



Constraints Planning and Field Development Protocol
Surat Basin Acreage
Rev 2
November 2017

ACRONYMS / ABBREVIATIONS

In this document, the following acronyms and abbreviations apply:

Acronyms /Abbreviations	Meaning
ATP	Authority to Prospect
CG	Coordinator General
DEHP	Department of Environment and Heritage Protection (formerly DERM)
DEE	Department of the Environment and Energy (formerly DSEWPaC/DoE)
EA	Environmental Authority
EIS	Environmental Impact Statement
GES	General Ecological Significance (in regard to Referable Wetlands)
GIS	Geographic information system
HES	High Ecological Significance (in regard to Referable Wetlands)
PL	Petroleum Licence
QCLNG	Queensland Curtis Liquefied Natural Gas
RFL	Release from Land
RFS	Release from Survey
SIA	Social Impact Assessment
RTS	Release to Survey
TEC	Threatened Ecological Community
UDP	Upstream Delivery Process

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1 INTRODUCTION

1.0 Scope of Document

The purpose of this document is to describe the objectives, purpose and application of the Surat Basin Acreage Constraints Planning and Field Development Protocol (the Protocol).

The Protocol details how QGC will assess locations for infrastructure within the Surat Basin Acreage development area. It outlines various constraints and informs the planning and approval process for determining final infrastructure locations, thereby minimising the environmental impacts of the Project. The Protocol includes the principles of:

- Avoiding or reducing adverse impacts on identified constraints;
- Mitigating and managing impacts to minimise cumulative adverse impacts on identified constraints.

1.1 Document Revisions and Approval

This document bears a revision status identifier which will change with each revision. The protocol will be reviewed at least once every five years.

QGC will review the Protocol considering all relevant studies, policies, standards, guidelines and advice relating to relevant activities published or provided to QGC by the Commonwealth or Queensland governments, or published or provided by other proponents undertaking similar activities, or published or provided by other parties, including any findings of an audit against conditions, or plans or other documentation required under the conditions of approval.

If the protocol requires updating to reflect new information, then the updated protocol will be submitted to the Minister within two months of the revision.

The approved Protocol will be incorporated into the QGC's management procedures, operational plans and other relevant documentation and kept current for the life of the development.

1.2 Distribution and Intended Audience

This document is intended for all QGC personnel and contractors involved in selecting locations for QGC's gas field infrastructure

2 CONSTRAINTS PLANNING AND FIELD DEVELOPMENT PROTOCOL

2.0 Scope

The Protocol applies to the development of all infrastructure associated with the Surat Basin Acreage development (the development).

The gas field tenements included in the development are shown in Figure 1. This figure also illustrates other QGC tenements that are not part of, but are adjacent to the development tenures.

The development area includes the following gas field tenures:

- Petroleum Lease (PL): 299, 397, 400, 401, 402, 463, 464, 467, 498, 505, 506, 507, 1008.

Natural gas produced as part of the development will be processed at the Woleebee Creek Central Processing Plant (CPP), approved under EPBC 2008/4398, and from there supplied into QGC's portfolio, which includes sales of gas to the domestic market, power generation and supply to the Queensland Curtis LNG facility on Curtis Island. Water produced will enter the Woleebee Creek Water Treatment Plant (WTP), approved under EPBC 2008/4398, for treatment and future beneficial use.

The Development will include the construction, operation and decommissioning of the gas field and associated infrastructure. The Woleebee Creek facilities including CPP, WTP and subsequent transportation of natural gas and beneficial use associated water management are covered by existing relevant project approvals and are not covered by this specific protocol document.

Development of tenements for gas production may involve the following activities, although not all activities listed may be undertaken:

- Seismic and geotechnical investigations;
- Drilling of coal seam gas (CS) well and other conventional gas wells, core wells, water monitoring wells and water supply wells, including establishment of a well pad and construction of incidental activities (e.g. sumps and camps) and the construction of well access tracks where required;
- Installation and operation of well-pad infrastructure, including (but not limited to) wellhead, gas and water separator, flare, well lift pump, well lift pump engine and wellhead compressors;
- Installation and operation of stimulation ponds or tanks and associated well stimulation and proppant treatments and processes to enhance gas recovery;
- Installation and operation of gas gathering lines including low point drains and high point vents to connect wells to field compressor stations (FCSs);
- Construction and operation of FCSs to compress gas, including screw compressors, electric or natural gas drive motors, coolers, flare or vents, substation, pipework, separated water tank or ponds (where required) generators and fuel storage and telecommunications facilities including towers;
- Installation and operation of gas trunklines to pipe gas from FCSs to central processing plants (CPPs) authorised under existing project approvals;
- Installation (where required) of underground or above-ground power lines authorised under existing project approvals;
- Installation of water gathering lines and pump stations to transfer associated water from the wellhead separator to infield storages and regional storage ponds;
- Construction of in-field storages (tanks or ponds) and regional storage ponds;

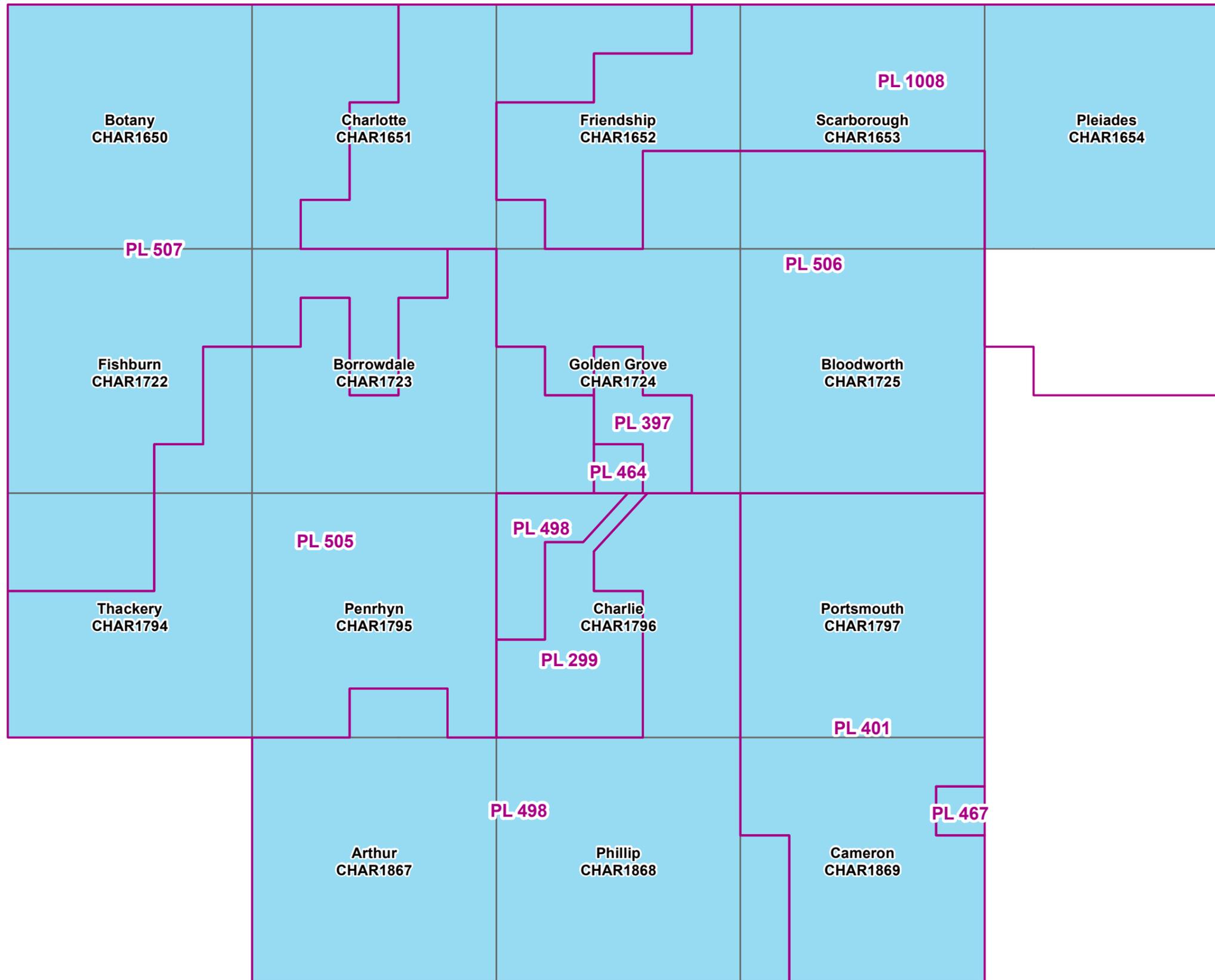
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- Installation and operation of associated water trunklines and pump stations to transfer water from regional storage ponds to the WTP authorised under existing project approvals;
 - Development and construction of development-related access tracks and roads, fibre optic cable connections, telecommunication towers;
 - Development of, and extraction of quarry material from, borrow pits;
 - Accommodation camps for construction personnel (including sewage irrigation areas); and
 - Construction and operation of laydown areas, warehouses, core sheds, offices, vehicle wash downs and storage facilities.

Figure 1 indicates the proposed blocks to be developed and the tenements on which development will occur. Blocks to be developed will contain wells at an approximate spacing of between 600-1,100m (excluding exploration and appraisal wells which may implement tighter well spacing) and an associated network of access tracks, water and gas gathering pipelines. The location of all infrastructure will remain proposed until final locations are approved in accordance with this Protocol and the QGC Land Access Framework.

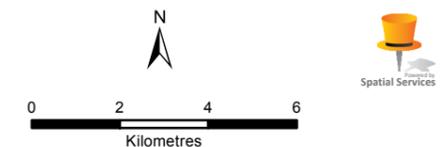
FIGURE 1 SURAT NORTH ACREAGE TENEMENTS

Development of Surat Basin Acreage

- Development Area
- QGC PL
- QGC Field



DATE: 11/10/2016 CREATED BY: Rollmanc
 MAP NO: M_43940_01



Map Projection: GDA 94 SCALE: 1:160,000 (A3)

DATA SOURCE: Infrastructure - QGC
 DCDB, Railways - DERM | Roads, Towns - GA

NOTE: Whilst care has been taken to prepare this map, QGC (and associated data custodians) make no guarantees about its accuracy, reliability or completeness and cannot accept responsibility of any kind for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are incurred by any party as a result of this product.
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2.1 Objective of the Protocol and Constraints Mapping

When confirming locations for gas-field infrastructure or petroleum activities, QGC will have regard to the environmental and social constraints at any proposed site. These constraints will be balanced against other drivers (including local geological characteristics, engineering requirements or landholder requirements for example).

QGC's priorities regarding constraints are (in order):

- Avoid
- Minimise
- Mitigate & rehabilitate
- Offset (In the case of ecological constraints)

To ensure infrastructure locations are chosen recognising local constraints, QGC will map environmental and social constraints on a site- and activity-specific basis to identify areas that are subject to varying levels of environmental and social limitation. This mapping will be used to identify areas of land that may be suitable or unsuitable for the development of gas-field infrastructure.

Areas with significant constraints are considered higher risk for gas field development because of their environmental and social sensitivity. The refinement of constraints mapping is an on-going process. All proposed infrastructure locations will be surveyed to confirm mapped constraints are accurate and to identify any additional constraints not previously identified in constraints mapping.

Examples of the environmental and social factors considered in constraints mapping include:

- Commonwealth matters of national environmental significance (MNES);
- Environmentally Sensitive Areas (ESAs);
- Watercourses and wetlands;
- Topography, slope and soil composition and erosion potential;
- Land Use and Infrastructure; and
- Social & Sensitive receptors (e.g. dwellings).

Environmental and social data gathered for the development will be collated in a geographic information system (GIS) for use in site selection of gas field infrastructure. Mapping will be built and maintained from internal and external data sources, including government and non-government data bases. It will be updated for relevant results of field-survey and public consultation. QGC will use the most up-to-date data to inform site selection decisions that will be confirmed through its internal planning and delivery process. A ranking will be assigned to each constraint consistent with this Protocol.

Where adverse impacts on constraints are unavoidable (typically arising from project engineering or land access issues), impacts will be minimised or mitigated for ecological constraints such as MNES and ESAs. Site remediation and rehabilitation of impacted areas will take place as per the relevant project environmental authority (EA) conditions to promote and maintain the long-term recovery of disturbed areas.

3 CONSTRAINTS SYSTEM

QGC has developed a custom GIS model to map constraints. The system overlays multiple constraint layers (datasets) for each proposed development-related infrastructure types (new layers are developed as an infrastructure type is proposed, designed and engineered).

3.0 Infrastructure Types

The constraints system includes constraint mapping specific to the following infrastructure or activity types:

- Utility Network, including power lines, communication lines;
- Pond – Other, including all ponds involved in the storage and transfer of associated water;
- Building, including administration buildings, camps, offices and storage facilities;
- Earth Work, including facility construction areas, laydowns and borrow pits;
- Plant, including FCSs;
- Well – All types;
- Pipeline, including all water and gas gathering lines and trunklines to transfer gas and water, on plot access tracks and roads; and
- Geology, including seismic surveys.

3.1 Identifying and Ranking Constraints

All constraints are assigned rankings as detailed below in Table 1:

TABLE 1: CONSTRAINT RANKINGS

Constraint Ranking	Description
Low	Development permitted with application of standard environmental management measures.
Medium	Development permitted with application of additional non-standard environmental management measures as required.
High	Environmental and/or social feasibility must be assessed prior to development and/or landholder agreement and compensation or offsets may be required.
Very High / no-go ¹	Development may not be environmentally and/or socially feasible for the proposed infrastructure. Other location options must be considered and assessed for viability.
¹ Infrastructure will not be located within very high / no-go constraint areas unless: <ul style="list-style-type: none"> • ecological field surveys demonstrate that siting infrastructure in that location will cause minimal adverse impact or can be managed through additional non-standard environmental management measures • other constraints preclude the selection of an alternative location 	

In relation to MNES specifically, proposed infrastructure locations will be determined in accordance with the following:

1. Preferentially avoid native vegetation that constitutes a listed threatened ecological community (TEC) and/or may provide habitat for listed threatened and migratory fauna species and utilise (where possible) previously cleared or previously utilised areas;
2. Exploration and production wells proposed within areas identified as very high / no-go constraint zone require justification for siting including site based (survey) assessment that the potential impact on any MNES will be minimal, short term and recoverable;
3. Where the location of other non-linear infrastructure in the very high constraint zone is justified given other constraints and cannot be avoided, only authorise the siting of that infrastructure in that zone where field ecological surveys demonstrate that there will be minimal, short term and recoverable, or no adverse impact on any MNES, including habitat for any listed species;
4. Linear infrastructure (e.g. pipelines), constraints are not generally assigned a no-go constraint ranking as it is not always possible to avoid constraint areas, especially where they are also linear in nature (e.g. watercourses). However, disturbance of any MNES will only be authorised, where necessary and preference will be given to collocation of linear infrastructure and siting within existing disturbed areas. Appropriate and proven QGC management methods to mitigate impacts will be implemented where practicable.

3.2 Constraints Classification

The following classification has been applied to constraints.

TABLE 2: CONSTRAINTS CLASSIFICATION

Zone	Ranking	Value
1	Low – Minimal Ecological Constraints	Altered landscapes, grazing, agricultural land,
2	Medium	Remnant vegetation – Not of Concern Cat C ESA – comprised of State Forests and Of Concern Regional Ecosystem (RE)
3	High	BPA corridors Cat C ESA – Essential Habitat, Nature refuges, Koala Habitat Areas and resource reserves Watercourses (excluding linear infrastructure) Cat B ESAs GES Referable wetlands
4a / 4b	Very high / no go	EPBC Listed Threatened Ecological Communities EPBC Listed Flora Listed threatened and migratory fauna species habitats as identified in the SSMP HES Referable Wetlands

Zone 4 areas are those with the highest ecological values. These values could potentially be significantly impacted by the petroleum activities and QGC will seek to avoid impacts to these areas wherever practicable.

Zone 4a areas are considered to have higher conservation values than Zone 4b. They are distinguished from each other only for enabling planning of linear infrastructure to avoid Zone 4a areas in preference to Zone 4b areas in locations where such areas are unavoidable.

Appropriate buffer zones adjacent to wetlands will be applied as required (in accordance with the relevant development EA conditions) based on confirmation of the location of the watercourse and wetland by site survey.

3.3 Ecological Constraints

QGC has considered a comprehensive list of potential ecological constraints including ESAs, MNES and other areas which are considered to have ecological constraints.

Ecological constraint mapping layers have been built using information from numerous databases from government, non-government, third party and QGC sources, including all available information and maps of MNES. Table 3 shows the zone allocations for the range of ecological values identified within the development area:

TABLE 3: ZONE ALLOCATIONS FOR IDENTIFIED ECOLOGICAL VALUES IN THE DEVELOPMENT AREA

Ecological Value	ESA Category	Zone	Comment
TEC	-	4	Three recognised within Development area; one other outside and to the west
Endangered Remnant Regional Ecosystems (EREs)	B	3	Eight EREs within Development area
Wetland (HES)	-	4	Includes HES Referable Wetlands that are also areas defined under the QLD Wetlands Program
Wetland (GES)	-	3	Includes GES Referable Wetlands that are also areas defined under the QLD Wetlands Program
Watercourse	-	3	As defined by the <i>Environmental Protection Act 1994</i>
State significant Biodiversity Planning Assessment (BPA) corridors	-	3	Unless already mapped under a higher category. Includes Juandah Creek corridor
Essential habitat for Endangered, Vulnerable or Near Threatened (EVNT) species	C	3	As defined by the <i>Vegetation Management Act 1999</i> and shown on the Regulated Vegetation Management Map
State Forest	C	2	Mount Organ State Forest
Of Concern Remnant RE	C	2	Six OC REs within study area
Regionally significant BPA	-	2	Unless already mapped under a higher

corridors			category
Not concern at present/Least Concern Remnant RE	-	2	Not including vegetation within state forest; 10 Least Concern REs identified within Development area
Non-remnant vegetation	-	1	Includes High-Value Regrowth that has not been recognised as a TEC

3.3.1 MNES

As described in Section 3.2, QGC has classified “zone 4a and 4b” as “very high or no go” constraints. MNES constraints include TECs, flora species and threatened and migratory fauna species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and associated regulations, which, where relevant, may be described in terms of specific niche habitat types.

MNES identified as potentially occurring in the Development area include:

- TECs:
 - Brigalow;
 - Coolibah – Black Box Woodland of the Darling Riverine Plains and Brigalow Belt South Bioregions;
 - Semi-Evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar bioregions.
- Threatened flora and fauna species – a number identified as known or likely to occur (refer Table 4).

TABLE 4: EPBC LISTED FLORA AND FAUNA SPECIES KNOWN OR LIKELY TO OCCUR IN THE DEVELOPMENT AREA

Threatened Species	EPBC Act Status	Likelihood of Occurrence
Belson’s Panic Grass	Vulnerable	Known
Ooline	Vulnerable	Likely
Koala	Vulnerable	Likely
South-eastern Long-eared bat	Vulnerable	Likely
Yakka Skink	Vulnerable	Likely

3.3.2 APPROACH TO ACTIVITIES WITHIN MNES

Where QGC plans to undertake activities within or in proximity to areas identified as MNES, the standard approach is to identify, confirm, assess and minimise any potential or proposed impact to the known species or ecological community.

Identified MNES species, habitat and ecological communities will trigger further investigations that may include:

- Conducting further detailed surveys to confirm the presence of the species or ecological community concerned;
- Detail habitat features that are critical to the species;
- Locate the extent of the sensitive area (e.g. spatial extent of TEC); and
- Identify the preferred location of infrastructure following detailed environmental assessments.

During the construction of infrastructure within proximity of a MNES QGC will implement various strategies to minimise impacts to the MNES, including but not limited to:

- Restricting the scale of disturbance to as small an area as reasonably practicable;
- Locating non-critical infrastructure outside the identified sensitive area;
- Conducting pre-clearance ecological surveys to identify and flag sensitive areas;
- Engaging a licensed fauna spotter to spot throughout all clearing activities;
- Constructing infrastructure in consideration of the mitigation guidelines detailed in an appropriate significant species management plan; and
- Regular monitoring through the construction program (e.g. daily open trench walks for removal of entrapped and injured fauna).

3.3.3 ENVIRONMENTALLY SENSITIVE AREAS (ESAS)

ESAs are categorised into three types – Category A, B and C. Category A and B ESAs are prescribed in sections 25 and 26 of the *Environmental Protection Regulation 2008*.

Category A ESAs include areas such as National Parks, Conservation Parks and Wet Tropics Areas. Currently there are no category A ESAs located within the Development area.

There are a limited number of mapped Category B ESAs located within the Development area. Category B ESAs are most commonly identified through the mapping or presence of endangered regional ecosystems (EREs).

'Category C ESA' is not a term that is defined in legislation. Category C ESAs are currently taken to include any of the following areas:

- Nature Refuges as defined in the conservation agreement for that refuge under the *Nature Conservation Act 1992*;
- Koala Habitat Areas as defined under the *Nature Conservation (Koala) Conservation Plan 2006*;
- State Forests or Timber Reserves as defined under the *Forestry Act 1959*;
- Regional parks (previously known as resource reserves) under the *Nature Conservation Act 1992*;
- An area validated as 'essential habitat' or 'essential regrowth habitat' from ground-truthing surveys in accordance with the *Vegetation Management Act 1999* for a species of wildlife listed as endangered or vulnerable under the *Nature Conservation Act 1992*; and
- 'Of Concern Regional Ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.

Approach to Activity Within ESAs

Where QGC plans to undertake activities within or close to areas identified as ESAs, the standard approach is to identify, confirm, assess and minimise any potential or proposed impact area through field validation surveys, observations and mapping of any Category A, B or C Environmentally Sensitive Areas and the presence of species classed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992*.

For all Category B or C ESAs proposed to be impacted or disturbed by infrastructure, field validation surveys will confirm the presence and status of the mapped ESA. Where the current spatial mapping is inaccurate, QGC will record the results of the field validation survey and subsequently undertake works using field-validated constraints mapping.

Siting of infrastructure and proposed disturbance to ESA areas will also be regulated and prescribed by the relevant EA authorising the activity. In addition to EA conditions QGC will also follow existing protocols (where appropriate) for minimising impacts during the construction phase as identified in Section 5.

3.3.4 TOPOGRAPHY AND SOILS CONSTRAINTS

Topography and soil constraints include topography, erosion potential and subsoil salinity.

Topography and soils are generally a constraint for construction activities and impacts will be managed or mitigated per the identified constraint ranking during the construction process and through appropriate engineering, detail design and reinforced on-site through the implementation of Construction Environmental Management Plans for specific activities.

3.3.5 WATERCOURSES & WETLANDS

Watercourses and wetlands throughout the development area are mapped in the GIS system and confirmed through field validation. Where mapped features are confirmed through survey as being present, QGC will apply buffers consistent with EA conditions to minimise the potential for impact from operational infrastructure. QGC consider the standard 100 m buffer to watercourses and 200m to wetlands of high ecological significance a guide for placement of static infrastructure (not associated with the construction or operation of linear infrastructure). Assessment of watercourses will be governed by the definition provided in Schedule 4 of the *Environmental Protection Act 1994*. Assessment of wetlands will be governed by the definition of the relevant EA.

HES Referable Wetlands are classified as a Zone 4 owing to their higher ecological value. EA conditions differ for development in and within a buffer zone to HES Referable Wetlands and GES Referable Wetlands.

Watercourse and wetland buffer zones have traditionally been applied to protect sensitive riverine environments from potential impacts of planned infrastructure and construction activities. On occasion QGC may require static development within these buffers areas. QGC, in assessing the likelihood of proposed infrastructure and activities within these buffers will engage a suitably qualified person to undertake an impact assessment of the planned works.

Static infrastructure within the prescribed buffer zones will only be constructed following receipt of detailed advice and provisions from a suitably qualified person and with the development and implementation of an appropriate Construction Environmental Management Plan.

Linear activities may not be able to avoid being located near or crossing through watercourse and wetland areas. Linear infrastructure activities may be undertaken within the bed and banks of a watercourse or within a wetland where there is no reasonable and practicable alternative, for the period as is permitted by any relevant statutory Code or Guideline for undertaking works in a watercourse, provided the relevant statutory Code and/or Guideline is complied with.

3.3.6 SENSITIVE RECEPTORS CONSTRAINTS

Sensitive receptors principally comprise residential dwellings in the Development area, but may also include community facilities and social uses as described in Section 3.4.8. Certain activities are constrained by their proximity to sensitive receptors, given the impact of the activity at the sensitive receptor (e.g. noise levels, visual amenity and localised air emissions).

Noise

QGC will undertake noise modelling to determine required separation distances between sensitive receptors and proposed sources of noise emissions (from well development, construction activities and the operation of fixed field infrastructure). Standard separation distances will be in constraints mapping. The requirement for ambient noise measurement will be assessed on a case by case basis and undertaken where appropriate prior to commencement of works to provide baseline levels.

Due to the large land parcel size within the Development area (average of approximately 1100 ha), FCS locations are unlikely to be within 1 km of a sensitive receptor, and noise emissions from operational FCSs are anticipated to be compliant with the noise criteria at these distances. Noise modelling of final FCS locations will determine potential engineering treatments or identify if alternative arrangements may be required.

Visual Amenity

Visual amenity of FCSs is considered a low constraint at distances greater than 1 km from a sensitive receptor.

Visual amenity of pipeline rights of ways is considered a low constraint, considering operational rehabilitation including land stabilisation including seeding will be established post construction. Visual amenity of pipeline rights of way and wells are considered a low constraint at distances greater than 500 m.

The assessment of proposed pond locations will consider land form, slope, proximity to sensitive receptors and public access around the site. Visual amenity has not been incorporated into the constraints model as separation distances for noise purposes are expected to effectively reduce the visual amenity constraint to low.

Air Quality

Modelling conducted for the Development demonstrated that localised exceedances of air quality objectives as defined in the *Environmental Protection Policy (Air)* will not occur therefore constraints on the separation distance to sensitive receptors are not expected.

3.3.7 AGRICULTURAL CONSTRAINTS

Agricultural constraints consider existing and potential land use for agricultural purposes, including Strategic Cropping Land (SCL).

The *Regional Planning Interests Act 2014 (RPI Act)* and *Regional Planning Interests Regulation 2014 (RPI Regulation)* commenced on 13 June 2014. The RPI Act identifies and protects areas of Queensland that are of regional interest through management of impacts to land and support of coexistence of activities associated with resource activities and other regulated activities in areas of regional interest. There are four areas of regional interest under the RPI Act:

- A priority agricultural area (PAA)
- A priority living area (PLA)
- The strategic cropping area (SCA)

- A strategic environmental area (SEA)

Land under cropping may be situated on SCL.

3.3.8 FLOOD-LEVEL CONSTRAINTS

Flood modelling of all watercourses in the Development area has not been conducted. QGC will, on a case-by-case basis, conduct flood modelling for FCSs and ponds.

Depending on type, infrastructure locations may be constrained by 50-year annual recurrence interval (ARI) or 100-year ARI flood levels.

QGC intends to construct FCSs at least one metre above the 100-year ARI flood levels. This may require the raising of the foundation levels of FCS. Ponds will be designed so that embankments are above the 100-year ARI flood level where practicable to do so.

There may be instances where wells are below the 50- or 100-year ARI flood levels. QGC will assess whether the risk of locating wells in a flood-prone area is as low as reasonably practicable. Where it is decided to construct wells in a flood zone, these wells may, depending on flood heights, be shut down in a flood event.

Pipelines will be installed across watercourses and in areas subject to flooding at depths prescribed by AS2885 or other relevant codes

Temporary worker's accommodation and associated on-site sewage treatment plants will be located above the 50-year ARI flood level where practicable to do so.

3.3.9 SOCIAL CONSTRAINTS

Social constraints considered include:

- Townships and localities;
- Dwellings;
- Community facilities;
- Emergency service facilities (with access/egress constraints also relevant);
- Non-Indigenous cultural heritage places (NICHs), with Indigenous cultural heritage places addressed in detail in the respective Cultural Heritage Management Plans;
- Social infrastructure:
 - community centres;
 - schools;
 - churches and community halls; and
 - recreational facilities.
- Land use and infrastructure constraints (e.g. stock routes).

3.4 Other Constraints

This Protocol considers environmental and social constraints. In addition, there may be constraints on the location of infrastructure due to:

- Engineering factors (identified through site survey) overlapping mining or other tenures;
- Tenure requirements;
- Existing or proposed third-party infrastructure;
- Commercial arrangements; or
- Health, safety and security.

QGC considers these and other non-environmental and non-social constraints through its business processes as it plans and locates gas-field infrastructure.

4 INCORPORATION OF THE PROTOCOL INTO MANAGEMENT PROCEDURES

All proposed Development infrastructure must be internally approved by relevant business groups prior to commencement of construction. Internal approvals can only be granted if proposed activities are approved under relevant State and Federal legislation and comply with any relevant conditions of approval.

4.0 Upstream Delivery Process

The QGC upstream delivery process (UDP) specifies the internal workflow and decisions followed to progress upstream scope through planning to execution and operations. All development infrastructure must be approved through this process and receive a series of functional endorsements culminating in a key approval authorising final planning and construction. The way in which the constraints protocol is applied through this process is shown in Figure 2.

The first stage of the internal planning and delivery process delivers integrated approvals of work scope. This is a strict internal process to select and approve location of wells, infrastructure and field activities. Proposed infrastructure locations are reviewed against the relevant constraints mapping held in the QGC GIS.

Specific instructions to the survey team to further investigate identified or potential constraints may be included at this stage. It may also include requirements that there be on-site investigation by an appropriately qualified specialist with skills relevant to a potential constraint (e.g. an ecologist with hydrogeological training).

Once conceptual locations are approved, a multidisciplinary survey is undertaken to verify mapped constraints and identify any un-mapped constraints.

Typically, a survey will include at least a surveyor, a relevant construction representative, appropriately approved / qualified ecologists, cultural heritage representative and a land access representative. Surveys may also be attended by landholders.

All site assessments and field ecological surveys will:

- Consider and reference previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of constraints;
- Document the survey methodology, results and significant findings in relation to constraints; and

- Apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.

Objectives of the survey include confirmation of constraints to infrastructure locations.

Field surveys will record any potential disturbances to any level 3 or 4 constraints. Where a confirmed constraint is very high (e.g. 4), QGC will not conduct activities in the area, unless:

- Ground truthing and field ecological surveys demonstrate that siting infrastructure in that location will cause minimal adverse impact; and
- Other constraints preclude any alternative location.

In addition, QGC may seek alternative locations for proposed infrastructure in that location.

Alternative locations may be recommended by an appropriately qualified ecologist conducting pre-clearance surveys and by the QGC's environmental officers based on desktop analysis of environmental and other constraints.

If no viable alternative location is available (recognising that locations are subject to multiple and overlapping constraints), it may be necessary to locate infrastructure within a very high/no-go constraint. This must be approved through the UDP as described below in subsequent steps.

Where a potential impact to a very high/no-go constraint is expected prior to the disturbance occurring, QGC will record the expected disturbance by reference to:

- The proposed location, specific site and type of infrastructure or activity;
- Each very high constraint subject to disturbance;
- The related site assessment or field ecological survey documentation and recommendations, or the decision that the very high constraint was presumed to be present;
- The total area of predicted disturbance;
- The remaining disturbance limit for each affected very high constraint (if applicable);
- The reasons for the decision including justification for the action taken, description of the efforts taken to avoid impact, and explanation why other constraints might justify the impact on very high constraints; and
- Actions and commitments by QGC to avoid, prevent, remediate, rehabilitate, or make good any unauthorised disturbance.

Following the disturbance activities, QGC will confirm actual disturbances of very high/no go constraints (note this would occur after the final stage of the UDP, in the execution phase).

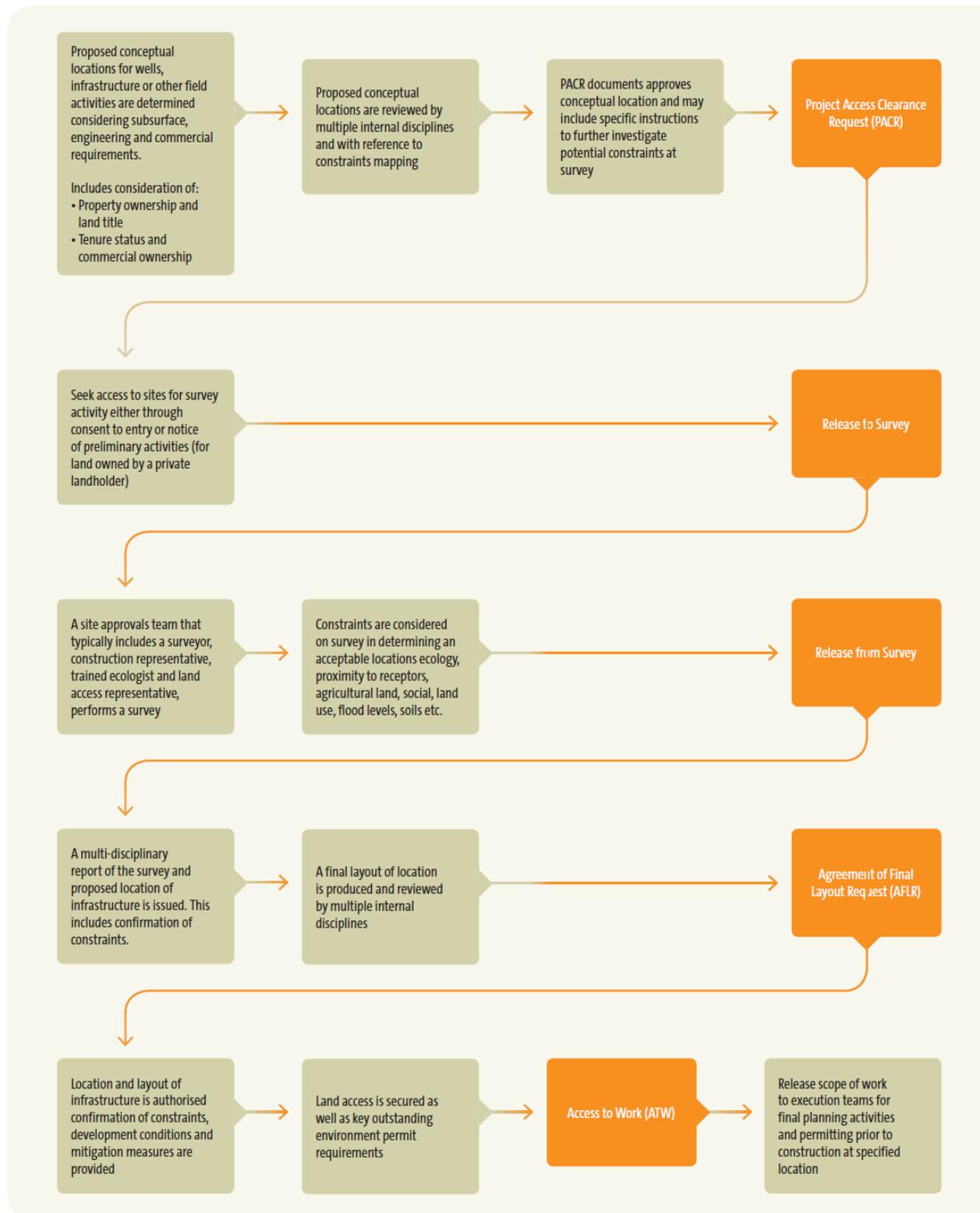
All information recorded during surveys will be recorded to a standard that can be independently audited.

On completion of the field surveys the site data and reporting the packages of information is collated and loaded into a second phase approvals packages. This phase of the approval seeks to gain acceptance of the proposed alignment/siting from each of the internal disciplines prior to approaching the landholder for negotiations and agreements. This stage confirms relevant constraints and includes any mitigation measures required.

Following the selection of infrastructure locations, QGC will seek to secure land access and any outstanding permit requirements, prior to authorising final planning activities and construction. This final stage confirms

that land access has been secured and that key outstanding environment permitting requirements are satisfied so that infrastructure can pass into execution phase for final planning and construction.

FIGURE 2 - UPSTREAM DELIVERY PROCESS FLOW DIAGRAM



5 MITIGATION MEASURES

Conditions of approval for the Development, from both DEE and DEHP will prescribe mitigation measures to be implemented where infrastructure is proposed to be in certain constraint zones. QGC will implement these mitigation measures where relevant.

6 UPDATING CONSTRAINTS

Information on constraints is held within QGC's GIS system. Constraints information will be updated where:

- Additional relevant information becomes available; or
- QGC assigns an alternative constraint ranking to an existing constraint.

Examples of additional relevant information include:

- Changes to government databases that form the basis of constraint mapping layers (where consistency with approved development conditions is not altered); and
- Survey data collected in the field which may indicate the presence of constraints not previously identified or the absence of constraints identified through desktop mapping.

QGC will not assign an alternative constraint ranking to a constraint that will result in a conflict with any conditions of approval from State or Federal governments. Before a constraint ranking is reassigned, QGC will follow a rigorous process to ensure all relevant business groups authorise the change before the change is approved by a senior manager with responsibility for environmental compliance or their delegate.

7 CONCLUSION

The Surat Basin Acreage Constraints Planning and Field Development Protocol provides a framework for the identification and ranking of known ecological and social constraints to inform selection of proposed infrastructure locations.

QGC's management procedures for infrastructure design and site selection incorporate a thorough review of all constraints. Proposed infrastructure locations will be overlaid on maps of known constraints to rapidly shortlist potential locations. Once potential locations have been selected, pre-clearance surveys will be undertaken to verify known constraints and identify previously unidentified constraints prior to construction.

The constraints protocol is viewed in GIS format that interprets high risk areas for planning and placement of infrastructure. The methodology of the constraints weighting is reviewed throughout each stage of review in the internal planning and delivery process.

Where a site is rejected the process starts again and other options are assessed.