Version 5
Revised 19 December 1996

Town of Ponoka

Proposed Area Structure Plan for SE 6-43-25-W4

1. Introduction

The Town of Ponoka has arranged to purchase approximately 40 acres of SE 6-43-25-W4 *(Map 1)* to expand the south-west industrial park, which is almost fully occupied. The land being purchased is in the County of Ponoka. It is bounded to the north by Highway 53, so in order to meet the requirements of the Subdivision and Development Regulations, the Town asked the West Central Planning Agency to prepare an Area Structure Plan for the entire quarter section.

2. Present Use

The quarter is currently farmed by Art Froman, whose family has owned the land since about 1915. Higher land is in crop. Low areas are used for pasture or left in native bush. The yard site has a direct access on to Highway 53. The south-west part of the quarter has been excavated for gravel, and there is a three to four metre drop from the original land surface to the floor of the pit. The worked-out areas have been levelled and restored. Gravel extraction will continue.

3. Site Safety and suitability

Historic land titles for the past 50 years reveal no owners, caveats, easements, or other indications that the land was ever used for anything but farming and gravel extraction. According to AEUB records, there are no active or abandoned oil or gas wells or flow lines, and no sub-surface mining which might cause subsidence. This documentary evidence is confirmed by historic air photos, which show only farming and (from 1969) gravel extraction.

It is very unlikely that the quarter is contaminated. The farm yard has probably suffered small scale fuel, oil and herbicide spills, but if these are a concern, the yard site can be tested and remediated prior to development.

4. Highway Considerations

It is proposed that the development be accessed by a front service road on a 30 metre right of way, with bulbs at the access points so that long vehicles can turn safely. Intersections and intersectional treatment will be engineered to meet the requirements of AT&U following a traffic assessment.

Good highway engineering requires a limited number of access points, so only two highway accesses are proposed.

The first highway access will be at the existing 67 Street intersection. This must be upgraded to remove the unsatisfactory gradient up to the highway which has been adversely commented on by several present users. The end of the service road will be bulbed so that long vehicles can safely access the highway.

The second highway access is proposed about 580 metres west of 67 Street. On-site investigation revealed that, from this point, there is a clear view west to the Highway 2 interchange and east where the highway curves to the south near Highway 2A. A longitudinal section of the surface of Highway 53 *(Map 3)* illustrates this.

At both accesses, any necessary intersectional treatment will be the responsibility of the Town or developer, and will be done to the satisfaction of AT&U following detailed engineering.

No highway access is proposed at the west end of SE 6. Site inspection revealed that this point has poor visibility to the east. Instead, if the service road is continued west, the next access point will be in SW 6, possibly at the existing farm entrance, where visibility is better. A better access might be further west, to line up with a future service road access on the north side of the highway, as recommended by AT&U in subdivision RP/95/21 (AT&U files 3180-3620 and 1470-2A).

A western extension of the service road, and possible highway access points, are shown on *Map 4,* but this is for discussion only and does not form part of this Area Structure Plan.

It is proposed that the present farm access, 400 metres west of 67 Street, be retained on a temporary basis but removed once the service road is built.

Extra right-of-way will be taken for Highway 53 if required by AT&U.

5. Subdivision Design

The Town has purchased this land to expand the existing industrial park in SW 5-43-25-W4. However, the Municipal Development Plan, now in draft form, also identifies a need for new highway commercial frontage. Both these needs are met in the proposed design. *Maps 5 and 6* show the design, and differ only as regards storm drainage.

Highway commercial frontage:

A row of highway commercial lots faces a service road running parallel with and adjacent to Highway 53. This service road accesses the highway at two points: at an upgraded 67 Street, and about 580m west, at the point of maximum visibility east and west along the highway. Both highway access points are bulbed to accommodate large vehicles.

Depending on the demand, the lots facing 46 Avenue could be used for either highway commercial or industrial activities.

Industrial lots:

Industrial lots are in the same size range as in the Town's existing south-west industrial park in SW 5-43-25-W4. Ignoring the auction mart, these lots range in size from half an acre to four or five acres, with the most common size being about one acre. Frontages are typically 50 metres or about 150 feet.

The existing south-west industrial park has seen some re-subdivision with larger lots re-subdivided into smaller ones. The Area Structure Plan recognizes this need. Within blocks, lot boundaries may be adjusted to create a variety of lot sizes.

There is a market for larger lots for outside storage for pipes, oilfield service equipment, etc. Lots of this size are placed at the west end of the quarter, on land which is only partly serviceable. An office area at the front of the lot can be serviced while the unserviceable back end can be used for open storage.

The reclaimed gravel pit can also be used for unserviced lots.

6. Storm Water Management

There is a ridge of higher land running north-west to south-east across SE 6, dividing the drainage into two separate flows *(Map 2)*. About eighty acres drains south and west into a creek in SW 6. The remainder used to drain eastward into 'Lake Number 13' and thence probably through the present town site into the Battle River. This lake

has been filled in SW 5, interrupting the natural drainage. It appears that the eastern half of SE 6 now drains by soakaway into two marshy areas.

Most of the runoff originating in the Town's 40 acres can probably be directed into the storm drains serving the existing south-west industrial park. Land further west will require a separate drainage system. There are two alternatives.

Alternative one: use existing west drainage

The area of trapped drainage can be drained west by cutting through the ridge of high land and thence west along a natural drainage course into SW 6. This is shown on *Map 7.* A ditch can be constructed, starting at the present ground elevation near 67 Street, and run west to the quarter line. Over most of its length it will need only minor excavation. Even at 0.4% grade (probably excessive for overland flow) the deepest cut will only be about 2.5 metres where it crosses the drainage divide. West of this it will emerge again to the existing grade and flow through SW 6 to join the creek which flows from the Kohlman subdivision, under Highway 53, and south to the Battle River. *Map 8* shows the longitudinal section of this ditch.

The ditch will be carried in a 20 metre wide utility lot, wide enough to grade the side slopes 4:1 to allow mowing.

This diversion may require a water licence from Alberta Environmental Protection, plus an easement from the owner of SW 6. These permissions may be easier to obtain if a detention pond is constructed near the west boundary of SE 6, so that storm surges are reduced. An engineer should be engaged to calculate the amount of runoff being diverted west, and the size of pond required.

All parts of the quarter are within 450 metres of the drainage ditch, so it may be possible to run all storm water on the surface instead of constructing underground storm sewers. The extra distance may be acceptable because large areas of grass and gravel on the industrial lots will give a fairly low runoff coefficient.

Several lots will need to be filled, but in most cases the required fill is less than 1.5 metres. There are high areas which can be cut down and used to fill low areas. A consulting engineer must be engaged to conduct a cut-and-fill balance.

Alternative two: drain south to road

As noted above, the gravel pit is still expanding, and in time it will reduce the height of land. There are also plans to take out the gravel under the road to the south of this quarter, and to rebuild the road at a lower elevation. Following these changes in elevation it may be possible to drain the trapped drainage area south to a roadside ditch, thence west to the creek. It is not possible to calculate grades or cuts until the

future land elevations are known. However, the design of the subdivision west of the Town's 40 acres should bear in mind both alternatives, and right of way should be reserved. A conceptual south drainage scheme is shown on *Map 9.*

7. Internal Roads

The design shown here uses a 24 metre road rights-of-way for internal roads (sufficient for a rural cross-section if that is desired by the Town), and a 30 metre service road. Highway accesses are bulbed.

The Town intends to rebuild 67 Street in 1997. When this is done, it should be widened 5 metres on the west side, and the grade at the approach to Highway 53 should be reduced. Several business owners in the existing industrial park have commented adversely on the inclined approach.

8. Sanitary Sewer

Lots along the highway and on 46 Avenue can be served by a gravity sewer flowing east to an existing manhole south of Westdeer Implements. Highway commercial lots facing on the service road will require utility easements so that sewer lines can run straight south to 46 Avenue.

The east 150 - 200 metres of the quarter can probably be served by gravity sewer lines running in to existing manholes east of 67 Street. West of this, a lift station will be required. This will allow sewer service to all land east of the drainage divide, and a short distance west of it.

Existing manholes and proposed sewer lines are shown on *Map 10. Map 11* shows a section along the proposed 46 Avenue sewer line.

It is proposed that land west of the drainage divide be developed into larger lots. Occupied buildings will be at the east end of these lots, serviced by sewer, while the lower western ends will be used for storage.

The former gravel pit is also unserviceable and again it is seen as being used for open storage. Any buildings can be served by pump-out systems.

It would be possible to service the entire quarter section by building a lift station on the south boundary, but at $100 per linear metre the cost would be very high. This expenditure should be deferred until the next quarter to the west is developed. If SE 6 develops at the same rate as the Town's existing industrial park, spending can be delayed at least 20 years.

9. Other Utilities

The Town purchases power from Transalta Utilities and resells it through a municipally-owned distribution system. One reason for immediate annexation (see section 12.8 below) is that power service to the new subdivision can be designed, financed, and built by the Town from the outset.

Northwestern Utilities serves the property now, and will continue to do so after annexation. NUL has a local line on the property now *(Map 1)*. This line will almost certainly have to be moved to conform with future lot lines. The cost of moving or lowering lines falls on the developer. NUL has been asked to comment on possible line locations.

10. Reserves

There is no point in dedicating land for parks in an industrial subdivision. Reserves should be taken in cash. This money must go into the reserve trust account, but it can be withdrawn at any time to purchase park and school land elsewhere in town. The Municipal Development Plan will identify likely sites.

11. Staging

The lot layouts and servicing shown here cover the entire quarter section, but they are designed to be constructed in self-sufficient stages, starting with the Town's 40 acres.

Market demand and ease of servicing both suggest that the first stage of the development should be the north-east corner of the quarter *(Map 12)*. This has highway exposure and can be served by gravity sewer.

Stage one has a gross area of 12.5 acres and a net area, after deducting roads, of 9.6 acres.

The present ground surface at these first stage lots is higher than it need be, and they can be cut down and the excess material used to fill lower areas to the south.

12. Next steps

In order to develop the land as proposed here, the following steps are needed.

1. Obtain in-house approval of design proposals

2. Obtain approval of overall design from AT&U, landowner, County, and utility companies.

3. Undertake traffic assessment and design highway accesses to meet current highway engineering standards.

4. Engage consulting engineer to calculate storm drainage volumes, detention pond size, sanitary sewer gradients and depths, and cut-and-fill balance.

5. Obtain approval for drainage scheme from neighbouring landowner and Alberta Environmental Protection; apply for water licence if necessary.

6. Canvass potential buyers to firm up lot sizes.

7. Obtain subdivision approval for stage one.

8. (If necessary) obtain MGB approval for debenture to cover servicing and construction costs.

9. The land should be annexed prior to development *(Map 13)* so that servicing is under the Town's franchises and built to Town standards. It is also a fact that annexation is easier to negotiate while the amount of assessment is still low. The Town has already initiated annexation proceedings.

Sources

Coal mining data: Alberta Energy and Utilities Board, publication ERCB 88-45

Contours: compiled photogrammatically by UMA Geomatics, using 1:30,000 air photography flown in 1993, with horizontal and vertical ground control by Ron Hicks.

Former land use: Air photos from 1965 to date, on file at WCPA

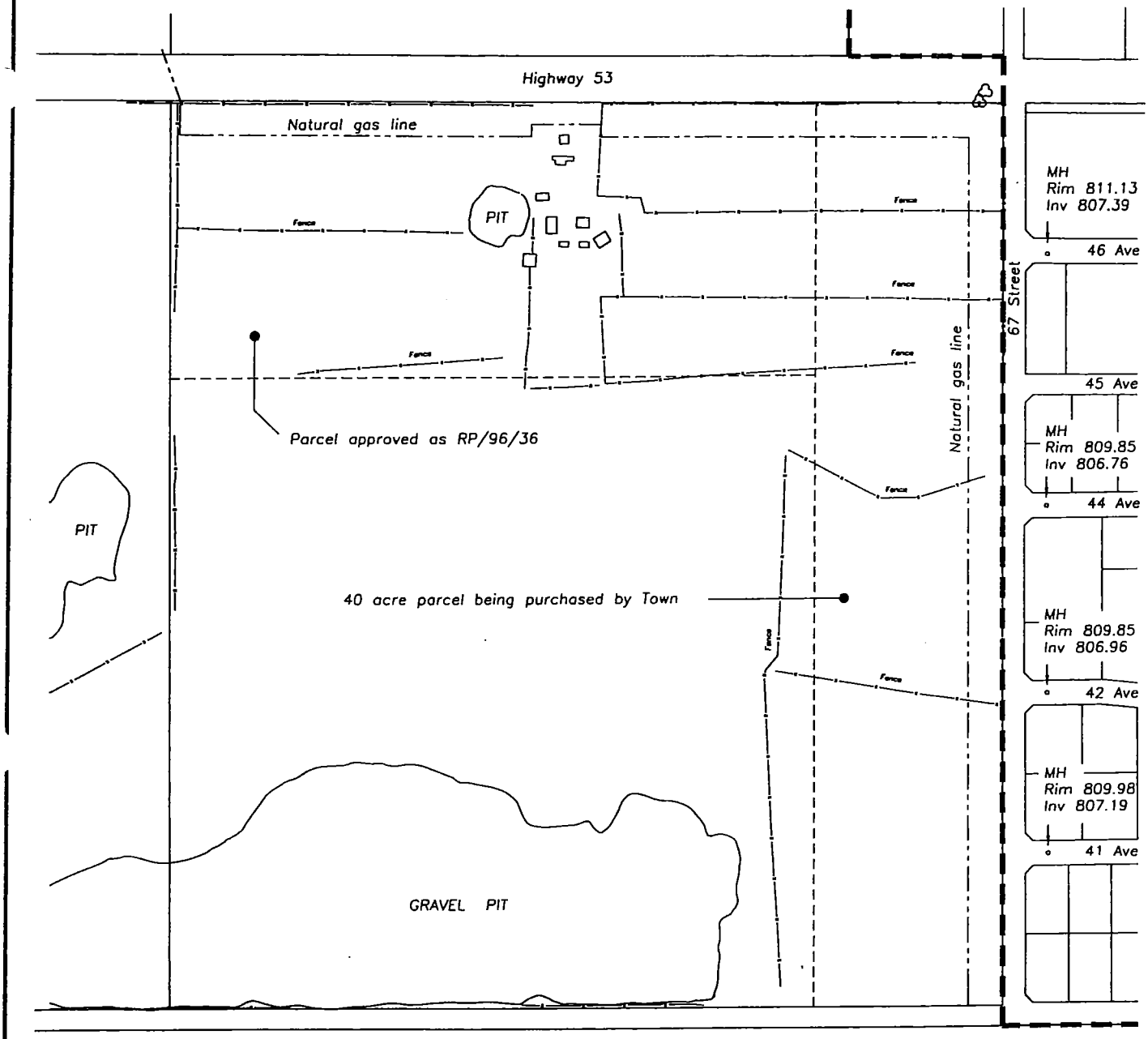
Gas line location: Northwestern Utilities Ltd

Historic Title Search: Northern Alberta Land Registration District

Hydrogeology: Wells logs obtained from Alberta Environmental Protection

Oil and gas data: Alberta Energy and Utilities Board, file SA 961390 UC and search of leases

Sewer line data: Town of Ponoka Engineering Department



Area Structure Plan – SE6 43–25–4

1. Property Lines and Buried Services

Contour and Natural Feature information supplied by:

UMA Geomatics
A Division of UMA Engineering Ltd.

CAD File: WASP–1v5

West Central Planning Agency

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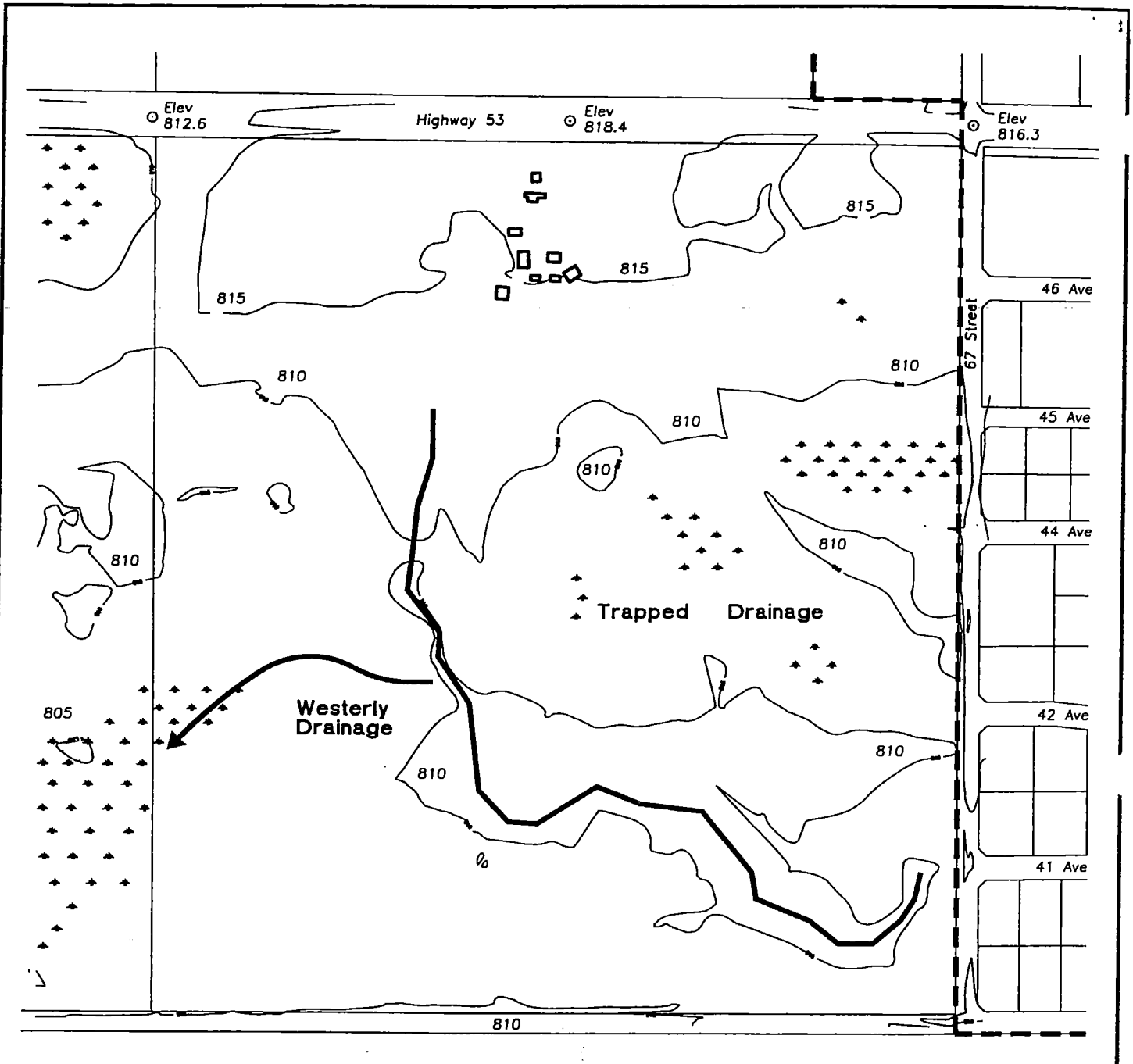

Area Structure Plan – SE6 43–25–4

2. Contours and Site Drainage

Spots heights and intermediate contours shown on UMA's original contour map have been omitted for the sake of clarity

Contour and Natural Feature information supplied by:

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CAD File: WASP–2v5

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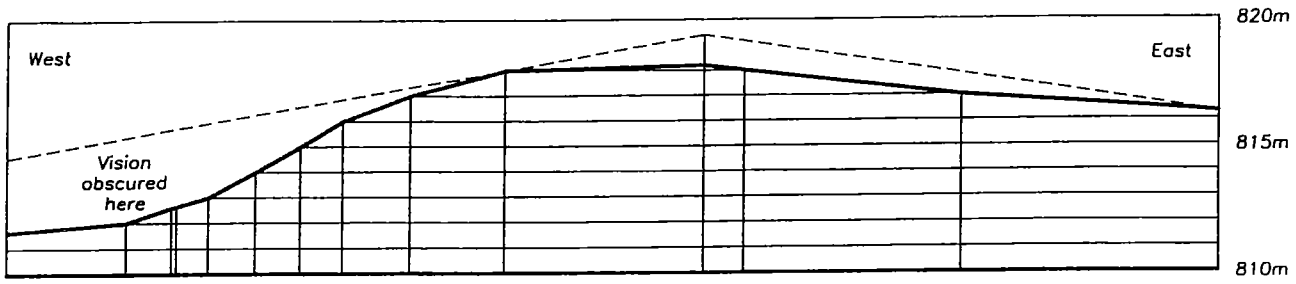
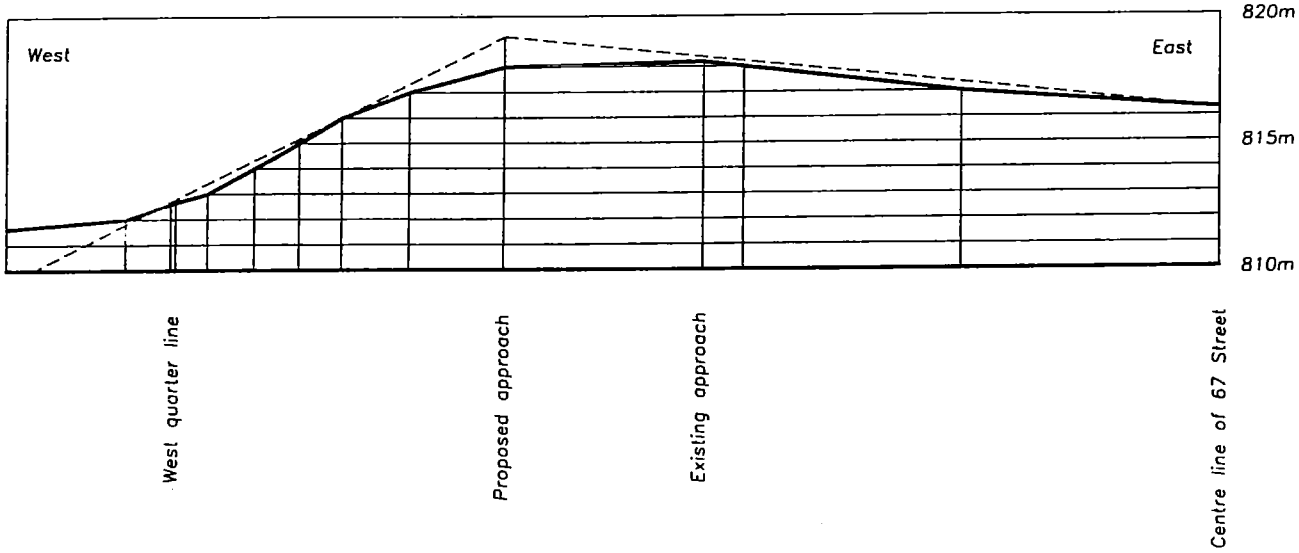
Visibility from Existing Approach



Visibility from Proposed Approach



Crown of highway
Based on ground controlled one metre contours

Visibility from eye level
1.2 metres above road surface

Area Structure Plan – SE6 43–25–4

3. Visibility Along Highway North Side of SE 6

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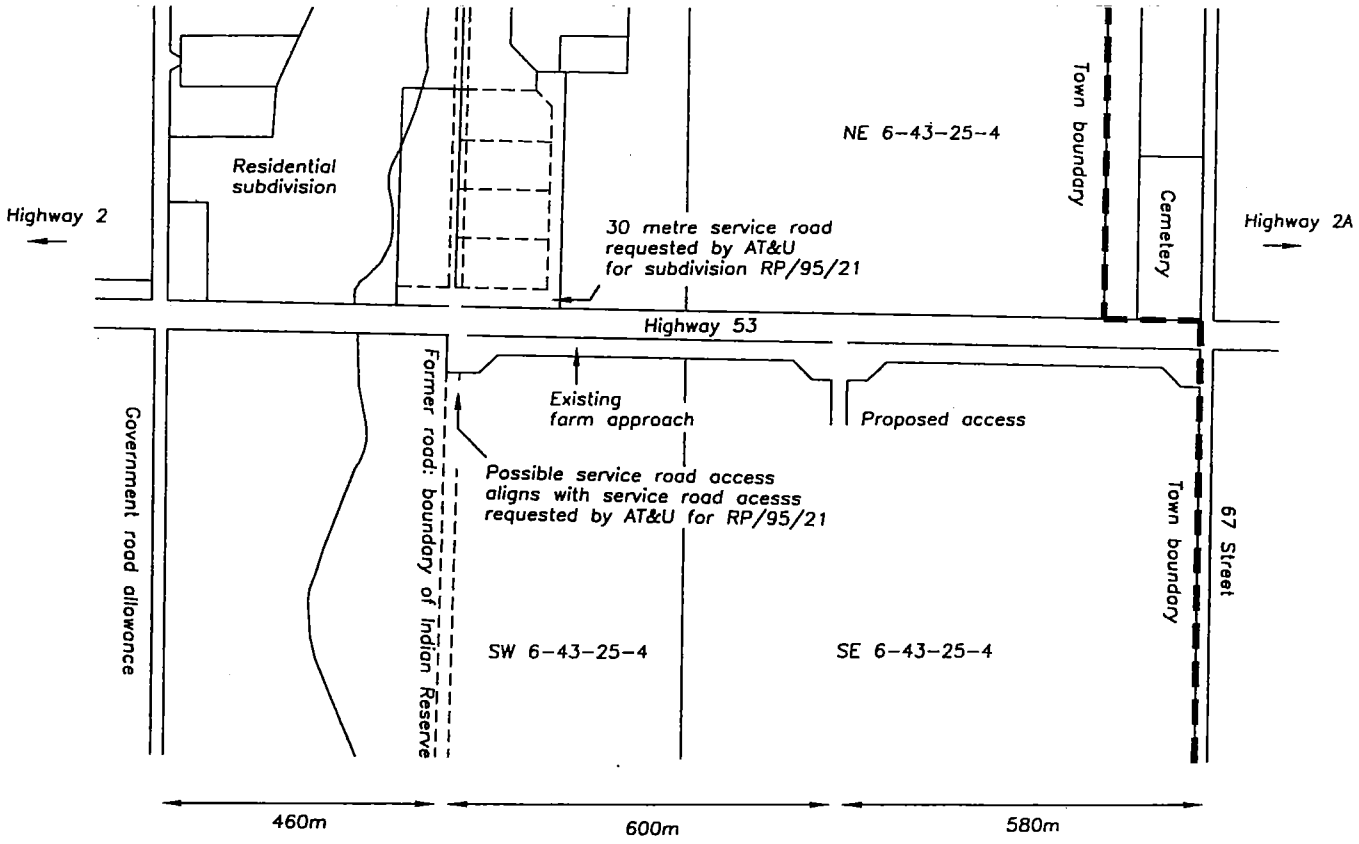

Area Structure Plan – SE6 43–25–4

4. Possible Western Extension of Service Road Showing Tie–in to Other Highway Accesses

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CAD File: WASP–4v5

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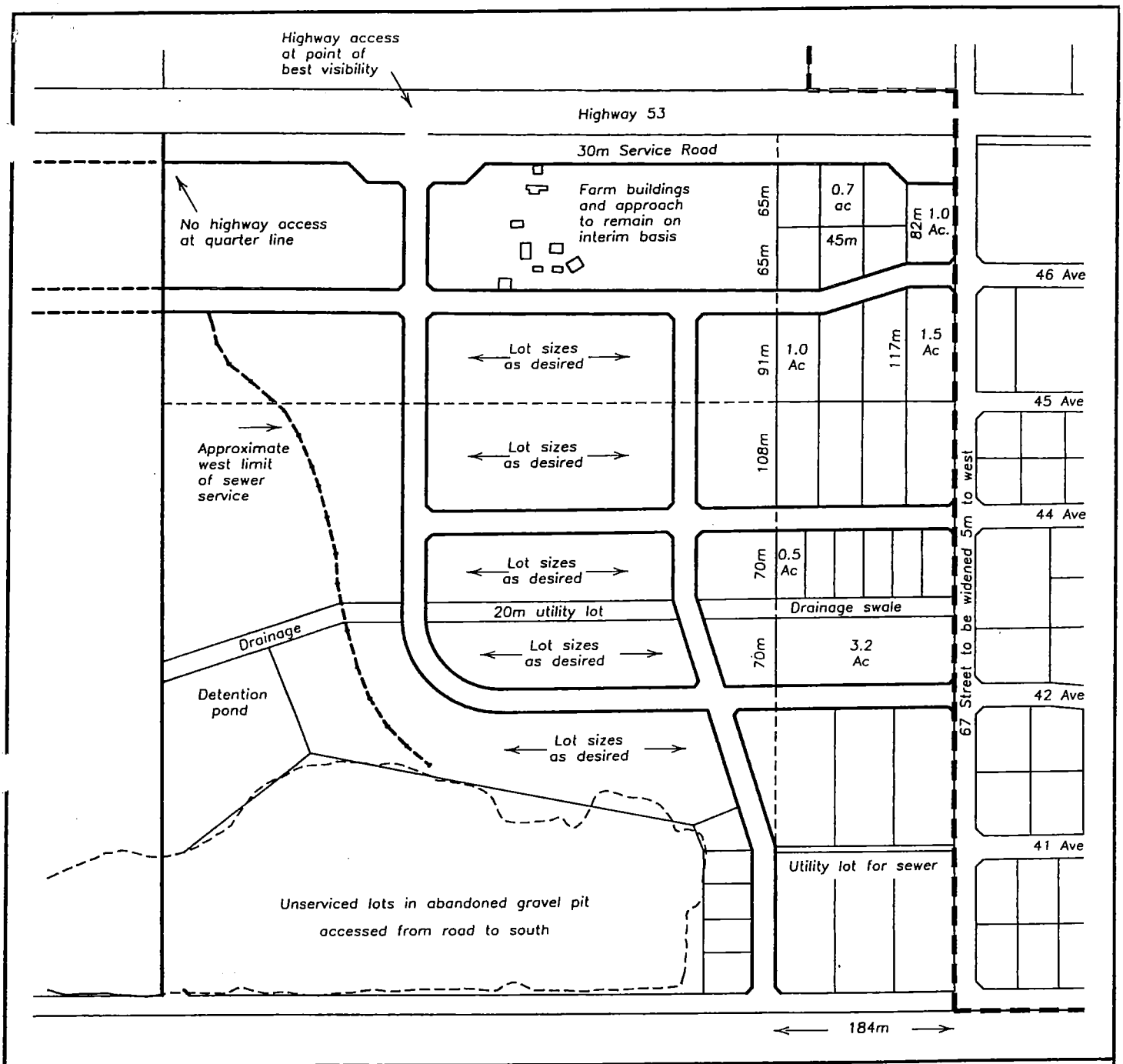

Area Structure Plan – SE6 43–25–4

5. Proposed Development Plan Road System and Lots With Drainage Alternative One

Contour and Natural Feature information supplied by:

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CAD File: WASP–5v5

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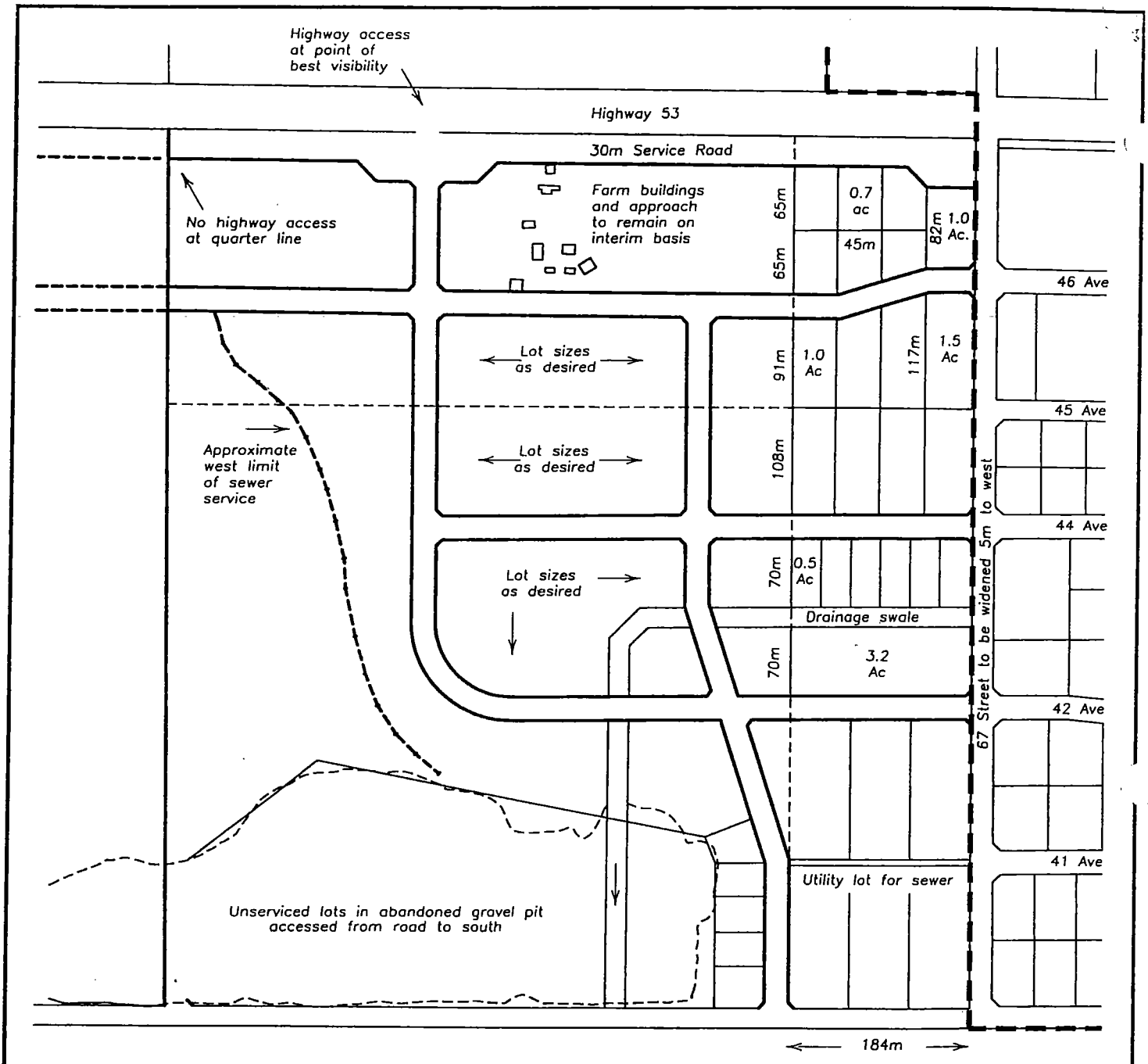

Area Structure Plan – SE6 43–25–4

6. Proposed Development Plan Road System and Lots With Drainage Alternative Two

Contour and Natural Feature information supplied by:

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CAD File: WASP–6v5

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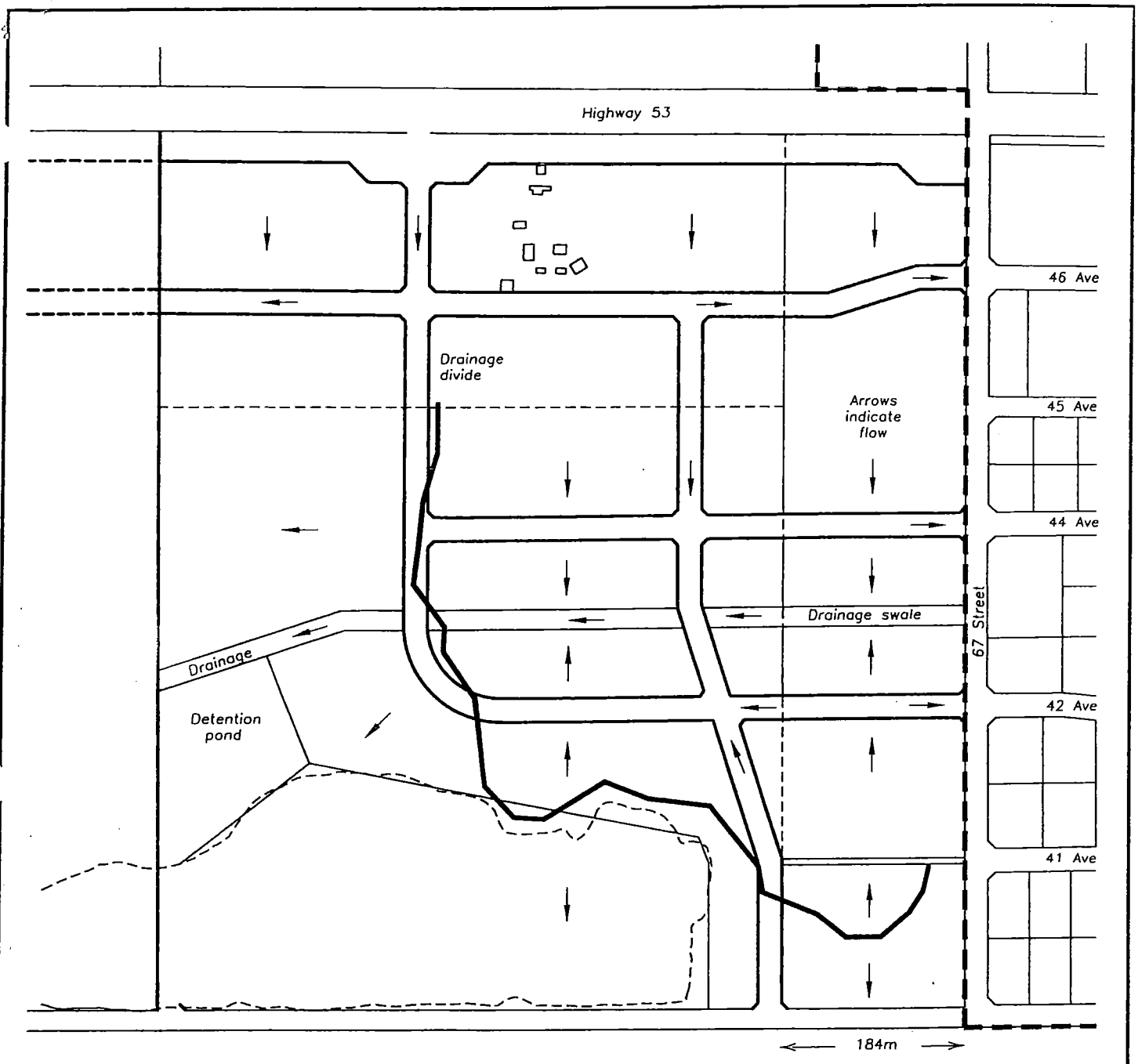

Area Structure Plan – SE6 43–25–4

7. Proposed Development Plan
Storm Drainage: Alternative One

Contour and Natural Feature information supplied by:

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CAD File: WASP–7v5

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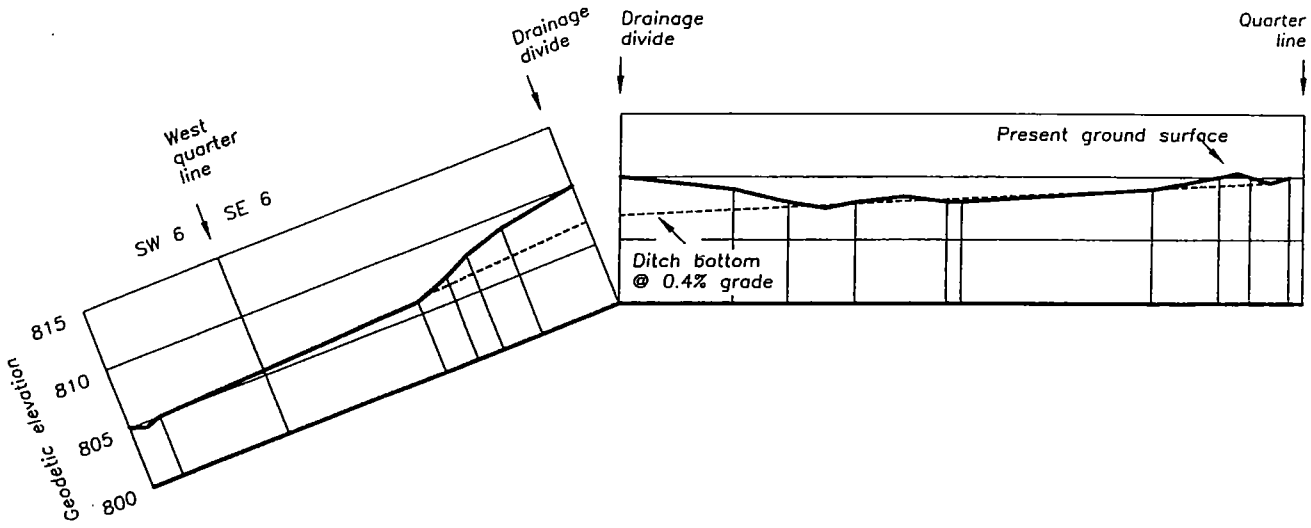

Area Structure Plan – SE6 43–25–4

8. Section along Proposed Drainage Ditch

Contour and Natural Feature information supplied by:

UMA Geomatics
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CAD File: WASP–8v5

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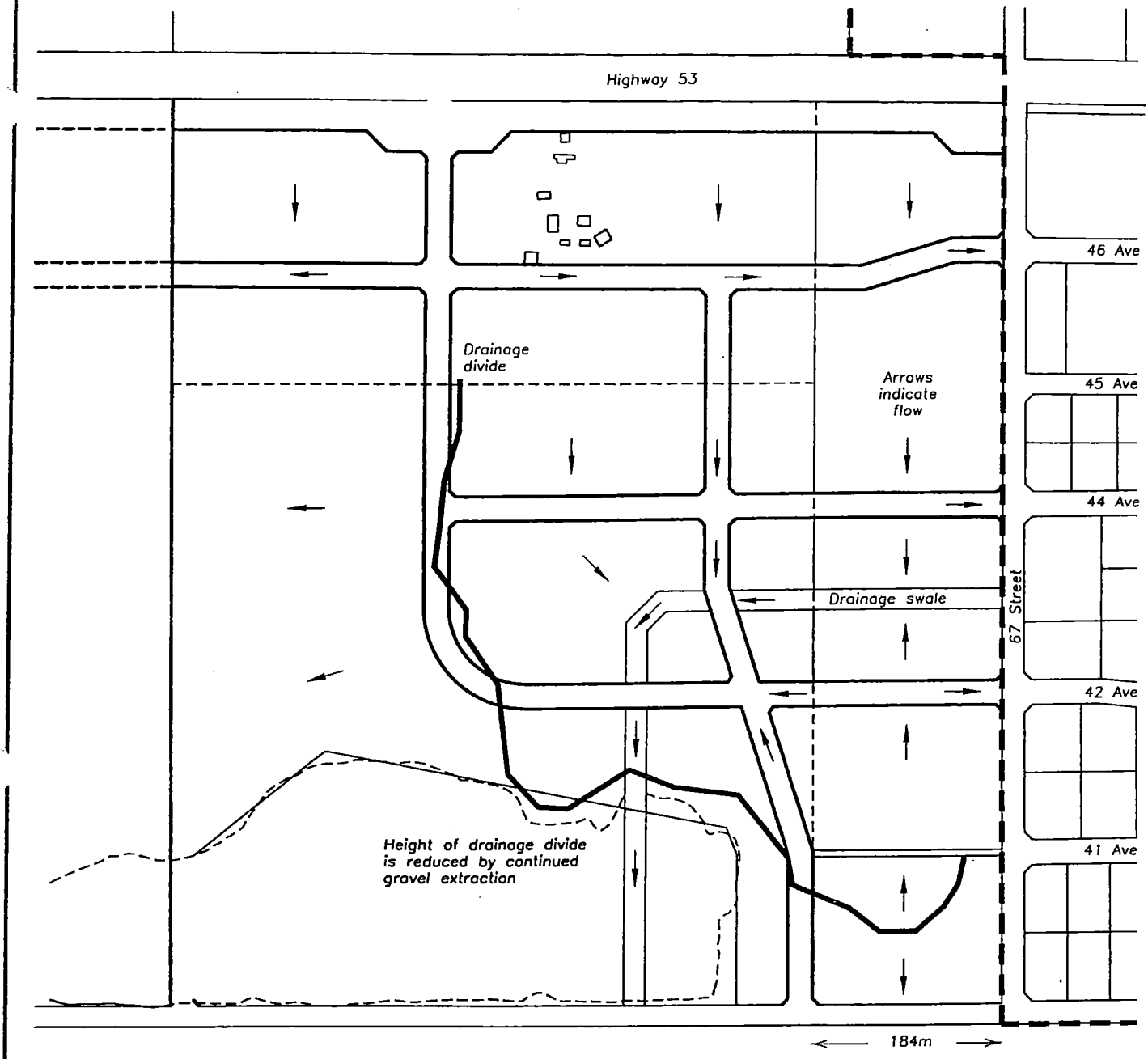

Area Structure Plan – SE6 43–25–4

9. Proposed Development Plan
Storm Drainage: Alternative Two

Contour and Natural Feature information supplied by:

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CAD File: WASP–9v5

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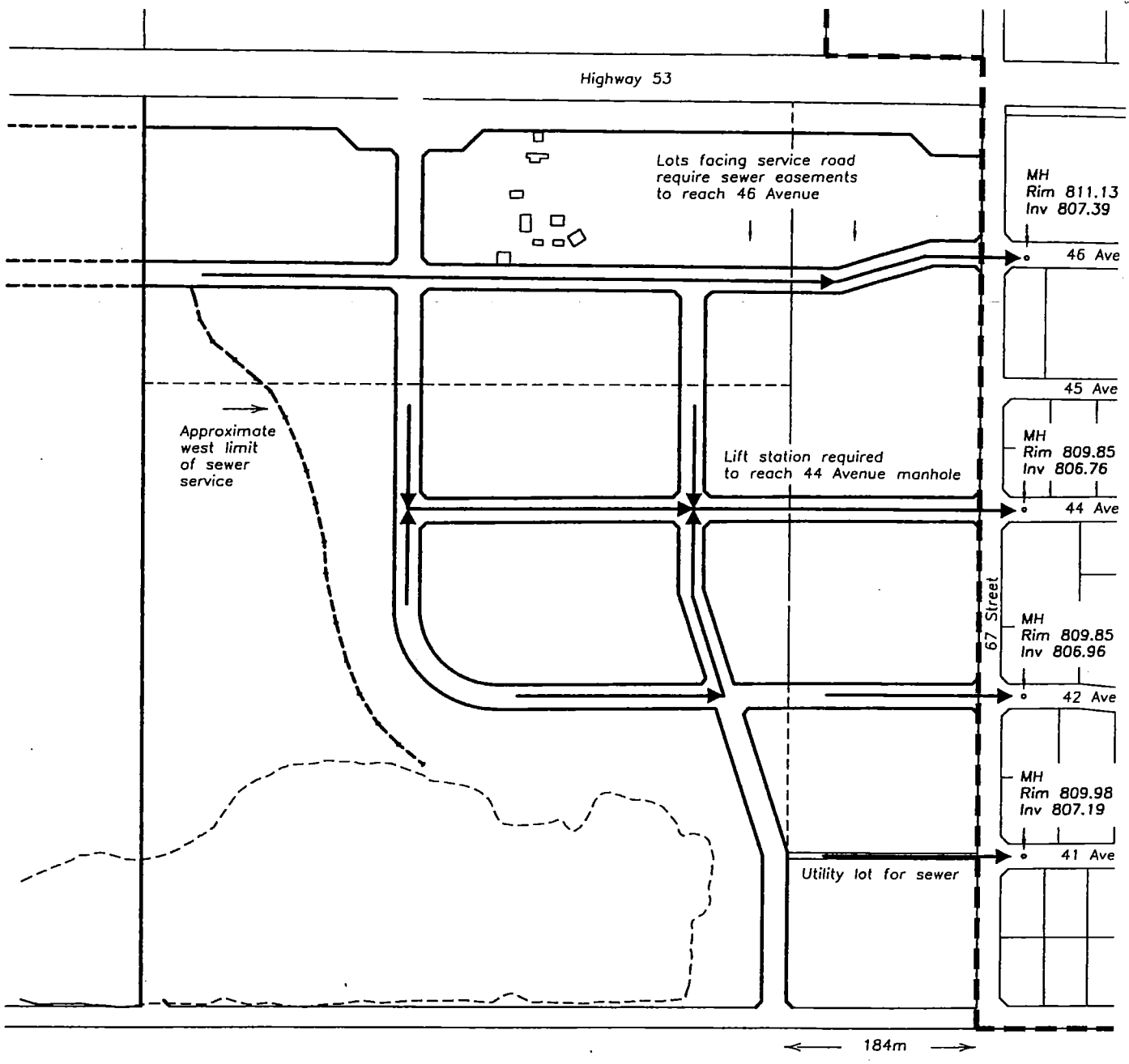

Area Structure Plan – SE6 43–25–4

10. Proposed Development Plan Sanitary Sewer System

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CAD File: WASP10v5

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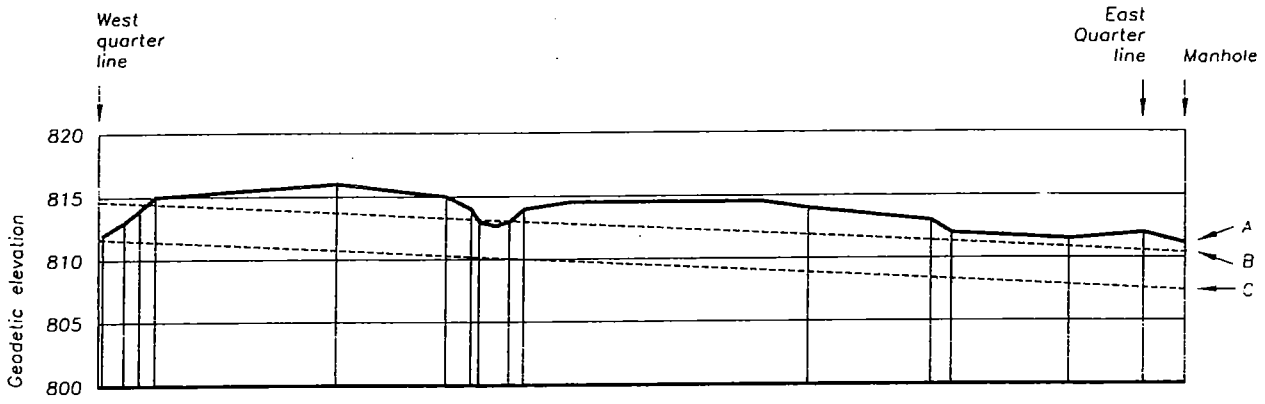

A Present land surface
B 3m cover over sewer line
C Bottom of sewer line (0.4% grade)

Area Structure Plan – SE6 43–25–4

11. Section along 46 Avenue Sewer Line

Contour and Natural Feature information supplied by:
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CAD File: WASP11v5

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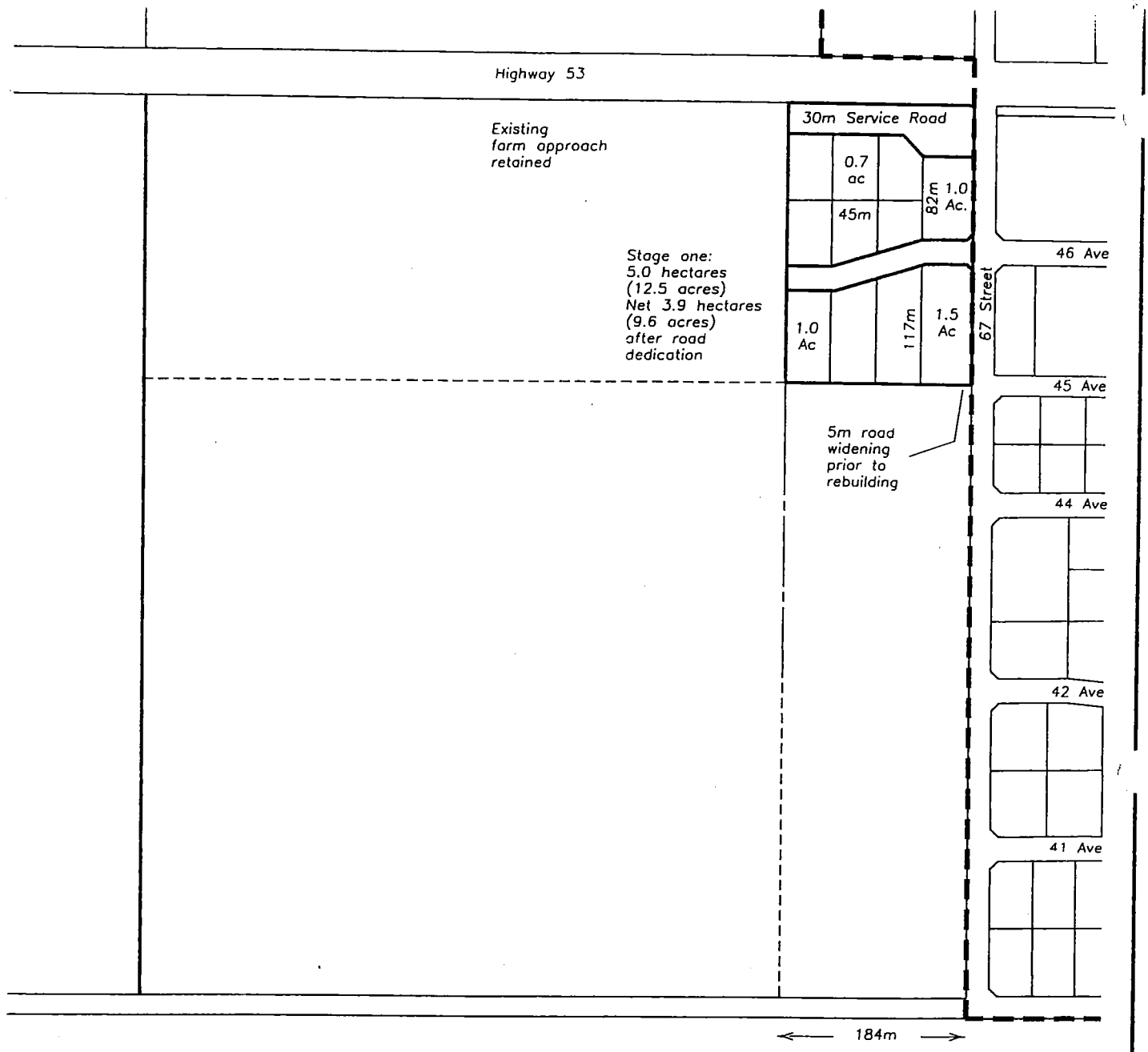

Area Structure Plan – SE6 43–25–4

12. Proposed Development Plan
Stage One Subdivision

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CAD File: WASP12v5

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