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1. Executive Summary

Project Overview
The Growth Areas Authority (GAA) is concurrently undertaking a number of Precinct Structure Plans (PSPs) for precincts within the current growth corridors of Melbourne. These PSPs aim to guide and facilitate development in these rapidly growing areas and ensure that adequate and prompt planning is available to support future development within these precincts.

Project Scope
Aurecon has been commissioned by GAA to undertake a utilities capacity assessment for the Casey Central Precinct. This report identify current services and utilities infrastructure capacity issues within the precinct and also presents key opportunities and indentify constraints for the provision of servicing and utility infrastructure to fully service the precinct into the future.

Assessment Methodology
Aurecon has consulted and liaised with relevant service authorities in order to assess the capacity of existing services and identify future services. The findings are discussed throughout the report.

Site Overview
The Casey Central Precinct bounded by Littlecroft Avenue to the north, Rosebank Drive to the south and the Narre Warren – Cranbourne Road to the west.

The land surrounding the precinct is largely urbanised with the exception of the land to south east, is highly developed and serviced while on west, north and east sides, the land is largely undeveloped and outside of the Urban Growth Boundary (UGB).

Assessment Findings
Based on the investigations undertaken, there are no major prohibitive constraints to future development within the precinct. There are some constraints to land acquisition and construction of trunk assets, however it is anticipated that these constraints can be overcome and that the precinct can be supplied with all services investigated within the scope of this report.

Recommendations
The precinct has no major barriers to development with respect to the services investigated as part of this report. It is recommended that the constraints identified within this report be given consideration within the final PSP for the Casey Central Precinct.

A number of policy and procedural recommendations have also been made incorporating feedback from various stakeholders in the project area.
2. Introduction

2.1 Project Overview
A PSP is a master plan for a whole community and is usually for between 10,000 to 30,000 people. Precinct structure planning is fundamental to making Victoria’s growth areas great places to live, both today and for future generations. PSP’s lay out roads, shopping centres, schools, parks, housing, employment and the connections to transport.

The development of greenfield sites, along with urban consolidation, is an important part of the State Government’s strategy to address strong population growth and the housing and employment demands that flow from this.¹

One important aspect being investigated as part of the PSP process is the planning and provision of adequate servicing infrastructure for these rapidly developing precincts. New developments place additional load on existing services infrastructure which often necessitates augmentation of the infrastructure to varying degrees.

This report aims to identify the high level opportunities and constraints to development with respect to services infrastructure. The capacities of existing services and the likely future infrastructure requirements have been assessed in consultation with the relevant authorities and provided within this report. Preliminary staging and high level cost information has also been provided where available.

The utilities that have been investigated as part of this report are as follows:
- Water
- Sewer
- Recycled Water
- Power
- Gas
- Telecommunications.

2.2 Site overview
As mention in Section 1, the land surrounding the precinct is largely urbanised with the exception of the land to south east, is highly developed and serviced while on west, north and east sides, the land is largely undeveloped and outside of the UGB.

Most of the precinct is presently being used for intensive agricultural purposes, and has no public roads passing through it; however Casey Central Shopping Centre is located within the northern section of the precinct.

2.3 Statement of Limitations
2.3.1 Service Authority Advice
A part of the information contained within this report has been obtained as a result of master planning and feasibility study undertaken by others. Due to the high level nature of such processes, a large number of assumptions would have been made by the various stakeholders providing input to this report, not all of which have been made known or are contained within this report.

Service Authorities have made estimates of the predicted loadings that are likely to be experienced by their respective services infrastructure and sized future assets accordingly. These estimates are often
based on population and development estimates, expected changes to standards and policies, assumed future population behaviour and demands, current usage trends and models, and other factors. All of these factors are subject to change which introduces significant uncertainty to the proposals outlined. The information presented within the report should be understood as high level planning advice.

2.3.2 Exclusions

There is a number of potentially constraining factors which have not been addressed as part of this report but which can exert significant influence over development and infrastructure planning. These factors include:

- Cultural Heritage Assessments
- Environmental Impact Assessments
- Stormwater Drainage Assessments
- Other precinct structure planning activities that are occurring simultaneously or subsequent to this project.

2.3.3 Infrastructure Sizing

The infrastructure indicated within this report is typically the highest tier of infrastructure within the precinct and is part of the central distribution and supply infrastructure required to service the precinct. Smaller scale reticulation at allotment scale has not necessarily been indicated, however all services will obviously require assets at these scales.

2.3.4 Information Not Available

Staging and costing information has been presented at various points within the report, but in many cases this information was not available from the relevant stakeholders. Staging is a dynamic consideration that relies on many factors that are sometimes beyond the scope of master planning activities.

With respect to costing advice, in the majority of cases as part of essential services legislation, service authorities will be required to bear the cost of trunk infrastructure provisions and typical development costs are applicable at an allotment level.

2.4 Engineering Services Reports Evaluation

The City of Casey engaged Earthtech to prepare a servicing report for the precinct in 2004. A summary evaluation of the report, *Engineering Services Report – Casey Central Sustainable Suburb – Cranbourne North* is provided as follows:

The findings outlined within the report are reasonably consistent with how infrastructure development has progressed in the areas surrounding the precinct. While in 2004, some services required extension to the precinct, the majority of services are now in place in the immediate proximity of the precinct and the majority of service upgrades discussed within the Earthtech report have now been implemented or have been superseded by new strategies. Refer to Section 4 for a description of the current servicing strategies for the precinct.
3. Method of Assessment

3.1 Key Stakeholders

3.1.1 Growth Areas Authority
The Growth Areas Authority is an independent statutory body with a broad facilitative role to help create greater certainty, faster decisions and better coordination for all parties involved in planning and development of Melbourne’s growth areas.1

3.1.2 Service Authorities
The services authorities are responsible for planning, designing, constructing and maintaining trunk supply and distribution of utilities within the precinct.

3.2 Information Sources
In producing the content within the report, the following sources of information were utilised to varying degrees:

A Dial-Before-You-Dig enquiry was undertaken for the precinct to determine the extent of readily available services information and to assess the size and location of existing services.

Publicly available aerial and street level photography were utilised in addition to cadastral and contour information as part of a high level desktop review into the precinct.

Correspondence, meetings and phone conversations with personnel from the various service authorities provided information with regard to future servicing strategies and master planning.

Accessing the websites of service authorities, industry associations and government departments assisted in providing further information with regard to the capacities of existing assets, plans for future assets, policies, standards and legislation governing development.

3.3 Information Review
Information from the various sources was examined and compared for consistency. Meetings were held with relevant service authorities to discuss the various responses and information provided and to bring further clarity to the information.

3.4 Reporting and Consultation
The information has subsequently been analysed and collated, with the various services information combined on to a common base plan. The key constraints and opportunities have been documented within this report. It is recommended the information provided in the report be reviewed prior to development stage to ensure the information presented is up to date and accurate.
4. Services Investigation

4.1 Water

The provision of water supply to the Casey Central Precinct is the responsibility of South East Water Limited (SEWL).

Existing developments surrounding the precinct are well established residential areas with reticulated water supplies. Existing 300mm diameter water mains are located adjacent to the eastern boundary of the precinct within Glasscocks Road and aligned with Rosebank Drive although they currently do not extend within the precinct. No authority water main is located internally to the agricultural section of the Casey Central Precinct.

As development occurs within Casey Central, SEWL will extend the existing water mains into the precinct to service developments as they occur.

SEWL have recently constructed a new pressure reducing station, the Glasscocks Road PRV, which at time of writing is due for commissioning in the immediate future. The pressures available within the water supply network adjacent to PSP No.12 are adequate to accommodate the ultimate development of the precinct.

Internally to the precinct, water mains sized up 300mm diameter should be adequate to service the new developments, with smaller water mains, servicing smaller areas within the development and individual properties. These mains will be designed and constructed according to the staging that occurs within the precinct.

A servicing layout has been provided within Appendix A, with indicative sizing and locations of water main assets. These details are subject to confirmation by SEWL in later stages of development.

4.2 Sewer

SEWL is the responsible authority for the provision of sewer reticulation within the precinct.

SEWL have advised that existing Sewers adjacent to the precinct have adequate capacity to accommodate the ultimate development of PSP No.12. The northern section of the site is part of the Hampton Park Catchment area and will be serviced via extension of existing sewer reticulation in adjacent streets.

The southern portion of the site falls within the Hallam Valley Catchment and will discharge via proposed 300mm diameter branch sewer located at the south east corner of the precinct, aligned with Rosebank Drive, which will connect to a proposed 375mm diameter branch sewer. The construction of these reticulation sewer will be developer driven and will be shared assets with contributions being paid by developers.

It is proposed that the precinct will be serviced entirely by gravity sewers however interim pumping measures may be required. The present agricultural infrastructure such as water supply dams, will conflict with the proposed gravity sewerage strategy. Subject to the timing of land acquisition and development within the precinct, a pumping station and temporary rising main may be required until a point in time when the dams have been removed.
Any development occurring in the southern portion of the precinct may also require interim pumping measures until the proposed 300mm diameter branch sewer has been constructed.

A servicing layout has been provided within Appendix A, which includes the indicative sizing and tentative locations of sewer mains within the precinct. These details are subject to confirmation by SEWL in later stages of development.

### 4.3 Recycled Water

SEWL is the responsible authority for the provision of recycled water reticulation within the precinct. Reticulated recycled water supply is not yet available to the precinct.

Melbourne Water’s Eastern Treatment Plant (ETP) is located to the west of the precinct and has a large supply capacity for recycled water.

A proposed transfer main will be available to supply recycled water to the precinct, the location of which is still subject to confirmation. The most likely location for this asset at present is within Thompsons Road which is located to the south of the precinct, with timing anticipated to be late 2012 or early 2013. This transfer main will enable the new developments within Casey Central to be supplied with recycled water at Class A standards, enabling dwellings to utilise recycled water for toilet flushing and irrigation purposes.

SEWL is investigating opportunities for Integrated Water Management (IWM) within new precincts.

SEWL are likely to purchase the water entitlement being utilised by the agricultural owners within the precinct to enhance supply to the area.

A key element of the recycled water supply infrastructure for the precinct and surrounding precincts is the construction of a storage tank site somewhere to the east of PSP No. 12. It is planned to construct this tank in the short-medium term. Land acquisition has not yet occurred for this asset.

A servicing layout has been provided within Appendix A. These details are subject to confirmation by SEWL in later stages of development.

### 4.4 Power

SP AusNet is the responsible authority for the provision of electrical power infrastructure within the precinct.

The nearest existing zone substation is the Clyde North Zone Substation (CLN) located to the south east. The Hampton Park Zone Substation and Berwick North Zone Substation also provide supply to the adjacent precincts.

There are numerous 22kV distribution lines surrounding the precinct

As development occurs within the precinct, SP AusNet will continue to augment supply by extension of 22kV feeders into the precinct.

SP AusNet have advised that in order to provide sufficient capacity to service the Casey Central area, a new zone substation will be required, proposed to be located west of the precinct near the intersection of Thompsons Road and Evans Road. This substation will be known as the Cranbourne Zone Substation and is planned to be constructed in December 2011.
After this substation has been constructed, the 22kV feeders surrounding PSP No. 12 will have adequate supply to service the precinct to ultimate development.

A servicing layout has been provided within Appendix A, with the indicative sizing and location of transfer and distribution assets surrounding the precinct. These details are subject to confirmation by SP AusNet in later stages of development.

### 4.5 Gas

APA Networks is the responsible entity for the provision of gas infrastructure within the precinct, while asset ownership will reside with Envestra after construction.

High pressure gas mains are located surrounding the precinct, with a 150mm diameter gas main located on the western boundary of the precinct within Narre Warren- Cranbourne Road.

A 450mm diameter GasNet transmission pipeline traverse the precinct from east to west aligned with Rosebank Drive. This asset is located within a 25m gas easement.

In general, existing or proposed thoroughfares will be utilised for any proposed supply mains. Further information on street layouts and housing density is required before APA Networks can provide the requirements for reticulation mains in further detail.

There is sufficient capacity within the existing 150mm diameter high pressure main to supply the precinct to ultimate development. Direct connections to the GasNet transmission pipeline will not be permitted.

A servicing layout has been provided within Appendix A, which includes the approximate locations of existing infrastructure. The details of future reticulation and supply networks are subject to confirmation by APA Networks in later stages of development and will require confirmed road layouts.

### 4.6 Telecommunications

The provision of copper and optic fibre telecommunications infrastructure has been discussed with Telstra, however a formal response is still pending.

The exchanges currently servicing the precinct are the Narre Warren and Cranbourne North exchanges. Both exchanges have ADSL and ADSL2+ capability however no spare ports are available for some distribution areas.

On 7 April 2009, the Australian Government announced the establishment of NBN Co Limited (NBN Co) to design, build and operate the wholesale-only National Broadband Network (NBN).

At the time of writing, due to legal proceedings surrounding the NBN, it is not certain who will be responsible for planning, design and construction of optic fibre networks to Casey Central, however the opportunities and constraints for provision of fibre optic infrastructure to the Casey Central precinct were discussed with network planning personnel at Telstra in order to better understand the telecommunications infrastructure servicing requirements.
The following information has been obtained from the Government’s Department of Broadband, Communications and the Digital Economy website and indicates the current policy on the rollout of telecommunications infrastructure to new developments.

On 20 June 2010, NBN Co and Telstra announced that they had entered into a Heads of an Agreement on the rollout of the National Broadband Network (NBN). In support of that agreement the Government indicated it would progress public policy reforms to support the transition to the NBN.

Following extensive consultation and consideration of the Implementation Study recommendations, the Government has determined that from 1 January 2011 NBN Co will act as wholesale provider of last resort in new developments constructed within, or adjacent to, NBN Co’s long term fibre footprint. Developers and, on their own property, owners will be required to cover the costs of trenching and ducting. NBN Co will cover the other costs of installing fibre infrastructure in the development, including backhaul.

During the period that the NBN is being deployed, NBN Co may sub-contract the rollout and operation of fibre networks in new developments, providing that the networks are built to meet the technical specifications of the NBN and operated on an open access basis. Ownership of these networks would transfer to NBN Co and form part of NBN Co’s open access wholesale only network.

Telstra may not be required to provide infrastructure in new developments. However to ensure that retail services are offered in new estates, Telstra will be required to provide standard telephone services to end users in new developments in which retail services are not offered by another service provider (retail provider of last resort).³

The ownership of the communications network in greenfield developments is currently being negotiated with NBN Co and Telstra. Future information on the policy agreement between NBN Co and Telstra can be obtained from the Department of Broadband, Communications and the Digital Economy (DBCDE) department.
5. Development Opportunities and Constraints

This section serves to highlight content from the previous section that particularly relates to constraints and opportunities with regard to development. Shortfalls in the existing networks of adjacent precincts have been indicated where identified in Section 5.1 Current Constraints, while critical infrastructure required in order to service future development within this precinct is identified in Section 5.2 Future Constraints.

5.1 Current Constraints

Water
The existing networks have adequate pressures to service the existing developments.

Sewer
The existing networks have adequate capacity to service the existing developments.

Recycled Water
Reticulated recycled water supply is not available to residential customers of adjacent precincts.

Power
The existing networks have adequate capacity to service the existing developments.

Gas
The existing networks have sufficient pressure and capacity to adequately service the existing developments. Gas reticulation is well established in neighbouring residential areas.

Telecommunications
The existing exchanges have limited for ADSL and ADSL2+ ports for some distribution areas and anecdotal evidence suggests that wireless broadband is the only viable opportunity available to some consumers.

5.2 Future Constraints

Water
It is expected that water supply can readily be provided within the precinct from existing supply mains.

Sewer
The location of agricultural supply dams is in conflict with the proposed location of sewer assets; hence a pumped sewerage solution may be required in the interim.

Recycled Water
A new transfer pipeline and storage tank is required in order to provide recycled water supply to PSP No. 12 and surrounding precincts.

Power
Prior to ultimate development of PSP No.12 a new zone substation will be required and is planned for December 2011.
Gas
It is expected that gas can readily be supplied to the precinct via extension of existing high pressure mains and low pressure reticulation as required.

Telecommunications
At the time of writing, there were no plans for upgrades at the relevant exchanges. It is believed that further augmentation and upgrade of the exchanges will be required in order to fully service the precinct with broadband services.

The policies and pending legislation surrounding the NBN may mean that optic fibre is mandated to the precinct, however this remains to be finalised subject to political and industry proceedings.

5.3 Development Opportunities

Shared Trenching
Where the development staging is known and anticipated, services can often be planned well in advance, enabling the various service authorities to utilise shared trenching. This can significantly reduce servicing infrastructure costs. If services are not installed concurrently, it can create barriers to effective service provision as costs, coordination and approvals may slow the implementation of the trunk infrastructure required.

Integrated Water Management
SEWL are pursuing opportunities to implement stormwater harvesting and reuse where possible. These measures may serve to reduce the demand for potable water and hence optimise the infrastructure requirements.
6. Regulatory Framework for Assessment

6.1 Legislation and Policy

**Essential Services Commission Act 2001 and related Codes & Guidelines**

The Commission is Victoria's independent economic regulator of essential services supplied by the electricity, gas, water and sewerage, ports, and rail freight industries. The services provided by these sectors are among the most important contributors to the social and economic wellbeing of all Victorians. In addition to its regulatory decision making role in these sectors, the Commission also provides advice to the Victorian Government on a range of regulatory and other matters.

It is also responsible for developing and administering the Victorian Renewable Energy Target and the Victorian Energy Efficiency Schemes. In 2009, the Commission was given the responsibility of developing a performance monitoring framework for local government in Victoria.

Established by the Essential Services Commission Act 2001, the Commission subsumes the Office of the Regulator-General and its work builds on the regulatory foundation laid by that Office. The Commission has developed a reputation for high quality and rigorous analysis and regulatory decision making.

The Commission's objective is to promote the long term interests of Victorian consumers. It seeks to achieve this objective by having regard to the price, quality and reliability of essential services.

**Subdivision Act 1988**

The purposes of the Act are to

- set out the procedure for the subdivision and consolidation of land, including buildings and airspace, and for the creation, variation or removal of easements or restrictions, and
- regulate the management of and dealings with common property and the constitution and operation of owner’s corporations.

**Local Government Act 1989**

Local Government in Victoria is administered under the Local Government Act 1989, which provides a framework for the establishment and operation of councils. The Act is the main legislative instrument for Victoria’s 79 councils. It commences with a preamble that restates the constitutional recognition of local government as a distinct and essential tier of government.

Part 1A of the Local Government Act contains the Local Government Charter, which describes the purpose, objectives and functions of council. In addition to these matters, the Local Government Act also includes provisions for:

- entitlements for residents and ratepayers to vote in council elections
- the conduct of local council elections, nominations and vote counting
- independent electoral representation reviews by an electoral commission
- council governance requirements, including codes of conduct and disclosure of conflicts of interest
- council decision making, including records of meetings, confidentiality and limits on decisions during election periods
- levying and payment of council rates and charges
• preparation of Council plans, budgets and annual reports
• councils’ powers to make and enforce local laws

Planning and Environment Act 1987

The Planning and Environment Act 1987, the Planning and Environment Regulations 2005 and the Planning and Environment (Fees) Regulations 2000 establish the legal framework for the planning system in Victoria. The purpose of the Act is to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interest of all Victorians.

Environment Protection Act 1970

The Environment Protection Act 1970 was at its inception only the second Act in the world to deal with the whole of the environment in a systematic and integrated way. The Act is outcome orientated, with a basic philosophy of preventing pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them. Over the years the Act has evolved to keep pace with the world’s best practice in environmental protection regulation and to meet the needs of the community.

Key aims of the Act include sustainable use and holistic management of the environment, ensuring consultative processes are adopted so that community input is a key driver of environmental protection goals and programs and encouraging a co-operative approach to environmental protection.

To help achieve these aims, the following Principles of Environment Protection were added to the Act in 2001:
• integration of economic, social and environmental considerations;
• precautionary principle;
• intergenerational equity;
• conservation of biological diversity and ecological integrity;
• improved valuation, pricing and incentive mechanisms;
• shared responsibility;
• product stewardship;
• wastes hierarchy;
• integrated environmental management;
• enforcement; and
• accountability.

Such concepts parallel those included in the National Strategy on Ecologically Sustainable Development and the Intergovernmental Agreement on the Environment (IGAE).

Changes made to the Act by the Environment Protection (Resource Efficiency) Act 2002 were designed to help all sectors of the Victorian community to continue to find innovative ways of using resources more efficiently and to reduce the ecological impact.

The Act establishes the powers, duties and functions of EPA. These include the administration of the Act and any regulations and orders made pursuant to it, recommending State environment protection policies (SEPPs) and industrial waste management policies (IWMP) to the Governor in Council, issuing works approvals, licences, permits, pollution abatement notices and implementing National Environment Protection Measures (NEPMs).
Water Industry Act 1994

(Water- Sewer - Recycled Water)

The Water Industry Act 1994 establishes the framework under which the three Melbourne water retailers are licensed and regulated by the Commission, together with the statutory functions, powers and obligations of the licensees.

Water Act 1989

The Water Act 1989 provides the framework for the allocation and management of the State's water resources, including a bulk water entitlement regime and sets out the functions, rights and obligations and governance arrangements of regional urban water authorities and rural water authorities.

Electricity Industry Act 2000

The main purpose of this Act is to regulate the electricity supply industry.

National Electricity (Victoria) Act 2005

The main purpose of this Act is to make provision in relation to the national electricity market.

Gas Industry Act 2001

The main purpose of this Act is to regulate the gas industry.

National Gas (Victoria) Act 2008

Telecommunications Acts

Telecommunications Act 1997
Australian Communications & Media Authority Act 2005
Emergency Services Telecommunications Authority Act 2004
Telecommunications (Consumer Protection and Service Standards) Act 1999
6.2 Guidelines and Standards

Water
- WSA 03-2002 Water Supply Code of Australia MELBOURNE RETAIL WATER AGENCIES (MRWA) V1.0

Sewer
- WSA 02-2002 Sewerage Code of Australia MELBOURNE RETAIL WATER AGENCIES EDITION (MRWA) V1.0

Recycled Water

Power
- AS 3000 - Electrical installations (Australian/New Zealand Wiring Rules)
- AS 3175 – Approval and test specification – Residual current-operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – General rules
- Electricity Distribution Code for Victoria, Energy Safe Australia

Gas
- AS 1432-2004 Copper tubes for plumbing, gasfitting and drainage applications

Telecommunication
- ACA TS 102-1998 Telecommunications Technical Standard (Customer Equipment and Customer Cabling)
7. Conclusion and Recommendations

7.1 Suitability of Precinct for Development

This section is a general overview of the findings within the report and relates to the suitability of the precinct for development with respect to the services investigated within the report. Many other factors influencing the development suitability of the precinct are beyond the scope of this report.

Based on the investigations undertaken, there are no major prohibitive constraints to future development within the precinct. There are spatial constraints to deployment of trunk assets, however it is anticipated that these constraints can be overcome with interim solutions and that the precinct can be supplied with all services investigated within the scope of this report.

Refer to Section 0 for a more detailed understanding of the constraints currently being experienced and the key constraints to infrastructure provision into the future.

7.2 Process Improvement

Based on discussions with stakeholders involved with this project, the following recommendations will assist in facilitating the rapid planning and implementation of adequate infrastructure servicing at the precinct scale. It is noted that the majority of the following recommendations will require action from numerous stakeholders however they are presented for the benefit of GAA, both with the possibility of informing future policy and action as well as ensuring that the valuable stakeholder perspectives gained throughout these investigations can be captured within this report where relevant.

Coordination

Timely awareness of development staging within a precinct enables service authorities to be proactive in the planning and delivery of critical infrastructure within the precinct. It also allows accurate budget forecasting and suitable resource allocation to occur. As PSP documentation is a reference point for developers, it is recommended that early engagement with service authorities by developers be emphasised within the PSP. Effective communication between individual service authorities reduces overall costs due to shared trenching etc. and also minimises spatially conflicting services. Service authorities appreciate knowing in advance the zoning and forecast timing of developments within precincts and it is recommended that timelines for development be provided if available.

Safety & Environment

Two aspects for potential streamlining of process and providing clarity for all stakeholders are safety and environmental factors. These are obviously very important to consider in the planning and deployment of services infrastructure. It has also been identified that they can present significant delays to infrastructure provision if not managed well. A consistent and reasonable approach to these elements is needed so that approval authorities and other stakeholders required to provide consent can adopt a uniform approach. For example, some stakeholders mentioned that implementation of the Road Management Act 2004 is sometimes interpreted quite differently by the varying parties involved.

References

Appendix A
Servicing Layout Plan