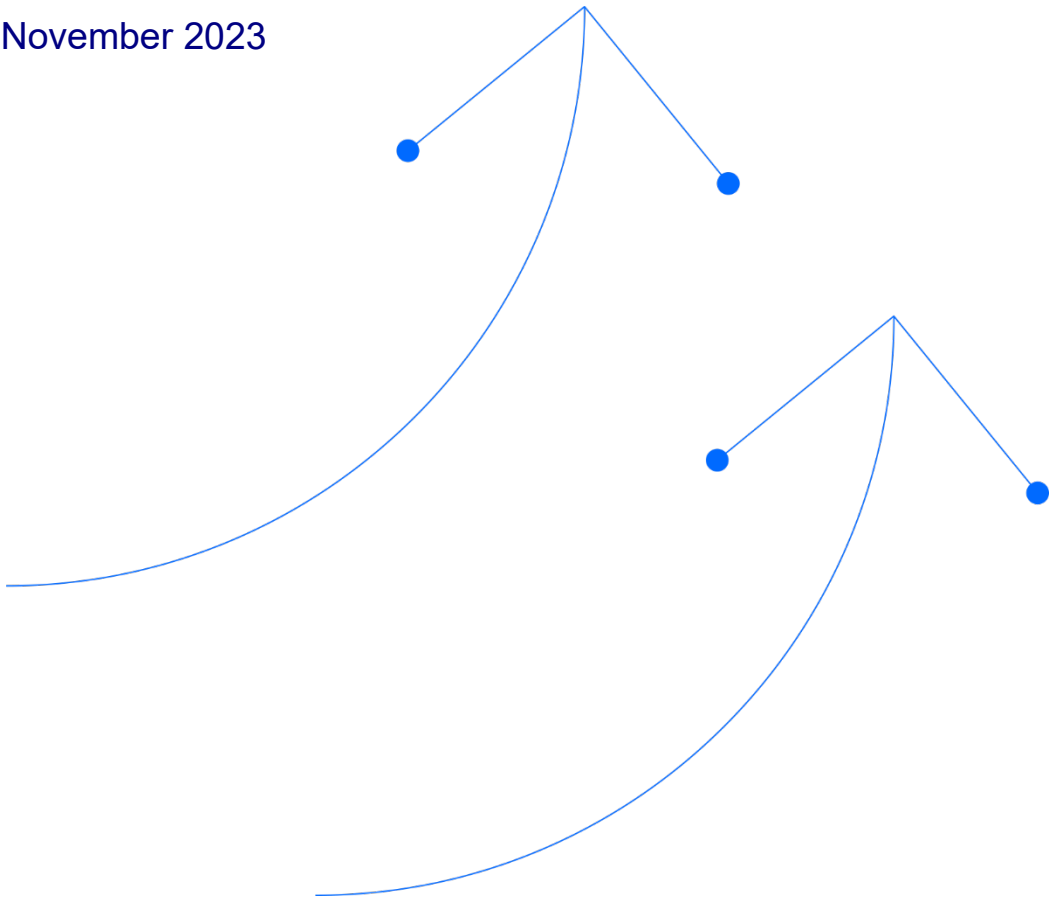
STAGE 1 – PRELIMINARY WORKS CONSTRUCTION WATER MANAGEMENT PLAN

November 2023



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Document title		Stage 1 – Preliminary Works Construction Water Management Plan					
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Terms and abbreviations

Abbreviations	Terms
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARI	Average Recurrence Interval
ARR	Australian Rainfall and Runoff
CEMP	Construction environmental management plan
CoA	Conditions of Approvals for the HGP Approval No 06_0286
DECC	The former Department of Environment and Climate Change
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
EA	Environmental assessment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
ESCP	Erosion and Sediment Control Plan
EY	Events Per Year
HGP	Hunter Gas Pipeline
HSE	Health, safety and environment
LGA	Local government area
Ltd	Limited
km	kilometre
m	metre
NSW	New South Wales
PMP	Property Management Plan
Pty	Proprietary
RFFE	Regional Flood Frequency Estimation
SoC	Statement of Commitment
SSI	State Significant Infrastructure
SWMP	Soil and water management plan
WMP	Water Management Plan

1 Introduction

1.1 Purpose and scope for the WMP

This Water Management Plan (WMP) has been prepared as a sub-plan to the Hunter Gas Pipeline (HGP) Stage 1 – Preliminary Works Construction Environmental Management Plan (CEMP) and must be read in conjunction with the CEMP. The WMP has been prepared considering the following approval documents, relevant guidelines and other relevant Project documents:

- Conditions of Project Approval MP 06_0286 (CoA) as modified (Mod 1)
- Managing Urban Stormwater - Soils and Construction, Volume 1 (Landcom (2004))
- The Environmental Assessment (EA) (as defined by the CoA) – *Queensland Hunter Gas Pipeline Environmental Assessment* (Manidis Roberts 2008) as modified by the:

– Submissions Report for the Queensland Hunter Gas Pipeline (November 2008); and

– Request to modify the approved project, dated 18 October 2018, including the associated *Response to Submissions* dated 27 December 2018 and *Additional Information* provided to the Department dated May 2019.

The WMP provides details of the management and mitigation of water issues generated during the construction and use of the Preliminary Works Site 1 to manage water related risks.

1.2 Objectives

The objectives of this WMP are to:

- Detail the relevant statutory requirements (including any relevant approval conditions) for the proposed Stage 1 works
- Detail the relevant commitments or recommendations identified in the EA for the proposed Stage 1 works
- Detail the existing environment with relevance to water and soils
- Identify site-specific risks that are associated with water
- Outline the management and mitigation of water issues generated during the construction and use of the preliminary works site.

1.3 Structure of this WMP

The Stage 1 works are a specific and relatively minor component of the overall project works to which the CoA and EA applies. Therefore, this plan has also undertaken further site-specific analysis to apply the principles of the EA and CoA to the site in further detail.

The WMP sets out the details required by the CoA-6.3 and provides management requirements to address the objectives in Section 1.2. The structure of this WMP is as follows:

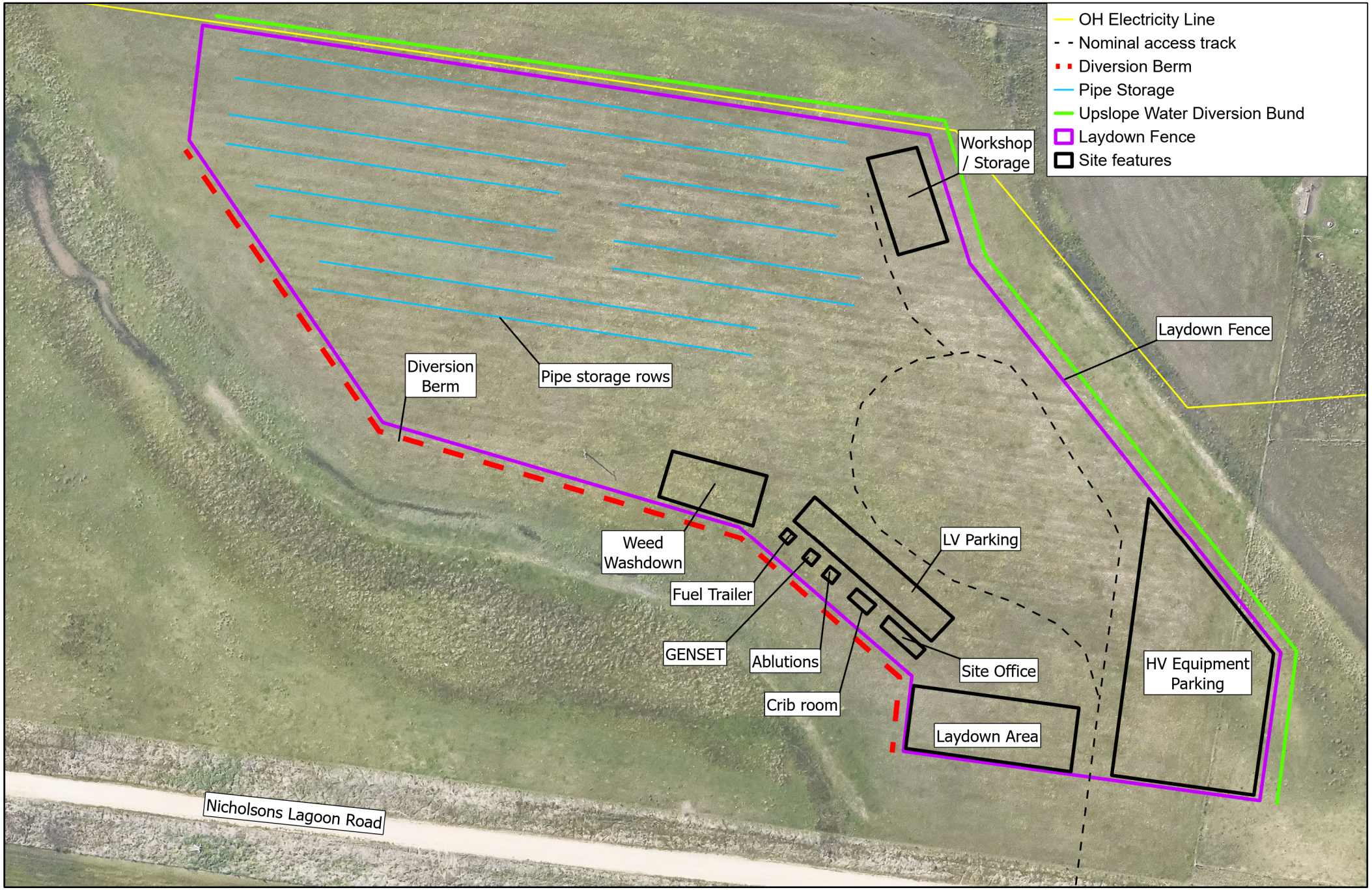
- Section 1: Outlines the context, scope, purpose and objectives of this WMP
- Section 2: Introduces the project and the proposed Stage 1 activities
- Section 3: Outlines the compliance conditions, guidelines and legislations governing the WMP
- Section 4: Describes the existing environment with respect to water related risks
- Section 5: Provides the required water management strategies based on the regulatory conditions, existing site conditions and the site-specific analysis undertaken
- Section 6: Outlines the review requirements.

2 Works description

Stage 1 works involve the establishment and use of Preliminary Works Site 1. The Preliminary Works Site 1 will be used primarily for temporary equipment and machinery storage, pipe storage and will house a site office. Refer to Figure 2.1 for the proposed layout of the Preliminary Works Site 1. Further details of construction and operation of Preliminary Works Site 1 including work activities, work program, workforce and traffic generation, are provided in section 1 and 2 of the CEMP.

The site is located at lot on plan 1/596894, 40 Nicholsons Lagoon Rd, Quipolly, NSW 2343, about 65 kilometres (km) southwest of Tamworth in the Liverpool Plains Local Government Area (Figure 2.2). The site is situated approximately 20 km northwest of the township of Quirindi. The land is classified as RU1 and has been cleared for the purpose of primary production, being dominated by highly disturbed pastures. Land surrounding the site is also used for primary production.

The Preliminary Works Site 1 is dominated by disturbed, non-native pasture. The site has been located to avoid crossing or disturbing watercourses, clearing of native vegetation, flora and fauna habitat, as well as maximising the distance to sensitive receptors. The site has been located so that it is in close proximity to the approved HGP corridor as well as major transportation routes, including existing major highways and rail yards.



Santos HUNTER GAS PIPELINE

Figure 2.1

Indicative Preliminary Works Site 1 Layout

N

0 20 40

Metres

Coordinate System:
GDA 1994 MGA Zone 56
Datum: GDA 1994

9/5/2023

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Figure 2.2

Site locality in relation to local townships

N

0 550 1,100

Metres

Coordinate System:
GDA 1994 MGA Zone 56
Datum: GDA 1994

9/5/2023

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3 Regulatory requirements and criteria

The project was approved under the *Environmental Planning and Assessment Act 1979* and subsequently declared a Critical State Significant Infrastructure (CSSI) project.

The construction activities associated with the Preliminary Works Site 1 will be carried out in accordance with the:

- Relevant existing CoA
- The EA, and
- Statement of commitments (SoC).

3.1 Conditions of approval

Table 3.1 provides the CoA that are relevant to the management of water for the Preliminary Works Site 1. No drilling (i.e., horizontal directional drilling) or hydrotesting work is proposed to be undertaken as part of Stage 1 activities. Therefore, CoA relevant to pipeline construction have not been included below.

Table 3.1 – Relevant CoA for this WMP

Condition Number	Condition	Where addressed
CoA-3.21	Except as may be expressively provided by an Environment Protection Licence for the project, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* which prohibits the pollution of waters.	Section 5.1 and 5.2 The site water management and erosion and sediment control system (see section 5.1) has been developed to comply with the *Managing Urban Stormwater: Soils and Construction (Volume 1)* 'The Blue Book' (Landcom, 2004). The Blue Book is deemed to be the most relevant industry standard for complying with section 120 of the *Protection of the Environment Operations Act 1997*. Section 5.2 of this plan and section 5.27 of the CEMP addresses the management measures to be implemented to minimise the risk of the pollution of waters from hazardous substances such as hydrocarbons. The Contingency Plan provided in Appendix C of the CEMP would be implemented in the event of a potential pollution incident.
CoA-3.22	Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities, in accordance with Managing Urban Stormwater: Soils and construction (DECC, 2008), or its latest version.	Section 5.1

Condition Number	Condition	Where addressed
CoA-3.23	The Proponent shall prepare a contingency plan for events that have the potential to pollute or contaminate surface or ground water. The plan is to include threshold levels, remediation actions and communication strategies for the effective management of such an event. This plan is to be included in the Construction Environmental Management Plan required under condition 6.2.	CEMP Appendix C
CoA-3.25	Proponent shall ensure that all water supplies for construction, hydro-testing and operation are sourced from an authorised and reliable supply.	Section 5.3
CoA-3.26	Any Acid Sulphate Soils encountered during construction of the project shall be treated and disposed of in accordance with the *Acid Sulphate Soils Manual* (Acid Sulphate Soil Management Advisory Committee,1998) or its latest version.	Section 4.4 There are no Acid Sulphate Soils located within or in the vicinity of Preliminary Works Site 1.
CoA-6.2	Prior to the commencement of the construction of the project, the Proponent shall prepare a Construction Environmental Management Plan (CEMP) for the project to the satisfaction of the Secretary. This plan must outline the environmental management practices and procedures to be followed during construction of the project. The CEMP shall be consistent with Guideline for the Preparation of Environmental Management Plans (DIPNR 2004), or its latest version, and shall include, but not necessarily be limited to: d) details of the measures to be employed to minimise soil erosion and trench compaction; e) details on potential occurrence of expansive soils and saline areas along the proposal route and management and mitigation measures; i) Details of how the environmental performance of the construction works will be monitored, and what actions will be taken to minimise environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan: ii) measures to monitor and minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction activities;	d) Section 5.1 includes measures to minimise soil erosion. Trench compaction is not applicable to Stage 1 as there is no pipeline construction. e) Not applicable to Stage 1 as this is referring to soil impacts on the pipeline asset and no pipeline installation is to occur for Stage 1. However Section 5.1.2 includes amelioration of sodic or saline soils at Preliminary Works Site 1. i) ii) CEMP Section 5.2.7 includes measures to manage storage and handling of hazardous chemicals. Section 5.1 and 5.6 includes measures and monitoring requirements for soil and water management.
CoA-6.3 c)	The Construction Environmental Management Plan required under condition 6.2 must include: a Water Management Plan to minimise the water impacts of the project. The Plan shall:	This plan
CoA-6.3 c) i)	identify all sources of water that would be used for the construction of the project (including water for hydro-testing), and the amount of water to be extracted from each source; and	Section 5.3
CoA-6.3 c) ii)	describe the measures that would be implemented to minimise the water impacts of the project, including:	Section 5.1 Section 5.2

Condition Number	Condition	Where addressed
	• the measures to avoid any off-site water pollution occurring; • the measures to minimise soil erosion and the discharge of sediments from the site; • the measures to ensure all chemical and hydrocarbon products are stored on site in bunded areas in accordance with the relevant Australian Standards; and • details on the proposed disposal sites for hydro-test water and the environmental protection measures to be used at any such disposal sites; and	
CoA-6.3 c) iii)	include a program to monitor and report on the effectiveness of these measures.	Section 5.6

3.2 Statement of commitments

The Submissions Report (QHGP 2008) outlines the commitment to the objectives and actions that must be taken for managing the environmental impacts of the Project to minimise or avoid adverse outcomes. The Statement of Commitments (SoC) relevant to water have been provided below in Table 3.2.

Table 3.2 – Statement of commitments relevant to water management

Reference	Commitment	Where addressed
SoC-W3	Soil and water management measures will be implemented during the construction phase through the CEMP. Management measures will be prepared in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004) as appropriate to pipeline construction.	Section 5
SoC-W3A	A contingency plan will be prepared for events that have the potential to pollute or contaminate surface or groundwater sources. The plan will include threshold levels, remediation actions (including monitoring) and communication strategies.	CEMP Appendix C
SoC-W6	The proponent will implement all practicable measures to limit potential impacts on existing surface and groundwater regimes and this will be documented in the CEMP.	This WMP forms part of the CEMP and outlines measures to manage impacts to waters.
SoC-RM2	Appropriate water sources for construction activities including hydro-testing will be investigated and identified. Relevant irrigation groups, water users/owners and DWE will be consulted. Where licensing of surface or groundwater extraction is required for the identified water sources, the proponent will obtain the relevant licence or exemption from DWE.	Section 5.3
SoC-S1	Soil types will be identified and delineated along the alignment.	Section 4.4

Reference	Commitment	Where addressed
SoC-S2	Soil management measures will be developed according to soil type and be documented in the CEMP.	Section 5.1
SoC-S4	Erosion and sediment management controls will be prepared as part of the CEMP to manage and minimise erosion and control sediment impacts associated with the construction of the pipeline.	Section 5.1
SoC-AM2-9	Investigate and identify appropriate water sources for construction activities including hydro-testing and obtain relevant licences under Water Sharing Plans and *Water Management Act 2000*.	Section 5.3

3.3 Relevant legislation and guidelines

The guidelines, standards and policies relevant to water management for Stage 1 of HGP are outlined in Table 3.3.

Table 3.3 – Relevant legislation and guidelines

Legislation / guidelines	Function	Applicability
Managing Urban Stormwater - Soils and Construction, Volume 1 (Landcom, 2004)	These guidelines, commonly known as the 'Blue Book', provide support to reduce the impacts of land disturbance activities on waterways by better management of soil erosion and sediment control. This resource is a guide for local councils and the development industry to achieve better management of stormwater, mainly erosion and sediment control during the temporary disturbance phase of urban development. The document is widely prescribed in NSW by both local government and the Environment Protection Authority.	The Blue Book highlights two types of plan preparation – Erosion and Sediment Control Plan (ESCP) and Soil and Water Management Plan (SWMP). An ESCP is developed if the area of disturbance is less than 2500 m^2, whereas a more detailed SWMP is developed if the area of disturbance is more than 2500 m^2. For this project, the disturbed area exceeds 2500 m^2, therefore a SWMP is developed prior to construction. This WMP constitutes the SWMP for the Preliminary Works Site 1. The Blue Book also stipulates requirements and guidance for measures for erosion and sediment control. The Blue Book nominates the 2-year ARI for planning of erosion and sediment control with relation to flooding. The erosion and sediment controls in this WMP are in accordance with the Blue Book.
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018)	The National Water Quality Management Strategy (NWQMS) provides a national framework for sustainable use of the nation's water resources, protecting and enhancing their quality, while maintaining economic and social development. The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000 and ANZG, 2018) provide a guide for assessing and managing ambient water quality in a wide range of water resource types and according to specified environmental values. The ANZECC (2000) guidelines provide a risk-based framework for determining appropriate guideline values or performance criteria to evaluate the results of water quality monitoring programs.	The primary water quality risk associated with the Preliminary Works Site 1 is related to erosion and sediment control and therefore the more specific guidance of the Blue Book is generally utilised. However, the ANZECC and ANZG guidelines are applicable when sampling and developing response actions as part of a monitoring program.
Water Management Act 2000	The *Water Management Act 2000* (WM Act) is intended to ensure that water resources are conserved and properly managed for sustainable use benefitting both present and future generations. The WM Act controls the extraction and use of water, the construction of works such as dams and weirs, and the carrying	Water for the project will be sourced from an approved Liverpool Plains Shire Council water supply point managed via the nominated contractor

Legislation / guidelines	Function	Applicability
	out of activities in or near water sources in NSW. Part 2 of the WM Act applies to the requirement to obtain a licence for the "taking of water" from a water source. It enables the licence holder to take water from the environment in accordance with specified rates and conditions under the terms of the licence. Water Sharing Plans (WSPs) provide how the water available for extraction is shared between the environment, basic landholder rights, town water supplies and commercial uses.	
Australian rainfall and runoff: A Guide to Flood Estimation (ARR 2019)	The Australian Rainfall and Runoff (ARR) is the primary document used for the estimation of design flood characteristics in Australia. It is a nationally accepted document that is used as a guideline document, data and software suite. ARR is supported by Geoscience Australia to serve its role in providing authoritative, independent information and advice to the Australian Government and other stakeholders to support risk and mitigation and community resilience.	ARR was the key guideline utilised to inform and to assess potential for flooding of the site and development of the flood mitigation measures provided in Section 5.5.

4 Existing environment

This section summarises the key features of the existing environment of the Preliminary Works Site 1 with respect to soil and water management.

4.1 Climate

The climate data between January 1970 and December 2022 was sourced from SILO Long Paddock patched point grid data providing spatial and temporal continuous climatic data. The data is graphically translated in Appendix A. The information can be summarised as follows:

- The accumulative potential evapotranspiration exceeds accumulative precipitation. Potential evapotranspiration is highest during late spring to summer months (November to February) and the lowest occurs late autumn to winter months (May to July).
- The 10th, 50th, and 90th percentile of precipitation per annum is 451 mm, 656 mm, and 880 mm, respectively.
- Precipitation is steady across the year. The median monthly rainfall ranges between 22 – 73 mm. The driest month is found to be April, and the wettest month is December.
- The hottest months were from late November to mid-March, and the coldest months occurred between June to September. Typical maximum daily temperatures range from 15 to 34 degrees Celsius, and typical minimum daily temperatures range from 1 to 19 degrees Celsius.

4.2 Hydrology and land use

The land use on site and its surrounding area is grazing lands and modified pastures.

The site boundary is shown in Figure 2.1. The highest point of the site is the south-east corner of the site boundary (approximately 328 mAHD), whereas the lowest point of the site is at the north-west of the site boundary (approximately 326 mAHD). Thus, the slope of the site falls towards the north-west. There is no NSW Land and Property Information (LPI) marked watercourse running through the site, however, two external watercourses south of the site were identified, Quipolly Creek and Quirindi Creek located 600 m and 2 km from the site respectively. There is also a smaller marked watercourse to the north-east of the site.

Although not a marked watercourse, there is an ephemeral drainage line located west of the Preliminary Works Site 1. This would collect runoff from a small local catchment as well as conveying floodwaters from Quipolly Creek during a time of flood. The drainage line drains water to the north into a series of small water storages or farm dams.

Quipolly Creek rises east of the site and flows in a westerly direction. It is conveyed along Lowes Creek Road and flows into the Quipolly Dam (approximately 12 km east of the site). Downstream of this Quipolly Creek continues west, passing through a crossing under the Kamilaroi Highway and ultimately feeds into Quirindi Creek.

Quirindi Creek rises at the Wallabadah Nature Reserve (approximately 46 km south-east of the site) flowing in a north-westerly direction and passes through the township of Quirindi (20 km south-east of the site). After flowing through a crossing at Kamilaroi Highway, the creek continues to be conveyed along Coonabarabran Road and feeds into the Mooki River (approximately 15 km west of the site). The Mooki River ultimately joins into the Namoi River which is approximately 60 km from the site.

Preliminary Works Site 1 is located within the Namoi River catchment. The Namoi River is one of the Murray-Darling Basin's major sub-catchments in NSW. The catchment area is about 42,000 km^2 and is over 350 km long, stretching from Bendemeer in the east to Walgett on the western boundary.

4.3 Flooding

Consideration of flooding is required in the development of a WMP in relation to erosion and sediment control, as required by the Blue Book. Review of the site location identified a risk of flooding associated with the Quipolly Creek floodplain. The site is located approximately 600 metres (m) from Quipolly creek, with a continuous

downwards path from the creek top of bank to the site. Therefore, there is a possibility that riverine flooding could occur at the site if the creek bank is overtopped. This is supported by the soil types present on site and surrounding land uses.

A preliminary flood assessment (*GHD 2023)* was undertaken with the purpose of developing management measures for erosion and sediment control (if required) and understanding any flood evacuation requirements. Two events were modelled; the 0.5 Events per Year (EY) (equivalent to the 2-year Average Recurrence Interval (ARI) event nominated in the Blue Book for planning of erosion and sediment control) to identify constraints around locating erosion and sediment controls, and the 20% AEP (a nominal larger event than the Blue Book event) to identify the existing flood hazard. Key outcomes from the preliminary flood assessment include:

- During the 0.5 EY Quipolly Creek flows are conveyed within the creek banks adjacent to the site and do not overflow into the site locality.
- During the 20% AEP event flood waters discharge from Quipolly Creek and flows towards the site. These discharges spill over Nicholsons Lagoon Road through the southern portion of the site and into the drainage channel adjacent to the site. Depths over the site are generally less than 100 mm, with some parts of the southern pad between 100 mm and 200 mm in depth. Floodplain flow velocities are low, generally less than 0.2 m/s other than in the adjacent channel which is generally less than 0.3 m/s. The combination of flow depth and velocity less than 300 mm and 1 m/s are considered generally safe (Hazard Classification H1 per Australian Emergency Management Institute in 2014) for vehicles, people, and buildings.

4.4 Soils and geology

Soils were reviewed based on regional soil classification systems. This identified that soils in the region of the site generally included soil characteristics associated with the Quirindi Creek Soil Type. This is described as follows (Banks, Robert G. 2001):

- More than 50% of a mixture of open-woodland, woodland and closed-grasslands is cleared for land use. Land use is equally spread for grazing and cultivation purposes.
- Local geology comprises of sands, silts and gravels of diverse origins. Soil depths exceed 5 m.
- Sheet erosion in older cultivation areas is common.
- Streambank erosion and bed scouring is very common.
- Dominant soils include:
  - Brown silty clay topsoil, high erodibility in concentrated flows
  - Brownish grey to yellowish brown clay subsoil, high erodibility in concentrated flows
  - Dark cracking clay subsoil, moderate erodibility in concentrated flows
  - Brown clayey sand subsoil, moderate erodibility in concentrated flows
  - Dark cracking clay topsoils.

No acid sulphate soils occur in or within the vicinity of the site.

5 Water management requirements

To ensure water related risks are appropriately addressed, a site-specific analysis was undertaken and integrated in this section. The assessment provides additional detail to that of the CoA and EA, with a more specific focus on the Preliminary Works Site 1 location as opposed to the overall project.

It is noted that the risks associated with the pipeline component of the project and waterway crossings are not applicable to the Stage 1 works.

5.1 Erosion and sediment control

The land disturbance associated with the proposed Preliminary Works Site 1 results in a risk with relation to erosion and sedimentation and downstream water quality. As the disturbed area is larger than 2500 m^2, a SWMP is required prior to construction, outlining erosion and sediment controls. The SWMP is prepared in accordance with the Blue Book. This section of the WMP comprises the SWMP for Stage 1 including the ESCP in Appendix B. Sections 3 and 4 also form a basis of the SWMP by providing the relevant regulatory and existing environment conditions as well as Section 5.6 with relation to monitoring requirements.

It is noted that based on the Blue Book, where the sediment generation rate is predicted at less than 150 m^3 per year, the construction of a sediment basin may not be necessary and that the erosion risk of the site is very low. The Revised Universal Soil Loss Equation (RUSLE) was utilised, as per the parameters of the Blue Book, and sediment generation from the Preliminary Works Site 1 is estimated as being significantly less than this threshold, based primarily on the flat nature of the site. Therefore, sediment basins are not proposed for the Preliminary Works Site 1.

The erosion and sediment controls have been considered for both during construction and use of the Preliminary Works Site 1. It is noted that no significant disturbed ground is to remain in place after construction of the Preliminary Works Site 1 has been completed. The entire site will be gravel capped and therefore, the risks considered are focussed on construction. It is further noted that based on preliminary flood assessments, the site is not anticipated to be inundated by riverine flooding during the 2-year ARI event nominated in the Blue Book for planning of erosion and sediment control.

The following sections provide environmental management measures for soil and water impacts of the Stage 1 works as identified through the CoA, SoC and EA which are to be implemented. Appendix A of the CEMP includes a compliance matrix which aligns with the DPIE 2020 *Environmental Management Plan Guideline*. The 'reference' columns in the following sections refer to commitments in the compliance matrix, please refer to Appendix A of the CEMP for further information.

5.1.1 Drainage control

Drainage controls to be implemented and maintained throughout Stage 1 to manage water movement across the site are shown in Table 5.1.

Table 5.1 – Drainage mitigation measures

Reference	Action	Timing	Frequency	Records	Responsibility
SoC-W6	No disturbance closer to drainage line to the west of the site than works extent identified in the ESCP provided in Appendix B.	Construction	Ongoing	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA-15.2-F EA/AD-6.1B EA/AL-5.3B MA/A2-4.1.12B MA/A2-4.7.10	Divert clean water (run-on) around the site and into the drainage line adjacent to the site. Establish groundcover in the drainage area upstream of the bund immediately.	Construction	Once	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA-15.2-F EA/AD-6.1B MA/A2-4.1.12B	Direct sediment laden water on-site to the nominated discharge points.	Construction	Ongoing	ESCP Photos	Construction Supervisor
CoA-3.22	Construct and maintain a single access and egress location, off Nicholsons Lagoon Road.	Construction	Ongoing	ESCP Photos	Construction Supervisor

5.1.2 Erosion control

Erosion controls to be implemented and maintained throughout Stage 1 to manage soils are outlined in Table 5.2.

Table 5.2 – Erosion mitigation measures

Reference	Action	Timing	Frequency	Records	Responsibility
CoA-3.22 SoC-W3 SoC S4 EA/AD-6.1B EA/AL-5.3A MA/A2-4.1.12B	Control soil dispersion by incorporation of recognised products such as hydrated lime or gypsum where required.	Pre-construction	Ongoing	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-W6 SoC-S4 EA/AD-6.1B	Locate erosion control devices, such as silt fencing or coir logs, throughout the site to limit flow path lengths to 80 m.	Construction and use (for disturbed areas)	Once, but relocated as required based on site activities.	ESCP Photos	Construction Supervisor

Reference	Action	Timing	Frequency	Records	Responsibility
EA/AL-5.3B EA/AL-5.3D MA/A2-4.1.12B MA/A2-4.7.12A					
CoA-3.22 SoC-W3 SoC-S4 EA/AD-6.1B EA/AH-6.6B MA/A2-4.1.12B	Stabilise temporary stockpiles if they are to be in place for more than 10 days.	Construction	Review each time a stockpile is established	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA/AD-6.1B EA/AL-5.3B MA/A2-4.1.12B MA/A2-4.7.10	Install water diversion structures up-slope of temporary stockpiles.	Construction	Each time a stockpile is established	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA/AD-6.1B EA/AL-5.3B MA/A2-4.1.12B	Install sediment filters immediately downslope of stockpiles.	Construction	Each time a stockpile is established	ESCP Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA/AD-6.1B EA/AH-6.3B EA/AH-6.6A MA/A2-4.7.11 MA/A2-4.7.14A MA/A2-4.7.14B MA/A2-4.1.12B	Minimise the extent and duration of disturbance by staging works, only disturbing the areas required. Utilise polymer as an interim measure to minimise erosion potential of exposed surfaces until final ESC measures are installed (e.g. gravel, vegetation etc). Place and compact gravel within preliminary works site in accordance with the ESCP to provide an artificial groundcover and reduce dust and erosion.	Construction	Ongoing	ESCP Photos	Construction Supervisor
MA/A2-4.7-14A	Revegetate diversion bunds to promote stabilisation. Jute matting or spray seed will be utilised to promote establishment of groundcover. Apply polymer as an interim measure to	Construction	Ongoing Each time a stockpile is established	ESCP Photos	Construction Supervisor

Reference	Action	Timing	Frequency	Records	Responsibility
	minimise erosion potential of diversion bunds until stabilisation is achieved via revegetation. Place and compact gravel across remaining disturbance area, as specified above. Manage stockpiles in accordance with the Blue Book and do not leave for extended periods. Apply polymer as needed.				

5.1.3 Sediment control

Sediment controls to be implemented and maintained throughout Stage 1 to manage sediment runoff from the site are provided in Table 5.3.

Table 5.3 – Sediment mitigation measures

Reference	Action	Timing	Frequency	Records	Responsibility
CoA-3.22 SoC-W3 SoC-S4 EA-15.2-F EA/AD-6.1B EA/AL-5.3B EA/AL-5.3D MA/A2-4.1.19A MA/A2-4.1.12B MA/A2-4.7.12B	Install rock dissipators at the three nominated discharge points from the site. Install sediment fences across the full discharge path length immediately downgradient of the discharge points.	Construction	Once	Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA-15.2-F EA/AD-6.1B MA/A2-4.1.19A MA/A2-4.1.12B	Divert all site runoff to the nominated discharge points. Apply polymer as an interim measure to minimise mobilisation of sediment from exposed surfaces until final ESC measures are installed (e.g. gravel, vegetation etc) in accordance with the ESCP.	Construction	Once	Photos	Construction Supervisor
CoA-3.22 SoC-W3 SoC-S4 EA/AD-6.1B MA/A2-4.1.12B	Install drainage works before land disturbance activities commence.	Construction	Once	Photos	Construction Supervisor
CoA-3.22 CoA-6.3ciii	Inspect and maintain all erosion and sediment controls:	Construction	As described herein	Maintenance log	Construction Supervisor

Reference	Action	Timing	Frequency	Records	Responsibility
SoC-W3 SoC-S4 EA-15.2-I EA/AD-6.1B MA/A2-4.1.12B	• Weekly, except during site closure, otherwise: – Before a construction site closure of two days or more, and – Within 48 hours prior to a forecasted rainfall event of at least 50% probability of 10 mm or higher – After a rainfall event exceeding 20 mm in 24 hours during construction pending safe access availability				
CoA-3.22 CoA-6.3ciii SoC-W3 SoC-S4 EA-15.2-I EA/AD-6.1B MA/A2-4.1.12B	Inspect and maintain all erosion and sediment controls: • Routinely once every 3 months	Use	As described in section 5.6	Inspection records Maintenance log	Construction Supervisor
CoA-3.22 CoA-6.3ciii SoC-W3 SoC-S4 EA/AD-6.1B EA/AH-6.2C MA/A2-4.1.12B	Install and maintain a shaker grid at the entrance to site to avoid tracking mud onto local roads.	Construction	Ongoing	Photos	Construction Supervisor

5.2 Hydrocarbon and hazardous materials management

Hydrocarbon and hazardous materials pose a potential risk to surface and groundwater. The management of these materials for Stage 1 activities are detailed in Section 5.2.7 of the CEMP. Although discharge of hazardous materials in not anticipated, contingency measures for a potential pollution event are provided in Appendix C of the CEMP.

5.3 Water supply

The quantity of water required to enable civil works and environmental controls such as dust suppression, and for onsite amenities for Stage 1 is anticipated to be minor, approximately 3ML. Water would be sourced from an approved Liverpool Plains Sire Council water supply point managed via the nominated contractor. Refer to Section 2.2.5 of the CEMP.

5.4 Groundwater

Activities potentially intercepting groundwater such as deep excavation are not proposed as part of Stage 1. As presented in the EA (Manidis Roberts, 2008), no impacts to groundwater from the Preliminary Works Site 1 are anticipated. Should groundwater be detected, the following procedures would be undertaken:

- Where groundwater is intercepted in quantities that pose a risk to public health or safety, the environment (including groundwater systems), or infrastructure or the construction of infrastructure, contact NRAR (1800 633 362) to seek an emergency works exemption to remove groundwater.
- Document the quantity of groundwater removed or dewatered.
- If discharge to a waterway is required, arrange for sampling of the discharged groundwater as well as minimum 200 m upstream and downstream of the discharge location in consultation with the Environmental Adviser.

Where groundwater is intercepted, this WMP should be reviewed.

5.5 Flooding

As described in Section 4.3, the site may be impacted by low level flooding during the 20% AEP flood event, however this is not anticipated to correspond to a hazard to vehicles, buildings, or people. Riverine flooding is not anticipated during the 2-year ARI. This is the event nominated in the Blue Book to plan for erosion and sediment controls with relation to flooding. Consideration of larger events with relation to site evacuation and emergency procedures should be noted however these larger events are in excess of Blue Book requirements with relation to managing erosion and sediment control. To address these impacts, measures to manage evacuation during the construction and use of the Preliminary Works Site 1 are outlined in Table 5.4.

Table 5.4 – Flood mitigation measures

Reference	Action	Timing	Frequency	Records	Responsibility
N/A	Liaise with the SES to seek to be included in the notifications in the *Liverpool Plains Shire Council Local Flood Plan*[1].	Pre-construction	Once	Correspondence from SES	Construction Manager
N/A	Do not install any permanent infrastructure at the Preliminary Works Site 1.	Construction and use	Ongoing	Photos Site inspection records	Construction Supervisor
N/A	Utilise mobile hydrocarbon and chemical storage facilities that can be transported off-site.	Construction and use	Ongoing	Site inspection records	Construction Supervisor
N/A	Implement a flood emergency response procedure, considering the following public flood declaration categories:	Construction and use	Event based	Incident response records	Construction Supervisor

[1] It is also noted from the Liverpool Plains Shire Council Local Flood Plan that an alerting mechanism exists for Quipolly Dam. When 0.3 m of flow occurs over the spillway (unlikely to be sufficient to flood the site), Council contacts the SES and the SES endeavours to contact the occupants of identified dwellings downstream of the dam. As stated in Table 5.4 above, Santos would liaise with the SES prior to any works commencing to seek to be included in their notifications.

Reference	Action	Timing	Frequency	Records	Responsibility
	• Flood watch – prepare the site for flooding and all personnel evacuate site • Flood warning – all personnel evacuate site immediately.				
NA	During flood watch, where reasonably able: • Remove hazardous materials from site • Relocate stockpiles, stored equipment or materials to higher areas • Secure items that may float and cause damage.	Construction and use	Event based	Incident response records	Construction Supervisor

5.6 Monitoring and response

In accordance with Blue Book principles, erosion and sediment controls will be monitored and maintained throughout Stage 1. The risks with relation to erosion and sediment control occurs primarily during the construction phase where ground disturbance is occurring, prior to the coverage of disturbed areas of the site with gravel. Therefore, the monitoring and response plan outlined in Table 5.5 is most important during the construction phase. It should be noted that the Blue Book does not target “no impact to downstream sediment concentrations” but rather the management of sites as best as practicable and up to a given design storm event. The design storm event at this location is 25.2 mm equating to the 2-day 80th percentile rainfall event.

Table 5.5 – Monitoring and response measures

Reference	Action	Timing	Frequency	Records	Responsibility
CoA-6.3c) iii) EA-15.2-I	Record daily rainfall	Construction	Daily	Log daily rainfall	Construction Supervisor
MA/A2- 4.7.18A MA/A2- 4.7.18B	Assess compliance with the ESCP and that controls are in proper working condition.	Construction	Weekly, except during site closure.	Site inspection records	Construction Supervisor
CoA-6.3c) iii) EA-15.2-I MA/A2-4.7.16B MA/A2-4.7.17A MA/A2-4.7.17B MA/A2-4.7.17C MA/A2-4.7.17D MA/A2- 4.7.18A MA/A2- 4.7.18B	Inspect and identify: • Erosion and sediment controls are installed as per the ESCP • any excessive rilling or scouring across the site, including from stockpiles, and any visible sediment generation • improper functioning erosion and sediment control measures, and the site access point, due to the presence of: – ponding of water and flattening out of cross-falls – a build-up of sediment – unstable discharge surfaces – the presence of any unacceptable risk to safety • a discernible difference in sediment loads upstream and downstream of the site • the presence of oils or grease from fuel storage locations, removing fuel resulting in any runoff contamination and cleaning up affected areas.	Construction	When any of the following occurs: • When there is a construction site closure of two days or more. • Within 48 hours prior to rainfall for forecasts of at least 50% probability of 10 mm or higher. • After a rainfall event exceeding 20 mm in 24 hours during construction pending safe access availability	Site inspection records	Construction Supervisor
		Use	• Routinely once every 3 months	Site inspection records	Construction Supervisor

Reference	Action	Timing	Frequency	Records	Responsibility
CoA-3.22 EA-11.10-E SoC-W3 SoC-S4	Maintain and/or rectify erosion and sediment controls: • removing all water, debris, and sediment from control measures ensuring effectiveness of clean water diversions and rock chutes • removing spilled soil or other materials from hazard areas, including lands closer than five metres from areas of likely concentrated flows (that is flows conveyed along diversion berms) • construct additional erosion and/or sediment control works as might become necessary to ensure the desired protection is given to downslope lands and drainage lines • ensuring bunding is adequate and cleaning up of any hydrocarbon affected areas.	Construction	As required following inspections	Maintenance log	Construction Supervisor

6 Review

The WMP will be maintained and reviewed in accordance with Section 6.3 of the CEMP. Triggers for additional review of the WMP include:

- Any substantial changes in site extent, use or configuration
- If a pollution incident occurs
- If groundwater is intercepted
- Completion of construction, before use of the site commences.

7 References

ANZECC (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, dated October 2000

ANZG (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Available online via: **Water Quality Guidelines**

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2019), *Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia*

Banks, Robert G. 2001, *Soil Landscapes of the Tamworth 1:100 000 Sheet, Department of Land and Water Conservation, Sydney*

DPE (2023). *Flood Risk Management Guideline FB03*

GHD (2023) Preliminary Flood Assessment Report, prepared for Santos June 2023

Landcom (2004). *Managing Urban Stormwater, Soils and Construction, Volume 1*

Roberts M (2008). *Queensland Hunter Gas Pipeline Environmental Assessment*.

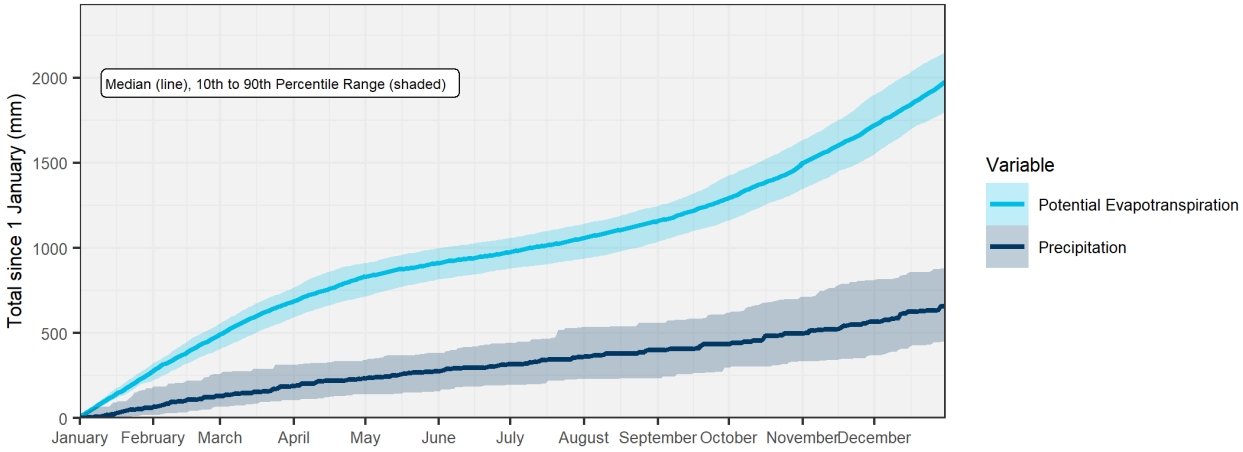
NRAR (2019). *Guide to completing and submitting a new or amended controlled activity approval*

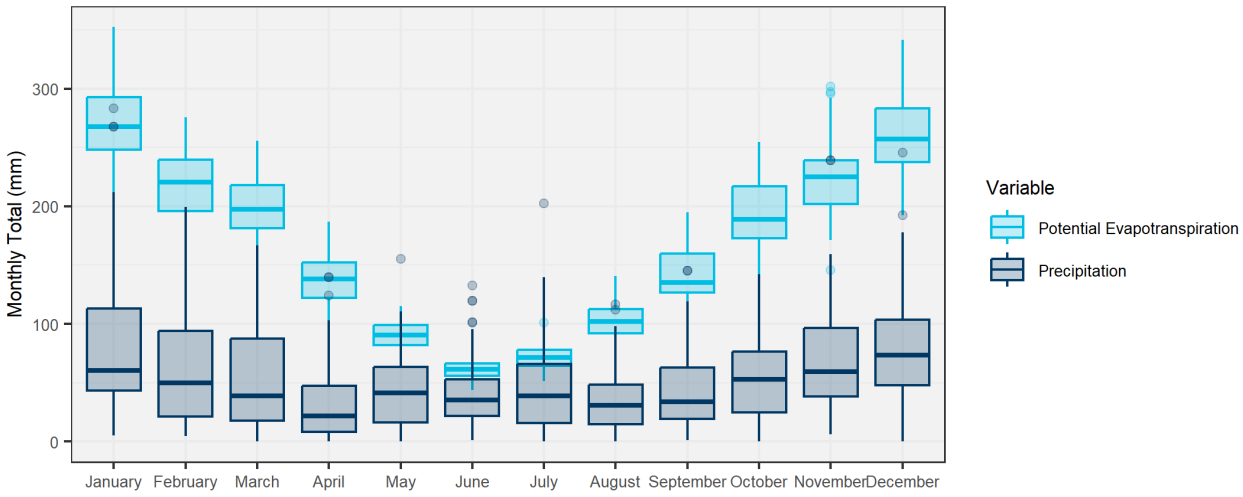
NSW Government (2000). *Water Management Act 2000 No 92*

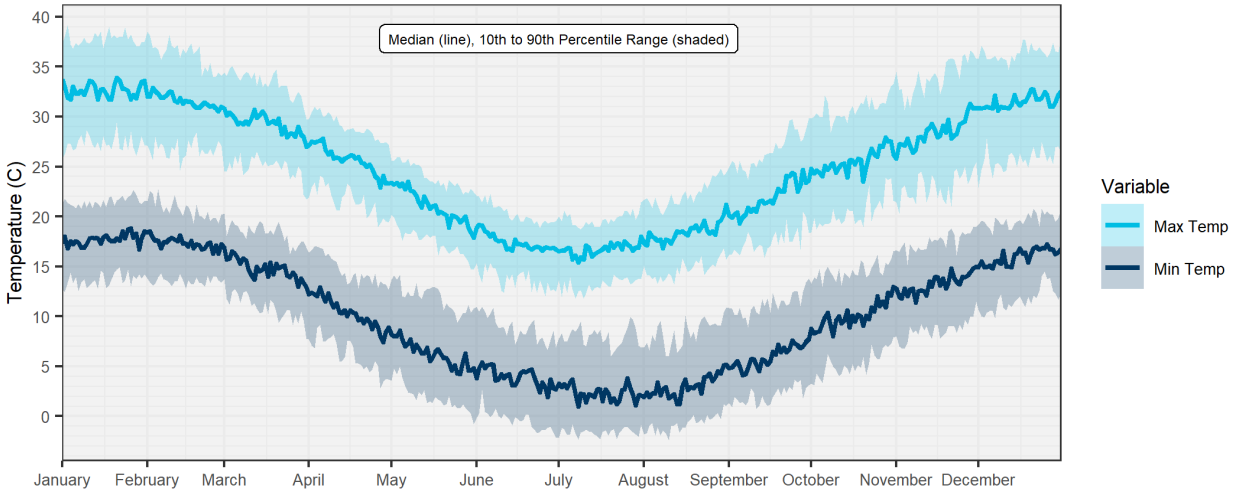
NSW Office of Water. (2012). *Controlled Activities on Waterfront Land: Guidelines for riparian corridors on waterfront land*. NSW Department of Industry, Planning and Environment.

Appendix A – Climate data

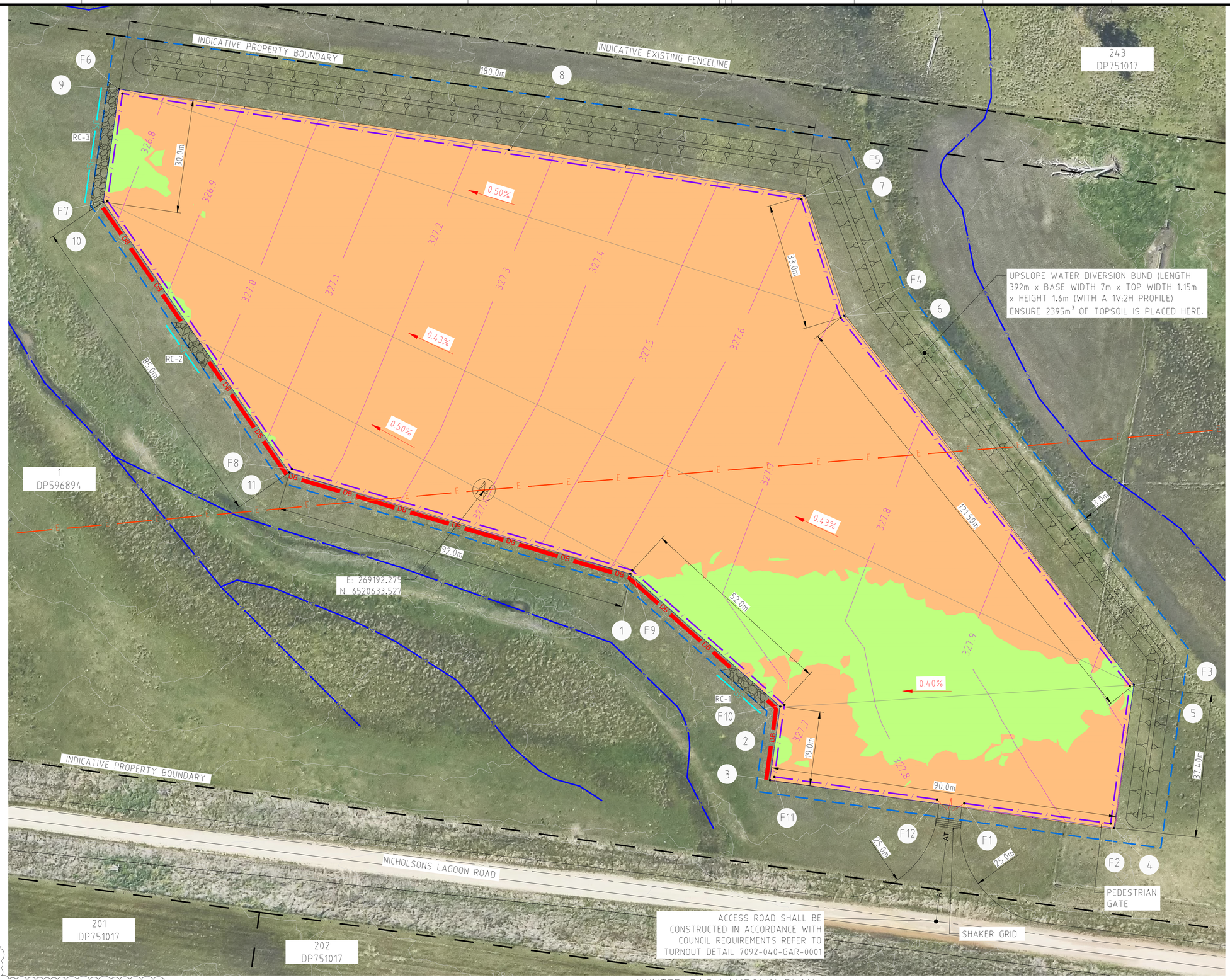
Data sourced: SILO Long Paddock Continuous Patched Point Data
Lat: -31.45, Long: 150.55. Accessed: 2023-05-01
Data extent: 1 Jan 1970 - 31 Dec 2022

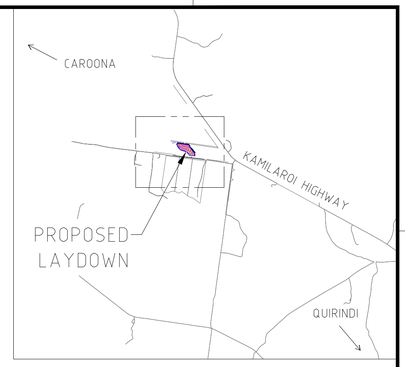






Appendix B – Erosion and Sediment Control Plan (ESCP)





LOCALITY PLAN
SCALE: NTS

NOTE:
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CIVIL EARTHWORKS & ENVIRONMENTAL EROSION & SEDIMENT CONTROL LAYOUT SHEET 2 7092-040-LAY-0004.

LEGEND

- CUT
- FILL
- 378.10 — 0.10m CONTOUR - DESIGN SURFACE
- 378.20 — 0.20m CONTOUR - NATURAL SURFACE
- 1% MAX — DESIGN CROSSFALL
- LAYDOWN BOUNDARY
- PROPERTY BOUNDARY (INDICATIVE)
- LAYDOWN FENCE
- EXISTING FENCE (INDICATIVE)
- EXTENT OF DISTURBANCE
- UPSLOPE WATER DIVERSION BUND (REFER DRAWING 0007-040-GAR-0031)
- AT — NEW ACCESS TRACK
- EXISTING ROAD (INDICATIVE)
- DB — DIVERSION BERM (REFER DRAWING 0007-040-GAR-0031)
- IDENTIFIED WATERWAYS (INDICATIVE)
- RC = ROCK CHUTE/DISSIPATOR (REFER DRAWING 0007-040-GAR-0033)
- DOUBLE GATE & STRAINER PANEL DETAILS (REFER DRAWING 0007-040-GAR-2000)
- POWER POLES
- E — O/H ELECTRICITY LINE
- SF — SF — SEDIMENT FENCE/COIR LOGS

FYFE
PRINCIPAL CIVIL ENGINEER
JOVIL LEONCIO RPEQ 21541 CIVIL
Signed Date 24/11/2023

FYFE
SENIOR ENVIRONMENTAL ENGINEER
EVA MONTGOMERY CPESC 8164
Signed Date 24/11/2023

0 5 10 20 30 40 50
SCALE 1:500 (A1) METRES

HUNTER GAS LAYDOWN PLAN
SCALE 1:500

No	DATE	DRN	CHKD	ENG	SANTOS Q.A.	PROJ NO.	RE NAME	RE NO.	RE COMPANY	DESCRIPTION
			NKT							
3	23/11/23	FYF	NKT	JAL			J.LEONCIO	21541	FYFE	RE-ISSUED FOR CONSTRUCTION
2	25/10/23	FYF	VDS	JAL			J.LEONCIO	21541	FYFE	RE-ISSUED FOR CONSTRUCTION
1	27/06/23	FYF	VDS	JAL			J.LEONCIO	21541	FYFE	RE-ISSUED FOR CONSTRUCTION
0	17/05/23	FYF	VDS	JAL			J.LEONCIO	21541	FYFE	ISSUED FOR CONSTRUCTION

REVISIONS

DRG No.	SUBJECT
7092-040-GAR-0001	HUNTER GAS TURNOUT GENERAL ARRANGEMENT
7092-040-LAY-0004	CIVIL & ESC LAYOUT SHEET 2 OF 2
7092-040-PLN-0001	HUNTER GAS LAYDOWN PLOT PLAN
0007-040-GAR-2000	DOUBLE GATE & STRAINER PANEL DETAILS
0007-040-GAR-0033	ROCK CHUTE/DISSPATER
0007-040-GAR-0031	UPSLOPE WATER DIVERSION BUND

REFERENCE DRAWINGS

DRN: FYF
DATE: 17/05/23
SCALE: AS SHOWN
CHKD: VDS
ENG: JAL
SANTOS Q.A.:
PROJ NO.: -
RE NAME: J. LEONCIO
RE NO.: 21541
RE COMPANY: FYFE

A.B.N. 12 131 271 648

AREA 7092 - NARRABRI
HUNTER GAS LAYDOWN
CIVIL AND ENVIRONMENTAL EROSION & SEDIMENT CONTROL
LAYOUT SHEET 1 OF 2

Santos

DRAWING No. 7092-040-LAY-0001
REV. 3

CADFILE No. - 7092-040-LAY-0001

AUTOCAD - A1SHEET

RUSLE CALCULATION

R = 1246 k = 0.44 LS = 0.27
C = 0.05 P = 1.3
ANNUAL SOIL LOSS DUE TO EROSION = 0.96 t/ha/yr
AREA OF DISTURBANCE = 31781m^2
PERIOD OF DISTURBANCE = <3 MONTHS
BASED ON CONSIDERATION OF THESE 3 FACTORS:

RISK RATING = VERY LOW RISK

FENCE COORDINATES (GDA94/MGA56)

PT	EASTING	NORTHING
F1	269316.795	6520552.351
F2	269354.711	6520547.081
F3	269359.666	6520582.753
F4	269284.705	6520678.142
F5	269274.558	6520708.881
F6	269098.576	6520736.237
F7	269094.686	6520708.459
F8	269142.504	6520638.960
F9	269230.741	6520612.675
F10	269270.140	6520577.853
F11	269267.548	6520559.188
F12	269309.681	6520553.336

HARDSTAND COORDINATES (GDA94/MGA56 AHD)

POINT	EASTING	NORTHING	SUBGRADE LEVEL	FINISHED SURFACE LEVEL	EXISTING ELEVATION	CUT/FILL DEPTH
1	269230.126	6520611.843	327.628	327.778	327.629	0.0010
2	269269.076	6520577.458	327.678	327.828	327.692	0.0140
3	269266.42	6520558.335	327.697	327.847	327.743	0.0460
4	269355.564	6520545.953	327.933	328.083	327.998	0.0650
5	269360.715	6520583.036	328.035	328.185	328.035	0.0000
6	269285.6	6520678.622	327.713	327.863	327.817	0.1040
7	269275.316	6520709.775	327.604	327.754	327.691	0.0870
8	269198.686	6520721.687	327.246	327.396	327.517	0.2710
9	269097.727	6520737.381	326.742	326.892	326.742	0.0000
10	269093.642	6520708.213	326.772	326.922	326.783	0.0110
11	269141.88	6520638.102	327.146	327.296	327.145	-0.0010

This Site Specific Erosion and Sediment Control Plan satisfies the following requirements:

I. The intent and minimum standards established by all relevant local, state and federal policies relating to erosion and sediment control.
II. Review and approval by personnel suitably trained and experienced Certified Professional in Erosion and Sediment Control (CPESC)
III. Is both reasonable and practicable.
IV. Contains sufficient information to allow appropriate implementation of the plans including installation techniques.

Signature:

Date: 27/11/2023
Printed Name: Eva Montgomery (CPESC 8156)

TABLE 1: VOLUMES & AREA FOR HUNTER GAS LAYDOWN

TYPE	QUANTITY
TOTAL CUT VOLUME	890m^3
TOTAL FILL VOLUME	890m^3
TOPSOIL STRIPPED AREA	24795m^2
LAYDOWN AREA	24571m^2
TOTAL PAD AREA (INC. BATTERS)	24795m^2
AREA OF DISTURBANCE	31781m^2
FENCE LENGTH	725m

TABLE 2: TOPSOIL STOCKPILES & ESC TREATMENTS

TYPE	QUANTITY
TOPSOIL STRIPPING DEPTH	100mm
AREA TO BE STRIPPED	24795m^2
TOPSOIL VOLUME TO BE EXCAVATED	2480m^3
AMOUNT OF TOPSOIL TO BE STORED AS THE UPSLOPE WATER DIVERSION BUND	2395m^3
AMOUNT OF TOPSOIL TO BE STORED AS THE DIVERSION BUND	85m^3

TABLE 3: ROCKS (Ø75-150mm @200mm/300mm DEPTH)

DESCRIPTION	EASTING	NORTHING	DIMENSIONS (m)	THICKNESS (mm)	VOLUME (m^3)
ROCK CHUTE (RC-1)	269261.448	6520584.149	3.2(L)*10(W_1)*15.0(W_2)	200	8.0
ROCK CHUTE (RC-2)	269118.323	6520672.204	3.2(L)*10(W_1)*15.0(W_2)	200	8.0
ROCK CHUTE (RC-3)	269095.579	6520722.836	3.2(L)*30(W_1)*33.0(W_2)	200	20.2
TOTAL					36.2

FYFE
PRINCIPAL CIVIL ENGINEER
JOVIL LEONCIO RPEQ 21541 CIVIL
Signed Date 27/11/23

CIVIL NOTES:

1. SURVEY THE PROPERTY BOUNDARY TO CONFIRM THE EXACT LOCATION PRIOR THE CONSTRUCTION OF LAYDOWN. ENSURE ALL WORKS ARE WITHIN THE PROPOSED SITE COMPOUND.
2. THIS DESIGN IS BASED ON AVAILABLE PROJECT INFORMATION AND ASSUMPTIONS REGARDING THE SUBSURFACE CONDITIONS. NO GEOTECHNICAL REPORT OR SITE INVESTIGATION HAS BEEN PROVIDED. THE DESIGN MAYBE SUBJECT TO CHANGE FOLLOWING COMPLETION OF A SITE-SPECIFIC GEOTECHNICAL INVESTIGATION (e.g. HARD ROCK, PEAT, etc.).
3. CONSTRUCTION SHALL RECOGNISE THAT THE ACTUAL SITE CONDITIONS MAY DIFFER FROM THE ASSUMPTIONS MADE ON THIS DESIGN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS AND ADDRESS ANY UNFORESEEN GROUND CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
4. EARTHWORKS IS CUT TO FILL (BALANCE) AND ASSUMED NO SPOIL MATERIAL. VOLUME QUANTITIES ARE NEAT AND NO ALLOWANCE FOR BULKING AND COMPACTION.
5. LAYDOWN YARD MAXIMUM SLOPE IS 1%.
6. EXCESS SUBSOIL SUITABLE FOR FILL MATERIAL SHALL BE SPREAD EVENLY AND COMPACTED. WHERE MORE FILL IS REQUIRED, EITHER:
   a. ADJUST THE CUT LEVEL OF THE ENTIRE PAD MAINTAINING ALL THE DESIGN SLOPES (NOT EXCEEDING THE MAXIMUM ALLOWABLE), OR
   b. REDUCE THE SLOPE OF THE CUT BATTER (WHERE POSSIBLE) TO WIN SITE MATERIAL FOR FILL.
7. WHERE POSSIBLE, EXCESS TOPSOIL MATERIAL SHOULD BE USED TO FLATTEN THE SLOPE OF FILL BATTER OR DIVERSION BERM.
8. EARTHWORKS AND ROADWORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SANTOS SPECIFICATION 1540-120-SPC-0001 EARTHWORKS, EXCAVATION AND BACKFILLING, AND ROADWORKS.
9. STOCKPILES SHALL BE PROTECTED FROM EROSION BY WIND AND WEATHER AND WHERE NECESSARY BY DRAINAGE DITCHES. TOPSOIL STRIPPED MATERIALS SHALL NOT BE USED AS STRUCTURAL FILL UNDER ANY CIRCUMSTANCES.
10. AREAS EXPOSED AFTER STRIPPING SHALL BE COMPACTED PRIOR TO PLACEMENT OF FILL, TO THE SAME REQUIREMENTS AS FOR OVERLYING LAYERS.
11. BASE MATERIAL (GRAVEL CAPPING) 150mm THICK SHALL BE BEST AVAILABLE LOCAL MATERIALS. SAMPLES OF LOCAL MATERIALS AND SUFFICIENT TEST INFORMATION RELATED TO ITS COMPACTION CHARACTERISTICS TO DEMONSTRATE FITNESS FOR PURPOSE SHALL BE PROVIDED FOR ACCEPTANCE BY SANTOS REPRESENTATIVE. BASE MATERIAL THICKNESS MAY VARY SUBJECT TO SITE SOIL CLASSIFICATION AND GEOTECHNICAL TESTING.
12. REFER TO SANTOS STANDARD SECURITY FENCING AND GATES DETAIL.

ESC NOTES:

E1. ALL WORKS TO BE COMPLETED IN ACCORDANCE WITH MANAGING URBAN STORMWATER SOIL AND CONSTRUCTION.
E2. CLEANWATER DIVERSION BUND TO BE LOCATED WITHIN EDGE OF DISTURBANCE BOUNDARY. DISTURBANCE AREA TO BE LIMITED TO AREA REQUIRED TO SAFELY CONSTRUCT WORKS (INCLUSIVE OF LAYDOWN/STORAGE AREA REQUIREMENTS).
E3. TOPSOIL AND SUBSOIL STOCKPILES TO BE STOCKPILED SEPARATELY.
E4. TOPSOIL TO BE STRIPPED TO A DEPTH OF 100mm (TO BE CONFIRMED ONSITE).
E5. TOP 50mm SEED STOCK TO BE STOCKPILED SEPARATELY TO REMAINING TOPSOIL.
E6. STOCKPILES ARE TO BE SEEDED AND SPRAYED WITH SOIL BINDER AS SOON AS PRACTICABLE SHOULD ANY DELAYS TO THE PROJECT SCHEDULE OCCUR.
E7. ACCESS IS TO BE LIMITED TO A SINGLE POINT OF ENTRY.
E8. SEDIMENT FENCE/COIR LOGS OR APPROVED EQUIVALENT TO BE INSTALLED DOWNSTREAM OF ALL ROCK CHUTES.
E9. ALL SUBSOIL TO BE AMELIORATED WITH 10t/ha GYPSUM. GYPSUM TO BE LIGHTLY RILLED INTO TOP 50mm OF SOIL PRIOR TO GRAVEL CAPPING OF SURFACE.
E10. COMPLIANCE WITH NSW ESC CONTROLS (BLUE BOOK) AND ANY ADDITIONAL ESC CONTROL MEASURES TO BE VERIFIED DURING SITE CONSTRUCTION.

No	DATE	DRN	CHKD	ENG	SANTOS Q.A.	PROJ NO.	RE NAME	RE NO.	RE COMPANY	DESCRIPTION
0	27/11/23	FYF	NKT	JAL			J.LEONCIO	21541	FYFE	ISSUED FOR CONSTRUCTION

REVISIONS

7092-040-LAY-0001 — DRG No.
SITE 2 LAYDOWN 1 & 2 - CIVIL & ESC - SHEET 1 OF 2 — SUBJECT
REFERENCE DRAWINGS

DRN: FYF
DATE: 27/11/23
SCALE: N/A
CHKD: NKT
ENG: JAL
SANTOS Q.A.:
PROJ NO.: -
RE NAME: J. LEONCIO
RE NO.: 21541
RE COMPANY: FYFE

A.B.N. 12 131 271 648

AREA 7092 - NARRABRI
HUNTER GAS LAYDOWN
CIVIL AND ENVIRONMENTAL EROSION & SEDIMENT CONTROL
LAYOUT SHEET 2 OF 2

Santos

DRAWING No. 7092-040-LAY-0004
REV 0

CADFILE No. - 7092-040-LAY-0004

AUTOCAD - A1SHEET