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Assessment of Significance:

Upgrading the existing Webster Street for the provision of a flood evacuation route for the upgrading of the existing Deepwater Motorboat Club, Milperra.

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1.0 Introduction

The proposal is to upgrade the existing access to the Deepwater Motorboat Club to provide a safe evacuation route in times of flooding of the Georges River. The Deepwater Motorboat Club is located at Number 30 and 31 Webster Street, Milperra. Webster Street is an approximately 540 m long straight road through Deepwater Park from Henry Lawson Drive in the east to the Deepwater Motorboat Club site in the west (Figures 1a, 1b). Webster Street and adjoining Henry Lawson Drive were constructed prior to 1943 (Figure 1c).

This report assesses the significance of the impact of the proposal to upgrade Webster Street (Figures 2a, 2b, 2c-1 to 2c-4) on listed conservationally significant local native vegetation (Figures 3a, 3b). The road chainages are along the centre line of the proposed new road alignment based on a zero chainage coincident with the intersection with Henry Lawson Drive (Figures 2c-1).

The vegetation along Webster Street in Deepwater Park has been surveyed in eight Quadrats (Quadrats 24, 25, 26, 27, 28, 29, 30, 31), 23 Observation Points (Figure 3a, with data in Tables A1 to A3 and photographs in Appendices of Clements *et al.* dated 10 March 2014) and six additional observations of trees south of the existing road (recordings in Table 1, photographs in Appendix 1).

The vegetation adjoining Webster Street (sampled in Quadrats 24, 25, 26, 27, 28, 29, 30, 31, Figure 1) satisfies the listed criteria for the following endangered ecological communities under the NSW Threatened Species Conservation Act 1995:

Endangered ecological communities	**Quadrat**	**Location adjoining Webster Street**
Cooks River Castlereagh Ironbark intergrade with Shale Gravel Transition Forest	26, 27, 29, 30, 31	to the north and south of approximately 200 m eastern section of the road
Swamp Oak Floodplain Forest (on original soil, not on mounds)	28	to the north of western section of the road
Not meeting criteria of any of the listed communities	24, 25	to the south of the western section of road

Flora constraints were recorded between Observation Point 1 (approximate Chainage 32 m west of Henry Lawson Drive) and Observation Point 12 (approximate Chainage 220 m) adjoining the existing Webster Street in Deepwater Park. North and south of Webster Street from the intersection with Henry Lawson Drive to approximate Chainage 220 m is relatively intact, bush-regenerated, native bushland.

Along the remainder of Webster Street, west from Chainage 220 m, the vegetation consisted of:

- south of the existing road - generally scattered trees with a mown understorey; and
- north of the existing road - a mosaic of disturbed vegetation including Swamp Oak Floodplain Forest on the areas of original soil, and low lying areas colonised by *Phragmites australis* and tidal channels colonised by Mangroves.

On the southern side adjoining Webster Street from Chainage 220 m (Observation Point 12) to the Clubhouse entrance at Chainage 540 m, there was no intact native vegetation. The vegetation consisted of mown grassy understorey with scattered native trees and patches of native trees. Two patches with native canopy species were sampled (Quadrats 24, 25). In these quadrats there was mown and unmown

grass, mainly the exotic lawn grass *Pennisetum clandestinum* (Kikuyu Grass), with the following vegetation structure:

Stratum	Quadrat 24 on low lying land with drainage ditch	Quadrat 25 with picnic table
Canopy		
Projected foliage cover	25%	20%
Eucalyptus moluccana	scattered individuals up to 22 m tall	scattered individuals up to 22 m tall
Casuarina glauca	a clump of 6 individual up to 15 m tall	an individual 13 m tall
Subcanopy		
Projected foliage cover	15%	2%
Melaleuca decora		an individual 7 m tall
Melaleuca styphelioides	scattered individuals up to 10 m tall	scattered individuals up to 8 m tall
Shrubs		
Projected foliage cover	0%	0%
Native grasses		
Projected foliage cover	2%	5%
Native herbs		
Projected foliage cover	5%	<1%
Exotic		
Projected foliage cover	90%	25%
	mainly *Pennisetum clandestinum* (Kikuyu Grass)	mown understorey
Bare ground	2%	60%

There are potential drainage issues for the western 320 m section to the north of the proposed upgrade of Webster Street. The flora constraints adjoining the 540 m long Webster Street are as follows:

Chainage	Observation Point and location of trees south of the road	Observations of extent of unconstrained vegetation	Endangered ecological community recorded
0 m	surveyed centre line of Henry Lawson Drive		
32.0 m	1 (north of road)	*Acacia pubescens* recorded. Relatively to semi-intact vegetation.	Yes. North and south. *Cooks River Castlereagh Ironbark* intergrade with *Shale Gravel Transition Forest* Sampled in Quadrats 26, 27, 29, 30, 31
34.0	2 (north of road)	corner of entrance - six plants of *Acacia pubescens* sighted. Intact vegetation	
48.0	3 (north of road)	fenceline changes direction - at least a 2 m buffer of bare ground from fence to current bitumen edge with intact vegetation beyond fence.	
37.0	4 (south of road)	1 m buffer of bare ground from bitumen edge to fenceline and then intact vegetation	

Chainage	Observation Point and location of trees south of the road	Observations of extent of unconstrained vegetation	Endangered ecological community recorded
78.5	5 (south of road)	2 m of cleared bare ground from bitumen edge	
80.0	6 (north of road)	1 m of bare road verge (bare ground) to fenceline and vegetation	
115.0	7 (north of road)	1 m of bare road verge (bare ground) to fenceline and 1 m cleared beyond fenceline	
116.0	8 (south of road)	almost 2 m of bare road verge between bitumen edge and fenceline	
181.0	9 (south of road)	1 m of bare road verge between bitumen edge and fenceline with intact vegetation	
179.0	10 (north of road)	about 1 m of bare road verge to fenceline, then 0.5 m to vegetation. Walking track enters bushland to north	
193.0	11 (north of road)	fenceline ends on north of Webster Street	
217.5	13 (north of road)	*Casuarina glauca* recruitment on mound at 0.5 m from road edge	MARGINAL. regenerating *Swamp Oak Forest* adjoining Mangroves. Drainage issues
218.3	12 (south of road)	Boundary of intact vegetation and open mown parkland with scattered trees.	Yes North. *Cooks River Castlereagh Ironbark* intergrading with *Shale Gravel Transition Forest*
	After 12 (south of road)	**No intact vegetation for remainder of Webster Street to Clubhouse entrance on southern side from Observation Point 12. However, there may be drainage issues.**	Drainage issues
237.0	14 (north of road)	Open degraded area with mounding to 4 m in from road edge and about 20 m long (along road)	
268.7	15 (north of road)	*Casuarina glauca* on mounds and *Phragmites australis* patch on lower land	MARGINAL. Drainage issues
270	Location F (south of road)	2x *Eucalyptus moluccana* to 20 m tall at 2 m from the edge of carparking bays	Potential loss of: 2x *Eucalyptus moluccana*
290-300	Location A (south of road)	1x *Melaleuca styphelioides* (7 m tall) 2x *Casuarina glauca* (5 m tall). 5 m further south (away from road) 3x *Eucalyptus moluccana* (20 m tall).	Loss of: 1x *Melaleuca styphelioides* and 2x *Casuarina glauca*
310.2	16 (north of road)	*Casuarina glauca* on mounds - drainage line with mangroves	MARGINAL. Drainage issues sampled in Quadrat

Chainage	Observation Point and location of trees south of the road	Observations of extent of unconstrained vegetation	Endangered ecological community recorded
		further north - 6 m off road.	28
320	Location B (south of road)	150-300 m^2 area of *Casuarina glauca* and *Melaleuca styphelioides* adjoining existing carpark	Yes. 5-10 m wide strip of degraded Swamp Oak Floodplain Forest with mown understorey
365.4	17 (north of road)	*Casuarina glauca* and *Melaleuca styphelioides* on mounds with *Einadia hastata*. Mangroves further north.	MARGINAL. Drainage issues
375	Location C (south of road)	1x *Casuarina glauca* within the carparking bays	Loss of 1x *Casuarina glauca*
393.0	18 (south of road)	Drainage culvert with running water with *Casuarina glauca* and *Tetragonia tetragonoides* in groundlayer	MARGINAL. Drainage issues
Approximately 410	Location D (south of road)	Existing table drain Approximately 6 m tall *Casuarina glauca* and *Melaleuca styphelioides* adjoining the drain - all lopped under power line - poor health. Total of about 10 plants.	Not likely to be endangered ecological community, but possible loss of a total of approximately 10 existing lopped plants of *Casuarina glauca* and *Melaleuca styphelioides.*
430.0	19 (north of road)	*Casuarina glauca* and *Melaleuca styphelioides* on mounds to 3 m wide and then drainage line / creekline	MARGINAL. Drainage issues
460	Location E (south of road)	1x *Melaleuca styphelioides* (4 m tall) on side of existing road	Loss of 1x *Melaleuca styphelioides*
470	from Location E (south of road)	1x *Melaleuca decora* (6 m tall) 5 m south of bitumen	Unlikely loss 5 m from existing road
470.7	20 (north of road)	*Casuarina glauca* on mounds with mangroves	MARGINAL. Drainage issues
499.8	21 (north of road)	*Casuarina glauca* + *Melaleuca styphelioides* on mound + *Einadia hastata* and then a drop to creekline/drainage line with mangroves	MARGINAL. Drainage issues
515.0	22 (north of road)	Gate to Maxwell Avenue	
537.0	23 (south of road)	Disturbed road verge - *Casuarina glauca* + *Melaleuca styphelioides* that have been lopped under powerlines with an extensive and tall exotic groundlayer - mainly *Conyza sumatrensis* (Fleabane) and *Aster subulatus* (Wild Aster)	MARGINAL. Drainage issues

Note:

	Flora constraints
	Possible drainage issues

2.0 The Proposal

The proposal is to upgrade Webster Street to allow it to serve as a flood evacuation route. The proposal involves raising the westerly most 300 m length of the road

formation by 1.2 m to a nominal crest elevation of 2.7 m AHD (Figures 2a, 2b, 2c-1 to 2c-4). This is to involve the following:

- Relocation of the centreline of the road formation to the south by up to 3 m so as to avoid any impact on vegetation located along the northern edge of the existing roadway;
- Construction of an earth roadway formation with batters at 1:3 with the raised section of the road built over the southern part of Webster Street such that the flora on areas to the north is not impacted;
- Construction of replacement 90 degree carparking along the southern side of Webster Street with the southern edge of this carparking battered down into the adjoining parkland at 1:3;
- Use of the existing table drain located along the northern edge of Webster Street to capture road runoff and direct it toward the box culvert that crosses Webster Street at approximate Chainage 410 and which connects Deepwater Lagoon to the Georges River (Figures 2a, 2c-4);
- Provision of drainage infrastructure along the southern side of the upgraded Webster Street to direct road surface runoff to the low point at the box culvert that crosses Webster Street at approximate Chainage 410.

The concept design for the proposed upgrade to Webster Street includes provision for the capture of runoff from the road surface and the direction of that runoff to the existing cross-drainage structure that drains to the Georges River. This is achieved by the existing table drain located along the northern edge of the existing roadway formation, which will be upgraded to increase bioretention capacity and facilitate improved runoff water quality.

There is no proposed raising or widening works within the eastern most 200 m of Webster Street (to the north and south). Consequently, there are no likely habitat changes to:

- Cooks River Castlereagh Ironbark intergrade with Shale Gravel Transition Forest recorded north and south of the approximately 200 m length of Webster Street; nor
- the Vulnerable species *Acacia pubescens* recorded north-west of the intersection with Henry Lawson Drive.

There is also no proposed works north of the existing Webster Street for the approximate 300 m western section. Given the proposal is to retain existing flushing and to upgrade water quality, consequently there are no likely adverse habitat changes to:

- the mosaic of Swamp Oak Floodplain Forest in drier areas;
- tidal influence with mangroves; and
- low lying land with *Phragmites australis.*

To the south of the western 300 m section of Webster Street, there are scattered trees and patches of trees with an absence of shrub layer, with picnic tables and mown grass. The areas of scattered trees and mown grass did not satisfy the listed criteria for the endangered ecological communities Swamp Oak on Coastal Floodplain, Cooks River Castlereagh Ironbark, Shale Gravel Transition Forest or intergrades, nor are any threatened species recorded, with the exception of:

- 5-10 m wide approximately 30 m long strip of degraded *Swamp Oak Floodplain Forest*;
- the possible exception of narrow strips of 6 m high lopped *Casuarina glauca* and *Melaleuca styphelioides* associated with existing drainage at approximate

Chainage 400 (Observation Points 18, location of existing table drain proposed to be retained).

The number of trees potentially impacted by the proposed road upgrade is assessed by overlaying the proposed road on the survey plan (Figures 2c-1 to 2c-4) and from observations of trees along Webster Street on 1 September 2014 (Table 1, Appendix 1), namely:

Chainage	Plotted trees direcly impacted by the proposal	Observed on 1 September 2014
0 to 220 m (Figures 2c-1, 2c-2)	None in the proposed road. Three trees plotted as overhanging the existing road (Chainage 70 m, 90 m and 200 m)	None potentially impacted
230 to 380 m (Figure 2c-3)	One tree plotted at Chainage 375 m, overhanging southern edge of existing carpark and within southern section of proposed carpark. It may be retained, depending on soil level change. No other trees plotted as overhanging the proposed road.	Chainage 270 m 2x *Eucalyptus moluccana* 2 m south of existing carparking bays Chainage 290-300 1x *Melaleuca styphelioides* (7 m) 2x *Casuarina glauca* (5 m). 5 m further south 3x *Eucalyptus moluccana* (20 m). Chainage 375 1x *Casuarina glauca* (18 m) within the carparking bays
390 to 540 m (Figure 2c-4)	None in the proposed road. No trees plotted as overhanging the proposed road.	Chainage 460 1x *Melaleuca styphelioides* (4 m tall) on south side of existing road 1x *Melaleuca decora* (6 m tall) 5 m south of bitumen

3.0 Assessment of Significance

In the Threatened Species Assessment Guidelines (Department of Environment and Climate Change 2007), it is stated that:

> *Under the Threatened Species Conservation Amendment Act 2002, factors to be considered when determining whether an action, development or activity is likely to significantly affect threatened articles s5A of the Environmental Planning and Assessment Act 1979 (EP&A Act), s94 Threatened Species Conservation Act 1995 and s220zz Fisheries Management Act 1994 (FM Act) have been revised.*

The Assessment of Significance under the TSC Act, known previously as the Eight Part Test, is now known as the Assessment of Significance.

The objective of an Assessment of Significance is to:

> *improve the standard of consideration afforded to threatened species, populations and ecological communities, and their habitats through the planning and assessment process, and to ensure this consideration is transparent*.

The revised factors for the Assessment of Significance maintain the same intent as the Eight Part Test but focus on:

consideration of likely impacts in the context of the local rather than the regional environment as the long-term loss of biodiversity at all levels arises primarily from the accumulation of losses and depletions of populations at a local level.

The Threatened Species Assessment Guidelines (2007) are to facilitate:

a consistent and systematic approach when determining whether an action, development or activity is likely to significantly affect threatened species, populations or ecological communities, or their habitats in a direct or indirect manner ... Where there is any doubt regarding the likely impacts, or where detailed information is not available, a Species Impact Statement should be prepared.

Assessments of Significance has been completed for:

- The endangered ecological communities under the NSW Threatened Species Conservation Act 1995:
  - *Cooks River Castlereagh Ironbark intergrade with Shale Gravel Transition Forest*
  - *River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions*; and
- The listed vulnerable species *Acacia pubescens* under both the NSW Threatened Species Conservation Act 1995 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

3.1 Assessment of Significance for *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest*

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable. *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest* is part of an endangered ecological community, not a threatened species.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable. *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest* is part of an endangered ecological community, not a species that constitutes the endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

In the *Threatened Species Assessment Guidelines The Assessment of Significance* (Department of Environment and Climate Change 2007), local occurrence is defined as:

> ***Local occurrence****: the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.*

The local occurrence of the endangered ecological community *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest* to the north and south of Webster Street is at least 3.5 ha of bush regenerated, relatively intact bushland (Figure 3a). There is no change to the level or width of the existing Webster Street adjoining this vegetation, hence there is no likely change to the existing distribution of *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest*. The proposal is not likely to place the local occurrence at risk of extinction.

d) In relation to the habitat of threatened species, populations or ecological community:

i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

There is no change to the level or width of the existing Webster Street adjoining the mapped extent of the ecological community, hence there is no likely change to the existing distribution of *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest*. No habitat is likely to be removed or modified as a result of the action proposed.

ii Whether, an area of habitat is likely to become fragmented or isolated from other areas of habitat, as a result of the proposed action

No area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action.

iii The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

Habitat of *Cooks River Castlereagh Ironbark Forest* intergrade with *Shale Gravel Transition Forest* is not likely to adversely affect the long-term survival of the ecological community in the locality by the proposal.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

Neither the Motorboat Club site nor Deepwater Park are classed as critical habitat within the provisions of the Threatened Species Conservation Act 1995.

From the Register of Critical Habitat in NSW (Office of Environment and Heritage website: http://www.environment.nsw.gov.au/criticalhabitat, accessed 7 August 2014,

webpage last updated 13 December 2013. Critical habitat declarations (final) exist for:

- Gould's Petrel;
- Little Penguin population in Sydney's North Harbour;
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve; and
- Wollemi Pine.

The proposal will not have an adverse effect on critical habitat (either directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

The recovery plans for *Cooks River Castlereagh Ironbark* and *Shale Gravel Transition* are included in the Cumberland Plain Recovery Plan (Department of Environment, Climate Change and Water 2011).

The objectives of the Cumberland Plain Recovery Plan (DECCW 2011) are:

1. *To build a protected area network, comprising public and private lands, focused on the priority conservation lands*
2. *To deliver best practice management for threatened species, populations and ecological communities across the Cumberland Plain, with a specific focus on the priority conservation lands and public lands where the primary management objectives are compatible with conservation*
3. *To develop an understanding and enhanced awareness in the community of the Cumberland Plain's threatened biodiversity, the best practice standards for its management, and the recovery program*
4. *To increase knowledge of the threats to the survival of the Cumberland Plain's threatened species, populations and ecological communities, and thereby improve capacity to manage these in a strategic and effective manner*

Deepwater Park has been identified as Conservation Priority Lands by DECCW (2011).

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Key Threatening Process	Comments
Clearing of native vegetation	Clearing proposed of approximately 0.015 to 0.03 ha isolated patch south of Webster Street.
High frequency fire resulting in the disruption of life cycle processes in plants and…loss of vegetation structure and composition	The presence of the proposed upgraded Motorboat Club is likely to decrease the number of arson related fires in Deepwater Park due to increased supervised visitation. Deepwater Park is already subject to bushfires likely due to arson, as observed in December 2012.
Infection of native plants by *Phytophthora cinnamomi*	No evidence of *Phytophthora cinnamomi* infection was observed during the surveys.
Invasion by native plant communities by exotic perennial grasses	Invasion by native plant communities by exotic perennial grasses was widespread,

Key Threatening Process	Comments
	on the Motorboat Club site and in Deepwater Park.
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)	*Lantana camara* was not recorded during the surveys.
Removal of dead wood and trees	The proposal is not likely to include "removal of dead wood and trees".

In conclusion, the proposal is not likely to result in a significant impact on the *Cooks River Castlereagh Ironbark* intergrade with *Shale Gravel Transition* north and south of Webster Street in the Deepwater Park locality. A Species Impact Statement is not required for this community.

3.2 Assessment of Significance for Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable. Swamp Oak Floodplain Forest is an endangered ecological community, not a threatened species.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable. Swamp Oak Floodplain Forest is an endangered ecological community, not a species that constitutes the endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

In the *Threatened Species Assessment Guidelines The Assessment of Significance* (Department of Environment and Climate Change 2007), local occurrence is defined as:

> ***Local occurrence****: the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.*

The local occurrence of the endangered ecological community *Swamp Oak Floodplain Forest* on and near the Motorboat Club site and in Deepwater Park is on

the low-lying land (Figure 3a). Approximately 0.015 to 0.03 ha (approximately 30 m long strip and 5-10 m wide) of degraded habitat at approximate Chainage 320 m south of the existing road between carparking bays is to be removed by the proposal with more than 5 ha of *Swamp Oak Floodplain Forest* north of Webster Street and an additional approximately 0.2 ha more than 20 m south of Webster Street retained. The existing table drain and the existing flushing of the land north of Webster Street are to be maintained.

Hence, the proposed removal of less than 0.6% (0.015 to 0.03 ha) of more than 5 ha of *Swamp Oak Floodplain Forest* is not likely to adversely place the local occurrence at risk of extinction, and is not likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

d) In relation to the habitat of threatened species, populations or ecological community:

i The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The proposal removes less than 0.6% (0.015 to 0.03 ha) of more than 5 ha of *Swamp Oak Floodplain Forest* and none of the mapped Swamp Oak Floodplain Forest is likely to be removed as a result of the proposed flood excavation route along Webster Street.

ii Whether, an area of habitat is likely to become fragmented or isolated from other areas of habitat, as a result of the proposed action

The proposal removes less than 0.6% (0.015 to 0.03 ha) of more than 5 ha of *Swamp Oak Floodplain Forest*. None of the mapped Swamp Oak Floodplain Forest is proposed to be removed and the existing hydrology is to be maintained. The proposal will not result in any additional fragmentation of habitat.

An area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the proposed action.

iii The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

The proposal removes less than 0.6% (0.015 to 0.03 ha) of more than 5 ha habitat of *Swamp Oak Floodplain Forest*. The degraded Swamp Oak Floodplain Forest to be removed south of the existing Webster Street is an isolated patch adjoining Webster Street between carparking bays. The existing table drain and the existing flushing of the land north of Webster Street is to be maintained. The proposal is not likely to adversely affect the long-term survival of the ecological community in the locality.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

Neither the Motorboat Club site nor Deepwater Park are classed as critical habitat within the provisions of the Threatened Species Conservation Act 1995.

From the Register of Critical Habitat in NSW (Office of Environment and Heritage website: http://www.environment.nsw.gov.au/criticalhabitat, accessed 7 August 2014, webpage last updated 13 December 2013. Critical habitat declarations (final) exist for:

- Gould's Petrel;
- Little Penguin population in Sydney's North Harbour;
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve; and
- Wollemi Pine.

The proposal will not have an adverse effect on critical habitat (either directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Swamp Oak Floodplain Forest are included in the Cumberland Plain Recovery Plan (Department of Environment, Climate Change and Water 2011).

The objectives of the Cumberland Plain Recovery Plan (DECCW 2011) are:

1. *To build a protected area network, comprising public and private lands, focused on the priority conservation lands*
2. *To deliver best practice management for threatened species, populations and ecological communities across the Cumberland Plain, with a specific focus on the priority conservation lands and public lands where the primary management objectives are compatible with conservation*
3. *To develop an understanding and enhanced awareness in the community of the Cumberland Plain's threatened biodiversity, the best practice standards for its management, and the recovery program*
4. *To increase knowledge of the threats to the survival of the Cumberland Plain's threatened species, populations and ecological communities, and thereby improve capacity to manage these in a strategic and effective manner*

Deepwater Park has been identified as Conservation Priority Lands by DECCW (2011).

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Key Threatening Process	Comments
Clearing of native vegetation	Clearing proposed of approximately 0.015 to 0.03 ha isolated patch south of Webster Street.
High frequency fire resulting in the disruption of life cycle processes in plants and…loss of vegetation structure and composition	The presence of the proposed upgraded Motorboat Club is likely to decrease the number of arson related fires in Deepwater Park due to increased supervised visitation. Deepwater Park is already subject to bushfires likely due to arson, as observed in December 2012.
Infection of native plants by *Phytophthora cinnamomi*	No evidence of *Phytophthora cinnamomi* infection was observed during the surveys.

Key Threatening Process	Comments
Invasion by native plant communities by exotic perennial grasses	Invasion by native plant communities by exotic perennial grasses was widespread, on the Motorboat Club site and in Deepwater Park.
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)	*Lantana camara* was not recorded during the surveys.
Removal of dead wood and trees	The proposal is not likely to include "removal of dead wood and trees".

In conclusion, the proposal is not likely to result in a significant impact on the *Swamp Oak Floodplain Forest* in the Deepwater Park locality. A Species Impact Statement is not required for this community.

3.3 Assessment of Significance for *Acacia pubescens*

An Assessment of Significance has been completed for the potential impacts on the National and State listed vulnerable species *Acacia pubescens* (Downy Wattle) on the seven plants recorded north of Webster Street.

A total of 40 stems/plants of *Acacia pubescens* was recorded in the Deepwater Park (Figure 3b), namely:

Number of individuals recorded	Location
North of Webster Street, north-west of intersection with Henry Lawson Drive	
7 plants	4-7 m north of Webster Street (Quadrat 31 and surrounds) recorded in 2014
Near the M5 Motorway	
28 individual stems	in two patches in a 20 m radius recorded in 2007
Close to Maxwell Avenue	
4	north of Maxwell Avenue
15-20 suckering stems	north of Maxwell Avenue

The proposal results in no raising or widening of the eastern section of Webster Street. Hence, it is not likely to result in loss of any plants of *Acacia pubescens.*

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The action proposed is unlikely to have an adverse effect on the life cycle of the species such that the viable local population of the species is likely to be placed at risk of extinction.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable. *Acacia pubescens* is a listed vulnerable species, not an endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable. *Acacia pubescens* is a listed vulnerable species. Not an endangered ecological community.

d) In relation to the habitat of threatened species, populations or ecological community:

i. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The *Acacia pubescens* recorded to the north of Webster Street near the intersection with Henry Lawson Drive in Deepwater Park occurs in bush regenerated, relatively intact Cooks River Castlereagh Ironbark Forest and Shale Gravel Transition Forest intergrade. None of the potential habitat to the north of Webster Street near the intersection with Henry Lawson Drive is to be removed as part of the proposal.

ii Whether, an area of habitat is likely to become fragmented or isolated from other areas of habitat, as a result of the proposed action

None of the habitat of *Acacia pubescens*, north of Webster Street near the intersection with Henry Lawson Drive in Deepwater Park, is likely to become fragmented or isolated from other areas of habitat, as a result of the proposed action.

iii The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

None of the habitat of *Acacia pubescens*, north of Webster Street near the intersection with Henry Lawson Drive, is to be removed as a result of the proposed action. Hence the action is not effecting the long-term survival of the species.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

Neither the Motorboat Club site nor Deepwater Park are classed as critical habitat within the provisions of the Threatened Species Conservation Act 1995.

From the Register of Critical Habitat in NSW (Office of Environment and Heritage website: http://www.environment.nsw.gov.au/criticalhabitat, accessed 7 August 2014, webpage last updated 13 December 2013. Critical habitat declarations (final) exist for:

- Gould's Petrel;
- Little Penguin population in Sydney's North Harbour;
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve; and

- Wollemi Pine.

The proposal will not have an adverse effect on critical habitat (either directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

The objectives of the *Acacia pubescens* Recovery Plan (NSW NPWS 2003) are:

- *to ensure that a representative sample of* A. pubescens *populations occurring on public and private lands are protected from habitat loss and managed for conservation;*
- *to reduce the impacts of threats at sites across the species' range;*
- *to ensure that any planning and management decisions that are made which affect the species, are made in accordance with the recovery objectives of this plan;*
- *to understand the biology, ecology, health and distribution of the species including the range of genetic variation;*
- *to develop the awareness and involvement of the broader community in the species and its conservation; and*
- *to re-assess the conservation status of the species.*

The proposed action is not likely to result in any loss of *Acacia pubescens*. The revised proposal is consistent with the objectives of the recovery plan.

Deepwater Park has been identified as Conservation Priority Lands by DECCW (2011).

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Key Threatening Process	Comments
Clearing of native vegetation	Clearing proposed of approximately 0.015 to 0.03 ha isolated patch south of Webster Street.
High frequency fire resulting in the disruption of life cycle processes in plants and…loss of vegetation structure and composition	The presence of the proposed upgraded Motorboat Club is likely to decrease the number of arson related fires in Deepwater Park due to increased supervised visitation. Deepwater Park is already subject to bushfires likely due to arson, as observed in December 2012.
Infection of native plants by *Phytophthora cinnamomi*	No evidence of *Phytophthora cinnamomi* infection was observed during the surveys.
Invasion by native plant communities by exotic perennial grasses	Invasion by native plant communities by exotic perennial grasses was widespread, on the Motorboat Club site and in Deepwater Park.
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)	*Lantana camara* was not recorded during the surveys.
Removal of dead wood and trees	The proposal is likely to include "removal of dead wood and trees".

In conclusion, there is not likely to be a significant impact on *Acacia pubescens* from the proposed upgrade of Webster Street. A Species Impact Statement and Referral to the Commonwealth are not required for *Acacia pubescens*.

4.0 Conclusions

There are not likely to be significant impacts on:

- Endangered ecological communities under the NSW Threatened Species Conservation Act 1995
-

Endangered ecological communities	Reasons
Cooks River Castlereagh Ironbark intergrade with *Shale Gravel Transition Forest*	- No clearing for the widening nor raising Webster Street in the location of this listed endangered ecological community; - No likely loss of habitat of this community.
Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	Reasons - Removal of approximately 0.015 to 0.03 ha isolated patch (less than 0.6%) of more than 5 ha of Swamp Oak Floodplain Forest), consisting of an approximately 30 m long strip and 5-10 m wide, south of the existing Webster Street between carparking bays; and - The existing table drain and the existing flushing of Swamp Oak Floodplain Forest north of Webster Street is to be maintained; and - No likely loss of habitat of this community.

- Listed vulnerable species

	Reasons
Acacia pubescens	- No clearing for the widening nor raising Webster Street in the location of the recorded plants; and - No likely loss of habitat of this species.

To the south of Webster Street, there are trees close and within the existing carparking bays and close to existing road, namely:

Approximate Chainage	Trees	Located
270 m	2x *Eucalyptus moluccana* (20 m)	2 m south of existing carparking bays
290-300	1x *Melaleuca styphelioides* (7 m) 2x *Casuarina glauca* (5 m)	in square between existing carparking bays
290-300	3x *Eucalyptus moluccana* (20 m)	5 m further south of square between existing carparking bays
375	*1x* Casuarina glauca (18 m)	in carparking bay
460	1x *Melaleuca styphelioides* (4 m tall)	on south side of existing road

Approximate Chainage	Trees	Located
470	1x *Melaleuca decora* (6 m tall)	5 m south of existing road

Species Impact Statements are not required for the two endangered ecological communities and listed vulnerable species *Acacia pubescens*. Referral to the Commonwealth is not required for *Acacia pubescens*.

5.0 Recommendations

It is recommended, that the trees close to the existing road or in the existing carparks be retained in the proposed carparking bay, where practicable, especially:

- the two *Eucalyptus moluccana* approximately 20 m tall, located 2 m south of existing carparking bays at approximately Chainage 270 m;
- the three *Eucalyptus moluccana* approximately 20 m tall, located 5 m south of existing carparking bays at approximately Chainage 290-300 m; and
- the one *Casuarina glauca* approximately 18 m tall, located at Chainage 375 within the existing carparking bay, depending on soil level changes.

References

Clements A., Clarke D. and Rodd T. (2014) *Upgrading of the existing Deepwater Motorboat Club Lot D DP 391154 and Lot A DP 405225, No 30 and 31 Webster St, Milperra – A. Flora Assessment and B. Assessment of Significance.* Prepared for Dolton House Deepwater Estate Pty Ltd. Dated 10 March 2014.

Department of Environment and Climate Change (2007).
Threatened Species Assessment Guidelines. The Assessment of Significance. Dated August 2007.

Department of Environment, Climate Change and Water (NSW) (2011)
Cumberland Plain Recovery Plan. Department of Environment, Climate Change and Water (NSW), Sydney. Approved Plan. Dated January 2011.

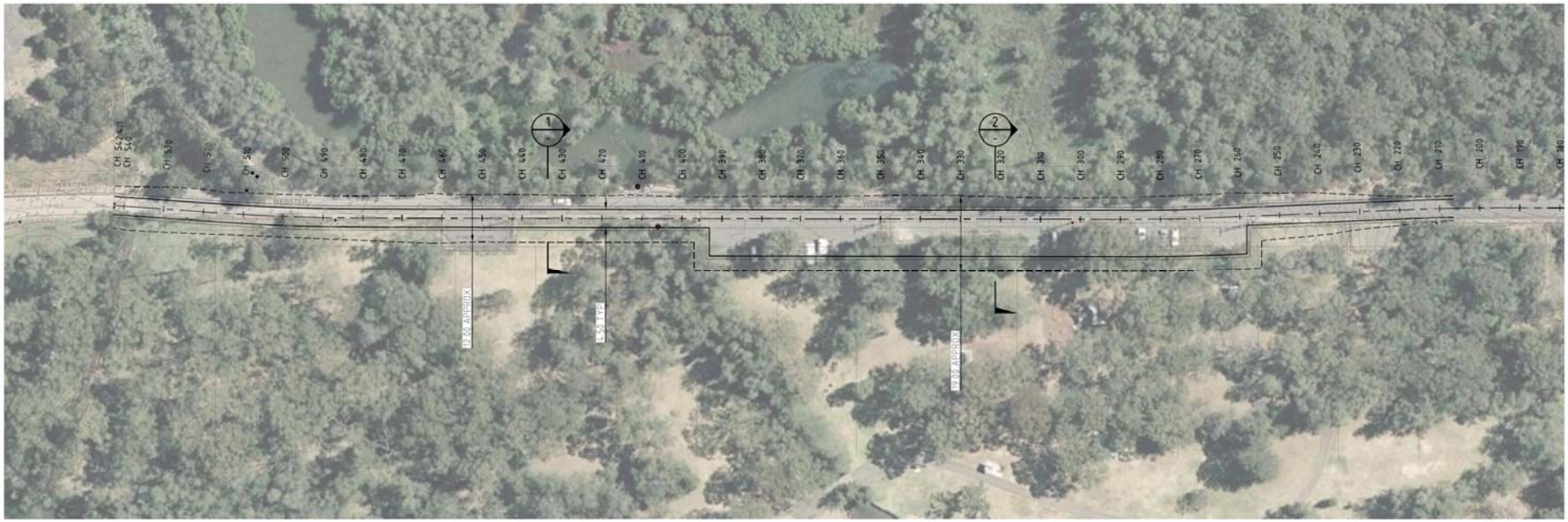
NSW National Parks and Wildlife Service (2003).
Acacia pubescens (Downy Wattle) Recovery Plan.
NSW National Parks and Wildlife Service. February 2003

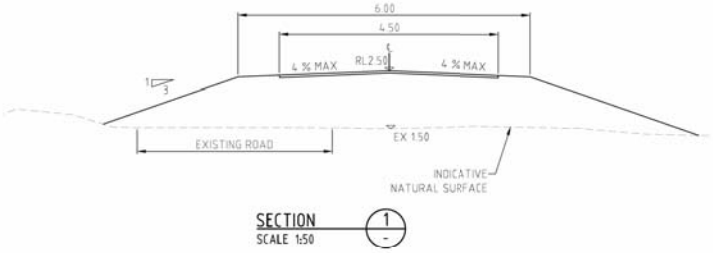
Figures

Figure 1a.
Location of the Deepwater Motorboat Club and Webster Street overlaid on the Liverpool 1:25 000 topographic map (Land and Property Information NSW 2001)

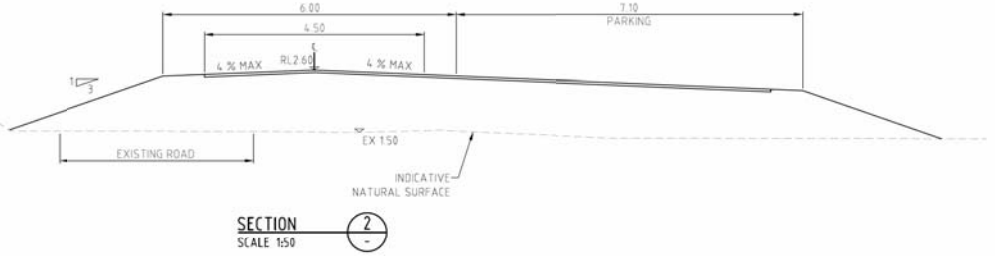
Figure 1b.
Location of the Deepwater Motorboat Club and Webster Street overlaid on NearMap aerial photograph (dated 30 September 2013)

Figure 1c.
Location of the Deepwater Motorboat Club and
Webster Street overlaid on the 1943 aerial photograph





SECTION 1
SCALE 1:50



SECTION 2
SCALE 1:50

10 0 10 20 30 40 50m
1:500 (A1) 1:1000 (A3)

WorleyParsons
resources & energy

OneWay
to zero harm

ISSUE	DATE	ISSUE DESCRIPTION	DRAWN
B	26/08/14	CHAINAGE LABELS ADDED	
A	21/08/14	ISSUED FOR INFORMATION	

NORTH

WEBSTER STREET, DEEPWATER PARK
CONCEPT DESIGN

3010105-02379-CI-DSK-0001

Figure 2a.
Webster Street, Deepwater Park Concept Design
(WorsleyParson Resources and Energy, DWG 3010105-02379-CI-DSK-0001. Issue B, dated 26 August 2014)

Figure 2b.
Chainage along centreline of proposed road

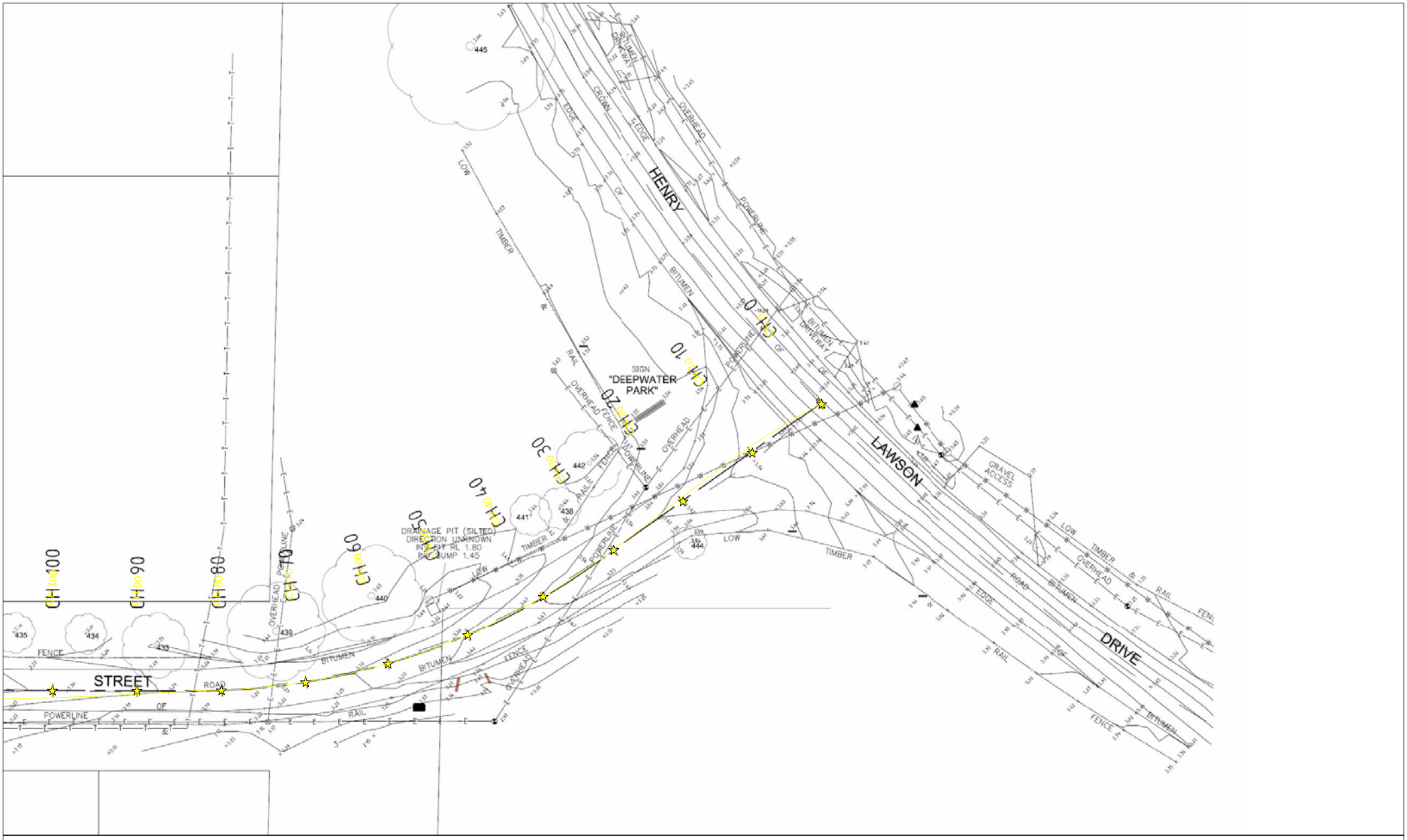


Figure 2c-1.
Chainage 0 m to 100 m of the proposal on the survey plan

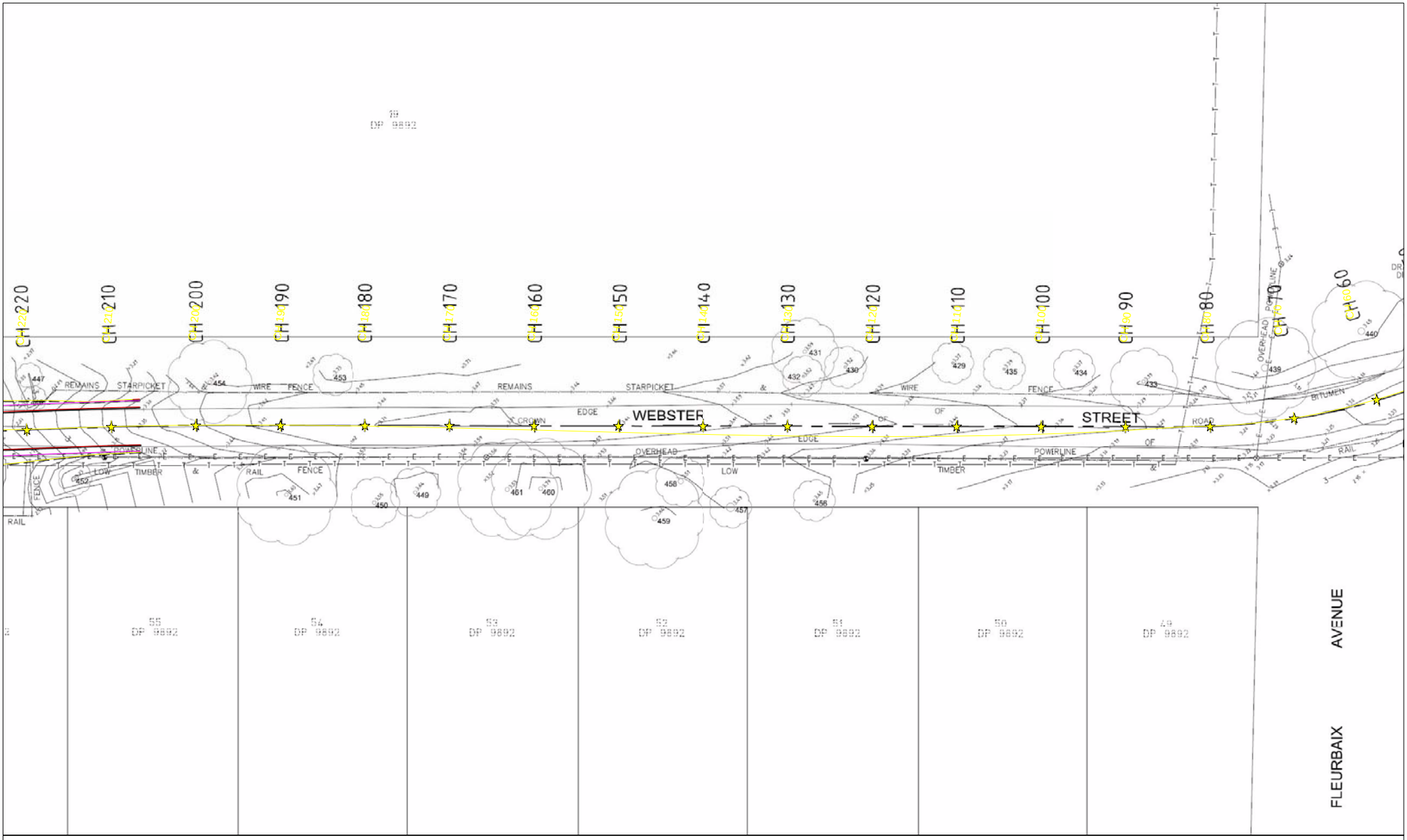


Figure 2c-2.
Chainage 60 m to 220 m of the proposal on the survey plan

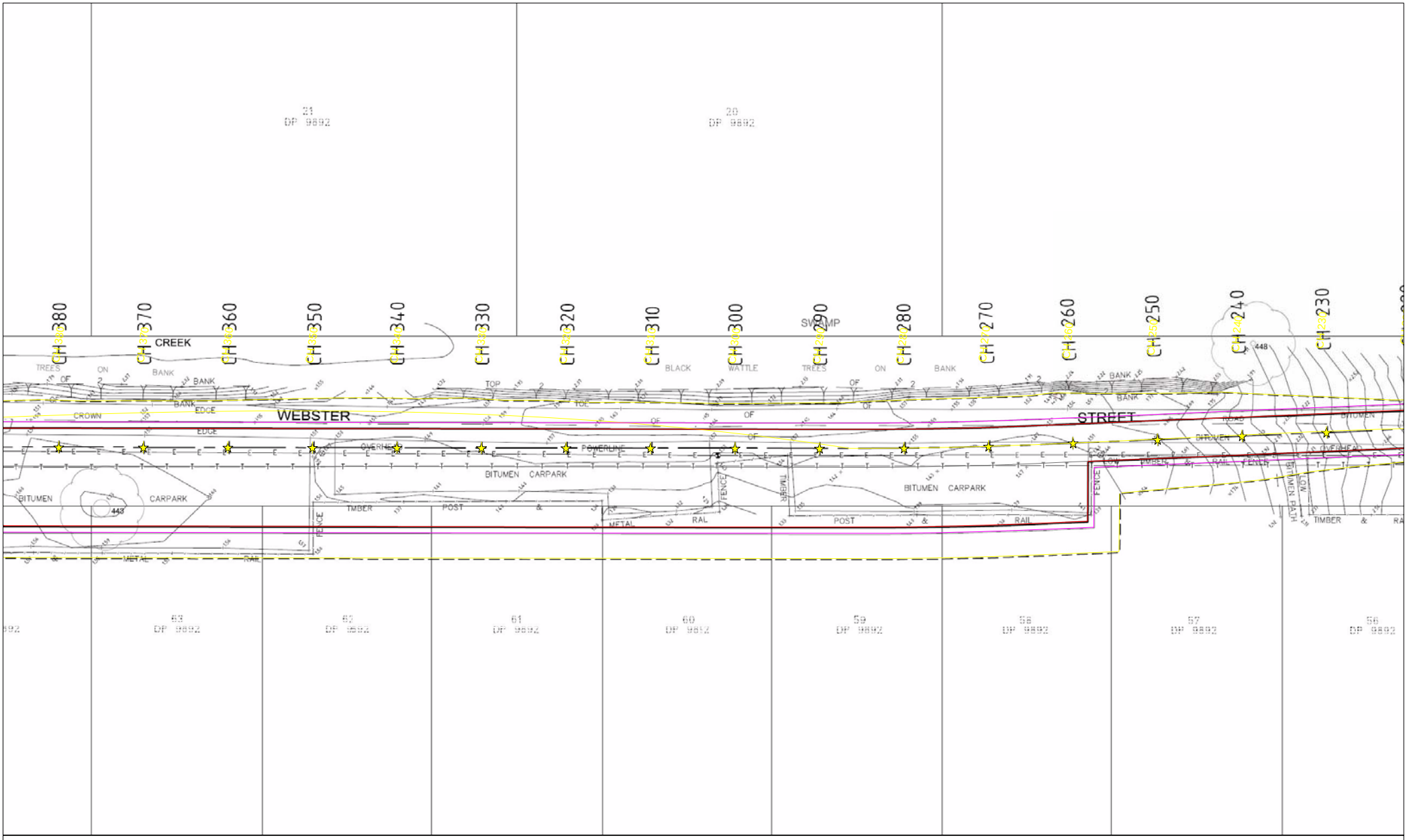


Figure 2c-3
Chainage 230 m to 380 m of the proposal on the survey plan

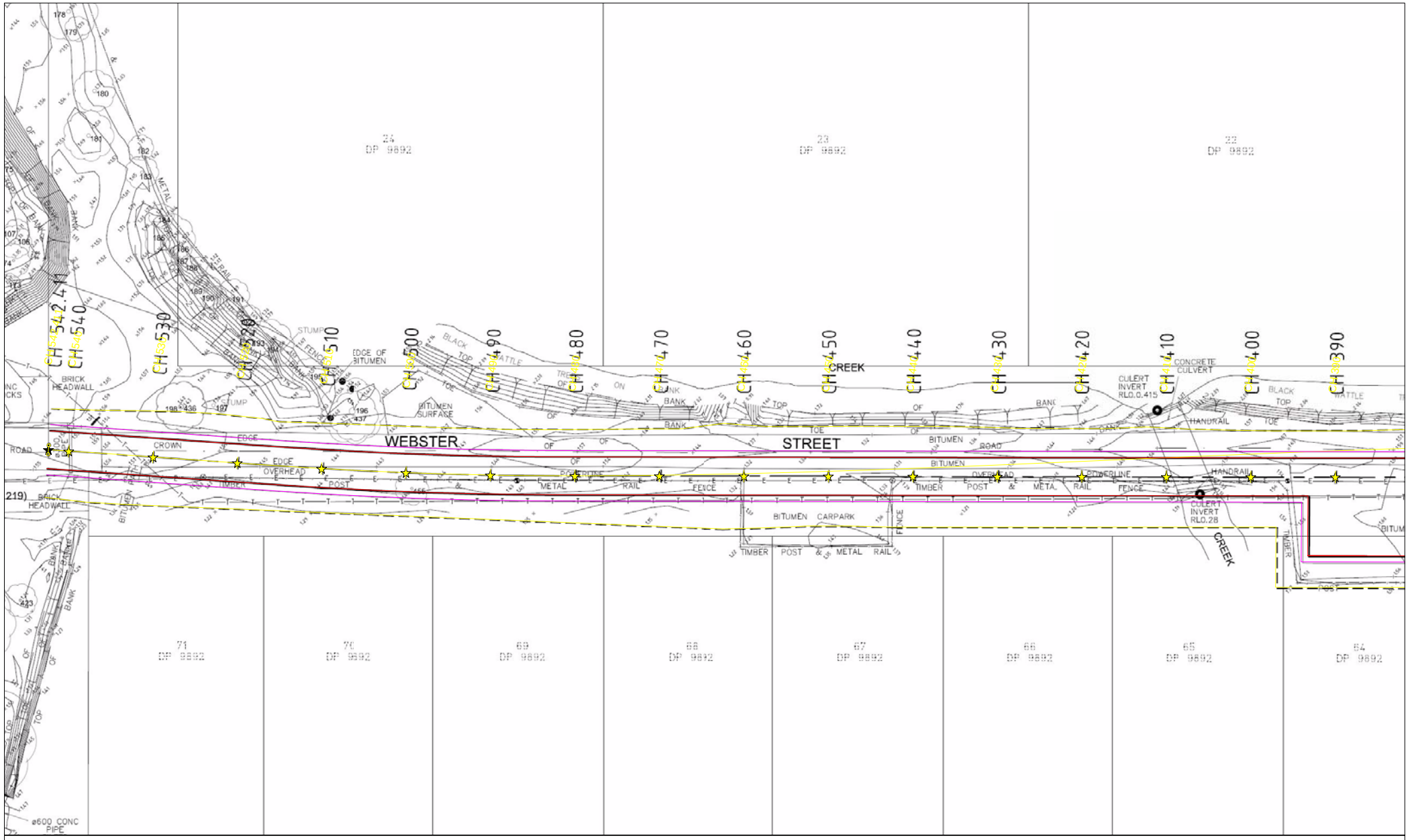


Figure 2c-4.
Chainage 390 m to 542 m of the proposal on the survey plan

Figure 3a.
Quadrats, Observation Points and conservationally significant vegetation mapping along Webster Street

★ Acacia pubescens

Figure 3b.
Locations of recorded Acacia pubescens overlaid on the Nearmap aerial photograph dated 30 September 2013

Table 1
Six additional observation locations of trees south of the existing Webster Street

Observation location and approximate Chainage	Approximate GSP location	Recording
A (Chainage 290-300 m)	313186 6241373	Dividing square of grass along car parking bays 1x 3-trunked *Melaleuca styphelioides* at 7 m tall 2x *Casuarina glauca* at 5 m tall. 5 m further south (away from the road) 3x *Eucalyptus moluccana* at 20 m tall.
B (Chainage 320 m)	313164 6241377	Approximately 30 m long and approximately 5-10 m wide patch of *Casuarina glauca* and *Melaleuca styphelioides* adjoins the car park bays
C (Chainage 380 m)	313107 6241386	1x 5-trunked *Casuarina glauca* at 18 m tall within the car parking bays
D (Chainage 410 m)	313085 6241393	copse of 6 m tall *Casuarina glauca* and *Melaleuca styphelioides* adjoining the drain - all lopped under power line - poor health. About 10 plants all up.
E (Chainage 460 m)	313025 6241402	1x *Melaleuca styphelioides* at 4 m tall on side of road near corner post of car park bays and road
F (Chainage 270 m)	313210 6241368	2x *Eucalyptus moluccana* to 20 m tall at 2 m from the edge of car park bays

On the north side of Webster Street from Chainage 220 m to Chainage 540 m, there are trees of *Casuarina glauca* and *Melaleuca styphelioides* with one *Eucalyptus tereticornis* observed at approximately Chainage 290 m.

Appendix 1

Webster Street photographs – 1 September 2014

Point A

Point B

Point C

Point D

Point E

Point F (east of Point A)

Entrance gate – looking onto *Casuarina glauca* and *Meleuca styphelioides*

General photo of north of Webster Street – across from Point E