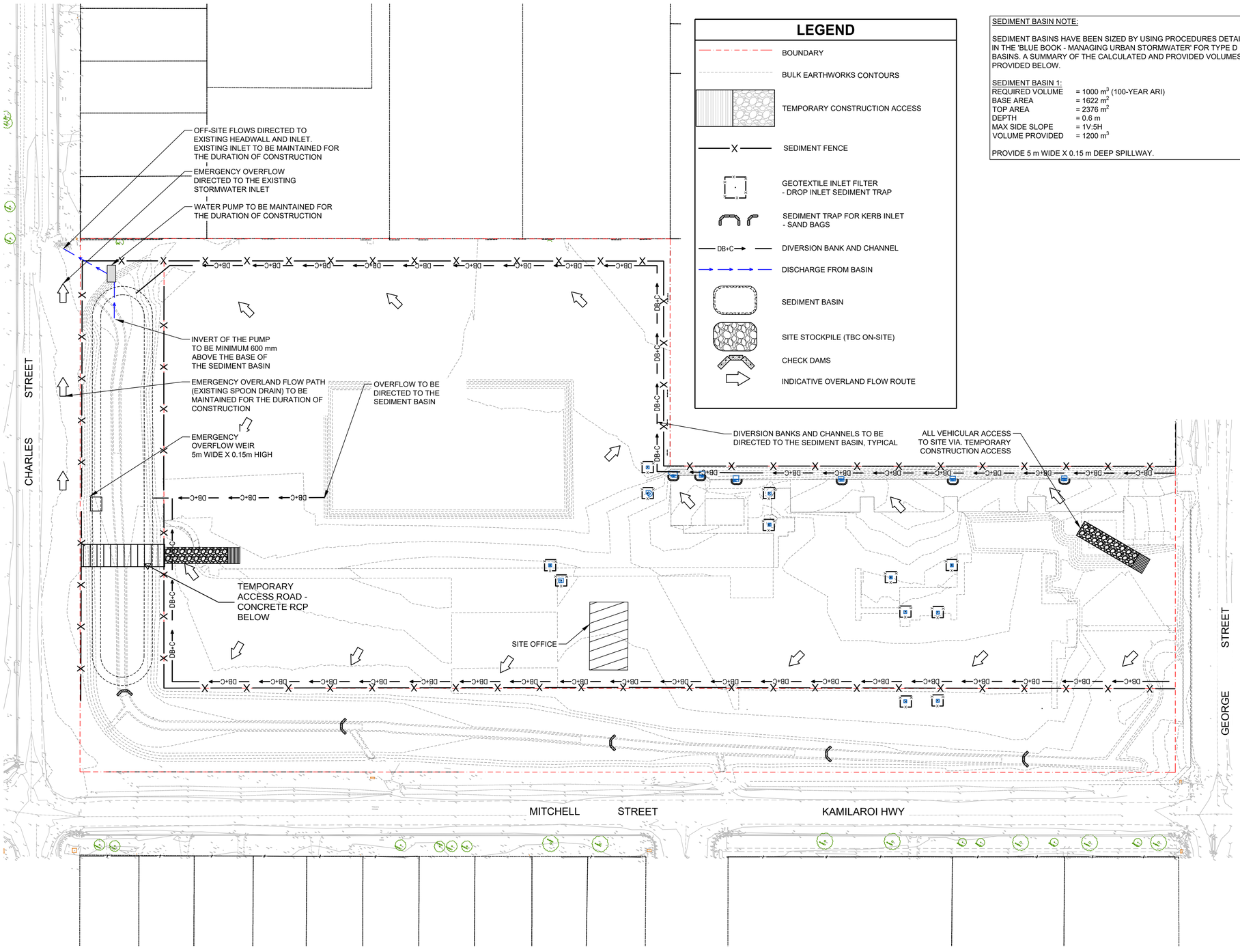

LEGEND

- BOUNDARY
- BULK EARTHWORKS CONTOURS
- TEMPORARY CONSTRUCTION ACCESS
- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER - DROP INLET SEDIMENT TRAP
- SEDIMENT TRAP FOR KERB INLET - SAND BAGS
- DB+C — DIVERSION BANK AND CHANNEL
- DISCHARGE FROM BASIN
- SEDIMENT BASIN
- SITE STOCKPILE (TBC ON-SITE)
- CHECK DAMS
- INDICATIVE OVERLAND FLOW ROUTE

SEDIMENT BASIN NOTE:

SEDIMENT BASINS HAVE BEEN SIZED BY USING PROCEDURES DETAILED IN THE 'BLUE BOOK - MANAGING URBAN STORMWATER' FOR TYPE D BASINS. A SUMMARY OF THE CALCULATED AND PROVIDED VOLUMES IS PROVIDED BELOW.

SEDIMENT BASIN 1:

REQUIRED VOLUME	= 1000 m^3 (100-YEAR ARI)
BASE AREA	= 1622 m^2
TOP AREA	= 2376 m^2
DEPTH	= 0.6 m
MAX SIDE SLOPE	= 1V:5H
VOLUME PROVIDED	= 1200 m^3

PROVIDE 5 m WIDE X 0.15 m DEEP SPILLWAY.

SOIL AND WATER MANAGEMENT NOTES:

1. ALL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION ('BLUE BOOK').
2. SEDIMENT FENCING TO BE PROVIDED IN ACCORDANCE WITH STANDARD DETAILS AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING THE SITE. TEMPORARY CONSTRUCTION ENTRY/ EXIT SEDIMENT TRAPS ARE TO BE PROVIDED AT ENTRY/ EXIT LOCATIONS.
3. DIVERSION DRAINS TO BE PROVIDED TO DIVERT RUNOFF FROM DISTURBED AREAS TO THE SEDIMENT BASIN.
4. PIT INLET SEDIMENT TRAPS ARE TO BE PROVIDED AT ALL EXISTING STORMWATER INLET PITS LOCATION WITHIN AREA OF WORK.

SEDIMENT CONTROL CONDITIONS:

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES AS CLOSE TO THE SOURCE AS PRACTICABLE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSTREAM LANDS AND WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON PLAN OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER, NOT WITHIN 5m OF ANY HAZARDOUS AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. PIT INLET FILTERS (SEE DETAILS) WILL PREVENT WATER FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS FREE OF SEDIMENT.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO CONSTRUCT TEMPORARY SEDIMENT BASIN. WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE. ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

GENERAL NOTES:

1. STOCKPILE LOCATION SHOWN INDICATIVELY SHALL BE DETERMINED ON SITE DURING CONSTRUCTION STAGE.
2. IMPACTS AROUND EXISTING TREES TO BE MINIMISED DURING CONSTRUCTION. PROPOSED LEVEL CHANGES IN THE VICINITY OF EXISTING PROTECTED TREES TO BE REVIEWED AND APPROVED BY PROJECT ARBORIST.
3. ALL WORKS AROUND EXISTING TREE ROOT PROTECTION ZONES TO BE CONFIRMED WITH THE PROJECT ARBORIST PRIOR TO COMMENCEMENT ON SITE. REFER TO PROJECT ARBORIST REPORT FOR TREE REMOVAL AND PROTECTION PLAN

CONSTRUCTION WORK MANAGEMENT IN WET-WEATHER EVENTS:

- ALL STOCKPILES TO BE CAPPED
- THE CARPARK MAY BE UTILISED AS TEMPORARY MATERIALS HANDLING AND STORAGE AREA. THE AREA IS TO BE TEMPORARILY STABILISED BY DGB AND SEALED
- DURING WET WEATHER, ALL PLANT AND EQUIPMENT TO BE STORED ON THE CARPARK
- AFTER EVERY RAIN EVENT, SAFETY INSPECTIONS TO BE CARRIED OUT PRIOR TO WORKS COMMENCING

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NORTH

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

12.5 0 5 10 15 20 25m
PLAN SCALE 1:750 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
A1

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	ISSUE FOR CONSTRUCTION	31/01/23			
B	ISSUE FOR CONSTRUCTION	27/07/23			

CLIENT: Built / NSW GOVERNMENT

PROJECT: WEE WAA HIGH SCHOOL MAIN WORKS

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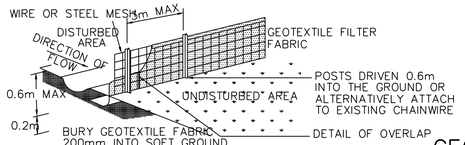
TITLE: CONSTRUCTION SOIL & WATER MANAGEMENT PLAN - STAGE 3

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	I.K.	R.K.	J.G.	J.G.

JOB No.	DRAWING No.	ISSUE
7490000	C2.03	B

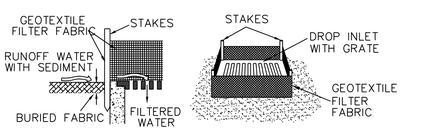
DATE: MARCH 2022 STATUS: ISSUED FOR CONSTRUCTION

Xrefs: X:\7490000-TB_A1H_X-7490000-SU-Ground_X-7490000-SUEDY_X-7490000-AR-Ground_X-7490000-SW_Layout_X-7490000-SW_Layout_REF Stage B)
Plot Date: 30.01.2023@17:15:14 Login Name: nvu Cad File: Y:\7490000\Drawings\AutoCAD\Civil\Design\Civil (D\C2.03 Construction Soil & Water Management Plan - Stage 3.dwg



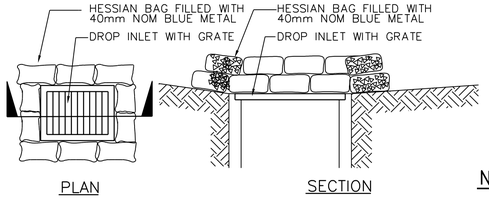
SEDIMENT CONTROL FENCE

NTS



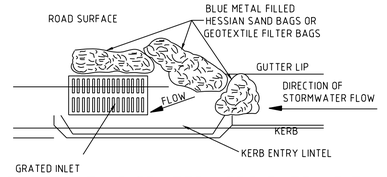
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

NTS



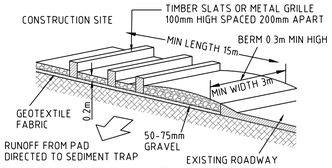
HESSIAN BAG DROP INLET SEDIMENT TRAP

N.T.S.



NEW/EXISTING GRATED KERB ENTRY PIT SEDIMENT CONTROL BARRIER

NTS



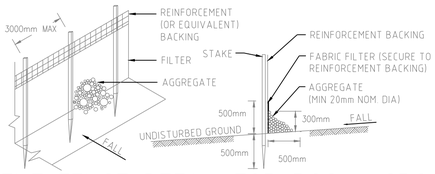
STABILIZED CONSTRUCTION SITE VEHICLE ENTRY/EXIT

NTS

SITE ENTRY/EXIT NOTES: –

1. ALL VEHICLE ENTRANCES & EXITS TO THE CONSTRUCTION SITE MUST BE STABILIZED TO PREVENT THEM BECOMING A SOURCE OF SEDIMENT, BY PROVIDING A VEHICLE SHAKE AREA. THIS MAY CONSIST OF A TIMBER, CONCRETE OR STEEL SHAKER GRID OR RUBBLE AREA.
2. THE VEHICLE EXIT AREA IS TO BE MAINTAINED IN A CLEAN & SERVICEABLE CONDITION DURING THE TOTAL
3. TIME OF USAGE.
4. ANY UNSEALED ROAD BETWEEN THE DEVICE AND COUNCILS ROADWAY IS TO BE TOPPED WITH 100mm THICK, 40mm NOMINAL SIZE AGGREGATE.
5. PUBLIC ROADS MUST BE KEPT FREE OF DIRT AND MUD. SEDIMENT TRACKED ONTO THE PUBLIC ROADWAY BY VEHICLES LEAVING THE CONSTRUCTION SITE IS TO BE SWEPT UP IMMEDIATELY.

FENCES SHOULD BE ERECTED TO ENSURE VEHICLES CAN NOT BYPASS THE STABILIZED ACCESS POINTS, UNLESS COMING FROM A STABILIZED AREA.



SEDIMENT FENCE DETAIL FOR ROCKY GROUND

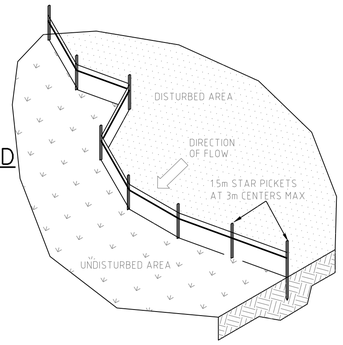
NTS

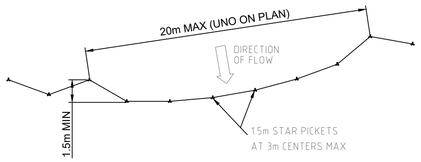
SEDIMENT FENCE NOTES: –

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND SUFFICIENT TO PROVIDE RIGID SUPPORT, 3 METERS APART. WHERE THERE IS INSUFFICIENT SOIL DEPTH OVER ROCK, HOLES ARE TO BE DRILLED INTO ROCK TO ACCEPT THE STAR PICKETS.
3. ON SOFT GROUND MATERIALS, DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE
4. FABRIC TO BE ENTRENCHED.
5. BACKFILL TRENCH OVER BASE OF FABRIC & COMPACT.

FIX SELF–SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY THE GEOTEXTILE
6. MANUFACTURER. USE A REINFORCEMENT BACKING WITH NON SELF–SUPPORTING GEOTEXTILE FABRIC.
7. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
8. ON HARD OR ROCKY GROUND, SMOOTH A 500mm WIDE STRIP UPSLOPE OF THE FENCE LINE. TURN THE BOTTOM 500mm OF THE FABRIC UPSLOPE AND ANCHOR IN PLACE WITH SUITABLE AGGREGATE.

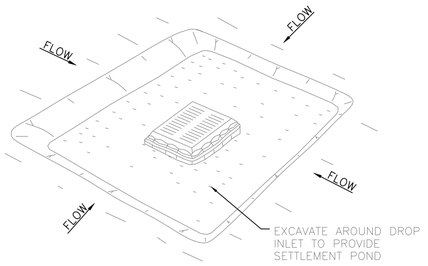
WHERE A SEDIMENT FENCE IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE FENCE SHOULD BE LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.





SEDIMENT FENCE LAYOUT PLAN

NTS

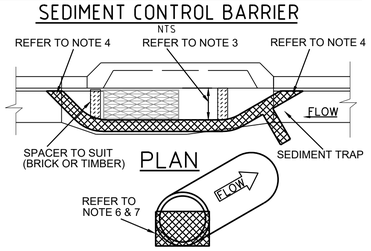


EXCAVATED SEDIMENT TRAP

NTS

EXCAVATED SEDIMENT TRAP NOTES: –

1. REMOVE THE SEDIMENT WHEN IT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE TRAP AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
2. PROVIDE 50 cu.m/Ha OF SEDIMENT STORAGE VOLUME.
3. REFER TO THE MAINTENANCE REQUIREMENTS.



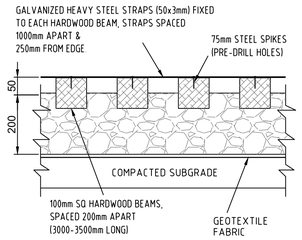
GEOTEXTILE FILTER BAGS

NTS

SEDIMENT BARRIER FOR PITS & PIPES, NOTES: –

1. SLEEVES ARE TO BE MADE FROM GEOTEXTILE FABRIC LONGER THEN THE LENGTH OF THE INLET PIT.
2. FILL SLEEVE WITH 5 OR 10mm CLEAN GRAVEL.
3. PLACE THE SLEEVE AT THE OPENING OF THE KERB INLET LEAVING A 100mm GAP TO ACT AS AN EMERGENCY
4. OVERFLOW.
5. SLEEVE MUST BE PLACED AGAINST THE KERB TO PREVENT BYPASS.
6. FIT SLEEVE TO ALL INLETS DOWNSTREAM OF THE WORKS.
7. FOR DRAINAGE WORKS FIT GEOTEXTILE FABRIC OR GEO BAGS TO UPSTREAM FACE OF ALL OPEN PIPES.
8. MAINTAIN AN OPENING AT THE TOP OF THE PIPE OF 1/3 OF THE PIPE DIAMETER.
9. THE FILTERS ARE TO BE CLEANED AND MAINTAINED DAILY.

ALL CARE SHOULD BE TAKEN TO MINIMIZE SEDIMENT REACHING THE STORMWATER SYSTEM BY MINIMIZING EXCAVATION WORKS AND PREVENTING EXCESS WATER FLOW THROUGH WORKS.



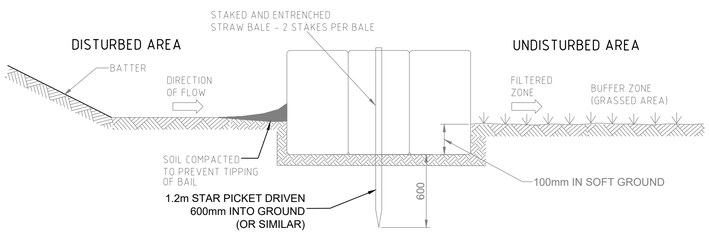
VEHICLE SHAKER GRID

NTS

SITE ENTRY/EXIT CONSTRUCTION NOTES: –

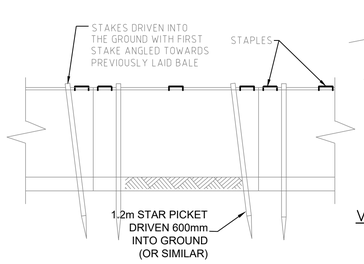
1. STRIP TOP SOIL & LEVEL SITE. PROVIDE CATCH DRAIN AT SIDES TO DIRECT RUNOFF WATER TO SEDIMENT TRAPS.
2. COMPACT SUBGRADE AND REMOVE ANY HIGH POINTS.
3. COVER AREA WITH GEOTEXTILE FABRIC. THIS MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4–90) OF 2500 N.
4. CONSTRUCT 200mm THICK RUBBLE PAD OVER GEOTEXTILE USING ROAD BASE OR 30–40mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES. CONSTRUCT 300mm HIGH HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT TRAP.
5. WHERE GRIDS ARE USED FIRST CONSTRUCT A 150 THICK PAD OVER GEOTEXTILE FABRIC. LEVEL THIS IN BOTH DIRECTIONS. LOWER GRID ON TO THE PREPARED BASE AND ENSURE THAT NO PART IS SITTING ON ANY HIGH POINTS. BACKFILL THE SPACES
6. BETWEEN THE GRIDS TO WITHIN 50mm OF THE TOP.

PROVIDE RAMPS AT ENDS AND SIDE OF GRIDS. IF DEPRESSIONS OCCUR IN THE RAMPS DURING USE. ADD ADDITIONAL MATERIAL.



TYPICAL STRAW BALE SECTION

NTS



TYPICAL STRAW BALE DETAIL

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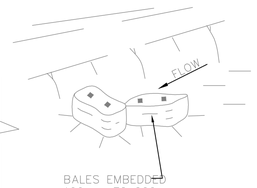
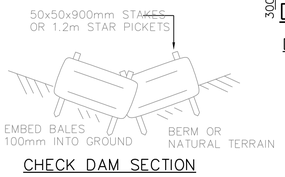


VIEW OF CHECK DAM



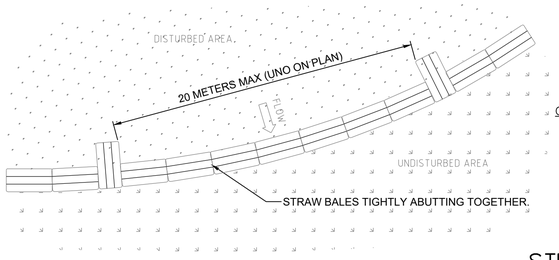
CHECK DAM SECTION

STRAW BALE NOTES: –

1. CONSTRUCT STRAW BALE FILTER AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS TO BE PLACED PARALLEL TO GROUND.
3. MAXIMUM HEIGHT OF FILTER IS ONE BALE.
4. ON SOFT MATERIALS, EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS. ANGLE THE FIRST STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BAIL. DRIVE STAKES 600mm INTO THE GROUND AND FLUSH WITH THE TOP OF
5. THE BALES.

WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE BALES SHOULD BE
6. LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.

WHERE REQUIRED WRAP GEOTEXTILE FILTER FABRIC AROUND BALES AND STAPLE IN POSITION.

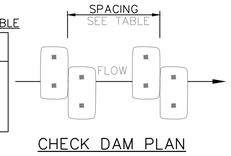


TYPICAL STRAW BALE LAYOUT PLAN

NTS

CHECK DAM SPACING TABLE

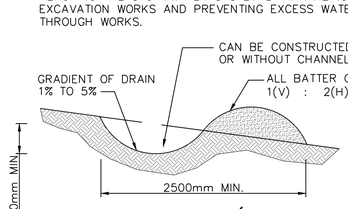
LONGITUDINAL GRADE (%)	SPACING (METERS)
0 – 5	40
5 –10	30
10 – 15	20
GREATER THAN 15	10



CHECK DAM PLAN

STRAW BALE CHECK DAM DETAILS

NTS



DIVERSION DRAIN (LOW FLOW)

NTS

DIVERSION DRAIN NOTES: –

1. CONSTRUCT WITH GRADIENT OF 1 PER CENT TO 5 PER CENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE.
3. DRAINS TO BE OF CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V–SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. PERMANENT OR TEMPORARY STABILIZATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF
6. CONSTRUCTION.

ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED
7. INTO A SEDIMENT BASIN OR SIMILAR.

DISCHARGE RUN OFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILIZED OR AN UNDISTURBED
8. DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
9. COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.

EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

MAINTENANCE REQUIREMENTS: –

1. ACCUMULATED SILT & SEDIMENT MUST BE REMOVED AT REGULAR INTERVALS AND AFTER EACH MAJOR STORM.
2. SILT & SEDIMENT MUST BE REMOVED FROM OFF THE SITE OR TO A COUNCIL APPROVED LOCATION WITHIN THE SITE, WHERE IT WILL NOT ERODE.
3. THE SEDIMENT FENCES, BALES & TRAPS SHALL BE REGULARLY INSPECTED, ESPECIALLY AFTER RAIN AND KEPT IN GOOD REPAIR AND FUNCTIONING CONDITION AT ALL TIMES.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT SEDIMENT, EROSION & WATER POLLUTION
5. SHALL BE MINIMIZED.

THE SEDIMENT TRAPS SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTION AREA HAS BEEN PROPERLY STABILIZED.

PRELIMINARY - NOT FOR CONSTRUCTION

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REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
1	ISSUE FOR 100% DETAILED DESIGN	03/03/22			
2	CONTRACT SET - FOR REVIEW	02/08/22			
3	REVISED CSWMP TO SUIT SSDA CONDITIONS	02/09/22			

CLIENT: Built NSW GOVERNMENT

PROJECT: WEE WAA HIGH SCHOOL MAIN WORKS

PREPARED BY

Warren Smith Consulting Engineers

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GCC ISO 9001 Certified

TITLE: CONSTRUCTION SOIL AND WATER MANAGEMENT DETAILS SHEET 1

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	N.G.	N.G.	J.G.	--

JOB No.	DRAWING No.	ISSUE
7490000	C2.02	3

DATE: MARCH 2022 STATUS: CONTRACT SET - FOR REVIEW

Xrefs: X:\490000\TB_ATH
Plot Date: 02.09.2022@15:30:01 Login Name: nu Cad File: T:\7490000\Drawings\AutoCAD\Civil\Design\Civil-2022\C2.02 Sediment & Erosion Control Details.dwg

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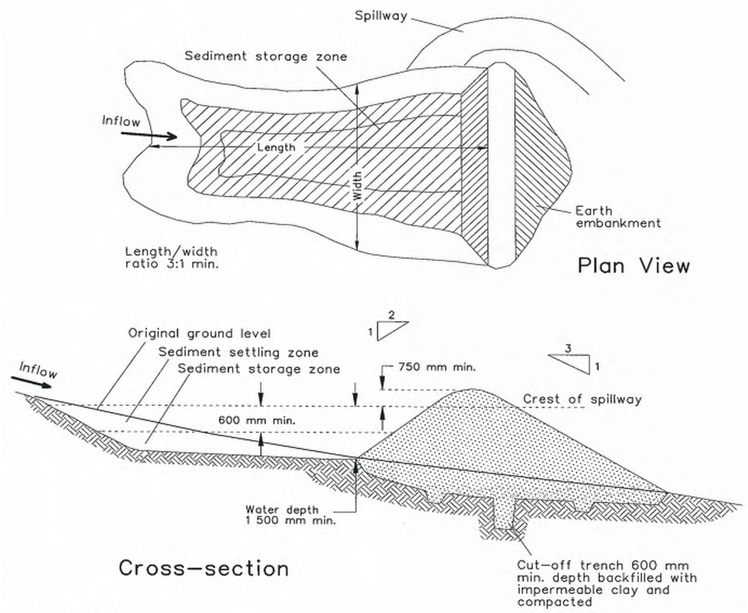
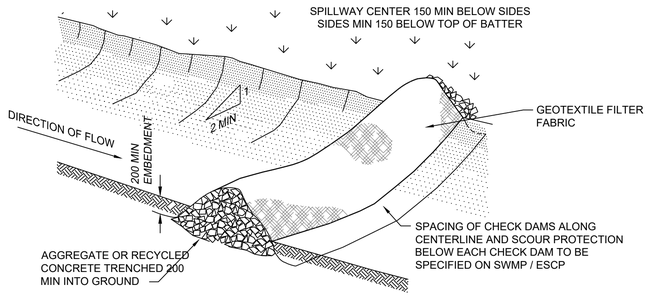


Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

SEDIMENT BASIN (TYPE D SOILS) - MANAGING URBAN STORMWATER - SD-4

NTS



ALTERNATIVE CHECK DAM DETAIL - ROCK

NTS

PRELIMINARY - NOT FOR CONSTRUCTION

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH CONSULTING ENGINEERS.

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
1	REVISED CSWMP TO SUIT SSDA CONDITIONS	02/09/22			

CLIENT: Built / NSW GOVERNMENT

PROJECT: WEE WAA HIGH SCHOOL MAIN WORKS

PREPARED BY
Warren Smith Consulting Engineers
WARREN SMITH CONSULTING ENGINEERS
SINCE 1981.
NSW 9/233 Castlereagh St, Sydney 2000 NSW Australia
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ACN 002 197 088 ABN 36 300 430 126
Hydraulic Fire Civil Utilities Infrastructure
GCC ISO 9001 Certified

TITLE: CONSTRUCTION SOIL AND WATER MANAGEMENT DETAILS SHEET 2

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	R.X.	R.X.	J.G.	--

JOB No.	DRAWING No.	ISSUE
7490000	C2.03	1

DATE: MARCH 2022 STATUS: CONTRACT SET - FOR REVIEW

Xrefs: X:\7490000.TB_A1H
Plot Date: 02/09/2022@15:29:32 Login Name: nxu Cad File: T:\7490000\Drawings\AutoCAD\Civil\Design\Civil\2D\C2.02 Sediment & Erosion Control Details.dwg

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

A1

SCHEDULE 2 – CVs

Curriculum Vitae

James Georgiades

Team Leader - Urban Development

Phone: +61 9299 1312
Mobile: +61 406 649 228
Email: jgeorgiades@warrensmith.com.au
Nationality: Australian

EXPERIENCE

2021 – Current

Team Leader – Urban Developer
Warren Smith Consulting Engineers

2015 – 2021

Associate Civil Engineer (2020 – 2021)
Senior Civil Engineer (2018 – 2020)
Civil Engineer (2017 – 2018)
Graduate Civil Engineer (2015 – 2017)
Woolacotts Consulting Engineers

July 2013 – December 2014

Construction Site Engineer
Alpene Group – Concrete & Structures Contractors

EDUCATION

- Bachelor of Engineering (Civil) Hons, Diploma in Engineering – Practice University of Technology, Sydney 2010 – 2014
- CPEng, NER Civil – Membership No. 5219706
- Member of Engineers Australia (MIEAust)
- BSB41415 Certificate IV in Work Health and Safety Training Aid Australia Pty Ltd 2016

KEY PROJECTS

Some of the more significant projects currently in progress and successfully undertaken and completed with involvement of James include:

Educational and Tertiary

- The Governors Centre For Excellence
- Schofields Public School
- Bella Vista Public School
- Marist Kogarah, Art and Learning Centre
- Cammeraygal High School
- St Pius X College, New Learning Hub, Chatswood
- NSW Secondary Schools Renewal Program
- Cherrybrook Technology High School
- Corrimal High School
- Rainbow Street Public School Upgrade
- Randwick Public School
- Homebush West Public School
- Bardia Public School Upgrade
- Alexandria Park Community School Redevelopment

- Ku Lance Community Preschool
- Curl Curl North Public School
- Proposed Sports Hall, Frensham School, Mittagong
- Monaro High School Redevelopment
- Riverbank Public School
- Alexandria Park Community School Peer Review
- Penshurst Public School
- Western Sydney University, Bankstown
- Burwood East Public School, Victoria

Community Infrastructure

- Childcare Centre, City of Sydney
- Coptic Church, Macquarie Fields
- Church of Scientology, Chatswood
- New Amenities Building at Campbell Park Chiswick
- Review of proposed GPT Upgrade at Boundary Creek
- Civic Park Pendle Hill
- North Sydney Public Domain
- Leichhardt and Camperdown Precincts Public Domain Masterplan
- Eagle Stadium, Werribee VIC
- Todd Park Aquatic & Leisure Centre
- Sydney Olympic Park
- Mick Doohan Reserve, Oran Park
- Western Sydney Parkland BMX track – Wylde
- Appian Way, Bankstown – Public Domain
- St Leonards Park Upgrades – Stage 3

Justice and Emergency

- Clarence Correctional Centre
- Parklea Correctional Centre
- Outer Metropolitan Multi-Purpose Correctional Centre
- Bathurst, Outer Metropolitan, Dillwynia, Cessnock Prisons
- Dame Phyllis Frost Centre, Deer Park
- Truganina MRC Infill Expansion
- OMMPCC Demountables
- Wellington Pop Up Correctional Centre

Health and Aged Care

- Southern Cross Aged Care, Dandenong
- Kiama Hospital Community Health Services Facility and Port Kembla Hospital
- Port Macquarie Nursing Home
- Cooranbong Aged Care Facility 383 Freemans Drive, Cooranbong

Industrial

- Industrial Building at Yulong Close, Moorebank NSW
- Goodman Fielder, Moorebank
- RAAF Base Williamtown
- Warehouse Extension, Lidcombe
- Bunnings Rozelle

Robert Xu

Engineer - Civil & Water Engineering

Warren Smith Consulting Engineers

CONTACT

+61 421 975 566

rxu@warrensmith.com.au

EDUCATION

- University of Western Sydney, Bachelor of Engineering (Civil)

PROFESSIONAL EXPERIENCE

November 2020 – Current
Warren Smith & Partners
Civil Engineer

January 2016 – November 2020
Engineering Studio Pty Ltd
Civil Engineer

February 2015 – January 2016
S & G Consultants Pty Ltd
Junior Engineer

KEY PROJECTS

Some of the more significant projects currently in progress and successfully undertaken and completed by Robert Xu include:-

- Woronora Caravan Park
- Jackson Road, Warriewood – Recreational Facility
- Taronga Zoo – Capital Works
- TfNSW - Paramedic Response Points (PRP)
- Box Hill Residential Subdivision Development – The Gables
- Lutanda Aged-Care Facility
- Marsden Park Child-care Centre and Mixed-use development
- Belrose Child-care Centre and Mixed-use development
- Rydalmere Apartments

SCHEDULE 3 – Flood Impact Assessment

Built
Level 4, 185 Clarence Street
SYDNEY NSW 2000

Job No. GC554.001

Attn: Mr Paul Nelson

25 November 2022

Re: Wee Waa High School Construction Staging Flood Impact Assessment

Dear Sir,

This letter sets out the findings of an investigation that has been undertaken to assess the impact that the staged construction of the proposed Wee Waa High School would have on flood behaviour. **Figure 1** attached is a location plan showing the location of the construction site which is bounded by George Street to the east, Mitchell Street to the south, Charles Street to the west and existing residential development to the north.

This letter has been prepared to address the requirements set out under Condition B24 (f) (i) and (ii) of the Development Consent (Application No. SSD 21854025), which read:

"B24. The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:

(f) provide a construction methodology to address management of flood related impacts, supported by a Flood Impact Assessment prepared by a suitably qualified practising Engineer, addressing the following (but not limited to):

(i) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 5-year ARI and 1 in 100-year ARI;

(ii) detailed construction staging plans and additional flood modelling to confirm that the construction would not result in unacceptable flooding conditions on adjoining properties and infrastructure, as certified by a suitably qualified practising Engineer; and"

1. Background

For planning approval purposes, the construction of the Wee Waa High School and associated drainage improvement works has been divided into the following two separate packages of works:

- Construction of flood mitigation works, which include a large channel within the construction site, as well as upgrades to the existing drainage system downstream of its location (denoted herein as "**the REF works**").
- Construction of the high school facilities, which includes the filling of the construction site to finished levels, as well as the erection of a number of buildings and fences (denoted herein as "**the SSD works**"). **Figure 2** attached to this letter shows the key features of the SSD works.

While Condition B24 directly relates to the SSD works, reference is made to the REF works as both sets of works form part of the overall project. We are also advised that Built are undertaking both the SSD and REF works as the Main Contractor and are able to coordinate across both sets or works as needed.

The bulk earthworks associated with the construction of the SSD works will be undertaken in the following three (3) key stages:

- **Stage 1 SSD Works**– Completion of the open drainage swale works which were commenced as part of the REF works internal to the construction site, including the stockpiling of excess fill material in its north-west corner.
- **Stage 2 SSD Works** – The formation of a borrow pit in the western portion of the construction site, the material from which will be used to raise natural surface levels in its eastern portion. The borrow pit will be drained via a temporary channel which will link to the open drainage swale which was built as part of the REF works. A swale will also be constructed along the common boundary of the construction site and No. 41 George Street to control surface runoff which discharges from the adjacent property. George Street will also be widened to facilitate the provision of the proposed Kiss and Drop area, requiring the need for the extension of the existing transverse drainage structure into the construction site, as well as the installation of a new stormwater drainage system along the western kerb line of the widened road.
- **Stage 3 SSD Works** – The importation of fill material to enable natural surface levels to be raised across the remainder of the construction site to final design levels. It is understood that the commencement of the Stage 3 works will not occur until such time as the REF works have been completed.

It is noted that a temporary pump was installed by Built in the north-west corner of the construction site at the commencement of the REF works (**temporary pump**). Built advised that the temporary pump is capable of evacuating stormwater runoff which would otherwise pond across the surface of the construction site to the inlet of twin 600 mm diameter pipes which are located beneath the eastern kerb line of Charles Street at a rate of about 0.36 m^3/s. Built also advised that the temporary pump will remain in operation until such time as the REF works are completed (i.e. up until the commencement of the Stage 3 SSD works).

2. Construction Staging Flood Impact Assessment

The hydraulic (TUFLOW) model that has been relied upon for assessing the impact that both the REF and SSD works would have on flood behaviour following their completion has been used for the purpose of the present assessment.

The hydraulic (TUFLOW) model representing pre-REF and SSD works conditions was run for a design storm of one (1) Exceedance per Year (**EY**), as well as design storms with Annual Exceedance Probabilities (**AEPs**) of 20% (1 in 5), 5% (1 in 20) and 1% (1 in 100). **Figures 3**, **4**, **5** and **6** (2 sheets each) show the indicative extent and depth of inundation internal to the existing ring levee which protects the township of Wee Waa from riverine type flooding and more specifically in the immediate vicinity of the construction site for the four aforementioned design storm events.

The structure of the hydraulic (TUFLOW) model was then updated to reflect finished surface levels at the completion of the abovementioned construction stages. Finished surface levels within the hydraulic (TUFLOW) model were defined based on 3D design models that were provided by Built. Modifications were also made to the existing drainage system to reflect the changes that would be made during each stage of construction, noting that the temporary pump was assumed to switch on when the water level in the north-west corner of the construction site surcharged the low flow channel that forms part of the recently constructed REF works.

Figures 7, **8**, **9** and **10** (2 sheets each) show the impact that the Stage 1 SSD works would have on flood behaviour for the four abovementioned design storm events. Similar information is shown on **Figures 11** to **18** (2 sheets each) for the Stage 2 and 3 SSD works.

The key findings of the flood impact assessment were as follows:

i. There will be a general reduction in peak flood levels external to the construction site under Stage 1 SSD works conditions across the full range of assessed design storm events.

ii. While there will be a general reduction in peak flood levels external to the construction site under Stage 2 SSD works conditions across the full range of assessed design storm events, there will be minor increases In the road reserve of George Street immediately fronting the construction site and No. 41 George Street during a 5% AEP storm event, and in the road reserve of Mitchell Street immediately fronting the construction site and the Wee Waa Public School in a 1% AEP storm event. It is noted that the areas where peak flood levels would be increased by the Stage 2 SSD works is confined to the adjacent road reserves of George Street and Mitchell Street (i.e. the impacts do not extend into either No. 41 George Street or the Wee Waa Public School).

iii. The impacts attributable to the Stage 3 SSD works external to the construction site would be similar to those described above for the Stage 2 SSD works.

We trust that the findings of the flood impact assessment will assist Built in completing the *Construction Soil and Water Management Sub-Plan* as is required under Condition B24 of the Development Consent. However, please do not hesitate to contact the undersigned should you wish to discuss any aspect of our letter report.

Yours faithfully
Lyall & Associates Consulting Water Engineers

Scott Button
Principal

LIST OF FIGURES

N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

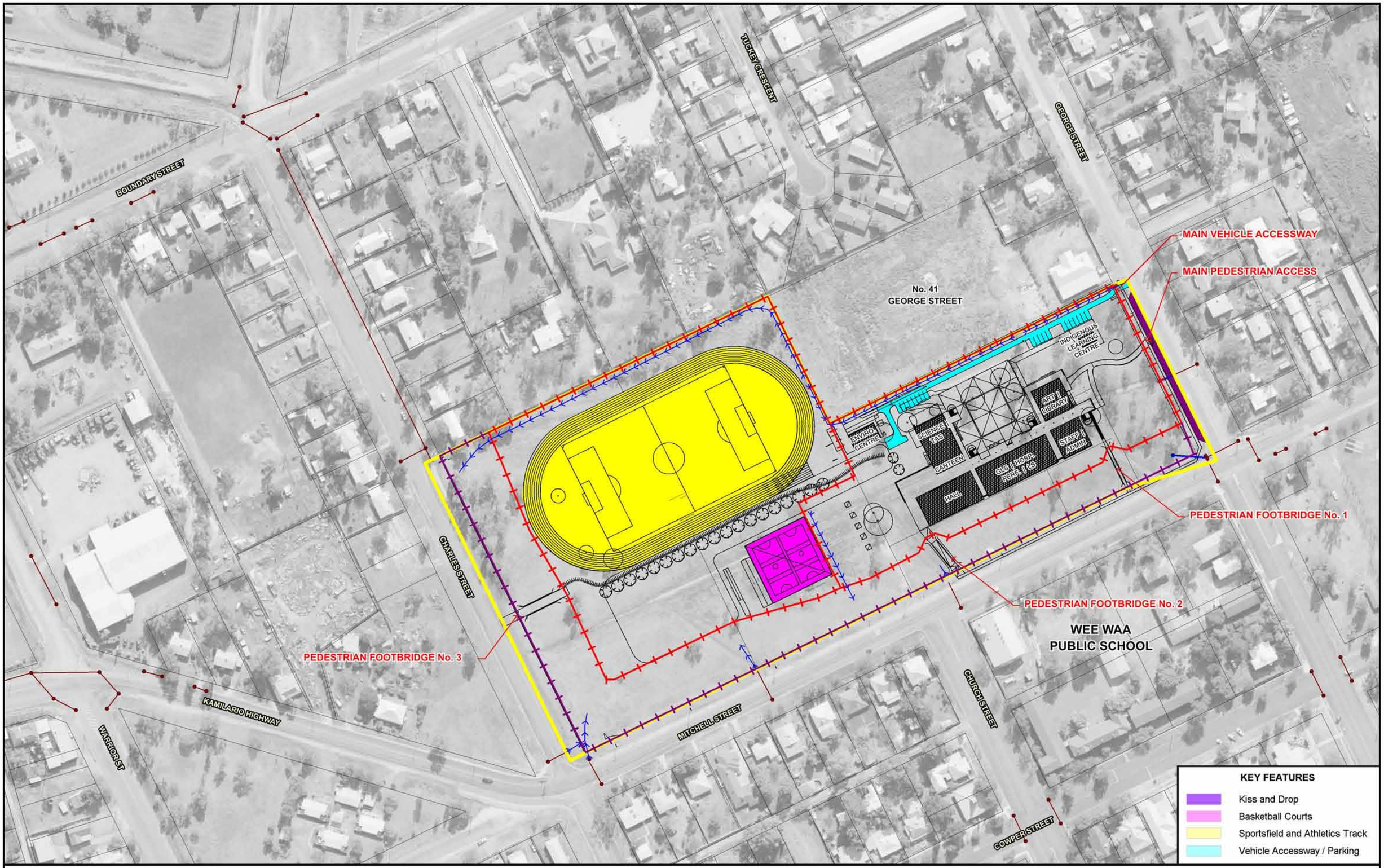
LEGEND

- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Existing Drainage System
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 1

LOCATION PLAN



N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

LEGEND

- Existing Drainage System
- Proposed Drainage System
- Proposed 1.2 m High Perimeter Fence
- Proposed 2.1 m High Perimeter Fence
- Proposed Grassed Catch Drain / Swale
- Construction Site Boundary
- Proposal Design Strings
- Proposal Building Footprint

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 2

KEY FEATURES OF THE SSD WORKS

Indicative Depth of Inundation (m)

- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
- 0.50 to 0.60
- 0.60 to 0.70
- 0.70 to 0.80
- 0.80 to 0.90
- 0.90 to 1.00
- > 1.00

RIVER
NAMOI
WAA GULLY
WEE WAA CHANNEL
BILLABONG
QUINNS
MYALLA LANE
BOUNDARY STREET
KILKENNY COURT
JAMES HIBBENS AVENUE
CORMIE AVENUE
KAMILAROI HIGHWAY
MAITLAND STREET
RIVERS STREET
ALMA STREET
MITCHELL STREET
COOPER STREET
NELSON STREET
ROSE STREET
CHURCH STREET
CHARLES STREET
WARRIOR STREET
CHRISTY STREET
GEORGE STREET
ALBION STREET
LOUIS STREET
BOOLCARROL ROAD
TRUCKING YARDS LANE
NARRABRI WEST WALGETT RAILWAY
GULGOORA ROAD
VERALEAP ROAD
O'BRIENS
BUNDOCK
CREEK
LAGOON
WEE WAA SHOWGROUND
COOK OVAL
WEE WAA HIGH SCHOOL
WEE WAA PUBLIC SCHOOL
NAMOI VALLEY CHRISTIAN SCHOOL
ST JOSEPH'S PRIMARY SCHOOL
WEE WAA DISTRICT HEALTH SERVICE
NAMOI COTTON CO-OP
REFER SHEET 2
FG_01
FG_02
FG_03
FG_04
FG_05
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FG_07
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FG_09
FG_10
FG_11
FG_12
FG_13
FG_14
P_01
P_02
P_03
P_04
P_05
P_06

Note:
The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

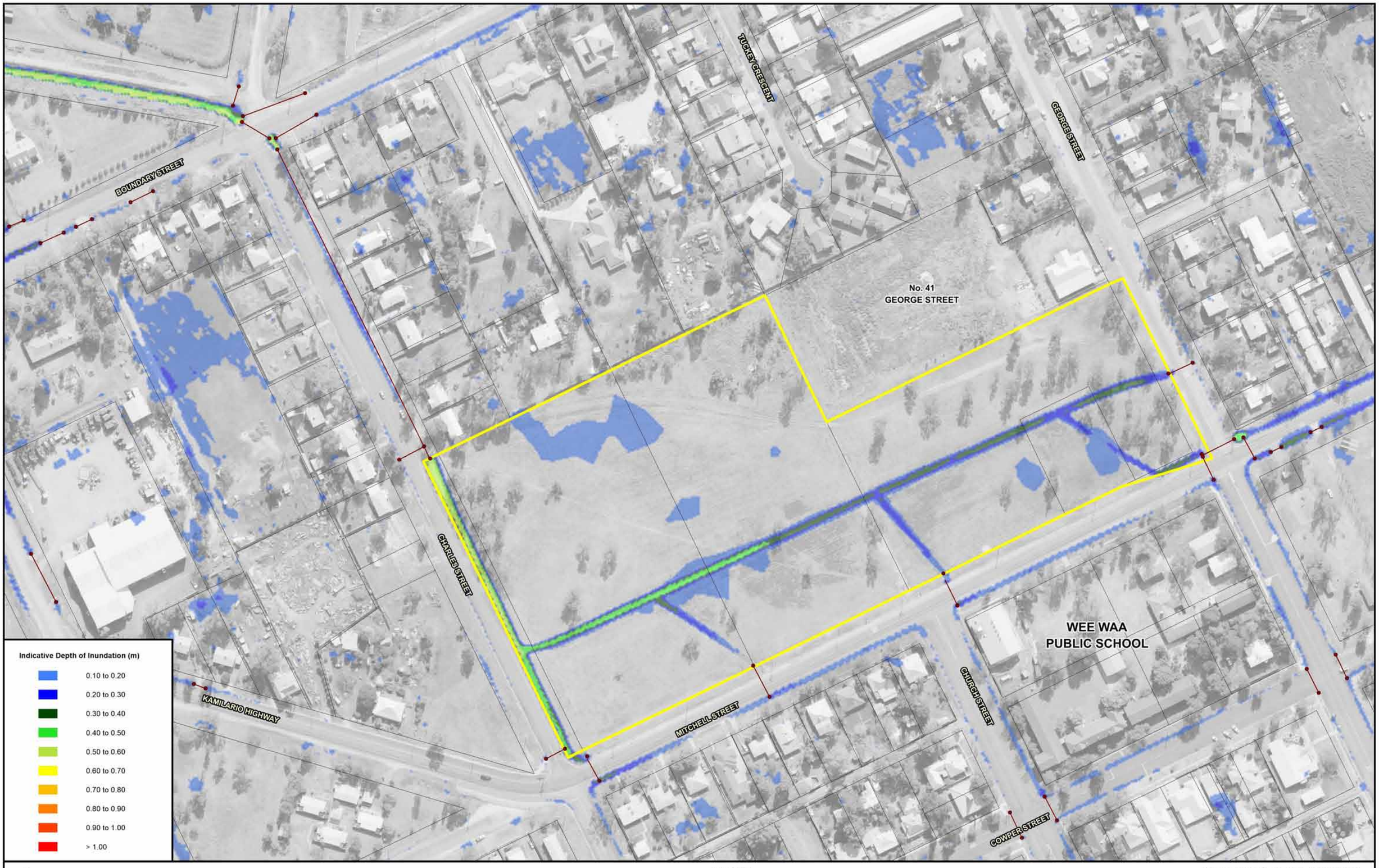
LEGEND

- Existing Levee Centre Line and Chainage (1000 / 1100)
- Existing Rural Levees on Namoi River Floodplain
- FG_01 — Existing Flood Gate Location and Identifier
- P_01 — Existing Pump Location and Identifier
- Two-Dimensional Model Extent
- Modelled Stormwater Network
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 3
(Sheet 1 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 1 EY



N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

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LEGEND

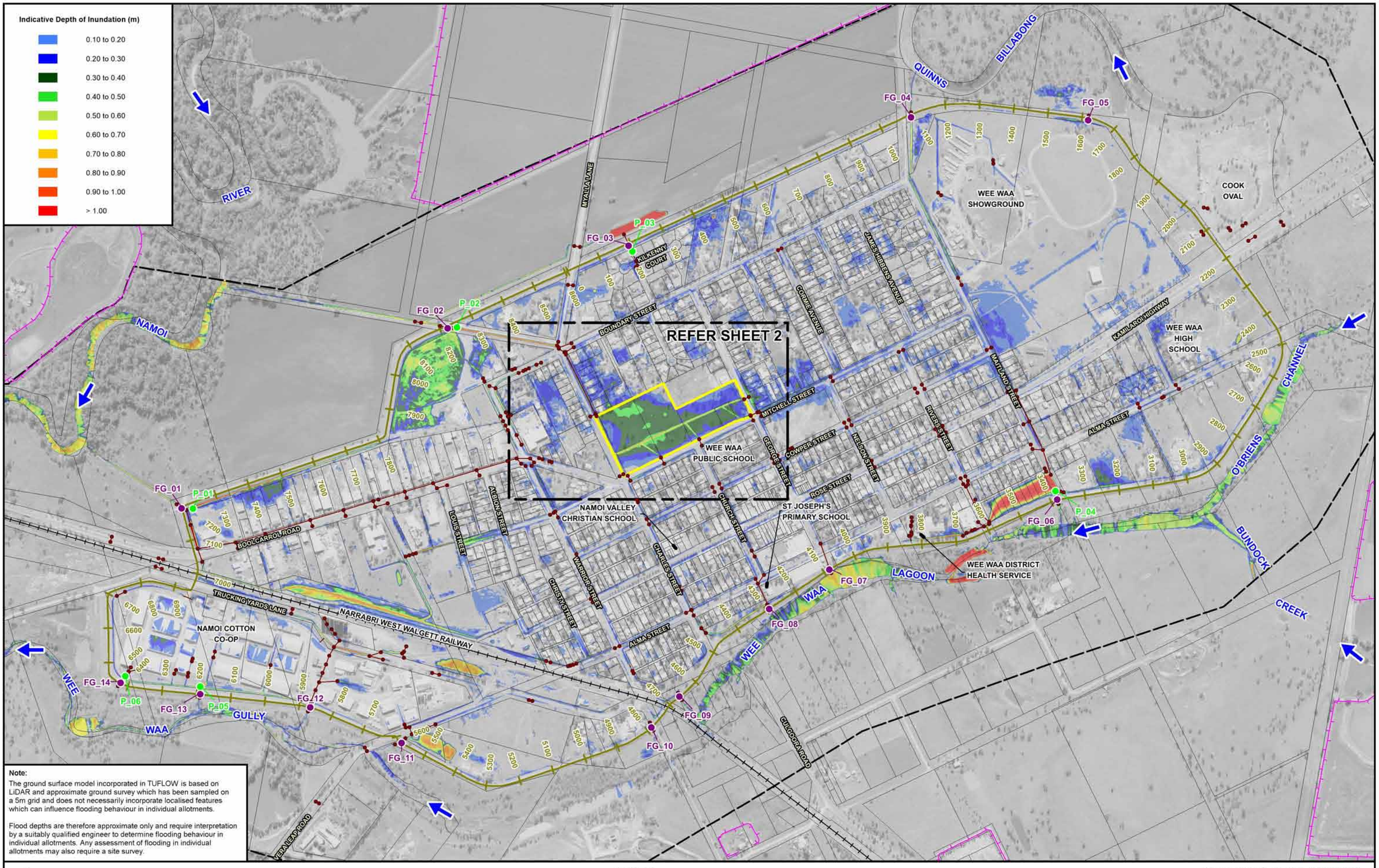
Modelled Stormwater Network

Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 3
(Sheet 2 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 1 EY



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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

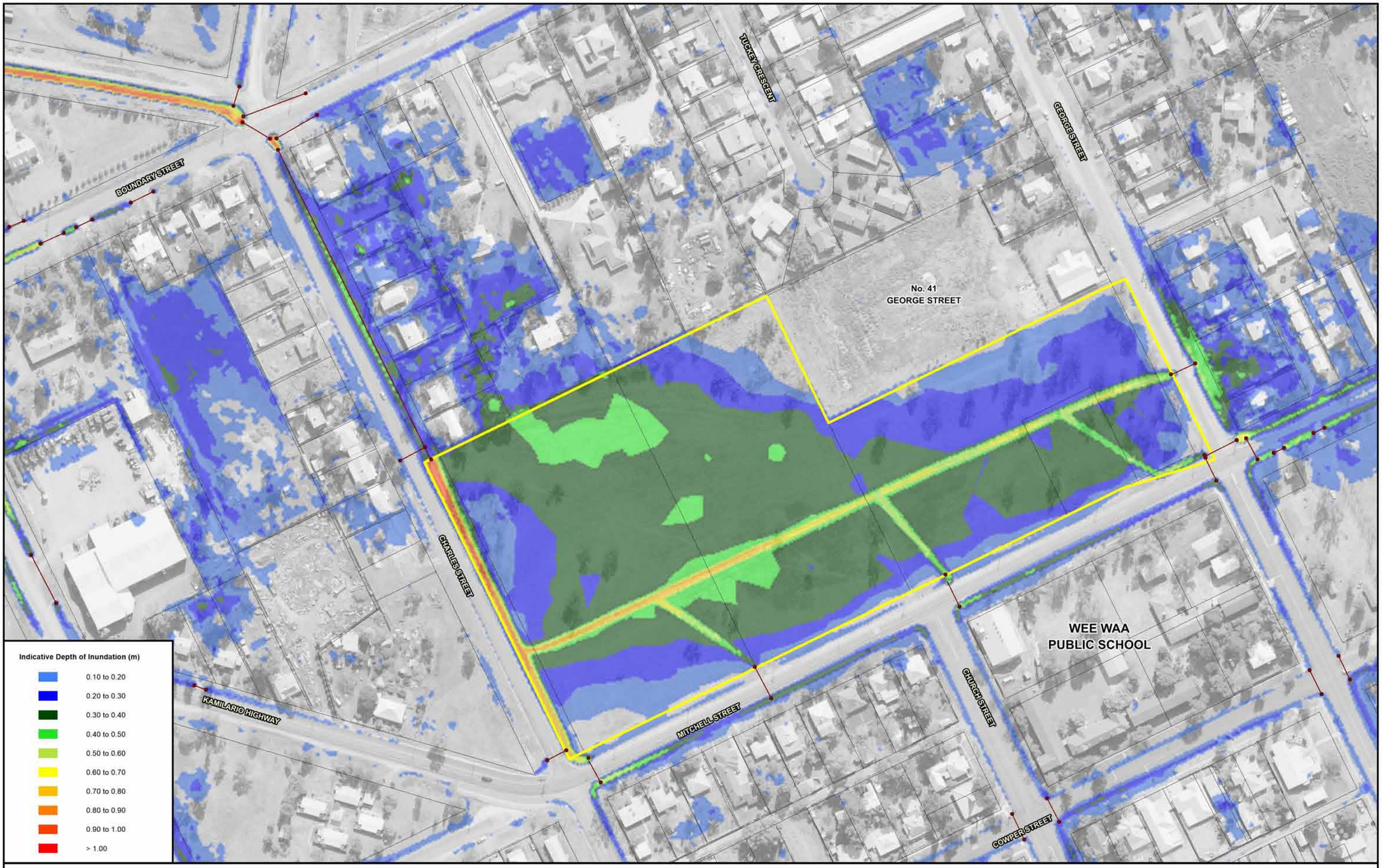
LEGEND

- Existing Levee Centre Line and Chainage
- Existing Rural Levees on Namoi River Floodplain
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Two-Dimensional Model Extent
- Modelled Stormwater Network
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 4
(Sheet 1 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 20% AEP



N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

LEGEND

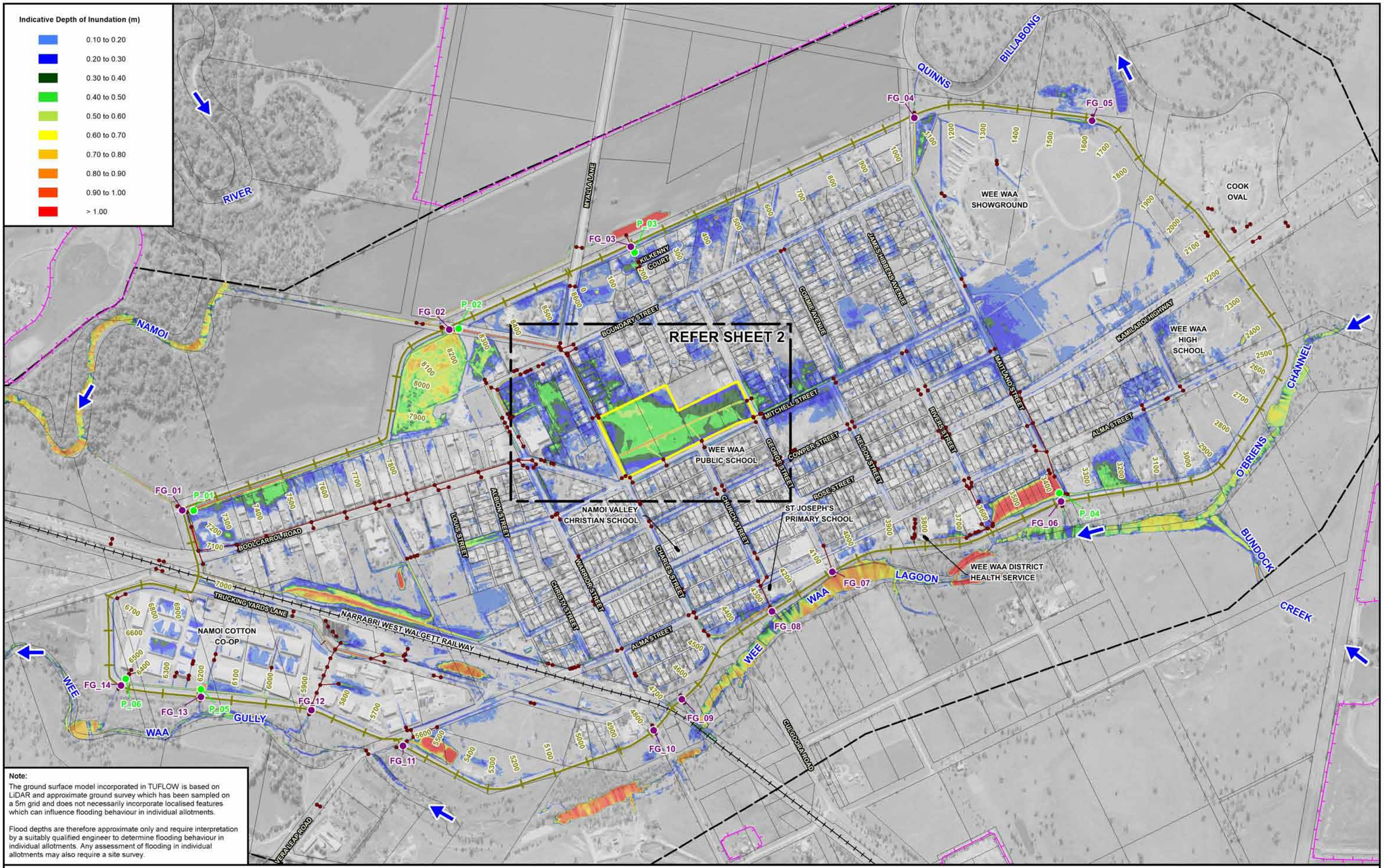
Modelled Stormwater Network

Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 4
(Sheet 2 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 20% AEP



Note:

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Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

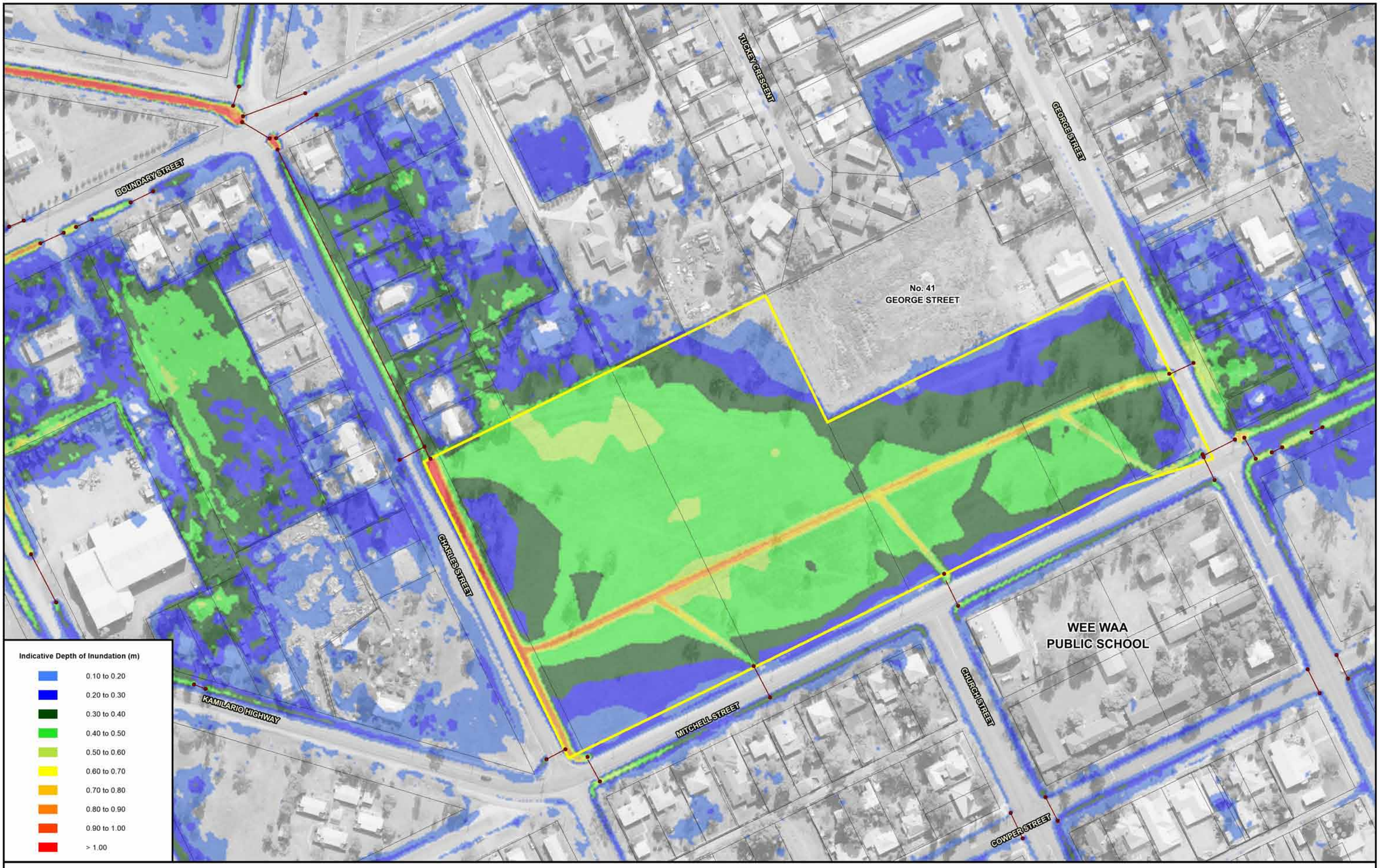
LEGEND

- Existing Levee Centre Line and Chainage
- Existing Rural Levees on Namoi River Floodplain
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Two-Dimensional Model Extent
- Modelled Stormwater Network
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 5
(Sheet 1 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 5% AEP



N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

LEGEND

Modelled Stormwater Network

Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 5
(Sheet 2 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 5% AEP

Indicative Depth of Inundation (m)

- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
- 0.50 to 0.60
- 0.60 to 0.70
- 0.70 to 0.80
- 0.80 to 0.90
- 0.90 to 1.00
- > 1.00

RIVER
NAMOI
QUINNS
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FG_04
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KAMILAROI HIGHWAY
WEE WAA HIGH SCHOOL
MAITLAND STREET
MITCHELL STREET
RIVERS STREET
ALMA STREET
CHANNEL
O'BRIENS
WEE WAA PUBLIC SCHOOL
GEORGE STREET
COWPER STREET
NELSON STREET
ROSE STREET
CHURCH STREET
CHARLES STREET
ALBION STREET
LOUIS STREET
WARRIOS STREET
CHRISTY STREET
NAMOI VALLEY CHRISTIAN SCHOOL
ST JOSEPH'S PRIMARY SCHOOL
FG_01
P_01
BOOLCARROL ROAD
TRUCKING YARDS LANE
NARRABRI WEST-WALGETT RAILWAY
NAMOI COTTON CO-OP
FG_14
P_06
FG_13
P_05
FG_12
FG_11
FG_10
FG_09
FG_08
FG_07
FG_06
P_04
WEE WAA DISTRICT HEALTH SERVICE
LAGOON
WEE WAA GULLY
WEE WAA CREEK
GUNNEDAH ROAD
VERALEE ROAD

Note:
The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- Existing Rural Levees on Namoi River Floodplain
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Two-Dimensional Model Extent
- Modelled Stormwater Network
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 6
(Sheet 1 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 1% AEP

BOUNDARY STREET

TUCKEY CRESCENT

GEORGE STREET

No. 41
GEORGE STREET

CHARLES STREET

KAMILARIO HIGHWAY

MITCHELL STREET

CHURCH STREET

COWPER STREET

WEE WAA
PUBLIC SCHOOL

Indicative Depth of Inundation (m)

- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
- 0.50 to 0.60
- 0.60 to 0.70
- 0.70 to 0.80
- 0.80 to 0.90
- 0.90 to 1.00
- > 1.00

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

LEGEND

- Modelled Stormwater Network
- Construction Site Boundary

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 6
(Sheet 2 of 2)

INDICATIVE EXTENT AND DEPTH OF INUNDATION INTERNAL TO TOWN LEVEE
PRE-REF AND SSD CONDITIONS - 1% AEP

Note:
The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

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N

100 0 100 200 300 m

Scale: 1:10,000

LEGEND

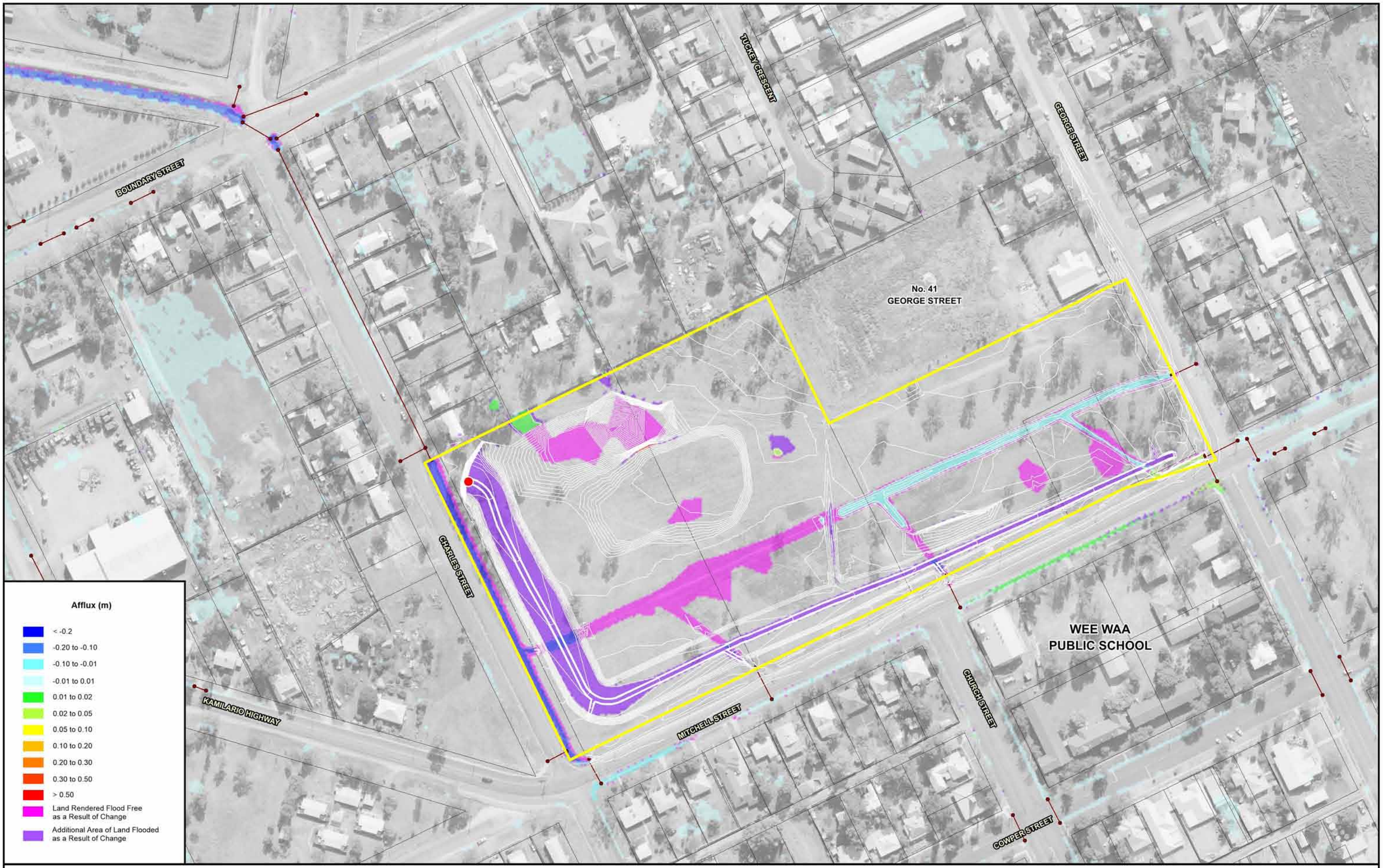
- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours

Lyall & Associates

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 7
(Sheet 1 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1 EY



N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

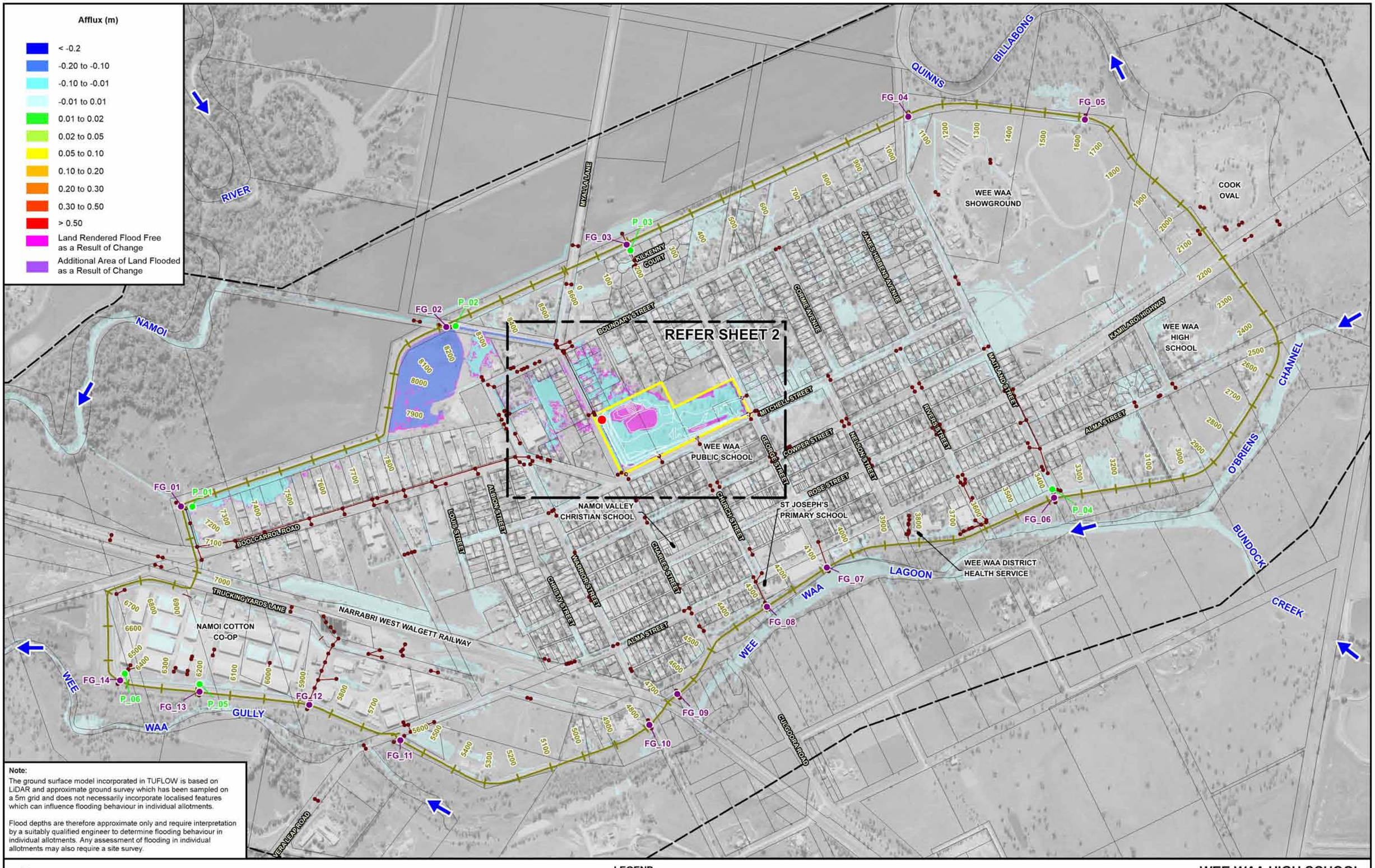
LEGEND

- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 7
(Sheet 2 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1 EY



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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- FG_02 Existing Flood Gate Location and Identifier
- P_02 Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 8
(Sheet 1 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
20% AEP

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

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LEGEND

- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 8
(Sheet 2 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
20% AEP

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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 9
(Sheet 1 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
5% AEP

BOUNDARY STREET

TUCKEY CRESCENT

GEORGE STREET

No. 41
GEORGE STREET

CHARLES STREET

KAMILARIO HIGHWAY

MITCHELL STREET

CHURCH STREET

COWPER STREET

WEE WAA
PUBLIC SCHOOL

Afflux (m)

- < -0.2
- -0.20 to -0.10
- -0.10 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
- Land Rendered Flood Free as a Result of Change
- Additional Area of Land Flooded as a Result of Change

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

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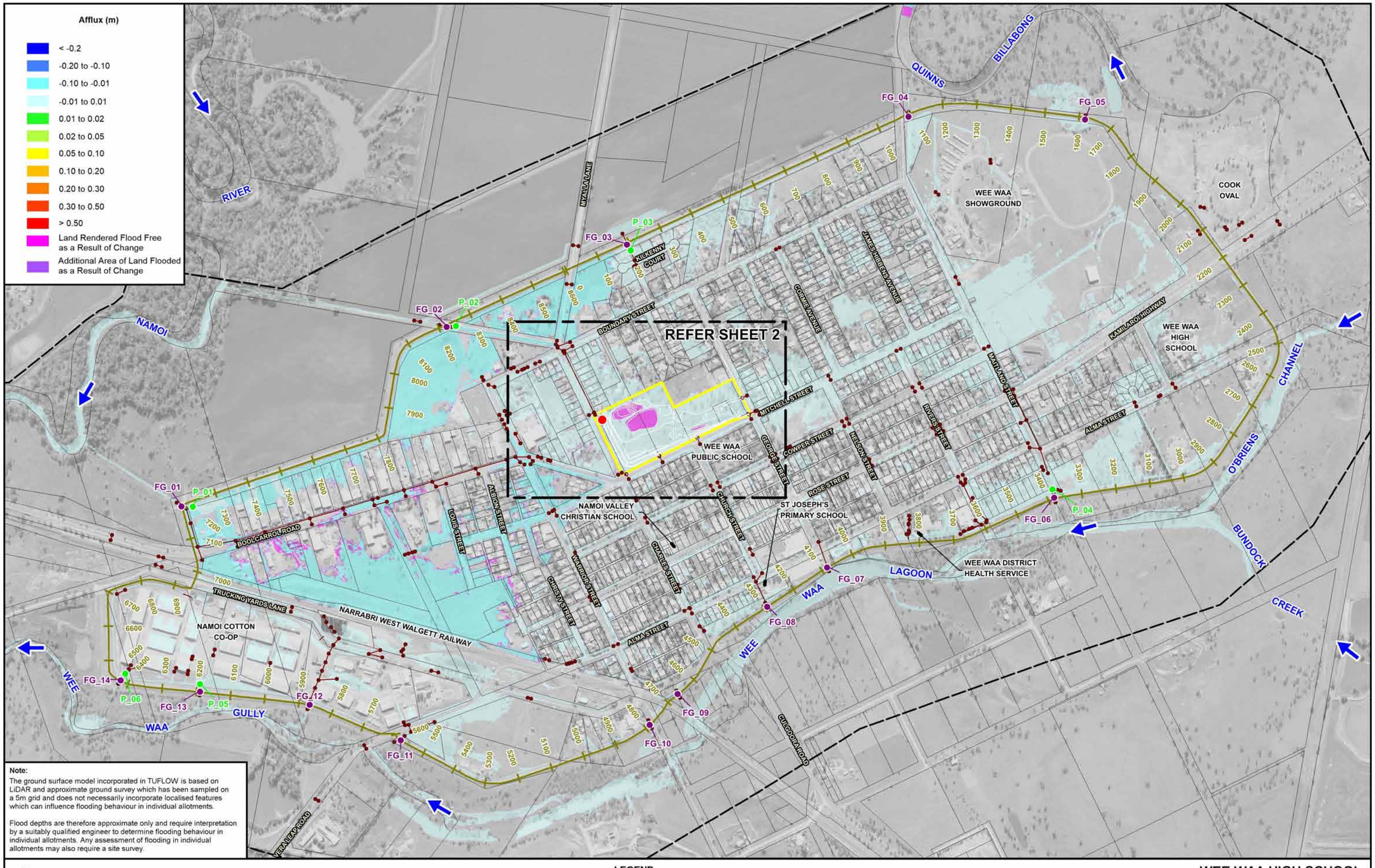
LEGEND

- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 9
(Sheet 2 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
5% AEP



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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 10
(Sheet 1 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1% AEP

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

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LEGEND

- Existing Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 10
(Sheet 2 of 2)

IMPACT OF STAGE 1 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1% AEP

Note:

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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 11
(Sheet 1 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1 EY

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

Note:

The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

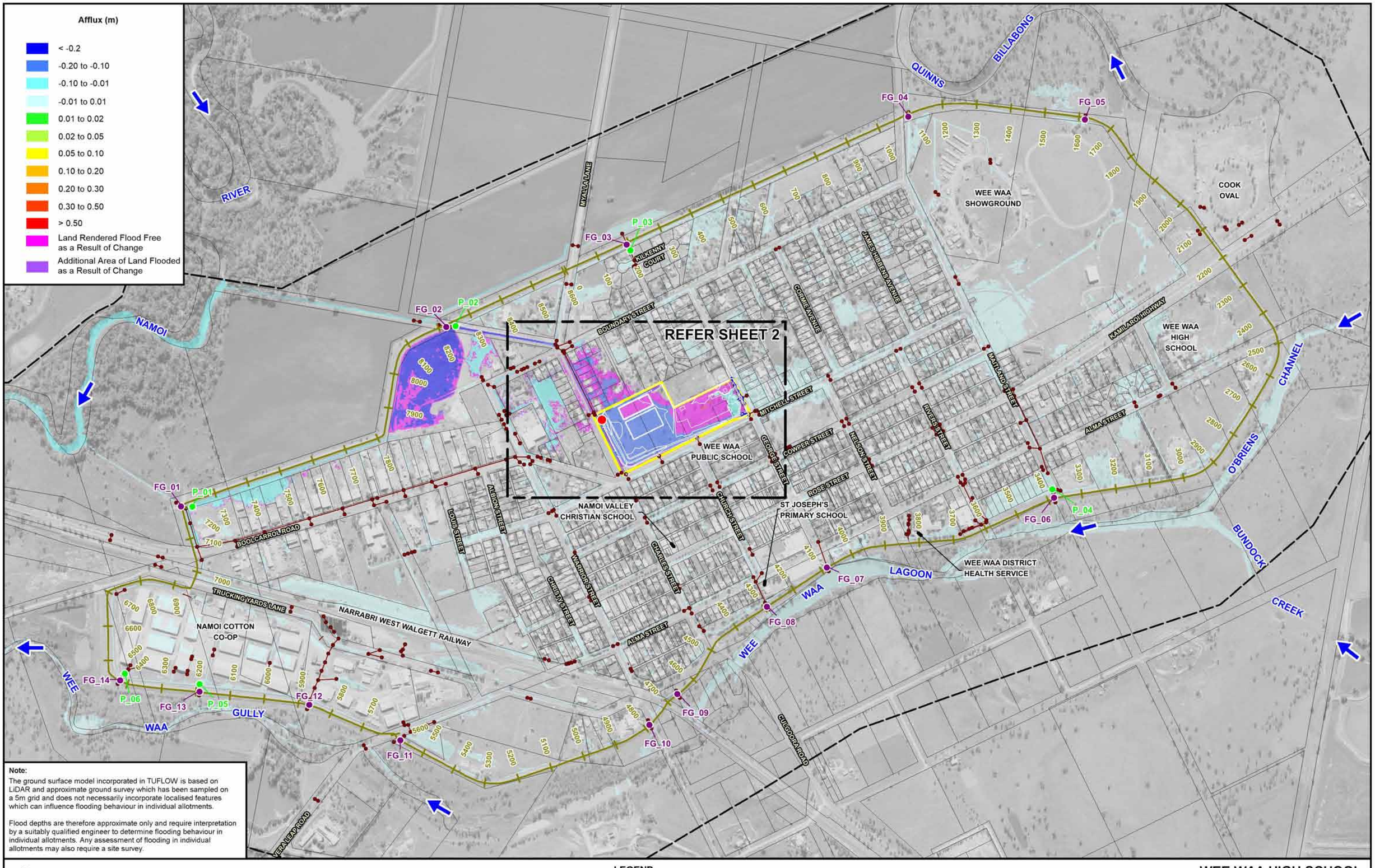
LEGEND

- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 11
(Sheet 2 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1 EY



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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- Existing Flood Gate Location and Identifier
- Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 12
(Sheet 1 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
20% AEP

Lyall & Associates

Note:
The ground surface model incorporated in TUFLOW is based on LiDAR and approximate ground survey which has been sampled on a 5m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

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LEGEND
- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 12
(Sheet 2 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
20% AEP

Afflux (m)

- < -0.2
- -0.20 to -0.10
- -0.10 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
- Land Rendered Flood Free as a Result of Change
- Additional Area of Land Flooded as a Result of Change

REFER SHEET 2

RIVER
NAMOI
WEE WAA GULLY
QUINNS
BILLABONG
MYALLA LANE
BOUNDARY STREET
KILKENNY COURT
JAMES HIBBENS AVENUE
GORMIE AVENUE
KAMILAROI HIGHWAY
MAITLAND STREET
RIVERS STREET
ALMA STREET
MITCHELL STREET
COOPER STREET
NELSON STREET
ROSE STREET
CHURCH STREET
CHARLES STREET
WARRIOR STREET
CHRISTY STREET
ALBION STREET
LOUIS STREET
BOOLCARROL ROAD
TRUCKING YARDS LANE
NARRABRI WEST WALGETT RAILWAY
GUILGOORA ROAD
VERALEAP ROAD
O'BRIENS CHANNEL
BUNDOCK CREEK
WEE WAA LAGOON
WEE WAA SHOWGROUND
COOK OVAL
WEE WAA HIGH SCHOOL
WEE WAA PUBLIC SCHOOL
NAMOI VALLEY CHRISTIAN SCHOOL
ST JOSEPH'S PRIMARY SCHOOL
WEE WAA DISTRICT HEALTH SERVICE
NAMOI COTTON CO-OP

FG_01 FG_02 FG_03 FG_04 FG_05 FG_06 FG_07 FG_08 FG_09 FG_10 FG_11 FG_12 FG_13 FG_14
P_01 P_02 P_03 P_04 P_05 P_06

Note:
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N

100 0 100 200 300 m

Scale: 1:10,000

LEGEND

- Existing Levee Centre Line and Chainage
- FG_02 Existing Flood Gate Location and Identifier
- P_02 Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours

Lyall & Associates

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 13
(Sheet 1 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
5% AEP

BOUNDARY STREET

TUCKEY CRESCENT

GEORGE STREET

No. 41
GEORGE STREET

CHARLES STREET

KAMILARIO HIGHWAY

MITCHELL STREET

CHURCH STREET

WEE WAA
PUBLIC SCHOOL

COWPER STREET

Afflux (m)

- < -0.2
- -0.20 to -0.10
- -0.10 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
- Land Rendered Flood Free as a Result of Change
- Additional Area of Land Flooded as a Result of Change

N

20 0 20 40 60 m

Scale: 1:2,000

Lyall & Associates

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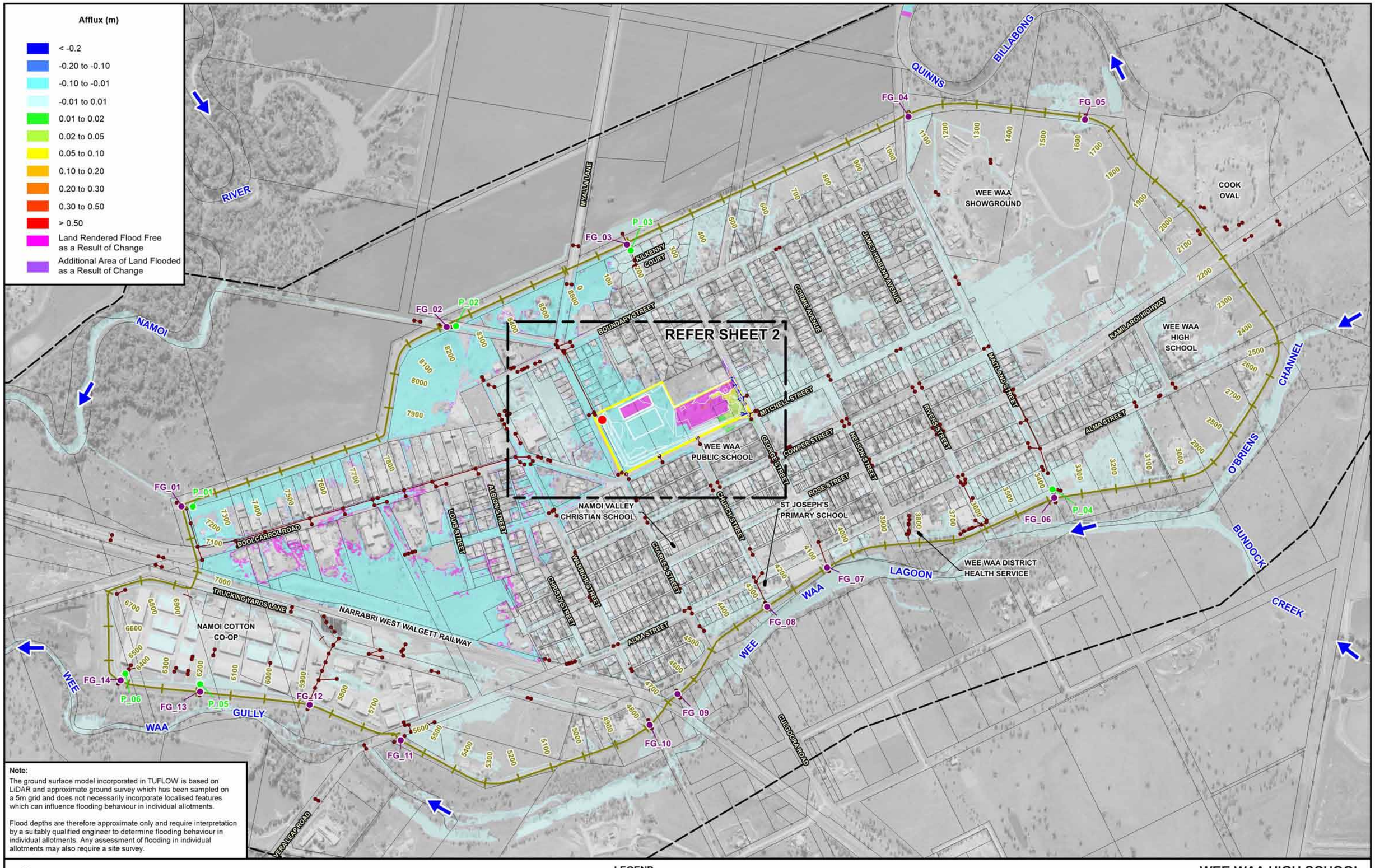
LEGEND

- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours
- Proposed Pump Location

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 13
(Sheet 2 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
5% AEP



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N

100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

LEGEND

- Existing Levee Centre Line and Chainage
- FG_02 Existing Flood Gate Location and Identifier
- P_02 Existing Pump Location and Identifier
- Proposed Pump Location
- Existing Drainage System
- Proposed Drainage System
- Construction Site Boundary
- Finished Surface Contours

WEE WAA HIGH SCHOOL
CONSTRUCTION STAGING FLOOD IMPACT ASSESSMENT

Figure 14
(Sheet 1 of 2)

IMPACT OF STAGE 2 SSD WORKS ON FLOOD BEHAVIOUR INTERNAL TO TOWN LEVEE
1% AEP