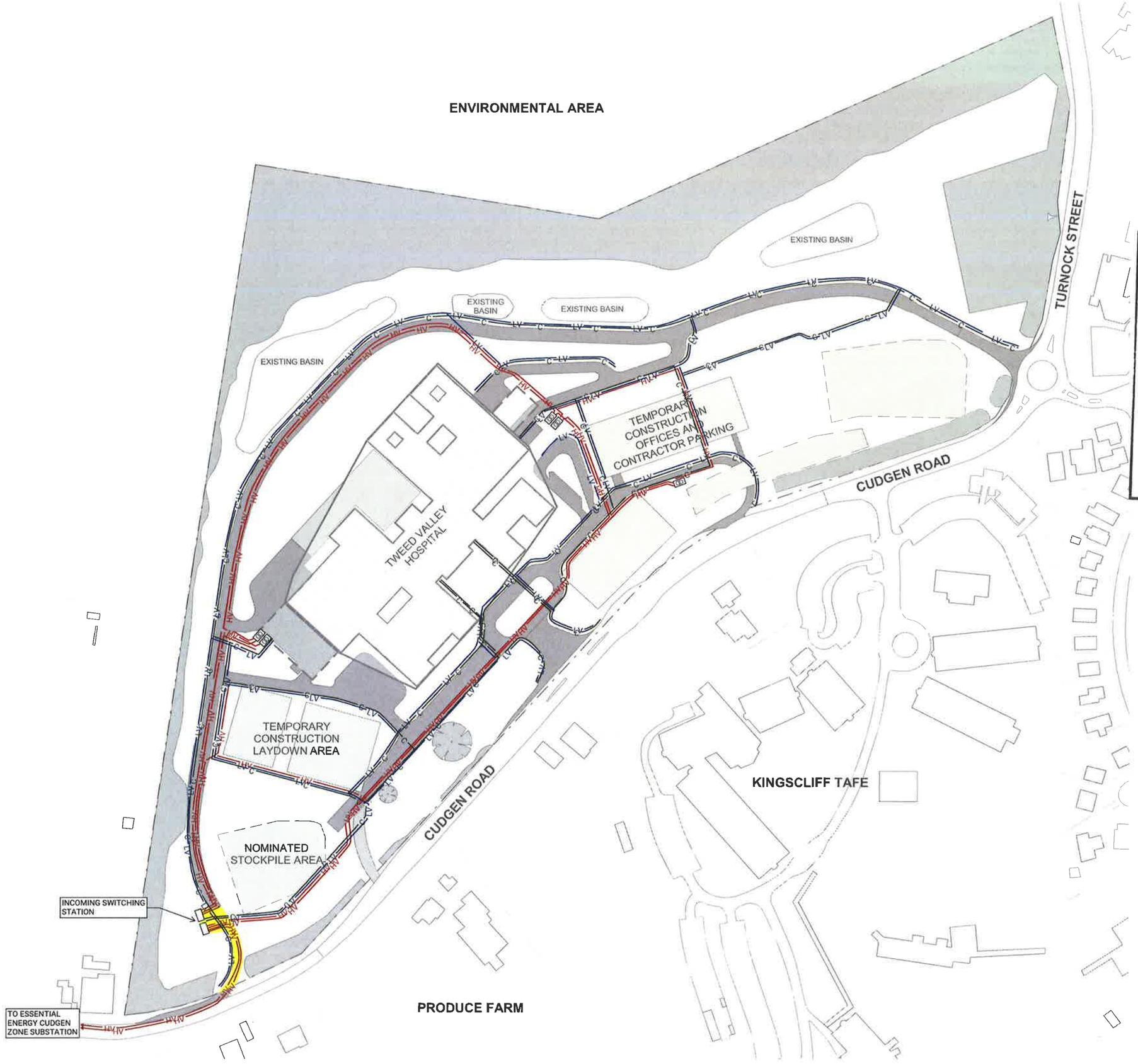
TITLE: HYDRAULIC SERVICES
PRPOSPED EARLY WORKS
SITE PLAN

PRELIMINARY ISSUE
NOT TO BE USED FOR CONSTRUCTION

DRAWN	L.K.	SCALE @ A0	1 : 750
CHECKED	J.K.		
APPROVED	D.G.M.		
CREATED	FEB 18		
DRAWING No	130559-JHA-HY-DWG-0002	REV	2

6/05/2019 10:41:20 AM

C:\Users\lawrance\Documents\Temp_Revit-2018\130559-JHA-HY-MDL-0001_LawranceKwok.rvt



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD 9575

granted on the 11 JUN 2019

Signed

Sheet No. 50 of 50

No.	Description	Date	By	Chk

Services Consultant

LCI CONSULTANTS (AUSTRALIA) PTY/LTD

LEVEL 4, 73 WALKER STREET, NORTH SYDNEY, NSW, 2060
ABN: 92 124 107 973

Project
TWEED VALLEY HOSPITAL

Drawing Title
SSD STAGE 1 DA
ELECTRICAL AND COMMUNICATIONS

Status
PRELIMINARY (2019-05-06)

Scale @
1:2500@A3

Project No.
18202

Drawing No.
LCI-EL-DWG-SSI-1000001

Rev
P8