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Sam Khoury Consulting Engineer PTY. LTD. A.B.N. 45 065 177 433

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STATEWIDE PLANNING PTY LTD  
PO BOX 441  
PARRAMATTA 2124

16<sup>th</sup> January 2018

Attention : Mr. C. Demian

**Proposed safety clearance for proposed development – 181 James Ruse Drive, Camellia**

**Introduction**

This statement is to provide further information with regard to information on safety clearances around the Sydney to Newcastle underground pipelines in relation to the site known as 181 James Ruse Drive, Camellia.

**Site Locality**

The site is known as 181 James Ruse Drive, Camellia. The site is currently vacant and has an area of approximately 6.8 hectares. There is site frontage of approximately 250m to the Parramatta River and is located between James Ruse Drive and the Carlingford railway line. Immediately to the south and to the east is industrial land, further south is the Rosehill Racecourse. The University of Western Sydney is located on the northern side of the Parramatta River. The site is located approximately 2.5km east of the central Parramatta, and 3km north of Granville.

The site has a frontage to James Rue Drive. Directly over James Ruse Drive lies River Road West. Both River Road West and Tasman Street intersect James Ruse in an offset configuration.

James Ruse Drive is a State Road under management of the Roads and Maritime Services (RMS). In the vicinity of the site, it is configured with three travel lanes in both directions, with an additional turning lane at the River Road West intersection for southbound vehicles. It provides the main ring Road route around the Parramatta CBD, as well as function as a key distributor road, with interchanges at other main roads including, the M4 Motorway, Parramatta Road, Victoria Road, Kissing Point Road, Pennant Hills Road, Windsor Road and Old Windsor Road.

Grand Avenue North and Tasman Street are classified as local roads. Tasman Street is currently closed and will be the main access road into the proposed development site. Grand Avenue North currently provides access to the light industrial units south of the site as well as supplementary areas owned by the Sydney Turf Club.

A location map is shown in **Figure 1** below.

22 Virginius Street, Padstow, NSW 2211

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**Figure 1: Location plan showing the site in red.**

The site is currently vacant and is in transition, from heavy industrial land use to a mix of uses including high-density residential development, retail and commercial uses. The new development will also include a fine grain street network, new open spaces and regeneration of the heritage listed mangroves along Parramatta River.

#### **Adjoining Pipelines**

Sydney Water owns underground pipeline adjacent to the boundary (Lot 1 DP 669378).

Caltex owns and operates a buried high pressure liquid petroleum pipeline adjacent to the eastern boundary within this Lot. This Lot has a 5m wide easement for the Hunter Pipe Line Company Ltd in DP 499010. The pipeline is for distribution of hydrocarbon products from Kurnell to the Newcastle area.

The pipeline is a 350mm nominal diameter buried high tensile steel line that is fully wrapped in polyethylene coating, and protected from corrosion by a cathodic protection system. Gasoline and Diesel products that are transported by the pipeline are also dosed with a corrosion inhibitor for further protection. The maximum allowable operating pressure (MAOP) of the pipeline is 7,500 kPa.

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The pipeline is licensed under the Pipeline Act 1967; the Pipelines Regulation 2005 by NSW Resources and Energy and complies with the Gas & Liquid Petroleum Pipelines Code, AS 2885 – 2012.

Any works located near or adjoining the easement must comply with the licence terms as shown in **Attachment A**.

### **Assessment**

An assessment has been undertaken on safety clearances around the Sydney to Newcastle underground pipelines.

There are many regulations, codes and standards which apply to pipeline systems. None of them requires a definitive clearance, or hazardous zone, around an underground pipe installation. This is the case in all of the below codes.

AS/NZS 1940 – The storage and handling of flammable and combustible liquids

AS/NZS 60079.10.1 – The classification of areas – explosive gas atmospheres

AS 3000 – Wiring rules

AS 2885.1 – Pipelines gas and liquid petroleum – Part 1 design and construction

AS 4897 – The design, installation and operation of underground petroleum storage

POEO Act and regulations

They all however have requirements for protection of the pipeline from impact, penetration or corrosion. In particular the requirement to not place a loading on the pipeline, meaning no building to be within a 45 degree angled zone from the bottom of the pipeline. This is easily achieved by the easement width. Impact and penetration protection is provided by the pipelines being underground, and corrosion protection is provided by the coatings used on the pipelines and cathodic protection of the lines.

The potential impacts on the pipelines, are touched on in the Jacobs report, in section 4, and special requirements are covered in the NPC report.

The pipeline is classified as High Density (T2) Land that is developed for high density community use. High Density applies where multi-storey development predominates or where large numbers of people congregate in the normal use of the area. High density includes areas of public infrastructure serving the high density use; roads, railways, major sporting and cultural facilities and land use areas of major commercial developments; cities, town centres, shopping malls, hotels and motels.

AS 2885 mandates that the pipeline must be protected from external interference. It requires a minimum number of physical and procedural protection measures to be adopted to achieve this in each location class.

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Industrial and employment land uses are seen in the same manner as residential uses from a risk mitigation point of view.

Risk mitigation measures by the owners of the pipeline were significant at time of construction to counter heavy use of rail corridors along the Carlingford line and extremely heavy industrial train use crossing over the pipelines.

#### **Safety Management Study (SMS)**

A Safety Management Study (SMS) is required to determine if additional safety measures are required as follows:

1. Pipeline may require further protection such as physical measures including barrier or exclusion (eg. fencing) and resistance to penetration, concrete encasement and other physical protective measures, encasing and construction of concrete slabs.
2. Site planning provides for the construction of building excavations outside the zone of influence of 45 degrees from the bottom of the pipeline, and further provisions for a 10 metre easement for ongoing maintenance and protection from other interferences.
3. Site Planning provides for open space and recreational area along the northern stretch of the pipeline within the site.
4. Additional signage along the pipeline at 50 metres apart will be required for T2 high density classifications.

A Safety Management Study should be undertaken at the development application stage and the findings be incorporated into the design.

#### **Conclusion**

Whilst there are many codes and standards regulating pipelines none of them prescribe any specific safety clearance distances. The legislation has a focus on disturbance of pipelines and these potential impacts on the pipelines, are addressed in the Jacobs report, in section 4, and special requirements are covered in the NPC report.

A Safety Management Study should be undertaken at the development application stage and the recommendations of this study be incorporated into the design of the buildings, landscaping and fencing or screens.

Should you require anything further, please contact the undersigned at any time.

Yours sincerely

Sam Khoury  
Australasian Institute of Dangerous Goods Consultants (AIDGC)

22 Virginius Street, Padstow, NSW 2211

• Business (0414) 964 892 • Home & Fax (02) 9772 3374

# **Attachment A**



**TO:** THIRD PARTY CONTRACTORS

**DATE:**

**RE:** Hunter Pipeline Company requirements for Third Party Activities over the Hunter Pipeline Easement.

Dear Sir,

Savcor ART Pty Ltd are contracted to Hunter Pipeline Company to patrol and maintain the Hunter Pipeline Company Multi Products Pipeline.

Caltex is the owner and operator of the Hunter Pipeline Company high pressure liquid petroleum products pipeline which carries refined petroleum products from the Caltex Refinery at Kurnell (Sydney) to various terminals in Newcastle, negating the need for about 45,000 road tankers per year between Sydney and Newcastle. The pipeline is a buried high tensile steel line which is fully wrapped in polyethylene coating, and protected from corrosion by a cathodic protection system. The maximum allowable operating pressure (MAOP) of the pipeline is 7,500 kPa. The pipeline is licensed under the Pipeline Act 1967 by the NSW Office of Energy, and complies with the Gas & Liquid Petroleum Pipelines Code, AS 2885.

Being buried underground, this pipeline is mainly invisible, except for the necessary warning signs which are placed at intervals along the route to inform any parties (such as persons excavating in the vicinity) of its presence. This pipeline is patrolled weekly from the ground to ensure that no activities (e.g. excavations, buildings etc) are being carried out over the pipeline easement which may hinder the pipelines operations/maintenance.

Please note the following requirements of Hunter Pipeline Company when it is your intention to carry out civil work on the Hunter Pipeline "Licensed Easement" (nominally at a width of 5 metres) as supplied here for your assistance in brief format only, and as such must not be considered as the total requirements.

1. Vehicle access 5 metres wide must be provided from a public road along the full length of the easement in each development.
2. The easement area is not to be used for any type of storage, but may be used for vehicle parking with appropriate approved surface material.
3. Vehicle access over the easement is limited to an axle loading of 8 Tonnes.

4. No trees may be planted on the easement. Specifically, the following tree species are not to be planted on or within 2 metres of the pipeline easement:

Populus Species	-	Poplar Tree
Cinnamomum	-	Camphor Laurel
Schinus Molle	-	Pepper Trees
Salix Species	-	Willow Trees
Erythrina Species	-	Coral Trees
Jacaranda Mimosifolia	-	Jacaranda Tree
Plantinus Species	-	- Plane Trees
Eucalyptus Species	-	Gums, Stringy Barks etc
Grevillea Robusta	-	Silky Oak
Fiscus Species	-	Fig Trees

5. No Structures may be constructed on the easement. Final design of all activities to be carried out over/near the licensed Hunter Pipeline Easement needs to be approved by Caltex Australia Petroleum Pty Ltd prior to works commencing.
6. Stormwater run off must not be discharged onto the easement.
7. Any drainage or excavation in the easement must be approved by Caltex prior to commencement. Any buried service crossing the pipeline must have 300mm clearance from the pipeline.
8. Any construction, included buried services, within 5 metres of the easement, and in the easement, must be supervised by our Line patrolmen Telephone 9663 2322. This supervision will generally be provided at no cost to the developer for works less than 1-day duration. The developer/contractor will generally be required to meet the costs of supervision for projects of more than one-day duration. Savcor ART Pty Ltd will provide a schedule of rates on application. Please provide 48 hours notice if this service is required.
9. No compaction by roller is permitted above the pipeline unless there is a minimum of 1.5 metres cover from the level to be compacted to the top of the pipe. Details of all compaction above the pipeline must be submitted to the undersigned for approval irrespective of the depth of cover.
10. Any structure close to the easement must be fully supported off the easement to enable an excavation generally 2 metres deep (to the bottom of our pipeline) along the adjacent edge of the easement to be dug without affecting the structures integrity. We request that detailed structural drawings be forwarded to us for review.

11. The pipeline is licensed by the NSW Ministry of Energy and Utilities. The Office will provide necessary support to ensure that the safety of the pipeline is not compromised. In particular, the following activities are disallowed by the Officer, where these activities represent a potential danger to the pipeline or its operation or interfere with free access at all times to all parts of the easement by the licensee and Official inspectors:
- a) Excavating, drilling or digging in the land.
  - b) Erecting or placing or permitting the erection of placing of any building structure, plant, apparatus or equipment, whether permanent or temporary, on, over or under the land
  - c) Altering or disturbing existing levels, contours or gradients of the land.
  - d) Planting or cultivating certain tree species upon the land.
  - e) Placing on or using any part of the land for the transport, carriage or support of any object, vehicle or implement which could in any way cause or be likely to cause damage to the pipeline.
  - f) Any other activity which represents a danger to the pipeline or its operation.

In the situation where Caltex gives permission for a third party to install a fence/gate across the pipeline easement, the approval would be given on the condition that an approved Caltex security chain, so that we have continued 24 – Hour access to the easement at all times.





In the case of underground directional drilling the pipelines must be adequately protected on all three sides (bottom & both sides) with steel plates to ensure protection from diverted drilling bit.

All works to be carried out within 5 metres of the High Pressure Multi Products Hunter Pipeline to be approved in writing by Caltex Australia Petroleum Pty Ltd. Savcor ART Pty Ltd must be given 48 hours ( 2 Normal Working Days) notice of all works to be carried out within 5 metres of the High Pressure Multi Products Hunter Pipeline so that all necessary pipe location and supervision can be organised.

For additional information please contact:

Caltex Australia Petroleum Pty Ltd

Hunter Pipeline Company

Mr Rob Moore  
Pipelines Co-ordinator

Phone No. 9695 3686  
Fax No. 9666 4453

Or

Savcor ART Pty Ltd

Mr David Watkins  
Pipelines Services Co-ordinator

Phone No. 9663 2322  
Fax No. 9663 1377

**CALTEX**

Caltex Australia Petroleum Pty Ltd ACN 000 032 128

Date:

Pipelines Control Centre  
Penrhyn Road,  
Banksmeadow NSW  
MAIL TO: PO Box 441,  
Matraville NSW 2036  
Ph: 02 9695 3688  
Fax: 02 9686 4453

To:

Att:

cc: David Watkins, Savcor Art Pty Ltd Fax: 9663 1377

Dear Sir/Madam,

Re:

Thank you for your enquiry about the Hunter Pipeline easement at . The material set out below provides you with some information on our pipeline and lists our standard requirements for any development in the vicinity of the pipeline easement.

Caltex Australia Petroleum Pty Ltd ('Caltex'), is the owner and operator of the Hunter Pipeline Company's (HPC) high pressure liquid petroleum products pipeline which carries refined petroleum products from the Caltex Refinery at Kurnell (Sydney) to various terminals in Newcastle, negating the need for about 45,000 road tankers per year between Sydney and Newcastle. The pipeline is a 350mm nominal diameter buried high tensile steel line that is fully wrapped in polyethylene coating, and protected from corrosion by a cathodic protection system. Gasoline and Diesel products that are transported by the pipeline are also dosed with a corrosion inhibitor for further protection. The maximum allowable operating pressure (MAOP) of the pipeline is 7,500 kPa. The pipeline is licensed under the Pipeline Act 1967 by the Department of Energy, Utilities and Sustainability, and complies with the Gas & Liquid Petroleum Pipelines Code, AS 2885 - 2001.

Being underground, the pipeline is not apparent from the surface, except for the necessary warning signs that are placed at intervals along the route to inform any other parties (such as persons excavating in the vicinity) of its presence. As part of the licence requirements, a weekly ground patrol is conducted to ensure that no activities (e.g. excavation, building, etc.) are being carried out over the pipeline that may hinder its operation or maintenance.

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Please note the following standard requirements of the Hunter Pipeline Company when carrying out any civil work in the vicinity of the Hunter Pipeline "Licensed Easement". Whilst these requirements are extensive, you may be required to comply with other specific requirements of the Hunter Pipeline Company as work progresses.

1. Final design of all activities must be approved by Caltex prior to any work over the pipeline easement commencing.
2. Detailed drawings of project design and its exact location to be supplied to Caltex.
3. Minimum finished depth of cover to the pipeline to be not less than 900mm
4. The developer may be required to fully expose the pipeline for Caltex to inspect its coating and carry out any repairs to same in the area of the project. (A clearance of approximately 300mm is required around the pipeline to enable inspection and any repairs.)
5. The pipeline must be accurately located using a water or air lance (pot holing) to ensure all proposed activity, crossings and structures remain clear as per noted elsewhere in this document.
6. The developer is to reconsolidate the ground after excavation; using fresh Sydney Washed River Sand to a minimum cover of 180mm around the pipeline prior to backfilling.
7. Excavations within 500mm of the pipeline are to be carried out by hand (shovel), not by machine.  
*Note: Civil works required under paragraphs 4, 5 & 6 above to be at the full cost of the Third Party Contractor.*
8. Vehicle Access 5 Metres wide must be provided from a public road along the full length of the easement in each development.
9. The easement area is not to be used for any type of storage, but may be used for vehicle parking with appropriate approved surface material.
10. Vehicle movements over the easement are limited to an axle loading of 8 Tonnes.
11. No trees may be planted on the easement. Specifically, the following tree species are not to be planted on or within 2 metres of the pipeline easement:

Populus Species	-	Poplar Tree
Cinnamomum	-	Camphor Laurel
Schinus Molle	-	Pepper Trees
Salix Species	-	Willow Trees
Erythrina Species	-	Coral Trees
Jacaranda Mimosifolia	-	Jacaranda Tree
Plantinus Species	-	Plane Trees
Eucalyptus Species	-	Gums, Stringy Barks, etc.
Grevillea Robusta	-	Silky Oak
Ficus Species	-	Fig Trees
12. No Structures may be constructed on the easement.
13. Stormwater run off must not be discharged onto the easement.

14. Any drainage or excavation in the easement must be approved by Caltex prior to commencement.
15. Any buried service crossing the pipeline must cross perpendicular to the pipeline and maintain a minimum of 300mm clearance from the pipeline.
16. Any construction, included buried services, within 5 Metres of the easement, and in the easement, must be supervised by a Line Patrolman from our Line Patrol Contractors Savcor Art Pty Ltd. Telephone 9663 2322. Please provide 48 Hours notice if this service is required. Supervision shall generally be provided free of charge for projects less than one day duration. The developer / contractor are generally required to meet the cost of supervision for projects of more than one day duration. Savcor Art can provide a schedule of rates on application.
17. No compaction by roller is permitted above the pipeline unless there is a minimum of 1.5 Metres cover from the level to be compacted to the top of the pipe. Details of all compaction above the pipeline must be submitted to the undersigned for approval irrespective of the depth of cover. Vibrating Rollers are **not** to be used over the pipeline easement, and the maximum static roller weight (with approval) is 8 tonnes.
18. Any structure close to the easement must be fully supported off the easement to enable an excavation generally 2 Metres deep (to the bottom of our pipeline) along the adjacent edge of the easement to be dug without affecting the structures integrity. We request that detailed structural drawings be forwarded to us for review.
19. No directional drilling operation is to be undertaken in the vicinity of the Caltex pipeline without prior approval from Caltex. Caltex require the pipeline to be completely exposed by excavation (such excavation work must be supervised by our line patrol contractor, Savcor Art) and heavy steel plates be laid vertically between the pipeline and the drilling rig. These steel plates must be impenetrable by the directional drill or any other type of boring machine used so that they afford full protection to the Caltex pipeline and the pipeline coating from any damage.
20. If any damage is done to the pipeline as a result of your works in the pipeline easement, you must:
  - (a) immediately notify the attending patrolman or, if no patrolman is present, immediately phone 1800 043 122;
  - (b) immediately take measures to minimise the extent of the damage to the pipeline and the amount of petroleum products lost from the pipeline;
  - (c) advise Caltex, via the undersigned, of the existence and extent of the damage to the pipeline within 30 minutes and comply with any directions given by Caltex;
  - (d) as soon as possible and at Caltex's option, either:
    - (i) repair the pipeline at your cost so as to return it to the condition it was in prior to the damage; or
    - (ii) pay to Caltex or HPC all costs incurred by Caltex or HPC in carrying out the necessary repairs to the pipeline to return it to the condition it was in prior to the damage occurring,
  - (e) undertake all necessary work to remediate any environment that becomes contaminated as a result of spillage from the pipeline; and
  - (f) indemnify Caltex and Hunter against other costs, expenses or losses sustained by Caltex and HPC as a consequence of the damage to the pipeline, including the cost of product spilled from the pipeline and costs incurred by Caltex and HPC associated with any investigation or prosecution by any regulatory body.



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The pipeline is licensed by the Department of Energy, Utilities and Sustainability. The Department will provide necessary support to ensure that the safety of the pipeline is not compromised. One of the licence conditions of the pipeline is that 24 Hour access is available in the event of an emergency (e.g. pipe rupture). Another condition is that the pipeline easement is to be patrolled at least once per week, and at least once per month by walking from end to end.

In the situation where Caltex gives permission for a third party to install a fence/gate across the pipeline easement, the approval would be given on the condition that an approved Caltex security lock be installed in series with the property owner's/tenant's lock on an agreed security chain, so that we have continued 24-Hour access to the easement at all times.

Please indicate your acceptance of the conditions contained in this letter by signing the attached duplicate in the appropriate place. Works in the pipeline easement must not be commenced until a signed copy of this letter is received from you. If you require any additional information, please contact the undersigned.

Yours sincerely,

Caltex Australia Petroleum Pty Ltd  
for Hunter Pipeline Company Pty Ltd



**Rob Moore**  
Pipelines Coordinator

Phone No. (02) 9695 3686  
Fax No. (02) 9666 4453

I agree, on behalf of ....., to comply with the conditions contained in this letter in undertaking civil works on or near the liquid petroleum products pipeline owned by Hunter Pipeline Company:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name (print)

\_\_\_\_\_  
Date