



ROAD ALONG APPROXIMATE ALIGNMENT OF CAMPUS MASTERPLAN SUBJECT TO DETAILED DESIGN AND FINALISATION IN STAGE 2

REFER TO RBG DRAWING S02-00 FOR PILING LAYOUT

PRELIMINARY LANDFORM (FINAL CAR PARKING SOLUTION AND DETAILED DESIGN TO BE FINALISED IN STAGE 2)

ROAD ALONG APPROXIMATE ALIGNMENT OF CAMPUS MASTERPLAN SUBJECT TO DETAILED DESIGN AND FINALISATION IN STAGE 2

- 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	20/06/2018
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

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 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
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PROJECT MANAGER

TSA
 MANAGEMENT

CLIENT

NSW 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	1:2500@A3	DATE	03/05/2019	DRAWN BY	SL	CHECKED	AB
PROJECT No	10363.00	DRAWING No	AR-SKE-10-110	REVISION			04

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**

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



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TWEED VALLEY HOSPITAL DEVELOPMENT

STAGE 1 - EARLY AND ENABLING WORKS

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 JURISDICTION OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY MORRISON GEOTECHNICAL 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.

SITWORKS 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' 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 GEOTECHNICAL 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 BE 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 GREATER 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 UNSERVICEABLE 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 HEALTH AND SAFETY REGULATION 2011
B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION 2011
- S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 15 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 > 12m 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.

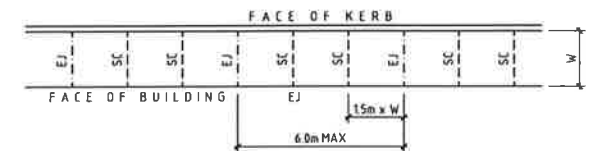
KERBING NOTES

- 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

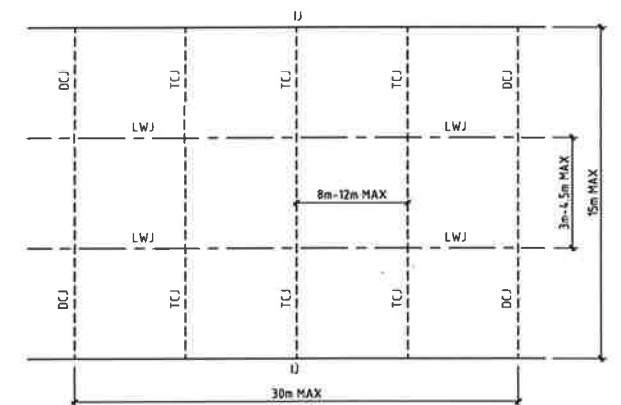
PEDESTRIAN FOOTPATH JOINTS

- 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 15m 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 CENTRES. 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 CENTRES. 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 AUSTRROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-05 PAVEMENT DESIGN FOR LIGHT TRAFFIC.
- J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.).



DRAWING LIST DELETED FOR SSDA
RESUBMISSION - NOT APPLICABLE



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granted on the **11 JUN 2019**

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Sheet No. **25** of **50**

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PS	DA ISSUE	16.01.18	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	-

Rev Description Date By App

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Rev	Description	Date	By	App

Rev Description Date By App



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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	North
Drawn	PA			
Scale	-	Project Ref	Drawing No	Rev
Date	03.09.18			
Sheet	A1	20 10748 01	C001	P5

SWMP Commentary, Detailed Calculations

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 (fraction 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	
Slope length (m)	173	103	106	55	52	85	RUSLE data can be obtained from Appendixes A, B and C
Slope gradient (%)	6.36	13.9	4.9	25	7.1	18.8	
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)

Revised Catchment Calc 1.1 CAM 190110.xls

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SWMP Commentary, Detailed Calculations

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:

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

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

$R_{x\text{-day, } y\text{-}\%ile}$ = 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)(ii)).

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

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

Total Basin Volume

Site	C_v	$R_{x\text{-day, } y\text{-}\%ile}$	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

Revised Catchment Calc 1.1 CAM 190110.xls

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SWMP Commentary, Detailed Calculations

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 (fraction 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	
Slope length (m)	64	98	76	124	82	188	
Slope gradient (%)	1.5	2.9	19.7	5.3	1.95	3.4	
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)

Revised Catchment Calc 1.2 CAM 190110.xlsx

1

SWMP Commentary, Detailed Calculations

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:

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

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

$R_{x\text{-day}, y\text{-}\%ile}$ = 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,
☐	2 months soil loss calculated by RUSLE

Total Basin Volume

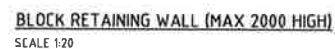
Site	C_v	$R_{x\text{-day}, y\text{-}\%ile}$	Total catchment area (ha)	Settling zone volume (m ³)	Sediment storage volume (m ³)	Total basin volume (m ³)
6b	0.70	62.5	0.19	83.125	1	84.125
7	0.70	62.5	0.34	148.75	4	152.75
8	0.70	62.5	1.46	638.75	152	790.75
9	0.70	62.5	0.83	363.64375	19	382.64375
10	0.70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

Revised Catchment Calc 1.2 CAM 190110.xlsx

1

DEVELOPMENT APPLICATION

Designed	SK	Project Director Approved	Date	North
Drawn	CS			
Scale	1:1000			
Date	11.01.19	Project Ref	Drawing No	Rev
Sheet	A1	20 10748 01	C008	P2



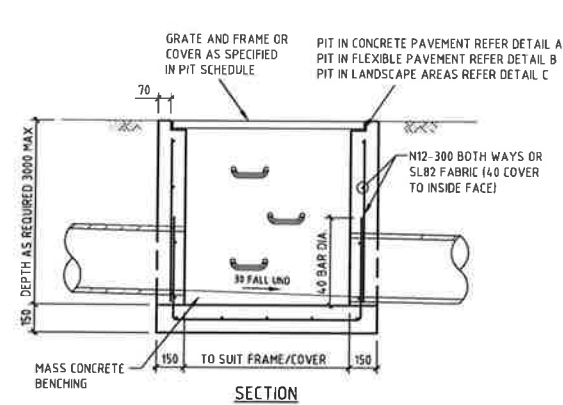
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Approved Application No.....SSD 9575

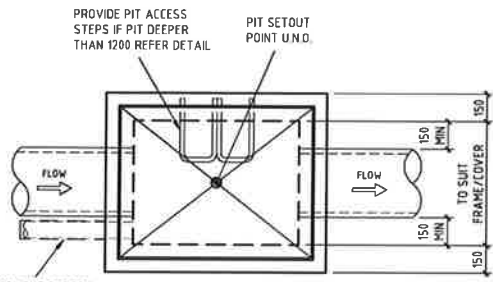
granted on the **11 JUN 2019**.....

Signed

Sheet No. 30 of 50



SECTION



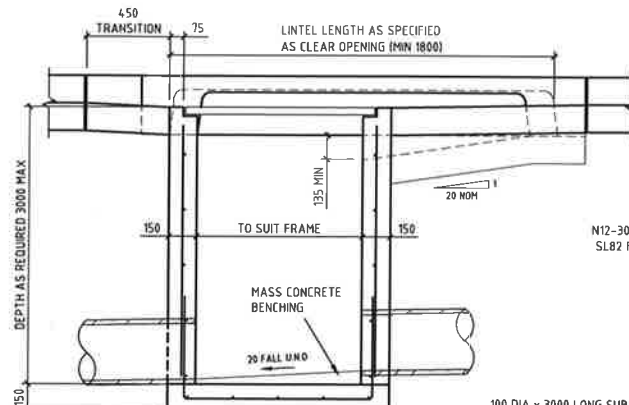
PLAN

SURFACE INLET/JUNCTION PIT DETAIL

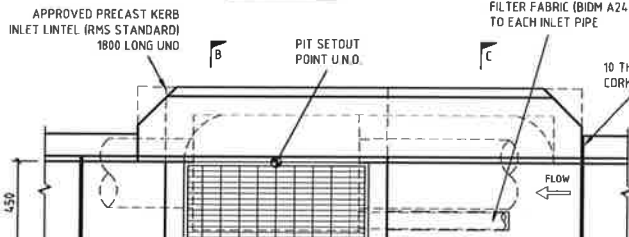
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STORMWATER PIT NOTES

1. CONCRETE TO HAVE A MIN. COMPRESSIVE STRENGTH (IF 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. IF REINFORCING FABRIC IS TO BE USED REFER TO WALL AND CORNER DETAILS
4. PRECAST PITS ARE TO GENERALLY COMPLY WITH THESE DETAILS.
5. PRECAST PIT MAY BE USED SUBJECT TO ENGINEERS APPROVAL.
6. ALL PITS TO BE LOCKABLE.
7. FINAL INTERNAL PIT DIMENSIONS ARE TO COMPLY WITH AS 3500.



SECTION A-A



PLAN

KERB INLET PIT DETAIL

SCALE 1:20

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 granted on the **1.1 JUN 2019**

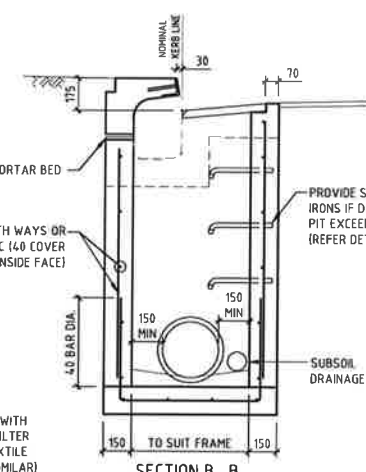
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Sheet No. **31** of **50**

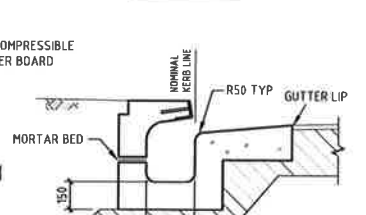
FRONT ELEVATION

REFER NOTE

PLAN



SECTION B-B



SECTION C-C

- DRILL 30mm DIA HOLE x 120mm DEEP AND EPOXY INTO WALL WITH EPOXY MORTAR EQUAL TO EPIREZ 633 (NON SAGEI) - IN PRECAST PITS, DEPTH OF EMBEDMENT IS TO BE IN ACCORDANCE WITH PIT MANUFACTURER'S DETAILS

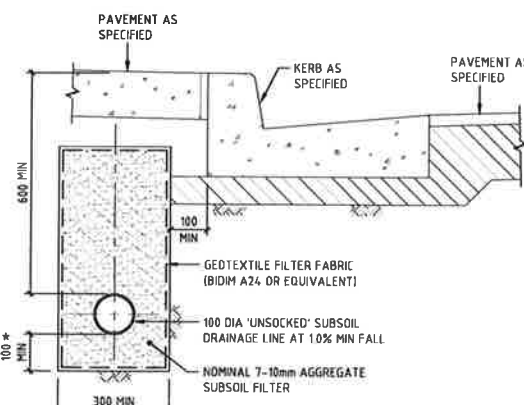


SIDE ELEVATION

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

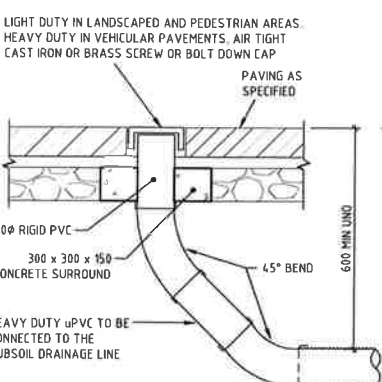
PIT ACCESS STEP DETAIL

SCALE 1:10



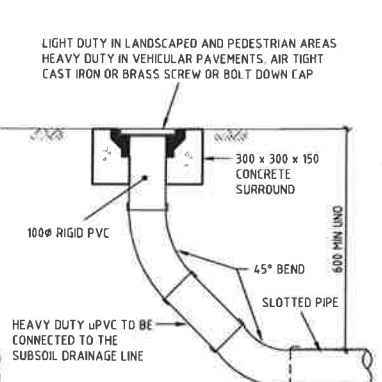
SUBSOIL BEHIND KERB

SCALE 1:10



FLUSHOUT RISER (FOR) IN PAVING BRICKS

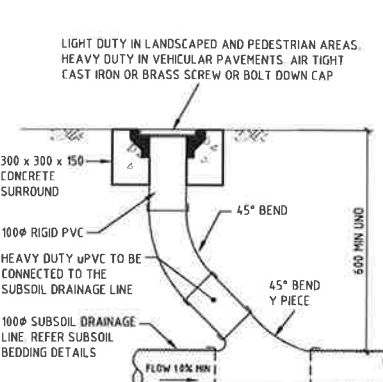
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FLUSHOUT RISER (FOR)

SCALE 1:10

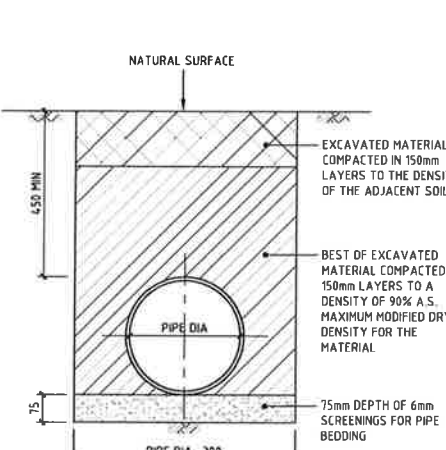
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS WITHIN DRAINAGE LAYER ONLY



INTERMEDIATE RISER

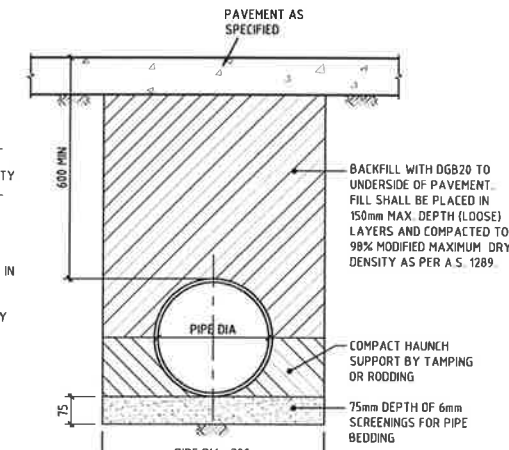
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NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



PIPE LAYING DETAIL (ALL PIPES) UNDER LANDSCAPED AREAS

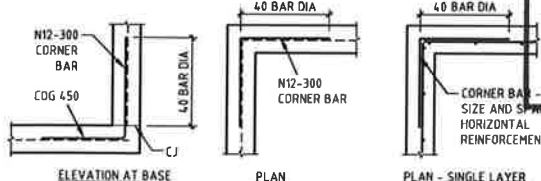
SCALE 1:10



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

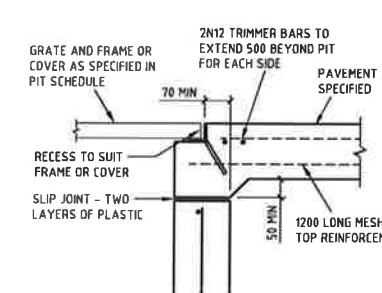
PLAN - SINGLE LAYER

PLAN - DOUBLE LAYER

PIT CORNER DETAILS

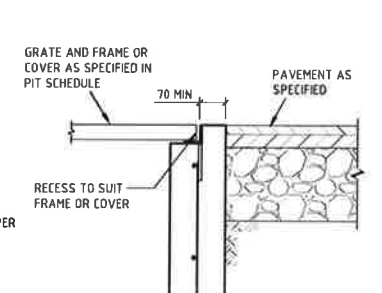
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NOTE: DESIGNER TO VERIFY EXTENT OF DETAILING



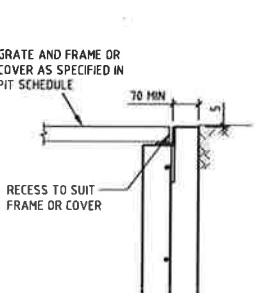
DETAIL A

SCALE 1:10



DETAIL B

SCALE 1:10



DETAIL C

SCALE 1:10

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Rev	Description	Date	By App
P2	ISSUED FOR EARLY WORKS	03/09/18	PA
P1	ISSUED FOR EARLY WORKS	03/09/18	PA

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 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	-	Project Ref	Drawing No
Date	03/09/18		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

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 JURISDICTION OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY MORRISON GEOTECHNICAL 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.

SITWORKS 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' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEER'S 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 GEOTECHNICAL PTY LTD REFERENCE: GE18/144 REV 2 DATED 28th SEPTEMBER 2018. MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% DMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILLED BELOW FOR ALL REQUIREMENTS ARE TO BE 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 UNSERVICEABLE 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 2011
- S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 15 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 < 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 > 12m 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.

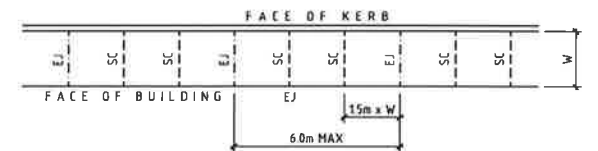
KERBING NOTES

- 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 S.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

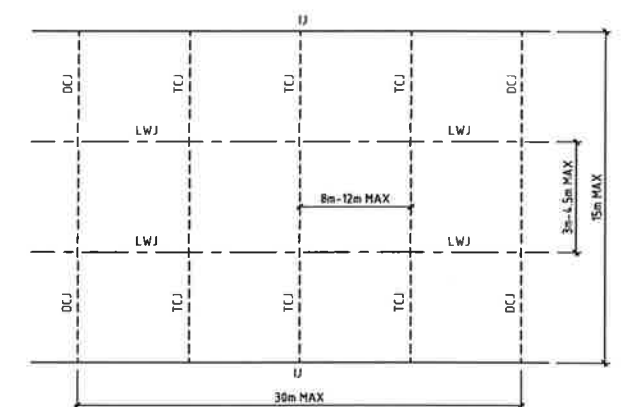
PEDESTRIAN FOOTPATH JOINTS

- 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 15m 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 CENTRES. 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 CENTRES. 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 AUSTRROADS 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.)



Planning & Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. **SSD 9575**

granted on the **11 JUN 2019**

Signed **W**

Sheet No. **32** of **50**

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P2	ISSUED FOR TENDER ISSUE	05.11.18	PA	-
P1	ISSUED FOR DRAFT TENDER	02.11.18	PA	-

Rev	Description	Date	By	App	Rev	Description	Date	By	App
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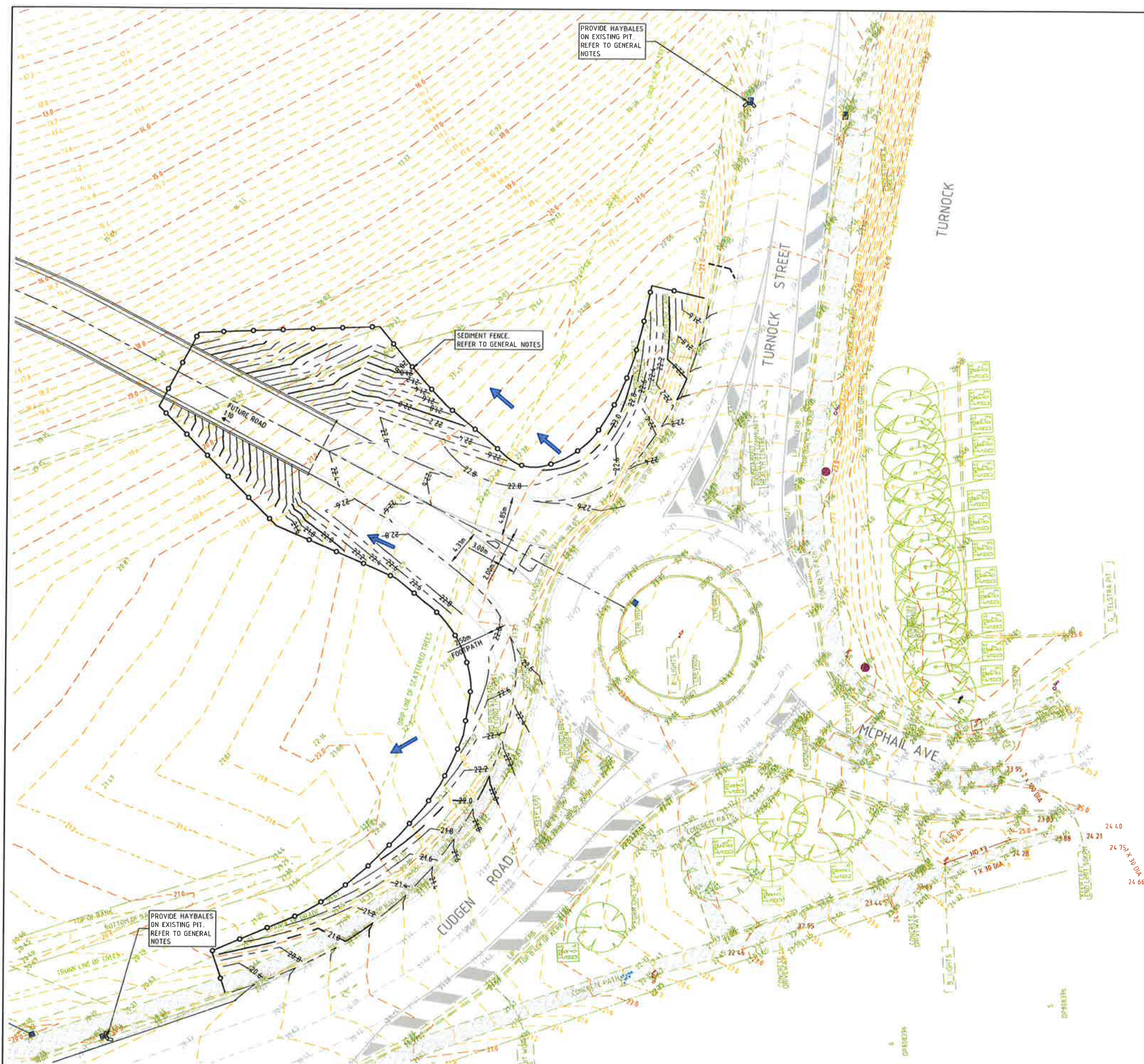
Project Name
TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title
DRAWING REGISTER AND CONSTRUCTION NOTES

TENDER

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

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- 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



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granted on the **11 JUN 2019**

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Sheet No. **33** of **50**

GENERAL NOTES:
1. ALL EROSION & SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH TWEED SHIRE COUNCIL'S DEVELOPMENT DESIGN SPECIFICATIONS D7-STORMWATER QUALITY, & ITS ANNEXURE A - CODE OF PRACTICE FOR SOIL AND WATER MANAGEMENT ON CONSTRUCTION SITES

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P1	ISSUED FOR DRAFT TENDER	02/11/18	PA

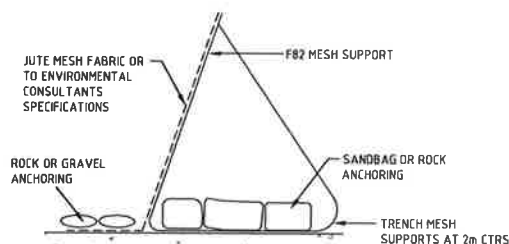
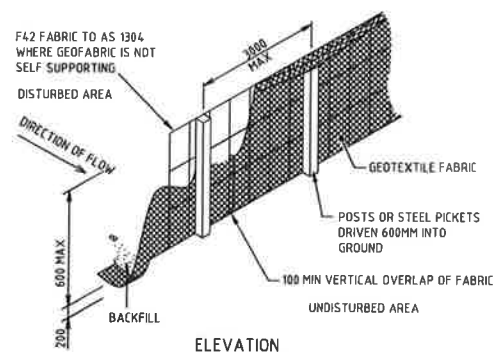
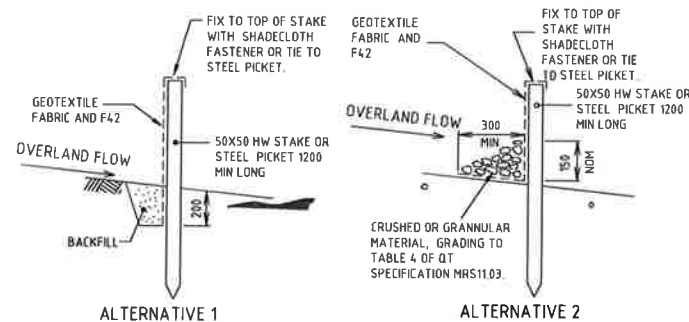
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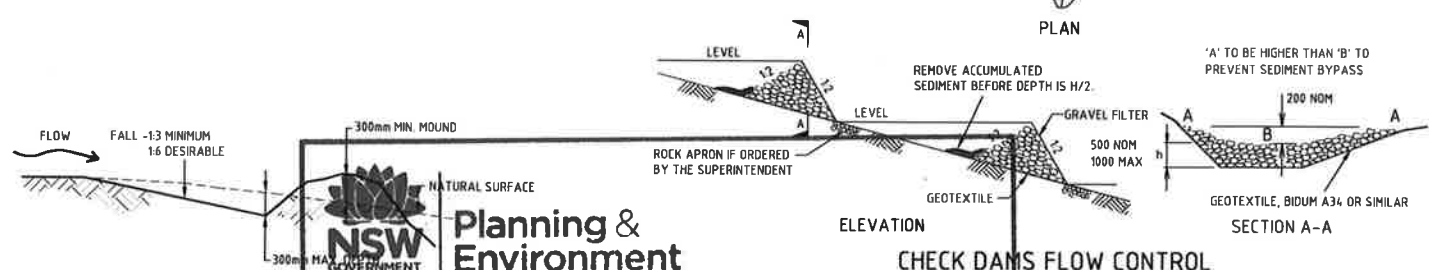
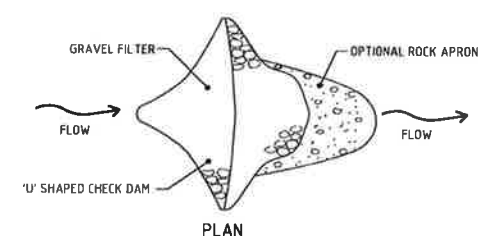
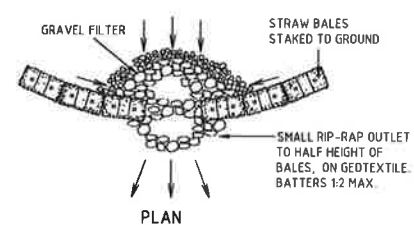
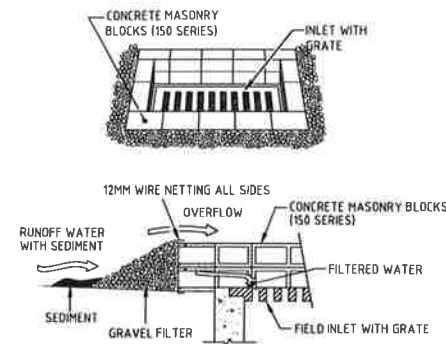
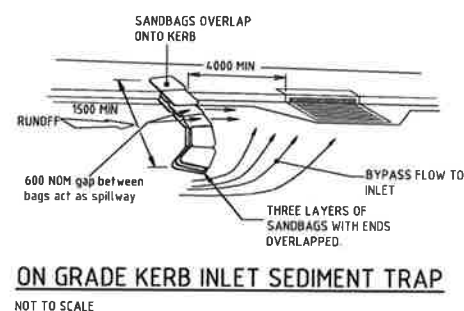
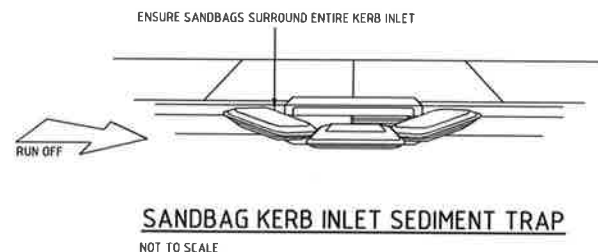
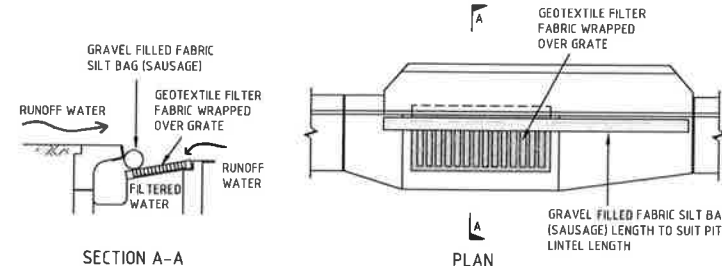
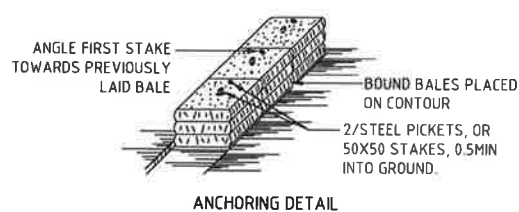
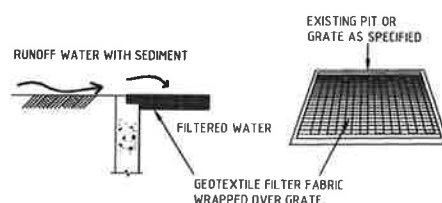
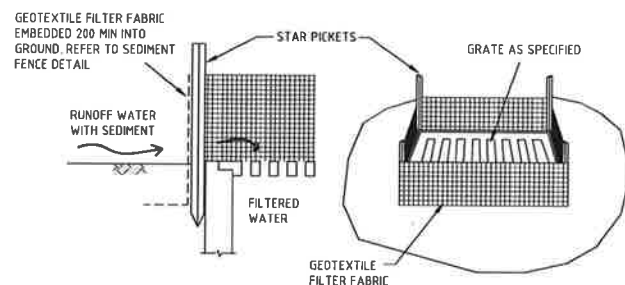
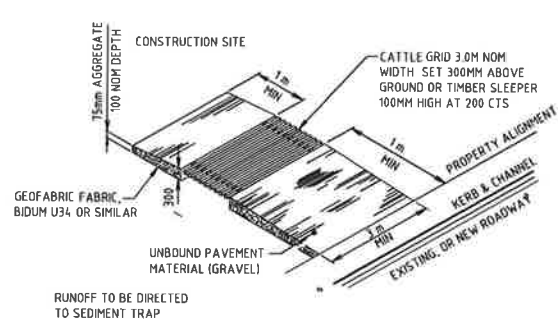
Project Name: **TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS**
Drawing Title: **SEDIMENT AND EROSION CONTROL PLAN**

Designed		CS	Project Director Approved		Date	North	
Drawn		PA	Project Ref		Drawing No	Rev	
Scale		NTS	20 10748 01		C505	P2	
Date		3/10/2018					
Sheet		A1					



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.



CATCH DRAIN

NOT TO SCALE

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Sheet No. **34** of **50**

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

Rev	Description	Date	By	App

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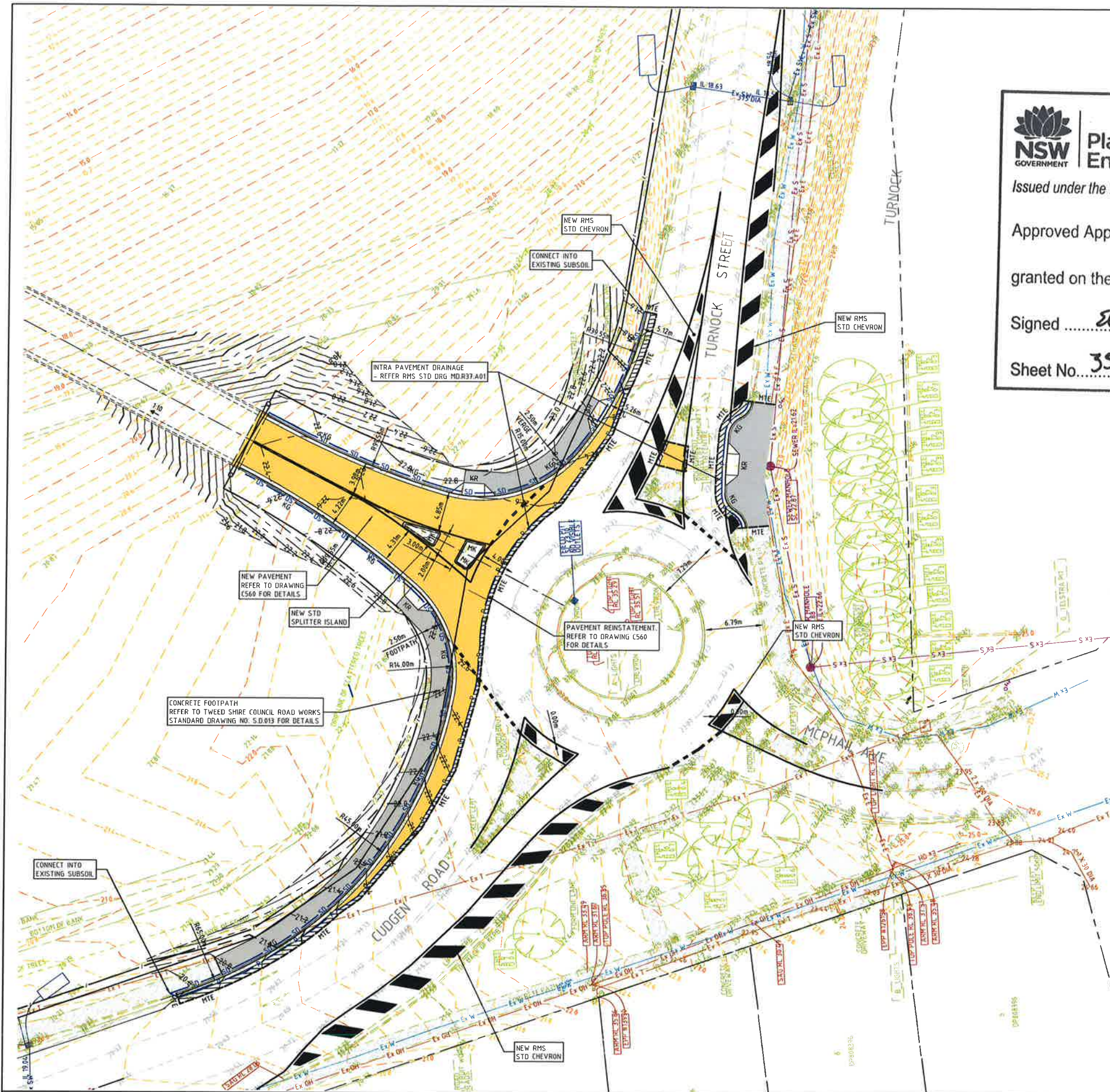
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Project Name TWEED VALLEY HOSPITAL DEVELOPMENT, TURNOCK STREET ROUNDABOUT WORKS

Drawing Title SOIL AND WATER MANAGEMENT DETAILS

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

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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
- KD 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 ROADWORKS
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 DETAILS (UND)
- P INTRA PAVEMENT DRAINAGE
REFER RMS STD DRG MD R37.A01
- FENCE LINE
- BOUNDARY



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PROPOSED FUTURE POTABLE WATER
CONNECTION BY TWEED SHIRE COUNCIL
NOT TO SCALE

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

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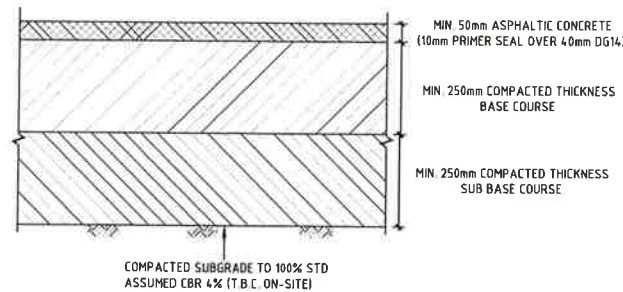
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Project Name
**TWEED VALLEY HOSPITAL
DEVELOPMENT, TURNCOCK STREET
ROUNDBOUT WORKS**

Drawing Title
**EXTERNAL WORKS
INTERSECTION PLAN**

TENDER

Designed	CS	Project Director Approved	Date	North
Drawn	PA			
Scale	1:250			
Date	3.10.2018	Project Ref	Drawing No	Rev
Sheet	A1	20 10748 01	C540	P3



PAVEMENT TYPE P1
HEAVY DUTY ASPHALT PAVEMENT
SCALE 1:10



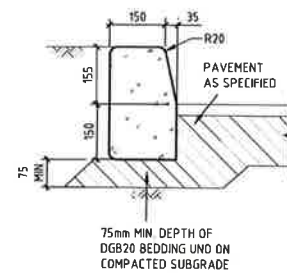
DENOTED ON PLAN

ROAD DESIGN PARAMETERS (FLEXIBLE)

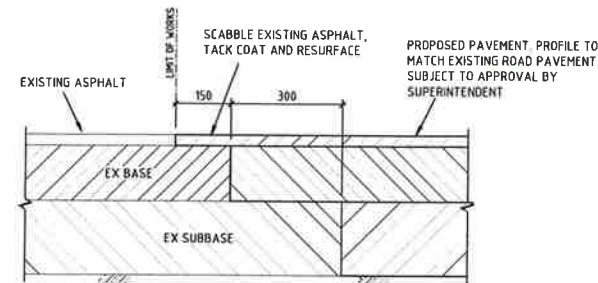
DESIGN TRAFFIC 15 X 10⁶ (ESA's OR HVAG)

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 (K0)
SCALE 1:10



AC CONNECTION TO EXISTING PAVEMENT
SCALE 1:10



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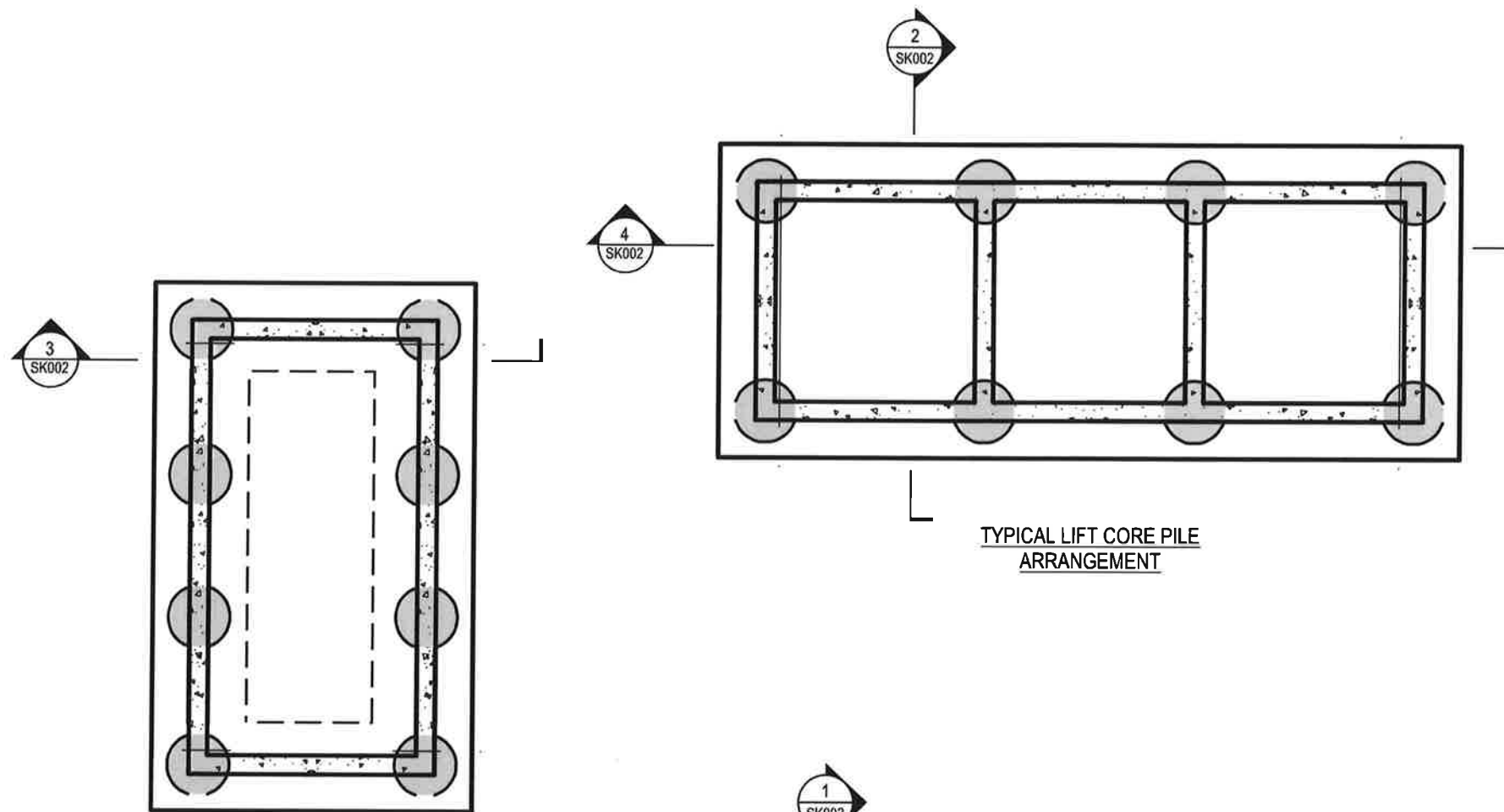
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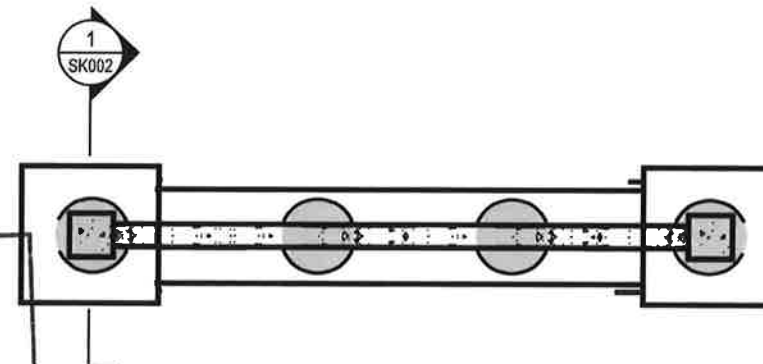
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Drawing Title: CIVIL WORKS DETAILS

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



TYPICAL STAIR CORE PILE ARRANGEMENT

TYPICAL LIFT CORE PILE ARRANGEMENT



TYPICAL SHEAR WALL PILE ARRANGEMENT



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Sheet No. 38 of 50

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

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

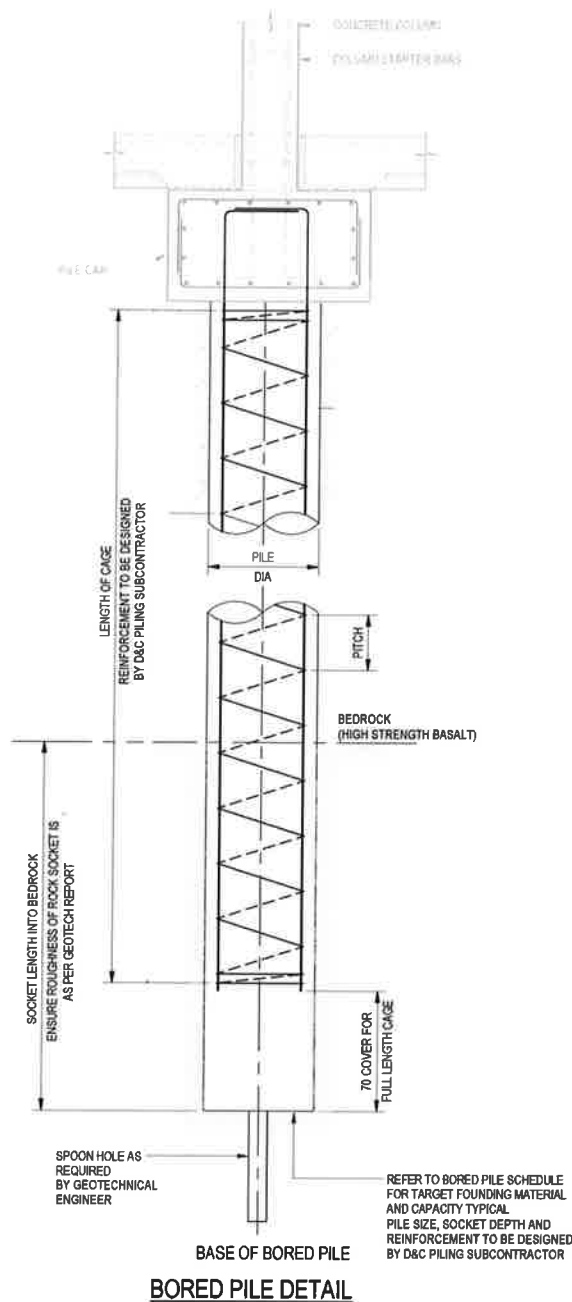
BORED PILES

- 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 $\pm 75\text{mm}$ 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.

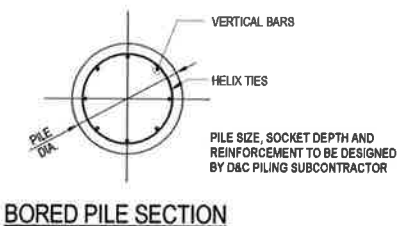
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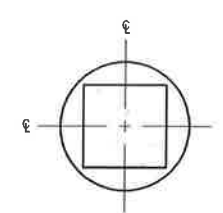
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Drawing Title	PILING DETAILS SHEET 1	Project Ref	10748	Sketch No	SK001
				REV	1



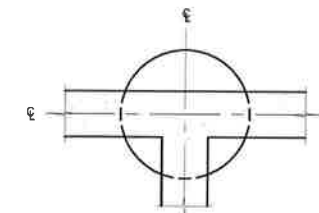
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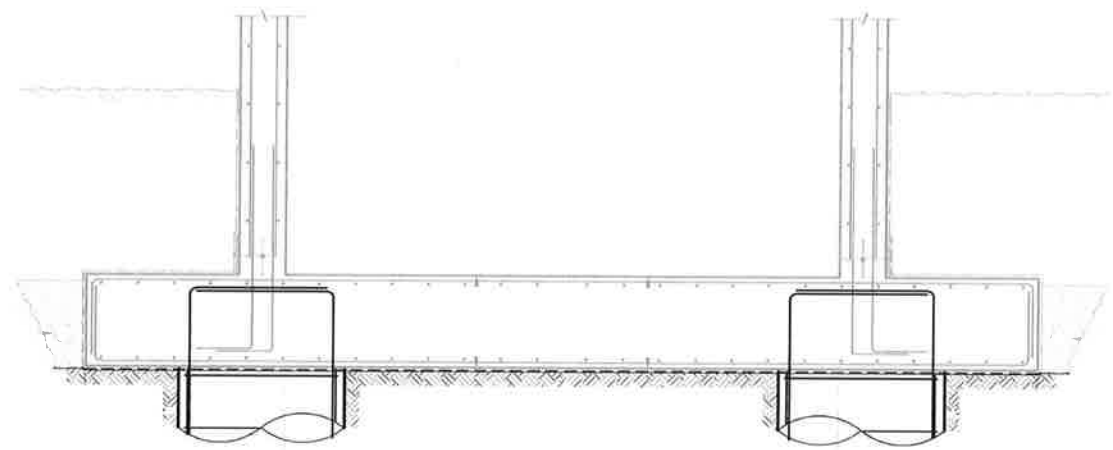
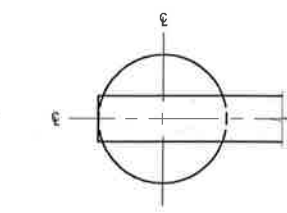
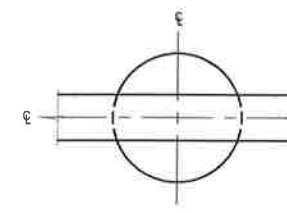
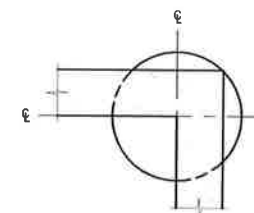
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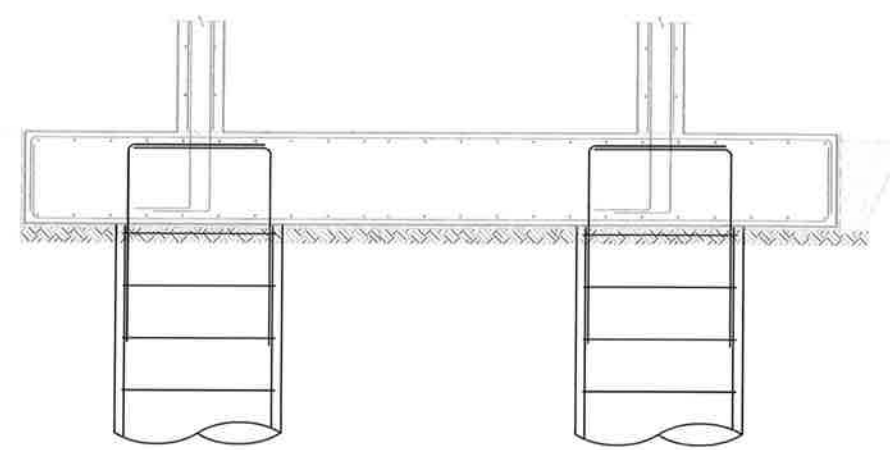
TYPICAL PILE LOCATIONS AT COLUMNS
ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN



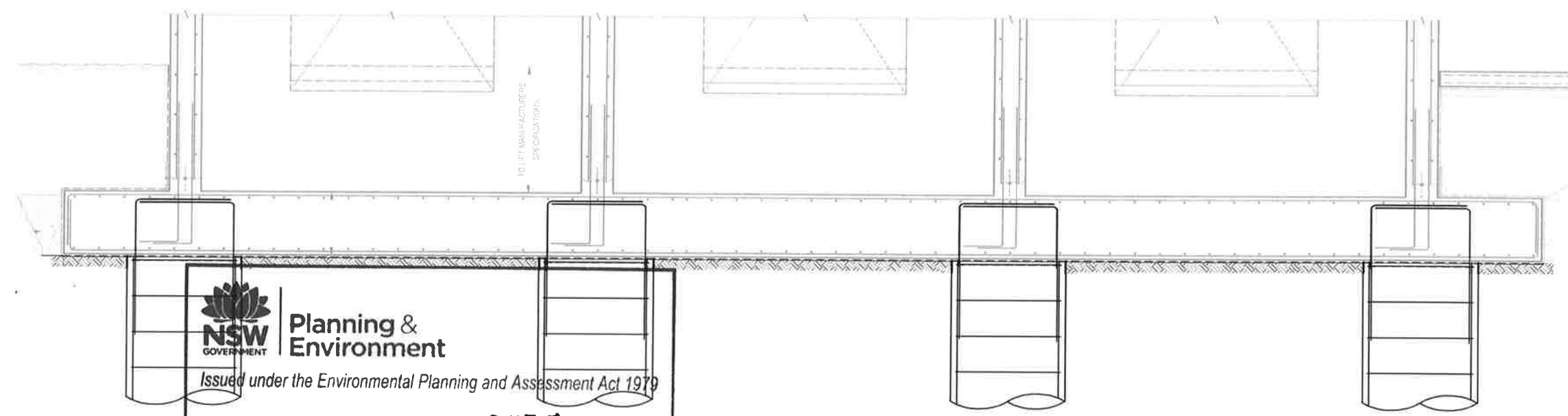
TYPICAL PILE LOCATIONS AT COLUMNS/WALLS
ALL PILES TO BE CENTRED ON COLUMN/WALLS OVER UNLESS OTHERWISE DENOTED ON PLAN



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



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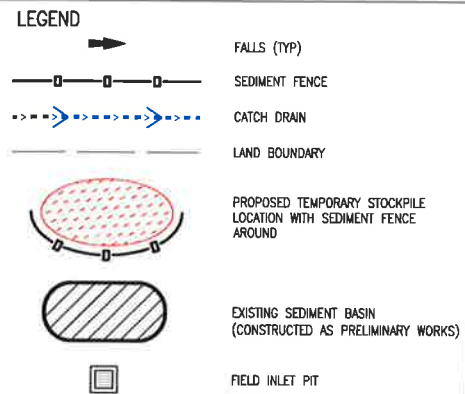
Signed **AW**

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

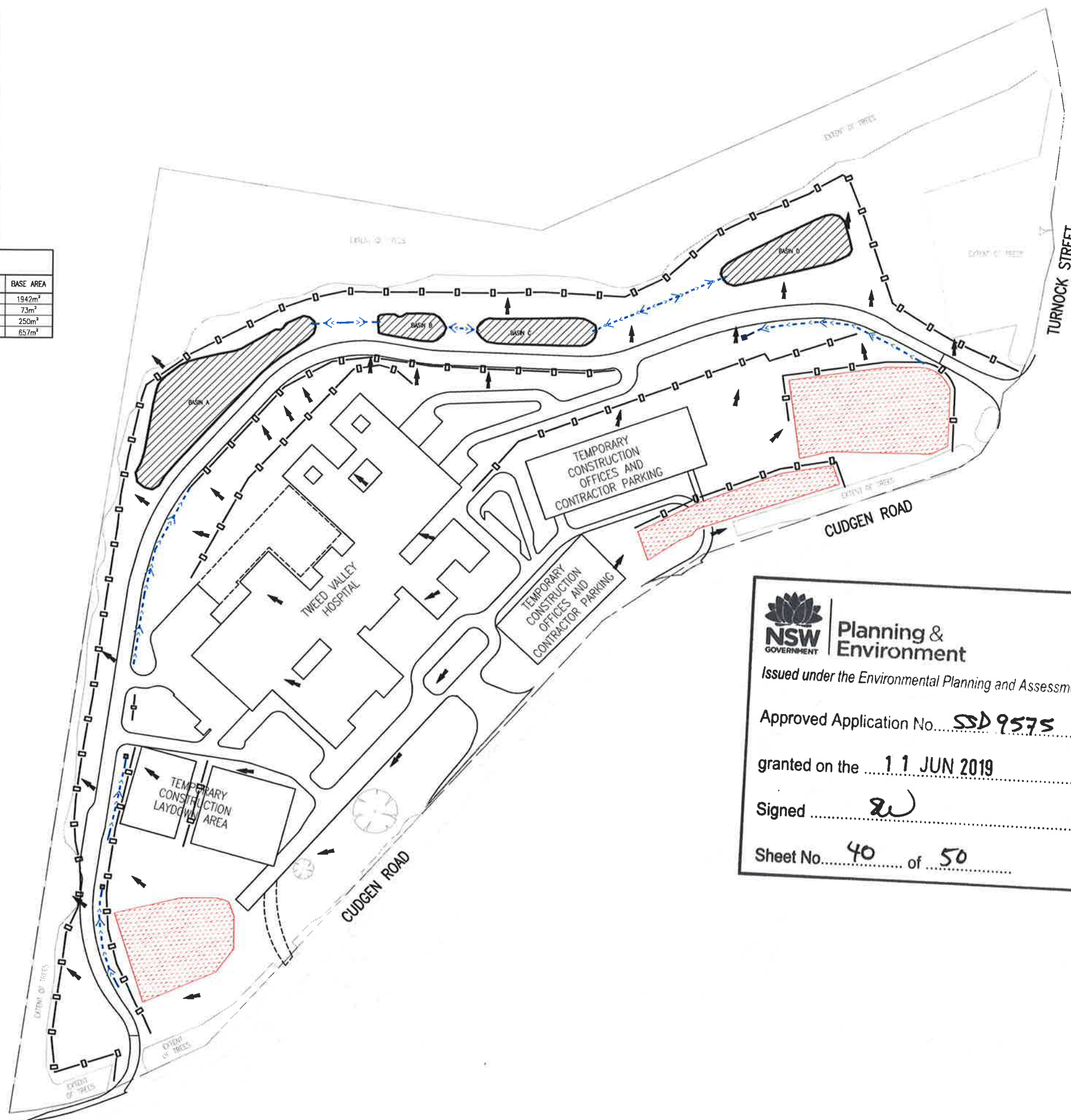


NOTES

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

SEDIMENT BASIN SCHEDULE

BASIN REFERENCE	VOLUME (MIN.)	BASE RL	WEIR CREST RL	TOP BUND RL	BASE AREA
A	3503m ³	7.0	8.85	9.6	1942m ²
B	279m ³	7.6	9.45	10.2	73m ²
C	705m ³	8.6	10.45	11.2	250m ²
D	1839m ³	5.5	7.35	8.1	657m ²



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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

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Structural, Civil & Construction Engineering Consultant

RobertBirdGroup
Member of the Subana Jurong Group

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Sydney NSW 2000 A/CN 015 888 248

Client



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 of AI AS SHOWN	Designer C.ROPE
	Design Checker C.ROPE
	Approved C.ROPE
Job Number 19005	

NOT FOR CONSTRUCTION

Drawing Number C-2-105	Revision 3
----------------------------------	----------------------

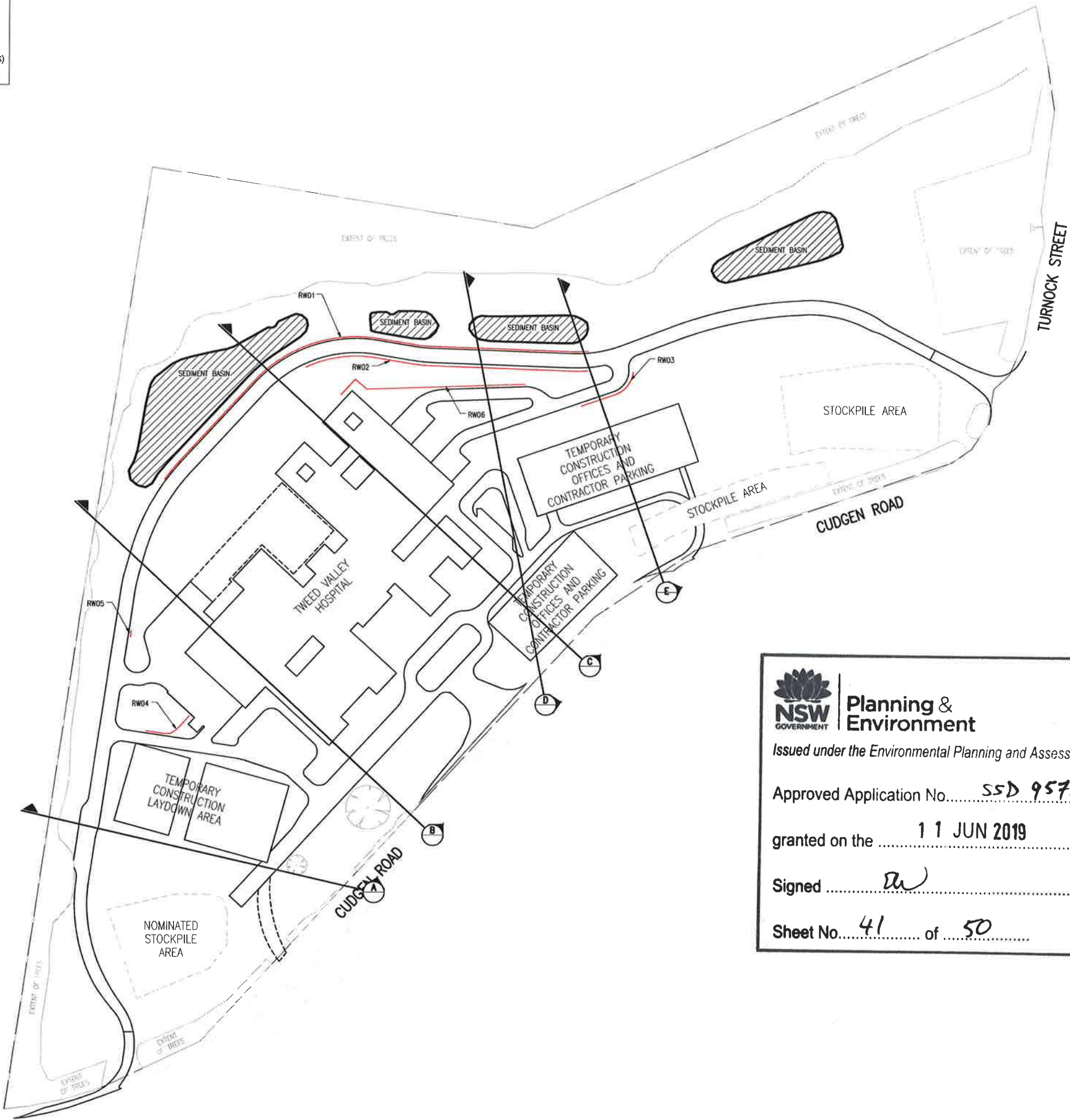
LEGEND

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



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granted on the **11 JUN 2019**

Signed *[Signature]*

Sheet No. **41** of **50**

SCALE 1:1250

10 0 10 20 30 40m

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
Rev	Revision Description	By App Date

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Sydney NSW 2000 ACN 010 580 248

Client:



Project
TWEED VALLEY HOSPITAL
771 CUDDEN ROAD, CUDDEN NSW

Title
**STAGE 1 EARLY AND ENABLING
WORKS CONSTRUCTION
RETAINING WALL PLAN**

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

NOT FOR CONSTRUCTION

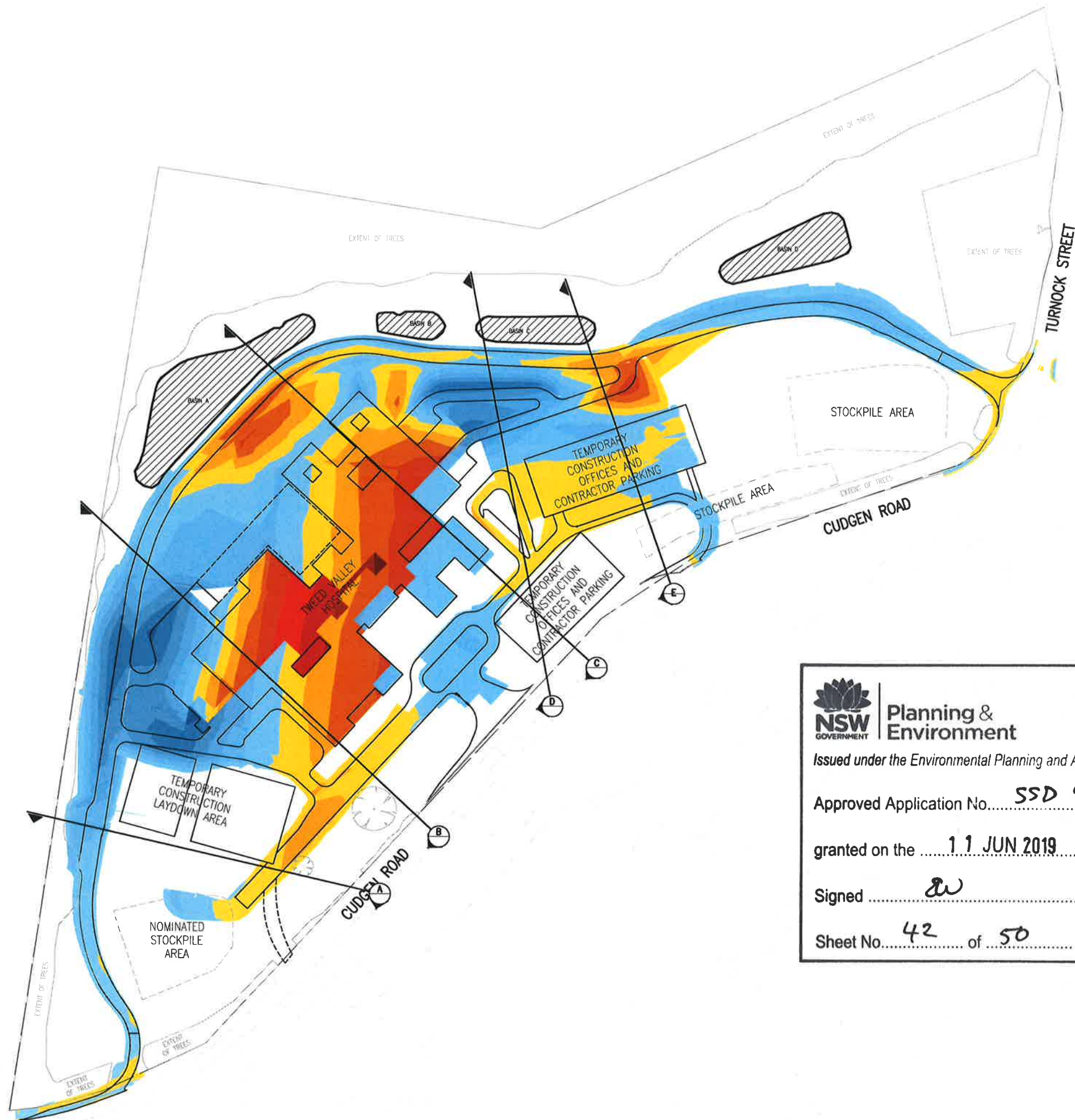
Drawing Number C-10-101	Revision 3
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LEGEND

— LAND BOUNDARY

 EXISTING SEDIMENT BASIN
(CONSTRUCTED AS PRELIMINARY WORKS)

EXCAVATION Lower Value	CUT Upper Value	FILL Upper Value	DEPTH Lower 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	
-8.0	to	-7.0	m	





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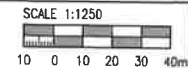
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Approved Application No.....**SSD 9575**.....

granted on the**1 1 JUN 2019**.....

Signed**EW**.....

Sheet No.....**42**..... of **50**.....



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
Rev	Revision Description	By App Date

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Engineering Consultant



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Sydney NSW 2000 ACH 010 560 246

Client

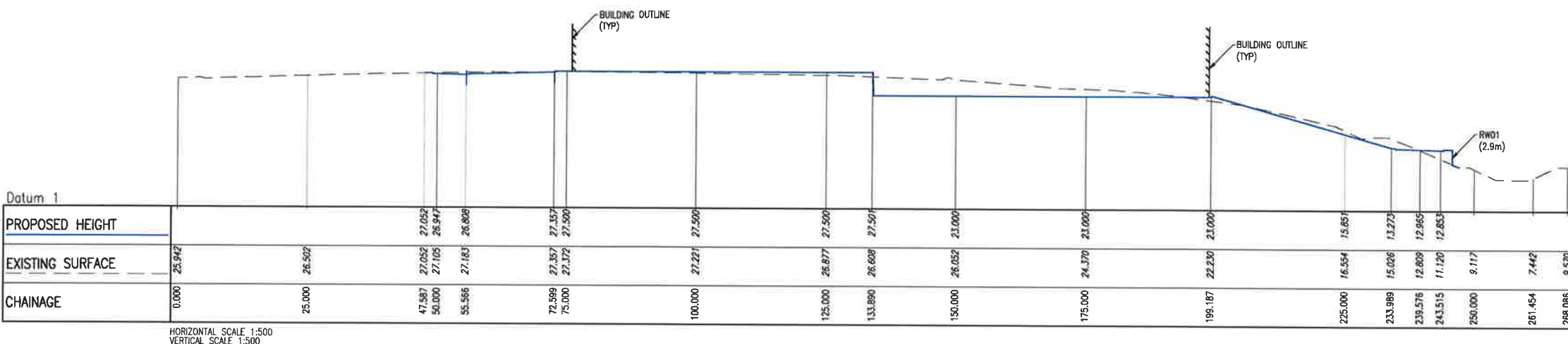


Project
TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW

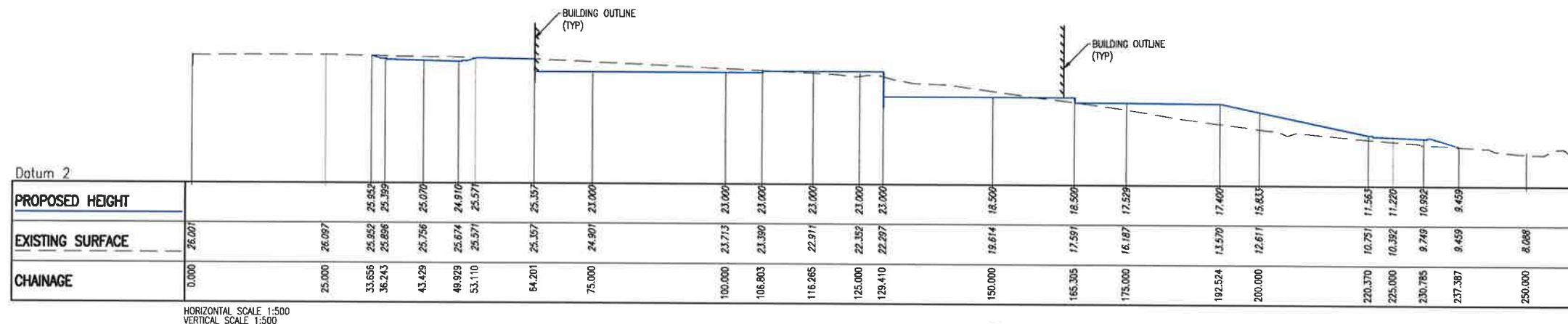
Title
STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION CUT AND FILL PLAN

Date 06.05.2019	Drawn R.GILL
Scale at A1 AS SHOWN	Designer C.ROPE
	Design Checker C.ROPE
Job Number 18005	Approved C.ROPE

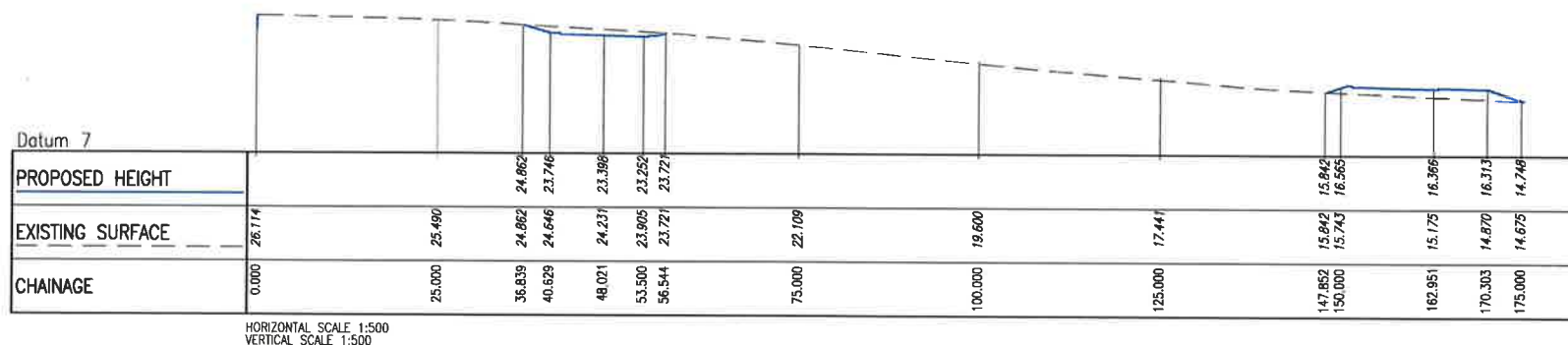
NOT FOR CONSTRUCTION	
Drawing Number	Revision
C-2-101	3



SECTION C



SECTION B



SECTION A

NSW GOVERNMENT | **Planning & Environment**

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Approved Application No. **SSD 9575**

granted on the **11 JUN 2019**

Signed

Sheet No. **43** of **50**

SCALE 1:500

10 0 10 20m

2 ISSUED FOR SSDA1 RG CR 03.05.19

1 ISSUED FOR SSDA1 RG CR 23.04.19

Rev Revision Description By App Date

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Web: www.robertbird.com.au
ACN: 010 580 248

Client:

Project: **TWEED VALLEY HOSPITAL**
771 CUDDEN ROAD, CUDDEN NSW

Title: **STAGE 1 EARLY AND ENABLING WORKS CONSTRUCTION**
LONGITUDINAL SECTION - SHEET 1 OF 2

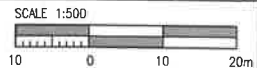
Date: 03.05.2019
Scale: at A1
AS SHOWN

Drawn: R.GILL
Designer: C.ROPE
Design Checker: C.ROPE
Approved: C.ROPE

Job Number: 19005

NOT FOR CONSTRUCTION

Drawing Number: C-2-120
Revision: 1



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Environment

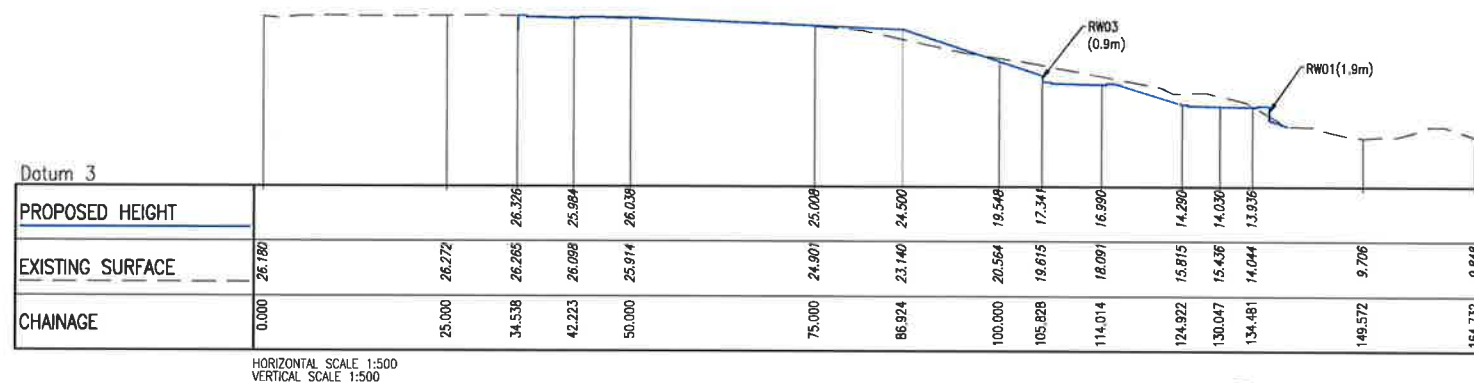
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Approved Application No. SSD 9575

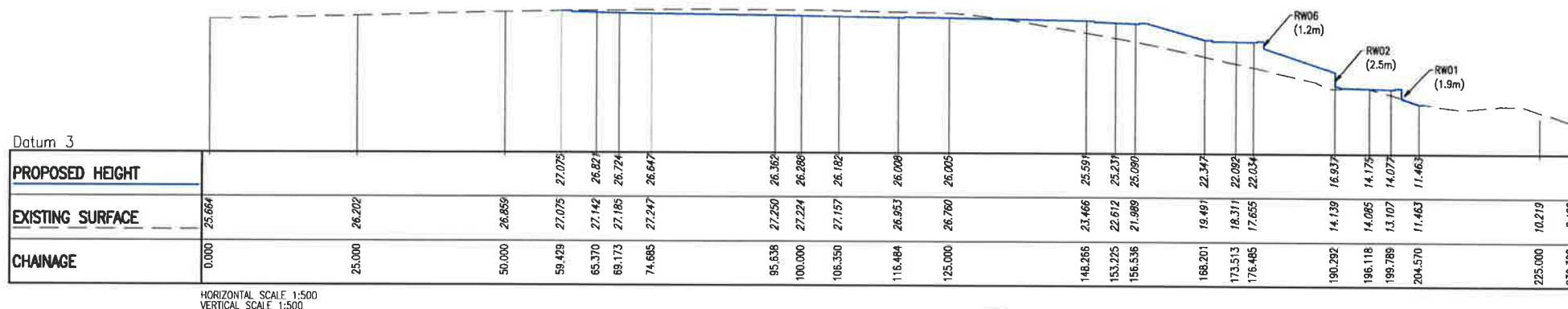
granted on the 1.1 JUN.2019

Signed [Signature]

Sheet No. 44 of 50



SECTION **E**



SECTION **D**

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

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Sydney NSW 2000 ACP: 050 580 246

Client:



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
----------------------------------	----------------------

LEGEND

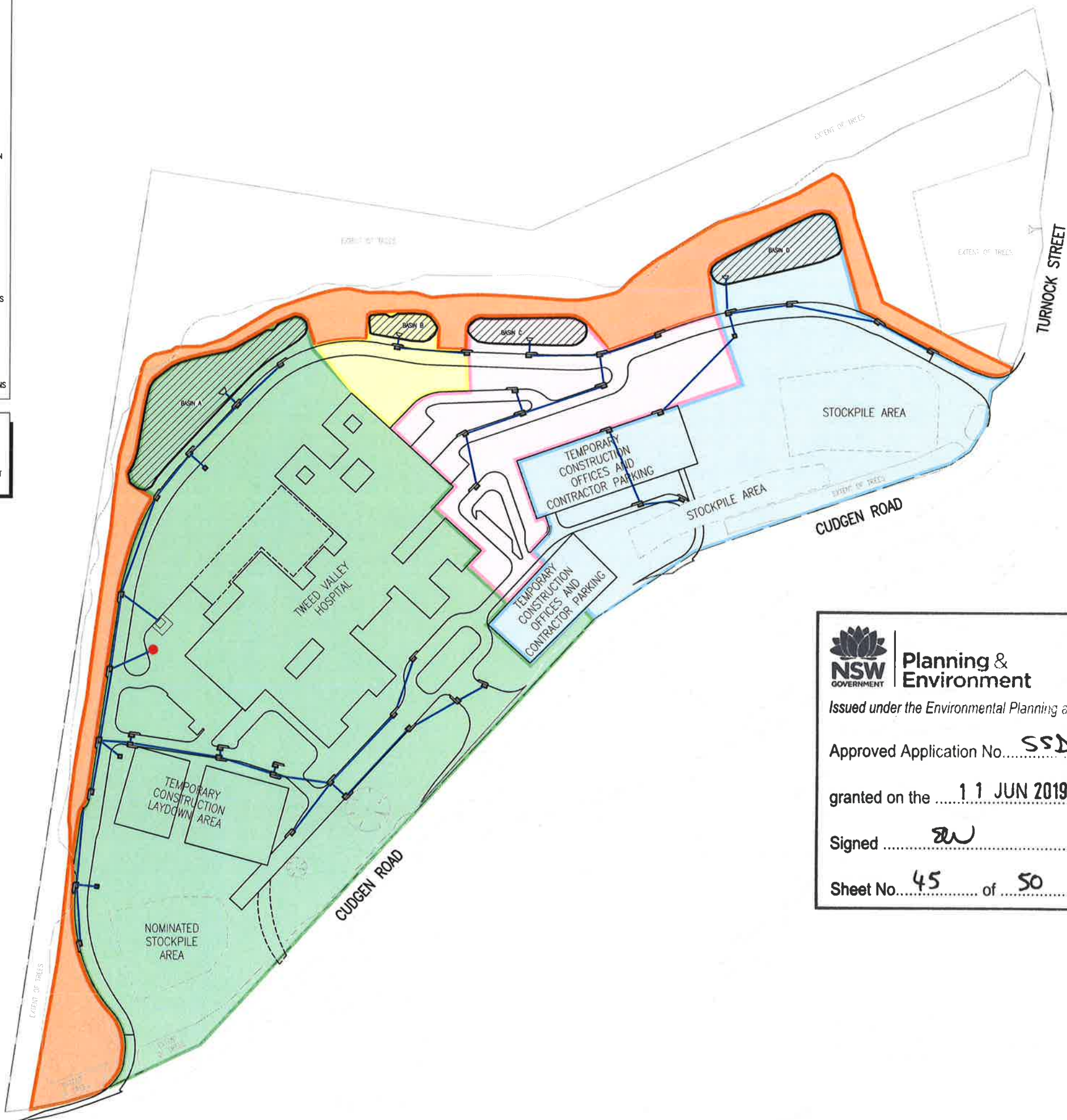
- BASIN A CATCHMENT (APPROX. 74500m²)
- BASIN B CATCHMENT (APPROX. 3300m²)
- BASIN C CATCHMENT (APPROX. 14500m²)
- BASIN D CATCHMENT (APPROX. 31500m²)
- BYPASS CATCHMENT (APPROX. 16100m²)
- EXISTING SEDIMENT BASIN TO BE RECONSTRUCTED AS BIODETENTION BASIN
- STORMWATER PIPE
- FIELD INLET PIT
- SAG INLET 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	BIODETENTION AREA (MIN.)	DETENTION VOLUME (MIN.)
A	300m ²	3500m ³
B	40m ²	350m ³
C	170m ²	750m ³
D	410m ²	1600m ³



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Sheet No. **45** of **50**

SCALE 1:1250
10 0 10 20 30 40m

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

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Level 11, 151 Convent Road Web: www.robertbird.com
Sydney NSW 2000 A/N: 010 280 246

lendlease

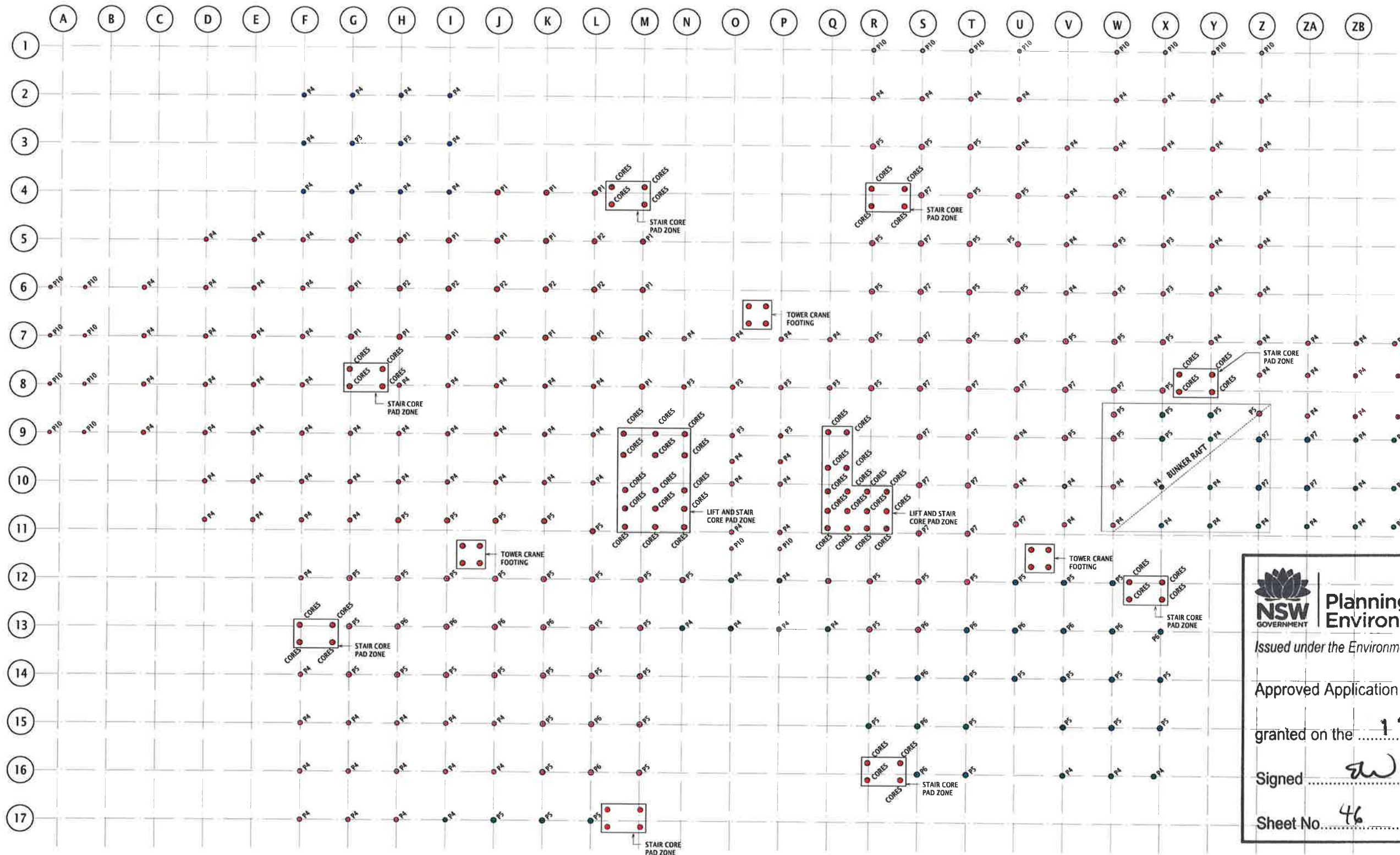
Project
**TWEED VALLEY HOSPITAL
771 CUDGEN ROAD, CUDGEN NSW**

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 C-6-150	Revision 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.



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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

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Engineering Consultant
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Member of the Surbana Jurong Group
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Sydney NSW 2000
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Web: www.robertbird.com
NCT 010 546 249

Client

Title
PILING LAYOUT

Project
TWEED VALLEY HOSPITAL

Scale at A1 1:350 Date Feb 2019	Drawn K.PETROVSKI Designer R.RAMACHANDRA	Design Checker S.HAWDON Approved M.HARDING Job Number 19005
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NOT FOR CONSTRUCTION

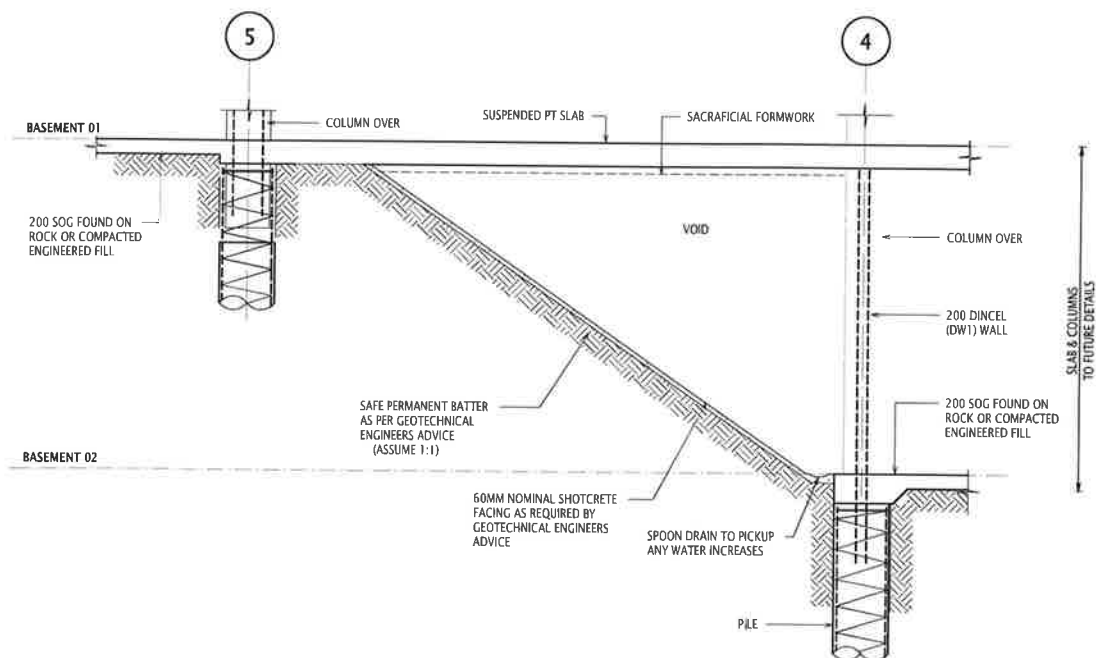
Drawing Number SK02-00	Revision P1
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REFER DRAWING
SK02-00 FOR PILING
LAYOUT

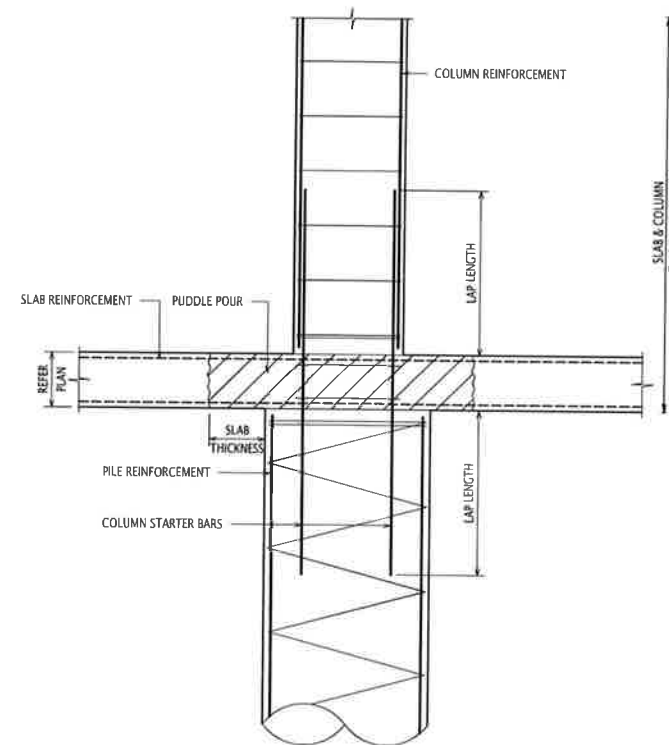
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Approved Application No. SSD 9575
granted on the 11 JUN 2019
Signed ER
Sheet No. 47 of 50

FOUNDATION PLAN

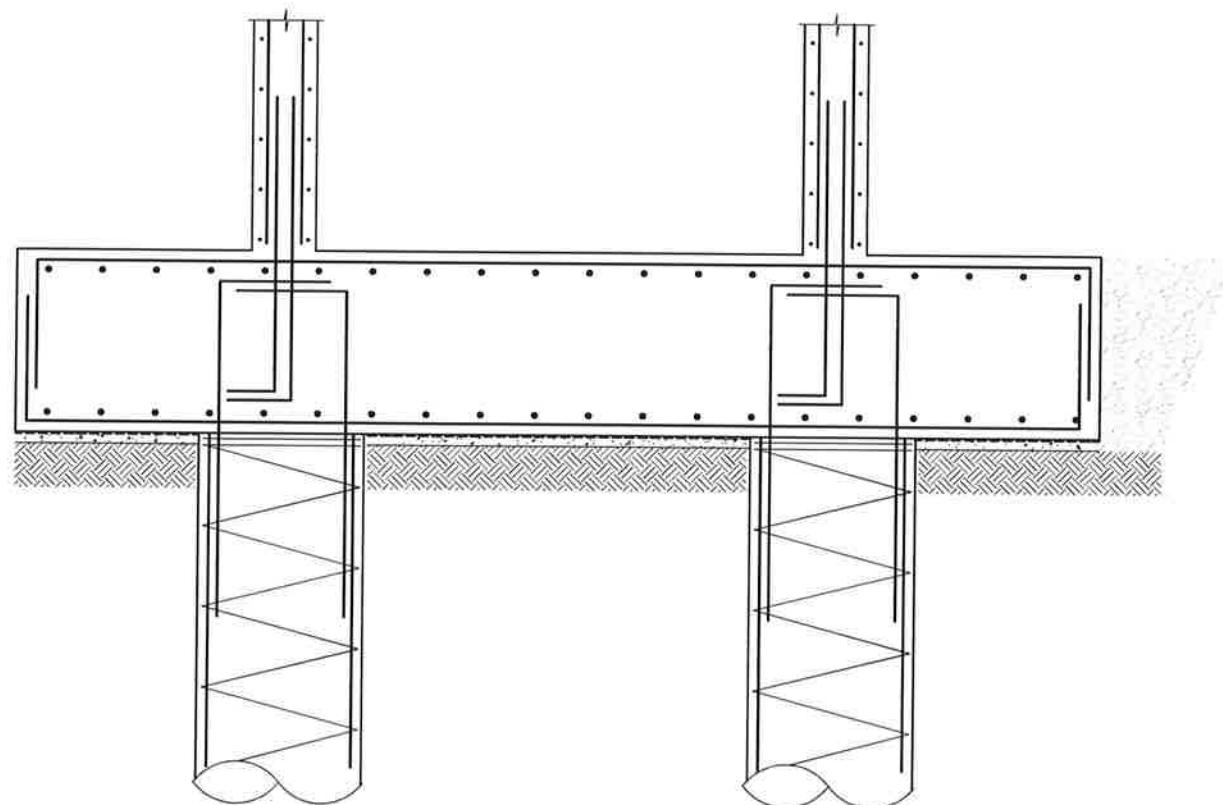
Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date	SYDNEY 11 12 13 14 15 16 17 18	Structural, Civil & Construction Engineering Consultant	Client	Title	Scale at A1 1:600	Drawn K.PETROVSKI	Design Checker S.HAWDON	
P1	ISSUED FOR SSDA1	KP	SH	02.05.19						Customer: Robert Bird Group Pty Ltd ACN 019 580 248 and its related entities (RBG) do not warrant the accuracy, currency or completeness of any information or data they supply or transmit by electronic means. You are responsible for verifying that any information or data supplied or transmitted by electronic means matches the information or data on the corresponding PDF or other version issued by RBG. RBG will not be liable for any loss or damage you or any other party incur as a result of acting in reliance on any information or data supplied or transmitted by electronic means and you release RBG from any liability for any loss or damage however caused which you or any other party may incur by or in reliance on any information or data supplied or transmitted by electronic means. RBG will only provide you with a non-transferable, fully revocable licence to use the intellectual property rights for the express purpose of the project. DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE	 Robert Bird Group Member of the Suburban 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 N/A 019 580 248		FOUNDATION PLAN				
Project TWEED VALLEY HOSPITAL														Scale at A1 1:600 Date Apr 2019	Designer R.RAMACHANDRA	Approved M.HARDING Job Number 19005	
NOT FOR CONSTRUCTION														Drawing Number SK02-01	Revision P1		



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



TYPICAL PILE/COLUMN REINFORCEMENT DETAIL
SCALE 1 : 20

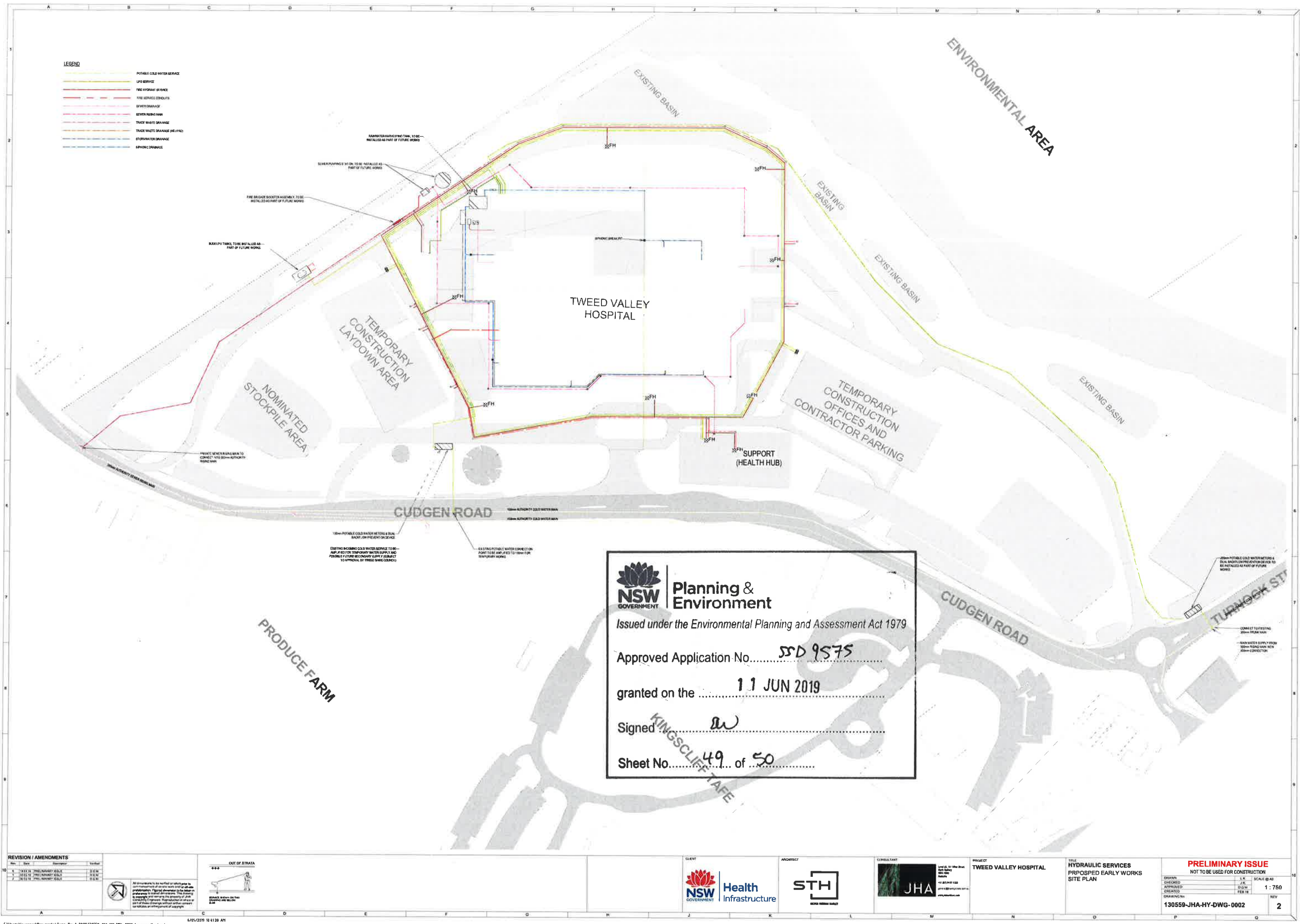


TYPICAL STAIR CORE BASE

NSW GOVERNMENT | **Planning & Environment**
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 Approved Application No..... **SSD 9575**
 granted on the ... **11 JUN 2019** ...
 Signed *aw*
 Sheet No..... **48** of **50**

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

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date	Client	Project	Scale at A1	Drawn	Design Checker
P1	ISSUED FOR SSDA1	KP	SH	06.05.19						Robert Bird Group Pty Ltd PO Box A2309 Sydney South, NSW 1235 Level 11, 151 Castlereagh St Sydney NSW 2000	TWEED VALLEY HOSPITAL	1:20, 1:50 Date Feb 2019	Designer	Approved
DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE										Robert Bird Group 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 8200 Fax: (02) 8246 8201 Email: sydney@robertbird.com.au Web: www.robertbird.com	NOT FOR CONSTRUCTION Drawing Number SK11-11	Job Number 19005 Revision P1		





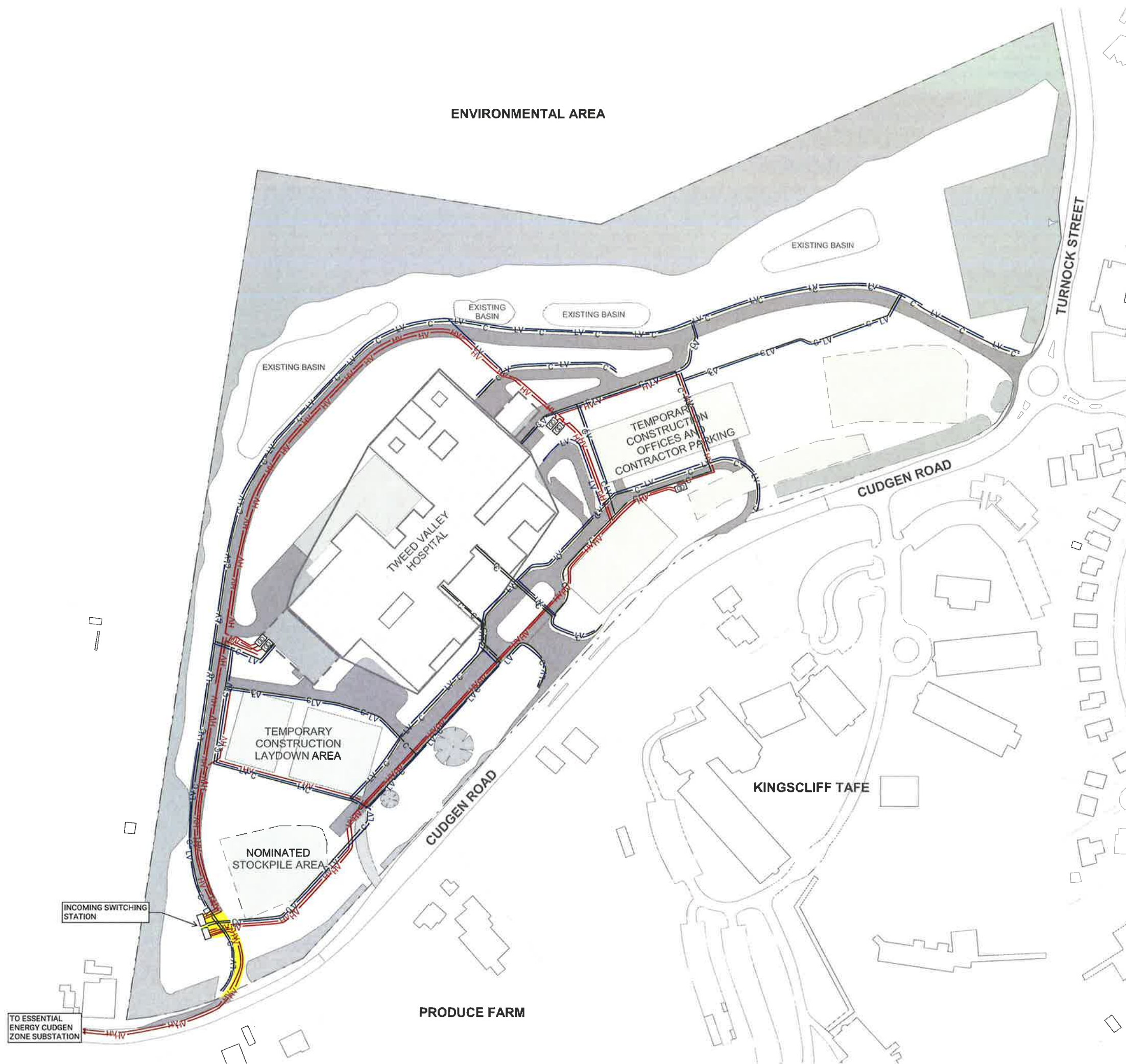
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Approved Application No. SSD 9575

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Signed aw

Sheet No. 49 of 50



LEGEND

- HV — HIGH VOLTAGE UNDERGROUND CABLE ROUTE
- LV — LOW VOLTAGE UNDERGROUND CABLE ROUTE
- C — COMMUNICATIONS/SECURITY UNDERGROUND CABLE ROUTE
- K PRIVATE KIOSK SUBSTATION
- ESSENTIAL ENERGY EASEMENT



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granted on the **11 JUN 2019**

Signed *[Signature]*

Sheet No. **50** of **50**

No.	Description	Date	By	Chk
	Services Consultant			



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