

NEW WAREHOUSE AND OFFICE

11-13 HEMPENSTALL STREET, KAWANA QLD 4701

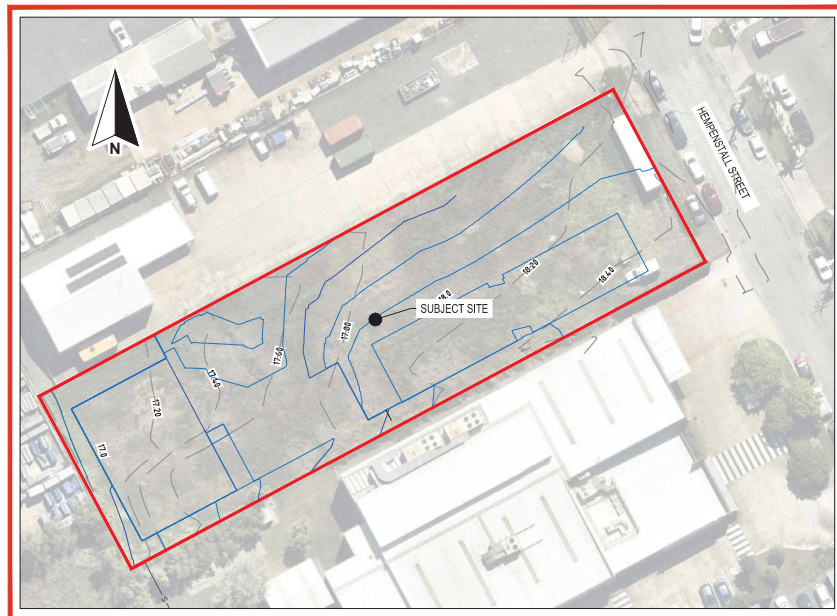
NOVUS LOGISTICS

D24.054

CIVIL DESIGN

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/103-2024
Dated: 10 December 2024



LOCALITY PLAN
(Not To Scale)



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DESIGN DRAWING LIST INDEX	
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D24.054 C-04	SITE LONG SECTIONS 1 & 2
D24.054 C-05	SITE CROSS SECTIONS CONTROL LINE 1 SH 1 OF 2
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OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

LEGEND

-  EXISTING TELSTRA (CABLE & PIT)
-  EXISTING OVERHEAD ELECTRICITY & POWER POLE
-  EXISTING EASEMENT
-  EXISTING ROAD KERB
-  EXISTING SEWER MAIN AND MANHOLE
-  EXISTING SURFACE CONTOURS

EXISTING LEVELS AND SERVICES

1. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND LEVELS OF ALL EXISTING SERVICES WITH THE RELEVANT AUTHORITIES INCLUDING 'DIAL BEFORE YOU DIG' PRIOR TO COMMENCING CONSTRUCTION.
2. ANY COSTS ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING LEVELS ARE AS PER THIS DESIGN WHERE CONNECTIONS TO EXISTING INFRASTRUCTURE ARE REQUIRED. ANY DIFFERENCES TO BE NOTIFIED TO THE ENGINEER PRIOR TO ORDERING MATERIALS OR COMMENCING ANY WORKS.
4. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO CLASHES BETWEEN ANY CROSSING SERVICE OR PIPELINE. ANY CLASHES TO BE NOTIFIED TO THE ENGINEER PRIOR TO WORKS COMMENCING.
5. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHALL VERIFY LOCATION AND DETAILS OF ALL EXISTING SERVICE CONNECTIONS TO NEW ALLOTMENTS PREVIOUSLY INSTALLED



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DATUM: HORZ: GDA 94 VERT: AHD



SCALES: FULL SIZE A3

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	20/09/2024
B	FOR APPROVAL	12/09/2024
C	MINOR AMENDMENTS/MINOR AMENDMENTS	27/09/2024



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RPEQ 7882	SGH
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
EXISTING FEATURES AND SERVICES

DWG No.	D24.054-C01
CIVIL	C

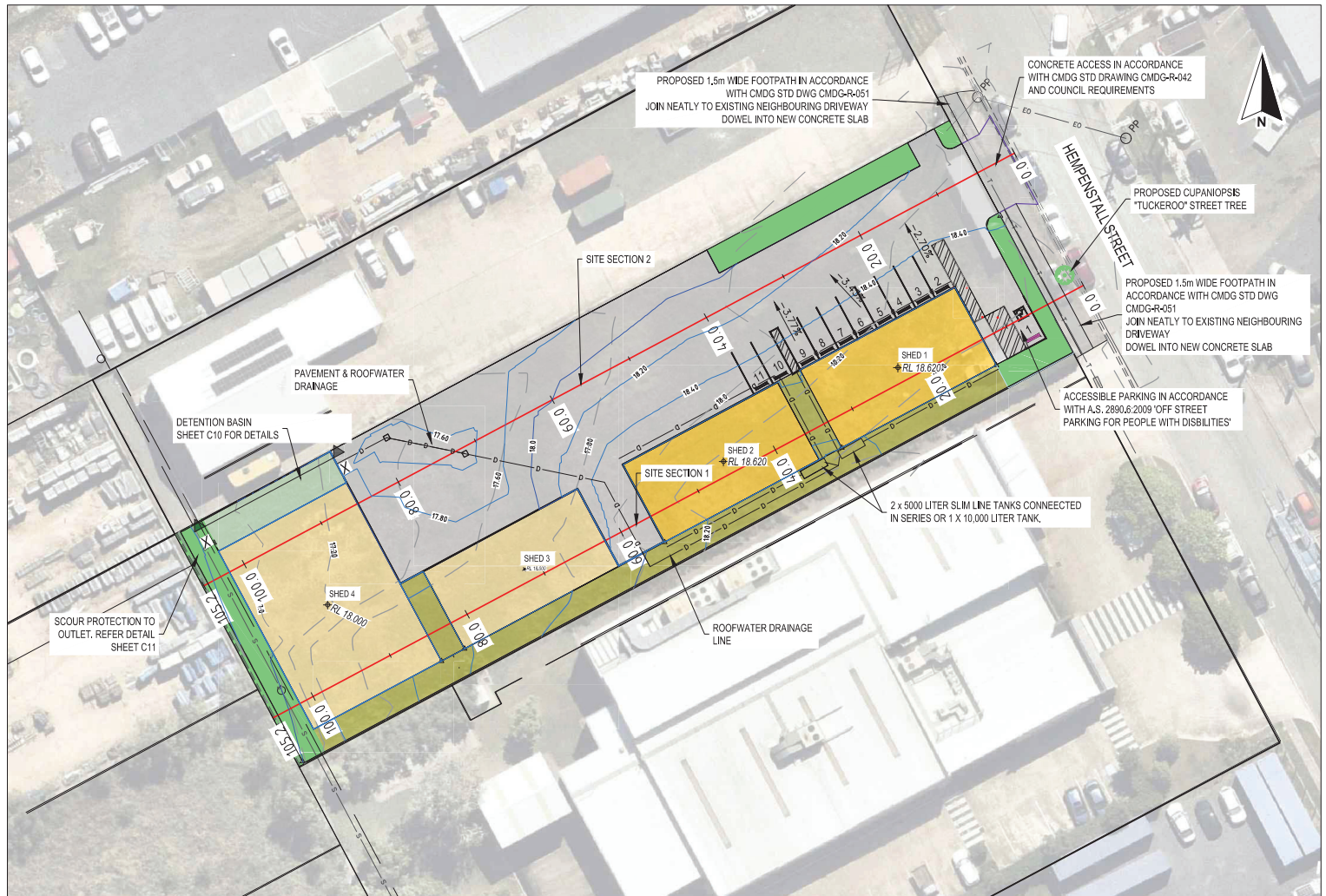
LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- SECTION XX THROUGH DETENTION BASIN

- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

GENERAL NOTES:

1. 0.5% MINIMUM GRADE, 1% DESIRABLE ON ALL CONCRETE SURFACES.
2. REFER CMDG STANDARD DRAWING CMDG-R-042 FOR CROSSOVER DETAIL
3. REFER DRAWING D24.054 - C04 TO C05 FOR SITE PROFILES & SECTIONS
4. REFER DRAWING D24.054 - C07 FOR EARTHWORKS PLAN
5. REFER DRAWING D24.054 - C08 FOR ACCESS AND PARKING PLAN
6. REFER DRAWING D24.054 - C11 FOR STORM WATER LAYOUT PLAN
7. REFER DRAWING D24.054 - C13&14 FOR EROSION AND SEDIMENT CONTROL PLAN & NOTES



PROPOSED LAYOUT

ROCKHAMPTON REGIONAL COUNCIL

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REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	10/09/2024
C	MINOR AMENDMENTS	27/08/2024
D	PIPE LAYOUT AMENDED	10/09/2024
E	STREET TREE AND FOOTPATH ADDED	18/10/2024

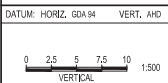


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SIGN	
	24/10/2024

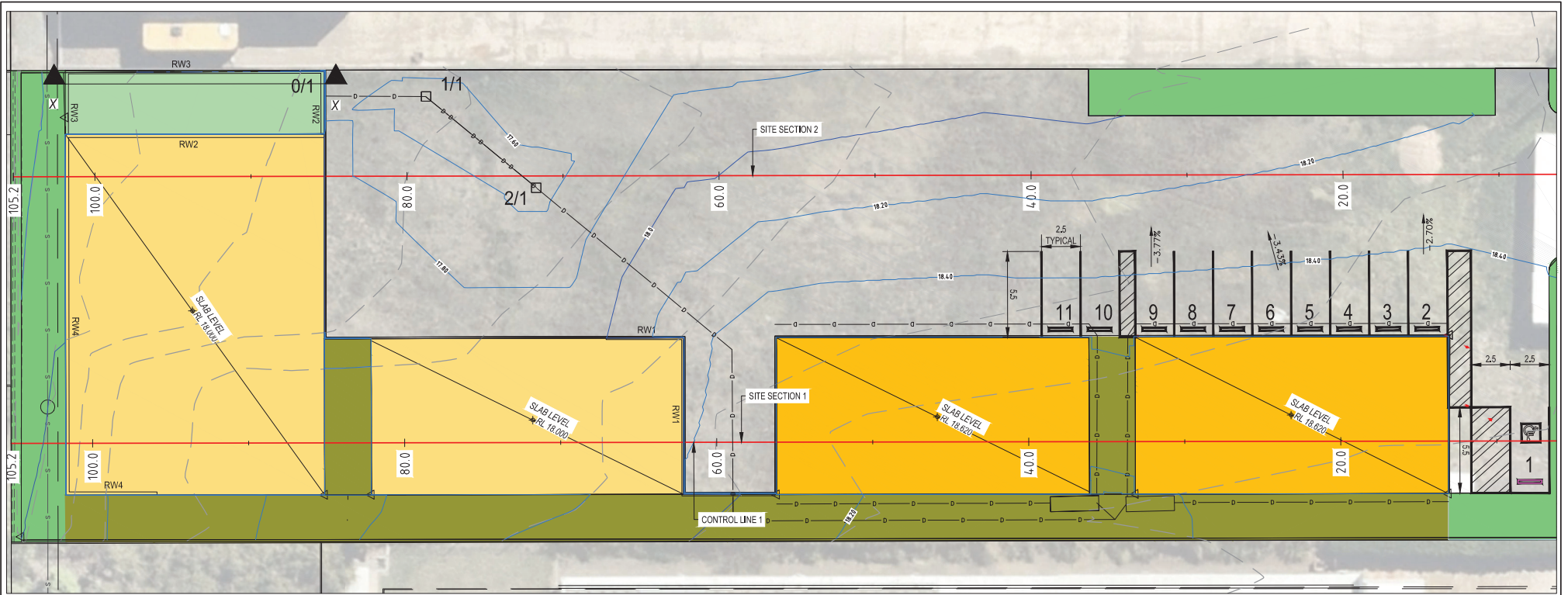
NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
PROPOSED LAYOUT

DWG No.	D24.054-C02
	CIVIL
REVISION	E



Document Set ID: 40028466

Version: 1, Version Date: 25/10/2024



SITE SET OUT PLAN

LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- 12.0 PROPOSED CONTOUR
- PROPOSED DESIGN ELEVATION SPOT LEVELS
- SECTION XX THROUGH DETENTION BASIN
- EXISTING BUILDING
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

NOTES:

1. ALL LEVELS SHOWN TO FINISHED SURFACE LEVEL.
2. REFER ARCHITECT'S PLANS FOR BUILDING SET OUT.
3. REFER TO D24.054-10 FOR MASONRY DETAILS INCLUDING SECTION X-X THROUGH DETENTION BASIN
4. REFER DRAWING D24.054 - C04 TO C05 FOR SITE PROFILES & SECTIONS

Point Table

Description	Easting	Northing
2/1	245430.660	7416905.412
1/1	245421.644	7416907.280
1/1	245415.890	7416904.201

ROCKHAMPTON REGIONAL COUNCIL

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DATUM: HORNB, GDA 94 VERT. AHD

0 1.25 2.5 3.75 5 1:250
HORIZONTAL

SCALES: FULL SIZE A3

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	09/05/2024
B	FOR APPROVAL	10/09/2024
C	MINOR AMENDMENTS	27/08/2024
D	PIPE LAYOUT AMENDED	10/09/2024



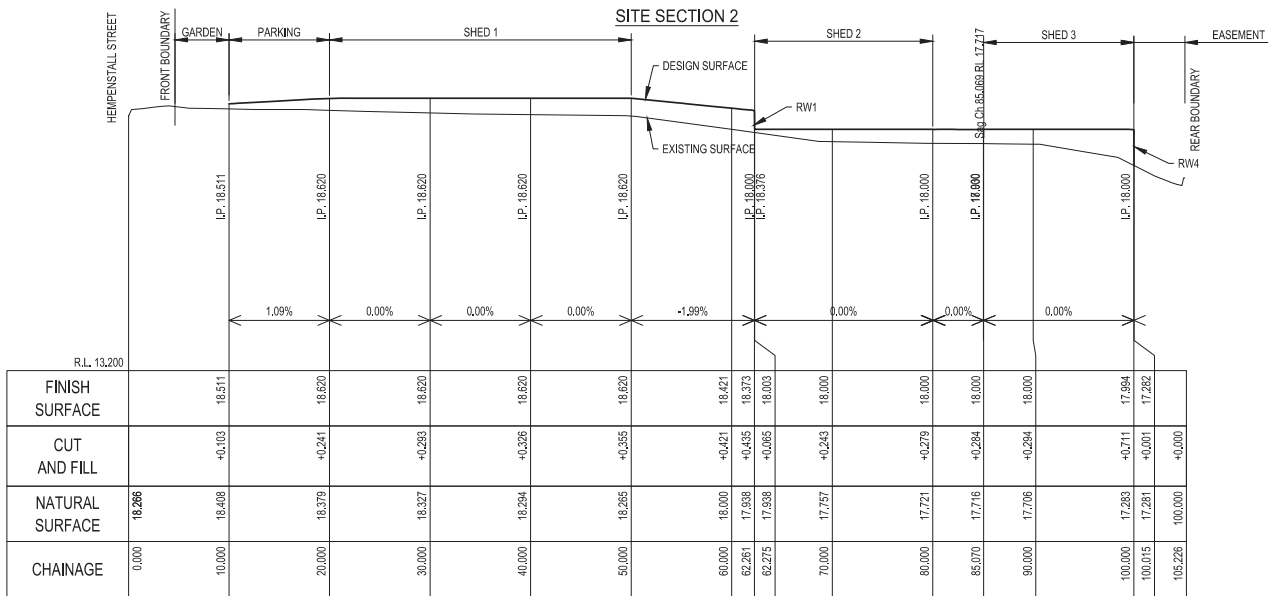
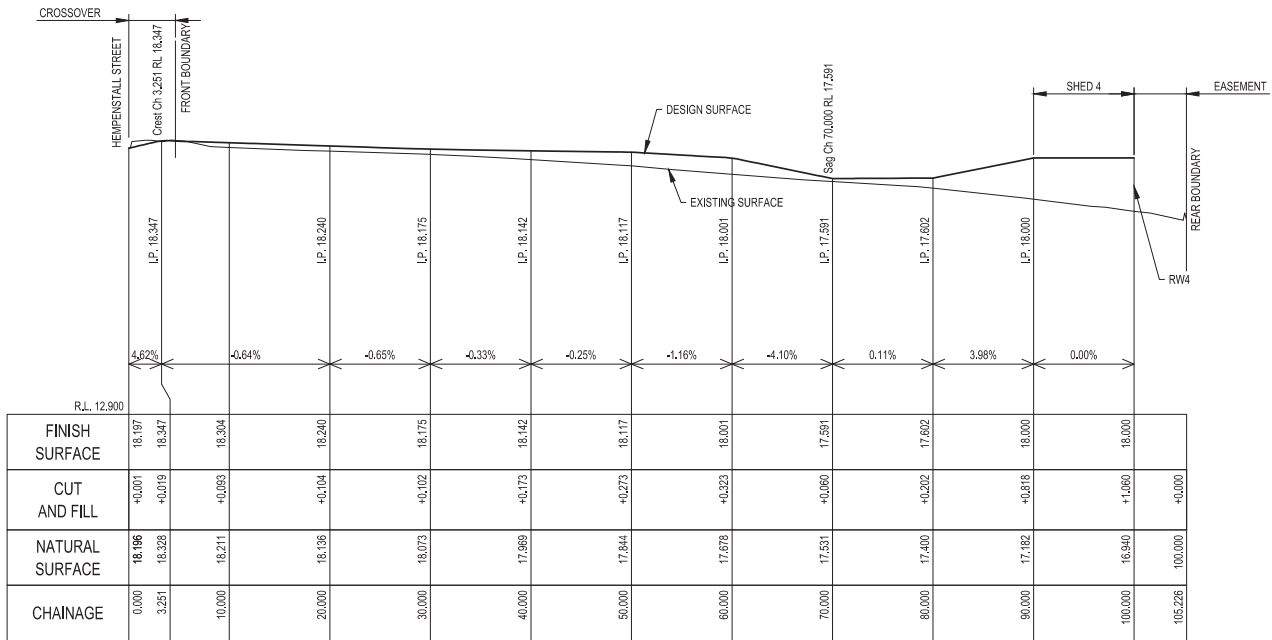
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APPROVED	G J BROWN
RPEC 7882	SIGN
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
SETOUT PLAN

DWG No. D24.054-C03

CIVIL
REVISION D



ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
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DATUM: HORIZ. GDA 84 VERT. AHD
 0 2.5 5 7.5 10
 HORIZONTAL 1:500
 FULL SIZE A3
 SCALES m.

OPERATIONAL WORKS ISSUE
 FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	10/09/2024
B	FOR APPROVAL	12/09/2024
C	MINOR AMENDMENTS	21/09/2024

DILEIGH
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11.09.2024	

NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
 OPERATIONAL WORKS
 SITE LONG SECTIONS 1 & 2

DWG No.
D24.054-C04
 CIVIL
 REVISION
C

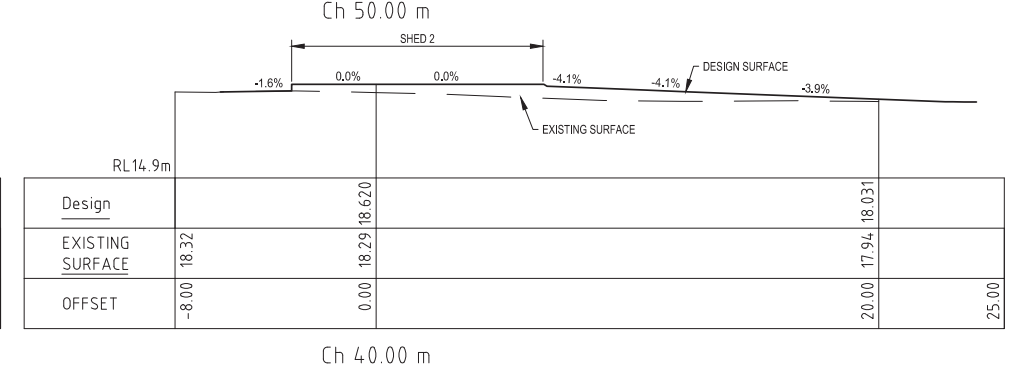
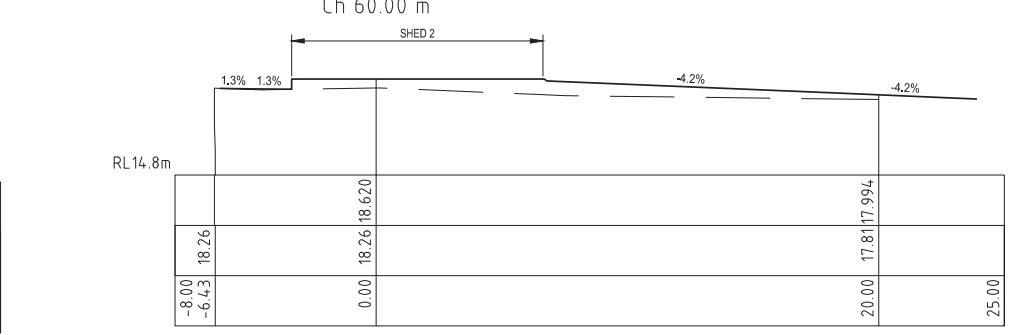
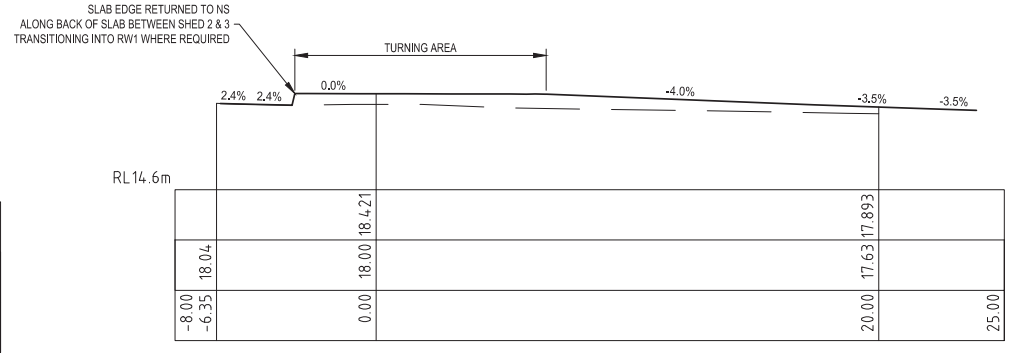
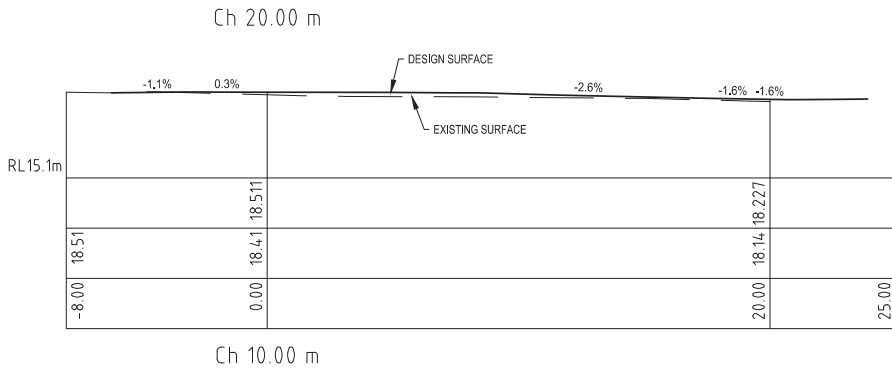
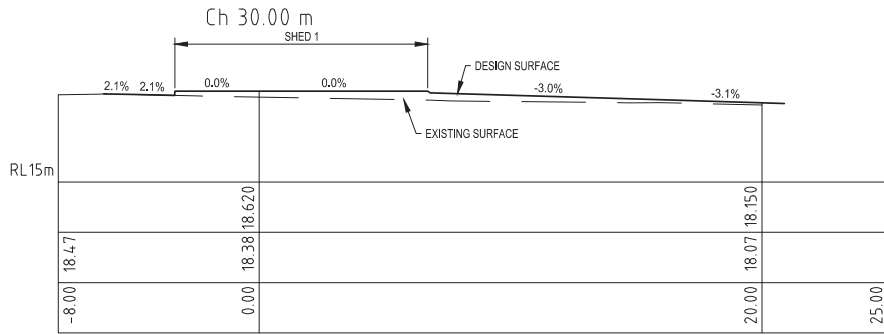
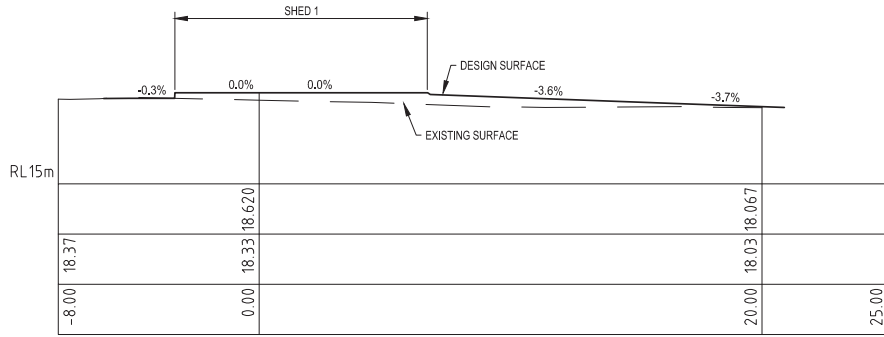
ROCKHAMPTON REGIONAL COUNCIL

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Design			
EXISTING SURFACE	18.32	18.29	18.620
OFFSET	-8.00	0.00	20.00
			17.94
			18.031
			25.00

DATUM: HORIZ. GDA 94 VERT. AHD



SCALES m. FULL SIZE A3

OPERATIONAL WORKS ISSUE
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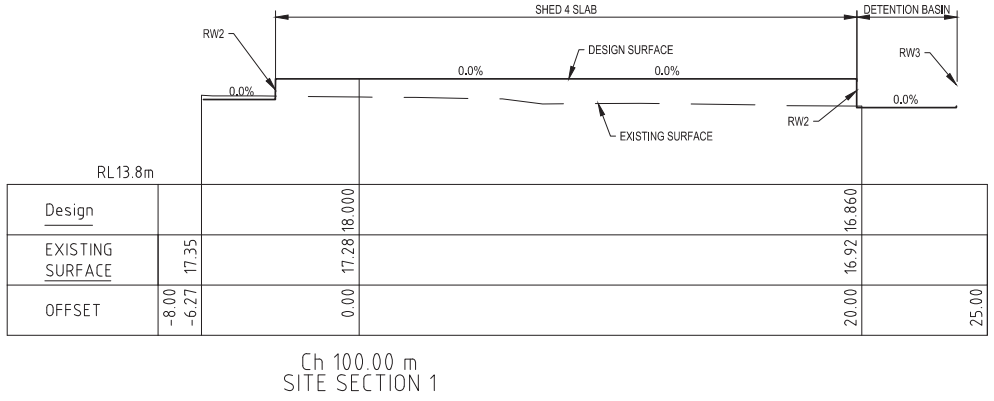
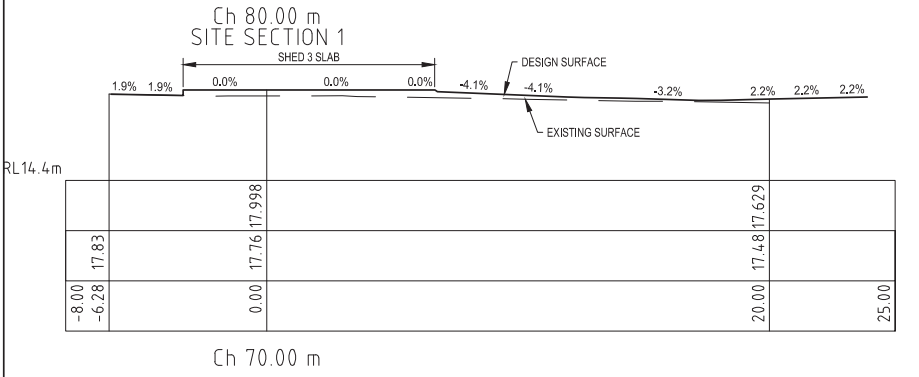
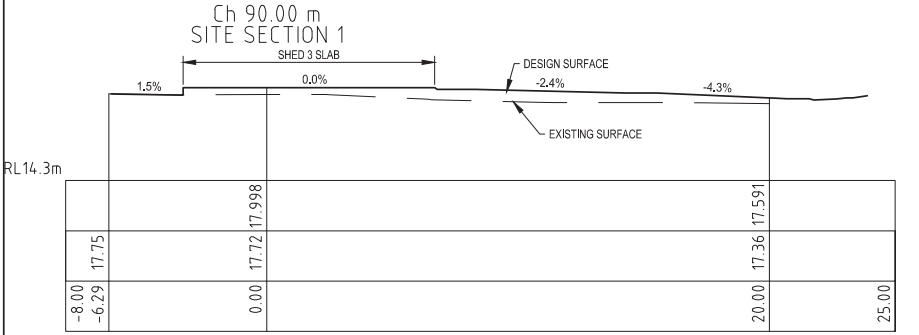
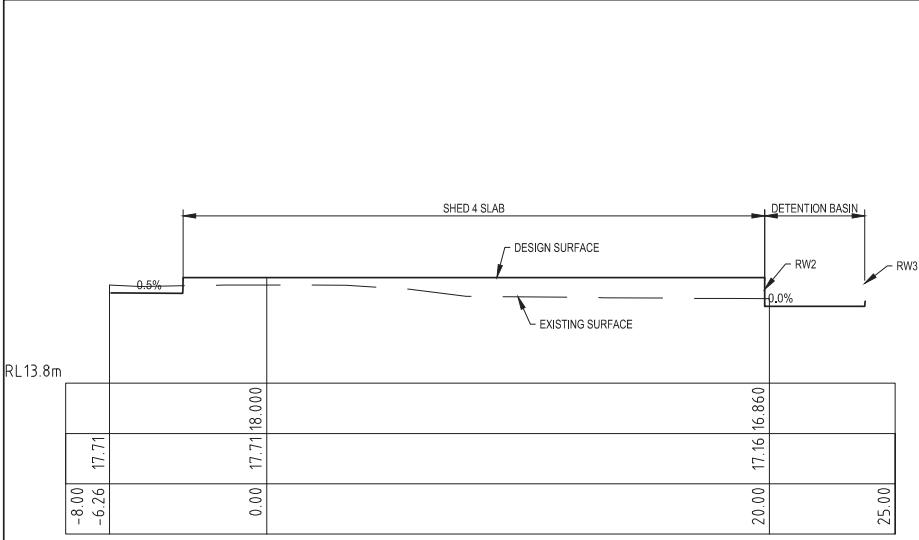


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11/09/2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
SITE CROSS SECTIONS CONTROL LINE 1 SH 1 OF 2

DWG No.	D24.054-C05
	CIVIL
REVISION	C



ROCKHAMPTON REGIONAL COUNCIL
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Dated: 10 December 2024

DATUM: HORIZ. GDA 94 VERT. AHD
 0 1.25 2.5 3.75 5 1:250
 HORIZONTAL
 FULL SIZE A3

OPERATIONAL WORKS ISSUE
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REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	18/09/2024
B	FOR APPROVAL	12/09/2024
C	MINOR AMENDMENTS	27/09/2024

DILEIGH
 CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

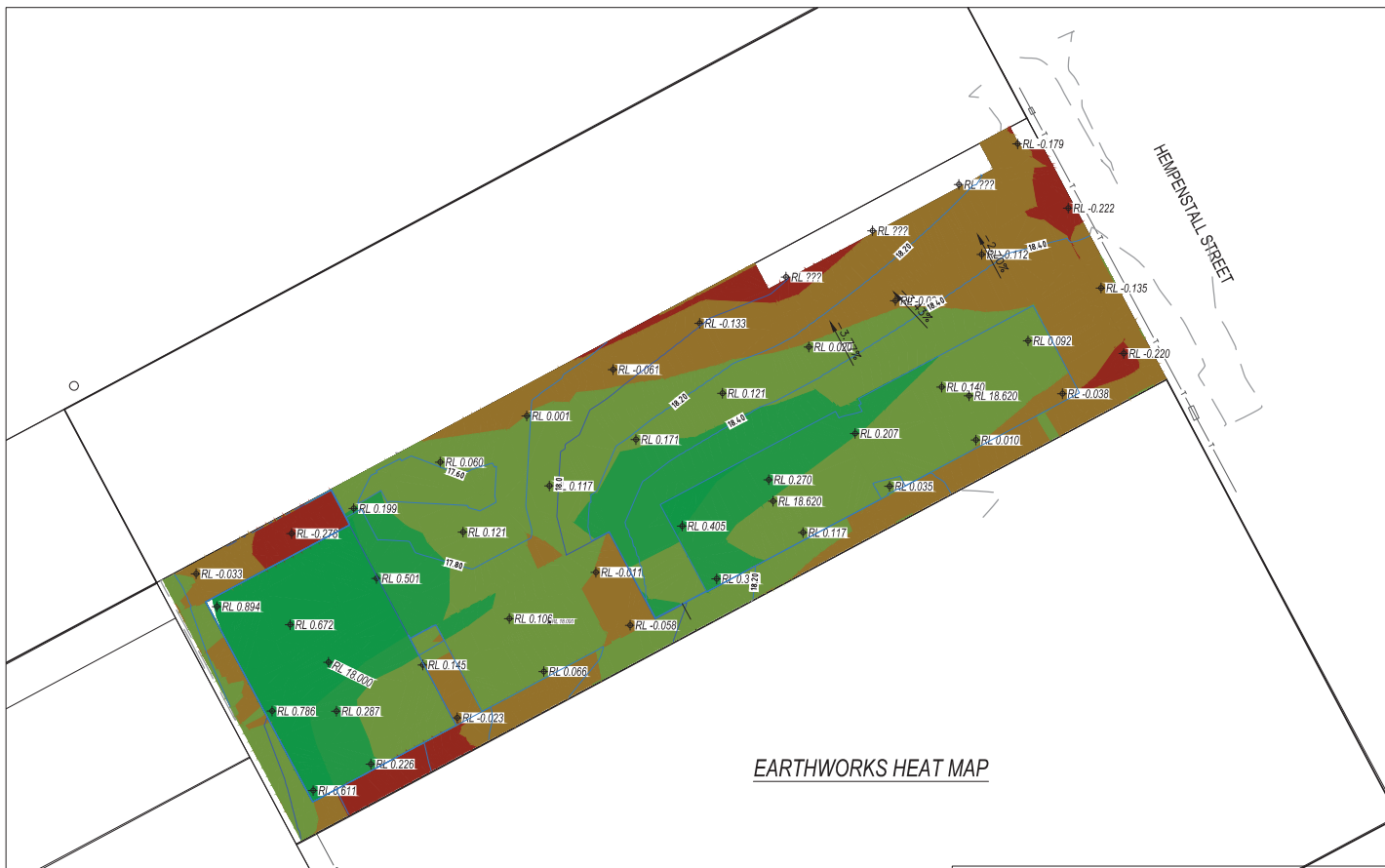
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RPEQ 7882	SIJ
11.09.2024	

NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
 SITE CROSS SECTIONS CONTROL LINE 1 SH 2 OF 2

DWG No: **D24.054-C06**
 CIVIL
 REVISION **C**



LEGEND

- 43.5 — EXISTING CONTOUR
- 99.5 — DESIGN CONTOUR
- 0.301% — EARTHWORKS LEVELS

EARTHWORKS BALANCE		
VOLUME CUT (Cu.m)	VOLUME FILL (Cu.m)	NET (Cu.m)
111	395	282

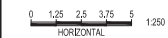
EARTHWORKS AND ROADWORKS NOTES

- CONTROL TESTING OF EARTHWORKS IN ALLOTMENTS SHALL BE UNDERTAKEN IN ACCORDANCE WITH AS 3798 WITH LEVEL 1 GITA SUPERVISION
- FILL SHALL BE PLACED AND COMPACTED TO THE FOLLOWING STANDARDS:
 - ALLOTMENT FILL SHALL ACHIEVE A MINIMUM DRY DENSITY RATIO (M.D.D.R.) OF 95% STANDARD.
 - ROADWORK EMBANKMENTS SHALL ACHIEVE A MINIMUM DRY DENSITY RATION (M.D.D.R.) OF 100% STANDARD
- FIELD DENSITY TESTS SHALL BE UNDERTAKEN AT THE FOLLOWING MINIMUM FREQUENCY:
 - ALLOTMENT FILL: AS REQUIRED FOR LEVEL 1 GITA CERTIFICATION AS "CONTROLLED FILL"
 - EMBANKMENT FILL: 1 TEST/250cu.m OR 1 TEST/200mm THICKNESS/100sq.M (WHICHEVER IS GREATER)
 - SUBGRADE: 1 TEST/75m OF ROAD LENGTH
 - PAVEMENT: 1 TEST/75m OF ROAD LENGTH
- ROAD PAVEMENT SHALL BE PLACED AND COMPACTED TO ACHIEVE A MINIMUM DRY DENSITY RATIO (M.D.D.R.) OF 100% STANDARD.
- BATTER SLOPES 1 IN 4 MAX WITHIN ALLOTMENTS UNLESS SPECIFIED OTHERWISE.

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EARTHWORKS DEPTHS SHADED TABLE ('SURFACE HEAT MAP')					
No.	MIN. LEVEL	MAX. LEVEL	COLOUR	VOLUME	AREA
1	-0,400	-0,200		7,62 Cu. M	156,4m²
2	-0,200	0,000		103,60 Cu. M	832,6m²
3	0,000	0,200		247,12 Cu. M	1231,8m²
4	0,200	0,400		86,28 Cu. M	429,5m²
5	0,400	0,900		62,13 Cu. M	288,6m²

DATUM: HORIZ. GDA 84 VERT. AHD



SCALES m. FULL SIZE A3

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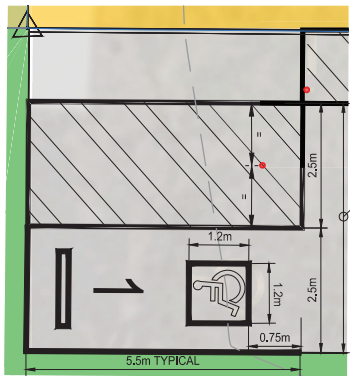
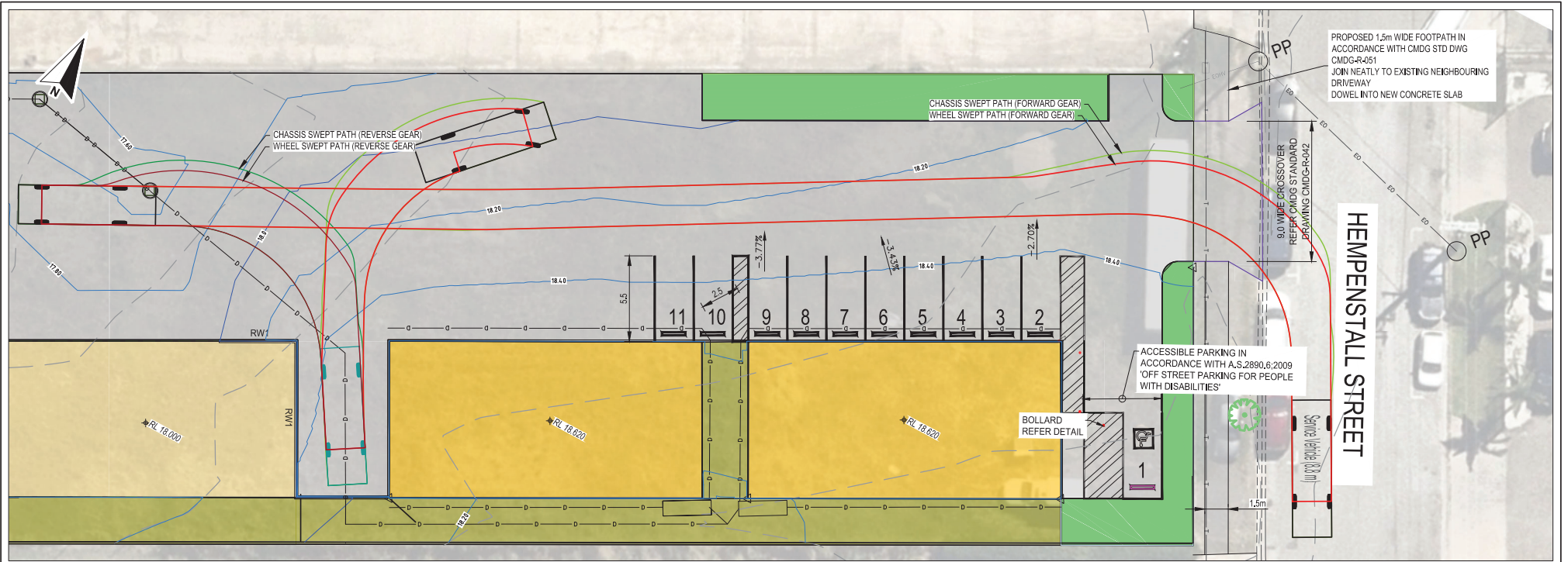


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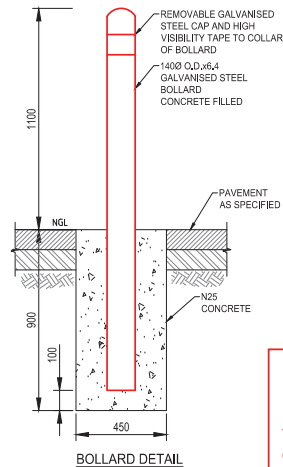
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APPROVED	G J BROWN
RPEQ 7882	SIGN
11.09.2024	

NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
EARTHWORKS PLAN

DWG No.	D24.054-07
	CIVIL
REVISION	C



ACCESSIBLE PARKING AND PARKING BAY LAYOUT
SCALE 1:100



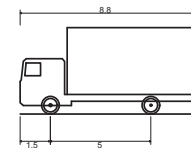
BOLLARD DETAIL

LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- PROPOSED DESIGN ELEVATION SPOT LEVELS
- EXISTING BUILDING
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT

ACCESS & PARKING PLAN

- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN



Service Vehicle (8.8 m)
 Overall Length 8.800m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.427m
 Track Width 2.500m
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 12.500m

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0 1.25 2.5 3.75 5 1:250
 HORIZONTAL

OPERATIONAL WORKS ISSUE
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REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	09/05/2024
B	FOR APPROVAL	10/09/2024
C	MINOR AMENDMENTS	27/08/2024
D	STREET TREE AND FOOTPATH ADDED	18/10/2024
E	VEHICLE SWEEP PATH ADDED	12/11/2024

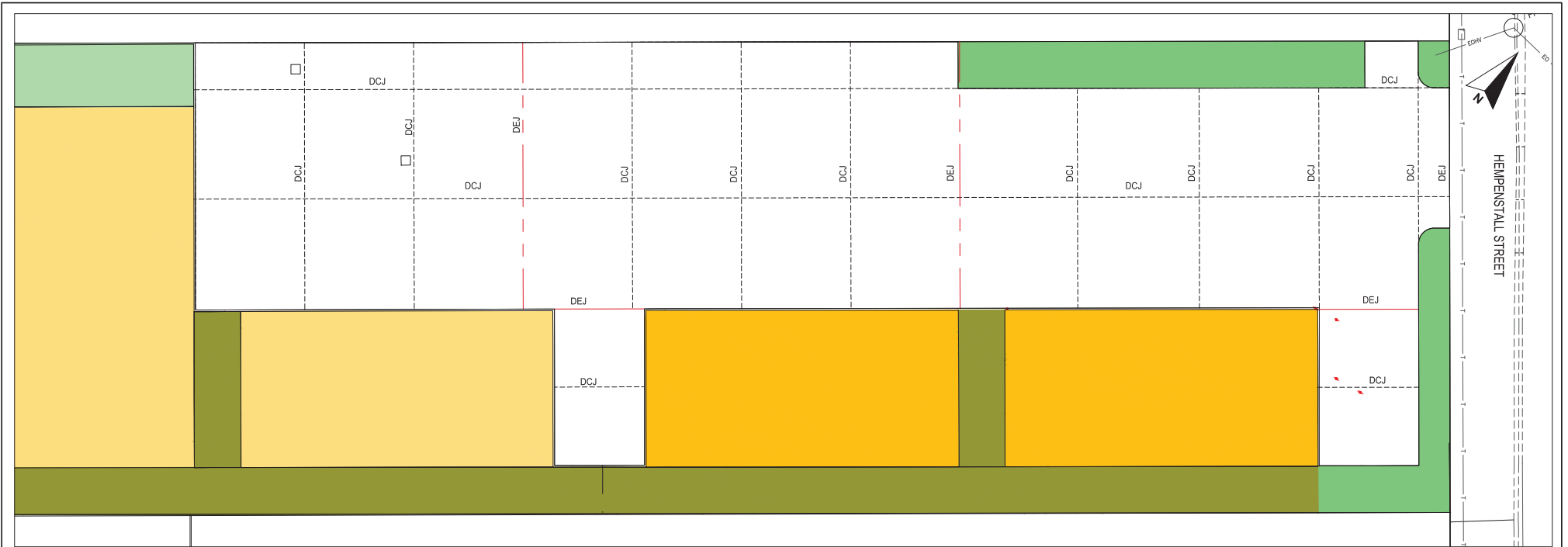


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13/11/2024	

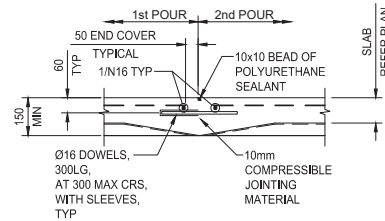
NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
 OPERATIONAL WORKS
 ACCESS AND PARKING

DWG No.	D24.054-C08
REVISION	CIVIL
	E



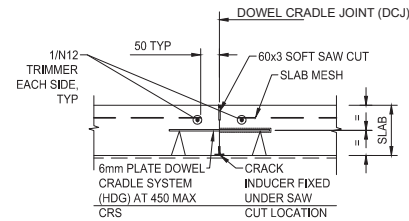
LEGEND

- EXISTING EASEMENT
- - - DCJ PROPOSED CONCRETE JOINT (DCJ)
- DEJ PROPOSED CONCRETE DOWEL EXPANSION JOINT (DEJ)
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN



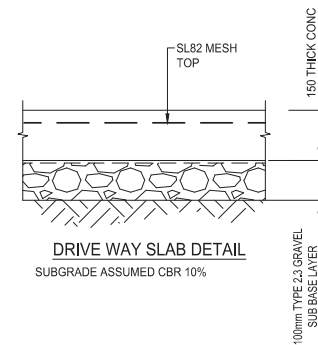
DOWEL EXPANSION JOINT - DEJ

- * PROVIDE TIES TO REINF OR SUPPORT CHAIRS TO PREVENT SKEWING OF DOWEL SLEEVES DURING CONCRETE PLACEMENT.
- * FOR DJ AT EXISTING SLAB/WALL - DRILL AND CHISEL DOWEL, 150mm MIN EMBEDMENT, GREASE/SLEEVE DOWEL END CAST INTO NEW POUR



DOWEL CRADLE JOINT (DCJ)

- * SAW CUT AS SOON AS SAW CUT MACHINE CAN BE PLACED ON WET CONCRETE AND WITHIN MAXIMUM OF 4 HOURS OF POURING. FILL WITH APPROVED SEALANT.
- * CUT ALL TRANSPORTATION WIRES PRIOR TO CONCRETE PLACEMENT



DRIVE WAY SLAB DETAIL

SUBGRADE ASSUMED CBR 10%

**ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS**

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Dated: 10 December 2024

DATUM: HORIZ. GDA 94 VERT. AHD



SCALES m. FULL SIZE A3

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	12/08/2024
C	MINOR AMENDMENTS	27/08/2024

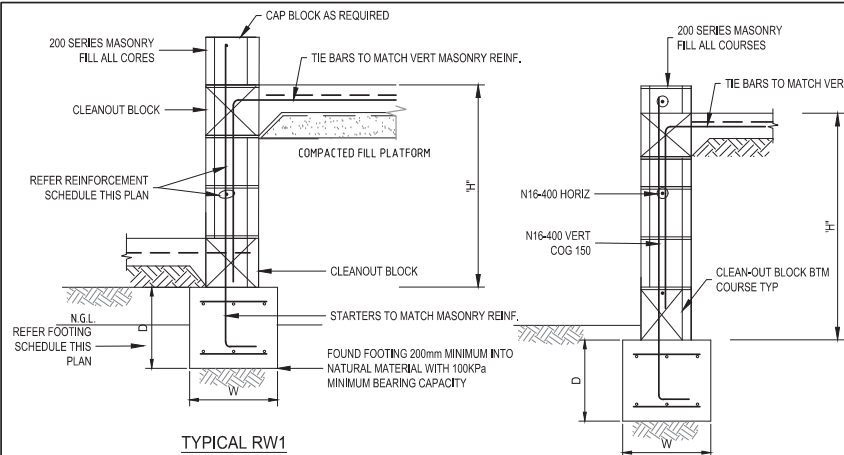


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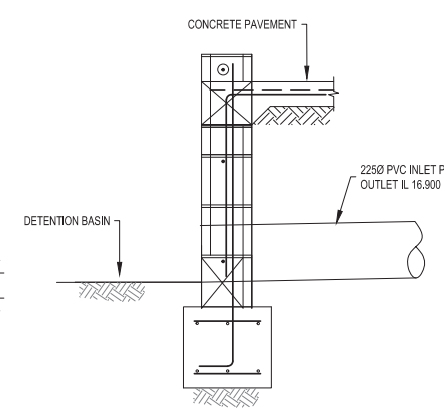
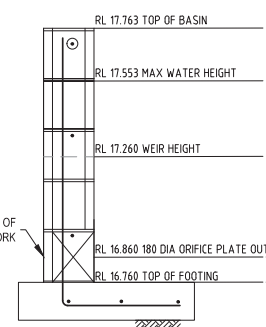
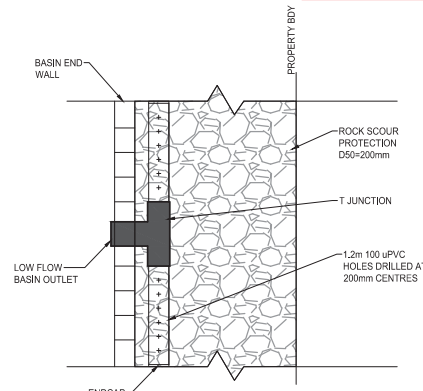
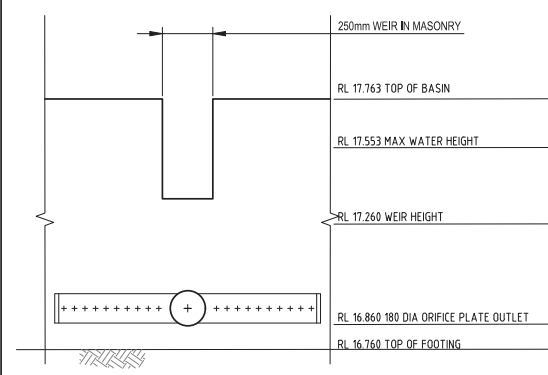
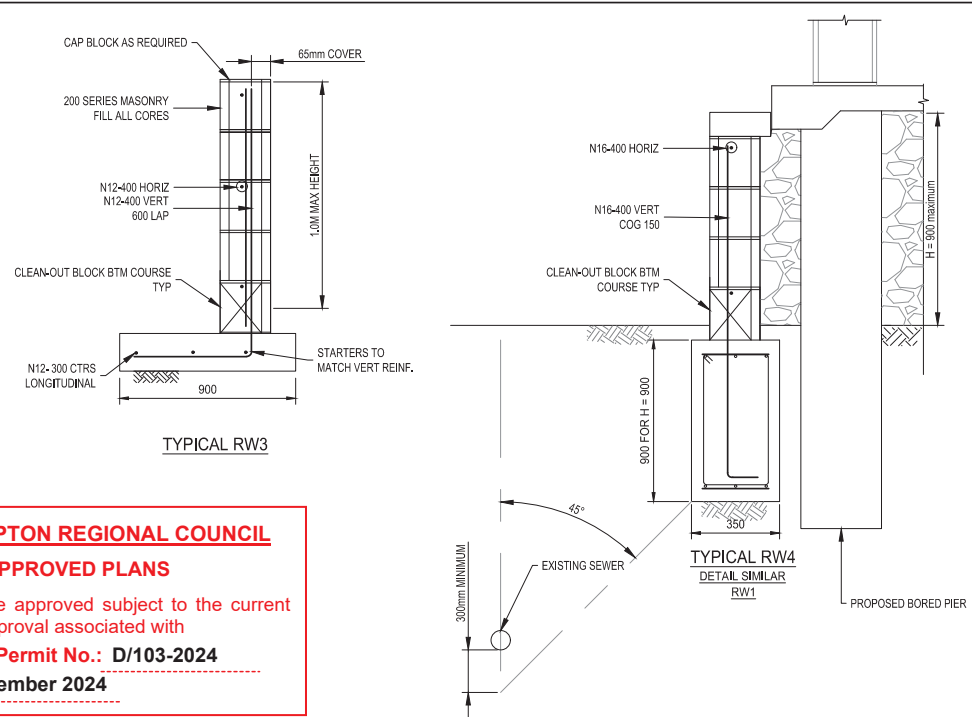
NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
CONCRETE PAVEMENT JOINT LAYOUT PLAN

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RW1/2 SCHEDULE			FTG REINF'T		WALL REINF'T	
'H'	'D'	'W'	TOP	BTM	VERT	HORIZ
800	500	350	3-L11TM	3-L11TM	N12-400	N12-400
1200	500	350	3-L11TM	3-L11TM	N16-400	N12-400
1500	600	350	3-L12TM	3-L12TM	N16-400	N12-400



SECTION X-X THROUGH DETENTION BASIN
DWG D24.054-03

DETENTION BASIN OUTLET ARRANGEMENT

SPREADER BAR DETAIL
 NOT TO SCALE

REFER RW3 DETAIL

REFER RW2 DETAIL

DATUM: HORZ, GDA 94 VERT. AHD
 NOT TO SCALE
 SCALES: FULL SIZE A3

OPERATIONAL WORKS ISSUE
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REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	10/06/2024
C	MINOR AMENDMENTS	27/06/24
D	BASIN OUTLET DETAILS AMENDED AND ADDED	10/09/2024
E	BASIN OUTLET DETAILS AMENDED	25/09/2024

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 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
 OPERATIONAL WORKS
 MASONRY & OUTLET DETAILS

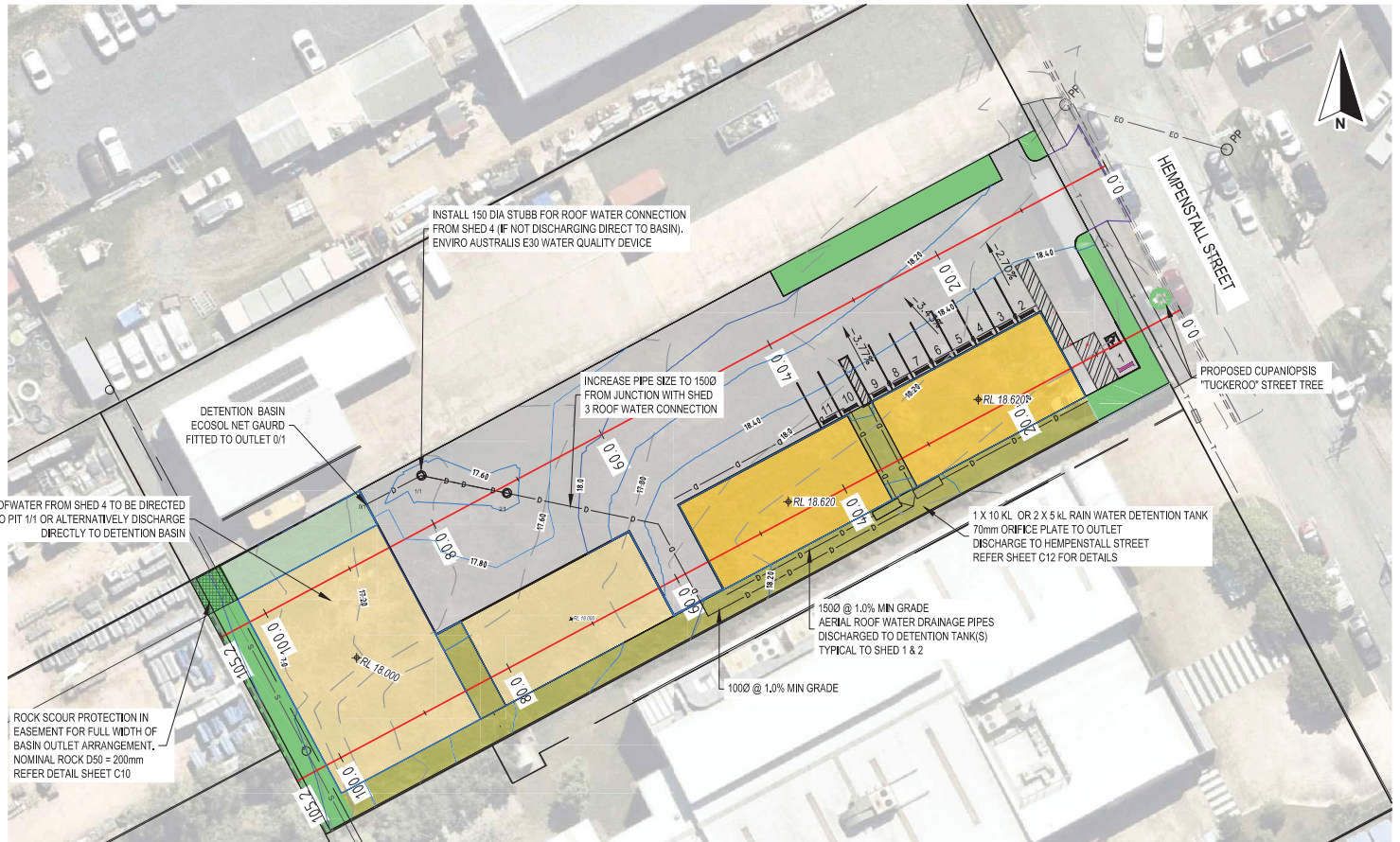
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CIVIL
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LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- EXISTING SURFACE CONTOURS
- PROPOSED CONTOUR
- PROPOSED DESIGN ELEVATION SPOT LEVELS
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

DRAINAGE LONGITUDINAL SECTION NOTES:

1. PIPED NETWORK MODELED AND LONGITUDINAL SECTION GENERATED BY ARD PIPES.
2. PIPE NETWORK FOR GROUND INLET PITS MODELED FOR Q20 MINOR EVENT IN ACCORDANCE WITH CMDG STORMWATER DESIGN GUIDELINE TABLE 0.5.04.2 FOR COMMERCIAL DEVELOPMENT.
3. PIPE NETWORK FOR ROOFWATER PIPES MODELED FOR Q20 EVENT IN ACCORDANCE WITH AS 3500.3.2 1998 STORMWATER DRAINAGE ACCEPTABLE SOLUTIONS.
4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGY 2016 RAINFALL IFD DATA SYSTEM.
5. REFER TO DRAWING D24.054-C12 FOR STORM WATER LONG SECTIONS AND DETAILS
5. REFER TO DRAWING D24.054-C10 FOR DETENTION BASIN MASONRY DETAILS



STORM WATER LAYOUT

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Dated: 10 December 2024

DATUM: HORZ: GDA94 VERT: AHD

0 1.25 2.5 3.75 5 1:250
 HORIZONTAL

OPERATIONAL WORKS ISSUE
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REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	10/09/2024
C	MINOR AMENDMENTS	27/06/2024
D	PIPE LAYOUT AMENDED	10/09/2024
E	TANK ORIFICE AMENDED	25/09/2024
F	STREET TREE AND FOOTPATH ADDED	18/10/2024

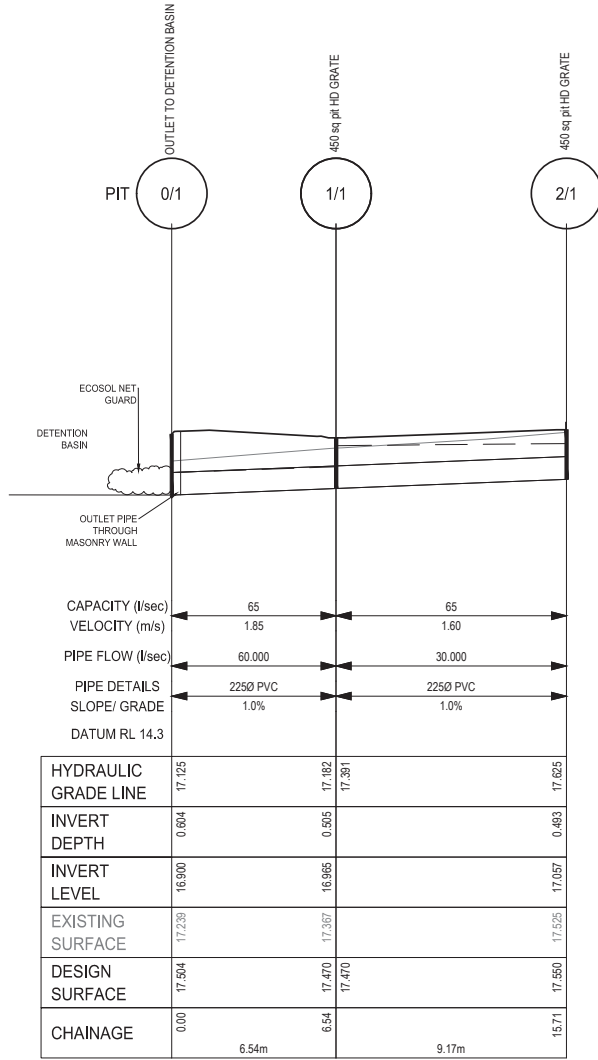


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APPROVED	G J BROWN
RPEQ 7882	SIGN
24.10.2024	

NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
STORMWATER LAYOUT PLAN

DWG No.	D24.054-C11
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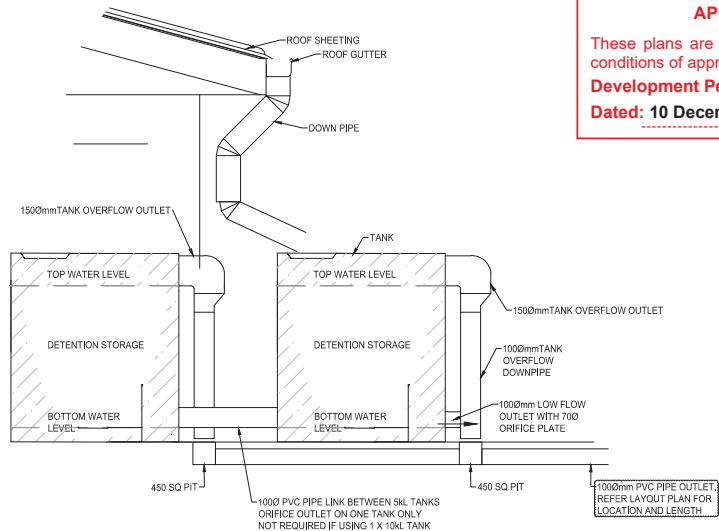


LINE 1

DRAINAGE LONGITUDINAL SECTION NOTES:

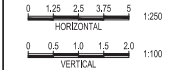
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4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGY 2016 RAINFALL IFD DATA SYSTEM.
5. REFER TP DRAWING D24.054-C09 FOR STORM WATER LAYOUT PLAN

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ROOF WATER DETENTION TANK ARRANGEMENT

DATUM: HORIZ. GDA 94 VERT. AHD



SCALES: FULL SIZE A3

PRELIMINARY ISSUE

FOR DISCUSSION

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	31/05/2024
B	NOTATION AMENDED	10/09/2024
C	TANK ORIFICE AMENDED	25/09/2024

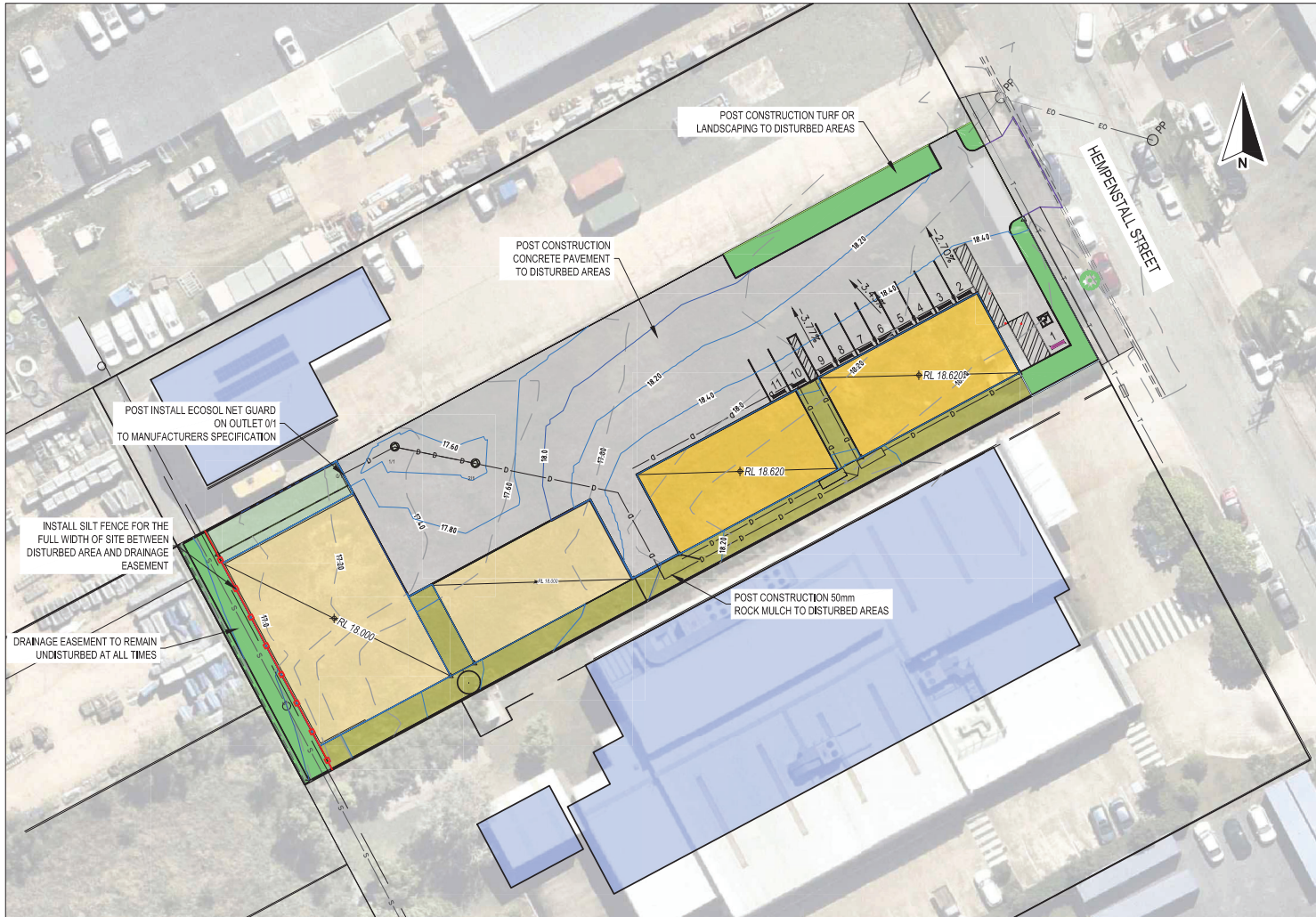


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 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
STORMWATER LONGITUDINAL SECTIONS

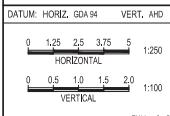
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D24.054-C12
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SEDIMENT AND EROSION CONTROL PLAN
 REFER DRAWING D24.054-14 FOR ENVIRONMENTAL
 MANAGEMENT & EROSION AND SEDIMENT CONTROL NOTES

OPERATIONAL WORKS ISSUE
 FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL



REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	20/05/2024
B	FOR APPROVAL	12/09/2024
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D	STREET TREE AND FOOTPATH ADDED	18/10/2024

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NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
 OPERATIONAL WORKS
 EROSION SEDIMENT CONTROL PLAN

DWG No.	D24.054-C13
	CIVIL
REVISION	D

ENVIRONMENTAL MANAGEMENT NOTES:

1. PRIOR TO THE COMMENCEMENT OF EARTHWORKS, TOPSOIL SHALL BE STRIPPED AND STOCKPILED FROM SELECT AREAS ONLY FOR RE-SPREADING OVER DISTURBED AREAS PRIOR TO REVEGETATION AND LANDSCAPING.
2. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS ALL SEDIMENT CONTROL DEVICES WILL BE ERECTED WHERE SHOWN ON THE DRAWINGS OR OTHERWISE DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS ON-SITE AND IN ROAD RESERVE WILL BE RE-TOPSOILED, TURFED OR LANDSCAPED.
4. ALL SOIL CONSERVATION AND ENVIRONMENTAL PROTECTION MEASURES SHALL BE MONITORED BY THE CONTRACTOR AT REGULAR INTERVALS DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES WILL BE MONITORED AFTER RAIN EVENTS AND MADE GOOD WHERE NECESSARY. THIS WILL ALSO BE CARRIED OUT DURING THE DEFECTS LIABILITY PERIOD.
5. SILT FENCES SHALL BE INSTALLED ON THE LOW SIDE OF ALL STOCKPILES WHERE REQUIRED.
6. SILT FENCES SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.

NOISE MANAGEMENT:

1. **WORKING HOURS** - WORKING HOURS FOR THE SITE ARE TO BE 6.30am TO 6.30pm MONDAY TO SATURDAY, NO WORK TO BE UNDERTAKEN OUTSIDE OF TIMES SPECIFIED UNDER ANY CIRCUMSTANCES.
2. **NOISE MINIMISATION METHODS** - NOISE WILL BE MINIMISED USING THE FOLLOWING METHODS:-
 - 2.1. RESTRICTED WORKING HOURS AS DETAILED ABOVE
 - 2.2. NOISE GENERATING MACHINERY TO OPERATED ONLY WHEN NECESSARY TO UNDERTAKE WORKS - VEHICLES AND MACHINERY ARE NOT TO BE LEFT 'IDLING' WHEN NOT IN USE.
 - 2.3. NOISE SHIELDING ON PLANT TO BE INSPECTED PRIOR TO COMMENCEMENT OF WORKS AND MADE GOOD WHERE FOUND TO BE FAULTY.
 - 2.4. VEHICLES AND MACHINERY TO BE REGULARLY MAINTAINED TO REDUCE ENGINE NOISE THROUGH INFREQUENT MAINTENANCE.

DUST MANAGEMENT:

1. **MINIMISING DUST GENERATION** - THE FOLLOWING WORK PRACTICES WILL BE USED TO MINIMISE DUST GENERATION:-
 - 1.1. WIND CONDITIONS ON SITE ARE TO BE MONITORED AND SITE WORKS STOPPED IF WIND STRENGTH IS SUCH THAT EFFORTS TO MINIMISE AND/OR SUPPRESS DUST ARE INEFFECTIVE.
 - 1.2. SOIL STABILISATION OF BATTERS (THROUGH TOPSOILING AND REVEGETATION) TO BE UNDERTAKEN IMMEDIATELY AFTER FINAL TRIM TO MINIMISE EXPOSURE OF BARE EARTH.
 - 1.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDDED.
2. **DUST SUPPRESSION** -
 - 2.1. WET DOWN DUST GENERATING SURFACES DAILY PRIOR TO COMMENCEMENT OF WORK USING WATER TRUCKS, SPRINKLERS AND HOSE WATERING BY HAND.
 - 2.2. ADDITIONAL WETTING DOWN OF SITE AREAS IS TO BE UNDERTAKEN AS NEEDED DURING THE COURSE OF THE DAY WHERE WORK AREAS HAVE DRIED AND ARE GENERATING DUST.

WEED MANAGEMENT:

1. **MOVEMENT OF SOIL** - EXISTING TOP SOIL IS TO BE STOCKPILED AND RE-USED ON SITE AFTER SITE WORKS ARE COMPLETE. ANY ADDITIONAL TOP SOIL REQUIRED IS TO BE FREE OF PLANT SEEDS PRIOR TO SPREADING ON SITE.
2. **FILL MATERIAL** - FILL MATERIAL TO BE IMPORTED ON SITE IS TO BE 'CLEAN FILL' AND FREE FROM ANY ORGANIC MATTER OR MATERIALS.

EMERGENCY VEHICLE ACCESS:

1. MAINTAIN CLEAR ACCESS TO SITE FOR EMERGENCY VEHICLES AT ALL TIMES

WASTE MANAGEMENT:

1. ALL LITTER AND WASTE TO BE CONTAINED ON SITE IN CONTAINERS PROVIDED FOR THAT PURPOSE.
2. ALL WASTE TO BE FURTHER DISPOSED OFF SITE IN A RESPONSIBLE MANNER.
3. WHERE POSSIBLE MINIMISE WASTE THROUGH WASTE MINIMIZATION AND RE-USE.

EROSION AND SEDIMENT MANAGEMENT:

DRAINAGE MANAGEMENT - WHERE POSSIBLE, RAINWATER DISCHARGE FROM UPSTREAM PROPERTIES IS TO BE DIRECTED AWAY FROM WORKS THROUGH TEMPORARY BUNDING.

1. SOIL STABILISATION -

- 1.1. EXPOSED EARTH SHALL BE TOPSOILED, VEGETATED, AND LANDSCAPED AS SOON AS POSSIBLE AFTER TRIMMING.
- 1.2. RE-VEGETATED AND LANDSCAPED AREAS SHALL BE REGULARLY WATERED TO ASSIST ESTABLISHMENT OF COVER.
- 1.3. ALL BANKS AND BATTERS ARE TO BE REGULARLY INSPECTED TO IDENTIFY AREAS OF EROSION AND RESHAPED TO PREVENT FURTHER EROSION IF NECESSARY - RECTIFICATION WORKS ARE TO BE RE-VEGETATED IMMEDIATELY.

2. STOCKPILE PROTECTION -

- 2.1. STOCKPILES ARE TO BE SITUATED SUCH THAT THEY ARE NOT IN ANY STORMWATER FLOW PATHS.
- 2.2. SILT FENCING IS TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS PRIOR TO THEIR USE.
- 2.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDDED.
- 2.4. STOCKPILES TO HAVE A MAXIMUM SLOPE OF 2H:1V.

3. SEDIMENT TRAPS -

- 3.1. SILT FENCING & SEDIMENT TRAPS TO BE INSTALLED AT AREAS OF SITE DISCHARGE AS SHOWN ON PLAN.
- 3.2. SILT FENCING TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS, STRIPPED AREAS, AND ANY OTHER AREAS OF BARE EARTH WHERE SILT LADEN RUNOFF CAN BE GENERATED.
- 3.3. SEDIMENT FENCING TO BE INSTALLED IN ACCORDANCE WITH SEDIMENT FENCE DETAILS ON THIS SHEET.
- 3.4. SEDIMENT FENCE LAYOUT SHALL CONFORM TO "TYPICAL LAYOUT ACROSS GRADE" AS DETAILED ON STANDARD DRAWING CMDG-D-050.
- 3.5. SILT FENCES AND SEDIMENT TRAPS SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.

4. VEHICLE AND ROAD MANAGEMENT -

- 4.1. VEHICLES AND PLANT ARE TO ONLY ACCESS THE SITE FROM XXXXX SITE ACCESS TO BE OVER A SHAKER ACCESS PAD OR RUMBLE GRID IN ACCORDANCE WITH STANDARD DWG CMDG-D-050.
- 4.2. VEHICLE OPERATOR TO ASSESS MATERIAL ON VEHICLE PRIOR TO EXITING SITE AND

ACID SULFATE SOILS:

1. DUE TO THE ELEVATION AND SITE GEOLOGY IT IS UNLIKELY THAT A.S.S. WILL BE ENCOUNTERED ON THIS SITE.
2. IF A.S.S. ARE ENCOUNTERED ON THE SITE DURING CONSTRUCTION ENGAGE A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT TO PRODUCE AN A.S.S. MANAGEMENT PLAN FOR IT.

FAUNA MANAGEMENT:

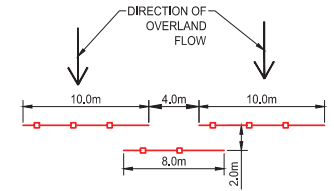
1. ANY CLEARING OF REMNANT VEGETATION WILL REQUIRE A FAUNA SPOTTER / CATCHER TO BE IN ATTENDANCE.

VEGETATION MANAGEMENT:

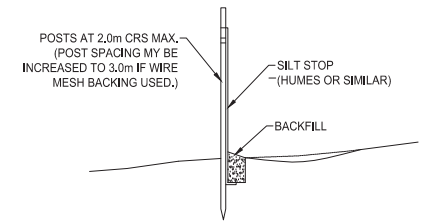
1. WHERE VEGETATION COVENANT EXISTS ON SITE, THIS AREA TO BE CLEARLY PEGGED AND FLAGGED OR FENCED PRIOR TO WORK COMMENCING ON SITE TO PREVENT ANY CLEARING IN THIS AREA.

BUSH FIRE MANAGEMENT:

1. THE SITE IS PREDOMINANTLY CLEARED AND NOT IN A BUSH FIRE HAZARD ZONE (BUT STILL MAY BE SUBJECT TO BUSH FIRES)
2. ANY CLEARED VEGETATION TO BE MULCHED AND USED ON SITE.
3. MULCHED STOCK PILES TO BE NO MORE THAN 2.0m HIGH AND WET DOWN DAILY.
4. REMOVE MULCH FROM SITE IF SAFE TO DO SO SHOULD BUSHFIRES THREATEN THE AREA.



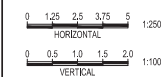
SEDIMENT FENCE LAYOUT



SEDIMENT FENCE DETAIL

ROCKHAMPTON REGIONAL COUNCIL
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OPERATIONAL WORKS ISSUE
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NOVUS LOGISTICS
 NEW WAREHOUSE AND OFFICE
 11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
EROSION CONTROL NOTES

DWG No.
D24.054-C14
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Adam Doherty

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Dated: 10 December 2024

**PROPOSED WAREHOUSE AND OFFICE, 11-13
HEMPENSTALL STREET, KAWANA**

STORMWATER MANAGEMENT REPORT

FOR NOVUS LOGISTICS

D24.045-RP01

NOVUS LOGISTICS

STORMWATER MANAGEMENT PLAN

PROPOSED WAREHOUSE AND OFFICE, 11-13 HEMPENSTALL STREET, KAWANA


Document History & Status

REVISION	DATE	ISSUED TO	DESCRIPTION	BY	APPROVED
A	12/06/2024	Designtek / Novus Logistics	For Comment / Coordination	AD	GB
B	10/09/2024	Rockhampton Regional Council	Information Request response	AD	GB
C	25/09/2024	Rockhampton Regional Council	Further Advice response	AD	GB

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Date: 25/09/2024
Reference: D24.054-RP01

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1. Introduction

This report was prepared for Novus Logistics in support of a proposed development to the subject site at 11-13 Hempenstall Street, Kawana QLD 4703. This report should be read in conjunction with the overall application relating to this project. The proponent is seeking approval to develop the lot with a proposed Warehouse and Office operation.

2. Existing Stormwater Conditions

2.1 Internal and Local Government Catchments

2.1.1 Development Site Catchment

The subject area is currently undeveloped and consists of light grass cover with patches of bare earth. The site is practically flat, with average falls of approximately 0.5 to 1% toward the Western boundary to a drainage and services easement where flows are captured in an overland channel which is formed by a concrete barrier kerb and channel. The easement drains to the North towards Frenchman's Creek.

Based on the average flow path slope and assumed fraction impervious of the site, an overall time of concentration (Tc) of 19 minutes has been adopted.

Friends Equation (Eq 4.5) - Shallow overland sheet flow				
L	Surface	n	S	tc
m		Mannings	%	minutes
142	Poorly Grassed	0.035	1.1	19

Table 1

The existing area has a fraction impervious of 0 (zero) in accordance with QUDM Table 4.5.1 and a corresponding C10 value of 0.70 in accordance with QUDM Table 4.5.4 - C10 values for zero fraction impervious.

Utilising a Tc of 19 minutes and the relevant rainfall intensities, the following discharges for a range of events were calculated using the C10 value of 0.70 where $Q_y = C \cdot I \cdot A / 360$ for the existing site.

PRE-DEVELOPMENT SITE CONDITIONS						
Development Area 0.3039 ha					Fi	0.000
AEP	C	I	A	Q	1I ₁₀ (mm/hr)	65.1
%	coefficient	mm/hr	ha	m ³ /s	TC (minutes)	19
63.2	0.560	73.6	0.304	0.035	C ₁₀	0.700
50	0.595	81.8	0.304	0.041	<i>From QUDM Table 4.5.4</i>	
20	0.665	108.0	0.304	0.061		
10	0.700	127.0	0.304	0.075		
5	0.735	146.0	0.304	0.091		
2	0.805	173.0	0.304	0.118		
1	0.840	193.0	0.304	0.137	<i>In accordance with QUDM Eqn. 4.3</i>	

Table 2

Refer drawings in Appendix A for Stormwater Management Strategy Drawings.

2.2 External Catchments

2.2.1 Existing External Catchment

The existing drainage easement commands flows from two properties to the South, being Lot 57 and Lot 2. It is assumed that the existing easement is appropriately sized for the upstream flows, with the easement being maintained and the subject site not releasing any additional flows to the easement post development the easement will continue to convey the upstream catchment flows as it does in the pre-developed scenario.

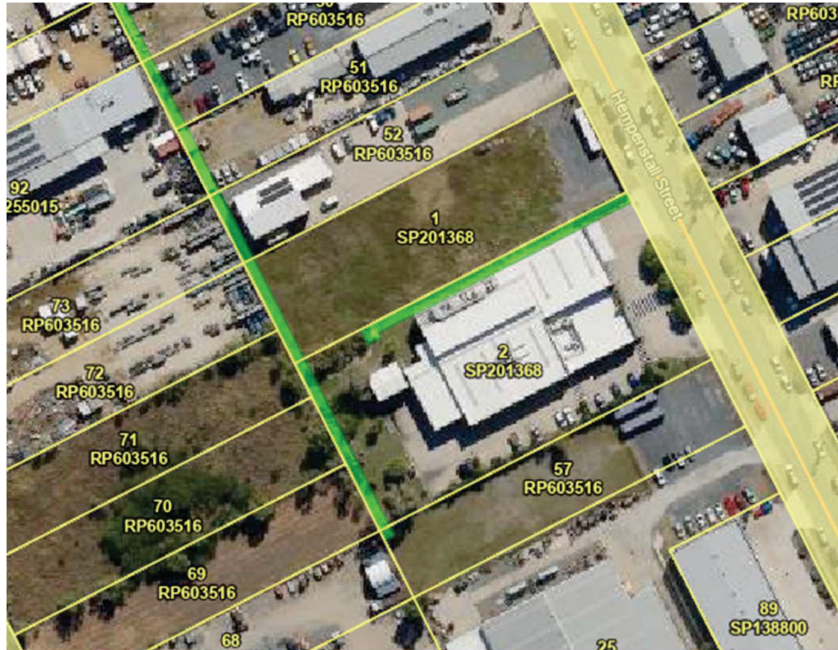


Table 1 – Extent of existing upstream catchment

3. Post Developed Site Flows and Management

3.1 Post Developed Flows

The proposed development of the site increases the fraction impervious to a value of 0.796 based on information provided by the applicant. Using the post developed fraction impervious, a C_{10} value of 0.849 (From QUDM Table 4.5.3) was adopted.

As this is a commercial site with a reasonably high Impervious area a single time of concentration of 5 minutes was adopted for all elements of the post development calculations.

Based on the revised fraction impervious and revised time of concentration the following discharges from site were calculated:

POST-DEVELOPMENT SITE CONDITIONS				
Development Area	0.3039 ha			
AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m ³ /s
63.2	0.679	115.0	0.3039	0.0659
50	0.722	128.0	0.3039	0.0780
20	0.806	170.0	0.3039	0.1157
10	0.849	200.0	0.3039	0.1433
5	0.891	229.0	0.3039	0.1723
2	0.976	268.0	0.3039	0.2209
1	1.000	300.0	0.3039	0.2533

Fi	0.796
¹ I ₁₀ (mm/hr)	65.1
TC (minutes)	5
C ₁₀	0.849

From QUDM Table 4.5.3

In accordance with QUDM Eqn. 4.3

Table 5

When compared with the pre-developed total site flows, we note an increase in flow for all recurrence intervals. Refer table below:

COMPARISON OF UNTREATED FLOWS			
Event AEP	Pre-Development	Post-Development	Change
%	m ³ /s	m ³ /s	%
63.2	0.0348	0.0659	89%
50	0.0411	0.0780	90%
20	0.0606	0.1157	91%
10	0.0750	0.1433	91%
5	0.0906	0.1723	90%
2	0.1176	0.2209	88%
1	0.1369	0.2533	85%

Table 6

3.2 Discharge Flow Management

3.2.1 Quantity Mitigation

It is proposed to mitigate the increase in site runoff by providing on-site detention (OSD) capturing all post developed internal site flows from impervious areas.

Two OSD devices are proposed, 1 x 10kL rainwater tank (or two 5kL tanks in series) capturing roof water from Shed 1 & 2 which will discharge through an orifice outlet of 70mm diameter to an internal underground stormwater line, routed to the detention basin. The larger detention basin that will be constructed in the lower Northwestern corner of the development area, adjacent to shed 4 and will receive all flows from Shed 3 & 4 and all impervious areas in addition to the detention tank outflows.

Both OSD have been analysed for a range of events from 50% AEP through to a 1% AEP using Autodesk Hydra flow Hydrographs. The maximum required storage volume of 43.7 kL is required for the detention basin and 10kL for the detention tank.

With the above detention in place a total site discharge reduction was achieved across all events.

Post Developed Treated Flows								
Event AEP	Pre-Development	Post-Development	- routed tank inflow	+ routed tank outflow to basin	- routed basin in. (site + tank outflow)	+ Routed basin out	Total Outflow	Rear Of Site Post Dev Discharge
%	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s
50	0.041	0.0780	0.0109	0.004	0.059	0.026	0.0341	-27%
20	0.061	0.1157	0.0162	0.005	0.0864	0.035	0.0482	-29%
10	0.075	0.1433	0.0200	0.005	0.105	0.042	0.0603	-26%
5	0.091	0.1723	0.0240	0.006	0.127	0.056	0.0773	-21%
2	0.118	0.2209	0.0298	0.006	0.156	0.079	0.1141	-8%
1	0.137	0.2533	0.0333	0.006	0.1730	0.093	0.1399	-2%

Table 7

Refer to Appendix B for routing Hydrographs.

3.3 Stormwater Quality Management

Due to the size of the development (>2500m²), State Planning Policy Healthy Water is triggered.

A water quality model was developed using the MUSIC stormwater quality software. The treatment train consists of the following measures.

- Ecosol Net Guard (GPT) on the inlet to the detention basin.
- Enviro Australis E30 unit to roofwater line
- Roof water and impervious area detention basin(s).
- Rock Mulch (pervious) treatment to the Southern perimeter of the site.

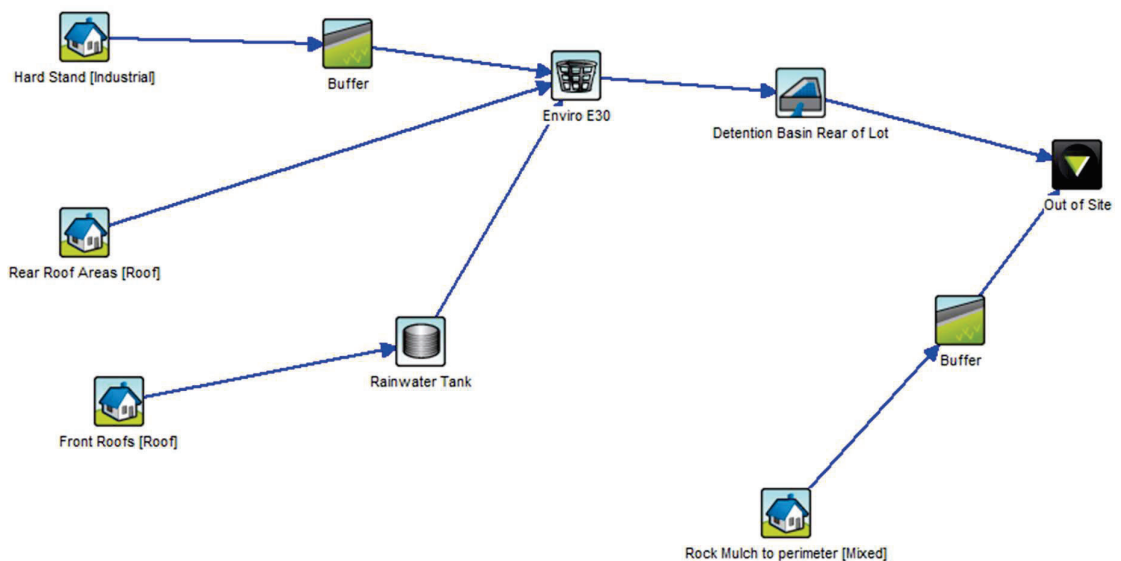


Figure 1 – Treatment Train schematic

The treatment train effectiveness did not meet the requirements of the State Planning Policy for Central Queensland South, refer to table 8 below for treatment train effectiveness compared to SPP targets for Central Queensland South.

COMPARISON OF TREATMENT TRAIN EFFECTIVENESS		
POLUTANT	SPP TARGET (%)	ACHIEVED REDUCTION (%)
Suspended Solids	85	83.1
Total Phosphorous	60.0	49.1
Total Nitrogen	45.0	55.1
Gross Pollutants	90.0	100.0

Table 8

The above table notes that although targets for SS and TP are not achieved, the theoretical reductions are close to target. No other practical opportunities were available on the site in this instance given that the site does not have any ability to discharge below the existing ground level at the drainage easement at the rear of the site. It is believed that all reasonable effort has been made to treat stormwater runoff from the site and that post-construction testing will yield pollutant loadings typical to the surrounding development area.

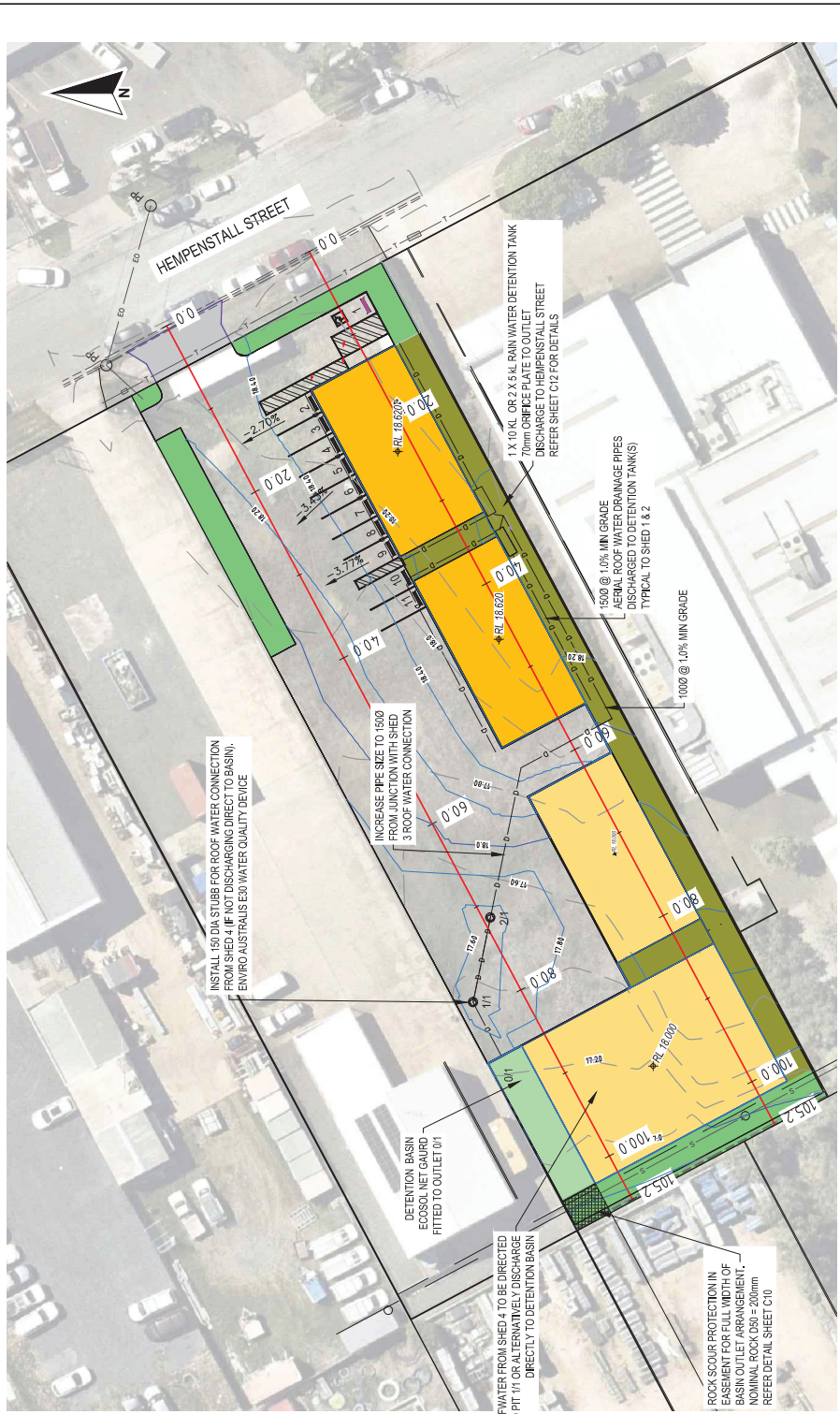
4. Conclusion

As the proposed development will increase the impervious area of the site it is proposed to mitigate the increase in runoff by providing a detention/retention basin to mitigate the increase in peak flows from the proposed development. Water Quality will also be managed through a series of quality improvement measures however will not meet SPP objectives in this instance.

With the development not discharging any additional flows post development due to the proposed measures reduction strategy and the State Planning Policy quality targets not being met even with implementation of SQIDs, we request a relaxation as it was not practical to achieve all targets in this instance due to a lack of existing discharge opportunities to the existing drainage easement.

Adam Doherty
 For and On Behalf of
 Dileigh Consulting Engineers Pty Ltd

Appendix A – Stormwater Management Strategy Drawings



STORM WATER LAYOUT

- LEGEND**
- PROPOSED STORMWATER PIPE AND PIT
 - PROPOSED DRAIN LINE
 - EXISTING TELSTRA (CABLE & PIT)
 - EXISTING OVERHEAD ELECTRICITY & POWER POLE
 - EXISTING EASEMENT
 - EXISTING ROAD KERB AND CHANNEL
 - EXISTING SEWER (MM)
 - EXISTING SURFACE CONTOURS
 - 12.0 PROPOSED CONTOUR
 - PROPOSED DESIGN ELEVATION SPOT LEVELS
 - PROPOSED BUILDING STAGE 01
 - PROPOSED BUILDING STAGE 02
 - PROPOSED CONCRETE PAVEMENT
 - PROPOSED LANDSCAPING
 - 50MM ROCK MULCH
 - DETECTION BASIN

DRAINAGE LONGITUDINAL SECTION NOTES:

1. PIPED NETWORK MODELED AND LONGITUDINAL SECTION GENERATED BY AND PIPES.
2. PIPE NETWORK FOR GROUND INLET PITS MODELED FOR Q20 MINOR EVENT IN ACCORDANCE WITH CMOG STORMWATER DESIGN GUIDELINE TABLE 0.5.04.2 FOR COMMERCIAL DEVELOPMENT.
3. PIPE NETWORK FOR ROOFWATER PIPES MODELED FOR Q20 EVENT IN ACCORDANCE WITH AS 3500.3.2 1998 STORMWATER DRAINAGE ACCEPTABLE SOLUTIONS.
4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGY 2016 RAINFALL IDF DATA SYSTEM.
5. REFER TO DRAWING D24-J054-C12 FOR STORM WATER LONG SECTIONS AND DETAILS
5. REFER TO DRAWING D24-J054-C10 FOR DETENTION BASIN MASONRY DETAILS

DATE ISSUED 23/09/2024 REVISED 09/09/2024 APPROVED 27/09/2024	REVISION DESCRIPTION	DATE	
		REV	
A	FOR DESIGN		
B	FOR APPROVAL		
C	MINOR AMENDMENTS		
D	PIPE LAYOUT AMENDED		
E	TANK ORFICE AMENDED		

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

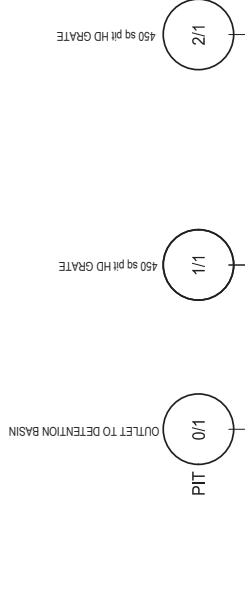
DRAFTER	CUR	NOVUS LOGISTICS	
DESIGNED	SIG	NEW WAREHOUSE AND OFFICE	
CHECKED	ACD	11-13 HEMPENSTALL STREET, KAWANA QLD 4701	
APPROVED	CU-BROWN	OPERATIONAL WORKS	
SPED	TRK	STORMWATER LAYOUT PLAN	
	SPN		

NOVUS LOGISTICS
 47 Nornaby Street
 Ipswich, Queensland 4703
 Phone: 07 49102833
 Fax: 07 46628969
 Email: enquiries@novus.com.au

DILEIGH
 CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

DRAWING NO.	D24.054-C11
REVISION	CIVIL
	E

SCALE: FULL SIZE A3



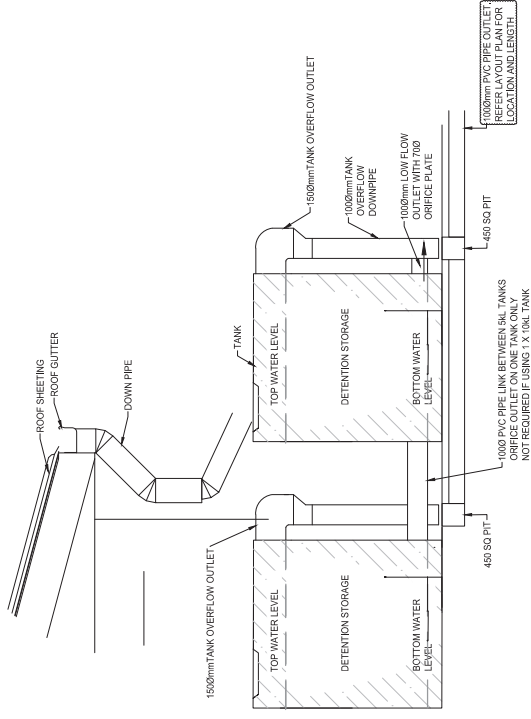
PARAMETER	VALUE	UNIT
CAPACITY (l/Sec)	65	
VELOCITY (m/s)	1.85	
PIPE FLOW (l/Sec)	60,000	
PIPE DETAILS	2250 PVC	
SLOPE/GRADE	1.0%	
DATUM RL	14.3	

HYDRAULIC GRADE LINE	INVERT DEPTH	INVERT LEVEL	EXISTING SURFACE	DESIGN SURFACE	CHAINAGE
17.125	0.604	16.900	17.239	17.504	0.00
17.182	0.505	16.965	17.367	17.470	6.54m
17.391			17.367	17.470	9.17m
17.625	0.493	17.057	17.525	17.550	

LINE 1

DRAINAGE LONGITUDINAL SECTION NOTES:

1. PIPED NETWORK MODELED AND LONGITUDINAL SECTION GENERATED BY AFD PIPES.
2. PIPE NETWORK FOR GROUND INLET PITS MODELED FOR Q20 MINOR EVENT IN ACCORDANCE WITH CHIDS STORMWATER DESIGN GUIDELINE TABLE 0.5,0.4.2 FOR COMMERCIAL DEVELOPMENT.
3. PIPE NETWORK FOR ROOFWATER PIPES MODELED FOR Q20 EVENT IN ACCORDANCE WITH AS 3500.3.2 1996 STORMWATER DRAINAGE ACCEPTABLE SOLUTIONS.
4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGIST 2016 RAINFALL IPD DATA SYSTEM.
5. REFER TP DRAWING D24.054-C09 FOR STORM WATER LAYOUT PLAN



ROOF WATER DETENTION TANK ARRANGEMENT

<p>DATE: 23/09/2024 TIME: 10:00 AM DRAWN: [Signature] CHECKED: [Signature] APPROVED: [Signature]</p>	<p>NOVUS LOGISTICS NEW WAREHOUSE AND OFFICE 11-13 HEMPENSTALL STREET, KAWANA QLD 4701 OPERATIONAL WORKS STORMWATER LONGITUDINAL SECTIONS</p>	<p>DATE: 27/09/2024 TIME: 10:00 AM DRAWN: [Signature] CHECKED: [Signature] APPROVED: [Signature]</p>	<p>NOVUS LOGISTICS NEW WAREHOUSE AND OFFICE 11-13 HEMPENSTALL STREET, KAWANA QLD 4701 OPERATIONAL WORKS STORMWATER LONGITUDINAL SECTIONS</p>	<p>NOVUS LOGISTICS NEW WAREHOUSE AND OFFICE 11-13 HEMPENSTALL STREET, KAWANA QLD 4701 OPERATIONAL WORKS STORMWATER LONGITUDINAL SECTIONS</p>
<p>DILEIGH CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT</p>				
<p>PRELIMINARY ISSUE FOR DISCUSSION</p>				
<p>SCALE: FULL SIZE A3</p>				

2024



Adam Doherty

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/103-2024

Dated: 10 December 2024

**PROPOSED WAREHOUSE AND OFFICE, 11-13
HEMPENSTALL STREET, KAWANA**

STORMWATER MANAGEMENT REPORT

FOR NOVUS LOGISTICS

D24.045-RP01

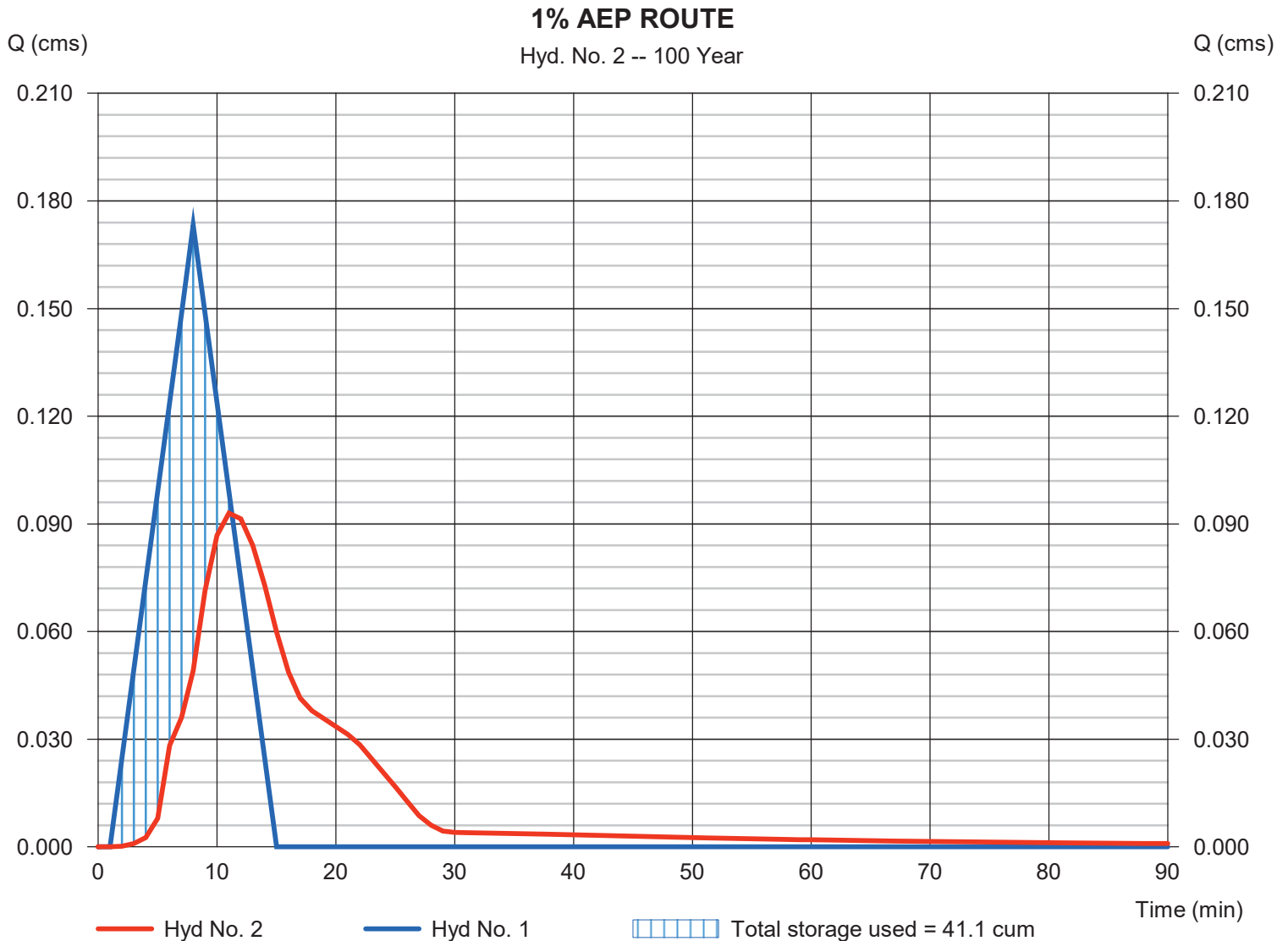
Hydrograph Report

Hyd. No. 2

1% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.093 cms
Storm frequency	= 100 yrs	Time to peak	= 11 min
Time interval	= 1 min	Hyd. volume	= 72.7 cum
Inflow hyd. No.	= 1 - 1% AEP	Max. Elevation	= 17.51 m
Reservoir name	= DET1	Max. Storage	= 41.1 cum

Storage Indication method used.



Hydrograph Report

Hyd. No. 23

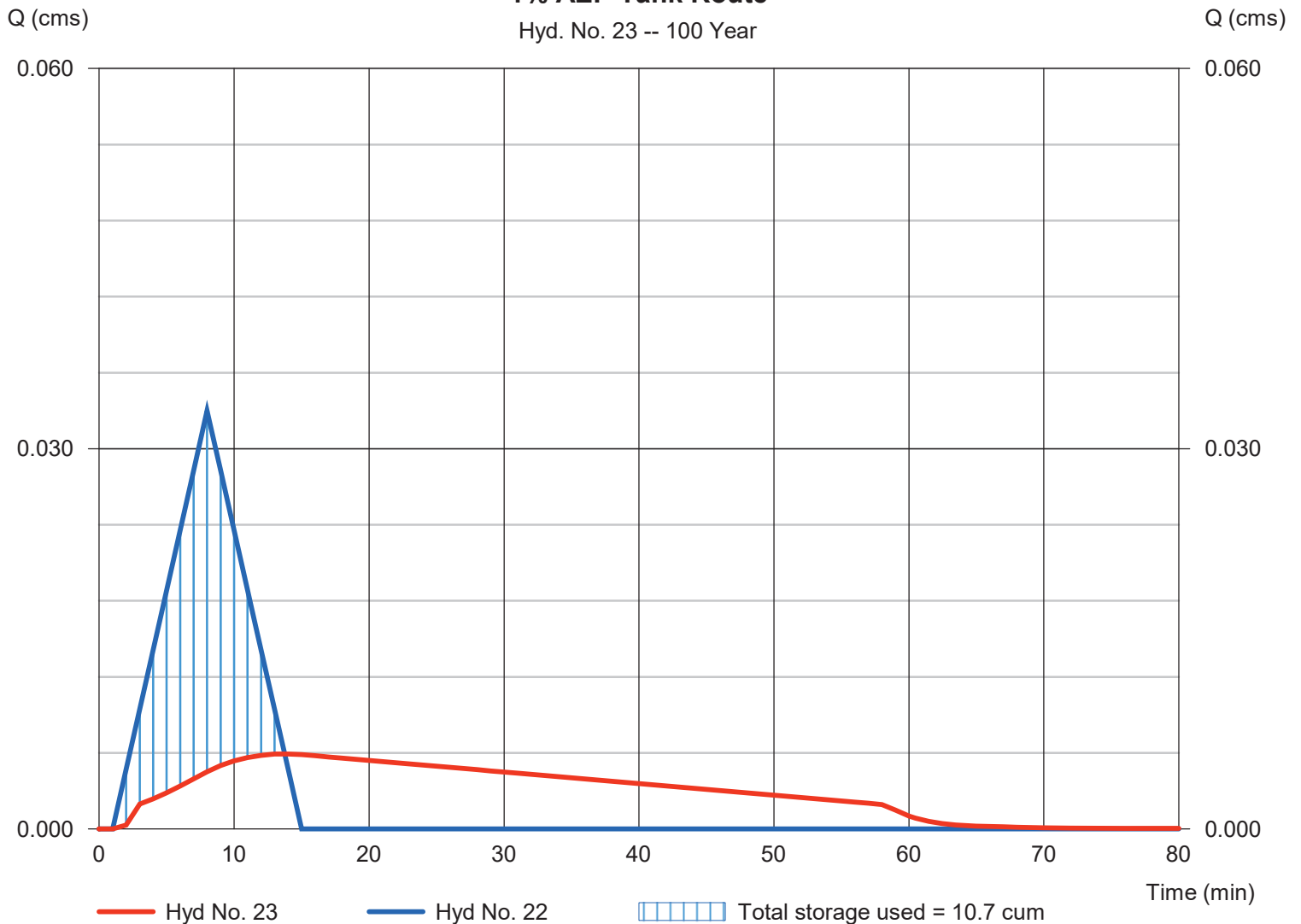
1% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.006 cms
Storm frequency	= 100 yrs	Time to peak	= 14 min
Time interval	= 1 min	Hyd. volume	= 13.8 cum
Inflow hyd. No.	= 22 - Roof to tank 1% AEP	Max. Elevation	= 18.65 m
Reservoir name	= 10kL Tank	Max. Storage	= 10.7 cum

Storage Indication method used.

1% AEP Tank Route

Hyd. No. 23 -- 100 Year



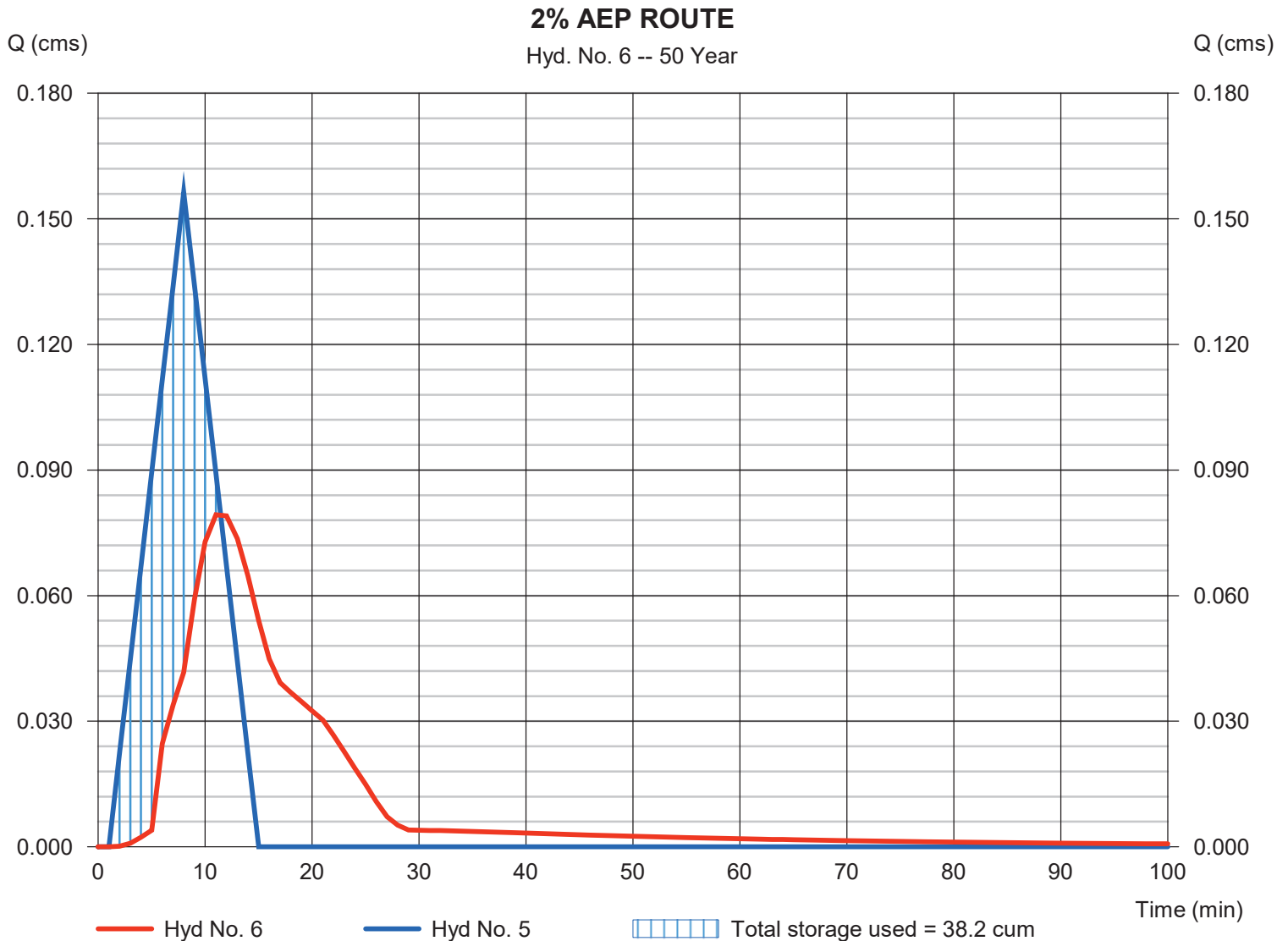
Hydrograph Report

Hyd. No. 6

2% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.079 cms
Storm frequency	= 50 yrs	Time to peak	= 11 min
Time interval	= 1 min	Hyd. volume	= 65.6 cum
Inflow hyd. No.	= 5 - 2% AEP	Max. Elevation	= 17.47 m
Reservoir name	= DET1	Max. Storage	= 38.2 cum

Storage Indication method used.



Hydrograph Report

Hyd. No. 24

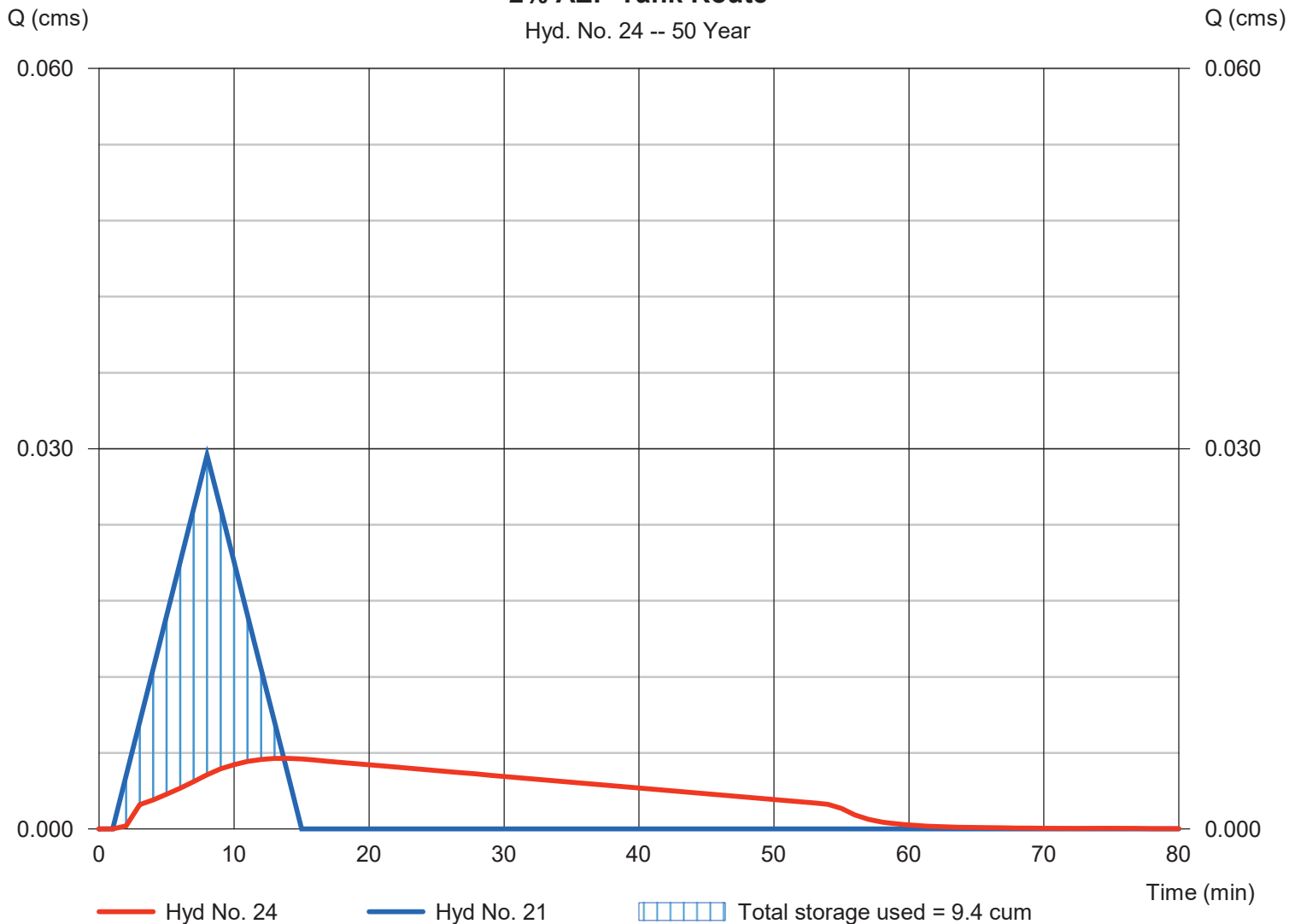
2% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.006 cms
Storm frequency	= 50 yrs	Time to peak	= 14 min
Time interval	= 1 min	Hyd. volume	= 12.4 cum
Inflow hyd. No.	= 21 - Roof to tank 2% AEP	Max. Elevation	= 18.43 m
Reservoir name	= 10kL Tank	Max. Storage	= 9.4 cum

Storage Indication method used.

2% AEP Tank Route

Hyd. No. 24 -- 50 Year



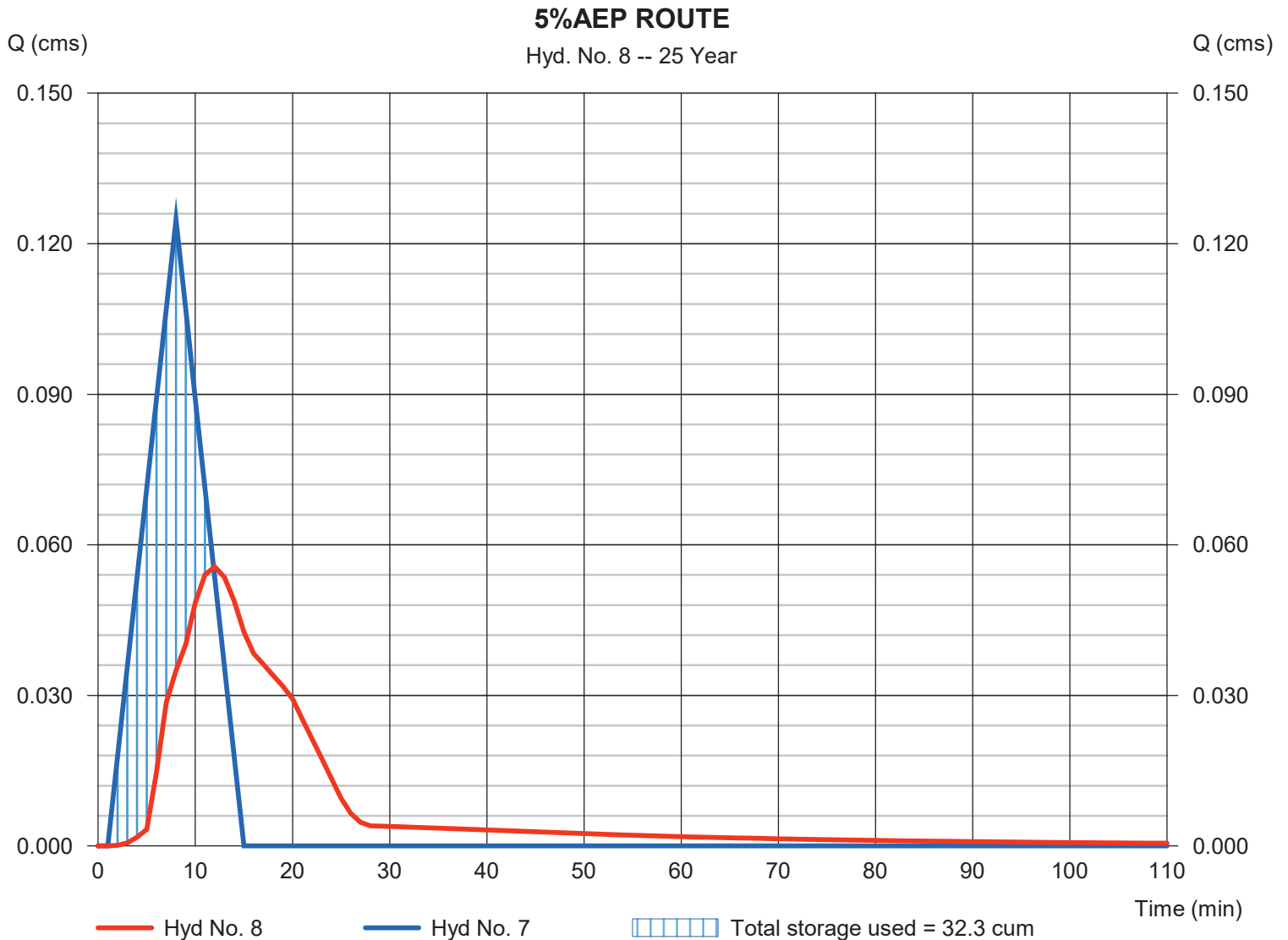
Hydrograph Report

Hyd. No. 8

5%AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.056 cms
Storm frequency	= 25 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 52.4 cum
Inflow hyd. No.	= 7 - 5% AEP	Max. Elevation	= 17.37 m
Reservoir name	= DET1	Max. Storage	= 32.3 cum

Storage Indication method used.



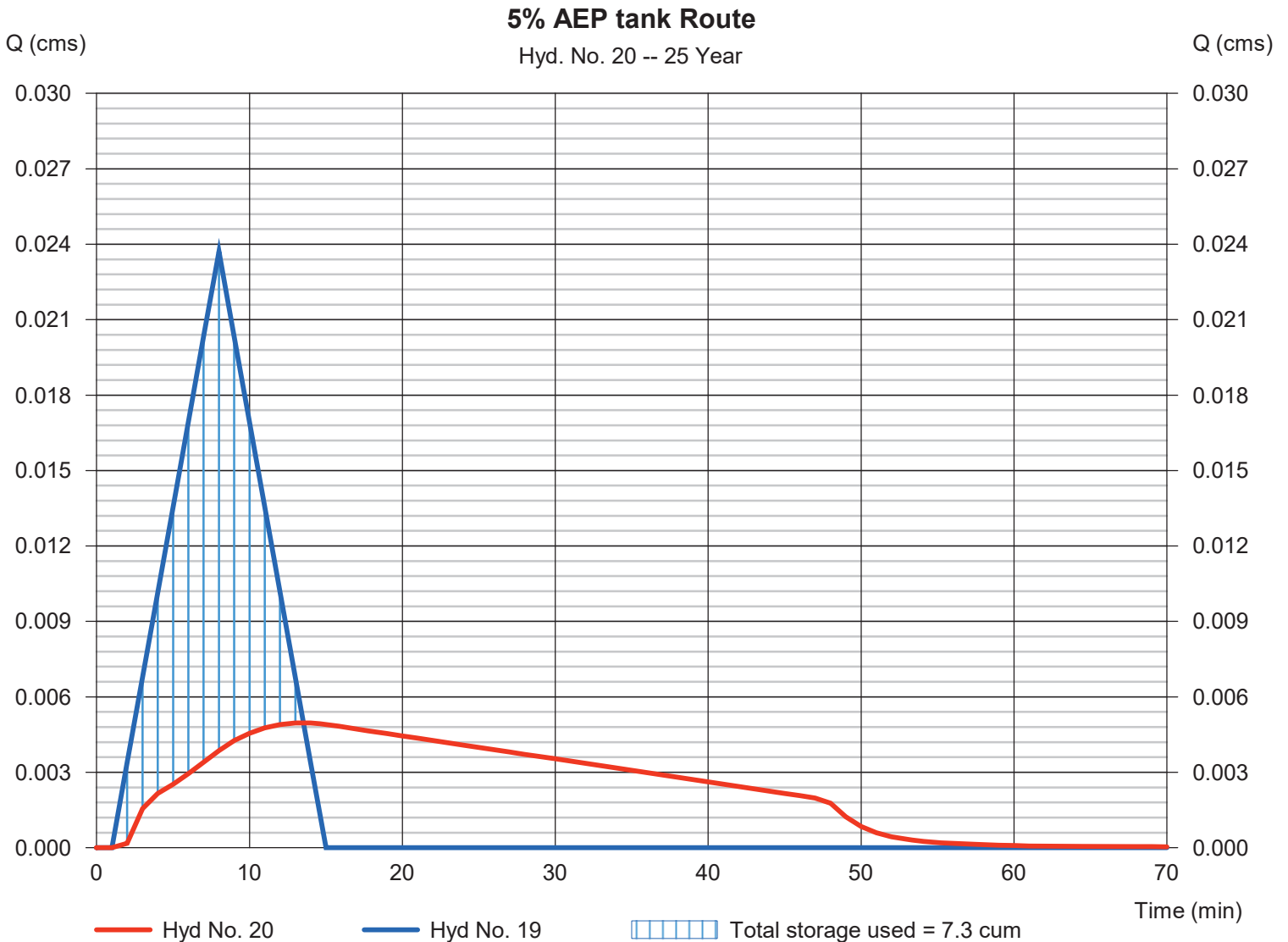
Hydrograph Report

Hyd. No. 20

5% AEP tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.005 cms
Storm frequency	= 25 yrs	Time to peak	= 14 min
Time interval	= 1 min	Hyd. volume	= 9.9 cum
Inflow hyd. No.	= 19 - Roof to tank 5% AEP	Max. Elevation	= 18.08 m
Reservoir name	= 10kL Tank	Max. Storage	= 7.3 cum

Storage Indication method used.



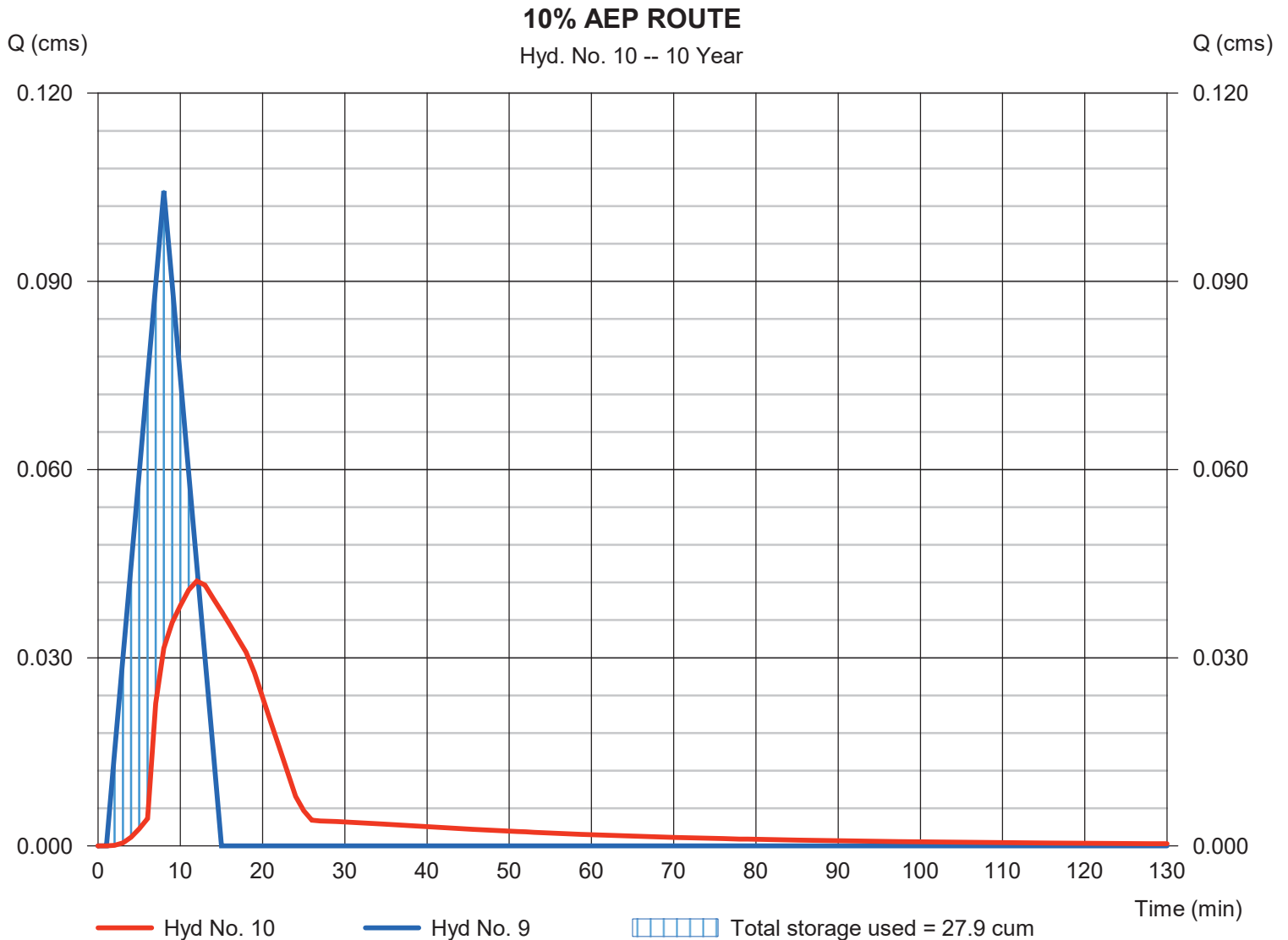
Hydrograph Report

Hyd. No. 10

10% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.042 cms
Storm frequency	= 10 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 43.8 cum
Inflow hyd. No.	= 9 - 10% AEP	Max. Elevation	= 17.30 m
Reservoir name	= DET1	Max. Storage	= 27.9 cum

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Wednesday, 09 / 25 / 2024

Hyd. No. 18

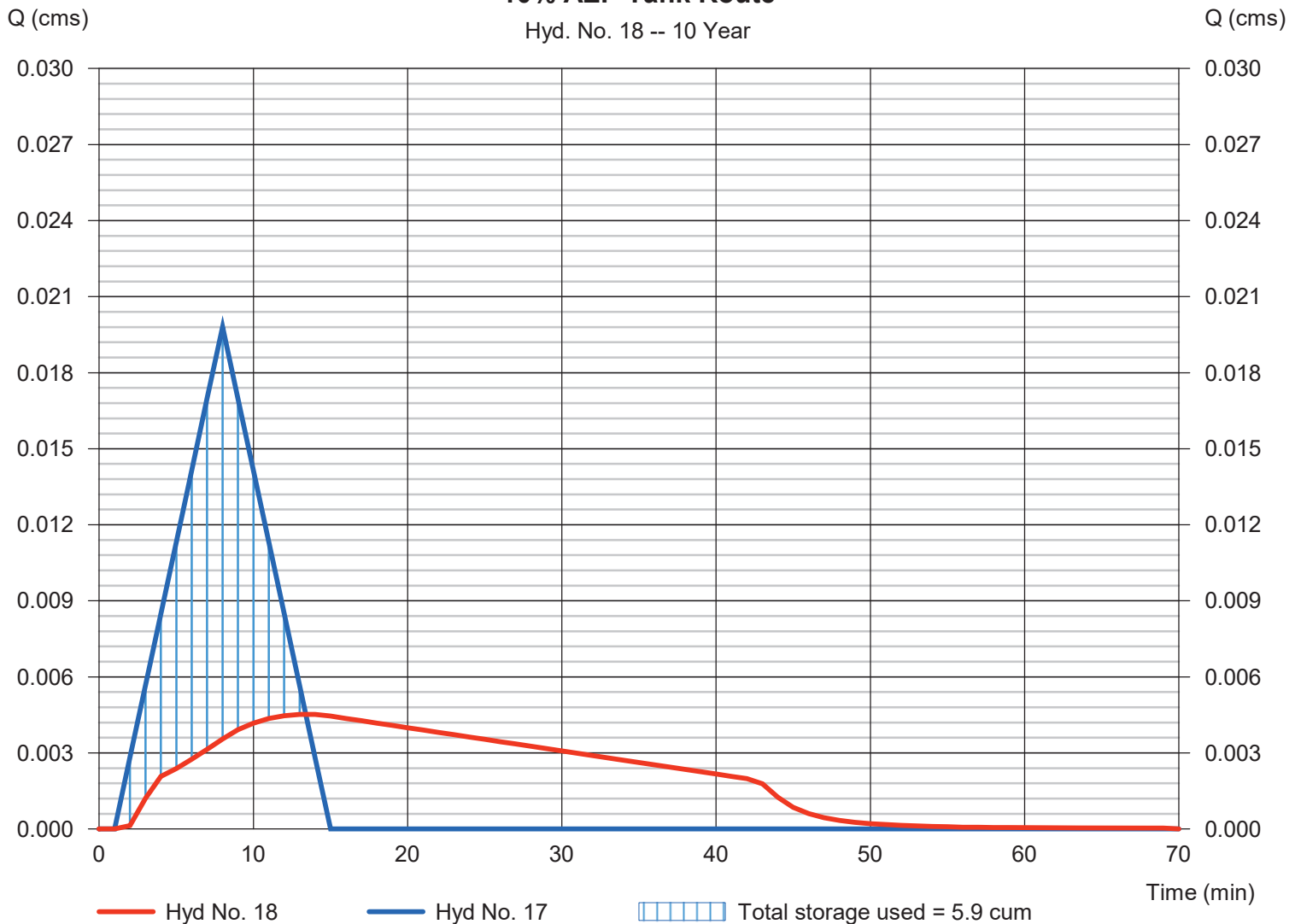
10% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.005 cms
Storm frequency	= 10 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 8.3 cum
Inflow hyd. No.	= 17 - Roof to tank 10% AEP	Max. Elevation	= 17.85 m
Reservoir name	= 10kL Tank	Max. Storage	= 5.9 cum

Storage Indication method used.

10% AEP Tank Route

Hyd. No. 18 -- 10 Year



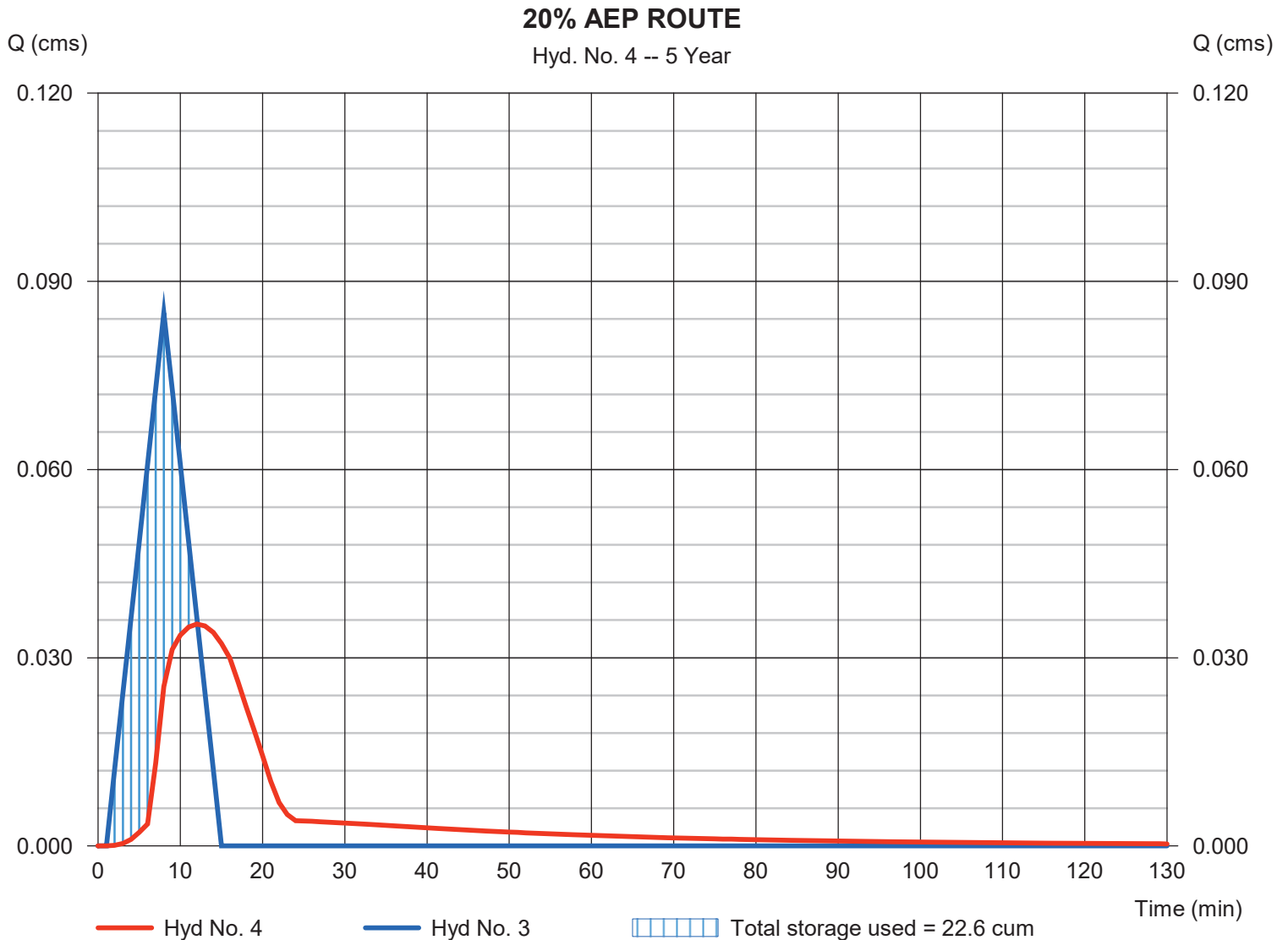
Hydrograph Report

Hyd. No. 4

20% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.035 cms
Storm frequency	= 5 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 35.6 cum
Inflow hyd. No.	= 3 - 20% AEP	Max. Elevation	= 17.22 m
Reservoir name	= DET1	Max. Storage	= 22.6 cum

Storage Indication method used.



Hydrograph Report

Hyd. No. 16

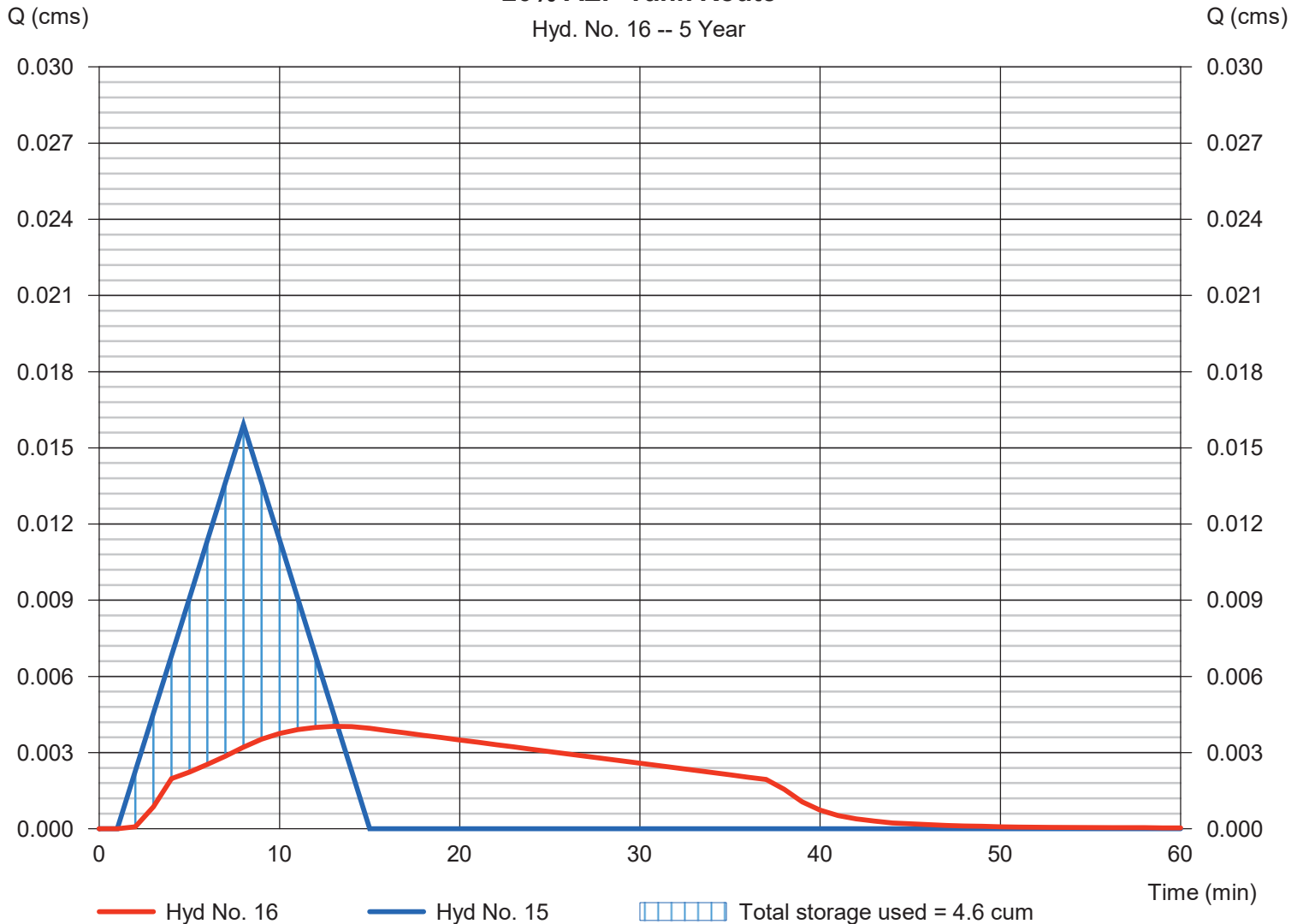
20% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.004 cms
Storm frequency	= 5 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 6.7 cum
Inflow hyd. No.	= 15 - Roof to tank 20% AEP	Max. Elevation	= 17.62 m
Reservoir name	= 10kL Tank	Max. Storage	= 4.6 cum

Storage Indication method used.

20% AEP Tank Route

Hyd. No. 16 -- 5 Year



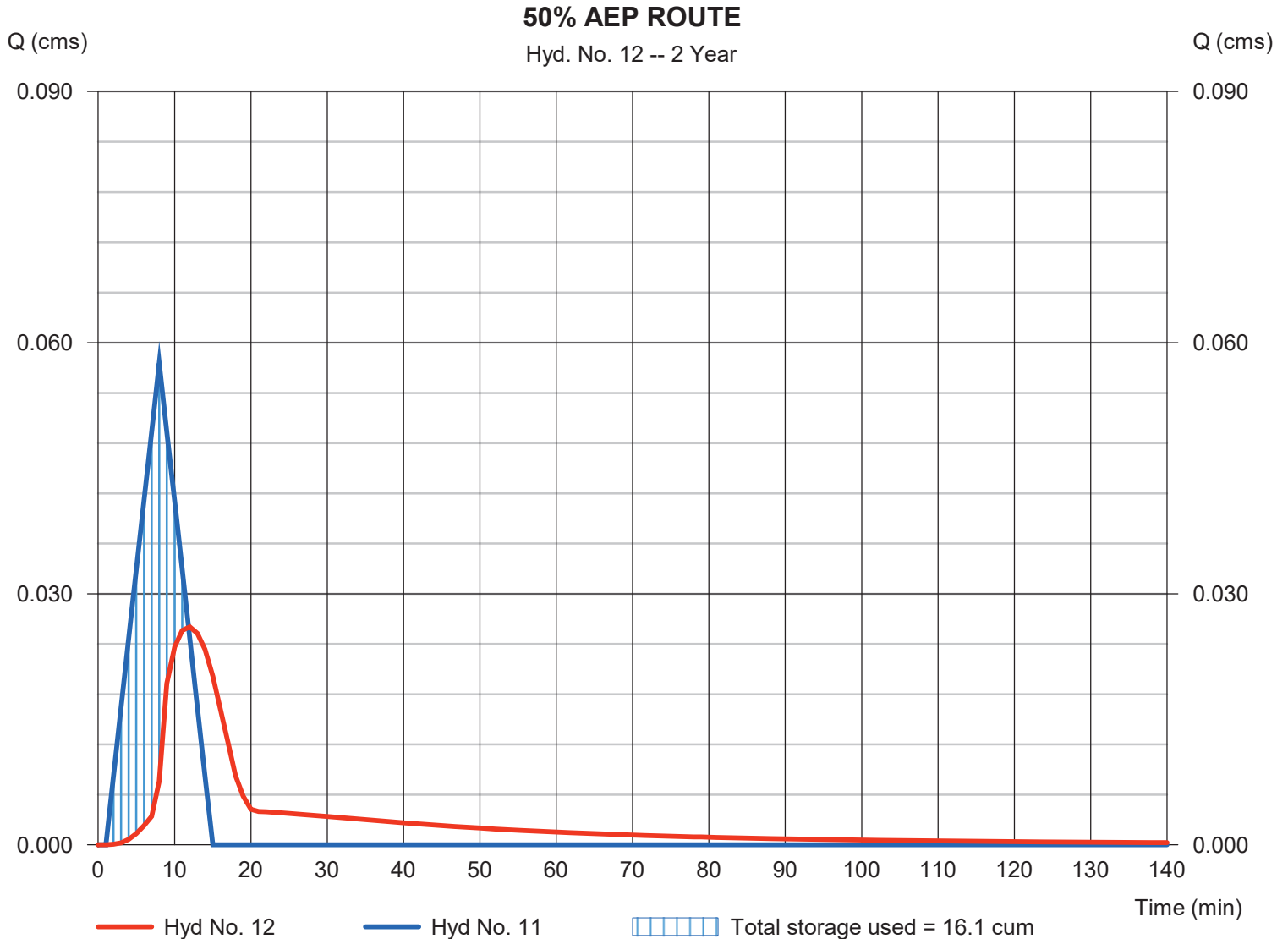
Hydrograph Report

Hyd. No. 12

50% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.026 cms
Storm frequency	= 2 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 24.1 cum
Inflow hyd. No.	= 11 - 50% AEP	Max. Elevation	= 17.12 m
Reservoir name	= DET1	Max. Storage	= 16.1 cum

Storage Indication method used.



Hydrograph Report

Hyd. No. 14

50% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.003 cms
Storm frequency	= 2 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 4.5 cum
Inflow hyd. No.	= 13 - Roof to tank 50% AEP	Max. Elevation	= 17.32 m
Reservoir name	= 10kL Tank	Max. Storage	= 2.8 cum

Storage Indication method used.

50% AEP Tank Route

Hyd. No. 14 -- 2 Year

