WALLACE INFRASTRUCTURE DESIGN PTY LTD

Prepared for

Commercial 7 Pty Ltd
ATF Commercial 7 Unit Trust

34 Wyndella Road LOCHINVAR NSW 2321

DA Stormwater Management Strategy

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Issue	Description	Author		Reviewer		Approved by	
D	Minor LEC Amendments	KB	06.05.25	AS	06.05.25	KB	06.05.25
C	DA Issue LEC Amendments	KB	02.05.25	AS	02.05.25	KB	02.05.25
B	DA S34 Action Items	KB	28.11.24	AS	28.11.24	KB	28.11.24
A	DA Issue	KB	25.01.24	AS	25.01.24	KB	25.01.24

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List of Acronyms

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AR&R	Australian Rainfall and Runoff, Commonwealth of Australia, 2019
BASIX	Building Sustainability Index
BOM	Bureau of Meteorology
CC	Construction Certificate
DA	Development Application
EY	Exceedance per Year
FFL	Finished Floor Level
GPT	Gross Pollutant Trap
IFD	Intensity Frequency Duration
I.L	Invert Level
LGA	Local Government Area
MCC	Maitland City Council
NRAR	National Resources Access Regulator
PET	Potential Evapotranspiration
PSD	Permissible Site Discharge
R.L	Reduced Level
TWL	Top Water Level
WDG	Wallace Design Group

1. INTRODUCTION

1.1. Background

Wallace Design Group has been engaged by Commercial 7 Pty Ltd ATF Commercial 7 Unit Trust to formulate a Stormwater Management Strategy to support the Development Application for a 182 lot Manufactured Home Estate located at 34 Wyndella Road, Lochinvar NSW 2321. The site is situated within the Maitland City Council Local Government Area. The stormwater drainage strategy will address both stormwater quantity and quality requirements for the proposed development in accordance with ARR 2019, *Maitland City Council Development Control Plan* and *Manual of Engineering Standards (MOES)*.

A locality plan is shown in Figure 1.

Figure 1: Site Locality Plan

1.2. Site Description

The site is 10.74 ha of land located at 34 Wyndella Road, Lochinvar NSW and is generally bound by rural residential land to the north, south, east and west. The land is zoned as rural residential and is suitable for the proposed land use.

The site is bisected by three tributaries, herein referred to as the western, middle, and eastern tributaries. All three tributaries have no defined beds or banks within the mapped hydro lines. The existing western tributary drains to and under Wyndella Road immediately south of the proposed entry drive, whereas the middle and eastern catchments drain towards the south

across Lots 223 and 224, DP246447 ultimately crossing Wyndella Road near its intersection with the New England Highway.

The development application is proposing to divert all three tributaries and their upper catchments to Wyndella Road. The Western catchment will maintain its existing flow path through the culverts immediately south of the proposed access drive; whereas the middle and eastern catchments will be divert with a bypass line and overland flow path to Wyndella Road and carried through a pit and pipe network to the lower crossing near the Wyndella Road intersection to the New England Highway (refer to the Wyndell Road Upgrade plans prepared by WDG, dated May 2025, Appendix C)

1.3. Proposed Development

The development proposes a 182 lot Manufactured Home Estate with additional community amenities including a central community centre, bowling lawn, pool and pickle ball court. A copy of the development layout plan is shown in Appendix A.

Access to the development will be maintained off Wyndella Road to the West which is proposed to be upgraded with this development and in conjunction with the neighbouring development to the west. Part road construction of the eastern side of Wyndella Road will consist of a 7m wide thoroughfare with kerb & gutter and a 1.5m wide footpath along the eastern side of the road corridor. Immediately in front of the site will be a BAR for access into the proposed development. The Wyndella Road Upgrade plans are further detailed in Appendix B.

The main entry road into the site is a divided road with the ingress and egress both maintaining 5m widths. The internal road network consists of north-south and east-west crossing roads in generally a grid formation as can be seen on the overall development plan. The internal road network is further detailed in the Civil and Stormwater Management Plan for the development (refer to Appendix B)

The upstream stormwater catchment which currently drain through the development site will have the stormwater diverted around, through and to Wyndella Road to remove all discharge from draining through the downstream property and towards the legal point of discharge (e.g. Wyndella Road).

The upstream stormwater catchment, currently bisecting the site within the existing stormwater crossings with be redirected through the site. The redirected network is further detailed in the Stormwater Management Plan.

The proposed development stormwater will be controlled for both quality and quantity through a stormwater pit and pipe network, GPT's and Stormwater Filters, and on-site detention basins. Rainwater reuse tanks, although not specifically modelled in MUSIC or DRAINs, will be provided for all residential lots in accordance with BASIX and Council guidelines at the time of construction and as part of the Construction Certificate stage of development.

Stormwater quality controls are to comply with *Maitland City Council – Manual of Engineering Standards.* Review of Council's guidelines indicate that stormwater quality controls are to have a target percentage reduction over the post-developed water quality outputs. To assess the development for water quality, a MUSIC water quality model with the proposed development being cleansed by Atlan Stormwater Filters is required. These are further detailed in Section 3.1.

Stormwater quantity controls are to comply with Maitland City Council – Manual of Engineering Standards and Maitland City Council's DCP. Design is to be in accordance with current ARR 2019 methodologies (ref. ARR 2019 Guidelines, online version). The design presented within this report has assessed all required output nodes for each type of use in a manner that maintain developed flow rates to the existing stormwater flow regimes.

1.4. Scope of Work

This Strategy has been undertaken to provide the following information in support of the Development Application:

- Identification of stormwater quality and quantity control requirements within Maitland City Council.
- Identify the impacts of the proposed development on existing waterways.
- Develop a strategy to minimise the stormwater discharge effects of the development on downstream properties/waterways.
- Provide concept design of the proposed stormwater management facilities in accordance with the adopted strategy.

1.5. Available Data

The following available information was utilised in the preparation of this report:

- A development masterplan supplied by BDA Architecture. A copy of the development layout plan is shown in Appendix A.
- Detailed Survey supplied by Commercial 7 Pty Ltd ATF Commercial 7 Unit Trust, as prepared by de Witt Consulting Surveyors, dated August 2023, Ref 14576.

1.6. Strategy Objectives / Criteria

1.6.1. Stormwater Runoff Quality Criteria

Stormwater runoff from the development should be treated prior to discharge, consistent with normal practice for new developments, and with consideration to opportunities for integration with existing site features and topography.

The methodology for Stormwater Runoff Quality typically involves selection of stormwater quality treatment devices based on identified opportunities for stormwater quality management referencing the development site and catchment conditions, and normal best practice.

Stormwater quality management for the subject site could comprise of a series of treatment train measures consisting of:

- Rainwater harvesting / reuse for reducing runoff volumes;
- Biofiltration, bioretention, sedimentation, or filtration basins
- Grassed swales;
- Water quality control ponds; and/or

- Gross pollutant traps (GPT's), or Proprietary water quality improvement devices for primary, secondary and/or tertiary treatment.

1.6.2. Stormwater Runoff Quantity Criteria

The development shall consider stormwater quantity controls in accordance with Council's DCP and *Manual of Engineering Standards* which stipulates that developed stormwater flowrates shall not exceed the pre-developed flow rates for all storms up to and including the 1% Annual Exceedance Probabilities (AEP). The stormwater quantity controls will be conceptually sized and designed using DRAINs stormwater modelling software, the Initial-Loss Continuing Loss (IL-CL) design methodology, the guidelines and methodologies set out in Book 9 of *Australia Rainfall and Runoff: A Guide to Flood Estimation, 2019* (see references).

Stormwater flow management criteria includes:

- The adoption of a minor and major flow considerations to the design of the stormwater flow management system in accordance with Council's stormwater drainage design guidelines.
- Conveyance of major flows through the site in a safe manner.
- Limiting the post-development discharge rates from the subject site to the pre-development discharge rates for all storm events up to and including the 1%AEP.

1.6.3. Flooding Criteria

Developable lot areas should have sufficient buildable area for a dwelling to be located at or above the flood planning level, which is the 1% AEP flood level plus 500mm freeboard for residential developments.

Review of the Maitland City Council's Public GIS Online Mapping System indicates the development is not within a flood studied area and therefore has no defined Flood Planning Level or PMF level.

2. STORMWATER MANAGEMENT STRATEGY

The proposed stormwater management strategy involves:

- The capture roof stormwater runoff, prior to discharge into the stormwater network, in a rainwater reuse tank in accordance with BASIX requirements for each building (expected to be 2500 to 3000L reuse tank). The reuse tanks have not been modelled as part of the development application; however, they are expected to contribute to the overall Stormwater Management Strategy.
- No additional provision for storage volume within the reuse tanks have been considered to offset on-site detention storage volume.
- Outlet controls designed to control stormwater flows for the minor and major AEP storm events in accordance with Council guidelines.
- Capture of stormwater from lots and road areas by a conventional pit and pipe drainage network located in the street and inter-allotment drainage easements.
- Diversion of the 4EY storm event through Atlan StormFilters for primary treatment of stormwater flows for reduction of TSS, TP and TN loadings to meet Council's stormwater quality targets.
- Diversion of stormwater flows to on-site detention basins for control of post-developed stormwater flows to pre-developed stormwater flow conditions in accordance with Council guidelines.

The modelling for the conceptual plan provided with the Development Application considers a holistic approach and looks at single source nodes for stormwater quality and quantity (e.g single nodes representing larger catchment areas). *The stormwater quality and quantity plan detailed in the Civil and Stormwater Plans as part of the DA Package is considered conceptual in nature and subject to change with the detailed design to be undertaken at Construction Certificate Stage, and as such, an updated model and report will be provided with the design at the time of Construction Certificate application*.

3. METHODOLOGY

3.1. Stormwater Runoff Quality

The methodology for Stormwater Runoff Quality typically involves selection of stormwater quality treatment devices based on identified opportunities for stormwater quality management referencing the development site and catchment conditions, and normal best practice.

The performance of the stormwater management plan was undertaken using the MUSIC-X stormwater water quality modelling software. MUSIC X is a continuous simulation water quality model. The pollutants considered in the water quality modelling were total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN), and Gross Pollutants (GP) which are typical components of stormwater runoff.

MUSIC input parameters include:

- Rainfall and potential evapotranspiration data.
- Catchment area and percentage impervious.
- Hydrologic parameters.
- Statistical pollutant generation parameters

MUSIC outputs include:

- Average annual pollutant export loads.
- Treatment train effectiveness, expressed in terms of pollutant reduction.

Input parameters used for modelling were derived from local data taken from Maitland Airport (Bureau of Meteorology Station Number: 61428),eWater's BOM Climate Dataset, parameter values in the *MUSIC User Manual* (version 6.1), and *Using MUSIC in Sydney's Drinking Water Catchment, A Sydney Catchment Authority Standard* (Published by Sydney Catchment Authority, Penrith, December 2012).

3.1.1. MUSIC Parameters

Land Use Types

The post-developed land use was modelled using the following MUSIC source nodes:

- Urban Residential (Combined Roof & Lots, 85% impervious)
- Urban Mixed Use (Communal Facility, 100% impervious)
- Urban – Sealed Road (Paved, 100% Impervious)
- Urban – Revegetated Land (Grass, 100% Pervious)

The pollutant generation characteristics of the surface types are shown in Table 2 below.

Rainfall and Evapotranspiration

The rainfall data and monthly average areal potential evapotranspiration (PET) values used for the modelling were obtained from data sourced from the Bureau of Meteorology Station Number: 61428 (Maitland Airport AWS) templated meteorological MUSIC file.

Time Step

The MUSIC model was run with a time step of 6 minutes, as contained within the Maitland Airport Rainfall datasets.

Hydrology

The MUSIC hydrology parameters for each land use type are summarised in Table 1. The individual land use nodes, rainfall thresholds, pervious area properties, and groundwater parameters were determined using Clay Loam *Using MUSIC in the Sydney Drinking Water Catchment, 2019*.

Table 1: MUSIC Rainfall-Runoff Parameters

Parameter	Site Land Use			
	Commercial	Revegetated Lands	Roof/Lots	Sealed Roads
Impervious Area Properties				
Rainfall Threshold (mm/day)	1.5	1.0	1.0	1.5
Pervious Area Properties				
Soil Storage Capacity (mm)	119	119	119	119
Initial Storage (% of Capacity)	25	25	25	25
Field Capacity (mm)	99	99	99	99
Infiltration Capac. Coeff. – a	180	180	180	180
Infiltration Capac. Exp. – b	3.0	3.0	3.0	3.0
Groundwater Properties				
Initial Depth (mm)	10	10	10	10
Daily Recharge Rate (%)	25	25	25	25
Daily Baseflow Rate (%)	25	25	25	25
Daily Deep Seepage Rate (%)	0	0	0	0

Event Mean Concentrations

The pollutant baseflow and stormflow concentration parameters for the existing state and proposed land use types were determined from *Using MUSIC in Sydney's Drinking Water Catchment, Tables 4.6 and 4.7 (See references*) based on Rural Residential and Forest land uses. The adopted pollutant parameters for the specified land use types are provided in Table 2.

Table 2: Adopted Land Use Baseflow and Stormflow Concentration Parameters

Land Use and Flow Type	Total Suspended Solids (TSS) (log_{10} mg/L)		Total Phosphorus (TP) (log_{10} mg/L)		Total Nitrogen (TN) (log_{10} mg/L)	
	Mean	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**
Baseflow						
Lot	1.2	0.17	-0.85	0.19	0.11	0.12
Commercial	1.2	0.17	-0.85	0.19	0.11	0.12
Road	1.20	0.17	-0.85	0.19	-0.11	0.12
Revegetated	1.15	0.17	-1.22	0.19	-0.05	0.12
Forest	0.9	0.13	-1.50	0.13	-0.14	0.13
Stormflow						
Residential	2.15	0.32	-0.60	0.25	0.30	0.19
Road	2.43	0.32	-0.30	0.25	0.34	0.19
Revegetated	1.95	0.32	-0.66	0.25	0.30	0.19
Commercial	2.15	0.32	-0.60	0.25	0.30	0.19

NOTE: Roofs have no base flow value, per *Using MUSIC in the Sydney Drinking Water Catchment,* 2019

3.2. Stormwater Runoff Quantity

Pre- and post-development stormwater flowrates are estimated using hydrological computer modelling software to demonstrate the magnitude of the local catchment flowrates in accordance with ARR 2019 and Council guidelines.

The post-development discharge is compared to the post-developed discharge without water quality controls, and if higher, detention is warranted in accordance with Council's standard requirements.

3.2.1. Stormwater Flow Model

A stormwater flow model was prepared for the purpose of estimating pre- and post-development flowrates for the concept plan to demonstrate the magnitude of stormwater flows of the local catchments for the 20% (minor), 5% (intermediate) and 1% AEP (major) using both the ensemble and individual storm methodologies as outlined in ARR 2019.

3.2.1.1. Catchment Plan and Model Data

The surface runoff flowrates from the development were modelled using DRAINS hydrological modelling software for the pre- and post-developed state. The Initial Loss/Continuing Loss (IL/CL) Methodology for analysing stormwater flows was utilised to estimate the stormwater flowrates with the IL and CL values being determined based on the hierarchal approach as provided in ARR 2019 for developments in NSW.

The pre- and post- developed stormwater flowrates were analysed at two points of discharge from the site which are located at the southwest (Basin No.1) and southeast (OSD Tank No. 2) corner of the development where the existing tributaries discharge from the site. The outlet control structures for each are design to control to the pre-development condition; however, the stormwater discharge from Basin No. 1 and OSD Tank No. 2, along with the upstream stormwater flows will be diverted to and discharge to Wyndella Road as the legal point of discharge. The bypass lines are designed to cater for the 1% AEP with 50% blockage, and no overflow to the southern lots.

The internal catchments were subdivided in two main sub-catchment areas. These areas consist of developed areas (Catchments P1 to P4) draining to two GPT and Atlan Filter Systems and an on-site detention basin (Basin No. 1) located on the western boundary; and, the remaining developed area (Catchment 5), draining to a third Atlan Filter System and on-site detention Tank (refer to Appendix B). The remaining proposed on-site Catchments P6 and P7 cannot be captured in the system and will bypass the on-site detention tanks.

On-site detention was analysed using the above-described concept, and it is noted that a more detailed catchment plan and stormwater system analysis for the development will be completed at the time of Construction Certificate application (for each stage) to further detail the stormwater pit and pipe network, rainwater reuse tanks, and on-site detention basins associated with each stage of development. The conceptual DRAINs node layout is shown in Figure 2.

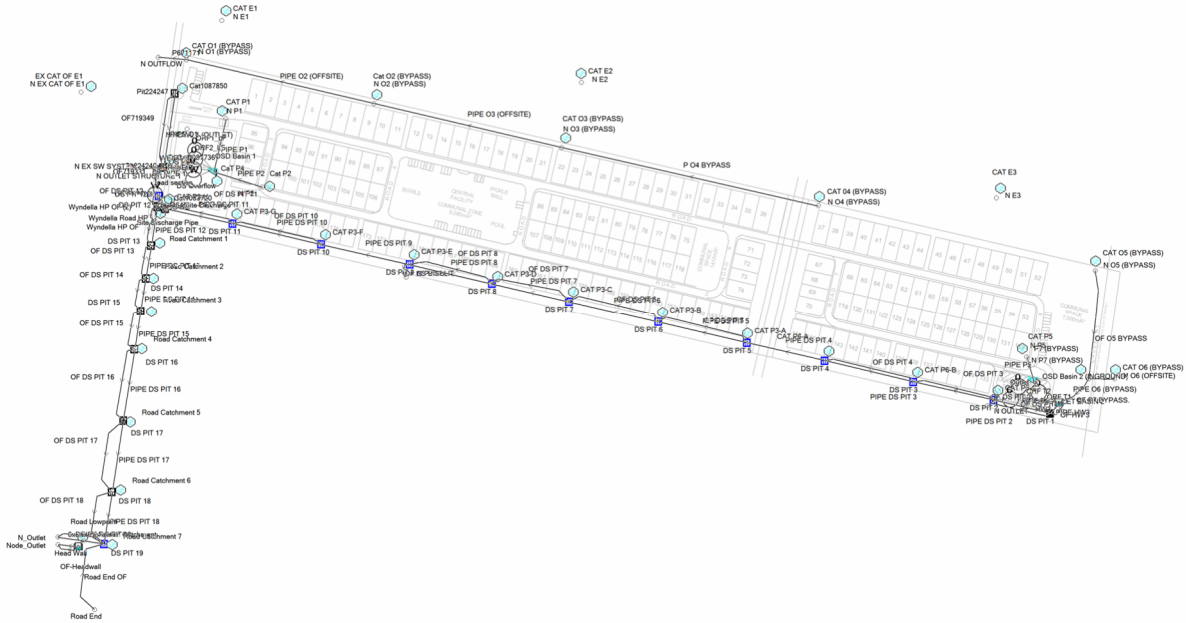


Figure 2: DRAINs Node Layout

The catchments and stormwater networks were modelled using the following base assumptions obtained from our research, Council information, and other on-line data (e.g. BOM website, ARR website, etc.):

- Model based on overall concept catchment areas and does not consider individual catchment areas for each stage of development or its pit and pipe network.

- Per above point, the model excluded the 50% blockage factor on all sag pits, and 20% blockage factor on all on-grade pits for major storm events. The model will be amended at Construction Certificate stage to include this criteria.
- A Rainwater Reuse Tank (RWT's) will be provided for each house as required by BASIX. An additional storage volume within the RWT's may be considered at the time of Construction Certificate application; however, *for the conceptual design, separate storage within the rainwater reuse tank was not considered*.
- On-site detention control for the minor, intermediate, and major storm events in accordance with Council Guidelines.

The methodology for stormwater quantity comprised quantitative analysis of available data to estimate pre- and post-developed stormwater flow behaviours from the development site. The analysis involved examination of surface hydrology to assess runoff characteristics from the site and sizing of stormwater mitigation devices to negate the impact of the development on existing flowrates.

This involved the following steps:

- Estimation of pre- and post-developed peak stormwater flowrates at the downstream drainage outlets of the site using the DRAINs software modelling package.
- The critical storm was then selected for each AEP from the 20% to 1% AEP, based on the peak discharge from the site for each storm event. The hydrographs of these 'critical' storms were plotted to determine the approximate volume of storage required.
- Identification of potential locations for on-site stormwater detention structures to reduce post-development discharge flowrates and revise the developed model in DRAINs to include the detention and outlet structures required to reduce post-development discharge flowrates.

3.2.1.2. Rainfall Data

Rainfall data for the 12EY to 1% AEP storm events were obtained through the BOM website (e.g. ARR Data HUB) for storm durations of 10 minutes to 4.5 hours for downloading directly into the DRAINS modelling software. These data sets were produced using the following geographical data points:

Location	Lochinvar, NSW
Latitude	= 32.696 S
Longitude	= 151.465 E

3.2.1.3. DRAINS IL/CL Model Parameters

Table 3 summarises the initial loss and continuing loss data sets adopted for use in DRAINs. These values were assessed utilising the 5-step hierarchal approach as outlined in ARR 2019. Based on our research regarding steps 1 through 4 of this process, no data existing that would appropriately represent this site; therefore, Step 5 was assumed appropriate for this development. In NSW the adopted CL value is to be multiplied by 0.4; therefore the adopted CL value has been modified from the value provided on the BOM website. This reduction provides an additional factor of safety for the design values adopted.

Table 3: Adopted Initial Loss-Continuing Loss Values

Parameter	Adopted Values
Impervious Area Initial Loss (mm)	1
Impervious Area Continuing Loss (mm)	0
Pervious Area Initial Loss (mm)	18
Pervious Area Continuing Loss (mm)	2.0 (0.8 adopted)

NOTE: Value for CL multiplied by 0.4 in accordance with ARR 2019.

3.2.1.4. Model Sub-Catchment Data

Surface roughness values, n*, used in the DRAINS models are summarised in Table 4.

Table 4: Roughness parameter values, n*, adopted in the DRAINS models

Model - surface type	Surface roughness 'n*' value
Forest Channel	0.15
Short prairie grass	0.10 to 0.21
Pervious (grassed) areas	0.21
Impervious (paved) areas	0.011

Sub-catchment pervious and impervious area percentage values used in the DRAINS modelling are summarised in Table 5 below.

Table 5: Area Percentage values adopted in the DRAINS models

Model - type	Area Percentage	
	Impervious	Pervious
Existing Catchments (Existing Site)		
E1, E2	0	100
E3	0	100
Existing Catchments - Bypass (Developed Site)		
O1, O2, O3, O4, O5	0	100
O6	0	100
Proposed Catchments (Controlled)		
P1, P2, P5	65	35
P3, P4, P6	0	100
Proposed Catchments (Controlled)		
P7 (located on-site)	0	100

4. MODEL RESULTS

4.1. Stormwater Runoff Quality

4.1.1. MUSIC Results – Post Development Land Use (No Treatment)

The modelled average annual pollutant loads leaving the site in its post development land use state, without any treatment measures, is shown in Table 6. Pollutant load estimates are provided for total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN). Figure 3 shows the node layout used in the MUSIC modelling.

Table 6: MUSIC Results for the Site's Post Development Land Use (No Treatment)

Land Use	Average Annual Pollutant Load (kg/yr)		
	Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)
Post Development	10,480	16.9	111.0

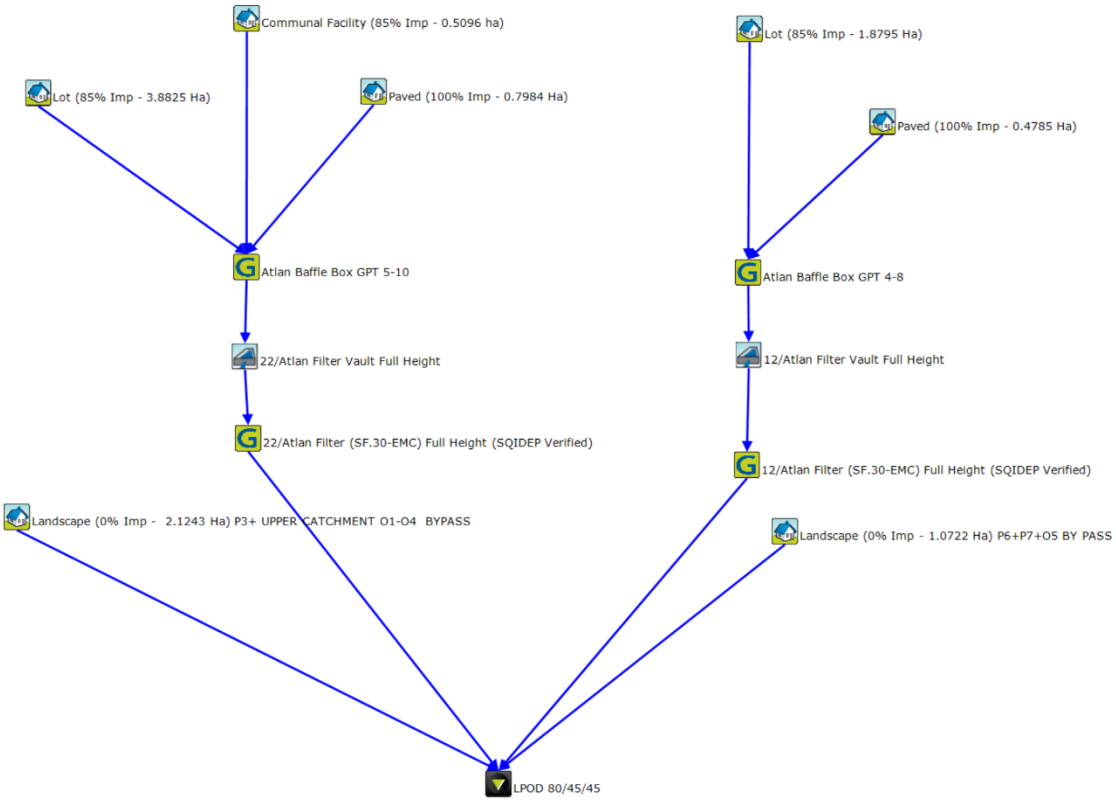


Figure 3: MUSIC Node Layout

4.1.2. MUSIC Results – Post Development Land Use (with Treatment)

The MUSIC model results for the post development land use, with treatment measures, is documented below, enabling the evaluation of the treatment train effectiveness. In assessing treatment devices used for the development, we assessed a series of treatment train measures

to minimise the environmental impact of the development. The assessment included the following measures:

- Rainwater harvesting / reuse for reducing runoff volumes;
- Biofiltration, bioretention, sedimentation, or filtration basins
- Water quality control ponds; and/or
- Gross pollutant traps (GPT's), or Proprietary water quality improvement devices for primary, secondary and/or tertiary treatment:

The measures chosen will minimise the impact of the development on the adjacent waterways.

4.1.2.1. Treatment Devices

Treatment devices modelled in MUSIC for the treatment of runoff from the developments impervious surface areas include:

- Rainwater Tanks (considered, but not included in the modelling)
- Atlan Storm Filter System; and,
- GPT's.
- Swales (not modelled as part of the concept, but may be considered at CC stage) for areas that cannot be capture into the proposed treatment measures).

4.1.2.1.1. Rainwater Tanks

The rainwater tank node, *although not specifically modelled* will form a part of the Stormwater Management Strategy. The MUSIC model will be updated at Construction Certificate Stage as part of the overall design strategy to include a RWT node immediately downstream of the roof area node, using the default rainwater tank treatment node parameters within MUSIC. The rainwater tank node will generally include the following node data for each lot:

- Rainwater tank volume of 2.2kL, or as required by BASIX, per each residential lot.
- Daily and annual water usage demand based on Section 4.6.7, Non-potable water demands for rainwater tanks, *Using MUSIC in Sydney's Drinking Water Catchment, 2019*.

4.1.2.1.2. Atlan Baffle Box GPT

The initial treatment devices are two Atlan Baffle Box GPT structures. The GPT is a proprietary structure for the removal of Gross Pollutants and the GPT nodes were included as the first node in the treatment train immediately upstream of the Atlan StormFilter System. There are two GPT's for the development which are summarised in Table 7 below.

Table 7: Atlan Baffle Box Parameters

Parameter	GPT Structure	
Inlet Properties	GPT 4-8	GPT 5-10
Low Flow By-pass (m^3/s)	0.0	0.0
High Flow Bypass (m^3/s), (4EY Peak Storm)	0.140	0.274
Target Pollutant Removal Properties		
TSS	80	80
TP	30	30
TN	10	10
Gross Pollutants	100	100

4.1.2.1.3. Atlan StormFilter System

The secondary treatment for the development is the Atlan StormFilter system. The Atlan StormFilter System is a proprietary structure for the primary removal of TSS, TP and TN and is included as the second treatment node in the treatment train prior to discharge into on-site detention basins. There are two node inputs required to analyse the Atlan StormFilter System which are the Filter Vault (Full Height) and the SF.30 EMC Filters. These parameters are provided in Table 8 and Table 9.

Table 8: Atlan Filter Vault Full Height Treatment Parameters

Parameter	Filter Vaults	
Inlet Properties	12/Atlan	22/Atlan
Low Flow By-pass (m^3/s)	0	0.0
High Flow Bypass (m^3/s)	100	100
Storage Properties		
Extended Detention Depth (m)	12	22
Surface Area (m^2)	0.85	0.85
Exfiltration Rate (mm/hr)	0	0
Evaporative Loss as % of PET (%)	0	0
Outlet Properties		
Low Flow Pipe Diameter (mm)	137	185
Overflow Weir Width (m)	4	6
Submerged Zone with Carbon Present	0.07	0.071

Table 9: Atlan Filter (SF.30-EMC) Parameters

Parameter	Filter (SF.30-EMC)	
Inlet Properties	12/Atlan	22/Atlan
Low Flow By-pass (m^3/s)	0.0	0.0
High Flow Bypass (m^3/s)	0.036	0.066
Target Pollutant Removal Properties		
TSS	85	85
TP	74	74
TN	59	59
Gross Pollutants	0	0

4.1.2.2. Modelling Results

The modelled average annual pollutant loads leaving the site in its post development land use, utilising treatment measures, is shown in Table 10. Pollutant load estimates are provided for total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN). Figure 3 shows the node layout used in the MUSIC modelling.

Table 10: MUSIC Results for the Site's Post Development Land Use (with Treatment)

Land Use	Average Annual Pollutant Load (kg/yr)		
	Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)
Post Development	605	3.65	44.5

A direct comparison between the existing state and post development pollutant loads with treatment generated by the modelled sources, is summarised in Table 11.

Table 11: MUSIC Model Treatment Train Effectiveness Results

Pollutant	Export Value		Treatment Train Effectiveness (% Reduction)
	Pre Development	Post Development with treatment measures	
TSS (kg/yr)	10,480	605	94.2%
TP (kg/yr)	16.9	3.65	78.4%
TN (kg/yr)	111	44.5	59.9%
Gross Pollutants	1364	0	100%

The treatment train effectiveness results above indicate that the pollutant reduction performance provides for a Neutral or Beneficial Effect in accordance with the requirements of *MidCoast Council's WSD Guidelines*, Oct. 2019 and as requested in the pre-development application minutes.

4.2. Stormwater Runoff Quantity

4.2.1. DRAINS Model Results

Following determination of the pre-developed peak flow rates, the post-developed DRAINs model was run for various design storm durations and stormwater drainage configurations to assess the preliminary conveyance sizing required to convey the 20% to 1% AEP through the site and for assessment of stormwater detention requirements.

The model-predicted stormwater flowrates for the pre- and post-development conditions were assessed using both the ensemble and individual storm methodologies. Within the DRAINs modelling software, the peak ensemble storm for the pre- and post-development storm was initially assessed to determine the peak median storm for each design storm event. Using output generated from this assessment preliminary sizing of the on-site detention basins was undertaken. The model-predicted stormwater flowrates were further assessed using the preliminary basin sizing for the pre- and post-development conditions.

The on-site detention basin's model predicted flowrates for the pre- and post-developed state with detention using the ensemble peak flow storms and storm bursts for On-site Detention Basin No. 1 and Tank No. 2 are compared and summarised in Table 12 and Table 13, respectively.

Table 12: DRAINS Ensemble Peak Flow Results with Detention Basin No. 1

AEP (%)	Existing State		Developed State		% Change
	Peak Flowrate (m^3/s)	Critical Storm Duration/Burst (mins, burst)	Peak Flowrate (m^3/s)	Critical Storm Duration/Burst (mins, burst)	
20	0.450	25, 4	0.426	45, 9	-5.3
5	0.720	20, 8	0.577	60, 6	-19.8
1	1.148	15, 8	0.925	45, 6	-19.4

Table 13: DRAINS Ensemble Peak Flow Results with Detention Tank No. 2

AEP (%)	Existing State		Developed State		% Change
	Peak Flowrate (m^3/s)	Critical Storm Duration/Burst (mins, burst)	Peak Flowrate (m^3/s)	Critical Storm Duration/Burst (mins, burst)	
20	1.142	30, 8	1.07	45, 10	-6.3
5	1.910	25, 6	1.77	30, 8	-7.3
1	2.989	20, 10	2.83	20, 10	-5.3

4.2.2. DRAINS Modelled Detention Basin and Outlet Controls

The conceptual design considers two (2) on-site detention systems (one above ground basin and one in-ground basin) with pre-treatment measures undertaken before stormwater enters the Basin 1 or 2. Table 14 shows a summary of the concept outlet control(s) used in the

DRAINs modelling for the proposed development. The values are subject to change with the detailed Construction Certificate Design.

Table 14: Summary of Basin and Outlet Structures

Basin	Parameter	Description
1	Basin Storage Volume 1%AEP	2290m^3
	Outlet Structure, Minor Flow Bypass	2-350mm, I.L 39.75
	Outlet Structure, Intermediate & Major Flow Bypass	425mm Weir
	Outlet Structure, Top (set at 1%AEP level)	2.4m weir w/grated top, I.L 41.45
	Emergency Overflow Structure	3.0m weir, R.L 41.5
	Outlet Pipe from Basin	750mm RCP
2	Basin Storage Volume	1035m^3
	Outlet Structure, Minor Flow Bypass	1-250mm Orifice, I.L 55.4
	Outlet Structure, Major Flow Bypass	1-250mm Orifice, I.L 56.6
	Emergency Overflow Structure	1.8m Weir at R.L 57.7
	Outlet Pipe from Tank	450mm RCP

NOTE: The Stormwater Management Strategy does not include any individual lot on-site OSD tanks to ensure the development can maintain controls without individual lot development controls

5. SOIL AND WATER MANAGEMENT DURING CONSTRUCTION

Soil and water management devices to minimise land disturbance during the development construction phase are to be provided in accordance with the publication *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

STAGE REQUIREMENTS

Prior to each stage of works, and as part of the detailed design for each stage, a Staged Erosion and Sedimentation Control Plan will be prepared illustrating all controls to be implemented for that Stage of works.

PREPARATION OF EROSION AND SEDIMENTATION CONTROLS

A detailed erosion and sedimentation control plan for each stage of works is to be undertaken during the detailed design stage of the proposed development. The erosion and sedimentation control plan should generally contain the following range of management practices for effective soil and water management during a land disturbance phase:

- Minimise the area of soil disturbed and exposed to erosion by phasing works so that land disturbance is confined to minimum areas.
- Erect barrier fencing to minimise disturbance by preventing vehicular and pedestrian access to restricted areas.
- Limit access for plant etc. to current construction area to limit amount of disturbed area.
- Conserve topsoil for site rehabilitation/revegetation when site works are complete.
- Installation of sediment filters, such as silt fences, straw bales, or turf strips downstream of disturbed areas.
- Control water flow from the top of, and through the development area. In particular, divert upslope runoff around works and limit slope length to 80 metres on disturbed lands if rainfall is expected.
- Where appropriate, reduce the effects of wind erosion by controlling on-site traffic movement and watering bare soil areas.
- Provision of shaker humps / pads near construction entry and exit locations to remove excess soil materials from vehicle tyres and underbodies.
- Rehabilitate disturbed lands quickly.
- Ensure that all erosion and sediment control measures are kept in a properly functioning condition until all site disturbance works are completed and the site is rehabilitated.

The erosion and sedimentation controls are the minimum requirements for all construction activity, and where deemed necessary, may be modified by the certifying authority at the time of construction.

6. SUMMARY AND CONCLUSIONS

At Source Management

Although a BASIX's requirements review is not a specific requirement of this stormwater management strategy, it is anticipated that BASIX's requirements would require all individual dwellings to provide rainwater tanks for re-use in conjunction with other BASIX's requirements and Council guidelines. Where installed, rainwater tanks provide at-source stormwater management benefits.

Stormwater Flow Management (stormwater runoff conveyance and quality)

The strategy for management of stormwater runoff from the development is depicted Appendix B, and comprises:

- Capture of stormwater from lot and road reserve areas by a conventional pit and pipe drainage network located in the street or in inter-allotment drainage easements, where required.
- Conveyance of captured stormwater within the pit and pipe network to a GPT for primary treatment, Atlan StormFilter system for secondary treatment, and to the on-site detention basin(s) for tertiary controls.

MUSIC modelling has demonstrated that the proposed treatment devices will treat developed stormwater runoff to meet the requirements of Council's DCP, and on this basis, it is considered that no further water quality controls will be required within the proposed development. The individual lots will be required to provide Reuse Tanks in accordance with BASIXs and Council Guidelines; however, they do not form a part of the water quality modelling for the purpose of approvals.

Details of the proposed local drainage pipe, water quality and on-site detention network will be detailed at the time of Construction Certificate application to Council's standard and specifications.

As illustrated by Appendix B there is sufficient area within the developments footprint to provide stormwater drainage management measures to negate the impact of the proposed development.

7. REFERENCES

- Maitland City Council Development Control Plan
- Maitland City Council *Manual of Engineering Standard (MOES)*.
- Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) *Australian Rainfall and Runoff: A Guide to Flood Estimation*, ©Commonwelath of Australia (Geoscience Australia), 2019 (available online through arr.ga.gov.au).
- Coombes, P., and Roso, S (Editors), *2019 Runoff in Urban Areas, Book 9 in Australian Rainfall and Runoff – A Guide to Flood Estimation*, © Commonwealth of Australia (Geoscience Australia), 2019 (available online through arr.ga.gov.au).
- Australian Rainfall and Runoff Data Hub (data.arr-software.org)
- Australian Runoff Quality, Engineers Australia, 2006.
- *Using MUSIC in Sydney's Drinking Water Catchment*, Published by WaterNSW, Parramatta, June 2019

Appendix A

Development Layout Plan

LEGEND

	Site Area	10.75ha
	Bushfire Buffer (10m - 13m)	1.75ha
	Home Sites	5.40ha
	Private Roads	1.27ha
	Communal Landscape Areas	3.76ha
	Caravan Parking	17 Bays
	Visitor Parking (6.1 x 2.5m) MINIMUM DISABLE SPACE (DIS)	47 Bays
	Storm water	0.31 ha
HYD	HYDRANT	
	Stage 1 screen planting (refer to landscape plans for detail)	

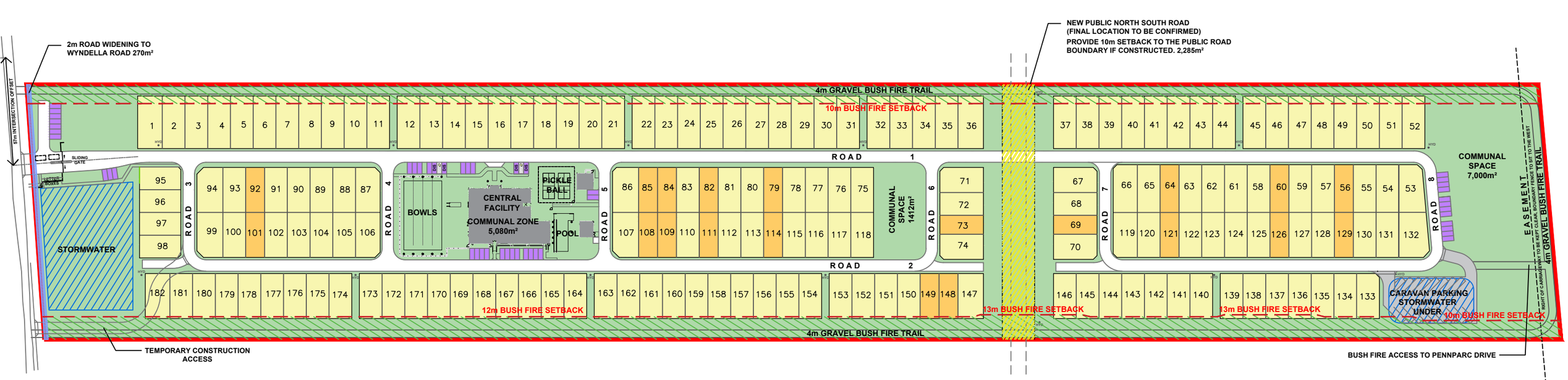
DEVELOPMENT SUMMARY

Home Type		
10 x 23.75/27.75m	20	12%
12 x 23.75/27.75m	162	88%
TOTAL	**182**	

Note:

Corner lots are 1m wider to accommodate an additional side setback.

Communal Landscape Area = Area shown in green minus stormwater and approximate driveway area for each lot.



CLIENT
COMMERCIAL 7 PTY LTD

PROJECT NAME
34 WYNDELLA ROAD, LOCHINVAR

DRAWING
MASTERPLAN

PROJECT NO.	DRAWING NO.	SCALE	ISSUE	DATE
545000	SK.01	1: 2000 @ A3	R	20/03/2025

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ABN 77 081 702 301

bda architecture

Appendix B

Civil and Stormwater Management Plan

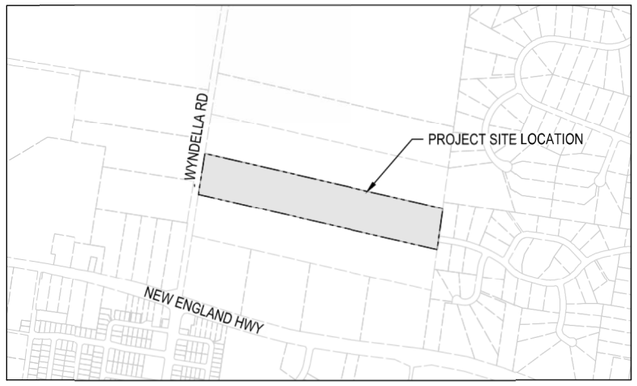
Development Site & Wyndella Road Upgrade

CIVIL & STORMWATER WORKS for 34 WYNDELLA ROAD LOCHIVAR NSW 2321

WALLACE DESIGN GROUP

Prepared by

WALLACE INFRASTRUCTURE DESIGN PTY LTD



LOCATION PLAN
(NTS)

DRAWING NUMBER	DRAWING DESCRIPTION
C01.01	LEGEND, DRAWING SCHEDULE AND LOCATION PLAN
C02.01	GENERAL NOTES
C03.01	EROSION & SEDIMENTATION CONTROL PLAN
C03.02	EROSION & SEDIMENTATION CONTROL DETAILS
C04.01	GENERAL ARRANGEMENT PLAN
C04.02	BULK EARTHWORKS PLAN
C04.03	ROAD PLAN (1 OF 3)
C04.04	ROAD PLAN (2 OF 3)
C04.05	ROAD PLAN (3 OF 3)
C04.06	ROAD 1-8-2 AND 9 LONGITUDINAL SECTIONS (1 of 4)
C04.07	ROAD 1-8-2 AND 9 LONGITUDINAL SECTIONS (2 of 4)
C04.08	ROAD 1-8-2 AND 9 LONGITUDINAL SECTIONS (3 of 4)
C04.09	ROAD 1-8-2 AND 9 LONGITUDINAL SECTIONS (4 of 4)
C04.10	ROAD 6-2 AND 3 LONGITUDINAL SECTIONS (1 of 2)
C04.11	ROAD 6-2 AND 3 LONGITUDINAL SECTIONS (2 of 2)
C04.12	ROAD 4 AND 5 LONGITUDINAL SECTIONS
C04.13	NORTH-SOUTH ROAD AND VISITOR PARKING ACCESS DR. LONGITUDINAL SECTIONS
C05.01	EXISTING STORMWATER CATCHMENT PLAN
C05.02	DEVELOPED STORMWATER CATCHMENT PLAN
C05.03	STORM WATER MANAGEMENT PLAN (1 OF 3)
C05.04	STORM WATER MANAGEMENT PLAN (2 OF 3)
C05.05	STORM WATER MANAGEMENT PLAN (3 OF 3)
C06.01	SITE TYPICAL ROAD SECTIONS
C06.02	ON-SITE DETENTION BASIN No. 1 PLAN
C06.03	ON-SITE DETENTION BASIN No. 1 TYPICAL SECTIONS
C06.04	ON-SITE DETENTION TANK No. 2 PLAN
C06.05	ON-SITE DETENTION TANK No. 2 TYPICAL SECTIONS

ABBREVIATIONS

A/G	ABOVE GROUND	IFC	ISSUED FOR CONSTRUCTION	SV	STOP VALVE
AGG	AGGREGATE	IFCR	ISSUED FOR CLIENT REVIEW	SW	STORMWATER
ARCH	ARCHITECT	IL	INVERT LEVEL	SWP	STORMWATER PIT
ASP	ASPHALT	IO	INSPECTION OPENING	THK	THICKNESS
BM	BENCHMARK	KIP	KERB INLET PIT	TJ	TRAVERSE JOINT
CAD	COMPUTER AIDED DRAFTING	L	LENGTH	TOW	TOP OF WALL
C-C	CENTRE TO CENTRE	LP	LAMP POST (SURVEY)	TW	TRADE WASTE
CH	CHAINAGE	MAX	MAXIMUM	TYP	TYPICAL
CI	CAST IRON	MC	MASS CONCRETE	U/G	UNDERGROUND
CJ	CONSTRUCTION JOINT	MH	MANHOLE	UNO	UNLESS NOTED OTHERWISE
CL	COVER LEVEL or CENTRE LINE	MIN	MINIMUM	U/S	UPSTREAM
CO	CLEAN OUT (SUBSOIL)	MISC	MISCELLANEOUS	VC	VITRIFIED CLAY PIPE
COG	CHANGE OF GRADE	N	NORTH	VP	VENT PIPE
CONC	CONCRETE	NRV	NON RETURN VALVE	VR	VERTICAL RISER
CTRL	CONTROL	NTS	NOT TO SCALE	W	WIDTH
CR	CROWN	OD	OUTER DIAMETER	WC	WATER CLOSET
CTS	CENTRES	OF	OVERFLOW	WL	WATER LEVEL
D	DEPTH	OH	OVERHEAD	WM	WATER METER
DIA	DIAMETER	PP	POWER POLE	WS	WASTE STACK
DP	DOWNPIPE	PPE	PERSONAL PROTECTIVE EQUIP.		
DRG	DRAWING	PVC	POLYVINYLCHLORIDE	UNITS	
D/S	DOWN STREAM	PV	PRESSURE VENT	mm	MILLIMETRES
DTM	DIGITAL TERRAIN MODEL	PVP	PRESSURE VENT PIPE	cm	CENTIMETRES
EB	EDGE BITUMIN	QA	QUALITY ANALYSIS	m	METRES
EX	EXISTING	QTY	QUANTITY	m^2	SQUARE METRES
ESL	EXISTING SURFACE LEVEL	R	RADIUS	m^3	CUBIC METRES
FH	FIRE HYDRANT	RC	REINFORCED CONCRETE	L/s	LITRES PER SECOND
FHR	FIRE HOSE REEL	REV	REVISION	ha	HECTARES
FFL	FINISHED FLOOR LEVEL	RL	REDUCED LEVEL		
FGL	FINISHED GROUND LEVEL	RW	RETAINING WALL		
FSL	FINISHED SURFACE LEVEL	SFW	SEALED FLOOR WASTE		
FW	FLOOR WASTE	SL	SURFACE LEVEL		
GA	GENERAL ARRANGEMENT	SMH	SEWER MANHOLE		
GI	GALVANISED IRON	SMV	SEWER MAIN VENT		
GFL	GARAGE FINISHED LEVEL	SOD	SIDE OUTLET DRAIN		
IC	INSPECTION CHAMBER	S/S	STAINLESS STEEL		
ID	INSIDE DIAMETER	STD	STANDARD		

LINETYPES & SYMBOLS

GENERAL

SITE BOUNDARY
CADASTRAL BOUNDARY
EASEMENT BOUNDARY

EXISTING FEATURES

CONTOURS
STORMWATER PIPE
STORMWATER PIT
ELECTRICAL CABLE - U/G
ELECTRICAL CABLE - O/H
EXISTING SEWER PIPE
EXISTING WATER
EXISTING WATER (HYDRANT)
EXISTING WATER (STOP VALVE)
EXISTING TELECOM
COMMUNICATIONS PIT
EXISTING GAS
EXISTING BUILDING
TREES / SHRUBS

PROPOSED - BUILDING (INDICATIVE ONLY)

DWELLING NUMBER — UNIT 01
FINISHED FLOOR LEVEL — FFL 5.00
BUILDING FOOTPRINT

PROPOSED - UTILITIES

SEWER
WATER
COMMUNICATIONS
COMMUNICATIONS - OPTIC FIBRE
COMMUNICATIONS PIT
GAS
ELECTRICAL CABLE - U/G
ELECTRICAL CABLE - O/H
REDUNDANT

PROPOSED - EROSION AND SEDIMENT CONTROL

SITE EXCLUSION FENCE
SEDIMENT FENCE
DIVERSION DRAIN
STABLISED SITE ACCESS
MATERIAL STOCKPILE
SLOPE DIRECTION
GEOTEXTILE INLET FILTER
MESH AND GRAVEL INLET FILTER
SANDBAG / HAY BALES

PROPOSED CONTOURS

MAJOR CONTOUR INTERVAL
MINOR CONTOUR INTERVAL

PROPOSED - STORMWATER

SW PIPE (INCL. DIA/GRADE/LENGTH) — ØXXXmm uPVC X.X% GRADE, X.XXm
SW PIPE - CHARGED (INCL. DIA/GRADE/LENGTH) — ØXXXmm uPVC CHARGE X.X% GRADE, X.XXm
SW PIT - GRATED / JUNCTION
SW - KERB INLET PIT (INCLUDING LINTEL)
RAINWATER/REUSE TANK — OR
GROSS POLLUTANT TRAP — GPT
GRATED DRAIN
INFILTRATION TRENCH
HEADWALL
SUBSOIL
SW SWALE
PIPE RISER — XX
PIPE DROPPER — XX
OVERLAND FLOW PATH
SW PIT NUMBER
SW CATCHMENT (NUMBER / AREA IN ha) — XX / X.XXX

PROPOSED - CIVIL

CONCRETE
ASPHALTIC CONCRETE
SAND
EARTH
RIP RAP
BUILDING / STRUCTURES
TIMBER
BLOCK PAVERS
RETAINING WALL
KERB RAMP
VEHICULAR CROSSING
FENCE
BATTER
BOLLARD - TYPE 1 (FIXED) — B-T1
BOLLARD - TYPE 2 (REMOVABLE) — B-T2
LINEMARKING - CHEVRON
EXPANSION JOINT — EJ
TRAVERSE JOINT — TJ
CONTROL JOINT — CJ
FINISHED GRADE LEVELS — 25.758
EXISTING GRADE LEVELS — 25.710

AutoCAD Civil 3D 2021

DWG IN COLOUR

THIS DRAWING IS NOT APPROVED FOR CONSTRUCTION UNLESS ENDORSED

REV	DESCRIPTION	DATE	APP'D	END'D
D	LEC AMENDMENTS	01.05.25	K.B.	
C	COUNCIL AMENDMENTS - S34 OUTCOMES	28.11.24	K.B.	
B	COUNCIL AMENDMENTS - PREL S34	13.08.24	K.B.	
A	ISSUED FOR DA APPROVAL	02.02.24	K.B.	

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web: www.wdagroup.com.au

PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
LEGEND, DRAWING SCHEDULE AND LOCATION PLAN

DRAWING STATUS: **DA APPROVAL**
NOT TO BE USED FOR CONSTRUCTION

SCALE:	ORIG. SIZE
N.T.S.	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25

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DRAWING No.: C01.01
REV: D

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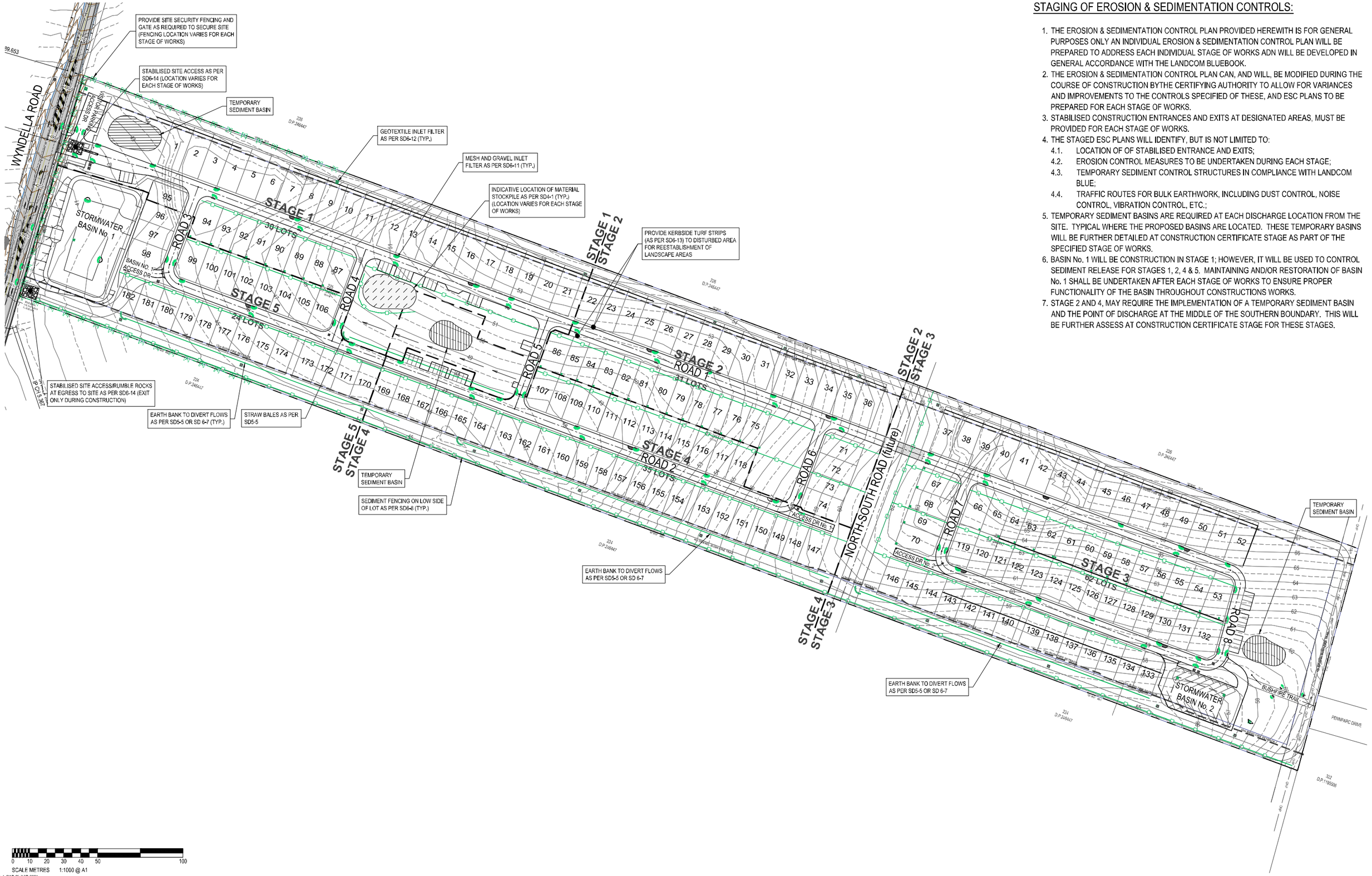

STAGING OF EROSION & SEDIMENTATION CONTROLS:

1. THE EROSION & SEDIMENTATION CONTROL PLAN PROVIDED HEREWITH IS FOR GENERAL PURPOSES ONLY AN INDIVIDUAL EROSION & SEDIMENTATION CONTROL PLAN WILL BE PREPARED TO ADDRESS EACH INDIVIDUAL STAGE OF WORKS ADN WILL BE DEVELOPED IN GENERAL ACCORDANCE WITH THE LANDCOM BLUEBOOK.
2. THE EROSION & SEDIMENTATION CONTROL PLAN CAN, AND WILL, BE MODIFIED DURING THE COURSE OF CONSTRUCTION BYTHE CERTIFYING AUTHORITY TO ALLOW FOR VARIANCES AND IMPROVEMENTS TO THE CONTROLS SPECIFIED OF THESE, AND ESC PLANS TO BE PREPARED FOR EACH STAGE OF WORKS.
3. STABILISED CONSTRUCTION ENTRANCES AND EXITS AT DESIGNATED AREAS, MUST BE PROVIDED FOR EACH STAGE OF WORKS.
4. THE STAGED ESC PLANS WILL IDENTIFY, BUT IS NOT LIMITED TO:
   - 4.1. LOCATION OF OF STABILISED ENTRANCE AND EXITS;
   - 4.2. EROSION CONTROL MEASURES TO BE UNDERTAKEN DURING EACH STAGE;
   - 4.3. TEMPORARY SEDIMENT CONTROL STRUCTURES IN COMPLIANCE WITH LANDCOM BLUE;
   - 4.4. TRAFFIC ROUTES FOR BULK EARTHWORK, INCLUDING DUST CONTROL, NOISE CONTROL, VIBRATION CONTROL, ETC.;
5. TEMPORARY SEDIMENT BASINS ARE REQUIRED AT EACH DISCHARGE LOCATION FROM THE SITE. TYPICAL WHERE THE PROPOSED BASINS ARE LOCATED. THESE TEMPORARY BASINS WILL BE FURTHER DETAILED AT CONSTRUCTION CERTIFICATE STAGE AS PART OF THE SPECIFIED STAGE OF WORKS.
6. BASIN No. 1 WILL BE CONSTRUCTION IN STAGE 1; HOWEVER, IT WILL BE USED TO CONTROL SEDIMENT RELEASE FOR STAGES 1, 2, 4 & 5. MAINTAINING AND/OR RESTORATION OF BASIN No. 1 SHALL BE UNDERTAKEN AFTER EACH STAGE OF WORKS TO ENSURE PROPER FUNCTIONALITY OF THE BASIN THROUGHOUT CONSTRUCTIONS WORKS.
7. STAGE 2 AND 4, MAY REQUIRE THE IMPLEMENTATION OF A TEMPORARY SEDIMENT BASIN AND THE POINT OF DISCHARGE AT THE MIDDLE OF THE SOUTHERN BOUNDARY. THIS WILL BE FURTHER ASSESS AT CONSTRUCTION CERTIFICATE STAGE FOR THESE STAGES.

SCALE METRES 1:1000 @ A1

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REV	DESCRIPTION	DATE	APP'D	END'D
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web: www.wdgroup.com.au
WALLACE DESIGN GROUP

PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
EROSION AND SEDIMENTATION CONTROL PLAN

DRAWING STATUS	DA APPROVAL NOT TO BE USED FOR CONSTRUCTION				
SCALE: 1:1000				ORIG. SIZE: A1	
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25
PROJECT No. 23128		DRAWING No. C03.01			REV D

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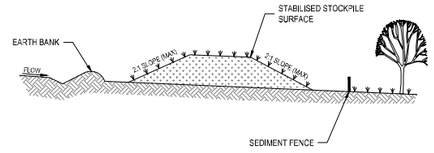
NOTE

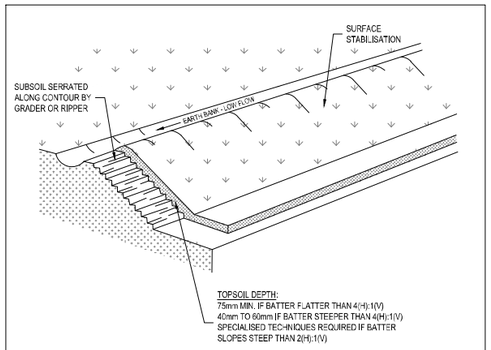
1. ALL EROSION & SEDIMENTATION CONTROL (ESC) PLAN DETAILS SHOWN ARE FROM *"MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION"*, LANDCOM, 2004. DETAILS, ALTHOUGH NOT SPECIFICALLY IDENTIFIED FOR USE ON THE ESC PLAN (SHEET C03.01), ARE PROVIDED IN THE EVENT ADDITIONAL CONTROLS ARE REQUIRED TO MINIMISE ON-SITE EROSION DURING THE COURSE OF CONSTRUCTION. IF AN ESC DETAIL IS NOT SHOWN, CONTRACTOR SHALL REFER TO THE ABOVE REFERENCED GUIDE.



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METERS FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0,10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METERS DOWNSLOPE.

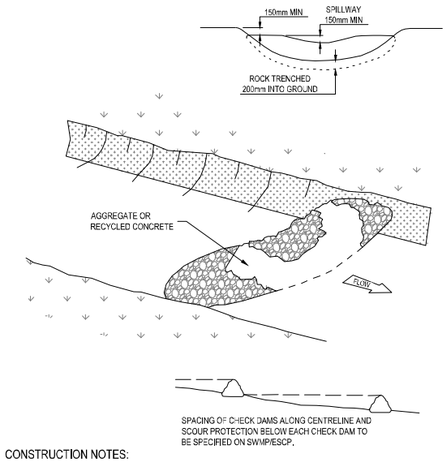
STOCKPILES SD 4-1



CONSTRUCTION NOTES:

1. SCARIFY THE GROUND SURFACE ALONG THE LINE OF THE CONTOUR TO A DEPTH OF 50mm TO 100mm TO BREAK UP ANY HARDSETTING SURFACES AND TO PROVIDE A GOOD BOND BETWEEN THE RESPREAD MATERIAL AND SUBSOIL.
2. ADD SOIL AMELIORANTS AS REQUIRED BY THE ESCP OR SWMP.
3. RIP TO A DEPTH OF 300mm IF COMPACTED LAYERS OCCUR.
4. WHERE POSSIBLE, REPLACE TOPSOIL TO A DEPTH OF 40 TO 60mm ON LANDS WHERE THE SLOPE EXCEEDS 4(H):1(V) AND TO AT LEAST 75mm ON LOWER GRADIENTS.

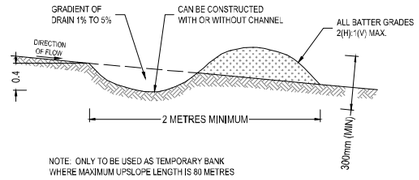
REPLACING TOPSOIL SD 4-2



CONSTRUCTION NOTES:

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANBAGS AND STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100mm ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY, THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150mm LOWER THAN THE OUTER EDGE.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

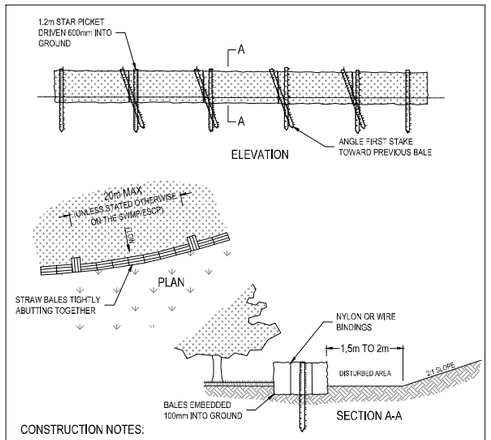
ROCK CHECK DAM SD 5-4



CONSTRUCTION NOTES:

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V-SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

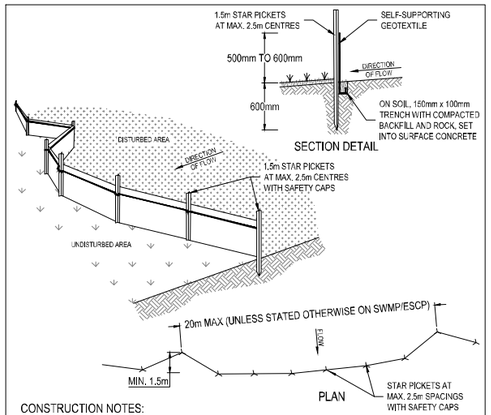
EARTH BANK (LOW FLOW) SD 5-5



CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

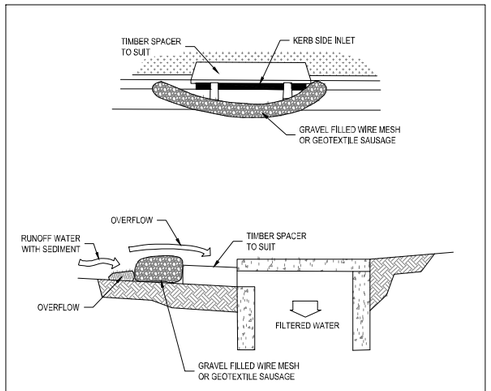
STRAW BALE FILTER SD 6-7



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE SD 6-8

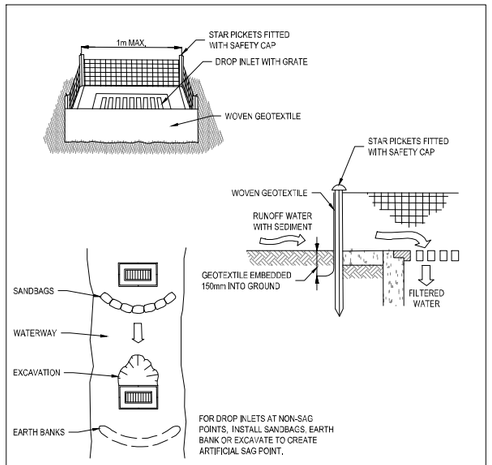


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP

CONSTRUCTION NOTES:

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

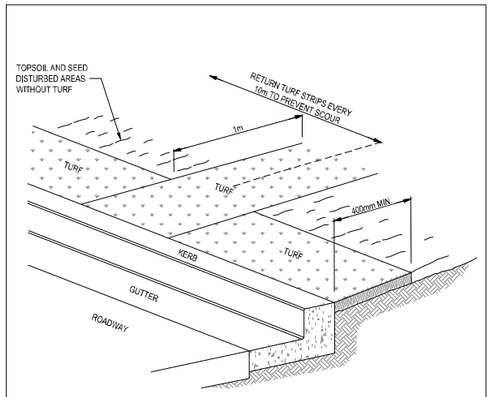
MESH AND GRAVEL INLET FILTER SD 6-11



CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

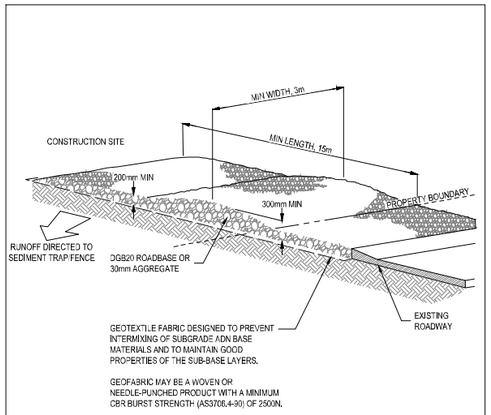
GEOTEXTILE INLET FILTER SD 6-12



CONSTRUCTION NOTES:

1. INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB AND LIGHTLY COMPACTED INTO THE TOPSOIL.
2. LAY 1.4 METRE LONG TURF STRIPS NORMAL TO THE KERB EVERY 10 METRES.
3. REHABILITATE DISTURBED SOIL BEHIND THE KERB BY SPREADING 20-25mm THICK LAYER OF TOPSOIL AND BROADCAST SEED MIX AT A RATE OF 0.3kg/10m2, UNLESS SPECIFIED OTHERWISE. TO DISTURBED AREAS WHERE TURF HAS NOT BEEN INSTALLED. SEEDS SHOULD BE SCRATCHED INTO THE SURFACE TO REDUCE THE INCIDENCE OF INGESTION BY BIRDS. IF SEED MIX DOES NOT INCLUDE STARTE FERTILISER, APPLY FERTILISER AT A RATE AS SPECIFIED.

KERBSIDE TURF STRIP SD 6-13



CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCTION A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABLISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABLISED SITE ACCESS SD 6-14

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A	ISSUED FOR DA APPROVAL	02.02.24	K.B.	

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PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
EROSION AND SEDIMENTATION CONTROL DETAILS

DRAWING STATUS: **DA APPROVAL**
NOT TO BE USED FOR CONSTRUCTION

SCALE:	ORIG. SIZE
N.T.S.	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25

PROJECT No.	DRAWING No.	REV
23128	C03.02	D

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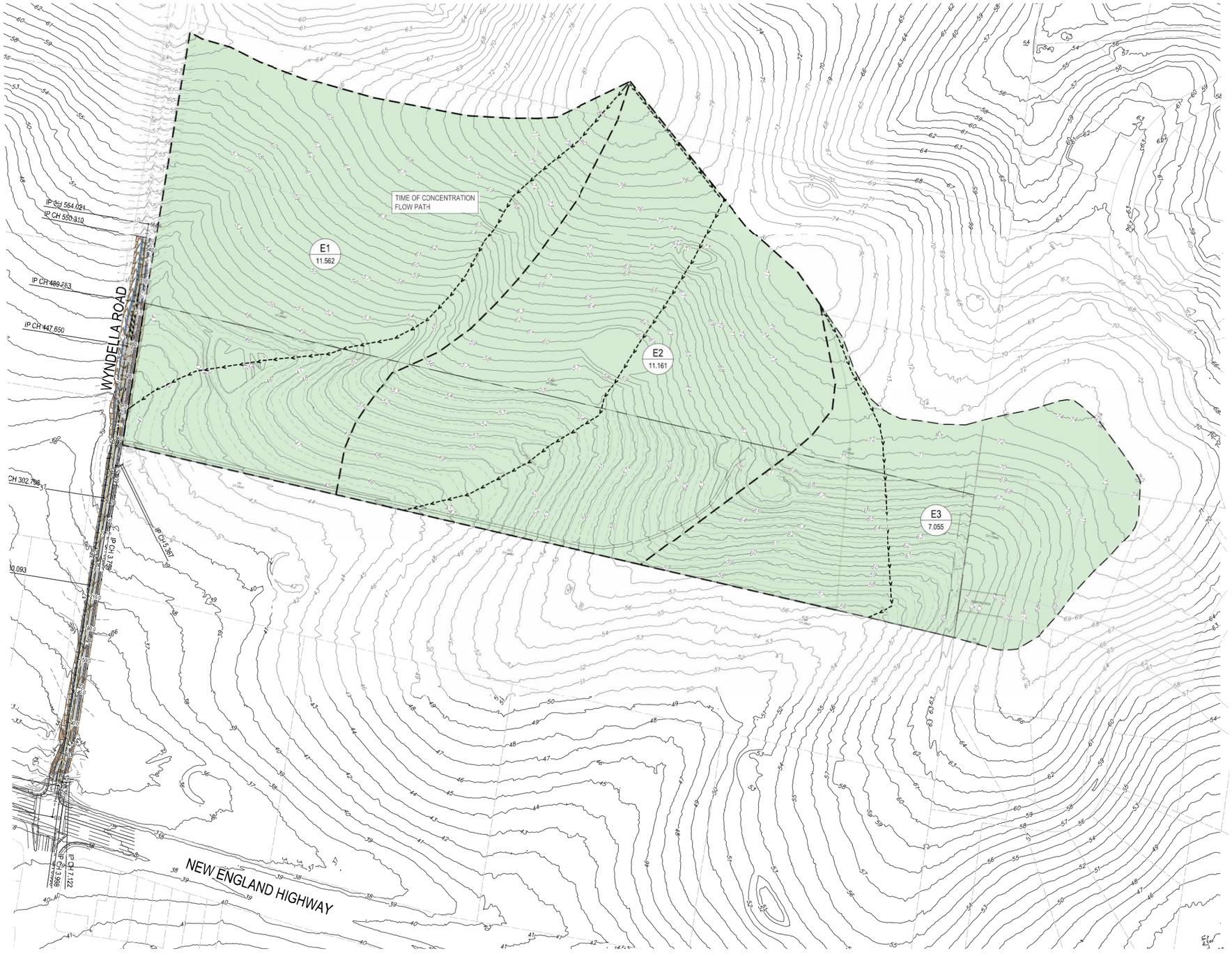

0 20 40 60 80 100 200

SCALE METRES 1:2000 @ A1

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PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
EXISTING STORMWATER CATCHMENT PLAN

DRAWING STATUS: **DA APPROVAL**
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SCALE:	ORIG. SIZE
1:2000	A1

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PROJECT No. 23128 | DRAWING No. C05.01 | REV D

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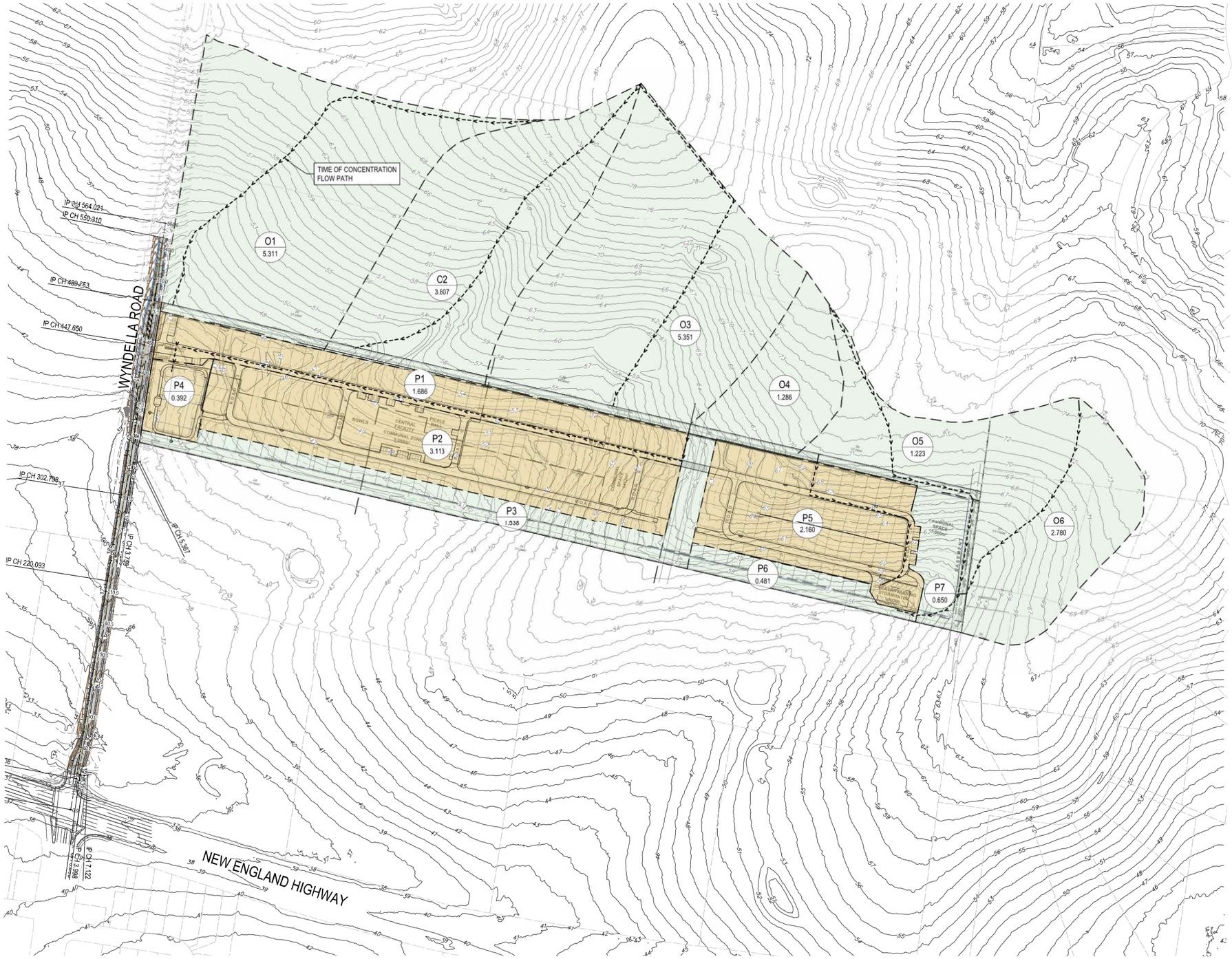

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CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
DEVELOPED STORMWATER CATCHMENT PLAN

DRAWING STATUS **DA APPROVAL**
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DRAWING No. C05.02
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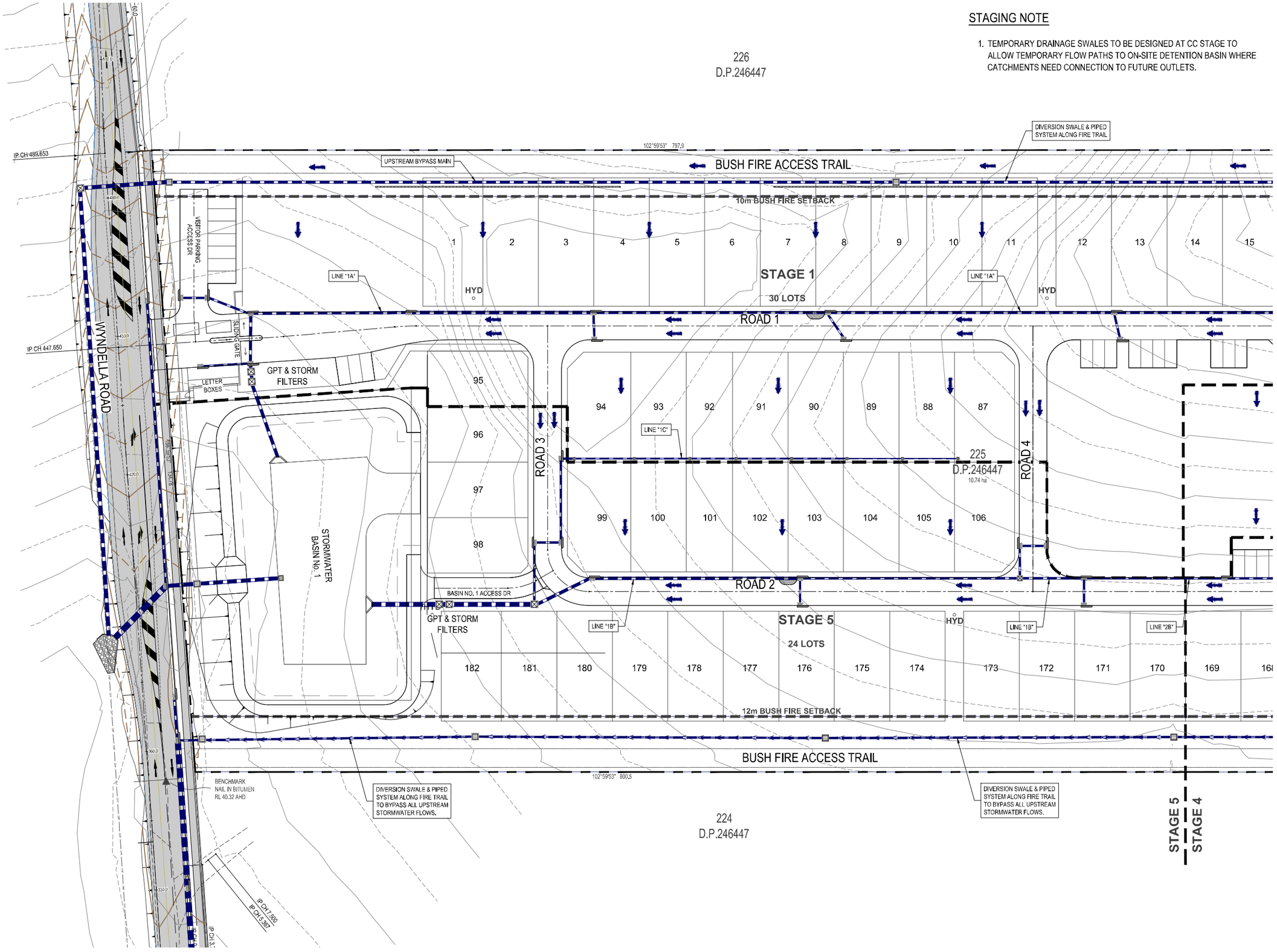
STAGING NOTE

1. TEMPORARY DRAINAGE SWALES TO BE DESIGNED AT CC STAGE TO ALLOW TEMPORARY FLOW PATHS TO ON-SITE DETENTION BASIN WHERE CATCHMENTS NEED CONNECTION TO FUTURE OUTLETS.



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CIVIL WORKS for
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34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
STORMWATER MANAGEMENT PLAN (1 OF 3)

DRAWING STATUS	**DA APPROVAL** NOT TO BE USED FOR CONSTRUCTION				
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PROJECT No.	23128	DRAWING No.	C05.03	REV	D

226
D.P.246447

STAGE 1 | STAGE 2 | STAGE 2 | STAGE 3

DIVERSION SWALE & PIPED SYSTEM ALONG FIRE TRAIL

102°59'53" 797.9

UPSTREAM BYPASS MAIN

4m GRAVEL BUSH FIRE TRAIL

UPSTREAM BYPASS MAIN

HYD

10m BUSH FIRE SETBACK

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

LINE "1A"

HYD

STAGE 2
31 LOTS

LINE "2A"

HYD

ROAD 1

86 85 84 83 82 81 80 79 78 77 76 75

LINE "2D"

LINE "2C"

ROAD 5

225
D.P.246447
10.74 ha

ROAD 6

71
72
73
74

NORTH-SOUTH ROAD (future)

107 108 109 110 111 112 113 114 115 116 117 118

ROAD 2

ACCESS DR No. 1

LINE "2B"

HYD

STAGE 4
35 LOTS

HYD

LINE "2B"

169 168 167 166 165 164 163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147

12m BUSH FIRE SETBACK

13m BUSH FIRE SETBACK

HYD

4m GRAVEL BUSH FIRE TRAIL

102°59'53" 800.5

DIVERSION SWALE & PIPED SYSTEM ALONG FIRE TRAIL TO BYPASS ALL UPSTREAM STORMWATER FLOWS.

DIVERSION SWALE & PIPED SYSTEM ALONG FIRE TRAIL TO BYPASS ALL UPSTREAM STORMWATER FLOWS.

STAGE 4 | STAGE 3

224
D.P.246447

0 10 20 40
SCALE METRES 1:400 @ A1

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CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
STORMWATER MANAGEMENT PLAN (2 OF 3)

DRAWING STATUS: **DA APPROVAL**
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SCALE:	ORIG. SIZE
1:400	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
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PROJECT No. 23128
DRAWING No. C05.04
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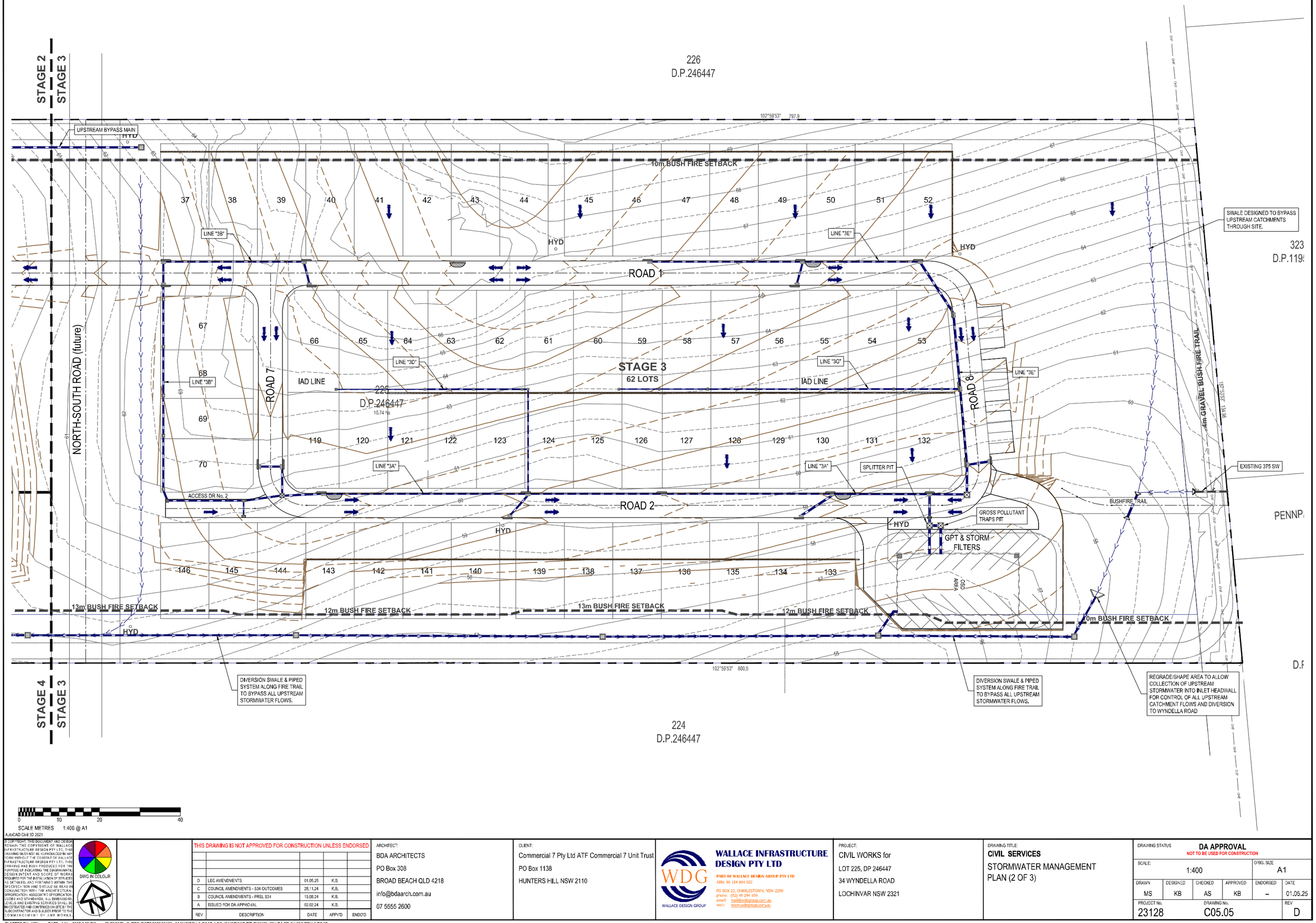

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DRAWING TITLE:
CIVIL SERVICES
STORMWATER MANAGEMENT PLAN (2 OF 3)

DRAWING STATUS	DA APPROVAL NOT TO BE USED FOR CONSTRUCTION				
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DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25
PROJECT No. 23128		DRAWING No. C05.05			REV D

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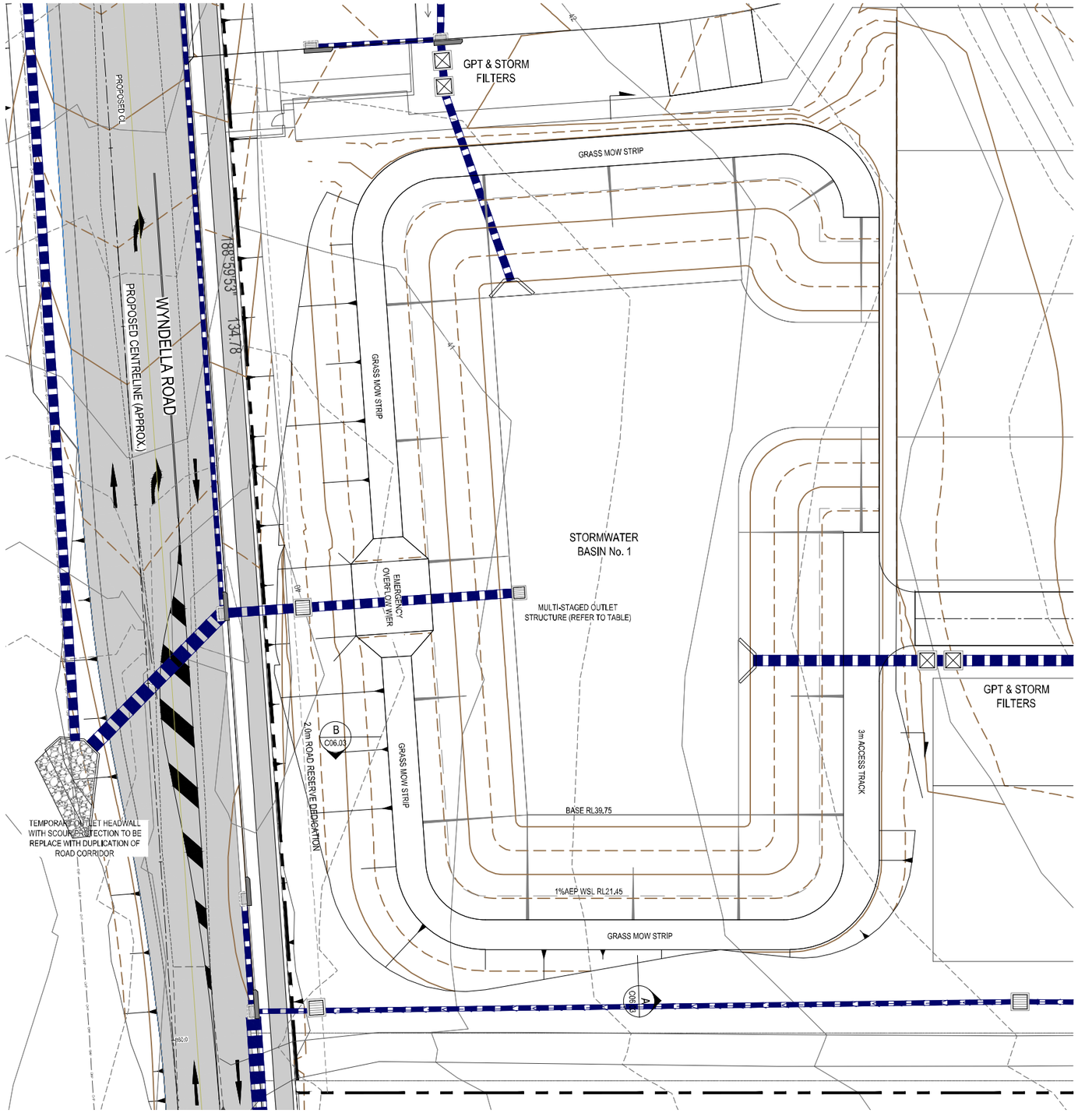
BASIN AND OUTLET CONTROL STRUCTURE NOTES:

TOTAL BASIN STORAGE	2290 m^3
WATER SURFACE LEVELS	
20% AEP	40.65 AHD
5% AEP	41.04 AHD
1% AEP	41.45 AHD
OUT CONTROL STRUCTURE	
ORIFICE 1 & 2	Ø350 AT 39.75 AHD
WEIR 1	425mm AT 40.65 AHD
WEIR 2	900X900 PIT AT 41.45 AHD
EMERGENCY SPILLWAY	3m AT 41.50 AHD



ON-SITE DETENTION BASIN No. 1 PLAN

1:200

0 2 4 6 8 10 20

SCALE METRES 1:200 @ A1

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email: mail@wdgroup.com.au
web: www.wdgroup.com.au
WALLACE DESIGN GROUP

PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
ON-SITE DETENTION BASIN No.1 PLAN

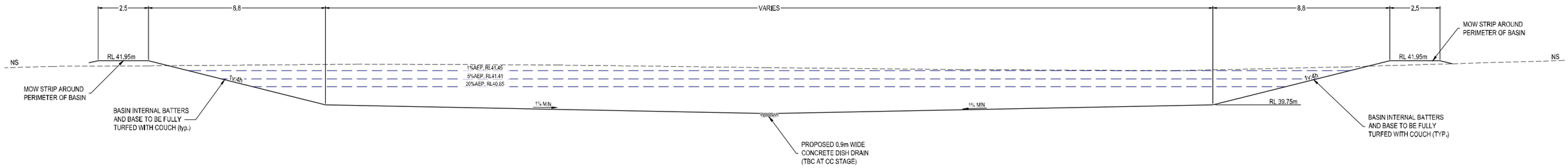
DRAWING STATUS **DA APPROVAL**
NOT TO BE USED FOR CONSTRUCTION

SCALE:	ORIG. SIZE
1:200	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25

PROJECT No.	DRAWING No.	REV
23128	C06.02	D

PLOTTED BY - KEN DATE - 1 May 2025 4:29 PM FILENAME - O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_DA[E]_34 WYNDELLA ROAD



SECTION - A
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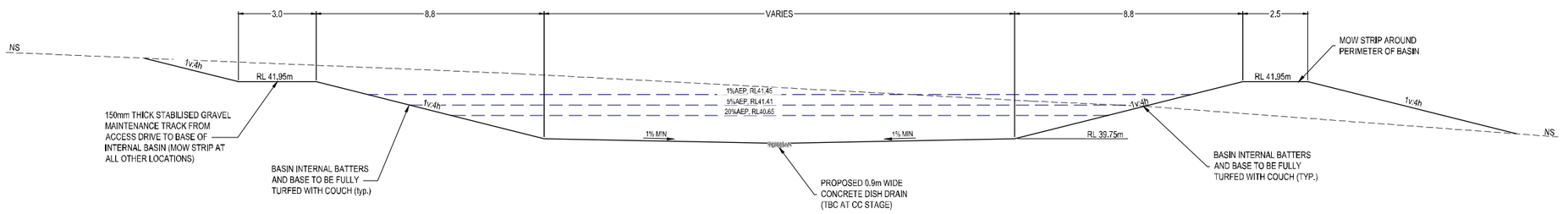

SECTION - B
1:100

0 2 4 5 10
SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021

DWG IN COLOUR

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REV	DESCRIPTION	DATE	APP'D	END'D
D	LEC AMENDMENTS	01.05.25	K.B.	
C	COUNCIL AMENDMENTS - S34 OUTCOMES	28.11.24	K.B.	
B	COUNCIL AMENDMENTS - PRE LS34	19.08.24	K.B.	
A	ISSUED FOR DA APPROVAL	02.02.24	K.B.	

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CLIENT:
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HUNTERS HILL NSW 2110

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WALLACE DESIGN GROUP

PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
ON-SITE DETENTION BASIN No.1
TYPICAL SECTIONS

DRAWING STATUS: **DA APPROVAL**
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SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25

PROJECT No. 23128
DRAWING No. C06.03
REV D

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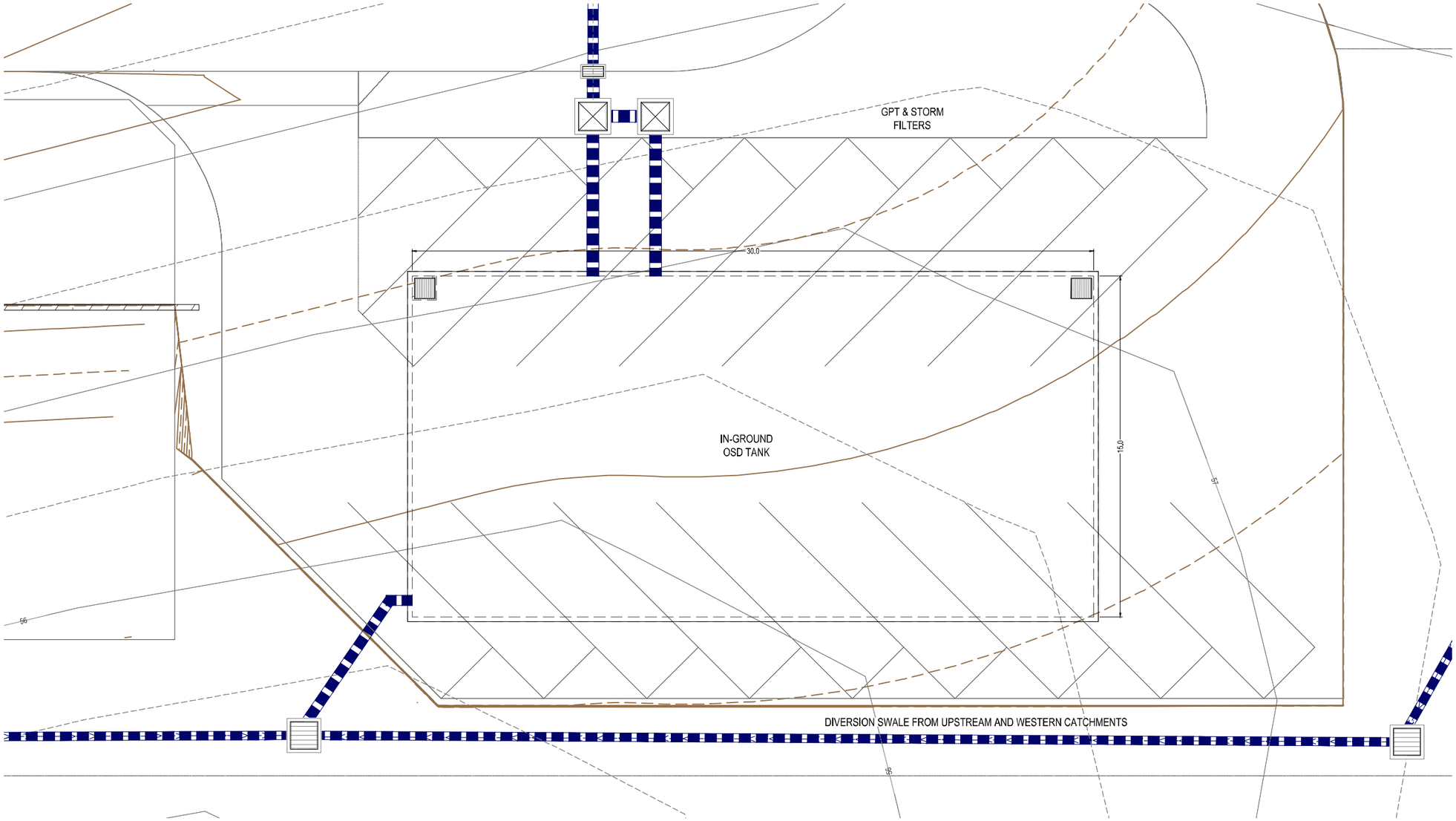

ON-SITE DETENTION TANK No. 2 PLAN

1:100

0 2 4 5 10

SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021

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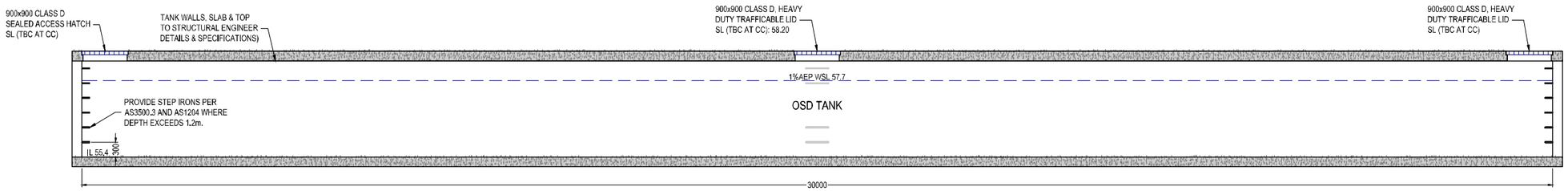
PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
ON-SITE DETENTION TANK No. 2 PLAN

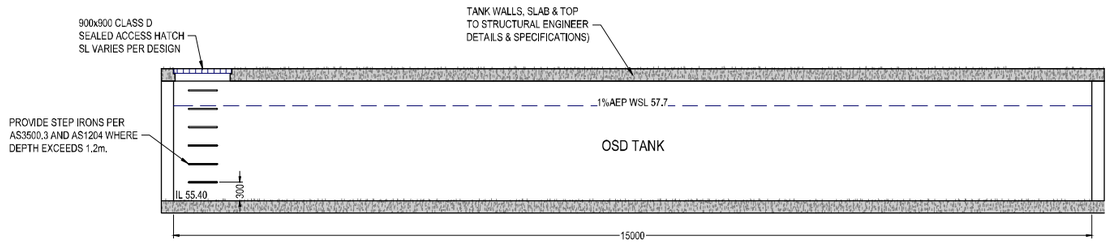
DRAWING STATUS	**DA APPROVAL** NOT TO BE USED FOR CONSTRUCTION					
SCALE:	1:100				ORIG. SIZE	A1
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE	
MS	KB	AS	KB	–	01.05.25	
PROJECT No.	23128	DRAWING No.	C06.04		REV	D

BASIN AND OUTLET CONTROL STRUCTURE NOTES:

TOTAL BASIN STORAGE	1035 m^3
WATER SURFACE LEVELS	
20% AEP	56.57 AHD
5% AEP	57.05 AHD
1% AEP	57.66 AHD
OUT CONTROL STRUCTURE	
ORIFICE 1	Ø250 AT 55.4 AHD
ORIFICE 2	Ø250 AT 56.6 AHD
EMERGENCY OVERFLOW WEIR	1.8m AT 57.7 AHD
OUTLET PIPE FROM TANK	450mm RCP



SECTION A



SECTION B

0 1 2 5

SCALE METRES 1:50 @ A1

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REV	DESCRIPTION	DATE	APP'D	END'D
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WALLACE DESIGN GROUP

PROJECT:
CIVIL WORKS for
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL SERVICES
ON-SITE DETENTION TANK No. 2
TYPICAL SECTIONS

DRAWING STATUS: **DA APPROVAL**
NOT TO BE USED FOR CONSTRUCTION

SCALE:	ORIG. SIZE
1:50	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	AS	KB	–	01.05.25

PROJECT No. 23128
DRAWING No. C06.05
REV D

PLOTTED BY - KEN DATE - 1 May 2025 4:29 PM FILENAME - O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_DA[E]_34 WYNDELLA ROAD

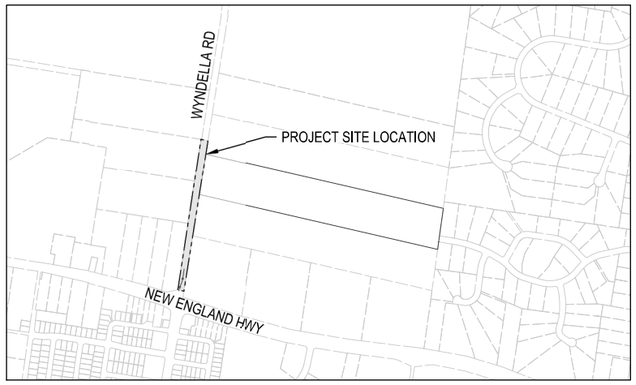
KENNETH D BOYER
(BE Civil) MIE Aust CPEng
Signature:
Chartered Professional Engineer
Membership No. 4404352
Registered on the NER in the area(s) of practice of CIVIL

WALLACE DESIGN GROUP

ROAD IMPROVEMENT for WYNDELLA ROAD NEW ENGLAND HWY TO LOT 225, DP246447 LOCHIVAR NSW 2321

Prepared by

WALLACE INFRASTRUCTURE DESIGN PTY LTD



LOCATION PLAN
(NTS)

DRAWING NUMBER	DRAWING DESCRIPTION
C01.01	LEGEND, DRAWING SCHEDULE AND LOCATION PLAN
C02.01	GENERAL NOTES
C02.02	GENERAL ARRANGEMENT PLAN
C03.01	EROSION AND SEDIMENTATION CONTROL PLAN
C03.02	EROSION AND SEDIMENTATION CONTROL DETAILS
C04.01	WYNDELLA ROAD DETAIL PLAN AND LONGITUDINAL SECTION
C04.02	WYNDELLA ROAD DETAIL PLAN AND LONGITUDINAL SECTION
C04.03	WYNDELLA ROAD CROSS-SECTIONS
C04.04	WYNDELLA ROAD CROSS-SECTIONS
C04.05	WYNDELLA ROAD CROSS-SECTIONS
C04.06	WYNDELLA ROAD CROSS-SECTIONS
C04.07	WYNDELLA ROAD CROSS-SECTIONS
C04.08	WYNDELLA ROAD CROSS-SECTIONS
C04.09	LOT 223 & LOT 224 DRIVEWAY AND BUSHFIRE ACCESS LONGITUDINAL SECTIONS
C05.01	STORMWATER CATCHMENT PLAN
C05.02	STORMWATER MANAGEMENT PLAN
C05.03	STORMWATER LONGITUDINAL SECTIONS
C06.01	TYPICAL ROAD SECTIONS
C06.02	TYPICAL CULVERT SECTIONS AND DETAILS

ABBREVIATIONS

A/G	ABOVE GROUND	IFC	ISSUED FOR CONSTRUCTION	SV	STOP VALVE
AGG	AGGREGATE	IFCR	ISSUED FOR CLIENT REVIEW	SW	STORMWATER
ARCH	ARCHITECT	IL	INVERT LEVEL	SWP	STORMWATER PIT
ASP	ASPHALT	IO	INSPECTION OPENING	THK	THICKNESS
BM	BENCHMARK	KIP	KERB INLET PIT	TJ	TRAVERSE JOINT
CAD	COMPUTER AIDED DRAFTING	L	LENGTH	TOW	TOP OF WALL
C-C	CENTRE TO CENTRE	LP	LAMP POST (SURVEY)	TW	TRADE WASTE
CH	CHAINAGE	MAX	MAXIMUM	TYP	TYPICAL
CI	CAST IRON	MC	MASS CONCRETE	U/G	UNDERGROUND
CJ	CONSTRUCTION JOINT	MH	MANHOLE	UNO	UNLESS NOTED OTHERWISE
CL	COVER LEVEL or CENTRE LINE	MIN	MINIMUM	U/S	UPSTREAM
CO	CLEAN OUT (SUBSOIL)	MISC	MISCELLANEOUS	VC	VITRIFIED CLAY PIPE
COG	CHANGE OF GRADE	N	NORTH	VP	VENT PIPE
CONC	CONCRETE	NRV	NON RETURN VALVE	VR	VERTICAL RISER
CTRL	CONTROL	NTS	NOT TO SCALE	W	WIDTH
CR	CROWN	OD	OUTER DIAMETER	WC	WATER CLOSET
CTS	CENTRES	OF	OVERFLOW	WL	WATER LEVEL
D	DEPTH	OH	OVERHEAD	WM	WATER METER
DIA	DIAMETER	PP	POWER POLE	WS	WASTE STACK
DP	DOWNPIPE	PPE	PERSONAL PROTECTIVE EQUIP.		
DRG	DRAWING	PVC	POLYVINYLCHLORIDE		
D/S	DOWN STREAM	PV	PRESSURE VENT		
DTM	DIGITAL TERRAIN MODEL	PVP	PRESSURE VENT PIPE		
EB	EDGE BITUMIN	QA	QUALITY ANALYSIS		
EX	EXISTING	QTY	QUANTITY		
ESL	EXISTING SURFACE LEVEL	R	RADIUS		
FH	FIRE HYDRANT	RC	REINFORCED CONCRETE		
FHR	FIRE HOSE REEL	REV	REVISION		
FFL	FINISHED FLOOR LEVEL	RL	REDUCED LEVEL		
FGL	FINISHED GROUND LEVEL	RW	RETAINING WALL		
FSL	FINISHED SURFACE LEVEL	SFW	SEALED FLOOR WASTE		
FW	FLOOR WASTE	SL	SURFACE LEVEL		
GA	GENERAL ARRANGEMENT	SMH	SEWER MANHOLE		
GI	GALVANISED IRON	SMV	SEWER MAIN VENT		
GFL	GARAGE FINISHED LEVEL	SOD	SIDE OUTLET DRAIN		
IC	INSPECTION CHAMBER	S/S	STAINLESS STEEL		
ID	INSIDE DIAMETER	STD	STANDARD		

UNITS

mm	MILLIMETRES
cm	CENTIMETRES
m	METRES
m^2	SQUARE METRES
m^3	CUBIC METRES
L/s	LITRES PER SECOND
ha	HECTARES

LINETYPES & SYMBOLS

GENERAL
SITE BOUNDARY
CADASTRAL BOUNDARY
EASEMENT BOUNDARY

EXISTING FEATURES
CONTOURS
STORMWATER PIPE
STORMWATER PIT
ELECTRICAL CABLE - U/G
ELECTRICAL CABLE - O/H
EXISTING SEWER PIPE
EXISTING WATER
EXISTING WATER (HYDRANT)
EXISTING WATER (STOP VALVE)
EXISTING TELECOM
COMMUNICATIONS PIT
EXISTING GAS
EXISTING BUILDING
TREES / SHRUBS

PROPOSED - BUILDING (INDICATIVE ONLY)
DWELLING NUMBER — UNIT 01
FINISHED FLOOR LEVEL — FFL 5.00
BUILDING FOOTPRINT

PROPOSED - UTILITIES
SEWER
WATER
COMMUNICATIONS
COMMUNICATIONS - OPTIC FIBRE
COMMUNICATIONS PIT
GAS
ELECTRICAL CABLE - U/G
ELECTRICAL CABLE - O/H
REDUNDANT

PROPOSED - EROSION AND SEDIMENT CONTROL
SITE EXCLUSION FENCE
SEDIMENT FENCE
DIVERSION DRAIN
STABLISED SITE ACCESS
MATERIAL STOCKPILE
SLOPE DIRECTION
GEOTEXTILE INLET FILTER
MESH AND GRAVEL INLET FILTER
SANDBAG / HAY BALES

PROPOSED CONTOURS
MAJOR CONTOUR INTERVAL
MINOR CONTOUR INTERVAL

PROPOSED - STORMWATER
SW PIPE (INCL. DIA/GRADE/LENGTH) — ØXXXmm uPVC X.X% GRADE, X.XXm
SW PIPE - CHARGED (INCL. DIA/GRADE/LENGTH) — ØXXXmm uPVC CHARGE X.X% GRADE, X.XXm
SW PIT - GRATED / JUNCTION
SW - KERB INLET PIT (INCLUDING LINTEL)
RAINWATER/REUSE TANK — OR
GROSS POLLUTANT TRAP — GPT
GRATED DRAIN
INFILTRATION TRENCH
HEADWALL
SUBSOIL
SW SWALE
PIPE RISER — XX
PIPE DROPPER — XX
OVERLAND FLOW PATH
SW PIT NUMBER — ?
SW CATCHMENT (NUMBER / AREA IN ha) — XX / X.XXX

PROPOSED - CIVIL
CONCRETE
ASPHALTIC CONCRETE
SAND
EARTH
RIP RAP
BUILDING / STRUCTURES
TIMBER
BLOCK PAVERS
RETAINING WALL
KERB RAMP
VEHICULAR CROSSING
FENCE
BATTER
BOLLARD - TYPE 1 (FIXED) — B-T1
BOLLARD - TYPE 2 (REMOVABLE) — B-T2
LINEMARKING - CHEVRON
EXPANSION JOINT — EJ
TRAVERSE JOINT — TJ
CONTROL JOINT — CJ
FINISHED GRADE LEVELS — 25.758
EXISTING GRADE LEVELS — 25.710

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REV	DESCRIPTION	DATE	APPV'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
LEGEND, DRAWING SCHEDULE AND LOCATION PLAN

DRAWING STATUS: **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
N.T.S.	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C01.01	B

GENERAL NOTES

1. ALL CONSTRUCTION WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S ENGINEERING REQUIREMENTS FOR DEVELOPMENTS.
2. ALL DIMENSIONS, EASEMENTS AND LOTS SUBJECT TO REGISTRATION OF DEPOSITED PLAN.
3. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND CONSULTANT'S DRAWINGS AND SPECIFICATIONS, AND OTHER WRITTEN REPORTS (e.g GEOTECHNICAL, ARBORIST, ENVIRONMENTAL, ETC.). ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH ANY WORKS.
4. ALL LEVELS SHALL BE OBTAINED FROM ESTABLISHED BENCH MARKS AS DIRECTED BY THE SUPERVISOR.
5. THE DEVELOPER, SHALL ENSURE ALL ASSOCIATED DOCUMENTATION (GEOTECHNICAL, LANDSCAPE, ARCHITECTURAL, ELECTRICAL, TELECOM, GAS ETC.) HAS BEEN APPROVED FOR CONSTRUCTION BEFORE COMMENCING ANY WORKS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION, PROTECTION AND ADJUSTMENT TO ALL IN GROUND AND ABOVE GROUND SERVICES. SEE HUNTER WATER'S NOTICE OF REQUIREMENTS.
7. EROSION CONTROL MEASURES, DEVICES, SILT TRAPS. ETC. ARE TO BE INSTALLED BEFORE ANY SITE DISTURBANCE IN ACCORDANCE WITH COUNCIL INSPECTORS REQUIREMENTS AND SITE SEDIMENTATION AND EROSION CONTROL PLANS.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL WORKS ARE CARRIED OUT IN ACCORDANCE WITH THE WORK HEALTH SAFETY ACT.
9. VEHICULAR ACCESS AND ALL SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION WORKS.
10. ALL WASTE OR DEMOLISHED MATERIALS SHALL BE DISPOSED OF OFF SITE TO A COUNCIL APPROVED SITE. ALL FEES AND CHARGES SHALL BE INCLUDED IN THE CONTRACT SUM.
11. CONSTRUCTION VIBRATION TO COMPLY WITH AS2760.1-2004 AND/OR NSW DEPT OF ENVIRONMENT AND CONSERVATION NOISE REQUIREMENTS
12. EMISSIONS FROM SITE ARE NOT TO INTERFERE WITH THE AMENITY OF THE NEIGHBORHOOD.
13. NOISE EMISSIONS ARE TO COMPLY WITH NSW EPA NOISE CONTROL MANUAL. TIME RESTRICTIONS APPLY TO CONSTRUCTION WORKS AS FOLLOWS: 7AM TO 6PM MON-FRI; 8AM TO 1PM SAT.
14. TREES & SHRUBS WHICH ARE FELLED SHALL BE SALVAGED FOR RE-USE, EITHER IN LOG FORM, OR AS A WOODCHIP MULCH FOR EROSION CONTROL AND/OR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS ROOTS & STUMPS SHALL BE DISPOSED OF IN AN APPROVED MANNER.
15. 'ESCP' REFERS TO EROSION AND SEDIMENT CONTROL PLAN, 'SWMP' REFERS TO SOIL AND WATER MANAGEMENT PLAN, AND, 'ESC' REFERS TO EROSION AND SEDIMENT CONTROL.
16. SEDIMENT, INCLUDES, BUT IS NOT LIMITED TO, CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT AND CERAMIC WASTE.
17. ANY REFERENCE TO THE BLUE BOOK REFERS TO *"MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION"*, LANDCOM, 2004.
18. ANY REFERENCE TO THE IECA WHITE BOOKS (2008) REFERS TO IECA 2008, *"BEST PRACTICE EROSION AND SEDIMENT CONTROL"*. BOOKS 1-6. INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIA), PICTON, NSW.
19. ANY MATERIAL DEPOSITED IN ANY CONSERVATION AREA FROM WORKS ASSOCIATED WITH THE DEVELOPMENT SHALL BE REMOVED IMMEDIATELY BY MEASURES INVOLVING MINIMAL GROUND AND/OR VEGETATION DISTURBANCES AND NO MACHINERY, OR FOLLOWING DIRECTIONS BY COUNCIL AND/OR WITHIN A TIMEFRAME ADVISED BY COUNCIL.

SURVEY NOTES

1. THE EXISTING SURVEY CONDITIONS SHOWN ON THESE DRAWINGS HAVE BEEN DERIVED FROM SURVEY INFORMATION SUPPLIED BY DeWITT CONSULTING ENGINEERS, DATED AUGUST 2023, REF NO. 14576.
2. THE FOLLOWING SURVEY INFORMATION HAS BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS:

POSITION DATUM:	SSM 4168
ORIENTATION:	MGA 56
EASTING:	355270.281
NORTHING:	6380990.909
HEIGHT DATUM:	RL: 35.273 (AHD)

3. THE INFORMATION SHOWN IS PROVIDED AS A BASIS FOR THE DESIGN. WALLACE DESIGN GROUP DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
4. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTRACTOR SHALL CONTACT DeWITT CONSULTING.
5. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.

THE ESCP

1. THE ESCP AND ITS ASSOCIATED ESC MEASURES SHALL BE CONSTANTLY MONITORED, REVIEWED AND MODIFIED AS REQUIRED TO CORRECT DEFICIENCIES. COUNCIL HAS THE RIGHT TO DIRECT CHANGES IF, IN ITS OPINION, THE MEASURES THAT ARE PROPOSED OR HAVE BEEN INSTALLED ARE INADEQUATE TO PREVENT POLLUTION.
2. PRIOR TO ANY ACTIVITIES ONSITE, THE RESPONSIBLE PERSON(S) IS TO BE NOMINATED. THE RESPONSIBLE PERSON(S) SHALL BE RESPONSIBLE FOR THE ESC MEASURES ONSITE. THE NAME, ADDRESS AND 24 HOUR CONTACT DETAILS OF THE PERSON(S) SHALL BE PROVIDED TO COUNCIL IN WRITING. COUNCIL SHALL BE ADVISED WITHIN 48 HOURS OF ANY CHANGES TO THE RESPONSIBLE PERSON(S), OR THEIR CONTACT DETAILS, IN WRITING.
3. AT LEAST 14 DAYS BEFORE THE NATURAL SURFACE IS DISTRIBUTED IN ANY NEW STAGE, THE CONTRACTOR SHALL SUBMIT TO THE CERTIFIER A PLAN SHOWING ESC MEASURES FOR THAT STAGE. THE DEGREE OF DESIGN DETAIL SHALL BE BASED ON THE DISTRIBUTED AREA.
4. AT ANY TIME, THE ESC MEASURES ONSITE SHALL BE APPROPRIATE FOR THE AREA OF DISTURBANCE AND ITS CHARACTERISTICS, INCLUDING SOIL TYPE (IN ACCORDANCE WITH THOSE REQUIRED FOR THE SITE AS PER THE DCP).
5. THE IMPLEMENTATION OF THE ESCP SHALL BE SUPERVISED BY PERSONNEL WITH APPROPRIATE QUALIFICATIONS AND/OR EXPERIENCE IN ESC ON CONSTRUCTION SITES.
6. THE APPROVED ESCP SHALL BE AVAILABLE ON-SITE FOR INSPECTION BY COUNCIL OFFICERS WHILE WORK ACTIVITIES ARE OCCURRING.
7. THE APPROVED ESCP SHALL BE UP TO DATE AND SHOW A TIMELINE OF INSTALLATION, MAINTENANCE AND REMOVAL OF ESC MEASURES.
8. ALL ESC MEASURES SHALL BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ONSITE, IN ACCORDANCE WITH THE BLUE BOOK, IECA WHITE BOOKS OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS PERTAINING TO ESC FOR AUSTRALIAN CONDITIONS.
9. ADEQUATE SITE DATA, INCLUDING SOIL DATA FROM A NATA APPROVED LABORATORY, SHALL BE OBTAINED TO ALLOW FOR THE PREPARATION OF AN APPROPRIATE ESCP, AND TO ALLOW FOR THE SELECTION, DESIGN AND SPECIFICATION OF REQUIRED ESC MEASURES.
10. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED ESCP (AS AMENDED FROM TIME TO TIME) UNLESS CIRCUMSTANCES ARISE WHERE:
    A) COMPLIANCE WITH THE ESCP WOULD INCREASE THE POTENTIAL FOR ENVIRONMENTAL HARM
    B) CIRCUMSTANCES CHANGE DURING CONSTRUCTION AND THOSE CIRCUMSTANCES COULD NOT HAVE BEEN FORSEEN; OR
    C) COUNCIL DETERMINES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF A LAND-DISTURBING ACTIVITY. IN EITHER CASE, THE PERSON(S) RESPONSIBLE MAY BE REQUIRED TO TAKE ADDITIONAL, OR ALTERNATIVE PROTECTIVE ACTION, AND/OR UNDERTAKE REASONABLE RESTORATION WORKS WITHIN THE TIMEFRAME SPECIFIED BY THE COUNCIL.
11. ADDITIONAL ESC MEASURES SHALL BE IMPLEMENTED, AND A REVISED ESCP SUBMITTED FOR APPROVAL TO THE CERTIFIER (WITHIN 5 BUSINESS DAYS OF AN SUCH AMENDMENTS) IN THE EVENT THAT:
    A) THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE; OR
    B) THE IMPLEMENTED WORKS FAIL TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES SPECIFIED IN THESE CONDITIONS; OR
    C) SITE CONDITIONS SIGNIFICANTLY CHANGE; OR
    D) SITE INSPECTIONS INDICATE THAT THE IMPLEMENTED WORKS ARE FAILING TO ACHIEVE THE "OBJECTIVE" OF THE ESCP.
12. A COPY OF ANY AMENDED ESCP SHALL BE FORWARDED TO AN APPROPRIATE COUNCIL OFFICER, WITHIN FIVE BUSINESS DAYS OF ANY SUCH AMENDMENTS.

SITE ESTABLISHMENT INCLUDING CLEARING AND MULCHING

1. NO LAND CLEARING SHALL BE UNDERTAKEN UNLESS PRECEDED BY THE INSTALLATION OF ADEQUATE DRAINAGE AND SEDIMENT CONTROL MEASURES, UNLESS SUCH CLEARING IS REQUIRED FOR THE PURPOSE OF INSTALLING SUCH MEASURES, IN WHICH CASE, ONLY THE MINIMUM CLEARING REQUIRED TO INSTALL SUCH MEASURES SHALL OCCUR.
2. BULK TREE CLEARING AND GRUBBING OF THE SITE SHALL BE IMMEDIATELY FOLLOWED BY SPECIFIED TEMPORARY EROSION CONTROL MEASURES (E.G. TEMPORARY GRASSING OR MULCHING) PRIOR TO THE COMMENCEMENT OF EACH STAGE OF CONSTRUCTION WORKS.
3. TREES AND VEGETATION CLEARED FROM THE SITE SHALL BE MULCHED ONSITE WITHIN 7 DAYS OF CLEARING.
4. APPROPRIATE MEASURES SHALL BE UNDERTAKEN TO CONTROL ANY DUST ORIGINATING DUE TO THE MULCHING OF VEGETATION ONSITE.
5. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES SHALL BE LOCATED SUCH THAT ANY EFFLUENT, INCLUDING WASH-DOWN WATER, CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE.
6. ALL REASONABLE AND PRACTICABLE MEASURES SHALL BE TAKEN TO ENSURE STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT SYSTEMS DRAINS TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.
7. SITE EXIT POINTS SHALL BE APPROPRIATELY MANAGED TO MINIMISE THE RISK OF SEDIMENT BEING TRACKED ONTO SEALED, PUBLIC ROADWAYS.
8. STORMWATER RUNOFF FROM ACCESS ROADS AND STABILIZED ENTRY/EXIT POINTS SHALL DRAIN TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.
9. THE APPLICANT SHALL ENSURE AN ADEQUATE SUPPLY OF ESC, AND APPROPRIATE POLLUTION CLEAN-UP MATERIALS ARE AVAILABLE ON-SITE AT ALL TIMES.
10. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, AND SEDIMENT BASIN EMBANKMENTS SHALL BE MACHINE-COMPACTED, SEEDED AND MULCHED WITHIN 10 DAYS OF FORMATION FOR THE PURPOSE OF ESTABLISHING A VEGETATIVE COVER, OR LINED APPROPRIATELY.
11. SEDIMENT DEPOSITED OFF SITE AS A RESULT OF ON--SITE ACTIVITIES SHALL BE COLLECTED AND THE AREA CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE.
12. CONCRETE WASTE AND CHEMICAL PRODUCTS INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, SHALL BE PREVENTED FROM ENTERING ANY INTERNAL OR EXTERNAL WATER BODY, OR ANY EXTERNAL DRAINAGE SYSTEM, EXCLUDING THOSE ON-SITE WATER BODIES SPECIFICALLY DESIGNED TO CONTAIN AND/OR TREAT SUCH MATERIAL. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE.
13. BRICK, TILE OR MASONRY CUTTINGS SHALL BE CARRIED OUT ON A PERVIOUS SURFACE (E.G. GRASS OR OPEN SOIL) AND IN SUCH A MANNER THAT ANY RESULTING SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN OR WATER. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE.
14. NEWLY SEALED HARD-STAND AREAS (E.G. ROADS, DRIVEWAYS AND CAR PARKS) SHALL BE SWEPT THOROUGHLY AS SOON AS PRACTICABLE AFTER SEALING/SURFACING TO MINIMISE THE RISK OF COMPONENTS OF THE SURFACING COMPOUND ENTERING THE STORMWATER DRAINS.
15. STOCKPILES OF ERODIBLE MATERIAL SHALL BE PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC OR ORGANIC) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS.
16. STOCKPILES, TEMPORARY OR PERMANENT, SHALL NOT BE LOCATED IN AREAS IDENTIFIED AS NO-GO ZONES (INCLUDING, BUT NOT LIMITED TO, RESTRICTED ACCESS AREAS, BUFFER ZONES, OR AREAS OF NON-DISTURBANCE) ON THE ESCP.
17. NO MORE THAN 150m OF STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH SHALL BE TO OPEN AT ANY ONE TIME.
18. SITE SPOIL SHALL BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
19. WHEREVER REASONABLE AND PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, AND NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, SHALL BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION AND THE CONTAMINATION OF THAT WATER FROM ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE.

SITE MANAGEMENT INCLUDING DUST

1. PRIORITY SHALL BE GIVEN TO THE PREVENTION, OR AT LEAST THE MINIMISATION, OF SOIL EROSION, RATHER THAN THE TRAPPING OF DISPLACED SEDIMENT. SUCH A CLAUSE SHALL NOT REDUCE THE RESPONSIBILITY TO APPLY AND MAINTAIN, AT ALL TIMES, ALL NECESSARY ESC MEASURES.
2. MEASURES USED TO CONTROL WIND EROSION SHALL BE APPROPRIATE FOR THE LOCATION AND PREVENT SOIL EROSION AND EMISSIONS FROM SITE AT ALL TIMES, INCLUDING WORKING HOURS, OUT OF HOURS, WEEKENDS, PUBLIC HOLIDAYS, AND DURING ANY OTHER SHUTDOWN PERIODS.
3. THE APPLICATION OF LIQUID OR CHEMICAL-BASED DUST SUPPRESSION MEASURES SHALL ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
4. ALL CUT AND FILL EARTH BATTERS LESS THAN 3m IN ELEVATION SHALL BE TOPSOILED, AND GRASS SEEDED/HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF GRADING IN CONSULTATION WITH COUNCIL.
5. ALL DISTURBED AREAS SHALL BE STABILISED IN ACCORDANCE WITH TIMELINES IN THE BLUE BOOK.
6. ALL REASONABLE AND PRACTICABLE MEASURES SHALL BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE.
7. SUITABLE ALL-WEATHER MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.
8. SEDIMENT CONTROL DEVICES OTHER THAN SEDIMENT BASINS SHALL BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WETHER NATURAL OR ARTIFICIAL, IF THE DEVICES SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGNED RETENTION CAPACITY.
9. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, SHALL BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATION LIVES.
10. WASHING/FLUSHING OF SEALED ROADWAYS SHALL ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS), IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES SHALL BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO THE RECEIVING WATERS, ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY AND PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS SHALL BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
11. SEDIMENT REMOVED FROM SEDIMENT TRAPS AND PLACES OF SEDIMENT DEPOSITIONS SHALL BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

REVEGETATION/STABILISATION

1. TEMPORARY STABILISATION MAY BE ATTAINED USING VEGETATION, NON WETTABLE SOIL POLYMERS, OR PNEUMATICALLY APPLIED EROSION CONTROLS.
2. ALL CUT AND FILL EARTH BATTERS LESS THAN 3m IN ELEVATION SHALL BE TOPSOILED, AND GRASS SEEDED/HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF GRADING IN CONSULTATION WITH COUNCIL.
3. AT THE COMPLETION OF FORMATION IN ANY SECTION, ALL DISTRIBUTED AREAS SHALL BE STABILISED IN ACCORDANCE WITH TIME LINES IN THE BLUE BOOK.
4. THE COUNCIL SEED MIX SHALL BE USED UNLESS STATED ON THE ESCP/SWMP.
5. THE PH LEVEL OF TOPSOIL SHALL BE APPROPRIATE TO ENABLE ESTABLISHMENT AND GROWTH OF SPECIFIED VEGETATION PRIOR TO INITIATING THE ESTABLISHMENT OF VEGETATION.
6. NON REWETTABLE BINDER SHALL BE USED IN ALL HYDROMULCH/HYDROSEED POLYMER MIXES ON SLOPES OR WORKS ADJACENT TO A WATER COURSE.
7. SOIL AMELIORANTS SHALL BE ADDED TO THE SOIL IN ACCORDANCE WITH AN APPROVED LANDSCAPE PLAN, VEGETATION MANAGEMENT PLAN, AND/OR SOIL ANALYSIS.
8. PROCEDURES FOR INITIATING A SITE SHUTDOWN, WHETHER PROGRAMMED OR UN-PROGRAMMED, SHALL INCORPORATE REVEGETATION OF ALL SOIL DISTURBANCES UNLESS OTHERWISE APPROVED BY COUNCIL. THE STABILISATION WORKS SHALL NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.

SITE MONITORING AND MAINTENANCE

1. THE APPLICANT SHALL ENSURE THAT APPROPRIATE PROCEDURES AND SUITABLY QUALIFIED PERSONNEL ARE ENGAGED TO PLAN AND CONDUCT SITE INSPECTIONS AND WATER QUALITY MONITORING THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PHASE.
2. ALL ESC MEASURES SHALL BE INSPECTED AND ANY MAINTENANCE UNDERTAKEN:
    A) AT LEAST DAILY (WHEN WORKS IS OCCURRING ON-SITE); AND
    B) AT LEAST WEEKLY (WHEN WORKS IS NOT OCCURRING ON-SITE) AND
    C) WITHIN 24 HOURS OF EXPECTED RAINFALL; AND
    D) WITHIN 18 HOURS OF A RAINFALL EVENT THAT CAUSES RUNOFF ON THE SITE.
3. WRITTEN RECORDS SHALL BE KEPT ONSITE OF ESC MONITORING AND MAINTENANCE ACTIVITIES CONDUCTED DURING THE CONSTRUCTION AND MAINTENANCE PERIODS, AND BE AVAILABLE TO COUNCIL OFFICERS ON REQUEST.
4. ALL ENVIRONMENTAL RELEVANT INCIDENTS SHALL BE RECORDED IN A FIELD LOG THAT SHALL REMAIN ACCESSIBLE TO ALL RELEVANT REGULATORY AUTHORITIES.
5. ALL WATER QUALITY DATA, INCLUDING DATES OF RAINFALL, DATES OF TESTING, TESTING RESULTS AND DATES OF WATER RELEASE, SHALL BE KEPT IN AN ON-SITE REGISTER. THE REGISTER IS TO BE MAINTAINED UP TO DATE FOR THE DURATION OF THE APPROVED WORKS AND BE AVAILABLE ON-SITE FOR INSPECTION BY ALL RELEVANT REGULATORY AUTHORITIES ON REQUEST.
6. AT NOMINATED INSTREAM WATER MONITORING SITES, A MINIMUM OF 3 WATER SAMPLES SHALL BE TAKEN AND ANALYSED, AND THE AVERAGE RESULT USED TO DETERMINE QUALITY.

STORMWATER NOTES

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTURAL DETAILS.
2. ALL WORKS ARE TO BE IN ACCORDANCE WITH AS3500, COUNCIL'S DEVELOPMENT CONTROL PLAN AND PROPRIETARY MANUFACTURERS RECOMMENDATIONS.
3. UNLESS OTHERWISE STATED, ALL STORMWATER PIPES (INCLUDING DOWNPIPES AND RAINWATER TANK OVERFLOW PIPES) ARE TO BE uPVC SEWER GRADE, U.N.O JOINTED & INSTALLED TO MANUFACTURERS RECOMMENDATIONS.
4. ALL uPVC STORMWATER LINES TO HAVE ALL JOINTS, INC. DOWNPIPE CONNECTIONS, FULLY SOLVENT WELDED, INCLUDING ANY CHARGED LINES.
5. CONNECT DOWNPIPES AS REQUIRED TO NOMINATED HARVESTING TANK IN ACCORDANCE WITH APPROVED DEVELOPMENT PLANS AND HYDRAULIC ENGINEERS DESIGN.
6. ALL LEVELS ARE DATUM AHD.
7. ALL LEVELS ARE FINISHED PAVEMENT OR LAWN LEVELS.
8. CONTRACTOR TO ALLOW FOR ALL PIPE SUPPORT SYSTEM TO SOFFIT AS PER MANUFACTURERS SPECIFICATIONS.
9. ALL CONCRETE TO BE MANUFACTURED AND SUPPLIED IN ACCORDANCE WITH AS1379.
10. AT COUNCILS DISCRETION, ALL CONCRETE CAN BE SUBJECT TO PROJECT ASSESSMENT AND TESTING TO AS1379
11. MINIMUM PIPE COVERS TO BE IN ACCORDANCE WITH AS3500.
12. PITS TO BE FILLED ACCORDINGLY TO MEET INVERTS AS NEEDED.
13. CONTRACTOR TO CONFIRM ALL LEVELS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE IMMEDIATELY REPORTED TO WALLACE DESIGN GROUP.

SUBSOIL DRAINAGE NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH COUNCIL'S CONSTRUCTION SPECIFICATIONS FOR SUBSURFACE DRAINAGE.
2. SUBSOIL PIPE TO BE Ø100 SLOTTED PVC OR CORRUGATED CIRCULAR PLASTIC PIPE AND ENCLOSED IN SEAMLESS FILTER FABRIC SOCK
3. SUBSOIL DRAINS SHALL CONSIST OF A 300 (MINIMUM) WIDE TRENCH, BACKFILLED WITH 7 OR 10mm AGGREGATE AND WRAPPED IN BIDIM A12 GEOTEXTILE FABRIC OR SIMILAR, LAPPED AT THE TOP. DEPTH OF TRENCH TO EXTEND 450 (MINIMUM) IN ROCK OR 600 (MINIMUM) IN EARTH BELOW FINISHED SUB-GRADE LEVEL. INVERT OF TRENCH SHOULD ALSO BE LOWER THAN THE INVERT OF ANY SERVICE CROSSINGS.

ROAD PAVEMENT NOTES

1. THE PAVEMENT DESIGN RECOMMENDATIONS SHOWN ON THESE DRAWINGS ARE FOR CONCEPT DESIGN AND ARE INDICATIVE PAVEMENT SECTIONS ONLY. A DETAILED GEOTECHNICAL STUDY OF THE SURROUNDING SOILSAND PAVEMENT DESIGN RECOMMENDATIONS ARE TO BE OBTAINED BY A QUALIFIED/REGISTERED GEOTECHNICAL ENGINEER PRIOR TO ANY CONSTRUCTION BEING UNDERTAKEN.

RETAINING WALL NOTES

1. ALL RETAINING WALLS SHOWN ON THESE PLANS SHALL BE DESIGNED BY A QUALIFIED & REGISTERED STRUCTURAL ENGINEERING AT TIME OF CONSTRUCTION CERTIFICATE STAGE.

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REV	DESCRIPTION	DATE	APP'VD	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
GENERAL NOTES

DRAWING STATUS: **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
N.T.S.	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C02.01	B

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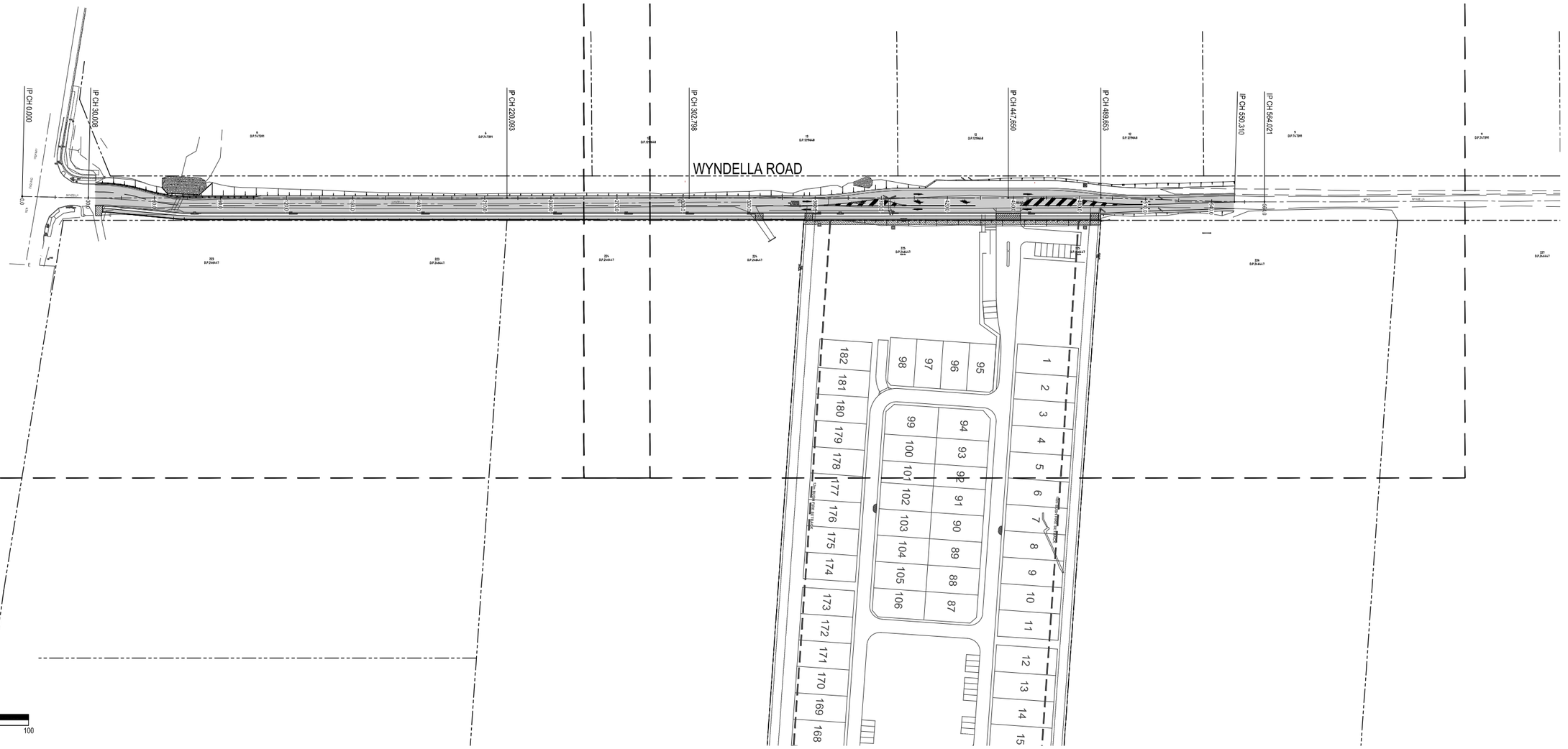
REFER TO C03.01 FOR ESC PLAN
REFER TO C04.01 FOR ROAD PLAN
REFER TO C05.01 FOR STORMWATER PLAN

REFER TO C03.01 FOR ESC PLAN
REFER TO C04.02 FOR ROAD PLAN
REFER TO C05.01 FOR STORMWATER PLAN



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SCALE METRES 1:1000 @ A1

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LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
GENERAL ARRANGEMENT PLAN

DRAWING STATUS **PRELIMINARY DESIGN**

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MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128
DRAWING No. C02.02
REV B

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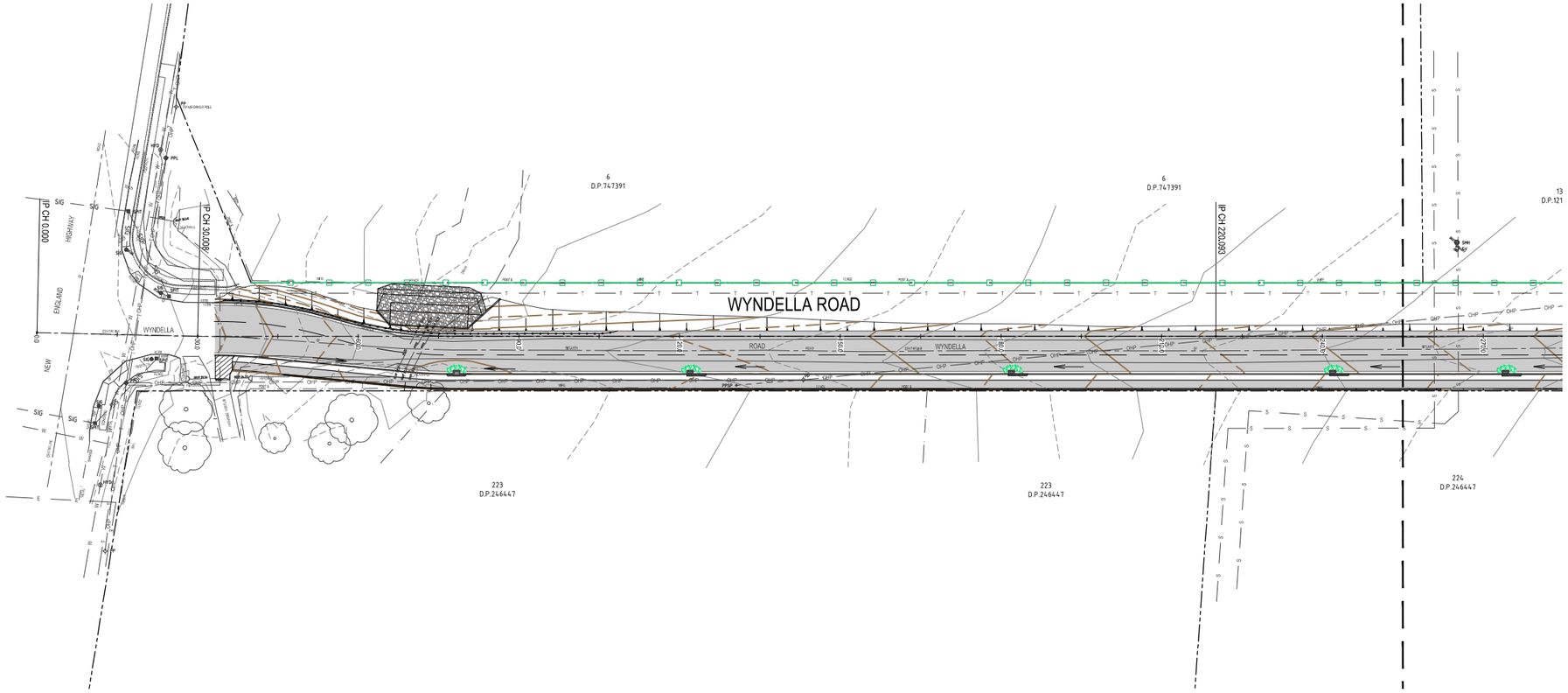

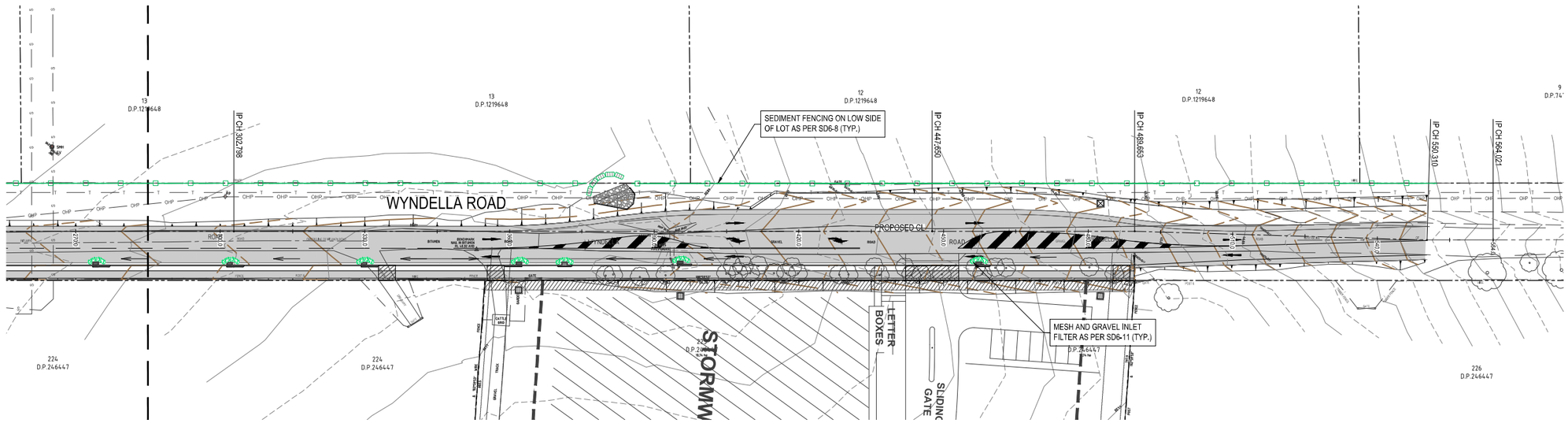

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SCALE METRES 1:500 @ A1

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ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
EROSION AND SEDIMENTATION CONTROL PLAN

DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:500	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128
DRAWING No. C03.01
REV B

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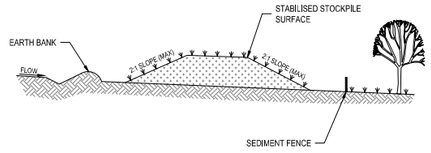
NOTE

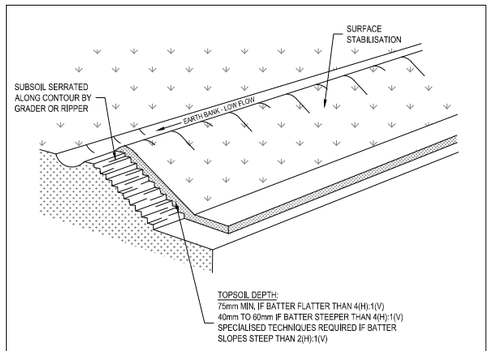
1. ALL EROSION & SEDIMENTATION CONTROL (ESC) PLAN DETAILS SHOWN ARE FROM *"MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION"*, LANDCOM, 2004. DETAILS, ALTHOUGH NOT SPECIFICALLY IDENTIFIED FOR USE ON THE ESC PLAN (SHEET C03.01), ARE PROVIDED IN THE EVENT ADDITIONAL CONTROLS ARE REQUIRED TO MINIMISE ON-SITE EROSION DURING THE COURSE OF CONSTRUCTION. IF AN ESC DETAIL IS NOT SHOWN, CONTRACTOR SHALL REFER TO THE ABOVE REFERENCED GUIDE.



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METERS FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METERS DOWNSLOPE.

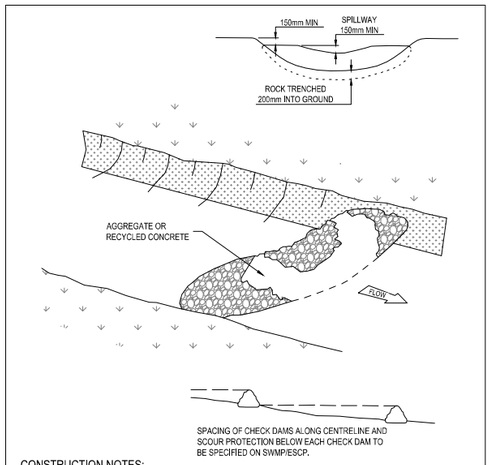
STOCKPILES SD 4-1



CONSTRUCTION NOTES:

1. SCARIFY THE GROUND SURFACE ALONG THE LINE OF THE CONTOUR TO A DEPTH OF 50mm TO 100mm TO BREAK UP ANY HARDSETTING SURFACES AND TO PROVIDE A GOOD BOND BETWEEN THE RESPREAD MATERIAL AND SUBSOIL.
2. ADD SOIL AMELIORANTS AS REQUIRED BY THE ESCP OR SWMP.
3. RIP TO A DEPTH OF 300mm IF COMPACTED LAYERS OCCUR.
4. WHERE POSSIBLE, REPLACE TOPSOIL TO A DEPTH OF 40 TO 60mm ON LANDS WHERE THE SLOPE EXCEEDS 4(H):1(V) AND TO AT LEAST 75mm ON LOWER GRADIENTS.

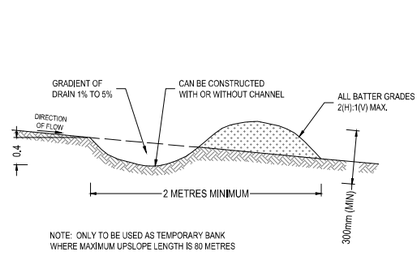
REPLACING TOPSOIL SD 4-2



CONSTRUCTION NOTES:

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANBAGS AND STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100mm ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY, THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150mm LOWER THAN THE OUTER EDGE.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

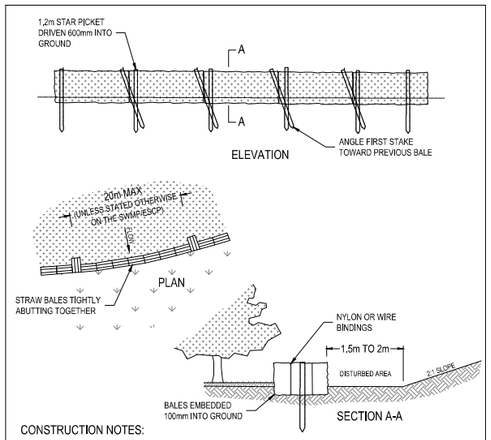
ROCK CHECK DAM SD 5-4



CONSTRUCTION NOTES:

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V-SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

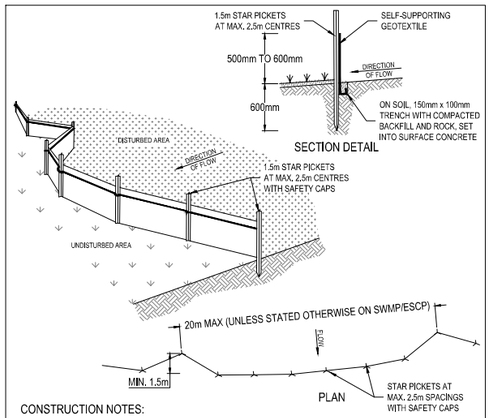
EARTH BANK (LOW FLOW) SD 5-5



CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

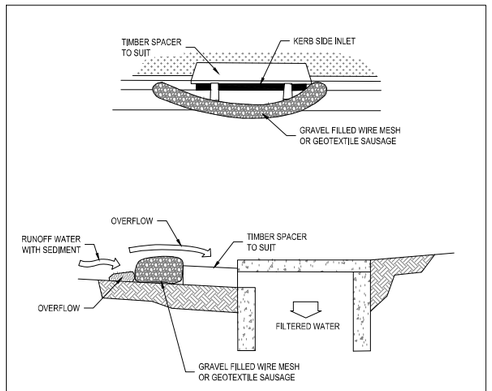
STRAW BALE FILTER SD 6-7



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE SD 6-8

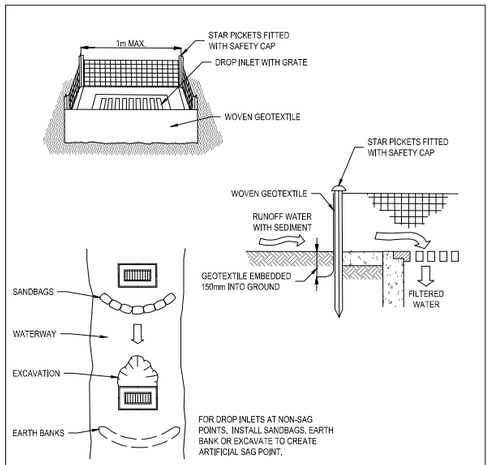


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP

CONSTRUCTION NOTES:

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

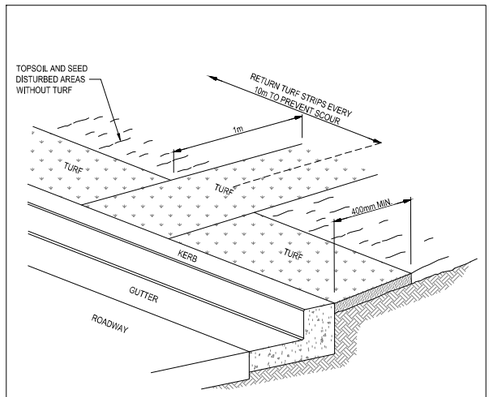
MESH AND GRAVEL INLET FILTER SD 6-11



CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

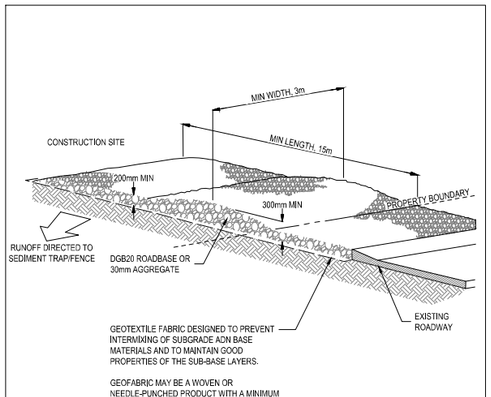
GEOTEXTILE INLET FILTER SD 6-12



CONSTRUCTION NOTES:

1. INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB AND LIGHTLY COMPACTED INTO THE TOPSOIL.
2. LAY 1.4 METRE LONG TURF STRIPS NORMAL TO THE KERB EVERY 10 METRES.
3. REHABILITATE DISTURBED SOIL BEHIND THE KERB BY SPREADING 20-25mm THICK LAYER OF TOPSOIL AND BROADCAST SEED MIX AT A RATE OF 0.3kg/10m2, UNLESS SPECIFIED OTHERWISE, TO DISTURBED AREAS WHERE TURF HAS NOT BEEN INSTALLED. SEEDS SHOULD BE SCRATCHED INTO THE SURFACE TO REDUCE THE INCIDENCE OF INGESTION BY BIRDS. IF SEED MIX DOES NOT INCLUDE STARTE FERTILISER, APPLY FERTILISER AT A RATE AS SPECIFIED.

KERBSIDE TURF STRIP SD 6-13



CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCTION A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABLISED SITE ACCESS SD 6-14

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REV	DESCRIPTION	DATE	APP'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

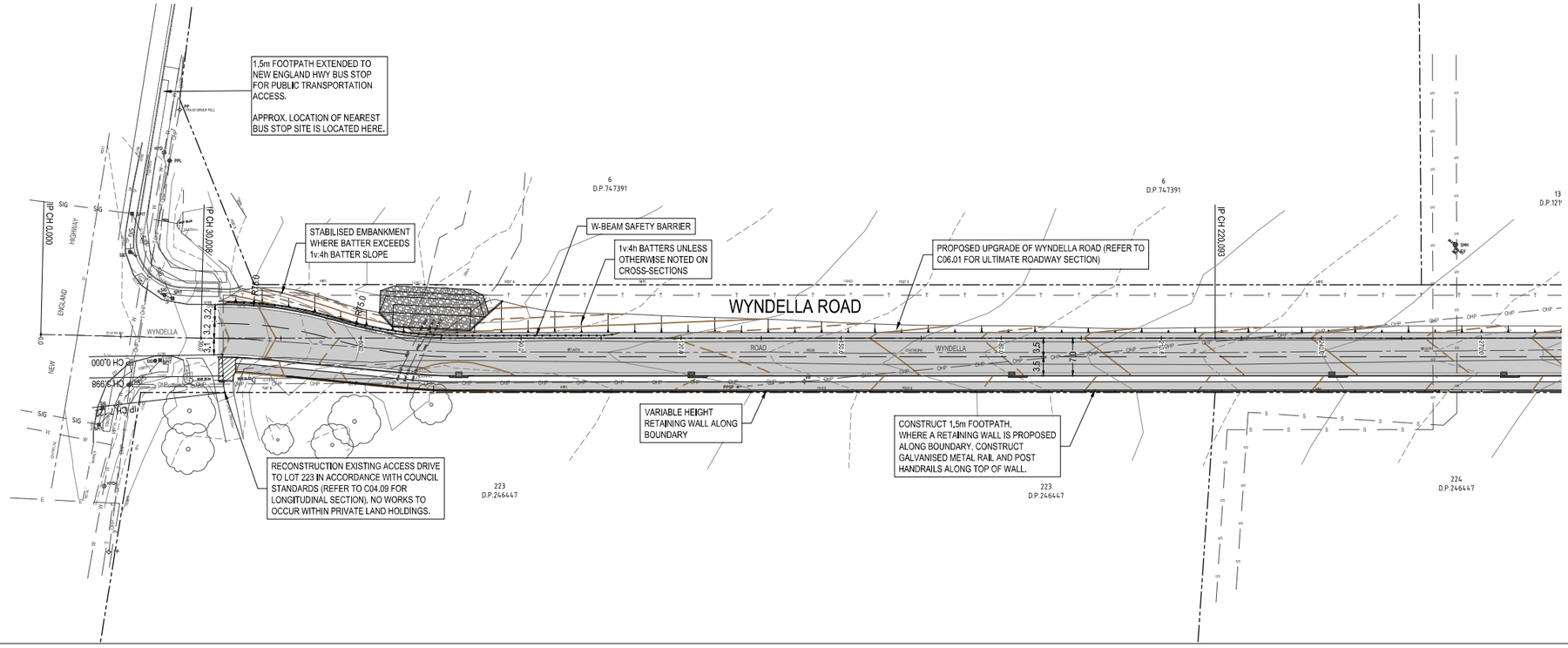
DRAWING TITLE:
CIVIL ROAD & SW PLANS
EROSION AND SEDIMENTATION CONTROL DETAILS

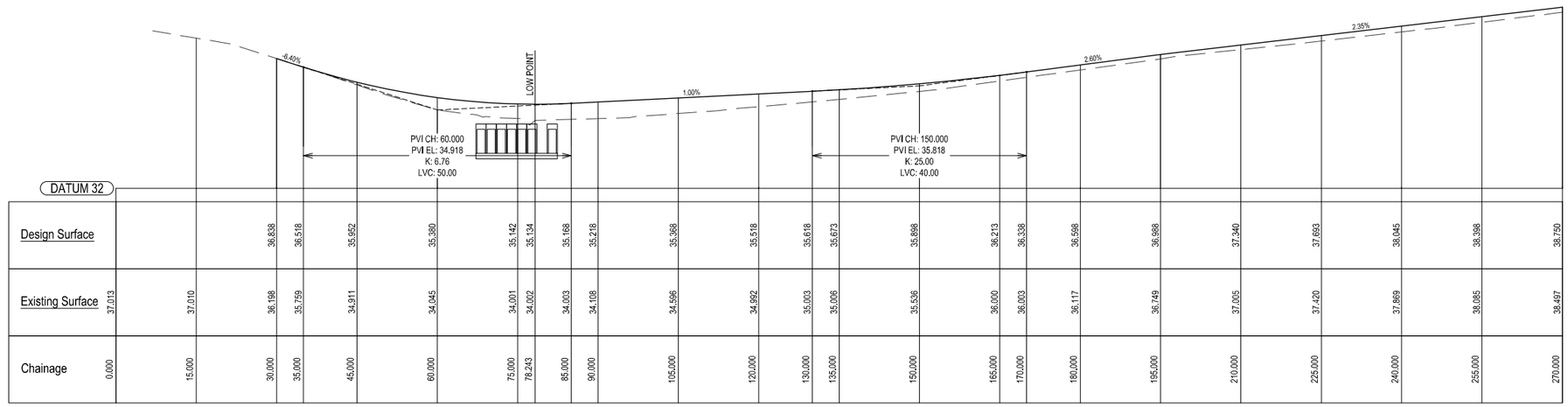
DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:				ORIG. SIZE
N.T.S.				A1
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128 | DRAWING No. C03.02 | REV B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]





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Existing Surface	37.013	37.010	36.198	35.759	34.911	34.045	34.001	34.002	34.003	34.108	34.598	34.992	35.003	35.006	35.536	36.000	36.003	36.117	36.749	37.005	37.420	37.869	38.085	38.497
Design Surface			36.838	36.518	35.952	35.380	35.142	35.134	35.168	35.218	35.368	35.518	35.618	35.673	35.898	36.213	36.338	36.598	36.988	37.340	37.693	38.045	38.398	38.750

LONGITUDINAL SECTION
Wyndella Road Upgrade

SCALE METRES 1:100 @ A1

SCALE METRES 1:500 @ A1

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B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD DETAIL PLAN & LONGITUDINAL SECTION
CH0.000 TO CH270.000

DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:500 (horiz.) ; 1:100 (vert.)	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128 | DRAWING No. C04.01 | REV B

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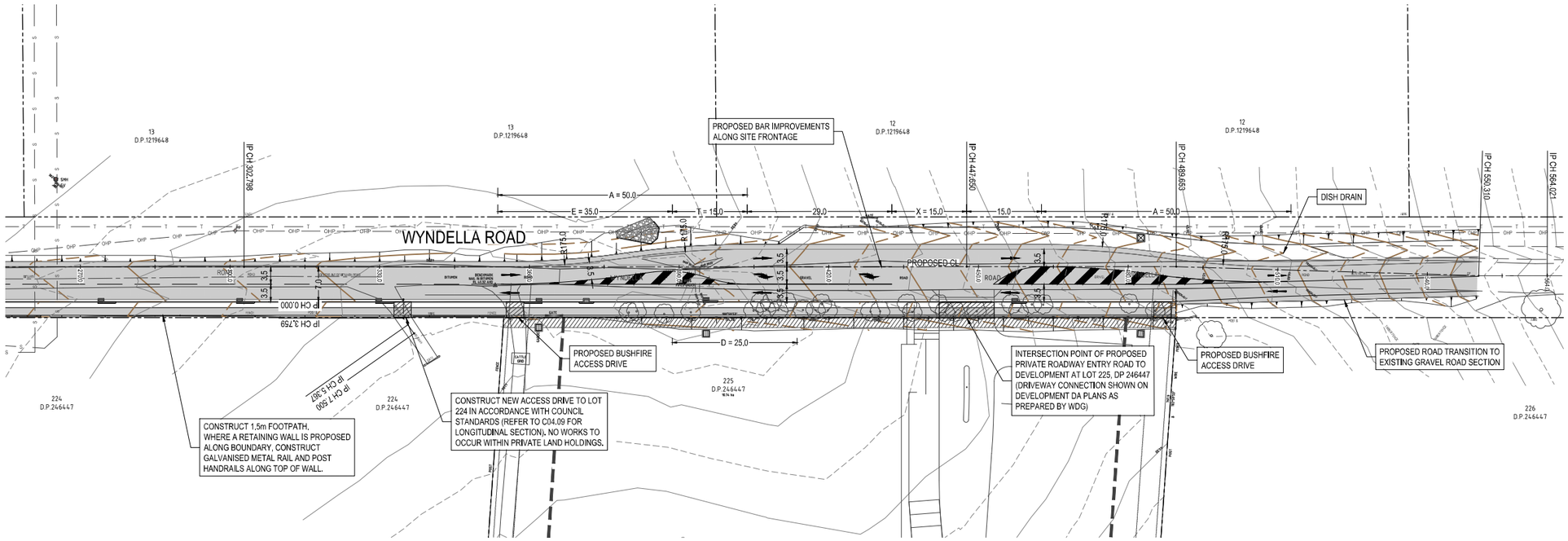

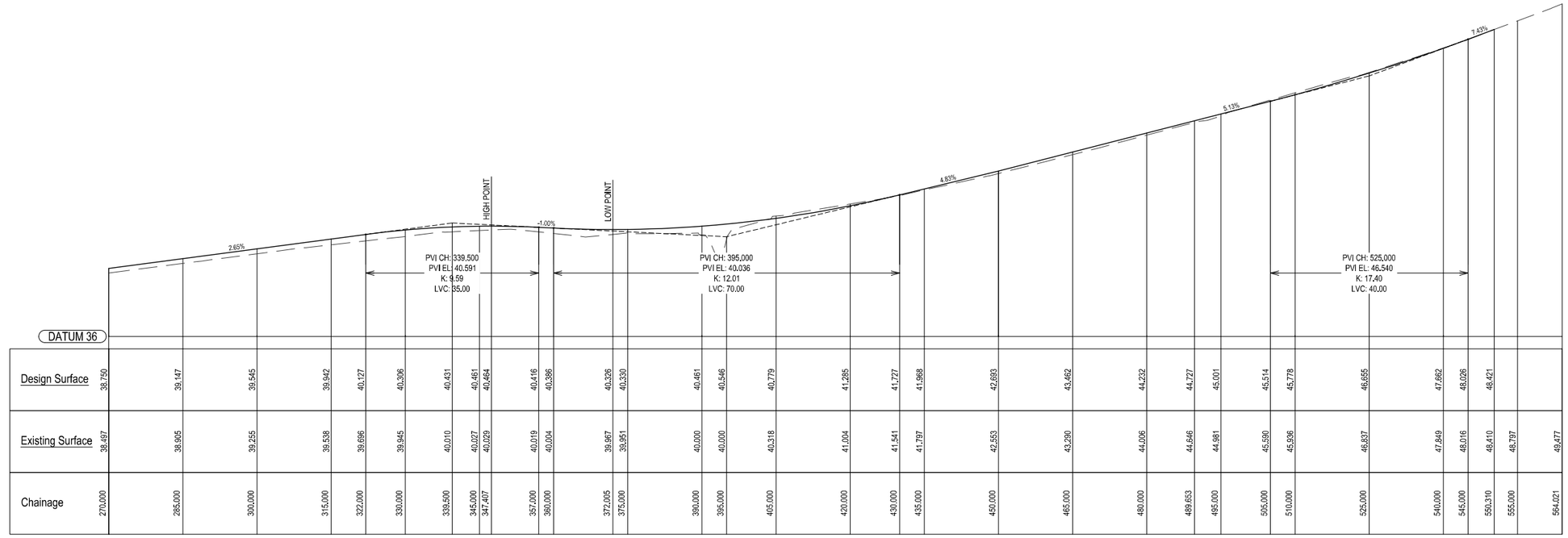

LONGITUDINAL SECTION
Wyndella Road Upgrade

SCALE METRES 1:100 @ A1

SCALE METRES 1:500 @ A1

AutoCAD Civil 3D 2021

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A	PRELIMINARY ISSUE	01.05.25	K.B.	

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PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

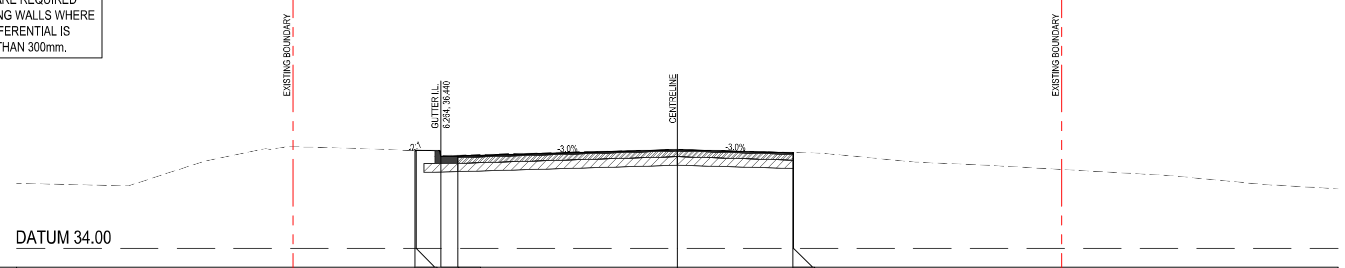
DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD DETAIL PLAN & LONGITUDINAL SECTION
CH270.000 TO END

DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:				ORIG. SIZE	
1:500 (horiz.) ; 1:100 (vert.)				A1	
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25
PROJECT No. 23128		DRAWING No. C04.02			REV B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]

HANDRAILS ARE REQUIRED ALONG RETAINING WALLS WHERE HEIGHT DIFFERENTIAL IS GREATER THAN 300mm.



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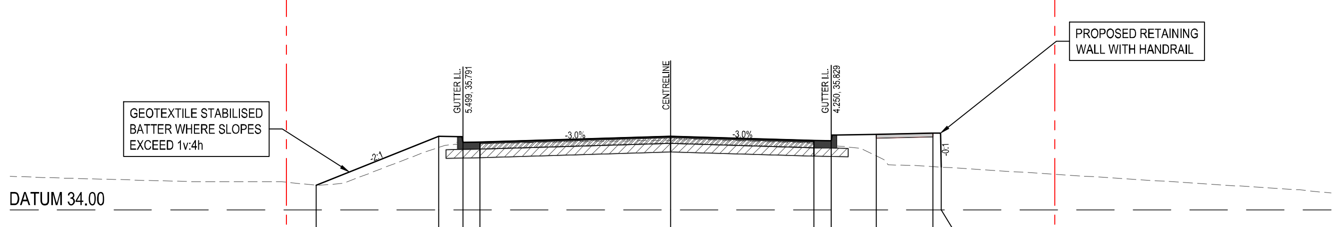
DESIGN	36.586	36.600	36.440	36.449	36.623	36.531	36.531
EXISTING	36.586	36.586	36.463	36.475	36.625	36.548	36.548
OFFSET	-6.948	-6.914	-6.264	-5.814	0.000	3.055	3.072

CH 33.357



CUT/FILL	0.000	0.300	0.051	0.050	0.102	0.085	0.120	0.570	0.882	0.000
DESIGN	34.656	35.951	35.791	35.800	35.952	35.838	35.829	36.000	36.030	35.134
EXISTING	34.656	35.651	35.741	35.751	35.850	35.752	35.709	35.430	35.148	35.134
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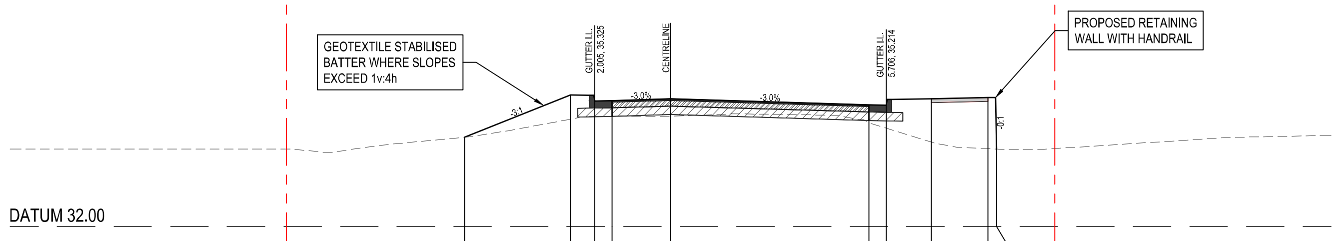
CH 45.000



CUT/FILL	0.000	0.642	0.412	0.419	0.462	0.474	0.612	1.152	1.353	0.000
DESIGN	34.362	35.485	35.325	35.334	35.380	35.223	35.214	35.385	35.415	34.052
EXISTING	34.362	34.843	34.913	34.914	34.918	34.748	34.601	34.233	34.062	34.052
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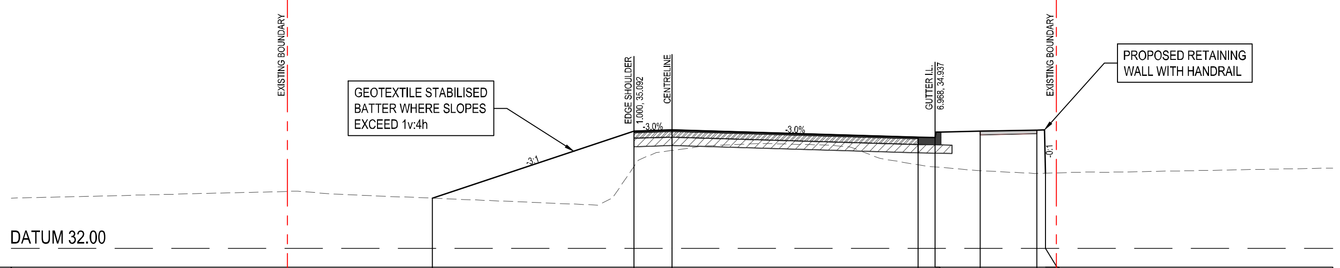
CH 60.000



CUT/FILL	0.000	0.936	0.542	0.728	0.774	1.048	1.149	0.000
DESIGN	33.331	35.112	35.142	34.946	34.937	35.108	35.138	33.996
EXISTING	33.331	34.176	34.599	34.218	34.163	34.060	33.989	33.996
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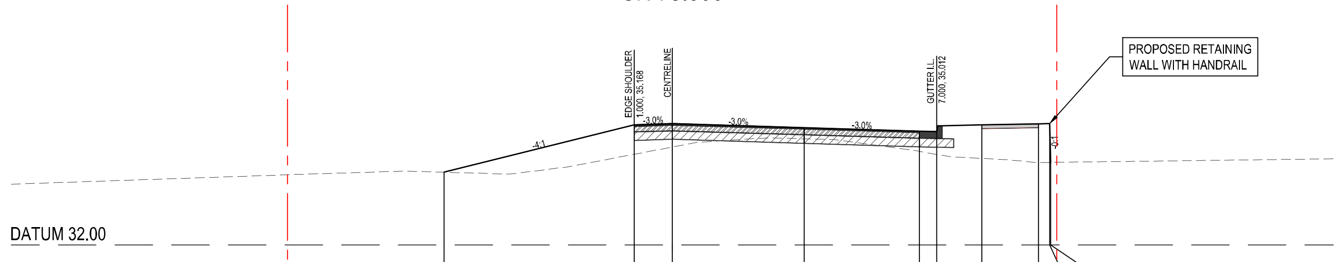
CH 75.000



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DESIGN	33.929	35.188	35.218	35.113	35.021	35.012	35.183	35.213	35.219	34.191
EXISTING	33.929	34.408	34.599	34.816	34.482	34.405	34.297	34.187	34.191	34.191
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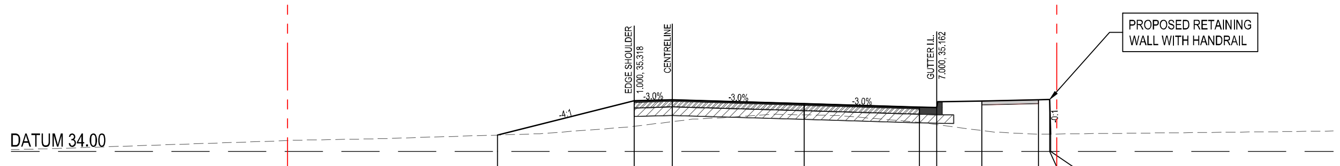
CH 90.000



CUT/FILL	0.000	0.672	0.580	0.295	0.401	0.449	0.782	0.908	0.911	0.000
DESIGN	34.432	35.338	35.368	35.263	35.171	35.162	35.333	35.363	35.369	34.458
EXISTING	34.432	34.666	34.787	34.967	34.770	34.714	34.551	34.455	34.458	34.458
OFFSET	-4.624	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.018

CH 105.000

0 2 4 5 10

SCALE METRES 1:100 @ A1

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PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (1 OF 6)

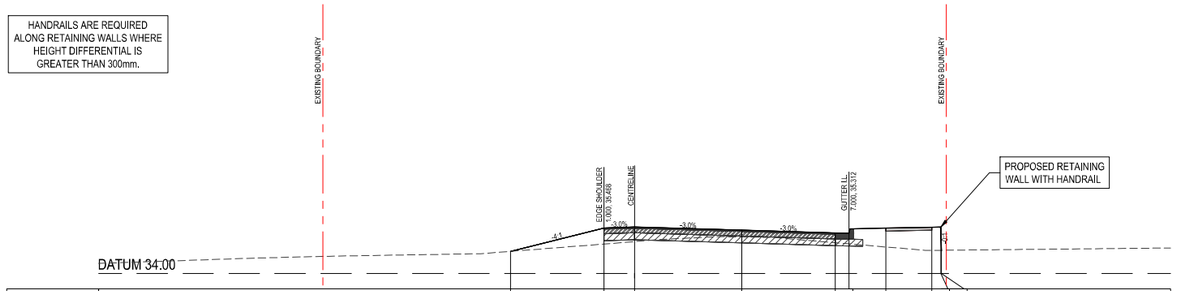
DRAWING STATUS: **PRELIMINARY DESIGN**

SCALE: 1:100				ORIG. SIZE: A1	
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128 DRAWING No. C04.03 REV B

PLOTTED BY:- KEN DATE:- 5 May 2025 3 59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]

HANDRAILS ARE REQUIRED ALONG RETAINING WALLS WHERE HEIGHT DIFFERENTIAL IS GREATER THAN 300mm.



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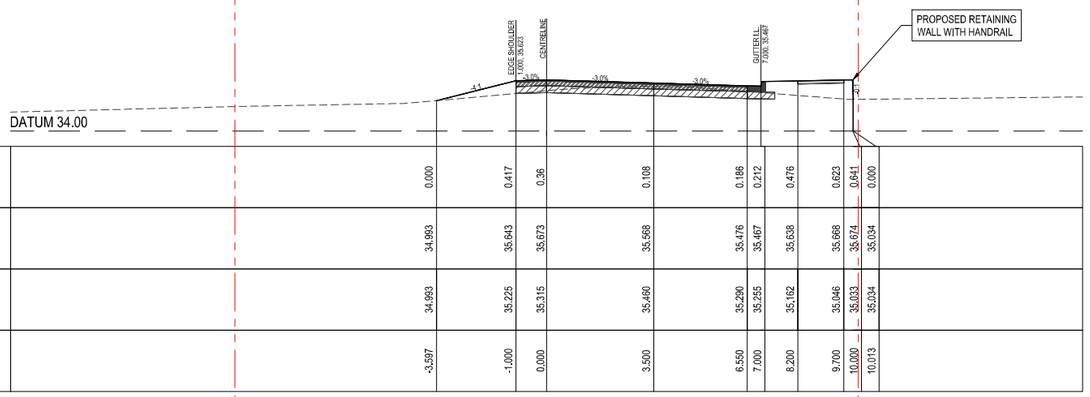
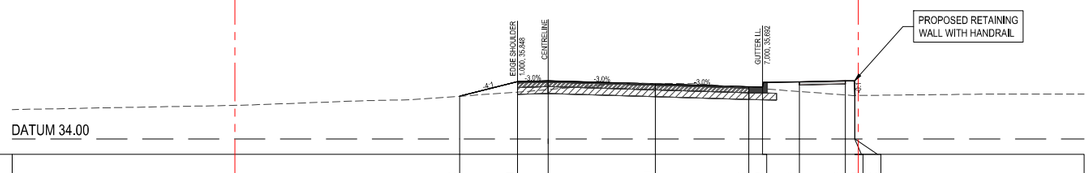
DESIGN	34.724	35.488	35.518	35.413	35.321	35.312	35.483	35.513	35.519	34.759		
EXISTING	34.724	34.962	35.042	35.193	35.005	34.967	34.867	34.756	34.759	34.759		
OFFSET	-4.055	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.015		

CH 120.000



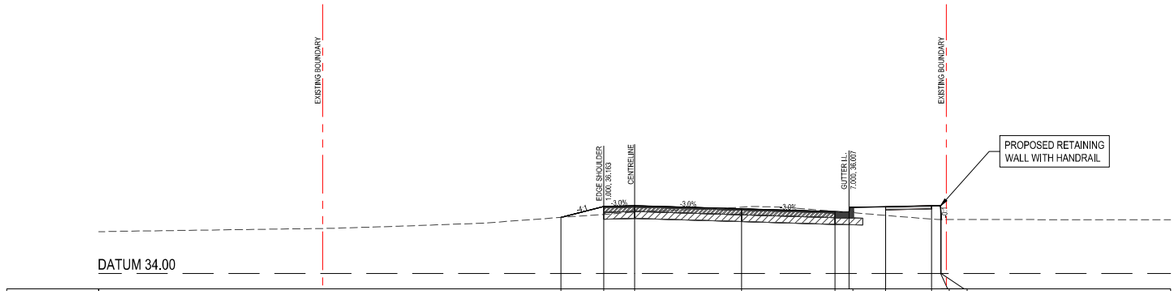
CUT/FILL	0.000	0.417	0.36	0.108	0.186	0.212	0.476	0.623	0.641	0.000		
DESIGN	34.963	35.643	35.673	35.568	35.476	35.467	35.638	35.668	35.674	35.034		
EXISTING	34.963	35.225	35.315	35.460	35.290	35.255	35.162	35.046	35.033	35.034		
OFFSET	-3.597	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.013		

CH 135.000



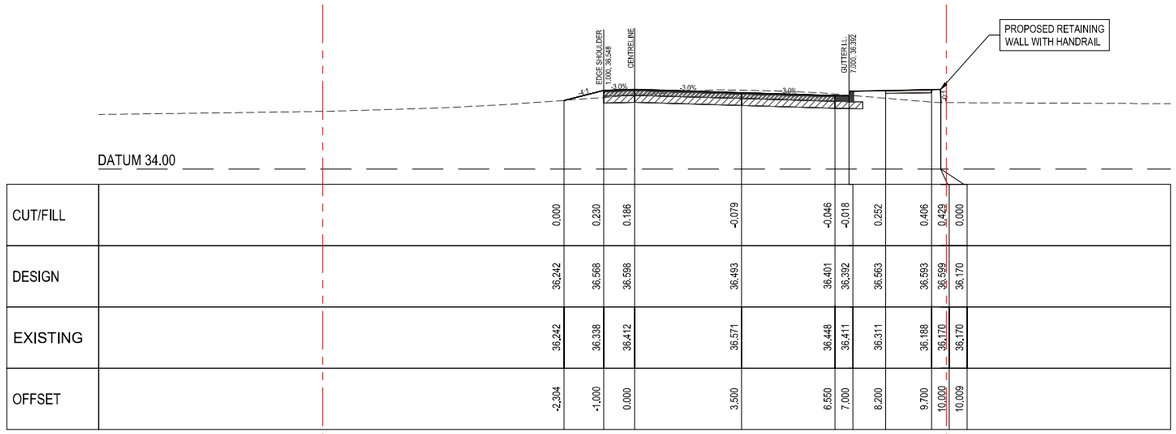
CUT/FILL	0.000	0.341	0.29	-0.021	0.030	0.054	0.315	0.456	0.481	0.000		
DESIGN	35.395	35.868	35.898	35.793	35.701	35.692	35.863	35.893	35.899	35.419		
EXISTING	35.395	35.527	35.612	35.814	35.671	35.638	35.549	35.437	35.418	35.419		
OFFSET	-2.892	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.010		

CH 150.000



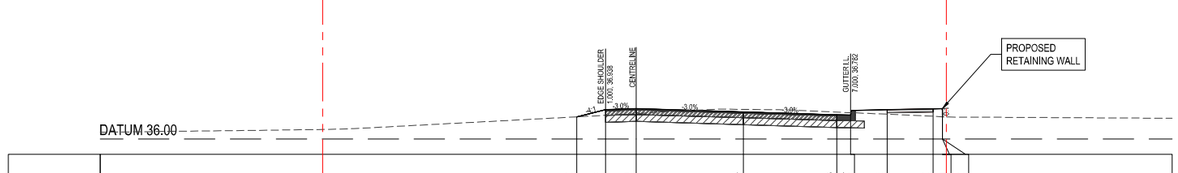
CUT/FILL	0.000	0.252	0.212	-0.060	-0.014	0.014	0.282	0.431	0.452	0.000		
DESIGN	35.831	36.183	36.213	36.108	36.016	36.007	36.178	36.208	36.214	35.762		
EXISTING	35.831	35.931	36.001	36.168	36.030	35.994	35.896	35.777	35.762	35.762		
OFFSET	-2.407	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.009		

CH 165.000



CUT/FILL	0.000	0.230	0.186	-0.079	-0.046	-0.018	0.252	0.406	0.429	0.000		
DESIGN	36.242	36.568	36.598	36.493	36.401	36.392	36.563	36.593	36.599	36.170		
EXISTING	36.242	36.338	36.412	36.571	36.448	36.411	36.311	36.188	36.170	36.170		
OFFSET	-2.304	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.009		

CH 180.000



CUT/FILL	0.000	0.186	0.164	-0.084	-0.088	-0.077	0.145	0.240	0.271	0.000		
DESIGN	36.722	36.958	36.988	36.883	36.791	36.782	36.953	36.983	36.988	36.718		
EXISTING	36.722	36.771	36.824	36.967	36.879	36.860	36.808	36.743	36.718	36.718		
OFFSET	-1.944	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.005		

CH 195.000

0 2 4 5 10

SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021

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REV	DESCRIPTION	DATE	APP'VD	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (2 OF 6)

DRAWING STATUS **PRELIMINARY DESIGN**

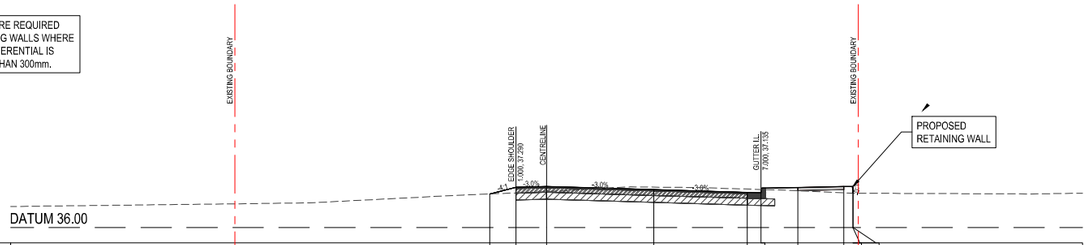
SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C04.04	B

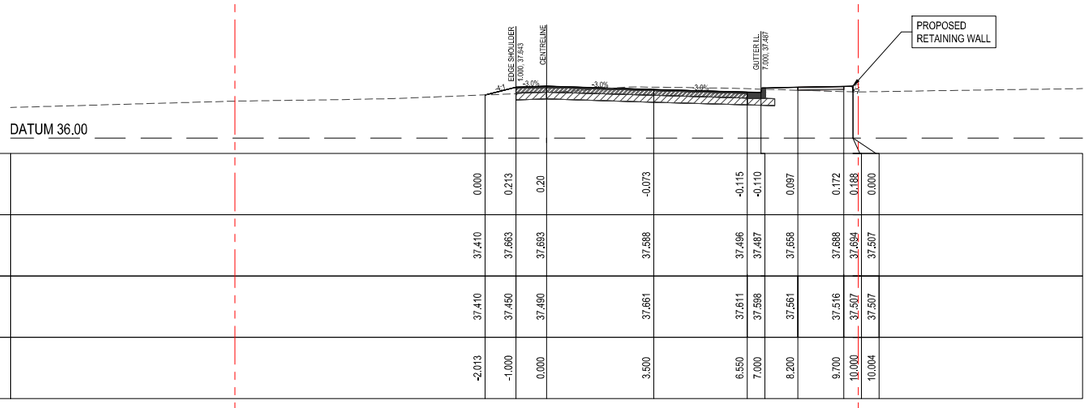
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]

HANDRAILS ARE REQUIRED ALONG RETAINING WALLS WHERE HEIGHT DIFFERENTIAL IS GREATER THAN 300mm.



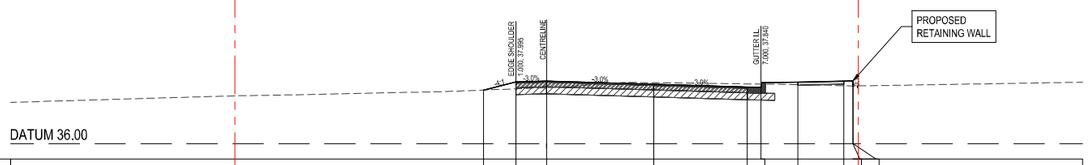
CUT/FILL	0.000	0.179	0.169	-0.084	-0.111	-0.106	0.106	0.200	0.219	0.000		
DESIGN	37.097	37.310	37.340	37.235	37.144	37.135	37.306	37.336	37.342	37.122		
EXISTING	37.097	37.131	37.171	37.319	37.255	37.241	37.199	37.135	37.122	37.122		
OFFSET	-1.854	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.004		

CH 210.000



CUT/FILL	0.000	0.213	0.20	-0.073	-0.115	-0.110	0.097	0.172	0.188	0.000		
DESIGN	37.410	37.663	37.693	37.588	37.496	37.487	37.658	37.688	37.694	37.507		
EXISTING	37.410	37.450	37.490	37.661	37.611	37.598	37.561	37.516	37.507	37.507		
OFFSET	-2.013	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.004		

CH 225.000



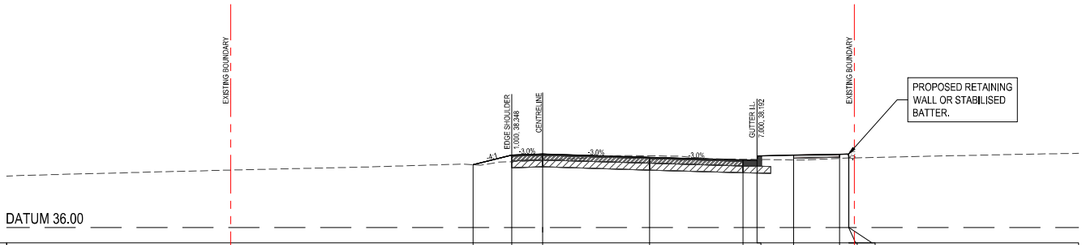
CUT/FILL	0.000	0.225	0.22	-0.051	-0.103	-0.105	0.083	0.147	0.163	0.000		
DESIGN	37.750	38.015	38.045	37.940	37.849	37.840	38.011	38.041	38.047	37.884		
EXISTING	37.750	37.790	37.827	37.991	37.951	37.945	37.928	37.893	37.884	37.884		
OFFSET	-2.052	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.003		

CH 240.000

0 2 4 5 10

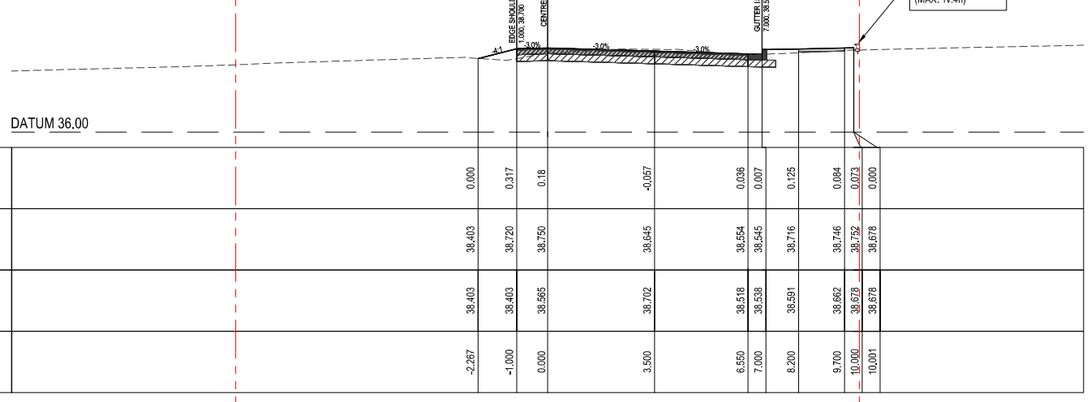
SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021



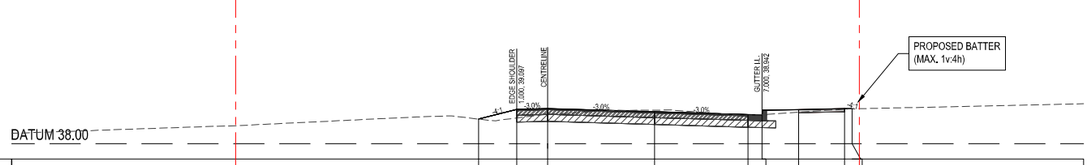
CUT/FILL	0.000	0.216	0.21	-0.047	-0.029	-0.032	0.157	0.135	0.128	0.000		
DESIGN	38.050	38.368	38.398	38.293	38.201	38.192	38.363	38.393	38.399	38.271		
EXISTING	38.050	38.151	38.189	38.339	38.231	38.224	38.207	38.259	38.271	38.271		
OFFSET	-2.271	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.003		

CH 255.000



CUT/FILL	0.000	0.317	0.18	-0.057	0.036	0.007	0.125	0.084	0.073	0.000		
DESIGN	38.403	38.720	38.750	38.645	38.554	38.545	38.716	38.746	38.752	38.678		
EXISTING	38.403	38.403	38.565	38.702	38.518	38.538	38.591	38.662	38.678	38.678		
OFFSET	-2.267	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.001		

CH 270.000



CUT/FILL	0.000	0.277	0.19	-0.054	0.020	-0.009	0.085	0.018	0.000			
DESIGN	38.804	39.117	39.147	39.042	38.951	38.942	39.113	39.143	39.156			
EXISTING	38.804	38.841	38.953	39.096	38.931	38.951	39.028	39.125	39.156			
OFFSET	-2.254	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	9.942			

CH 285.000

DWG IN COLOUR

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REV	DESCRIPTION	DATE	APP'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (3 OF 6)

DRAWING STATUS **PRELIMINARY DESIGN**

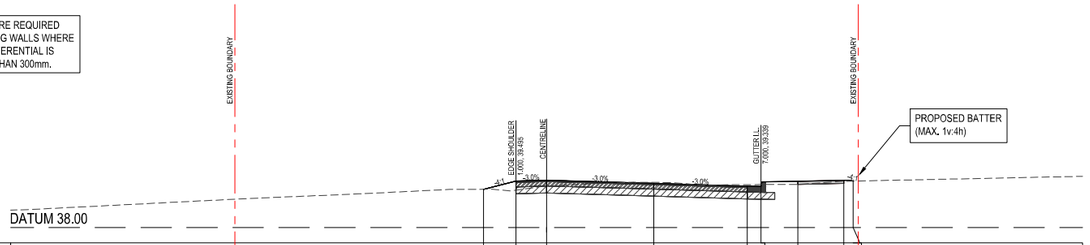
SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C04.05	B

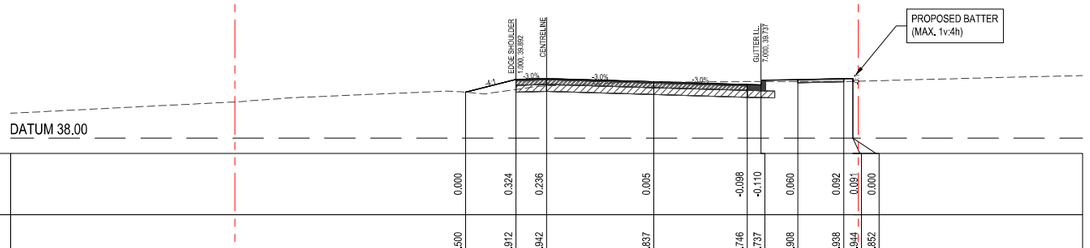
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]

HANDRAILS ARE REQUIRED ALONG RETAINING WALLS WHERE HEIGHT DIFFERENTIAL IS GREATER THAN 300mm.



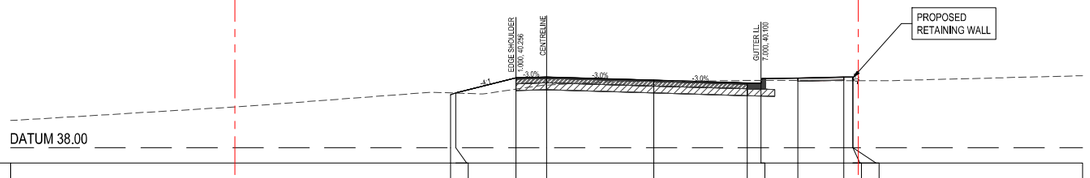
CUT/FILL	0.000	0.295	0.20	-0.034	-0.053	-0.065	0.098	0.032	0.000	
DESIGN	39.249	39.515	39.545	39.440	39.348	39.339	39.510	39.540	39.517	
EXISTING	39.249	39.220	39.344	39.474	39.401	39.404	39.412	39.508	39.517	
OFFSET	-2.062	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.011	

CH 300.000



CUT/FILL	0.000	0.324	0.236	0.005	-0.088	-0.110	0.060	0.092	0.000	
DESIGN	39.500	39.912	39.942	39.837	39.746	39.737	39.908	39.938	39.852	
EXISTING	39.500	39.588	39.706	39.832	39.834	39.847	39.848	39.845	39.852	
OFFSET	-2.647	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.002

CH 315.000



CUT/FILL	-0.061	0.000	0.364	0.263	0.034	-0.085	-0.096	0.079	0.114	0.121	0.000
DESIGN	39.729	39.785	40.276	40.306	40.201	40.109	40.100	40.271	40.301	40.307	40.186
EXISTING	39.790	39.785	39.912	40.043	40.167	40.194	40.197	40.192	40.187	40.186	40.186
OFFSET	-3.135	-2.965	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.002

CH 330.000

0 2 4 5 10

SCALE METRES 1:100 @ A1

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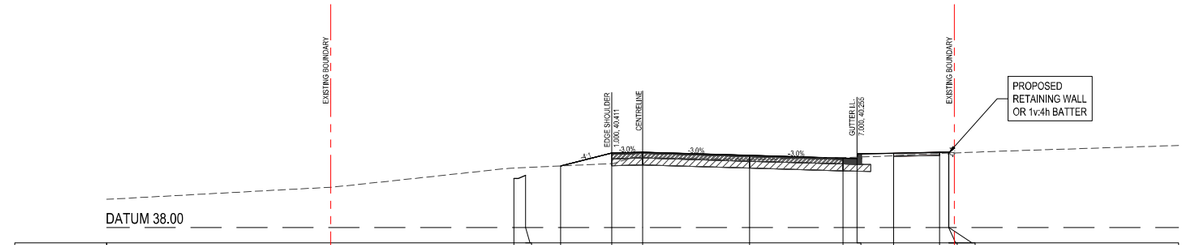
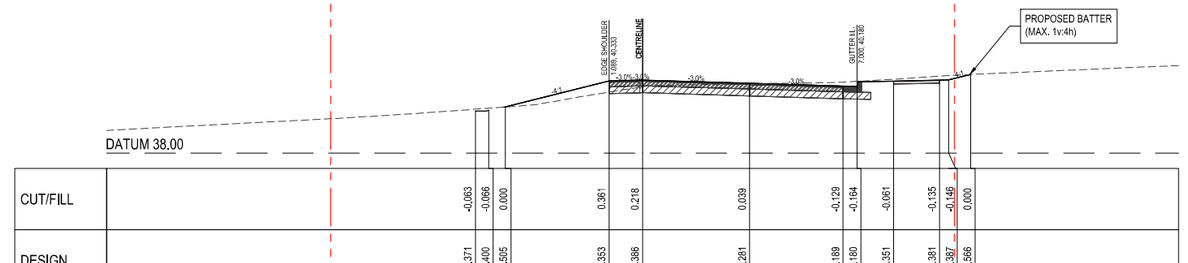


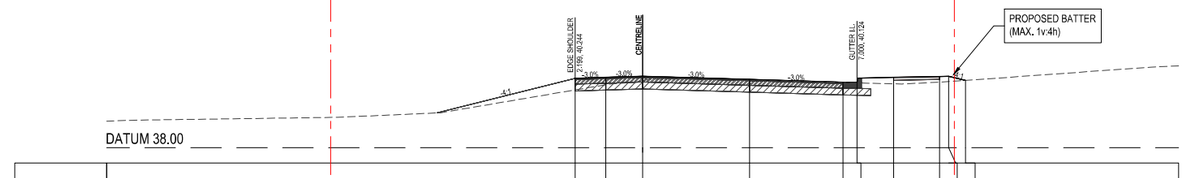
CUT/FILL	-0.337	-0.259	0.000	0.344	0.176	0.126	-0.020	-0.042	0.080	0.036	0.031	0.000
DESIGN	39.606	39.702	40.012	40.431	40.461	40.356	40.264	40.255	40.426	40.456	40.462	40.431
EXISTING	39.943	39.961	40.012	40.087	40.284	40.229	40.284	40.298	40.346	40.420	40.431	40.431
OFFSET	-4.199	-3.813	-2.678	-1.000	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.001

CH 345.000



CUT/FILL	-0.063	-0.066	0.000	0.361	0.218	0.039	-0.129	-0.164	-0.061	-0.135	-0.146	0.000
DESIGN	39.371	39.400	39.505	40.353	40.386	40.281	40.189	40.180	40.351	40.381	40.387	40.566
EXISTING	39.434	39.466	39.505	39.993	40.168	40.242	40.318	40.344	40.413	40.516	40.534	40.566
OFFSET	-5.456	-5.020	-4.483	-1.089	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.712

CH 360.000



CUT/FILL	0.378	0.239	0.15	0.026	0.007	0.009	0.209	0.188	0.175	0.000
DESIGN	40.264	40.294	40.330	40.225	40.133	40.124	40.295	40.325	40.331	40.195
EXISTING	39.886	40.055	40.184	40.198	40.126	40.115	40.087	40.137	40.156	40.195
OFFSET	-2.199	-1.199	0.000	3.500	6.550	7.000	8.200	9.700	10.000	10.545

CH 375.000

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REV	DESCRIPTION	DATE	APP'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
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LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (4 OF 6)

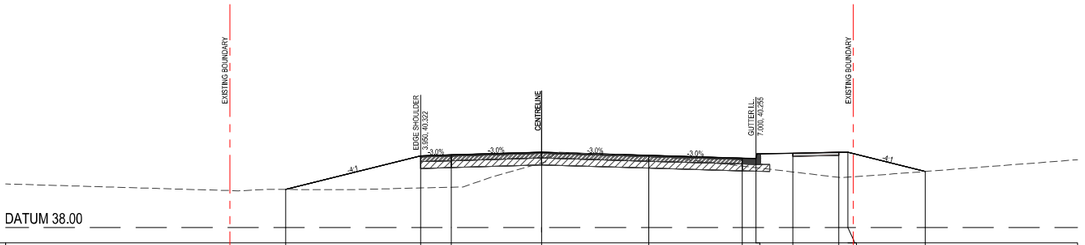
DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128
DRAWING No. C04.06
REV B

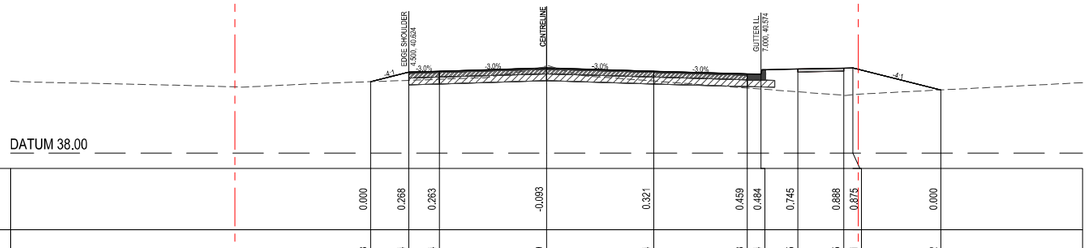
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]



DATUM 38.00

CUT/FILL	0.000	1.052	1.058	0.35	0.040	0.256	0.300	0.611	0.816	0.817	0.000		
DESIGN	39.242	40.342	40.372	40.461	40.356	40.264	40.255	40.426	40.456	40.462	39.831		
EXISTING	39.242	39.291	39.315	40.107	40.316	40.008	39.955	39.815	39.640	39.645	39.831		
OFFSET	-8.353	-3.950	-2.950	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.524		

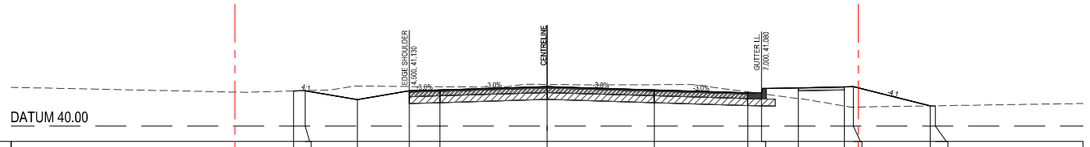
CH 390.000



DATUM 38.00

CUT/FILL	0.000	0.268	0.263	-0.093	0.321	0.459	0.484	0.745	0.888	0.875	0.000		
DESIGN	40.333	40.644	40.674	40.779	40.674	40.583	40.574	40.745	40.775	40.781	40.062		
EXISTING	40.333	40.376	40.411	40.872	40.354	40.124	40.090	40.000	39.887	39.905	40.062		
OFFSET	-5.745	-4.500	-3.500	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.875		

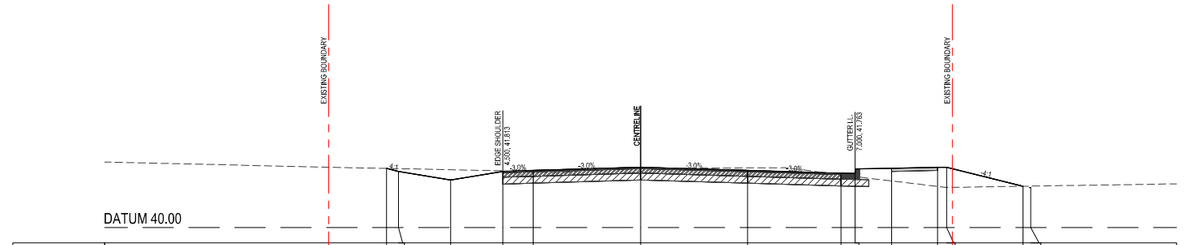
CH 405.000



DATUM 40.00

CUT/FILL	-0.002	-0.009	-0.441	-0.144	-0.105	-0.07	-0.172	-0.030	0.020	0.351	0.623	0.665	0.000	-0.013	
DESIGN	41.147	41.150	40.867	41.150	41.180	41.285	41.180	41.089	41.080	41.251	41.281	41.287	40.661	40.652	
EXISTING	41.149	41.160	41.308	41.294	41.285	41.360	41.352	41.119	41.059	40.900	40.657	40.622	40.661	40.664	
OFFSET	-9.286	-7.900	-6.200	-4.500	-3.500	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.502	12.674	

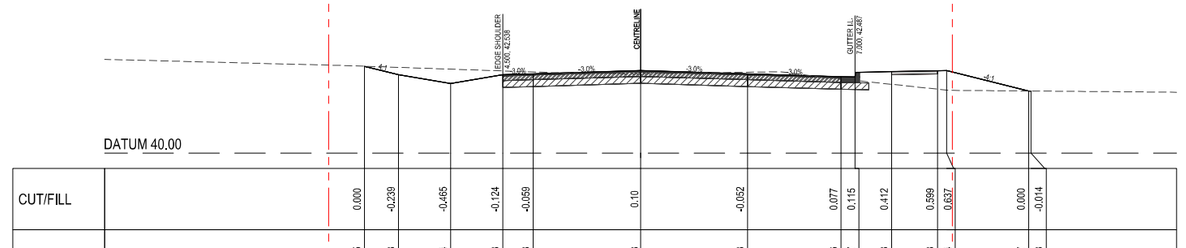
CH 420.000



DATUM 40.00

CUT/FILL	0.000	-0.090	-0.338	-0.020	0.044	0.043	-0.085	0.047	0.095	0.412	0.620	0.961	0.000	-0.049	
DESIGN	41.931	41.833	41.550	41.833	41.863	41.988	41.863	41.772	41.763	41.934	41.964	41.970	41.348	41.303	
EXISTING	41.931	41.923	41.888	41.853	41.819	41.925	41.948	41.724	41.668	41.522	41.344	41.308	41.348	41.352	
OFFSET	-9.290	-7.900	-6.200	-4.500	-3.500	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.488	12.742	

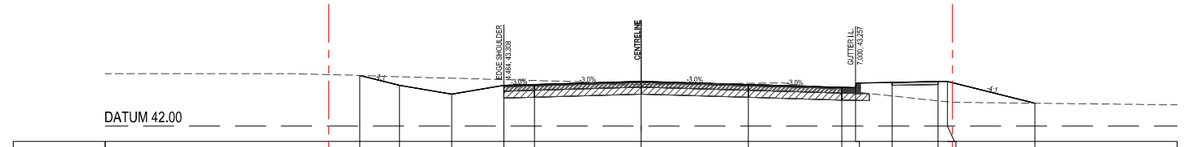
CH 435.000



DATUM 40.00

CUT/FILL	0.000	-0.239	-0.465	-0.124	-0.059	0.10	-0.052	0.077	0.115	0.412	0.599	0.637	0.000	-0.014	
DESIGN	42.835	42.558	42.274	42.558	42.588	42.693	42.588	42.496	42.487	42.658	42.688	42.694	42.027	42.013	
EXISTING	42.835	42.797	42.739	42.681	42.647	42.591	42.640	42.420	42.373	42.246	42.089	42.057	42.027	42.026	
OFFSET	-9.009	-7.900	-6.200	-4.500	-3.500	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.670	12.746	

CH 450.000



DATUM 42.00

CUT/FILL	0.000	-0.285	-0.522	-0.192	-0.134	0.11	-0.041	0.103	0.143	0.443	0.634	0.672	0.000		
DESIGN	43.652	43.328	43.044	43.328	43.358	43.462	43.357	43.266	43.257	43.428	43.458	43.464	42.748		
EXISTING	43.652	43.613	43.566	43.520	43.492	43.357	43.398	43.163	43.114	42.985	42.824	42.791	42.748		
OFFSET	-9.181	-7.884	-6.184	-4.484	-3.484	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.862		

CH 465.000

0 2 4 5 10

SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021

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REV	DESCRIPTION	DATE	APP'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (5 OF 6)

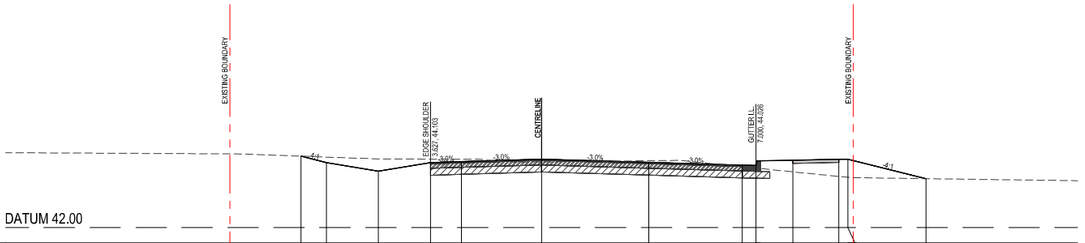
DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C04.07	B

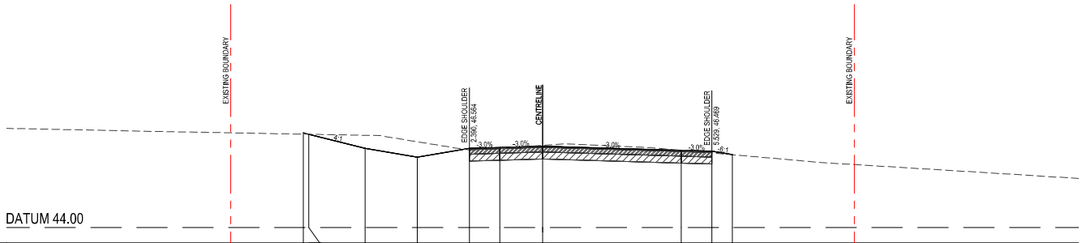
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]



DATUM 42.00

CUT/FILL	0.000	-0.178	-0.400	-0.109	-0.075	0.087	-0.053	0.051	0.087	0.379	0.555	0.589	0.000	
DESIGN	44.331	44.123	43.840	44.123	44.153	44.232	44.127	44.035	44.026	44.197	44.227	44.233	43.597	
EXISTING	44.331	44.301	44.239	44.232	44.228	44.145	44.180	43.985	43.939	43.818	43.672	43.644	43.597	
OFFSET	-7.858	-7.027	-5.327	-3.627	-2.621	0.000	3.500	6.550	7.000	8.200	9.700	10.000	12.546	

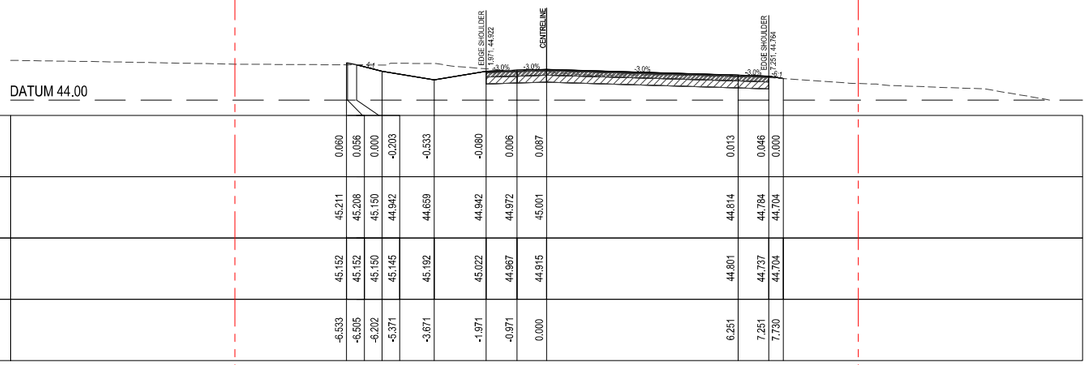
CH 480.000



DATUM 44.00

CUT/FILL	0.047	0.000	-0.427	-0.500	0.046	0.019	-0.03				-0.005	0.053	0.000	
DESIGN	47.094	47.044	46.584	46.300	46.584	46.614	46.655				46.519	46.489	46.378	
EXISTING	47.048	47.044	47.010	46.800	46.537	46.595	46.682				46.524	46.437	46.378	
OFFSET	-7.805	-7.633	-5.790	-4.090	-2.390	-1.390	0.000				4.529	5.529	6.198	

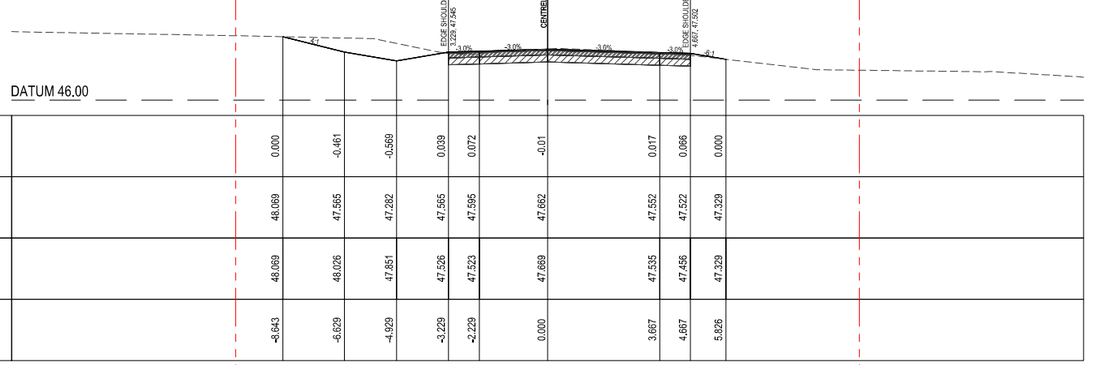
CH 525.000



DATUM 44.00

CUT/FILL	0.060	0.056	0.000	-0.203	-0.533	-0.080	0.006	0.087			0.013	0.046	0.000	
DESIGN	45.211	45.208	45.150	44.942	44.659	44.942	44.972	45.001			44.814	44.784	44.704	
EXISTING	45.152	45.152	45.150	45.145	45.192	45.022	44.967	44.915			44.801	44.737	44.704	
OFFSET	-6.533	-6.505	-6.202	-5.371	-3.671	-1.971	-0.971	0.000			6.251	7.251	7.730	

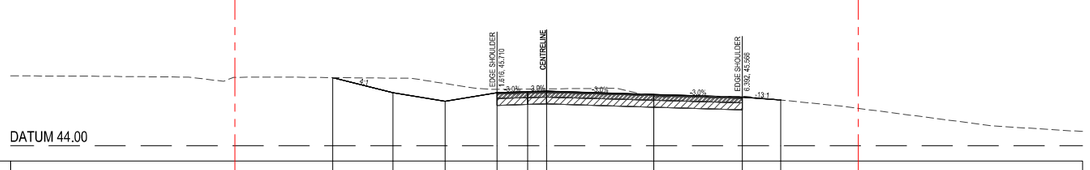
CH 495.000



DATUM 46.00

CUT/FILL	0.000	-0.461	-0.569	0.039	0.072	-0.01					0.017	0.066	0.000	
DESIGN	48.069	47.565	47.282	47.565	47.595	47.662					47.552	47.622	47.329	
EXISTING	48.069	48.026	47.851	47.526	47.523	47.669					47.535	47.456	47.329	
OFFSET	-5.643	-5.629	-4.929	-3.229	-2.229	0.000					3.667	4.667	5.826	

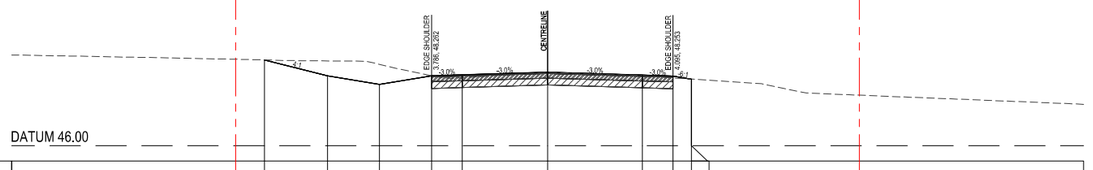
CH 540.000



DATUM 44.00

CUT/FILL	0.000	-0.474	-0.581	-0.111	-0.090	-0.077	0.077	-0.021	0.000					
DESIGN	46.222	45.730	45.446	45.730	45.760	45.778	45.673	45.586	45.492					
EXISTING	46.222	46.203	46.027	45.841	45.850	45.855	45.596	45.607	45.492					
OFFSET	-6.986	-5.016	-3.316	-1.616	-0.616	0.000	3.500	6.392	7.642					

CH 510.000



DATUM 46.00

CUT/FILL	0.000	-0.484	-0.655	-0.004	0.096	0.000	0.015	0.061	0.000	0.000				
DESIGN	48.797	48.282	47.999	48.282	48.312	48.396	48.303	48.273	48.173	48.173				
EXISTING	48.797	48.766	48.654	48.286	48.216	48.395	48.288	48.212	48.173	48.173				
OFFSET	-9.246	-7.186	-5.496	-3.796	-2.796	0.000	3.094	4.094	4.695	4.695				

CH 549.973

0 2 4 5 10

SCALE METRES 1:100 @ A1

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REV	DESCRIPTION	DATE	APP'VD	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
WYNDELLA ROAD
CROSS-SECTIONS (6 OF 6)

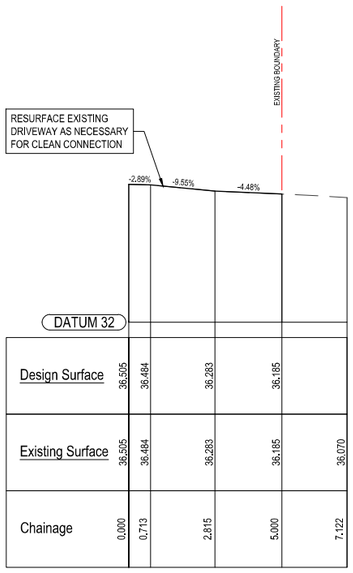
DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:100	A1

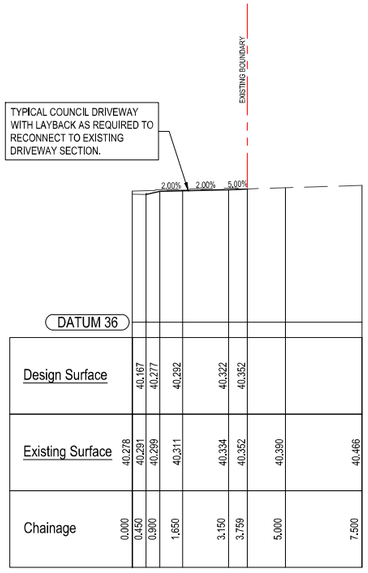
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C04.08	B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]



LONGITUDINAL SECTION
LOT 223 DRIVEWAY



LONGITUDINAL SECTION
LOT 224 DRIVEWAY

0 2 4 5 10

SCALE METRES 1:100 @ A1

AutoCAD Civil 3D 2021

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B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
LOT 223 AND 224 DRIVEWAY AND BUSHFIRE ACCESS
LONGITUDINAL SECTIONS

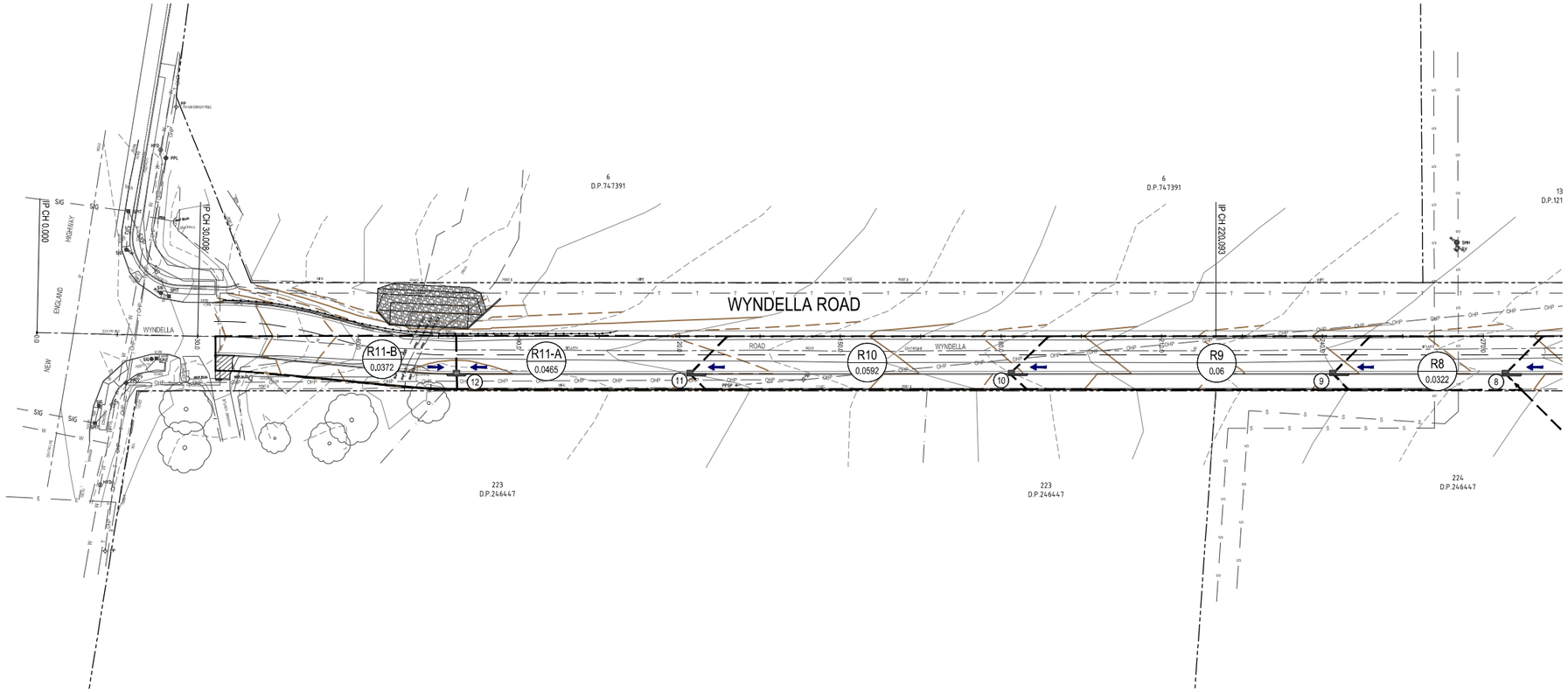
DRAWING STATUS **PRELIMINARY DESIGN**

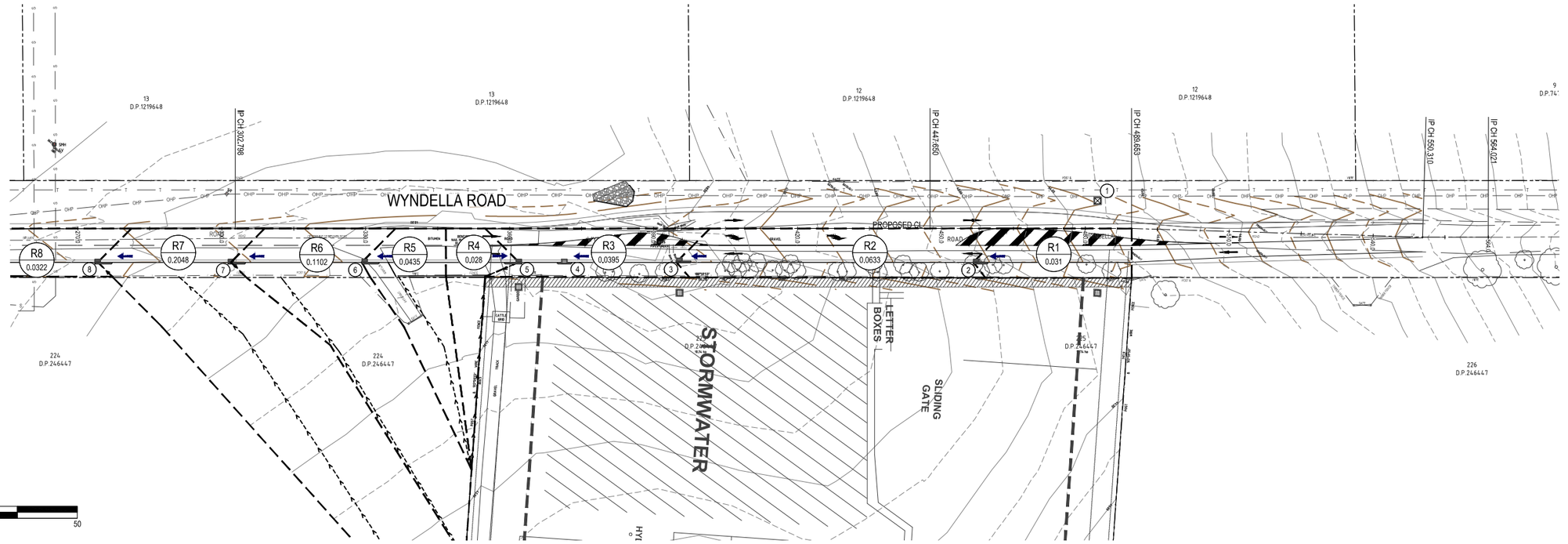
SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128
DRAWING No. C04.09
REV B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]





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0 5 10 15 20 25 50

SCALE METRES 1:500 @ A1

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A	PRELIMINARY ISSUE	01.05.25	K.B.	

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PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
STORMWATER CATCHMENT PLAN

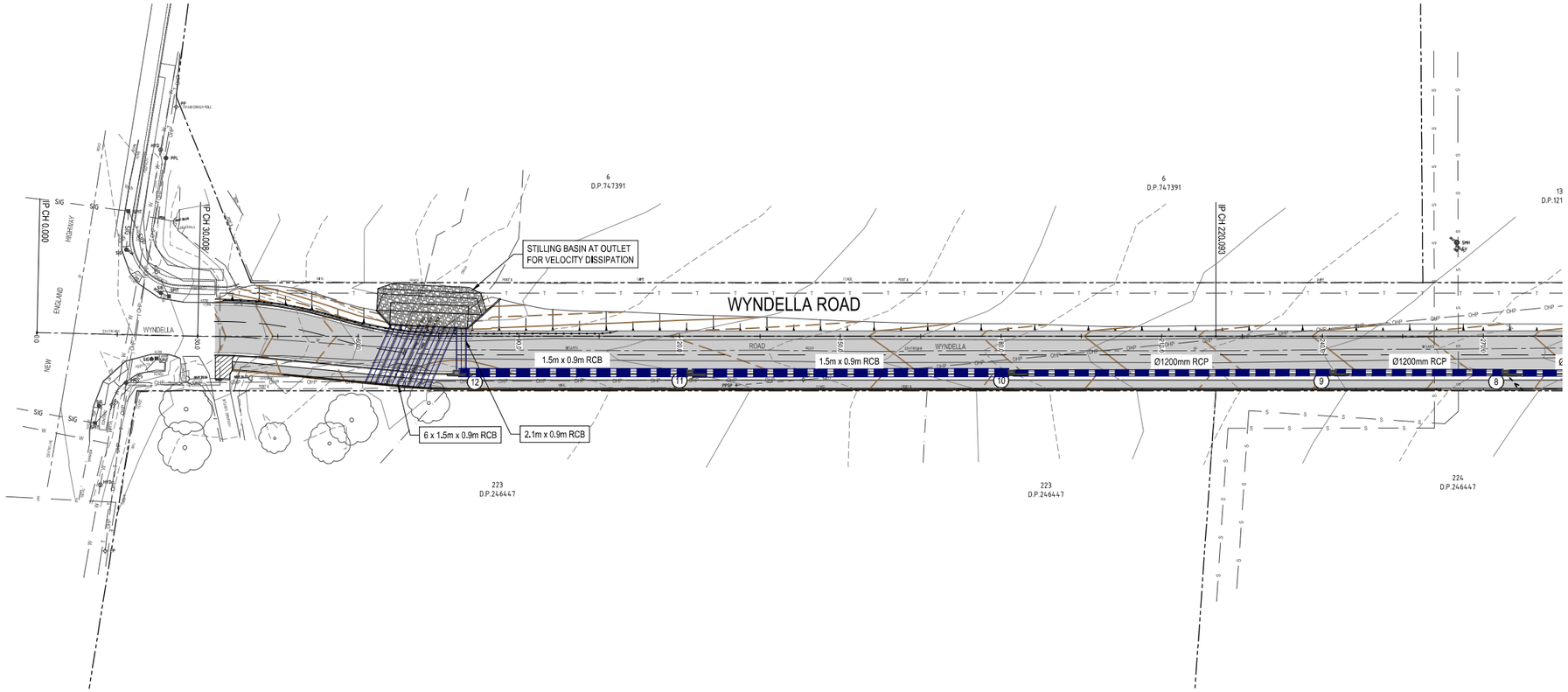
DRAWING STATUS **PRELIMINARY DESIGN**

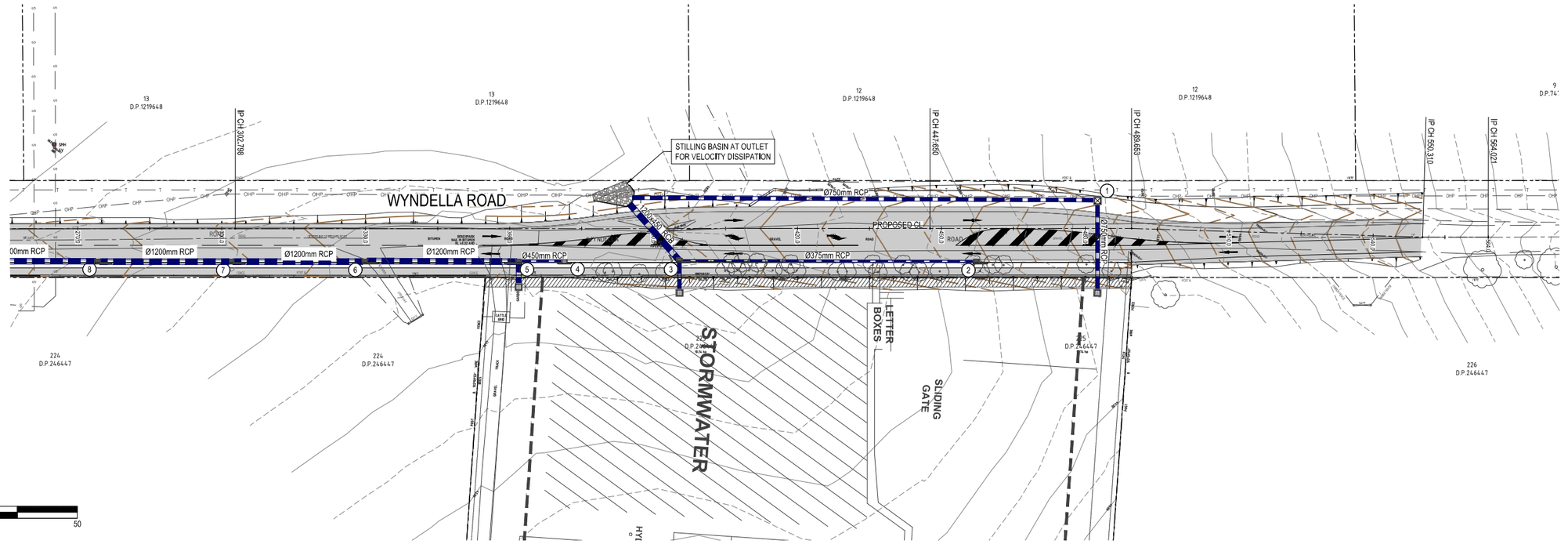
SCALE:	ORIG. SIZE
1:500	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No. 23128
DRAWING No. C05.01
REV B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]





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0 5 10 15 20 25 50

SCALE METRES 1:500 @ A1

AutoCAD Civil 3D 2021

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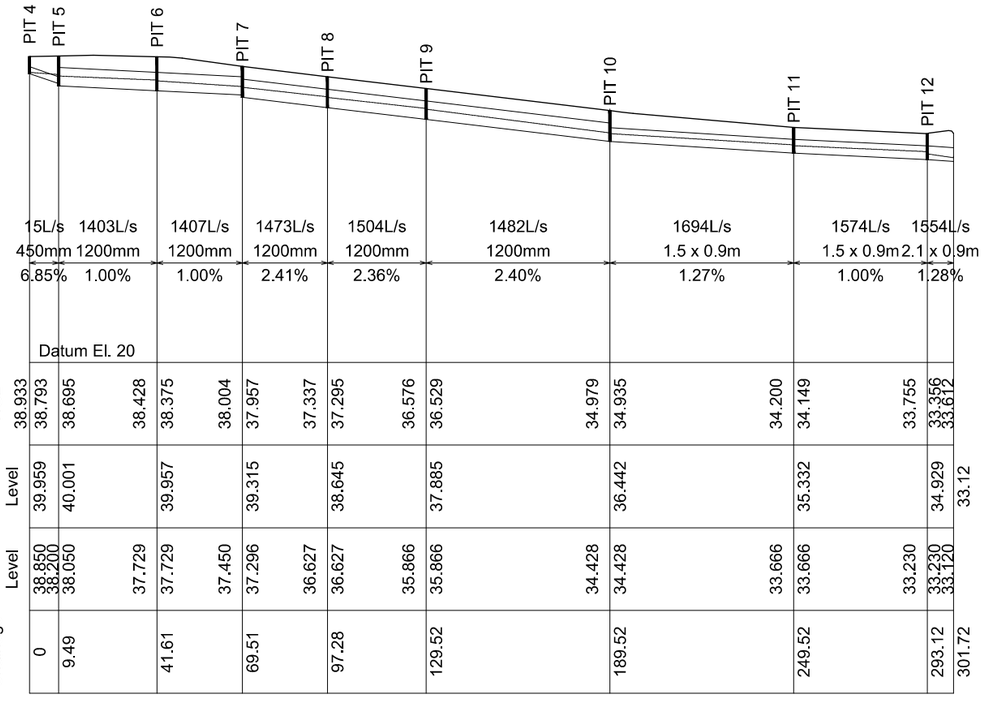
PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
STORMWATER MANAGEMENT PLAN

DRAWING STATUS	PRELIMINARY DESIGN					
SCALE: 1:500				ORIG. SIZE A1		
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE	
MS	KB	KB	KB	-	05.05.25	
PROJECT No. 23128		DRAWING No. C05.02			REV B	

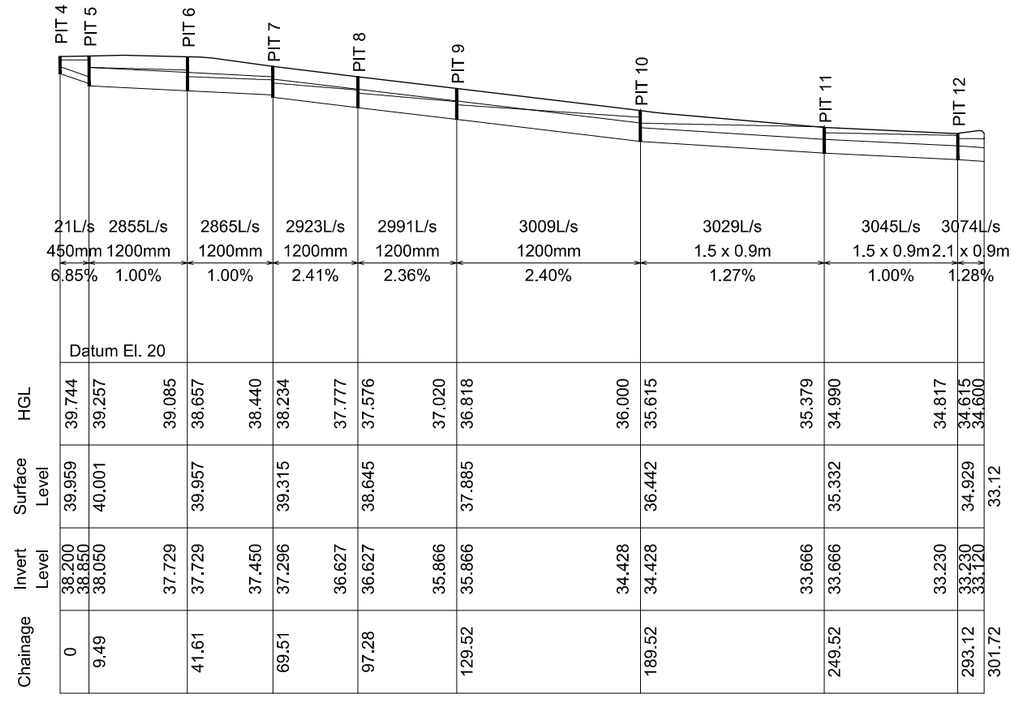
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]



Chainage	0	9.49	41.61	69.51	97.28	129.52	189.52	249.52	293.12	301.72
Invert Level	38.850	38.050	37.729	37.450	37.296	36.627	35.866	34.428	33.666	33.230	33.120	
Surface Level	39.959	40.001	39.957	39.315	38.645	37.885	36.442	35.332	34.929	33.12
HGL	38.933	38.793	38.695	38.428	38.375	38.004	37.957	37.337	37.295	36.576	36.529	34.979	34.935	34.200	34.149	33.755	33.612	33.356

LINE 4 TO OUTFALL - 10%AEP

1:500 (H): 1:100 (V)



Chainage	0	9.49	41.61	69.51	97.28	129.52	189.52	249.52	293.12	301.72
Invert Level	38.200	38.850	38.050	37.729	37.729	37.450	37.296	36.627	36.627	35.866	35.866	34.428	34.428	33.666	33.666	33.230	33.230	33.120
Surface Level	39.959	40.001	39.957	39.315	38.645	37.885	36.442	35.332	34.929	33.12
HGL	39.744	39.257	39.085	38.657	38.440	38.234	37.777	37.576	37.020	36.818	36.000	35.615	35.379	34.990	34.817	34.615	34.600

LINE 4 TO OUTFALL - 1%AEP

1:500 (H): 1:100 (V)

0 2 4 5 10

SCALE METRES 1:100 @ A1

0 5 10 15 20 25 50

SCALE METRES 1:500 @ A1

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DWG IN COLOUR

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REV	DESCRIPTION	DATE	APPV'D	END'D
B	RD LEVEL / NOTE AMENDMENTS	05.05.25	K.B.	
A	PRELIMINARY ISSUE	01.05.25	K.B.	

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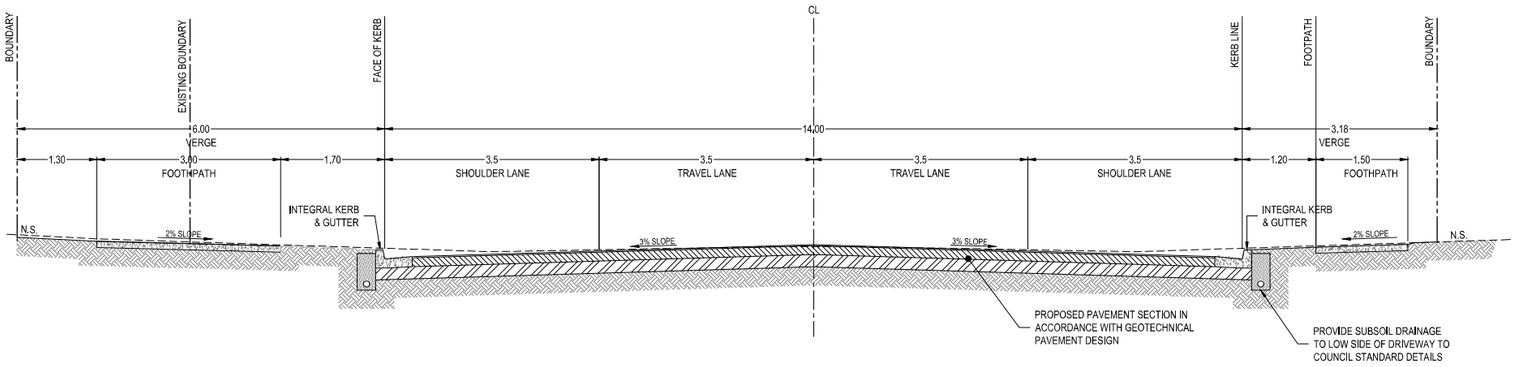
WALLACE DESIGN GROUP

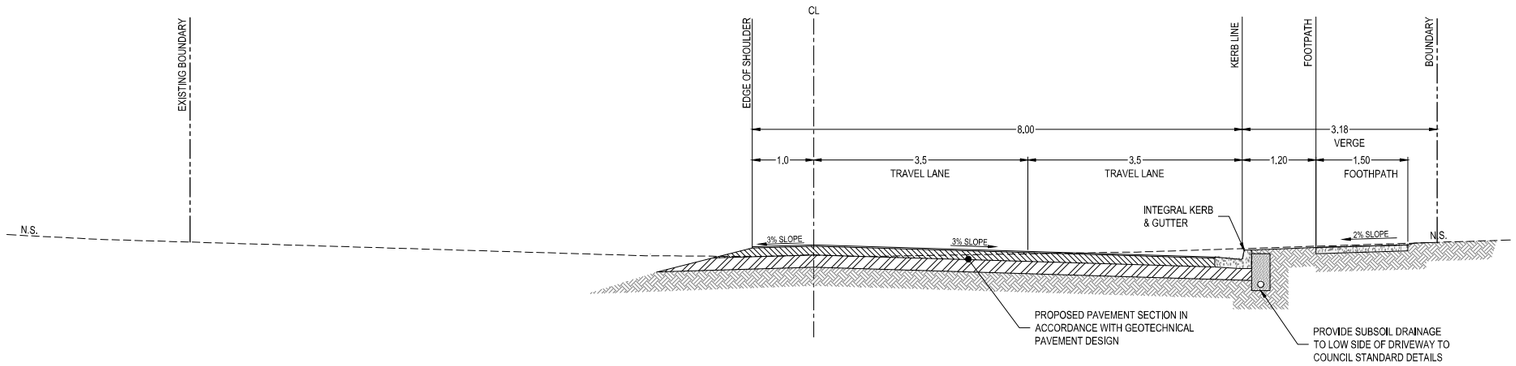
PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
STORMWATER LONGITUDINAL SECTIONS

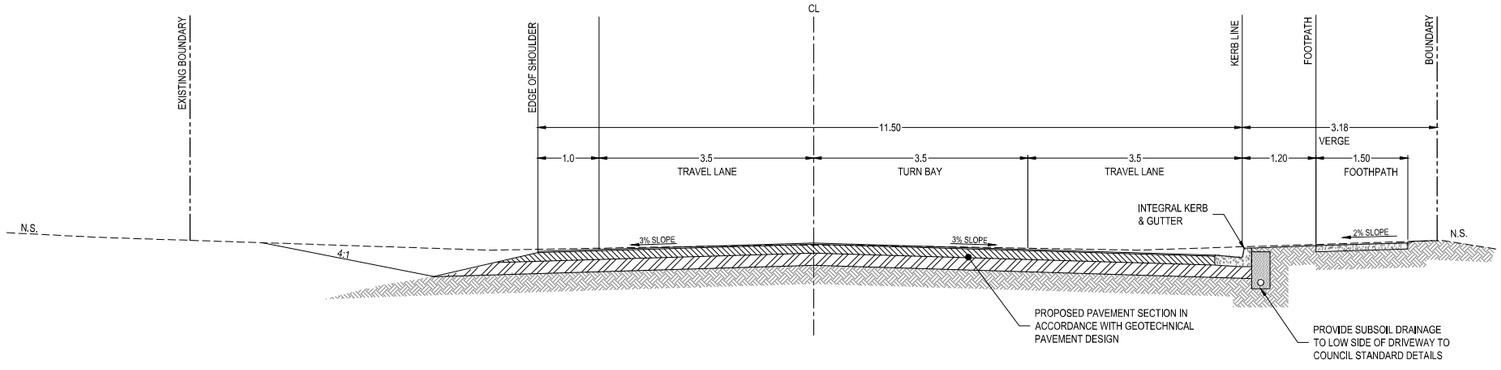
DRAWING STATUS	PRELIMINARY DESIGN				
SCALE: AS SHOWN				ORIG. SIZE: A1	
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25
PROJECT No. 23128		DRAWING No. C05.03			REV B



TYPICAL CROSS SECTION ULTIMATE WYNDELLA ROAD
1:50



TYPICAL CROSS SECTION WYNDELLA ROAD
(SITE TO NEW ENGLAND HIGHWAY)
1:50



TYPICAL CROSS SECTION WYNDELLA ROAD
(SITE FRONTAGE)
1:50

0 1 2 5
SCALE METRES 1:50 @ A1

AutoCAD Civil 3D 2021

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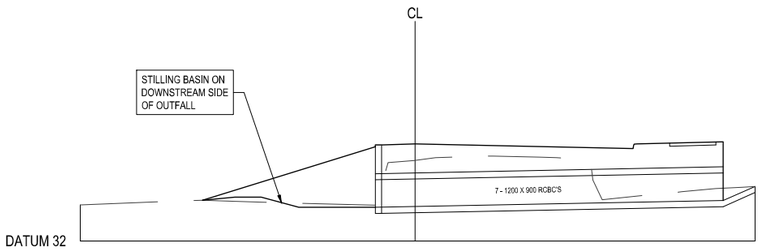
WALLACE DESIGN GROUP

PROJECT:
ROAD IMPROVEMENTS for WYNDELLA ROAD
LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

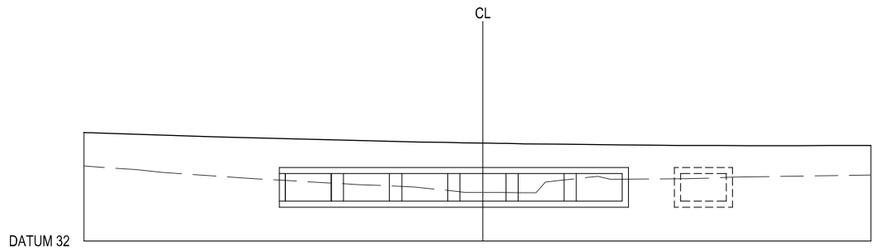
DRAWING TITLE:
CIVIL ROAD & SW PLANS
TYPICAL ROAD SECTIONS

DRAWING STATUS	PRELIMINARY DESIGN				
SCALE: 1:50				ORIG. SIZE A1	
DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25
PROJECT No. 23128		DRAWING No. C06.01			REV B

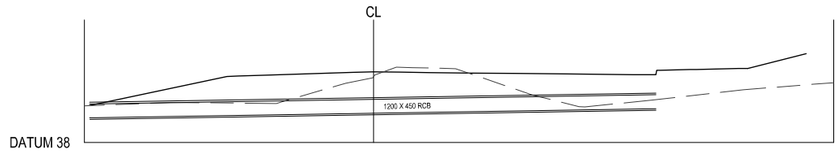
PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]



TYPICAL CULVERT No. 1 LONGITUDINAL SECTION



TYPICAL CULVERT No. 1 CROSS-SECTION
INLET SIDE



TYPICAL CULVERT No. 1 LONGITUDINAL SECTION
AT CENTRELINE OF CULVERT

0 2 4 5 10

SCALE METRES 1:100 @ A1

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REV	DESCRIPTION	DATE	APPV'D	END'D
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PROJECT:
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LOT 225, DP 246447
34 WYNDELLA ROAD
LOCHINVAR NSW 2321

DRAWING TITLE:
CIVIL ROAD & SW PLANS
TYPICAL CULVERT SECTIONS AND DETAILS

DRAWING STATUS **PRELIMINARY DESIGN**

SCALE:	ORIG. SIZE
1:100	A1

DRAWN	DESIGNED	CHECKED	APPROVED	ENDORSED	DATE
MS	KB	KB	KB	-	05.05.25

PROJECT No.	DRAWING No.	REV
23128	C06.02	B

PLOTTED BY:- KEN DATE:- 5 May 2025 3:59 PM FILENAME:- O:\PROJECTS\2023\23128 - 34 WYNDELLA ROAD, LOCHINVAR\CAD\TITLE\23128_CIV_PRELDESIGN_WYNDELLA ROAD [B]