Engineering and Works Services Standards and Specifications

Section 6

Property Development
Technical Requirements and Guidelines
Earthworks, Drainage and Parking

These Standards and Specifications have been adopted by the City, and are required to be applied in the City of Busselton for all property development, earthworks, drainage and parking works designed by Consultants and carried out by Contractors, Developers and the City Staff. These Standards and Specifications will be maintained by the Director, Engineering and Works Services.

Revision No	Date	Section Amended	Prepared	Reviewed
A	**December 2009**	**All**	**Community Infrastructure**	**Infrastructure Development**
B	**June 2013**	**All**	**Engineering and Works Services**	**Development Control**

I n d e x

1. GENERAL

1.1 BACKGROUND

These standards and specifications have been developed for all considerations on property development, earthworks, drainage and parking works. This document should be read in conjunction with Section 2 “Designs and Plans for Roads, Earthworks, Paths and Stormwater Drainage”; Section 3 “Construction - Earthworks, Storm Water Drainage, Roads and Other Pavements”; and any conditions and specifications issued by The City’s Lifestyle Development Division.

The information contained within this document represents minimum standards for design and construction. It is not intended to be a comprehensive construction specification. The level of supervision and inspection of specifications by the City is not to the same level as for works on public roads and reserves. The conditions of planning approval will be fully checked for compliance.

The information contained herein represents a set of standards, specifications, guidelines and practices for supervision and construction works, adopted by the Council. Variations from these standards and specifications will be considered on a case by case basis.

The authority of setting conditions for property development has been delegated to the Director, Lifestyle Development. The Director, Engineering and Works Services Division will advise the Director, Lifestyle Development on the specifications on engineering matters related to development; and has the authority to vary the standards and specifications on individual applications where site conditions or situations allow.

It is acknowledged that accepted industry standards will change over time. In order to accommodate such changes, the contents of this document will be reviewed on a regular basis. These standards and specifications will be posted on the City’s website at www.busselton.wa.gov.au/services/engineering/tech_stds and are available for downloading.

1.2 SURVEY, DESIGN AND PLANS

Two (2) copies of the scaled site works plan (recommended scale 1:200) showing the design and layout of drainage, crossovers, driveways and parking areas, and landscaping together with brief specifications are to be submitted for approval. Details to be provided on the plan include: -

(a) Site plan showing the outline dimensioned and location of all buildings, the access ways and traffic flow proposed.

(b) Lot dimensions, number and street names.

(c) Floor levels - existing and proposed in relation to street crown levels and/or in the case of development in a flood plain the level specified by the Water and Rivers Commission and approved by The City.

(d) Existing contours within the 1 in 100 year flood level shown in Australian Height Datum (AHD) levels where the site is in or near the Vasse, New and Sabina Rivers or the Toby Inlet flood plains.

(e) Plan view with dimensions of any paved areas, including relationship to adjoining lots. Access by large delivery trucks to the service doors of Commercial and Industrial developments must be considered.

(f) Landscaping proposed, existing vegetation and protection, including verges.

(g) Pipe inlet and outlet invert levels of all stormwater drainage, gullies outfall, manholes, headwalls, basins and surface flow lines and street drainage connection point/s.

(h) Location and size of existing and proposed crossovers and other public utilities connections.

(i) The minimum pavement gradients in any direction is 0.6% on paved surfaces, when constructed with kerbing.

Note: All levels shown on plans should be AHD. Finished floor levels (FFL) relative to minimums for flood plain levels will be required to be certified by a surveyor.

The 1 in 100 year flood levels shall be shown on all plans in accordance with the data published by the Water Corporation of Western Australia in the Busselton Regional Flood Study and as issued by the Department of Water (DoW). *Note* that this Study has been reviewed and DoW has published interim amended freeboard allowances to finished floor levels. It is intended to re-establish the freeboard previously by improving flood routes, outlets and drainage within Busselton.

Finished floor levels are generally required to be 500mm above the 100 year flood level (desirable freeboard).

2. EARTHWORKS

2.1 DETAIL

Criteria for recontouring and earthworks for developments are as follows (a site plan is to be submitted):

(a) The maximum grade across earth worked and recontoured blocks and developed areas shall be generally 1 in 10 boundary to boundary. The minimum grade of lots shall be 1% graded toward the road boundary. The minimum lot fill level shall be 100mm above the road centreline or at least 100mm above the 1:100 year return flood path flow or level as detailed in the Stormwater Management Plan.

(b) Earthworks and final levels shall provide for flood route and site drainage. The maximum longitudinal grade of pedestrian access ways shall be 1 in 14. The maximum grade on a battle-axe shall be 1 in 5. No spillage of fill material or cut into adjoining properties or reserves is allowed except with the express written approval of the adjoining owners. Retaining walls are required to retain fill or cut earthworks and must be designed by a practising civil or structural engineer.

(c) Recontouring of land adjacent to roads shall match the boundary levels set by the City.

(d) The clearing of the area for earthworks shall be strictly controlled and planned to the City's requirements. Topsoil of not less than 80mm thickness shall be removed, stockpiled and respread on batters, embankments and other earth worked areas to encourage regrowth. Clearing must be restricted generally to those areas which require earth working and as approved by the City. Design and plans should address all possible retention of vegetation by accurate survey. Stabilisation of earthworked areas is required by topsoiling and/or mulching and/or seeding and fertilising with an approved mix. The City may require a native plant mix where revegetation is required.

(e) Drainage basins shall have maximum side slopes of one (1) vertical to five (5) horizontal where unfenced and one (1) vertical to two (2) horizontal where approved safety fencing is provided. Where fencing is constructed, maintenance of access to and around the basin is to be provided.

(f) Industrial areas shall be contoured and earth worked to provide suitable access and grades for waste water and sewerage disposal and systems, stormwater drainage pipes, stormwater surface run-off from lots, large structures and storage areas requiring level pads and to meet the grade requirements for large, over-length and over-width commercial vehicles applicable to the development.

(g) The maximum grade on industrial and commercial earthworked and recontoured blocks shall be 1 in 15. The lots shall grade to the road centreline at not less than 1% and the building envelope filled to not less than 200mm above the road centreline. The lot fill shall be designed to

address drainage by storage, soakage or detention and connection to The City's system.

(h) In areas not requiring overall recontouring or earthworks, the Director, Engineering and Works Services may approve a positive grading up to a maximum of 1 in 10 from the verge to the natural surface inside the property.

Soils used for filling shall meet the following criteria:

- No greater than 5% by weight of soil fractions passing the 75 micron sieve.
- All fill is to be clean sand with less than 1% clay content.

Finished floor levels are to be at least 1200mm above the maximum groundwater level or the controlled groundwater level.

These soils should be tested for compliance with permeability requirements and shall be subject to checking by the Community Services and Lifestyle Development Divisions of the City. No logs, sawdust, litter, wastes or other deleterious material may be in the fill. Filled areas shall be stabilised against wind and water erosion.

Cut to fill in plastic soils is not recommended.

No soils shall be removed from adjacent lands nor any materials from the worksite placed thereon without the express written permission of the owner. Particular care will be taken to avoid damage to adjacent fencing and survey marks as the filling contractor may be liable for damage thereto.

Natural flow lines, water courses and channels shall not be obstructed by earthworks unless arrangements are made to pass the stemmed waters through the subject area.

It is generally advisable in the Busselton and Dunsborough areas that no road pavement should be constructed below 1.7 metres AHD unless special subsoil and surface drainage arrangements are constructed.

All existing topsoil and including light vegetation, shall be removed to a 100mm depth and stockpiled for reuse as finish material. In accordance with the City's Green Waste Policy, burning of any material is not permitted. Cleared material should be used for productive timber or firewood, if the material is not suitable for this purpose, it shall be chipped or mulched.

Filling shall be carried out in not more than 300mm layers and compacted as required to at least 90% MDD in the initial layers and 95% in the last one (1) metre depth. An even compaction shall be produced over the fill so that differential settlement does not occur. As a guide seven (7) blows/300mm is necessary, using a standard nine (9) kilogram sand penetrometer.

Tree stumps and soft spots shall be excavated completely and the holes shall be filled with sands, grits or gravels and compacted to the surrounding density.

All refuse, logs, sawdust and other deleterious materials shall be removed from the building area and surrounds prior to commencement of filling.

Vibratory rolling is permitted during normal working hours provided such activity does not cause undue distress or damage to neighbouring developments. Where

damage is possible, building surveys shall be carried out by a professional assessor.

Where sand/topsoil erosion, whether by water or wind, may occur, the contractor may be required to bind the topsoil with a stabiliser, erect wind fencing, plant a cover crop, brush and seed and/or keep damp in an approved manner.

No steep batters or unprotected excavations shall be left on site so that the risk to the public is minimised. Work sites should be fenced where safety is an issue.

Access roads to the site shall have adequate warning signs/lights to be fenced off at night, where required.

All vehicles used to haul to the site shall conform to the Road Traffic Regulations and the chosen route to the site, once agreed, must be adhered to.

All pegs and survey marks to be protected and staked with star pickets or similar and adequate bench marks available to all parts of the subdivision.

A compaction certificate stating the site classification shall be issued by a geotechnical consultant or Consulting Engineer for fill areas on or near which buildings will be constructed. This information is to be made available to the Lifestyle Development Division of the City.

Where wind or water erosion occurs from the site, the cost of clearing of downstream siltation and damages arising there from may be chargeable to the developer/contractor.

Any permanent excavation with a slope steeper than the angle of repose or natural slope of the soil shall have retaining walls of masonry or reinforced concrete or other materials approved by the City of sufficient strength and stability to retain the embankment together with any surcharged loads.

Design of the retaining structure by a practising Civil or Structural Engineer will be required and shall be submitted to the City for approval prior to issue of the Building Licence.

3. STORMWATER DRAINAGE DESIGN

3.1 GENERAL

The City's urban and industrial areas are mostly flat, low lying with high ground water areas affected by a shallow ground water table often with underlying rock or clay. Storm water design is necessarily based on hydraulic grade line principles, and the system will often need to hold water for long periods before finally draining. This makes the need for on-site soakage and detention important where full on-site disposal or retention cannot be achieved and shall be designed in all cases.

Drainage of developments needs to be planned at an early stage. An overall strategy is strongly recommended and may be required by the City.

A standard condition of development will be for the City to receive a drainage plan and approve it prior to issue of a Building Licence. Bonds may be required to secure the performance of the required drainage.

While conditions outlined in the following section are applicable mainly to built-up environments, similar principles will apply to developments in rural areas.

Important objectives in the design of stormwater systems in the City relate to the quantity and quality of outflow of stormwater from developments. In general, the outflow should be no greater than the natural surface flow and of no less quality. Stormwater soakage, detention compensation and nutrient/silt stripping structures shall be constructed to address these objectives.

3.2 SPECIFIC REQUIREMENTS

Developers of land for urban or industrial purposes are required to provide a drainage system designed to collect and dispose or detain a one in five (5) year storm.

1 in 100 year storm flood flow shall be accommodated by the designed drainage system combined with surface flow lines to flow to street or water course disposal points. Depth of flood water shall not be designed to be greater than 150mm on paved areas within the property for any storm.

Co-efficient of run-off is to be taken as 100% from impervious (sealed or roofed) areas. Stormwater drainage from properties has been incorporated in the design of constructed street or reserve drainage systems in new developments. The City will require on-site retention equivalent of at least 15 minutes time of concentration on commercial and industrial and group dwelling areas as this is the approximate design minimum run-off times allowed for in road drainage design.

Soakwells must be constructed with a drainage filter geo-fabric wrap on the outside of the liner to prevent sand and silt entering the system. The base of soakwells are to be located 300mm above the Average Annual Maximum Groundwater Level (AAMGL).

Landscaped and lawn areas may be used as stormwater soakage areas at the rate of one (1) m2 of landscape absorbing one (1) m2 of impervious area, when run-off can be directed to the landscaped area.

Gravel, limestone or compacted earth areas may be taken as a contribution to the total run-off i.e. assume no run-off but also as no soakage or detention capacity.

The surface area of stormwater disposal or detention or compensating basins shall be measured at a top water level corresponding to the over flow discharge of the basin. The surface area requirement of the top water level may be nominally calculated at a minimum rate of 1 m^2 for each 40 m^2 of impervious area. The basin shall have sufficient volume below the top water level to contain 70% of the total flow from a 1 in 5 year storm. Basins may be situated in landscape areas. Overflow must be provided for. Compensating basins shall have a restricted outflow of 150mm ∅, 300mm above the basin invert.

Infiltration rates and losses shall be calculated and taken into account, after conducting tests on the capacity of the soil and taking into account the ground water table level for the design period.

The basin and any soakwells, detention wells and adjacent area, secondary basin, outlets and flood flow paths shall be able to manage the flow and over flow without flooding the building floor level. The floor level must be at least 150mm above the outflow of a 1 in 100 year storm.

If the floor of the basin is closer than 300mm to the maximum ground water level, additional detention areas may be required and calculations shall be submitted to the Director, Engineering and Works Services. Alternative stormwater disposal and subsoil drainage design will be considered when supported by calculations and tests.

When stormwater can only be detained, not disposed of on-site, overflow connection via a silt trap (which can be included in the volume of on-site storage for stormwater detention) is required to the City's street drainage system. The silt trap is to be located inside the property. Connection to the City's system shall be via not greater than a 150mm ∅ pipe unless approved by the Director, Engineering and Works Services. The connection must be carried out by the developer to the City's satisfaction. Connection to the City's underground drainage system must be only via a gully or existing manhole or to be constructed manhole. Open drainage or natural water course connections must also be via a silt trap but will require headwall and outlet erosion control and specific approval.

Connections may only be made with the specific approval of the City and will attract a connection fee covering administration, inspection and supervision, to be paid at issue of the Building Licence. The developer is to meet all contribution costs.

Silt traps shall consist of a liner or masonry or concrete pit that is deeper by not less than 450mm below the outlet invert level to the City drainage system and fitted with an approved tee or baffle that prevents direct flow and is a barrier to flow if waste and silt is not removed.

Discharge of stormwater to adjoining private property can only occur with the specific written approval of the owner and by an easement, if required by the owner.

Subsoil drainage will be required to protect property from high ground water levels. Ground water shall be controlled to levels not higher than:

- Top of lowest sub-grade for roads or access ways; and
- 1200mm from top of fill level on urban and industrial lots.

Subsoil drainage shall be designed to address soil percolation, direction of soil water flow, back flooding from stormwater systems, silting and clogging of the filter material and maintenance using high pressure water or cleaning rods. In some circumstances stormwater and subsoil drainage may be combined where it can be shown that surching of soil will not occur. Filter material may be crushed stone (20mm all in) and/or geo-fabric filter.

Reflux valves where required to prevent backflow from an outlet which is flooded shall be of an approved type. Varying water levels occur at outlets - such as tidal outlets may require such a system. Ease of operation, removal and maintenance are basic criteria to be addressed in selection of the type of valve.

Plans submitted shall show how the land can be drained and connected to the district drainage (comprehensive scheme).

A drainage plan is to be submitted showing all details including existing surface and proposed pipe invert levels, development site contours and levels, stormwater soakage and surface disposal areas, soak/detention pits, manholes, gullies, connection point/s, silt trap/s, subsoil drainage, basins and open drains - all with brief specifications.

The plan is to be approved and a bond may be required to ensure compliance, and is to be paid prior to the issue of a Building Licence.

Site drainage may be provided by the installation of a stormwater roof and paved surface pick-up system and directed to the kerb *via* paved surface flow for smaller Lots up to 2000 m^2 and/or to the underground street system by drainage pipe.

Paved Surface Flow - where site conditions are difficult to excavate and/or no drainage system is available; discharge *via* a paved surface (such as kerbed driveways or paths) to the street is allowable. This applies only to small developments.

For service areas involving fuels and oils, food handling, drainage is to be especially trapped or treated prior to entry into the stormwater system approved for the development. Fuels and oils are to be run through a triple interceptor trap prior to discharge.

Where discharge to a wetland or public open space/reserve occurs, specific approval may be required by the Department of Environment (DOE) or the Department of Environment and Conservation (DEC) or the City and/or Landgate. A nutrient stripping basin and/or a swaled/grassed disposal pond may be required to be constructed within the development.

A drainage contribution will be required for developments in the Busselton Central Business District (CBD), East Busselton and Dunsborough, to assist with construction of major drainage upgrades in these catchments. The fee schedule for these contributions is available from the City on request.

Where no defined water course (i.e. bed and banks) exists, a channel should be formed along the flow line and stabilised with 100mm topsoil and seeding and where necessary with rock pitching, etc. Erosion control is generally necessary when longitudinal grades exceed 2%.

The filled area shall be shaped so that all runoff water is contained on the subject lands. Owners are reminded that it is illegal to discharge more than natural surface stormwater run-off from land to adjoining land; unless an agreement and/or easement is in place and construction carried out to provide for the carriage of the stormwater.

4. PAVED AREAS, CARPARKING, ROADS & SERVICES

4.1 ACCESS ROADS

The criteria or warrant for road sealing internal (private) access roads, shall be where the ADT for the expected level of development for the subdivision or approved development is 50 or more vehicles per day.

Development of more than 5 chalets or equivalent in traffic generation in other forms of development, shall be deemed to require a sealed entry, driveway and road access. For roads, a 3 metre wide single coat seal or asphalt surface, is the minimum required.

For extractive industries, and where the access abuts a sealed road, the crossover is to be sealed and drained to a 6m width with tapers and the access road is to be sealed a further 20m into the property from the boundary line. This is to prevent the movement of sand and gravel onto the road.

4.2 ROADS AND CARPARKS

Proposed construction details are required to be shown on plan/s including brief specifications for materials and thickness of sub-base course, base course and paving materials.

Pavement thickness for sealing will depend on sub-grade properties but in general the minimum acceptable depths of gravel or crushed rock base, in the absence of sub-grade tests and pavement design will be:

	Sealed Surface	**Unsealed Paved Surface**	**Brick/block Surface**
Gravel Areas	150mm	100mm	0
Sand Areas	200mm	150mm	100mm
Clay Areas	250mm	200mm	100mm (plus 20mm bedding sand)

Note: Some local gravels are too clayey for sealing works and the addition of lime or sand is often beneficial to improve quality. Limestone may be used as a sub-base with a minimum base course thickness of 70mm. The total pavement thickness should then be increased by 50mm on the above minimums, except for brick/block pavements.

The above pavement thicknesses are those recommended for most soil conditions in the City provided subgrade is compacted to 95% MDD (or seven (7) blows/300mm) for sand subgrades. The City will accept no responsibility for the approval of any thickness to be designed for extraordinary soil condition or heavy vehicle pads and turning movements. Where concrete or brick paving is proposed, design thickness of the brick/block will accord with relevant specifications and construction procedures published in trade manuals. Where trucks, cranes and

forklifts are to be used or where heavy turning vehicles use an area constantly, extra care must be taken to produce a stable pavement.

Asphalt surfacing is to be 25mm minimum thickness of 7mm preferably with gravel aggregate dense graded hotmixed asphalt to AAPA Specifications. Where heavy truck movements and manoeuvres occur, 40mm of asphalt is the minimum recommended thickness. Where surface is first primed, 20mm thickness can apply. Bitumen sealed surfaces shall generally be two (2) coat and aggregate must be sized accordingly. The final surface aggregate may be laterite to give a more aesthetically pleasing outcome.

All sealed pavements in built-up areas are to be kerbed or edged - flush, mountable or barrier. Pavements shall extend beyond the back of the kerb by a minimum of 150mm at full depth.

Kerbs may be used in the development for drainage, vehicle control or landscape edges. Flush kerbing is encouraged to enable stormwater runoff to landscaped areas and for “water sensitive design”.

All parking bays and manoeuvring widths to be not less than the minimum dimensions set out in the City’s Town Planning Scheme and/or appropriate to the maximum size of vehicle to use the development. Road marking for bays is to be done with white road marking paint on a clear (swept), sealed or paved surface.

Speed humps, pedestrian ramps, traffic islands, bollards, painted directional arrows and bay markings are all devices that will enhance the safety of operation of the development.

Disabled access and parking must always be taken into account with parking bays marked and signed according to the Australian Standard.

Adequately designed group rubbish bin enclosures at entries to properties will alleviate the necessity to take large compactor trucks into private property.

Where the proposal will cause the City an immediate or future upgrading cost on the roads, paths, public access ways, drainage traffic management and street lighting in the area, the City will levy a per unit or per area charge on the basis of the City’s Contributions Policies.

A contribution toward road upgrading charges may be required to address underwidth or substandard roads. The assessment is based on the predicted increase in traffic caused by the development.
Slip lanes and passing lanes may be requested to provide for specific traffic speed and volume safety needs.

All roads shall be a minimum standard of two coat (prime and seal) bitumen and drained in urban and special rural, commercial, business, industrial and tourist areas. Asphalt or brick/block paving and kerbing is required in urban areas.

Where the road will provide access into a future stage of the development the road width will need to suit the ultimate development.

Sealed slip lanes may be required where more than 10 lots or equivalent standard residential units are accessed from an existing public road. Sealed passing lanes may be required where more than 20 lots or equivalent standard residential units

are accessed from the public road. Islands may be required at the road entry/exits to split traffic. A calculated residential unit equivalent will depend on the nature, occupancy and use of the development.

Road crests and curves shall be widened appropriately and possibly kerbed to allow for turning and passing traffic. Passing bays will be required at intervals of not greater than 100 metres in urban areas or not greater than 200 metres in rural areas.

For developments other than those with units that have direct road access a through route or an access provided which provides manoeuvring room and pavement for occasional heavy vehicles i.e. fire, rubbish and delivery trucks is required. Pavement dimensions shall be not less than four (4) metres wide and provide for turning of a vehicle with 12.0 metre radius swept past.

Where trucks cross constructed kerbs or paths, temporary crossovers should be installed or the slabs and kerbs must be removed and replaced to the approval of the City on completion of the work. Where bitumen paths are to be crossed, temporary timber crossovers shall be used. A verge bond and a crossover construction bond will be imposed on issue of the Building Licence. Crossover construction is a condition of development approval and issue of the Building Licence.

Any alterations to or location of driveway access onto main roads or highways must be referred to Main Roads WA (MRWA) for approval.

Crossovers are to be located to provide safe access from properties. At corners crossovers must be located (at the boundary line) not closer than 15 metres to the adjoining street kerb line for local roads, 20 metre for collector roads and 25 metres for distributor roads.

All crossovers are to be built as part of the development. Paved or sealed and drained crossovers and driveways are required to be constructed to an agreed site plan and in accordance with the City's Standard and Specification number 4 "Crossovers". General detail for a crossovers are as follows:

(a) Minimum width at property boundary (residential) is 2.7 metres;

(b) Turn in radius - 1.5 metres minimum, three (3) metres for heavy vehicles;

(d) To be placed at 90° to road centreline. The left hand side traffic approach may be angled where the road is narrow;

(e) Drainage may be required - culvert/s to the City size requirements;

(f) Where a footpath or cycleway exists, the crossover is to be graded to meet that level;

(g) Crossovers shall meet levels set by the City on the verge; and

(h) Crossovers shall not intrude onto adjoining frontages unless in the turn in area or as approved by the City Officers.

Brick, block or asphalt paving with central vee is acceptable as a drainage path provided 0.6% minimum gradient is used.

4.3 CYCLEWAYS AND PATHS

Pedestrian and cycle paths will be required to connect to the public path system enroute to community facilities and points of special interest, where required as a condition of development. Alternatively the City may accept a contribution for the work, where the works is external to the development.

4.4 SERVICES

Provision should be made to install all internal access way lighting and underground power to all Lots and any designated recreation open space areas.

Installation of sewer, water, gas (when available), power and phone with connections to each strata title site is required. Common trenching with conduits should be practised.

4.5 VERGE DEVELOPMENT

Trees planted by developers in road reserves must be approved by the City to ensure minimum damage by roots to structures and suitability to the site and climate. Attractive native species are preferred. Details shall be included in an overall landscape plan.

Removal of any vegetation from the road reserve is not permitted unless specific approval is obtained.

Where a development is approved to be constructed at a different level to the road reserve the developer will be responsible to recontour the verge. Consideration should be given to underground service levels, possible future footpath levels and verge drainage.

Landscaping of the verge is part of the development approval and must be designed and shown on the landscape plan for the development and carried out with approval from the Director, Engineering and Works Services. A plan must be submitted giving details of plant species and locations, reticulation and maintenance. Species lists are available upon request.

The City controls verge development under its relevant Local Law.

Where the developer constructs and landscapes development entries, islands or verges to a higher standard for marketing, promotion or estate profile purposes; an agreement is required with the City (for not less than five years) to address maintenance, final and adjustment level of landscaping prior to handover to the City.

5. DEVELOPMENT CONDITIONS

Following is a **Engineering and Works Services Development Conditions Checklist** to be used when assessing developments requiring planning approval and referred to the Engineering and Works Services Division. The conditions may be supplementary to those of the Lifestyle Development Division, and there may be other site specific conditions to be applied.

- Contributions where required shall be calculated and based on the required upgrading specified for roads, drainage or footpaths.

- Conditions may be referred to the Lifestyle Development Division as required or recommended.

- Bonds may be calculated as a lump sum to cover all requirements at a percentage of the cost of construction. This will be set by the Lifestyle Development Division.

ALL SITES MUST BE INSPECTED BEFORE BEING ASSESSED.

ROADS/ACCESS/CAR PARKS	
1	Street access, location and construction - crossover(s). Concrete, brick, block, asphalt, seal. (**Bond required)
2	Turning areas inside property - trucks and cars (access and parking design), and access to storage and loading areas.
3	Sealing, paving or hard stand paving of internal access ways and car parks.
4	(a) Road widening/improvement to road, e.g. reseal, re-kerb (frontage); (b) Road contribution.
5	Slip and/or bypass lane of distributor roads. MRWA referral for arterial roads.
6	Pedestrian refuge island (or contribution).
7	Lighting of internal roads and access. Street lighting extension.
8	Car park marking and provision of disabled bays to Australian Standard.
9	Vehicle access from property to road by forward gear.

DRAINAGE		
1	Drainage - Design and plan required prior to issue of building licence and **Bond required	(a) Flood route; (b) On-site disposal; or (c) Retention and connection (*contributions required); (d) Subsoil and connection (*contribution required) (e) Silt traps - always.
2	Drainage basin or sump - soakage, nutrient and silt retention.	
3	Outlet drainage - connection to the City system or provision of drain as to discharge point, required by the City. Street connection could be a kerbside, side entry, siphon pit - connection fee (see Schedule of Fees and Charges).	
4	No drainage to adjoining property affected by works - check.	
5	Vasse Diversion Drain - contribution for new developments, other than the first on a lot.	
6	Main drainage catchment - contribution (Dunsborough, Eagle Bay, Busselton CBD, East Busselton).	

LANDSCAPING/VEGETATION	
1	Landscape and reticulation plan, including verges (refer "Guidelines for Development Site Landscaping").
2	Vegetation identification, retention and protection plan.
3	Disposal of vegetative waste - method (chip/mulch).
4	Rehabilitation plan and implementation.
5	Maintenance agreement for landscaping and entry statements on public land.
6	Adjustment to landscaping prior to handover to the City.

TRUNCATIONS	
1	Street truncation - survey fees to be negotiated, land to be ceded at no cost.

EARTHWORKS	
1	100 year flood and storm fill levels river/estuary or ocean (Water Corporation or Department of Planning & Infrastructure).
2	Soil stabilisation - dust, erosion (during and after).
3	Fill levels - in relation to road centreline and adjoining property.
4	Finished floor level - in relation to stormwater, flooding, road and footpath.
5	Removal of unsuitable soil for building and certificate of classification subgrade and fill. Geotechnical report required.
6	Clearing and disposal of vegetation, tree stumps, etc., from lots. Approval required for clearing. Survey for possum - DEC approval and for declared rare flora.
7	Earthworks - cut or fill and grading to road boundaries or drainage outlets.
8	Retaining walls and subsoil drainage.

RIGHT-OF-WAYS	
1	Right-of-way - construction and drainage.
2	Right-of-way - reciprocal right of carriageway.

EXISTING STRUCTURES	
1	Demolition of existing structures not complying with standards and regulations.

FOOTPATHS	
1	Footpath, dual use path, verge paving and/or *contribution.
2	Verge reinstatement **bond.
3	Construct over frontage.

FENCING	
1	Fences - screen, noise, aesthetics, access control. Uniform fencing to POS to Planning requirements.

SEWER/SEPTIC	
1	Requirement for sewer (Water Corporation or Private) - dependent on ground water level, soil type, septics, levels, location.
2	Private mains - alignment in road reserve, refer plan to Water Corporation and the City. No City liability.

****BONDS**	
1	Crossover.
2	Landscape (Planning).
3	Car park and access (Planning).
4	Reinstatements (verge and road).
5	Drainage.
6	Demolition (Building).

***CONTRIBUTIONS**	
1	Vasse Diversion Drain.
2	Road upgrading.
3	Drainage connection fee.
4	Main drainage upgrade.
5	Footpath.
6	Dual use path.
7	Slip and bypass lanes.
8	Verge and public open space improvement.
NOTE: Contributions relate to a standard house as a single unit (3 or 4 bedroom).	

VACANT STRATA TITLE APPLICATION	
Emphasis on the City to ensure that prospective purchasers are advised on restrictions as to what can be constructed, and on the treatment and finishes to ensure uniformity in aesthetics and appearance. All lots are to be serviced.	
1	Drainage, flood route, storage and connections and detailed landscape plans. Landscaping of common areas and road verge area and other landscape areas for the lot containing the existing unit(s), if any, and for the externals of the strata lots.
2	Existing dwelling, if any, to be renovated/refurbished.
3	Car parking spaces, crossover and driveway are to be upgraded/constructed in accordance with the specifications of the Director, Engineering and Works Services for the existing dwelling unit (if any).
4	Privacy screen fencing is to be completed to the satisfaction of the Director, Lifestyle Development.
5	Water reticulation, sewer, drainage, electrical power, gas (if applicable) and telecommunications shall be provided. Provide written confirmation of the installation. Submission of a services plan.
6	Strata lots to be pegged out by a licensed surveyor.
7	A Site Classification Report being provided for the vacant strata lot. Geotechnical report may be required.
8	Payment to the City of contributions toward external road upgrading and provision of public access way (PAW) or footpath(s) and dual use path(s) (DUPs), main drainage, drainage connection, Vasse Diversion Drain.
9	Crossover to be upgraded to a sealed or paved standard. Landscaping to include verge area.
NOTE: The City maintains a policy of actively discouraging vacant lot strata subdivision of grouped dwelling development.	