



# Amendment Notice 1

**Licence Number** L8239/2008/2

**Licence Holder** Water Corporation

**File Number:** DEC7565

**Premises** York Wastewater Treatment Plant  
Lot 460 on Diagram 91128  
Great Southern Highway  
YORK WA 6302

**Date of Amendment** 25/06/2018

## Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 25 June 2018

Rebecca Kelly  
MANAGER LICENSING – WASTE INDUSTRIES  
REGULATORY SERVICES (ENVIRONMENT)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

## Definitions and interpretation

### Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

| Term                          | Definition  |
|-------------------------------|---|
| Amendment Notice              | refers to this document   |
| Category/<br>Categories/ Cat. | categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations  |
| CEO                           | means Chief Executive Officer.<br>CEO for the purposes of notification means:<br>Director General<br>Department Administering the <i>Environmental Protection Act 1986</i><br>Locked Bag 33 Cloisters Square<br>PERTH WA 6850<br><a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a> |
| Delegated Officer             | an officer under section 20 of the EP Act   |
| Department                    | means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.   |
| DWER                          | Department of Water and Environmental Regulation  |
| EP Act                        | <i>Environmental Protection Act 1986</i> (WA)   |
| EP Regulations                | <i>Environmental Protection Regulations 1987</i> (WA)   |
| Existing Licence              | The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Amendment.  |
| Licence Holder                | Water Corporation   |
| Occupier                      | has the same meaning given to that term under the EP Act.   |
| Prescribed Premises           | has the same meaning given to that term under the EP Act.   |
| Premises                      | refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.  |
| Risk Event                    | as described in <i>Guidance Statement: Risk Assessment</i>  |

## Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

## Amendment description

This notice is limited only to an amendment to permit splitting the primary pond into two cells and install macerators and aerators; installing a sludge drying bed with a new hardstand; upgrading the pump station and installing a chlorinator.

The amendment also includes relocating the woodlot disposal infrastructure from its current location on the south-west corner of the wood lot to a central area west of the wastewater treatment plant (WWTP).

New woodlot infrastructure will be installed across three different stages, stage one and two will be built as part of this amendment. Stage three will be constructed as part of future upgrades.

Changes to the original Licence relating to Category 54 have been requested by the Licence Holder to increase the treatment capacity from 130 kilolitres per day to 200 kilolitres per day.

The Licence Holder has applied to upgrade the Wastewater treatment facility to increase the capacity and relocate the woodlot irrigation scheme. The Licence Holder has proposed to undertake the following works:

1. Splitting the primary pond into two cells and install a macerator and aerators;
2. Installing a sludge drying bed with a new hardstand;
3. Relocation of the existing 7ha of irrigation area to a more suitable area within the 140ha woodlot (Stage 1);
4. Construction of an additional 7ha irrigation area (Stage 2);
5. Design of an additional 9ha for Stage 3 of woodlot irrigation (future expansion);
6. Installation of chlorine disinfection system with a supervisory control and data acquisition system (SCADA);
7. Installation of a control system to manage supply to woodlot irrigation; and
8. Construction of a pump station with flow meter for reuse to the woodlot.

## Location and Characteristics

A treelot for sandalwood cultivation was planted in June 2007 on the south side of the York WWTP under an agreement with the Forest Products Commission.

The York WWTP site is 159 ha in size and includes a 500 meter buffer zone. It is located at approximately 3km south of York Township and 200m south east of the Great Southern Highway. There is rural land located to the south and west sides of the York WWTP and parks and recreation to the north east of the site. The WWTP is located within the Avon River catchment and is situated at approximately 250m from the Avon River.

### Water Course

The nearest major watercourse is the Avon River situated at approximately 250 metres east of the premises (GIS dataset: Hydrography Linear [Medium Scale, 250k GA]).

There are several minor non-perennial watercourses identified within the cadastral boundaries of the premises (GIS dataset: Hydrography Linear).

### Groundwater

Depth to groundwater is between 2 and 7.6 mbgl according to groundwater modelling undertaken by GHD in 2014.

The groundwater samples show some salinity but at a much lower level than the Avon River. The nitrogen levels were elevated and this is attributed to the previous agricultural land uses at the site and in the local area. Soil testing also showed significantly high nitrogen levels within the soil on site (GHD, 2015).

### Soil Types

Four characteristic soil profiles were identified during site investigation work undertaken by GHD in 2014 and documented in the Site Investigation Report (GHD, 2015) and these are conceptualised in Figure 1 and described below.

The soil profiles are dominated by sands at the surface, underlain by gravelly sand to sandy clay and weathered granitic bedrock usually encountered before 2 metres below ground.

### Offsite water movement

The areas to be irrigated are to the south west of the WWTP. The irrigation zones are more than 650m from the Avon River and a buffer area of 50m has also been included between the irrigation zones and adjacent gullies on the site which flow in a north-easterly direction to the Avon River during storm events. The unirrigated areas of the woodlot downslope from the irrigated zones provide a buffer area between the irrigation zone and the Avon River.

The contour drains collect and detain rainfall generated runoff such that the “first flush” should be retained on site and be infiltrated.

## Discharges to Land

Water Corporation will discharge treated wastewater to its sandalwood lots located on the premises for irrigation. It will be a planned discharge of 58 ML per year on the total irrigation area of 14ha.

In relation to this amendment of the licence, Water Corporation advised that an estimate of the nutrient loads to be discharged on the irrigation area are as follows:

- Inorganic nitrogen 21.2 kg/ha/year
- Reactive phosphorus 13.3 kg/ha/year

The concentration of total nitrogen and phosphorous are significantly lower than the threshold

set out in nutrient application criteria for risk category C soils of 300kg/ha/y for inorganic nitrogen and 50kg/ha/y for filterable reactive phosphorous (DoW 2008). Category C has been chosen due to Avon River tributaries being <500m from the irrigation area.

Treated wastewater from the York WWTP has long term (2000-2014) average quality of:

- TN 21.6 mg/L
- TP 7.7 mg/L.

Model for Effluent Disposal using Land Irrigation (MEDLI) software was used by GHD to determine appropriate irrigation rates and areas. Leaching of nitrate and phosphate below the irrigated soil profile were predicted by MEDLI. Phosphate (as P) leaching is predicted to occur at a rate of 0.1-0.3 kg/ha/y depending on the irrigation stage and scenario and nitrate (as N) leaching is predicted at a rate of 2.1-13.2 kg/ha/y.

These results indicate that of the nutrients applied in the irrigation water, 98% or more of the phosphorus applied is taken up or adsorbed. Nitrogen leaching to groundwater was therefore considered the major risk of this irrigation proposal, although application rates were within the guideline limits discussed above. The effect of nitrogen leaching to groundwater below the proposed irrigation areas was investigated in the GHD study (GHD, 2015) using groundwater modelling program MODFLOW.

According to the GHD results of the groundwater modelling indicate that the proposed irrigation strategy developed in the MEDLI and water balance modelling, which targets minimising nutrient leaching and runoff and where possible, providing sufficient irrigation to maintain a reasonable level of plant health, have been found to result in minimal negative impact to overall aquifer water quality. The modelling indicates that by maintaining some level of plant development, the site's ability to use available nitrogen is increased, and results in reduced leaching when compared to the current disposal regime.

Monitoring is undertaken on a quarterly basis at the outlet of the tertiary treatment pond just prior to the storage dam that lies adjacent to the treatment ponds. A magflow meter will be installed at the pump station to more accurately measure wastewater discharge volume to the onsite storage pond prior to irrigation.

## Amendment history

Table 2 provides the amendment history for L8239/2008/2

**Table 2: Licence amendments**

| Instrument   | Issued         | Amendment   |
|--------------|----------------|---|
| L8239/2008/1 | 22 April 2010  | New Licence application – increased throughput  |
| L8239/2008/1 | 20 June 2014   | Amendment – include irrigation to sandalwood lot                                      |
| L8239/2008/1 | 07 August 2014 | Amendment – increase throughput   |
| L8239/2008/2 | 20 April 2015  | Licence amendment included in the re-issue to include on site irrigation of woodlots. |

## Location and receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 3: Receptors and distance from activity boundary**

| Residential and sensitive premises | Distance from Prescribed Premises boundary  |
|------------------------------------|---|
| Residential Property               | 260 m south of WWTP & woodlot boundary (365 m from irrigation area)               |
| Residential Property               | 50 m east of WWTP & woodlot boundary (400 m from the irrigation area)             |
| Residential Property               | 790 m west of WWTP & woodlot boundary (900 m from the irrigation area)            |
| Industrial Property                | 540 m north of WWTP & woodlot boundary (1000 m from the irrigation area and WWTP) |

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 4: Environmental receptors and distance from activity boundary**

| Environmental receptors  | Distance from Prescribed Premises   |
|--|---|
| Groundwater  | Depth to groundwater is between 2 and 7.6 mbgl according to groundwater modelling undertaken by GHD in 2014.  |
| Avon River   | Approximately 250m from WWTP and woodlot boundary.<br><br>(located approximately 430 m to the north east of the WWTP and 500m north east of the woodlot irrigation sites). Refer to Figure 4. |
| A small watercourse occurs through the prescribed premises from the eastern boundary to the western boundary | The watercourse runs adjacent to the stage one irrigation area and flows in a north-easterly direction into the Avon River. Refer to Figure 4.  |

## Risk assessment

Tables 5 and 6 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

**Table 5: Risk assessment for proposed amendments during construction**

| Risk Event             |                                |  |  |                            | Consequence rating | Likelihood rating | Risk | Reasoning  |
|------------------------|--------------------------------|--|--|----------------------------|--------------------|-------------------|------|--|
| Source/Activities      | Potential emissions            | Potential receptors  | Potential pathway  | Potential adverse impacts  |                    |                   |      |  |
| Cat 54 Sewage Facility | Construction of infrastructure | <b>Dust:</b><br>From vehicle movements and construction activities | Residents:<br><ul style="list-style-type: none"> <li>260 m south of WWTP and woodlot boundary (365 m from irrigation area)</li> <li>50 m east of WWTP and woodlot boundary (400 m from the irrigation area)</li> <li>790 m west of WWTP and woodlot boundary (900 m from the irrigation area)</li> </ul> Air | Health and amenity impacts | Slight             | Possible          | Low  | The Delegated Officer has determined that due to the short construction timeframe and the nature of the construction works dust, noise and odour impacts are likely to be low and can be adequately regulated under the general provisions of the EP Act |
|                        |                                | <b>Noise:</b><br>From construction machinery                       |  | Health and amenity impacts | Slight             | Possible          | Low  |  |
|                        |                                | <b>Odour:</b><br>From splitting the primary pond into two cells    |  | Health and amenity impacts | Slight             | Possible          | Low  |  |

**Table 6: Risk assessment for proposed amendments during operation**

| Risk Event             |   |  |   |                                | Consequence rating  | Likelihood rating | Risk     | Reasoning |  |
|------------------------|---|--|---|--------------------------------|---|-------------------|----------|-----------|--|
| Source/Activities      |   | Potential emissions  | Potential receptors   | Potential pathway              |   |                   |          |           | Potential adverse impacts  |
| Cat 54 Sewage Facility | The operation of splitting the primary pond, new sludge drying bed, chlorinator and associated infrastructure | Odour:<br>From the storage of treated wastewater and chlorine                    | Residents: <ul style="list-style-type: none"><li>• 260 m south of WWTP and woodlot boundary (365 m from irrigation area)</li><li>• 50 m east of WWTP and woodlot boundary (400 m from the irrigation area)</li><li>• 790 m west of WWTP and woodlot boundary (900 m from the irrigation area)</li></ul> | Air                            | Health and amenity impacts  | Minor             | Rare     | Low       | The Delegated Officer considers the risk profile of odour emissions is not altered by the proposed changes to infrastructure and therefore the risk rating of Low remains.               |
|                        |   | Treated sewage:<br>From the unintended failure of any containment infrastructure | Groundwater   | Seepage                        | Impacts to groundwater quality  | Minor             | Possible | Medium    | The Delegated Officer considers there is a possible pathway to groundwater through the soil.   |
|                        |   |  | Soil  | Direct emission, overland flow | Impacts to soil quality and ecosystems.<br><br>Health risk to humans or animals accessing the land. | Moderate          | Possible | Medium    | The Delegated Officer considers the risk profile of treated sewage emissions is not altered by the proposed changes to infrastructure and therefore the risk rating of Moderate remains. |



| Risk Event        |  |                                       |   |                               |   | Consequence rating | Likelihood rating | Risk   | Reasoning  |
|-------------------|--|---------------------------------------|---|-------------------------------|---|--------------------|-------------------|--------|--|
| Source/Activities |  | Potential emissions                   | Potential receptors   | Potential pathway             | Potential adverse impacts   |                    |                   |        |  |
|                   |  |                                       | Avon River and tributaries  | Overland flow                 | Impacts to surface water quality.<br><br>Health risk to humans or animals accessing the water source. | Moderate           | Possible          | Medium | The storage of chlorine was not previously assessed. The Delegated Officer considers the risk to be low due to the containment infrastructure and management measures implemented at the premises. |
|                   |  | Chlorine:<br>From any spills or leaks | Residents: <ul style="list-style-type: none"><li>260 m south of WWTP and woodlot boundary (365 m from irrigation area)</li><li>50 m east of WWTP and woodlot boundary (400 m from the irrigation area)</li></ul> 790 m west of WWTP and woodlot boundary (900 m from the irrigation area) | Direct contact, overland flow | Health impacts  | Minor              | Rare              | Low    |  |
|                   |  |                                       | Avon River  | Overland flow                 | Impacts to surface water quality.<br><br>Health risk to humans or animals accessing the water source  | Minor              | Rare              | Low    |  |

| Risk Event        |                           |  |                            |                                |   | Consequence rating | Likelihood rating | Risk   | Reasoning  |
|-------------------|---------------------------|--|----------------------------|--------------------------------|---|--------------------|-------------------|--------|--|
| Source/Activities |                           | Potential emissions  | Potential receptors        | Potential pathway              | Potential adverse impacts   |                    |                   |        |  |
|                   | Irrigation of the woodlot | Treated Wastewater:<br>From over-irrigation of the woodlot or leaks from the pipes | Groundwater                | Seepage                        | Impacts to groundwater quality  | Minor              | Possible          | Medium | The Delegated Officer considers the risk profile of treated sewage emissions is not altered by the proposed changes to infrastructure and therefore the risk rating of Medium remains.<br><br>A maximum of 58 ML of TWW will be irrigated on the woodlot annually for effluent inflows up to 200 kL/day.   |
|                   |                           |  | Onsite                     | Direct emission, overland flow | Impacts to soil quality and ecosystems.<br><br>Health risk to humans or animals accessing the land.   | Moderate           | Possible          | Medium |  |
|                   |                           |  | Avon River and tributaries | Overland flow                  | Impacts to surface water quality.<br><br>Health risk to humans or animals accessing the water source. | Moderate           | Possible          | Medium | The resulting nutrient application rates to the woodlot are 21.2 kg/ha/year of inorganic nitrogen and 13.3 kg/ha/year of reactive phosphorus across a 14 ha disposal site.<br><br>The maximum application rate meets the DWER WQPN 22 guidelines for maximum nutrient application guidelines for risk category C.<br><br>Category C is: 300 kg/ha/yr for inorganic nitrogen and 50 kg/ha/yr of filterable reactive phosphorus.<br><br>The area chosen for irrigation is located to |

| Risk Event        |  |                     |                     |                   |                           | Consequence rating | Likelihood rating | Risk | Reasoning   |
|-------------------|--|---------------------|---------------------|-------------------|---------------------------|--------------------|-------------------|------|---|
| Source/Activities |  | Potential emissions | Potential receptors | Potential pathway | Potential adverse impacts |                    |                   |      |   |
|                   |  |                     |                     |                   |                           |                    |                   |      | <p>maximise the distance from the Avon River and is crossed by large interceptor contour banks. These are blocked at various locations and will catch and hold any run off from the premises.</p> <p>The distance to groundwater is greater than 2 meters. The soil profile shows bedrock within 2 meters of the surface.</p> <p>Grass is grown between the sandalwood trees to increase the nutrient uptake and is cut and exported offsite.</p> <p>Outcome based conditions 2-12 are in the existing licence.</p> |

## Decision

The Delegated Officer has determined that the risk profile of emissions is not altered by the proposed construction and operation of the new infrastructure. Therefore, the licence will be amended to authorise the construction and operation of the infrastructure, and no additional control measures are required.

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 16 May 2018. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

## Amendment

1. Definitions of the Licence are amended by the insertion of the red text shown in underline below:

**“Works”** refers to the Works described in Table 5.1.1 at the locations shown in Schedule 1 of this Licence to be carried out subject to the Conditions.

2. The Licence is amended by the insertion of the following Conditions 5.1.1 to 5.1.4 and Table 5.1.1:

### **5. Works**

#### **5.1 Authorised works**

*5.1.1 The Licence Holder must install and undertake the Works for the infrastructure and equipment:*

- (a) *specified in Column 1;*
- (b) *to the requirements specified in Column 2; and*
- (c) *at the location specified in Column 3*

*of Table 5.1.1 below.*

*5.1.2 The Licence Holder must not depart from the requirements specified in Column 2 of Table 5.1.1 except:*

- (a) *where such departure does not increase risks to public health, public amenity or the environment; and*
- (b) *all other Conditions in this Licence are still satisfied.*

*5.1.3 Subject to Condition 5.1.1, within 30 days of the completion of the Works specified in Column 1 of Table 5.1.1, the Licence Holder must provide to the CEO a report with photographs confirming each item of infrastructure or component of infrastructure specified in Column 1 of Table 5.1.1 below has been constructed with no material defects and to the requirements specified in Column 2.*

*5.1.4 Where a departure from the requirements specified in Column 2 of Table 5.1.1 occurs and is of a type allowed by Condition 5.1.2, the Licence Holder must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 5.1.3.*

**Table 5.1.1: Infrastructure and equipment requirements table**

| Column 1  | Column 2   | Column 3  |
|---|--|---|
| Infrastructure/<br>Equipment  | Requirements (design and construction)   | Site plan<br>reference                                |
| New Hard Stand Area for Dewatering Sludge from the Primary Pond split             | <ul style="list-style-type: none"> <li>A new sludge hardstand area for dewatering will be constructed adjacent to the existing storage dam.</li> <li>The sludge area will be lined (HDPE with a hydraulic conductivity of <math>1.3 \times 10^{-11}</math> m/d at 1.5 mm thickness) and bunded to the height of 0.3 m. This will only be lined in times of desludging.</li> <li>A leachate drain will be constructed from the new sludge hardstand area to the existing pond system.</li> <li>The HDPE pond dimensions will be approximately 46 m x 20 m.</li> </ul>   | Figure 2 & 3:<br>Sludge Drying Bed and Leachate Drain |
| Splitting the Primary Pond into two separate Pond Cells and installation Aerators | <ul style="list-style-type: none"> <li>The primary pond will be drained and dried sending water from the primary to the secondary pond and sludge to be stored in the newly lined and constructed (HDPE 1.5 mm Thick Liner) sludge drying bed.</li> <li>In order to isolate the secondary pond from the upstream primary pond, a temporary isolation of the existing DN255 PVC connection between the Primary Pond and Second Pond, will be installed at the inlet to the secondary pond.</li> <li>A wall separator will be installed in the middle of the primary pond and a gravity pipe will act as a connection between the cells. This will allow the primary pond to be split into aeration and sedimentation cells with pond 1 cell 1 containing aerators and pond 1 cell 2 to be the sedimentation.</li> </ul> | Figure 2:<br>Primary Pond Cell 1 & 2                  |
| Installation of a Macerator on the Inlet  | <ul style="list-style-type: none"> <li>A macerator will be installed on the primary pond inlet to pulp rags and other foreign matter into fine particulates so that it settles to the bottom of the primary pond for future removal via desludging</li> </ul>  | Figure 2:<br>Primary Pond Cell 1                      |
| Installation of a New Pump Station and magflow meter                              | <ul style="list-style-type: none"> <li>A new pump station will be installed to maintain flows to the woodlot. The pump station infrastructure will be installed adjacent to the storage pond.</li> <li>A magflow meter will be installed on the infrastructure to record volumes sent to the woodlot irrigation.</li> </ul>  | Figure 2:<br>Storage Pond                             |

| <b>Column 1</b>  | <b>Column 2</b>   | <b>Column 3</b>  |
|--|---|--|
| <b>Infrastructure/<br/>Equipment</b>                     | <b>Requirements (design and construction)</b>   | <b>Site plan<br/>reference</b>                                 |
| <i>Diesel Generator and<br/>Fuel Tank</i>                | <ul style="list-style-type: none"> <li>• A permanent diesel generator and fuel tank will be installed in the new compound.</li> <li>• The fuel tank will have a capacity to hold 4535 L, the above ground tank will be double walled with the outer wall constructed to contain 110% of the inner tank volume.</li> </ul>   | <i>Figure 2:<br/>Diesel<br/>Generator</i>                      |
| <i>Installation of a gas<br/>chlorination module</i>     | <ul style="list-style-type: none"> <li>• A gaseous chlorination module will be installed adjacent to the storage pond with a 30m Chlorine Public Exclusion Buffer.</li> <li>• The module will chlorinate the TWW re-use water.</li> <li>• Chlorine dosing will occur to the pipeline (inline waste stream).</li> <li>• Residual chlorine in the stream will range from 0.2-2.0mg/L.</li> </ul>  | <i>Figure 2:<br/>Chlorine<br/>Module<br/>Compound</i>          |
| <i>Installation of Control<br/>Systems</i>               | <ul style="list-style-type: none"> <li>• SCADA based systems will be installed in the Chlorine Module Compound to manage supply to the woodlot irrigation scheme, including a water level management control systems for the 12 ML storage pond at the WWTP.</li> </ul>   | <i>Figure 2:<br/>Chlorine<br/>Module<br/>Compound</i>          |
| <i>Upgrades to the<br/>Woodlot Irrigation<br/>Scheme</i> | <ul style="list-style-type: none"> <li>• The Woodlot Irrigation Scheme irrigation area will be relocated to the areas indicated in Figure 3.</li> <li>• Only stage one and two will be constructed as part of these works.</li> <li>• New irrigation solenoid valves and associated pipe work will be included in the upgrades for the irrigation system and the Woodlot Irrigation Scheme will have a new flow through capacity of 200 kL/day.</li> <li>• A maximum of 58 ML of TWW will be irrigated on the 14 ha woodlot annually for effluent inflows up to 200 kL/day.</li> <li>• A maximum of 300 kg/ha/yr for inorganic nitrogen and 50 kg/ha/yr of filterable reactive phosphorus shall be applied to the irrigation area.</li> </ul> | <i>Figure 4:<br/>Woodlot<br/>Irrigation stage<br/>1 &amp;2</i> |





**Figure 3: WWTP Site Map**

The location of infrastructure as specified in Table 5.1.1 is shown on the site map below





**Figure 4: Irrigation Site Map**

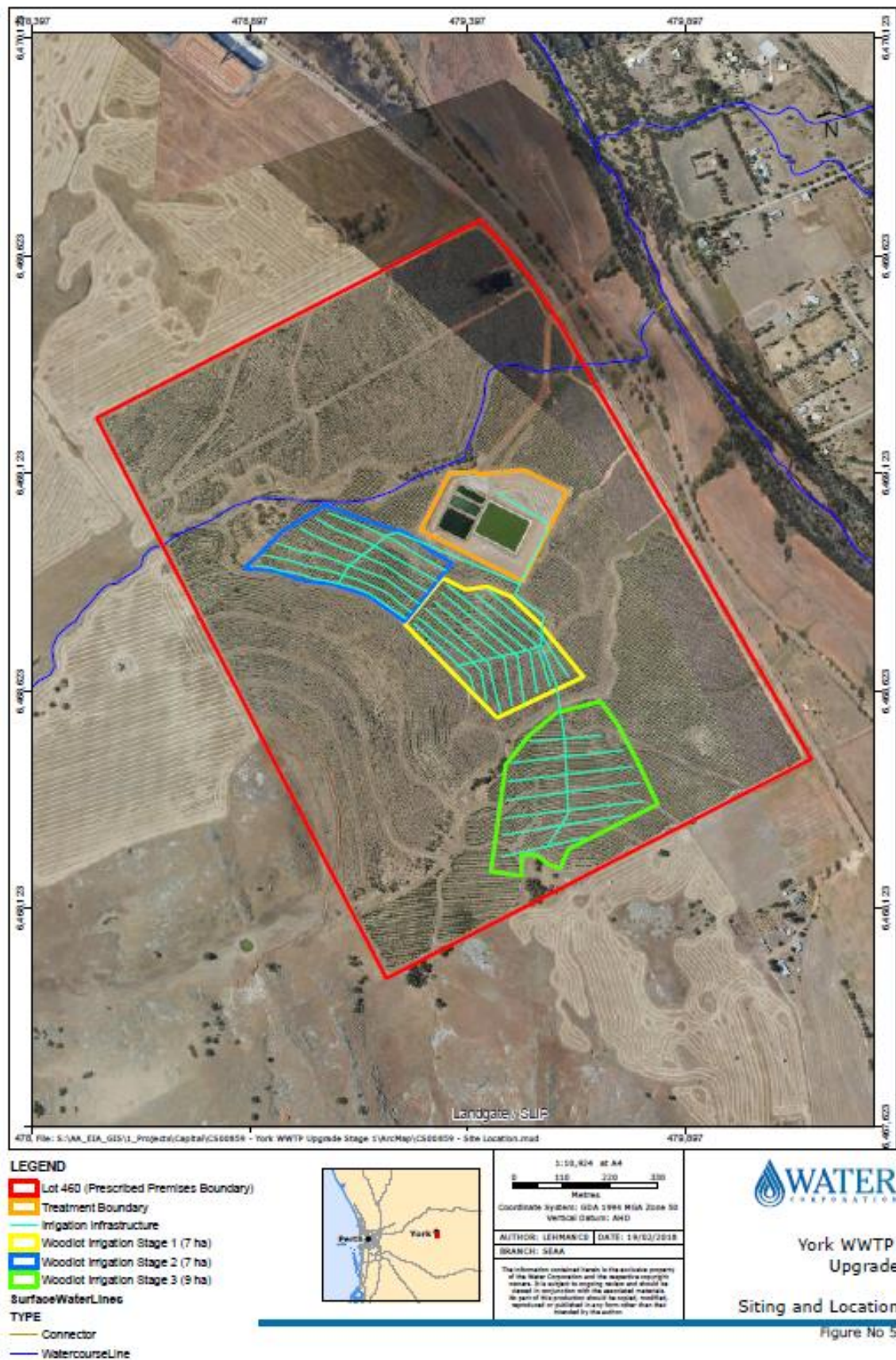
The location of infrastructure as specified in Table 5.1.1 is shown on the site map below



**Figure 5: Surface Water Location**



The location of watercourses is show on the site map below



## Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 16 May 2018 for review and comment. The Licence Holder responded on 7 June 2018. The following comments were received on the draft Amendment Notice.

| Condition/<br>Section of the Draft<br>Licence (pg. no.) | Summary of Licence Holder comment  | Requested Change  | DWER response                      |
|---|--|---|------------------------------------|
| Amendment<br>Description (pg. 4)<br>Item 1.             | <i>Splitting the primary pond into two cells and install macerators and aerators.</i><br>Only one macerator is being installed   | Splitting the primary pond into two cells and install a macerator and aerators.   | DWER accepts the requested change. |
| Offsite water<br>movement (pg. 5)                       | <i>The areas to be irrigated are to the south of the WWTP.</i><br>The irrigation area is to the south west of the WWTP.  | The areas to be irrigated are to the south west of the WWTP.  | DWER accepts the requested change. |
| Discharges to Land<br>(pg. 6)                           | <i>A 'V' notch flume measuring device will be replaced with a magflow meter to more accurately measure wastewater discharge volumes to the onsite storage pond prior to irrigation.</i><br>This is incorrect. The 'V' notch flume will not be removed as a result of this project and will remain in-situ. A magflow meter will be installed at the pump station infrastructure to accurately measure flows to the woodlot.  | A magflow meter will be installed at the Pump Station.  | DWER accepts the requested change. |
| Discharges to Land<br>(pg. 6) and Table 6<br>(pg. 11)   | <i>Soil moisture probes will be used as a monitoring tool within the irrigation zone.</i><br><i>Irrigation schedules will be manually adjusted where necessary based on information from probes.</i><br><i>Soil moisture probes will be used to adjust the irrigation schedule where required.</i><br><br>In the Licence Amendment application describing the project, there is no mention of soil moisture probes and they do not form part of the control process to prevent over watering of the woodlot. | Water Corporation requests all references to soil moisture probes be removed from the final Licence Amendment document. | DWER accepts the requested change. |
| Table 5.1.1 (pg. 14)<br>Column 1                        | <i>New Hardstand Area and Dewatering Area for the Primary Pond split.</i><br><br>This can be interpreted that two new areas are being constructed whereas it is only one area.   | A new Hard Stand for dewatering of the Primary Pond split.  | DWER accepts the requested change. |
| Table 5.1.1 (pg. 14)                                    | <i>The sludge area will be lined (HDPE with a hydraulic</i>  |   | DWER accepts the                   |

| Condition/<br>Section of the Draft<br>Licence (pg. no.) | Summary of Licence Holder comment   | Requested Change  | DWER response                      |
|---|---|---|------------------------------------|
| Column 2  | <p><i>conductivity of .....)</i></p> <p>All this is correct; however, the Water Corporation would like to clarify that the HDPE lining will only be in place during desludging. Upon the conclusion of desludging the HDPE lining will be removed and appropriately disposed of. A new HDPE liner will be laid down over the sludge drying bed just prior to the next desludging event.</p> | The sludge area will be lined during desludging only (HDPE with a hydraulic conductivity of .....). | requested change.                  |
| Table 5.1.1 (pg. 14)<br>Column 2                        | <p><i>A leachate drain from the new sludge hardstand area to the existing secondary pond will be constructed.</i></p> <p>The leachate will not be diverted to the Secondary Pond, it will be sent to the Primary Pond Cell 2.</p>   | A leachate drain will be constructed from the new Sludge Hardstand Area to the Pond System.         | DWER accepts the requested change. |
| Table 5.1.1 (pg. 14)<br>Column 2                        | <p><i>The HDPE pond dimensions will be 46 m X 20 m.</i></p> <p>The HDPE liner will be removed at the completion of each desludging operation.</p>   | The sludge drying pond dimensions will be approximately 46 m X 20 m.                                | DWER accepts the requested change. |
| Table 5.1.1 (pg. 14)<br>Column 1                        | <p><i>Splitting the Primary Ponds into two separate pond Cells and Installation of 2 Fush Jet Aspirator Aerators.</i></p> <p>The Fush Jet Aspirator Aerators is incorrect and the make of the aerators is currently under discussion.</p>   | Splitting the Primary Ponds into two separate pond cells and installation of off aerators.          | DWER accepts the requested change. |
| Table 5.1.1 (pg. 14)<br>Column 2                        | <p><i>A new pump station will be installed to maintain flows to the woodlot. The Pump station infrastructure will be installed adjacent to the primary pond.</i></p> <p>This is incorrect, the pump station will be installed adjacent to the Storage Pond.</p>   | The pump station infrastructure will be installed adjacent to the Storage Pond.                     | DWER accepts the requested change. |
| Table 5.1.1 (pg. 15)<br>Column 2                        | <p><i>A gaseous chlorination module will be installed adjacent to the primary pond.....</i></p> <p>This is incorrect, the chlorination module will be installed adjacent to the Storage Pond.</p>   | A gaseous chlorination module will be installed adjacent to the Storage Pond.....                   | DWER accepts the requested change. |
| Table 5.1.1 (pg. 15)<br>Column 3                        | <i>SCADA based systems will be installed to manage supply to the woodlot irrigation scheme, including water level management control systems for the 12 ML storage pond at</i>  | SCADA based systems will be installed in the Chlorination Module Compound.                          | DWER accepts the requested change. |

| Condition/<br>Section of the Draft<br>Licence (pg. no.) | Summary of Licence Holder comment   | Requested Change | DWER response |
|---|---|------------------|---------------|
|   | <i>the WWTP.</i><br><br>The SCADA system will be installed within the Chlorination Module Compound. |                  |               |