Stormwater Management Plan

Belisama Gas Project

7 April 2026

J-H-AU0283-008-R-Rev0

HYDRO GEOCHEM GROUP
GREENROAD GROUP

HANCOCK ENERGY

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1 INTRODUCTION

1.1 Background

The proposed Belisama Gas Project (BGP) Central Processing Facility (CPF) will be located in the Shire of Mingenew, Mid-West Gascoyne region of Western Australia; approximately 300 km north-west of Perth, 35 km east from Dongara, and 23 km southwest from Mingenew. The CPF (the site) will produce up to 210 TJ/day, to treat raw gas to the specification required for export to the Dampier-Bunbury Natural Gas Pipeline (DBNGP), inclusive of utilities. The CPF is expected to include power generation, warehousing, a switch room, a sedimentation pond, two evaporation ponds, a groundwater extraction bore, and office and accommodation infrastructure.

1.2 Purpose

The purpose of the Stormwater Management Plan (SMP) is to provide a framework for stormwater monitoring, management, and assessment and mitigation of impacts, to surface waters within and downstream of the BGP which includes all infrastructure associated with the CPF and the Operations Village (collectively referred to herein as 'the site') as well as the Temporary Construction Camp. Stormwater management for both construction and operation phases of the project are considered, in accordance with the applicable regulatory requirements, permit obligations and industry best practice.

1.3 Scope

This plan describes management of stormwater (rainfall runoff) that is produced at or upstream of the site to prevent erosion, sediment deposition, modification of soil and water chemistry, and unauthorised discharges to waterways and the environment. Groundwater impacts associated with stormwater management are assumed to be minimal (and specifics of a groundwater monitoring plan is provided in HGG (2026)). The diversion, collection, conveyance, treatment, recycling and discharge of surface water at the site are also described.

The stormwater management boundary is defined by the site area boundary. Upstream catchment areas that may contribute run-on to the site are also described. Similarly, downstream catchments that lie in the potential receptor pathway are also detailed. Both construction and operational phase management of rainfall-runoff across the site are considered. Description of the pre-development environment and on-going monitoring will allow identification of downstream impacts relative to current conditions.

1.4 Objectives

The objective of this plan is to outline short- and long-term stormwater management activities at the site so that:

- Surface water management at the site complies with relevant regulatory requirements.
- Risk of downstream contamination from dissolved petroleum hydrocarbons and other contaminants is minimised.
- Stormwater is managed on the site to represent a minimal risk to downstream values.

- The site is protected from external stormwater runoff and waterlogging produced by up to a 1% annual exceedance probability (AEP) event.

1.5 Approach

This plan has been compiled through investigation of climatic and hydrological information held for the site and its downstream catchment, and from construction and operating design documents. Prioritisation of water management issues and options to ensure effective stormwater management (as defined in DWER (2007) and EPA (2018)) have been developed by Hancock Energy and their design engineers (Hancock Energy, 2025b). A process for periodic reassessment of the plan is also being developed.

1.6 Stakeholder Consultation

As part of an ongoing commitment to stakeholder engagement, Hancock Energy has implemented a program of communication and consultation during the preparation of this SMP. Hancock Energy has consulted with government agencies and other key stakeholders. The key points raised during consultation for stormwater impacts included accidental spills or leaks, flooding capacity and discharge levels potentially resulting in water quality impacts to surrounding areas.

1.6.1 Government Bodies

The following government bodies are being consulted with in relation to the requirements of this SMP:

- Department of Water and Environmental Regulation (DWER).
- Shire of Mingenew.

1.6.2 Community

Surrounding land is used for broadacre agriculture with a mixture of cropping and grazing. Residential houses are interspersed within the permit area, and local landowners and users have been considered in the facilities design.

1.7 Legislation, Regulatory Commitments and other Obligations

Potential risks to surface water and associated management measures will be regulated in accordance with legislative requirements, through:

- Works Approval (construction) and licence (operations) under Part V of the *Environmental Protection Act 1986*.
- Amendment to the Purpose of an existing groundwater licence (GWL 156102) and any other licences issued under the *Rights in Water and Irrigation Act 1914*.
- Dangerous goods storage and handling licence issued under the *Dangerous Goods Safety Act 2004*.
- Environment Plan and Oil Spill Contingency Plan, submitted for approval from DMPE under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012.

More detailed information relating to the legislative requirements of the project are given by Hancock Energy (2025).

2 CATCHMENT CONTEXT

2.1 Catchment Description

The CPF site lies east of Mount Adams within the Irwin River Catchment, which itself lies south of the Greenough River catchment, north of the Arrowsmith River catchment, and west of the Yarra Yarra River catchment (Figure 1). The Irwin River flows 140 km from its headwaters in the north-east of the catchment before discharging to the Indian Ocean just south of Dongara which is approximately 350 km north from Perth. The catchment has a land area of almost 6,100 km^2 which is mostly used for unirrigated cropping with some grazing. Grazing lands are mostly located in the south-western half of the catchment. Gaining sections of the river, where ground water supplements surface water flows, are found east of Mingenew on the Irwin River and a major tributary, the Lockier River, as well as around the Irwin town, which is in the lower reaches of the catchment approximately 15 km inland of Dongara (Eco Logical, 2021).

Figure 1: Location of the BGP CPF within the Irwin River Catchment (Mountain Bridge River and Strawberry Bridge River gauges also shown).

Source: https://rivers.dwer.wa.gov.au/catchment/irwin-river/

The site lies in the sub-catchment of Sand Plain Creek, 12 km upstream before the creek merges with the Irwin River (Figure 2). The site is a gently sloping cleared paddock and surrounded by broadacre

agriculture with a mixture of cropping and grazing. Whilst runoff is generated from surrounding land, no overland flow paths cross directly through the site apart from a small channel in the south-east corner of the site which whilst largely ephemeral flows toward Sand Plain Creek (Figure 3).

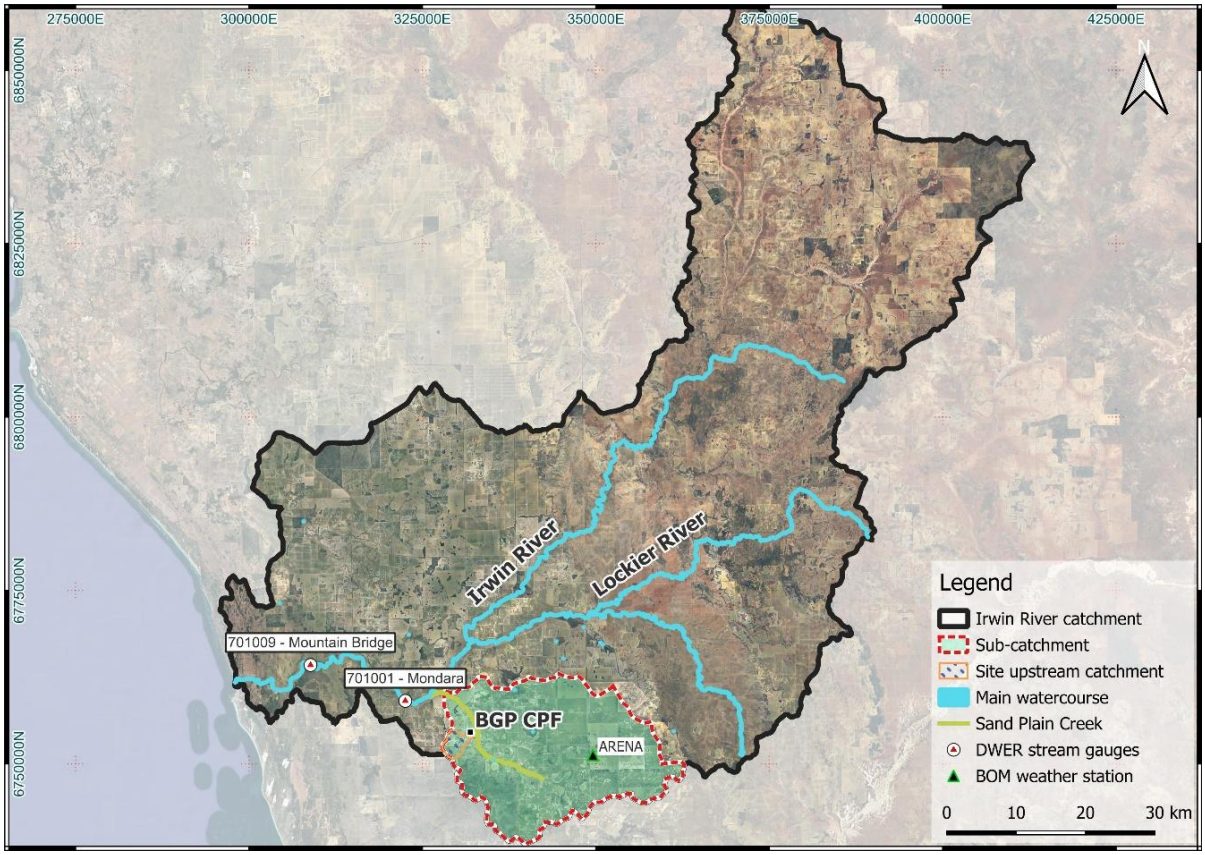

Figure 2: Sand Plain Creek catchment within the Irwin River catchment.

Flow in the Irwin River is generally highest during the winter months (DoW, 2017). Sand Plain Creek is ephemeral and acts as a minor tributary to the Irwin River. The confluence of Sand Plain Creek with the Irwin River is approximately 7 km from the northwestern boundary of the proposed CPF (location details of catchments and instrumentation given in Table 1). Sand Plain Creek exhibits localised and infrequent flow after periods of sustained rainfall.

Table 1: Catchment and instrumentation locations (DWER, 2025).

ITEM	LOCATION	COORDINATES*	DRAINAGE AREA (km^2)
Irwin River	At Dongara.	-29.25800, 114.92097	6,072
Irwin River	At Mondara gauge (ID#701001), 3.9 km downstream from confluence from Sand Plain Creek.	-29.28458, 115.17312	4,728
Irwin River	At Mountain Bridge gauge (ID#701009), 24 km downstream from confluence from Sand Plain Creek.	-29.23602, 115.03342	5,264
Sand Plain Creek	At confluence from site catchment.	-29.2746, 115.2285	540
Arena meteorological station (BOM ID#8273)	Within Sandplain Creek, 17 km upstream from site	-29.36, 115.45	n/a

**Coordinates given in latitude and longitude.*

Figure 3: Location of CPF indicating ephemeral channel to the south of the site and its confluence with Sand Plain Creek.

(500 m buffer is shown to west of Sand Plain Creek to illustrate its proximity to the site).

2.2 Climate

The Mingenew area experiences mild, wet winters and hot dry summers. The mean monthly minimum temperature recorded at the Mingenew Bureau of Meteorology (BOM) station (station ID: 008088) ranges from 6.9°C in August to 19.2°C in February and the mean monthly maximum temperatures range from 19.1°C in July to 36.4°C in February. Annual average rainfall at the same station is 392 mm with the majority of rainfall occurring during the winter months (BOM, 2025). Rainfall exceeds potential evaporation across the Northern Perth Basin during May to September (DoW, 2017). Figure 4 presents the monthly rainfall statistics for Mingenew weather station.

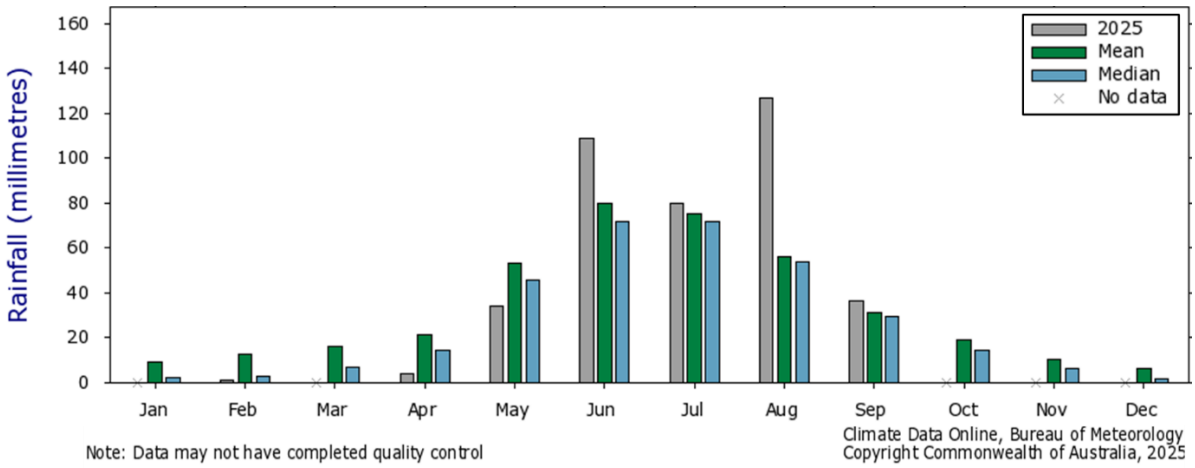

Figure 4: Mingenew weather station rainfall distribution (adapted from BOM, 2025).

Average annual rainfall decreases from the coast from approximately 450 mm to approximately 400 mm at Mingenew, and 330 mm in the east of the catchment. The annual rainfall recorded from the BOM station Arena (ID#8273) ranged between 200 mm and 620 mm in the past 46 years (Figure 5).

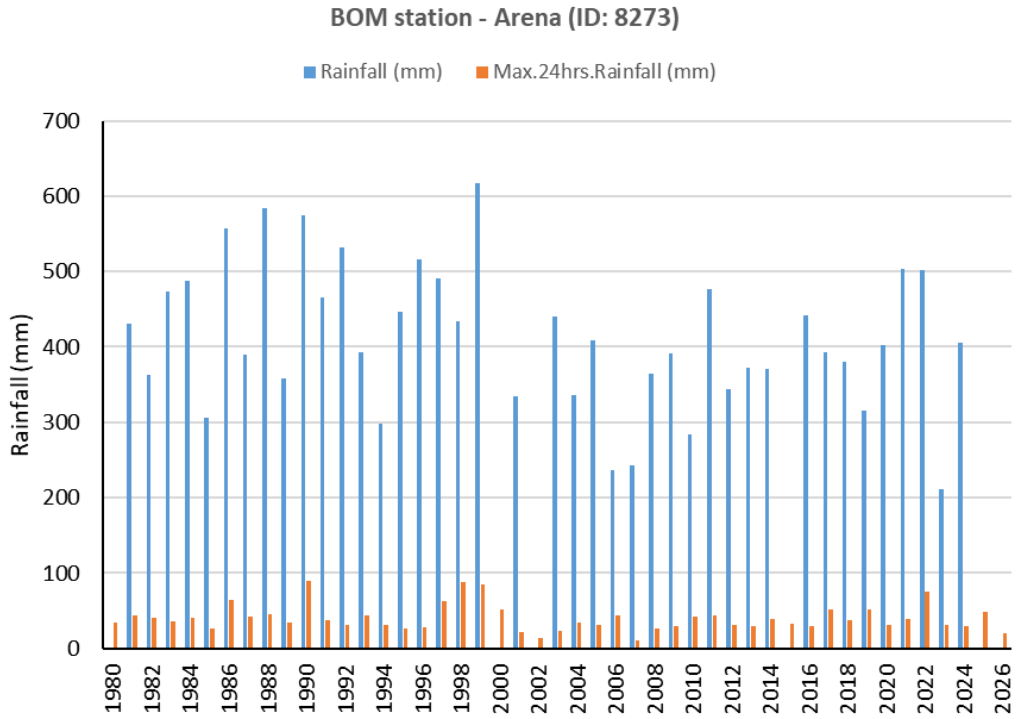

Figure 5: Annual rainfall (mm) and annual maximum 24-hour rainfall (mm) at BOM station Arena (8273).

2.3 Hydrogeology

The site is situated within the Northern Perth Basin which consists of sedimentary units that dip in an easterly direction. The dominant near surface sedimentary sequence in the study area is the Jurassic Yarragadee Formation which dips eastwards with a regional strike that is approximately north-south. The formation consists of a multilayered sequence of sandstone beds with interbedded siltstone, claystone and shale. The subsurface profile of the project area comprises of laterite (sand or gravel surface) with sections of alluvium, colluvium and minor Yarragadee Formation sandstone (Hancock Energy, 2025a).

2.4 Environmental Values

A number of environmental values are identified in the Inland Waters Assessment (HGG, 2025) and are illustrated in Figure 6.

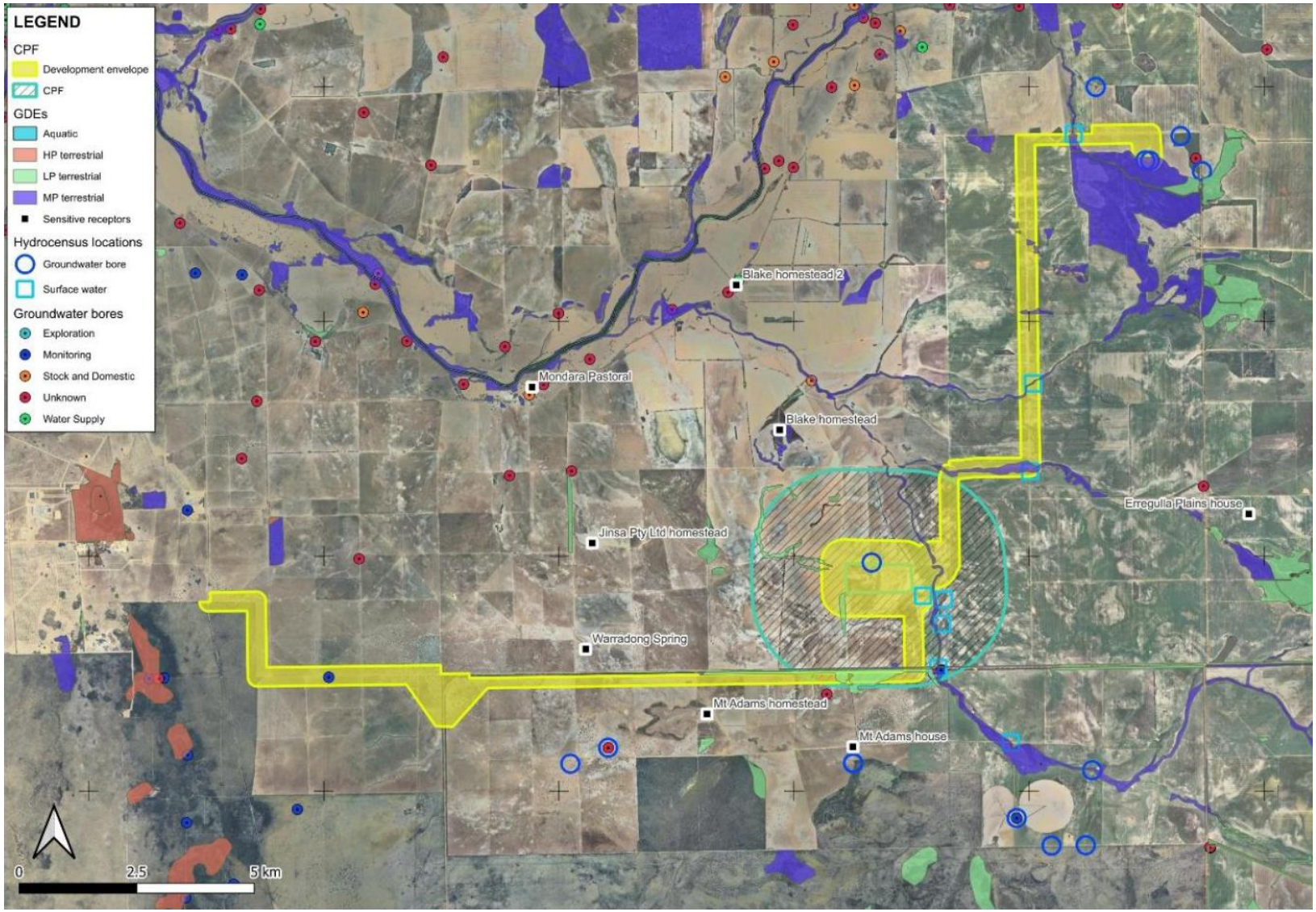

Figure 6: Location of environmental values identified in the vicinity of the site (HGG, 2025).

2.5 Soils

Eight soil associations are mapped within the Irwin River catchment (Department of Primary Industries and Regional Development (DPIRD)-064 dataset (data.wa.gov.au)). However, the CPF site sits entirely within Mount Adams System (gently undulating sandplain with low gravel ridges and occasional laterite breakaways). Further north towards the confluence of Irwin River and Sand Plain Creek (and on the east side of Side Plain Creek) is characterised as Mount Horner System (long gentle slopes broken by low gravel ridges and broad open depressions and some lateritic breakaways with spillway sands).

2.6 Fauna and Flora

A search of the DWER Environment online web-page indicates that the location is not within any DWER regulatory activity areas, and there are no Environmentally Sensitive Areas, Threatened Ecological Communities, Threatened fauna or Declared Rare Flora, within or directly downstream of the site.

At the two downstream river gauging stations on the Irwin River, sampling indicated that two exotic species (one fish and one crayfish) were recorded at Mountain Bridge (Table 2). Similar species were found at the Strawberry Hill monitoring site (with the exception of *Empire Gudgeon* (https://rivers.dwer.wa.gov.au/site/strawberry-bridge/)). Sand Plain Creek is highly ephemeral and is not expected to sustain aquatic species over prolonged periods.

Table 2: Fish and freshwater crustaceans (crayfish and shrimp) observed at Mountain Bridge on the Irwin River.

	Scientific name	Common name	Previously reported[1] in the subcatchment	Observed at site
				Spring 2021
				Oct 2021
FISH	*Hypseleotris compressa*	empire gudgeon	Y	-
FISH	*Gambusia holbrooki*	eastern gambusia	Y	-
FISH	*Xiphophorus hellerii*	swordtail	Y	Y
CRUSTACEANS	*Cherax destructor*	yabby	Y	Y

Colour key for species:

Native: Freshwater	Native: Estuarine-Freshwater	Native: Anadromous (Marine-Fresh)	Non-Native (Exotic, Invasive, or Introduced)

Source: https://rivers.dwer.wa.gov.au/site/strawberry-bridge/

Detailed and targeted flora and vegetation surveys have been completed (in accordance with (EPA, 2016a, 2016b)) and are detailed in Hancock (Hancock Energy, 2025a).

3 THREATS

A threat is an uncontrolled activity or land use with potential to damage the local or receiving environment's social/cultural, ecological or economic values, via impacts to stormwater quantity or quality. Potential threats from stormwater include:

- Increased sediment load caused by excessive erosion as the result of ground disturbance activities associated with the construction phase.
- Spills or leaks from the operational activities, flowlines connecting to the CPF, condensate storage, condensate piping, gas export pipeline, and sediment and evaporation ponds. Potential contaminants include natural-gas condensate, saline groundwater, chemicals used in the gas processing operations and to support commissioning and operational fuel and petroleum products.
- Spills or leaks of hazardous materials stored and handled onsite during construction and operations, including chemicals and liquid fuels for powering vehicles and equipment.
- Spills and leaks of effluent and grey water from the temporary construction village or permanent camp.

Surface water pathways that would allow movement of potentially hazardous material from the site include:

- Runoff from areas of disturbed ground (for potential sediment load impacts).
- Runoff from hazardous materials spills.
- Transport to natural drainage network via Sand Plain Creek.

The likelihood of the above pathways will depend on the size and location of any hazardous material spill. The distances between the CPF operational infrastructure and Sand Plain Creek (500 m) represents a significant buffer. There are no surface water drainage pathways in close proximity to Sand Plain Creek or the associated alluvium surrounding the creek.

The main threat is from contaminated stormwater runoff from the site. In the worst-case scenario, this would lead to the release of dissolved petroleum hydrocarbons and chemicals to the environment. This threat could result from damage to the evaporation pond lining or overflow system, under-design of the evaporations pond, or result from extreme rainfall. Any of these events would result in predominantly local and short-term environmental impact (Consequence category E) that would require local remediation. Mitigation measures for such occurrences include the use of clear emergency response procedures, a spill management plan, and the use of monitoring boreholes. A fuller breakdown of individual environmental hazards relating to spills is shown in Appendix B.

4 STORMWATER MANAGEMENT

4.1 General Considerations

The designed stormwater management system uses the criteria outlined in Table 3. The system was developed to:

- Manage risks to the site from major regional catchment overland flow events, and
- Convey, segregate, manage and contain or discharge different types of stormwater runoff to ensure drainage and other water systems will perform as intended, access is maintained, and environmental limits are adhered to.

The following systems have been designed to manage the various internal surface water runoff:

- Treated petroleum hydrocarbon contaminated water will be collected and discharged into the two evaporation ponds. These ponds will be designed with a double liner system, a seepage monitoring sump/leakage detection system and are designed with a 500 mm freeboard to cater for a 1% AEP which is a 100-year Annual Return Interval (ARI) event.
- Uncontaminated stormwater runoff from roads and verges will be directed towards a sediment pond which has been designed for a 15 min duration, 10% AEP event (10 years ARI) with a spillway to discharge to the environment.
- Internal stormwater diversion drains to manage internal overland flows have been designed for a 15-minute, 10% AEP event (10 years ARI).

Table 3: ARI and AEP used to design different stormwater infrastructure (Hancock Energy, 2025b).

DESIGN ELEMENTS	ARI (YEARS)	AEP (%)
Oil, and sediment arrestors (minor event)	1	63.21
Bunded areas and washdown areas; Process stormwater drainage system.	2	39.35
Permanent site drainage/ditches, road gutters, table drains, pipes, pits, tunnels, culverts, site diversion drains, floodway access, etc	10	10
Flood protection bunds, floodway capacity, evaporation pond(major event)	100	1

4.2 Construction Phase

4.2.1 Flooding

A baseline hydrology modelling and surface water assessment has been undertaken to identify potential flood risks to the proposed infrastructure and inform the stormwater design for the site to ensure adverse impacts to infrastructure and property internal and external to the site are avoided (Figure 7).

The Temporary Construction Camp and Permanent Operations Village are protected from overland flooding by bunds and drainage ditches on their western side.

The Evaporation Ponds, Construction Laydown, CPF, Non-Process Area (NPI) and Condensate Areas are similarly protected from overland flooding by bunds and drainage ditches on their western side. The CPF has drainage ditches on all sides.

The site access road will be protected by V-ditches on both sides of the road and will require culvert or similar to traverse the flood area shown in Figure 8 to reach Yandanooka Road West.

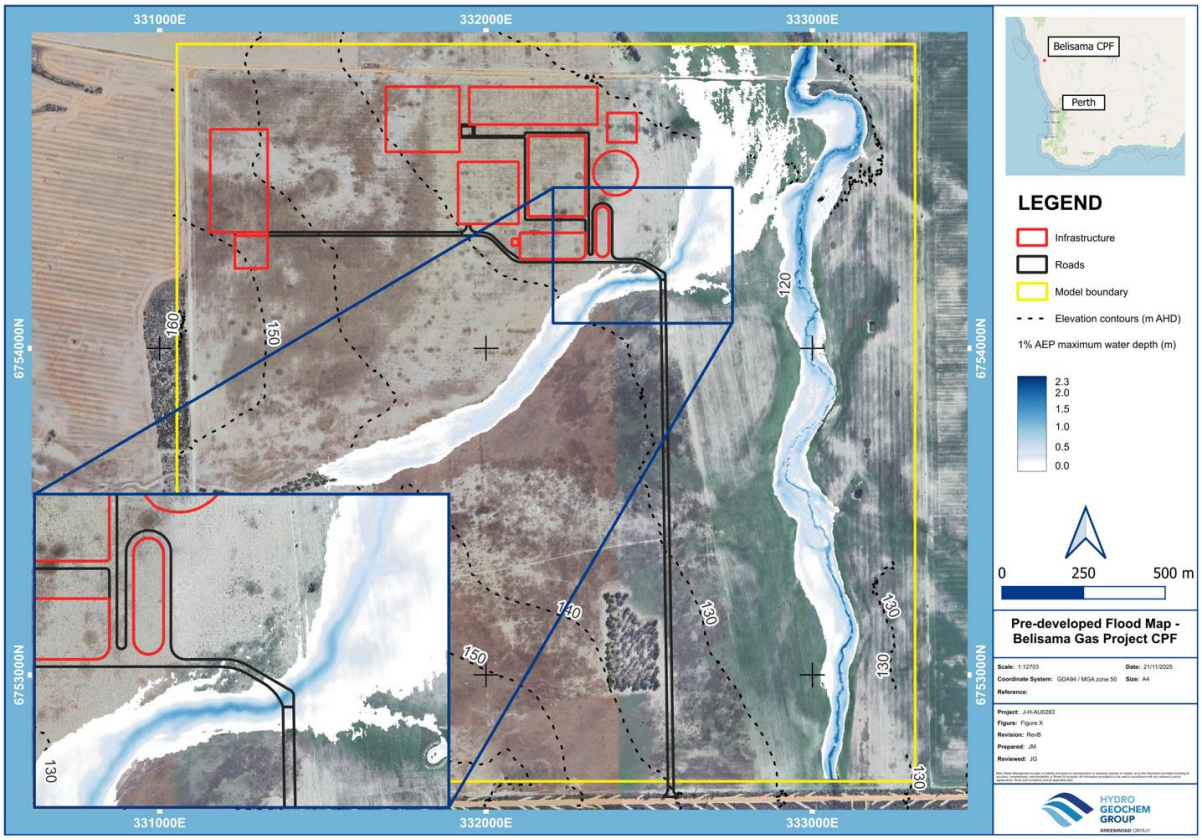

Figure 7: Preliminary pre-development 100-year flood extent overlain with site infrastructure.

4.2.2 Erosion and Sediment Control

The control of erosion and sediment during construction phase will include the use of sediment basins and drainage channels as an initial part of bulk earthworks, in place before plant construction. Localised controls and regular maintenance of drains after construction should also be considered.

Ground surfaces upstream and downstream of drainage structures, culverts, and sedimentation basins, shall be protected from scour. Appropriate measures shall be in place to prevent scour at flows of not less than the design drainage flow. Measures shall include, but not limited to precast headwalls, provision of rip rap, erosion matting, lining, and flow velocity control as appropriate.

Rip rap or rock mattress downstream erosion protection provided to all stormwater discharge structures (Austroads, 2023) is to be laid on geotextile to prevent the migration of fines through the flow of water from beneath the placement of the rip rap. Rip rap classes are to be specified as per project Engineering Specification for Site Preparation, Earthworks and Drainage (Hancock Energy, 2025b).

The geotextile for rock protection shall be a non-woven fabric consisting of long chain synthetic polymer fibres, composed of at least 95% by mass of polyester or polyolefins (polypropylene, polyethylene), bonded by needle punching, heat or chemical bonding processes or combinations thereof.

Diversion drains within the site will be designed and sized accordingly. Relief culverts will be installed at designated locations to help alleviate overland flows during events.

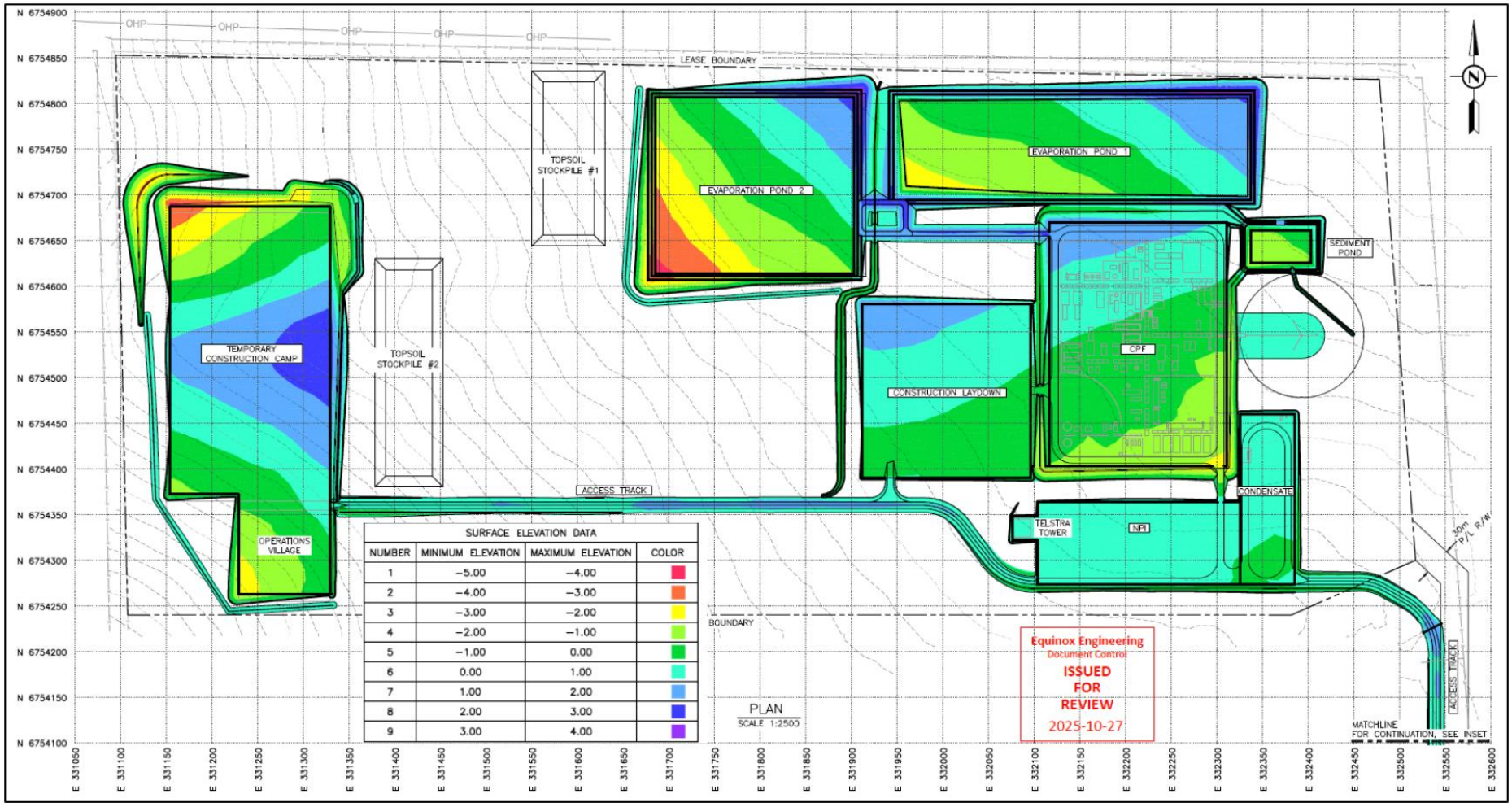

Figure 8: Site elevation changes from pre-development state.

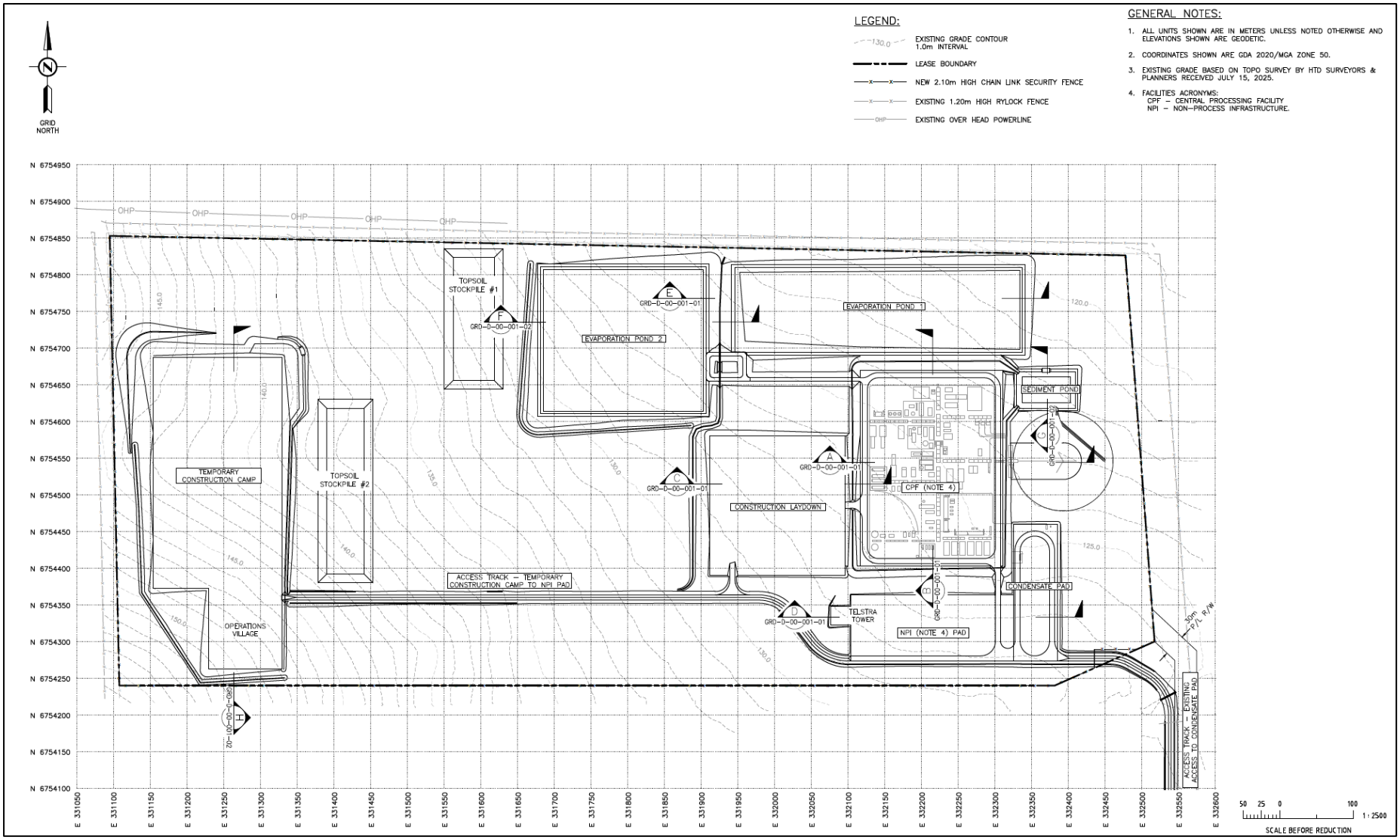

Figure 9: Preliminary site general arrangement plan.

4.3 Operational Phase

4.3.1 Runoff Drainage

Surface water catchment areas within the site have been categorised into potentially contaminated and clean surface water areas. Potentially contaminated water is rainwater which falls onto equipment or areas which contain petroleum hydrocarbons.

The design philosophy for the plant stormwater management consists of the following Drainage Systems:

- Drainage System A: Clean Stormwater Drain (non-bunded areas) – collected.
- Drainage System B: Clean Stormwater Drain (non-bunded areas) – uncollected.
- Drainage System C: Process/ Dirty Stormwater Drain (bunded areas).
- Drainage System D: Washdown Area Drains.
- Drainage System E: Clean Stormwater overland flows outside of the Plant.

Elements of the storm water drainage system shall be designed to contain water within surface drains, gutters or formed flow paths, with an 10% AEP event (10 years ARI) (System A, B & E). Surface drainage systems shall be designed to ensure overflows, in storm events with a 1% AEP event (100 years ARI) , do not present a hazard to people or cause significant property damage. The minimum plant level shall be defined above the 1% AEP (1 in 100 year) storm level, including free board (this includes infrastructure but excludes pipe supports). To keep equipment and structures out of any surface water, foundations for equipment and structures shall generally be:

- 200mm higher than the highest point of any paved slab, if they are contained within a bunded area, or
- 200mm higher than ground level, so long as the ground level is not within a low point subject to flooding.

All foundations shall have 30mm nominal grouting as appropriate.

The ‘first flush’ system (Drainage System A) is an integral component of the plant’s stormwater management system. The system is designed to capture ‘first flush’ contaminated water in a rainfall event into an oily water separator (location to be finalised at detailed engineering design stage) which will be pumped to the evaporation pond. The ‘first flush’ system is to ensure that contaminated water is contained in an oily water separator and only clean, uncontaminated water leaves the site via an overflow by-pass/weir. Note: The definition of the event for the first flush (1yr- 1hr flow) and its design are to be determined in Detailed Design Engineering Phase of the project.

4.3.2 Water Treatment

Within the CPF itself, equipment packages will have self-contained skids to collect water (typically from rainfall) that is potentially contaminated with oil or other contaminants. The skids will also collect any liquid petroleum hydrocarbons that are released during maintenance.

Potentially contaminated water collected in these skids will be gravity drained directly to the Open Drains Piping System, which is designed to accommodate a 1% AEP (1 in 100-year ARI) rainfall event plus normal washdown water rates.

The Open Drains System piping headers will be constructed of buried High-Density Polyethylene (HDPE) pipe. The piping will be designed with a slope to facilitate gravity draining from each of the potentially contaminated water sources to the oil / water separator.

The oil / water separator is a two-stage system (*Puraceptor* or similar) whereby gravity settling in the primary holding chamber separates bulk entrained solids and oil. Contaminated water flows through a coalescer removing residual small diameter oil droplets, targeting a treated water oil-in-water content of 15 mg/L. Treated water from the secondary holding chamber is pumped out to the lined evaporation ponds for disposal.

Oil will accumulate in the primary chamber of the oil / water separator and be disposed of using a vac-truck on a routine basis.

The Condensate Tanks bund (Drainage System C) shall contain sump pumps which will pump liquids to an off-spec condensate tank. Sump pump shall be sized for spillages only which can be recycled to the condensate system for re-processing. The bund shall be sized for stormwater and secondary containment to prevent spills from entering the environment and/or stormwater drains as per AS 1940. *The concrete bund will have lining material under the bund floor with maximum permeability of 1x10^-9 m/s*

4.3.3 Condensate Loading Area

The condensate loading area will be bunded to accommodate spillage based on the tanker sizing or wash water use (Drainage D). The grated trench drains in the pad will go to a sump pit inside the bund where any spilt condensate or washdown water can be pumped out by a licenced waste contractor.

4.4 Monitoring

Hydro Geochem Group Pty Ltd (HGG), in association with Hancock Energy, have developed a technical monitoring guideline (TMG) (HGG, 2026) for the purpose of defining a set of monitoring guidelines to support the Inland Waters Assessment (IWA).

A surface water monitoring location has been established downstream of the site in Sand Plain Creek (BGP_SW01). Up to two additional locations are proposed: one in the drainage channel that leads from the site to Sand Plain Creek (BGB_SW02) and another that is upstream of the confluence of the site drainage channel and Sand Plain Creek (BGP_SW03) (see Figure 10 and HGG (2026) for more details).

The proposed surface water monitoring locations are categorised according to their hydrological setting and monitoring objectives (as defined in HGG (2026)) such that:

- Ephemeral Watercourse – Downstream Sand Plain Creek (BGP_SW01).
- Ephemeral Watercourse – Upstream Sand Plain Creek (BGP_SW02).
- Shallow surface water features downgradient of the proposed CPF as well as a background comparison (BGP_SW03 and BGP_SW04). As outlined in the TMG (HGG, 2026), sampling locations BHP_SW03 and BHP_SW04 are only to be included if the construction of bores

BHP_MB01 to MB04 indicate the presence of a hydrostratigraphic unit potentially connected to these surface water features.

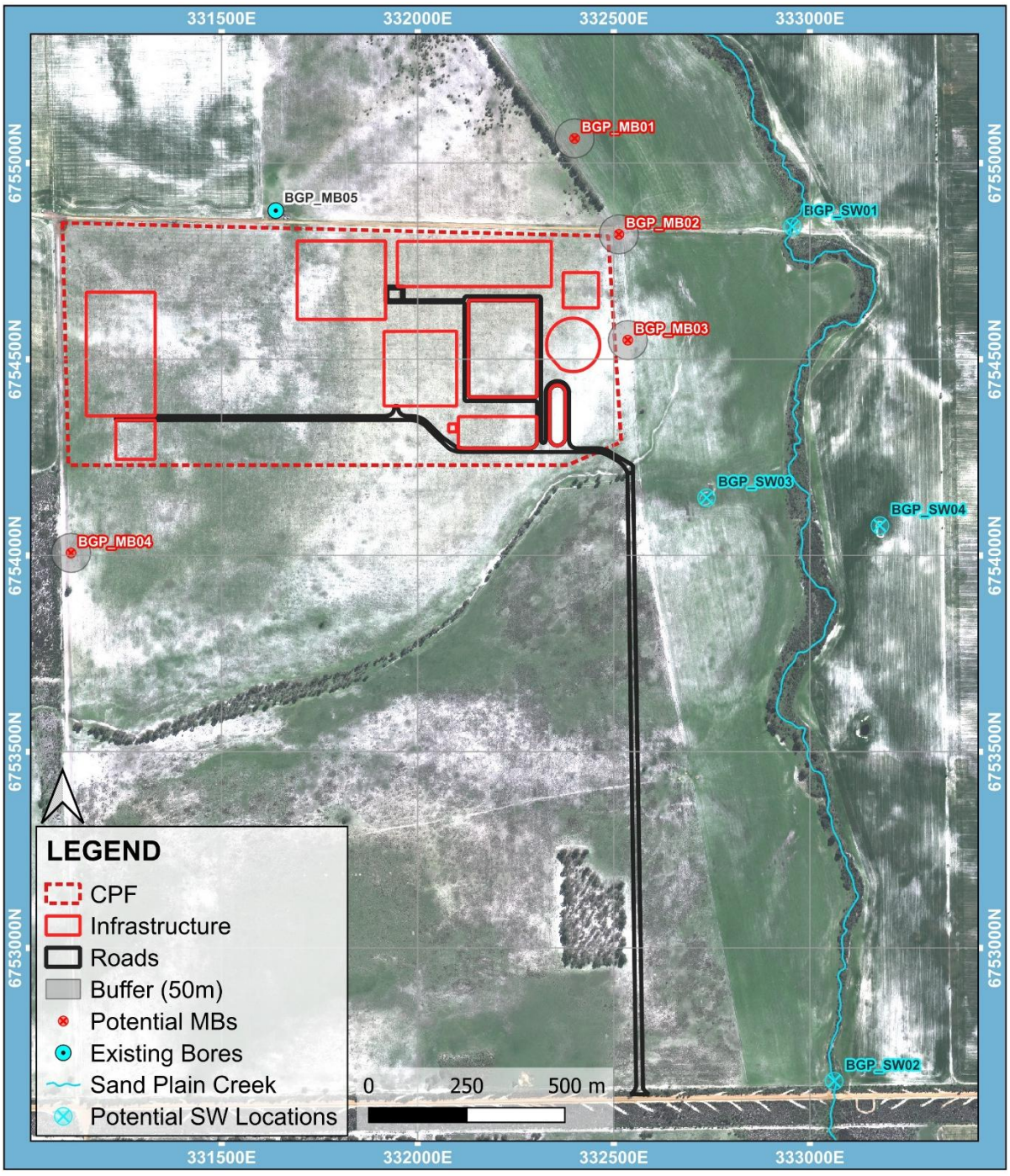

Figure 10: Location of surface water monitoring sites.

Table 4 outlines the proposed water sample analysis suite, to be collected across all monitoring sites. At the time of sampling, field water chemistry parameters (temperature, EC, ORP, pH and DO) will be measured and recorded.

Table 4: Proposed sample laboratory analysis suite (surface water).

ANALYSIS TYPE	SPECIFICS*	
Field	• Electrical Conductivity (µS/cm) • Oxidation Reduction Potential (mV) • Dissolved Oxygen (mg/L and %)	• pH • Temperature (°C)
Physico-chemical	• Electrical Conductivity (µS/cm) • pH	• Total dissolved solids (mg/L) • Total alkalinity (as $CaCO_3$) (mg/L)
Major and trace ions (mg/L)	• Calcium (Ca) • Magnesium (Mg) • Sodium (Na) • Potassium (K) • Carbonate (CO_3)	• Bicarbonate (HCO_3) • Chloride (Cl) • Sulphate (SO_4) • Silica (SiO_2)
Trace metals (total and dissolved) (mg/L)	• Aluminium (Al) • Arsenic (As) • Cadmium (Cd) • Chromium (Cr) • Iron (Fe) • Vanadium (V)	• Manganese (Mn) • Mercury (Hg) • Selenium (Se) • Zinc (Zn) • Lead (Pb) • Hexavalent Chromium (Cr^{6+})
Nutrients (mg/L)	• Total Kjeldahl nitrogen (TKN) • Nitrate (NO_3) • Nitrite (NO_2)	• Ammonia (NH_3) • Total phosphorus (TP) • Phosphate (PO_4)
Petroleum Hydrocarbons	• Benzene • Toulene • Ethylbenzene • M+p- xylene • 0-xylene • Naphthalene • C6-C10 (less BTEX)	• >C10-C16 (Less Naphthalene) • >C16-C34 • >C34-C40 • Methyl tert-butyl ether (MTBE) • Methane • Ethane

**Preservation notes may vary between laboratories, and the sampling team are encouraged to follow guidance from the chosen laboratory/s.*

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Management Actions

Standard engineering, construction and operational controls will be implemented to manage the potential risk to groundwater and surface water. These controls will include, but are not limited to:

- Location of the CPF more than 6 km from major waterways (Irwin River).
- Location of the evaporation ponds away from natural flow paths.
- Best practice stormwater engineering design and construction.
- Ensuring dangerous goods and condensate storage and handling facilities are in accordance with industry standards and legislative requirements.
- Surface water monitoring.
- Routine plant and equipment monitoring and inspections during operations,

Hancock Energy will undertake regular reviews of construction and environmental management systems. Site inspections to assess the effectiveness of all sediment, erosion and pollutions controls will be undertaken and corrective actions implemented.

5.2 Monitoring and Management

A monitoring and management plan for surface and groundwater quality has been developed prior to construction. The plan (HGG, 2026) includes the monitoring locations, frequency, measurement protocols, assessment protocols, management commitments and reporting arrangements for water quality monitoring.

The Technical Guidelines for the monitoring network (HGG, 2026) specify that the monitoring plan should be updated every three years to respond to potential changes in regulatory or statutory requirements, water management practices, number and capacity of surface water storages, and in response to potential water quality threshold exceedance events.

5.3 Plan Updates and Renewals

Compliance with this SMP will be reported in a timely manner after each inspection and audit. Corrective actions will be recorded and monitored to ensure continual improvement and enable the close out of incidents. Any stormwater, surface water, erosion or sedimentation incidents resulting in offsite impacts will be reported as soon as possible. Annual reports will be prepared for submission to the appropriate regulators. These will include general conformance, new risks and hazards identified, corrective actions implemented, sampling results and incident and investigation reports.

6 REFERENCES

Austroads, 2023. Guide to Road Design Part 5B: Drainage – Open Channels, Culverts and Floodway Crossings. AGRD05B-23. Sydney.

BOM, 2025. Climatological Station Metadata.

DoW, 2017. Northern Perth Basin - Geology, Hydrogeology and Groundwater Resources. Perth: Department of Water.

DWER, 2007. Stormwater Management Manual for Western Australia. Joondalup: Department of Water and Environmental Regulation.

DWER, 2025. Water Information Reporting. Retrieved (https://experience.arcgis.com).

Eco Logical, 2021. West Erregulla Environmental Survey and Approvals Hydrology and Hydrogeology Baseline and Preliminary Impact Assessment Report. 16294. Eco Logical Australia Pty Ltd.

EPA, 2016a. Environmental Factor Guideline - Flora and Vegetation. Environmental Protection Authority.

EPA, 2016b. Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Environmental Protection Authority.

EPA, 2018. Environmental Factor Guideline: Inland Waters.

Hancock Energy, 2025a. Belisama Gas Project Central Processing Facility and Operations Village, Environmental Impact Assessment Overview. BGP-0000-EN-REP-000001. Hancock Energy.

Hancock Energy, 2025b. Belisama Gas Project Civil Design Criteria Revision 0. BGP-0000-CI-SPC-000002. Hancock Energy.

HGG, 2025. Belisama Gas Project - Inland Waters Assessment. J-H-AU0283-004-R-Rev1. Subiaco: Hydrogeochem Group.

HGG, 2026. Technical Monitoring Guideline. J-H-AU0283-007-R-Rev0. Subiaco: Hydrogeochem Group.

7 LIMITATIONS

Attention is drawn to the document “Limitations”, which is included in Appendix C of this report. The statements presented in this document are intended to provide advice on what the realistic expectations of this report should be, and to present recommendations on how to minimise the risks associated with this project. The document is not intended to reduce the level of responsibility accepted by Hydro Geochem Group, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in doing so.

APPENDIX A ABBREVIATIONS

ABBREVIATION	DEFINITION
AEP	Annual Exceedance Probability
ARI	Annual Return Interval
BGP	Belisama Gas Project
BOM	Bureau of Meteorology
CPF	Central Processing Facility
DBNGP	Dampier-Bunbury Natural Gas Pipeline
DMPE	Department of Mines, Petroleum and Exploration
DO	Dissolved Oxygen
DoW	Department of Water
DWER	Department of Water and Environmental Regulation
EC	Electrical Conductivity
EPA	Environment Protection Authority
GWL	Groundwater License
HDPE	High-Density Polyethylene
HGG	Hydro Geochem Group Ltd.
mg/L	Milligrams per Liter
ORP	Oxidation Reduction Potential
SMP	Stormwater Management Plan
TMG	Technical monitoring guideline

APPENDIX B RISK MATRIX

HAZ_ID	ENVIRONMENTAL HAZARD	RISK PATHWAYS	IMPACTS	L	C	RISK RATING	RISK MITIGATION	L	C	RESIDUAL RISK RATING	PHASE
Environmental Factor: Water Quality											
1	Site construction works and earthworks exposing underlying soil followed by increased erosion and sediment load.	Transported sediment through surface water runoff towards Sands Plain creek.	Increased sediment load, reduction of surface water quality within Sand Plain creek.	4	2	Medium	- Development, incorportation of erosion and sediment control during construction phase. - During earthworks, conduct routine inspections of stormwater pathways for sediment load.	2	2	Low	Construction
2	Leaks and spills of fuel and other hazardous chemicals.	Transport in overland runoff, surface water drainage and/or groundwater flow	Adverse changes to the quality of surface water in the Sand Plain creek and groundwater in the Project area.	3	2	Medium	- Hazardous chemicals to be stored in bunded areas, with a register of on-site chemicals. - Record and report all chemical/hazardous substance spills. - Ensure spill kits are compliant, readily available and personnel are trained to apply in a spill scenario. - Dispose of contaminated soil and absorbent material at designated disposal sites approved by regulator.	1	2	Low	Construction and Operation
3	Leaks and spills of hydrocarbon condensate from above ground infrastructure.	Transport in overland runoff, surface water drainage and/or groundwater flow.	Negative impacts to the surface water quality of the Sand Plain creek and subsequent groundwater in the project area.	3	4	High	- Conduct routine visual inspections of above-ground pipelines for leaks. - Monitor pipeline pressures for signs of pressure drop, indicating potential leaks in the network. - Conduct routine monitoring and sampling of surface water and groundwater in the Project area to identify impacts to the environment. - Development of site stormwater management plan to collect runoff water within the CPF.	2	4	Medium	Operations
4	Leaks through evaporation ponds	Contamination of surface water and groundwater from spills, leaks, and transport in runoff.	Negative impacts to the surface water quality of the Sand Plain creek and subsequent groundwater in the project area.	5	3	High	- Ponds to be constructed with a HDPE and/or geosynthetic clay liner or similar to create hydraulic barrier and prevent vertical migration of water into the subsurface. - Inspection of liner prior to commissioning of evaporation ponds. - Routine monitoring and sampling of nearby monitoring bores and surface water locations to assess against baseline conditions.	2	3	Medium	Operations
5	Spills from evaporation / condensate ponds	Contamination of surface water and groundwater from spills, leaks, and transport in runoff.	Negative impacts to the surface water quality of the Sand Plain creek and subsequent groundwater in the project area. Damage to infrastructure during overtopping.	5	3	High	- Inspection and monitoring of freeboard to monitor and manage water on-site. - Discharge management plan should be available on-site should the cutoff levels be reached. - A site-wide water balance should be conducted for the 1:100 year storm events to effectively determine whether sufficient storage available on-site.	2	3	Medium	Operations

HAZ_ID	ENVIRONMENTAL HAZARD	RISK PATHWAYS	IMPACTS	L	C	RISK RATING	RISK MITIGATION	L	C	RESIDUAL RISK RATING	PHASE
6	Leaks and spills of fuel and other hazardous chemicals.	Uncertainty in groundwater flow pathways (and subsequent receptors)	Negative impacts to the groundwater quality of the Yarragadee Aquifer in the project area. Regional GW flow direction towards West, however surface topography drains East. GWL (mAHD) vs RL (mAHD). Mitigation measures may be in opposite direction to actual flow impact pathways.	3	4	High	- Groundwater bore recon and confirmation of groundwater flow directions. - Establishment of bore network for impact assessment (including upgradient, downgradient and on-site). - Development of SAQP for impact assessment of potential COPCs.	2	4	Medium	Operations
7	Leaks and spills of fuel and other hazardous chemicals.	Potential for shallow perched aquifer within development envelope and south east of CPF to be impacted by runoff.	Potential shallow pathway for contaminants to reach perched water table and impact on groundwater dependant ecosystems.	3	2	Medium	- Further investigation and delineament of shallow perched aquifer south east of the CPF development area. Including review of previous test-pitting work completed in the vicinity. - Field investigations using either a combination of near surface geophysics or hand auger tools to support delineament of area. - Inclusion of potential area into monitoring plans and development of site-specific trigger values for further investigation. - Installation of in-field monitoring units at the closest pond, downgradient of CPF.	2	1	Low	Construction and Operation
8	Leaks and spills of effluent and grey water from the construction and operational camp.	Contamination of surface water and groundwater from spills, leaks, and transport in runoff.	Adverse changes to the quality of surface water in the Sand Plain creek and groundwater in the Project area.	2	2	Low	- Conduct routine visual inspections of above ground pipelines. - Routine monitoring sampling at the camp facilities to include analysis for microorganisms (e.g. E.coli) at specified intervals.	1	2	Low	Construction and Operation

APPENDIX C LIMITATIONS

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